

Ames-Reche Management Area

Annual Report for FY 2024-2025



Prepared by: Mojave Water Agency

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Hi-Desert Water District



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ATTACHMENT 5-8 AMES-RECHE GROUNDWATER STORAGE AND RECOVERY PROGRAM TRANSFER
FORM

EXECUTIVE SUMMARY

This report is presented by the Mojave Water Agency (MWA) to satisfy the annual monitoring report requirement outlined in the Amended and Restated Judgement from the Ames-Reche Groundwater Storage and Recovery Program and Management Agreement for the fiscal year (FY) 2024-2025. Production values have been consistently below the Annual Baseline Amount (ABA) total of 1,646-acre feet (AF) for all the Ames-Reche Program partners combined. Water level data collected in accordance with the Monitoring Program Plan demonstrate that water levels in the management area that once appeared to be stabilizing since the implementation of the Ames-Reche Management Agreement in 2012 have changed and now most wells are showing declining trends ([Plate 1](#)). Recommendations to the ABA are made every five (5) years. The annual report for FY 2022-2023 included recommendations and more detailed analysis. This annual report for FY 2024-2025 includes supplemental tables and figures documenting the continued monitoring and sampling activities.

The Monitoring Plan requires groundwater level monitoring and water quality sampling. Sampling includes total dissolved solids (TDS), Gross Alpha, and Uranium concentrations. Measurable concentrations of these analytes have been reported in some wells and are continuing to be monitored. Water quality samples collected after recharge of SWP at the Ames-Reche Recharge Facility appear to suggest the native groundwater chemistry at the downgradient monitoring well is influenced by SWP water and is showing a beneficial effect on groundwater quality in the aquifers near the recharge site.

An existing groundwater numerical model designed by Todd Engineers (2011), was updated by MWA in FY 2022-23, and used to conduct various estimates and analyses that were reported in the FY 2022-23 Ames-Reche Report. The estimated net recharge for the calibration period of the model (Water Year (WY) 1995 – WY 2022) is 1,054 acre feet a year (AFY) which is below the prescribed ABA of 1,646 AFY. The model showed that even though groundwater rose by as much as 30 feet (ft) underneath the recharge facility during active recharge, long term gain was less than 3 ft, at the site and negligible away from the recharge facility. This is due to insufficient and infrequent recharge. Without sustained active recharge through SWP imports, the annual baseline is not sustainable.

INTRODUCTION

This report presents the results of the monitoring and sampling activities outlined in the Monitoring Program Plan developed as part of the Ames-Reche Groundwater

Storage and Recovery Program and Management Agreement for the FY 2024-2025. The Ames-Reche Management Area ([Map 1](#)) encompasses roughly 95 square mile area and includes the communities of Flamingo Heights, Landers, Yucca Mesa, and Pioneertown.

The Ames-Reche Groundwater Storage and Recovery Program was established by area partners Bighorn-Desert View Water Agency (BDVWA), Hi-Desert Water District (HDWD), County of San Bernardino Service Area 70 W-1 (CSA 70 W-1) and County of San Bernardino Service Area 70 W-4 (CSA 70 W-4), hereon collective referred to as Partners, with Mojave Water Agency (MWA) providing administrative support. The Stipulation and Amended and Restated Judgement were finalized by the Superior Court of the State of California, County of Riverside on September 17, 2014. As required by the Amended and Restated Judgement, annual monitoring reports are to be prepared by MWA. This report constitutes the annual report for the year FY 2024-2025.

BACKGROUND

On June 3, 1991, the Court recorded a Judgement pursuant to a Stipulation for Judgement entered by BDVWA and HDWD. The Judgement regarded the proposed construction of a new production well (the Mainstream Well or HDWD Well #24), located within BDVWA's sphere of influence, in an area between the BDVWA and HDWD service areas. The Judgement required monitoring of the subject groundwater supplies for quantity and quality and the regulation of production from the Mainstream Well.

On May 29, 2012, BDVWA, HDWD, MWA, CSA 70 W-1, and CSA 70 W-4 entered an agreement providing for more comprehensive regulation of the groundwater supplies protected in the Judgement, including provisions of supplemental water supplies for beneficial use, allocation of water production, storage and transfer rights to all public entity water retailers utilizing the subject groundwater supply, and continuing monitoring of water supply quality and quantity, all subject to the Court's continuing jurisdiction. MWA and County of San Bernardino 70 W-1 and 70 W-4 moved to intervene as parties to receive the benefits and undertake the obligations provided for in the Amended and Restated Judgement. All the Parties have stipulated to the Court's entry of the September 17, 2014, Amended and Restated Judgement.

Effective July 1, 2015, the Local Agency Formation Commission (LAFCO) certified the annexation of CSA 70 W-1 as an Improvement District of BDVWA, informally named Improvement District Goat Mountain (IDGM).

As described above, the Project Partners formed the Ames-Reche Management Area as part of the Ames-Reche Groundwater Storage and Recovery Program and

Management Agreement. The boundaries of the approximately 95-square mile management area were established on Exhibit A of the Amended and Restated Judgement and are shown on [Map 1](#).

A separate water exchange agreement between the CSA 70 W-4 and HDWD ([Agreement No. 17-819](#)) was developed upon the completion of the Pioneertown Pipeline and Water System Improvement Project to benefit the Pioneertown area. This exchange agreement provides CSA 70 W-4 access to groundwater in the Warren Valley Sub-basin in exchange for an equal amount of groundwater from within the Ames-Reche basin. HDWD and CSA 70 W-4 are to provide MWA with transfers from annual baseline amounts. Ames-Reche supplies available to exchange are not allowed to fall negative.

As part of the Ames-Reche Groundwater Storage and Recovery Program and Management Agreement, a Monitoring Program Plan was developed as a mechanism for the management of water supply reliability and protection of the Basin. The Monitoring Program includes a network of wells that are monitored for water level and water quality data, as designated on [Map 2](#). MWA is assisting with the administration of the monitoring program, to ensure protection of the Basin for the Parties and their end users. Specific elements of the Monitoring Program consist of:

Production Wells

Groundwater Production: Project Partners BDVWA, IDGM, CSA 70 W-4 and HDWD agree to provide to MWA each year (no later than July 10), the meter readings, electrical records and any other available data reflecting the production of groundwater from the Basin for the immediate prior 12 months (July 1 – June 30).

Water Levels: The well owner shall monitor water levels in these wells on a quarterly basis or better and provide all water level records to MWA annually on or before July 10.

Water Quality Sampling: The owner shall collect and have analyzed Title 22 water quality samples from active wells listed in the Monitoring Program Plan, in accordance with their own California Department of Public Health requirements.

Monitoring Wells

Monitoring wells located within the management area and listed in the Monitoring Program Plan and are also shown on Exhibit C of the Amended and Restated Judgement. The MWA is to monitor water levels in these wells on a semi-annual basis or better. The MWA shall also collect and have analyzed water quality samples from 02N05E24H02 (BDVMW-2) and 02N05E24P01 (BDVMW-1) annually. Analysis includes general minerals, gross alpha, uranium, and inorganic constituents.

GROUNDWATER LEVELS

Discrete manual water levels and pressure transducer dataloggers are used to collect water level data from 32 wells within the Ames-Reche Management Area Monitoring Network ([Map 2](#)). MWA staff hand-measure monitoring wells on a quarterly basis and download data from MWA-maintained transducers semi-annually. MWA prepares updated hydrograph maps of these groundwater data for the Landers Vicinity ([Plate 1](#)) and the Pioneertown Vicinity ([Plate 2](#)) of the Ames-Reche Management Area. These maps show groundwater elevation data for the Monitoring Network Wells. Water levels across the Ames-Reche Management Area Wells, appear stable since the implementation of the Ames-Reche Management Agreement ([Plate 1](#)) and show declining trends. Groundwater elevation contours, in feet (ft) relative to NAVD88, are generated annually each spring ([Map 3](#)). The overall flow direction is southwest to northeast.

GROUNDWATER WATER QUALITY

Water quality data for total dissolved solids (TDS), gross alpha, and uranium are shown on [Plates 3-5](#). The frequency and history of sampling varies somewhat between parties and from well to well. Water quality data was retrieved from the California State Water Resources Control Board, Division of Drinking Water (DDW) website, the United States Geological Survey (USGS) National Water Information System (NWIS), and the MWA Water Resources Data Management System (MWA DMS).

Changes to the Monitoring Program Plan should be noted for CSA 70 W-4 as of July 27, 2019, as the County no longer extracts water from the basin after implementation of the CSA 70 W- 4 Pioneertown Pipeline Project. The State paid to have five (5) wells abandoned in CSA 70 W-4, however four (4) wells are still accessible to monitor static groundwater levels. Economic resources to activate the wells for sampling are limited, however, 01N05E20D01 (CSA 70 W-4 Well #2) continues to provide water quality data.

TDS

TDS concentrations above the Secondary Maximum Contaminant Level (MCL) for TDS of 500 mg/L have been reported from some of the inactive retired CSA 70 W-4 production wells in Pioneertown. TDS concentrations reported between 2012 and 2024 from other Ames-Reche Monitoring Program Wells range from 200 to 430 mg/L, below the Secondary MCL for TDS.

Gross Alpha

Concentrations at or above the MCL for gross alpha of 15 picocuries per liter (pCi/L) have been reported from CSA 70 W-4 production wells in Pioneertown, from 02N05E27K03 (BDVWA Well #3) in the Flamingo Heights area, and 02N05E24H01 (HDWD Well #24) in the Landers area. Gross alpha concentrations reported from other Ames-Reche Monitoring Program Wells between 2012 and 2024 range from not detected above the reporting limit (ND), to 13.8 pCi/L, (13.8 pCi/L is below the MCL of 15 pCi/L for gross alpha). It should be noted that there is a relationship between gross alpha concentrations and uranium concentrations (discussed below) and that gross alpha results should be considered within the context of uranium.

Uranium

Elevated uranium concentrations above the MCL for uranium of 20 pCi/L have been reported from some of the inactive legacy CSA 70 W-4 production wells in Pioneertown. Uranium concentrations reported from other Ames-Reche Monitoring Program Wells between 2012 and 2024 range from ND to 18 pCi/L, which is below the MCL for uranium.

Water Quality Discussion

As previously discussed, the Monitoring Program Plan calls for collection of samples from Monitoring Program Production Wells and analysis for Title 22 constituents by well owner “in accordance with their own California Department of Public Health requirements.” The Monitoring Plan also calls for sampling from all the 22 production wells listed for TDS, uranium, and gross alpha for the first five years of the program; however, several of the production wells are inactive and not equipped with pumps and are not sampled.

Prior to construction of the Ames-Reche Recharge Facility, a monitoring well 02N05E24P01 (BDVMW-1) was installed in Pipes Wash and sampled in 2010 ([see Plate 1](#)). Construction of the recharge facility was completed in March 2014 and the monitoring well 02N05E24P01 (BDVMW-1) is located downgradient of the facility. A stiff diagram generated from 2010 water quality data collected from the monitoring well 02N05E24P01 (BDVMW-1) prior to any artificial recharge at the site is shown in the lower left portion of [Figure 1](#) as a baseline. Stiff diagrams were also generated for water quality data available from the California Department of Water Resources (DWR) for SWP water at Check-66 and are shown in the top left portion of [Figure 1](#). Stiff diagrams generated from water quality data collected at downgradient monitoring well 02N05E24P01 (BDVMW-1) after initiation of recharge activities are shown in the lower right portion of [Figure 1](#). These stiff diagrams show the groundwater chemistry at the downgradient monitoring well is influenced by the SWP

water, and there may be about a one-year lag between infiltration at the pond and response in groundwater.

