

AGENDA

IRVINE RANCH WATER DISTRICT ENGINEERING AND OPERATIONS COMMITTEE

TUESDAY, MARCH 17, 2020

CALL TO ORDER 7:30 a.m., IRWD Operations Center, Committee Room
3512 Michelson Drive, Irvine, California 92612

ATTENDANCE Committee Chair: Doug Reinhart _____
Committee Member: John Withers _____

ALSO PRESENT

Paul Cook	_____	Kevin Burton	_____	Paul Weghorst	_____
Jose Zepeda	_____	Wendy Chambers	_____	Tom Roberts	_____
Rich Mori	_____	Eric Akiyoshi	_____	Richard Mykitta	_____
Kelly Lew	_____	Jim Colston	_____	Ken Pfister	_____
Lars Oldewage	_____	Malcolm Cortez	_____	Scott Toland	_____
John Dayer	_____	Bruce Newell	_____	_____	_____
_____	_____	_____	_____	_____	_____

NOTICE: If you wish to address the Committee on any item, please file your name with the Committee. Forms are provided at the meeting. Remarks are limited to three minutes per speaker on each subject.

COMMUNICATIONS

1. Notes: Burton
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted.
4. Determine which items may be approved without discussion.

INFORMATION

5. RESEARCH BUSINESS PLAN UPDATE – OLDEWAGE / COLSTON / BURTON

Recommendation: Receive and file.

6. AMERICA’S WATER INFRASTRUCTURE ACT UPDATE – SHINBASHI / JACOBSON / CLARY

Recommendation: Receive and file.

7. DISTRICT SECURITY ENHANCEMENTS UPDATE – SHINBASHI / JACOBSON / CLARY

Recommendation: Receive and file.

ACTION

8 PRIMARY DISINFECTION FACILITY SODIUM HYPOCHLORITE
STORAGE AND FEED SYSTEM CONSULTANT SELECTION – LYNCH /
MOEDER / MORI / BURTON

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Carollo Engineers in the amount of \$363,353 for engineering services during construction for the Primary Disinfection Facility Sodium Hypochlorite Storage and Feed System, Project 06214.

OTHER BUSINESS

9. Directors' Comments

10. Adjourn

Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available at the entrance of the meeting room at the District's Operations Committee Room at 3512 Michelson, Irvine, California. The Irvine Ranch Water District's Committee Room is wheelchair accessible. If you require any special disability-related accommodations (e.g., access to an amplified sound system, etc.), please contact the District Secretary at (949) 453-5312 during business hours at least seventy-two (72) hours prior to the scheduled meeting.

March 17, 2020

Prepared by: L. Oldewage

Submitted by: J. Colston / K. Burton

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

RESEARCH BUSINESS PLAN UPDATE

SUMMARY:

Staff will provide an update on the research projects in which IRWD is currently involved.

BACKGROUND:

Periodically IRWD receives requests to participate in various research projects pertaining to emerging technologies through either direct funding or dedication of in-kind staff resources. Guidelines were developed to assist staff with its evaluation and response to those requests. These guidelines were incorporated into the IRWD Research Business Plan, which also provides a tracking mechanism for the various requests and ongoing research projects and programs in which IRWD participates. The underlying purpose of the Research Business Plan is to ensure that IRWD's research resources are being prioritized and utilized effectively.

IRWD is rejoining the Isle Utilities Wastewater and Water Technical Advisory Group (TAG). Through the TAG's quarterly meetings, staff will be exposed to and have an opportunity to provide feedback on new technologies applicable to various operational areas, including treatment, analysis, wastewater collection, and potable water storage and distribution. A summary of the technologies presented at the TAG meetings will be summarized in future Research Business Plan Updates, including an assessment of each technology's potential application to IRWD treatment processes.

One of the components of the Research Business Plan is for staff to provide a status update on the research projects to the Engineering and Operations Committee on a quarterly basis. A status update on the current research projects is attached as Exhibit "A".

