Results of Groundwater Monitoring and Groundwater Extraction and Treatment Pilot Testing 2022/2023 Annual Report

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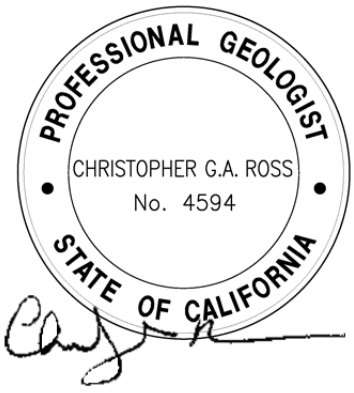

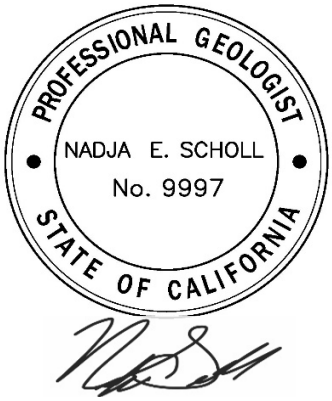

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

CMI	Corrective Measure Implementation
CMS	Corrective Measures Study
COPCs	Chemicals of Potential Concern
DTSC	Department of Toxic Substance Control
DWR	California Department of Water Resources
E	Estimated
EA	Engineering Analytics, Inc.
GMWP/SAP	Groundwater Monitoring Work Plan and Sampling and Analysis Plan
gpm	Gallons per minute
H+A	Hargis + Associates, Inc.
LAS	Lower Aquifer System
MAS	Middle Aquifer System
msl	mean sea level
OCGB	Orange County Groundwater Basin
Q	Quarter
Raytheon	Raytheon Company
RFI	Resource Conservation and Recovery Act Facility Investigation
SIM	Selective Ion Monitoring
The Site	The Former Raytheon facility located at 1901 West Malvern Avenue, Fullerton, California
U	Unusable
UAS	Upper Aquifer System
ug/l	micrograms per liter

1.0 INTRODUCTION

This report has been prepared by Engineering Analytics, Inc. (EA) on behalf of Raytheon Company (Raytheon) and presents the results of groundwater monitoring and groundwater treatment pilot testing conducted during the Quarter (Q)2 2022 through Q1 2023 at the former Raytheon (formerly Hughes Aircraft Company) facility located at 1901 West Malvern Avenue, Fullerton, California (the Site) (Figure 1). Previous investigations at the Site were conducted as part of the Resource Conservation and Recovery Act Facility Investigation (RFI) under the direction of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) (H+A, 1998). Periodic groundwater monitoring and additional groundwater assessment have been conducted since completion of the RFI to support the Corrective Measures Study (CMS) and Corrective Measure Implementation (CMI) for the Site under the continuing direction of the DTSC. As part of the CMS, an extended groundwater extraction and treatment pilot test began operation in July 2008 and will continue to operate until construction begins for the planned full-scale CMI groundwater treatment system.

Groundwater monitoring consists of measuring groundwater levels and collecting groundwater samples from monitoring wells and piezometers at the Site (Figure 2). Quarterly water level measurements and groundwater samples were collected during this annual reporting period in May 2022, August 2022, November 2022, and February/March 2023 from accessible monitoring wells and piezometers in general accordance with the Groundwater Monitoring Work Plan and Sampling and Analysis Plan (GMWP/SAP), and subsequent addenda except where may be noted herein (Section 2.1) (Tables 1 and 2) (H+A, 2003, 2011a, 2011c, and 2017).

1.1 Regional Hydrogeologic Framework

The Site is located within the Orange County Groundwater Basin (OCGB). Aquifers in the OCGB have been divided into three separate systems called the upper, middle, and lower regional groundwater systems (California Department of Water Resources [DWR], 1967).

The Upper Aquifer System (UAS) is located within the OCGB to the south of Malvern Avenue. The UAS in this area includes stream terrace and older alluvial deposits as well as the La Habra/Lakewood formation. It is believed that coarse-grained facies in the La Habra/Lakewood formation, corresponding to the upper aquifer, pinch out south of the Coyote Hills or are folded and unconformably truncated near the southern boundary of the Site (H+A, 2005, 2009a, 2010b, and 2011b).

The Middle Aquifer System (MAS) underlies the UAS to the south of Malvern Avenue and extends to approximately -1,500 feet mean sea level (msl) in this area. The MAS is believed to include the Coyote Hills formation and the San Pedro formation and may include portions of the La Habra formation incised as channels into the underlying Coyote Hills formation.

The Lower Aquifer System (LAS) underlies the MAS and extends to the base of the freshwater zone. The LAS is believed to include portions of the Fernando group of the Pliocene age. The base of the freshwater zone in the vicinity of the Site is estimated to be approximately -300 feet msl just

north of the Site and -3,000 feet msl south of the Site in the OCGB (DWR, 1967). The base of the freshwater zone immediately beneath the Site has not been established.

Groundwater production in the OCGB is primarily from the lower portion of the UAS and the upper portion of the MAS between approximately -250 feet msl and -1,000 feet msl (DWR, 1967).

1.2 Site Hydrogeology

A groundwater conceptual model (CM) for the Site was developed as part of the RFI and refined during additional groundwater assessment activities through 2014. Results of additional assessment activities were documented after discrete phases of work in several well construction and groundwater sampling reports (H+A, 2005, 2009a, 2010b, 2011b, 2012a, 2013a, 2013b, and 2014). Information on specific site hydrogeology can be found in the above-mentioned reports.

2.0 GROUNDWATER MONITORING

Groundwater monitoring was conducted in general accordance with the DTSC-approved GMWP/SAP and subsequent addenda (DTSC, 2003, 2011, and 2013; H+A, 2003, 2011a, 2011c, 2013a, 2013c, and 2017). Groundwater monitoring included quarterly water level measurements from all accessible wells and groundwater sampling from a subset of wells (Table 1) (Appendix A). Additional groundwater monitoring was conducted as part of routine operation and monitoring of the pilot Groundwater Extraction and Treatment System (GETS) (Section 3.0).

2.1 Well Accessibility and Status

During the first quarter monitoring event wells MW-36 and MW-39 were not accessible for groundwater monitoring. Both wells are located on Orange County Flood Control District (OCFCD) property and access could not be coordinated at the time of gauging and sampling.

In addition, MW-38 could not be sampled during the first quarter monitoring event due to pump failure. The pump was replaced on March 24, 2023 and subsequently sampled. Information on pump replacement activities can be found in Appendix A.

2.2 PFAS Sampling

In accordance with the technical memorandum for per- and polyfluoralkyl substances (PFAS) screening (EA, 2023a), Phase 1 and Phase 2 PFAS sampling events were completed on January 24th, 2023, and April 24 – 26, 2023, respectively. A separate report summarizing results will be provided within 60 days of receiving the final PFAS results from the laboratory.

2.3 Groundwater Levels

Depth to groundwater was measured in all accessible monitoring wells, piezometers, and extraction wells. Water level elevations were calculated by subtracting the measured depth to water in each well from its surveyed reference point elevation (Table 3) (Appendix B). Water level elevations in Unit B wells were contoured to evaluate the direction of groundwater flow during each quarter (Figures 3A through 3D). Groundwater flow downgradient of the Site shifted from a southwest direction to a northeast one in Q4 2022. In the previous annual review period the shift occurred in Q1 2022.

Water level elevations generally increased in between Q1 2022 and Q1 2023 (Table 3; Appendix C) (H+A, 2022a). Hydrographs have been prepared based on water levels measured manually during the period from January 1997 through February 2023, and on data collected automatically using pressure transducer/data-loggers in select wells during the periods from November 1999 through March 2000 and January 2002 through current (Appendix C).

Six monitoring well clusters/nests are completed in the regional groundwater system, where water levels are monitored at several different vertical intervals to characterize vertical hydraulic gradients between successively deeper hydrogeologic units, as follows: EW-01/MW-16/MW-21/MW-24/MW-25, for convenience designated the "Footbridge cluster", MW-23/MW-26A/MW-26B/MW-26C, for convenience designated the "Starbuck cluster", MW-30A/MW-30B, designated the MW-30 nest, MW-32A/MW-32B/MW-32C, designated the MW-32 nest, MW-34A/MW-34B/MW-34C, designated the MW-34 cluster, and MW-35A/MW-35B/MW-35C, designated the MW-35 nest (Table 2) (Figures 4 through 9). The following provides a summary of vertical hydraulic gradients based on the water level measurements at these well clusters/nests over the past year (Table 3).

- At the Footbridge cluster, upwards vertical gradients were observed between Unit B and deeper Units C and D (Figure 4).
- At the Starbuck cluster, downwards vertical gradients were observed between Units A and B during periods of rising water levels with a shift toward upward vertical gradients during falling water levels (Figure 5).
- At the MW-32 cluster, upwards vertical gradients were observed between Units B and C (Figure 6).
- At the MW-30 well cluster the gradient was upwards between Unit B and Unit BC (Figure 7).
- At the MW-34 well cluster, neutral to a slightly downward vertical gradient was observed between Units A and B during periods of rising water levels with a shift toward upward vertical gradients during falling water levels (Figure 8).
- At the MW-35 neutral to a slightly downward vertical gradient was observed between Units A and B during periods of rising water levels with a shift toward upward vertical gradients during falling water levels (Figure 9).

Of the well clusters evaluated for vertical gradient between Units A, B and C, the direction of vertical gradients is similar to last year.

Occasional seasonal gradient reversals appear to reflect the variable extent of hydraulic communication between Site wells and the regional MAS of the OCGB (Appendix C). Water level data obtained from the six monitoring well nests/clusters indicate that some wells (e.g., EW-01, MW-23, and MW-26C) are highly responsive to piezometric changes in the basin, whether resulting from regional or seasonal fluctuations or from local production well pumping in the northern portion of Fullerton. Other wells (e.g., MW-21, and MW-25) appear to be in partial communication with the regional aquifer, exhibiting a dampened and delayed response to changes in the regional system or becoming seasonally isolated from the regional system. Other wells (e.g., MW-24, MW-26A, and MW-26B) appear to be relatively isolated from the regional groundwater system, exhibiting relatively low amplitude and gradual seasonal variation, with high water levels typically in the late spring months and low levels in the early fall (Appendix C).

2.4 Chemical Quality of Groundwater

Thirty-seven wells were scheduled to be sampled in Q1 2023 (Table 1). As discussed in Section 2.1, MW-36 and MW-39 could not be sampled due to access issues. All groundwater samples collected during the Q1 2023 monitoring event were analyzed for volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (EPA) Method 8260B. Groundwater samples collected from select wells were also analyzed for 1,4-Dioxane using modified EPA Method 8270 in accordance with the groundwater sampling schedule (Table 1). Selective ion monitoring (SIM) was used by the primary laboratory for select analysis of 1,4-Dioxane at lower-concentration wells to provide lower detection and reporting limits (EPA Method 8270 SIM).

Original and duplicate groundwater samples were analyzed by Eurofins Calscience, Inc., Tustin, California (Appendix D). Laboratory split groundwater samples were analyzed by Advanced Technology Laboratories, Inc., Signal Hill, California (ATL). (Appendix D). Chain-of-custody documentation was enclosed with each sample shipment. Results of groundwater sample VOC and 1,4-Dioxane analyses have been summarized (Tables 4 and 5) (Appendix B and C).

Prior to groundwater sample collection, each monitoring well was purged until three casing or screen volumes were evacuated from the well, or the slow-recharge well protocol was followed for removal of at least one casing or screen volume, as appropriate (H+A, 2003 and 2008). One screen volume is defined as the volume of water inside the screened interval of the well and is typically used as the unit purge volume for wells where the submersible purge/sample pump is set near the top or within the screened interval, and there is relatively low water level drawdown during purging. Extraction wells EW-01 and MW-21 were turned on temporarily for purging and sampling, as the current operation of the pilot GETS involves the operation of extraction wells MW-29 and EW-02 only. Field parameters, including pH, specific conductance, dissolved oxygen, turbidity, and temperature, were monitored during well purging. Groundwater sampling field forms are provided (Appendix A).

Quality assurance/quality control (QA/QC) samples consisted of trip blanks, equipment rinsate blanks, field duplicates, and laboratory split samples. Trip blanks and the water used to collect the equipment rinsate blanks were provided by Eurofins Calscience, Inc. Field duplicate and/or laboratory split samples were collected for analysis of VOCs and 1,4-Dioxane from monitoring wells EW-01, MW-28, MW-31, and MW-42 (Table 4). Equipment rinsate blanks were collected at the rate of one per day when non-dedicated purging or sampling equipment was used.

The following sections describe the analytical results for VOC and 1,4-Dioxane analyses of groundwater samples collected during the Q1 2023 groundwater monitoring event. Results from quarterly groundwater monitoring rounds conducted in May 2022, August 2022, and November 2022 are submitted in separate quarterly data submittals (H+A, 2022b, 2022c, and EA, 2023b).

2.4.1 Perched Water Zone

Two perched zone piezometers, P-07 and P-09, were sampled during the Q1 2023 groundwater monitoring event (Tables 4 and 5) (Appendix B). The groundwater samples collected from perched

zone piezometers P-07 and P-09 were analyzed for VOCs and 1,4-Dioxane. All concentrations were within their respective historical ranges for these piezometers (Table 4).

2.4.2 Regional Groundwater System

Samples collected from all regional groundwater system monitor and extraction wells were analyzed for VOCs (Table 1). Groundwater samples collected from select monitor and extraction wells were also analyzed for 1,4-Dioxane in accordance with the GMWP/SAP.

1,1-DCE and 1,4-Dioxane are the primary constituents of concern at the Site. Unit B water quality hydrographs for these compounds and TCE can be found in Appendix C. Other VOC have been detected at the site at relatively low concentrations both historically and in groundwater samples collected in Q1 2023 (Table 4). Of the wells and analytes sampled, three had readings above their historic ranges.

- MW-20 had a chloroform detection of 2.1 micrograms per liter (ug/l) when its historic range is between <0.5 to 1.5 ug/l.
- MW-21 had a 1,4-Dioxane 1,200 ug/l with a historic range of 11 to 1,100 ug/l.
- MW-38 had a toluene detection of 37 ug/l when it was historically non-detect. Because of the detection history of the well/analyte pair, this sample was qualified as "Unusable" (U) in accordance with quality control criteria.

2.4.2.1 Groundwater Quality in Site Hydrostratigraphic Zones

The following describes 1,1-DCE and 1,4-Dioxane detected at the Site in Q1 2023 within the framework of the Site groundwater CM hydrostratigraphic zones (Tables 1 and 4) (Appendix B and C).

- Three of the eight monitoring wells screened in Unit A were sampled for VOCs and 1,4-Dioxane in Q1 2023. 1,1-DCE and 1,4-Dioxane were not detected in any of the Unit A groundwater samples for this sampling event (Table 4).
- Three of five monitoring wells screened in Unit AB were sampled for VOCs in Q1 2023. 1,1-DCE was not detected in the groundwater samples collected from Unit AB monitoring wells in (Table 4). Two of the three monitoring wells sampled for VOCs were also sampled for 1,4-Dioxane. 1,4-Dioxane was not detected in either well.
- All 17 monitoring/extraction wells located in Unit B were scheduled to be sampled for VOCs and 1,4-Dioxane during Q1 2023, but MW-36 and MW-39 could not be sampled due to access issues. Water quality hydrographs depicting the concentrations of 1,1-DCE, TCE, and 1,4-Dioxane in groundwater samples collected through Q1 2023 have been prepared (Appendix C). Comparison of the historical concentrations of these compounds in on-Site wells generally indicates stable or declining concentrations with some seasonal variability.

- Four Unit BC wells were sampled for VOCs and 1,4-Dioxane during Q1 2023. 1,1-DCE was detected in all wells within their historic ranges and 1,4-Dioxane was non-detect in MW-08, MW-30B, and MW-24C, but was at a historical maximum at MW-21.
- Three Unit C wells were sampled for VOCs and 1,4-Dioxane during Q1 2023. All were non-detect for 1,1-DCE and 1,4-Dioxane.
- Three Unit D wells were sampled for VOCs and two were sampled for 1,4-Dioxane during the Q1 2023 sampling event. All were non-detect for 1,1-DCE and 1,4-Dioxane.

The vertical distribution of 1,1-DCE and 1,4-Dioxane is consistent with those from previous annual evaluations. VOC and 1,4-Dioxane concentrations will continue to be monitored to evaluate the vertical and lateral distribution and to assess trends within and across the Site hydrostratigraphic zones.

2.4.2.2 Groundwater Quality at City of Fullerton Airport Well 9

The City of Fullerton operates a municipal water supply well Well 9 (often designated F-AIRP), which is located on the north side of Fullerton Municipal Airport (Figure 10). F-AIRP is located approximately 4,000 feet to the southwest of the southwest boundary of the Site and approximately 1,500 feet to the southwest of monitoring well MW-33. Based on water quality results received from the Orange County Water District, 1,1-DCE was detected for the first time in wellhead samples collected from F-AIRP in August 2002, at a concentration of 0.6 ug/l. Over the period of record 1,1-DCE has periodically been detected in F-AIRP with a maximum concentration of 2.1 ug/l in November 2008. All detections of 1,1-DCE in production well F-AIRP have been below the California maximum contaminant level (MCL) of 1,1-DCE in drinking water (Figure 11). Following packer inflation in the well on March 15, 2018, all 1,1-DCE samples have been non-detect. TCE and 1,4 dioxane have not been detected in F-AIRP during any point in the well's history.

In early 2019, monitoring well MW-42 was installed to monitor the concentration of VOCs and 1,4-Dioxane in Unit B adjacent to F-AIRP. Monitoring well MW-42 is screened in the Unit B near the two bottommost screens of F-AIRP that are isolated by the packer. In Q1 2023 1,1-DCE was detected at a concentration of 41 ug/l and 1,4-Dioxane was detected at a concentration of 2.1 ug/l, which are within their respective historical ranges.

2.4.3 Quality Assurance/Quality Control

QA/QC samples, including field duplicates, laboratory split samples, equipment rinsate blanks and trip blanks, were collected and analyzed for VOCs during the Q1 2023 monitoring events (Appendix D). Field duplicate samples and laboratory split samples were collected for analysis of VOCs and 1,4-Dioxane from extraction well EW-01 and monitoring wells MW-28, MW-31, and MW-42. Data quality assessment results for the May, August, and November 2022 groundwater monitoring events are reported in their respective groundwater monitoring data submittals (H+A, 2022b, 2022c, and EA, 2023b).

The relative percent difference (RPD) was calculated between the results of each field duplicate and each laboratory split sample with its corresponding original sample. The following table

summarizes the principal Site compounds, 1,1-DCE, TCE and 1,4-Dioxane, results in the original, field duplicate and laboratory split groundwater samples collected in Q1 2023, as well as the calculated RPDs and assigned qualifier flag, if any.

Well ID	Compound	Original (ug/l)	Duplicate (ug/l)	RPD (percent)	Split (ug/l)	RPD (percent)	Qualifier Flag
EW-01	1,1-DCE	8.7	8.4	3.5	10	14	
	TCE	< 0.50	< 0.50	NA	< 0.50	NA	
	1,4-Dioxane	5	7.1	34	<0.20	185	E
MW-28	1,1-DCE	< 0.50	< 0.50	NA	0.35 J	35	
	TCE	< 0.50	< 0.50	NA	< 0.50	NA	
	1,4-Dioxane	< 0.50	< 2.5	NA	<0.20	NA	
MW-31	1,1-DCE	37	38	2.7	46	22	
	TCE	3.5	3.5	0	3.8	8	
	1,4-Dioxane	< 0.50	4	155	< 2.0	NA	E
MW-42	1,1-DCE	36	36	0	41	13	
	TCE	< 0.50	< 0.50	NA	< 0.50	NA	
	1,4-Dioxane	< 0.50	< 0.50	NA	2.1	123	E

ug/l = micrograms per liter
NA = not applicable

The following table summarizes project QA/QC criteria for field duplicate and laboratory split RPDs.

Range of detection	RPD Criteria (percent)	Project Qualifier Flag	Note
PQL to 10x PQL	< 100	E (estimated) or U (unusable)	Project qualifier flag may be assigned if RPD criteria is not met and/or the result is not consistent with data trending
10x PQL to 100x PQL	< 30		
>100x PQL	< 50		

PQL = practical quantitation limit (undiluted)
< = less than
> = greater than

The RPDs between the results for groundwater samples collected from EW-01, MW-28, MW-31, and MW-42 were within quality control criteria for 1,1-DCE and TCE. “Estimated” (E) qualifiers were assigned to 1,4-Dioxane samples for EW-01 and MW-42 due to an elevated RPD between the original sample and split sample and assigned to 1,4-Dioxane samples for MW-31 due to an elevated RPD between the original sample and duplicate.

There were no detections of 1,4-Dioxane or VOCs in the laboratory trip blanks, method blanks, or rinsate blanks analyzed with groundwater samples collected during the Q1 2023 groundwater monitoring event.

QA/QC trip blanks were collected as part of the monthly and quarterly GETS sampling events in accordance with the GETS monitoring sampling schedule (Table 6). There were no detections of analytes sampled for the GETS quarterly and monthly monitoring in the trip or method blanks.

