



**MINUTES
JOINT REGULAR MEETING OF THE
ENGINEERING AND OPERATIONS COMMITTEE AND
SPECIAL MEETING OF THE BOARD OF DIRECTORS
THURSDAY, JANUARY 31, 2019
8:30 AM**

DIRECTORS PRESENT:

Danny Martin	Committee Chairman
Carol Lee Brady	Committee Member
William Plummer	Committee Member
John Rossi	Committee Alternate
Angel Garcia	Board Member
Lisa Herman	Board Member
Bill Wilson	Board Member

STAFF PRESENT:

General Manager Jeff Armstrong, Assistant General Manager-Engineering & Operations Eva Plajzer, Assistant General Manager-CFO/Treasurer Rick Aragon, Director of Administration Jason Martin, Engineering Manager-CIP & Development Jake Wiley, Water Operations Manager Rich Ottolini, Construction Contracts Manager Casey Arndt, Water Resources Manager Jeff Kirshberg, Field Services Manager Randy Crowell, Public Affairs Manager Meggan Valencia (left at 9:40 AM), Water Reclamation Manager Mark Kaveney, Accounting Manager Kathy Naylor, Operations & Maintenance Scheduler/Planner Lauren Nelson, Public Information Officer Grace Cardenas, Senior Administrative Assistant-Engineering/Recording Secretary Leslie Mayer.

OTHERS PRESENT:

Rick Shintaku and Bill Green [South Coast Water District] (left at 9:15 AM)
Mark Donovan [GHD] (left at 9:15 AM)
Dennis Williams, Ph.D. [Geoscience Support Services, Inc.] (left at 9:40 AM)
Chris Coppinger [Geoscience Support Services, Inc.]

ADDITIONS TO AGENDA

There were no additions to the Agenda.

APPROVAL OF AGENDA

Chairman Martin called for approval of the Agenda of the Regular Meeting of the Engineering and Operations Committee of the Rancho California Water District of January 31, 2019, as presented.

MOTION: Director Plummer moved to approve the Agenda of the Regular Meeting of the Engineering and Operations Committee of the Rancho California Water District of January 31, 2019, as presented. Director Brady seconded the motion, and it carried as follows:

RESULT: **APPROVED [UNANIMOUS]**

MOVER: William Plummer, Committee Member

SECONDER: Carol Lee Brady, Committee Member

AYES: Danny Martin, Carol Lee Brady, William Plummer

PUBLIC COMMENT

There was no public comment.

Item 1. Overview and Update on South Coast Water District's Doheny Desalination Project

Assistant General Manager-Engineering & Operations Eva Plajzer addressed the Engineering and Operations Committee (Committee) and introduced Rick Shintaku, General Manager of South Coast Water District (SCWD); Bill Green, President of SCWD's Board of Directors; and Mark Donovan, Project Manager for SCWD's consultant, GHD. Ms. Plajzer indicated that this item is presented to give the Committee and Board Members an overview of SCWD's Doheny Ocean Desalination Project (DODP). In conjunction with Rancho California Water District's (District) water resources study, Ms. Plajzer advised that SCWD's desalination project is being evaluated by staff as part of this study.

At this time, Mr. Green briefly introduced this item, noting that, with several studies and community outreach conducted, SCWD's desalination project team has determined that approximately 74 percent of SCWD's residents/ratepayers are in favor of the subject project. He then introduced Mr. Shintaku who, after addressing and thanking the Committee for being invited to provide project information, began with a PowerPoint presentation.

After reviewing the agenda for the presentation, Mr. Shintaku displayed a series of detailed slides containing information regarding SCWD's service area; water supplies comprising approximately 75 percent imported water from Metropolitan Water District of Southern California (MWD), 14 percent recycled water, and 11 percent groundwater; efforts toward a balanced portfolio involving water conservation, groundwater recovery via a reverse-osmosis facility, and use of recycled water; risks to SCWD's water reliability due to several earthquake fault lines in its service area; and determination of the need for overall improved water reliability in cases of import water system outages, drought conditions, and potential catastrophic seismic interruption.

Next, Mr. Shintaku discussed the outcome of a public work group that was formed by SCWD and its Board of Directors to review a number of different local supply project types, including direct potable reuse (DPR), ensuring that the work group included those who had previously voiced their opinions both for and against certain types of potential projects. He advised that the overall result of the public work group's efforts was that the DODP should be pursued by SCWD. He then displayed another slide showing the project goals of the DODP, including: reliability; diversification of SCWD's water supply portfolio; to be hydrologically independent; a locally-controlled supply; be drought proof; provide emergency back-up water supplies, if needed; and provide a high-quality source of drinking water.

