

CAMBRIA COMMUNITY SERVICES DISTRICT

TO: Board of Directors

AGENDA NO. **9.E.**

FROM: Robert Gresens, District Engineer

Meeting Date: August 25, 2016

Subject: AUTHORIZE THE GENERAL MANAGER
TO EXECUTE TASK ORDER 7 TO THE
FEBRUARY 7, 2014 ENGINEERING
SERVICES AGREEMENT, EMERGENCY
WATER SUPPLY PROJECT-CDM SMITH,
FOR COMPLETION OF AN UPDATED
TRACER STUDY

RECOMMENDATIONS:

Staff recommends that the Board approve the expenditure of \$161,052 from the Sustainable Water Facility fund for Task Order 7, Completion of an Updated Tracer Study, by CDM Smith, and authorize the General Manager to execute Task Order 7.

FISCAL IMPACT:

Funding for Task Order 7 would come from the District's Sustainable Water Facility (SWF) fund. As of this writing, the June 23, 2016 adopted FY 2016/17 budget had a balance of \$1,000,000 for future mitigation measures, which is recommended as the budget line item source for Task Order 7. If the Board approves an additional \$161,052 for Task Order 7, the remaining SWF fund balance for future mitigation measures would be approximately \$838,948, less any other expenditures that may have been charged to this fund since the beginning of FY 2016/17.

DISCUSSION:

Operation of the SWF's recharge well and subsequent indirect potable reuse is subject to the requirements of Title 22 of the California Code of Regulations, which includes a minimum travel time of 60 days (residence time) before being withdrawn by the CCSD's production wells. To prove this condition is being met, a field tracer study is conducted, with results from such studies being reviewed and approved by the California Water Board's Division of Drinking Water (DDW, formerly referenced as the California Department of Public Health). From July 24, 2014 to September 29, 2014, the CCSD and CDM Smith completed a tracer study using the SWF project's reinjection well and a temporary, above-ground piping and chemical tracer supply system. The results of this 2014 study found that at a constant injection and withdrawal rate of 435 gallons per minute, a residence time of 58 days occurred. Following review of the 2014 study results, the DDW allowed operation of the facility at a constant rate of up to 400 gpm and required that a tracer study be repeated in the future. This is summarized in their attached letter of November 12, 2014.

As a result of the requirement for a second tracer study, the CCSD and CDM Smith have developed a proposed Task Order 7, which includes costs for installing above-ground piping, temporary chemical feed facilities, instrumentation, and professional services to allow for an updated tracer study to be completed beginning this fall (starting early to mid-September, and lasting for at least 60 days). This work will include a tracer study completion report, which will

be prepared and forwarded to the DDW for their review and approval following the collection of all field data.

Attachments:

- Task Order 7 by CDM Smith
- November 12, 2014 letter from California Department of Drinking Water

BOARD ACTION: Date _____ Approved: _____ Denied: _____

UNANIMOUS: ___ BHRINGER ___ ROBINETTE ___ THOMPSON ___ RICE ___ SANDERS___

Task Order 7

Cambria Emergency Water Supply Project

Cambria Community Services District and CDM Smith Inc. Tracer Study Update

This Task Order 7 is issued by the Cambria Community Services District (CCSD) and accepted by CDM Smith (Consultant) pursuant to the mutual promises, covenants, and conditions contained in the Agreement between the above named parties dated the 7th day of February 2014.

I Purpose and Objectives

This Task Order 7 is for support and engineering to conduct an updated tracer study for the Cambria Sustainable Water Facility (Project). The requirement for this updated study was first described in a November 12, 2014 letter from the Water Board's Division of Drinking Water (DDW) following their review of an initial tracer study that was described within an October 2014 Tracer Test Summary report. The updated study will be conducted at a 400 gallon per minute rate, which is to match the rate outlined within the DDW's November 12, 2014 letter.

The following Scope of Work is for:

- Project management and quality assurance / quality control.
- Prepare for the tracer study:
 - Finalize the tracer study work plan
 - Design and construct the injection well water supply piping
 - Procure testing equipment and materials, including an above grade pipeline, instrumentation, and temporary solar power system.
 - Procure testing chemical
 - Set up the testing equipment
 - Remove testing equipment and restore system
- Conducting the tracer study:
 - Coordinate sampling
 - Review sampling results and prepare report

II Scope of Work

The scope of work for professional/engineering services under this Task Order 7 agreement between Consultant and CCSD is in conjunction with and in continuation of the scopes of work for the previously contracted Task Orders 1, 2, 3, 4, 5, and 6.

