

Report on Recovery Planning and Implementation

Update on Direct Recovery at Tonopah Desert Recharge Project

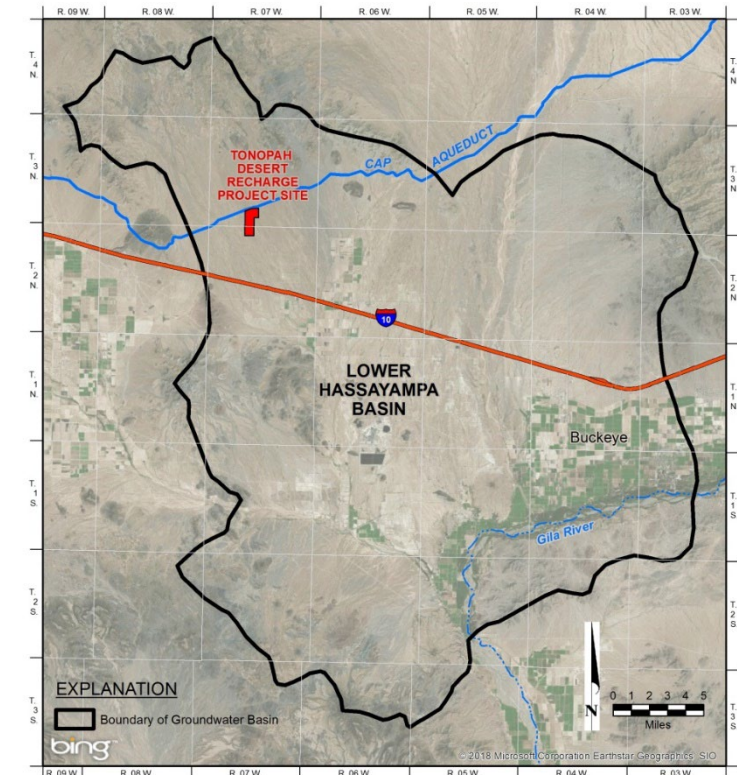
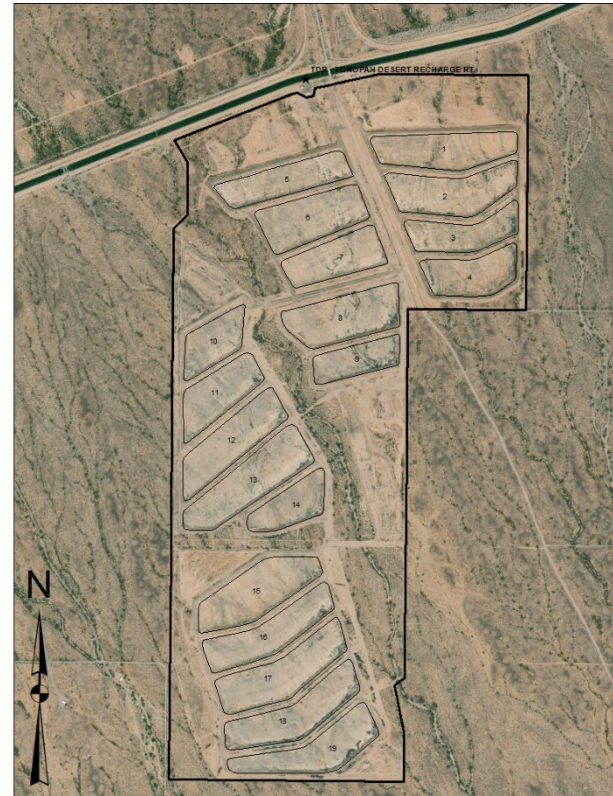
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Resource Planning and Analysis

Arizona Water Banking Authority - Quarterly Meeting
September 11, 2024

Tonopah Desert Recharge Project (TDRP)

- Built between 2004 – 2006
- Recharge operations between 2006 – 2014, 2020
- Permitted capacity of 150,000 AF/yr.
- Stored a total of ~869,000 AF with ~513,000 AF stored by the AWBA
 - ~25% of the AWBA credits in the Phoenix AMA



