# NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT
# FINAL ENVIRONMENTAL IMPACT REPORT/
# ENVIRONMENTAL IMPACT STATEMENT

## COMMENTS AND RESPONSES
## VOLUME 3

**March 2009**

*Prepared for:*

**Sonoma County Water Agency**
440 Aviation Boulevard
Santa Rosa, CA 95409

and

**US Department of the Interior**
**Bureau of Reclamation**
2800 Cottage Way
Sacramento, CA 95825

**State Clearinghouse No. 2006012130**

# SECTION 1. INTRODUCTION

## SECTION 1. INTRODUCTION

Section 15087 of the State CEQA Guidelines provides an opportunity for the public and agencies to review the Draft EIR and submit comments regarding the adequacy of the analysis of the potential environmental impacts of the proposed project. In accordance with the requirement of Section 15088 of the CEQA Guidelines, responses to these comments and any necessary revisions or clarification to the EIR analyses are subsequently prepared and included in a Final EIR.

Similarly, the National Environmental Policy Act (NEPA) requires that substantive public comments must be specifically identified in and attached to the FEIS, and a response provided by Reclamation (40 CFR 1503.3.4[b]).

The Draft EIR/EIS was released to the public on March 20, 2007 and the public comment period closed on May 18, 2007. A public hearing was held before the Sonoma County Water Agency's Board of Directors on May 15, 2007. The draft EIR/EIS received 53 separate communications, involving more than 760 individual comments, in the form of letters, emails, faxes, or telephone messages. The Commenter Table below is a list of the commenter and the corresponding comment set received. Section 2 contains the comment letters received in response to the draft EIR/EIS. Each comment in each letter is keyed by comment set and number on the letter. Responses to each of the numbered comments contained in a particular letter can be found in Section 4 within the response matrix. The response matrix includes a short summary of the comment from the letter and a corresponding response. A series of Master Responses have been developed to address multiple comments on the same or similar issues. The Master Responses are in Section 3.

Corrections, revisions, and changes have been made to the draft EIR/EIS as a result of changes in the project description and based on comments received during the noticed public review process. In addition, staff-initiated text changes have been incorporated into the Final EIR/EIS to correct spelling, grammatical, formatting, and other errors from the Draft EIR/EIS. Deletions are shown as strikethroughs and additions/revisions are shown as underscores.

| Comment Set | Commenter | Type |
|---|---|---|
| A | U.S. Environmental Protection Agency | Federal |
| B | U.S. Bureau of Land Management | Federal |
| C | California Governor's Office of Planning and Research | State |
| D | California Department of Conservation | State |
| E | California Department of Water Resources, Division of Dam Safety | State |
| F | California North Coast Regional Water Quality Control Board | State |
| G | California State Water Resources Control Board | State |
| H | Town of Windsor | Municipal |
| I | Town of Windsor | Municipal |
| J | Ad Hoc Committee -- Ann Maurice | Organization |

| Comment Set | Commenter | Type |
|---|---|---|
| K | Benjamin Marchand, email 1 | Public |
| L | Benjamin Marchand, email 2 | Public |
| M | Russian River Watershed Protection Committee -- Brenda Adelman | Organization |
| N | Christopher Evans | Public |
| O | Clancy Burns | Public |
| P | Da Klein | Public |
| Q | Alexander Valley Acres Mutual Water Company -- Daniel Rose | Business |
| R | Dave Rafanelli | Public |
| S | Friends of the Eel River -- David Keller | Organization |
| T | Soda Rock Neighborhood Association -- David Ring and D. Stuart Harrison. | Organization |
| U | Dennis Ororke | Public |
| V | Russian Riverkeeper -- Don McEnhill | Organization |
| W | Doreen Atkinson | Public |
| X | Dry Creek Valley Association | Organization |
| Y | Edson Howard | Public |
| Z | Edwin Wilson | Public |
| AA | North Coast Consumers Alliance -- Ellen Faulkner | Organization |
| AB | Fred Corson | Public |
| AC | Gene Koch | Public |
| AD | Karen Maley | Public |
| AE | Alexander Valley Association -- Katie Murphy | Organization |
| AF | Palomino Lakes Mutual Water Company -- Lee Tolbert | Business |
| AG | Perry, Johnson, Anderson, Miller & Moskowitz -- Leslie Perry | Business |
| AH | Nicholas M Johnson - attached to Comment Set AG | Business |
| AI | Paul Micallef | Public |
| AJ | Public Employees for Environmental Responsibility -- Howard Wilshire | Organization |
| AK | Raj Naidu -- email | Public |
| AL | Raj Naidu -- fax | Public |
| AM | R. Bruce Nall | Public |
| AN | Santa Rosa Chamber of Commerce - Karen Sommer | Organization |
| AO | The Bishop's Ranch -- Sean Swift | Business |
| AP | Sierra Club, Redwood Chapter, Sonoma Group - J. Selph | Organization |
| AQ | Sonoma County Water Coalition - Stephen Fuller-Rowell | Organization |
| AR | Surfrider Foundation, Sonoma Coast Chapter - Michael Frey | Organization |
| AS | Sebastopol Water Information Group - Jane Nelson | Organization |
| AT | Westside Association to Save Agriculture - Dennis Hill | Organization |
| AU | William Tevendale | Public |
| AV | Anertukirt | Public |
| AW | Cirruzhanxo | Public |

| Comment Set | Commenter | Type |
|---|---|---|
| AX | Blopolist | Public |
| AY | Musicdejt | Public |
| AZ | Sonoma County Permit and Resource Management Department | County |
| BA | Sonoma County Permit and Resource Management Department | County |

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# SECTION 2. COMMENTS RECEIVED TO DRAFT EIR/EIS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

Cross Media Division (CMD-2)
Federal Activities Office - 75 Hawthorne St., San Francisco, CA 94105

# FACSIMILE
## TRANSMITTAL

**TO:** David Cuneo

Organization: Sonoma County Water Agency

Subject: Region 9 EPA comments on DEIS North Sonoma County Agricultural Reuse Project

Ph #: 707-547-1935

Fax #: 707-544-6123 or 707-524-3782

**FROM:** Laura Fujii, Environmental Review Office, Region 9 US EPA

Ph #: 415-972-3852

Fax #: 415-947-8026

E-Mail Address: Fujii.laura@epa.gov

Date Sent: May 18, 2007

Number of pages including cover sheet: 9

**Comments:** The original signed letter is being sent to you in the mail.

Received By

MAY 1 3 2007

SONOMA COUNTY WATER AGENCY

Proj/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION IX**
**75 Hawthorne Street**
**San Francisco, CA 94105-3901**

May 18, 2007

Mr. David Cuneo
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

Subject: Draft Environmental Impact Statement for North Sonoma County Agricultural Reuse Project (NSCARP), Sonoma County, CA (CEQ# 20070123

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. Our detailed comments are enclosed.

EPA commends the reuse of highly treated wastewater in order to increase the operational flexibility of water supply systems to benefit in-stream flow requirements, reduce the use of over-drafted groundwater, and to benefit fisheries. While we support the water reuse concept of this project, there is a lack of project detail on which to determine specific impacts.

Based on our review, we have rated the Draft Environmental Impact Statement (DEIS) as Environmental Concerns – Insufficient Information (EC-2) (see enclosed "*Summary of Rating Definitions*") due to the need for additional detailed information regarding project components, alternatives, and potential air and water quality impacts. EPA specifically recommends that the FEIS: 1) identify the anticipated volumes of water dedicated to fisheries and in-stream beneficial uses and the mechanisms that will ensure in-stream beneficial use commitments are met, 2) provide specific information on the project phases, 3) document potential water quality and air quality impacts of future construction phases, 4) include a detailed evaluation of the practicability of utilizing the existing Gallo Asti Reservoir, and 5) describe expected water quality within the reservoirs.

A-1
A-2
A-3
A-4
A-5
A-6



MAY-18-2007 FRI 04:41 PM U.S.E.P.A. FAX NO. 4159478026 P. 02

We appreciate the opportunity to review this DEIS. When the FEIS is released for public review, please send one (1) hard copy to the address above (mail code: CED-2). If you have any questions, please contact me at (415) 972-3846 or Laura Fujii, the lead reviewer for this project. Laura can be reached at (415) 972-3852 or fujii.laura@epa.gov.

Sincerely,

Nova Blazej, Manager
Environmental Review Office

Enclosure:
Summary of EPA Rating Definitions
Detailed Comments

cc: Douglas Kleinsmith, Bureau of Reclamation



MAY-18-2007 FRI 04:41 PM U.S. E.P.A. FAX NO. 4159478026 P. 03

## U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

### Environmental Impact of the Action

**LO – Lack of Objections**

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

**EC – Environmental Concerns**

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

**EO – Environmental Objections**

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

**EU – Environmentally Unsatisfactory**

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

### Adequacy of the Impact Statement

**Category 1 – Adequate**

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

**Category 2 – Insufficient Information**

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

**Category 3 – Inadequate**

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

**EPA DETAILED DEIS COMMENTS NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT, SONONMA COUNTY, CA., MAY 18, 2007**

**Project Scope**

***Provide additional information regarding project components.*** The North Sonoma County Agricultural Reuse Project (NSCARP) would provide recycled water to agricultural users to be used in-lieu of potable water supplies for irrigation. As a result, there would be fewer agricultural diversions from the Russian River and its tributaries which would enable the Sonoma County Water Agency (SCWA) to release less water from storage in Lake Mendocino and Lake Sonoma to meet water demands and in-stream flow requirements. This would result in more water being conserved in storage which would provide more operational flexibility to benefit fisheries in the Russian River. The project is expected to be constructed in phases over a 10 to 20 year period.

While the DEIS provides a general description of the project, it does not present specific information on the potential amount and location of reduced agricultural diversions; potential amount of water dedicated to fisheries, in-stream, and wetland beneficial uses; potential increase in summer tributary flows; projected amount and location of recycled water use; prospective users; or the potential design and schedule of the construction phases. We believe this information would better define the benefits and anticipated environmental effects of the NSCARP.

***Recommendation:***

We recommend the final environmental impact statement (FEIS) include specific information regarding the following items:

- Potential amount and location of reduced agricultural diversions, — A-7
- Potential amount of water dedicated to fisheries, in-stream, and wetland beneficial uses, — A-8
- Minimum required stream flows in the Russian River and tributaries, who requires these flows, and the adequacy of these flows for fisheries and other in-stream beneficial uses, — A-9
- Probable amount of recycled water to be stored and used, — A-10
- Location and volume of potential increased summer tributary flows, — A-11
- Projected energy consumption required to convey and store recycled reuse water compared to the energy requirements of the existing irrigation system, — A-12
- Prospective agricultural users, and — A-13
- Potential design (e.g., proposed reservoirs, pipeline segments), schedule, and environmental documentation of future construction phases. We recommend a clear commitment in the FEIS to environmental analysis for the future project phases. The degree to which future environmental analysis will tier to the existing evaluation should be clearly described. — A-14



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***Ensuring project needs are met.*** Given anticipated urban growth, climate change, and the potential effect of climate change on water quantity[1], it is likely there will be increasing demands on SCWA supplies, the Russian River, and its tributaries. Although a primary purpose of the project is to allow water to remain in the Russian River system to improve habitat for listed fish species (ES-1), the DEIS does not discuss how the project would ensure the conserved water is used to improve listed fish habitat or the mechanisms to ensure adaptability with changing water supply and demand conditions.

A-15

***Recommendation:***
We recommend the FEIS describe the type and volume of demand for the water stored in Lake Mendocino and Lake Sonoma. The FEIS should also describe the mechanisms in place, or to be developed, to ensure the stored water and improved operational flexibilities benefit fisheries, fish habitat, and other in-stream beneficial uses. For example, describe whether specific language--reconfirmation of existing water rights and the use of operational flexibility for fishery benefits--will be included in the proposed Recycled Water Use Agreements.

**Project Alternatives**

***Provide additional information on the development of project alternatives.*** The DEIS states that potential irrigation demand associated with serviceable lands in three of the four subareas exceeds the proposed reservoir storage capacity and identified dry-season recycled water supplies. Therefore, scaled-back subarea alternatives were developed (p. 2-16).

***Recommendations:***
We recommend the FEIS include additional information on the process and criteria used in developing these scaled-back alternatives. For instance, describe the rationale for selecting the specific alternate subareas, proposed reservoirs, and pipeline routes.

A-16

Since potential irrigation demand exceeds water supplies, we recommend the FEIS evaluate the feasibility of increasing irrigation efficiencies and other conservation practices to maximize the acreage that can utilize available recycled water. The FEIS should identify the entities that could implement these irrigation efficiencies.

***Provide additional evaluation of the Gallo Asti Reservoir.*** The DEIS states that use of the existing Gallo Asti Reservoir for storing recycled water would require a major diversion of natural inflow to isolate the reservoir from its tributary drainage area pursuant to California Title 22 Code of Regulations for the use of tertiary-treated recycled water which requires a separation between natural surface flows and recycled water (p. 2-33).

[1] Our Changing Climate--Assessing the Risks to California. A Summary Report from the California Climate Change Center to Governor Schwarzenegger and the Legislature. July 2006. Available at: http://www.climatechange.ca.gov/climate_action_team/index.html.



OCT-16-2007 FRI 04:42 PM U.S.E.P.A. FAX NO. 4159478026 P. 06

***Recommendation:***
Given the need for a major diversion of natural inflow to utilize this reservoir, we recommend the FEIS provide a detailed evaluation of the benefits, costs, and feasibility and need for this project component. For instance, describe how critical this component is for the project and the context for its inclusion in the project design. A-17

***Identify how the 'beneficiary pays' principle may be applied.*** The NSCARP would be financed with a combination of funding sources, including local funds, grants, loans, and bonds (p. 2-66). The total estimated project cost for the preferred alternative, Alternative 2–Entire NSCARP, would be $385.3 million with a capitalized unit storage cost of $696 per acre-feet (pps. 2-19, 2-21).

***Recommendation:***
Given the cost and scale of the proposed project, we recommend the FEIS evaluate the applicability of the 'beneficiary pays' principle, whereby users that benefit from the project, shall be responsible for funding a reasonable proportion of the costs associated with implementation. A-18

**Water Quality**

***Water quality within the reservoirs.*** There is little description in the DEIS of the expected water quality within the proposed new reservoirs. For instance, the DEIS states that project construction would not create objectionable odors (p. 3.3-17) because there would not be any construction component with the potential to create this odor. However, the possibility of odors from stored water does not appear to be evaluated.

***Recommendation:***
We recommend the FEIS include additional description of the water quality within the proposed reservoirs. For instance, address the likelihood of algae blooms and subsequent odors in these reservoirs. A-19

**Air Quality**

***Provide an updated description of Air Quality Regulations.*** As stated in the DEIS, the NSCARP area is in attainment of the National Ambient Air Quality Standards (NAAQS) for all pollutants other than ozone (p. 3.3-8). The project area is also designated non-attainment for ozone and particulate matter 10 microns or less in diameter (PM10) under the California standards (p. 3.3-9). While the DEIS states the Bay Area Ozone Attainment Plan forecasts attainment of the 1-hour ozone NAAQS by 2006, it does not indicate whether this attainment date has been achieved. We note that the Clean Air Diesel Rules, which would significantly cut nitrogen oxides, an ozone precursor, may soon be in effect [Final Rule, Federal Register Volume 69, Number 124, June 29, 2004; http://www.epa.gov/cleandiesel].

***Recommendations:***
We recommend the FEIS update the description of the Air Quality Regulatory Setting to include information on the current status of the Bay Area Ozone A-20



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Attainment Plan to meet NAAQS, and the requirements for control of emissions from the diesel fleet.

To minimize air emissions, we recommend a commitment in the FEIS to reduce emissions to the greatest extent possible during construction. For example, EPA recommends the FEIS commit to use of the cleanest on-road vehicles available and the most recent pollution control equipment for all off-road equipment, use of electrical power for all stationary equipment, reduction of haulage miles, and scheduling to minimize the overlap of emission producing activities, where feasible. A-20 (Cont'd)

**General Comments**

***Describe possible research on subsurface storage of recycled water and conjunctive use.*** The DEIS states that subsurface storage would meet project objectives but is currently not feasible due to the need to identify, test, and permit possible underground storage sites (p. 2-14).

***Recommendation:***
EPA recommends the FEIS describe possible future research, research entities, and funding sources that may help determine whether subsurface storage of recycled water and conjunctive use is feasible in the project area for this and future projects. A-21

***Describe the relationship to the City of Santa Rosa water reuse system and other reuse projects.*** EPA received a copy of the May 3, 2007 Santa Rosa Sub-regional Water Reuse System Incremental Recycled Water Program Discharge Compliance Project Revisions to the August 2006 Notice of Preparation and Initial Study. Although the DEIS mentions the City of Santa Rosa Incremental Recycled Water Program (p. 1-4), the relationship between past recycled water projects and the North Sonoma County Agricultural Reuse Project is not clear.

***Recommendation:***
We recommend the FEIS clarify the relationship between the North Sonoma County Agricultural Reuse Project and other water reuse projects by the City of Santa Rosa, Sonoma County Water Agency, Town of Windsor, City of Healdsburg, City of Cloverdale, Geyserville, and Geysers steam field. For example, provide a list or chart of past and current projects, their environmental documents, and whether or not the projects are linked in any manner. A-22

***Correction of discrepancies between text and tables.*** The DEIS has slight discrepancies between the text and tables regarding the loss of riparian vegetation and potential impacts to wetlands.



MAY-18-2007 FRI 04:43 PM U.S.E.P.A. FAX NO. 4159478026 P. 08

***Recommendation:***

We recommend the FEIS correct the following discrepancies:

1. Table ES-1 should indicate there will be a loss of riparian vegetation as stated in Table 3.4-2.
2. Table 2-1.3 (page 2-70) should identify the Federal Wetlands Executive Order as Executive Order 11990, Protection of Wetlands.
3. Add scientific names to the special status species descriptions starting on page 3.4-4.
4. Ensure the acreage impact figures in Table 3.4-2 are consistent with the figures presented in the nearby text.

A-23



P. 09 FAX NO. 4159376026 JUN 10 2001 1:41 04:42 PM U.S.E.P.A.

**David Cuneo**

**From:** Jonna_Hildenbrand@blm.gov
**Sent:** Thursday, May 17, 2007 4:50 PM
**To:** David Cuneo
**Subject:** NSCARP EIR/EIS Comment

PLEASE CONFIRM RECEIPT OF THIS E-MAIL:

David Cuneo,
Thank you for the opportunity to comment on this proposed project.
We believe this could have a significant adverse impact to the Geysers Geothermal Steam Field in terms of production and life span. We did not find analysis of this potential impact in your draft. B-1
Based on the maps you provided, it does not appear that any BLM surface parcels are affected.
However, we are uncertain at this time how this proposed project might affect split estate (Federal mineral ownership beneath private surface ownership) if present? B-2

Jonna
Jonna Hildenbrand
Planning Coordinator
BLM Ukiah Field Office
2550 North State Street
Ukiah, CA 95482
707/468-4024

STATE OF CALIFORNIA

# GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

May 21, 2007

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SONOMA COUNTY WATER AGENCY

MAY 2 4 2007

Orig. Filed_____

David Cuneo
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95409

Subject: North Sonoma Agricultural Reuse Project (NSCARP)
SCH#: 2006012130

**PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates**

Dear David Cuneo:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on May 18, 2007, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

## Document Details Report
## State Clearinghouse Data Base

**SCH#** 2006012130
**Project Title** North Sonoma Agricultural Reuse Project (NSCARP)
**Lead Agency** Sonoma County Water Agency

**Type** EIR Draft EIR

**Description** NSCARP involves construction and operation of a recycled water project to store and distribute recycled water throughout northern Sonoma County. NSCARP involves: approx. 21,500 acres of presently developed agricultural lands within the Russian River, Alexander, and Dry Creek valleys; nineteen recycled water storage reservoirs totaling about 11,200 af in storage capacity; approx. 112 miles of transmission pipeline; eight booster and nine distribution pumping stations; approx. 7,234 af of recycled water that could presently be made available from the City, the Town, and the ALWSZ; and, a projected future available supply of recycled water of 21,134 af.

### Lead Agency Contact

**Name** David Cuneo
**Agency** Sonoma County Water Agency
**Phone** (707) 547-1935 **Fax**
**email**
**Address** 404 Aviation Boulevard
**City** Santa Rosa **State** CA **Zip** 95409

### Project Location

**County** Sonoma
**City**
**Region**
**Cross Streets** Several
**Parcel No.**
**Township** **Range** **Section** **Base**

### Proximity to:

**Highways** 101
**Airports** Santa Rosa
**Railways** California Northern
**Waterways** Russian River, Dry Creek, Mark West Creek
**Schools** Several
**Land Use** Rural Residential, City, Resources and Rural Development, Limited Industrial, Land Extensive Agriculture, Land Intensive Agriculture, Diverse Agriculture, PQP- Public

**Project Issues** Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Growth Inducing; Landuse; Cumulative Effects

**Reviewing Agencies** Resources Agency; Department of Conservation; Department of Fish and Game, Region 3; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Caltrans, Division of Aeronautics; Caltrans, District 4; Department of Health Services; State Water Resources Control Board, Clean Water Program; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Board, Region 1; Native American Heritage Commission; Public Utilities Commission; State Water Resources Control Board, Division of Loans and Grants

**Date Received** 03/20/2007 **Start of Review** 03/20/2007 **End of Review** 05/18/2007

Note: Blanks in data fields result from insufficient information provided by lead agency.

**Comment Set D**

STATE OF CALIFORNIA, RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

# DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEBSITE conservation.ca.gov

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PROJ/North Sonoma County Agricultural Reuse Project 70-0-7 #_
Padre Associates TW #04/05-5

May 4, 2007

Mr. David Cuneo
Senior Environmental Specialist
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

Subject: Draft Environmental Impact Report/Statement for the North Sonoma Agricultural Reuse Project (NSCARP), Sonoma County

Dear Mr. Cuneo:

The Department of Conservation's Division of Land Resource Protection (Division) monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act, California Farmland Conservancy Program, and other agricultural land conservation programs.

The Sonoma County Water Agency (SCWA) and the Bureau of Reclamation (Reclamation) propose to construct and operate a recycled water project that would store and distribute recycled water to agricultural users throughout northern Sonoma County to offset use of natural regional water supplies. Land uses in the project are predominantly agriculture and open space.

**Project Description**

Approximately 21,500 acres currently in agricultural use would be involved in the construction of pipeline, reservoirs, or receipt of recycled water. The objectives of the proposed project are to provide a reliable, long-term water supply for agricultural interests, to reduce discharges from local wastewater treatment plants to local natural waterways, to reduce the use of groundwater and surface water for agricultural purposes in north Sonoma County, to provide an environmentally responsible, long-term method of recycled water use, and to increase reliability and long-term sustainability of the regional water supply.

SCWA and Reclamation developed and evaluated four alternatives. Cost and engineering factors, water quality objectives, institutional considerations, and many environmental factors were major considerations. The DEIR/S contains rationale regarding the preference for Alternative 2 as the environmentally superior alternative. There are many similarities between the environmental impacts associated with

Alternatives 2 through 4. Alternatives 3 and 4 would have less construction impacts than Alternative 2 because of the reduced project area and the fewer number of proposed facilities. However, Alternative 2 is preferred because it provides the greatest potential for meeting the project's purposes and objectives to improve habitat for listed fish species, specifically in the Russian River.

Alternative 2 represents a recycled water supply project for the entire NSCARP area. The other alternatives are either limited by location or would result in the recycled water providers having to identify individual projects where recycled water could be used for agricultural purposes. In the preferred alternative, the presently developed agricultural lands (vineyards, dairies, and orchards) within the Russian River, Alexander and Dry Creek Valleys would be served by recycled water. The water supply for NSCARP would be tertiary-treated wastewater generated by the City of Santa Rosa, Town of Windsor, and Airport/Larkfield/Wikiup Sanitation Zone facilities, and conveyed to the project primarily through the City's Geysers Pipeline. It would involve the design and construction of 19 recycled water storage reservoirs totaling about 11,200 acre-feet in storage capacity. In addition, NSCARP would involve the design and construction of approximately 112 miles of transmission pipeline, and numerous booster and distribution pump stations for conveying water from the Geysers Pipeline to the storage reservoirs, and for distribution of the storage recycled water from the reservoirs to the agricultural lands. The proposed Preferred Alternative Project would consist of the following components:

- Design, construction, operation, and maintenance of distribution pipelines and lateral lines to connect the existing Geysers Pipeline to off-stream water storage facilities and potential agricultural lands;
- Design, construction, operation, and maintenance of ancillary structures including pump stations, booster pump stations, protective fencing, gates, landscaping and other support structures and appurtenances;
- Design, construction, operation, and maintenance and use of several off-stream water storage facilities to provide an estimated 11,000 acre-feet (AF) of storage capacity;
- Provision of recycled water by various regional wastewater operators; and,
- The use of recycled water on agricultural lands in the Russian River, Dry Creek, and Alexander Valleys.

We offer the following comments:

**Maps**

The maps in Section 3.2 are not accessible or visible on the website, and some of the tables were not visible. D-1

**Acreages Affected by Reservoir Construction**

The document contains some information regarding the capacity of the proposed 19 reservoirs (11,200 acre-feet). How many acres of Williamson Act contracted land would be permanently converted to water storage, pump station and other infrastructure? Table 3.2-5 shows lands within the project area that are under Williamson Act Contracts and would require modifications to existing lands (i.e., development or expansion of reservoirs, placement of underground pipeline, or pump station development). The potential conflict with the applicable Williamson Act Contracts resulting from pump station and reservoir construction is considered a significant impact. The Table lists the Assessor's Parcels within the project area that are under Williamson Act Contract, and the associated acreages of each parcel, however it does not identify the specific acreages that would be converted to non-agricultural uses by the proposed project. D-2

**Acquisition of Williamson Act Contracted Lands**

Any acquisition of Williamson Act contracted land by a public agency must meet the requirements set forth in Government Code sections 51290 to 51295. Specific findings would need to be reported to the Department of Conservation in the required notice to the Director (The notice(s) should be mailed to Bridgett Luther, Director, Department of Conservation, c/o Division of Land Resource Protection, 801 K Street MS 18-01, Sacramento, CA 95814-3528.). The requirements for findings may be waived under Government Code section 15993 (h). Termination of a Williamson Act/Farmland Security Zone contract by acquisition can only be accomplished by a public agency, having the power of eminent domain, for a public improvement. The Department must be notified in advance of any proposed public acquisition (Government Code §51290 - 51292), and specific findings must be made. The property must be acquired in accordance with eminent domain law by eminent domain or in lieu of eminent domain in order to void the contract (§51295). The public agency must consider the Department's comments prior to taking action on the acquisition. We recommend discussion in any response to comments of how the acquisition will meet the required findings. Notification must be submitted separately from the CEQA process and CEQA documentation to the address noted above. D-3

**Mitigation Measures**

The document indicates that SCWA shall site project components to avoid Important Farmlands and lands subject to Williamson Act Contracts, to the extent feasible, and further states that landowners would be compensated for the fair market value of lands acquired. We understand that this mitigation measure applies to Alternative 1, the 'No Project" alternative; however we would like to point out that financial compensation to the landowner does not mitigate for the loss of the agricultural resource. Regardless of the project alternative ultimately selected, we suggest that the proponents consider either supporting the California Farmland Conservancy Program (CFCP), or establish agricultural easements equal to or greater than the acreage purchased from the landowners for conversion to project facilities. Information regarding the CFCP is available on the web at http://www.conservation.ca.gov/dlrp. D-4

**Land Use Policies**

Section 3.9 discusses various land use policy considerations. Table 3.9-3 Objective AR 8.2 proposes participation with wastewater generators to establish programs for agricultural reuse of treated wastewater in a manner that would be economically beneficial to agriculture. It would be helpful if the document provided an explanation regarding the specific economic benefits. D-5

**Other Concerns**

Are there farmers/growers who have expressed interest in purchasing recycled water within the project area – is there a market for the treated water? D-6 Is there a contingency plan in place in the event that quality of the recycled water does not meet state standards or an unforeseen event that degrades or renders the recycled water unusable by growers? D-7 Is there a monitoring protocol in place? D-8

Thank you for the opportunity to provide comment on the DEIR/S. Please contact Jeannie Blakeslee at (916) 323-4943 if you have any question regarding these comments.

Sincerely,

Brian Leahy
Assistant Director

**Comment Set E**

STATE OF CALIFORNIA -- THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF WATER RESOURCES**
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
MAY 24 2007
Orig. Filed

MAY 22 2007

1. Ms. Nadell Gayou
Resources Agency Project Coordinator
Environmental Review Section, DPLA
901 P Street
Sacramento, California 95814

**PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates**

2. Mr. David Cuneo, Senior Environmental Specialist
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, California 95409

SCH #2006012130, Notice of Completion & Environmental Document Transmittal of Draft North Sonoma Country Agricultural Reuse Project Environmental Report/Environmental Impact Statement, March 2007, Sonoma County

The Division of Safety of Dams has reviewed the Draft Environmental Impact Report/Environmental Impact Statement for North Sonoma County Agricultural Reuse Project.

Based on the information provided, we find that the proposed project consists of 14 new reservoirs and 5 existing reservoirs. The new reservoirs, with a storage capacity ranging from 100 to 1,848 acre-feet, and a dam height ranging from 31 to 155 feet, will fall under State jurisdiction for safety. Section 6002 of the California Water Code defines that dams 25 feet or higher with a storage capacity of 50 acre-feet or more are under State jurisdiction. Two of the existing reservoirs, Lytton Reservoir, No. 2424, and Asti Reservoir (Gallo-Asti), No. 1428, are currently under State jurisdiction. Lytton Reservoir will be altered to raise its dam height from 34 to 60 feet to increase reservoir storage capacity from 410 to 1,763 acre-feet. The capacity of Asti Reservoir is about 385 acre-feet; an enlargement of the reservoir was not proposed. The other three existing reservoirs, Robert Young, T-Bar-T, and Gallo Twin Valley Reservoirs, are not under State jurisdiction.

An application, together with plans and specifications, for the construction of each of the new or enlarged reservoirs, must be filed with the Division of Safety of Dams. All dam safety related issues must be resolved prior to the approval of the application and the work must be performed under the supervision of a civil engineer registered in California. John Vrymoed, Design Engineering Branch Chief, is responsible for application approval process and can be reached at (916) 227-4660. E-1

If you have any questions, you may contact Office Engineer Chuck Wong at (916) 227-4601 or Regional Engineer Michael Waggoner (916) 227-4604.

David A. Gutierrez, Chief
Division of Safety of Dams
(916) 227-9800

# California Regional Water Quality Control Board
## North Coast Region
**John W. Corbett, Chairman**

Linda S. Adams
*Secretary for Environmental Protection*

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Arnold Schwarzenegger
*Governor*


May 17, 2007

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SONOMA COUNTY WATER AGENCY
MAY 18 2007
Orig. Filed_ PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

Mr. David Cuneo
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95409

Dear Mr. Cuneo:

Subject: Comments on the Draft Environmental Impact Report for the North Sonoma Agricultural Reuse Project, March 2007 (SCH No. 2006012130)

File: Sonoma County Water Agency General

Thank you for the opportunity to comment on the *Draft Environmental Impact Report for the North Sonoma Agricultural Reuse Project* (Draft EIR). The project proposes to store and distribute recycled wastewater to areas within the jurisdiction of the North Coast Regional Water Quality Control Board (Regional Water Board). The Regional Water Board is the state agency responsible for the protection of ground and surface water quality for the north coast portion of California. The Regional Water Board fulfills this responsibility, in part, by reviewing proposed projects that may impact the quality of ground or surface waters. If appropriate, the Regional Water Board issues permits on projects that set conditions necessary for the protection of water quality. As a permitting agency, the Regional Water Board is defined as a responsible agency pursuant to the California Environmental Quality Act. Specifically, the Regional Water Board will consider issuance of the following permits for various aspects of the project:

1. Water Quality Certification and/or waste discharges requirements for discharges or threatened discharges associated with dredge or fill within waters of the state.

2. Construction storm water permits for construction projects that result in land disturbance of one acre or more.

3. Waste discharge requirements for the land application of recycled wastewater.

4. Waste discharge requirements/National Pollutant Discharge Elimination System (NPDES) permits for discharges of recycled wastewater to waters of the state.

The intent of the proposed project is to make recycled wastewater available for irrigation throughout northern Sonoma County. The Regional Water Board supports the use of recycled wastewater as long as it is used in a manner that is protective of water quality and public health. Unfortunately, the Draft EIR does not fully describe potential impacts and in those areas where potential water quality impacts are discussed, lacks the appropriate mitigation in order to reduce or eliminate those impacts. Our specific comments are as follows:

1. Summary of impacts (BIO-5) – This impact discussion states that the project will result in the loss or degradation of wetlands and other waters. Table 3.4-1 is a summary of potential habitat loss associated with project alternatives. It appears that Table 3.4-1 may underestimate the area of state waters that would be lost as a result of the proposed project. It is our understanding that the project will result in the creation and/or expansion of numerous instream reservoirs. All of these waterways would be impacted by construction activities or from the proposed direct discharges of recycled wastewater. The Draft EIR should disclose all state waters subject to these impacts. In mitigating for the potential loss of state waters, the Regional Water Board would recommend in-kind mitigation in areas close to where the impact would occur. The mitigation should be designed to replace all existing and potential beneficial uses of state waters lost due to project discharges. F-1

2. Summary of impacts (BIO-10) – This section discusses potential impacts to water courses due to decreases or alterations in stream flow (potentially due to new dams). Table ES-1 concludes that the potential impacts are "less than significant". Without a clear description regarding how in-stream reservoirs will be operated, we do not agree with this conclusion. The modification to stream flow and sediment transport can result in downstream bank erosion and other stream impacts. We would suggest that this impact be changed to "significant but mitigable". The preferred mitigation would consist of locating reservoirs on upland areas (off-stream). Where infeasible, the mitigation should consist of the diversion of all natural streamflows around instream reservoirs. These diversions should be constructed in a manner that mimics a natural stream system, including natural sinuosity, low flow channels, floodplains and riparian areas. F-2

3. Summary of impacts (HWQ-3) – This section describes potential impacts due to new impervious surfaces (roadways, maintenance areas, etc) and concludes that the impacts to surface waters from post-development runoff is less than significant. We do not agree with this conclusion. Runoff from impervious surfaces contributes pollutants to waterways and alters natural runoff flow patterns. The cumulative impacts from these new or modified discharges can result in stream erosion and water quality degradation. We suggest that this potential impact be changed to "significant but mitigable". Mitigation should include post-development storm water treatment to remove pollutants, as well as construction of features to detain and attenuate runoff (e.g., detention, retention F-3

or infiltration ponds, grassy swales, etc.). The goal of these mitigation measures is to mimic pre-construction (natural) conditions regarding the quality, quantity, and manner (infiltration and sheet flow) of storm water leaving the site. These mitigation measures should be used for all new or reconstructed roadways, structures and parking areas. F-3 (Cont'd)

4. Summary of impacts (HWQ-4) – This section identifies potential impacts of the project on ground water quality. This impact appears to include potential impacts due to recycled wastewater irrigation as well as storage. The potential impacts from irrigation are discussed in detail in the public health and safety section. While we agree that irrigation using highly treated wastewater can be accomplished in a manner that is protective of public health and water quality, we do not feel the discussion adequately discloses potential impacts due to this irrigation. The recycled water in question contains heavy metals, organics, bacteria and salts that have the potential to degrade surface and ground water quality. The levels of many of these pollutants may be below the public health criteria established by the Department of Health Services (Title 22), however concentrations of some pollutants, such as nitrates, may exceed these standards. We are also concerned about the potential for concentrating pollutants in ground water at levels above applicable public health criteria due to over-irrigation and natural evaporation and transpiration processes. Our concern is that irrigation water may initially have concentrations of pollutants at or below applicable public health criteria, but these pollutants could concentrate to levels that exceed applicable public health criteria and result in contamination of ground water. User agreements should be developed to ensure that recycled water users apply irrigation water in a manner that is fully protective of ground water. In some cases, ground water monitoring may be appropriate to identify potential impacts to ground water quality. In addition, the Regional Water Board may set pollutant limits for emerging pollutants that do not have existing limits in Title 22. F-4

The Draft EIR identifies the potential for ground water impacts from recycled wastewater storage facilities. The Draft EIR states that storage reservoirs would be compacted and lined using a clay liner, if required, to minimize infiltration of recycled water into ground water. As further mitigation, the Draft EIR also indicates that the Sonoma County Water Agency will implement a ground water monitoring program to identify ground water impacts of downward seepage of recycled water. We agree that liners are appropriate for these storage facilities. However, the Draft EIR does not specify the thickness of the liner nor the construction methods to be used to ensure proper installation. The Regional Water Board will require the submittal of detailed specifications prior to reservoir construction. The project proponent will be expected to provide evidence that the proposed liner will be fully protective of ground water. The project proponent will also need to show compliance with the antidegradation water quality objective or make the appropriate findings in order to allow degradation. As an alternative, the Regional Water Board will require that these impoundments comply with the prescriptive liner standards identified in Title 27, Division 4, Article 4. F-5

In addition to the specific comments above, we have identified two other areas of significant concern. The document does not discuss probable surface water discharges of recycled wastewater other than dam seepage (HWQ-8). Specifically, the discharge of recycled water to instream reservoirs (waters of the state) and the discharge of incidental runoff flows due to over-irrigation or equipment failure are not discussed in significant detail. F-6

The Draft EIR proposes to use waters of the state for storage of recycled water. Due to seasonal prohibitions contained in the *Water Quality Control Plan for the North Coast Region* (Basin Plan), discharges to waters of the state may be limited. It appears that the most viable option may be to locate storage reservoirs in upland areas in order to avoid impacts to waters of the state. Where this is not feasible, the wastewater producers could consider obtaining permits in order to have in-stream storage facilities converted to "wastewater facilities" as opposed to waters of the state. In this way, beneficial uses of these waters would not need to be maintained, and the Basin Plan discharge prohibitions would not apply. However, this would be a difficult and challenging process because the Regional Water Board would require that these waters be fully replaced through proper (in-kind) mitigation. In the case of an existing on-stream reservoir, in-kind mitigation would require re-creation of the stream as well as the pond in order to replace the function and habitat value that would be lost by converting these to wastewater storage facilities. F-7

Discharges of "incidental runoff" associated with irrigation can result in significant impacts to water quality. However, the Regional Water Board recognizes that isolated, accidental instances of incidental runoff will occur. Therefore, implementation of proper preventative measures will be required to ensure that incidental runoff occurrences are minimized. Specifically, we encourage the development of specific user agreements that will set specific criteria for recycled irrigation projects. The City of Santa Rosa is currently finalizing such a user agreement. In addition, the entity permitted to oversee irrigation should develop a management program to ensure minimal runoff. Such a program should include outreach/education for users, inspections by the permittee, monitoring, and enforcement of noncompliance. F-8

If you have any questions or comments regarding this letter, please contact me at 576-2065.

Sincerely,

John L. Short
Senior WRC Engineer

051707_JLS_SCWA Reuse EIR.doc

cc: State Clearing House, 1400 Tenth Street, Sacramento, CA 95814

# State Water Resources Control Board

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Linda S. Adams
*Secretary for Environmental Protection*

Arnold Schwarzenegger
*Governor*

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5/18/07
e

Mr. David Cuneo
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95409

Dear Mr. Cuneo:

DRAFT ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL IMPACT STATEMENT (EIR/EIS), COUNTY OF SONOMA, SONOMA COUNTY WATER AGENCY (AGENCY), NORTH SONOMA AGRICULTURAL REUSE PROJECT (PROJECT); STATE CLEARINGHOUSE NO. 2006012130

Thank you for the opportunity to review the above document. State Water Resources Control Board (State Water Board) staff have reviewed the Draft EIR/EIS and have several specific comments. As a state agency with jurisdiction by law to preserve, enhance and restore the quality of California's water resources, the State Water Board is providing the following comments on the environmental document prepared for the Project.

We understand that the Agency is not currently pursuing a State Revolving Fund (SRF) loan for this Project. The Agency may want to consider this loan program to provide funding for future construction. The SRF program offers a low interest loan for building or improving wastewater treatment plants, sewers, water reclamation facilities, and storm water drainage. The State Water Board, Division of Financial Assistance is currently responsible for administering SRF loans. Please note that there are additional federal environmental requirements which must be complied with if an SRF loan is pursued. Refer to the State Water Board's SRF website http://www.waterboards.ca.gov/funding/srf.html for additional information. G-1

Following are my specific comments on the Draft EIR/EIS:

1) Page 3.8-32 states "development of the booster and distribution pump stations would involve paving and construction of building structures resulting in increases in impervious surface of approximately 25,000 square feet" and "the new impervious surfaces would not be as extensive as to cause significant changes in the downstream hydrology or flow rates." It is not clear in the Draft EIR/EIS how the Agency made the determination that the new impervious surfaces would not cause significant changes in the downstream hydrology or flow rates. Please provide the rationale for the Agency's determination. G-2

2) Mitigation Measure HWQ-6 on page 3.8-36, states "during operation, the SCWA shall visually inspect the reservoirs on a regular basis to ensure that the G-3

embankments, control structures, access roads, and monitoring instrumentation are maintained." Define "a regular basis," explaining how often the visual inspections will occur. G-3 (Cont'd)

Thank you once again for the opportunity to review the Agency's Draft EIR/EIS. If you have any questions, please contact me at (916) 341-6983 or MLJONES@waterboards.ca.gov.

Sincerely,

Michelle L Jones
Regional Programs Unit

cc: State Clearinghouse
(Re: SCH# 2006012130)
P. O. Box 3044
Sacramento, CA 95812-3044

bcc: Lauma Jurkevics, DFA
Michelle Jones, DFA

**S:\Databases Web & IT\Regional Programs Unit\SCH Comment Letters\North Sonoma Agricultural Reuse Project ltr.doc**

## David Cuneo

**From:** WWW User [www@sonic.net]
**Sent:** Wednesday, May 16, 2007 6:39 PM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Richard Burtt

Phone Number: (707)838-5343

E-mail Address: rburtt@townofwindsor.com

Comment:
We appreciate your staff meeting with representatives with the Town of Windsor. We are supportive of the reuse of recycled water for agriculture, as the Town of Windsor is actively engaged in that practice. We have several comments on issues to be addressed in the Final EIR/EIS to make the document a stronger document regionally and cumulatively, which we will make under separate cover letter; foremost among them that SCWA address related recycled water projects and project documents in the vicinity of its proposed project, such as the Town\'s Master Plan and Master Plan EIR from 2001. Details will be included in our cover letter. Thank you, Richard Burtt

H-1

TOWN OF
WINDSOR

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Windsor, CA 95492-0100
Phone: (707) 838-1000
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www.townofwindsor.com

**Mayor**
Warin J. Parker

**Mayor Pro Tempore**
Debora Fudge

**Council Members**
Steve Allen
Robin Goble
Sam Salmon

**Town Manager**
J. Matthew Mullan

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SONOMA COUNTY WATER AGENCY
MAY 23 2007
Orig. Filed_____
PROJ/NORTH SONOMA COUNTY AGRICULTURAL
REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

May 17, 2007

David Cuneo
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 94506-1628

Attn: Mr. David Cuneo
Environmental Specialist and Project Manager

Subject: North Sonoma County Agricultural Water Reuse Project (NSCARP)
Comments on Draft EIR/EIS

Dear Mr. Cuneo:

The Town of Windsor is supportive of recycled water use for agriculture, as demonstrated by our own Recycled Water System, which provides for irrigation of 700 million gallons (MG) annually of highly treated recycled water. We provide recycled water for urban reuse, offsetting potable water use inside the Town and agricultural use on lands adjacent to the Town. Our ability to serve additional uses is only limited by a lack of additional recycled water storage capacity. I-1

We are supportive of the goals and related benefits of the NSCARP, which we understand to be the following:

- Improve conditions for fisheries within the watershed;
- Improve environmental conditions within the Russian River watershed by reducing discharges which might impact local waterways;
- Provide a reliable, long-term water supply for agricultural interests; I-2
- Provide environmentally responsible, long-term recycled water use;
- Reduce agricultural demands on regional water supplies; and
- Increase the long-term sustainability of the regional water supply.

Town representatives have met with your staff and found them to provide helpful information about the project and its potential relationships to other projects throughout Central Sonoma County. The following are our comments for response within this CEQA process:

1) In SCWA's analysis of project impacts, it is important that the regional context of recycled water systems and planned projects be considered and analyzed. We could not find reference in the Draft EIR/EIS to the *Town of Windsor's Water Reclamation Master Plan for Treatment, Storage and Disposal, dated March 8, 2001* and its companion document, the *Final Environmental Impact Report (EIR) on the Town's Water Reclamation Master Plan, dated February 7, 2001*. I-3

Printed on recycled paper

These documents identify the Town's existing recycled water system, and lay out the planned recycled water facilities (including treatment, storage and irrigation facilities) contemplated by the Town. It is essential that these documents be referenced in your EIR/EIS. I-3 (Cont'd)

2) As you are aware, SCWA, on behalf of the Airport WWTP and Recycled Water System, and the Town of Windsor have been investigating the Joint Use of Recycled Water facilities on a more permanent basis. Due to the proximity of our facilities, during times when either party has excess recycled water to manage, water from the Town can be stored by SCWA at appropriate times, and likewise, water from the Airport System can be irrigated by the Town. This eventual project should also be addressed in the NSCARP EIR/EIS. I-4

3) As part of the implementation of our master plan, the Town is investigating the feasibility of siting recycled water storage at Pond S or T, on a Town-owned parcel, as designated in the Master Plan. Now called the Eastside Road Storage Project, this project has been discussed publicly, and will be coming before the Town Council this summer for consideration of entering a formal CEQA process. Because of the location of this property in your Study Area (the Russian River Valley Subarea). The property is just west of Node 37 on Figure 2-6 in the EIR/EIS document. This project should be mentioned in your EIR/EIS, and a possible storage site on the Eastside Road Storage Project property should be mentioned in your document. As indicated by your staff, a storage site in this location (just west of Node 37) would be opportune for providing recycled water, if available, to the Russian River Valley Subarea. I-5

4) As mentioned on Page 2-68, the EIR/EIS identifies possible uses of your document by local governmental entities such as the Town of Windsor. We find this section to be consistent with our understanding of the possible uses by Windsor as a "Possible Participating Agency" in this project. I-6

Finally, we would like to be clear that we support recycled water use for agriculture, and anticipate future discussions with your staff about the project and possible opportunities to collaborate on future recycled water plans. I-7

Sincerely,

Richard W. Burtt,
Public Works Director/Town Engineer

cc: Mayor and Council members
Town Manager

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Received By
MAY 1 0 2007
SONOMA COUNTY WATER AGENCY

Ad Hoc Committee
P.O.Box 484
Occidental, CA 95465
707 874-3855ph/FAX

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MAY 1 8 2007
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PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #_

Mr. David Cuneo
SCWA
Box 11628
Santa Rosa, CA 95403

524

by FAX: 707 542-3782; 916 857-1602
NSCARP Draft EIR/EIS



5/16/07

Dear Sir:

**Opposition to agricultural irrigation with treated wastewater:**
We are opposed to the irrigation of food crops with recycled wastewater. There are far too many risks due to unforeseen consequences. Investing in an elaborate and costly project for agricultural irrigation is fraught with danger. It is well known that treatment plants, *even tertiary* treatment plants, are *not* capable of removing or "digesting" many contaminants. Irrigation puts particles on the soil, but only temporarily. Are they picked up by crops or washed out eventually to creeks, rivers and ultimately the sea and sea creatures, some of which we consume? Many inland waters and ocean fish are already off the table because of mercury content. Do we want to add to the list of contaminants in our land and aquatic food supply via this unwise wastewater application? J-1

**Pharmaceuticals in treated wastewater:**
Pharmaceuticals are highly stable compounds. They must be or they would be broken down by our own digestive tracts and never make it into our blood stream as intended. Much is excreted in our urine, and, because of their stability, drugs are *not* broken down in the "digesters" of the treatment plants. Would these pharmaceuticals (from Lipitor to Prozac) be taken up by row crops? By wine grapes? Left in the soil? What about their metabolites? Would they be picked up by ground water and flushed into rivers and eventually out to the ocean to be picked up by aquatic life? The authorities have already found pharmaceuticals in our rivers! How did they get there? So, we are just setting ourselves up for a disaster by dispersing chemical laden water for irrigation. Only small amounts? Our bodies operate on parts per *trillion*! So parts per *billion* are already an overload and a problem! J-2

**Bacterial contamination:**
Aside from pharmaceuticals, there is the risk of e-coli bacterial spread and contamination. *All the reasons for limiting tertiary treated wastewater discharge into our rivers should apply to discharge onto the soil.* There are, according to your report, 234 wastewater treatment plants providing treated wastewater for row crops, vineyard, pasture, and stock feed in California. This is troubling. It has certainly occurred to us that wastewater irrigation or use for stock feed may have been the source of the recent contamination of spinach causing its massive recall! Is it widely known throughout the country that treated wastewater is used in California on *food* crops? Would our wine be be as highly regarded if it was widely advertised as watered with *wastewater from our treatment plants?* J-3

It was reported that *"wild"* animals were the suspected source of fecal contamination of the tainted spinach. What about runoff from adjacent pastures laden with feces from cows watered J-4

with recycled wastewater? Has anyone tested for pathogens, the feces of cows fed treated wastewater? Has anyone tested what has been happening to the intestinal bacteria that survive the wastewater treatment process? How long do human intestinal bacteria and the new lethal e-coli live in the soil? In cow intestines? Are they taken up by the roots of food crops? Do they live in plant fluids? Are they dormant if dehydrated? Have they mutated with soil bacteria? J-4 (Cont'd)

**Normally harmless soil bacteria are now pathogenic and antibiotic resistant:**
Speaking of soil bacteria, it is known in the microbiological community that previously harmless soil bacteria are becoming pathogenic (disease-causing) and antibiotic resistant. Not long ago, the neo-natal clinic at a major Massachusetts hospital was closed because newborns were severely, and deathly ill because of "normally harmless soil bacteria". We are told that most nurses are aware of this emerging threat. It appears that bacteria have known how to transfer genes long before we humans. Irrigating with treated wastewater, just gives trillions upon trillions of intestinal bacteria an unprecedented opportunity to mingle with trillions upon trillions of soil bacteria to come up with new pathogens that can survive in warm-blooded animals like ourselves and/or in the soil! In other words, these new bacteria won't care if we walk around warm, alive and upright or cold, dead and decomposing in the ground. They survive equally well in a live body or in the soil. With that in mind, are you sure you want to continue spraying intestinal bacteria on the ground? By the way, microorganisms aren't necessarily "dead" after the wastewater treatment train. They might be undetected because they are dormant and non-reproducing or "hiding" in protozoans which can shield themselves with a cyst. And even if "dead" their protoplasm may still be available to other microbes who know how to pick and chose the DNA they are interested in like antibiotic resistance for example. J-5

**The new pathogenic e-coli:**
Microbiologists asked, what happened to e-coli? They used to be a friendly bacteria that lives in the intestines of warm-blooded animals. Why have they turned against us? E-coli used to be just a "marker", an indicator that there were warm-blooded animals (humans) around. That's why you tested your well for e-coli -- not because the e-coli themselves were pathogenic, but because they are an indicator that surface water or someone's septic system was contaminating your well, and in that case, *other* disease-causing bacteria might be present and harm you. Where did this *new dangerous strain* of e-coli come from that destroys its host's kidneys and kills him? Was this new e-coli created in wastewater irrigated soil? Was it created in cows fed recycled wastewater, sometimes in fact, *secondary* treated water *loaded with e-coli*? J-6

**Adequacy of the EIR/EIS:**
Before any massive wastewater agriculture irrigation project is undertaken, above questions must be answered. The EIR/EIS process is not complete without full exposure and analysis of the potential hazards of food crop irrigation with wastewater. So long as the source of the recent spinach contamination, for example, remains unresolved, it would be, in our opinion, unwise to proceed with further agricultural wastewater irrigation projects. The threat to a safe *domestic* food supply is too great. J-7

**Comparing Alternatives:**
In your documents, you mention that in 1996, because of insufficient irrigation options, the Russian River Sanitation District was *forced* to irrigate under unfavorable weather and saturated J-8

soil conditions. The ensuing runoff resulted in the discharge of 201,000 gallons of treated effluent into the Russian River and a Cease and Desist order to prevent such discharges in violation of the NPDES permit. Your solution is this massive agricultural irrigation proposal. *But why is waste water discharge and dilution in the Russian River worse than feeding it full strength directly to dairy cows?* Why is discharge and dilution in the river worse than putting it full strength on our vegetables? Why worse than irrigating premium wine grapes? What is the fate of the pollutants on land and on and in our land-based plant and animal food sources? Isn't agricultural irrigation with wastewater *economically* motivated rather than safe and sound environmental and public health policy? Isn't it a desperate drive to maintain what is in reality an *unsustainable* level of agricultural production -- *unsustainable* because it depends on water diversion and water *over*use dramatically depleting ground and river waters, competing with urban overuse -- *both* causing the loss of California's salmon stocks? J-8 (Cont'd)

**"Forced" to discharge vs conservation:**

In the 1996 scenario presented above, was the District really *"forced"* to irrigate under unfavorable conditions? **Why not, instead, a general alarm to all users of the system to drastically curtail their water use, not because of low supply, but because there was inadequate mechanism for disposal!** Do we believe that we have a God-given right to turn on the tap at any time, utterly and arrogantly weather *in*dependent? Can we submit to nature? Can we admit that we are *underlings*? Don't you believe that people would actually respond positively to a call for drastic conservation under a repeat of the 1996 scenario? We believe that such a conservation wake-up call would be enhancing, refreshing, well-received and effective. J-9

**Mediterranean Climate:**

It does not rain in California in the "summer" months. It is "winter-wet"/ "summer-dry", in other words, a "Mediterranean" climate. Why not respect that, live with it, and stop fighting it? What are the long-term consequences of all this summertime irrigation? Irrigated land will not dry out in the summer as nature intended *here*. What new bacterial associations above and below ground are being enhanced by summer watering? What plant and animal pathogens are *not dying out* because of year-round moisture? What insect pest populations are boosted? What is the holding capacity of the soil for winter rainwater if the land is saturated in the summer by irrigation? How near to the surface are clay layers preventing deep penetration and aquifer recharge by irrigation or rainwater? How much will *summer saturation* increase *winter runoff and consequent flooding*? J-10

**Dry-farming, redwoods, and waterless toilets:**

Why not combine dry-farming with water conservation? Irrigating vast acreage of grapes with wastewater just perpetuates an enormous and ultimately unsustainable monoculture. Investment in shallow-rooted, irrigation and frost protection-requiring *hybrids* created a problem. Grapes, *by nature*, are a Mediterranean crop that should need no summer watering. Why risk our *food* supply and wine reputation with *wastewater* irrigation? J-11

What about irrigating more *redwoods*? Can redwoods "digest" pharmaceuticals or lock them and harmful bacteria *safely* in their fibers? We don't *eat* redwoods. Where is the analysis of the years of irrigation of redwoods on the Northwoods golf course? Are they being purposely irrigated or is it just the grass? There are hundreds of redwoods on the course. Is there a measurable and critical difference in any variables, including pathogenic bacteria and pharmaceuticals, between irrigating J-12

redwoods and irrigating row crops or grass? Could redwoods soak up an enormous quantity of water and increase in size and abundance if redwood corridors were irrigated? J-12 (Cont'd)

Have you considered "tailwater" return? Tailwater is irrigation water *not* sucked up by crops. It runs over the ground, becoming hot and dirty with soil, pesticides and fertilizer, runs off into creeks and rivers ruining salmon habitat with silt and sediment and heating up the already critical low flows in the tributaries becoming dangerous, even lethal to salmon. Will the District calculate the exact amount of water needed by each crop or pasture to prevent "tailwater" runoff? Will they *maximize irrigation* to avoid river discharge? Isn't it likely that there will be tailwater runoff which has already been documented as causing major problems in the watersheds of the coast? J-13

And, isn't it time to stop defecating in fresh water using water as a conduit for waste thereby creating a colossal wastewater treatment and disposal headache? Composting toilets utilize the bacteria of sphagnum moss and/or sawdust to sterilize human waste and reduce it to a tablespoon of ash. Where is the analysis of composting and incinerating toilets as an alternative to massive pipelines -- dark, moist, underground habitat for bacterial growth and multiplication? Treated wastewater is not sterile! Permitting composting toilets would certainly reduce the bacterial load in the wastewater pipelines. What about waterless toilet action on pharmaceuticals? J-14

The ancient Egyptians revered the "scarab" beetle. Did you know that is the "dung" beetle? What was the role of the dung beetle in their society? Dung beetles collect human and other animal waste and utilize it for food. What happens to pathogens after dung beetle action? What about dogs? They have evolved with humans for millenia but we foolishly revile them for their feces eating habits. However, once we overcome our immature revulsion to the idea, why not ask what happens to human pathogens and pharmaceuticals after the intestinal flora of the dog attack them? Many animal intestines are capable of dealing with human pathogens without harm. Most pathogens are species specific. Many old and successful societies used and still use other animals to dispose of human waste. Can the intestinal flora of these "feces-vores" be utilized in the treatment train? And don't forget, now, as we write, *dairy cows* are *fed* our secondary and tertiary treated wastewater -- a product we have concerns about discharging into our rivers! Is a *dairy cow* a good choice of stock to be *fed treated wastewater*? J-15

What about ultra-violet disinfection? Is there a significant difference between the effluent following chlorination versus effluent treated with ultra-violet light? The City of Santa Rosa has been disinfecting effluent with ultra-violet for years. Where is the analysis of their progressive treatment process? There can be no discussion of disposal without consideration of the method of disinfection. What about chlorine residuals being sprayed on land and potential creation of chlorinated hydrocarbon estrogen-mimicking compounds? J-16

In other countries, human waste is *dried* and disinfected in the sun and the product used as fertilizer. *Human waste is kept out of water*. Isn't there some strong logic and benefit to keeping waste out of water? Isn't it waste in huge volumes of water that is the heart of our problem? We believe the Romans came up with the idea to use water as a conduit for waste. Let's stop it. J-17

Sincerely,

Ann Maurice

**David Cuneo**

**From:** Brad Sherwood
**Sent:** Monday, May 21, 2007 8:24 AM
**To:** David Cuneo
**Subject:** FW: Comment on NSCARP

Thank you,
Brad Sherwood
Programs Specialist
Sonoma County Water Agency
Phone: 707-521-6204
Fax: 707-528-2080
www.sonomacountywater.org

-----Original Message-----
From: bwanaben@sonic.net [mailto:bwanaben@sonic.net]
Sent: Friday, May 18, 2007 5:01 PM
To: dave@scwa.ca.gov
Subject: Comment on NSCARP

To Ray Booker,
To the Sonoma County Water Agency,
To the Pam Jeane
To Cordel Stillman
To David Cuneo
To David Lewis
To Claire Jacquemin
To Doug Kleinsmith

Comments on the NSCARP EIR EIS

Project, EIR, EIS, engineering feasibility study:
Comment on the North Sonoma County Agricultural Reuse
To Ray Booker et al:
Residues of birth control pills, antidepressants, painkillers, shampoos and a host of other compounds are finding their way into the nation's waterways, and they have public health and environmental officials in a regulatory quandary.

On the one hand, there is no evidence the traces of the chemicals found so far are harmful to human beings. On the other hand, it would seem cavalier to ignore them.

The pharmaceutical and personal care products, or P.P.C.P.'s, are being flushed into the nation's rivers from sewage treatment plants or leaching into groundwater from septic systems. According to the Environmental Protection Agency, researchers have found these substances, called "emerging contaminants," almost everywhere they have looked for them. K-1

Most experts say their discovery reflects better sensing technology as much as anything else. Still, as Hal Zenick of the agency's office of research and development put it in an e-mail message, "there is uncertainty as to the risk to humans."

In part, that is because the extent and consequences of human exposure to these compounds, especially in combination, are "unknown," the Food and Drug Administration said in a review issued in 2005. And aging and increasingly medicated Americans are using more of these products than ever.

So officials who deal with these compounds have the complex task of balancing reassurance that they take the situation seriously with reassurance that there is probably nothing to worry about. As a result, scientists in several government and private agencies are devising new ways to measure and analyze the compounds, determine their prevalence in the environment, figure out where they come from, how they move, where they end up and if they have any effects.

K-1 (Cont'd)

In many cases, the compounds enter the water when people excrete them or wash them away in the shower. But some are flushed or washed down the drain when people discard outdated or unused drugs. So a number of states and localities around the country have started discouraging pharmacies, hospitals, nursing homes and residents from disposing of drugs this way. Some are setting up "pharmaceutical take-back locations" in drugstores or even police stations. Others are adding pharmaceuticals to the list of hazardous household waste, like leftover paint or insecticides, periodically collected for safe disposal, often by incineration.

For example, Clark County, Wash., has a program in which residents with unwanted or expired drugs can take so-called controlled substances, like prescription narcotics, to police stations or sheriffs' offices for disposal. They can drop noncontrolled drugs at participating pharmacies, and 80 percent of the pharmacies in the county participate.

K-2

In guidelines issued in February, three federal agencies, including the E.P.A., advised people with leftover medicines to flush them down the drain "only if the accompanying patient information specifically instructs it is safe to do so." Otherwise, the guidelines say, they should dispose of them in the trash (mixed with "an undesirable substance" like kitty litter to discourage drug seeking Dumpster divers) or by taking them to designated take-back locations.

Worries about water-borne chemicals flared last summer when researchers at the United States Geological Survey said they had discovered "intersex fish" in the Potomac River and its tributaries. The fish, smallmouth and largemouth bass, were male but nevertheless carried immature eggs.

K-3

Scientists who worked on the project said they did not know what was causing the situation, or even if it was a new phenomenon. But the discovery renewed fears that hormone residues or chemicals that mimic them might be affecting creatures that live in the water.

In a survey begun in 1999, the agency surveyed 139 streams around the country and found that 80 percent of samples contained residues of drugs like painkillers, hormones, blood pressure medicines or antibiotics. The

K-4

agency said the findings suggested that the compounds were more prevalent and more persistent than had been thought.

Meanwhile, the Food and Drug Administration started looking into the effects of residues of antibiotics and antiseptics in water, not just to see if they might affect people but also to assess their potential to encourage the development of drug-resistant bacteria.

Reports of contamination with pharmaceutical residues can be alarming, even when there is no evidence that anyone has been harmed. In 2004, for example, the British government reported that eight commonly used drugs had been detected in rivers receiving effluent from sewage treatment plants. A spokeswoman for the Department for Environment, Food and Rural Affairs said it was "extremely unlikely" that the residues threatened people, because they were present in very low concentrations. Nevertheless, news reports portrayed a nation of inadvertent drug users — "a case of hidden mass medication of the unsuspecting public," as one member of Parliament was quoted as saying.

Christian Daughton, a scientist at the Environmental Protection Agency and one of the first scientists to draw attention to the issue, said P.P.C.P. concentrations in municipal water supplies were even lower than they were in water generally because treatments like chlorination and filtration with activated charcoal alter or remove many chemicals. Dr. Daughton, who works at the agency's National Exposure Research Laboratory in Las Vegas, said he believed that if any living being suffered ill effects from these compounds, it would be fish and other creatures that live in rivers and streams.

Dr. Daughton and Thomas A. Ternes of the ESWE-Institute for Water Research and Water Technology in Germany brought the issue to scientific prominence in 1999, in a paper in the journal Environmental Health Perspectives. They noted that pollution research efforts had focused almost exclusively on "conventional" pollutants — substances that were known or suspected to be carcinogenic or immediately toxic. They urged researchers to pay more attention to pharmaceuticals and ingredients in personal care products — not only prescription drugs and biologics, but also diagnostic agents, fragrances, sunscreen compounds and many other substances.

They theorized that chronic exposure to low levels of these compounds could produce effects in water-dwelling creatures that would accumulate so slowly that they would be "undetectable or unnoticed" until it was too late to reverse them. The effects might be so insidious, they wrote, that they would be attributed to some slow-moving force like evolution or ecological change.

Initial efforts concentrate on measuring what is getting into the nation's surface and groundwater. The discharge of pharmaceutical residues from manufacturing plants is well documented and controlled, according to the E.P.A., but the contribution from individuals in sewage or septic systems "has been largely overlooked."

K-5

And unlike pesticides, which are intentionally released in measured applications, or industrial discharges in air and water, whose effects have also been studied in relative detail, the environmental agency says, pharmaceutical residues pass unmeasured through wastewater treatment facilities that have not been designed to deal with them.

Many of the compounds in question break down quickly in the environment. In theory, that would lessen their potential to make trouble, were it not for the fact that many are in such wide use that they are constantly replenished in the water.

And researchers suspect that the volume of P.P.C.P.'s excreted into the nation's surface water and groundwater is increasing. For one thing, per capita drug use is on the rise, not only with the introduction of new drugs but also with the use of existing drugs for new purposes and among new or expanding groups of patients, like children and aging baby boomers.

K-6

Also, more localities are introducing treated sewage into drinking water supplies. Researchers who have studied the issue say there is no sign that pharmaceutical residues accumulate as water is recycled. On the other hand, the F.D.A. said in its review, many contaminants "survive wastewater treatment and biodegradation, and can be detected at low levels in the environment."

Some say the spread of these substances in the environment is an example of how the products of science and technology can have unintended and unpredictable effects. In their view, when the knowledge about these effects is sketchy, it is best to act to reduce risk, even if the extent of the risk is unknown, an approach known as the precautionary principle.

Joel A. Tickner, an environmental scientist at the University of Massachusetts, Lowell, says that it is a mistake to consider all of these compounds safe "by default," and that more must be done to assess their cumulative effects, individually or in combination, even at low doses.

In his view, the nation's experience with lead additives, asbestos and other substances shows it can be costly — in lives, health and dollars — to defer action until evidence of harm is overwhelming.

Others say the benefits of action — banning some compounds, say, or requiring widespread testing or treatment for others — should at least equal and if possible outweigh their costs.

"You have to somehow estimate as well as possible what the likely harms are and the likely benefits," said James K. Hammitt, a professor of economics and decision sciences at the Harvard Center for Risk Analysis.

And while it is possible that some of the tens of thousands of chemicals that might find their way into water supplies are more dangerous in combination than

they are separately, Dr. Hammitt said in an interview, "it's perfectly possible that they counteract each other."

Anyway, he said, assessing their risk in combination is a mathematical problem of impossible complexity. "The combinatorics of this are truly hopeless."

Given all this uncertainty, policy makers find it difficult to know what to do, other than continuing their research. Studies of "the fate and transport and persistence" of the P.P.C.P.'s will allow scientists to make better estimates of people's exposure to them, Dr. Zenick said, and "to assess the potential for human health effects."

But even that normally anodyne approach comes under question because of something scientists call "the nocebo effect" — real, adverse physiological reactions people sometimes develop when they learn they have been exposed to something — even if there is no evidence it may be harmful.

"The nocebo effect could play a key role in the development of adverse health consequences from exposure even to trace elements of contaminants simply by the power of suggestion," Dr. Daughton wrote recently in a paper in a special issue of Ground Water Monitoring and Remediation, a publication of the National Ground Water Association, an organization of scientists, engineers and businesses related to the use of groundwater.

In fact, the idea that there are unwanted chemicals in the water supply has many characteristics that researchers who study risk perception say particularly provoke dread, regardless of their real power to harm. The phenomenon is new (or newly known), and the compounds are invisible and artificial rather than naturally occurring.

But scientists at agencies like the Geological Survey say it is important to understand the prevalence and actions of these compounds, even at low levels. If more is known about them, agency scientists say, researchers will be better able to predict their behavior, especially if they should start turning up at higher concentrations. Also, the Geological Survey says, tracking them at low levels is crucial to determining whether they have additive effects when they occur together in the environment.

Comprehensive chemical analysis of water supplies "is costly, extraordinarily time-consuming, and viewed by risk managers as prompting yet additional onerous and largely unanswerable questions," Dr. Daughton wrote in his paper last year.

But it should be done anyway, he said, because it is a useful way of maintaining public confidence in the water supply.

"My work is really categorized as anticipatory research," he added. "You are trying to flesh out a new topic, develop it further and see where it leads you. You don't really know where it leads."

Correction: April 7, 2007

An article in Science Times on Tuesday about residues of pharmaceuticals and personal care products in the nation's waterways misstated the given name of a scientist at the Environmental Protection Agency. He is Christian Daughton, not Christopher.April 3, 2007
Drugs Are in the Water. Does It Matter?
By CORNELIA DEAN

Correction Appended

Residues of birth control pills, antidepressants, painkillers, shampoos and a host of other compounds are finding their way into the nation's waterways, and they have public health and environmental officials in a regulatory quandary.

On the one hand, there is no evidence the traces of the chemicals found so far are harmful to human beings. On the other hand, it would seem cavalier to ignore them.

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Most experts say their discovery reflects better sensing technology as much as anything else. Still, as Hal Zenick of the agency's office of research and development put it in an e-mail message, "there is uncertainty as to the risk to humans."

In part, that is because the extent and consequences of human exposure to these compounds, especially in combination, are "unknown," the Food and Drug Administration said in a review issued in 2005. And aging and increasingly medicated Americans are using more of these products than ever.

So officials who deal with these compounds have the complex task of balancing reassurance that they take the situation seriously with reassurance that there is probably nothing to worry about. As a result, scientists in several government and private agencies are devising new ways to measure and analyze the compounds, determine their prevalence in the environment, figure out where they come from, how they move, where they end up and if they have any effects.

In many cases, the compounds enter the water when people excrete them or wash them away in the shower. But some are flushed or washed down the drain when people discard outdated or unused drugs. So a number of states and localities around the country have started discouraging pharmacies, hospitals, nursing homes and residents from disposing of drugs this way. Some are setting up "pharmaceutical take-back locations" in drugstores or even police stations. Others are adding pharmaceuticals to the list of hazardous household waste, like leftover paint or insecticides, periodically collected for safe disposal, often by incineration.

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From an excerpt of a New York Times article by Cornelia Dean.

The NSCARP does not identify those chemical compounds which will still be in the treated water for use in agricultural environs. Because the EIR does not identify these compounds, there is no way of mitigating their impacts. A long term study of water components MUST be included in the EIR with ALL compounds of drugs, chemicals and their residues studied for long term health effects. As there may be as many as a billion (or more)different compounds found in the "treated water", the long term environmental impacts were NOT fully addressed in the EIR. The EIR/EIS must be revised to show the exact amount of compounds and residues of pesticides and drugs and heavy metals, and nitrogen based fertilizers and their possible effects on ground water, aquatic species downstream and potable water where the water will have a long term impact. K-7

The Environmental Impact of Alternatives, to be done at a later date, does not allow for comparison of the benefits and/or drawbacks of these alternatives. By not having any alternatives studied, one can not make a reasonable determination of impacts brought on by the one alternative provided. K-8

Also the EIR/EIS does not have the email address prominently displayed , nor does the website, which is a method of restricting public comment. I reserve the right to sue the City of Santa Rosa, and the Sonoma County Water Agency for failure to provide clear and concise methods of communication as provided by law. K-9

With All Due Respect, Benjamin R. Marchand

P O Box 1363 Healdsburg CA 95448

**David Cuneo**

**From:** Kevin Booker
**Sent:** Monday, May 21, 2007 8:50 AM
**To:** David Cuneo
**Subject:** FW: Failure of NSCARP EIR/EIS to do complete study of compounds in water

Another one from Ben Marchand.

Kevin Booker
(707) 521-1865

-----Original Message-----
From: bwanaben@sonic.net [mailto:bwanaben@sonic.net]
Sent: Friday, May 18, 2007 4:55 PM
To: Kevin Booker
Cc: bwanaben@sonic.net
Subject: Failure of NSCARP EIR/EIS to do complete study of compounds in water

To Kevin Booker
To the Sonoma County Water Agency

Further Comment on the NSCARP EIR/EIS
As regards the NSCARP EIR/EIS - There was no listing of chemical compounds to be found in the treated wastewater. There were no studies showing the long term effects of residual drugs, pesticides, fertilizers, and heavy metals included. Without having these included in the EIR/EIS there can be no effective methods of mitigation. By not including these compounds, and their possible degradation of aquifers, there can be no informed decisions made about them. As a resident of the affected area, I don't see how the SCWA can insure that aquifers won't become polluted in the long term without knowing what is in the treated water. The EIR/EIS must show ALL compounds of drugs, pesticides, fertilizers and heavy metals before proceeding with determining feasibility of the project. L-1

Your website does NOT prominently display the web address for public comment, and because it is unavailable, I am using the email address of Kevin Booker, Sonoma County Water Agency as my avenue for comment on the NSCARP EIR/EIS. L-2

With all due respect, Benjamin R. Marchand
PO Box 1363
Healdsburg CA 95448

**David Cuneo**

**From:** Kevin Booker
**Sent:** Monday, May 21, 2007 8:50 AM
**To:** David Cuneo
**Subject:** FW: Failure of NSCARP EIR/EIS to do complete study of compounds in water

Another one from Ben Marchand.

Kevin Booker
(707) 521-1865

-----Original Message-----
From: bwanaben@sonic.net [mailto:bwanaben@sonic.net]
Sent: Friday, May 18, 2007 4:55 PM
To: Kevin Booker
Cc: bwanaben@sonic.net
Subject: Failure of NSCARP EIR/EIS to do complete study of compounds in water

To Kevin Booker
To the Sonoma County Water Agency

Further Comment on the NSCARP EIR/EIS
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With all due respect, Benjamin R. Marchand
PO Box 1363
Healdsburg CA 95448

Comment Set M

**RRWPC**
**Russian River Watershed Protection Committee**

Post Office Box 501
Guerneville, CA 9544(
(707) 869-041(

# RRWPC Comments:
# North Sonoma County Agricultural Reuse Project (NSCARP)

May 18, 2007
Brenda Adelman

DOCUMENT COPY KEEP/D SCARD
SONOMA COUNTY WATER AGENCY
MAY 2 1 2007
Proj/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__

## GENERAL COMMENTS:

### Support for other submitted comments:

RRWPC supports most of the verbal comments made at the Board of Directors Hearing on this project on May 15, 2007. We noted that most people were against the project, as are we in its current form. We also support the comment letters we have read thus far, including those from Sonoma County Water Coalition, Westside Association to Save Agriculture, Sebastopol Water Information Group, Dry Creek Valley Association, and Dr. Howard Wiltshire. M-1

### Document has inadequate detail:

We don't believe that the DEIR/DEIS is detailed enough to be taken seriously. It is one volume, substantially sized, but about one third consists of copies of lists, scoping comments (many of which were unanswered), etc. Given the size of this project, including 112 miles of pipeline, 19 reservoir sites with 11,200 acre-feet (about 3.64 billion gallons) of storage capacity on 21,500 acres, and a projected cost of $385 million dollars, we would expect much more project detail than what has been provided. (Santa Rosa's Incremental Recycled Water Project started out at six volumes and contained far more detailed information, including 19 Tech Memos and sophisticated analyses of water quality and water balance scenarios.) M-2

We have had a great deal of experience with SCWA EIRs. They follow a pattern and have been frequently challenged. A broadly defined project with many components and few details is produced. Engineer's studies and detailed cost analyses are frequently missing or inadequate. No public dialogue is encouraged except in extremely limited and controlled surroundings. Questions are responded to in a very superfluous way, if at all. Assertions are made with no backup data and/or with weak analysis. Valid complaints from the public are ignored. The Board of Directors and lead SCWA staff, seem impervious to most public concerns. A lesson in frustration and fortitude is guaranteed for those who dare to comment. NSCARP is no exception; all of the above apply. M-3

## Indications that NSCARP 10 to 15 years away: EIR/EIS premature

The project does not appear in the *"County of Sonoma: Capital Project Plan 2007-2012"*, released on May 15, 2007. On Page 8H-2 of that document, a list of Sonoma County Water Agency's (SCWA) other projects appear (Attachment #1) along with their anticipated costs for the coming five years. NSCARP is not on the list. Why is this?

Yet the introduction to the five-year plan states, "The FY 2007/2012 Capital Project Plan is the major guide for acquisition of publicly owned property and facilities development for all County of Sonoma agencies and departments. In addition to meeting legal requirements, the Capital Project Plan:

- Organizes the physical development of County facilities and property to make the best use of capital appropriations provided by the Board;
- Gives the Board an organized approach to prioritizing capital projects;
- Offers the Board an understanding of long term cost implications of projects; and
- Provides a means to consolidate financing thus reducing capital project costs."

M-4

I spoke with Spencer Bader of SCWA staff about this oversight and was told that this project was highly speculative and not expected to be carried out any time in the near future. He said there were no engineering estimates and the funding source was uncertain. (Isn't one of the major duties of a DEIR to give an estimate of costs in order to determine feasibility of the project? Why no engineering studies?)

Tim Anderson of SCWA said that the Capital Projects manager, Cordell Stillman, doesn't put projects on the list until there is a reasonable expectation that it would be funded. Anderson said that NSCARP would rely on federal funding and the request couldn't go in until next February and would probably not make the first round. The second round would be a year after that and would not be certain either.

On May 18th I spoke with SCWA's Dave Cuneo and asked why the project was not listed in the 5 year Capital Project Plan and he told me that the project would not be built in 5 years. He stated that it would be built over a ten to fifteen year period. We are concerned that project circumstances would change significantly over that period and that staff and the Board of Directors would subsequently give short shrift to these details in the interest of moving forward later on, especially if water supplies become more unreliable.

M-5

We are concerned that this EIR/EIS might be certified prematurely while in the meantime significant changes occur that make this document obsolete. Some of the changes we anticipate in that time period (10-15 years) include the following: (more complete list attached: Attachment #2):

M-6

- Changes to Decision 1610 and reduction of summer flows
- Pipeline project from Lake Sonoma
- Long range water supply project
- Biological Opinion: Section 7 Consultation
- Basin Plan Amendments on "incidental runoff", temperature, & dissolved oxygen and TMDLs on sediment and nutrients

M-6 (Cont'd)

These major changes now being contemplated may bring about cataclysmic alterations that could either help or harm the NSCARP. Unforeseen changes are bound to occur in this dynamic period. If the project is to be delayed for 10 to 15 years, why is this document not an exercise in futility since it will need to be re-circulated anyway?

M-7

## Need for assessment of potable savings for funding sources

While various potential funding sources are generally named in the DEIR/DEIS, there is little discussion of the likelihood of qualifying this oversized project for any of the specific funds named. Demonstration of the amount and reliability of potable water savings to be realized for the benefit of threatened species would probably be required before funds could be available. It does not appear that such assessments have been made. Little is known about groundwater resources and most legal and illegal agricultural diversions have gone undefined. In other words, you need to define exactly how much potable water is being saved through the implementation of this project, especially since grapes generally don't use a lot of water.

M-8

There are several things that are unclear to us that should have been clarified in this document and certainly need to be clarified for future funders. Who will own the wastewater? Who will own the infrastructure? Who will be accountable and legally responsible to governing entities, such as North Coast Regional Board for any violations and subsequent fines and penalties? Who would be named in permits? Who would manage the system? What will be the culpability of individual users in terms of these violations? Who will be the governing entity that will be in charge of the process?

M-9

If Santa Rosa continues to own the wastewater, what will be their culpability when problems arise? What if there is an upset at the treatment plant and some polluted water is released? Who is responsible? Will the farmers have to pay for the water? Would grape growers be willing to be more careful with wastewater than they are with potable water? It seems as though many issues of governance need to be worked out and the responses could dictate the viability of the project.

## Reservoirs

The project assumes that 19 reservoirs will be built. Facilities of this type can be very controversial, especially when they contain wastewater, and may be difficult to permit. A large number of property owners have expressed opposition to this project and for many reasons, do not want to take part. Some of the greatest concerns are questions about the ongoing long-term safety of the

M-10

wastewater, as well as the damage to public perception of the fine wine grapes to be irrigated with recycled wastewater. M-10 (Cont'd)

All kinds of changes could occur over a 10 to 15 year period. Santa Rosa tried to get new reservoirs built for years and never succeeded, except to enlarge one of their existing facilities. (Gallo built a 100 million gallon pond in Cotati for wastewater several years back, but it is doubtful that 19 more of these could be pulled off.) How can this DEIR assume reservoirs will be built or conversely, neglect to analyze the changes needed to the various project components if some are built and not others? (Your project description assumes all will be built.) How would water balance be affected if this occurs? M-11

As an indicator of how much change can take place in even six years, I include a Tech Memo by Wagner & Bonsignore on the North Sonoma County Conservation Corporation entitled "Agricultural Use of Recycled Water from the Geysers Pipeline" (Attachment #3). There was a group formed at the time that included many parties who are no longer involved. At the time Santa Rosa was an active participant and is no longer. We understand that many have dropped out since then and I believe the group reformed and changed their name to Coalition for Sustainable Agriculture. Is this correct? I include the minutes of meetings held in early 2000. It appears as though Santa Rosa and SCWA were parting ways over this project even then. M-12

On page 2 of the notes from Jan. 24, 2000, Dick Dowd, Chair of Santa Rosa's Board of Public Utilities (BPU) states, *"The BPU does not see as politically feasible or reasonable SCWA's demand that SCWA have control of the water above the 11 million gallons per day being delivered to the Geysers based upon SCWA's $10 million funding commitment"* and, *"Further, 55% of the SCWA $10 million funding commitment is actually monies paid by the population of the City of Santa Rosa to SCWA thereby reducing SCWA's actual participation to less than $5 million. In response to Mr. Fernandez's question on what amount of money SCWA would need to provide to gain control over the excess capacity, Mr. Dowd indicated there is no amount of money that would accomplish that objective. The City must maintain the ability to deliver water for urban reuse projects, i.e., golf courses, at its discretion. The City is willing to enter into long-term recycled water delivery contracts with individuals."* All of Santa Rosa's current contracts (about 6000 acres) are in the Laguna area. M-13

## Project Description

Along with others, we share major concerns about the project description. The DEIR loosely describes a project of huge scope and then names subsets of the project as "alternatives". The alternatives are really duplicative of the preferred alternative, merely smaller in size. The DEIR/DEIS then designates the large project as preferred because it offers the possibility for more potable water offset. While Alternative 2 may provide the greatest opportunity for meeting project purposes, because of its size and complexity, it also has the greatest potential to cause environmental harm, especially as the infrastructure ages and control of project components becomes more problematic. M-14

It is inappropriate to segment a project into pieces, call them alternatives and then state that more is better than less. Why were different types of irrigation projects on different crops not considered? For instance, forest irrigation has been recommended repeatedly for years. Wouldn't it be reasonable to identify forestlands in the North County for the purpose of irrigating with wastewater? In fact, trees can use far more water than grapes, which are a low water use crop. What happens to the various crops during a draught? What happens if the water balance changes due to a change in crops on the lands being irrigated (periodically crops have shifted in these areas)? The City of Santa Rosa has been caught short of recycled water on several occasions during dry periods. They have a contract with the Cal Pine to deliver a certain amount of water. There is some flexibility but not a lot. How would this be dealt with in this project, especially during periods of draught? M-15

This DEIR does not anticipate significant changes in flow, water quality, and other perimeters that could easily take place over that lengthy period before construction, except in a very cursory way. It fails to acknowledge the complex relationship of surface water and ground water, the soils, slopes, vegetation, crops, etc. and how they all interact with one another. Because there is so little detail in this document on important aspects of this project, down the road it would be easier to say that changes hadn't occurred and recirculation is not necessary. The project description is lacking a full explanation of the perimeters of the project. Consistently, this document addresses important issues in a cursory manner and does not even detail the water balance issues that are central to the need for this system. M-16 M-17

CEQA requires that the project description be precise, clear, stable, and finite. It should include a clear statement of objectives along with defined perimeters of the project. This project has not identified with certainty any of the parcels to be irrigated, and in fact, large numbers of property owners oppose the project. Except for a few large grape growers, few participants have been identified. There is far more information that is necessary in order to decide if the project is even viable. What is the minimum number of acres in any one area to make the project cost effective? How many acres need to be in close proximity to make the project work? I keep imagining a checker-board with lots of blank spaces on it. We need to see parcel maps picturing those in each area where strong interest in the project has recently been expressed. M-18 M-19 M-20

If only limited numbers of acres become available in each section, how will it be cost effective to build 112 miles of pipeline? Finally, Santa Rosa has a library of about 50 volumes of past EIRs and studies on their wastewater system completed over the last 20 years. While we hardly agree with everything that is in those volumes, they contain vast amounts of information about our local environment that could have been used for this project. The chasm in the depth of information provided between this NSCARP document and theirs is profound. M-21

## Recycled Wastewater Availability

On Page 2-10, the DEIR/DEIS identifies 7234 acre feet a year being available from the towns of Santa Rosa, Healdsburg, Windsor, Cloverdale (use of the M-22

words "City" and "Town" rather than the name of each is very confusing), Airport-Larkfield-Wikiup and Geyserville, don't add up to much without Santa Rosa. The analysis should have given the details for each entity, including their correct name, what they are doing now in terms of storage, irrigation, and discharge, the quality of their wastewater, the status of their NPDES Permit, and whether they have recently indicated an interest in the project including what they would be willing and able to contribute. It is our understanding that Windsor and Healdsburg may have indicated a lack of interest is this project, since they have their own. Were any resolutions passed by these cities indicating a strong commitment? M-22 (Cont'd)

It is most egregious that this document assumes that Santa Rosa's wastewater will be available for irrigation. As noted above, this is not the case. For many years Santa Rosa has identified an urban irrigation project in the Southwest part of their City as a preferred project (See attached power point presentations from 2003 and 2007: Attachments #4). They have stated on numerous occasions that they are moving forward with their urban irrigation project. (See quotation above) They have hired consultants, commenced preliminary studies, and taken major steps to realize their plan. Currently, an engineer's study is being developed. M-23

Furthermore, half of Santa Rosa's wastewater is committed under contract to go to the Geysers (about 4 billion gallons a year). There is a total of about 2 billion gallons a year committed to their current irrigators. That leaves about 2 billion gallons available on a yearly basis that could be available for other uses. During a dry year is would be even less; and in fact, only 650 mg (.65 billion gallons) was discharged by Santa Rosa in the 2006-07 discharge season. That is because it didn't rain much this year and there wasn't as much inflow and infiltration into their pipes. Santa Rosa is under pressure to fix their leaky pipes. That would generate a lot less wastewater. Would that circumstance make this project less viable (assuming you could get their water in the first place)? M-24 M-25

Yet the 19 reservoir sites planned for this project would hold about 3.6 billion gallons. Interestingly, Santa Rosa's EIR of 2003 (Vol. 4 Pg. 22) indicates that if more than 2 billion gallons of storage is constructed, it would not be filled in one of two years over a 67 year balance modeling period. Larkfield-Wikiup doesn't have much wastewater and Windsor has their own plans, so where is the reasonable balance in this current proposal? You don't have the wastewater for this proposed project, and even if you had Santa Rosa's it would be enough to fill about half of the reservoirs planned about half of the time. It appears as though SCWA is over-shooting their target to allow for fallout, but what will be left if that occurs? M-26

There is an assumption that Santa Rosa will grow as per their General Plan and projected increased wastewater needs to be accommodated. Yet RRWPC has drawn up charts indicating that Santa Rosa dry weather wastewater flow generation was **less** in 2006 than in 2000 and their total flow to the Treatment Plant was almost the same from 1993 to 2005 (Attachments #5). In addition, between 2000 and Jan.,2006, the City LOST 1400 people. Their population

increased slightly in 2006. Another indicator is their total water delivery from SCWA was 24,420 acre feet in FY 2003-04 and, with only two months to go in this current water year, is at 19,379 acre feet in 2006-07. It is likely that the amount used this year will be the same or lower than 2003-04. (Attachment #6)

We reiterate, how can you have a wastewater irrigation plan without more certainty that you will have wastewater? Furthermore, the City is also stepping up its conservation programs and considering increased discharge to the Geyser's steam fields. How can we know that their wastewater generation will continue to increase, especially if they get serious about conservation? M-27

## Water Quality issues

### Incidental Runoff

In his presentation at a water conference on May 19th, Santa Rosa consultant, Dr. Dave Smith, stated that there is no way to avoid incidental runoff with an urban irrigation program. Sprinkler heads and other hardware break and runoff occurs. In the interest of legalizing this practice, Santa Rosa officials have convinced the North Coast Regional Board to instigate a Basin Plan Amendment that would allow "low impact" discharges and "incidental" discharges. At a recent Board Meeting they began the study process.

RRWPC has several concerns about this proposal, which we expressed in our comments to the Board last month (April 26, 2007, see Attachment #7). Please explain how NSCARP would deal with these issues.

- In summer the creeks are slow and low and cannot assimilate wastewater discharges. Because this is the time of greatest recreational use and greatest vulnerability to toxins of all kinds, no runoff of any kind should be allowed. In effect, allowing irrigation runoff in the summer time would eliminate the summer discharge prohibition, which has been in effect since the late 1970's and should continue indefinitely. M-28
- Many people use pesticides on their lawns and fields, which have estrogenic properties and can cause neurological, developmental, reproductive, and cancer causing health problems for humans and wildlife. Irrigation runoff should not be allowed at all on sites where chemicals are used or biosolids applied. What is the range of chemicals that irrigator's use on their fields, in addition to those found at residual levels in the wastewater itself? How might they combine to create more toxic additions in runoff? Endocrine disruptors are commonly found in treated wastewater. What evidence is available to demonstrate that this is not the case with Santa Rosa? M-29
- The Laguna is listed as impaired for nitrogen, phosphorus, dissolved oxygen, temperature, and sediment. Runoff will cause nutrient rich waters to enter the Laguna and further impair its water quality. This in turn also exacerbates Ludwigia growth, the exotic plant wrecking havoc in the Laguna area. There are similar issues in the upper Russian River between Cloverdale and M-30

Healdsburg. How will this be addressed, especially at a time when flows are greatly diminished and recreational uses high? M-30 (Cont'd)

- The cumulative impacts of numerous runoff events from irrigation overflows can be devastating to waterways and downstream beneficial recreation use. Please characterize the many chemicals and nutrients in the wastewater, on the fields and in the river itself. Please address the issue of cumulative impacts of both chemicals in the runoff and wastewater and in combination with those already in the waterway? Will any of these be endocrine disruptors? If so, what impact will that have on the listed species? M-31
- There is no question that a great deal of runoff will occur during the frost protection season when saturated lands can receive large amounts of water. Any contaminants in the wastewater or on the land will flow right to the streams. Would it then be considered a point source discharge? M-32

## Summer Flow Changes and Impact on Water Quality

In addition, last April 24th SCWA requested a "Temporary Urgency Change" in summer flows (Attachment #8). Normally the flows required at the Hacienda Bridge in a normal year must be a minimum of 125 cubic feet per second (cfs). This is barely enough to allow canoeing without excessive portage. In a dry year, normally determined on May 31st, and based on the combined storage at Lakes Pillsbury and Mendocino, flows at Hacienda can go as low as 85 cfs. Last year flows averaged about 200 cfs at that location.

SCWA is claiming that the cause of the problem is a combination of too much water being returned to the Eel River and also PG&E has been operating the Potter Valley Project (PVP) in such a way so as to cause a 30% reduction of flows into the Russian River in the summer. Normally 160,000 Acre Feet (AF) per year is diverted and it is now down to 105,000. Because this circumstance is looking like it might become permanent, SCWA is looking to make permanent changes to Decision 1610 that will have long lasting impacts on summer flows.

So while we had a drier year this year, there are some significant operational issues at PVP. As a consequence, this spring there is not enough water stored in Lake Mendocino to guarantee the fall run of Chinook Salmon, an threatened species in the Russian River. We really don't know much about what the impact of lowered flows will be. We don't know if the results will be positive or negative.

It is likely that there will be many complex variables that are simply NOT described in this document. (For instance, why are there no discussions of the impacts on other listed species, especially Coho and Steelhead?) I do know that downstream water companies are concerned about this situation. How might runoff containing unregulated compounds affect downstream drinking water supplies during very low flows? If fish are living in this chemical soup and people eat the fish, how will human health be affected? (Title 22 is much more concerned about human pathogens than toxic chemicals and cares nothing for other species. We are most concerned about unregulated chemicals and pharmaceuticals in the waste stream.) M-33

SCWA has many irons in the fire at this time. Besides the NSCARP EIR, the Agency is commencing their EIR process for the long-range water supply project EIR along with review of the Section 7 Biological Opinion recently obtained from National Marine Fisheries Service (NMFS). All of these and more are likely to cause significant alterations in the Russian River that need to be addressed. (For instance, if SCWA elects to alter Dry Creek so as to allow increased discharges from Lake Sonoma, how might irrigation runoff ultimately affect the drinking water supply downstream?) Since NSCARP construction is not anticipated for about ten to fifteen years (see discussion above), then why not wait on certifying this EIR in order to incorporate these other issues and have a far more meaningful document?

M-34

I recently heard a presentation from Dan Smith USACE ERDC on the *Russian River Watershed Adaptive Management Plan,* which was only recently completed and released (Attachment #9). SCWA took part in its development. There's a quote from David Montgomery included in the presentation:

"...ecological systems present a number of management challenges... they are exceedingly complex and we don't (and probably can't) fully understand how they work, given the interdependencies of their constituents....hence, development of sustainable management strategies requires and intimidatingly sophisticated knowledge of the spatial context and the causal linkages among human actions, watershed processes, channel conditions, and ecosystem response...."

Unlike the quotation above, this EIR fails to acknowledge the level of complexity of this project on the environment and the interactions of the many components of the plan.

M-35

## Endocrine Disruptors, Pharmaceuticals, Personal Care Products

RRWPC submitted 200 pages of articles on unregulated chemicals at the NSCARP Hearing before the SCWA Board of Directors on May 15th, plus a six-page presentation (to City of Santa Rosa on April 19, 2007) on concerns about endocrine disruptors, pharmaceuticals, and personal care products. These are often referred to as emerging contaminants for which no standards are set, but which have been shown to have great potential for harm. (Attachment #10 includes a few articles that are not in the packet but are very germane.)

The DEIR addresses this issue on page 3.4-46 but makes the argument that in effect the likelihood of very small amounts appearing in the wastewater would not cause harm. The analysis was weak and few details were provided. An assumption was made that Title 22 is adequate. California Toxic Rule inadequacies of Santa Rosa's wastewater were downplayed.

There are numerous articles in our booklet challenging the idea that the "dose makes the poison" and in fact, more information has been coming out that the opposite is true in some instances. For instance, minute amounts of atrazine coming in contact with frogs have proved to have more devastating effects than much larger exposures.

M-36

We are particularly concerned about impacts from irrigation runoff that causes chemicals to leach off the land into the waterways, and their potential bioaccumulation in aquatic life. Runoff is common with irrigation projects. With endocrine disruptors, damage occurs at the cellular level and one exposure can be one too many. In the article, "It's not Easy Being Green" it states, *"...the federally established "safe" limit for atrazine in human drinking water is 3 ppb, thirty times the dose that turned some of Hayes' frogs into hermaphrodites...."* and *" Atrazine would still be found in well water for decades even if use of the pesticide were halted today."* M-37

**On page 4.13-5 of the Hazardous Materials Section of the Sonoma County General Plan 2020 Draft EIR, it states,** ***"From 1991-95, California pesticide use increased, as did the acreage of planted land.....DPR states that burgeoning pest problems and a shortage of alternatives, chemical and non-chemical, sometimes present farmers with situations where they see no choice but to increase their use of pesticides."*** **And** ***"Sonoma County ranked 18th out of the 58 California counties in total pounds of commercial pesticide active ingredients as reported to the State in 2000 and 2001."*** **Finally it states (same page),** ***"In 2000, the Sonoma County wine grape commodity accounted for 2,904,922 pounds, or 94% of gross pounds commercial chemicals applied, compared to the total Sonoma County commercial chemical use, including all other types of agriculture, landscape maintenance, right-of-way, and structural pest co9ntrol in the county. In 2001, that total amount applied to vineyards was 2,904,922 pounds, or 96% of the county's total commercial chemical use."*** (Attachment # 11)

It is unclear how the mitigations for endocrine disruptors (Pg. ES-16) would serve to protect humans and aquatic life from the reality of exposure. There is nothing mentioned that would help to eliminate exposures. Consulting and monitoring are not adequate mitigations and much more needs to be done. For example, why not prohibit chemical use known to be hazardous on lands being irrigated? Why not require drip irrigation and other devices that might control runoff? Why not require the maintenance of healthy and broad riparian buffer areas to protect from runoff? The alleged purpose of this project is to preserve fish habitat through allowing more water to remain in the creeks. How will irrigation run off on lands with pesticide and herbicide applications provide better habitat? How will nutrient runoff help fish habitat? M-38

## Hydrology and Water Quality Section

On page 3.8-11 it mentions that the Russian River watershed is impaired for sediments. That is correct, but why isn't temperature mentioned? Also, the Laguna is one of the most impaired water bodies on the North Coast (sediments, temperature, nitrogen, phosphorus, and dissolved oxygen) and we wonder why that was not mentioned either? Why are flow issues not discussed even though the dams are briefly described? What is meant by the statement that for the most part, toxic chemicals are in compliance? How much data is that based on? How reliable is the data? How old is it? On page 3.8-15, why is no mention made of the Laguna 303(d) listing and the temperature listing for the whole watershed? Why is there no description of the extensive invasive plant growth in the river (algal growth mentioned but not described)? What is the extent of the problem? M-39 M-40

On Table 3.8-2 we wonder when the data was taken? It is an average over a period of time? Please describe. There are about 16 regulations described that could affect this project. Brief descriptions were given for each one, but there was no explanation of how this project could be impacted by any and all of these requirements. Please describe how each of these could affect the project. M-41

## Santa Rosa's NPDES Permit & Water Reclamation Requirements

Santa Rosa's most recent NPDES Permit was authorized by the Regional Board in May, 2006. The City of Santa Rosa and Coast Action Group both filed challenges to the Permit to the State Board. It is currently pending. Part of the Permit is the Water Reclamation Requirements, which are not being challenged (Attachment #12). Our major concern about these requirements is the weak enforcement potential and the prospect of many small, "inconsequential" incidents that are cumulatively significant.

We include them here, mainly because we are not sure they would be able to serve the needs of the wine growers. Page 1 includes a definition of "incidental runoff" and is likely to be the same definition for the NSCARP program, if it should ever become reality. #4 on page 2 could prove a fatal flaw in this program. It states, *"Recycled water shall not be applied to irrigation areas during periods when uncontrolled runoff may occur."* I could be wrong, but I believe that this would preclude the use of wastewater for frost protection. Could this be a deal killer for the grape growers?

Furthermore, it states that (#5) *"Recycled water shall be applied in such a manner so as not to exceed vegetative demand or field capacity."* And (#6), *"Recycled water shall not be allowed to escape the recycled use area(s) in the form of surface runoff."* And the list goes on to cover 21 requirements. How many grape growers would want the wastewater if they had to abide by all these requirements and give regular reports on their compliance? M-42

We also include the lengthy Fact Sheet (Attachment #13), which explains the many regulatory concerns about allowing this highly treated wastewater in the environment. It is not true that this wastewater meets regulatory standards at all times. There is no guarantee that contaminants will not end up on the farmer's fields and in runoff into the water ways during low flows. When it happens, if it is reported, then the compliance process begins, and that can take months. So it is essential that this document reveal all those problems and possibilities and offer mitigations that go beyond "monitoring" the situation. M-43

While reclamation programs don't have to meet the California Toxics Rule (as long as there is no runoff), nevertheless, the City of Santa Rosa has had a great deal of trouble meeting the new requirements. The truth is, their wastewater is very toxic to fish. I include a partial study abstract entitled, *"Sublethal effects of Copper on Coho Salmon"* by David H. Baldwin, et.al. (Attachment #14) It concluded that, *"...copper is broadly toxic to the salmon olfactory nervous system. Consequently short-term influxes of copper to surface waters may interfere with olfactory-mediated behaviors that are critical for the survival and migratory success of wild salmonids."* M-44

In the Administrative Civil Liability (Attachment #15) # R1-2007-0012 dated Feb. 1, 2007, there were seven discharges (pg. 4) of advanced treated wastewater from the reclamation system (over 15 months). There were two exceedances of effluent limits, five exceedences of temperature, nine exceedances of filtration limits in violation of Title 22 requirements, 44 instances of equipment failure and monitoring problems, discharge of 500,000 gallons to unpermitted lands (Geyser's fire), and a few others.

It states on page 13, in regard to the seven recycled water spills, *"Dry-season discharges can result in short-term, effluent-dominated flows in small stretches of the Laguna. Although thorough receiving water monitoring was not conducted, impacts de to nutrients and temperature may occur during times when receiving waters are impacted from other nutrient and temperature changes. Most of these releases were discharged to the Laguna de Santa Rosa which is listed as impaired for sediments, dissolved oxygen, nutrients and temperature. Another potential deleterious effect of these discharges is the likelihood of turbidity and sediment discharge that may result from overland flow of high volumes (>100,000 gallons) of effluent traversing exposed soils prior to discharging to receiving waters."*

## Riparian Protections

One of the most controversial issues in Sonoma County has to do with riparian protections. This is an issue that has so far been unsuccessfully tackled in the Sonoma County General Plan. The Regional Board is now considering (Attachment #16) an amendment to the Basin Plan to protect stream and wetland systems and may include methodology to identify and assess the condition of these systems and establish requirements to protect their beneficial uses.

If irrigation is going to occur and runoff a given, then nothing is more important than healthy riparian systems that filter and biologically treat runoff. They also protect against erosion. Many people feel it is an intrusion into their private property rights and fail to see the importance of the Public Trust vis a vis private rights. If this water/wastewater is going to be so engineered by NSCARP and other water projects, then the trade off MUST be riparian and other important environmental protections. Humans and wildlife all need water to live and its health must be protected for all of our benefits. M-45

I also include a sophisticated analysis of Riparian and Wetland System Protection Policy that gives a knowledgeable view of the complexities of the issue Attachment #17). Since many of the vineyards go within 25' of the bank, it is appropriate to insist that this project address this issue, controversial though it may be. We'd like to also point out that in order to water all the vines, it's hard to imagine that it can be done with no wastewater reaching the river. Please address this issue and the other pertinent issues raised in this document by Alan Levine for Coast Action Group. M-46

In conclusion, we include a packet of news articles (Attachment #18) for the last two months on growth, water and wastewater issues, including some on this project. It gives a good picture of the public interest and the controversial nature of this project.

# LIST OF ATTACHMENTS FOR NSCARP

1. County of Sonoma: Capital Project Plan: 2007-2012: Pg. 8H-2
2. Water and Wastewater Projects Status: RRWPC: 5-15-07
3. Tech Memo: North Sonoma County Water Conservation Corporation: Ag Use of Recycled Water from Geysers Pipeline: Packet includes member lists and meeting minutes: 3-17-2000
4. City of Santa Rosa: Review of Alternatives, 3-20-03 and

   City of Santa Rosa: Urban Reuse Project, 1-25-07
5. Three Charts: Santa Rosa's Dry Weather Flows 2000-2006, Historical Flows 1992-2005, Actual & Projected Growth 1980-2020, RRWPC
6. Sonoma County Water Agency Schedule of Actual Water Delivery2003-2007
7. Presentation to Regional Board on Low Impact Discharges & Incidental Runoff, RRWPC, 4-26-2007
8. County of Sonoma Board Transmittal: Temporary Urgency Change Petition, Sonoma County Water Agency: 4-24-07
9. Russian River Watershed Adaptive Management Plan Power Point Presentation, US Army Corps of Engineers, May, 2007
10. Threatened Waters, Aviva Glaser, Pesticides and You, Vol. 25, No. 4, 2005-06

    Contaminated Groundwater, Marla Cone, LA Times, 1-30-06
11. Sonoma County GP 2020 Draft EIR: 4.13 Hazardous Materials, Pg. 4.13-5,6,7
12. Water Reclamation Requirements & Provisions, Attachment G, NPDES # CA0022764 (Santa Rosa's Permit) 2006

    Comments on Proposed Waste Discharge Requirements: RRWPC: 5-24-06
13. Fact Sheet, Attachment F, NPDES # CA0022764 (Santa Rosa's Permit), 2006
14. Sublethal Effects of Copper on Coho Salmon, David H. Baldwin, et. al.,

    9-11-02 ( partial summary)

    Chart: Hardness-Dependent Effluent Limitations for Copper, E-2 NPDES # CA0022764 (Santa Rosa's Permit) 2006
15. Administrative Civil Liability #R1-2007-0012, North Coast Regional Board, for Santa Rosa's Permit Violations, 2-1-07
16. Notice of Public Workshops & Scoping Meetings, North Coast Regional Board: Concerning Basin Plan Amendment to protect streams & wetlands
17. Riparian and Wetlands system Protection Policy: Scoping; Coast Action Group: 4-8-07
18. Packet of 14 current news articles (April-May, 2007) on growth, water, wastewater and low flow issues: Press Democrat, Healdsburg Tribune, Sonoma West Times & News, Windsor Times

ATTACHMENT #1

| PROJECT TITLE | PROJECT DESCRIPTION | 5-YEAR PLAN ESTIMATED TOTAL COST | PROJECTED COSTS 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 |
|---|---|---|---|---|---|---|---|
| **COMMON FACILITIES FUND FUND 675421** | | | | | | | |
| Collectors 1 + 2 Surge Protection | | 445,000 | 445,000 | 0 | 0 | 0 | 0 |
| Russian River Wellfield Development | | 600,000 | 100,000 | 500,000 | 0 | 0 | 0 |
| Water Supply and Transmission System Expansion | Environmental studies/feasibility Diversion Alternatives | 2,600,000 | 600,000 | 500,000 | 500,000 | 500,000 | 500,000 |
| Mirabel-Cotati Pipeline | | 500,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Water Project EIR | | 825,000 | 750,000 | 75,000 | | 0 | 0 |
| Russian River Flow - EIR/EIS | | 350,000 | 350,000 | 0 | | 0 | 0 |
| Wohler-Forestville Pipeline | | 24,000 | 24,000 | | | | |
| Collector #6 Pumphouse | | 300,000 | 300,000 | | | | |
| Riverfront Park Reclamation | | 150,000 | 40,000 | 40,000 | 30,000 | 20,000 | 20,000 |
| Spring Lake Groundwater Study | Investigation | 450,000 | 450,000 | | | | |
| Water Education Facility | Preliminary Design | 255,000 | 255,000 | | | | |
| Wohler-Mirabel 12kV Underground | Power conduit project | 1,350,000 | 150,000 | 1,200,000 | | | |
| Mirabel Emergency Generator | Replace existing generator | 3,000,000 | 3,000,000 | | | | |
| Hanson Aggregate Property | Due diligence | 750,000 | 750,000 | | | | |
| TOTALS | | 11,054,000 | 6,769,000 | 2,415,000 | 630,000 | 620,000 | 620,000 |
| **WATER TRANSMISSION SYSTEM TOTAL** | | 82,696,000 | 7,681,000 | 71,915,000 | 1,260,000 | 920,000 | 920,000 |

ATTACHMENT #2

**RRWPC**
**Russian River Watershed Protection Committee**

Post Office Box 50
Guerneville, CA 9544
(707) 869-041

# Water and Wastewater Projects Status

Brenda Adelman
May 15, 2007

Following is an outline of active projects and issues that directly or indirectly impact the NSCARP Project. There should be an integrated planning document that looks at all these issues/projects as a whole. This current DEIR should address the interrelationship of these projects and determine to what extent they impact it. These lists are not in any particular order.

## Sonoma County Water Agency (SCWA)

- Restructured Agreement/ Impaired Water Supply MOU
- Conservation Programs/BMP Compliance
- Long Range EIR (WSTSP)
  - Requested growth projections from contractors going beyond 2020
  - Assumes new water rights permits granted
- ESA Section 7 Consultation
  - Status of Rubber Dam
  - Lake Sonoma Pipeline Project
- Decision 1610
  - Temporary change in flow reduction
  - Permanent flow reduction change
- Working to increase Water Rights to 101,000 AFY
- RRCSD Irrigation Reliability and Beneficial Reuse Project
- Laguna de Santa Rosa Ludwigia Removal
- Problems with Potter Valley Project
- Eel River diversions cut back
- Salmon Coalition and Habitat Conservation Plans
- Illegal Diversions
- Water Quality and Groundwater Studies with USGS

M-47

- Sonoma County General Plan / Water Resources Element
- Urban Water Management Plan (Draft?)
  - Demand Analysis
  - Legally challenged
  - Several Contractors wrote their own

## North Coast Regional Water Quality Control Board

- Basin Plan Amendments
  - Low Threat Discharge
  - "Incidental" Runoff
  - Temperature
  - Dissolved Oxygen
  - Anti-Degradation
  - Stream & Wetlands System Protection Policy
- TMDLs
  - Sediments (Russian River)
  - Temperature (Russian River & Laguna)
  - Dissolved Oxygen (Laguna)
  - Nutrients (Laguna)

M-47
(Cont'd)

## Santa Rosa & Subregional Wastewater Treatment System

- Incremental Recycled Water Project
  - Direct Discharge
  - Storage projects
  - Urban Reuse Project
  - Reverse Osmosis Project
  - Geyser's Expansion
  - Conservation
- Infiltration & Inflow Program

ATTACHMENT #3

**Comment Set M**
**(Cont'd)**

ORIGINAL DOCUMENT
SONOMA COUNTY WATER AGENCY
MAR 2 3 2000
To ___ File 14.1-1
Attachment(s) No ___ Yes X

# TECHNICAL MEMORANDUM

## NORTH SONOMA COUNTY WATER CONSERVATION CORPORATION

## AGRICULTURAL USE OF RECYCLED WATER FROM THE GEYSERS PIPELINE

RECEIVED
MAR 2 3 2000
Sonoma County Water Agency

Wagner & Bonsignore
Consulting Civil Engineers
A Corporation

March 17, 2000

# TECHNICAL MEMORANDUM

## NORTH SONOMA COUNTY WATER CONSERVATION CORPORATION

## AGRICULTURAL USE OF RECYCLED WATER FROM THE GEYSERS PIPELINE

### Introduction

Pursuant to the "Agreement for Engineering Services for Delivery of Recycled Water for Agricultural Use" executed with Sonoma County Water Agency (Agency) on November 8, 1999, we are providing the following Technical Memorandum prepared in connection with a proposal for the use of recycled water excess to the Geysers Pipeline project. In preparation of this Memorandum, we have met with representatives of the City of Santa Rosa (City) and its engineering consultant to discuss the physical facilities and design of the Geysers Pipeline including the operations and construction schedule.

We organized and attended seven meetings with various individuals within the agricultural community who are potential beneficiaries of the agricultural reclaimed water project. This group of landowners and vineyard consultants had been meeting periodically for the past two years regarding the project. We recommended that this group form a corporation to provide a single entity that could work cooperatively with the City and Agency to develop a recycled water project for agriculture in the area. The "North Sonoma County Water Conservation Corporation" (Corporation) was formed in December 1999, encompassing lands within the Russian River Valley and Alexander Valley Viticultural Appellation boundaries.

The purpose of our tasks outlined in the Agreement was to help identify a position for the Corporation in regard to the design, financing and construction of the facilities required to make reclaimed water from the Geysers Pipeline available for agricultural purposes. In cooperation with the members of the Corporation, we have identified proposed storage reservoir sites, conveyance and distribution pipeline routes and the lands where such reclaimed water could ultimately be used.

## Corporation Background

The current list of Corporation members is attached as Exhibit A. The charter members of the Corporation established that the initial cost of membership would be $2,000 per entity and have collected $36,000 in membership fees to date. In December, 1999 the Corporation retained Michael G. Heaton, Attorney at Law, as its Corporate Counsel. Mr. Heaton has extensive experience in working with public and private entities in the fields of water resources and agriculture. The Corporation pays for Mr. Heaton's services from its treasury.

A group of about ten members formed an "ad-hoc" Steering Committee of the Corporation and appointed Mr. John Jordan and Mr. Mason Ainsworth of Jordan Winery as its President and Secretary, respectively. Dr. Leo Bednel serves as the Treasurer. The Corporation has had three general membership meetings since its formation. In addition to these meetings Messrs. Jordan and Ainsworth and Ms. Paula Whealen of Wagner & Bonsignore met with representatives of the City of Santa Rosa. The minutes from these meeting are attached as Exhibit B.

The Steering Committee is presently working on a membership fee structure for new members and planning to send information regarding membership to all landowners within the boundaries of the Corporation.

## Corporation Objectives

The Corporation was formed to develop and secure a reliable water supply for irrigation and related agricultural purposes within its geographical boundaries. The members of the Corporation recognize that increased instream requirements for environmental purposes and additional municipal and industrial growth within the Agency's service area will continue to compete with agriculture for available water supplies in the region. The Corporation believes that the agricultural use of reclaimed water is environmentally responsible and considers this project to be part of a regional water supply solution.

A significant capital commitment by the Agency and the City is essential for the development of the project. The project will require capital funding to be advanced by the Agency and or City for the construction of the reservoirs and distribution network. The Corporation members expect that they will be responsible for repayment of a portion of the capital cost by paying some dollar amount per acre-foot of use, but that the Agency and City will pay the significant portion of the project cost. It is anticipated that the reservoirs will be either owned or leased by the Agency and or City.

The Corporation members envision a system of storage reservoirs that will be filled during periods when excess water from the Geyser's project is available, for use during periods of drought or supply shortages due to unforeseen regulatory constraints. The reservoirs will serve certain lands that are within a reasonable proximity to the supply reservoirs through a pipeline distribution network.

**Proposed Facilities**

Reservoirs

Plate 1 shows the location of the seventeen reservoir sites identified within the Alexander and Russian River Valleys. Of these, nine are considered "primary" sites based on proximity to place of use, estimated construction cost, elevation and other constraints. These sites were determined to warrant a more detailed evaluation. The primary reservoir sites have a potential storage capacity of about 5,000 acre-feet. The remaining eight sites are considered "secondary" sites as they are less desirable locations due to potential construction problems and proximity to irrigable lands. We believe, however, that these sites also warrant additional evaluation prior to being eliminated from consideration. A table showing the details of the primary and secondary storage reservoirs is attached as Exhibit C.

The proposed reservoirs are located within the Alexander and Russian River Valleys. Based on a preliminary review of the project and our discussions with the City, we expect that there will be at least two separate systems, one serving Russian River Valley properties and one serving Alexander Valley properties. It is possible that an interconnected system could be developed assuming that the main Geysers pipeline is capable of transporting water previously stored in the Russian River Valley area to the Alexander Valley. The Alexander Valley primary storage reservoirs could total approximately 2,000 acre-feet while the Russian River Valley storage in primary reservoir sites could total approximately 3,000 acre-feet.

Distribution Pipelines

The approximate locations of the supply and distribution pipelines are shown on Plate 1. The supply pipelines will be used to convey water from turnouts in the Geysers Pipeline to the proposed storage reservoirs and may also be used for conveying water from the reservoirs to the place of use. Exhibit D is a summary of the possible pipeline sizes and lengths. We have not yet identified the location and size of booster pumps that may be required.

Place of Use

On Plate 1 we have identified approximately 6,500 acres of vineyard that are owned and or managed by the present membership of the Corporation that could be served reclaimed water pursuant to this project. As much as 14,000 acres of additional vineyard and other agricultural lands owned by non-Corporation entities are located in close proximity to the proposed reservoirs and distribution pipelines. It is anticipated that some portion of these lands will eventually be part of the project.

**Technical Committee**

As a result of our meetings with the Steering Committee and discussions with representatives from the Agency and City, it was agreed by all parties to commence a three way, multi-level negotiation process to develop the agricultural use component of the Geysers Pipeline project. The

three levels of this process are: 1) the technical working committee; 2) the policy review and political support group; and 3) the final decision makers, being the Agency Board, the City Council and the Corporation steering committee.

The Technical Committee will be comprised of representatives from the City, Agency and Corporation and will be tasked with identifying a preferred project and several alternatives involving pipeline alignment, configuration of the distribution system, location and size of reservoir and lands to be irrigated. The Committee will identify a reservoir site and acreage to be used as a "demonstration project" which will allow the Committee to evaluate all of the elements that need to be addressed in order to define the relationships between the Corporation, Agency and the City. At a minimum, these elements will include the following:

- Ownership of the reservoir, pipeline system, water and excess conveyance capacity.
- Easements and rights of way for project facilities.
- Cost of design and construction.
- Development of operational criteria.
- Potential cost of delivered water.
- Possible funding mechanism.

The first meeting of the Technical Committee was held on March 3, 2000. The following individuals attended this meeting:

Mason Ainsworth, Corporation Secretary
Bob Anderson, representing Jim Ledbetter, Vino Farms, Corporation Member
Ed Brauner, Assistant City Manager, City of Santa Rosa
Daniel C. Carlson, Capital Projects Coordinator, City of Santa Rosa
Barney Fernandez, Ferrari-Carano Winery, Corporation Member
Michael G. Heaton, Corporation Legal Counsel
Pam Jeane, P.E., Civil Engineer, Sonoma County Water Agency
John Jordan, Corporation President
Iver Skavdal, P.E., Winzler & Kelly Consulting Engineers
Robert C. Wagner, P.E., Wagner & Bonsignore Consulting Civil Engineers
Paula J. Whealen, Wagner & Bonsignore Consulting Civil Engineers

It is expected that other members of the Corporation, or staff persons from the City and or Agency will attend these technical meetings as determined necessary by the meeting agenda. The above individuals have committed to participate in technical level discussions on a twice-monthly basis for the next several months. Wagner & Bonsignore's participation in the Technical Committee is predicated upon the execution of a contract for services with the Sonoma County Water Agency. Minutes of the first meeting are attached as Exhibit E.

## Summary

The project identified herein consists of about 6,500 acres of lands owned or maintained by current members of the Corporation that would be served reclaimed water by a 74 mile supply and distribution pipeline network. The Corporation is hopeful that the additional 14,000 acres of irrigable lands located in close proximity to the proposed pipeline network can be included in the project in order to achieve a realistic project cost on a per acre basis.

## Recommendations

We envision that the work of the Technical Committee will result in the development of a project description, project alternatives, and provide a sufficient foundation for conceptual agreements for the development of the project. Based on the foregoing, we recommend the following:

- Proceed with the three way multi-level negotiation process.
- Continue participation in the Technical Committee.
- Develop the scope of services for the draft set of project tasks attached as Exhibit F.

## LIST OF EXHIBITS

| | |
|---|---|
| EXHIBIT A | North Sonoma County Water Conservation Corporation Membership Status as of February 24, 2000 |
| EXHIBIT B | Minutes from North Sonoma County Water Conservation Corporation Steering Committee Meetings |
| EXHIBIT C | Table of Pertinent Features of Water Storage Facilities |
| EXHIBIT D | Table of Location, Size and Lengths of Supply and Distribution Pipelines |
| EXHIBIT E | Minutes from March 3, 2000 Technical Committee Meeting |
| EXHIBIT F | Project Tasks associated with Development of Project Alternatives, Feasibility and Draft Operation and Funding Agreements |

# Exhibit A

## North Sonoma County Water Conservation Corporation

Membership Status as of February 24, 2000

| Company | Dues |
|---|---|
| Associated Vintage Group | |
| Bucher Dairy | 2,000 |
| Clos du Bois Wines, Inc. | 2,000 |
| Dry Creek Vineyard | |
| Fanuchi Ranch | |
| Ferrari-Carano Vineyards & Winery | 2,000 |
| Foppiano Winery | 2,000 |
| Gallo of Sonoma | 2,000 |
| Hambrecht Vineyards & Winery | |
| Hiedin Vineyard | 2,000 |
| Hoot Owl Vineyards | |
| J Wine Company | 2,000 |
| Jordan Vineyard & Winery | 2,000 |
| Kendall Jackson | 2,000 |
| Legacy | 2,000 |
| Missing Acre Vineyards | 2,000 |
| Mounts Vineyard | |
| Murphy-Goode | |
| Robert Young Vineyards, Inc. | 2,000 |
| Russell Ranch | 2,000 |
| Saralee's Vineyards | |
| Simi Winery | 2,000 |
| Stonestreet | 2,000 |
| Sweetwater Springs Ranches | 2,000 |
| T Bar T Vineyard | 2,000 |
| Vimark | |
| Vino Farms | 2,000 |
| | **$36,000** |

**North Sonoma County Water Conservation Corporation**
P.O. Box 878
Healdsburg, CA 95448

To: Ad Hoc Steering Committee
From: Mason Ainsworth, Secretary
Date: January 6, 2000
Subject: Draft Minutes of Steering Committee Meeting of January 6, 2000

---

ATTENDING:

Mason Ainsworth, Secretary
Dana DiLuvio
John Jordan, President
Leo Becnel, Treasurer
Kevin Becnel
John Bucher
Chuck Conner
Barney Fernandez
Keith Hom
Jim Ledbetter
Bruce Lundquist
Steve Smit
Jim Young

Bob Anderson (United Wine Growers)
Bob Wagner (Wagner & Bonsignore, Consulting Engineers)
Paula Whealan (Wagner & Bonsignore, Consulting Engineers)
Mike Heaton (Attorney)

The ad hoc Steering Committee for the formation of the North Sonoma County Water Conservation Corporation (NSCWCC) met on January 6, 2000, at 8:30 AM at the offices of Simi Winery in Healdsburg.

1. Upon motion properly made and seconded, the minutes of the meeting of the ad hoc committee, held on December 9, 1999 were adopted and approved, with the correction that the roster of those attending was amended to include Steve Smit.

2. Michael Heaton reported that the corporate name reservation letter had been received from the Secretary of State and that the name "North Sonoma County Water Conservation Corporation" would be reserved for 60 days.

3. Heaton also presented and reviewed the revised draft of the Articles of Incorporation for NSCWCC. The committee discussed whether the NSCWCC should file as a tax-exempt or taxable entity. It was agreed that for the time being the corporation would be structured as a non-profit, mutual benefit corporation but would not seek tax-exempt status. Upon motion properly made and seconded, the revised draft Articles of Incorporation were approved and adopted, and Heaton was directed to file the Articles of Incorporation with the Secretary of State and to pay the required fees to the Secretary of State and the Franchise Tax Board.

4. The committee discussed the issues related to membership in the corporation and the rights to any

water made available upon commencement of operations distributing recycled water to members of NSCWCC, and the risky nature and lack of guarantee that water will in fact be made available, due to the need for the City of Santa Rosa, the Sonoma County Water Agency, and the NSCWCC to come to mutual agreement. The committee discussed at length the issues surrounding the use of the NSCWCC contact list as the initial source of possible members. It was agreed that the method of allocating the recycled water made available through a successful three-way agreement between the City of Santa Rosa, the Sonoma County Water Agency, and the NSCWCC is tabled till a later date, and that the members who choose to join the NSCWCC will be informed as a condition of membership that there is no guarantee of a successful three-way agreement between the City of Santa Rosa, the Sonoma County Water Agency, and the NSCWCC, regarding the use of recycled water. Specifically, the members who choose to join the NSCWCC will be informed as a condition of membership that membership confers eligibility and not a guarantee to participate in the allocation process for water received from the successful creation and commencement of operations. It was also agreed that the NSCWCC contact list will be the initial source of possible members with the following additions and changes: that George Hambrecht currently being represented by Jay Behnke, be added, and that Dennis Murphy be changed to Jim Murphy.

It was further agreed that a membership application form will be prepared to reflect the directions of the ad hoc committee and be submitted to the contact list requesting at least the following: the amount of water requested, the physical address for each and all places of use, and a check for $2,000 payable to the NSCWCC. Further, this application should be received by NSCWCC by the date stated on the membership application to ensure proper consideration for membership. Finally, the results of this membership drive will be reported at the next NSCWCC meeting.

5. Michael Heaton presented and reviewed his contract for legal services to the NSCWCC. Upon motion properly made and seconded, the contract with Michael Heaton was approved and the committee directed President John Jordan to execute the contract.

6. The President turned matters to the issue of the NSCWCC's draft letter in response to the letter dated November 19, 1999, from the City of Santa Rosa to the Executive Director of the United Winegrowers. The ad hoc committee discussed the political issues of the upcoming election contest between candidates Tim Smith and Noreen Evans and its impact on the City of Santa Rosa's position, and the details of a conversation between Michael Heaton and Ed Brauner.

The committee discussed at length the wording and tone of the draft letter, and agreed that the first sentence of paragraph 1 on page 2 should be modified to exclude mention of benefits to landowners in the vicinity of the pipeline, and that the tone of the letter should be modified to reflect the "user friendly" nature and unqualified benefit of aligning the Geyser's pipeline along the NSCWCC's proposed route across farm land. It was further agreed that Michael Heaton and Paula Whealan should modify the draft response to reflect the ad hoc committee's direction and prepare it for President John Jordan's signature. Further, the modified draft response should include a listing of those ad hoc committee members present at this meeting.

7. The President turned matters to the issue of the proposed reservoir locations. The committee discussed the economic and future demand issues surrounding the importance of having sufficient reservoir sites adjacent to the place of use of the recycled water, and the issues surrounding the inclusion of the Kendall-Jackson, T-Bar-T, Young Vineyards, Barbara Foster, Sonoma County Airport, Salvation Army facility off of Lytton Springs Road, and Lytton Station Road wetlands reservoir sites in the NSCWCC's proposal. It was agreed that a delegation composed of at least Tom Hobart, John Jordan, and Jim Young should visit with Barbara Banke and Tony Korman to determine Kendall-Jackson's willingness to participate by committing reservoir sites to the NSCWCC's proposal, and that a delegation composed of at least John Jordan should approach those persons responsible for the Salvation Army facility. It was further agreed that Wagner & Bonsignore would investigate the following sites: the Sonoma County Airport, the wetlands area on Lytton Station Road, and the T-Bar-T and the Young vineyard sites.

8. The President turned matters to the issue of the corporation boundary. Paula Whealan discussed the

North Sonoma County Water Conservation Corporation
Draft Minutes of Steering Committee Meeting of January 6, 2000

impact of the pending membership drive on the corporation boundary, and requested and obtained clarification on the southern boundary.

9. The President turned matters to the issue of amount of water to be requested in the NSCWCC proposal. The ad hoc committee discussed in detail the importance of distinguishing between the amounts of water the initial NSCWCC membership might request versus the total amount of water all farmlands lying within the NSCWCC boundary might request, and the assumption of the amount of water an acre of vineyards might use if it were in Alexander Valley appellation rather than in the Russian River appellation. This issue was tabled for later discussion.

10. The President turned matters to the issue of the City of Santa Rosa's Petition to Change Wastewater Effluent Purpose and Place of Use, pending before the State Water Resources Control Board. The committee discussed at length Santa Rosa's failure to include the agricultural component in the Geyser's project and the consequences of filing a protest. It was agreed that the NSCWCC would not protest, and that individual members who choose to protest should consider conferring with Paula Whealan, prior to the submission of the protest. It was also agreed that the consultants and/or the attorney would informally discuss this matter with the appropriate Water Resources Control Board staff to ensure that staff is aware of the situation.

11. The President opened the discussion to other business not included on the agenda. The ad hoc committee discussed that the political troubles between the City of Santa Rosa and the Sonoma County Water Agency, and the impact of this situation on the strategy for negotiating with the City of Santa Rosa and the Sonoma County Water Agency. It was agreed that this issue would be tabled until the ad hoc committee establishes a negotiating committee.

12. Also, the committee discussed the option of bringing Mike Martini to a committee meeting for the purpose of discussing the development of a workable solution between the City of Santa Rosa, the Sonoma County Water Agency, and the NSCWCC. This was also tabled for later discussion.

13. The Secretary outlined the procedures for determining which NSCWCC members would receive communications based upon the type of communications. The ad hoc committee agreed to the procedures.

14. The President adjourned the meeting after establishing that the next meeting will be held some time in the last two weeks of February.

Respectfully submitted,

Mason Ainsworth
Secretary

# NORTH SONOMA COUNTY WATER CONSERVATION CORP.

Draft Agenda for Steering Committee Meeting - Friday, February 11, 2000
8:30 AM - Simi Winery, Healdsburg

1. Call to order/Introductions - John

2. Reports
   a. Minutes of prior meeting - Mason
   b. Membership and Financial Report - Mason and Leo
   c. Reports on meetings with City of Santa Rosa, Gallo and KJ - John

3. Discussion and Vote on proposed three-way negotiation process - John, Paula, Mike
   - Preliminary discussions with City and SCWA staff
   - Policy level process for dealing with agencies
   - Technical level discussions (engineers, consultants, attorneys)

4. Review and discussion of Position Questions - Mason

5. Discussion of internal matters - Mike
   - Development of by-laws
   - Corporation structure and organizational issues *(may defer this to next meeting if time is a problem)*

6. Discussion of project issues - Bob and Paula
   - Corporation boundary
   - Reservoir locations
   - Pipeline alignment
   - Distribution system configuration

7. Other comments/questions from the members

8. Next Meeting and Adjournment - John

**North Sonoma County Water Conservation Corporation**
P.O. Box 878
Healdsburg, CA 95448

To: Ad Hoc Steering Committee
From: Mason Ainsworth, Secretary
Date: January 26, 2000
Subject: Report of Meeting With Representatives of City of Santa Rosa on 1/24/00

ATTENDING:

Mason Ainsworth, Secretary, NSCWCC
Ed Brauner, Assistant City Manager, City of Santa Rosa
Dick Dowd, Chairman, City of Santa Rosa Board of Public Utilities
Barney Fernandez
John Jordan, President, NSCWCC
Paula Whealen, Wagner & Bonsignore, Consulting Engineers

BACKGROUND:

The City of Santa Rosa, as a response to NSCWCC's January 10, 2000 letter regarding the Geysers Pipeline Alignment, invited a small group to meet with Ed Brauner, Dick Dowd, and Iver Skavdal, a consulting engineer to the City on the Geysers Project.

There had been discussion among some members of the team about the City's invitation. There was general agreement that it is reasonable to hear what the City has to say and to answer their questions about who we are as an organization. When the agenda of the meeting was raised, it was pointed out that the existing policy is to work with the Sonoma County Water Agency and to not negotiate directly with the City of Santa Rosa. The conclusion was that the meeting could only be informational in nature.

The above concerns were outlined for the City and the City agreed to the meeting's agenda. They were informed that the following would be attending: Barney Fernandez, Paula Whealen, Mason Ainsworth, and John Jordan.

The above information was sent by broadcast fax to the existing contact list for the NSCWCC. Subsequent to that fax, the following additional details were brought up.

The City of Santa Rosa indicated there would be no issue over the presence of Paula Whealen, a consultant paid by the Sonoma County Water Agency to support the NSCWCC. Further, that it would be acceptable for Pam Jeane, Sonoma County Water Agency Project Lead on the Geysers Pipeline Project, to be present at the meeting. Pam Jeane, however, was unable to attend due to a scheduling conflict. Iver Skavdal would not be able to be present due to family business. The meeting would be held on Monday, January 24, 2000, from 10:00 AM to 11:00 AM at the offices of Winzler & Kelley in Santa Rosa at 495 Tesconi Circle. Finally, in preparation for the City's possible questions on what the NSCWCC stands for as an organization, a brief review was made of the NSCWCC's position on current policies and policies related to moving forward towards a working arrangement between the City of Santa Rosa, the Sonoma County Water Agency, and the NSCWCC.

MEETING DETAILS:

The above group met on January 24, 2000, at 10:00 AM at the offices of Winzler & Kelley in Santa Rosa.

1. Mr. Jordan described the history of the NSCWCC and stated that the group currently is leaving the option open to pursue the creation of a public entity as a vehicle for managing the irrigation system.

2. Mr. Dowd presented and reviewed the current alignment situation. The path from the Laguna to Alexander Valley was recently announced to positive public opinion. There are two outstanding alignment option decisions to make. The first is the Alexander Valley alignment; a decision between going down Alexander Valley Road and going cross-country. The second is the Pine Flat Road alternatives that include aside from Pine Flat Road, going across existing PG&E right of ways and going across Kendall-Jackson land.

3. Mr. Dowd presented and reviewed the current City Council position on agricultural reuse of recycled water. The majority of the council is adamantly for including agricultural and urban reuse of the recycled water. In support of this policy, the council has included $30 million above and beyond the needs for the Geyser's Project of which $20 million has been targeted for upsizing the Geyser's pipeline to a 48-inch diameter up to Alexander Valley. The remaining $10 million is seen as having no strings attached and is to be used to investigate proposals for use of the remaining water. The City was pleased with the formation of the NSCWCC as it provides proof of group interest and provides a single point of contact.

4. Mr. Dowd turned the discussion to the issue of commitment and moving forward. He provided the candid statement that it would be preferred for the pipeline to go across private property as a method to alleviate traffic problems. However, if an agricultural reuse option is to be pursued then there should be some commitment on the presence of storage sites for the recycled water.

Mr. Jordan provided additional background on the current policy of the NSCWCC, which is to work exclusively with the SCWA for the development of any negotiated three-way agreement on the creation of a workable irrigation system. He stated it would be necessary to obtain NSCWCC ad hoc committee support to begin any direct negotiations with the City of Santa Rosa.

Ms. Whealen, a consultant from Wagner & Bonsignore, discussed in detail the purpose and background for her presence. She suggested a three-party workgroup as a framework for moving forward on the development of working arrangement between SCWA, the City of Santa Rosa, and NSCWCC. The participants would include representatives from the three parties and should have the authority and ability to gather information and readily make and/or obtain decisions from their respective organizations. Ms. Whealen asked Mr. Brauner and Mr. Dowd about their willingness to commit sufficient time and resources.

5. Mr. Dowd, as a response, turned matters to the structural problems arising from the diffuse decision making process at the City of Santa Rosa. As Chairman of the Board of Public Utilities, it is necessary to poll the members of the five-person board. Further, it is necessary to take into account that the City Council has oversight over the BPU decisions. Given the above, Mr. Dowd agreed that he could see the creation of a "Discussion Group".

Mr. Dowd lead and the group discussed Mr. Dowd's understanding of the overriding policy issues. The BPU originally was chartered with resolving a disposal problem. However, oversight agencies have applied pressure in support of the creation and inclusion of an agricultural reuse component in the Geysers Project. The BPU sees the need to evaluate agricultural reuse options based on economics and engineering feasibility. The BPU does not see as politically feasible or reasonable SCWA's demand that SCWA have control of the water above the 11 million gallons per day being delivered to the Geysers based upon SCWA's $10 million funding commitment. The total cost of the Geysers project is in the range of $130 million, an amount significantly greater than $10 million. Further, 55% of the SCWA $10 million funding commitment is actually monies paid by the population of the City

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of Santa Rosa to SCWA thereby reducing SCWA's actual participation to less than $5 million. In response to Mr. Fernandez's question on what amount of money SCWA would need to provide to gain control over the excess capacity, Mr. Dowd indicated there is no amount of money that would accomplish that objective. The City must maintain the ability to deliver water for urban reuse projects, i.e., golf courses, at its discretion. The City is willing to enter into long-term recycled water delivery contracts with individuals.

Dick Dowd indicated the issue of control over the excess recycled water is not the big issue. Agricultural reuse options must address the bigger issue of the long-term water supply to the City as well as the county of Sonoma, i.e., the urban population. The creation of an agricultural reuse system allows other entities such as Windsor, Healdsburg, and the Airport treatment facility, to move water to areas that allow for the recharging of the aquifer. Mr. Fernandez shared that SCWA is of the opinion that 10,000 to 15,000 acre-feet of reuse is the number that the National Marine Fisheries Service believes is required for the Russian River Watershed. * *

6. Ms. Whealen turned matters to the members, structure, and timeframe for the Discussion Group. Ms. Whealen discussed and highlighted that it is important SCWA be an integral part of the process. In addition, SCWA would be a valued member to the discussion group given their expertise in the matter of water distribution systems. Ms. Whealen raised the point that the NSCWCC would need to have a board meeting as soon as possible to provide authorization to move forward on this new path and suggested that the Discussion Group would need to start very soon after the NSCWCC board meeting. Mr. Ainsworth reinforced the NSCWCC perspective on the importance of SCWA by pointing out that none of the members of the NSCWCC are in the water distribution business.

Ms. Whealen asked if Mr. Dowd and Mr. Brauner supported a discussion group. Mr. Dowd agreed that there was sufficient reason to continue and stated that any proposal by NSCWCC would likely be an economical solution to obtain additional water supply. Mr. Fernandez highlighted the importance of moving forward by stating that if a * working arrangement is not developed then a moratorium is likely to be imposed. No one disputed or disagreed with this assessment.

Mr. Jordan returned the discussion to the issue of Discussion Group membership, structure and timeframe. Ms. Whealen, advising the group of her inability to speak for SCWA in this matter, indicated that she would participate in the Discussion Group as consultant to NSCWCC. However, Ms. Whealen indicated there was the hope that Pam Jeane, project lead for SCWA, would be the SCWA representative. Mr. Dowd indicated there would need to be some political representation including one BPU representative, one City Council representative (Mike Martini), one City staff representative (Ed Brauner), and one supervisor (Paul Kelley). Mr. Ainsworth pointed out there should be an understanding that political discussion should occur outside of working sessions. Ms. Whealen and Mr. Dowd concurred on having an operational sub-committee that would work on technical issues and report to the larger group. Mr. Fernandez concurred, by indicating that it is imperative to solve the political problems.

conflict?

Mr. Brauner addressed the issue of timeframes by raising the need to make a decision on the Alexander Valley pipeline alignment. Mr. Brauner stated that the City was neutral on the question of alignment. Further, it was the City's understanding that going cross-country would cost $0.5 million more than going down Alexander Valley Road. It was pointed out for Mr. Brauner that the property owners would not agree to provide cross-country access without a firm three-way working arrangement. The question was raised as to whether it was feasible to develop this working arrangement in a timeframe that would address the City's needs. Mr. Dowd stated that there was insufficient time. Mr. Jordan asked if there was a middle-ground fast track possibility. Mr. Brauner re-iterated that there appeared to be little financial benefit, given the $0.5 million difference between the paths, for spending the effort to obtain an agreement that would allow for a cross-country alignment.

Mr. Brauner asked whether the group was still willing to talk if the pipeline path went along Alexander Valley Road. There was general agreement made subject to NSCWCC concurrence.

Ms. Whealen agreed to take the lead in the organization and creation of the Discussion Group. Ms. Whealen

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committed to following up with Mr. Brunner on establishing the contact list and to coordinating a calendar for Discussion Group meetings.

7. The group agreed to adjourn the meeting.

Respectfully submitted,

Mason Ainsworth
Secretary

**North Sonoma County Water Conservation Corporation**
P.O. Box 878
Healdsburg, CA 95448

To: Ad Hoc Steering Committee
From: Mason Ainsworth, Secretary
Date: February 15, 2000
Subject: Minutes of Steering Committee Meeting of February 11, 2000

ATTENDING:

Mason Ainsworth, Secretary
Leo Becnel, Treasurer
John Bucher
Chuck Conner
Dana DiLuvio
Barney Fernandez
Lou Foppiano
Keith Hern
John Jordan, President
Tony Korman
Bruce Lundquist
Forest Tancer
Robert Weinstock

Bob Anderson (United Wine Growers)
Bob Wagner (Wagner & Bonsignore, Consulting Engineers)
Paula Whealan (Wagner & Bonsignore, Consulting Engineers)
Mike Heaton (Attorney)

The ad hoc Steering Committee for the formation of the North Sonoma County Water Conservation Corporation (NSCWCC) met on February 11, 2000, at 8:30 AM at the offices of Simi Winery in Healdsburg.

1. The President called the meeting to order. A new ad hoc committee member, Robert Weinstock of Missing Acre Farms, was introduced.

2. Upon motion properly made and seconded, the minutes of the meeting of the ad hoc committee, held on January 6, 2000 were adopted and approved.

3. The President turned matters to the status of the membership drive and finances of NSCWCC. Leo Becnel, Treasurer, indicated that the NSCWCC was in process of obtaining the corporate tax ID. Mason Ainsworth handed out and reviewed the report showing that 13 applications had been received as of February 10. It was observed that Kendall-Jackson signed up three of their corporate entities. An additional four ad hoc committee members submitted their applications and membership checks at the meeting bring the total membership drive to $34,000. Mason Ainsworth indicated he had talked with or left messages for those ad hoc committee members on the contact list that had not submitted their applications as of February 10.

4. The President presented and discussed the meetings with the City of Santa Rosa, Gallo, and Kendall-Jackson. The President discussed in some detail the three-tier process as discussed in the meeting with Dick Dowd and Ed Brauner.

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The President outlined a consequence arising from the three meetings: a meeting had been scheduled with important political members of the City of Santa Rosa and Sonoma County board of supervisors. These include: Dick Dowd, Chairman of City of Santa Rosa BPU; Paul Kelley, Sonoma County Supervisor; Mike Martini, City of Santa Rosa Vice Mayor; Tim Smith, Sonoma County Supervisor; Sharon Wright, City of Santa Rosa Council; Janet Condron, Mayor of City of Santa Rosa. The purpose of the meeting is to convey the significant concerns of the NSCWCC as it enters into the recommended three-tier negotiation process. This includes proposing a fast-track negotiation of a Geyser's Project Overland Route. There was extensive discussion over the benefits presumably accrued to the City and the NSCWCC by having an overland route through Alexander Valley. The meeting is to be held at Jordan Vineyard & Winery.

There was additional general discussion on the importance for the purposes of negotiation of having the NSCWCC keep in mind that any discussion of the Overland Route should incorporate the fact the NSCWCC includes the Eastside Road, the path through Simi Winery with the Alexander Valley Overland Route alignment. In addition, it was mentioned that there was an additional future benefit of the Alexander Valley Overland Route: at some point in the future, a turn-out at Lytton Station Road and Highway 101 could pass over Lytton Springs Road into Dry Creek Valley.

The President provided an assessment of the separate meetings with representatives of Gallo-Sonoma and Kendall-Jackson. The President felt the Gallo-Sonoma meeting with Matt Gallo and Tim Byrd was generally neutral in substance but positive in tone. The President felt Kendall-Jackson's position, as conveyed in the 4Q99 meeting where Tom Berliner discussed at length the benefits of developing a public agency water storage district, had changed significantly. Kendall-Jackson sees the benefits of working through the NSCWCC with the possibility of becoming a public agency as a future option.

Mason Ainsworth shared the crucial points of a separate conversation with Tim Byrd: the NSCWCC will be a topic of discussion in the public forum. Companies like Gallo and Kendall-Jackson have public relations expertise arising from their prior experiences in the public forum. Mason Ainsworth indicated he solicited input from Tim Byrd.

The President drew the discussion to a close and summarized many of the issues of the three-tier negotiation process, saying a true sign of a successful three-way negotiation is that all three parties feel some pain in the negotiated compromise. Further, the NSCWCC must be prepared to act as a mediator between the City of Santa Rosa and the SCWA with the purpose of creating a face-saving solution for all parties.

5. The President turned the meeting to the discussion and vote on the proposed three-way negotiation process. Michael Heaton presented and reviewed his memo discussing the proposed three-tier negotiation process. The outlined model came out of negotiations in the 1980's where there were similar complex three way negotiations involving operational, technical, financial, and legal issues. Michael Heaton pointed out the need for the NSCWCC to create the appropriate sub-committees or groups that would support the technical, negotiation, and policy layers of the process. Michael Heaton made the additional point: complex negotiations like this may be short or long but long, up to several years, has been the norm.

In response to a proposed vote on changing the NSCWCC policy of exclusive discussions with the SCWA, Keith Horn raised the question to Paula Whealen and Bob Wagner on the position of Wagner & Bonsignore within this proposed process. Bob Wagner and Paula Whealen indicated they saw their SCWA charter as being technical consultants. In the three-tier process, they would only work at the technical level and not at any other level.

Bruce Lundquist raised the question on whether the SCWA agreed to the proposed process. Paula Whealen indicated Randy Poole, SCWA General Manager, was agreeable to the process. As proof that this policy is being communicated down in the SCWA, Paula Whealen also shared that Pam Jean, SCWA project lead to the Geyser's project, sees SCWA policy pointing to this process as an agreeable solution. The President shared the results of a conversation with Randy Poole: Randy Poole stated he was in support of this solution. The President

reaffirmed that it may be necessary for the NSCWCC to broker a deal between the City of Santa Rosa and the SCWA.

Dana DiLuvio raised the question on whether the City was still in support of the agricultural reuse of water. The general consensus was that the City was moving forward on its decision to over size the pipeline for the purpose of supporting the agricultural reuse of the recycled water.

Bruce Lundquist raised the question of what impact the AVA lawsuit and the associated issues as outlined in the 2/11/00 Press Democrat would have on the project. There was some general discussion revolving around the public relations issues of the AVA lawsuit but with no conclusion. Bruce Lundquist suggested this might be a question for the meeting Monday. The President indicated it would be necessary to present at some point a position paper to either Tim Tesconi, staff writer to the Press Democrat, or Pete Golus, Editorial Director of the Press Democrat. Forest Tancer highlighted the existing NSCWCC political problem; because small vineyard owners are a small proportion of the NSCWCC membership, the NSCWCC will be seen as an organization of industrial vineyards working to corner the market on water. Robert Weinstock affirmed this perception and indicated that his discussions with other small landowners have shown the $2,000 membership as being a barrier to entry. Subsequent discussion suggested the following positive public relations points:

- The membership money has been understood by the ad hoc committee to be seed money that does not ensure any water, only the support of a process that might result in the development of an irrigation system;
- The proposed boundaries to the NSCWCC encompasses a very large area where any within the boundaries may become a member when the membership rolls are opened again;
- The proposal developed by the ad hoc committee last year showed a very extensive distribution system, enabling many small landowners to obtain membership and benefit;
- The current NSCWCC by-laws does not preclude any additional members;
- In the near term, all landowners adjacent the spider-web are potential members;
- The current limited ad hoc committee membership is driven by the Geyser's project timeline;

As a consequence to this discussion, the following motion was duly seconded and approved: Mason Ainsworth will draft a letter to the entire NSCWCC Ad Hoc committee contact list outlining the above points, forward it to all those present for review and comment, and upon approval of the final draft distribute it with a listing and/or signatures of the NSCWCC membership.

Further discussion on the development of a positive public relations positions raised the question of whether the group should actively solicit involvement of the media or whether the NSCWCC should wait to be approached by the media. The ad hoc committee came to no clear conclusion on this matter after strong arguments were presented for both sides of the issue.

Further discussion raised the question on whether the City of Santa Rosa has an out on the contractual commitment to provide 11 million gallons per day (mgd) of recycled water to the Geysers. Bob Anderson outlined his understanding on the penalty for non-performance for the City of Santa Rosa – Team Geysers contract: to his understanding, the 11mgd is an average. If after three years the average does not meet or beat the average, then there would be a $1,000 per acre-foot fine.

Mason Ainsworth moved that the NSCWW change its policy of exclusive negotiations through the SCWA to the proposed three-tier process as outlined in Michael Heaton's memo. This motion was duly seconded and the membership unanimously voted in support of changing the policy.

6. The President turned matters to the issue of attorney-client confidentiality and corporate by-laws. The President and Michael Heaton outlined the basic requirements and reasons for managing meetings with the intent of maintaining attorney-client confidentiality. Specifically, no third-party may be present during the discussion of supposedly confidential matters. It was concluded that the board of directors of the member corporations designate

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in writing the authorized agents for the member corporation and that this proof be maintained in the corporate records.

Mike Heaton reviewed and discussed briefly an outline of corporate by-laws that is generally used by mutual water corporations. He indicated *Article IV – Membership, Voting, Water Supply* and *Article X – Water Charges and Capital Repayment* are the most significant to the NSCWCC membership. Mike Heaton suggested resolving these two sections could be premature given that there is no irrigation system and that many of these issue will be coming up in the iterative process of the three-way negotiations. He did state *Article VI: Directors, Management* is a critical section and should be discussed. He reminded the ad hoc committee that the by-laws could be modified in the future.

Subsequent discussion revolved around the question of voting authority and rules and its relationship to big versus small landowners. Currently, several options on voting were discussed: (1) one vote per $2,000 membership; (2) one vote per dollar of assessed acreage; or (3) one vote per acre. After further discussion, Mike Heaton stated he would work on this section for the next meeting. Mike Heaton cautioned that his expertise is not in corporate law but in water law and suggested that any member with the appropriate expertise provide suggestions. Mason Ainsworth suggested that, in light of the early stage of this groups formation, the ad hoc committee stay with the currently accepted method: only those people at the table have a vote. In addition, he stated there would still be an effort to touch base with long-term ad hoc members who are not present to ensure a reasonable level of consensus.

Robert Weinstock raised the question of the prudence of hiring a corporate attorney. The general consensus was to table the issue until it became more pressing.

7. The President turned matters to the discussion of project related issues. Paula Whealen indicated the NSCWCC boundary has been sufficiently defined. Paula presented and discussed an inventory of known possible reservoir sites and the process to be used to prioritize the different sites. The President indicated the Salvation Army reservoir site would require kicking the decision up to the divisional review level. In response to the question on whether the Dewitt quarry might make a suitable reservoir, Paula Whealen indicated there were very significant structural problems with the site. Paula Whealen asked if there were any potential reservoir sites on the West side of the Alexander Valley as it would be beneficial to the overall design. No suggestions were offered. In response to the question of whether the group would be able to review the draft, Paula Whealen indicated the group would be able to review the draft prior to submission to SCWA.

Subsequent discussion on the pipeline alignment raised the question of whether the Overland Pipeline alignment was the tail wagging the dog. Paula Whealen indicated it was her understanding that there were only limited benefits for going overland and that the time required for drawing up a three-way agreement was far in excess of the time available to the City of Santa Rosa. She shared her understanding that there is a benefit for developing the micro-tunnel at the Route 128 bridge rather than at the crossing point defined by the NSCWCC: the start and end-points of the micro-tunnel would be in locations that would not be exposed to the natural wander of the Russian River. In addition, the crossing at the bridge was only 400 feet in length, half the distance of the NSCWCC crossing point; and 800 feet is near the technological limits of micro-tunneling. There was discussion on whether the city was under a real or contrived time limit. The general consensus was that the City could either agree to the accelerated fast-track three-tier process or not.

8. Mason Ainsworth handed out a limited outline of questions necessary for the development of a negotiating position. He indicated these questions are the responsibility of the ad hoc committee and the negotiating committee would be directly accountable for developing answers to the questions.

9. The President opened the discussion to other business not included on the agenda. Bruce Lundquist raised the question of the prudence of creating a list of NSCWCC talking points for use with the media. It was generally agreed Mason Ainsworth would do a broadcast fax indicating that the meeting would be held Monday,

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February 14 at 11:30 at J Wine Company.

10. The President adjourned the meeting after establishing that the next meeting will be held Friday, February 25 at Sirri Winery, starting at 8:30.

Respectfully submitted,

Masen Ainsworth
Secretary

North Sonoma County Water Conservation Corporation
P.O. Box 878
Healdsburg, CA 95448

To: Ad Hoc Steering Committee
From: Mason Ainsworth, Secretary
Date: February 25, 2000
Subject: DRAFT Minutes of Steering Committee Meeting of February 25, 2000

ATTENDING:

Mason Ainsworth, Secretary
Leo Becnel, Treasurer
John Bucher
Chuck Conner
Dana DiLuvio
Barney Fernandez
Keith Horn
John Jordan, President
Tony Korman
Steve Smit
Robert Weinstock
Jim Young

Mike Heaton, Attorney to NSCWCC

The North Sonoma County Water Conservation Corporation (NSCWCC) Steering Committee met on February 25, 2000, at 8:30 AM at the offices of Simi Winery in Healdsburg.

1. The President called the meeting to order and provided some comments on how future meetings would be managed. Given that this negotiation process is about to begin in earnest and given that the topics will be more complex, there will be a strong bias towards managing the meetings to conform to the given agenda. Discussion may range but should stay within the agenda topics. If board members feel that a topic should be discussed then the Secretary will place it on subsequent agendas for full discussion and resolution.

2. Upon motion properly made and seconded, the minutes of the meeting of the ad hoc committee, held on January 6, 2000 were adopted and approved with the following change: the penalty on either the City of Santa Rosa or Team-Geysers for not meeting the average of 11 million gallons per day was incorrectly stated to be $1000 per-acre-foot penalty. The penalty should read $1,000 per million gallons or $326 per acre-foot.

3. The President turned matters to the status of the membership drive and finances of NSCWCC. Mason Ainsworth handed out and reviewed a report showing that 18 applications had been received as of the deadline, bringing the total membership drive to $36,000. Mason Ainsworth raised the point that additional money will be required to complete the project. Leo Becnel, Treasurer, indicated that the NSCWCC was still in process of obtaining the corporate tax ID.

4. The President reviewed the lunch meeting with representatives from the City of Santa and Sonoma County and subsequent related activities. The lunch meeting was positive in tone and substance: the City and SCWA have shown positive movement and will be more fluid in their positions in the three-way negotiations. Since that lunch, it has become apparent there has been a shift in the politics between the City and County. There has been consultation between City and County counsel; the City is showing willingness to hand control of some

undefined portion of the recycled water to SCWA. As a consequence of this positive movement, the President has been working towards developing and enhancing positive relations with Tim Smith, Mike Martini, Ross Liscom (sp).

As a consequence of the news about the consultation between City and County counsel, the following question was raised: is the NSCWCC being left out of the three-way negotiation? The response was that the NSCWCC wanted the City and County to talk in the first place. Many of the problems from several months back had to do with the City and County refusing to talk about the City handing over control of the water to SCWA. In addition, we don't have real control over their choice to talk or not talk in the first place. We must focus on our own issues and define our own "deal-breakers" as we enter into the three-way negotiations.

5. The President turned the meeting to the discussion on the letter to potential members. Mason Ainsworth, pointing to the letter faxed to the ad hoc committee, indicated that no additional work had been done since the letter was originally generated. The question was raised about who would be receiving this letter. Mason Ainsworth indicated that he was currently working under the assumption of the proposed NSCWCC service area: the Alexander Valley appellation and the Russian River appellation north of River Road. Mason Ainsworth indicated he had spoken with Nick Frey, executive director of SCGGA, about obtaining an electronic copy of the SCGGA database that included members in the NSCWCC service area. Nick Frey indicated it would be necessary to obtain permission from the SCGGA board of directors, as they are very sensitive to issues of privacy. However, Nick indicated that given the purpose of the NSCWCC and the reason for needing the information, it would be reasonable to expect the SCGGA would be accommodating. However, as a contingency, it would be possible for the NSCWCC to do a mailing through the SCGGA; this is a service the SCGGA provides. There was additional discussion on limiting the scope of the distribution to less than the NSCWCC service area; but the discussion was inconclusive.

In response to the question about modifications to the letter, Mike Heaton suggested including a disclaimer similar to that on the initial membership application: membership does not ensure a water supply. It was stated that if there are additional changes to the letter, the committee members should provide those to Mason Ainsworth by Monday. In subsequent discussion, it was noted that the talking points generated by Bruce Lundquist, Dana DiLuvio, and Chuck Conner did not correlate with the letter. The general consensus was that the letter was suitably generic and positive.

There was the general consensus that the letter should be modified with the submitted suggestions and then mailed but whatever mechanism was most effective.

There was further discussion about the limited nature of the NSCWCC contact list: it does not include many small vineyard/farm owners. Further, the $2,000 would be a high cost of membership for small vineyard/farm owners. Dave Fannuchi was sited as an example of a 35 acre vineyard owner who had issue over spending $2,000 in addition to his stated concern over losing his existing water rights.

In response to the above concerns, the ideas bulleted below were floated on how to address the large versus small vineyard/ farm issue. However, this issue was tabled until the topic of opening the NSCWCC to new members was discussed. Mason Ainsworth ensured the steering committee that the topic of membership fees and associated issues would be included on the agenda when it was time to discuss opening the NSCWCC to new members, probably in one or two board meetings.

- Membership might be in a two or three tier structure;
- Where right-of-way by a small vineyard/farmer was a significant point, reasonable compensation would be made;
- There should be a strong relationship between membership cost and the amount of benefit derived, i.e., the number of irrigated acres.

6. The President turned matters to the status of the corporate by-laws. Mike Heaton indicated he had not

progressed on the by-laws since the last NSCWCC steering committee meeting the priority has been on developing additional operational details for the three-way negotiation.

7. The President turned matters to the status on the NSCWCC Negotiating questions. Mason Ainsworth indicated he had not made any additional progress. In addition, after handing out a timeline for the three-way negotiation process, he pointed out there was limited time left to develop a clear picture of NSCWCC's position. He pointed out that the NSCWCC Policy & Negotiating committee would be forced to address issues in detail beginning April 17, 2000. In response to the question of whether any steering committee member had done work on the negotiation questions, the uniform response was that no work had been done.

8. The President turned matters to the discussion of Chuck Conner's, Dana DiLuvio's, and Bruce Lundquist's recommendation that the NSCWCC hire a Public Relations consultant/firm and the subsequent vote. The President reinforced the points submitted by Chuck, Dana, and Bruce. Several PR consultants were recommended to the sub-committee, including Herb Williams, Mark Millian, Susan Starbird, and Rob Mulrath. IT was determined that if Susan Starbird were part of Herb Williams' firm, then she would not be contacted and Rob Mulrath would be. The following process arose out of the discussion:

- A sub-committee would generate a simple draft RFP;
- The Secretary would distribute the draft to the steering committee members currently present for their review;
- The members would have 12 hours to respond before the sub-committee was authorized to move forward; and,
- The sub-committee would schedule a series of three presentations for Friday, March 3, beginning at 8:30AM at Jordan Vineyard & Winery.

In the subsequent vote on whether to immediately release the talking points originally developed by Chuck, Dana, and Bruce to the media or defer contact until a PR consultant could formalize any media contact, three voted to use the existing talking points, five voted to defer contact, and the remaining abstained. A suggestion was made that Chuck Conner, Dana DiLuvio, and Bruce Lundquist comprise the PR sub-committee given the extent of their work. The steering committee as well as Chuck and Dana agreed to this suggestion.

9. The President turned matters to the three-way negotiation process. Michael Heaton reviewed the process and handed out a revised draft more current than that faxed out to the NSCWCC contact list prior to this meeting. He indicated that this process had been developed and reviewed by, in addition to himself, Pam Jeane of SCWA, Iver Skavdal of Winzler & Kelley, consulting Engineers to the City of Santa Rosa, and Paula Whealen and Bob Wagner of Wagner & Bonsignore. Randy Poole has stated that he is willing to fund Paula Whealen and Bob Wagner's fees for their technical support during the term of the project. Additional technical support wil be needed during the negotiation process and will include Hydrologists and Hydrogeologists. There was no definition on who would be funding these consulting Hydrologists and Hyrdogeologists.

The timeline was derived by backing into the activities after asking the question of when it would be reasonable to expect the completion of the preliminary environmental work. The technical level meetings currently have the following people representing the respective agencies:

- Iver Skavdal of Winzler & Kelley as consulting engineer to the City of Santa Rosa;
- Pam Jeane, project manager for SCWA;
- Paula Whealen of Wagener & Bonsignore, proposed lead for NSCWCC;
- Bob Wagner of Wanger & Bonsignore as chairman and facilitator for the technical meetings; and
- John Jordan indicated that he would endeavor to be present at the technical meetings.

Regarding the specific project activities, Mike Heaton indicated that based upon his conversations with the President, it was reasonable to say that Activity #1, *Agreement in Principle*, was completed. Regarding Activity #2, *First Draft of Project Description*, a scheduling memo has been sent to Iver Skavdal, consulting engineer to the

North Sonoma County Water Conservation Corporation
Minutes of Steering Committee Meeting of February 11, 2000

City of Santa Rosa, and Pam Jean, project lead for SCWA to coordinate the technical level meetings.

Mike Heaton asked if there were any specific questions or concerns. Mason Ainsworth indicated that the current timeline is still very high level for those tasks to be scheduled in the near term, i.e., four to eight weeks out. Mason would be contacting Mike and Paula to get greater detail that would allow answering Who, What, Where, When Why.

Also, Michael Heaton indicated he felt it necessary that he be present in the first few meetings to listen to concerns raised and to capture information for general review. He further stated that he would manage the time so that he would continue to bill at about$3k to $4k per month. There were no objections made to the point of Michael Heaton participating in the technical meetings.

10. The President turned matters to the discussion and vote on the NSCWCC having Wagner & Bonsignore represent NSCWCC's interest at the technical level in the three-way negotiations.

The question was raised on the materiality of the conflict in having Wagner & Bonsignore, a firm paid for by SCWA, act as technical lead for the NSCWCC. The general response was that the current team is aware of Paula Whealen's and Bob Wagner's degree of professionalism and ethical makeup. In addition, SCWA has committed to paying for their services and has not shown any problem with them representing NSCWCC's technical interests. Also, the three-way process specifically allows for knowledgeable members of the NSCWCC to be present to validate that issues are properly recorded and raised to the Policy & Negotiating level. As well, third-party engineers may be hired by the NSCWCC to validate Wagner & Bonsignore's work. Finally, the risk to SCWA in misusing the situation is complete closure of the negotiation process and the risk to Paula Whealen & Bob Wagner is a significant loss of professional acceptance in the valley.

Upon a motion properly made and seconded, Paula Whealen and Bob Wagner were unanimously accepted by the NSCWCC to fulfill the technical lead role for the NSCWCC with the cautions and reservations provided above.

11. The President adjourned the meeting after establishing that the next meeting will be held Friday, March 3 at Jordan Vineyard & Winery, starting at 8:30. The next general NSCWCC steering committee meeting will be based upon the progress of the technical meetings.

Respectfully submitted,

Mason Ainsworth
Secretary

# Exhibit C

## North Sonoma County Water Conservation Corporation
## Water Storage Facilities

### Alexander Valley Area

**Primary Sites**

| Owner Name | Site Reference | APN | Storage Amount (acre-feet) | Water Surface Elev. (feet above msl) | Limitations |
|---|---|---|---|---|---|
| Jordan Winery | Site #6 | 091-030-36 | 560 | 463 | Quaternary faults near site |
| T-Bar-T | Site #1 | 131-040-08 | 400 | 413 | Cost per acre-foot higher due to embankment size |
| Ken Todd | | 141-190-26 | 300 | 500 | Possible material shortage |
| Salvation Army | Ranch #8 | 091-100-12 | 400 | | Requires approval from owner |
| Robert Young Vineyards | Home Ranch | 131-080-18 | 340 | 320 | Would result in a loss of existing vineyard |
| | | Subtotal | 2,000 ac. ft. | | |

**Secondary Sites**

| Owner Name | Site Reference | APN | Storage Amount (acre-feet) | Water Surface Elev. (feet above msl) | Limitations |
|---|---|---|---|---|---|
| Castaneda | | 091-080-01 | 400 | 191 | Elevation of groundwater table & requires approval from owner |
| Kendall-Jackson | Alexander Mtn | | | | |
| | Site #5 | 131-120-02 | 380 | 978 | Geologic Constraints |
| | Site #6 | 131-120-02 | 2,300 | 795 | Geologic Constraints |
| | Site #7 | 131-120-11 | 210 | 530 | Geologic Constraints |
| | Site #8 | 131-120-02 | 815 | 770 | Geologic Constraints |
| Kendall- Jackson | Lytton Station | | 380 | 188 | Elevation of groundwater table |
| | | Subtotal | 4,485 ac. ft. | | |



Comment Set M
(Cont'd)

# Exhibit C

## North Sonoma County Water Conservation Corporation
## Water Storage Facilities

**Russian River Valley Area**

**Primary Sites**

| Owner Name | Site Reference | APN | Storage Amount (acre-feet) | Water Surface Elev. (feet above msl) | Limitations |
|---|---|---|---|---|---|
| Becnel | Site #1 | 110-180-39 | 1,430 | 435 | Proximity to Alexander Valley |
| Bucher | | 110-180-36 | 400 | 300 | Proximity to Alexander Valley |
| Russell | Site #2 | 110-180-31 | 410 | 360 | Proximity to Alexander Valley |
| Vino Farms, Inc. | Ranch #8 | 066-310-28 | 900 | 175 | Would result in loss of existing vineyard |
| | | Subtotal | 3,140 ac. ft. | | |

**Secondary Sites**

| Owner Name | Site Reference | APN | Storage Amount (acre-feet) | Water Surface Elev. (feet above msl) | Limitations |
|---|---|---|---|---|---|
| Becnel | Site #2 | 110-180-39 | 660 | 475 | Proximity to Alexander Valley |
| Becnel / Martin | | 110-180-26 | 800 | 500 | Proximity to Alexander Valley |
| | | Subtotal | 1,460 ac. ft. | | |



Comment Set M
(Cont'd)

## Exhibit D

## North Sonoma County Water Conservation Corporation
## Supply and Distribution Pipelines

| | Approximate[1] Length (miles) | | Estimated Pipe[1] Diameter (inches) |
|---|---|---|---|
| **Alexander Valley Area** | | | |
| Primary Sites | | | |
| Supply Pipelines | --- | | --- |
| Distribution Pipelines | --- | | --- |
| Secondary Sites | | | |
| Supply Pipelines | --- | | --- |
| Distribution Pipelines | --- | | --- |
| Subtotal | 50.5 | miles | |
| **Russian River Valley Area** | | | |
| Primary Sites | | | |
| Supply Pipelines | --- | | |
| Distribution Pipelines | --- | | --- |
| Secondary Sites | | | |
| Supply Pipelines | --- | | --- |
| Distribution Pipelines | --- | | --- |
| Subtotal | 23.6 | miles | |
| Total Length of Distribution of Pipe Network | 74.1 | miles | |

Note:
1) Individual lengths and sizes of supply and distribution pipelines will bedetermined during the preliminary design stage of project.

# MEMORANDUM

TO: Technical Committee Members
Geysers Pipeline - Agricultural Use

FROM: Paula J. Whealen, Secretary

DATE: March 7, 2000

RE: Minutes of Technical Committee Meeting held on March 3, 2000

Attending:

Mason Ainsworth, Secretary, North Sonoma County Water Conservation Corporation (NSCWCC)
Bob Anderson, Attending on behalf of Jim Ledbetter, Vino Farms, Member NSCWCC
Ed Brauner, Assistant City Manager, City of Santa Rosa
Dan Carlson, Capital Projects Coordinator, City of Santa Rosa
Barney Fernandez, Ferrari-Carano Winery, Member NSCWCC
Mike Heaton, NSCWCC Legal Counsel
Pam Jeane, Civil Engineer, Sonoma County Water Agency
John Jordan, President, NSCWCC
Iver Skavdal, Winzler & Kelly Consulting Engineers
Bob Wagner, Wagner & Bonsignore Consulting Civil Engineers
Paula Whealen, Wagner & Bonsignore Consulting Civil Engineers

On March 3, 2000 the above referenced parties met at the offices of Winzler & Kelly, 495 Tesconi Drive, Santa Rosa for the purpose of establishing a committee that will meet to discuss technical issues associated with the agricultural use of reclaimed water. The following is a summary of the items discussed at this meeting.

I. Introductions

Mr. Wagner called the meeting to order and provided background information on his firm, and a summary of the events leading to the formation of the NSCWCC and this first meeting of the Technical Committee. After some discussion, it was agreed upon that Mr. Wagner would act as Chairman and Ms. Whealen would act as Secretary for the Technical Committee.

II. Purpose of Technical Committee

Mr. Wagner asked each of the entities to state its objectives associated with participation in the Technical Committee.

*City of Santa Rosa - Ed Brauner*

Mr. Brauner stated that the City was participating in the meetings to help respond to the NSCWCC's request for the use of reclaimed water from the Geysers Pipeline. City believes that agricultural use of reclaimed water is sound environmental policy.

*Sonoma County Water Agency - Pam Jeane*

Ms. Jeane stated that the Agency's goal was to augment future water supplies and address fishery issues in the Russian River and its tributaries. Agricultural use of reclaimed water will serve to reduce the dependence on surface water resources.

*North Sonoma County Water Conservation Corporation - John Jordan*

Mr. Jordan stated that the Corporation was formed to secure a stable future water supply for agricultural interests. The NSCWCC recognizes that agricultural use of this water will help to further the goals of the City and the Agency in reducing the demand for Russian River water.

III. Meeting Protocol

- Parties will be notified of future meetings and provided meeting minutes via e-mail or fax.
- Meetings will be held at the offices of Winzler & Kelly unless otherwise stated.
- Meetings will be held on Fridays at 9:00 a.m. and are expected to last 2 to 3 hours.
- The tentative date for the next meeting is March 31, 2000 pending confirmation by Ms. Whealen.
- It was decided that committee members could, at their own discretion, ask other persons to attend the meetings.

IV. Identification of Proposed Facilities

*Geysers Pipeline* - Mr. Skavdal and Mr. Carlson identified the major components of the pipeline, and described the construction bid schedule for the various segments. There was discussion on the importance of identifying the location of turnouts required by NSCWCC.

*NSCWCC Facilities* - Ms. Whealen identified the NSCWCC's proposed storage reservoirs, distribution pipelines and current place of use. She indicated that these facilities would be described in greater detail in Wagner & Bonsignore's report to the Sonoma County Water Agency which is expected to be completed within the next two weeks.

V. Project Description / Project Feasibility
Project tasks and the associated timeline were discussed. The tasks included: Project Operation, Place of Use, Regional Plants, CEQA Documents, Project Funding and Action Timeline.

VI. Other Issues
Mr. Brauner provided an update on the status of the lawsuits filed against the City by the Alexander Valley Association and by the group of Piner Road area landowners.

Encl.

SCWAW.006

# EXHIBIT F

## AGRICULTURAL USE OF RECYCLED WATER FROM THE GEYSERS PIPELINE PHASE II

## DEVELOPMENT OF PROJECT ALTERNATIVES, FEASIBILITY AND DRAFT OPERATION AND FUNDING AGREEMENTS

## PROJECT TASKS

I. Technical Committee

A) Convene, organize and attend meetings of the Technical Committee with representatives from Sonoma County Water Agency (Agency), City of Santa Rosa (City) and North Sonoma County Water Conservation Corporation (Corporation). Prepare agendas and minutes for meetings.

B) Prepare information for discussion by the Technical Committee to include the following:

- Operation of Main Geysers Pipeline
- Operation of Supply Pipelines and Distribution Network
- Ownership of Facilities
- Ownership of Water
- Analysis of Funding Alternatives for City, Agency and Corporation
- Development and Negotiation of Agreements for Water Use

II. Coordinate with North Sonoma County Water Conservation Corporation

Attend meetings to advise Corporation of the status of Technical Committee discussions as required. Coordinate with Corporation Legal Counsel and Steering Committee regarding project issues.

III. Physical Facilities

A) Evaluation of Reservoir Sites
Conduct preliminary site inspections and geologic evaluations of proposed reservoir sites. Prepare detailed engineering estimates of storage amounts and cost of construction. Evaluate costs associated with loss of agricultural lands. Obtain enlarged aerial photographs of the study areas.

B) Supply and Distribution Pipelines
Identify the alignment and location of supply and distribution pipeline network and required booster pump stations. Evaluate the related hydraulics of the proposed system. Prepare a detailed engineering cost estimate for the construction of the proposed system. Identify the location of all required public right of ways and private easements associated with pipeline network.

C) Turnouts on Main Geysers Pipeline
Coordinate with City's Consultant at Winzler and Kelly regarding the location and size of turnouts on the Main Geysers Pipeline.

IV. Place of Use

Identify all potential lands to be served within the proposed service area. Assist in the preparation of the required Petitions to change the place of use for the City of Santa Rosa's Waste Discharge Permit.

V. Development of Alternatives for Project Operation

Analyze project operation alternatives for the following entities:

- North Sonoma County Water Conservation Corporation
- Sonoma County Water Agency
- Coordinated Operating Committee (Agency, City and Corporation)
- Other Public or Private Entity (Mutual Water Company, Irrigation District)

VI. Demonstration Project

As a model for full project design, identify and design a demonstration project involving one proposed reservoir. Analyze all elements associated with the design, construction, funding and operation of the demonstration project.

VII. Cost Estimate and Cost / Benefit Analysis of Project

Prepare preliminary engineering cost estimate and cost / benefit analysis for entire project.