Task 1. Project Management and Quality Assurance / Quality Control

Objectives: To successfully complete this Task Order within the schedule and budget while meeting the objectives of the following tasks.

Approach:

The scope, schedule, budget, and quality will be managed throughout the life of this Task Order and will include the following activities:

- Setting up the Task Order in accounting and project management systems
- Weekly tracking of project progress, budget, schedule, and scope changes
- Monthly invoicing
- Participate in two client meetings
- Closing out the project

Quality Assurance / Quality Control (QA/QC) shall extend for the duration of this Task Order and will include the following activities:

- Reviewing deliverables prior to submission to CCSD or outside agencies

Assumptions:

- The Task Order will last four months, from September 1, 2016 to December 31, 2016
- Four monthly invoices will be delivered electronically by about the 15th of the following month
- Internal quality reviews of deliverables are budgeted under the applicable subtasks for the deliverables
- The one client meeting will last two hours or less and will require eight hours or less of preparation and travel time.

Deliverables:

- Monthly invoices

Task 2 –Conduct Tracer Study

Consultant shall conduct an updated tracer study:

Task 2.1 – Design and Construct Injection Well Water Supply Piping

Objectives: To design the piping and appurtenances required to inject tracer material at the Sustained Water Facility (SWF) Advanced Water Treatment Plant (AWTP) and at RIW-1.

Approach:

The tracer compound needs to be injected 24 hours per day, but the AWTP is only operated 8 hours a day, 5 days a week. Additionally, the supply from the AWTP may exceed demand at certain times. Due to staffing limitations and concerns over supply exceeding demand, the testing will include a temporary pipeline from the CCSD production wells SS-1 and SS-2 back to the injection well when the AWTP is off line, or when supply may exceed demand. This arrangement will then allow the tracer compound will be injected via RIW-1 when the AWTP is off-line. The tracer compound system will be design to store and supply tracer compound to both the AWTP product water, as well as the temporary pipeline supplying water to the reinjection well. The flow will be manually switched between the AWTP and RIW-1 by the operator.

Assumptions:

- CCSD will be responsible for switching tracer compound flow between the AWTP and RIW-1.
- Sodium bromide will be used as the tracer compound.

Deliverables:

- Sketches of tracer compound storage, pumping, and injection system.

Task 2.2 – Finalize Testing Plan and Protocol

Objectives: To finalize the testing plan for an updated Tracer Test to confirm the two-month retention time as required of the California State Water Resources Control Board (CSWRCB), Division of Drinking Water (formerly known as the Department of Public Health).

Approach:

As part of Task Order 3, a tracer test was conducted. This test was conducted per the requirements of the Division of Drinking Water (DDW). DDW is requiring that a second tracer test with the plant in operation during the dry season to confirm that the minimum two-month retention time is being met between the treated water injection point and the production wells.

As part of Task Order 6, a draft tracer testing plan will be prepared by Consultant. Under Task Order 7, the Consultant will finalize the tracer testing plan.

Assumptions:

- DDW will provide consolidated review comments within two weeks of receipt of the draft plan.
- The existing injection well, monitoring wells, and piping will be used, except as modified under subtask 2.1.

Deliverables:

- Tracer testing plan and protocol in final format

Task 2.3 – Procure Testing Equipment and Material

Objectives: To assist CCSD by procuring testing equipment and materials for the updated tracer study.

Approach:

The following equipment will need to be procured for the tracer study:

- 1,250 feet of 6-inch aluminum pipe and fitting
- One 4-inch diesel pump

The equipment will be rented from Rain for Rent, and they will be responsible for delivery, installation, removal, and pick-up.

Assumptions:

- The pipe, fittings, and pump will be rented for three months.
- CCSD will provide site access.
- Pipe, fittings, and pump will be installed on CCSD property

Deliverables:

- Piping, fittings, and diesel pump

Task 2.4 – Procure Testing Chemical

Objectives: To procure the testing chemical, including tanks and feed pumps.

Approach:

The tracer study will be conducted using sodium bromide. Approximately 44 sacks (1,100 kg) of sodium bromide will be required. Consultant will coordinate purchase, delivery, and removal of sodium bromide.

Assumptions:

- The sodium bromide supplier will supply the mixing tank and feed pump for the sodium bromide.

Deliverables:

- Up to 1,100 kg of sodium bromide

Task 2.5 – Set-up Testing

Objectives: To set-up the tracing system and provide three days of tracer study start-up support.

Approach:

The Consultant will coordinate the installation of the tracer study system, working with CCSD staff. The Consultant will also provide three days of on-site start-up support.

Assumptions:

- Equipment installation will take 16 hours

- A budget of \$10,000 has been set aside for the electrical subcontractor. This may include the design and construction of a solar power system for the chemical supply pump and instrumentation.

