

INDIAN WELLS VALLEY GROUNDWATER AUTHORITY TECHNICAL ADVISORY COMMITTEE

Indian Wells Valley Water District 500 W. Ridgecrest Blvd. Ridgecrest, CA 93555

A G E N D A

Thursday, August 2nd, 2018, Time 1:00 p.m.

In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, please contact Ronald Strand at (760) 499-5002. Requests must be made as early as possible and at least one full business day before the start of the meeting. Documents and material relating to an open session agenda items that are provided to the IWVGA TAC Committee prior to a regular meeting will be available for public inspection and copying at Indian Wells Valley Water District, 500 W. Ridgecrest Blvd, Ridgecrest, CA 93555, or online at <https://iwvga.org/>.

Statements from the Public

The public will be allowed to address the Committee during Public Comments about subjects within the jurisdiction of the IWVGA Technical Advisory Committee and that are NOT on the agenda. No action may be taken on off-agenda items unless authorized by law. Questions posed to the Committee may be answered after the meeting or at future meeting. Dialog or extended discussion between the public and the Committee or staff will be limited in accordance with the Brown Act. The Public Comments portion of the meeting shall be limited to three (3) minutes per speaker. Each person is limited to one comment during Public Comments. Legal representatives are available for information regarding the Brown Act and will be present for comments if needed.

All remarks and questions should be addressed to the Committee as a whole and not to any individual member or staff. There will be time after each action item on the agenda to receive comments from the public. Again each speaker will be limited to three (3) minutes. Speakers should be brief and limit their comments to the specific subject being discussed. Persons will be limited to one comment per person unless directed by the Chair.

1. CALL TO ORDER

- a. Roll Call of TAC Members Attending

2. PUBLIC COMMENTS

This time is reserved for the public to address the Committee about matters NOT on the agenda. No action will be taken on non-agenda items unless authorized by law. Comments are limited to three minutes per person.

3. WATER RESOURCES MANAGER'S DISCUSSION OF DRAFT GSP SECTIONS (WORK IN PROGRESS)

- a. GSP Preliminary Draft Outline
- b. Projects and Management Criteria: Alternative Water and Conservation
- c. Projects and Management Actions: Recycled Water Tech Memo
- d. Projects and Management Actions: Potential Ad Hoc Assignments

IWVGA TAC COMMITTEE
Meeting of August 2, 2018

4. FUTURE AGENDA ITEMS (AUGUST TAC)

- a. Projects and Management Actions: Alternative Water and Conservation
- b. Projects and Management Actions: Recycled Water Tech Memo
- c. Sustainable Management Criteria: Existing Monitoring Network
- d. Sustainable Management Criteria: Transducers/Telemetry
- e. Projects and Management Actions: Modeling Scenarios
- f. Plan Area and Basin Setting: Model Calibration Workshop Discussion
- g. Sustainable Management Criteria: Monitoring Protocols
- h. Database Management System: Status Report

5. FUTURE TAC MEETING DATES

- a. Next three month planned dates:
 - i) September 6th, October 4th and November 1st

