

September 9, 2013  
TAC Agenda Item #4

**MEMORANDUM**

To: Technical Advisory Committee September 4, 2013  
From: Chris DeGabriele, Chair Technical Advisory Committee  
Subject: TAC comments on the Draft Fluoridation Preliminary Engineering Design Report  
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Attached is a letter to the Sonoma County Department of Health Services with the TAC comments on the Draft Fluoridation Preliminary Engineering Design Report. The comments are compiled from all TAC members who submitted comments and its requested that the TAC approve sending the comments to the County of Sonoma Department of Health Services requesting they be formally addressed or incorporated into the design report.

**DRAFT**

August 23, 2013

Lynn Silver-Chalfin, MD,MPH  
Health Officer  
Sonoma County Department of Health Services  
3313 Chanate Road  
Santa Rosa, CA 95404

Dear Dr. Silver:

Attached please find the Technical Advisory Committee (TAC) comments on the Draft Fluoridation Preliminary Engineering Design Report prepared by Montgomery Watson Harza for the Sonoma County Department of Health Services. The report reviewed by the TAC was dated June 2013 and was distributed by Kim Caldewey on June 21, 2013. The TAC requests the attached comments be formally addressed or incorporated into the design report.

Sincerely,

Chris DeGabriele  
General Manager North Marin Water District  
Chair Technical Advisory Committee

Enclosure

Cc: Pam Jeane, SCWA

CD/kly

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**DRAFT**  
**Technical Advisory Committee Comments on the**  
**Draft Fluoridation Preliminary Engineering Design Report**  
**Prepared by Montgomery Watson Harza for the Sonoma County Department of**  
**Health Services,**  
**September 2013**

**GENERAL COMMENTS**

**Restructured Agreement for Water Supply (RA)**

The TAC believes the funding for fluoridation of the SCWA water supply (capital cost, annual Operations and Maintenance cost and replacement costs), must be derived from a source other than the retail water suppliers; rate payers and tax payers. Additionally, even with an outside source of funds, a change in the treatment of the SCWA water supply would require an amendment to the RA. Such amendment must be authorized by a unanimous vote of the parties signatory to the RA.

**Impacts on retail water distribution systems**

There has been no discussion on the potential impacts on the retail systems which would receive "variable" (sub optional) fluoridated water supply. Additionally there is no discussion or reference on how, or if the variable fluoride will reach the target populations to result in the expected benefit, or how data will be collected to confirm that benefit.

**Aquifer Storage and Recovery Projects (ASR)**

The study should also address both technical and policy impacts on planned ASR projects that are about to advance to pilot studies.

**Peer Review**

A peer review of this study is appropriate to confirm that the estimated costs (capital, O&M and replacement) are appropriate and that all technical issues have been addressed.

**Community Input**

Finally, and likely not in the MWH scope, the TAC believes County of Sonoma Department of Health Services should address community impact both pro and con, especially in light of the controversial nature of fluoridating the water supply. One way to do so is with an advisory vote. Keep in mind that only Santa Rosa, Petaluma, and North Marin Water District fall under the population (service connection) threshold included in the California Health and Safety Code (H&S Code). Thus, all other affected communities are not required to fluoridate pursuant to the H&S Code, yet will receive variable fluoridated water under this proposed project and will not have a voice in that decision.

**SPECIFIC COMMENTS**

**1. Page ES-1, Second Paragraph**

"Current law states that systems serving more than 10,000 connections must fluoridate if funding is made available to cover the capital expenses and twelve months of operations and maintenance."

This statement is misleading. California Health and Safety Code Section 116415 (a) (1) (B) states "a public water systems is not required to fluoridate...if... in any given fiscal year funding is not available to the public water system sufficient to pay the non-capital operation and maintenance cost."

**2. Page ES-2, First Paragraph**

“However given the large population served, fluoridation of water produced by the Water Agency would have a wide reach and could be more cost effective than having individual retailers fluoridate, particularly in cases where the Water Agency provides all the water to individual retailers.”

This does not happen.

**3. Page ES-5, Third Paragraph**

“The selection of the fluorosilicic acid system was prompted by reports of operations and maintenance difficulties by other Water Agencies working with sodium fluoride.”

No reference is given for these reports of operations and maintenance difficulties. The design criteria technical memorandum dated May 2013, by MWH, page 18 reports an interview with one Sacramento County Water Agency operations staff member regarding difficulty using sodium fluoride.