At this time, Mr. Donovan continued the presentation by reviewing particulars regarding the DODP facility, noting the following:

- Phase 1 of the project would provide up to five million gallons per day (MGD) of potable water;
- The facility would receive approximately 10 MGD of ocean water to produce five MGD;
- The ultimate capacity of the facility is 15 MGD; and
- The proposed location of the facility is in the city of Dana Point, at SCWD-owned *San Juan Creek* property.

Mr. Donovan then discussed the project components, as follows:

- Subsurface water intake system with slant wells;
- Raw (ocean) water conveyance pipeline;
- Desalination facility with a Phase 1 capacity of up to five MGD;
- Brine disposal system via an adjacent wastewater treatment plant with an existing ocean outfall; no further brine disposal infrastructure necessary;
- Water storage tank and distribution system;
- Support facilities;
- Offsite electrical transmission facilities; and
- Onsite alternative power generation.

Displaying a few additional slides, Mr. Donovan reviewed overview/aerial maps of the DODP project area, highlighting the slant well pods that will be used for intake water, as well as preliminary plant site layout details, including *temporary* pretreatment capability for iron/manganese, provisions for alternative power supply, and an area (R&D Pad) specifically designated for any future pilot plans and testing technologies for desalination efforts.

Continuing, Mr. Donovan expanded on the use of a series of slant wells to draw in ocean water from below the ocean floor, noting that the slant wells would be fully buried near the beach, with no long-term visual impact to the beach areas (Doheny State Beach and Capistrano Beach Park) and that this type of water intake system is the recommended approach by state and federal regulators, consistent with the California

Ocean Plan Amendment. Mr. Donovan also expanded on the brine disposal system, specifying that the brine from the DODP would be disposed of through the existing San Juan Creek Ocean Outfall more than two miles offshore, which is also the preferred method by state and federal regulators, consistent with the California Ocean Plan Amendment. Further, Mr. Donovan indicated that this brine disposal would have a negligible impact on coastal and marine water quality because it would be blended with existing wastewater streams.

Using a series of additional slides, Mr. Donovan reviewed preliminary cost estimates for the five MGD facility, with additional infrastructure and project contingency totaling approximately \$102,056,000, as well as preliminary operating costs for the first year of operation (2022) of approximately \$6,396,400.

Next, Mr. Donovan provided an economic model overview, based on the following assumptions:

- Five MGD production (5,321 acre-feet per year, with 95 percent utilization);
- DBO project delivery method (30-year, 2 percent fixed rate Drinking Water State Revolving Fund Loan [SRF]);
- First year of operation - 2022;
- \$10 million state grant awarded;
- \$475 per acre-foot MWD LRP rebate for 15 years;
- \$102 million CAPEX; and
- \$6.4 million OPEX (\$0.1362 per kWh energy cost [in 2022 dollars]).

Using an economic model baseline chart that covered financial years ending 2022 through 2051 (to end of project timeline~30 years), Mr. Donovan explained the cost of water will be \$1,566 per acre-foot at the start of the project (2022), with a \$10 million difference from MWD water over the 30-year period; the chart also covered MWD imported water costs, power costs, capital repayments, fixed costs, and other variable costs.

At this time Director Rossi opined that other agencies struggle with what amount is reasonable to pay for additional reliability purposes, and he asked Mr. Donovan for the estimated average per acre-foot cost for additional reliability over MWD import water costs. Responding, Mr. Donovan indicated that the difference between MWD's estimated cost per acre-foot of \$1,331 in 2022 and the before-mentioned project's economic model cost of \$1,566 per acre-foot is approximately \$200 per acre-foot, which translates into approximately \$7.00 per month for the average Tier 2 SCWD water customer.

Continuing, Mr. Donovan reported that the alternative power supplies being considered for the DODP include solar photovoltaic panels on available rooftop space and/or natural gas fuel cells. He then reviewed estimated annual power consumption for the desalination plant capacities of five MGD, 10 MGD, and 15 MGD, along with a table showing the sensitivity of the project to power cost when comparing the cost of electricity to the cost of the DODP water. Additionally, Mr. Donovan reviewed a table

containing alternative power option costs showing specific alternative power technologies with their corresponding estimated levelized costs for SCWD.