In addition, results were qualified as E or U based on holding times, lab control sample limits, and historical trends. These qualifiers were assigned in the following cases:

- Wells lab qualified with holding time exceedances (H3 or H6) were additionally qualified with E.
- Wells lab qualified with lab control sample or lab control sample duplicates outside of acceptance limits (*- or *+) were additionally qualified with E.
- The Toluene detection of 37 ug/l at MW-38 was additionally qualified with U since the well/analyte pair was historically non-detect at <0.5 ug/l (Table D-2)

3.0 GROUNDWATER EXTRACTION AND TREATMENT PILOT STUDY

This section summarizes the pilot GETS operation primarily within the three-month period of monitoring conducted during the Q1 2023. Summaries of the pilot GETS operations during the Q2, Q3, and Q4 2022 are submitted in separate quarterly data submittals (H+A, 2022b, 2022c, and EA, 2023b). The pilot GETS consists of four groundwater extraction wells, the treatment system, and the disposal system; however, the current phase of pilot testing is operating using only two extraction wells, EW-02 and MW-29. Current extraction rates are nominally 30 gallons per minute (gpm) from extraction well EW-02 and 10 gpm from extraction well MW-29. The treatment system processes extracted groundwater through an advanced oxidation unit that utilizes ultra-violet light and hydrogen peroxide chemical oxidation (UV-Ox), followed by a granular activated carbon polish prior to disposal to the sanitary sewer.

3.1 System Operation

Initial startup of the pilot GETS took place in July 2008. From July 2008 through November 2009, the pilot GETS was operated with extraction wells EW-01 and MW-21 operating at approximately 10 gpm each (Figure 12). Pilot GETS expansion took place between November 2009 and March 2010 to incorporate EW-02 into the extraction well network. The system maximum flowrate was also increased from 20 gpm to 50 gpm, which is the capacity of the on-Site sewer. Beginning in March 2010, the pilot GETS was operated at 50 gpm, entirely from extraction well EW-02. During December 2011, a synthetic media pilot test was started. The purpose of the synthetic media pilot test was to evaluate the efficacy of treating high-concentration water collected from extraction well MW-21 (a relatively high-concentration extraction well) using a synthetic media for contaminant removal (H+A, 2012b). To conduct the synthetic media pilot test, extraction wells EW-02 and MW-21 were operated at approximately 30 gpm and 10 gpm, respectively. The synthetic media pilot test was completed in March 2012, and operation of the pilot GETS was restored to 50 gpm entirely from extraction well EW-02. A second phase of pilot GETS expansion took place between March 2014 and August 2014 in order to incorporate extraction well MW-29 into the extraction well network as well as replacing an advanced oxidation unit that used ozone and hydrogen peroxide with a UV-Ox system. Extraction wells EW-01 and MW-21 are on standby for the current phase of pilot testing but may be used for future phases of pilot testing or as part of a full-scale pump-and-treat system.

During Q1 2023, the pilot GETS was operational at approximately 90 percent of the available runtime, and approximately 4.6 million gallons of groundwater were treated and discharged to the sanitary sewer (Table 7). Downtime during Q1 2023 was associated with routine maintenance activities. Wellfield production volumes for December and January could not be computed since the effluent totalizer was not read in January 2023, however, the overall quarterly production could be calculated with the available data. The average operational discharge flowrate to the sanitary sewer between December 1, 2022, and February 28, 2023, was approximately 37 gpm. Since startup of the pilot GETS, approximately 250 million gallons of groundwater have been treated at an average operational flowrate of 40 gpm through February 2023 (Table 7).

3.2 Water Quality Performance Monitoring

Current monthly and quarterly pilot GETS monitoring activities include collecting samples from extraction wells EW-02 and MW-29, and at treatment system sampling ports: Influent, Post Particulate Filter, Post UV-Ox, Carbon Breakthrough, and Carbon Effluent (Tables 6 and 8) (Figure 13). Samples collected during these activities were sent to Eurofins for analysis. Analytical results of the extraction well and treatment system sampling have been summarized (Table 8) (Appendix B).

The UV-Ox advanced oxidation treatment unit is designed to remove 1,4-Dioxane and most VOCs in groundwater. The carbon adsorption units provide a polish following the UV-Ox treatment and remove possible low-level VOCs remaining in groundwater post UV-Ox (principally low-level ethanes). The UV-Ox advanced oxidation and carbon adsorption treatment units effectively removed VOCs and 1,4-Dioxane from extracted groundwater in Q1 2023. The samples collected during Q1 2023 from the effluent of the UV-Ox treatment unit (Post UV-Ox or POX), Carbon Breakthrough and Carbon Effluent were analyzed for VOCs and 1,4-Dioxane. 1,4-Dioxane and VOCs were not detected in these samples (Table 8).

The pilot GETS continues to remove VOCs and 1,4-Dioxane from extracted groundwater. During the first quarter of 2023, the pilot GETS removed approximately 2.78 pounds of VOCs and 0.96 pounds of 1,4-Dioxane from extracted groundwater. Since the startup of the pilot GETS in July 2008, approximately 202 pounds of VOCs and 58 pounds of 1,4-Dioxane have been removed from groundwater through February 2023. Operation of the pilot GETS continues to be optimized to maximize the treatment of 1,4-Dioxane and VOCs in extracted groundwater.

3.3 Water Level Performance Monitoring

The capture zone from the extraction of groundwater at extraction well EW-02 during the operation of the pilot GETS can be evaluated based on the hydraulic properties of Unit B and from water level contours.

The width of the capture zone can be estimated based on the average extraction rate at extraction well EW-02 and an estimate of the rate of groundwater flow through a portion of Unit B as previously described in the technical memorandum regarding hydraulic testing and preliminary capture zone analysis for an extraction well EW-02 (H+A, 2010a). One of the hydraulic parameters used to estimate the rate of flow through Unit B is transmissivity, which generally does not change in the vicinity of extraction well EW-02. The average pumping rate and/or the hydraulic gradients do, however, vary. As a result, there will be some variation in the estimated capture width as the variables change. To assess this, average extraction rates and hydraulic gradients are calculated on a quarterly basis for the following time periods: March to May 2022; June to August 2022; September to November 2022; and December 2022 to February 2023. The following table summarizes the estimated width of the capture zone generated by the operation of extraction well EW-02 during this time frame:

Time Period	Average Pumping Rate (gpm)	Hydraulic gradient (a)	Range in Transmissivity (square feet per day) (H+A, 2010a)	Range in Capture Width (feet)
March to May 2022	28.86	0.0032	2,400 – 5,400	320-720
June to August 2022	27.99	0.0031	2,400 – 5,400	322-725
September to November 2022	29.94	0.0019	2,400 – 5,400	558-1255
December 2022 to February 2023	31.31	0.0023	2,400 – 5,400	484-1088

(a) Based on water levels measured at monitoring well MW-28 and extraction well EW-01 at end of time period.

The above calculation provides a rough estimate of the width of the EW-02 capture zone. From a simplistic estimate, approximately one half of the width would be north of extraction well EW-02 and the balance to the south of extraction well EW-02. Given the complexity of Unit B and the variable hydraulic gradient and extraction rate, this is meant to provide a rough approximation of the capture zone. The capture zone can also be evaluated using the quarterly water level contour maps (Figures 3A to 3D). The width of the capture zone in Q2 2022, Q3 2022, Q4 2022, and Q1 2023 varies with seasonal changes in hydraulic gradient and flow direction. In general, the operation of Unit B extraction well EW-02 at an average operational flowrate of approximately 30 gpm develops a capture zone along a portion of the western Site boundary; however, it does not capture groundwater in Unit B along the southwestern-most portion of the Site, in the vicinity of monitoring well MW-31. The pilot GETS was expanded between March 2014 and August 2014 to replace the advanced oxidation system treatment equipment and convert monitoring well MW-29 into an extraction well. Operation of extraction well MW-29 enhances hydraulic capture in Unit B along the western property boundary to the northwest of extraction well EW-02.

4.0 DISCUSSION

Water level elevations at the Site have risen in all units when compared to the previous annual measurements. Since the increase was not limited to a single unit, vertical gradient directions did not change considerably within the evaluated clusters. In addition, the increased elevations occurred laterally throughout the Site so the downgradient southwest and northwest groundwater flow directions were similar to those seen in the previous annual report, with the only notable difference being that the shift occurred in Q4 instead of Q1.

During the Q1 2023 sampling event two well/analyte pairs had accepted values exceeding previous historical ranges. The exceedances included:

- MW-20 Chloroform at 2.1 ug/l; Historic range <0.50 to 1.5 ug/l
- MW-21 1,4-Dioxane at 1,200 ug/l; Historic range 11 to 1,100 ug/l

The vertical distribution of 1,1-DCE and 1,4-Dioxane is consistent with those from previous annual evaluations. Comparison of the historical concentrations of 1,1-DCE and 1,4-dioxane in Unit B monitoring wells generally indicates stable or declining concentration with some seasonal variability. No actions are recommended at this time. Further evaluation will be conducted in future quarterly reports.

During the annual reporting period, the Pilot GET System operation runtimes and extraction rates were comparable to those of previous years. In addition, effluent water quality parameters for Q1 2023 suggest that the Pilot GET System is operating as intended. As such, there are no Pilot GET System recommendations at this time with the except updating pilot GET monitoring as described in the March 13, 2023 letter to DTSC (EA, 2023c).

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TABLES

Table 1. Groundwater Monitoring Program

Well Identifier	Hydrogeologic Zone	SAMPLING FREQUENCY			
		Quarterly	Semiannual	Annual	Biannual
		February, May, August, November	February, August	February	February (Even Years)
P-07	Perched			VOCs; 1,4-Dioxane	
P-09	Perched			VOCs; 1,4-Dioxane	
MW-35A	Other				VOCs; 1,4-Dioxane
MW-17	A	Piezometer - Water Level Measurement Only			
MW-18	A		VOCs; 1,4-Dioxane		
MW-19	A				VOCs
MW-22	A				VOCs; 1,4-Dioxane
MW-23	A				VOCs
MW-34A	A		VOCs; 1,4-Dioxane		
MW-35B	A				VOCs; 1,4-Dioxane
MW-38	A			VOCs; 1,4-Dioxane	
MW-13	AB			VOCs; 1,4-Dioxane	
MW-15	AB		VOCs		
MW-26A	AB	Piezometer - Water Level Measurement Only			
MW-26B	AB	Piezometer - Water Level Measurement Only			
MW-32A	AB		VOCs; 1,4-Dioxane		
EW-01	B	VOCs; 1,4-Dioxane			
EW-02*	B	VOCs; 1,4-Dioxane			
MW-16	B		VOCs; 1,4-Dioxane		
MW-26C	B	VOCs; 1,4-Dioxane			
MW-27	B			VOCs; 1,4-Dioxane	
MW-28	B	VOCs; 1,4-Dioxane			
MW-29*	B	VOCs; 1,4-Dioxane			
MW-30A	B	VOCs; 1,4-Dioxane			
MW-31	B	VOCs; 1,4-Dioxane			
MW-32B	B	VOCs; 1,4-Dioxane			
MW-33	B	VOCs; 1,4-Dioxane			
MW-34B	B	VOCs; 1,4-Dioxane			
MW-35C	B	VOCs; 1,4-Dioxane			
MW-36	B	VOCs; 1,4-Dioxane			
MW-39	B	VOCs; 1,4-Dioxane			
MW-40	B	VOCs; 1,4-Dioxane			
MW-41	B	VOCs; 1,4-Dioxane			
MW-42	B	VOCs; 1,4-Dioxane			
MW-43	B	VOCs; 1,4-Dioxane			
MW-21	BC	VOCs; 1,4-Dioxane			
MW-08	BC	VOCs; 1,4-Dioxane			
MW-30B	BC	VOCs; 1,4-Dioxane			
MW-34C	BC		VOCs; 1,4-Dioxane		
MW-09	C		VOCs; 1,4-Dioxane		
MW-24	C			VOCs; 1,4-Dioxane	
MW-32C	C		VOCs; 1,4-Dioxane		
MW-06	D			VOCs	
MW-20	D		VOCs; 1,4-Dioxane		
MW-25	D	Piezometer - Water Level Measurement Only			
MW-37	D			VOCs; 1,4-Dioxane	

FOOTNOTES:

* = Extraction well monitored monthly as part of the Groundwater Extraction and Treatment System Pilot Testing

VOCs = volatile organic compounds

Table 2. Well Construction Summary

Well Information				Borehole		Casing		Screen			Filter Pack		Seals	
Well Identifier	Date Installed	Current Land Surface Elevation (feet msl)	Current Reference Point Elevation (feet msl)	Total Depth of Borehole (ft bls)	Borehole Diameter (inches)	Diameter (inches)	Material	Interval	Slot Size (inches)	Material	Interval (feet bls)	Sand Size	Grout Filter/ Intermediate Seal Interval (feet bls)	Annular Seal Interval (feet bls)
MW-06	1/16/1997	184.96	184.70	190.9	8.5	2	Sch 40 PVC	149.6 - 189.6	0.010	Sch 40 PVC	145.4 - 190.9	#2/16	139.4 - 145.4	0 - 139.4
MW-08	1/22/1997	156.60	155.91	167.2	8.5	2	Sch 40 PVC	126.1 - 166.1	0.010	Sch 40 PVC	120.7 - 167.2	#2/16	115.7 - 120.7	0 - 115.7
MW-09	3/21/1997	180.48	180.10	194.2	8.5	2	Sch 40 PVC	152.2 - 192.2	0.010	Sch 40 PVC	146.2 - 194.2	#2/16	141.2 - 146.2	0 - 141.2
MW-13	4/16/1997	142.44	141.84	159.5	8.5	2	Sch 40 PVC	120.6 - 159.6	0.010	Sch 40 PVC	114.6 - 159.6	#2/16	109.6 - 114.6	0 - 109.6
MW-15	5/18/1998	145.54	144.95	174.7	8.5	2	Sch 40 PVC	120.8 - 170.8	0.010	Sch 40 PVC	115.8 - 174.8	#2/16	112.8 - 115.8	0 - 112.8
MW-16	11/20/1999	142.98	142.40	179.5	11.0	4	Sch 40 PVC	148.5 - 178.5	0.010	Sch 40 PVC	144.5 - 179.5	#2/16	134.5 - 144.5	0 - 134.5
MW-17	5/31/2000	142.70	142.70	203.6	10.0	4	Sch 40 PVC	173.1 - 193.1	0.020	Sch 40 PVC	159.7 - 193.1	#2/16	156.2 - 159.7	0 - 156.2
MW-18	5/24/2000	142.39	142.32	195.6	10.0	4	Sch 40 PVC	164.1 - 194.1	0.020	Sch 40 PVC	158.9 - 194.5	#2/16	154.2 - 158.9	0 - 154.2
MW-19	5/26/2000	142.72	142.06	205.5	10.0	4	Sch 40 PVC	184.9 - 204.9	0.020	Sch 40 PVC	177.0 - 205.3	#2/16	171.5 - 177.0	0 - 171.5
MW-20	6/26/2003	184.36	184.19	200.0	11.0	4	Sch 80 PVC	158.6 - 198.2	0.020	Sch 80 PVC	158.0 - 200.0	#2/12	151.0 - 158.0	0 - 151.1
MW-21	7/17/2003	143.34	141.18	238.3	8.0	4	0-122 ft bls: Sch 40 MS 122-212.1 ft bls: Sch 10 SS	212.1 - 232.1	0.010	SS WW	205.0 - 234.5	#2/16	202.0 - 205.0	0 - 202.0
MW-22	8/13/2003	139.39	138.65	245.0	8.0	4	0-112 ft bls: Sch 40 MS 112-217.4 ft bls: Sch 10 SS	217.4 - 237.4	0.020	SS WW	215.0 - 238.0	#2/12	208.0 - 215.0	0 - 208.0
MW-23	8/18/2003	137.75	137.33	235.6	8.0	4	0-110 ft bls: Sch 40 MS 110-215.2 ft bls: Sch 10 SS	215.2 - 235.2	0.020	SS WW	209.4 - 235.6	#2/12	203.5 - 209.4	0 - 203.5
MW-24	9/15/2004	143.05	142.83	338.0	10.6	4	Sch 40 MS	310.3 - 330.3	0.030	MS WW	306 - 330	#3	301 - 306	0 - 301
MW-25	9/10/2004	142.97	142.64	805	8.5	2	0-429 ft bls: Sch 40 MS 429-429.4 ft bls: Sch 80 PVC 429-449.4 ft bls: Sch 10 SS	449.4 - 479.8	0.010	SS WW	429 - 485	#2/16	418 - 429	0 - 418
MW-26A (a)	10/1/2004	137.64	137.04	805	12.25	2	0-19 ft bls: Sch 10 SS 19-459 ft bls: Sch 40 MS 259-279 ft bls: Sch 10 SS	279 - 309	0.020	SS WW	274 - 315	#2/12	266 - 274	0 - 266
MW-26B (a)	10/1/2004	137.64	137.05	805	12.25	2	0-319 ft bls: Sch 40 MS 319-339 ft bls: Sch 10 SS	339 - 379	0.020	SS WW	334 - 387	#2/12	266 - 274	0 - 266
MW-26C (a)	10/1/2004	137.64	137.22	805	12.25	2	0-439 ft bls: Sch 40 MS 439-459 ft bls: Sch 10 SS	459 - 499	0.020	SS WW	435 - 499	#2/12	387 - 435 (w)	0 - 266
MW-27	4/22/2008	137.60	137.16	550	11.3	4	Sch 80 PVC	475 - 505.2	0.030	Sch 80 PVC	468 - 520	#3	457.5 - 468	0 - 457.5
MW-28	5/5/2008	141.38	140.77	425	12.3	4	Sch 80 PVC	335 - 375	0.040	Sch 80 PVC	325.4- 377	#8	318 - 325.4	0 - 318
MW-29	8/15/2008	148.83	139.81	265.7	10	4	Sch 80 PVC	200 - 240	0.020	Sch 80 PVC	185 - 246	#2/12	176 - 185	0 - 176
MW-30A(a)	11/26/2008	130.20	129.44	635	14.25	3	Sch 10 SS	524-564	0.020	SS WW	515.9-570.5	#2/12	495.5-515.9	0-495.5
MW-30B(a)	11/26/2008	130.20	129.39	635	14.25	3	Sch 10 SS	596-616	0.020	SS WW	586.8-625	#2/12	586.8-570.5	0-495.5
MW-31	10/2/2009	120.31	119.60	1,100	13	6	Sch 40 SS	946-996	0.020	SS WW	922-1,006	#2/12	904-922	0-904
MW-32A(a)	12/10/2009	93.35	92.88	1,153	18.5	4	Sch 80 PVC	890-905	0.020	SS WW	880-910	#2/12	832-880	0-832
MW-32B(a)	12/10/2009	93.35	92.89	1,153	18.5	4	Sch 80 PVC	969-999	0.020	SS WW	960-1,004.5	#2/12	910-960	0-832
MW-32C(a)	12/10/2009	93.35	92.88	1,153	18.5	4	Sch 80 PVC	1,070-1,090	0.020	SS WW	1,054-1,100	#2/12	1,004.5-1,054	0-832
MW-33	7/2/2010	83.80	83.19	1,080	11	4	Sch 80 PVC	980-1,020	0.020	SS WW	970-1,025	#2/12	924-970	0-924
MW-34A	2/3/2011	154.00	153.25	290	12.25	4	Sch 80 PVC	220 - 280	0.020	SS WW	211 - 290	#2/12	175 - 211	0 - 175
MW-34B	2/1/2011	153.90	153.11	540	12.25	4	Sch 80 PVC	486 - 536	0.020	SS WW	475 - 540	#2/12	449 - 475	0 - 449
MW-34C	1/19/2011	154.10	153.29	709	12.25	4	Sch 80 PVC	556 - 576	0.020	SS WW	551 - 582	#2/12	530 - 551	0 - 530
MW-35A	12/20/2010	94.30	93.57	1,101	18	4	Sch 80 PVC	420 - 470	0.020	SS WW	401 - 482	#2/12	376 - 401	0 - 376
MW-35B	12/20/2010	94.30	93.56	1,101	18	4	Sch 80 PVC	745 - 805	0.020	SS WW	725 - 816	#2/12	482 - 725	0 - 376
MW-35C	12/20/2010	94.30	93.55	1,101	12.25	4	Sch 80 PVC	990 - 1,040	0.020	SS WW	980 - 1,048	#2/12	816 - 980	0 - 376
MW-36	1/3/2012	87.19	86.65	1,030	12.25	4	Sch 80 PVC	934 - 954 974 - 994	0.020	SS WW	914 - 1,003	#2/12	95 -914	0 - 95
MW-37	10/17/2012	156.02	155.60	916	12.25	4	Sch 80 PVC	770-820	0.020	SS WW	755-834	#2/12	229-755	0-229
MW-38	7/29/2013	155.70	154.90	203	10	4	Sch 80 PVC	150-200	0.020	Sch 80 PVC	140-203	#2/12	120-140	0-120
MW-39	7/25/2013	84.71	84.25	1,080	12.25	4	Sch 80 PVC	982-1,012	0.020		974-1,017	#2/12	156-974	0-156
MW-40	7/2/2013	124.09	123.40	1,040	12.25	6	Sch 80 PVC	930-970	0.030	SS WW	916-975	#3	175 -916	0-175

