

Cambria Community Services District Grant Agreement # 4600010880 Project 3 – Emergency Water Supply Project Completion Report

1 EXECUTIVE SUMMARY

For water year 2013/2014, the total rainfall in the Cambria community was approximately 80 percent of the minimum rainfall needed to fully recharge the two coastal stream aquifers that are the sole water supply for Cambria community. The State of California recognized the severity of the situation, which included an early December 26, 2013 notice from the California Department of Public Health to all water systems to develop contingency plans, including *“The development and use of emergency sources of supply...”* The severe drought condition had placed the water supply for the Cambria community in jeopardy. Consequently, on January 30, 2014, the Cambria Community Services District (CCSD) Board of Directors (i) declared a Stage 3 Water Shortage Emergency, the most stringent of three water shortage levels; (ii) approved the development and completion of an emergency brackish water supply project off of the lower San Simeon Creek aquifer; and (iii) declared that approval to be statutorily exempt from CEQA under CEQA’s emergency provisions. CDM Smith was retained to prepare a geo-hydrological model to support environmental and design needs to allow for completion of the Project. CDM Smith’s study was used in design to guide the locations of facilities and operating criteria, which allowed the project to be configured so as to avoid or mitigate potential impacts to the nearby San Simeon and Van Gordon Creeks and downstream lagoon areas, and to avoid impacts to important species, including south-central steelhead ESU, the endangered tidewater goby, and the California red legged frog.

In response to the severe drought emergency, and in combination with very stringent water conservation measures, the CCSD developed its Emergency Water Supply Project to construct and operate emergency water supply facilities at the District’s existing San Simeon Well Field and Effluent Percolation Ponds property. The Emergency Water Supply Project was built to treat brackish water from an existing groundwater well located between the CCSD’s treated wastewater effluent percolation ponds. The source water from that well consists of a mixture of percolated treated wastewater, creek underflow, as well as dilute seawater from an underlying saltwater wedge.

The project’s advanced water treatment process and injection well system was designed and constructed to meet the State of California’s Title 22 requirements for the indirect potable reuse of recycled water. The three essential levels of water treatment provided included microfiltration, reverse osmosis, and advanced oxidation. The project’s product water is piped and injected into the groundwater aquifer at the CCSD’s San Simeon potable well field. After being injected, the water travels at least 60 days before being withdrawn by CCSD’s existing potable groundwater wells. The project can provide up to 250 acre feet of injected water over a dry season when operated 24 hours per day, 7 days per week.

Exhibit 3.1

Key project components include the advanced water treatment plant (AWTP), a modified basin for the evaporation of concentrate from the reverse osmosis process, interconnecting pipelines, monitoring wells, a re-injection well, as well as a lagoon water discharge. The lagoon water discharge provides protection of habitat within the San Simeon Creek lagoon by maintaining the surface water levels while the system is in operation. In addition to the lagoon discharge, the CCSD commissioned the completion of an Adaptive Management Plan, which monitors the nearby riparian habitat, and allows for adjustments to be made based on input received from biological monitors.

Project construction began in earnest on May 20, 2014 following the CCSD Board's January 30, 2014 direction and authorization. A master consulting services agreement was entered into, which was tied to subsequent tasks order authorizations as various tasks supporting the project's permitting, design, construction, and operation were prioritized and identified. A design-build contract was also entered into for the project's final design and construction. The project work was completed in conformance with an emergency coastal development permit issued to the CCSD by San Luis Obispo County, as well as permits issued by the Central Coast Regional Water Quality Control Board. Work was substantially completed by mid-November 2014, which was followed by testing. Initial production began on January 22, 2015. The need for a minor change to the lagoon water discharge was identified following startup, which was completed during January 2016. A notice of completion was filed with the San Luis Obispo County Clerk's office on February 29, 2016.

1.1 WORK PROPOSED IN THE GRANT APPLICATION

The work proposed to be done in the Integrated Regional Water Management (IRWM) Implementation Grant application included construction of the following:

- An injection well and monitoring well in advance of conducting a tracer study.
- An Advanced Water Treatment Plant (AWTP). The AWTP was designed to meet the State's Title 22 requirements for indirect potable reuse of recycled water. Specific components include a modular microfilter, two, 2-stage reverse osmosis units, a third stage reverse osmosis unit, chemical feed facilities, pumps and intermediate storage tanks, an ultraviolet advanced oxidation treatment unit, final product water storage tank and supply pumping to the re-injection well, and supporting electrical and instrumentation.
- Modification of an existing wastewater storage basin into an evaporation basin for the holding and evaporation of reverse osmosis reject water. To meet title 27 permitting requirements, this basin was designed with triple-layer lining with intermediate monitoring between the liners, as well as up-gradient and down-gradient groundwater monitoring wells. Mechanical evaporators were designed to further accelerate the natural evaporation rate. A supporting control building with a weather station was included to control when the mechanical evaporators could operate.
- Construction of inter-connecting pipelines. This work was to include:
 - Installation of approximately 1,600 feet of 8-inch diameters piping from the AWTP to the re-injection well.

Exhibit 3.1

- Installation approximately 1,600 feet of 4-inch diameter piping from the AWTP to a surfaced discharge structure near the head of the San Simeon Creek lagoon.
- Installation of approximately 1,500 feet of 4-inch diameter piping from the third stage reverse osmosis unit to the evaporation pond.