FISCAL IMPACTS:

The annual fee for participation in both the water and wastewater TAG is \$15,000.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Research Projects Summary

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Exhibit "A"

Research Projects Summary Table

No.	Project Title	Project Description	IRWD Contact	Organizations Involved	Type of Research	IRWD Participation Resource	Start Date	Projected Completion Date	Comments/Next Steps
1	California Energy Commission - Advancing Cutting-Edge Technologies and Strategies to Reduce Energy Use and Cost in the Industrial, Agriculture, and Water Sectors; Demand Response Pilot Project	The Project will focus on testing and piloting advanced demand response technologies that co-optimize peak demand management with utility demand response events based on price signals under a range of utility tariffs at water treatment and pumping facilities.	Zepeda	California Energy Commission (CEC) & Advanced Microgrid Solutions (AMS), Lockheed Martin (LM) and Navigant	Case study, data review, best practice analysis and technical report.	Staff time for review of reports, sharing information, and site analysis.	Oct-18	Mar-20	Comments have been provided to AMS on its proposed energy saving measure at HATS and Well 21. AMS is working on responding to IRWD's comments and next steps for implementation of its recommendations.
2	Practical Framework for Water Infrastructure Resilience (WRF 5014)	This proposed project will help water utilities better understand the relationships between various "enterprise risk management" planning tools, performance, and level of service. The project will also develop a framework summarizing currently available resources, approaches, and legislation regarding infrastructure risk and resilience.	Akiyoshi	Water Research Foundation and Black & Veatch	Case study, data review, best practice analysis and technical report.	Staff time for review of reports, sharing information, and site analysis.	Oct-19	Feb-21	Project kickoff workshop was conducted in mid-October 2019 and an online resiliency survey was completed in early November 2019.
3	UCI Industry-University Research Center-Perfluorinated Compound Sources and Loading at Wastewater Treatment Plants-A Sewershed-Scale Analysis	This project will develop and implement methodology for sewershed analysis to identify raw wastewater sources of PFAS.	Weghorst	UCI Industry-University Research Center	Case study, data review, best practice analysis and technical report.	Staff time for review of reports, sharing information, and site analysis.	TBD		Waiting on a proposal that is being prepared by the Civil and Environmental Engineering Department at UCI to execute agreements and to initiate work on the research. The duration of the project will be one year and quarterly status reports and a final report and presentation will be provided.
4	Developing Adaptive Strategies Toward Climate-Ready Infrastructure Systems in California	This project will identify adaptive strategies that will help develop resilient public works infrastructure-specifically mitigating the impacts to public works infrastructure from climate change and natural disasters associated with climate change.	Akiyoshi	UC Irvine		IRWD will consult and provide feedback on the project.	TBD		IRWD provided a letter of support to UCI and the principal investigator, Professor AghaKouchak. IRWD anticipates hearing back from the California Strategic Council by the end of May 2020.

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March 17, 2020

Prepared by: A. Shinbashi/R. Jacobson

Submitted by: C. Clary

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

AMERICA'S WATER INFRASTRUCTURE ACT UPDATE

SUMMARY:

Staff will provide an update on the District's assessment and progress to meet the requirements of the America's Water Infrastructure Act of 2018.

BACKGROUND:

The America's Water Infrastructure Act of 2018 (AWIA) is a federal law enacted in October 2018 that provides for water infrastructure improvements throughout the country. Section 2013 of the act includes newly enacted requirements for community water systems serving more than 3,300 people to conduct a risk assessment of the system from malevolent acts and natural hazards. Key requirements include:

- Conduct a Risk and Resilience Assessment (RRA);
- Prepare or revise an Emergency Operation Plan (EOP);
- Certify completion of the RRA and EOP with the Environmental Protection Agency (EPA); and
- A five-year requirement to recertify the RRA and EOP with the EPA.

Staff will provide an update at the Committee meeting on IRWD's assessment with a schedule to meet Phase I and II compliance requirements and to discuss next steps for Phase III compliance.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act (CEQA), Code of Regulations, Title 14, Chapter 3, Section 15378.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

None.

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March 17, 2020

Prepared by: A. Shinbashi/R. Jacobson

Submitted by: C. Clary

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

DISTRICT SECURITY ENHANCEMENTS UPDATE

SUMMARY:

Staff will provide the Committee with an update on recently completed security improvements at the Michelson Operations Center, Sand Canyon Headquarters, and other IRWD facilities. Staff will also provide an update on planned security enhancements at District facilities during 2020.

BACKGROUND:

Security measures are being implemented to protect District employees, customers, and IRWD facilities. Facility security measures include staff access control, protection against entry by unauthorized persons, fire/security detection, and managing the District's security service.

Staff will provide an update on recently completed security improvements at the Operations Center, Sand Canyon Headquarters, and other IRWD facilities. Many of the improvements were based on recommendations from a previous security assessment, and include:

- Installation of additional fencing at the MWRP;
- Security enhancements to the MWRP lobby; and
- Increased security patrol and additional security signage at all IRWD facilities.