Water quality data available from active production wells and monitoring wells across the management area suggest current data collection efforts provide adequate coverage for the existing production wells in the Ames-Reche Management Area. Locations away from production wells might need to be investigated for water quality and depth specific sampling.

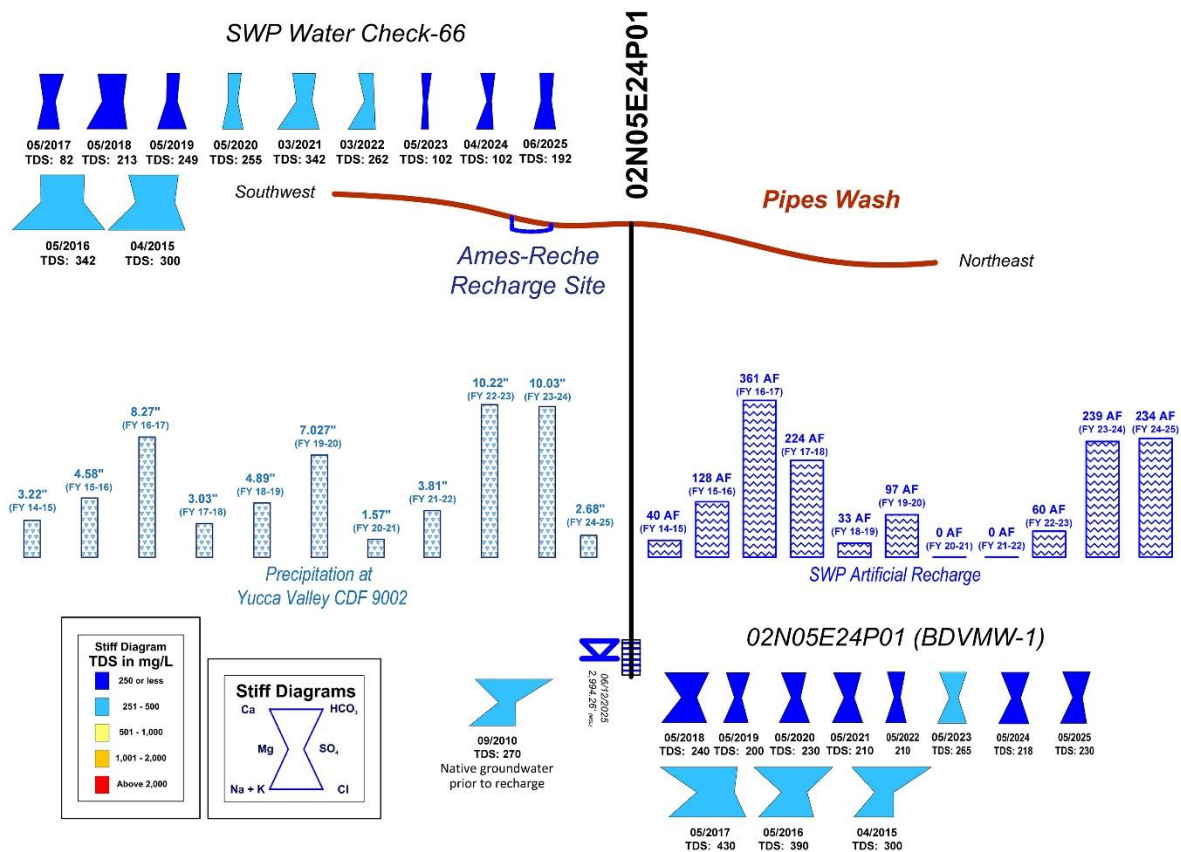


Figure 1 Stiff Diagram showing SWP water quality influence on well near Ames-Reche Recharge Site.

Groundwater Budget

The groundwater budget describes the inflow to and outflow from the groundwater system. Inflow and outflow can occur from the boundaries of the system, from various sources such as rainfall, streams, various forms of artificial recharge, and from

the exit points or sinks such as wells or drainage systems. Estimating the components of the groundwater budget is one way to assess the health of the basin and provide recommendations for best management practices. This section presents the components of the groundwater budget in the Ames-Reche area, along with their updated estimates where available.

Outflows

Outflows include production reported from the program partners, and underflow outflow estimates.

Production

Production amounts in acre-feet (AF) for the Ames-Reche Management Area are shown below in [Figure 2](#) and [Table 1](#). The production across the Ames-Reche Management Area is shown graphically in [Figure 2](#). Production has consistently been below the ABA total of 1,646 AF for all the Ames-Reche Program partners combined, however declining water level trends continue. Over the years, production has ranged from a maximum of 1442.81 AF in FY 2022-2023 to a minimum of 886.4 AF in FY 2018-2019. Since FY 2012-2013, a total of 15,650.74 AF has been produced from the Ames-Reche Management Area by the project partners resulting in continued decline of groundwater levels in the basin. A reduction in production and or an offset of respective production with increased recharge to the Ames-Reche basin is recommended for basin health.

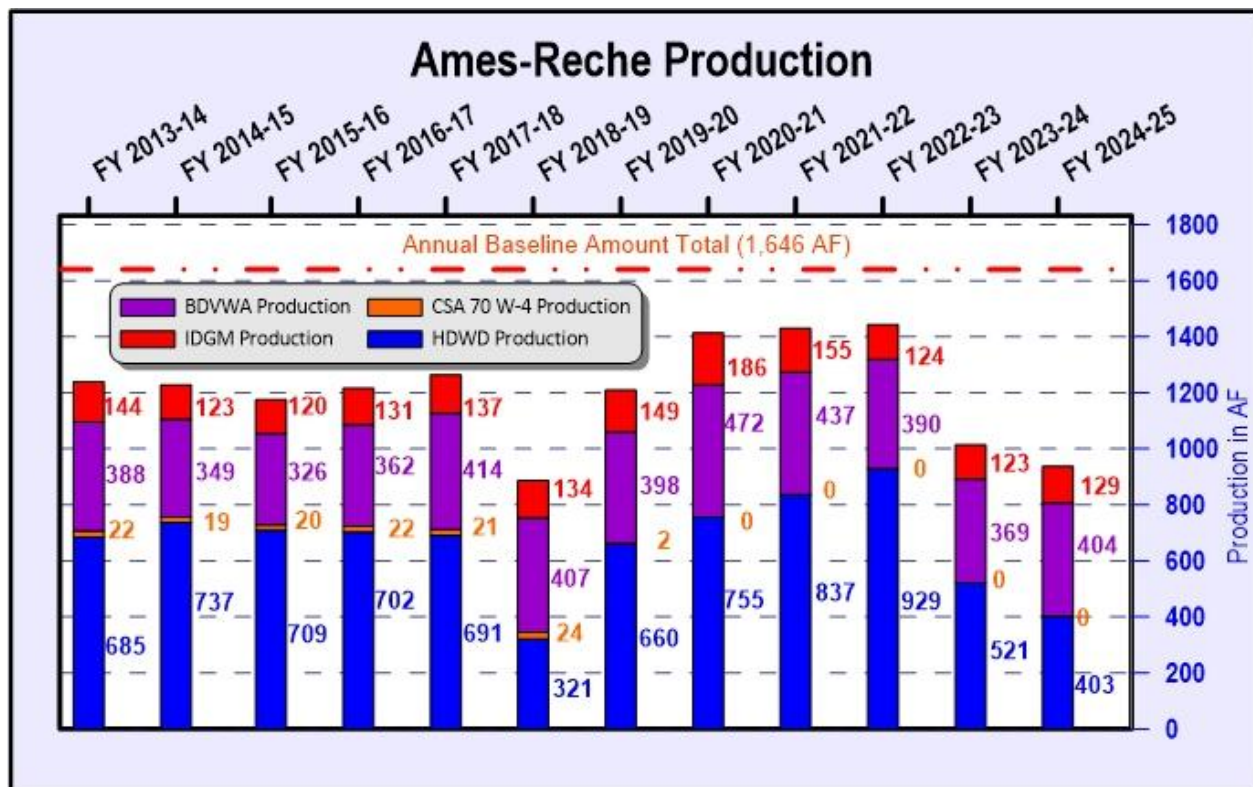


Figure 2 Ames-Reche Production

Underflow outflow

Most of the potential outflow happens between the Ames-Reche subbasin and Giant Rock. Based on groundwater levels contour constructed by Todd (2007), the Emerson Fault acts as a natural flow barrier between these two (2) subbasins, hence the outflow is probably low. Future investigative efforts (modeling and monitoring) will help determine the amount of outflow.

Inflows

Inflows include areal recharge, stream percolation, mountain front recharge, and artificial recharge.

Areal Recharge and Natural Precipitation

Natural inflows to the aquifer are all dependent on precipitation, hence the longest available record of precipitation is presented here. For the Ames area, the Yucca Valley County Department of Forestry (CDF) Station, located approximately four (4) miles (mi) to the south of the Ames-Reche Management Area, has the longest period of record and the most complete dataset of the area weather stations. Precipitation data from Yucca Valley CDF Station for the period of 1958 through FY 2024-2025 are presented in [Figure 3](#).

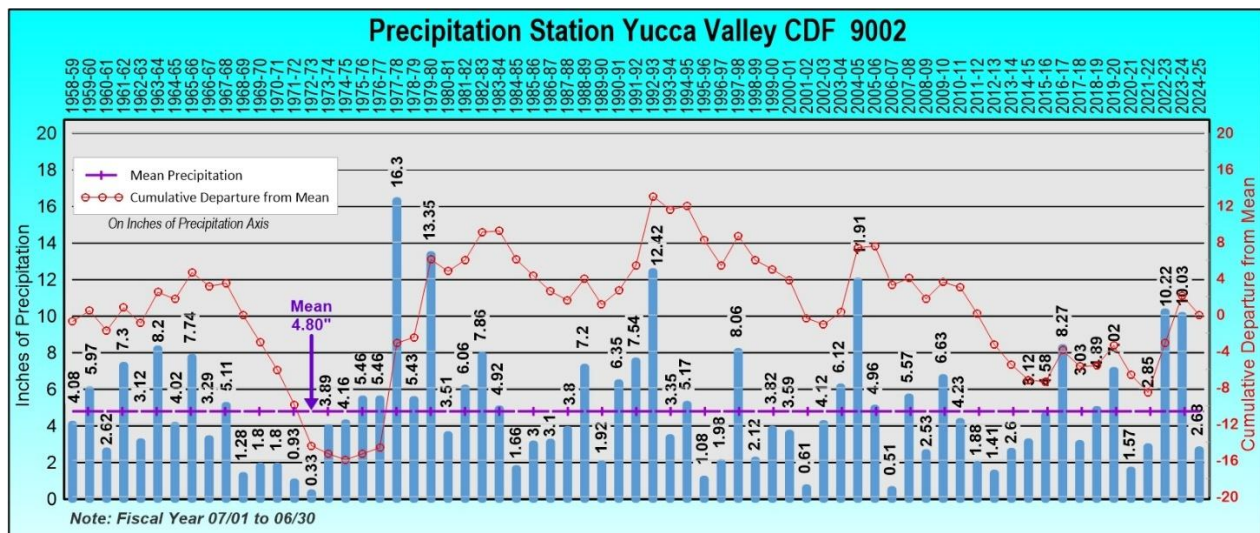


Figure 3 Precipitation showing cumulative departure over mean.