In addition to the aforementioned project features, the work plan identified the supporting activities required to complete these tasks, including administrative activities, labor compliance monitoring and reporting, coordination with the San Luis Obispo County Flood Control and Water Conservation District, (including quarterly progress reporting), preliminary engineering, design, environmental documentation, and permitting.

1.2 DESCRIPTION OF ACTUAL WORK COMPLETED

The project was designed to be rapidly constructed to address the ongoing severe drought conditions. To accomplish this, offsite work that would require obtaining property rights was avoided. Therefore, the entire project was designed to fit onto the existing CCSD-owned property.

Another key design feature was to re-use and repurpose as much of the existing CCSD infrastructure as possible. This was the case with the evaporation basin, which had originally been used as a treated wastewater storage basin since the early 1980s. The project's extraction well was also pre-existing, with its work being limited to installing a new pump within an existing casing.

The AWTP relied upon the use of pre-fabricated shipping containers to the fullest extent possible. This allowed for detailed equipment, piping, electrical, and instrumentation to be pre-installed offsite within each container by the equipment supplier. The pre-assembled process equipment was then delivered to the job site on flatbed trucks, for offloading and placement by a crane.

Because of the biological, archeological, and potential for cultural resource discoveries, the interconnecting pipelines were designed to minimize ground disturbance. Biological, archeological, and Native American monitors were on site during earth disturbing activities. Minimizing earth disturbing activities was facilitated by using PVC "YeloMine" pipe, which could be hand placed along the ground surface, as well as fused polyethylene pipe, which could be similarly laid along the ground surface.

The following discussion further describes key project construction activities.

1.2.1 Installation of the Monitoring Well and Re-Injection Well

The early project construction activities included installation of the monitoring well and re-injection well within the CCSD's potable well field. Besides being incorporated into the final project, this work also supported a follow up tracer study, which was required to support Title 22 permitting. The initial project construction activity was completed via a task order under the master consulting services agreement between the CCSD and CDM Smith. The monitoring well was installed during the week of May 19, 2014 by National Well Drilling using a rotary sonic drill rig. This well is located between the re-injection well and existing potable wells.

Exhibit 3.1

During the week of May 26, 2014 the project's re-injection well was installed by National Well Drilling. This well was installed using a rotary mud drilling rig. As with the monitoring well, this initial project work was completed via a task order authorization under the master consulting services agreement between the CCSD and CDM Smith.



Monitoring Well Installation



Re-injection Well Installation

Exhibit 3.1

1.2.2 Mobilization and Clearing and Grubbing

Mobilization onto the project site by CDM Constructors Inc. (CCI), the primary design-build contractor, occurred during the week of August 25, 2014. Sansome Construction served as one of CCI's larger subcontractors, installing much of the civil/site work. Initial efforts focused on clearing and grubbing the former wastewater storage basin, which had been out of service for several years and was overgrown with small brush and weeds. The old basin was not lined, whereas the Title 27 permit for the evaporation pond required a triple liner system. Therefore the pond surfaces had to be prepared for installation of the initial liner system.



Initial Clearing & Grubbing at Evaporation Pond

1.2.3 Advanced Water Treatment Plant, Initial Site Work

The advanced water treatment plant (AWTP) site was over-excavated and re-compacted to prevent the equipment from settling. Following re-compaction, forms were set for the supporting concrete slabs that were placed below each shipping container, transfer tanks, and outdoor mounted equipment (transfer pumps and the advanced oxidation, ultraviolet treatment unit).

Exhibit 3.1



Re-compaction at the AWTP Site



Excavation into Re-compacted Area for Shipping Container Support

Exhibit 3.1



Forms Set for Shipping Container Support

1.2.4 Advanced Water Treatment Plant – Equipment Delivery and Placement

Initial preparations for major equipment pre-purchasing began via a task order under the CCSD - CDM Smith master consulting services agreement. These initial tasks included contacting various suppliers, negotiating costs, developing equipment purchasing agreements, and initiating shop drawings. The final purchase of the equipment occurred under the design-build contract with CCI. The earliest equipment to arrive on site was the advanced oxidation ultraviolet unit, which arrived during the week of September 22, 2014. The shipping container mounted equipment arrived on site during the middle of October 2014. The containerized units consisted of three reverse osmosis containers (two with 2-stage RO, one for the 3rd stage of RO), the micro-filter container, a chemical feed pumping container, and the control room container.

Exhibit 3.1



Shipping container unit In process of being set into position



Shipping container set into position

Exhibit 3.1



View of Completed AWTP

1.2.5 Evaporation Basin

The project included modifying an existing treated wastewater effluent holding basin into a Title 27-compliant evaporation basin to store and evaporate concentrate from the third-stage reverse osmosis treatment unit. The pond modifications included adding a triple liner system with leakage detection after each liner. There were also groundwater monitoring wells installed up-gradient and down gradient from the modified basin. Changes encountered during construction of the evaporation basin included the addition of a four-foot deep gopher barrier around the entire perimeter, as a resident population of gophers populated the old holding basin when it was out of service. The contractor also installed a frog fence around the entire basin following input received during a multi-agency project review meeting that had occurred during late August of 2014.

