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April 1, 2017

Mr. Richard Olm, P.E.
Arizona Department of Environmental Quality
Hazardous Waste Permits Unit
1110 West Washington Street
Phoenix, Arizona 85007

Re: Semi-Annual Monitoring Report for July 2016 – January 2017
Arizona Hazardous Waste Management Act Permit AZD 980 814 479
Universal Propulsion Company, Inc.
Phoenix, Arizona 85085

Dear Mr. Olm:

The Universal Propulsion Company, Inc. (UPCO) is submitting the attached Semi-Annual Monitoring Report for July 2016 – January 2017. The attached semi-annual report was prepared by Arcadis U.S., Inc. (Arcadis) at the direction of UPCO pursuant to Part IV, Section D.2 of the Arizona Hazardous Management Waste Act (AZ HWMA) Permit for the UPCO Facility, ID No. AZD 980 814 479.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Legal language per local requirements

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Please contact me at 704.423.7071 or Michael Nesky at 480.535.7427 if you have any questions or need additional information.

Sincerely,

Bruce C. Amig
Manager, Remedial Programs

cc: Anthony Leverock, ADEQ
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Legal language per local requirements

ARCADIS Design & Consultancy for natural and built assets

UTC Aerospace Systems

United Technologies Corporation

SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 – JANUARY 2017

Former Universal Propulsion Company, Inc. Facility

Phoenix, Arizona

April 1, 2017

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SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 – JANUARY 2017

Former Universal Propulsion Company, Inc. Facility, Phoenix, Arizona

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ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis U.S., Inc.
AWQS	Arizona Aquifer Water Quality Standard
AZ HWMA	Arizona Hazardous Waste Management Act
1,1-DCE	1,1-dichloroethylene or 1,1-dichloroethene
DQO	data quality objective
GWMP	Groundwater Monitoring Work Plan
H+A	Hargis + Associates, Inc.
IDW	investigation-derived waste
LES	Liquid Environmental Solutions
µg/L	micrograms per liter
Order	Consent Order No. P-136-04
QAPP	Quality Assurance Project Plan
QC	quality control
UPCO	Universal Propulsion Company, Inc.
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1 INTRODUCTION

1.1 Report Summary

This Semi-annual Monitoring Report (report) summarizes the monitoring activities conducted in the third quarter of 2016 and the first quarter of 2017 at the former Universal Propulsion Company, Inc. (UPCO) facility located at 25401 North Central Avenue in Phoenix, Arizona (site). This report is part of a continuing overall site groundwater assessment pursuant to Part I of the Arizona Hazardous Waste Management Act (AZ HWMA) permit.

This report is supported by the Quality Assurance Project Plan (QAPP; Hargis + Associates, Inc. [H+A] 2004b), the Updated Groundwater Monitoring Work Plan (GWMP; Arcadis U.S., Inc. [Arcadis] 2016b), and the QAPP Addendum (Arcadis 2012b). This report consists of the following:

- Site description
- Summary of previous groundwater investigations
- Summary of monitoring activities
- List of wells that were sampled, including sample dates and analyses performed
- Data evaluation and verification
- Table of water level measurements including well identification, date and time of measurement, depth to water below measuring point, and groundwater elevation above mean sea level
- Table of analytical data
- Hydrographs for the site wells
- Maps of groundwater elevation data
- Trend graphs of perchlorate concentrations for the site wells
- Investigation-derived waste (IDW) documentation
- Copies of laboratory reports and data verification summaries

1.2 Site Description

The UPCO operations at the site ceased during the fourth quarter of 2009, and demolition was completed in January 2010. The site is located approximately 2 miles north of the Deer Valley Airport in Phoenix, Arizona (Figure 1). Specifically, the facility was located at the intersection of Central Avenue and Happy Valley Road at 25401 North Central Avenue. The site is within the southeast quadrant of Section 5, Township 4 North, Range 3 East of the Gila and Salt River Baseline and Meridian. The UPCO operations were located on approximately 160 acres of land leased from the State of Arizona and consisted of numerous manufacturing and administrative buildings (Figure 2). A chain-link fence surrounds the former manufacturing areas and restricts general access. Locks secure each gate and well vault to limit access and deter vandalism.