6. WATER RESOURCES MANAGER/COMMITTEE MEMBER ANNOUNCEMENTS OR COMMENTS

- a. WRM – No items at this time.
- b. TAC

7. ADJOURN

INDIAN WELLS VALLEY GROUNDWATER BASIN

PRELIMINARY DRAFT GSP OUTLINE

JULY 26, 2018

SECTION 1: INTRODUCTION

1.1 PURPOSE OF THE GROUNDWATER SUSTAINABILITY PLAN

1.2 SUSTAINABILITY GOAL (BRIEF DESCRIPTION)

1.3 AGENCY INFORMATION

1.3.1 Organization and Management Structure of the Indian Wells Valley Groundwater Authority

1.3.1.1 Agency Interest and Roles (Ridgecrest, IWVWD, Kern County, San Bernardino County, Inyo County, Navy, BLM)

1.3.1.2 TAC and PAC

1.3.2 Legal Authority

1.3.3 Implementation Costs

1.4 NOTICE AND COMMUNICATION

1.4.1 PAC Stakeholder/Public Outreach

1.5 GSP ORGANIZATION (BRIEF DESCRIPTION)

SECTION 2: PLAN AREA AND BASIN SETTING

2.1 DESCRIPTION OF THE PLAN AREA

2.1.1 General Description (Regional and Local Maps)

2.1.2 Jurisdictional Areas and Other Features

2.1.2.1 Regional Water Management Agencies

2.1.3 Existing Water Resources Monitoring and Management Programs

2.1.4 Land Use Elements

2.1.5 Well Permitting Policies and Procedures

2.1.5.1 Policies and Procedures Prior to GSA Formation

2.1.5.2 Current Policies and Procedures

2.2 BASIN SETTING

2.2.1 Hydrogeologic Conceptual Model

2.2.2 Current and Historical Groundwater Conditions and Hydrology

2.2.3 Water Budget

2.2.3.1 Prior Studies

2.2.3.2 Current and Projected Water Budget

2.2.4 Management Areas (If Applicable)

SECTION 3: PROJECTS AND MANAGERMENTS ACTIONS

3.1 EVALUATION OF POTENTIAL MANAGEMENT ACTIONS

3.1.1 Recycled Water

3.1.2 Imported Water

3.1.3 Brackish Water

3.1.4 Conservation

3.1.4.1 Industrial Conservation

3.1.4.2 Agricultural Conservation

3.1.4.3 Domestic Conservation

3.1.4.4 Navy Conservation

3.1.5 Pumping Restrictions/Allocations

3.1.5.1 Development of Scenarios

3.1.5.2 Selected Allocation/Scenario

3.2 MANAGEMENT ACTION PORTFOLIO

3.2.1 Development of Modeling Scenarios and Model Runs

3.2.2 Evaluation and Final Determination of Management Actions to Reach Sustainability

3.3 PROJECT #1

3.4 PROJECT #2

3.5 PROJECT #3

SECTION 4: SUSTAINABLE MANAGEMENT CRITERIA

4.1 SUSTAINABILITY GOAL

4.2 UNDESIRABLE RESULTS

4.2.1.1 General Description

4.2.1.2 Indian Wells Valley Undesirable Results

4.3 MINIMUM THRESHOLDS

4.4 MEASURABLE OBJECTIVES

4.4.1 Review of Options

4.4.2 Selected Objectives for Sustainability

4.4.3 Interim Milestones

4.5 MONITORING NETWORK

4.5.1 Description of Existing Monitoring Network

4.5.2 Monitoring Network Assessment Data Gap Evaluation

4.5.3 Proposed Monitoring Schedule

4.5.4 Monitoring Protocols

4.5.5 Representative Monitoring Sites

SECTION 5: PLAN IMPLEMENTATION

5.1 GSP IMPLEMENTATION COSTS

5.1.1.1 GSP Development Costs and Sources of Funding

5.1.1.2 GSP Project Implementation Costs and Sources of Funding

5.2 SCHEDULE FOR IMPLEMENTATION

5.3 ANNUAL REPORTING AND 5-YEAR SUMMARY

5.4 PERIODIC EVALUATIONS AND REPORTING TO DWR

SECTION 6: REFERENCES AND TECHNICAL STUDIES

Alternative Opportunities and Constraints to Enhance Water Supplies

INDIAN WELLS VALLEY GROUNDWATER AUTHORITY
Technical Advisory Committee Meeting

August 2, 2018

Stetson Engineers Inc.