The basin lining system consisted of an initial geo-synthetic clay liner placed over a prepared subgrade. The clay liner was followed by a 60-mil thick, high density polyethylene (HDPE) intermediate liner. A second 60-mil thick liner was then placed as the final interface with the stored water. Texturing of the HDPE between the liners allows for the passage of water, which is for purposes of detecting any leakage. The liner installation was completed by International Lining Technology, with independent monitoring by Geo-Logic Associates. A report entitled, "Final Construction Quality Assurance Report, Brine Evaporation Pond Improvements," was completed by Geo-Logic, which contains additional details.

To reduce the concentrate disposal requirements, the project was designed with three stages of reverse osmosis, which obtains a 92 percent recovery rate. Thus, only 8% of the water entering the RO process is lost as concentrate to the evaporation pond, which results in a concentrate flow rate of about 39 gallons per minute. The existing storage basin has a fixed surface area of approximately 3.5 acres, which was deemed to be insufficient for natural evaporation to meet the needs of a 24-hour per day, seven-day per week operation over the entire dry season. Therefore, five mechanical evaporators were designed into the project to accelerate the natural evaporation process.

Exhibit 3.1

The mechanical evaporators are very similar to snow making machines used at ski resorts. They each have a ring of spray nozzles that spray finely misted water in front of a large fan. Supply to the spray nozzles is provided by submersible pumps located and tethered to floats within the evaporation basin. There is one submersible pump dedicated to each mechanical evaporator, with a flexible hose used to convey water from the basin to the machine. The finely misted water from each evaporator discharge is directed over the basin during operation.

A control building is part of the evaporation pond installation, which includes a weather station. Inputs from the weather station control when the mechanical evaporators can operate. For example, if the wind is too high, the evaporators cannot run to prevent mist from escaping the confines of the pond liner. Similarly, if the wind is blowing towards the campground to the west of the basin, the evaporators cannot operate.

During equipment testing, it was discovered that some back-drafting was occurring due in part to the sound enclosures placed around each mechanical evaporator. This was rectified by placing a concrete slab around the evaporators to capture and return mist that was settling in between the evaporators back into the basin.



Exposed basin liner close up showing clay liner (white) covered by two 60-mil thick HDPE liners

Exhibit 3.1



Mechanical Evaporator Sound Enclosures being installed

1.2.6 Interconnecting Pipelines

The project included installation of interconnecting pipelines from the AWTP to the re-injection well, from the AWTP to the evaporation basin, and from the AWTP to near the head of the San Simeon Creek lagoon. During construction, it was determined that the original planned location for lagoon water discharge would be too far away from the head of the lagoon area to be most effective. Therefore, a change was developed to the lagoon water pipeline that routed its discharge to a surface discharge structure located outside of the tree drip line at the upper end of the lagoon. This change included horizontal directional drilling to install a reach of the pipeline under the Van Gordon Creek to avoid potential environmental impacts with the riparian corridor. To further optimize the proposed pipeline alignments, the RO concentrate discharge pipeline to the evaporation pond was also changed to allow for it to also be installed in the same general creek crossing location also using horizontal directional drilling. Revising the proposed concentrate discharge pipe alignment had the added advantage of further avoiding an area of known archeological significance.

1.2.6.1 Pipeline from AWTP to Re-injection well.

The treated product water pipeline from the AWTP to the re-injection well consisted of 1,700 feet of 8-inch diameter “YelowMine” PVC piping. The YeloMine pipe contains UV inhibitors and a restrained flexible joint system, which facilitated it being laid along the ground surface, thus avoiding the need to trench this entire reach.

Exhibit 3.1



YeloMine Pipe between AWTP and Re-injection Well

1.2.6.2 Pipeline from AWTP to Evaporation Basin

The RO concentrate pipeline from the AWTP to the evaporation pond consisted of 1,200 feet of double contained, fused high density polyethylene pipe. The installed system consisted of an inner 4-inch diameter carrier pipeline, and an outer 10-inch diameter containment pipeline. The pipeline was installed in a trench from the AWTP to the Van Gordon Creek crossing. At Van Gordon Creek, it was installed using horizontal directional drilling. After crossing under the creek, the dual-pipe system was laid on the ground surface from the Van Gordon Creek crossing to its discharge at the evaporation basin.

Exhibit 3.1



HDPE Pipeline between AWTP and Evaporation Basin

1.2.6.3 Pipeline from AWTP to Lagoon

The lagoon water pipeline consisted of 1,300 feet of 4-inch diameter fused high density polyethylene piping. This pipeline was installed in a trench from the AWTP to the Van Gordon Creek crossing location. It was then installed under the creek using horizontal directional drilling. After crossing under the creek, it was continued above ground until reaching a surface discharge structure at a location just outside of the tree drip line near the head of the upper San Simeon Creek lagoon. A short reach was buried in the proximity of the discharge structure to allow its discharge to occur under the discharge structure to create a gentle sheet flow.

During construction, and to provide future operational flexibility by allowing for blending with reverse osmosis treated water, an interconnection was added to the originally designed lagoon water supply at the AWTP. This connection allowed operators the ability to blend in RO-treated water in with the supply's normal micro-filtered water. This change was initiated to allow future operations to blend the water being sent to the lagoon to meet existing, as well future potential changes to the discharge's required water quality criteria. (This was precipitated in part due to preliminary discussions with Central Coast RWQCB staff on their work in progress towards completing a draft TMDL report.) Unfortunately, the RO treated blending water contained a slight chlorine residual, which was not discovered until testing of the valve-off blending water connection. This resulted in a change that added a de-chlorination step to the RO-treated blending water prior to being introduced into the lagoon water pipeline. This change also included the addition of an inline venturi aerator to the RO –treated blending

Exhibit 3.1

water to add dissolved oxygen. The lagoon water change order work was the last item to be completed on the project, which was completed during the second week of January 2016.



