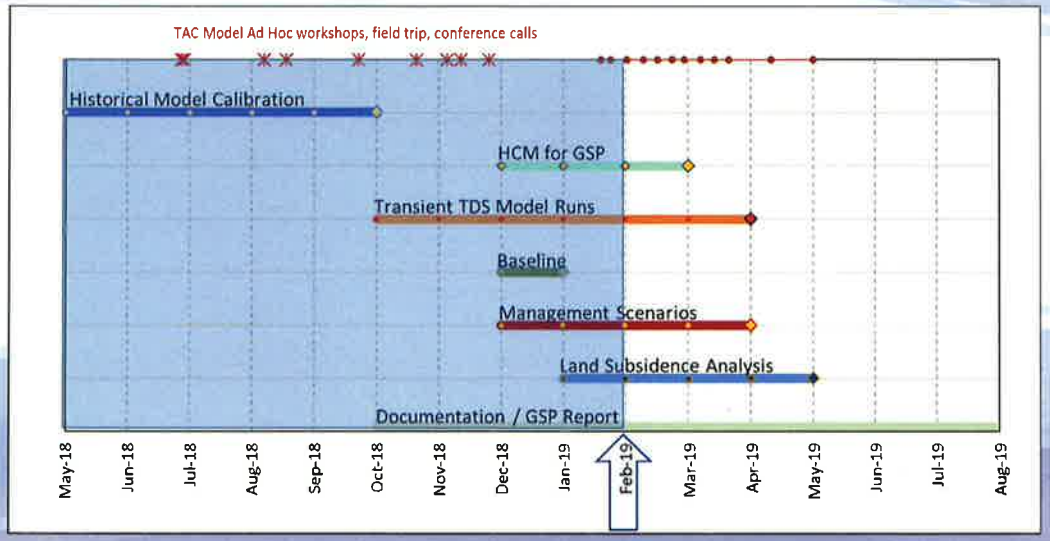
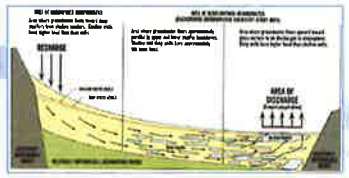
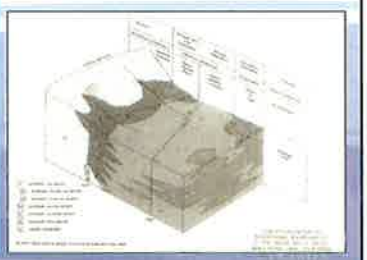
3a-i Modeling Timeline and GSP Report Sections



3a-i Hydrogeologic Conceptual Model





Indian Wells Valley
Draft TDS Transport Model
Baseline Pumping Conditions

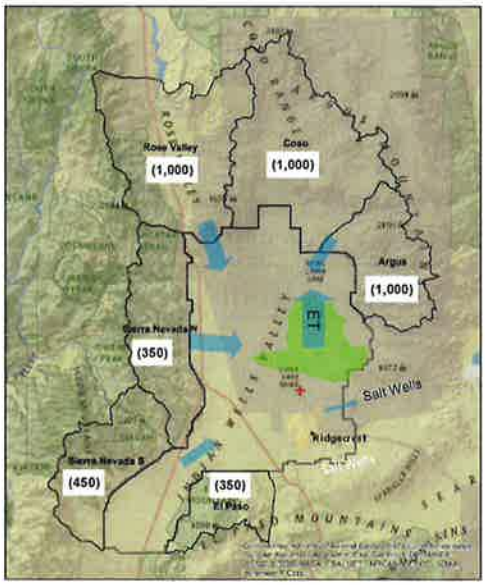
February 7, 2019

DRAFT – Subject to change

Conceptual Model

- Sources:
  - Solutes in recharge
  - Dissolution of minerals in basin
  - Mixing with saltier groundwater
    - Remnant evaporative brines
    - Geothermal fluids
- Concentration by evaporation

- Sinks:
  - Solutes in discharge to Searles valley
  - Precipitation of minerals



DRAFT – Subject to change

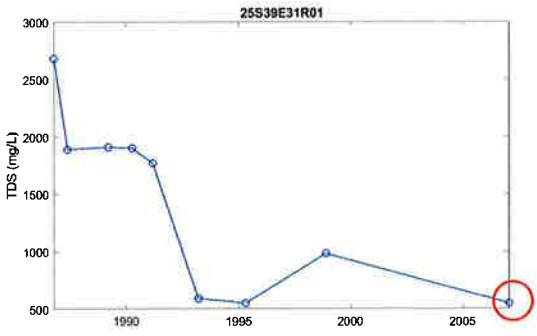
TDS Model Process

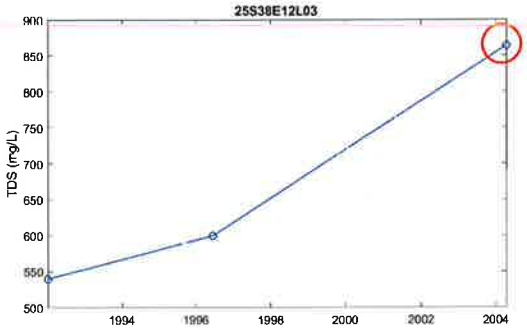
- Step #1 – Compile and QA Dataset
  - Dataset from Stetson – quality checked back to original published sources. Includes data compiled in BWG database, GAMA, and from AB303 (2003). Stetson identified 563 locations and 2,006 TDS values.
  - DRI used TDS data for 412 wells (locations missing depths were excluded). A small number of these were combined, for a total of 391 wells in the transport model. The most recent TDS measurement is used, if multiple dates are available.

DRAFT – Subject to change

TDS Model Process

- Step #2 – Select most recent TDS value for single well

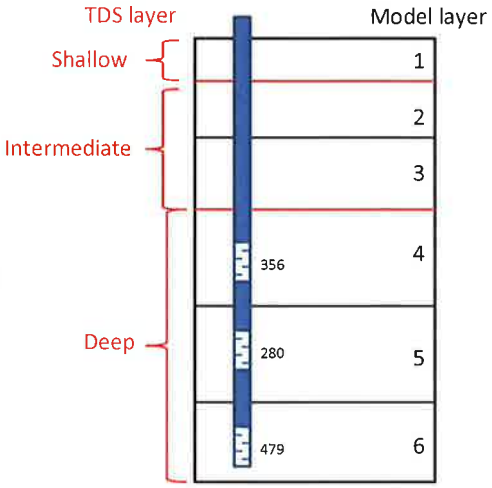




DRAFT – Subject to change

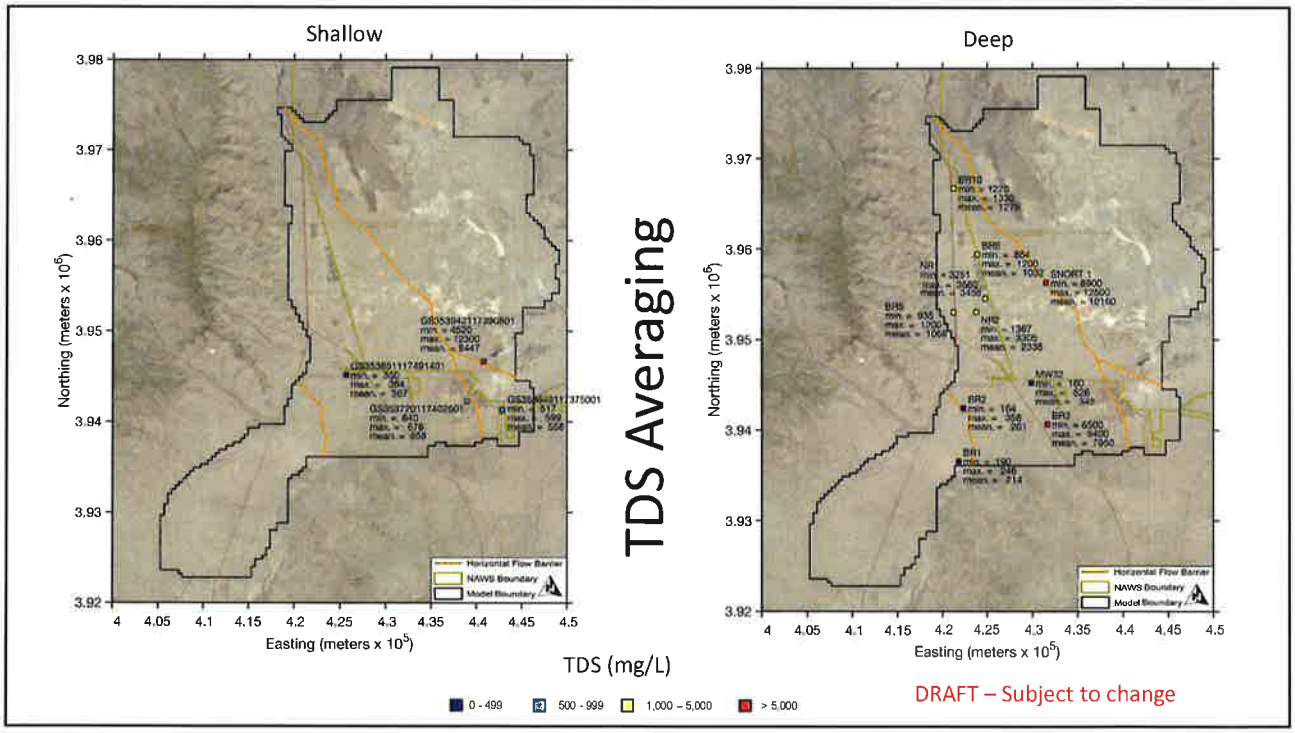
TDS Model Process

- Step #3 – Partition domain into three layers
  - Shallow (model layer 1)
  - Intermediate (model layers 2-3)
  - Deep (model layers 4-6)
  - Not enough TDS data to interpolate to six layers independently
- Step #4 – Average TDS values
  - Average TDS values if multiple values fall into single layer

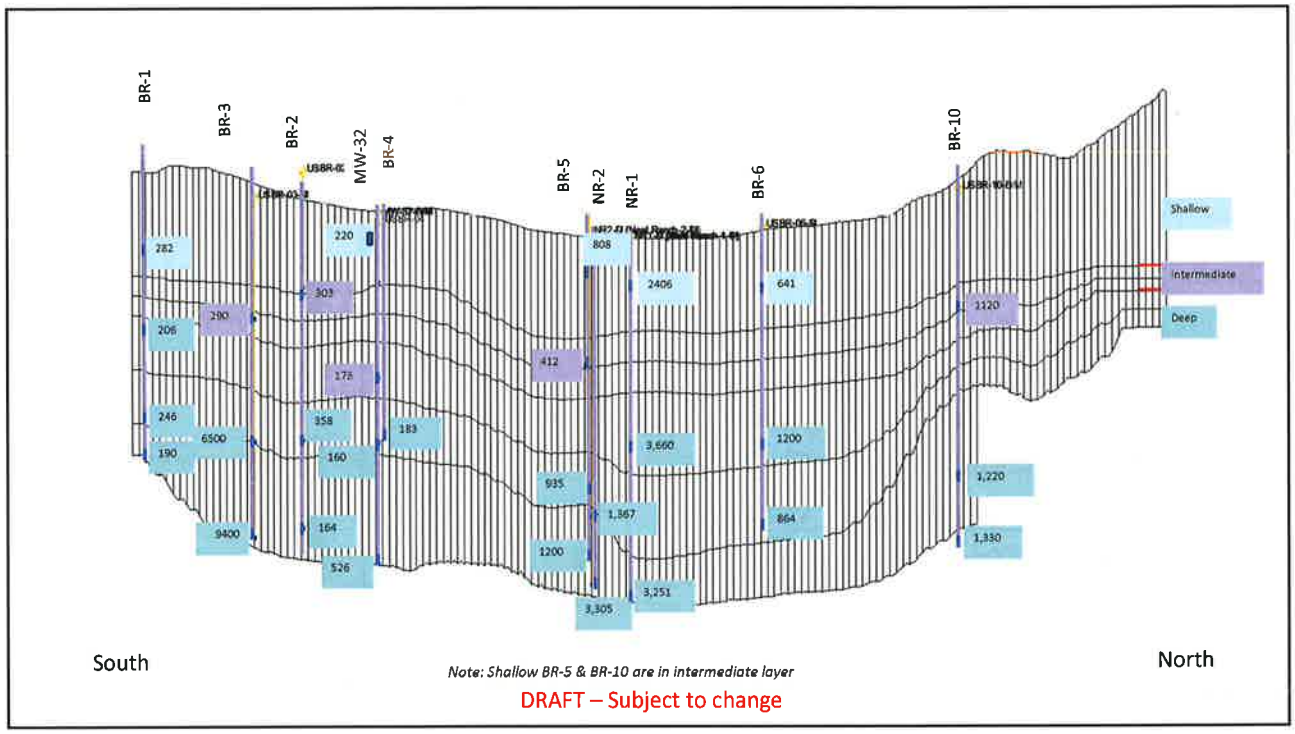


DRAFT – Subject to change

Average for deep layer = 372

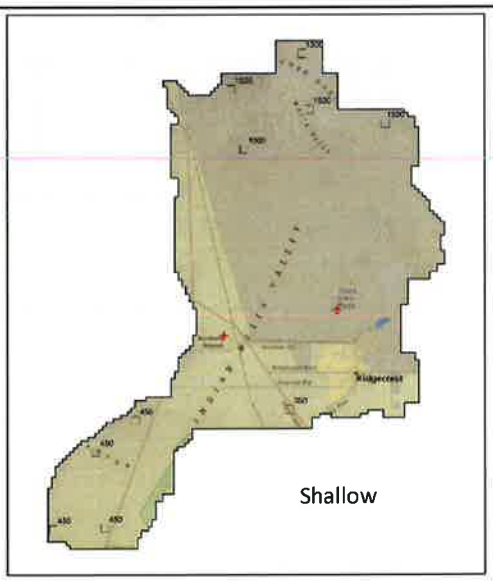


DRAFT – Subject to change



TDS Model Process

- Step #5 – Add estimated TDS points



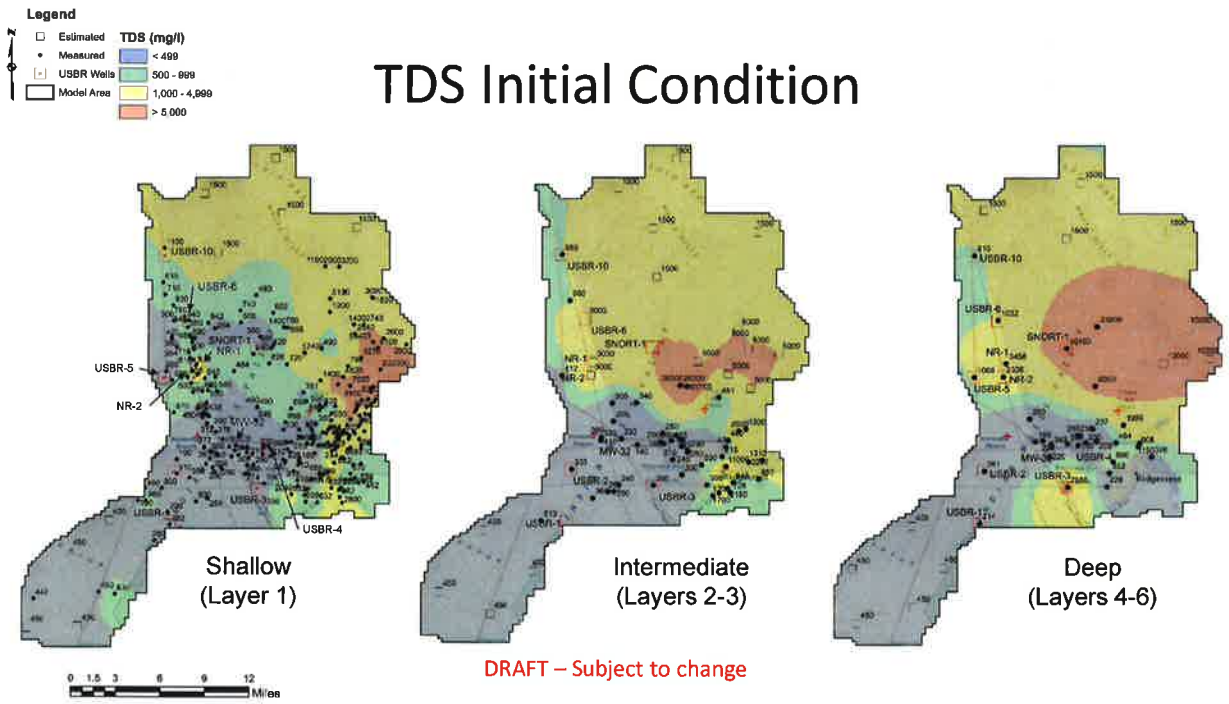
DRAFT – Subject to change

TDS Model Process

- Step #6 – Combine measured and estimated datasets
- Step #7 – Interpolate combined dataset
  - Repeat for shallow, intermediate, and deep layers
  - Interpolated values represent continuous values
- Step #8 – Setup initial conditions for transport model and run using baseline flow model (~35k pumping)

