



DOMENICHELLI AND ASSOCIATES, INC.

CIVIL ENGINEERING

Travis Bohannon
Interim Director of Operations/Chief Plant Operator
Rancho Murieta Community Services District (RMCSD)
PO Box 1050
Rancho Murieta, CA 95683

July 7, 2026

Subject: Proposal for Water Treatment Plant - Manganese Mitigation Study

Travis,

Per our Master Services Agreement executed 10-08-24, between Rancho Murieta Community Services District and Domenichelli & Associates Inc, we are requesting authorization to proceed on the following Task Order: Water Treatment Plant - Manganese Mitigation Study.

Water treatment is not our area of expertise; therefore, we are proposing to retain **KSN** (Kjeldsen, Sinnock & Neudeck, Inc.) as a subconsultant for this project. This letter represents our estimated scope and budget for Engineering Services to analyze options and costs for proposed modifications to plant operation procedures and process equipment to mitigate the periodic inundation of the water plant with manganese from the source water.

The inundation of the plant with manganese is a serious issue which can and does affect the District's water supply.

The following is our proposed scope of services to complete the project as described above.

Scope of Services:

D&A will:

- Manage the project for the District
- Assist both KSN and the District when needed for coordination, site visits and information.
- Review and comment on the Draft and final TM submittals.
- Attend the Board Presentation if required.

Deliverables: One electronic copy of the Draft and Final Technical Memorandum.



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Project Fees

Below is an estimate of fees to perform the study. For further details regarding the proposed scope of services from KSN, please see the attached KSN proposal.

Rancho Murieta Community Services District WTP Manganese Assessment				Fee Estimate July 7, 2026
Tasks	Labor		Subs	Total
	Project Manager 1	Total Labor Costs	Process Eng.	Total Fee
	Daryl H		KSN	
	\$220			
DA& Tasks				
Project Management	8	\$1,760		\$1,760
Background Review	4	\$880		\$880
Data Gathering	8	\$1,760		\$1,760
Meetings (Virtual (2)	4	\$880		\$880
Attend Board Meeting	4	\$880		\$880
TM Review & Comment	8	\$1,760		\$1,760
Site Visits (2)	12	\$2,640		\$2,640
D&A Tasks	36	\$7,920		\$10,560
KSN Tasks				
1.0 Manganese Source Assessment		\$0	\$35,596	\$35,596
2.0 Water Treatment System Review for Manganese Removal		\$0	\$48,468	\$48,468
3.0 High Manganese Event Response Action Plans		\$0	\$11,352	\$11,352
4.0 Project Management and Meetings		\$0	\$14,442	\$14,442
KSN Tasks	0	\$0		\$109,858
TOTAL	48	\$10,560	\$109,858	\$120,418

Please give me a call if you have any questions.

Sincerely,


 Daryl Heigher, P.E.,
 Vice President
 Domenichelli & Associates, Inc.

Authorization to Proceed by,

 Rancho Murieta CSD

 Date



DOMENICHELLI AND ASSOCIATES, INC.

CIVIL ENGINEERING

KSN Proposal

July 6, 2026

Daryl W. Heigher, P.E.
Domenichelli & Associates
5180 Golden Foothill Parkway, Suite 220
El Dorado Hills, CA 95762

Via email only: darylh@daengineering.net

Re: Rancho Murieta Community Services District Water Supply Manganese Assessment

Dear Daryl,

Thank you for contacting us regarding the Rancho Murieta Community Services District's (District) water supply challenges associated with manganese. We understand that, on a seasonal basis, the District's existing source water from Lake Chesbro experiences elevated manganese concentrations that are not readily removed by the District's membrane treatment system at Plant No. 1. This year, the District experienced particularly challenging seasonal conditions, which we were able to assist with. Because elevated manganese has occurred persistently in the source water on a seasonal basis, and because the State Water Resources Control Board is considering revising the drinking water limit for manganese from a secondary aesthetic standard to a health-based primary standard, an assessment of the system is warranted. Based on our review of the system with you and the District, we have developed the enclosed scope of services to accomplish the following:

1. Evaluate the existing sources and source control measures, including the interaction between Lake Calero and Lake Chesbro, stratification and water quality profiling of Lake Chesbro at the intake, and evaluation of the existing aeration system at the intake.
2. Review the existing water treatment plant, with a focus on Plant No. 1, for potential improvements to facilitate manganese management or removal during seasonal events. This review will include evaluating existing system operations, profiling the treatment process, conducting a jar study to evaluate alternative pretreatment approaches, and identifying operational changes or plant modifications that target improved manganese removal.
3. Develop response action plans to help minimize water production impacts during future manganese events.