Lagoon Water Discharge Structure Outside of Tree Drip Line at Upper San Simeon Creek lagoon

1.3 PERFORMANCE MONITORING

The completed project is subject to meeting comprehensive permit conditions developed and issued by the Central Coast Regional Water Quality Board, which include those developed by the Division of Drinking Water (formerly within the California Department of Public Health). Key permits include:

- Order R3-2014-0050 (Title 22 Permit and associated Monitoring & Reporting Program) – Waste Discharge Requirements and Water Recycling Requirements
- Order R3-2014-0047 (Title 27 Permit for Class II Surface Impoundment [i.e., evaporation basin], and associated Monitoring and Reporting Program)
- Monitoring and Reporting Program No. R3-2011-0223, as modified December 8, 2014, for Discharges with Low Threat to Water Quality – General Permit No. CAG993001

In addition to the monitoring and reporting required of by the State, the project has also completed and incorporated an Operation, Maintenance, and Monitoring Plan (OMMP) document, which further describes the new facility's performance monitoring.

1.3.1 Water Supply Benefits

The completed project allows for the production of potable water from a brackish water source, while improving water use efficiency, improving local groundwater quality, and protecting the downstream

Exhibit 3.1

habitat. The project is capable of producing up to 250 acre-feet of water during the course of a dry season when operated continuously. By operating the new facilities during the late summer and early fall months, the project also protects the CCSD from creating a negative hydraulic gradient between its effluent percolation pond area and its up-gradient potable well field. This important feature avoids the need to waste valuable groundwater within the vicinity of the percolation basins by having to pump down the mounded water under percolation ponds into a creek discharge, which would then be lost to the ocean. Such pumping of the mounded water would also lower the groundwater table at the production wells at a critically low time period prior to the arrival of seasonal rainfall. Therefore, the CCSD is now able to maintain more groundwater storage later into the dry season and early fall months than it would otherwise be able to without the project. This is accomplished by treating the project's extracted water within the vicinity of the percolation basins, treating it to potable water quality, and repurposing it for potable water reuse by injecting it back into the San Simeon Creek aquifer further upstream, and near the CCSD's existing potable groundwater wells.

1.3.2 Water Quality/Salt management Benefits

The project's reverse osmosis treatment stage removes salts from the groundwater, which are concentrated and disposed of in the evaporation basin. In doing so, the project is reducing salts, as well as nitrate concentrations, within the local groundwater. This feature was further affirmed during an April 2015 presentation by the Regional Water Quality Control Board in Cambria on the Water Board's draft Total Maximum Daily Load (TMDL) report on the San Simeon Creek watershed.

1.3.3 Riparian Habitat Protection

While in operation, the new project facilities are capable of providing 100 gallons per minute (gpm) of fresh water into the upper end of the San Simeon Creek lagoon. This occurs when there is no flow in the creek, as the creek has a long-standing history of running dry (subterranean) during the summer dry season, as well as during more prolonged drought periods. The 100 gpm lagoon water serves to maintain surface water levels within the downstream lagoon. It also provides a source of fresh water into an otherwise stagnant end of the upper lagoon. Although further confirming data is still needed, some have observed that the upper lagoon appears clearer and less eutrophic when lagoon water is being introduced by the project.

In addition to the introduction of water into the lagoon, the CCSD commissioned the completion of an Adaptive Management Plan, which is being followed to further provide protection of the nearby and down-gradient riparian habitat. This includes biological monitoring, which is used as inputs to make any necessary operational adjustments to further avoid impacts.

2 REPORTS AND/OR PRODUCTS

2.1 TECHNICAL REPORTS

Key technical reports associated with evaluation of the project have been previously submitted. These reports include the following:

- Cambria Emergency Water Supply, Title 22 Engineering Report, Revised Final, October 2014, by CDM Smith
- Cambria Emergency Water Supply Project, Title 27 Report of Waste Discharge, Final, October 20, 2014, by CDM Smith
- Operations, Maintenance and Monitoring Plan for the Cambria Emergency Water Supply Project, Revised Final, January 6, 2015, by CDM Smith
- Cambria Emergency Water Supply Project, Adaptive Management Plan, March 2015, by RBF Consulting
- Project Monitoring Plan, Project 3: Cambria Community Services District (CCSD) Emergency Water Supply Project, submitted November 2015, by R. Gresens, Cambria CSD

Most recently, the following report was submitted to the Water Board, which reports on the operation and performance of the Emergency Water Supply Project during calendar year 2015.

- 2015 Annual Title 22 Permit Report to the Central Coast Regional Water Quality Control Board, submitted on April 20, 2015, a joint effort by CDM Smith and CCSD Water Department staff. (Due to its large file size, an electronic link to an ftp download site is being provided with the transmittal cover of this project completion report.)

The project's performance during calendar year 2015 is summarized as follows:

2.1.1 Water Supply

Between January 1, 2015 and December 31, 2015, the plant was on-line for 112 days. The plant was off-line from April 18, 2015 to September 20, 2015. Fall startup occurred on September 20 and September 21, 2015. During this two day period, all flows were returned to the percolation ponds, and not to the project's injection well. Product water discharge into the recycled water injection well (RIW) resumed on September 22, 2015.