VIII. Water Right Analysis
Conduct a water right analysis of existing rights held by Corporation members.

IX. Technical Memorandum Report for Project

Prepare a Technical Memorandum Report for the agricultural use of recycled water containing the following information:

- Project Feasibility
- Cost Estimate
- Cost / Benefit Analysis
- Draft Project Operation and Water Use Agreements
- Funding Alternatives
- Recommendations for Phase III

ATTACHMENT #4

## Review of Alternatives

Board of Public Utilities

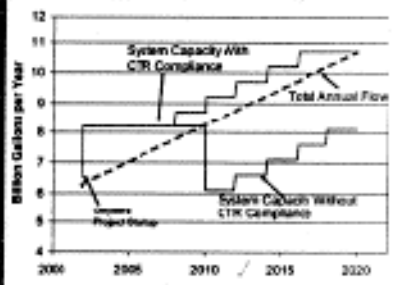
March 20, 2003

## General Plans and Future Flow

| General Plan | Flow | Disposal/Reuse |
|---|---|---|
| July '02 | + 4.6 mgd | + ???? |
| Apr '04 | + 3.3 mgd | + Geysers<br>- Irrigation<br>- Discharge |
| Pre-'94 | 18 mgd | Irrigation<br>Discharge |

Total=25.9 million gallons per day

## Potential CTR Impact on System Capacity




## Annual Volume

- IRWP Must Address
  - Now Discharge
  - Future: Growth

10.5 BG in normal year

## IRWP Purpose and Need

- Three Primary Project Objectives
  - Provide treatment, reuse and disposal for planned population
  - Protect public health and natural resources, esp. River and tributaries
  - Economically feasible
- Supporting Objectives
  - Maximize reuse
  - Potable supply benefits
  - Environmental protection
  - Maximize use of existing infrastructure
  - Manageable and reliable system

## Screening Criteria – Adopted Aug '02

- Meet Program objectives
  - All primary objectives
  - Most secondary objectives
- Feasible
  - Technology
    - Constructability
    - Reliability
  - Logistics
    - Schedule
    - Permits
  - Cost

## Alternatives Selected by BPU & Council for Evaluation in EIR - Sep '02

- Laguna Plant Expansion
- Indoor Water Conservation
- Inflow & Infiltration Reduction
- Urban Reuse
- Agricultural Reuse
- Storage
  - Surface storage only
- Wetlands
- Geysers Expansion
- Discharge
  - Additional treatment
  - Direct – Laguna
  - Direct – River
  - Indirect – River

## BPU Added Alternatives - Feb '03

- Laguna Plant Expansion
- Indoor Water Conservation
- Inflow & Infiltration Reduction
- Urban Reuse
- Agricultural Reuse
- Storage
  - Surface storage only
- Wetlands
- Geysers Expansion
- Discharge
  - Additional treatment
  - Direct – Laguna
  - Direct – River
  - Indirect – River
  - Direct – Ocean
  - Direct – Salt Marsh

## Summary of Correspondence

- Preference for particular alternatives
  - Irrigation, including trees
  - Geysers
  - Other reuse options
- Concern about growth
- Opposition to ocean discharge
  - Concern about effects
    - Aquatic life
    - Fishing industry
    - Beach closure
    - Tourism
  - Waste of water

## Agencies needing to permit alternative

| Ocean | Napa |
|---|---|
| • NC RWQCB | • SF RWQCB |
| • COE | • COE |
| ◦ NMFS | ◦ NMFS |
| ◦ USFWS | ◦ USFWS |
| ◦ OHP | ◦ OHP |
| • DFG | • DFG |
| • Sonoma County | • Sonoma, Napa Co. |
| • Coastal Commission | |

## City of Santa Rosa
## Urban Reuse Project

Board of Public Utilities
Contract Review Subcommittee
January 25, 2007

## Presentation Summary

- Review previously approved Urban Reuse policy "assumptions"
- Review Urban Reuse project timeline
- Consider making assumptions final policy decisions
- Discuss "Water Efficient Landscape Policy" as it relates to Urban Reuse
- Decide on next steps
  - Subcommittee meeting/s
  - Board updates
  - Council updates - Liaison Committee or Council meetings

## Previous Actions

- Contract Review Subcommittee met numerous times in 2006 to review policy options
- On July 10, 2006 Subcommittee recommended a broad set of policy "assumptions" be brought to BPU for consideration
- On August 17, 2006 BPU concurred with Subcommittee recommendation and endorsed using these assumptions to direct the Urban Reuse pre-design efforts

## Urban Reuse Project Timeline

- March 2007 – BPU reviews Design Standards and Routing Alternatives
- May 2007 – BPU considers recommending Urban Reuse Ordinance to Council
- June 2007 – Council considers adopting Urban Reuse Ordinance
- July 2007 – BPU Update on alternatives and costs
- November 2007 – BPU receives Pre-design Report
- 2008 – Phase 1 design and CEQA compliance
- 2009 – Phase 1 construction begins

Consider Making Policy Assumptions
Policy Decisions

## Policy Assumptions

- The Santa Rosa Water Utility service area will be defined as the Recycled Water Project Area in the Urban Reuse Ordinance.
- A Recycled Water Service Area (RWSA) will be defined when a project is selected; this can change over time as the project phases develop, or the overall project is expanded.
- New non-single family residential users within the RWSA will be required to use recycled water for approved uses; Utilities will begin to condition projects once the Urban Reuse Ordinance is adopted. Interested single-family residential developers will be considered on a case by case basis.

## Policy Assumptions

- Existing users within the RWSA will initially participate on a voluntary basis; existing users will not pay any demand fees (they have already paid a potable water demand fee).
- Any connection that is eligible for potable water is eligible for recycled water; all new connections to the City water system (potable or recycled) will pay a demand fee (connection fee for new service).
- Demand fees for recycled water will be set at the same rate as potable water demand fees.

## Policy Assumptions

- The Project will be funded by the Water Utility (40%) and the Subregional System (60%) because of the dual benefit of:
  - Creating water supply by providing current potable water users with recycled water, and allowing that potable supply to be used for new potable connections.
  - Creating disposal capacity for recycled effluent.
- The cost to retrofit existing sites will be part of the cost of the Project up to a reasonable cost for the offset/discharge benefit.

## Policy Assumptions

Sites within the RWSA or outside the RWSA should have the same financial impact from this Project.

To carry this out, there may need to be reimbursement to sites within the RWSA for expense of plumbing to recycled water standards, or conversely an "in lieu" fee that may need to be paid by new connections outside the RWSA for the future cost to retrofit to recycled water standards.

The principle of fairness was agreed upon, but the mechanism is still to be decided.

If the Subcommittee agrees on the principle, staff will evaluate the most efficient mechanism to assure this fair treatment and bring it back for consideration.

## User Rate Structure

Average per unit rate revenue to equal potable per unit revenue, less a value that will compensate for the operational cost of maintaining recycled water sites.

Options previously reviewed:

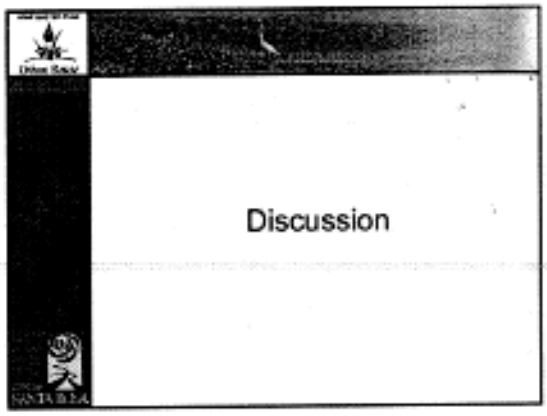
- Simple commodity rate – no tiers
- Same as our potable rate – three tiers
- Overall % discount from our potable rate
- Discounted first tier, no change to other tiers
- Discounted first tier and higher second and third tiers

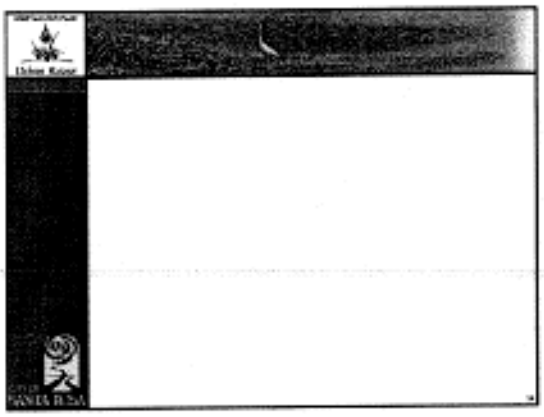
## Water Efficient Landscape Policy

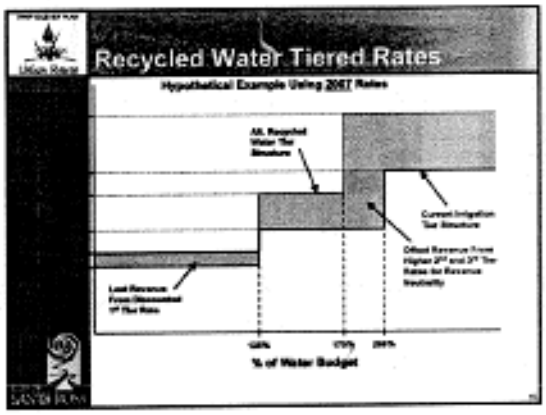
- Water Efficient Landscape Policy (WELP) has efficiency standards for new landscapes irrigated with potable water
- Standards include
  - Limitation on coverage with turf (40%)
  - Requirement for low-water-use plants
  - Efficient irrigation design and landscape installation
- Should recycled water sites also be subject to the WELP?

## Next Steps

- Further subcommittee meeting/s to finalize policy decisions – February/March 2007
- BPU meeting to adopt policy decisions – March or April 2007
- BPU to consider Urban Reuse Ordinance recommendation to Council – May 2007
- Council to consider adoption of Urban Reuse Ordinance – June 2007


Discussion




Recycled Water Tiered Rates
Hypothetical Example Using 2007 Rates
% of Water Budget

ATTACHMENT #5

# Dry Weather Flows: Santa Rosa Subregional Treatment Plant

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|
| July | 17.60 | 16.37 | 16.32 | 17.25 | 16.84 | 18.15 | 17.32 |
| August | 17.80 | 16.47 | 16.36 | 17.26 | 16.73 | 17.62 | 16.88 |
| September | 17.51 | 16.45 | 16.20 | 16.94 | 16.55 | 17.30 | 16.40 |

Dry weather flows are the basis for determining treatment plant capacity. The numbers above were taken from the City's Annual Report and represent the daily average per month in million gallons per day. These numbers represent the three lowest months when there is no rainfall and inflow and infiltration into the system do not occur. In other words, this represents the true flow from users of the system.

The current system capacity is rated at 21.3 million gallons a day (mgd). This chart indicates that dry weather flows have gone DOWN between 2000 and 2006. Yet the Master Plan and Environmental Impact Reports for the Incremental Recycled Water Program (IRWP) are based on developing infrastructure to attain almost 26 million gallons a day, supposedly necessary to serve growth projected to 2020.

According to Santa Rosa's General Plan, the City's population in 2000 was 158,600. According to a report to the City Council on March 27, 2007, the population (Dept. of Finance) for Santa Rosa was 157,150 in January, 2006. In six years, the City shrunk by 1,450 people. Furthermore, average dry weather flow in 1985 was about 13.5 mgd. In 20 years, the average dry weather flow grew by only 4 mgd, and yet current officials want the system to grow by 9 mgd for 2020, only 13 years away, when the population and water use has been exhibiting a downward trend.

Brenda Adelman: Russian River Watershed Protection Committee

Comment Set M
(Cont'd)

## HISTORICAL FLOWS IN AND OUT OF SUBREGIONAL TREATMENT PLANT

The following chart is based on data found in the City of Santa Rosa's Annual Reports from 1992 through 2005 for their subregional facility. I apologize for not putting it in fancy graphic form, as I have never mastered the intricacies of Excel.

| YEAR | TOTAL FLOW TO TP (billion gallons/year: BGY) | Rainfall | RECLAMATION / % (billion gallons/year: BGY) | | TO RIVER (BGY) | TO GEYSERS (BGY) |
|---|---|---|---|---|---|---|
| 1992 | 6.8 | 28.74" | 3.4 | 51% | 3.4 | |
| 1993 | 7.3 | 32.39" | 3.3 | 45% | 4.0 | |
| 1994 | 7.0 | 22.42" | 3.87 | 55% | 3.13 | |
| 1995 | 8.4 | 40.47" | 3.63 | 43% | 4.77 | |
| 1996 | 8.33 | 44.17" | 3.71 | 45% | 4.62 | |
| 1997 | 7.48 | 27.44" | 3.82 | 51% | 3.66 | |
| 1998 | 8.67 | 51.21" | 3.44 | 40% | 5.23 | |
| 1999 | 7.72 | 27.47" | 3,64 | 47% | 4.08 | |
| 2000 | 7.64 | 30.00" | 4.08 | 53% | 3.56 | |
| 2001 | 7.39 | 35,58" | 3.96 | 53.6% | 3.43 | |
| 2002 | 7.38 | 29.99" | 3.68 | 49.9% | 3.7 | |
| 2003 | 7.51 | 25.63" | 3.33 | 44.3% | 4.18 | |
| 2004 | 7.4 | 29.50" | 2.43 | 84.5% | 1.81 | 3.82 |
| 2005 | 8.06 | 40.85" | 2.28 | 83.5% | 1.33 | 4.45 |

Comment Set M
(Cont'd)

# Regional Treatment Plant's Actual and Projected Growth of Dry Weather Flow* in Relation to Actual and Projected Population Growth for Santa Rosa and Rohnert Park

| | 1980 | 1985 | 1992 | 1995 | 2000 | 2002 | Projected/2020 |
|---|---|---|---|---|---|---|---|
| **Dry Weather Flow:** | 11.5 mgd | 14.0 mgd | 16.6 mgd | 16.74 mgd | 17.51 mgd | 16.2 mgd | 26 mgd |
| **Permit Capacity** | | | 18 mgd | 18 mgd | 19.2 mgd | 21.3 mgd (Geysers) | 26 mgd |

| | 1980 | 1990 | 2000 | 2010** | 2020** |
|---|---|---|---|---|---|
| **Santa Rosa's Population (GP)** | 101,700 | 134,200 | 158,600 | 178,500 | 195,300 |
| **Rohnert Park's Population (GP)** | 22,550 | | 41.000 (est.) | | 50,400 |

| | 1992 | 1996 | 1998 | 2000 | 2001*** |
|---|---|---|---|---|---|
| **SR/Population/Annual WW Report** | 115,868 | 130,000 | 136,148 | 141,989 | 150,928 |
| **RP/Population/Annual WW Report** | 38,200 | 39,550 | 39,500 | 40,567 | 42,638 |

***Dry weather flow**: Lowest monthly average flow for year, usually in September and provides basis for flow limits in discharge permit. 1992 data used; unable to locate1990 data. Santa Rosa's yearly reporting began in 1988 or 1989 and early reports contained very minimal information.

** Projected in Santa Rosa's 2002 General Plan Revision

*** The 2002 Annual Report for the Regional System stopped listing population numbers in 2002. Very sparse population data in Rohnert Park's July, 2000 Adopted General Plan.

**Comment Set M (Cont'd)**

| Population | 1980 | 2002 | Actual Increase | 2020 Projected Increase |
|---|---|---|---|---|
| SR & RP | 124,250 | 205,000 (est.) | 80,750/22 years | 40,700/18 years |
| **Dry Weather Flow** | | | | |
| SR & RP | 11.5 mgd | 16.2 mgd | 4.7 mgd/22 years | 9.8 mgd/18 years |

**This chart clearly shows that population growth in the next 18 years is anticipated to be about half of what it was in the last 22 years while IRWP flows are anticipated to double in the next 18 years beyond those of the last 22 years. It is clear that the anticipated flow increase will take this project far beyond the year 2020. IRWP flow projections are based on assigning estimated per person flow values to residents, employees, and students, and projecting out the resulting estimated total flow. This method is fraught with questionable assumptions and opportunities for manipulating data.**

# Comments on Flow and Population Growth: Actual and Projected

1. Significant discrepancy between Santa Rosa's General Plan growth numbers and Annual Wastewater Reports. Need to determine whether General Plan covers unsewered areas. (Apparently there are 1600 septic systems in the Santa Rosa area with about 300 of them in close proximity to creeks. Not known yet if these are included in the GP.)

2. The Regional System includes South Park, Sebastopol, and Cotati as well as Rohnert Park and Santa Rosa but the latter two account for over 90% of the system's use. For brevity's sake data presented on latter two only.

3. 26 mgd (million gallons a day) flow projected for the Regional system 2020 is very close to double what was generated in 2002. Technical memos for IRWP use flow projections for year 2000 as basis for calculations because they are much higher than 2002. This makes it easier to project greater capacity needs for the system in 2020.

4. Actual system flow in 2002 was LOWER than in 1992. This is a result of an outstanding conservation program. None of the current numbers reflect the results of Rohnert Park's meter installation program which have only recently been completed (but for two). Santa Rosa has been making the case that they should no longer focus on conservation claiming they have gone about as far as they can go. This is simply unacceptable.

ATTACHMENT #6

SONOMA COUNTY WATER AGENCY
SCHEDULE OF ACTUAL WATER DELIVERIES IN ACRE FEET (BY CUSTOMER TYPE)
FY 03-04

| Aqueduct No. | | Jul-03 | Aug-03 | Sep-03 | Oct-03 | Nov-03 | Dec-03 | Jan-04 | Feb-04 | Mar-04 | Apr-04 | May-04 | Jun-04 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PRIMES** | | | | | | | | | | | | | |
| 1 | City of Santa Rosa | 3,064.0 | 2,621.7 | 2,845.2 | 2,195.0 | 1,270.4 | 1,411.4 | 1,189.9 | 1,102.4 | 1,667.2 | 1,703.6 | 2,249.4 | 3,100.4 | 24,420.6 |
| 2 | City of Petaluma | 1,419.4 | 1,235.8 | 1,360.4 | 1,072.1 | 565.7 | 583.0 | 506.2 | 460.7 | 718.4 | 852.4 | 1,063.7 | 1,456.4 | 11,294.0 |
| 2 | North Marin Water Dist. | 1,074.1 | 913.4 | 1,017.5 | 940.3 | 276.2 | 549.1 | 465.3 | 337.1 | 829.1 | 848.3 | 854.2 | 1,393.5 | 9,498.1 |
| 2 | City of Rohnert Park | 377.5 | 343.9 | 458.1 | 389.0 | 231.9 | 399.9 | 384.0 | 377.7 | 319.4 | 370.7 | 578.0 | 479.7 | 4,709.7 |
| 2 | City of Cotati | 126.8 | 109.2 | 113.8 | 95.9 | 50.2 | 55.8 | 52.0 | 45.6 | 75.1 | 87.5 | 113.0 | 146.4 | 1,021.2 |
| 3 | Forestville Co Water Dist. | 74.0 | 61.7 | 64.6 | 50.7 | 24.2 | 25.2 | 22.3 | 19.3 | 30.6 | 35.3 | 52.1 | 76.9 | 537.0 |
| 4 | City of Sonoma | 296.3 | 277.3 | 314.1 | 265.9 | 146.6 | 159.7 | 134.0 | 115.5 | 184.9 | 202.6 | 221.0 | 293.1 | 2,610.7 |
| 4 | Valley of the Moon Dist. | 396.9 | 344.0 | 374.8 | 293.4 | 159.0 | 169.3 | 153.4 | 149.5 | 232.2 | 245.1 | 257.9 | 371.2 | 3,156.8 |
| | TOTAL PRIMES | 6,828.9 | 5,907.0 | 6,548.8 | 5,302.3 | 2,724.2 | 3,353.3 | 2,906.9 | 2,607.7 | 4,056.9 | 4,345.4 | 5,399.2 | 7,317.6 | 57,298.2 |
| | **OTHER AGENCY CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Larkfield Water Co | 70.8 | 62.0 | 71.1 | 47.4 | 13.0 | 3.2 | 1.5 | 1.6 | 8.3 | 28.0 | 51.6 | 89.3 | 447.9 |
| 2 | Penngrove Water Co | 31.0 | 25.7 | 29.3 | 23.0 | 11.8 | 13.1 | 11.5 | 10.6 | 15.1 | 17.0 | 21.7 | 31.8 | 241.5 |
| 4 | Lawndale Mutual | 10.4 | 8.2 | 9.1 | 7.5 | 3.1 | 3.5 | 2.8 | 1.5 | 3.3 | 4.8 | 6.9 | 9.7 | 70.8 |
| 4 | Kenwood Village Water Co | 2.6 | 1.3 | 0.8 | 0.7 | 0.2 | 0.2 | 0.2 | 0.3 | 0.5 | 0.6 | 0.9 | 1.3 | 9.7 |
| 1 | Town of Windsor | 56.6 | 64.9 | 103.4 | 86.0 | 25.8 | 19.7 | 18.9 | 13.4 | 23.7 | 12.3 | 18.2 | 31.0 | 474.0 |
| 1 | Other Gov-Santa Rosa Aq | 0.3 | 1.6 | 0.9 | 0.4 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 | 5.0 |
| 2 | Other Gov-Petaluma Aq | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 |
| 4 | Other Gov-Sonoma Aq | 1.6 | 0.2 | 1.6 | 1.1 | 0.6 | 0.5 | 0.5 | 0.6 | 0.7 | 0.9 | 1.0 | 2.3 | 11.7 |
| | TOTAL OTHER | 173.5 | 164.1 | 216.5 | 166.4 | 55.2 | 40.8 | 36.0 | 28.3 | 51.9 | 63.8 | 100.7 | 165.6 | 1,262.9 |
| | **OFF-PEAK CUSTOMERS** | | | | | | | | | | | | | |
| 2 | Marin Municipal | 456.5 | 458.1 | 507.2 | 474.8 | 739.2 | 846.5 | 859.3 | 870.9 | 798.1 | 660.3 | 700.2 | 421.1 | 7,792.1 |
| | **SURPLUS CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Irrigation-Santa Rosa Aq | 32.1 | 17.2 | 9.1 | 19.3 | 1.3 | 0.1 | 0.1 | 1.9 | 3.3 | 7.8 | 15.1 | 26.3 | 133.6 |
| 2 | Irrigation-Petaluma Aq | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | Irrigation-Sonoma Aq | 13.1 | 8.7 | 7.4 | 2.9 | 1.4 | 0.1 | 2.0 | 0.4 | 0.5 | 1.5 | 15.8 | 15.3 | 69.1 |
| | TOTAL ALL OTHER | 45.2 | 26.0 | 16.5 | 22.2 | 2.8 | 0.1 | 2.1 | 2.4 | 3.8 | 9.3 | 30.8 | 41.6 | 202.8 |
| | **TOTAL DELIVERIES** | 7,504.0 | 6,555.2 | 7,289.0 | 5,965.7 | 3,521.3 | 4,240.8 | 3,804.2 | 3,509.3 | 4,910.7 | 5,078.8 | 6,230.9 | 7,945.9 | 66,555.9 |

**Comment Set M (Cont'd)**

SONOMA COUNTY WATER AGENCY
SCHEDULE OF ACTUAL WATER DELIVERIES IN ACRE FEET (BY CUSTOMER TYPE)
FY 04-05

| Aqueduct No. | | Jul-04 | Aug-04 | Sep-04 | Oct-04 | Nov-04 | Dec-04 | Jan-05 | Feb-05 | Mar-05 | Apr-05 | May-05 | Jun-05 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PRIMES** | | | | | | | | | | | | | |
| 1 | City of Santa Rosa | 2,688.0 | 3,067.0 | 2,680.9 | 1,867.2 | 1,462.8 | 1,214.5 | 1,331.0 | 1,175.7 | 1,371.2 | 1,421.9 | 2,051.0 | 2,415.8 | 22,747.0 |
| 2 | City of Petaluma | 1,267.8 | 1,417.1 | 1,272.0 | 821.6 | 592.0 | 523.5 | 528.3 | 459.4 | 535.3 | 600.3 | 864.4 | 1,096.6 | 9,978.1 |
| 2 | North Marin Water Dist. | 1,102.1 | 865.8 | 988.9 | 745.7 | 626.8 | 519.3 | 525.9 | 416.1 | 546.5 | 563.9 | 896.6 | 1,187.8 | 8,985.3 |
| 2 | City of Rohnert Park | 341.6 | 558.7 | 466.9 | 465.8 | 413.4 | 347.4 | 377.5 | 328.3 | 365.1 | 369.9 | 522.3 | 403.5 | 4,960.4 |
| 2 | City of Cotati | 123.3 | 133.4 | 122.9 | 86.7 | 62.8 | 52.5 | 56.1 | 52.4 | 60.2 | 63.2 | 91.0 | 113.8 | 1,048.1 |
| 3 | Forestville Co Water Dist. | 60.6 | 71.8 | [illegible] | [illegible] | [illegible] | [illegible] | 23.3 | 21.1 | 23.7 | 23.8 | 31.9 | 44.2 | 481.4 |
| 4 | City of Sonoma | 264.7 | 303.0 | 263.5 | 182.3 | 143.3 | 111.3 | 110.9 | 92.2 | 128.6 | 142.1 | 206.3 | 247.7 | 2,195.8 |
| 4 | Valley of the Moon Dist. | 336.1 | 379.5 | 321.5 | 233.0 | 204.5 | 172.9 | 187.3 | 165.5 | 192.7 | 181.4 | 249.4 | 291.9 | 2,915.5 |
| | TOTAL PRIMES | 6,189.1 | 6,796.3 | 6,182.1 | 4,442.4 | 3,533.3 | 2,964.1 | 3,140.4 | 2,710.5 | 3,223.3 | 3,366.4 | 4,912.8 | 5,801.1 | 53,261.7 |
| | **OTHER AGENCY CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Larkfield Water Co | 82.0 | 98.1 | 87.4 | 46.3 | 32.1 | 23.8 | 21.9 | 15.9 | 16.7 | 30.0 | 48.9 | 60.6 | 563.8 |
| 2 | Penngrove Water Co | 28.8 | 29.6 | 25.8 | 17.2 | 13.7 | 11.1 | 11.1 | 11.7 | 9.7 | 12.4 | 18.1 | 21.8 | 208.9 |
| 4 | Lawndale Mutual | 8.1 | 9.2 | 8.5 | 5.1 | 2.1 | 1.9 | 1.6 | 1.6 | 2.1 | 3.2 | 6.3 | 7.6 | 57.3 |
| 4 | Kenwood Village Water Co | 0.8 | 1.0 | 0.9 | 0.6 | 0.4 | 0.3 | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 | 0.8 | 7.3 |
| 1 | Town of Windsor | 37.5 | 49.4 | 43.8 | 37.6 | 54.5 | 29.7 | 30.5 | 15.3 | 16.4 | 29.0 | 28.6 | 49.0 | 421.2 |
| 1 | Other Gov-Santa Rosa Aq | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 2.4 |
| 2 | Other Gov-Petaluma Aq | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | Other Gov-Sonoma Aq | 1.2 | 1.4 | 1.6 | 0.9 | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 1.1 | 10.1 |
| | TOTAL OTHER AGY. CUST. | 156.8 | 188.9 | 168.5 | 107.9 | 103.5 | 67.4 | 66.2 | 45.6 | 46.1 | 75.8 | 103.3 | 140.9 | 1,271.0 |
| | **OFF-PEAK CUSTOMERS** | | | | | | | | | | | | | |
| 2 | Marin Municipal | 441.9 | 493.0 | 494.7 | 662.4 | 790.6 | 805.9 | 870.5 | 796.7 | 810.7 | 492.2 | 764.8 | 430.0 | 7,853.3 |
| | **SURPLUS CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Irrigation-Santa Rosa Aq | 20.9 | 15.0 | 17.1 | 20.5 | 0.2 | 0.1 | 0.1 | 0.1 | 8.6 | 8.5 | 0.7 | 3.0 | 94.8 |
| 2 | Irrigation-Petaluma Aq | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | Irrigation-Sonoma Aq | 14.7 | 16.4 | 10.5 | 3.8 | 3.3 | 2.0 | 1.6 | 0.8 | 2.4 | 2.4 | 15.7 | 4.2 | 77.8 |
| | TOTAL SURPLUS CUST. | 35.5 | 31.4 | 27.5 | 24.3 | 3.6 | 2.0 | 1.7 | 0.9 | 11.0 | 10.9 | 16.4 | 7.3 | 172.6 |
| | **TOTAL DELIVERIES** | 6,823.4 | 7,509.6 | 6,872.8 | 5,237.0 | 4,431.0 | 3,839.4 | 4,078.8 | 3,553.8 | 4,091.1 | 3,945.4 | 5,797.3 | 6,379.2 | 62,558.7 |

**Comment Set M (Cont'd)**

SONOMA COUNTY WATER AGENCY
SCHEDULE OF ACTUAL WATER DELIVERIES IN ACRE FEET (BY CUSTOMER TYPE)
FY 05-06

| Aqueduct No. | | Jul-05 | Aug-05 | Sep-05 | Oct-05 | Nov-05 | Dec-05 | Jan-06 | Feb-06 | Mar-06 | Apr-06 | May-06 | Jun-06 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PRIMES** | | | | | | | | | | | | | |
| 1 | City of Santa Rosa | 2,742.8 | 3,193.7 | 2,347.0 | 2,243.8 | 1,404.8 | 1,197.0 | 1,370.0 | 1,167.3 | 1,246.6 | 1,270.1 | 2,473.1 | 2,727.2 | 23,383.3 |
| 2 | City of Petaluma | 1,234.4 | 1,470.6 | 1,108.7 | 1,035.0 | 615.6 | 502.6 | 542.9 | 460.7 | 478.0 | 442.0 | 1,004.4 | 1,116.0 | 10,011.0 |
| 2 | North Marin Water Dist. | 1,329.9 | 1,607.3 | 1,174.6 | 1,144.6 | 683.6 | 364.3 | 650.2 | 424.7 | 466.4 | 423.5 | 1,137.8 | 1,279.9 | 10,686.9 |
| 2 | City of Rohnert Park | 417.4 | 539.2 | 448.1 | 543.2 | 342.1 | 310.3 | 347.7 | 296.0 | 304.8 | 291.9 | 558.9 | 568.8 | 4,968.5 |
| 2 | City of Cotati | 133.2 | 181.7 | 115.3 | 109.4 | 62.8 | 50.4 | 61.2 | 52.1 | 56.2 | 52.1 | 112.0 | 113.7 | 1,080.1 |
| 3 | Forestville Co Water Dist. | 55.2 | 64.4 | 49.3 | 43.9 | 25.4 | 20.6 | 23.3 | 18.9 | 20.3 | 19.5 | 42.9 | 54.2 | 437.9 |
| 4 | City of Sonoma | 275.1 | 326.6 | 264.6 | 259.5 | 148.8 | 102.7 | 123.3 | 104.1 | 106.8 | 96.7 | 247.6 | 258.7 | 2,316.6 |
| 4 | Valley of the Moon Dist. | 329.6 | 383.6 | 310.1 | 311.8 | 211.7 | 173.2 | 201.5 | 162.7 | 169.5 | 159.4 | 319.0 | 330.0 | 3,062.0 |
| | TOTAL PRIMES | 6,517.5 | 7,747.1 | 5,817.7 | 5,691.3 | 3,494.9 | 2,721.2 | 3,320.1 | 2,686.5 | 2,848.6 | 2,757.2 | 5,895.7 | 6,448.5 | 55,946.3 |
| | **OTHER AGENCY CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Larkfield Water Co | 84.5 | 92.9 | 64.0 | 51.3 | 18.3 | 13.8 | 5.4 | 17.4 | 19.8 | 11.3 | 87.6 | 78.1 | 522.3 |
| 2 | Penngrove Water Co | 26.5 | 32.0 | 25.8 | 23.3 | 13.5 | 9.5 | 12.5 | 10.5 | 10.8 | 10.3 | 22.1 | 27.3 | 224.0 |
| 4 | Lawndale Mutual | 8.1 | 9.6 | 7.5 | 7.0 | 4.4 | 3.4 | 4.2 | 1.7 | 1.7 | 1.5 | 5.6 | 7.5 | 62.2 |
| 4 | Kenwood Village Water Co | 0.8 | 1.0 | 0.8 | 0.8 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.8 | 1.0 | 7.9 |
| 1 | Town of Windsor | 50.8 | 77.7 | 64.0 | 50.1 | 55.8 | 27.1 | 24.5 | 18.3 | 17.7 | 25.8 | 27.1 | 51.8 | 490.9 |
| 1 | Other Gov-Santa Rosa Aq | 0.2 | 0.3 | 0.2 | 0.4 | 0.5 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.5 | 0.3 | 3.1 |
| 2 | Other Gov-Petaluma Aq | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | Other Gov-Sonoma Aq | 1.4 | 1.9 | 1.4 | 0.8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.8 | 1.3 | 10.6 |
| | TOTAL OTHER AGY. CUST. | 172.2 | 215.3 | 163.5 | 133.7 | 93.4 | 55.0 | 47.8 | 49.2 | 51.3 | 50.1 | 124.4 | 165.1 | 1,321.0 |
| | **OFF-PEAK CUSTOMERS** | | | | | | | | | | | | | |
| 2 | Marin Municipal | 229.3 | 266.5 | 368.9 | 565.6 | 784.4 | 689.2 | 478.2 | 760.4 | 788.9 | 756.0 | 662.4 | 321.4 | 6,859.2 |
| | **SURPLUS CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Irrigation-Santa Rosa Aq | 8.1 | 16.4 | 10.1 | 14.3 | 6.2 | 0.0 | 0.3 | 0.1 | 12.4 | 2.3 | 2.2 | 5.2 | 77.9 |
| 2 | Irrigation-Petaluma Aq | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | Irrigation-Sonoma Aq | 16.4 | 17.3 | 9.8 | 7.0 | 1.2 | 0.6 | 1.3 | 0.8 | 0.9 | 0.8 | 16.1 | 9.6 | 81.9 |
| | TOTAL SURPLUS CUST. | 24.6 | 33.7 | 19.9 | 21.2 | 7.4 | 0.6 | 1.6 | 0.9 | 13.4 | 3.2 | 18.3 | 14.8 | 159.8 |
| | **TOTAL DELIVERIES** | 6,943.6 | 8,262.6 | 6,370.1 | 6,411.8 | 4,380.1 | 3,666.1 | 3,847.6 | 3,497.1 | 3,700.1 | 3,566.4 | 6,690.9 | 6,949.9 | 64,286.4 |

**Comment Set M (Cont'd)**

SONOMA COUNTY WATER AGENCY
SCHEDULE OF ACTUAL WATER DELIVERIES IN ACRE FEET (BY CUSTOMER TYPE)
FY 06-07

| Aqueduct Nr | | Jul-06 | Aug-06 | Sep-06 | Oct-06 | Nov-06 | Dec-06 | Jan-07 | Feb-07 | Mar-07 | Apr-07 | May-07 | Jun-07 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PRIMES** | | | | | | | | | | | | | |
| 1 | City of Santa Rosa | 3,383.4 | 2,989.9 | 2,505.9 | 2,357.1 | 1,425.8 | 966.5 | 1,568.7 | 1,096.8 | 1,305.7 | 1,859.4 | | | 19,379.2 |
| 2 | City of Petaluma | 1,373.4 | 1,257.6 | 1,034.3 | 938.0 | 590.0 | 474.7 | 601.2 | 478.4 | 571.4 | 797.2 | | | 8,116.2 |
| 2 | North Marin Water Dist. | 1,582.8 | 1,452.8 | 1,085.7 | 1,061.6 | 581.6 | 345.4 | 711.8 | 381.4 | 406.0 | 717.4 | | | 8,326.8 |
| 2 | City of Rohnert Park | 687.9 | 539.8 | 504.0 | 512.7 | 341.3 | 289.5 | 356.7 | 282.1 | 380.2 | 334.9 | | | 4,048.9 |
| 2 | City of Cotat | 145.9 | 136.1 | 110.2 | 97.4 | 60.2 | 51.5 | 61.5 | 46.9 | 59.0 | 82.7 | | | 851.3 |
| 1 | Town of Windsor | 63.9 | 75.1 | 74.3 | 76.0 | 84.7 | 89.0 | 92.6 | 69.3 | 66.0 | 47.0 | | | 737.7 |
| 4 | City of Sonoma | 384.6 | 304.9 | 249.9 | 227.2 | 125.0 | 102.6 | 124.7 | 95.0 | 135.7 | 201.2 | | | 1,870.8 |
| 4 | Valley of the Moon Dist. | 384.5 | 362.6 | 305.3 | 316.5 | 199.6 | 181.7 | 209.7 | 162.3 | 196.8 | 255.1 | | | 2,584.0 |
| | TOTAL PRIMES | 7,786.5 | 7,118.8 | 5,869.6 | 5,576.4 | 3,408.0 | 2,500.6 | 3,726.9 | 2,612.1 | 3,120.8 | 4,294.9 | 0.0 | 0.0 | 45,914.8 |
| | **OTHER AGENCY CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Larkfield Water Co | 87.2 | 74.3 | 66.4 | 61.8 | 34.0 | 18.8 | 17.8 | 14.4 | 41.7 | 38.4 | | | 451.0 |
| 2 | Penngrove Water Co | 33.5 | 29.2 | 24.2 | 21.3 | 12.9 | 11.4 | 13.4 | 10.7 | 12.6 | 16.3 | | | 185.5 |
| 4 | Lawndale Mutual | 10.4 | 10.1 | 7.6 | 7.8 | 3.1 | 1.5 | 2.3 | 1.9 | 3.2 | 5.0 | | | 52.8 |
| 4 | Kenwood Village Water Co | 1.1 | 1.0 | 1.0 | 0.8 | 0.5 | 0.3 | 0.5 | 1.9 | 0.7 | 0.5 | | | 8.2 |
| 3 | Forestville Co Water Dist. | 70.5 | 64.7 | 52.0 | 46.0 | 25.0 | 21.6 | 28.6 | 22.2 | 24.5 | 34.4 | | | 389.6 |
| 1 | Other Gov-Santa Rosa Aq | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 2.3 |
| 2 | Other Gov-Petaluma Aq | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 |
| 4 | Other Gov-Sonoma Aq | 2.1 | 1.8 | 1.0 | 1.0 | 0.6 | 0.6 | 0.8 | 0.9 | 0.7 | 1.0 | | | 12.4 |
| | TOTAL OTHER AGY. CUST. | 205.1 | 181.6 | 153.1 | 139.5 | 77.3 | 52.6 | 63.7 | 52.3 | 83.6 | 96.3 | 0.0 | 0.0 | 1,102.7 |
| | **OFF-PEAK CUSTOMERS** | | | | | | | | | | | | | |
| 2 | Marin Municpal | 178.5 | 256.5 | 386.8 | 615.6 | 813.8 | 872.8 | 796.6 | 768.4 | 823.1 | 840.5 | | | 6,352.6 |
| | **SURPLUS CUSTOMERS** | | | | | | | | | | | | | |
| 1 | Irrigation-Santa Rosa Aq | 43.3 | 21.6 | 13.7 | 19.0 | 1.0 | 0.0 | 0.2 | 0.1 | 3.6 | 17.3 | | | 120.5 |
| 2 | Irrigation-Petaluma Aq | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 |
| 4 | Irrigation-Sonoma Aq | 17.3 | 11.3 | 9.9 | 5.1 | 3.5 | 2.7 | 2.1 | 0.9 | 1.8 | 1.3 | | | 56.5 |
| | TOTAL SURPLUS CUST. | 60.6 | 32.9 | 23.6 | 24.1 | 4.5 | 2.8 | 2.3 | 1.0 | 5.4 | 19.7 | 0.0 | 0.0 | 177.0 |
| | **TOTAL DELIVERIES** | 8,230.7 | 7,589.9 | 6,433.1 | 6,355.6 | 4,303.6 | 3,429.0 | 4,589.6 | 3,433.8 | 3,933.0 | 5,248.3 | 0.0 | 0.0 | 53,547.1 |

**Comment Set M (Cont'd)**

ATTACHMENT #7

**RRWPC**
**Russian River Watershed Protection Committee**

Post Office Box 501
Guerneville, CA 9544
(707) 869-041

## Presentation to North Coast Regional Board Regarding Low Impact Discharges and Incidental Runoff: CEQA Scoping Meeting: Item #9

April 26, 2007
Brenda Adelman

RRWPC is extremely concerned about the potential impacts of allowing Low Impact Discharges and Incidental Runoff as contemplated for a possible Basin Plan Amendment. We recognize that this is the beginning of the Amendment process and request that your staff address our concerns in full.

First, we want to acknowledge that we realize there is a statewide push to encourage as much reuse of wastewater as possible to offset potable supply. We also realize that there are communities in water scarce areas that already reuse the water extensively and even recycle portions of their wastewater back into their aquifers used for drinking water. RRWPC has always stated that we support irrigation with wastewater with the caveat that it be allowed under very controlled circumstances. We do not oppose irrigation, but we cannot support this proposed amendment until the issues raised below have been addressed and resolved.

On April 19, 2007, I made a presentation on unregulated chemicals before the Santa Rosa Board of Public Utilities. I compiled 200 pages of articles of this subject, which represent what I consider to be the best in my 14-year collection, of those not overly technical and easy for the non-scientific layperson to understand. They are not arranged in any particular order so you can open the book anywhere to read about potential damage from exposure to small amounts of these emerging toxins of concern. I have included a copy of my presentation as well. I submit copies for all Board members and one for staff.

There are many chemicals, about 50 identified and many more unidentified that cause disruption of hormone systems in wildlife and humans. These have been implicated in many reproductive and developmental problems including weakened immune systems in humans and wildlife. The developing young of all species are most vulnerable to their effects, which are believed to be trans-generational in some instances.

It has been found that the greatest effects of endocrine disruptors can occur at low doses. This is contrary to the usual assumption that the dose makes the poison. Furthermore, low levels of toxins that bioaccumulate can be very insidious. There have been many studies on the impact of wastewater discharges

on fish, which have on occasion been shown to cause male fish to develop vitellogenin, a substance generally found only in female fish.

My enclosed comments to the City of Santa Rosa address my concerns about the EPA SWAMP study, supported by your agency, on ambient water in our local streams. I pointed out that most of the limited number of samples were taken in the summer time, when there was no discharge. Furthermore, the separate EPA study on 50 treatment plants nationwide utilized only one sample of Santa Rosa's wastewater, and while it was clear of estrogen, no conclusions of safety can be implied from that.

The Precautionary Principle, well described in these articles, turns customary reliance on risk assessment on its head. Risk assessment makes a determination of the risk and whether it is acceptable. In this case the impacts of over 80,000 chemicals, including pharmaceuticals and personal care products may never be known. We are particularly concerned about cancer drugs entering the waste stream as we have heard of incidents dead septic systems in homes where cancer drugs are released, and we wonder what they will ultimately do to the environment. Because there is so much that cannot be known, it is critical, for the protection of public health and the environment, you fully address these concerns in your work on this Amendment.

In our local area, both the City of Santa Rosa and the Sonoma County Water Agency (SCWA) are in the advanced planning stages of irrigation projects to reuse Santa Rosa's wastewater. SCWA currently has an environmental impact report in public comment stage. We have heard the City specifically state that they believe this amendment is necessary for their project.

Runoff has been a problem with Santa Rosa wastewater irrigation projects for years. They have settled at least two lawsuits on irrigation overflow violations and their annual reports have always reported over-irrigation incidents, although there have been improvements in the last several years. There is one farmer in particular who has runoff incidents every year and to our knowledge has never been fined. In fact, he has probably been paid about a million dollars over the last 20 years to take Santa Rosa's wastewater. To our knowledge, your board has never issued a Cease and Desist on these violations. This is irrigation water that has gone into the Russian River in the summer time pulling with it possible unknown contaminents.

RRWPC represents the interests of people who live and recreate along the lower river. Just this last week, SCWA has started a process to declare an emergency with Russian River flows this summer. That would mean greatly reduced flows for recreation and water supply in the lower river. For the last few years, flows at the Hacienda Bridge in the summer averaged about 200 cubic feet per second (cfs). Minimum flows required by Decision 1610 are 85 cfs in a dry year and 125 cfs in a normal rain year. This year has been borderline dry (usually gets determined on May 31st of each year), but SCWA is already planning to go to the State Board to request that flows be based on a dry year (85 cfs). They did this in 2004 as well. These lowered flows could very well exacerbate any water quality

problems from irrigation runoff with the remaining ambient flow. We are concerned not only about the summer discharge itself, but also the chemicals and nutrients that are carried into the waterway from the irrigation.

Only this week, we have sent a mailer about this Basin Plan Amendment to our supporters. We included a target letter about this issue and we assume you will receive many signed copies in the coming weeks. It raises the following points, which we would like fully addressed in this process:

- In summer the creeks are slow and low and cannot assimilate wastewater discharges. Because this is the time of greatest recreational use and greatest vulnerability to toxins of all kinds, no runoff of any kind should be allowed. The summer discharge prohibition has been in effect since the late 1970's and should continue indefinitely.
- Many people use pesticides on their lawns, which have estrogenic properties and can cause neurological, developmental, reproductive, and cancer causing health problems for humans and wildlife. Irrigation runoff should not be allowed at all on sites where chemicals are used or biosolids applied.
- The Laguna is listed as impaired for nitrogen, phosphorus, dissolved oxygen, temperature, and sediment. Runoff will cause nutrient rich waters to enter the Laguna and further impair its water quality. This in turn also exacerbates Ludwigia growth, the exotic plant wrecking havoc in the Laguna area.
- The cumulative impacts of numerous runoff events can be devastating to the Laguna waterways and downstream beneficial recreation use. Please address these issues.

Finally, we believe that any limits on irrigation runoff will be impossible to enforce. We foresee disaster to the river from the cumulative effects of many unregulated instances of runoff, especially during low and very low flows. Lack of care around irrigation methods is extremely common. People do not understand this problem and it is so easy for carelessness to prevail. We request that you fully address these issues that we have raised.

ATTACHMENT #8

**COUNTY OF SONOMA**
**AGENDA ITEM**
**SUMMARY REPORT**

**Clerk of the Board Use Only**
**Meeting Date** 4/24/07 **Held Until** / /
**Agenda Item No:** 20 **Agenda Item No:**

**Department:** Sonoma County Water Agency

( ) 4/5 Vote Required

| **Contact:** | **Phone:** | **Board Date:** |
|---|---|---|
| Jay Jasperse | 547-1959 | 04-24-07 |

**Deadline for Board Action:**

**AGENDA SHORT TITLE:**
Temporary Urgency Change Petition

**REQUESTED BOARD ACTION:**
Resolution authorizing the General Manager/Chief Engineer and counsel to file a Petition for Temporary Urgency Change in the Agency's water right permits with the State Water Resources Control Board to request lower minimum flows in the Russian River and Dry Creek, following receipt of letters from the California Department of Fish and Game and the National Marine Fisheries Service supporting the petition; authorizing the General Manager/Chief Engineer to take related actions to maintain fall storage in Lake Mendocino; and authorizing the General Manager/Chief Engineer to file a Notice of Exemption under CEQA.

**CURRENT FISCAL YEAR FINANCIAL IMPACT**

| **EXPENDITURES** | | **ADD'L FUNDS REQUIRING BOARD APPROVAL** | |
|---|---|---|---|
| **Estimated Cost** | $ | **Contingencies (Fund Name: )** | $ |
| **Amount Budgeted** | $ | **Unanticipated Revenue (Source: )** | $ |
| **Other Avail Approp (Explain below)** | $ | **Other Transfer(s) (Source: )** | $ |
| **Additional Requested:** | $ -0- | **Add'l Funds Requested:** | $ |

**Explanation (if required):**

**Prior Board Action(s):**
2004 Temporary Urgency Petition.

**Alternatives - Results of Non-Approval:**
Storage in Lake Mendocino would not be maintained for fall fishery migration.

**Background:**

**A. Temporary Urgency Petition**

Conditions in the current water year are even less favorable than conditions in water years 2004 and 2002, when Lake Mendocino storage levels declined to extremely low levels. Unless some action is taken (and assuming no large late-season storms occur), Agency staff predicts that storage in Lake Mendocino will decline to about 14,000 acre-feet at the beginning of the fall Chinook migration, and to 8,000 acre-feet by the end of the fall. This situation is due both to the lack of precipitation during the recent winter storm season, and to unexpectedly lower inflows from the Potter Valley Project, because of PG&E's new FERC license.

The projected fall storage level in Lake Mendocino would be inadequate to support the fall upstream migration of Chinook salmon, which are listed as a threatened species under the federal Endangered Species Act. If fall storage in Lake Mendocino were to drop to 14,000 acre-feet at the beginning of the Chinook salmon migration, this volume of water would be too low, and the temperature of the water too high, to support the migration and subsequent spawning. As a result, there is a risk that migrating Chinook salmon in the Russian River could die in the fall unless action is taken now to maintain fall storage in Lake Mendocino.

The Agency's goal is to have 30,000 acre-feet of storage in Lake Mendocino at the beginning of the fall migration season. To meet this storage goal, the Agency's projections indicate that an additional 16,000 acre-feet must be saved from storage releases during the spring and summer. To reach this level of savings, it is imperative that releases from Lake Mendocino that would be made to achieve minimum instream flows pursuant to State Water Resources Control Board (State Board) Decision 1610 be reduced as soon as possible. The General Manager/Chief Engineer has discussed these risks with representatives of the National Marine Fisheries Service and the California Department of Fish and Game and expects to receive letters from these agencies supporting a petition to the State Water Resources Control Board to reduce these release requirements. The General Manager/Chief Engineer also met with staff from the State Board on April 18 to discuss the proposed Petition.

Currently, the Agency's water right permits require the Agency to release water from Lake Mendocino to meet the 185 cubic feet per second (cfs) instream flow requirement at the confluence of the West Fork and the East Fork of the Russian River, even though the Russian River is still gaining water from accretion flows. As a result of these accretions, flows are about 240 cfs at Hopland, 400 cfs at Healdsburg, and 500 cfs at Guerneville, even though the Agency's water rights permits currently only require minimum flows of 185 cfs at Hopland and Healdsburg, and 125 cfs at Guerneville. The Agency is thus currently required by its existing water right permits to draw down storage from Lake Mendocino for no recreational, fishery, or water supply purpose. Were the Agency able to meet its instream flow requirements at Hopland rather than at the confluence of the East and West Forks, the result would be an additional 3,600 acre-feet of fall storage, even if no other action were taken. Later in the spring and summer, these accretions will decrease and ultimately disappear. Prompt action is thus necessary to accomplish these savings.

B1

Continued...

**Attachments:** Resolution

**On File With Clerk:**

**CLERK OF THE BOARD USE ONLY**

| **Board Action (If other than "Requested")** | **Vote:** |
|---|---|
| | |

**Background (continued):**

In order to meet the target minimum fall storage level of 30,000 acre-feet in Lake Mendocino, additional reductions in the applicable instream-flow requirements are necessary. To reach this fall storage target, the General Manager/Chief Engineer recommends that the Petition ask the State Board to reduce the required instream flows to 75 cfs between the East Fork/West Fork confluence and the Dry Creek, Russian River confluence and to 85 cfs at Guerneville. These reduced minimum flow requirements would provide the Agency with sufficient flexibility to balance releases from both Lake Mendocino and Lake Sonoma to meet peak water supply demands, while maintaining much of the fishery and recreational benefits that the river provides. If the State Board did not act, minimum flow requirements are projected to be 150 cfs between the East Fork/West Fork confluence the Dry Creek/Russian River confluence and 125 cfs at Guerneville, and Lake Mendocino storage would continue to drop dramatically. The proposed changes would be requested for this year only.

In 2004, the State Board granted the Agency's petition to reduce the minimum instream flow requirements on a temporary basis to those applicable in a "dry" year (75 cfs in the upper Russian River, and 85 cfs at Guerneville). The resulting reduced flows did not result in any significant reduction in recreational values or fisheries during that spring and summer, and allowed for higher Lake Mendocino storage and resulting fisheries protection during the fall. In addition, staff from the Agency and the United States Geological Survey (USGS) conducted extensive water quality testing during the 2004 lower flow conditions. Those tests did not identify any significant impacts to water quality resulting from the reductions in flow. The USGS report presenting these data can be found on the internet at http://pubs.usgs.gov/ds/ds168/.

Filing the Temporary Urgency Petition would be exempt from the California Environmental Quality Act under State CEQA Guidelines Section 15307 (Actions Taken by Regulatory Agencies for Protection of Natural Resources), Section 15308 (Actions by Regulatory Agencies for Protection of the Environment) and Section 15301(*i*) (Operations of Existing Facilities).

**B. Additional Steps for this Year**

Although reducing required instream flows is critical to conserving fall storage in Lake Mendocino this year, reducing diversions from the Russian River and its tributaries through the implementation of water conservation measures and use of recycled water is also critical to maintaining storage levels. To maximize conservation and recycled water use, the General Manager/Chief Engineer recommends that the Board authorize Agency staff to take the following actions:

- Request and encourage all users of water from the Russian River and its tributaries in Mendocino, Sonoma, and Marin Counties -- including the Agency's water contractors and their customers, agricultural irrigators, municipal diverters and their customers – to implement water conservation measures to reduce the amount of water diverted from the Russian River and its tributaries.

- Implement public outreach and media programs to encourage water conservation by individuals and businesses in the Russian River watershed.

- Collaborate with wastewater agencies in the region to maximize recycled water distribution to agricultural irrigators, to decrease diversions by such irrigators from the Russian River and its tributaries.

- Develop for Board consideration a program to implement water conservation programs for municipalities outside of the Agency's service area that divert water from the Russian River or its tributaries.



Continued...

**Background (continued):**

**C. Process for Considering Changes in D1610**

It has become apparent in recent years that the Russian River and Dry Creek minimum instream flow requirements that were required by the State Water Resources Control Board 21 years ago in its Decision 1610 may no longer be appropriate. D1610 was decided before the listing of three salmonid species as threatened species under the federal Endangered Species Act, and it did not specifically address the importance of fall storage in Lake Mendocino to the Chinook salmon migration. Moreover, although D1610 assumed that greater flows would always be better for fishery resources, information developed during the Agency's Endangered Species Act Section 7 consultation suggests this may not be so, at least for the salmonid species. D1610 expressly contemplated that later fishery studies might give rise to a need to change the flows established by D1610. D1610 also expressly contemplated that flow changes might be needed in the event of a change in flows from PG&E's Potter Valley Project into the Russian River Basin. Accordingly, in D1610, the State Water Board reserved jurisdiction to reconsider minimum streamflows as needed to respond to changed conditions and new information.

Because these D1610-contemplated changes have occurred, the General Manager/Chief Engineer recommends that Agency staff commence work on a proposal to ask the State Water Resources Control Board to change D1610 minimum flows to account for these changes. Possible Russian River and Dry Creek flow changes were evaluated as a part of the Agency's Section 7 consultation with NMFS and the U.S. Army Corps of Engineers. The analysis in the Agency's Biological Assessment determined that lower summer flows would improve habitat for the listed salmonid species, and also increase the pool of cool water available in Lake Mendocino to support the fall migration runs. Changing D1610 flows to meet these fishery objectives would aide in the conservation and recovery of the listed salmonid species.

As part of the development of D1610 flow changes, the General Manager/Chief Engineer recommends holding workshops this summer in Ukiah, Healdsburg, and Guerneville to discuss the possible flow changes and the importance of the flow changes to improving summer salmonid habitat and to the preservation of fall Lake Mendocino storage levels. After the workshops, the General Manager/Chief Engineer would issue a Notice of Preparation for an Environmental Impact Report/Environmental Impact Statement, which would evaluate the environmental impacts of the flow changes and of other measures to protect and conserve the listed salmonid species.

These three suites of actions -- promptly filing a Temporary Urgency Change Petition with the State Water Resources Control Board, taking actions to encourage and increase water conservation to address the pending situation, and developing a proposal for changes to the D1610 flow regime and implementation of other measures to protect fishery resources -- are consistent with the Agency's long-term goal of creating a sustainable, balanced system that can both meet the needs of the Agency's water contractors and other water users and the needs of the listed species.

**Requested Action:**
Resolution authorizing the General Manager/Chief Engineer and counsel to file a Petition for Temporary Urgency Change in the Agency's water right permits with the State Water Resources Control Board to request lower minimum flows in the Russian River and Dry Creek, following receipt of letters from the California Department of Fish and Game and the National Marine Fisheries Service supporting the petition; authorizing the General Manager/Chief Engineer to take related actions to maintain fall storage in Lake Mendocino; and authorizing the General Manager/Chief Engineer to file a Notice of Exemption under CEQA.

Resolution No._____
County Administration Bldg.
Santa Rosa, CA

Date:_____

RESOLUTION AUTHORIZING THE GENERAL MANAGER/CHIEF ENGINEER AND COUNSEL TO FILE A PETITION FOR TEMPORARY URGENCY CHANGE IN THE AGENCY'S WATER RIGHT PERMITS WITH THE STATE WATER RESOURCES CONTROL BOARD TO REQUEST LOWER MINIMUM FLOWS IN THE RUSSIAN RIVER AND DRY CREEK, FOLLOWING RECEIPT OF LETTERS FROM THE CALIFORNIA DEPARTMENT OF FISH AND GAME AND THE NATIONAL MARINE FISHERIES SERVICE SUPPORTING THE PETITION; AUTHORIZING THE GENERAL MANAGER/CHIEF ENGINEER TO TAKE RELATED ACTIONS TO MAINTAIN FALL STORAGE IN LAKE MENDOCINO; AND AUTHORIZING THE GENERAL MANAGER/CHIEF ENGINEER TO FILE A NOTICE OF EXEMPTION UNDER CEQA.

WHEREAS, conditions in the current water year are even less favorable than conditions in water years 2004 and 2002, when hydrologic conditions caused Lake Mendocino storage levels to decline to extremely low levels; and

WHEREAS, the estimated projected fall storage level in Lake Mendocino is inadequate to support the fall upstream migration and subsequent spawning of Chinook salmon, which are listed as threatened under the federal Endangered Species Act; and

WHEREAS, reduced minimum flow requirements in the Russian River and Dry Creek during the spring and summer would maintain fall storage in Lake Mendocino and benefit the fall Chinook salmon run, and further provide the Agency with flexibility to balance releases from both Lake Mendocino and Lake Sonoma to meet peak water supply demands, while maintaining fishery and recreational benefits that the river provides; and

WHEREAS, it is imperative that reductions in releases from Lake Mendocino occur promptly in order to maintain storage; and

WHEREAS, the General Manager/Chief Engineer has recommended filing a Petition for Temporary Urgency Change in Agency's water right permits with the State Water Resources Control Board to request lower minimum flows in the Russian River and Dry Creek;

WHEREAS, the General Manager/Chief Engineer has discussed the risks of reduced Lake Mendocino storage with representatives of the National Marine Fisheries Service and the California Department of Fish and Game, and expects to receive letters from them supporting the Agency's Petition; and

WHEREAS, the General Manager/Chief Engineer recommends that the Agency take certain additional actions in order to increase water conservation within and outside of the Agency's service area, to reduce the amounts of water diverted from the Russian River and Dry Creek; and

WHEREAS, the Russian River and Dry Creek minimum instream flow requirements that were ordered by the State Water Resources Control Board 21 years ago in its Decision 1610 may no longer be appropriate given new information and circumstances; and

WHEREAS, D1610 itself expressly contemplated that new information and circumstances might give rise to a need to change the flows established by D1610; and

WHEREAS, the General Manager/Chief Engineer recommends that Agency staff commence work on a proposal to ask the State Water Resources Control Board to change D1610 minimum flows to account for these changes; and

WHEREAS, promptly filing a Temporary Urgency Change Petition with the State Water Resources Control Board, along with taking actions to encourage and increase water conservation to address the pending situation and developing a proposal for changes to the D1610 flow regime and implementation of other measures to protect fishery resources, are consistent with the Agency's long-term goal of creating a sustainable, balanced system that can both meet the needs of the Agency's water contractors and other water users and the needs of the listed species.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Sonoma County Water Agency:

1. All of the above recitals are true and correct.

2. The General Manager/Chief Engineer and counsel are authorized and directed to file a Petition for Temporary Urgency Change in Agency's water right permits with the State Water Resources Control Board to request lower minimum flows in the Russian River and Dry Creek, following receipt of letters from the California Department of Fish and Game and the National Marine Fisheries Service supporting the Petition.

3. The General Manager/Chief Engineer is authorized and directed to take the following actions to increase water conservation and decrease potable water use from the Russian River and Dry Creek:

- Request and encourage all users of water from the Russian River and its tributaries in Mendocino, Sonoma, and Marin Counties – including the Agency's water contractors and their customers, agricultural irrigators, municipal diverters and their customers – to implement water conservation measures to reduce the amount of water diverted from the Russian River and its tributaries.

- Implement public outreach and media programs to encourage water conservation by individuals and businesses in the Russian River watershed.

- Collaborate with wastewater agencies in the region to maximize recycled water distribution to agricultural irrigators, to decrease diversions by such irrigators from the Russian River and its tributaries.

- Develop for Board consideration a program to implement water conservation programs for municipalities outside of the Agency's service area that divert water from the Russian River or its tributaries.

4. The General Manager/Chief Engineer is authorized and directed to commence work on a proposal to ask the State Water Resources Control Board to permanently change D1610 minimum flows, including (a) holding workshops in Ukiah, Healdsburg, and Guerneville to discuss the possible flow changes and the importance of the flow changes to improving summer salmonid habitat and to the preservation of fall Lake Mendocino storage and

(b) returning to this Board for consideration of a Notice of Preparation for an Environmental Impact Report/Environmental Impact Statement that will evaluate the environmental impacts of the flow changes and of other measures to protect and conserve the listed salmonid species.

5. The General Manager/Chief Engineer is authorized and directed to file a Notice of Exemption for the filing of the Temporary Urgency Change Petition under State CEQA Guidelines Section 15307 (Actions Taken by Regulatory Agencies for Protection of Natural Resources), Section 15308 (Actions by Regulatory Agencies for Protection of the Environment), and Section 15301(i) (Operations of Existing Facilities).

DIRECTORS:

KERNS_____ SMITH_____ KELLEY_____ REILLY_____BROWN_____ ____

Ayes _____ Noes _____ Absent _____ Abstain _____

ATTACHMENT #9

## Supporting Cast

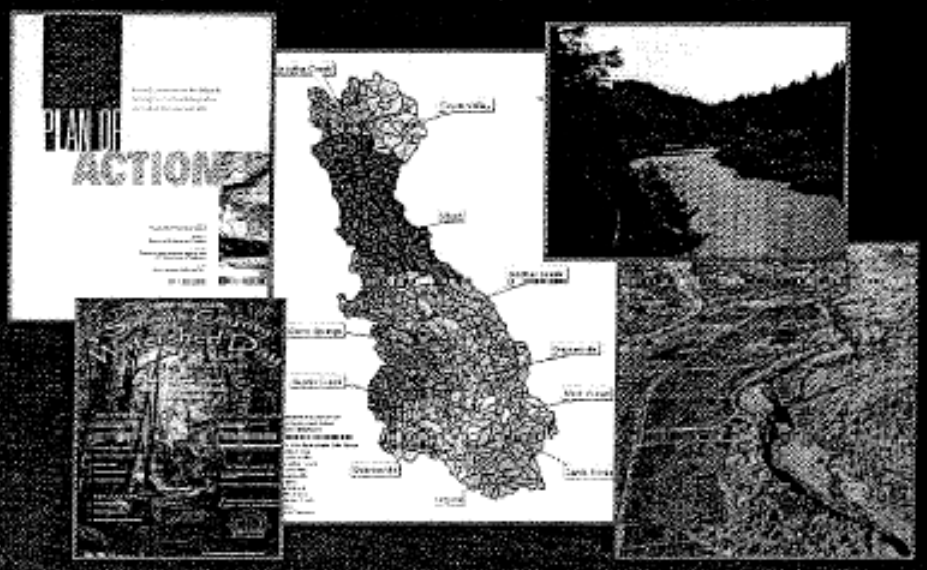
- Russian River Watershed Council (RRWC)
- RRWC Technical Review Committee
- San Francisco District Karen Rippey (PM)
- California Dept. of Fish and Game (Stream Survey)
- Sonoma County Water Agency
- California Dept. of Geology and Mines (Landslide Potential)
- Mendocino County Resource Conservation District (Public Outreach)

**Engineer Research and Development Center**

Jeff Lin (GIS / Models)
Chuck Klimas (Ecology)
Barbara Kleiss (Water Quality)
Bill Johnson / Zhonglong Zang (Hydrology)
Dan Smith (Integration)

US Army Corps of Engineers
Engineer Research and Development Center – Wetlands and Coastal Ecology Branch

## Russian River Watershed Adaptive Management Plan

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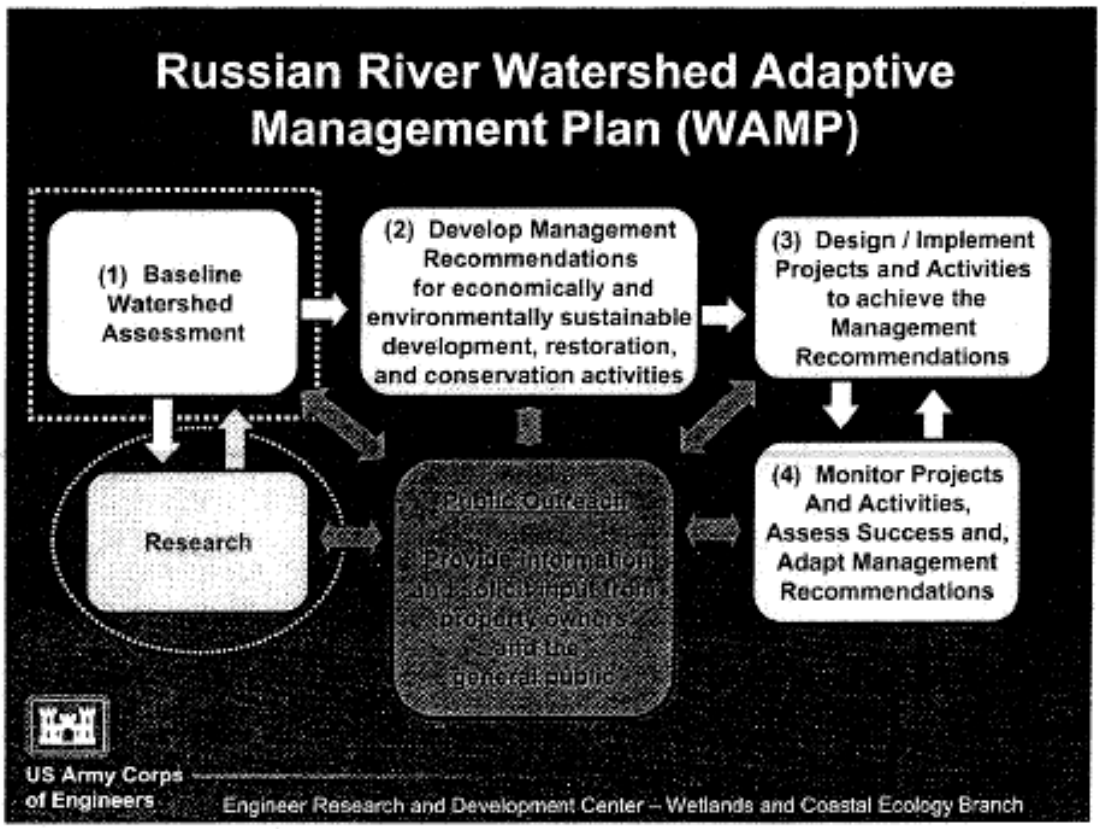
Russian River Watershed Adaptive Management Plan (WAMP)
(1) Baseline Watershed Assessment
(2) Develop Management Recommendations for economically and environmentally sustainable development, restoration, and conservation activities
(3) Design / Implement Projects and Activities to achieve the Management Recommendations
(4) Monitor Projects And Activities, Assess Success and, Adapt Management Recommendations
Research
Public Outreach
Provide information and solicit input from property owners and the general public
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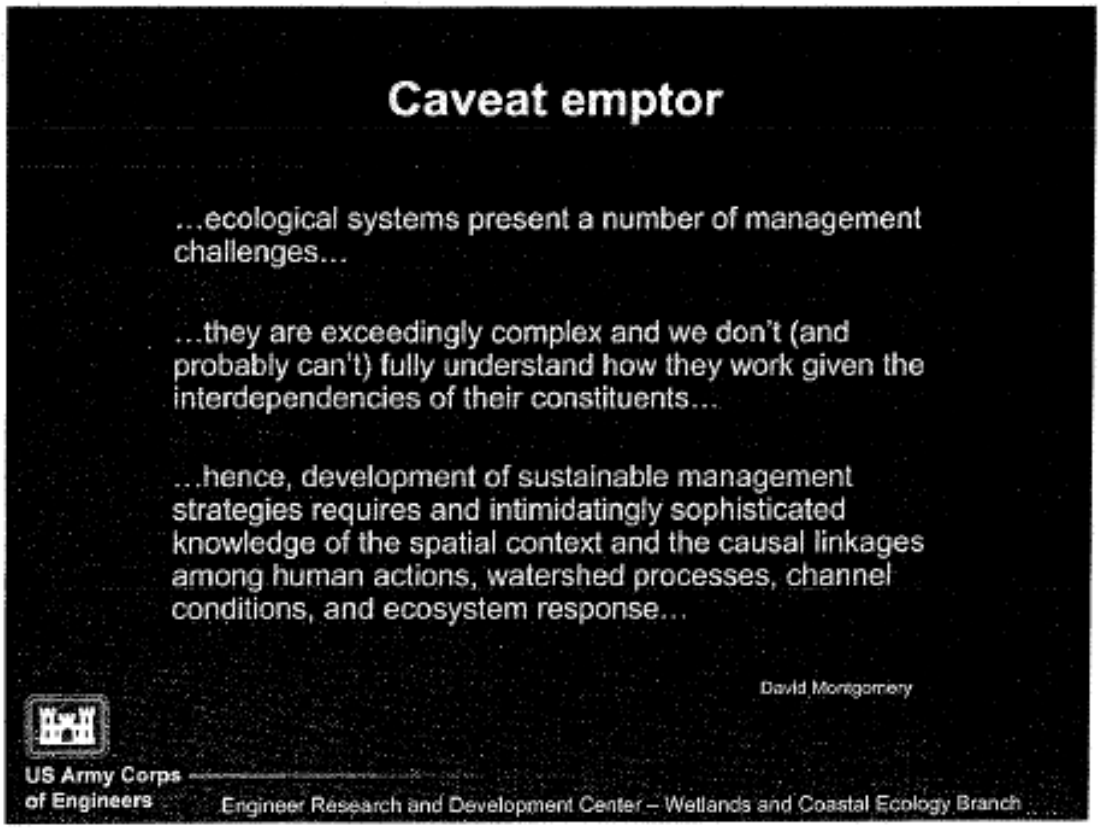
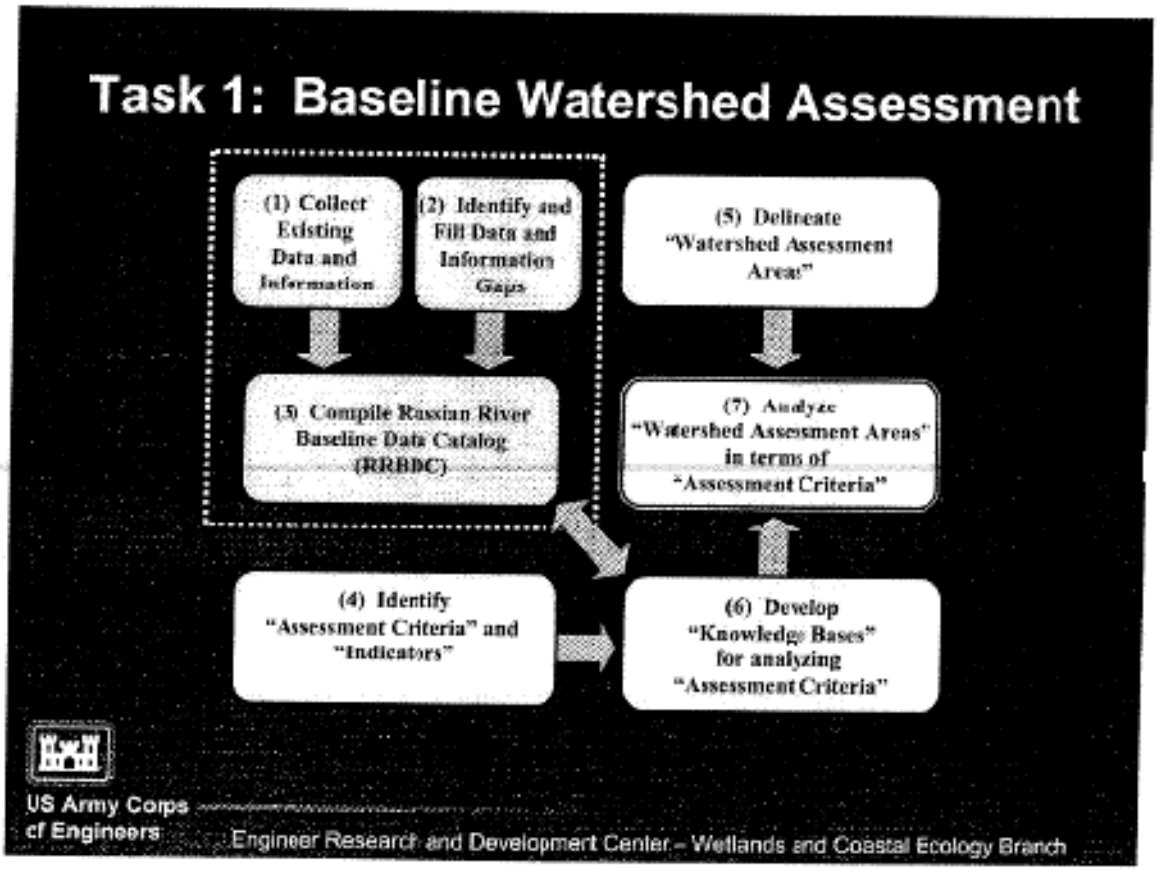

Caveat emptor
…ecological systems present a number of management challenges…
…they are exceedingly complex and we don't (and probably can't) fully understand how they work given the interdependencies of their constituents…
…hence, development of sustainable management strategies requires and intimidatingly sophisticated knowledge of the spatial context and the causal linkages among human actions, watershed processes, channel conditions, and ecosystem response…
David Montgomery
US Army Corps of Engineers
Engineer Research and Development Center – Wetlands and Coastal Ecology Branch


Task 1: Baseline Watershed Assessment
(1) Collect Existing Data and Information
(2) Identify and Fill Data and Information Gaps
(5) Delineate "Watershed Assessment Areas"
(3) Compile Russian River Baseline Data Catalog (RRBDC)
(7) Analyze "Watershed Assessment Areas" in terms of "Assessment Criteria"
(4) Identify "Assessment Criteria" and "Indicators"
(6) Develop "Knowledge Bases" for analyzing "Assessment Criteria"
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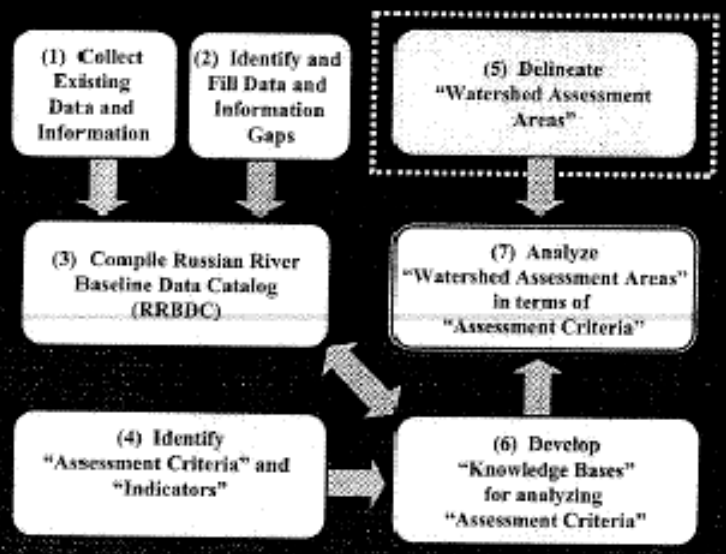
## Task 1: Baseline Watershed Assessment

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## Russian River Baseline Data Catalog (RRBDC)

- The RRBDC is the archive for spatial and non-spatial data and information compiled from a variety of sources
- Currently, the RRBDC contains about 250 geospatial data elements, and 150 non-spatial information elements (field data, journal articles, reports, surveys, etc.)

| Source | Hyperlink |
|---|---|
| California Fire and Resource Assessment Program | http://frap.cdf.ca.gov/index.htm |
| California Spatial Information Library | http://gis.ca.gov/data.cgi |
| California Department of Fish and Game Stream Habitat Surveys | http://www.dfg.ca.gov/ |
| United States Geological Survey | http://seamless.usgs.gov/ |
| LandFire Multiagency Project | http://www.landfire.gov/index.html |
| National Resource Conservation Service | http://datagateway.nrcs.usda.gov/GatewayHome.html |
| California Environmental Information Catalog | http://gis.ca.gov/ceicatalog/ |
| University of Santa Barbara Biogeography Lab | http://www.biogeog.ucsb.edu/projects/gap/gap_data.html |
| Multi-Resolution Land Characteristics Consortium | http://www.mrlc.gov/index.asp |

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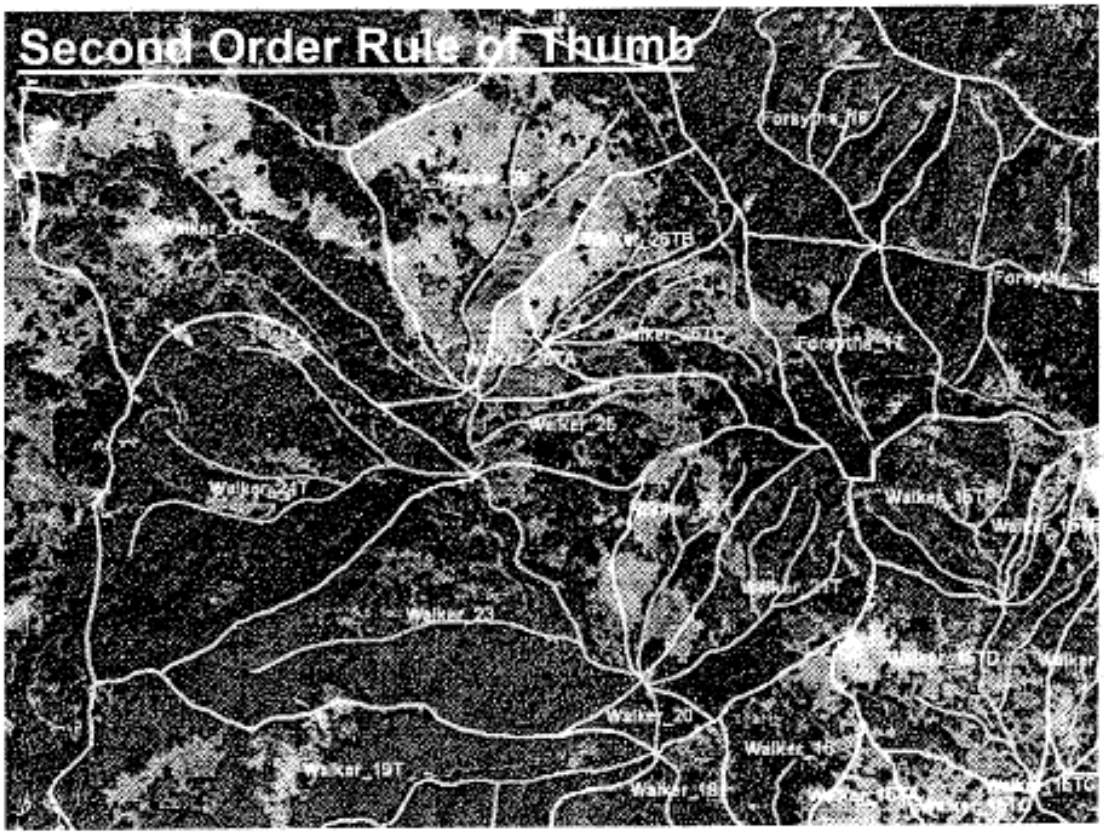
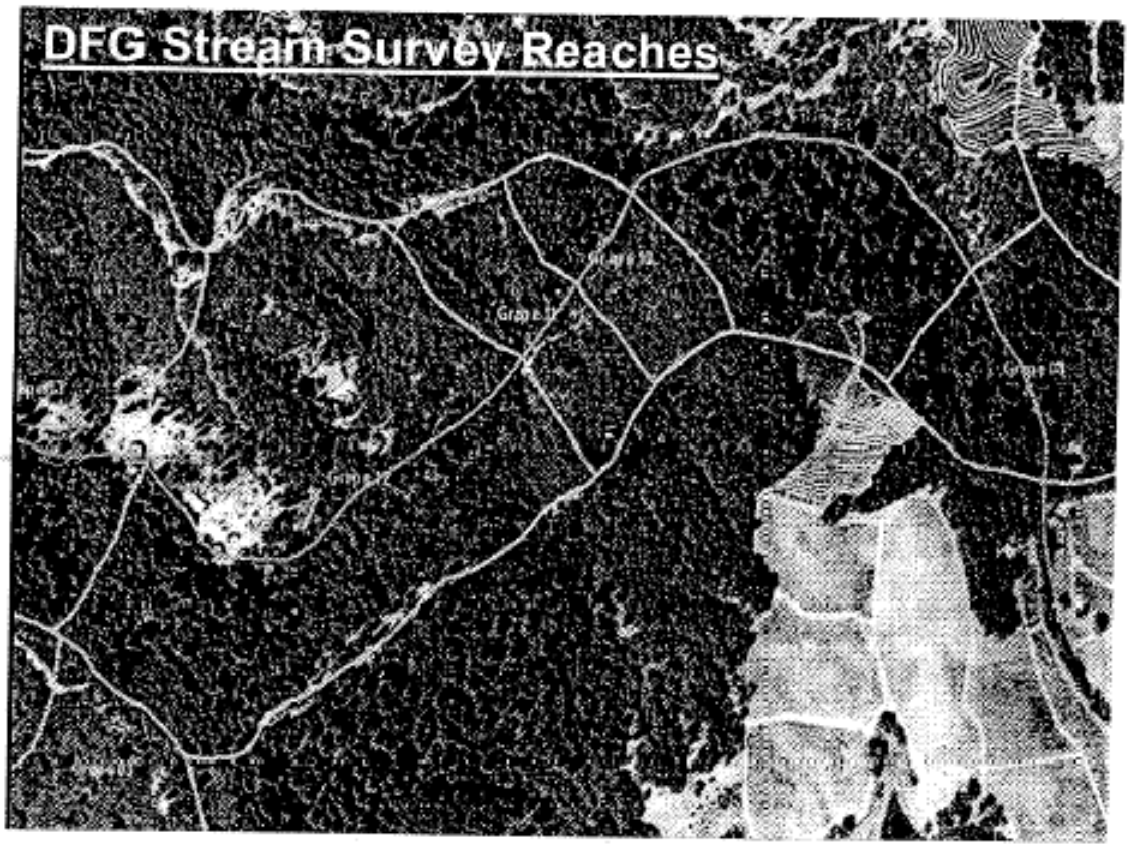
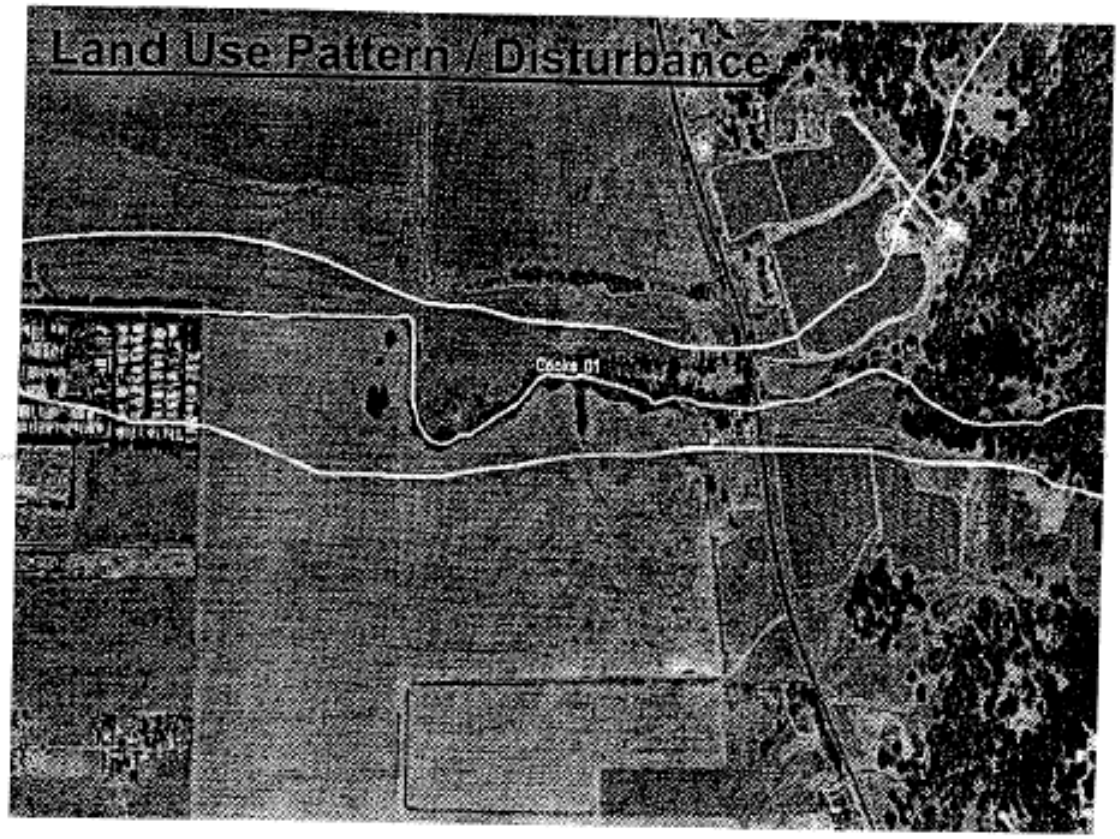
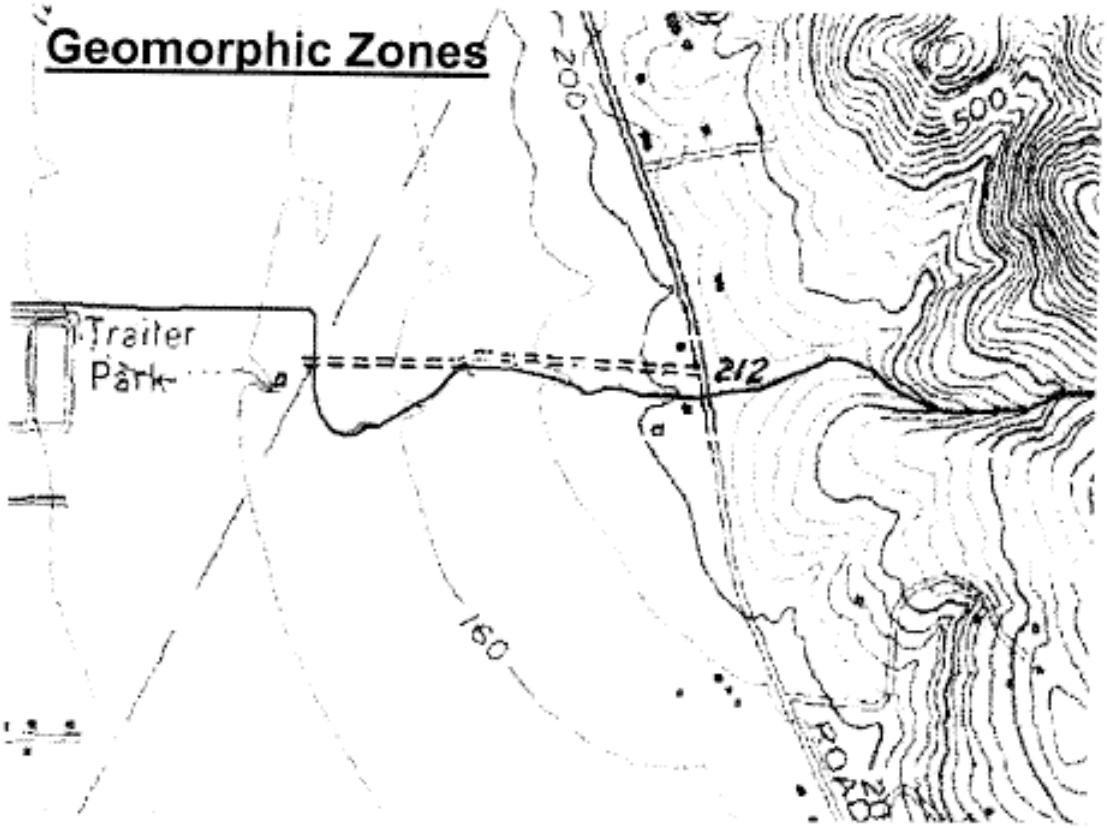


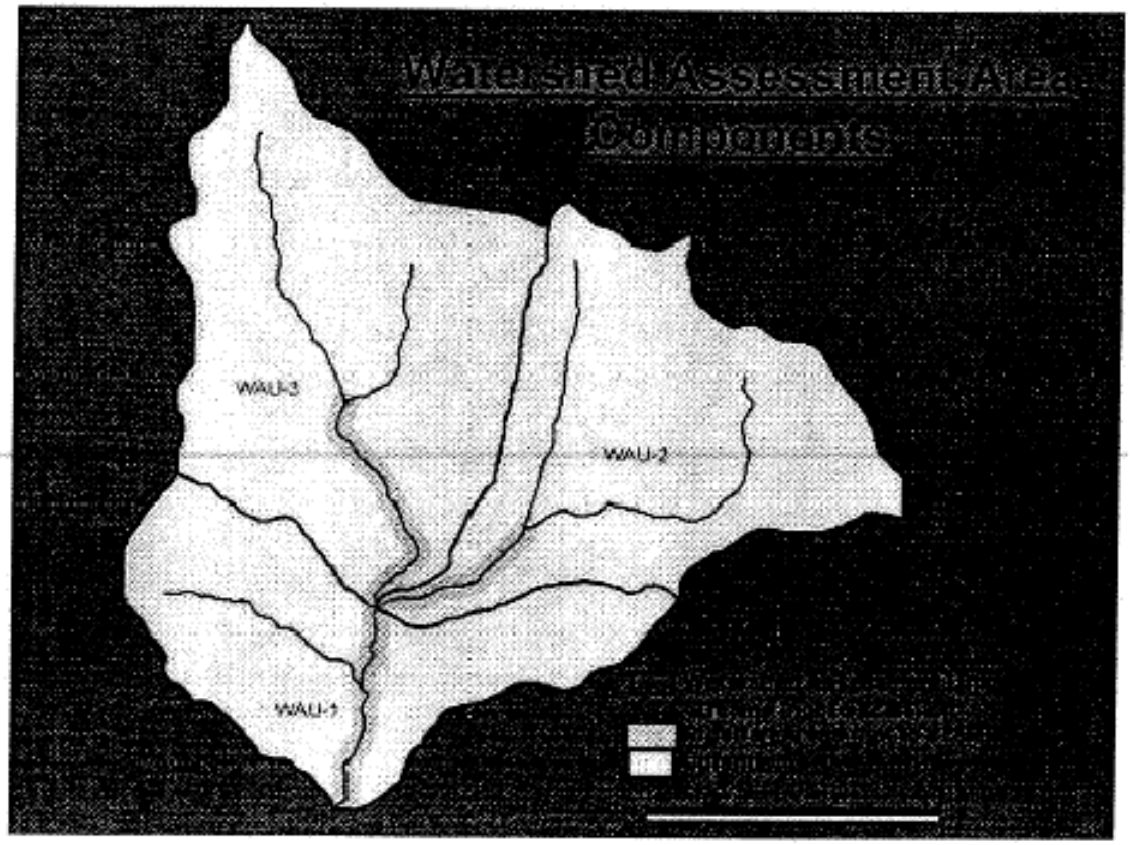

## Delineate Watershed Assessment Areas: Objective

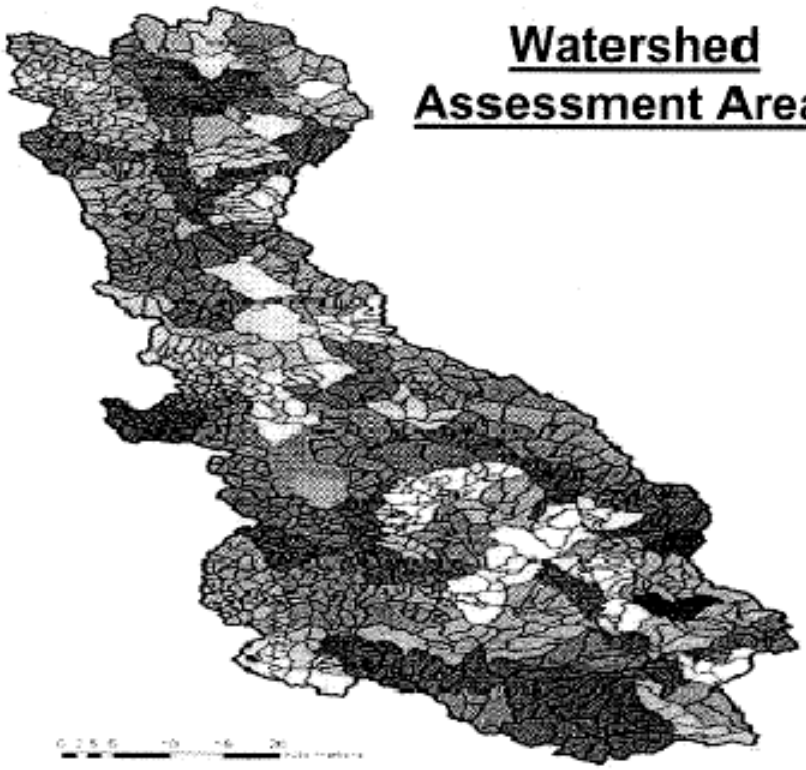
- Divide the watershed into "relatively" homogenous areas that can be compared and ranked in terms of "Assessment Criteria"


DFG Stream Survey Reaches


Land Use Pattern / Disturbance


Geomorphic Zones
200
500
Trailer
Park
212
160
ROAD


Watershed Assessment Area
Components
WAU-3
WAU-2
WAU-1


Watershed
Assessment Areas

## Assessment Criteria

- The criteria that will be used to make judgments and decisions concerning economically and environmentally sustainable restoration, conservation, and development based on management recommendations

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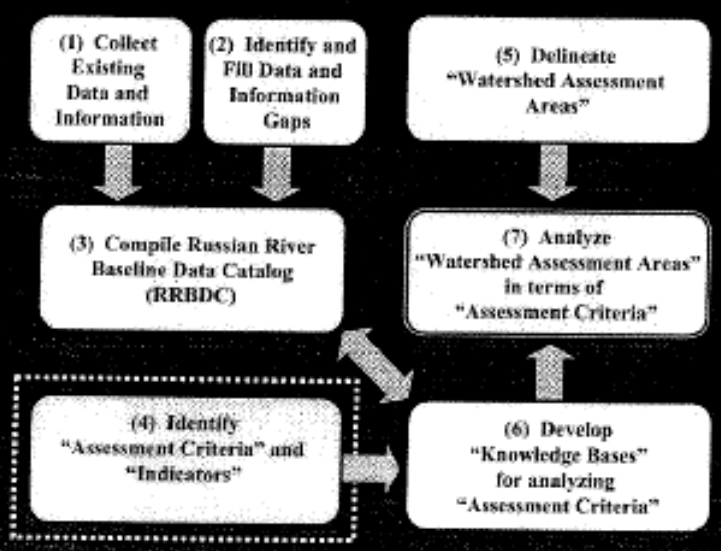
## Task 1: Baseline Watershed Assessment




US Army Corps of Engineers

Engineer Research and Development Center – Wetlands and Coastal Ecology Branch

## Assessment Criteria by WAA Components

| WAA Component | Primary Assessment Criteria | Secondary Assessment Criteria (one of many) |
|---|---|---|
| Upland | Condition | Vegetation Condition |
| | Vulnerability | Urban Growth |
| Riparian | Condition | Riparian Corridor Structure |
| | Vulnerability | Presence of Invasive Exotics |
| Stream | Physical / Chemical Condition | Water Quality |
| | Anadromous Fish Suitability | Access Barriers |
| | Vulnerability | Landslide / Erosion Potential |
| All Components | Restoration Potential | Hydrologic Regime |
| | Conservation Potential | Ownership |

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## Primary Assessment Criteria

- **Condition / Suitability:** Are conditions in the assessment area within the range of natural variability?
- **Vulnerability:** Do conditions exist with the potential to alter current conditions in the assessment area away from the range of natural variability?
- **Restoration Potential:** Do conditions exist that make the assessment area a potential candidate for restoration activities?
- **Conservation Potential:** Do conditions exist that make the assessment area a potential candidate for restoration activities?

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# Critical Issues From the Plan of Action

| WAU Component | Critical Issue Identified in POA |
|---|---|
| Uplands | Land Use / Land Cover Condition |
| | Upland Erosion / Surface Runoff Condition |
| | Point Source Condition |
| | Forestry Practices Condition |
| | Road Culvert Condition |
| | Groundwater Condition |
| Riparian Areas | Vegetation Condition |
| | Woody Debris Condition |
| | Exotic Vegetation Condition |
| | Corridor Width and Continuity Condition |
| Streams | Water Temperature Condition |
| | Geomorphic Condition |
| | Sediment / Substrate Condition |
| | Habitat Condition - General |
| | Habitat Condition - Migration and Spawning |
| | Surface Water Quantity Condition - General |
| | Surface Water Quantity Condition - Salmonids |
| | Surface Water Quality Condition |

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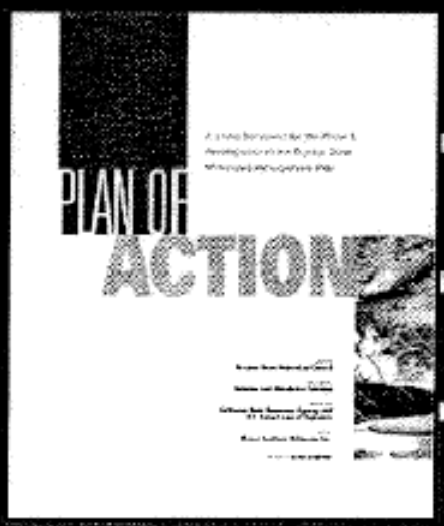
# Plan of Action




Laid foundation for the Scope of Work

Critical Issues (Assessment Criteria)

Potential Actions (Management Recommendations)

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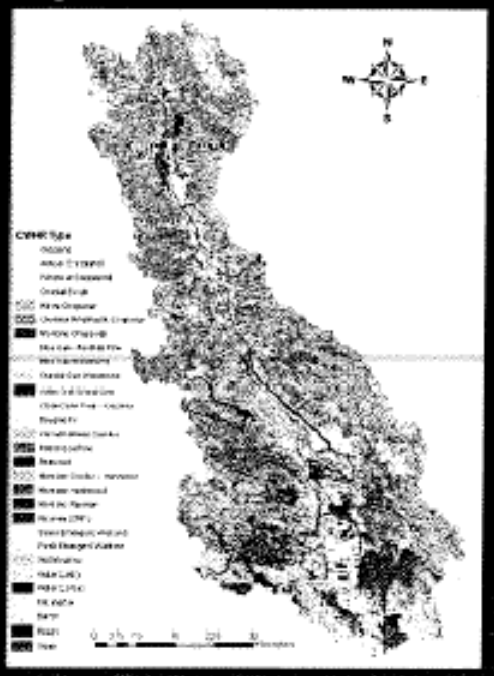
## Vegetation / Land Cover (CWHR Types)



- Location vegetation communities and other land cover types
- Composition and structural characteristics of vegetation communities
- Landscape patterns
- Habitat suitability for selected species
- Runoff coefficients
- Disturbance Indices

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## Indicators

- Indicators are the metrics used to analyze Assessment Criteria
- They consist of structural characteristics and processes of the landscape and ecosystems
- Indicators are derived from the spatial and non-spatial data and information in the RRBDC
- Approximately 110 Indicators have been developed to analyze Assessment Criteria

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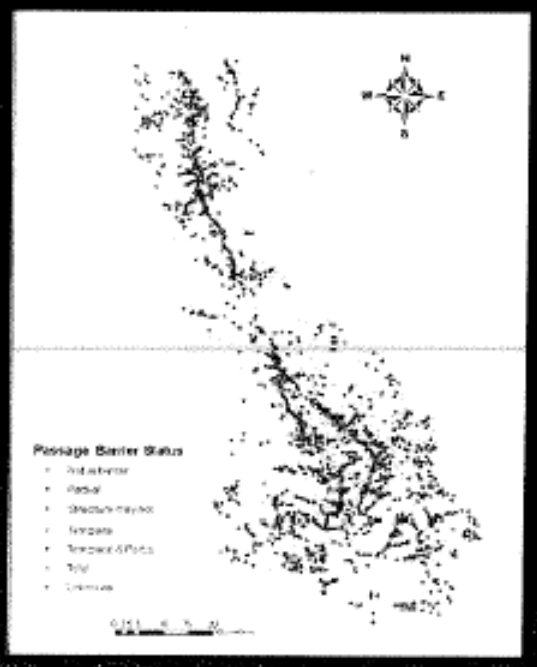
# Fish Passage Barrier Status




- Accessibility of streams to anadromous fish

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# Fire Regime Condition Class

- Fire regime condition

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## Knowledge Base

- A formal specification of the relationship between pieces of information

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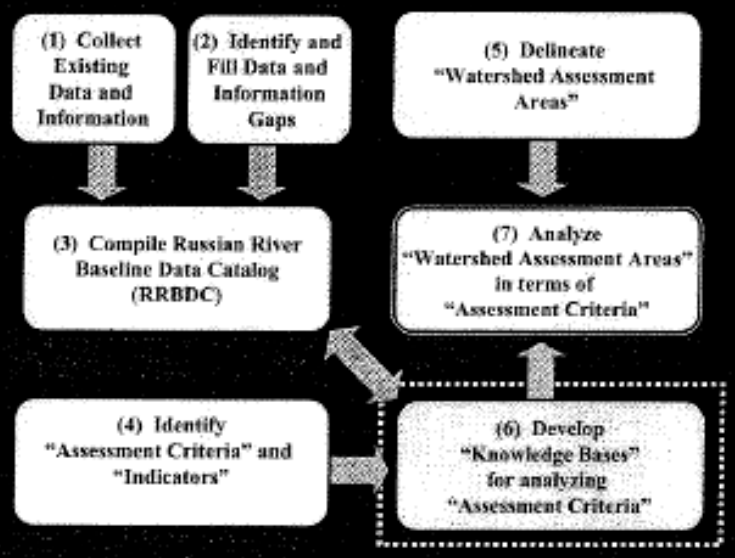
## Task 1: Baseline Watershed Assessment

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# Aggregated Truth Values for Steelhead Habitat Condition

| WAA | Upper Water Temperature | Embedded (%) | Riparian Canopy (%) | Primary Pools (%) | Average Truth Value (U) | Color Code For Spatial Display |
|---|---|---|---|---|---|---|
| 1 | 60 / 1 | 10 / 1 | 80 / 1 | 50 / 1 | 1 | Fully True (1) |
| 2 | 50 / 1 | 31 / 0.5 | 75 / 0.5 | 45 / 0.5 | 0.5 | |
| 3 | 90 / -1 | 90 / -1 | 100 / 1 | 70 / 1 | 0 | Undetermined (0) |
| 4 | 30 / -1 | 20 / 1 | 70 / -1 | 40 / -1 | -0.5 | Partially False |
| 5 | 20 / -1 | 60 / -1 | 60 / -1 | 25 / -1 | -1 | Fully False (-1) |

Temperature is between 40 and 65 °F
Riparian Canopy is >80%
Embeddedness is less that 25%
> 50% of the reach is occupied by pools

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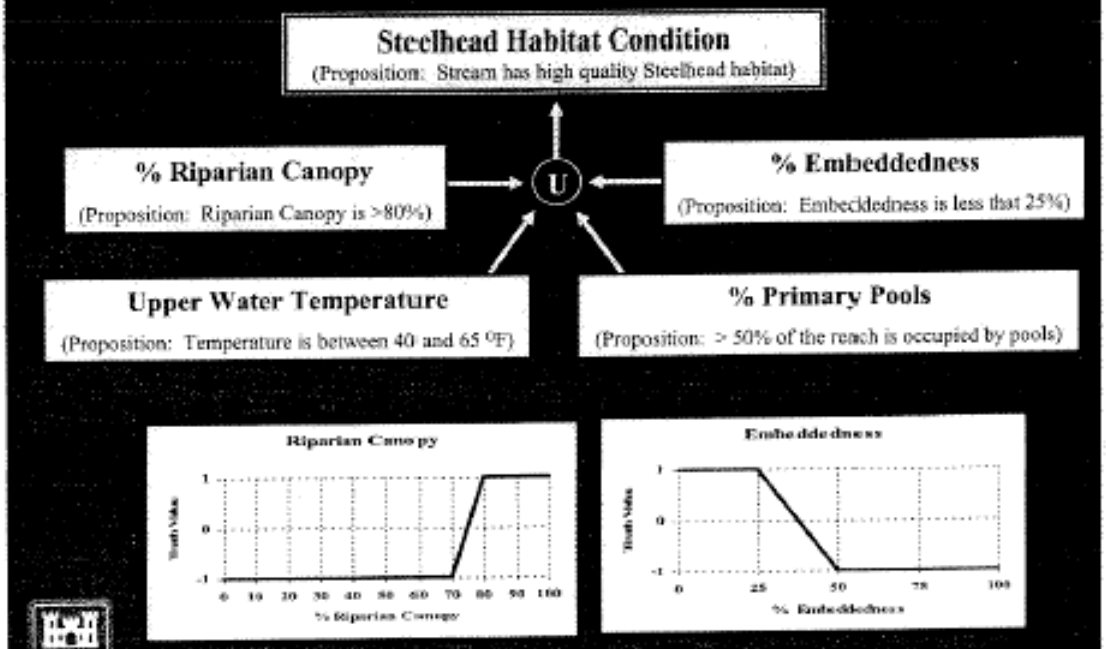
# Simple KB for Steelhead Habitat Condition

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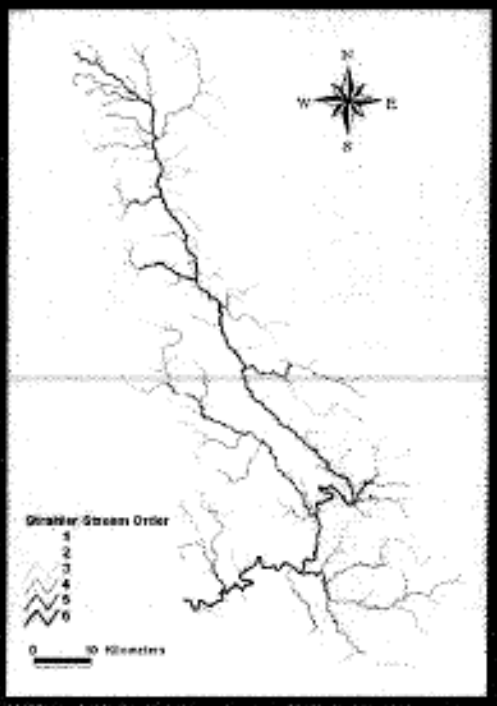
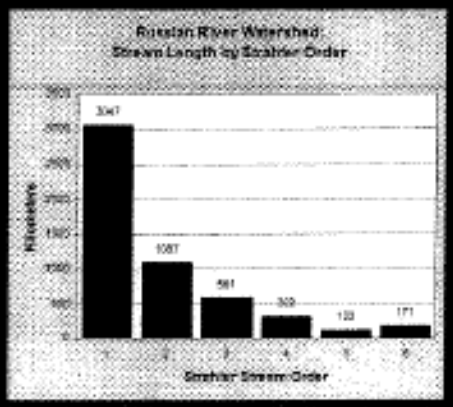
# Hydrography




- Location of streams
- Stream type
- Stream order
- Channel characteristics
- Flow characteristics

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# Assessment Criteria by WAA Components

| WAA Component | Primary Assessment Criteria | Secondary Assessment Criteria (one of many) |
|---|---|---|
| Upland | Condition | Vegetation Condition |
| | Vulnerability | Urban Growth |
| Riparian | Condition | Riparian Corridor Structure |
| | Vulnerability | Presence of Invasive Exotics |
| Stream | Physical / Chemical Condition | Water Quality |
| | Anadromous Fish Suitability | Access Barriers |
| | Vulnerability | Landslide / Erosion Potential |
| All Components | Restoration Potential | Hydrologic Regime |
| | Conservation Potential | Ownership |

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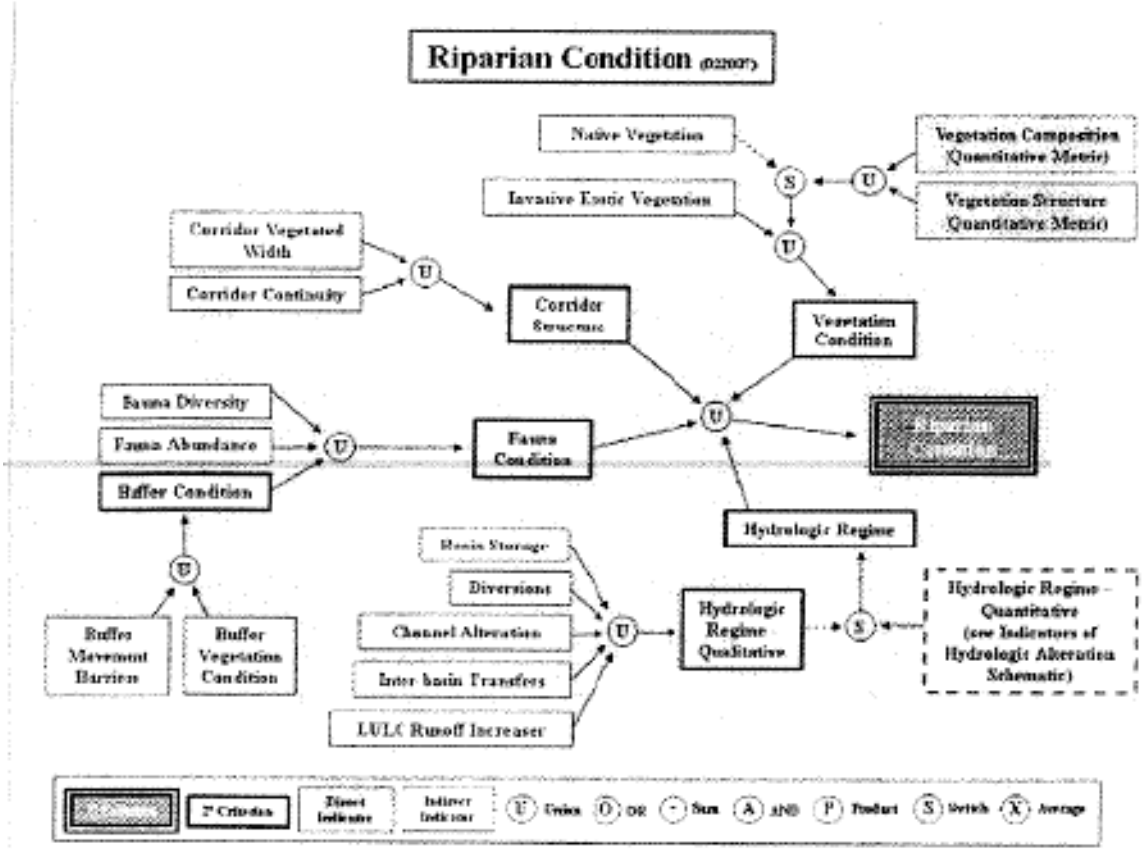
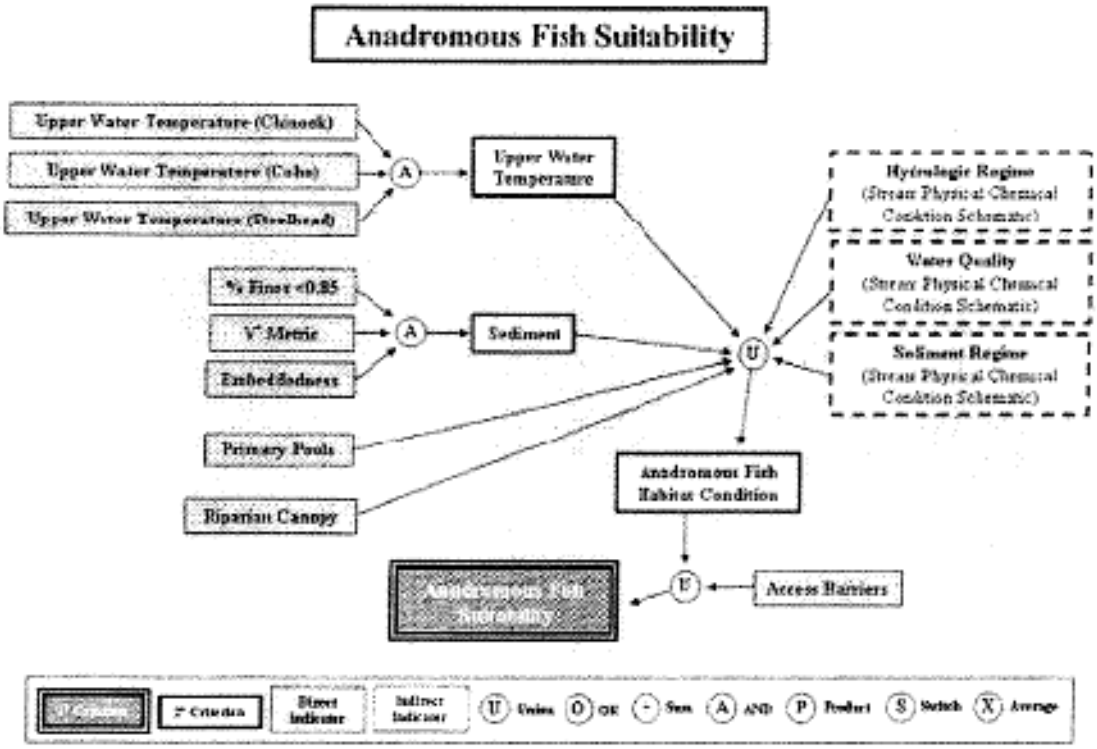
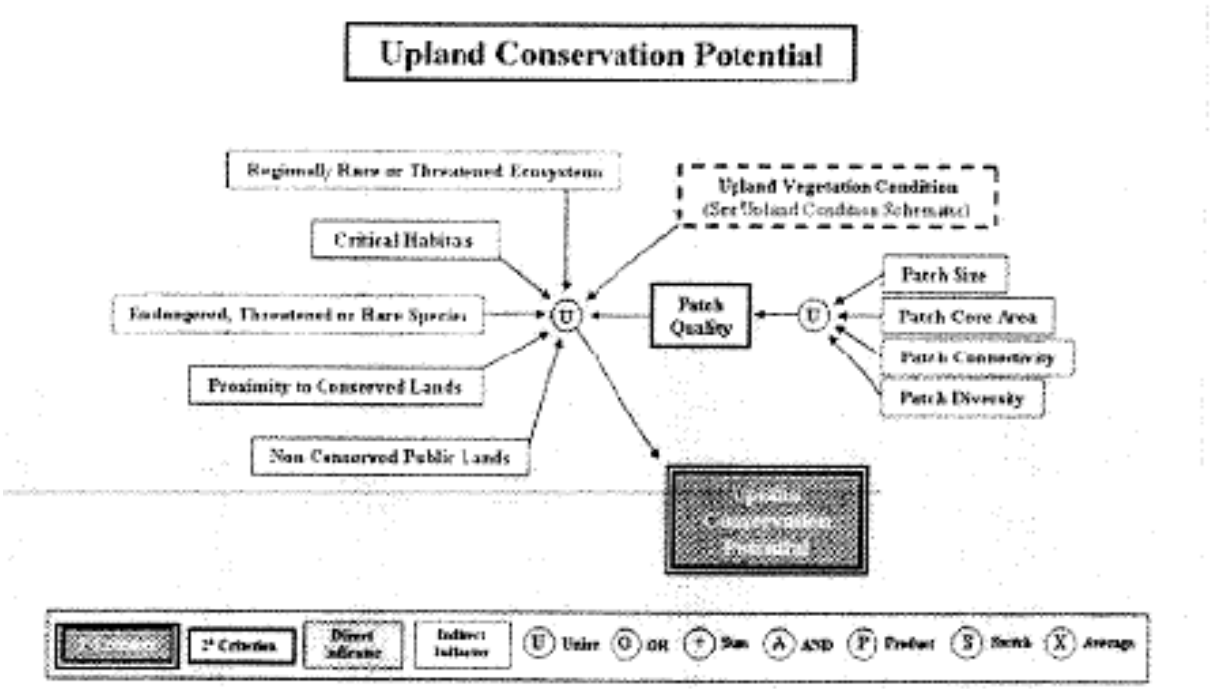
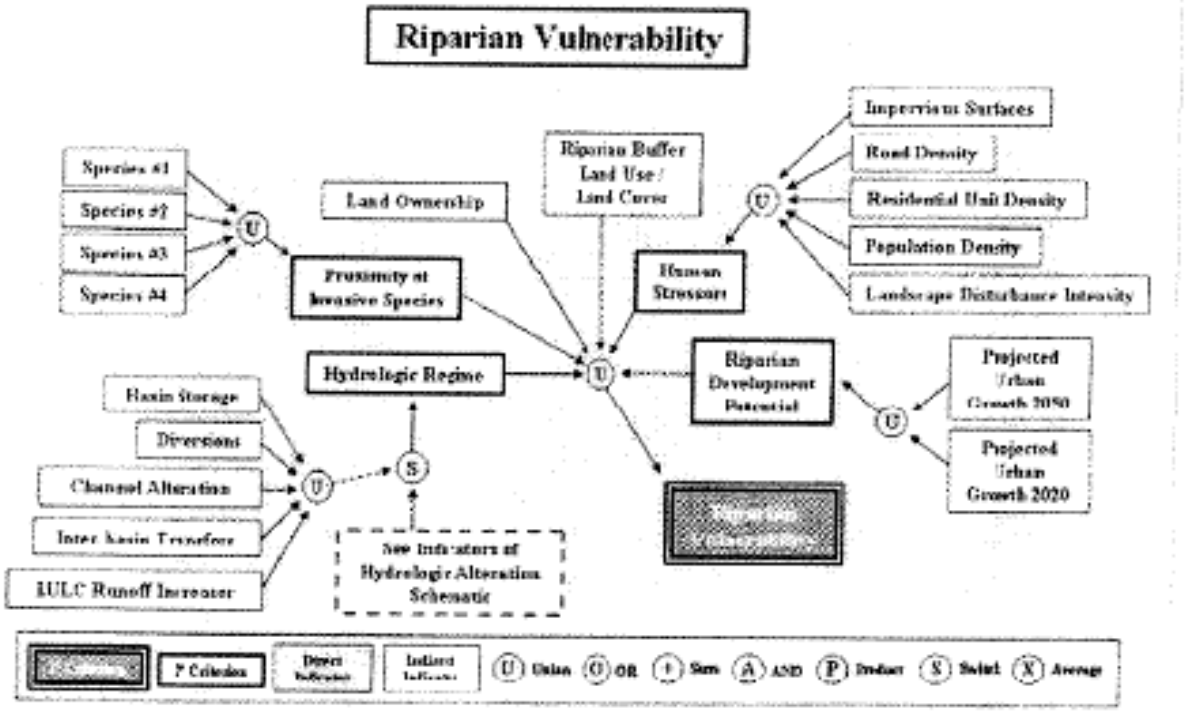
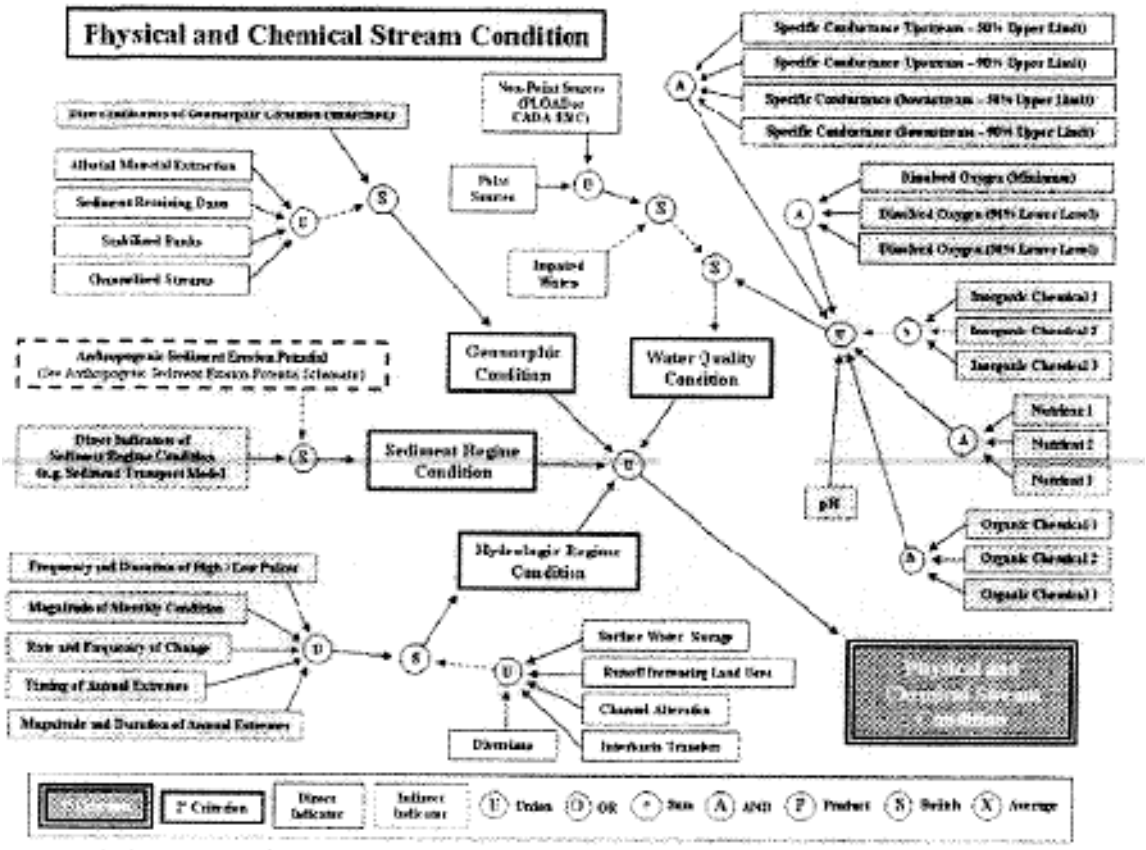
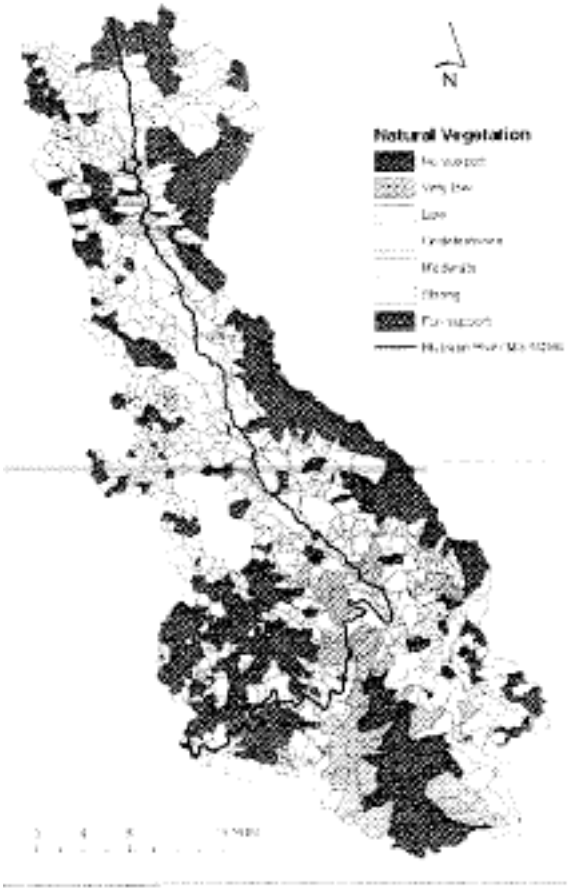

Riparian Condition
Native Vegetation
Vegetation Composition (Quantitative Metric)
Invasive Exotic Vegetation
Vegetation Structure Quantitative Metric)
Corridor Vegetated Width
Corridor Continuity
Corridor Structure
Vegetation Condition
Fauna Diversity
Fauna Abundance
Fauna Condition
Buffer Condition
Hydrologic Regime
Basin Storage
Diversions
Channel Alteration
Inter basin Transfers
LULC Runoff Increaser
Hydrologic Regime Qualitative
Hydrologic Regime – Quantitative (see Indicators of Hydrologic Alteration Schematic)
Buffer Movement Barrier
Buffer Vegetation Condition
U Union
O OR
Sum
A AND
P Product
S Switch
X Average

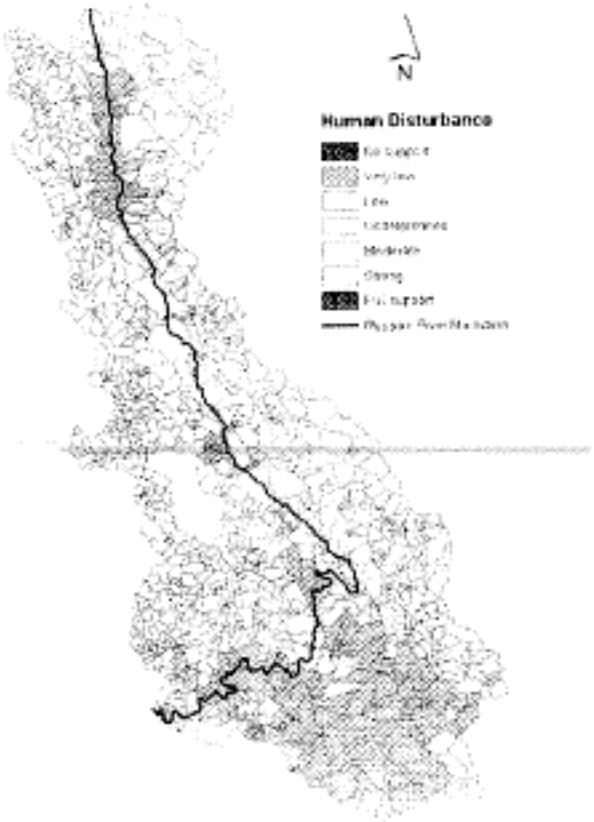

Anadromous Fish Suitability
Upper Water Temperature (Chinook)
Upper Water Temperature (Coho)
Upper Water Temperature (Steelhead)
Upper Water Temperature
Hydrologic Regime (Stream Physical Chemical Condition Schematic)
Water Quality (Stream Physical Chemical Condition Schematic)
Sediment Regime (Stream Physical Chemical Condition Schematic)
% Fines <0.85
V' Metric
Embeddedness
Sediment
Primary Pools
Riparian Canopy
Anadromous Fish Habitat Condition
Anadromous Fish Suitability
Access Barriers
U Union
O OR
Sum
A AND
P Product
S Switch
X Average

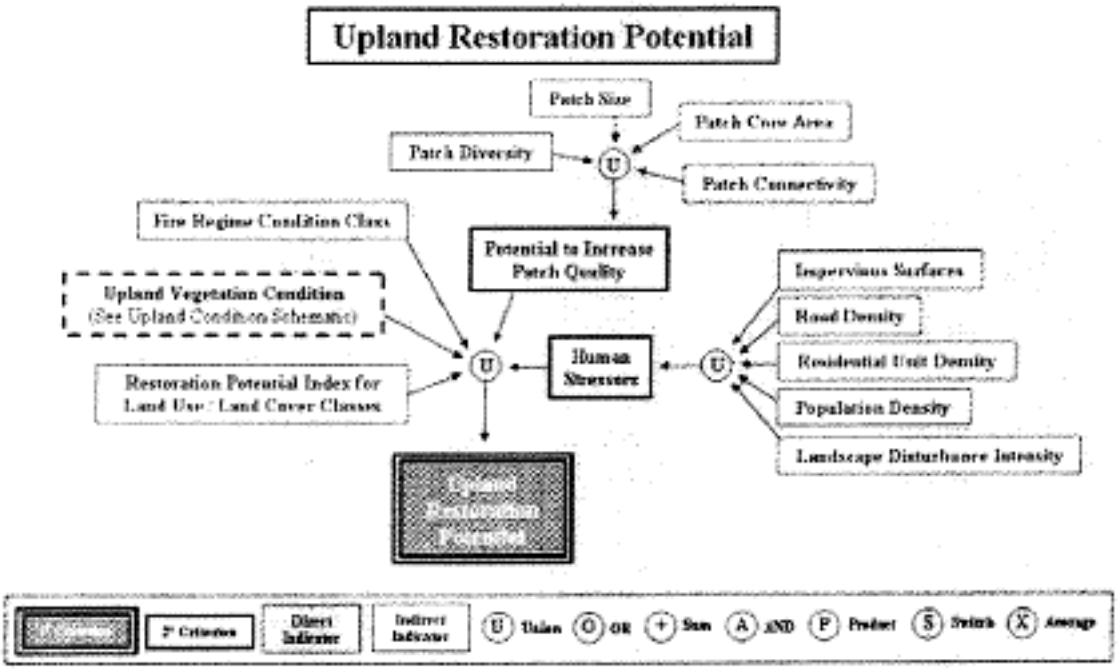

Upland Conservation Potential
Regionally Rare or Threatened Ecosystems
Upland Vegetation Condition
(See Upland Condition Schematic)
Critical Habitats
Endangered, Threatened or Rare Species
Proximity to Conserved Lands
Non Conserved Public Lands
Patch Quality
Patch Size
Patch Core Area
Patch Connectivity
Patch Diversity
U Union
O OR
+ Sum
A AND
P Product
S Sum
X Average


Riparian Vulnerability
Species #1
Species #2
Species #3
Species #4
Land Ownership
Proximity of Invasive Species
Riparian Buffer Land Use / Land Cover
Human Stressors
Impervious Surfaces
Road Density
Residential Unit Density
Population Density
Landscape Disturbance Intensity
Hydrologic Regime
Riparian Development Potential
Projected Urban Growth 2050
Projected Urban Growth 2020
Basin Storage
Diversions
Channel Alteration
Inter basin Transfers
IULC Runoff Increases
New Indicators of Hydrologic Alteration Schematic
U Union
O OR
+ Sum
A AND
P Product
S Sum
X Average


Physical and Chemical Stream Condition
Specific Conductance Upstream - 50% Upper Limit)
Specific Conductance Upstream - 90% Upper Limit)
Specific Conductance (Downstream - 50% Upper Limit)
Specific Conductance (Downstream - 90% Upper Limit)
Non-Point Sources
(PLOAD or
CADA EXC)
Point
Sources
Impaired
Water
Alluvial Material Extraction
Sediment Retaining Dam
Stabilized Banks
Channelized Streams
Dissolved Oxygen (Minimum)
Dissolved Oxygen (90% Lower Limit)
Dissolved Oxygen (50% Lower Limit)
Inorganic Chemical 1
Inorganic Chemical 2
Inorganic Chemical 3
Anthropogenic Sediment Erosion Potential
(See Anthropogenic Sediment Erosion Potential Estimate)
Geomorphic
Condition
Water Quality
Condition
Direct Indicators of
Sediment Regime Conditions
(e.g. Sediment Transport Model)
Sediment Regime
Condition
Nutrient 1
Nutrient 2
Nutrient 3
pH
Organic Chemical 1
Organic Chemical 2
Organic Chemical 3
Hydrologic Regime
Condition
Frequency and Duration of High / Low Pulses
Magnitude of Monthly Condition
Rate and Frequency of Change
Timing of Annual Extremes
Magnitude and Duration of Annual Extremes
Surface Water Storage
Runoff Increasing Land Uses
Channel Alterations
Interbasin Transfers
Diversions
2° Criterion
Direct
Indicator
Indirect
Indicator
Union
OR
Sum
AND
Product
Beside
Average


N
Natural Vegetation


N
Human Disturbance


Upland Restoration Potential
Patch Size
Patch Core Area
Patch Diversity
U
Patch Connectivity
Fire Regime Condition Class
Potential to Increase Patch Quality
Upland Vegetation Condition
(See Upland Condition Schematic)
Impervious Surfaces
Road Density
U
Human Stressors
U
Residential Unit Density
Restoration Potential Index for Land Use / Land Cover Classes
Population Density
Landscape Disturbance Intensity
Upland Restoration Potential
Criterion
Direct Indicator
Indirect Indicator
U Union
O OR
+ Sum
A AND
P Product
S Switch
X Average

# Environmental Management Decision Support (EMDS)

- Flexible framework that allows integration of knowledge base results with GIS (ArcGIS extension)
- Dynamic scenario analysis for testing knowledge base assumptions, reference curves, sensitivity, and calibration
- Missing data accounting
- Shifting between spatial scale of analysis
- Decision support (i.e., priority analysis)

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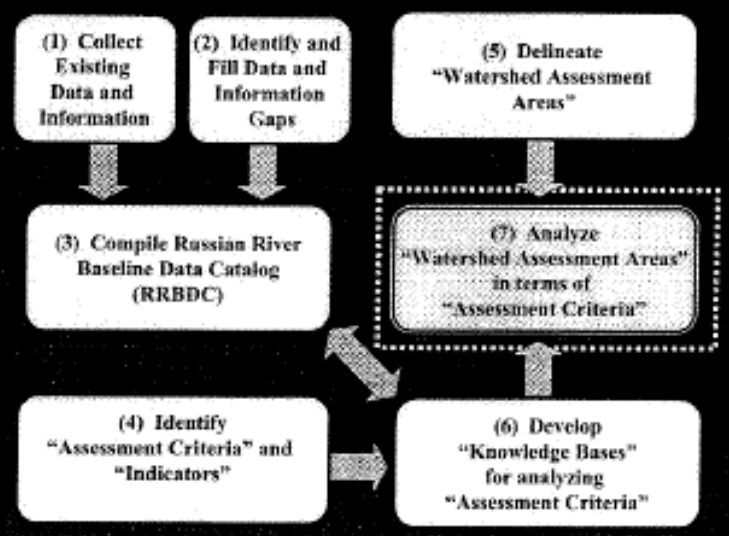
# Task 1: Baseline Watershed Assessment

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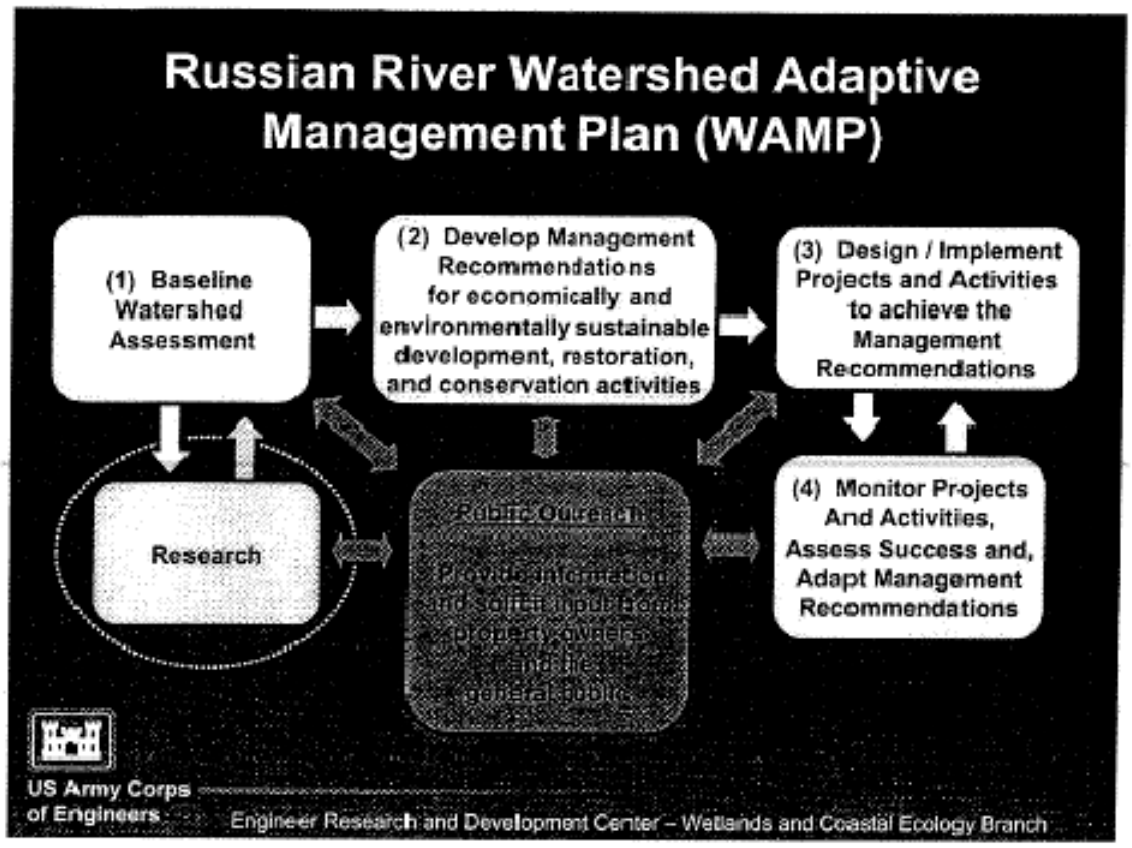
Russian River Watershed Adaptive Management Plan (WAMP)
(1) Baseline Watershed Assessment
(2) Develop Management Recommendations for economically and environmentally sustainable development, restoration, and conservation activities
(3) Design / Implement Projects and Activities to achieve the Management Recommendations
(4) Monitor Projects And Activities, Assess Success and, Adapt Management Recommendations
Research
Public Outreach
Provide information and solicit input from property owners and the general public
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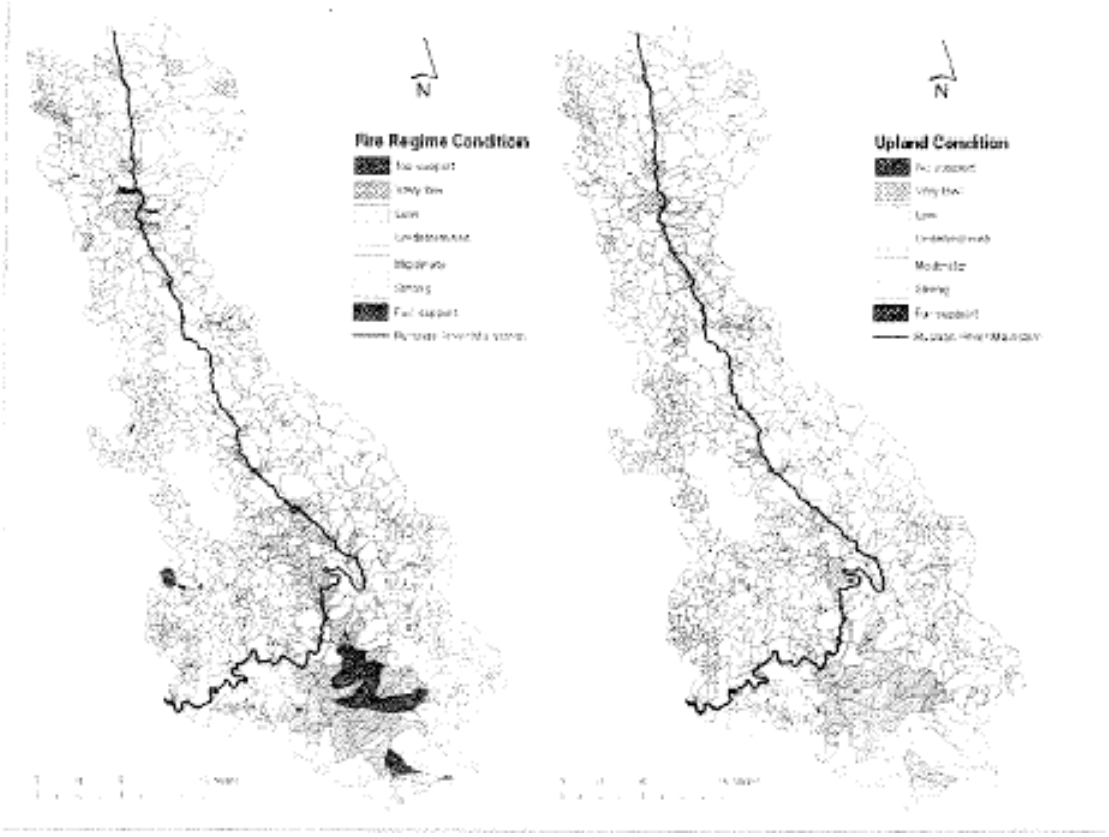
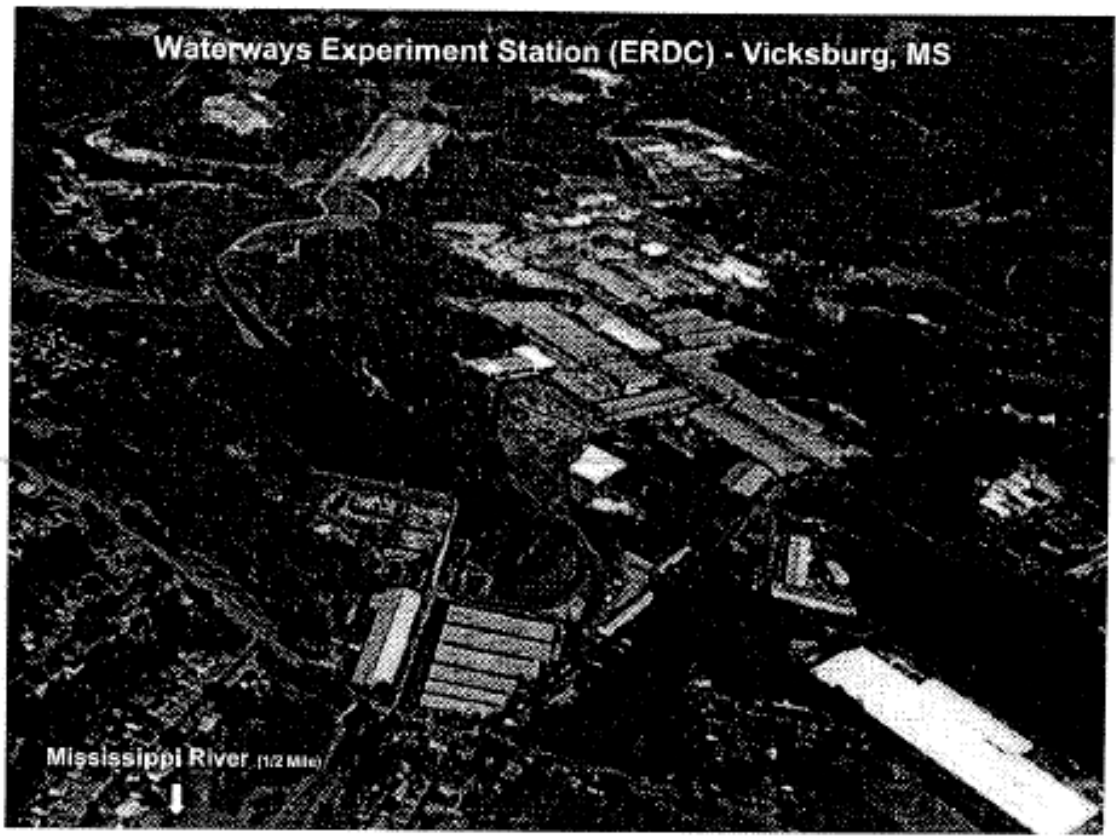

N
Fire Regime Condition
N
Upland Condition




## Relationship Between WAMP Task 1 and 2

- The products resulting from the baseline assessment will provide the engine for analyzing the management recommendation developed during Task 2

| Task 1 | Task 2 |
|---|---|
| (1) Baseline Watershed Assessment | (2) Develop Management Recommendations for economically and environmentally sustainable development, restoration, and conservation activities |

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ATTACHMENT #10

# Threatened Waters

## Turning the tide on pesticide contamination

By Aviva Glaser

Eds. Note. *With mounting data documenting the increasing problem of water contamination and an inadequate federal regulatory response, it is urgent that policy makers (especially at the local level) and community members refocus on the threat that pesticides pose to the nation's waterways and community health.*

This literature and regulatory review identifies serious threats from pesticides that cannot be ignored:

- Frogs exhibit hermaphrodism when exposed to below below-legal allowable levels of the herbicide atrazine in waterways;
- Human health effects, including low birth weights, increased numbers of breast cancer cases, and low sperm counts are linked to herbicide-contaminated water;
- Dozens of pesticides and their degradation products contaminate waterways and escape regulatory oversight;
- Runoff from urban lawn pesticide use contaminates local watersheds and stresses municipal water treatment plants; and,
- Children are not adequately protected by federal allowances of pesticides in water.

This review brings together the current state of knowledge, while documenting the critical deficiencies in understanding the implications for human health and the environment. The data shows that concern is warranted, and that an urgent response is demanded. With a crisis in safety looming, steps can and must be taken to curtail pesticide uses and adopt alternative practices and products that do not end up in the nation's waterways.

Water is the most basic building block of life. Clean water is essential for human health, wildlife protection, and a balanced environment. Yet, water is being polluted at unprecedented rates, with chemicals, nutrients metals, pesticides, and other contaminants. The U.S. Environmental Protection Agency (EPA) states that, "By their very nature, most pesticides create some risk of harm to humans, animals, or the environment because they are designed to kill or otherwise adversely affect living organisms." Studies of major rivers and streams document that 96% of all fish, 100% of all surface water samples and 33% of major aquifers contain one or more pesticides at detectable levels.

## How do pesticides get into water?

Around one billion pounds of pesticides are used each year in the U.S. alone. When pesticides are applied to fields, gardens, parks, and other places, a percentage of the chemicals end up as runoff. This runoff moves in streams, rivers, and lakes. Similarly, when pesticides are applied to lawns in urban and suburban areas, rain washes some of the pesticides into street gutters, where the pesticide-contaminated water goes through storm drains and pipes and eventually flows into nearby creeks and rivers. Some of the pesticides also end up in groundwater systems by leaching down through the soil. Small amounts also volatize into

the atmosphere, and then later fall back to land as precipitation. As a result of all these pathways, pesticides are widely found in rivers, streams, lakes, and even in drinking water.

### Pesticide contamination of water

Results of the United States Geological Survey's (USGS) National Water-Quality Assessment (NAWQA) studies show that pesticides are widespread in streams and groundwater sampled throughout the country. USGS found that 90% of water and fish samples from all streams sampled in the U.S. contain at least one pesticide. Not surprisingly, USGS also found that the most heavily used pesticides are the ones found most often in streams and groundwater. The top 15 pesticides found in water are among those with the highest current usage today.

The amount of pesticides in water varies both geographically and seasonally, based on land use and pesticide use patterns. Pesticide concentrations also vary yearly, based on variations in rainfall, and seasonally, based on agricultural practices. A 1991 study of watersheds in the cornbelt region found that concentrations of herbicides in May and June, the planting period, were 10 times higher than levels before planting (March and April) and after harvest (October and November).

### Surface water

Surface water, which is water that sits above the surface of the earth, includes lakes, rivers, streams, ponds, and wetlands. Surface water supplies drinking water to around 47% of the U.S. population. Low levels of pesticides have been widespread in the nation's surface waters for several decades. In a large sampling of streams throughout the country, USGS found 46 pesticides and pesticide degradation products in one or more samples. In the Midwest especially, seasonal variations account for strong differences in amount of pesticide residues in surface water—in the summer, pesticides have been detected in concentrations above allowable levels set by EPA.

A number of studies show that pesticides applied to lawns and gardens contaminate local streams. In a King County, Washington study, USGS compared types of pesticides found in urban streams during rainstorms (times of high runoff) to sales data from nearby home and garden stores. The three most frequently purchased pesticides—diazinon, 2,4-D, and MCPP—were detected in water samples from all study sites. USGS also found that four of the five pesticides that exceeded recommended maximum concentrations were purchased by residents and applied in homes and gardens. A recent Canadian study reveals that the most frequently detected pesticides in Toronto streams are also diazinon, 2,4-D, and MCPP, prompting the authors to conclude, "...Stormwater drainage systems may be conveying nutrients and pesticides used on lawns in urban areas to the Don River and Humber River watersheds and ultimately, into Lake Ontario."

### Groundwater

Over 50% of the U.S. population draws its drinking water supply from groundwater, which includes sources below the earth's surface, including springs, wells, and aquifers. In general, groundwater has a lower incidence of pesticide contamination than streams because the water gets filtered slowly through soil and rock, allowing for degradation and sorption of the chemicals out of the water and into soil. However, once groundwater has been contaminated, it takes many years or even decades to recover, while streams and shallow water sources can recover much more rapidly. Herbicides are found more often in groundwater than insecticides, but insecticides in groundwater exceed drinking water standards more often than herbicides. A 1989 study found residues of 39 pesticides and their degradation products in the groundwater of 34 states and Canadian provinces. The pesticides were mainly herbicides used in agriculture and insecticides and nematicides used in soil treatments.

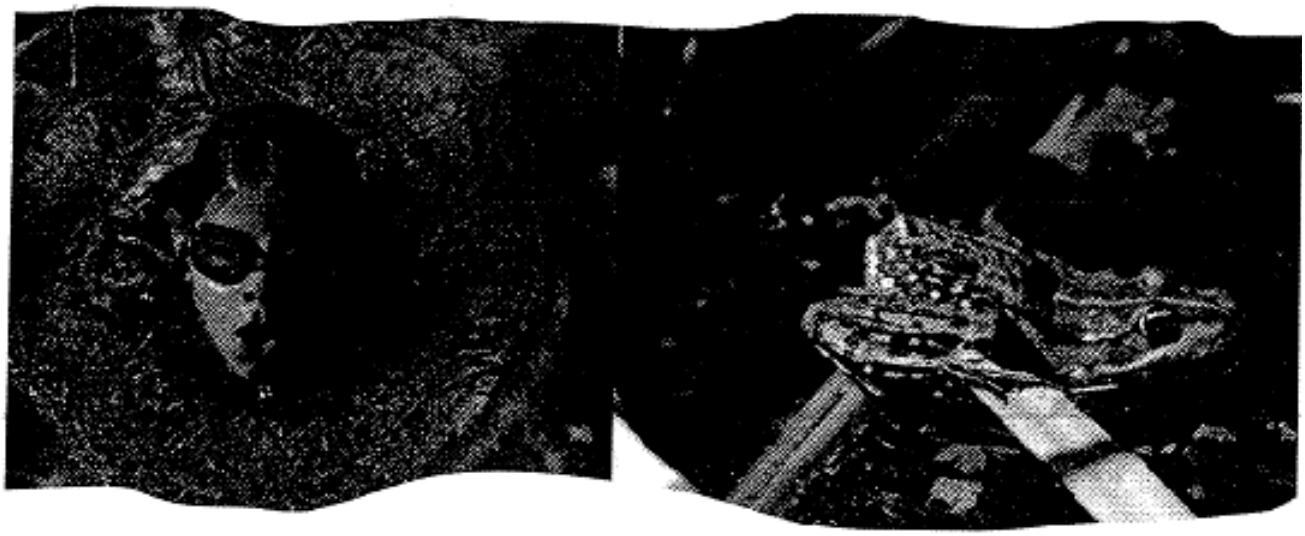
### Wells

Privately or publicly owned wells draw their water from groundwater sources. USGS found that around 50% of well samples contain one or more pesticides. Those wells that tap shallow groundwater beneath agricultural and urban areas have the highest detection frequencies of pesticides. A study in the mid-1980s of well water by Monsanto, a chemical manufacturer, found the chemical alachor in wells affecting 100,000 people in the sample area, some of whom were exposed to levels above maximum contaminant levels set by the EPA. It also found that 12.95% of the wells sampled contained detectable residues of herbicides. The herbicide atrazine was found in the highest percentage of wells and in the highest amounts, often over the EPA allowable level. A 1990 EPA survey found that over 10% of community water system wells and almost 5% of rural domestic wells contain more than one pesticide.

## Human exposure through water

More water is consumed per kilogram of body weight than any other item in the diet. Drinking water comes from a variety of water sources, including surface water and groundwater, as well as public water and private well systems. There are also vast geographic and seasonal variations in quality of drinking water and amount of pesticide residues. Because of these factors and a limited amount of available information, risk estimates on exposure to pesticides from water intake and the health effects of that exposure are currently unavailable. Despite unknown information about exposure and hazards, the National Academy of Sciences (NAS), in its 1993 review *Pesticides in the Diets of Infants and Children*, noted that since pesticide residues in water generally tend to be low, the contribution in ingested food prepared by using water is expected to be low, except in areas where the water is contaminated at above-average levels. A number of pesticides have been found in drinking water sources at concentrations above EPA limits and of potential concern to human health. In that same report, NAS recommended that pesticide exposure through drinking water be evaluated along with other dietary exposures to determine exposure risks.

According to USGS, insecticides in urban streams are a concern for downstream water suppliers and possibly for recreational users. Similarly, the high levels of herbicides in



water in agricultural areas are of concern to residents drinking the contaminated water, and have already caused health problems for some communities. For example, in Kentucky, researchers discovered that in counties where drinking water is contaminated with triazine herbicides, such as atrazine, there are increased numbers of breast cancer cases. In southern Iowa, researchers found that the number of babies with low birth weights is linked to herbicide-contaminated drinking water. Additionally, a study in Missouri found that men in rural areas have lower sperm counts and quality than men in urban areas. The men with lower sperm counts and quality have higher concentrations of pesticide metabolites in their urine, and the researchers believe that "...it is likely that men are ingesting these chemicals through their drinking water."

## Environmental problems

In addition to threatening human health, the widespread contamination of the nation's waterways with pesticides has pervasive environmental effects, some of which are only beginning to be understood. The following are a sampling of some of the documented detrimental effects that pesticides are having on aquatic ecosystems.

**Aquatic Microorganisms:** Herbicides have been shown to be especially toxic to certain aquatic microorganisms, disrupting the photosynthesis process. Microorganisms are very important in aquatic ecosystems, as they are primary producers, they cycle nutrients, and aid in decomposition. By negatively affecting microorganisms, pesticides in aquatic systems may have detrimental effects on higher trophic levels and disrupt the balance and the ecosystem.

**Pyrethroids and Stream Sediments:** A recent study of pesticides in bodies of water in the agriculture-dominated Central Valley in California found high levels of synthetic pyrethroids in stream sediments—levels high enough that they are toxic to freshwater bottom dwellers in almost 50% of the sampled locations. A follow-up study found that high levels of pyrethroids are also in stream sediments in urban areas in California, resulting from residential use of pyrethroids. In the residential study, pyrethroids are found in every sediment sample. In half of the samples, they caused total or near-total mortality to *Hyalella azteca*, a small bottom-dwelling crustacean that is generally regarded a sensitive "warning" species.

**Fish and Endocrine Disruption:** A study of sex hormones in carp indicates that pesticides may be affecting the ratio of estrogen to testosterone in both male and female fish. At stream sites with the highest concentrations of pesticides, the hormone ratio in the carp is significantly lower, indicating potential abnormalities in the endocrine system. The authors of the study conclude, "Reconnaissance assessment of sexsteroid hormones in carp from United States streams indicates that fish in some streams within all regions studied may be experiencing some degree of endocrine disruption." According to the U.S. Fish and Wildlife Service (FWS), "Endocrine disruption has the potential to compromise proper development in organisms, leading to reproductive, behavioral, immune system, and neurological problems, as well as the development of cancer. Effects often do not show up until later in life."

**Decline of Amphibians:** In an alarming trend worldwide, frog and salamander numbers are declining at a rapid pace, and many species are becoming endangered or going extinct. In the U.S. alone, there are currently 21 amphibian species classified as endangered or threatened and 11 species waiting to be listed. Although the causes of the decline are not fully understood, pesticides are believed to play a role in the decline.

One hypothesis for how pesticides are causing this decline in amphibian populations is the possibility that endocrine disruptors have altered reproductive and endocrine systems. Studies by researchers at UC Berkeley on atrazine, the most commonly used herbicide in the U.S., show that exposure to atrazine at levels found in the environment, even at levels far below EPA's drinking water limits, demasculinizes tadpoles

and turns developing frogs into hermaphrodites – having both male and female sexual characteristics.

Another hypothesis is that pesticides reduce the food supply of the amphibians. A 2005 study on pesticides and salamanders finds that the addition of carbaryl, a commonly used insecticide, to water caused reduced survival and affected metamorphosis in two species of salamanders. The effect is likely due to pesticide-induced reductions of food resources such as zooplankton. In the study, zooplankton abundance decreased by up to 97% following carbaryl application.

**Fish Kills:** Sizeable fish kills have resulted from pesticide use, and have often made sensational news headlines, including the 1991 death of over one million fish in Louisiana after aerial spraying of the insecticide azinphos-methyl (Guthion) on sugarcane fields. In 1995, toxic concentrations of endosulfan and methyl parathion along a 16-mile stretch of the Tennessee River in Alabama resulted in 240,000 fish killed. Most recently, 100,000 to 300,000 black crappie fish died suddenly in Minnesota. Water samples show the presence of permethrin, the pesticide that had been used two days prior for mosquito control.

## Failures in the regulatory system

EPA has developed water quality standards and guidelines for pesticides that have been the subject of much criticism. Under the *Safe Drinking Water Act*, EPA establishes maximum contaminant levels (MCLs) for water pollutants. MCLs are the maximum permissible level of a contaminant in water delivered to users of a public water system. In addition to MCLs, EPA also establishes Secondary Maximum Contaminant Levels (SMCLs), Risk-Specific Doses (RSD), and Lifetime Health Advisories (HA-L), all of which are other guidelines for how much of a contaminant is acceptable in water, based on health and environmental data. However, there are many uncertainties and complexities. The following failures in the regulatory system threaten both public health and environmental integrity.

- EPA has not established drinking water standards for all the pesticides found in water. EPA has established MCLs for only 24 pesticides, 10 of which are no longer approved for use. Of 76 pesticides analyzed in NAWQA water samples, human-health criteria (MCLs, RSDs, or HA-Ls) are available for 42 pesticides and four degradation products. Similarly, in USGS's study of pesticides in shallow groundwater, only 25 of the 46 pesticides detected had water quality standards established for them.
- Mixtures, synergisms, and breakdown products are not considered or being studied. Yet, pesticides in water usually occur in mixtures of several compounds rather than individually. More than 50% of all stream samples reviewed by the USGS contained five or more pesticides, and nearly 25% of all groundwater samples contained two or more pesticides. Although unregulated, some studies indicate that combinations of pesticides may exhibit additive or in some cases, synergistic effects, making the combined effect worse than the effect of a single compound.
- Certain effects, such as endocrine disruption and responses of sensitive individuals, have not been considered in the guidelines.
- The effects of seasonally high concentrations have not been evaluated.
- Breakdown products, which are the same as or more toxic than parent compounds, are not regularly factored into safety reviews. Breakdown products are compounds that result from pesticides undergoing changes while in the environment.
- Recent research suggests that some pesticides may cause health and environmental effects at levels considered safe by current standards. For example, when exposed to atrazine at concentrations considered acceptable by EPA, hamster ovary cells exhibit chromosome damage, including at levels commonly found in public water supplies. Additionally, tadpoles exposed to below-allowable levels of atrazine develop sexual abnormalities. EPA testing has failed to detect the significance of sublethal doses and has downplayed and in some cases dismissed studies that look at these impacts.

## Conclusion and recommendations

There are a plethora of studies documenting known contamination of waterways with hazardous pesticides linked to serious immediate and chronic health and environmental effects. At the same time, a review of the current situation related to water contamination finds that there is a regulatory failure to account for the *full* environmental and health impact of pesticide use patterns. Finally, as government focuses on mitigation measures that allow uses based on false assumptions, no real effort is being put into curtailing pesticide use and assisting with the adoption of practices that do not pollute.

Key to effecting change in response to water contamination are community-based programs that replace toxic pesticides with alternative non-chemical practices and products.

**Communities should adopt no-pesticide policies and launch community education programs.** Communities should pass policies and adopt practices that stop toxic pesticide use and outline approaches to land management that are safe for the environment and public health. While government regulatory agencies tinker with acceptable levels of pesticides in water, based on inadequate information, communities can lead the nation in rejecting the ongoing contamination and support environmental and public health protection. Institutions in the community, such as schools, hospitals, and office parks, should adopt similar policies and practices. In addition, local communities should develop outreach and educate community members on the adoption of practices that eliminate toxic chemical use on their property.

*For a fully cited version of this article, visit www.beyondpesticides.org/documents/water.pdf or call 202-543-5450. This spring, look for the publication of an in-depth brochure on water and pesticides.*

**CONTAMINATED GROUNDWATER:**
**Traces of Prescription Drugs Found in Southland Aquifers; Various medications are detected in drinking water that has been derived from treated sewage. The health risk, if any, is unknown**
**Los Angeles Times – 1/30/06**
**By Marla Cone, staff writer**

Behind a tangle of willows, every second of every day for almost half a century, recycled sewage has gushed into an El Monte creek and nourished one of Los Angeles County's most precious resources: the drinking water stored beneath the San Gabriel Valley.

Cleansed so thoroughly that it is considered pure enough to drink, this flow from the Whittier Narrows reclamation plant meets all government standards. Yet county officials now report that they have found some potent — and until recent months undetected — ingredients in the treated waste: prescription drugs.

As new technology enables detection of infinitesimally smaller doses of chemicals in the environment, Southern California water-quality officials have learned that an array of hardy pharmaceuticals are defying even the most sophisticated sewage treatments in use.

Around the world, waterways and groundwater basins are virtual drugstores, awash in low doses of hundreds of prescription drugs excreted by people and flushed down drains.

Wherever there is sewage, there are traces of whatever pills people have popped: antibiotics and antipsychotics, birth-control hormones and beta blockers, Viagra and Valium.

"There is no place on Earth exempted from having pharmaceuticals and steroids in its wastewater," said Shane Snyder, head toxicologist at Las Vegas' water provider, the Southern Nevada Water Authority, and one of the nation's leading experts on pharmaceuticals in water. "This is clearly an issue that is global, and we're going to see more and more of these chemicals in the environment; no doubt about it."

Locally, small amounts of medicines for depression, seizures, high cholesterol, anxiety, infections, inflammation and pain — among other ailments — have been detected in the wastewater that flows into California streams and seeps into drinking-water aquifers. The contamination raises questions about the safety of reclaimed water consumed by the public and the health of wild creatures that inhabit waterways.

The concentrations are so minuscule — in parts per trillion, or a few drops in an Olympic-sized swimming pool — that scientists suspect there is little or no human danger. They acknowledge, however, that no one knows the effects of ingesting tiny doses of multiple drugs continuously over a lifetime.

So far, concerns have focused mostly on the ecological threat. Biologists studying frogs on Prozac, insects dosed with anti-seizure drugs, algae killed by antibiotics and fish feminized by birth-control pills have discovered that some streams contain

pharmaceuticals and synthetic estrogen at levels harmful to aquatic life.

"All the data we have compiled indicates these concentrations are trivial to public health. Even putting massive safety factors on this, it still wouldn't have a [human] impact," Snyder said. "Now for wastewater — that's a different story. When you have a fish or endangered species that is exposed 24 hours a day, we do need to look at this."

With thousands of varieties of prescription and over-the-counter drugs being sold, there are no government standards restricting any of them in drinking water or in effluent released into streams or lakes.

Water and sewage agencies aren't even required to look for them — and most don't. Testing of drinking water for drugs has been so infrequent that no one knows how much people are ingesting. A national association of wastewater agencies warned in November that pharmaceuticals are a "potential sleeping giant."

Los Angeles and Orange counties are among the world's leaders in recycling sewage to replenish water supplies, and officials there worry that the public's perception of the water supply will be tainted.

The Whittier Narrows plant, which has operated in El Monte since 1962, was the nation's first reclamation plant. Since then, nearly half a trillion gallons of treated sewage from Whittier Narrows and two other county plants have replenished the Central Basin aquifer beneath the San Gabriel Valley, which supplies water to 4 million people.

Sewage in Southern California undergoes some of the world's most rigorous cleansing — tertiary treatment — to protect rivers and streams from bacteria and nitrogen. Much of the wastewater then is routed into aquifers, where it remains for at least six months so soil can filter out more contaminants before potable water is pumped.

In November, the Los Angeles County Sanitation Districts reported at a scientific conference that they found high levels of ibuprofen, naproxen and acetaminophen in raw sewage coming into its Whittier Narrows plant, and very small concentrations going out.

In waste that had undergone treatment, the antibiotic sulfamethoxazole and anti-cholesterol medication gemfibrozil were found at fairly high levels of around one part per billion. The antidepressant fluoxetine, the arthritis drug diclofenac, anti-anxiety and anti-seizure drugs, three more antibiotics and others were detected at lower levels, in parts per trillion. Estrogens also were measured in low levels.

Similar findings from two Los Angeles County reclamation plants will be published later this year by Jorg Drewes, an assistant professor of environmental science and engineering at the Colorado School of Mines.

Robert Horvath, the districts' technical services director, said tiny doses of over-the-counter drugs aren't that worrisome, but other less common medications can amount to an involuntary though "extremely low" public exposure. The agency, which operates 10 reclamation plants, is one of a few with the ability to test for pharmaceuticals.

"It's such a large list of compounds that even the testing is a lot of work — just teasing out which ones are important. So far, we have no [federal or state] goals to shoot for,"

Horvath said.

Orange County is spending $500 million to build the world's most advanced sewage-recycling plant. When operating in 2007, it is expected to bring pharmaceuticals and other contaminants to undetectable levels.

Christian Daughton, chief of environmental chemistry at the EPA's National Exposure Research Laboratory branch in Las Vegas, has said that drugs rival pesticides but unlike such conventional pollutants, they are unregulated and flow continuously into waterways from sewage treatment plants. The U.S. Geological Survey found one or more pharmaceuticals in 80% of 139 streams tested in 2002.

In a 1999 report, Daughton warned that medications "could lead to cumulative, insidious, adverse impacts" on aquatic ecosystems — such as declining reproduction and survival rates — that "can accumulate over time to ultimately yield truly profound changes," even in protected areas such as national parks.

Fish, frogs and other creatures live, feed and breed in waterways — exposed to the drugs from birth to death.

Collecting carp and other fish in a Dallas stream fed by treated sewage, Baylor University toxicologist Bryan Brooks found fluoxetine, an ingredient of Prozac and other antidepressants, in all fish sampled.

In laboratory frogs, Prozac slows growth and metamorphosis, leaving tadpoles more vulnerable to predation, according to research by University of Georgia ecotoxicologist Marsha Black. In fish, it causes lethargy and delays reproduction, and in crustaceans and shellfish, reproductive rates drop.

The most striking discovery is feminized fish. Male fish in British rivers, Nevada's Lake Mead, the Potomac River and elsewhere are growing female ovarian tissues from continuous exposure to birth-control estrogens and natural hormone excretions in treated sewage.

Many popular medications, such as acetaminophen and ibuprofen, are eliminated during sewage treatment. But some pass out of the plants unaltered and are released into streams, oceans and groundwater basins.

"Most pharmaceuticals are designed to be tough because they have to get through your body to have a therapeutic effect," said Margaret Nellor, an environmental consultant who specializes in reclaimed water.

Two widely used anti-epileptic medications — carbamazepine and primidone — survive not only Arizona's advanced, tertiary treatment but also filtration through aquifers' soil. Even after eight years underground, they still contaminate well water used to irrigate parks in Mesa and Tucson, Drewes said.

Yet experts suspect that the millions of Americans who drink reclaimed water — which includes virtually everyone in Los Angeles County — would experience no effects.

Drugs in wastewater are detected in nanograms though they usually are administered by doctors in milligrams, a unit 1 million times larger.

"People would have to drink the water for many hundreds of years to get a dose of a pharmaceutical equivalent to therapy," said Drewes.

Still, the public exposure is widespread, and some drugs share a common mode of action. When combined, they could lead to significant exposure.

Because some pills are intentionally flushed down toilets, Los Angeles and Orange counties will begin distributing cards to pharmacies in March advising customers to take unwanted drugs to hazardous waste roundups or wrap them and put them in the trash.

Water agencies predict that soon they will have to tackle this new generation of contaminants. The EPA is likely to add a few pharmaceuticals to a new candidates list, which could initiate monitoring of water in 2008.

In the meantime, the newest technology can detect chemicals in parts per quintillion — equivalent to one tablespoon in the Mississippi River.

"The analytical capability has really, really outstripped our ability to understand what it means," said Michael Wehner of the Orange County Water District, which taps a basin replenished by the Santa Ana River, composed almost entirely of treated sewage.

"There's a question of which pharmaceuticals may be persistent in the environment, which have the greatest potential for adverse effects," he said. "The information is still sketchy compared to the traditional contaminants. There's some good work going on to help us get a handle on it, but it's still early."

**Drugs in the environment**

Tests of raw and treated sewage at Los Angeles County's Whittier Narrows Reclamation Plant show that some pharmaceuticals are resistant even to advanced treatment and are released into the San Gabriel Valley's groundwater basin in ultra-low levels. #
http://www.latimes.com/features/health/medicine/la-me-drugs30jan30,1,2012319.story?coll=la-health-medicine
<http://www.latimes.com/features/health/medicine/la-me-drugs30jan30,1,2012319.story?coll=la-health-medicine>

ATTACHMENT #11

or historic unauthorized discharges to groundwater, but in some cases also to surface waters or sediments. [14]

### *COMMERCIALLY APPLIED CHEMICALS*

Pesticides, herbicides, insecticides, fungicides, etc are applied for both commercial and household purposes. Pesticides that are applied commercially are regulated and monitored by the State Department of Pesticide Regulation. The Agricultural Commissioner monitors commercial applications of agricultural pesticides, a major component of commercially applied chemicals in Sonoma County. The use of pesticides in households is regulated by the instructions on the container and is not independently monitored. As a result, the extent of household applied chemicals is not known.

From 1991-95, California pesticide use increased, as did the acreage of planted land. Six pesticides accounted for 73 percent of the increase, with most of the increased use on a handful of crops. One pesticide that increased in use, sulfur, is considered to be naturally occurring and is used as part of *Integrated Pest Management* (IPM). Soil fumigants such as methyl bromide and metam-sodium are regarded among the most toxic and probable carcinogens; their application has increased statewide with the addition of newly-planted areas, including wine grapes. The State Department of Pesticide Regulation (DPR) states that there currently are few economically feasible, non-pesticide alternatives for most of the pest problems for which these particular pesticides are used. Furthermore, many pests have developed resistance to pesticides that were previously effective. In conclusion, DPR states that burgeoning pest problems and a shortage of alternatives, chemical and non-chemical, sometimes present farmers with situations where they see no choice but to increase their use of pesticides. [15]

Sonoma County ranked 18th out of the 58 California counties in total pounds of commercial [16] pesticide active ingredients as reported to the State in 2000 and 2001. [17] In 2000, the Sonoma County wine grape commodity accounted for 2,904,922 pounds, or 94 percent of gross pounds commercial chemicals applied, compared to the total Sonoma County commercial chemical use, including all other types of agriculture, landscape maintenance, right-of-way, and structural pest control in the county. In 2001, that total amount applied to vineyards was 2,451,380 pounds, or 96 percent of the county's total commercial chemical use. [18]

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[14] Regional Water Quality Control Board, San Francisco Region 2, accessed online at http://www.swrcb.ca.gov, August 2003.

[15] *An Analysis of Pesticide Use in California, 1991 -1995*, Larry Wilhoit, David Supkoff, John Steggall, Adolf Braun, Charlie Goodman, Bob Hobza, Barbara Todd, and Marshall Lee, California Department of Pesticide Regulation, Environmental Monitoring and Pest Management Branch and California Department of Food and Agriculture, Office of PesticideConsultation and Analysis, 1998.

[16] This discussion does not include household pesticides used, only commercially applied pesticides.

[17] State Department of Pesticide Regulation data.

[18] *PAN Pesticide Database*, Pesticide Action Network North America, [online] http://www.pesticideinfo.org, August 2003.

**Exhibit 4.13-2** presents a summary of the grape pesticide use in Sonoma County from 1990 through 2001. It shows that the gross total pounds applied peaked in 1994, at 4,162,821; with each subsequent year a reduced amount of chemicals were applied. This occurred even though the acreage planted in vineyards has increased. Each separate category of pesticide also peaked in that year. Sulfur has decreased the least, as it is used more as part of IPM efforts. The carcinogen methy bromide applications have decreased the most, from 632,000 pounds in 1994 to 31,650 pounds in 2001. The third category of chemicals, called non-sulfur, has decreased in the same time period from 882,721 pounds approximately by 50 percent to 438,580 pounds. The Sonoma County Grape Growers Association (SCGGA) has been implementing a program to promote the use of IPM to monitor vineyard pests and disease and use lower risk pest management practices. The goal is to reduce the use of certain insecticides, fungicides, herbicides, and miticides targeted by the federal Food Quality Protection Act (FQPA). **Exhibit 4.13-3** shows a decline in the usage of some FQPA targeted chemicals in Sonoma County grape production from 1999 to 2000. The SCGGA IPM project is continuing. [19]

***Exhibit 4.13-2***
***Summary of Grape Pesticide Use in Sonoma County***

| Year | Total Applied (Lbs) | Sulfur (Lbs) | Methyl Bromide (Lbs) | Non-Sulfur (Lbs) | Acres | Percent Sulfur |
|---|---|---|---|---|---|---|
| 1991 | 1,750,215 | 1,573,600 | --- | 176,615 | *34,000* | *89.9* |
| 1992 | 2,032,400 | 1,523,600 | --- | 508,800 | *34,500* | *75.0* |
| 1993 | 3,059,291 | 2,492,000 | 225,700 | 567,291 | *35,000* | *81.5* |
| 1994 | 4,162,821 | 3,280,100 | 632,000 | 882,721 | *35,700* | *78.8* |
| 1995 | 3,747,800 | 2,997,400 | 454,900 | 750,400 | *36,330* | *80.0* |
| 1996 | 3,355,000 | 2,705,200 | 428,300 | 649,800 | *38,399* | *80.6* |
| 1997 | 3,614,800 | 2,904,200 | 461,240 | 710,600 | *40,001* | *80.3* |
| 1998 | 3,512,900 | 3,031,300 | 193,700 | 481,600 | *44,681* | *86.3* |
| 1999 | 3,275,500 | 2,541,200 | 449,900 | 734,300 | *51,465* | *77.6* |
| 2000 | 2,904,900 | 2,321,500 | 132,159 | 583,400 | *55,877* | *79.9* |
| 2001 | 2,451,380 | 2,012,890 | 31,650 | 438,580 | *58,667* | *82.1* |

Source: Sonoma County Grape Growers Association

[19] Nichols • Berman communication Nicholas Frey, Executive Director, Sonoma County Grape Growers Association, July, 2003; and *Pest Management Grants Final Report – Promotion of Vineyard Pest and Disease Monitoring and Reduced-Risk Pest Management Practices in Sonoma County*, Nicholas M. Frey, Sonoma County Grape Growers Association, California Department of Pesticide Regulation, February 27, 2002.

