



HEXAVALENT CHROMIUM COMPLIANCE PLAN

For

**Santa Ynez River Water Conservation District,
Improvement District No.1**

March 4, 2016

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BACKGROUND

The Santa Ynez River Water Conservation District, Improvement District No. 1 (District) is a public agency governed by a five member Board of Trustees. The District serves domestic and irrigation water to approximately 6,737 users across 10,850 acres, including the communities of Santa Ynez, Los Olivos, Ballard, the City of Solvang, and the Santa Ynez Band of Chumash Indians. The District's distribution system is comprised of 87 miles of pipelines within three pressure zones. Sources of supply include the Santa Ynez River Upland Groundwater Basin, Santa Ynez River alluvial groundwater (River Wells), State Water Project (State) water, and an annual entitlement from Lake Cachuma. The allocation of water from Lake Cachuma is exchanged for an equal amount of State Water with water agencies on the south coast of Santa Barbara County and typically makes up about half of the District's annual demand of 5,700 acre-feet (AF).

The River Wells and State water are not impacted by chromium-6 (Cr6) and make up the principal supply in the Zone 1 pressure zone. Zones 2 and 3 additionally rely on groundwater from the Upland Wells, several of which are impacted by naturally occurring Cr6 above the maximum concentration level (MCL). To date, four (4) wells have detected Cr6 concentrations above the 10 ppm MCL. Three (3) additional production wells have had measured Cr6 concentrations ranging from 9.2 to 10.0 ppm.

COMPLIANCE STATUS OF THE DISTRICT

Prior to and since the adoption of the new Cr6 MCL (10 ppm), the District has been proactive in preparing to meet the new standard. A work group of consultants was assembled to conduct a Water Supply Alternatives Evaluation/Feasibility Study (2014) and to develop and evaluate a complete set of available options for compliance with the Cr6 MCL. To date, the District has spent over \$500,000 from its reserves to fund this effort. It cannot, however, continue to absorb the costs necessary to bring this task to completion.

Based on historic customer demand, drought conditions, loss of groundwater production capacity, and consideration of the study findings, the District has determined that it cannot reliably serve the water demands of its customers without the use of the Cr6-impacted wells. Additionally, the District does not have the available funds to construct the necessary infrastructure improvements that are required for water supply reliability and Cr6 compliance. To fund such an effort, the District must first complete a water rate analysis and implement necessary rate increases. This rate study is underway and is a required prerequisite to applying for the loans and grants that are necessary for funding system improvements and assuring continued compliance with the Cr6 regulation.

The drought currently shows no signs of relief and continues to have severe impact on the surface water sources that make up three of the District's four sources of water supply. The District has prepared this compliance plan outlining the necessary steps to reestablish its prior groundwater supplies, while achieving and maintaining compliance with the Cr6 standard.

COMPLIANCE PLAN

The District's compliance plan is comprised of eight phases: study, funding, design, environmental review, land acquisition, contractor selection, construction, and testing.

Phase 1 –Study

Initial work on the 2014 Feasibility Study began in the fall of 2013 with the development of a comprehensive sampling plan, which included an analytical laboratory evaluation/selection process and sample protocol development to provide the most accurate and representative results possible. Sampling of the active Upland wells for Total Chromium and Cr6 was conducted on a monthly basis for a six month time period as part of the program. Additionally, well profile analyses were performed on four of the affected wells which included depth discrete water quality sampling and incremental flow evaluation to determine if well modification techniques (e.g., packer installation, lowering pumps, engineered suction) could be utilized to alter pumping conditions and reduce Cr6 concentrations in the produced well water.

In addition to well modifications, supply options evaluated as part of the feasibility study included blending of wells, separation of the agricultural and irrigation water from potable supply, addition of the District's Gallery Well (a licensed appropriation but unused due to the need for treatment under surface water treatment regulations), restricting use of the wells with Cr6 levels above the MCL, and installation of a treatment system(s). The various options were evaluated individually and in combination (i.e., complete options) using the District's hydraulic distribution model to determine the water system deficiencies and improvements needed for each of the complete options. In addition to developing costs for each of the alternatives evaluated, the analysis included a risk component to address the effect of implementation for each with respect to water supply and water quality requirements. A copy of this study can be obtained or viewed at the District's website (<http://www.syrwd.org/article/7358-water-quality>).

