

AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE MEETING
TUESDAY, FEBRUARY 15, 2022

This meeting will be held in-person at the District's headquarters located at 15600 Sand Canyon Avenue, Irvine, California. The meeting will also be broadcasted via Webex for those wanting to observe the meeting virtually.

To observe this meeting virtually, please join online using the link and information below:

Via Web: <https://irwd.webex.com/irwd/j.php?MTID=m4b1e6f88d555d23bb10118f9353bf450>

Meeting Number (Access Code): 2486 262 3194

Meeting Password: pD7EpvemR43

PLEASE NOTE: Webex observers of the meeting will be placed into the Webex lobby when the Board enters closed session. Participants who remain in the "lobby" will automatically be returned to the open session of the Board once the closed session has concluded. Observers joining the meeting while the Board is in closed session will receive a notice that the meeting has been locked. They will be able to observe the meeting once the closed session has concluded.

CALL TO ORDER 3:00 p.m.

ATTENDANCE Committee Chair: Doug Reinhart _____
 Committee Member: Karen McLaughlin _____

<u>ALSO PRESENT</u>	Paul Cook	_____	Kevin Burton	_____	Wendy Chambers	_____
	Jose Zepeda	_____	Paul Weghorst	_____	Cheryl Clary	_____
	Rich Mori	_____	Eric Akiyoshi	_____	Richard Mykitta	_____
	Jacob Moeder	_____	Jim Colston	_____	Ken Pfister	_____
	Lars Oldewage	_____	Malcolm Cortez	_____	Scott Toland	_____
	Belisario Rios	_____	Bruce Newell	_____	Mitch Robinson	_____
	Steve Choi	_____		_____		_____
		_____		_____		_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the "chat" feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. Public comments are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 9:00 a.m. on Tuesday, February 15, 2022.

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.

PRESENTATION

5. OCWD SOUTH BASIN GROUNDWATER PROTECTION PROGRAM UPDATE

Representatives from OCWD will provide an update on the South Basin Groundwater Protection Program.

INFORMATION

6. UPDATE ON IRWD'S WITHDRAWAL FROM THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY – BURTON

Recommendation: Receive and file.

7. UPCOMING PROJECTS STATUS REPORT – CORTEZ / AKIYOSHI / MORI / BURTON

Recommendation: Receive and file.

8. RATTLESNAKE DAM SEISMIC EVALUATION UPDATE – MOEDER / MORI / BURTON

Recommendation: Receive and file.

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 electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility

February 15, 2022

Prepared and

Submitted by: K. Burton

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

UPDATE ON IRWD'S WITHDRAWAL FROM THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

SUMMARY:

Staff has been developing options regarding IRWD's participation in the South Orange County Wastewater Authority (SOCWA) for the Effluent Transmission Main (ETM) and Aliso Creek Ocean Outfall (ACOO) that handle ocean discharges from the Los Alisos Water Recycling Plant in Lake Forest. A proposed plan for IRWD to withdraw from SOCWA while maintaining use of the ETM and the ACOO has been identified and discussed with El Toro Water District (ETWD). At the Committee meeting, staff will review the proposed terms for IRWD's withdrawal from SOCWA and the proposed terms for contracting with ETWD.

BACKGROUND:

IRWD is a member of the SOCWA Joint Powers Authority (JPA) which is managed through project committees (PCs) that represent each major facility. Each member agency that has capacity in a facility is a member of the PC for that facility. IRWD is a member of three PCs responsible for the operation, maintenance, and permitting of Reaches B through E of the ETM and the ACOO. PC 8 covers the permitting of ocean discharges from several treatment plants, PC 21 covers the ETM Reaches B through E, and PC 24 covers the ACOO. Reach A of the ETM is 100% owned by IRWD and is not part of SOCWA. The location of the ETM and ACOO and the capacity allocations within these pipelines are shown in Exhibit "A".

IRWD's involvement within SOCWA is minimal and only involves the management of a pipeline, compared with most of the other member agencies that are involved with the treatment of sewage and more complex facilities. ETWD is a member of PCs 8, 21 and 24 like IRWD, but ETWD also belongs to PCs associated with the treatment of sewage. IRWD's Strategic Plan includes Target Activities with the goal of ensuring that IRWD's contractual agreements with outside agencies are periodically reviewed and modified to best serve the parties involved.

Withdrawal Agreement Terms:

IRWD and ETWD have a long, successful history of working together to solve complex water and sewage issues. Staff from the two districts have again worked cooperatively to develop draft terms that would allow IRWD to contract with ETWD for IRWD's continued use of the ETM and ACOO outside of SOCWA. In addition, IRWD has worked with staff from several SOCWA member agencies to understand their concerns regarding IRWD's withdrawal from SOCWA. Based on these meetings, initial draft terms for IRWD's withdrawal from SOCWA have also been prepared. The proposed draft terms between IRWD and SOCWA and between IRWD and ETWD are provided in Exhibit "B".

Implementation Plan and Schedule:

The proposed agreement terms between IRWD and ETWD will be presented to ETWD's Board on February 24. Subject to approval by ETWD's Board and incorporation of their comments, IRWD will prepare two agreements: one between IRWD and ETWD (based on the proposed terms), and another between IRWD and SOCWA. The draft agreements will be presented by IRWD and ETWD at a SOCWA all-hands meeting proposed for mid-March. Comments from all SOCWA member agencies will be addressed and final draft agreements are anticipated to be ready for review by all parties by mid-May.