Table 2. Well Construction Summary

Well Information				Borehole		Casing		Screen			Filter Pack		Seals	
Well Identifier	Date Installed	Current Land Surface Elevation (feet msl)	Current Reference Point Elevation (feet msl)	Total Depth of Borehole (ft bls)	Borehole Diameter (inches)	Diameter (inches)	Material	Interval	Slot Size (inches)	Material	Interval (feet bls)	Sand Size	Grout Filter/ Intermediate Seal Interval (feet bls)	Annular Seal Interval (feet bls)
MW-41	8/22/2014	156.02	155.60	436	12.25	4	Sch 80 PVC	385-425	0.020	SS WW	373.5-427	#2/16	165-373.5	0-165
MW-42	3/19/2019	83.28	82.80	1,091	12.25	4	Sch 80 PVC	1,012-1,052	0.020	SS WW	1,001-1,062	#2/12	952-1,001	0-952
MW-43	4/18/2019	77.11	76.64	1,120	12.25	4	0-66 ft bls: Sch 10 SS 66-1,006 ft bls: Sch 80 PVC	1,006-1,046	0.020	SS WW	990-1,052	#3	982-990	0-982
EW-01	5/16/2005	143.30	141.07	195	7.6	4	0-118 ft bls: Sch 40 MS 118-138 ft bls: Sch 10 SS	138.1-188.1	0.020	SS WW	134.1-195	#2/12	129-134.1	0-129
EW-02	10/20/2009	136.04	132.97	473	17.0	8	Sch 40 SS	410-460	0.030	SS WW	400-465	#3	384-400	0-384
P-07	6/6/1997	142.7	142.31	116.8	8.5	2	Sch 40 PVC	107.7 - 117.7	0.010	Sch 40 PVC	104.7 - 117.7	#2/16	101.7 - 104.7	0 - 101.7
P-09	6/30/2003	184.3	183.86	130.0	11.0	4	Sch 40 PVC	109.6 - 129.6	0.010	Sch 40 PVC	114.0 - 130.0	#2/16	101.0 - 108.0	0 - 101.0

Notes

msl = Mean sea level, City of Fullerton datum
ft bls = Feet below land surface
(a) = Nested well clusters

Table 3. Groundwater Levels

Well Identifier	Date Measured	Reference Point Elevation [1] (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
Regional Groundwater System Monitor and Extraction Wells					
EW-01	5/16/2022	141.07	120.83	20.24	
EW-01	8/1/2022	141.07	125.91	15.16	
EW-01	11/14/2022	141.07	129	12.07	
EW-01	2/21/2023	141.07	115.28	25.79	
EW-02	3/3/2022	132.97	118.94	14.03	Pilot GETS
EW-02	3/17/2022	132.97	119.61	13.36	Pilot GETS
EW-02	4/7/2022	132.97	118.74	14.23	Pilot GETS
EW-02	4/21/2022	132.97	118.75	14.22	Pilot GETS
EW-02	5/5/2022	132.97	118.86	14.11	Pilot GETS
EW-02	5/16/2022	132.97	118.97	14.00	Pilot GETS
EW-02	5/18/2022	132.97	118.52	14.45	Pilot GETS
EW-02	6/2/2022	132.97	119.68	13.29	Pilot GETS
EW-02	6/23/2022	132.97	120.68	12.29	Pilot GETS
EW-02	7/7/2022	132.97	122.02	10.95	Pilot GETS
EW-02	7/21/2022	132.97	123.41	9.56	Pilot GETS
EW-02	8/1/2022	132.97	123.74	9.23	Pilot GETS
EW-02	8/11/2022	132.97	124.46	8.51	Pilot GETS
EW-02	9/1/2022	132.97	126.81	6.16	Pilot GETS
EW-02	10/6/2022	132.97	129.02	3.95	Pilot GETS
EW-02	11/3/2022	132.97	128.17	4.80	Pilot GETS
EW-02	11/14/2022	132.97	126.51	6.46	Pilot GETS
EW-02	2/21/2023	132.97	113.28	19.69	Pilot GETS
MW-06	5/16/2022	184.7	153.72	30.98	
MW-06	8/1/2022	184.7	156.3	28.40	
MW-06	11/14/2022	184.7	159.46	25.24	
MW-06	2/21/2023	184.7	149.4	35.30	
MW-08	5/16/2022	155.91	132.04	23.87	
MW-08	8/1/2022	155.91	133.64	22.27	
MW-08	11/14/2022	155.91	135.27	20.64	
MW-08	2/21/2023	155.91	129.45	26.46	
MW-09	5/16/2022	180.1	152.05	28.05	
MW-09	8/1/2022	180.1	154.76	25.34	
MW-09	11/14/2022	180.1	157.99	22.11	
MW-09	2/21/2023	180.1	148.94	31.16	
MW-13	5/16/2022	141.84	122.74	19.10	
MW-13	8/1/2022	141.84	126.56	15.28	
MW-13	11/14/2022	141.84	129.84	12.00	
MW-13	2/21/2023	141.84	115.25	26.59	
MW-15	5/16/2022	144.95	129.71	15.24	
MW-15	8/1/2022	144.95	130.68	14.27	
MW-15	11/14/2022	144.95	133.17	11.78	
MW-15	2/21/2023	144.95	129.05	15.90	
MW-16	5/16/2022	142.4	122.48	19.92	
MW-16	8/1/2022	142.4	127.47	14.93	
MW-16	11/14/2022	142.4	130.51	11.89	
MW-16	2/21/2023	142.4	117.06	25.34	

Table 3. Groundwater Levels

Well Identifier	Date Measured	Reference Point Elevation [1] (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
MW-17	5/16/2022	142.7	122.7	20.00	
MW-17	8/1/2022	142.7	129.56	13.14	
MW-17	11/14/2022	142.7	128.69	14.01	
MW-17	2/21/2023	142.7	115.25	27.45	
MW-18	5/16/2022	142.32	123.16	19.16	
MW-18	8/1/2022	142.32	130.07	12.25	
MW-18	11/14/2022	142.32	129.23	13.09	
MW-18	2/21/2023	142.32	115.64	26.68	
MW-19	5/16/2022	142.06	122.79	19.27	
MW-19	8/1/2022	142.06	129.68	12.38	
MW-19	11/14/2022	142.06	128.97	13.09	
MW-19	2/21/2023	142.06	115.29	26.77	
MW-20	5/16/2022	184.19	149.03	35.16	
MW-20	8/1/2022	184.19	150.79	33.40	
MW-20	11/14/2022	184.19	154.52	29.67	
MW-20	2/21/2023	184.19	146.77	37.42	
MW-21	5/16/2022	141.18	116.58	24.60	
MW-21	8/1/2022	141.18	118.43	22.75	
MW-21	11/14/2022	141.18	121.02	20.16	
MW-21	2/21/2023	141.18	113.54	27.64	
MW-22	5/16/2022	138.65	119.44	19.21	
MW-22	8/1/2022	138.65	126.31	12.34	
MW-22	11/14/2022	138.65	125.16	13.49	
MW-22	2/21/2023	138.65	111.95	26.70	
MW-23	5/16/2022	137.33	119.66	17.67	
MW-23	8/1/2022	137.33	126.5	10.83	
MW-23	11/14/2022	137.33	124.8	12.53	
MW-23	2/21/2023	137.33	111.96	25.37	
MW-24	5/16/2022	142.83	117.75	25.08	
MW-24	8/1/2022	142.83	117.86	24.97	
MW-24	11/14/2022	142.83	120.56	22.27	
MW-24	2/21/2023	142.83	111.52	31.31	
MW-25	5/16/2022	142.64	116.11	26.53	
MW-25	8/1/2022	142.64	117.98	24.66	
MW-25	11/14/2022	142.64	121.74	20.90	
MW-25	2/21/2023	142.64	114.5	28.14	
MW-26A	5/16/2022	137.04	118.93	18.11	
MW-26A	8/1/2022	137.04	121.65	15.39	
MW-26A	11/14/2022	137.04	125.3	11.74	
MW-26A	2/21/2023	137.04	117.4	19.64	
MW-26B	5/16/2022	137.05	121.55	15.50	
MW-26B	8/1/2022	137.05	122.43	14.62	
MW-26B	11/14/2022	137.05	124.91	12.14	
MW-26B	2/21/2023	137.05	121	16.05	
MW-26C	5/16/2022	137.22	118.47	18.75	
MW-26C	8/1/2022	137.22	123.59	13.63	
MW-26C	11/14/2022	137.22	125.32	11.90	
MW-26C	2/21/2023	137.22	111.99	25.23	

Table 3. Groundwater Levels

Well Identifier	Date Measured	Reference Point Elevation [1] (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
MW-27	5/16/2022	137.16	118.03	19.13	
MW-27	8/1/2022	137.16	123.12	14.04	
MW-27	11/14/2022	137.16	124.66	12.50	
MW-27	2/21/2023	137.16	111.5	25.66	
MW-28	5/16/2022	140.77	122.22	18.55	
MW-28	8/1/2022	140.77	127.24	13.53	
MW-28	11/14/2022	140.77	129.71	11.06	
MW-28	2/21/2023	140.77	116.2	24.57	
MW-29	3/3/2022	139.81	180.79	-40.98	Pilot GETS
MW-29	3/17/2022	139.81	180.9	-41.09	Pilot GETS
MW-29	4/7/2022	139.81	182.44	-42.63	Pilot GETS
MW-29	4/21/2022	139.81	177.91	-38.10	Pilot GETS
MW-29	5/5/2022	139.81	179.36	-39.55	Pilot GETS
MW-29	5/16/2022	139.81	181.11	-41.30	Pilot GETS
MW-29	6/2/2022	139.81	181.29	-41.48	Pilot GETS
MW-29	6/23/2022	139.81	175.79	-35.98	Pilot GETS
MW-29	7/7/2022	139.81	181.5	-41.69	Pilot GETS
MW-29	7/21/2022	139.81	172.37	-32.56	Pilot GETS
MW-29	8/1/2022	139.81	173.61	-33.80	Pilot GETS
MW-29	8/11/2022	139.81	182.31	-42.50	Pilot GETS
MW-29	9/1/2022	139.81	183.02	-43.21	Pilot GETS
MW-29	10/6/2022	139.81	188.36	-48.55	Pilot GETS
MW-29	11/3/2022	139.81	189.03	-49.22	Pilot GETS
MW-29	11/14/2022	139.81	187.91	-48.10	Pilot GETS
MW-29	2/21/2023	139.81	175.9	-36.09	Pilot GETS
MW-30A	5/16/2022	129.44	111.78	17.66	
MW-30A	8/1/2022	129.44	116.91	12.53	
MW-30A	11/14/2022	129.44	118.12	11.32	
MW-30A	2/21/2023	129.44	104.9	24.54	
MW-30B	5/16/2022	129.39	109.8	19.59	
MW-30B	8/1/2022	129.39	114.2	15.19	
MW-30B	11/14/2022	129.39	114.22	15.17	
MW-30B	2/21/2023	129.39	102.91	26.48	
MW-31	5/16/2022	119.6	101.16	18.44	
MW-31	8/1/2022	119.6	106.35	13.25	
MW-31	11/14/2022	119.6	105.55	14.05	
MW-31	2/21/2023	119.6	92.92	26.68	
MW-32A	5/16/2022	92.88	76.2	16.68	
MW-32A	8/1/2022	92.88	81.89	10.99	
MW-32A	11/14/2022	92.88	80.31	12.57	
MW-32A	2/21/2023	92.88	67.18	25.70	
MW-32B	5/16/2022	92.89	75.59	17.30	
MW-32B	8/1/2022	92.89	80.88	12.01	
MW-32B	11/14/2022	92.89	79.97	12.92	
MW-32B	2/21/2023	92.89	67.19	25.70	
MW-32C	5/16/2022	92.88	67.7	25.18	
MW-32C	8/1/2022	92.88	71.41	21.47	
MW-32C	11/14/2022	92.88	73.86	19.02	

Table 3. Groundwater Levels

Well Identifier	Date Measured	Reference Point Elevation [1] (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
MW-32C	2/21/2023	92.88	62.61	30.27	
MW-33	5/16/2022	83.19	67.61	15.58	
MW-33	8/1/2022	83.19	73.18	10.01	
MW-33	11/14/2022	83.19	71.43	11.76	
MW-33	2/21/2023	83.19	58.35	24.84	
MW-34A	5/16/2022	153.25	140.89	12.36	
MW-34A	8/1/2022	153.25	147.69	5.56	
MW-34A	11/14/2022	153.25	144.7	8.55	
MW-34A	2/21/2023	153.25	133.11	20.14	
MW-34B	5/16/2022	153.11	136	17.11	
MW-34B	8/1/2022	153.11	141.02	12.09	
MW-34B	11/14/2022	153.11	143.16	9.95	
MW-34B	2/21/2023	153.11	129.78	23.33	
MW-34C	5/16/2022	153.29	135.8	17.49	
MW-34C	8/1/2022	153.29	140.34	12.95	
MW-34C	11/14/2022	153.29	140.06	13.23	
MW-34C	2/21/2023	153.29	128.6	24.69	
MW-35A	5/16/2022	93.57	76.91	16.66	
MW-35A	8/1/2022	93.57	91.28	2.29	
MW-35A	11/14/2022	93.57	75.9	17.67	
MW-35A	2/21/2023	93.57	75.75	17.82	
MW-35B	5/16/2022	93.56	80.13	13.43	
MW-35B	8/1/2022	93.56	86.81	6.75	
MW-35B	11/14/2022	93.56	80.75	12.81	
MW-35B	2/21/2023	93.56	71.51	22.05	
MW-35C	5/16/2022	93.55	76.9	16.65	
MW-35C	8/1/2022	93.55	82.58	10.97	
MW-35C	11/14/2022	93.55	80.17	13.38	
MW-35C	2/21/2023	93.55	67.35	26.20	
MW-36	5/16/2022	86.65	71.5	15.15	
MW-36	8/1/2022	86.65	77.19	9.46	
MW-36	11/14/2022	86.65	76.26	10.39	
MW-37	5/16/2022	155.6	132.53	23.07	
MW-37	8/1/2022	155.6	135.95	19.65	
MW-37	11/14/2022	155.6	138.62	16.98	
MW-37	2/21/2023	155.6	127.9	27.70	
MW-38	5/16/2022	154.9	144.54	10.36	
MW-38	8/1/2022	154.9	151.58	3.32	
MW-38	11/14/2022	154.9	152.07	2.83	
MW-38	2/21/2023	154.9	137.97	16.93	
MW-39	5/16/2022	84.25	69.73	14.52	
MW-39	8/1/2022	84.25	75.22	9.03	
MW-39	11/14/2022	84.25	73.65	10.60	
MW-40	5/16/2022	123.4	103.25	20.15	
MW-40	8/1/2022	123.4	108.52	14.88	
MW-40	11/14/2022	123.4	107.83	15.57	
MW-40	2/21/2023	123.4	95.02	28.38	
MW-41	5/16/2022	155.6	138.9	16.70	

Table 3. Groundwater Levels

Well Identifier	Date Measured	Reference Point Elevation [1] (feet msl)	Depth to Water (feet btoc)	Water Level Elevation (feet msl)	Remediation System On
MW-41	8/1/2022	155.6	143.8	11.80	
MW-41	11/14/2022	155.6	145.57	10.03	
MW-41	2/21/2023	155.6	132.51	23.09	
MW-42	5/16/2022	82.8	68.45	14.35	
MW-42	8/1/2022	82.8	74.06	8.74	
MW-42	11/14/2022	82.8	71.95	10.85	
MW-42	2/21/2023	82.8	58.81	23.99	
MW-43	5/16/2022	76.64	62.64	14.00	
MW-43	8/1/2022	76.64	68.33	8.31	
MW-43	11/14/2022	76.64	66.35	10.29	
MW-43	2/21/2023	76.64	53.12	23.52	
Perched Zone Wells					
P-07	5/16/2022	142.31	111.38	30.93	
P-07	8/1/2022	142.31	112.38	29.93	
P-07	11/14/2022	142.31	114.12	28.19	
P-07	2/21/2023	142.31	110.8	31.51	
P-09	5/16/2022	183.86	120.81	63.05	
P-09	8/1/2022	183.86	120.9	62.96	
P-09	11/14/2022	183.86	121	62.86	
P-09	2/21/2023	183.86	120.92	62.94	

FOOTNOTES:

[1] Reference point elevations are relative to City of Fullerton datum.

btoc = below top of casing

msl = mean sea level

Pilot GETS = Pilot Groundwater Extraction and Treatment System On

Table 4. Prevalent Volatile Organic Compounds and 1,4-Dioxane in Groundwater

Well Identifier/ Sample Identifier	Date Sampled	Result Type	Benzene (5/1)	Carbon Tetrachloride (5/0.5)	Chloroform (80/80)	1,1-DCA (--/5)	1,2-DCA (5/0.5)	1,1-DCE (7/6)	cis-1,2-DCE (70/6)	PCE (5/5)	1,1,1-TCA (200/200)	1,1,2-TCA (5/5)	TCE (5/5)	TCFM (--/150)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
EW-01	17-May-22	N	< 0.50	< 0.50	< 0.50	**0.27 J**	< 0.50	**27**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**13**
EW-01	03-Aug-22	N	< 0.50	< 0.50	< 0.50	**0.81**	< 0.50	**55 E**	< 0.50	**0.2 J**	< 0.50	**0.32 J**	**0.11 J**	< 0.50	< 0.50	**33**
EW-01	03-Aug-22	FD	< 0.50	< 0.50	< 0.50	**0.77**	< 0.50	**58 E**	< 0.50	**0.2 J**	< 0.50	< 0.50	**0.13 J**	< 0.50	< 0.50	**30**
EW-01	03-Aug-22	SPT	< 0.50	< 0.50	< 0.50	**0.72**	< 0.50	**28 E**	< 0.50	< 0.50	< 0.50	**0.24 J**	**0.18 J**	< 0.50	< 0.50	**31 B**
EW-01	16-Nov-22	N	< 0.50	< 0.50	< 0.50	**0.56**	< 0.50	**53**	< 0.50	**0.16 J**	< 0.50	**0.35 J**	< 0.50	< 0.50	< 0.50	**30**
EW-01	06-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**8.7**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**5 E**
EW-01	06-Mar-23	FD	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**8.4**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**7.1**
EW-01	06-Mar-23	SPT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**10**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0 E
EW-01 Historical Ranges			< 0.50 - 2.0	< 0.50 - 0.53	< 0.50 - 1.2	< 0.50 - 16	< 0.50 - 4.0	< 0.50 - 1,600 E	< 0.50 - 0.52	< 0.50 - 4.3	< 0.50	< 0.50 - 10	< 0.50 - 3.3	< 0.50 - 0.61	< 0.50 - 4.6	< 2.0 - 990 E
EW-02	03-Mar-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**11**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	17-Mar-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**13**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2 H3, E
EW-02	07-Apr-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**16**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	21-Apr-22	N	< 0.50	< 0.50	**0.14 J**	**0.15 J**	< 0.50	**14**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	05-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**16**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	18-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**12**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	02-Jun-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**11**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	23-Jun-22	N	< 0.50	< 0.50	**0.13 J**	**0.13 J**	< 0.50	**16**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**4.3**
EW-02	07-Jul-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**20**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**3.9**
EW-02	21-Jul-22	N	< 0.50	< 0.50	**0.13 J**	**0.17 J**	< 0.50	**21**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**5.5**
EW-02	11-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**16**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**4.3 H2**
EW-02	01-Sep-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**11**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	06-Oct-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**14**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**7.2**
EW-02	03-Nov-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**11**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	01-Dec-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**11**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	26-Jan-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**8.5**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
EW-02	09-Feb-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**7.2 *-, E**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**3.2**
EW-02 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	2.3 - 160	< 0.50	< 0.50	< 0.50	< 0.50 - 0.59	< 0.50	< 0.50	< 0.50 - 0.85	< 2.0 - 48
MW-06	22-Feb-23	N	< 0.50	< 0.50	**2.2**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.38
MW-06 Historical Ranges			< 0.50	< 0.50 - 0.19 J	< 0.50 - 13	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.78	< 0.20
MW-08	17-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**17**	**1.4**	< 0.50	< 0.50	< 0.50	**42**	< 0.50	< 0.50	**1.4**
MW-08	03-Aug-22	N	< 0.50	< 0.50	< 0.50	**0.18 J**	< 0.50	**24**	**2.3**	< 0.50	< 0.50	< 0.50	**40**	< 0.50	< 0.50	**1.3**
MW-08	15-Nov-22	N	< 0.50	< 0.50	**0.21 J**	< 0.50	< 0.50	**22**	**2.4**	< 0.50	< 0.50	< 0.50	**43**	< 0.50	< 0.50	**0.09 J**
MW-08	06-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.6**	**0.81**	< 0.50	< 0.50	< 0.50	**23**	< 0.50	< 0.50	< 0.50
MW-08 Historical Ranges			< 0.50 - 0.95	< 0.50	< 0.50 - 0.86	< 0.50 - 5.1	< 0.50 - 0.99	< 0.50 - 500	< 0.50 - 13	< 0.50 - 2.6	< 0.50	< 0.50	< 0.50 - 480	< 0.50 - 1.0	< 0.50 - 2.3	< 0.20 - 130
MW-09	03-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.36 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-09	22-Feb-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.38
MW-09 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50 - 0.79	< 0.50	< 0.50 - 32	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.96	< 0.50 - 5.3	< 0.50	< 0.2 - 52 E
MW-13	06-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**1.6**	< 0.50	< 2.5
MW-13 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	< 0.50 - 0.15 J	< 0.50	< 0.50	< 0.50 - 0.6	< 0.50 - 7.6	< 0.50	< 0.2 - 2.4
MW-15	03-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**3.5**	**11**	< 0.50	NA
MW-15 Historical Ranges			< 0.50	< 0.50	< 0.50 - 0.22 J	< 0.50	< 0.50	< 0.50 - 14	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 7.8	< 0.50 - 20	< 0.50	< 0.50
MW-16	03-Aug-22	N	< 0.50	**0.52**	< 0.50	**8.1**	**0.79**	**1600**	**0.53**	**1.5**	< 0.50	**1.1**	**7.5**	< 0.50	< 0.50	**82**
MW-16	06-Mar-23	N	< 0.50	< 0.50	< 0.50	**2.9**	< 0.50	**450**	< 0.50	**0.8**	< 0.50	< 0.50	**3**	< 0.50	< 0.50	**51**
MW-16 Historical Ranges			< 0.50	< 0.50 - 0.58	< 0.50 - 1.1	< 0.50 - 18	< 0.50 - 4.5	49 - 1,900	< 0.50 - 0.57	< 0.5 - 2.9	< 0.5 - 28 E	< 0.50 - 10	< 0.50 - 7.8	< 0.50	< 0.50	< 2.0 - 440
MW-18	04-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**1.2**	< 0.50	< 0.20
MW-18	01-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-18 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.51	< 0.50 - 1.2	< 0.5 - 0.12 J	< 0.50	< 0.50	< 0.50	< 0.50 - 6.3	< 0.50 - 0.82	< 0.2 - 7.7 E
MW-20	04-Aug-22	N	< 0.50	< 0.50	**0.58**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-20	22-Feb-23	N	< 0.50	< 0.50	**2.1**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.38
MW-20 Historical Ranges			< 0.50	< 0.50	< 0.50 - 1.5	< 0.50	< 0.50	< 0.50 - 82	< 0.50	< 0.5 - 0.14 J	< 0.5 - 0.63	< 0.50	< 0.50	< 0.50 - 0.58	< 0.50 - 0.22 J	< 0.2 - 3.9
MW-21	17-May-22	N	< 0.50	**0.65**	**0.31 J**	**36**	**6.5**	**1800 H3, E**	**1.4**	**4.6**	< 0.50	**17**	**15**	**0.32 J**	< 0.50	**700**
MW-21	03-Aug-22	N	< 0.50	**0.52**	**0.86**	**28**	**5**	**1900**	**1.9**	**4.9**	< 0.50	**15**	**18**	**0.34 J**	< 0.50	**590**
MW-21	16-Nov-22	N	< 0.50	**0.29 J**	**1.3**	**15**	**3.7**	**920 H3, E**	**1.2**	**3.3**	< 0.50	**11**	**13**	**0.42 J**	< 0.50	**590 H3, E**
MW-21	06-Mar-23	N	< 10	< 10	< 10	**27**	< 10	**1300**	< 10	< 10	< 10	**16**	**11**	< 10	< 10	**1200**
MW-21 Historical Ranges			< 0.50	< 0.50 - 1.9	< 0.50 - 4.6	< 0.50 - 71	< 0.50 - 8.9	200 - 4,900	< 0.50 - 2.4	< 0.50 - 12	< 0.50 - 2.0	< 0.50 - 27	0.96 - 46	< 0.50 - 0.53	< 0.50	11 - 1,100
MW-24	07-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-24 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 2.7
MW-26C	17-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-26C	03-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-26C	15-Nov-22	N	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.20