Over the entire calendar year 2015, the project produced 69 acre-feet of final product water, which was injected into the San Simeon Creek aquifer while operating approximately 8 hours per day during the 112 days of operation. From review of plant operational data by the CCSD water department, the average rate of injection was approximately 480 gallons per minute. When the facility is in operation, the CCSD potable wells (Wells SS-1 and/or SS-2) can produce water at a maximum production rate of 400 gpm. This 400 gpm well production rate over an 8-hour period equates to 0.589 acre-ft. If extrapolated to a maximum potential production rate for a 24-hour per day operation, the 0.589 acre-

Exhibit 3.1

feet would be tripled to 1.768 acre-feet per day. From past studies, the CCSD determined that an average dry season duration is approximately 184 days. If one were to apply the average dry season period of 184 days to the maximum production rate of 1.768 acre feet per day, the total maximum production from the CCSD's wells SS-1 and/or SS-2 during the emergency water supply project's operation would be approximately 325 acre feet. This is greater than the 240 to 250 acre-feet goal cited in the grant agreement. However, not all of the injected water may be recovered by wells SS-1 and SS-2. According to the project's geo-hydrologist, up to 40 percent of the water injected could either be lost to the creek underflow, or potentially make its way back to the brackish water extraction well. Therefore, another check on performance occurs by using 60 percent of the facility's injection rate of 480 gpm, and extrapolating that over a 184-day dry period. This later approach results in a net production of 234 acre-feet over a 184-day dry season. Assuming a 40 percent loss on injected water would also result in the 240 acre-feet production goal being obtained over a 189-day dry-period as opposed to an average 184-day dry period. Depending on the percent of injected water making its way into the potable wells, the production over an average 184-day dry season would be in the range 234 to 325 acre feet. Because the facility can be run past 184-days as needed, it is reasonable to assume the project is capable of meeting the stated performance goal of 240 to 250 acre-feet over a six-month dry period if it were to be operated continuously.

2.1.2 Water Quality

During its operation in 2015, the AWTP met Federal and State requirements for drinking water. However, because the project's Title 22 permit maximum for nitrate (2.3 mg/l NO₃-N) is much less than that allowed for drinking water (10.0 mg/l NO₃-N), there were permit violations (ranging in concentration from 4 to 6 mg/l NO₃-N) on nitrate, which occurred during March and April of 2015. There is a great deal of analytical data to sort through in assessing performance, so to simplify performance review, the following table was created that focuses on the project's nitrate removal, which was the main problem area that occurred during 2015. From this table, nitrate reduction by treatment in the AWTP achieved reductions ranging from 33% to 46%. Although the March and April product water concentrations exceeded the Title 22 permit limit, it does show the AWTP brought the influent levels well below the current drinking water standard of 10 mg/l. This also provides support of meeting the performance goal for improving water quality.

In response to the nitrate exceedance in March and April of 2015, the CCSD shut down the facility and focused on improving nitrate removal at its wastewater treatment plant. This was achieved through measures installed by the CCSD plant operators to simulate recommendations made within an earlier 10% design report, including the recirculation of mixed liquor within the plants aeration basins, and the creation of an anoxic zone at the head of the aeration basins. As a result, the nitrates in the plant effluent were much lower during late 2015 than during early 2015. Following restart of the emergency water supply facilities during the late summer/fall of 2015, the nitrate concentrations of the product water have been well below the 10mg/l drinking water standard, and lower than the much more restrictive 2.3 mg/l Title 22 permit limit.

Exhibit 3.1

Summary of Nitrate Reduction by Advanced Water Treatment Plant

<i>2015 Month</i>	<i>Average NO₃-N Influent Mg/l</i>	<i>Average NO₃-N Product Water out Mg/l</i>	<i>Percent Reduction Of NO₃-N by AWTP</i>
<i>January</i>	0.6	0.4	33%
<i>February</i>	2.2	1.3	41%
<i>March</i>	10.2	5.5	46%
<i>April</i>	10.6	5.8	45%
<i>May</i>	Not Operated	Not Operated	N/A
<i>June</i>	Not Operated	Not Operated	N/A
<i>July</i>	Not Operated	Not Operated	N/A
<i>August</i>	Not Operated	Not Operated	N/A
<i>September</i>	0.97	0.69	29%
<i>November</i>	No Data	0.65	Insufficient Data
<i>December</i>	No Data	0.66	Insufficient Data

2.2 AS-BUILT DRAWINGS AND GEODETIC SURVEY INFORMATION

Attachment A contains record drawings for the completed project. Sheets G-02 and C-01 include geodetic survey information.

2.3 SELF-CERTIFICATION OF MEETING PROJECT GOAL

Attachment B contains a self-certification statement attesting to meeting the project goal.

2.4 PROJECT PHOTOS

Attachment C contains the project's daily construction reports, which include project construction photos.