***Exhibit 4.13-3***
***Food Quality Protection Act – Targeted Pesticide Usage in Sonoma County Grape Production***

| Pesticide | FQPA Class | Pounds Used 1999 | Acres Treated 1999 | Pounds Used 2000 | Acres Treated 2000 |
|---|---|---|---|---|---|
| *Insecticides* | | | | | |
| Dimethoate | Organophosphate | 969 | 3,021 | 361 | 1,997 |
| Diazinon | Organophosphate | 635 | 1,143 | 55 | 143 |
| Fenamiphos | Organophosphate | 5,214 | 2,331 | 4,230 | 1,364 |
| Carbaryl | Carbamate | 897 | 504 | 613 | 584 |
| *Fungicides* | | | | | |
| Mancozeb | Carcinogen | 31,555 | 23,240 | 33,000 | 21,431 |
| Iprodione | Carcinogen | 4,024 | 4,923 | 1,499 | 1,892 |
| *Herbicides* | | | | | |
| Simazine | Carcinogen | 24,177 | 10,832 | 21,064 | 13,064 |
| Oxyflurofen | Carcinogen | 14,455 | 19,857 | 17,664 | 24,940 |
| *Miticide* | | | | | |
| Propargite | Carcinogen | 5,055 | 3,478 | 1,503 | 1,091 |
| ***Totals*** | | **86,981** | **69,329** | **79,989** | **66,506** |

Source: Sonoma County Grape Growers Association; *Pesticide Use Reports*, State Department of Pesticide Regulation; and Federal Food Quality Protection Act (FQPA).

### *HOUSEHOLD HAZARDOUS MATERIALS*

There are no data available to show how many county households contribute to pesticide pollution through the use of home landscaping products and other home activities and chemicals. There are a number of common household toxics found in the garage (antifreeze, motor oil, gasoline, waxes, auto batteries, brake fluid); in the workshop (paint, paint thinner, wood preservatives, glues, solvents, photo chemicals); in the house (ammonia and bleach cleaners, polishes, medications, syringes, batteries); and in the yard (pesticides, fungicides, weed killers, pool chemicals, pool backwash). Household hazardous materials also include an increasing amount of electronic waste, including computers and cell phones. Improper disposal of these wastes can result in potential toxic leachate at sanitary landfills, in storm drains, and in creeks and rivers. The Household Toxics Waste Facility at the County's Central Disposal Site is expected to open in 2005. The County has relied on Household Toxics Roundups and curbside oil pickups, among other programs, to keep toxics out of the regular landfill.

There is little known about how much household hazardous waste is generated annually. The County has estimated that, in 1990, 1,095 tons of household hazardous waste was disposed of, while in 1996, the amount was 1,797 tons. Over the five year period from 1998 to 2003, 91 percent of county households did not participate in the hazardous waste program. At the same time, the amount of household hazardous waste collected increased from 1,192, 578 pounds collected in 1998, to

ATTACHMENT #12

## ATTACHMENT G – WATER RECLAMATION REQUIREMENTS AND PROVISIONS

### A. Water Reclamation Findings

1. The California Department of Health Services (DHS) has established statewide reclamation criteria in Chapter 3, Division 4, Title 22, CCR, Sections 60301 through 60355 (hereinafter Title 22) for the use of recycled water for irrigation, impoundments, cooling water, and other purposes. The DHS has also established Guidelines for Use of Reclaimed Water. This Order implements the Title 22 recycled water criteria.

2. In 1996, the State Water Board and DHS set forth principles, procedures, and agreements to which the agencies committed themselves, relative to the use of recycled water in California, in a document titled Memorandum of Agreement Between the Department of Health Services and the State Water Resources Control Board on the Use of Reclaimed Water (MOA). This Order is consistent with the MOA.

3. This Permit implements Section 13523.1 of the CWC which authorizes issuance of a Master Reclamation Permit to suppliers or distributors, or both, of recycled water in lieu of issuing individual water reclamation requirements to each recycled water user.

4. The Discharger is required to develop and keep updated, an Engineering Report for the use of recycled water as required by Sections 60313(d), 60314, and 60323 of Title 22. This Title 22 Engineering Report must be approved by DHS and the Regional Water Board prior to delivery of disinfected, advanced treated effluent to any recycled water use site requiring tertiary effluent as required by Title 22. The Title 22 Engineering Report shall describe how the Discharger will operate the treatment facilities and reclamation system to comply with all applicable rules and regulations, including Title 22 and this Order. The Title 22 Engineering Report shall also discuss the possibility of incidental runoff from recycled water use areas and describe measures the Discharger will take to minimize this possibility.

   Incidental runoff is defined as runoff that is unintentional (e.g., accidental breakage of a sprinkler head) and not associated with negligence on the part of the Discharger or the recycled water user. These incidents are typically infrequent, low volume, accidental, not due to a pattern of neglect or lack of oversight, and are promptly addressed. The Regional Water Board recognizes that such minor violations are unavoidable and present a low risk to water quality. Incidental runoff incidents shall be summarized in the Discharger's quarterly recycled water monitoring report. Enforcement action shall be considered for inadequate response by the Discharger to incidental runoff incidents, repeated runoff incidents that were within the Discharger's control, where incidental runoff directly causes violations of water quality objectives, incidents that create a condition of pollution or nuisance, and discharges that reach surface water in violation of Discharge Prohibitions III. For III.B and/or Water Reclamation Requirements in Attachment G, Section B.4 or B.6 of this Order.

5. This Order authorizes the Discharger to reuse treated municipal wastewater that complies with effluent limitations contained in Section IV of the Order for uses that have been addressed in an approved Title 22 Engineering Report and for which recycled water user agreements have been negotiated.

6. Effluent Limitations included in this Order will assure compliance with requirements contained in Title 22 and the DHS/State Water Board MOA.

7. The use of recycled water is exempt from the requirements of Title 23, CCR, Section 2510, et. sec., (hereinafter Chapter 15) and Title 27, CCR, pursuant to Section 2511(b) based on the following:

   a. The Board is issuing a Master Reclamation Permit, and

   b. The reclamation complies with the Basin Plan, and

   c. The recycled water does not need to be managed according to 22 CCR, Division 4.5, Chapter 11, as a hazardous waste.

8. The Regional Water Board consulted with DHS, the Sonoma County Health Department, and the local Mosquito Abatement District and considered any recommendations regarding public health aspects for this use of recycled water.

**B. Water Reclamation Requirements**

1. The use of recycled water shall not result in unreasonable waste of water.

2. The use of recycled water shall not create a condition of pollution or nuisance as defined in CWC Section 13050(m).

3. The Discharger shall be responsible to ensure that all users of recycled water comply with the terms and conditions of this Permit and with any rules, ordinances, or regulations adopted by the Discharger.

4. Recycled water shall not be applied to irrigation areas during periods when uncontrolled runoff may occur.

5. Recycled water shall be applied in such a manner so as not to exceed vegetative demand or field capacity.

6. Recycled water shall not be allowed to escape the recycled use area(s) in the form of surface runoff. [CCR Title 22, Section 60310(e)]

7. Direct or windblown spray, mist, or runoff from irrigation areas shall not enter dwellings, designated outdoor eating areas, or food handling facilities. [CCR Title 22, Section 60310(c)(2)]

8. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff. [CCR Title 22, Section 60310(e)(3)]

9. There shall be no bypassing of untreated or partially treated wastewater from the recycled water plant or any intermediate processes to the point of use. [CCR Title 22, Section 60331]

10. All recycled water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities.

11. The California Health and Safety Code, Section 116815, requires that "all pipes installed above or below the ground, on or after June 1, 1993, that are designed to carry recycled water, shall be colored purple or distinctively wrapped with purple tape." Section 116815 also contains exemptions that apply to municipal facilities that have established a labeling or marking system for recycled water used on their premises and for water delivered for agricultural use.

    The Discharger shall prepare a report documenting either compliance with this requirement and/or containing a workplan to identify and replace any nonpurple pipe in the recycled water distribution system installed after June 1, 1993 that is not in compliance with the this code. The report shall be submitted within 90 days of the adoption of this permit. A report documenting full compliance with this requirement shall be submitted by **August 1, 2008.**

12. The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibbs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access. [CCR Title 22, 60310(f)]

13. Cross-connections shall not occur between any recycled water system and any separate system conveying potable water. [22 CCR, Section 60310(h)] Supplementing recycled water with potable water shall not be allowed except through air gap separation [CCR Title 22, Section 30615].

14. All reservoirs and ponds shall be adequately protected from erosion, washout, or flooding from a rainfall event having a predicted frequency of once in 100 years.

15. Disinfected tertiary recycled water shall not be irrigated within 50 feet of any domestic water supply well or domestic water supply surface intake, unless the

technical requirements specified in CCR Title 22, Section 60310(a) have been met and approved by DHS.

16. The use of recycled water shall not cause degradation of any water supply.

17. Areas irrigated with recycled water shall be managed to prevent ponding and conditions conducive to the proliferation of mosquitoes and other disease vectors, and to avoid creation of a public nuisance or health hazard. Irrigation water shall infiltrate completely within a 24-hour period.

18. All areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches high by 8 inches wide that include the following wording: 'RECYCLED WATER – DO NOT DRINK'. [CCR Title 22, Section 60310(g)] Each sign shall display an international symbol similar to that shown in CCR Title 22, Figure 60310-A. These warning signs shall be posted at least every 500 feet with a minimum of a sign at each corner and access road.

19. DHS Guidance Memo No. 2003-02 Guidance Criteria for the Separation of Water Mains and Non-Potable Pipelines provides guidance for the separation of new potable water mains and recycled water pipelines which shall be implemented as follows:

    a. There shall be at least a four-foot horizontal separation between all pipelines transporting recycled water and those transporting disinfected tertiary recycled water and new potable water mains.

    b. There shall be at least a one-foot vertical separation at crossings between all pipelines transporting recycled water and potable water mains, with the potable water main above the recycled water pipeline, unless approved by the DHS.

    c. All portions of the recycled water pipeline that cross under a potable water main shall be enclosed in a continuous sleeve.

    d. Recycled water pipelines shall not be installed in the same trench as new water mains.

    e. Where site conditions make it impossible to comply with the above conditions, any variation shall be approved by DHS and comply with alternative construction criteria for separation between sanitary sewers and potable water mains as described in the DHS document title "Criteria for Separation of Water Mains and Sanitary Sewers", treating the recycled water line as if a sanitary sewer.

20. A minimum freeboard, consistent with pond design but not less than two feet, shall be maintained under normal operating conditions in any reservoir or pond containing recycled water. When extraordinary operating conditions necessitate a freeboard of less than two feet, the Discharger will document the variance in the monthly self-monitoring report. The report will include an explanation of the circumstances under which the variance is required, the estimated minimum freeboard during the extraordinary period, and any permit violations occurring as a result of the variance.

21. The use of recycled water for dust suppression shall only occur during periods of dry weather and shall be limited to periods of short duration.

## C. Water Reclamation Provisions

1. The Discharger shall manage recycled water, and shall develop, establish and enforce administrative procedures, engineering standards, rules, ordinances and/or regulations governing the design and construction of recycled water systems and use facilities and the use of recycled water in accordance with the criteria established in CCR Title 22 and this Order. The Discharger shall develop user agreements requiring user compliance with CCR Title 22 and this Order. Water reclamation engineering standards, rules, ordinances and/or regulations shall be approved by the Regional Water Board Executive Officer and DHS.

   Upon approval of the Discharger's procedures, engineering standards, rules, ordinances, and/or regulations, the Discharger may authorize specific additional water reclamation projects, on a case-by-case basis, in accordance with the approved program and agreements.

2. The Discharger shall submit revised and/or additional engineering report(s) for Regional Water Board and DHS approval, prior to initiating any recycled water use (e.g., new industrial use, recreational surface impoundments, water cooling, new dual-plumbed system, etc.) not addressed in any previously approved CCR Title 22 engineering report(s). Engineering report(s) shall be prepared by a properly qualified engineer registered in California and experienced in the field of wastewater treatment, and shall contain (1) a description of the design of the reclamation system; (2) a contingency plan which will assure that no untreated or inadequately treated wastewater will be delivered to the use areas; and (3) a cross-connection control program (Title 17 of the California Code of Regulations). Engineering reports shall clearly indicate the means for compliance with CCR Title 22 regulations and this Order.

3. The Discharger shall conduct periodic inspections of the recycled water use areas, facilities, and operations to monitor and assure compliance with the conditions of this Permit. The Discharger shall take whatever actions are necessary, including termination of delivery of recycled water, to correct any user violations. The Discharger shall, upon prior notification to the user, conduct regular inspections to

assure cross-connections are not made with potable water systems and DHS approved backflow prevention devices are installed and operable.

4. The Discharger shall be responsible for ensuring that recycled water meets the quality standards of this Order and for the operation and maintenance of transport facilities and associated appurtenances. The Discharger shall hold the recycled water users responsible for the application and use of recycled water on their designated areas and associated operations and maintenance in accordance with all applicable CCR Title 22 requirements and this Order.

5. The Discharger shall notify the Regional Water Board Executive Officer in anticipation of reclaiming water at a new location, prior to commencement of reclamation activities at the new location. The notice shall include the following: site location, acreage involved, County Assessor Parcel number(s), name of property owner and/or user, and a User Reclamation Plan. The User Reclamation Plan shall estimate the anticipated volume of recycled water to be used, describe the recycled water management facilities and operations plan, identify who is responsible for site management, reflect consultation with state and local health departments, and explain in detail how compliance with the User Reclamation Plan, CCR Title 22 Criteria, and the requirements of the Master Reclamation Permit will be achieved.

6. If, in the opinion of the Regional Water Board Executive Officer, recycled water use at proposed new locations cannot be adequately regulated under the Master Reclamation Permit, a Report of Waste Discharge may be requested and individual Water Reclamation Requirements may be adopted.

7. Prior to the initial operation of any dual-plumbed recycled water system, and annually thereafter, the Discharger shall ensure that the dual-plumbed system within each facility and use area is inspected for possible cross connections with the potable water system. The recycled water system shall also be tested for possible cross connections at least once every four years. The testing shall be conducted in accordance with the method described in the Engineering Report. The inspections and the testing shall be performed by a cross connection control specialist certified by the California-Nevada section of the American Water Works Association or an organization with equivalent certification requirements. A written report documenting the result of the inspection or testing for the prior year shall be submitted to DHS and the Regional Water Board within 30 days following completion of the inspection or testing. [CCR Title 22, Section 60316]

8. The Discharger shall notify DHS and the Regional Water Board of any incidence of backflow from the dual-plumbed recycled water system into the potable water system within 24 hours of the discovery of the incident.

9. Any backflow prevention device installed to protect the public water system serving the dual-plumbed recycled water system shall be inspected and maintained in accordance with Section 7605 of Title 17, CCR.

10. Any discharge of untreated or partially treated wastewater to the use area, and the cessation of the same, shall be reported immediately with an oral report [1] by telephone to the Regional Water Board Executive Officer, DHS, and the local health officer.

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[1] Oral reporting means obtaining direct contact with a Regional Water Board staff person. The oral report may be given in person or by telephone. After business hours, oral contact must be made by calling the State Office of Emergency Services or the Regional Water Board spill officer.

**Russian River Watershed Protection Committee**
**P.O. Box 501**
**Guerneville, CA 95446**
**(707) 869-0410**

**Comments: Proposed Waste Discharge Requirements**
**Order No. R1-2006-0045**
**Santa Rosa Subregional Water Reclamation System**
**NPDES Permit # CA0022764, WDID # 1B830990SON**

Submitted by Brenda Adelman
May 24, 2006

## GENERAL COMMENTS:

RRWPC welcomes the opportunity to submit comments on this proposed permit by the May 24th deadline. While we don't agree with everything in the proposed permit, we wish to pay our complements to the staff, who organized and wrote it. In our view, the permit language provides a level of detail that makes the intent of the regulatory document very clear in most instances. Detailed rationales and citing of regulatory authorities are extensively provided. Charts are numerous, appropriate and very helpful where they appear.

We only wish the document included some better maps indicating the full range of the system (including all ponds), along with all monitoring points. It would be helpful to see the web of waterways affected by the City's discharge. It would be good to note the distances and corresponding relationships between ponds, discharge points, treatment plant and flow gauges. These would provide a much better view for other regulators and interested parties who may not be familiar with the area. This is a very complex system that needs to be clearly portrayed. The aerial view identifying monitoring points is hard to see and difficult to decipher. The creeks are barely visible and the River is outside the view.

Many concerns expressed in these comments are related to longstanding disputes with prior permits and associated Basin Plan Amendments for Santa Rosa. Several of these issues, which we believe should have been changed long ago, are now carried over to this permit. While we do not necessarily expect immediate relief on these items, we continue to speak out about what we believe to be the right thing to do. We also have numerous concerns about unregulated chemicals that have been demonstrated to cause serious harm to human health

and the environment. We will provide documents substantiating our concerns and hopefully some recommendations to deal with these issues.

There are a few sections of the permit, such as portions on sludge and some of the highly technical regulatory rationale, for which we do not provide comments because we do not have the expertise to do so. Our lack of comment in some sections should not be construed to mean that we necessarily agree with the text.

COMMENTS ON PROPOSED PERMIT:

## III: DISCHARGE PROHIBITIONS

**Item G** (Page 9): Does this mean that no more than 640 mg should enter the Treatment Plant in any consecutive 30 day period?

**Item H**: In the Fact Sheet it notes that there shall be no discharges from Nov. 1st to May 15th. Is this an inconsistency?

**Item I**: (page 10) First, there appears to be a mistake in the language here. It should mention the 1000 cfs. trigger. Secondly, we will go into more detail later, but we have serious disagreement with this prohibition. We believe that Regional Board staff should be consulted AT ANY TIME the City wants to discharge when there is less than 1000 cfs flow at the Hacienda gauge, especially after April 1st. This is particularly important because flow measurements that determine the amount of discharge are taken approximately 9 to 12 miles downstream.

**Item J**: Allowing discharges based on stream flow approximately 9 to 12 miles downstream does nothing to protect beneficial uses in the area of discharge. This should have been changed years ago, and we fail to see why it is being perpetuated in this permit. There are so many potential impacts resulting from this practice that it could negate many of the new and more stringent requirements proposed in this new permit.

One impact we have never seen addressed is the geomorphogy and related water quality effects of large discharges into relatively small creeks such as the Laguna. How does this practice affect sediment loads, for instance? We believe that discharge impacts on erosion and sediment movement should be addressed. It would be good if this permit could acknowledge that these elements are all interconnected in ways that can degrade water quality. Everyone of the discharge points should be analyzed in this regard.

Furthermore, with the Geysers on line, it may no longer be necessary. We have devised a chart (attached) based on data in the City's Annual Reports from 1993 to 2005. The data indicates two things VERY clearly. First, the four biggest rain

years (1995, 1996, 1998, 2005) were the four years with the highest flow into the Treatment Plant. This tells us that fixing their old leaky collection system pipes could eliminate about 1 billion gallons a year flow during wet years.

Secondly, it is important to note that the normal rain year of 1993 had basically the same inflow into the Treatment Plant (7.3 BG) as 2004 (7.4 BG) in spite of extensive growth during that time period. In our minds, this is a strong indicator of the success of Santa Rosa's conservation efforts, which should be continued. Our point here is that, if they fix their leaky pipes to address high flow intrusion, they probably won't need to base their discharge on the Hacienda Gauge and they probably won't need to discharge when the river is flowing at less than 1000 cfs. It is really a management issue since the Geysers has been put on line and the permit needs to more clearly acknowledge that, instead of continuing business as usual.

Finally, we have noted in a prior chart (attached) that Santa Rosa's average dry weather flow has only increased about 4 MGD over the last 20 years. They still have about 4 MGD capacity left to serve a growth projection of about 30,000 people up to 2020. Yet their IRWP EIR calls for a capacity increase to 26 MGD. The history of wastewater generation simply does not support their capacity projections. We do appreciate that the permit encourages reclamation. In light of the fact that Santa Rosa may not be able to meet requirements for removal of copper, cyanide, and lead, aiming for zero discharge may be the most viable and ultimately cost effective way for them to go.

## IV. EFFLUENT LIMITATIONS & DISCHARGE SPECIFICATIONS

**Table 6**: We thought pH was supposed to range from 6.5 to 8.5. Why does it state 6.0 to 9.0? In fact, on page 13 under "Surface Water Limitations", it says just that. Is there a reason for this inconsistency? If so, it would be good to state it.

**1d.** (page 11) Here it states that acute toxicity bioassays should have at least 70% survival. In the Fact Sheet (page F-51) I believe it states that a TRE is triggered when there is a pattern of 80% toxicity at 100% effluent. Do I understand it correctly when I conclude that there appears to be a disparity here? If a TRE is necessary, should an unlimited pollutant discharge be allowed?

## C. Reclamation Specifications

### 3. Reclamation Capacity (page 13)

It is interesting that you note here that of the 21.34 MGD average daily flow, 4,015 MG will be reserved for the Geysers and 2,590 MG for irrigation. 21.34 times 365 equals 7,789 MG, which should be the maximum amount of influent

generated, according to this permit. With 6,605 MG dedicated to reclamation, this leaves only 1,184 MG to be released into the Russian River, consistent with 2005 discharges. We wonder why the City's IRWP consistently assumes that the permit allows them to discharge as much as 4.5 billion gallons a year? Are numbers and assumptions presented correctly here?

We appreciate Item #4 which emphasizes the need to seek more reclamation opportunities. We assume this is so that discharge to waterways could be minimized. If the permit were to similarly emphasize a more vigorous Infiltration and Inflow (I & I) program, perhaps no discharge (or very little) would even be necessary within a few years. (See analysis above.)

**6b. Wastewater Collection Systems** (page 22)

This section addresses the need for an Operations and Maintenance Program, to, among other things, provide an SSO reduction plan. We wonder if each of the Subregional partners will be subject to this requirement separately? We wonder how the separate collection systems will be dealt with since it does not appear that this permit addresses the individual subregional collection systems? Could it be that you are holding Santa Rosa, as managers of the permit, responsible for collection systems of all partners?

## VII: Compliance Determination (Page 26)

We wonder if there will be any provision for occasionally checking lab results by sending samples to a different lab? Will the Regional Board Staff do any independent sampling/testing? While we realize this can get expensive, we believe that occasional, unannounced monitoring and testing would assure truthful reports.

(Top of page 27) We fail to completely understand the statement: "For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month." If samples are required to be taken on a regular basis, under what circumstances would this occur? We are having trouble imagining such circumstances. (Further down the page we see a similar statement for weekly averages.) We believe that it goes without saying that where monitoring is not required, neither would averages be available. Can one infer from this that not taking samples would let them off the hook for compliance? I'm sure that would not be the intent but to avoid confusion it appears that this segment needs more clarity.

**ATTACHMENT D – FEDERAL STANDARD PROVISIONS**

**G. Bypass** (Page D-5)

2. "The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance 1.G.3 and 1.G.5 below."

We have a slight problem here. If certain bypasses are not subject to permit compliance and therefore not subject to the special provisions, then how will you know that the bypass operation didn't cause permit violations? It seems as though #2 could be used to circumvent the prohibition against Bypass. It might be helpful if #2 comes AFTER #3, where provisions in #3 apply to #2.

## ATTACHMENT E: MONITORING AND REPORTING PROGRAM

On the whole, from a layperson's perspective, the monitoring and reporting program appears quite thorough and adequate. However, we do have the following comments. We start by requesting a better map (11" x 17"?) of monitoring points and gauges.

Speaking of gauges, we consider it a major drawback of this permit that stream flow readings are not required at discharge points. It seems like these measurements should be mandatory to determine the full impacts of discharges on beneficial uses. Furthermore, we fail to understand why direct discharge and receiving water data are not part of the Annual Report?

Somewhere we read that effluent monitoring would take place at the end of the discharge pipe. To my knowledge, that has not happened before. Does the City actually have the ability to measure at the precise end of the pipe, or is it expected that that location is approximate? How literal is the requirement to measure immediately at the point of discharge? How would you know that this is actually taking place? Will there be plant inspections by Regional Board staff? Would Santa Rosa have any means of substituting Treatment Plant effluent for pond effluent and thereby avoiding compliance in the ponds? In other words, will monitoring be monitored and how will it be done?

**Table 7** (Page E-15)

This calls for continuous sampling weekly for numerous constituents. How does this work? *Continuous* would be every instant in a given time period. *Weekly* would be a certain time every week. Please explain this apparent contradiction. (Does it mean every instant over the course of a week?)

Is there any provision to immediately stop either discharging or irrigating upon discovery of a compliance problem at the Treatment Plant? I don't recall seeing anything in the permit about that. Also, pollutants of great concern are generally to be monitored weekly at Pond D and Delta. It may not be significant, but we

wonder if it might be helpful to require that, when there has been a time gap of 3-4 days between discharges, that the weekly measurement be taken at the start of discharge rather than several days later. Was that weekly measurement intended to occur all year long?

We wonder why there are no requirements to monitor for viruses, Giardia Lambia, cryptosporidium, or other parasites?

## D. Other Reports (page E-20)

Again, we wonder why Annual Reports never include discharge information including flows, receiving water information, storage curve, etc. We realize that these are provided in monthly reports, but it is misleading when the Annual Report never even gives the amount of annual discharge. This appears to be a major gap in the Annual Report.

## ATTACHMENT F: FACT SHEET

## B. Discharge Points and Receiving Waters

It seems as though monitoring points for receiving waters is quite a ways downstream of the discharge points (as much as one mile). In some circumstances, this can result in a lengthy de facto mixing zone, even though such zones are not allowed. For instance, copper is monitored weekly. If they have an excursion in the middle of the week, in one mile it can easily be dispersed. Which leads me to wonder if weekly monitoring in the discharge pipe and in the receiving water should be staggered. For instance, monitor one at the beginning of the week and one towards the end during periods of discharge. That would give additional opportunities to determine contamination.

### 012B Delta Pond (page F-6)

This discharge point does not list a receiving water monitoring location. Was that intentional? It also mentions the "high water mark of Santa Rosa Creek". What is this and how is it measured? I know there used to be a gauge at Willowside Road, but I thought it was dismantled. Are there actual flow gauges on this creek now that are regularly maintained? Is there data on SR Creek flow levels? How do you ascertain the "high water mark"? This term is used for the Laguna Wetlands as well. I'm having trouble visualizing this. Most of the time, water levels will be below "high water marks". How will this work? Is water released into the wetlands during the discharge prohibition season? Is it counted as a discharge during the discharge season?

## E. Planned Changes

1. IRWP: (page F-9)

This segment states that Santa Rosa, in their IRWP effectively capped the amount of discharge at 4.5 billion gallons. This paragraph also mentions that this is based on a flow of 21.34 mgd. Yet, I believe that the EIR for the IRWP assumes that system capacity will be increased to almost 26 MGD, therefore making this a misleading, if not inaccurate statement Furthermore, if reclamation goals of 6605 MG, as required under this permit (page 13) are met, there is only 1184 MG remaining for discharge. This is a far cry from 4.5 BGY and should be acknowledged by this permit (see our analysis on page 3 above.)

**5. Anti-degradation Policy and 6. Anti-Backsliding Requirements (Page F-12)**

It is unclear which effluent limitations are being relaxed and how they remain in compliance with Anti-degradation Policy and Ante-Backsliding Requirements. For clarity, it would be helpful if a brief explanation and/or reference were given.

**D. Impaired Water Bodies on CWA 303(d) List**

**2. Laguna de Santa Rosa (page F-13)**

You mention that Santa Rosa Creek is listed for pathogens. Does this impact Santa Rosa's discharge in any way, which I believe s downstream of the area listed?

**IV.RATIONALE FOR EFFLUENT LIMITATIONS, ETC. (Page F-13)**

What is meant by non-conventional pollutant? Don't conventional and toxic pollutants address the universe of this category? We also wonder about a total lack of discussion about emerging pollutants of concern such as personal care products, pharmaceuticals, caffeine, hormones, etc. While we realize that these are yet to be regulated, there is extensive agreement that they are probably having a significant negative affect on beneficial uses. I am including some articles addressing this issue. Furthermore, they are discovering that the dose does not always make the poison, as with atrazine and amphibians, the smaller doses have been shown to be more harmful. I believe that US EPA is currently promulgating standards for many endocrine disruptors and they will be regulated in the future. It seems as though this should be acknowledged in the permit. In fact, your own staff is currently wrapping up a study under Peter Otis and Bob Klamt on the impacts of endocrine disruptors on fish in our area. The findings in that study should be acknowledged in this permit, if only in a general way.

Furthermore, while this document works hard to address the 125 priority pollutants, it also needs to mention that there are about 80,000 chemicals on the market. No one knows how combinations of these chemicals in a wastewater process would survive to cause unknown damage to receiving waters. This should be acknowledged. If nothing else, the universe of these 80,000 chemicals should be "reasonably contemplated" by the

Board to be present in the raw sewage. If not, your language on page F-13 and 14 would appear to preclude them from being inadvertently discharged. Is this correct?

**7. Discharge Prohibition III G** (Page F-15)

If the daily discharge is limited to 21.34 MGD, then is it correct to assume that the yearly limit would be 365 times that number, or 7.8 BGY? Since we all know the average is not met during all months, how is this regulated? Last year Santa Rosa saw over 8 BG come into their Treatment Plant, which is more than the daily average times 365. We have never heard of any fines or penalties for exceeding this limit.

There should be extensive emphasis on Santa Rosa's fixing their leaky pipes. They started the process in the last few years but only managed to replace .08% of the system. They need to be encouraged to greatly improve that number and their expensive project expansions may not be necessary. Of course, needless to say, fewer discharges into waterways will also translate into better water quality and protection of beneficial uses.

**9. Discharge Prohibition III.I.**

Commencement of discharge before river flow reaches 1000 cfs. (Page F-16) While we are pleased to see that some remnant of the original ban of discharge when river is under 1000 cfs still remains, nevertheless, we believe that this requirement is extremely inadequate. In light of the fact that the discharge is based on a point an average of ten miles downstream, and in light of the fact that accurate flow readings are absent at the points of discharge, it behooves you to at least require that the Executive Officer should be consulted ANYTIME discharges are to occur when the river is running under 1000 cfs., because it follows that the receiving waters flows would be greatly diminished at that time as well (as in a partial drought). This seems like a minimum requirement to assure the protection of Beneficial Uses.

**10. Discharge Prohibition III.J.**

Continuing to use the Hacienda Gauge as the flow point upon which discharges get measured is environmentally harmful and needs to end. Santa Rosa has been so successful with both reclamation and conservation and they are putting a lot of money and effort into expanding their urban irrigation program, that this atrocious practice is really no longer necessary.

As I mentioned earlier, the City reclaimed all but 1.2 BG last year. There needs to be a study to determine what Santa Rosa might have discharged had they based it on receiving water flow. We believe that this would be much more protective of Beneficial Uses. We are particularly concerned that the second month of May in 2005, the City legally discharged almost 100 MG in a week at a time when additional nutrients may have had major impacts on Ludwegia growth. This NPDES permit is so prescriptive in so many positive ways, but then just falls apart on some of these big issues, undermining the positive impacts it has on water quality and the environment.

## A Non-Priority Pollutants

### ii Biostimulatory Substances

We need to complement staff for the quality of analysis on this section. It is outstanding and we totally agree with it.

**Table** 7 (Page F-22)

We wonder why the "unimpaired" and "impaired for nutrients" under Total Kjedahl Nitrogen had very similar values? It would seem logical for "impaired" waterbodies to have higher readings.

**Table 9** (page F-25)

We are glad to see you are requiring weekly monitoring for Bis (2-Ethylhexyl) Phthalate as we have read that this is a pollutant that is becoming more and more prevalent due to its heavy use in plastic products. On page F-30 you give a fairly detailed analysis of its known history in Santa Rosa's wastewater. We hope that future tests will not replicate the earlier mistake of using plastic tubing to conduct the test. Wouldn't it be helpful to proscribe future testing protocols in the permit?

### d. Reasonable Potential Analysis

**i. Copper** (Page F-26)

We have concerns that acute and chronic values for copper, established under the Califonia Toxics Rule, are 7.8 and 5.5 respectively when water hardness is 53.5 mg/L. Yet studies have indicated that these criteria may be much less protective than desirable. Brock Dolman presented the scientific article noted below at a Regional Board Workshop that took place about a year ago. (We attach a copy with these comments.)

The quote below is from the Introductive Summary of the enclosed article entitled: "Sublethal Effects of Copper on Coho Salmon: Impacts on Nonoverlapping Receptor Pathways in the Peripheral Olfactory Nervous System", by David H. Baldwin, et. al. Sept., 2002.

*"The inhibitory effects of copper (1.0–20.0 ug/L) were dose dependent and they were not influenced by water hardness. Toxicity thresholds for the different receptor pathways were determined by using the benchmark dose method and found to be similar (a 2.3–3.0 ug/L increase in total dissolved copper over background). Collectively, examination of these data indicates that copper is broadly toxic to the salmon olfactory nervous system. Consequently, short-term influxes of copper to surface waters may interfere with olfactory-mediated behaviors that are critical for the survival and migratory success of wild salmonids."*

If the study's finding is true that hardness was not a factor in effecting negative impacts, then interim standards set in Attachment E-2, based on hardness values, could be quite devastating to the salmon. For instance, the permit states that a hardness of 55 mg/L would call for an AMEL of 4.2 ug/L, and an MDEL of 8.0 ug/L. The upper 99th percentile limit of 16.3 ug/l, set as the average monthly limit seems totally excessive and essentially accommodates Santa Rosa's damaging discharges. It is of particular concern that this is an average, indicating that individual excursions could be much higher. This is all the more reason to do everything possible to minimize those discharges all together and as quickly as possible!

We would ask that responders carefully address this issue and explain why the interim standard would be at all protective, especially in light of the study's information. Furthermore, it is critical that a timeline be established for taking steps to ameliorate the problem and to do whatever is possible to speed up the timeframe for diminishing and then eliminating the impact from this substance. Simply allowing business as usual for four years is unacceptable.

v. Mercury

It's very interesting that I have heard Dr. Dave Smith state publicly that Santa Rosa has a Mercury problem with their effluent. They are in the early stages of a stepped up program to try and better control dental amalgum disposals, as well as fluorescent lighting disposals and mercury thermometer disposals. While we believe that this program is a good thing, and we recognize that there was only one positive sample, we find it unusual that City consultants would believe they have a problem on that basis alone. The situation bears careful watching and we urge Regional Board staff to be rigorous in tracking this issue.

**3. Cyanide** (Page F-43)

We believe that the last word in this section should be cyanide, not lead. In fact, that last sentence is not clear. Is the conclusion that it is not clear that Santa Rosa can meet the proposed final limits for cyanide?

In the beginning of the section on Interim Limits, it states that there should be interim compliance dates separated by no more than one year. We don't see a timeline discussed in the Fact Sheet indicating compliance steps for meeting future, more stringent guidelines, except for the next permit deadline in four years, and certainly don't see annual goals for attainment. What is intended in this regard? (Reference is made to VII. B. 4. a , which then refers to VI. C. 4, which we couldn't find.)

**7. Total Phosphate**

Although we understand the rationale, we are disappointed that the interim limit is so high, especially in light of the dire problem with Ludwegia in the area and the prospect for more toxic nuisance control being proposed. We urge particular care with the summer irrigation program and appreciate the strong controls identified in the permit to control run off.

## ATTACHMENT G - WATER RECLAMATION REQUIREMENTS

### B. Water Reclamation Requirements

We are not sure if this is the appropriate location for the following comment, so we will simply put it here. We are concerned that there are a few irrigators under contract to the City, who have been paid to irrigate their fields with Santa Rosa's wastewater for years. (Over the course of the last 20 years, one of them has received almost $500,000.)

For most of that time they have had multiple violations of their agreements and have over irrigated repeatedly without penalty (to our knowledge). Many of these overflows have ended up in the waterways during discharge prohibition periods, as reported in Santa Rosa's annual reports. Over the years, enforcement of existing prohibitions has been very weak.

While the list of prohibitions for "incidental runoff" in this proposed permit appear to be comprehensive, if enforcement for violations isn't rigorous, then the prohibitions are worthless and toxic discharges will seriously impact Beneficial Uses. The permit needs some kind of language to the effect that irrigation contracts must be terminated after a certain number of repeated violations. There is a serious need for a cutoff point for repeated violators. We urge a comprehensive oversight program that provides serious penalties for violations.

### Conclusion:

We see this permit as the strongest ever written for the protection of Beneficial Uses in the Laguna and its tributaries, and ultimately the Russian River. We commend staff for the huge effort put into this document and hope that our comments are productive in this regard. While some of our comments may appear to criticize your recommendations, we understand that you have many constraints that we do not have. We believe it is critical to aim for the highest good in protection of the public trust.

ATTACHMENT #13

**Attachment F – Fact Sheet – Table of Contents**

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## ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

## I PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

**Table 1. Administration Information**

| | |
|---|---|
| **WDID** | 1B830990SON |
| **Discharger** | City of Santa Rosa |
| **Name of Facility** | Santa Rosa Subregional Water Reclamation Facility |
| **Facility Address** | 4300 Llano Road<br>Santa Rosa, CA 95407<br>Sonoma County |
| **Facility Contact, Title and Phone** | Miles Ferris, Director of Utilities, (707) 543-3930 |
| **Authorized Person to Sign and Submit Reports** | Miles Ferris, Director of Utilities |
| **Mailing Address** | 69 Stony Circle, Santa Rosa, CA 95401 |
| **Billing Address** | SAME |
| **Type of Facility** | POTW |
| **Major or Minor Facility** | Major |
| **Threat to Water Quality** | 1 |
| **Complexity** | A |
| **Pretreatment Program** | Y |
| **Reclamation Requirements** | Master Reclamation Permit |
| **Facility Permitted Flow** | 21.34 mgd |
| **Facility Design Flow** | 21.3 mgd, average dry weather flow<br>64 mgd, peak weekly wet weather flow<br>47.3 mgd, peak monthly wet weather flow |
| **Watershed** | Russian River |
| **Receiving Water** | Laguna de Santa Rosa, Colgan Creek, Santa Rosa Creek |
| **Receiving Water Type** | Inland Surface Water |

A. The City of Santa Rosa (hereinafter Discharger) is the owner and operator of the Santa Rosa Subregional Water Reclamation Facility (hereinafter Facility), a Publicly Owned Treatment Works (POTW).

B. The Facility discharges wastewater to the Laguna de Santa Rosa, Colgan Creek, and Santa Rosa Creek, waters of the United States, and is currently regulated by Order No. 2000-03 which was adopted on March 15, 2000 and expires on March 15, 2005.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on September 15, 2004. On that date, the Discharger also filed separate reports of waste discharge and submitted applications for both Master Water Reclamation Requirements and biosolids land application WDRs. Supplemental Information received on November 18, 2004, March 14, 2005, March 15, 2005, March 16, 2005, and July 6, 2005, September 22, 2005, February 7, 2006, March 6, 2006, March 8, 2006, and April 4, 2006.

## II. FACILITY DESCRIPTION

### A. Description of Wastewater and Biosolids Treatment or Controls

1. The Discharger's wastewater treatment facility (WWTF) treats primarily domestic and industrial wastewater collected via the City of Santa Rosa wastewater collection system. The WWTF also accepts leachate from the Sonoma County Landfill and septage from commercial septage haulers.

2. The Discharger provides wastewater treatment and disposal services for residences, businesses, and industries within the Santa Rosa area and provides service to the communities of Cotati, Rohnert Park, Sebastopol, and the unincorporated South Park County Sanitation District. The WWTF was originally constructed in 1967 and has experienced two major expansions. Expansion in 1977 brought plant treatment capacity to 15 million gallons per day (mgd). Expansion in 1986 brought plant capacity to 18 mgd. The WWTF currently has a design capacity to provide advanced treatment for an average dry flow of 21.3 million gallons per day and to serve an estimated population of 202,500.

3. Treatment consists of raw influent bar screening, grit removal in pre-aeration tanks; sludge and scum removal in primary sedimentation tanks; biological treatment (including nitrogen reduction) with coagulation, flocculation, sedimentation, and clarification; followed by filtration; and ultraviolet light disinfection. Biosolids are thickened by gravity belt thickeners, anaerobically digested, and dewatered in unlined sand drying beds. The dried biosolids are hauled off-site for land application or composted for commercial use.

4. The City's Industrial Waste staff manages a pretreatment program that consists of 1,342 permitted nondomestic dischargers. Thirty of these dischargers are classified as significant industrial users (SIUs), and 20 of the SIUs are categorical industrial users (CIUs). The remaining 1,312 facilities are other regulated nonsignificant nondomestic dischargers that consist of ground water remediation sites, auto shops, restaurants, dry-cleaners, photo processors, and dental offices.

5. The Discharger provides reclaimed water to urban and agricultural use areas. Urban irrigation systems currently are in place at Countryside Estates and Roberts Lake in Rohnert Park and Finley Park in Santa Rosa. Agricultural use areas for which the Discharger provides reclaimed water include approximately 4,300 acres for pasture or fodder crops, 1,400 acres of vineyards, and 120 acres of special-use areas. The Discharger, through a satellite WWTF, the Oakmont Wastewater Treatment Plant (Oakmont WWTP),

distributes water produced at the Oakmont WWTP to the Oakmont Golf Course for golf course irrigation.

6. The Discharger distributes a potion of advanced treated wastewater to the Geysers Recharge project for use by the current owner of the Geysers, Calpine Corporation, for recharge of the steamfields and to generate electricity. The total volume of treated wastewater pumped to the Geysers is stipulated by contract between the Discharger and Calpine Corporation, but a minimum of 4,015 million gallons per year is required to be pumped under conditions of this Order. In 2005, of the 8,060 million gallons of advanced treated wastewater produced by the Discharger, 4,450 million gallons was delivered to the Geysers.

7. This Order authorizes the discharge of advanced treated wastewater from the discharge locations and for the final uses specified in the following section. This Order does not provide permit coverage for the land application of biosolids or the disposal of sludge, solid waste, or biosolids in municipal landfills, or the distribution of recycled water from the Oakwood WWTP, all of which are regulated under separate orders. Master Water Reclamation requirements are included in this Order in an effort to streamline the permitting process for the Discharger's recycled water discharge and because there does not appear to be any tangible benefit to the Discharger or the California Regional Water Quality Control Board, North Coast Region (Regional Water Board) to regulate the discharges under separate permits.

**B. Discharge Points and Receiving Waters**

1. The WWTF is located at the NE ¼ of Section 17, T6N, R8W, MDB&M, as shown in Attachment B, a part of this Order.

2. Advanced treated wastewater is discharged to surface waters from the following locations:

   **002 Arlington Pond.** Discharge is through a pipe to a constructed trapezoidal ditch located approximately 550 feet north of the pond. The ditch replaced a natural swale. The ditch bottom has mixed hydrophilic and upland vegetation and connects directly to Colgan Creek. The upstream receiving water monitoring location is located in Colgan Creek (Station 512), immediately upstream of the point of discharge from the ditch to Colgan Creek.

   **003 Brown Pond.** Discharge is through a pipe onto a rock and concrete rip-rap apron. Flow is directed to a basin that contains cattails and is seasonally ponded. The basin drains to a slight swale, which is, in turn, connected to an unnamed channelized swale. The channelized swale contains wetland vegetation and drains into a wetlands adjacent to the Laguna de Santa Rosa approximately ½ mile southwest of the discharge pipe. The upstream receiving water monitoring location is currently located in the Laguna de Santa Rosa at Todd Road (Station 505), approximately two miles upstream of the wetlands discharge point.

**005 LaFranconi Pond.** The discharge pipe discharges directly into an unnamed ditch adjacent to LaFranconi Pond and flows in a southwest direction to join an unnamed channelized swale approximately 1,500 feet upstream of the Brown Pond. The upstream receiving water monitoring location for the LaFranconi Pond is currently located in the Laguna de Santa Rosa at Todd Road (Station 505), approximately two miles upstream of the confluence of the channelized swale and the Laguna de Santa Rosa.

**006A Meadow Lane Pond D.** The discharge is through a pipe into a square concrete flume that empties directly into the ordinary high water mark of the Laguna de Santa Rosa. The discharge is frequently referred to as the "D-Pond Incline Pump," in reference to the incline pump located at the southeast corner of the D Pond. The upstream receiving water monitoring location is located in the Laguna de Santa Rosa (Station 529), 50-100 feet upstream of the D-Pond incline pump.

**006B Meadow Lane Pond D.** The discharge is through a 36-inch pipe located at the Northwest corner of the D-Pond. Treated effluent is discharged from the storage pond into a rip-rap and concrete lined trapezoidal flume/ditch that empties into the ordinary high water mark of the Laguna de Santa Rosa. Upstream conditions are currently measured in the Laguna de Santa Rosa, at Monitoring Location (Station 529), which is located approximately 1,500 feet upstream of the discharge location, and in Colgan Creek, at Monitoring Location (Station 528), upstream of the confluence with the Laguna de Santa Rosa.

**008 West College Pond 1C.** The discharge pipe from the pond discharges directly into the ordinary high water mark of Santa Rosa Creek. The upstream receiving water monitoring location is currently located in Santa Rosa Creek (Station 517), approximately 1,200 feet upstream of the discharge point.

**009 Ambrosini Pond.** The discharge pipe from the pond discharges directly into the ordinary high water mark of Santa Rosa Creek. The upstream receiving water monitoring location is currently located in Santa Rosa Creek (Station 516), immediately upstream of the discharge point.

**012A Delta Pond.** The discharge is from the blending valve on the 24-inch pipeline located on mid-way along the North side of Delta Pond to the ordinary high water mark of Santa Rosa Creek. Source water for the blending valve can come from the West College mainline, the Laguna mainline, or can be water that has been stored in Delta Pond.

**012B Delta Pond.** The 48-inch discharge pipe from the pond discharges directly to the confluence of the Laguna de Santa Rosa and Santa Rosa Creek. Upstream receiving water is monitored at two locations, each approximately 2,000 feet upstream of the effluent discharge point.

**014 Meadow Lane A Pond.** The discharge pipe discharges directly into a contructed trapezoidal ditch adjacent to the Meadow Lane Pond A. The ditch has a pool of standing water and contains cattails and willows. The upstream receiving water monitoring location

is located in the Laguna de Santa Rosa (Station 530), approximately 100 feet upstream of the Llano Bridge Road.

**015 Laguna Treatment Plant.** The discharge pipe discharges directly into a square concrete flume that drains to a constructed trapezoidal ditch that conveys only wastewater flow from the WWTF. Flow in the ditch is transported approximately 130 feet where it discharges into the Laguna de Santa Rosa. The upstream receiving water monitoring location is located in the Laguna de Santa Rosa (Station 530), approximately 100 feet upstream of the Llano Bridge Road.

**016 Laguna Joint Wetlands.** The discharge pipe discharges directly into the constructed wetlands managed by the Discharger. Overflow from the constructed wetlands is controlled by a valved pipe that is opened, as needed, to maintain the water level in the wetland. Water released from the wetlands flows into a constructed, trapezoidal channel the drains directly into the ordinary high water mark of the Laguna de Santa Rosa.

3. Surface water discharges occur primarily out of Meadow Lard Pond (06A, 06B) and Delta Pond (012A, 012B), but discharges from the other ponds have occurred infrequently over the term of the previous permit. A summary of the discharge volumes from permitted discharge locations for the 2000-2004 discharge seasons is presented in the following table:

**Table 1. Summary of Discharge Volumes from All Discharge Locations for 2000-2004**

| Location | Average Daily Discharge | Minimum Daily Discharge | Maximum Daily Discharge | Avg. Number of Months Discharging |
|---|---|---|---|---|
| 001 Alpha Pond [1] | 8.5 | 2.0 | 21.6 | 2.8 |
| 003 Brown Pond [2] | 7.9 | 0.3 | 27.5 | 4.7 |
| 004 Kelly Pond | 0.7 | 0.3 | 4.6 | 6.6 |
| 016 Laguna Joint Wetlands | 1.1 | 0.5 | 2.7 | 6.6 |
| 06A Meadow Lane Pond D [3] | 9.7 | 3.5 | 11.7 | 1.5 |
| 06B Meadow Lane Pond D | 16.1 | 0.5 | 52.1 | 4.2 |
| 012A Delta Pond [4] | 2.6 | 0.3 | 5.7 | 1.0 |
| 012B Delta Pond [5] | 24.1 | 4.8 | 69.0 | 2.0 |

Notes:
1. All flows are expressed in million gallons (Mgal.)
2. The permitted discharge season is from October 1 to May 14
3. No discharge from Alpha Pond for 2003-2004 discharge season
4. No discharge from Brown Pond for 2002-2003 and 2003-2004 discharge seasons.
5. No discharge from 06A for 1999-2000, 2001-2002, and 2003-2004 discharge seasons.
6. Discharge from 012A only for 1999-2000 discharge season.
7. No discharge from 012B for 2003-2004 discharge season. Calculation excludes data from 2002-2003 when Delta Pond took in water from Laguna de Santa Rosa.

4. Advanced treated wastewater is also discharged to the Geysers steamfields and the Water Reclamation System as authorized by Section IV.C and Attachment G of this Order

## C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Effluent limitations contained in the existing Order for discharges from the Laguna Treatment Plant directly to the Laguna de Santa Rosa (Monitoring Location 015) and representative monitoring data from the term of the previous Order are as follows:

**Table 3. Summary of Discharge Monitoring Data for 2001-2005**

| Parameter (units) | Effluent Limitation | | | Monitoring Data (From January 2001 – December 2005) | | |
|---|---|---|---|---|---|---|
| | Average Monthly | Average Weekly | Maximum Daily | Highest Average Monthly Discharge | Highest Average Weekly Discharge | Highest Daily Discharge |
| $BOD_5$ (mg/l) | 10 | 15 | 20 | 4.1 | 6.0 | 9.0 |
| $BOD_5$ (lb/d) | 1,776 | 2,277 | 3,552 | 668 | 2,294 | 3,884 |
| $BOD_5$ (% removal) [1] | 85 | --- | --- | 98.7% | --- | --- |
| Suspended Solids (mg/l) | 10 | 15 | 20 | 2.0 | 2.7 | 7.0 |
| Suspended Solids (lb/d) | 1,776 | 2,277 | 3,552 | 543 | 883 | 2,651 |
| Suspended Solids (% Removal) [1] | 85 | --- | --- | 98.8% | --- | --- |
| Total Coliform Bacteria (MPN/ 100 ml) | --- | 2.2 [2] | 23 [3] | --- | 4 [2] | 130 |
| Turbidity (NTU) | 2 | --- | 5 | 1.2 | --- | 6.4 |
| Hydrogen Ion (pH units) | --- | --- | 6.0 / 9.0 [4] | --- | --- | 6.8 / 8.[illegible] [4] |

1. Lowest reported value
2. 7-day median
3. Highest reported daily geometric mean of results from 2-3 effluent channels within UV disinfection system
4. Minimum / Maximum

2. Effluent limitations contained in the existing Order for discharges from Meadow Lane Pond D and Delta Pond (Monitoring Locations 006A, 006B, 012A, 012B) and representative monitoring data from the term of the previous Order are as follows:

**Table 4. Summary of Discharge Monitoring Data for Copper for 2000-2005**

| Parameter (units) | Effluent Limitation | Monitoring Data (From January 2000 – To December 2005) | |
|---|---|---|---|
| | Maximum Daily (hardness based) MDEL = exp ((0.9422xln(H))-1.464) | Highest Daily Discharge | Associated Upstream Hardness |
| Copper (µg/L) [1] | 26.5 | 54 | 153 mg/L as $CaCO_3$ |
| Copper (µg/L) [2] | 25.6 | 16 | 148 mg/L as $CaCO_3$ |

1. Maximum daily discharge from all monitoring locations (Kelly Pond (004), November 2, 2000)
2. Maximum daily discharge from monitoring locations 006A, 006B, 012A, 012B (D-Pond 48" (012B), January 8, 2003)

### D. Compliance Summary

1. On October 27, 2000 the Regional Water Board directed that a complaint for administrative civil liability be issued to the City of Santa Rosa for mandatory penalties in the matter of effluent violations of WDRs, Regional Water Board Order No. 98-84 and State Water Resources Control Board (State Water Board) Order No. 2000-02. The civil liability assessed was $21,000, which the City paid ($15,000 of which occurred after issuance of 2000-2).

2. On April 30, 2002 the Regional Water Board directed that a complaint for mandatory administrative civil liability be issued to the City of Santa Rosa for violations of WDRs, State Water Board Order No. 2000-2. The civil liability assessed was $15,000, which the City paid.

3. On May 2, 2002 the Regional Water Board directed that a complaint for administrative civil liability be issued to the City of Santa Rosa for violations of WDRs, State Water Board Order No. 2000-2. The civil liability assessed was $12,350, which the City paid.

4. On September 13, 2004 the Regional Water Board directed that a complaint for violations of effluent and other NPDES permit violations by issued to the City of Santa Rosa, Order No. 2000-02. The civil liability assessed was $37,850, which was paid on October 1, 2004.

### E. Planned Changes

1. **Incremental Recycled Water Program (IRWP).** The City of Santa Rosa approved the IRWP, which effectively caps the annual discharge from the WWTF at 4,500 million gallons (based on an average dry weather flow of 21.34 mgd). Wastewater flows attributed to future growth anticipated between 2010 and 2020 will be allocated to reuse divided among agricultural and urban reuse, as well as to providing additional water for the Geysers Recharge Project. The total estimated cost of the program is $225 million.

2. **Leachate Pipeline.** A project is underway to install a pipeline to convey leachate generated at the Sonoma County landfill to the Santa Rosa treatment facility. The new conveyance system will connect the leachate ponds to the Rohnert Park trunk sewer line where leachate will be pumped approximately 24,000 feet to a connection point just north of the Laguna de Santa Rosa. The design capacity of the system will be approximately 42.5 million gallons per year.

3. **Pond Usage.** The Discharger has requested that the Alpha Pond (001), the Kelly Pond (004), and the Poncia Pond (007) be removed as designated discharge locations in the renewed NPDES permit.

## III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

### A. Legal Authorities

This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the United States Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

### B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of CEQA (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

### C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plans. The Regional Water Board adopted a Water Quality Control Plan for the North Coast Region (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Beneficial uses applicable to Colgan Creek, Santa Rosa Creek, the Laguna de Santa Rosa, and freshwater wetlands within the watershed are as follows:

| Discharge Point | Receiving Water Name | Beneficial Uses |
|---|---|---|
| 002 | Colgan Creek | Existing:<br>Agricultural supply (AGR); Industrial service supply (IND); Ground water recharge (GWR); navigation (NAV); hydropower generation (POW); contact (REC-1) and non-contact (REC-2) water recreation; commercial and Sport fishing (COMM); Warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); preservation or rare, threatened or endangered species (RARE); freshwater replenishment (FRESH); migration of aquatic organisms (MIGR); spawning, reproduction and/or early development, Native American Culture (CUL), subsistence fishing (FISH), Flood peak attenuation/Flood water storage (FLD), Water quality enhancement (WQE).<br>Potential:<br>Municipal and domestic water supply (MUN); industrial process supply (PRO); shellfish harvesting (SHELL); aquaculture (AQUA). |
| 003 | Unnamed Ditch, tributary to Laguna de Santa Rosa | |
| 005 | Unnamed Ditch, tributary to Laguna de Santa Rosa | |
| 006A, 006B, 014, 015, 016 | Laguna de Santa Rosa | |
| 008, 009, 012A, 012B | Santa Rosa Creek | Existing:<br>Municipal and domestic water supply (MUN); agricultural supply (AGR); industrial service supply (IND); Ground water recharge (GWR); navigation (NAV); contact (REC-1) and non-contact (REC-2) water recreation; commercial and Sport fishing (COMM); Warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); preservation or rare, threatened or endangered species (RARE); migration of aquatic organisms (MIGR); spawning, reproduction and/or early development, Native American Culture (CUL), subsistence fishing (FISH), Flood peak attenuation/Flood water storage (FLD), Water quality enhancement (WQE).<br>Potential:<br>Industrial process supply (PRO); hydropower generation (POW); shellfish harvesting (SHELL); aquaculture (AQUA). |
| | Freshwater Wetlands | Existing:<br>Wetland Habitat (WET).<br>Potential:<br>Municipal and domestic water supply (MUN); agricultural supply (AGR); industrial service supply (IND); Ground water recharge (GWR); freshwater replenishment (FRESH); navigation (NAV); contact (REC-1) and non-contact (REC-2) water recreation; commercial and Sport fishing (COMM); Warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); preservation or rare, threatened or endangered species (RARE); migration of aquatic organisms (MIGR); spawning, reproduction and/or early development (SPWN); shellfish harvesting (SHELL); estuarine habitat (EST); aquaculture (AQUA); Native American Culture (CUL); Flood peak attenuation/Flood water storage (FLD), Water quality enhancement (WQE). |

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

4. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP applies to discharges of toxic pollutants into the inland surface waters, enclosed bays, and estuaries of California subject to regulation under the State's Porter-Cologne Water Quality Control Act (Division 7 of the CWC) and the federal CWA. The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California through the NTR and to the priority pollutant objectives established by the regional water boards in their basin plans. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP includes procedures for determining the need for and calculating WQBELs, and requires dischargers to submit data sufficient to do so.

5. **Antidegradation Policy.** State Water Board Resolution No. 68-16 (Resolution 68-16) and 40 CFR section 131.12, require the Regional Water Board, in regulating discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies. Resolution 68-16 requires the discharge be regulated to meet best practicable treatment or control (BPTC) to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.

   This Order may allow some degradation of the quality of waters of the state by virtue of the fact that it permits the discharge of waste exerting a biochemical oxygen demand, containing suspended solids, biostimulatory substances and elevated temperature above ambient conditions into a waterway impaired for dissolved oxygen, sediment, nitrogen, phosphorus, and temperature. Nevertheless, this Order is consistent with Resolution 68-16 because (1) such degradation is consistent with the maximum benefit to the people of the state, (2) the discharge is the result of wastewater utility service that is necessary to accommodate housing and economic expansion, and (3) it results in a high level of treatment of sewage waste. This Order requires tertiary treatment or equivalent, which is a high level of treatment that is considered BPTC for most constituents in the wastewater and will result in attaining water quality standards applicable to the discharge.

The discharge from the facility has the potential to cause or contribute to exceedances of applicable water quality objectives for certain constituents as described in this Order. However, this Order requires the Discharger, in accordance with specified compliance schedules under Section VI.C.4, to meet requirements that will result in the use of BPTC for those constituents and ultimately result in compliance with water quality objectives. This Order requires compliance with technology-based standards for biochemical oxygen demand, total suspended solids and pH and more stringent water quality-based standards for nonconventional pollutants with the reasonable potential to cause or contribute to excursions of water quality objectives.

This Order authorizes the Discharger to discharge biostimulants (nitrogen and phosphorus) to surface water in concentrations and mass emission rates based on the current level of treatment plant performance. Section IV.A.2 of this Order establishes interim concentration-based effluent limitations for nitrate, Total Kjeldahl Nitrogen, and Total Phosphate and interim mass-based interim limitations for Total Nitrogen and Total Phosphate. Final effluent limitations for biostimulants will be established at levels determined by an approved TMDL for the Laguna de Santa Rosa or at zero (i.e., "no net loading"). During this permit term, it is expected that the Discharger will make the necessary changes to its treatment and disposal system to meet final effluent limitations for nitrate, Total Kjeldahl Nitrogen, and Total Phosphate. In the interim, the Discharger must comply with the conditions set forth in sections VI.C.4.c and VI.C.4.d of this Order.

6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Some effluent limitations in the Order are less stringent that those in the previous Order. As discussed in this Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

7. **Monitoring and Reporting Requirements.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC Sections 13267 and 13383 authorize the regional water boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.

## D. Impaired Water Bodies on CWA 303(d) List

1. Section 303(d) of the federal CWA requires states to identify waterbodies that do not meet water quality standards and are not supporting their beneficial uses. Each state must submit an updated list, called the 303(d) List of Impaired Waterbodies, to USEPA by April of each even numbered year. In addition to identifying the waterbodies that are not supporting beneficial uses, the List also identifies the pollutant or stressor causing impairment, and establishes a schedule for developing a control plan to address the impairment. The

USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination.

2. The Laguna de Santa Rosa is currently listed for low dissolved oxygen, nitrogen, phosphorus, sediment, and temperature. The Middle Russian River (Santa Rosa Creek HSA) is listed for pathogens, sediment, and temperature. The Lower Russian River (Mark West Creek HSA) is listed for sediment and temperature. A designated reach in the mainstem of the Lower Russian River (Guerneville HSA) is listed for pathogens, sediment, and temperature.

3. On July 25, 2003, USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments.

### E. Other Plans, Polices and Regulations

1. The Discharger has storm water discharges associated with industrial activities, category "ix" as defined in 40 CFR Section 122.26(b)(14). The Discharger has prepared a Storm Water Pollution Prevention Plan (SWPP Plan) and has implemented the provisions of the SWPP Plan. The Discharger must describe storm water discharges, appropriate pollution prevention practices and best management practices in a completed Notice of Intent to be submitted to the State Water Board pursuant to the Statewide General Order Program.

## IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES Orders. NPDES regulations establish two principal bases for effluent limitations. At 40 CFR 122.44 (a) Orders are required to include applicable technology-based limitations and standards; and at 40 CFR 122.44 (d) Orders are required to include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. When numeric water quality objectives have not been established, but a discharge has the reasonable potential to cause or contribute to an excursion above a narrative criterion, WQBELs may be established using one or more of three methods described at 40 CFR 122.44 (d) - 1) WQBELs may be established using a calculated water quality criterion derived from a proposed State criterion or an explicit State policy or regulation interpreting its narrative criterion; 2) WQBELs may be established on a case-by-case basis using USEPA criteria guidance published under CWA Section 304 (a); or 3) WQBELs may be established using an indicator parameter for the pollutant of concern.

### A. Discharge Prohibitions

1. **Discharge Prohibition III. A. The discharge of any waste not disclosed by the Discharger or not within the reasonable contemplation of the Regional Water Board is prohibited.**

This prohibition is based on the Basin Plan, previous Order, and State Water Board Order WQO 2002-0012 regarding the petition of WDR Order No. 01-072 for the East Bay Municipal Utility District and Bay Area Clean Water Agencies. In State Water Board Order WQO 2002-0012, the State Water Board found that this prohibition is acceptable in permits, but should be interpreted to apply only to constituents that are either not disclosed by the discharger or are not reasonably anticipated to be present in the discharge, but have not been disclosed by the discharger. It specifically does not apply to constituents in the discharge that do not have "reasonable potential" to exceed water quality objectives.

The State Water Board has stated that the only pollutants not covered by this prohibition are those which were "disclosed to the permitting authority and they can be reasonably contemplated." (In re the Petition of East Bay Municipal Utilities District et al., (State Water Board 2002) Order No. WQ 2002-0012, p. 24.) The case cited in that order by the State Water Board reasoned that the discharger is liable for discharges "not within the reasonable contemplation of the permitting authority . . . , whether spills or otherwise . . . ." (Piney Run Preservation Assn. v. County Commissioners of Carroll County, Maryland (4th Cir 2001) 268 F.3d 255, 258.) Thus, State Water Board authority provides that, to be permissible, the constituent discharged (1) must have been disclosed by the discharger and (2) can be reasonably contemplated by the Regional Water Board.

The Regional Water Board has the authority to determine whether the discharge of a constituent is "reasonably contemplated." The Piney Run case makes clear that the discharger is liable for discharges "not within the reasonable contemplation of the permitting authority . . . , whether spills or otherwise . . . ." (258 F.3d 255, 268.) In other words, whether or not the discharger reasonably contemplates the discharge of a constituent is not relevant. What matters is whether the discherger disclosed the constituent to the Regional Water Board or whether the presence of the pollutant in the discharge can otherwise be reasonably contemplated by the Regional Water Board at the time of permit adoption.

2. **Discharge Prohibition III.B. Creation of a pollution, contamination, or nuisance, as defined by CWC Section 13050 is prohibited.**

   This prohibition is based on CWC Section 13050. It has been retained from the previous order, Water Quality Order No. 2000-03.

3. **Discharge Prohibition III.C. The discharge of sludge is prohibited, except as authorized under Section VI.C.6.d. Solids Disposal and Handling Requirements.**

   This prohibition is based on restrictions on the disposal of sewage sludge found in federal regulations (40 CFR Part 503 (Biosolids) Part 527 and Part 258) and Title 27 CCR. It has been retained from Water Quality Order No. 2000-03.

4. **Discharge Prohibition III.D. The discharge of untreated or partially treated waste (receiving a lower level of treatment than described in Finding II.B) from anywhere within the collection, treatment, or disposal facility is prohibited, except as provided**

**for in Prohibition III.E. and Attachment D, Standard Provision I.G *[Bypass Provision]*.**

This prohibition has been retained from Water Quality Order No. 2000-03 and is based on the Basin Plan to protect beneficial uses of the receiving water from unpermitted discharges, and the intent of CWC sections 13260 through 13264 relating to the discharge of waste to waters of the State without filing for and being issued a permit. This prohibition applies to spills not related to sanitary sewer overflows (SSOs) and other unauthorized discharges of wastewater within the collection, treatment, reclamation, and disposal facilities. The discharge of untreated or partially treated wastewater from the collection, treatment, or disposal facility represents an unauthorized bypass pursuant to 40 CFR 122.41(m) or an unauthorized discharge which poses a threat to human health and/or aquatic life, and therefore, is explicitly prohibited by this Order.

5. **Discharge Prohibition III.E. Any SSO that results in a discharge of untreated or partially treated wastewater to (a) waters of the State, (b) groundwater, or (c) land that creates a pollution, contamination, or nuisance as defined in CWC section 13050(m) is prohibited.**

   This prohibition is based on State standards, including section 13050 of the CWC and the Basin Plan. This prohibition is consistent with the States' antidegradation policy as specified in State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining high Quality of Waters in California) in that the prohibition imposes conditions to prevent impacts to water quality, does not allow the degradation of water quality, will not unreasonably affect beneficial uses of water, and will not result in water quality less than that prescribed in State Water Board or Regional Water Board plans and policies.

   This prohibition is stricter than the prohibitions stated in State Water Board Order 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. Order 2006-0003-DWQ prohibits SSOs that result in the discharge of untreated or partially treated wastewater to waters of the United States and SSOs that create a nuisance. Prohibition III.E. of this Order further prohibits any SSO that results in the discharge untreated or partially treated wastewater to all waters of the State including surface waters that are not waters of the United States and groundwater due to the prevalence of high groundwater in this Region and this Region's reliance on groundwater as a drinking water source.

6. **Discharge Prohibition III.F. The discharge of waste to land that is not owned by or under agreement to use by the Discharger is prohibited,** except for use for fire suppression as provided in CCR Title 22 section 60307(a) and (b).

   This prohibition is retained from Water Quality Order No. 2000-03. Land used for the application of wastewater must be owned by the Discharger or be under the control of the Discharger by contract so that the Discharger maintains a means for ultimate disposal of treated wastewater.

**B. Technology-Based Effluent Limitations**

1. **Scope and Authority.** The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in Section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the USEPA Administrator. Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand ($BOD_5$), total suspended solids (TSS), and pH. In addition, 40 CFR 122.45 (f) requires the establishment of mass-based effluent limitations for all pollutants limited in Orders, except, 1) for pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass, (2) when applicable standards and limitations are expressed in terms of other units of measure, and (3) when limitations expressed in terms of mass are infeasible because the mass of the pollutant cannot be related to a measure of operation and permit conditions ensure that dilution will not be used to comply with both limitations.

2. **Applicable Technology-Based Effluent Limitations.** The Basin Plan states that discharges "shall be of advanced treated wastewater in accordance with effluent limitations contained in NPDES permits for each affected discharger, and shall meet a median coliform level of 2.2 MPN/100 ml." This requirement leaves discretion to the Regional Water Board to define AWT via effluent limitations in individual permits.

   a. **Biochemical Oxygen Demand and Suspended Solids.** Thus, for the purpose of regulating municipal waste discharges from the WWTF to the Laguna de Santa Rosa and its tributaries, advanced wastewater treatment is defined as achieving a monthly average concentration for BOD and suspended solids of 10 mg/l, and a weekly average concentration of 15 mg/l, which are technically achievable based on the capability of a tertiary system. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent.

   b. **Total Coliform Organisms.** The disinfected effluent discharged from the WWTF to the Laguna de Santa Rosa shall not contain concentrations of total coliform bacteria exceeding the following limitations:

      i. The median concentration shall not exceed a Most Probable Number (MPN) of 2.2 per 100 milliliters, using the bacteriological results of the last seven days for which analyses have been completed.

      ii. The number of coliform bacterial does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.

      iii. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

**Table 6. Summary of Technology-based Effluent Limitations for Treatment Plant Final Effluent**

| Parameter | Units | Effluent Limitations | | |
|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily |
| BOD (20°C, 5-day) | mg/L | 10 | 15 | --- |
| Dry Weather | lbs/day | 1,780 | 2,670 | --- |
| Wet Weather[1] | lbs/day | 3,945 | 8,006 | --- |
| Total Suspended Solids | mg/L | 10 | 15 | --- |
| Dry Weather | lbs/day | 1,780 | 2,670 | --- |
| Wet Weather | lbs/day | 3,945 | 8,006 | --- |
| Total Coliform Organisms | MPN/ 100mL | --- | 2.2 | 23 |
| Hydrogen Ion | pH units | Not less than 6 nor greater than 9 | | |

[1] Wet weather conditions are when the average weekly or average monthly influent flow exceeds 21.34 mgd.

## C. Water Quality-Based Effluent Limitations (WQBELs)

### 1. Scope and Authority

As specified in 40 CFR §122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses for the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or water quality criteria contained in the CTR and NTR.

### 2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Beneficial Uses**. The beneficial uses of the Laguna de Santa Rosa and the Russian River include municipal and domestic supply, agricultural supply, industrial service supply, industrial process supply, groundwater recharge, navigation, hydropower generation, water contact recreation, non-contact water recreation, commercial and sport fishing, warm freshwater habitat, cold freshwater habitat, wildlife habitat, preservation of rare, threatened, or endangered species, migration of aquatic organisms, spawning, reproduction, and/or early development, estuarine habitat, aquaculture, water quality enhancement, flood peak attenuation/flood water storage, wetland habitat, and subsistence fishing. Beneficial uses of areal groundwaters include: municipal and domestic water supply, agricultural water supply, industrial service supply and industrial process supply.

b. **Narrative Objectives.** In addition to the specific water quality objectives indicated above, the Basin Plan contains the following narrative objectives that apply to inland surface waters, enclosed bays, and estuaries:

i. Biostimulatory Substances: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

ii. Sediment: The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manners as to cause nuisance or adversely affect beneficial uses.

iii. Dissolved Oxygen: Dissolved oxygen concentrations shall conform to those limits listed in Table 1 (of the Basin Plan). For waters not listed in Table 1 and where dissolved oxygen objectives are not prescribed the dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time.

Waters designated WARM, MAR or SAL….5.0 mg/l

Waters designated COLD..... .... 6.0 mg/l
Waters designated SPAWN.....7.0 mg/l
Waters designated SPAWN during critical spawning and egg incubation periods.....9.0 mg/l

iv. Bacteria: The bacteriological quality of waters of the North Coast Region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coast Region exceed the following:

In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml (State Department of Health Services).

v. Temperature: Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions thereto. A copy of this plan is included verbatim in the Appendix Section of the Basin Plan.

In addition, the following temperature objectives apply to surface waters:

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.

vi. Toxicity: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Water Board.

The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, 18th Edition (1992). As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed. Where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances will be encouraged.

c. **State Implementation Policy (SIP), CTR and NTR.** The CTR identifies 126 priority pollutants and lists aquatic life freshwater, aquatic life saltwater and human health criteria for most of the 126 priority pollutants and indicates that such criteria will be developed for the remaining criteria at a future date. Aquatic life freshwater and saltwater criteria are further identified as criterion maximum concentrations (CMC) and criterion continuous concentrations (CCC). The CTR defines the CMC as the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects and the CCC as the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. The CMC is used to calculate an acute or one-hour average numeric effluent limitation and the CCC is used to calculate a chronic or 4-day average numeric effluent limitation.

Human health criteria are further identified as "water and organisms" and "organisms only." The criteria from the "water and organisms" column of CTR were used for the preliminary reasonable potential analysis because the Basin Plan identifies that the receiving water, the Russian River is a source of municipal and domestic drinking water supply. The human health criteria are used to calculate human health effluent limitations.

d. **Dilution Credits/Mixing Zones.** The CWA directs states to adopt water quality standards to protect the quality of its waters. USEPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR section 122.44 and section 122.45). The USEPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP, the USEPA Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) (TSD), and the Basin Plan. For NPDES permits in California, the SIP supersedes the USEPA guidance for priority pollutants, to the extent that it addresses a particular procedure. The SIP does not apply to non-priority pollutants, in which case the more stringent of the Basin Plan or USEPA guidance applies. No dilution has been granted in this Order, thus end-of-pipe effluent limitations for all constituents are required.

e. **Translators.** The water quality objectives for most metals are defined as dissolved metal. Whereas effluent limitations for metals, and most water quality data, are expressed as total metal. Metal translators are used to convert dissolved metal to total metal or vice versa. There have been no approved studies to evaluate discharge-specific metal translators for the discharge to the Russian River or its tributaries.

f. **Discharger-Specific WER.** The SIP allows for the development of site-specific objectives (SSOs) to modify applicable priority pollutant criteria or objectives. One method for deriving SSOs is the USEPA's Water Effects Ratio (WER) procedure. As amended on February 24, 2005, the SIP allows for the development of a discharger-specific WER, whereby the WER applies only to the applicable limits in the

discharger's permit. A discharger-specific WER is cistinguished from a WER that are developed on a waterbody or watershed basis as part of a water quality standards action resulting in acoption of an SSO. Implementation procedures for the development and use of SSOs are contained in Section 5.2 of the SIP. Additional guidance for development of SSOs are available in the *Draft Compilation of Existing Guidance for the Development of Site-Specific Water Quality Objectives in the State of California*, prepared for the USEPA by the Great Lakes Envirormental Center.

On January 6, 2006, the Discharger submitted a *draft Work Plan for a Copper Water Effect Ratio Study for the Laguna Subregional Water Reclamation Facility*. The draft work plan is currently under review. Should the Regional Water Board approve the use of a discharger-specific WER for copper, the permit may be reopened and modified, as appropriate, in consideration of this new information.

### 3. Determining the Need for WQBELs

#### a. Non-Priority Pollutants.

i **Nitrate**. The Basin Plan requires that waters designated as domestic or municipal supply (MUN) not contain concentrations of chemical constituents in excess of limits specified in Title 22, Division 4, Chapter 15, Articles 4 and 5.5 of the California Code of Regulations (CCR). Table 3-2 of the Basin Plan contains concentration limits for inorganic, organic and fluoride. The maximum allowable concentration for nitrate is 45 mg/l as $NO_3$ (10 mg/l as N).

ii. **Biostimulatory Substances**. On June 5 and July 25, 2003, the USEPA modified and approved the list of impaired water bodies, prepared by the State Water Board pursuant to Section 303 (d) of the CWA – water bodies which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations for point sources. The 303 (d) list includes the Laguna de Santa Rosa within the Middle Russian River Hydrologic Area as impaired by low dissolved oxygen, nitrogen, phosphorous, sedimentation/siltation, and temperature. The CWA requires the Regional Water Board to establish, in accordance with a priority ranking for 303 (d) listed waters, TMDLs for each impairing pollutant – the maximum amount (including a margin of safety) of each pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's point and nonpoint sources. On October 27, 1994, the Regional Water Board approved a "TMDL" approach for the Laguna de Santa Rosa to satisfy Section 303(d) requirements, but this approach was subsequently found not to contain the minimum elements of a TMDL. For example, follow-up compliance monitoring, a critical element for TMDLs, was not continued.

The effects of the impairing pollutants on the Laguna de Santa Rosa are significant and are increasing with increased watershed urbanization, removal of riparian vegetation, loss of flood retention capacity, and increased discharges of wastewater and urban storm water runoff. As the assimilative capacity of the water body for

biostimulatory substances, primarily nitrogen and phosphorous, has been exceeded, phosphorous is now sequestered in the sediment and is cycled into the biota with any addition of available nitrogen. Excessive nitrogen and phosphorous levels are contributing to secondary water quality impairments, including nuisance plant growth, which adversely impacts REC1 and REC2 beneficial uses and consumes dissolved oxygen. Nuisance plant growth also creates conditions that impede flow, thereby increasing the rate of sedimentation and the potential for local and regional flooding, and provides habitat conducive to mosquito breeding. The potential health consequences of the mosquito-borne West Nile Virus are so severe that, over the next five years, local agencies will spend approximately $1.9 million to eradicate the invasive weed, *Ludwigia,* from the Laguna. In 2005, alone, local agencies removed 5,300 tons of *Ludwigia* from two limited areas of the Laguna.

Although sedimentation within the Laguna is likely contributing to the increased aquatic growth within the Laguna; however, levels of nutrients (nitrogen and phosphorous) within the receiving water are high relative to nutrient levels that are expected in other waterbodies in USEPA ecoregion 6 [2], and are a significant contributor to the deteriorating conditions within the Laguna de Santa Rosa. Wastewater from the Laguna Subregional Wastewater Treatment Facility, along with other anthropomorphic sources of nitrogen and phosphorus including septic systems, runoff from agricultural operations, and urban runoff have been tentatively identified as the primary sources of nutrients in the Laguna.

Discharge monitoring results from Brown Pond, Kelly Pond, Meadow Lane A Pond, Meadow Lane D Ponds, Delta Pond, and the Demonstration Wetlands were reviewed for discharges occurring from January 2003 through March 2006. These results show an average discharge concentration of Total Kjeldahl Nitrogen (TKN) (ammonia-nitrogen plus organic nitrogen) of 1.36 mg/l, and an average concentration of Total Phosphate (TP) of 1.78 mg/l. Table 7 compares effluent data to existing concentrations of nutrients in the Laguna de Santa Rosa and to nutrient levels that are expected in water bodies in USEPA Region 9 ecoregion 6. This comparison provides evidence that the Laguna de Santa Rosa has elevated concentrations of nitrogen and phosphorus in the water column relative to both impaired and minimally impaired water bodies in the region and the discharge from the WWTF contains nutrients that contribute to the concentration of nutrients in the Laguna.

[2] Ecoregions are large-scale landscape units that include relatively homogeneous ecosystems and are distinguishable from other ecoregions. There are 16 Level III ecoregions in USEPA Region 9. The primary distinguishing characteristic of Ecoregion 6 is its Mediterranean climate of hot dry summers and cool, moist winters, and associated vegetative cover comprising mainly chaparral and oak woodlands; grasslands occur in lower elevations and patches of pine are found at higher elevations.

**Table 7. Effluent and Water Quality Data Compared to Other Water Bodies in Ecoregion 6**

| | Number of Samples | Average Concentration (mg/L) |
|---|---|---|
| **Ammonia** | | |
| Minimally Impacted | 261 | 0.05 |
| Unimpaired | 1,229 | 0.41 |
| Impaired (nutrient) | 907 | 0.34 |
| Impaired (other) | 1,279 | 0.47 |
| Laguna de Santa Rosa | 279 | 1.16 |
| Subregional Water Reclamation System Effluent | 131 | 0.46 |
| **Total Kjeldahl Nitrogen (ammonia + organic N)** | | |
| Minimally Impacted | 156 | 0.31 |
| Unimpaired | 1,425 | 1.01 |
| Impaired (nutrient) | 868 | 1.06 |
| Impaired (other) | 1,486 | 0.97 |
| Laguna de Santa Rosa | 67 | 1.09 |
| Subregional Water Reclamation System Effluent | 131 | 1.36 |
| **Total Phosphate** | | |
| Minimally Impacted | 260 | 0.05 |
| Unimpaired | 1,671 | 0.49 |
| Impaired (nutrient) | 1,056 | 0.60 |
| Impaired (other) | 1,793 | 0.45 |
| Laguna de Santa Rosa | 68 | 1.38 |
| Subregional Water Reclamation System Effluent | 131 | 1.78 |

Notes:

Water quality data for the Laguna de Santa Rosa is from a compilation of data from the Discharger's SMRs, surface water ambient monitoring (SWAMP) data, and other data provided to the Regional Water Board in electronic format.

Effluent data is from monitoring results from Brown Pond, Kelly Pond, Meadow Lane A Pond, Meadow Lane D Ponds, Delta Pond and the Demonstration Wetlands was reviewed for discharges occurring from January 2003 through March 2006.

Nutrient data for Ecoregion 6 was made available to the Regional Water Board by Tetra Tech, Inc.

Based on its analysis of effluent and water quality data as well as information on the physical condition of the receiving waterbody, the Regional Water Board has determined that the biostimulatory components of discharges from the Laguna Subregional Wastewater Reclamation Facility have a reasonable potential to contribute to and promote excessive aquatic growth occurring within the Laguna de Santa Rosa and are, therefore, contributing to exceedances of the Basin Plan's narrative water quality objective for biostimulatory substances and the impairment of the Laguna de Santa Rosa. In order to control the level of nutrients in the discharge, comply with the narrative water quality objective, and prevent additional

degradation of beneficial uses this permit establishes interim performance-based effluent limitations for TKN and Total Phosphate.

During this permit term, the Regional Water Board plans to develop and adopt TMDLs for nitrogen and phosphorus which will specify wasteload a locations (WLAs) for point sources and load allocations (LA) for non-point sources, as appropriate. Following the adoption of these TMDLs by the Regional Water Board, this Order will be issued with final WQBELs based on applicable WLAs. Alternatively, in the absence of a TMDL at the end of the compliance schedule authorized by this Order, the final effluent limitation for nitrogen and phosphorus will be zero, or "no net loading."

The "no net loading' approach is based on effective water quality standards in the Basin Plan, including State and federal antidegradation policies (see SWRCB Resolution No. 68-16 and 40 CFR 131.12), and NPDES permitting regulations, including 40 CFR 122.44(d)(1) and 40 CFR 122.4(a). Any loading of a bioaccumulative/persistent pollutant to a receiving water with a beneficial use already impaired by that pollutant has the reasonable potential to cause or contribute to an exceedance of narrative water quality objective(s) in the Basin Plan (see 40 CFR 122.44(d)(1)(i)), and is in violation of State and federal antidegradation policies which require that existing instream beneficial uses and the level of water quality necessary to protect these uses be maintained and protected when a permit is issued by the Regional Water Board. The requirement that existing beneficial uses be protected is not satisfied if water quality objectives are exceeded. Where baseline water quality is less than the quality defined by the water quality objective, the antidegradation standard requires that water quality must be improved to a level that achieves the water quality objective (see page 4, Antidegradation policy implementation for NPDES permitting, SWRCB 90-004, Administrative Procedures Update, May 1990). Finally, 40 CFR 122.4(a) prohibits issuance of an NPDES permit when permit conditions do not provide for compliance with the CWA, or regulations promulgated under the CWA, including water quality standards and NPDES regulations. In the absence of a TMDL which provides that an alternative load can be assimilated by the receiving water, the only effluent limit for the pollutant which will ensure that the discharge does not cause or contribute to an exceedance of water quality standards and does comply with water quality standards and NPDES regulations is a net loading of zero.

A "no net loading" effluent limit may be met by: 1) reducing the effluent concentration below detectable levels through source control and/or treatment; 2) reducing loads through recycling/reclamation or through relocation of the discharge location; and/or 3) reducing loads elsewhere in the watershed by an amount at least equal to the amount discharge (and of equivalent bioavailability) through an approved offset program.

b. **Priority Pollutants.** The SIP Section 1.3 requires the Regional Water Board to use all available, valid, relevant, and representative receiving water and effluent data and

information to conduct a reasonable potential analysis. The Discharger has collected effluent data for priority pollutants for the raw effluent and discharge locations 06A, 06B, 012A, and 012B. The data set on which the reasonable potential analysis is based is included in self-monitoring reports January 1998 through July 2004. Additional effluent and ambient background data for all 126 priority pollutants were submitted by the Discharger in response to an April 27, 2001 technical information request (13267) letter titled "California Water Code Section 13267(b) Order; Requirement for submittal of Technical/Monitoring Report for Monitoring Priority Pollutants Regulated in the California Toxics Rule (CTR)". The Discharger sampled effluent on May 14, 2002 and January 23, 2003. Receiving water samples were collected from Santa Rosa Creek and the Laguna de Santa Rosa on May 13, 2002 and January 22, 2003. All samples were analyzed for all 126 priority pollutants.

Some freshwater water quality criteria for metals are hardness dependent; i.e., as hardness decreases, the toxicity of certain metals increases and the applicable water quality criteria become correspondingly more stringent. For this reasonable potential analysis, Regional Water Board staff has used a receiving water hardness concentration of 53.5 mg/L $CaCO_3$, based on receiving water data submitted by the Discharger. The use of the lowest receiving water hardness concentration provides the most protective approach for determining which parameters to require effluent limitations for the protection of aquatic life in the receiving stream. The range of ambient hardness the permitted receiving waters varied widely, as illustrated in the following table:

**Table 8. Receiving Water Hardness for Discharge Points from 1998 to 2003**

| Discharge Point (ID) | Receiving Water | Hardness (mg/l as $CaCO_3$) | | | |
|---|---|---|---|---|---|
| | | Upstream | | Downstream | |
| | | min | max | min | max |
| Alpha Pond (001) | Roseland Creek | 133 | 316 | 147 | 214 |
| Brown Pond (003) | Laguna de Santa Rosa | 80 | 249 | 75 | 210 |
| Kelly Pond (004) | Doer Creek | 53.5 | 547 | 55 | 218 |
| D-Incline Pump (06A) | Laguna de Santa Rosa | 76 | 118 | 74 | 133 |
| D Pond 36 (06B) | Laguna de Santa Rosa | 66 | 289 | 80 | 239 |
| Delta Pond 48 (12B) | Santa Rosa Creek | 58 | 180 | 61 | 154 |
| Laguna Joint Wetlands (016) | Laguna de Santa Rosa | 70 | 269 | 74 | 268 |

Source : Self Monitoring Reports and electronic submittals provided by the Discharger

To conduct the reasonable potential analysis, Regional Water Board staff identified the maximum observed effluent (MEC) and background (B) concentrations for each priority pollutant from effluent and receiving water data provided by the Discharger and compared this data to the most stringent applicable water quality criterion (C) for each pollutant from the NTR, CTR, and the Basin Plan. Section 1.3 of the SIP establishes three triggers for a finding of reasonable potential.

**Trigger 1.** If the MEC is greater than C, there is reasonable potential, and an effluent limitation is required.

**Trigger 2.** If B is greater than C, and the pollutant is detected in effluent (MEC > ND), there is reasonable potential, and an effluent limitation is required.

**Trigger 3.** After review of other available and relevant information, a permit writer may decide that a WQBEL is required. Such additional information may include, but is not limited to: the facility type, the discharge type, solids loading analyses, lack of dilution, history of compliance problems, potential toxic impact of the discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303 (d) listing for the pollutant, and the presence of endangered or threatened species or their critical habitat.

c. **Reasonable Potential Determination**. Based on information submitted as part of the permit application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharges from Monitoring Locations M-001 to M-103 have a reasonable potential to cause or contribute to an in-stream excursion above applicable water quality standards for copper, lead, nickel, cyanide, nitrate, total nitrogen, total phosphate. The RPA concludes that there is no reasonable potential for the remainder of the 126 priority pollutants or pollutants with other water quality objectives.

The following table summarizes the reasonable potential analysis for each priority pollutant that was reported in detectable concentrations in the raw effluent, storage pond effluent or the receiving water between January 1998 and July 2004. No other pollutants with applicable, numeric water quality criteria from the NTR, CTR, and the Basin Plan were measured above detectable concentrations during the monitoring events conducted by the Discharger. Appendix F-2 to this Order summarizes the reasonable potential analysis for all of the Discharger's effluent and receiving water monitoring data for priority pollutants.

**Table 9. Summary of Reasonable Potential Analysis for Detected Priority Pollutants**

| CTR No. | Priority Pollutant | Lowest Applicable Water Quality Criteria(C) | Maximum Effluent Conc (MEC) | Maximum Detected Receiving Water Conc.(B) | RPA Result-Need Limit? | Reason | Recommendation |
|---|---|---|---|---|---|---|---|
| 1. | Antimony | 14 | 2 | 0.4, DNQ | No | MEC<C and B>C | No WQBEL. Routine monitoring |
| 2. | Arsenic | 150 | 4 | 3.4 | No | MEC<C and B>C | No WQBEL. Routine monitoring |
| 4. | Cadmium | 1.5 | 0.3 | 0.04, ND | No | MEC<C and B>C | No WQBEL. Routine monitoring |
| 5a. | Chromium (Total) | 124 | 21 | 3.3 | No | MEC<C and B>C | No WQBEL. Routine monitoring |

| CTR No. | Priority Pollutant | Lowest Applicable Water Quality Criteria(C) | Maximum Effluent Conc (MEC) | Maximum Detected Receiving Water Conc.(B) | RPA Result-Need Limit? | Reason | Recommendation |
|---|---|---|---|---|---|---|---|
| 6. | Copper | 5.5 | 18 | 25.6 | Yes | MEC>C and B>C | WQBEL needed. Weekly monitoring |
| 7. | Lead | 1.4 | 5.8 | 1.8, DNQ | Yes | MEC>C and B>C | WQBEL needed. Weekly monitoring |
| 8. | Mercury | 0.050 | 0.3 | 0.0012, ND | No | BPJ | No WQBEL. Weekly monitoring |
| 9. | Nickel | 20.7 | 32 | 9.1 | Yes | MEC>C and B<C | WQBEL needed. Weekly monitoring |
| 11. | Silver | 1.4 | 0.5 | 3.5, DNQ | No | MEC<C and B<C | No WQBEL. Routine monitoring |
| 13. | Zinc | 70.5 | 44 | 24 | No | MEC<C and B<C | No WQBEL. Routine monitoring |
| 14. | Cyanide | 5.2 | 51 | 2.8, DNQ | Yes | MEC>C | WQBEL needed. Weekly monitoring. |
| 26. | Chloroform | No Criteria | 10.3 | 0.24, DNQ | No | No Criteria, BPJ | No WQBEL. Routine monitoring |
| 27. | Dichlorobromomethane | 0.56 | 1.8 | 0.1, ND | No | BPJ | No WQBEL. Routine monitoring |
| 37. | 1,1,2,2-Tetrachloroethane | 0.17 | 1.2 | 0.057, ND | No | BPJ | No WQBEL. Weekly monitoring |
| 45. | 2-Chlorophenol | 120 | 5, ND | 0.4, ND | No | BPJ | No WQBEL. Monthly monitoring |
| 51. | 4-Nitrophenol | No Criteria | 5, ND | 0.2, ND | No | No Criteria, BPJ | No WQBEL. Monthly monitoring |
| 52. | 3-methyl-4-chlorophenol | No Criteria | 5, ND | 5, ND | No | No Criteria, BPJ | No WQBEL. Monthly monitoring |
| 53. | Pentachlorophenol | 0.28 | 5, ND | 0.4, ND | No | BPJ | No WQBEL. Monthly monitoring |
| 54. | Phenol | 21,000 | 5, ND | 0.2, ND | No | MEC<C and B<C | No WQBEL. Monthly monitoring |
| 56. | Acenaphthene | 1200 | 5, ND | 0.17, ND | No | MEC<C and B<C | No WQBEL. Monthly monitoring |
| 68. | Bis(2-Ethylhexyl) Phthalate | 1.8 | 570 | 0.3, ND | No | BPJ | No WQBEL. Weekly monitoring |
| 77. | 1,4 Dichlorobenzene | 400 | 1.5 | 0.081, ND | No | MEC<C and B<C | No WQBEL. Routine monitoring |
| 81. | Di-n-Butyl Phthalate | 2,700 | 5.7 | 0.4, ND | No | MEC<C and B<C | No WQBEL. Routine monitoring |
| 82. | 2,4-Dinitrotoluene | 0.11 | 5, ND | 0.3, ND | No | BPJ | No WQBEL. Monthly monitoring |
| 94. | Naphthalene | No Criteria | 7.5 | 0.05, ND | No | No Criteria, BPJ | No WQBEL. Routine monitoring |
| | | | | | | | |

| CTR No. | Priority Pollutant | Lowest Applicable Water Quality Criteria(C) | Maximum Effluent Conc (MEC) | Maximum Detected Receiving Water Conc.(B) | RPA Result-Need Limit? | Reason | Recommendation |
|---|---|---|---|---|---|---|---|
| 97. | N-Nitrosodi-n-Propylamine | 0.005 | 5, ND | 0.3, ND | No | BPJ | No WQBEL. Monthly monitoring |
| 100. | Pyrene | 960 | 0.03, ND | 0.03, ND | No | MEC<C and B<C | No WQBEL. Routine monitoring |
| 101. | 1,2,4-Trichlorobenzene | No Criteria | 5, ND | 0.3, ND | No | No Criteria, BPJ | No WQBEL. Routine monitoring |
| 104. | β-BHC | 0.014 | 0.07 | 0.001, ND | No | BPJ | No WQBEL. Weekly monitoring |
| 105. | γ-BHC (Lindane) | 0.019 | 0.04 | 0.001, ND | No | BPJ | No WQBEL. Weekly monitoring |
| 113. | Endosulfan (beta) | 0.056 | 0.08 | 0.001, ND | No | BPJ | No WQBEL. Monthly monitoring |

Notes:
1. ND = not detected
2. DNQ = detected, but not quantified
3. BPJ = Best Professional Judgment
4. The Discharger reported the following pollutant concentrations in a raw effluent sample from the Laguna Subregional Water Reclamation Facility on October 4, 1999: n-nitrosodi-n-propylamine (88.4 µg/l), pentachlorophenol (264 µg/l), 2-chlorophenol (158 µg/l), Acenaphthene (142 µg/l), 2,4-dinitrotoluene (155 µg/l), pyrene (157 µg/l), 1,2,4-trichlorobenzene (130 µg/l), 4-chloro-3-methylphenol (197 µg/l), 4-nitrophenol (273 µg/l), and phenol (210 µg/l). These results are believed to be erroneous and are not included in the table.
5. The Discharger reported 1,1,2,2-tetrachloroethane at a concentration of 1.2 µg/l in a pond effluent sample from the Laguna Subregional Water Reclamation Facility on February 16, 2000. This result is believed to be erroneous.

d. **Reasonable Potential Analysis.** The following section summarizes additional details regarding the reasonable potential analysis for pollutants for which reasonable potential has been determined and pollutants for which reasonable potential was rejected based on the best professional judgment of the permit writer:

i. **Copper.** The CTR freshwater aquatic life acute and chronic criteria for copper, using the lowest receiving water hardness concentration of 53.5 mg/l, are 7.8 and 5.5 µg/l, respectively. The CTR human health criterion for copper is 1,300 µg/l.

The concentration of total recoverable copper in the treated effluent ranged from < 1.0 µg/l to 14 µg/l, in 31 samples. Twenty-one of the effluent concentrations exceeded the lowest CTR criterion of 5.5 µg/l. Monitoring results from pond discharge locations 06A, 06B, 012A, and 012B contained concentrations of total recoverable copper ranging from < 5 to 18 µg/l in 27 samples. Twenty-three of these results exceeded the lowest CTR Criterion. Therefore, there is reasonable potential for copper and effluent limitations are needed.

ii. **Cyanide.** The CTR freshwater aquatic life acute and chronic criteria for cyanide are 22 µg/l and 5.2 µg/l, respectively. The CTR human health criterion for cyanide is 700 µg/l.

The concentration of total recoverable cyanide in the treated effluent ranged from 1.8 µg/l to 51 µg/l, in 31 samples (with 14 non-detects). Five of the effluent concentrations exceeded the lowest CTR criterion of 5.2 µg/l. Monitoring results from discharge locations 06A, 06B, 012A, and 012B contained concentrations of total recoverable cyanide ranging from < 3 to 12 µg/l in 27 samples. Two of these results exceeded the lowest CTR Criterion. Therefore, there is reasonable potential for cyanide and effluent limitations are needed.

iii. **Lead.** The CTR freshwater aquatic life acute and chronic criteria for lead, using the lowest hardness concentration of 53.5 mg/l, are 36.8 and 1.4 µg/l, respectively. There is no human health criterion for lead.

The concentration of total recoverable lead in the treated effluent ranged from 0.14 to 5.8 µg/l, in 31 samples. Two of the effluent concentrations exceeded the lowest CTR criterion and analysis of monitoring samples prior to May 2002 used a detection limit greater than the lowest CTR criterion. Monitoring results from discharge locations 06A, 06B, 012A, and 012B contained concentrations of total recoverable lead ranging from < 2 to 5.8 µg/l in 27 samples. One of these sample results exceeded the lowest CTR Criterion. Therefore, there is reasonable potential for lead and effluent limitations are needed.

Seven out of eight receiving water samples submitted by the Discharger contained concentrations of total recoverable lead at concentrations ranging from 0.14 to 1.8 µg/l. The single result of 1.8 ug/l, determined from a sample collected on May 15, 2002, exceeds the lowest CTR criterion and contributes to staff's determination of reasonable potential.

iv. **Nickel.** The CTR freshwater aquatic life acute and chronic criteria for nickel, using the lowest hardness concentration of 53.5 mg/l, are 276 µg/l and 30.7 µg/l, respectively. The CTR human health criterion for nickel is 610 µg/l.

Monitoring results submitted by the Discharger indicate that treatment facility effluent contained concentrations nickel ranging from < 2 µg/l to 7.3 µg/l in 31 samples. Monitoring results from discharge locations 06A, 06B, 012A, and 012B contained concentrations of total recoverable nickel ranging from < 5 to 32 µg/l in 27 samples. The two highest results of 32 µg/l and 30 µg/l were obtained from discharge location 012B on December 12, 2002 and January 8, 2003, respectively. In five subsequent monitoring samples collected from storage pond discharges from April 9, 2003 to April 12, 2005, the maximum effluent concentration was 7.2 µg/l. Since the MEC of 32 µg/l exceeds the lowest CTR criteria and the Discharger has provided no information that demonstrates that the reported results were erroneous

or invalid, there is reasonable potential that the discharge will exceed the CTR criterion for nickel and effluent limitations are required.

v. **Mercury.** The CTR human health criterion for mercury is 0.050 µg/l. Currently, there are no freshwater aquatic life criteria for mercury.

Effluent monitoring data for May 14, 2002 and January 23, 2003 submitted by the Discharger contained mercury concentrations ranging from 0.0021 µg/l to 0.00394 µg/l in 4 samples. Mercury concentrations in raw effluent were not detected in 27 effluent samples (with detection limits ranging from 0.05 to 0.1 µg/l) prior to the 2002-2003 monitoring events. Monitoring results for mercury from monitoring locations 06A, 06B, 012A, and 012B were reported as non-detect in 27 samples from January 1998 to January 2004.

The MEC of 0.00394 for total recoverable mercury in raw effluent and storage pond discharges is less than the water quality criterion of 0.050 µg/l. However, conflicting monitoring results from a raw effluent sample were collected on 4/5/99, where a result for total recoverable mercury was reported as less than 0.2 µg/l and dissolved mercury was reported at a concentration of 0.3 µg/l for the same sample. This incongruous result suggests that

Although the dissolved mercury concentration exceeds the CTR Criterion for mercury, Regional Water Board staff has determined that, at this time, there is insufficient effluent monitoring data at or near the water quality criterion to justify a determination of reasonable potential for mercury. Instead, this Order directs the Discharger to conduct weekly monitoring of the raw effluent and the storage pond effluent when discharging to surface water, to gather sufficient information to conduct a reasonable potential analysis. Should monitoring data indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of the human health criterion for mercury; the permit will be reopened to establish WQBELs for mercury and a pollution prevention plan to reduce the mass emission of mercury to surface waters.

vi. **Beta-BCH and Gamma-BCH.** Beta and gamma- benzene hexachloride (BHC) are isomers of the synthetic chemical now referred to as hexachlorocyclohexane (HCH). The most commonly encountered isomer is gamma-HCH, or lindane, is an organo-chlorinated pesticide listed by the USEPA as a Persistent, Bioaccumulative and Toxic Chemical and is toxic to humans and wildlife. Lindane is also a priority pollutant, a hazardous material, and a Bioaccumulative Chemical of Concern. The CTR criterion for gamma-BCH to protect human health for drinking water sources (consumption of water and aquatic organisms) is 0.019 µg/l. The CTR criterion for beta-BCH is 0.014 µg/l.

Lindane is an ingredient in prescription shampoos to treat head lice. The use of lindane for this purpose was prohibited under state law beginning on January 1, 2002 so it was anticipated that its presence of this priority pollutant in wastewater

would decline after 2002. Effluent monitoring results since January 1998, which indicate only one detected concentration (0.02 µg/l) of lindane on 1/5/98 and one detected concentration of beta-BCH on February 16, 2000, and none thereafter, appear to support this projection. Receiving water samples from the Laguna de Santa Rosa and Santa Rosa Creek were collected on November 11, 2002 and February 20, 2003 and analyzed for gamma-BCH. The results of eight analyses were non-detect at a detection limits ranging from 0.001 to 0.01 ug/l.

This Order directs the Discharger to conduct weekly monitoring of the raw effluent and the storage pond effluent for beta and gamma-BCH, when discharging to surface water, to confirm the absence of these pollutants in the treated discharge. Should monitoring data indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of the human health criterion for beta and/or gamma-BCH, the permit will be reopened to establish WQBELs for the pollutant(s) and a pollution prevention plan to reduce the mass emission of the pollutant(s) to surface waters.

vii. **Dichlorobromomethane (DCBM).** DCBM is a component of a group of chemicals, commonly known as trihalomethanes (THMs), which are formed during the disinfection process for drinking water and wastewater treatment through the reaction of chlorine and organic and inorganic material. Other THMs include chloroform, bromoform, and chlorodibromomethane. THMs are considered human carcinogens. The CTR criterion for DCBM to protect human health for drinking water sources (consumption of water and aquatic organisms) is 0.56 µg/l.

Effluent monitoring data for January 5, 1998, April 6, 1998, and July 6, 1998 showed DCBM in raw effluent at concentrations of 1 µg/l, 1.1 µg/l and 1.8 µg/l, respectively. However, the Discharger replaced chlorine as its primary disinfectant with ultraviolet disinfection in 1998 and has not reported detectable levels (with a detection limit of 0.5 µg/l) of DCBM or other THMs in raw effluent. Monitoring results from raw effluent samples and storage pond discharges since July 1998 were reported as non-detect with a minimum detection level of 0.5 µg/l.

viii. **Chloroform.** Chloroform is a THM formed during the disinfection process for drinking water and wastewater treatment through the reaction of chlorine and organic and inorganic material. The federal primary maximum contaminant level (MCL) for total THMs is 80 µg/l.

Chloroform was detected in 8 of 47 treated effluent samples in the discharge from Meadow Lane Pond, Delta Ponds, and monitoring location 015 from 1999 to 2004. In the 8 samples where chloroform was detected above the method detection limit, concentrations ranged from 0.4 µg/l to 1.8 µg/l. All other samples showed no detectable concentrations at method detection limits ranging from 0.5 µg/l to 5 µg/l. Because the MEC is less than the MCL for chloroform and the Discharger has not use a significant quantity of chlorine in its treatment process since 1998, the discharge does not have reasonable potential to exceed the MCL for chloroform.

ix. **Bis(2-Ethylhexyl) Phthalate.** Bis(2-ethylhexyl) phthalate belongs to a class of pollutants known as ortho-phthalate esters. Phthalate esters are widely used as plasticizers, primarily in the production of polyvinyl chloride (PVC) resins. Plasticizers are added to synthetic plastic resins to impart flexibility to the ordinarily brittle PVC, improve workability during fabrication and extend or modify properties not present in the original resins. PVC resins are used in a wide diversity of products including cable insulation, flooring, furniture upholstery, wall coverings, car upholstery and seat covers, footwear and food and medical packaging material. Phthalates also are used in cosmetics, industrial oils and insect repellants. The most widely used phthalate plasticizer is bis(2-ethylhexyl) phthalate, also known as di (2-ethylhexyl) phthalate or DEHP. DEHP released to water systems will biodegrade fairly rapidly (half-life 2-3 weeks). It will also strongly adsorb to sediments and bioconcentrate in aquatic organisms. The CTR criterion for DEHP to protect human health for drinking water sources (consumption of water and aquatic organisms) is 1.8 µg/l.

DEHP was detected at concentrations exceeding the CTR Criterion in three monitoring samples collected from wastewater storage pond discharges (monitoring locations 06B and 012B). Sewage sludge from the Santa Rosa Subregional WWTF is also known to contain relatively high concentrations of DEHP, which accumulates on sludge solids because of its hydrophobicity. As a result, it is suspected that the effluent discharge would also contain concentrations of the constituent DEHP at levels that exceed. However, current monitoring data do not indicate the presence of DEHP in the raw treated effluent. The Discharger also has recently conducted a study to determine possible sources of the contaminant. This study indicated that the previously submitted effluent monitoring data at the Laguna Regional WWTP for DEHP may be suspect due to sample contamination during sampling and testing resulting from the use of plastic tubing. Based on this information, Regional Water Board staff believe that there is not sufficient data to make a determination that there is reasonable potential for the Discharger to cause or contribute to an exceedance of the bis(2-ethylhexyl) phthalate criterion in the receiving water. Therefore in accordance with Section 2.2.2.A. of the Policy, no limit for bis(2-ethylhexyl) phthalate is included in the Order.

To confirm the absence of DEHP in treated effluent and further investigate the potential sources of sample contamination, the Discharger is directed to conduct weekly monitoring of the storage pond effluent, when discharging to surface water,. Should monitoring data indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of the human health criterion for bis(2-ethylhexyl) phthalate, the permit will be reopened to establish WQBELs for bis(2-ethylhexyl) phthalate and a pollution prevention plan to reduce the mass emission of bis(2-ethylhexyl) phthalate to surface waters.

xi. **1,1,2-2 tetrachloroethane, n-nitrosodi-N-propylamine (DPN), 2,4-dinitrotoluene, 2-Chlorophenol, 2-chlorophenol, pentachlorophenol, beta-endosulfan.** Monitoring results submitted by the Discharger for February 16, 2000 indicated that the storage pond effluent contained 1,1,2-2 tetrachloroethane at a concentration of 1.2 µg/L. Monitoring results submitted by the Discharger for October 4, 1999 indicated that treatment facility effluent contained the following concentrations: n nitrosodi n propylamine (38.4 µg/l), pentachlorophenol (264 µg/l), 2-chlorophenol (158 µg/l), Acenaphthene (142 µg/l), 2,4-dinitrotoluene (155 µg/l), pyrene (157 µg/l), 1,2,4-trichlorobenzene (130 µg/l), 4-chloro-3-methylphenol (197 µg/l), 4-nitrophenol (278 µg/l), and phenol (210 µg/l). All results of subsequent monitoring from the raw effluent or the storage pond effluent were reported as not detected for these pollutants.

A technical memorandum titled, "Fate of Organic Compounds in the Laguna Subregional Water Reclamation Facility," was prepared by CH2M Hill on behalf of the Discharger and submitted as part of the report of waste discharge to assess whether detections of these pollutants were a result of laboratory error. The evaluation consisted of a literature review of relevant information about the compounds and mathematical monitoring to hypothesize about the fate of these compounds in the treatment plant. The study concluded that the compounds are not in common usage and could not be present in the influent waste stream at a concentration that would produce the reported effluent concentrations.

Based on this study, the results of recent monitoring data, and best professional judgment, Regional Water Board staff has concluded that information is sufficient to support the determination that there is no reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for these pollutants and WQBELs are not necessary. The Order directs the Discharger to conduct monthly monitoring of the storage pond effluent, when discharging to surface water, to confirm the continued absence of these pollutants from the discharge.

xii. **Nitrate.** Table 3-2 of the Basin Plan limits the concentration in domestic or municipal water supply to 45 mg/l as total nitrate. This limitation is more commonly expressed as 10 mg/l as nitrate-nitrogen. This limit corresponds to the primary drinking water standard established by the California Department of Health Services

Results from storage pond effluent monitoring from January 2003 to March 2006 indicated a maximum effluent concentration of nitrate of 13.7 mg/l as N, in 131 samples. This result exceeds the applicable water quality standard for nitrate. Therefore, there is reasonable potential for nitrate and effluent limitations are needed

**4. WQBEL Calculations.**

**a. Non-Priority Pollutants**

**i. Nitrate**. Final WQBELs for nitrate have been determined using the methods described in Section 1.4 of the SIP, using the drinking water MCL of 10.0 mg/l (as N) as the applicable water quality criterion. If, as a result of a nutrient TMDL for the Laguna de Santa Rosa, a WLA for nitrate or total nitrogen is numerically lower than 10.0 mg/l (as N), then the final WQBELs for nitrate will be determined by an approved TMDL for the Laguna de Santa Rosa or will be zero (i.e., "no net loading").

In accordance with Section 1.4 of the SIP, when the most stringent water quality objective is a human health objective, the AMEL is set equal to the effluent concentration allowance (ECA), which is equal to the water quality objective when no dilution is allowed.

**ii. Biostimulatory Substances.**

For this Order, interim limitations were derived for TKN, nitrate and Total Phosphate based on treatment facility performance using the monitoring results of storage pond effluent samples from January 2003 to March 2006. Performance-based effluent limitations were calculated using the methods and concepts described in Appendix E of the TSD (Box E-1 and E-2). For TKN, nitrate and Total Phosphate, the upper 99% percentile limit of a delta lognormal sample distribution was calculated using available data reported as detected and nondetected, and assuming weekly monitoring of the discharge (i.e., n = 4). The upper 99$^{th}$ percentile limit of 3.0 mg/l was then established for TKN as a performance-based AMEL. For nitrate, the upper 99$^{th}$ percentile of 12.9 mg/l was used as the AMEL. Similarly for Total Phosphate, the upper 99$^{th}$ percentile limit of 3.1 mg/l was used as the AMEL. Table 10 provides the calculations performed to determine effluent limitations.

**Table 10. WQBELs for TKN and TP**

| | TKN | Total Phosphate | Nitrate |
|---|---|---|---|
| Number of samples (k) | 100 | 105 | 105 |
| Number of Detects (k-r) | 95 | 105 | 105 |
| Number of non-detects (r) | 5 | 0 | 0 |
| Delta = r/k (δ) | 0.05 | 0 | 0 |
| Detection Limit (D) | 0.2 | 0.1 | 0.2 |
| Mean of natural logs ($\mu_x$) | 0.291 | 0.492 | 2.158 |
| Number of samples per month (n) | 4 | 4 | 4 |
| $\sigma^2_x$ | 0.320 | 0.214 | 0.095 |
| $\sigma_x$ | 0.566 | 0.462 | 0.309 |
| Daily Average E(x) | 1.501 | 1.821 | 9.073 |
| Variance V(x) | 0.973 | 0.789 | 8.240 |

| | TKN | Total Phosphate | Nitrate |
|---|---|---|---|
| $\mu_n$ | 0.355 | 0.570 | 2.193 |
| $\sigma^2_n$ | 0.102 | 0.058 | 0.025 |
| $\sigma_n$ | 0.320 | 0.240 | 0.157 |
| Probability | 0.99 | 0.99 | 0.99 |
| $\phi$ for z(0.99) | 2.326 | 2.326 | 2.326 |
| Z factor ($z^* = \phi^{-1}[(0.95-\delta)/(1-\delta)]$) | 2.302 | 2.303 | 2.303 |
| $X_{.99} = \max[D, \exp(\mu_n + z^*\sigma_n)]$ (AMEL | 3.0 | 3.1 | 12.9 |

b. **Priority Pollutants.** Final WQBELs for cyanide has been determined using the methods described in Section 1.4 of the SIP. Since the water quality objectives for copper, lead, and nickel are hardness-dependent and the hardness in the Laguna de Santa Rosa, Colgan Creek and Santa Rosa Creek varies significantly, final effluent limitations for copper, lead, and nickel are determined using formulas that are based on the hardness of the receiving water at the time the discharge is sampled. The calculations for copper, lead, and nickel below use a hardness concentration of 53.5 mg/l to determine the copper effluent limitation for that single hardness value. Calculations for a range of hardness concentrations, ranging from 5 to > 400 mg/l as $CaCO_3$ are included in Attachment E-2 (copper) Attachment E-3 (lead), and Attachment E-4 (nickel).

**Step 1:** For each water quality criterion/objective, an effluent concentration allowance (ECA) is calculated from the following equation to account for dilution and background levels of each pollutant.

ECA = C + D (C - B), where

C = the applicable water quality criterion (adjusted for receiving water hardness and expressed as total recoverable metal, if necessary)
D = the dilution credit
B = the background concentration

Because no credit is being allowed for dilution, D = 0, and therefore, ECA = C.

**Step 2:** For each ECA based on aquatic life criterion/objective, the long-term average discharge condition (LTA) is determined by multiplying the ECA times a factor (multiplier), which adjusts the ECA to account for effluent variability. The multiplier varies depending on the coefficient of variation (CV) of the data set and whether it is an acute or chronic criterion/objective. Table 1 of the SIP provides pre-calculated values for the multipliers based on the value of the CV. When the data set contains less than 10 sample results (which is the case for the Discharger), or 80 percent or more of the data are reported as non-detect (ND), the CV is set equal to 0.6. Derivation of the multipliers is presented in Section 1.4 of the SIP.

For example, from Table 1 of the SIP, multipliers for calculating LTAs at the 99th percentile occurrence probability for copper are 0.347 (acute multiplier) and 0.556 (chronic multiplier). LTAs are determined as follows.

**Table 11. Calculations for Long Term Averages for Copper, Lead, Nickel, and Cyanide**

| Pollutant | ECA | | ECA Multiplier | | LTA (µg/L) | |
|---|---|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic | Acute | Chronic |
| Copper | 7.77 | 5.47 | 0.347 | 0.556 | 2.70 | 3.04 |
| Lead | 36.8 | 1.43 | 0.321 | 0.527 | 11.82 | 0.76 |
| Nickel | 276.4 | 30.7 | 0.434 | 0.638 | 119.9 | 19.6 |
| Cyanide | 22.0 | 5.20 | 0.124 | 0.220 | 2.73 | 1.15 |

**Step 3:** WQBELs, including an average monthly effluent limitation (AMEL) and a maximum daily effluent limitation (MDEL) are calculated using the most limiting (the lowest) LTA. The LTA is multiplied times a factor that accounts for averaging periods and exceedance frequencies of the effluent limitations, and for the AMEL, the effluent monitoring frequency. For example, the CV for copper determined to be 0.546, and the sampling frequency was set equal to 4 (n = 4). The 99th percentile occurrence probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. From Table 2 of the SIP, the MDEL multiplier for copper is 2.88 and the AMEL multiplier is 1.50. Final WQBELs for copper and the other pollutants with reasonable potential are calculated as follows.

**Table 12. Calculations for Final WQBELs for Copper, Lead, Nickel, and Cyanide**

| Pollutant | LTA | MDEL Multiplier | AMEL Multiplier | MDEL (µg/L) | AMEL (µg/L) |
|---|---|---|---|---|---|
| Copper | 2.70 | 2.88 | 1.50 | 7.77 | 4.04 |
| Lead | 0.76 | 3.11 | 1.55 | 2.36 | 1.17 |
| Nickel | 19.6 | 2.31 | 1.37 | 45.2 | 26.8 |
| Cyanide | 1.15 | 8.06 | 2.67 | 9.24 | 3.05 |

Since the hardness of the receiving waters varies significantly, from 53.5 to 316 mg/l as $CaCO_3$, setting these water quality-based effluents were be more protective than required when the receiving water hardness is higher. Regional Water Board Staff have used best professional judgment to determine that effluent limitations for these pollutants for this Discharger should be based on the receiving water hardness at the time that the discharge samples are collected. Therefore, effluent limitations for copper lead and nickel, based on the receiving water hardness, are included in Attachment E-2, Attachment E-3, and Attachment E-4 of this Order.

**Step 4:** When the most stringent water quality criterion/objective is a human health criterion/objective, the AMEL is set equal to the ECA, and the MDEL is calculated by multiplying the ECA times the ratio of the MDEL multiplier to the AMEL multiplier. However, for the discharge, no priority pollutants where the lowest applicable water

quality criterion was a human heath criterion was found to have reasonable potential. Therefore, there were no calculated WQBELs for these pollutants.

All WQBELs for the Discharger are summarized in the table below.

**Table 13. Summary of Water Quality-based Effluent Limitations for Discharge Points 002, 003, 005, 006A, 006B, 008, 009, 012A, 012B, 014, 015, 016**

| Parameter | Units | Effluent Limitations[a] | |
|---|---|---|---|
| | | Average Monthly | Maximum Daily |
| Copper | µg/L | *See Attachment E-2* | *See Attachment E-2* |
| Lead | µg/L | *See Attachment E-3* | *See Attachment E-3* |
| Nickel | µg/L | *See Attachment E-4* | *See Attachment E-4* |
| Cyanide | µg/L | 3.05 | 9.23 |
| Nitrate (as N) | mg/L | 10.0 | --- |
| Total Phosphate | mg/L | 3.0 | --- |
| Total Kjeldahl Nitrogen | mg/L | 2.7 | --- |

Notes:
a. Final effluent limitations for copper, lead and cyanide shall replace the interim limitations on **May 1, 2010**.
b. Final effluent limitations for copper, lead, and nickel are for total recoverable metal fraction and are determined using formulas that are based on the hardness of the receiving water at the time the discharge is sampled.
c. Final effluent limitations for total phosphate and TKN shall replace interim limitations on **November 9, 2011**.

## 5. Whole Effluent Toxicity (WET)

This effluent limitation is derived from the CWA and the Basin Plan. The Basin Plan states that "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life." For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the MRP (Attachment E, Section V.).

a. **Acute Aquatic Toxicity.** The Order implements Federal guidelines (Regions 9 & 10 Guidelines for Implementing Whole Effluent Toxicity Testing Programs) by requiring dischargers to conduct acute toxicity tests on a fish species and on an invertebrate to determine the most sensitive species. According to the USEPA manual, *Methods for Estimating the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/600/4-90/027F), the acceptable vertebrate species for the acute toxicity test are the fathead minnow, *Pimephales promelas* and the rainbow trout, *Oncorhynchus mykiss*. The acceptable invertebrate species for the acute toxicity test are the water flea, *Ceriodaphnia dubia*, *Daphnia magna*, and *D. pulex*. Based on effluent toxicity monitoring data from January 6, 1998 to April 14, 2003, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Consequently, acute toxicity effluent limitations have been established in this Order.

quality criterion was a human heath criterion was found to have reasonable potential. Therefore, there were no calculated WQBELs for these pollutants.

All WQBELs for the Discharger are summarized in the table below.

**Table 13. Summary of Water Quality-based Effluent Limitations for Discharge Points 002, 003, 005, 006A, 006B, 008, 009, 012A, 012B, 014, 015, 016**

| Parameter | Units | Effluent Limitations [a] | |
|---|---|---|---|
| | | Average Monthly | Maximum Daily |
| ~~Copper~~ | ~~µg/L~~ | ~~*See Attachment E-2*~~ | ~~*See Attachment E-2*~~ |
| Lead | µg/L | *See Attachment E-3* | *See Attachment E-3* |
| Nickel | µg/L | *See Attachment E-4* | *See Attachment E-4* |
| Cyanide | µg/L | 3.05 | 9.23 |
| Nitrate (as N) | mg/L | 10.0 | --- |
| Total Phosphate | mg/L | 3.0 | --- |
| Total Kjeldahl Nitrogen | mg/L | 2.7 | --- |

Notes:

a. Final effluent limitations for copper, lead and cyanide shall replace the interim limitations on **May 1, 2010**.

b. Final effluent limitations for copper, lead, and nickel are for total recoverable metal fraction and are determined using formulas that are based on the hardness of the receiving water at the time the discharge is sampled.

c. Final effluent limitations for total phosphate and TKN shall replace interim limitations on **November 9, 2011**.

## 5. Whole Effluent Toxicity (WET)

This effluent limitation is derived from the CWA and the Basin Plan. The Basin Plan states that "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life." For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the MRP (Attachment E, Section V.).

a. **Acute Aquatic Toxicity.** The Order implements Federal guidelines (Regions 9 & 10 Guidelines for Implementing Whole Effluent Toxicity Testing Programs) by requiring dischargers to conduct acute toxicity tests on a fish species and on an invertebrate to determine the most sensitive species. According to the USEPA manual, *Methods for Estimating the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/600/4-90/027F), the acceptable vertebrate species for the acute toxicity test are the fathead minnow, *Pimephales promelas* and the rainbow trout, *Oncorhynchus mykiss*. The acceptable invertebrate species for the acute toxicity test are the water flea, *Ceriodaphnia dubia*, *Daphnia magna*, and *D. pulex*. Based on effluent toxicity monitoring data from January 6, 1998 to April 14, 2003, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Consequently, acute toxicity effluent limitations have been established in this Order.

b. **Chronic Aquatic Toxicity.** The SIP requires the use of short-term chronic toxicity tests to determine compliance with the narrative toxicity objectives for aquatic life in the Basin Plan. Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1.0 chronic toxicity unit (TUc) demonstrates the discharge is in violation of the chronic toxicity effluent limitation. If the discharge demonstrates a pattern of toxicity exceeding the effluent limitation, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan to determine whether the discharge is contributing chronic toxicity to the receiving water. Chronic toxicity testing results from pond discharges are summarized below in Table 14.

**Table 14. Whole Effluent Chronic Toxicity Testing Results**

| Location | Date | *Selenastrum capricornutum* Growth | | *Ceriodaphnia dubia* Reproduction | | *Pimephales promelas* Survival | | *Pimephales promelas* Growth | |
|---|---|---|---|---|---|---|---|---|---|
| | | NOEC | TUc | NOEC | TUc | NOEC | TUc | NOEC | TUc |
| 06A | 1/6/98 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06A | 4/7/98 | 100 | < 1.0 | 25 | 4.0 | 25 | 4.0 | < 25 | --- |
| 06A | 2/01 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06A | 1/7/02 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 1/13/98 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 5/13/98 | 100 | < 1.0 | 85 | 1.2 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 12/98 | 70 | 1.4 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 1/99 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 50 | 2.0 |
| 06B | 4/99 | 100 | < 1.0 | 100 | < 1.0 | 25 | 4.0 | < 25 | 4.0 |
| 06B | 2/00 | 50 | 2.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 2/01 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 11/01 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 1/7/02 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 4/1/02 | 100 | < 1.0 | 85 | 1.2 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 12/16/02 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 1/6/03 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 06B | 1/15/03 | --- | --- | --- | --- | 100 | < 1.0 | 85 | 1.2 |
| 06B | 4/14/03 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012A | 1/6/98 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012A | 10/98 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012A | 2/99 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 1/13/98 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 12/98 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 1/99 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | < 25 | --- |
| 012B | 1/00 | < 25 | --- | < 25 | --- | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 1/01 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 12/5/01 | 100 | < 1.0 | 100 | < 1.0 | 50 | 2.0 | 50 | 2.0 |
| 012B | 12/12/01 | --- | --- | --- | --- | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 3/11/02 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 12/17/02 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 1/6/03 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |
| 012B | 1/17/03 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 | 100 | < 1.0 |

In addition to WET monitoring, Special Provisions VI.C.2.b. requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

## D. Final Effluent Limitations

### 1. Summary of Final Effluent Limitations Discharge Point 015

a. **Advanced Wastewater Treatment.** From the record associated with the adoption of the AWT requirement, it is clear that treatment to a "pathogen-free" level was intended. The Resolution (No. 86-148) adopting the AWT requirement and the Basin Plan explain that zero discharge of municipal wastewater is preferable to ensure protection of beneficial uses (particularly municipal/domestic supply and body contact recreation), but that advanced treatment of wastewater is the "minimum acceptable." The Resolution incorporates the recommendation of the DHS that "all municipal wastewater discharged to streams used for domestic water supply be treated to a 'pathogen free' level. 'Pathogen free' effluent is that which has been treated to advanced levels including chemical flocculation, coagulation, sedimentation, filtration, and disinfection."

The DHS recommendation referred to in the Resolution explained that "the discharge [of wastewater] should be strengthened to require a pathogen free effluent as defined in Section 60315, Title 22 Wastewater Reclamation regulations."

The Wastewater Reclamation Criteria in effect at the time stated:

"Section 60315. Nonrestricted Recreational Impoundment.

Reclaimed water used as a source of supply in a nonrestricted recreational impoundment shall be at all times an adequately disinfected, oxidized, coagulated, clarified, filtered wastewater. The wastewater shall be considered adequately disinfected if at some location in the treatment process the median number of coliform organisms does not exceed 2.2 per 100 mL and the number of coliform organisms does not exceed 23 per 100 mL in more than one sample within any 30-day period. The median value shall be determined from the bacteriological results of the last 7 days for which analyses have been completed."

In sum, the Basin Plan amendment was intended to protect beneficial uses of the Russian River and tributaries, primarily domestic water supply and contact recreation. The adopting Resolution makes it clear that the amendment was aimed to eliminate pathogens (which pose a significant threat to domestic and recreation uses) from wastewater discharges. Even at that time, Title 22 of the CCR contained the definition

of pathogen-free treatment relied on by the resolution. By requiring that the standards be defined in individual permits, the Basin Plan contemplated they would be periodically refined during permit renewals. Accordingly, the use of Title 22 as it exists today is an appropriate means to define AWT wastewater quality for the protection of beneficial uses in the Russian River and tributaries

**b. Biochemical Oxygen Demand and Suspended Solids.**

i. **Concentration-based Limitations.** For the purpose of regulating municipal waste discharges from the Santa Rosa Subregional Water Reclamation Facility to the Laguna de Santa Rosa and its tributaries, advanced wastewater treatment is defined as achieving a monthly average concentration for BOD and suspended solids of 10 mg/l and a weekly average concentration of 15 mg/l. Monthly average and weekly average concentration-based limitations are retained from the previous Order. These effluent limitations are consistent with a "pathogen free" discharge, as explained Section IV.D.1.a and are technically achievable based on the capability of a tertiary system.

The daily maximum concentration-based effluent limitations for BOD and suspended solids have been omitted in the renewed Order. This permit change is governed by 40 CFR 122.44(*l*)(1), which provides that relaxations in effluent limitations are permitted where the circumstances justifying permit modification under 40 CFR 122.62 are present. Among the several enumerated grounds is that a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation if new information has become available that was not previously available that justifies the application of a less stringent effluent limitation. The maximum daily concentration limitation presents a technology requirement and is neither applicable nor required for secondary treatment under 40 CFR 133. Accordingly, this limitation is omitted from this permit because the secondary treatment limitations promulgated subsequent to the issuance of the original permit present new information not available at that time that justifies the change. Concentration-based effluent limitations required under 40 CFR 133 remain in effect.

ii. **Mass-based Limitations.** Mass effluent limitations for BOD and suspended solids are retained from the previous Order and are required under 40 CFR 122.45(f).

The mass-based effluent limitations for BOD and suspended solids included in this Order have been modified to be numerically higher than those included in the Discharger's previous Permit. This permit change is governed by 40 CFR 122.44(*l*)(1), which provides that relaxations in effluent limitations are permitted where the circumstances justifying permit modification under 40 CFR 122.62 are present. Among the several enumerated grounds is that, as provided in Section 122.62(a)(15), a modification is needed to "correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining

permit conditions." Pursuant to 40 CFR 122.45(b), effluent limitations for POTWs are derived for the design flow of the WWTF. Mass-based effluent limitations in the previous Permit were calculated based on average dry weather design flow of the WWTF, but did not take into account peak wet weather flows. This Order correctly calculates mass-based effluent limitations applicable during periods of wet weather flow based on wet weather design flows. Mass-based effluent limitations are to be calculated in accordance with the following:

1) During wet weather conditions when the average weekly influent flow exceeds 21.34 mgd, the weekly mass-based effluent limitations for BOD and suspended solids are calculated based on the weekly wet weather design flow using the following formula: 8.34 x Q x C, where Q is the peak weekly design flow of 64 mgd, C is the weekly concentration-based effluent limitation, and 8.34 is a conversion factor.

2) During wet weather conditions when the average monthly influent flow exceeds 21.34 mgd, the monthly mass-based effluent limitations for BOD and suspended solids are calculated based on the monthly wet weather design flow using the following formula: 8.34 x Q x C, where Q is the peak monthly design flow of 47.3 mgd, C is the monthly concentration-based effluent limitation, and 8.34 is a conversion factor.

iii. **Percent Removal.** In describing the minimum level of effluent quality attainable by secondary treatment, federal regulations (40 CFR 133.102) state that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD and suspended solids must be achieved by a secondary treatment plant, it must also be achieved by a tertiary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD and suspended solids over each calendar month.

c. **Total Coliform Organisms.** Consistent with Section D.1.a, above, advanced treated wastewater shall be considered adequately disinfected if it is "pathogen free." To demonstrate that the discharge is "pathogen free," the discharge must be of a quality that meets the definition of disinfected tertiary recycled water in Section 60301.230 Title 22 CCR.

d. **Hydrogen Ion (pH).** Effluent limitations for hydrogen ion (pH) are retained from the previous Order and are minimum treatment standards for municipal dischargers as defined in 40 CFR 133.102.

2. **Summary of Final Effluent Limitations Discharge Points 002, 003, 005, 05A, 06B, 008, 009, 012A, 012B, 014, 015, 016**

a. **Copper.** Final effluent limitations for copper are based on the hardness of the upstream monitoring location at the time of discharge. Attachment E-2

b. **Cyanide.** This Order establishes a final AMEL of 3.05 µg/l and a final MDEL of 9.23 µg/l for cyanide. Final effluent limitations for cyanide were calculated in accordance with section 1.4 of the SIP.

c. **Lead.** Final effluent limitations for lead are based on the hardness of the upstream monitoring location at the time of discharge. Attachment E-3

d. **Nickel.** Final effluent limitations for nickel are based on the hardness of the upstream monitoring location at the time of discharge. Attachment E-4

e. **Nitrate.** Final effluent limitations for nitrate will be derived from the Waste Load Allocation determined by the nutrient TMDL for the Laguna de Santa Rosa. If a nutrient TMDL is not completed by **November 9, 2011**, this Order establishes a final AMEL of 10.0 µg/l for nitrate. The final effluent limitation for nitrate was calculated in accordance with section 1.4 of the SIP. If, as a result of a nutrient TMDL for the Laguna de Santa Rosa, a WLA for nitrate or total nitrogen is numerically lower than 10.0 mg/l (as N), then the final WQBELs for nitrate will be determined by an approved TMDL for the Laguna de Santa Rosa or will be zero (i.e., "no net loading").

f. **Total Kjeldahl Nitrogen (TKN).** Final effluent limitations for TKN, or, alternatively, Total Nitrogen, will be derived from the Waste Load Allocation determined by the nutrient TMDL for the Laguna de Santa Rosa. If a nutrient TMDL is not completed by **November 9, 2011**, this Order establishes a final WQBEL of zero, or "no net loading."

g. **Total Phosphate.** Final effluent limitations for Total Phosphate will be derived from the Waste Load Allocation determined by the nutrient TMDL for the Laguna de Santa Rosa. If a nutrient TMDL is not completed by **November 9, 2011**, this Order establishes a final WQBEL of zero, or no net loading.

**Table 15. Summary of Final Technology-based Effluent Limitations Discharge Point 015**

| Parameter | Units | Effluent Limitations | | | | | Basis |
|---|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| BOD (20°C, 5-day) | mg/L | 10 | 15 | --- | --- | --- | Basin Plan |
| Dry Weather | lbs/day | 1,780 | 2,670 | --- | --- | --- | 40 CFR 122.45(f) |
| Wet Weather | lbs/day | 3,945 | 8,006 | --- | --- | --- | 40 CFR 122.45(f) |
| Total Suspended Solids | mg/L | 10 | 15 | --- | --- | --- | Basin Plan |
| Dry Weather | lbs/day | 1,780 | 2,670 | --- | --- | --- | 40 CFR 122.45(f) |
| Wet Weather | lbs/day | 3,945 | 8,006 | --- | --- | --- | 40 CFR 122.45(f) |
| Total Coliform Organisms | MPN/ 100 mL | 23 | 2.2 | --- | --- | 240 | Title 22, CCR |
| Hydrogen Ion | pH units | --- | --- | --- | 6 | 9 | 40 CFR 125.3(a)(1) |
| Percent Removal | Percent | 85 | --- | --- | --- | --- | 40 CFR 125.3(a)(1) |

**Table 16. Summary of Final Water Quality-based Effluent Limitations Discharge Points 002, 003, 005, 006A, 006B, 008, 009, 012A, 012B, 014, 015, 016**

| Parameter | Units | Effluent Limitations | | | | | Basis |
|---|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| Copper | µg/L | *Attachment E-2* | --- | *Attachment E-2* | --- | --- | 40 CFR 122.45(d)(1)(i) |
| Lead | µg/L | *Attachment E-3* | --- | *Attachment E-3* | --- | --- | 40 CFR 122.45(d)(1)(i) |
| Nickel | µg/L | *Attachment E-4* | --- | *Attachment E-4* | --- | --- | 40 CFR 122.45(d)(1)(i) |
| Cyanide | µg/L | 3.05 | --- | 9.23 | --- | --- | 40 CFR 122.45(d)(1)(i) |
| Nitrate (as N) | Final WQBELs for nitrate will be the WLA determined by an approved TMDL for the Laguna de Santa Rosa or zero (i.e., "no net loading"). If a nutrient TMDL is not completed, the final WQBELs will be 10 mg/l as a monthly average. | | | | | | 40 CFR 122.44(d) and the Basin Plan |
| Total Phosphate | Final WQBELs for Total Phosphate and Total Kjeldahl Nitrogen will be the WLAs determined by an approved TMDL for the Laguna de Santa Rosa or zero (i.e., "no net loading"). | | | | | | 40 CFR 122.44(d) |
| Total Kjeldahl Nitrogen | | | | | | | |



Comment Set M (Cont'd)

### E. Interim Effluent Limitations

The USEPA adopted the NTR and the CTR, which contains water quality standards applicable to this discharge. The SIP contains guidance on implementation of the NTR and CTR. The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent; include interim compliance dates separated by no more than one year, and; be included in the Provisions.

1. **Infeasibility Studies.** The Discharger submitted an Infeasibility Study for the Subregional Water Reclamation System on July 6, 2005 in response to a letter of intent from the Regional Water Board dated February 2, 2005, in which WQBELs were proposed for priority copper, lead, nickel, cyanide, beta endosulfan, gamma-BCH (lindane), and mercury. The study concluded that it is infeasible for the City to meet the proposed final effluent limitations and requested that the Regional Water Board establish interim effluent limitations for these pollutants in the Discharger's renewed NPDES permit. The Discharger's conclusions are based on a comparison of effluent monitoring data from the Laguna treatment facility to the proposed final effluent limitations for beta endosulfan, gamma-BCH (lindane), and mercury indicated in the letter of intent and final effluent limitations for copper, lead, and nickel based on a receiving water hardness of 53.5 mg/l as $CaCO_3$. The establishment of a compliance schedule and interim limitations is authorized under Sections 2.1 and 2.2 of the SIP upon receipt of additional information documenting possible source control efforts, pollutant minimization actions, and facility improvements.

   Regional Water Board staff have reviewed the Infeasibility Study and recommend approval of the Discharger's request interim requirements, including effluent limitations, for copper, lead, cyanide. The SIP requires the numeric interim effluent limitation to be based on either current treatment facility performance, or on the previous Order's limitation, whichever is more stringent. For this Order, interim limitations were derived for copper, lead, and cyanide based on treatment facility performance using the monitoring results of effluent samples from 1998 through 2004. Based on information provided in the infeasibility report and best professional judgment, the determination of reasonable potential and the proposed WQBELs for beta endosulfan, gamma-BCH (lindane), and mercury were withdrawn, as explained in Section IV.C.3.d.

On July 10, 2006, the Discharger submitted an Infeasibility Study and proposed compliance schedule for nitrate. The study concluded that it is infeasible for the City to immediately meet the proposed final effluent limitations and requested that the Regional Water Board establish interim effluent limitations for these pollutants and a time schedule to meet the final effluent limitations for nitrate in the Discharger's renewed NPDES permit. The conclusion is based on a comparison of effluent monitoring data from permitted discharge locations from January 2000 to April 2006 and the proposed final limits. A compliance schedule is allowed because the nitrate water quality objective in the Basin Plan is newly interpreted as an effluent limitation rather than a receiving water limitation. The Discharger requested a five year time schedule to complete studies necessary to achieve compliance with final nitrate effluent limitations and demonstrated that this is the shortest feasible period of time for completing such studies based on an economic and financial feasibility analysis.

2. **Copper.** The Discharger is unable to immediately comply with the final limitations. Based on a review of results of samples collected from effluent storage ponds from 1998 to 2005, the discharge would have exceeded the final AMEL (based on hardness at the time of discharge) for 24 monthly samples and the final MDEL for 3 monthly samples. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion.

   Interim performance-based effluent limitations were calculated using the methods and concepts described in Appendix E of the TSD. For copper, the upper 99$^{th}$ percentile limit of a delta lognormal sample distribution was calculated using available data reported as detected and nondetected and assuming weekly monitoring of the discharge. The upper 99$^{th}$ percentile limit of 16.3 µg/l was then established as an interim performance-based average monthly limitation. Other interim requirements and the time schedule to achieve final effluent limitations for copper are specified in Section VI.C.3.

3. **Cyanide.** The Discharger is unable to immediately comply with the final effluent limitations. The upper 99$^{th}$ percentile limit of a delta lognormal sample distribution of effluent data was calculated using the methods and concepts described in Appendix E of the TSD. The upper limit was then compared to the proposed final effluent limits for cyanide to determine whether the Discharger could reasonably be expected to immediately comply with the proposed final limitation. In addition, in the Report of Waste Discharge, the Discharger hypothesized that the presence of cyanide in the treatment facility's effluent might be a result of degradation of thiocyanate by chlorination and ultraviolet light irradiation to yield cyanide. To support this

theory, the Discharger cited a recent study conducted by the Water Environment Research Foundation, "Cyanide Formation and Fate in Complex Effluents and its Relation to Water Quality Criteria" that found that thiocyanate may contribute to the production of cyanide at wastewater treatment facilities. Therefore based on the Discharger's inability to consistently meet the final limits based on previous treatment facility performance and on uncertainty surrounding the impact of the formation of thiocyanate on the concentration of cyanide in the discharge, the Regional Water Board has concluded that it is infeasible for the Discharger to immediately comply with the proposed final limitations for cyanide.

The upper 99th percentile limit of a delta lognormal sample distribution of effluent data was calculated using the methods and concepts described in Appendix E of the TSD. Interim performance-based effluent limitations were then established by using the upper 99th percentile limit of 14.3µg/l as an interim performance-based average monthly limitation. Other interim requirements and the time schedule to achieve final effluent limitations for cyanide are specified in Section VI.C.4.

4. **Lead.** Regional Water staff reviewed of the results of samples collected from treated effluent and effluent storage ponds from 1998 to 2005. Because hardness data corresponding to effluent sample collection and a high percentage of sample results are reported as non-detected at a detection limit greater than the projected AMEL, it is unclear whether the Discharger can immediately comply with proposed WQBELs based on existing information. However, Regional Water Board staff simulated a compliance evaluation using the maximum effluent concentration (MEC) of 5.8 µg/l and receiving water hardness at the time copper samples were collected. The results of the simulation indicate that, had the proposed hardness-based effluent limitations been in place and assuming the MEC occurred every day of sampling, the discharge would have violated the hardness-based AMEL in 98 out of 104 samples. The MDEL would have been exceeded in 3 out of 104 samples. Based on this assessment, Regional Water Board staff concludes that it may be infeasible for the Discharger to immediately comply with the proposed final limitations for lead.

   Interim performance-based effluent limitations were calculated using the methods and concepts described in Appendix E of the TSD. For lead, the upper 99th percentile limit of a delta lognormal sample distribution was calculated using available data reported as detected and nondetected and assuming weekly monitoring of the discharge. The upper 99th percentile limit of 5.6 µg/l was then established as an interim performance-based average monthly limitation.

5. **Nickel.** The upper 99% percentile limit of a delta lognormal sample distribution of effluent data was calculated using the methods and concepts described in Appendix E of the TSD. In a simulation, the upper limit was then compared to theoretical effluent limits for nickel had the proposed hardness-based effluent limitations been in place to determine whether the Discharger could reasonably be expected to immediately comply with the proposed final limitation. Regional Water Board staff have determined that based on the calculated upper 99th percentile limit of 14.3 µg/l, the Discharger will be able to immediately comply with the final effluent limitations. Accordingly, interim performance-based effluent limitations have not been established in this Order for nickel.

6. **Total Kjeldahl Nitrogen**. Concentration-based interim limitations for TKN are based on treatment facility performance using the monitoring results of storage pond effluent samples from January 2003 to May 2006. A description of the calculations for performance-based effluent limitations for TKN is contained in Section IV.C.4.a.ii of this Fact Sheet. The performance-based interim AMEL for TKN is 3.0 mg/l.

7. **Total Phosphate**. Concentration-based interim limitations for TKN are based on treatment facility performance using the monitoring results of storage pond effluent samples from January 2003 to May 2006. A description of the calculations for performance-based effluent limitations for TKN is contained in Section IV.C.4.a.ii of this Fact Sheet. The performance-based interim AMEL for Total Phosphate is 3.1 mg/l.

8. **Nitrate**. Concentration-based interim limitations for nitrate are based on existing treatment performance using effluent sample data from January 2003 to May 2006. Treatment plant performance was determined as the upper 99th percentile limit of a delta lognormal sample distribution of effluent data. A description of the calculations for performance-based effluent limitations for nitrate is contained in Section IV.C.4.a.ii of this Fact Sheet. The performance-based interim AMEL for nitrate is 12.9 mg/l.

9. **Total Nitrogen and Total Phosphate.** This Order establishes a seasonal mass-based interim limitation of 270,336 pounds per season for Total Nitrogen and a seasonal mass-based limitation of 48,142 pounds per season for Total Phosphate. These interim effluent limitations are calculated using available discharge monitoring data from storage ponds from November 2003, when the discharge of treated wastewater to the Geysers Steamfields was initiated, to May 2006. This period of time best characterizes the current discharge regime for the purpose of determining existing level of performance and interim performance-based limitations for Total Nitrogen and Total Phosphate.

Table 17 provides a summary of the monthly mass emission rates for Total Nitrogen and Total Phosphate for the months of reported discharge since November 2003. This summary forms the basis for the calculation of the current level of mass emission for the discharge season. The calculated seasonal mass emission rate, indicated in Table 18, is the sum of the maximum observed mass emission for each month in Table 17.

**Table 17. Mass Emission Rates for Total Nitrogen and Total Phosphate**

| Month/Year | Location | Total Discharge Flow Mgal/ month | Total Nitrogen | | Total Phosphate | |
|---|---|---|---|---|---|---|
| | | | Avg. Concentration mg/L | Mass Load lbs/month | Avg. Concentration mg/L | Mass Load lbs/month |
| Nov 2003 | Kelly Pond | 3.4 | 5.0 | 142 | 2.0 | 57 |
| | LagunaWetlands | 5.1 | 11.2 | 476 | 2.8 | 119 |
| | | | Σ | 618 | Σ | 176 |
| Dec 2003 | Kelly Pond | 15 | 6.8 | 834 | 2.2 | 267 |
| | D-Pond 36" | 575 | 9.1 | 43,425 | 2.2 | 10,641 |
| | LagunaWetlands | 23 | 8.9 | 1,663 | 1.9 | 357 |
| | | | Σ | 45,921 | Σ | 11,264 |
| Jan 2004 | Kelly Pond | 14 | 4.9 | 569 | 1.6 | 190 |
| | D-Pond 36" | 445 | 9.6 | 35,578 | 1.4 | 5,199 |
| | LagunaWetlands | 22 | 11.6 | 2,148 | 1.7 | 310 |
| | | | Σ | 38,295 | Σ | 5,699 |
| Feb 2004 | Kelly Pond | 13 | 8.6 | 897 | 1.8 | 190 |
| | D-Pond 36" | 323 | 11.0 | 29,514 | 1.9 | 5,023 |
| | LagunaWetlands | 20 | 10.3 | 1,735 | 1.8 | 296 |
| | | | Σ | 32,147 | Σ | 5,510 |
| March 2004 | Kelly Pond | 18 | 7.3 | 1,123 | 1.8 | 270 |
| | D-Pond 36" | 45 | 11.7 | 4,333 | 1.9 | 688 |
| | | | Σ | 5,457 | Σ | 958 |
| Jan 2005 | Kelly Pond | 16 | 5.8 | 746 | 1.6 | 211 |
| | D-Pond 36" | 237 | 9.5 | 18,735 | 2.8 | 5,476 |
| | | | Σ | 19,480 | Σ | 5,687 |
| Feb 2005 | Kelly Pond | 14 | 8.7 | 1,042 | 2.0 | 240 |
| | | | | | | |
| Mar 2005 | Kelly Pond | 19 | 7.4 | 1,191 | 1.8 | 285 |
| | D-Pond 36" | 370 | 9.7 | 30,026 | 2.1 | 6,549 |
| | | | Σ | 31,218 | Σ | 6,834 |
| Apr 2005 | D-Pond 36" | 84 | 11.2 | 7,856 | 2.2 | 1,543 |
| | LagunaWetlands | 0.3 | 10.5 | 26 | 1.5 | 3.8 |
| | | | Σ | 7,882 | Σ | 1,547 |
| May 2005 | D-Pond 36" | 162 | 10.3 | 13,933 | 2.3 | 3,111 |
| Jan 2006 | A-Pond | 73 | 7.2 | 4,335 | 0.9 | 546 |
| | D-Pond Incline | 222 | 9.3 | 17,188 | 1.1 | 1,979 |
| | D-Pond 36" | 530 | 8.8 | 38,905 | 1.2 | 5,305 |
| | Delta Pond 48" | 313 | 7.6 | 19,800 | 1.2 | 3,082 |

| Month/Year | Location | Total Discharge Flow Mgal/ month | Total Nitrogen | | Total Phosphate | |
|---|---|---|---|---|---|---|
| | | | Avg. Concentration mg/L | Mass Load lbs/month | Avg. Concentration mg/L | Mass Load lbs/month |
| | | | Σ | 94,161 | Σ | 14,023 |
| Mar 2006 | Delta Pond 48" | 430 | 10.3 | 36,776 | 1.7 | 6,099 |
| Apr 2006 | Delta Pond 48" | 484 | 10.9 | 43,797 | 1.7 | 6,660 |
| | Brown Pond | 68 | 5.3 | 2,984 | 1.0 | 563 |
| | | | Σ | 46,780 | Σ | 7,223 |
| May 2006 | Delta Pond 48" | 6.8 | 11.2 | 635 | 1.8 | 102 |

**Table 18. Monthly Maximum Mass Emission Rates**

| lbs/month | Nov | Dec | Jan | Feb | Mar | Apr | May | Total lbs/season |
|---|---|---|---|---|---|---|---|---|
| **Total N** | 618 | 45,921 | 94,161 | 32,147 | 36,776 | 46,780 | 12,933 | 270,336 |
| **Total P** | 176 | 11,264 | 14,023 | 5,510 | 6,099 | 7,223 | 3111 | 48,142 |

## F. Land Discharge Specifications

This section of the standardized Order form is not applicable to the Santa Rosa Subregional Water Reclamation System.

## G. Reclamation Specifications

1. **Filtration Rate.** This provision requires that wastewater be filtered at a rate that does not exceed 5 gallons per minute per square foot of filter surface area, and is based on the definition of filtered wastewater found in Title 22 Section 60301.320 of the CCR. The Title 22 definition is used as a reasonable performance standard to demonstrate that recycled water has been coagulated and adequately filtered for removal of wastewater pathogen and for conditioning of water prior to ultraviolet light disinfection processes. Properly designed and operated effluent filters will meet this standard.

2. **Turbidity.** This provision specifies that the turbidity of the filtered wastewater not exceed an average of 2 NTU within a 24-hour period, 5 NTU more than 5 percent of the time within a 24-hour period, and 10 NTU at any time, and is based on the definition of filtered wastewater found in Title 22 Section 60301.320 of the CCR. The Title 22 definition is used as a reasonable performance standard to ensure adequate removal of turbidity upstream of disinfection facilities. Properly designed and operated effluent filters will meet this standard. The point of compliance for the turbidity requirements is a point following the effluent filters and before discharge to the disinfection system.

3. **Reclamation Capacity.** This Order requires that the Discharger maintain, at a minimum, a total reclamation capacity of 4,015 million gallons for Geysers recharge, and maintain the capability to irrigate 2,590 million gallons per year. This provision implements the Regional Water Board's intent for continued application of the Interim Action Plan (1986-1990) for the Santa Rosa Area, which was included in the Basin Plan in 1987 through Regional Water Board Resolution No. 87-58. This Provision is retained from the previous Order.

4. **Reclamation Operation.** This Order requires that the Discharger operate its recycled water storage and disposal according to the *Geysers Discharge Management Plan*. This provision implements the Regional Water Board's intent for continued application of the Interim Action Plan (1986-1990) for the Santa Rosa Area, which was included in the Basin Plan in 1987 through Regional Water Board Resolution No. 87-58. This Provision is retained from the previous Order.

## V. RATIONALE FOR RECEIVING WATER LIMITATIONS

### A. Surface Water

1. CWA section 303(a-c) requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional [Water] Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, bacteria, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

### B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, bacteria and radioactivity. The chemical constituent objective states groundwater shall not contain chemical constituents in excess of the limits specified in Code of California Regulations, Title 22, Division

4, Chapter 14, Article 4, Section 64435, Tables 2 and 3, and Section 64444.5 (Table 5) and listed in Table 3-2 of the Basin Plan. Numerical objectives for certain constituents for individual groundwaters are contained in Table 3-1 of the Basin Plan. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The bacteria objective prohibits coliform organisms at or above 1.1 MPN/100 ml.

3. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

## VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires all NPDES permits to specify recording and reporting of monitoring results. CWC Sections 13267 and 13383 authorize the regional water boards to require technical and monitoring reports. The MRP, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

### A. Influent Monitoring

Influent wastewater monitoring for the WWTF is required in this Order. NPDES regulations at 40 CFR 133 define secondary treatment to include 85 percent removal of $BOD_5$ and TSS during treatment. Monitoring of influent for these pollutant parameters, in addition to effluent, is required to monitor compliance with this standard of performance. Influent monitoring requirements are contained in Attachment E, Section III.A, of the MRP.

### B. Effluent Monitoring

Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. In addition, routine monitoring of the effluent and the receiving water for priority pollutants is required to periodically assess the reasonable potential of the discharge to cause or contribute to an exceedance of CTR criteria. The frequency of routine monitoring for priority pollutants is determined using best professional judgment, with consideration given to the nature of the individual pollutant, the past record of detections in the effluent, and likelihood of the presence of the pollutant in the discharge. Effluent monitoring requirements are contained in Attachment E, Section IV of the MRP.

### C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity**

   a. **Rationale.** Monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity (Effluent Limitations IV.A.1.e).

   b. **Test Frequency** - The USEPA recommends monthly WET testing for facilities listed as "major facilities" and quarterly testing for "minor facilities." (*Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, USEPA, 1996) If WET limits are required, federal regulations (40 CFR 122.44(i)(2) requires a minimum frequency of annual. For small municipalities, not designated as "major facilities," the USEPA recommends at least one suite of tests to be conducted during the lifetime of the permit and prior to reissuance in order to assess reasonable potential.

      This Order specifies monthly routine monitoring for acute toxicity because the facility is listed as a NPDES major facility, and the effluent has exhibited acute toxicity on at least three occasions since 1998.

   c. **Sample Location** – Representative effluent samples shall be collected at Discharge Points 002, 003, 005, 06A, 06B, 008, 009, 012A, 012B, 014, 015, and 016, when discharging to surface water.

   d. **Sample Type** – This Order specifies a 96-hour static renewal or static non-renewal test as described in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (USEPA Report No. EPA 600/4-90-027F, 4th edition or subsequent editions. Upon request, other methods may be approved by the Regional Water Board Executive Officer.

   e. **Test Species** – This Order requires the Discharger to conduct acute toxicity tests with the water flea, *Ceriodaphnia dubia*, and the rainbow trout, *Oncorhychus mykiss*, for at least two suites of tests. For the first two suites of acute toxicity tests, the Discharger will determine the most sensitive aquatic species and continue to monitor with the most sensitive species. At least once every five years, the Discharger will re-screen to re-confirm the most sensitive species for the acute toxicity test.

   f. **Test Method** – The presence of acute toxicity shall be estimated as specified in effluent limitation IV.C.e and shall be consistent with *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (USEPA Report No. EPA

600/4-90-027F, 4th edition or subsequent editions), or other methods approved by the Executive Officer.

g. **Dilution Water** – Acute toxicity tests shall be conducted using undiluted effluent.

h. **Accelerated Monitoring** - The provision requires accelerated acute toxicity testing when a regular acute toxicity test result exceeds the single sample effluent limitation. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Under this provision, the Discharger is required to conduct at least two additional samples, one within 14 days, and one within 21 days of receiving the initial sample result. If any of the additional samples do not comply with the three sample median minimum limitation (90 percent survival) using that sample result and the two previous sample results, the Discharger shall initiate a TRE. If any test of a sample is ruled invalid, the Discharger will re-sample within 7 days following notification of test invalidation.

2. **Chronic Toxicity**

a. **Rationale.** Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

b. **Test Frequency** - The USEPA recommends monthly WET testing for facilities listed as "major facilities" and quarterly testing for "minor facilities." (*Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, USEPA, 1996) If WET limits are required, federal regulations (40 CFR 122.44(i)(2) requires a minimum frequency of annual. For small municipalities, not designated as "major facilities," the USEPA recommends at least one suite of tests to be conducted during the lifetime of the permit and prior to reissuance in order to assess reasonable potential.

This Order specifies quarterly routine monitoring for chronic toxicity because the facility is listed as a NPDES major facility, and the effluent has exhibited chronic toxicity on at least six occasions since 1998.

c. **Sample Location** - Representative effluent samples shall be collected at Discharge Points 002, 003, 005, 06A, 06B, 008, 009, 012A, 012B, 014, 015, and 016, when discharging to surface water.

d. **Sample Type** – This Order specifies a 96-hour static renewal or static non-renewal test as described in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.

e. **Test Species** – This Order the Discharger to conduct short-term tests with the water flea, *Ceriodaphnia dubia* (survival and reproduction test), the fathead minnow, *Pimephales promelas* (larval survival and growth test), and the green alga, *Selenastrum capricornutum* (growth test). Initially, the Discharger is required to determine the most sensitive test species and monitor the discharge for chronic toxicity using that species for no more than five years, whereupon, the Discharger will repeat the screening procedure to confirm the most sensitive species. If reasonable potential to exceed the narrative water quality objective is found to exist, the Permit may be reopened to include a chronic toxicity limitation, as appropriate. The Basin Plan does not allow a mixing zone for this discharge; therefore, reasonable potential will be based on results of chronic toxicity tests from samples collected at the end of the pipe.

f. **Test Method** The presence of chronic toxicity shall be estimated as specified in and shall be consistent with *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October, 2002.

g. **Dilution water** - Control and dilution water should be receiving water at a location immediately upstream and outside the influent of the outfall. Laboratory water may be substituted for receiving water, as described in the manual, upon approval by the Regional Water Board Executive Officer.

h. **Accelerated Monitoring** - The provision requires accelerated WET testing when a regular WET test result exceeds the effluent limitation or monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests every two weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics*

*Control, EPA/505/2-90-001, March 1991* (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Regional Water Board Executive Officer may require that the Discharger initiate a TRE.

i. **Monitoring Trigger.** A numeric toxicity monitoring trigger of > 1.0 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

**D. Receiving Water Monitoring**

1. **Surface Water.** Receiving water monitoring is required to demonstrate compliance with the Receiving Water Limitations. Compliance with receiving water limitations will be demonstrated by grab and/or continuous monitoring samples or measurements taken upstream and at the point of discharge in the Laguna de Santa Rosa, Santa Rosa Creek, Colgan Creek, or the Laguna constructed wetlands, when discharging to surface water. For the purpose determining compliance with receiving water limitations, the point of discharge is defined as the location at which the treated effluent enters the receiving water body. Monitoring samples or measurements shall be obtained at the point of discharge before the monitored flow is diluted by any other waste stream, body of water, or substance and prior to initial or secondary mixing with ambient receiving waters. The upstream monitoring samples or measurements shall be representative of upstream conditions and shall be obtained at a location as close to the point of discharge as practicable.

   The Regional Water Board allowed the Discharger the option to submit an alternative receiving water monitoring program within 180 days of the permit adoption date that could contain receiving water monitoring locations different than those prescribed above. The program must be acceptable to the Executive Officer and demonstrate compliance with the Order to the satisfaction of the Executive Officer. If an acceptable alternative program proposal is not timely received and approved by the Executive, the downstream receiving water monitoring locations specified in the MRP, and described in the previous paragraph, shall become effective immediately. In

the interim, the Discharger shall comply with the interim receiving water monitoring requirements using receiving water monitoring locations specified in Attachment E 5 of the MRP.

2. **Groundwater.** Groundwater monitoring of irrigated land is required to demonstrate compliance with the Groundwater Limitations. The Discharger is required to submit a groundwater monitoring program within 180 days of the effective date of this Order.

### E. Other Monitoring Requirements

1. **Water Reclamation System (Tertiary Filters).** Monitoring of the surface loading rate and effluent turbidity of the tertiary filters is required to demonstrate compliance with Sections 60301.230 and 60301.320 of Title 22 CCR requirements for filtered and disinfected tertiary recycled water.

## VII. RATIONALE FOR PROVISIONS

### A. Standard Provisions

1. **Federal Standard Provisions.** In accordance with 40 CFR section 122.41 and 122.42, the Federal Standard Provisions provided in Attachment D of this Order apply to this discharge.

2. **Regional Water Board Standard Provisions.** In addition to the Federal Standard Provisions (Attachment D), the Discharger must comply with the Regional Water Board Standard Provisions provided in Standard Provisions VI.A.2.

### B. Special Provisions

#### 1. Reopener Provisions

a. **Standards Revisions (Special Provisions VI.C.1.a).** Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, which include the following:

i. When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision. Therefore, if revisions of applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such revised standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. **Reasonable Potential (Special Provisions VI.C.1.b).** This provision allows the Regional Water Board to modify, or revoke and reissue, this Order if present or future investigations demonstrate that the Discharger governed by this Permit is causing or contributing to excursions above any applicable priority pollutant criterion or objective or adversely impacting water quality and/or the beneficial uses of receiving waters.

c. **Whole Effluent Toxicity (Special Provisions VI.C.1.c).** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

d. **Biostimulatory Substances (Special Provisions VI.C.1.d).** If a TMDL program is adopted, this Order may be reopened and the effluent limitations for TKN and Total Phosphate modified. If the Regional Water Board determines that an offset program or other program to minimize the impact of biostimulatory substances is feasible for dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the effluent limitations for TKN and Total Phosphate and the need for a program for the Discharger.

e. **Filter Loading Rate (Special Provisions VI.C.1.e).** The Discharger is participating in a study being conducted by the California Department of Health Services (DHS) regarding filter loading rates for filtered wastewater. This Order may be reopened and modified to incorporate a revised filter loading rate in the event that DHS revises Title 22 regulations to require a different filter loading rate as a result of the study.

f. **Special Studies (Special Provisions VI.C.1.f).** The Discharger is studying the feasibility of the use of water effect ratios and mixing zones to meet water quality objectives and effluent limitations for toxic pollutants. If these or other future water quality studies provide new information and a basis for determining that a permit condition or

conditions should be modified, the Regional Water Board may reopen this Order and make appropriate modifications to this Order.

g. **Alternative Final Limitations for Biostimulants (Special Provisions VI.C.1.g).** The Order establishes final water quality effluent limitations for biostimulants that will be derived from the waste load allocation determined by the nutrient TMDL for the Laguna de Santa Rosa. If a nutrient TMDL is not completed by November 9, 2011, this Order establishes a final WQBEL of no net loading. A "no net loading" effluent limit may be met by: 1) reducing the effluent concentration below detectable levels through source control and/or treatment; 2) reducing loads through recycling/reclamation; and/or 3) reducing loads elsewhere in the watershed by an amount at least equal to the amount discharged (and of equivalent bioavailability) through an approved offset program.

This reopener provides that if the Discharger completes a special study justifying alternative final numerical limitations for biostimulants that demonstrates that the discharge, if alternative limitations are allowed, will not cause, or have the potential to cause or contribute to an excursion of applicable water quality objectives for biostimulants in the Laguna de Santa Rosa or its tributaries, the Regional Water Board may reopen this Order and make modifications to the alternative final limit, in accordance with 40 CFR 122.62.

**2. Special Studies and Additional Monitoring Requirements**

a. **Toxicity Reduction Evaluations (Special Provisions VI.C.2.a.).** The SIP requires the use of short-term chronic toxicity tests to determine compliance with the narrative toxicity objectives for aquatic life in the Basin Plan. Attachment E of this Order requires chronic toxicity monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, Special Provisions VI.C.2.a. requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The TRE is initiated by evidence of a pattern of toxicity demonstrated through the additional effluent monitoring provided as a result of an accelerated monitoring program.

**TRE Guidance.** The Discharger is required to prepare a TRE Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

1. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, (EPA/833B-99/002), August 1999.

2. *Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.

3. *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures*, Second Edition, EPA 600/6-91/005F, February 1991.

4. *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.

5. *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/080, September 1993.

6. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.

7. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.

8. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.

9. *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991

3. **Best Management Practices and Pollution Prevention**

   a. **Pollution Minimization Plan.** Provision VI.C.3 is included in this Order as required by Section 2.4.5 of the SIP. The Regional Water Board includes standard provisions in all NPDES permits requiring development of a Pollutant Minimization Program when there is evidence that a toxic pollutant is present in effluent at a concentration greater than an applicable effluent limitation.

## 4. Compliance Schedules

### a. Copper

The Discharger currently conducts a comprehensive monitoring program to comply with the existing copper limitation. Monitoring samples are collected monthly from each storage pond when discharging from that pond. In addition, the Discharger monitors the treatment plant influent and effluent copper concentrations on a quarterly basis. The Discharger also implements a rigorous pretreatment program to monitor and control influent copper loading from industrial sources.

The final effluent limitations for copper in this Order are based on a mathematical formula that will effectively establish a more stringent limitation than in the previous Order. To comply with the more stringent copper limitations, the Discharger has committed to implementing addition measures as interim requirements (Table 19), in addition to meeting performance-based interim limitations.

The intent of the compliance schedule is to further evaluate potential reductions in effluent copper concentrations through source control. If this approach does not yield significant copper reductions, then the Discharger will evaluate the feasibility of treatment plant upgrades to remove copper from the treated effluent.

**Table 19. Copper Compliance Schedule**

| Task | Compliance Date |
|---|---|
| Discharger shall complete an evaluation to determine potential sources of copper | June 1, 2007 |
| Discharger shall complete an evaluation of local limits for copper and, if appropriate, revise local limits, implemented pursuant to its Pretreatment program, based on identified sources | December 1, 2007 |
| Discharger shall update its source control program, if necessary, to reflect any revision local limits. This step will include providing a period of time to allow industrial users to come into compliance with their new limits. | June 1, 2008 |
| Discharger shall evaluate compliance with new local limits and evaluate whether further copper reductions are necessary | May 31, 2009 |
| Discharger shall, if necessary, complete an | December 1, 2009 |

| Task | Compliance Date |
|---|---|
| engineering treatment feasibility studies examining the feasibility, costs and benefits of different treatment options that may be required to remove copper. | |
| Discharger shall comply with the final effluent limitations for copper. | May 1, 2010 |

The Discharger is also developing a discharger-specific Water Effects Ratio (WER) that would adjust the CTR water quality criterion for copper to a criterion appropriate for the Laguna de Santa Rosa and other receiving waters. If the discharger-specific WER is approved by the Regional Water Board and the site-specific criterion is higher than the CTR criterion such that it can be determined that the discharge does not have reasonable potential to cause and exceedance of the site-specific criterion, then WQBELs for copper would be amended accordingly.

b. **Lead**

The Discharger currently monitors the lead concentration in treatment plant influent and effluent and, when discharging, its storage pond discharge. The Discharger also implements a pretreatment source control program for lead to monitor and control influent loading from industrial sources.

This Order establishes new WQBELs for lead. The Discharger has sufficiently demonstrated that it cannot immediately meet these final effluent limitations. To comply with the new lead effluent limitations, the Discharger has committed to implementing addition measures as interim requirements (Table 20), in addition to meeting performance-based interim limitations.

The intent of the compliance schedule is to further evaluate potential reductions in effluent lead concentrations through the new identification of possible sources of lead. If this approach does not yield significant lead reductions, then the Discharger will evaluate the feasibility of treatment plant upgrades to remove lead from the treated effluent.

**Table 20. Lead Compliance Schedule**

| Task | Compliance Date |
|---|---|
| Discharger shall complete an evaluation to determine potential sources of lead | June 1, 2007 |
| Discharger shall complete an evaluation of | December 1, 2007 |

| Task | Compliance Date |
|---|---|
| local limits for lead and, if appropriate, revise local limits, implemented pursuant to its Pretreatment program, based on identified sources | |
| Discharger shall update its source control program, if necessary, to reflect any revision local limits. This step will include providing a period of time to allow industrial users to come into compliance with their new limits. | June 1, 2008 |
| Discharger shall evaluate compliance with new local limits and evaluate whether further lead reductions are necessary | May 31, 2009 |
| Discharger shall, if necessary, compete an engineering treatment feasibility studies examining the feasibility, costs and benefits of different treatment options that may be required to remove lead | December 1, 2009 |
| Discharger shall comply with the final effluent limitations for lead. | May 1, 2010 |

c. **Cyanide**

The Discharger currently monitors the cyanide concentration in treatment plant influent and effluent and, when discharging, its storage pond discharge. The Discharger also implements a rigorous pretreatment program to monitor and control influent loading of metals and other industrial and commercial pollutants, including cyanide, from industrial sources.

This Order establishes new WQBELs for cyanide. The Discharger has sufficiently demonstrated that it cannot immediately meet these final effluent limitations. To comply with the new cyanide effluent limitations, the Discharger has committed to implementing addition measures as interim requirements (Table 21), in addition to meeting performance-based interim limitations.

The intent of the compliance schedule is to assess existing and potential sources of cyanide in the treatment plant influent and to further evaluate the possibility that cyanide concentrations detected in the effluent are produced as a result of chemical reactions during treatment. Once all sources of cyanide are identified, the Discharger will implement additional source control activities to monitor and control cyanide, and, if necessary,

thiocyanate in the treatment plant influent. More detail about the activities included in the compliance schedule are contained in *Infeasibility Study (for Anticipated Limits for Priority Pollutants)*, submitted by the Discharger on July 6, 2005.

**Table 21. Cyanide Compliance Schedule**

| Task | Compliance Date |
|---|---|
| Discharger shall complete an evaluation of analytical methodology for cyanide. | November 1, 2007 |
| Discharger shall complete an evaluation of the effect of thiocyanate in its influent and its contribution to total cyanide in its effluent. | November 1, 2007 |
| Discharger shall complete an evaluation to determine potential industrial users of thiocyanate. | November 1, 2008 |
| Discharger shall, if necessary, develop and implement a source control program to control thiocyanate in its influent. | November 1, 2009 |
| Discharger shall comply with the final effluent limitations for cyanide. | May 1, 2010 |

d. **Nitrate**

The Discharger currently monitors the nitrate concentration in treatment plant influent and final effluent and, when discharging, its storage pond discharge. The Discharger has undertaken significant steps to reduce nitrogen concentrations in its effluent and to reduce nutrient loading to the Laguna de Santa Rosa. Activities currently underway or completed include improvements to activated sludge process to achieve partial denitrification, increased water recycling, diversion of effluent to the Geysers Steamfields, and development and implementation of programs involving source control, water conservation, and stormwater.

This Order establishes a new WQBEL for nitrate, based on the drinking water standard of 45 mg/l (or 10 mg/l as N). The Discharger has sufficiently demonstrated that it cannot immediately meet these final effluent limitations. To comply with the new nitrate effluent limitations, the Discharger has committed to implementing addition measures as interim requirements (Table 22), in addition to meeting performance-based interim limitations. The tasks in the compliance schedule for nitrate also incorporate measures to meet potential, numerically lower final limitations for biostimulatory substances, a pollutant group that includes nitrate. Final effluent limitations for nitrate will be determined by the

waste load allocation derived from the nutrient TMDL for the Laguna de Santa Rosa , which will be based on biostimulatory WLA or the established drinking water standard whichever is numerically lower, or zero (i.e., "no net loading".)

**Table 22. Nitrate Compliance Schedule**

| Task | Compliance Date |
|---|---|
| Discharger shall submit a written progress report summarizing 1) the status of the preliminary treatment plant improvement evaluations, the treatment plant optimization evaluation, and the mixing zone evaluation, and 2) the status of source control efforts to reduce nitrate loading in the Laguna de Santa Rosa. | May 20, 2007 |
| Discharger shall submit a report describing the status of source control efforts to reduce nitrate loading in the Laguna de Santa Rosa, and 2) the findings of the treatment plant improvement and optimization evaluations and the preliminary mixing zone evaluation, and 3) any additional efforts to meet final limitations. | February 20, 2008 |
| Annually, the Discharger shall submit a written progress report discussing its progress in complying with final effluent limitations. | September 20, 2008<br>September 20, 2009<br>September 20, 2010<br>September 20, 2011 |

e. **Biostimulatory Substances**

The Discharger currently monitors the nitrate concentration in treatment plant influent and final effluent and, when discharging, its storage pond discharge. The Discharger has undertaken significant steps to reduce nitrogen concentrations in its effluent and to reduce nutrient loading to the Laguna de Santa Rosa. Activities currently underway or completed include improvements to activated sludge process to achieve partial denitrification, increased water recycling, diversion of effluent to the Geysers Steamfields, and development and implementation of programs involving source control, water conservation, and stormwater.

This Order establishes new WQBELs for biostimulatory substances, expressed in the Order as Total Kjeldahl Nitrogen and Total Phosphate. The Discharger has sufficiently demonstrated that it cannot immediately

meet these final effluent limitations. To comply with the new effluent limitations, the Discharger has committed to implementing additional measures as interim requirements (Table 23), in addition to meeting performance-based interim limitations that are calculated to prevent further degradation of the receiving waters as a result of the discharge.

The intent of the proposed compliance schedule for biostimulatory substances is to require the Discharger to document incremental progress toward meeting final effluent limitations for biostimulatory substances.

**Table 23. Compliance Schedule for Biostimulatory Substances**

| Task | Compliance Date |
|---|---|
| Annually, the Discharger shall submit a written progress report discussing its progress in complying with final effluent limitations and documenting measurable reduction in nutrient loading to the Laguna de Santa Rosa. | September 20, 2007<br>September 20, 2008<br>September 20, 2009<br>September 20, 2010<br>September 20, 2011 |

5. **Construction, Operation, and Maintenance Specifications**

40 CFR 122.41 (e) requires proper operation and maintenance of permitted wastewater systems and related facilities to achieve compliance with permit conditions. An up-to-date operation and maintenance manual, as required by Provision VI.C.4.a.i. of the permit, is an integral part of a well-operated and maintained facility.

6. **Special Provisions for Municipal Facilities (POTWs Only)**

The Regional Water Board includes standard provisions in all NPDES permits for municipal wastewater treatment facilities regarding wastewater collection systems, sanitary sewer overflows, source control, sludge handling and disposal, operator certification, and adequate capacity. These provisions assure efficient and satisfactory operation of municipal wastewater collection and treatment systems.

a. **Wastewater Collection System**

i. Statewide General WDRs for Sanitary Sewer Systems

The Discharger is required to enroll under Statewide General WDRs for Sanitary Sewer Systems (State Water Board Order No. 2006-0003-DWQ) by November 2, 2006. Once enrolled, the

Discharger will be required under terms of the General Order to develop and implement a Sewer System Management Plan.

All NPDES permits for POTWs currently include federally required standard conditions to mitigate discharges (40 CFR 122.41(d)), to report non-compliance (40 CFR 122.41(l)(6) and (7)), and to properly operate and maintain facilities (40 CFR 122.41(e)). This provision is consistent with these federal requirements.

ii. Sanitary Sewer Overflows

Order No. 2006-0003-DWQ includes a Reporting Program that requires the Discharger, beginning May 2, 2007, to report SSOs to an online SSO database administered through the California Integrated Water Quality System (CIWQS) and telefax reporting when the online SSO database is not available. The goal of these provisions is to ensure appropriate and timely response by the Discharger to sanitary sewer overflows to protect public health and water quality.

The Order also includes reporting provisions (Provision VI.C.6.(a)(ii) and Attachment D subsections I.C., I.D., V.E. and V.H. to ensure adequate and timely notifications are made to the Regional Water Board and appropriate local, state, and federal authorities.