FISCAL IMPACTS:

IRWD's current fiscal contributions to SOCWA for operations, maintenance and capital expenditures will remain the same under the terms for IRWD's withdrawal but would be paid to ETWD instead of SOCWA. A minimal administrative fee (to be negotiated with ETWD) would be paid to ETWD to cover their staff time for coordinating with IRWD.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

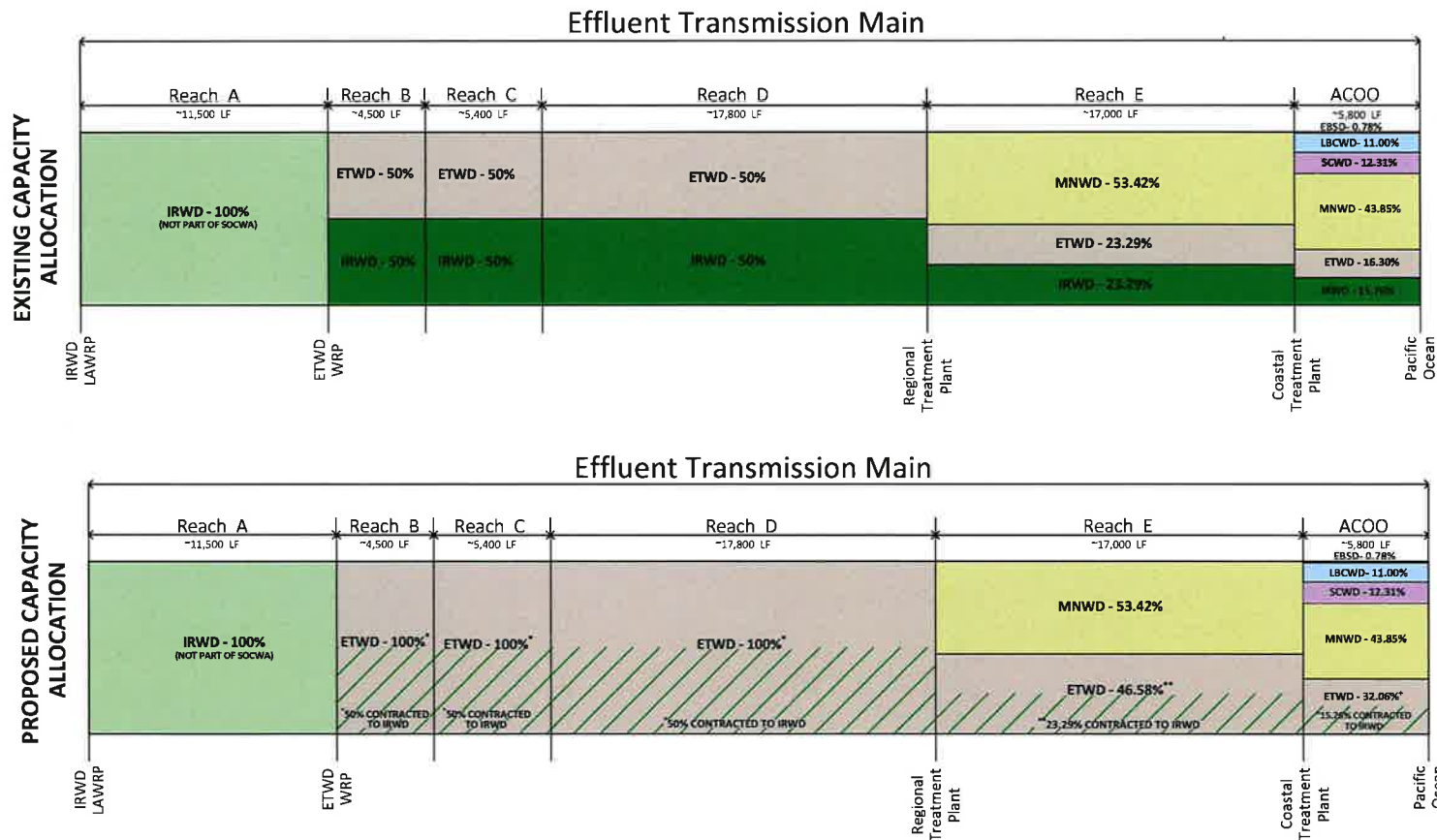
LIST OF EXHIBITS:

Exhibit "A" – ETM and ACOO Location Map and Capacity Allocations

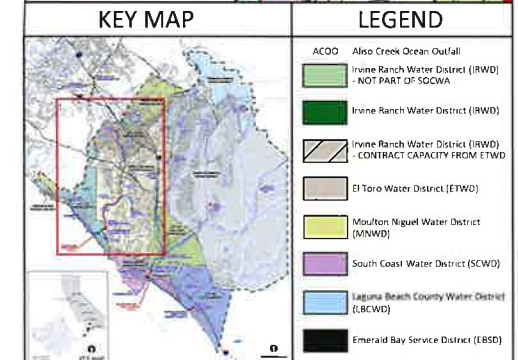
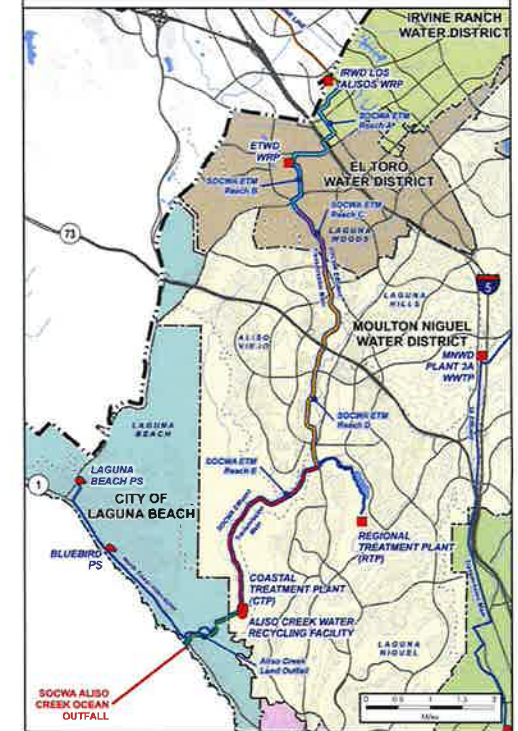
Exhibit "B" – Proposed Draft Terms for IRWD's Withdrawal from South Orange County
Wastewater Authority between IRWD, SOCWA and ETWD