Overview

- ▶ State Water Project (SWP) water supply reliability
- ▶ Groundwater banking
 - ▶ Studies related to banking in IWV
- ▶ Potential alternative water projects
 - ▶ Antelope Valley - East Kern Water Agency (AVEK) alternative
 - ▶ Los Angeles Department of Water and Power (LADWP) alternative
 - ▶ Facilities and revised cost estimates
- ▶ Next Steps

SWP Water Supply Reliability

- ▶ Maximum Table A entitlements are not available for actual delivery every year due to varying hydrologic conditions.
 - ▶ Maximum annual Table A delivery amount : **4,173 thousand acre-feet (TAF)**
 - ▶ DWR determines the total amount of SWP water to be delivered each year.
 - ▶ SWP water then allocated in proportion to each contractor's maximum Table A amount
- ▶ Historical total annual Table A deliveries (2007-2016)
 - ▶ Maximum: 2,901 TAF in 2011
 - ▶ Minimum: 475 TAF in 2014
 - ▶ 10-year Average: 1,778 TAF
- ▶ Table A deliveries in single dry year conditions could be as low as 11% (in 2014) of the maximum Table A amount.

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SWP Water Supply Reliability (cont.)

- ▶ Regulations limiting annual SWP Delta exports are expected to increase in the future, including:
 - ▶ Flow restrictions imposed by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to protect threatened and endangered fish species and the local ecosystems
 - ▶ Water quality objectives set by the SWRCB to maintain beneficial uses in the Delta
- ▶ California WaterFix (CWF)
 - ▶ Construction of new SWP facilities including two 40-foot wide tunnels in the north Delta for "dual-conveyance" operations
 - ▶ Allows water to be diverted from the north Delta, south Delta, or both depending on the needs of aquatic species and water quality conditions
 - ▶ **Expected to improve water supply reliability of SWP water deliveries**
- ▶ Draft supplemental EIR/EIS for CWF released for public review and comment on July 17, 2018
 - ▶ Builds upon previous EIR/EIS released in 2016 to include modifications to facility design

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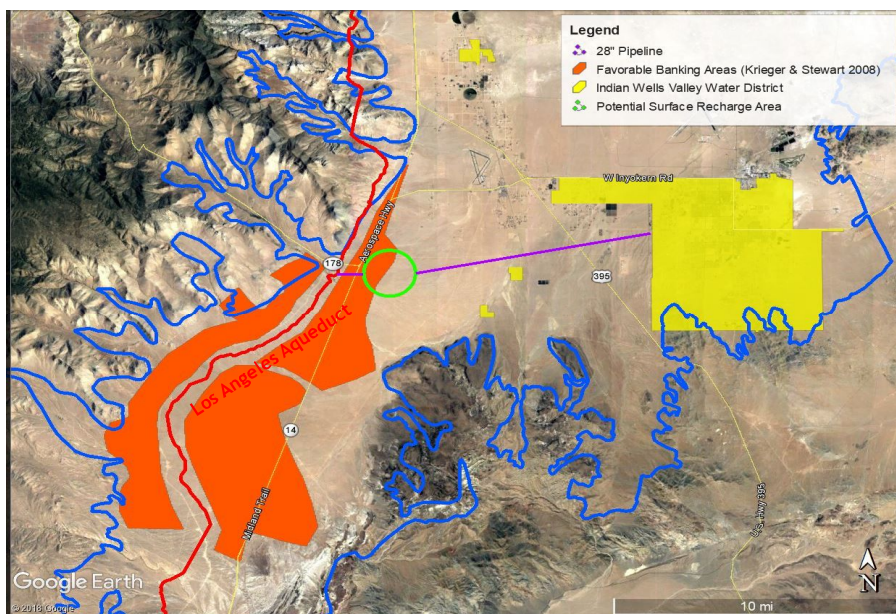
Groundwater Banking

- ▶ *Indian Wells Valley Water District Groundwater Banking Site Selection Report: Geologic and Engineering Considerations*
 - ▶ Prepared by Krieger & Stewart and Cato Geoscience in 2008 to evaluate the viability of banking water in Indian Wells Valley for LADWP
 - ▶ Reconnaissance-level assessment with recommendations for future geotechnical and geological studies to be performed
 - ▶ Areas identified as favorable for groundwater banking through percolation (surface spreading) or direct injection
 - ▶ El Paso area
 - ▶ Freeman/Dixie Wash

