



Indian Wells Valley Brackish Groundwater Feasibility Study: Overview

Wade Major

June 15, 2017

Brackish Water Study Group Members



- **Funding Members**
 - Indian Wells Valley Water District (IWWVD)
 - Coso Geothermal
 - Searles Valley Minerals
 - Mojave Pistachios
- **Participating Members**
 - US Navy NAWS China Lake

Background to Feasibility Study



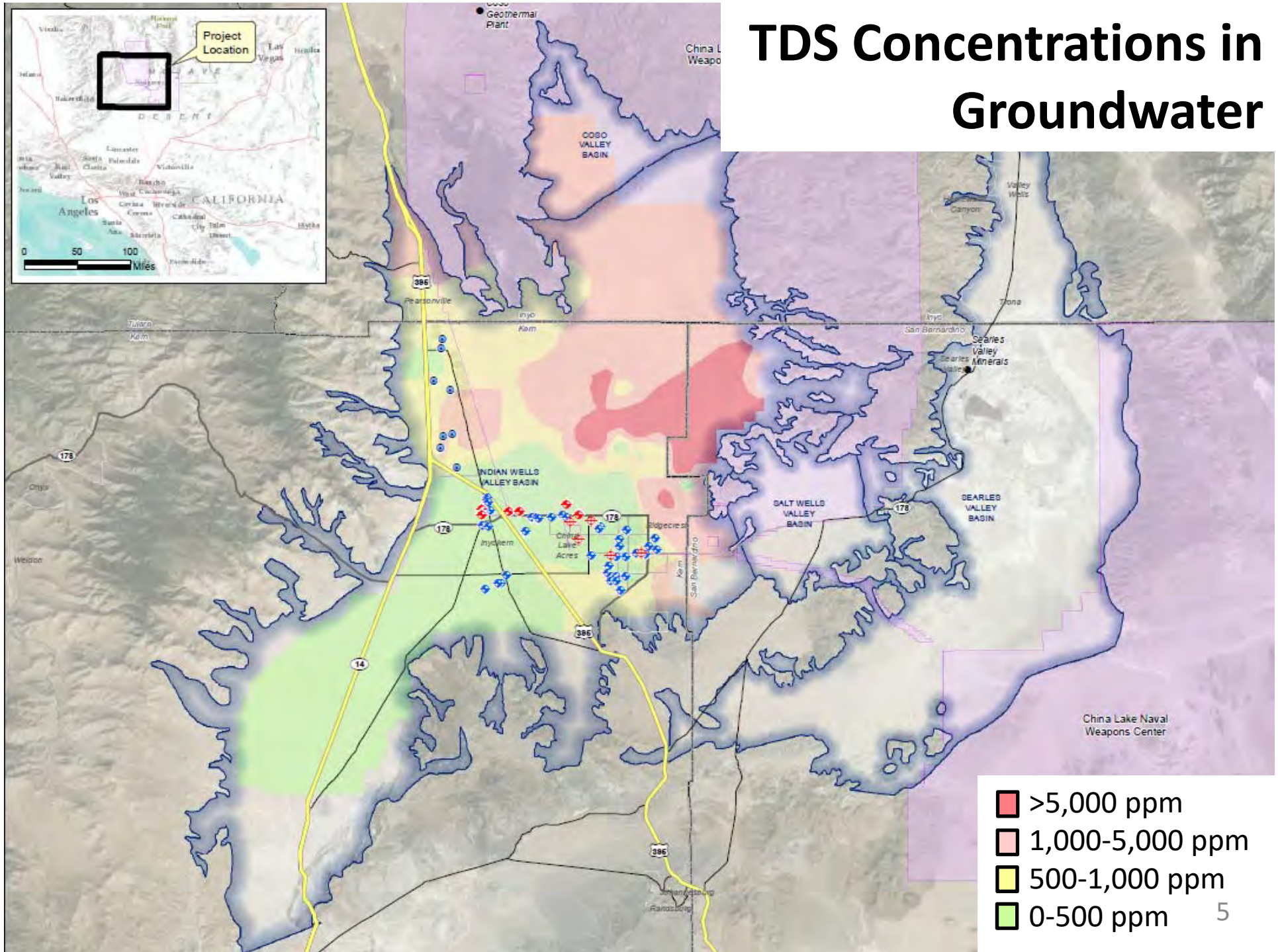
- Only source of water is groundwater
- 2015 quantities pumped:
 - Agricultural 12,700 AF
 - Municipal 7,600 AF
 - Industry 2,500 AF
 - Military 1,500 AF
 - Private 1,000 AF
 - TOTAL **25,300 AF**
- Groundwater declines ~0.5-1.5 feet per year
- Estimates of safe yield ~7,500 - 11,500 AFY
- Sustainable Groundwater Management Act
 - Effective January 1, 2015