Mr. Donovan reviewed a high level project timeline showing the environmental impact report estimated to be complete in April 2019; environmental permitting, "Design, Build, Operate, and Maintain" (DBOM) contract development, and funding complete by January 2020; final design complete before January 2021; and construction and performance testing complete in 2022.

Concluding his presentation, Mr. Donovan instructed on additional potential Bureau of Reclamation grant funding available, in the amount of \$20 million, for which SCWD has been short-listed, that could bring the total state and federal grant funding amount to \$30 million. Using a similar graph previously displayed showing the project cost of water estimated at \$1,566 per acre-foot with grant funding of \$10 million, Mr. Donovan advised that the cost per acre-foot of water with a \$30 million grant funding amount would bring the per acre-foot cost down to approximately \$1,398 at the start of the project in 2022.

Director Plummer questioned the stated production level of five MGD compared to SCWD's average potable water demand. Responding, Mr. Shintaku advised that SCWD operates with an average potable water demand of approximately five and a half MGD, plus or minus an 80 percent range of that figure, depending upon economic and hydrological variables; further, non-peak water demand can range from three to three and a half MGD, and SCWD is looking for partners to optimize efficiency and cost. To another question posed by Director Plummer pertaining to the base load of the DODP, Mr. Shintaku informed that, while SCWD could develop the DODP at a lesser capacity, the plan is to sell surplus potable water supplies to other partnering agencies. Mr. Shintaku also advised that RCWD staff discussed pros/cons of the use of fuel cells with SCWD staff.

Director Plummer stated that the estimated cost per acre-foot of water provided in the presentation by SCWD for its DODP is relatively low compared with the costs experienced by the 50 MGD-capacity desalination facility in Carlsbad being approximately \$2,500 per acre-foot. Responding, Mr. Shintaku instructed that SCWD's per acre-foot cost is lower with economy of scale, taking into consideration the \$10 million Proposition 1 grant funding and SRF loan funding (30 years at 2 percent), along with various MWD rebates. Additionally, Mr. Shintaku credited not only the accumulation of grant funding availability to help keep costs down, but the project site allows for a good footprint and layout for energy options, with a nearby water transmission main, which ultimately results in less infrastructure costs overall.

To a question submitted by Director Brady regarding how confident SCWD is with their projected cost estimates and whether or not contingency amounts are considered adequate so as not to have potential large cost overruns as others have had with this type of endeavor, Mr. Shintaku stated SCWD is confident with their estimated project costs, and explained some differences between SCWD's DODP and the Carlsbad plant, such as overall site/infrastructure requirements that can result in increased costs.

Further, he explained that SCWD's staff have studied this for many years and have benefited from other projects taking the lead in this type of effort. Additionally, SCWD's staff are gathering as much information as possible to understand risks associated with such a project and taking time to consider the environmental impact report responses and permitting needs.

Director Herman asked if the drilling of the slant wells can potentially cause any subsidence issues. Mr. Shintaku indicated that slant wells do not pull 100 percent groundwater; rather, they pull approximately five to seven percent groundwater and the remainder of water drawn in will be ocean water. Adding to the conversation, Dr. Dennis Williams of Geoscience Support Services, Inc. (Geoscience) echoed Mr. Shintaku's comments. Mr. Shintaku assured that monitoring for any potential subsidence will take place.

Director Plummer stated that the City of Santa Barbara recently restarted their desalination plant with upgraded equipment and he expressed his curiosity as to what their costs were. Mr. Shintaku advised that both GHD and Geoscience were involved in that project and SCWD staff will be touring that facility in April 2019.

Brief general discussion ensued regarding the method of partnering with SCWD for the DODP, wherein a transfer agreement would be formed. Expanding on this, Ms. Plajzer advised that conversations are ongoing; MWD will be involved in any potential agreement, with SCWD being a member agency of Municipal Water District of Orange County (MWDOC). If the District were to move into partnership for the DODP, detailed agreements would likely involve SCWD, MWDOC, MWD, Eastern Municipal Water District or Western Municipal Water District, and RCWD; further, RCWD staff will consider options that will be evaluated during discussion of the District's water resources plan.

Director Rossi suggested that this type of partnership has not yet been accomplished with two member agencies and he opined that hopefully the details will be worked out to accomplish this possibility.