EXHIBIT "A"

SOUTH ORANGE COUNTY WASTEWATER AUTHORITY (SOCWA) EFFLUENT TRANSMISSION MAIN EXISTING AND PROPOSED CAPACITY ALLOCATION



SITE MAP - EFFLUENT TRANSMISSION MAIN



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EXHIBIT “B”

DRAFT

**Proposed Terms for IRWD’s Withdrawal from
South Orange County Wastewater Authority (SOCWA)
Between IRWD, SOCWA and El Toro Water District (ETWD)**

February 15, 2022

IRWD/SOCWA Agreement Terms

- 1. IRWD will withdraw from the SOCWA JPA.**
- 2. IRWD will fund its portion of the unfunded public pension liability.**

IRWD/ETWD Agreement Terms

- 1. IRWD’s capacity in Reaches B through E of the Effluent Transmission Main and the Aliso Creek Ocean Outfall will be managed by SOCWA through ETWD.**
 - 2. IRWD will not have a representative on the SOCWA Board. ETWD will represent IRWD’s capacity in SOCWA.**
 - 3. The cost for IRWD’s contract services with ETWD for operations, maintenance, and capital will be the same as the SOCWA Board approved costs for SOCWA JPA members of Project Committees 8, 21 and 24, based on its capacity allocation, plus an ETWD administrative fee.**
 - 4. IRWD will continue to be governed by SOCWA’s Pre-Treatment Rules/Regulations.**
 - 5. IRWD will be responsible for permit violations and fines that are directly attributable to IRWD’s discharge.**
 - 6. IRWD’s contract services will continue until such time as IRWD and ETWD mutually agree to a termination agreement.**
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February 15, 2022

Prepared by: M. Cortez / E. Akiyoshi /
R. Mori

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

UPCOMING PROJECTS STATUS REPORT

SUMMARY:

A status report of Irvine Ranch Water District's Upcoming Projects is presented to the Committee for information.

BACKGROUND:

The information, which is provided as Exhibit "A", is a status report submitted quarterly to the Committee for review.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Upcoming Projects Status Report

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EXHIBIT "A"
IRWD UPCOMING PROJECTS STATUS REPORT

Project Name	Start	Start	Construction	Construction
	Planning	Design	Award	Final Acceptance
Gillette/Morse DW Pipeline Relocation				Winter 2022
IBC Sidewalk Relocations			Winter 2022	Spring 2022
SR 133- 36" Trunk Sewer Relocation		Winter 2022	Fall 2022	
Riparian View Paving		Winter 2022	Spring 2022	Spring 2022
HATS Diversion Structure Relining				Summer 2022
MWRP Compressed Natural Gas and Diesel/Gasoline Fueling Station			Spring 2022	Summer 2023
MWRP Tertiary Filter Rehabilitation			Summer 2022	Summer 2023
Operations Center Purchasing Warehouse			Fall 2022	Fall 2023
Generator Fuel Storage Upgrades			Spring 2022	
San Joaquin Reservoir Filtration Facility			Winter 2022	Spring 2023
DW Reservoir Air Vent and Misc. Retrofits			Winter 2022	Summer 2022
Coastal Z2 and Z4 Pump Stations Rehabilitation		Spring 2022		
Rattlesnake Outlet Pipe Flow Meter Replacement				Spring 2022
Silverado Bridge 174 DW Improvements			Winter 2023	Winter 2024
Silverado Bridge 175 DW Improvements			Summer 2022	Spring 2023
Woodbridge RW Replacement			Spring 2022	Winter 2023
Lake Forest Woods Sewer Improvements		Spring 2022		
Santiago Canyon Pump Station Improvements			Winter 2022	Summer 2023
Sewer Siphon Improvements Phase 1				Winter 2022
Turtle Rock Chloramine Booster Station			Spring 2022	
DATS Miscellaneous Repairs				Winter 2022
Lake Forest Well No. 2 Treatment and Improvements		Spring 2022		
Wells 1, 11, and 13 Rehabilitation				Winter 2022
DATS Well C8 Rehabilitation		Winter 2022	Spring 2022	Summer 2022
City of Orange Well No. 23 - Well Pump Feasibility Evaluation		Winter 2022		
SR-55 Freeway Widening - Sanitary Sewer Relocation on Cowan				Spring 2022
Well OPA-1 PFAS Treatment			Winter 2022	Winter 2023
15 MG Zone 1 Reservoir Coating Replacement and Improvements				Spring 2022
Well ET-1 PFAS Treatment			Spring 2022	Spring 2023
SGU PFAS Treatment			Summer 2022	
Zone A to Rattlesnake Reservoir BPS				Fall 2023
Lake Forest Zone B-C BPS				Fall 2022
SAC Pipeline Relocation in Santiago Creek at Irvine Regional Park				Spring 2022
Baker WTP Diesel Fuel Storage			Spring 2022	
PDF Sodium Hypochlorite Storage and Feed System				Fall 2022
Santiago Creek Dam Outlet Tower and Spillway Improvements			Spring 2023	
Rattlesnake Dam Risk Reduction Investigation	Spring 2022			
Santiago Canyon Fleming Zone 8 Tank and Zone 8-9 BPS			Summer 2022	Summer 2024
LAWRP Modernization		Summer 2022		