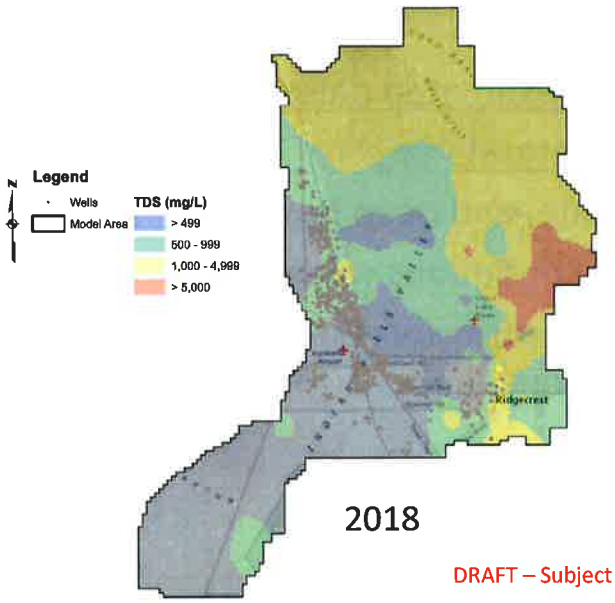
DRAFT – Subject to change

TDS Initial Condition

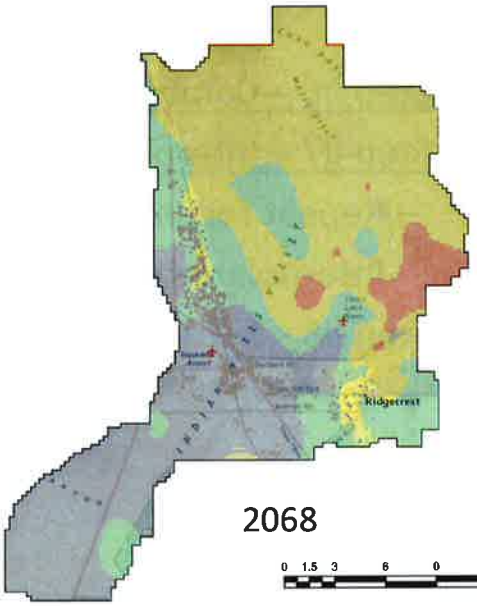


DRAFT – Subject to change

Simulated TDS Concentration - Shallow



2018

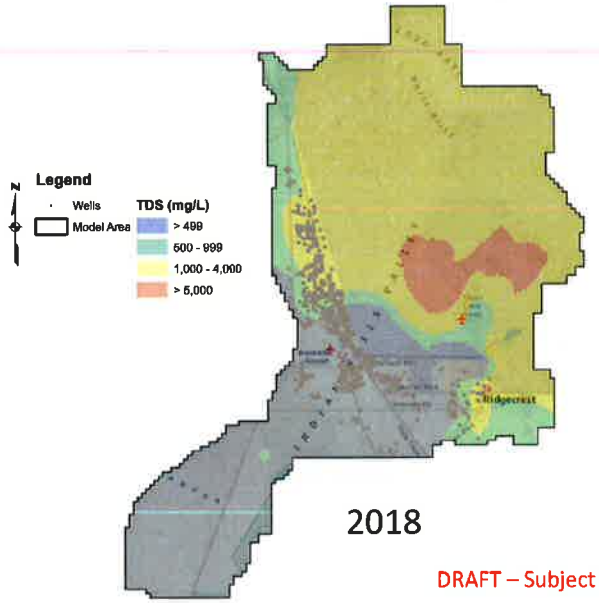


2068

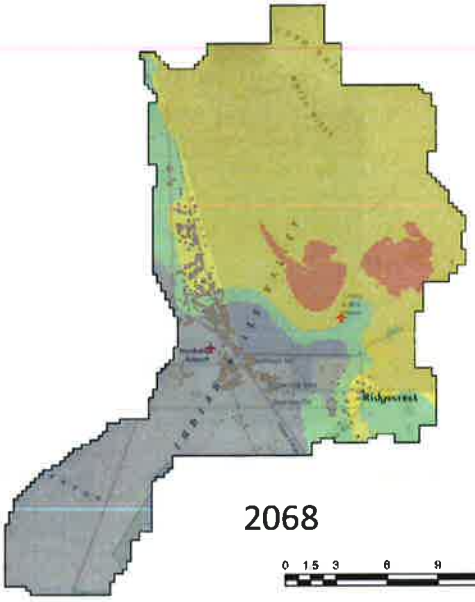
DRAFT – Subject to change

0 1.5 3 6 9 12 Miles

Simulated TDS Concentration - Intermediate



2018

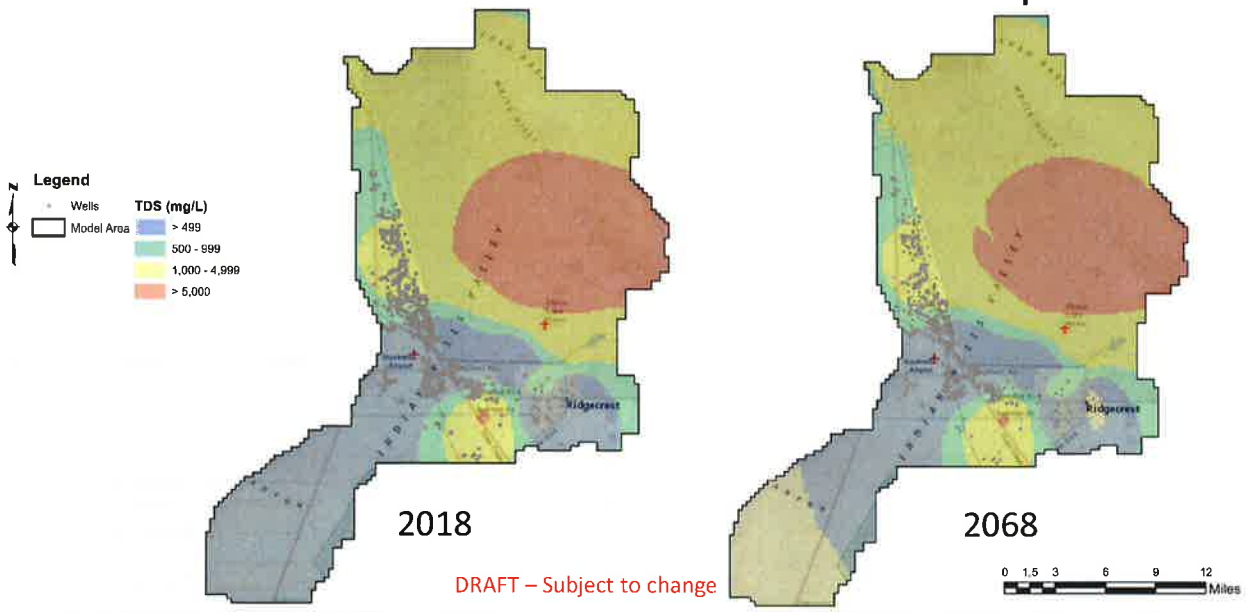


2068

DRAFT – Subject to change

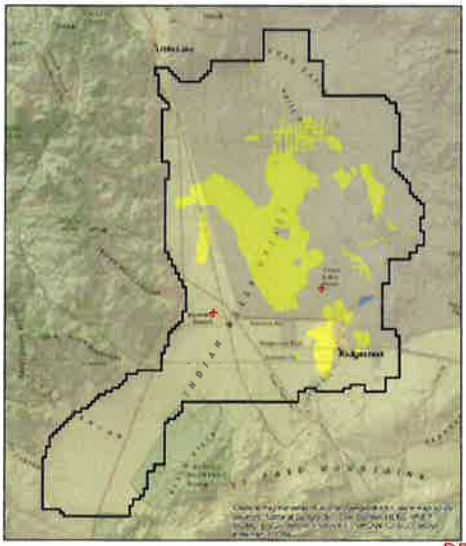
0 1.5 3 6 9 12 Miles

Simulated TDS Concentration - Deep



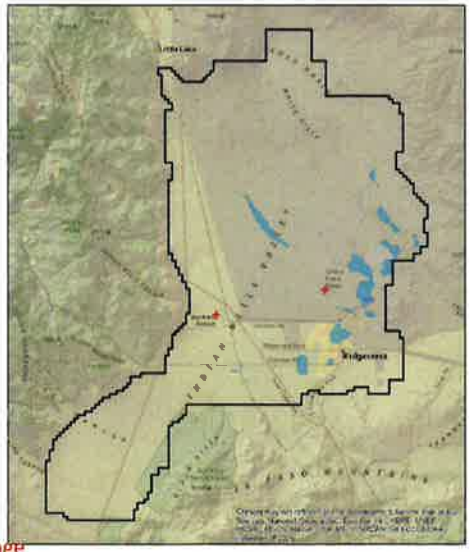
DRAFT – Subject to change

Simulated TDS Trends (2020 – 2070)



Shallow

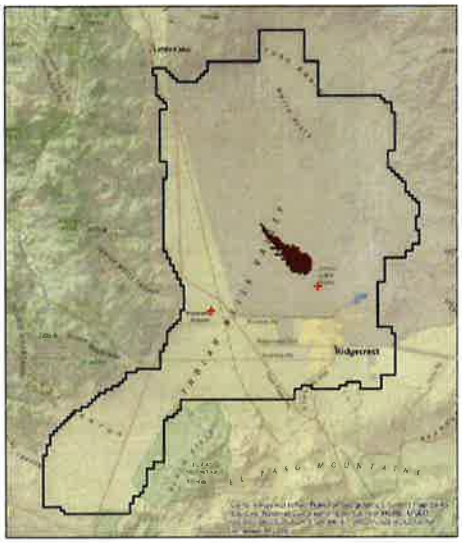
Colored areas represent zones where rate > 5 mg/L/yr



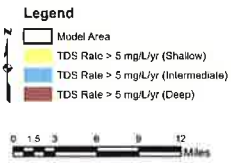
Intermediate

DRAFT – Subject to change

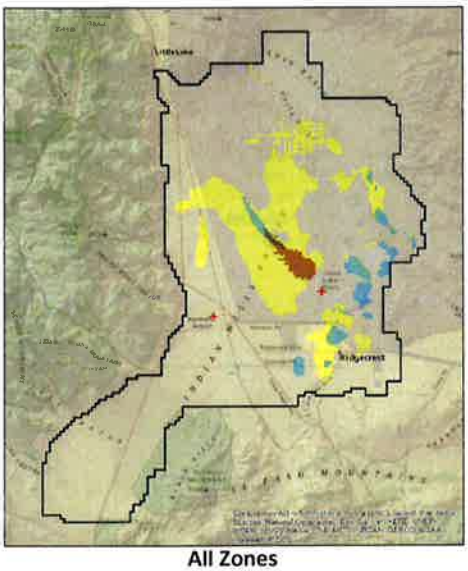
Simulated TDS Trends (2020 – 2070)



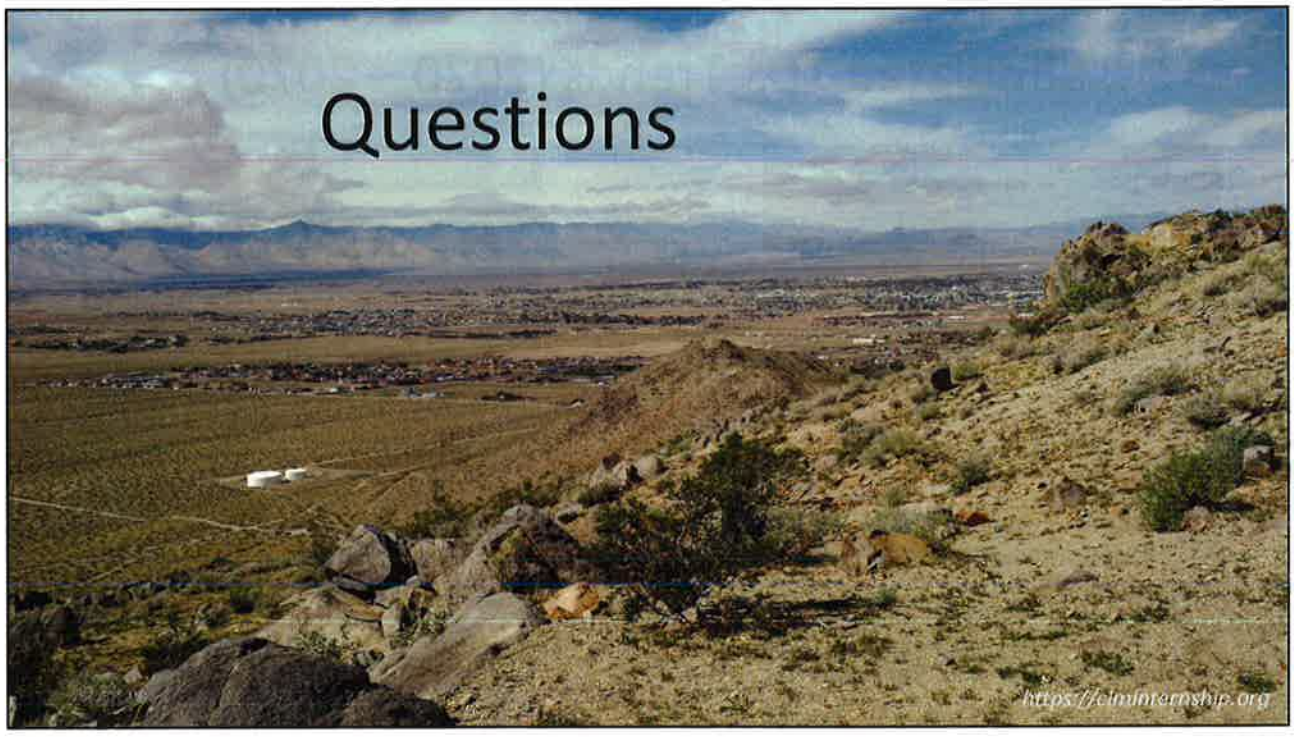
Deep



DRAFT – Subject to change



All Zones



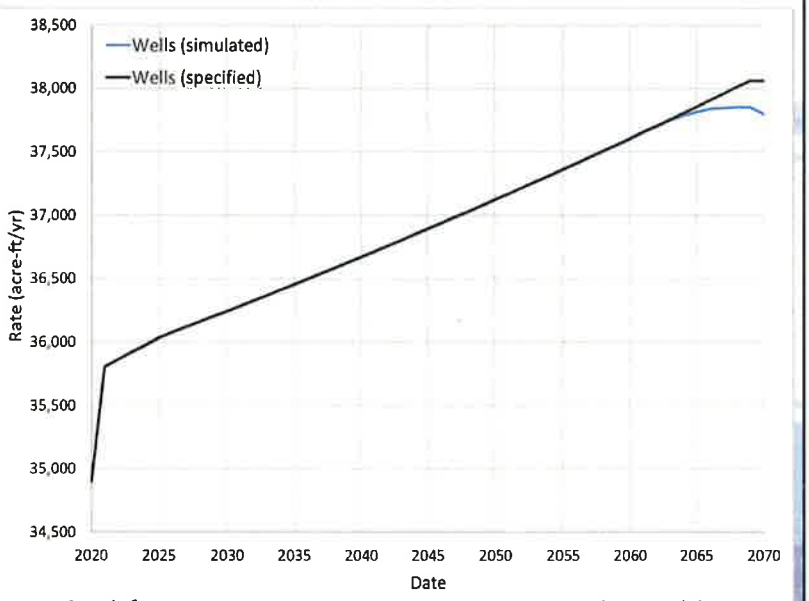
3b-i(1) Review of DRI Baseline Model Pumping Results

Baseline pumping simulated input by the model (50-yr average 36,880 AFY)

Ability to pump groundwater from storage (lowering of water table) using existing wells.