The average precipitation from 1959 to 2025 is 4.80 inches (in). Cumulative departure from the mean on [Figure 3](#) shows that the longest wet period was from 1976-77 to 1982-83. Due to the low average precipitation and the high potential evapotranspiration, areal recharge which is when precipitation from rain or snowfall infiltrates into the soil and contributes to the recharge of the aquifer, is assumed to be negligible (Todd Engineers, 2011).

To enhance the hydrological understanding of natural recharge within the management area, the Bighorn Desert view station and the Pioneertown station were converted to advanced scientific meteorological stations in 2022 and 2023 respectively.

All the MWA hosted weather stations can be found on [Plate 6](#) and at: <https://mojave.westernweathergroup.com/>

Through a collaborative effort with the USGS, MWA has taken proactive initiatives to enhance the comprehension of hydrological data concerning natural precipitation and runoff in the Pipes wash. In FY 2023-2024 funding was allocated in the USGS program letter to reactivate the Pipes wash gage which was previously decommissioned in 1979. The National Water Information System (NWIS) will host this data at:

https://nwis.waterdata.usgs.gov/ca/nwis/inventory/?site_no=10260200&agency_cd=USGS

Mountain Front Recharge and Stream Percolation

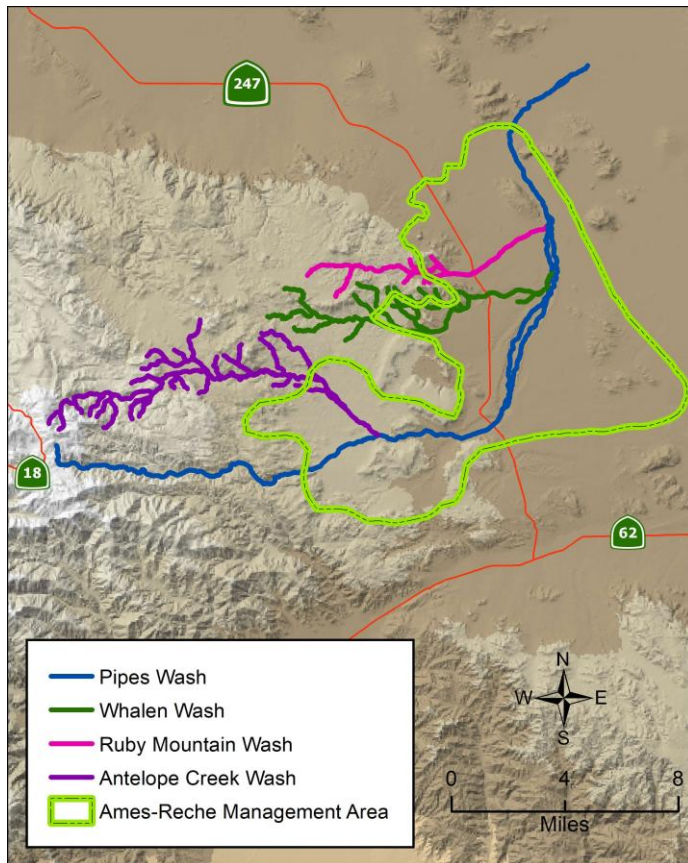


Figure 4 The major washes that provide mountain front recharge to the Ames-Reche area.

Most of the natural recharge in the Ames-Reche area results from precipitation in surrounding mountains via surface and subsurface flow within three (3) major washes: Pipes Wash, Whalen Wash, and Ruby Wash ([Figure 4](#)). This groundwater inflow originates from runoff of rainfall in the San Bernardino Mountains and recharge to the alluvium in the wash channel valleys east of the Pipes Subbasin. Runoff from rainfall infiltrates through the vadose zone to the water table prior to entering Pipes Subbasin as subsurface inflow. For extreme events, flow occurring in Pipes Wash proper can also generate recharge by percolation through the vadose zone. Recharge by percolation has not been estimated but is part of future efforts. Subsurface inflow rates from bedrock along the rest of the mountain-front are unknown, but the amount is assumed to represent a small portion of subsurface inflow (Todd, 2011). Average mountain front

recharge was estimated to be 512 AFY from water year 1994 to water year 2022 using the approach outlined in the 2011 Todd Engineers feasibility report.

Artificial Recharge

Construction of the Ames-Reche Recharge Facility was completed in March 2014. This facility allows for State Water Project (SWP) water deliveries for groundwater storage and banking. Operations identified this location as having capacity constraints and onerous operational challenges. In FY 2023-2024 MWA began the design of an additional recharge facility east of the current Ames-Reche Recharge Facility on 10 acres and will include the design of a multi-completion monitoring well.

From FY 2013-2014 to FY 2024-2025, a total of 1,425 AF of SWP water was recharged at the Ames-Reche Recharge Facility as documented below in [Figure 5](#) and [Table 2](#).

In FY 2024-25 there was 234 AF recharged into HDWD's balance.

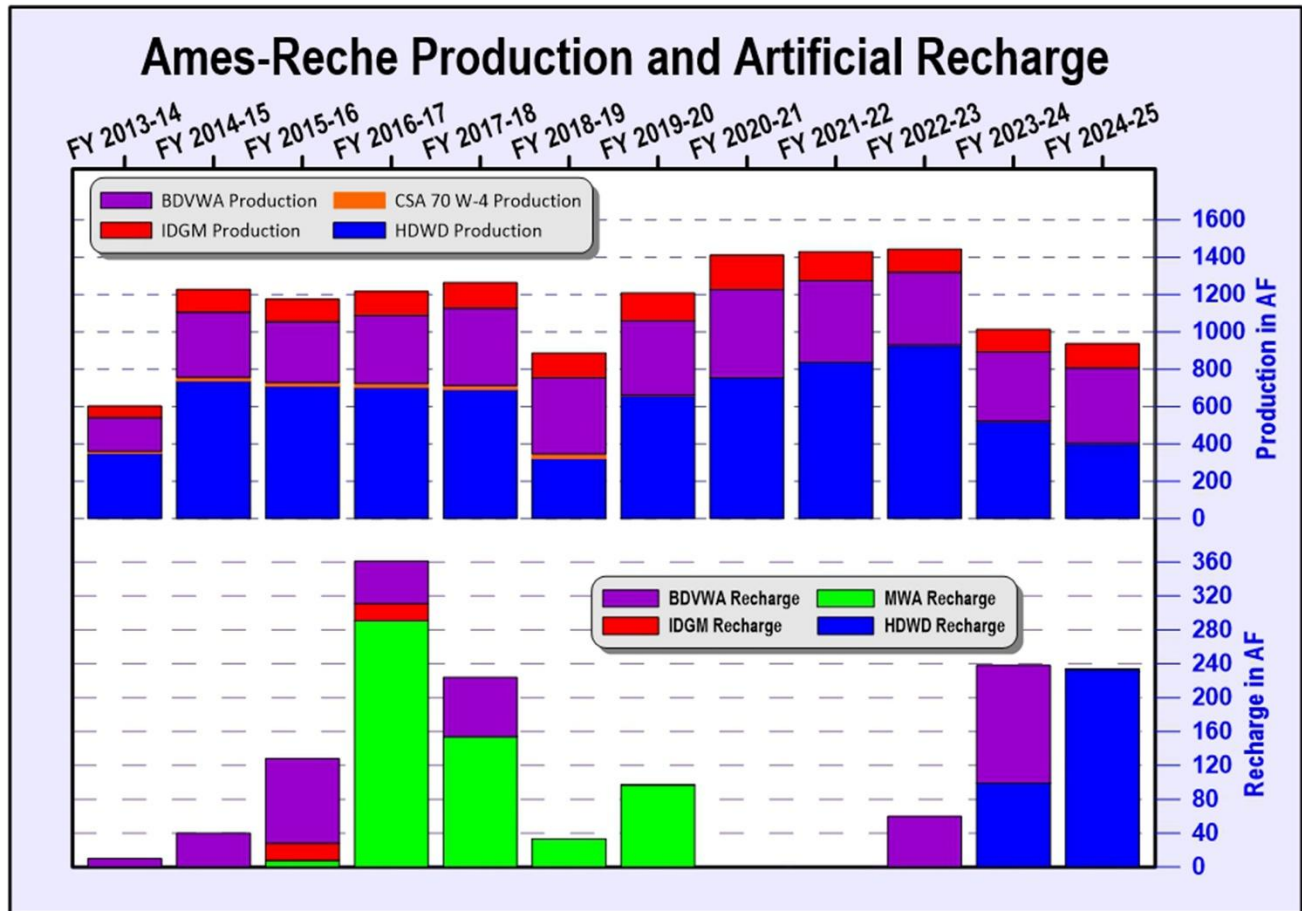


Figure 5 Ames-Reche Production and Artificial Recharge with SWP.

Septic Return Flows

Septic systems contribute to groundwater recharge. Based on BDVWA billed consumption data, 80% of water used per parcel is assumed to return to the groundwater. From WY 2012 to WY 2022, the average septic return flow is estimated at 344 AFY. This estimate only includes locations with an assumed alluvial aquifer and excludes most of the HDWD service area. For a more detailed discussion on return flows, please refer to the Annual Ames-Reche Report for FY 2022-2023.

Groundwater Modeling

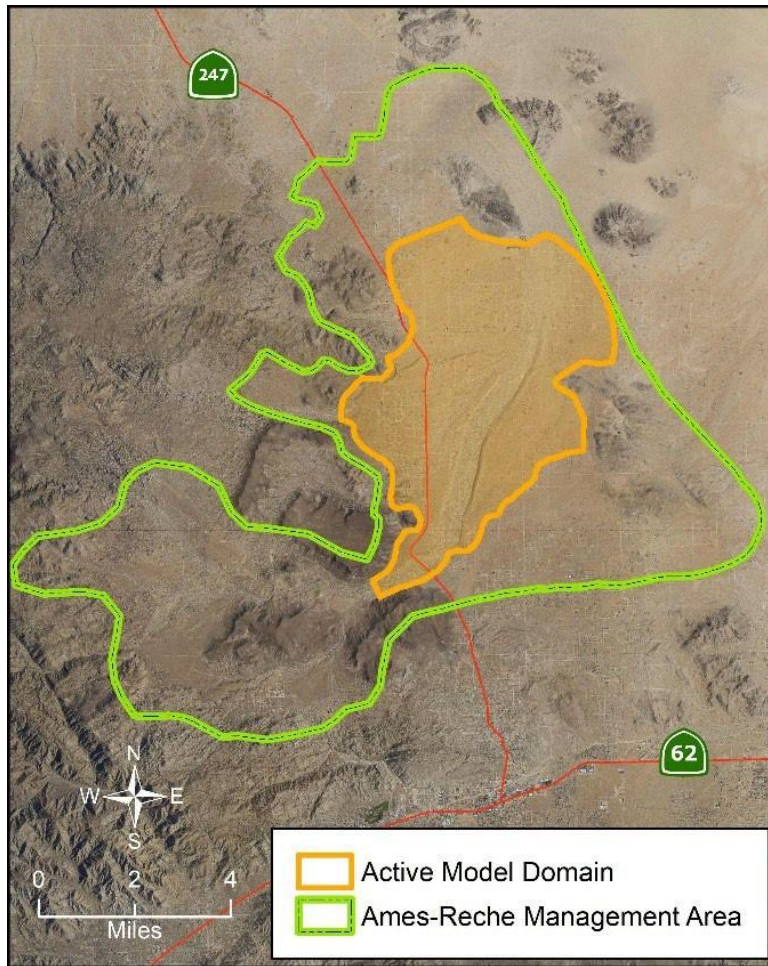


Figure 6 Ames Reche Management Area and the Active Model Domain

MWA updated an existing groundwater model (Todd, 2011) and used it for various analyses. Details of the model construction and calibration are in the FY 2022-2023 five-year Ames-Reche Management Report. The main conclusions from the model are summarized below:

- Due to the inconsistency of the imported water supply to the recharge basins, the long-term impact of the current recharge facility results is a water level gain of 3 ft or less. Consistent water imports would yield higher and more sustained water level gains.
- The average net inflow (the total of mountain front recharge and return flows) into groundwater in the Ames-Reche area is 937 AFY from WY 2014 to WY 2022, which is lower than the Annual Baseline

Allowance (ABA). For the same period production was 1,163 AFY, which explained the continuous water levels decline.