The results of these studies will be presented to the District, the District's Facilities Committee, and the Board of Directors. We propose to provide the enclosed scope of services as a subconsultant to Domenichelli & Associates for an estimated fee of \$99,871. We will bill monthly based on project progress and in accordance with our enclosed fee schedule. We have included an estimate of the effort and projected cost by task and subtask in the attached table. Actual time and effort may vary; however, we will communicate with you regarding any identified changes in scope, effort, or anticipated total budget.

If this scope of services is acceptable, we are prepared to commence work immediately upon execution of a task order authorization and would coordinate with you and the District to complete the assessment as early as October 2026.



Rancho Murieta Community Services District
Water Supply Manganese Assessment
June 18, 2026
Page 2 of 2

Sincerely,
KJELDSSEN, SINNOCK & NEUDECK, INC.

A handwritten signature in blue ink, appearing to read "Neal T. Colwell", is written over a horizontal line.

Neal T. Colwell, PE
Vice President

w/enclosures

cc: Joe Domenichelli, D&A

Scope of Services
Rancho Murieta Community Services District
Water Supply and Treatment Manganese Assessment
July 6, 2026

Project Background

The Rancho Murieta Community Services District (RMCS D) water supply system has experienced seasonally elevated manganese concentrations in its raw water. These conditions can create treatment challenges by affecting the existing membrane treatment system's ability to meet performance criteria and by contributing to undesirable manganese concentrations in treated water. Because the District is experiencing increasing challenges managing these events, and because manganese is planned to become subject to a primary drinking water standard, there is a critical need to better understand manganese occurrence and identify practical response measures. As a sub-consultant to Domenichelli & Associates (D&A), KSN proposes to provide the following scope of services to:

1. Identify and understand the sources and occurrence of elevated manganese in the source water;
2. Evaluate the condition and performance of the existing lake aeration system;
3. Identify methods or system modifications to better control treatment and removal of manganese during pre-treatment when events occur; and
4. Provide a summary of recommended response steps to minimize impact of manganese on treatment system performance when events occur, while other system modifications are planned or implemented.

This scope of services is intended to define the initial technical assessment, treatment review, and operational planning activities needed to help RMCS D better understand and manage seasonally elevated manganese in its raw water supply.

Scope of Services

The proposed scope of services is based on field assessment activities, review of the existing treatment facilities, compilation of historical monitoring data, and input from District operations staff regarding recent manganese events and treatment system performance.

Task 1: Manganese Source Assessment

The KSN team will assess the RMCS D water supply source and reservoir conditions to identify factors that may contribute to seasonally elevated manganese. The reservoir is expected to be subject to seasonal stratification, and depending on the intake location, water quality conditions such as temperature, pH, dissolved oxygen, oxidation-reduction potential, dissolved metals, and other constituents may vary significantly with depth. The existing aeration system provides some mixing and aeration near the intake; however, its performance and benefits may have degraded over time. As soon as possible, and as close in time as practical to the recent high manganese event, KSN proposes to conduct the following reservoir water profiling at or near the water system intake:

1. Gather and review background information and data.

2. Review of the existing aeration system, including:
 - a. Gather and review aeration system design information and product performance data.
 - b. Evaluate current system operation, including observed mixing, apparent aeration efficiency, and general comparison of current operation with design operation.
3. Review the operation and configuration of Lake Calero and Lake Chesbro to evaluate their potential to create conditions that release manganese into the water. This review will include collecting one sample from the Lake Calero to Lake Chesbro pipeline, if accessible and representative, for analysis of:
 - a. pH, oxidation reduction potential (ORP), dissolved oxygen, electrical conductivity, turbidity, and UV transmittance.
 - b. Laboratory analysis of:
 - i. Total and dissolved iron and manganese filtered through a 0.45 µm filter.
 - ii. Alkalinity.
 - iii. Total organic carbon.
 - iv. Ammonia.
 - v. Nitrate and nitrite.
 - vi. Sulfide.
 - vii. Phosphate.
 - viii. Silica.
 - ix. Total suspended solids.
4. Water column temperature profile from the water surface to the reservoir bed in Lake Chesbro at the intake.
5. Water quality profiling at the intake in Lake Chesbro, with the location and number of samples (not to exceed ten samples) determined by the temperature profile, to include:
 - a. pH, oxidation reduction potential (ORP), dissolved oxygen, electrical conductivity, turbidity, and UV transmittance.
 - b. Collection of samples for RMCSD laboratory analysis of:
 - i. Total and dissolved iron and manganese filtered through a 0.45 µm filter.
 - ii. Alkalinity.
 - iii. Total organic carbon.
 - iv. Ammonia.
 - v. Nitrate and nitrite.
 - vi. Sulfide.
 - vii. Phosphate.
 - viii. Silica.
 - ix. Total suspended solids.

Additional profiles may help characterize reservoir stratification and water quality variability with depth under different seasonal conditions. The results will be presented in a Technical Memorandum summarizing the reservoir profiling results and the relationship between water quality conditions, Lake Calero and Lake Chesbro operations, and the water treatment plant intake. The Technical Memorandum will also include an evaluation of the aeration system operation and condition.

Task Deliverables:

1. **Reservoir water quality profiling and aeration system evaluation memorandum.**

Task 2: Water Treatment System Review for Manganese Removal

KSN will obtain and review historical water quality data maintained by the District during the most recent elevated manganese incident, including available treatment plant performance data. Based on this data, review of treatment plant record drawings, and a site visit, KSN will evaluate potential facility changes to improve management of high raw water manganese. Under this task, KSN will conduct a profile of Plant 1 treatment system manganese concentrations, dissolved oxygen, ORP, pH, and temperature. KSN will also conduct jar studies to evaluate alternative oxidants, coagulants, and pH conditions for optimizing manganese oxidation and precipitation. Changes identified under this task could include:

1. Modifying raw water intake;
2. Modifications or repairs to the intake aeration system;
3. Modifying raw water oxidant types, dosing strategies, and injection points;
4. Providing for increased raw water reaction time; and
5. Other process improvements or pre-treatment.

Identified facility changes or improvements will be described with preliminary system sizing. KSN will consult with Veolia regarding the use of any identified chemicals, pH adjustments, or other treatment changes for their compatibility with the existing membrane treatment system. Facility improvements will be presented from a relative benefit perspective based on implementability, likelihood of improving treatment management, and expected relative capital cost. The purpose of this assessment is to identify potential improvements for further consideration and preliminary design, if warranted.

Task Deliverables:

1. **Water Treatment System Manganese Removal Assessment Technical Memorandum**

Task 3: High Manganese Event Response Action Plans

Because improvements or modifications to the water system are not likely to be implemented within the next 12 months, RMCSO operations staff could benefit from written action plans for responding to future high manganese events. Following KSN's reservoir profiling, review of the existing water treatment facilities, review of existing operations plans, and jar studies, KSN will develop action plans to assist staff during high manganese events. Action plans are anticipated to include:

1. Seasonal tracking of reservoir conditions and development of temperature/seasonal tracking to predict changing reservoir conditions.
2. Water storage and demand management strategies to be implemented prior to, during, and immediately after a high manganese event.

3. Manganese control measures, such as pre-oxidant selection, dosing, monitoring, tracking, and operational adaptations.
4. Treatment process monitoring and management during high manganese events, including:
 - a. Oxidant dosing and monitoring, including tracking and reporting on CT;
 - b. Pretreatment management, where applicable;
 - c. Membrane and conventional filter operation, including loading, filter runs, effluent turbidity, manganese removal, filtering to waste, etc.
5. Emergency response and communication plan.