Screen intervals simulated using full model layer thickness

Does not account for potable vs saline groundwater



Graph from DRI Jan 3, 2019 TAC Presentation IWV Baseline Model Run

Modeling Scenario 1

IWVGA TAC - February 7, 2019

Agenda Item 3.b.i

Outline

- Objectives
- Scenario Development
- Scenario Overview
- Scenario Assumptions
- Pumping (by pumping category)
- Discussion and Next Steps

Scenario 1 Objectives

- Evaluate water level recovery
- Evaluate changes in groundwater storage over time
- Evaluate imported water storage and recovery project
- Evaluate pumping ramp-downs and "cliff" pumping alternative

Scenario 1 Development

- January 3, 2019 TAC meeting, agenda item 3.c (Modeling/Management Scenarios)
  - Presented 2 ramp-down options for Scenario 1
- TAC comments received on Scenario 1 subsequent to January TAC meeting
  - Model presentation
  - Model outputs
  - "Cliff" pumping alternative
  - Ramp-downs
- Final scenario developed by Water Resources Manager after review of TAC comments
  - Model inputs provided to DRI for modeling between TAC meetings due to time constraints

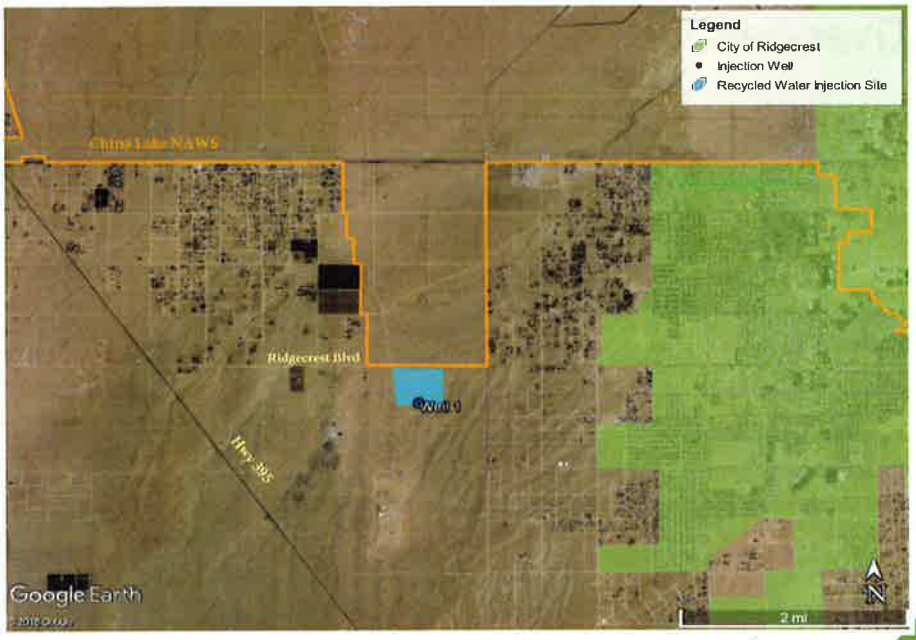
Scenario 1 Overview

- Recharge
  - Natural recharge
  - Recycled water
- Pumping
  - Annual ramp-down over 20-year period
  - "Cliff pumping" for selected agriculture
  - No ramp-down
    - Navy
    - De-minimis (domestic/private wells)
- Recycled water to replace some irrigation pumping starting in 2025
- Imported water storage and recovery project to meet municipal demands starting in 2030

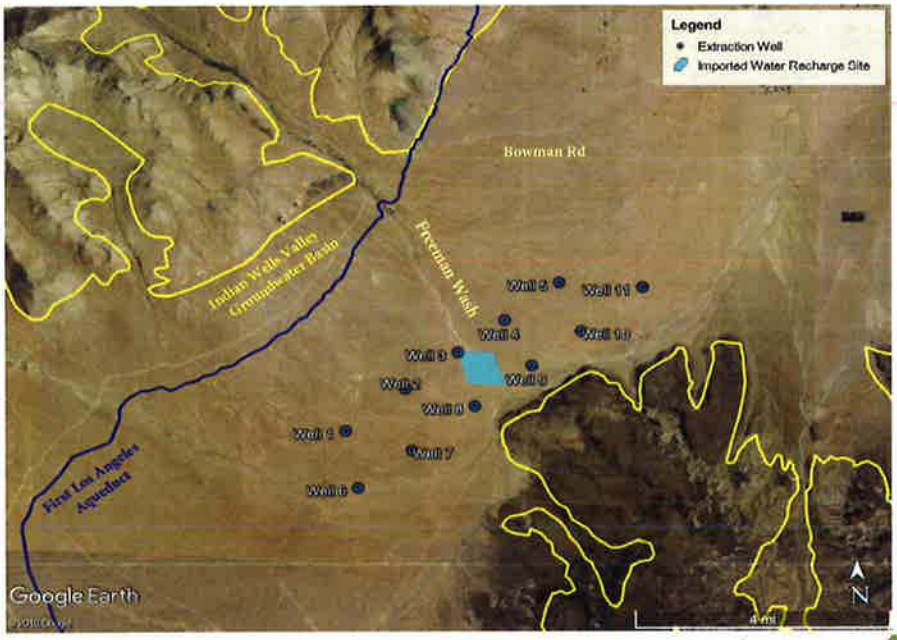
Scenario 1 Assumptions

- Natural recharge: 7,650 AFY
- Artificial recharge
  - Recycled water: 352 AFY
    - Originally 731 AFY, revised per TAC comments on draft recycled water study
    - Revised quantity is equal to the annual average of projected wastewater effluent from the City wastewater treatment facility, minus:
      - Existing recycled water demands (NAWS golf course, City alfalfa site, Tui Chub habitat)
      - Irrigation demand replacement (City of Ridgecrest, IWVWD, NAWS)
  - Imported water storage and recovery project: 15,000 AFY
    - 3,000 AF per month of imported water recharged in El Paso area during wet months (December through April)
    - 2,143 AF per month of imported water extracted in El Paso area and distributed for direct use during other months (May through November)

Recycled Water Injection Project



Imported Water Storage and Recovery Project

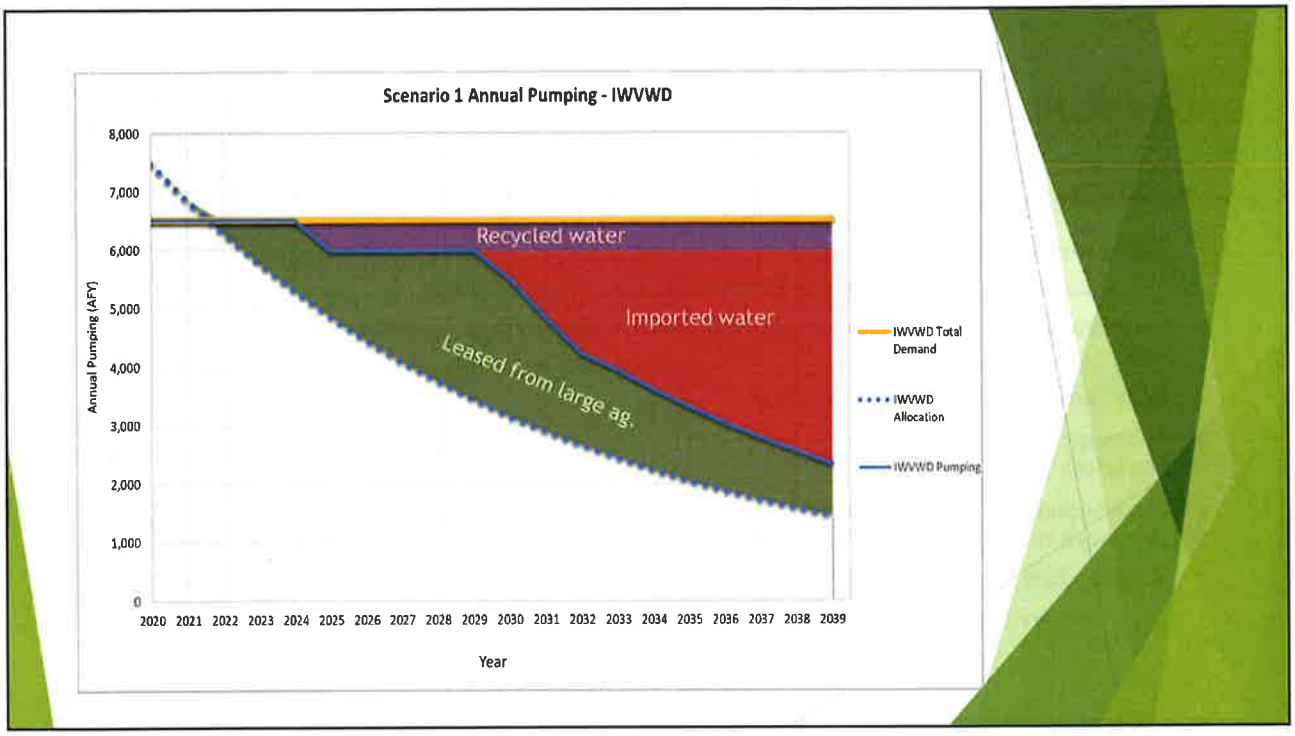


Scenario 1 Assumptions (cont.)

- 2020 pumping: **31,642 AF**
  - 5-year average of historic pumping (2010-2014) **OR** average of available pumping data
- Annual ramp-down by ~8.3% each year from January 2020 through December 2039
- "Cliff" pumping for selected agriculture
- No change in Navy and de-minimis (domestic/private wells) pumping or allocations
- All basin pumping and allocations as of December 2039 assumed to remain unchanged through 2070
  - 2040 - 2070 pumping: **7,970 AF**
    - Includes leases to IWVWD and SVM

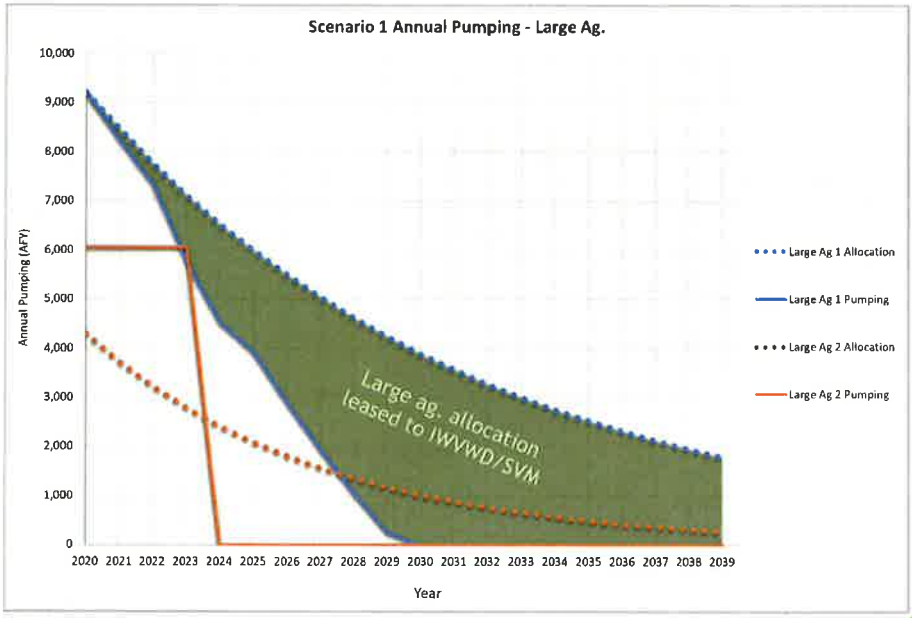
Scenario 1: 20-Year Pumping

- Indian Wells Valley Water District
  - Ramp-down of allocation by ~8.3% per year
  - Constant pumping from 2020-2025 and from 2025-2029 results from:
    - Initial allocation higher than projected pumping
    - Water market: Large ag. will lease allocation to IWVWD
  - Decrease pumping by 519 AFY starting in 2025 due to availability of recycled water
    - Recycled water to replace demands for some IWVWD landscape irrigation
  - Assumed IWVWD uses imported water to meet demands starting in 2030



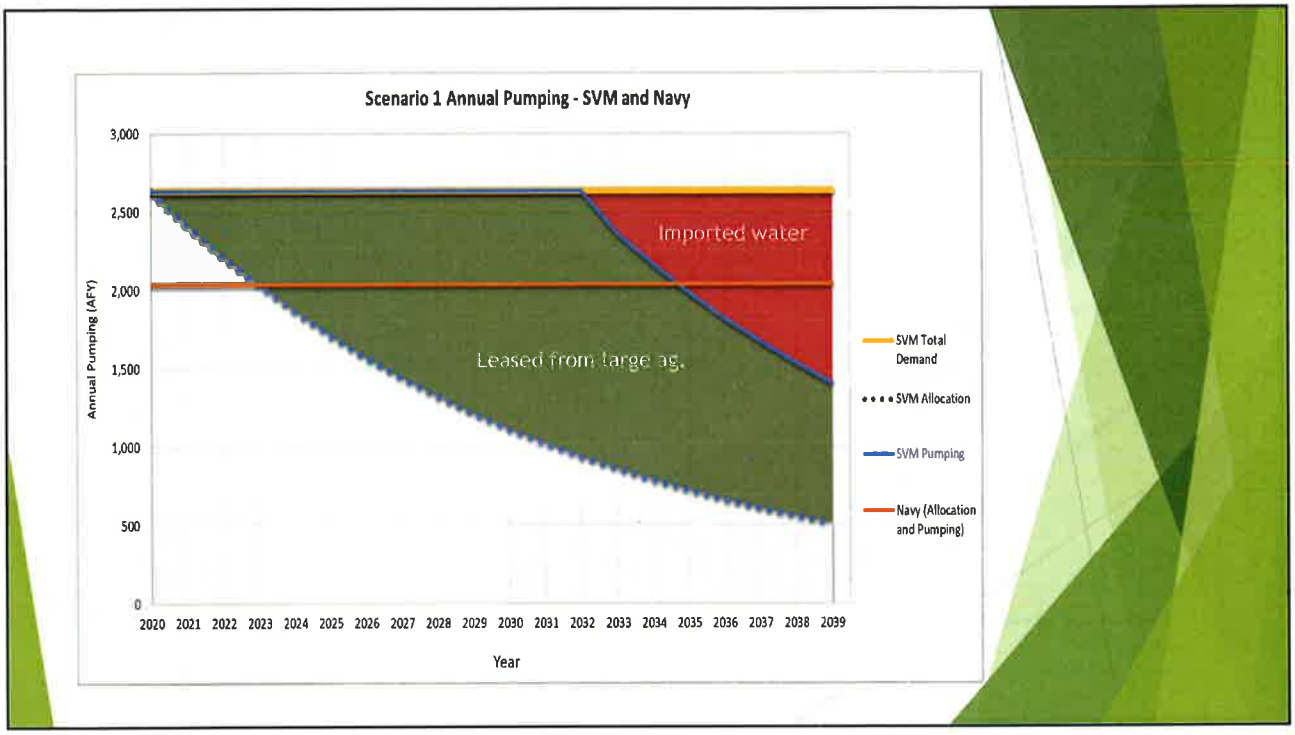
Scenario 1: 20-Year Pumping (cont.)