Well Identifier/ Sample Identifier	Date Sampled	Result Type	Benzene (5/1)	Carbon Tetrachloride (5/0.5)	Chloroform (80/80)	1,1-DCA (--/5)	1,2-DCA (5/0.5)	1,1-DCE (7/6)	cis-1,2-DCE (70/6)	PCE (5/5)	1,1,1-TCA (200/200)	1,1,2-TCA (5/5)	TCE (5/5)	TCFM (--/150)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
MW-26C	03-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-26C Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50 - 1.7	< 0.50	< 0.50 - 120	< 0.50	< 0.50 - 0.79	< 0.50	< 0.50 - 0.77	< 0.50	< 0.50	< 0.50 - 22	< 0.20 - 57
MW-27	03-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-27 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 0.24
MW-28	17-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-28	04-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.50**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-28	15-Nov-22	N	< 0.50	< 0.50	**0.15 J**	< 0.50	< 0.50	**0.44 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-28	06-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-28	06-Mar-23	FD	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.5
MW-28	06-Mar-23	SPT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.35 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-28 Historical Ranges			< 0.50	< 0.50	< 0.50 - 0.20 J	< 0.50 - 0.94	< 0.50	< 0.50 - 76 E	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 19
MW-29	03-Mar-22	N	< 0.50	< 0.50	< 0.50	**1.5**	< 0.50	**180**	< 0.50	**0.51**	< 0.50	**0.5**	**1.6**	**0.71**	< 0.50	**89**
MW-29	17-Mar-22	N	< 0.50	< 0.50	**0.23 J**	**1.5**	< 0.50	**210**	< 0.50	**0.58**	< 0.50	< 0.50	**1.5**	**0.71**	< 0.50	**75 H3, E**
MW-29	07-Apr-22	N	< 0.50	< 0.50	< 0.50	**1.4**	< 0.50	**340**	< 0.50	< 0.50	< 0.50	**0.61**	**1.3**	< 0.50	< 0.50	**74**
MW-29	21-Apr-22	N	< 0.50	< 0.50	**0.13 J**	**1.4**	< 0.50	**170**	< 0.50	**0.17 J**	< 0.50	**0.42 J**	**1.3**	**0.9**	< 0.50	**71**
MW-29	05-May-22	N	< 0.50	< 0.50	< 0.50	**1.3**	< 0.50	**190**	< 0.50	**0.51**	< 0.50	< 0.50	**1.6**	**0.86**	< 0.50	**64**
MW-29	18-May-22	N	< 0.50	< 0.50	**0.17 J**	**0.93**	< 0.50	**140**	< 0.50	**0.41 J**	< 0.50	**0.35 J**	**1.5**	**0.47 J**	< 0.50	**63**
MW-29	02-Jun-22	N	< 0.50	< 0.50	< 0.50	**1.2**	< 0.50	**150**	< 0.50	< 0.50	< 0.50	< 0.50	**0.96**	**0.67**	< 0.50	**70**
MW-29	23-Jun-22	N	< 0.50	< 0.50	**0.26 J**	**1.6**	< 0.50	**190**	< 0.50	**0.48 J**	< 0.50	**0.46 J**	**1.8**	**0.76**	< 0.50	**66**
MW-29	07-Jul-22	N	< 0.50	< 0.50	< 0.50	**1.8**	< 0.50	**230**	< 0.50	< 0.50	< 0.50	< 0.50	**1.9**	**0.99**	< 0.50	**80**
MW-29	21-Jul-22	N	< 0.50	< 0.50	**0.32 J**	**1.9**	< 0.50	**270**	< 0.50	**0.33 J**	< 0.50	**0.53**	**2**	**0.98**	< 0.50	**80**
MW-29	11-Aug-22	N	< 0.50	< 0.50	< 0.50	**1.8**	< 0.50	**220**	< 0.50	**0.64**	< 0.50	**0.62**	**2**	**0.71**	< 0.50	**95 H2**
MW-29	01-Sep-22	N	< 0.50	< 0.50	< 0.50	**1.4**	< 0.50	**130**	< 0.50	< 0.50	< 0.50	< 0.50	**1.4**	< 0.50	< 0.50	**120**
MW-29	06-Oct-22	N	< 0.50	< 0.50	< 0.50	**1.4**	< 0.50	**170**	< 0.50	< 0.50	< 0.50	**0.53**	**1.8**	**0.64**	< 0.50	**95**
MW-29	03-Nov-22	N	< 0.50	< 0.50	< 0.50	**1.4**	< 0.50	**130**	< 0.50	< 0.50	< 0.50	**0.56**	**2**	**0.8**	< 0.50	**61**
MW-29	01-Dec-22	N	< 0.50	< 0.50	< 0.50	**1**	< 0.50	**140**	< 0.50	< 0.50	< 0.50	< 0.50	**1.5**	**0.6**	< 0.50	**76**
MW-29	26-Jan-23	N	< 0.50	< 0.50	< 0.50	**1.1**	< 0.50	**120**	< 0.50	< 0.50	< 0.50	< 0.50	**1.6**	< 0.50	< 0.50	**60**
MW-29	09-Feb-23	N	< 0.50	< 0.50	< 0.50	**1.2**	< 0.50	**140**	< 0.50	< 0.50	< 0.50	< 0.50	**1.4**	< 0.50	< 0.50	**65**
MW-29 Historical Ranges			< 0.50 - 0.57	< 0.50 - 1.8	< 0.50 - 0.80	< 0.50 - 9.2	< 0.50 - 1.4	85 - 900 E	< 0.50 - 0.61	< 0.50 - 6.6	< 0.50	< 0.50 - 2.3	< 0.50 - 8.3	< 0.50 - 2.2	< 0.50	26 BE - 301
MW-30A	18-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-30A	05-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-30A	15-Nov-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-30A	06-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-30A Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50 - 2.9	< 0.50 - 0.67	< 0.50 - 270	< 0.50	< 0.50 - 0.58	< 0.50	< 0.50 - 1.1	< 0.50 - 1.9	< 0.50	< 0.50	< 0.20 - 95
MW-30B	18-May-22	N	< 0.50	< 0.50	**0.39 J**	< 0.50	< 0.50	**23**	**3.6**	< 0.50	< 0.50	< 0.50	**83**	< 0.50	< 0.50	**1.1**
MW-30B	05-Aug-22	N	< 0.50	< 0.50	< 0.50	**0.13 J**	**0.21 J**	**28**	**5.7**	< 0.50	< 0.50	< 0.50	**94**	< 0.50	< 0.50	**0.93**
MW-30B	15-Nov-22	N	< 0.50 H6, E	< 0.50 H6, E	**0.36 H6, E, J**	< 0.50 H6, E	< 0.50 H6, E	**16 H6, E**	**3.4 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**62 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.20
MW-30B	06-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**17**	**3.6**	< 0.50	< 0.50	< 0.50	**71**	< 0.50 F1, E	< 0.50	< 0.50
MW-30B Historical Ranges			< 0.50	< 0.50	< 0.50 - 0.77	< 0.50 - 0.15 J	< 0.50 - 0.21 J	< 0.50 - 31 E	< 0.50 - 8.2	< 0.50 - 0.51	< 0.50	< 0.50	< 0.50 - 110	< 0.50	< 0.50 - 4.5	< 0.20 - 28 E
MW-31	18-May-22	N	< 0.50	< 0.50	< 0.50	**0.56**	< 0.50	**72**	**0.15 J**	< 0.50	< 0.50	< 0.50	**4.4**	< 0.50	< 0.50	**4.5**
MW-31	05-Aug-22	N	< 0.50	< 0.50	< 0.50	**2.3**	< 0.50	**270**	**0.92**	**0.62**	< 0.50	**0.45 J**	**14**	< 0.50	< 0.50	**16**
MW-31	16-Nov-22	N	< 0.50	< 0.50	< 0.50	**0.63**	< 0.50	**99**	**0.51**	< 0.50	< 0.50	< 0.50	**8**	< 0.50	< 0.50	**0.41**
MW-31	07-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**37 E**	< 0.50	< 0.50	< 0.50	< 0.50	**3.5 E**	< 0.50	< 0.50	< 0.50 E
MW-31	07-Mar-23	FD	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**38 E**	< 0.50	< 0.50	< 0.50	< 0.50	**3.5 E**	< 0.50	< 0.50	**4 E**
MW-31	07-Mar-23	SPT	< 0.50	< 0.50	< 0.50	**0.27 J**	< 0.50	**46**	**0.23 J**	< 0.50	< 0.50	< 0.50	**3.8**	< 0.50	< 0.50	< 2.0
MW-31 Historical Ranges			< 0.50	< 0.50 - 0.23 J	< 0.50 - 0.58	< 0.50 - 5.0	< 0.50 - 0.51	25 - 430	< 0.50 - 3.0 E	< 0.50 - 2.5	< 0.50	< 0.50 - 1.2	0.50 - 21	< 0.50	< 0.50 - 1.0	< 0.20 - 33 E
MW-32A	03-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.2 H3, E
MW-32A	01-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-32A Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 1.6
MW-32B	17-May-22	N	< 0.50	< 0.50	< 0.50	**0.3 J**	< 0.50	**47**	**0.83**	< 0.50	< 0.50	< 0.50	**15**	< 0.50	< 0.50	**1.9**
MW-32B	03-Aug-22	N	< 0.50	< 0.50	< 0.50	**0.46 J**	< 0.50	**61**	**1.7**	< 0.50	< 0.50	< 0.50	**16**	< 0.50	< 0.50	**1.8**
MW-32B	16-Nov-22	N	< 0.50	< 0.50	< 0.50	**0.23 J**	< 0.50	**28**	**1.3**	< 0.50	< 0.50	< 0.50	**11**	< 0.50	< 0.50	**0.07 J**
MW-32B Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50 - 3.6	< 0.50	16 - 290	1.3 - 7.9	< 0.50	< 0.50	< 0.50	11-75	< 0.50	< 0.50 - 0.14 J	< 2.0 - 8.0
MW-32C	03-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.2 H3, E
MW-32C	03-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-32C Historical Ranges			< 0.50	< 0.50	< 0.50 - 0.24 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.56	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 1.0
MW-33	17-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.9**	< 0.50	< 0.50	< 0.50	< 0.50	**1**	< 0.50	< 0.50	< 0.20
MW-33	17-May-22	FD	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.5**	< 0.50	< 0.50	< 0.50	< 0.50	**0.65**	< 0.50	< 0.50	< 0.20
MW-33	17-May-22	SPT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**4.9**	< 0.50	< 0.50	< 0.50	< 0.50	**0.75**	< 0.50	< 0.50	< 0.50
MW-33	02-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.3**	< 0.50	< 0.50	< 0.50	< 0.50	**0.46 J**	< 0.50	< 0.50	< 0.20
MW-33	02-Aug-22	FD	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**5.7**	< 0.50	< 0.50	< 0.50	< 0.50	**0.63**	< 0.50	< 0.50	< 0.20

Well Identifier/ Sample Identifier	Date Sampled	Result Type	Benzene (5/1)	Carbon Tetrachloride (5/0.5)	Chloroform (80/80)	1,1-DCA (--/5)	1,2-DCA (5/0.5)	1,1-DCE (7/6)	cis-1,2-DCE (70/6)	PCE (5/5)	1,1,1-TCA (200/200)	1,1,2-TCA (5/5)	TCE (5/5)	TCFM (--/150)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
MW-33	02-Aug-22	SPT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**5.1**	< 0.50	< 0.50	< 0.50	< 0.50	**0.76**	< 0.50	< 0.50	< 0.5 H
MW-33	15-Nov-22	N	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**4.4 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**0.7 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.20
MW-33	15-Nov-22	FD	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**4.7 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**0.73 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.20
MW-33	15-Nov-22	SPT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.7 E**	< 0.50	< 0.50	< 0.50	< 0.50	**0.96**	< 0.50	< 0.50	< 0.50
MW-33	02-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.4**	< 0.50	< 0.50	< 0.50	< 0.50	**1.2**	< 0.50	< 0.50	< 0.50
MW-33 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 12	< 0.50	< 0.50 - 0.32 J	< 0.50	< 0.50	< 0.50 - 2.0	< 0.50	< 0.50 - 1.4	< 0.20 - 0.22
MW-34A	04-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.4 J**	< 0.50	< 0.2 H3, E
MW-34A	02-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.51**	< 0.50	< 2.0
MW-34A Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 2.3	< 0.50 - 2.8	< 0.20
MW-34B	17-May-22	N	< 0.50	< 0.50	< 0.50	**0.47 J**	< 0.50	**24 E**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**11**
MW-34B	17-May-22	FD	< 0.50	< 0.50	< 0.50	**0.68**	< 0.50	**46 E**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**12**
MW-34B	17-May-22	SPT	< 0.50	< 0.50	< 0.50	**0.53**	< 0.50	**29 E**	< 0.50	< 0.50	< 0.50	< 0.50	**0.21 J**	< 0.50	< 0.50	**17**
MW-34B	04-Aug-22	N	< 0.50	< 0.50	< 0.50	**0.73**	< 0.50	**71**	< 0.50	< 0.50	< 0.50	< 0.50	**0.23 J**	< 0.50	< 0.50	**7.1**
MW-34B	15-Nov-22	N	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**0.37 H6, E, J**	< 0.50 H6, E	**42 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**18**
MW-34B	08-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**28**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**8.5**
MW-34B Historical Ranges			< 0.50	< 0.50	< 0.50 - 0.50	< 0.50 - 9.8	< 0.50 - 1.7	20 E - 1,100	< 0.50	< 0.50 - 0.54	< 0.50	< 0.50 - 2.6	< 0.50 - 2.1	< 0.50 - 2.6	< 0.50 - 2.6	< 2.0 E - 260
MW-34C	02-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-34C	02-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-34C Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.33 J, E	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 9.6	< 0.20 - 0.39
MW-35C	17-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-35C	02-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-35C	15-Nov-22	N	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.20
MW-35C	07-Mar-23	N	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50 F2, E	< 0.50	< 0.50 F2, E	< 0.50
MW-35C Historical Ranges			< 0.50	< 0.50	< 0.50 - 120	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 0.06 J
MW-36	18-May-22	N	< 0.50	< 0.50	< 0.50	**0.91**	< 0.50	**81**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
MW-36	04-Aug-22	N	< 0.50	< 0.50	< 0.50	**0.85**	< 0.50	**99**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.2**
MW-36	04-Aug-22	FD	< 0.50	< 0.50	< 0.50	**0.87**	< 0.50	**97**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**7.7**
MW-36	04-Aug-22	SPT	< 0.50	< 0.50	< 0.50	**0.75**	< 0.50	**75**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**6.8**
MW-36	15-Nov-22	N	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**0.51 H6, E**	< 0.50 H6, E	**64 H6, E**	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	**0.54**
MW-36 Historical Ranges			< 0.50	< 0.50	< 0.50 - 0.15 J	< 0.50 - 1.9	< 0.50	2.9 - 220	< 0.50	< 0.50	< 0.50	< 0.50 - 0.24 J	< 0.50 - 0.26 J	< 0.50	< 0.50 - 5.9	< 0.20 - 15
MW-37	08-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-37 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.66	< 0.50	< 0.50 - 0.73	< 0.20
MW-38	24-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**37 U**	< 0.39
MW-38	24-Mar-23	RA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 *+, E	< 0.50	< 0.50	< 0.50	< 0.50	**37 U**	NA
MW-38 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50- 0.16 J	< 0.50 - 0.27 J	< 0.50	< 0.20 - 0.34
MW-39	18-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-39	04-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.2 H3, E
MW-39	15-Nov-22	N	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.50 H6, E	< 0.20
MW-39 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 1.4	< 0.20
MW-40	18-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-40	05-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-40	16-Nov-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-40	08-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-40 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 - 0.29 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 0.61
MW-41	18-May-22	N	< 0.50	< 0.50	**0.5**	< 0.50	< 0.50	**0.58**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-41	04-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.58**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-41	16-Nov-22	N	< 0.50	< 0.50	**0.42 J**	< 0.50	< 0.50	**0.29 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-41	16-Nov-22	FD	< 0.50	< 0.50	**0.44 J**	< 0.50	< 0.50	**0.41 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-41	16-Nov-22	SPT	< 0.50	< 0.50	**0.61**	< 0.50	< 0.50	**0.47 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-41	08-Mar-23	N	< 0.50	< 0.50	**0.57**	< 0.50	< 0.50	**0.6**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-41 Historical Ranges			< 0.50	< 0.50	< 0.50 - 0.86	< 0.50 - 1.3	< 0.50	< 0.50 - 130	< 0.50	< 0.50 - 0.20 J	< 0.50	< 0.50 - 0.39 J	< 0.50 - 0.49 J	< 0.50	< 0.50	< 0.20 - 18
MW-42	17-May-22	N	< 0.50	< 0.50	< 0.50	**0.67**	< 0.50	**42**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**1.7**
MW-42	03-Aug-22	N	< 0.50	< 0.50	< 0.50	**0.76**	< 0.50	**52**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**2.1 H3, E**
MW-42	16-Nov-22	N	< 0.50	< 0.50	< 0.50	**0.46 J**	< 0.50	**35**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.09 J**
MW-42	07-Mar-23	N	< 0.50	< 0.50	< 0.50	**0.55**	< 0.50	**36 E**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 E
MW-42	07-Mar-23	FD	< 0.50	< 0.50	< 0.50	**0.55**	< 0.50	**36 E**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-42	07-Mar-23	SPT	< 0.50	< 0.50	< 0.50	**0.57**	< 0.50	**41**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**2.1 E**
MW-42 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50 - 0.76	< 0.50	0.41 J - 53	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20 - 2.5
MW-43	19-May-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-43	05-Aug-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
MW-43	16-Nov-22	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20