IRWD UPCOMING PROJECTS STATUS REPORT

Project Name	Start	Start	Construction	Construction
	Planning	Design	Award	Final Acceptance
LAWRP Construction Bypass Sewers		Summer 2022		
Crystal Cove RW PRV			Spring 2022	Fall 2022
Syphon Reservoir Access Road and Intersection Improvements			Winter 2023	Summer 2023
Syphon Reservoir Improvements			Winter 2024	Fall 2026
PA 12, Innovation Park DW and RW (RA w/ICDC)				Winter 2022
PA 12, Innovation Park DW (RA w/ICDC)				Winter 2022
PA 12, Innovation Park Regional RW (RA w/ICDC)				Fall 2022
PA 1, Jeffrey Road Extension RW (RA w/CDC)			Winter 2022	
Tustin Legacy, Flight Drive RW (RA w/Tustin)				Winter 2022
Tustin Legacy, Neighborhood South Phase 1, S (RA with/Tustin)				Summer 2022
PA 51, Marine Way DW, RW (RA w/Heritage Fields)				Winter 2022
PA 51, South C St and LY St, S, RW (RA w/Heritage Fields)				Winter 2022
PA 51, Alton Pkwy from Technology to Muirlands, DW S, RW (RA w/Heritage Fields)				Winter 2022
PA 51, Marine Way from Barranca Pkwy to Alton Pkwy, DW S, RW (RA w/Heritage Fields)				Spring 2022
PA 51, Alton Interceptor Sewer (RA w/Heritage Fields)				Spring 2022
PA 51, Marine Way from Alton to Barranca Sewer (RA w/Heritage Fields)				Spring 2022
PA 51, GP1 St DW, S, RW (RA w/Heritage Fields)				Spring 2022
PA 51, GP2 St, DW, S, RW (RA w/Heritage Fields)				Spring 2022
PA 51, Magnet from Ridge Valley to Bosque RW (RA w/Heritage Fields)				Spring 2022
PA 51, Cadence South DW, S, RW (RA w/Heritage Fields)				Summer 2022
PA 51, District 5 A St DW, RW (RA w/Heritage Fields)				Summer 2022
PA 51, Chinon from Cadence South to Cadence (RA w/Heritage Fields)				Summer 2022
PA 51, District 5, F and N St DW, RW				Summer 2022
PA 51, District 5, E St RW (RA w/Heritage Fields)				Summer 2022
PA 51, District 5, Astor DW, RW (RA w/Heritage Fields)				Summer 2022
PA 51, District 5, Merit DW, RW (RA w/Heritage Fields)				Summer 2022
PA 51, District 5, BB St RW (RA w/Heritage Fields)				Summer 2022
PA 51, District 5, P St and Cadence DW, RW (RA w/Heritage Fields)				Summer 2022
PA 51, Marine Way from Alton Pkwy to Bake Pkwy DW, RW (RA w/Heritage Fields)			Winter 2022	
PA 51, Marine Way at Bake Parkway DW (RA w/Heritage Fields)			Winter 2022	
The Meadows, SS (RA w/Toll Brothers)				Fall 2022
Steel Tank Assessment	Winter 2022			
Potable Hydraulic Model Updates	In-Process			
Pump Station and Lift Station Assessment	Winter 2022			
IRIS Replacement Planning Model Treatment Plant Cost Update	In-Process			
Mid-Cycle Capital Budget Update	Spring 2022			
GIS Master Plan	Winter 2022			

IRWD UPCOMING PROJECTS STATUS REPORT

Project Name	Start	Start	Construction	Construction
	Planning	Design	Award	Final Acceptance
			Category	Months
			Winter	Jan. Feb. & Mar.
			Spring	Apr. May & June
			Summer	Jul. Aug. & Sep.
			Fall	Oct. Nov. & Dec.

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February 15, 2022

Prepared by: J. Moeder / R. Mori

Submitted by: K. Burton

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

RATTLESNAKE DAM SEISMIC EVALUATION UPDATE

SUMMARY:

IRWD recently completed initial semi-qualitative risk analyses on all five of its dams. One of the findings identified the need for additional seismic evaluation of Rattlesnake Dam. In October 2021, IRWD retained HDR to perform a preliminary seismic evaluation of Rattlesnake Dam. HDR recently completed the evaluation, and staff will provide a presentation summarizing the overall scope of the evaluation and associated findings, recommendations, and next steps.

BACKGROUND:

Rattlesnake Dam was constructed in 1959 by the Irvine Company, and IRWD acquired it in 1971. Rattlesnake Dam is an earthen embankment dam with a spillway crest elevation of 412 feet, which yields a storage volume of 1,400 acre-feet (AF). The dam, which is built on alluvium fill, was initially operated up to the spillway crest elevation until the early 1980s when IRWD and the Division of Safety of Dams (DSOD) began evaluating the liquefaction potential of the alluvium foundation. Those evaluations resulted in a DSOD-established maximum water level restriction of elevation 406-feet. IRWD has operated Rattlesnake up to this level since 1982, which yields a reduced total reservoir storage volume of 1,100 AF.

As part of enhancing IRWD's dam safety program and integrating Risk Informed Decision Making into the program, HDR completed semi-qualitative risk analysis on all five of IRWD's dams. One of the findings identified the need for additional seismic evaluation at Rattlesnake Dam. In October 2021, IRWD contracted with HDR to perform a preliminary seismic evaluation, which confirmed the need for additional geotechnical investigations and for additional in-depth seismic analyses. Staff will provide a presentation summarizing the overall scope of the evaluation and associated findings, recommendations, and next steps. A glossary of terms and the draft presentation are included as Exhibits "A" and "B", respectively.

FISCAL IMPACTS:

Staff will bring a consultant selection recommendation for additional seismic analyses and geotechnical investigations to the Board for consideration in the coming months at which time staff will also recommend the addition of a new project to the capital budget to fund that work.