- Large ag. pumping concepts (subject to revision)
  - ~70% of large ag. is ramped down
  - ~30% of large ag. "cliff" pumps
    - Assumed "Cliff" pumper allocations would not be leased until 2040
  - Potentially lease allocations to IWVWD and SVM



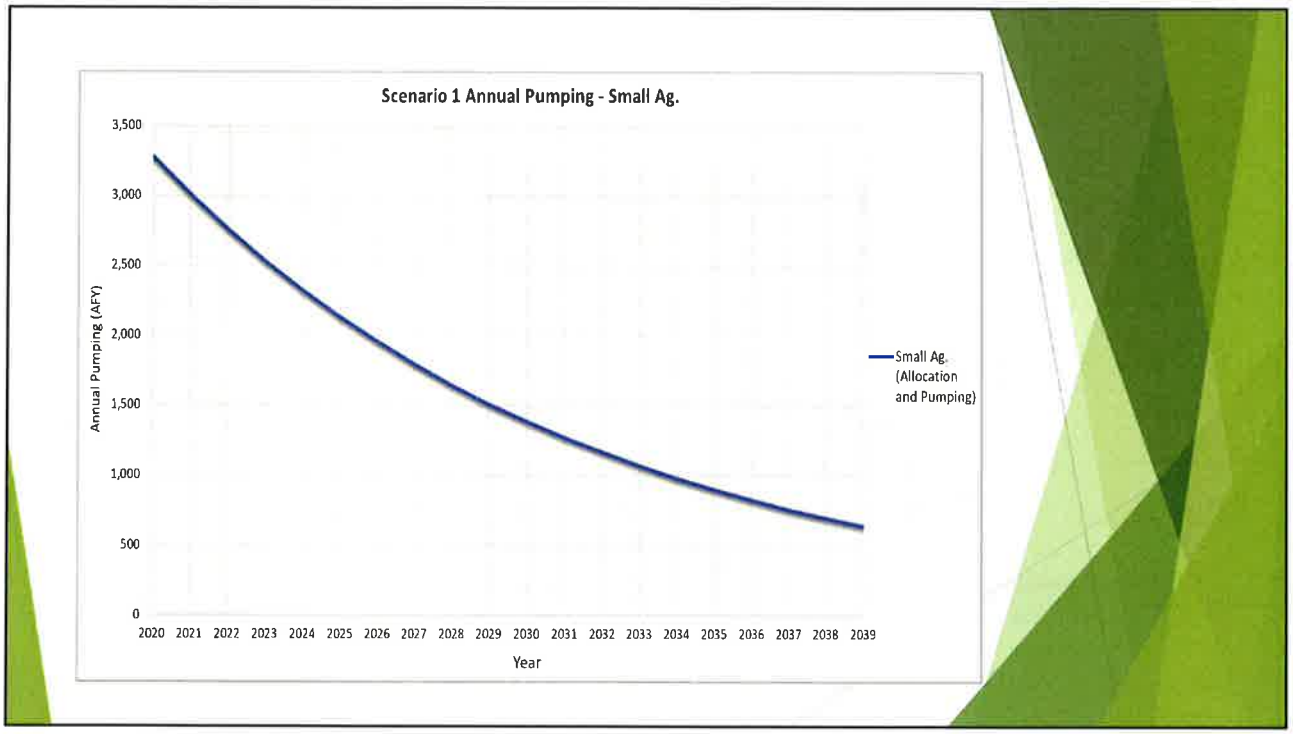
Scenario 1: 20-Year Pumping (cont.)

- Searles Valley Minerals (SVM)
  - Ramp-down of allocation by ~8.3% per year
    - Constant pumping from 2020-2032 results from:
      - Water market: Assumed Large ag. would lease allocation to SVM
  - Assumed SVM uses imported water to meet demands starting in 2033
- Navy
  - 2,041 AFY of allocation and pumping
    - Assumed to be constant



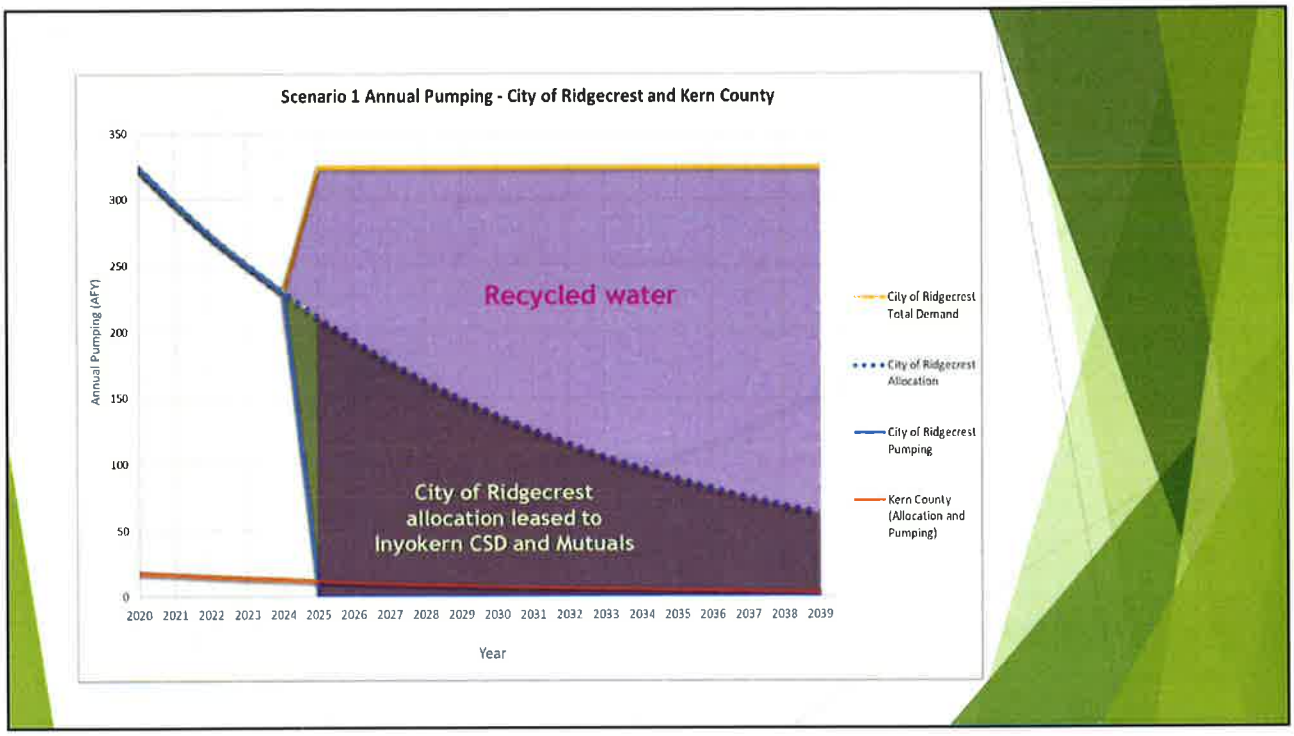
Scenario 1: 20-Year Pumping (cont.)

- Small ag.
  - Ramp-down of allocation and pumping by ~8.3% each year



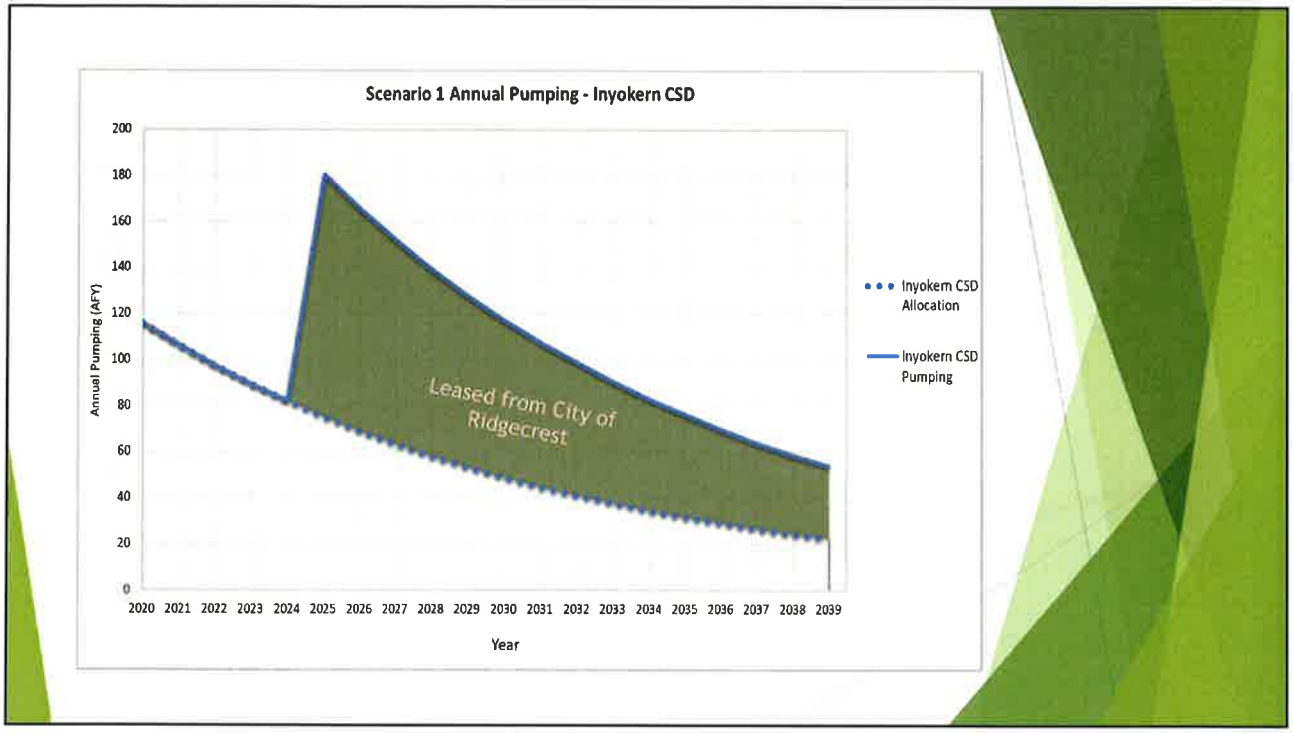
Scenario 1: 20-Year Pumping (cont.)

- City of Ridgecrest
  - Ramp-down of allocation and pumping by ~8.3% each year
  - Cease all pumping starting in 2025 due to availability of recycled water
    - Recycled water to replace demands for all City landscape irrigation
    - Starting in 2025, lease annual allocation in equal halves to Inyokern CSD and the Mutuals
- Kern County (dust control)
  - 2020 allocation and pumping based on most recent available data
  - Ramp-down of allocation and pumping by ~8.3% each year



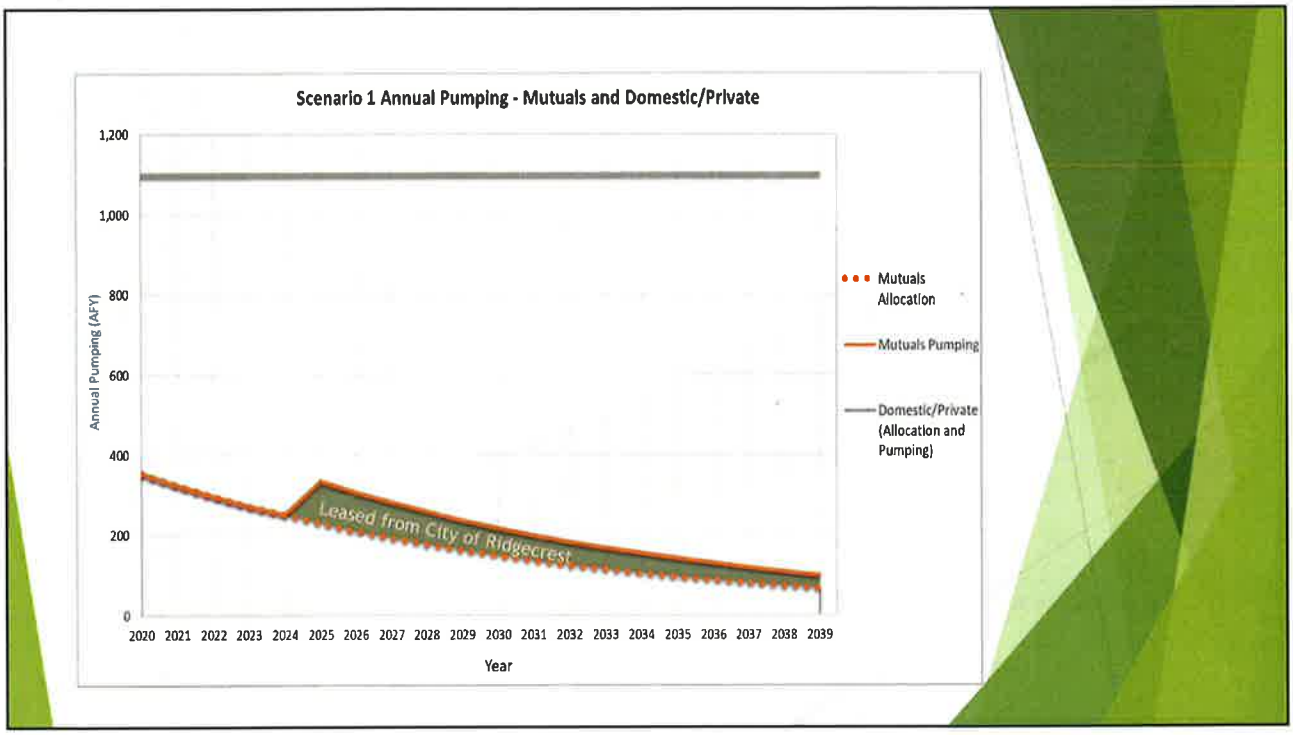
Scenario 1: 20-Year Pumping (cont.)

- Inyokern Community Services District (Inyokern CSD)
  - Ramp-down of allocation and pumping by -8.3% each year
  - Leased allocation from City of Ridgecrest starting in 2025



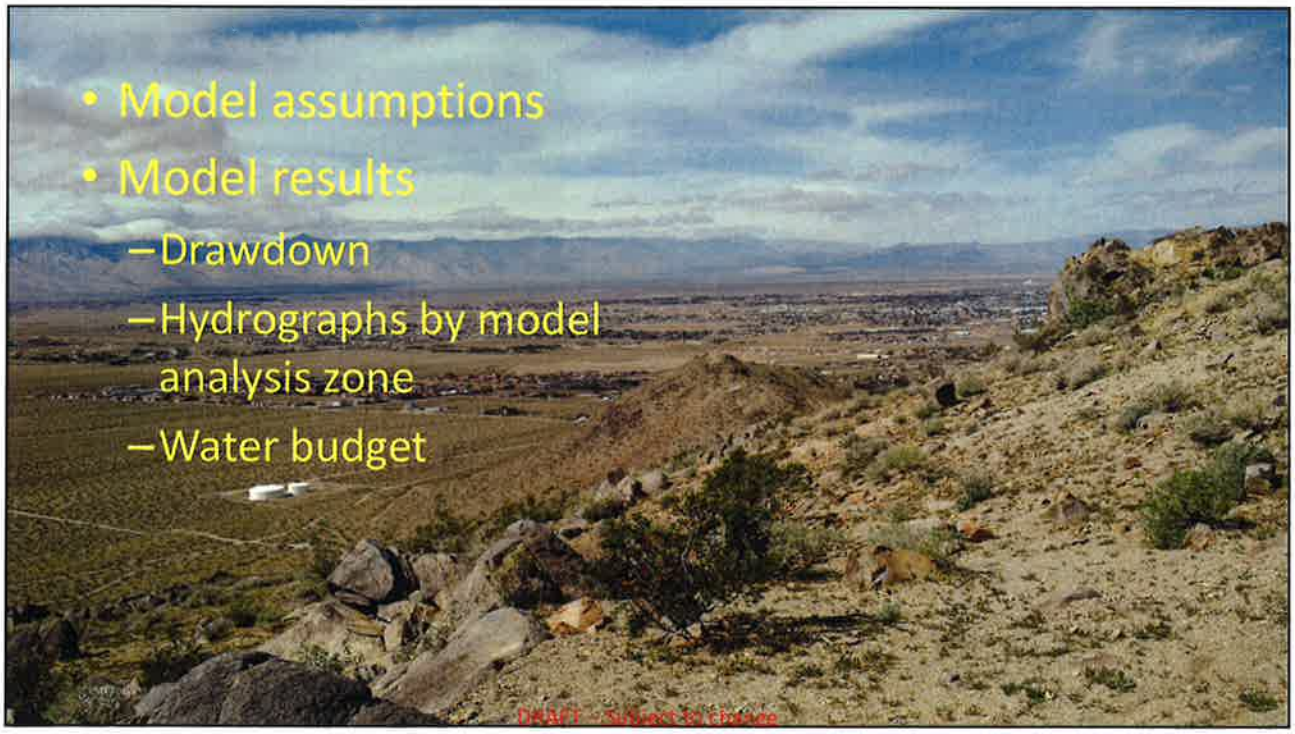
Scenario 1: 20-Year Pumping (cont.)