Responding to a request made by Ms. Plajzer, Mr. Shintaku instructed that, while the reverse osmosis process demineralizes the water, the processed water will then be remineralized, with lower Total Dissolved Solids (TDS). Further, SCWD is participating with MWDOC in integration studies to avoid unintended consequences on private plumbing systems.

At this time, Ms. Plajzer acknowledged and thanked Assistant General Manager CFO/Treasurer Rick Aragon for arranging for SCWD to provide this presentation for the Committee.

Item 2. Consider Approval of the Recommended Groundwater Production for Fiscal Year July 1, 2019 through June 30, 2020

Water Operations Manager Rich Ottolini briefly addressed the Engineering and

Operations Committee (Committee) to introduce this item. Mr. Ottolini explained to the Committee that, as part of the budget process, Rancho California Water District (RCWD/District) staff work with a consultant hydrogeologist to conduct a groundwater audit at the end of the water year, September 30, to determine how much groundwater will be produced for the upcoming fiscal year (FY). Further, the underlying philosophy guiding the groundwater audit has been and continues to be one of sound basin management by operating the groundwater basin within sustainable yields. Mr. Ottolini stated that staff's efforts have been focused on groundwater recovery, as RCWD relies heavily on its groundwater basin as an additional water supply source, and noted that staff have made difficult decisions over the last three years, with the support of the District's Board of Directors (Board), in determining specific water production levels from the groundwater basin, which ultimately have a direct impact on the District. Further, Mr. Ottolini offered that the presentation today will not only address production numbers, but, more importantly, will address water recovery aspects. He then introduced Dr. Dennis Williams of Geoscience Support Services, Inc. to provide an overview of the information used to determine the anticipated groundwater production for FY 2019-2020.

Using a PowerPoint presentation, Dr. Williams addressed the Committee and displayed a slide identifying the Upper Santa Margarita River Basin encompassing the Pauba, Murrieta, and Wolf Valleys, and explained that, during the audit process, attention is concentrated primarily on the Upper Santa Margarita River Basin groundwater levels. Continuing, Dr. Williams stated that each RCWD well is reviewed and analyzed, and recommendations are made for specific pumping wells. As for management of the basin, geologic factors, groundwater levels, and water chemistry are considered within each aquifer system encompassed within a five-layer model: Younger Alluvium, Pauba Aquifer Formation, two Temecula Aquifer Formations, and weathered bedrock.

Continuing, Dr. Williams stated that the groundwater management process involves planning, implementation, and operation necessary to maintain sustainable groundwater supply, assuring a sustainable yield in that groundwater extraction does not exceed recharge on a long-term basis, with no undesirable impacts such as overdraft (permanent lowering of the water table), degradation of water quality, or subsidence/liquefaction issues. He then reviewed the groundwater management tools involved in the annual groundwater audit approach, which included: index well groups; timely measurement and reporting of data using the District's Supervisory Control and Data Acquisition (SCADA) and the Geographic Information System (GIS); agency agreements to control groundwater extraction; recently updated integrated groundwater and surface water model; and the yearly water audit that includes a review of all wells. Dr. Williams also listed the steps involved in the yearly water audit process, including: RCWD data delivery; analysis of hydrographs (80 wells analyzed); annual meeting with RCWD staff (occurred in November 2018 for this audit); preparation of pumping schedule; run groundwater basin model; preparation of annual report; and constant updating throughout the year of pump schedule.

Displaying three slides containing graphed data examples for Well No. 109 (Pauba Aquifer), Well No. 130 (Temecula Aquifer), and Well No. 232 (combined aquifers), Dr.

Williams advised that this data for the water audit considers short- and long-term water level changes and production, noting that this data was developed for all 80 wells that were analyzed. With a series of additional slides, Dr. Williams highlighted the FY 2019-2020 recommended groundwater production/model-generated water levels at selected Pauba wells and Temecula wells, along with advising FY 2019-2020 recommended groundwater production by subunit, totaling 31,110 acre-feet (AF), with 46 active wells, that will involve plans to use 17,430 AF produced from locally occurring (native) groundwater, recharge 13,000 AF of untreated import water in the Upper Valle De Los Caballos (UVDC) facility, and utilize 680 AF of cyclic storage. He then provided a few additional slides containing pie charts that illustrated the recommended AF amounts for FY 2019-2020 within each subunit and aquifer by wells, as follows:

SUBUNITS:

- Pauba Valley: 18,950 AF (61 percent);
- Wolf Valley: 1,200 AF (4 percent);
- South Murrieta Valley: 1,000 AF (3 percent);
- North Murrieta Valley: 1,310 AF (4 percent);
- Santa Gertrudis: 3,800 AF (12 percent);
- Lower Mesa: 3,700 AF (12 percent);
- Upper Mesa: 850 AF (3 percent); and
- Palomar: 300 AF (1 percent).