- Depth specific water levels and water quality monitoring wells are needed to better characterize the aquifer.
- A better spatial distribution of monitoring wells across faults is needed to determine their potential role as groundwater flow barriers.

FINANCE TRACKING

As part of the Agreement, MWA is responsible for maintaining the Ames-Reche Groundwater Accounting Spreadsheets that record production and artificial recharge activities by the Project Partners. Spreadsheets for each of the Project Partners are provided in [Tables 3 through 7](#).

MWA began pre-storing SWP water at the Ames-Reche Recharge Facility in FY 2015-2016. In subsequent years, this banked water has been used to provide groundwater storage transfers for BDVWA annual SWP delivery requests. A blank copy of the Ames-Reche Groundwater Storage and Recovery Program Transfer Form is provided as [Attachment 4](#).

As of July of 2017 CSA 70 W-4 entered into a water exchange agreement with HDWD known as the Pioneertown Water Exchange. This agreement allows CSA 70 W-4 access to groundwater within the Warren Valley Sub-basin in exchange for equal transfers from their annual baseline amounts. CSA 70 W-4 transferred 22 AF to HDWD in FY 2024-25, copies of the transfer forms are included as attachments.

BASIN MANAGEMENT CONSIDERATIONS

This report constitutes the annual report of the Monitoring Program for FY 2024-2025. Final versions of the previous reports can be obtained by contacting MWA. Every five (5) years as required by the Amended and Restated Judgement MWA will “make recommendations on the Parties” regarding their production of Annual Baseline Amounts commencing in the following fiscal year and any other recommendations for actions which MWA believes are required to protect Basin water supply based on the Ames-Reche Groundwater Management Plan.

Recommendations

Items that the Project Partners may want to implement in support of future management activities include:

1. Reduce production and/or offset respective production with increased recharge to the Ames-Reche basin.
2. Continue to develop hydrogeologic understanding to support management efforts (numerical model and conceptual model refinement).
3. Estimate the water budget so that future production offset and ABA can be refined.
4. Review existing wells within the management area make necessary revisions to the monitoring program. Increase the number of monitoring wells in the network.
5. Continue measuring and monitoring groundwater levels. Report water levels in production wells quarterly.

References

Kennedy/Jenks/Todd LLC (2007) Basin Conceptual Model and Assessment of Water Supply and Demand for the Ames Valley, Johnson Valley, and Means Valley Groundwater Basins. April.

Todd LLC (2011) Reche Spreading Ground Recharge Feasibility Study .February.

TABLES

Table 1 Production for Ames-Reche Management Area by Fiscal Year and Project Partner.

Production by Project Partner	BDVWA	IDGM	HDWD	CSA 70 W-4	Totals (AF)
Annual Baseline Amount (AF)	641	267	703	35	1646
FY 2012- 2013 (AF)	422.7	155.3	596.9	23.2	1198.1
FY 2013- 2014 (AF)	388	143.7	684.7	22.4	1238.8
FY 2014-2015 (AF)	348.5	123.1	737	19.1	1227.7
FY 2015- 2016 (AF)	326.4	119.9	708.9	19.8	1175
FY 2016- 2017 (AF)	362.2	130.7	701.6	21.9	1216.4
FY 2017- 2018 (AF)	414.3	137	691.2	21.4	1263.9
FY 2018-2019 (AF)	407.3	133.7	321.1	24.3	886.4
FY 2019- 2020 (AF)	398.3	149.4	659.5	2.1	1209.3
FY 2020- 2021 (AF)	472.4	185.9	755.3	0	1413.6
FY 2021- 2022 (AF)	437.14	155.24	836.73	0	1429.11
FY 2022- 2023 (AF)	389.77	123.7	929.34	0	1442.81
FY 2023- 2024 (AF)	369.3	122.51	521.24	0	1013.05
FY 2024- 2025 (AF)	404.39	129.39	402.79	0	936.57

Table 2 Ames-Reche Recharge Facility SWP recharge amounts.

SWP Recharge by Project Partner	BDVWA	IDGM	MWA	HDWD	Totals (AF)
FY 2013-2014 (AF)	10	0	0	0	10
FY 2014-2015 (AF)	40	0	0	0	40
FY 2015-2016 (AF)	100	20	8	0	128
FY 2016-2017 (AF)	50	20	291	0	361
FY 2017-2018 (AF)	70	0	154	0	224
FY 2018-2019 (AF)	0	0	33	0	33
FY 2019 -2020 (AF)	0	0	97	0	97
FY 2020-2021 (AF)	0	0	0	0	0
FY 2021-2022 (AF)	0	0	0	0	0
FY 2022-2023 (AF)	60	0	0	0	60
FY 2023-2024 (AF)	139	0	0	99	238
FY 2024-2025 (AF)	0	0	0	234	234
Total Recharged (AF)	469	40	583	333	1425

Table 3 Accounting Spreadsheet for BDVWA

Table 3 Ames-Reche Groundwater Accounting Spreadsheet for Bighorn - Desert View Water Agency

BIGHORN-DESERT VIEW WATER AGENCY (ALL AMOUNTS IN AF)										
	SUPPLY				DEMAND		BALANCE			
FISCAL YEAR	ANNUAL BASELINE ¹	CARRYOVER YR 1 START ²	CARRYOVER YR 2 START ³	INTERAGENCY TRANSFER OR PURCHASES ⁴	PRODUCTION ⁵	INTERAGENCY TRANSFER OR SALES ⁶	BASELINE TO CARRYOVER ⁷	CARRYOVER YR 1 END ⁸	CARRYOVER YR 2 END (EXPIRED) ⁹	AMES-RECHE SWP WATER PURCHASE/TRANSFER ¹⁰
13/14	641	0	0	0	388	0	253	0	0	10
14/15	641	253	0	0	348	16	530	0	0	50
15/16	641	530	0	0	326	6	641	198	0	120
16/17	641	641	198	0	362	0	641	477	0	61
17/18	641	641	477	0	414	0	641	641	63	70
18/19	641	641	641	0	407	0	641	641	234	70
19/20	641	641	641	0	398	0	641	641	243	70
20/21	641	641	641	0	472	0	641	641	169	70
21/22	641	641	641	0	437	0	641	641	204	100
22/23	641	641	641	0	390	0	641	641	251	60
23/24	641	641	641	0	370	0	641	641	271	246
24/25	641	641	641	0	404	0	641	641	237	12

Notes: Unused annual baseline amounts may be carried over for the next two fiscal years

- 1 Water production allowance as defined in the Agreement
- 2 Water credited to the party carried over for one fiscal year
- 3 Water credited to the party carried over for two fiscal years
- 4 Transfer or purchase from another party, added to annual baseline
- 5 Water produced in the fiscal year
- 6 Transfer or sales in excess of production to another party, deducted from annual baseline
- 7 Unused annual baseline that will be credited to the party in the next fiscal year
- 8 Unused year 1 carryover that will be credited to the party in the next fiscal year as year 2 carryover
- 9 Unused year 2 carryover that will expire
- 10 State Water Project Water purchased or transferred between parties and the MWA in the Ames-Reche Recharge Facility

Table 4 Accounting Spreadsheet for HDWD

Table 4 Ames-Reche Groundwater Accounting Spreadsheet for High-Desert Water District

HI-DESERT WATER DISTRICT (ALL AMOUNTS IN AF)										
	SUPPLY				DEMAND		BALANCE			
FISCAL YEAR	ANNUAL BASELINE ¹	CARRYOVER YR 1 START ²	CARRYOVER YR 2 START ³	INTERAGENCY TRANSFER OR PURCHASES ⁴	PRODUCTION ⁵	INTERAGENCY TRANSFER OR SALES ⁶	BASELINE TO CARRYOVER ⁷	CARRYOVER YR 1 END ⁸	CARRYOVER YR 2 END (EXPIRED) ⁹	AMES-RECHE SWP WATER PURCHASE/TRANSFER ¹⁰
13/14	703	0	0	0	685	0	18	0	0	0
14/15	703	18	0	16	737	0	0	0	0	0
15/16	703	0	0	6	709	0	0	0	0	0
16/17	703	0	0	0	702	0	1	0	0	0
17/18	703	1	0	0	691	0	13	0	0	0
18/19	703	13	0	50	321	0	445	0	0	0
19/20	703	445	0	0	660	0	488	0	0	0
20/21	703	488	0	49	755	0	485	0	0	0
21/22	703	485	0	23	837	0	374	0	0	0
22/23	703	374	0	0	929	0	148	0	0	0
23/24	703	148	0	45	521	0	375	0	0	110
24/25	703	375	0	22	403	0	697	0	0	234

Notes: Unused annual baseline amounts may be carried over for the next two fiscal years

- 1 Water production allowance as defined in the Agreement
- 2 Water credited to the party carried over for one fiscal year
- 3 Water credited to the party carried over for two fiscal years
- 4 Transfer or purchase from another party, added to annual baseline
- 5 Water produced in the fiscal year
- 6 Transfer or sales in excess of production to another party, deducted from annual baseline
- 7 Unused annual baseline that will be credited to the party in the next fiscal year
- 8 Unused year 1 carryover that will be credited to the party in the next fiscal year as year 2 carryover
- 9 Unused year 2 carryover that will expire
- 10 State Water Project Water purchased or transferred between parties and the MWA in the Ames-Reche Recharge Facility

Table 5 Accounting Spreadsheet for IDGM

Table 5 Ames-Reche Groundwater Accounting Spreadsheet for Improvement District Goat Mountain