The Order establishes oral reporting limits for SSOs. SSOs less than 100 gallons are not required to be reported orally, while SSOs greater than or equal to 100 gallons must be reported orally to the Regional Water Board. Inevitably, minor amounts of untreated or partially treated wastewater may escape during carefully executed routine operation and maintenance activities. This Order establishes a reasonable minimum volume threshold for oral notifications. It has been the experience of Regional Water Board staff that SSOs to land that are less than 100 gallons are not likely to have a material effect on the environment or public health. Larger volumes in excess of 100 gallons may indicate a lack of proper operation and maintenance and due care, and pose more of a threat to the environment or public health. All SSOs, regardless of volume, must be electronically reported pursuant to State Water Board Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

b. **Pretreatment of Industrial Waste.** Section 402(b)(8) of the CWA requires that POTWs receiving pollutants from significant industrial sources subject to section 307(b) standards establish an industrial pretreatment program to ensure compliance with these standards. The implementing regulations at 40 CFR 403.8(a) state, "any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day (mgd) and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards will be required to establish a POTW pretreatment program unless the NPDES State exercises its option to assume local responsibilities as provided in 403.10(e)." The Santa Rosa Subregional Water Reclamation Facility is subject to pretreatment standards as described in section 307(b) of the CWA and 40 CFR 403.8(a).

c. **Sludge Requirements.** The disposal or reuse of wastewater treatment screenings, sludges, or other solids removed from the liquid waste stream is regulated by 40 CFR Parts 257, 258, 501, and 503, and the State Water Board promulgated provisions of Title 27, Division 2, of the CCR. The Discharger has indicated that that all screenings, sludges, and solids removed from the liquid waste stream, excluding biosolids that are beneficially reused through land application and/or composting, are disposed of at a municipal solid waste landfill in accordance with all applicable regulations.

The discharge of biosolids through land application is not regulated under this Order. Instead, the Discharger is required to obtain coverage under the State Water Board Order No. 2000-10-DWQ, General Waste Discharge Requirements for the Discharge of Biosolids to Land as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities (General Order). Coverage under the General Order, as opposed to coverage under this NPDES permit or individual WDRs, implements a consistent statewide approach to regulating this waste discharge.

d. **Discharge Notification.** This Provision requires the Discharger to notify the Regional Water Board orally in the event that discharge of treated effluent to surface waters is expected to occur when the flow in the Russian River has not reached 1,000 cubic feet per second. Although it is anticipated that the Discharger will discharge to surface waters during these critical low flow periods only under unusual circumstances, notification provided to the Regional Water Board will allow the Regional Water Board an opportunity to monitor the impact of the discharge to ensure that water quality objectives are achieved and beneficial uses are protected.

e. **Operator Certification.** This provision requires the Facility to be operated by supervisors and operators who are certified as required by Section 3680, Title 23, CCR.

f. **Adequate Capacity.** The goal of this provision is to ensure appropriate and timely planning by the Discharger to ensure adequate capacity for the protection of public health and water quality.

## VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, North Coast Region (Regional Water Board) is considering the issuance of waste discharge requirements that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Santa Rosa Subregional Water Reclamation System. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

### A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the publication in the Press Democrat on April 21, 2006 and through posting on the Regional Water Board's Internet site at http://www.waterboards.ca.gov/northcoast/agenda/pending.html beginning on April 24, 2006. The initial public comment period ended on May 24, 2006. Comments received by May 24, 2006 resulted in substantial changes to the proposed Order. The public comment period reopened on July 17, 2006.

## B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments shall be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

In order to receive a full evaluation and response from staff and to be considered by the Regional Water Board, written comments on the substantial changes must be received at the Regional Water Board offices by 5:00 p.m. on August 15, 2006.

## C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

| | |
|---|---|
| Date: | September 19-20, 2006 |
| Time: | 1:30 p.m. on September 19, or as soon as possible thereafter as noticed in the final agenda |
| Location: | Regional Water Board Office<br>5550 Skylane Blvd., Suite A<br>Santa Rosa, CA 95403 |

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is http://www.waterboards.ca.gov/northcoast where you can access the current agenda for changes in dates and locations.

## D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

### E. Information and Copying

The Report of Waste Discharge (ROWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (707) 576-2220.

### F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

### G. Additional Information

Requests for additional information or questions regarding this order should be directed to Charles Reed at (707) 576-2752.

## ATTACHMENT F-1 – BIBLIOGRAPHY

1. California Department of Health Services (DHS), *Engineering Report for Master Recycling Permit Application*, submitted

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5. City of Santa Rosa, *Geysers Discharge Management Plan*, submitted October 6, 2003.

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7. City of Santa Rosa, *Biosolids Land Application Permit Report of Waste Discharge*, submitted September 15, 2004.

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12. City of Santa Rosa, *Infeasibility Study (for Anticipated Limits for Priority Pollutants)*, submitted July 6, 2005.

13. City of Santa Rosa, *Draft Work Plan for a Discharger-specific Copper Water Effect Ratio Study for the Laguna Subregional Water Reclamation Facility*, January 6, 2006.

14. City of Santa Rosa, *Delineation of Waters at Discharge Locations*, submitted March 14, 2005.

15. City of Santa Rosa, Infeasibility Study and Compliance Schedule for Nitrate, draft submitted July 10, 2006.

16. Great Lakes Environmental Center (GLEC), *Draft Compilation of Existing Guidance for the Development of Site-Specific Water Quality Objectives in the State of California*, June 30, 2003.

17. Helsel, D.R. *Nondetects and Data Analysis: statistics for censored environmental data*. Wiley & Sons, 2005.

18. State Water Resources Control Board, *Functional Equivalent Document (FED), Amendments to the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, February 24, 2005.

19. State Water Resources Control Board, California Environmental Protection Agency, *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California*, March 2, 2000 (Revised February 24, 2005)

20. USEPA, *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001 (TSD)*, March 1991

21. USEPA, *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, May 31, 1996

22. USEPA, *USEPA NPDES Permit Writers' Manual*, EPA/833-B-96-003, December 1996.

23. USEPA, *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)*, EPA/821-B-00-004, July 2000.

24. USEPA, *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule)*, 40 CFR Part 131, Federal Register/Volume 65, No. 97, May 18, 2000

25. USEPA, *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System Program*, June 30 2000.

26. Wickham, D., and Robert Rawson, *Phosphate Loading and Eutrophication in the Laguna de Santa Rosa*, January 2000.

**ATTACHMENT F-2 Reasonable Potential Analysis– Summary Table**

| CTR # | Constituent | CTR WQ Objectives (µg/l) | | Raw WWTF Effluent | | Discharge Locations 06A, 06B, 012A, and 012B | | Maximum Background or Minimum DL (µg/l) | RPA Results |
|---|---|---|---|---|---|---|---|---|---|
| | | Aquatic Life | Human Health | No. of Detects / Total | MEC or Minimum DL (µg/l) | No. of Detects / Total | MEC or Minimum DL (µg/l) | | WQBEL needed? |
| 1. | Antimony | -- | 14 | 2/31 | 0.4 | 0/27 | 2 | 0.4 | NO |
| 2. | Arsenic | 150 | -- | 4/31 | 3 | 11/27 | 4 | 3.4 | NO |
| 3. | Beryllium | NONE | | 0/31 | 0.06 | 0/27 | 0.2 | 0.06 | NO |
| 4. | Cadmium | 1.5 | -- | 1/31 | 0.06 | 0/27 | 0.3 | 0.04 | NO |
| 5a. | Chromium (Total) | 124 | -- | 3/31 | 12 | 15/27 | 21 | 3.3 | NO |
| 5b. | Chromium (VI) | 11.4 | -- | 0/20 | 2 | --- | --- | 2 | NO |
| 6. | Copper | 5.5 | 1,300 | 31/31 | 14 | 24/27 | 18 | 25.6[1] | YES |
| 7. | Lead | 1.4 | -- | 4/31 | 5.8 | 4/27 | 5.8 | 1.8 | YES |
| 8. | Mercury | -- | 0.05 | 4/31 | 0.3 | 0/23 | 0.05 | 0.01 | NO, BPJ |
| 9. | Nickel | 30.7 | 610 | 20/31 | 7.3 | 25/27 | 32 | 9.1 | YES |
| 10. | Selenium | 5 | -- | 0/31 | 0.5 | 0/27 | 5 | 0.5 | NO |
| 11. | Silver | 1.4 | -- | 2/31 | 0.07 | 0/23 | 0.5 | 0.02 | NO |
| 12. | Thallium | -- | 1.7 | 0/31 | 0.03 | 0/27 | 2 | 0.06 | NO |
| 13. | Zinc | 90.5 | -- | 30/31 | 35 | 27/27 | 44 | 24 | NO |
| 14. | Cyanide | 5.2 | 700 | 14/31 | 51 | 6/27 | 12 | 2.8 | YES |
| 15. | Asbestos | -- | 7,000 mf/l | 0/4 | ND | ns | ns | 0.2 mf/l | NO |
| 16. | 2, 3, 7, 8-TCDD (Dioxin) | -- | 0.013 pg/l | 0/35 | 0.268 pg/l | 0/21 | 637 pg/l | 0.637 pg/l | NO |
| 17. | Acrolein | -- | 320 | 0/31 | 0.36 | 0/23 | 1 | 0.36 | NO |
| 18. | Acrylonitrile | -- | 0.059 | 0/31 | 0.14 | 0/23 | 1 | 0.14 | NO |
| 19. | Benzene | -- | 1.2 | 0/31 | 0.08 | 0/23 | 0.5 | 0.08 | NO |
| 20. | Bromoform | -- | 4.3 | 0/31 | 0.099 | 0/23 | 0.5 | 0.099 | NO |

[1] Excluding a likely outlier result of 66 ug/l for a copper sample on 4/5/00.



Comment Set M
(Cont'd)

| CTR # | Constituent | CTR WQ Objectives (µg/l) | | Raw WWTF Effluent | | Discharge Locations 06A, 06B, 012A, and 012B | | Maximum Background (µg/l) | RPA Results WQBEL needed? |
|---|---|---|---|---|---|---|---|---|---|
| | | Aquatic Life | Human Health | No. of Detects / Total | MEC or Minimum DL (µg/l) | No. of Detects / Total | MEC or Minimum DL (µg/l) | | |
| 21. | Carbon Tetrachloride | -- | 0.25 | 0/31 | 0.19 | 0/23 | 0.5 | 0.19 | NO |
| 22. | Chlorobenzene | -- | 680 | 0/31 | 0.075 | 0/23 | 0.5 | 0.075 | NO |
| 23. | Chlorodibromomethane | -- | 0.401 | 0/31 | 0.11 | 0/23 | 0.5 | 0.11 | NO |
| 24. | Chloroethane | NONE | | 0/31 | 0.29 | 0/23 | 0.5 | 0.29 | NO |
| 25. | 2-Chloroethylvinyl Ether | NONE | | 0/29 | 0.31 | 0/23 | 0.5 | 1 | NO |
| 26. | Chloroform | NONE | | 31/31 | 10.1 | 0/23 | 0.5 | 0.24 | NO |
| 27. | Dichlorobromomethane | -- | 0.56 | 3/31 | 1.8 | 0/23 | 0.5 | 0.1 | NO, BPJ |
| 28. | 1,1-Dichloroethane | NONE | | 0/31 | 0.14 | 0/23 | 0.5 | 0.14 | NO |
| 29. | 1,2-Dichloroethane | -- | 0.38 | 0/31 | 0.18 | 0/23 | 0.5 | 0.21 | NO |
| 30. | 1,1-Dichloroethylene | -- | 0.057 | 0/28 | 0.19 | ns | --- | 0.19 | NO |
| 31. | 1,2-Dichloropropane | -- | 0.52 | 0/31 | 0.13 | 0/23 | 0.5 | 0.13 | NO |
| 32. | 1,3-Dichloropropylene | -- | 10 | 0/31 | 0.12 | ns | --- | 0.12 | NO |
| 33. | Ethylbenzene | -- | 3,100 | 0/31 | 0.11 | 0/23 | 0.5 | 0.2 | NO |
| 34. | Methyl Bromide | -- | 48 | 0/28 | 0.2 | 0/23 | 0.5 | 0.2 | NO |
| 35. | Methyl Chloride | NONE | | 0/28 | 0.36 | 0/29 | 0.5 | 0.14 | NO |
| 36. | Methylene Chloride | -- | 4.7 | 0/31 | 0.16 | 0/23 | 0.5 | 0.16 | NO |
| 37. | 1,1,2,2-Tetrachloroethane | -- | 0.17 | 0/31 | 0.057 | 0/23 | 0.5 | 0.057 | NO |
| 38. | Tetrachloroethylene | -- | 0.8 | 0/31 | 0.21 | 0/23 | 0.5 | 0.21 | NO |
| 39. | Toluene | -- | 6800 | 0/31 | 0.11 | 0/23 | 0.5 | 0.36 | NO |
| 40. | 1,2-Trans-Dichloroethylene | -- | 700 | 0/31 | 0.16 | 0/23 | 0.5 | 0.16 | NO |
| 41. | 1,1,1-Trichloroethane | NONE | | 0/31 | 0.13 | 0/23 | 0.5 | 0.13 | NO |
| 42. | 1,1,2-Trichloroethane | -- | 0.6 | 0/31 | 0.12 | 0/23 | 0.5 | 0.12 | NO |
| 43. | Trichloroethylene | -- | 2.7 | 0/31 | 0.13 | 0/23 | 0.5 | 0.13 | NO |
| 44. | Vinyl Chloride | -- | 2 | 0/31 | 0.17 | 0/23 | 0.5 | 0.17 | NO |
| 45. | 2-Chlorophenol | -- | 120 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |



Comment Set M
(Cont'd)

| CTR # | Constituent | CTR WQ Objectives (µg/l) | | Raw WWTF Effluent | | Discharge Locations 06A, 06B, 012A, and 012B | | Maximum Background (µg/l) | RPA Results WQBEL needed? |
|---|---|---|---|---|---|---|---|---|---|
| | | Aquatic Life | Human Health | No. of Detects Total | MEC or Minimum DL (µg/l) | No. of Detects Total | MEC or Minimum DL (µg/l) | | |
| 46. | 2,4 Dichlorophenol | -- | 93 | 0/36 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 47. | 2,4-Dimethylphenol | -- | 540 | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 48. | 2-Methyl-4,6-Dinitrophenol | -- | 13.4 | 0/32 | 0.4 | 0/27 | 10 | 0.4 | NO |
| 49. | 2,4-Dinitrophenol | -- | 70 | 0/28 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 50. | 2-Nitrophenol | NONE | | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 51. | 4-Nitrophenol | NONE | | 0/32 | 0.2 | 0/27 | 5 | 0.2 | NO |
| 52. | 3-methyl-4-chlorophenol | NONE | | 0/28 | 1 | 0/27 | 5 | 1 | NO |
| 53. | Pentachlorophenol | 15 | 0.28 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 54. | Phenol | -- | 21000 | 0/32 | 0.2 | 0/27 | 5 | 0.2 | NO |
| 55. | 2,4,6 Trichlorophenol | -- | 2.1 | 0/32 | 0.2 | 0/26 | 5 | 0.2 | NO |
| 56. | Acenaphthene | -- | 1200 | 0/32 | 0.17 | 0/27 | 5 | 0.17 | NO |
| 57. | Acenaphthylene | NONE | | 0/32 | 0.03 | 0/27 | 5 | 0.03 | NO |
| 58. | Anthracene | -- | 9600 | 0/32 | 0.16 | 0/27 | 5 | 0.16 | NO |
| 59. | Benzidine | -- | 0.00012 | 0/32 | 0.3 | 0/27 | 20 | 0.3 | NO |
| 60. | Benzo(a)Anthracene | -- | 0.0044 | 0/32 | 0.12 | 0/27 | 5 | 0.12 | NO |
| 61. | Benzo(a)Pyrene | -- | 0.0044 | 0/32 | 0.09 | 0/27 | 5 | 0.09 | NO |
| 62. | Benzo(b)Fluoranthene | -- | 0.0044 | 0/32 | 0.11 | 0/27 | 5 | 0.11 | NO |
| 63. | Benzo(ghi)Perylene | NONE | | 0/32 | 0.06 | 0/27 | 5 | 0.06 | NO |
| 64. | Benzo(k)Fluoranthene | -- | 0.0044 | 0/32 | 0.16 | 0/27 | 5 | 0.16 | NO |
| 65. | Bis(2-Chloroethoxy) Methane | NONE | | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 66. | Bis(2-Chloroethyl) Ether | -- | 0.031 | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 67. | Bis(2-Chloroisopropyl) Ether | -- | 1400 | 0/32 | 1 | 0/27 | 5 | 1 | NO |
| 68. | Bis(2-Ethylhexyl) Phthalate | -- | 1.8 | 0/32 | 0.3 | 3/27 | 570 | 0.3 | NO, BPJ |
| 69. | 4-Bromophenyl Phenyl Ether | NONE | | 0/28 | 0.4 | 0/27 | 5 | 0.5 | NO |
| 70. | Butylbenzyl Phthalate | -- | 3000 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |





Comment Set M (Cont'd)

| CTR # | Constituent | CTR WQ Objectives (µg/l) | | Raw WWTF Effluent | | Discharge Locations 06A, 06B, 012A, and 012B | | Maximum Background (µg/l) | RPA Results WQBEL needed? |
|---|---|---|---|---|---|---|---|---|---|
| | | Aquatic Life | Human Health | No. of Detects / Total | MEC or Minimum DL (µg/l) | No. of Detects / Total | MEC or Minimum DL (µg/l) | | |
| 71. | 2-Chloronaphthalene | -- | 1700 | 0/28 | 0.30 | ns | --- | 0.30 | NO |
| 72. | 4-Chlorophenyl Phenyl Ether | NONE | | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 73. | Chrysene | -- | 0.0044 | 0/32 | 0.14 | 0/27 | 5 | 0.14 | NO |
| 74. | Dibenzo(a,h) Anthracene | -- | 0.0044 | 0/32 | 0.04 | 0/27 | 5 | 0.04 | NO |
| 75. | 1,2 Dichlorobenzene | -- | 2700 | 0/31 | 0.11 | 0/23 | 5 | 0.11 | NO |
| 76. | 1,3 Dichlorobenzene | -- | 400 | 0/31 | 0.11 | 0/23 | 5 | 0.11 | NO |
| 77. | 1,4 Dichlorobenzene | -- | 400 | 9/31 | 1.3 | 0/23 | 5 | 0.081 | NO |
| 78. | 3,3'-Dichlorobenzidine | -- | 0.04 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 79. | Diethyl Phthalate | -- | 23000 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 80. | Dimethyl Phthalate | -- | 313000 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 81. | Di-n-Butyl Phthalate | -- | 2700 | 0/32 | 0.4 | 1/27 | 5.7 | 0.4 | NO, BPJ |
| 82. | 2,4-Dinitrotoluene | -- | 0.11 | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 83. | 2,6-Dinitrotoluene | NONE | | 0/32 | 0.3 | 0/23 | 5 | 0.3 | NO |
| 84. | Di-n-Octyl Phthalate | NONE | | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 85. | 1,2-Diphenylhydrazine | -- | 0.04 | 0/25 | 0.6 | 0/27 | 5 | 0.3 | NO |
| 86. | Fluoranthene | -- | 300 | 0/32 | 0.03 | 0/27 | 5 | 0.03 | NO |
| 87. | Fluorene | -- | 1300 | 0/32 | 0.02 | 0/27 | 5 | 0.02 | NO |
| 88. | Hexachlorobenzene | -- | 0.00075 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 89. | Hexachlorobutadiene | -- | 0.44 | 0/32 | 0.2 | 0/27 | 5 | 0.2 | NO |
| 90. | Hexachlorocyclopentadiene | -- | 240 | 0/32 | 0.1 | 0/27 | 5 | 0.1 | NO |
| 91. | Hexachloroethane | -- | 1.9 | 0/32 | 0.2 | 0/27 | 5 | 0.2 | NO |
| 92. | Indeno(1,2,3-cd)Pyrene | -- | 0.0044 | 0/32 | 0.04 | 0/27 | 5 | 0.04 | NO |
| 93. | Isophorone | -- | 8.4 | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 94. | Naphthalene | NONE | | 1/32 | 7.5 | 0/27 | 5 | 0.05 | NO, BPJ |
| 95. | Nitrobenzene | -- | 17 | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |



Comment Set M
(Cont'd)

| CTR # | Constituent | CTR WQ Objectives (µg/l) | | Raw WWTF Effluent | | Discharge Locations 06A, 06B, 012A, and 012B | | Maximum Background (µg/l) | RPA Results WQBEL needed? |
|---|---|---|---|---|---|---|---|---|---|
| | | Aquatic Life | Human Health | No. of Detects Total | MEC or Minimum DL (µg/l) | No. of Detects Total | MEC or Minimum DL (µg/l) | | |
| 96. | N-Nitrosodimethylamine | -- | 0.00069 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 97. | N-Nitrosodi-n-Propylamine | -- | 0.005 | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 98. | N-Nitrosodiphenylamine | -- | 5.0 | 0/32 | 0.4 | 0/27 | 5 | 0.4 | NO |
| 99. | Phenanthrene | NONE | | 0/32 | 0.03 | 0/27 | 5 | 0.03 | NO |
| 100. | Pyrene | -- | 960 | 0/32 | 0.03 | 0/27 | 5 | 0.03 | NO |
| 101. | 1,2,4-Trichlorobenzene | NONE | | 0/32 | 0.3 | 0/27 | 5 | 0.3 | NO |
| 102. | Aldrin | 3 | 0.00013 | 0/32 | 0.003 | 0/18 | 0.04 | 0.003 | NO |
| 103. | α-BHC | -- | 0.0039 | 0/32 | 0.002 | 0/18 | 0.03 | 0.002 | NO |
| 104. | β-BHC | -- | 0.014 | 0/32 | 0.001 | 0/18 | 0.05 | 0.001 | NO |
| 105. | γ-BHC (Lindane) | 0.95 | 0.019 | 1/32 | 0.02 | 0/18 | 0.04 | 0.001 | NO, BPJ |
| 106. | δ-BHC | NONE | | 0/32 | 0.001 | 0/18 | 0.05 | 0.001 | NO |
| 107. | Chlordane | 0.0043 | 0.00057 | 0/32 | 0.005 | 0/18 | 0.1 | 0.005 | NO |
| 108. | 4,4'-DDT | 0.001 | 0.00059 | 0/32 | 0.001 | 0/18 | 0.05 | 0.001 | NO |
| 109. | 4,4'-DDE | -- | 0.00059 | 0/32 | 0.001 | 0/18 | 0.04 | 0.001 | NO |
| 110. | 4,4'-DDD | -- | 0.00083 | 0/32 | 0.001 | 0/18 | 0.05 | 0.001 | NO |
| 111. | Dieldrin | -- | 0.00014 | 0/32 | 0.002 | 0/18 | 0.02 | 0.002 | NO |
| 112. | Endosulfan (alpha) | 0.056 | 110 | 0/32 | 0.003 | 0/18 | 0.02 | 0.003 | NO |
| 113. | Endosulfan (beta) | 0.056 | 110 | 1/32 | 0.08 | 0/18 | 0.02 | 0.001 | NO, BPJ |
| 114. | Endosulfan Sulfate | -- | 110 | 0/32 | 0.001 | 0/18 | 0.05 | 0.001 | NO |
| 115. | Endrin | 0.036 | 0.76 | 0/32 | 0.002 | 0/18 | 0.05 | 0.002 | NO |
| 116. | Endrin Aldehyde | -- | 0.76 | 0/32 | 0.002 | 0/18 | 0.1 | 0.002 | NO |
| 117. | Heptachlor | 0.0038 | 0.00021 | 0/32 | 0.003 | 0/18 | 0.03 | 0.003 | NO |
| 118. | Heptachlor Epoxide | 0.0038 | 0.00010 | 0/32 | 0.002 | 0/18 | 0.04 | 0.002 | NO |
| 119-125 | PCBs | 0.014 | 0.00017 | 0/32 | 0.1 | 0/18 | 0.1 | 0.1 | NO |
| 126. | Toxaphene | 0.0002 | 0.00073 | 0/32 | 0.2 | 0/18 | 1 | 0.21 | NO |





Comment Set M (Cont'd)

ATTACHMENT #14

# SUBLETHAL EFFECTS OF COPPER ON COHO SALMON: IMPACTS ON NONOVERLAPPING RECEPTOR PATHWAYS IN THE PERIPHERAL OLFACTORY NERVOUS SYSTEM

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*Submitted September 11, 2002; Accepted February 15, 2003.*

## ...DISCUSSION

Identification of the functional or mechanistic relationships between chemical habitat quality and the viability of at-risk species is one of the major conceptual and empirical challenges that currently confronts ecotoxicologists, conservation biologists, and natural resource managers [30]. The consequences of habitat degradation must first be measured in terms of the health or performance of exposed animals, and then extrapolated to natural populations. However, this is not a trivial task [31]. It requires that toxicological endpoints be measured at scales below the level of the individual animal and, at the same time, have clear significance for processes at higher scales of biological complexity.

For many years, the olfactory system of fish has been recognized to be particularly vulnerable to the neurotoxic effects of copper and other dissolved pollutants in the aquatic environment. This includes the olfactory nervous system [4,32] as well as olfactory-mediated behaviors [23]. However, the extent of this vulnerability is not well understood. Are all olfactory pathways and, by extension, all olfactory-mediated behaviors, impaired by copper? This question has been difficult to answer for salmonids, in part because previous copper studies have generally used a single odorant, delivered at a single concentration, as a standard stimulus in toxicity evaluations [15,22,33]. In the present study, we show that copper has similar inhibitory effects on ORNs that respond to different classes of olfactory stimuli (bile salts vs amino acids). Moreover, for mixtures of amino acids that stimulate nonoverlapping populations of ORNs, the inhibitory effects of copper are evident across three log units of

stimulus intensity. Consequently, all olfactory-mediated behaviors in Pacific salmon could be affected by sublethal copper exposures if, as examination of the present data suggests, the toxicological impacts of copper are similar for all ORNs (irrespective of their affinities for different natural odorants). Although the peripheral olfactory pathways involved in imprinting, predator avoidance, and homing behaviors have not been identified in salmon, a general copper-induced loss of olfactory capacity could be expected to disrupt these and other higher-order processes.

It is important to note that salmonids will actively avoid copper [21,34]. Where distinct copper gradients are present in salmon habitat (e.g., near a point-source discharge), salmon may use their sense of smell to detect and avoid contaminated surface waters. As a consequence, low levels of copper pollution could serve as a barrier to migration or exclude salmon from habitats that are otherwise productive [34]. However, behavioral avoidance may not be an adequate defense against stormwater runoff, agricultural runoff, or other nonpoint sources of copper. In the absence of defined spatial gradients, it is unlikely that salmon and steelhead will be able to avoid non–point-source inputs of copper to lakes, rivers, and estuaries.

The copper exposures used in this study were environmentally realistic. They were designed to emulate non–pointsource copper pollution in salmon habitat arising from surface water runoff. In the Willamette River study, for example, copper was detected in 19 of 23 filtered water samples at concentrations ranging up to 21 ?g/L [19]. Thus, during storm events, juvenile salmonids in urban and agricultural watersheds are likely to be exposed to short-term increases in copper levels above the background concentrations in base flows. In the present study, the source water for the hatchery contained a small amount of copper (3 ?g/L), and this may have contributed to the observed toxicity in the nominal exposures. When juvenile coho salmon were transiently exposed to copper at concentrations above this background, short-term increases of 3 ?g/L or more significantly impaired the sensory physiology of the exposed animals. It should be noted that the U.S. Environmental Protection Agency's water-quality criterion for dissolved copper (at a hardness of 100 mg/L) in freshwater systems is 13 ?g/L for a 1-h average maximum concentration. This is approximately equivalent to our 30-min nominal exposures at 10 ?g/L. Thus, based on our present results, a storm-water pulse containing copper at 13 ?g/L could be expected to cause a >50% loss of sensory capacity among resident coho in freshwater habitats.

Copper's toxicity to the salmonid olfactory system manifests on a time scale of minutes. Although the precise mode of action in sensory neurons is not known [4], the inhibitory effects of a brief (30-min) copper exposure are at least partially reversible. However, previous studies on other salmonid species have shown that exposures lasting 4 h or longer cause ORNs to undergo cell death [22,35,36]. In chinook salmon, a loss of ORNs is accompanied by a loss of sensitivity to amino acids [22] and an inability to detect and avoid copper-containing water [21]. Therefore, olfactory function will be impaired if salmon are unable to avoid copper pollution within the first few minutes of exposure. If copper levels subsequently exceed a threshold for sensory cell death, it may be weeks before the functional properties of the olfactory system recover [37].

For salmon and steelhead, olfactory cues convey important information about habitat quality (e.g., pollution), predators, conspecifics, mates, and the animal's natal stream. Therefore, a substantial copper-induced loss of olfactory capacity is likely to impair behaviors that might be considered essential for survival or reproductive success. For example, copper exposures will shift the detection thresholds for natural odorants to higher concentrations (Fig. 3D ), and juvenile salmonids may fail to respond to pheromones [8] and other cues that naturally occur at levels near the lower detection limits for unexposed animals. If the pheromone signals the proximity of a predator [9,38], a failure to respond could result in ecological death. Of course, in the natural environment, the magnitude of behavioral impairment will depend on the olfactory cue and the site-specific ecological context. We cannot infer specific behavioral impacts from our neurophysiological results because, to our knowledge, neurophysiological and behavioral thresholds for sublethal copper toxicity have never been directly compared in fish. Clearly, salmon and steelhead cannot detect and respond to environmental cues in the absence of a functional sensory system. However, evaluating the effects of a partial loss of sensory capacity on behavioral function is considerably more complex, and this is an important area for future research.

Water hardness, expressed as the sum of $Ca^{2+}$ and other divalent cations in solution, is known to affect the acute toxicity of copper and other metals to fish [39]. Dissolved copper is more acutely lethal to salmonids as water hardness decreases. According to the biotic ligand model, the bioavailability of copper can be decreased by increasing the concentrations of cations that compete for metal binding sites on gills and other tissues [40]. The biotic ligand model is generally applied to data from

copper exposures at higher concentrations and longer durations than those used in the present study [40]. However, our results indicate that water hardness may not influence the sublethal impacts of copper on coho sensory neurons. For example, a 10-fold increase in the $Ca^{2+}$ content of the perfusion solution did not alter the inhibitory effects of copper on ORNs (Fig. 4C ). Presumably, copper and $Ca^{2+}$ do not compete for binding sites in the olfactory epithelium. Based on these preliminary data, it should not be assumed that the neurotoxicity of copper is proportionally less in harder surface waters.

The present study used a benchmark dose method [24] to calculate sublethal thresholds for functional neurophysiological impairment in coho. Compared with the no-observable-effect concentration, the benchmark concentration is a more precise determination of threshold, because it is not specifically constrained by a single exposure concentration. Although the sample sizes for the dose–response experiments were relatively small ($n$ = 6 fish per exposure concentration), the measurements obtained were sufficient to calculate inhibitory effects thresholds for copper on different olfactory pathways. Thus, the in vivo electrophysiological recording methods used in this study, in combination with benchmark concentration statistics, provide an empirical and reproducible approach to determining thresholds for sublethal neurotoxicity in salmonids.

In summary, we have shown that transient exposures to copper significantly impair the sensory physiology of juvenile coho salmon. These exposures are typical of copper concentrations that have been measured in surface waters from urban and agricultural watersheds. The sublethal thresholds for copper toxicity are very similar for different olfactory pathways. Therefore, copper may interfere with many (or all) olfactory-mediated behaviors in coho that cannot avoid storm water and other non–point-source inputs to salmon habitat. More work is needed to define the behavioral consequences of this sensory neurotoxicity.

Links to Member Organizations of the Sonoma County Conservation Council:
http://envirocentersoco.org/groups.htm

SustaiNet Events Calendar:
http://www.sustainablesonoma.org/calendar/index.php

Krush Outsiders Event Calendar:
http://www.krsh.com/outside.htm

Santa Rosa Subregional Water Reclamation System
ORDER NO. R1-2006-0045
NPDES NO. CA0022764

| Hardness mg/l as CaCO3 | CCC 4-Day Ave. (ug/l) | CMC 1-Hour Ave. (ug/l) | 0.962CCC | 0.354CMC | Copper Concentration Limitations (Total Recoverable) AMEL (µg/L) | MDEL (µg/L) |
|---|---|---|---|---|---|---|
| 5 | 0.7 | 0.9 | 0.4 | 0.3 | 0.4 | 0.9 |
| 10 | 1.3 | 1.6 | 0.7 | 0.6 | 0.8 | 1.6 |
| 15 | 1.8 | 2.3 | 1.0 | 0.8 | 1.2 | 2.3 |
| 20 | 2.4 | 3.1 | 1.3 | 1.1 | 1.6 | 3.1 |
| 25 | 2.9 | 3.8 | 1.6 | 1.3 | 2.0 | 3.8 |
| 30 | 3.3 | 4.5 | 1.9 | 1.6 | 2.4 | 4.5 |
| 35 | 3.8 | 5.2 | 2.2 | 1.8 | 2.7 | 5.2 |
| 40 | 4.3 | 5.9 | 2.4 | 2.1 | 3.1 | 5.9 |
| 45 | 4.7 | 6.6 | 2.6 | 2.3 | 3.5 | 6.6 |
| 50 | 5.2 | 7.3 | 2.9 | 2.6 | 3.8 | 7.3 |
| 55 | 5.6 | 8.0 | 3.1 | 2.8 | 4.2 | 8.0 |
| 60 | 6.0 | 8.7 | 3.4 | 3.1 | 4.5 | 8.7 |
| 65 | 6.4 | 9.3 | 3.6 | 3.3 | 4.9 | 9.3 |
| 70 | 6.9 | 10.0 | 3.9 | 3.5 | 5.3 | 10.0 |
| 75 | 7.3 | 10.7 | 4.1 | 3.8 | 5.6 | 10.7 |
| 80 | 7.7 | 11.3 | 4.3 | 4.0 | 6.0 | 11.4 |
| 85 | 8.1 | 12.0 | 4.6 | 4.3 | 6.3 | 12.0 |
| 90 | 8.5 | 12.7 | 4.8 | 4.5 | 6.7 | 12.7 |
| 95 | 8.9 | 13.3 | 5.0 | 4.7 | 7.0 | 13.4 |
| 100 | 9.3 | 14.0 | 5.2 | 5.0 | 7.4 | 14.0 |
| 105 | 9.7 | 14.7 | 5.5 | 5.2 | 7.7 | 14.7 |
| 110 | 10.1 | 15.3 | 5.7 | 5.4 | 8.1 | 15.3 |
| 115 | 10.5 | 16.0 | 5.9 | 5.7 | 8.4 | 16.0 |
| 120 | 10.9 | 16.6 | 6.1 | 5.9 | 8.8 | 16.7 |
| 125 | 11.3 | 17.3 | 6.3 | 6.1 | 9.1 | 17.3 |
| 130 | 11.7 | 17.9 | 6.6 | 6.3 | 9.5 | 18.0 |
| 135 | 12.0 | 18.6 | 6.8 | 6.6 | 9.8 | 18.6 |
| 140 | 12.4 | 19.2 | 7.0 | 6.8 | 10.1 | 19.3 |
| 145 | 12.8 | 19.9 | 7.2 | 7.0 | 10.5 | 19.9 |
| 150 | 13.2 | 20.5 | 7.4 | 7.2 | 10.8 | 20.5 |
| 155 | 13.6 | 21.2 | 7.6 | 7.5 | 11.2 | 21.2 |
| 160 | 13.9 | 21.8 | 7.8 | 7.7 | 11.5 | 21.8 |
| 165 | 14.3 | 22.4 | 8.0 | 7.9 | 11.8 | 22.4 |
| 170 | 14.7 | 23.1 | 8.3 | 8.2 | 12.2 | 23.1 |
| 175 | 15.0 | 23.7 | 8.5 | 8.4 | 12.5 | 23.7 |
| 180 | 15.4 | 24.4 | 8.7 | 8.6 | 12.8 | 24.4 |
| 185 | 15.8 | 25.0 | 8.9 | 8.8 | 13.2 | 25.0 |
| 190 | 16.1 | 25.6 | 9.1 | 9.1 | 13.5 | 25.7 |
| 195 | 16.4 | 26.3 | 9.3 | 9.3 | 13.8 | 26.3 |
| 200 | 16.8 | 26.9 | 9.5 | 9.5 | 14.1 | 26.9 |
| 205 | 17.2 | 27.6 | 9.7 | 9.7 | 14.4 | 27.6 |
| 210 | 17.6 | 28.2 | 9.9 | 10.0 | 14.7 | 28.2 |
| 215 | 17.9 | 28.8 | 10.1 | 10.2 | 15.0 | 28.8 |
| 220 | 18.3 | 29.4 | 10.3 | 10.4 | 15.3 | 29.1 |
| 225 | 18.7 | 30.1 | 10.5 | 10.6 | 15.6 | 29.7 |
| 230 | 19.0 | 30.7 | 10.7 | 10.9 | 15.9 | 30.2 |
| 235 | 19.4 | 31.3 | 10.9 | 11.1 | 16.2 | 30.8 |
| 240 | 19.7 | 31.9 | 11.1 | 11.3 | 16.5 | 31.4 |
| 245 | 20.1 | 32.5 | 11.3 | 11.5 | 16.8 | 31.9 |
| 250 | 20.4 | 33.2 | 11.5 | 11.8 | 17.1 | 32.5 |
| 255 | 20.8 | 33.8 | 11.7 | 12.0 | 17.4 | 33.0 |
| 260 | 21.1 | 34.4 | 11.9 | 12.2 | 17.7 | 33.6 |
| 265 | 21.5 | 35.1 | 12.1 | 12.4 | 18.0 | 34.1 |
| 270 | 21.8 | 35.7 | 12.3 | 12.6 | 18.3 | 34.7 |
| 275 | 22.1 | 36.3 | 12.5 | 12.8 | 18.6 | 35.2 |
| 280 | 22.5 | 36.9 | 12.8 | 13.1 | 18.8 | 35.8 |
| 285 | 22.8 | 37.5 | 12.9 | 13.3 | 19.1 | 36.3 |
| 290 | 23.2 | 38.2 | 13.0 | 13.5 | 19.4 | 36.9 |
| 295 | 23.5 | 38.8 | 13.2 | 13.7 | 19.7 | 37.4 |
| 300 | 23.9 | 39.4 | 13.4 | 14.0 | 20.0 | 37.9 |
| 310 | 24.6 | 40.6 | 13.8 | 14.4 | 20.6 | 38.9 |
| 320 | 25.2 | 41.9 | 14.2 | 14.8 | 21.1 | 40.1 |
| 330 | 25.9 | 43.1 | 14.6 | 15.3 | 21.7 | 41.3 |
| 340 | 26.5 | 44.3 | 14.9 | 15.7 | 22.3 | 42.2 |
| 350 | 27.2 | 45.5 | 15.3 | 16.1 | 22.8 | 43.4 |
| 360 | 27.9 | 46.8 | 15.7 | 16.6 | 23.3 | 44.3 |
| 370 | 28.6 | 48.0 | 16.0 | 17.0 | 23.8 | 45.4 |
| 380 | 29.2 | 49.2 | 16.4 | 17.4 | 24.4 | 46.4 |
| 390 | 29.8 | 50.3 | 16.8 | 17.8 | 24.9 | 47.5 |
| >400 | 30.5 | 51.7 | 17.1 | 18.3 | 25.5 | 48.5 |

CCC = Criteria Continuous Concentration
= exp (0.0545[ln(hardness)] - 1.702)

CMC = Criteria Maximum Concentration
= exp (0.9422[ln(hardness)] - 1.700)

AMEL = Average Monthly Effluent Limitation
= 1.48[min(0.962CCC,0.354CMC)]

MDEL = Maximum Daily Effluent Limitation
= 2.93[min(0.962CCC,0.354CMC)]

Hardness – hardness of the receiving water at the time the discharge is sampled

Attachment E-2 Hardness-Dependent Effluent Limitations for Copper

ATTACHMENT #15

California Regional Water Quality Control Board
North Coast Region

Administrative Civil Liability Complaint No. R1-2007-0012

For

Violation of Waste Discharge Requirements
Order No. SWRCB 2000-03 and Order No. R1-2006-0045
WDID No. 1B83099OSON
NPDES Permit No. CA0022764

In the Matter of
City of Santa Rosa
Subregional Water Reclamation Facility

Sonoma County

This Complaint to assess discretionary penalties pursuant to California Water Code section 13385 is issued to the City of Santa Rosa (hereinafter Discharger), for violations of Waste Discharge Requirements Order No. SWRCB 2000-03 and Order No. 2006-0045 for the period August 2, 2004 through December 31, 2006.

The Executive Officer of the California Regional Water Quality Control Board, North Coast Region (Regional Water Board), finds the following:

1. The City of Santa Rosa owns, operates, and maintains the Subregional Water Reclamation Facility (Facility) located at 4300 Llano Road in Santa Rosa. The Facility serves the communities of Cotati, Rohnert Park, Santa Rosa, Sebastopol, and the unincorporated South Park County Sanitation District. The Facility is permitted to collect and treat an average of 21.3 million gallons of wastewater per day. Reuse and disposal of all advanced treated water is accomplished through a system that combines water reclamation with discharge to surface waters during the allowable discharge period (October 1 through May 14).

2. The violations occurred when the facility was regulated by Waste Discharge Requirements Order No. SWRCB 2000-03 adopted on March 15, 2000 and subsequently by Order No. R1-2006-0045 adopted on September 20, 2006. Order No. R1-2006-0045 became effective November 9, 2006 and states in part that: "IT IS HEREBY ORDERED, that Order No 2000-03 (the "Long Range" NPDES Order) is rescinded upon the effective date of this Order except for enforcement purposes…."

3. Section 13385(a) of the Water Code provides for the imposition of civil liability by the Regional Water Board for any person who violates waste discharge

requirements and monitoring and reporting programs. Section 13385(c) provides the maximum amount of civil liability that may be imposed by the Regional Water Board. The amount may be up to $10,000 dollars per day in which the violation occurs, plus up to $10 per gallon of waste discharged in excess of 1,000 gallons that is not susceptible to cleanup or is not cleaned up.

4. Between August 2, 2004 and December 31, 2006 the City of Santa Rosa reported violations of Waste Discharge Requirements Order Nos. SWRCB 2000-03 and R1-2006-0045 in the following categories:

   a. Discharge Prohibitions
   b. Discharge of Recycled Water to Unpermitted Lands
   c. Spills of Recycled Water
   d. Bypass of Treatment Plant Processes
   e. Effluent Limitations
   f. Receiving Water Limitations
   g. Water Reclamation Requirements
   h. Solids Disposal
   i. Monitoring and Reporting

   These violations are described in detail below along with the appropriate civil liability.

5. **Discharge Prohibitions**

   Between August 2, 2004 and December 31, 2006, the City of Santa Rosa reported twenty-two discharges of untreated waste from the wastewater collection system (Sewer System Overflows, or SSOs) as follows:

| Date | Location | Volume Discharged (gallons) | Volume to Storm Sewer (gallons) | Volume Recovered from Storm Sewer (gallons) | Volume to Receiving Waters (gallons) | Comments |
|---|---|---|---|---|---|---|
| 8/02/04 | 2304 Lake View Drive | 75 | 75 | 75 | 0 | |
| 8/28/04 | 748 Church Street | 20 | 0 | 0 | 0 | grease |
| 9/30/04 | 3027 Sunridge Drive | 450 | 450 | 450 | 0 | |
| 10/5/04 | 1511 Ridley Avenue | 500 | 450 | 450 | 0 | |
| 10/25/04 | Second Street | 350 | 50 | 50 | 0 | grease |
| 10/16/04 | 853 Aston Avenue | 180 | 180 | 180 | 0 | grease |
| 2/10/05 | 1245 Parson Drive | 75 | 0 | 0 | 0 | |
| 3/06/05 | 534 Brownwyn Glen | 2400 | 2400 | 50 | 2350 | |
| 10/31/05 | 5151 Alejandro Court | 1300 | 1050 | 1050 | 0 | |
| 10/31/05 | 74 Montgomery Drive | Slow drip | Slow drip | 0 | Slow drip | Repaired when found |
| 11/07/05 | 2755 Chanate Road | 4400 | 4400 | 0 | 4400 | |
| 12/9/05 | 3818 Shadowhill Drive | 250 | 1 | 1 | 0 | |
| 12/15/05 | 748 Brentwood Drive | 40 | 0 | 0 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12/31/05 | 5525 Kathleen Court | ? | ? | ? | ? | Flood |
| 12/31/05 | 5363 Sharon Court | ? | ? | ? | ? | Flood |
| 12/31/05 | 247 Foia Court | ? | ? | ? | ? | Flood |
| 12/31/05 | 4325 Chico Avenue | ? | ? | ? | ? | Flood |
| 12/31/05 | 402, 457, 475 Countryside Circle | ? | ? | ? | ? | Flood |
| 1/13/06 | 3535 Industrial Drive | 1200 | 1200 | 500 | 700 | Grease |
| 1/31/06 | 6200 Stone Bridge Road | 15 | 15 | 0 | 15 | |
| 1/16/06 | 500 South Avenue | 10 | 0 | 0 | 0 | |
| 5/20/06 | 8004 Oakmont Drive | 1000 | 1000 | 1000 | 0 | |
| 7/05/06 | 3640 Industrial Drive | 40 | 40 | 40 | 0 | Grease |
| 9/03/06 | 5817 Sonoma Highway | 800 | 800 | 500 | 300 | Grease |
| 10/08/06 | South Park Lift Sta. 200 Todd Road | 200 | 200 | 200 | 0 | Pipe Corrosion |
| 11/03/06 | 1525 Fountain Grove Parkway | 80 | 80 | 80 | 0 | Construction Debris |

SSOs are prohibited by section A.6 of Order No. SWRCB 2000-03, which reads:

"A.6 The discharge of untreated or partially treated waste from the Laguna Subregional Facilities is prohibited."

SSOs are prohibited by section III E of Order No. R1-2006-0045 which states:

"Any sanitary sewer overflow (SSO) that results in a discharge of untreated or partially treated wastewater to (a) waters of the state, (b) groundwater, or (c) land that creates a pollution, contamination, or nuisance as defined in CWC section 13050(m) is prohibited."

All twenty-six overflows are violations of prohibitions contained in the NPDES permits. However, violations that did not result in overflows reaching receiving waters are not being considered for penalties because they did not impact surface waters or cause nuisance, pollution or contamination. Of these twenty-six reported instances, 11 overflows resulted in discharges to receiving waters.

(Note: Other reported SSOs emanating from private residence laterals are not considered part of the treatment plant collection system and are not within the City's jurisdiction.)

6. **Discharge of Recycled Water to Unpermitted Lands**

On September 3, 2004, the City of Santa Rosa discharged 500,000 gallons of advanced treated water for fire suppression at the Geysers. The City does not

own or control the land where the fire occurred. This event is in violation of section A.3 of Order No. SWRCB 2000-03, which reads:

"A.3 There shall be no discharge of advanced treated wastewater or any wastewaters to land which is not owned or under agreement to use by the permittee."

7. **Spills of Recycled Water**

Between September 9, 2005 and December 31, 2006, the City of Santa Rosa reported seven discharges of advanced treated water from the reclamation system. These violated section A.4 of Order No. SWRCB 2000-03, which reads:

"A.4 There shall be no discharge of advanced treated water from any point in the Laguna Subregional Facilities other than those identified in Finding 10." (Finding 10 identifies the allowable locations for discharge of recycled water to surface waters.);

And section III G. of Order No. R1-2006-0045 which state: "The discharge of waste at any point not described in Finding II.E or authorized by any State Water Board or Regional Water Board permit is prohibited."

The specific violations are listed below:

| Date | Location | Volume Discharged (gallons) | Volume to Receiving Water (gallons) | Volume Recovered (gallons) | Comments |
|---|---|---|---|---|---|
| 9/9/05 | Ambrosini Farm | 3,000 | 0 | 3,000 | Water contained in a ditch, then pumped out |
| 10/17/05 | Denner Ranch | 22,600 | 22,600 | 0 | |
| 2/22/06 | Mononi Pump station | 678,000 | 678,000 | 0 | Possible damage to pump station from New Years Eve flood. Leak not discovered until 1 weak after pump station activated for frost protection |
| 5/30/06 | North Pump Station | 290,000 | 56,000 | 0 | 234,000 gallons discharged to field on Denner Ranch, and then evaporated or seeped into soil |

| | | | | | |
|---|---|---|---|---|---|
| 6/13/06 | Arlington Pipeline | 38,880 | 38,880 | 0 | Leaking valve, occurred over 9 days |
| 11/06/06 | 415 Countryside Circle | 24,100 | 24,100 | 0 | Discharged to Santa Rosa Cr. |
| 12/18/06 | Stone Farm | 640,400 | 360,000 | 0 | 360,000 gallons flowed into Irwin Cr. |

All seven discharges are violations of prohibitions contained in the Order No. SWRCB 2000-03 and Order No. R1-2006-0045. However, violations that did not result in overflows reaching receiving waters are not being considered for penalties because they did not impact surface waters. Of these seven reported instances, six resulted in discharges to receiving waters and are proposed for assessment of administrative civil liability under section 13385 of the Water Code as described in Finding 3 above.

Section 13385(c) provides the maximum amount of civil liability which may be imposed by the Regional Water Board. The amount may be up to $10,000 per day in which the violation occurs, plus up to $10 per gallon of waste discharged in excess of 1,000 gallons that is not susceptible to cleanup or is not cleaned up. The maximum civil liability that could be imposed against the City of Santa Rosa in this matter is calculated as based on days of violation and the volume of waste discharged in excess of 1,000 gallons that is not susceptible to cleanup or has not been cleaned up. Given six violations, plus extra volume over 1,000 gallons for each spill, the maximum calculated amount that could be imposed against the City of Santa Rosa totals $11,564,800.

8. **Bypass of Treatment Plant Processes**

On December 31, 2005, the Laguna de Santa Rosa overflowed its banks and flooded portions of the Facility to a depth of one to two feet. During the flooding that occurred on December 31 and January 1, the Facilities continued to operate. However, flooding of the channel conveying partially treated water from the secondary clarifiers to the filtration facility resulted in a massive amount of floodwater inflow to the system and bypassing of the ultraviolet disinfection system. Furthermore, floodwaters inundated the Facilities' discharge ponds, which hold treated effluent, and inundated the Facilities' effluent channel.

Inflow of floodwaters to the Facilities resulted in a variety of violations of Order No. SWRCB 2000-03. These violations are summarized below:

<u>Discharge prohibitions</u>

i. Spills of recycled water

| Date | Location | Volume Discharged (gallons) | Volume to Receiving Water (gallons) | Volume Recovered from Receiving Waters (gallons) | Comments |
|---|---|---|---|---|---|
| 12/31/05 | B – Pond (distribution pond) | 30,000 | 30,000 | 0 | Hydraulic overload of B - Pond caused by floodwaters |
| | | | | | entering into A - Pond - New Years Eve flood |

This spill is in violation of section A.4 of Order No. SWRCB 2000-03, which reads:

"A.4. There shall be no discharge of advanced treated water from any point in the Laguna Subregional Facilities other than those identified in Finding 10." (B-Pond is not identified in Finding 10 of the permit.)

ii. Bypass of treatment plant processes:

| Date | Volume (gals) | Description |
|---|---|---|
| 12/31/05 to 1/1/06 | 50,000 | Wastewater partially treated in the secondary system discharged to surface water - caused by New Years Eve flood |
| 12/31/05 to 1/1/06 | 9,000,000 | Filter process bypassed - caused by New Years Eve flood |
| 12/31/05 to 1/1/06 | 23,000,000 | Disinfection process bypassed - caused by New Years Eve flood |

This event is in violation of section A.6 of Order No. SWRCB 2000-03, which reads:

"A.6. The discharge of untreated or partially treated waste from the Laguna Subregional Facilities is prohibited."

The three listed bypasses are treated as one violation because Water Code section 13385(f)(1) provides that "…a single operational upset that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation."

Effluent limitations

| Date | Effluent Limit | Allowable Concentration | Discharge Concentration | Comments |
|---|---|---|---|---|
| 12/31/05 | Daily maximum lbs/day suspended solics | 3552 | 5543 | Caused by severe wet weather conditions - New Years Eve flood |
| 12/31/05 | Final effluent turbidity exceeded 5 NTU's for more than 5% of the 24 hour period | 5 | Maximum of 6.4 | Caused by severe wet weather conditions - New Years Eve flood |

These exceedances are both in violation of section B.1. of Order No. SWRCB 2000-03, which specifies allowable limits for constituent concentrations in effluent. However, Water Code section 13385(f)(1) instructs that both of the violations on December 31, 2005 be treated as one violation of the type subject to discretionary penalties. Mandatory minimum penalties will be discussed below. Therefore, the total number of violations is one.

As described above, the New Year's Eve flood resulted in over 20 million gallons of combined wastewater and floodwater receiving only partial treatment. Since all this water bypassed the UV disinfection process, it may have contained pathogenic organisms, which are potentially dangerous to human and aquatic health, and threaten many beneficial uses of the Laguna de Santa Rosa.

Furthermore, the Facilities' southern power distribution station, which supplies power to the filters and disinfection system, was nearly flooded. Flooding of the power distribution station would have removed the filters and disinfection system from operation for an extended period of time (multiple days or weeks), and would have resulted in further discharge of partially treated water to the Laguna.

9. **Effluent Limitations**

Between November 6, 2004 and December 31, 2005, the City of Santa Rosa reported the following two exceedances of effluent limits specified in Order No. SWRCB 2000-03:

| Date | Effluent Limit | Allowable Concentration | Discharge Concentration |
|---|---|---|---|
| 11/6/04 | Total Coliform, | 2.2 | 3 |

| | | | |
|---|---|---|---|
| | 7-day median (MPN) | | |
| 1/21/05 | Total Coliform daily maximum (MPN) | 23 | 57 |

These exceedances are both in violation of section B.1. of Order No. SWRCB 2000-03, which specifies allowable limits for constituent concentrations in effluent.

10. **Receiving Water Limitations**

From May 10, 2005 until May 14, 2005, the City of Santa Rosa reported 5 exceedances of temperature limitations that are in violation of sections C.10.a and C.10.b of Order No. SWRCB 2000-03, which read as follows:

"C.10.a. When the receiving water is below 58°F, the discharge shall cause an increase of no more than 4°F in the receiving water, and shall not increase the temperature of the receiving water beyond 59°F. No instantaneous increase in receiving water temperature shall exceed 4°F at any time."

"C.10.b. When the receiving water is between 59°F and 67°F, the discharge shall cause an increase of no more than 1°F in the receiving water. No instantaneous increase in receiving water temperature shall exceed 1°F at any time."

| Date | Water Quality Objective Receiving Water Limitations | Exceedance |
|---|---|---|
| 5/11/05 | Temperature - 06B Discharge | 3°F |
| 5/12/05 | Temperature - 06B Discharge | 3°F |
| 5/13/05 | Temperature - 06B Discharge | 4°F |
| 5/10/05 | Temperature - 06B Discharge | 3°F |
| 5/14/05 | Temperature - 06B Discharge | 4°F |

During this period, ambient water temperature varied diurnally, from a lower bound of 58°F, to an upper bound of 65°F. Therefore, these five exceedances are all in violation of Order No. SWRCB 2000-03.

11. **Water Reclamation Requirements**

Between December 28, 2005 and February 27, 2006, the City of Santa Rosa reported nine violations of section D.1 of Order No. SWRCB 2000-03, which provides:

"D.1. Reclaimed water shall be managed in conformance with regulations contained in Title 22, Division 4, Chapter 3, California Code of Regulations."

The cited reference in the California Code of Regulations is section 22 CCRs 60301 320, which, as it applies to the City of Santa Rosa's subregional water reclamation system, states that:

"'Filtered wastewater" means an oxidized wastewater that... has been coagulated and passed through natural undisturbed soils or a bed of filter media .. at a rate that does not exceed 5 gallons per minute per square foot of surface area in mono, dual or mixed media gravity, up-flow or pressure filtration systems."

The events which violated water reclamation requirements follow:

| Date | Description |
|---|---|
| 12/28/05 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 12/29/05 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 12/30/05 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 12/31/05 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 1/1/06 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 1/2/06 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 1/3/06 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 1/4/06 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions - New Years Eve flood |
| 2/27/06 | 5 gpm/sf filtration limit exceeded - due to extreme wet weather flow conditions |

12. **Solids Disposal**

On April 14 and April 19, 2006, the City of Santa Rosa reported two violations of Order No. SWRCB 2000-03, which provides:

"F 1 Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of at a legal point of disposal, and in accordance with the provisions of Title 27, Division 2 of the California Code of Regulations."

These events were as listed below:

| Date | Location | Volume Discharged (gallons) | Comments |
|---|---|---|---|
| 4/14/06 | Laguna Treatment Plant | 500 | Biosolids discharged onto Llano Road right of way from faulty pipe, then cleaned up |
| 4/19/06 | Laguna Treatment Plant | 2,000 | Biosolids discharged onto Llano Road right of way from faulty pipe, then cleaned up |

13. **Monitoring and Reporting**

During the period between October 1, 2004 and December 31, 2005, the City reported 44 instances of equipment malfunction or monitoring incidents, in violation of Order No. SWRCB 2000-03, which provides:

"G.24. Monitoring: The Regional Water Board or State Water Board may require the permittee to establish and maintain records, make reports, install, use and maintain monitoring equipment or methods (including where appropriate biological monitoring methods), sample effluent as prescribed, and provide other information as may be reasonably required. (CWC Section 13267 and 13383)";

and, VI. B.1. of Order No. R1-2006-0045 which says:

"The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this order."

A list of these events follows:

| Date | Number of Occurrences/Days | Description |
|---|---|---|
| 4th quarter 2004 | 2 samples | Quarterly monitoring requirement for selenium not met |
| 01/31/05 | 3 samples | Monthly monitoring for discharge and receiving water copper and calcium carbonate hardness for Kelly Pond not accomplished |
| 2/6-12/05 | 2 samples | Twice weekly BOD monitoring requirement not attained for influent and effluent - Lab QC failure (only one sample for the week validated) |
| 2/6-12/05 | 1 sample | Weekly monitoring for BOD not accomplished for the Kelly Pond Discharge - Lab QC failure |

| | | |
|---|---|---|
| 4/14/05 | 1 sample | Coliform monitoring requirement not met - incubator failure |
| 4/15/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 4/16/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 4/18/05 | 1 day | Continuous monitoring for temperature did not occur for discharge at 016 - Laguna Joint Wetlands |
| 4/19/05 | 1 day | Continuous monitoring for temperature did not occur for discharge at 016 - Laguna Joint Wetlands |
| 4/20/05 | 1 day | Continuous monitoring for temperature did not occur for discharge at 016 - Laguna Joint Wetlands |
| 5/5/05 | 1 sample | Coliform monitoring requirement not met - incubator failure |
| 5/6/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 5/7/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 5/8/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 5/9/05 | 3 samples | Coliform monitoring requirement not met - incubator failure |
| 10/27/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 10/28/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 10/29/05 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 12/2/05 | 1 sample | Laboratory failed to collect sample |
| 1/1/06 | 1 day | Continuous monitoring for temperature did not occur for discharge at 014 - A – Pond |
| 1/23/06 | 1 sample | Coliform monitoring requirement not met - incubator failure |
| 1/25/06 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 1/26/06 | 2 samples | Coliform monitoring requirement not met - incubator failure |
| 2/27/06 | 1 day | 5 hourly turbidity reading not accomplished after on-line metering failure |
| 2/28/06 | 1 day | 6 hourly turbidity reading not accomplished after on-line metering failure |
| 05/31/06 | 1 sample | Weekly receiving water monitoring requirement for phosphorus not met for the |

| | | |
|---|---|---|
| | | upstream Russian River monitoring location |
| 12/13/06 | 1-sample | Laboratory staff failed to sample one of three online disinfection channels |
| 12/14/06 | 1-sample | Laboratory staff failed to sample one of three online disinfection channels |

All 44 of these incidents have been determined to be violations of applicable permit terms. They resulted from monitoring and reporting not being performed due to equipment failure or human error. The violations related to coliform testing have been resolved by the purchase of a new incubator.

14. In determining the amount of civil liability imposed, the Regional Water Board is required to take into account the nature, circumstance, extent, and gravity of the violation(s); whether the discharge is susceptible to cleanup or abatement; the degree of toxicity of the discharge; and, with respect to the violator, the effect on ability to continue in business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation(s); and other matters as justice may require. At a minimum, liability is assessed at a level that recovers the economic benefits, if any, derived from the acts that constitute the violation.

15. On February 19, 2002, the State Water Resources Control Board (State Water Board) adopted Resolution No. 2002-0040 amending the Water Quality Enforcement Policy (Enforcement Policy). The Enforcement Policy was approved by the Office of Administrative Law and became effective on July 30, 2002. The Enforcement Policy establishes a framework for identifying and prioritizing instances of noncompliance and responding with appropriate enforcement action relative to the nature and severity of violations.

16. The issuance of this Complaint is an enforcement action to protect the environment, and is therefore exempt from the provisions of the California Environmental Quality Act (Public Resources Code, sections 21000-21177) pursuant to title 14, California Code of Regulations, sections 15308 and 15321.

**The City of Santa Rosa is hereby given notice that:**

1 Based on a review of the above facts and required factors, the Executive Officer of the Regional Water Board is issuing this complaint with a proposed administrative civil liability in the amount of **$194,500**. This amount was arrived at using the sum of **a.-i.** below:

**a. Discharge Prohibitions**

Collection system overflows –eleven discharge prohibition violations were related to raw sewage overflows that discharged from the City-owned collection system

to receiving waters within the Laguna, the lower Russian River and their tributaries. Significant spills of raw sewage that reach surface waters constitute a serious public health concern and have significant water quality concerns due to typically high loadings of nutrients, biochemical oxygen demand, pathogens and other pollutants.

Overflows are caused primarily by grease blockages, and less frequently by tree root intrusions and vandalism. Historically, the City of Santa Rosa's Public Works Department has rapidly responded to reports of raw sewage overflows, and has the appropriate equipment to dislodge blockages and promptly clean up raw sewage overflows, when possible. Staff did not identify any pattern of overflows from any particular sections of collection system line.

Of the eleven collection system failures that resulted in discharge to receiving waters, five were a result of extreme weather conditions, and the volume of sewage discharged was not known. For the violation at Montgomery Drive on October 31, 2005, the volume discharged is not known, but is likely less than 100 gallons. Likewise, for the five overflows of December 31, 2005, the volume discharged is unknown. Since rainfall and Inflow/Infiltration were heavy during that day, it's likely that over 1000 gallons of combined wastewater and floodwater were spilled. The total civil liability assessed for collection system overflows is **$20,000**.

**b. Discharge of recycled water to unpermitted lands**

The use of recycled water for fire suppression at the Geysers resulted in the discharge of 500,000 gallons of recycled water. An unknown amount of this water flowed into ephemeral drainages of the Russian River watershed. However, since the spill occurred during the dry season, it's likely that much of the discharged water either evaporated, or percolated into the soil, and did not have an impact on the quality of surface waters. Therefore, at the Regional Board's discretion this violation will not be assessed a civil liability.

**c. Spills of Recycled Water**

The seven discharge prohibition/permit violations related to advance treated water spills from the irrigation system to receiving waters include six that resulted in discharged water reaching surface waters. These incidents were primarily due to equipment failure (pipeline separation, pipeline leaks, end cap blow off, etc.), human error, over-irrigation, and inundation of the Laguna treatment plant storage ponds during the New Year's Eve flood.

Dry-season discharges can result in short-term, effluent-dominated flows in small stretches of the Laguna. Although thorough receiving water monitoring was not conducted, impacts due to nutrients and temperature may occur during times when receiving waters are impacted from other nutrient and temperature

changes. Most of these releases were discharged to the Laguna de Santa Rosa, which is listed as impaired for sediments, dissolved oxygen, nutrients and temperature. Another potential deleterious effect of these discharges is the likelihood of turbidity and sediment discharge that may result from overland flow of high volumes (>100,000 gallons) of effluent traversing exposed soils prior to discharging to receiving waters.

Civil liability is being assessed for the six spills that reached receiving waters. Based on a review of the above facts and required factors, the civil liability for these discharges is **$100,000**.

**d. Bypass of Treatment Plant Processes**

These three violations were the result of flooding during the December 31, 2006 flood in the Laguna de Santa Rosa. The City is providing flood protection for the Facilities' southern power distribution system by December 31, 2006. This will prevent the potential flooding of a key power distribution system that could result in the disinfection system and filter to be off line for an extended period of time. Plans to provide flood protection for the remainder of the Facilities are being proposed. The civil liability for these high volume discharges is **$30,000**.

**e. Effluent Violations**

A discretionary civil liability is being assessed against the two effluent limit violations not related to the New Year's Eve flood. These were both violations of coliform limits, which could pose a threat to both human health and the environment. The civil liability for these violations is **$5,000.**

**f. Receiving Water Violations**

Temperature – Elevated receiving water temperatures due to effluent discharges can, if extreme, be deleterious to aquatic life. The five temperature violations are assessed a total civil liability of **$10,000**.

**g. Water reclamation requirements**

All nine violations of water reclamation requirements are due to excessive infiltration and inflow during extremely wet weather. Civil liability is assessed at **$18,000**

**h. Solids Disposal**

The two violations of solids disposal requirements can be serious violations, as they can pose a threat to human health. However, the City acted immediately to clean up the spills and to subsequently repair the faulty pressure line that caused

the spills. Surface water quality was not impacted; consequently, no civil liability will be assessed for these violations.

**i. Monitoring and Reporting**

The 44 monitoring and reporting violations consisted of isolated events (usually equipment failure). They are assessed a total civil liability of **$10,500**.

2. A hearing shall be conducted on this Complaint by the Regional Board on April 26, 2007, unless the Discharger waives the right to a hearing by signing and returning the waiver form attached to this Complaint within 30 days of the date of this Complaint. By signing and returning the waiver form the Discharger agrees to :

   a. Pay the total assessed penalty of $194,500 to the State Water Resources Cleanup and Abatement Account (CAA) within thirty days of the date of this complaint, or

   b. Propose a SEP (project) in the amount of $104,750 and pay the balance of the penalty ($89 750) to the CAA within thirty days for the date of this Complaint (or in compliance with a payment schedule issued in writing by the Executive Officer). The sum of the SEP (project) amount and the amount of the penalty to be paid to the CAA shall equal the full penalty amount of $194,500.

3. If the Discharger chooses to propose an SEP, a proposal must be submitted within thirty days of the date of this Complaint to the Executive Officer for conceptual approval. Any SEP proposal shall conform to the requirements specified in Sections IX of the Enforcement Policy. The SEP proposal must include a time schedule, for concurrence by the Executive Officer, to address implementation and completion for the SEP. If the proposed SEP and/or implementation schedule is not acceptable, the Executive Officer may allow the Discharger thirty days to submit a new or revised proposal, or may demand that, during the same thirty-day period the Discharger remit all or a portion of the assessed penalties. All payments, including money not used for the SEP, must be payable to the State Water Pollution Cleanup and Abatement Account.

4. If the Discharger waives the hearing and pays the liability, the resulting settlement may become effective on the next day after the public comment period for this Complaint is closed, provided that there are no significant public comments on this Complaint during the public comment period. If there are significant public comments, the Executive Officer may withdraw the Complaint, reissue it as appropriate, or take other appropriate action.

5. If a hearing is held, the Regional Water Board may impose an administrative civil liability in the amount proposed or for a different amount; decline to seek civil liability; or refer the matter to the attorney General to have a Superior Court consider enforcement.

6. Regulations of the United States Environmental Protection Agency require public notification of any proposed settlement of the civil liability occasioned by violation of the Clean Water Act, including NPDES permit violations. Accordingly, interested persons will be given thirty days to comment on any proposed settlement of this Complaint.

7. The Executive Officer shall maintain jurisdiction over approved SEP implementation time schedules throughout the life of the SEP. If, given written justification from the Discharger, the Executive Officer determines that a delay in the SEP implementation schedule was beyond the reasonable control of the Discharger; the Executive Officer may revise the implementation schedule as appropriate.

8. Notwithstanding the issuance of this Complaint the Regional Water Board shall retain the authority to assess additional penalties for violations of the Discharger's waste discharge requirements.

Ordered by: _____

Catherine E. Kuhlman
Executive Officer

February 1, 2007

ATTACHMENT #16

**California Regional Water Quality Control Board**
**North Coast Region**
**William R. Massey, Chairman**

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Linda S. Adams
*Secretary for Environmental Protection*

Arnold Schwarzenegger
Governor

NOTICE of PUBLIC WORKSHOPS AND CEQA SCOPING MEETINGS

Concerning the development of an amendment to the Regional Water Quality Control Plan of the North Coast Region to protect stream and wetland systems

The Regional Water Quality Control Board, North Coast Region (Regional Water Board) will hold three public meetings concerning development and adoption of an amendment to the Water Quality Control Plan of the North Coast Region (Basin Plan) to protect stream and wetland systems, which include stream channels, wetlands, riparian areas, and floodplains. The amendment may include methodology to identify and assess the conditions of these systems and establish requirements to protect their associated beneficial uses. The public meetings, in accordance with the California Environmental Quality Act (CEQA), will allow interested parties to provide comments on the scope of potential environmental impacts from development and implementation of the amendment. Regional Water Board staff will present an overview of the scientific and technical principles underlying the amendment and will discuss potential elements of the amendment that are being considered, including new water quality standards and an implementation plan to achieve these standards. These meetings are in addition to CEQA scoping meetings held in Eureka, Yreka, and Santa Rosa in May. Members of the public and interested parties will be provided the opportunity to present oral and/or written comments on all aspects of the amendment, including implementation planning. All comments will be included in the final administrative record.

The scoping meetings are scheduled as follows:

**Date:** Monday, November 27, 2006
**Time:** 6:00 – 9:00 p.m.
**Place:** Red Lion Inn, Evergreen Room, 1929 Fourth Street, Eureka, CA 95501

**Date:** Tuesday, November 28, 2006
**Time:** 6:00 – 9:00 p.m.
**Place:** Yreka Community Center, 810 North Oregon Street, Yreka, CA 96097

**Date:** Thursday, November 30, 2006
**Time:** 1:00 – 4:00 p.m.
**Place:** North Coast Regional Water Quality Control Board, Hearing Room, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403

**Who Should Attend:** Public and private landowners; county and water management officials; members and representatives of tribes; environmental groups; and other interested groups or individuals.

Questions regarding the scoping meetings should be directed to Bruce Ho at BHo@waterboards.ca.gov or (707) 576-2460. Additional information regarding the proposed amendment to the Basin Plan can be found on the Regional Water Board website at http://www.waterboards.ca.gov/northcoast/programs/basinplan/swspp.html or by calling the Regional Water Board at (707) 576-2220.

ATTACHMENT #17

COAST ACTION GROUP
P.O. BOX 215
POINT ARENA, CA 95468

April 8, 2007

State Water Resources Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812-0100

**Subject: Riparian and Wetlands System Protection Policy - Scoping**

**General**

Coast Action Group appreciates that the State Water Resources Control Board recognizes the necessity for taking such action as described in the proposed project, Riparian and Wetlands Protection Policy, and making an effort to move forward with such policy. Development of such policy is indicated by the acknowledged loss and degradation of wetlands and near stream riparian areas leading to a loss in water quality - non-attainment of Water Quality Standards resulting in the listing many water bodies as impaired - State of California Impaired Water Quality Limited Segments/CWA 303(d) list.

The Regional, and State, Water Quality Control Board(s) have the responsibility to manage the State's water resources to meet Water Quality Objectives and protect the Beneficial Uses described in the Basin Plan(s). Impaired listing status and degraded resources necessitate action to address the issue of attainment of desired goals.

The regional planning bodies, Counties and Cities in Region 1, have not successfully addressed issue through their own regional planning mechanisms (i.e. General Plans and GP updates, and Zoning Code, Ordinance, Stormwater Plans, and NPDES permits). The these planning bodies have sought (they say) guidance from the State Water Board and Regional Board(s) in the development of stream and wetland protection policy. Policy, definitions, and criteria developed by the SWRCB and Regional Boards to protect wetlands and riparian areas would serve to clarify what actions these planning bodies should employ regarding the management these resources in their specific areas of responsibility. These actions by the SWRCB and Regional Boards can also serve to provide standards and criteria for all land use types that can have effect and water quality and wetland values as a result of their specific use.

Given the fact that, both, the State and Regional Water Boards implement legal requirements to protect wetlands and riparian areas, the efficiency and effectiveness of these requirements could be improved to increase the overall level of water quality protection in the state by the promulgation of a statewide Wetland and Riparian Area Protection Policy with a framework of action where both State and Regional Boards had policy development responsibility.

I would be appropriate for that State Water Board to develop some policy (as outlined in the Information Paper and discussed below) while allowing Regional Boards to establish specific protection policy, by Basin Plan Amendment, that would address the specific needs and conditions of their respective regions.

The State Board would promote wetland and riparian protection by addressing the following issue(s):

• Lack of clarity in the existing regulatory framework for protecting those wetlands and riparian areas that are no longer regulated under the federal Clean Water Act (CWA) due to recent federal court cases that have limited the extent of federal jurisdiction and increased the relative role and importance of the state's independent water quality programs and authorities.

• Lack of statewide consistency in the definition of wetlands and riparian areas, to ensure protection of beneficial uses under the California Water Code.

• Lack of statewide consistency in definitions of beneficial uses for wetland and riparian area functions (e.g., pollutant removal, floodwater retention, and habitat connectivity) and lack of consistent statewide requirements for evaluating the condition of wetland and riparian area resources. Condition assessments are necessary for determining potential impacts from discharges and other activities on wetland and riparian area water quality and associated beneficial uses; and for determining the actions that are necessary to avoid, minimize, and mitigate any potential impacts to protect wetland and riparian resources.

Improvements to these regulatory areas and the need for additional Wetland and Riparian Area Protection Policy are further outlined below:

<u>Conditions of Wetlands and Riparian Areas in California</u>

• Wetlands and riparian areas are among the state's most valuable, most heavily impacted, and most threatened natural resources. They support a variety of beneficial uses and provide important water quality functions, including pollutant removal, flood attenuation, and habitat connectivity (State Water Board 2003).

• California has lost an estimated 91 percent of its historic wetland acreage, the highest loss rate of any state (Dahl 1990). Similarly, California has lost between 85 and 98 percent of its historic riparian areas (RHJV 2004).

• Loss of wetlands and riparian areas in the state has led to water quality impairments. For example, according to the proposed 2006 federal CWA section 303(d) list of water quality limited segments (State Water Board 2006), riparian disturbance is believed to be a contributing factor to impairment in 76 percent of impaired watersheds in the North Coast Region. This includes 86 percent of all temperature impairments and 75 percent of all sediment impairments in the North Coast Region.

• The State Water Board funded a 2006 study of permitted wetland impacts and mitigation (Ambrose et al. 2006) which revealed that wetland acreage has largely been preserved in compliance with the state's "No Net Loss" Policy for Wetlands. However, on average the quality of created, restored, and enhanced wetlands achieved through mitigation was lower than the quality of intact, reference wetlands, suggesting that projects conducted in wetlands, as currently permitted, are contributing to a net loss of wetland functions and values.

**Federal Role**

Due to recent court rulings and changes in the EPA's and U.S Army Corps incentive and ability to regulate, the State Board should develop and clarify responsibility and definitions that are not totally reliant on the Federal framework.

The USACE's 1987 Wetland Delineation Manual (USACE 1987), which is used to interpret the federal wetland definition in the field, does not recognize all wetlands in California. For example, the USACE's manual requires that an area exhibit certain soil characteristics commonly associated with wetlands, but some wetland types, such as mudflats and sand bars, are unlikely to develop these characteristics due to their frequent disturbance regimes or substrate materials, even though they exhibit other physical, chemical, and biological characteristics associated with wetlands (NRC 1995). Additionally, some wetlands in California may not develop the vegetation characteristics required by the USACE's manual due to their specific chemical or physical characteristics, such as high sulfide soils that cause vegetation mortality (NRC 1995).

**State's Role**

The California Water Code applies to "waters of the state," which are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code § 13050(e).). Waters of the state include waters of the United States, but also include those waters excluded from federal jurisdiction. California should not limit it's authority to the federal guidelines and/or limitations of the SWANCC decision.

The U.S. Supreme Court emphasized in its decision that it is within the states' purview to regulate impacts to waters outside of federal jurisdiction using their independent authorities under state law. Waters exempted from the federal CWA by the SWANCC decision are still subject to California law and that "California Water Code section 13260 requires 'any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements).'"

Improving the State's Wetlands and Riparian Areas Protections

There is a recognized link regarding properly functioning wetlands and riparian areas with maintaining and/or meeting water quality objectives and protecting beneficial uses. In fact, most impaired waterbodies attain their impaired conditions, in part, due to lack of properly functioning riparian and wetland areas. Attainment of WQS in regards to impaired conditions, to a large extent, requires protection and/or restoration of improperly functioning wetlands and riparian conditions.

California Water Code applies to a broader set of waters than does the federal CWA, but the full extent of these waters is not always clear, particularly with respect to wetlands and riparian areas.

State Water Board has not yet adopted its own definition of wetlands. Several of the Regional Water Boards have adopted regional wetland definitions, and this lack of consistency has complicated the statewide identification of wetlands. Wetlands not recognized under the federal definition are still protected by the State and Regional Water Boards under the California Water Code through Water Quality Control Plans (Basin Plans) and applicable statewide plans and policies, including the "No Net Loss" Policy.

Governor Schwarzenegger's Action Plan for California's Environment directed state agencies to fill any gaps in wetlands protection. The State Water Board's 2003 Report to the Legislature on Regulatory Steps Needed to Protect and Conserve Wetlands Not Subject to the Clean Water Act (State Water Board 2003) identified several such gaps in wetland and riparian area protections, which are described below, and outlined a series of steps needed to fill these gaps. The State Water Board's 2004 Work plan (State Water Board 2004b) further memorialized these steps by establishing tasks necessary to improve protection of wetlands and riparian areas in the state.

State Water Board has not established a statewide definition of riparian areas, which makes identification and protection efforts inconsistent. In addition to the lack of statewide definitions for wetlands and riparian areas, consistent definitions of their beneficial uses have not been established statewide. The 2004 Work plan included a task to develop beneficial use definitions for wetland-related functions to "provide a Statewide regulatory standard to systematically protect wetland-related functions (e.g., pollutant removal, floodwater retention, and habitat connectivity) not explicitly included in the existing list of [beneficial uses]." The State Water Board has not yet adopted statewide wetland and riparian area beneficial uses, although several of the Regional Water Boards have adopted regional wetland and riparian area beneficial uses, including uses for Water Quality Enhancement (

**Regional Board Role**

Consistent requirements to regulate impacts from discharges and other activities on wetlands and riparian areas have not been established. The 2004 Work plan includes a task to "provide a State policy framework" to address the impacts of dredge or fill material discharges that is "at least as protective as the federal requirements applicable to fill and dredged discharges to waters of the [United States]." Under this "framework" Regional Boards can provide that policy specifically needed to address impacts on wetlands and riparian areas from other discharges and activities, including discharges of pollutants other than dredge or fill material (e.g., nutrients); hydromodification; land and vegetation clearing activities; and invasive species.

The North Coast and San Francisco Bay Regional Water Boards currently are developing a "Stream and Wetlands System Protection Policy," which will be proposed as Basin Plan amendments in those regions. The Regional Water Boards' amendments are intended to establish regional wetland and riparian area protections.

While the Regional Boards can develop policy to be amended into their respective Basin Plans that address the specific need for riparian and wetland protection fitted to their respective regions, the development of a State Water Board Wetland and Riparian Area Protection Policy

addressing a framework of action and definitions would give a statewide regulatory context to the efforts of Regional Water Boards to protect wetland and riparian areas.

## APPROPRIATE ALTERNATIVE

Considering all reasonable choices and the need to recover impaired water bodies as well as protect existing beneficial uses it seems that a modified Alternative #4 is the most appropriate choice.

The SWRCB should Develop a New State Policy to Regulate a Variety of Discharges and Activities That Impact Wetlands and Riparian Areas

Discussion of Alternative 4

Under Alternative 4, the State Water Board would develop a new state policy and "framework of action" to regulate a variety of discharges and activities that impact wetlands and riparian areas; including, but not limited to, dredge or fill material discharges; discharges of other pollutants (e.g., nutrients); hydromodification; land and vegetation clearing activities; and invasive species. This action would provide clarification of responsibility and definitions and the Regional Boards would be responsible to adopt policy to provide a minimum level of protection to all waters of the state from these discharges and activities. With respect to dredge or fill material discharges, Alternative 4 would provide a level of protection that likely would be higher than the level of protection currently provided to those waters through the section 401 and 404 programs (for federal jurisdictional waters) and existing state policies (for all waters).

Alternative 4 would neither override any existing Regional Water Board Basin Plans, nor limit the authorities of the State and Regional Water Boards under the California Water Code and federal CWA to protect wetlands, riparian areas, and other waters of the state.

Wetland and Riparian Area Protection Policy Scoping Document
Needs Addressed by Alternative 4
Alternative 4 would address all of the identified needs for dredge or fill discharges and other discharges through policy components, which are outlined in the next section:

- Lack of clarity in the existing regulatory framework for protecting those wetlands and riparian areas that are no longer regulated under the federal CWA.
- Lack of statewide consistency in the definition of wetlands and riparian areas.
- Lack of statewide consistency in definitions of beneficial uses and requirements for evaluating wetland and riparian area condition.

Policy Components Included in Alternative 4

- Definition of wetland that is fully protective of these waters, including wetlands that are not included in the federal regulatory definition, and recognizes their critical role in protecting water quality. The State Water Board is currently evaluating definitions of wetland as alternatives to the federal regulatory definition, including those used by the California Department of Fish and Game and the California Coastal Commission.

• Definition of riparian areas that is fully protective of these waters and recognizes their critical role in protecting water quality. The State Water Board is currently evaluating definitions of riparian areas, including a definition developed by the National Research Council, which has been proposed for use by the Resources Agency in the Statewide Wetland Inventory.

• Consistent definitions of statewide beneficial uses for wetland and riparian area functions (e.g., pollutant removal, flood attenuation, and habitat connectivity).

• Comprehensive "framework of action" where individual Regional Boards would adopt customize policy for protecting wetlands and riparian areas from the impacts of a variety of discharges and activities, including:

- - - - - Dredge or fill material discharges;
Discharges of other pollutants (e.g., nutrients);
Hydromodification;
Land and vegetation clearing activities; and
Invasive species.

• Framework of action (provided by Regional and State Water Boards) to include minimum statewide requirements for discharges and activities that may impact wetlands and riparian areas. These requirements would address:

Cumulative impacts: The requirements would include a framework to predict cumulative impacts resulting from discharges and activities that impact wetlands and riparian areas and consideration of this information during the permit decision-making process.

- Functional assessment: The requirements would include a functional assessment methodology using tools such as CRAM for wetlands and riparian areas to determine potential impacts of a discharge or activity.

- Mitigation sequencing and compensatory mitigation requirements: The requirements would establish that impacts from discharges and activities that impact wetlands and riparian areas be avoided if possible and that all unavoidable impacts be minimized to the maximum extent practicable. Compensatory mitigation would be required for all impacts. The amount of compensatory mitigation would be determined based on the functions lost at the impact site and the proposed method of mitigation, including the location and timing of the mitigation project.

- Performance standards: The requirements would include project performance standards to improve mitigation success. Performance standards would incorporate the recommendations of the State Water Board's 2006 Compensatory Mitigation Compliance Study, including:

Measuring parameters related to functions, services, and values lost at the discharge site and gained at the mitigation site;
Establishing success criteria for functions of wetland and riparian mitigation projects;
Improving mitigation requirements in permits;
Improving mitigation progress tracking and data collection and management;
Improving clarity of permits;
Measuring and evaluating progress on the state's no net loss goal for wetlands more effectively; and
Improving permitting coordination between agencies.

Implementation of Alternative 4:

• Beneficial uses and water quality objectives would be met according to existing requirements in Regional Water Board Basin Plans, state plans, and policies.

• Discharges of dredge or fill material would be prohibited unless authorized by a WDR, waiver of WDR, or section 401 certification.

All above requirements to comply with Section 13242 Cal Water Code - where conditions approved would be subject to criteria allow for reasonable expectation of successfully protecting beneficial uses and/or properly functioning wetland and riparian resources, where there would be timelines for implementation of protective standards, and where such implementation is monitored for effectiveness.

**Discussion - Below is some discussion of the regionally specific issues, in this case Regional, that support development of riparian and wetland protective policy by Regional Boards - where north coast river conditions are used as an example.**

**North Coast Rivers - Impaired Waterbodies and Basin Planing - Need for protective riparian and wetland protective policy.**

Most of the north coast rivers are listed impaired for the pollutants sediment, temperature, nutrients, and the lack of Dissolved Oxygen. There are many other north coast streams that are impaired but are not listed. These impaired listings, where Beneficial Uses are not being supported, are a result of inappropriate land use. In many cases (at least 50%) on these impaired rivers forest practices is the primary land use and degradation (riparian loss) from inappropriate practices is the major contributor to failure of riverine function. On the remainder of the impaired rivers it is a combination of poor timber harvest practices, poor agricultural practices (grazing and growing), and urbanized land use with poor pollution controls that has contributed to diminished riparian capacity.

The EPA promulgated TMDLs on the Albion, Gualala, Noyo, Ten Mile, and other rivers on the north coast has documented impacts, including loss of riparian function, on these waterbodies. State promulgated TMDLs for the Garcia, Scott, and Shasta Rivers have also provided such documentation. However, none of these TMDLs or approved Action Plans have set appropriate criteria and objectives and land use guidelines to support attainment of riparian function - or - improvement of riparian function.

Stream and Wetlands protection policy should take the findings of these TMDLs to make determinations regarding the policy that will be issued for such resource protection.

**Anti-degradation Language can be used as a reference and support actions needed to protect riparian function and wetlands.**

This policy is consistent with Basin Plan Objectives and Anti-degredation policy which states:

***Basin Plan Anti-degradation Policy:*** *"Controllable water quality factors shall conform to the water quality objectives contained [in the Basin Plan]. When other factors result in the degradation of water quality beyond the levels or limits established [in the Basin Plan] as water quality objectives, then controllable factors shall not cause further degradation of water quality.*

*Controllable water quality factors are those actions, conditions, or circumstances resulting from man's activities that may influence the quality of waters of the State and that may reasonably be controlled."*

Riparian attributes are both measurable and controllable factors that can be addressed via the proposed Stream and Wetlands System Protection Policy.

The fact that degradation that has occurred under existing Basin Plan prohibitions indicates that additional prohibitions (control language) are necessary. This is supported by the findings of the above mentioned TMDLs indicating that specific land use practices are responsible for diminished riparian and water quality values. Also, the fact that recently approved Shasta and Scott River TMDLs and Action Plans are dependent on the development of such policy to be truly functional.

**Limiting Factors and Desired Riparian Conditions**

In consideration of why such policy development is needed (aside from the fact that WQ values are not improving and are documented to be not sufficiently protected) it would be helpful to develop a matrix of Limiting Factors effecting near stream health and also a similar matrix for Desired Conditions. Such matrix would be helpful in near stream condition analysis and policy development. Such matrix can support modeling the relationship, interaction, of factors involving the stream channel, flood plain, and riparian function. Comparison of desired condition to actual function can be made with findings relevant to the causal relationships. Attributes of such matrix can be useful in developing new standards for Water Quality Objectives (numeric and narrative). Hydrologic issues can be linked to such matrix and related policy and language needs for policy development and addressing needs for new Water Quality Objectives (and/or prohibitions) to be amended into the Basin Plan.

This discussion is applicable to all attributes: **Riparian Vegetation and Buffer Width** - effects: stabilization, filtration, habitat, temperature and micro-climate, filtration; **Flood plain** - effects: storage capacity, changes in hydrology and related effects up and down the system, habitat, ground water storage, interface with instream flows, **Active Channel** - effects: alteration and changes in dynamics, **Hydrology** - effects: land use and water flow changes, peak flows (changes in hydrologic incidence and time [lag time] to peak flow).

Assessment of stream habitat conditions would benefit from both a Limiting Factors and a Desired Conditions matrix.

**BMPs**

The above mentioned regional planning authorities and mechanisms often mention use of BMPs to protect water quality values. However, a description of what actually constitutes a BMP is usually missing in the planning authority's lexicon.

**Recommendation: The Regional Board(s) provide a description of what BMPs for various land use operations that potential effect streams and wetlands might look like.**

Information for the BMP assessment or formulation can be obtained from:

"Riparian Setbacks: Technical Information for Decision Makers"
http://www.crwp.org/pdf_files/riparian_setback_paper_jan_2006.pdf

"Riparian Buffer Width, Vegetative Cover, and Nitrogen Removal Effectiveness: A Review of Current Science and Regulations",http://www.epa.gov/ada/download/reports/600R05118/600R05118.pdf

**See also - Forest Practices specific discussion - below**

**Forestry Practices**

It is unclear in the project description if the Stream and Wetlands Protection Policy is to cover areas of timber harvest operations. As noted, above and in many scientific studies, inappropriate timber harvest activity is responsible for water quality degradation through loss of riparian function. Recovery of water quality values, objectives, and beneficial use protection is dependent on sufficient riparian protection from further degradation.

**Please note, in reference to policy development discussion:** Report of the Scientific Review Panel On California Forest Practice Rules and Salmonid Habitat, Prepared for The Resources Agency of California and the National Marine Fisheries Service, comprised of a selected panel of scientists, 1999, indicates that "the Forest Practice Rules" and their administration by the California Department of Forestry "do not protect the beneficial uses of water." "Silviculture is the leading source of impairment to water quality in the North Coast of California. Related to these water quality problems, California has a number of species, in particular salmon, that are endangered threatened or otherwise seriously at risk, due in very significant part to forestry activities that impair their spawning, breeding and rearing habitat." (Findings for the California Coastal Non-point Program and CZARA Action Plan, USEPA/NOAA, 1999) A Scientific Basis for the Prediction of Cumulative Watershed Effects, UC, Berkeley, June 2001, and finally the Final Report on Sediment Impairment and Effects on the Beneficial Uses of Elk River and Stitz, Bear, and Jordan Creeks, Concur, 2002, also support the findings noted above. All of these noted scientific reviews indicate the Forest Practice Rules, including projects related to small landowners and Non-Industrial Timber Plans, are deficient in cumulative impacts analysis and riparian protection and can not be counted on to protect the beneficial uses of water and meet Basin Plan water quality objectives.

These documents, noted above, not only indicate impairment from current and historic forest practices, they provide analysis and prescriptive measures to be taken to address attainment of WQS. These studies indicate that level of disturbance is a major factor and needs to be addressed if we are ever going to meet WQS. These documents also

indicate that loss of riparian function can be attributed to inadequate protections currently in the Forest Practice Rules.

Other references to review for appropriate regulatory guidelines are:

**Garcia River TMDL and Conservation Fund Lands -** The Garcia River TMDL for Sediment and Action Plan has shown a high level of success because the conditions and activity controls that will provide riparian and wetland protection are clearly stated and enforceable (as adopted into the Basin Plan). The Garcia River is recovering do to the implementation of such policy. Also, on recently purchased lands (24,000 acres - 42% of the forested watershed) by the Conservation Fund the wetland and riparian protection policy is manifested by creating riparian protections zones equaling 33% if the entire land base where the only timber harvest activity that can take place are actions that support improved riparian function. This is a testament to the importance of policy development to protect near stream environments.

**Coho Recovery Guidelines (DFG)-** Regulations (not approved) specifically referenced for Timber Harvest activity in the form of an Incidental Take Permit (Draft 2112 - rules). The Coho listing under CESA is referenced in the Implementation/Action Plan document. All notation and/or reference to Coho Recovery proposed actions (timber harvest and well as other policy) is absent in terms of any nexus with enforceable language.

**Threatened and Impaired Rules (FPRs):** These regulations are currently in place in the Forest Practice Rules and are intended to address beneficial use issues related to Forest Practices on listed/impaired watercourses. These interim rules are, for the most part, based on riparian protection practices for listed impaired water bodies and salmon bearing streams. CDF has stated that these regulations are, in themselves, sufficient to protect beneficial uses. There is no documentation to support this claim by CDF. However, these regulations are superior to the baseline of regulations that preceded the Threatened and Impaired Rules. The Board of Forestry is considering removing these regulations at this time.

Stream and Wetlands protection policy should, at a minimum, assure the maintenance of the Threatened and Impaired rules in areas of timber harvest operations.

**Forest Practice Rules proposed language changes proposed by the NCRWQCB to the Board of Forestry (in several iterations):** These proposed rules changes, written to address failure of the FPRs to protect beneficial uses, contain enforceable language that would produce positive changes towards attaining WQS.

The discussion in all of the above referenced documents indicate: 1) Areas of failure of the Forest Practice Rules to address protection of beneficial uses, 2) Areas of necessary correction of Forest Practice land use that will show positive trends, via rules (currently in place or suggested) for use in guiding implementation planning - with some assurance of trends towards attaining WQS (for both Temperature and Sediment). Within all of these documents there is a significant (striking) degree of similarity in the description of riparian protection actions necessary to be taken as enforceable guidelines for timber harvest activity on impaired waters of north coast watersheds.

**Implementation**

It is clear that policy development should include new Basin Plan Objectives as Riparian and Wetland Protection Policy. Some recommendations for implementation have been made - above. Use of WDRs, and/or Conditional Waivers for riparian and wetland protections can work if the wording is sufficient to protect the resource.

The Regional Board can also apply protective policy to City and County Stormwater NPDES permits. Development of such policy will give direction to the County and municipal governing bodies for the development of zoning code and ordinance that can address riparian and wetland protection issues.

TMDLs (both State and EPA promulgated - Garcia River TMDL and Action plan not included), as stated above, currently do not have adequate riparian and wetland protection policy included, as enforceable language, in the TMDLs. Only the Garcia River TMDL has some policy for riparian protection and it seems to be working well. TMDL successes, for those approved and waiting approval, is dependent on progress in the development of riparian and wetland protection policy.

**Economics**

Economic analysis for the implementation of projects for water quality resource protection is difficult. It is almost impossible to determine the costs over the range of possible actions that may need to be taken. Variability of range of actions is unknown and almost impossible to estimate. Assessing monitory value to accrued benefits of such policy is similarly vague. Their are accrued benefits to near stream landowners, fisher people, water users, recreationists, fish and wildlife values that would have to be accounted for. What is the value of clean water?

The bottom lines is it is the responsibility of the Regional Board, under State Water Code and the regional Basin Plan, to take action that assures the protection of Beneficial Uses and attainment of Water Quality Objectives.

**CEQA**

The SWRCB and Regional Boards are responsible to provide sufficient environmental review to comply with CEQA. This would necessarily include consistency analysis with other legal mandates (e.g. Cal Water Code, Alternatives Analysis, DFG Code, federal CWA).

Cal Water Code Section 13242 specifies the necessary attributes of a Water Quality Control Plan with: 1) Descriptions of Actions that will attain Water Quality Objectives, 2) A timeline for implementation of the described actions, 3) Monitoring to assure compliance.

This proposed project must comply with the above by the use of reasonable and science based mitigations that will, eventually, assure attainment of WQS.

**Voluntary Programs**

Voluntary programs that meet standards set by the Regional Board, comply with Basin Plan standards and objectives, and will assure progress towards WQS attainment should be considered. Such programs (e.g. Ranch Plans, Fish Friendly Farming) should be reviewed for the necessary attributes forcompliance, and if they do comply, be accepted as a duly authorized implementation action.

Presented to the Regional Water Quality Control Board - Region 1, by:

Alan Levine
For Coast Action Group

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ATTACHMENT #18

5-14-07

# Dry Creek Valley pipeline debated

## New study will look into controversial plan to bring more water to area, other alternatives

By BLEYS W. ROSE

THE PRESS DEMOCRAT

It's just too easy to describe a pipeline through Dry Creek Valley conveying water from Lake Sonoma to the Russian River as nothing more than a pipe dream.

But that's what some claim it is.

There's no route to trace on a map of Dry Creek Valley. And no blueprints available that detail pipe sizes or the complexity of pumping stations necessary for increasing by one-third the amount of water proposed to be sucked out from behind Warm Springs Dam.

Yet the Dry Creek Valley pipeline will become part of an environmental impact study because some experts view it as a way to comply with federal endangered species protection for salmon in Dry Creek.

Or, more appropriately, a way around it if Dry Creek is left to the fish and Lake Sonoma water shuttles down the pipeline.

Debate has opened among county officials, north county residents and environmentalists over whether a pipeline siphoning water from Lake Sonoma and sending it to the collector ponds near the Wohler Bridge is an idea worth pursuing. That's a stretch of about two dozen miles if

TURN TO PIPE, PAGE B3

The Press Democrat

Comment Set M
(Cont'd)

*"Why can't we send a clear message on the pipeline? I don't see any other way to do it."*

**MIKE REILLY**, west county Supervisor

# PIPE: Planners await more estimates of water needs

CONTINUED FROM PAGE B1

the pipeline follows a likely course along Dry Creek Road and Westside Road.

Currently, the idea of a pipeline exists only in the dreams of engineers and planners in the Sonoma County Water Agency who view it as one of several alternatives to be examined in a long-delayed environmental impact report.

The study on the north county water project is aimed at figuring out how to increase from 75,000 to 101,000 acre-feet the amount of water the agency can extract from Lake Sonoma for about 600,000 customers in Sonoma and northern Marin counties.

Already, the pipeline is the center of a debate among supervisors over whether it should be analyzed at the level of being a program (a concept worth more study) or a project (a site-specific study).

The difference is important because, as a project, the pipeline achieves greater priority that will extend the review process by several years.

West county Supervisor Mike Reilly thinks a Dry Creek Valley pipeline is inevitable. So, the sooner the public gets a look at the pipeline, the better.

"It is becoming obvious that we will need some sort of conveyance to get water down Dry Creek," Reilly said. "Why can't we send a clear message on the pipeline? I don't see any other way to do it."

But north county Supervisor Paul Kelley, who represents the valley, said it's too soon to say the pipeline is the only solution.

"My preference is to not rule out the alternatives," Kelley said. Those alternatives include: salmon habitat restoration that satisfies federal endangered species protection guidelines, thus allowing more Lake Sonoma water in Dry Creek; storing more water in aquifers; increasing the amount of ground water; and raising the level of Coyote Dam so more water can be drawn out of Lake Mendocino.

Water Agency engineers and planners admit they are struggling with a draft environmental impact report on what's properly called the Water Supply, Transmission and Reliability Project.

A previous effort to draft an environmental impact report on this project started in 1998, but was derailed by a lawsuit in 2003, prompting the Water Agency to start over.

Estimates of future water needs from contractors aren't all in yet, as most cities and Sonoma County are in the process of updating their general plans, so water needs aren't resolved. So far, only Santa Rosa, Cotati, the Valley of the Moon and northern Marin County have detailed their future water needs.

"We need to document that contractors have need for added water," said Erica Phelps, the Water Agency's environmental resources coordinator.

Phelps said there are also "delays and constraints" in completing the environmental review because the National Marine Fisheries Services has not delivered its opinion on how Dry Creek flows will affect endangered fish.

In addition, county supervisors are asking state authorities for permission to get more water from upstream dams, which could affect the size and scope of this pipeline.

At the moment, the state is reluctant to grant it unless Sonoma County can demonstrate that conservation measures are being undertaken and unless it can show more water won't damage habitat of endangered fish.

Water Agency officials recently informed county supervisors that a draft report won't be complete until June and a final version won't be ready for their consideration until June 2008.

"It takes a very long time to implement a water project," said Amy Harris Mai, senior environmental specialist with the Water Agency.

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5-11-07

# Low water: Who's hurt

## CUTTING FLOW NOW WILL HELP FISH IN THE FALL, BUT RECREATION COULD SUFFER

**Eric Christenhusz, left, and Emiliano Castaneda of River's Edge Kayak & Canoe Trips unload canoes onto the bank of the Russian River at the Alexander Valley Road bridge near Healdsburg. Operators of businesses geared to summer recreation are worried lower river levels will keep visitors away.**

By BLEYS ROSE
THE PRESS DEMOCRAT

Low water levels on the Russian River this summer will be good for endangered fish and thirsty water users but could be bad news for recreation and tourism businesses.

Owners of canoe rentals and riverside resorts said Thursday they fear low river levels will drive away customers.

"We depend on the tourism dollars," said Steve Jackson, owner of Guerneville's King's Sport and Tackle Shop and a member of a local recreation advisory board. "People renting kayaks and canoes will have to drag them from Guerneville to Monte Rio."

But officials in Sonoma and Mendocino counties hailed the state's decision, released late Wednesday, to slash flows so that water customers would have enough this summer and endangered salmon would have a healthy river for spawning in the fall.

"Without this action, we wouldn't have any water in the river for fish, agriculture or recreation," said county Supervisor Paul Kelley, who represents northern Sonoma County.

Sonoma County Water Agency officials said they began curtailing river flows out of Lake Mendocino near Ukiah at 8 a.m. Thursday after the decision by the state Water Resources Control Board.

The state is permitting a cut in the flow along the river upstream from Healdsburg from 185 cubic feet per second to 75 and the flow as measured downstream of Healdsburg from 125 cubic feet per second to 85.

The board staff said 2007 will be a dry year, bringing conditions that could threaten endangered fish species, reduce the wa-

TURN TO WATER, PAGE A11

**FISH WILL BENEFIT**

JOHN BURGESS / The Press Democrat, 2005

A salmon moves up the Russian River at Wohler Bridge near Forestville. Sonoma County Water Agency officials began curtailing river flows out of Lake Mendocino near Ukiah at 8 a.m. Thursday following a decision Wednesday by the state Water Resources Control Board to allow the cutbacks to help endangered salmon and conserve water.

Comment Set M
(Cont'd)

# WATER: Flow out of Lake Mendocino slowed

CONTINUED FROM PAGE A1

ter supply in Mendocino County and the Alexander Valley and harm recreation at Lake Mendocino and in the Russian River.

Without a flow cut now, Water Agency engineers estimate Lake Mendocino levels would drop below 10,000 acre-feet, which would be the lowest since the lake opened in 1959.

The state board will hold a public hearing June 5 in Sacramento on the effects of reduced flows. Information about the hearing will be posted at www.waterrights.ca.gov/notices.

### Emergency rules sought

Water Agency officials said they would take another step toward tighter control of river flows on Tuesday, when they will ask Sonoma County supervisors to urge state water regulators to change the standards for imposing emergency measures. That would allow the Water Agency to seek emergency flow reductions earlier in the year.

"Our discussion will relate to the trigger points for declaring a dry year," said Kelley, who also serves on the state's regional water advisory committee. "The criteria were drawn up in the early 1960s, and conditions are different today."

Since then, global warming has been blamed for increasing the frequency and severity of droughts; the federal government has cast a protective net over regional species of salmon and trout, involving rules that effectively govern river flows; and regulators have curbed amounts of water allowed out of the Potter Valley project that feeds Lake Mendocino.

Low river flows this summer mimic cuts made in 2004 and 2002, when similar weather conditions drew urban water users, environmentalists, river advocates and slow-growth activists into debates over water as a commodity and resource.

Laura Wilson, whose family owns Johnson's Beach and Resort in Guerneville, said she remembers those years because tourism businesses were on edge. Reports of low flows discouraged patrons of restaurants and bars, inns and events from visiting, she said.

"We are very fortunate at Johnson's Beach because we have a summer dam, but mostly everybody else here is worried about what it means for summer business," she said.

However, the flow reduction should improve Mendocino County's tourism outlook by keeping more water in Lake Mendocino, said Ukiah City Manager Candace Horsley.

### Prior dry years not so bad

Sonoma County officials acknowledge reduced river flows may have some impact, but they say the experiences in 2004 and 2002 were not as bad as feared.

"There were similar conditions in other years and there was sufficient water for recreation then," Kelley said.

There also was enough water in the river for farmers to irrigate during those years, said Mendocino County farmer Tom Thomas. He said the agencies have not released enough information about the current situation to allow him to determine how bad it could get this year.

Water Agency officials said they still are asking customers to make voluntary cuts of 10 percent to 15 percent. They have asked residents to curb unnecessary water use, such as excessive lawn watering, car washing and nonessential water use.

Voluntary measures, along with reduced summer flows, should help avoid mandatory measures, they said.

The Water Agency provides water to 600,000 customers in northern Marin County, along with most of Sonoma County except residents of Healdsburg, Cloverdale, Sebastopol, owners of private wells and customers of private water systems.

### Caution in Mendocino

Mendocino County officials welcomed the flow reduction, but said county residents still must conserve or face severe water shortages by fall.

"We have to push the conservation of water," said Barbara Spazek, executive director of the Russian River Flood Control and Water Conservation Improvement District. The district holds Mendocino County's right to 8,000 acre-feet of water stored in Lake Mendocino.

Its customers include Ukiah, several smaller water districts and farmers in the Ukiah Valley.

In Ukiah, there's been little sign that people are serious about conserving water. Horsley said the city has urged residents to voluntarily conserve and has met with its larger water users, including schools.

Later this month, it will send customers detailed information about the need to conserve and at least 100 tips on how to accomplish that, she said.

The city also is setting up a hot line for residents to report apparent water wasting, accidental or otherwise. If that doesn't save enough water, the city may consider mandatory conservation, Horsley said.

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*Staff Writer Glenda Anderson contributed to this report.*
*You can reach Staff Writer Bleys W. Rose at 521-5431 or bleys.rose@pressdemocrat.com.*

# State OKs lower flow for Russian River

5-10-07

## Water board's decision expected to keep Lake Mendocino from nearly drying up by October

By GUY KOVNER

THE PRESS DEMOCRAT

Citing an "urgent need" to preserve the water supply in Lake Mendocino during an abnormally dry year, the state Water Resources Control Board on Wednesday approved a plan to reduce the summertime flows in the Russian River.

Without lowered river flows, the Sonoma County Water Agency had warned that Lake Mendocino, one of the North Coast's two major reservoirs, would drop so low by fall that it might not be able to discharge any water into the river, jeopardizing water supplies, recreation and endangered fish.

The reservoir near Ukiah, now only 70 percent full, could run nearly bone dry by October, officials said, well below its all-time low mark of 12,000 acre feet, set in 1977 at the peak of the region's two-year drought.

With the lowered river flows, Lake Mendocino should still hold 22,000 acre feet in October, the Water Agency said.

The reservoir was built to hold about 90,000 acre-feet, a year's supply of water for about 360,000 people.

TURN TO WATER, PAGE A11

# WATER: Low flow aids salmon run; recreation use may suffer

CONTINUED FROM PAGE A1

Scant spring rainfall and new limits on the amount of water diverted from the Eel River into Lake Mendocino combined to lower the lake's level at the start of a long, dry summer, officials said.

Seeking relief, the Water Agency — which provides water to 600,000 customers in Sonoma and Marin counties — asked the state board for permission to lower the mandatory flows in the river, in turn allowing more water to stay behind Coyote Dam.

The National Marine Fisheries Service and the state Department of Fish and Game supported the county's request, both citing the need for sufficient cool water from Lake Mendocino to support the Chinook salmon fall migration in the river.

Lower summertime flows will enable the water agency to "bank" water in Lake Mendocino for the fall fish run, the fisheries service said in a letter.

Wednesday's order allows the water agency to:

- Reduce the flow in the river above Healdsburg from 185 cubic feet per second to 75 cfs. One cubic foot is about 7.5 gallons.
- Reduce the flow downstream from Healdsburg from 125 cfs to 85 cfs.

The Press Democrat

The lower flows "may impair instream beneficial uses, including recreation," the state board said in its decision.

But it concluded that the impairment is "not unreasonable considering the potential impacts to fisheries, water supply and recreation in Lake Mendocino" if the lower flows were not allowed.

Sonoma County officials could not immediately be reached for comment on the ruling Wednesday.

*You can reach Staff Writer Guy Kovner at 521-5457 or guy.kovner@pressdemocrat.com.*

Comment Set M (Cont'd)

5-5-07

MENDOCINO COUNTY

# Raising Coyote Dam revisited

## $5 million study to evaluate cost-effectiveness, environmental impact

By GLENDA ANDERSON
THE PRESS DEMOCRAT

While Sonoma and Mendocino counties grapple with short-term solutions to this summer's threatened drought, a decades-old proposal addressing water needs in future years is inching forward.

Coyote Dam "is the long-term solution" to water shortages, said Mendocino County Supervisor Mike Delbar, a longtime advocate of increasing Lake Mendocino's storage capacity.

**COMING SUNDAY**

The combined forces of man and nature have intensified the possibility of drought on the North Coast.

**In Sonoma Sunday**

Lake Mendocino — created when Coyote Dam was built — supplies water to Mendocino, Sonoma and Marin county residents.

The Army Corps of Engineers has launched a $5 million study to determine whether it's cost effective to raise Coyote Dam, potentially increasing Lake Mendocino's water-holding capacity by 62 percent, from 122,500 acre-feet to 199,000 acre-feet. An acre-foot of water is about 325,851 gallons.

Officials began taking public comment on the study's environmental component during a meeting in Ukiah last week.

In addition to raising the dam, the Army Corps' study will consider several alternatives, including dredging sediment from the reservoir, allowing more water to be stored behind the dam and expanding the dam's flood spillway.

The feasibility study is the second evaluation of the project's worth since 2001. Depending on funding availability, it could be completed in three to five years, Doak said.

There are no estimates available on the cost of raising the dam or the other options. "We haven't even guessed," Doak said.

Constructed in 1959, Coyote Dam was authorized under the 1950 Flood Control Act to be raised 36 feet when there was a need for additional water.

TURN TO DAM, PAGE B3

# DAM: Tougher seismic rules could impede project

CONTINUED FROM PAGE B1

But raising dams these days is no easy matter, Doak said, noting the trend now is toward removing them and increasing water supply through water conservation.

Raising Coyote Dam also could be hampered by seismic safety requirements, which have increased since the dam was built.

A seismic study will be conducted as part of the feasibility study, Doak said.

One of the first things the study will evaluate is whether the existing dam provides adequate protection from floods.

"To date, we haven't confirmed or been able to deny the existing structure is adequate," Doak said.

*You can reach Staff Writer Glenda Anderson at 462-6473 or glenda.anderson@pressdemocrat.com.*

# Supervisors hear fresh water pipeline plan

5-3-07

## Dry Creek pipeline could be part of Water Agency's expansion plans

by BARRY DUGAN
Managing Editor

The Sonoma County Water Agency's plan to expand its storage and delivery system to meet the growing demands of its Sonoma and Marin county customers could include the construction of a pipeline through the heart of Dry Creek Valley to carry fresh water from Lake Sonoma to the Russian River and avoid negative impacts to endangered salmon in the creek.

Tuesday's meeting before the county Board of Supervisors was the first detailed discussion at the board level of a Dry Creek pipeline and supervisors, who also sit as the Sonoma County Water Agency's (SCWA) Board of Directors, directed staff to consider the pipeline as an alternative to comply with federal endangered species act regulations to protect chinook salmon.

A key component of the water project is increasing releases from Lake Sonoma from 75,000 acre feet of water to 105,000 acre feet per year, but federal regulators are likely to place restrictions on summer flows, when demand is greatest, to protect the endangered chinook salmon. The increased diversions are needed to supply water to the SCWA's municipal and water district contractors, who supply water to 600,000 customers in Sonoma and Marin counties.

A pipeline from the Warm Springs Dam would allow the water agency to bypass Dry Creek and put the water directly into the Russian River, where it would be

See Water Page 9

# Water: Federal salmon protections force Supervisors to consider pipline as an alternative (continued from page 1)

diverted downstream at the Water Agency's collectors at Wohler Bridge and Mirabel.

Supervisors voted unanimously to include the Dry Creek pipeline alternative in the water supply project EIR, but differed as to how and when the pipeline should be reviewed.

West County Supervisor Mike Reilly said the Dry Creek pipeline should be included immediately and studied as the most likely alternative.

"We are going to need some conveyance, besides Dry Creek, to get water to our collectors downstream," said Reilly, adding that "we should let people know that's the way we're going."

Water Agency staff member Erika Phelps said the National Marine Fisheries Service (NMFS) has yet to issue its biological opinion on how flows in Dry Creek will affect endangered fish and told supervisors "it would be premature to conclude (that a Dry Creek pipeline) is the only way to avoid impacts to fisheries." It is likely that the NMFS opinion will conclude that the agency's activities are resulting in adverse impacts to the fisheries, but it will be up the SCWA to devise negotiate strategies to avoid those impacts, according to agency staff.

Supervisor Paul Kelley, whose district includes the Dry Creek Valley, told his colleagues "I would worry that we would pre-determine what the outcome would be" of the NMFS opinion and select only a pipeline alternative.

In comments following the meeting, Kelley said "I think there are significant impacts of having a pipeline in Dry Creek and it should be considered for significant study ... it's prudent to have it considered in the EIR, but not have it considered as the only alternative."

Other alternatives being considered include habitat restoration and modification, aquifer storage, groundwater production, and the raising of Coyote Dam to increase the capacity of Lake Mendocino.

But Reilly said "it's become more and more obvious that (a pipeline) is going to be our solution."

Supervisor Tim Smith sided with Kelley, saying he was "reluctant" to only study the pipeline alternative to solving the Dry Creek flow alternatives. "To put all your eggs in one basket is risky ... we have an obligation to be sure we are not doing anything harmful to the Russian River ... and do the best job we can for the environment and for the people we serve."

The SCWA's Water Supply, Transmission and Reliability Project would include new pipelines, surface water diversions, pumps, collectors and tanks and could increase the agency's productin capabilities from 97 million gallons per day (mgd) to 142 mgd, in addition to 28 mgd in standby capacity.

Among the uncertainties the agency faces is the future of diversions from the Eel River which have decreased from 160,000 acre feet per year a decade ago to 105,000 acre feet currently. Water diverted from the Eel River is used to power PG&E's hydroelectric plant before it flows into Lake Mendocino. Federal regulators have reduced those diversions to help endangered fish in both the Eel and Russian rivers.

David Keller, representing the Friends of the Eel River, told supervisors "we need to see demand reductions" among the SCWA contractors. State water officials have determined that "there are over-appropriations in the River. They are still working on getting all the illegal straws out of the River."

He urged county officials to "make sure the restoration of the Russian River is not done at the expense of the Eel River fisheries."

Keller said the SCWA should consider "how are we going to make this work for the next 150 years, not just the next 20?"

Brenda Adelman, director of the Russian River Watershed Protection Association, said that possible changes in wastewater discharge requirements could further threaten water quality in the Russian River. She said the regional water quality board may allow "low-impact" discharges of runoff from wastewater irrigation that would "basically eliminate the summer discharge prohibition and could have a huge impact" on domestic and recreational uses of the river.

Adelman also mentioned the many unregulated compounds that are contained in wastewater discharged into the Russian River "that can have huge effects on human health."

SCWA staff said under the current timeline, a draft EIR on the supply and transmission project will take another year to complete and that a final EIR could be completed and approved a year later.

Comment Set M
(Cont'd)

# Population growth slows across North Coast

Clearlake, Cotati buck overall slump in '06, while SR sees mild increase

5-2-07

By MIKE McCOY

THE PRESS DEMOCRAT

Sonoma County's congested roads may symbolize runaway growth to many people, but new state population estimates released Tuesday suggest that growth, like rush-hour traffic, is slowing down.

Growth in Sonoma, Mendocino and Lake counties is running at about half the state average, according to the state Department of Finance.

Sonoma County added 3,543 residents in 2006, according to the new figures, reaching a population of 481,765.

The 0.7 percent increase for the year was 45th among California's 58 counties, tying with Los Angeles County.

For its 0.7 percent, however, Los Angeles County added 73,945 residents for a total of 10.3 million.

That's more than a quarter of the state's population, which increased from 37.2 million to 37.7 million in 2006, according to the state report.

TURN TO POPULATION, PAGE A13

**POPULATION CHANGE**

**SONOMA COUNTY**

| | Jan. 2006 | Jan. 2007 | % change |
|---|---|---|---|
| Cloverdale | 8,435 | 8,517 | 1.0% |
| Cotati | 7,367 | 7,535 | 2.3% |
| Healdsburg | 11,680 | 11,706 | 0.2% |
| Petaluma | 56,608 | 56,996 | 0.7% |
| Rohnert Park | 42,937 | 42,959 | 0.1% |
| Santa Rosa | 156,820 | 157,985 | 0.7% |
| Sebastopol | 7,737 | 7,760 | 0.3% |
| Sonoma | 9,873 | 9,945 | 0.7% |
| Windsor | 25,957 | 26,432 | 1.8% |
| Unincorporated | 150,808 | 151,930 | 0.7% |
| **Total county** | **478,222** | **481,765** | **0.7%** |

Source: State Department of Finance

**MENDOCINO COUNTY**

| | Jan. 2006 | Jan. 2007 | % change |
|---|---|---|---|
| Fort Bragg | 6,915 | 6,917 | 0.0% |
| Point Arena | 497 | 496 | -0.2% |
| Ukiah | 15,859 | 15,876 | 0.2% |
| Willits | 5,040 | 5,049 | 0.1% |
| Unincorporated | 61,530 | 61,953 | 0.7% |
| **Total county** | **89,834** | **90,291** | **0.5%** |

**LAKE COUNTY**

| | Jan. 2006 | Jan. 2007 | % change |
|---|---|---|---|
| Clearlake | 13,840 | 14,150 | 2.2% |
| Lakeport | 5,096 | 5,099 | 0.1% |
| Unincorporated | 44,801 | 45,027 | 0.5% |
| **Total county** | **63,737** | **64,276** | **0.8%** |

Source: State Department of Finance

Comment Set M
(Cont'd)

# POPULATION: Housing boom linked to Clearlake growth

CONTINUED FROM PAGE A1

The state's growth rate was 1.3 percent.

Like Sonoma County, Mendocino and Lake counties lagged far behind the state average.

Mendocino grew 0.5 percent, adding 457 residents for a total of 90,291. Lake grew 0.8 percent, adding 538 people for a population of 64,276.

In Sonoma County, Santa Rosa mirrored the county's growth rate of 0.7 percent, an increase that saw its population rise from 156,020 to 157,085.

While Santa Rosa was adding 1,065 residents, the population of Point Arena in Mendocino County dropped by one from 497 to 496.

Point Arena was one of 68 cities to lose population, according to the state report.

Bucking the slower growth trend in the region were Clearlake and Cotati, which grew by 2.2 percent and 2.3 percent, respectively.

Clearlake Administrator Dale Nieman credited much of his city's gain of 310 residents, nearly 60 percent of Lake County's total population growth, on Sonoma County's loss.

"We've had kind of a housing boom over the past year," he said.

New apartments and single-family home subdivisions have sprung up, largely as a result of an increasingly expensive Bay Area and Sonoma County housing market, he said.

"What's happening as housing gets more expensive is that people in Santa Rosa and the Bay Area who are willing to commute are moving here so they can buy a house," Nieman said.

He said that is borne out by a state Finance Department report that indicated personal income in Clearlake has jumped 4.2 percent over the past year.

"It means people with higher incomes have been moving in," he said.

Cotati Planning Director David Woltering said his city's 168 new residents are largely the result of 73 units, mostly condominiums, built last year as in-fill projects along the East Cotati Avenue corridor.

"They are close to the (Sonoma State) University, close to downtown and shopping, close to Highway 101 and they are priced lower than a single-family home," he said.

The state's annual population projections have shown Sonoma County growing faster than U.S. Census projections, which show the county shrinking by about 900 people between July 1, 2004, and July 1, 2006, after adding about 7,000 between 2000 and 2004.

The state figures are derived from various data, including increases in number of housing units, births versus deaths, changes in driver's license addresses, school enrollments and legal immigration data.

The Census data is based on births, deaths and migration.

The state population numbers are important to cities and counties because some sales tax and gas tax revenue is divided based on those figures.

*You can reach Staff Writer Mike McCoy at 521-5278 or mike.mccoy@pressdemocrat.com.*

## Population figures from across state

■ Among the state's 478 cities, Beaumont in Riverside County had the greatest percentage growth — 21.3 percent. It added nearly 5,000 residents to reach 28,250.

■ Other fast-growing cities included Imperial in Imperial County, with a 16.6 percent jump in population; Lake Elsinore in Riverside County, which had an increase of 15.4 percent; and Porterville in Tulare County, which grew by 15.9 percent.

■ Twenty cities now have populations that top 200,000 while 65 have more than 100,000 residents. After Los Angeles, with just more than 4 million people, the largest cities are San Diego at 1.3 million, San Jose at 973,672 and San Francisco at 808,844.

■ Twenty-two of California's 58 counties grew more rapidly than the state as a whole last year, 34 grew more slowly and two counties — Plumas and Sierra — had small population losses.

The fastest growing counties last year were Imperial and Riverside, which had population increases of more than 3 percent.

Colusa, Kern, Kings, Lassen, Madera, Merced, Placer, Sutter, Tulare and Yuba counties had growth rates of more than 2 percent.

■ Los Angeles County remains the state's largest with 10.3 million people. More than 27 percent of Californians live in Los Angeles County.

4-25-07

# County seeks river flow cut

## PLAN COULD AFFECT FARMERS, RECREATION ALONG RUSSIAN RIVER DURING SUMMER

MARK ADAMICH / The Press Democrat

**A lone sunbather stretches out on a dock above the Russian River on Tuesday in Guerneville. Because of low amounts of rainfall this year, the Sonoma County Water Agency wants to cut the summer flow of water released into the river to protect salmon in the fall, a move that river-area businesses fear will keep tourists away.**

### PUBLIC HEARINGS

The Sonoma County Water Agency plans three public meetings on cutting Russian River flows:

- 7 p.m. May 1, Ukiah City Hall
- 7 p.m. May 2, Healdsburg City Hall
- 7 p.m. May 3, Guerneville Veterans Hall

The county Board of Supervisors will hold a hearing May 15 to consider whether to make authority for reduced flows permanent, rather than temporary measures for dry years.

By BLEYS W. ROSE

THE PRESS DEMOCRAT

Facing threats of water shortages, Sonoma County wants to cut the summer flow of the Russian River and to keep more water in reservoirs to help spawning salmon thrive in the fall.

But the push to store more water would cut the amount of water available to farmers and could affect recreation along the river during the summer.

The county Water Agency's request to the state Water Resources Control Board sets up a rerun of 2001 and 2002 when similar cuts touched off bitter debates among urban water users, environmentalists, river advocates and slow-growth activists.

Water Agency officials told county supervisors Tuesday that trimming river flow now would result in more water in Lake Mendocino and Lake Sonoma in time for September and October, when salmon need a healthy river flow to swim upriver and spawn.

They said immediate action is necessary because little rain fell this winter and the state has cut how much water is allowed out of the Potter Valley project that feeds

TURN TO RIVER, PAGE A13

Comment Set M
(Cont'd)

MARK ARCHOFF / The Press Democrat

**Clifford James Neale, a seven-year resident of Guerneville, steps gingerly across rocks along the Russian River at Guerneville on Tuesday. Resort owners and river-related businesses are worried that proposed water flow cutbacks will hurt the tourism industry, still recovering from 2006 flood damage.**

# RIVER: Businesses fear loss of tourism revenue

CONTINUED FROM PAGE A1

the Russian River.

"We are starting the year at much lower levels than those bad years," said Chris Murray, Water Agency engineer. "We could have 8,000 acre feet in Lake Mendocino in September, which is less than the worst drought of 1976-77. We are not sure if we can physically pump water out at that level."

The agency will ask the state board for permission to cut the flow along the river south of Lake Mendocino from 185 cubic feet a second to 75 and the flow out of Lake Sonoma, as measured at Guerneville, from 125 cubic feet a second to 85.

The state board is expected to hold hearings on the request in early summer.

Representatives of river businesses, particularly in the tourism industry, said their livelihoods would be harmed if river flow is cut so much that tourists are scared away.

Jim Maresca, representing the Russian River Advocates group, said area residents and businesses still were reeling from effects of the New Year's weekend flood of 2006. In 2004, some of the loudest protests to reducing flows came from river businesses, such as canoe rentals and resorts.

"The lower Russian River is in tough shape," Maresca said. "It is not in a position to sustain a drop in its economy."

Bob Anderson, executive director of the United Winegrowers of Sonoma County, said vineyard operators that depend on Dry Creek are likely to support reduced flows if it means consistent supply during the summer.

"My sense is that maintaining flow to the big acquifer along the river is most important," he said. "It is less of a river, but there is still a river."

On a 4-0 vote, the supervisors voted to support the Water Agency's pursuit of flow reductions. But they also said they want agency officials to start talks with PG&E about getting federal approval to increase water allowed out of the Potter Valley project.

Last February, Sonoma and Mendocino officials were told federal regulators were reducing diversions out of the PG&E-operated Potter Valley project by 15 percent annually because of miscalculations of available water.

Supervisor Paul Kelley characterized the situation as partly "a regulatory-generated water shortage" that would leave "a mudflat in Lake Mendocino and nothing flowing in the Russian River."

Dick Butler, supervisor of the Santa Rosa office of the National Marine Fisheries Service, said his agency and the state Department of Fish and Game would support reduced flows but probably not quite as low as the Water Agency wants. Some species of fish may require more water to thrive, Butler said.

The Water Agency provides water to 600,000 customers in northern Marin County and almost all of Sonoma County, except people with private wells and residents of Healdsburg, Cloverdale and Sebastopol.

During Tuesday's hearing before the Board of Supervisors, several activists in river, conservation and environmental groups called for more drastic action that they said should include mandatory conservation measures in urban areas.

They want agency officials to force cities to halt watering of lawns, which officials have identified as the major water waster.

"We felt slighted in 2004. There was very little water conservation even though there was a lot of talk about it," said Don McEnhill of Russian River Keeper. "Mandatory water (conservation) plans should be called for."

Agency officials have, so far, maintained that voluntary conservation should be adequate to avoid mandatory measures that would require officials in cities to order halts to lawn and garden watering, car washing and nonessential water use. Two weeks ago, they asked water users to cut use by 10 percent to 15 percent.

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*You can reach Staff Writer Bleys W. Rose at 521-5431 or bleys.rose@pressdemocrat.com.*

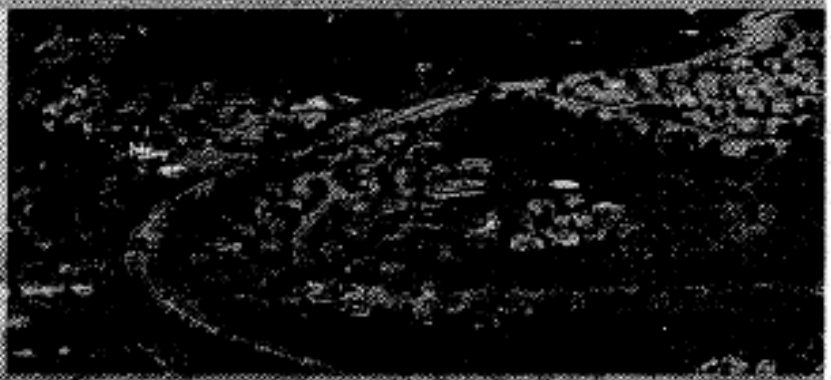
# The growth myth

## Traffic

It seems like congestion on Highway 101 is like a newly clogged artery. Actually, gridlock reflects changing commute patterns within Sonoma County and increasing traffic from cities north of Santa Rosa. The freeway is only now getting its first widening through Santa Rosa — and eventually farther north — since it was built in the 1950s.

## Boundaries

Every city in Sonoma County, with the exception of Cloverdale, has adopted urban growth boundaries that dictate where growth stops and agricultural fields and unspoiled hillsides begin. The lines drawn on city planning maps have been instrumental in halting urban sprawl and restricting growth patterns. At the same time, a campaign has to be waged to buy and preserve open space.



## Urban infill

Massive infill complexes, such as in Windsor and Petaluma, planned high-rise condominiums rising from downtown Santa Rosa — they represent the trend to city-centered growth. The idea, now policy across much of the county, is to concentrate housing and commercial development within city limits. The goal is a town where people can walk, ride a bicycle or take public transit to work or school.

Press Democrat file

By MARTIN ESPINOZA
THE PRESS DEMOCRAT

The signs of Sonoma County growth assault us, from Highway 101 gridlock to new houses pressing against fields to sprouting condominiums, feeding the notion that we are being inundated with people.

But the recent truth is quite the opposite. Over the past five years, Sonoma County has seen little population growth.

The county grew by a minuscule 1,000 people from 2001 through 2006, according to estimates from the U.S. Census Bureau. A more robust estimate of 12,767 new residents during that period comes from the state, but that's still a growth rate of less than half a percent a year for a county that has reached a population of 480,805.

In contrast, the state as a whole has grown twice as fast during that span.

Sonoma County's rate of population growth has been steadily declining since the explosive expansion of the 1960s, 1970s and 1980s. This decade, hit early on by a high-tech collapse and significant job losses, has seen growth bottom out. Now, some economists and local officials wonder why anyone would think there's a continuing growth problem.

"We don't have runaway growth; we've actually grown very little in the last few years," said Bob John, a Cloverdale council member and chairman of the Sonoma County Transportation Authority.

John said people react emotionally to what they experience. They say "this traffic is worse; it's

TURN TO GROWTH, PAGE A13

*"We live in a bumper sticker mentality world where it's too eas to say we're becoming anothe San Jose."*

**KEITH WOODS**, CEO of the North Coast Builders Exchang

THE PRESS DEMOCRAT • SUNDAY, APRIL 15, 2007

# GROWTH: County's homeowner and rental vacancy rates rising

CONTINUED FROM PAGE A1

worse than it was last week, worse than it was last year, so people must still be moving here."

"The biggest thing is the traffic," he said. "People don't think about the fact that we haven't widened 101 since it was built in the 1950s."

John said that changing commute patterns also have added to traffic congestion, with cities north of Santa Rosa having grown at a faster pace than the core population area.

"Now we're in a situation where we're doing pretty much infill, we're built out," he said.

Nobody should be surprised at the stagnant population numbers, said Keith Woods, CEO of the North Coast Builders Exchange.

"The days of rapid growth ended in the '70s and '80s," Woods said. "We live in a bumper-sticker-mentality world where it's too easy to say we're becoming another San Jose."

While births and newly arriving foreign immigrants, both legal and illegal, have added people to the county over the past five years, there has been a steady loss from people moving out. More residents left — almost 4,000 — than came in from other parts of California and the country, according to statistics from the California Department of Finance.

In the 1970s, when rapid growth was occurring throughout the Bay Area — and Sonoma County's population was growing at nearly 9 percent a year — there were few growth controls in place.

The growth decline started in the late 1980s when San Francisco lost its role as a booming jobs center. That reduced the influx of commuters into Sonoma County seeking cheaper housing.

The slowdown continued into the 1990s at the same time that political pressure to limit city expansion intensified.

"The public has said we want slow growth around here and now they've got it," Woods said.

Chuck Regalia, Santa Rosa's director of community development, said much of the recent development has been city-centered.

He said people are reacting to what they see, which may mean "that a lot that's been vacant all these years is getting a development."

The focus on infill is welcome news to environmentalists who were instrumental in winning slow-growth policies across the county.

Daisy Pistey-Lyhne, Sonoma-Marin field representative for the Greenbelt Alliance, said city-centered growth revitalizes communities where people can easily walk or ride a bicycle or public transit to work or school.

"We're creating better, more interesting communities in Sonoma County as we grow," she said.

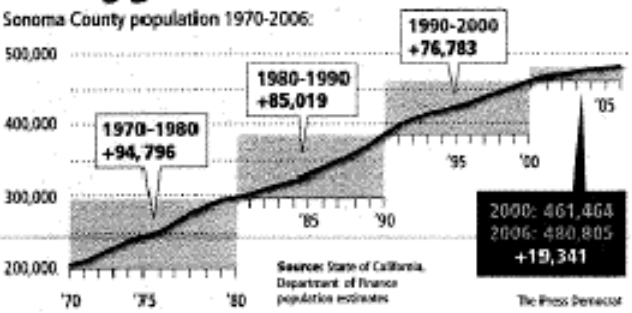
Many of the new developments people are seeing now were started during the housing boom that has tanked over the last year, said Ben Stone, executive director of the Sonoma County Economic Development Board.

In Santa Rosa, with the exception of 2005 when housing prices peaked, the number of permits for new residential units has been consistently fewer than 900 since 2001, when 1,600 units were permitted.

Countywide, 16,207 residential building permits were issued from 2000 through 2006,

## Slowing growth

Sonoma County population 1970-2006:




Source: State of California, Department of Finance population estimates

The Press Democrat

an addition of about 1 percent a year to the housing stock.

The ongoing construction of new homes, combined with slow sales because of the sluggish real estate market, has contributed to a doubling of the home vacancy rate. From 2000 to 2005, the rate has risen to 1.7 percent, according to Census estimates. The rental vacancy rate rose to 5 percent.

Growth restrictions, urban growth boundaries in each of the county's nine cities except Cloverdale, and limits on the number of homes built each year are forcing developers to focus on city-centered building.

"We're already beginning to see the future in terms of more density, more infill and more mixed use," Stone said. "You see it with mixed use projects in Windsor and Petaluma's theater district. It's a much more efficient use of land."

The pattern has forced some builders to look elsewhere for business opportunities. Santa Rosa-based Schellinger Homes started aggressively pursuing projects outside the county in 2000.

"We've built in Woodland, we've built in Winters," Joe Ripple, a spokesman for Schellinger, said. "The majority of companies here that have local roots are having to look elsewhere if they're going to remain a viable home-building company."

Ripple said growth restrictions have helped drive up home prices and have made Sonoma County a more exclusive community.

Cobblestone Homes ventured into the Central Valley as a response to local building restrictions.

But because the housing market there also has softened, the company has come back to the county and is focusing on high-density housing within urban growth boundaries.

Maurice Lockwood, company vice president, said Sonoma County will continue to grow, but with more "foresight" than in the past.

"We're growing more intelligently," he said. "(It) used to be that urban sprawl would eat up more land. Now we're doing it with more finesse and better design."

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*Library researchers Teresa Meikle and Michele Van Hoeck contributed to this report. You can reach Staff Writer Martin Espinoza at 521-5213 or martin.espinoza@pressdemocrat.com.*

# Save water now, or lose it later

4-13-07

## Water agency wants residents to cut use by 10 to 15 percent to avoid restrictions in summer

By BLEYS ROSE
and MARY CALLAHAN
THE PRESS DEMOCRAT

The last time Denise Adlington made a major dent in her household water use, it was largely because her daughter and her daughter's boyfriend moved out.

Adlington joked that she still has a teenage son prone to endless showers she could unload, but short of that she's pinning her hopes for water conservation on replacing her lawn and landscaping with "more water-friendly" plants.

She's already installed a more efficient water heater, low-flow faucets and toilets, and a clothes washer that uses less water than the old one.

With projections for a record-low water supply this summer, North Coast water officials hope everyone starts to think like Adlington.

Thursday, they called on 750,000 residents of Sonoma, Mendocino and Marin counties to voluntarily and immediately reduce water use by 10 percent to 15 percent in hopes of avoiding mandatory restrictions later.

Lack of rainfall and mandatory minimum flows upriver from Coyote Dam could combine to halt any pumping out of Lake Mendocino by September, according to the Sonoma County Water Agency.

"We are praying for rain at this point," said water agency deputy chief engineer Pam Jeane. "We believe that with conservation of 10 to 15 percent right now, there might not have to be a call for mandatory restrictions later."

Even some residents who've already upgraded their plumbing, landscaped with drought-tolerant plants and made other lifestyle changes said they're willing to do what's necessary — if they can.

TURN TO WATER, PAGE B3

Comment Set M
(Cont'd)

# WATER: 'We are under a historical and unprecedented situation'

CONTINUED FROM PAGE B1

"We will do it," said Birgitt Jacobsen, who added she limits herself to showers every second day.

She and her husband, Finn, said their San Rafael home stands out from others in the neighborhood because of its limited, drought-tolerant landscaping.

For some, however, there are stumbling blocks — like the "tons of roses" at Bill Passaretti's Roseland home.

"I'm not going to live without them," said Passaretti, who said he otherwise thinks about water conservation "every day" and is diligent about taking steps to use only what's needed.

Water agency officials said they're hoping education will convey the need for everyone to conserve — both because of the shortage in supply and because of the potential environmental impacts.

"We are under a historical and unprecedented situation here, based on the projections," agency spokesman Brad Sherwood said. "We could see lake levels in Mendocino that we've never seen before."

Some fear many people will conserve only if it hits them in the pocketbook.

"There are a lot of cities here in Sonoma County that have never metered the water, and unfortunately I think for most people, if it's not costing money, I don't think a lot of them are going to change," said Kate Burroughs, who, with her husband, owns Sebastopol's Harmony Farm Supply, which specializes in drip irrigation and offers drought-tolerant plants.

Ralph Avalon, an estimator for Petaluma-based Dibble Landscaping, said the firm has a large customer base in affluent Marin County willing and able to pay for whatever water they need, and thus are unmotivated to think about landscaping for conservation.

Similarly, Santa Rosa husband and father Gonzalo Esquivel said he's tried for 15 years to impress on his wife and two daughters the need for efficient water use — especially when it comes to showers.

"I think that as long as Daddy's paying the bills, it doesn't matter to them," he said.

Water agency officials and Sonoma County supervisors made their pitch for voluntary reductions during a news conference attended by all Bay Area network news stations at the Healdsburg Memorial Beach fish ladder Thursday.

Bay Area water officials made similar calls Wednesday, saying inadequate Sierra snowpack indicated drought conditions were likely this summer.

In Sonoma County, water agency officials said they're looking at a dire combination of little rain, low Lake Mendocino levels, state-mandated water releases into the Russian River and limits on releases from the Potter Valley Dam.

Supervisor Tim Smith said Potter Valley water releases, which heavily affect levels downriver at Lake Mendocino, have dropped from 180,000 acre-feet in 1998 to 105,000 last year.

Smith said supervisors would attempt to get relief from state-mandated flow levels but added it was more crucial to convince residents of the gravity of the water supply situation and the need for conservation.

The water agency supplies all residents of Sonoma County except those with private wells and people who live in Healdsburg, Cloverdale, Sebastopol and Forestville.

Authority for voluntary measures stems from water-sharing agreements the water agency customers signed last June. The measures are set by the California Urban Water Conservation Council (www.cuwcc.org), which represents 350 public water agencies.

Those measures include:

- Curbing use of potable water for car washing.
- Using lawn and plant irrigation controllers that adjust for weather conditions.
- Buying high-efficiency appliances such as low-flow toilets and showerheads, front-loading clothes washers and reduced-flow faucets.

More conservation measures are available at sonomacountywater.org.

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*You can reach Staff Writer Bleys Rose at 521-5431 or bleys.rose@pressdemocrat.com, and Staff Writer Mary Callahan at 521-5249 or mary.callahan@pressdemocrat.com.*

Comment Set M
(Cont'd)

WORRY OVER LOW LAKE LEVELS

4-12-07

# Water conservation urged

## MENDOCINO COUNTY: Reservoir could drop to record-low level

By GLENDA ANDERSON
THE PRESS DEMOCRAT

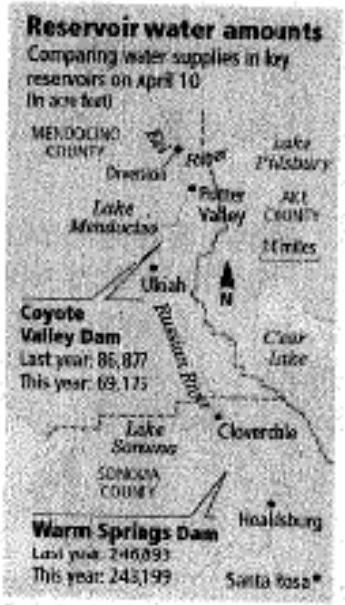
Ukiah Valley's 31,000 residents could face a water shortage worse than the 1976-1977 drought if a combination of conservation and rainfall fails to adequately fill Lake Mendocino, water officials warn.

"It's real scary," said Judy Hatch, the Russian River Flood Control and Water Conservation Improvement District president. The agency holds Mendocino County's right to 8,000 acre-feet of Lake Mendocino water.

The lake currently holds 69,392 acre-feet and has a capacity of 117,232 acre-feet.

But water officials are predicting the lake will drop to 8,000 acre-feet by October

TURN TO MENDOCINO, PAGE A9




## SONOMA COUNTY: Voluntary reductions urged now to avoid crisis situation later

By BLEYS W. ROSE
THE PRESS DEMOCRAT

Alarmingly low levels in water reservoirs that supply 600,000 people in Sonoma and northern Marin counties are prompting county Water Agency officials to call for immediate voluntary conservation steps.

They want you to:

- Limit use of tap water.
- Stop watering lawns and plants unless using irrigation controllers that automatically adjust for weather conditions.
- Cut out the car wash.
- Buy high-efficiency appliances such as low-flow toilets and showerheads, as well as front-loading clothes washers.

California officials said this season is the fourth-driest winter on record. The Santa Rosa area has received only 61 percent of normal rainfall, while the Bay Area has received only half the rain it would expect in an average year.

Water Agency officials said Wednesday that the lack of rainfall has caused low flow levels on the Russian River and prompted concern that fish, particularly endangered salmon, may not survive.

In Santa Rosa, only 17.57 inches of rain has fallen since July 1, far below the 30-year average of 23.88 inches.

The Water Agency's warning on "dangerously low water supply lev-

TURN TO WATER, PAGE A9

Comment Set M
(Cont'd)

KENT PORTER / The Press Democrat

**Bobby Gray of Ukiah takes a stroll Wednesday along the exposed bed of Lake Mendocino. Prompted by a relatively dry winter and spring, Sonoma and Mendocino County water officials fear that by October, the level of the lake could hit a historic low.**

# WATER: Low river levels threaten fish travel

CONTINUED FROM PAGE A1

els" came the same day that the public utility providing water to a third of the Bay Area announced water consumption reduction measures aimed at avoiding drought limits later this summer.

Hetch Hetchy reservoir stands at 76 percent full, but the Sierra snowpack that feeds it is only 46 percent of normal.

Sonoma County Water Agency officials plan to detail a full package of their own water conservation measures at a news conference today at 10:30 a.m. at Healdsburg Memorial Beach. Water levels on the Russian River are low, indicating fish will have a difficult time using the ladder there to swim upstream to spawn.

"These little forecasts of rain are not going to help us," Water Agency spokesman Brad Sherwood said. "Water conservation efforts by water contractors, customers and agricultural community are required."

The San Francisco Public Utilities Commission is asking customers to cut water use by 10 percent. Its advice to Bay Area residents includes installing low-flow shower heads, using drought-tolerant plants and watering gardens at night when evaporation is slower.

*Library researcher Michele Van Hoeck contributed to this story. Information from the San Jose Mercury News was included in this story. You can reach Staff Writer Bleys W. Rose at 521-5431 or bleys.rose@pressdemocrat.com.*

# MENDOCINO: Eel River getting more water

CONTINUED FROM PAGE A1

unless use drops and more rain appears. The lake has never been that low, said Barbara Spazek, executive director of the Russian River district.

"We're looking at new territory," she said.

The dire prediction is based on current water storage in the lake and the rate of water decline between April and October in 2002, according to the Sonoma County Water Agency, which oversees water release.

In the past few years, the diversion that shunts Eel River flows into the Russian River, which feeds Lake Mendocino, has been reduced by about 30 percent in order to save threatened fish on the Eel.

The Sonoma County Water Agency's primary charge is to ensure there is enough water for Russian River fish, and a portion of that comes out of Lake Mendocino.

"We're going to go to the regulators and ask them what they want to do," said water agency engineer Chris Murray.

During the drought of 1977, the lake measured 12,122 acre-feet of water in October. There was so little water on the North Coast that year, people living in Sonoma, Mendocino and Marin counties were asked to share bath water and use it to flush their toilets.

Officials of both the Sonoma and Russian River districts are asking residents and farmers to start conserving water immediately rather than bet on rainfall.

"Conservation needs to happen," said Pam Jeane, Sonoma County Water Agency's chief engineer of operations.

She said she doesn't know if it would be physically possible to take water from the lake if it drops to 8,000 acre-feet. But water removal is not authorized at that low level, she said.

While the future looks dry, Mendocino County officials say there's still time for the outlook to change.

"We'll see. It doesn't take a lot of rain to get the tributaries flowing into Lake Mendocino," said Janet Pauli, who heads the Inland Water and Power Commission.

*You can reach Staff Writer Glenda Anderson at 462-6473 or glenda.anderson@pressdemocrat.com.*

**Comment Set M (Cont'd)**

# County home prices sliding

## While other parts of Bay Area see growth, North Bay remains sluggish

By CAROL BENFELL
THE PRESS DEMOCRAT

The Sonoma County housing market remains one of the weakest in the Bay Area, with prices continuing to slide here even as they crept higher in other parts of the region in March, according to a report issued Thursday.

While Bay Area sales have dropped almost 20 percent, prices have climbed 2.1 percent across the nine-county region in the past year, according to DataQuick Information Services, a real estate market research company.

"Prices seem to have held up surprisingly well, probably because of a relatively strong economy," DataQuick president Marshall Prentice said in a statement.

Price gains were concentrated on the southern and eastern flanks of the Bay Area. Prices and sales fell in the three North Bay counties — Sonoma, Marin and Napa.

"When our market tanks, it tanks faster, and when the rest of the Bay Area comes out of the slump, they come out first," said Rick Laws, Santa Rosa manager for Coldwell Banker, which provides monthly real estate data to The Press Democrat.

The DataQuick report shows Sonoma County's housing mar-

TURN TO HOME, BACK PAGE

# HOME: Median price falls in Sonoma County

CONTINUED FROM PAGE A1

ket is lagging behind most other Bay Area counties.

Sonoma County had the second-biggest drop in home prices in March, down 5.5 percent from a year ago. Only Napa County fared worse, with a 9.2 percent drop in prices.

Overall, median prices in the nine-county Bay Area were higher last month than a year ago — $639,000 last month, up from $626,000 in March 2006.

But the reverse was true in Sonoma County, where the median price of a residential unit stood at $520,000 last month, down from $550,000 a year earlier.

"We took more of a hit in terms of median price and numbers of transactions, and we have more inventory than most of the other Bay Area counties," Laws said.

His figures, which will be released next week, cover only resales of single-family homes. That segment of the market is expected to show higher home prices than DataQuick, which tracks sales of new homes and condominiums and resales of existing homes and condominiums.

Sales dropped across the Bay Area to the lowest level since 1996, DataQuick said. Much of the slowdown may be because of strong sales in 2004 and 2005, Prentice said.

"Some of today's demand probably got pulled into that period because of low mortgage interest rates and the availability of exotic mortgages," he said.

Sonoma County sales fell 19.2 percent, matching the decline across the rest of the Bay Area. Buyers purchased 606 homes and condos in Sonoma County last month, down from 750 a year ago, according to DataQuick.

While sales and home prices are lower than they were a year ago, the figures have been steadily improving since January, Laws said.

"Sales are trending up, inventory is trending up, prices are trending up, and pending sales are trending up," Laws said. "Prices are no longer in free-fall. We are reaching a balance between supply and demand."

*You can reach Staff Writer Carol Benfell at 521-5259 or carol.benfell@pressdemocrat.com.*

# EDITORIAL 4-5-07

## Recycled watershed

Water is quickly becoming the most valuable commodity in Sonoma County, even more valuable than wine perhaps, because without an adequate water supply the future of development and commerce in Sonoma County is uncertain.

Grape growers can't do without water. Cities can't accommodate new homes and businesses without it. Rural residents can't do without a reliable source of clean water from their wells. And the endangered fisheries in the Russian River can't do without it, something federal regulators, who have the Endangered Species Act at their disposal, have made clear. It is plain to see that every drop of water in the Russian River watershed is becoming more and more precious as the demand grows and the supply is uncertain.

For all of those reasons, cities and public agencies are emphasizing the reuse of treated wastewater. Santa Rosa is proposing several large storage reservoirs in the North and West county for agricultural reuse and discharge into the river.

Now, the Sonoma County Water Agency is proposing a recycled water project in the North County on a grand scale. The proposed North Sonoma County Agricultural Reuse Project (NSCARP) is a system of 112 miles of pipelines through the Russian River, Alexander and Dry Creek valleys, 19 storage reservoirs with the capacity to store roughly 3.6 billion gallons of treated wastewater and a price tag of $413 million. By comparison, the Warm Springs Dam and Lake Sonoma totaled $355 million in 1986, which converts to roughly $600 million in today's dollars. A more recent comparison might be the infamous Geysers pipeline that Santa Rosa built for just about $200 million, and included 41 miles of pipeline.

If the residents of Alexander Valley and Healdsburg were upset when Santa Rosa decided to build a pipeline through their neighborhood a few years ago, we can only imagine what the reaction might be when they begin to understand the enormity of the North Sonoma and the extent to which the construction and implementation of the project might impact their lives.

Many residents are raising questions about the use of recycled wastewater on the county's premium grapevines, and its potential impacts on soil and groundwater. State health officials allow highly treated wastewater to be used on a variety of crops and are confident that it is safe. New information raises troubling questions about many compounds that remain in the wastewater, even after tertiary treatment. Heavy metals, pharmaceuticals, antibiotics and a long list of compounds have been found in treated wastewater and are not regulated or currently identified in the water from the Santa Rosa treatment system will be used to irrigate 21,000 acres of the county's prime agricultural land.

The review of the draft environmental impact report/environmental impact statement is the first step in the process of developing the NSCARP. During that process, we anticipated a spirited debate and we hope that the very serious questions about the health and safety of recycled wastewater are thoroughly addressed.

— Barry W. Dugan

# Public works project possibly the largest in county's history

4.5.07

## Colossal wastewater distribution system of pipelines and reservoirs proposed along River's path

by **Barry W. Duggan**
*Managing Editor*

A gigantic wastewater distribution project proposed by the Sonoma County Water Agency, if completed as planned, would be among the largest public works projects in Sonoma County history, second only to the fully completed Warm Springs Dam-Lake Sonoma project.

A draft environmental impact report/environmental impact statement released last week portends the enormity of the project: The combined EIR/EIS and accompanying appendices total nearly 1,200 pages.

The North Sonoma County Agricultural Reuse Project would consist of 112 miles of pipelines, numerous pumping stations, 19 reservoirs that could store 3.6 billion gallons of wastewater, all with a price tag of $413 million, including the cost of financing the project over 30 years.

The $413 million project is believed to be the second largest in the county's history. Warm Springs Dam was built for $170 million in 1982, which converts to $355 million in 2006 dollars. When the hatchery and recreation facilities were completed in 1986, the price tag for the entire dam and Lake Sonoma facility was $330 million, which would be $606 million in today's dollars.

While a source of the wastewater has not been secured, water agency officials are proposing that as much as 4 billion gallons of wastewater from the city of Santa Rosa be distributed to agricultural customers, primarily grape growers, in the Dry Creek, Russian River and Alexander valleys. The plan identifies more than 21,000 acres of vineyards in the three growing regions suitable for irrigation with

**(See *Water* page A11)**

## Water ...

(continued from front page)

the recycled water. The Santa Rosa Geysers pipeline, a 41-mile pipe that already sends 11 million gallons of wastewater to the Geysers, already contains numerous turnouts that would allow for reuse along the way. Other sources for the wastewater system could be the town of Windsor and the Airport/Larkfield/Wikiup wastewater system, which is operated by the water agency.

Sonoma County Water Agency (SCWA) officials are proposing the project as a way of reducing the use of groundwater and surface water in the Russian River watershed in response to federal and state regulators concerns over the impacts to the river's fisheries, particularly salmon and steelhead.

"It does provide us with a reliable long-term method for recycled water use," said Dave Cuneo, a senior environmental specialist with the SCWA.

"It also provides us with a long-term water supply for agricultural users, and in doing so we also obtain a reduction in the use of groundwater and surface water in the project area," he said. "With more water remaining in the tributaries and the main stem, it will allow more of what we call operational flexibility."

The SCWA coordinates releases from Lake Mendocino and Lake Sonoma and must meet stream flow requirements in the Russian River throughout the year.

"We would have more water (in Lake Mendocino) to maintain minimum stream flows," said Cuneo. "And meet those requirements late in the season with a colder water source, which is beneficial to the fisheries."

Reaction to the NSCARP has been mixed. Critics claim that the wastewater contains numerous unknown compounds that could harm the soil, groundwater and drinking water, while supporters believe that the threat of impending water scarcity necessitates recycling as much water as possible.

"I think water is going to be important for Sonoma County," said Nick Frey, executive director of the Sonoma County Grape Commission. "It is certainly an important resource. Recycled water is being used throughout the world in all kinds of applications, including food production."

Frey said recycled wastewater will be more widely accepted here "if people take the time to learn from the experience of many who have been using recycled water."

Water from the Santa Rosa treatment system is treated to a tertiary level and state regulations allow its use for irrigation of crops, according to Cuneo and state water quality officials.

While the state has sanctioned the practice, there are many who question the safety and wisdom of using treated wastewater on prime vineyards. "I don't believe the draft EIR at this point addresses those concerns about the quality of the wastewater adequately," said Fred Corson, a Dry Creek Valley resident who has challanged the SCWA's wastewater plans, as well as Santa Rosa's. "I think we're going to have to do a lot more analysis about what are the contaminants in the water ... especially the data on the Santa Rosa wastewater," he said.

Corson said Santa Rosa's own data shows that there are between 16 and 60 milligrams per liter of Total Organic Carbons (TOC), which are "soluble organic compounds that have not been identified." He said Santa Rosa officials "have not chosen to analyze what is in that TOC" but other municipalities have.

"There is a lot of data on what is in typical tertiary wastewater effluent that shows there are endocrine disrupting and other pharmaceutically active compounds with human health impacts at very low levels," said Corson. These unidentified compounds are referred to as "emerging contaminants."

Cuneo acknowledged that water quality concerns "are an issue that comes up from the public occasionally .... we know there is an ongoing issue discussing what are commonly known as emerging contaminants ... there is no indication we have received that it is a problem one way or another. We take our cues from state regulatory agencies and at this time this is an allowable use of recycled water."

Frey said that "there is nothing definitive" regarding

the effects of treated wastewater on crops or soil. "Just because you can detect something at parts per million, or parts per billion, doesn't mean it is going to accumulate or have any biological activity."

Don McEnhill, director of the Riverkeeper group that monitors Russian River water quality, said "Any impact is going to load the soil over decades ... there is no way someone can say taking clean groundwater and replacing it with wastewater is not going to affect the soil. There will be an impact," he said.

In addition, McEnhill said "The big elephant in the room is unidentified compounds in the wastewater .... the reality is that when you look at the facts nobody has done any test plots on what this wastewater does to grapes. Nobody knows what the implications for grape quality are ... if I was a winemaker I would be concerned about what the end result was on the quality of my grapes. Is this going to turn my $100 bottle of wine into a $20 bottle?"

Frey said he expects the reception among growers to vary when it comes to using recycled water on vineyards.

"A lot of growers are interested in it and ultimately as there becomes more and more competition for water, particularly with the endangered species act, that is going to affect a lot of people's view," he said.

While most people had yet to wade through the hundreds of pages of environmental documents, it is clear that water quality is emerging as a leading issue. Katie Wetzel Murphy, the vice president of the Alexander Valley Association and member of a longtime winegrowing family, said "The quality of the water is the number one issue we need to be proactive on."

She is a member of the wastewater subcommittee of the AVA and said the level of contaminants in the water being proposed for irrigation is of concern. "I think we need to define at what levels they are in the water," said Murphy. "I don't think that has been done on an item by item basis. We need to find out what information is available on a long-term residual basis and what the effects will be on crops, soil and groundwater."

She said predicting the long-term impacts could prove difficult. "It's probably impossible to know what 100 years of using wastewater will do," said Murphy. "Not to mention some of the new drugs or other things" that are either undetected or not yet in use.

Part of the approval process for the NSCARP involves permits from the state Regional Water Quality Control Board. Water quality engineer John Short said his agency will review the construction impacts and the water quality impacts of the project.

"Just the direct impact of constructing these huge reservoirs and piping and a lot of land disturbance ... and this is one of the largest construction projects in the county ... all those direct impacts will have to be looked at and mitigated," said Short.

"The second aspect would be the impact of the irrigation and storage on groundwater," he said. "And we certainly are aware of the concerns of some of the folks in Alexander Valley for protection of their groundwater. That is something we will look closely at and determine what effect it has on water quality."

Short said state standards do require testing for certain bacteria levels before tertiary wastewater can be used on crops, and most of the county's wastewater meets those standards. "But that only goes so far," he said. "Those standards do not address some of the issues we're aware of with emerging contaminants that aren't covered in the current standards ... we've heard those concerns expressed and certainly those folks who live in the affected area have some issues with the endocrine disrupters and the antibiotics."

Public comments on the NSCARP are due by May 18, 2007. The Sonoma County Board of Supervisors, which also sits as the SCWA board of directors, will hold a public hearing on the plan on May 15 at 10 a.m. the board chambers in Santa Rosa.

A complete version of the environmental documents is available at www.www.scwa.ca.gov/.

*Comments? Email barry@sonomawest.com*

# Massive water plan meanders forward

4-5-07

## Long awaited study of water agency expansion still two years away

by Barry W. Dugan
*Managing Editor*

The Sonoma County Water Agency's long-term plan for expansion of its Russian River water supply system to meet the growing demands of its more than 600,000 customers was started nearly 15 years ago, but a series of legal and regulatory challenges have repeatedly delayed completion of the project.

Water agency officials say completion of a new draft environmental impact report (EIR) is still at least a year away, which would then be subject to a year of revisions and public review before subsequent approval of a final document for what is now known as the Water Supply, Transmission and Reliability Project.

The county Board of Supervisors, which serves as the SCWA board of directors, will hold a public meeting next Tuesday, April 10 at 10 a.m. to hear a progress report on the project and discuss the reasons for the delays and take public input on the project.

"It's frustrating for this project to take such a long time, but there is an explanation for why it has had so many hang ups and delays," said Fourth District Supervisor Paul Kelley.

The SCWA first started the project in 1992, and a final EIR was approved in 1998. The project was successfully challenged in court and the agency was forced to start all over again.

Erika Phelps, the project manager for the EIR, said, "This is our second attempt at the EIR ... the litigation success had to do with how we addressed the cumulative impacts of the Eel River diversions."

The Russian River system relies on diversions from the Eel River through PG&E's Potter Valley project. In recent years, federal regulators have ruled that those diversions will be more tightly regulated, resulting in the possibility of less water in the Russian River, according to Pam Jeane, deputy chief engineer with the SCWA.

The project contains three components: Water Conservation; the Russian River component, which includes an increase of 26,000 acre feet of water the agency could divert from Lake Sonoma; and the Transmission and Reliability Component, which Jeane said would address "some of the vulnerabilities in the system." The transmission component would also increase the transmission capacity from 92 million gallons per day to approximately 142 million gallons per day.

Supervisor Kelley said the water supply project "is really the next step in the overall water components of Sonoma County. There are multiple issues that are very complex."

Among those are the mov-

(See *Massive* page A11)

## Massive ...

(continued from front page)

ing targets of population and water demand. The water project must include final projections for growth in the General Plans of the agency's various contractors, who include Windsor, Santa Rosa, Rohnert Park and Marin County, with the most prominent being the General Plan for Sonoma County itself.

"The other thing holding up the EIR are draft General Plan updates," said Phelps. "Until those are complete we won't release the draft EIR."

Another cause of the delays has been the completion of a water supply analysis contained in the updated Urban Water Management Plan, a state-required plan released last year.

Last week, a coalition of Sonoma County water activists filed a lawsuit challenging that plan, claiming that it failed to take into account the potential of severe water shortages and lacks enough protection for the environment and existing water users in the county.

Also occurring in the last 15 years has been the listing of the salmon and steelhead on the endangered species list, prompting a National Marine Fisheries Service (NMFS) biological assessment of the Russian River fisher. A biological opinion of that assessment is expected shortly, another factor that will influence the water agency's long-term planning.

Kelley said the SCWA must balance the various demands placed on the county's water supplies and coordinate a variety of projects, such as fisheries restoration and recycled water reuse. "Ultimately, we at the water agency are responsible to provide a reliable, safe, high quality source of water for our urban and rural customers and we are also responsible to provide flood control, maintain the dams and all those things that are important in our every day lives but we don't necessarily see them every day," he said. "I look at it as sort of a spectrum water issues and each one has its place, even though they overlap at times."

Among those groups watching the process closely is the Russian River Watershed Protection Association, whose director, Brenda Adelman is probably the veteran activist among local river advocates. She said the estimate for a draft EIR within a year for the water project " is optimistic."

"There has been a lot of discussions on General Plans that are in the works and projected numbers that could change ... and they want to see the biological assessment from NMFS," said Adelman. "There is a lot of confusion ... there are a lot of unknowns and uncertainties with the biological opinion and the challenges to the Urban Water Management Plan ... I don't see how they can get this done in a year and not have it challenged legally."

Adelman said the unfinished Sonoma County General Plan "is a biggie." She said the SCWA plan "has been a sticky one and there are a lot of issues in that document ... and we haven't even seen the EIR."

At Tuesday's public meeting the water agency will give a presentation on the status of the project followed by an opportunity for public comment. The item has a time certain start of 10 a.m. at the Board of Supervisors chambers, 575 Administration Dr., Room 102A, Santa Rosa.

**Comment Set N**

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
MAY 18 2007
Orig. Filed_____

Christopher Evans
1875 Rio Lindo Avenue
Healdsburg, CA 95448

PROJ/NORTH SONOMA COUNTY AGRICULTURAL
REUSE PROJECT (preliminary) - EIR 70-0-7 #__

May 16, 2007

Sonoma County Water Agency
C/O David Cuneo, Senior Environmental Specialist
P.O. Box 11628
Santa Rosa, CA 95406-1628

Dear Sirs,

After reading chapter 3 of the March 2007 DRAFT Environmental Impact Report/Environmental Impact Statement I am concerned that sufficient attention has not been paid to the potential negative effects upon human health that the discharge of treated wastewater into the Russian River may have. Listed below are ten questions that I and other citizens would like to have answered. N-1

**Question 1.** According to the proposed plan will treated wastewater be discharged at any time into the Russian River, which is a source of Sonoma County's drinking water? N-2

**Question 2.** Why is the SCWA going ahead with its plan before the fundamental question of whether or not the wastewater may be hazardous to human health has been clearly answered? N-3

**Question 3.** - Why hasn't the SCWA planned and budgeted from the start to simply purify its waste water with an advanced RO system like other municipalities in the United States such Orange County and Phoenix, Arizona? N-4

**Question 4.** If water from the Russian River containing amounts of treated wastewater is to enter the drinking water supply will it first be completely purified to the highest possible standards using Reverse Osmosis filtration? N-5

The Draft EIR report states that "The ability to detect xenobiotics at very low concentrations has **outpaced** the scientific and regulatory communities' abilities to interpret **whether** the detected concentrations are **a health hazard for humans**." And "Another common drug, 17-_- ethynylestradiol (a synthetic estrogen used for birth control), is also **believed** to be present at levels below those likely to cause human health concerns (Tsuchihashi, **2002**). Nevertheless, **there is uncertainty about the possible effects of mixtures of chemicals** and the possibility of health effects from chemicals that have not yet been detected."

**Question 5.** If the health effects of xenobiotics and chemical mixtures are not at this time known, is it not possible that at some point in the future, when a more advanced method of analysis exists, that they could be found to be hazardous to human health, especially over extended periods of time? N-6

The report also states that "The USEPA and other regulatory agencies **have not developed new standards** or adjusted existing standards to address xenobiotics (other than those currently regulated) at very low concentrations because scientific research into this phenomenon is relatively recent, and there is still much debate on whether it is appropriate to change or adjust the **standards**."

**Question 6.** Has the SCWA set aside funds in its budget for the addition of the latest advanced purification technology to meet higher than current standards in the event that the wastewater is in the future found to contain harmful chemicals or mixtures of chemicals? N-7

The report states that "Although **there is concern about the possible health effects of xenobiotics in wastewater**, thus far, there is no firm evidence of direct causal associations between very low-level exposures to xenobiotics, such as pharmaceutically active compounds, and adverse health outcomes. Therefore, **it is not currently possible**, using existing standards and/or regulatory agency risk assessment methodology, **to evaluate the health effects of these chemicals**, which **might** be present at very low concentrations, if present at all, in the tertiary-treated effluent from the three WWTPs."

**Question 7.** If, as the Draft EIR states, "it is not currently possible…to evaluate the health effects of these chemicals" isn't the proposed plan in fact an *experiment*, in which Sonoma County's citizens are serving as guinea pigs? N-8

**Question 8.** Why haven't chemists, biologists, and medical researchers been hired to analyze the wastewater for ***all*** known chemicals that could have harmful health effects to humans, not to mention fish and wildlife? N-9

**Question 9.** If and when scientific tests are done, and reports issued, how will the results be made public? N-10

**Question 10.** Will the SCWA be willing to pay for medical tests and treatment for individuals exhibiting health problems related to long-term chemical exposure to compounds found in the wastewater and drinking water supplies? N-11

I will be most appreciative to receive answers to these questions.

Yours truly,

Christopher Evans

Christopher Evans

**Comment Set O**

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
MAY 16 2007
Orig. Filed_ PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT ) - EIR 70-0-7 #_ Padre Associates

05-10-07

To David Cuneo:

In the Environmental Impact Report draft for the Sonoma County agriculture reuse project, nothing is mentioned about divirting recycled water to Knights Valley Ag region. A pipe line from the second pumping station on Fireflat Rd could be built to Knights Valley. IT would be an "all down hill flow." I believe the farmers and ranchers in Knights Valley are entitled, they pay their fair share of taxes too. A Knights Valley pipe line + storage reservoir would be a very good long term alternative. O-1

Signed
Clancy Burns,

## David Cuneo

**From:** Brad Sherwood
**Sent:** Thursday, March 22, 2007 2:39 PM
**To:** Tim Anderson; Kevin Booker; Pamela Jeane; David Cuneo; Randy Poole
**Subject:** FW: Contact Us Form Submission

FYI - Comment below for NSCARP...and Agency in general.

Thank you,
Brad Sherwood
Programs Specialist
Sonoma County Water Agency
Phone: 707-521-6204
Fax: 707-528-2080
www.sonomacountywater.org

-----Original Message-----
From: WWW User [mailto:www@sonic.net]
Sent: Wednesday, March 21, 2007 2:45 PM
To: Brad Sherwood
Subject: Contact Us Form Submission

The following was sent via the Contact Us form on the Sonoma County Water Agency web site:
==========

Name: da klein

Phone Number:

E mail Address:

My question/comment is regarding: Water Supply

Question/Comment:
As a Sonoma County property taxpayer I would object to our subsidizing costly and wasteful water projects that solely serve winemakers. Many of these vintners are owned by major corporations and can well afford to pay for the water improvements themselves. Furthermore, while Sonoma County agriculture in general should be supported, a wine monoculture is undesirable. It is time to learn to live within our water limits.

P-1

**ALEXANDER VALLEY ACRES MUTUAL WATER COMPANY**
**c/o K. DANIEL ROSE, MD**
**4050 WEST SODA ROCK LANE**
**HEALDSBURG, CA 95448**
**PHONE (707) 433-5667 FAX (707) 433-7777**

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SONOMA COUNTY WATER AGENCY
MAY 1 8 2007
Orig. Filed

May 15, 2007

Sonoma County Water Agency
c/o David Cuneo, Senior Environmental Specialist
PO Box 11628
Santa Rosa, CA 95406-1628

**PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__**

**Introduction**

The Alexander Valley Acres Mutual Water Company (AVAMWC), first incorporated in 1970, provides drinking water through pipes to 16 homes for 30 full-time residents and up to 20 part-time residents. Accordingly it meets the definition of a Public Water System by the California Safe Drinking Water Act. AVAMWC derives it water exclusively from two wells, 47 and 90 feet deep, on AP 088-240-13 located on West Soda Rock Lane in Alexander Valley. The Santa Rosa Incremental Recycled Water Program (IRWP) and the NSCARP propose to store disinfected tertiary recycled water a little more than a mile from our wells. NSCARP contemplates using the water for irrigation of vineyards that are even closer. We are concerned that this would create a significant public health hazard by degrading the groundwater quality at the only available well site of AVAMWC. Q-1

**Known Water Quality Risks**

Maximum nitrate concentrations of 15.5 mg/L and nitrite concentrations of 2.3mg/L in tertiary treated recycled water shown in Table 2.1-1 of the IRWP Draft EIR could cause the AVAMWC to exceed the Maximum Contaminant Level (MCL) of the Drinking Water Standard of 10 and 1 respectively. Required Health Effects Language in the Consumer Confidence Report for these contaminants includes "Infants below the age of six months who drink water containing nitrate/nitrite in excess of the MCL may quickly become seriously ill and, if untreated, may die." Q-2

Also reported in Table 2.1-1 is a maximum chloroform level of 0.004 mg/L for fresh effluent. The maximum incremental lifetime cancer risk of exposure to chloroform at the levels present in recycled water is $3.3 \times 10^{-5}$ as shown in Table 2.5-3. This indicates an excess cancer risk that exceeds the screening value of $1.0 \times 10^{-6}$. (page 22) Q-3

Information provided by Santa Rosa City staff indicates that the Jordan property reservoir could not be effectively sealed either by clay or membrane methods, allowing recycled water to enter the groundwater. In time, this plume of contaminated water could arrive at our well property and cause us to be out of compliance with the Drinking Water Standard. Q-4

**Unknown Water Quality Risks**

During 1999 and 2000, the USGS collected water samples from 139 streams across 30 states and analyzed them for 95 organic wastewater contaminants. Human and veterinary drugs, natural and synthetic hormones, detergent metabolites, plasticizers, insecticides and fire retardants were found in 80% of the streams sampled, and about one-third contained 10 or more of these chemicals. The results were published in "Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams 1999-2000: A National Reconnaissance" (Environmental Science and Technology, Vol 36, No 6,

2002 pp 1202-1211). According to the report, "These 'emerging contaminants' are commonly derived from municipal, agricultural, and industrial wastewater sources and pathways." "Many such compounds survive wastewater treatment and biodegradation" and they can reasonably be expected to be present in Santa Rosa's disinfected tertiary recycled water. The distribution of millions to billions of gallons of this water on vineyards near the AVAMWC wells could permit these contaminants to enter the groundwater and ultimately the domestic drinking water. Q-5

The USGS report concludes "Much is yet to be learned pertaining to the effects (particularly those chronic in nature) on humans, plants and animals exposed to low-level concentrations of pharmaceuticals and other OWCs. Furthermore, little is known about the potential interactive effects (synergistic or antagonistic toxicity) that may occur from complex mixtures of these compounds in the environment." There is also the possibility that living systems could concentrate these very dilute contaminants and produce unanticipated health dangers. Without more research, it would be premature to conclude that such exposure is safe. It does not seem prudent to spend many millions of dollars on an agricultural reuse program assuming that these organic contaminants are innocent until proven guilty. Q-6

Finally, there may be other constituents in recycled water that have not yet been identified that pose health risks. The USGS sampled 95 organic wastewater contaminants, but there may be many more that survive the treatment process. Section 4.3.2.2 of the Draft Engineering Report discusses resting percolation ponds because of "accumulated sediments and organics." Section 4.3.4.2 notes that injection wells must be backwashed to clear well screens of "sediment, buildup, biological fouling, or chemical precipitation" from the disinfected tertiary recycled water. It is reasonable to consider that the current state of knowledge is incomplete, and that further research may identify contaminants that pose health risks. Q-7

**Conclusion**

The proximity of the drinking water wells of the Alexander Valley Acres Mutual Water Company (AVAMWC) to the Jordan candidate site should disqualify that site from consideration. The known health risks of contaminants entering the groundwater through reservoir leakage or irrigation are substantial. With additional water treatment, this valuable resource of clean water could be a godsend to county residents. Q-8

Very truly yours,

K. Daniel Rose, MD
President AVAMWC

# Sonoma County Water Agency
# Phone Contact Record

**Name of Caller:** Dave Rafanelli
**Address/Phone Number:** 433-1385

**SCWA Contact:** Dave Cuneo

**Date of Contact:** April 2, 2007

**Subject:** North Sonoma County Agricultural Reuse Project

**Notes:** Caller stated he was against piping "that kind of water" into Dry Creek valley. Caller doesn't want to lose water rights. Upset that their wells they have used since before Warm Springs Dam might be jeopardized. Concerned about failure to install more check-dams along Dry Creek to keep the creek bed from downcutting (said they were verbally promised years ago that more check-dams were planned).

R-1
R-2
R-3

**Follow Up:** I told the caller that I would write down his comments but that I recommended that he also submit his comments in writing. He said he would.

Friends of the Eel River
*PO Box 2305*
*Redway, CA 95560*
*(707) 923-2146*

To: Sonoma County Water Agency
440 Aviation Boulevard
Santa Rosa, CA 95409
By E-mail, Attn: David Cuneo, Senior Environmental Specialist
David@scwa.ca.gov

May 18, 2007

**RE: Draft NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT EIR/EIS, State Clearinghouse No.** 2006012130
http://www.sonomacountywater.org/projects/documents/DraftEIR-EIS.pdf

Comments for the Public Record on the above Project DEIR/DEIS

The following comments are submitted on behalf of Friends of the Eel River. Friends of the Eel River is dedicated to its mission to restore the Eel River and all of her tributaries to a natural state of health and abundance, wild and free. Plans made and actions taken by the Sonoma County Water Agency and local jurisdictions subject to, or depending upon the NSCARP and its DEIR/DEIS have both direct and indirect influence on the health and restoration of the Eel River, and as such, we appreciate the opportunity to provide these comments.

**Failure to properly identify and address significant impacts of the North Sonoma County Agricultural Reuse Project (NSCARP) in the DEIR/DEIS.**

At NSCARP DEIR/DEIS, pg ES-40, there is no listing of any adverse, significant cumulative impacts or growth related effects of the project for any topic, except construction transportation and utilities disruptions.