2 MONITORING NETWORK

The following types of wells were utilized for the monitoring program in the third quarter of 2016 and the first quarter of 2107:

- UPCO monitoring wells, and an original facility production well
- Private domestic wells

The primary objective of groundwater monitoring is to obtain data to assess groundwater conditions at and near the former UPCO facility. The study area for monitoring included the site, private residences along the northern property boundary, and areas approximately 0.5 mile to the west, south, and east of the property boundary.

2.1 UPCO Wells

The locations of the UPCO monitoring wells are shown on Figure 3. Table 1 includes a summary of the locations and construction details for UPCO monitoring wells, and original facility production well PW-1. Additional information regarding drilling and construction details for the UPCO wells was provided under separate cover in the following reports:

- Phase I Monitoring Well Construction Summary Report (H+A 2004a)
- Phase II Monitoring Well Installation Report (Malcolm Pirnie 2005)
- Phase III Monitoring Well Installation Report (Malcolm Pirnie 2006)
- Final Remedial Investigation Report (Arcadis 2011a)
- Final 2009 Annual Monitoring Report (Malcolm Pirnie 2010)
- Final 2010 Annual Monitoring Report (Arcadis 2011b)
- Final 2011 Annual Monitoring Report (Arcadis 2012a)
- Final 2012 Annual Monitoring Report (Arcadis 2013a)
- Final 2013 Annual Monitoring Report (Arcadis 2014)
- Final 2014 Annual Monitoring Report (Arcadis 2015)
- Final 2015 Annual Monitoring Report (Arcadis 2016a)
- Semi-Annual Monitoring Report for January – July 2016 (Arcadis 2016d)

2.2 Private Domestic Wells

In 2004, UPCO began collecting groundwater samples from private wells located along Yearling Road in accordance with Consent Order (Order) No. P-136-04. The Order specified that UPCO collect semi-annual groundwater samples from private wells located along Yearling Road north of the site for perchlorate analysis for a period of two years. UPCO voluntarily extended the semi-annual private well sampling program beyond the first two years, collecting groundwater samples from various private wells according to owner requests and authorization. That Order was terminated and replaced with conditions in the AZ HWMA permit; AZ HWMA Permit Condition

III.C.1 requires semi-annual private well sampling. Table 2 summarizes available locations and construction details for private wells currently included in the monitoring program. The locations of the private wells are shown on Figure 3.

3 MONITORING ACTIVITIES

3.1 Historical Groundwater Investigation Activities

Previous groundwater investigation activities from 2004 through 2016 are summarized below. Additional information regarding previous activities was provided under separate cover in the following reports:

- Final Remedial Investigation Report (Arcadis 2011a)
- Final 2010 Annual Monitoring Report (Arcadis 2011b)
- Final 2011 Annual Monitoring Report (Arcadis 2012a)
- Final 2012 Annual Monitoring Report (Arcadis 2013a)
- Final 2013 Annual Monitoring Report (Arcadis 2014)
- Final 2014 Annual Monitoring Report (Arcadis 2015)
- Final 2015 Annual Monitoring Report (Arcadis 2016a)
- Semi-Annual Monitoring Report for January – July 2016 (Arcadis 2016d)

3.1.1 Monitoring Wells

AZ HWMA Permit Condition Part IV.C.9 specifies a groundwater cleanup goal of 14 micrograms per liter (µg/L) for perchlorate. The laboratory reporting limit for perchlorate using United States Environmental Protection Agency (USEPA) Method 314.0 increased from 2.0 µg/L to 3.0 µg/L in 2013 due to a change in laboratory.

Only monitoring wells MW-1, MW-2, MW-5, MW-6, MW-13, MW-19, and MW-20 have had historical perchlorate concentrations greater than the groundwater cleanup goal of 14 µg/L (Appendix A).

3.1.2 Facility Monitoring Locations

The UPCO facility production well (PW-1) and former point of entry to the potable water system were sampled periodically as part of Maricopa County requirements for water service providers from 2004 through 2009. Sampling at PW-1 resumed in the first quarter of 2011. Perchlorate concentrations at PW-1 have never exceeded the groundwater cleanup goal of 14 µg/L (Appendix A).

3.1.3 Private Domestic Wells

Between 2004 and first quarter 2017, perchlorate was detected by USEPA Method 332.0 in samples collected from the private domestic wells at concentrations up to 3.1 µg/L (Arcadis 2016c). Since 2008, only low levels of Constituents of Concern have been detected in each well-screened interval (Arcadis 2016c).