Deliverables:

- Tracer Testing System

Task 2.6 – Remove Testing

Objectives: To remove the tracing system.

Approach:

The Consultant will coordinate the removal of the tracer study system, working with CCSD staff.

Assumptions:

- Equipment removal will take 16 hours

Deliverables:

- Removal of Tracer Testing System

Task 3 – Assist with Conducting Tracer Study

Consultant shall assist with conducting the tracer study:

Task 3.1 – Coordination During Testing

Objectives: To assist CCSD with running the tracer system and collecting samples in order to determine travel time of the tracer chemical.

Approach:

Consultant will assist CCSD with collecting and analyzing samples.

Assumptions:

- CCSD staff will collect samples and will transport the samples for analysis.
- CCSD will contract directly with the laboratory for analysis
- The tracer study will run for nine weeks, and Consultant will provide approximately 8 hours of support per week.

Deliverables:

- Various emails and phone call records copied to CCSD.
- Sketches and brief write-ups as requested.

Task 3.2 – Prepare Report

Objectives: To prepare a report summarizing the results of the second Tracer Test to confirm the two-month retention time as required of the California Department of Public Health.

Approach:

The Consultant will review the laboratory results from the second tracer study and will prepare a brief report summarizing the results, including a comparison of the tracer study results with the hydrogeologic model output.

Assumptions:

- The plan will be on the order of six pages
- The existing injection well, monitoring wells, and piping will be used.

Deliverables:

- Tracer study report in draft and final format

III Project Schedule

Task Order 7 activities shall commence with task authorization and Notice to Proceed (NTP) that will be issued by CCSD. The tracer study will begin approximately two weeks after receipt of the NTP. The tracer study will last nine weeks, and the draft report will be submitted approximately two weeks after receipt of the final laboratory results. The final report will be submitted approximately one week after receipt of CCSD comments on the draft report. Day 1 of the Task Order 7 project schedule shall be September 1, 2016.

IV Project Budget

Work shall be billed on a time and material basis in accordance with the rates established in the Billing Rate Schedule attached hereto as Exhibit 1 and incorporated herein. The total budget is estimated to be \$161,100.

V Time of Performance

The Consultant shall complete work in accordance with Section III Project Schedule, above.

VI Payment

Consultant shall perform the Scope of Work in accordance with the rates established in the Engineering Fee Schedule attached hereto as Exhibit 3 and incorporated herein. Services shall be invoiced monthly on an accrued cost basis. Total fees for this Task Order 7 Additional Services shall not exceed the authorized amount in Section IV without prior written authorization from the CCSD.

VII Effective Date

This Task Order No. 7 is effective as of the 1st day of September, 2016.

IN WITNESS WHEREOF, duly authorized representatives of the CCSD and of the Consultant have executed this Task Order No. 7 evidencing its issuance by CCSD and acceptance by Consultant.

By: _____

Servando Molina

Client Service Leader

CDM Smith, Inc.