Wellhead or centralized treatment was a major component of a number of the complete options identified which required additional evaluation to identify treatment requirements, recommend the most applicable treatment approach for impacted wells, and develop preliminary cost estimates for use in project budgeting and cost comparison. This led to the development and implementation of four pilot studies that were conducted at impacted District wells for three different treatment technologies to verify feasibility of treatment and further refine capital and Operation and Maintenance (O&M) costs for each.

Based on the study findings, the District is moving forward with a Cr6 mitigation strategy that includes treatment for three wells at a common location, blending the production of two pairs of wells, and engineered modification of one well using a downhole "packer" to reduce Cr6 concentrations. The packer modification is experimental and, if successful, will take the place of a second treatment plant.

Phase 2 –Funding

The total estimated capital cost to complete the projects outlined in this compliance plan are between \$12 million and \$17 million. This includes a 2,000 gallon per minute (GPM) treatment facility, well rehabilitation costs for two wells that failed during Cr6 removal pilot testing, blending facilities between two pairs of wells in the Upland Basin, installation of a well packer in another well, as well as the necessary and appurtenant distribution system modifications to accommodate each component of the plan.

The District does not have the available funds to construct the necessary system modifications that are required for Cr6 compliance and has contracted with Bartle Wells Associates for financial advisory services including a rate study that will identify the financial needs and rate adjustments necessary to support District operations and proposed improvements, as well as providing debt service to project specific loans. The District currently plans to fund the Compliance Plan Project using California Drinking Water State Revolving Fund (DWSRF) loans, as well as a grant through one or more of the Proposition 1 programs. To this end, the District has submitted a pre-application to the Proposition 1 Groundwater Sustainability Program, a potential source of grant/loan funding for this project that is administered by the State Water Resources Control Board. The final grant funding guidelines and applicability criteria for the planning and construction of Cr6 treatment facilities under this program directly impacts the project schedule and these compliance plan milestones. The District will continue to work closely with State and Federal entities to identify and pursue available grants and financial assistance.

Phase 3 –Design

Design work for the “packer” study is complete. Design work for the blending stations, piping, and other site improvements is at the 50% design stage. The review and finalization of these plans depends on acquisition of project funding. Design for the common treatment facility (treatment for 3 wells) will be completed in preliminary and detailed design phases. Detailed design will commence within 30 days of receiving DWSRF grant/loan or other funding. Well construction details and project specifications are 50% complete and will be completed, along with additional site design work and piping to the common treatment system site within 30 days of receiving funding.

Phase 4 – Environmental Review

Permitting coordination has the potential to significantly impact the project schedule. Evaluation of permitting requirements for the treatment facilities will be conducted along with California Environmental Quality Act (CEQA) requirements in conjunction with design. The environmental review process will include all project related activities, but will begin within 30 days of the completion of the preliminary design phase and finalization of the basis of design report for the common treatment facility.

Phase 5 – Land Acquisition

A centralized treatment facility located on District property is planned and easements for pipeline alignments are being investigated. At this time land acquisition is not anticipated, but will be reassessed as part of the design and environmental review phases.

Phase 6- Contractor Selection

The bidding and selection process for the contractors that will be performing work on the various phases of project construction will follow the traditional design-bid-build approach and will occur upon procurement of project funding and completion of final design drawings and specifications. However, an alternative project delivery method may be used for the common treatment facility, which would allow for early selection of a contractor to provide input to the project engineer during the design process.

Phase 7 – Construction

Construction of the necessary system modifications will begin upon selection of the contractor for each phase of construction. If alternative project delivery is used for the common treatment facility, some site work may begin in parallel with final design.

Phase 8 -Testing

Upon the completion of construction and start-up, facilities will go through a testing period by the District to demonstrate performance after which operations of the new facilities will be turned over to the District.

STATUS REPORTS AND PUBLIC NOTICE

Once approved, the District will submit a written quarterly status report to the State Board. Written notice will be provided to all District customers at least two times per year with information updates on the progress of compliance plan activities in accordance with the Compliance Plan Guidance document. The current planned method of delivery for these notices is to provide a printed bill insert and to post them on the District's website.

COMPLETION MILESTONES

- Study – 2nd Quarter, 2016
- Funding – 4th Quarter, 2017
- Design – 4th Quarter, 2017
- Environmental Review – 4th Quarter, 2017
- Land Acquisition – 4th Quarter, 2017
- Contractor Selection – 1st Quarter, 2018
- Construction – 4th Quarter, 2019
- Testing – 4th Quarter, 2019