TDRP Site Selection

- The TDRP site was chosen after an evaluation of locations in the western portion of the CAP system that could recharge large volumes
 - Away from existing pumping was desirable
 - Substantial Excess Water supplies were available and projected
- Fewer wells in the vicinity also meant more limited geophysical information
- Water quality considerations for recovery were less prominent at the time



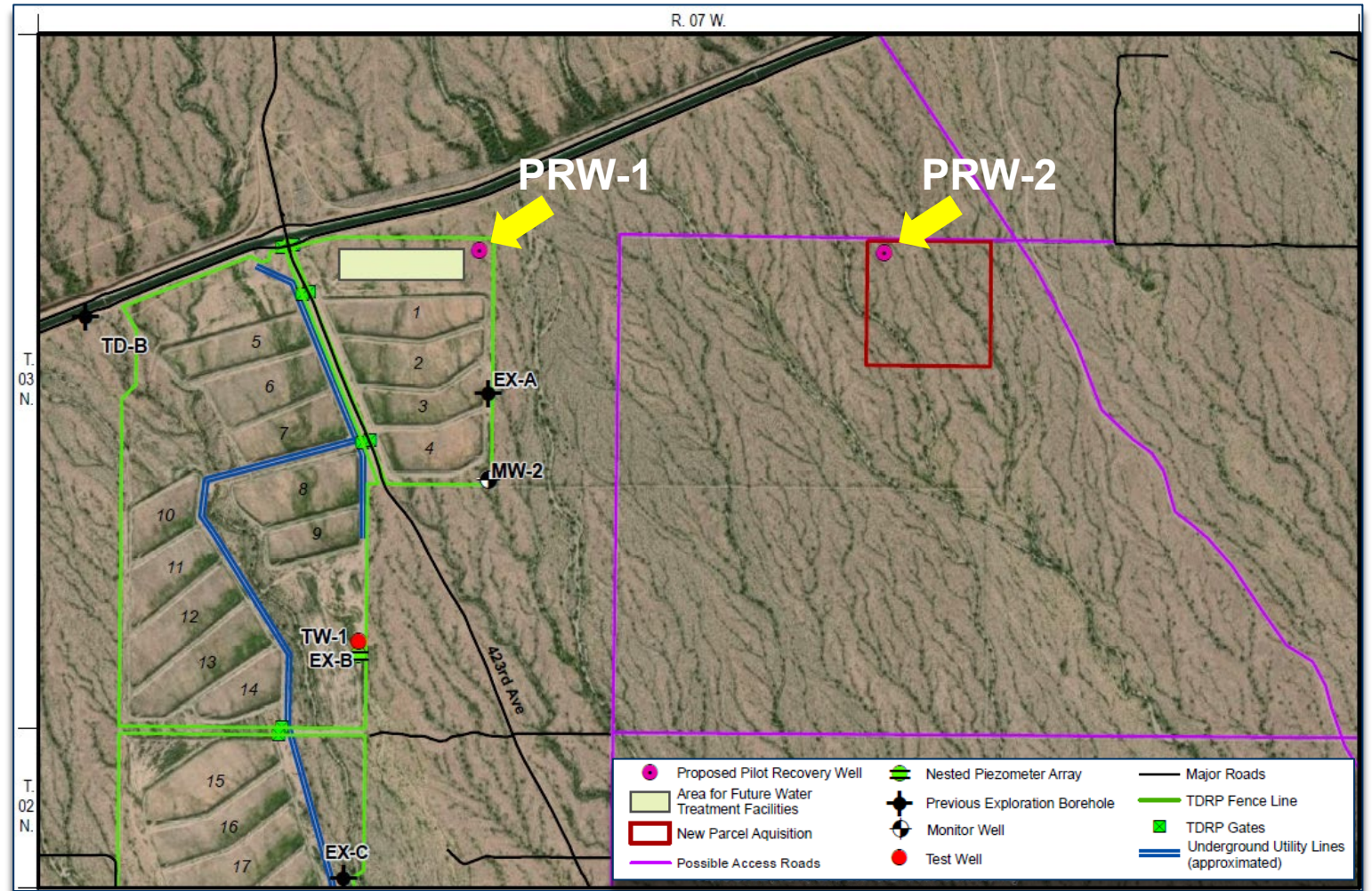
TDRP Recovery Activities

- CAP has taken progressive steps toward the development of a TDRP direct recovery facility
 - 2016 – Deep aquifer boreholes
 - 2017 – Hydrotest well
 - 2019 – Alternative location study
 - 2020 – Geophysical surveying
 - 2022 – Acquisition of 40-acre well site
 - **2023/24 – Pilot Recovery Wells (PRW 1 & 2)**