By: _____

Jerome D. Gruber

General Manager

CAMBRIA COMMUNITY SERVICES DISTRICT

Activity	Activity/Task No.	Task and Activity Descriptions	Comments and Notes	Project staff																CDM Smith Labor, OP's & ODC's					
				PIC SM	PM GAC	PE EC	ENEV 9 MS	ENEV8 GW	ENEV8 RR	ENEV7 BA	ENEV7	ENEV6	ENEV5 CP	ENEV2 KD	ACC FC	CAD 1	CAD2	QA/QC	Admin.	Hours	Labor, \$	OP's, \$	ODC's, \$	Total, \$	
			Lead	276	275	171	278	258	291	230			161	162	111	200	140	125	278	100					
1	PM	Project Management / QA/QC		3	34	1	8	-	-	-	-	-	-	-	1	11	-	-	12	6	76	\$18,820	\$0	\$700	\$19,520
	1.1	Set-up / Closeout	Gregg C	2	6											4			4		16	\$4,114		\$50	\$4,164
	1.2	Internal Kickoff Meeting	Gregg C		2	1	1								1	1					6	\$1,310		\$50	\$1,360
	1.3	Weekly Tracking (12 weeks)	Gregg C		12		6													6	24	\$5,568		\$120	\$5,688
	1.4	Monthly invoicing (4 months)	Gregg C		4											4					8	\$1,900		\$40	\$1,940
	1.5	QA/QC Reviews	Gregg C	1	2		1									2			8		14	\$3,728		\$40	\$3,768
	1.6	Client Meetings (1)	Gregg C		8																8	\$2,200		\$400	\$2,600
2	Prep	Tracer Study Preparation		6	26	72	72	-	16	-	-	-	-	-	-	-	4	-	2	18	216	\$48,702	\$43,000	\$17,750	\$109,452
	2.1	Design and construct injection well water supply piping	Mike S	1	4	24	4										4			4	41	\$7,552		\$500	\$8,052
	2.2	Finalize testing plan and protocol	Mike S	1	4	4	8												2	2	21	\$5,040		\$750	\$5,790
	2.3	Procure testing equipment and materials	Mike S	1	4	8	4													4	21	\$4,256	\$32,000	\$500	\$36,756
	2.4	Procure testing chemical	Mike S	1	2	4	4													2	13	\$2,822		\$10,000	\$12,822
	2.5	Set up testing, electrical	Mike S	1	8	16	52		16											4	97	\$24,720	\$11,000	\$5,000	\$40,720
	2.6	Remove testing equipment and restore system	Mike S	1	4	16														2	23	\$4,312		\$1,000	\$5,312
3	Field	Conduct Tracer Study		3	20	44	36	2	-	-	-	-	-	-	16	-	4	-	6	5	136	\$28,880	\$0	\$3,200	\$32,080
	3.1	Coordinate testing	Mike S	2	12	12	18								8				2	1	55	\$12,452		\$3,000	\$15,452
	3.2	Prepare draft testing report	Mike S	1	8	32	18	2							8		4		4	4	81	\$16,428		\$200	\$16,628
		Total Additional Engineering Services for T07		12	80	117	116	2	16	-	-	-	-	-	17	11	8	-	20	29	428	\$96,402	\$43,000	\$21,650	\$161,052



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board
Division of Drinking Water

November 12, 2014

**Jerome D. Gruber, General Manager
Cambria Community Services District
1316 Tamsen Street, Suite 201
P.O. Box 65
Cambria, CA 93428**

Dear Mr. Gruber,

Subject: Tracer Test Summary Report

The State Water Resources Control Board, Division of Drinking Water (DDW) received and reviewed the Tracer Test Summary Report by CDM/Smith, consultants for Cambria CSD, dated October 2014. The DDW appreciates the assistance by the Groundwater Monitoring and Assessment Section of the State Board on the review of the report.

Cambria CSD hired CDM/Smith consulting to conduct an aquifer tracer test in their San Simeon well field. From July 24 to September 29, 2014, groundwater was pumped from production wells (SS1 and SS2) at an average rate of 435 gallons per minute (gpm) and was amended with a chemical tracer (bromide). The water was then released into the downgradient injection well (RIW-1) near San Simeon Creek approximately 1,180 to 1275 feet from wells SS2 and SS1, respectively. Groundwater levels and concentrations of the bromide tracer were monitored in two wells located between the injection well (RIW-1) and production well: MIW-1 at 530 feet; and SS3 at 740 feet upgradient from injection well (RIW-1).

Following evaluation of the data, the report concluded the residence time before the tracer reached production well SS2 was 58 days. No breakthrough was observed in production well SS1 during the duration of the test.

The requirement for retention time in the ground for the Cambria Emergency Water Supply project is 2 months. The tracer test concluded that SS2 did not meet the 2 month criteria. Following the testing, the initial model of the groundwater basin was recalibrated. The final recommendation in the report and supported by DDW's review is limiting injection of the treated water to 400 gpm and limiting total extraction of wells SS1 and SS2 to 400 gpm will meet the requirement of 2 months retention time in the ground. DDW recommends an appendix describing the model boundaries, aquifer parameters and groundwater extraction rates should be added to the tracer report.

The DDW approves the tracer study under the following conditions:

1. The injection of the treated water cannot exceed 400 gpm.
2. The total combined extraction of wells SS1 and SS2 cannot exceed 400 gpm.

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE DIRECTOR

1180 Eugenia Place, Suite 200, Carpinteria, CA 93013 | www.waterboards.ca.gov

3. The Cambria CSD will need to conduct another tracer study following the startup of the treatment facility. The start date of the tracer study along with the testing protocol will need to be approved by DDW and the Regional Water Quality Control Board. The CCSD shall initiate an additional tracer study prior to the end of the third month of operation of the injection facility.
4. Upon request from the DDW, the CCSD shall demonstrate that the underground retention times required are being met based on changes in hydrogeological or climatic conditions since the most recent demonstration.

If you have any questions concerning this letter, please contact me at (805) 566-1326.

Sincerely,



Kurt Souza, P.E.
Chief, Southern California Section
SWRCB-Division of Drinking Water

cc: Kenneth Harris, Executive Officer
Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401