Feasibility Study Concept



- Pumping of “fresh” groundwater will likely have to be reduced to meet sustainable yield.
- Therefore, new water supplies will be needed to meet projected future demand.
- External supplies (e.g. State Water Project, Colorado River) are not accessible.
- Brackish groundwater (TDS > 1,000 mg/L) extends beneath almost 50% of the IWW Basin.
- Reduced fresh groundwater pumping offset by brackish groundwater.
- Potential 9,000 - 15,000 AFY of alternate supply.
- Will require treatment.
- Pumping must not have undesirable results on fresh groundwater.

TDS Concentrations in Groundwater

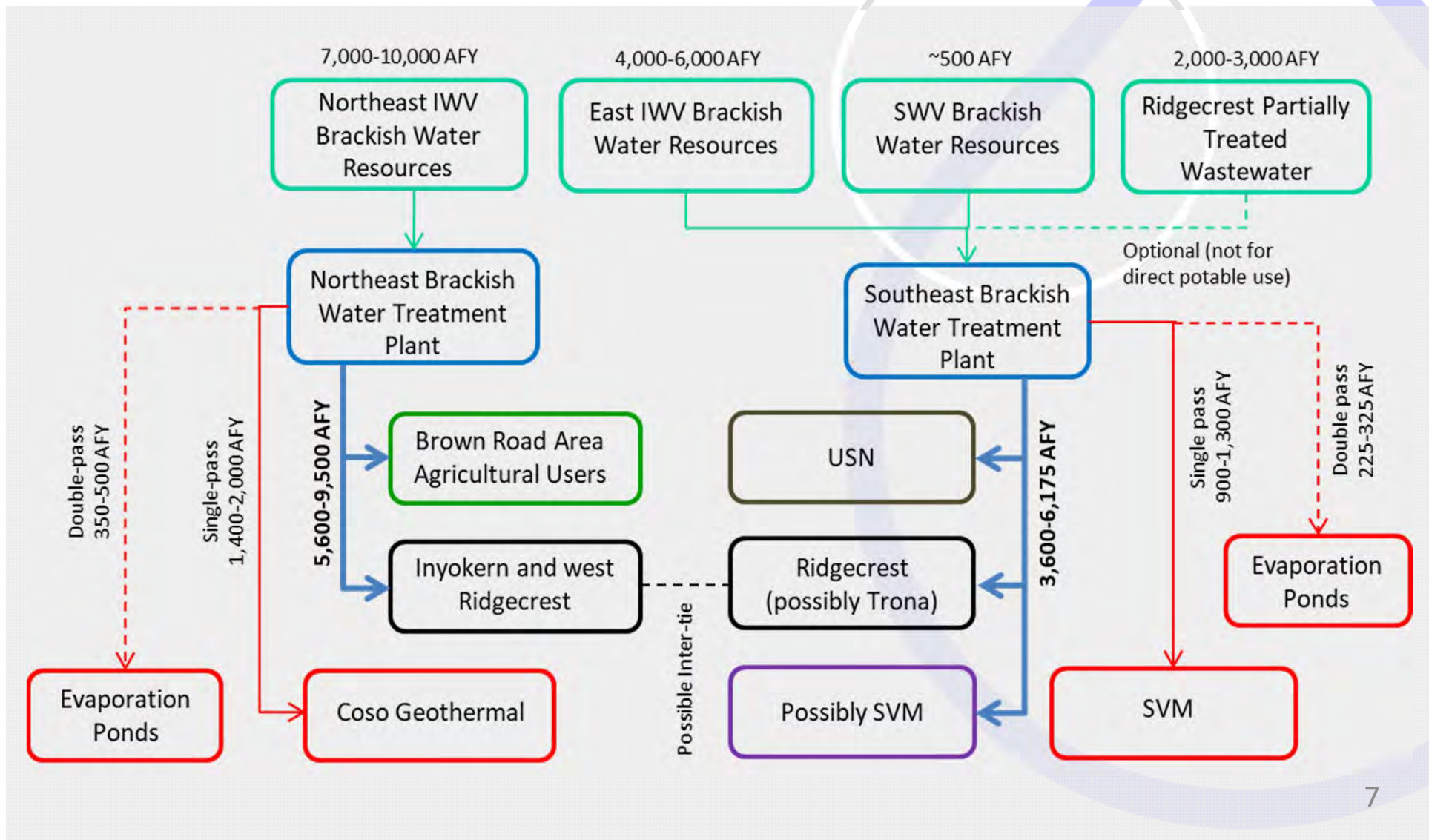


Objectives of the Feasibility Study



- Examine using brackish groundwater as a supplemental source.
 - Identify and quantify brackish resources
 - Evaluate the feasibility of development
 - Assess treatment and brine disposal options
 - Estimate costs of treated water
- Unique attribute in IWV:
 - Potential brine users

Full-Scale Treatment Concept



Feasibility Study Main Tasks



1. Basin Resource Evaluation

Geometry, Stratigraphy, Hydraulic Properties, Inflow, Outflow, Quality, Salt Wells Valley

2. Potential Brine Receiving Facility Evaluation

Coso Geothermal, Searles Valley Minerals, Evaporation Ponds

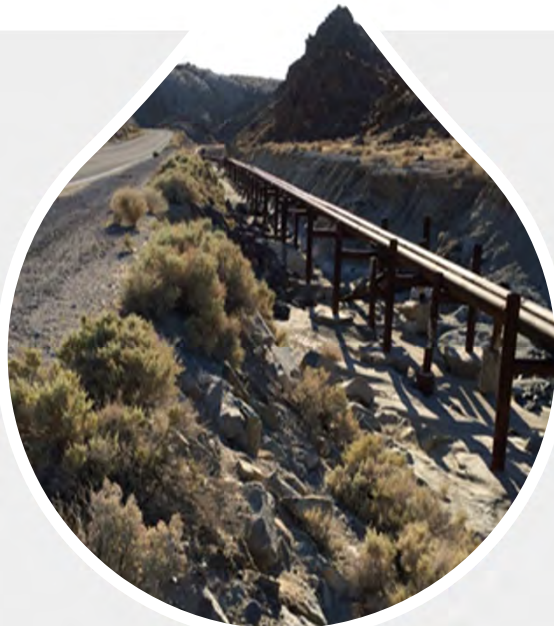
3. Data Gap Identification

Update CHM, Gaps, Memorandum, Work Plans
(Geophysics, TDS monitoring, New Monitoring Wells, Extraction Wells, Model Simulations)

4. Supplemental Data Collection & Modeling

Geophysics, Monitoring Wells, TDS monitoring, Extraction Wells, Model Simulations, Update CHM