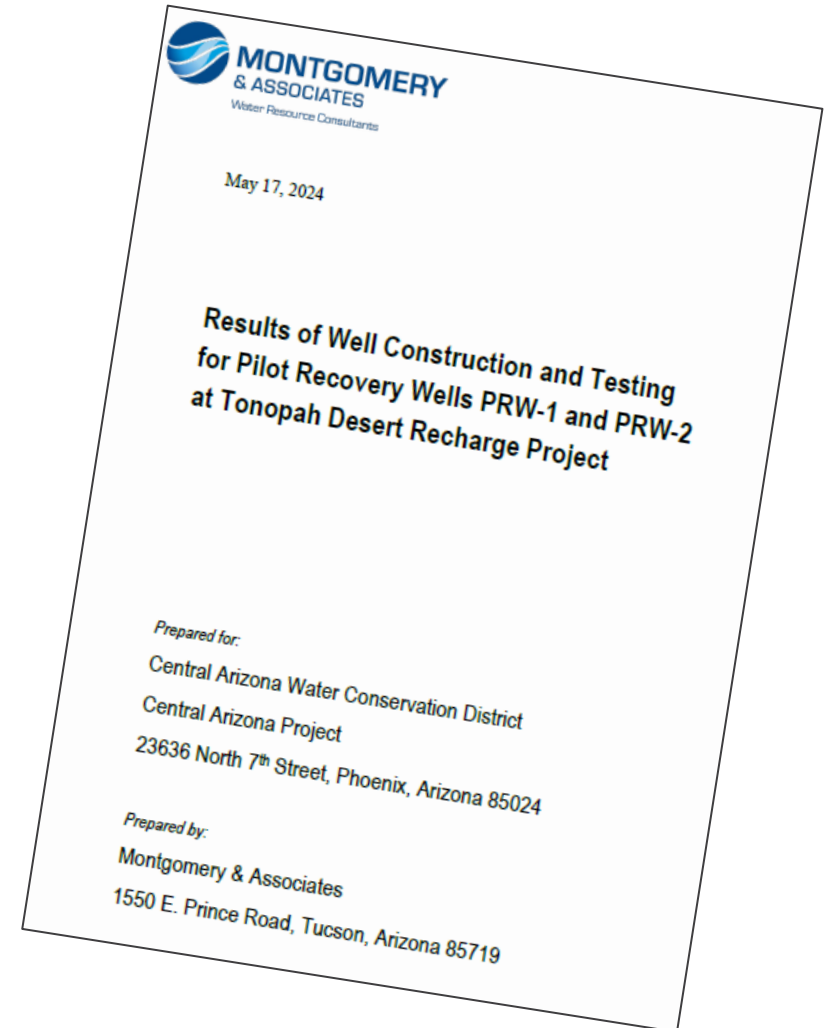
TDRP Pilot Recovery Wells

- Previous drilling and geophysical surveys indicated hydrogeologic conditions were more favorable on the northern portion of TDRP and to the east
- Recommendation was to drill and test two pilot recovery wells
 - PRW-1 on the TDRP site
 - PRW-2 on 40 AC parcel