AQUIFER/WELLS:

- Temecula Aquifer (28 wells) 16,995 AF (55 percent);
- Pauba Aquifer (13 wells) 12,315 AF (39 percent); and
- Combined Aquifers (5 wells) 1,800 AF (6 percent).

Concluding his presentation, Dr. Williams displayed two slides showing: 1) the effects of drought for the period ranging from 1935 to 2017, illustrating the average annual groundwater production compared with the annual precipitation and cumulative departure from mean annual precipitation; and 2) the effects of drought for the same period of years, comparing the cumulative change in groundwater storage (AF) and the cumulative departure from mean annual precipitation, noting that total decline in groundwater storage from the year 1999 to 2017 (drought period) is 54,814 AF.

To a question posed by Director Plummer regarding any other potential areas for water recharge efforts and whether or not staff utilizes real-time data, Dr. Williams indicated that the UVDC has a capacity for recharge water of approximately 40,000 AF; therefore, there is potential for additional available recharge capacity within the recharge and recovery facility. Additionally, Dr. Williams advised that monitoring wells provide adequate real-time storage data as they are not close enough to the production wells to be affected by cones of depression, and Mr. Ottolini confirmed that the District's SCADA system provides real-time information.

Responding to a question submitted by Director Wilson regarding at what point is considered optimal groundwater level and when might the groundwater storage produce

negative effects such as mounding, Dr. Williams stated that well pumping will always lower the groundwater level; however, the effort is keep the groundwater level sustainable and not to continue mining the resource, which could cause a continued decrease in groundwater level. Mr. Ottolini expanded on the fact that the reduced amount of pumping over the years has been based on the yearly water audits approved by the Board. He further advised that staff understands the need for managing the groundwater basin so that any decline in water level can ultimately experience recovery in order to maintain levels that are best for the basin, with the goal of upward trending when possible.

Director Rossi commented that great information has been provided with this item, noting that he wished every water district provided this level of information and accuracy, which is very helpful; further, he asked if the water recovered is “one for one” and whether the water can be extracted quickly. Responding, Dr. Williams indicated that the recharge water can travel as far as the gorge from the UVDC and most is available for recovery within the Pauba Aquifer. Mr. Ottolini added that it is estimated that approximately 68 percent is recovered, with the optimization plan helping to recover additional amounts.

To a few questions submitted by Director Herman, Mr. Ottolini clarified that the water escaping from the VDC area will be captured by the wells downstream of the VDC, and the cyclic storage budget of 680 AF is certain.

MOTION: Director Plummer moved to recommend the Committee approve staff’s recommendation of 31,110 acre-feet of well production, with 17,430 acre-feet to be produced from locally occurring (native) groundwater, 13,000 acre-feet from recovered import recharge water, and an additional 680 acre-feet of cyclic storage under the Rancho California Water District (RCWD) and Metropolitan Water District of Southern California Cyclic Storage Agreement, for which staff will incorporate the approved recommendation into the development of RCWD’s Operating Budget for Fiscal Year 2019-2020. Chairman Martin seconded the motion, and it carried as follows:

RESULT: **APPROVED [UNANIMOUS]**

MOVER: William Plummer, Committee Member

SECONDER: Danny Martin, Committee Chairman

AYES: Danny Martin, Carol Lee Brady, William Plummer

Item 3. Semi-Annual Update for Administrative Code: Part III - Engineering, Operations, and Maintenance of the District, Chapter 2, Standard Specifications for Facility Design Requirements for the Rancho California Water District

Engineering Manager-CIP & Development Jake Wiley addressed the Engineering and Operations Committee (Committee), noting that this item is presented to the Committee each January and July to provide semi-annual information pertaining to recent updates to engineering documentation that will be incorporated into Rancho California Water

District's (District) Administrative Code: Part III - Engineering, Operations, and Maintenance of the District, Chapter 2, Standard Specifications for Facility Design Requirements for the District; specifically for this reporting period, Section 1 "Standard Specifications and Drawings."