**4. Table ES-2, page ES-6**

The Total Present Value of Project O&M and Capital Costs is \$14.74M, significantly more than the \$3.84M Capital Cost and \$556K annual O&M requirement reported to the Fluoridation Advisory Committee for phase 1 (Wohler & River Road only).

**5. Page ES-6, Last Paragraph**

“The capital costs in Table ES-2 can be compared to the Fluoridation Treatment Capital Cost Estimates provided to the California Department of Public Health by the Cities of Santa Rosa and Petaluma and the North Marin Water District.”

This is not true since the retail fluoridation estimates would result in optimal fluoridation and Table ES-2 costs are for variable (sub-optimal) fluoridation.

**6. Table ES-3, page ES-7**

The Grand Total phase 1 & 2, Total Present Value of Project O&M and Capital Costs \$17.83M, again substantially more than reported at the Fluoridation Advisory Committee.

**7. Page ES-7, Second Paragraph**

“The annual O&M cost estimates provided herein are conceptual only, and are based upon the date available at the time of the estimate.”

This is huge flaw in the analysis if the O&M cost estimates are at a conceptual level.

**8. Page ES-7, Last Paragraph**

There is no substantiating information in the body of the report addressing secondary impacts; i.e. potential impacts for wastewater, irrigation, recycled water, and fisheries. This information should be based on and reference the best available scientific data.

**9. Page ES-7, Last Paragraph**

“Fisheries experts...a separate working group of the Agency and DHS with National Oceanic and Atmospheric Administration’s, National Marine Fishery Service Staff... is reviewing approaches to further external consultation to assess potential impacts.”

Sonoma County Water Agency and the Water Contractors are expending significant funding for habitat improvement and fisheries benefit in the Russian River Watershed. Sonoma County Department of Health Services must provide financial assurance that should the fluoridation be detrimental to the Agency and Water Contractor efforts that the Agency and Water Contractor costs will be fully recovered.

**10. Page 1, Second Paragraph**

“The Community Health Assessment and the Sonoma County Smile Survey recommended water fluoridation as a primary means of preventing tooth decay and improving oral health.”

This is not true. The final report of the Sonoma County Task Force on Oral Health dated June 1, 2011 and presented to the Sonoma County Board of Supervisors on February 28, 2012, made the following recommendations:

1. Access – Mobilize public-private partnerships to expand access to care in Santa Rosa and other high-need communities by adding clinical capacity and expanding the cost-effective use of existing community-based facilities (community health centers, Women, Infant, Children (WIC) nutrition programs, private dental offices, Santa Rosa Junior College Dental Hygiene Clinic, mobile dental clinics).
2. Medical Home/Primary Care – Adopt and implement practice changes, including education for primary care providers and staff, to strengthen oral health assessment, education and preventive care in primary care visits and fully integrate dental professionals within the medical home model.
3. Perinatal issues – Develop and integrate a comprehensive oral health promotion program, to include prevention, assessment, referral, treatment, and case management, into the Comprehensive Perinatal Services Program (CPSP) for pregnant women at all CPSP service delivery sites.
4. RDHAPs – Expand the use of Registered Dental Hygienists in Alternative Practice (RDHAP) and other appropriate trained personnel to deliver cost effective oral health education, assessment and preventive services in primary care, school and community settings.
5. Data and Surveillance – Develop and implement an ongoing health surveillance program within the Sonoma County Department of Health Services (DHS) to collect, analyze and report data on oral health status, access to prevention and care, and system capacity, and identify strategies to promote oral health throughout the community, with emphasis on high-risk populations.

Additionally, the June 2009, Sonoma County Smile Survey made no such recommendation for fluoridation of the public water supply as a primary means of preventing tooth decay and improving oral health.

**11. Page 1, Third Paragraph**

“Fluoridation of public water systems in California was first required in 1976. Current regulations state that systems serving more than 10,000 service connections must fluoridate unless the system does not receive sufficient funds from a source identified by the California Department of Public Health (CDPH) for capital and ongoing operations and maintenance costs.”

See Comment #1

**12. Page 2, First Paragraph**

“Fluoridation of water produced by the Water Agency would have a wide reach and could be more cost effective than having individual retailers fluoridate particularly in cases where the Water Agency provides all the water to individual retailers.”

See Comment #2

**13. Page 3, Second and Third Paragraph**

The discussion regarding optimum fluoride levels leaves the reader to believe that this can be achieved with the proposed project, which is not the case.

**14. Page 3, Bullet 1 & 2**

“Daily Distribution System Grab Sample Testing (FMP)... Monthly Distribution System Split Grab Sample Testing (FMP).”