ENVIRONMENTAL COMPLIANCE:

This project is not subject to the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15061 (b) (3), in that CEQA applies only to projects that may result in a direct physical change in the environment or reasonably foreseeable indirect physical change in the environment.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit “A” – Glossary of Terms

Exhibit “B” – Rattlesnake Dam Preliminary Seismic Evaluation Draft Presentation

EXHIBIT “A”

GLOSSARY OF TERMS

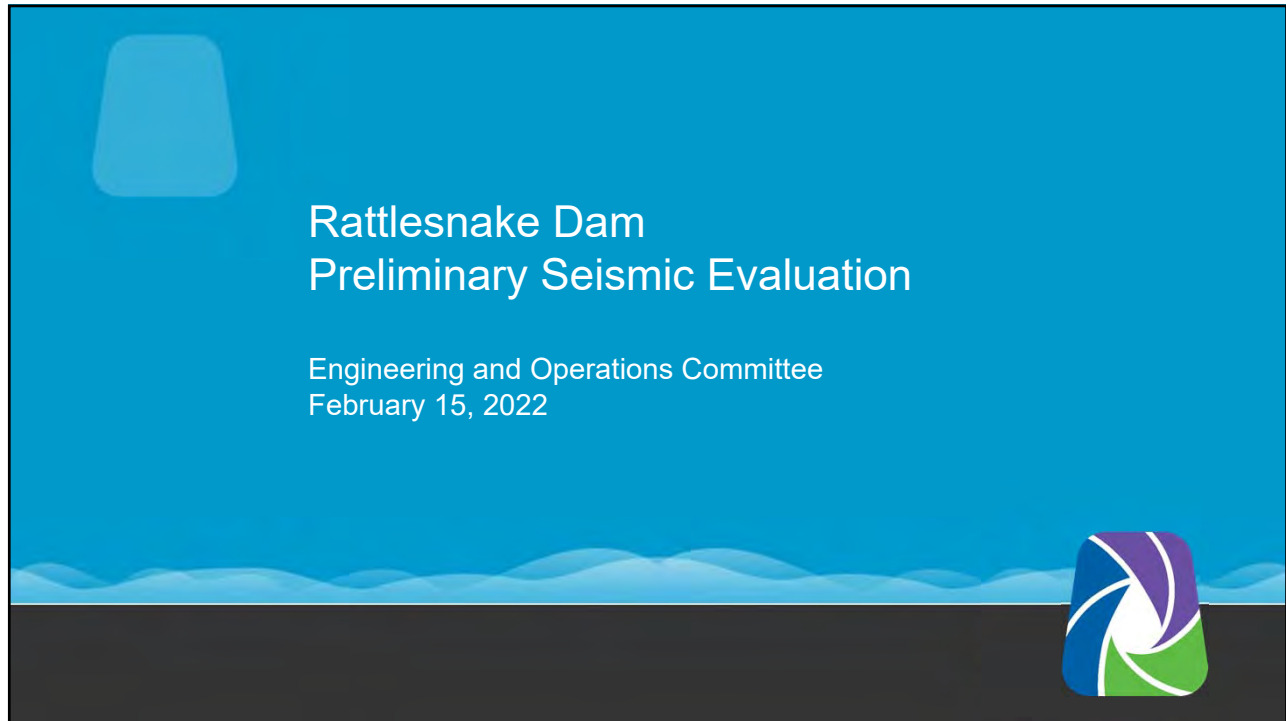
Definition:

Risk: the product of likelihood of a structure being loaded, adverse structural performance, and the magnitude of the resulting consequences.

Abbreviations:


AF	Acre-Feet
DSOD	Division of Safety of Dams
DSP	Dam Safety Program
FT	Feet
IRRM	Interim Risk Reduction Measure
PFM	Potential Failure Mode
RIDM	Risk-Informed Decision Making
SQRA	Semi-Quantitative Risk Analysis

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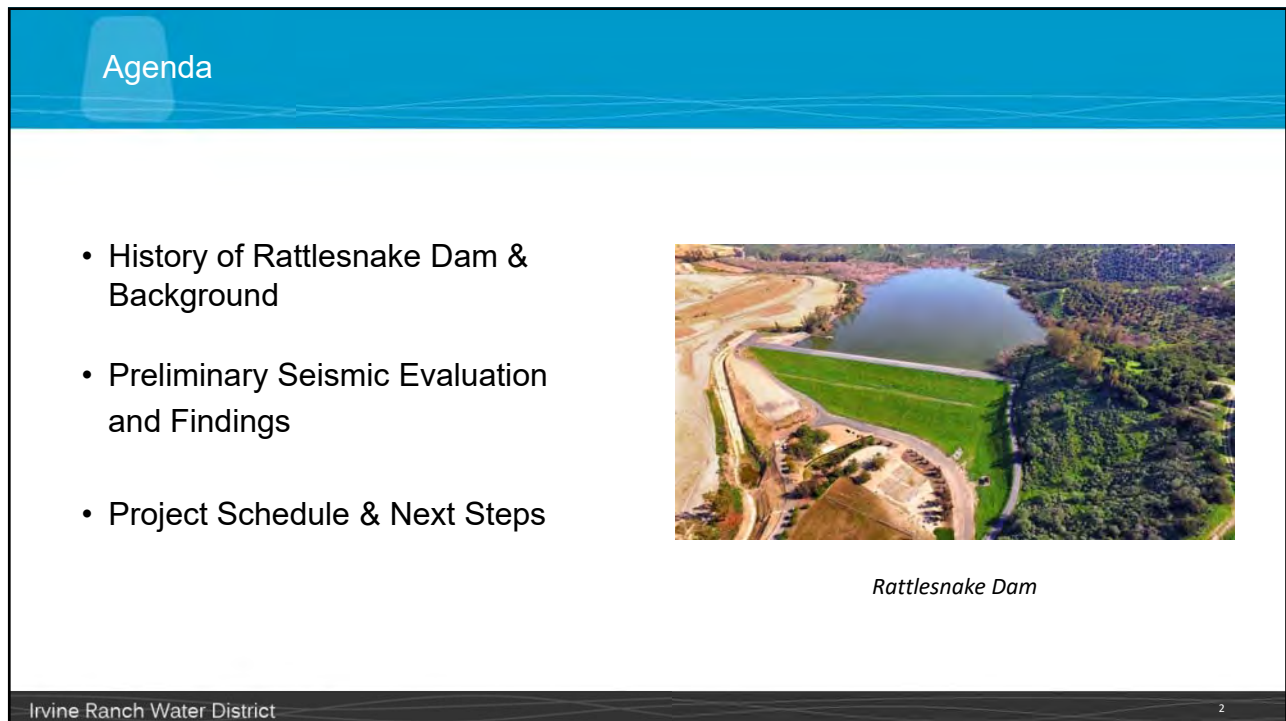