Reminding the Committee that staff had previously announced the intent to change the way the District receives public bid documents for potential award of contract, Mr. Wiley summarized the change made, which is now reflected in the District's Front End Contract Document and includes the use of PlanetBids. Expanding, Mr. Wiley indicated that PlanetBids provides a more efficient way for contractors to bid on active projects and streamlines the process for District staff. Mr. Wiley displayed the District's website and showed the Committee results from staff's first successful project issued for bid through PlanetBids; specifically, how projects are added to PlanetBids, how contractors can subscribe to PlanetBids, and how each contractor can view, download, and bid on advertised projects.

Mr. Wiley entertained any questions from the Committee regarding the updated information that was attached to the staff report within the Committee meeting packet, noting that staff may adjust the Front End Contract Document from time to time to fine tune language relative to the use of PlanetBids.

To a question posed by Director Brady regarding a notation she observed that one of the contractors who bid on the recent District project displayed on the website was deemed "non-responsive," Mr. Wiley explained that, in this instance, this contractor failed to provide a hard-copy bid bond prior to the end of the bid period, as required by the District's legal counsel and as was identified in bold lettering within the Notice Inviting Bids for the project; however, Mr. Wiley stated that he feels that, as the District continues to utilize PlanetBids, instances such as this will lessen over time and the overall bidding experience using PlanetBids has been positive.

To a few concerns expressed by Director Plummer regarding the use of PlanetBids, Mr. Wiley explained its online platform and assured that staff is comfortable with this most widely-used/user-friendly contract management service. Further, Mr. Wiley assured that staff is still advertising with the bid houses and feels that this new way of issuing public bid contracts attracts a large enough group of competitive contractors. At this time Director of Administration Jason Martin opined that, to his knowledge, PlanetBids is by far the most well known and reliable electronic bidding service.

There being no further questions or comments, this item having been presented for information purposes only, the Committee proceeded to Item 4.

Item 4. Consider Request for Approval of a Sole-Source Professional Services Agreement for Modeling, Planning, and Preliminary Design Services for a Proposed Series of New Groundwater Wells Related to the Upper Valle De Los Caballos Regional Pump Station (Project No. D1903)

Engineering Manager-CIP & Development Jake Wiley addressed the Engineering and Operations Committee (Committee) to provide a project update and to ask for the Committee's consideration to recommend the Board of Directors (Board) approve a sole-source professional services agreement for modeling, planning, and preliminary design services for a proposed series of new groundwater wells related to the Upper Valle De Los Caballos (UVDC) Regional Pump Station (Project No. D1903).

Utilizing a PowerPoint presentation, Mr. Wiley displayed an overview map of the subject project area, and identified the two recharge water supply sources for Rancho California Water District's (RCWD/District) UVDC Recharge and Recovery Facility (R&RF): 1) untreated water supplied by Metropolitan Water District of Southern California (MWD), via Eastern Municipal Water District through the EM-21 turnout, and 2) Vail Lake surface water using the District's transmission main constructed for this purpose.

Continuing, Mr. Wiley displayed another overview map of the subject project area depicting existing infrastructure supporting the UVDC R&RF, along with identified potable and raw water mainlines that bring water to the R&RF to percolate through five large ponds before finally being extracted through the onsite groundwater wells that hold approximately 70 percent of the water recharged, with further downstream wells that capture the remaining recharged water. Further, he reported that this facility operates under an existing permit issued by the Regional Water Quality Control Board, and showed the compliance point on the overview map where chlorine residual and contact time monitoring takes place, among other compliance criteria, in order to satisfy the water quality requirements of the issued permit; additionally, any proposed expansion of the UVDC R&RF is limited by the available volume in the pipelines ahead of the compliance point.

Next, Mr. Wiley reminded the Committee that staff conducted a UVDC Optimization Plan, which began in 2012, to consider a phased expansion of the UVDC from its current capacity to a larger capacity of between 40 cubic feet per second (cfs) and 60 cfs, with the following planned phases:

- Phase I: Disinfection Improvements (Complete)
- Phase II: Initial Repair and Rehabilitation Expansion (Complete)
 - Regrading of Ponds
 - Recharge Structures and Piping
 - Construction of Two Wells (Rehabilitation and Equipping of Well No. 154 and New Well No. 161)
- Phase III: Regional Pump Station and Chlorine Contact Tank
- Phase IV: Additional Recovery Wells/Conveyance

Displaying a few additional overview maps of the UVDC R&RF, Mr. Wiley reviewed the District-owned immediate and surrounding property, indicating that the key acquisition for the subject project was the 50-acre property located adjacent to the UVDC; further, he outlined project-specific elements including the location of the new regional pump station, new waterlines, future waterlines, and future planned downstream groundwater wells to increase recovery capacity.