Well Identifier/ Sample Identifier	Date Sampled	Result Type	Benzene (5/1)	Carbon Tetrachloride (5/0.5)	Chloroform (80/80)	1,1-DCA (--/5)	1,2-DCA (5/0.5)	1,1-DCE (7/6)	cis-1,2-DCE (70/6)	PCE (5/5)	1,1,1-TCA (200/200)	1,1,2-TCA (5/5)	TCE (5/5)	TCFM (--/150)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
MW-43	02-Mar-23	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MW-43 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
P-07	07-Mar-23	N	< 10	< 10	< 10	**15**	< 10	**1200 E**	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**2500**
P-07 Historical Ranges			< 1.0 - 12	< 0.50 - 14	< 1.0 - 8.3	< 25 - 154	< 0.50 - 17	640 - 23,300	< 1.0 - 5.1	< 0.50 - 1400	< 5 - 52	< 1.0 - 25	< 5 - 39	< 1.0 - 17	< 0.50 - < 1.0000	360 - 3100
P-09	22-Feb-23	N	< 0.50	< 0.50	< 0.50	**0.56**	< 0.50	**23**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.37
P-09 Historical Ranges			< 0.50	< 0.50	< 0.50	< 0.50 - 0.87	< 0.50	0.56 - 130	< 0.50	< 0.50	< 0.50 - 0.4 J	< 0.50	< 0.50 - 0.58	< 0.50	< 0.50	< 0.2 - 7.1
RB_20230222	22-Feb-23	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.38
RB_20230303	03-Mar-23	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
RB_20230306	06-Mar-23	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
RB-051722	17-May-22	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.20
RB-080322	03-Aug-22	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.14 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
RB-080422	04-Aug-22	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
RB-111522	15-Nov-22	RB	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.50 H3, E	< 0.20
RB-20230301	01-Mar-23	RB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TB_20230222	22-Feb-23	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB_20230306A	06-Mar-23	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB_20230308	08-Mar-23	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-012623	26-Jan-23	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-020923	09-Feb-23	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 *-, E	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-030322	03-Mar-22	SPT TB	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 5	< 1.0	NA
TB-030322	03-Mar-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-031722	17-Mar-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-040722	07-Apr-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-042122	21-Apr-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-050522	05-May-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-051722A	17-May-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-051722B	17-May-22	SPT TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-051822	18-May-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-051922	19-May-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-060222	02-Jun-22	SPT TB	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 5	< 1.0	NA
TB-060222	02-Jun-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-062322	23-Jun-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-063022	30-Jun-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-070722	07-Jul-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-072122	21-Jul-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-080222A	02-Aug-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-080222B	02-Aug-22	SPT TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-080422A	04-Aug-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-080422B	04-Aug-22	SPT TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-080522	05-Aug-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-081122	11-Aug-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-090122	01-Sep-22	SPT TB	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 5.0	< 1.0	NA
TB-090122	01-Sep-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-100622	06-Oct-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-110322	03-Nov-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-111522A	15-Nov-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-111522B	15-Nov-22	SPT TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-120122	01-Dec-22	SPT TB	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 5	< 1.0	NA
TB-120122	01-Dec-22	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA

Well Identifier/ Sample Identifier	Date Sampled	Result Type	Benzene (5/1)	Carbon Tetrachloride (5/0.5)	Chloroform (80/80)	1,1-DCA (--/5)	1,2-DCA (5/0.5)	1,1-DCE (7/6)	cis-1,2-DCE (70/6)	PCE (5/5)	1,1,1-TCA (200/200)	1,1,2-TCA (5/5)	TCE (5/5)	TCFM (--/150)	Toluene (1,000/150)	1,4-Dioxane (3*/1**)
TB-20230301	01-Mar-23	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-20230306B	06-Mar-23	SPT TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA
TB-20230324	24-Mar-23	TB	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA

Footnotes:

All concentrations are in micrograms per liter

1,1-DCA = 1,1-Dichloroethane
1,2-DCA = 1,2-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
cis-1,2-DCE = cis-1,2-Dichloroethene
PCE = Tetrachloroethene
1,1,1-TCA = 1,1,1-Trichloroethane
1,1,2-TCA = 1,1,2-Trichloroethane

TCE = Trichloroethene
TCFM = Trichlorofluoromethane
(<) = Less than; the value is the Limit of Detection for that compound
* = 1,4-Dioxane Action Level of 3 ug/l
** = California Notification Level for 1,4-Dioxane of 1 ug/l
F1 = MS and/or MSD recovery exceeds control limits
F2 = MS and/or MSD RPD exceeds control limits
H3 = Initial analysis within holding time. Reanalysis past holding time.

H6 = Sample analyzed past hold time due to unexpected instrument failure.
E = Data qualified as Estimated in accordance with quality control criteria.
U = Data qualified as Unusable in accordance with quality control criteria.
J = Estimated Value; analyte detected at less than the Reporting Limit and greater than or equal to the Method Detection Limit
Detection Limit changed, not identified as historic high
Historic high
Unusable historic high

N = Primary sample
FD = Field Duplicate
SPT = Split sample
NA = Not analyzed for constituent
TB = Trip blank sample
RB = Rinsate blank sample
*- = LCS and/or LCSD is outside acceptance limits, lo
*+ = LCS and/or LCSD is outside acceptance limits, hi

Table 5. Other Volatile Organic Compounds in Groundwater

Well Identifier	Date Sampled	Sample Type	Compound	Concentration (ug/l)
Regional Groundwater System Monitor and Extraction Wells				
EW-01	8/3/2022	N	Chloromethane	0.18 J
EW-01	8/3/2022	FD	Chloromethane	0.2 J
EW-02	3/3/2022	N	Chloromethane	0.54
EW-02	10/6/2022	N	Bromomethane	0.76
EW-02	5/18/2022	N	Chloromethane	0.46 J
MW-08	3/6/2023	N	1,1,2-Trichloro-1,2,2-trifluoroethane	0.66
MW-09	8/3/2022	N	Chloromethane	0.13 J
MW-16	3/6/2023	N	1,1,2-Trichloro-1,2,2-trifluoroethane	1.5
MW-18	8/4/2022	N	Chloromethane	0.21 J
MW-21	11/16/2022	N	Vinyl chloride	0.67
MW-26C	8/3/2022	N	Chloromethane	0.13 J
MW-28	8/4/2022	N	Chloromethane	0.33 J
MW-29	10/6/2022	N	Bromomethane	0.76
MW-29	6/23/2022	N	Chloromethane	0.45 J
MW-29	12/1/2022	N	1,2,3-Trichloropropane	0.54
MW-30B	3/6/2023	N	1,1,2-Trichloro-1,2,2-trifluoroethane	0.67
MW-30B	8/5/2022	N	trans-1,2-Dichloroethene	0.11 J
MW-34C	8/2/2022	N	Chloromethane	0.13 J
MW-38	3/24/2023	RA	Dibromofluoromethane	8.8
MW-39	8/4/2022	N	Chloromethane	0.23 J
MW-41	8/4/2022	N	Chloromethane	0.13 J
Quality Assurance/Quality Control Samples				
RB_20230222	2/22/2023	RB	Acetone	12
TB-031722	3/17/2022	TB	Methylene Chloride	0.81 J
TB-031722	3/17/2022	TB	Styrene	0.24 J
TB-080422B	8/4/2022	SPT TB	Methylene Chloride	0.65 J
TB-111522B	11/15/2022	SPT TB	Methylene Chloride	0.73 J
TB-111522B	11/15/2022	SPT TB	Acetone	5.2 J

FOOTNOTES:

FD = Field Duplicate
J = Estimated Value; analyte detected at less than the Reporting Limit and greater than or equal to the Method Detection Limit
N = Primary Sample
RA = Re-Analysis
RB = Rinsate Blank
SPT = Split
TB = Trip Blank
ug/l = micrograms per liter

Table 6. Pilot Groundwater Extraction and Treatment System Sampling Schedule

				SAMPLE FREQUENCY AND LOCATION																			
				Daily Samples[1]: Days 1-5					Weekly Samples[1]: Weeks 1-4					Monthly Samples: Week 5+						Quarterly Samples: Week 1+			
Compounds/Constituent	Analytical Method	Sample Container	Reporting Detection Limits (milligrams per liter)	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	Extraction Wells (Well ID)[2]	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	Extraction Wells (Well ID)[2]	System Influent (INF)	Post-Oxidation (POX)	Post-Carbon (CEFF)
Compounds/Constituents Normally Required as Part Of NPDS Or WDR Permits, Pursuant To CRWQCB Region 8 Order No. R8-2003-0085																							
Volatile Organic Compounds	EPA 8260B	3 - 40 mL VOA, HCl	QAPP[4]	X		X	X	X	X		X	X	X	X	X		X	X	X				
1,4-Dioxane	EPA 8270 Modified	1 L Amber	0.002	X					X					X	X								
1,4-Dioxane	EPA 8270 SIM	1 L Amber	0.0002			X					X						X	X	X				
Total Suspended Solids	SM2540D	1 L Poly	10													X							
Total Dissolved Solids	SM2540C	1 L Poly	10																	X	X	X	X
Selected Metals																							
Dissolved Metals (Iron, Manganese, Calcium, Sodium, Magnesium)	EPA 6010B	250 mL poly	QAPP[4]	(a)																X	X		
Selenium	EPA 6010B	250 mL poly	QAPP[4]																	X	X		
Selected Inorganic Constituents																							
Hydroxide Alkalinity	SM2320B	1 L Poly	2.0	(a)												X	X			X	X		
Bicarbonate Alkalinity	SM2320B	1 L Poly	2.0	(a)												X	X			X	X		
Carbonate Alkalinity	SM2320B	1 L Poly	2.0	(a)												X	X			X	X		
Total Alkalinity	SM2320B	1 L Poly	2.0	(a)												X	X			X	X		
Bromate Evaluation																							
Bromate	EPA 317.0	125 mL Poly	0.0005			X					X				X		X						
Bromide	EPA 300.0	125 mL Poly	0.05	(a)					(a)					X	X								
Other Constituents/Compounds																							
Total Organic Carbon	SM5310B	2 - 40 mL VOA, H2SO4	3.0	(a)												X	X			X	X		
Anions (Chloride, Sulfate, Nitrate, Nitrite, and Phosphate)	EPA 300.0	1 L Poly	Varies	(a)																X	X	X	
Chemical Oxygen Demand	EPA 410.4	125 mL Amber, H2SO4	5.0	(a)																X	X	X	
UV Absorption (UVA) @254nm	EPA 415.3	125 mL Amber/ 8 oz Jar	N/A		(a)											X				X	X	X	

Compounds/Constituent	Analytical Method	Sample Container	Reporting Detection Limits (milligrams per liter)	SAMPLE FREQUENCY AND LOCATION: Daily Samples[1]: Days 1-5					Weekly Samples[1]: Weeks 1-4					Monthly Samples: Week 5+						Quarterly Samples: Week 1+			
				System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	Extraction Wells (Well ID)[2]	System Influent (INF)	Post-Filter (PF)	Post-Oxidation (POX)	Carbon Breakthrough (CBT)[3]	Post-Carbon (CEFF)	Extraction Wells (Well ID)[2]	System Influent (INF)	Post-Oxidation (POX)	Post-Carbon (CEFF)
Field Parameters																							
Dissolve Oxygen (DO)	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Electrical Conductance (EC)	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Redox Potential	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Temperature	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
pH	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Turbidity	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Flow-Meter	N/A	N/A	N/A	X				X	X				X	X	X				X				
Residual Hydrogen Peroxide	N/A	N/A	N/A			(a)	(a)	(a)			X	X	X				X	X	X				

FOOTNOTES:

[1] Daily and weekly samples collected during the first month of operation will be repeated after major modifications to system equipment or operating parameters, as detailed in the Workplan.

[2] If more than one extraction well is in operation, combined influent samples will be collected in addition to extraction wellhead samples, with the same sampling schedule as the extraction wellheads.

[3] Carbon breakthrough will be collected from the effluent of the first carbon unit in series; when breakthrough of the first unit is detected, the breakthrough sample will be collected from the effluent of the second carbon unit in series.

[4] Quality Assurance Project Plan (QAPP), Appendix B of Additional Groundwater Assessment Workplan, Hargis + Associates, Inc., April 25, 2003.

(a) Only one sample to be collected during sampling period.

CRWQCB = California Regional Water Quality Control Board, Santa Ana Region 8
NPDES = National Pollutant Discharge Elimination System
WDR = Waste Discharge Requirement
N/A = Not applicable
mL = Milliliter
VOA = Volatile organic analysis
HCl = Hydrochloric acid
H_2SO_4 = Sulfuric acid
nm = Nanometers
EPA = U.S. Environmental Protection Agency
SIM = Selected ion monitoring
SM = Standard Method
L = Liter
poly = High density polyethylene bottle
Amber = Amber glass bottle

Table 7. Pilot Groundwater Extraction and Treatment System Operational Summary

OPERATIONAL PERIOD[1]	WELLFIELD PRODUCTION[2] (gallons)	AVERAGE DISCHARGE RATE[3] (gpm)	AVERAGE OPERATIONAL DISCHARGE RATE[4] (gpm)	OPERATIONAL HOURS DURING OPERATIONAL PERIOD	HOURS IN OPERATIONAL PERIOD	% OPERATIONAL
2008[5]	3,659,562	13.8	18.2	3,358	4,416	76%
2009[6]	5,787,848	11.0	18.1	5,319	8,760	61%
2010[6]	14,295,261	27.2	46.4	5,131	8,760	59%
2011[6]	20,456,899	38.9	45.8	7,442	8,760	85%
2012[7]	19,378,122	40.2	47.2	6,850	8,040	85%
2013	21,148,029	40.2	45.7	7,713	8,760	88%
2014	7,690,471	14.6	46.8	2,740	8,760	31%
2015	18,019,312	34.3	47.9	6,275	8,760	72%
2016	21,977,404	41.9	44.2	8,284	8,736	95%
2017	18,364,603	34.6	39.8	7,684	8,835	87%
2018	18,144,835	34.5	38.3	7,889	8,760	90%
2019	18,725,398	35.8	40.3	7,737	8,710	89%
2020	19,500,449	36.9	38.1	8,521	8,807	97%
2021	18,500,784	35.3	36.3	8,508	8,739	97%
2022	17,619,396	33.6	35.6	8,239	8,734	94%
December 2022	NM	NM	NM	789	867	91%
January 2023	NM	NM	NM	728	814	89%
February 2023	1,300,317	34.8	39.2	554	623	89%
Total Q1 2023	**4,613,768**	**33**	**37**	**2,070**	**2,304**	**90%**
Total Since Startup[4]	**247,882,141**	**32**	**40**	**103,760**	**128,641**	**81%**

Notes and Abbreviations:

[1] Calendar year from December 1st of prior year to November 30 of current year unless otherwise noted

[2] Based on Effluent totalizer readings from CEFF, which also includes relatively small amounts of monitor well purge water from quarterly sampling events, well installations, and aquifer testing.

[3] Total volume of water treated during the operational period divided by the total number of minutes in that operational period.

[4] Total volume of water treated during the operational period divided by the minutes of operation in that operational period.

[5] Pilot groundwater extraction and treatment system began operation in July 2008, calendar year from July 1st through December 31st

[6] Calendar year from January 1st to December 31th

[7] Calendar year from January 1st to November 30th

% = Percent

CEFF = Carbon effluent

gpm = gallons per minute

Q1 = Quarter 1

Table 8. Select Compounds Monitored in Pilot Groundwater Extraction and Treatment System Samples

Compound	Date	Units	MW-29	EW-02	INF	PF	POX	CBT	CEFF
1,1,2-Trichloroethane	03/03/22	ug/L	**0.50**	<0.50	<0.50	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	03/17/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/07/22	ug/L	**0.61**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/21/22	ug/L	**0.42 J**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/05/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	**0.35 J**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/02/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/23/22	ug/L	**0.46 J**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/07/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/21/22	ug/L	**0.53**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	**0.62**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	09/01/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	10/06/22	ug/L	**0.53**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/03/22	ug/L	**0.56**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	01/26/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	02/09/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
1,1-Dichloroethane	03/03/22	ug/L	**1.5**	<0.50	<0.50	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	03/17/22	ug/L	**1.5**	<0.50	**0.52**	--	**0.34 J**	**0.29 J**	<0.50
	04/07/22	ug/L	**1.4**	<0.50	**0.61**	--	<0.50	**0.50**	<0.50
	04/21/22	ug/L	**1.4**	**0.15 J**	**0.57**	--	**0.31 J**	**0.29 J**	**0.26 J**
	05/05/22	ug/L	**1.3**	<0.50	**0.63**	--	<0.50	<0.50	<0.50
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	**0.93**	<0.50	**0.36 J**	--	**0.20 J**	**0.15 J**	<0.50
	06/02/22	ug/L	**1.2**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/23/22	ug/L	**1.6**	**0.13 J**	**0.51**	--	**0.35 J**	**0.27 J**	**0.26 J**
	07/07/22	ug/L	**1.8**	<0.50	**0.58**	--	<0.50	<0.50	<0.50
	07/21/22	ug/L	**1.9**	**0.17 J**	**0.63**	--	**0.40 J**	**0.36 J**	**0.27 J**
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	**1.8**	<0.50	**0.64**	--	<0.50	<0.50	<0.50
	09/01/22	ug/L	**1.4**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	10/06/22	ug/L	**1.4**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/03/22	ug/L	**1.4**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	**1**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	01/26/23	ug/l	**1.1**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	02/09/23	ug/l	**1.2**	<0.50	<0.50	--	<0.50	<0.50	<0.50
1,1-Dichloroethene	03/03/22	ug/L	**180**	**11**	**52**	--	<0.50	<0.50	<0.50
(6 ug/L MCL)	03/17/22	ug/L	**210**	**13**	**61**	--	<0.50	<0.50	<0.50
	04/07/22	ug/L	**340**	**16**	**65**	--	<0.50	<0.50	<0.50
	04/21/22	ug/L	**170**	**14**	**58**	--	<0.50	<0.50	<0.50
	05/05/22	ug/L	**190**	**16**	**62**	--	<0.50	<0.50	<0.50
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	**140**	**12**	**46**	--	<0.50	**0.16 J**	<0.50
	06/02/22	ug/L	**150**	**11**	**46**	--	<0.50	<0.50	<0.50
	06/23/22	ug/L	**190**	**16**	**57**	--	<0.50	<0.50	<0.50
	07/07/22	ug/L	**230**	**20**	**73**	--	<0.50	<0.50	<0.50
	07/21/22	ug/L	**270**	**21**	**77**	--	<0.50	<0.50	<0.50
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	**220**	**16**	**69**	--	<0.50	<0.50	<0.50
	09/01/22	ug/L	**130**	**11**	**47**	--	**2.8**	<0.50	<0.50
	10/06/22	ug/L	**170**	**14**	**54**	--	<0.50	<0.50	<0.50
	11/03/22	ug/L	**130**	**11**	**46**	--	<0.50	<0.50	<0.50
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	**140**	**11**	**41**	--	<0.50	<0.50	<0.50
	01/26/23	ug/l	**120**	**8.5**	**39**	--	<0.50	<0.50	<0.50
	02/09/23	ug/l	**140**	**7.2 *-, E**	**32 *-, E**	--	< 0.5 *-, E	< 0.5 *-, E	< 0.5 *-, E

Compound	Date	Units	MW-29	EW-02	INF	PF	POX	CBT	CEFF
1,2-Dichloroethane	03/03/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
(0.5 ug/L MCL)	03/17/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/07/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/21/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/05/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/02/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/23/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/07/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/21/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	09/01/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	10/06/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/03/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	01/26/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	02/09/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
1,4-Dioxane	03/03/22	ug/L	**89**	<2.0	**25**	--	<0.20	<0.20	<0.20
(1 ug/L California Notification Level)	03/17/22	ug/L	**75**	<2.0	**23**	--	<0.20	<0.20	<0.20
	04/07/22	ug/L	**74**	<2.0	**24**	--	<4.0	<4.0	<4.0
	04/21/22	ug/L	**71**	<2.0	**23**	--	<0.20	<0.20	<0.20
	05/05/22	ug/L	**64**	<2.0	**17**	--	<0.20	<0.20	<0.20
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	**63**	<2.0	**20**	--	<0.20	<0.20	<0.20
	06/02/22	ug/L	**70**	<2.0	**21**	--	<0.20	<0.20	<0.20
	06/23/22	ug/L	**66**	**4.3**	**24**	--	<0.20	<0.20	<0.20
	07/07/22	ug/L	**80**	**3.9**	**23**	--	<0.20	<0.20	<0.20
	07/21/22	ug/L	**80**	**5.5**	**25**	--	<0.20	<0.20	<0.20
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	**95 E**	**4.3 E**	**35 E**	--	<0.20	<0.20	<0.20
	09/01/22	ug/L	**120**	<2.0	**29**	--	**5.7**	<0.20 E	<0.20 E
	10/06/22	ug/L	**95**	**7.2**	**29**	--	<0.20	<0.20	<0.20
	11/03/22	ug/L	**61**	<2.0	**16**	--	<0.20	<0.20	<0.20
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	**76**	<2.0	**27**	--	<0.20	<0.20	<0.20
	01/26/23	ug/l	**60**	<2.0	< 10 D10	--	<0.20	<0.20	<0.20
	02/09/23	ug/l	**65**	**3.2**	**21**	--	<0.50	<0.50	<0.50
Bromate	03/03/22	ug/L	--	--	<5.0	--	<5.0	--	--
(10 ug/L MCL)	04/07/22	ug/L	--	--	<5.0	--	<5.0	--	--
	05/05/22	ug/L	--	--	<5.0	--	<5.0	--	--
	06/02/22	ug/L	--	--	<25.0	--	<25.0	--	--
	07/07/22	ug/L	--	--	<25.0	--	<25.0	--	--
	08/11/22	ug/L	--	--	<25.0	--	<25.0	--	--
	09/01/22	ug/L	--	--	<25.0	--	<25.0	--	--
	10/06/22	ug/L	--	--	<25.0	--	<25.0	--	--
	11/03/22	ug/L	--	--	<25.0	--	<25.0	--	--
	12/01/22	ug/l	--	--	< 25	--	< 25	--	--
	02/09/23	ug/l	--	--	< 25	--	< 25	--	--
Bromide	03/03/22	mg/L	**0.71**	**0.80**	**1.0**	--	--	--	--
	04/07/22	mg/L	<0.10	<0.10	<0.10	--	--	--	--
	05/05/22	mg/L	**0.29**	**0.18**	**0.22**	--	--	--	--
	06/02/22	mg/L	**0.39**	**0.21**	**0.29**	--	--	--	--
	07/07/22	mg/L	**0.41**	**0.24**	**0.28**	--	--	--	--
	08/11/22	mg/L	**0.47**	**0.25**	**0.30**	--	--	--	--
	09/01/22	mg/L	**0.46**	**0.25**	**0.30**	--	**0.25**	--	--
	10/06/22	mg/L	**0.42**	**0.23**	**0.29**	--	--	--	--
	11/03/22	mg/L	**0.42**	**0.21**	**0.26**	--	--	--	--
	12/01/22	mg/l	**0.37**	**0.21**	**0.25**	--	**0.25**	--	--
	02/09/23	mg/l	**0.32**	**0.19**	**0.24**	--	--	--	--