2.5 PROBLEMS OCCURRING DURING COMPLETION OF PROJECT

Following a September 12, 2014 concurrence by the Governor’s Office of Planning and Research that the project was subject to the Governor’s April 25, 2014 Continued State of Emergency, which included a suspension of the California Environmental Quality Act (CEQA), a lawsuit challenging the Project was filed during October 2014 by Landwatch San Luis Obispo (“Landwatch”). The lawsuit includes claims under the California Environmental Quality Act, the Coastal Act, and the Public Trust Doctrine, and seeks an order preventing the Project from operating until the District completes an Environmental Impact Report and obtains a regular Coastal Development Permit for the Project. A hearing on the merits of Landwatch’s claims was conducted on May 27, 2016. In advance of the hearing, the Court issued a detailed, seven-page tentative ruling indicating that it was inclined to rule in the District’s favor on all significant issues, which concluded: “the Court is not inclined to grant Landwatch’s request to make a determination that the District is operating the Project in violation of CEQA, the Coastal Act, and public trust doctrine, or enjoin any further operation of the Project.” At the conclusion of the hearing, the Court took the matter under submission, and is expected to issue its final ruling within the next few weeks.

2.6 PROJECT SCHEDULE

A final project schedule showing the actual versus planned is shown in the table below.

<i>Task</i>	<i>Planned</i>		<i>Actual</i>	
	<i>Start Date</i>	<i>End Date</i>	<i>Start Date</i>	<i>End Date</i>
<i>1 Project Management</i>	<i>1/13/2014</i>	<i>1/27/2015</i>	<i>1/13/2014</i>	<i>6/1/2016¹</i>
<i>2 Labor Compliance Program</i>	<i>8/1/2014</i>	<i>11/14/2014</i>	<i>8/1/2014</i>	<i>2/29/2016²</i>
<i>3 Reporting</i>	<i>5/1/2015</i>	<i>11/27/2015</i>	<i>5/1/2015</i>	<i>6/1/2016</i>
<i>4 Preliminary Engineering</i>	<i>1/13/2014</i>	<i>12/9/2014</i>	<i>1/13/2014</i>	<i>10/1/2014</i>
<i>5 Design</i>	<i>4/21/2014</i>	<i>7/25/2014</i>	<i>4/21/2014</i>	<i>7/25/2014</i>

¹ The 6/1/2016 date is estimated, and was chosen to estimate the final Proposition 84 grant payment request processing.

² 2/29/2016 matches the date that the CCSD filed its Notice of Completion with the San Luis Obispo County District Clerk’s office.

Exhibit 3.1

6 Environmental Documentation	8/4/2014	9/12/2014	8/4/2014	9/12/2014
7 Permitting	2/7/2014	7/1/2015	2/7/2014	12/08/2014
8 Project Monitoring Plan	2/7/2014	7/1/2015	2/7/2014	6/1/2016
9 Construction Contracting	7/1/2014	8/7/2014	7/1/2014	8/7/2014
10 Construction & Implementation	8/22/2014	7/24/2015	8/22/2014	2/29/2016
11 Environmental Compliance	1/19/2015	6/30/2015	5/15/2014	6/1/2016 ³
12 Construction Administration	8/8/2014	7/23/2015	8/8/2014	2/29/2016

³ The Project's Adaptive Management Plan is ongoing and remains in effect because it was designed to coincide with operation of the new facilities.

3 COSTS AND DISPOSITION OF FUNDS INFORMATION

3.1 INVOICES SUBMITTED TO THE STATE

There has been only one invoice submitted to the State during completion of the project. A final invoice requesting release of the remaining 5-percent of the project's grant allocation will follow this report.

Invoice #	Date Submitted	Invoice Amount	Date Check Received	Check Amount
Project Invoice 1 (SLO County Invoice 2)	12/2/2015	\$4,163,142.25	12/17/2015	\$4,163,142.25

3.2 FINANCIAL SUMMARY

The total project cost per the original grant agreement (Grant Agreement No. 4600010880, Project 3, page 25) totaled \$8,860,337. The line item costs with grant amounts included Budget Category C costs, "Planning/Design/Engineering/Environmental Documentation," and Budget Category D costs, "Construction/Implementation." The Cambria project's original grant agreement budget table is shown below for convenient reference.

Project 3 – Cambria Community Services District Emergency Water Supply					
Budget Category		Grant Amount	Cost Share: Non-State Fund Source (Funding Match)	Additional Cost Share	Total Cost
(a)	Direct Project Administration	\$0	\$0	\$34,348	\$34,348
(b)	Land Purchase/ Easements	\$0	\$0	\$0	\$0
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$1,046,595	\$0	\$652,313	\$1,698,908
(d)	Construction/ Implementation	\$3,335,660	\$2,591,421	\$1,200,000	\$7,127,081
TOTAL		\$4,382,255	\$2,591,421	1,886,661	\$8,860,337

The CCSD established a separate fund within its accounting program, to allow tracking project revenues and expenses separate and apart from its existing enterprise and general funds. It also obtained a bank loan to allow for payment of the project prior to the receipt of grant funds.

From review of its records, the CCSD identified costs expended for grant budget categories A, B, and C, which are shown in the table that follows. The CCSD more than met its local cost share obligation in completing the project under its two primary project completion agreements. The first of those

Exhibit 3.1

agreements was a master professional services agreement with CDM Smith, which had a series of Task Order authorizations. As of the end of March 2016, the CCSD had spent \$2,058,407 on task orders associated with Budget Category C costs⁴. The second primary agreement was with CDM Constructors Inc. (CCI) for the construction and implementation of the project. The Category D costs expended by the CCSD on the CCI agreement amounted to \$7,366,742, which includes payment for the project's three change orders, as well as earlier retention being withheld from the CCI progress payment requests. When including early project construction costs completed under CDM Smith Task Orders (See footnote below: monitoring well, re-injection well, and equipment pre-purchase costs), the Category D costs totaled \$7,787,063. The following table summarizes the CCSD expenditures under the CDM Smith and CCI agreements, which exceed the CCSD's cost share obligation of the grant.