Pilot Well Construction and Testing

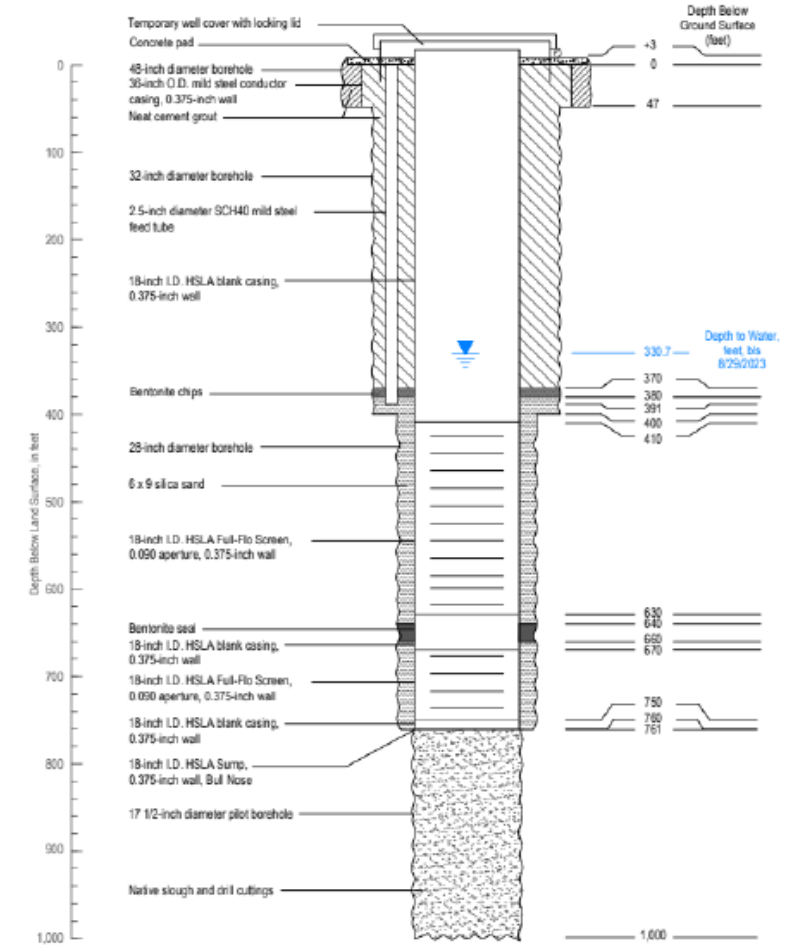
- Intended to support the assessment of technical feasibility and the design of a recovery wellfield and water treatment facilities
- Data was collected to characterize physical and hydraulic variables
 - Lithologic logging of drill cuttings
 - Geophysical logging to determine sediment types and water-producing zones
 - Zonal testing to identify depth and potential of water-bearing zones and vertical variation in groundwater quality



TDRP Pilot Well Construction Details

- Both wells were drilled to obtain data on critical aquifer characteristics and were designed for future operation as part of a potential wellfield

| Summary of Well Details | | | | |
|-------------------------|-----------------------|------------------------|----------------------|---------------------|
| | Total Depth (feet) | Casing Depth (feet) | Diameter (inches) | Intervals (feet) |
| PRW-1 | 1000 | 860 | 18 | 462-694 736-850 |
| PRW-2 | 1000 | 760 | 18 | 410-630 670-750 |



TDRP Pilot Well Results

- Production from the well on the 40-acre site (PRW-2) is more favorable than the on-site well (PRW-1), but water quality is worse, and remains challenging for both locations

| Composite Summary Results | | | | | |
|---------------------------|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|-----------------------------------|
| | Production Capacity (AF/yr) | Arsenic (µg/L) PMCL=10 | Fluoride (µg/L) PMCL=4 | Aluminum (mg/L) SMCL=0.2 | Iron (mg/L) SMCL=0.3 |
| PRW-1 | 500 | 37 | 6.2 | 0.10 | 0.14 |
| PRW-2 | 1500 | 144 | 10.1 | 0.77 | 0.33 |

Additional Work

- Data from the pilot recovery wells is being used to generate a high-level estimate of production from multiple wells 40-acre parcel, along with treatment options and costs
 - Results anticipated Q1 2025
- Staff are revisiting options that can supplement or substitute for wellfield development on the 40-acre parcel
 - Including locations outside of the 1-mile “Safe Harbor” where aquifer characteristics are more certain and favorable



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Questions?