Feasibility Study Main Tasks (Continued)



5. **Hydraulic Feasibility Evaluation**

Extraction Wells, Impacts (Fresh GW, Overall Water Quality), Model Simulations, Unknown Impacts, Permits

6. **Treatment Feasibility Evaluation**

Existing Studies, Evaluate Options

7. **Pipeline Routing Feasibility Evaluation**

Design Parameters, Well Locations, Pipeline Routing

8. **Feasibility Report**

Draft, Review & Revise, Final

9. **Demonstration Plant Conceptual Design**

For Grant Application, For Implementation

10. **Grant Application**

Proposition 1, Others

11. **Meetings & Project Management**

Task #	Task Description	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
1	Basin Resource Evaluation													
2	Potential Brine Receiving Facility Evaluation													
3	Data Gap Identification													
4	Supplemental Data Collection & Modeling (By Others)													
5	Hydraulic Feasibility Evaluation													
6	Treatment Feasibility Evaluation													
7	Pipeline Routing Feasibility Evaluation													
8	Feasibility Report													
9	Demonstration Plant Conceptual Design													
10	Grant Application													
11	Meetings & Project Management													



- Proposition 1 Grant Funding:
 - Data Collection – Water Desalination Grant Program – Round 4 – Feasibility Study
 - Pilot Study – Water Desalination Grant Program – Round 4 – Design Pilot
- Funding Match may not be required based on economic status.
- If funding match is required, mechanism is TBD.
- Final PSP was to be released by June 12, 2017.
- Grant applications tentatively due on July 31, 2017, exact date TBD.