Rattlesnake Dam
Preliminary Seismic Evaluation

Engineering and Operations Committee
February 15, 2022




1



Agenda

- History of Rattlesnake Dam & Background
- Preliminary Seismic Evaluation and Findings
- Project Schedule & Next Steps



Rattlesnake Dam

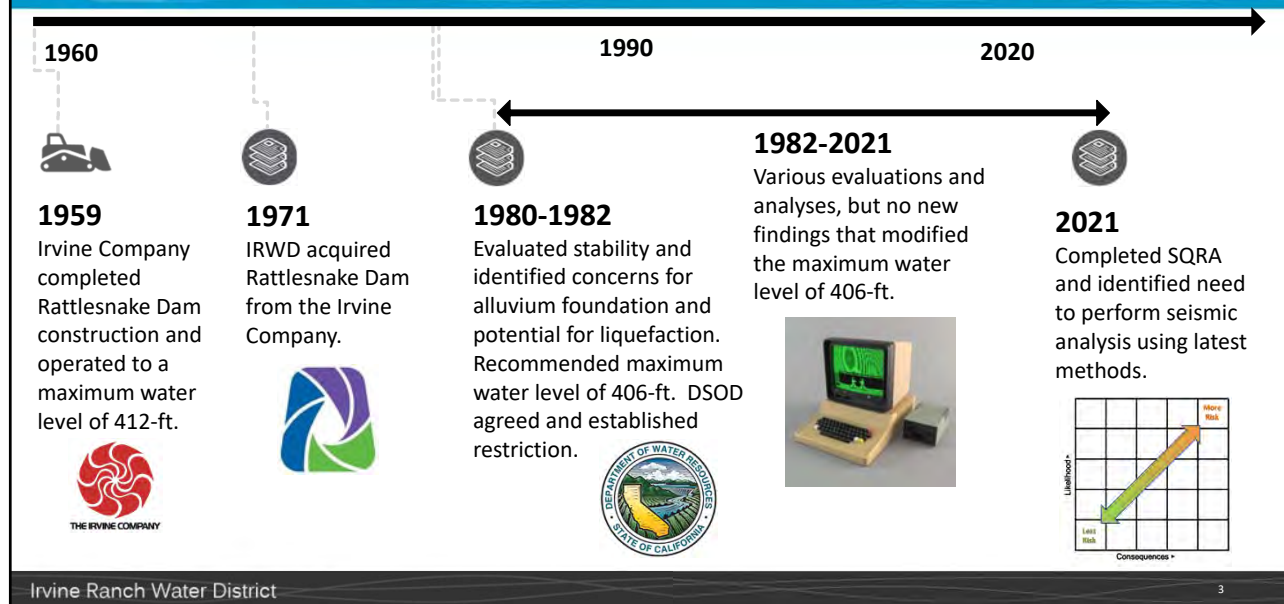
Irvine Ranch Water District

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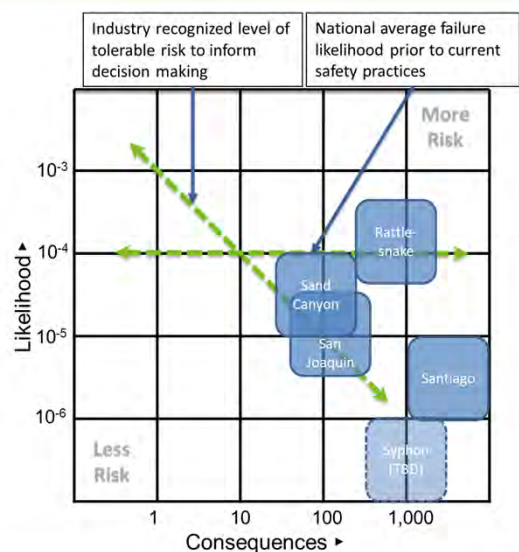
History of Rattlesnake Dam



3

Background – Recap of October 2021 Board Meeting

- Established the framework for enhancing IRWD's dam safety program that includes Risk-Informed Decision Making (RIDM) as a core component of the program
- Completed Semi-Quantitative Risk Analysis (SQRA) on IRWD's dam portfolio that identified the following:
 - No conditions requiring emergency actions were identified
 - Rattlesnake Dam posed a higher risk in the portfolio driven by seismic performance, potential for liquefaction of alluvium foundation, and seepage through the embankment
 - Initial action items to complete in 2022 including evaluating Interim Risk Reduction Measure at Rattlesnake Dam



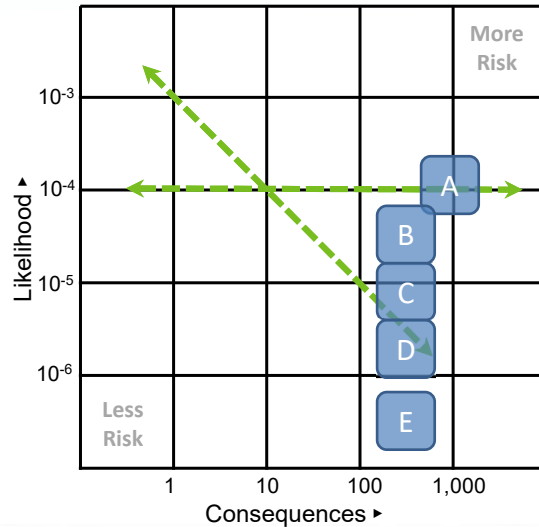
Irvine Ranch Water District

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Background – Potential Failure Modes Influencing Total Risk at Rattlesnake Dam