IMPROVEMENT DISTRICT GOAT MOUNTAIN (ALL AMOUNTS IN AF)										
	SUPPLY				DEMAND		BALANCE			
FISCAL YEAR	ANNUAL BASELINE ¹	CARRYOVER YR 1 START ²	CARRYOVER YR 2 START ³	INTERAGENCY TRANSFER OR PURCHASES ⁴	PRODUCTION ⁵	INTERAGENCY TRANSFER OR SALES ⁶	BASLINE TO CARRYOVER ⁷	CARRYOVER YR 1 END ⁸	CARRYOVER YR 2 END (EXPIRED) ⁹	AMES-RECHE SWP WATER PURCHASE/TRANSFER ¹⁰
13/14	267	0	0	0	144	0	123	0	0	0
14/15	267	123	0	0	123	0	267	0	0	0
15/16	267	267	0	0	120	0	267	147	0	0
16/17	267	267	147	0	131	0	267	267	16	19
17/18	267	267	267	0	137	0	267	267	130	0
18/19	267	267	267	0	134	0	267	267	133	0
19/20	267	267	267	0	149	0	267	267	118	0
20/21	267	267	267	0	186	0	267	267	81	0
21/22	267	267	267	0	155	0	267	267	112	0
22/23	267	267	267	0	124	0	267	267	143	0
23/24	267	267	267	0	123	0	267	267	144	0
24/25	267	267	267	0	129	0	267	267	138	0

Notes: Unused annual baseline amounts may be carried over for the next two fiscal years

1 Water production allowance as defined in the Agreement

2 Water credited to the party carried over for one fiscal year

3 Water credited to the party carried over for two fiscal years

4 Transfer or purchase from another party, added to annual baseline

5 Water produced in the fiscal year

6 Transfer or sales in excess of production to another party, deducted from annual baseline

7 Unused annual baseline that will be credited to the party in the next fiscal year

8 Unused year 1 carryover that will be credited to the party in the next fiscal year as year 2 carryover

9 Unused year 2 carryover that will expire

10 State Water Project Water purchased or transferred between parties and the MWA in the Ames-Reche Recharge Facility

Table 6 Accounting Spreadsheet for CSA 70 W-4

Table 6 Ames-Reche Groudwater Accounting Spreadsheet for CSA 70 W-4

CSA 70 W-4 PIONEER TOWN (ALL AMOUNTS AF)										
	SUPPLY				DEMAND		BALANCE			
FISCAL YEAR	ANNUAL BASELINE ¹	CARRYOVER YR 1 START ²	CARRYOVER YR 2 START ³	INTERAGENCY TRANSFER OR PURCHASES ⁴	PRODUCTION ⁵	INTERAGENCY TRANSFER OR SALES ⁶	BASELINE TO CARRYOVER ⁷	CARRYOVER YR 1 END ⁸	CARRYOVER YR 2 END (EXPIRED) ⁹	AMES-RECHE SWP WATER PURCHASE/TRANSFER ¹⁰
13/14	35	0	0	0	22	0	13	0	0	0
14/15	35	13	0	0	19	0	29	0	0	0
15/16	35	29	0	0	20	0	35	9	0	0
16/17	35	35	9	0	22	0	35	22	0	0
17/18	35	35	22	0	21	0	35	35	1	0
18/19	35	35	35	0	24	50	31	0	0	0
19/20	35	31	0	0	2	0	35	29	0	0
20/21	35	35	29	0	0	49	35	15	0	0
21/22	35	35	15	0	0	23	35	27	0	0
22/23	35	35	27	0	0	0	35	35	27	0
23/24	35	35	35	0	0	45	35	25	0	0
24/25	35	35	25	0	0	22	35	35	3	0

Notes: Unused annual baseline amounts may be carried over for the next two fiscal years

1 Water production allowance as defined in the Agreement

2 Water credited to the party carried over for one fiscal year

3 Water credited to the party carried over for two fiscal years

4 Transfer or purchase from another party, added to annual baseline

5 Water produced in the fiscal year

6 Transfer or sales in excess of production to another party, deducted from annual baseline

7 Unused annual baseline that will be credited to the party in the next fiscal year

8 Unused year 1 carryover that will be credited to the party in the next fiscal year as year 2 carryover

9 Unused year 2 carryover that will expire

10 State Water Project Water purchased or transferred between parties and the MWA in the Ames-Reche Recharge Facility

Table 7 Ames-Reche Accounting Spreadsheet for SWP accounting

Table 7 Ames-Reche Groundwater Accounting Spreadsheet for State Water Project Accounting

Table A								
Interagency Transfers (AF)								
	IDGM		BDVWA		HDWD		CSA 70 W-4	
FY	Transfers/ Purchases	Transfers/ Sales	Transfers/P urchases	Transfers/ Sales	Transfers/P urchases	Transfers/ Sales	Transfers/ Purchases	Transfers/ Sales
TOTALS	0	0	0	22	211	0	0	189
13/14								
14/15				16	16			
15/16				6	6			
16/17								
17/18								
18/19					50			50
19/20								
20/21					49			49
21/22					23			23
22/23								
23/24					45			45
24/25					22			22

Notes:

Table A tracks sales, purchases and transfers between the Agencies

Table B						
SWP WATER RECHARGE AMES-RECHE GROUNDWATER BASIN (AF)						
FY	MWA	BDVWA	BDVWA 5% ACCUM	HDWD 95%	IDGM 95%	CSA 70 W-4 95%
TOTALS	583	510	19	344	19	0
13/14		10				
14/15		50				
15/16	8	120				
16/17	291	60	1		19	
17/18	154	70				
18/19	33					
19/20	97					
20/21	0					
21/22	0					
22/23	0	60				
23/24	0	140	6	110		
24/25			12	234		

Notes:

Table B tracks the 5% accumulation to BDVWA when SWP water is recharged by HDWD, IDGM and CSA 70 W-4, as well as MWA and BDVWA recharge

Table C					
SWP WATER GROUNDWATER STORAGE TRANSFER, AMES-RECHE GROUNDWATER BASIN (AF)					
FY	MWA	BDVWA	HDWD	IDGM	CSA 70W-4
TOTALS	(410)	410	0	0	0
13/14					
14/15					
15/16					
16/17					
17/18					
18/19	(70)	70			
19/20	(70)	70			
20/21	(70)	70			
21/22	(100)	100			
22/23					
23/24	(100)	100			
24/25					

Notes:

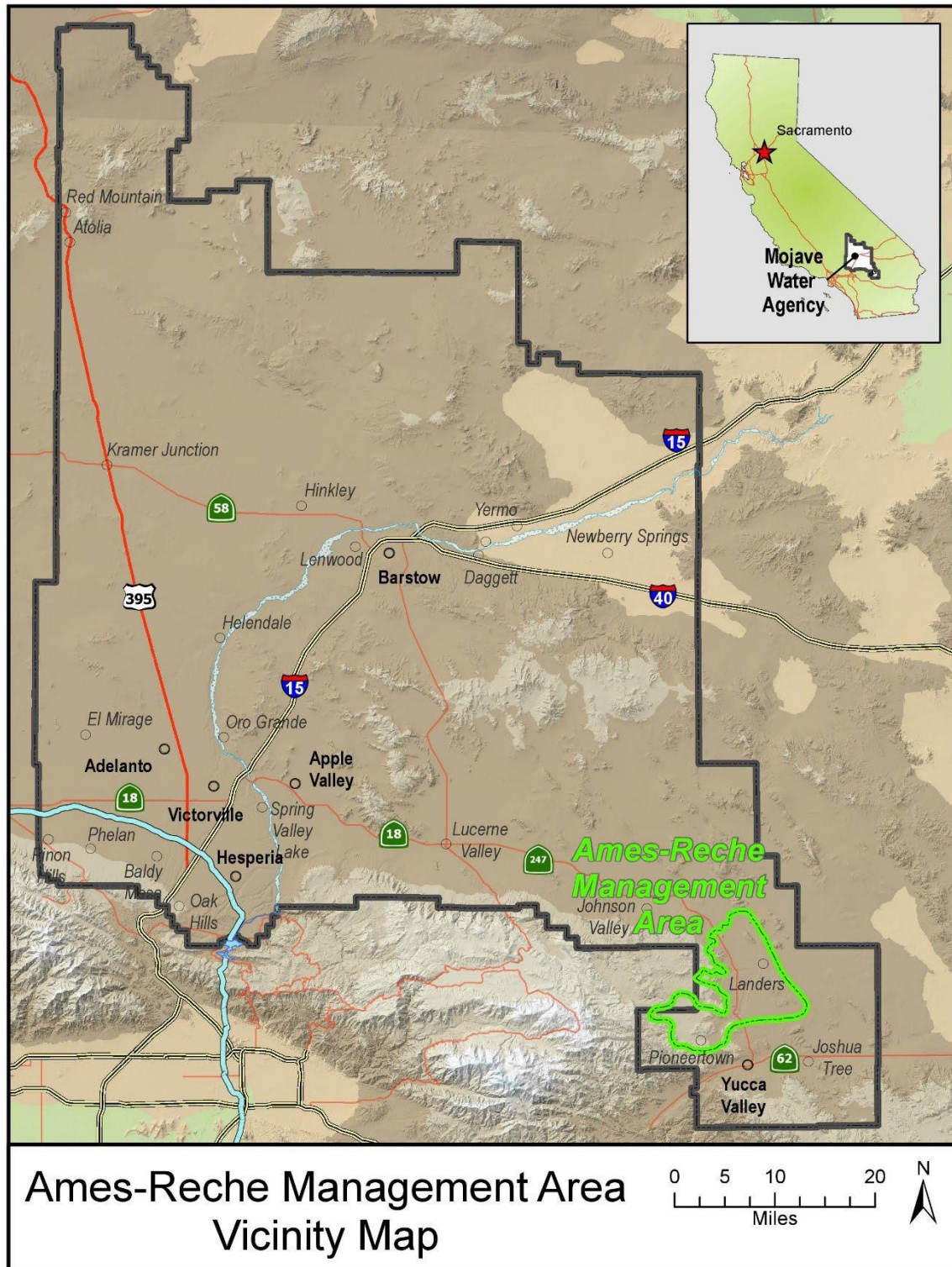
Table C tracks groundwater storage transfers from MWA to an Agency

Table D						
SWP WATER ALL AMES-RECHE GROUNDWATER BASIN (AF)						
	MWA	BDVWA	BDVWA 5% ACCUM	HDWD	IDGM	CSA 70W-4
TOTALS	173	939	19	344	19	0