- Mutuals
  - Ramp-down of allocation and pumping by -8.3% each year
  - Leased allocation from City of Ridgecrest starting in 2025
- De minimis (domestic/private wells)
  - 1,100 AFY of allocation and pumping
    - Assumed to be constant



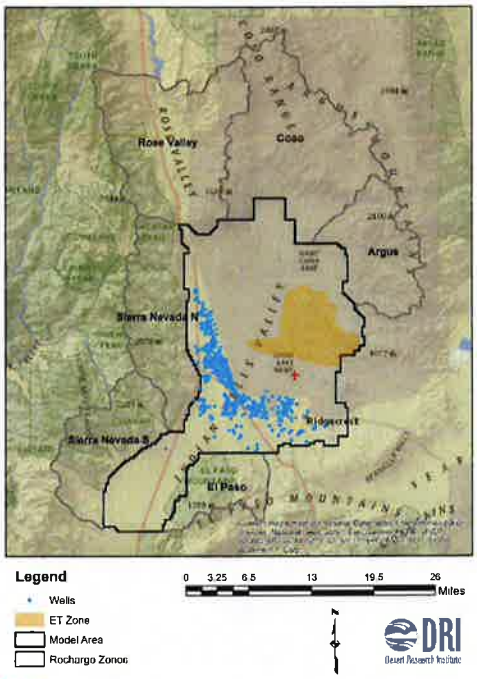
Discussion and Next Steps


Indian Wells Valley
Scenario #1
DRAFT Groundwater Model Results
February 7, 2019
DRI
Desert Research Institute
DRAFT – Subject to change


• Model assumptions
• Model results
– Drawdown
– Hydrographs by model analysis zone
– Water budget
DRAFT – Subject to change

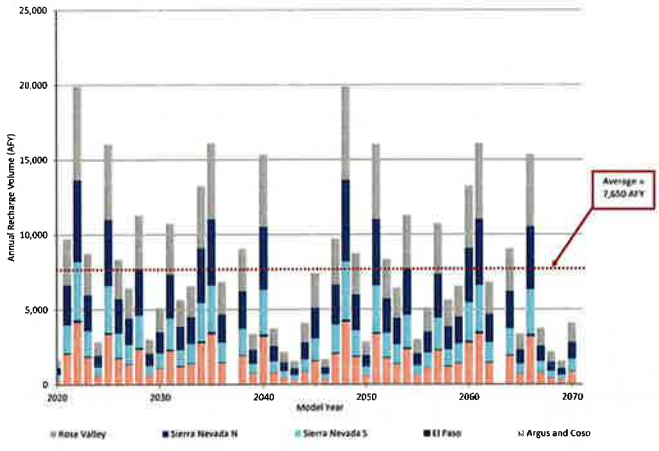
Model Assumptions

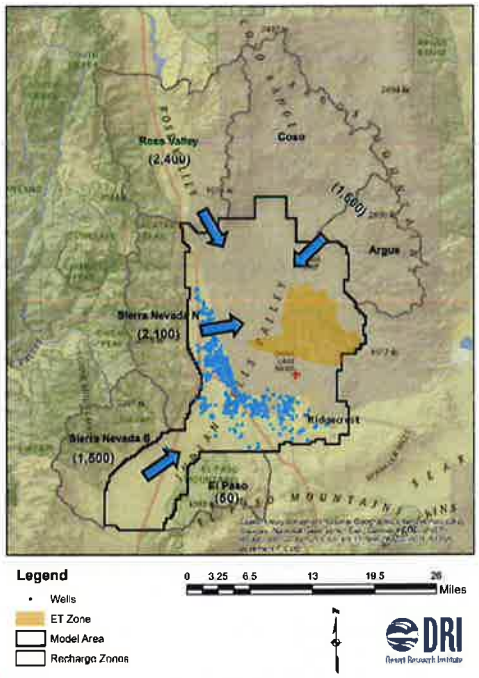
- Simulation period: 2017 – 2070
- Monthly time steps
- Initial condition from historical model
- Variable recharge
- Scenario #1 conditions
  - Reduced pumping
  - Imported and recycled water



DRAFT – Subject to change

Recharge

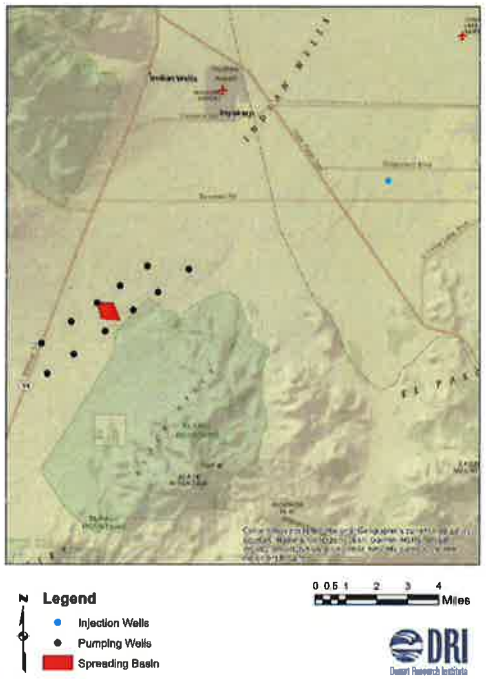




DRAFT – Subject to change

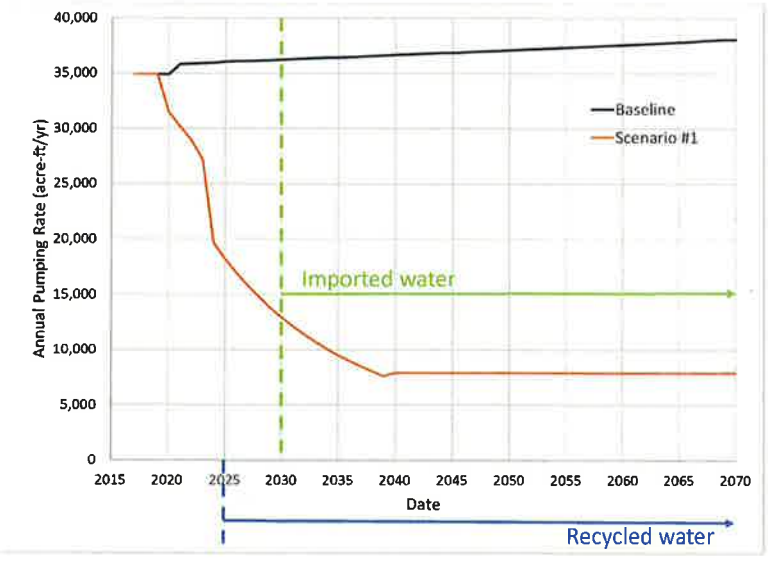
Imported and Recycled Water

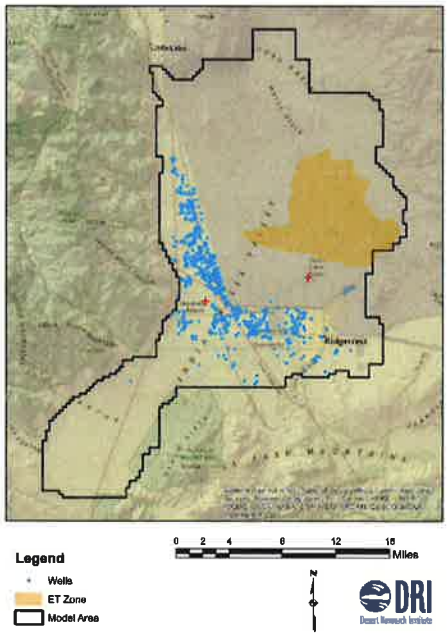
- Imported Water
  - Begins 2030
  - Spreading basins: Dec – Apr (15,000 AFY)
  - Pumping: May – Nov (15,000 AFY)
- Recycled Water
  - Begins 2025
  - Injected (352 AFY)