Continuing, Mr. Wiley discussed the primary benefits of the subject project being economic, reliability, water supply distribution to accommodate growth, and water quality. Expanding on the economic benefit for the subject project, Mr. Wiley reminded the Committee of the *2016 Sensitivity Analysis* that was performed, taking into consideration MWD's new guidance for their treated water surcharge, which ultimately confirmed that the subject project's economics are still sound.

Concentrating on Phase III of the subject project, Mr. Wiley reviewed the current progress, noting that the 30 percent design work is complete and the 50 percent design work is in progress, with a current construction cost estimate of \$12 million to \$13.8 million, adding that a value engineering effort was performed over the last several weeks by staff to identify costs savings, where possible.

Displaying additional slides and advising that a larger handout was provided for the Committee's use, Mr. Wiley covered the Phase III and Phase IV implementation schedule, with an estimated Phase III project completion date of July 2021. He then expanded on the Phase IV pre-design scope of work, as follows:

- Focused Groundwater Model Development
- Well Siting Analysis (Hydrogeology)
- Well Type - Vertical or Slant
- Preliminary Design Drawings

Finally, Mr. Wiley provided a project cost summary for the design scope of work, and asked the Committee to recommend the Board approve the award of a sole-source professional services agreement to Geoscience Support Services, Inc. (Geoscience), in the amount of approximately \$165,000, to move the effort forward in adding the new wells scheduled in Phase IV to better coincide with the completion schedule for Phase III.

At this time, Mr. Wiley introduced Chris Coppinger with Geoscience to provide the conceptual design for the UVDC recovery wells. Mr. Coppinger addressed the Committee and continued the presentation by reviewing the current status at the UVDC and plans for the best recovery well types and locations. Noting that several studies have been performed over the years with regards to the UVDC facility, he reported that the current mode of operation came about in 1998, with the current water recharge averaging approximately 14,700 acre-feet per year (AFY) out of a current estimated total capacity amount for the recharge facility being 19,000 AFY; however, the overall capacity goal for this facility is between 29,000 and 43,000 AFY. Expanding, Mr. Coppinger instructed that recharge water enters the Younger Alluvium to avoid mounding instances; since the Younger Alluvium is approximately 80 to 120 feet deep, vertical wells are limited by pump setting in shallow aquifers. Mr. Coppinger then introduced the concept of slant well application, which is commonly used for offshore water extraction during the desalination process, for use in the Younger Alluvium, as slant wells are more efficient than vertical wells in shallow aquifers. Moreover, twice as much discharge can be produced from a 13 degree slant well as the vertical well for the same available drawdown.

To a question submitted by Director Rossi regarding whether or not there is a difference in energy efficiency, Mr. Coppinger indicated that the slant well's use of a submersible pump can be less efficient than a line-shaft turbine; however, the energy driver is the lift/drawdown.

Continuing, Mr. Coppinger displayed another slide and explained the dual rotary drilling technique for a slant well. He also reviewed a photograph of a slant well scale model developed by Geoscience's laboratory and then shared a slide showing Monterey, California's actual test slant well.

Next, Mr. Coppinger discussed criteria for evaluating recovery well options, which includes:

- Developing a focused model to best represent local conditions;
- Selecting potential well locations; design of slant and/or vertical wells;
- Exercising models; and
- Comparing alternatives.

Responding to a few questions posed by Director Herman regarding whether or not the District will be the first to use slant wells for recharged water recovery for potable purposes, Mr. Coppinger indicated that, while this will be the first recharge-type project, it is not the first recovery project; further, he offered that Geoscience has confidence that the slant well is tailor-made for this type of application.