S-1

This is a gross understatement of impacts of the project, and is not based on fact. Rather, it may be a result of failure to analyze a number of critically important aspects of the NSCARP. We believe that the DEIR/DEIS is significantly defective in providing some critical information to reasonably inform the public and decisionmakers prior to decisionmaking and selection of alternatives, and should be rewritten and recirculated as a Revised DEIR/DEIS.

**The NSCARP DEIR/DEIS fails to identify where the recycled water for the Project will come from.**

It is now apparent that the primary intended source of treated wastewater for the NSCARP is Santa Rosa's Subregional Treatment Plant. Yet, recently Santa Rosa has indicated that they need all their treated wastewater for their own Urban water recycling programs. Santa Rosa officials have stated explicitly that it is not interested in supplying any treated wastewater to the NSCARP.

Without keeping that wastewater within their own systems and controls, Santa Rosa will not be able to offset new and existing potable water demands, placing a greater burden on the SCWA water supplies and groundwater supplies for current and future growth. S-2

If SCWA has any agreement, tentative or formal, that indicates that Santa Rosa and/or Santa Rosa Board of Public Utilities, or Sebastopol, or Windsor, or any other municipal water supplier or wastewater treatment agency is interested and willing to enter into an agreement with SCWA to supply water to the NSCARP, that document(s) must be disclosed to the public for review within the CEQA considerations and timelines of the project. The DEIR fails to provide any such source or assurance of supply.

**The DEIR/DEIS fails to identify the actual water sources, quantities and timings for the NSCARP and their respective impacts:**

1. Where will the water to be used in the NSCARP come from, identified by source, quantities (individual and aggregate) and timing over the lifespan of the project? S-3

2. What agreements will be, or have been made, with the wastewater sources for delivery in very wet, wet, average, dry and very dry water years? Such rain years are as identified in the Russian River watershed and in the upper Eel River watershed, which serves as a source for Lake Mendocino, and are used in conjunction with State Water Resources Control Board (SWRCB) Decision 1610 (D1610) required flows and releases to the Russian River. S-4

3. What agreements will be made, or have been made, with the wastewater recipients for delivery in very wet, wet, average, dry and very dry water years? Such rain years are as identified in the Russian River watershed and in the upper Eel River watershed, which serves as a source for Lake Mendocino, and are used in conjunction with D1610 required flows and releases to the Russian River. S-5

4. How much water is proposed to be delivered each month of the water year, to each sub-area or major recipient contractor or landowner of the NSCARP reservoir storage system? How much water is proposed to be delivered each month of the water year, to each sub-area or major recipient contractor of the NSCARP pipeline system for use S-6

without going into any of the NSCARP reservoirs, or without entering into a storage reservoir? S-6 (Cont'd)

5. How will these water deliveries affect current (granted in 2007) or future SCWA need for Petitions for Temporary Urgency Change Petition with the State Water Resources Control Board to reduce instream flows in the Russian River and/or Dry Creek? S-7

6. How will the NSCARP water deliveries, storage, runoff and infiltration affect the existing flows and flow requirements in D1610?

7. How will the NSCARP water deliveries, storage, runoff and infiltration affect future in-stream flow requirements in an *amended or revised D1610*, as recently considered and requested by SCWA Board of Directors at their May 15, 2007 meeting? [attached] The SCWA Board of Directors has decided to do the environmental work and engineering alternatives that would allow them to ask SWRCB to re-open the D1610 flow requirements, in the interest of setting lower requirements for in-stream flows in the Russian River. S-8

8. How will the NSCARP water deliveries, storage, runoff and infiltration affect current and future demands for water transferred from the Eel River through the PG&E Potter Valley Project (PVP) to the East Branch of the Russian River? This should be identified as potential changes in demands from SCWA and any other municipal or public water agency or irrigation district that currently draws water from the Russian River and its tributaries, Lake Mendocino or Lake Sonoma. S-9

9.How will NSCARP affect current and future demands from any private landowners, business owners or other entities that currently draw water from the Russian River and its tributaries, Lake Mendocino or Lake Sonoma? S-10

10. What will be the contractual consequences for failure to deliver any particular water quantities committed by SCWA to recipients? S-11

11. What will be the direct and indirect linkages between the NSCARP water budget and the promised improvement in the flows of the Russian River and its tributaries under varying delivery scenarios? S-12

12. What will be the effect on groundwater levels in basins within in the NSCARP project area? S-13

13. What monitoring and testing does SCWA propose to make of the water used, the groundwater where irrigation takes place, and on any crops grown on such land, to determine if any regulated or unsafe contaminants are present? S-14

14. How will the NSCARP water deliveries, storage, runoff and infiltration affect Coho, Chinook and Steelhead populations, spawning, habitat and rearing in the Russian S-15

River and its tributaries, and compliance with ESA Section 7 Consultations and Biological Opinion for these species? How will affect other important species, such as the Pikeminnow, and its predation on salmonids? S-15 (Cont'd)

15. How will the NSCARP water deliveries, storage, runoff and infiltration affect Coho, Chinook and Steelhead populations, spawning, habitat and rearing in the Eel River, and compliance with ESA Section 7 Consultations and Biological Opinion for these species? How will the NSCARP affect continued reliance on Eel River diversions through the PVP? How will the NSCARP affect attempts to control or eliminate Pikeminnow populations below Lake Pillsbury and below Cape Horn Dam at the PVP? S-16

**The DEIR/DEIS fails to address the impacts of sending treated wastewater to agricultural locations outside the SCWA service areas, instead of maximizing its use within the SCWA service areas to displace potable water demands on SCWA supplies and groundwater.** S-17

The water supplied to NSCARP facilities and irrigation sites will continue to create further dependency on growing demands for additional supplies of potable water from the Russian River, Eel River and groundwater supplies. The DEIR's failure to address these predictable and cumulative impacts to source waters violates the standards set in CEQA and reinforced in the Vineyard Area Citizens for Responsible Growth Inc v City of Rancho Cordova, and the FOER v SCWA decisions. S-18

What is the effect, both direct and indirect and cumulative, including impacts to listed salmonid fisheries in the Eel and Russian Rivers, in various water years (very dry, dry, average, wet, very wet) of NSCARP wastewater deliveries on demands for potable water withdrawals or deliveries or transfers from:

(a) the Russian River and its tributaries;
(b) the Eel River through the PG&E Potter Valley Project;
(c) the county's groundwater basins

**Exports of treated wastewater that might reasonably be used to offset or displace potable water demand by SCWA and its water contractors is inconsistent with the apparent intent, goals and policies of the draft Sonoma County General Plan.**

The draft Sonoma County General Plan states: S-19

*Goal WR-5: Assure that new proposals for surface and groundwater imports and exports are consistent with Sonoma County's ability to sustain an adequate and quality water supply for its water users and dependent natural resources.*

*Policy WR-5a: Require or request full assessment of the environmental impacts and impacts on Sonoma County water users of any proposals to physically export water to new locations outside Sonoma County or to substantially increase water supply to existing out-of-county locations. Any consideration of exporting additional water*

*resources shall place primary priority upon the benefit of and need for the resources in Sonoma County and shall assure that water resources needed by urban, rural and agricultural water users in Sonoma County will not be exported outside the county.* S-19 (Cont'd)

The water received from SCWA water contractors and their respective wastewater treatment plants contemplated in the NSCARP functionally exports water outside the SCWA, Santa Rosa, Rohnert Park, Cotati, Sebastopol and Windsor service areas, thus making the reuse of that water unavailable within the service areas for the reduction or displacement of potable water demands. S-20

The proposed NSCARP water demands are not included in the draft Sonoma County General Plan, its DEIR, or in the recently approved Sonoma County Urban Water Management Plan 2005, making the NSCARP DEIR/DEIS inconsistent with those documents.

The consequence of this is that future growth, already constrained by a lack of predictability for future growth (cited in the draft Sonoma County General Plan and DEIR), will depend on further depletion and overdrafting of the Russian River and Eel River surface water supplies in the SCWA Russian River Project, as well as further depletion and overdrafting of already negatively impacted groundwater basins in the county. S-21

**The draft Sonoma County General Plan and DEIR/DEIS state that there is insufficient water to supply the growth projected in the draft General Plan.**

The use of treated wastewater for any use other than the displacement or offset of potable water demands by SCWA or its water contractors will only exacerbate those conditions. The DEIR/DEIS must address this conflict explicitly. S-22

**Sonoma County General Plan DEIR**, Significant Unavoidable Impact 4.9-1:
*"Insufficient water supplies to meet the future water demand of the urban service areas."*
*"Land use and development consistent with the Draft GP2020 would increase the demand for water. As a result, insufficient water supplies would be available to serve some of the unincorporated USA's from existing entitlements. New or expanded entitlements would be required." (p. 6.0-22)*

*Significant Unavoidable Impact 4.9-2:*
*"Insufficient Water Supplies to meet the future water demand of rural private domestic, small municipal, and agricultural wells."*
*"Land uses and development consistent with the Draft GP2020 would result in an increased demand on groundwater supplies for rural uses. Due to the lack of comprehensive information regarding the county's groundwater resources, it is uncertain if groundwater supplies would be sufficient to meet the future demand of rural private domestic, small municipal, and agricultural wells. This uncertainty combined with the current regulatory approach could result in insufficient groundwater supplies in rural areas of the county."* S-23

*Significant Unavoidable Impact 4.9-3:*
*"New or expanded water supply facilities"*
*"Land Uses and development consistent with the Draft GP2020 could result in the need for increased water supply facilities, either through the construction of new facilities or through the expansion or retrofitting of existing facilities. Construction of new or expanded water supply facilities could result in site-specific impacts, especially on aquatic organisms and fisheries."* S-23 (Cont'd)

**The DEIR/DEIS fails to address the cumulative impacts of the wastewater proposed for the NSCARP and the use of recycled wastewaters exported from within the SCWA service area for other reuse and irrigation projects.**

These cumulative impacts, including impacts to the listed salmonid species of the Eel and Russian Rivers, must include the proposed uses in NSCARP of recycled water from within the SCWA service area, in combination with the use of recycled water contemplated in the following proposed projects, of which SCWA is a key participant. Such cumulative uses of wastewater would create yet further dependencies and reliance on SCWA potable water supplies. S-24

Such projects include:

- the SCWA and Bureau of Reclamation's "North San Pablo Bay Restoration and Reuse Project", including recycled water from Las Gallinas Valley Sanitary District (LGVSD), Novato Sanitary District (Novato SD), Sonoma Valley County Sanitary District (SVCSD), Napa Sanitation District (Napa SD), SCWA and potentially the City of Petaluma and other sources, as currently described in the CampDresserMcKee "Phase 2 Engineering and Feasibility Study Report, June 2006" as revised, and in other documents in possession of SCWA, Bureau of Reclamation and other agencies. S-25

- the agricultural irrigation and salt marsh restoration projects envisioned in "H.R. 236 North Bay Reuse Program Act of 2007" (Thompson/Woolsey) and the companion Senate Bill must be addressed. S-26

- the "Napa River Salt Marsh Restoration Project FEIR", April 2004, and "Napa River Salt Marsh Restoration Project FEIS", May 2004, Coastal Conservancy and US Army Corps of Engineers, including proposed water sources from Napa SD and Sonoma SD and elsewhere. This FEIR and FEIS completely omit a discussion of the adverse impacts to the Russian River, Eel River or Sonoma County groundwater basins, of the transfer of treated wastewater for use in the Restoration Project from its availability otherwise within the SCWA service area and to its contractors to displace potable water imports from the Russian and Eel Rivers, as well as that potable water pumped from the (currently overdrafted) groundwater basins in Sonoma Valley and the Santa Rosa Plain within the SCWA S-27

service area. The Sonoma County groundwater basins are mandated as "local supply" for contractors in the Memorandum of Understanding Regarding Water Transmission System Capacity Allocation During Temporary Impairment (adopted in October 2006), the Restructured Agreement for Water Supply (adopted June 2006), and the Urban Water Management Plan 2005 (adopted December 2006). As a result, the conclusions drawn in this FEIR and FEIS are significantly incomplete and cannot be used for an adequate assessment of the cumulative impacts of the Napa River Salt Marsh Restoration Project in conjunction with NSCARP and any other contemplated agricultural irrigation or restoration projects. S-27 (Cont'd)

- any other current or future contemplated agricultural irrigation reuse projects within the SCWA service area and contractors' service areas which do not use recycled wastewater to offset potable water demands, including any projects of the North Bay Water Reuse Authority. S-28

These out of SCWA service area transfers are not included or contemplated in the water balance calculations used for the recently adopted Sonoma County Urban Water Management Plan 2005, which is currently being challenged by Sonoma County Water Coalition and other groups, including FOER. The DEIR/DEIS fails to address that substantial and significant discrepancy. S-29

**<u>The DEIR fails to address greenhouse gas (GHG) emissions of the project, both in construction and over its lifespan.</u>**

1. What are the GHG emissions as a result of all the pumping necessary to supply water to the reservoirs? This should be broken down by subarea of pipelines and pumps for each region of the NSCARP. S-30

2. What are the GHG emissions resulting from the pumping necessary to distribute water to the irrigated croplands? This should be broken down by subarea of pipelines and pumps for each region of the NSCARP.

3. What is the GHG emissions as a result of decomposition of organic matter flooded in the reservoir sites? S-31

4. The DEIR/DEIS fails to provide any alternatives to significantly reduce GHG emissions for the project, during construction or over its lifespan. The minimum standard must be measured against the County's commitment (by Resolution in 2006) to reduce GHG emissions by 25% below 1990 levels by the year 2015. S-32

**<u>The DEIR/DEIS fails to address potential impacts of the application of toxics, both regulated and 'emerging' toxics, within the treated wastewater when applied to soils and food and fodder crops within the NSCARP project areas.</u>**

1. The DEIR/DEIS fails to identify the current constituents in the targeted treated wastewater supplies.

The must be a baseline analysis of the proposed treated wastewater supplies for not just the Federal, State and locally regulated contaminants, but also for 'emerging contaminants' or non-regulated toxics that are reasonably likely to occur in treated municipal wastewater. This includes a full disclosure of such things as hormone and endocrine disruptors, chlorination byproducts, pesticides, herbicides, fungicides, and other contaminants that are not removed through a "tertiary" treatment process. S-33

A good example of a more complete and comprehensive analysis examining a comprehensive list of potential contaminants is that which was conducted for Marin Municipal Water District (MMWD) by Kennedy/Jenks Consultants in the "Engineering Report, Seawater Desalination Pilot Program", Jan. 26, 2007. A similar list for analysis should be tailored to constituents in treated municipal wastewater.

2. The DEIR/DEIS fails to supply any data addressing the impacts of such residual toxins and contaminants on soil and soil organisms in the targeted soils of the NSCARP area. Any claims of 'no adverse impact' are not supported by any data in the DEIR/DEIS. S-34

3. The DEIR/DEIS fails to supply any data addressing the impacts of such residual toxins and contaminants on food crops that would be irrigated with the treated wastewater within the NSCARP area. This would include wine grapes. Any other food crops intended for irrigation with this water must also be analyzed. What is the uptake or influence of any of these chemicals into these food crops? Any claims of 'no adverse impact' are not supported by any data in the DEIR/DEIS. S-35

4. The DEIR/DEIS fails to supply any data addressing the impacts of such residual toxins and contaminants in foods produced from these irrigated crops. This is especially sensitive and important for wines produced from grapes grown with this water. Any claims of 'no adverse impact' are not supported by any data in the DEIR/DEIS. S-36

5. Whether there is, or is not, any demonstrable physical, biological or chemical impacts on the crops and the foods produced from them, this region is a world renowned region for wines. Sonoma County wines, especially produced from vineyards in the Russian River regions, are judged, sold and viewed as "world class wines". Any impacts on their marketability as a result of consumer, professional and market judgments that grapes grown with treated wastewater are somehow inferior can and will have a substantial negative impact on their place in the world, no less local and national, market for high S-37

quality wines. As a result of such an unfortunate judgment, Sonoma County wines, vineyards and economy would be severely impacted.

There was testimony given to the Board of Supervisors in the public meeting on May 15, 2007 that clearly noted these concerns by growers and land owners:

"Katie Murphy, vice-president of the Alexander Valley Association, said any hint of tainted wastewater being spread on the county's foremost cash crop would send the local economy into a tailspin.
"I am worried that there is a huge backlash on recycled water on our grapes," Murphy said. "I fear negative publicity and that could linger over our wine industry for a long time."
Murphy's comments reflected opinions of many farmers, ranchers and vintners at the public hearing…"

Press Democrat: "Farmers, vintners cool to prospect of recycled water for irrigation", May 16, 2007, Bleys Rose.

S-37 (Cont'd)

The DEIR/DEIS fails to address the substantial physical effects such a 'tailspin', 'backlash' or market rejection of Sonoma County wines and other high value food crops would produce. These impacts would include loss of jobs, housing, increased human services, changes in land use patterns and intensities, potential parcelization of failed vineyards or conversion to other crops, changes or failures in winery support and distribution facilities and businesses, and a huge economic impact on most all other businesses in the county and region.

These negative impacts may be based on real scientific data of the negative impacts of the use of wastewater for irrigation of these valuable crops, or not. In any case, however, perception in the marketplace is the critical factor, and the DEIR/DEIS must address that possibility.

S-38

**The DEIR/DEIS fails to address potential toxic flows to the Russian River, tributaries, and groundwater, and other critical issues.**

NSCARP irrigation and storage and runoff will supplement surface and groundwater flows to the Russian River and local waterways and soils, further distributing the wide range of both listed and unlisted emerging toxics. (Impact PUB-10, BIO-7, BIO-8, PUB-7) Yet the mitigation for potential degradation consists of SCWA monitoring of research, attempts "to develop and promulgate regulations, implement treatment technologies as required by regulatory agencies", etc. For animals and plants, chronic toxicity and bioaccumulation are marked "Less than Significant". The DEIR/DEIS also require a Recycled Water User Agreement that would hold water users to some unknown standards of operations.

There is no soil or water monitoring for cumulative impacts; no bioaccumulation studies, and no baseline studies.

S-39

The DEIR/DEIS should address impacts to public health associated with storage of treated wastewater (vs, PUB-8) S-40

There is likely degradation of groundwater quality or flows is to be addressed by studies/monitoring after construction – The DEIR/DEIS fails to establish baselines prior to construction. (HWQ-4) S-41

The project pipelines will cut off of normal stream flows (BIO-10) and sediment contributions, yet this is noted as "less than significant" impacts on aquatic habitat and its inhabitants. This is not reasonable, and defies common professional standards regarding intersections with streams. S-42

The DEIR/DEIS notes increased seepage and summer flows in tributaries, and takes this as a benefit to fish habitat in Russian River and L. Mendocino water levels (HWQ-7, HWQ-9) - rather than a significant habitat altering circumstance. The DEIR/DEIS must address these impacts in more detail. S-43

Altered stream morphology by dam construction and emplacement, sediment capture, changes of peak streambed/bank altering flows is ignored completely in the DEIR/DEIS. (Geology, Hydrology and Biology sections) S-44

FOER desires a more comprehensive, credible and accurate description of the project and its impacts. Sadly, the current DEIR/DEIS fails to do this, and must be revised and recirculated for public and agency review as a Revised DEIR/DEIS.

Thank you for your attention to these comments.

Sincerely,

David Keller
Bay Area Director
Friends of the Eel River
1327 I St.
Petaluma, CA 94952
dkeller@eelriver.org
www.eelriver.org

R20
10:00a.m.

# AGENDA ITEM TRANSMITTAL REPORT

| | |
|---|---|
| **DEPARTMENT:** Sonoma County Water Agency | **SUBMITTED BY:** Randy D. Poole |
| **FOR BOARD ACTION ON:** 04-24-07 | **AS:** ( ) **CONSENT** (X) **REGULAR** |

**THIS ITEM REQUIRES: (Check appropriate boxes)**

( ) **Hearing** **10:00a.m. time certain only**
( ) **Requests Gold Resolution**
(X) **Public Appearance Anticipated**
(X) **County Counsel Approval Date** 4/19/07 **By:** [signature]
( ) **4/5 Vote**
( ) **Appropriation Transfer**
( ) **Position Alloc List Change(s)**

**AGENDA SHORT TITLE:**
Temporary Urgency Change Petition

**REQUESTED BOARD ACTION:**
Resolution authorizing the General Manager/Chief Engineer and counsel to file a Petition for Temporary Urgency Change in the Agency's water right permits with the State Water Resources Control Board to request lower minimum flows in the Russian River and Dry Creek, following receipt of letters from the California Department of Fish and Game and the National Marine Fisheries Service supporting the petition; authorizing the General Manager/Chief Engineer to take related actions to maintain fall storage in Lake Mendocino; and authorizing the General Manager/Chief Engineer to file a Notice of Exemption under CEQA.

[signature] for/ROP
**Signature of Department Head**

**Special Instructions to Clerk of the Board:**

**FOR AGENDA COMMITTEE USE**

**County Administrator's Office Recommendation:**
( ) **Approval**
( ) **Not Recommended**
( ) **Submitted with Comment**
( ) **Policy Determination by Board**

**Analyst Comment:**

**Signature of County Administrator**

**Agenda Committee Action:**
( ) **Consent Calendar**
( ) **Regular Calendar**

**Date Scheduled:** ____/___/____
**Time Scheduled:** _____
**(If required)**

| **COUNTY OF SONOMA**<br>**AGENDA ITEM**<br>**SUMMARY REPORT** | | | **Clerk of the Board Use Only**<br>**Meeting Date** ___/___/___ **Held Until** ___/___/___<br>**Agenda Item No:** _____ **Agenda Item No:** _____ |
|---|---|---|---|
| **Department:**<br>Sonoma County Water Agency | | | ( ) 4/5 Vote Required |
| **Contact:**<br>Jay Jasperse | **Phone:**<br>547-1959 | **Board Date:**<br>04-24-07 | **Deadline for Board Action:** |

**AGENDA SHORT TITLE:**
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**REQUESTED BOARD ACTION:**
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**CURRENT FISCAL YEAR FINANCIAL IMPACT**

| **EXPENDITURES** | | **ADD'L FUNDS REQUIRING BOARD APPROVAL** | |
|---|---|---|---|
| **Estimated Cost** | $ | **Contingencies (Fund Name: )** | $ |
| **Amount Budgeted** | $ | **Unanticipated Revenue (Source: )** | $ |
| **Other Avail Approp (Explain below)** | $ _____ | **Other Transfer(s) (Source: )** | $ _____ |
| **Additional Requested:** | $ -0- | **Add'l Funds Requested:** | $ |

**Explanation (if required):**

**Prior Board Action(s):**
2004 Temporary Urgency Petition.

**Alternatives - Results of Non-Approval:**
Storage in Lake Mendocino would not be maintained for fall fishery migration.

**Background:**

**A. Temporary Urgency Petition**

Conditions in the current water year are even less favorable than conditions in water years 2004 and 2002, when Lake Mendocino storage levels declined to extremely low levels. Unless some action is taken (and assuming no large late-season storms occur), Agency staff predicts that storage in Lake Mendocino will decline to about 14,000 acre-feet at the beginning of the fall Chinook migration, and to 8,000 acre-feet by the end of the fall. This situation is due both to the lack of precipitation during the recent winter storm season, and to unexpectedly lower inflows from the Potter Valley Project, because of PG&E's new FERC license.

The projected fall storage level in Lake Mendocino would be inadequate to support the fall upstream migration of Chinook salmon, which are listed as a threatened species under the federal Endangered Species Act. If fall storage in Lake Mendocino were to drop to 14,000 acre-feet at the beginning of the Chinook salmon migration, this volume of water would be too low, and the temperature of the water too high, to support the migration and subsequent spawning. As a result, there is a risk that migrating Chinook salmon in the Russian River could die in the fall unless action is taken now to maintain fall storage in Lake Mendocino.

The Agency's goal is to have 30,000 acre-feet of storage in Lake Mendocino at the beginning of the fall migration season. To meet this storage goal, the Agency's projections indicate that an additional 16,000 acre-feet must be saved from storage releases during the spring and summer. To reach this level of savings, it is imperative that releases from Lake Mendocino that would be made to achieve minimum instream flows pursuant to State Water Resources Control Board (State Board) Decision 1610 be reduced as soon as possible. The General Manager/Chief Engineer has discussed these risks with representatives of the National Marine Fisheries Service and the California Department of Fish and Game and expects to receive letters from these agencies supporting a petition to the State Water Resources Control Board to reduce these release requirements. The General Manager/Chief Engineer also met with staff from the State Board on April 18 to discuss the proposed Petition.

Currently, the Agency's water right permits require the Agency to release water from Lake Mendocino to meet the 185 cubic feet per second (cfs) instream flow requirement at the confluence of the West Fork and the East Fork of the Russian River, even though the Russian River is still gaining water from accretion flows. As a result of these accretions, flows are about 240 cfs at Hopland, 400 cfs at Healdsburg, and 500 cfs at Guerneville, even though the Agency's water rights permits currently only require minimum flows of 185 cfs at Hopland and Healdsburg, and 125 cfs at Guerneville. The Agency is thus currently required by its existing water right permits to draw down storage from Lake Mendocino for no recreational, fishery, or water supply purpose. Were the Agency able to meet its instream flow requirements at Hopland rather than at the confluence of the East and West Forks, the result would be an additional 3,600 acre-feet of fall storage, even if no other action were taken. Later in the spring and summer, these accretions will decrease and ultimately disappear. Prompt action is thus necessary to accomplish these savings.

B1

Continued...

**Attachments:** Resolution

**On File With Clerk:**

**CLERK OF THE BOARD USE ONLY**

| **Board Action (If other than "Requested")** | **Vote:** |
|---|---|
| _____ | |
| _____ | |
| _____ | |

**Background (continued):**

In order to meet the target minimum fall storage level of 30,000 acre-feet in Lake Mendocino, additional reductions in the applicable instream-flow requirements are necessary. To reach this fall storage target, the General Manager/Chief Engineer recommends that the Petition ask the State Board to reduce the required instream flows to 75 cfs between the East Fork/West Fork confluence and the Dry Creek, Russian River confluence and to 85 cfs at Guerneville. These reduced minimum flow requirements would provide the Agency with sufficient flexibility to balance releases from both Lake Mendocino and Lake Sonoma to meet peak water supply demands, while maintaining much of the fishery and recreational benefits that the river provides. If the State Board did not act, minimum flow requirements are projected to be 150 cfs between the East Fork/West Fork confluence the Dry Creek/Russian River confluence and 125 cfs at Guerneville, and Lake Mendocino storage would continue to drop dramatically. The proposed changes would be requested for this year only.

In 2004, the State Board granted the Agency's petition to reduce the minimum instream flow requirements on a temporary basis to those applicable in a "dry" year (75 cfs in the upper Russian River, and 85 cfs at Guerneville). The resulting reduced flows did not result in any significant reduction in recreational values or fisheries during that spring and summer, and allowed for higher Lake Mendocino storage and resulting fisheries protection during the fall. In addition, staff from the Agency and the United States Geological Survey (USGS) conducted extensive water quality testing during the 2004 lower flow conditions. Those tests did not identify any significant impacts to water quality resulting from the reductions in flow. The USGS report presenting these data can be found on the internet at http://pubs.usgs.gov/ds/ds168/.

Filing the Temporary Urgency Petition would be exempt from the California Environmental Quality Act under State CEQA Guidelines Section 15307 (Actions Taken by Regulatory Agencies for Protection of Natural Resources), Section 15308 (Actions by Regulatory Agencies for Protection of the Environment) and Section 15301(i) (Operations of Existing Facilities).

**B. Additional Steps for this Year**

Although reducing required instream flows is critical to conserving fall storage in Lake Mendocino this year, reducing diversions from the Russian River and its tributaries through the implementation of water conservation measures and use of recycled water is also critical to maintaining storage levels. To maximize conservation and recycled water use, the General Manager/Chief Engineer recommends that the Board authorize Agency staff to take the following actions:

- Request and encourage all users of water from the Russian River and its tributaries in Mendocino, Sonoma, and Marin Counties – including the Agency's water contractors and their customers, agricultural irrigators, municipal diverters and their customers – to implement water conservation measures to reduce the amount of water diverted from the Russian River and its tributaries.

- Implement public outreach and media programs to encourage water conservation by individuals and businesses in the Russian River watershed.

- Collaborate with wastewater agencies in the region to maximize recycled water distribution to agricultural irrigators, to decrease diversions by such irrigators from the Russian River and its tributaries.

- Develop for Board consideration a program to implement water conservation programs for municipalities outside of the Agency's service area that divert water from the Russian River or its tributaries.



Continued...

**Background (continued):**

**C. Process for Considering Changes in D1610**

It has become apparent in recent years that the Russian River and Dry Creek minimum instream flow requirements that were required by the State Water Resources Control Board 21 years ago in its Decision 1610 may no longer be appropriate. D1610 was decided before the listing of three salmonid species as threatened species under the federal Endangered Species Act, and it did not specifically address the importance of fall storage in Lake Mendocino to the Chinook salmon migration. Moreover, although D1610 assumed that greater flows would always be better for fishery resources, information developed during the Agency's Endangered Species Act Section 7 consultation suggests this may not be so, at least for the salmonid species. D1610 expressly contemplated that later fishery studies might give rise to a need to change the flows established by D1610. D1610 also expressly contemplated that flow changes might be needed in the event of a change in flows from PG&E's Potter Valley Project into the Russian River Basin. Accordingly, in D1610, the State Water Board reserved jurisdiction to reconsider minimum streamflows as needed to respond to changed conditions and new information.

Because these D1610-contemplated changes have occurred, the General Manager/Chief Engineer recommends that Agency staff commence work on a proposal to ask the State Water Resources Control Board to change D1610 minimum flows to account for these changes. Possible Russian River and Dry Creek flow changes were evaluated as a part of the Agency's Section 7 consultation with NMFS and the U.S. Army Corps of Engineers. The analysis in the Agency's Biological Assessment determined that lower summer flows would improve habitat for the listed salmonid species, and also increase the pool of cool water available in Lake Mendocino to support the fall migration runs. Changing D1610 flows to meet these fishery objectives would aide in the conservation and recovery of the listed salmonid species.

As part of the development of D1610 flow changes, the General Manager/Chief Engineer recommends holding workshops this summer in Ukiah, Healdsburg, and Guerneville to discuss the possible flow changes and the importance of the flow changes to improving summer salmonid habitat and to the preservation of fall Lake Mendocino storage levels. After the workshops, the General Manager/Chief Engineer would issue a Notice of Preparation for an Environmental Impact Report/Environmental Impact Statement, which would evaluate the environmental impacts of the flow changes and of other measures to protect and conserve the listed salmonid species.

These three suites of actions – promptly filing a Temporary Urgency Change Petition with the State Water Resources Control Board, taking actions to encourage and increase water conservation to address the pending situation, and developing a proposal for changes to the D1610 flow regime and implementation of other measures to protect fishery resources – are consistent with the Agency's long-term goal of creating a sustainable, balanced system that can both meet the needs of the Agency's water contractors and other water users and the needs of the listed species.

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Resolution to be provided later.

Friends of the Eel River
*PO Box 2305*
*Redway, CA 95560*
*(707) 923-2146*

To: Sonoma County Water Agency
440 Aviation Boulevard
Santa Rosa, CA 95409
By E-mail, Attn: David Cuneo, Senior Environmental Specialist
David@scwa.ca.gov

May 18, 2007

**RE: Draft NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT EIR/EIS, State Clearinghouse No.** 2006012130
http://www.sonomacountywater.org/projects/documents/DraftEIR-EIS.pdf

Comments for the Public Record on the above Project DEIR/DEIS

The following comments are submitted on behalf of Friends of the Eel River. Friends of the Eel River is dedicated to its mission to restore the Eel River and all of her tributaries to a natural state of health and abundance, wild and free. Plans made and actions taken by the Sonoma County Water Agency and local jurisdictions subject to, or depending upon the NSCARP and its DEIR/DEIS have both direct and indirect influence on the health and restoration of the Eel River, and as such, we appreciate the opportunity to provide these comments.

**Failure to properly identify and address significant impacts of the North Sonoma County Agricultural Reuse Project (NSCARP) in the DEIR/DEIS.**

At NSCARP DEIR/DEIS, pg ES-40, there is no listing of any adverse, significant cumulative impacts or growth related effects of the project for any topic, except construction transportation and utilities disruptions.

S-1

This is a gross understatement of impacts of the project, and is not based on fact. Rather, it may be a result of failure to analyze a number of critically important aspects of the NSCARP. We believe that the DEIR/DEIS is significantly defective in providing some critical information to reasonably inform the public and decisionmakers prior to decisionmaking and selection of alternatives, and should be rewritten and recirculated as a Revised DEIR/DEIS.

**The NSCARP DEIR/DEIS fails to identify where the recycled water for the Project will come from.**

It is now apparent that the primary intended source of treated wastewater for the NSCARP is Santa Rosa's Subregional Treatment Plant. Yet, recently Santa Rosa has indicated that they need all their treated wastewater for their own Urban water recycling programs. Santa Rosa officials have stated explicitly that it is not interested in supplying any treated wastewater to the NSCARP.

Without keeping that wastewater within their own systems and controls, Santa Rosa will not be able to offset new and existing potable water demands, placing a greater burden on the SCWA water supplies and groundwater supplies for current and future growth. S-2

If SCWA has any agreement, tentative or formal, that indicates that Santa Rosa and/or Santa Rosa Board of Public Utilities, or Sebastopol, or Windsor, or any other municipal water supplier or wastewater treatment agency is interested and willing to enter into an agreement with SCWA to supply water to the NSCARP, that document(s) must be disclosed to the public for review within the CEQA considerations and timelines of the project. The DEIR fails to provide any such source or assurance of supply.

**The DEIR/DEIS fails to identify the actual water sources, quantities and timings for the NSCARP and their respective impacts:**

1. Where will the water to be used in the NSCARP come from, identified by source, quantities (individual and aggregate) and timing over the lifespan of the project? S-3

2. What agreements will be, or have been made, with the wastewater sources for delivery in very wet, wet, average, dry and very dry water years? Such rain years are as identified in the Russian River watershed and in the upper Eel River watershed, which serves as a source for Lake Mendocino, and are used in conjunction with State Water Resources Control Board (SWRCB) Decision 1610 (D1610) required flows and releases to the Russian River. S-4

3. What agreements will be made, or have been made, with the wastewater recipients for delivery in very wet, wet, average, dry and very dry water years? Such rain years are as identified in the Russian River watershed and in the upper Eel River watershed, which serves as a source for Lake Mendocino, and are used in conjunction with D1610 required flows and releases to the Russian River. S-5

4. How much water is proposed to be delivered each month of the water year, to each sub-area or major recipient contractor or landowner of the NSCARP reservoir storage system? How much water is proposed to be delivered each month of the water year, to each sub-area or major recipient contractor of the NSCARP pipeline system for use S-6

without going into any of the NSCARP reservoirs, or without entering into a storage reservoir? S-6 (Cont'd)

5. How will these water deliveries affect current (granted in 2007) or future SCWA need for Petitions for Temporary Urgency Change Petition with the State Water Resources Control Board to reduce instream flows in the Russian River and/or Dry Creek? S-7

6. How will the NSCARP water deliveries, storage, runoff and infiltration affect the existing flows and flow requirements in D1610?

7. How will the NSCARP water deliveries, storage, runoff and infiltration affect future in-stream flow requirements in an *amended or revised D1610*, as recently considered and requested by SCWA Board of Directors at their May 15, 2007 meeting? [attached] The SCWA Board of Directors has decided to do the environmental work and engineering alternatives that would allow them to ask SWRCB to re-open the D1610 flow requirements, in the interest of setting lower requirements for in-stream flows in the Russian River. S-8

8. How will the NSCARP water deliveries, storage, runoff and infiltration affect current and future demands for water transferred from the Eel River through the PG&E Potter Valley Project (PVP) to the East Branch of the Russian River? This should be identified as potential changes in demands from SCWA and any other municipal or public water agency or irrigation district that currently draws water from the Russian River and its tributaries, Lake Mendocino or Lake Sonoma. S-9

9.How will NSCARP affect current and future demands from any private landowners, business owners or other entities that currently draw water from the Russian River and its tributaries, Lake Mendocino or Lake Sonoma? S-10

10. What will be the contractual consequences for failure to deliver any particular water quantities committed by SCWA to recipients? S-11

11. What will be the direct and indirect linkages between the NSCARP water budget and the promised improvement in the flows of the Russian River and its tributaries under varying delivery scenarios? S-12

12. What will be the effect on groundwater levels in basins within in the NSCARP project area? S-13

13. What monitoring and testing does SCWA propose to make of the water used, the groundwater where irrigation takes place, and on any crops grown on such land, to determine if any regulated or unsafe contaminants are present? S-14

14. How will the NSCARP water deliveries, storage, runoff and infiltration affect Coho, Chinook and Steelhead populations, spawning, habitat and rearing in the Russian S-15

River and its tributaries, and compliance with ESA Section 7 Consultations and Biological Opinion for these species? How will affect other important species, such as the Pikeminnow, and its predation on salmonids? S-15 (Cont'd)

15. How will the NSCARP water deliveries, storage, runoff and infiltration affect Coho, Chinook and Steelhead populations, spawning, habitat and rearing in the Eel River, and compliance with ESA Section 7 Consultations and Biological Opinion for these species? How will the NSCARP affect continued reliance on Eel River diversions through the PVP? How will the NSCARP affect attempts to control or eliminate Pikeminnow populations below Lake Pillsbury and below Cape Horn Dam at the PVP? S-16

**The DEIR/DEIS fails to address the impacts of sending treated wastewater to agricultural locations outside the SCWA service areas, instead of maximizing its use within the SCWA service areas to displace potable water demands on SCWA supplies and groundwater.** S-17

The water supplied to NSCARP facilities and irrigation sites will continue to create further dependency on growing demands for additional supplies of potable water from the Russian River, Eel River and groundwater supplies. The DEIR's failure to address these predictable and cumulative impacts to source waters violates the standards set in CEQA and reinforced in the Vineyard Area Citizens for Responsible Growth Inc v City of Rancho Cordova, and the FOER v SCWA decisions. S-18

What is the effect, both direct and indirect and cumulative, including impacts to listed salmonid fisheries in the Eel and Russian Rivers, in various water years (very dry, dry, average, wet, very wet) of NSCARP wastewater deliveries on demands for potable water withdrawals or deliveries or transfers from:

(a) the Russian River and its tributaries;
(b) the Eel River through the PG&E Potter Valley Project;
(c) the county's groundwater basins

**Exports of treated wastewater that might reasonably be used to offset or displace potable water demand by SCWA and its water contractors is inconsistent with the apparent intent, goals and policies of the draft Sonoma County General Plan.**

The draft Sonoma County General Plan states: S-19

*Goal WR-5: Assure that new proposals for surface and groundwater imports and exports are consistent with Sonoma County's ability to sustain an adequate and quality water supply for its water users and dependent natural resources.*

*Policy WR-5a: Require or request full assessment of the environmental impacts and impacts on Sonoma County water users of any proposals to physically export water to new locations outside Sonoma County or to substantially increase water supply to existing out-of-county locations. Any consideration of exporting additional water*

*resources shall place primary priority upon the benefit of and need for the resources in Sonoma County and shall assure that water resources needed by urban, rural and agricultural water users in Sonoma County will not be exported outside the county.* S-19 (Cont'd)

The water received from SCWA water contractors and their respective wastewater treatment plants contemplated in the NSCARP functionally exports water outside the SCWA, Santa Rosa, Rohnert Park, Cotati, Sebastopol and Windsor service areas, thus making the reuse of that water unavailable within the service areas for the reduction or displacement of potable water demands. S-20

The proposed NSCARP water demands are not included in the draft Sonoma County General Plan, its DEIR, or in the recently approved Sonoma County Urban Water Management Plan 2005, making the NSCARP DEIR/DEIS inconsistent with those documents.

The consequence of this is that future growth, already constrained by a lack of predictability for future growth (cited in the draft Sonoma County General Plan and DEIR), will depend on further depletion and overdrafting of the Russian River and Eel River surface water supplies in the SCWA Russian River Project, as well as further depletion and overdrafting of already negatively impacted groundwater basins in the county. S-21

**The draft Sonoma County General Plan and DEIR/DEIS state that there is insufficient water to supply the growth projected in the draft General Plan.**

The use of treated wastewater for any use other than the displacement or offset of potable water demands by SCWA or its water contractors will only exacerbate those conditions. The DEIR/DEIS must address this conflict explicitly. S-22

**Sonoma County General Plan DEIR**, Significant Unavoidable Impact 4.9-1:
*"Insufficient water supplies to meet the future water demand of the urban service areas."*
*"Land use and development consistent with the Draft GP2020 would increase the demand for water. As a result, insufficient water supplies would be available to serve some of the unincorporated USA's from existing entitlements. New or expanded entitlements would be required." (p. 6.0-22)*

*Significant Unavoidable Impact 4.9-2:*
*"Insufficient Water Supplies to meet the future water demand of rural private domestic, small municipal, and agricultural wells."*
*"Land uses and development consistent with the Draft GP2020 would result in an increased demand on groundwater supplies for rural uses. Due to the lack of comprehensive information regarding the county's groundwater resources, it is uncertain if groundwater supplies would be sufficient to meet the future demand of rural private domestic, small municipal, and agricultural wells. This uncertainty combined with the current regulatory approach could result in insufficient groundwater supplies in rural areas of the county."* S-23

*Significant Unavoidable Impact 4.9-3:*
*"New or expanded water supply facilities"*
*"Land Uses and development consistent with the Draft GP2020 could result in the need for increased water supply facilities, either through the construction of new facilities or through the expansion or retrofitting of existing facilities. Construction of new or expanded water supply facilities could result in site-specific impacts, especially on aquatic organisms and fisheries."* S-23 (Cont'd)

**The DEIR/DEIS fails to address the cumulative impacts of the wastewater proposed for the NSCARP and the use of recycled wastewaters exported from within the SCWA service area for other reuse and irrigation projects.**

These cumulative impacts, including impacts to the listed salmonid species of the Eel and Russian Rivers, must include the proposed uses in NSCARP of recycled water from within the SCWA service area, in combination with the use of recycled water contemplated in the following proposed projects, of which SCWA is a key participant. Such cumulative uses of wastewater would create yet further dependencies and reliance on SCWA potable water supplies. S-24

Such projects include:

- the SCWA and Bureau of Reclamation's "North San Pablo Bay Restoration and Reuse Project", including recycled water from Las Gallinas Valley Sanitary District (LGVSD), Novato Sanitary District (Novato SD), Sonoma Valley County Sanitary District (SVCSD), Napa Sanitation District (Napa SD), SCWA and potentially the City of Petaluma and other sources, as currently described in the CampDresserMcKee "Phase 2 Engineering and Feasibility Study Report, June 2006" as revised, and in other documents in possession of SCWA, Bureau of Reclamation and other agencies. S-25

- the agricultural irrigation and salt marsh restoration projects envisioned in "H.R. 236 North Bay Reuse Program Act of 2007" (Thompson/Woolsey) and the companion Senate Bill must be addressed. S-26

- the "Napa River Salt Marsh Restoration Project FEIR", April 2004, and "Napa River Salt Marsh Restoration Project FEIS", May 2004, Coastal Conservancy and US Army Corps of Engineers, including proposed water sources from Napa SD and Sonoma SD and elsewhere. This FEIR and FEIS completely omit a discussion of the adverse impacts to the Russian River, Eel River or Sonoma County groundwater basins, of the transfer of treated wastewater for use in the Restoration Project from its availability otherwise within the SCWA service area and to its contractors to displace potable water imports from the Russian and Eel Rivers, as well as that potable water pumped from the (currently overdrafted) groundwater basins in Sonoma Valley and the Santa Rosa Plain within the SCWA S-27

service area. The Sonoma County groundwater basins are mandated as "local supply" for contractors in the Memorandum of Understanding Regarding Water Transmission System Capacity Allocation During Temporary Impairment (adopted in October 2006), the Restructured Agreement for Water Supply (adopted June 2006), and the Urban Water Management Plan 2005 (adopted December 2006). As a result, the conclusions drawn in this FEIR and FEIS are significantly incomplete and cannot be used for an adequate assessment of the cumulative impacts of the Napa River Salt Marsh Restoration Project in conjunction with NSCARP and any other contemplated agricultural irrigation or restoration projects. S-27 (Cont'd)

- any other current or future contemplated agricultural irrigation reuse projects within the SCWA service area and contractors' service areas which do not use recycled wastewater to offset potable water demands, including any projects of the North Bay Water Reuse Authority. S-28

These out of SCWA service area transfers are not included or contemplated in the water balance calculations used for the recently adopted Sonoma County Urban Water Management Plan 2005, which is currently being challenged by Sonoma County Water Coalition and other groups, including FOER. The DEIR/DEIS fails to address that substantial and significant discrepancy. S-29

**<u>The DEIR fails to address greenhouse gas (GHG) emissions of the project, both in construction and over its lifespan.</u>**

1. What are the GHG emissions as a result of all the pumping necessary to supply water to the reservoirs? This should be broken down by subarea of pipelines and pumps for each region of the NSCARP. S-30

2. What are the GHG emissions resulting from the pumping necessary to distribute water to the irrigated croplands? This should be broken down by subarea of pipelines and pumps for each region of the NSCARP.

3. What is the GHG emissions as a result of decomposition of organic matter flooded in the reservoir sites? S-31

4. The DEIR/DEIS fails to provide any alternatives to significantly reduce GHG emissions for the project, during construction or over its lifespan. The minimum standard must be measured against the County's commitment (by Resolution in 2006) to reduce GHG emissions by 25% below 1990 levels by the year 2015. S-32

**<u>The DEIR/DEIS fails to address potential impacts of the application of toxics, both regulated and 'emerging' toxics, within the treated wastewater when applied to soils and food and fodder crops within the NSCARP project areas.</u>**

1. The DEIR/DEIS fails to identify the current constituents in the targeted treated wastewater supplies.

The must be a baseline analysis of the proposed treated wastewater supplies for not just the Federal, State and locally regulated contaminants, but also for 'emerging contaminants' or non-regulated toxics that are reasonably likely to occur in treated municipal wastewater. This includes a full disclosure of such things as hormone and endocrine disruptors, chlorination byproducts, pesticides, herbicides, fungicides, and other contaminants that are not removed through a "tertiary" treatment process. S-33

A good example of a more complete and comprehensive analysis examining a comprehensive list of potential contaminants is that which was conducted for Marin Municipal Water District (MMWD) by Kennedy/Jenks Consultants in the "Engineering Report, Seawater Desalination Pilot Program", Jan. 26, 2007. A similar list for analysis should be tailored to constituents in treated municipal wastewater.

2. The DEIR/DEIS fails to supply any data addressing the impacts of such residual toxins and contaminants on soil and soil organisms in the targeted soils of the NSCARP area. Any claims of 'no adverse impact' are not supported by any data in the DEIR/DEIS. S-34

3. The DEIR/DEIS fails to supply any data addressing the impacts of such residual toxins and contaminants on food crops that would be irrigated with the treated wastewater within the NSCARP area. This would include wine grapes. Any other food crops intended for irrigation with this water must also be analyzed. What is the uptake or influence of any of these chemicals into these food crops? Any claims of 'no adverse impact' are not supported by any data in the DEIR/DEIS. S-35

4. The DEIR/DEIS fails to supply any data addressing the impacts of such residual toxins and contaminants in foods produced from these irrigated crops. This is especially sensitive and important for wines produced from grapes grown with this water. Any claims of 'no adverse impact' are not supported by any data in the DEIR/DEIS. S-36

5. Whether there is, or is not, any demonstrable physical, biological or chemical impacts on the crops and the foods produced from them, this region is a world renowned region for wines. Sonoma County wines, especially produced from vineyards in the Russian River regions, are judged, sold and viewed as "world class wines". Any impacts on their marketability as a result of consumer, professional and market judgments that grapes grown with treated wastewater are somehow inferior can and will have a substantial negative impact on their place in the world, no less local and national, market for high S-37

quality wines. As a result of such an unfortunate judgment, Sonoma County wines, vineyards and economy would be severely impacted.

There was testimony given to the Board of Supervisors in the public meeting on May 15, 2007 that clearly noted these concerns by growers and land owners:

"Katie Murphy, vice-president of the Alexander Valley Association, said any hint of tainted wastewater being spread on the county's foremost cash crop would send the local economy into a tailspin.
"I am worried that there is a huge backlash on recycled water on our grapes," Murphy said. "I fear negative publicity and that could linger over our wine industry for a long time."
Murphy's comments reflected opinions of many farmers, ranchers and vintners at the public hearing…"

Press Democrat: "Farmers, vintners cool to prospect of recycled water for irrigation", May 16, 2007, Bleys Rose.

S-37 (Cont'd)

The DEIR/DEIS fails to address the substantial physical effects such a 'tailspin', 'backlash' or market rejection of Sonoma County wines and other high value food crops would produce. These impacts would include loss of jobs, housing, increased human services, changes in land use patterns and intensities, potential parcelization of failed vineyards or conversion to other crops, changes or failures in winery support and distribution facilities and businesses, and a huge economic impact on most all other businesses in the county and region.

These negative impacts may be based on real scientific data of the negative impacts of the use of wastewater for irrigation of these valuable crops, or not. In any case, however, perception in the marketplace is the critical factor, and the DEIR/DEIS must address that possibility.

S-38

**The DEIR/DEIS fails to address potential toxic flows to the Russian River, tributaries, and groundwater, and other critical issues.**

NSCARP irrigation and storage and runoff will supplement surface and groundwater flows to the Russian River and local waterways and soils, further distributing the wide range of both listed and unlisted emerging toxics. (Impact PUB-10, BIO-7, BIO-8, PUB-7) Yet the mitigation for potential degradation consists of SCWA monitoring of research, attempts "to develop and promulgate regulations, implement treatment technologies as required by regulatory agencies", etc. For animals and plants, chronic toxicity and bioaccumulation are marked "Less than Significant". The DEIR/DEIS also require a Recycled Water User Agreement that would hold water users to some unknown standards of operations.

There is no soil or water monitoring for cumulative impacts; no bioaccumulation studies, and no baseline studies.

S-39

The DEIR/DEIS should address impacts to public health associated with storage of treated wastewater (vs, PUB-8) S-40

There is likely degradation of groundwater quality or flows is to be addressed by studies/monitoring after construction – The DEIR/DEIS fails to establish baselines prior to construction. (HWQ-4) S-41

The project pipelines will cut off of normal stream flows (BIO-10) and sediment contributions, yet this is noted as "less than significant" impacts on aquatic habitat and its inhabitants. This is not reasonable, and defies common professional standards regarding intersections with streams. S-42

The DEIR/DEIS notes increased seepage and summer flows in tributaries, and takes this as a benefit to fish habitat in Russian River and L. Mendocino water levels (HWQ-7, HWQ-9) - rather than a significant habitat altering circumstance. The DEIR/DEIS must address these impacts in more detail. S-43

Altered stream morphology by dam construction and emplacement, sediment capture, changes of peak streambed/bank altering flows is ignored completely in the DEIR/DEIS. (Geology, Hydrology and Biology sections) S-44

FOER desires a more comprehensive, credible and accurate description of the project and its impacts. Sadly, the current DEIR/DEIS fails to do this, and must be revised and recirculated for public and agency review as a Revised DEIR/DEIS.

Thank you for your attention to these comments.

Sincerely,

David Keller
Bay Area Director
Friends of the Eel River
1327 I St.
Petaluma, CA 94952
dkeller@eelriver.org
www.eelriver.org

R20
10:00a.m.

# AGENDA ITEM TRANSMITTAL REPORT

| | |
|---|---|
| **DEPARTMENT:** Sonoma County Water Agency | **SUBMITTED BY:** Randy D. Poole |
| **FOR BOARD ACTION ON:** 04-24-07 | **AS:** ( ) **CONSENT** (X) **REGULAR** |

**THIS ITEM REQUIRES: (Check appropriate boxes)**

( ) **Hearing** **10:00a.m. time certain only**
( ) **Requests Gold Resolution**
(X) **Public Appearance Anticipated**
(X) **County Counsel Approval Date** 4/19/07 **By:** [signature]
( ) **4/5 Vote**
( ) **Appropriation Transfer**
( ) **Position Alloc List Change(s)**

**AGENDA SHORT TITLE:**
Temporary Urgency Change Petition

**REQUESTED BOARD ACTION:**
Resolution authorizing the General Manager/Chief Engineer and counsel to file a Petition for Temporary Urgency Change in the Agency's water right permits with the State Water Resources Control Board to request lower minimum flows in the Russian River and Dry Creek, following receipt of letters from the California Department of Fish and Game and the National Marine Fisheries Service supporting the petition; authorizing the General Manager/Chief Engineer to take related actions to maintain fall storage in Lake Mendocino; and authorizing the General Manager/Chief Engineer to file a Notice of Exemption under CEQA.

[signature] for/ROP
**Signature of Department Head**

**Special Instructions to Clerk of the Board:**

**FOR AGENDA COMMITTEE USE**

**County Administrator's Office Recommendation:**
( ) **Approval**
( ) **Not Recommended**
( ) **Submitted with Comment**
( ) **Policy Determination by Board**

**Analyst Comment:**

**Signature of County Administrator**

**Agenda Committee Action:**
( ) **Consent Calendar**
( ) **Regular Calendar**

**Date Scheduled:** ____/___/____
**Time Scheduled:** _____
**(If required)**

| **COUNTY OF SONOMA**<br>**AGENDA ITEM**<br>**SUMMARY REPORT** | | | **Clerk of the Board Use Only**<br>**Meeting Date** ___/___/___ **Held Until** ___/___/___<br>**Agenda Item No:** _____ **Agenda Item No:** _____ |
|---|---|---|---|
| **Department:**<br>Sonoma County Water Agency | | | ( ) 4/5 Vote Required |
| **Contact:**<br>Jay Jasperse | **Phone:**<br>547-1959 | **Board Date:**<br>04-24-07 | **Deadline for Board Action:** |

**AGENDA SHORT TITLE:**
Temporary Urgency Change Petition

**REQUESTED BOARD ACTION:**
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**CURRENT FISCAL YEAR FINANCIAL IMPACT**

| **EXPENDITURES** | | **ADD'L FUNDS REQUIRING BOARD APPROVAL** | |
|---|---|---|---|
| **Estimated Cost** | $ | **Contingencies (Fund Name: )** | $ |
| **Amount Budgeted** | $ | **Unanticipated Revenue (Source: )** | $ |
| **Other Avail Approp (Explain below)** | $ _____ | **Other Transfer(s) (Source: )** | $ _____ |
| **Additional Requested:** | $ -0- | **Add'l Funds Requested:** | $ |

**Explanation (if required):**

**Prior Board Action(s):**
2004 Temporary Urgency Petition.

**Alternatives - Results of Non-Approval:**
Storage in Lake Mendocino would not be maintained for fall fishery migration.

**Background:**

**A. Temporary Urgency Petition**

Conditions in the current water year are even less favorable than conditions in water years 2004 and 2002, when Lake Mendocino storage levels declined to extremely low levels. Unless some action is taken (and assuming no large late-season storms occur), Agency staff predicts that storage in Lake Mendocino will decline to about 14,000 acre-feet at the beginning of the fall Chinook migration, and to 8,000 acre-feet by the end of the fall. This situation is due both to the lack of precipitation during the recent winter storm season, and to unexpectedly lower inflows from the Potter Valley Project, because of PG&E's new FERC license.

The projected fall storage level in Lake Mendocino would be inadequate to support the fall upstream migration of Chinook salmon, which are listed as a threatened species under the federal Endangered Species Act. If fall storage in Lake Mendocino were to drop to 14,000 acre-feet at the beginning of the Chinook salmon migration, this volume of water would be too low, and the temperature of the water too high, to support the migration and subsequent spawning. As a result, there is a risk that migrating Chinook salmon in the Russian River could die in the fall unless action is taken now to maintain fall storage in Lake Mendocino.

The Agency's goal is to have 30,000 acre-feet of storage in Lake Mendocino at the beginning of the fall migration season. To meet this storage goal, the Agency's projections indicate that an additional 16,000 acre-feet must be saved from storage releases during the spring and summer. To reach this level of savings, it is imperative that releases from Lake Mendocino that would be made to achieve minimum instream flows pursuant to State Water Resources Control Board (State Board) Decision 1610 be reduced as soon as possible. The General Manager/Chief Engineer has discussed these risks with representatives of the National Marine Fisheries Service and the California Department of Fish and Game and expects to receive letters from these agencies supporting a petition to the State Water Resources Control Board to reduce these release requirements. The General Manager/Chief Engineer also met with staff from the State Board on April 18 to discuss the proposed Petition.

Currently, the Agency's water right permits require the Agency to release water from Lake Mendocino to meet the 185 cubic feet per second (cfs) instream flow requirement at the confluence of the West Fork and the East Fork of the Russian River, even though the Russian River is still gaining water from accretion flows. As a result of these accretions, flows are about 240 cfs at Hopland, 400 cfs at Healdsburg, and 500 cfs at Guerneville, even though the Agency's water rights permits currently only require minimum flows of 185 cfs at Hopland and Healdsburg, and 125 cfs at Guerneville. The Agency is thus currently required by its existing water right permits to draw down storage from Lake Mendocino for no recreational, fishery, or water supply purpose. Were the Agency able to meet its instream flow requirements at Hopland rather than at the confluence of the East and West Forks, the result would be an additional 3,600 acre-feet of fall storage, even if no other action were taken. Later in the spring and summer, these accretions will decrease and ultimately disappear. Prompt action is thus necessary to accomplish these savings.

B1

Continued...

**Attachments:** Resolution

**On File With Clerk:**

**CLERK OF THE BOARD USE ONLY**

| **Board Action (If other than "Requested")** | **Vote:** |
|---|---|
| _____ | |
| _____ | |
| _____ | |

**Background (continued):**

In order to meet the target minimum fall storage level of 30,000 acre-feet in Lake Mendocino, additional reductions in the applicable instream-flow requirements are necessary. To reach this fall storage target, the General Manager/Chief Engineer recommends that the Petition ask the State Board to reduce the required instream flows to 75 cfs between the East Fork/West Fork confluence and the Dry Creek, Russian River confluence and to 85 cfs at Guerneville. These reduced minimum flow requirements would provide the Agency with sufficient flexibility to balance releases from both Lake Mendocino and Lake Sonoma to meet peak water supply demands, while maintaining much of the fishery and recreational benefits that the river provides. If the State Board did not act, minimum flow requirements are projected to be 150 cfs between the East Fork/West Fork confluence the Dry Creek/Russian River confluence and 125 cfs at Guerneville, and Lake Mendocino storage would continue to drop dramatically. The proposed changes would be requested for this year only.

In 2004, the State Board granted the Agency's petition to reduce the minimum instream flow requirements on a temporary basis to those applicable in a "dry" year (75 cfs in the upper Russian River, and 85 cfs at Guerneville). The resulting reduced flows did not result in any significant reduction in recreational values or fisheries during that spring and summer, and allowed for higher Lake Mendocino storage and resulting fisheries protection during the fall. In addition, staff from the Agency and the United States Geological Survey (USGS) conducted extensive water quality testing during the 2004 lower flow conditions. Those tests did not identify any significant impacts to water quality resulting from the reductions in flow. The USGS report presenting these data can be found on the internet at http://pubs.usgs.gov/ds/ds168/.

Filing the Temporary Urgency Petition would be exempt from the California Environmental Quality Act under State CEQA Guidelines Section 15307 (Actions Taken by Regulatory Agencies for Protection of Natural Resources), Section 15308 (Actions by Regulatory Agencies for Protection of the Environment) and Section 15301(i) (Operations of Existing Facilities).

**B. Additional Steps for this Year**

Although reducing required instream flows is critical to conserving fall storage in Lake Mendocino this year, reducing diversions from the Russian River and its tributaries through the implementation of water conservation measures and use of recycled water is also critical to maintaining storage levels. To maximize conservation and recycled water use, the General Manager/Chief Engineer recommends that the Board authorize Agency staff to take the following actions:

- Request and encourage all users of water from the Russian River and its tributaries in Mendocino, Sonoma, and Marin Counties – including the Agency's water contractors and their customers, agricultural irrigators, municipal diverters and their customers – to implement water conservation measures to reduce the amount of water diverted from the Russian River and its tributaries.

- Implement public outreach and media programs to encourage water conservation by individuals and businesses in the Russian River watershed.

- Collaborate with wastewater agencies in the region to maximize recycled water distribution to agricultural irrigators, to decrease diversions by such irrigators from the Russian River and its tributaries.

- Develop for Board consideration a program to implement water conservation programs for municipalities outside of the Agency's service area that divert water from the Russian River or its tributaries.



Continued...

**Background (continued):**

**C. Process for Considering Changes in D1610**

It has become apparent in recent years that the Russian River and Dry Creek minimum instream flow requirements that were required by the State Water Resources Control Board 21 years ago in its Decision 1610 may no longer be appropriate. D1610 was decided before the listing of three salmonid species as threatened species under the federal Endangered Species Act, and it did not specifically address the importance of fall storage in Lake Mendocino to the Chinook salmon migration. Moreover, although D1610 assumed that greater flows would always be better for fishery resources, information developed during the Agency's Endangered Species Act Section 7 consultation suggests this may not be so, at least for the salmonid species. D1610 expressly contemplated that later fishery studies might give rise to a need to change the flows established by D1610. D1610 also expressly contemplated that flow changes might be needed in the event of a change in flows from PG&E's Potter Valley Project into the Russian River Basin. Accordingly, in D1610, the State Water Board reserved jurisdiction to reconsider minimum streamflows as needed to respond to changed conditions and new information.

Because these D1610-contemplated changes have occurred, the General Manager/Chief Engineer recommends that Agency staff commence work on a proposal to ask the State Water Resources Control Board to change D1610 minimum flows to account for these changes. Possible Russian River and Dry Creek flow changes were evaluated as a part of the Agency's Section 7 consultation with NMFS and the U.S. Army Corps of Engineers. The analysis in the Agency's Biological Assessment determined that lower summer flows would improve habitat for the listed salmonid species, and also increase the pool of cool water available in Lake Mendocino to support the fall migration runs. Changing D1610 flows to meet these fishery objectives would aide in the conservation and recovery of the listed salmonid species.

As part of the development of D1610 flow changes, the General Manager/Chief Engineer recommends holding workshops this summer in Ukiah, Healdsburg, and Guerneville to discuss the possible flow changes and the importance of the flow changes to improving summer salmonid habitat and to the preservation of fall Lake Mendocino storage levels. After the workshops, the General Manager/Chief Engineer would issue a Notice of Preparation for an Environmental Impact Report/Environmental Impact Statement, which would evaluate the environmental impacts of the flow changes and of other measures to protect and conserve the listed salmonid species.

These three suites of actions – promptly filing a Temporary Urgency Change Petition with the State Water Resources Control Board, taking actions to encourage and increase water conservation to address the pending situation, and developing a proposal for changes to the D1610 flow regime and implementation of other measures to protect fishery resources – are consistent with the Agency's long-term goal of creating a sustainable, balanced system that can both meet the needs of the Agency's water contractors and other water users and the needs of the listed species.

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Resolution to be provided later.

SODA ROCK
NEIGHBORHOOD ASSOCIATION
A COMMUNITY IN THE ALEXANDER VALLEY SINCE 1850

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
MAY 1 8 2007
Orig. Filed_____
PROJ/NORTH SONOMA COUNTY AGRICULTURAL
REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

May 17, 2007

Sonoma County Water Agency
Attention: David Cuneo, Senior Environmental Specialist
404 Aviation Boulevard
Santa Rosa, California 95409

U.S. Department of the Interior
Bureau of Reclamation
Attention: Douglas Kleinsmith, Environmental Specialist
2800 Cottage Way
Sacramento, California 95825

**Subject:** **Comments on North Sonoma County Agricultural Reuse Project (NSCARP) Draft Environmental Impact Report/Environmental Impact Statement**

Dear Mr. Cuneo and Mr. Kleinsmith:

These comments are submitted on behalf of the Soda Rock Neighborhood Association (SRNA), which represents the interests of residents, ranchers, and businesses in the southern Alexander Valley. Additional comments are being submitted by SRNA's attorney, Leslie R. Perry of Perry, Johnson, Anderson, Miller & Moskowitz, LLP. We contend that this DEIR/S is so significantly deficient – from project need to project description to alternatives analysis to impact conclusions – that it must be withdrawn and redone if the NSCARP project is to proceed in any form. T-1

Like many others who spoke at the Public Hearing, we support the idea of reuse in principle. But not all reuse projects are created equal. This particular project is ill-conceived and woefully under-studied. It puts at risk the drinking water supplies of rural residents and the famed quality and reputation of local wines which form the basis of our economy. T-2 While many of our neighborhood residents are also grapegrowers, none have expressed interest in using recycled water on our vineyards. T-3

POST OFFICE BOX 354, HEALDSBURG, CA 95448-0354
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EMAIL: SODAROCK.NA@GMAIL.COM

## PROJECT NEED

Page 1-3 of the DEIR/S lists two needs of the NSCARP project. Let's examine each of these need statements carefully.

***1. "There is a need to allow water to remain in the Russian River system and its tributaries to improve habitat for listed fish species."***

The document continues, "NSCARP would result in fewer agricultural diversions from the Russian River and its tributaries, which would enable the SCWA to release less water from storage in Lakes Mendocino and Sonoma to meet water demands and instream flow requirements. This would result in more water being conserved in these reservoirs, which would provide more operational flexibility for the SCWA to benefit fisheries sources in the Russian River."

There is no discussion in the DEIR/S of how much additional water should remain in the Russian River system. There is also no analysis of how any particular additional quantity of water would benefit fisheries sources. There is no biological opinion about the benefit to endangered salmonid species, nor is there any evidence to quantify the beneficial impact HWQ-7 on which the entire project rationale rests. Accordingly, it is impossible to make any judgments about whether the scale of the project is appropriate to the need to improve salmonid habitat. T-4

Reducing surface water diversions would certainly increase water levels in the river and its tributaries. The DEIR/S also lumps together surface water and groundwater use by agriculture, without distinguishing between them. The implication is that reducing groundwater use would achieve the same benefits as reducing surface water use. This seems doubtful, since only a small and unknown portion of groundwater offset by recycled water would flow back into the river system. T-5

Benefits to fisheries will result only to the extent that ***existing*** agricultural water use is shifted to recycled water. Nothing in the DEIR/S prevents recycled water from being used to irrigate land which is currently uncultivated because of inadequate water. Thus NSCARP has the potential to increase the acreage planted to grapes, with all kinds of resulting environmental impacts unaddressed in this DEIR/S. T-6

***2. "There is also a need for adequate infrastructure to store and distribute recycled water produced by various entities for reuse throughout the region."***

This is a mis-statement of the true need, which is to best leverage the available supply of wastewater. As a consequence of this mis-statement, the Project Alternatives are too narrow and represent only differently scaled versions of the same approach. T-7

The Project Alternatives exclude advanced treatment options which could turn tertiary-treated wastewater into potable water. This approach is used successfully in Orange County and Singapore, to name just two examples. Using urban generated wastewater to supplement urban water supply could be much more energy-efficient than pumping wastewater to the rural north and fresh water to the urban south, while also meeting water recycling objectives. T-8

The Project Alternatives to meet this need should also include the discharge, storage, and reuse options now being studied by Santa Rosa, the source of most of the proposed supply for NSCARP. In fact, Santa Rosa's Incremental Recycled Water Program Master Plan is an alternative to the NSCARP project and should be evaluated as such. T-9

***Linking Need #1 and Need #2 Unnecessarily***

Needs #1 and #2 are unrelated. Each could be satisfied by independent solutions. By interconnecting them – effectively requiring a solution for need #1 to satisfy artificially defined criteria (meeting need #2 coincidentally) – this DEIR effectively eliminates evaluation of combinations of projects which together meet both needs. For example, demand-side management and conservation projects could meet Need #1. Urban reuse, advanced treatment, inflow and infiltration reduction, and conservation projects could meet (a correctly stated) Need #2. T-10

This is another serious flaw with the NSCARP DEIR/S.

## PURPOSES/OBJECTIVES

The DEIR/S then takes a great leap from the statement of needs to the stated purposes and objectives of the project. These are claimed to be:

1. Provide a reliable, long-term water supply for agricultural interests.

2. Reduce discharges from local wastewater treatment plants to local waterways.

3. Reduce the use of groundwater and surface water for agricultural purposes in north Sonoma County.

4. Provide an environmentally responsible, long-term method of recycled water use.

5. Increase reliability and long-term sustainability of the regional water supply.

This is where the reasoning in the DEIR/S becomes suspect.

First, the DEIR provides no evidence that the long-term water supply for agriculture in the North County will be unreliable without the project. In fact, hydrographs for 8 wells in an Alexander Valley study between 1976 and 1999 indicate essentially no long-term change in water levels. T-11

Second, while the purposes and objectives of a project must satisfy the stated needs, none of this DEIR/S's purposes/objectives as stated directly address its need #1, namely protecting endangered species of fish – except for reducing surface water use for agriculture. Instead, what is presented as purposes/objectives are really the purported *benefits* of NSCARP. As a consequence of misstating the purpose and objectives of the project, the evaluation of alternatives is more than simply biased. This DEIR/S presents circular reasoning with self-fulfilling arguments. T-12

Third, the DEIR/S provides no arguments in support of its contention that the reduction of groundwater use by agricultural interests is a desirable purpose/objective or that it is in any way connected to the needs of the project. Nor does the DEIR/S address the critical question of who would benefit from the potable water offset from substitution of recycled water for groundwater currently pumped by farmers. One can speculate that the beneficiary may well be the Sonoma County Water Agency, which could extract groundwater no longer needed by farmers from the Alexander, Dry Creek, and Russian River valleys and pipe it for sale to urban customers. The lead agencies need to disclose their intentions for the potable water offset from reduced agricultural use of ground water in order for the project DEIR/S to be complete. T-13

## ENVIRONMENTAL SETTING

The DEIR/S does not characterize the existing Russian River water system, including historical releases and flows. Nor does it characterize agricultural water use in the NSCARP surface area. The DEIR/S quantifies neither the amount of surface water currently diverted for agricultural purposes nor the potential reduction in those diversions which the NSCARP project might enable. In fact, page 2-9 states that "the contribution from each of these (water) sources -- natural stream flow, natural runoff storage, and groundwater – has ***not been quantified*** as part of this report."

Without quantifying the surface water diversion reduction, it is impossible to assess accurately the environmental benefit of NSCARP to fish habitat improvement. It is also impossible to evaluate the project's scale and environmental impacts. T-14

The USGS 2006 study of the Alexander Valley groundwater basin states that "groundwater is the main source of water supply for this area." It also states that 85% of Alexander Valley water use is for agricultural purposes. Since most of the agricultural water supply is coming from groundwater rather than surface water, reductions in surface water diversions resulting from NSCARP have limited potential impact on fish habitat. T-15

## INACCURATE IMPACT ASSESSMENTS BASED ON INCOMPLETE ANALYSIS

We take issue with many of the impact conclusions which are based on limited and superficial analysis. Below are some detailed examples of these serious flaws in the areas of Groundwater Quality, Geotechnical Hazards, Transportation and Traffic, and

General Plan Consistency. The DEIR/S has not studied the environmental impacts fully enough to be able to draw defensible conclusions. Some necessary studies have been omitted completely. Nor have impacts on the many specific sites for NSCARP facilities been specifically identified and analyzed.

***Groundwater Quality***

The DEIR/S does not contain water-balance, chemical-balance, and fate-and-transport analyses to determine the influence of recycled water irrigation on groundwater quality. SRNA retained a hydrogeologist to perform some of these analyses for our particular area. His Technical Memorandum (submitted separately) concludes that NSCARP would cause local groundwater supplies to go from high quality to low quality. Total dissolved solids and nitrate levels could exceed drinking water standards and leave many rural residents without a drinking water source. This would constitute a violation of the Anti-Degradation Policy. T-16

Clearly, this is a significant impact. CEQA requires disclosure of significant environmental impacts, defined as a "substantial, or potentially substantial, adverse change in the environment." Yet the DEIR/S asserts that the project's impact on groundwater quality is less than significant after mitigation, which consists of a monitoring program. No supporting analysis is provided. Also, under CEQA, monitoring is not an acceptable mitigation measure. T-17

Furthermore, the DEIR/S presents concentrations for only 22 of the 88 chemical and biological constituents required by the California Department of Health Services for public water systems. Only one of the 26 volatile organic compounds is analyzed. None of the synthetic organic chemicals in the DHS drinking water panel are reported. This is a very serious inadequacy. T-18

Given the level of concern about emerging contaminants, the DEIR/S should also present analyses showing the concentration of all the chemicals identified by the U.S. Geologic Survey (USGS) as Emerging Contaminants of Concern. While it may be too early to assess the environmental impact of these chemicals, the DEIR/S should at minimum identify and disclose which of those chemicals are present in the proposed recycled water supply and at what concentrations. T-19

The NSCARP DEIR/S lacks a site-specific groundwater evaluation showing the estimated rate of lateral movement for water infiltrating from proposed reservoirs. It also fails to include any discussion of the varying impacts of different types of recycled water irrigation (e.g. drip, spray, frost protection) on different soil types. T-20

***Geotechnical Hazards***

The DEIR/S references a report by Geoservices on five of the 19 proposed reservoir and dam sites. The other 14 sites were not studied for geologic hazards. This is a serious omission. T-21

The Jordan reservoir sites in Alexander Valley were two of the sites studied. The Geoservices report cites serious concerns: "At the Jordan sites, the presence of potentially active or capable faults appears to represent the primary geologic impact. The feasibility of dam construction will require additional evaluation of the surface fault rupture hazards." The Jordan sites also contain landslide hazards. T-22

The DEIR/S claims that the impact of ground rupture and landslides on NSCARP facilities will be less than significant after mitigation. This does not make sense. How can the Jordan sites' impact be less than significant if geotechnical feasibility hasn't yet been established? How can the impact of the entire project be less than significant if the vast majority of reservoir and dam sites haven't yet been studied?

The City of Santa Rosa is studying the exact same Jordan sites (referenced as AVR1 and AVR2) in preparation for an EIR. Their geotechnical evaluation (Draft Engineering Report, Seasonal Storage Project, Incremental Recycled Water Program, April 2007) raises significant issues about the site, none of which are addressed in the NSCARP DEIR/S:

Page 3: "The presence of faults and landslides at the AVR site requires performing additional geotechnical analysis before detailed design efforts occur. The additional analysis is required to satisfy the Division of Safety of Dams (DSOD) requirements regarding the period of time since the faults were active and to map the additional locations and depths of landslides for the detailed designs."

Page 9: "Potential fault displacement hazards are best mitigated by locating storage facilities away from the surface fault trace. ... For conceptual designs, pond embankments have been kept at least 100 feet away from the fault trace." As a result of this setback requirement, Santa Rosa has downscaled the reservoir capacity by 46% to 293 million gallons or 899 acre-feet – much less than the 1821 acre-feet for Jordan Reservoirs A and C as shown in Table 2-7 of the NSCARP DEIR/S. T-23

Page 10: "Due to fractures and jointing in the bedrock, the foundation will require extensive underseepage control measures."

Page 11: "At the AVR ponds, where bedrock is expected to be shallow, the variable slope and character of the reservoir bottom and the rocky character of embankment materials ***will make lining impractical***. "Seepage from the ponds will be under the embankment and down the valley," in the direction of SRNA members' drinking water wells. The NSCARP DEIR/S asserts that clay linings are essential mitigation measures for impacts HWQ-4, HWQ-9, PUB-7, and PUB-8. If lining the Jordan reservoirs is impractical, then the assertions of less than significant impact must be incorrect.

These examples demonstrate that the geotechnical evaluation performed by Geoservices on the Jordan sites for the NSCARP DEIR/S is superficial and flawed.

***Transportation and Traffic***

Impact TRA-4 states "NSCARP construction potentially could result in significant traffic delays resulting in inadequate emergency access." The impact is stated to be less than significant after mitigation. This is simply not credible, nor is inadequate emergency access the only impact of significant traffic delays. T-24

Northern Sonoma County residents, businesses, and visitors endured several years of traffic delays, inconvenience, as a result of pipeline construction along Alexander Valley Road. No one who experienced this could reasonably argue that the impact was less than significant. Santa Rosa had a Traffic Control Plan, as does NSCARP, but it was ineffective (see minutes of Santa Rosa Board of Public Utilities and City Council from the construction period).

The NSCARP project would involve digging up Alexander Valley Road AGAIN, plus many other roads in the North County totaling 112 miles. Construction is proposed to take 10 years. The scale of disruption is an order of magnitude larger than the "significant" Geysers Pipeline project. The DEIR/S lacks any reasonable analysis of the delays likely to result from construction and the effects of delays on residents, businesses, tourism, and emergency access. T-25

The situation is compounded by the fact that many roads proposed for NSCARP pipelines are narrower in width than two full lanes. It is unclear how access for residents, farm equipment, school buses, delivery trucks, and emergency vehicles can be maintained at all times while pipeline is being installed in a one-lane road. T-26

***General Plan Consistency***

Table 3.9-3 evaluates the impact of NSCARP for consistency with the Sonoma County General Plan. We take issue with several of these assessments based on the arguments presented above and in our hydrogeologist's report.

General Plan Objective RC-3.1: Preserve watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates.

DEIR/S page 3.9-15: "The NSCARP project would be consistent with this objective. The storage reservoirs would be lined with clay to prevent percolation." T-27

Yet lining the Jordan reservoirs is infeasible, and seepage down the valley will occur. Furthermore, irrigation with recycled water on the permeable soils of valley floors will place potential pollution sources in areas with high percolation rates, in direct conflict with the General Plan.

General Plan Objective RC-3.3: Preserve and enhance the quality of surface and groundwater resources. T-28

DEIR/S page 3.9-15 "The NSCARP project would be consistent with this objective. The Proposed Project is intended to offset use of surface water and groundwater resources. "

The General Plan Objective is about preserving and enhancing the quality (not the quantity) of surface and groundwater resources. As we have shown, there are serious risks to both groundwater and surface water quality resulting from NSCARP.

T-28
(Cont'd)

## PREFERRED AND ENVIRONMENTALLY SUPERIOR ALTERNATIVE

On page 2-17, the DEIR/S identifies Alternative 2 (the entire project) as both the preferred and the environmentally superior alternative. The stated rationale is that with Alternative 2 "there would be the greatest offset of surface water use" and it "would result in the most water being available that can be released in the fall to assist with Chinook salmon migration upstream." This is overly simplistic. Without quantification of existing surface diversions to be offset by recycled water use, one cannot determine whether Alternative 2 is sized correctly for the purpose of protecting fisheries. Also, other factors besides fish habitat should be taken into account in selecting the preferred and environmentally superior alternative.

T-29

## SUMMARY

This letter comments on some of the many serious defects in the NSCARP DEIR/S. You will undoubtedly receive similar comments from others with a different set of examples. It is apparent that this document was released prematurely. Many of the impact conclusions are unsupported by facts, and the project need/purpose, project description, environmental setting, and alternatives analysis are woefully inadequate. This EIR/S must be withdrawn, the project properly redefined, and the necessary studies and analyses completed. Only at that point should an EIR/S be drafted and recirculated for public review and comment.

T-30

Respectfully submitted,

D. Stuart Harrison
President

David H. Ring
Chairman, Wastewater Committee

cc: Leslie R. Perry
Perry, Johnson, Anderson, Miller & Moskowitz, LLP

## David Cuneo

**From:** WWW User [www@sonic.net]
**Sent:** Wednesday, May 16, 2007 11:48 AM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Dennis ORorke

Phone Number:

E-mail Address: DAORorke@aol.com

Comment:
I am against this project and I would like to have my comments be part of the Official record. It has not been proven that treatment plants filter out chemical compounds that could appear in crops and groundwater. The negative publicity resulting from the use of wastewater on crops could have a devastating effect on Sonoma County agriculture. U-1
This project is, in reality, a device by the Sonoma County Board of Supervisors and the Sonoma County Water Agency to convince State Regulators to approve Sonoma County obtaining more water from Lake Mendocino and Lake Sonoma for the purpose of accommodating future development.This tactic would not be sustainable and could result in chronic water shortages in the immediate future. U-2
Dennis O\\\\\\\\\\\\\\\\'Rorke
Monte Rio.

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NSCARP Draft EIS/EIR Comments
Mr. David Cuneo
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628
Via e-mail to: david@scwa.ca.gov

Dear Mr Cuneo,

Enclosed are our comments on the project DEIR and an attachment to this e-mail that accompanies our comments. Please do not hesitate to contact us with questions. Thank you for your consideration.

**1. Project makes no attempt at cumulative impacts analysis that meets the legal standard of CEQA.**
Why hasn't this EIR evaluated and mitigated for the following cumulative impacts?
Santa Rosas IRWP & Discharge Compliance Project programs both of which could eliminate the potential for project water
Santa Rosas recently released NOP for the DCP that will evaluate adding Reverse Osmosis reject water or brine to the Geysers Pipeline, won't that make it un-suitable for crops?
Temporary Reduction Petitions and recent decision by Sonoma County Board of Supervisors to modify Decision 1610 to reduce flows.
Impending ESA Section 7 Biological Opinion by NOAA Fisheries
Efficiency of UV disinfection systems operated by some potential sources of wastewater
The potential sources of wastewater are not reliable as seen in 2005 when some irrigators did not get any wastewater. V-1

**2. Project Description is too vague on important details and subverts meaningful analysis**
This project has no contracted source for wastewater, no contracted customers and appears to be a hypothetical project that prevents adequate analysis that meets legal standards. V-2

**3. Project need is not clearly defined and does not appear to be filled by the project.** Why didn't the DEIR study other alternatives to accomplish program goals such as increasing agricultural water conservation to preserve flows in the tributaries and increased conservation over limited results of the past 3 years? V-3

4. Geologic reports do not come to any conclusions other than to state that more study is required. How can mitigations be developed and evaluated when we do not reasonably know what construction methods would be required based on an incomplete geologic analysis? V-4

**5. How will the dams prevent seepage, overflows and eventual degradation of ground and surface waters?**
Dams constructed in geologically unstable canyons will not provide assurance that WW in dams will not leach into groundwater, downstream watercourses where it would create significant impacts. We are submitting monthly water quality data from Turtle Creek and Keepo Creek we've collected since V-5

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2002. These streams are downstream of the proposed Russell, Beenel & Bucher reservoirs. How will this project adequately protect current water quality and prevent degradation? With respect to serious Nitrate pollution in Keepo Creek and planned use and storage of wastewater in this tributary watershed, how will the project meet the basin plan objective of not causing or contributing to continuing impairment? How will this project prevent degradation of the water quality in Turtle Creek? V-5 (Cont'd)

**6. If the wastewater can't be legally dumped into the River due to increasingly stringent regulations how can we spread it around via this project and not have significant impacts especially to groundwater?**
How can wastewater that by it's producers own admission will not meet CTR and BP WQS for driver discharge but meeting title 22 makes it ok to expose endangered fish to it? How does meeting Title 22 water quality standards reduce impacts to less than significant when the wastewater this project intends to use isn't suitable to discharge into the River or tributaries? Does meeting Title 22 reduce impacts to less than significant from pollutants known to be present in Santa Rosas wastewater that are not tested under title 22? V-6

**7. The project water will find be released to groundwater during routine operation of the project, how can title 22 water quality standards be adequate to prevent significant impacts?**
The tertiary treatment plants in Windsor and Santa Rosa use microbes and sand filters to eliminate pollutants. Many un-identified pollutants still remain as evidenced by the high Total Organic Carbon levels that at typical levels of 5-50mg/L TOC could account for thousands of un-identified compounds. Without the benefit of identifying and then evaluating the environmental impacts from such a large amount of unknown substances how can we be assured that there is no significant impact?
In addition the tertiary treatment process removes pollutants by filtering it through sand and then using microbes to break down organic pollutants so pollutants that are removed are ones that stick to sand particles or can be eaten/ broken down by microbes, the remainder is compromised of many un-identified compounds. In reviewing the soil and geologic characteristics of the proposed places of use they are dominated by very shallow soil layers underlain by sand and gravel with groundwater very close to the surface. Since we have un-identified pollutants escaping treatment the only means to prevent the pollutants from traveling directly to groundwater is microbes in soils and sand, if the treatment plant didn't remove them and the soil and sand in the place of use won't remove them, why is it assumed that they will not pollute groundwater? How can meeting Title 22 water quality standards prevent a significant impact to groundwater when other projects like Orange County Sanitation District's GRWSS project has far stricter standards than Title 22 clearly suggesting that Title 22 is not protective enough to prevent significant impacts? V-7

If Orange County's GRWSS is required to use Membrane filtration and reverse osmosis and advanced oxidation to make their water clean enough for introduction into groundwater why can just meeting Title 22 standards with none of the advanced treatment processes such as used at GRWSS prevent significant impacts and be allowed to be listed as less than significant? V-8

**8. Frost Control overhead applications of project water will result in human health hazards from aerosolized wastewater and cause discharges to streams and groundwater.**
It is a common fact that on mornings of hard freezes every vineyard in Dry Creek Valley has frost control overhead sprinklers running for hours This produces a mist that covers the entire valley and not just vineyards, according to valley residents those mornings produce mist of their car windshields when no dew or mist should naturally form due to freezing temperatures drying the air out and

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preventing dew formation so all the mist is from sprinklers. In addition when the overhead frost control sprinklers are running water ponds and runs off vineyards and is applied at tens to hundreds of times the agronomic rate of plant uptake, leading to inevitable run-off or percolation into groundwater.

In light of this information:

Why hasn't this DEIR evaluated air quality and public health impacts from treated wastewater becoming an aerosol or mist during periods of intense use of spray irrigation for frost control? V-9

Why hasn't the impact of over-irrigation or frost control application and certain releases to streams and groundwater be evaluated and mitigated? V-10

In light of the impending flow reductions in Dry Creek and the Russian River how will this run-off impact water quality in light of lower dilution rates?

References & Additional Information

Turtle Creek and Keepo Creek Water quality monitoring results - att'd in excel file named: Bishops Rnch WQ ALL data.xls

Santa Rosa Discharge Compliance Project - Revision to project NOP

On August 1, 2006, the City of Santa Rosa issued a Notice of Preparation of an EIR (NOP) for the Discharge Compliance Project. In response to public and agency comments received on the NOP and during the scoping process, and as a result of additional engineering studies undertaken since that time, the City has changed some of the project alternatives described in the August 2006 NOP.

The primary changes to the alternatives are:

- Addition of Advanced Membrane Treatment (reverse osmosis)
- Addition of Geysers Stearrfield Expansion to dispose of brine from the Advanced Membrane Treatment facility
- Addition of Biological Nutrient Removal facilities
- Elimination of Indirect Discharge

Please refer to the Revisions to the August 2006 NOP for a complete list of changes. To provice public agencies and members of the public adequate opportunity to review and comment on the revised alternatives to the Discharge Compliance Project, the City of Santa Rosa is re-opening the scoping comment period from May 9 through June 7, 2007. An additional Public Scoping Meeting will not be held. The City requests that comments address only the changes to the alternatives.

Copies of the August 2006 NOP and the May 2007 NOP are available at City Hal and at County libraries. And on line here at this link. You may purchase copies from ARC Printers by calling (707) 579-9096.

Please send your written comments to the attention of Glen Wright, City Manager's Office, Room 10, P.O. Box 1678, Santa Rosa, CA 95402, or email to rwp@santarosa.org.

Orange County GRWSS Information

STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES FINDS THAT OCWD'S GROUNDWATER REPLENISHMENT SYSTEM WATER PURIFICATION PROJECT IS AN ACCEPTABLE TREATMENT TECHNOLOGY FOR PRODUCING WATER USED TO RECHARGE ORANGE COUNTY'S AQUIFER SYSTEM

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*Project meets California's Drinking Water Draft Groundwater Recharge Reuse Regulations issued July 2003*

**Fountain Valley, Calif.** - The State of California's Department of Health Services (DHS) has filed a preliminary report finding that the water purification processes used for the Groundwater Replenishment (GWR) System water purification project are acceptable for producing water for injection and percolation into drinking water aquifers. DHS findings are the result of a state mandated public hearing and a thorough investigation of the GWR System's water purification technology.

DHS' Division of Drinking Water and Environmental Management (DDWEM) provided its report to the California Regional Water Quality Control Board (RWQCB), the group that oversees the protection of California's water systems. DDWEM is California's health department branch in charge of promoting and maintaining a physical, chemical and biological environment that contributes positively to health, prevents illness and assures protection of the public related to drinking water and the environment.

"DHS' report reflects the high quality of the water produced by the Groundwater Replenishment System," said Denis Bilodeau, president of the Orange County Water District board of directors. "These findings confirm that the technologies used to purify GWR System water will produce very safe, high quality water."

The GWR System will produce water that will meet and in many areas go beyond drinking water standards in quality. The System will be taking treated sewer water that is currently released into the ocean and purify it through microfiltration, reverse osmosis and ultraviolet light with hydrogen peroxide advanced oxidation treatment.

The purified water will become part of a seawater barrier and also be pumped through a 13-mile pipeline to percolation ponds in Anaheim where it will seep into deep aquifers and blend with Orange County's other sources of groundwater, following the same natural filtering path rainwater takes through the ground.

After receiving input from several community members and leaders at a February public hearing, the Orange County Water District reaffirmed its intention to comply with all DHS recommendations to protect drinking

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water supplies, even if they are not incorporated into the permit issued by the Regional Water Quality Control Board.

"Although the recommendations made by DHS may not be required in the Regional Water Quality Control Board's permit, the water district is committed to going above and beyond requirements to ensure public safety", said Phil Anthony, chairman of the project's oversight committee.

The GWR System has been endorsed by a number of health and medical organizations and experts including Anaheim Memorial Medical Center, Hoag Hospital, Garden Grove Hospital and Medical Center, Kaiser Permanente Orange County, Los Alamitos Medical Center, Newport Bay Hospital, Orange County Korean American Health Information and Education Center, Orange County Pharmacists Association, Taiwanese Medical and Dental Association, West Anaheim Medical Center, Sandra Smoley, R.N., former Secretary of the California Health and Welfare Agency, John Blossom, M.D., Professor of Clinical Family and Community Medicine at UCSF in Fresno, Dr. Harvey Collins, former Chief, California Department of Health Services, Drinking Water Division and Jack Skinner, M.D.

The project will help prevent future predicted water shortages in Orange County. It will also help drought proof the groundwater basin and reduce its mineral content. The project will prevent ocean water from contaminating the large groundwater basin. Additionally, it will provide water during droughts, a recurring event in Southern California.

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Attachment to Don McEnhill's comments - File labeled Bishops Ranch WQ All Data.xls

**ALL Stations**

| site | location | month | day | year | Flow CFS | rain type | 24-rain inches | 48hr rain inches | Rainfal Previous 30 days | water temp Celsius | NH3 mg/L 0.02* | NO3 mg/L 0.1* | OrthoP mg/L 0.02* | urbidity NTU 1.0* | TSS mg/L 4.0* | Cond mhos/cm 10.0* | Alkalinity mg/L 1.0* | pH | copper ug/L 2.0* | zinc ug/L 20.0* | lead ug/L 1.0* | BacT -Tot pn/100ml | BacT E. Coli | Lab | other notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2001-2002** | **rain season** | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | TUR60-Tur | 10 | 26 | 2002 | | 1 | 0 | 0 | 0 | 12 | <0.2 | <0.2 | <0.06 | 0.8 | <1.0 | 250.0 | | 7.0 | <0.5 | <0.06 | <0.005 | | | B&R | s. EC- Oakton mV fire EPA |
| **2002-2003** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | KC30-Keep | 11 | 11 | 2002 | | 1 | 0 | 8 | 6.6 | | 0.20 | 40.0 | | | | | | | | | | | | | |
| 1 | KC30-Keepo | 12 | 16 | 2002 | | 2 | 3.21 | 8 | 17.44 | 13 | 0.49 | 53.8 | 0.00 | 40.0 | 49.2 | 737.0 | 84.0 | 7.4 | 11.5 | <20 | 1.0 | | | | |
| 2 | TUR60-Turtl | 12 | 16 | 2002 | | 2 | 3.21 | 8 | 17.44 | 10.5 | 0.14 | 3.0 | 0.43 | 160.0 | 69.6 | 99.3 | 47.6 | 7.2 | 12.0 | <20 | 1.4 | | | | |
| 3 | TUR40-Turtl | 12 | 16 | 2002 | | 2 | 3.21 | 8 | 17.44 | 14 | 0.14 | 2.6 | 0.45 | 170.0 | 119.6 | 98.7 | 51.8 | 7.1 | 11.6 | <20 | 1.5 | | | | |
| 4 | TUR20-Turtl | 12 | 16 | 2002 | | 2 | 3.21 | 8 | 17.44 | 11 | 0.25 | 12.5 | 1.13 | 140.0 | 92.5 | 164.5 | 55.6 | 7.2 | 11.0 | <20 | 1.7 | | | | |
| 1 | KC30-Keepo | 1 | 15 | 2003 | 1.38 | | 0.2 | 1.56 | 15 | 12 | 0.20 | 23.8 | 1.16 | 6.5 | 3.2 | 596.4 | 64.0 | 7.4 | 3.4 | <20 | <1 | >2419.2 | 126.7 | | |
| 2 | TUR60-Turtl | 1 | 15 | 2003 | 34.2 | | 0.2 | 1.56 | 15 | 12 | 0.23 | 1.5 | 0.08 | 16.0 | 4.0 | 129.2 | 53.0 | 7.3 | 2.3 | <20 | <1 | | | | |
| 3 | TUR40-Turtl | 1 | 15 | 2003 | 37 | | 0.2 | 1.56 | 15 | 10 | 0.21 | 1.1 | 0.33 | 15.0 | 1.6 | 127.1 | 53.0 | 7.3 | 2.0 | <20 | <1 | | | | |
| 4 | TUR20-Turtl | 1 | 15 | 2003 | | | 0.2 | 1.56 | 15 | 12 | 0.20 | 4.2 | 0.14 | 14.0 | 3.2 | 179.9 | 54.2 | 7.3 | 2.2 | <20 | <1 | | | | |
| 1 | KC30-Keepo | 2 | 10 | 2003 | 0.15 | 1 | 0 | 0 | 0.24 | 7 | 0.10 | 27.5 | 0.64 | 4.2 | 0.0 | 643.8 | 86.6 | 7.5 | <2 | <20 | <1 | <2419.2 | 18.9 | | |
| 2 | TUR60-Turtl | 2 | 10 | 2003 | 1.32 | 1 | 0 | 0 | 0.24 | 9.5 | 0.03 | 0.6 | 0.02 | 5.3 | 0.0 | 170.8 | 78.4 | 7.3 | <2 | <20 | <1 | | | | |
| 3 | TUR40-Turtl | 2 | 10 | 2003 | | 1 | 0 | 0 | 0.24 | 8.75 | 0.03 | 0.3 | 0.06 | 8.3 | 0.0 | 165.9 | 78.2 | 7.1 | <2 | <20 | <1 | | | | |
| 4 | TUR20-Turtl | 2 | 10 | 2003 | | 1 | 0 | 0 | 0.24 | 8.25 | 0.04 | 2.0 | 0.12 | 2.9 | 0.8 | 208.0 | 75.8 | 7.3 | <2 | <20 | <1 | | | | |
| 1 | KC30-Keepo | 3 | 17 | 2003 | 1.32 | 3 | 0.25 | 2.5 | 8.84 | 12 | 0.18 | 25.0 | 0.73 | 12.0 | 7.2 | 527.9 | 96.2 | 7.6 | 3.1 | <20 | <1 | >2419.2 | >2419.2 | | |
| 2 | TUR60-Turtl | 3 | 17 | 2003 | 13.2 | 3 | 0.25 | 2.5 | 8.84 | 10.75 | 0.43 | 1.1 | 0.06 | 39.0 | 8.8 | 155.9 | 75.4 | 7.4 | 3.7 | <20 | <1 | | | | |
| 3 | TUR40-Turtl | 3 | 17 | 2003 | 15.4 | 3 | 0.25 | 2.5 | 8.84 | 10.5 | 0.40 | 1.0 | 0.11 | 31.0 | 5.6 | 153.5 | 80.6 | 7.4 | 3.0 | <20 | <1 | | | | |
| 4 | TUR20-Turtl | 3 | 17 | 2003 | | 3 | 0.25 | 2.5 | 8.84 | 10 | 0.34 | 3.4 | 0.36 | 29.0 | 5.6 | 207.9 | 80.2 | 7.5 | 2.7 | <20 | <1 | | | | |
| 1 | KC30-Keepo | 4 | 14 | 2003 | | 3 | 0.75 | 3 | 3.92 | 10 | 0.20 | 17.5 | 0.79 | 6.8 | 9.2 | 478.0 | 124.7 | 7.7 | 2.2 | <20 | <1 | >2419.2 | >2419.2 | | |
| 2 | TUR60-Turtl | 4 | 14 | 2003 | | 3 | 0.75 | 3 | 3.92 | 11.4 | 0.14 | 0.6 | 0.15 | 5.2 | <4 | 186.0 | 100.0 | 7.5 | <2 | <20 | <1 | | | | |
| 3 | TUR40-Turtl | 4 | 14 | 2003 | | 3 | 0.75 | 3 | 3.92 | 10 | 0.16 | 0.5 | 0.10 | 6.3 | <4 | 179.4 | 95.6 | 7.4 | <2 | <20 | <1 | | | | |
| 4 | TUR20-Turtl | 4 | 14 | 2003 | | 3 | 0.75 | 3 | 3.92 | 10.5 | 0.16 | 1.5 | 0.14 | 5.3 | <4 | 202.9 | 102.4 | 7.4 | <2 | <20 | <1 | | | | |
| 1 | KC30-Keepo | 5 | 12 | 2003 | 0.17 | 4 | 0 | 0 | 4.72 | 12 | 0.07 | 22.0 | 0.56 | 1.2 | <4 | 616.0 | 119.6 | 7.7 | <2.0 | <20.0 | <1.0 | 533.5 | 135.4 | | |
| 2 | Tur60-Turtle | 5 | 12 | 2003 | | 4 | 0 | 0 | 4.72 | 12 | 0.07 | 0.4 | 0.07 | 1.7 | <4 | 199.0 | 107.8 | 7.4 | <2.0 | <20.0 | <1.0 | | | | |
| 3 | Tur40-Turtle | 5 | 12 | 2003 | 2 | 4 | 0 | 0 | 4.72 | 13 | 0.05 | 0.3 | 0.07 | 1.3 | <4 | 187.0 | 103.0 | 7.2 | <2.0 | <20.0 | <1.0 | | | | |
| 4 | Tur20-Turtle | 5 | 12 | 2003 | | 4 | 0 | 0 | 4.72 | 11.5 | 0.04 | 2.1 | 0.08 | 1.6 | <4 | 230.0 | 98.6 | 7.4 | <2.0 | <20.0 | <1.0 | | | | |
| 1 | KC30-Keepo | 6 | 9 | 2003 | | 1 | 0 | 0 | 0 | 13 | 0.08 | 30.0 | 0.74 | 1.1 | <4 | 758.2 | 154.0 | 8.0 | <2.0 | <20.0 | <1.0 | | | | |
| 2 | Tur60-Turtle | 6 | 9 | 2003 | | 1 | 0 | 0 | 0 | 13.5 | 0.19 | 0.3 | 0.06 | 1.0 | <4 | 233.3 | 144.0 | 7.6 | <2.0 | <20.0 | <1.0 | | | | |
| 3 | Tur40-Turtle | 6 | 9 | 2003 | | 1 | 0 | 0 | 0 | 12.5 | 0.06 | 0.2 | 0.14 | <1 | <4 | 219.2 | 132.0 | 7.6 | <2.0 | <20.0 | <1.0 | | | | |
| 4 | Tur20-Turtle | 6 | 9 | 2003 | | 1 | 0 | 0 | 0 | | 0.05 | 0.3 | 0.21 | <1 | <4 | 222.5 | 130.0 | 7.7 | <2.0 | <20.0 | <1.0 | | | | |
| 2 | Tur60-Turtle | 7 | 14 | 2003 | | 1 | 0 | 0 | 0 | 15 | 0.08 | 0.1 | 0.23 | 1.3 | <4 | 267.5 | 151.2 | 7.0 | <2.0 | <20.0 | <1.0 | | | | |
| 4 | Tur20-Turtle | 7 | 14 | 2003 | | 1 | 0 | 0 | 0 | 15 | 0.08 | 0.1 | 0.34 | 1.6 | <4 | 303.9 | 155.2 | 6.7 | <2.0 | <20.0 | <1.0 | | | | |
| **2003-2004** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | KC30-Keepo | 11 | 12 | 2003 | | 1 | 0 | 0 | 4.68 | 10.3 | 0.19 | 34.0 | 0.43 | 1.1 | <4 | 1031.9 | 176.6 | 7.5 | 2.1 | <20 | <1 | | | | |
| 2 | Tur60-Turtle | 11 | 12 | 2003 | | 1 | 0 | 0 | 4.68 | 12.2 | 0.13 | 0.1 | 0.04 | 1.9 | <4 | 283.4 | 133.8 | 6.8 | <2 | <20 | <1 | | | | |
| 1 | KC30-Keep | 12 | 17 | 2003 | | 1 | 0 | 0 | 4.8 | 9.78 | 0.17 | 80 | 1.05 | 2 | <4 | 1020 | 52 | 7.6 | 3.3 | <20 | <1 | | | | |
| 2 | Tur60-Turtl | 12 | 17 | 2003 | | 1 | 0 | 0 | 4.8 | 9.5 | 0.21 | 2.7 | 0.08 | 45 | 9.2 | 170.4 | 54 | 7.6 | 2.7 | <20 | <1 | | | | |
| 3 | Tur40-Turtl | 12 | 17 | 2003 | | 1 | 0 | 0 | 4.8 | 8 | 0.14 | 2.3 | 0.17 | 30 | 4 | 176.9 | 62 | 7.5 | 2.0 | <20 | <1 | | | | |
| 4 | Tur20-Turtl | 12 | 17 | 2003 | | 1 | 0 | 0 | 4.8 | | 0.17 | 8.8 | 0.26 | 19 | <4 | 274.5 | 62 | 7.6 | 2.0 | <20 | <1 | | | | |
| 1 | KC30-Keepo | 2 | 9 | 2004 | | 1 | 0 | 0.25 | 5.2 | 9.0 | 0.12 | 35.0 | 0.64 | 4.4 | <4 | 758.9 | 86.0 | 7.5 | <2.0 | <20.0 | <1.0 | | | | |
| 2 | Tur60-Turtle | 2 | 9 | 2004 | | 1 | 0 | 0.25 | 5.2 | 8.0 | 0.14 | 1.2 | 0.09 | 8.7 | <4 | 174.4 | 82.0 | 7.6 | <2.0 | <20.0 | <1.0 | | | | |
| 3 | Tur40-Turtle | 2 | 9 | 2004 | | 1 | 0 | 0.25 | 5.2 | 8.5 | 0.09 | 1.2 | 0.09 | 5.9 | <4 | 172.6 | 82.0 | 7.4 | <2.0 | <20.0 | <1.0 | | | | |
| 4 | Tur20-Turtle | 2 | 9 | 2004 | | 1 | 0 | 0.25 | 5.2 | 10.0 | 0.09 | 4.5 | 0.10 | 10.0 | <4 | 235.1 | 83.0 | 7.5 | <2.0 | <20.0 | <1.0 | | | | |

**Comment Set V (Cont'd)**

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | KC30-Keepo | 3 | 8 | 2004 | | 1 | 0 | | 20.84 | 10.8 | 0.10 | 24.2 | 0.88 | 3.7 | <4 | 622.2 | 86.0 | 7.6 | <2.0 | <20.0 | <1.0 |
| 2 | Tur60-Turtle | 3 | 8 | 2004 | | 1 | 0 | | 20.84 | 11.5 | 0.19 | 3.7 | 0.23 | 13.0 | <4 | 169.9 | 72.0 | 7.6 | <2.0 | <20.0 | <1.0 |
| 3 | Tur40-Turtle | 3 | 8 | 2004 | | 1 | 0 | | 20.84 | 14.0 | 0.15 | 3.7 | 0.22 | 7.4 | <4 | 167.9 | 54.0 | 7.4 | <2.0 | <20.0 | <1.0 |
| 4 | Tur20-Turtle | 3 | 8 | 2004 | | 1 | 0 | | 20.84 | 12.1 | 0.10 | 2.3 | 0.28 | 5.2 | <4 | 104.7 | 72.0 | 7.5 | <2.0 | <20.0 | <1.0 |
| 1 | KC30-Keepo | 4 | 7 | 2004 | | 1 | 0 | 0 | | 10.0 | 0.08 | 35.8 | 0.61 | <1 | <4 | 758.8 | 106.0 | 7.8 | | | |
| 2 | Tur60-Turtle | 4 | 7 | 2004 | | 1 | 0 | 0 | | 10.0 | 0.05 | 3.1 | 0.15 | 3.3 | <4 | 197.7 | 90.0 | 7.4 | | | |
| 3 | Tur40-Turtle | 4 | 7 | 2004 | | 1 | 0 | 0 | | 11.0 | 0.09 | 0.2 | 0.20 | 1.3 | <4 | 188.5 | 88.0 | 7.3 | | | |
| 4 | Tur20-Turtle | 4 | 7 | 2004 | | 1 | 0 | 0 | | 11.1 | 0.05 | 1.3 | 0.11 | 1.3 | <4 | 228.6 | 98.0 | 7.2 | | | |
| 1 | KC30-Keepo | 5 | 10 | 2004 | II | | 1 | 12.0 | 0.08 | 31.7 | 0.61 | 1.0 | <4 | 751.5 | 132.0 | 7.8 | <2 | <20 | <1 | | |
| 3 | Tur40-Turtle | 5 | 10 | 2004 | II | | 1 | 13.0 | 0.04 | 0.1 | 0.23 | <1 | <4 | 183.2 | 96.0 | 7.0 | <2 | <20 | <1 | | |
| 4 | Tur20-Turtle | 5 | 10 | 2004 | II | | 1 | 13.9 | 0.04 | 0.1 | 0.10 | <1 | <4 | 245.5 | 106.0 | 7.0 | <2 | <20 | <1 | | |
| 1 | KC30-Keepo | 6 | 14 | 2004 | | | | 15.0 | 0.10 | 60.0 | 0.36 | <1 | <4 | 860.1 | 140.0 | 7.6 | <2 | <20 | <1 | | |
| 2 | Tur60-Turtle | 6 | 14 | 2004 | | | | 14.0 | 0.06 | 0.1 | 0.04 | <1 | <4 | 233.6 | 104.0 | 7.1 | <2 | <20 | <1 | | |
| **2004-2005** | | | | | | | | | | | | | | | | | | | | | |
| 1 | KC30-Keepo | 12 | 14 | 2004 | 2 | | 0.05 | 11.0 | 0.25 | 53.8 | 1.43 | 3.4 | 4.8 | 1024.2 | 840 | 7.6 | 3.8 | <20 | <2 | | |
| 3 | Tur40-Turtle | 12 | 14 | 2004 | 2 | | 0.05 | 11.5 | 0.19 | 1.5 | 0.09 | 28.0 | 5.2 | 159.1 | 660 | 7.4 | 2.7 | <20 | <2 | | |
| 6 | Tur65-Turtle | 12 | 14 | 2004 | 2 | | 0.05 | 13.0 | 0.22 | 1.7 | 0.11 | 31.0 | 7.2 | 161.1 | 630 | 7.8 | 2.8 | <20 | <2 | | |
| 5 | Tur25-Turtle | 12 | 14 | 2004 | 2 | | 0.05 | 13.0 | 0.23 | 11.8 | 0.33 | 25.0 | <4 | 324.9 | 680 | 7.4 | 10.9 | <20 | <2 | | |
| 1 | KC30-Keepo | 1 | 10 | 2005 | 2 | 0.5 | | 11.0 | 0.23 | 45.0 | 0.98 | 15.0 | 39.6 | 723.4 | 550 | 8.2 | 3.0 | <20 | <2 | | |
| 3 | Tur40-Turtle | 1 | 10 | 2005 | 2 | 0.5 | | 9.0 | 0.26 | 1.0 | 0.08 | 16.0 | <4 | 138.1 | 530 | 7.6 | <2 | <20 | <2 | | |
| 5 | Tur25-Turtle | 1 | 10 | 2005 | 2 | 0.5 | | 9.5 | 0.25 | 5.7 | 0.28 | 23.0 | 10.0 | 211.0 | 540 | 7.4 | <2 | <20 | <2 | | |
| 6 | Tur65-Turtle | 1 | 10 | 2005 | 2 | 0.5 | | 9.5 | 0.31 | 1.1 | 0.11 | 26.0 | 4.4 | 145.1 | 560 | 7.5 | <2 | <20 | <2 | | |
| 1 | KC30-Keepo | 2 | 14 | 2005 | 2 | 0.05 | | 11.0 | 0.08 | 42.5 | 0.59 | 39 | <4 | 909.0 | 1140 | 7.7 | 2.4 | <20 | <2 | | |
| 3 | Tur40-Turtle | 2 | 14 | 2005 | 2 | 0.05 | | 10.0 | 0.04 | 0.3 | <0.02 | 13 | <4 | 190.8 | 900 | 7.4 | <2 | <20 | <2 | | |
| 5 | Tur25-Turtle | 2 | 14 | 2005 | 2 | 0.05 | | 10.5 | 0.05 | 2.0 | <0.02 | 11 | <4 | 199.0 | 840 | 7.3 | <2 | <20 | <2 | | |
| 6 | Tur65-Turtle | 2 | 14 | 2005 | 2 | 0.05 | | 10.0 | 0.06 | 0.4 | <0.02 | 16 | <4 | 218.0 | 830 | 7.5 | <2 | <20 | <2 | | |
| 1 | KC30-Keepo | 3 | 14 | 2005 | 1 | | | | 0.10 | 37.6 | 0.56 | 13 | <4 | 660.0 | 1080 | 7.7 | <2 | <20 | <2 | | |
| 3 | Tur40-Turtle | 3 | 14 | 2005 | 1 | | | | 0.05 | 0.3 | 0.04 | 13 | <4 | 188.0 | 880 | 7.5 | <2 | <20 | <2 | | |
| 5 | Tur25-Turtle | 3 | 14 | 2005 | 1 | | | | 0.05 | 2.7 | 0.10 | 15 | <4 | 224.0 | 860 | 7.5 | <2 | <20 | <2 | | |
| 6 | Tur65-Turtle | 3 | 14 | 2005 | 1 | | | | 0.07 | 0.4 | 0.04 | 14 | <4 | 200.0 | 910 | 7.6 | <2 | <20 | <2 | | |
| 1 | KC30-Keepo | 4 | 11 | 2005 | 1 | 0 | | 13.5 | 0.12 | 33.8 | 0.17 | 26 | <4 | 592.3 | 1080 | 7.7 | 2.0 | <20 | <2 | | |
| 3 | Tur40-Turtle | 4 | 11 | 2005 | 1 | 0 | | 13.0 | 0.13 | 0.7 | 0.08 | 45 | <4 | 191.2 | 830 | 7.4 | 2.2 | 28.9 | <2 | | |
| 5 | Tur25-Turtle | 4 | 11 | 2005 | 1 | 0 | | 13.0 | 0.13 | 2.8 | 0.18 | 44 | <4 | 230.6 | 860 | 7.5 | <2 | <20 | <2 | | |
| 6 | Tur65-Turtle | 4 | 11 | 2005 | 1 | 0 | | 11.0 | 0.16 | 0.6 | 0.15 | 55 | <4 | 199.1 | 900 | 7.6 | <2 | <20 | <2 | | |
| 1 | KC30-Keepo | 5 | 9 | 2005 | 4 | 1.25 | | 14.0 | 0.30 | 8.3 | 0.67 | 15.2 | <4 | 407.2 | 1045 | 7.9 | 3.9 | <20 | <2 | | |
| 3 | Tur40-Turtle | 5 | 9 | 2005 | 4 | 1.25 | | 16.0 | 0.25 | 0.4 | 0.13 | 17.3 | <4 | 193.8 | 830 | 7.6 | 2.5 | <20 | <2 | | |
| 5 | Tur25-Turtle | 5 | 9 | 2005 | 4 | 1.25 | | 15.0 | 0.21 | 1.1 | 0.16 | 17.3 | <4 | 199.6 | 865 | 7.7 | 2.2 | <20 | <2 | | |
| 6 | Tur65-Turtle | 5 | 9 | 2005 | 4 | 1.25 | | 16.0 | 0.19 | 0.4 | 0.11 | 16.3 | <4 | 197.2 | 860 | 7.8 | 2.1 | <20 | <2 | | |
| 1 | KC30-Keepo | 6 | 13 | 2005 | 1 | 0 | | 15.0 | 0.09 | 32.2 | 0.69 | 4.5 | <4 | 675.0 | 1120 | 7.9 | | | | | |
| 3 | Tur40-Turtle | 6 | 13 | 2005 | 1 | 0 | | 16.0 | 0.04 | 0.1 | 0.14 | 1.5 | <4 | 200.0 | 950 | 7.1 | | | | | |
| 5 | Tur25-Turtle | 6 | 13 | 2005 | 1 | 0 | | 15.5 | 0.06 | 0.1 | 0.22 | 2.5 | <4 | 200.0 | 960 | 7.9 | | | | | |
| 6 | Tur65-Turtle | 6 | 13 | 2005 | 1 | 0 | | 16.5 | 0.07 | 0.1 | 0.16 | 1.8 | <4 | 233.0 | 1058 | 7.2 | | | | | |
| 1 | KC30-Keepo | 7 | 18 | 2005 | | | | | 0.11 | 33.8 | 0.46 | 31.6 | 79.7 | 764.0 | 1328 | 8.0 | | | | | |
| 3 | Tur40-Turtle | 7 | 18 | 2005 | | | | | 0.04 | <0.1 | 0.02 | 2.6 | <4 | 206.0 | 980 | 6.9 | | | | | |
| 6 | Tur65-Turtle | 7 | 18 | 2005 | | | | | 0.06 | 0.1 | 0.08 | < | <4 | 293.0 | 1330 | 7.7 | | | | | |

**Comment Set V (Cont'd)**

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005-2006 | | | | | | | | | | | | | | | | | | | | |
| 1 | KC30-Keepo | 12 | 1 | 2005 | | | 12.7 | 0.33 | 19.0 | 1.74 | 40.0 | 44.4 | 394.0 | 33.6 | 7.5 | 5.1 | <20 | <2 |
| 3 | Tur40-Turtle | 12 | 1 | 2005 | | | 10.9 | 0.26 | 3.7 | 0.08 | 128.0 | 126.4 | 175.5 | 56.0 | 7.7 | 9.4 | <20 | <2 |
| 5 | Tur25-Turtle | | | | | | | | | | | | | | | | | |
| 6 | Tur65-Turtle | 12 | 1 | 2005 | | | 11.0 | 0.23 | 2.0 | 0.07 | 148.0 | 126.0 | 162.1 | 57.8 | 7.7 | 10.2 | <20 | 2.0 |
| 1 | KC30-Keepo | 1 | 16 | 2006 | 1 | 0 | 11.0 | 0.09 | 45.0 | 0.91 | 2.8 | <4 | 709.5 | 125.0 | 7.6 | 3.3 | <20 | <2 |
| 3 | Tur40-Turtle | 1 | 16 | 2006 | 1 | 0 | 9.5 | 0.15 | 1.2 | 0.08 | 22.0 | <4 | 152.4 | 101.0 | 7.3 | 2.3 | <20 | <2 |
| 5 | Tur25-Turtle | 1 | 16 | 2006 | 1 | 0 | 9.0 | 0.15 | 0.5 | 0.18 | 19.0 | <4 | 233.2 | 104.0 | 7.5 | 2.3 | <20 | <2 |
| 6 | Tur65-Turtle | 1 | 16 | 2006 | 1 | 0 | 9.0 | 0.18 | 1.4 | 0.13 | 34.0 | <4 | 153.2 | 105.0 | 7.5 | 2.8 | <20 | <2 |
| 1 | KC30-Keepo | 2 | 13 | 2006 | 1 | 0 | 11.0 | 0.06 | 42.5 | 0.58 | 2.1 | <4 | 641.5 | 89.2 | 7.7 | 2.1 | <20 | <2 |
| 3 | Tur40-Turtle | 2 | 13 | 2006 | 1 | 0 | 14.0 | 0.07 | 0.4 | 0.04 | 4.0 | <4 | 182.8 | 81.2 | 7.5 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 2 | 13 | 2006 | 1 | 0 | 9.5 | 0.08 | 1.5 | 0.06 | 5.4 | <4 | 198.6 | 83.0 | 7.5 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 2 | 13 | 2006 | 1 | 0 | 9.0 | 0.11 | 0.5 | <0.02 | 6.1 | <4 | 187.5 | 81.8 | 7.7 | <2 | <20 | <2 |
| 1 | KC30-Keepo | 3 | 14 | 2006 | 2 | 0.2 | 9.0 | 0.31 | 32.5 | 0.76 | 5.9 | <4 | 563.0 | 91.8 | 7.7 | 2.6 | <20 | <2 |
| 3 | Tur40-Turtle | 3 | 14 | 2006 | 2 | 0.2 | 7.0 | 0.13 | 0.9 | 0.08 | 16.0 | <4 | 149.1 | 65.8 | 7.4 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 3 | 14 | 2006 | 2 | 0.2 | 8.0 | 0.16 | 2.5 | 0.15 | 16.0 | <4 | 173.0 | 70.8 | 7.4 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 3 | 14 | 2006 | 2 | 0.2 | 8.0 | 0.13 | 1.2 | 0.06 | 22.0 | <4 | 152.1 | 68.9 | 7.5 | <2 | <20 | <2 |
| 1 | KC30-Keepo | 4 | 10 | 2006 | 2 | 0.3 | 13.0 | 0.46 | 20.0 | 2.34 | 190.0 | 200.0 | 430.7 | 57.4 | 7.6 | 9.8 | 38.8 | 2.5 |
| 3 | Tur40-Turtle | 4 | 10 | 2006 | 2 | 0.3 | 11.0 | 0.14 | 0.7 | 0.08 | 19.0 | 4.8 | 149.8 | 60.0 | 7.5 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 4 | 10 | 2006 | 2 | 0.3 | 11.0 | 0.18 | 1.6 | 0.17 | 22.0 | 8.0 | 160.3 | 69.0 | 7.4 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 4 | 10 | 2006 | 2 | 0.3 | 13.0 | 0.16 | 0.7 | 0.09 | 18.0 | 4.4 | 154.8 | 68.2 | 7.4 | <2 | <20 | <2 |
| 1 | KC30-Keepo | 5 | 8 | 2006 | 1 | 0 | 12.0 | 0.08 | 25.0 | 0.82 | 41 | <4 | 569.0 | 107.2 | 7.7 | 2.2 | <20 | <2 |
| 3 | Tur40-Turtle | 5 | 8 | 2006 | 1 | 0 | 14.0 | 0.03 | 0.1 | 0.07 | 32 | <4 | 176.3 | 81.4 | 7.3 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 5 | 8 | 2006 | 1 | 0 | 14.0 | 0.05 | 0.9 | 0.16 | 65 | <4 | 187.5 | 80.4 | 7.3 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 5 | 8 | 2006 | 1 | 0 | 13.0 | 0.04 | 0.1 | 0.11 | 42 | <4 | 1901.0 | 88.0 | 7.4 | <2 | <20 | <2 |
| 1 | KC30-Keepo | 6 | 12 | 2006 | 1 | 0 | | 0.07 | 27.5 | 0.66 | 28 | <4 | 629.0 | 115.0 | 7.9 | <2 | <20 | <2 |
| 3 | Tur40-Turtle | 6 | 12 | 2006 | 1 | 0 | 14.5 | 0.05 | 0.1 | 0.11 | 12 | <4 | 207.0 | 98.0 | 7.0 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 6 | 12 | 2006 | 1 | 0 | 14.5 | 0.04 | 0.1 | 0.20 | 11 | <4 | 207.0 | 92.0 | 7.1 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 6 | 12 | 2006 | 1 | 0 | 14.0 | 0.03 | <0.1 | 0.19 | 14 | <4 | 232.0 | 107.0 | 6.8 | <2 | <20 | <2 |
| **2006-2007** | No flow until Jan07 | | | | | | | | | | | | | | | | | |
| 1 | KC30-Keepo | 1 | 16 | 2007 | 0 | | 5.0 | 0.08 | 52.5 | 0.64 | 7.3 | <4 | 931.9 | 104.0 | 7.8 | <2 | <20 | <2 |
| 3 | Tur40-Turtle | 1 | 16 | 2007 | 0 | | 7.0 | 0.03 | 0.6 | 0.09 | 23 | <4 | 208.4 | 87.0 | 6.9 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 1 | 16 | 2007 | 0 | | 4.0 | 0.03 | 0.5 | 0.07 | 17 | <4 | 207.4 | 87.0 | 7.2 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 1 | 16 | 2007 | 0 | | 4.0 | 0.04 | 0.5 | 0.02 | 23 | <4 | 205.9 | 85.0 | 7.3 | <2 | <20 | <2 |
| 1 | KC30-Keepo | 2 | 13 | 2007 | | 0.5 | 11.0 | 0.18 | 50.0 | 1.12 | 81 | 4.0 | 737.8 | 86.0 | 7.8 | 4.0 | <20 | <2 |
| 3 | Tur40-Turtle | 2 | 13 | 2007 | | 0.5 | 11.0 | 0.13 | 1.5 | 0.07 | 30.0 | <4 | 134.0 | 62.0 | 7.5 | 2.7 | <20 | <2 |
| 5 | Tur25-Turtle | 2 | 13 | 2007 | | 0.5 | 10.0 | 0.14 | 5.3 | 0.12 | 29.0 | 6.0 | 152.2 | 63.0 | 7.4 | 2.7 | <20 | <2 |
| 6 | Tur65-Turtle | 2 | 13 | 2007 | | 0.5 | 10.0 | 0.15 | 1.8 | 0.07 | 33.0 | 5.6 | 130.6 | 60.0 | 7.5 | 2.7 | <20 | <2 |
| 1 | KC30-Keepo | 3 | 13 | 2007 | 0 | 0 | 12.0 | 0.06 | 40.0 | 0.63 | 4.6 | <4 | 696.2 | 61.0 | 7.6 | <2 | <20 | <2 |
| 3 | Tur40-Turtle | 3 | 13 | 2007 | 0 | 0 | 12.0 | 0.15 | 0.4 | 0.06 | 3.6 | <4 | 177.1 | 23.0 | 6.9 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 3 | 13 | 2007 | 0 | 0 | 12.0 | 0.09 | 2.1 | 0.06 | 3.8 | <4 | 200.2 | 24.0 | 7.3 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 3 | 13 | 2007 | 0 | 0 | 12.0 | 0.09 | 0.6 | 0.05 | 4.8 | <4 | 183.2 | 26.5 | 7.3 | <2 | <20 | <2 |
| 1 | KC30-Keepo | 4 | 10 | 2007 | 0 | 0 | 11.0 | 0.12 | 37.5 | 0.67 | 6.0 | 6.4 | 710.2 | 174.0 | 7.9 | <2 | <20 | <2 |
| 3 | Tur40-Turtle | 4 | 10 | 2007 | 0 | 0 | 14.0 | 0.06 | 0.1 | 0.10 | 1.4 | <4 | 193.9 | 128.0 | 7.1 | <2 | <20 | <2 |
| 5 | Tur25-Turtle | 4 | 10 | 2007 | 0 | 0 | 12.0 | 0.06 | <0.1 | 0.05 | 2.4 | <4 | 200.8 | 130.0 | 7.2 | <2 | <20 | <2 |
| 6 | Tur65-Turtle | 4 | 10 | 2007 | 0 | 0 | 11.0 | 0.07 | 0.1 | 0.04 | 2.1 | <4 | 190.3 | 124.0 | 7.2 | <2 | <20 | <2 |

All water quality analysis performed by UNCA-Asheville EQI

**Comment Set V (Cont'd)**

additional information can be obtained by Contacting Marilyn Westphal at
828-251-6895

**David Cuneo**

**From:** WWW User [www@sonc.net]
**Sent:** Friday, May 18, 2007 7:22 AM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:

---

Name: Doreen Atkinson

Phone Number:

E-mail Address: datkinson2000@yahoo.com

Comment:

I too am against the piping of waste water from the Guerneville Sewer Treatment Plant for the same reasons stated by Dennis O\'Rorke in his e-mail to you and I would like to be on the Official record as such: As Mr. O\'Rorke stated, \"It has not been proven that treatment plants filter out chemical compounds that could appear in crops and groundwater. W-1

The negative publicity resulting from the use of wastewater on crops could have a devastating effect on Sonoma County agriculture. W-2

This project is, in reality, a device by the Sonoma County Board of Supervisors and the Sonoma County Water Agency (which by the way are one in the same) to convince State Regulators to approve Sonoma County obtaining more water from Lake Mendocino and Lake Sonoma for the purpose of accommodating future development. This tactic would not be sustainable and could result in chronic water shortages in the immediate future.\" W-3

Clearly this is for development!

**Comment Set X**

Dry Creek Valley Association – Natural Resources Committee Comments

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
MAY 17 2007
Orig. Filed
PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

May 15, 2007

Mr. David Cuneo, Senior Environmental Specialist
Sonoma County Water Agency
US Department of Interior, Bureau of Reclamation
404 Aviation Boulevard
Santa Rosa, CA 95403

Subject: North Sonoma County Agricultural Reuse Project – Draft EIR/EIS (DEIR)

The Dry Creek Valley Association has been actively involved in all administrative proceedings and submitted comments during the scoping phase for the subject project. DCVA has also participated in the public processes for other known projects that must be included in the DEIR/S alternatives analysis and determination of cumulative impacts. These projects include, but are not limited to: X-1

**IRWP – Santa Rosa Incremental Recycled Water Project**
**Santa Rosa: NPDES Permit: Setting water quality standards for effluent**

In line with our mission stated below, the DCVA respectfully submits the following comments on the proposed North Sonoma County Agricultural Reuse Project (NSCARP Draft EIR/EIS). As a component of carrying out this mission, the DCVA Natural Resources Committee (Fred Corson PhD, Richard Kagel PhD, Doug Lipton PhD, Don Kaminski, and Judith Olney) is implementing a strategy relative to wastewater reuse in the valley designed to ensure that wastewater discharged into the valley is of a quality that there is no degradation of surface or groundwater.

> The mission of the Association is to protect and enhance the natural resources, rural aspects and agricultural heritage of the Dry Creek Valley and its watershed while safeguarding the interests of the valley's present and future community.

The comments, questions and requests for additional study follow the structure of the EIR/EIS document. All previous comments submitted by the DCVA are incorporated by reference. **In fact, the DCVA is requesting that this deficient DEIR/S be revised and re-circulated in an acceptable form**. The reasons for this request are: X-2 X-3

1. Few, if any, of the well considered comments provided by many interest groups in North County during the scoping period for this project have been incorporated into this deficient DEIR; X-4

Dry Creek Valley Association – Natural Resources Committee Comments

2. The Project Description and Need are not substantiated by data and there is no commitment of wastewater sources for the project. The espoused need to store water for fishery resources has been compromised by SCWA's and its Water Contractors recent request for additional allocations for urban use; X-5

3. The conclusions are based on an erroneous assumption that "the volume of treated water would not change and that only the location would change. (page 3.4-46)" This base assumption invalidates the DEIR/S in that the North County "receiving areas" currently receive zero volume of wastewater and any discharge on our soils and into our groundwater resources is a significant increase in potential impacts to North County; X-6

4. The cumulative impacts section is lacking analysis of the impacts of NSCARP compounded by other known wastewater disposal and infrastructure projects in North County planned by Santa Rosa, Windsor and Healdsburg. The cumulative impacts section fails to address the compounding impacts of disposing billions of gallons of wastewater over the course of decades. X-7

5. The paucity of substantive analysis regarding the very real issue of wastewater contaminants and their potential to impact environmental resources: Soil, water, threatened fish species, oak woodlands, and pristine groundwater resources. X-8

6. The lack of public access to key reports that are referenced in the DEIR/S as the basis for drawing certain geotechnical and other conclusions. On April 4, 2007 Howard Wilshire (geologist and USGS researcher) had to request that the 2002 Geoservices Group feasibility study on four key reservoir sites cited in the DEIR/S in support of commentary on soils, engineering geology, site-specific geology and mitigations be released and made available to the public; X-9

7. The DEIR/S ignores valid studies done by the EPA or others, and draws conclusions based on such reasoning as –the City of Santa Rosa does not currently test for those chemicals. X-10

8. A predetermined judgment of "insignificant impacts" when the analyses and data is not present to support such a judgment, compounded by the subsequent lack of mitigation measures, measures that are toothless from a CEQA perspective (monitoring is not a mitigation measure) , or mitigations that patch a problem (fix leaks in the clay liner of a wastewater reservoir) versus the intent of CEQA mitigations to mitigate the damage done to the surface waters, groundwater, oak woodlands, etc. from a leak in the wastewater reservoir. X-11

9. The burden of proof is on the SCWA to show the impacts of this project on all natural systems, indicator species and ultimately human health. X-12

Dry Creek Valley Association – Natural Resources Committee Comments

PROJECT DESCRIPTION – NEED FOR NSCARP

**The project need, as stated, is not supported in the DEIR/S or by related activities:** The primary need for NSCARP is stated in the Executive summary (ES-1), Chapter 1 (1-3, 1-4), and further elaborated in the Executive Summary (ES-2) as:

> "…to allow water to remain in the Russian River system and its tributaries to improve habitat for listed fish species". "NSCARP would result in fewer agricultural diversions from the Russian River and its tributaries, which would enable the SCWA to release less water from storage in Lake Mendocino and Sonoma to meet water demands and in stream flow requirements. This would result in more water being conserved in storage in these reservoirs, which would provide more operational flexibility for the SCWA to benefit fisheries sources in the Russian River".

**This is not a credible project need and is not supported in the DEIR.** There is no description as to how NSCARP will improve fish habitat. The National Marine Fisheries Service Biological Opinion under the Endangered Species Act on SCWA activities has not yet been published; however, it is expected to request reduced summer flow in Dry Creek to support fish habitat. The SCWA has already presumed this result and has requested federal funding under the Water Resources Development Act for construction of a pipeline from Lake Sonoma to the Russian River bypassing Dry Creek. This biological opinion to reduce summer flows in Dry Creek and a proposal to build a pipeline to bypass Dry Creek are in direct conflict with the declared NSCARP need to leave more water in Dry Creek to benefit fisheries. In addition, SCWA public intentions to drill deep wells in the Dry Creek aquifer in order to provide water for agriculture or other uses (See the contract between the SCWA and the Dry Creek Agricultural Water Users, Inc. approved by the SCWA Board on 3/14/06) is in direct conflict with a need to leave more water in Dry Creek and the Russian River. X-13

**In order to qualify as a credible need for the project, the DEIR/S must state specifically:**

- **how much surface water and groundwater will be saved by NSCARP,**
- **how much of this water will be saved in the Russian River above Dry Creek, in Dry Creek, and in the Russian River below Dry Creek,**
- **how much of this water will be dedicated to fish habitat versus other uses,**
- **how this dedication will be enforced, and**
- **specifically how this surface and groundwater savings will benefit fish habitat.**

X-14

The DEIR/S needs to define how much water will not have to be released from the reservoirs due to NSCARP.

**Agriculture Off-set not defined**: Only a small fraction of agricultural water used in the NSCARP region results from direct surface water diversion. And, it is unknown how groundwater pumping affects surface flows in the Russian River and its tributaries including Dry Creek. It is clearly a function of well location, well depth and specific geology and hydrology between the well and surface water. Certainly there is only some unknown but likely small offset. It is clear that the DEIR/S contains insufficient information to support the declared primary need for NSCARP. X-15

**Urban Reuse Alternative not Addressed/ Known Alternative Project is Superior**: If one accepts the need for the project at face value, then one must compare the value of NSCARP versus other uses for the wastewater in question in preserving water in storage. Any urban reuse project in the regions served by SCWA will provide essentially 100% offset, available for reservoir storage preservation. The urban reuse will offset water being supplied by the SCWA and will that water not need to be released from storage. By comparison, NSCARP, as discussed in the paragraph above, will provide only some fractional, unknown storage offset. X-16

**Santa Rosa, Windsor and Healdsburg have Known Urban and Ag Re-use Projects:** In fact, the Santa Rosa Urban Reuse Project proposes to use this same wastewater for a major reuse project in Santa Rosa and Rohnert Park, including double piping in new developments. The IRWP Urban Reuse Project is clearly superior to NSCARP in meeting the primary need to preserve water in storage. Furthermore, Santa Rosa BPU and City Council officials have clearly and repeatedly stated that Urban Reuse is superior to NSCARP in meeting their disposal criteria of cost and potable water offset and that they have made no commitment to supply water for NSCARP. Likewise, Windsor officials and Healdsburg officials have also stated that they have no intention of supplying water for NSCARP and have their own plans for wastewater disposal. X-17 X-18

**Infrastructure Need not Substantiated**: The DEIR/S (ES-1 and 1-3) states that "there is also a need for adequate infrastructure to store and distribute recycled water produced by various entities for reuse throughout the region". This infrastructure need will likely be met by the Santa Rosa Seasonal Storage and Urban Reuse Projects with superior potable water offset, superior storage preservation, and arguably fewer negative environmental impacts. X-19

**Sources of Wastewater:** The DEIR/S has presented no credible sources for the quantity of wastewater required to carry out any of the described project alternatives except No Action. The DEIR/S states that "NSCARP is a potential means for storage and delivery of approximately 13,000 af of recycled water annually", that Santa Rosa, Windsor, and the Airport/Larkfield/Wikiup Sanitation Zone can provide 7,324 af today and an additional 8,500 af by 2020. However, officials of Santa Rosa have stated that their objectives favor Urban Reuse with 100% potable water offset over NSCARP with questionable potable water offset and Windsor officials have said they have no intention of supplying water to NSCARP and have their own wastewater reuse plans. Similar statements have been made by Healdsburg officials. Without Santa Rosa (and/or Windsor and Healdsburg) as a supplier, there is insufficient wastewater to make NSCARP a viable project. It is impossible to credibly analyze potential impacts of this project without a defined water source of defined quality. Therefore, this DEIR/S is premature and insufficient.

X-20

X-21

X-22

**Preferred NSCARP Alternative has significant impact on threatened fish habitat:** Finally, for reasons which will be described in subsequent sections, it is likely that the NSCARP will cause contamination of threatened fish habitat which will be in direct conflict with the stated primary need to improve fish habitat.

X-23

PROJECT DESCRIPTION – ALTERNATIVES CONSIDERED

Project Description, Project Alternatives

**The scope of alternatives considered is too limited, and in reality, are merely subsets of the same project, not alternatives to the project.** The DEIR/S must consider alternative uses for the wastewater in question. Based on its primary need to retain water in storage for the benefit of endangered fish species, the alternatives considered for this project are insufficient. Since this project, in order to be viable and as defined in the DEIR, must have Santa Rosa as the primary supplier, must use the Santa Rosa owned and operated Geysers pipeline as a primary method of conveyance, and will have storage which is part of a total network of storage for discharge, urban reuse and agricultural reuse, alternatives such the Santa Rosa Urban Reuse Project must be considered. Indeed, as described above any rational alternatives analysis would judge Urban Reuse to be a superior alternative to any of the studied NSCARP alternatives on the basis of superior potable water offset (storage preservation) and lower potential impacts. In fact, it could be argued that any Urban Reuse alternative in the SCWA service area would be superior to NSCARP on each of the five screening criteria defined in the DEIR/S (2-13).

X-24

X-25

**Environmentally Preferred Alternative: The reasoning provided in the DEIR/S for selecting Alternative 2, the entire NSCARP, as the preferred and environmentally superior alternative (page 2-13) is fundamentally flawed.**

- The primary need for the NSCARP project is not supported in the DEIR. Therefore, the conclusion that Alternative 2 is the preferred and environmentally superior alternative because it best meets this need is also not supported.

X-26

- Second, as described in Project Alternatives comments above an inadequate range of alternatives was considered. Urban Reuse must be considered as an alternative because it is a project competing with NSCARP for the same wastewater and uses much of the same infrastructure. Urban Reuse clearly is superior to NSCARP in meeting the primary need stated. X-26 (Cont'd)

- Finally, even if one presumes the primary objective is correct and supported in the DEIR, probable contamination of surface and groundwater by NSCARP, inadequately analyzed in the DEIR, would also make the Urban Reuse Project preferred and the smaller alternatives 3 and 4 preferable to Alternative 2.

4.0 CUMULATIVE IMPACTS

The NSCARP DEIR/S must address the cumulative impacts of its reservoir and conveyance systems with those planned by others in the North County. The storage created by this project ultimately will become part of a greater network of storage in support of all future SCWA, IRWP, Windsor and Healdsburg reuse projects, both urban and agricultural, this EIR must evaluate the environmental impacts that all these treated wastewater projects will create during conveyance, storage <u>and reuse</u>. X-27

- IRWP: "Full implementation of the IRWP Master Plan would require up to 1.2 billion gallons of additional storage capacity. X-28
- How are Windsor and Healdsburg's storage and agricultural re use projects interrelated to the NSCARP? X-29
- How do the SCWA EIRs for the Russian River County Irrigation District irrigation projects interrelate with the NSCARP? X-30
- How does the proposed pipeline from Guerneville Treatment Plant to Graton interrelate with the NSCARP? X-31

The DEIR/S concludes that cumulative impacts of NSCARP and other developments on water quality and public health and safety will be less than significant. The DEIR/S analysis of impacts on water quality and public health and safety, especially from surface and groundwater contamination from soluble organic chemicals with biological impacts at very low concentrations, is inadequate. There is no discussion of similar negative impacts from the many other wastewater discharge and reuse projects under consideration in the NSCARP area including Santa Rosa Discharge Compliance project, the Santa Rosa Seasonal Storage Project, the Santa Rosa Urban Reuse Project, Windsor proposals for expanded urban and agricultural reuse, and Healdsburg proposals for urban and agricultural reuse. X-32

Likewise there is no discussion of concentration effects resulting from all of these projects in combination with reduced flow in Dry Creek and the Russian River potentially resulting from reduced Eel River diversions, the pending Biological opinion, Resolution 1610 considerations, climate change, etc. The cumulative impacts on water quality and thus public health and safety could be significant and must be seriously analyzed. X-33

In addition, the NSCARP results in export of waters from the SCWA service area; thus the DEIR/S must and did not consider the cumulative impacts of this and other water exports, including those from the proposed Napa Sonoma Baylands Marsh Restoration Project. All water that would not be available to offset current or future potable water demands must be accounted for and the impacts analyzed. X-34

The DEIR/S must explain how NSCARP will affect the supply and demand balance in the recently adopted Sonoma County Urban Water Management Plan as well as in the UWMP's for any particular city or agency that is proposed for supplying wastewater to NSCARP. The DEIR/S must address how the diversion of wastewater to the NSCARP and other projects will reduce or eliminate opportunities to offset potable water demands in the service areas of SCWA contractors and other municipal water suppliers. X-35

5.0 GROWTH INDUCING EFFECTS

The DEIR/S (5-5) does a superficial analysis of the growth inducing impact potential of NSCARP related to potable water offset and concludes (5-10) that there will be less than significant growth inducing impact "because the proposed project would not result in increased flows in the Russian River and any water that remains in the tributaries as a result of the project would not be available for appropriation by someone else". However, this analysis is disingenuous. The declared primary purpose of the project is to decrease agricultural diversions of water from the Russian River and its tributaries and decrease agricultural pumping of groundwater which in some measure may increase flows in the Russian River and its tributaries so that the SCWA can release less water from the dams and leave more water in storage for operational flexibility. X-36

To the extent that more water is left in storage it will be available for use by someone. The DEIR/S claims that this water will be used only for operational flexibility to benefit the fish. However, there is no data on:

- How much diversion will be reduced,
- What impact decreased groundwater pumping will have on stream flows,
- How much additional water will remain in storage or where.

There is no commitment of any kind on uses for that water. And, there is no data available to substantiate potable water offsets from NSCARP; therefore, any conclusion that there will be no additional water available for growth is premature and unsubstantiated.

The DEIR/S does not address the growth inducing impact of putting large reservoirs in the water-starved canyons west of the Russian River. Most of the land surrounding the proposed reservoir sites along Westside Road is currently pasture or threatened oak woodland. The DEIR/S needs to assess both the growth inducing impact of water availability in these areas and the impacts of the subsequent development of hillside vineyards in this steep terrain. X-37

KEY ENVIRONMENTAL ISSUE AREAS

3.1 AESTHETICS

NSCARP is undoubtedly the largest industrial project Sonoma County has ever envisioned. In fact, the "environmentally superior Alternative 2 with minimization of environmental impacts" plans to cover 21,500 acres with purple pipes, construct 19 reservoirs totaling 11,200 acre-feet in storage, and construct 112 miles of transmission pipeline, along with numerous booster and distribution pumping stations.

Healdsburg and its three pristine agricultural valleys have become an international tourist destination. According to the Air Quality section, NSCARP's "environmentally superior" alternative is projected to require 10 years or more to construct. Houses do not sell when they are inaccessible due to traffic jams or the property is surrounded by diesel trucks. Tourists do not flock to construction zones – so the downside of the economic impact to Sonoma County's economy may be far greater that the costs of less damaging alternatives that are not even considered in the DEIR/S. X-38

Wastewater reservoirs, with their large berms and fluctuating water levels, are an eyesore and give off odors that are incompatible with wine tasting. Once complete, the project will continue to mar the landscape with miles of purple pipe, wastewater reservoirs with large berms and fluctuating water levels, along with signs on every vineyard ("NOTICE: This land is being irrigated with reclaimed water. Overflow and run-off are prohibited. If you have reason to suspect misuse of water, call xxx" and "Reclaimed water – do not drink."). These signs will declare to the world that our agricultural valleys are the sewage leach field for the urban core. X-39

Again, the DEIR glosses over the real and perceived loss to the economy of putting industrial pumping stations and visible purple pipes announcing that the agricultural valleys are the sewage leach field for the urban core.

3.2 AGRICULTURAL RESOURCES

**Agricultural Resources, Impact on Productivity of Farmlands: The DEIR/S relies on insufficient study of pathogens:** The DEIR/S (3.2-7) inappropriately relies on the 1987 Monterey Regional Water Pollution Control Agency report on pathogens in tertiary treated wastewater. This 20-year old report is out of date and focused on only a limited set of pathogens. A much more rigorous study of the wastewaters actually to be used in the NSCARP must be made using modern analytical techniques. Furthermore, if SR wastewater is to be used, additional testing on duration of disinfection by UV radiation must be performed. Duration of disinfection by UV radiation is known to be short, and re-growth is known to occur. The DEIR/S requires three studies of pathogens; (1) analysis for pathogens not only of treatment plant effluent, (2) analysis of pathogen interactions while wastewater is in storage, and (3) pathogen levels prior to reuse application. X-40

**Insufficient analysis of impact on grapes:** The DEIR/S contains superficial and incomplete information on impact of use of wastewater on grapes and wine. The statement (3.2-8) that "no studies demonstrate that irrigation practices with recycled water affect different grape varieties differently" is meaningless. The DEIR/S cites no studies of any kind on the effects of recycled water on grapes. Such a study must be made on grape varieties grown in the NSCARP region, using NSCARP soils, and using specific wastewater to be used in NSCARP. Furthermore the DEIR/S has no information on soluble organic chemicals in the wastewater, adsorption of these chemicals into grapevines, effects of the chemicals on grapevines, or effect of these chemicals on wine properties, especially taste. X-41

The statement in the DEIR/S (3.2-8) that "most recycled water produced does not have harmful levels of salts for most plants" is irrelevant. Impact HQW-4 Section 3.8 simply asserts a negligible effect with no justification. The DEIR/S must contain studies that demonstrate how salts in the specific water to be used in NSCARP will build up in NSCARP soils under constant irrigation and how that buildup will affect specific crops grown in the NSCARP region. The Napa study cited in the DEIR/S (3.2-20) represents a single soil type and a single crop and cannot be considered representative of NSCARP conditions. X-42

It must be considered inappropriate to propose a massive agricultural reuse project on 21,000 acre of vineyards on prime agricultural soils critical as a major contributor to the Sonoma County economy with at best limited and superficial data on the impacts of the wastewater on the soils, vines and wine. Where are the studies or the commitments to carry out the studies? X-43

3.3 AIR QUALITY

The DEIR/S air quality analysis indicates that the quickest project build-out rate for the "preferred alternative 2 with minimization of environmental impacts" is 10 years, and that the actual rate of construction may actually occur over a longer period. The construction impacts of this project alone will destroy more threatened fish habitat than "operational flexibility" of flow releases will enhance. X-44

The Criteria Air Pollutants and Toxic Air Contaminants from diesel exhaust are carefully described in Table 3.3-1, with section 3.3.1 revealing the fact that diesel combustion emissions are the Toxic Air Pollutant responsible for most excess cancer deaths in the Bay Area. Although not required to do a "health risk assessment" the Section states that "mobile sources, such as diesel construction equipment, contribute twice as much to the toxic burden as all other stationary sources combined."

The Russian River and Dry Creek Valley NSCARP sub-areas have been modeled by the ARB Air Toxics Section, which determined that the combined risk from all sources to be less than **250 excess *annual* cancer deaths per million people. If this statistics is translated to approximately 100,000 people in North County impact area, it appears that baseline agricultural air quality plus NSCARP impacts will result in an expected 25 excess annual cancer deaths per year or 250 dead people over the course of 10 years.** X-45

Tables 3.3-3 (quantitative thresholds) and 3.3-4 (NSCARP peak annual construction emissions) tell an interesting story which becomes more horrifying by the statement that "quantitative thresholds criteria is NOT applied to the primary sources of project emissions – mobile construction sources.

| Pollutant | North Sonoma County Air Board Significance Threshold (Tons/Yr) | NSCARP Peak Annual Construction Emissions (Tons/ Yr) |
|---|---|---|
| **NOx** | **40** | **65.5** |
| ROG | 40 | 6.9 |
| **$PM_{10}$** | **15** | **43.6** |
| CO | 100 | 25.3 |

Both NOx and $PM_{10}$ significantly exceed the standard, and both are acute irritants. $PM_{10}$ particulate matter health effects include "aggravation of chronic disease and heart/lung disease symptoms'. NOx, which "may have a relationship with chronic pulmonary fibrosis and an increase in bronchitis in young children," also contributes to the formation of the deadly $PM_{10}$. So, one toxic air substance feeds the development of the other, not to mention acid rain. X-46

The DEIR/S states that the air quality impacts are SIGNIFICANT, and then outlines minimal mitigation measures for this Significant Environmental and Health Impact.

- Mitigation AQ -1A: Lists 12 simple street watering, sweeping and vegetation planting mitigation steps to reduce fugitive dust.
- Mitigation AQ -1B: Lists 4 minimal, barely enforceable, and only ***when feasible*** steps to help reduce emissions from construction equipment exhaust (NOx, ROG, CO).
    - Use alternatively fueled construction equipment, *where feasible*;
    - Minimize idling time (3.g. 5-minute maximum)
    - Maintain properly tuned equipment; and
    - Limit the house of operations of heavy duty equipment and/or the amount of equipment in use, *to the extent feasible*.

**AQ -5: Expose sensitive receptors to toxic air contaminant pollutant concentration:** This section alleges that the majority of the total $PM_{10}$ emissions would be in the form of fugitive dust from soil disturbances rather than from diesel engine exhaust. We are led to believe that of the 608.1 lbs/day of peak daily $PM_{10}$ emissions, only 47.1 lbs/day would be in the form of engine exhaust. **How much of these engine exhaust -related $PM_{10}$ emissions are actually the far more problematic $PM_{2.5}$ emissions?** The data and analysis must be provided to back up the assumptions and conclusions drawn about this significant impact. The DEIR/S must include specifications on how many construction vehicles, their hours of operation, or the type of fuels used. Also, the DEIR/S must comply with the newer EPA standards for **$PM_{2.5}$ emissions.**

X-47

X-48

**DEIR/S does not assess the impact of fugitive dust or $PM_{10}$ emissions on threatened fish species or crops.** The conclusion that NSCARP generates 608.1 lbs/day of peak daily $PM_{10}$ emissions raises the question as to how much coarser dust is generated, and how much silt will go into the tributaries and into salmon spawning streams. The DEIR/S must assess the impact to threatened fish species from all this earth moving. Particulate matter can damage vegetation both directly and indirectly. When exposed to particulates, plants may suffer increased disease, leaf cells may be damaged, and yield and growth rates may be reduced.

X-49

X-50

Just like the emerging science around testing for organic chemicals, the Epidemiology journals are full of studies on the correlation between **$PM_{10}$** diesel emissions and acute respiratory health effects. The EPA and health organizations are concerned about **$PM_{10}$** emissions – these are responsible for most of the adverse human health effects because of their ability to reach the lower regions of the respiratory tract. And, recent data shows that **$PM_{2.5}$ emissions may pose the greatest threat to human health because, for the same mass, they absorb more toxic and carcinogenic compounds than larger particles and penetrate more easily deep into the lungs. These "respirable" particles can enter the lungs and end up in lung capillaries and air sacs (alveoli).**

Many of the residents in the NSCARP area live surrounded by vineyards, and are exposed to fugitive dust and diesel emissions on a daily basis; thus a decade long construction period becomes extremely relevant. DEIR/S must define stringent enforceable mitigation measures, including measures specifically to control $PM_{10}$ and **$PM_{2.5}$** emissions, and must define the steps that will be taken to enforce the mitigations. X-51

**Impact AQ-2: Conflicts with Air Plan** (page 3.3-14) states "If all applicable $PM_{10}$ control measures recommended by the BAAQMD are implemented during the construction phase of a project, emissions may also be considered less than significant (BAAQMD, 1999). As all recommended $PM_{10}$ control measures have been implemented (see Section 3.3.5), no conflict with the Clean Air Plan is expected to result from construction of Alternatives 2, 3 and 4. This is a less than significant impact."

**The version of the DEIR/S downloaded from the internet has NO Section 3.3.5: Specifically, what are the $PM_{10}$ emission control measures, and what steps will be taken when the $PM_{10}$ emissions exceed air quality standards?** X-52

3.4 BIOLOGICAL RESOURCES

**Wastewater Quality Impacts on threatened fish**: The DEIR/S (3.4-14) indicates that several special-status fish species use habitat in the NSCARP-- the California Coastal Chinook salmon, the Central California Coast coho salmon, and the Central California Coast steelhead.

Impact BIO-7 (3.4-44) and BIO-8 (3.4-45) analyze the potential of organic and inorganic compounds and endocrine disrupting compounds to increase ecological risk to animals and plants exposed to wastewater and conclude that risk is not significant. The basis for this conclusion is limited only to the requirements of Title 22. Title 22 requires only that the wastewater has received tertiary treatment and has been disinfected. This regulation contains absolutely no standards relative to any chemical contaminants with potential human health and environmental impacts. Presumption that because this treated wastewater meets the requirements of Title 22 there will be no negative impacts on human health or biological resources will be inappropriate. Title 22 is irrelevant to potential damage from organic and inorganic chemicals including endocrine disruptors. X-53

In addition to those defined in Title 22, the wastewater delivered to North County must meet the requirements of the California Toxics Rule, Basin Plan and Anti-degradation Policy. In other words, Santa Rosa's wastewater must meet the quality requirements recently issued by the North Coast Regional Water Quality Control Board (NCRWQCB). Order R1-2006-0045 recently issued by the NCRWQCB includes a Master Reclamation Permit with requirements and provisions for use of Santa Rosa Sub-regional Water Reclamation System effluent in storage and reuse projects. X-54

- Effluent for storage and reuse must meet all the effluent limitations contained in Section IV of the Order (Order, Attachment G, pg G-2).

- The collection, storage, and use of wastewater or recycled water shall not cause or contribute to a statistically significant degradation of groundwater quality (Order, pg 17).

- The use of recycled water shall not cause degradation of any water supply (Order, Attachment G, pg G-4).

- And, discharger shall prepare a Groundwater Monitoring Program and a Storage Pond Leak Monitoring Program sufficient to demonstrate that reuse and storage are not degrading groundwater quality (Order, pg 20).

X-54 (Cont'd)

The Santa Rosa Ecological Risk Assessment carried out for the IRWP indicated no potential concern. This study did not consider soluble organic chemicals with potential impacts at very low concentrations which certainly will be in the wastewater. If this study is to be used as a basis to draw conclusions about Santa Rosa's wastewater, additional information from the study is required. The DEIR/S must substantiate when the samples of water were taken for the study, and that the quantity/concentration of wastewater in those samples are indicative of the wastewater for NSCARP at all times of year.

X-55

Specific to endocrine disruptors the DEIR/S (3.4-46) concludes that "the effect of NSCARP would be minimal with regards to exposing fish to these compounds". This conclusion is based on three factors, all questionable.

1. First, there would be no change in the volume of treated water. It would be stored in small reservoirs instead of the Laguna.

X-56

2. Second, by pumping wastewater into reservoirs and applying it to crops, the volume of water entering the aquatic system directly would be reduced. The total volume of water is not significant. The critical issue is concentration of contaminants in critical habitat at the same time as fish. In fact, instead of discharge into the Russian River at times of very high flow, the wastewater in the NSCARP could potentially enter and degrade many small salmon habitat tributaries. Many of the vineyards to be irrigated are located on hillsides and benches close to small tributaries. Contamination could occur by reservoir overflow or seepage, by surface runoff during irrigation, or most likely by surface runoff during frost protection. Runoff could occur into very small streams with very low flow. Concentrations of contaminants could reach toxic levels.

X-57

3. Third, wastewater applied to fields will evaporate, percolate into soil, or be taken up by plants. True. However, over irrigation or especially frost protection will allow runoff into tributaries. Percolation into soil will ultimately contaminate groundwater and plant uptake has the potential to damage plants, grapes and the taste of wine. X-58

The DEIR/S simply has insufficient information to reach the conclusion of no significant impact to fish from chemicals contained in the wastewater. The source of the wastewater is undefined. Quality data is insufficient. Data on soluble organic contaminants contained in the TOC is non existent. Analysis of potential contamination by runoff into small tributaries with low water flows is missing. X-59

BIO – 7 and BIO _8 conclusions of impacts to animals and plants exposed to organic and inorganic compounds from wastewater is based on only a partial analysis of known contaminants in the wastewater. Simply because the City of Santa Rosa or the SCWA does not currently conduct tests or provide results for tests for organic chemicals known to be in the wastewater does not translate under CEQA/ NEPA to the ability to ignore that class of contaminants for the impact assessment. Studies by others have documented impacts from certain chemical compounds to aquatic resources, and these analyses must be taken into consideration. X-60

In summary, there is considerable evidence that the NSCARP will result in groundwater degradation with metals, nutrients, and organic chemicals that at even very low levels pose human health concerns. In order to carry out a meaningful environmental review as well as meet its obligations under Order R1-2006-0045 and the Anti-degradation Policy, the DEIR/S must identify the organic contaminants contained in the up to 60 mg/l TOC, must evaluate the potential for these contaminants to enter and degrade soil and groundwater, and must evaluate the potential environmental impacts resulting from such degradation. X-61

3.7 GEOLOGY AND SOILS – AND 3.2 AGRICULTURAL RESOURCES

This section focuses on important geotechnical and seismic issues associated with building large reservoirs in steep and unstable canyons, but lacks information on another very real impact area – the disposal of wastewater on prime agricultural soils.

**The DCVA requests that the studies used as the basis for conclusions in this important impact area be released to the public, and that the DEIR/S be resubmitted for review with all background studies.** For example, Howard Wilshire notes that a 2002 report by The Geosciences Group on the feasibility of four reservoir sites was not available for public review at the on-set of the DEIR/S review period. The Geosciences Group report is cited 16 times, 8 in support of commentary on soils, engineering geology, site-specific geology and 8 times in Tables 6-1 and ES-1 mitigations. In addition, other key studies on reservoir sites are not cited in the DEIR/S. X-62 X-63

Doug Lipton PhD specifically requested, during the scoping process, that the EIR consider the different soil types and the relative adsorption or leaching of contaminants in and through the soils. Different soil types have different adsorptive and leaching capacities for contaminants, depending on the variety of physio-chemical factors such as amounts of clay, sand, hydroxides of iron and manganese, carbonates, and organic matter. These factors play an obvious and significant role in effecting the potential for contaminants in wastewater to accumulate in soils or leach into groundwater; both of these areas need substantial additional assessment and evaluation. X-64

The DEIR/S must address the potential impacts from salts and wastewater contaminants accumulating in soils that are currently of exceptional quality for growing premium wine grapes and other high quality or organic fruits and vegetables. Application of billions of gallons of wastewater over decades with intense evaporative processes occurring need to be considered – and those considerations are lacking in the DEIR/S. X-65

- The DEIR/S acknowledges that wastewater applied to soils will evaporate, percolate and be taken up by plants, and that the soil may increase biodegradation and/or adsorption of the chemicals.
- The issue of salt build-up is extremely important from a crop sensitivity standpoint, but it is unaddressed. On page 3.8-33, the DEIR/S states that increases in salinity in GW would be insignificant, but then provides no analysis to back up this allegation. The DEIR states that recycled water projects are allowed "minor changes in salinity." Data on these changes in salinity over the course of the year and accumulation over decades of application to prime soils must me addressed. X-66

The DEIR/S also fails to analyze the following important factors. Biodegradation of organic compounds often leads to breakdown products that are more mobile and leachable in the environment, thereby increasing their potential toxic effects (biocumulative, acute, and/or chronic) to human and ecological receptors . For example, partial dechlorinating reactions are known to increase mobility and not remove toxicity: DDT, PCBs, dioxins are common old chemicals that exemplify this phenomenon. A lot is known about the effects of heavy metals but most toxicity data and understanding regarding the effects of these metals in nature, especially how they behave when applied to soil, are based on metals in the form of simple salts. It is well known that metals complex with and can be incorporated into organic molecules via soil and wastewater treatment processes. Consequently, organic forms of metals can make up a large pool of the metals in wastewater. These organic forms of metals found in wastewater can be less adsorptive to soils and instead are highly water soluble, due in large part to the "selection" process that inadvertently occurs during the wastewater treatment processes.

The DEIR/S claims that the volume of wastewater will be reduced by crop intake, yet does not analyze the impacts of that crop uptake. Given absorption is plant and chemical specific, the DEIR/S must address absorption of chemicals in specific plants, for specific chemicals in specific soils. The DEIR/S must address the uptake probabilities (absorption of chemicals) for many types of crops, especially those that don't develop woody tissue and those that may be more susceptible to assimilating and storing residue, not just grapes. For row crops, that use considerably more water over a shorter growing season, the unintended consequences of contamination may lead to public health impacts. X-67

**Use of Wastewater for Frost Protection not Addressed**: The DEIR/S claims that nitrates are not a problem because they are taken up by vegetation with minimal migration beyond the root zone. This is unsubstantiated by data or analysis, and would only be partially true during the summer irrigation season. The statement is patently false should wastewater be used for frost protection. Frost control occurs during a time when plants are dormant or just pushing buds, and flood-like spraying operations are commonly observed in our North County agricultural valleys. It is to be noted that frost protection spraying often atomizes the water particles creating a fine spray that gets blown off the fields. This spray increases the probability that wastewater used for agricultural irrigation may be inhaled by humans and come into contact with human skin. X-68

To compound the issue, during spring frost control the soils are already saturated; thus, the frost control wastewater will runoff into surface waters or percolate to groundwater, with soluble chemicals like nitrates moving readily into water resources, including drinking water wells. This significant issue needs to be addressed with revisions to conclusions and mitigation measures. X-69

As addressed in the Hydrology and Water Quality section, the North County agricultural valleys have sandy, gravelly alluvial soils and shallow groundwater aquifers. These soil properties are extremely important given that the tertiary treatment processes themselves makes the metals and the organics in the wastewater "slippery" by virtue of complicated chelation and organo-metalic reactions that result in the contaminants remaining in the treated wastewater highly water soluble. It's the leaching of these contaminants into groundwater covered in the following section that is a prime concern of the DCVA – the DEIR/S must address this concern. X-70

3.8 HYDROLOGY AND WATER QUALITY

Full analysis of the impact to important groundwater recharge areas with sandy, gravelly alluvial soils and shallow groundwater aquifers such as in the Alexander, Dry Creek and Russian River Valleys is missing from this DEIR. The DEIR/S must presume that contaminants from the wastewater will enter the soil and ultimately percolate to groundwater. Potential environmental impacts from chemical contaminants in the soil and groundwater must be evaluated. X-71

The current tertiary treatment process contains three opportunities for chemical contaminants to adsorb onto solids. Those that don't are largely water soluble chemicals and not readily adsorbed. They will, therefore, percolate through sandy, gravelly alluvial soils to groundwater. IRWP data from indirect discharge studies in the Alexander Valley indicated that metals were not readily adsorbed onto the soil reinforce this premise, and these known studies need to be taken into consideration in this DEIR. X-72

**Water Quality**: Inadequate definition of the quality of the wastewater to be used in NSARP is the most serious deficiency of the DEIR. It is impossible to define the impacts of NSCARP without complete understanding of the quality of the water to be used. Of particular concern in this regard are impacts BIO-7, BIO-8, HWG-4, HWQ-9, PUB-7, and PUB-10. First, since there is no commitment to supply wastewater from Santa Rosa or Windsor, the specific wastewater to be used is undefined and therefore the water quality is unknown. X-73 X-74

Presuming that Santa Rosa must be the primary wastewater supplier to NSCARP if it is to be viable, the quality data in tables 3.8-2 and 3.12-1 are inadequate to determine impacts. (The data available on wastewater from Windsor and Airport/Larkfield/Wikiup Sanitation Zone are even more deficient.) Data contained in Order NO. R1 2006-0045 recently issued by the North Coast Regional Water Quality Control Board to the Santa Rosa Regional Water Reclamation System indicates that after 2010, Santa Rosa Wastewater Effluent will not meet the Effluent Quality Limitations required to be used in any reclamation project including the NSCARP. It will not meet final limitations for copper, lead, nickel, cyanide, or nitrogen or phosphorous nutrients unless additional treatment is implemented. These requirements are not mentioned in the DEIR/S nor is additional treatment considered. In addition, Santa Rosa wastewater contains other contaminants which are close to levels toxic to aquatic life (selenium), humans (mercury), and grapevines (boron) (Santa Rosa IRWP Table 4.5-2). X-75 X-76

**Of probably even greater concern than the above is the very large amount of unidentified organic chemicals in the effluent.** According to the IRWP DEIR, Table 4.6-2, total organic carbon (TOC) has a mean of 16.8 mg/l with a maximum detected of 55 mg/l. Total organic chemicals identified elsewhere in the table account for less than 0.1 % of this organic carbon. This leaves a very large amount of currently unidentified organic chemical contaminants. X-77

Even though Santa Rosa has apparently chosen not to identify these organic contaminants, many others have. References include:

- US Geological Survey analyses for 95 organic chemical of concern in wastewater discharges, in streams below wastewater discharges, and even in groundwater (see, for example, Environmental Science Technology, 36, 1202-1211; USGS Fact Sheet FS-027-02, June 2002; Environmental Science and Technology, April 2002, 140A to 145A), X-78

- Extensive work by Dr. David Sedlak of UC Berkeley on concentrations of hormones and other endocrine disruption compounds and pharmaceuticals in municipal wastewater and effectiveness of removal by conventional tertiary wastewater treatment, reverse osmosis treatment, and engineered receiving waters (see for example references at **http://www.ce.berkeley.edu/~sedlak**), and

- Regional Water Quality Control Board orders regulating reverse osmosis treatment of wastewaters and re-injection into groundwater aquifers in Southern California by the Orange County and West Basin Water Districts (Orders R8-2004-0002 and R4-2006-0009).

X-78 (Cont'd)

This body of work indicates that typical municipal wastewater effluents contain many soluble organic chemicals including hormones, other endocrine disruption compounds, and pharmaceuticals with human health and aquatic organism toxicity concerns at extremely low concentrations. The studies also indicate that analytical procedures are available to analyze for many of these chemicals at concentrations of concern and these analyses show that many chemicals are not removed by conventional tertiary wastewater treatment.

**The NSCARP DEIR/S must presume that contaminants of concern at very low concentrations are present and will degrade surface water and groundwater from storage and reuse and it must identify these contaminants and must analyze the potential environmental impacts.** The DEIR/S acknowledges that such contaminants will likely be present in NSCARP wastewater but states that impacts are too speculative to allow any conclusions on impacts to be made (3.12-23). This conclusion is inadequate.

X-79

The Anti-degradation Policy demands that groundwater not be degraded. This requirement is applicable to any contaminants of concern. Furthermore, the USGS study, Ground-Water Quality Data, North San Francisco Bay Hydrological Provinces, California, 2004, GAMA Program Results indicates that groundwater aquifers in the NSCARP area are relatively free of contamination. There is little data or analysis to substantiate that the Anti-Degradation policy can be met. The potential consequences of contamination are potentially too serious and irreversible to ignore.

There is a class of chemicals called Emerging Chemicals of Concern which includes perchlorate (known to up take into plants), 1,4-dioxane, n-dimethyl nitrosamine, polybrominated diphenyl ethers, perfluorinated octanoic acid, as well as endocrine disrupters and pharmaceuticals and their metabolites. The science around testing for chemicals is still young, but new breakthroughs are made each year. There are literally tens of thousands of man made chemicals used by industry in Santa Rosa and some portion of these chemicals end up in the wastewater influent. Just because Santa Rosa does not test for these chemicals, does not make their impact insignificant.

X-80

In order to fully understand the impact on water quality, one must first understand the hydrology and soils in the proposed disposal area.

As described in the DEIR/S (3.8) and the USGS Scientific Investigations Report 2006-5115, the geology /hydrology of the three agricultural valleys which comprise the NSCARP area are somewhat unique. The valley floors are primarily stream deposited alluvial soils—sandy, gravelly, coarse soils with high percolation rates. The groundwater aquifers are shallow. The Santa Rosa Indirect Discharge Study (private communication between Fred Corson and Craig Lichty, to be published in a Technical Memorandum as part of the Discharge Compliance Project Engineering Study) supports these facts and adds that the soils do not significantly attenuate metals or soluble organics in the wastewater. Therefore, one can reasonable conclude that contaminants in applied wastewater which do not run off or enter plants will percolate through the porous soils and enter the shallow groundwater basins. Depending on application rates this percolation to groundwater will occur upon application or during winter rainfall. X-81

Impact HWQ-4 (3.8-33) analyzes the potential for groundwater degradation and concludes that the potential is significant but will be mitigated to less than significant by a groundwater monitoring program at storage reservoirs. This mitigation will only be effective to define seepage from the reservoirs and will not define groundwater contamination in reuse areas. The DEIR/S does consider groundwater contamination in reuse areas but considers only salinity and nitrates. The DEIR/S does not consider groundwater contamination by soluble organics with human health effects at very low concentrations. In the case of soluble organics, concentrations in groundwater could reach levels of concern due to their very high activity at low levels. The DEIR/S must define the soluble organics contained in the wastewater to be used in NSCARP, the potential to percolate through the porous soils in the NSCARP area upon irrigation, and their ability to cause human health concerns at very low levels. The NSCARP area contains many domestic water wells. (One estimate is over 20,000 in Dry Creek, Alexander and Russian River valleys) X-82

Impact HWQ-9 (3.8-37) analyzes the potential for indirect or direct discharge or dam seepage to result in water quality impacts. The DEIR/S discounts any water quality impacts from irrigation because "the application rate would be limited to the equivalent crop demand". This will minimize surface runoff unless irrigation volume is excessive. It will not minimize runoff from frost protection or groundwater degradation from contaminant percolation. Limitation of irrigation to crop demand will not prevent the ultimate percolation of contaminants which do not enter the plant. X-83

3.10 PUBLIC HEALTH AND SAFETY

**Dam seepage and indirect discharge impact analysis is inadequate**: Impact HWQ-9 (3.8-37) analyzes the potential for indirect or direct discharge or dam seepage to result in water quality impacts. The DEIR/S discounts any water quality impacts from irrigation because "the application rate would be limited to the equivalent crop demand". This will minimize surface runoff unless irrigation volume is excessive. It will not minimize runoff from frost protection or groundwater degradation from contaminant percolation. Limitation of irrigation to crop demand will not prevent the ultimate percolation of contaminants which do not enter the plant. X-84

**Water Quality must be defined to fully analyze the potential impact on public health**: The source of wastewater is not defined since there are no committed suppliers. X-85 Water quality data is insufficient. X-86 Data on soluble organic chemicals contained in the TOC is non existent. Because of the unique geology and hydrology of the NSCARP area, percolation of contaminants to groundwater is probable. Runoff into surface waters is possible especially during frost protection. X-87

Impact PUB-7 (3.12-19) analyzes the potential that groundwater contamination and runoff into surface waters could have impacts on public health. The DEIR/S (3.12-20) concludes that impacts could be significant from groundwater contamination or surface runoff during irrigation or from reservoir seepage to groundwater. It also concludes that these potentially significant impacts can be mitigated to less than significant by two measures. The first mitigation is a Recycled Water Users Agreement that requires good farming practices and prohibits over application of wastewater. As discussed above, percolation of contaminants to groundwater can occur even if irrigation rates are limited to crop requirements. And, runoff to surface waters is likely during frost protection. In addition, experience with runoff from Santa Rosa Agricultural Reuse area on the Santa Rosa plain indicates that good farming practices will be difficult to enforce. X-88

The second mitigation involves a groundwater monitoring program at reservoir sites. First a monitoring program does not prevent groundwater contamination but only identifies it after the fact. There is no discussion of frequency of monitoring or what chemicals will be included. Based on the discussion (3.8-33) it appears to include only nitrate. This is insufficient. Second, there is no discussion of monitoring in the reuse area. These mitigation measures are inadequate to reduce impacts on public health to less than significant. X-89

Impact PUB-10 (3.12-21) addresses the potential impact of unregulated compounds on public health. Once again the DEIR/S concludes that impacts are too speculative to draw conclusions. This is inadequate. X-90

**In conclusion, what we don't know may hurt us:** In 2002, when the DCVA started working on the wastewater issue, a drinking fountain was available outside the tertiary treatment plant, spouting effluent espoused be clean enough to drink. Well, that fountain has been permanently turned off and no one is recommending that anyone drink the tertiary effluent now. This is a big change in just five years which begs the question; what will be our understanding of the wastewater contaminants in another five years? Nearly every month, another chemical is added to the list of what is referred to as "Chemicals of Emerging Concern". As each chemical is added to the list, test methods are developed to measure for this chemical and as soon as laboratories begin testing for this new chemical they begin to find it. This experience teaches us that we do not know if any particular chemical will be found unless a test method exists and laboratories are testing for it.

Over the next five years, the list of chemicals of concern will undoubtedly grow significantly and chemicals that are not even on our radar screen today are likely to be found in the wastewater at unacceptable concentrations. Regulatory thresholds for chemicals presently on the list will undoubtedly be lowered. As the science of testing for new chemicals of concern becomes more mature, more information regarding the uptake of hormones, antibiotics and these emerging chemicals of concern into fruits and vegetables will become available. This new information is likely to change our perception regarding the safety of urban and industrial treated wastewater and its appropriate uses. This trend is not speculator but rather a fact. One only needs to look back in time (Santa Rosa's wastewater drinking fountain serves as a good example) to understand the seriousness and shortsightedness of this inadequately studied plan to spread billions of gallons of this poorly understood wastewater above and into the drinking water source for hundreds of thousands of people and effecting its quality forever.

Respectfully Submitted,

Dry Creek Valley Association – Natural Resources Committee

Dr. Fred Corson
Fred Corson
Dr. Richard Kagel
Richard A. Kagel
Don Kaminski

Dr. Doug Lipton

Judith Olney
Judith Olney

Resume- Fred Corson

Fred Corson is the fifth generation of a Northern California farm family. His education includes a PhD in organic chemistry from the University of California at Davis. He worked for the Dow Chemical Company for 31 years in research, research management, and business and corporate management positions. Specific job activities included management of research on trace chemicals analysis, impacts of chemicals on people and the environment and membrane separation systems. He retired in 1998 as Corporate Vice President of Research and Development. He and his wife, Mary Jane, live in the Dry Creek Valley. He grows grapes and is a timber owner and operator on family property in Mendocino County.

# LIPTON ENVIRONMENTAL GROUP

## Douglas S. Lipton, Ph.D.

Principal Scientist

Dr. Lipton served as a Principal Scientist at LFR Levine Fricke (a 500-person Environmental Consulting Company based in Emeryville, California) before departing in 2000 to focus on two of the largest ecological restoration projects of their kind in the Country, the restoration of the Napa River and the Montezuma Wetlands Project (see project descriptions below). During his 10-years at LFR, Dr. Lipton founded and managed the company's "Applied Sci ences" group that designs ecological restoration projects, conducts ecological risk assessments in aquatic and terrestrial environments, and performs laboratory treatability studies to evaluate chemical and biological remediation techniques for restoring contaminated soil, sediment, and water. Dr. Lipton's ma jor project achievements have included several large ecological restoration and sediment assessment projects: the 2,400-acre Montezuma Wetlands Project, the Martin Luther King Jr. Regional Shoreline Wetlands Project, the 350-acre Oro Loma Marsh Enhancement Project, and sediment evaluations for the 7-mile Napa River and the 16,000 acre Cargill Salt Pond restoration projects.