Cost Item	Amount Spent by CCSD	Grant Amount	Net Amount Paid By CCSD after deducting grant
<i>Budget Category A Expenses</i>			
Rutan & Tucker (legal services for developing design-build agreement)	\$8,150		\$8,150
The Covello Group (outside expert review of design-build agreement & negotiations assistance.)	\$9,734		\$9,734
Thomas S. Gray (public outreach)	\$21,925		\$21,925
<i>Category A Subtotal</i>	\$39,809	0	\$39,809
<i>Budget Category C Expenses</i>			
CDM Smith Task Order 1	\$174,495		
CDM Smith Task Order 2	\$299,601		
CDM Smith Task Order 3 ⁵	\$755,943		
CDM Smith Task Order 4	\$499,941		
CDM Smith Task Order 5	\$584,607		
<i>Category C Subtotal</i>	\$2,314,587	\$1,046,595	\$1,267,992
<i>Budget Category D Expenses</i>			
CDM Smith Task Order 3 (wells)	\$164,141		
CDM Smith Task Order 4 (equipment)	\$256,180		
CDM Smith Constructors (CCI)	\$6,647,919		
Change Order 1	\$511,602		
Change Order 2	\$123,953		
Change Order 3	\$83,268		
<i>Category D Subtotal</i>	\$7,787,063	\$3,335,660	\$4,451,403
<i>Total Amount, Categories A, C, & D</i>	\$10,141,459	\$4,382,255	\$5,759,204

⁴ CDM Smith Task Orders 1 through 5, inclusive. An existing Task Order 6 cost was not included in this total due to it including longer-term assistance associated with producing self-monitoring during facility operations. CDM Smith Task Orders 1 through 5 total cost of \$2,478,728 was reduced to not include early construction costs for the project's monitoring and injection wells (\$164,141.23, which was completed as part of CDM Smith Task Order 3); and, \$256,179.83 for equipment pre-purchase costs (completed under CDM Smith Task Order 4).

⁵ Task Order 3 costs are adjusted to reflect amount spend by CCSD less the monitoring and injection wells (i.e., \$920,084 - \$164,141, which equals \$755,943)

Exhibit 3.1

Besides the aforementioned primary grant Category C & D costs, the CCSD incurred other project related capital and preliminary design costs. These other costs included laboratory analyses to support design and permitting, permitting fees by the Regional Water Quality Control Board, bonds required by the RWQCBs, modifications to the CCSD's existing telemetry, and remote sensing equipment to support operations of the facilities. These costs are not included in the aforementioned cost summary due to several of the items not being grant eligible, several of which apply to facilitating on-going facility operations, and because the CCSD's payments under the CDM Smith and CCI contracts well exceeded the CCSD's local grant share obligation. A full cost accounting of all of the project's capital costs can be found in Attachment D.

3.3 FINAL FUND DISBURSEMENT

See Attachment E, Certification of Separate Accounting of Grant Disbursements for the project, which is signed by a California Registered Civil Engineer.

3.4 SUMMARY OF PROJECT COSTS THAT DEVIATED FROM THE ORIGINAL CONTRACT

The following describes costs that deviated from the original contract, which were associated with the three change orders issued to CCI.

3.4.1 Change Order 1

Change order 1 totaled \$511,601.94. Its main cost components are summarized in the following table.

Item Number	Summary Description	Cost \$
1	Reroute reverse osmosis concentrate and lagoon water pipelines, increase overlap of evaporation pond liner, and add blending pipeline at advanced water treatment plant.	176,368.38
2	Third party construction quality assurance services for pond liner	69,005.02
3	Add gopher fence around evaporation pond perimeter	39,703.71
4	Add frog fence around evaporation pond perimeter	61,363.12
5	Evaporation pond chain link fence and gate improvements	29,250.45
6	Exterior painting of mechanical evaporators sound enclosures	7,782.74
7	Pump 9P7 replacement and improvements	6,056.39
8	Additional pH analyzers	12,373.14
9	Portable samplers - rental	14,179.78
10	Permanent samplers	44,883.67
11	SCADA System Monitoring	25,275.35
12	Interior Gate Improvements	11,208.53
13	Security Camera System	14,151.66
	Total	511,601.94

Exhibit 3.1

These items were added based on discussions with regulatory agencies, to adapt to unforeseen field conditions, and to provide security around the new facilities.

3.4.2 Change Order 2

Change Order 2 totaled \$123,953, and included the cost components identified in the following table.

Item Number	Summary Description	Cost \$
1	Install New San Simeon Creek Groundwater Monitoring Well MW-4	21,762.37
2	Complete Cal-Fire recommendations following 1/120215 inspection; fire storage tank and connector, fire truck turn-around, roadway base, gate access with Knox boxes, & additional signage.	86,080.80
3	SCADA and wiring interface additions to allow incorporating H2O Inc. remote data access service.	12,099.51
4	Complete elevation and location survey on existing and added wells.	4,000.32
	Total	123,953.00

Items 1 and 2 were directly related to regulatory agency input. For item 1, a new well was placed further up-gradient from an existing monitoring well that was deemed to be too close to the lagoon water discharge. At the time, there was concern that the close proximity of the project's high quality lagoon water discharge would bias the existing well's water quality samples towards more favorable results. For item 2, modifications were made to improve fire safety, including the installation of a new storage tank for firefighting or other uses by emergency responders.