Staff will also provide an update on planned security enhancements at IRWD facilities during 2020, including the installation of an improved closed-circuit camera system at the Michelson Operations Center and the Sand Canyon Headquarters.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act (CEQA), Code of Regulations, Title 14, Chapter 3, Section 15378.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

None.

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March 17, 2020

Prepared by: T. Lynch/J. Moeder/R. Mori

Submitted by: K. Burton

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

PRIMARY DISINFECTION FACILITY SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM CONSULTANT SELECTION

SUMMARY:

The Primary Disinfection Facility (PDF) Sodium Hypochlorite Storage and Feed System Project includes removing the existing chlorine gas system and converting to sodium hypochlorite for disinfection needs. Carollo Engineers completed the design, and the project is currently being advertised for bids. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement in the amount of \$363,353 with Carollo to provide engineering services during construction.

BACKGROUND:

The PDF provides final disinfection of groundwater from the Dyer Road Wellfield using gaseous chlorine and aqueous ammonia. The existing gaseous chlorine system consists of 24 one-ton chlorine gas cylinders, chlorinators, chlorine booster pumps, emergency scrubber system, and a fully enclosed containment area for trucks unloading of the cylinders.

This project, identified as one of IRWD's 2020 Target Activities, includes the removal of the existing chlorine gas system and the installation of a new sodium hypochlorite storage and feed system within the existing chlorination building. The project also includes the installation of a new carbon dioxide storage and feed system to minimize the potential for scaling and to maintain current water quality characteristics of the distribution system. Upon completion of the project, gaseous chlorine will no longer be used at any IRWD facility.

Engineering Services during Construction:

Carollo Engineers completed the design for the project, its third chlorine gas conversion project for IRWD in the past six years. Staff requested Carollo to submit a proposal for engineering services during construction. Carollo's proposal, attached as Exhibit "A", includes scope for meeting attendance, submittal and request for information reviews, miscellaneous construction support, site visits during construction, and record drawing preparation. Carollo recently provided similar engineering services during construction for previous gaseous chlorine conversion projects at the Rattlesnake Reservoir and Initial Disinfection Facility.

Staff has reviewed the proposal and recommends that the Board authorize the General Manager to execute a Professional Services Agreement with Carollo in the amount of \$363,353 for engineering services during construction.

FISCAL IMPACTS:

Project 06214 is included in the FY 2019-2020 Capital Budget. The existing budget is sufficient to fund the engineering services during construction.

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15301 which provides exemption for minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. A Notice of Exemption for the project was filed with the County of Orange on October 9, 2018.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with Carollo Engineers in the amount of \$363,353 for engineering services during construction for the Primary Disinfection Facility Sodium Hypochlorite Storage and Feed System, Project 06214.

LIST OF EXHIBITS:

Exhibit "A" – Carollo's Proposal for Engineering Services during Construction

SCOPE OF SERVICES

IRVINE RANCH WATER DISTRICT

PRIMARY DISINFECTION FACILITY

SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM

ENGINEERING SERVICES DURING CONSTRUCTION

MARCH 2020

BACKGROUND

The Irvine Ranch Water District (District) is in the process of replacing existing chlorine gas facilities with bulk sodium hypochlorite as a disinfectant. Chlorine gas is a hazardous chemical and requires additional training, inspections, permitting and safety measures for its safe use. The purpose of this project is to replace the chlorine gas system at the District's Primary Disinfection Facility (PDF). The project also includes the addition of a carbon dioxide system for pH control, demolition of the miscellaneous storage building, construction of a new site wall with new site paving and grading, replacement of the carrier water booster pumps, replacement of the ammonia metering pumps, lighting and ventilation system upgrades, replacement of the MCC and PLC, and other site and facility improvements. Carollo and the District have completed the final design and are in the bid phase period. This exhibit provides the scope of work to provide engineering services during construction for the project.

SCOPE OF WORK

Task 1 Project Management

Task 1.01 – Project Status Reports

Monthly written status reports will be provided to the District. Monthly reports will accompany and supplement monthly invoices along with updated project schedules. These reports will provide a narrative summary of progress on the Project, including budget and schedule status. The report will

discuss work completed on the Project for the reporting period and anticipated work for the next period. Critical decisions and outstanding action items will be documented and included with each report. Any out-of-scope work, if needed, will be identified in this progress report.

Task 1 Deliverables

- Electronic monthly status reports submitted with the invoice.

Task 2 Construction Phase Services

Carollo will provide support and consultation to the District throughout the construction period, as outlined in the following tasks:

Task 2.01 - Conformed Documents

Carollo will provide conformed documents (drawings and specifications) based on the bid documents and addenda released during the bid period. Conformed documents will be provided in electronic format (PDF). Conformed specifications will use track changes to highlight modifications made.