Through his work on these successful projects (Dr. Lipton continues to manage the Montezuma Wetlands Project), Dr. Lipton has acquired extensive experience managing interdisciplinary groups of scientists and engineers and built exceptionally strong working relationships with local, state, and federal agencies and environmental groups. He has diverse professional experience that includes managing small startup companies and working internationally on collaborative environmental research projects. His doctoral work at U.C. Berkeley and subsequent participation as the soil chemist at Lawrence Berkeley Laboratory have established Dr. Lipton as an authority in selenium and metals contamination in soils and sediments. As a result of that expertise Dr. Lipton has been hired by the State Water Resources Control Board to provide assessments regarding selenium and mercury contamination and treatment issues in San Francisco Bay.

### Education

Ph.D. Soil Chemistry, University of California at Berkeley, 1991

M.S. Soil Science, University of Missouri, Columbia, 1983

B.A. Environmental Biology, B.A. Molecular Biology, University of Colorado, Boulder, 1980

### Representative Experience

- Directed the 2,400-acre Montezuma Wetlands Restoration Project in Suisun Marsh that will use about 17 million cubic yards (cy) of dredged sediments to establish more than 1,800 acres of intertidal marsh. The project will also rehandle another 400,000 cy annually for beneficial reuse in levee stabilization and habitat restoration projects throughout the San Francisco Bay-Delta region. Provides overall project management and oversight of all biological, chemical, and

## LIPTON ENVIRONMENTAL GROUP

physical monitoring. Directs the review of an outside technical advisory group of scientists on all technical aspects, including development of appropriate mercury monitoring and assessment techniques. Montezuma is the Bay Area's 1st project to reuse different classes of sediment for wetland restoration purposes, and is the largest restoration project of its kind in the United States. The project started receiving sediment in December 2003, and has successfully placed about 3 million cy of sediment through 2006. Another 1 million cy is planned through 2007. About 150 acres of sediment cells in Phase I will be completed in 2006, and are planned to be restored to the tides by 2008. The four phases of the project are expected to take more than 15 years to complete.

- Directed soil/sediment characterization, criteria establishment, and disposal/reuse evaluations for the Napa River Flood Control & Restoration project that will remove 1.8 million yards of material to restore riverine marsh and floodplains along a 7-mile stretch influenced by tides from San Francisco Bay. Sediment reuse and disposal alternatives evaluated quarry reclamation, levee construction, and raising grades for recreational and residential uses. Mercury, selenium, and petroleum products were the chemicals of greatest concern. Successful development and implementation of the sediment criteria have allowed this large flood control project to move forward. As of 2007 more than 1 million yards of river bank material (including 147,000 cy petroleum-affected soil) have been removed to allow flood control and restoration objectives to be achieved.

- Directed soil/sediment evaluations for the 16,000 acre Cargill South Ponds Interim Stewardship Project (ISP) environmental reports. Sediment evaluations considered background and anthropogenic contaminant sources, assessed potential impacts resulting from changing water levels on the mobility and bioavailability of mercury and selenium, and proposed mitigation and monitoring measures. Mitigation and monitoring efforts focused on mercury speciation and the potential for varying environmental conditions to effect methylation of mercury. The ISP is the first step in the long-term restoration of the largest reclaimed wetland area in the western United States.

- Directed the 70-acre Martin Luther King Jr. Regional Shoreline Wetlands Restoration Project in Oakland that successfully restored tidal and seasonal wetlands after removing and beneficially reusing more than 100,000 cubic yards of fill. Sediment evaluations were critical in order to leave as much soil in place as possible in order for the set budget to be met. Golden Gate Audubon Society refers to this project as one of the most successful wetland restoration projects in the SF Estuary.

- Directed assessments of ecological risks associated with soil and sediment at Navy bases in San Francisco Bay, including field verification studies to assess bioaccumulation (especially for mercury, selenium, and chlorinated organics), and evaluations to develop cost-effective sediment treatment and beneficial reuse alternatives both on and off Navy property.

- Directed soil/sediment evaluations along Yosemite Creek (near Hunter's Point Navy Base) in order to restore intertical marsh along the Creek's edge. PCBs and mercury are the main contaminants of concern. Sampling and risk assessment work was initiated in fall 2003 and the 2nd phase of assessment will continue through 2005.

- Directed the 350-acre Oro Loma Marsh (Wetlands) Enhancement Project in Hayward that restored tidal action to a diked seasonal wetlands and has been referred to by the San Francisco Bay Joint Venture as a "model restoration"

- Directed the 19-acre Pier 98 and Open Space project that integrated landfill closure with tidal wetlands restoration and public use opportunites on the San Francisco shoreline.

## LIPTON ENVIRONMENTAL GROUP

- Directed sediment, ecological and engineering evaluations in a major Bay Area watershed for improving flood control and storage capacity in Walnut Creek, including cost-effective methods of removing and disposing of 800,000 cubic yards of sediment dredged from the channel.
- Directed an ecological restoration project that revegetated a Superfund asbestos mine and mill site (Coalinga) with native serpentine-adapted plants in conjunction with flood control improvements in the watershed. This was the first project of its kind to achieve approval from the USEPA for removal from the Superfund List.
- Directed a team of experts working for the Regional Water Quality Control Board to review approaches and technologies to reduce selenium discharges from refineries into San Francisco Bay. Oversaw selenium treatment evaluations conducted by the Western States Petroleum Association and associated refineries in the San Francisco Bay area. Oversight of the refineries resulted in their achieving necessary selenium discharge requirements. This project also included the development of an approach to evaluate mercury and selenium loading and contamination in San Francisco Bay watersheds.
- Directed assessments of sediments in the Salton Sea for evaluating the potential impacts associated with contaminants from background and anthropogenic sources
- Participated as a member of the Hydro-Geomorphic Advisory Team of the Bay Area Wetlands Ecosystems Goals Project, administered by the San Francisco Estuary Institute.
- Participated on interagency task force (LTMS) to evaluate sediment quality guidelines and clarify procedures for assessing dredged sediment suitability for disposal in aquatic environments and reuse in wetland creation projects.
- Developed and applied soil extraction techniques to assess metals leachability and to establish site-specific remedial goals.
- Designed and used a soil-compost mixture to reclaim a marshland affected by petroleum releases.
- Served as the soil chemist for an interdisciplinary team of scientists assessing the fate and transport of contaminants, especially selenium, in Central Valley soils and sediments.
- Developed anaerobic/aerobic biotreatment methods for treating arsenic, selenium, and DDT in waters, soils, and sediments.
- Developed and implemented remedial techniques for enhancing the bioremediation of soils, sediments, and sludges containing petroleum hydrocarbons.
- Evaluated a wide variety of treatment technologies (physical, chemical, and biological) for achieving closure of a refinery sludge pond.
- Developed and implemented chemical and biological remediation technologies to treat metals-contaminated, acid-affected soils and groundwater.
- Directed research at methane digester and greenhouse facilities to use anaerobically digested residues for agricultural soil amendments.
- Managed the daily operations of a biological insect control company and supervised the marketing, research and development departments.
- Directed research at commercial farms to evaluate the performance of organic fertilizers produced from anaerobic digestion and aerobic composting.

**Comment Set Y**

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SONOMA COUNTY WATER AGENCY
MAY 17 2007
Orig. Filed_____

PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

Edson Howard
P.O. Box 638
Geyserville, CA 95441

May 14, 2007

Sonoma County Water Agency
C/O David Cuneo, senior environmental specialist
P.O. Box 11628
Santa Rosa, CA 95406-1628

Re: North Sonoma County Agriculture Reuse Project
Comments on draft EIR/EIS

To: Sonoma County Water Agency,

The purpose of the following comments is to request that the final Environmental Impact Report for the North Sonoma County Agriculture Reuse Project (NSCARP) include additional and complete evaluation of 1) water quality, and 2) verify where, and how, the wastewater will be used in order to achieve the project purpose of increasing water flows in the Russian River system.

**1) Wastewater quality**

The draft EIR/EIS report states that the basic purpose of NSCARP is to reduce reliance on natural regional water supplies by using recycled water on agricultural lands. Federal and state regulatory agencies have expressed the need to allow water to remain in the Russian River system to improve fish habitat. The report states that NSCARP would result in fewer agricultural diversions from the Russian River and its tributaries, and that the Sonoma County Water Agency (SCWA) could release less water from storage in Lake Mendocino and Lake Sonoma, which would benefit fisheries.

River flows will only be increased if wastewater is substituted for the well and surface water now used for irrigation. Wastewater will not be voluntarily used for vineyard irrigation if there is risk or concern that the wastewater contains contaminants that might accumulate in the soil and adversely affect the quality of the grapes. If the wastewater is not used to replace the existing use of well and surface water, the purpose of the project will not be satisfied. Y-1

The wastewater proposed for irrigation would go through tertiary treatment to remove solids and organic material, and through a disinfection process, which destroys bacteria, viruses, and other pathogens harmful to human health, and to prevent transmission of disease. Tertiary treated water is still known to contain some soluble organic compounds, minerals, salts, and other unidentified contaminants that may accumulate in ponds or soils where the water is distributed. The quality of premium wine grapes is dependent on the soils in which they grow. The accumulation of unknown compounds and minerals in the soil could have an adverse effect on the character of the grapes. Testing and monitoring of the soil can be done, but corrections may not be possible after contaminants have accumulated in the soil. Y-2

Recycled water is being used in California and other parts of the country for a variety of purposes, such as irrigation for row crops, pasture, stock feed, nursery products, turf in

parks, and in some cases to irrigate grapes. Adverse effects from the long-term accumulation of contaminants in the soil have been observed in some situations.

Scottsdale, Arizona, has been using wastewater for the irrigation on golf courses for several years, and recently observed that salt contained in the reused water is slowing the growth of grass and killing it on fairways. The salinity was not removed from the treated wastewater. The reused wastewater is now being supplemented with desalinated water treated by reverse osmosis, and a new reverse osmosis facility is planned to accommodate new growth. Y-3

In 2005 the Colorado State University and the Northern Colorado Water Conservancy District made a study of the long-term effects of irrigation with recycled wastewater. Soil properties were studied using soil test data compiled from golf course fairways near metropolitan Denver and Fort Collins, CC. The results indicated that soils from fairways with wastewater irrigation exhibited higher pH levels and higher concentrations of sodium adsorption. They recommended regular monitoring of site-specific water and soil to mitigate the negative impacts of sodium and other mineral accumulations. Y-4

Additional water treatment, including reverse osmosis, may be required before the wastewater can be used for vineyard irrigation. The EIR/EIS needs to evaluate the need and cost of treating the water to remove salts and other contaminants that are not removed in the current tertiary treatment. Y-5

**2) Wastewater use**

The Project Description of the draft EIR/EIS states that participation in the NSCARP would be voluntary and would involve the NSCARP recycled water user and SCWA (or another entity, such as a joint powers authority, depending on who ultimately builds and maintains the NSCARP project) entering into a recycled water agreement. Recycled water users who participate in NSCARP would not be required to transfer or abandon existing water rights as a condition of receiving recycled water.

In considering Project Alternatives, the EIR/EIS states that the basis for alternatives considered by the SCWA used five criteria to screen potential alternatives to carry forward for further study. One of those criteria was the "willingness of nearby landowners to participate in a program that substitutes recycled water for natural water supplies for irrigation use."

The purpose of the NSCARP, which is to reduce reliance on natural regional water supplies in order to increase river flows, was ceveloped with the concept that wastewater will be substituted for well and surface irrigation water. To comply with the EIR/EIS, the substitution would be voluntary, and participating landowners would not be required to transfer or abandon existing water rights.

The use of tertiary treated wastewater, containing unknown contaminants to replace current well and river water for vineyard irrigation, will have risks that landowners probably will not want to take. Growers that currently have irrigation water available would likely not use recycled wastewater. If only existing and new vineyards that do not currently have irrigation water available use the recycled wastewater, there would be no increase in water flows in the Russian River and its tributanes. The NSCARP project could provide more irrigation water and provide storage for wastewater, but that would not satisfy the NSCAR basic purpose of increasing river flows as stated in the draft EIR/EIS. Y-6

The agreement that is to be used will have a significant effect on the willingness of landowners to participate in the project. The complete binding agreement used with participating landowners must be included in the EIR/EIS to determine how and where wastewater will be substituted. Participation in NSCARP must be voluntary and the current water rights of participating landowners must be protected without transfer or abandonment. Y-7 Y-8

The contract agreements need to be completed, and the number of participating landowners and wastewater users must be included in the EIR/EIS to determine if there will be adequate substitution for well and surface water to increase water flows in the Russian River and its tributaries. If the NSCARP does not increase water flows, it will not comply with the basic purpose of the project and will not comply with the EIR/EIS. Y-9

Alternatives have been considered in the project EIR/EIS that involve three different viticulture regions with different types of landowners. Dry Creek Valley consists of many small landowners that have adequate water or do not use irrigation. Small landowners in Dry Creek Valley may be less likely to agree to wastewater substitution than landowners in other regions. The NSCARP would need to adopt Alternative 3: Alexander Valley-Jordan Reservoir Subset, or Alternative 4: Russian River Valley-Westside Subset if Dry Creek Valley landowners do not agree to substitute wastewater for existing well and surface water. The contracts for use of the wastewater must be known before the project ERI/ESI is approved. Y-10

Sincerely submitted,

Edson Howard

**EDWIN W. WILSON**
**1421 W. DRY CREEK RD.**
**HEALDSBURG, CA 95448**

May 18, 2007

David Cuneo
FAX: (707)524-3782
e-mail: david@scwa.ca.gov
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

Re: Comments to NSCARP Draft EIR/EIS

To the Sonoma County Water Agency and the Bureau of Reclamation:

I reside at 1421 W. Dry Creek Road, Healdsburg, California, where I have lived with my family for over 30 years. As the President of the Dry Creek Valley Association and as an individual, I have the following comments to the Draft EIR/EIS (henceforth collectively the "EIR") for the North Sonoma County Agricultural Reuse Project ("NSCARP"):

1. The proposed NSCARP project is so highly speculative that a meaningful and informative EIR/EIS cannot be prepared for said project, for <u>at least</u> the following reasons:

   a. The entire project depends on using the Geysers Pipeline to move wastewater to the wine valleys of Northern Sonoma County, yet neither the SCWA nor the Bureau of Reclamation ("Reclamation") owns or has control over the Geysers Pipeline. It is my understanding that the Geysers Pipeline is owned and controlled by the City of Santa Rosa. Z-1

   b. It is my understanding that neither the SCWA nor Reclamation has any control over the wastewater that would supposedly be distributed by NSCARP, except possibly the <u>minor</u> amount of water from the Airport-Larkfield-Wikiup WWTF. Neither Santa Rosa nor Windsor has agreed to exporting wastewater to the wine valleys of Northern Sonoma County. This is, of course, crucial because without knowing exactly where the wastewater is coming from, and exactly what that wastewater might contain, we really have no idea what the potential environmental impact of the project might be Z-2

respecting the dumping of wastewater on the prime agricultural soils of the Northern Sonoma County wine valleys. Z-3

c. There is nothing in the EIR which indicates that there are farmers who are actually willing to take the wastewater in the wine valleys. It is my understanding and belief that the number of farmers in the wine valleys who would take the chance of putting wastewater on their prime viticultural lands are few indeed. Z-4

d. Thus the EIR has not established that the NSCARP project has the wastewater, the Geysers Pipeline, or the land on which to dump the wastewater. If any one of those three components is missing, then the NSCARP project is illusory. With all three of the components missing, there simply is no project. Z-5

2. The objectives of the project are misleading and flawed, as follows:

a. With respect to the Dry Creek Valley, no need for a "reliable long-term water supply" has been established. Historically, the Dry creek Valley has been a commendable agricultural area for many crops (wheat, hops, prunes, grapes, etc.). This agriculture has been supported by rainfall (dry farming), stream flow from Dry Creek and its tributaries, and groundwater. It is my understanding and belief that the use of water from Dry Creek and its tributaries, and from groundwater, for irrigation, in the Dry Creek Valley proper has changed very little in the last 150 years. Z-6

b. It has not been established that NSCARP would reduce discharges of wastewater into local streams. If there is wastewater discharge in to local streams, then the best way to reduce that flow is to (a) go to the source of the wastewater (urban growth) and reduce further growth by the City of Santa Rosa and other municipalities so as to eliminate, or at least minimize, the amount of wastewater produced, (b) require that no further development be allowed unless each developer can establish that there is sufficient capacity for the wastewater resulting from that project to be disposed of in a clearly Z-7 Z-8

environmentally safe manner, and (c) that the City of Santa Rosa and perhaps other municipalities institute strong measures to use the wastewater generated within their own boundaries, rather than exporting its wastewater to the wine valleys of North Sonoma County. Z-9

c. The amount of groundwater and surface water used for irrigation in the Dry Creek Valley has not been established. Nor has it been established that the NSCARP would result in any reduction of the use of fresh water for irrigation in the Dry Creek Valley. It is my belief that the implementation of NSCARP would result in little reduction in use of freshwater to irrigate in the Dry Creek Valley. Z-10

d. As has been established in previous comments on the NSCARP draft EIR, the use of wastewater on the prime agricultural soils in the Dry Creek Valley would clearly be environmentally irresponsible. Indeed it is probable that the net result of the use of waste water for agricultural purposes would (a) be detrimental to the soil (b) would result in the contamination of the valleys surface water, (c) would result in the irreversible contamination of the valley's ground water, and (d) would pose serious public health issues,. Z-11

e. It has not been established that the fisheries in Dry Creek require anything other than the historical natural flows of Dry Creek and its tributaries, to be sustained. After all, the historical runs of Salmon and Steelhead in Dry Creek and its tributaries occurred before Warm Springs Dam was constructed about 1981-83. Having virtually <u>no</u> flow in Dry Creek in the summer was common pre-dam, hence the name <u>DRY</u> Creek. To try to justify dumping wastewater on the pristine agricultural lands of the Dry Creek Valley by claiming it would somehow help the Salmon and Steelhead in Dry Creek and its tributaries is a bit incredulous. Z-12

3. The alternatives analysis in the EIR is self serving and totally inadequate. While 4 supposed alternatives are proposed, alternatives 3 and 4 are only minor variations of alternative number 2. Thus we are left only with alternative 2, which Z-13

is the entire North Sonoma County Agricultural Reuse Project in total and unchanged, and alternative number 1, the No Action alternative. The EIR then goes on to state that alternative number 2 is the superior alternative, <u>even though it recognizes that the No Action alternative would cause fewer direct environmental impacts</u>. In other words, in the EIR provided, SCWA and Reclamation presents only the "do the entire project" alternative (alternative number 2) and the "do not do the project" alternative (alternative number 1), and then, using bootstrap arguments, gives their own project the gold star award as the superior alternative. In the process of doing so, the SCWA and Reclamation completely ignore the incredible adverse environmental consequences of alternative number 2. Z-13 (Cont'd)

<u>IN REALITY, IT IS MANIFEST THAT THE SUPERIOR ALTERNATIVE IS THE NO PROJECT ALTERNATIVE.</u>

Also, there are certainly other alternatives which need to be considered including, without limitation, the following:

a. Disposing of the hypothetical waste water on agricultural lands other than those located in the Dry Creek Valley. This could include, e.g. Dairy lands. These lands could have soils that filter the wastewater better than the porous aggregate soils of the Dry Creek Valley; and/or groundwater resources which are less likely to be contaminated by the waste water. Z-14

b. Disposing of the hypothetical waste water on non-agricultural lands. Again, those lands could have soils and ground water circumstances which are less susceptible to environmental degradation by waste water. Z-15

c. Disposing of the hypothetical wastewater within the confines of the municipalities where the wastewater is produced. For example, Santa Rosa's wastewater would be disposed of in the City of Santa Rosa. Z-16

d. Eliminating or minimizing any increase in wastewaters produced in Santa Rosa, and perhaps in other municipalities, by limiting development to circumstances where each new development must first establish that there Z-17

is sufficient capacity for the wastewater resulting from that project to be disposed of in a clearly environmentally safe manner before a project can be approved. Z-17 (Cont'd)

e. Raising Coyote Dam. Z-18

4. The EIR needs to include a meaningful analysis of the potential and significant adverse effects of NSCARP on the wine industry in the North Sonoma County wine valleys. The reputation and economic viability of the premium wines in these valleys is dependant on the fact that these wines are grown in special places with unique climates, water, soils, etc. The French call this the "Terroir". Jess Jackson of Kendal-Jackson succinctly explained this concept in an ad for his wine in National Geographic magazine in which he discusses the concept of "grand cru". A copy is attached hereto. If the vineyards of the Dry Creek Valley are irrigated with wastewater, then this would certainly detract from the "Terroir" and "grand cru" concepts for Dry Creek wineries. I can imagine competitors to Dry Creek wines placing labels on their wines stating that they are "Wastewater-Free". The economic impact of irrigating grapes in the North Sonoma premium wine valleys with wastewater could be devastating to the entire wine industry of Sonoma County. The devastation would be the result of the environmental degradation of the soils and water which contribute so significantly to the "Terrior" and "grand cru" qualities of Dry Creek Valley wines. The affect of applying wastewater to Dry Creek Valley vineyards on the wines made from those vineyards must be meaningfully discussed in the EIR. Z-19

5. The claim in the EIR that NSCARP would have "less than significant" growth related effects is preposterous. Both growth relating to new housing and growth related to removing obstacles to growth will be potentially <u>astronomical</u> if NSCARP is implemented. The disposal of wastewater generated by new developments is a <u>crucial</u> element of growth. If there is no place to dispose of wastewater in an environmentally responsible way, then ultimately there can be no growth. The NSCARP project would provide a potential place to dump Z-20

billions of gallons of wastewater now and in the future. Putting NSCARP in place will be a green light to developers.

Z-20 (Cont'd)

The section of the EIR dealing with growth related effects are dead wrong and must be completely rewritten.

6. For the foregoing reasons, the NSCARP should be abandoned altogether. At the very least, a **substantial** revision of the EIR is called for to address the points raised in this comment letter, and the comment letters of others.

Z-21

Sincerely,

Edwin W. Wilson

Edwin W. Wilson
President, Dry Creek Valley Association

# National Geographic, May 2007

Jean Jackson, Taylor Fran Estate, Bennett Valley

**Understanding the *grand cru* concept allows us to make our wine taste even better.** Simply stated, *grand cru* is the French concept of designating a specific single vineyard, estate or château as showing the highest potential for greatness. Factors that determine this distinction are the superior balance of well-drained soils, preponderance of thin soil, the micro-weather of that special place such as angle of light to the sun, and the level of exposure to warm temperatures and cooling moisture from coastal fog or mist.

The *grand cru* concept is the approach my family and I have adopted when selecting the land that will produce our grapes.

We have found that the mountains, ridges, hillsides and benchlands along California's cool coastal region possess the ideal terroir to deliver world-class grapes with rich, intense and complex flavors. This is where you will find our Jackson Estates Grown Vineyards. We select the finest grapes from our best estate vineyards and blend them to make our highly celebrated Vintner's Reserve. In other words, the ultimate blending of *grand cru*. Because we believe you can taste the difference.

It is my understanding that many of you enjoy the taste of our wines but aren't sure why. Hopefully, I can help with the facts and **A Taste of the Truth.**

kj.com/truth

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**Comment Set AA**



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SONOMA COUNTY WATER AGENCY
MAY 18 2007
Orig. Filed_____

North Coast Consumers Alliance
P.O. Box 351
Redwood Valley, CA 95470
(707) 485-5867

**PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__**

Mr. David Cuneo
Sonoma County Water Agency
Santa Rosa, California

By FAX: (707) 524-3782
RE: NSCARP Draft EIR/EIS

Dear Mr. Cuneo,

The SCWA plan to recycle millions of gallons of wastewater to irrigate grapes and row crops is a dangerous way to go. Instead of encouraging agriculture to live within the parameters of our environment, it does the opposite. Wastewater will become tailwater, returning to streams and rivers even dirtier than had it been returned directly, more contaminated with estrogen mimics and heavy metals. Have you followed the tailwater issues in the Scott and Shasta Rivers, where endangered coho are fighting for their lives in the hot, dirty water flowing from irrigated fields back into those tributaries? Why would the increased tailwater resulting from execution of your plan be any different for the coho in the tributaries of the Russian River? AA-1 AA-2

The time to change our water using practices is long overdue. Why does Sonoma County resist the proven technologies of waterless toilets? Where is the necessary shift to grape stock that does not require irrigation? Where are the 300ft buffer zones between farms and the waterbodies that NMFS recommended? AA-3 AA-4 AA-5

What has the water agency done to reduce the volume of wastewater? Where is the leadership that would encourage a reduction in the use of pesticides? Have you considered treating wastewater with ultraviolet light (as the city of Santa Rosa does) rather than with chlorine, an estrogen mimic? What is the effect of residual chlorine in the wastewater on grapes and row crops? Can the pharmaceuticals contaminating wastewater get into the crops? AA-6 AA-7

Thanks for your attention to these matters.

Ellen Faulkner

Received By
MAY 18 2007
SONOMA COUNTY WATER AGENCY

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Orig. Filed
PROJ/NORTH SONOMA COUNTY AGRICULTURAL
REUSE PROJECT - EIR 70-0-7 #__ Padre Associati

May 15, 2007

Mr. David Cuneo, Senior Environmental Specialist
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403

David,

I submit the following comment letter concerning the North Sonoma County Agricultural Reuse Project. The comments generally follow the organization of the DEIR document except for the section on Water Quality, General Considerations which is intended as an introduction to comments on Biological Resources, Hydrology and Water Quality, and Public Health and Safety which focus on impacts of poor water quality.

I also enclose for the record the oral comments I made to the Board at the DEIR hearing today.

Purpose and Need For NSCARP

The primary need for NSCARP as stated in the Executive summary (ES-1) and Chapter 1 (1-3, 1-4) is "to allow water to remain in the Russian River system and its tributaries to improve habitat for listed fish species". This need is further elaborated in the Executive Summary (ES-2) as "NSCARP would result in fewer agricultural diversions from the Russian River and its tributaries, which would enable the SCWA to release less water from storage in Lake Mendocino and Sonoma to meet water demands and instream flow requirements. This would result in more water being conserved in storage in these reservoirs, which would provide more operational flexibility for the SCWA to benefit fisheries sources in the Russian River".

This is not a credible project need and is not supported in the DEIR or by related activities. There is no description as to how NSCARP will improve fish habitat since current regulations already leave sufficient water in the river to support fish habitat. The Biological Opinion on SCWA activities has not yet been published. However, it is expected to request reduced summer flow in Dry Creek to support fish habitat. The SCWA has already presumed this result and has requested federal funding under the Water Resources Development Act for construction of a pipeline from Lake Sonoma to the Russian River bypassing Dry Creek. This biological opinion to reduce summer flows in Dry Creek and a proposal to build a pipeline to bypass Dry Creek are in direct conflict with the declared NSCARP need to leave more water in Dry Creek. In addition, SCWA public intentions to drill deep wells in the Dry Creek aquifer in order to provide water for agriculture or other uses (See the contract between the SCWA and the Dry Creek Agricultural Water Users, Inc. approved by the SCWA Board on 3/14/06) is in direct conflict with a need to leave more water in Dry Creek and the Russian River. AB-1

In order to qualify as a credible need for the project, the DEIR must state specifically how much surface water and groundwater will be saved by NSCARP, how much of this water will be saved in the Russian River above Dry Creek, in Dry Creek, and in the Russian River below Dry Creek, how much of this water will be dedicated to fish habitat versus other uses, how this dedication will be enforced, and specifically how this surface and groundwater savings will benefit fish habitat. It is not at all clear how much water will not have to be released from the reservoirs due to NSCARP. Only a small fraction of agricultural water used in the NSCARP region results from direct surface water diversion. And, it is unknown how groundwater pumping affects surface flows in the Russian River and its tributaries including Dry Creek. It is clearly a function of well location, well depth and specific geology and hydrology between the well and surface water. Certainly there is only some unknown but likely small offset. It is clear that the DEIR contains insufficient information to support the declared primary need for NSCARP. AB-2

If one accepts the need for the project at face value, then one must compare the value of NSCARP versus other uses for the wastewater in question in preserving water in storage. Any urban reuse project in the regions served by SCWA will provide essentially 100% storage preservation. The urban reuse will offset water being supplied by the SCWA and will that water not need to be released from storage. By comparison, NSCARP, as discussed in the paragraph above, will provide only some fractional, unknown storage offset. AB-3

In fact, the Santa Rosa Urban Reuse Project proposes to use this same wastewater for a major reuse project in Santa Rosa and Rohnert Park to include double piping in new developments. This project is clearly superior to NSCARP in meeting the primary need to preserve water in storage. Furthermore, Santa Rosa BPU and City Council officials have clearly and repeatedly stated that Urban Reuse is superior to NSCARP in meeting their disposal criteria of cost and potable water offset and that they have made no commitment to supply water for NSCARP. AB-4 AB-5

The DEIR (ES-1 and 1-3) states that "there is also a need for adequate infrastructure to store and distribute recycled water produced by various entities for reuse throughout the region". This need will likely be met by the Santa Rosa Seasonal Storage and Urban Reuse Projects with superior potable water offset, superior storage preservation, and arguably fewer negative environmental impacts. Likewise, Windsor officials and Healdsburg officials have also stated that they have no intention of supplying water for NSCARP and have their own plans for wastewater disposal. AB-6 AB-7

Finally, for reasons which will be described in subsequent sections, it is likely that the NSCARP will cause contamination of threatened fish habitat which will be in direct conflict with the stated primary need to improve fish habitat. AB-8

Project Description, Sources of Wastewater

The DEIR has presented no credible sources for the quantity of wastewater required to carry out any of the described project alternatives except No Action. The DEIR states that "NSCARP is a potential means for storage and delivery of approximately 13,000 af of recycled water annually", that Santa Rosa, Windsor, and the Airport/Larkfield/Wikiup Sanitation Zone can provide 7,324 af today and an additional 8,500 af by 2020. However, officials of Santa Rosa have stated that their objectives favor Urban Reuse with 100% potable water offset over NSCARP with questionable potable water offset and Windsor officials have said they have no intention of supplying water to NSCARP and have their own wastewater reuse plans. Similar statements have been made by Healdsburg officials. Without Santa Rosa (and/or Windsor and Healdsburg) as a supplier, there is insufficient wastewater to make NSCARP a viable project. It is impossible to credibly analyze potential impacts of this project without a defined water source of defined quality. Therefore, this DEIR is premature and insufficient.

AB-9

AB-10

AB-11

Project Description, Project Alternatives

The scope of alternatives considered is too limited. The DEIR must consider alternative uses for the wastewater in question. Based on its primary need to retain water in storage for the benefit of endangered fish species, the alternatives considered for this project are insufficient. Since this project, in order to be viable and as defined in the DEIR, must have Santa Rosa as the primary supplier, must use the Santa Rosa owned and operated Geysers pipeline as a primary method of conveyance, and will have storage which is part of a total network of storage for discharge, urban reuse and agricultural reuse, alternatives such the Santa Rosa Urban Reuse Project must be considered. Indeed, as described above any rational alternatives analysis would judge Urban Reuse to be a superior alternative to any of the studied NSCARP alternatives on the basis of superior potable water offset (storage preservation) and lower potential impacts. In fact, it could be argued that any Urban Reuse alternative in the SCWA service area would be superior to NSCARP on each of the five screening criteria defined in the DEIR (2-13).

AB-12

AB-13

Project Description, Environmentally Preferred Alternative

The reasoning provided in the DEIR for selecting Alternative 2, the entire NSCARP, as the preferred and environmentally superior alternative (2-13) is fundamentally flawed. First as described in Purpose and Need for NSCARP comments above, the primary need for the project is not supported in the DEIR. Therefore, the conclusion that Alternative 2 is the preferred and environmentally superior alternative because it best meets this need is also not supported. Second, as described in Project Alternatives comments above an inadequate range of alternatives was considered. Urban Reuse must be considered as an alternative because it is a project competing with NSCARP for the same wastewater and uses much of the same infrastructure. Urban Reuse clearly is superior to NSCARP in meeting the primary need stated. Finally, even if one presumes the primary objective is correct and supported in the DEIR, probable contamination of surface and groundwater

AB-14

by NSCARP, inadequately analyzed in the DEIR, would also make the Urban Reuse Project preferred and the smaller alternatives 3 and 4 preferable to Alternative 2. AB-14 (Cont'd)

Agricultural Resources, Impact on Productivity of Farmlands

The DEIR (3.2-7) inappropriately relies on the 1987 Monterey Regional Water Pollution Control Agency report on pathogens in tertiary treated wastewater. This report is out of date and focused on only a limited set of pathogens. A much more rigorous study of the wastewaters actually to be used in the NSCARP must be made using modern analytical techniques. Furthermore, if SR wastewater is to be used, additional testing on duration of disinfection by UV radiation must be performed. Duration of disinfection by UV radiation is known to be short. Regrowth is known to occur. The project should include analysis for pathogens not only of treatment plant effluent but on wastewater in storage and prior to reuse application. AB-15

The DEIR contains superficial and incomplete information on impact of use of wastewater on grapes and wine. The statement (3.2-8) that "no studies demonstrate that irrigation practices with recycled water affect different grape varieties differently" is meaningless. The DEIR cites no studies of any kind on the effects of recycled water on grapes. Such a study must be made on grape varieties grown in the NSCARP region, using NSCARP soils, and using specific wastewater to be used in NSCARP. Furthermore the DEIR has no information on soluble organic chemicals in the wastewater, adsorption of these chemicals into grapevines, effects of the chemicals on grapevines, or effect of these chemicals on wine properties especially taste. AB-16

The statement in the DEIR (3.2-8) that "most recycled water produced does not have harmful levels of salts for most plants" is irrelevant. Impact HQW-4 Section 3.8 simply asserts a negligible effect with no justification. The DEIR must contain studies that demonstrate how salts in the specific water to be used in NSCARP will build up in NSCARP soils under constant irrigation and how that buildup will affect specific crops grown in the NSCARP region. The Napa study cited in the DEIR (3.2-20) represents a single soil type and a single crop and cannot be considered representative of NSCARP conditions. AB-17

It must be considered inappropriate to propose a massive agricultural reuse project on 21,000 acre of vineyards on prime agricultural soils critical to a major contributor to the Sonoma County economy with at best limited and superficial date on the impacts of the wastewater on the soils, vines and wine. Where are the studies or the commitments to carry out the studies? AB-18

Water Quality, General Considerations

Inadequate definition of the quality of the wastewater to be used in NSARP is the most serious deficiency of the DEIR. It is impossible to define the impacts of NSCARP without complete understanding of the quality of the water to be used. Of particular concern in this regard are impacts BIO-7, BIO-8, HWG-4, HWQ-9, PUB-7, and PUB-10. AB-19

First, since there is no commitment to supply wastewater from Santa Rosa or Windsor, the specific wastewater to be used is undefined and therefore the water quality is unknown. AB-20

Presuming that Santa Rosa must be the primary wastewater supplier to NSCARP if it is to be viable, the quality data in tables 3.8-2 and 3.12-1 are inadequate to determine impacts. (The data available on wastewater from Windsor and Airport/Larkfield/Wikiup Sanitation Zone are even more deficient.) AB-21 Data contained in Order NO. R1-2006-0045 recently issued by the North Coast Regional Water Quality Control Board to the Santa Rosa Regional Water Reclamation System indicates that after 2010, Santa Rosa Wastewater Effluent will not meet the Effluent Quality Limitations required to be used in any reclamation project including the NSCARP. It will not meet final limitations for copper, lead, nickel, cyanide, or nitrogen or phosphorous nutrients unless additional treatment is implemented. These requirements are not mentioned in the DEIR nor is additional treatment considered. In addition, Santa Rosa wastewater contains other contaminants which are close to levels toxic to aquatic life (selenium), humans (mercury), and grapevines (boron) (Santa Rosa IRWP Table 4.6-2). AB-22

Of probably even greater concern than the above is the very large amount of unidentified organic chemicals in the effluent. According to the IRWP DEIR, Table 4.6-2, total organic carbon (TOC) has a mean of 16.8 mg/l with a maximum detected of 56 mg/l. Total organic chemicals identified elsewhere in the table account for less than 0.1 % of this organic carbon. This leaves a very large amount of currently unidentified organic chemical contaminants. AB-23

Even though Santa Rosa has apparently chosen not to identify these organic contaminants, many others have. References include:

- US Geological Survey analyses for 95 organic chemical of concern in wastewater discharges, in streams below wastewater discharges, and even in groundwater (see, for example, Environmental Science Technology, 36, 1202-1211; USGS Fact Sheet FS-027-02, June 2002; Environmental Science and Technology, April 2002, 140A to 145A),

- extensive work by Dr. David Sedlak of UC Berkeley on concentrations of hormones and other endocrine disruption compounds and pharmaceuticals in municipal wastewater and effectiveness of removal by conventional tertiary wastewater treatment, reverse osmosis treatment, and engineered receiving waters (see for example references at http://www.ce.berkeley.edu/~sedlak), and AB-24

- Regional Water Quality Control Board orders regulating reverse osmosis treatment of wastewaters and reinjection into groundwater aquifers in Southern California by the Orange County and West Basin Water Districts (Orders R8-2004-0002 and R4-2006-0009).

This body of work indicates that typical municipal wastewater effluents contain many soluble organic chemicals including hormones, other endocrine disruption compounds, and pharmaceuticals with human health and aquatic organism toxicity concerns at extremely low concentrations. It also indicates that analytical procedures are available to analyze for many of these chemicals at concentrations of concern and that many are not removed by conventional tertiary wastewater treatment.

The NSCARP DEIR must presume that contaminants of concern at very low concentrations are present and will degrade surface water and groundwater from storage and reuse and it must identify these contaminants and must analyze the potential environmental impacts. The DEIR acknowledges that such contaminants will likely be present in NSCARP wastewater but states that impacts are too speculative to allow any conclusions on impacts to be made (3.12-23). This conclusion is inadequate. The Antidegradation Policy demands that groundwater not be degraded. This requirement is applicable to any contaminants of concern. Furthermore, the USGS study, Ground-Water Quality Data, North San Francisco Bay Hydrological Provinces, California, 2004, GAMA Program Results indicates that groundwater aquifers in the NSCARP area are relatively free of contamination. The potential consequences of contamination are potentially too serious and irreversible to ignore.

AB-25

AB-26

Biological Resources

The DEIR (3.4-14) indicates that several special-status fish species use habitat in the NSCARP-- the California Coastal Chinook salmon, the Central California Coast coho salmon, and the Central California Coast steelhead. Impact BIO-7 (3.4-44) and BIO-8 (3.4-45) analyze the potential of organic and inorganic compounds and endocrine disrupting compounds to increase ecological risk to animals and plants exposed to wastewater and conclude that risk is not significant. The basis for this conclusion is limited. The wastewater would meet the requirements of Title 22. This is irrelevant to potential damage from organic and inorganic chemicals including endocrine disruptors. The Santa Rosa Ecological Risk Assessment carried out for the IRWP indicated no potential concern. This study did not consider soluble organic chemicals with potential impacts at very low concentrations which certainly will be in the wastewater.

AB-27

AB-28

Specific to endocrine disruptors the DEIR (3.4-46) concludes that "the effect of NSCARP would be minimal with regards to exposing fish to these compounds". This conclusion is based on three factors, all questionable. First, there would be no change in the volume of treated water. It would be stored in small reservoirs instead of the Laguna. Second, by pumping wastewater into reservoirs and applying it to crops, the volume of water entering the aquatic system directly would be reduced. The total volume of water is not significant. The critical issue is concentration of contaminants in critical habitat at the same time as fish. In fact, instead of discharge into the Russian River at times of very high flow, the wastewater in the NSCARP could potentially enter and degrade many small salmon habitat tributaries. Many of the vineyards to be irrigated are located on hillsides and benches close to small tributaries. Contamination could occur by reservoir overflow or seepage, by surface runoff during irrigation, or most likely by surface runoff

AB-29

AB-30

during frost protection. Runoff could occur into very small streams with very low flow. Concentrations of contaminants could reach toxic levels. Third, wastewater applied to fields will evaporate, percolate into soil, or be taken up by plants. True. However, over irrigation or especially frost protection will allow runoff into tributaries. Percolation into soil will ultimately contaminate groundwater and plant uptake has the potential to damage plants, grapes and the taste of wine. AB-30 (Cont'd) AB-31

The DEIR simply has insufficient information to reach the conclusion of no significant impact to fish from chemicals contained in the wastewater. The source of the wastewater is undefined. Quality data is insufficient. Data on soluble organic contaminants contained in the TOC is non existent. Analysis of potential contamination by runoff into small tributaries with low water flows is missing. AB-32

Hydrology and Water Quality

As described in the DEIR (3.8) and the USGS Scientific Investigations Report 2006-5115, the geology /hydrology of the three agricultural valleys which comprise the NSCARP area are somewhat unique. The valley floors are primarily stream deposited alluvial soils—sandy, gravelly, coarse soils with high percolation rates. The groundwater aquifers are shallow. The Santa Rosa Indirect Discharge Study (private communication with Craig Lichty, to be published in a Technical Memorandum as part of the Discharge Compliance Project Engineering Study) supports these facts and adds that the soils do not significantly attenuate metals or soluble organics in the wastewater. Therefore, one can reasonable conclude that contaminants in applied wastewater which do not run off or enter plants will percolate through the porous soils and enter the shallow groundwater basins. Depending on application rates this percolation to groundwater will occur upon application or during winter rainfall. AB-33

Impact HWQ-4 (3.8-33) analyzes the potential for groundwater degradation and concludes that the potential is significant but will be mitigated to less than significant by a groundwater monitoring program at storage reservoirs. This mitigation will only be effective to define seepage from the reservoirs and will not define groundwater contamination in reuse areas. The DEIR does consider groundwater contamination in reuse areas but considers only salinity and nitrates. The DEIR does not consider groundwater contamination by soluble organics with human health effects at very low concentrations. In the case of soluble organics, concentrations in groundwater could reach levels of concern due to their very high activity at low levels. The DEIR must define the soluble organics contained in the wastewater to be used in NSCARP, the potential to percolate through the porous soils in the NSCARP area upon irrigation, and their ability to cause human health concerns at very low levels. The NSCARP area contains many domestic water wells. AB-34

Impact HWQ-9 (3.8-37) analyzes the potential for indirect or direct discharge or dam seepage to result in water quality impacts. The DEIR discounts any water quality impacts from irrigation because "the application rate would be limited to the equivalent crop demand". This will minimize surface runoff unless irrigation volume is excessive. AB-35

It will not minimize runoff from frost protection or groundwater degradation from contaminant percolation Limitation of irrigation to crop demand will not prevent the ultimate percolation of contaminants which do not enter the plant. AB-35 (Cont'd)

Public Health and Safety

The source of wastewater is not defined since there are no committed suppliers. Water quality data is insufficient. Data on soluble organic chemicals contained in the TOC is non existent. Because of the unique geology and hydrology of the NSCARP area, percolation of contaminants to groundwater is probable. Runoff into surface waters is possible especially during frost protection. AB-36 AB-37 AB-38

Impact PUB-7 (3.12-19) analyzes the potential that groundwater contamination and runoff into surface waters could have impacts on public health. The DEIR (3.12-20) concludes that impacts could be significant from groundwater contamination or surface runoff during irrigation or from reservoir seepage to groundwater. It also concludes that these potentially significant impacts can be mitigated to less than significant by two measures. The first mitigation is a Recycled Water Users Agreement that requires good farming practices and prohibits over application of wastewater. As discussed above, percolation of contaminants to groundwater can occur even if irrigation rates are limited to crop requirements. And, runoff to surface waters is likely during frost protection. In addition, experience with runoff from Santa Rosa Agricultural Reuse area on the Santa Rosa plain indicates that good farming practices will be difficult to enforce. AB-39

The second mitigation involves a groundwater monitoring program at reservoir sites. First a monitoring program does not prevent groundwater contamination but only identifies it after the fact. There is no discussion of frequency of monitoring or what chemicals will be included. Based on the discussion (3.8-33) it appears to include only nitrate. This is insufficient. Second, there is no discussion of monitoring in the reuse area. These mitigation measures are inadequate to reduce impacts on public health to less than significant. AB-40

Impact PUB-10 (3.12-21) addresses the potential impact of unregulated compounds on public health. Once again the DEIR concludes that impacts are too speculative to draw conclusions. This is inadequate. AB-41

Growth Related Effects

The DEIR (5-5) does a superficial analysis of the growth inducing impact potential of NSCARP related to potable water offset and concludes (5-10) that there will be less than significant growth inducing impact "because the proposed project would not result in increased flows in the Russian River and any water that remains in the tributaries as a result of the project would not be available for appropriation by someone else". However, this analysis is disingenuous. The declared primary purpose of the project is to decrease agricultural diversions of water from the Russian River and its tributaries and decrease agricultural pumping of groundwater which in some measure can increase flows AB-42

in the Russian River and its tributaries so that the SCWA can release less water from the dams and leave more water in storage. To the extent that more water is left in storage it will be available for use by someone. The DEIR claims that this water will be used only for operational flexibility to benefit the fish. However, there is no data on how much diversion will be reduced, what impact decreased groundwater pumping will have on stream flows, how much additional water will remain in storage or where. There is no commitment of any kind on uses for that water. Therefore, any conclusion that there will be no additional water available for growth is premature. AB-42 (Cont'd)

Cumulative Impacts

The DEIR concludes that cumulative impacts of NSCARP and other developments on water quality and public health and safety will be less than significant. The DEIR analysis of impacts on water quality and public health and safety, especially from surface and groundwater contamination from soluble organic chemicals with biological impacts at very low concentrations, is inadequate. There is no discussion of similar negative impacts from the many other wastewater discharge and reuse projects under consideration in the NSCARP area including Santa Rosa Discharge Compliance project, the Santa Rosa Seasonal Storage Project, the Santa Rosa Urban Reuse Project, Windsor proposals for expanded urban and agricultural reuse, and Healdsburg proposals for urban and agricultural reuse. Likewise there is no discussion of concentration effects resulting from all of these projects in combination with reduced flow in Dry Creek and the Russian River potentially resulting from reduced Eel River diversions, the pending Biological opinion, Resolution 1610 considerations, climate change, etc. The cumulative impacts on water quality and thus public health and safety could be significant and must be seriously analyzed. AB-43 AB-44

Also, since the NSCARP results in export of waters from the SCWA service area, the DEIR must and did not consider the cumulative impacts of this and other water exports including those from the proposed Napa Sonoma Baylands Marsh Restoration Project. All water that would not be available to offset current or future potable water demands must be accounted for and their impacts analyzed. The DEIR must explain how NSCARP will affect the supply and demand balance in the recently adopted Sonoma County Urban Water Management Plan as well as in the UWMP's for any particular city or agency that is proposed for supplying wastewater to NSCARP. The DEIR must address how the diversion of wastewater to the NSCARP and other projects will reduce or eliminate opportunities to offset potable water demands in the service areas of SCWA contractors and other municipal water suppliers. AB-45 AB-46

Respectfully Submitted,

Fred Corson
3211 West Dry Creek Road
Healdsburg, CA 95448

Comments To Board of Supervisors Concerning NSCARP DEIR – Fred Corson, 5/15/2007

This draft EIR is premature, inadequate and defective in many ways. I have submitted a 10 page letter explaining problems I have found with the document. And, I have contributed extensively to a 20 page comment letter from the DCVA. Due to time constraints, I would like to comment on four of the most egregious problems.

First, the primary purpose and need expressed for the project in the DEIR is unsupported by facts. The stated primary purpose and need is to accomplish what I will call "storage retention" in Lakes Sonoma and Mendocino in order to provide what the DEIR calls "operational flexibility" to benefit endangered fish species. The premise appears to be that substituting agricultural water diversions and groundwater pumping with wastewater will allow the Agency to release less water during the summer to meet needs and allow more water to remain in storage for release during the fall. The DEIR, however, contains zero information on: AB-47

- How much water is being diverted by agricultural water users;
- How much groundwater is being pumped by agricultural water users;
- Specifically how the groundwater pumped affects flows in the River and tributaries;
- How much storage retention will result in Lake Sonoma? How much in Lake Mendocino?
- How much storage retention is required in each lake? Do they have equal value?

AB-48

- What is the Biological Opinion in support of this need?

AB-49

The DEIR also contains no information on how required storage retention in either lake may be impacted by a possible 1610 amendment. AB-50

The DEIR also contains no information on how required storage retention in Lake Sonoma may be impacted by release of an additional 25,000 acre foot of water for use by urban customers, by the unpublished Biological Opinion which is anticipated to require reduced summer flow in Dry Creek, by diversion of water around Dry Creek using a pipeline, or by drilling Agency wells in the Dry Creek Valley aquifer as proposed in the now abandoned agreement with the Dry Creek Agricultural Water Users. AB-51

The purpose and need for this project is unsubstantiated by any facts. How well the project will meet that need is totally undefined. How both the need and results will be impacted by other Agency activities is ignored. AB-52

Second, if one presumes that the project need for storage retention is real, the scope of alternatives studied is grossly insufficient. This project must be considered a use of urban wastewater to create storage retention in Lakes Sonoma and Mendocino because that is how it is defined in the DEIR. Other potential uses for this wastewater which create storage retention must be considered as project alternatives. They must be compared with this project in terms of storage retention potential and environmental impacts. For example, my analysis would conclude that any urban reuse project in the SCWA service area, such as the Santa Rosa Urban Reuse Project, would provide 100% potable water offset and thus 100% storage retention while this project will provide only some undefined but certainly only fractional offset. And, I believe environmental impacts of Urban Reuse on the Santa Rosa Plain will be less than those of agricultural reuse in the north county agricultural valleys. Urban Reuse would be an environmentally preferred alternative. AB-53

Also, I believe the DEIR must analyze other non wastewater alternatives which could provide additional storage retention such as a 1610 amendment and raising of Coyote Dam, both of which are being considered. AB-54

Third, you have no committed supply of wastewater for this project. Santa Rosa officials have publicly and repeatedly stated that supplying wastewater to this project does not meet their objectives for wastewater disposal at lowest cost and with maximum potable water offset and that they have made no commitment to supply. Windsor officials have stated that they have their own plans and have no intention to supply. Without a supply of wastewater defined, the quality of that wastewater can not be defined and its impacts can not be analyzed. This DEIR is clearly premature without committed wastewater supply. AB-55

If one presumes that Santa Rosa wastewater will be used, the quality of that wastewater and its impacts are poorly analyzed. The deficiencies in the definition of wastewater quality, it's potential to contaminate surface waters, groundwater, domestic wells and prime agricultural soils and its potential impacts on crops, endangered fish and human health are too numerous to explain today but are all defined in my letter. AB-56

Finally, the Cumulative impacts analysis in the DEIR is totally inadequate. There is no discussion of the cumulative impacts on surface and groundwater quality, prime agricultural soils, crops, aquatic organisms or human health from the AB-57

combination of wastewater projects proposed in the Russian River Watershed including the Santa Rosa Discharge Compliance, Seasonal Storage and Urban Reuse Projects, West County Agricultural Reuse, additional Casino discharge and Windsor and Healdsburg proposals for expanded urban and agricultural reuse. There is also no discussion of the cumulative impacts of all of these projects in combination with the possible concentration effects caused by reduced summer flows in the Russian River and Dry Creek potentially resulting from reduced Eel River Diversions, the Biological Opinion, or a 1610 amendment. Reduced flows could significantly increase potential impacts. AB-57 (Cont'd)

You can not analyze this project in a vacuum. You tried that with the original Water Supply and Transmission Project EIR and it has cost you dearly in time, resources and credibility. You must consider appropriate alternatives and the cumulative impacts of this project, other wastewater projects and other Agency activities. This DEIR is clearly deficient. I can assure you that if you certify it with only response to comments and minimal changes you will add another legal action to your growing inventory.

Thank you for the opportunity to comment.

**David Cuneo**

**From:** WWW User [www@sonic.net]
**Sent:** Tuesday, April 17, 2007 9:02 PM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Gene Koch

Phone Number:

E-mail Address: murray@saber.net

Comment:
Pipeline costs are around $1 million per mile, according to a recent Tahoe-Donner PUD pipeline Q & A notice online to ratepayers. How will this pipeline be paid for and how will the ratepayers be sure that a pipeline, that has a lifespan of 25 years, will be maintained ? Shouldn\'t composting toilets such as the Phoenix model be allowed to be used FIRST and a conservation program that reduces the amount of wastewater created in the first place be stressed in addition to any long distance pipeline system ?

AC-1

AC-2

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SONOMA COUNTY WATER AGENCY
MAY 2 2 2007

To: David Cuneo,
Senior Environmental Specialist,
Sonoma County Water Agency
PO Box 11628,
Santa Rosa, CA 95406-1628

5/1?/2007

PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__

These comments are submitted in response to the planned Northern Sonoma County Agricultural Reuse Project.

I applaud the Water Agency's effort to address growing concerns regarding fish habitat and the disposal of treated wastewater. I also believe that both urban and agricultural reuse is a better use of scarce water than direct discharge into the Russian River. AD-1
**However, I would like to express my concern that the current NSCARP plan does not include sufficient testing to confirm that there will be no negative impacts on grape quality.** AD-2

The Water Agency cited Title 22 as the justification for irrigating crops/wine grapes using tertiary treated wastewater. It is true that this use is legal at this time. However, the Agency also acknowledged a growing concern about the presence of emerging contaminants in treated wastewater, such as pharmaceuticals and hormones. At this point, there are no known studies measuring the impacts of such emerging contaminants on food or grapes irrigated with treated wastewater. The Water Agency proposes to move forward with agricultural reuse, and will "monitor" this developing issue.

We have all witnessed the food industry scrambling to remove trans-fats from their products, when the science caught up with industry practice and identified an ingredient that was harmful to consumers.

What would be the impact on Sonoma County's premium wine industry if even trace amounts of emerging contaminants are found in finished wines 5 – 10 years from now? The negative consequences to our region's premium brand image, either real or perceived could be devastating. Are we willing to gamble with the health of an industry that is the economic underpinning of the entire Northern Sonoma County? AD-3

Many growers and producers would welcome a plan that would deliver a secure water source for agriculture. But the water must be clean. Until there are site specific tests to measure the impacts of emerging contaminants on wine grapes, or until these contaminants are removed with higher treatment such as reverse osmosis, the Water Agency's current agricultural reuse project is just too risky. AD-4

Respectfully,

Karen Malay
Owner, Stryker Sonoma Winery
Board Member, Sonoma County Vintners
Board Member, Alexander Valley Association
Member, North Coast Wastewater Quality Coalition

5110 Hwy 128
Geyserville, CA 95441
707-433-1944

May 15, 2007

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PROJ/NORTH SONOMA COUNTY AGRICULTURAL
REUSE PROJECT (preliminary) - EIR 70-0-7 #__

Comments concerning the North Sonoma County Agricultural Reuse Project
Draft Environmental Impact Report

By
Katie Murphy
Vice-president, Alexander Valley Association
Owner, Alexander Valley Vineyards

The Board of Supervisors and the Sonoma County Water Agency would be well served by reassuring the public that NSCARP will not mean mandatory re-use of wastewater on agricultural lands. There is trepidation in the community that if this water is available, we will have to use it. We also know that current California law does not allow loss of water rights if using recycled water, and a reiteration of that policy in this project would be helpful. AE-1

Your first stated purpose in the draft EIR is to provide water for agriculture. This begs the question of whose water is it, and does agriculture need it? Since the city of Santa Rosa has not committed wastewater to this project, is there really enough water available for option two? Does agriculture need this water? Not currently. While some farmers and ranchers in northern Sonoma County might feel comfortable using recycled wastewater, let's not make loss of rural groundwater usage rights a reality by supplying wastewater that could be used in its stead. Loss of groundwater rights could be justified by other government entities by the availability of recycled wastewater. AE-2 AE-3

The huge area in option two also raises serious issues of the effect on groundwater quality of recycled water use over a long period of time, the eyesore of multiple new pump stations in rural areas, and the huge energy costs of pumping water all over the county. We do not feel that this last issue is effectively covered in the draft EIR. AE-4 AE-5 AE-6

And finally, what will be the effect on our grapes and wine, both real and perceived. While many Alexander Valley Association members are on the fence about using recycled water, I am personally worried that there might be a public backlash against wastewater use on our vineyards. As the owner of a winery and brand name that is synonymous with the appellation, I am personally fearful of the negative public relations implications this program might engender, and the huge costs of trying to offset that negative publicity for the hundreds of growers and wineries in Alexander Valley, Dry Creek Valley and Russian River Valley. That could linger over our wine industry for a long time, and isn't that the group that this program was supposed to help? AE-7

**PALOMINO LAKES MUTUAL WATER COMPANY**
POST OFFICE BOX 687 CLOVERDALE, CALIFORNIA 95425

Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

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MAY 18 2007
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ATTN: David Cuneo, Senior Environmental Specialist

**PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__**

5/17/2007

Re: Concerns of inconsistencies and omissions in the draft EIR/EIS for the proposed Sonoma County Water Agency's Northern Sonoma County Agricultural Reuse Project (NSCARP)

My name is Lee E. Tolbert. As an elected Director of the Palomino Lakes Mutual Water Company (PLMWC), which has a DWR permitted diversion of 182 acre feet per year from the riparian underflow of the Russian River, I would like to state my (and the Mutual Water Company's) concerns with this proposed project.

Our system serves a private community of 110 homes located in the Alexander Valley south of Cloverdale. Our potable water supply well and our entire community depends on the Russian River riparian underflow as our sole source of potable water. Our well is immediately adjacent to planned transmission, storage, and dispersal points of tertiary treated municipal wastewater (TTMW) to be used for irrigation and frost protection by the proposed Sonoma County Water Agency - Northern Sonoma County Agricultural Reuse Project (SCWA-NSCARP). The NSCARP poses several environmental and health issues that, if not mitigated, will negatively impact groundwater underflows and potable water supplies in the Russian River valley, Dry Creek, Alexander Valley, and communities in Northern Sonoma County.

**The following pages detail PLMWC concerns regarding errors, inconsistencies, and omissions in the draft NSCARP EIR / EIS document.**

1. INCONSISTENCIES AND OMISSIONS IN REPORTING CALIFORNIA DHS PRIMARY AND SECONDARY DRINKING WATER STANDARDS OR TTMW.

Currently the State Of California Department of Health Service (DHS) requires sampling, analysis, and reporting of 88 chemical compounds (pollutants & contaminants) listed as primary and secondary drinking water standards. The list of constituents DHS requires for sampling, analysis, and reporting grows yearly. The primary and secondary water quality standards may be found in the following CDHS URL link.

http://www.dhs.ca.gov/ps/ddwem/publications/lawbook/default.htm

- In the NSCARP EIR / EIS Section 3.8 - pg. 17/18/19, there is only data for 22 of these constituents reported in TTMW.
  Where is the balance of the 66 constituents required by CDHS?

- In the NSCARP EIR / EIS Section 3.12 - pg. 2 & 3, there is only data for 23 of these constituents reported in TTMW.
  Where is the balance of the 65 constituents required by CDHS?

AF-1

Unless historical and continual sampling and analysis data of the full DHS requirements for multiple annual periods is provided, how can it be known what the true risks of contamination and pollution to surface and ground water will be with this proposed NSCARP project?

***PLEASE ADDRESS THE INCONSISTENCIES AND OMISSIONS LISTED ABOVE***

2 INCONSISTENCIES AND OMISSIONS IN STATING MITIGATION MEASURES IN THE EVENT OF GROUNDWATER CONTAMINATION AND POLLUTION

Domestic and public water supplies divert drinking water from underground lenses and riparian aquifers in Dry Creek, Alexander Valley, and the Upper Russian River drainage south of Cloverdale. Most of these wells are in unconfined aquifers below the upper soil surface in the sand and gravel strata that has been deposited over time by changes in stream and river courses. The proposed NSCARP project will provide water to agriculture for frost protection and irrigation in areas upstream and upslope to these potable wells. If contaminants and pollutants are not transmitted into these underground

water supplies by seasonal use of TTMW for irrigation, they will be carried to the lower groundwater strata by frost protection activities and storm water from winter rains. No verbiage is included in the draft NSCARP EIR / EIS to address and resolve contamination or pollutions to private or community water wells by proposed project activities.

- In the NSCARP EIR / EIS Section 3.9 - pg. 15, Objective RC-3.3 states "Preserve and enhance the quality of surface and groundwater resources" and is indicated as being consistent with the project. AF-2
  The application of TTMW does not preserve or enhance the quality of surface or groundwater resources. How can ground water sources be enhanced by exposing them to pollution and contamination generated by this proposed NSCARP project? Also, Mitigation Measures HWQ-1, HWQ-2, HWQ-5, and HWQ-9 do not address pollution or contamination of domestic or public potable water wells.

- In the NSCARP EIR / EIS Section 3.9 - pg. 15, Objective RC-3.a states "Grading, filling and construction should not substantially reduce or divert any stream flow that would affect recharge" and further indicates "The project would be consistent with this policy". Mitigation Measure 3.8-6 requires that the SCWA monitor water quality and water levels in water wells potentially affected by NSCARP facilities before and after construction, as part of the SWPPP. If changes are detected after construction that are deemed deleterious to public health by the County of Sonoma Well and Septic Division staff or under applicable regulation, or if water level monitoring indicates that wells may become unproductive as a result of reduced upgradient inflows, the SCWA shall implement a Well Protection Plan. This plan would provide several optional ways to prevent deterioration of quality at drinking water wells including:

  1. Drilling a new well that is not significantly affected by the NSCARP facility
  2. Modifying the existing well, e.g., provide screening in a different stratum, such that the existing well is not significantly affected by the NSCARP facility
  3. Providing wellhead treatment system for the constituents that are causing the public health concern; and/or,
  4. Providing replacement water supply

Objective RC-# and Mitigation Measure 3.8-6 only address issues that are the result of construction and grading associated to the project and the altering or reducing of upgradient inflows. Why is there not a reference in the draft EIR/EIS document in Section 3.9 under HYDROLOGY/WATER QUALITY that specifies mitigation actions for domestic and public potable wells in the event of the use of TTMW used for frost protection and irrigation specified in the proposed NSCARP project contaminates and pollutes comestic and public potable wells where they no longer comply with DHS primary and secondary water quality standards? AF-3

- In the NSCARP EIR / EIS Section 3.9 - pg. 18, Goal PS-4 states "Prevent unnecessary exposure of people and property to risks of damage or injury from hazardous materials." and is indicated as being consistent with the project. The application of TTMW does not prevent unnecessary exposure to people and property to risks of damage or injury from hazardous materials.
  How can ground water sources used as a potable water supply which are subject to infiltration by contaminated or polluted surface water generated by this proposed project not expose people to injury and property to risks of damage from hazardous materials ?

- In the NSCARP EIR / EIS Section 3.9 - pg. 19, Objective PF-1.1 states "Plan for healthful water supplies and wastewater facilities adequate to serve the growth projected in the general plan." and is indicated as being consistent with the project. AF-4
  How can ground water sources used as a potable water supply which are subject to infiltration by contaminated or polluted surface water generated by this proposed NSCARP project assure healthful groundwater supplies if those sources are exposed to hazardous materials contained in TTMW ?

***PLEASE ADDRESS THE INCONSISTENCIES AND OMISSIONS LISTED ABOVE***

3. FAILURE TO FOLLOW KEY GOVERNMENTAL AGENCIES RECOMMENDATIONS TO PROTECT GROUNDWATER SUPPLIES

The California DHS requires an update of source water survey for groundwater supplies when any condition changes that may influence the point of diversion. This proposed project creates a situation that may not be easily reconciled if the groundwater supply is polluted or contaminated. California Department of Water Resources guidance document (URL listed below) specifically identfies groundwater and surface water as not two separate water sources. The following are excerpts from this specific California DWR document.

http://www.dpla2.water.ca.gov/publications/waterfacts/water_facts_6.pdf

***"The rule for protecting the quality of groundwater is PREVENT, PREVENT, and PREVENT contamination!***

*In the past, conventional wisdom said that anything could be dumped on the ground and whatever it was would be cleansed by flowing through the ground. We have learned how untrue this "wisdom" is only after discovering the extent of contamination of our groundwater basins. Most of this contamination is the result of indiscriminate but accepted legal practices for handling chemicals and disposing of chemical wastes. As a result, we are faced with costs of millions or billions of dollars and many, many years to clean up groundwater basins that have been contaminated. It may take thousands of years for some water in a large groundwater basin or reservoir to move from the recharge area to the discharge area. As a result, it may take many years before the presence of contaminants in the groundwater reservoir is detected. This is not true in a surface water reservoir where detection of a contaminant occurs almost immediately. Unfortunately, once contamination is detected in a groundwater reservoir, it is costly and difficult to remove. Many groundwater reservoirs may remain contaminated for hundreds of years, or even forever, once they are contaminated. The tremendous costs associated with cleaning up (remediating) our groundwater reservoirs could have been avoided if we had realized that it is important to avoid disposing of such chemicals on the ground to prevent such contamination from reaching the groundwater. Rather than using our groundwater basins as waste disposal systems, we should prevent those contaminants from reaching the groundwater. In some areas of California this is still not being*

*accomplished. It is much cheaper to prevent contamination of groundwater basins in the first place than to remediate them after contamination is discovered.*

***Groundwater should be protected just like surface water to prevent contamination and to ensure an abundant, usable supply.***

*Since the inception of municipal water supply reservoirs in the late 1800s, western countries have mandated that surface water reservoirs be protected from contamination by man-made pollutants. In contrast, it was thought that similar protection was unnecessary for groundwater reservoirs because it was widely believed that all contaminants, including chemicals, were removed by percolation through soil and sediment. As a result, until the 1970s it was thought that contaminants did not migrate into the groundwater. Therefore, protection was not provided for California's groundwater basins, or groundwater reservoirs. It has since been learned that a large variety of contaminants, including chemicals, can enter the groundwater. Many people now realize that groundwater supplies, like surface water supplies, must also be carefully protected from contamination.*

***Land use practices should prevent contamination in recharge areas.***

*Recharge areas for wells and aquifers should be mapped and delineated, and protected so the groundwater reservoir is not contaminated. Because contaminants in recharge areas degrade groundwater quality, recharge areas should be given some legal status for protection under local zoning codes. Local governments should re-evaluate land use zoning and the industrial, residential, and chemical practices that are allowed in recharge areas. Similarly, delineation of well head protection areas, the local area that contributes recharge directly to a single operating water well, would help to protect groundwater quality. Certain types of activities should be prohibited or carefully regulated within each publicly identified well head protection area.*

***Not all contaminants are removed from water when it percolates through sand and clay. Wastes disposed of on the ground or in "dry wells" frequently contaminate groundwater supplies.***

*Filtration is effective for treatment of human sewage but when chemical products such as oil, organic solvents or pesticides are disposed of on the ground, those chemicals interact*

*in different ways with the organic particles and the inorganic clay, silt, sand, and gravel particles through which the fluid flows. Chemicals disposed of on the ground may:*

- *become attached to some particles*
- *float on top of the water table*
- *dissolve in groundwater*
- *pass completely through to the bottom of the aquifer*
- *decompose or alter to other chemical compounds*

*When these synthetic chemicals are disposed of in dry wells, a shallow hole in the ground, the chemicals may remain in the sediment near the surface and contaminate water that flows through those sediments, or the chemicals may flow directly into the groundwater and contaminate it."*

***PLEASE ADDRESS THESE INCONSISTENCIES WITH THE PROPOSED SCWA-NSCARP COMPARED TO CALIFORNIA DWR WATER INDUSTRY GUIDANCE*** AF-5

The Palomino Lakes Mutual Water Company believes this SCWA-NSCARP is solely driven by project cost and the ease of disposal rather than the stated claim of protecting public health, environmental issues, promoting fall salmonoid spawning, and reducing dependence on Russian River surface water and groundwater flows. Santa Rosa and other municipalities should concentrate their efforts and capital in developing infrastructure to reuse their own TTMW within their own municipal borders. AF-6 The Palomino Lakes Mutual Water Company and its shareholders urge the Sonoma County Water Agency Board of Directors be forward thinking and encourage sustainable planning and management practices in the consideration of this and all other wastewater projects. AF-7

Respectfully,

Lee E. Tolbert

Vice President – Palomino Lakes Mutual Water Company
PO BOX 687
Cloverdale, CA 95425
lee_tolbert@palominolakes.org

cc: PLMWC/SCWA-NSCARP file, Minasian, Spruance, Meith, Soares & Sexton, LLP, Howard Blake, Rick Corriea, PLMWC website

LAW OFFICES OF

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May 17, 2007

PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__

Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, California 95409

US Department of the Interior
Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

Re: Comments on Draft North Sonoma Agricultural Reuse Project Environmental Impact Report/Environmental Impact Statement

Dear Sir/Madam:

This office has been retained by the Soda Rock Neighborhood Association to review and respond to the above-referenced document. Along with the comments contained here, we are enclosing herewith detailed technical comments from Nicholas M. Johnson, PhD, RG, CHg and detailed comments from the association and its members will be submitted separately.

The Soda Rock Neighborhood Association is an unincorporated association representing residents, ranchers, and businesses in the Alexander Valley. Its purpose is to preserve the character and quality of life in the region and to have an open line of communication between the neighborhood, government agencies and other communities.

Our comments on behalf of the Association are:

1. The project description fails to comply with CEQA. Guideline § 15124 requires "(b) A statement of the objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project." AG-1

The primary need for the project is "to allow water to remain in the Russian River system and its tributaries to improve habitat for listed fish species." The purposes and objectives do not relate directly to the need. CEQA requires that the project description be stable and consistent. County of Inyo v. City of Los Angeles (1977) 71 Cal.App.3d 185, 197 demonstrates the defects in this project description. In County of Inyo some parts of the EIR described the project as increased pumping for Inyo and Mono County and others for the Los Angeles aqueduct.

> "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal...and weigh other alternatives in the balance. An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." at page 192

AG-1 (Cont'd)

2. An accurate description of the project's environmental setting is required. Guideline §15125 Here, the Draft EIR fails to describe accurately the environmental settings, specifically the rural residential character and the dependency on individual wells for residential water supplies. See Galante Vineyards v. Monterery Peninsula Water Management Dist. (1997) 60 Cal.App.4th 1109. The EIR for a dam and reservoir did not describe viticulture in the area. Here, the opposite is true, but result is the same. Viticulture is described at length, but no mention is made of rural residential uses and its dependency on groundwater.

AG-2

The EIR fails to adequately describe the environmental setting by not quantifying the volume of groundwater in the Alexander Valley sub-basin. In Cadiz Land Co. v. Rail Cycle (2000) 83 Cal.App.4th 74, the court rejected a description of the environmental setting for a landfill on the basis that the EIR did not quantify the size of the aquifer that underlay the proposed landfill site.

AG-3

3. There is no description of the current operation of the water supply system. County of Amador v. El Dorado County Water Agency (1999) 76 Cal.App.4th 931, 953 held that an EIR for a water supply project should have provided information on historical water release schedules from storage lakes to determine if project releases alter historical baseline pattern of water releases. This EIR is dramatically silent on any aspect of the project, the alteration of which is its primary purpose.

AG-4

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The inadequacy of the project description from a CEQA perspective is evident by the list of secondary, additional and alternative purposes. If each of these is actually deemed the project, then the EIR is inadequate in failing to describe aspects of the project, impacts and alternatives. For example, providing adequate infrastructure to store and distribute recycled water is stated as a purpose. There is no description of the existing systems of the various contributing entities for distribution and storage of recycled water. There are no alternatives discussed for meeting this purpose. AG-5

4. An EIR must describe a reasonable range of alternatives that feasibly attain the project's goals and reduce or avoid any significant impacts. Guideline §15126.6. Here, the EIR completely fails. The stated goal of the project is to allow water to remain in the Russian River system and its tributaries to improve habitat for listed fish species. None of the alternatives address this goal. The only alternatives included are smaller versions of a project designed to use treated wastewater for agricultural irrigation. No other options to achieve that purpose are included. The inadequacy of the project description is directly related to the failure to include a reasonable range of alternatives. The same is true for other suggested purposes such as providing adequate infrastructure to store and distribute recycled water. Other potential alternatives such as advanced treatment, supplementing urban water supplies are not considered. AG-6

5. Several potential impacts have been left to future studies inconsistent with adequate CEQA analysis. The following are a few such examples, BIO-6, BIO-8, GEO-1, GEO-2, GEO-8, HWQ-4, PUB-10. GEO-1, for example, assumes without analysis that these studies will identify and resolve all risks and impacts. The study identified in GEO-1(C) fails to identify what impacts may be encountered or the mitigation measures or criteria for implementation. AG-7

6. An EIR must be prepared with a sufficient degree of analysis to provide decision-makers with the information needed to make intelligent decisions concerning a project's environmental consequences. Guideline §15151. An EIR must set forth the basis for its conclusions; a bare conclusion without an explanation of its factual and analytical basis is not sufficient analysis of an environmental impact. Laurel Heights Improvements Ass'n v. Regents of Univ. Of Cal. (1988) 47 Cal.3d 376, 404. The report submitted herewith by Nicholas M. Johnson, PhD, RG, CHg identifies an array of specific failures in the EIR to address potential impacts associated with the project. AG-8

7. An EIR must discuss cumulative impacts when they are significant and the project's incremental contribution is cumulatively considerable. Guideline §15130(a). There are two accepted approaches: the list-of-projects and the summary-of-projections. If we go back to the purposes and objectives for the project, it is clear there are other past and planned projects that require consideration in the cumulative impact analysis. For example, one purpose is to reduce discharges from local wastewater treatment plants to AG-9

P J A M & M



local waterways. Another is to provide an environmentally responsible, long-term method of recycled water use. A third is to increase reliability and long-term sustainability of the regional water system. Projects that are at various levels of planning and study are: Santa Rosa Subregional System's Incremental Recycled Water Program (IRWP) [and project tiering off of it including, Discharge Compliance, Seasonal Storage Urban Reuse, the Geysers Expansion, Indoor Water Conservation and Agricultural Reuse] and the Water Agency's proposed pipeline from Lake Sonoma to the Russian River. The City of Healdsburg and Town of Windsor have their own agricultural reuse programs under consideration. Finally, River Rock Casino's wastewater treatment and discharge EIR has just been approved. All of these are required to be included in the cumulative impact analysis. AG-9 (Cont'd)

8. An EIR must propose and describe mitigation measures to minimize the significant environmental effects identified in the EIR. Guideline §15126.4. The loss of farmland identified as a significant impact is inadequately mitigated. One mitigation measure required as an option is compensation for loss. That has not been considered. Guideline §15370(e). AG-10

9. We have been informed that three of the reservoir sites have been removed from consideration. The Draft EIR purports to be at a project level. How does the removal of three sites impact the analysis? It appears that the project description is unstable. AG-11

The defects identified herein are so fundamental, especially those relating to the project description, environmental setting and alternatives, that recirculation will be required. AG-12

Very truly yours,

LESLIE R. PERRY

LRP:ao
cc: Soda Rock Neighborhood Association
Enclosures

662 Connecticut Street
San Francisco, CA 94107
415/282-8751
nickmj@hotmail.com

Nicholas M. Johnson, PhD, RC, CHg
Water Resources Consultant

May 17, 2007

Sonoma County Water Agency
c/o David Cuneo, senior environmental specialist
P.O. Box 11628
Santa Rosa, CA 95406-1628

cc: US Department of the Interior
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Subject: Comments regarding March 2007 *Draft North Sonoma County Agricultural Reuse Project EIR/EIS*, prepared for Sonoma County Water Agency and U.S. Bureau of Reclamation

This letter provides comments on the March 2007 *Draft North Sonoma County Agricultural Reuse Project* [NSCARP] *EIR/EIS*, prepared for Sonoma County Water Agency (SCWA) and U.S. Bureau of Reclamation. It consists of two parts: 1) chapter by chapter comments and 2) an independent analysis of potential NSCARP impacts. Where applicable, this review and analysis focuses on potential water quality impacts in the Soda Rock area of southern Alexander Valley (Figures 1 and 2), for which I obtained site-specific information (e.g., well logs and water quality records; Tables 1 through 3). The conclusions are broadly applicable to similar areas of Alexander Valley.

## Part 1
## Comments on draft EIR/EIS

The draft EIR/EIS and its supporting documents provide little or no analysis of potential water-quality impacts relevant to existing residential and agricultural groundwater uses in Alexander Valley. As such, this review includes comments on general aspects of the draft EIR/EIS that appear related to this deficiency.

**Chapter 1, Purpose and Need for the NSCARP**

p. 1-3, Project Needs: The two stated needs for the project are:

1) Federal and state regulatory agencies have "expressed concerns" regarding potential impacts to fisheries resources and habitats within the Russian River and its tributaries, such that there is a need to allow water to remain in the Russian River system and its tributaries to improve habitat.

2) There is a need for infrastructure to store and distribute recycled water produced by various entities.

Neither of these project drivers are adequately explained or documented by the draft EIR/EIS. No estimate is provided for the amount or type of stream flow augmentation that may be needed to address habitat concerns. No analysis is provided to explain why local water supplies need to be augmented with recycled water. Without these explanations, the draft EIR/EIS provides an inadequate context for defining project alternatives and evaluating potential impacts. AH-1

p. 1-3, Project Purposes/Objectives: Five bulleted "purposes/objectives" are listed for the project. The first, third, and fifth are essentially redundant, i.e., that recycled water will augment irrigation water supplies and help offset the use of other water sources. The third listed purpose, "provide an environmentally responsible, long-term method of recycled water use," suggests that the project justifies itself. The second listed reason, "reduce discharges from local wastewater treatment plants

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to local waterways," reflects the long-standing difficulty of achieving regulatory compliance for municipal wastewater releases to the Russian River.

Despite years of study and effort, a comprehensive regional solution for municipal wastewater disposal has not been achieved. Thus, this would seem to be the primary driver behind NSCARP. However, the draft EIR/EIS does not document the history or nature of this underlying project justification. Unlike the rather speculative and poorly defined aquatic habitat issue, the issue of municipal wastewater disposal could be fully explained and quantified as a justification for the project. AH-2

p. 1-2, Project Alternatives: The evaluated project alternatives do not address alternative means for municipal wastewater disposal, nor do they address alternative means for augmenting aquatic habitat (e.g., reducing diversions through reduced water use). Other than the no-project alternative, the proposed project alternatives are simply subsets of the overall NSCARP project. The project alternatives are defined and evaluated only by their capacity to use recycled water, which is simply a form of project self-justification. AH-3

p. 1-5, Need for the Project: The use of recycled water elsewhere in California is touted as a project justification. Although SCWA "believes the use of recycled water…would benefit fisheries in the Russian River watershed", no analysis is provided to support this belief or quantify this potential benefit. This potential benefit is defined simply as "more operational flexibility." AH-4

The introduction of the draft EIR/EIS states categorically that NSCARP "would not result in additional water being available for other uses because existing reservoir storage capacity, water rights, and flow requirements would not change." A detailed explanation for this assurance is not provided or discussed elsewhere in the draft EIR/EIS. If existing water rights are not being fully exercised due to current periodic supply and/or demand limitations, then it seems that increased water use could occur as a result of NSCARP. Additionally, some of the parcels proposed for recycled-water irrigation are not presently irrigated (see p. 3.8-33, last full ¶), and thus represent a potential for increased water use. AH-5

It should be noted that SCWA plays several roles in regard to NSCARP: project applicant; EIR/EIS author; lead environmental agency; and both regional water purveyor and wastewater disposer.

**Chapter 2, Project Description**

p. 2-8, Current Land Uses, Alexander Valley: Residential parcels are not acknowledged as a type of land use within Alexander Valley; the only types of land use identified are agricultural. Thus, this portion of the draft EIR/EIS implicitly excludes consideration of potential impacts to the rural residents of Alexander Valley.[1] AH-6

p. 2-9, Water Sources for Current Land Uses: The listed types of water use are "municipal, industrial, and agricultural"; rural residential use is not acknowledged. The current types of water sources within the project area are listed, but "the contribution from each of these sources has not been quantified" as part of the draft EIR/EIS. It seems highly unreasonable that the project is AH-7

[1] The existence of small water systems in the project area is briefly acknowledged in Section 3.12.1 (pp. 3.12-1 to -2).

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justified by a purported need for additional water supplies, yet the nature of the existing water supply is left uncharacterized. AH-7 (Cont'd)

p. 2-10, Total Available Supply of Recycled Water to NSCARP – Future Supply: Compared to the poorly defined need for water, the draft EIR/EIS does detail the capacity of NSCARP to dispose of recycled water. The initial supply of recycled wastewater is expected to be about 7,200 acre-feet/yr (ac-ft/yr). However, by 2020 an estimated 8,500 ac-ft/yr of additional recycled water will require disposal. The draft EIR/EIS states that NSCARP will be able to handle a large portion of this increase (about 5,800 ac-ft/yr), given its expected capacity of 13,000 ac-ft/yr. This aspect of the project description is consistent with its justification in terms of wastewater disposal.

p. 2-11, Potential Users of Recycled Water – Agricultural: The proposed project assumes that 21,500 acres of agricultural lands could use recycled water for agricultural purposes, of which 31 percent are within Alexander Valley (Table 2-4), requiring about 4,600 ac-ft of local seasonal storage (Table 2-5). Given NSCARP's planned total storage and delivery of 13,000 ac-ft/yr (p. 2-10), this amounts to an average application rate of 0.6 ft/yr (7 inches/year). In part 2 of this letter I estimate that vineyards require about 14 inches/year (in/yr) of irrigation in southern Alexander Valley. Thus, the proposed acreage appears to be more than adequate for the expected supply of recycled water. AH-8

Two vineyard and winery groups have "expressed interest" in participating in NSCARP. However, the draft EIR/EIS does not characterize their potential use or need for recycled water.[2] The draft EIR/EIS does not explain or evaluate the expected incentive for agriculture to use recycled water, and thus creates some uncertainty whether or not the project is justified by the need for additional water supply. AH-9

p. 2-12, Potential Users of Recycled Water – Environmental: The draft EIR/EIS does not quantify or describe in detail the potential environmental benefits of NSCARP, despite this being a primary justification for the project. However, a rough estimate is possible from the provided information. The NSCARP yield of 13,000 ac-ft/yr is equivalent to a continuous flow of 18 cubic feet per second (cfs). According to Table 2-1 of the draft EIR/EIS, annual minimum monthly flows average 187 cfs for the Russian River at Healdsburg (11,300 ac-ft/month) and 81 cfs for Dry Creek below Warm Springs Dam (4,900 ac-ft/month). Thus, the average yield of NSCARP would represent either about 10 percent of the river's average dry season flow or roughly 20 percent of Dry Creek's average dry season flow. The draft EIR/EIS does not characterize the implementation or potential significance of such concepts. AH-10

p. 2-13, Basis for Alternatives: The criteria used by SCWA to screen potential NSCARP alternatives are consistent with an assumption that recycled water needs to be used, with a condition that it not be discharged directly to the Russian River or its tributaries. Alternatives are not defined more broadly and do not consider alternate means for achieving the stated project objectives, i.e., enhance aquatic habitat, ensure long-term sustainable water supplies, and comply with regulations limiting wastewater discharge to the Russian River. AH-11

p. 2-17, Preferred Alternative: The preferred, "environmentally superior" project is the entire NSCARP as originally proposed, consistent with the self-justifying nature of the project's stated need and purpose.

[2] Note that water use by wineries generates an additional wastewater stream.

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p. 2-19, 1st ¶, last sentence: The draft EIR/EIS contains insufficient analysis to support or elaborate on the vague claim that NSCARP will provide "an opportunity for better management of regional water resources." AH-12

pp. 2-47 to -48, Section 2.2.2, Alternative 1 – No Project: The rationale given for rejecting the no-project alternative exemplifies a sense of NSCARP's self-justification: "The concern is that the projected supply of [recycled] water would be greater than the projected demands… [and this] would result in greater demand for [other] recycled water disposal options." This statement demonstrates that other recycled water disposal options should be considered among the project alternatives. AH-13

**Section 3.8, Environmental Issues, Hydrology and Water Quality**

p. 3.8-2, Physical Setting, Regional Groundwater: The draft EIR/EIS makes the following statements regarding groundwater conditions in the project area:

- "Groundwater recharge in the study area generally occurs in upland areas adjacent to groundwater basins." However, such upland recharge may be limited by relatively low bedrock permeability in some areas, such as serpentine, graywake, basalt, siltstone, and shale along the southern margin of Alexander Valley (Figure 3). AH-14
- "Groundwater discharge occurs mostly along the major trunk streams." Where upland recharge is limited, however, the groundwater recharge needed to replenish pumped alluvial aquifers probably derives from percolation along the Russian River. A recent study of Alexander Valley groundwater by the United States Geological Survey (USGS) concluded that groundwater quality is influenced significantly by percolation from the river: the "similarity in ionic composition [between groundwater and the river] suggests that recharge to most wells, particularly wells that are less than 200 ft total depth and perforated in Quaternary alluvial deposits, may be a combination of infiltration from precipitation and seepage from the Russian River and its tributaries" (Metzger and others, 2006, p. 50).[3] Of the 12 completed wells in the Soda Rock area reviewed for this memorandum, the average depth is only 110 ft, ranging from 50 to 240 ft. AH-15
- "There is a potential increase for groundwater levels throughout the groundwater basins." This seems to say that there is sufficient aquifer capacity for increased groundwater levels as a result of reduced pumping and reduced diversions. This has not been demonstrated on a site-specific basis. Areas with shallow water levels probably exist where irrigation with imported recycled water could cause groundwater to rise to problematic levels (e.g., causing root rot, unwanted seepage, etc.). AH-16

pp. 3.8-3 to -4, Alexander Valley Groundwater Basin: The draft EIR/EIS does not reference the detailed study of Alexander Valley published by the USGS in 2006 (Metzger and others), nor does it otherwise benefit from the 25 years of groundwater level and quality data evaluated by that study. AH-17

p. 3.8-17 to 3.8-19, Table 3.8-2, Santa Rosa's Recycled Water Quality Summary: The table is missing a recycled water nitrate concentration. Table 3.12-1 (p. 3.12-2) provides a water quality summary for this same source of recycled water and includes nitrate concentration data. The nitrate concentrations of samples collected and analyzed in 2002 averaged 7.3 milligrams per liter (reported AH-18

[3] Although SCWA was a cooperating agency for the 2006 USGS study, the draft EIR/EIS does not acknowledge that study or incorporate its findings.

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as nitrogen [mg/L-N]), and ranged up to 16 mg/L-N.[4] The maximum contaminant level (MCL) for nitrate in drinking water is 10 mg/L-N. AH-18 (Cont'd)

p. 3.8-23, 3rd ¶, Antidegradation Policies: The draft EIR/EIS cites the following portion of the State's non-degradation water quality policy: "Some degradation of water quality may be considered acceptable if it can be demonstrated that the NSCARP would… 'not unreasonably affect present and anticipated beneficial uses of such water'." However, the draft EIR/EIS does not acknowledge the dependence of rural residents on groundwater for their domestic water supply, and thus does not acknowledge or evaluate NSCARP's potential impact on this beneficial water use. AH-19

p. 3.8-23, 4th ¶: The draft EIR/EIS paraphrases an aspect of State policy relating to water reclamation projects: "[I]n no case may increases in chemical concentrations cause adverse impacts to groundwater resources. Nitrate levels in excess of the maximum contaminant limit for drinking water would be considered an adverse effect."[5] As discussed and analyzed later in this letter, irrigation typically results in an increased concentration of dissolved minerals in water percolating below the root zone. Thus, the quality of groundwater recharge resulting from recycled water use is generally worse than the initial quality of the recycled water. This compounds the impact to groundwater where already impacted by existing agricultural practices (e.g., fertilizers). AH-20

p. 3.8-28, CEQA Thresholds of Significance Criteria, no. 11, "Contaminate a public water supply." The groundwater supply serving the rural residential population in Alexander Valley constitutes a public water supply, as should be noted by the draft EIR/EIS. AH-21

p. 3.8-28, Alternative 1 – No Project/Action: The draft EIR/EIS rejects the no-project alternative because "there would be no offset of instream and groundwater sources with recycled water." However, the provided project background and description do not adequately establish or articulate the need for additional water, or quantify the benefit of recycled-water use in regard to such a need. AH-22

p. 3.8-33, last full ¶, Impact HWQ-4: The draft EIR/EIS states that "agricultural irrigation [using recycled water] could result in minor increases in the salinity of groundwater… Based on the quality of the recycled water, the potential for changes in salinity is minor and would not be expected to impair the beneficial uses of groundwater." The draft EIR/EIS does not provide the analysis needed to support this conclusion. Notably, the draft EIR/EIS lacks an appendix of hydrologic analysis. AH-23

Table 2 (attached) summarizes water quality data available for the Alexander Valley Acres Mutual Water Company, the City of Santa Rosa's municipal water, and three potential sources of NSCARP recycled water. The recycled water has a total dissolved mineral (or "solids") concentration (TDS) about three times greater than either the City water or the Alexander Valley groundwater, and approaches the recommended drinking water standard of 500 mg/L. When used for irrigation, the mineral concentration increases in the reduced volume of water that percolates below the root zone (i.e., some of the water is lost to crop evapotranspiration, whereas most of the minerals remain). Thus, there is a potential to impact the receiving groundwater with recharge derived from recycled AH-24

[4] Nitrate, $NO_3$, is typically expressed in terms of the molecular weight of only its nitrogen component. Dividing by 4.43 converts from a nitrate concentration (mg/L-$NO_3$) to an equivalent nitrogen concentration (mg/L-N).

[5] Note that the sentence following this in the draft EIR/EIS is irrelevant; none of the waters in question have salinities approaching 3,000 mg/L.

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water that exceeds drinking water standards. A detailed assessment of this impact, as demonstrated in part 2 of this letter, should be included in the draft EIR/EIS. AH-24 (Cont'd)

In this same paragraph, the draft EIR/EIS goes on to state: "Nitrate levels in recycled water, applied in accordance with accepted irrigation practices, are below the nitrate requirements of crops. Therefore, nitrate in recycled water would be almost entirely taken up by vegetation with minimal migration beyond the root zone." However, groundwater nitrate concentrations in southern Alexander Valley appear to be already elevated, possibly as a result of agricultural practices. As presented in the attached Table 2, nitrate concentrations as high as 2.7 mg/L-N have been detected, whereas naturally occurring nitrate concentrations are typically <1 mg/L. The NSCARP project description does not include a plan for regulating fertilizer use in order to prevent further excess nitrate loading on groundwater. There is a significant potential for irrigation with high-nitrate recycled water to further degrade domestic groundwater supplies already impacted by agriculture. Some degree of soil flushing is always necessary to prevent salt build-up in soil. The draft EIR/EIS lacks the soil water and nitrogen mass balance analyses needed to effectively evaluate this potentially significant impact. AH-25

The recent USGS study identified the potential cause-and-effect relationship between irrigation practices and the quality of Alexander Valley groundwater: "Water samples collected from several wells over a number of years suggest a progressive change in water chemistry over time. Samples spanning more than 30 years from two wells in the Lytton and Jimtown area show a trend towards higher ionic concentrations and increasing concentrations of particular constituents such as sulfate. These water-quality changes may be attributed to natural processes… or to anthropogenic impacts, such as changes in land use or irrigation practices" (Metzger and others, 2006, p. 50). The draft EIR/EIS does not make use of this 30-year data record or the findings of the USGS study. AH-26

Given that wastewater disposal is one underlying objective of NSCARP, the draft EIR/EIS should address measures needed to regulate the use and application of recycled water so as to prevent excess mineral and contaminant loading to groundwater. AH-27

pp. 3.8-33 to -34, Impact HWQ-4 (continued): The draft EIR/EIS acknowledges that "recycled water stored in the reservoirs could infiltrate into the groundwater and result in a degradation of groundwater quality and alteration in groundwater flows. The reservoirs would be compacted at the bottom and lined using a clay liner, if required. The clay lining would have a low permeability allowing for only minor infiltration of stored water to maximize the efficiency of the reservoir and prevent degradation of ground water… The amount of recycled water that might infiltrate to subsurface levels and affect the groundwater flow patterns should be negligible, particularly when compared to the overall groundwater in the NSCARP area." For a project-level EIR/EIS, this draft lacks the detailed and site-specific analyses needed to support such conclusions. The reservoir areas would be relatively large and it may be difficult or infeasible to construct adequate liners and guarantee minimal leakage. The bedrock geology of the proposed reservoir sites in the Soda Rock area includes serpentine, metagraywake, basalt, and conglomerate. Some of these rock types may be expected to have low permeabilities that may indeed retard leakage. However, site-specific evaluations are needed. The area bedrock is highly faulted and fractured, which may create pathways of preferential groundwater flow. Given that wastewater disposal is an underlying objective of NSCARP, there may be some incentive to overlook excessive reservoir leakage. AH-28

p. 3.8-34, Mitigation Measure HWQ-4: As stated in the draft EIR/EIS, this mitigation measure would implement a groundwater monitoring program *after* construction of NSCARP to help detect AH-29

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groundwater contamination caused by reservoir leakage. However, such a monitoring program is needed to evaluate potentially adverse trends in groundwater quality, not just maximum contaminant level (MCL) thresholds, and thus should be installed and operated *prior* to implementing NSCARP in order to establish baseline conditions. Furthermore, a groundwater monitoring program also is needed for areas using recycled water for irrigation, given the potential for the water quality impacts discussed above. Because this is a project-level EIR/EIS, it should present the designs for such monitoring systems as needed to protect groundwater from excess chemical loads associated with irrigation and reservoir leakage. AH-29 (Cont'd)

As an additional mitigation measure, the draft EIR/EIS should require a program to manage and regulate agricultural practices in order to prevent the excessive application of either recycled water or fertilizers. Some of these concerns may be addressed by mitigation measure PUB-7 (p. 3.12-20). Even then, water-quality impacts could occur because of the concentration of dissolved minerals that occurs as a result of irrigation, evapotranspiration, and soil-water flushing. AH-30

p. 3.8-36, Impact HWQ-7: As a beneficial impact, the draft EIR/EIS states that NSCARP "would increase summer flows in the tributaries of the Russian River… help maintain storage levels in Lake[s] Mendocino and Sonoma… provide more operational flexibility for SCWA … [and] not result in additional water being available for other uses because existing reservoir storage capacity and water right flow requirements would not change." The draft EIR/EIS lacks the analysis needed to quantify these potential benefits and demonstrate their feasibility and significance, particularly in light of the potential adverse water-quality impacts that may occur. AH-31

p. 3.8-36, Impact HWQ-8: The draft EIR/EIS acknowledges that groundwater mounding may occur as a result of using imported recycled water. Without explanation, it concludes that there is a low probability of adverse impacts associated with this mounding. On the contrary, site-specific assessments are needed to evaluate potential problematic high groundwater levels resulting from irrigation with imported recycled water. AH-32

p. 3.8-37, Impact HWQ-9, 1st discussion ¶: The discussion states that "any indirect discharge from agricultural irrigation with recycled water would be minimized because the application rate would be limited to the equivalent crop demand." The problems and uncertainties associated with this conclusion include: a) who would determine suitable application rates and how would they be enforced?, b) most of the dissolved mineral load would not be taken up by plants, but instead would percolate to groundwater in an even more concentrated form, and c) some flushing of the soil zone is always needed to prevent excess soil salinity. AH-33

The document's following paragraph appears to confuse potential impacts associated with reservoir spills versus reservoir seepage, and thus does not adequately address either. AH-34

**Section 3.12, Environmental Issues, Public Health and Safety**

pp. 3.12-1 to -2, Physical Setting, Water Use: Here the draft EIR/EIS acknowledges that small multi-user water systems exist in portions of the project area. However, the EIR lacks any detailed inventory, description, or mapping of such systems, especially in reference to potential NSCARP impacts. Furthermore, the existence of single-residence water systems is not acknowledged. AH-35

p. 3.12-3, Table 3.12-2, Summary of Chemical Constituents Detected in Recycled Water: There is an apparent discrepancy between the provided recycled water nitrate concentrations given "as AH-36

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nitrate" versus "as nitrogen." The provided values reflect either conversion or typographical errors, or differences in the data sets summarized. AH-36 (Cont'd)

pp. 3.12-9 to -11, re: Potential contaminants in recycled water: The draft EIR/EIS provides a reasonable summary of contaminants in recycled water with the potential to impact human health, e.g., disinfection byproducts (e.g., trihalomethanes), endocrine disrupting compounds (EDC's), xenobiotics (see also the discussion accompanying Impact PUB-10, pp. 3.12-21 to -24). The risk of many of these contaminants to human health and the environment remains uncertain. As explained by the draft EIR/EIS, disinfection byproducts are less of a concern for Santa Rosa's recycled water now that UV has replaced chlorination as the method of disinfection. However, this method of treatment is not claimed for NSCARP's other expected sources of recycled water. AH-37

p. 3.12-19 to -20, Impact PUB-7: The draft EIR/EIS erroneously equates NSCARP's use of tertiary treated wastewater with the absence of potential adverse water quality impacts. Although the California Department of Health Services (DHS) qualifies the project's proposed recycled water for the highest allowable uses, this does not ensure the absence of potential impacts or diminish the need for a technical analysis of potential impacts. The draft EIR/EIS does not acknowledge that more advanced treatment methods (e.g., reverse osmosis) can provide recycled water of significantly higher quality, as has been proposed for Livermore Valley recycling projects. Also, the degree to which the proposed methods of treatment will address the uncertainties posed by various emerging contaminants (e.g., EDC's and xenobiotics) is not specified. AH-38

The draft EIR/EIS does acknowledge that "irrigation with recycled water could contribute to loading of specific constituents to groundwater supplies in the vicinity of irrigation sites." The draft EIR/EIS expects that soil processes such as adsorption and filtration will sufficiently mitigate these potential impacts. However, processes such as adsorption and filtration can be ineffective in the highly permeable river alluvium that underlies much of the project area. AH-39

The draft EIR/EIS cites a previous study that assessed the risk to human health from recycled water use similar to the proposed project (Parsons Engineering Science, 2003). It concluded that irrigation of agricultural land with recycled water would not present a health risk. My review of this document did not reveal either the soil-water and chemical mass balances or fate-and-transport analyses needed to support this claim. The exposure pathways that need to be evaluated to address potential water quality impacts to domestic groundwater supplies include: 1) the transport of contaminants to groundwater in percolating recharge derived from recycled water irrigation, 2) the discharge of groundwater adversely impacted by recycled water use into the Russian River upstream of the Soda Rock area, followed by the percolation of this impacted water into the aquifer in the vicinity of Soda Rock in response to pumping-induced gradients, and 3) plumes of recycled water originating from reservoir seepage. AH-40

**Chapter 4, Cumulative Impacts**

pp. 4-13, Hydrology/Water Quality: The draft EIR/EIS states that "Implementation of the NSCARP has the potential to degrade groundwater quality." However, as discussed in this memorandum, the scope and level of analysis provided by the draft EIR/EIS does not provide adequate confidence that these impacts will be mitigated to less than significant levels. AH-41

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## Part 2
## Independent Impact Analysis

As discussed in part 1 of this letter, the draft EIR/EIS lacks the site-specific and technical analyses needed to support its prediction that NSCARP will result in less-than-significant impacts to local water resources. Part 2 of this letter presents an independent analysis of potential water quality impacts associated with the implementation of NSCARP in Alexander Valley (Figure 1). This analysis is directed particularly at the Soda Rock area along the valley's southeastern margin (Figure 2), for which existing groundwater users provided me with site-specific information. The conclusions are broadly applicable to similar areas of Alexander Valley, however.

### NSCARP

As described in its draft EIR/EIS, NSCARP would convey, store, and distribute recycled water across a large area between Santa Rosa and Cloverdale. In the Alexander Valley area, nearly 11,000 acres could be irrigated (Figure 1). Most of this area is currently irrigated with groundwater and/or river diversions, and some of the proposed area currently is not irrigated.

NSCARP also proposes 1,820 acre-feet (ac-ft) of reservoir storage for recycled water in the hills southeast of Soda Rock (Figures 1 and 2).

The recycled water will be disinfected but contain a dissolved mineral content about three or more times greater than Santa Rosa city water, the Russian River, or some local groundwater (Table 2). Some recycled water quality parameters will approach and/or exceed drinking water standards (e.g., nitrate, nitrite, copper, zinc, total minerals). Additionally, relatively high levels of various unregulated contaminants are indicated by the elevated concentration of total organic carbon in the recycled water.

### Local Groundwater Conditions

Figure 3 is a geologic map of southeastern Alexander Valley. The valley's alluvial fill forms the area's principal groundwater aquifer. The alluvium has a maximum thickness of 150 ft. Its gravel zones yield up to 1,000 gallons per minute (gpm) to shallow area wells.

The Glen Ellen Formation (also referred to as the Wilson Grove Formation) underlies portions of the valley and bounding hills and serves as a deeper aquifer zone for some area wells.

Other aquifer zones occur in weathered volcanic rock beneath the hillslopes immediately southwest of Alexander Valley.

Table 3 summarizes information for 13 area wells. Most of the wells on the valley floor are less than 100 ft deep, whereas wells in the adjacent hills range between about 100 to 250 ft deep.

A recent study by the United States Geological Survey (USGS) investigated groundwater conditions in Alexander Valley (Metzger and others, 2006). Figures 4 and 5 provide the study's plots of groundwater levels and electrical conductivity[6] in southeastern Alexander Valley. The study concluded the following:

[6] An indirect indication of total dissolved mineral concentration.

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- Groundwater quality is influenced significantly by percolation from the river. The "similarity in ionic composition [between groundwater and the river] suggests that recharge to most wells, particularly wells that are less than 200 ft total depth and perforated in Quaternary alluvial deposits, may be a combination of infiltration from precipitation and seepage from the Russian River and its tributaries" (p. 50).
- A potential cause-and-effect relationship exists between irrigation practices and the quality of Alexander Valley groundwater. "Water samples collected from several wells over a number of years suggest a progressive change in water chemistry over time. Samples spanning more than 30 years from two wells in the Lytton and Jimtown area show a trend towards higher ionic concentrations and increasing concentrations of particular constituents such as sulfate. These water-quality changes may be attributed to natural processes…or to anthropogenic impacts, such as changes in land use or irrigation practices" (p. 50).

Thus, groundwater is already influenced by the Russian River and local agricultural practices, both of which would be significantly altered by NSCARP. As stated previously in part 1 of this letter, the draft EIR/EIS did not incorporate any of the findings of the recent USGS study. AH-42

**Estimated Soil-Water Balance for Native and Irrigated Conditions**

Tables 4 and 5 present estimated soil-water balances for native and irrigated conditions, respectively, in southeastern Alexander Valley. These results are summarized by the flow chart diagrams in Figure 6.

Under native conditions, mean annual rainfall of approximately 42 inches per year (in/yr) contributes to 22 in/yr of evapotranspiration and 20 in/yr of total unit streamflow (Table 4 and Figure 6a). This value of unit streamflow is consistent with the regional precipitation-streamflow relation presented in Figure 7. Total streamflow consists of both storm runoff (estimated to be 13 in/yr) and baseflow derived from groundwater recharge and discharge (estimated at 7 in/yr).

The average annual evapotranspiration of area vineyards is estimated to be 35 in/yr, requiring 14 in/yr irrigation (Table 5 and Figure 6b).[7] The groundwater pumped for irrigation derives from an estimated 7 in/yr of average annual recharge and 7 in/yr seasonal withdrawal of groundwater storage. This seasonal decline in groundwater storage is evident from the seasonal fluctuations in the groundwater levels shown in the hydrographs plotted in Figure 4. These seasonal declines in groundwater storage are replenished by percolation along the Russian River, as indicated by the seasonal downstream loss of Russian River flow between Cloverdale and Healdsburg (Figures 8 and 9).

Instead of pumping groundwater, NSCARP would use 14 in/yr of recycled water imported from outside Alexander Valley to irrigate area vineyards (Figure 6c). In this case groundwater levels would increase, resulting in increased groundwater discharge to the Russian River and little or no seasonal percolation of river water into the aquifer. AH-43

**Potential Water Quality Impacts**

Under current conditions, rainfall recharge (which has a TDS concentration of nearly 0 mg/L) and irrigation with groundwater results in groundwater TDS concentrations ranging from about 70 to 250

[7] Similar to the previous estimates of others, e.g., California Department of Water Resources, 1986

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mg/L. It is reasonable to anticipate that much greater concentrations of minerals will accumulate in groundwater as a result of irrigation using recycled water. AH-44

Although most of the recycled water used for irrigation would be lost to evapotranspiration, most of the minerals and other chemicals dissolved in the recycled water would remain in the soil and dissolve into percolating rainfall recharge during the wet season. Because the estimated rate of recharge (7 in/yr) is only half the rate of recycled water irrigation, the resulting concentration of minerals and chemicals in the recharge water would be at least twice that of the recycled water. AH-45

Existing groundwater has an average TDS concentration of about 150 milligrams per liter (mg/L) (Table 1; Figure 17), whereas the recycled water TDS averages about 450 mg/L (Table 2). Dissolving the recycled-water mineral load into groundwater recharge percolating to the water table would result in a TDS concentration of more than 1,000 mg/L (i.e., [2 × 450 mg/L] + 150 mg/L). This would exceed both recommended and enforceable drinking water standards for TDS (500 and 1,000 mg/L, respectively; Table 2), and thus constitute significant groundwater quality degradation. AH-46

Similarly, existing groundwater has a nitrate (as nitrogen) concentration averaging less than 2 mg/L-N (Table 1), whereas recycled water has a nitrate concentration averaging more than 7 mg/L-N. Dissolving the recycled water nitrate load into groundwater recharge could result in a concentration of more than 15 mg/L-N, exceeding the nitrate drinking water MCL of 10 mg/L-N. Depending on the extent to which vineyard fertilizer use is modified, some of this nitrate could be taken up by plants.

Other elevated constituents of recycled water that could become concentrated in groundwater recharge in excess of water quality standards include boron (a concern for plants), copper, iron, lead, thallium, and zinc (Table 2). Additionally, various other regulated and unregulated (i.e., emerging) contaminants found in recycled water would pass into the groundwater supply at relatively high concentrations. The highly permeable gravels of the Alexander Valley alluvial aquifer have low adsorption and attenuation capacities that would not remove metals and/or other contaminants to the degree assumed by the draft EIR/EIS. AH-47

Groundwater recharge impacted by recycled water irrigation would gradually replace the existing groundwater storage. The increased recharge resulting from recycled water use would exceed the average rate of river percolation indicated by the plot in Figure 9. Thus, compared to current conditions, percolation of low-mineral river water into the aquifer would significantly diminish. Depending on the contribution of other sources of recharge (e.g., native recharge on watershed hillslopes), the recycled water could fully impact a shallow alluvial aquifer within as little as two decades (assuming a 50-ft thick aquifer with 20 percent porosity, and 7 in/yr of recharge impacted by recycled water). A lower degree of impact could be noticed much sooner. AH-48

Eventually, NSCARP's entire recycled water mineral load would constantly discharge into the Russian River flowing through Alexander Valley. Diluting this mineral load into dry-season river flows averaging about 200 cubic feet per second (cfs) would result in roughly a 50 mg/L increase in river TDS. During drought or other proposed river-management conditions when flows decline even further, the impact would be significantly greater. Furthermore, the City of Santa Rosa is considering a project to release recycled water directly into the Russian River in southern Alexander Valley. To the extent that some wells adjacent to the river would continue to draw some of their yield from the river, the groundwater recharge derived from the river would be of worse quality than at present. AH-49 AH-50

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Another source of mineral loading from recycled water would be leakage from the proposed NSCARP reservoirs. As shown in Figure 3, the proposed reservoir sites overlie a heavily faulted area. Bedrock fractures associated with this faulting could contribute to significant and difficult to control reservoir leakage. This leakage would create a plume of highly mineralized water that would further impact downgradient wells. AH-51

## Conclusions

This letter's review and analysis of potential NSCARP impacts strongly refutes the draft EIR/EIS conclusions that potential water quality impacts (i.e., HWQ-4 & -9 and PUB-7) are expected to be less than significant. The draft EIR/EIS fails to demonstrate a fundamental understanding of soil-water processes that concentrate chemical constituents in percolating water derived from irrigation. AH-52

Compared to the existing water resources of Alexander Valley, the recycled water provided for irrigation by NSCARP would contain significantly elevated concentrations of total minerals, nitrate, some metals, and other contaminants. As demonstrated by the analysis presented above, concentrations of these elevated water quality constituents would then approximately double in the groundwater recharge percolating down to the water table. Furthermore, increased rates of areal recharge as a result of irrigating with imported recycled water would reduce the periodic contribution of good quality recharge from the Russian River. Over time, the quality of local groundwater supplies would become significantly impacted, exceeding both recommended and enforceable water-quality standards, and significantly impacting existing beneficial uses of water. Significant increases in groundwater TDS and nitrate, resulting in concentrations greater than 1,000 and 10 mg/L, respectively, cannot be construed as "minor." Furthermore, presently unregulated, emerging contaminants could become problematic. The existing beneficial use of potable groundwater for residential water supplies – a use that is unacknowledged by the draft EIR/EIS – could become significantly limited in some areas. Based on the review and analysis presented in this letter, it is my opinion that potential water quality impacts to local groundwater supplies as a result of NSCARP would significantly violate non-degradation policies at both State and Federal levels. AH-53 AH-54 AH-55

Given the potential for significant water quality impacts, the limited monitoring program that the draft EIR/EIS proposes as a mitigation measure is inappropriate and inadequate. Potentially significant impacts cannot be mitigated by monitoring alone. AH-56

Lastly, the draft EIR/EIS fails to adequately consider potential cumulative impacts to water quality as a result of NSCARP and other recycled water projects proposed by the City of Santa Rosa. Recycled water has the potential to adversely impact the quality of local groundwater supplies in several ways, including a) deep percolation from irrigation, b) leakage from reservoirs, and c) both direct and indirect discharge into the river followed by percolation back into groundwater. AH-57

Thank you for the opportunity to provide these comments and this independent impact analysis regarding NSCARP and its draft EIR/EIS.

Sincerely,

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| Constituent | Units | Sample Date | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan-70 | Mar-81 | Sep-82 | Dec-94 | Oct-97 | Dec-99 Oct-01 | Nov-04 | Aug-05 Oct-06 Nov-06 | Avg* | Min | Max |
| Aluminum | ug/l | | | | 76 | <50 | | <50 | | 42 | <50 | 76 |
| Antimony | ug/l | | | | <6 | <6 | | <6 | | 3 | <6 | |
| Arsenic | ug/l | | <5 | | <2 | <2 | | <2 | | 1.4 | <2 | |
| Asbestos | MFL | | | | <0.2 | <0.2 | | <0.2 | | 0.1 | <0.2 | |
| Barium | ug/l | | 110 | | 205 | 180 | | <100 | | 136 | <100 | 205 |
| Beryllium | ug/l | | | | <1 | <1 | | <1 | | 0.5 | <1 | |
| Bicarbonate (HCO3) | mg/l | 60 | | 150 | 161 | | | | | 124 | 60 | 161 |
| Cadmium | ug/l | | <1 | | <1 | <1 | | <1 | | 0.5 | <1 | |
| Calcium | mg/l | 18 | | 27 | 26 | | | 18 | | 22 | 18 | 27 |
| Carbonate Alkalinity | mg/l | | | | <1 | | | <1 | | 0.5 | <1 | |
| Chloride | mg/l | 9.2 | | 3.1 | 8.1 | | | 5.5 | | 6.5 | 3.1 | 9.2 |
| Chromium | ug/l | | <5 | | <10 | <10 | 1.3 | | | 3.5 | 1.3 | |
| Color | units | | | 5 | <3 | | | 3 | | 3.2 | <3 | 5 |
| Copper | ug/l | | | <50 | <50 | <50 | | <50 | | | <50 | |
| Fluoride (F) | mg/l | <0.02 | | | 0.1 | 0.1 | | 0.32 | | 0.1 | <0.02 | 0.32 |
| Foaming Agents (MBAS) | mg/l | | | | <.02 | | | <.05 | | 0.02 | <.02 | |
| Hydroxide Alkalinity | mg/l | | | | <1 | | | <1 | | 0.5 | <1 | |
| Iron | mg/l | 0.33 | | <0.1 | <0.1 | | | <0.1 | | 0.1 | <0.1 | 0.33 |
| Lead | ug/l | | <10 | | <5 | <5 | | | | | <5 | |
| Magnesium | mg/l | 6.3 | | 11 | 18 | | | 18 | | 13 | 6.3 | 18 |
| Manganese | mg/l | <0.05 | | <0.05 | <0.03 | | | <0.02 | | | <0.02 | |
| Mercury | mg/l | | <1 | | <0.2 | <1 | | <1 | | | <0.2 | |
| Nickel | ug/l | | | | <10 | <10 | | <10 | | | <10 | |
| Nitrate (as N) | mg/l | 0.25 | 1.2 | | 2.7 | 1.5 | | | 1.6 | 1.4 | 1.1 | 2.7 |
| Nitrite (as N) | mg/l | | | | <0.4 | <0.4 | | <0.4 | | 0.2 | <0.4 | |
| Odor Threshold @ 60 C | units | | | 1.0 | <1 | | | <1 | | 0.7 | <1 | 1.0 |
| pH | units | 9.1 | | 7.5 | 7.0 | | | 7.4 | | 7.8 | 7.0 | 9.1 |
| Potassium | mg/l | | | | 0.9 | | | | | 0.9 | | |
| Radioactivity-gross alpha | pC/l | | | | 1.0 | | 0.73 | | 0.61 | 0.8 | 0.61 | 1.0 |
| Radium 228 | pC/l | | | | | | | | 0.1 | 0.1 | | |
| Selenium | ug/l | | <5 | | <2 | <5 | | <5 | | | <2 | |
| Silver | ug/l | | <1 | | <10 | | | <10 | | | <1 | |
| Sodium | mg/l | | | 7.0 | 10.6 | 9.9 | | 10 | | 9.4 | 7.0 | 10.6 |
| Specific Conductance | µS/cm | 220 | | 280 | 310 | | | 280 | | 273 | 220 | 310 |
| Sulfate | mg/l | 13 | | 13 | 17 | | | 15 | | 15 | 13 | 17 |
| Thallium | ug/l | | | | <1 | <1 | | <1 | | | <1 | |
| Total Alkalinity | mg/l | 66 | | 120 | 132 | | | 120 | | 109 | 66 | 132 |
| Total Dissolved Solids | mg/l | 120 | | 76 | 187 | | | 150 | | 133 | 76 | 187 |
| Hardness (as CaCO3) | mg/l | 70 | | 110 | 140 | 160 | | 120 | | 120 | 70 | 160 |
| Turbidity | JTU/NTU | <5 | | 0.13 | 0.28 | | 0.37 | 0.12 | | 0.2 | 0.12 | 0.37 |
| Zinc | ug/l | | | 70 | 69 | | | <50 | | 55 | <50 | 70 |

*Averages computed by substituting one-half the detection limit for non-detected values.

**Table 1**
**Alexander Valley Acres Mutual Water Company Water Quality Test Results**

| Constituent | Units | Alexander Valley Acres Mutual Water Co. 1970-2006[a] | | | 1951-1966 Russian River at Healdsburg[b] | | | Santa Rosa City Water 2005 Report[c] | | | Recycled Water: Santa Rosa 2002[d] | | | Recycled Water: ALW SZ 2005 sample[d] | Recycled Water: Windsor 2005 sample[d] | California Title 22 Drinking Water Standard | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Avg | Min | Max | Avg | Min | Max | Avg | Min | Max | Mean | Med | Max | | | Primary | Secondary[f] |
| 1,4 Dichlorobenzene | µg/L | ND | | | | | | ND | | | 0.34 | ND | 0.6 | | | 5 | |
| Aluminum | µg/L | 42 | <50 | 76 | | | | ND | | | 32 | 20 | 150 | | | 1,000 | 50 - 200 |
| Amonia | mg/L-N | | | | | | | ND | | | 0.6/2.6 | - | 12 | | | - | |
| Antimony | µg/L | 3 | <6 | | | | | ND | | | | | | | | 6 | |
| Arsenic | µg/L | 1.4 | <2 | | | | | ND | | | 1.8 | ND | 3 | | | 50 | |
| Barium | µg/L | 136 | <100 | 205 | | | | ND | | | 0.02 | | 0.11 | | | 1,000 | |
| Beryllium | µg/L | 0.5 | <1 | | | | | ND | | | | | | | | 4 | |
| Boron | µg/L | | | | 613 | 0 | 4,300 | 235 | 0 | 300 | 470 | | 600 | | | 1,000[f] | |
| Cadium | µg/L | 0.5 | <1 | | | | | ND | | | 0.2 | ND | | | | 5 | |
| Calcium | mg/L | 22 | 18 | 27 | | | | - | | | | | | | | - | |
| Chloride | mg/L | 6.5 | 3.1 | 9.2 | | | | 8.6 | 5.1 | 24 | | | | 123 | 90 | - | 250<br>500<br>600 |
| Chlorine | mg/L | | | | | | | 0.51 | 0.01 | 0.99 | 0.11 | | | | | 4 | |
| Chromium | µg/L | 3.5 | <5 | 5 | | | | ND | | | 0.92 | ND | | | | 50 | |
| Color | units | 3.2 | <3 | 5 | | | | 0.27 | 0 | 3 | | | | | | - | 15 |
| Copper | mg/L | | <50 | | | | | 1.9 | 0 | 9.8 | **8.6** | **9.5** | **14** | | | 1[f] | 1 |
| Cyanide | µg/L | | | | | | | ND | | | 4.4 | 3 | 16 | | | 150 | |
| Endosulfan II | µg/L | | | | | | | ND | | | 0.03 | ND | 0.08 | | | - | |
| Fluoride | mg/L | 0.13 | <0.02 | 0.32 | | | | 0.13 | 0 | 0.19 | 0.2 | | 0.2 | | | 2 | 2 |
| Gamma-BHC | µg/L | | | | | | | ND | | | 0.02 | ND | 0.02 | | | - | |
| Halocetic acids | µg/L | | | | | | | 3.1 | 1.6 | 4.1 | | | | | | 60 | |
| Hardness | mg/L | 120 | 70 | 160 | | | | 98 | 41 | 143 | | | | 138 | 140 | - | |
| Iron | mg/L | 0.12 | <0.1 | 0.33 | 0.01 | 0 | 0.03 | <0.1 | | | | | | 0.1 | <0.1 | - | 0.3 |
| Lead | µg/L | | <5 | | | | | ND | | | 1.9 | ND | 5.8 | | | 15[g] | |
| Lindane | µg/L | | | | | | | ND | | | 0.02 | | 0.02 | | | 0.2 | |
| Magnesium | mg/L | 13 | 6.3 | 18 | | | | - | | | | | | | | - | |
| Manganese | mg/L | | <0.02 | | | | | 0.01 | 0 | 0.075 | | | | | | - | 0.05 |
| Mercury | µg/L | | <0.2 | | | | | ND | | | 0.09 | ND | | | | 2 | |
| Nickel | µg/L | | <10 | | | | | ND | | | 2.4 | ND | 7.3 | | | 100 | |
| Nitrate | mg/L-N | 1.4 | 1.1 | 2.7 | 0.17 | 0.00 | 0.54 | ND | | | **7.3** | | **16** | **7.5** | **6.8** | 10 | |
| Nitrite | mg/L-N | 0.2 | <0.4 | | | | | ND | | | 0.18 | | **2.3** | | | 1 | |
| Odor- threshold | units | 0.67 | <1 | 1 | | | | <1 | | | | | | | | - | 3 |
| pH | units | 7.8 | 7.0 | 9.1 | | | | 7.9 | 6.9 | 8.7 | 7.4 | | 6.0/8.2 | 7.8 | 7.7 | - | 6.5-8.5 |
| Potassium | mg/L | 0.9 | | | | | | - | | | | | | | | - | |
| Rad.-gross alpha | pCi/L | 0.78 | 0.61 | 1.0 | | | | 0.17 | 0 | 3.5 | 0.98 | 0.15 | 2.9 | | | 15 | |
| Rad.-gross beta | pCi/L | | | | | | | ND | | | 10.4 | 10.4 | 10.9 | | | 50 | |
| Radium 228 | pCi/L | 0.1 | | | | | | - | | | | | | | | 5 | |
| Selenium | µg/L | | <2 | | | | | | | | | | | | | 50 | |
| Silver | µg/L | | <1 | | | | | ND | | | 0.25 | ND | | | | - | 100 |
| Sodium | mg/L | 9.4 | 7.0 | 10.6 | | | | 15.2 | 7.7 | 40 | | | | 67 | 100 | - | |
| Specific conductance | µS/cm | 273 | 220 | 310 | 244 | 90 | 344 | 257 | 240 | 300 | **707** | | **942** | | | - | 900<br>1,600<br>2,200 |
| Sulfate | mg/L | 15 | 13 | 17 | 11 | 3 | 15 | 10.5 | 2.6 | 16 | | | | 34 | 65 | - | 250<br>500<br>600 |
| Thallium | µg/L | | <1 | | | | | ND | | | 1.1 | ND | | | | - | 2 |
| Total coliform | MPN/100 ml | 0 | | | | | | 0.8% positive | | | | <2 | 240 | <2 | <2 | 5% positive | |
| Total dissolved solids | mg/L | 133 | 76 | 187 | 149 | 99 | 179 | 149 | 120 | 200 | **432** | | **528** | **442** | **420** | - | 500<br>1,000<br>1,500 |
| Total radon | pCi/L | | | | | | | 165 | 118 | 340 | | | | | | - | |
| Trihalomethanes | µg/L | | | | | | | 21 | 17 | 24 | | | | | | 80 | |
| Turbidity | NTU | 0.23 | 0.12 | 0.37 | | | | 0.17 | 0 | 0.42 | 0.51 | | 2.6 | | | - | 5 |
| Vanadium | µg/L | | | | | | | 0.28 | 0 | 4 | | | | | | 50[d] | |
| Zinc | µg/L | 55 | <50 | 70 | | | | ND | | | 27 | 29 | 35 | | | - | 5 |

Multiple values where more than one set of statistics reported.
[a]Source: see Table 1.
[b]Source: USGS (http://nwis.waterdata.usgs.gov/ca/nwis/qw)
[c]Source: Santa Rosa Utilities Update, Special Edition, April 2006
[d]Source: draft NSCARP EIR/EIS Tables 3.8-2, 3.12-1, and 3.12-2.
[e]Three values represent "Recommended," "Upper," and "Short Term."
[f]Notification level. Boron >2,000 µg/L toxic to most plants.
[g]90th percentile.

**Table 2**
**Water-Quality Comparison of Potable and Recycled Water Supplies**

| General Location* | Aquifer Type | Year Con-struct-ed | Well Type | Screened Interval (ft bgs) | | Initial Depth to Water (ft bgs) | Initial Satur-ated Thick-ness (ft) | Tested Yield (gpm) | Test Dura-tion (hrs) | Depth to Water at End of Test (ft bgs) | Draw-down (ft) | Specific Capa-city (gpm/ft) | Estimated Aquifer Trans-missiv-ity ($ft^2$/day) | Estimated Aquifer Hydraulic Conduc-tivity (ft/day) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valley floor between river and West Soda Rock Lane | Alluvium and Glen Ellen Formation (?) | 1991 | Irrigation | 20 | 100 | 16 | 84 | 900 | | | | | high | high |
| | | 1969 | Mutual** | 27 | 47 | 14 | 33 | 150 | 2 | 14 | small | high | high | high |
| | | 1994 | Mutual** | 60 | 90 | 20 | 70 | 25 | 4 | 80 | 60 | 0.4 | 84 | 1.2 |
| | | ? | Irrigation | | 80 | | | 500 | | | | | high | high |
| | | 1993 | Irrigation | 14 | 57 | 15 | 42 | 60 | 1 | 15 | small | high | high | high |
| | | 1978 | Residential | 35 | 55 | 30 | 25 | 40 | 1 | 40 | 10 | 4 | 802 | 32 |
| | | 1976 | Residential & Irrigation | 40 | 160 | 40 | 120 | 70 | | 42 | 2 | 35 | 7,019 | 58 |
| East of river | | 1972 | Irrigation | 20 | 54 | 17 | 37 | | | | | | | |
| Hillslope southwest of West Soda Rock Lane | Weathered & fractured bedrock | 1980 | Residential | 180 | 240 | 230 | 10 | 8 | | 240 | 10 | 0.8 | 160 | |
| | | 1988 | Residential | 33 | 113 | 28 | 85 | 200 | 4 | 105 | 77 | 2.6 | 521 | 6.1 |
| | | 1990 | Residential | 58 | 138 | 22 | 116 | 25 | 4 | 120 | 98 | 0.3 | 51 | 0.4 |
| | Weathered volcanic bedrock | 1977 | Residential & Irrigation | 167 | 187 | 160 | 27 | 20 | 4 | 185 | 25 | 0.8 | 160 | |
| | | 1976 | Residential | 34 | 82 | 12 | 70 | 40 | 1.5 | 45 | 33 | 1.2 | 243 | 3.5 |

* Within groups listed in order of increasing distance downstream along West Soda Rock Lane.
** Alexander Valley Acres Mutual Water Company
bgs below ground surface
gpm gallons per minute

**Table 3**
**Summary of Available Well Logs, Lower Alexander Valley**

Comment Set AH (Cont'd)

| Water Balance Parameter | | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (inches) | | | | | | | | | | | | |
| a. Healdsburg Precipitation | 8.9 | 7.4 | 5.5 | 2.6 | 1.1 | 0.3 | 0.0 | 0.1 | 0.4 | 2.2 | 5.3 | 8.2 | 42.0 |
| b. Reference Evapotranspiration (ETo) | 1.1 | 1.7 | 3.1 | 4.5 | 5.9 | 6.6 | 7.0 | 6.2 | 4.8 | 3.3 | 1.7 | 0.9 | 46.7 |
| c. Precipitation minus Potential ET | 7.8 | 5.7 | 2.4 | -1.9 | -4.8 | -6.3 | -6.9 | -6.1 | -4.4 | -1.0 | 3.7 | 7.2 | -4.7 |
| d. Change in Soil Moisture | 0.0 | 0.0 | 0.0 | -1.9 | -4.8 | -0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 3.3 | |
| e. Remaining Soil Moisture | 7.0 | 7.0 | 7.0 | 5.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 7.0 | |
| f. Actual ET | 1.1 | 1.7 | 3.1 | 4.5 | 5.9 | 0.6 | 0.0 | 0.1 | 0.4 | 2.2 | 1.7 | 0.9 | 22.2 |
| g. Precipitation Surplus (Runoff plus Recharge) | 7.8 | 5.7 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 19.8 |

Row Notes:

a. Healdsburg average precipitation, 1971-2000 (http://www.wrcc.dri.edu/summary/climsmnca.html).
b. Average of CIMIS zones 5 and 8 (www.dla.water.ca.gov/cimis)
c. Assumes native vegetation has a crop coefficient of 1.0, i.e., potential ET equals ETo.
d. Assumes available soil moisture depleted at rate needed to satisfy ET; precipitation in excess of ET replenishes soil moisture up to capac
e. Assumes soil with moderate to high available water capacity.
f. Equals ETo satisfied by precipitation and/or change in soil moisture.
g. Precipitation not needed for ET or replenishment of soil moisture.

**Table 4**

**Estimated Alexander Valley Monthly Soil Water Balance for Native, Non-Irrigated Conditions**

| | Water Balance Parameter | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a. | Healdsburg Mean Temperature (°F) | 48.3 | 52.2 | 54.9 | 59.2 | 64.8 | 69.9 | 72.2 | 71.2 | 68.6 | 62.6 | 53.7 | 48.0 | 60.5 |
| | Degrees over 50 °F | 0.0 | 2.2 | 4.9 | 9.2 | 14.8 | 19.9 | 22.2 | 21.2 | 18.6 | 12.6 | 3.7 | 0.0 | |
| b. | End-of-Month Cumulative Degree-Days (°F) | Vines Dormant | | | 202 | 661 | 1,228 | 1,946 | 2,604 | 3,162 | 3,552 | Vines Dormant | | |
| c. | Estimated Vineyard Crop Coefficient **Kc** | | | | 0.15 | 0.21 | 0.39 | 0.55 | 0.66 | 0.71 | 0.73 | | | 3.4 |
| | | (inches) | | | | | | | | | | | | |
| d. | Healdsburg Mean Precipitation | 8.9 | 7.4 | 5.5 | 2.6 | 1.1 | 0.3 | 0.0 | 0.1 | 0.4 | 2.2 | 5.3 | 8.2 | 42.0 |
| e. | CIMIS Zones 5 & 8 avg Reference Evapotranspiration (**ETo**) | 1.1 | 1.7 | 5.1 | 4.5 | 5.9 | 6.6 | 7.0 | 6.2 | 4.8 | 3.3 | 1.7 | 0.9 | 46.7 |
| f. | Assumed Vineyard Potential ET (**ETc** = ETo · Kc) | Vines Dormant | | | 0.7 | 1.3 | 2.6 | 3.9 | 4.1 | 3.4 | 2.4 | Vines Dormant | | 18.2 |
| g. | Direct Precip Available to Vines (assume 50%) | | | | 1.3 | 0.6 | 0.2 | 0.0 | 0.1 | 0.2 | 1.1 | | | 3.4 |
| h. | Direct Precipitation Used by Vines | | | | 0.7 | 0.6 | 0.2 | 0.0 | 0.1 | 0.2 | 1.1 | | | 2.8 |
| i. | Vineyard ETc Deficit | | | | 0.0 | -0.7 | -2.4 | -3.8 | -4.0 | -3.2 | -1.3 | | | -15.4 |
| j. | Direct Precipitation Not Used by Vines | 8.9 | 7.4 | 5.5 | 1.9 | 0.6 | 0.2 | 0.0 | 0.1 | 0.2 | 1.1 | 5.3 | 8.2 | 39.2 |
| k. | Dormant/Bare Soil Potential Evap. (assume 80% of ETo) | 0.9 | 1.3 | 2.5 | 3.6 | 4.7 | 5.3 | 5.6 | 5.0 | 3.8 | 2.6 | 1.3 | 0.7 | 37.3 |
| l. | Dormant/Bare Soil Evaporation Deficit | 0.0 | 0.0 | 0.0 | -1.7 | -4.2 | -5.1 | -5.6 | -4.9 | -3.7 | -1.5 | 0.0 | 0.0 | -26.6 |
| m. | Change in Soil Moisture | 0.0 | 0.0 | 0.0 | -1.7 | -4.9 | -0.4 | 0.0 | 0.0 | 0.3 | 0.0 | 4.0 | 3.0 | |
| n. | Remaining Soil Moisture | 7.0 | 7.0 | 7.0 | 5.3 | 0.4 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 4.0 | 7.0 | |
| o. | **Vineyard Required Applied Water** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 3.8 | 4.0 | 3.2 | 1.3 | 0.0 | 0.3 | **14.3** |
| p. | Fallow/Bare Soil Actual ET | 0.9 | 1.3 | 2.5 | 3.6 | 4.7 | 0.2 | 0.0 | 0.1 | 0.2 | 1.1 | 1.3 | 0.7 | 16.6 |
| q. | Total ET | 0.9 | 1.3 | 2.5 | 4.3 | 6.0 | 2.7 | 3.9 | 4.1 | 3.6 | 3.5 | 1.3 | 0.7 | 34.8 |
| r. | Precipitation Surplus (Runoff plus Recharge) | 8.0 | 6.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 21.5 |

Row Notes:

a. http://www.wrcc.dri.edu/summary/climsmnca.html.
b. Running sum of average daily temperature degrees (°F) above 50 °F.
c. For VSP trellis with 7-ft row spacings; adopted from Williams (2000), adjusted for estimated degree-days (Fig. 10). Assumes bud-break in early April and harvest in late September.
d. http://www.wrcc.dri.edu/summary/climsmnca.html.
e. California Irrigation Management Information System (CIMIS), average of Zones 5 and 8.
f. Assumes no deficit irrigation.
g. L. Williams/UC Kearney Agricultural Center, 2001, personal communication.
h. Portion of 50% direct precipitation needed to help satisfy vineyard ETc; lesser of rows (f) and (g).
i. Vineyard ETc not satisfied by direct precipitation; row (h) minus row (f).
j. Row (d) minus row (h).
k. Alternate assumption is 50% of ETo.
l. Dormant/bare soil potential evaporation not satisfied by direct precipitation; row (j) minus row (k).
m. Available soil moisture needed to satisfy vineyard ETc deficit; any remaining soil moisture satisfies dormant/bare soil potential evaporation deficit. Precipitation in excess of total ET replenishes soil moisture up to capacity.
n. Assumes soil with moderate to high available water capacity.
o. Vineyard ETc not satisfied by direct precipitation or soil moisture.
p. Portion of potential dormant/bare soil evaporation satisfied by available precipitation and soil moisture.
q. Vineyard ETc plus dormant/bare soil actual evaporation; row (f) plus row (p)
r. Precipitation not needed for ET or replenishment of soil moisture.

**Table 5**

**Estimated Alexander Valley Monthly Soil Water Balance for Irrigated Vineyards**

SoilWaterBudget3.xls Vines 5/17/2007 2:36 PM

**Comment Set AH (Cont'd)**

| | Stream | USGS Station No. | Gaged Drainage Area ($mi^2$) | Period of Record | No. of *Whole WYs | % of Avg. | Avg Streamflow (ac-ft/yr) Gaged | Avg Streamflow (ac-ft/yr) Adjusted | Avg. Unit Streamflow (in/yr) Gaged | Avg. Unit Streamflow (in/yr) Adjusted | Avg. Unit Streamflow (in/yr) Rantz (1968) | Average Watershed Precipitation (in/yr) Rantz (1968) | Average Watershed Precipitation (in/yr) Rantz Map | Average Watershed Precipitation (in/yr) NRCS Map | Plotted Values (in/yr) (Figure ) Precip-itation | Plotted Values (in/yr) (Figure ) Stream-flow | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Napa River near St. Helena | 11456000 | 81.4 | Oct-29 - Sep-32<br>Oct-39 - Sep-94<br>Oct-94 - Jan-96 | 58<br>partial | 100% | 67,255 | 68,373 | 15.49 | 15.75 | 14.5 | 41 | | | 43 | 15.75 | Some regulation by Kimball Res. (344 ac-ft) since 1939 and Bell Canyon Res. (2,530 ac-ft) since 1959; diversions to irrigate approx. 1,500 ac. |
| 2 | Conn Ck near St. Helena | 11456500 | 55.4 | Oct-30 - Sep-59<br>Oct-70 - Sep-75 | 35 | 84% | 24,571 (1930-45 only) | 29,267 | 8.52 | 9.98 | 8.4 | 37 | | | 31 | 9.91 | Regulated by Lake Hennessey (31,000 ac-ft) since Dec-1945; diversions by City Napa since 1948. |
| 3 | Dry Creek near Napa | 11457000 | 17.4 | Apr-51 - Sep-66 | 15 | 94% | 14,225 | 15,078 | 15.33 | 16.25 | 14.0 | 44 | | | 44 | 16.25 | No regulation; several small diversions for irrigation. |
| 4 | Sonoma Ck at Agua Caliente | 11458500 | 58.4 | Mar-55 - Sep-81 | 26 | 94% | 50,562 | 53,853 | 16.23 | 17.29 | 13.2 | 45 | | | 45 | 17.29 | No regulation; diversions for irrigation of approximately 2,000 ac. |
| 5 | Petaluma River at Petaluma | 11459000 | 30.9 | Oct-48 - Sep-63 | 15 | 96% | 12,318 | 12,805 | 7.47 | 7.77 | 7.0 | 31 | 26.41 | 29.53 | 28.70 | 7.62 | No regulation or diversion. |
| 6 | Novato Ck at Novato | 11459500 | 17.6 | Oct-46 - Sep-98 | 52 | 100% | 10,827 | 10,827 | 11.53 | 11.52 | 9.0 | 30 | 28.43 | 36.17 | 31.53 | 11.52 | Regulated by Stafford Lake since 1951 (4,500 ac-ft); diversions into Lake from Russian River and out of Lake for municipal supply. |
| 7 | Corte Madera Ck at Ross | 11460000 | 18.1 | Apr-51 - Sep-93 | 42 | 99% | 19,703 | 19,988 | 20.41 | 20.71 | 17.8 | 40 | 49.31 | 42.24 | 43.85 | 20.56 | Regulated slightly by Phoenix Lake (612 ac-ft); MMWD diversions. |
| 8 | Arroyo Corte Madera at Mill Valley | 11460100 | 4.69 | Oct-65 - Sep-73<br>Jun-75 Sep-86 | 19 | 121% | 5,790 | 4,795 | 23.15 | 19.17 | | | 37.73 | 39.27 | 39.27 | 19.17 | No regulation or diversions. |
| 9 | Morses Ck at Bolinas | 11460160 | 0.7 | Jun-67 - Sep-69 | 2 | 125% | 486 | 388 | 13.02 | 10.39 | | | 30.19 | 32.97 | 31.58 | 10.39 | No regulation; small diversions for irrigation of 30 ac and domestic use. |
| 10 | Pine Ck at Bolinas | 11460170 | 7.83 | Jun-67 - Sep-70 | 3 | 147% | 9,940 | 6,770 | 23.80 | 16.21 | | | 33.28 | 35.38 | 35.38 | 16.21 | No regulation; some diversions for domestic use. |
| 11 | San Geronimo Ck at WTP | | 3.3 | Oct-79 - Sep-82* | 3 | 141% | 5,875 | 4,154 | 33.38 | 23.60 | | | 51.55 | 44.38 | 47.97 | 23.60 | No regulation or diversions. |
| 12 | San Geronimo Ck at Lagunitas Road | | 8.7 | Oct-79 - Sep-99* | 19 | 122% | 12,883 | 10,573 | 27.77 | 22.79 | | | 52.54 | 42.45 | 47.49 | 22.79 | |
| 13 | Lagunitas Ck at SP Taylor State Pk | 11460400 | 34.3 | Oct-79 - Sep-82*<br>Jan-83 - Sep-98 | 18 | 103% | 33,771 | 32,637 | 18.46 | 17.84 | 19.4 | 48 | 48.97 | 42.04 | 46.34 | 18.46 | Regulated by Kent Lake (16,680 ac-ft), Alpine Lake (8,890 ac-ft), and smaller Bon Tempe and Lagunitas Lakes; MMWD diversions. |
| 14 | Devils Gulch at SFD Hwy | | 2.3 | Oct-79 - Sep-82* | 3 | 141% | 4,432 | 3,134 | 36.13 | 25.55 | | | 47.41 | 37.87 | 47.41 | 25.55 | No regulation or diversions. |
| 15 | Arroyo Nicasio near Pt Reyes Sta | 11460500 | 36.6 | Oct-53 - Sep-60 | 7 | 103% | 29,409 | 28,501 | 15.07 | 14.60 | 14.0 | 38 | 37.60 | 41.58 | 37.80 | 14.83 | Small diversions for irrigation. |
| 16 | Lagunitas Ck near Pt Reyes Sta | 11460600 | 81.7 | Oct-74 - Sep-98 | 24 | 100% | 68,467 | 64,655 | 15.71 | 14.84 | | | 42.84 | 40.90 | 42.84 | 15.71 | Regulated as at SPTSP plus Nicasio Res. (22,450 ac-ft). |
| 17 | Walker Ck near Marshall | 11460750 | 37.1 | Oct-83 - Sep-98 | 15 | 96% | 25,799 | 26,907 | 13.04 | 13.60 | 15.7 | 40 | 38.07 | 41.34 | 39.80 | 13.60 | Regulation and diversions from Soulajule Reservoir (10,570 ac-ft) since 1979. |
| 18 | Walker Ck near Tomales | 11460800 | 40.1 | Jul-59 - Sep-84 | 25 | 113% | 38,051 | 33,821 | 17.79 | 15.81 | | | 38.21 | 41.04 | 39.62 | 15.81 | |
| 19 | Salmon Ck at Bodega | 11460920 | 15.7 | Aug-62 - Sep-75 | 13 | 101% | 17,899 | 17,765 | 21.38 | 21.22 | | | 40.33 | 44.03 | 44.03 | 21.22 | |
| 20 | Big Sulphur Ck near Cloverdale | 11463200 | 85.5 | Jul-57 - Sep-72<br>Aug-89 - Sep-99 | 15<br>low flow | 105% | 138,818 | 132,399 | 30.44 | 29.03 | 28.7 | 52 | | | 52 | 29.03 | Diversions for irrigation and geothermal recharge; no flows greater than 200 cfs computed since 1989. |
| 21 | Mancana Ck near Kellogg | 11463900 | 43.4 | Jan-61 - Sep-81 | 20 | 89% | 59,080 | 66,147 | 25.52 | 28.58 | 25.4 | 56 | | | 56 | 28.58 | No regulation or diverson upstream of station. |
| 22 | Franz Creek near Kellogg | 11463940 | 15.3 | Oct-63 - Sep-68 | 5 | 79% | 16,993 | 21,611 | 20.29 | 25.81 | 16.0 | 42 | | | 42 | 20.29 | |
| 23 | Dry Ck near Cloverdale | 11464500 | 87.8 | Oct-41 - Sep-80 | 39 | 101% | 116,628 | 115,334 | 24.98 | 24.63 | 23.5 | 50 | | | 50 | 24.77 | No regulation or diversion upstream of station. |
| 24 | Santa Rosa Creek near Santa Rosa | 11465800 | 12.5 | Aug-59 - Sep-70 | 11 | 88% | 13,867 | 15,733 | 20.80 | 23.60 | 19.4 | 48 | | | 48 | 23.60 | |

Notes: (*MMWD records)

USGS records unless otherwise noted (http://nwis.waterdata.usgs.gov/ca/nwis/sw).

Annual record for Napa River near St. Helena extended to 1930-1998 by correlation with Conn and Novato Creeks.

Novato Creek adjusted for reported diversions.

Conn Creek post-reservoir flows omitted from average.

Lagunitas (both stations) and Walker (Marshall) Creeks unadjusted for major diversions.

Napa, Dry, Nicasio, Morses, Corte Madera, and Big Sulphur unadjusted for minor diversions.

Percent of long-term average estimated from Novato Creek and Napa River records.

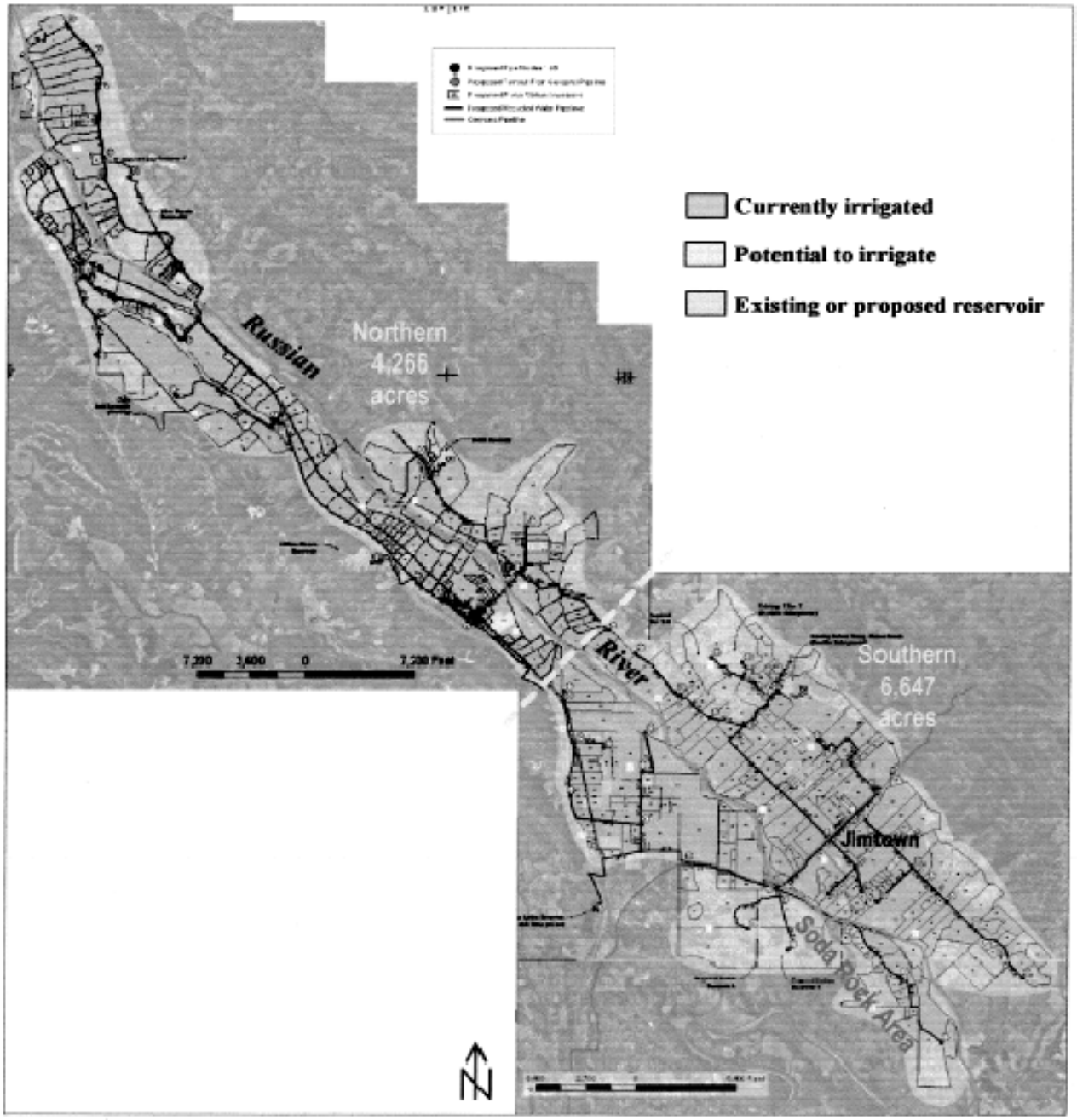
Precipitation values are (1) as reported by Rantz (1968, 1974), (2) measured off of Rantz (1968) map, and (3) measured off of NRCS map (Daly and Taylor, 1998).

This table is referenced by Figure 7.

**Table 6**

**Average Streamflow and Precipitation of Selected Gaged Watersheds in the North Bay Region**

Comment Set AH (Cont'd)




Adopted from March 2007 NSCARP draft EIR/EIS

**Figure 1**
**Land Proposed for NSCARP Irrigation, Alexander Valley**

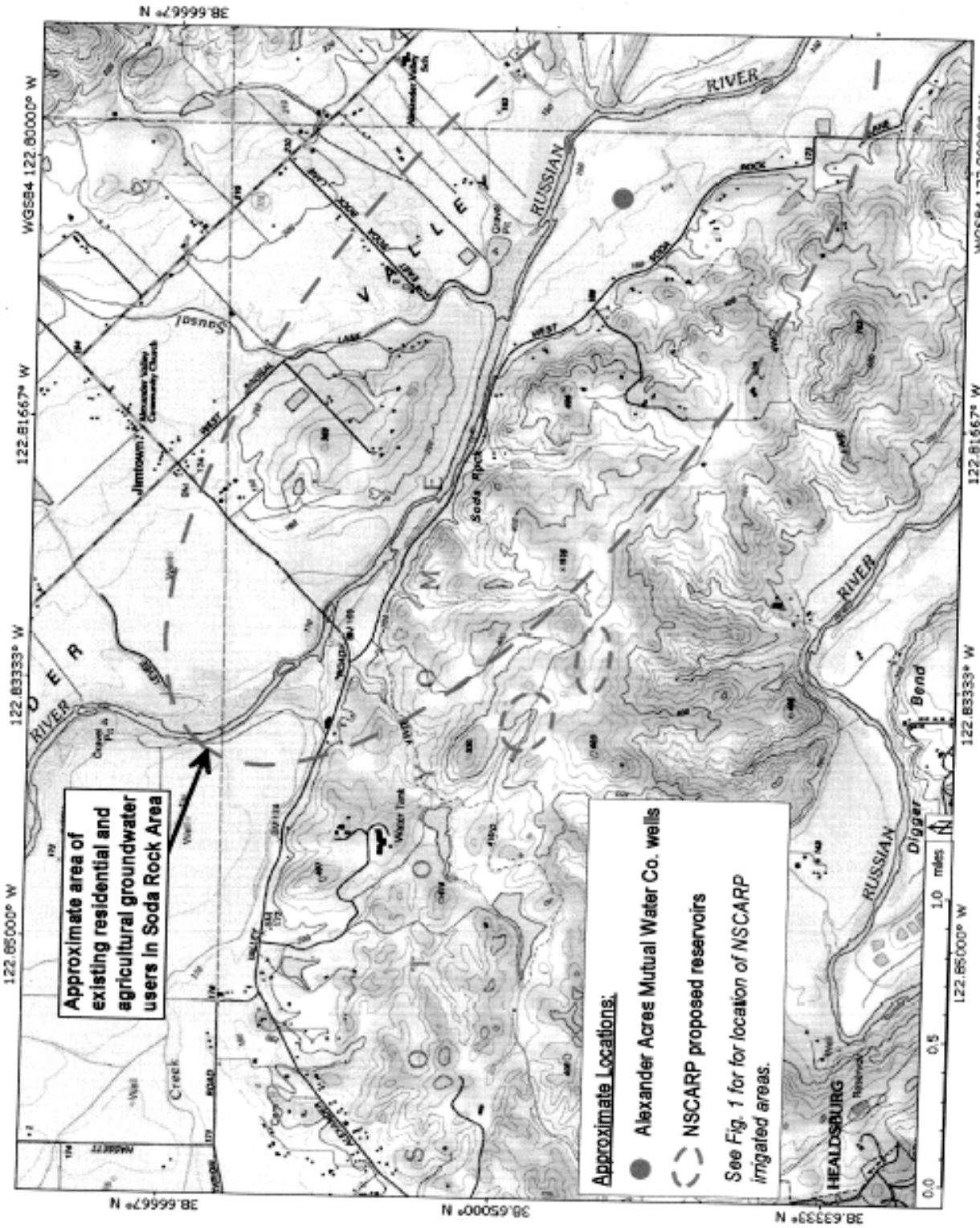
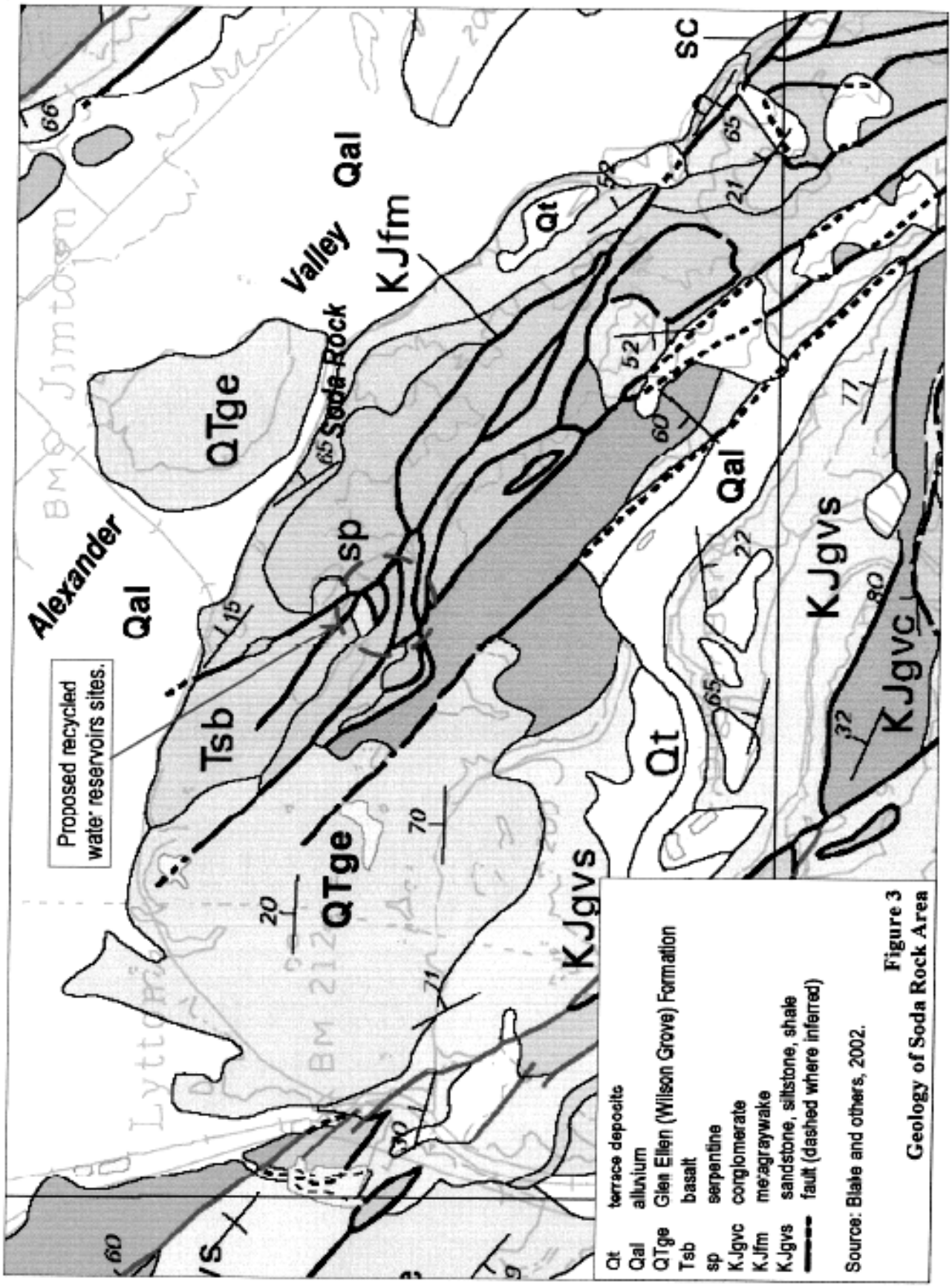
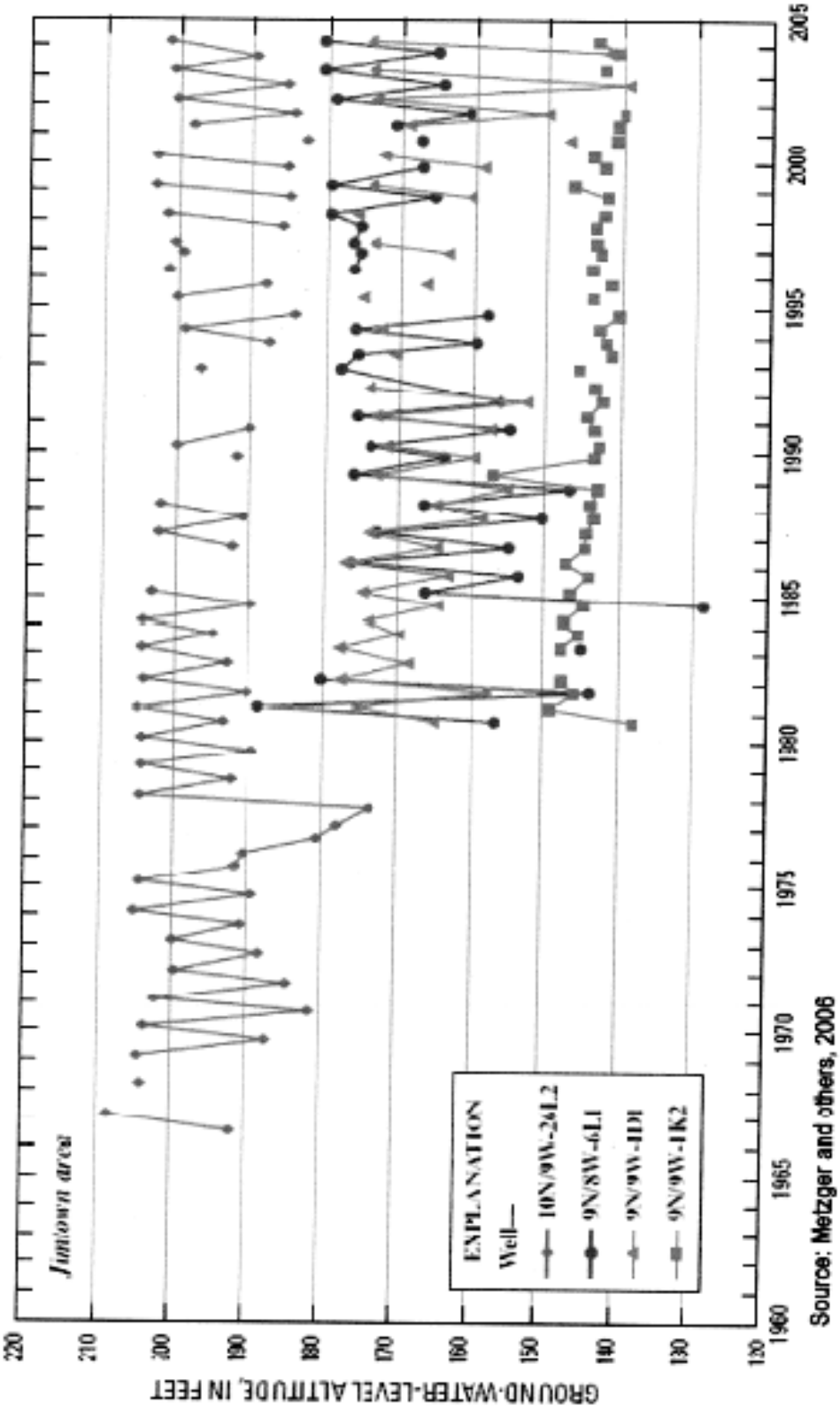



**Figure 2. Southeastern Alexander Valley and Soda Rock Area**



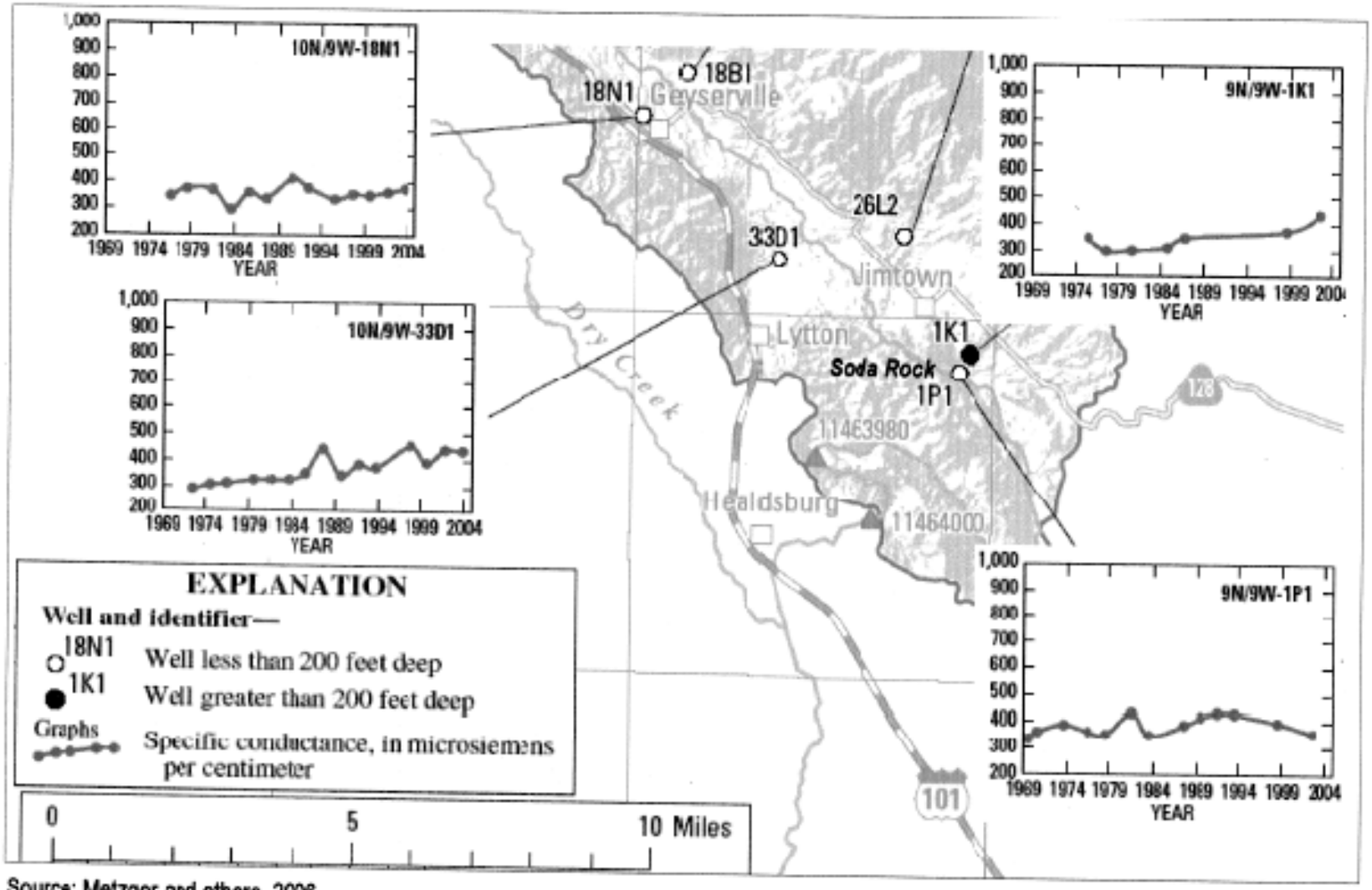

Source: Blake and others, 2002.

**Figure 3**
**Geology of Soda Rock Area**




Source: Metzger and others, 2006

**Figure 4**
**Groundwater Level Hydrographs for Selected Wells in the Jimtown Area**



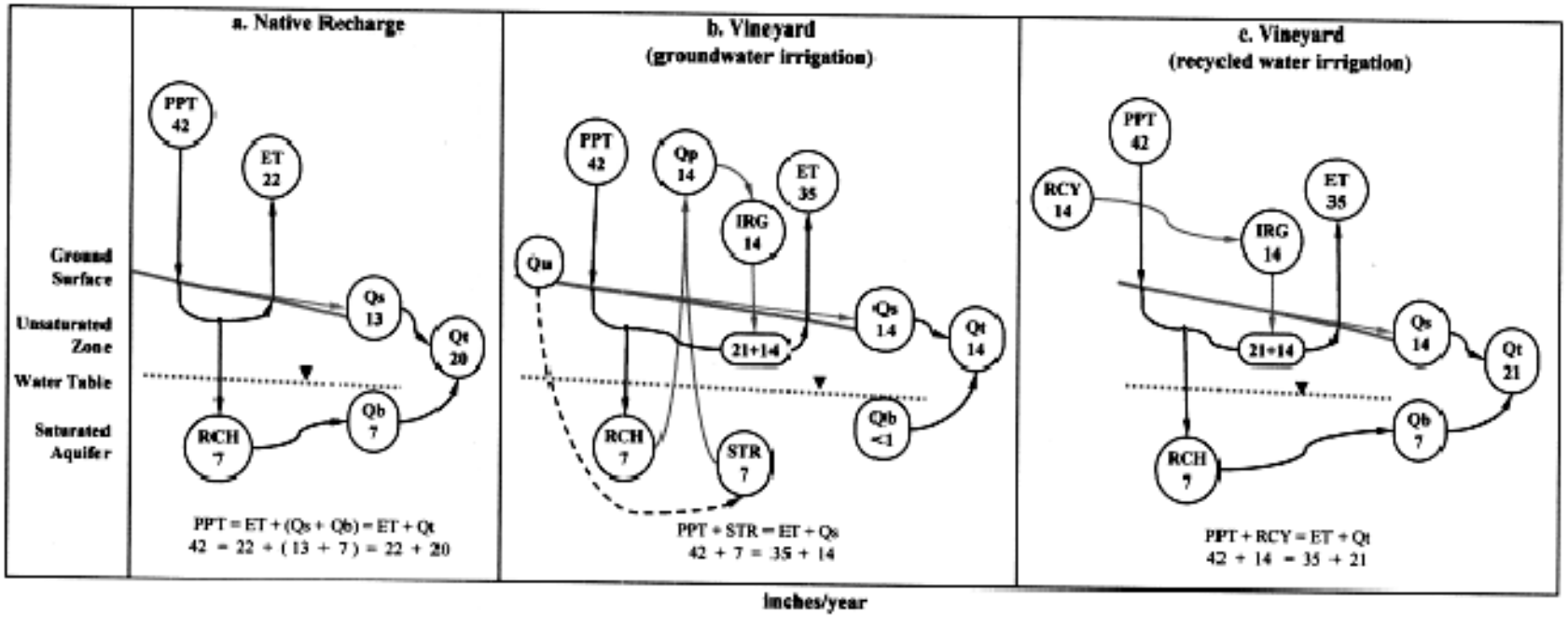

Source: Metzger and others, 2006

TDS may be estimated roughly as 0.6 x electrical conductivity.

**Figure 5**

**Electrical Conductance of Goundwater for Selected Wells in Alexander Valley**

Comment Set AH
(Cont'd)




| | | | | | |
|---|---|---|---|---|---|
| PPT | Precipitation | Qs | Storm Runoff | IRG | Irrigation |
| ET | Evapotranspiration | Qb | Stream Baseflow | STR | Withdrawl from Groundwater Storage |
| RCH | Groundwater Recharge | Qt | Total streamflow | RCY | Imported Recycled Water |
| | | Qp | Well Pumpage | | |
| | | Qu | Upstream percolation and/or other regional recharge that replenishes groundwater storage. | | |

Assumes no net loss from irrigation inefficiencies.
Assumed total streamflow split between storm runoff and baseflow.
See Tables 4 and 5 for water balance calculations.