Is this required for each distribution system and reflected in your cost estimate?

**15. Page 4, Bullet 2 & 5**

“Action Plan for non-optimal fluoride level (FSOCP)... Notification and reporting procedures (FSOCP).”

Again is this required for each distribution system and was it estimated in the O&M costs?

**16. Page 4, General Requirements**

The general requirements exclude reference to required modification of the Restructured Agreement for Water Supply which would be necessary to add fluoride treatment to the existing Agency water transmission system. Additionally it does not address how customer complaints will be handled. Further, there is no mention of water contractor DPH permits, which we understand but has not been confirmed, would not require modification with variable fluoridation.

**17. Page 6, Last Paragraph**

“Although the relative cost of a sodium fluoride system was approximately 11% less expensive, the recommendation of the fluorosilicic acid system was reinforced by reports of operational difficulties by other water agencies and benefits for staff training on a single fluoride chemical rather than two.”

What have been the cost trends for the different fluoride chemicals and were these reviewed as a component of the recommended selection. See also Comment #3

**18. Table 4, Page 7**

“Fluorosilicic Acid... decreases pH, requiring additional caustic soda usage.”

How much additional caustic soda is required? How is its addition controlled and was the cost included in your estimate?

**19. Table 6, Page 9**

See Comment #15

Fluoride storage requirements are based on average flow. We believe that it would be better to base the storage requirements on average day of the peak month flow, plus a buffer. Additionally, no mention is made to temperature control, backup power or spill prevention/alarms.

**20. Table 7, Page 10**

See Comment #16

**21. Page 11, Civil Design, First Paragraph**

“The civil design mainly consists of locating the new fluoride building and locating injection, potable water (PW) and utility water (UW) piping to and from the building at each site.”

How is utility water different from potable water in this instance? We note that the design criteria technical memorandum dated May 2013, page 16 recommends that carrier water is not recommended for the system since there is ample mixing opportunity in the two transmission pipelines and would add unnecessary complexity and maintenance to the system.

**22. Page 12, Chemical Piping, Bullet 4**

The chemical piping is reported to be schedule 80 PVC pipe inside PVC containment pipe. We recommend that there be a minimum slope on the pipe so that the containment can drain to a sump at a low end and that the sump be alarmed to detect spills.

**23. Page 12, Penultimate Paragraph**

“To minimize risk, storage of chemical will be double contained through the use of double wall tanks, and piping to and from the metering pumps will be double contained to the extent practical.”

Either it's double contained or its not. “To the extent practical is ambiguous.”

**24. Page 13, First Paragraph**

“Fluoride will be injected in the site's transmission pipeline near the existing chlorine injection point.”

How will the injection be made and to what extent will the existing aqueduct be protected, both physically and from intermittent shut downs for maintenance of the fluoridation system and injection?

**25. Page 13, First Paragraph**

It is unclear how corrosion issues at the injection locations are managed. Is there Carrier water, or is the fluorosilicic acid injected directly at a pH of 1-2?

**26. Page 13, Third Paragraph**

“The Analyzers should receive the samples of treated water... as close as possible to the injection locations... However, the sample point also needs to be located such that there is assurance that proper mixing has occurred... A distance approximately 50 pipe diameters downstream of the furthest injection point is recommended in a straight run of pipe.”

50 pipe diameters in a 48" pipe is 200 feet, which is a significant distance for operators to maintain.

**27. Page 14, Last Paragraph**

“Hydraulic diaphragm pumps are recommended...the pumps are made by several manufactures including Prominent and Pulsafeeder.”

Does SCWA currently use these type/brands of pump or will the new equipment be adding additional equipment and complexity to standard operating procedures.

**28. Page 15, Table 9**

The tanks are too small. They should at least be 205 gallons per day x 30 days + 1,000 gallons = 7,150 each. Is there any shelf life concern with storing the fluoride solution over extended periods?

**29. Page 17, Fifth Paragraph**

“Water bath type fume scrubber may be provided to reduce acid fume exhaust during tank refills if desired and can be addressed during final design.”  
Shouldn't this be costed now?

**30. Page 18, First Paragraph**

“The 480 volt distribution panel boards and 208Y 120 volt lighting panel boards shall use molded case, bolted in place circuit breakers.”  
Why is 480 volt needed? Isn't it already stepped down at the site?