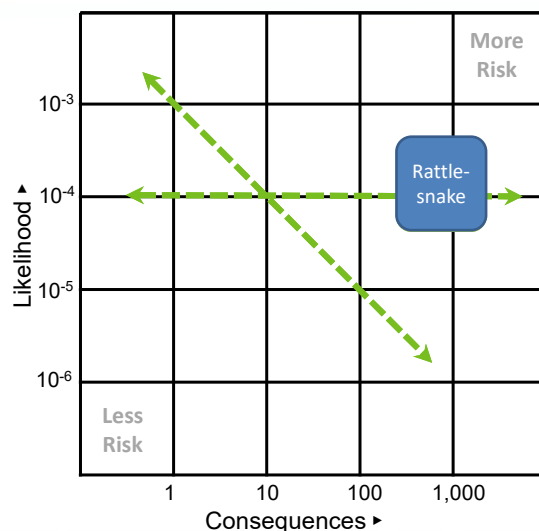
- A: Deformation of embankment due to loss of strength of embankment materials and/or liquefaction of alluvium foundation
- B: Internal erosion through soil foundation
- C: Internal erosion along the outlet conduit
- D: Spillway slab failure
- E: Internal erosion through embankment



5

Preliminary Seismic Evaluation and Findings

- Previous studies indicate presence of alluvium foundation material, potential for liquefaction of foundation, and a wide range of material strengths.
- Additional geotechnical investigations and evaluations are needed to characterize extent and strengths of liquefiable materials.
- Permitted operating level of 406-ft may not provide adequate risk reduction.
- Preliminary slope stability analysis indicates significant risk reduction by operating at or below elevation 395-ft.



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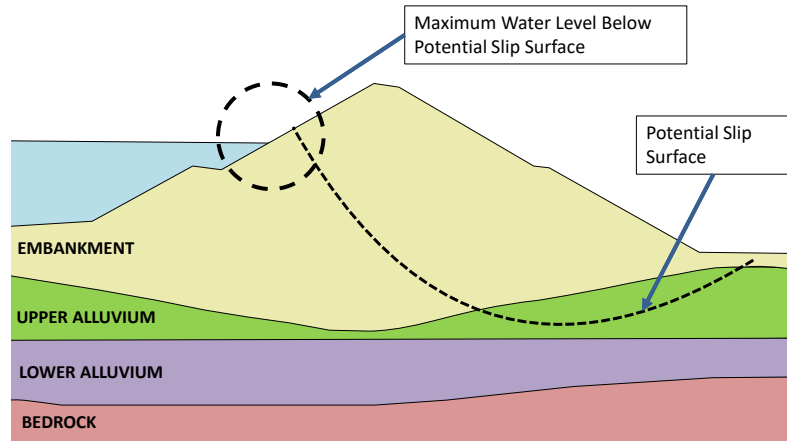
Findings – Interim Maximum Water Level at Rattlesnake Reservoir

Finding:

Decreasing the maximum water level reduces the risk of the PFM with the greatest likelihood of occurring.

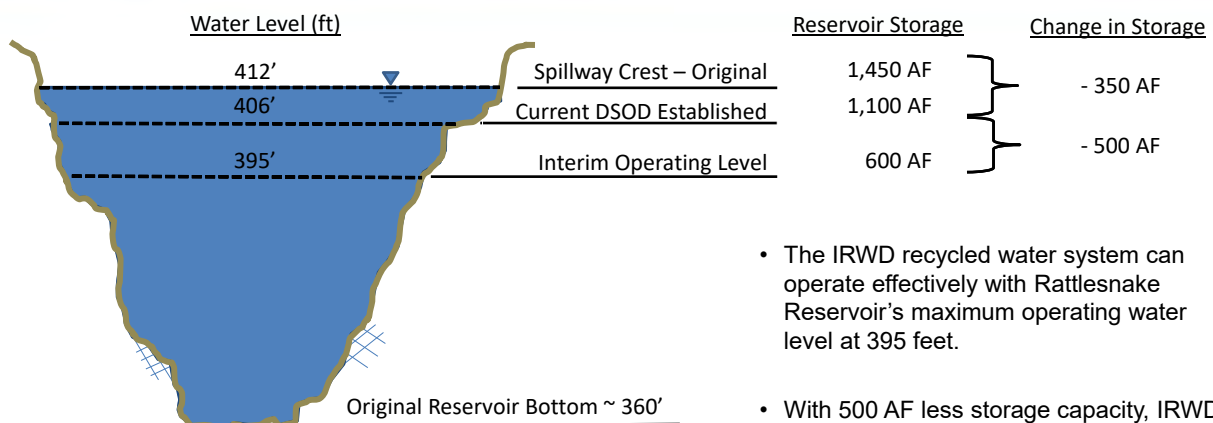
Action:

Staff intends to continue operating the reservoir at a maximum water level of 395-ft until further notice.