Task 4: Project Management and Meetings

KSN will provide communication, coordination, and management of this scope of services with D&A and the District. KSN will also prepare for and attend review and presentation meetings associated with the Technical Memoranda deliverables, including the following:

1. Preliminary drafts of the Technical Memoranda will be provided to District staff for review. Review comments will be incorporated into the public draft Technical Memoranda, as appropriate.
2. Upon completion of the public draft Technical Memoranda deliverables, we will prepare a presentation to the Facilities Committee of the RMCS D Board.
3. The final Technical Memoranda will be presented to the RMCS D Board of Directors.

Scope Understandings and Assumptions

Our proposed scope of services and budget are based on the following additional limitations, assumptions, and understandings:

1. Budget is based on one reservoir profiling, however an additional two or more profiles under different seasonal conditions can be conducted if authorized.
2. CEQA documentation, water supply permit amendments, and building permitting are excluded.
3. Water quality testing is included in our scope of services and will include duplicate analysis for up to 5 samples, using the District's contract lab.
4. System operations will be performed by District staff, with input from KSN on procedures and order of operations.
5. KSN will provide boat and equipment for reservoir profiling, using a RMCS D-provided electric motor, however truck/trailer access to the water is assumed.
6. If system modifications or improvements are identified as necessary, this scope excludes preparation of design documents.

Rancho Murieta Community Services District Water Supply and Treatment Manganese Assessment

TASK HOURS BREAKDOWN

TASKS AND DESCRIPTIONS	KJELDTSEN, SINNOCK & NEUDECK, INC. STAFF HOURS				Total Labor Hours	Total Labor Budget	EQUIPMENT		Equipment Budget	OTHER DIRECT COSTS			Other Direct Costs Budget	Total Budget (Rounded)
	Principal Engineer	Senior Engineer	Junior Engineer	Project Coordinator III			Sampling Equipment	Boat		Direct Expense	Mileage Expense	Sub Consultant		
	Staff Initials													
Rates	\$320	\$270	\$185	\$140			\$150	\$55		100%	0.72	110%		
PROJECT TASKS														
1.0 Manganese Source Assessment	6	24	60	0	90	\$ 19,500	12	8	\$ 2,240.00	\$ 640	\$ 173	\$ 9,809	\$ 10,622	\$ 32,360
1.1 Gather and Review Background Information and Data	1	8	12		21	\$ 4,700			\$0	\$0	\$0	\$0	\$0	\$ 4,700
1.2 Aeration System Review	1	4	4		9	\$ 2,140			\$0	\$0	\$86	\$0	\$86	\$ 2,230
1.3 Lake Calero and Chesbro Operation and Configuration Review	1	2	4		7	\$ 1,600	4		\$600	\$320	\$0	\$892	\$1,212	\$ 3,410
1.4 Lake Chesbro Profiling at Intake	1	4	24		29	\$ 5,840	8	8	\$1,640	\$320	\$86	\$8,918	\$9,324	\$ 16,800
1.5 Reservoir Water Quality and Aeration System TM Preparation	2	6	16		24	\$ 5,220			\$0	\$0	\$0	\$0	\$0	\$ 5,220
2.0 Water Treatment System Review for Manganese Removal	16	44	76	0	136	\$ 31,060	0	0	\$ -	\$ 640	\$ 173	\$ 12,185	\$ 12,998	\$ 44,062
2.1 WTP Background Information Review	1	8	16		25	\$ 5,440			\$0	\$0	\$0	\$0	\$0	\$ 5,440
2.2 WTP Operational Review	2	6	8		16	\$ 3,740			\$0	\$0	\$86	\$0	\$86	\$ 3,830
2.3 WTP WQ Profile	2	6	6		14	\$ 3,370			\$0	\$320	\$86	\$2,376	\$2,782	\$ 6,152.40
2.4 Jar Study	1	4	12		17	\$ 3,620			\$0	\$320	\$0	\$9,809	\$10,129	\$ 13,749.47
2.5 Preliminary Identification of WTP Changes	4	8	16		28	\$ 6,400			\$0	\$0	\$0	\$0	\$0	\$ 6,400.00
2.6 Veolia Consultation	4	4	2		10	\$ 2,730			\$0	\$0	\$0	\$0	\$0	\$ 2,730.00
2.7 WTP Manganese Removal Assessment TM Preparation	2	8	16		26	\$ 5,760			\$0	\$0	\$0	\$0	\$0	\$ 5,760.00
3.0 High Manganese Event Response Action Plans	7	20	14	0	41	\$ 10,230.00	0	0	\$ -	\$ -	\$ 86	\$ -	\$ 86	\$ 10,320
3.1 Prepare Draft Action Plan Documents	4	16	8		28	\$ 7,080			\$0	\$0	\$0	\$0	\$0	\$ 7,080
3.2 Draft Action Plan Review with District Operations Staff	2	2	2		6	\$ 1,550			\$0	\$0	\$86	\$0	\$86	\$ 1,640
3.3 Prepare Final Action Plan Documents	1	2	4		7	\$ 1,600			\$0	\$0	\$0	\$0	\$0	\$ 1,600.00
4.0 Project Management and Meetings	10	31	4	4	49	\$ 12,870.00	0	0	\$ -	\$ -	\$ 259	\$ -	\$ 259	\$ 13,129
4.1 Project Management and Coordination	4	16		4	24	\$ 6,160			\$0	\$0	\$0	\$0	\$0	\$ 6,160
4.2 Draft TM Review Meeting	2	3			5	\$ 1,450			\$0	\$0	\$86	\$0	\$86	\$ 1,536.40
4.3 Presentation to Facilities Committee	2	6	2		10	\$ 2,630			\$0	\$0	\$86	\$0	\$86	\$ 2,716.40
4.4 Presentation to RMCS Board of Directors	2	6	2		10	\$ 2,630			\$0	\$0	\$86	\$0	\$86	\$ 2,716.40
PROJECT TOTALS	39	119	154	4	316	\$ 73,660	12	8	\$ 2,240.00	\$ 1,280	\$ 691	\$ 21,995	\$ 23,966	\$ 99,871