Task 2.02 – Project Meetings

Attend twenty-four (24) construction meetings throughout the duration of construction period - one (1) per month. Draft agenda and supporting materials will be distributed for review approximately five days prior each meeting and workshop. Draft and final conference notes will be distributed to all attendees and other interested staff within one week of the meeting.

Task 2.03 – Request for Information

Respond to one hundred (100) Requests for Information (RFIs) from the construction contractor. Clarifications, details, additional calculations for clarification or modification to original design drawings will be provided as requested by the District to provide clear and concise responses.

Task 2.04 – Minor Plan Revisions

A budget of up to one hundred (100) hours has been established to provide minor revisions to the contract construction drawings as required for Task 2.03 above or other needs.

Task 2.05 – Site Visits

Carollo will attend and conduct eight (8) site visits throughout the construction period to review construction progress, resolve technical issues, and/or review overall project schedule, coordination, and progress with the District and the Contractor. These site visits will be separate from project meetings noted above.

Task 2.06 – Shop Drawing Reviews

Review and approve for acceptance of at least one hundred and ten (110) shop drawing submittals. This task will include a second review of up to sixty (60) shop drawing submittal, if required.

Task 2.07 – Record Drawings

Prepare record drawings at construction completion using Contractor's and IRWD's inspector's markups. Deliver final record drawings as a combined PDF electronic file, and AutoCAD electronic files.

Task 2.08 – Miscellaneous Construction Support

Carollo will provide as-needed construction support as requested by IRWD. This task will be used to support the construction for various tasks that may fall outside the scope of previously listed tasks. A budget of 100 hours has been established for this task.

Task 2 Deliverables

- Submittal Review Comments
- RFI Responses
- Plan Revisions, as required
- Record Drawings as PDF electronic file, and AutoCAD electronic files

Exhibit B
Irvine Ranch Water District
Primary Disinfection Facility
Sodium Hypochlorite Storage Feed System
Engineering Services During Construction

Task	Task Description	Meyerhofer	Weishaar	Goddard	Doan	Burdick	Assistance EI&C Engineer	Senior Technician	Technician	Document Processing	Task Hours	Task Subtotal	Other Direct Costs	Subconsultant	Task Total
1	Project Management														
1.01	Project Status Reports	0	48	24	0	0	0	0	0	0	72	\$ 15,168	\$ -	\$ -	\$ 15,168
	Task Subtotal	0	48	24	0	0	0	0	0	0	72	\$ 15,168	\$ -	\$ -	\$ 15,168
2	Construction Phase Services														
2.01	Conformed Drawings	0	4	16	4	4	12	4	20	8	72	\$ 12,252	\$ 3,075	\$ -	\$ 15,327
2.02	Project Meetings (24 Total)	0	36	12	12	12	12	0	0	0	84	\$ 18,048	\$ 7,800	\$ -	\$ 25,848
2.03	Requests for Information (100 Total)	0	60	160	40	40	100	0	0	0	400	\$ 77,320	\$ -	\$ 2,500	\$ 79,820
2.04	Plan Revisions (100 Hours Total)	0	8	20	4	4	20	12	32	0	100	\$ 17,520	\$ -	\$ -	\$ 17,520
2.05	Site Visits (8 Total)	0	16	16	4	8	8	0	0	0	52	\$ 10,728	\$ 2,640	\$ -	\$ 13,368
2.06	Shop Drawing Review (170 Total)	0	80	280	80	60	180	0	0	0	680	\$ 129,920	\$ -	\$ 2,500	\$ 132,420
2.07	Record Drawings	0	8	40	4	4	54	12	48	0	170	\$ 29,128	\$ 218	\$ -	\$ 29,346
2.08	Miscellaneous Construction Support & Coordination	0	24	60	20	24	48	0	0	0	176	\$ 34,536	\$ -	\$ -	\$ 34,536
	Task Subtotal	0	236	604	168	156	434	28	100	8	1734	\$ 329,452	\$ 13,733	\$ 5,000	\$ 348,185
	Hours Total	0	284	628	168	156	434	28	100	8	1806				
	Rate	\$ 260	\$ 230	\$ 172	\$ 210	\$ 260	\$ 172	\$ 190	\$ 145	\$ 122					
	Project Subtotal	\$ -	\$ 65,320	\$ 108,016	\$ 35,280	\$ 40,560	\$ 74,648	\$ 5,320	\$ 14,500	\$ 976		\$344,620	\$13,733	\$5,000	\$363,353