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Groundwater Banking (Krieger & Stewart, 2008)



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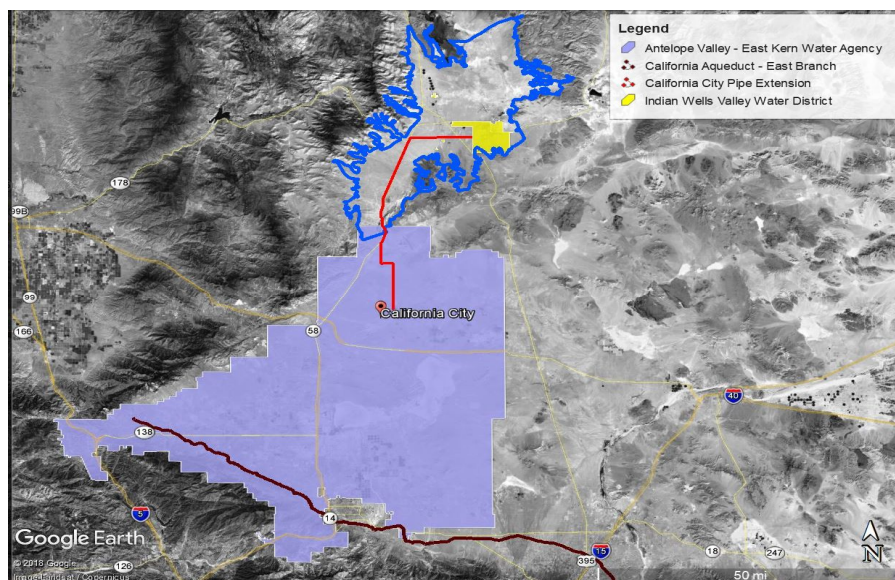
Alternative Water Opportunities: Prioritization

- ▶ First priority alternative water opportunities:
 - ▶ AVEK Project
 - ▶ Exchange/transfer for direct use in existing IWV water systems
 - ▶ New booster station(s) and pipeline
 - ▶ LADWP Project
 - ▶ Banking program and/or exchange/transfer
 - ▶ LA Aqueduct turnout
 - ▶ Pipeline and recharge facilities
 - ▶ Recovery, storage, and distribution facilities

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Indian Wells Valley - AVEK Facilities Extension



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Conceptual Costs for Facilities - AVEK

Capital Costs

Item	Unit Price	Units	Quantity	Total
Booster pump station	\$2,900,000	Each	2	\$5,800,000
28" steel pipeline extension	\$680	Linear Foot	250,000	\$170,000,000
1 MG steel reservoir	\$2,175,000	Each	1	\$2,175,000
			Subtotal	\$177,975,000

Annual O&M Costs

Item	Unit Price	Units	Quantity	Total
Pump station maintenance	\$290,000	Lump sum	1	\$290,000
Pump station power	\$5,279,000	Lump sum	1	\$5,279,000
			Subtotal	\$5,569,000