General Note: This costs allocation represents our best estimate at this time and may change subject to future developments during the project. It is possible that some of the estimated manpower requirements for specific task items may increase while others may not require the entire anticipated effort. Charges to this project will be made for actual time spent on the project and will be charged as per the attached Fee Schedule.

2026 Fee Schedule
Effective July 1, 2026

Position	Rate
Principal Engineer	\$ 320.00
Associate Principal Engineer	\$ 305.00
Associate Engineer	\$ 295.00
Senior Engineer	\$ 270.00
Engineer III	\$ 265.00
Engineer II	\$ 240.00
Engineer I	\$ 225.00
Junior Engineer	\$ 185.00
Senior Project Manager	\$ 290.00
Project Manager	\$ 270.00
Assistant Project Manager II	\$ 240.00
Assistant Project Manager I	\$ 225.00
Grant Manager	\$ 204.00
Survey Manager	\$ 295.00
Senior Surveyor	\$ 285.00
Surveyor	\$ 260.00
Assistant Surveyor	\$ 210.00
Field Crew-One Person & Vehicle	\$ 280.00
Field Crew-Two Person & Vehicle	\$ 405.00
Field Crew-Three Person & Vehicles	\$ 640.00
Inspector (Office)	\$ 210.00
Inspector (Field) & Vehicle	\$ 260.00
Geologist (Field)	\$ 240.00
GIS Manager	\$ 204.00
Technician/GIS/CAD Designer III	\$ 185.00
Technician/GIS/CAD Designer II	\$ 168.00
Technician/GIS/CAD Designer I	\$ 135.00
Project Coordinator IV	\$ 175.00
Project Coordinator III	\$ 145.00
Project Coordinator II	\$ 128.00
Project Coordinator I	\$ 115.00
Equipment	Hourly Rate
3D Point Cloud Workstation	\$ 25.00
GPS Receivers-Per Receiver Per Hour	\$ 25.00
Robotic Total Station	\$ 35.00
HDS Scanner	\$ 150.00
Boat	\$ 55.00
Expenses	
Auto Mileage per current Federal Rates	
Subconsultants	Cost Plus 10%
Reimbursable Expenses	Cost Plus 10%
(Printing, Photos, Copies, Travel, Telephone, Fax, Survey Materials, etc.)	

Additional charges may apply for overtime services.

Fees are due and payable within 30 days of the date of billing. Fees past due may be subject to a finance charge computed on a basis of 1 ½% of the unpaid balance per month.

Hourly rates are subject to review and adjustment January 1st and July 1st of each year.