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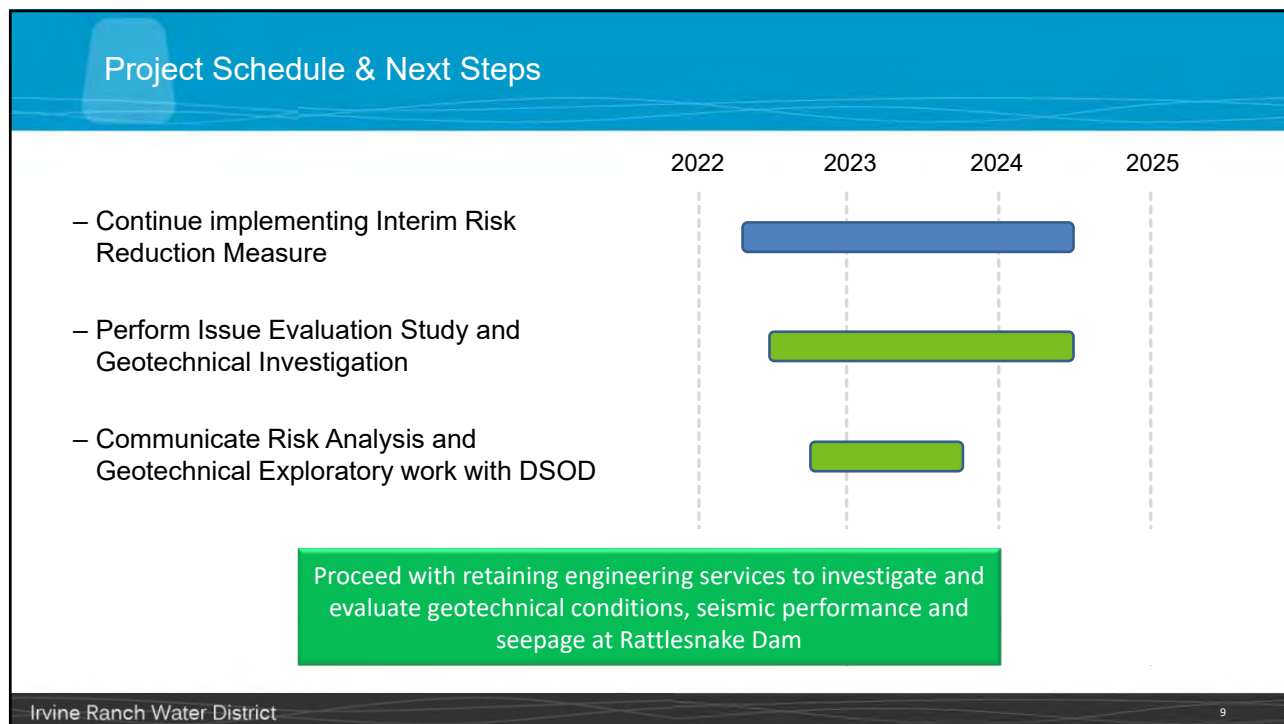
Rattlesnake Reservoir Storage



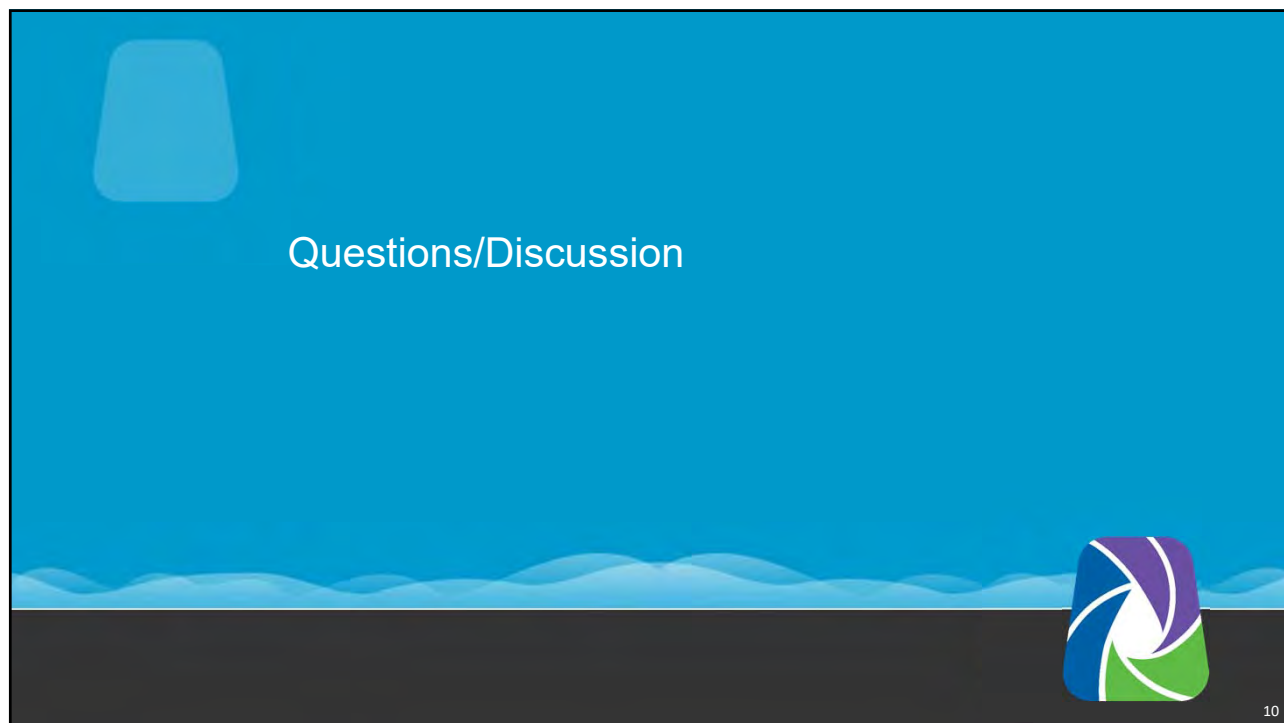
- The IRWD recycled water system can operate effectively with Rattlesnake Reservoir's maximum operating water level at 395 feet.
- With 500 AF less storage capacity, IRWD will need to buy an additional 500 AF of supplemental water. (For 2022, an estimated cost of \$400,000.)

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