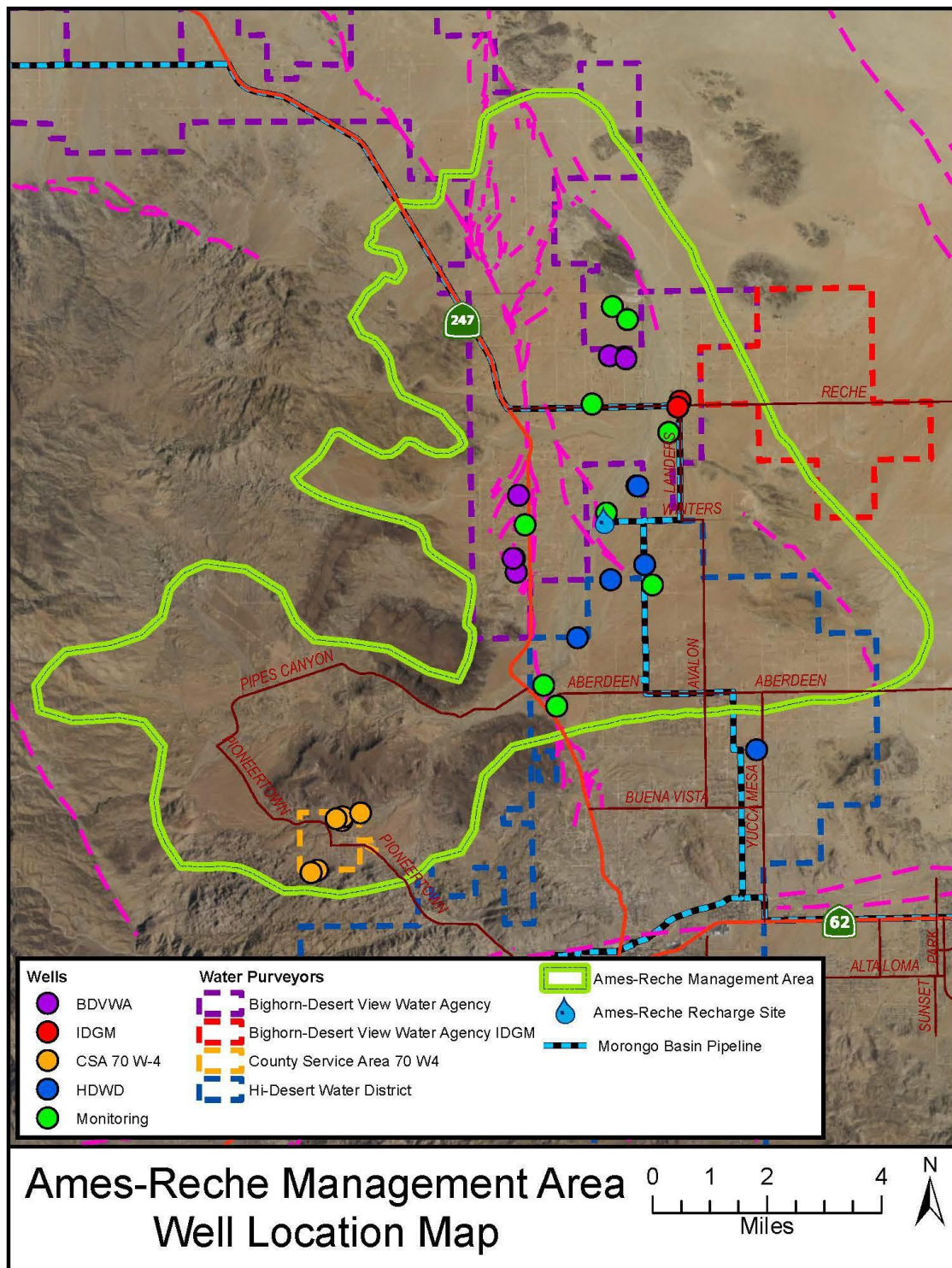
Notes:

Table D - Comprehensive tracking of Tables B and C

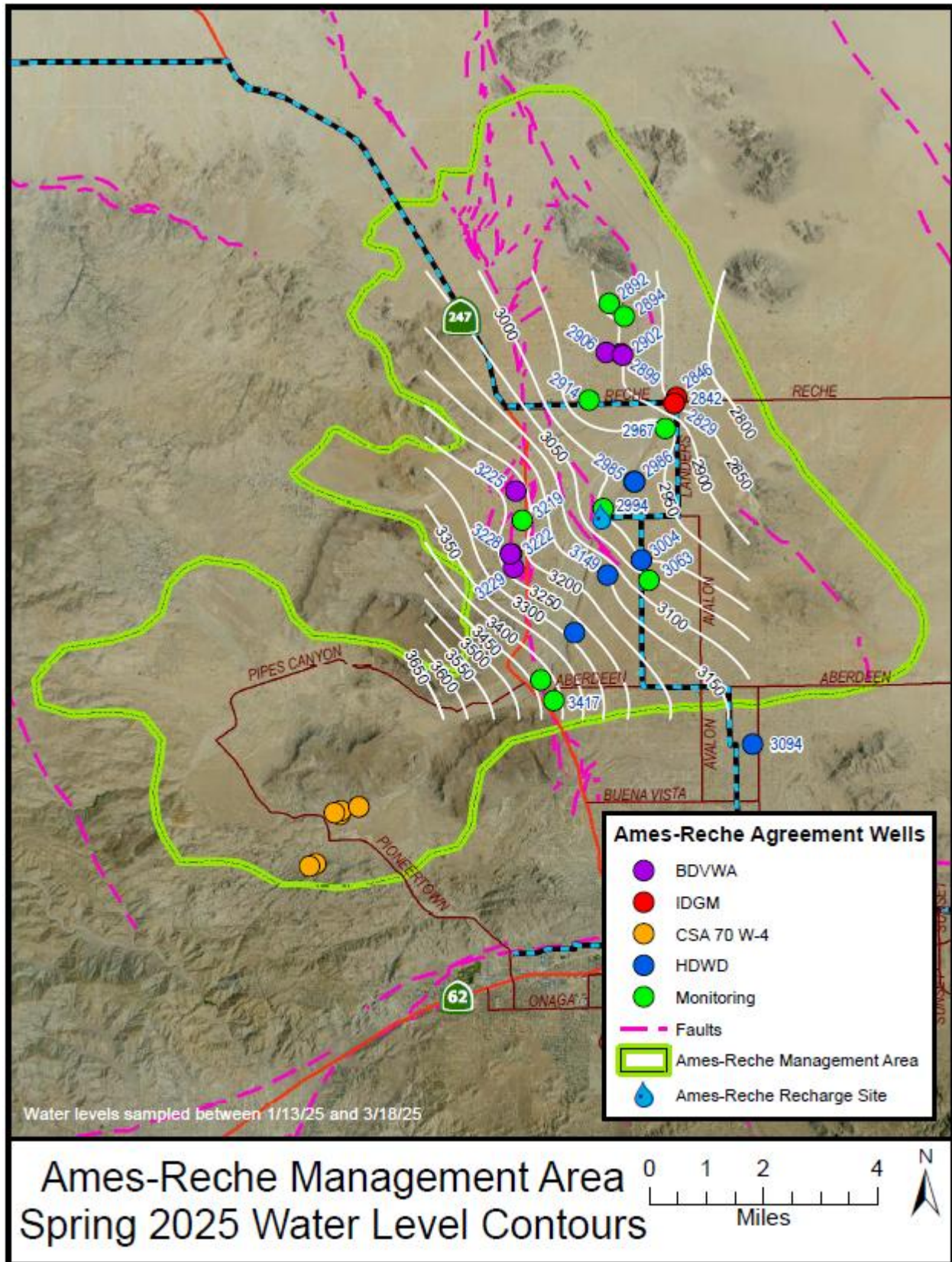
Maps and Plates



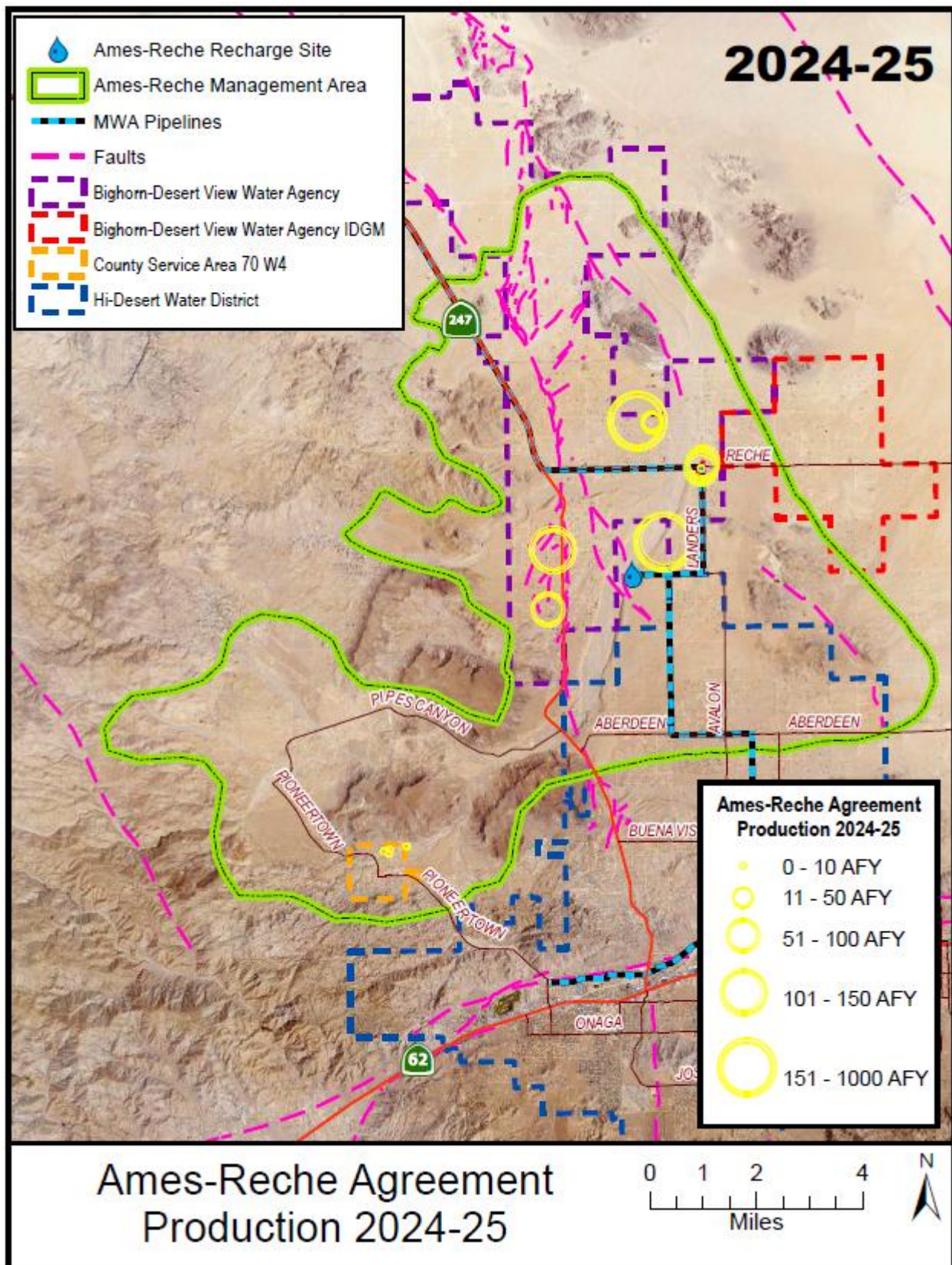
Map 1 Ames-Reche Management Area Vicinity Map.



Map 2 Ames-Reche Management Area Well Location.



Map 3 Ames-Reche Management Area Spring 2024 Water Level Contours.