**Figure 6**
**Estimated Average Annual Water Balance for Native and Irrigated Conditions**

NM Johnson

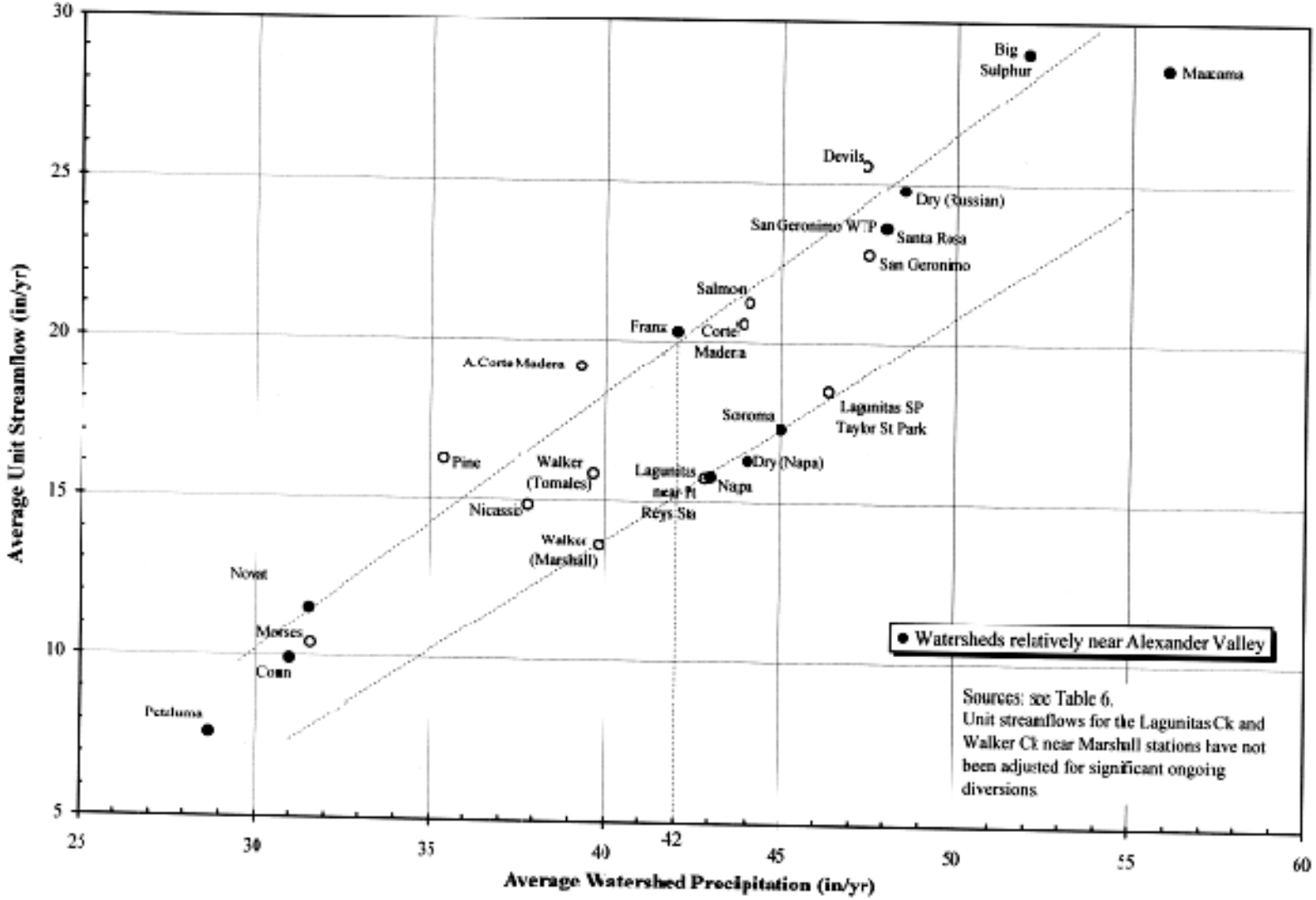



**Figure 7**
**Estimated Precipitation-Unit Streamflow Relation for North Bay Region**

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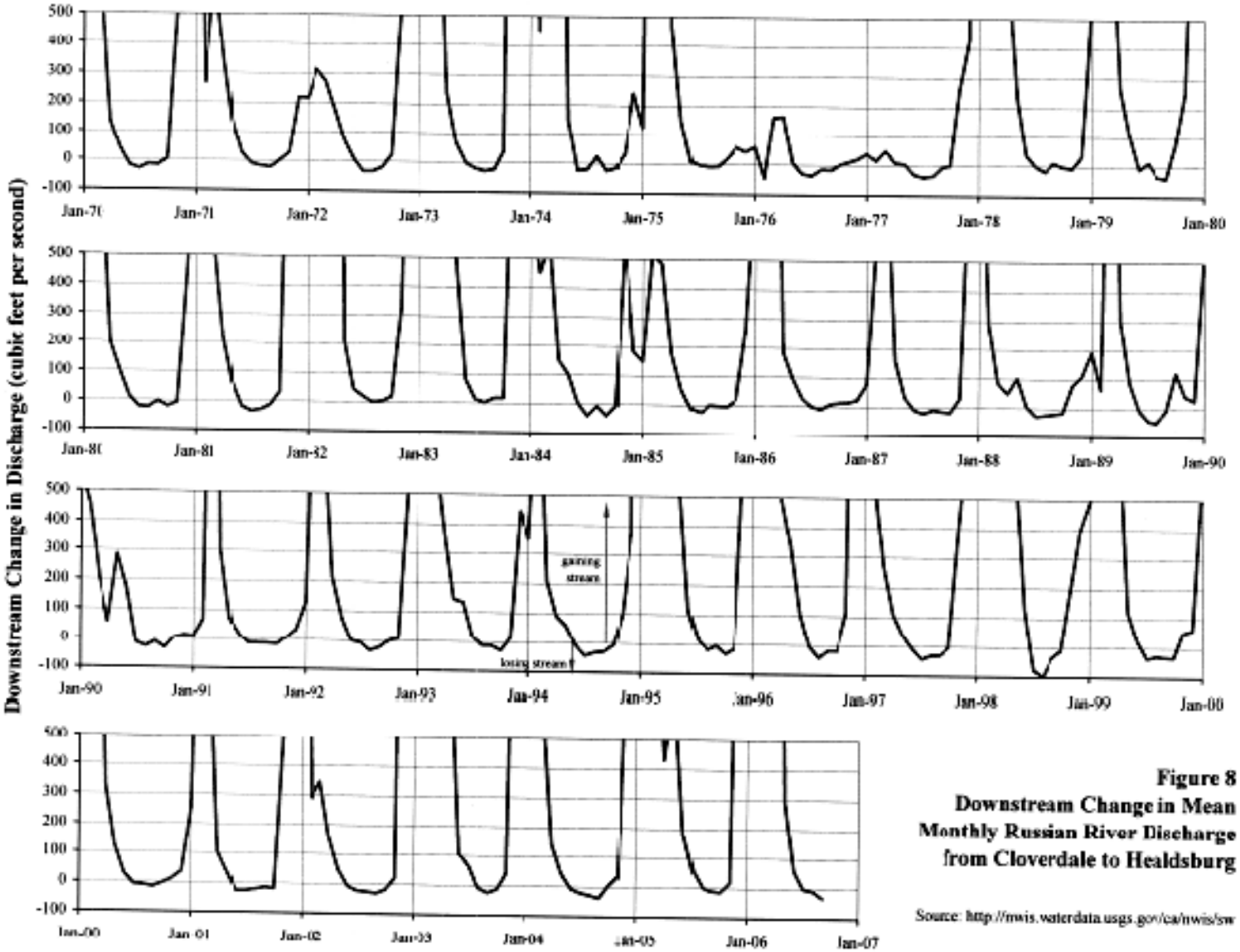
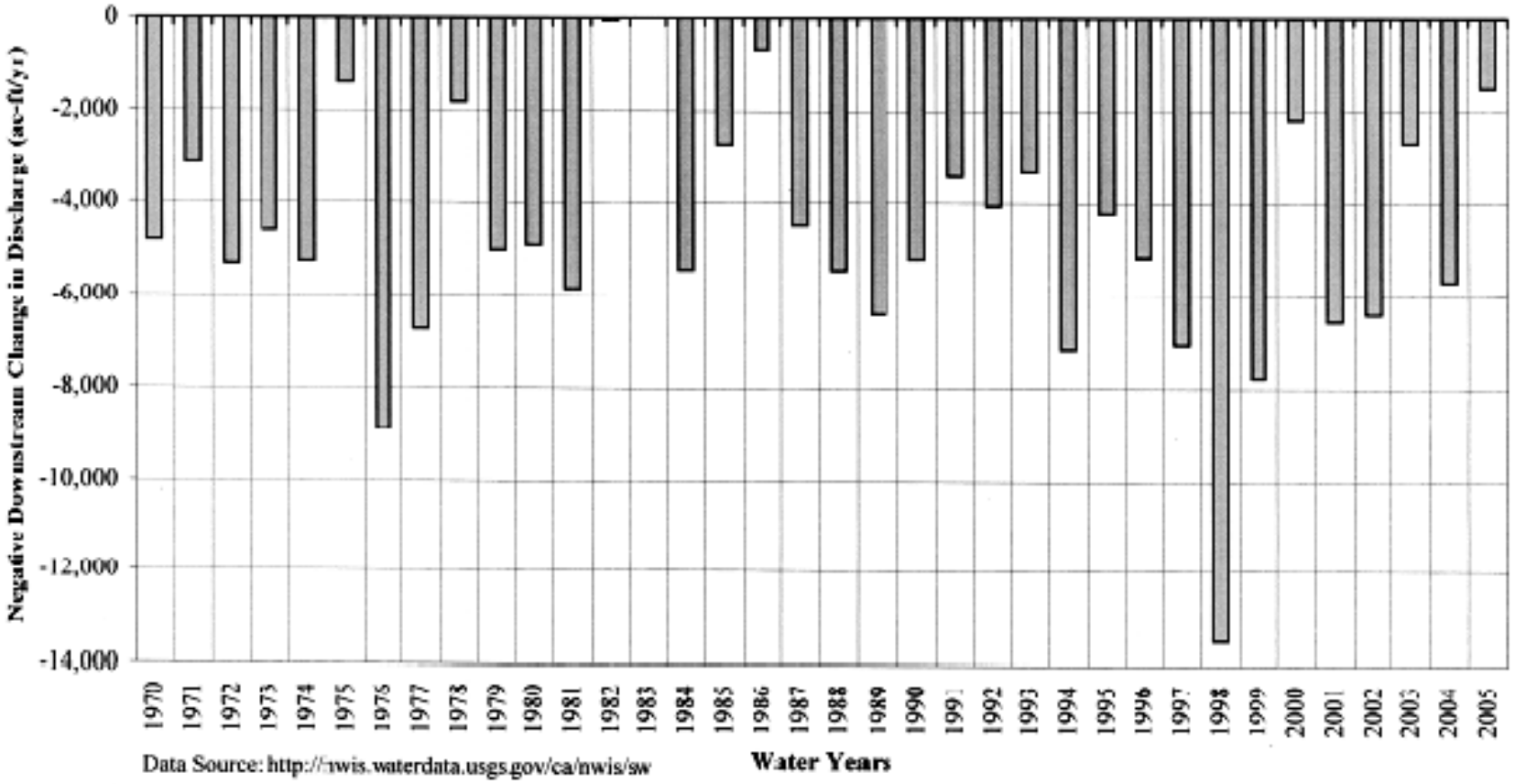



**Figure 8**
**Downstream Change in Mean Monthly Russian River Discharge from Cloverdale to Healdsburg**

Source: http://nwis.waterdata.usgs.gov/ca/nwis/sw

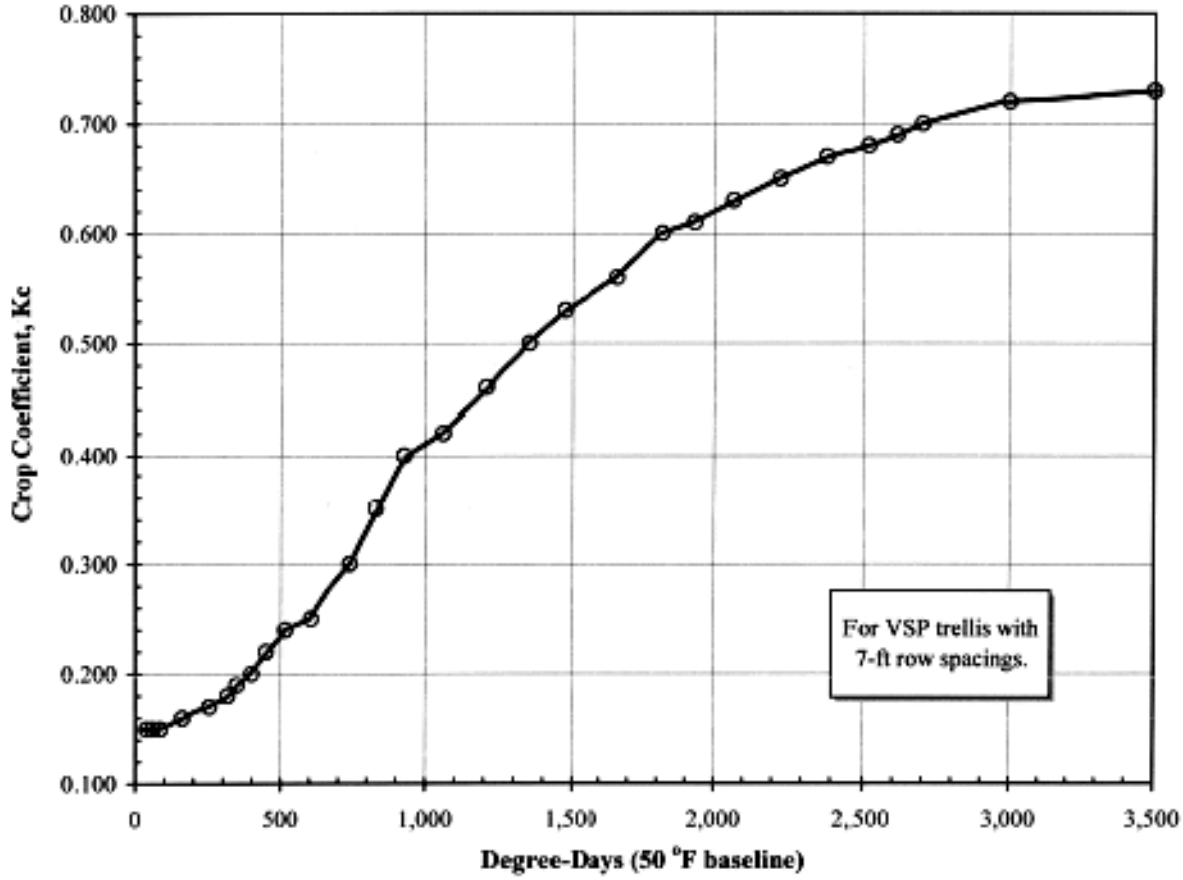


NM Johnson




Data Source: http://nwis.waterdata.usgs.gov/ca/nwis/sw

**Figure 9**
**Annual Sum of Negative Monthly Downstream Changes in Russian River Discharge from Cloverdale to Healdsburg**




Adopted from Williams, 2000.
This figure is referenced by

**Figure 10**
**Vineyard Crop Coefficients as a Function of Degree-Days**

**David Cuneo**

**From:** Paul & Barbara [paul@vintage36.net]
**Sent:** Thursday, May 17, 2007 10:22 PM
**To:** David Cuneo
**Subject:** North Sonomna Co. Reuse Project

Dear David,

I have a comment regarding the Reuse Project. I hope you receive this before the deadline. My wife and I are residents of Dry Creek Valley and we are opposed to the plan to use treated wastewater for agricultural purposes. My wife has just been diagnosed with breast cancer, so I have a vested interest in the outcome of this proposal. I wish I could blame recycled water or products that have been treated with the water, but I can't at this time. I can only point to other problems relative to the cumulative effect of chemicals. The Pew Oceans Commission has said that our oceans are in crises as a result of the cumulative effect of chemicals that have been dumped there for decades. We can only extrapolate that effect upon our oceans and apply it to our valleys and conclude that it would be irresponsible for us to assume that Santa Rosa's treated wastewater will not have an impact on the cultivated plant life in the valleys. AI-1

Water Biologist Richard Kagel, who has actually studied and examined the treated wastewater, said at Wednesday's meeting that a minimum of 60 to 150 heavy metals will have effects that cannot be ascertained at this time. We have to think of our grandchildren and generations of children to come before we take such a serious step as this proposal does. Money or expediency cannot be the determinant factors in deciding this project. Please pass this on to the Supervisors. AI-2

Sincerely,
Paul Micallef
6341 West Dry Creek Road
Healdsburg, CA 95448

I am using the free version of SPAMfighter for private users.
It has removed 203 spam emails to date.
Paying users do not have this message in their emails.
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DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
MAY 4 1 2007
Orig. Filed
PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT ) - EIR 70-0-7 #__ Padre Associates

May 11, 2007

Sonoma County Water Agency
PO Box 11628
Santa Rosa, CA 95402

**Re DEIR/DEIS for North Sonoma County Agriculture Reuse Project**

Following are comments by Public Employees for Environmental Responsibility (PEER) on the Draft Environmental Impact Report, Draft Environmental Impact Statement for the North Sonoma County Agriculture Reuse Project.

**General comments.** The DEIR/DEIS fails to meet CEQA and NEPA standards in a number of critical areas:

- It does not state a credible need for the project and provides conflicting estimates of the total project costs. In addition, the detailed cost estimates are based on very preliminary and incomplete information about the suitability of most reservoir sites, which are a major project component. AJ-1
- DEIR/DEIS Table ES-1, pages ES-23-24 improperly cites The Geoservices Group preliminary geologic examination of 5 reservoir sites at 2 locations under mitigations of slope stability problems. Preliminary studies that provide no substantive information on actual site conditions, but rather only recommendations for obtaining some relevant information in the future are not mitigations. These reports, being only preliminary and not representative of Alternative 2 reservoir proposals, cannot be used to identify either the Impact Category or CEQA Thresholds of Significance Criteria, as is done in Section 3.7.3, pages 37-36 to 38. AJ-2
- Discussions of project funding are completely lacking in specifics about the costs that public funds will have to bear. Volume II of the Engineering Feasibility Study, which contains basic data on cost estimates and project limitations is not linked to the DEIR/DEIS and no indication of its contents or how the public might access it is provided. AJ-3
- The amount of treated waste water that might be available for the project also is not clearly defined. Tables and text throughout the DEIR/DEIS contain highly disparate numbers of the water amounts to be provided, nor does the document contain or refer to agreements which guarantee that sufficient waste water to run the project actually will be available. AJ-4
- The DEIR/DEIS contains no assessment of the level of energy required to run the project, nor of the energy costs AJ-5
- There is no assessment of the environmental consequences of the level of energy use, and particularly of greenhouse gas contributions. AJ-6

The DEIR/DEIS, for the above-stated deficiencies and others enumerated below, is incomplete and not ready for public review. PEER therefore requests that it be completed and re-released for public review for 90 days, providing public access to all relevant documents. AJ-7

The following pages describe the problems listed above in more detail.

**1. Need for project**. p. ES-1, 1-3, 1-4. Need for the NSCARP stated on the three pages cited is two-fold: (a) to improve fish habitat in the Russian River system; and (b) to provide infrastructure for reuse of tertiary-treated waste water. Since the NSCARP would replace some current river diversions and groundwater use with waste water, it, by implication, will help improve fish habitat. The supposedly supporting statement in the DEIR/DEIS that "There is a need to allow water to remain in the Russian River system and its tributaries to improve habitat for listed fish species" (emphasis added) is not linked to any explanation of how NSCARP will improve fish habitat since current regulations leave water in the river. AJ-8

To qualify as a real need for the project, the DEIR must specify how much of the river water and groundwater water saved by the project will actually be used to improve fish habitat and not for some alternative use. The DEIR/DEIS states that reduced agricultural diversions from NSCARP "would provide SCWA with more operational flexibility to benefit fisheries sources in the Russian River." (emphasis added) It then claims (p. ES-2-3, 5-10) that "The increased operational flexibility would not result in additional water being available for other uses because existing storage capacity, water rights, and flow requirements would not change." (emphasis added). There is no statement that explains how the water saved by NSCARP may relate to the water storage, water rights, and flow requirements. The "increased operational flexibility" simply allows SCWA to allocate the saved water in any way it chooses. AJ-9 AJ-10

The second need, to provide infrastructure for distributing waste water for the particular use envisioned by NSCARP, is not justified in the DEIR/DEIS as preferable to other alternatives for disposal or reuse of waste water. The DEIR/DEIS does not explore the possibility that waste water contaminants in "recycled" irrigation water will further degrade Russian River quality, defeating the first need cited. AJ-11

The DEIR/DEIS has not, therefore, established a legitimate need for NSCARP nor a credible statement of how potable water savings from NSCARP actually would be used. AJ-12

**2. Incomplete and Contradictory Project Cost Information**. p. 1-2-3; Engineering Feasibility Study, Appendices A-D.—The total project cost of alternative 2 is estimated at $375.2 million, "as shown in Table 1-1." But Table 1-1 shows a total of $385.1 million. The estimated capitalized cost of $27.2 million is given as $28 million in Table 1-1. Cost estimates are based on very preliminary reservoir site examination, and do not include required surface and subsurface detailed geologic studies, imported materials for dam construction, or the potential costs of studies of additional sites in the event that some proposed sites prove unsuitable (see Comment 4). AJ-13 AJ-14

**3. Project Funding**. p. 2-66-67. The DEIR/DEIS provides only a general discussion of possible sources of funding, with no specific information on the public burden for this project. AJ-15

**4. Reservoir Site Suitability**. p. 2-18-19, Volume II, Engineering Feasibility Study, Appendices A-D.—The DEIR/DEIS does not explain the basis for Table 2-5's identification of 19 reservoir sites as suitable. It also does not incorporate by reference the document which does provide some limited information on site characteristics (Appendices A-D, Engineering Feasibility Study, v. II); no link to Volume II the Feasibility Study is provided on the SCWA website. AJ-16

According to the Engineering Feasibility Study and a report (actually 2 reports, see item **5**) by The Geoservices Group, only 5 of the 19 reservoir sites have been evaluated by an engineering geologist (see Comment 5). Reports on these 5 sites are ALL preliminary, and recommend further studies, both surface and subsurface, to assess suitability and feasibility. The five sites represent only two locations and cannot be considered representative. Recommendations for site-specific engineering geologic investigations, surface and subsurface, are made for the remaining 14 sites without the benefit of on-site investigation, even preliminary investigation. AJ-17

The costs of conducting thorough reservoir suitability studies, or of finding and evaluating replacement sites are not mentioned in the DEIR/DEIS. Furthermore, Appendices A-D (Engineering Feasibility Study, v. II) list limitations "that could have a major effect on continued consideration" of suitability for almost all of the 19 sites. The types of limitations listed include: AJ-18

- Active faults in the immediate vicinity of proposed reservoir sites Jordan A, Jordan C, Bucher, Passalacqua #3, Kuimelis #1, Bilbro-Biocca, Todd, and Klein Foods;
- Landslides in abutment and reservoir footprints for proposed reservoirs Jordan A, Jordan C, Bucher, Russell-Bucher, and Becnel #2;
- The need to import materials for dam construction at the Kuimelis #2, Todd, Bucher, and Becnel #2 sites;
- A pumping requirement for filling of or releases from reservoirs Jordan A and C, Lytton, Passalacqua #3, Kuimelis #1, Kuimelis #2, Bilbro-Biocca, Todd, Klein Foods, Gallo Asti, Russell-Bucher, and Gallo Twin Valley;
- The need to construct major diversions for preventing natural inflow into the Gallo Asti reservoir; and one other reservoir.
- Construction of Kuimelis #1 and Kuimelis #2 in sensitive wildlife habitat.

AJ-19

The Geoservices Group's reports, being preliminary, incomplete, nonrepresentative of the 19 proposed reservoirs, and only recommending future studies to assess reservoir site suitability cannot be cited as mitigations (Table ES-1), and provide no valid basis for assigning Impact Category or CEQA Thresholds of Significance Criteria (p. 37-36 through 38). AJ-20

**5.** Confusing and misleading referencing in the DEIR/DEIS prevent the public from accessing critical feasibility studies, or even understanding what they consist of. For example, in section 3.7-18, under the heading "**Localized Feasibility Study – Reservoir Seismicity**," the DEIR/DEIS cites geologic studies by The Geoservices Group (The Geoservices Group, 2002, Geologic Feasibility Studies, Russell/Bucher, Jordan A and C, and Becnel Sites, Northern Sonoma County Agricultural Reuse Project, Sonoma County, California) on 5 reservoir sites briefly described in Volume I of the March 2006 "Engineering Feasibility Study," available on the SCWA DEIR/DEIS website. The DEIR/DEIS incorrectly references the Geoservices Group AJ-21

Report, which actually is two documents (The Geoservices Group, Geologic Feasibility Studies, Northern Sonoma County Agricultural Reuse Project, Sonoma County, California (2001), 5 p. and The Geoservices Group, Geologic Feasibility Studies, Russell/Bucher and Bechel Sites, Northern Sonoma County Agricultural Reuse Project, Sonoma County, California (2002), 4 p.). The Geoservices Group documents are referenced (at 16 places) in the DEIR/DEIS but not in the 2006 "Engineering Feasibility Study." The documents were not publicly available until May 10, 7 weeks into the 8 week review period, after PEER requested access; PEER was informed at first that SCWA's copies could not be found, and they ultimately were provided only by going to the consultant's for copies. AJ-21 (Cont'd) AJ-22

Only Volume I of the "Engineering Feasibility Study" can be downloaded from the SCWA's DEIR/DEIS website. It is not apparently cited in the DEIR/DEIS. The DEIR/DEIS reference list includes "Wagner&Bonsignore, 2006. Sonoma County Water Agency. North Sonoma County Agricultural Reuse Project Feasibility Study. Volume I" however, and WBE, which stands for this report, is in the DEIR/DEIS list of acronyms. The availability of this WBE reference for public review is not indicated anywhere, but we suspect that "Engineering Feasibility Study" Volume I may be another WBE alias. At present there is no guide to dispel the confusion. AJ-23

Volume II of the "Engineering Feasibility Study" (March, 2006) is referenced in Volume I of the Engineering Feasibility Study but not in the DEIR/DEIS. This report contains detailed geologic descriptions of 5 reservoir sites described in the DEIR/DEIS. AJ-24

The lack of proper referencing and the agency's inability to produce a critical background study of reservoir sites together signal a lack of agency focus on the CEQA requirement that the public have full access to data on the project elements (selected reservoir sites) and impact studies. All these studies must be clearly and consistently referenced in the DEIR/DEIA and supporting documents, and the supporting documents' public availability clarified. AJ-25

**6. Recycled Water Availability**. p. 2-10, 2-18; Appendix M, volume II of Engineering Feasibility Study. The DEIR/DEIS indicates the present availability of tertiary-treated waste water from the 3 listed sources is 7,234 af/yr. Future supply, predicated on projected population growth to 2020, is estimated to be 21,134 af/yr. Projected future supply numbers conflict with those given in Appendix M, Engineering Feasibility Study, v. II, Table 8, which lists projected supply of about 20,135 af/yr with present contract attrition, and 17,048 af/yr without contract attrition. The DEIR/DEIS contains no assessment of the effect of current or future drought conditions. AJ-26 AJ-27

**Miscellaneous comments**

**7. Basis for Identifying the Preferred Alternative as "Environmentally Superior."** p. ES-5.— The DEIR/DEIS identifies Alternative 2 as the "environmentally superior" alternative, while admitting that "Alternatives 3 and 4 would have less construction impacts." Although "Alternative 2 is preferred because it provides the greatest potential for meeting the project's purposes and objectives to improve habitat for listed fish species…." the project need sections do not say how NSCARP will improve fish habitat, and sets no standard of improvement to be met. So the DEIR/DEIS does not make a credible case that Alternative 2 is environmentally superior. AJ-28

In fact, it is possible that Alternative 2 will degrade fish habitat more than the other alternatives--certainly the DEIR/DEIS provides no evidence to the contrary. AJ-28 (Cont'd)

**8. Description of Rainfall/Climate Inadequate.** p. 2.1-2.2. —Despite the abundance of recent and current scientific literature on the implications of climate change and the current southwestern U.S. drought, the DEIR/DEIS has no discussion whatsoever of potential impacts to NSCARP from drought. For example, extended drought might force upgrading from tertiary to more advanced waste treatments to provide additional potable water for nonindustrial and nonagricultural needs. (Richard Seager et al. 2007. Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America. *Science* (April 5, 2007). Online. Available: Sciencexpress/www.sciencexpress.org). AJ-29

**9. Contamination of Groundwater.** p. 2-14 considers and (appropriately) rejects underground storage of recycled water, partly because the recycled water could migrate into groundwater beyond the "identified area of impact." This problem is equally applicable to surface storage and use of recycled water for frost protection, both of which can contaminate surface and groundwater. AJ-30

**10. Reservoir Leakage.** p. 2-44. — Clay liners and cutoff trenches into impervious strata do not ensure that reservoirs will fully contain recycled water. The DEIR/DEIS must assess the potential contamination of aquifers as an impact of reservoir leakage. There is no such thing as completely impervious strata, as has been shown by the leakage of all radioactive waste sites nationwide, including sites in much more arid regions than Sonoma County. AJ-31

**11. Prevention of Water Table-Reservoir Intersection.** p. 2-47 — The DEIR/DEIS proposal for pumping down the water table around a number of proposed reservoirs to prevent the water table from intersecting the reservoir bottom requires constant monitoring, as does the potential for leakage from the reservoir to the water table. This need for monitoring must be rigorously assessed for each reservoir, in cost and potential environmental impact. AJ-32

**12. Use of recycled water for food crop irrigation.** p. 3.2-7. — The DEIR/DEIS inappropriately relies on the 1987 Monterey Regional Water Pollution Control Agency report on pathogens in tertiary-treated water. The report is too old, and focused on only a small set of pathogens. A much more rigorous study of the waste waters actually to be used in the NSCARP program must be made, using modern analytical techniques. AJ-33

**13. Irrigation Practices, Impact on Grapes.** p. 3.2-8. — The statement that "No studies demonstrate that irrigation practices with recycled water affect different grape varieties differently" is meaningless, since the DEIR/DEIS cites no studies of any kind of the effects of irrigation with recycled water on grapes, let alone effects of different irrigation practices. AJ-34

**14. Irrigation-Induced Salination.** p. 3.2-8. — The question considered in the DEIR/DEIS: whether "most recycled water produced does not have harmful levels of salts for most plants," is irrelevant. Impact HWQ-4, Section 3.8 simply asserts a negligible effect without justification. The important question is if and how salt levels will build up in the NSCARP area's specific soil types under constant irrigation, and how the buildup will affect the specific crops grown in that AJ-35

area. The Napa study cited on p. 3.2-20 represents a single soil type and a single crop, and cannot be considered representative of all NSCARP conditions. AJ-35 (Cont'd)

**15. Frost Protection.** p. 3.2-9. — This discussion of frost protection from water applications is nearly completely uninformative. No statement explains the potential for incidental surface runoff, or penetration to groundwater along preferred pathways in the unsaturated zone. AJ-36 The discussion of Pierce's Disease is perplexing. What does Pierce's Disease have to do with frost protection? AJ-37

**16. Napa Sanitation District Study.** p. 3.2-20. — The Napa study is not representative of NSCARP conditions and cannot be used for assessing soil salinity impact significance. AJ-38

**17. Division of Safety of Dams Requirements.** p. 3.7-32. — The DEIR/DEIS only partially presents the information for reservoirs required by the Division of Safety of Dams, and for only 5 of the 19 proposed reservoir sites, leaving the information on other sites to be gathered sometime in the future (see comment 4) . Gathering the information in the future denies the public the opportunity to review the whole project and comment knowledgably on the adequacy of the DOSD's dam safety and reservoir leakage assessments, or the potential impacts of the reservoirs. The DEIR/DEIS's mitigations are meaningless in the absence of this information. AJ-39

**18. Slope Stability Mitigation.** p. 3.7-37. — An assessment of Less than Significant impact after mitigation of slope stability is truly ludicrous! Potential significant impacts remain in the form of unmapped landslides, debris flows yet to form, and insufficient mitigations. All must be planned for in relation to changing climate effects. AJ-40

**19. Dam Failure Risk.** p. 3.7-40. — This discussion must include information on actual catastrophic failures of reservoir dams in Sonoma County and adjacent lands. The risk is not zero, and increases with the number of dams to be built for NSCARP. AJ-41

**20. Recycled Water Quality.** p. 3.8-19. — Table 3.8-2 on the quality of the recycled water is very inadequate. It lacks the date of data collection, sample locations, sampling time, and sampling methods. The average concentrations indicate large temporal variations in water quality, with implications for temporal variations in storage facilities. None of these issues are addressed in the discussion. AJ-42

**21. Growth-inducement of NSCARP.** p. 5-4-10. — The analysis of direct or <u>indirect</u> growth-inducing CEQA thresholds of significance is disingenuous. The provision of recycled water (GRO 3 [p. 5-5 through 5-10]) is assessed as having Less than Significant impact, requiring no mitigation. These ratings and the discussion are not credible because there is no requirement that the potable water saved by NSCARP will not have the effect of inducing population growth (see Comment 1). AJ-43

Sincerely,

Dr. Howard Wilshire
Board Chairman
3727 Burnside Rd.
Sebastopol, CA 95472

**David Cuneo**

**From:** WWW User [www@sonic.net]
**Sent:** Monday, April 30, 2007 11:56 AM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Raj Naidu

Phone Number: (707) 937-2412

E-mail Address: rbgn@earthlink.net

Comment:
RE- EIR for this project: Who was the paleontologist, if any, who prepared the paleo evaluation? State and federal law require a paleontologic evaluation for this project. Standard professional guidelines include microvertebrate assessment based on bulk samples; ordinarily mitigation also includes microvertebrate assessment during any project excavations impacting potentially fossiliferous strata. Thank you for you attention to this. AK-1

Raj Naidu
Paleontologist

JCPenney
Catalog Store

707-964-8217

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## FACSIMILE TRANSMITTAL SHEET

To: DAVID CONEO / ENVIRON. STAFF

From: R. NAIDU

Company: SO. CO. WATER AGENCY

Company:

Phone Number:

Phone Number: (707) 937-2412

Fax Number: 707 544-6123

Sender's Reference Number:

Regarding: DRAFT EIR; NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJ.

Recipient's Reference Number:

Including this cover page, this is a 2 page fax.

- ☐ Urgent
- ☐ Please Reply ☐ ASAP
- ☐ For your records

**Comments:**

Received By [illegible]

APR 27 2007

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P.O. Box 1177 • Mendocino, California 95460

**Comment Set AL (Cont'd)**



April 30 2007

TO SCWA

RE: EIR, NO. SONOMA COUNTY AG. REUSE PROJ:

This project needs formal paleontologic evaluation including bulk matrix sample assessment for microvertebrate remains, as per professional standards. A comprehensive monitoring program should also be addressed. Standard professional guidelines suggest utilizing a professional, qualified paleontologist, which is also S.O.P. for NEPA and CEQA compliance. AL-1

Thank you for your attention to this matter.

Raj Naidu
PO Box 1593
Fort Bragg CA 95437
(707) 937-2412
rbgn@earthlink.net

**David Cuneo**

**From:** Answers [answerman2k@comcast.net]
**Sent:** Thursday, May 17, 2007 7:24 PM
**To:** David Cuneo
**Subject:** Critical Issues regarding the disposition of Lytton Reservoir near Healdsburg, California.
**Attachments:** LyttonLake2007.pdf

Dear Sir,

Please find attached a letter I have written discussing my issues with the Draft EIR and its intentions regarding the Lytton Lake Reservoir in Healdsburg, Ca. My name is Richard Nall and I live very close to this lake and have for over forty years. I hope that you will find my observations worthy of consideration and respond accordingly.

I am sending a copy of this letter to you via email as well as a printed copy by certified mail. In addition I am sending a CC or the letter to The State Department of Natural Resources in case there are any environmental protection issues regarding the Draft EIR plans for this lake that they might find worthy of investigation.

Thank you for your time and attention in this matter.

Sincerely

Richard B. Nall
979 Chiquita Rd
Healdsburg, Ca 95448

707.433.8183

May 17, 2007

Sent via Certified Mail and Email

Sonoma County Water Agency
C/O David Cuneo, senior environmental specialist
P.O. Box 11628
Santa Rosa, CA 95406-1628

MAY 21 2007

Proj/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__

Dear Mr. Cuneo,

My name is Richard Nall. I live at 979 Chiquita Rd. in Healdsburg, Ca 95448. The Nall family has owned this property continuously since 1962. We are neighbors that share a common border with the property belonging to the Salvation Army that contains a lake referred to in your Draft EIR as 'Lytton Reservoir'. I can see that lake clearly from my home. It has been part of our daily view for nearly five decades.

It has come to my attention that the Sonoma County Water Agency is considering a project that would involve the acquisition and possible expansion of Lytton Reservoir in order to accommodate the County's needs for additional wastewater holding ponds. I understand those ponds are to act as catch basins to hold a surplus of treated wastewater which would ultimately be used for agricultural purposes.

I write because the draft EIR does not accurately reflect the baseline environmental conditions at the reservoir since it does not reflect the existence of *any* wetlands (see e.g., PAGE OF TEXT OF EIR and Table 3.2-4) when, in fact, two extensive wetlands exist that harbor much wildlife, including possible endangered species under the federal Endangered Species Act, and that may implicate the federal Clean Water Act. Because of this failure, the Draft EIR does not accurately reflect the significant environmental impacts that will result from the proposed project. AM-1

I am 59 years old and have been enjoying the pleasures of traversing the shores of Lytton Lake reservoir since I was only 13. I've had 46 years to get to know the place and by now it's safe to say that I know it very well. I am well aware that over the decades since I first discovered this lake its use has been minimal. Years ago, a local lumber mill (IDACO Lumber Company), situated just across Highway 101 on Healdsburg Avenue and directly adjacent to the south east corner of the Lytton Reservoir, used to draw its water supplies from the lake. I believe that the Forestry Station at the Northeast corner of the lake has drawn some small annual supply and that the Salvation Army has intermittently used the water in the reservoir as well.

There has also been intermittent public fishing access over the years, but this access has been limited to two or three months each Spring. Due to liability concerns on the part of the Salvation Army there have been many years when there was no fishing or public access allowed whatsoever. Consequently, the impact of humans on this lake has been almost negligible.

In effect, while the Draft EIR refers to Lytton Reservoir, the body of water has evolved into a significant natural wildlife resource, largely unmolested by humans. For instance, while I am not a trained biologist, there is an abundance of nesting and non nesting birds on the lake this year, including but not limited to at least one pair of nesting Plovers with two chicks (I believe these are on the Federal Endangered Species List), a handful of Ospreys, a pair of Redtail Hawks, migrating Canada Geese, a multitude of Egrets, several AM-2

Great Blue Herons, and scores of waterfowl. I have visited the lake shore at least ninety times this spring to document the richness of the habitat and wildlife and have taken extensive digital photographs. I submit these, in paper and CD format, along with this letter, so that they may become part of the record. AM-2 (Cont'd)

Most importantly, however, in contrast to the Draft EIR, which omits *any* reference to wetlands adjacent to the lake, there are in fact two distinct wetlands adjacent to the earthen dams. The wetlands on the northern end of the lake next to the existing earthen dam appear to cover approximately an acre and a half. The marshes are home to nesting mallards and Canada Geese, as well as Redwinged Blackbirds and other marsh life including salamanders and Leopard frogs. The wetlands adjacent to the earthen dam at the southwest corner of the lake are somewhat smaller in scope but also support an ecosystem consisting of Redwinged Blackbirds, Leopard frogs, and visiting Egrets, Mallards, and Great Blue Herons. AM-3

The land around the shores of this lake is also home to ground squirrels, at least one pair of grey foxes with den, king snakes, gopher snakes, Meadow Larks, migratory Orioles and Blue Jays. AM-4

The lake itself supports a very healthy population of Largemouth Bass, Bluegill sunfish, catfish, crayfish, Leopard frogs, muskrats, and water turtles.

In short, Lytton Lake should not be expanded with treated wastewater. Raising the existing dams by forty feet would destroy the wetlands and the wildlife found there. In addition, adjacent woodlands would have to be clear cut to expand the height of the two earthen dams by an forty extra feet as indicated in the EIR report. Such a change is indicated in the EIR's contingency plan to increase its storage capacity by four hundred percent. There is a spillway unrelated to the two existing dams located near the Northwest corner of the lake nearly level with Highway 101. A third dam would have to be added at this point to contain the water backed up by adding forty feet to the height of the other two dams. AM-5 AM-6

On a personal note, I dearly love Sonoma County. I have lived here nearly my entire life and cherish this land. Wildlife habitat such as those found at Lytton Lake are declining and, much as I understand that our county must adapt to changing times and increased populations, the County must do more to protect critical habitat than suggested by the Draft EIR. I look forward to revisions to the Draft EIR that incorporate an accurate delineation of the Lytton Lake wetlands and expect the County to undertake a full biological census of the area to accurately catalogue the plant and animal life found there. AM-7

Sincerely

R. Bruce Nall

R. Bruce Nall
979 Chiquita Rd
Healdsburg, Ca
95448

Tele: 707-433-8183

**Attached EIR Excerpts regarding Lytton Reservoir:**

DRAFT
NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT
ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL IMPACT STATEMENT

Referred to on page 2-18 of the Draft EIR - Table 2-4.

**Alternative 2 Project Components**

Subarea - Alexander Valley

Project Alternatives: **Lytton - Existing Reservoir & Lytton - Enlargement Reservoir**

**Table 2-5. Estimated Project Costs of Reservoirs**

Indicates a contingency plan to increase the Storage Capacity (af) of the existing **Lytton Reservoir** from its current level of 410 acre feet to 1763 acre feet.

***Lytton Reservoir***
The Lytton Reservoir is an existing facility that is under the jurisdiction of the California Department of Water Resources, Division of Safety of Dams (DOSD). It is located west of U.S. 101 and about 2,500 feet south of Lytton Springs Road. The present capacity of the reservoir is about 410 af per DOSD records (DWR 2000). Two earth embankment dams on the north and south sides impound the reservoir (20 feet and 34 feet tall, respectively). A 12-inch diameter outlet conduit passes through the base of the Upper Dam located at the north end. The reservoir area at the maximum storage elevation is about 31 acres. The storage capacity of the reservoir would be increased to about 1,760 af by a 40-foot raise of the existing dams. The estimated footprint of the enlarged reservoir would cover an estimated 46 acres of land. It is anticipated, but must be confirmed, that soil and rock materials on site would be adequate in both quantity and strength for dam construction.

**Table 3.2-4. Acres of Status Farmland Impacted by the NSCARP**

**Table 3.4-2**
**Riparian, Wetland, and Aquatic Habitat Acreage Affected by Proposed NSCARP by Structural Component, Reservoir, and Subarea**

| Structural Component | Channel (acres) | Open Water (acres) | Riparian (acres) | Wetland (acres) |
|---|---|---|---|---|
| Lytton | 0.04 | 30.10 | 0.00 | 0.00 |

Lytton Reservoir Alexander Valley Other Land 45.84 acres

# Santa Rosa Chamber of Commerce

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
MAY 18 2007

FAX # 707-545-6914

PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-0-7 #__

TO: DAVID CUNEO FAX # 707.524.3782

FIRM: SO. CO. WATER AGENCY DATE: MAY. 18.07

Special Instructions:

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FROM: SANTA ROSA CHAMBER OF COMMERCE

TOTAL number of pages including this one: 2

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SONOMA COUNTY WATER AGENCY

**Comment Set AN (Cont'd)**



# Santa Rosa Chamber of Commerce

May 18, 2007

David Cuneo
Senior Environmental Specialist
Sonoma County Water Agency

Via Fax: 524-3782

RE: Comments on the draft EIR/S for the North Sonoma County Agricultural Reuse Project

The Santa Rosa Chamber of Commerce supports water reuse as a key component to the area's water supply and supports reuse of recycled water for agricultural irrigation in principle, but has the following comments:

1. SCWA identified protection of fisheries as the primary goal of the Project. The alternatives investigated represent only a subset of potentially feasible solutions. Although financial feasibility is not an evaluation typically included in an EIR, the steep price tag may make the recommended solution impractical to implement. Other less costly solutions, such as water conservation and habitat improvement, may be both technically and financially feasible and should be considered in the solution set. AN-1

2. The City of Santa Rosa and the Town of Windsor are identified as primary contributors to the recycled water supply to be used for the NSCARP, but have developed independent plans for reuse projects. SCWA should collaborate with potentially contributing entities to either confirm the viability of the recommended project or develop a feasible project so that the environmental review correlates to a project that could be implemented within a reasonable time horizon. AN-2

Sincerely,

Karen Sommer

Karen Sommer

Chair, Governmental Review Council

Santa Rosa Chamber of Commerce

637 First Street, Santa Rosa, CA 95404 707/545-1414 FAX 707/545-6914
www.santarosachamber.com

## David Cuneo

**From:** WWW User [www@sonic.net]
**Sent:** Friday, May 18, 2007 7:46 PM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Sean Swift

Phone Number:

E-mail Address: sswift@sonic.net

Comment:
May 18, 2007

David Cuneo
Senior Environmental Specialist
Sonoma County Water Agency
404 Aviation Blvd.
Santa Rosa, CA 95403

Dear Mr. Cuneo,

This letter is to provide comments on the North Sonoma County Agricultural Reuse Project. Based on study of the Draft Environmental Impact Report/Statement on this project, as a concerned citizen I can only conclude that the DEIR/DEIS is inadequate, flawed and premature, should not be certified, and if the apparent project is constructed will result in irrevocable environmental damage to the described project area

AO-1

The discussion of cumulative impacts in the DEIR/DEIS is inadequate for a project of such apparent size and scope, especially given the other wastewater discharge and reuse projects in the described project area! The DEIR concludes that cumulative impacts in crucial areas such as water quality and public health are less than significant --- it is completely mystifying that detailed analysis of the impacts of the elements of the city of Santa Rosa's Incremental Recycled Water Program such as their Urban Reuse Project, Discharge Compliance Project, and especially the Seasonal Storage Project are not included in the DEIR and that the discharge and reuse plans of the wastewater of the cities of Windsor and Healdsburg is not discussed in detail, especially since it was specifically asked for by numerous citizens, including myself, during your scoping process. With possible reduced flow in the Russian River and Dry Creek, as well as seasonal low flow in many tributaries, a detai!
led, extensive study of all these projects is necessary for responsible decision makers and the public to understand the impacts of the project. For example, a list of all the small tributaries potentially impacted by each proposed reservoir, their current water quality, biological resources, flow regime, potential impacts of wastewater entering the each system through reservoir spillage, irrigation or frost protection; percolation from leaking reservoirs or irrigation to surface waters, etc. need to be studied for the public to understand what will occur if the commitment is made to build any of the alternatives stated in this project except the no project alternative.

AO-2

The DEIR states that a major benefit of NSCARP to salmonid species would be an offset of freshwater by substituting wastewater for agricultural irrigation. The report does not study or provide meaningful information about the amount of freshwater used for agriculture through groundwater pumping or direct removal of water from tributaries or the Russian River, and the impact of this use throughout the system. Therefore the amount of water that might be "saved" and remain in the system is unknown, and the possible benefits of the project are unclear and can't be quantified. Especially if the project is compared to Santa Rosa's Urban Reuse Project, where the amount of freshwater offset can be measured since it is directly related to the amount of wastewater provided to say, a golf course,

AO-3

which is using freshwater that is clearly removed from the supply system.

Another aspect of this not adequately discussed is that the amount of freshwater available now puts a limiting factor on agricultural activity in the area. If, for example, a grower accepted the wastewater to irrigate existing vineyards and used existing freshwater wells or diversions to provide water to new agricultural initiatives the offset of freshwater use would not occur. Neither does the report discuss how actions like the above could result in conversions of oak woodlands or timberlands to agricultural uses, only describing these conversions where reservoirs would be installed or pipelines and pumping stations constructed. The impacts are potentially greater by the provision of more water available to agriculture, especially in the upland areas where some of the reservoirs are proposed. AO-4

The DEIR does not begin to provide enough information for a citizen to understand the impacts of the use of wastewater for irrigation over time on the regions soils, surface or groundwater when healthy soils and clean water join climate as the fundamental reasons for the success of agriculture in this area. For the DEIR of NSCARP to be adequate, studies made in this region specifically of wastewater use over these particular soil types. AO-5

It is not possible to understand, define, or describe the potential impacts of NSCARP without a thorough discussion of the quality of the wastewater proposed for the irrigation projects. First, it is not clear where the wastewater used by NSCARP would come from, so the quality of the wastewater cannot be assessed. AO-6

Second, the reason that Santa Rosa is studying ways to discharge its wastewater in places other than the Laguna de Santa Rosa is that the North Coast Water Quality Control Board has serious concerns about nitrogen, phosphorus, nickel, cyanide, copper and lead present in the wastewater at unacceptable levels. The water quality is problematic even for discharge into the Russian River at high winter flow rates. The DEIR does not discuss the impacts that could occur by the presence of these chemicals in small tributaries near proposed reservoirs or wastewater irrigation projects. Irrigation occurs during times when these tributaries, which may be sheltering salmonid fry, have very low flows. The amounts of these chemicals as well as pharmaceutical compounds known to be present in the wastewater but not adequately regulated as of yet have serious negative implications for fish populations. Similar concerns exist for the probable percolation of wastewater from reservoirs or i! AO-7

rrigation into groundwater supplies, with negative impacts on local resident's health. AO-8

Degradation of local surface and groundwater would almost certainly occur with a project of this size, and the DEIR does not discuss who "owns" the wastewater and who would have the responsibility to clean up impacted surface or groundwater, make public health impacts right, or provide new drinking water sources if wells were contaminated over time. AO-9

The DEIR states that significant impacts could occur from surface or groundwater contamination from runoff of the wastewater. Over the years there have been many spills of wastewater into the Laguna de Santa Rosa from agricultural irrigation with wastewater on the Santa Rosa plain, and the city has been fined. There is no reason to believe that will not be the case in the North County, and an agreement by Recycled Water Users as proposed will likely not be enough to protect the public health. Additionally, the wastewater will have to be filtered before use in a drip irrigation system, and there is no discussion of how the filters, with concentrations of the chemicals present in the wastewater, will be cleaned and what will be done with the effluent from cleaning the filters. AO-10

Groundwater monitoring near reservoirs, another mitigation factor offered by the DEIR, is not adequate to protect drinking water supplies for local residents, because the damage is done once the moni! AO-11

toring wells detect it---it will still move through the soil and contaminate wells.

The DEIR/DEIS states that the wastewater supplies for NSCARP would come from the City of Santa Rosa Subregional Sewage plant via the Geysers Pipeline. But in a Healdsburg Tribune Article, dated April 26, 2007 headed "AVA explores impacts of wastewater projects" by Barry W. Dugan, Santa Rosa City Councilmember Mike Martini is quoted as saying the city has had 'many discussions' with SCWA but "we have not agreed to participate . . . as a policy statement, the interest of the city is to do urban reuse to offset potable supplies." Santa Rosa has sometimes had trouble meeting its current contracts for supplying wastewater to the Geysers and irrigation customers in the Santa Rosa plain. The City of Windsor is also stated as a supplier of wastewater for NSCARP. Yet in the same article cited above, Windsor Town Councilmember Debora Fudge said that the town "doesn't AO-12

have any plans" to participate in the NSCARP project. She goes on to say that "this would be absolutely our last o!
ption," because the town has its own urban reuse program and is studying its own storage and distribution system. It is not at all clear that they will be able to supply wastewater for NSCARP, yet SCWA has spent a considerable amount of public money to produce this EIR. AO-12 (Cont'd)

A crucial flaw in the NSCARP DEIR/DEIS is that since it starts with a solution to a perceived problem, it is unable to adequately analyze solutions. If its main purpose is to provide more water for the fish, then the amount of water saved and left in the system would be quantified and the DEIR would show clearly this benefit, which it does not. AO-13 If its main purpose is to safely dispose of wastewater, then it must adequately analyze all the ways that wastewater can be disposed, a process that is ongoing in the IRWP, making NSCARP redundant and a waste of public money. AO-14 NSCARP's main purpose seems to be that "agricultural interests" a vague and disturbing term used in the document desire a steady water source. If that is the case, then a detailed analysis of all the impacts to agriculture, including who would get the wastewater and who would not and why, the cost to use the wastewater, the role of public money providing a public resource to some and not others. AO-15 NSCARP appea!
rs to be a solution looking for a problem, rather than the other way around. Please do not certify this environmental report as it is currently written.

Thank you for the opportunity to comment,

Sean Swift
Executive Director
The Bishop's Ranch
5297 Westside Road
Healdsburg, CA 95448
707-433-2440 ext. 110
sswift@sonic.net

**David Cuneo**

**From:** Nabeel Al-Shamma [nabeel@alshamma.com]
**Sent:** Tuesday, May 15, 2007 12:21 PM
**To:** David Cuneo
**Subject:** Sierra Club comments on the NSCARP Draft EIR/EIS
**Attachments:** SC Comments on SCWA Ag Reuse Project DEIR-DEIS.pdf

Dear Mr. Cuneo,

Please find attached a copy of the Sierra Club Sonoma Group comments on the NSCARP Draft EIR/EIS. I am submitting it by email for your electronic records. I will also be sending a copy via post.

I would also like to thank you and your colleagues from coming to talk to us a couple of weeks ago. I appreciate your efforts to reach out to the community.

Best regards,
Nabeel Al-Shamma
Vice Chair, Sierra Club Sonoma Group

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SONOMA COUNTY WATER AGENCY
MAY 17 2007
PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

SIERRA CLUB
FOUNDED 1892

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May 15, 2007

Mr. David Cuneo
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406

Re: Comments on NSCARP Draft EIS/EIR

Dear Sir,

The following comments are provided on the Agency's NSCARP Draft EIS/ EIR. Thank you for initiating the meeting with your project staff, it was most helpful

Section 1.0 Purpose and Need for the Project

The stated justification for the project is to provide increased flow in the Russian River (RR) during the summer season by replacing agricultural diversions with treated municipal wastewater. This is a laudable concept since it would support the river, however the report fails to discuss the other obvious outcomes of the project such as the potential increased use of river water to justify growth by the contractor cities of the SCWA. This issue is only alluded to in the section 5.0 on Growth Impacts, which states that "the existing water supply is considered adequate for planned growth through 2020" and thus concludes that there will be no induced growth resulting from the project. AP-1

Further, the report does not contain or make reference to a comprehensive plan for Sonoma County and relevant surrounding jurisdictions for water use, discharge and reuse. A definitive statement of needs cannot be determined without a plan that provides quantitative information on the inflows, outflows and reuse of water for municipal, commercial, residential, agricultural, environmental, natural resources, endangered species and all other uses AP-2

In the absence of such a comprehensive water plan, the assertion that existing water supplies are adequate for planned growth is unsubstantiated and misleading when viewed in context of actions by the SCWA, and requires further discussion and analysis within the DEIR. Recent actions by the Agency indicate that the future water supply in Sonoma and Marin service area is AP-3

anything but adequate without putting the Russian River fishery in serious jeopardy. Several of these are listed below:

- SCWA has a long standing Water Rights request to California State Water Board to divert an additional 25,000 acre feet from the Russian River for domestic use. To date the State has not granted the request. Is the reuse water provided by the project meant to substitute for the new diversion, if it were to be granted, and if so, how will this provide more water for the fishery? AP-3 (Cont'd)

- The SCWA has just proposed that due to the critical low water year resulting in low water levels in Lake Mendocino, the minimum summer flows in the Russian River be reduced so as to assure that water is available for release for the fall Chinook spawning run. This action would require modification of the Decision 1610 regulations, and the SCWA proposes the reduction be made permanent.

- SCWA has recently renegotiated agreements with all its water contractors who receive Russian River water, including the Marin Municipal Water District. The new contract gives MMWD full status as a contractor and eliminates the previous restrictions which specified a maximum on the amount of water allowed for the Marin District. At present, the District is debating the merits of constructing a new pipeline to import water from the SCWA which would be an unknown additional demand on the river flows.

- A recently issued Regional Urban Water Plan prepared by the SCWA under State requirements was seen to be so misleading and inadequate by several environmental organizations that it has been challenged by a lawsuit. The primary issue of the suit is that the Water Agency has consistently overestimated the amount of future water availability in the Plan.

These examples of SCWA's actions do not support the premise that Sonoma County has assured future water supply. The Report must show clearly that there is an assured supply and that the proposed project will indeed provide additional water flows to support the river fishery. AP-4

Section 2.0 Projection Description

1. The report refers to the need to be able to manage water flows for the benefit of endangered fish species as required by state regulations. However, there is not any information on how much water is actually required to meet regulations. AP-5

2. Sonoma County's wine growing area is one of the best and most famous in the world. The risks and impacts of damaging this incredible and irreproducible agricultural, commercial and tourism resource have not been addressed in the report. The plan calls for replacing irrigation waters from the Russian River with treated wastewater, but puts the onus of monitoring and testing soils, vines, and wastewater on the water consumer. Given how much we are now learning about *how little we know* about the effects of pharmaceutical and personal care products, it is irresponsible to put the onus on the consumer whose main concern is how to make a living on agriculture. AP-6

Further, this treated wastewater and it's residual contaminants will find numerous pathways into the environment: uptake by vines and trees into leaves and fruit, runoff into streams and the Russian River, into the local groundwater and then likely into the Russian River again. AP-7

3. The City of Santa Rosa is considering improved treatment of their wastewater, such as membrane filtering and reverse osmosis, because of new regulations on water discharge and reuse. Expectations are that regulations will continue to become more stringent. As the quality of treated wastewater is increased, it will become feasible to use the wastewater for additional purposes. Thus, it is likely less wastewater will be available for this project. Other measures such as repairs to piping to reduce infiltration and inflow will also reduce the sources of wastewater. AP-8

4. A conservation alternative was not considered in the report. Additional conservation measures by Santa Rosa and other water contractors serviced by SCWA could alleviate or eliminate the need for this project, as more water would be available for river flows. AP-9

Section 3.0 Environmental Issue Areas

1. Energy requirements and greenhouse gas emissions have not been considered in the report. The pumping and storage of treated wastewater will greatly increase the amount of energy and GHG emissions by the water agency, whereas conservation of water and reuse of water close to treatment facilities will result in savings due to reduced pumping. This was not considered as an alternative in this project. AP-10

2. Changing climatic conditions due to global warming have not been considered in the report. Current projections are that the start of seasons will shift and that average temperatures in the area will increase over the lifetime of this project. In addition, the probable changes in rainfall patterns and recharge impacts are all important factors to consider. AP-11

Sincerely,

Jana Selph

Jana Selph
Chair, Sierra Club Sonoma Group, Redwood Chapter

Nabeel Al-Shamma
Vice Chair, Sierra Club Sonoma Group, Redwood Chapter

**Comment Set AQ**

emailed to J. Jackpack + Bill Keene today 5/18/07

Sonoma County Water Coalition

55 Ridgeway Avenue, Santa Rosa CA 95401
707-571-5594

ORIGINAL DOCUMENT
SONOMA COUNTY WATER AGENCY
MAY 21 2007

Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406

May 17, 2007

Proj/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT (preliminary) - EIR 70-4-7 #__

**Re: NSCARP DEIR/DEIS Comment for the Public Record**

The Sonoma County Water Coalition (SCWC) includes 32 organizations representing more than 27,000 concerned citizens.

SCWC believes that the proposed North Sonoma County Agricultural Reuse Project (NSCARP) may not meet the long-term water management needs of Sonoma County, and, if approved and implemented, will require significant mitigation to avoid severe environment impacts.

**Recycled Water Availability:**

Recycled water streams intended for the NSCARP may, in the future, be redirected and treated to higher levels, either by advanced biological processes, microfiltration, reverse osmosis, or some other comparable technology, and used to recharge groundwater or to offset potable water demand in the urban areas served by contractors of the Sonoma County Water Agency (SCWA). It is therefore essential that the NSCARP make no long-term commitments to agricultural users of project wastewater. It might also make better use of public funds and energy resources if they were to be redirected, from the start, to the development of these advanced treatment processes. AO-1 AO-2

Additionally, existing recycled water streams from most SCWA contractor service areas are now fully committed to the Geysers, to existing agricultural users and to existing potable water offsets. Additional recycled water streams will be available for the NSCARP only if the proposed Water, Supply, Transmission and Reliability Project (the Water Project) is implemented. Since this is not likely to happen within the next 8 to 10 years, it would be premature to proceed with NSCARP so far in advance of the Water Project AO-3

To allow the public and other agencies to properly evaluate the NSCARP, this DEIR/DEIS must therefore explicitly identify:

Members: * Atascadero/Green Valley Creek Watershed Council * Coalition for Unincorporated Sonoma County * Community Clean Water Institute * Friends of Mark West Watershed * O.W.L. Foundation * SWiG (Sebastopol Water information Group) * Valley of the Moon Alliance * Supporting Organizations: Bellevue Township * Bluther Creek Watershed Council * Coalition for a Better Sonoma County * Coast Action Group * Coastal Forest Alliance * Community Alliance with Family Farmers (N.Coast Chapter) * Earth Elders of Sonoma County * Forest Unlimited * Forestville Citizens for Sensible Growth * Friends of the Eel River * Friends of the Gualala River * Graton Community Projects * Laguna Lovers * League of Women Voters of Sonoma County * Mark West Watershed Alliance * Occidental Arts and Ecology Center * Petaluma River Council * Russian River Advocates * Russian River Chamber of Commerce * Sierra Club (Sonoma County Group) * Sonoma County Conservation Action * Town Hall Coalition * Western Sonoma County Rural Alliance *

1. Where the water for the NSCARP will come from? AQ-4
2. What agreements will be made for delivery in very wet, wet, average, dry and very dry water years, as identified in the Russian River watershed and in the upper Eel River watershed, which serves as a source for Lake Mendocino, and in conjunction with Decision 1610 releases to the Russian River? AQ-5
3. How much water is proposed to be delivered each month of the water year? AQ-6
4. How will these water deliveries affect the current (or future) SCWA proposed Petition for Temporary Urgency Change in the Agency's water right permits with the State Water Resources Control Board to request lower minimum flows in the Russian River and Dry Creek? AQ-7
5. What will be the contractual consequences for failure to deliver water quantities committed? AQ-8
6. What will be the direct and indirect linkages between the NSCARP water budget and the promised improvement in the flows of the Russian River and its tributaries under varying delivery scenarios? AQ-9
7. What will be the effect on groundwater levels in basins within in the NSCARP project area? AQ-10
8. What monitoring and testing does SCWA propose to make of the water used, the groundwater where irrigation takes place, and on any crops grown on such land, to determine if any regulated or unsafe contaminants are present? AQ-11

**Impact on Source Waters**:

The DEIR/DEIS fails to address impacts to the source waters from which the discharged wastewater presumed to be used in the NSCARP originate: Russian River, Eel River and Sonoma County groundwater basins. This analysis, impact assessment and proposals to avoid, lessen or mitigate damages must be compliant with CEQA, NEPA, and at least the standards established in the recent Vineyard Area Citizens for Responsible Growth v. Rancho Cordova, and Friends of the Eel River v. SCWA court decisions. AQ-12

**Cumulative Impacts within SCWA Service Area**:

The DEIR/DEIS must address cumulative impacts arising from this proposed export of waters from the SCWA service area, including the waters that are proposed to be exported from the service area through the Napa Sonoma Baylands Marsh Restoration Project, currently the subject of proposed Bureau of Reclamation and funding through H.R.236 (Thompson). All waters that would not be available to displace current and/or future potable water demands must be accounted for, and their impacts addressed explicitly, along with programs to reduce or eliminate any adverse impacts to the already overdrafted and stressed watersheds of the Eel and Russian Rivers, and the overdrafted groundwater basins of Sonoma County. AQ-13

**Impact on Water Supply and Demand Balance:**

The DEIR/DEIS must explain how recycled water use intended for this project will affect the water supply and demand balance proposed in the recently adopted (and now legally challenged) Sonoma County Urban Water Management Plan 2005, as well as in the AQ-14

UWMPs for any particular city or agency that is proposed for supplying the treated wastewater for the NSCARP. AQ-14 (Cont'd)

**Impact on Potable Water Demand:**

The DEIR/DEIS must address how the diversion of the treated wastewater to the NSCARP and to the Napa Sonoma Baylands Marsh Restoration Project will reduce or eliminate opportunities to offset potable water demands in the service areas of SCWA contractors and other municipal suppliers of water. AQ-15

**Consistency with draft Sonoma County General Plan Update and DEIR:**

The DEIR/DEIS must address inconsistencies between the NSCARP and the draft Sonoma County General Plan Update and the General Plan Update DEIR that states that there currently is not sufficient water for the next 20 years' growth in Sonoma County. AQ-16

**Accumulation of Endocrine Disruptors in Soil:**

Tertiary-treated wastewater is intended to be applied at rates in excess of 150,000 gallons per acre within the project area. Detectable levels of endocrine-disrupting personal care products, hydrocarbons, pharmaceuticals and other emerging contaminants in this tertiary-treated wastewater will accumulate in soils. The DEIR/DEIS quotes the Monterey Study from 1987 to downplay this risk. However, the Monterey Study was conducted before the availability of modern detection equipment. The project must therefore include an ongoing and rigorous program of soil testing monitor these pollutants in order to assess and manage this impact. AQ-17

**Accumulation of Endocrine Disruptors in Groundwater:**

Tertiary-treated wastewater is intended to be applied at rates in excess of 150,000 gallons per acre within the project area. Detectable levels of endocrine-disrupting personal care products, hydrocarbons, pharmaceuticals and other emerging contaminants in this tertiary-treated wastewater will accumulate in groundwater. The DEIR/DEIS quotes the Monterey Study from 1987 to downplay this risk. However, the Monterey Study was conducted before the availability of modern detection equipment. The project must therefore include an ongoing and rigorous program of groundwater testing to monitor these pollutants in order to assess and manage this impact. AQ-18

**Incidental Run-off:**

Tertiary-treated wastewater to be applied in the project area cannot reliably meet Basin Plan discharge requirements for wetlands or instream flows. Application rates of tertiary-treated wastewater may exceed the ability of soils to absorb and plants to transpire all wastewater applied. This may result in incidental run-off to rivers and creeks. The project must therefore include a third-party monitoring program to assess and prevent this impact. AQ-19

**Greenhouse Gas Emissions:**

The DEIR/DEIS must also address greenhouse gas emissions produced directly and indirectly by the various alternatives, and a demonstrable, valid and measurable program for reducing or eliminating any new greenhouse gas emissions as a result of this project. (See, for example, California Attorney General v. City of Bakersfield, for guidance in how to address this.) AQ-20

We thank you for the opportunity to comment on this project and await your responses in due course.

Sincerely,

Stephen Fuller-Rowell
Sonoma County Water Coalition

**Comment Set AR**

Surfrider Foundation.

*Sonoma Coast Chapter*

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MAY 17 2007
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May 11, 2007

PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

Mr. David Cuneo,
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406-1628

Re: DRAFT NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT
ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT

Dear Mr. Cuneo:

The Surfrider Foundation is a non-profit environmental organization dedicated to the protection and enjoyment of the world's oceans, waves and beaches for all people, through conservation, activism, research and education. We are represented by over 50,000 members and 60 local chapters in the U.S, including the Sonoma Coast Chapter.

The Sonoma Coast Chapter of Surfrider Foundation has reviewed the referenced EIR/EIS. In general, we support the efforts of Sonoma County Water Agency to construct and operate a recycled water project designed to provide multiple benefits, including:

- a reliable, long-term water supply for agricultural interests
- a reduction in discharges from local wastewater treatment plants to local waterways
- a reduction in the use of groundwater and surface water for agricultural purposes in north Sonoma County
- an environmentally responsible, long-term method of recycled water use
- an increase in the reliability and long-term sustainability of the regional water supply

A healthy Russian River with historical stream flows and good water quality benefits the environment, the local economy and residents who use the river and the ocean areas near the mouth of the river for recreation.

That said, we are concerned that the draft EIR/EIS has been written in such a way that potentially feasible alternatives for beneficial use of reclaimed wastewater were eliminated from consideration at the feasibility study stage, making the stated purpose of the EIR/EIS unnecessarily restrictive and precluding an environmental benefits/impacts analysis of those alternatives. AR-1

Specifically, the March 2006 North Sonoma County Agricultural Reuse Project Feasibility Study (note the bias toward agricultural use in the project title) eliminated urban irrigation uses (section 4.2), but the basis for this is not clear. Industrial uses (section 4.3) considered were more water to the Geysers or water for gravel processing. Again, this seemed to be screened out but the reasoning for this is not apparent. In section 4.4 wetlands creation is screened out based on "City of Santa Rosa experience." In section 4.5 storage in Lake Sonoma is screened out because of concern about regulatory compliance, although it is noted that discharge of treated wastewater into reservoirs or lakes that are used for drinking water supply is an option that is used in Nevada and is being evaluated elsewhere in California. AR-2

9293 Old Redwood Hwy Penngrove, Ca. 94951
www.surfrider.org/sonomacoast sonomacoast@surfrider.org

The stated objective of the project in the feasibility study was:

"... to maintain streamflows in the Russian River and its tributaries for fisheries, reduce demand on groundwater supplies, and provide a reliably responsible method of recycled water disposal."

This is a logical objective, but by the EIR/EIS, the project purpose had been narrowed to: AR-3

"The basic project purpose of NSCARP is to reduce reliance on natural regional water supplies by using recycled water on agricultural lands."

So, at the very beginning of the EIR/EIS the purpose is stated in such a way that no alternatives other than agricultural reuse can possibly meet the goal. The project objective is stated so narrowly that the meaningful analysis of alternatives is precluded.

While we support the recommended alternative, we believe that including non-agricultural reuse alternatives in the EIR/EIS would have resulted in a stronger and more meaningful document that could be used to support other water reuse projects in the future. We encourage Sonoma County Water Agency to include a discussion of the environmental impacts of urban irrigation, increased industrial use, wetlands creation and storage in Lake Sonoma in the final EIR/EIS. AR-4

Sincerely,

Michael Frey
Sonoma Coast Chapter
Surfrider Foundation

SWiG
SEBASTOPOL WATER INFORMATION GROUP

May 15, 2007

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SONOMA COUNTY WATER AGENCY
MAY 18 2007
Orig. Filed_____
PROJ/NORTH SONOMA COUNTY AGRICULTURAL
REUSE PROJECT (preliminary) - EIR 70-0-7 #__

Sonoma County Water Agency
c/o David Cuneo, Senior Environmental Specialist
P.O. Box 11528
Santa Rosa, CA 95406-1628

**Re: SWiG Comments on NSCARP DEIR/EIS**

The Sebastopol Water Information Group (SWiG) works to provide Sonoma County citizens with accurate information on water supplies and quality. SWIG finds that the Draft EIR/EIS for the proposed North Sonoma County Agricultural Reuse Project (NSCARP) is incomplete and prematurely released for public comment. It is missing a great deal of important information that is needed for the public to fully comprehend the costs to the public, either financially (in local or federal taxes) or environmentally. The document does not contain enough information about the **geologic and engineering feasibility** of the proposed project, especially of the many proposed reservoirs, to determine its complete construction costs or operational hazards, and it does not mention the costs to taxpayers of **increased energy usage and adding greenhouse gases** during construction and in operation. Similarly, the DEIR/EIS does not address the **complex agreements that must be reached for the SCWA to obtain Santa Rosa wastewater** (the major proposed source) or its potential cost, both to taxpayers and to farmers. AS-1 AS-2 AS-3 AS-4

The DEIR/EIS also omits an **assessment of the project in the context of global warming**, and **the environmental impacts of adding non-potable wastewater to Alexander Valley where the USGS has documented declining groundwater levels.** Not least, the document **underestimates the significance of many environmental impacts from adding wastewater contaminants to soils and groundwater in times of drought.** AS-5 AS-6

SWiG feels strongly that the missing elements must be added, the environmental impacts revised and rewritten, and fuller mitigations proposed to meet the many significant impacts that this project will engender. The document then should be re-issued for public review and comment. AS-7

## FEASIBILITY AND COSTS

### Reservoir Construction and Operation

The DEIR/EIS plans to construct numerous new reservoirs and expand some existing reservoirs, and lists cost estimates for constructing the reservoirs. But the Geoservices Group "Geological feasibility studies," which supposedly back up detailed cost estimates (page 3.7-18) does not give enough information for determining the sites' potential hazards. Attempts to examine the Geoservices Group reports revealed that they are incorrectly referenced in the DEIR/EIS. In addition, they were difficult to find--the agency finally located the documents and made them available to public examination less than two weeks before the deadline for comments. AS-8 AS-9 AS-10

These "feasibility studies" proved to be very preliminary site investigations focused on only five reservoir sites, and only in the Alexander Valley and Russian River areas. The confusingly-referenced reports provide no substantive information on actual site conditions, and the only recommendations are for gathering additional relevant information before the reservoirs can be built. AS-11

### Geologic Hazards

The very preliminary investigations (not deserving to be called "studies") of geologic hazards at a very few sites are improperly identified as feasibility studies. They cannot be used to estimate the range of AS-12

construction problems for the reservoirs or for designing mitigations. Unfortunately, the DEIR/EIS improperly uses these studies to identify Impact Categories and propose mitigations, as well as to assign CEQA Thresholds of Significance Criteria. Since these limited site investigation reports are the only evidentiary basis for the cost estimates (Table 2-5), the cost estimates are therefore incomplete. AS-12 (Cont'd)

The costs of detailed feasibility studies for all sloping sites in geologic strata that have landslide or earthquake shaking (including liquefaction) potential must be factored into the cost estimates, with factors built in for difficult sites that may prove to be unbuildable. The DEIR/EIS should be re-noticed and re-circulated for public review after these corrections. AS-13

**Energy**

A great deal of energy is required to pump water long distances, including wastewater. Pacific Gas and Electric Co. has estimated that 20 percent of all energy used in California goes to pumping water. The report contains no assessment of the energy costs of building, operating, and maintaining this very energy-intensive project—either at today's energy prices or in a future of rising prices (worst case scenario). The cost analysis must designate the proportion of current and future proposed energy sources that SCWA contracts for or will build, which contribute to support of this project, and the cost of each. The energy cost estimates should be added to this programmatic DEIR/EIS and re-circulated for review. AS-14

**Wastewater Supply**

The DEIR/EIS does not specify the costs of obtaining wastewater from the projected suppliers (City of Santa Rosa; Town of Windsor; and Airport/Larkfield-Wickiup Sanitation District), or what extra construction is required. Will these sources, particularly the City of Santa Rosa, supply the water to SCWA for free? Will they allow connections to the Geysers pipeline for free? If not, all these non-construction costs need to be specified, and added to the DEIR/EIS cost estimates. AS-15

Other cost-based questions include: will the lower pipeline need expansion, and what entities will foot the bill for any necessary expansions? Will farmers have to pay SCWA for the water? Has SCWA polled farmers to determine how many will sign on, and at what price? What if this project is built but not widely welcomed? After fleshing out the project's true costs, the document must be re-circulated for public review. AS-16 AS-17 AS-18

## ENVIRONMENTAL IMPACTS AND MITIGATIONS

**Geologic Hazards (Section 3.7)**

The geologic summary in section 3.7 of the DEIR/EIS should be clarified. For instance, mélange—an important subunit of the Franciscan formation, and ubiquitous in the project areas—is not simply a mixture of rock types, as the DEIR/EIS describes it. Franciscan mélanges do consist of mixed rock types, including unsheared masses and even large zones of older and coeval units, but they are set in a severely sheared matrix with very high landslide potential. The mélanges tend to be riddled with faults.

The discussion of NSCARP area slope instabilities (p. 3.7-15) is poor. The final paragraph states that the Alexander Valley Bench and "western third" of the Russian River Valley "have a preponderance of land prone to landslides. This is expected given the steep terrain." There is no mention of the fact that most of these areas are underlain by Franciscan formation which, along with faults, are what make the terrain steep, or that the areas of sheared Franciscan matrix coincide with concentrated landslide activities, whether built on or not. AS-19

**Impact GEO-1**, the potential for NSCARP project components to be built in an area of unstable slope conditions is **incorrectly assessed as significant but mitigable**. There is not enough information on site conditions in any of the many hundreds of pages of DEIR/EIS and backup documents, including the so-called (mis-referenced) "feasibility studies" mentioned above, for determining the full list of geologic problems and types of mitigations required to safely locate the reservoirs provisionally sited in steep terrain. AS-20

The results of the "Localized Feasibility Study" (p. 3.7-18) show that the proposed reservoir sites either are located in "weak" (probably meaning landslide-prone) Franciscan rocks, and some sites coincide with fault zones. The consultants' conclusion that the sites are buildable is unsupported, and much better studies must

be done before such a conclusion can be reached. The severity of the conditions for these sites must be determined and quantified for this Program EIR—the level (and costs) of mitigations cannot be determined without them. AS-20 (Cont'd)

Mitigation A, avoiding mapped landslide areas (p 3.7-37) is of limited application in regions underlain by Franciscan mélange. Russian River hillsides underlain by Franciscan sandstones may be quite stable, depending on the thickness and extent. In contrast, any area predominantly of sheared Franciscan has high landslide potential, whether or not landslides have already occurred. Past USGS studies have shown that airphoto mapping of areas may identify only the densest landslide concentrations. **The geologic subunit must be defined and the level of landslide mapping must be specified!** AS-21

For the areas where this project is to be sited, the criterion for locating reservoirs should be the following: **Franciscan and other subunits containing mapped landslides shall be considered unsuitable geologic units for reservoir sites.**

Mitigation C requires assurance that mitigations reduce hazards "to acceptable levels," but does not set the standard for acceptable levels. The hazards are well known for reservoirs in landslide and earthquake-prone terrain. The consequences of dam failure are well known and the contemplated water-holding capacities also are known, as is the path that reservoir waters and sediments would take if released. Thus, acceptable standards of risk can and must be spelled out for possible dam failures from landslide and(or) earthquake shaking hazards. AS-22

**Impact GEO-2**, possible fault-related rupture of waste water distribution pipes, seems to be appropriately mitigated by avoiding construction of the pipes in Alquist-Priolo buffer zones. The words "as much as feasible" renders the mitigation useless, however. In addition, most recent earthquakes have revealed previously unknown faults, and (or) movement on faults believed stable. AS-23

The DEIR/EIS does not mention recent reports on seismic activity in Sonoma County, which show increased seismicity on the Bennett Valley-Maacama fault system and decreased seismicity on the Rodgers Creek-Healdsburg system (see attached). The seismic data are interpreted to indicate that faulting activity is stepping northeast from the Rodgers Creek-Healdsburg fault system to the Bennett Valley-Maacama fault system. Thus, **the potentials for a Maacama fault earthquake are increasing over Healdsburg fault earthquakes**. This is significant to the NSCARP DEIR/EIS because Figure 3.7-3 shows greater potential impacts on Alexander Valley from a Maacama fault earthquake than from a Healdsburg fault earthquake. The higher likelihood of experiencing a Maacama fault earthquake need to be explicitly factored into project construction plans. AS-24

The Engineering measures to be implemented make sense, but the DEIR/EIS must state the standards for resistance to damage from rupture. This is a critical part of determining the project's feasibility. AS-25

**Impact GEO-3**, The inevitable location of NSCARP components in areas of liquefaction potential during earthquakes does not factor in the increased likelihood of Maacama fault earthquakes (see above) compared to Healdsburg fault earthquakes. NSCARP DEIR/EIS Figure 3.7-5 shows that a Maacama fault earthquake yields higher liquefaction potentials, particularly in the Alexander Valley project area, than a Healdsburg fault earthquake. SWiC believes that construction plans should avoid the indicated areas of high liquefaction potential for Maacama fault earthquakes—including the whole southwest part of the Alexander Valley project area; Jimtown; and all along Highway 128 north of the intersection with Alexander Valley Road. AS-26

The DEIR/EIS does not examine the combined hazard of potential rupture of pipes carrying irrigation wastewater due to ground shaking with the relatively high groundwater tables in Alexander and Cloverdale project areas, which increases the potential for polluting potable groundwater. Irrigation pipes, pumps, housings, and other components should not be put into areas with liquefaction potential. AS-27

**Impact GEO-5**, There is no information in the DEIR/EIS to support the contention that potential damage to NSCARP facilities from earthquake-induced ground shaking is Less Than Significant. AS-28

**Impact GEO-7**, Potential disruption to NSCARP pipes and other components by expansive soils may have to be mitigated in many areas by removing the expansive soils. The DEIR/EIS states (p. 3.7-42) that expansive soils are found throughout the project area. The removal requirements are not well enough defined for estimating the costs of such removal, again suggesting that cost estimates probably are inaccurate. AS-29

**Hydrologic and Water Quality Hazards (Section 3.8)**

The hydrogeologic overview of Sonoma County rock types in relation to their groundwater storing and transmitting characteristics (p. 3.8-2) is not complete and contains mistakes. Specifically, at the top of page 3.8-3 we find this garbled statement: "In general, water-yielding formations in Sonoma County are stream channel deposits, alluvium, alluvial fan deposits, and the Merced Formation. Formations that generally produce only low yields of groundwater are basin deposits, such as the Glen Ellen Formation. The only non-water yielding formation in the project area is the Franciscan complex." AS-30

Alluvium is the same as stream channel deposits; the unit called Merced Formation was re-named Wilson Grove Formation some 35 years ago (as properly designated on NSCARP DEIR/EIS p 3.7-1) because it contains layers of volcanic tuff erupted from coeval Sonoma Volcanoes, which are not present in the Merced Formation. In addition, rocks of the Great Valley Sequence and Sonoma Volcanics also crop out in the project area. These omitted units are mentioned in descriptions of some individual basins, however.

The groundwater discussion does not link the hydrogeologic overview, discussed above, to that of individual project area basins (p. 3.8-3 to 3.8-10). Although the overview states (p. 3.8-2) "Groundwater recharge in the study area generally occurs in upland areas adjacent to the groundwater basins," the NSCARP DEIR/EIS does not describe the geology of the flanking hills. According to the US Geological Survey,[2] Franciscan Formation dominates the upland areas surrounding the Alexander and Cloverdale Valleys, with lesser exposures of Great Valley Sequence, and very restricted outcrops of Glen Ellen Formation and Sonoma Volcanics. Neither the Franciscan nor Great Valley units contain good recharge rocks. **Thus, the main recharge for the alluvial groundwater in these areas comes from the Russian River and local feeder streams**, with more limited recharge amounts from alluvial fan deposits and the valley floor alluvium itself. The USGS reports that in normal years (around 40 inches of winter rainfall), the Russian River's summer discharges drop between Cloverdale and Healdsburg,[3] indicating that groundwater withdrawals are replaced with river water. AS-31

The thinness of the alluvial aquifer and the declining groundwater levels, especially in the Alexander Valley,[4] shows the potential for groundwater contamination from irrigation wastewater. The similarity of groundwater and river water compositions reported by USGS show a clear connection between the contents of the river and Alexander/Cloverdale Valley's aquifers.[5] Undoubtedly the same is true for the Russian River Valley project areas. **This means that groundwater assimilation of non-potable wastewater from irrigation will inevitably put wastewater into the river.**

For its proposed Integrated Wastewater Reuse Project (IRWP), the City of Santa Rosa is studying a plan to dispose of some of its tertiary-treated wastewater (the same source of water proposed for NSCARP use) through indirect discharge structures close to the river, assuming that the soils would filter out trace metals and other contaminants before the water can reach the Russian River. Preliminary tests have indicated that soils at three of the four proposed Alexander Valley indirect disposal sites cannot remove most heavy metals to the extent required to meet discharge standards, however. The indirect discharge plan would be no different than directly discharging wastewater into the Russian River, and some wells would be affected. As a result, the City of Santa Rosa has dropped the plan for Indirect wastewater discharges, at least for those three sites (http://ci.santarosa.ca.us/default.aspx?PageId=2355).

If Santa Rosa's IRWP studies have found that many Alexander Valley soils cannot effectively sequester contaminants from wastewater, then the NSCARP DEIR/EIS must assess whether the soils are capable of sequestering contaminants from irrigation wastewater, to be sure that the irrigation program will not discharge wastewaters, largely unchanged, into the local groundwater and the Russian River. AS-32

**Impact AG-4**, Water quality issues are critical to any assessment of this impact but they are not covered adequately in the NSCARP DEIR/EIS, which does not factor in the USGS finding that Alexander Valley groundwater quality has been in decline. The USGS report states: "The ionic composition of samples collected from wells (listed) show a trend towards higher ionic concentrations and an increasing proportion of sulfate in particular. This long-term trend is also reflected by time-series plots of conductivity.... The reason for the slow degradation of water quality ... could be related to localized changes in land use of changes in irrigation practices, including leaching from irrigation."[k] AS-33

SCWA must investigate the possibility that irrigation leaching already is degrading Alexander Valley groundwater and soils, and determine whether the NSCARP irrigation project has the potential to contribute to or worsen this decline. This investigation needs to take place at the program level, so that it will feed into a new determination of the Preferred Alternative.

**Impact PUB-10**, the discussion of public health hazards from unregulated compounds—endocrine-disrupting personal care products, hydrocarbons, pharmaceuticals, and other emerging contaminants in this tertiary-treated wastewater—and the proposed mitigations are inadequate. These pollutants can be destructively effective at very low levels. The DEIR/EIS does not examine the potential for these chemicals to accumulate in soils and reach groundwater. The document inappropriately relies on the 1987 Monterey Study, conducted before development of the instrumentation now used for detecting low levels of contaminants, to minimize the risk from these hazards. In order to assess and manage this impact, mitigations must be expanded to include an ongoing and rigorous program of soil testing to monitor the emerging pollutants. AS-34

**MISSING ITEMS**

**Greenhouse Gases and Global Warming (Drought)**

In addition to assessing the level of energy required to run the project over the long term, the cost to taxpayers, and the rates that farmers may face who use the wastewater, the DEIR/EIS also must address the project's likely greenhouse gas emissions, and the overall potential increases in emissions for Sonoma County. Mitigations must include programs for reducing these contributions and making NSCARP "carbon-neutral." AS-35

In addition, the DEIR/EIS must assess the effects of adding tertiary treated wastewaters to the environment from a large number of leaky reservoirs, as well as throughout extensive systems of pipes (which undoubtedly will leak over time, whether monitored or not) for likely times of extended drought conditions. Extended droughts will dry out soils to deep levels over time and draw down river flows, which in turn will drain groundwater from beneath the Alexander, Cloverdale, and Russian River Valleys, where the groundwater and river waters are demonstrably one and the same resource. Extended droughts will require higher and higher levels of irrigation, which could cause wastewaters to become dominant in some aquifer zones, especially in Dry Creek Valley. AS-36

The only possible mitigation is higher levels of treatment, especially reverse osmosis and microfiltration techniques, to render the waters clean enough for drinking. AS-37

**IN SUMMARY**, SWiG finds that the NSCARP DEIR/EIS lacks the data and assessments for determining the true costs and environmental impacts of the proposed project, in whole or in part. We recommend that it be revised substantially, along the lines suggested above, and re-circulated for public review and comment. AS-38

Sincerely,

Jane E. Nielson

Jane E. Nielson, President
Sebastopol Water Information Group

**REFERENCES**

1. David Wagner, Robert McLaughlin, and Andrei Sarna-Wojcicki, editors, Late Neogene Transition from Transform to Subduction Margin east of the San Andreas Fault in the wine country of the northern San Francisco Bay Area, California; Fieldtrip Guidebook and Volume for the Joint Meeting of the Cordilleran Section, Geological Society of America and Pacific Section American Association of Petroleum Geologists, April 29 - May 1, 2005 (Book 98). Figure 2.9, page 47 (attached).

2. Loren F. Metzger, Christopher D. Farrar, Kathryn M. Koczot, and Eric G. Reichard, Geohydrology and Water Chemistry of the Alexander Valley, Sonoma County, California, U.S. Geological Survey Scientific Investigations Report 2006-5115, 2006.

3. Metzger and others (2006), Geohydrology and Water Chemistry of the Alexander Valley, p. 23.

4. Metzger and others (2006), Geohydrology and Water Chemistry of the Alexander Valley, p. 30-31.

5. Metzger and others (2006), Geohydrology and Water Chemistry of the Alexander Valley, p. 46.

6. Metzger and others (2006), Geohydrology and Water Chemistry of the Alexander Valley, p. 49

Westside Association to Save Agriculture SCWA

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SONOMA COUNTY WATER AGENCY
MAY 17 2007
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PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT - EIR 70-0-7 #__ Padre Associates

May 18, 2007

Mr. David Cuneo
Senior Environmental Specialist, Sonoma County Water Agency
US Department of Interior, Bureau of Reclamation
404 Aviation Boulevard
Santa Rosa, CA 95403

RE: Draft EIR/EIS for the North Sonoma County Agricultural Reuse Project

The Westside Association to Save Agriculture (WASA) and the Healdsburg Area Citizens for Wastewater Reform have been active participants in all administrative proceedings, and have submitted comments during the scoping phases for the project. In 2001, HACWR even sought court intervention to require a complete environmental study of agricultural re-use projects using the "Trojan horse" Geyser's pipeline. All previous comments, questions and requests for additional study during public forums, HACWR's suit and HACWR's settlement discussions are incorporated herein by reference. AT-1

**The primary goal of WASA is to promote stewardship of the land and to protect both agricultural uses and natural resources in the Middle Reach of the Russian River.** Our comments on the Draft EIR/S for the proposed North Sonoma County Agricultural Reuse Project are focused on areas of greatest concern in line with our purpose. In addition, WASA fully supports, but does not reiterate, the concerns and questions raised by Fred Corson PhD, Richard Kagel PhD, and Doug Lipton PhD in the DCVA Natural Resources Committee letter relative to deficiencies and studies required to ensure that wastewater discharged into any of the North County valleys "is of a quality that there is no degradation of surface or groundwater." These concerns are especially important for the Dry Creek and Middle Reach Russian River watersheds, as this is the public trust drinking water aquifer for over 700,000 people.

**In January 2002, Judge Knoel Owen found that HACWR's lawsuit was "pre-mature" because attorneys for the SCWA and City of Santa Rosa argued that no environmental study could be undertaken until they put together a formal plan for an agricultural reclamation project that could be analyzed.** Now, in 2007, the SCWA has prepared a Draft EIR/S that is "pre-mature," in that it has no supportable Project Need, and an incomplete Project Definition - five years later, and there still is little to no committed source of supply for wastewater and few if any farmers committed to trade their fresh water for wastewater. And, AT-2 AT-3

the DEIR/S is so woefully deficient in data, analyses of impacts, and plausible mitigation measures that not only is there no Project – there is no valid environmental document. Throughout the DEIR/S findings of "no significant impact" were made simply because a regulation does not require that certain chemicals or compounds be tested and reported or merely because an Air Quality Plan is not required. AT-4

The DEIR/S conclusions are invalid because they are not based on a committed source of wastewater for the project. Without the known sources of wastewater, their volumes and chemical make-up, the DEIR/S cannot and did not analyze the impacts of spreading billions of gallons of wastewater on the North County agricultural valleys. A coalition of community groups met with the City of Santa Rosa officials and IRWP consultants on April 18th, and Santa Rosa officials stated emphatically that the City/BPU had no plans to deliver wastewater to SCWA or the NSCARP. Healdsburg city officials also indicated they did not have plans to deliver water to NSCARP. AT-5 AT-6

For this reason alone, **WASA is requesting that this deficient DEIR/S be withdrawn and revised / re-circulated only after 1) all sources of wastewater used in the NSCARP are known, committed to and analyzed for heavy metals, organic chemicals and other potential pollutants, 2) the impacts of this specific wastewater stream are fully analyzed, and 3) both the acute and chronic toxicology/ health impacts, including tons of $PM_{10}$ and $PM_{2.5}$ emissions over a 10-year construction period, are fully analyzed.** WASA respectfully requests that the revised, re-circulated DEIR/S actually address and respond to requests for study, valid mitigation measures, information based on new scientific studies, and other information requested by concerned citizens relative to this project beginning in 2001 up to and including all comments received on this deficient DEIR/S. AT-7 AT-8

**Project Definition incomplete/ Alternative Analysis Deficient: Urban Reuse Alternative not studied: To meet the espoused need for more water storage behind the dam, urban reuse projects, with 100% potable water off-set are more appropriate than Agriculture re-use.** There are approximately 20K private wells in the NSCARP receiving area, and an undefined number of agricultural water users in the NSCARP region with rights to direct surface water diversion. AT-9

?Questions:

- Specifically, what are the characteristics of the wells (distance from Dry Creek or Russian River, depth, hydrologic conditions) that would be candidates for potable water offset? AT-10

- How much potable water is to be offset? How much of that amount is to be held behind the dam? AT-11
- How will NSCARP be used to benefit fisheries and fish habitat? AT-12
- What is the commitment to hold water to benefit fish vs. water to benefit other uses? AT-13
- Where is the data to substantiate potable water offsets from NSCARP, and what those offsets will be used for? AT-14
- How will other aspects of the NSCARP, wastewater runoff and frost protection activities, using wastewater contaminate threatened fish habitat with endocrine disruptors and other chemicals known to harm these threatened species? AT-15
- What mitigation measures are recommended to prevent, enforce, and mitigate surface and groundwater contamination? AT-16

**No Substantiated Infrastructure Need:** The DEIR/S (ES-1 and 1-3) states an infrastructure need, and this need is not substantiated either. AT-17 The DEIR/S states, "there is also a need for adequate infrastructure to store and distribute recycled water produced by various entities for reuse throughout the region". The "environmentally superior" alternative, Alternative 2, proposes storage and delivery capacity for 13,000 af of wastewater annually. Yet, most currently known sources of wastewater Santa Rosa, Windsor, and the Airport/Larkfield/Wikiup Sanitation Zone are projected to generate only 7,324 af today. The DEIR/S forecasts that these same uncommitted wastewater sources will generate an additional 8,500 af by 2020.

Not only are the majority of these sources uncommitted to deliver water to NSCARP, but extensive *work by Brenda Adelman, Russian River Watershed Protection Committee* draws into question assumptions about future wastewater generation even if Santa Rosa's wastewater was committed to the project in the future. AT-18

**1st Analysis: Dry Weather Flows: Dry weather flows are the basis for determining treatment plant capacity.**

| Source: SR Annual Report | Daily Average Dry Weather Flow/ Month (million gallons/day) | | |
|---|---|---|---|
| Year | July | Aug | Sept |
| 2000 | 17.6 | 17.8 | 17.51 |
| 2001 | 16.37 | 16.47 | 16.45 |
| 2002 | 16.32 | 16.36 | 16.2 |
| 2003 | 17.25 | 17.26 | 16.94 |
| 2004 | 16.84 | 16.73 | 16.55 |
| 2005 | 18.15 | 17.62 | 17.3 |
| 2006 | 17.32 | 16.88 | 16.4 |

**Brenda Adelman: Russian River Watershed Protection Committee**

***Brenda Adelman states: The numbers above were taken from the City's Annual Report and represent the daily average per month in million gallons per day. These numbers represent the three lowest months when there is no rainfall and inflow and infiltration into the system do not occur. In other words, this represents the true flow from users of the system.***

***The current system capacity is rated at 21.3 million gallons a day (mgd). This chart indicates that dry weather flows have remained relatively constant between 2000 and 2006 (hovering in the 16 – 18 mgd range for dry weather flows). Santa Rosa's General Plan states the City's population in 2000 at 158,600. According to a report to the City Council on March 27, 2007, the population (Dept. of Finance) for Santa Rosa was 157,150 in January, 2006. In six years, the City's population has slightly declined.***

***Yet the Master Plan and Environmental Impact Reports for Santa Rosa's competing project, the Incremental Recycled Water Program (IRWP), are based on developing infrastructure to attain almost 26 million gallons a day, supposedly necessary to serve growth projected to 2020.***

- ***The average dry weather flow in 1985 was about 13.5 mgd.***
- ***From 1985 to 2005 – a span of 20 years with 2005 having a dry weather flow 3 million gallons/ day higher than either 2004 or 2006 – the average dry weather flow grew by only about 4 mgd.***
- ***Yet, infrastructure projections are to accommodate growth by 9 mgd for 2020, only 13 years away.***

?Given the sub-regional system is the largest potential, but uncommitted wastewater supply, the City of Santa Rosa's population and water use has been exhibiting a downward trend, and dry weather flows are relatively stable, what is the quantitatively defined infrastructure need for the NSCARP?

AT-19

?Given known plans exist to increase the flow of wastewater to the Geysers steam field (Santa Rosa BPU voted recently to study the expansion of Geysers discharge from 11 mgd to 19 mgd), how do these plans reduce the need for Ag Reuse Infrastructure? AT-20

It is WASA's position that wastewater disposal remain in the area that generates the wastewater, with the exception of disposal in the Geysers. Current Ag Reuse reclamation land should remain the location for Ag-reuse wastewater disposal, Urban Reuse projects implemented and river discharge remain below the SCWA drinking water wells.

?Given we have nearly 15 years experience, in addition to retaining ag-reuse on the lands historically irrigated with Santa Rosa's wastewater, we again request that studies be initiated to study the accumulation of heavy metals and organic chemicals in the soils of these lands. AT-21

***2nd Brenda Adelman Analysis: Likewise, data exists on the current commitments and disposal of wastewater from the Sub-regional system. Currently, disposal is through ag reuse on 6,400 acres of land in sub-regional system, River discharge at the Laguna and the Geysers steam field via the Geysers pipeline.***

*The chart below shows the correlation between the amount of wastewater disposal and annual rainfall, with 1998 having the largest total influent/highest rainfall and 1999 with the lowest. Since the Geysers discharge option has become available, we have experienced a dry year 2004 and a wet year 2005. The data shows an interesting trend, both a reduction in River Discharge and current Ag-Reuse reclamation, with nearly 2 billion/gallons/year LESS going to farmers in 2004-2005 than in 2000-2001.*

*Santa Rosa is assuming the need to size a discharge project for 4.4 Billion Gallons/ year which is three (3) times more than 2005's discharge, and 2005 was a very wet year.*

? What are the growth projections used for the NSCARP, and how do they relate to the real flow from the sub-regional system? How much flow is actually projected, and how does this translate into new housing stock in Sonoma County? AT-22

?Given the current discharge to the Geysers steam field may increase by close to 50%, how will this increased discharge factor into obligations for Santa Rosa to deliver wastewater to its current 6,400 acres of ag land for reclamation disposal? AT-23

?If the Santa Rosa sub-regional system cannot meet its obligations to current 6,400 acres used for reclaimed water disposal, how does the NSCARP justify infrastructure need? AT-24

?What obligations does the City of Santa Rosa have to deliver water to the current Ag Users? What actions/mitigations are proposed in NSCARP to prevent Santa Rosa or other sub-regional system users from AT-25

AT-25 (Cont'd)

abandoning current ag reuse lands and converting those lands to additional development?

| Year | Total Influent (BGal/Yr) | Rain (inches) | Ag Reuse (BGY and % Total) | River Discharge (BGY and % Total) | Geysers Discharge (BGY and % Total) |
|---|---|---|---|---|---|
| 1995 | 8.4 | 40.5 | 3.63 43% | 4.77 57% | NA |
| 1996 | 8.33 | 44.2 | 3.71 45% | 4.62 55% | |
| 1997 | 7.48 | 27.4 | 3.82 51% | 4.62 49% | |
| 1998 | 8.67 | 51.2 | 3.44 40% | 5.23 60% | |
| 1999 | 7.72 | 27.5 | 3.64 47% | 4.08 53% | |
| 2000 | 7.64 | 30.0 | 4.08 53% | 3.56 47% | |
| 2001 | 7.39 | 35.6 | 3.96 54% | 3.43 46% | |
| 2002 | 7.38 | 30.0 | 3.68 50% | 3.70 50% | |
| 2003 | 7.51 | 25.6 | 3.33 44% | 4.18 56% | |
| 2004? | 7.4 | 29.5 | 2.43 33% | 1.81 24% | 3.82 52% |
| 2005 | 8.06 | 40.9 | 2.28 28% | 1.33 17% | 4.45 55% |

**Brenda Adelman: Russian River Watershed Protection Committee**

AT-26

?The Laguna – current discharge point – is impaired for nitrogen, phosphorus, dissolved oxygen, temperature, and sediment. How will these impairments be mitigated at the new discharge points and for the 21,000 acre ag-reuse areas?

AT-27

?If the NSCARP is to serve new growth in Sonoma County, who is going to be taxed for the additional $400M? Will the North County "receiving area" be asked to pay a double tax - first with the quality of life and quality of wines and second with tax assessments to pay for NSCARP?

AT-28

?What requirements are in the NSCARP for cities producing wastewater to fix leaky pipes that cause a spike of wastewater in the winter, and the need for expensive and environmentally damaging storage reservoirs?

AT-29

?How much of the capacity of the NSCARP reservoirs are required for storm water and leaky pipe inflow? How much does this increment cost and how do those costs compare to fixing the leaky pipes?

*"When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof."*

**On April 19, 2007, Santa Rosa's BPU held a study session on one aspect of the toxicology and risk associated with wastewater disposal. Several scientists discussed the toxicology risk assessment. Simply, Risk = Exposure x Toxicity**

**The exposure assessment model for hazardous waste is germane to the issue of acute and chronic health impacts to the residents of the North Agricultural Valleys from the NSCARP. The exposure assessment takes into consideration the SOURCE of the toxic substances and how this SOURCE interacts with AIR, SOIL, SURFACE WATER, and GROUNDWATER.**

**Assuming the SOURCE is 3.6 – 4.5 Billion gallons of wastewater, with an unknown chemical make-up, each year compounded by a 10 year construction period generating over 1000 tons of NOx and $PM_{10}$ and $PM_{2.5}$ emissions.** The DEIR/S Air Quality section actually stated that the "Russian River and Dry Creek Valley NSCARP sub-areas have been modeled by the ARB Air Toxics Section, which determined that the combined risk from all [air pollutant] sources to be less than **250 excess *annual* cancer deaths per million people**.

**So, what is the cumulative impact of all the sources of toxic substances from the NSCARP, and how do these chemicals interact with each other forming even more toxic elements. These studies are not presented in the DEIR/S nor are studies/ analysis of how the toxic compounds move into sensitive receptor's systems through:** AT-30

- **Inhalation and ingestion of household soil contaminated by years of wastewater application** AT-31
- **Inhalation of air pollutants from frost protection spraying and during the construction period – with a prolonged exposure to $PM_{2.5}$ emissions. These "respirable particles" ($PM_{2.5}$ emissions) pose the greatest threat to human health because, for the same mass, they absorb more toxic and carcinogenic compounds than larger particles and penetrate deep into the lungs and lung capillaries.** AT-32

- **Ingestion of well water contaminated with heavy metals and organic chemicals not removed from the wastewater that leached through the gravelly alluvial soils, and** AT-33

- **Not to mention, copious ingestion of the grapes/wine grown in this toxic soup.** AT-34

**The NSCARP does not analyze the public health impacts of wastewater disposal, and does an even worse job of analyzing the impacts to even more sensitive receptors – threatened fish species.** *Science News* **article, Traces of Trouble, (3-10-07) it states, "Researchers had found that concentrations as low as a few parts per trillion lead to reproductive abnormalities in fish."** AT-35

**Inadequate analysis of the impacts of organic chemicals on sensitive indicator species**: At the April 19, 2007 BPU study session on the potential toxicology of Pharmaceuticals and Personal Care product residues in Recycled Water, *Brenda Adelman critiqued the EPA study of wastewater from 50 treatment plants – the Vitellogenin Screening.*

*This study was limited to a narrow focus: 1) to establish test procedures for the presence of estrogens in waterways, and although that goal may have been accomplished, the test did not answer many questions about wastewater impact on fish, and 2) to determine whether there was estrogen (mainly EE2 and EE3) present in the waterways of the Russian River Area and the Central Valley. There was no attempt to determine whether there were estrogens in the wastewater or, when estrogen indicators were noted, what caused the hits, or what impact estrogen might be having on the fish living in the waterways.*

*While not much estrogen showed up in ambient waters, the impact on fish living regularly in very low levels on a consistent basis is not known. The test only considered estrogen exposures and did not look at any other chemicals. It was not know where the estrogen came from and it was not known if bioaccumulation of estrogens in the sediments occurred. Simply identifying the existence of vitellogenin will not tell you what its impact will be and the absence of vitellogenin does not provide an "all clear" sign.*

*It appears that the testing protocol was as follows:*

- *There were 13 sampling and testing events connected with this test and the Laguna/Russian River area was represented in 8 of the tests.*
- *Events 1 to 4 had 24 hour exposures, and were tested at a qualified lab in Davis.*
- *Events 5 through 13 had trout exposure extended to 8 days were at the US EPA labs. The latter tests had more positive results and appeared to be more sensitive. However, one of the events included only Healdsburg and only two events took place during the discharge season.*
- *There was ONLY ONE SAMPLE taken from Santa Rosa's effluent at the end of the treatment chain. It appeared to contain no estrogens.*

- *The test for vitellogenin through the screening of ambient waters used mostly samples taken in summer, and not when wastewater is generally discharged.*

*Based on this one sample, it is impossible to draw any conclusions about the regular presence or non-presence of estrogen in the Santa Rosa's wastewater. Such a study would require numerous composite samples over a lengthy period of time to prove that the City's wastewater is consistently void of estrogens.*

*This EPA study tells us nothing about other chemicals in personal care products and pharmaceuticals, not to mention all the chemicals people pour down their drains. The number of samples and duration of the exposure was so limited, that it would be hard to extrapolate from it – although it was a good start to determine testing protocols, many more testing periods are required before any conclusions can be drawn. The study says next to nothing about what results might have been achieved with a 30 day rather than 8 day exposure. This study just looked at estrogen and did not attempt to see it in combination with the soup of other chemicals. Most of all, the study did not look at potential intergenerational effects or the possible effects on aquatic life that serves as the food source for fish.*

?Are there any plans to do additional studies of this sort? Which of the following factors have been (if so what are the answers) studied and which will be studied prior to changing the discharge point of wastewater? Study of the variables of fish development and/or reproductive impairment based on:

- Type of chemical and amount
- Species variables
- Life stage
- Duration and level of exposure
- Timing of exposure
- Genetic propensity within species

AT-36

?Given discharges occur in winter and are limited to 5% of the flow, what are the potential impacts of recycled wastewater in the discharge stream during different flow regimes?

AT-37

?How will the impact of the application of billions of gallons of wastewater upstream from the drinking water wells increase the potential for organic chemicals – including but not limited to estrogenic impact, be measured?

AT-38

?How does the wastewater, with a large component of TOC, which runs over fields that have been bathed in chemicals, interact with these normal farming chemicals? What risks are associated with this new chemical soup being washed off into the creeks and streams? AT-39

?What about the impact of the discharge at the point of discharge, not 12 to 14 miles downstream where the 5% discharge flow is measured. Of course in winter, flows are usually greater in general, but at most times the disparity between Laguna flow and river flow at the Hacienda Bridge is significant. AT-40

?What is the justification for the Russian River Valley-Westside Subset? How do you justify the impacts to these steep canyons with salmon spawning creeks, when this area is the least water deprived? AT-41

?If the development of wastewater reservoirs in steep Westside Road canyons lead to damaging hillside vineyard conversions, who will pay for the impacts to the salmon spawning creeks? AT-42

Aesthetic and Growth Inducing Impacts:

NSCARP is an enormous industrial project – most likely the largest in Sonoma County. The "environmentally superior Alternative 2 with minimization of environmental impacts" plans to cover 21,500 acres with purple pipes, construct 19 reservoirs totaling 11,200 acre-feet in storage, and construct 112 miles of transmission pipeline, along with numerous booster and distribution pumping stations. AT-43

The NSCARP does not discuss either the aesthetic/economic impacts of the project, or the growth inducing impacts. To state that the merely the "location of the ag-reuse and discharge will change" and declare no environmental impacts does not pass the red face test. Currently there is no wastewater discharge in the pristine north county agricultural valleys, and discharge of wastewater is in the Laguna. Moving these discharge points poses the threat of significant impacts – the NSCARP proposes to replace 6,400 acres of ag land below the SCWA water wells with 21,000 acres of land irrigated with wastewater above its water wells. In addition, with the exception of one potential discharge point, the River discharge is proposed above and within the drinking water aquifer. AT-44

**Does unfettered urban growth pay off? NO. Over the past decade, Santa Rosa has raced head-long into becoming "anywhere USA." In just 5 years, Santa Rosa has fallen from the top (#2) on the *Forbes Magazine* list of the best places for business and careers to the bottom of the list of 200 (#185), joining the ranks of Brownsville, Texas.** Meanwhile, Sonoma County's agricultural valleys, and towns like

Healdsburg with a growth-management plan, have become international destinations. Both the North County and West County are managing their growth and aesthetics to accommodate tourism, recreation, natural beauty and agriculture.

Santa Rosa residents and decision-makers have made their choices, and now must accommodate the wastes that come with those choices. As a regional planning agency, the SCWA preserve the public trust drinking water aquifer, not translate Santa Rosa's choice of urban sprawl to a plan that destroys the economic base of the agricultural and tourism industries in North County or West County. AT-45

?How will the NSCARP affect the supply and demand balance in the proposed Sonoma County Urban Water Management Plan as well as in the UWMP's for any particular city or agency that is proposed for supplying wastewater to NSCARP? AT-46

?What is the real supply/quantity/source of water that will fuel these projections of future growth? AT-47

?What are the projections of future water availability in drought years? How do these projections relate to current population vs. future urban growth scenarios. AT-48

?How are savings from water conservation being captured? Are these savings being used to fuel more development? And, if so, how does the SCWA UWMP plan to provide a supply of potable water for that growth? AT-49

?How and in what quantities will the diversion of wastewater to the NSCARP and other projects reduce or eliminate opportunities to offset potable water demands in the service areas of SCWA contractors and other municipal water suppliers? AT-50

As the regional planning agency for water, the SCWA must determine the cumulative impacts of NSCARP and other developments on water quality and public health and safety. **The DEIR/S analysis of impacts on water quality and public health and safety, especially from surface and groundwater contamination from soluble organic chemicals with biological impacts at very low concentrations, is inadequate.** There is no discussion of similar negative impacts from the many other wastewater discharge and reuse projects under consideration in the NSCARP area including Santa Rosa AT-51

?What are the cumulative impacts of all the projects proposed for wastewater discharge? AT-52

?Questions: The known projects include but may not be limited to:

- IRWP Master Plan projects need for 1.2 billion gallons of additional storage capacity.
- What are the storage and discharge needs of Windsor and Healdsburg? AT-53
- How do the SCWA EIRs for the Russian River County Sanitation District irrigation projects interrelate with the NSCARP?
- How does the proposed pipeline from Guerneville Treatment Plant to Graton interrelate with the NSCARP?

?What studies have been done to determine the concentration effects resulting from all of these projects in combination with reduced flow in Dry Creek and the Russian River ( reduced Eel River diversions, the pending Biological opinion, Resolution 1610 considerations, and climate change)? AT-54

?What are the cumulative environmental and health effects of all of the projects listed above? AT-55

?What exports of waters from the SCWA service area are assumed? What are the cumulative impacts of water exports, including those from the proposed Napa Sonoma Baylands Marsh Restoration Project? AT-56

**Agricultural Impacts:** Community groups have been requested adequate studies for the past 5 years, but the DEIR/S is not based on studies using modern analytical techniques. AT-57

? What do the analyses show from the analysis of pathogens: (1) in the treatment plant effluent – what does the analyses show when there is short duration disinfection by UV, (2) pathogen interactions while wastewater is in storage, and (3) pathogen levels prior to reuse application. AT-58

?How is "incidental run-off" defined? How will "incidental run-off" be managed? AT-59

?What studies have been done by SCWA or others to determine the impacts on grapes, especially pinot noir, zinfandel and other varieties grown in the Agricultural valleys? AT-60

?What do the studies show about salt build up in the soil, potential impact on vine viability, and potential to leach into the groundwater? AT-61

**Air Quality Impacts are compounded by Climate Change: The DEIR/S air quality analysis indicates that the quickest project build-out rate for the "preferred alternative 2 with minimization of environmental impacts" is 10 years, and that the actual rate of construction may actually occur over a longer period.**

?How will construction sediment be monitored? What will happen if sediment begins impairing threatened fish habitat? AT-62

The Criteria Air Pollutants and Toxic Air Contaminants from diesel exhaust are carefully described in Table 3.3-1, with section 3.3.1 revealing the fact that diesel combustion emissions are the Toxic Air Pollutant responsible for most excess cancer deaths in the Bay Area. Although not required to do a "health risk assessment" the Section states that "mobile sources, such as diesel construction equipment, contribute twice as much to the toxic burden as all other stationary sources combined."

**In fact, page 3.3-6 of the Air Quality section actually states "...much of the Russian River and Dry Creek Valley NSCARP sub-areas have been modeled [by the Air Resources Board Air Toxics Section]. For the areas that have been modeled, combined risk from all [air pollutant] sources is estimated at less than 250 excess annual cancer deaths per million people.**

?If construction lasts for over 10 years, how many excess cancer deaths are expected in North County from this project? AT-63

?Why are quantitative thresholds criteria not applied to mobile construction sources? How can this be justified with a massive project spanning 10 years? AT-64

Tables 3.3-3 (quantitative thresholds) and 3.3-4 (NSCARP peak annual construction emissions) are shown below.

?Given the Peak Annual Construction Emissions will exceed the Significance Threshold, and the duration of the impact is a decade, what TRUE mitigation measures are recommended? AT-65

? What is the energy balance for this project, including the energy used in construction and the energy used during operations (daily and annual use of energy for pumping wastewater) AT-66

| Pollutant | North Sonoma County Air Board Significance Threshold (Tons/Yr) | NSCARP Peak Annual Construction Emissions (Tons/ Yr) |
|---|---|---|
| **NOx** | **40** | **65.5** |
| ROG | 40 | 6.9 |
| **$PM_{10}$** | **15** | **43.6** |
| CO | 100 | 25.3 |

Both NOx and $PM_{10}$ significantly exceed the standard, and both are acute irritants.

- $PM_{10}$ particulate matter health effects include "aggravation of chronic disease and heart/lung disease symptoms'.
- NOx, which "may have a relationship with chronic pulmonary fibrosis and an increase in bronchitis in young children," also contributes to the formation of the deadly $PM_{10}$.

So, one toxic air substance feeds the development of the other, not to mention acid rain.

?What is an "excess cancer death" and how is this an acceptable outcome of this project?

AT-67

The DEIR/S states that the air quality impacts are SIGNIFICANT, and then outlines minimal mitigation measures for this Significant Environmental and Health Impact.

- Mitigation AQ -1A: Lists 12 simple street watering, sweeping and vegetation planting mitigation steps to reduce fugitive dust.
- Mitigation AQ -1B: Lists 4 minimal, barely enforceable, and only ***when feasible*** steps to help reduce emissions from construction equipment exhaust (NOx, ROG, CO).
    - Use alternatively fueled construction equipment, *where feasible;*
    - Minimize idling time (3.g. 5-minute maximum)
    - Maintain properly tuned equipment; and
    - Limit the house of operations of heavy duty equipment and/or the amount of equipment in use, *to the extent feasible.*

**AQ -5: Expose sensitive receptors to toxic air contaminant pollutant concentration:** This section alleges that the majority of the total $PM_{10}$ emissions would be in the form of fugitive dust from soil disturbances rather than from diesel engine exhaust. We are led to believe that of the 608.1 lbs/day of peak daily $PM_{10}$ emissions, only 47.1 lbs/day would be

in the form of engine exhaust.

?**How much of these engine exhaust -related $PM_{10}$ emissions are actually the far more problematic $PM_{2.5}$ emissions?** AT-68

?What data and analysis backs up the assumptions and conclusions drawn about this significant impact. The DEIR/S must include specifications on how many construction vehicles, their hours of operation, or the type of fuels used. AT-69

?How does the DEIR/S comply with the newer EPA standards for **$PM_{2.5}$ emissions**? AT-69

Recent data shows that **$PM_{2.5}$ emissions may pose the greatest threat to human health because, for the same mass, they absorb more toxic and carcinogenic compounds than larger particles and penetrate more easily deep into the lungs. These "respirable" particles can enter the lungs and end up in lung capillaries and air sacs (alveoli).**

?What mitigations will avoid the formation of $PM_{2.5}$ emissions? AT-70

?How will sensitive receptors in the construction zone be warned of the impacts to their health from exposure to **$PM_{2.5}$ emissions.** AT-71

**DEIR/S does not assess the impact of fugitive dust or $PM_{10}$ emissions on threatened fish species or crops.** The conclusion that NSCARP generates 608.1 lbs/day of peak daily $PM_{10}$ emissions raises the question as to how much coarser dust is generated, and how much silt will go into the tributaries and into salmon spawning streams. AT-72

?In addition to watering down the construction site, what mitigations will be in place to prevent damage of premium grapes from fugitive dust? Particulate matter can damage vegetation both directly and indirectly. When exposed to particulates, plants may suffer increased disease, leaf cells may be damaged, and yield and growth rates may be reduced. AT-73

?What data and analyses are available on the potential impact to threatened fish species from all this earth moving? What mitigations or actions must be taken if there is an accident? AT-74

Just like the emerging science around testing for organic chemicals, the Epidemiology journals are full of studies on the correlation between **$PM_{10}$** diesel emissions and acute respiratory health effects. The EPA and health organizations are concerned about **$PM_{10}$** emissions – these are

responsible for most of the adverse human health effects because of their ability to reach the lower regions of the respiratory tract.

Many of the residents in the NSCARP area live surrounded by vineyards, and are exposed to fugitive dust and diesel emissions on a daily basis; thus a decade long construction period becomes extremely relevant.

?Did the DEIR/S analysis factor in the baseline level of fugitive dust and chemical exposure of people living among the vineyards? AT-75

?Define the steps that will be taken to enforce mitigations for green house gases and $PM_{10}$ and **$PM_{2.5}$** emissions. DEIR/S must define stringent enforceable mitigation measures, including measures specifically to control $PM_{10}$ and **$PM_{2.5}$** emissions, and must define the steps that will be taken to enforce the mitigations. AT-76

**Impact AQ-2: Conflicts with Air Plan** (page 3.3-14) states "If all applicable $PM_{10}$ control measures recommended by the BAAQMD are implemented during the construction phase of a project, emissions may also be considered less than significant (BAAQMD, 1999). As all recommended $PM_{10}$ control measures have been implemented (see Section 3.3.5), no conflict with the Clean Air Plan is expected to result from construction of Alternatives 2, 3 and 4. This is a less than significant impact."

**?The version of the DEIR/S downloaded from the internet has NO Section 3.3.5: Specifically, what are the $PM_{10}$ emission control measures, and what steps will be taken when the $PM_{10}$ emissions exceed air quality standards?** AT-77

**Climate Change Impacts:** On May 10, 2007, a renowned climate change scientist and winner of the MacArthur Fellowship – Dr. Steven Schneider PhD (Stanford University) presented findings about the side effects of climate change on premium grape growing. His example is germane to the plight of our North Agricultural Valleys.

We're all aware of how global warming has influenced the timing of snow pack melt, now 2 weeks earlier than 100 years ago. And, we're aware that the longer period of summer heat increases the demand for water, placing additional stress on premium grapes. Now, compound this with the even greater stress on grape vines from the increase in greenhouse gas emissions (NOx, CO2, CH4). Dr. Schneider's study showed that currently the Napa and Sonoma valleys are "OPTIMAL" for producing high quality grapes, while the Coastal regions are "Low Optimal."

We've all seen the graphs showing how greenhouse gas emissions are growing exponentially – these graphs are just the background levels of carbon emissions. The study ran two scenarios – what happens to wine grape quality when greenhouse gases double and triple. In these scenarios, without the NSCARP project, the Sonoma/Napa growing region moved from its current state of OPTIMAL to MARGINAL to IMPAIRED for premium grape growing.

**Given the NSCARP construction period is projected to generate another 1000 tons of these same greenhouse gases, the cumulative impact on soils, crop vitality and grape quality must be studied.**

AT-78

?So, how much faster will grape quality go from OPTIMAL to IMPAIRED when over 1,000 additional tons of NOx and PM10 are deposited in the North Ag Valleys over the 10 year construction period?
?What data or studies have been done to show the impacts of the stress of air pollutants on premium grape production? Grape quality?

?What happens when these tons of particulates land in salmon spawning streams? How will these impacts be mitigated?

AT-79

**Wastewater Quality Impacts on threatened fish and groundwater resources**: The DEIR/S (3.4-14) indicates that several special-status fish species use habitat in the NSCARP-- the California Coastal Chinook salmon, the Central California Coast coho salmon, and the Central California Coast steelhead. **The DEIR/S then goes on to state that there is no significant risk simply because a regulation does not require that certain chemicals or compounds be tested and reported** – this is not a good faith environmental assessment –it is well known that certain chemicals and endocrine disruptors do exist and do harm sensitive receptors.

AT-80

Impact BIO-7 (3.4-44) and BIO-8 (3.4-45) analyze the potential of organic and inorganic compounds and endocrine disrupting compounds to increase ecological risk to animals and plants exposed to wastewater and conclude that risk is not significant. The basis for this conclusion is limited only to the requirements of Title 22. Title 22 requires only that the wastewater has received tertiary treatment and has been disinfected. This regulation contains absolutely no standards relative to any chemical contaminants with potential human health and environmental impacts. Presumption that because this treated wastewater meets the requirements of Title 22 there will be no negative impacts on human health or biological resources will be inappropriate. Title 22 is irrelevant to potential damage from organic and inorganic chemicals including endocrine disruptors.

AT-81

In addition to those defined in Title 22, the wastewater delivered to North County must meet the requirements of the California Toxics Rule, Basin Plan and Anti-degradation Policy. In other words, Santa Rosa's wastewater must meet the quality requirements recently issued by the North Coast Regional Water Quality Control Board (NCRWQCB). Order R1-2006-0045 recently issued by the NCRWQCB includes a Master Reclamation Permit with requirements and provisions for use of Santa Rosa Sub-regional Water Reclamation System effluent in storage and reuse projects.

- Effluent for storage and reuse must meet all the effluent limitations contained in Section IV of the Order (Order, Attachment G, pg G-2).

AT-82

- The collection, storage, and use of wastewater or recycled water shall not cause or contribute to a statistically significant degradation of groundwater quality (Order, pg 17).

- The use of recycled water shall not cause degradation of any water supply (Order, Attachment G, pg G-4).

- And, discharger shall prepare a Groundwater Monitoring Program and a Storage Pond Leak Monitoring Program sufficient to demonstrate that reuse and storage are not degrading groundwater quality (Order, pg 20).

Nearly every month, another chemical is added to the list of what is referred to as "Chemicals of Emerging Concern". As each chemical is added to the list, test methods are developed to measure for this chemical and as soon as laboratories begin testing for this new chemical they begin to find it. This experience teaches us that we do not know if any particular chemical will be found unless a test method exists and laboratories are testing for it.

Again, WASA supports the work of the DCVA in documenting deficiencies in the DEIR/S in regards to Water Quality, Biotic Resources and Public Health.

AT-83

No organization has more in the public record on the issue of wastewater contamination of our precious groundwater resources than WASA. Along with the North Coast Regional Water Quality Control Board, WASA entered into litigation against Healdsburg's plan for a "direct discharge to groundwater" via Pond V. And, we applaud the City of Santa Rosa for completing the studies and wisely removing their "Indirect Discharge" alternative from consideration.

AT-84

In conclusion, the cumulative impacts of the NSCARP on the people, threatened fish species and premium crops of the North Agricultural Valleys must be studied, with an adequate environmental assessment prepared prior to embarking on any wastewater disposal project. The current DEIR/S is so deficient that it must be withdrawn, revised and re-circulated. Once groundwater is contaminated, it's contaminated forever. Once the economic draw for Sonoma County is compromised, we'll all be living in a Brownsville, Texas clone.

Sonoma County knows how to do the right thing – let's clean up the wastewater stream before considering its application to prime agricultural soils.

Sincerely,

Dennis Hill, President

Westside Association to Save Agriculture
PO Box 818
Healdsburg, CA 95448

**David Cuneo**

**From:** teve@att.net
**Sent:** Thursday, May 10, 2007 8:27 PM
**To:** David Cuneo
**Cc:** teve@att.net
**Subject:** Recycle water used to irrigate crops in Dry Creek Valley

Dear David, My name is William Tevendale and I live at 4365 West Dry Creek Road, Healdsburg, California,95448. I am a native of 64 years of Dry Creek Valley. I protest the plan to use recycled sewer water to irrigate the farmland in Dry Creek Valley. My reasons are many but I shall list and discuss a few here. First of all we have always had enough water for the farms and population of Dry Creek Valley without the Lake Sonoma. The farmers when I was a child in the 1950's used all the water they wanted. We swam in Dry Creek all summer with deep pools of water. The farmers of today are much more efficient using drip lines instead of flood or sprinker head irrigation. The number of homes has increased but these homes do not use a huge amount of water compared to the water availabilty. Therefore, it is not people of Dry Creek that need to be concerned with the water problem. We know where the water need is comin g from, the municipalities. The sewer water problem is not our problem either. HERE is my concern. My WATER WELL is located on the rich farmland on the valley floor. The water is from 18 to 20 feet below the surface(ground). The soil is sandy and called loam by some farmers. The percolation rate is extremely fast because of the sand etc. In fact some of the areas perc to fast to put in a septic leach line. PROBLEM. If the farmer that owns the land around my well or one upstream irrigates with the recylced water from the treated sewer water it will quickly find it way (percolate) to my water in my well. My water will be contaminated. The newspaper articles debate the safety of having this water in our drinking water. They speak of metals, hormones, and other harmful substances in this recycled water. I know engineers that study this topic disagree. I also know that most engineer s and government officials will not drink glasses of this recycled water out of the plant where it is filtered. Why do we worry about the future of wine and its quality in our county when the more precious substance is our pure water. I drink our water from the tap and enjoy it. I do not want to buy bottled water in the future because my water is unfit to drink. On a trip recently to Alcapulco, Mexico the girl tour guide could not believe we could drink our tap water. She was amazed that we could. Let's not let that happen to us. We have time to save our water. I would rather have less water if it means having pure water. What is the use of using recycled water and polute our good water just to have more water. More is not better if it is poluted. Stop the Dry Creek recycle plan. Bill Tevendale 707-433-3551 If you have questions or comments on my email please feel free to contac t me.

AU-1

AU-2

AU-3

**David Cuneo**

**From:** teve@att.net
**Sent:** Friday, May 11, 2007 3:49 PM
**To:** David Cuneo; Sara Banti
**Cc:** teve@att.net
**Subject:** RE: Recycle water used to irrigate crops in Dry Creek Valley

David, Thanks for acknowledging my email to you about recycled water. I did not think I would get such a quick and nice response. I do have questions for you or your staff. Do I have to be worried about my well water here in Dry Creek Valley being polluted by the sewer recycled water from irrigation? Remember my well water is very close to the ground. Would you drink this recycled water yourself? Would you let your children or other children drink it? Frankly I am very concerned and frightened about this situation. Please include these concerns as well in the information for the record. Bill Tevendale, Dry Creek Valley.

AU-4

---------- Original message from "David Cuneo" <david@scwa.ca.gov>: ----------

Thank you for submitting comments on the North Sonoma County Agricultural Reuse Project. I will make sure that this email and your follow-up email are added to the record. We will be preparing a response to comments document (expected this summer) where we provide responses to all comments submitted. Thanks again and please contact me if you have any questions or need additional information regarding this project.

David Cuneo
Senior Environmental Specialist - Wetlands and Botanical
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403
707-547-1935
707-975-5727 (cell)

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**From:** teve@att.net [mailto:teve@att.net]
**Sent:** Thursday, May 10, 2007 8:27 PM
**To:** David Cuneo
**Cc:** teve@att.net
**Subject:** Recycle water used to irrigate crops in Dry Creek Valley

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**David Cuneo**

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**From:** teve@att.net
**Sent:** Thursday, May 10, 2007 8:50 PM
**To:** David Cuneo
**Cc:** teve@att.net
**Subject:** Recycled Water

David I forgot to mention that since I was a child in Dry Creek Valley, many people have built dams and formed small lakes behind them which also supplies water that has been store from the winter runoff. This water would have gone down the Russian River and out to sea without these dams. This adds to our valleys water supply .Bill Tevendale

**David Cuneo**

**From:** WWW User [www@sonic.net]
**Sent:** Thursday, April 12, 2007 11:34 PM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
---

Name: Anertukirt

Phone Number:

E-mail Address: lolulerter@vas.com

Comment:
How do you do...
Excellent forum with fantastic references and reading.... well done indeed...
<a href=http://payday07loans-07.blogspot.com>loans</a>
http://payday07loans-07.blogspot.com
Forgive that beside You was little ed!
<a href=http://airlinetickets3.blogspot.com>airline</a>
http://airlinetickets3.blogspot.com
There was merrily!

**David Cuneo**

**From:** WWW User [www@sonic.net]
**Sent:** Wednesday, April 25, 2007 7:53 AM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Cirruzhanxo

Phone Number:

E-mail Address: cartzzz@ua.fm

Comment:
I am newbie,
you created the beatiful createad place ..!
Someone here was got to create <a href=http://biglietti-d-auguri-natalizi.biglietti-auguri.org>biglietti d auguri natalizi</a> Hm.. we want to take out useful information of http://biglietti-d-auguri-natalizi.biglietti-auguri.org/ - biglietti d auguri natalizi

Assume that I surf a few :\\

**David Cuneo**

**From:** WWW User [www@sonic.net]
**Sent:** Friday, April 27, 2007 1:48 AM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Dlopolist

Phone Number:

E-mail Address: sababasr@dooms.com

Comment:
Hi all!
Good stuff, very nicely done!
<a href=http://airlineticketsss.blogspot.com>airline tickets</a> http://airlineticketsss.blogspot.com
Thank you! I delighted!
<a href=http://tramadol-111.blogspot.com>tramadol</a> http://tramadol-111.blogspot.com
Congratulations!

## David Cuneo

**From:** WWW User [www@sonic.net]
**Sent:** Thursday, May 03, 2007 6:26 AM
**To:** David Cuneo
**Subject:** North Sonoma County Ag Reuse Project Public Comments Form Submission

The following was sent via the North Sonoma County Ag Reuse Project Public Comments Form on the Sonoma County Water Agency web site:
==========

Name: Musicadejt

Phone Number:

E-mail Address: muss@ua.fm

Comment:
Greetings..
you got the interesting site =)
There were a post and author will like to check <a href=http://musica-motorola.musica-mp3-gratis.com>musica motorola</a> As they are solid state and do not have moving parts, they are very resilient...
Hm.. I would like to harvest relative resources on http://bajar-musica-de-internet-gratis.musica-mp3-gratis.com/ - bajar musica de internet gratis

Assume that We read not enough :-\\

# COUNTY OF SONOMA
## PERMIT AND RESOURCE MANAGEMENT DEPARTMENT

2550 Ventura Avenue, Santa Rosa, CA 95403-2829
(707) 565-1900 FAX (707) 565-1103


December 20, 2007

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SONOMA COUNTY WATER AGENCY
DEC 24 2007
PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT ) - FIR 70-0-7 #__ Padre Associates

David Cuneo
Sonoma County Water Agency
P.O. Box 1628
Santa Rosa, CA 95406

Re: North Sonoma County Agricultural Reuse Project General Plan Consistency Determination

Mr. Cuneo,

The following is a list of concerns expressed by the Sonoma County Planning Commission during the Commission's meeting held on July 19, 2007 for the North Sonoma County Agricultural Reuse Project (NSCARP) General Plan consistency determination. It is our understanding that the request for General Plan consistency has been extended until more information, including the Final Environmental Impact Report, is available to the Commission.

**Agriculture**

A key element in the consideration of the proposed NSCARP is the benefit to agricultural production. While the benefits of the use of recycled water are self evident, the Commission would like to see additional demonstration that the quantity and quality of the water benefits agricultural production. AZ-1

The concern also relates to the loss of agricultural land as a result of the development of project facilities. More detail related to the type of agricultural land that would be utilized, and whether or not it is under a Williamson Act contract, should be provided for each site under consideration for project development. In the event that specific sites are not yet known, the Final EIR should provide siting criteria as mitigation that would reduce the loss of productive agricultural land. AZ-2

The Commission also expressed concerns related to the impacts on agricultural production. Please provide analysis of the project and the potential economic effect of using recycled water on high quality agricultural products as described by General Plan Objective AR-8.2. Concerns include the buildup of salts and concentrations of persistent chemicals, or endocrine disrupters, and how this may affect the quality of wines produced using recycled water. AZ-3

"***Objective AR-8.2:*** *Participate with wastewater generators to establish programs for agricultural reuse of treated wastewater in a manner which would be economically beneficial to agriculture.*"

**Groundwater and Water Quality**

The Commission expressed concern regarding the distribution of recycled water and its impact on water quality and groundwater resources. The impact on groundwater and water quality should be addressed in relation to General Plan Objectives RC-3.1 and RC-3.3. AZ-4

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"Objective RC-3.1: Preserve watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates."

"Objective RC-3.3: Preserve and enhance the quality of surface and groundwater resources."

AZ-4 (cont'd)

**Land Use**

As previously mentioned, each projected reservoir and other facilities should be analyzed individually when they are proposed to ensure compatibility with the General Plan Land Use and applicable Williamson Act contracts. This should include a review of the size of the project component relative to the parcel size to assure consistency. This review would also clarify whether the component can be defined as a minor facility under Policy PF-2s, which is important in determining consistency with the General Plan. In addition, depending on the size and underlying zoning, such facilities may also require a use permit.

AZ-5

*"**Policy AR-4a:** The primary use of any parcel within the three agricultural land use categories shall be agricultural production and related processing, support services, and visitor serving uses. Residential uses in these areas shall recognize that the primary use of the land may create agricultural "nuisance" situations, such as flies, noise, odors, and spraying of chemicals."*

*"**Policy PF-2s:** Public utility facilities other than transmission line corridors may be designated as "Public/Quasi-Public" on the land use map. Allow consideration of minor facilities in any land use category where they are compatible with neighborhood character and preservation of natural and scenic resources."*

**Open Space**

The Commission also asked that the Final EIR address consistency with Policy OS-5f and OS-5h(3) regarding stream protection.

*"**Policy OS-5f:** Prohibit, except as allowed by OS-5e, structures, roads and utility lines and parking lots within any streamside conservation area. Consider waiver of this prohibition if:*

*1)it makes a lot unbuildable and vegetation removal is minimized,*
*2)no significant disturbance of riparian habitat would occur, or*
*3)the use involves only the maintenance, restoration or minor expansion of an existing structure."*

*"**Policy OS-5h:** Use the following criteria to determine whether or not public projects are consistent with this element:*

AZ-6

*1)Non-emergency Water Agency projects which include significant streambank modification are not consistent. Refer plans for vegetation removal for maintenance purposes to the Department of Fish and Game (DFG) for review.*
*2)Roadway and utility construction should seek to minimize and mitigate, where feasible, damage to riparian areas. Minimize vegetation removal for necessary stream crossings.*
*3)All criteria established in policy OS-5f.*
*4)Grading, filling or construction shall not substantially diminish or divert any stream flow or result in any substantial increase in bank instability or erosion.*

*In the event that the above criteria cannot be met, a public project may be found consistent with this element if there is an overriding net public benefit."*

Thank you in advance for providing the necessary information to the Commission. If you have any questions regarding these concerns, feel free to contact me by email at awingfie@sonoma-county.org or by phone at (707)565-7389.

Cordially,

Amy Wingfield, Planner II
PRMD Comprehensive Planning

cc: Sonoma County Planning Commission

# COUNTY OF SONOMA
## PERMIT AND RESOURCE MANAGEMENT DEPARTMENT

2550 Ventura Avenue, Santa Rosa, CA 95403-2829
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December 20, 2007

DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY
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Orig. Filed PROJ/NORTH SONOMA COUNTY AGRICULTURAL REUSE PROJECT ) - EIR 70-3-7 #__ Padre Associates

David Cuneo
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, CA 95406

Re: North Sonoma County Agricultural Reuse Project, SCH#2006012130

Dear Mr. Cuneo,

Thank you for the opportunity to comment on the EIR/EIS (Environmental Impact Report/Environmental Impact Statement) for the above-referenced project. The following comments encompass issues related to the Draft EIR/EIS. The General Plan consistency determination hearing was held at the Planning Commission on July 19th and was continued until the Final EIR or more information is available. An additional letter will be sent outlining the Commission's concerns and necessary information to determine General Plan consistency. The following comments are for Alternative No.2, but should apply to the other alternatives as appropriate.

As you may know, the County is currently undergoing an update of the General Plan (Draft GP 2020) which may change policies on many issues related to water resources. The Draft GP 2020 includes a new Water Resources Element addressing water quality, groundwater resources, and the reuse of recycled water. It also includes new policy sections devoted to conservation and reuse, and public water systems. BA-1

**General Comments**

We understand the EIR/EIS is a project-level analysis, however the lack of detail suggests that some type of future PRMD review will be necessary to determine General Plan consistency. We recommend that this review be done as the project is developed. BA-2

It appears that the project description is based on projections of available recycled water and land owner commitment. The Final EIR should clarify this point and ensure project components will not be built until resources are committed. BA-3

**Land Use/Agricultural Land**

The land use designations for areas where the future reservoir and pump station sites may be located are Land Intensive Agriculture, Diverse Agriculture, Land Extensive Agriculture, Resources and Rural Development, Rural Residential, Limited Industrial, and/or Public Quasi Public. Due to construction of reservoirs and pump stations the project could result in the cumulative loss of approximately 340 acres of agricultural land, some of which may be in production and/or subject to Williamson Act Contracts. BA-4

Avoidance of lands in production, or under Williamson Act Contract, has been included in Mitigation

Measure AG-1. It is further stated that if avoidance is not possible, applicable Williamson Act contracts would be canceled. However, it is more accurate to say that if avoidance of land under a Williamson Act contract is not possible, and if making the proposed project consistent with Williamson Act contract restrictions is also not possible, then the project would not commence until any involved Williamson Act contract was terminated. Termination may occur in a number of ways: (1) upon the natural termination of the contract's 10 year term following issuance of a Notice of Non-Renewal (Gov. Code Sec. 51245), (2) upon the acquisition of contracted land by a public entity by eminent domain or in lieu of eminent domain (Gov. Code Sec. 51295); and (3) under certain limited circumstances, immediately upon cancellation following certain findings being made by the Board of Supervisors and payment of cancellation fee (Gov. Code Sec. 51280 et. seq.; see also Gov. Code Sec. 51256 regarding easement exchanges.) Furthermore, all or part of the present project may be considered a "public improvement" as defined by Gov. Code Sec. 51290.5. To locate a "public improvement" in an Agricultural Preserve, regardless of whether the land is subject to a Williamson Act contract, the public agency must comply with certain provisions of the Williamson Act, commencing with Gov. Code Sec. 51290. These provisions require, among other things, notice to the California Department of Conservation affording it an opportunity to comment. BA-4 (cont'd)

Project development on agricultural lands may also conflict with the General Plan policies and the Land Use Map, requiring General Plan Amendments to more appropriate designations. According to the Sonoma County Zoning Code, components of the NSCARP would be allowed on agricultural land, however the construction of reservoirs and pump stations would be required to obtain a use permit prior to development. Larger facilities may require a general plan amendment to the Public Quasi Public designation. BA-5

Regarding impacts to the agricultural industry, the EIR/EIS should include analysis of the impacts of recycled water use on the quality of agricultural crops, such as wine grapes. BA-6

**Aesthetic Impacts**

As discussed under Impact AES-1 (pg. 3.1-8) future project components, including pump stations, reservoirs, and other facilities may be proposed within designated Community Separators, Scenic Corridors, and Scenic Landscape Units. As noted on page 3.1-11, pump stations and reservoirs would represent long-term changes to the visual character in some of these areas. Mitigation Measure AES-1 (pg 3.1-12) should be expanded to require pump stations located in designated Scenic Corridors and Community Separators to be constructed underground. Utilizing underground pump stations may also reduce Impact AES-2 (New Light Sources) by negating the need for emergency/security lighting. BA-7

Comments on behalf of the Sonoma County Transportation and Public Works are included as Attachment A to this letter. If you any questions or want to set up a meting to discuss these comments please call John Maitland at (707)565-2528.

If you have any questions regarding other noted comments, feel free to contact me by email at awingfie@sonoma-county.org or by phone at (707)565-7389.

Sincerely,

Amy Wingfield, Planner II
PRMD Comprehensive Planning

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# SECTION 3. MASTER RESPONSES

## SECTION 3. MASTER RESPONSES

A number of comments received in response to the Draft EIR/EIS and presented at the Public Hearing pertained to the same or very similar concerns. For a number of these, we have formulated a Master Response, which is intended to allow an integrated response to the fundamental concern(s) expressed by the commenter(s)

### Master Response No. 1 - Alternatives

Section 2.2 of the draft EIR/EIS addresses project alternatives including the basis under CEQA and NEPA for inclusion of an evaluation of alternatives. The statement of purpose and need (discussed in Sections 1.1 and 1.2) are important in determining the range of alternatives to be evaluated in an EIS. The basic stated project purpose *is to reduce reliance on natural regional water supplies by using recycled water on agricultural lands*. Additionally, *the use of recycled water in lieu of surface and groundwater to irrigate agricultural fields would preserve more water for in-stream uses* (see complete description of purpose and need in Sections 1.1 and 1.2).

Considering the purpose and need of the project, the criteria for developing the specific alternatives addressed in this environmental document were identified and are discussed on page 2-13 of the DEIR/EIS. Five criteria were used: 1) the potential offset of surface and ground water for agricultural lands in the Russian River, Alexander, and Dry Creek valleys (Note: A previous EIR has been certified for recycled water use in the Sonoma Valley); 2) proximity of potential storage reservoirs to main water supply pipelines and substantial irrigation acreage (this was intended to increase the efficiency of water delivery and reduce infrastructure and delivery costs); 3) reasonable reservoir capacity for economies of scale and winter storage; 4) willingness of landowners to participate in development of storage facilities on their properties; and 5) willingness of nearby landowners to participate in the program. These criteria further focused the selection of project alternatives to not only meet the basic purpose of the project, but to be most practical from efficiency, technical, environmental and economic perspectives.

Three primary alternatives, plus the No Project Alternative, were evaluated in the DEIR/EIS. Six general alternative concepts were considered, but dropped from further evaluation because they did not meet the primary purpose of the project or were otherwise not considered feasible.

The fundamental purpose of the project, and thus the focus of the DEIR/EIS, is on agricultural use of recycled water. Thus, other alternatives that do not meet that fundamental purpose need not be evaluated. However, as stated in Section 1.3, Background of Purpose and Need, the mission of SCWA is to effectively manage the water resources in its care <u>for the benefit of people and the environment</u> through resource and environmental stewardship, technical innovation, and responsible fiscal management. One of the potential benefits of the project is to benefit the environment by preserving more water for in-stream uses.

The focus of this EIS/R was on agricultural use of recycled water. Other projects, specifically the City of Santa Rosa's IRWP, SCWA's Sonoma Valley Recycled Water Project, and the Town of Windsor's Master Plan for Treatment, Storage and Disposal Project, have considered agricultural irrigation and other uses for recycled water, including industrial, urban, groundwater storage, Geyser recharge, etc. This project is intended to benefit the Russian River fishery by offsetting a portion of surface and groundwater withdrawals for agricultural uses with recycled water.

**Master Response No. 2 - Impact on the Economics on the Community; Public/Consumer Confidence; Taste of Wine**

EIR certification by the SCWA Board is not "approval" of the NSCARP project. Other processes are involved before the Board of Directors can approve the project. Certification of the EIR is the acknowledgement by the Board that the environmental impacts of the project have been disclosed and adequately addressed. Environmental impacts do not include issues pertaining to cost, public perception/confidence, taste of wine, willingness of suppliers and users of recycled water to participate in the project, commitments to date, etc.

It is important to note that recycled water use is not new and recycled water is already applied on vineyards and other crops within many locations within Sonoma County, the region, and the state. Section 3.2, Agricultural Resources in the DEIR/EIS identified 68 jurisdictions in the State of California that use recycled water on pasture and crops. In addition, at least eight jurisdictions use recycled water for vineyards. Based on recent discussions with Napa County operators, seven vineyards use recycled water. In Sonoma County, 8,500 acres use recycled water, and in Monterey County, 12,000 acres use recycled water[1]. While we have not specifically studied the economic/consumer confidence aspect of the use of recycled water on vineyards, which is beyond the scope of an environmental analysis, the fact that many vineyard operators have and are using recycle water attest to its feasibility.

The following points are provided in an effort to better frame economic concerns. First, there is the issue of water conservation in light of potential drought conditions. Vineyards and other agricultural operations in Sonoma County require large amounts of irrigation water sourced from the Russian River system and groundwater. Water use restrictions during times of drought may force area growers to reduce their operations and, thus, generate less income. Implementation of NSCARP would have a beneficial effect to participating agriculture operations during times of drought. Secondly, there is the issue of the public perception of using recycled water on a highly visible commodity such as premium wine grapes. The water quality will be required to meet strict regulatory standards, and will be consistently monitored to meet performance standards. In terms of the use of recycled water on vines having a significant effect or alteration on the taste of wine, we have found no significant evidence or data to form a definitive conclusion.

[1] Bahman, S. 2004. Monterey County Water Recycling Projects: A Case Study in Irrigation Water Supply for Food Crop Irrigation. Published in Water Reuse for Irrigation: Agriculture, Landscapes, and Turf Grass. Valentina Lazarova (Ed.)

A recent study by the South Australian Research and Development Institute (SARDI)[2] compared the effects of "mains water" and reclaimed (treated domestic) wastewater on the soil of a test vineyard. The researchers found that soil irrigated with reclaimed water had fewer pathogens and higher microbial activity. "Mains water", as it is referred to in Australia, is suitable for drinking, while reclaimed water - termed Class B - is domestic wastewater that has been filtered, treated, and disinfected. While it is not effluent water, it still retains a higher level of soluble solids than mains water. According to the researchers, this was a positive finding because higher levels of microbes improve the transfer of nutrients to the vines, and using the more sustainable source of reclaimed water had the added benefit of requiring less fertilizer.

Based on the quality of the recycled water for NSCARP, the potential for changes in salinity is minor and would not be expected to impair the beneficial uses of groundwater. The California State Water Code states that minor changes in salinity associated with recycled water projects are acceptable. Additionally, other studies conducted by SARDI have found that using reclaimed water has no effect on the yield of the vines (See Master Response No. 15).

Zaccone[3] reported that Domaine Chandon began using recycled water in 1994 as a supplemental source of irrigation water on the Carneros Ranch. Use of the recycled water has allowed irrigation amounts to double, leading to increased production and improved vine health. Doubling the irrigation volume increased the crop load by 40 percent with no significant impact on fruit quality. Soil testing found no accumulation of heavy metals over a three-year study period.

**Master Response No. 3 - Cumulative Impacts**

Section 4.0 of the DEIR/EIS provides an analysis of cumulative impacts. The cumulative impact assessment was based upon the buildout assumptions of the Sonoma County 1989 General Plan, which was the adopted plan at the time the DEIR/EIS was prepared, as well as Sonoma County 2020 General Plan, which was in draft form at the time the draft EIR/EIS was prepared but has subsequently adopted on September 23, 2008. As identified in the Section 5.0 of the NSCARP DEIR/EIS, the following is a list of impact issues with identified significant cumulative impacts. A brief summary discussion of the cumulative impact assessment is provided. The list and discussion applies to all alternatives except No Project; however, the level of effect is generally greatest for Alternative 1 and least for Alternative 4. Please see the text of Section 5.0 for the complete analysis of cumulative impacts.

- Aesthetics - as described in Section 4.0, impacts related to construction activities for the NSCARP and other similar projects, although temporary, could be potentially significant depending on the timing of such projects.

[2] South Australian Research and Development Institute. 2007. Reclaimed Water Produces the Right Bouquet. http:www.sardi.sa.gov.au/pages/organisation/ media_products/ media_releases/ 2007/ reclaimed.html

[3] Zaccone, D. 2001. Recycled Water: Current Resource, Future Opportunity. In: Water Use & Its Place in Sustainable Agriculture. A workshop sponsored by the Napa Sustainable Winegrowing Group and Napa County Resource Conservation District, Newsletters 2001. http://nswg.org/wateruse2001.htm.

- Loss of Agricultural Land - NSCARP would result in a significant and unavoidable cumulative impact associated with the permanent loss of status Farmland.
- Biological Resources - Section 4.0 of the NSCARP DEIR/EIS states that although it is high likely that mitigation in the form of additional General Plan Open Space and Conservation Element policies from the Draft GP 2020 would address protection and management of biological resources, not all occurrences of special-status species are known and some land uses are not regulated. As such, there would be a significant and unavoidable impact to biological resources when taking into account the NSCARP and foreseeable cumulative projects. Several mitigation measures would be implemented for NSCARP impacts (see Section 3.4.

  (While not specifically identified in the NSCARP DEIR/EIS, due to the timing of its preparation, text of the FEIR for the Sonoma County General Plan 2020 concludes that growth in the County would result in significant and unavoidable impacts on special status species, sensitive natural communities, wildlife habitat and movement opportunities.)

As stated in Section 5.0 of the NSCARP draft EIR/EIS, the following list of impact issues were determined to result in less than significant impacts or less than significant with incorporation of mitigation. A brief summary discussion of the cumulative impact assessment is provided. Please see the complete text of Section 5.0 for the complete analysis of cumulative impacts.

- Air Quality - Section 4.0 of the draft EIR/EIS states that air pollution would worsen with cumulative development and that simultaneous development projects in the NSCARP area could potentially create significant impacts over the long-term unless mitigated. However, as operational emissions resulting from NSCARP are minimal, this would not result in a cumulatively significant impact.
- Cultural Resources - As described in Section 4.0, while impacts to cultural resources are generally limited to the proximity of a development site, growth would be expected to increase potential impacts on culturally sensitive resources. Cumulative development on the scale of projects such as NSCARP would require review and mitigation. Implementation of mitigation measures on a project-by-project basis would serve to mitigate these impacts to the extent feasible. Thus it was determined that cumulative cultural resource impacts are adverse, but less than significant.
- Environmental Justice - As described in Section 4.0, NEPA projects require review and mitigation to ensure less than significant impacts. No disproportionately significant effects of the NSCARP implementation, including adverse human health or environmental effects are expected to occur to minority or low-income populations. Thus cumulative environmental justice impacts are considered less than significant.
- Geology and Soils - As described in Section 5.0, as population within the unincorporated areas, as well as the nine cities of Sonoma County grow, so would the opportunity for geologic and soil hazards to occur (e.g., seismic ground shaking and ground failure, landsliding, and subsidence). For example, land uses and development would have significant soil erosion impacts to the extent that any

projects are not subject to discretionary project review. The NSCARP could potentially contribute to cumulatively significant impacts to geology and soils. However, appropriate design measures and engineering standards applied to the project would mitigate the impacts pertaining to geologic and soils hazards to a less than significant level.

- Hydrology/Water Quality - As indicated in Section 5.0, construction of NSCARP components could result in increased erosion, sedimentation, degradation of surface runoff quality, and associated effects resulting in impacts to water quality in adjacent surface waters or drainages. On a cumulative analysis level, large-scale development projects consistent with the 1989 General Plan and reasonably foreseeable in the Draft GP 2020, the above impacts would create cumulatively significant impacts, but such impacts from the project and cumulative development would be reduced to less than significant given implementation of measure required through federal and state regulations.

Cumulative groundwater quality and flooding impacts are also addressed in Section 5.0 and were determined to be less than significant.

- Land Use - As stated in Section 5.0, the NSCARP facilities would be located in sparsely populated areas and not be located in or near urban areas with the exception of the unincorporated town of Geyserville. However, the project would not include elements that divide an established community. Additionally the project would not result in growth. Therefore, the NSCARP would not contribute to cumulatively significant land use impacts.
- Noise - The NSCARP could potentially contribute to cumulatively significant impacts from construction noise. However, during construction activities, cumulative impacts would be lessened to a degree through standard coordination of construction contracts in the NSCARP area. Also, mitigation measures have also been proposed for construction noise (see DEIR/EIS Section 3.11).

Noise associated with the long-term operation of pumps would be reduced by standard noise attenuation that would be included for the pump stations (see draft EIR/EIS Section 3.11, Noise), and there would be no cumulatively significant impact from operational noise.

- Population - The NSCARP project would not result in the construction of new housing and is not considered growth inducing. Therefore, it would not result in cumulatively significant population or housing impacts.
- Public Health and Safety - It is not likely that a significant number of major construction projects would be occurring simultaneously with NSCARP in the areas of pipeline, reservoir, and pump station construction. Also, standard coordination of construction contracts in the NSCARP area would occur. As such, hazardous materials or safety hazards are not anticipated to be cumulatively considerable. The NSCARP could potentially contribute to cumulatively significant impacts to public health and safety.

Operation of NSCARP facilities would require the use of hazardous materials and may increase the risk of exposure to hazardous materials as well as disease vectors. However, with the implementation of project mitigation and compliance with Title 22 regulations, cumulative impacts were determined to be less than significant.

- Recreation - Temporary disruption of recreational facilities including bike routes, trail, etc., could result from cumulative development including the NSCARP. However, the NSCARP would include a Traffic Control Plan to reduce such impacts on a project-specific and cumulative level to less than significant.

Continued growth in the area may increase the demand for recreational facilities. However, the NSCARP due to the nature of the proposed development would not contribute to this cumulative demand.

- Traffic - The NSCARP and other cumulative development would result in increased traffic during construction. However, the NSCARP would include a Traffic Control Plan and would incorporate mitigation measure CUM-1 to reduce such impacts on a project-specific and cumulative level to less than significant. Long-term trip generation from the NSCARP is not considered to be cumulatively considerable.
- Utilities - The NSCARP would not impact utilities and service systems in the long-term but may result in disruptions to services during relocation and or replacement of utilities in the short-term. This potential project-specific and cumulative impact would be reduced to less than significant with implementation of mitigation measures CUM-1.
- Growth-related Effects - The NSCARP is not growth inducing on a project-specific basis and would therefore, not contribute to significant cumulative growth-related impacts.

Some comments express a concern that specific individual projects, such as those relating to recycled water use, were not considered in the cumulative analysis of the NSCARP DEIR/EIR. As indicated above, the cumulative approached used in this document is based upon general forecasts provided in the regional planning document (Sonoma County General Plan) rather than on a project list basis. Other recycled water projects are identified and discussed in Section 1.3, Background of Purpose and Need. However, the environmental effects of combined specific projects are addressed within the setting conditions for projects that are ongoing. For example, if a project is in operation, it's effect if any on surface water would be reflected in the existing conditions of such water bodies as described in the Setting discussion of Section 3.8, Hydrology and Water Quality of the DEIR/EIS. Projects that have yet to be constructed are anticipated to be required to comply with all local, state, and federal regulations pertaining to their operation. As such, issues such as a proposal to add reverse osmosis and inject brine water to the Geysers Pipeline would not result in significant impacts because reclaimed water used for agricultural purposes must meet water standards per Title 22. No reclaimed irrigation water would be allowed to have unacceptable salinity or other constituent levels under existing regulations.

**Master Response No. 4 - Identification of Anticipated Volumes of Water Dedicated to Fisheries and In-stream Beneficial Uses and Mechanisms that will Ensure In-stream Beneficial Use Commitments are Met**

The SCWA operates the Russian River system pursuant to the State Water Resources Control Board Decision 1610 (D1610). D1610 establishes minimum instream flows for the Russian River and Dry Creek that the SCWA must maintain through releases from Lake Mendocino and Lake Sonoma. Flows in the Russian River and Dry Creek are affected when water is withdrawn by various users directly from the Russian River or Dry Creek, from wells pumping from the underflow of the Russian River/Dry Creek, directly from surface waters of tributaries to the Russian River/Dry Creek, or from wells pumping from the underflow of tributaries to the Russian River/Dry Creek. The SCWA carefully monitors flows in the Russian River and Dry Creek and must increase its releases from Lake Mendocino and Lake Sonoma in order to maintain the minimum instream flows in the Russian River and Dry Creek required under D1610. Depending on the water year and irrigation requirements, there may not be a sufficient amount of cool water remaining in the reservoirs, particularly at Lake Mendocino, to maintain D1610 required flows and provide suitable cold water flows for the fall run of Chinook salmon. The intent of the NSCARP is to reduce the amount of water withdrawn from the Russian River system for irrigation purposes to allow for more water to be conserved behind Lake Mendocino and Lake Sonoma. More water conserved in Lake Mendocino and Lake Sonoma could mean these lakes could maintain larger cool water pools each year to ensure that D1610 flows can be maintained and that a sufficient amount of cool water remains for the fall run of Chinook salmon.

In addition to the benefits resulting from more cool water conserved behind Lake Mendocino and Lake Sonoma to the fisheries utilizing the mainstem of the Russian River and Dry Creek, the NSCARP could also benefit fisheries along tributary streams that currently are affected by irrigation pumping. Because the relationship between what is considered underflow of surface waters and what is considered groundwater has not been fully identified within the project area and because this relationship is not static, it is not possible to precisely state how much water and where that water will remain for fisheries. However, NSCARP, as proposed, could provide up to approximately 8,500 acre-feet of an alternative water source during the summer irrigation season. This means that potentially up to 8,500 acre-feet of water currently used for irrigation purpose could remain if NSCARP is fully implemented. Section 1.3 has been expanded to include the section entitled “Maintain or Improve Instream Flow”. This section discusses the increased operational flexibility the SCWA could have in improving salmonid habitat in the Russian River by substituting recycled water for surface water and groundwater. Specific benefits may include: 1) reducing summer flow velocities in the Russian River; 2) maintaining prolonged flows in summer-rearing tributary streams; 3) maintaining the sandbar dam at the mouth of the Russian River in the summer; and 4) preserving the cold water pool in Lake Mendocino for better attraction flows.

It is the goal of SCWA to increase habitat for listed fish species in the Russian River by substituting recycled water for surface and ground water. Most of the potential vineyard lands located adjacent to the Russian River are already developed in vineyard and are already using water (P. Whealen, Wagner and Bonsignore, pers. comm., 01/09). Accordingly, SCWA expects

that use of recycled water will provide an offset to this water use. There are, theoretically, situations where this offset might not occur, if, for example, a landowner was not exercising riparian rights due to supply constraints that were removed by delivery of NSCARP water. However, such situations are unlikely. In addition, any entity that does not currently have an appropriative right would have to demonstrate that water was available and secure a permit from the State Water Resources Control Board. Water rights are considered exercised even if the holder switches from surface water to recycled water (see Section 2.5 of the FEIS/R), and the State Water Board must take all existing permits into consideration, even those unexercised due to recycled water use, and would be unlikely to issue new permits for summer diversions in the Russian River watershed in Sonoma County (P. Whealen, Wagner & Bonsignore, pers. comm., 01/09).

**Master Response No. 5 - Impact of Wastewater to Human and Wildlife Health**

To supplement the studies and reports cited in the DEIR/EIS, and to incorporate more recent data, SCWA commissioned the preparation of a “white paper” on Trace Constituents” by Dr. Lorien J. Fono, Ph.D. of Carollo Engineers. The white paper provides additional information on trace constituents of concern, fate and transport, potential impacts, and treatment options. The following conclusions were made:

- Our ability to measure extremely low levels of trace constituents exceed our current understanding of the potential long-term effects of such constituents and, therefore, the impacts of such constituents are too speculative to evaluate.
- Available data demonstrate that typical wastewater treatment processes are effective in removing the majority of these constituents and that additional treatment processes are available to further reduce levels, if necessary.
- Natural degradation also provides an effective mechanism to remove these constituents from both surface and groundwater resources.
- All recycled water used for agricultural and urban applications must comply with Title 22 regulations to ensure environmental and public health objectives are met. In addition, wastewater treatment facilities must meet the discharge standards of their NPDES permit.

- The Title 22 and NPDES permits are subject to periodic review to ensure that existing standards are consistent with the current scientific data available on constituents of concern, and discharge standards are revised to address new data and, if necessary, new treatment requirements are established to meet these standards.
- As more data become available regarding trace constituent levels, discharge and treatment standards will be revised as necessary at the treatment facilities prior to discharge or reuse. Such a mechanism will provide ongoing protection to both the environment and public health.

We have included notes of relevant scientific presentations at the study session entitled *"Trace Pharmaceuticals and Personal/Care Product Residues in Recycled Water: Occurrence, Fate, Toxicology, and Risk*" hosted by the City of Santa Rosa Board of Public Utilities on April 19, 2007 (Note that a video of the full session is available for review at: http://ci.santa-rosa.ca.us/departments/ utilities /irwp/pub_participation/ Pages/bpu_study_session_4-19-07.asp).

We have also included the statement of Dr. Shane Snyder of the Southern Nevada Water Authority presented on April 15, 2008 to the U.S. Senate subcommittee on Transportation Safety, Infrastructure Security, and Water Quality on Pharmaceuticals in the Nation's Waters: Assessing Potential Risks and Actions to Address the Issue

We have compiled the "white paper," and notes from the study session, and the Senate statement under the new Appendix I.

On the basis of these data, the reports and studies previously cited in the DEIR/EIS, and the lack of definitive data to the contrary, we have not found evidence to change our original findings expressed under Impact Statements BIO-7, BIO-8, AND PUB-10. SCWA, as detailed under Mitigation Measure BIO 8, will:

- Monitor on-going research to stay abreast of the state-of-the science concerning EDCs and Xenobiotics;
- Consult and coordinate with RWQCB, USEPA, and other regulatory agencies on developing standards and promulgating regulations;
- Implement appropriate treatment technologies, as required by regulatory agencies;
- Formulate and implement adaptive management procedures to respond to changes in regulations; and,
- Encourage public awareness of recent federal guidelines concerning the proper disposal of prescription drugs, such as take-back programs, disposing down toilet or sink only is so labeled, etc. (Office of National Drug Control Policy, 2007). SCWA has implemented the Safe Medicine Disposal Program, which identifies locations where pharmaceuticals can be safely returned and not disposed into the waste stream (http://www.scwa.ca.gov/projects/safe_meds.php).

In addition, the following measure has been added to Mitigation Measures BIO-8:

- Recycled water will comply with procedures and standards imposed by the RWQCB under the appropriate NPDES permit(s).

**Master Response No. 6 - Advanced Engineering**

Engineering and geotechnical studies for the NSCARP project have been conducted to the level commensurate for the feasibility stage of the project. The planning is of sufficient detail to conduct assessments of environmental impacts based on the approximate location, size, operating parameters, and construction methods expected to be employed.

Advanced design and geotechnical investigations may determine locations ill-suited for reservoir construction, in which case the reservoir will be either relocated or removed from consideration if costs associated with safety issues are too great. If a change is minor and within the impact envelope assessed under this FEIR/EIS, no further environmental review may be required. If, however, a change is substantial and involves new significant impacts, supplemental environmental documentation may be required under CEQA and NEPA.

In no instances will a reservoir be considered or approved that is a risk to human safety. As detailed in Comment E-1 from the California Department of Water Resource, Division of Safety of Dams, an application, together with plans and specifications, for the construction of each of the new or enlarged reservoirs, must be filed with the Division of Safety of Dams. All dam safety-related issues must be resolved prior to the approval of the application, and the work must be performed under the supervision of a civil engineer registered in California.

**Master Response No. 7 - Recycled Water User Agreements**

As detailed under Mitigation Measure PUB-7, any grower wishing to participate in the NSCARP project would be required to enter into a Recycled Water User Agreement (RWUA). The recycled water user would be required to comply with the provisions of the agreement concerning Title 22 restrictions, application rates and practices, and environmental restrictions.

An example of a SCWA RWUA agreement template has been included under the new Appendix I. Note that the template is for both secondary-treated water and tertiary-treated water, but for the NSCARP, only tertiary-treated water would be used.

As indicated under Item E of the template, the recycled water user is responsible for the proper use of recycled water. Item 7A details that the recycled water quality will be in compliance with the applicable NPDES and waste discharge permits administered by the Regional Water Quality Control Board, and current California Department of Health Services regulations. Items 8A through 8D and Attachment B specify application restrictions, such as application restrictions during uncontrolled runoff, and application in a manner not to exceed vegetative demand or field capacity.

Note that an individual contract may vary from the template based on specific situations, but adherence to discharge requirements is not a negotiable item.

**Master Response No. 8 - Groundwater Contamination**

Impacts HWQ-4 and HWQ-5 identified potential degradation of groundwater from project reservoirs as a potential significant impact. Mitigation Measure HWQ-5 identified use of clay liners to reduce effects to groundwater to less than significant levels. Mitigation Measure HWQ-4 also required the implementation of a monitoring program to determine the efficacy of liners in maintaining groundwater quality. The measure also requires affirmative action on the part of NSCARP management entity to repair any liner if water quality levels exceed MCL's. Consequently, Mitigation Measures HWQ-4 and 5 were, taken together, not for monitoring only, but to prevent recycled water from entering groundwater in any appreciable volume, and also to remediate damage to liners. These impacts and associated mitigation measures have been further clarified and refined in the Final EIR/EIS.

In addition, as detailed at Comment F-5, the North Coast Regional Water Quality Control Board (RWQCB) will require the NSCARP management entity to submit detailed specifications prior to reservoir construction to assure that the liners are the appropriate thickness and installed properly to be fully protective of groundwater or, alternatively, to comply with prescriptive standards identified in Title 27, Division 4, Article 4. To avoid confusion, HWQ-4 and 5, have been consolidated and updated with information provided by the RWQCB.

**Master Response No. 9 - Water Quality impact on Aquifer and Private Wells**

In addition to the measures described under Master Response No. 8 to prevent recycled water from entering groundwater, Impact PUB-7 of the DEIR/EIS details that Title 22 (Article 4, Section 60310) restricts the location of a recycled water impoundment within 100 feet of any domestic water supply well. The regulations also restrict irrigation with disinfected tertiary-treated recycled water within 50 feet of any domestic water supply well unless specific technical analyses are conducted. NSCARP will comply with Title 22 requirement to protect water supply wells.

Title 22 restrictions are in place to ensure that the use of recycled water remains protective of human health concerns. The issues surrounding human health concerns related to the use of recycled water are continuously being investigated. As new information is developed, the Title 22 regulations are updated to adapt to changing safety concerns. Any future changes in Title 22 that require additional measures to protect human health would be implemented for the NSCARP and all other recycled water projects.

**Master Response No. 10 - Water Off-sets**

As detailed in Section 2.5 of this EIS/EIR, potential users of the recycled water delivered via NSCARP would consist of agricultural interests in the Alexander Valley, Dry Creek Valley, Northern Alexander Valley, and Russian River Valley subareas. Participation in NSCARP would be voluntary and would require the NSCARP recycled water user and SCWA (or another entity,

such as a joint powers authority, depending on who ultimately builds and maintains the NSCARP project) entering into a RWUA.

Implementation of NSCARP will not impact existing water rights. Landowners using recycled water on agricultural lands for various purposes in lieu of using natural water supplies diverted pursuant to existing water right permits and licenses do not forfeit or lose their water rights. Section 1010 of the California Water Code provides that no claim of water right (riparian, pre-1914 appropriative, post-1914 appropriative) will be reduced or lost as a result of the use of recycled water. Further, it provides that the use of recycled water in lieu of surface water is equivalent to maintaining that right and shall constitute beneficial use under that right. The pertinent portions of Section 1010 are as follows:

**Section 1010**

> (a)(1) The cessation of, or reduction in, the use of water under any existing right regardless of the basis of right, as the result of the use of recycled water, desalinated water, or water polluted by waste to a degree which unreasonably affects the water for other beneficial uses, is deemed equivalent to, and for purposes of maintaining any right shall be construed to constitute, a reasonable beneficial use of water to the extent and in the amount that the recycled, desalinated, or polluted water is being used not exceeding, however, the amount of such reduction. *(California Water Code §1010[a][1]).*
>
> (2) No lapse, reduction, or loss of any existing right shall occur under a cessation of, or reduction in, the use of water pursuant to this subdivision, and, to the extent and in the amount that recycled, desalinated, or polluted water is used in lieu of water appropriated by a permittee pursuant to Chapter 6 (commencing with Section 1375) of Part 2, the board shall not reduce the appropriation authorized in the user's permit. *(California Water Code §1010[a][2]).*

Because the rights to the water are maintained, they cannot be reallocated to another user, but can be used for instream uses. However, there are, theoretically, situations where this offset might not occur, if, for example, a landowner was not exercising riparian rights due to supply constraints that were removed by delivery of NSCARP water. Such situations are unlikely because most potential vineyard located lands adjacent to the Russian River are already developed in vineyard and are already using water. In addition, any entity that does not currently have an appropriative right would have to demonstrate that water was available and secure a permit from the State Water Resources Control Board. Water rights are considered exercised even if the holder switches from surface water to recycled water (see Section 2.5 of the FEIS/R), and the State Water Board must take all existing permits into consideration, even those unexercised due to recycled water use, and would be unlikely to issue new permits for summer diversions in the Russian River watershed in Sonoma County (see Footnote 1 of Chapter 1).

**Master Response No. 11 - How is Alternative 2 "Environmentally Superior"**

CEQA Guidelines (Section 15126.6(a) and (e)(2)) require that an EIR's analysis of alternatives identify the "environmentally superior alternative" among all of those considered. In addition, if the No Project Alternative is identified as environmentally superior, then the EIR also must identify the environmentally superior alternative among the other alternatives.

Under CEQA, the goal of identifying the Environmentally Superior Alternative is to assist decision-makers in considering project approval. CEQA does not, however, require an agency to select the environmentally superior alternative (CEQA Guidelines Sections 15042-15043).

An environmental benefit to Alternative 2 is the greater potential offset of surface and groundwater use with the implementation of the proposed project, as compared against Alternatives 3 and 4. Although Alternative 2 has a greater overall area of disturbance and a longer period of construction impacts, mitigation measures have been proposed to eliminate or reduce, as much as feasible, the duration and intensity of those impacts. Permanent structures and pipelines will be engineered and constructed in a manner as to minimize impacts associated with the regional or larger-scale effects (e.g. aesthetics) of the proposed project. These proposed mitigation measures would also be applied to Alternatives 3 and 4; however, the beneficial environmental impacts derived from implementation of these alternatives would be less than Alternative 2, making them less desirable in the long-term. While Alternative 1 - No Project Alternative would have less impacts than any of the other alternatives, it would not meet any of the objectives of the project.

**Master Response No. 12 - Greenhouse Gases and Global Warming Effects**

A section on global climate change (GCC), greenhouse gas emissions (GGH), and Impact Statement Air-13 have been added to Chapter 3.3 - Air Quality. Impact AQ-14 was also added.

**Master Response No. 13 - Willing Sellers of Recycled Water**

As noted in Chapter 2 of the DEIR/EIS under Potential Sources of Recycled Water, the City of Santa Rosa, Town of Windsor, and ALWSZ have participated in the planning and development of NSCARP, and have acknowledged that they could be potential recycled water providers for the project. In Section 1.0 of the DEIR/EIS, the City of Santa Rosa's IRWP identified the use of recycled water for agricultural irrigation, in part, within the Russian River area between the communities of Windsor and Healdsburg and the Alexander Valley and Dry Creek Valley areas, as a project alternative. The recycled water would be delivered to these areas through the Geysers Pipeline.

As detailed in Comment Letter No. 9 to the DEIR/EIS, the Town of Windsor would like to participate in NSCARP, and would like Ponds S1 and T to be included as recycled water storage reservoirs.

If one or more providers of recycled water choose to opt out, NSCARP would be scaled back accordingly, and another alternative could be implemented.

The DEIR/EIS does not foreclose the option of the participation of other regional wastewater treatment plants located in the NSCARP area, such as the City of Healdsburg, the City of Cloverdale, and the Geyserville Sanitation Zone should they express a desire, and supply recycled water that is of suitable quality. Inclusion of one or more of these potential recycled water providers would require additional environmental analyses and CEQA and NEPA supplementation.

**Master Response No. 14 - Growth Inducement.**

Growth inducement is addressed in Section 1.3, Background of Purpose and Need of the EIR. The section states that the increased operational flexibility that would be provided by the proposed project would not result in additional water being available for other uses because existing reservoir storage capacity, water rights, and flow requirements would not change. It further states that as detailed in Section 2.5 (Participation in NSCARP), participants in the NSCARP project that currently hold water rights would not lose them as a consequence of utilizing recycled water. As such, the increment of appropriated surface and/or groundwater that would be substituted with recycled water could be available in the system for instream purposes. Because the water rights would be retained for that increment of water, it could not be appropriated to other users, such as municipal or industrial supplies. Additionally, the RWUA would specify that they will not use their water rights while using the reclaimed water (see Master Response No. 7). Further, the surface and groundwater not used by a right holder cannot be reallocated (see Master Response No. 10). However, there are, theoretically, situations where this offset might not occur, if, for example, a landowner was not exercising riparian rights due to supply constraints that were removed by delivery of NSCARP water. Such situations are unlikely because most potential vineyard located lands adjacent to the Russian River are already developed in vineyard and are already using water. In addition, any entity that does not currently have an appropriative right would have to demonstrate that water was available and secure a permit from the State Water Resources Control Board. Water rights are considered exercised even if the holder switches from surface water to recycled water (see Section 2.5 of the FEIS/R), and the State Water Board must take all existing permits into consideration, even those unexercised due to recycled water use, and would be unlikely to issue new permits for summer diversions in the Russian River watershed in Sonoma County (see Footnote 1 of Chapter 1).

Chapter 5.0, Growth-Inducing Effects is dedicated to the evaluation of the potential growth inducing impacts of the proposed project. As identified in Chapter 5.0, short-term construction employment jobs would be created by the project, but it is anticipated that workers would commute or be temporarily housed in transient lodging facilities, thus not stimulating significant residential growth. Four additional full-time employees would be required for the operational phase of the project. The small incremental demand for housing that would be generated by these employees is not considered significant.

Growth related to the removal of an existing obstacle to growth is also addressed in Chapter 5.0. This section provides a more detailed discussion of the long-term growth related effects of the project as described in Section 1.3 and summarized above.

**Master Response No. 15 - Salinity**

See Impact AG-4 for discussion of salt build-up, characterization of water from treatment plants, and recent study conducted by the University of California at Davis investigating the effects of recycled water irrigation on vineyard soils.

As detailed in Section 3.2.1 (page 3.2-8), the threshold for soil salinities for grapes is 1.5 mmhos/cm. As depicted on Table 3.8-2, the City reported a mean conductivity (salinity) of 707 umhos/cm (or 0.7 mmhos/cm), which is about one-half the level that effects grapes. Salts in soils can naturally build-up over time in any irrigation scheme, but can occur at an increased rate using recycled water with higher concentrations of salt.

While NSCARP will monitor soil conditions, it will be the responsibility of individual landowners to implement standard practices necessary to maintain productivity of the soils.

The Final EIR for the Santa Rosa Incremental Water Reuse Program Discharge Compliance Project (DCP, City of Santa Rosa, September 2008), provided a cumulative impact analysis for potential to water quality from the implementation of the NSCARP project along with the IRWP Discharge Compliance Project. The cumulative analysis addressed the potential for NSCARP water used for irrigation water to enter the Russian River during low flow periods. The analysis assumed that the concentrations of minerals and chemicals in NSCARP water would double through evapotranspiration and plant uptake. Nutrients such as nitrate, nitrite, phosphate and ammonia were not anticipated to concentrate. The analysis determined that if the nutrients concentrated to the degree assumed for other minerals analyzed, their concentration in municipal wells would not exceed their respective drinking water standards under Title 22.

Additionally, the DCP EIR also evaluated several years of data collected in groundwater monitoring wells up-gradient and down-gradient from fields currently and historically irrigated with recycled water from the City of Santa Rosa's wastewater treatment plant. A review of the data indicated that there was no effect on groundwater quality from many years of recycled water irrigation.

Based on this cumulative analysis for potential surface and groundwater quality impacts, the DCP EIR concluded that there would be no significant and unavoidable impacts from the cumulative impacts from implementation of both the NSCARP and the DCP projects within the Russian River watershed.

**Master Response No. 16 - Energy Consumption for Construction and Operation of the NSCARP**

Impact UTL-7 incorrectly stated the estimated energy needs of the project, and new analyses have been prepared by the engineers at Wagner & Bonsignore. These new calculations have been included in Chapter 3.15 along with other revisions and additional data concerning energy use and sources in Sonoma County.

The draft EIR/EIS indicated an additional 18,088 kilowatts per year would be required for the NSCARP project to fill the reservoirs and distribute the recycled water to agricultural users. In fact, the actual energy usage would be approximately 2,723,000 kilowatt-hours per year (KWh/y). For context purposes, the SCWA uses approximately 60,660 megawatt-hours per year (MWh/y) to extract water from the Wohler Diversion Facility. A megawatt-hour is the equivalent to 1,000 kilowatt hours. Consequently, the NSCARP would be approximately 4.1 percent of the energy requirements of the Wohler Diversion, and less than 0.1 percent of the total County energy usage, which is approximately 2,601,179 MWh/y. By providing recycled water to agricultural users, the need for streamside and groundwater pumping by private agricultural operators would be reduced. This would, in turn, decrease the net energy increase occasioned by the NSCARP.

Because the energy usage of the NSCARP is a small percentage of the county-wide and SCWA energy needs, and because new energy facilities would not have to be constructed to accommodate the NSCARP, the impacts of the project on energy use are less than significant.

**Master Response No. 17 - General Statement of EIR/EIS Deficiency**

The comments state or indicate a concern with the general adequacy of the environmental documentation, but do not address any specific environmental issues, nor provide any specific information that identify an environmental effect that was not addressed. Therefore, no response can be provided to these comments. However, they are provided for the consideration by the decision-makers.

**Master Response No. 18 - Inadequate Project Need Statement**

Section 1.0 of the NSCARP DEIR/EIS provides a detailed discussion of the project's purpose and need. As required by 40 C.F.R. 1502.13, this section briefly specifies the underlying purpose and need to which the lead agency is responding in proposing the action and alternatives. In Section 1.1 it is stated that: "*The basic project purpose of NSCARP is to reduce reliance on natural regional water supplies by using recycled water on agricultural lands*." Other purposes are described in Section 1.2. As stated in Section 1.2, NSCARP is intended to contribute to meeting the objectives of SCWA and Reclamation. The primary needs, purposes, and objectives of the project are as follows:

> *Federal and state regulatory agencies have expressed concern regarding potential impacts to fisheries resources and habitat within the Russian River and its tributaries. Currently, agricultural lands in the NSCARP area are irrigated with water originating from the Russian River, its tributaries, and groundwater. There is a need to allow water to remain in the Russian River system and its tributaries to improve habitat for listed fish species. The use of recycled water in lieu of surface and groundwater to irrigate agricultural fields would preserve more water for instream uses. In order to provide recycled water to agricultural interests, there is a need for adequate infrastructure to store and distribute recycled water produced by various entities for reuse throughout the region.*

Please see Footnote 1 in Section 1.2 of Chapter 1 (page 1-3), which describes theoretical situations in which water offsets may not be fully realized due to use by downstream riparian rights holders.

**Master Response No. 19 - Inadequate Project Description**

Article 9, Section 15124 of Title 14 of the California Code of Regulations (CCR) provides guidance for the elements to be included in an EIR project description. The requirements are as follows:

> *The description of the project shall contain the following information but should not supply extensive detail beyond that needed for evaluation and review of the environmental impact.*
>
> *(a) The precise location and boundaries of the proposed project shall be shown on a detailed map, preferably topographic. The location of the project shall also appear on a regional map.*
>
> *(b) A statement of objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project.*
>
> *(c) A general description of the project's technical, economic, and environmental characteristics, considering the principal engineering proposals if any and supporting public service facilities.*
>
> *(d) A statement briefly describing the intended uses of the EIR.*
>
> *(1) This statement shall include, to the extent that the information is known to the Lead Agency,*
>
> *(A) A list of the agencies that are expected to use the EIR in their decision-making, and*
>
> *(B) A list of permits and other approvals required to implement the project.*
>
> *(C) A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies. To the fullest extent possible, the lead agency should integrate CEQA review with these related environmental review and consultation requirements.*
>
> *(2) If a public agency must make more than one decision on a project, all its decisions subject to CEQA should be listed, preferably in the order in which they will occur. On request, the Office of Planning and Research will provide assistance in identifying state permits for a project.*

Section 2.0 of the draft EIR/EIS for the NSCARP provides the project description. This response identifies where in this section each of the required elements of a project description as identified above are provided within Section 2.0 of the DEIR/EIS.

Location - Section 2.1, Project Overview; Section 2.2.1, Alternative 2 (Preferred Alternative) - Entire NSCARP; Section 2.2.3, Alternative 3 - Alexander Valley-Jordan Reservoir Subset; Section 2.2.4, Alternative 4 - Russian River-Westside Subset; Figure 2-1, NSCARP Vicinity Map; Figure 2-2, NSCARP Four Geographical Areas; Figure 2-3, Alexander Valley Location Map; Figure 2-4, Dry Creek Valley Location Map; Figure 2-5, Northern Alexander Valley Location Map; Figure 2-6, Russian River Valley Location Map; Figure 2-7, Pipeline Construction Zones; Figure 2-8, Alternative 3; Figure 2-9, Alternative 4.

Objectives - Section 1.0, Purpose and Need; and Subsection 2.2, Project Alternatives, CEQA/NEPA Requirements.

Description of Project's General Characteristics - Section 2.2.1, Alternative 2 (Preferred Alternative) - Entire NSCARP; Section 2.2.3, Alternative 3 - Alexander Valley-Jordan Reservoir Subset; Section 2.2.4, and Alternative 4 - Russian River-Westside Subset. Section 2.3 describes the environmental commitments of the project. Project funding is specifically described in Section 2.4.