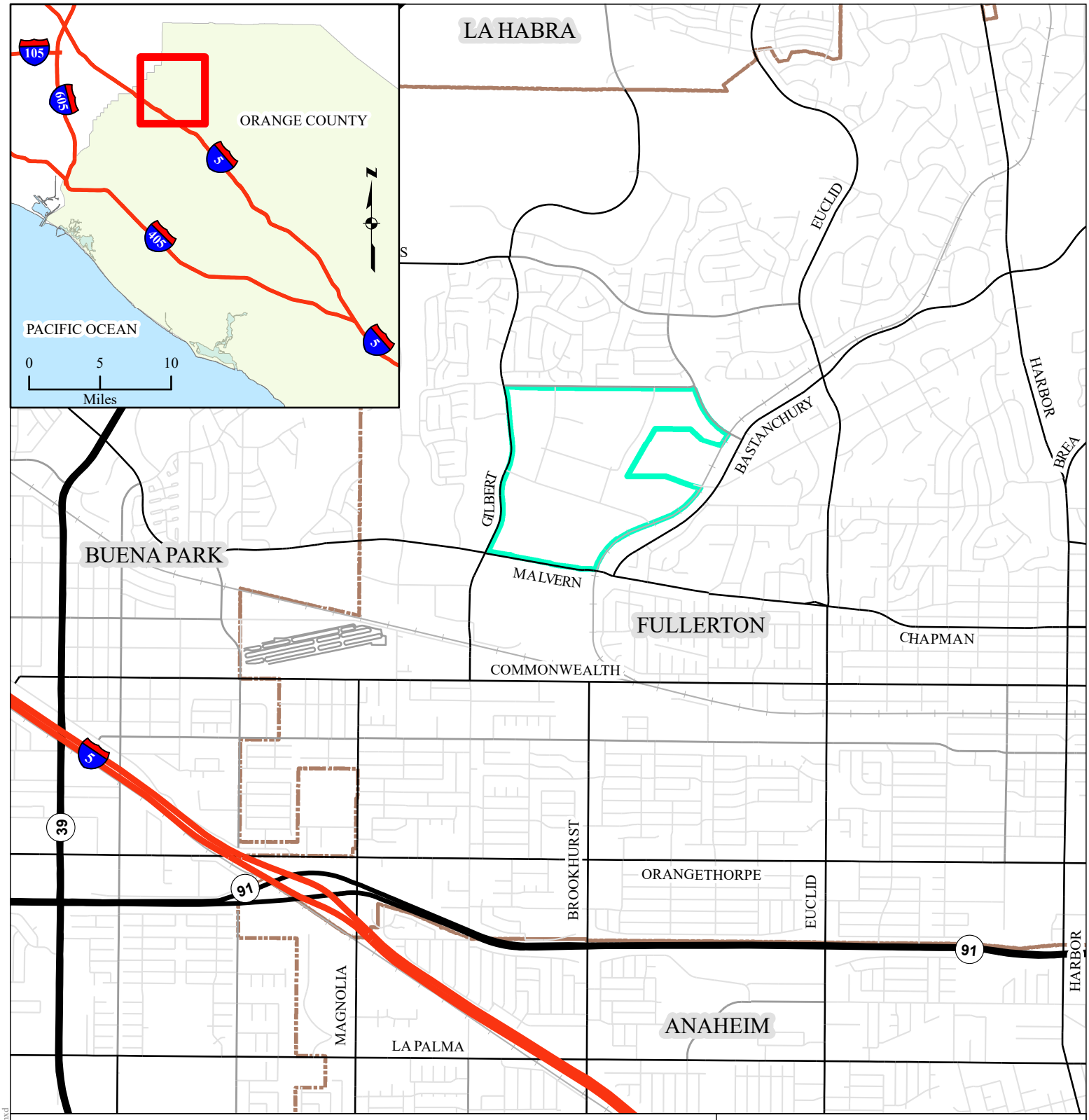
Compound	Date	Units	MW-29	EW-02	INF	PF	POX	CBT	CEFF
cis-1,2-Dichloroethene	03/03/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
(6 ug/L MCL)	03/17/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/07/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/21/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/05/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/02/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/23/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/07/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/21/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	09/01/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	10/06/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/03/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	01/26/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	02/09/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
Tetrachloroethene	03/03/22	ug/L	**0.51**	<0.50	<0.50	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	03/17/22	ug/L	**0.58**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/07/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/21/22	ug/L	**0.17 J**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/05/22	ug/L	**0.51**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	**0.41 J**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/02/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	06/23/22	ug/L	**0.48 J**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/07/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	07/21/22	ug/L	**0.33 J**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	**0.64**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	09/01/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	10/06/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/03/22	ug/L	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	01/26/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
	02/09/23	ug/l	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50
Total Dissolved Solids	03/03/22	mg/L	**760**	**600**	**660**	--	**660**	--	**640**
(500 mg/L MCL)	06/30/22	mg/L	**800**	**1,300**	**630**	--	**680**	--	**650**
	09/01/22	mg/L	**900**	**730**	**800**	--	**750**	--	**810**
	12/01/22	mg/L	**780**	**620**	**650**	--	**660**	--	**710**
Total Suspended Solids	03/03/22	mg/L	--	--	--	<1.0	--	--	--
	04/07/22	mg/L	--	--	--	<1.0	--	--	--
	06/02/22	mg/L	--	--	--	<10	--	--	--
	07/07/22	mg/L	--	--	--	<10	--	--	--
	08/11/22	mg/L	--	--	--	<1.0	--	--	--
	09/01/22	mg/L	--	--	--	<1.0	--	--	--
	10/06/22	mg/L	--	--	--	<1.0	--	--	--
	11/03/22	mg/L	--	--	--	<1.0	--	--	--
	12/01/22	mg/L	--	--	--	< 0.95	--	--	--
	01/26/23	mg/L	--	--	--	< 1.1	--	--	--
	02/09/23	mg/l	--	--	--	<1.0	--	--	--
Trichloroethene	03/03/22	ug/L	**1.6**	<0.50	**0.52**	--	<0.50	<0.50	<0.50
(5 ug/L MCL)	03/17/22	ug/L	**1.5**	<0.50	**0.62**	--	<0.50	<0.50	<0.50
	04/07/22	ug/L	**1.3**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	04/21/22	ug/L	**1.3**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/05/22	ug/L	**1.6**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	05/17/22	ug/L	--	--	--	--	--	--	--
	05/18/22	ug/L	**1.5**	<0.50	**0.51**	--	<0.50	<0.50	<0.50
	06/02/22	ug/L	**0.96**	<0.50	**0.52**	--	<0.50	<0.50	<0.50
	06/23/22	ug/L	**1.8**	<0.50	**0.58**	--	<0.50	<0.50	<0.50
	07/07/22	ug/L	**1.9**	<0.50	**0.54**	--	<0.50	<0.50	<0.50

Compound	Date	Units	MW-29	EW-02	INF	PF	POX	CBT	CEFF
	07/21/22	ug/L	**2.0**	<0.50	**0.59**	--	<0.50	<0.50	<0.50
	08/03/22	ug/L	--	--	--	--	--	--	--
	08/11/22	ug/L	**2.0**	<0.50	**0.69**	--	<0.50	<0.50	<0.50
	09/01/22	ug/L	**1.4**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	10/06/22	ug/L	**1.8**	<0.50	**0.61**	--	<0.50	<0.50	<0.50
	11/03/22	ug/L	**2.0**	<0.50	**0.64**	--	<0.50	<0.50	<0.50
	11/16/22	ug/L	--	--	--	--	--	--	--
	12/01/22	ug/l	**1.5**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	01/26/23	ug/l	**1.6**	<0.50	<0.50	--	<0.50	<0.50	<0.50
	02/09/23	ug/l	**1.4**	<0.50	<0.50	--	<0.50	<0.50	<0.50

FOOTNOTES:

MCL = Drinking Water Maximum Contaminant Level
ug/L = Micrograms per liter
mg/L = Milligrams per liter
(--) = Not scheduled for performance monitoring
(<) = Less than; the numerical value is the Limit of Detection for that compound
(*-) = Laboratory control sample and/or Laboratory control sample duplicate is outside acceptance limits, low biased.
D10 = Sample required dilution due to dark sample
MW = Monitor Well(s)
EW = Extraction Well(s)
INF = Influent; combined flow from active extraction wells
PF = Post Particulate Filter
POX = Post Advanced Oxidation
CBT = Carbon Breakthrough
CEFF = Carbon Effluent
E = Data qualified as Estimated in accordance with quality control criteria.
J = Estimated Value; analyte detected at less than the Reporting Limit and greater than or equal to the Method Detection Lir

FIGURES



EXPLANATION

City Boundaries

Former Hughes Aircraft Facility

0 2,500 5,000

FEET

FIGURE 1: SITE LOCATION

RESULTS OF GROUNDWATER MONITORING AND GET PILOT TESTING 2022/2023 ANNUAL REPORT

FORMER HUGHES AIRCRAFT COMPANY

Engineering Analytics, Inc.

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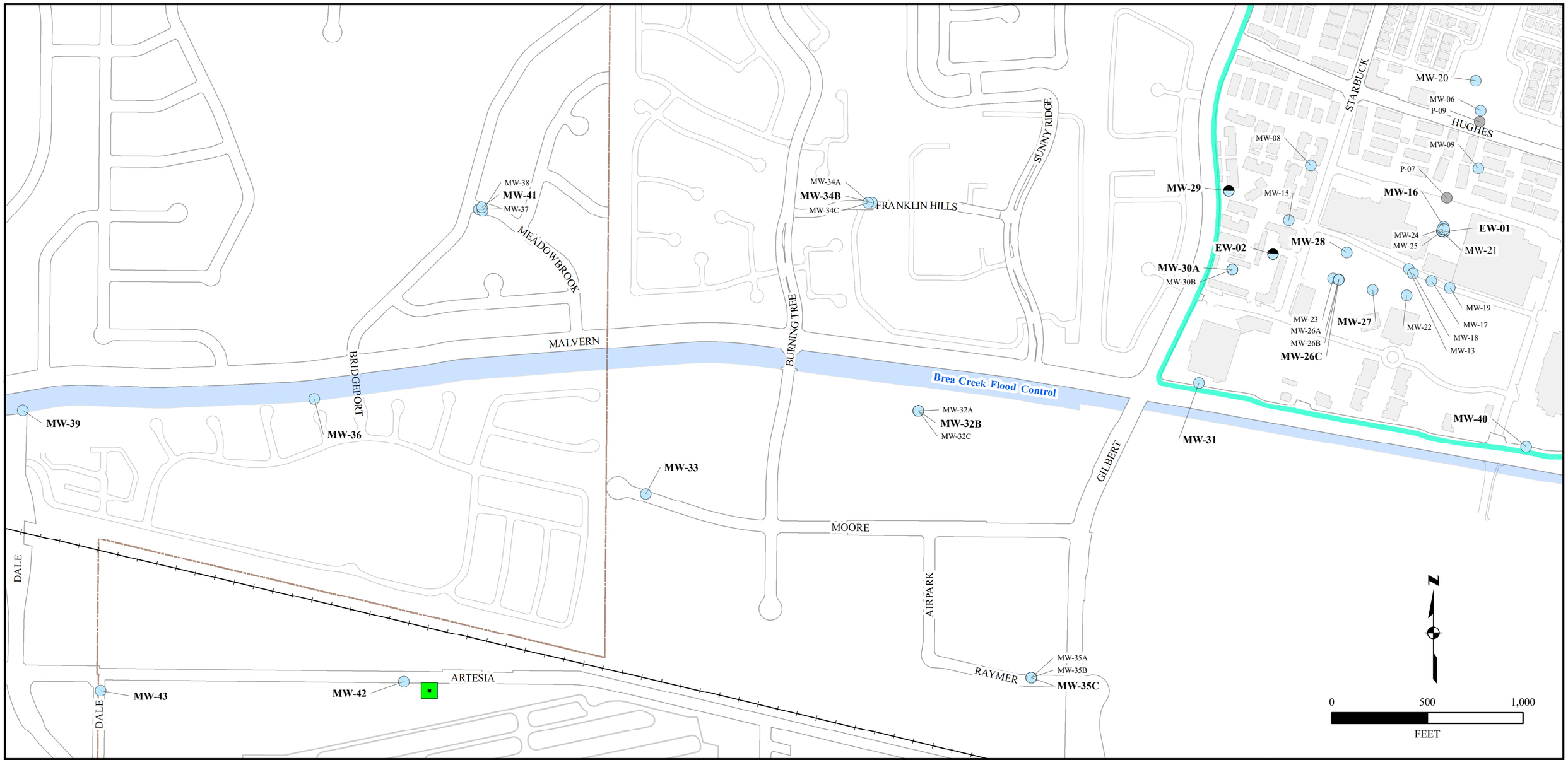

Groundwater Monitor Well
Groundwater Extraction Well
Perched Piezometer
Fullerton Airport Well 9
Flood Control Channel Parcels
On Property Current Buildings

City Boundaries
Former Hughes Aircraft Company Property
Airport
Railroads

NOTES:

Light colored streets are private.
Bold well IDs completed in Unit B
Small well IDs completed in units other than B

FIGURE 2: WELL AND PIEZOMETER LOCATIONS

RESULTS OF GROUNDWATER MONITORING AND GET PILOT TESTING
2022/2023 ANNUAL REPORT

FORMER HUGHES AIRCRAFT COMPANY

Engineering Analytics, Inc.

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EXPLANATION

MW–16	GROUNDWATER MONITOR WELL
EW–01	GROUNDWATER EXTRACTION WELL (INACTIVE)
MW–29	GROUNDWATER EXTRACTION WELL (ACTIVE)
20.24	WATER LEVEL ELEVATION (FEET MEAN SEA LEVEL)
27/13/<0.50	CONCENTRATION OF 1,1–DICHLOROETHYLENE/1,4–DIOXANE/TRICHLOROETHYLENE IN GROUNDWATER (MICROGRAMS PER LITER)
8	EQUAL WATER LEVEL ELEVATION CONTOUR
609	FORMER RAYTHEON BUILDING, DEMOLISHED MID–2000
	CURRENT RESIDENTIAL AND COMMERCIAL BUILDINGS
	DRIVEWAYS, PARKING LOTS AND OTHER HARDSCAPE OF SITE RE–DEVELOPMENT
	APPROXIMATE DIRECTION OF GROUNDWATER FLOW, MAY 2022 (COLLECTED ON MAY 16, 2022)
*	EXTRACTION WELLS EW–02 AND MW–29 PUMPING DURING WATER LEVEL GAUGING; ESTIMATED WATER LEVEL BASED ON THIEM EQUATION
E	DATA QUALIFIED AS ESTIMATED IN ACCORDANCE WITH QUALITY CONTROL CRITERIA
NS	NOT SAMPLED

APPROXIMATE SATURATED EXTENT OF UNIT B

LOS COYOTES COUNTRY CLUB

MW–41
16.70
0.58/<0.20/<0.50

MW–34B
17.11
24E/11/<0.50

MW–29*
17.12
140/63/1.5

MW–28
18.55
<0.50/<0.20/<0.50

MW–16
19.92
NS

EW–02*
16.27
16/<2.0/<0.50

MW–30A
17.66
<0.50/<0.20/<0.50

EW–01
20.24
27/13/<0.50

MW–27
19.13
NS

MW–26C
18.76
<0.50/<0.20/<0.50

MW–31
18.44
72/4.5/4.4

MW–40
20.15
<0.50/<0.20/<0.50

MW–32B
17.30
47/1.9/15

MW–33
15.58
6.9/<0.20/1.0

MW–35C
16.65
<0.50/<0.20/<0.50

MW–36
15.15
81/<2.0/<0.50

MW–39
14.52
<0.50/<0.20/<0.50

MW–42
14.35
42/1.7/<0.50

MW–43
14.00
<0.50/<0.20/<0.50

CITY OF FULLERTON WELL NO. 9

OCWD AIRPORT TEST WELL 3S/11W–36A6

BREA CREEK

0 250 500
FEET
NOTE: NAD83 DATUM

Aug 23, 2022 – 2:30pm ESS – T:\2022\500–599\532 Raytheon\Hydogeology\Water Lvl\220–2582.dwg

HARGIS + ASSOCIATES, INC.
Hydrogeology/Engineering

08/22 | RPT NO. 532.31 | 220–2582 | A

FIGURE 3A
WATER LEVEL AND WATER QUALITY UNIT B
MAY 2022

EXPLANATION

MW–16	GROUNDWATER MONITOR WELL
EW–01	GROUNDWATER EXTRACTION WELL (INACTIVE)
MW–29	GROUNDWATER EXTRACTION WELL (ACTIVE)
14.93	WATER LEVEL ELEVATION (FEET MEAN SEA LEVEL)
1,600/82/7.5	CONCENTRATION OF 1,1–DICHLOROETHYLENE/1,4–DIOXANE/TRICHLOROETHYLENE IN GROUNDWATER (MICROGRAMS PER LITER)
15	EQUAL WATER LEVEL ELEVATION CONTOUR
609	FORMER RAYTHEON BUILDING, DEMOLISHED MID–2000
	CURRENT RESIDENTIAL AND COMMERCIAL BUILDINGS
	DRIVEWAYS, PARKING LOTS AND OTHER HARDSCAPE OF SITE RE–DEVELOPMENT
	APPROXIMATE DIRECTION OF GROUNDWATER FLOW, AUGUST 2022 (COLLECTED ON AUGUST 1, 2022)
*	EXTRACTION WELLS EW–02 AND MW–29 PUMPING DURING WATER LEVEL GAUGING; ESTIMATED WATER LEVEL BASED ON THIEM EQUATION
E	DATA QUALIFIED AS ESTIMATED IN ACCORDANCE WITH QUALITY CONTROL CRITERIA
J	ESTIMATED VALUE; ANALYTE DETECTED AT LESS THAN THE REPORTING LIMIT AND GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT
NS	NOT SAMPLED

APPROXIMATE SATURATED EXTENT OF UNIT B

LOS COYOTES COUNTRY CLUB

MW–41
11.80
0.58/<0.20/<0.50

MW–34B
12.09
71/7.1/0.23J

MW–29*
12.08
220/95E/2.0

EW–02*
11.23
16/4.3E/<0.50

MW–30A
12.53
<0.50/<0.20/<0.50

MW–28
13.53
0.50/<0.20/<0.50

MW–16
14.93
1,600/82/7.5

EW–01
15.36
55E/33/0.11J

MW–27
14.04
NS

MW–26C
13.63
<0.50/<0.20/<0.50

MW–31
13.25
270/16/14

MW–40
14.88
<0.50/<0.20/<0.50

MW–39
9.03
<0.50/<0.20E/<0.50

MW–36
9.46
99/6.2/<0.50

MW–32B
12.01
61/1.8/16

MW–33
10.01
6.3/<0.20/0.46J

MW–35C
10.97
<0.50/<0.20/<0.50

MW–42
8.74
52/2.1E/<0.50

MW–43
8.31
<0.50/<0.20/<0.50

CITY OF FULLERTON WELL NO. 9

OCWD AIRPORT TEST WELL 3S/11W–36A6

0 250 500
FEET
NOTE: NAD83 DATUM

Oct 03, 2022 – 10:25am ESS – T:\2022\500–599\532 Raytheon\Hydogeology\Water Lvl\220–2589.dwg

HARGIS + ASSOCIATES, INC.
Hydrogeology/Engineering

10/22 | RPT NO. 532.31 | 220–2589 | A

FIGURE 3B
WATER LEVEL AND WATER QUALITY UNIT B
AUGUST 2022

MW-41
10.03
0.29 J / < 0.2 / < 0.5

MW-34B
9.95
42 H6, E / 18 / < 0.5 H6, E

MW-29
10.79*
130 / 61 / 2

MW-08
20.64
22 / 0.09 J / 43

MW-28
11.06
0.44 J / < 0.2 / < 0.5

EW-01
12.07
53 / 30 / < 0.5

EW-02
9.88*
11 / < 2 / < 0.5

MW-30A
11.32
< 0.5 / < 0.2 / < 0.5

MW-30B
15.17
16 H6, E / < 0.2 / 62 H6, E

MW-36
10.39
64 H6, E / 0.54 / < 0.5 H6, E

MW-26C
11.9
< 0.5 H3, E / < 0.2 / < 0.5 H3, E

MW-21
20.16
920 H3, E / 590 H3, E / 13

MW-32B
12.92
28 / 0.07 J / 11

MW-31
14.05
99 / 0.41 / 8

MW-40
15.57
< 0.5 / < 0.2 / < 0.5

MW-39
10.6
< 0.5 H6, E / < 0.2 / < 0.5 H6, E

MW-33
11.76
4.4 H6, E / < 0.2 / 0.7 H6, E

MW-43
10.29
< 0.5 / < 0.2 / < 0.5

MW-42
10.85
35 / 0.09 J / < 0.5

MW-35C
13.38
< 0.5 H6, E / < 0.2 / < 0.5 H6, E

MALVERN
BRIDGEPORT
MEADOWBROOK
FRANKLIN HILLS
BURNINGTREE
SUNNYRIDGE
STARBUCK
HUGHES
Brea Creek Flood Control
GILBERT
MOORE
AIRPARK
RAYMER
DALE
ARTESIA

10
11
12
13
14
15

N

0 500 1,000
FEET

Well ID
Water Level Elevation
11DCE / 14-D / TCE

- Groundwater Monitor Well
- Groundwater Extraction Well
- Perched Piezometer
- Water Level Elevation Contour
- Fullerton Airport Well 9
- Flood Control Channel Parcels
- On Property Current Buildings
- City Boundaries
- Former Hughes Aircraft Company Property
- Airport
- Railroads

NOTES:

Greyed-out well IDs completed in Unit BC
Water level measurements and contours are in feet mean sea level (ft msl)
Concentrations are in micrograms per liter

* = Well pumping during gauging event; estimated water level based on Thiem equation
< = Less than; the value is the Limit of Detection for that compound
E = Data qualified as estimated in accordance with quality control criteria
GETS = Groundwater Extraction and Treatment System
H3 = Initial analysis within holding time. Reanalysis past holding time.
H6 = Sample analyzed past hold time due to unexpected instrument failure.
J = Estimated value, analyte detected at less than Reporting Limit
and greater than or equal to Method Detection Limit

FIGURE 3C: WATER LEVEL AND WATER QUALITY UNIT B, NOVEMBER 2022

RESULTS OF GROUNDWATER MONITORING
AND GETS PILOT TESTING
2022/2023 ANNUAL REPORT

FORMER HUGHES AIRCRAFT COMPANY

Engineering Analytics, Inc.