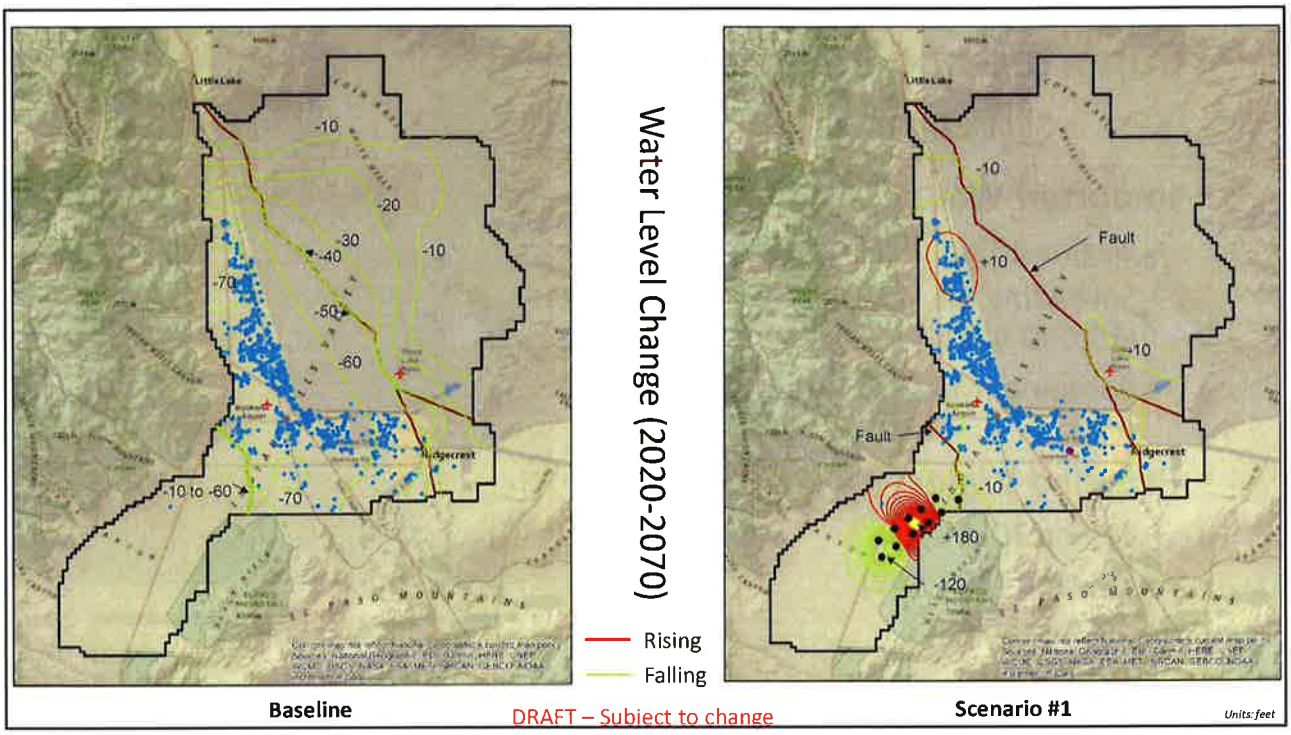
DRAFT – Subject to change

Simulated Pumping



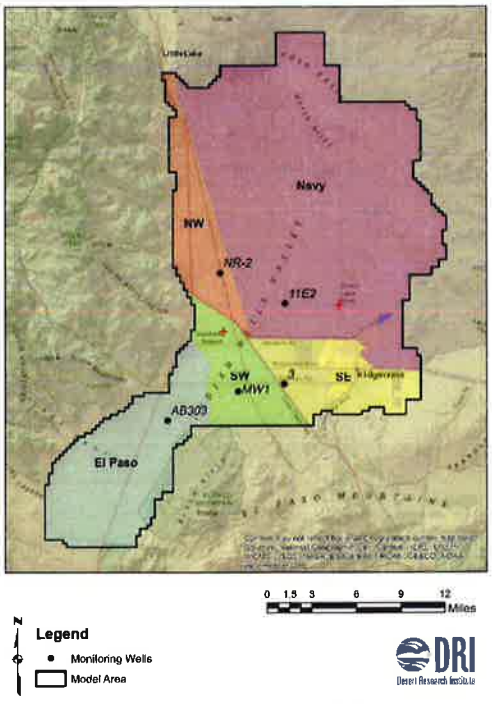


DRAFT – Subject to change

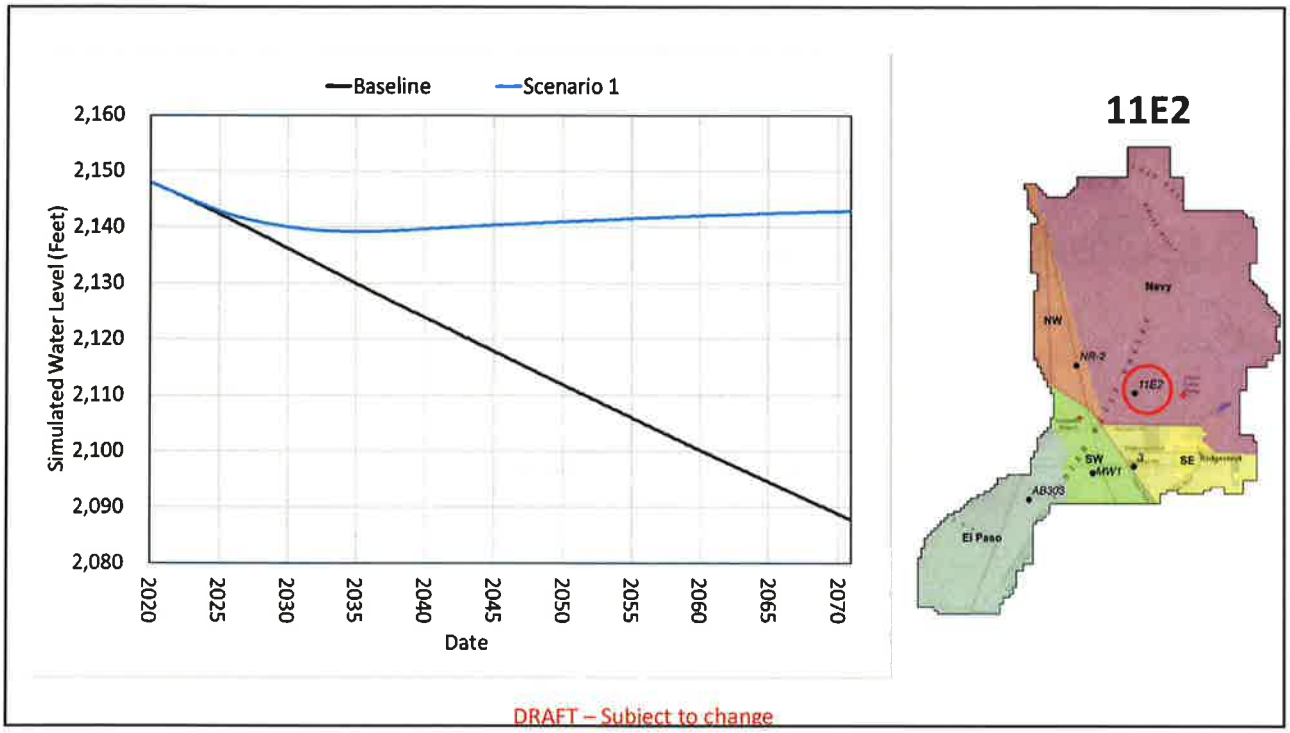


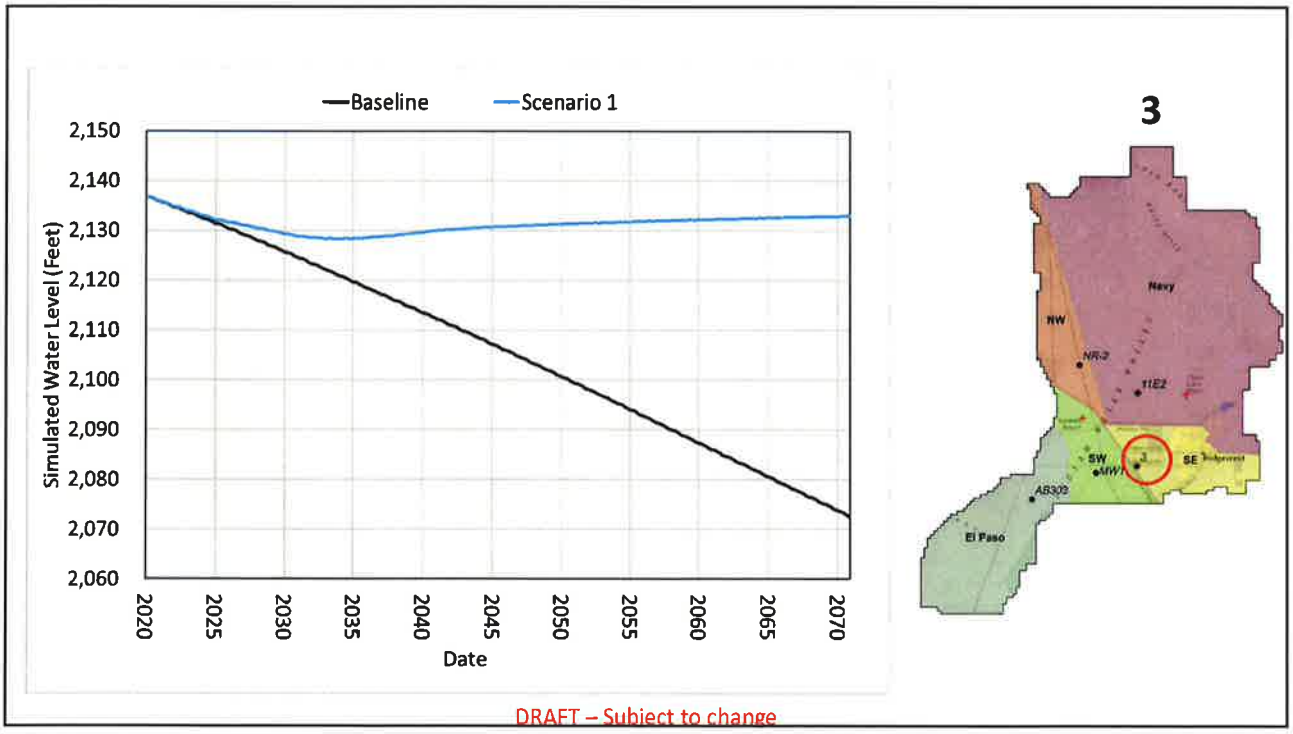
DRAFT – Subject to change

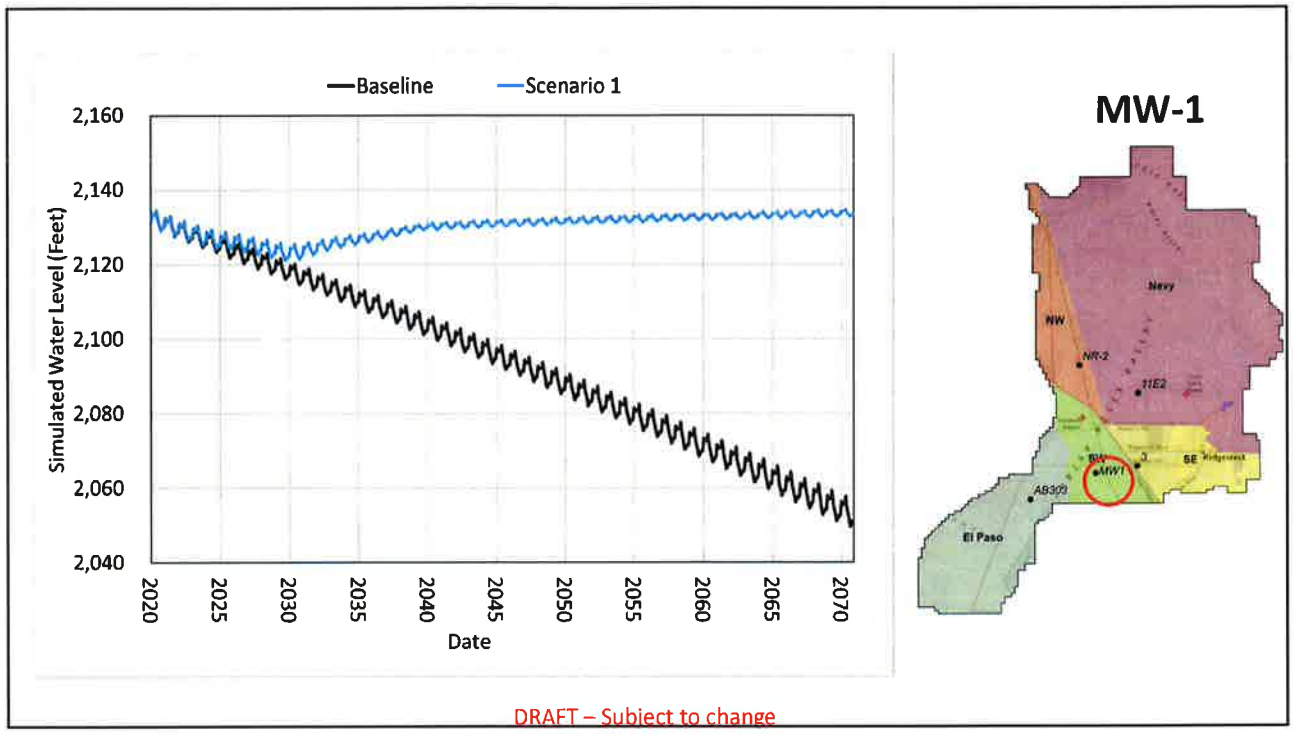
Simulated Hydrographs Selected Locations



DRAFT – Subject to change


Baseline
Scenario 1
Simulated Water Level (Feet)
2,160
2,150
2,140
2,130
2,120
2,110
2,100
2,090
2,080
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
Date
11E2
Navy
NW
NR-2
11E2
SW
MW1
SE
AB303
El Paso
DRAFT – Subject to change


Baseline
Scenario 1
Simulated Water Level (Feet)
2,150
2,140
2,130
2,120
2,110
2,100
2,090
2,080
2,070
2,060
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
Date
3
Navy
NW
NR-2
11E2
SW
MW1
SE
AB303
El Paso
DRAFT – Subject to change



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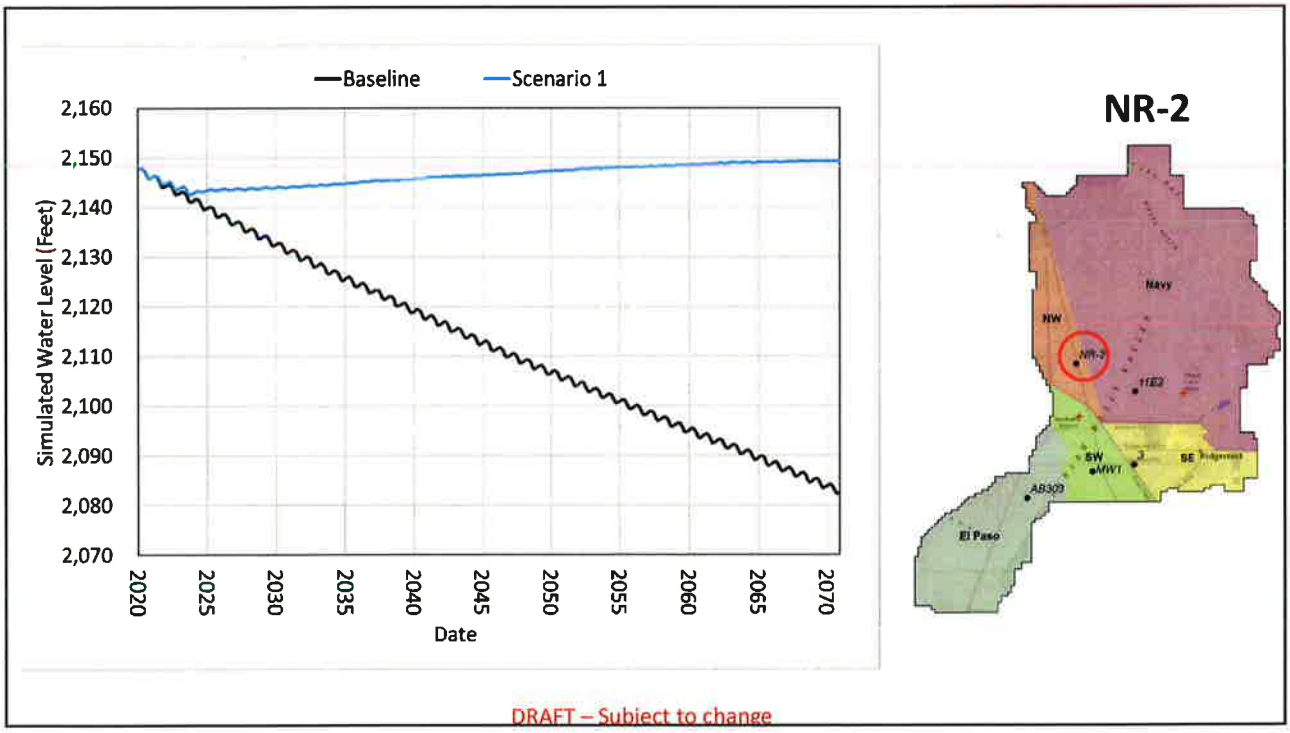
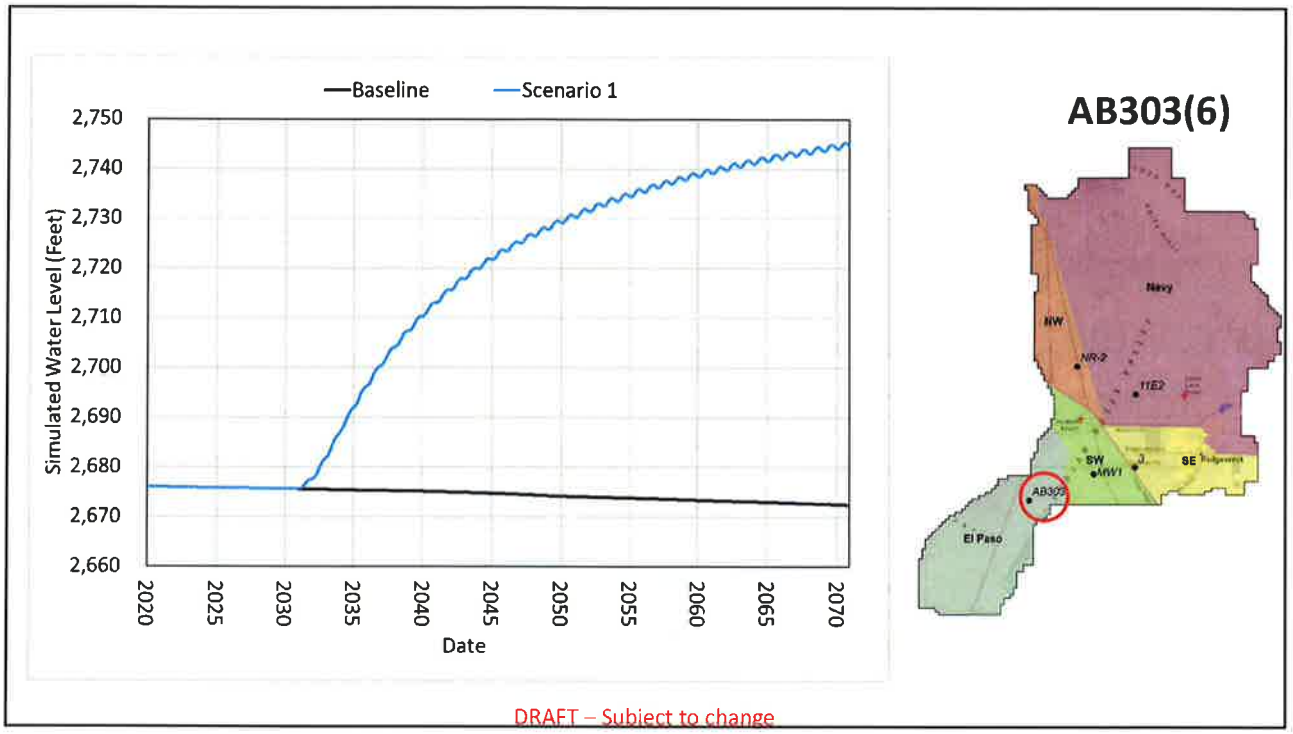
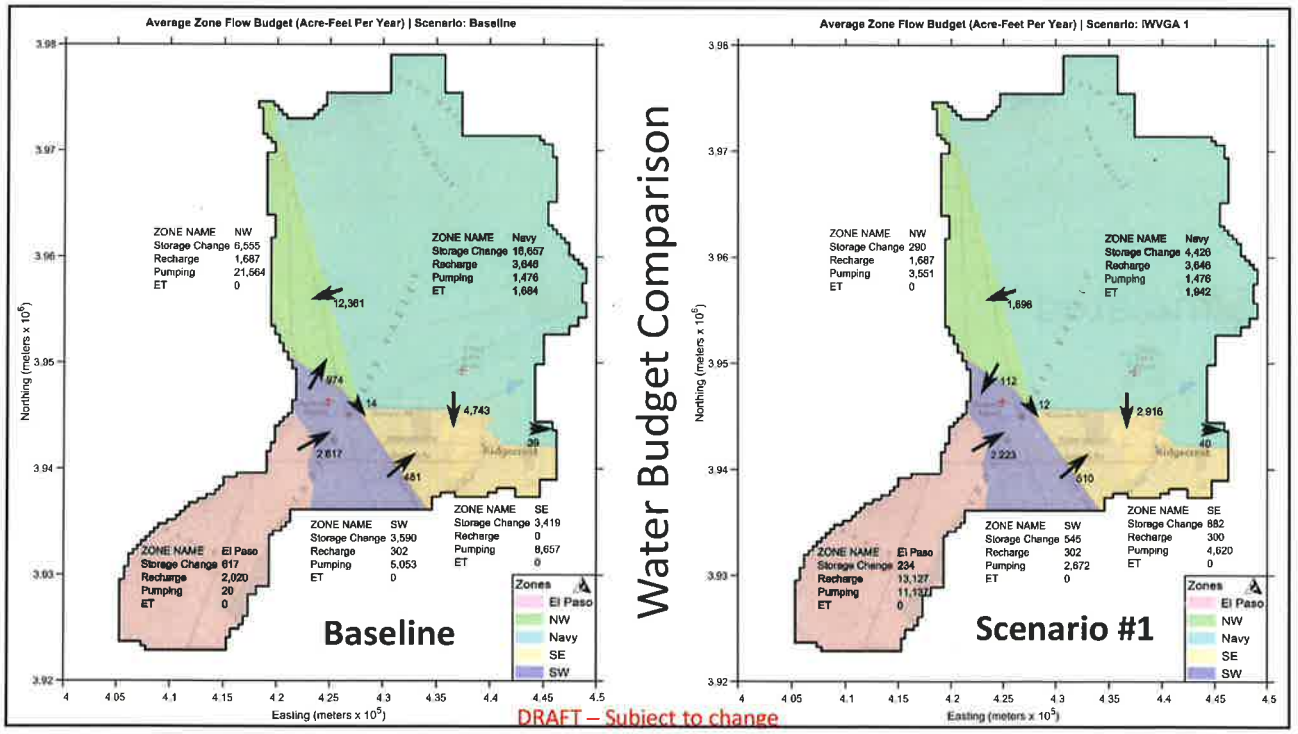
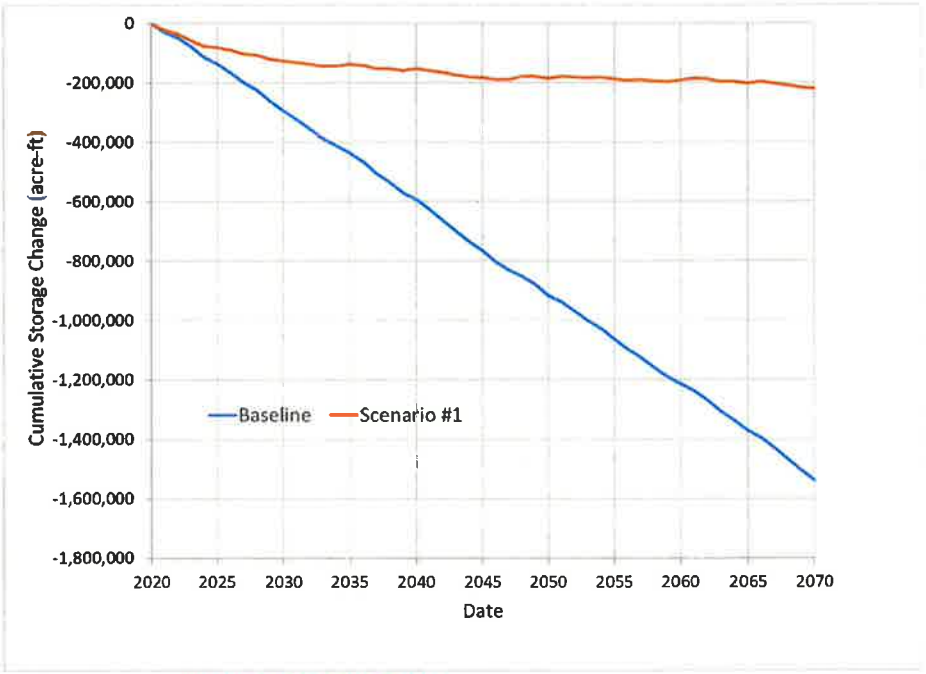