Intended Uses of the EIR - Section 2.7, Required Permit and Approvals; and Table 2-14. Summary of Anticipated Regulations, Regulatory Agencies, and Approvals for NSCARP.

# SECTION 4. RESPONSE MATRIX

## SECTION 4. RESPONSE MATRIX

| Comment Number | Topic/summary | Response |
|---|---|---|
| **U.S. Environmental Protection Agency** | | |
| A-1 | "Insufficient Information", need for additional information re: project components, alts, and WQ impacts | Refer to subsequent comments/responses |
| A-2 | Identify volume of water dedicated to fisheries and mechanisms to ensure beneficial in-stream uses | See Master Response No. 4 and revisions to Section 1.3 of Chapter 1. |
| A-3 | Specific description of project phases | Refer to subsequent comments and master responses |
| A-4 | WQ and AQ impacts of future project phases | Locations/footprint designs and pipeline routes included are sufficient for site-specific analysis (see Master Response No. 6). No additional environmental documentation necessary unless conditions change and new discretionary decisions need to be made. However, it is fully anticipated that because of the timeline for design and construction, and the evolving regulatory and environmental policies, that the NEPA/CEQA document will be revised and updated. Any significant impact may need to be evaluated, disclosed, and addressed consistent with NEPA and CEQA requirements.<br><br>Project design, scheduling, and construction will be dependent on a number of factors, including funding and provider and user commitments that cannot be projected with accuracy at this time. This is further influenced by market factors such as water demand for other uses. |
| A-5 | Detail evaluation of benefits, costs, practicability, feasibility and need of using Gallo Asti Reservoir | The North Sonoma County Agricultural Reuse Project Feasibility Study, Volumes I and 2 (Wagner & Bonsignore, 2007) describes the benefits, cost, practicability, and the feasibility of project elements. |
| A-6 | Description of expected water quality in reservoirs (include algae blooms and odors) | The water in a reservoir is at the same treatment level as when it was pumped from the WWTF. |

<table>
<tr><th>Comment Number</th><th>Topic/summary</th><th>Response</th></tr>
<tr><td>A-7</td><td>Potential amount and location of reduced agricultural diversions</td><td>7,234 af/yr of recycled water available at present. 20,135 af/yr potentially available in 2020.<br><br>Table 6-4 below from the Feasibility Study (Volume 1, page 3) indicates the irrigation demand from the NSCARP subareas that could be partially satisfied by the project:
<table>
<tr><th rowspan="2">Area</th><th colspan="3">Seasonal Irrigation Demand (acre-feet)</th></tr>
<tr><th>Orchard</th><th>Vineyard</th><th>Total</th></tr>
<tr><td>Alexander Valley</td><td>42</td><td>3,977</td><td>4,019</td></tr>
<tr><td>Dry Creek Valley</td><td>254</td><td>3,545</td><td>3,799</td></tr>
<tr><td>Northern Alexander Valley</td><td>77</td><td>2,532</td><td>2,609</td></tr>
<tr><td>Russian River Valley</td><td>33</td><td>2,690</td><td>2,723</td></tr>
<tr><td>TOTAL</td><td>406</td><td>12,744</td><td>13,150</td></tr>
</table></td></tr>
<tr><td>A-8</td><td>Potential amount of water dedicated to fisheries, in-stream, and wetland beneficial uses.</td><td>See Response to Comment A-2.</td></tr>
<tr><td>A-9</td><td>Minimum required stream flows in Russian River and tributaries, who requires these flows, and the adequacy of these flows for fisheries and other in-stream uses</td><td>Minimum required stream flows that the SCWA must maintain in the Russian River are established by the State Water Resources Control Board's Decision 1610 (D-1600).</td></tr>
<tr><td>A-10</td><td>Amount of recycled water to be stored and used</td><td>The total amount of recycled water that is currently and potentially available in the future is discussed on page 2-10 of the DEIS/R. Based on 2004 influent into the three potential source treatment plants, approximately 7,234 af/year is currently available. By the year 2020, this could increase to approximately 13,000 af/year. Further, in the future, it is expected that other WWTPs in the area will treat water to the tertiary level, and this represents potential additional sources of recycled water.<br><br>Depending on the alternative, the NSCARP project could potentially store between 1,145 and 8,700 af of water (see Table 2-5 of FEIS/R).</td></tr>
</table>

| Comment Number | Topic/summary | Response |
|---|---|---|
| A-11 | Location and volume of potential increased summer tributary flows | The project, as proposed, provides an alternative source of irrigation water for agricultural irrigators. These irrigators are currently using surface water or groundwater for irrigation in the project area. As stated in the DEIR/EIS, surface waters or groundwater conserved as a result of this project could remain for beneficial environmental uses. The NSCARP does not propose any changes in the SCWA's current or future water draw demands. As noted on page 2-10 of the Draft EIR/EIS for the NSCARP, the project, if fully implemented, could result in the reuse of up to 8,700 acre-feet of water in the project area. This 8,700 acre-feet would be an alternative source of recycled water for existing irrigators that currently rely on surface water diversions or groundwater pumping. The SCWA is required to maintain minimum instream flows along the Russian River. SCWA's experience in maintaining these minimum instream flows in the Russian River has been that substantial drops in river flow occur in the summer as irrigators begin pumping from surface waters or from wells adjacent to the river. Providing an alternative source of irrigation water could allow surface waters to be conserved throughout the project area. However, given the uncertainty of what irrigators are pumping, when they are pumping, and how much they are pumping, the ability to meaningful provide specific locations and volumes of water use and potential flow increase in tributaries is not feasible. |
| A-12 | Energy consumption of operation | See Master Response No. 16. |
| A-13 | Prospective agricultural users | As discussed on page 2-11 of the DEIS/R, the Coalition for Sustainable Agriculture (CSA) and the Dry Creek Agricultural Water Users Corporation (DCAWU), which represent growers and wineries encompassing approximately 11,000 acres within the NSCARP area, have expressed interest in participating in the NSCARP project. In addition, the landowners of potential reservoir sites have expressed interest in the project as well as neighboring operations.<br><br>It is anticipated that if a project is approved, and more public education about the benefits of recycling water is conducted, more agricultural interests are likely to express interest in the project. No formal agreements with potential water users have been made as of yet. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| A-14 | Potential design, schedule, and environmental documentation of future construction phases. How will future environmental analysis tier off of existing evaluation? | See response to Comment A-4. |
| A-15 | How would project ensure conserved water is used to improve fishery habitat and mechanisms (See A-2). Describe type and volume of demand for water stored in Lakes Mendocino and Sonoma. Language to be included in Recycled Water Use Agreements. | See Response to A-11. Because water rights holders will not lose those rights, SCWA will enter into user agreements, which will specify the volume of water allocated to a specific user. The user, in turn, will agree not to utilize ground or surface waters. See Master Response No. 7 concerning Recycled Water User Agreements (RWUA).<br><br>SCWA is required to meet State Water Resources Control Board Decision 1610 minimum instream flows. These minimum instream flows were established, in part, to maintain beneficial instream habitat. The implementation of the NSCARP could provide an alternative source of approximately 8,700 ac-ft of irrigation water during the summer months. Having this alternative source of water could allow for more water to be conserved behind Lake Mendocino throughout the irrigation season. More water being conserved behind Lake Mendocino throughout the summer results in more water being available for release in the fall. |
| A-16 | Rationale for developing alternatives | See Master Response No. 1. The basis for developing the alternatives is discussed on page 2-13 of the DEIS/R. Five criteria were used: 1) the potential offset of surface and ground water for agricultural lands in the Russian River, Alexander, and Dry Creek valleys (Note: A previous EIR has been certified for recycled water use in the Sonoma Valley); 2) proximity of potential storage reservoirs to main water supply pipelines and substantial irrigation acreage (this was intended to increase the efficiency of water delivery and reduce infrastructure and delivery costs); 3) reasonable reservoir capacity for economies of scale and winter storage; 4) willingness of landowners to participate in development of storage facilities on their properties; and 5) willingness of nearby landowners to participate in program. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| | | The focus of the EIS/R was on agricultural use of recycled water. Other projects, specifically the City of Santa Rosa's IRWP and SCWA's Sonoma Valley Recycled Water Project, have considered agricultural and other uses for recycled water including industrial, urban, groundwater storage, etc. This project is intended to offset agricultural uses exclusively.<br>The Alternatives were based largely on location of the storage reservoirs in relation to existing treatment plants in order to reduce the length of pipeline segments. |
| A-17 | See Comment A-5 above. | See Response to Comment A-5. |
| A-18 | Evaluated applicability of "beneficiary pays" Users that benefit pay reasonable proportion of costs | The project provides regional benefits. Irrigation users, disposal sources, and environmental benefits to region justify not singling out any one entity or group to pay for project. |
| A-19 | See Comment A-6 above. | See Response to Comment A-6. |
| A-20 | Update Air Quality Regulatory Setting section to include Bay Area Ozone Attainment Plan discussion. Develop mitigation for commitment to use cleanest on-road vehicles available, etc. | Language revised to reflect most up-to-date information on BAAQMD Ozone Attainment Plan per USEPA website.<br>Additional mitigation measures have been proposed in Mitigation Measure AQ-1A, focusing on construction vehicles. Maintenance vehicle emissions are negligible. |
| A-21 | Describe future research, research entities, and funding sources to determine if subsurface storage and use is feasible for this project and future projects. | Subsurface storage is not proposed as part of NSCARP. If in the future, subsurface storage did become feasible, then it may be further researched. However, this is outside the scope of this EIR/EIS. |
| A-22 | Relationship between NSCARP and other water reuse projects by Santa Rosa, SCWA, Windsor, Healdsburg, Cloverdale, Geyserville, and Geysers steam field. | See Master Response No. 13. |
| A-23 | Recommended edits/revisions to be included in errata section | Revisions to the FEIR/EIS are depicted as strikethroughs (deletions) and underscores (for additions and revisions). |

| Comment Number | Topic/summary | Response |
|---|---|---|
| **U.S. Bureau of Land Management** | | |
| B-1 | Project's impact to the Geysers Geothermal Steam Field (GSF) in terms of production and/or life span | NSCARP would not impact the Geysers GSF or alter the City's existing contracts with Calpine for providing water to the Geysers GSF. |
| B-2 | Any BLM parcels affected? How might the project affect split real estate (Federal mineral ownership beneath private surface ownership) if present? | No BLM lands would be impacted by the project. |
| **Governor's Office of Planning and Research** | | |
| C | No comments | |
| **California Department of Conservation** | | |
| D-1 | Section 3.2 maps not accessible on website, some tables not visible | Figure 3.2-1 is available under "Figures". |
| D-2 | How many acres of Williamson Act Contract lands would be permanently converted to water storage, pump station, etc.? | See new Figures 3.2-2, 3.2-3, and 3.2-4 that depict the location of lands under Williamson Act contracts within the areas of Alternatives 2, 3, and 4, respectively. Table 3.2-5 details the parcels and acres under Williamson Act contracts. |
| D-3 | How will acquisition of Williamson Act lands meet the required findings of the California Department of Conservation? Note address to send notices. | See revised text in Impact AG-2 in the FEIS/EIR. |
| D-4 | Recommends supporting California Farmland Conservancy Program or establish agricultural easements equal or greater than acreage purchased from landowner. | Comment noted. See revised text in Impact AG-2 in the FEIS/EIR regarding mitigation options. |
| D-5 | What are economic benefits of agricultural reuse of treated wastewater? | Long-term reliable source of water that is drought-resistant could provide economic stability for some agricultural operations. |
| D-6 | Have farmers expressed interest in buying recycled water? | See response to Comment A-13 above. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| D-7 | Contingency plan in case water doesn't meet standards and isn't usable by growers? | As detailed under Section 2.5 of this document, landowners who currently have either appropriative or riparian water rights would not lose those rights by virtue of participation in the NSCARP. Consequently, if the water does not meet the standards required by a particular grower, that grower can revert to surface water and/or groundwater consistent with the terms of the water right. See Master Response Nos. 7 and 10. |
| D-8 | Monitoring protocol? | See Master Response No. 8 regarding monitoring. |
| **California Department of Water Resources** | | |
| E-1 | Discussion of application approval process for dam design and construction | See Master Response No. 6. SCWA will comply with all local, state, and federal regulations pertaining to the project. |
| **North Coast Regional Water Quality Control Board** | | |
| F-1 | Potential underestimation of state waters that would be lost. Creation/expansion of in-stream reservoirs? If so, develop in-kind mitigation. | The reservoirs that are located "on-stream" (e.g., with a channel entering the reservoir and water discharged downstream into a channel) are within seasonal swales high in the watershed with little, if any, riparian vegetation, and none are located on major waterways. These reservoirs have been designed with bypass channels, which would intercept surface flows from runoff above the reservoir and convey it around the reservoir for discharge to the natural stream channel below. This would effectively render them "off-channel" by isolating them from inflows. Other reservoirs would be sited in uplands, and would also be constructed with bypass structures.<br><br>The reason for the bypass channels is to assure that recycled water in the reservoirs is not discharged into natural waterways in conformance with the Water Quality Control Plan for the North Coast Region. Under this plan, recycled water cannot be discharged into the Russian River watershed during the period of May 15 through September 30. During the period between October 1 and May 14, recycled wastewater can only be discharged to the watershed under specific flow conditions. Further, by constructing the reservoirs off-stream, they will not require water rights permits from SWRCB. |
| F-2 | In-stream reservoirs? Suggests Impact BIO-10 is significant but mitigable | Please see Response to Comment F-1 above. The bypass channels will be constructed around the reservoir. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| F-3 | Suggests HWQ-3 is significant but mitigable. Recommends mitigation for water treatment of runoff from additional impervious surfaces. | In addition to the discussion contained under Impact HWQ-3 describing runoff control features for pump stations, the impact statement has been expanded to detail that development of the booster and distribution pump stations would involve paving and construction of building structures resulting in increases in impervious surface of approximately 26,250 $ft^2$ (0.6 ac). This represents approximately 0.003 percent of the 21,000 acres of agricultural lands within the Alternative 2 area, and 0.001 percent of the total 47,000 acres of all lands in the Alternative 2 area. Further, the aggregate 0.6 ac of impervious surfaces would represent small (approximately 2,500 $ft^2$) areas that are widely dispersed in the project area. |
| F-4 | Impact HWQ-4 concerns; user agreement details. | See Master Response No. 7 regarding RWUAs. |
| F-5 | Review and approval of reservoir liner plans to RWQCB. | SCWA will fully comply with RWQCB requirements for liner standards under Title 27, Division 4, Article 4. See Master Response No. 8. |
| F-6 | Discussion of discharge into instream reservoirs and discharge of incidental runoff flows due to over-irrigation or equipment failure. | Flows related to over-irrigation would covered under user agreements, as in Mitigation PUB-7 (see Master Response No. 7). Incidental flow from equipment failure is covered (i.e., pipeline breaks) via shut-off valves. |
| F-7 | Locate storage reservoirs in upland areas? DEIR proposes to use waters of the state for storage? Conversion of facilities to “wastewater facility” and mitigation recommendation. | See Response to Comment F-1 above. |
| F-8 | Recommends development of specific user agreements. Notes that Santa Rosa is finalizing theirs. | See Mitigation Measure PUB-7 for the elements of the required RWUAs. See Master Response No. 7 for details of typical RWUA. |
| **State Water Resources Control Board** | | |
| G-1 | SCWA may want to consider State Revolving Fund loan | All funding options will be considered. |
| G-2 | Provide discussion of how new impervious surfaces would not cause significant changes in downstream hydrology or flow rates. | See Response to Comment F-3 above. |
| G-3 | Per Mitigation Measure HWQ-6, how frequent is “on a regular basis”. | Reservoirs will be inspected per the requirements of DSOD. |

| Comment Number | Topic/summary | Response |
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| **Town of Windsor** | | |
| H-1 | In support of reuse of recycled water for agriculture. Requests that SCWA address relationship to other reuse projects in region. | See Master Response No. 13. |
| **Town of Windsor** | | |
| I-1 | Supportive of project. Ability to serve additional uses limited by additional recycled water storage capacity | NSCARP could provide options to other WWTP operator in the region. See Master Response No. 13. |
| I-2 | Supportive of project goals | Comment noted. |
| I-3 | Wants SCWA to consider project on a regional level. Suggests referencing the *Town of Windsor's Water Reclamation Master Plan for Treatment, Storage and Disposal* (March 8, 2001) and *Final EIR on the Town's Water Reclamation Master Plan* (February 7, 2001). | As detailed in Section 2.1 of the DEIR (page 2-9), the Town of Windsor has participated in the planning and development of NSCARP, and acknowledged that they could be a potential provider of recycled water for the project. With the addition of this comment letter, the Town has further indicated its desire to be included in the NSCARP project. In addition to being a provider of recycled water, the Town's planned Ponds T1 and S and appurtenant structures are part of the Russian River subareas. The Town's documents detailed in the letter are incorporated by reference into this document. |
| I-4 | Discuss eventual project of SCWA storing Town's excess recycled water and Town irrigating with Airport System recycled water. | The SCWA is committed to maximizing the use of recycled water. The project between Town and SCWA illustrates the cooperation between both agencies to maximize the use of recycled water. This can be a benefit of NSCARP (although it doesn't need to be limited to sharing/cooperation between just these two entities). Existing connections between the Town of Windsor, the Airport-Larkfield-Wikiup Sanitation Zone (owned and operated by the SCWA), and the City of Santa Rosa allow for transfers between these entities if needed. Participation in NSCARP would only enhance these partnerships. |
| I-5 | Eastside Road Storage Project is in close proximity to NSCARP, should be mentioned in EIR/EIS | Eastside Road Storage Project (e.g., Ponds T1 and S) is now are included as part of the Russian River Subarea. It was the subject of an earlier EIR by the Town of Windsor. |
| I-6 | Windsor confirms they are a "Possible Participating Agency" | Comment noted |

| Comment Number | Topic/summary | Response |
|---|---|---|
| I-7 | Reiterates Town's support of recycled water use for agriculture and looks forward to possible opportunities to collaborate on future water reuse plans | Comment noted |
| **Ad Hoc Committee (Ann Maurice)** | | |
| J-1 | Opposes irrigation of food crops with recycled water. Concerned with contaminants that will be taken up by crops or washed out to creeks, rivers, to sea, and eventually to sea creatures that we consume. | Under the present system, the treated wastewater is discharged in winter months into the Russian River system and is ultimately discharged into the ocean. Under the NSCARP project, the volume of treated wastewater discharged into the Russian River system and thence the Pacific Ocean will be reduced. The recycled water will be applied to crops in a manner compliant with the Recycled Water User Agreements (see Master Response No. 7), which will result in water being applied in precise amounts to crops to minimize or eliminate potential runoff to streams or percolation to ground water. Rather, the water will be taken up by plants with excess water evaporated from the soils or transpired by the plants. Also see Master Response No. 5. |
| J-2 | Would pharmaceuticals such as Lipitor, Prozac be taken up by crops? Wine grapes? Left in soil? Flushed to sea and picked up by aquatic life? Parts per trillion versus parts per billion. | See Master Response No. 5. |
| J-3 | Concern with E. coli contamination. (Note says to see press release 07/24.) Would Sonoma County wine be as highly regarded if irrigated with recycled water? | See Master Response Nos. 5 and 2. |
| J-4 | Has anyone conducted studies testing for pathogens in the feces of cows fed treated wastewater? Has anyone tested what happens to intestinal bacteria that survive wastewater treatment process? How long does E. coli survive in the soil? Cow intestines? Taken up by roots of food crops? Live in plant fluids? Dormant if dehydrated? Mutated with soil bacteria? | Recycled water stored, transported, and applied to fields under the NSCARP project will meet applicable local, state, and federal standards.<br>Research requested by commenter is beyond the scope of the EIR/EIS. |

| Comment Number | Topic/summary | Response |
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| J-5 | Soil bacteria mutating to become lethal. Suggests wastewater and its "emerging contaminants" provide opportunity to encourage lethal mutations. Suggests bacteria utilize recombinant DNA processes to mutate. Dormant nature of bacteria? | See response to Comment J-4 above. |
| J-6 | Where did the "new" strain of E. coli come from? | See response to Comment J-4 above. |
| J-7 | Full analysis of potential hazards of food crop irrigation with wastewater. | See Master Response No. 5. |
| J-8 | What is the fate of pollutants on land and in food crops | See Mitigation Measures HWQ-1, HWQ-2, and HWQ-4. See also Master Response No. 5. |
| J-9 | Call for conservation. | SCWA supports water conservation. The commenter is encouraged to review the SCWA's water conservation website (http://www.scwa.ca.gov/water_ conservation/), and its Water Conservation Plan (SCWA, 1998) for further details. |
| J-10 | Irrigating crops in summer is in opposition to what nature intended for California (wet winter, dry summer.) What bacteria are enhanced by summer watering? What pathogens are not dying because of summer watering? What is holding capacity of soil for winter rainfall if land is saturated in summer by irrigation? How much will summer saturation increase winter runoff and flooding? | See response to Comment J-4. User agreements will specify amount of water applied and when it is applied in compliance with RWQCB requirements (see Master Response No. 7). |
| J-11 | Recommends dry-farming and water conservation. Sees irrigation with recycled wastewater as a risk. | Selection of crops is beyond the authority of SCWA. However, SCWA strongly encourages water conservation (see response to Comment J-9 above), and NSCARP project is consistent with these water conservation goals. |
| J-12 | Recommends irrigating redwoods. | Recommendation would not meet NSCARP objectives. |
| J-13 | "Tailwater". Will SCWA calculate exact amount of irrigation needed to prevent tailwater? | See Master Response No. 7. End users would be subject to RWUA, which would establish general application parameters to avoid runoff. |

| Comment Number | Topic/summary | Response |
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| J-14 | Recommends use of waterless toilets | Comment noted. Recommendation is beyond the scope of the NSCARP project. Also see response to Comment J-9 concerning water conservation efforts by SWCA. |
| J-15 | Suggests using dung beetles and dogs to render pathogens less harmful. | Comment noted |
| J-16 | Ultra-violet (UV) disinfection. Where is Santa Rosa's analysis of treatment using UV? Chlorine residues? | The proposed project does not stipulate nor require a specific treatment process beyond that required under Title 22. NSCARP would be a transporter and storer of recycled water, not a treatment entity. Providers of recycled water to NSCARP would be responsible for meeting all state and federal regulations pertaining to the quality of water discharged from the WWTPs. NSCARP would monitor water quality to assure compliance with applicable regulations pursuant to its NPDES permit, but would not mandate a specific treatment process to achieve compliance. |
| J-17 | Suggests dehydrating human waste and used as fertilizer. | Comment noted |
| **Ben Marchand #1** | | |
| K-1 | Fate of pharmaceuticals | See Master Response No. 5. |
| K-2 | Article states that jurisdictions are collecting unused pharmaceuticals, preventing them from entering the waste stream. | The commenter is referred to the fifth bulleted item under Mitigation Measure BIO-8, which encourages public awareness of recent federal guidelines concerning the proper disposal of medications. In addition, SCWA has implemented a Safe Medicine Disposal Program, which identifies locations where pharmaceuticals can be safely returned without entering the waste stream (See http://www.scwa.ca.gov/projects/safe_meds.php). |
| K-3 | Affect of pharmaceuticals on aquatic life | See Master Response No. 5. |
| K-4 | 1999 survey showed 80% of samples collected in 139 streams contained medicines, antibiotics. | See Master Response No. 5. |
| K-5 | Article states that pharmaceutical residues pass unmeasured through wastewater treatment facilities. | See Master Response No. 5. |
| K-6 | Conflicting studies regarding accumulation of pharmaceutical as water is recycled. | See Master Response No. 5. |

| Comment Number | Topic/summary | Response |
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| K-7 | Suggests long-term study of compounds in the recycled water. EIR/EIS does not address chemicals which are potentially present in treated wastewater. Wants exact quantities of compounds and effects on groundwater and aquatic species. | See Master Response No. 5. |
| K-8 | Alternatives analysis to be completed at later date. Not enough information to make a determination. | See Master Response No. 1. |
| K-9 | Email address not prominently displayed on website, restricting public comment. Reserves right to sue City of Santa Rosa and SCWA. | SCWA fully complied, and exceeded, CEQA notification requirements discussed below. Pursuant to CEQA Guidelines § 15807, "Notice shall be mailed to the last known name and address of all organizations and individuals who have previously requested such notice in writing, and shall also be given by at least one of the following procedures: (1) Publication at least one time by the public agency in a newspaper of general circulation in the area affected by the proposed project. If more than one area is affected, the notice shall be published in the newspaper of largest circulation from among the newspapers of general circulation in those areas. (2) Posting of notice by the public agency on and off the site in the area where the project is to be located. (3) Direct mailing to the owners and occupants of property contiguous to the parcel or parcels on which the project is located. Owners of such property shall be identified as shown on the latest equalized assessment roll." The SCWA posted notices in several newspapers of general circulation in the project area (Press Democrat, Windsor Times, Healdsburg Times), direct mailed notices to over 2,700 addresses in the project area, and made the Draft EIR/EIS available electronically at both the SCWA's and the Bureau of Reclamation's websites. In addition, the public review period was extended to 60 days to allow sufficient time for a thorough review of the Draft EIR/EIS. |
| **Ben Marchand #2** | | |
| L-1 | EIR/EIS does not identify compounds in treated wastewater. | See Tables 3.8-2, 3.12-1, and 3.12-2 for summaries of wastewater constituents. |
| | Website did not prominently display email address for public comment. | See response to Comment K-9. |

| Comment Number | Topic/summary | Response |
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| **Russian River Watershed Protection Committee** | | |
| M-1 | Support most comments made at Public Hearing, support comment letters read to date. | Comment noted |
| M-2 | Expected more detail in EIR/EIS. Compares volume of data for Santa Rosa IRWP. | DEIR used and cited relevant data from IRWP, and other studies. |
| M-3 | Past experience with SCWA EIRs: few details, inadequate studies and detailed costs, limited public dialogue. | Level of analysis commensurate with current design phase. Should advanced studies reveal new impacts, appropriate CEQA documents will be prepared. |
| M-4 | Construction of NSCARP is approximately 10 to 15 years and is at least 5 years out. | Given the time frame and "shelf-life" of an EIR, additional CEQA documentation may be prepared in the future to address changes in the project, regulations, and state-of-the-science. SCWA will comply with all local, state, and federal requirements. |
| M-5 | Concerned project could change substantially prior to construction and operation. | See responses to Comments M-3 and M-4 above. |
| M-6 | Anticipated changes by RRWPC listed. | See response to Comment M-4 above. |
| M-7 | Feels document will require recirculation because the project, project circumstances could change in the 10 to 15 years leading to operation | See response to Comment M-4 above. |
| M-8 | Reliability of potable water savings, need to define how much potable water is being saved by the implementation of this project. | See response to comment A-11. See Master Response Nos. 2 and 5. |
| M-9 | Who will own wastewater, infrastructure, accountable to governing entities for fines and penalties? Who would be named in permits, manage system? What will be culpability of individual users in terms of violations? | It is too early to know the specifics of individual RWUAs. These administrative specifics do not necessarily need to be known in order to provide a description of what the potential impacts to the physical environment would be as a result of the project. See Master Response No. 2. |
| M-10 | Long-term safety of wastewater and public perception of wine grapes irrigated with recycled water. | See Master Response No. 2. |

| Comment Number | Topic/summary | Response |
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| M-11 | Wonders how EIR can assume reservoirs will be built. What changes would occur to the project if not all proposed reservoirs were constructed? | See Master Response No. 6. |
| M-12 | North Sonoma County Conservation Corporation changed name to Coalition for Sustainable Agriculture? | Comment noted |
| M-13 | Provides meeting minutes indicating that the City of Santa Rosa would not provide wastewater to SCWA. | See Master Response No. 13. |
| M-14 | Alternatives analysis includes subsets of project as alternatives. Feels Alternative 2 has greatest potential to cause environment harm. | See Master Response No. 1. |
| M-15 | Alternative uses for wastewater by irrigating forests in North County. | See Master Response No. 1 concerning development of alternatives. Vineyards and other agricultural products are closer to the sources of recycled water generators than the forestlands in the North County. Consequently, the costs of infrastructure would be less. Further, vineyards are a major source of irrigation water, and applying such water would be consistent with requirements of a RWUA.<br>In addition, irrigating forests that aren't currently being irrigated would not meet the project goal of providing a source of irrigation water to offset existing irrigators that are currently pumping surface water and/or groundwater in the project area. |
| M-16 | DEIR does not acknowledge relationship between surface water and groundwater, soils, slopes, vegetation, crops, etc. | Refer to Master Response No. 4 for more information on water dedicated to in-stream flows and beneficial uses. |
| M-17 | Lacking in detail/discussion, does not provide detail with regard to the need for the project | See Master Response No. 4. |
| M-18 | Opposed by many farmers with the exception of a few large grape growers. | Comment noted. |
| M-19 | Minimum number of acres to make project cost effective and number of acres needed in close proximity to make project work? | See Master Response No. 2. |

| Comment Number | Topic/summary | Response |
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| M-20 | Request to see parcel maps showing who has expressed interest. | See response to Comment A-13. Figures 2-3, 2-4, 2-5, and 2-6 show the potential areas that could be irrigated if the NSCARP is fully implemented. The legends on these figures can be modified for the Final EIR/EIS to clarify the lines/colors used in the figure. |
| M-21 | Cost effectiveness of building 112 miles of pipeline if limited number of acres become available. | See Master Response No. 2. Outside scope of the DEIR/S; however, the SCWA would not build the project unless a specific alternative is feasible from a combination of cost, benefits, environmental impacts, and engineering. |
| M-22 | Confusion using City and Town. Provide correct name, how storing water now, how irrigating, quality of wastewater, status of NPDES permit, and whether have expressed interest and willingness to contribute. | See Master Response No. 13 for discussion of willingness/interest to contribute to project. |
| M-23 | Lack of City of Santa Rosa interest. | See Master Response No. 13. |
| M-24 | Availability of wastewater and less water in drought year. | NSCARP would be more efficient use of water by utilizing recycled water that would otherwise be discharged into streams from treatment plants, and would be particularly beneficial during times of drought when surface flows are reduced. |
| M-25 | Less water availability from Santa Rosa. Viability of the project? | See Master Response No. 13. |
| M-26 | Feels storage capacity far exceeds supply. | The current water supply available from the WWTPs is 7,234 af/yr, which could increase to 20,135 f/yr by 2020. The total available storage with enlarged Lytton Reservoir is 8,740 af, and without enlargement would be 7,387 af. Consequently, potential supplies exceed potential capacity. |
| M-27 | How can you have an irrigation plan without knowing if you will have wastewater. What if conservation limits amount of wastewater generated? | See Master Response No. 13. If there is insufficient supplies of recycled water, or a lack of commitment from users and/or suppliers, SCWA would either reduce project scope or not proceed with the project. |
| M-28 | How would SCWA address runoff into rivers and creeks in summer when recreation use is greatest and waterbodies are most vulnerable to toxins/contaminants? | Runoff is not anticipated. RWUAs will be structured to prevent surface runoff (see Master Response No. 7 and response to Comment M-32 below). |

| Comment Number | Topic/summary | Response |
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| M-29 | Irrigators should not be allowed to use pesticides. What is range of chemicals used on irrigator's fields? How do they combine with contaminants in wastewater? Evidence for no endocrine disruptors in Santa Rosa wastewater? | The use of pesticides by agricultural operations is a highly controlled/ regulated process that has its own set of health and safety regulations that govern their use. Pesticide use by agricultural operations is not a component of the proposed project and is beyond the scope of the EIR/EIS.<br>Chemical constituents in the treated water from the WWTPs are summarized in Tables 3.8-2, 3.12-1, and 3.12-2.<br>See Master Response No. 5 concerning endocrine disruptors. |
| M-30 | Impaired water quality in area when runoff occurs. How to address when summer flows are low but recreational use high? | See response to Comment M-28. |
| M-31 | Characterize chemicals and nutrients in wastewater, on the fields and in the river. Address those chemicals in wastewater *and* their combination with those already in waterway. | See response to M-29 above. Under current conditions, the tertiary treated wastewater is discharged into the area waterways pursuant to RWQCB requirements. Under the NSCARP project, recycled water used for the project would not be discharged into area waterways. Consequently, the NSCARP project represents a reduction in the volume of treated wastewater entering the area's streams. |
| M-32 | Large amounts of runoff in winter during frost protection season (saturated soils). Would contaminants in wastewater or on land be considered point source discharge? | RWUAs will comport with appropriate federal and state regulations, specifically Title 22 requirements and requirements imposed by the NPDES permit.<br>Irrigation Area Requirements of the RWUA will:<br>a) prohibit application of recycled water during periods of uncontrolled runoff;<br>b) prohibit application of recycled water in excess of vegetative demand or field capacity; and<br>c) require irrigation water to infiltrate completely within a 24-hour period to prevent ponding and conditions conducive to the proliferation of mosquitoes and other disease vectors.<br>Section Master Response No. 7 for more detailed information concerning RWUAs. |

| Comment Number | Topic/summary | Response |
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| M-33 | Why no discussion of many listed species? How would runoff containing contaminants affect downstream drinking water sources? What if humans eat fish living in contaminated water? | See Figures 3.4-1 through 3.4 regarding special-status species occurring in the project area. Contamination levels would not exceed regulatory standards. Water stored in the reservoirs would meet applicable water quality standards and would not be "contaminated." Reservoirs proposed for the project would not provide suitable habitat for game or food fish because of water level fluctuations and absence of vegetative cover. Because reservoirs would be off-line, there would be no way for fish to enter reservoir from a live stream. |
| M-34 | Postpone certification of document because not ready to construct for 10-15 years. Many SCWA projects that have potential to impact Russian River. | See response to Comment M-4. |
| M-35 | EIR fails to acknowledge level of complexity of project on environment and interactions of many components. | Comment noted. |
| M-36 | Impact of pharmaceuticals. Disagrees with analysis in EIR. | See Master Response No. 5. |
| M-37 | Concerned with irrigation runoff that causes chemicals to leach off land into waterways and potentially into aquatic life. | See Master Response No. 8. |
| M-38 | Consulting and monitoring not adequate mitigation for endocrine disruptors. Suggests prohibiting chemical use known to be hazardous on irrigated lands or drip irrigation to control runoff. How will nutrient runoff protect fish habitat? | See Master Response Nos. 5 and 7. |
| M-39 | Discussion of temperature? Why was Laguna not discussed? Questions regarding flows, water quality, evidence for most chemicals are in compliance? | Project implementation would reduce discharges into Laguna de Santa Rosa. See Master Response Nos. 5 and 7. |
| M-40 | Laguna, extensive invasive plant growth in river. | Project would help in limiting this effect by applying treated wastewater on crops, which would take-up a portion of water that is currently discharged into Laguna. See responses to Comments M-29 and M-31. |
| M-41 | Describe data collection in Table 3.8-2. Describe how the 16 regulations and requirements could affect the project. | The data for Table 3.8-2 was obtained from the City of Santa Rosa Incremental Recycled Water Program Draft EIR (City of Santa Rosa, 2003). Section 3.8 contains a discussion of relevant state and federal water quality |

| Comment Number | Topic/summary | Response |
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| | | regulations that potential suppliers of water for the NSCARP will be required to comply with. The NCRWQCB will monitor water quality supplied to the NSCARP to ensure that the water is in compliance with these regulations. |
| M-42 | Santa Rosa's water reclamation requirements: not application during periods of uncontrolled runoff (frost protection?). Questions what agricultural users would want to use wastewater if they had to abide by all of the requirements. | Water application rates and times would be governed by RWUAs (See Master Response No. 7).<br>Participation in the program would be voluntary. If individual agricultural users determined that requirements were too restrictive, they would not be forced to participate. |
| M-43 | Wastewater does not meet standards at all times. Compliance process can take months. | Mitigation Measure HWQ-4 and HYD-5 (updated) would provide sufficient safeguards in conjunction with RWUAs detailed under Master Response No. 7. |
| M-44 | Cites partial abstract for impact study of copper on salmon. | Because reservoirs are off stream, do not discharge into streams, and water applied to fields in a prescribed manner to eliminate runoff, the possibility of contact with salmon is insignificant. See responses to Comments F-1 and M-32. Further, no salmon could reach or survive in the reservoirs due to lack of suitable habitat (see response to Comment M-33 above). Consequently, salmon would not come into contact with recycled water from project under normal operating conditions. |
| M-45 | Human and wildlife health must be protected. | Master Response No. 5. |
| M-46 | How will NSCARP address issues raised in the Riparian and Wetlands System Protection Policy (Coast Action Group)? Vineyards 25' from bank, no wastewater reaching river? | SCWA encourages riparian protection. The SWRCB website has additional information. RWUAs will regulate runoff. See Master Response No. 7. |
| M-47 | Anticipated changes by RRWPC listed. | See also response to Comment M-4 |
| **Christopher Evans** | | |
| N-1 | Concerned that EIR does not address human health impacts resulting from discharge of treated wastewater into Russian River. | Discharge into Russian River is not proposed as part of this project. In fact, the increased irrigation opportunities have the potential to reduce the amount of water discharged into the Russian River by the Town of Windsor and the City of Santa Rosa. See response to Comment M-31 above. |
| N-2 | Will treated wastewater be discharged into Russian River? | See response to Comment N-1. |

| Comment Number | Topic/summary | Response |
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| N-3 | Why proceed with project before knowing if wastewater is hazardous to human health. | See Master Response No. 5. Recycled water use is not new and is already occurring on vineyards and other crops within many locations within Sonoma County, the region, and the state. |
| N-4 | Why not purify water like Orange County and Phoenix? | Orange County and the City of Phoenix are using reverse osmosis treatment processes to treat water to drinking water standards in order to supplement their drinking water supplies. NSCARP is for surface irrigation of crops, not drinking water. Irrigation would also occur in a manner consistent with state health regulations established for the protection of human health and groundwater quality. |
| N-5 | If wastewater enters Russian River will it first have been treated using Reverse Osmosis filtration? | At present, reverse osmosis filtration is not required. Town of Windsor and City of Santa Rosa already discharge to the Russian River between October and May. Reverse osmosis treatment is not required for a surface water discharge. Orange County Sanitation District also discharges secondary-treated wastewater through their ocean outfall. Orange County Water District is having a portion of their wastewater treated with reverse osmosis and ultra-violet (UV) lights so that water can then be used for groundwater recharge and/or drinking water supplies. |
| N-6 | Currently effects of xenobiotics are unknown. Possible when more advanced methods are discovered that we find that xenobiotics are hazardous to human health? | See Master Response No. 5 and response to Comment M-3. |
| N-7 | Has SCWA reserved funds for latest purification technology in case wastewater in the future is found to contain harmful chemicals? | See Master Response No. 5. |
| N-8 | Isn't project an experiment if it's not currently possible to evaluate the health effects of certain chemicals as stated in the Draft EIR? | The commenter is directed to Section 3.2, Agricultural Resources in the EIR/EIS that identified 68 jurisdictions in the State of California that use recycled water on pastures and crops. In addition, at least eight jurisdictions use recycled water for vineyards.<br><br>Based on this widespread use, encouragement by the State Water Resources Board to use recycled water, and the regulations issued by the California Department of Health Services to use recycled water, the project cannot be considered an experiment. |

| Comment Number | Topic/summary | Response |
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| | | With respect to health effects of certain chemicals, see Master Response No. 5. |
| N-9 | Why haven't scientists been retained to conduct studies of the effects of wastewater on humans, fish and wildlife? | In addition to conferring with a number of scientists responsible for the preparation of the IRWP, a variety of scientific studies were reviewed and summarized by EIR/EIS preparers and analysts. In the preparation of responses to comments, consultations were conducted with scientists. See Master Response No. 5 and Appendix I for additional information provided by scientists and engineers concerning recycled water. |
| N-10 | How will results of studies be made public? | Any relevant studies conducted by SCWA are on the website or available for review at the SCWA office |
| N-11 | Will SCWA pay for medical tests and treatment for individuals exhibiting health problems related to chemical exposure to compounds found in wastewater? | See Master Response 5. |
| **Clancy Burns** | | |
| O-1 | Suggests pipeline to and reservoir in Knights Valley. | Comment noted. This pipeline is not being considered for the NSCARP project. |
| **da Klein** | | |
| P-1 | Doesn't support subsidizing large projects that benefit vineyards owned by large corporations. Doesn't believe in "a wine monoculture." | NSCARP project would benefit any agricultural entity in the service areas that agrees to participate. Participation would not be determined on the basis of size or business organizational structure.<br>In addition to agricultural interests, the project would provide benefits to the fishery as detailed in Master Response No. 4.<br>Crop selection is beyond the scope of this EIR/EIS. |
| **Alexander Valley Acres Mutual Water Company** | | |
| Q-1 | NSCARP proposes to store "disinfected tertiary treated recycled water" more than a mile from wells. Concerned with public health hazard by degrading groundwater quality. | See Master Response Nos. 5, 7, 8, and 9.<br>The commenter is referred to "The Purple Book -- California Health Laws Related to Recycled Water", which was issued by the California Department of Health Services, Division of Drinking Water and Environmental Management in 2001 (http://ww2.cdph.ca.gov/certlic/drinkingwater/Documents/Recharge/Purplebookupdate6-01.PDF). This document details |

| Comment Number | Topic/summary | Response |
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| | | the standards for use of recycled water near potable water wells, with which the NSCARP will fully comply. |
| Q-2 | Maximum nitrate and nitrite concentrations and associated health risk. | See Master Response No. 5. Further treatment options possibly available in the future, but as of now, no additional treatment proposed in conjunction with NSCARP. |
| Q-3 | Chloroform exposure in excess of screening value: excess cancer risk. | See Master Response No. 5. |
| Q-4 | Jordan Reservoir could not be sealed allowing recycled water to enter groundwater. | See Master Response No. 6. If a particular reservoir cannot be designed to not substantially degrade water quality, SCWA will eliminate it from consideration |
| Q-5 | "Emerging contaminants", many survive wastewater treatment and biodegradation. Using water near drinking water wells. | See Master Response Nos. 5, 7, 8, and 9. |
| Q-6 | Many unknowns regarding effects of pharmaceuticals and other wastewater compounds and their interactivity with other compounds. | See Master Response No. 5. |
| Q-7 | Potentially unidentified constituents post -treatment. | Master Response No. 5. |
| Q-8 | Jordan site should be disqualified due to proximity to domestic water wells. Recommends additional treatment. | See Master Response Nos. 8 and 9. Also see response to Comments D-8, M-41, and T-17. |
| **Phone Contact Record from Dave Rafanelli** | | |
| R-1 | Opposed to pumping "that kind of water" into Dry Creek Valley. Doesn't want to lose water rights. | Comment noted. See Section 2.5 of this EIR/EIS and Master Response No. 10 concerning retention of water rights. |
| R-2 | Upset that their wells have been used since before Warm Springs Dam might be jeopardized. | No unwanted loss of wells would occur because participation in the project is voluntary. If an existing irrigator chooses not to participate, then they can to continue relying upon their existing water sources. See expanded discussion of this issue under Section 2.5 of this EIR/EIS. See Master Response No. 10. |
| R-3 | Concerned about failure to install more check-dams along Dry Creek to keep the creek bed from downcutting (said they were verbally promised years ago that more check-dams were planned). | Check dams were installed along Dry Creek in cooperation between the SCWA and the Corps of Engineers in connection with the construction of Warm Springs Dam. Commenter indicates that additional check dams were promised. This issue goes beyond the scope of the proposed NSCARP. |

| Comment Number | Topic/summary | Response |
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| | | The proposed project does not involve changes to the existing check dams or require the installation of any new check dams in Dry Creek or the Russian River. |
| **Friends of the Eel River** | | |
| S-1 | No discussion of adverse, significant cumulative impacts or growth-related impacts with exception of construction traffic and utilities disruptions. Not based on fact, feels DEIR/EIS needs to provide critical information to inform public and decision-makers. Rewrite and recirculate. | See Master Response Nos. 1, 14, and 17. |
| S-2 | Interest by wastewater providers. | See Master Response No. 13. |
| S-3 | Source, quantities, and timing over lifespan of project | See Master Response No. 13. |
| S-4 | Agreements with sources during very wet, wet, average, dry, and very dry years. | SCWA's standard irrigation agreements do not include use conditions based on water supply conditions. |
| S-5 | Agreements with recipients during very wet, wet, average, dry, and very dry years. | See response to Comment S-4. |
| S-6 | How much water to be delivered each month of the water year to each sub-area, contractor, landowner for reservoir storage? How much water to be delivered each month of the water year to each sub-area, contractor, landowner without going to a reservoir for storage? | Too early to precisely define specific operations of NSCARP. See Master Response No. 6. Refer to Project Description and maximum use (8,700 af) if fully implemented. |
| S-7 | How will water deliveries affect current or future need for Petitions for Temporary Urgency Change Petition with SWRCB? | The Petition of Temporary Urgency Change (PTUC) is temporary and immediate in nature. The NSCARP, if constructed, would be 5-10 years down the road. However, the goals of the PTUC and the NSCARP are both to allow for a conservation of flows out of Lake Mendocino into the Russian River, which will allow more high quality cold water to remain available in Lake Mendocino for release for the fall salmon run. See Master Response No. 4 and response to Comment A-11. |

| Comment Number | Topic/summary | Response |
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| | | Ideally, the NSCARP project would allow the SCWA to conserve more water in Lake Mendocino (as described in the document), which could reduce the need for future petitions for temporary urgency change petitions with the SWRCB. |
| S-8 | How will project affect amended or revised D-1610 as considered by SCWA Board of Directors? | Not determinable at this time. There is no proposal to amend or revise D1610 associated with the implementation of the NSCARP. |
| S-9 | How will project affect current and future demands for water transferred from Eel River through the PG&E Potter Valley Project? | Implementation of NSCARP would not reduce transfers from Eel River system. |
| S-10 | How will project affect current and future water draw demands? | See Response to A-11. The project, as proposed, provides an alternative source of irrigation water for agricultural irrigators. These irrigators are currently using surface water or groundwater for irrigation in the project area. As stated in the EIR/EIS, surface waters or groundwater conserved as a result of this project will remain for beneficial environmental uses. The NSCARP does not propose any changes in the SCWA's current or future water draw demands. |
| S-11 | What will be the contractual consequences if SCWA is unable to deliver water to recipients? | If the SCWA enters into a contract to supply recycled water and cannot meet its obligations, the user would have the right to terminate the agreement and return to using their existing water supply. Similarly, if an agreement is entered into and the user does not take the specified amount of water from the project, SCWA (or whoever is administering the project) would have the right to terminate the agreement and reallocate that water to another user. See Master Response No. 7 for details of a typical RWUA. |
| S-12 | What is relationship between NSCARP water budget and improved flows in Russian River and tributaries under varying delivery scenarios? | See Master Response No. 4 and response to Comment A-11. |
| S-13 | What will be effect on groundwater levels within NSCARP area? | By reducing the amount of groundwater needed through substitution with recycled water, that volume of groundwater drafted would be reduced. |
| S-14 | Monitoring and testing of water used, groundwater where irrigation occurs, and on crops? | See updated Impact HWQ-4. |
| S-15 | How will project affect fish species living in Russian River and tributaries and comply with Section 7 Consultation and Biological Opinions for the species? | No adverse impact to fisheries are expected due to the following reasons: 1) RWUAs would require end users to prevent water runoff through application of good farming practices (see Master Response No. 7); 2) water would be |

| Comment Number | Topic/summary | Response |
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| | | properly stored in lined reservoirs and monitored to assure containment; 3) water quality parameters would be monitored by each of the entities providing recycled water to the NSCARP system; 4) recycled water would not be released into area streams; and, 5) preservation of surface and groundwater would allow greater flexibility on the part of SWCA to enhance the Russian River fishery through measures detailed in Master Response No. 4.<br><br>A Biological Opinion (BO) was issued by the National Marine Fisheries Services (NMFS) on September 24, 2008 (http://www.sonomacountywater.org/projects/documents/Signed-RussianRiverFinalBO9-24-08.pdf). This BO was issued for water supply, flood control operations, and channel maintenance activities in the Russian River conducted by the SCWA, U.S. Army Corps of Engineers, and Mendocino County Russian River Flood Control and Water Conservation Improvement District. The BO included a Reasonable and Prudent Alternative, which included the following elements: reduce flows in the mainstem Russian River from May through October 15; minimize high flow impacts in Dry Creek; adopt adaptive management of the estuary breaching; strengthen the coho salmon captive broodstock program; conduct a feasibility study of a Dry Creek bypass pipeline; install back-up water supply pipeline to the Warm Springs Dam hatchery; monitor fisheries, water quality, and aquatic invertebrates; and a number of other actions. The BO did not address the NSCARP project, which will require its own BO from NMFS and USFWS. However, the NSCARP project could assist in the goal of reducing flows in the Russian River in the spring and summer by using recycled water rather than water released from Lake Mendocino or Lake Sonoma (see Master Response No. 4). Also see revised Section 1.3 in the Final EIR/S. |
| S-16 | How will project affect fish species living in Eel River and tributaries and comply with Section 7 Consultation and Biological Opinions for the species? How will project affect continued reliance on Eel River diversions through PG&E project? Effect on pikeminnow populations? | The NSCARP project would not change existing conditions in the Eel River system. See Response S-15. |

| Comment Number | Topic/summary | Response |
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| S-17 | DEIR/EIS doesn't address impacts of sending treated wastewater to agricultural locations outside of SCWA service area instead of using wastewater within SCWA service areas to displace potable water demands on SCWA. | Water is not being "exported" - all of the project area is within and adjacent to the Russian River or its tributaries. The NSCARP is a proposal for the use of an existing source of recycled water for agricultural irrigation. Displacing potable water demands on the SCWA is not a defined goal of the NSCARP. See Master Response No. 10. |
| S-18 | Project creates further dependencies on potable water from Russian River, Eel River, and groundwater supplies. See referenced litigation. Effect of fish species in Eel and Russian rivers in varying water years on demands for potable water withdrawals from Russian and Eel rivers, tributaries, and groundwater? | NSCARP would not create further dependency on potable water. See Master Response No. 10.<br>The *Vineyard* case requires an EIR to show substantial evidence water supply will be available to serve a project. The comment assumes that NSCARP will place demands on *potable* water from various sources that could affect supply to future growth not associated with NSCARP. However, the project would not free up water for other uses due to legal restrictions on water appropriation. See Section 2.5 concerning retention of water rights.<br>See also Response to Comment S-15. |
| S-19 | Export of treated wastewater, which could be used to offset potable water demand, is inconsistent with Sonoma County General Plan. | The Sonoma County Planning Commission has not identified the use of recycled water for agricultural irrigation as inconsistent with the General Plan. See response to S-17. |
| S-20 | Treated wastewater exported out of service areas proposed to supply wastewater to NSCARP. Then unavailable for use to offset potable water demands. | The NSCARP provides benefits on a regional basis rather than to a specific entity/community. The NSCARP provides an alternative source of water for agricultural irrigators that currently obtain water from the Russian River or its tributaries or groundwater in the project areas. The City of Santa Rosa and the Town of Windsor also are working separately on reuse projects in their service areas to replace potable water irrigation with recycled water. NSCARP is not a "this" or "that" proposal. Instead, it is a complementary project that fits in with other projects being considered. |
| S-21 | NSCARP water demands not included in Sonoma County General Plan, its DEIR, or the Sonoma County Urban Water Management Plan 2005, making project inconsistent with those documents. Growth discussion. | NSCARP is for the use of recycled water that already comes from the treatment plants. There are no new water demands associated with the project. The proposed project provides an alternative source of irrigation water for existing agricultural operations. |

| Comment Number | Topic/summary | Response |
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| S-22 | The General Plan states insufficient water to supply growth projected in GP. Use of treated wastewater for use other than to offset potable water demand would only exacerbate the problem. | The project does not offset potable water use demands. The project also does not exacerbate potable water demands. Addressing potable water demands of the region is not an objective of the NSCARP. |
| S-23 | Quotes from Sonoma County General Plan DEIR. | See response to Comment S-18. |
| S-24 | DEIR/EIS doesn't address cumulative impacts of wastewater proposed for NSCARP and use of recycled wastewaters exported from SCWA for other projects. Look at listed salmonid species as well as recycled wastewater to be used by other projects. | See Master Response No. 3. |
| S-25 | Need to evaluate North San Pablo Bay Restoration and Reuse Project. | The proposed North San Pablo Bay Restoration and Reuse Project is in a different location and would use recycled water from a different source than the NSCARP. Other than both being proposals to use recycled water for agricultural and/or irrigation, there is no connection between the two projects |
| S-26 | Need to evaluate projects in H.R. 236 North Bay Reuse Program Act of 2007. | The proposed North Bay Reuse Program is in a different location and would use recycled water from a different source than the NSCARP. Other than both being proposals to use recycled water for agricultural and/or irrigation, there is no connection between the two projects. |
| S-27 | Need to evaluate Napa River Salt Marsh Restoration Project. | The proposed Napa Salt Marsh Restoration Project is in a different location and would use recycled water from a different source than the NSCARP. Other than both being proposals to use recycled water for agricultural and/or irrigation, there is no connection between the two projects. |
| S-28 | Need to evaluate any current or future agricultural irrigation reuse projects within SCWA area that do not use recycled wastewater to offset potable water demands, including North Bay Water Reuse Authority projects. | The proposed North San Pablo Bay Restoration and Reuse Project is in a different location and would use recycled water from a different source than the NSCARP. Other than both being proposals to use recycled water for agricultural and/or irrigation, there is no connection between the two projects. |
| S-29 | DEIR/EIS doesn't address out of service area transfer for use by other reuse projects. | See response to Comment S-17 and S-19. |
| S-30 | Greenhouse gas contribution from pumping to reservoirs and then for irrigation broken down by each region of NSCARP? | See Master Response No. 12. |

| Comment Number | Topic/summary | Response |
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| S-31 | Greenhouse gas emissions resulting from decomposition of organic matter flooded in reservoirs? | See Master Response No. 12. |
| S-32 | DEIR/EIS does not identify alternatives to reduce greenhouse gas emissions during construction or operation. | See Master Response No. 12. |
| S-33 | DEIR/EIS doesn't identify constituents in treated wastewater supplies. | See Tables 3.8-2, 3.12-1, and 3.12-2 for summaries of wastewater constituents. |
| S-34 | What are effects of toxins and contaminants on soil and soil organisms? | The effect of toxins and contaminants on soil and soil organisms depends on myriad factors including concentration of compound(s), volume of compounds, duration of exposure, area affected, number and type of organisms affected, etc. Comment is too general to provide a specific response. |
| S-35 | What are effects of toxins and contaminants on food crops? | See Master Response Nos. 2 and 5. |
| S-36 | What are effects of toxins and contaminants on food produced from irrigated crops? | See Master Response No. 5. |
| S-37 | Public perception of wine quality with treated wastewater irrigated grapes. | See Master Response No. 2. |
| S-38 | Impacts of "tailspin" from negative public perception. Evaluate loss of jobs, housing, increased human services, changes in land use patterns, failed vineyards, etc. Marketplace perception must be evaluated in DEIR/EIS. | See Master Response No. 2. |
| S-39 | EIR/EIS does not contain soil or water monitoring for cumulative impacts, no bioaccumulation studies and no baseline studies. Recycled Water User Agreement is not defined as to what users would be accountable for. | See response to Comment S-14 and S-15, and Impact PUB-7. SCWA may initiate enforcement action against water users who discharges recycled water in violation of agreement and RWQCB provisions. See Master Response No. 7 concerning RWUAs. |
| S-40 | Evaluate impacts to public health associated with storage of treated wastewater. | See Impact PUB-7. Recycled water is currently stored in reservoirs at the WWTP sites, and no public health issues have been reported. |

<table>
<tr><th>Comment Number</th><th>Topic/summary</th><th>Response</th></tr>
<tr><td>S-41</td><td>Studies to determine groundwater quality/flows for baseline as well as monitoring after construction.</td><td>DWR publishes information regarding California groundwater in Bulletin 118 (updated in 2003). The state's groundwater is divided in to basins and subbasins. The majority of the NSCARP area covers three subbasins. The reported groundwater quality in each subbasin is characterized as follows:<br><br><u>Santa Rosa Valley, Healdsburg Area Subbasin</u><br><br>The water in this area can be characterized as moderately hard to hard bicarbonate type and generally suitable for all uses (Cardwell, 1965). TDS ranges from 90 to 500 mg/L but generally is less than 200 mg-L. EC ranges from 178 to 672 µmhos/cm based on 16 wells from Alexander Valley and two wells from Healdsburg.<br><br>Water Quality in Public Supply Wells
<table>
<tr><th>Constituent Group</th><th>Number of Wells Sampled</th><th>Number of Wells with a Concentration Above an MCL</th></tr>
<tr><td>Inorganics - Primary</td><td>25</td><td>0</td></tr>
<tr><td>Radiological</td><td>11</td><td>0</td></tr>
<tr><td>Nitrates</td><td>26</td><td>0</td></tr>
<tr><td>Pesticides</td><td>13</td><td>0</td></tr>
<tr><td>VOCs and SVOCs</td><td>14</td><td>0</td></tr>
<tr><td>Inorganics - Secondary</td><td>25</td><td>11</td></tr>
</table></td></tr>
</table>

| Comment Number | Topic/summary | Response |
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| | | Alexander Valley Groundwater Basin, Alexander Subbasin<br><br>Groundwater is generally characterized as moderately hard to hard, bicarbonate (California Department of Water Resources, 1983). Based on data from 16 wells sampled between 1957 and 1980, TDS ranged from 130 to 444 mg/L and EC ranged from 178 to 672 µmhos/cm. |

**Water Quality in Public Supply Wells**

| Constituent Group | Number of Wells Sampled | Number of Wells with a Concentration Above an MCL |
|---|---|---|
| Inorganics - Primary | 19 | 0 |
| Radiological | 9 | 0 |
| Nitrates | 21 | 0 |
| Pesticides | 16 | 0 |
| VOCs and SVOCs | 16 | 0 |
| Inorganics - Secondary | 19 | 6 |

<table>
<tr><th>Comment Number</th><th>Topic/summary</th><th>Response</th></tr>
<tr><td></td><td></td><td>
<u>Alexander Valley Groundwater Basin, Cloverdale Area Subbasin</u>

Groundwater in the basin is generally characterized as moderately hard to hard. Based on data from four wells, TDS values ranged from 130 to 304 mg/L and EC ranged from 178 to 454 µmhos/cm (California Department of Water Resources, 1983).

**Water Quality in Public Supply Wells**

<table>
<tr><th>Constituent Group</th><th>Number of Wells Sampled</th><th>Number of Wells with a Concentration Above an MCL</th></tr>
<tr><td>Inorganics - Primary</td><td>10</td><td>0</td></tr>
<tr><td>Radiological</td><td>7</td><td>0</td></tr>
<tr><td>Nitrates</td><td>10</td><td>0</td></tr>
<tr><td>Pesticides</td><td>9</td><td>0</td></tr>
<tr><td>VOCs and SVOCs</td><td>8</td><td>0</td></tr>
<tr><td>Inorganics - Secondary</td><td>10</td><td>0</td></tr>
</table>

The groundwater quality information published by DWR is for a general baseline. More detailed monitoring may be required for particular storage sites and will be determined during individual site inspections.

<u>References Cited</u>

California Department of Water Resources. 1983. Evaluation of Ground Water Resources: Sonoma County. Bulletin 118-4, Volume 5: Alexander Valley and Healdsburg Area.

Cardwell, G.T. 1965. Geology and Ground Water in Russian River Valley Areas and in Round, Laytonville and Little Lake Valleys, Sonoma and Mendocino Counties, California. USGS Water Supply Paper 1548.
</td></tr>
<tr><td>S-42</td><td>Blocking of stream flows?</td><td>See response to Comment F-1. Proposed project would not result in any blocked stream flows. Pipelines would be under streams and suspended beneath bridges.</td></tr>
</table>

| Comment Number | Topic/summary | Response |
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| S-43 | Evaluate increased seepage and summer flows in tributaries though project benefit is increased water flows in Russian River. | See Master Response Nos. 8 and 4. |
| S-44 | Altered stream morphology by dam construction and emplacement, sediment capture, changes of peak streambed/bank altering flows. | Reservoirs would be located off-channel and would not alter flows or hydromorphology of the Russian River or its tributaries. See discussion in Impact HWQ-1, HWQ-3, HWQ-6, and HWQ-9. Also see response to Comment F-1. |
| **Soda Rock Neighborhood Association** | | |
| T-1 | Feels EIR/EIS is deficient (project need, project description, alternatives analysis, impact conclusions) and should be withdrawn. | See Master Response Nos. 1, 18, and 19. |
| T-2 | Feels project puts drinking water supplies at risk as well as reputation of local wines. | See Master Response No. 2. |
| T-3 | No residents in the Soda Rock Neighborhood have expressed interest in using recycled water. | See Master Response No. 10. Proposed project is voluntary. It will only be constructed if there is interest among the potential users to support the project. Anyone that does not wish to use the recycled water can continue to rely on their existing water supply source. |
| T-4 | No discussion of how much water is to remain in the Russian River and how additional quantity of water would benefit fisheries. | See Master Response No. 4 concerning fishery benefits. Up to 7,234 af/year presently with design of up to 13,000 af/year. |
| T-5 | Groundwater versus surface water comparison / discussion. | An unknown but potentially large portion of the vineyard areas within the NSCARP area are currently irrigated with groundwater. According to the City of Santa Rosa's Incremental Recycled Water Program Discharge Compliance Project Draft EIR, it is estimated that of the 13,500 acre-ft/yr of irrigation in Cloverdale and Alexander valleys alone, about 78 percent was met solely by groundwater; about 6 percent was met by surface water; and |

| Comment Number | Topic/summary | Response |
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| | | about one percent was met by a combination of ground and surface water. About 15 percent of the estimated irrigation water had an unknown source of water.<br>The City of Santa Rosa's Draft EIR also contains detailed analyses of the interaction between groundwater and surface water. They concluded that reduced groundwater pumping can result in discharge of groundwater to surface water sources. The groundwater/surface water interaction is the net difference between the total pumping demands and the total recharge for the localized hydrologic budget near the well. |
| T-6 | Benefit to fisheries, potential diversion of recycled water to currently uncultivated land. | See Master Response Nos. 4, 7, and 10. Proposed project is intended to convert existing irrigators to a new source of irrigation water. The proposed project is not intended to allow existing users to continue using their present water supplies and also take recycled water to irrigate additional, currently unirrigated lands. See also Master Response No. 10 and responses to Comments S-15 and S-18. |
| T-7 | Project alternatives are too narrow and represent scaled-down version of same approach. | See Master Response No. 1. NSCARP is complementary to other projects under evaluation by the Town of Windsor and the City of Santa Rosa, not an alternative to them. |
| T-8 | Recommend advanced treatment options as alternative. | Comment noted. See Master Response No. 5. |
| T-9 | Should evaluate discharge, storage, and reuse options and should include Santa Rosa's IRWP Master Plan as an alternative to the NSCARP. | Agricultural use of recycled water, as proposed by the NSCARP project, is already an alternative that is identified in the City of Santa Rosa's IRWP. |
| T-10 | Needs No. 1 and No. 2 are unrelated and by grouping them together, several feasible alternatives were effectively eliminated. | See Master Response No. 1. |
| T-11 | No proof of long-term water supply. | Project design is based on professional analysis for future recycled water supplies as detailed in Chapter 2 of the DEIR/EIS (page 2-10). |
| T-12 | Project purposes/objectives do not fully address need No.1 except for reducing surface water use for agriculture. "Misstatement" of purposes/objectives. | See Master Response No. 17. |
| T-13 | Further discussion of reduction of groundwater use. | See Master Response No. 10. |

| Comment Number | Topic/summary | Response |
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| | Who would benefit from potable water offset? Intentions for potable water offset from reduced use of groundwater for agricultural use. | |
| T-14 | Need to quantify surface water diversion reduction in order to assess environmental benefit to fish habitat. | See Master Response No. 4 and response to Comment T-4 |
| T-15 | Cites USGS study for Alexander Valley. Doubts that reductions in surface water diversions will benefit fish species since groundwater is the main water supply for Alexander Valley. | See Master Response No. 4<br>Groundwater extractions in Alexander Valley area are recharged significantly by surface water flows. The main sources of groundwater recharge in the study area are direct infiltration of local precipitation that falls on the mountains and valley floor and infiltration of surface water from the Russian River and its tributaries, which is variable from year to year.<br>The USGS report cited by the commenter was prepared by Metzgar, et al. in 2006[1]. The report concluded that the estimate of groundwater recharge in the Alexander Valley is sensitive to even a small percentage change in estimates of precipitation, runoff, and evopotranspiration. Any change in these parameters could result in an order of magnitude difference in recharge estimates. Further, the report concluded that groundwater quality changes over time may result from natural processes, changes in irrigation practices, or from declining water levels.<br>By reducing groundwater extractions through use of recycled water, the NSCARP could result in an increase in groundwater supplies in the Alexander Valley<br>[1]Metzgar, L.L. Farrar, C.D., Koczot, K.M., and Reichard, E.G. 2006. Geohydrology and Water Chemistry of the Alexander Valley, Sonoma County, California. U.S. Geological Survey Scientific Investigations Report 2006-5115. |

| Comment Number | Topic/summary | Response |
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| T-16 | No water balance, chemical balance, and fate and transport analyses are shown. Retained hydrogeologist to conduct studies, which concluded NSCARP would cause local groundwater supplies to go from high quality to low quality. Resulting in violation of Anti-Degradation Policy. | Analysis provided by the retained hydrogeologist shows that the quality of the recycled water is quite similar (and better in some cases) than the existing groundwater in the Alexander Valley area. The analysis provided to show that nitrates and TDS are a problem is oversimplified and relies on an assumption that the levels of nitrates and TDS in recycled water will increase to double their existing concentrations. However, this doubling of concentration is not similarly applied to the existing irrigation source water use, thereby erroneously reporting an even greater difference in TDS and nitrate levels between the recycled water use and existing source water use. However, even in the unlikely event that recycled water use results in TDS and nitrate level increases, the numbers provided by the retained hydrogeologist indicate that nitrate and TDS levels are still within existing drinking water standards.<br><br>Also see Master Response No. 8. |
| T-17 | Monitoring not acceptable mitigation. Doesn't feel like this significant impact was fully disclosed, no supporting analysis. | Impacts HWQ-4 and HWQ-5 identified potential degradation of groundwater from project reservoirs as a potential significant impact. Mitigation Measure HWQ-5 identified use of clay liners to reduce effects to groundwater to less than significant levels. Mitigation Measure HWQ-4 also required the implementation of a monitoring program to determine the efficacy of the liners in maintaining groundwater quality. The measure also requires affirmative action on the part of SCWA to repair any liner if water quality levels exceed MCL's. Consequently, Mitigation Measure HWQ-4 and 5, when taken together, are not for monitoring only, but also to remediate damage to liners. Both of these impacts and associated mitigation measures have been further clarified in the Final EIR/EIS.<br><br>In addition, as detailed at Comment F-5, the North Coast Regional Water Quality Control Board will require SCWA to submit detailed specifications prior to reservoir construction to assure that the liners are the appropriate thickness and installed properly to be fully protective of groundwater or, alternatively, to comply with prescriptive liner standards identified in Title 27, Division 4, Article 4.<br><br>To avoid confusion, HWQ-4 and 5, have been consolidated and updated with information provided by the North Coast Regional Board. |

| Comment Number | Topic/summary | Response |
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| T-18 | Need to evaluate constituents in treated wastewater. | Effluent water quality testing is required by the WWTP operators in compliance with permits issued by NCRWQCB. Recycled water used for the NSCARP project will meet state and federal standards. See response to Comment S-33. |
| T-19 | Need to evaluate all of the chemicals Identified by the USGS as Emerging Contaminant of Concern. At least identify their presence in proposed recycled water supply and at what concentrations. | See Master Response No. 5. |
| T-20 | Lacks site-specific groundwater evaluation showing estimated rate of lateral movement. | Because the NSCARP would not recharge aquifers, but would reduce pumping, it would not be expected to affect groundwater movement. Mitigation Measure HWQ-4 has been modified to include engineering standards and monitoring ensure the protection of groundwater quality. |
| T-21 | Only 5 of the 19 reservoir sites were evaluated. | See Master Response No. 6. |
| T-22 | How can a determination be made if geotechnical feasibility hasn't been established? How can the impact be less than significant if the reservoir sites have yet to be studied? | See Master Response No. 6. |
| T-23 | Cites Santa Rosa's draft engineering report for Jordan reservoirs, noting fault potential and landslide potential, need for extensive "underseepage control measures". Commenter feels The Geoservices Group's report on the Jordan reservoir sites is superficial and flawed. | See Master Response No. 6. |
| T-24 | Feels determination for Impact TRA-4 (LTS with mitigation) isn't credible. Also states that emergency access isn't only impact of significant traffic delays. | NSCARP managers would coordinate with emergency response agencies to ensure they are aware of routing considerations and that traffic lanes are available for emergency vehicles. The issue of significant traffic delays is analyzed in Impact TRA-1. A Traffic Control Plan (see Environmental Commitments), would limits traffic delays as much as feasible. See also response to Comment X-38. |

| Comment Number | Topic/summary | Response |
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| | | See Master Response No. 2. Construction phasing would make impact relatively minor. As stated on p. 2-40, pipeline construction would occur at a rate of 100 to 400 feet per day dependent on location; therefore, there would be no long-term disruption at any one location for longer than a few days. |
| T-25 | Lacks reasonable analysis of traffic delays likely to result from construction and effects of delays on residents, businesses, tourism and emergency access. | See response to Comments T-24, and X-38. Also note that the Traffic Control Plan is not limited to those measures listed. If the SCWA, in coordination with affected agencies, determines that different procedures must be adopted, then they will be incorporated into the project when warranted. |
| T-26 | Unclear how traffic (including access for residents, farm equipment, school buses, delivery trucks, emergency vehicles) can be maintained when many lanes are narrower than two lanes combined. | See responses to Comments T-24, and T-25. Special circumstances would be addressed by the Traffic Control Plan, as necessary. |
| T-27 | Inconsistency with General Plan Objective RC-3.1 if Jordan reservoirs can't be lined. Resulting in percolation, which could contaminate groundwater. | See Master Response No. 6. If a particular reservoir cannot be built in accordance with NCRWQCB or DSOD standards, it would be omitted from consideration. |
| T-28 | Conflicts with General Plan Objective RC-3.3. Risks to groundwater and surface water quality. | See response to Comment T-27 above and Master Response 5. NSCARP would comply with Title 22 and other appropriate water quality regulations. Also see Master Response No. 8.<br>See Master Response No. 2. Construction phasing would make impact relatively minor. As stated on p. 2-40, pipeline construction would occur at a rate of 100 to 400 feet per day dependent on location; therefore, there would be no long-term disruption at any one location for longer than a few days. |
| T-29 | Without quantifiable results, can't determine if Alternative 2 is adequately sized to protect fisheries. Also should consider other factors besides fish habitat in selected the preferred and environmentally superior alternative | See Master Response No. 4. |
| T-30 | Project description, need/purpose, environmental setting, alternatives analysis are inadequate. Feels necessary studies must be completed and then document should be revised and recirculated | Comment noted. |

| Comment Number | Topic/summary | Response |
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| **Dennis O'Rorke** | | |
| U-1 | Has not been proven that treatment plants filter out chemical compounds that might be taken up by plants and groundwater. Concerned with negative publicity to wine industry resulting from use of treated wastewater | See Master Responses No. 2 and No. 5. |
| U-2 | Feels the project is a tactic by the Board of Supervisors and SCWA to convince State regulators to approve additional water use from Lake Mendocino and Lake Sonoma for future development. | The SCWA has been working on obtaining additional water rights for the use of water in Lake Sonoma. The efforts to obtain these additional water rights began prior to and independent of the NSCARP. The SCWA will continue to work towards obtaining additional water rights for the use of water in Lake Sonoma regardless of the NSCARP. As noted in the NSCARP DEIR/EIS, the NSCARP will provide regional environmental benefits. The NSCARP will not provide for new unallocated water supplies to be available in the Russian River or its tributaries. |
| **Russian Riverkeeper** | | |
| V-1 | Recommends additional considerations for cumulative impact analysis. | See Master Response No. 3.<br>As stated in Section 1.3, Background of Purpose and Need, because of the complex interaction of groundwater with surface water flows, groundwater flow lags, seasonality of flows, future levels of participation in the NSCARP project, and other factors (see Footnote 1 in Chapter 1), it is not possible to precisely estimate the volume of appropriated water that would be available for instream uses. Thus, the EIR/EIS acknowledges that there are factors such as: 1) temporary reduction petitions and decision by Sonoma County Board of Supervisors to modify Decision 1610 to reduce flows; and 2) uncertain amounts of available wastewater. |
| V-2 | Vague project description with no contracted suppliers and no contracted customers. | See Master Response No. 13 and discussion in Chapter 1 concerning potential users of recycled water. |
| V-3 | Project need not clearly defined. Document should have evaluated other alternatives like conservation. | See Master Responses No. 1 and No.18. See response to Comment J-9 concerning SCWA's commitment to water conservation. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| V-4 | Geotechnical reports conclude more studies are necessary. How can mitigations be developed when we don't know what is required for construction of the project? | Additional studies will be conducted as project proceeds (see Master Response No. 6). See response to Comment A-14. |
| V-5 | Questions regarding construction of dams to prevent seepage, overflows, when dams would be built in potentially unstable canyons. How to protect water quality. | See Master Response No. 8 and response to Comment T-27 above. |
| V-6 | How can compliance with Title 22 make this LTS when the water doesn't meet California Toxics Rule and Basin Plan water quality standards? | NSCARP will comply with all local, state, and federal water quality requirements.<br>The California Toxics Rule relates to discharges into surface water. The NSCARP will represent a reduction on discharges into surface waters at the WWTP sites, and is not designed or intended to release recycled water into surface waters. |
| V-7 | How can meeting Title 22 water quality standards prevent significant impact to groundwater? Suggests Title 22 is not protective enough to prevent significant impacts. Note Orange County example. | See Master Response No. 8. Note that Orange County has injected directly into groundwater for many years. Different type and magnitude of project. |
| V-8 | Orange County uses membrane filtration and reverse osmosis and advanced oxidation before introducing treated water into the groundwater. How is Title 22 enough? | See response to Comment V-7 above. |
| V-9 | Air quality and public health impacts from treated wastewater during frost protection? | See Master Response No. 5 and response to Comment J-1 |
| V-10 | Need evaluation of over-irrigation, frost protection, certain releases to streams and groundwater. These issues also need to be mitigated. | See Master Response Nos. 5 and 7 and response to Comment J-1 |
| **Doreen Atkinson** | | |
| W-1 | Against piping wastewater from Guerneville Sewer Treatment Plant for same reason as Dennis O'Rorke. | See Responses to Comment Set U. |
| W-2 | Use of wastewater on crops could result in negative publicity and affect Sonoma County agriculture. | See Master Response No. 2. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| W-3 | Supports comment U-2 by Dennis O'Rorke | See Response to Comment U-2. |
| **Dry Creek Valley Association** | | |
| X-1 | Must include IRWP and Santa Rosa NPDES Permit projects in alternative analysis and determination of cumulative impacts. | See Master Response No. 1 |
| X-2 | Commenter states that all previous comments submitted by DCVA are incorporated by reference. | Scoping was used by SCWA in identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in the DEIS/R, and in eliminating for detailed study those issues found not to be important.<br>SCWA could find no basis to support addressing comments not specifically submitted in response to the DEIS/EIR. To address past comments not specifically submitted in response to the DEIR/EIS would be problematic because SCWA does not know what documents or which comments submitted in the past are specifically relevant to the alternatives considered.<br>Therefore, in order to preserve the administrative record to substantiate that SCWA responded to comments received in response to the DEIR/EIS, it is necessary that SCWA have a specific comment with which to respond. By requesting SCWA to assume all previous comments received by a party are "incorporated by reference" does not allow the public to review the actual comment, and does not provide assurance that SCWA may not have missed a comment related to NSCARP, but submitted to another project, or was prepared before the current array of alternatives was prepared. Consequently, SCWA will address those comments received in response to the NSCARP DEIR/EIS.<br>All comments received during the scoping and DEIR/EIS public review period are part of administrative record and available to decision makers. |
| X-3 | Requests that EIR/EIR be revised and recirculated. | Comment noted. |
| X-4 | Few comments provided during scoping period have been incorporated into EIR. | See response to Comment X-2 above. |
| X-5 | Project description and need are not substantiated and no commitment for supply. | See Master Response Nos. 4 and 13. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| X-6 | Claims North County receives no volume of wastewater resulting in significant increase. | NSCARP does not increase the treatment capacity of the WWTPs. The volume leaving treatment plants would not change as a result of implementing NSCARP. |
| X-7 | Cumulative impact analysis needs to consider Santa Rosa, Windsor, and Healdsburg, and the impacts of disposing billions of gallons of wastewater over the course of decades. | See Master Response No. 3. |
| X-8 | Impact of wastewater on soil, water, threatened fish species, oak woodlands, and groundwater resources? | See Master Response Nos. 5 and 8. |
| X-9 | Availability of reference documents for public review. | Reference documents are available at the Sonoma County Water Agency office. |
| X-10 | Impact determinations based on lack of available data. Incorporate “valid” studies? | Refer to Master Response No. 5 for a response to concerns about trace contaminants in wastewater. |
| X-11 | Lack of supporting evidence, lack of mitigation, lack of strong mitigation measures (not monitoring alone). Remedy recipient of problem and fix problem, don’t just fix problem. | Refer to updated Mitigation Measure HWQ-4 |
| X-12 | SCWA must show impacts on all natural systems, indicator species, and human health. | See Master Response No. 5. |
| X-13 | Need to reduce surface water diversions is not quantified or supported. Biological opinion? | See Master Response No. 4 and response to Comment S-15. |
| X-14 | How much surface water and groundwater will be saved? How much saved in Russian River above Dry Creek/below Dry Creek? How much will be dedicated to fish habitat vs. other uses? How will this dedication be enforced? How will the savings benefit fish habitat? | See Master Response Nos. 4 and 10. |
| X-15 | Correlation between agricultural water use and surface water diversions. Only fraction of offset of agricultural water used results from surface water diversions. | See Master Response Nos. 4 and 10 and responses to Comments S-20 and S-22. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| X-16 | Urban reuse alternative not addressed, provides essentially 100% offset. | Urban reuse is not a part of the NSCARP project. |
| X-17 | Santa Rosa Urban Reuse Project will preserve more water in storage than NSCARP. | Comment noted. The City of Santa Rosa is currently evaluating a project to expand the urban reuse of recycled water. Urban reuse would not meet objectives of NSCARP, but the two projects are not incompatible. See Master Response No. 13. |
| X-18 | Lack of commitment from potential water suppliers | See Master Response No. 13. |
| X-19 | Need for infrastructure? Need will likely be met be Santa Rosa Seasonal Storage and Urban Reuse Projects. NSCARP need not substantiated | Comment noted. See Master Response No. 4. |
| X-20 | What is the quantity of wastewater needed to supply the project? | Quantity needed would depend on the alternative selected for implementation. |
| X-21 | Potential suppliers | See Master Response No. 13. |
| X-22 | Need to identify defined water source in order to "credibly analyze potential impacts of this project". | See Master Response No. 13. |
| X-23 | Believes project will result in significant impacts to threatened fish species, which is in conflict with the project need. | Because no construction is proposed within channels supporting threatened fish species, habitat would not be affected. Project would provide benefits to threatened fish. See Master Response No. 4. |
| X-24 | Limited scope of alternatives, merely subset of same project. Needs to consider alternative use for wastewater. | See Master Response No. 1 |
| X-25 | Because Santa Rosa will be a primary supplier, need to consider alternatives such as the Santa Rosa Urban Reuse Project. | Urban reuse would not meet project objectives. |
| X-26 | Alternative 2 as environmentally superior alternative is flawed. Primary need not supported. Need broader range of alternatives. Probable groundwater contamination is inadequately analyzed. | See Master Response No. 1 for discussion of alternatives considered; No. 8 for discussion of groundwater protection; No. 11 for discussion of how Alternative 2 was selected as the "Environmentally Superior" alternative; and, No. 4 and Chapter 1 of the DEIR/EIS for discussion of the project's primary needs. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| X-27 | Cumulative impacts: document must analyze environmental impacts of all treated wastewater projects (SCWA, IRWP, Windsor, and Healdsburg). | See Master Response No. 3. |
| X-28 | Full implementation of IRWP would require 1.2 billion gallons of storage. Correlation of NSCARP. | See Master Response No. 13. |
| X-29 | How are Windsor and Healdsburg projects related to NSCARP? | See Master Response No. 13. |
| X-30 | How do SCWA EIRs for Russian River County Irrigation District irrigation projects interrelate to NSCARP? | The proposed Russian River County Sanitation District recycled water project is in a different location and would use recycled water from a different source than the NSCARP. Other than both being proposals to use recycled water for agricultural irrigation, there is no connection between the two projects. |
| X-31 | How does Guerneville Treatment Plant to Graton interrelate to NSCARP | See response to Comment X-30 above. There is no association between the projects. |
| X-32 | Water quality and public health and safety cumulative impact analysis is inadequate. Need to consider NSCARP in conjunction with Santa Rosa Discharge Compliance project, Santa Rosa Seasonal Storage project, Santa Rosa Urban Reuse Project, Windsor projects, and Healdsburg projects. | See Master Response Nos. 5 and 3. |
| X-33 | Water quality and public health and safety analysis in conjunction with reduced flow in Dry Creek and Russian River, biological opinion, Resolution 1610, climate change, etc. | See Master Response Nos. 5, 4, and 12. Also see added text discussing global climate change in Chapter 3.3 (Air Quality).<br>See Response to A-15. Minimum instream flows required by Decision 1610 would continue to be met.<br>See Response to S-15 concerning a Biological Opinion. |
| X-34 | Export of waters from SCWA area part of NSCARP. Cumulative discussion needs to consider this in conjunction with other water exports (including Napa Sonoma Baylands Marsh Restoration Project). | See Responses to Comments S-17, S-19, and S-20.<br>The proposed Napa Sonoma Baylands Marsh Restoration Project is in a different location and would use recycled water from a different source than the NSCARP. Other than both being proposals to use recycled water for agricultural and/or irrigation, there is no connection between the two projects |

| Comment Number | Topic/summary | Response |
|---|---|---|
| X-35 | How will implementation of NSCARP reduce or eliminate opportunities to offset potable water demands? | See responses to Comments S-18, S-19, S-20, S-22, and T-13, and Master Response No. 10. |
| X-36 | Growth-inducing. How much diversion will be reduced? What impact will decreased groundwater pumping have on stream flows? How much additional water will remain in storage and where? More water left in storage will be available for use by someone else. | See Master Response Nos. 4, 10, and 14. |
| X-37 | Developing reservoirs in pasture/oak woodland. Need to address impact of water availability in these areas and subsequent development of vineyards | See Master Response No. 10. Development of new vineyards, or use of water in excess of appropriated rights or RWUA, would require permits from RWQCB. |
| X-38 | Economic downside of 10-year construction period on tourism market. | See Master Response No. 2. Construction phasing would make impact relatively minor. As stated on p. 2-40, pipeline construction would occur at a rate of 100 to 400 feet per day dependent on location; therefore, there would be no long-term disruption at any one location for longer than a few days. |
| X-39 | Odors from reservoirs, negative impacts of signage advertising use of recycled water for irrigation, purple pipelines aboveground. | Comment noted. |
| X-40 | Need more recent study than 1987 Monterey study. Need to evaluate Santa Rosa wastewater, disinfection with UV radiation. EIR/EIS requires: analysis for pathogens of treatment plant effluent, analysis of pathogen interactions while wastewater is in storage, and pathogen levels prior to reuse application | No evidence provided that the data or conclusions from the 1987 Monterey study are in error. NSCARP will comply with all local, state, and federal water quality regulations. See also Master Response No. 2. |
| X-41 | Need study demonstrating effect of recycled water on grapes (different varieties), NSCARP soil types, conducting analysis using specific wastewater to be used in NSCARP. | See Master Response No. 2. Draft EIR/EIS cited relevant study of recycled water used on vineyards in Napa County, and also provided water quality data from the City, ALWSZ, and Town WWTPs, which were compared against FAO irrigation water guidelines (see Impact Statement AG-4 in Section 3.2). Response to Comment N-3 and Section 3.2 of Draft EIR/EIS detailed number of municipalities utilizing recycled water for agricultural purposes including vineyard irrigation. |

| Comment Number | Topic/summary | Response |
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| | | Implementation of the NSCARP project would not preclude individual or collective agricultural interests in conducting water and soil testing on individual plots prior to entering into a RWUA. Terms and conditions of the RWUA will specify user and provider responsibilities (see Master Response No. 7). |
| X-42 | How will salts in recycled water build-up in soils? Need study to evaluate different soil types within project area. | See Master Response No. 15. |
| X-43 | Where are studies or the commitment for studies of recycled wastewater application to prime agricultural soils? | See Master Response Nos. 2 and 15. |
| X-44 | Construction impacts will destroy more threatened fish habitat than the operational flow releases will enhance. | See Master Response No. 4 and response to Comment X-23 above. |
| X-45 | Calculation of excess cancer deaths per year and over course of construction period. | It should be noted that health risk modeling is highly conservative, and designed to be compared to equally conservative thresholds to determine the significance of an activity. The results were developed to be used in a regional and statistical manner and should not be used to estimate the number of “dead people” within a specific area. Also note that the values quoted in the EIR/EIS and comment letter (less than 250 excess cancer deaths per million) is based on the combined exposure of the population to <u>all sources</u> of air toxics in the region, and is relatively low. A recently completed study by the Air Resources Board determined that the health risk from diesel particulate matter in west Oakland is 1,180 excess cancer deaths per million. The proposed project would involve the emissions of air toxics from diesel exhaust, and would incrementally contribute to cumulative health risk impacts. This cumulative impact is considered less than significant due to the small magnitude (relative to regional emissions) and dispersed nature (numerous project sites, mostly miles apart) of project-related air toxics emissions. The Air Resources Board is addressing this cumulative impact on a regional level, with a plan to reduce diesel particulate matter by 75 percent by 2010, through the use cleaner fuels, cleaner engines and other State-wide measures. |

| Comment Number | Topic/summary | Response |
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| | | The Table provided in this comment letter is misleading as it compares NSCAPCD thresholds developed for stationary sources (e.g., industrial operations) to project-related construction emissions, which are mobile sources. In any case, the EIR/EIS recognizes the magnitude of the air emissions and determined the project would have a significant impact on air quality. It should also be noted that the construction emissions presented in the EIR/EIS represent a peak year during a very optimistic construction schedule, and actual emissions are anticipated to be substantially lower. |
| X-46 | NOx and $PM_{10}$ emissions, contribution to acid rain. | NOx may result in the formation of $PM_{2.5}$ in the atmosphere through the reaction with ammonia and formation of particulate ammonium nitrate. Most of this particulate is smaller than 2.5 microns (aerodynamic diameter), and is better characterized as $PM_{2.5}$ and not $PM_{10}$. The use of the phrase "deadly $PM_{10}$" in the comment is confusing and misleading, as most of the project sites are located in agricultural areas, which are currently exposed to substantial amounts of cultivation-related dust (including $PM_{10}$). Certain atmospheric conditions may result in the conversion of NOx to nitric acid, which may fall as acidic rain. However, nitric acid is not considered an air toxic (see the ARB's Toxic Air Contaminant List, December 1999).<br><br>The EIR/EIS includes all measures recommended by the BAAQMD, and any other measures which are technically feasible. It is not feasible for the SCWA to develop new technology to control construction equipment and truck emissions. The ARB is responsible for this activity and measures to reduce air toxics are under development and have been implemented, such as ultra-low sulfur diesel fuel. Construction equipment and vehicles to be used for project construction over the 10 to 20 year construction period would utilize new fuels and engines in general use at that time. |
| X-47 | AQ analysis must be provided to back up assumptions and conclusions. Also include specifications on # of construction vehicles, hours of operation, and type of fuels used. | Appendix E of the EIR/EIS provides the assumptions used in estimating air emissions, including the equipment type, horsepower, operating hours and fuel type. Based on Section 4.12 of the background document for ARB's EMFAC model, 92 percent of diesel combustion particulate matter is less than 2.5 microns (aerodynamic diameter). Therefore, diesel exhaust $PM_{2.5}$ emissions for a peak construction day would be approximately 43.3 pounds (47.1 * 0.92). |

| Comment Number | Topic/summary | Response |
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| X-48 | Project must comply with newer EPA standards for $PM_{2.5}$ emissions. | We interpret the phrase "newer EPA standards for $PM_{2.5}$ emissions" to refer to the updated Federal ambient air quality standard for $PM_{2.5}$ of 35 ug/m3. Table 3.3-1 of the EIR/EIS has been updated to reflect this new standard. As stated in Section 3.3.3 of the EIR/EIS, emissions that would violate an ambient air quality standard are considered a significant impact, and potential impacts are addressed under Impact AQ-3. |
| X-49 | Impact of fugitive dust or $PM_{10}$ emissions on fish species or crops. How much silt will go into tributaries? | Dust generated by earth disturbance ("coarser dust" as per the comment) would be approximately 561 pounds $PM_{10}$ on a peak construction day. In addition, a similar amount of dust greater than 10 microns would also be generated as a result of ground disturbance and could be settle onto surface waters. However, these particles typically settle out within a few hundred feet of the source and the proportion of the affected area comprised of surface water is very small. In addition, the project would implement numerous dust control measures (see the Dust Suppression Plan in the project description), which would reduce dust levels to near ambient conditions. Siltation of streams due to fugitive dust deposition is not anticipated. Potential siltation caused by soil erosion is addressed under Mitigation Measure HWQ-1. |
| X-50 | Impact of particulate matter on vegetation. | We understand dust deposition on crops adjacent to project construction sites may adversely affect these crops through reduced photosynthesis, increased leaf mortality and greater susceptibility to disease and insect infestation. The project would implement numerous dust control measures (see the Dust Suppression Plan in the project description), which would reduce dust levels to near ambient conditions. Substantial project-related crop losses due to fugitive dust are not anticipated. |
| X-51 | Must enforce stringent measurable mitigation measures to control fugitive dust emissions during 10-year construction period. | See responses to Comments X-48 and X-45. |
| X-52 | No Section 3.3.5 on downloaded document. What are the $PM_{10}$ emission control measures? | See Mitigation Measure AQ-1. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| X-53 | Title 22 and wastewater's potential impact on human health, endocrine disruptors. Compliance with California Toxics Rule, Basin Plan, and Anti-Degradation Policy. Must meet requirements recently issued by NCRWQCB. | See Master Response No. 5. Project will meet all applicable regulations. |
| X-54 | Order R1-2006-0045 and requirements for storage and reuse. | This Order is available on the RWQCB's website. |
| X-55 | EIR/EIS must substantiate when samples were taken for Santa Rosa wastewater study and quantity/concentration of wastewater in samples are indicative of wastewater to be used by NSCARP. | NSCARP will comply with all local, state, and federal water quality requirements. See Master Response No. 5. |
| X-56 | Endocrine disruptors: no change in volume of treated water. Stored in reservoirs rather than Laguna. | See Master Response No. 5. |
| X-57 | Potential degradation of salmon habitat. | Master Response Nos. 4 and 7 concerning fishery benefits and user agreements. Also note response to Comment F-1 regarding off-stream reservoirs. |
| X-58 | Runoff into tributaries: contamination of groundwater, plant uptake, damaging plants, grapes, taste of wine. | See response to Comment F-1 regarding runoff. See Master Response No. 8 for discussion of groundwater contamination); Master Response No. 5 regarding potential uptake of emerging contaminants; and, Master Response No. 2 regarding taste of wines produced. |
| X-59 | Need data to support no significant impact on fish species, potential contaminants unknown. | See Master Response Nos. 4 and 5. |
| X-60 | Need data to determine impact of treated wastewater on fish, quality of treated wastewater. Need data demonstrating organic chemicals in treated wastewater, impacts to animals and plants. | See Master Response No. 5. |
| X-61 | Pursuant to Order R-1-2006-0045 and the Anti-Degradation Policy, need to Identify organic contaminants, and their potential to enter and degrade soil and groundwater | Order R-1-2006-0045 and NPDES No. CA0022764 were issued to the City of Santa Rosa for the Santa Rosa Subregional Treatment System by NCRWQCB. It will be the responsibility of the City to comply with that specific Regional Board order. Other providers of recycled water to NSCARP will require a similar NPDES permit compliance.<br>See Master Response Nos. 5, 8, and 9. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| X-62 | Availability of reference library for public review. | References are available for review at the SCWA office. Individuals seeking to review documents will be requested to notify SCWA in advance, and to identify specific references that will be review. |
| X-63 | Studies on reservoir sites not cited. | Citations corrected or revised in Chapter 8 (References) and in Chapter 3.7. |
| X-64 | Request during scoping process to include analysis of impact of different types of soils within the NSCARP area. | See Master Response No. 15. |
| X-65 | Need to evaluate potential accumulation of salts in NSCARP soils. | See Master Response No. 15. |
| X-66 | Need data on long-term changes in salinity. | See Master Response No. 15. |
| X-67 | Need to address chemical uptake by crops | See Master Response Nos. 2 and 5. |
| X-68 | Proof of nitrates not migrating beyond the root zone of plants? Impact of frost protection with regard to spread of treated wastewater with nitrates potentially present. | NSCARP will comply with all local, state, and federal water quality standards. As shown on Table 3.12-2, nitrates from the Windsor and ALWSZ WWTPs are within the limits for California Drinking Water. A review of the nitrate levels from water discharged from the Laguna WWTP between 2006 and 2007 did not exceed 11 mg-N/l (http://ci.santa-rosa.ca.us/departments/ utilities/treatment/self monitor/ Pages/DischargePointsSampled.aspx).<br>See Master Response Nos. 5, 7, 8, and 9. |
| X-69 | Runoff from frost protection efforts | See Master Response No. 7 and response to Comment M-32. |
| X-70 | Potential leaching of contaminants into groundwater. Need to consider soils with NSCARP area. | See Master Response No. 8. |
| X-71 | Full analysis of impact to groundwater from irrigation of crops with treated wastewater. | See Master Response No. 8. |
| X-72 | EIR/EIS needs to consider the IRWP data regarding metals not readily adsorbed onto the soil. | NSCARP will comply with all local, state, and federal water quality standards. |
| X-73 | Need to evaluate quality of treated wastewater to be used. | See Master Response Nos. 5, 7, 8, and 9. |
| X-74 | Lack of commitment from Santa Rosa and Windsor | See Master Response No. 13. |
| X-75 | Deficiency of data regarding quality of treated wastewater to be used. | See responses to Comment S-33 above. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| X-76 | Santa Rosa effluent will not meet regulations post 2010. Not addressed in EIR/EIS. Contaminants in Santa Rosa wastewater. | NSCARP will comply with all local, state, and federal water quality standards. See Master Response No. 5. |
| X-77 | Unidentified organic chemical contaminants. | NSCARP will comply with all local, state, and federal water quality standards. See Master Response No. 5. |
| X-78 | Studies identifying organic chemical contaminants. | NSCARP will comply with all local, state, and federal water quality standards. See Master Response No. 5. |
| X-79 | Conclusion that contaminant concentrations in wastewater are speculative is inadequate. Need data. | See Master Response No. 5. |
| X-80 | Potential for uptake by plants of emerging contaminants for which detecting methods is still new. Compliance with Anti-Degradation Policy. | See Master Response Nos. 2 and 5. |
| X-81 | Potential groundwater contamination from contaminants not absorbed by plants or which does not runoff. | See Master Response Nos. 5 and 8. |
| X-82 | Groundwater contamination. Mitigation provides monitoring of reservoirs but does not address potential groundwater contamination in reuse areas. Define soluble organics contained in wastewater, potential to percolate through porous soils, ability to cause human health concerns. | See Master Responses Nos. 7 and 8. |
| X-83 | Need to evaluate runoff from frost protection, groundwater degradation. | See Master Response No. 8 and response to Comment M-32. |
| X-84 | See Comment X-83. | See response to Comment X-83. |
| X-85 | Undefined water source. | See Master Response No. 13. |
| X-86 | Need to evaluate soluble organic chemicals. | See Master Response No. 5. |
| X-87 | Probable groundwater contamination, runoff into surface waters during frost protection. | See Master Response No. 8 and response to Comment M-32. |
| X-88 | Good farming practices (as defined in Recycled Water Users Agreement) are difficult to enforce. | See Master Response No. 7. |

| Comment Number | Topic/summary | Response |
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| X-89 | Groundwater monitoring at reservoir sites as mitigation. No discussion of frequency of monitoring, or what chemicals will be tested. Need more stringent/enforceable mitigation measures. | See Master Response No. 8 updated Impact and Mitigation HWQ-4, and response to Comment T-17. |
| X-90 | Need to address potential impact of unregulated compounds on public health. | See Master Response No. 5. |
| **Edson Howard** | | |
| Y-1 | Increase in river flows only if users voluntarily agree to use treated wastewater for irrigation. Purpose of project not satisfied if farmers do not want to use | See Master Response No. 2. |
| Y-2 | Quality of premium wine grapes is dependent on the soils, potential accumulation of salts, minerals, etc. Testing/monitoring will detect problems, but corrections may not be possible once contaminants have entered soil. | See Master Response No. 2 and response to Comment T-17. If needed, RWQCB would issue a Corrective Action Plan, with specific actions to be determined. |
| Y-3 | Phoenix example of salination and reverse osmosis. | See response to Comment N-4. |
| Y-4 | Colorado study of effects of salt accumulation from long-term irrigation with treated wastewater. | See Master Response Nos. 2, 15, and results of Napa study summarized in Impact AG-4. Also, see response to Comment X-42. |
| Y-5 | Need to evaluate potential need for additional treatment of wastewater (e.g., reverse osmosis). Need to look at cost of such treatment. | Not within scope of DEIR/EIS. |
| Y-6 | Commenter assuming that new users (i.e., new vineyards where irrigation water is not currently available) is only way NSCARP would offset waters in Russian River. | See Master Response No. 10. |
| Y-7 | EIR/EIS needs to include binding agreement to be used with participating landowners. | See Master Response No. 7. |
| Y-8 | Current water rights of participating landowners must be protected. | See Master Response No. 10. |
| Y-9 | Contract agreements need to be completed, EIR/EIS needs to include number of participating landowners and wastewater users to determine if the project will | See response to Comment No. A-13 and Master Response No. 2. |

| Comment Number | Topic/summary | Response |
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| | result in increased flows in the Russian River and its tributaries. | |
| Y-10 | Need to adopt Alternative 3 or 4 if Dry Creek Valley landowners do not agree to substitute wastewater for well water/surface water. | See Master Response No. 10. |
| **Edwin W. Wilson** | | |
| Z-1 | Geysers Pipeline owned by City of Santa Rosa? SCWA and Bureau of Reclamation does not own pipeline. | The Calpine Corporation operates and owns 19 of the 21 facilities at the Geysers. The other two facilities are operated by the Northern California Power Agency. Use of the pipeline is a cooperative effort by the City with Calpine and the State Lands Commission. |
| Z-2 | Unknown wastewater suppliers, therefore, unknown quality of wastewater to be used for irrigation | See Master Response No. 13. |
| Z-3 | Effect of wastewater on soils. | See Master Response Nos. 2 and 5. |
| Z-4 | No reference of who would use wastewater as irrigation source. | See response to Comment A-13. |
| Z-5 | Commenter states the NSCARP has not established water supply availability, control of the Geysers Pipeline, or potential recipients of wastewater. No project if none of the three mentioned components are missing. | See responses to Comments A-13, Z-1, and Z-2. Also see Master Response No. 2. |
| Z-6 | No established need for additional water in Dry Creek Valley. | Purpose of project is not to increase water supplies, but to substitute existing surface water and groundwater with recycled water. |
| Z-7 | Document does not establish reduction of discharge of wastewater into local streams. Commenter suggests limiting future growth in the City of Santa Rosa and other municipalities thereby reducing amount of wastewater produced. | Project has potential to divert up to 13,000 af of recycled water from discharge into Russian River to irrigate agricultural lands. Actively limiting growth is not in scope of the DEIR. |
| Z-8 | Commenter suggests requiring new development to establish that wastewater from said development would be disposed of in an environmentally safe manner. | New development that would generate additional wastewater is not proposed as part of the NSCARP. Refer to Chapter 5.0 Growth Inducement. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| Z-9 | Comment suggests the use of wastewater within the boundaries of the City or other municipalities. | Comment noted. |
| Z-10 | How much groundwater and surface water is used for irrigation in Dry Creek? Not established that NSCARP would reduce use of fresh water for irrigation. | User agreements would establish amount of wastewater available for use to individual vineyard owners. Water that would be otherwise used would remain in surface/groundwater; however, this water would not be available for appropriation by other entities. |
| Z-11 | Use of wastewater would result in impacts to the soils, surface water, groundwater, and would pose public health risks. | See response to Comment X-65 and Master Response Nos. 5, 7, 8, and 9. |
| Z-12 | Virtually no flow in Dry Creek in the summer. Where is the need to use treated wastewater for irrigation to increase flows in Dry Creek? | See Master Response No. 4. |
| Z-13 | Alternatives are merely subsets of same project, Alternative 2 as "Environmentally Superior Alternative". Commenter states that the No Project Alternative is truly the "Environmentally Superior Alt". | See Master Response No. 1 for discussion of the alternatives considered and No. 11 for discussion on the "Environmentally Superior Alternative". |
| Z-14 | Need to consider using wastewater on dairy lands, which may filter the treated wastewater better than the soils of Dry Creek. | Comment noted. |
| Z-15 | Need to consider disposing of wastewater on non-agriculture lands | Would not meet needs of project. |
| Z-16 | Need to consider disposing of wastewater within the each municipality. | See response to Comment Z-9 and Master Response No. 1. |
| Z-17 | Alternative of disposing of wastewater within municipality. | See response to Comment Z-8. |
| Z-18 | Alternative of eliminating or minimizing by limiting development. | Authorization and regulation of development is beyond the scope of the SCWA. |
| Z-19 | Potential impacts on wine industry. Public perception. | See Master Response No. 2. |
| Z-20 | Growth discussion. | See Master Response No. 14. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| Z-21 | NSCARP should be abandoned. At minimum revise EIR | Comment noted. |
| **North Coast Consumers Alliance** | | |
| AA-1 | Feels irrigating with treated wastewater is a "dangerous way to go" | See response to Comment N-3. |
| AA-2 | Concerned that irrigating would make rivers and tributaries dirtier than if the treated water had been discharged directly. Tailwater discussion. | See Master Response No. 7. End users would be subject to RWUA, which would establish general application parameters to avoid runoff. |
| AA-3 | Suggests less dependency on water. Waterless toilets | Comment Noted. See response to Comment J-9. |
| AA-4 | Shift to grape stock that does not require irrigation. | See Master Response No. 2. Beyond scope of DEIR. SCWA cannot require this as pre-condition. |
| AA-5 | 300-foot buffer zones between farms and waterbodies recommended by NMFS? | Not within scope of EIR/EIS. |
| AA-6 | Suggests reducing volume of wastewater (conservation). Reduction of pesticides. | SCWA encourages water conservation. See responses to Comment Nos. J-9 and M-29. |
| AA-7 | UV treatment? Effect of residual chlorine on crops? Can pharmaceuticals enter crops | See Master Response Nos. 2 and 5 for discussion of potential plant uptake of constituents in treated wastewater. |
| **Fred Corson** | | |
| AB-1 | Similar to Comment X-13. | See Response to Comment X-13. |
| AB-2 | Similar to Comment X-14. | See Response to Comment X-14. |
| AB-3 | Similar to Comment X-16. | See Response to Comment X-16. |
| AB-4 | Similar to Comment X-17. | See Response to Comment X-17. |
| AB-5 | Similar to Comment X-18. | See Response to Comment X-18. |
| AB-6 | Similar to Comment X-19. | See Response to Comment X-19. |
| AB-7 | Windsor and Healdsburg officials would not provide water for project. | See Master Response No. 13. |
| AB-8 | Similar to Comment X-23. | See Response to Comment X-23. |
| AB-9 | Similar to Comment X-20. | See Response to Comment X-20. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AB-10 | Similar to Comment X-21. | See Response to Comment X-21. |
| AB-11 | Similar to Comment X-22. | See Response to Comment X-22. |
| AB-12 | Similar to Comment X-24. | See Response to Comment X-24. |
| AB-13 | Similar to Comment X-25. | See Response to Comment X-25. |
| AB-14 | Similar to Comment X-26. | See Response to Comment X-26. |
| AB-15 | Similar to Comment X-40. | See Response to Comment X-40. |
| AB-16 | Similar to Comment X-41. | See Response to Comment X-41. |
| AB-17 | Similar to Comment X-42. | See Response to Comment X-42. |
| AB-18 | Similar to Comment X-43. | See Response to Comment X-43. |
| AB-19 | Similar to Comment X-73. | See Response to Comment X-73. |
| AB-20 | Similar to Comment X-74. | See Response to Comment X-74. |
| AB-21 | Similar to Comment X-75. | See Response to Comment X-75. |
| AB-22 | Similar to Comment X-76. | See Response to Comment X-76. |
| AB-23 | Similar to Comment X-77. | See Response to Comment X-77. |
| AB-24 | Similar to Comment X-78. | See Response to Comment X-78. |
| AB-25 | Similar to Comment X-79. | See Response to Comment X-79. |
| AB-26 | Similar to Comment X-80. | See Response to Comment X-80. |
| AB-27 | Similar to Comment X-53. | See Response to Comment X-53. |
| AB-28 | Similar to Comment X-55. | See Response to Comment X-55. |
| AB-29 | Similar to Comment X-56. | See Response to Comment X-56. |
| AB-30 | Similar to Comment X-57. | See Response to Comment X-57. |
| AB-31 | Similar to Comment X-58. | See Response to Comment X-58. |
| AB-32 | Similar to Comment X-59. | See Response to Comment X-59. |
| AB-33 | Similar to Comment X-81. | See Response to Comment X-81. |
| AB-34 | Similar to Comment X-82. | See Response to Comment X-82. |
| AB-35 | Similar to Comment X-83. | See Response to Comment X-83. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AB-36 | Similar to Comment X-85. | See Response to Comment X-85. |
| AB-37 | Similar to Comment X-86. | See Response to Comment X-86. |
| AB-38 | Similar to Comment X-87. | See Response to Comment X-87. |
| AB-39 | Similar to Comment X-88. | See Response to Comment X-88. |
| AB-40 | Similar to Comment X-89. | See Response to Comment X-89. |
| AB-41 | Similar to Comment X-90. | See Response to Comment X-90. |
| AB-42 | Similar to Comment X-36. | See Response to Comment X-36. |
| AB-43 | Similar to Comment X-32. | See Response to Comment X-32. |
| AB-44 | Similar to Comment X-33. | See Response to Comment X-33. |
| AB-45 | Similar to Comment X-34. | See Response to Comment X-34. |
| AB-46 | Similar to Comment X-35. | See Response to Comment X-35. |
| AB-47 | Primary purpose and need expressed for project unsupported by facts. | See Master Response No. 18. |
| AB-48 | Quantity of existing and proposed water use. Storage retention. | See Table 2-5 of Project Description. |
| AB-49 | Biological Opinion in support of need? | See Response to Comment S-16. Also see Section 1.3 (Project Need) of the FEIR/EIS that discusses BOs issued by NMFS (NOAA Fisheries) for Potter Valley Project and the Russian River projects.<br>A BO has not been prepared for the NSCARP project at this phase of planning and permitting. |
| AB-50 | DEIR contains no information on how required storage retention affected by D1610. | See response to Comments S-8 and X-33. |
| AB-51 | Impact of storage retention to Lake Sonoma. | Refer to response to Comments A-11. Due to the size of Lake Sonoma (380,000 af) compared to Lake Mendocino (80,000 af), the potential storage benefits realized through implementation of NSCARP (up to 8,700 af per year) would be far less for Lake Sonoma than for Lake Mendocino. |
| AB-52 | Purpose and need unsubstantiated. | See Master Response No. 18. |
| AB-53 | Urban reuse would be environmentally preferred project. | Urban reuse is not an objective of NSCARP. See Master Response No. 1. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AB-54 | Need to analyze other non-wastewater alternatives | Would not meet NSCARP objectives. See Master Response No. 1. |
| AB-55 | Quality of wastewater cannot be defined. | See response to Comment S-33 and Master Response No. 5. |
| AB-56 | Premature demand | See Master Response No. 4. |
| AB-57 | Cumulative impacts inadequate | See Master Response No. 3. |
| **Gene Koch** | | |
| AC-1 | How will pipeline be paid for and what's the assurance that the project will be maintained? | See page 2-66, Section 2.4 |
| AC-2 | Suggests composting toilets and water conservation be used first. | Comment noted. See response to Comment J-9. |
| **Karen Maley** | | |
| AD-1 | For improving fish habitat and disposing of treated wastewater, and believes urban and agricultural reuse is better than direct discharge into Russian River. | Comment noted. NSCARP project would reduce volume of treated water discharged into the Russian River. |
| AD-2 | No sufficient testing to ensure that there will be no adverse impacts to grape quality. | See Master Responses No. 2 for discussion of the potential of irrigation with treated wastewater to change the taste of the wines and No. 5 for discussion of potential plant uptake of constituents in treated wastewater. |
| AD-3 | Impact to Sonoma County wine market, real or perceived. | See Master Response No. 2. |
| AD-4 | Tests measuring impacts of emerging contaminants or reverse osmosis as treatment option. Commenter feels project is too risky. | See Master Response No. 5. |
| **Katie Murphy** | | |
| AE-1 | Need confirmation that the use of treated wastewater is not mandatory, and that water rights would not be lost if using recycled water. | See Section 2.5, p 2-67 and Master Response No. 10 for a description of voluntary participation and agreements in NSCARP. |
| AE-2 | Whose water is being provided for agricultural reuse. No commitment from Santa Rosa. Does agriculture need this water? | See Master Response No. 13. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AE-3 | Doesn't use of recycled water equate to loss of groundwater rights. | See Master Response No. 10 and revised Section 2.5. |
| AE-4 | Potential groundwater impact? | See Master Response No. 8 |
| AE-5 | Aesthetic impact associated with pump stations. | See Mitigation Measure AES-1 |
| AE-6 | Energy costs associated with pumping water throughout the county. Commenter feels EIR/EIS needs to address this further. | See Master Response No. 16. |
| AE-7 | Impact to Sonoma County wine market, real or perceived. | See Master Response No. 2 |
| **Palomino Lakes Mutual Water Company** | | |
| AF-1 | CDHS requires reporting of 88 chemical compounds pursuant to the primary and secondary drinking water standards. Only 22 are included in the EIR/EIS. How can determination be made without all constituents analyzed? | See Mitigation Measure HWQ-4. NSCARP is not supplying drinking water, therefore, primary and secondary drinking water standards are not applicable. NSCARP is supplying irrigation water that will meet all applicable Title 22 and NPDES standards. See Master Response Nos. 5, 7, 8, and 9 pertaining to water quality and groundwater protection. |
| AF-2 | Potential contamination of private or community water wells. Consistency with Objective RC-3.3. HWQ mitigation measures do not address contamination of domestic or potable water wells. | See Master Response Nos. 8 and 9. Also see response to Comments D-8, M-41, and T-17. |
| AF-3 | Potential contamination of private or community water wells resulting in wells no longer in compliance with DHS water quality standards? | See Master Response Nos. 6 and 7. |
| AF-4 | How can groundwater sources used as potable water supply not be exposed to contaminants thereby exposing people to risks or damage/injury from hazardous materials? | See Master Response Nos. 6 and 7. |
| AF-5 | Address CA DWR Water Industry guidance cited in comment letter. | See Master Response Nos. 8 and 9. |
| AF-6 | Reuse within municipal borders. | See Master Response No. 1 and response to Comment X-17. |
| AF-7 | Encourage sustainable planning and management practices. | Comment noted. |

| Comment Number | Topic/summary | Response |
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| **Perry, Johnson, Anderson, Miller & Moskowitz, LLP** | | |
| AG-1 | Needs clear objectives and need. Objectives do not relate directly to need. 71 Cal.App.3d 185, 197? Need accurate project description. | See Master Response Nos. 1 and 18. |
| AG-2 | Environmental setting needs to establish rural residential character and dependency on wells for water supply. | In Chapter 2, the ***Water Sources for Current Land Uses*** section has been revised to include rural residential as among the users of water within the NSCARP area. The project would not reduce the volume of groundwater available to rural residential users. The project would result in less water being extracted from groundwater by using recycled water. |
| AG-3 | Need to quantify amount of groundwater in Alexander Valley sub-basin. | As detailed in Section 1.2, a purpose of the project is to reduce the use of groundwater and surface water for agricultural purposes in north Sonoma County. The NSCARP project would have a positive effect on the volume of groundwater if implemented. Exhaustive studies necessary to quantify the amount of groundwater in Alexander Valley sub-basin is beyond the scope necessary to determine the impacts of the NSCARP. |
| AG-4 | Need description of current water supply system. | Because existing water rights would be retained by landowners, there would be no change in the availability of water for domestic or industrial uses (see Master Response No. 10).<br>The Hydrology section of Chapter 2 provides a description of the water storage capacity and conveyance system for the Russian River and Dry Creek. The Alternatives section of Chapter 2 provides detailed descriptions of storage and transmission system for recycled water. Attachment F of Appendix F provides detailed mapping of proposed routes.<br>As discussed in Master Response No. 4, the project would afford SCWA additional flexibility in water releases for fisheries purposes, but release schedules and volumes cannot be determined until commitments from providers and irrigators known, and release parameters are agreed upon with NOAA-Fisheries, CDFG, the Corps, and USFWS. |
| AG-5 | Inadequacy of project description. Need for discussion of existing systems contributing to storage and distribution of recycled water. | See Master Response Nos. 1, 18, and 19.<br>A discussion of existing systems of contributing entities is unnecessary at this time and premature as the actual participants in the potential NSCARP are not yet committed. If the project is approved and elements of the project are considered for construction, additional environmental review would be |

| Comment Number | Topic/summary | Response |
|---|---|---|
| | | necessary to address issues that at present are inadequately defined for analysis and would be occurring at an unknown future date. |
| AG-6 | Alternatives do not address goal of allowing water to remain in Russian River. No reasonable range of alternatives. Other potential alternatives: advanced treatment, urban reuse. | See Master Response No. 2. Advance treatment is not an alternative to address the project need. It is an alternative treatment strategy, and the NSCARP is not a treatment project, rather, it is a delivery project. Urban reuse is an alternative under IRWP, and analysis under this EIR/EIS is redundant. Also see Master Response No. 4. |
| AG-7 | Relies on future studies to mitigate impacts identified by future studies. Impacts fail to identify what impacts may be encountered. | See response to Comment A-14. Studies may also be conducted independently of this EIR/EIS. |
| AG-8 | Needs sufficient analysis to make decisions. References Nicolas Johnson memo (comment set AH). | Comment noted. |
| AG-9 | Two ways to analyze cumulative impacts. Other projects to consider listed in comment. | See Master Response No. 3. |
| AG-10 | Loss of agricultural lands not adequately analyzed. Need to consider compensation as mitigation. | See responses to Comment D-2 through D-4 above, and updated Impact and Mitigation Measure AG-2. |
| AG-11 | Removal of three reservoir sites? How does this impact analysis? | See updated Project Description |
| AG-12 | Recirculation required. | Comment noted. |
| **Nicolas M. Johnson** | | |
| AH-1 | Need must be justified. | See Master Response No. 18. |
| AH-2 | Need must be justified, quantified. | See Master Response No. 18. |
| AH-3 | Suggests other alternatives that could address objectives/needs. | See Master Response No. 3. |
| AH-4 | Benefit to fishery habitat not quantified. | See Master Response No. 4. |
| AH-5 | Increase water use could result from project and some parcels proposed for recycled water use are not presently irrigated. | Such an action would violate RWUA conditions. See Master Response No. 7. User agreements would set up irrigation agreements for providing recycled water in lieu of pumping groundwater and/or surface water, and whereby additional water would not be re-allocated to non-water rights holders. See Footnote 1 of Section 1-2 (page 1-3) for a discussion of |

| Comment Number | Topic/summary | Response |
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| | | circumstances in which offset water may not be fully available for instream use due to the exercise of downstream riparian rights. |
| AH-6 | Residential parcels not identified, only agricultural. Commenter states that EIR/EIS excluded evaluation of rural residential parcels. | No residential water impacts. |
| AH-7 | Water supply not quantified. Rural residential water use not acknowledged. | Water sources are discussed on page 2-9 and 2-10 of the Project Description. Due to water allocation legal restrictions, there would be no additional residential water supplies made available and existing residential water users would not lose their water rights. See Master Response Nos. 7 and 10. |
| AH-8 | Based on Dr. Johnson's numbers, proposed acreage appears to be adequate for expected supply of recycled water. | Comment noted |
| AH-9 | Recycled water recipient users? Incentive for use? Justified by need for additional water supply? | See Master Response Nos. 2, 5, 7, 10, and response to Comment N-3. |
| AH-10 | EIR/EIS does not quantify benefits of project. | See Master Response No. 4. |
| AH-11 | Alternatives do not consider alternate means of achieving project objectives. | See Master Response Nos. 1 and 4. |
| AH-12 | Insufficient analysis to support that project would provide opportunity to better manage regional water resources. | See Master Response No. 4. |
| AH-13 | Based on discussion in EIR/EIS, other recycled water options should be considered in project alternatives. | See Master Reponse No. 1. |
| AH-14 | Commenter states that upland recharge may be limited by low bedrock permeability. | Comment noted. NSCARP is not intended as upland recharge project. In fact, it is to the benefit of project operations to eliminate or reduce irrigation water infiltrating to groundwater (see Master Response No. 8). |
| AH-15 | Groundwater quality, depth of wells, and proximity to Russian River. | Comment noted. See Master Response No. 8 for discussion of groundwater quality. |
| AH-16 | Potential increase in groundwater levels not demonstrated on a site-specific basis. | Comment noted. NSCARP is not a groundwater recharge project, but decreasing the amount of groundwater pumping through the use of recycled water would be expected to conserve groundwater to a limited extent. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AH-17 | EIR/EIS does not reference 2006 study of Alexander Valley. | See response to Comment T-15. |
| AH-18 | Noted value missing in one EIR/EIS table but present in other. Cited MCL for nitrate in drinking water. | Table 3.8-2 has been corrected and all constituents that were tested are now included. |
| AH-19 | Dependence of rural residents on groundwater for domestic water supply. | See Master Response Nos. 6 and 7. |
| AH-20 | Potential degradation of groundwater quality, greater concentration of dissolved minerals results in worse water quality in groundwater than in recycled water. | See Master Response Nos. 6 and 7. |
| AH-21 | Groundwater supply in Alexander Valley is public water supply and needs to be identified as such. | Comment noted. |
| AH-22 | Justified need for additional water or quantified benefit of recycled water. | See Master Response No. 4 |
| AH-23 | No support for changes in salinity to be minor. No appendix with hydrologic analysis. | See Master Response No. 15. |
| AH-24 | Water quality data for AV Acres Mutual Water Company, Santa Rosa municipal water, and three potential sources. Detailed assessment of minerals remaining in soil from recycled water should be included in EIR/EIS. | Refer to Master Response No. 15 for a discussion of the potential for salts and other chemicals to build-up in soil and groundwater. |
| AH-25 | Plan for regulating fertilizer use? Potential for irrigation with high nitrate recycled water to degrade domestic groundwater supplies. EIR/EIS lacks soil water and nitrogen mass balance analyses to evaluate potentially significant impact. | See Master Response Nos. 6 and 7. RWUAs address fertilizer use as part of “good farming practices’. The SCWA would work with vineyard owners to establish contractual agreements in return for use of recycled water. |
| AH-26 | EIR/EIS does not reference USGS 2006 study of Alexander Valley. | See response to Comment T-15. |
| AH-27 | Need to address measures to regulate use and application to prevent excess mineral and contaminant loading to groundwater. | See Master Response Nos. 7 and 8. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AH-28 | Need site-specific evaluations for reservoir siting. Commenter states because project objective is to dispose of recycled water, may be incentive to overlook excessive reservoir leakage. | See Master Response Nos. 4, 6, and 8, and response to Comments S-43, M-28, and T-23 and Mitigation Measure HWQ-4. Site-specific geotechnical evaluations were done for select reservoir sites. Further site-specific engineering studies will be completed at later phases in the process (see Master Response No. 6). |
| AH-29 | Need groundwater monitoring activities prior to implementing project to develop baseline conditions. Present monitoring systems in EIR/EIS. | See Master Response Nos. 6 and 8. |
| AH-30 | Should require program to manage and regulate agricultural practices. | See Response to Comment AH-25. |
| AH-31 | Lacks analysis needed to quantify benefits to river flows. | See Master Response No. 4. |
| AH-32 | Need to evaluate areas with high potential for groundwater mounding. Site-specific assessments. | As explained in the IRWP, groundwater mounding is unlikely as irrigation takes place during spring and summer when evaporation is at a maximum. See Master Response No. 6 about advanced engineering studies for NSCARP. |
| AH-33 | What is considered suitable application and who makes the determination? Dissolved mineral load not taken up by plants, but would percolate to groundwater? Flushing of soil zone needed to prevent excess soil salinity? | See Master Response Nos. 7, 8, and 15. |
| AH-34 | Reservoir spills vs. seepage. | Text revised. |
| AH-35 | Inventory of multi-user and single-residence water systems not provided. | Master Response No. 9 concerning all groundwater wells in the NSCARP area. |
| AH-36 | Nitrate vs. nitrogen | Correction made to Table 3.12-2. |
| AH-37 | UV treatment at Santa Rosa, but not at other water treatment plants identified as sources. | Treatment methods employed to achieve NPDES requirements are beyond the scope of this EIR/EIS. |
| AH-38 | Correlation between DHS's "highest allowable uses" and tertiary treated wastewater. Commenter recommends higher degree of treatment (reverse osmosis). | Comment noted. Outside of scope of EIR. Monitoring program to ensure water quality continues to meet Title 22 and RWQCB standards. Also see response to Comment N-5. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AH-39 | Soil processes such as adsorption and filtration is generally ineffective at filtering potential constituents. | See Master Response No. 5. |
| AH-40 | No soil-water and chemical mass balances or fate-and-transport analyses. Need to evaluate transport of contaminants, discharge of groundwater impacted by project, and plumes of recycled water originating from reservoir seepage. | See Master Response Nos. 5 and 8 pertaining to water quality and groundwater. |
| AH-41 | Level of analysis does not lend confidence that impacts would be mitigated to LTS levels. | Comment noted. |
| AH-42 | EIR/EIS does not reference USGS 2006 study of Alexander Valley. | See response to Comment T-15. |
| AH-43 | Increased groundwater levels from irrigation with wastewater rather than irrigating with groundwater or river water. | Refer to Master Response No. 15 for a discussion of the potential for salts and other chemicals to build-up in soil and groundwater. |
| AH-44 | Greater concentration of minerals/contaminants accumulating in groundwater. | See Master Response Nos. 8 and 15, and response to Comment T-16. |
| AH-45 | Greater concentration of minerals/contaminants accumulating in groundwater. | See Master Response Nos. 8 and 15, and response to Comment T-16. |
| AH-46 | TDS concentration with drinking water calculation. | See Master Response No. 15 and response to Comment T-16. |
| AH-47 | Permeable gravels would not remove metals/ contaminants for degree assumed in EIR/EIS. | See Master Response Nos. 5 and 8. |
| AH-48 | Groundwater recharge. | Refer to Master Response No. 15 for a discussion of the potential for salts and other chemicals to build-up in soil and groundwater. |
| AH-49 | Recycled water mineral load during dry season. | See Master Response Nos. 8, 9, and 15. |
| AH-50 | Quality of groundwater recharge derived from river. | See Master Response No. 8. |
| AH-51 | Recycled mineral loading from reservoir seepage. | See Master Response No. 8. |
| AH-52 | EIR/EIS doesn't demonstrate soil-water processes. No evaluations to support conclusions. | Comment noted. See Master Response Nos. 8, 9, and 15. |
| AH-53 | Groundwater recharge, quality of local groundwater. | NSCARP would follow regulatory standards and requirements. See Master Response Nos. 8 and 9. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AH-54 | Emerging contaminants could be problematic. | See Master Response No. 5. |
| AH-55 | Use of potable groundwater for residential water supplies could become limited in some areas. (Not mentioned in EIR/EIS.) Potential violations to State and Federal non-degradation policies. | See Master Response Nos. 8, 9, and 15. Also see response to Comments S-22. Impact PUB-7 of DEIR/EIS discusses Title 22 Use Area Requirement, which restricts irrigation of disinfected tertiary-treated water within 50 feet of a domestic water supply well unless specific technical analyses are conducted. |
| AH-56 | Limited monitoring. Need more enforceable mitigation. | Mitigation monitoring program updated in Mitigation Measure HWQ-4. See Master Response No. 7. |
| AH-57 | EIR/EIS does not adequately consider cumulative impacts to water quality and other recycled water projects. | See Master Response No. 3. |
| **Paul Micallef** | | |
| AI-1 | Believes project will impact cultivated plant life in the valleys. | See response to Comment N-3 and Master Response No. 5 |
| AI-2 | Quoted Richard Kagel: 60-150 heavy metals will have effects not ascertained at this time. | See Master Response No. 5. NSCARP will meet all local, state, and federal water quality requirements. |
| **Public Employees for Environmental Responsibility** | | |
| AJ-1 | Justified need? EIR/EIS provides conflicting project costs, based on preliminary information. | See Master Response No. 18 for discussion of project need.<br>It is unclear where the referenced conflicting cost estimate is. However, the comment is correct that costs are based upon preliminary information. When and if the project is approved and detailed plans are prepared, further estimations of project costs will be developed. This process and information generated (e.g., plans and cost projections), would be made available to the SCWA decision-making body and subject to the standard public disclosure/participation. |
| AJ-2 | “Improperly” cites Geoservices Group report. | Citations corrected or revised in Chapter 8 (References) and in Chapter 3.7. |
| AJ-3 | Cost estimates? Provided in Engineering Feasibility Study, which is not linked to EIR/EIS. How to access public document. | Cost estimates are presented in Tables 2-5, 2-6, 2-7, 2-12, and 2-13 of the FEIR/FEIS. Volume I of the Feasibility Study is on the SCWA website (http://www.scwa.ca.gov/projects). Volume II is available for review at SCWA headquarters. Contact Dave Cuneo at 707-547-1935. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AJ-4 | How much wastewater available for irrigation? Tables and text do not match. No agreements guaranteeing availability of supply. | See Master Response No. 13 for discussion of water supply commitments. Tables and texts have been revised. |
| AJ-5 | Energy required to operate project? Energy costs? | See Master Response No. 16. |
| AJ-6 | Consequences of level of energy use and greenhouse has contributions? | See Master Response Nos. 12 and 16. |
| AJ-7 | Requests re-release for 90-day review and provide library of references for public review. | Comment noted. See response to Comment X-62. |
| AJ-8 | Justified need? How will NSCARP improve fish habitat? | See Master Response No. 4. |
| AJ-9 | Justified need? | As stated in Section 1.3, Background of Purpose and Need, because of the complex interaction of groundwater with surface water flows, groundwater flow lags, seasonality of flows, future levels of participation in the NSCARP project, and other confounding factors, it is not possible to precisely estimate the volume of appropriated water that would be available for instream uses. However, it is not likely to exceed the maximum limits of NSCARP storage (e.g., 8,700 af). |
| AJ-10 | How will water saved by project relate to water storage, water rights, and flow requirements? | See Master Response Nos. 4 and 7. NSCARP has no effect on D-1600 requirements. |
| AJ-11 | Justified need for infrastructure to distribute wastewater. Potential degradation of Russian River? | See response to Comments M-28, M-31, and M-32. |
| AJ-12 | No legitimate need. | See Master Response No. 4. |
| AJ-13 | Discrepancies in project costs. | See Response to Comment AJ-3. |
| AJ-14 | Cost estimates based on preliminary information. | See Master Response No. 6 and response to Comment AJ-3 |
| AJ-15 | Potential funding sources? | Refer to Section 2.4 |
| AJ-16 | How are reservoir sites suitable? | See Master Response No. 6. The commenter is referred to the North Sonoma County Agricultural Reuse Project Feasibility Study, Volumes I and II (Wagner & Bonsignore, 2007) for additional information on site suitability analyses, which is available at the SWCA website: http://www.scwa.ca.gov /projects. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AJ-17 | Studies conducted are preliminary and only 5 of 19 reservoirs have been studied preliminarily. | See Master Response No. 6. |
| AJ-18 | Costs of conducting thorough reservoir studies? | See Master Response No. 6. Costs of conducting reservoirs studies is not an environmental issue. |
| AJ-19 | Constraints for evaluated reservoir sites. | See response to Comment AJ-16. |
| AJ-20 | Geoservices Group report cannot be cited as mitigation. | See Master Response No. 6. |
| AJ-21 | Confusing references, some documents available on SCWA website. | See responses to Comments AJ-2. |
| AJ-22 | Documents not available for public review until late in the review period. | Comment noted. |
| AJ-23 | Two names for Wagner-Bonsignore Feasibility Report? | See response to Comment AJ-2. |
| AJ-24 | Detailed geologic descriptions in Volume II of feasibility report, not referenced. | See response to Comment AJ-2. |
| AJ-25 | Studies need to be referenced and cited appropriately and made available to the public for review. | Comment noted, references added where appropriate. See response to Comment AJ-2. |
| AJ-26 | Conflicting volumes of future recycled water estimates between DEIR and DEIS. | The correct estimate of future projected supplies of recycled water is 20,135 ac-ft. |
| AJ-27 | Assessment of current or future drought conditions? | Potential NSCARP distribution was designed for peak flows. Drought conditions were not studied in detail at this level. |
| AJ-28 | Alternative 2 as “Environmentally Superior Alternative”. | See Master Response No. 11. |
| AJ-29 | Potential impacts from drought? | Comment noted. Further water treatment options not in scope of this EIR/EIS. See Master Response No. 15. |
| AJ-30 | Groundwater contamination. Surface storage and frost protection. | See Master Response Nos. 7, 8, and 9. |
| AJ-31 | Need to address potential contamination of aquifers from reservoir leakage. | See Master Response Nos. 7, 8, and 9. Also, see response to Comments AH-34 and AH-20, and revised Mitigation Measure HWQ-4. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AJ-32 | Assess cost and potential environmental impact of monitoring pumping of water table. | See Master Response No. 8. |
| AJ-33 | Need a more rigorous study of wastewater to be used for NSCARP. | See Master Response No. 5. |
| AJ-34 | Potential impact on different grape varieties. | See Master Response No. 2 and response to Comment X-41. |
| AJ-35 | How will salts build up in NSCARP area soils? Napa study not representative of all soil types in NSCARP area. | See Master Response No. 15. |
| AJ-36 | Discussion of frost protection is nearly completely uninformative. | The first two paragraphs on Page 3.2-9 of the DEIR/EIS provide general setting discussion of "Water Application for Frost Protection", as referenced in the title above the discussion. The subsequent three paragraphs on Page 3.2-9 of the DEIR/EIS provide setting discussion of the Glassy-winged Sharpshooter, as referenced in the title above the discussion. Both sections are sub-sections of the Physical Setting section (Section 3.2.1). The two setting sections are unrelated with the exception that both topics are discussed in Section 3.2.12 Alternatives Analysis. |
| AJ-37 | Pierce's Disease discussion is confusing. | See response to Comment AJ-36. |
| AJ-38 | Napa study not representative of NSCARP conditions | See Master Response No. 15. |
| AJ-39 | Analysis for only 5 of the 19 reservoir sites. | See Response to comment AJ-17 |
| AJ-40 | Potential significant impacts: unmapped landslides, debris flows, insufficient mitigation. | Mitigations listed are developed directly from Geoservice's expert recommendations. Unmapped landslides and debris flows yet to form would be analyzed during site-specific engineering and geotechnical investigations. See Master Response No. 6. |
| AJ-41 | Need to assess catastrophic failure of reservoir dams. | See Master Response No. 6. All dam designs would be approved by DSOD prior to construction. |
| AJ-42 | Requesting water quality sampling methods, locations, times, etc. | Table 3.8-2 has been corrected. These data were obtained from the City of Santa Rosa's DEIR for the IRWP (May 2002), and represent recycled water quality data obtained between December 1997 and April 2002 (http://ci.santa-rosa.ca.us/doclib/Documents/ut_irwp__PEIR_Chapter_4_6__Surface_Water_Quality.pdf). These data are provided to depict the general quality of recycled water from the Laguna facility. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| | | NSCARP will comply with all local, state, and federal regulations governing water quality. |
| AJ-43 | Growth-inducing analysis. | See Master Response No. 7. |
| **Raj Naidu** | | |
| AK-1 | Need for paleontologist's services. | See Mitigation Measures CUL-3, CUL-6, and CUL-9. |
| **Raj Naidu** | | |
| AL-1 | Need for paleontologist's services. | See Mitigation Measures CUL-3, CUL-6, and CUL-9. |
| **Richard B. Nall** | | |
| AM-1 | Baseline environmental conditions inaccurate for Lytton Reservoir discussion. No mention of wetlands. | Habitat and wetland loss estimates have been revised as have Tables 3.4-2 and 3.4-3.<br>Habitat losses discussed in the DEIR/EIS were estimates based on reconnaissance level surveys and analysis of aerial photographs and topographic maps. Full wetland delineations will be conducted at the permitting phase of the project, at which time the precise acreage of wetland losses will be determined and verified by the Corps and CDFG. All losses of wetlands resulting from project implementation will be compensated at a minimum of 1:1 ratio to assure no-net-loss (see Mitigation Measure BIO-5). |
| AM-2 | Abundance of nesting and non-nesting birds | See Impact and Mitigation BIO-4. |
| AM-3 | No mention of adjacent wetlands. Lists more species present. | See response to Comment AM-1. |
| AM-4 | Lists more species present in and adjacent to reservoir. | See Impact BIO-6 and BIO-9. |
| AM-5 | Against expansion of reservoir because would destroy wetlands, wildlife, and require removal of woodlands to construct dam. | Mitigation Measures would serve to restore wetlands and protect wildlife and plant species to extent feasible. See Section 3.4 Biological Resources. |
| AM-6 | Need for third dam? | The need for a third dam for an enlarged Lytton Reservoir is based on a very preliminary evaluation of the site. Topography from as-constructed plans and USGS 7.5-minute quadrangles were used in the evaluation. With an enlarged reservoir, the preliminary evaluation estimates a dam crest height with an elevation of 245.0 feet, msl. At this elevation, according to the available topography, a third dam would be necessary. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AM-7 | County to protect critical habitat, looking forward to revisions re: Lytton "Lake". | Comment noted. |
| **Santa Rosa Chamber of Commerce** | | |
| AN-1 | Recommend water conservation and habitat improvement. | Comment noted. |
| AN-2 | Coordinate with SR and Windsor on viability of project. | See Master Response No. 13 for discussion of availability and commitment of water supply. |
| **Sean Swift** | | |
| AO-1 | Commenter feels EIR/EIS is inadequate and should not be certified. | Comment noted. |
| AO-2 | Cumulative analysis inadequate. Need to evaluate with all projects listed. | See Master Response No. 3.<br>Hydrology and water quality issues associated with the NSCARP are evaluated in Section 3.8, Hydrology and Water Quality of the DEIR/EIS. |
| AO-3 | Benefit to fishery habitat? No supporting information. | See Master Response No. 4 |
| AO-4 | How much freshwater is available for use now? Conversion of uncultivated land to agriculture use? | See Master Response No. 10. |
| AO-5 | Need studies illustrating impact of wastewater treatment on NSCARP area soils. | Refer to Master Response No. 15 for a discussion of the potential for salts and other chemicals to build-up in soils and groundwater. |
| AO-6 | Quality of wastewater proposed for use? | See Master Response No. 5. |
| AO-7 | Impacts to fish species exposed to potential contaminants from seepage from reservoirs or irrigation runoff. | See Impact and Mitigation Measure BIO-6, Master Response Nos. 7 and 8, and response to Comment F-1. |
| AO-8 | Impacts to groundwater from use of recycled water. | See Master Response No. 8. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AO-9 | Who owns wastewater, who would be responsible for clean-up of surface or groundwater, who would report/correct public health impacts, and who would provide new drinking water sources in the event of contamination? | Each entity (City of Santa Rosa, SCWA, Town of Windsor) are ultimately responsible for the recycled water from their plants, although individual RWUAs do obligate the users to comply with the applicable regulations governing the use of the recycled water. However, for the NSCARP, where these entities would be pooling their recycled water resources, the ultimate entity responsible for recycled water delivered thought the NSCARP has not been determined yet. The responsible party could be any one of these entities, or another entity established though a joint powers agreement (JPA) among all entities supplying recycled water into the NSCARP system. |
| AO-10 | How will filters be cleaned and what will be done with effluent from cleaning the wastewater? | All filters will be cleaned in accordance with existing practices at respective WWTP. Effluent will be disposed in manner prescribed by RWQCB. |
| AO-11 | Monitoring, positive result = damage already has been done. | See Master Response No. 8. |
| AO-12 | Wastewater suppliers. | See Master Response No. 13. |
| AO-13 | Primary purpose (benefit fishery habitat) is not quantified/justified. | See Master Response No. 4. |
| AO-14 | Must evaluate all ways to dispose of wastewater. | Comment noted. See response to A-16. |
| AO-15 | Need analyses of impacts to agriculture, who would get wastewater, who would not and why, cost to use wastewater, public funding. | Figures 2-3 through 2-6 depict the proposed areas that would be served by the NSCARP. Master Response No. 10 discusses off-sets, and response to Comment A-13 details entities that have expressed interest in using recycled water to date. Master Response No. 2 discusses economic issues. |
| **Sierra Club** | | |
| AP-1 | Potential increased use of river water to justify growth. | See Master Response No. 10. |
| AP-2 | Definitive statement of needs cannot be determined w/o plan that quantifies inflows, outflows, reuse of water for municipal, commercial, residential, agricultural, environmental, natural resources, endangered species and all other uses. | NSCARP is not intended to be a comprehensive plan for water use, discharge, and reuse for the entire County. The lack of a comprehensive County plan does not negate benefits offered by NSCARP. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AP-3 | Actions by SCWA justifying need? | Master Response No. 7 concerning growth-inducement. The Urban Water Management serves as a long-range planning document for the SCWA's water supply. |
| AP-4 | Show assured water supply and that project will provide additional water flows in river and tributaries. | See Master Response No. 4. |
| AP-5 | Benefit to fishery habitat? | See Master Response No. 4. |
| AP-6 | Potential impacts to agriculture, commercial and tourism. Monitoring responsibility on water purchaser. | See Master Response Nos. 2 and 5. |
| AP-7 | Uptake of contaminants by plants and into groundwater. | See Master Response Nos. 2 and 5. |
| AP-8 | More stringent wastewater treatment regulations may mean less recycled water availability for project | Comment noted. See Master Response No. 13. |
| AP-9 | Conservation alternative not considered. | See response to Comment J-9 concerning SCWA's commitment to water conservation. |
| AP-10 | Energy requirements and greenhouse gas emissions. | See Master Response No. 12 concerning greenhouse gases and Master Response No. 16 about energy usage. |
| AP-11 | Global warming/changing climatic conditions, changes in rainfall. | See Master Response No. 12. |
| **Sonoma County Water Coalition** | | |
| AQ-1 | Advanced treatment of wastewater in future. Less availability for project? | See Master Response No. 10. |
| AQ-2 | Better use of public funds to pursue advanced treatment from offset. | Not within scope of DEIR/S |
| AQ-3 | Availability of water from suppliers. Premature to proceed unless proposed Water, Supply, Transmission and Reliability Project is implemented. | See Master Response No. 13. |
| AQ-4 | Where will the water come from? | See Master Response No. 13. |
| AQ-5 | Agreements for varying degrees of wet/dry years? | See Master Response Nos. 7 and 10. |

<table>
<tr><th>Comment Number</th><th>Topic/summary</th><th>Response</th></tr>
<tr><td>AQ-6</td><td>How much water to be delivered each month of the water year?</td><td>Approximated water delivered each month of the water year to vineyard growers based on default crop ET distribution for the region in DWR's CUP-E program are as follows:
<table>
<tr><th>Area</th><th>Total</th><th>APR</th><th>MAY</th><th>JUN</th><th>JUL</th><th>AUG</th><th>SEP</th><th>OCT</th></tr>
<tr><td>$ET_c$ (in)</td><td>24.95</td><td>2.4<br>9.6%</td><td>3.88<br>15.6%</td><td>4.2<br>18.1%</td><td>4.71<br>18.9%</td><td>4.45<br>17.8%</td><td>3.30<br>13.2%</td><td>1.68<br>6.7%</td></tr>
<tr><td>AV (af)</td><td>3,977</td><td>382.6</td><td>618.5</td><td>720.0</td><td>750.8</td><td>709.3</td><td>526.0</td><td>267.8</td></tr>
<tr><td>DCV (af)</td><td>3,545</td><td>341.0</td><td>551.3</td><td>642.2</td><td>669.2</td><td>632.3</td><td>468.9</td><td>238.7</td></tr>
<tr><td>NAV (af)</td><td>2,532</td><td>243.6</td><td>393.8</td><td>458.7</td><td>478.0</td><td>451.6</td><td>334.9</td><td>170.5</td></tr>
<tr><td>RRV (af)</td><td>2,690</td><td>258.8</td><td>418.3</td><td>487.3</td><td>507.8</td><td>479.8</td><td>355.8</td><td>181.1</td></tr>
</table></td></tr>
<tr><td>AQ-7</td><td>How will water deliveries affect Petition of Temporary Urgency Change in water right permits?</td><td>See response to Comment S-7.</td></tr>
<tr><td>AQ-8</td><td>Proximity of Jordan Reservoir to water company's wells should disqualify it.</td><td>See response to Comment AH-55.</td></tr>
<tr><td>AQ-9</td><td>Direct and indirect linkages between water budget and proposed increased flows in Russian River and tributaries?</td><td>See response to A-11 and Master Response No. 4.</td></tr>
<tr><td>AQ-10</td><td>Effect on groundwater levels in basins?</td><td>See response to Comments S-13 and AH-16.</td></tr>
<tr><td>AQ-11</td><td>Monitoring and testing of water to be used, groundwater, crops to determine if unsafe contaminants are present?</td><td>See Master Response No. 8 for discussion of potential groundwater contamination; response to Comment X-41 about quality of recycled water, and Master Response No. 5 concerning of potential uptake of emerging contaminants by crops). Also see updated Mitigation Measure HWQ-4.</td></tr>
<tr><td>AQ-12</td><td>Impacts to Russian and Eel rivers and Sonoma Co. groundwater basins. (Standards established in listed court cases.)</td><td>See Response to Comment S-18. The NSCARP would not result in and changes in flows or impacts to the Eel River system.</td></tr>
<tr><td>AQ-13</td><td>Cumulative impacts of proposed export of waters outside of SCWA service area. Water not available for the project.</td><td>No water is proposed for export. See Response to S-17.</td></tr>
</table>

| Comment Number | Topic/summary | Response |
|---|---|---|
| AQ-14 | How does recycled water use for this project impact water supply and demand balance proposed in Sonoma Co. Urban Water Management Plan 2005? And UWMPs for municipalities providing wastewater to NSCARP? | See Master Response No. 10 and response to Comment S-22. The NSCARP would not result in impacts to water supply and demand balances in urban areas. Urban recycled water projects tend to take priority within individual municipalities because such projects provide direct potable water use offsets for them. However, where there is additional water available, such as winter water that is currently being discharged to a surface water, that water could be used for NSCARP. Using the winter water would have the added benefit of reducing direct discharge for tertiary treated wastewater into the Russian River system, which is presently the situation with both the City of Santa Rosa and the Town of Windsor that have urban recycled water projects. |
| AQ-15 | Diversion of treated wastewater to project and Napa Sonoma Baylands Marsh Restoration Project reduce or eliminate opportunities to offset potable water demands. | See Master Response No. 10 concerning water offsets. NSCARP is not diverting water to the restoration project. |
| AQ-16 | Inconsistencies between project and Sonoma Co. General Plan Update and General Plan Update DEIR: not sufficient water for next 20 years of growth. | See Comment Letters AZ and BA for consistency discussion from the Planning Department.<br>While the Sonoma County General Plan 2020 EIR states that there would be inadequate supplies to serve future populations without additional entitlements, it also acknowledges that the SCWA has adequate supplies to meet projected growth within its service area assuming the “Water Project” is approved. |
| AQ-17 | Ongoing soil testing program to identify potential pollutants accumulating in soils from irrigation. | See Master Response No. 5. SCWA has not identified soil testing as part of the overall project monitoring. |
| AQ-18 | Ongoing groundwater testing program to identify potential pollutants accumulating in groundwater from irrigation. | See Response to Comment AQ-17, and Master Response Nos. 8 and 9. |
| AQ-19 | Third-party monitoring program to assess and prevent incidental runoff. | See Master Response No. 7 concerning water application requirements. |
| AQ-20 | Greenhouse gas emission contribution and reduction or elimination of GHG emissions. | See Master Response No. 12. |
| **Surfrider Foundation** | | |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AR-1 | Potential alternatives eliminated. Project purpose is restrictive. | Comment noted. See Response to A-16. |
| AR-2 | Urban reuse, industrial uses, wetlands creation, storage in Lake Sonoma. | Comment noted. See Response to A-16. |
| AR-3 | Objective stated so as to eliminate alternatives not agricultural reuse, precludes other alternatives. | Comment noted. See Response to A-16. |
| AR-4 | Support recommended alternative. Suggests looking at other reuse options. | Comment noted. |
| **Sebastopol Water Information Group (SWIG)** | | |
| AS-1 | Not enough data evaluating financial, environmental impacts. Need more analysis of geologic and feasibility of project. | See Master Response No. 6. |
| AS-2 | Feasibility of proposed reservoirs. | See Master Response No. 6. |
| AS-3 | Greenhouse gases during construction and operation. | See Master Response No. 12 |
| AS-4 | Need to share agreement to obtain wastewater or its potential cost to taxpayers and farmers. | See Master Response No. 13 concerning willing sellers and Master Response No. 2 regarding economic concerns. |
| AS-5 | Project and global warming. | See Master Response No. 12. |
| AS-6 | Environmental impacts of adding recycled water to areas with declining groundwater levels. Potential groundwater contamination. | See Master Response No. 8. Project would result in reduced drafting of groundwater supplies by using recycled water. |
| AS-7 | Commenter feels more information is needed and document should be revised and recirculated. | Comment noted. |
| AS-8 | Lack of detail in Geoservices Group studies. | See Master Response No. 6. |
| AS-9 | Geoservices Group docs incorrectly referenced in EIR/EIS. [Referenced incorrectly in references section or “misquotes” in text?] | See Response to AJ-2. |
| AS-10 | Geoservices Group documents availability for public review. | See Response to AJ-2. |
| AS-11 | Geoservices Group docs are very preliminary. | See Master Response No. 6. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AS-12 | Geoservices Group documents cannot estimate range of construction impacts for reservoirs. Cost estimates incomplete. | See Master Response No. 6 |
| AS-13 | Detailed costs of feasibility studies need to be included. EIR/EIS should be re-noticed and recirculated. | See Master Response No. 6. Costs of feasibility analyses are not environmental issue. |
| AS-14 | Energy costs for construction and operation. | See Master Response No. 16. |
| AS-15 | Cost of wastewater supply, cost of connection to Geysers pipeline? Cost of extra construction and cost for water purchase need to be included. | Cost issues are outside the scope of environmental issues analyzed in the EIR/EIS. |
| AS-16 | Will lower pipeline need expansion and who will pay for any necessary expansions? | Future need for expansion would be assessed as the demand arises. |
| AS-17 | Will farmers have to pay SCWA for recycled water? Has SCWA confirmed the interest of farmers, at what price? | See Master Response No. 7 regarding RWUA. See response to Comment A-13 concerning potential users. |
| AS-18 | EIR/EIS should be re-noticed and recirculated. | Comment noted. |
| AS-19 | Clarifications in geology section. | Comment noted. |
| AS-20 | Incorrect assessment: significant but mitigable. Not enough info in feasibility studies to make this determination. | See Master Response No. 6. |
| AS-21 | Geologic subunit must be defined and level of landslide mapping specified. Recommends criterion. | Geotechnical engineering investigations that will be completed for each proposed dam site will address the potential for unmapped landslides, as well as other geologic hazards. These studies are required under County and DOSD regulations. |
| AS-22 | “Acceptable levels” for reduction of geology hazards need to be defined. | In 2001, the DSOD issued an updated Fault Activity Guidelines for use in planning for dams and assessing potential fault activity. The DSOD is also responsible for monitoring dam performance and has several programs that ensure dam safety to mitigate the risks associated with dam failure. |
| AS-23 | “as much as feasible” renders “Mitigation C” useless. | This impact has been identified as a significant but mitigable impact. Complete avoidance of faults is not feasible; however, the release of recycled water in the unlikely event of a severe earthquake would be greatly minimized by proposed mitigation and standard pipeline engineering |

| Comment Number | Topic/summary | Response |
|---|---|---|
| | | requirements.<br>Also see Master Response No. 6. |
| AS-24 | Seismic activity with project area, especially Maacama fault activity. | See Master Response No. 6. DSOD geotechnical requirements would be satisfactory from a regulatory standpoint. Note the report referenced by commenter was not attached as stated. |
| AS-25 | Need standards for resistance to damage from rupture. | See Master Response No. 6 and response to Comment AS-24. |
| AS-26 | Consideration of Maacama fault. Avoid areas of high liquefaction potential for Maacama fault. | Complete avoidance of high liquefaction areas is not feasible. See response to Comment AS-24. |
| AS-27 | Combined hazard of potential rupture of pipes with high groundwater tables in project areas. Potential groundwater contamination. | See Master Response No. 8. |
| AS-28 | What evidence is there that damage to facilities from earthquake-induced ground shaking is LTS? | Shut-off valves would be employed for pipelines to mitigate the risk of broken pipelines releasing recycled water. DSOD also would implement stringent requirements to mitigate ground-shaking effects for reservoirs. |
| AS-29 | Define expansive soils removal. Include in cost estimates. | Cost estimates not within scope of EIR/EIS. |
| AS-30 | Clarifications to hydrologic/WQ section. | Comment noted. |
| AS-31 | Groundwater discussion clarification. | Comment noted. The NSCARP project is not intended as a groundwater recharge project, but to supply water to agricultural users that will benefit local water supplies through less groundwater pumping and/or water diversions. |
| AS-32 | If Santa Rosa IRWP studies have found that project area soils cannot effectively sequester contaminants, then NSCARP must assess if soils can sequester contaminates for irrigation wastewater. | NSCARP will comply with all local, state, and federal regulations pertaining to water quality. See Master Response Nos. 5, 8, and 9. |
| AS-33 | USGS study re: Alexander Valley groundwater. Will NSCARP contribute to degradation of WQ? | See Master Response No. 8 and response to Comment T-15. |
| AS-34 | Ongoing groundwater testing program to identify potential pollutants accumulating in groundwater from irrigation. | See Master Response Nos. 8 and 9, response to Comment AQ-17. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AS-35 | Energy requirements, cost to taxpayers rates for farmers greenhouse gas emissions | See Master Response Nos. 12 and 16. |
| AS-36 | Leaks, seepage especially during times of drought and impacts to groundwater. | See Master Response No. 8. |
| AS-37 | Recommends higher levels of treatment as mitigation. | Higher levels of treatment not proposed as part of NSCARP. |
| AS-38 | EIR/EIS lacks data to determine costs and environmental impacts. Recommends revisions and recirculation. | See Master Response No. 2 concerning costs. Comments noted. |
| **Westside Association to Save Agriculture** | | |
| AT-1 | All previous comments are incorporated herein by reference | See Response to Comment X-2 regarding incorporation by reference. |
| AT-2 | EIR/EIS is “premature”. | Comment noted. |
| AT-3 | Little to no committed supply and few if any commitments from farmers. | See Master Response No. 13 concerning willing sellers, and response to Comment A-13 about potential agricultural users. |
| AT-4 | EIR/EIS deficient in data, analysis, mitigation. Findings of no significant impact made because no regulation is required. | Comment noted. |
| AT-5 | No committed wastewater sources, therefore, no known make-up of wastewater supply for project. | See Master Response No. 13 for discussion of water supply commitments and No. 5 for discussion of potential compounds in treated wastewater. |
| AT-6 | No supply commitment. | See Master Response No. 13. |
| AT-7 | Revise and recirculate EIR/EIS once all sources of wastewater are known, committed, and analyzed for heavy metals, organic chemicals and other potential pollutants, once impacts of wastewater stream are analyzed, and once health impacts (especially $PM_{10}$ and $PM_{2.5}$) of a 10-year construction period are analyzed. | Comment noted. |
| AT-8 | Recommends revisions and recirculation, including addressing and responding to requests for studies beginning in 2001. | Comment Noted. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AT-9 | Urban reuse alternative | See response to Comment X-17. |
| AT-10 | What are characteristics of wells that would be candidates for potable water offset? | Wells that would be candidates for offsets would be within the NSCARP service area, have permitted water right, are currently used to supply agricultural irrigation, and the operator would be willing to enter into a RWUA. Also see Master Response No. 7. |
| AT-11 | How much potable water is to be offset and how much behind the dam? | See Master Response No. 4. |
| AT-12 | How will project benefit fishery habitat? | See Master Response No. 4. |
| AT-13 | What is commitment to hold water to benefit fish vs. water to benefit other uses? . | See Master Response No. 10. |
| AT-14 | Data for potable water offsets? What will offsets be used for? | See Master Response No. 10. Also see responses to Comments S-20 and S-22. |
| AT-15 | Effects of wastewater runoff and frost protection on fish habitat? | RWUA would specify good farming practices to eliminate significant chances for runoff (see Appendix I for example of RWUA template). Also see Master Response No. 7 and Impact/Mitigation Measure BIO-6. |
| AT-16 | Mitigation measures to prevent, enforce, and mitigate surface and groundwater contamination? | See Master Response No. 8. |
| AT-17 | No substantiated need for infrastructure. | Infrastructure needs based on engineering analysis of requirements to store and deliver recycled water under the NSCARP alternatives. |
| AT-18 | Commitment of supply. | See Master Response No. 13. |
| AT-19 | Quantitatively defined infrastructure need for project? | See AT-17 above. |
| AT-20 | Plans to increase flow of wastewater to Geysers steam field. How do these plans reduce need for agricultural reuse infrastructure? | See Master Response No. 13. |
| AT-21 | Request studies looking at accumulation of heavy metals and organic chemicals in the soils. | See Master Response No. 5. |
| AT-22 | Projected flow, growth, and how does this relate to new housing stock? | See Impact GRO-2 and GRO-3. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AT-23 | How will current discharge to Geysers steam field affect delivery of wastewater to agricultural land for reclamation disposal? | See Master Response No. 13. |
| AT-24 | Project needs justification. | See Master Response No. 13. |
| AT-25 | Current obligations of Santa Rosa to deliver water to agricultural users? What is proposed in project to prevent Santa Rosa from abandoning current agricultural reuse lands and converting those lands to additional development? | This issue of "current obligations" of City of Santa Rosa is beyond authority of SCWA and outside the scope of NSCARP. Conversion of lands would be subject to City/County planning regulations and is not tied to recycled wastewater irrigation. |
| AT-26 | How will impairments for nitrogen, phosphorus, dissolved oxygen, temperature, and sediment be mitigated? | See Master Response No. 8. |
| AT-27 | Who will pay for project? Taxes? | See Section 2.4, PROJECT FUNDING, for a discussion of funding. |
| AT-28 | What requirements by project for cities to fix leaky pipes that cause spike in wastewater in winter? | This issue of "leaky pipes in cities" is beyond authority of SCWA and outside the scope of NSCARP. Such questions should be addressed to each respective municipality. The issue of leaky pipes causing a spike in wastewater flows in the winter is referred to as infiltration. Infiltration is a collection system (sewer lines) issue unrelated to recycled water (pressurized pipes) distribution systems. Generally, municipalities do have ongoing maintenance programs to replace or repair leaking collection system pipes. |
| AT-29 | How much capacity of proposed reservoirs is for stormwater and leaky pipe inflow? Cost of reservoirs vs. cost of fixing leaky pipes? | As detailed under Impact HWQ-3 (page 3.8-33) of the DEIR/EIS, the reservoirs would be designed for the storage of recycled water combined with adequate freeboard to allow the storage of precipitation falling directly on the ponds. Natural stormwater runoff from upstream areas would be routed around the reservoirs and conveyed to downstream channels. Refer to response to Comment AT-28 regarding leaky pipes. |
| AT-30 | Cumulative impact of compounds in soils/groundwater and the compounds' interactions with each other. | See Master Response No. 5. |
| AT-31 | Studies of inhalation and ingestion of household soil contaminated by wastewater application. | NSCARP will comply with all local, state, and federal regulations pertaining to air quality emissions and water quality. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AT-32 | Studies of inhalation of air pollutants from frost protection and during construction. | NSCARP will comply with all local, state, and federal regulations pertaining to air quality emissions and water quality. |
| AT-33 | Studies of ingestion of contaminated well water. | See Master Response No. 5. |
| AT-34 | Studies of ingestion of contaminated grapes/wine. | See Master Response Nos. 2 and 5. |
| AT-35 | Lack of analysis of public health impacts and threatened fish species. | See Master Response No. 5 and Mitigation Measure PUB-10. |
| AT-36 | Plan to do additional studies including impacts to wildlife. | See Master Response No. 5 and Mitigation Measure BIO-8. |
| AT-37 | Impact of recycled water in discharge stream during different flow regimes? | See Master Response No. 7 and responses to Comments M-28, M-31, and M-32. |
| AT-38 | Impact of application of water upstream from drinking wells and measurement of potential contaminants? | See Master Response No. 8. |
| AT-39 | Chemicals in treated wastewater interacting with fertilizers/pesticides? What are risks? | Master Response No. 5. |
| AT-40 | Impact of discharge at point of discharge? | See responses to Comments M-28, M-31, and M-32. |
| AT-41 | Justification for the Russian River Valley-Westside Subset? Least water deprived. | See Section 2.2, PROJECT ALTERNATIVES, for discussion of screening criteria. |
| AT-42 | If development of reservoirs leads to hillside vineyard conversions, who will pay for impacts to salmon spawning creeks? | See Master Response No. 10. Project will not increase water supplies to expand vineyard development. |
| AT-43 | Alternative 2 as “Environmentally Superior”. | Comment noted. |
| AT-44 | Aesthetic/economic impact and growth-inducing impacts. | Aesthetic impacts are discussed in Chapter 3.1 and Growth-Inducing Impacts are discussed in Chapter 5.0. See Master Response No. 2 concerning economics. |
| AT-45 | Santa Rosa decided to grow, but SCWA is planning to use the result of the growth to “destroy economic base of agriculture and tourism” in North and West County. | Comment noted. |
| AT-46 | How does recycled water use for this project impact water supply and demand balance proposed in | See Master Response No. 10. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| | Sonoma County's Urban Water Management Plan 2005? And UWMPs for municipalities providing wastewater to NSCARP? | |
| AT-47 | Real supply/quantity/source of water that will fuel projections of future growth? | See Impact GRO-3. |
| AT-48 | Future water availability in drought years? | NSCARP project is intended to offset agricultural uses exclusively. Water availability under established user agreements would have no bearing on growth projections.<br>In addition, recycled water used as a source for irrigation would provide security for agricultural irrigators during times of drought. |
| AT-49 | Conservation? Offset from conservation used to service growth? | "Capturing savings" not within scope of DEIR/S. See Master Response No. 10. |
| AT-50 | How will project reduce or eliminate opportunities to offset potable water demands in service areas? | See Master Response No. 10. Also see responses to Comments S-20 and S-22. |
| AT-51 | Analysis of impact on WQ, public health and safety, surface and groundwater contamination is inadequate. | See Master Response No. 5. |
| AT-52 | Cumulative impact of all projects proposed for wastewater discharge? | See Master Response No. 3. |
| AT-53 | Lists projects for consideration. | See Master Response No. 3. |
| AT-54 | Studies to determine concentration effects from all the projects in combination with reduced flow in Dry Creek and Russian River? | See Master Response No. 3. |
| AT-55 | Cumulative impacts of all projects listed above? | See Master Response No. 3. |
| AT-56 | Exports of waters from SCWA service area? | No exports of water outside of SCWA service area. |
| AT-57 | Has requested studies for past 5 years. Those studies are not included. | Comment noted. |
| AT-58 | Analysis of pathogens: in treatment plant effluent, interaction with wastewater in storage, and levels prior to reuse application. | All WWTPs must submit monthly monitoring reports to RWQCB. These monthly reports are public documents. Commenter can request copies from RWQCB. |

| Comment Number | Topic/summary | Response |
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| AT-59 | Definition of "incidental runoff"? How will it be managed? | See Master Response No. 7 and responses to Comments M-28, M-31, and M-32. |
| AT-60 | Studies to determine impacts on grapes, different varieties grown in project area? | See Master Response No. 2. |
| AT-61 | Studies: salt build-up in soil? Impact on vine viability? Potential to leach into groundwater? | See Impact AG-4 for discussion of salt build-up, characterization of water from treatment plants, and recent study conducted by the University of California at Davis investigating the effects of recycled water irrigation on vineyard soils. Also see Master Response Nos. 2, 8, 9, and 15. |
| AT-62 | How will construction sediment be monitored? What if sediment impairs fish? | See Mitigation Measure HWQ-1 (SWPPP), and response to Comment F-1 regarding bypass channels. |
| AT-63 | How many excess cancer deaths are expected in North County from 10-year construction phase? | ARB has issued regulations for cleaner diesel fuels and catalytic oxidizer technology. As new research and requirements become available, regulatory standards will require that diesel equipment incorporate the cleanest fuel and engines available.<br>As to the issue of cancer deaths, the risk of 25 excess cancer deaths per 100,000 cannot be accurately attributed to the cumulative addition of NSCARP construction activity. |
| AT-64 | Why aren't quantitative thresholds applied to mobile construction sources? | BAAQMD and NSCAPCD do not require quantitative thresholds for construction emissions; however, CEQA significance is based the requirement that all feasible and appropriate mitigations be fully implemented. See discussion in Impact AQ-1 for more detail. |
| AT-65 | Mitigation for exceedance of peak annual construction emissions significance threshold? | See Mitigation Measure AQ-1. |
| AT-66 | Energy consumption for construction and operation. | See Master Response No. 16. |
| AT-67 | Definition of "excess cancer death" and how is it acceptable? | TAC sources not a significant concern in rural areas in general. Health risk assessments typically only required for high-priority stationary facilities. See also Response to Comment AT-63. |
| AT-68 | How much of $PM_{10}$ emissions are more problematic than $PM_{2.5}$ emissions? | Based on Section 4.12 of the background document for ARB's EMFAC model, 92 percent of diesel combustion particulate matter is less than 2.5 microns (aerodynamic diameter). Therefore, diesel exhaust $PM_{2.5}$ emissions for a peak construction day would be approximately 43.3 pounds (47.1 * 0.92). |

| Comment Number | Topic/summary | Response |
|---|---|---|
| AT-69 | Assumptions for AQ analysis? | Refer to Appendix E - AQ. Equipment listed in project description. |
| AT-70 | How does project comply with newer EPA $PM_{2.5}$ emission standards? (Note: There are two AT-69 listed on the comment set, so each Comment is one number ahead of the listed number) | See response to Comment X-48. |
| AT-71 | Mitigations to avoid formation of $PM_{2.5}$ emissions? | Mitigation measures in the EIR/EIS address particulate matter in general and not specifically $PM_{2.5}$. The most damaging $PM_{2.5}$ emissions are associated with diesel fuel combustion. Reductions in $PM_{2.5}$ generated by diesel fuel combustion would be accomplished through state-wide programs implemented by the ARB that would ultimately affect equipment and vehicles used to construct and operate project facilities, including:<br>• Cleaner diesel fuel (lower sulfur and aromatic hydrocarbons);<br>• Stricter standards for new on-road and off-road diesel engines; and<br>• Cleaner in-use engines through engine replacement, retrofit, retirement or modified operation. |
| AT-72 | Public notification of sensitive receptors within construction zone of potential exposure to $PM_{2.5}$ emissions? | Formal public notification of construction emissions is not required nor anticipated. Public noticing of the DEIR/EIS provides notification to potentially affected individuals. It is important to note that most construction sites are located adjacent to roadways and/or agricultural operations, which are currently exposed to $PM_{2.5}$ emissions. The project-related increase in $PM_{2.5}$ emissions would be temporary and would not occur in close proximity to sensitive receptors. |
| AT-73 | Impact of $PM_{10}$ emission on fish species or crops? How much coarser dust/silt? | Peak emissions represent an estimated worst-case scenario only, prior to mitigation. See Responses to Comments X-49 and X-50. |
| AT-74 | What mitigation will be implemented to prevent damage to grapes from fugitive dust? | See Mitigation Measure AQ-1 and Dust Suppression Plan outlined in Chapter 2 (2-62) of EIR/EIS. |
| AT-75 | Data/analyses for potential impact to threatened fish species? Mitigations to be taken if there is an accident? | The commenter is referred to Impact BIO-7 for a discussion of the risk of harm to fish and aquatic organisms in contact with recycled water. Note that fish are presently exposed to this recycled water as it is discharged into the Russian River system. Also see responses to Comments F-1, M-32, and M-44. |

| Comment Number | Topic/summary | Response |
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| AT-76 | Did analysis factor in baseline level of fugitive dust and chemical exposure of people living among vineyards? | See response to Comment AT-74 above concerning fugitive dust. See Impact PUB-7 regarding the results of risk assessments regarding exposure to recycled water. |
| AT-77 | Greenhouse gas mitigation. | See Master Response No. 12. |
| AT-78 | No Section 3.3.5 on downloaded document [Omission or text revision?] What are the $PM_{10}$ emission control measures? | See Mitigation Measure AQ-1. |
| AT-79 | Need to evaluate cumulative impacts on soils, crop vitality, grape quality. Impact of air pollutants on grape production? | Master Response No. 2. |
| AT-80 | How to mitigate for particulates landing in salmon spawning streams? | See Mitigation Measure AQ-1 for the dust suppression plan. Also see response to Comment AT-75 above. |
| AT-81 | Need to evaluate chemicals that have potential to harm sensitive receptors. Not adequate to assert no significant risk because no regulations require evaluation of chemicals. | Master Response No. 5. |
| AT-82 | Title 22's applicability. | See response to Comment X-53. |
| AT-83 | Must meet requirements of California Toxics Rule, Basin Plan, and Anti-degradation Policy. | Comment noted. NSCARP would comply with application local, state, and federal requirements. |
| AT-84 | Supports work of DCVA | Comment noted. |
| AT-85 | Deficiencies, recommends revisions and recirculation. | Comment noted. |
| **William Tevendale** | | |
| AU-1 | Have always had enough water for farms and population of Dry Creek Valley without Lake Sonoma. | Comment noted |
| AU-2 | Concern: if farmer upland of him irrigates with treated wastewater, what is impact to his water well on valley floor? | See Master Response Nos. 7, 8, and 9. |
| AU-3 | Impact of metals, hormones, and other compounds in treated wastewater. Impact to drinking water? | See Master Response No. 5. |

| Comment Number | Topic/summary | Response |
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| AU-4 | Worried about water wells. | See Master Response Nos. 5, 7, 8, and 9. |
| **Anertukirt** | | |
| AV-1 | No comment on NSCARP project found in email transmission | No comment. |
| **Cirruhanxo** | | |
| AW-1 | No comment on NSCARP project found in email transmission | No comment. |
| **Blopolist** | | |
| AX-1 | No comment on NSCARP project found in email transmission | No comment. |
| **Musicadejt** | | |
| AY-1 | No comment on NSCARP project found in email transmission | No comment. |
| **Sonoma County Permit and Resource Management Department** | | |
| AZ-1 | How does the quantity and quality of the water benefit agricultural production. | See Master Responses No. 2 and 4. |
| AZ-2 | Loss of agricultural land, site-specific evaluation of type and quantity of land lost, Williamson Act Contract impacts. | See responses to Comments D-2 and D-3. Table 3.2-4 of the EIR/EIS provides the Farmland type of the lands on which the proposed reservoirs and pump stations would be developed. While Table 3.2-5 of the EIR/EIS provides the acreages of the Williamson Act Contract parcels within the project area. Figures 3.2-2 through Figure 3.2-4 illustrate the location of project components, which are proposed for development on Williamson Act Contract lands. |
| AZ-3 | Economic effect of project with relation to General Plan Objective AR-8.2. Also buildup of salts and other constituents in water. | See Master Response Nos. 2, 5, and 15. General Plan Objective AR-8.2 states, “Participate with wastewater generators to establish programs for agricultural reuse of treated wastewater in a manner which would be economically beneficial to agriculture.” As noted in Master Response No. 2, CEQA review of a project does not require a fiscal analysis in order for an EIR to be certified. The environmental effects of the project have been evaluated in this EIR/EIS. See Master Response No. 2 for additional discussion of economic agricultural benefits. |

| Comment Number | Topic/summary | Response |
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| AZ-4 | Impact of project with regards to groundwater and water quality in relation to General Plan Objectives RC-3.1 and RC-3.3. | See Master Response Nos. 5, 8, and 9. Also see Table 3.9-3 of the DEIR/EIS for the project consistency determination with regards to Objectives RC-3.1 and RC-3.3. |
| AZ-5 | Size of component relative to parcel size, whether component is a minor facility under Policy PF-2s. | Please see response to Comment AZ-2.<br><br>Sonoma County Municipal Code, Chapter 26, Article 16, AR, Agriculture and Residential District, Section 26-16-020 defines uses permitted with a Use Permit within the AR Zone. Subsection (n) indicates that minor public service uses and facilities are allowed with a use permit and is stated as follows: *Minor public service uses or facilities (transmission and distribution lines and telecommunication facilities excepted), including but not limited to reservoirs, storage tanks, pumping stations, telephone exchanges, small power stations, transformer stations, fire and police stations and training centers, service yards and related parking lots which, at a minimum, meet the criteria of general plan Policy PF-2s and which are not otherwise exempt by state law.* Similar allowance is made for such uses in the AR CC (coastal), Agricultural Services AS District, and AS CC (coastal).<br><br>Based upon the description of minor public service uses and facilities described above, the proposed NSCARP infrastructure can be described as such. DEIR/EIS Section 3.1, Aesthetics; 3.4, Biological Resources; and Section 3.9, Land Use/Policy Consistency provide an evaluation of the projects consistency with neighborhood character, and preservation of natural and scenic resources (the issues of concern under policy PF-2s. With incorporation of mitigation measures, the project would not have significant impacts or policy inconsistencies in these specific issue areas. Thus, the project may be considered generally consistent with the referenced policies. A discussion of Policy AR-4a has been added to FEIR/EIS Section 3.9 and the discussion of Policy PF-2s has been supplemented.<br><br>Additional review of project elements will be necessary as design-level information becomes available, and as may be necessary in support of necessary permits for the project. |
| AZ-6 | Policy consistency with General Plan Policies OS-5f and OS-5h(3). | See Table 3.9-3 of the FEIR/EIS. The proposed project would result in minimal vegetation removal, and areas graded as part of the proposed project would be revegetated. Therefore, development of the proposed project would be consistent with Policy OS-5f. The proposed project does |

| Comment Number | Topic/summary | Response |
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| | | not require significant streambank modifications, would minimize vegetation removal at stream crossings, and construction associated with the proposed project would not result in diminished or diverted stream flow nor would it result in bank instability or erosion. |
| **Sonoma County Permit and Resource Management Department** | | |
| BA-1 | General Plan Update and Water Resources Element. | The Sonoma County General Plan 2020 Policy AR-8f encourages the use of recycled water through participation in reuse programs. Policy WR-4a encourages disposal methods that minimize reliance on discharges into natural waterways. Policy WR-4j is to ensure that public wastewater disposal systems are designed to reclaim and reuse recycled water for agricultural and other uses provided that the water meets the applicable water quality standards and is supplied in quantities for the intended uses. |
| BA-2 | PRMD review as project develops. | SCWA will continue to coordinate with the PRMD to ensure project consistency with the County General Plan and to develop an acceptable and feasible project design. |
| BA-3 | Project description appears to be based on projections of available recycled water and land owner commitment. | The commenter's interpretation is essentially correct. The project description was developed during the preparation of the engineering feasibility study for the NSCARP where the project was developed based on potential water availability and storage potential in the project area. The storage potential is based on assumptions that a reservoir could be constructed on a property where the owner has only granted permission for the Agency to evaluate the property for use as a reservoir site. There have been no contractual commitments from any property owners for any of the reservoir sites evaluated. . |
| BA-4 | Clarification of Williamson Act Contract cancellations. | See response to Comment D-3. |
| BA-5 | Use permits and potential general plan amendment for large facilities. | See response to Comment AZ-5. SCWA will obtain and comply with all necessary permit requirements for construction and operation of the proposed project. In the event that project components require general plan amendments, SCWA will submit the necessary applications to ensure project consistency with General Plan land use designations. |
| BA-6 | Impact of recycled water on the quality of agricultural crops. | See Master Response No. 2. |

| Comment Number | Topic/summary | Response |
|---|---|---|
| BA-7 | Recommends expansion of Mitigation Measure AES-1 to require pump stations located in designated Scenic Corridors and Community Separators to be constructed underground. Undergrounding pump stations may negate the need for utility lights (Impact AES-2). | See response to Comment AZ-5. Construction of underground pump may be infeasible. |

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