Map 4 Ames-Reche Production

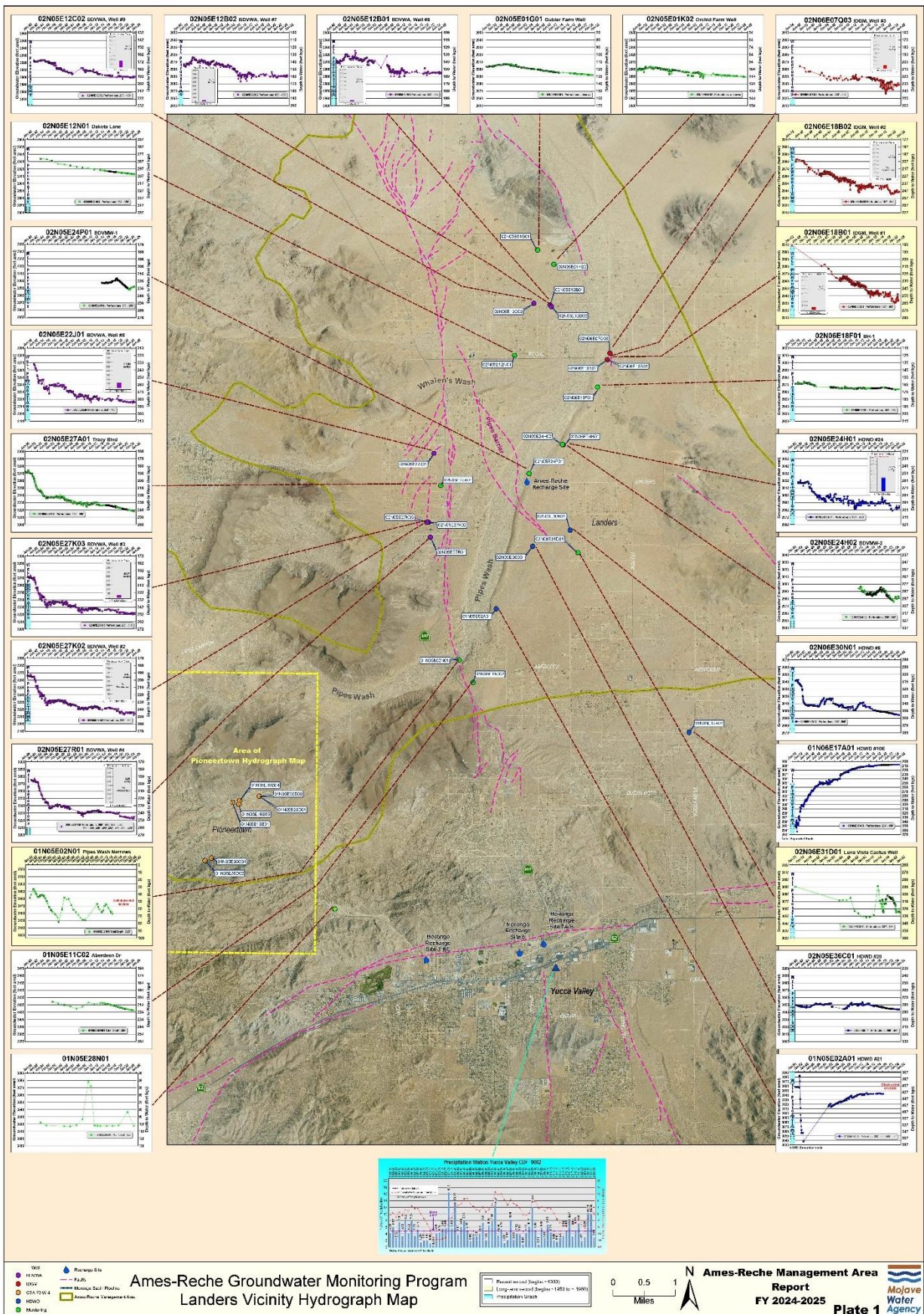


Plate 1 Ames-Reche Groundwater Monitoring Program Landers Vicinity Hydrograph Map.

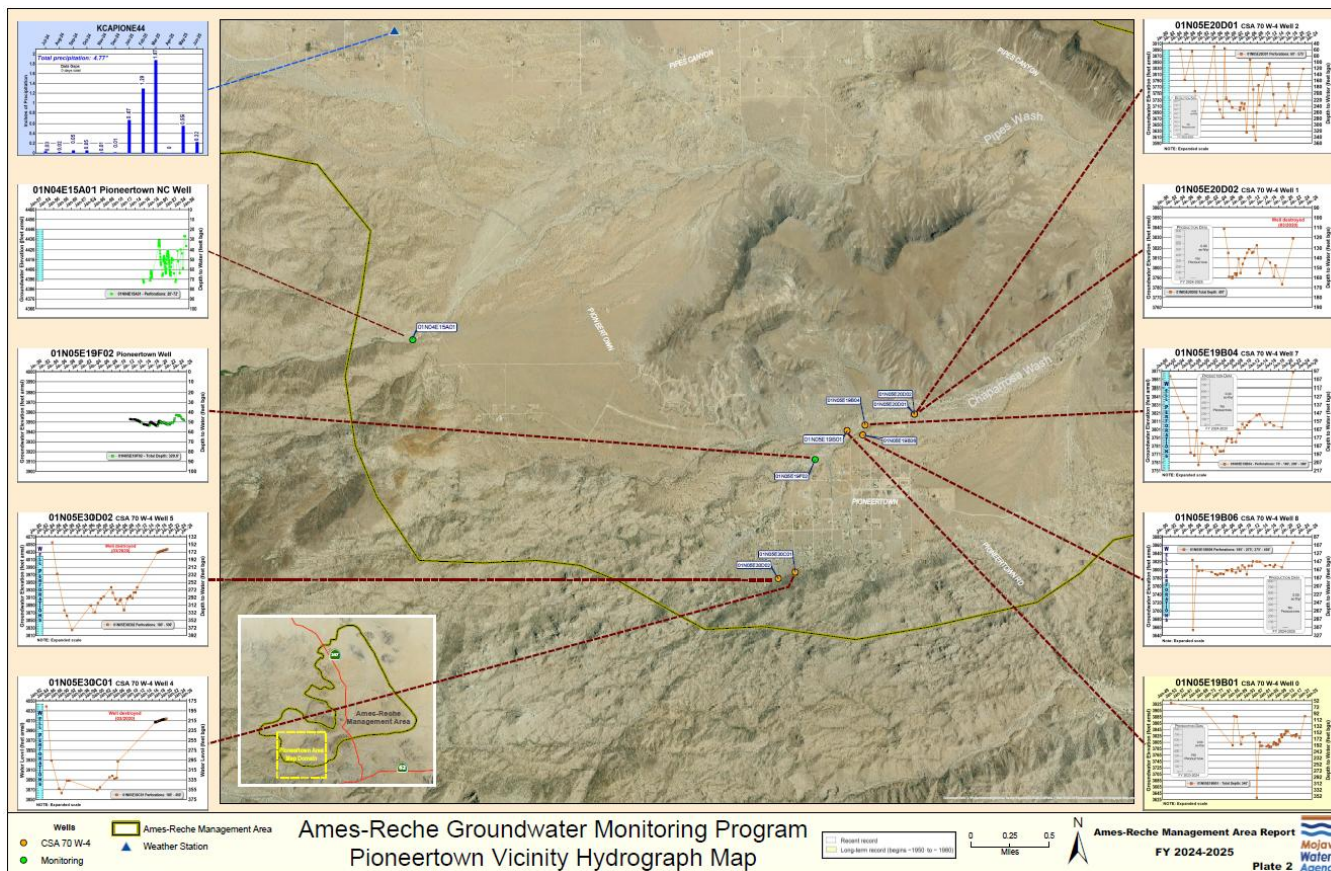


Plate 2 Ames-Reche Groundwater Pioneerstown Vicinity Hydrograph Map.

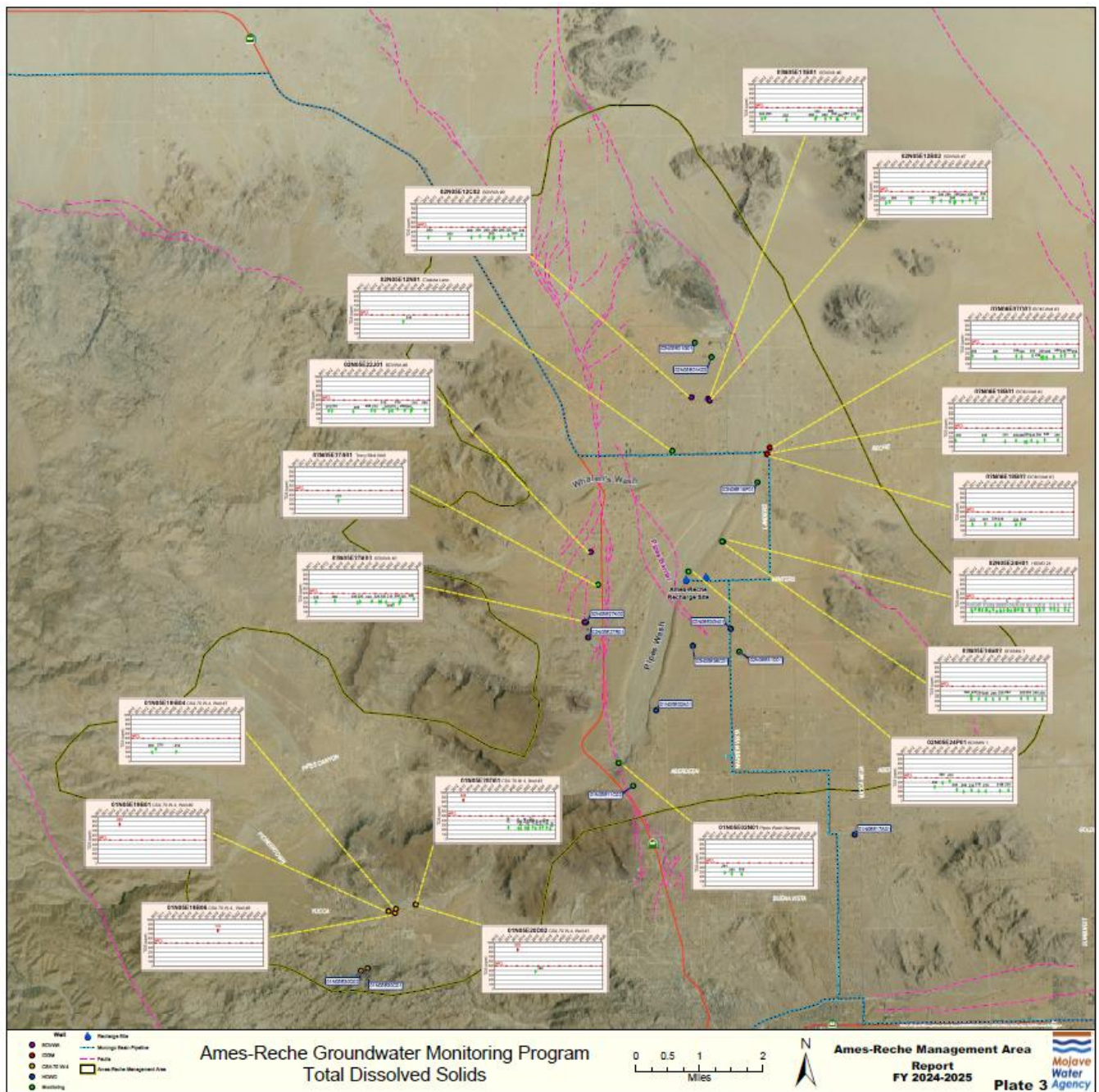


Plate 3 Ames-Reche Groundwater Monitoring Program Total Dissolved Solids.