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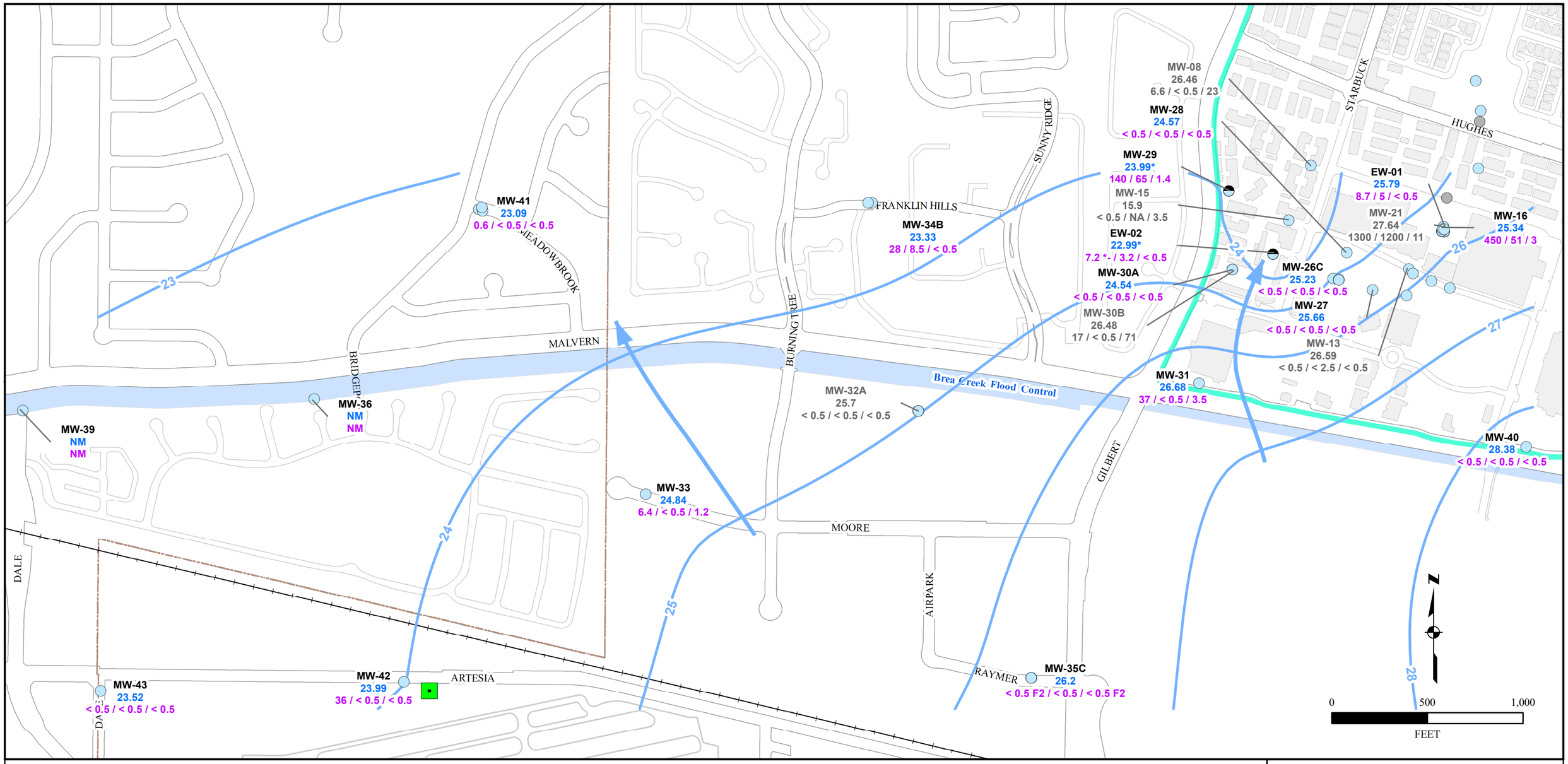

Well ID
Water Level Elevation
11DCE / 14-D / TCE

- Groundwater Monitor Well
- Groundwater Extraction Well
- Perched Piezometer
- Water Level Elevation Contour
- Fullerton Airport Well 9
- Flood Control Channel Parcels
- On Property Current Buildings
- City Boundaries
- Former Hughes Aircraft Company Property
- Airport
- Railroads

NOTES:

Greyed-out well IDs completed in Units AB or BC
Water level measurement contours are in feet mean sea level (ft msl)
Concentrations are in micrograms per liter

* = Well pumping during gauging event; estimated water level based on Thiem equation
*- = Laboratory control sample and/or laboratory control sample duplicate) is outside acceptance limits, low biased
< = Less than; the value is the Limit of Detection for that compound
GET = Groundwater Extraction and Treatment System
F2 = Matrix spike/matrix spike duplicate relative percent difference exceeds control limits
NM = Not Measured; Brea Creek Flood Control Channel not accessible during sampling event

FIGURE 3D: WATER LEVEL AND WATER QUALITY UNIT B, FEBRUARY/MARCH 2023

RESULTS OF GROUNDWATER MONITORING
AND GET PILOT TESTING
2022/2023 ANNUAL REPORT

FORMER HUGHES AIRCRAFT COMPANY

Engineering Analytics, Inc.

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Figure 4: Footbridge Cluster (EW-01/MW-16/21/24/25)
Water Level Hydrographs