DRAFT – Subject to change


Baseline
Scenario 1
Simulated Water Level (Feet)
2,750
2,740
2,730
2,720
2,710
2,700
2,690
2,680
2,670
2,660
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
Date
AB303(6)
Navy
NW
NR-2
11E2
SW
MW1
SE
AB303
El Paso
DRAFT – Subject to change

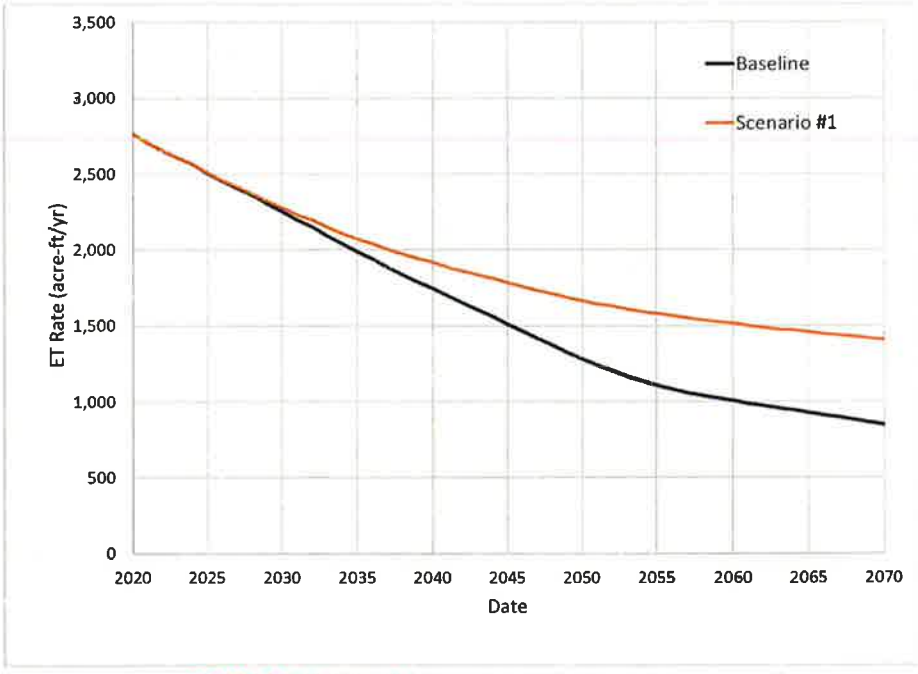

Average Zone Flow Budget (Acre-Feet Per Year) | Scenario: Baseline
ZONE NAME NW
Storage Change 6,555
Recharge 1,687
Pumping 21,564
ET 0
ZONE NAME Navy
Storage Change 16,657
Recharge 3,646
Pumping 1,476
ET 1,684
ZONE NAME SW
Storage Change 3,590
Recharge 302
Pumping 5,053
ET 0
ZONE NAME SE
Storage Change 3,419
Recharge 0
Pumping 8,657
ET 0
ZONE NAME El Paso
Storage Change 617
Recharge 2,020
Pumping 20
ET 0
12,361
974
14
4,743
2,617
451
Baseline
Zones
El Paso
NW
Navy
SE
SW
Northing (meters x 10^6)
Easting (meters x 10^5)
Water Budget Comparison
Average Zone Flow Budget (Acre-Feet Per Year) | Scenario: IWVGA 1
ZONE NAME NW
Storage Change 290
Recharge 1,687
Pumping 3,551
ET 0
ZONE NAME Navy
Storage Change 4,426
Recharge 3,646
Pumping 1,476
ET 1,942
ZONE NAME SW
Storage Change 545
Recharge 302
Pumping 2,672
ET 0
ZONE NAME SE
Storage Change 882
Recharge 300
Pumping 4,620
ET 0
ZONE NAME El Paso
Storage Change 234
Recharge 13,127
Pumping 11,137
ET 0
1,696
112
12
2,916
2,223
510
Scenario #1
Zones
El Paso
NW
Navy
SE
SW
Northing (meters x 10^6)
Easting (meters x 10^5)
DRAFT – Subject to change

Change in Groundwater Storage



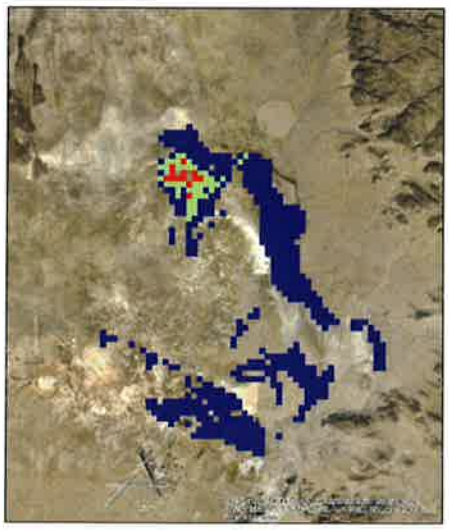
DRAFT – Subject to change

Simulated ET



DRAFT – Subject to change

ET Change (2020-2070)



Legend
ET Difference (2020 - 2070 AFY)
< -20
-20 - -10
> -10

0 0.5 1 2 3 4 Miles

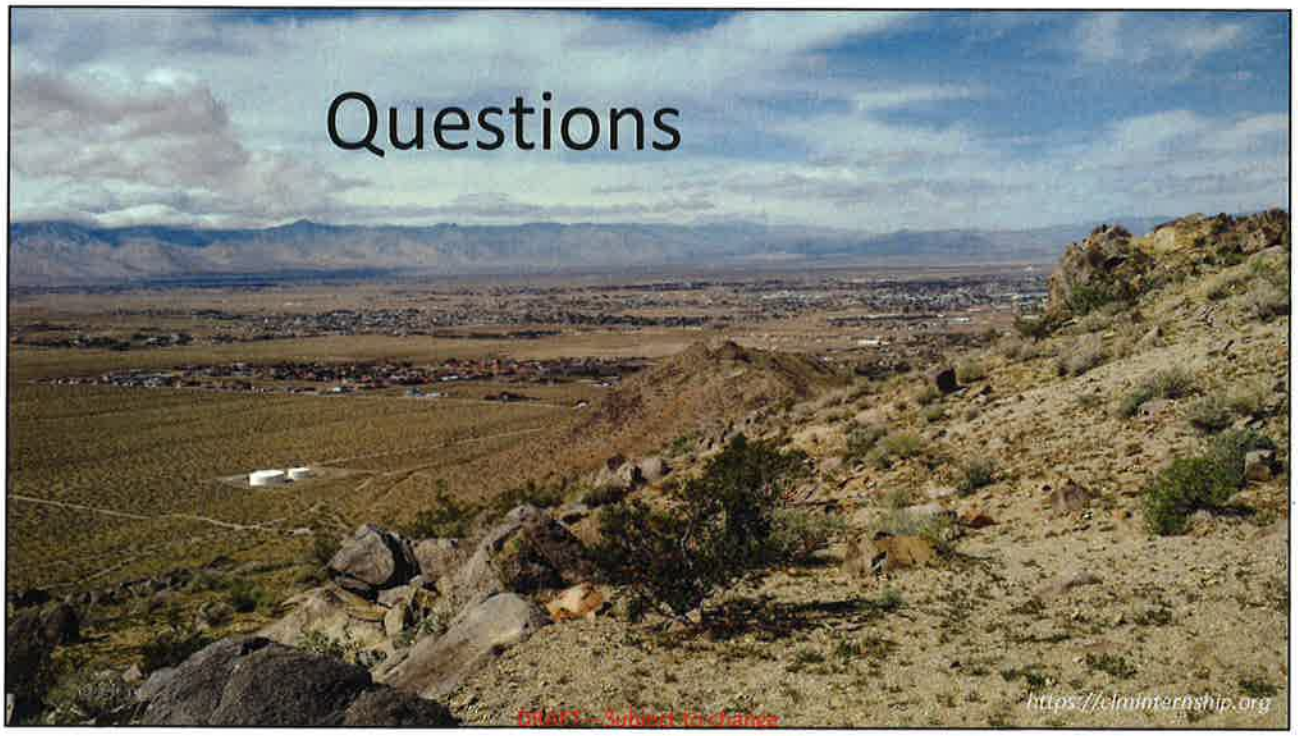
Baseline

Legend
ET Difference (2020 - 2070 AFY)
< -20
-20 - -10
> -10

0 0.5 1 2 3 4 Miles

Scenario #1

DRAFT – Subject to change



Indian Wells Valley Groundwater Basin

Brackish Groundwater Extraction Modeling Status

February 7, 2019

Overview

- What is a brackish groundwater project?
- How can brackish groundwater development help IWV?
- Brackish groundwater locations.
- Model cross-section.
- Characteristics of a suitable extraction location.
- Initial extraction locations.
- Modeling scenarios and outputs.
- First modeling scenario underway.

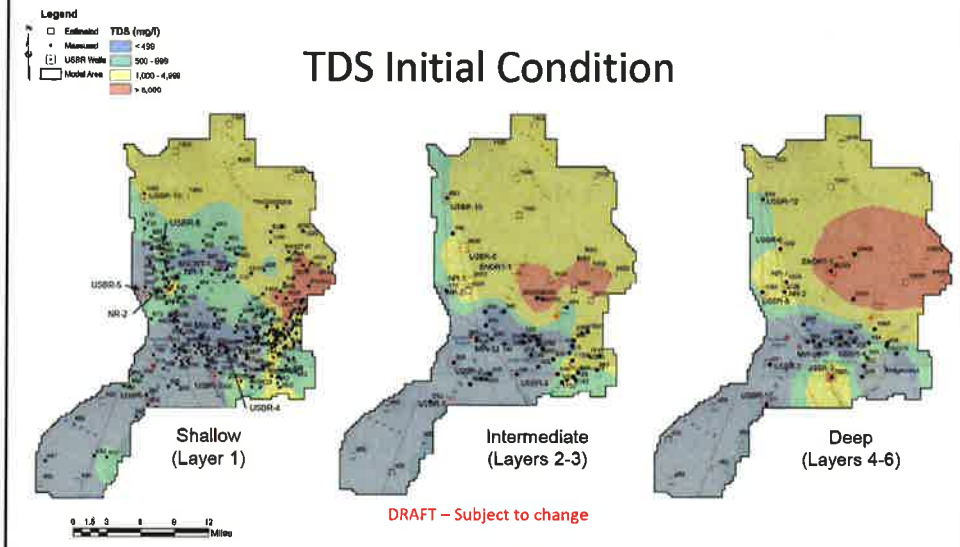
What Is A Brackish Groundwater Project?

- **Fresh Groundwater: < 1,000 mg/L of total dissolved solids (TDS).**
- **Brackish Groundwater: 1,000 mg/L to 10,000 mg/L** (USGS, 2017).
- Large-scale **development of fresh groundwater** has reduced amounts in **storage** and remaining **volumes for future use**.
- Brackish groundwater is an **alternative supply** that can be used to **augment existing** "fresh" sources of water.
- Basic **process** steps:
  - **Extract** with Pumping Wells – **Treat** with Reverse Osmosis (RO) – **Deliver** Fresh Water into System – **Dispose** RO Concentrate (salts).

How Can Brackish Water Development Help Indian Wells Valley?

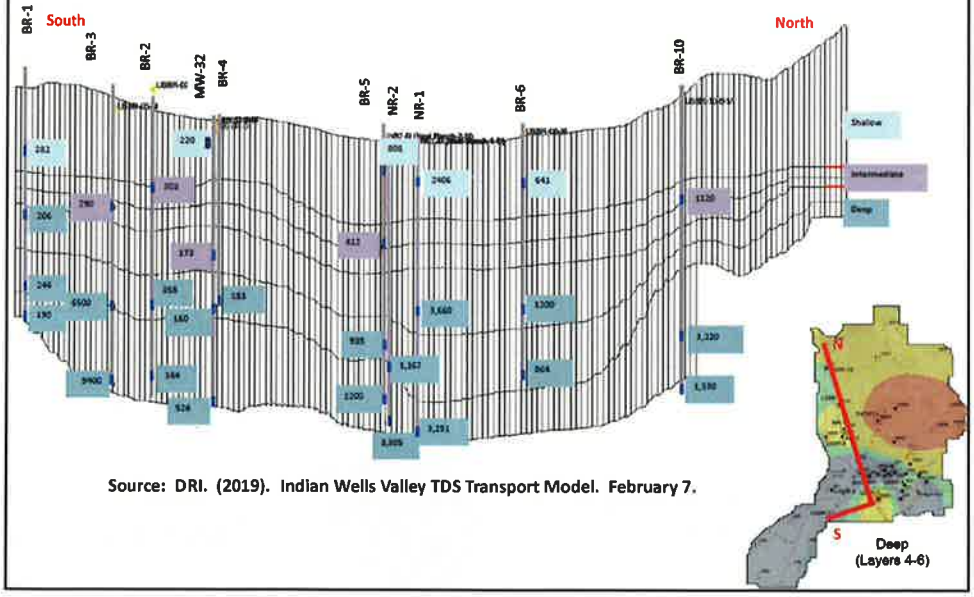
- **Expanding Local Supplies**.
  - Fresh groundwater levels are declining (offset pumping in these areas).
  - Augment existing supply.
- **Improving Reliability**.
  - Part of a portfolio of multiple sources of water.
    - Existing fresh groundwater.
    - Imported water.
    - Recycled water.
    - Recharged and stored groundwater.
    - Brackish groundwater.
- **Emergency Supplies**.
  - Drought periods or other extraordinary events.
- **Buffer to Achieve SGMA Sustainability**.
- **Brine (RO Concentrate) for Industrial Applications**.
  - Coso Geothermal and Searles Valley Minerals.

Brackish Groundwater Locations



Source: DRI. (2019). Indian Wells Valley TDS Transport Model. February 7.

Model Cross-Section



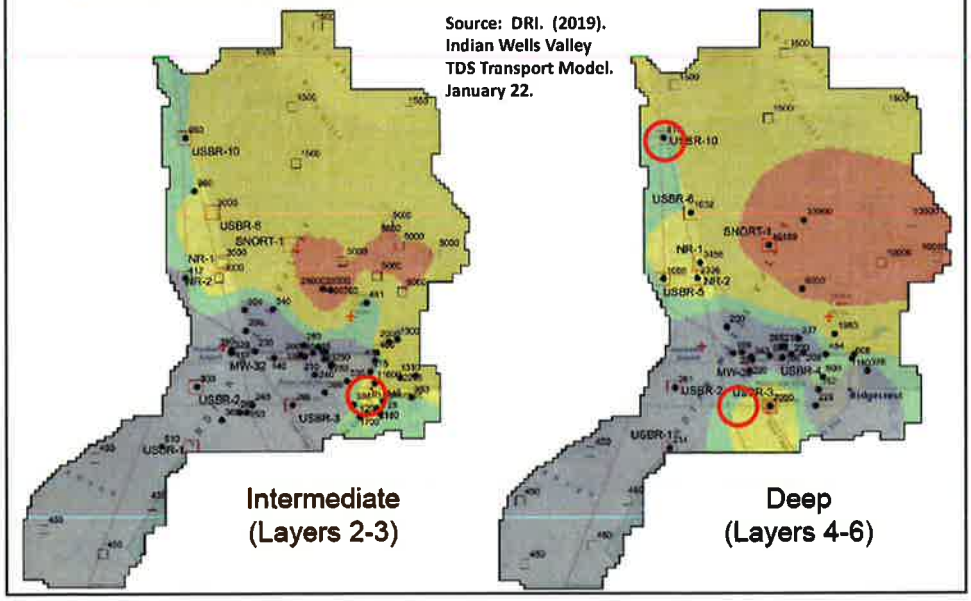
Source: DRI. (2019). Indian Wells Valley TDS Transport Model. February 7.