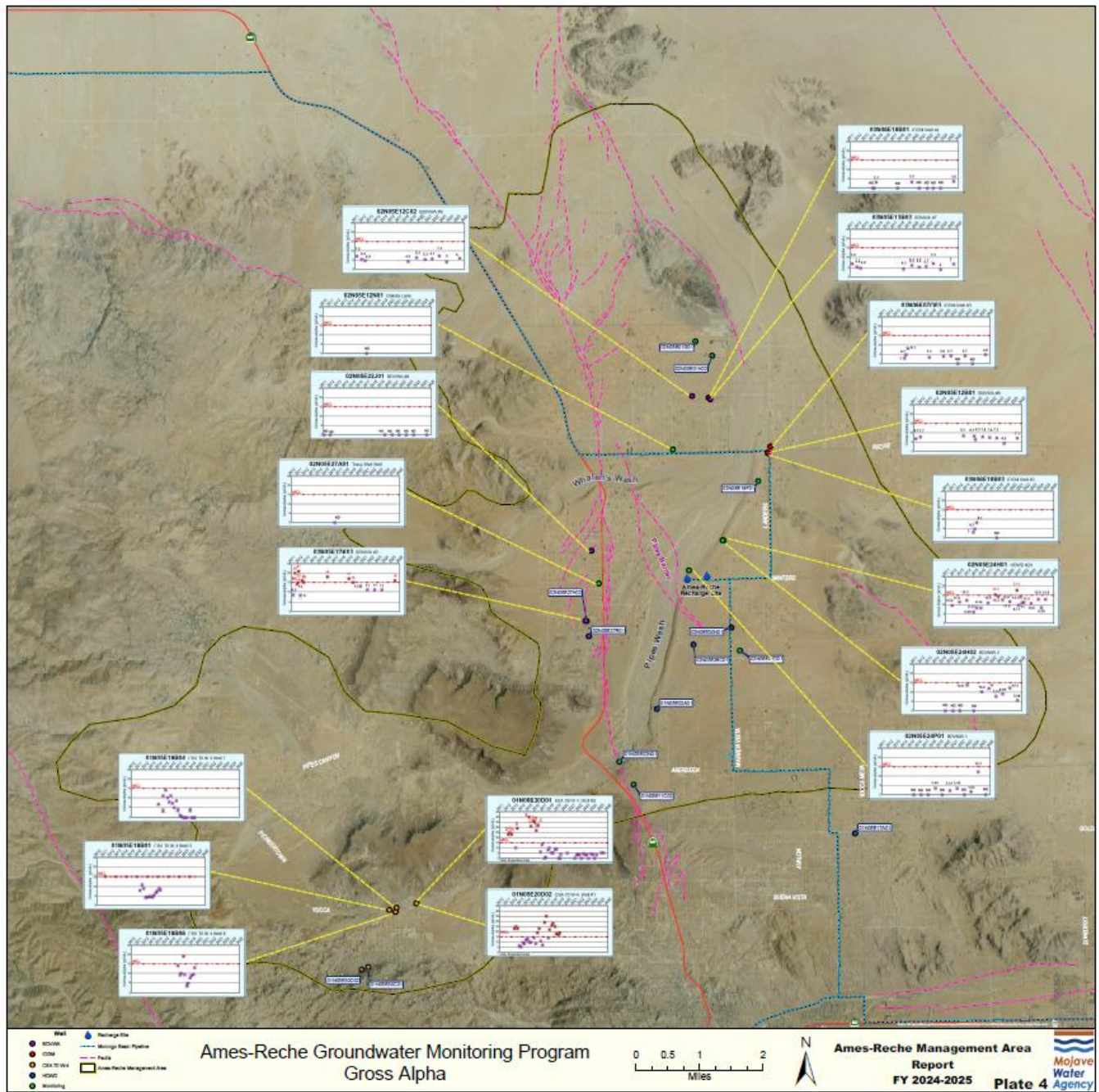


Plate 4 Ames-Reche Groundwater Monitoring Program Gross Alpha.

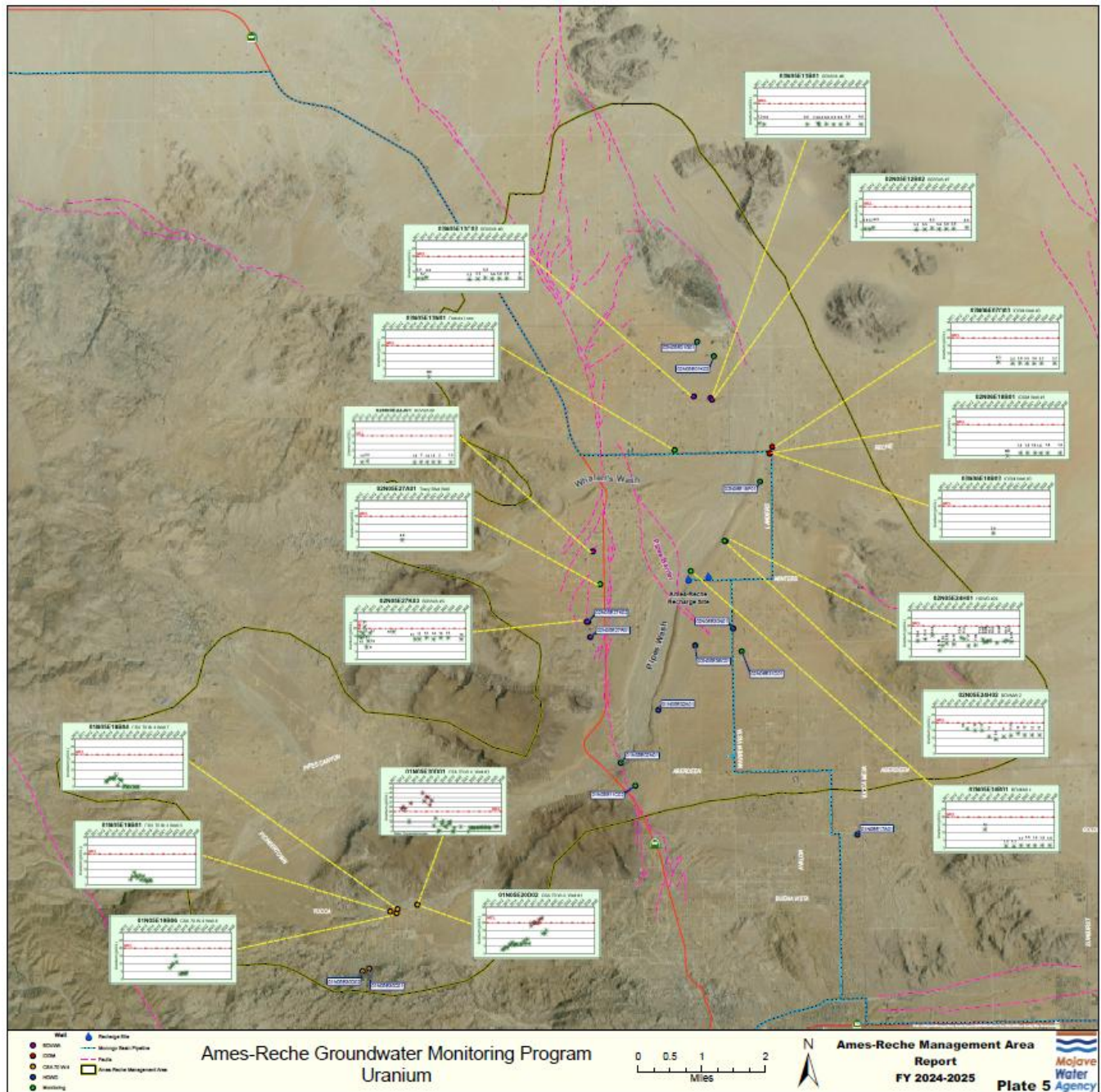


Plate 5 Ames-Reche Groundwater Monitoring Program Uranium.

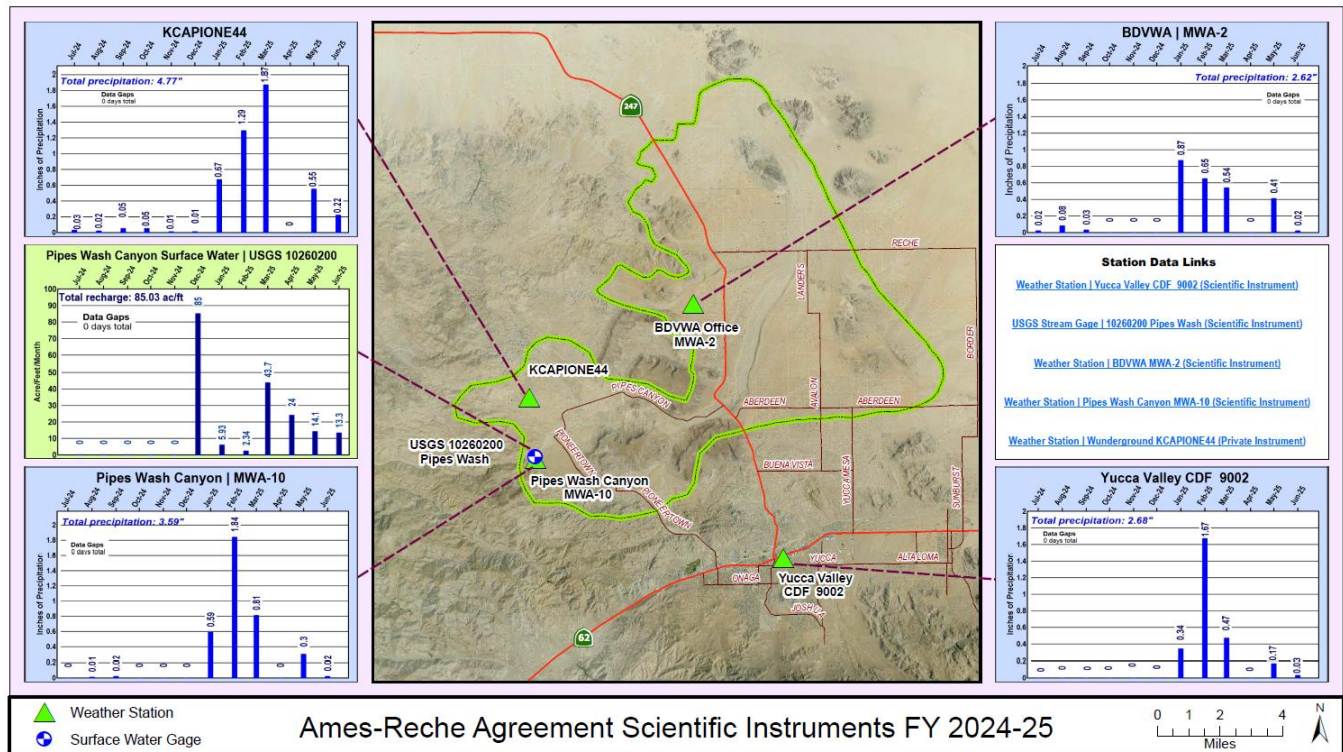


Plate 6 Ames-Reche Agreement Hydrometeorological Stations FY 2024-25.

ATTACHMENTS