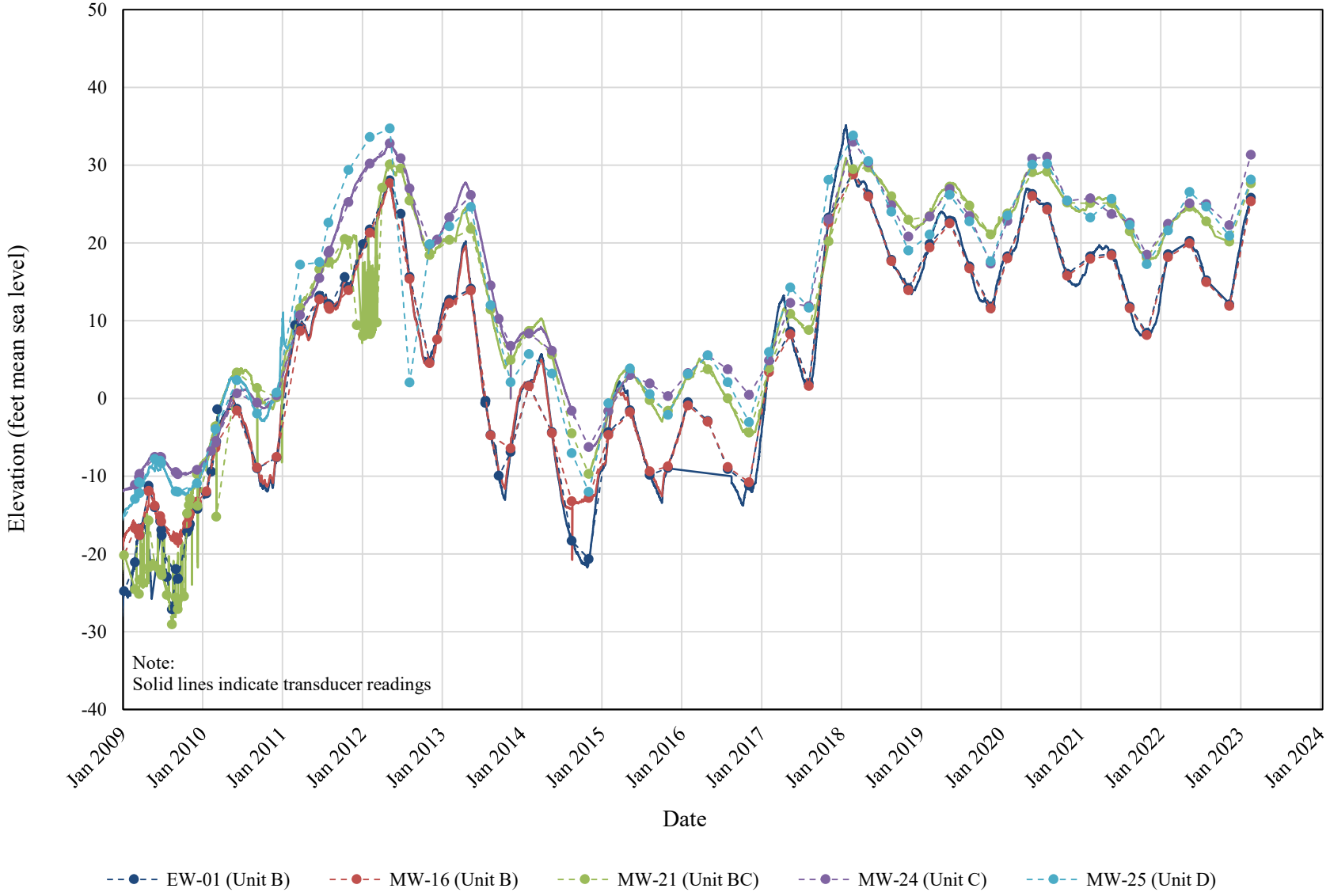


Figure 5: Starbuck Cluster (MW-23/26A/26B/26C)
Water Level Hydrographs

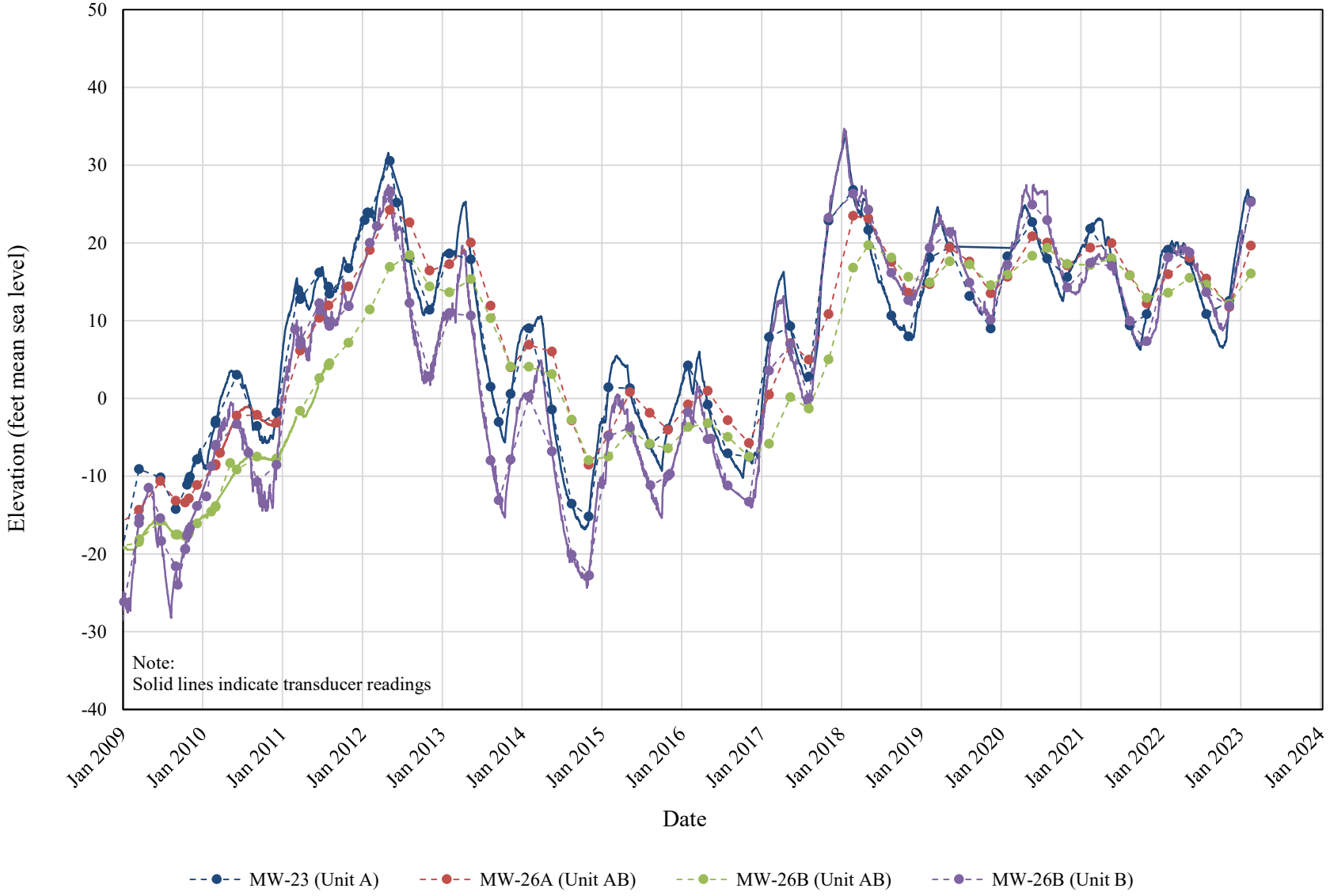


Figure 6: Monitoring Well 32 Cluster (MW-32A/32B/32C)
Water Level Hydrographs

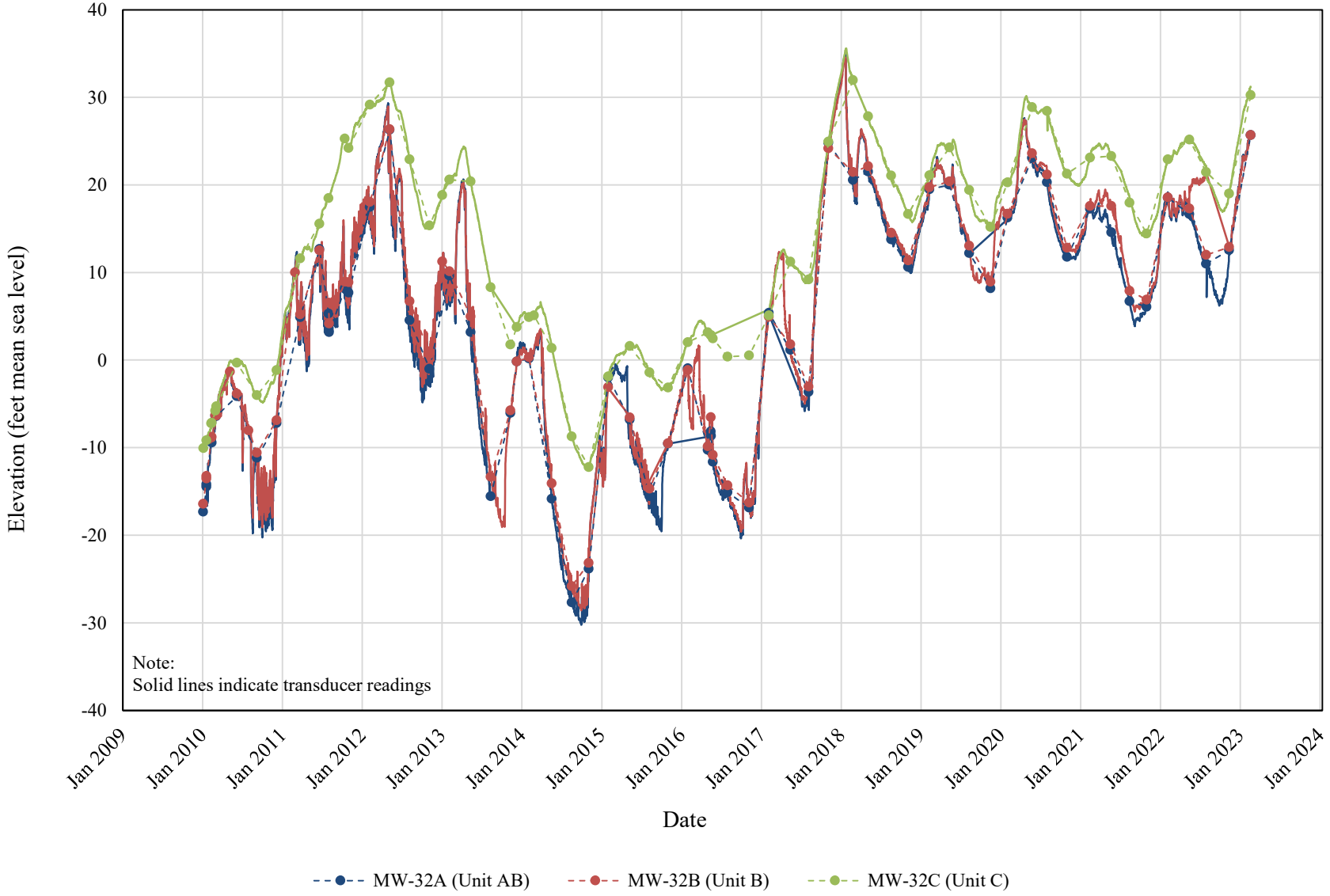


Figure 7: Monitoring Well 30 Cluster (MW-30A/30B)
Water Level Hydrographs

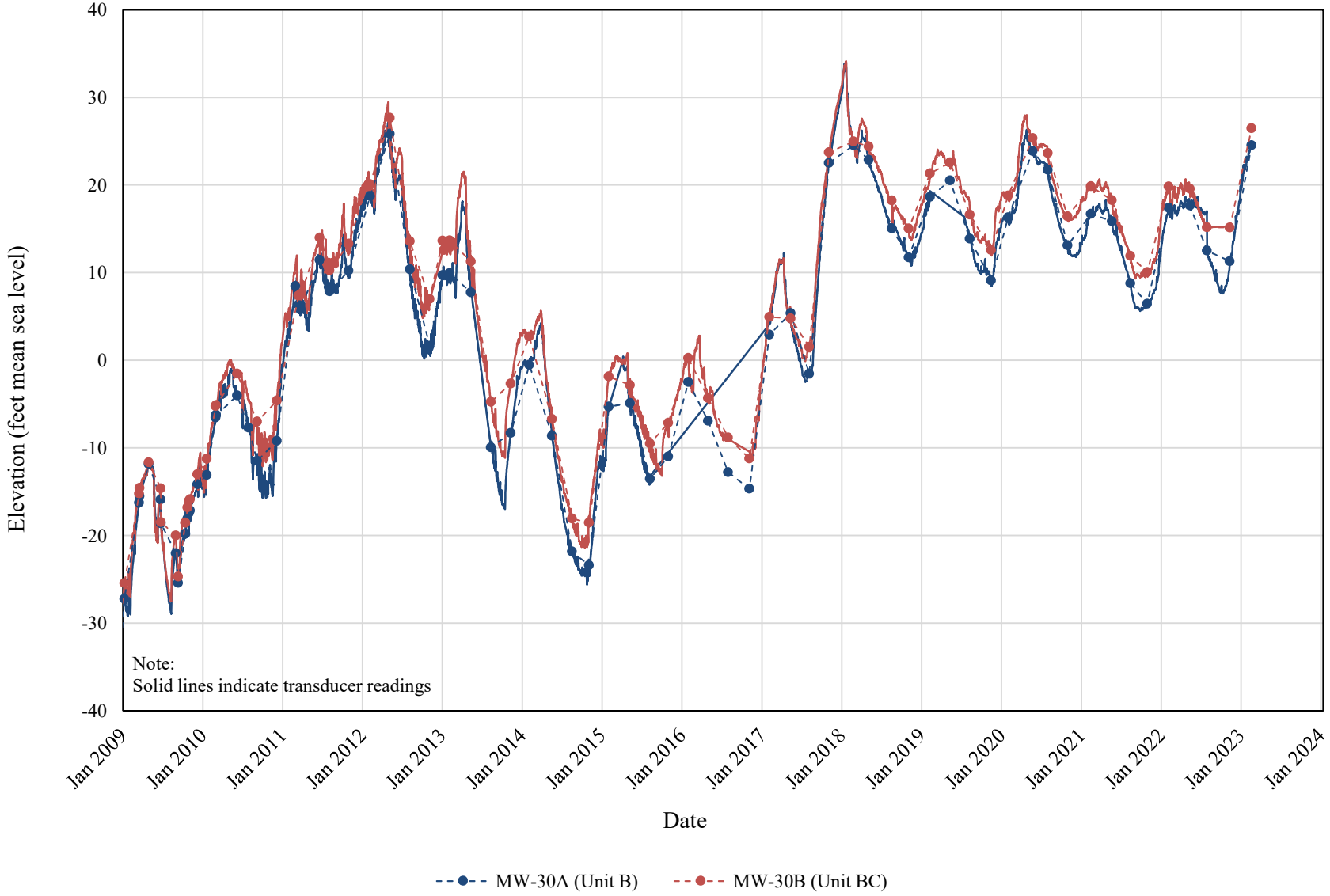


Figure 8: Monitoring Well 34 Cluster (MW-34A/34B/34C)
Water Level Hydrographs

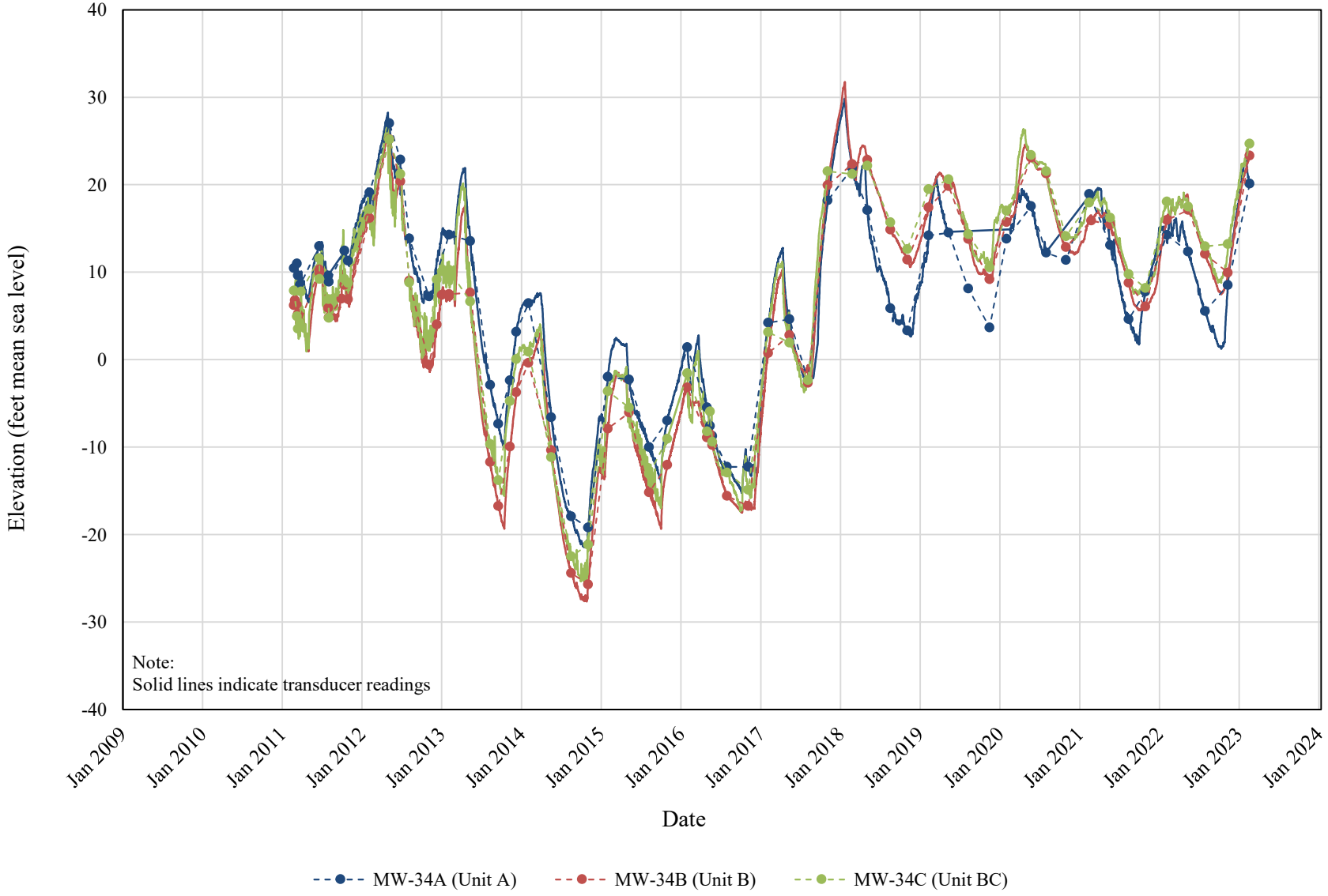
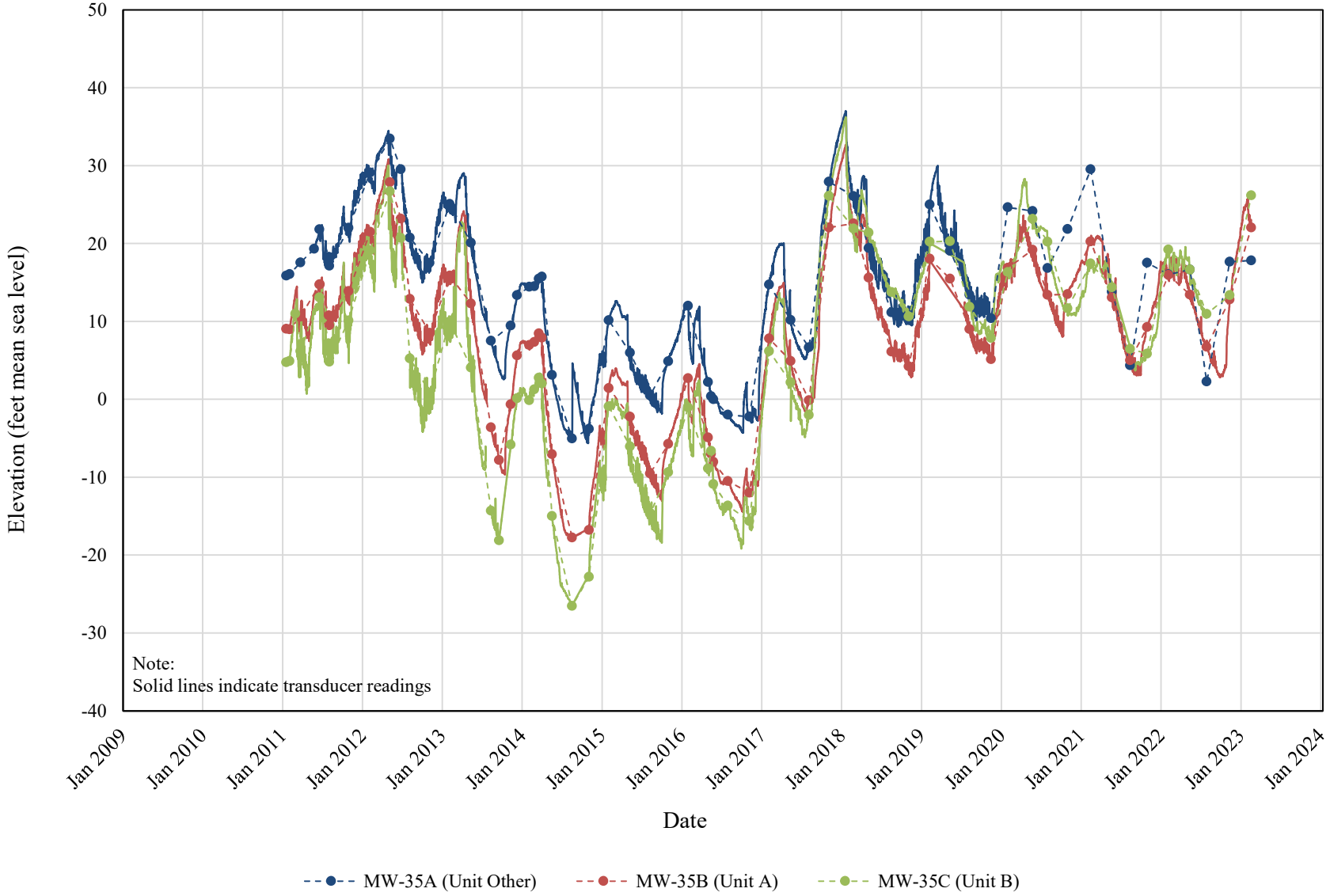
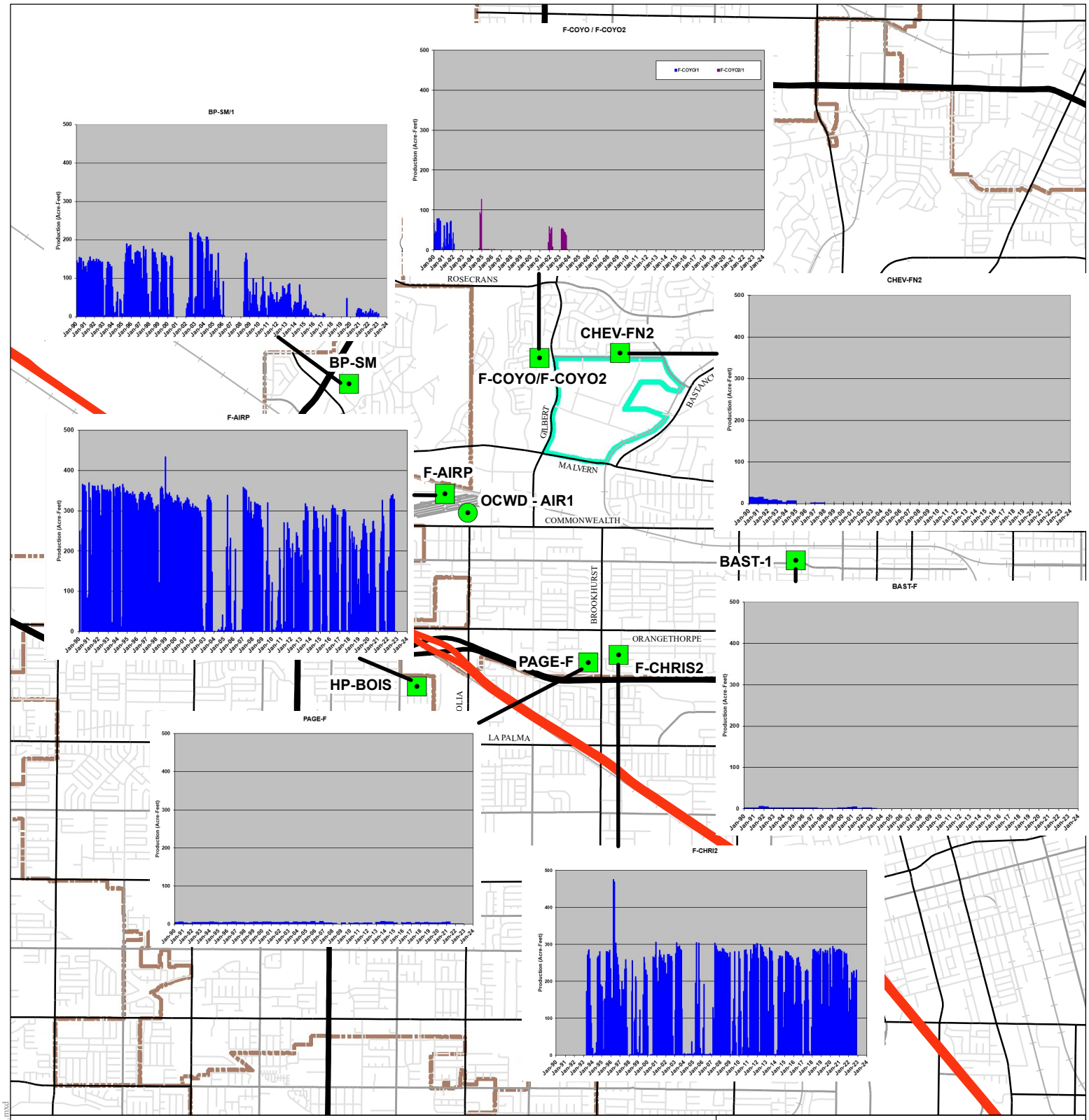


Figure 9: Monitoring Well 35 Cluster (MW-35A/35B/35C)
Water Level Hydrographs





EXPLANATION

- ACTIVE OR RECENTLY ACTIVE WELL
- REGIONAL OBSERVATION
- CITY BOUNDARIES
- FORMER HUGHES AIRCRAFT FACILITY

N

0 4,000 8,000

FEET

FIGURE 10: REGIONAL PRODUCTION WELLS

RESULTS OF GROUNDWATER MONITORING AND GET PILOT TESTING 2022/2023 ANNUAL REPORT

FORMER HUGHES AIRCRAFT COMPANY

Engineering Analytics, Inc.

Figure 11: F-AIRP Well Production and
1,1-Dichloroethene Concentrations

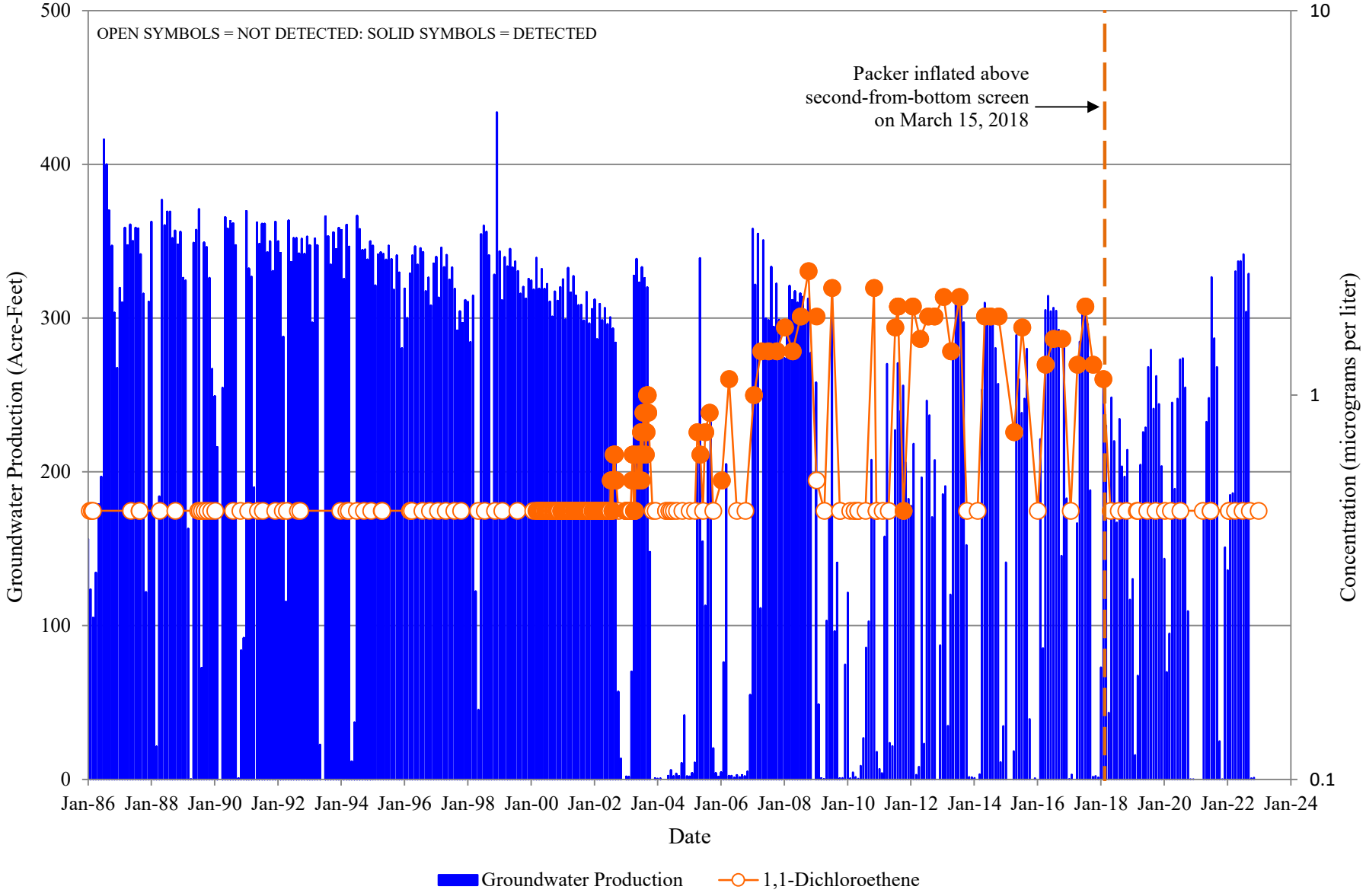


Figure 12: Pilot Groundwater Extraction and Treatment System Operation and Extraction Well Water Levels

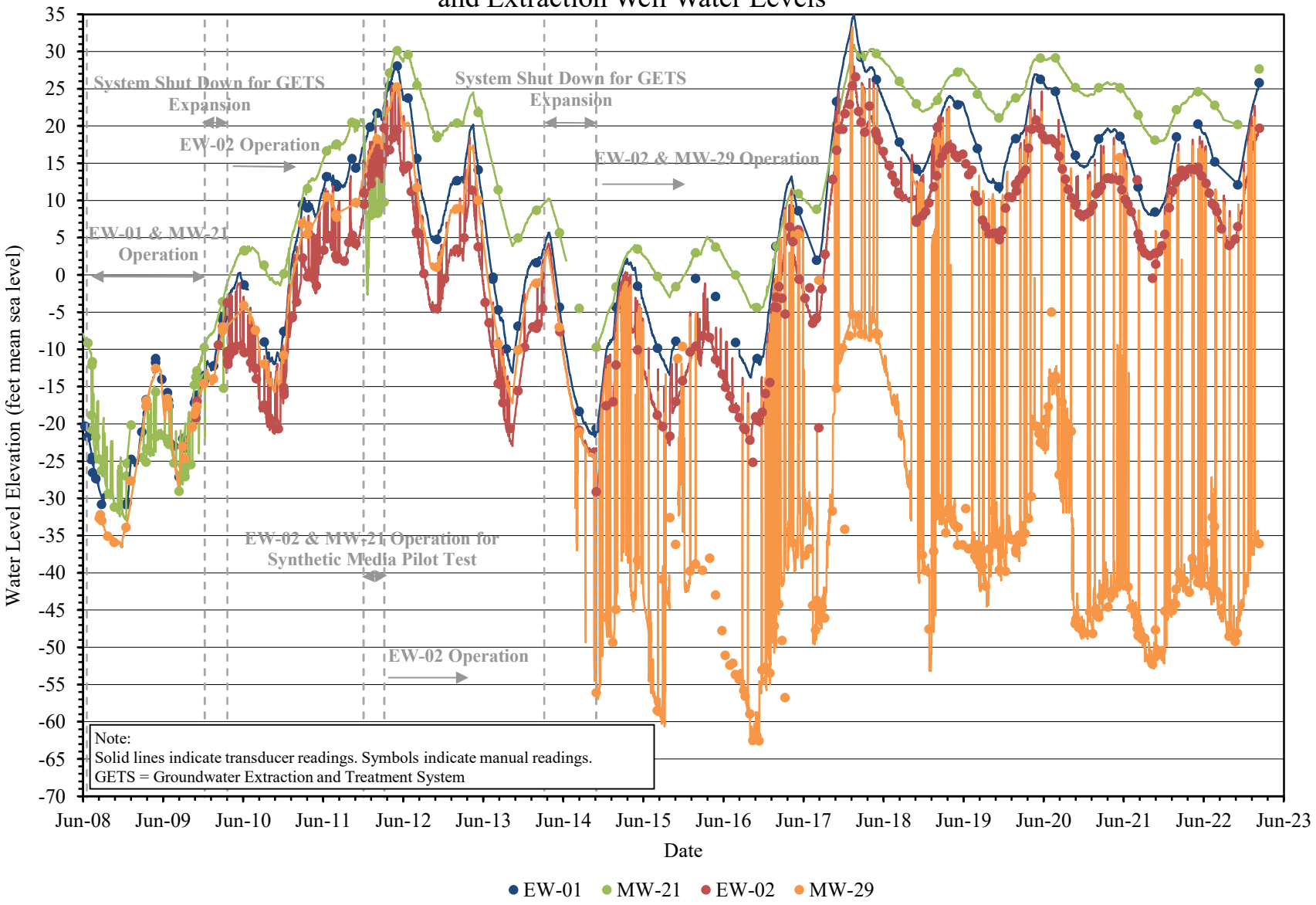


Figure 13: Pilot Groundwater Extraction and Treatment System Mass Removal