Characteristics of a Suitable Extraction Location

- **The "*ideal*" brackish groundwater extraction well has several characteristics:**
  - Completed in a **sand layer** that will yield a desirable volume of water over the long term.
  - Completed where the long-term **TDS concentrations** of the brackish groundwater are **greater than 1,000 mg/L** (3,000 mg/L is desirable).
  - Located **away from** existing fresh **water production wells**.
  - Located in an area where the potential for **impacts to freshwater resources are minimized** (lateral transport, vertical transport).
  - Located in an area where **impacts from subsidence are minimized**.

Initial Extraction Locations

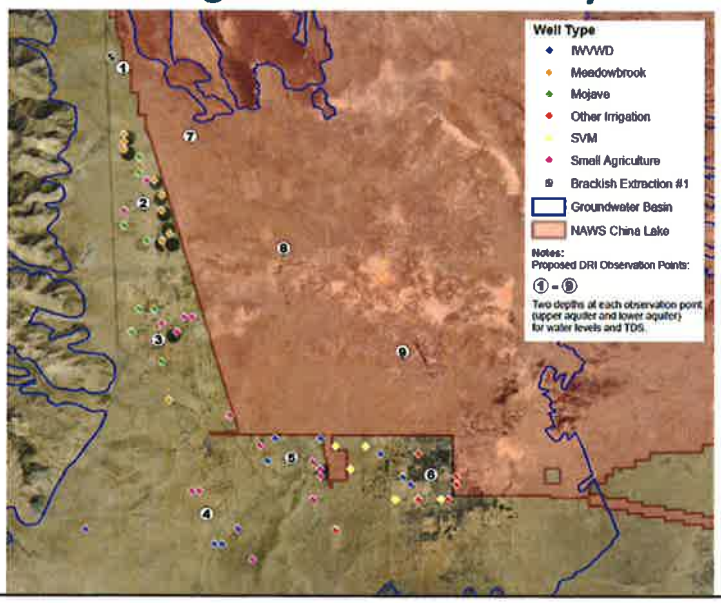
Source: DRI. (2019). Indian Wells Valley TDS Transport Model. January 22.



Modeling Scenarios & Outputs

- **Scenarios:**
  - At three (3) distinct geographic locations in the Basin.
  - At one (1) stipulated depth per geographic location.
  - At three (3) pumping rates per geographic location.
  - Nine (9) modeling runs total with provision for contingencies.
- **Required Output:**
  - Run model for 30 years (assumed design-life of brackish extraction facility[ies]).
  - Results will be presented as:
    - Maps of drawdown.
    - Maps of TDS concentrations at various times and depths.
    - TDS breakthrough curves (TDS versus time) at a number of locations.

First Modeling Scenario Underway



Questions and Comments

Modeling/Management Scenarios

IWVGA TAC - February 7, 2019

Agenda Items 3.b.iii

Outline

- Scenario 2
  - Objectives
  - Parameters
  - Assumptions
- Additional Scenarios

2

Scenario 2 Objectives

- Evaluate potential for achieving water balance while still meeting reasonable demands
- Evaluate alternative pumping ramp downs
- Evaluate water level recovery
- Evaluate imported water groundwater replenishment project
- Evaluate changes to groundwater in storage

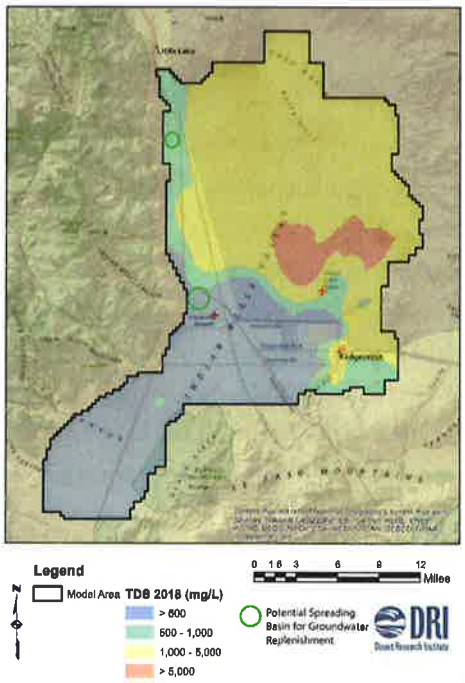
3

Scenario 2 Parameters

- Natural Recharge: 7,650 AFY
- Artificial Recharge
  - Imported Water Groundwater Replenishment Project: 15,000 AFY (13,500 AFY after losses)
    - Recharge beginning year 2030
  - Recycled Water: 352 AFY (additional available for direct use)
    - Injections beginning year 2025
- **Total basin recharge increases to 21,502 AFY**

4

Scenario 2: Potential Spreading Locations



Scenario 2 Pumping Assumptions

- Initial Pumping (2020): 31,642 AF AF
- Target Pumping (2040-2070): 21,502 AFY
- Proportional Ramp Down (equal percentage per year)
  - Large Agriculture
  - Small Agriculture
  - Industrial
  - Commercial
  - Water District
  - Inyokern CSD
  - Other Non-De Minimis
- No Ramp Down
  - Navy
  - De-Minimis

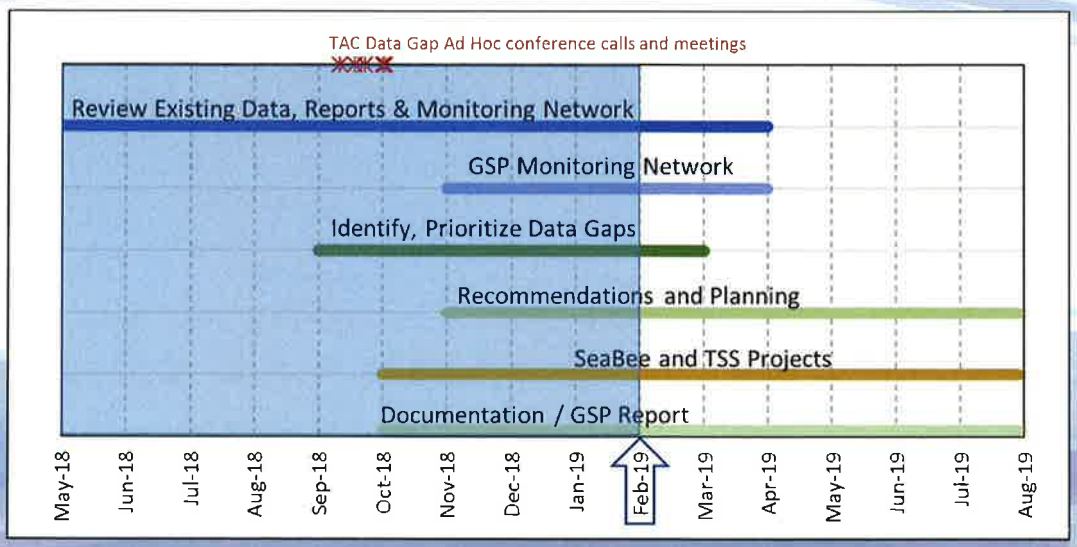
6

Additional Scenarios

- Potential Modifications to Scenarios 1 and 2:
  - Variations to ramp downs
    - Proportional, cliff, lease options/water market, etc
  - Variations to recycled water and/or imported water schedules
    - Less aggressive/optimistic options
    - Imported Water not until 2035?
  - Pumping considerations for retired agriculture land
  - Other variations based on feedback from allocation process and/or TAC discussions

7

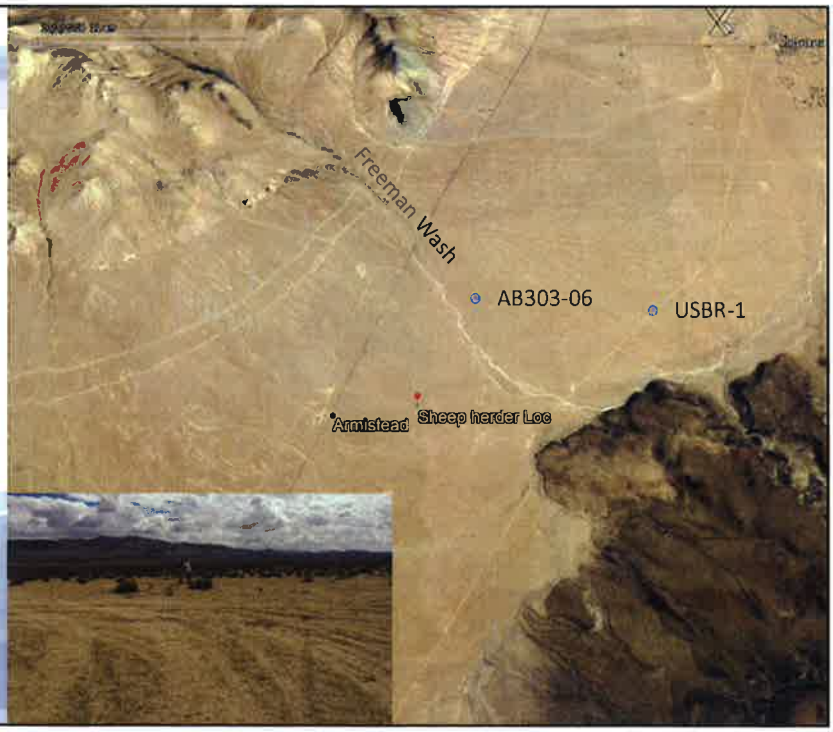
3c-i Monitoring Network and Data Gap Status



3c-i TSS Update

Processing 1st TSS Proposal with DWR

- Jan 17 Board Mtg approved WRM to proceed coordinating TSS proposal with DWR
- Met with DWR w.r.t. TSS application (IWVWD in-kind services to write TSS Proposal)
- Have Data Gap Ad Hoc prioritize additional TSS Applications
- Submit 1st Draft Proposal to DWR
- Report Status Update at March TAC



TAC February 7, 2018 Meeting

Agenda Item 3.d

Prop 1 Scope/Budget Review Status

The final DWR Prop 1 Grant Agreement was executed on September 24, 2018. The signed and executed Grant Agreement contains the scope and budget for the Prop 1 Tasks that has been reviewed and by the IWVGA TAC, PAC, and Board on multiple occasions. Prior to finalizing the IWVGA Prop 1 Grant award and Agreement, DWR required a final scope and budget that potentially could be different than the scope/budget presented in the Prop 1 Grant Application. The WRM worked with the TAC and GA Board during May 2018 and June 2018 to revise and reduce the Prop 1 Grant scope and budget, where deemed appropriate by TAC. The revisions are reflected in the current final Prop 1 Grant Agreement.

Since the revised Prop 1 Grant scope and budget was submitted to DWR, Peter Brown has made several inquiries to the IWVGA Board, TAC and Water Resources Manager (WRM), asking if certain tasks could be reduced or eliminated in an effort to save IWVGA funds and reduce costs to the Indian Wells Valley pumpers. Many of his questions and concerns have been answered to him directly. As requested by Mr. Brown, the Water Resources Manager revisited the topic of the Prop 1 scope and budget with the TAC at the November 2018 IWVGA TAC Meeting and requested that any additional comments on the scope and budget be submitted to Stetson. The WRM reminded the TAC members that any proposed changes to the scope and budget would require DWR approval and an amendment to the Grant Agreement.

The WRM received some comments from TAC members on suggestions for reducing costs with respects to the data gap tasks. These comments have been addressed through coordination through the TAC (either the full committee or appropriate ad-hoc committees). The scope and budget of the data gap tasks have been finalized and the Grant Agreement does not need to be revised. Continued coordination with the TAC (and other entities) will be required as work progresses on these data gap tasks in accordance with the final Prop 1 Grant scope and budget. The final Grant Agreement scope of the data gap tasks along with the current status and coordination efforts are documented below.

Data Management System

Final Prop 1 Grant Scope: Develop Data Management System, develop monitoring protocols, and install dataloggers.

Current Status/Coordination Efforts: It is recommended to install pressure transducer dataloggers at wells in the Indian Wells Canyon and Nine-mile Canyon. Additional coordination with TAC will occur before selecting other sites to install transducers.

Monitoring Wells

Final Prop 1 Grant Scope: Install four new monitoring wells.
Current Status/Coordination Efforts: Installation being done by the U.S Navy Seabees. Stetson and TAC coordination with the U.S. Navy for site locations.

Stream Gages

Final Prop 1 Grant Scope: Installation of two new stream gages.
Current Status/Coordination Efforts: After field trips and coordination with TAC members, it is recommended new stream gages be installed at the Indian Wells Canyon and the Sand Canyon.

Weather Stations

Final Prop 1 Grant Scope: Retrofit and upgrades to one existing weather station and installation of one new weather station.
Current Status/Coordination Efforts: After field trips and coordination with TAC members, it is recommended the Walker Pass weather station be upgraded with a rain gage and cell telemetry system. A new weather station will be installed at the Chimney Peak Fire Station location.

Water Quality and Isotope Sampling

Final Prop 1 Grant Scope: Conduct water quality and stable isotope sampling and analysis.
Current Status/Coordination Efforts: The locations for water quality sampling will be coordinated with the TAC. It is recommended the sampling be timed with KCWA sampling schedules in March 2019.

Aquifer Tests

Final Prop 1 Grant Scope: Perform aquifer testing at three locations.
Current Status/Coordination Efforts: The locations for testing will be coordinated with TAC.

TAC February 7, 2018 Meeting

Agenda Item 3.b.iii

Stream Gages and Weather Stations

1) **Walker Passe (east) Wx** (retrofit) (35.662612, -118.025477)– Continue to utilize transmitted RAWS precipitation data from this station. With the current DCP transmitter set up, the GOES DCS system will eventually stop receiving data from this location due to system incompatibility. BLM has not funded this upgrade. Installing a rain gage and cell telemetry system will augment any potential loss of existing data from this weather station.

2) **Chimney Peak Fire Station Wx** (new) (35.869, -118.011) – Work with Ridgecrest BLM and Bakersfield BLM to coordinate the installation of at the least a Rainfall gage at the Chimney Peak Fire Station (Bakersfield office). There appears to be ground communication (telephone) at this location. Option 1 is to connect sensor(s) through this wired communication. Option 2 would be to set up a RAWS compatible Wx station at this location.

3) **Indian Wells Canyon Stream Gaging Site** (new) (35.684077, -117.917516)– After visiting the site, the most feasible location for establishing a weir is at the site of an old earthen dam. With the installation of a concrete and steel plate weir, this represents the best location to install and maintain a rated streamflow gaging station in this stream basin. We expect this location to capture the majority of event-based runoff. (Perennial flow would not be captured since it returns to subflow in this reach.) Upstream of the weir we would install a small diameter stilling well (well point with full length screen) and utilize a pressure transducer and cell transmitter to measure, record, and transmit data. Due to the high recreational use in this drainage, and associated higher probability of vandalism, we'd recommend installing a second pressure transducer and stilling well without transmission capabilities to maintain data in the circumstance of theft or vandalism of the primary station. The weir installation would require; an excavator, concrete form work, steel fabricator, and a concrete pump truck.

4) **Sand Canyon Stream Gaging site** (retrofit) (35.77597, -117.907652) – Ridgecrest BLM operates a weir gage at this location. The gaging equipment consists of a stilling well with float and paper strip recorder. We'd recommend installing a pressure transducer with cell transmitter (same equipment as Indian Wells Canyon) in the stilling well to operate alongside BLM equipment.

5) Installation of pressure transducer at stock watering wells in Indian Wells Canyon (35.677514, -117.912627) and Nine-mile Canyon (35.837189, -117.907072). These wells would be monitored using standalone pressure transducer dataloggers without remote data transmission. A relationship between streamflow and groundwater level would be established.

6) In terms of monitoring instruments, for the wells and surface water gaging sites we recommend utilizing In-Situ brand equipment. They have a preconfigured monitoring and telemetry option with an internal 5-year battery that is well suited for this application.

TAC February 7, 2019 Meeting

Agenda Item 3.d

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