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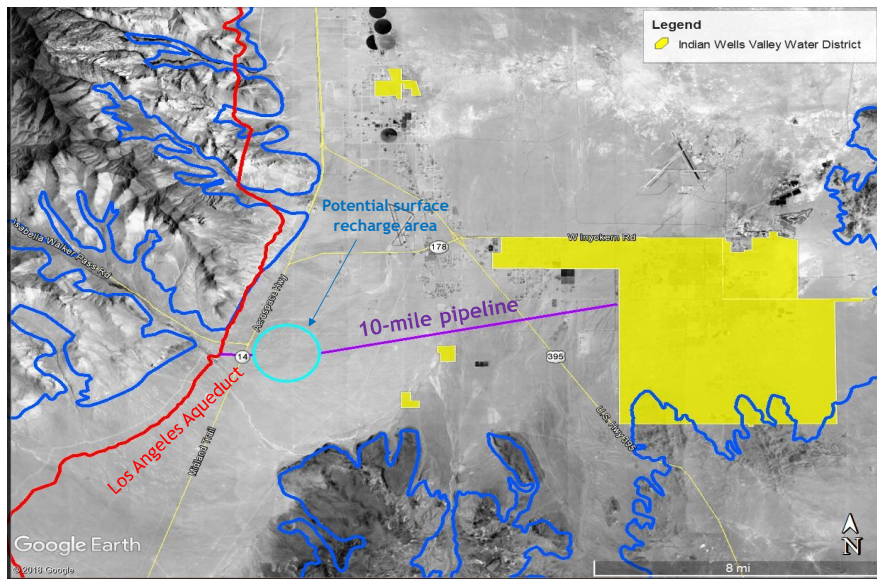
Cost Summary - AVEK Project

- ▶ SWP water rights and purchases: Table A permanent transfer unit cost of \$6,000/AF
 - ▶ Total permanent transfer cost for 30,000 AFY of entitlement - \$180,000,000
- ▶ SWP transportation charge - \$422/AF
 - ▶ Total annual transportation cost for 15,000 AFY to be delivered - \$6,330,000
- ▶ Wheeling/treatment charge - \$634/AF
 - ▶ Total annual wheeling/treatment cost for 15,000 AFY to be delivered - \$9,510,000
- ▶ Facilities
 - ▶ Capital cost - \$177,975,000
 - ▶ Annual O&M cost - \$5,569,000
- ▶ 30-year amortization
 - ▶ Total annual cost - \$42,110,700 per year
 - ▶ Total cost per AF - \$2,810/AF

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Indian Wells Valley - Los Angeles Aqueduct Extension



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Conceptual Costs for Facilities - LADWP

Capital Costs

Item	Unit Price	Units	Quantity	Total
Aqueduct turnout	\$145,000	Each	1	\$145,000
28" pipeline to spreading grounds	\$680	Linear Foot	5,300	\$3,604,000
Spreading grounds (~400 acres)	\$5,307,000	Lump Sum	1	\$5,307,000
Recovery wells	\$2,206,000	Each	5	\$11,030,000
Chlorination facilities	\$145,000	Lump Sum	1	\$145,000
1 MG steel reservoir	\$2,175,000	Each	1	\$2,175,000
28" pipeline to IWVWD	\$680	Linear Foot	48,000	\$32,640,000
			Subtotal	\$55,046,000

Annual O&M Costs

Item	Unit Price	Units	Quantity	Total
Spreading grounds maintenance	\$180,000	Lump Sum	1	\$180,000
Well power	\$1,760,000	Lump Sum	1	\$1,760,000
			Subtotal	\$1,940,000

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Cost Summary - LADWP Project

- ▶ SWP water rights and purchases: Table A permanent transfer unit cost of \$6,000/AF
 - ▶ Total permanent transfer cost for 30,000 AFY of entitlement - \$180,000,000
- ▶ SWP transportation charge - \$422/AF
 - ▶ Total annual transportation cost for 15,000 AFY to be delivered - \$6,330,000
- ▶ Wheeling charge - \$314/AF
 - ▶ Total annual wheeling cost for 15,000 AFY to be delivered \$4,710,000
 - ▶ Additional facilities (e.g. arsenic treatment) may be necessary depending on basin water quality and mixing.
- ▶ Facilities
 - ▶ Capital cost - \$55,046,000
 - ▶ Annual O&M cost - \$1,940,000
- ▶ 30-year amortization
 - ▶ Total annual cost - \$26,572,700 per year
 - ▶ Total cost per AF - \$1,770/AF

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Next Steps

- ▶ Refine costs
- ▶ Continue discussions with potential alternative water partners
- ▶ Develop alternative water conservation programs
- ▶ Prepare technical memorandum

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Thank You