Director Plummer expressed his concern, and several Committee members agreed during the course of discussion, over the requested sole-source award of the professional services agreement to Geoscience and staff's suggested need to accelerate the final phase of the overall subject project. Responding, Mr. Wiley explained that Geoscience's groundwater model is essential for this project and that any other firm tasked with the design effort would have difficulty with or without it; further, Geoscience is very knowledgeable with the District's groundwater basin, and overall knowledge is very important when considering the significant capital budget involved with this project. Additionally, the driver for accelerating the project is coordinating the completion of Phase III with Phase IV's schedule, as the economic analysis in 2016 showed the quicker the project can be expanded, the better. As prompted by Director Plummer's concern, Mr. Wiley indicated that he will include additional information relative to these concerns in the Board meeting staff report.

To a question posed by Director Rossi regarding whether or not water can avoid slant wells, Mr. Coppinger advised that a certain percentage of flow underneath the slant well may be missed, but it would be minimal.

Responding to a question submitted by Director Brady regarding whether or not the addition of gravel packing around the slant well is to avoid any negative impact, Mr. Coppinger indicated that the gravel pack is added for efficiency and as a filtering feature.

MOTION: Director Plummer moved to recommend the Board of Directors award a sole-source professional services agreement to Geoscience Support Services, Inc., in the amount of \$164,750, for modeling, planning, and preliminary design services for a proposed series of new groundwater wells related to the Upper Valle De Los Caballos Regional Pump Station (Project No. D1903). Chairman Martin seconded the motion, and it carried as follows:

RESULT: **APPROVED [UNANIMOUS]**

MOVER: William Plummer, Committee Member

SECONDER: Danny Martin, Committee Chairman

AYES: Danny Martin, Carol Lee Brady, William Plummer

Item 5. Project Status Reports - December 2018/January 2019

Presented for Engineering and Operations Committee (Committee) review and acceptance were the Rancho California Water District (District) Construction Project Status Report, Outside Contracts Summary Report, and Capital Job Status Report for the months of December 2018/January 2019.

The Committee accepted the Project Status Reports for the months of December 2018/January 2019, as presented.

Item 6. Operations Reports - December 2018

Presented for Engineering and Operations Committee (Committee) review and acceptance were the Rancho California Water District (District) Operations Reports, Regulatory Compliance Report, production charts, Vail Lake storage and elevation charts, status reports, and water sales and production statistics for the month of December 2018.

The Committee accepted the Operations Reports for the month of December 2018, as presented.

Item 7. Assistant General Manager's Report

Assistant General Manager-Engineering & Operations Eva Plajzer addressed the Engineering and Operations Committee (Committee) to provide a brief staff update, and she displayed a couple of short videos showing off-road vehicles trespassing near the north side of Rancho California Water District's (District) Vail Lake property. Noting that the videos were taken by a motion-sensor video camera that was recently installed in the area of trespass, Ms. Plajzer advised that District staff plan to install an additional four similar video cameras to increase the area of video surveillance coverage near Vail Lake, with the goal of eventually stopping the trespass and lessening the amount of damage that is effected by these off-road vehicles.

Continuing, Ms. Plajzer reported that an illegal water connection that serviced a marijuana grow farm was recently removed by staff, while accompanied by security

staff. Additionally, staff encountered a private hydroponic operation, for which a District access road to Calle Paramo Reservoir is being used for ingress/egress; staff will be working to install a gate on the reservoir access road to stop this private operation from using District property.

Concluding her presentation, Ms. Plajzer noted that, while quite a few security issues have kept staff busy over the last few months, all other information is provided in the Committee meeting packet, and entertained any questions from the Committee.

Hearing no questions from the Committee, Chairman Martin proceeded to the next Agenda item.

Item 8. Vail Lake Property Update

Assistant General Manager-CFO/Treasurer Rick Aragon addressed the Engineering and Operations Committee to provide an update on activities concerning Rancho California Water District's (District) Vail Lake property.

Mr. Aragon instructed that, while the lease document for the Vail Lake property is substantially complete, the requested exhibits are being received by District staff, including the trail management plan, for which staff are reviewing and preparing comments. Additionally, a county pre-application will be hand-delivered tomorrow by KEI.

With regards to information previously provided to the District's Board of Directors pertaining to an injury sustained by a bicyclist at Vail Lake, Mr. Aragon advised that more detail was received with regard to how the injury occurred.

Finally, Mr. Aragon further advised that survey work is being performed by KEI to confirm the exact legal property boundaries; all comments received by staff concerning the lease of the property were reviewed and concerns were addressed with KEI and incorporated into the lease language. In addition, KEI is finalizing environmental documentation.

Item 9. Adjournment

There being no further business to come before the Committee, the meeting adjourned at 10:40 AM.