**31. Page 22, Bullet 8**

“Miscellaneous – Fluoride Storage and Feed Room Flood Alarm, Storage Tank rate of change alarm (SCADA-derived) Fluoride Storage and Feed Room intrusion alarm, fire system alarm, HVAC smoke detector alarm.”  
What alarms and controls are available to stop/prevent overfeed of fluoride or monitor spills?

**32. Page 23, Third Paragraph**

“Roofs will be designed with removable sections to allow replacement of chemical storage tanks.”  
Adjacent yard areas must be large enough to accommodate equipment and roof/storage tank removal/replacement.

**33. Page 25, First Paragraph**

“Upon leak detection the buildings will be ventilated with a minimum of 30 ACH under any indoor temperature scenario.”  
The chemical monitoring and control section did not mention leak detection.

**34. Page 26, Table 13**

Indoor heating design criteria- fluoride storage 95 degrees in the summer.  
This temperature seems high. What will the fluoride temperature be under this condition? Will that have a material effect on its effectiveness when added to the cold groundwater in the aqueduct?

**35. Page 28**

“Sanitary Drain (SD)”  
Where does fluoride drain and how is it handled? Were costs estimated for handling the drain fluoride neutralization and off-haul?

**36. Page 29**

“Safety Showers/Eye Washes”  
See Comment 31

**37. Page 30, Structural Design**

“The roof joists shall be coated, primed and painted for steel protection against corrosion.”

Everything else is stainless steel, FRP, or epoxy coated. Why would the steel structure not be?

**38. Page 32, last paragraph**

“During the next phase of the work, the building will need to be relocated on the site to avoid straddling the fault.”

Why wasn't it estimated to be in the “alternate” location in this report and what is the significance of the relocated estimate?

**39. Page 34, Structural Materials, Masonry**

“Size 8 inches wide x 16 inches long x 8 inches high concrete masonry unit (CMU)”

Will the concrete block be split faced or have some other architectural condition?

**40. Page 35, Containment/Spill Control**

“The chemical at each site will be stored in double wall tanks; therefore a containment curb or wall is not required. The floor of the chemical storage and feed room will slope towards a sump.”

Will the sump drain? Will the containment piping drain? See Comment # 19, 20, 31, & 32.

**41. Page 37, Dosing and Monitoring**

“Static mixers that are resistant to the corrosive effects of fluosilicic acid may be used at the Wohler and River Road locations, the larger diameter pipes, should allow for use of injection quills that project into the pipelines approximately one-third of the diameter.”

How would the static mixer operate/be located? Use of a static mixer was not mentioned earlier? What happens at the well sites? The injection and monitoring are 200ft apart.

**42. Page 39, Process Piping**

“The carrier PVC will be routed within clear PVC pipe.”

Why would this not be buried similar to the Wohler/River Road sites? Again you need 200ft between the injection point and the monitoring point. Other information missing from this page are HVAC requirements and fire protection. See the design criteria technical memorandum on Page 13 and Page 16.

**43. Page 42, Last Paragraph**

“It does not include costs for a Hazard and Hazardous Materials Corridor Study,…”

These multiple study costs and the potential EIR cost are not included in the cost estimates. The project funding will need to be flexible enough to cover these costs should they be required.

**44. Page 43, First Paragraph**

“Expected accuracy ranges are from -10% to -20% on the low side and +10% to +30% on the high side.”

Do the costs reflect the San Francisco Bay Area material and labor markups?

**45. Page 45, Equipment Replacement**

Fifteen year interval for Motor Driven Metering Pumps, Building Exhaust Fans is too long. There is also no replacement plans for controls/instrumentation or building feature replacements.

The replacement costs may be understated. Electrical, Mechanical and structural components will likely need to be replaced in the anticipated 30 year life. Given the corrosive environment a 30 year project life may be optimistic.

**46. Page 48, Paragraph 1**

Based on the uncertainty of future costs, a project reserve or contingency fund is warranted to establish and be included in the estimate.

**DESIGN CRITERIA TECHNICAL MEMORANDUM**

**47. Page 17, Table 6,**

These costs estimate summaries don't match the estimates on Page 46 & Page 47 of the Fluoridation Preliminary Engineering Design Report.

**48. Appendix C**

Fluoridation Facilities Capital Costs Detail

No dollars are included for either miscellaneous Owner's Soft Costs (Oversight/Mgmt) nor Owner's Construction Contingency/Mgmt Reserve. Additionally, the engineering costs total \$178,500 for River Road, \$150,000 for Wohler and \$19,500 each for the well sites. These appear to be significantly low considering the draft Fluoridation Preliminary Engineering Design Report cost \$103,000.