3.4.3 Change Order 3

Change Order 3 totaled \$83,268, which is shown in the table below.

Item Number	Summary Description	Cost \$
1	Install de-chlorination and aeration system on the lagoon water supply.	83,268.00
	Total	83,268.00

The need for change order 3 was not identified until after initial startup of the new facilities. Essentially, the CCSD had requested a blending water connection be added to the lagoon water to allow the quality of that discharge to be further improved should water quality requirements change in the

Exhibit 3.1

future. This earlier blending water connection was added following discussions with RWQCB staff on possible future conditions that could follow completion of a Total Maximum Daily Loading report. Although the blending water added high quality reverse osmosis treated water into the existing lagoon water, it was also found to have slight chlorine residual. Therefore, Change Order 3 added a de-chlorination step to the reverse osmosis treated blending water. As further assurance towards meeting water quality criteria, an in-line venturi-style aerator was also provided as part of this change. The Change Order 3 work was the last construction activity on the project, and was completed during the second week of January 2016.

4 ADDITIONAL INFORMATION

4.1 BENEFITS OF THE PROJECT

Projects benefits include the following:

- Providing critically needed drought relief to the community's residents and businesses.
- The reuse of highly treated wastewater for potable purposes through the integration of water and wastewater systems for the most efficient and sustainable use of Cambria's limited water supply.
- Maximizing the use of existing freshwater resources.
- Providing a new source of fresh water to the San Simeon lagoon to protect habitat.
- Helping to ensure a sufficient water supply in the aquifers during dangerous fire seasons to best protect the health, safety and welfare of the community, as well as the fragile and volatile condition of the Monterey Pine forest surrounding it.
- Preventing seawater intrusion and avoiding inelastic ground subsidence.
- Reducing the salt and nutrient load in the groundwater.
- Ensuring an adequate water supply for existing local commerce, including tourism and other visitor-serving uses.

4.2 PROJECT CERTIFICATION

See Attachment F for the project's certification of completion.

4.3 POST-PERFORMANCE REPORT

The project went into production during January 2015, and is subject to meeting water quality and other conditions approved and adopted by the Central Coast Regional Water Quality Control Board. The post-performance monitoring will utilize data developed and presented in the CCSD's self-monitoring reports, which are required of the Water Board and other agencies. Key operating permits and their reporting requirements are summarized in the following table.

Exhibit 3.1

Permit	Issuing Agency	Summary Description	Reporting Frequency
Emergency Coastal Development Permit (CDP) ZON2013-00589	San Luis Obispo County	Permit was effective May 15, 2014. Authorized construction and operation of emergency water supply project. Permit is valid until Stage 3 water shortage emergency has ended, or a regular CDP has been approved. (The CCSD is currently completing efforts to obtain a regular CDP).	
Waste Discharge Requirements and Water Recycling Requirements. RWQCB Order No. R3-2014-0050	RWQCB	Permit was effective on November 14, 2014. Also referred to as a Title 22 permit. Permit includes concentration limits on water being re-injected into the San Simeon Creek aquifer. An accompanying Monitoring and Reporting Program No. R3-2014-0050 includes groundwater monitoring requirements.	Start-up Monthly Quarterly Annually 5-year
Waste Discharge Requirements for RO Concentrate Evaporation Pond RWQCB Order No. R3-2014-0047	RWQCB	Permit was effective on November 14, 2014. Also referred to as a Title 27 permit. Describes protective requirements of evaporation pond and related monitoring to prevent ground-water or surface water contamination. An accompanying Monitoring and Reporting Program No. R3-2014-0047 includes groundwater monitoring requirements.	Upon any non-compliance occurrence By January 31 st - Annual summary report Annual wet weather preparedness report (by October 1 st) By May 10, 2019 – update ROWD By May 10, 2019 – Update report on reasonably foreseeable release
Low Threat Discharge of Water to Lagoon Monitoring and Reporting Program No. R3-2011-0223.	RWQCB	Modified on December 8, 2014. Covers monitoring and reporting of discharge of water to the San Simeon Creek lagoon, which is used to maintain surface water levels. Incorporates by reference a December 9, 2011 Draft Waste Discharge Requirements Order No. R3-2011-0223 (NPDES Permit CAG993001) for Discharges with Low Threat to Water Quality.	Start-up By January 30 th – annual self-monitoring report 30-days prior to adding any chemical additives that would change effluent characteristics

To incorporate their findings, the post-performance report format will be developed following the completion of annual or 5-year self-monitoring reports. The report will include the following:

- Time period of the annual report
- Short project description
- Brief discussion of the project benefits to water quality, water supply, and the environment
- Assessment of any explanations for any differences between the expected versus actual project benefits in meeting IRWM priorities or measurements in AF will be provided
- Summary of any additional cost and/or benefits deriving from the project since its completion, if applicable
- Continued reporting on meeting the output indicators in the Project Monitoring Plan
- Additional information relevant to or generated from continued operation of the project