3.2 First Quarter 2017 Groundwater Monitoring

3.2.1 Water Level Measurements

In accordance with the Updated GWMP (Arcadis 2016b), groundwater elevation measurements were collected on a quarterly basis from July 2016 to January 2017. Depth to water was measured to the nearest 0.01 foot with

respect to a surveyed measurement point at the top of each well using a decontaminated electronic sounding device. Water level data collected in the third quarter 2016 and first quarter 2017 are presented in Table 3.

3.2.2 UPCO Well Sampling

Sampling activities occurred during the first quarter of 2017. Project-specific sampling procedures outlined in the Updated GWMP (Arcadis 2016b) and industry standard methods were used. Groundwater samples were collected from the UPCO groundwater monitoring wells outlined in the Updated GWMP (Arcadis 2016b). However, during the first quarter of 2017, wells MW-5 and EW-1 were being utilized as part of a pilot test for groundwater extraction, ex-situ treatment with an anaerobic bioreactor, and reinjection of treated groundwater as outlined in the Corrective Measures Implementation Work Plan (Arcadis 2016c). Therefore, wells MW-5 and EW-1 were not sampled during the first quarter 2017 sampling event. A list of UPCO wells sampled in the first quarter 2017, including dates and analyses performed, is provided in Table 4.

3.2.3 Private Well Sampling

Private wells incorporated into the groundwater monitoring program were sampled using existing dedicated submersible pumps. The groundwater samples were analyzed for perchlorate by USEPA Method 332.0 during the first quarter 2017 sampling event as outlined in the Updated GMWP (Arcadis 2016b). Groundwater samples were collected contingent upon availability. Sampling of private wells depends on property access from the property owners and the presence of water in the wells; several private wells pump dry. In the first quarter of 2017, the owners of the private well located at 25903 North 2nd Street declined property access to the well. Therefore, this well was not sampled during the first quarter 2017 sampling event. A list of private wells sampled, including dates and analyses performed, is included in Table 5.

3.3 Investigation-Derived Waste

Groundwater monitoring activities in the first quarter of 2017 generated purge water that was managed as IDW. Purge water was temporarily stored on site in polyethylene tanks and polyethylene totes. IDW was transported off site by MP Environmental for disposal at Liquid Environmental Solutions (LES) or Stericycle in Phoenix, Arizona. Purge water with perchlorate concentrations less than 100 µg/L was transported to LES, and purge water with perchlorate concentrations greater than 100 µg/L (i.e., purge water from wells MW-19, MW-20, and IW-1) was transported to Stericycle for final transport to/disposal at US Ecology in Beatty, Nevada. Documentation for the handling of IDW during first quarter 2017 is provided in Appendix B.

4 DATA EVALUATION

4.1 Groundwater Level Measurements

Groundwater elevations have been monitored at and near the UPCO facility to evaluate potential gradients. These measurements have been collected on a regular basis at UPCO site-wide wells and private wells located near the northern property boundary at 218 East Yearling Road and 520 East Yearling Road using electronic water level equipment. Well locations are shown on Figure 3.

Historical depth to groundwater measurements and groundwater elevations for site wells are summarized in Appendix C. Historical hydrographs are presented in Appendix D. Groundwater elevation maps are provided on Figure 4 and Figure 5.

Based on analyses of site geology and available hydrogeologic information, groundwater underlying the site occurs within two distinct zones, separated by one or possibly several associated subsurface geologic structures (Arcadis 2011a). Wells completed in bedrock at the site exhibit groundwater elevations approximately 30 feet lower than wells completed in the consolidated sedimentary unit on the west side of the site (Figure 4 and Figure 5). The difference in groundwater elevation and depth to bedrock between the two zones is potentially an additional line of evidence for faulting along the western side of the site (Arcadis 2011a).

Overall, groundwater elevations across the site are relatively stable. The groundwater gradient on site in the areas of the former complexes is very flat and represents a groundwater divide between localized northward flow at the north end of the site and the regional southward flow in this area of the basin (Figure 4 and Figure 5).

4.2 Groundwater Quality Data

This section discusses the results of groundwater quality monitoring performed in the first quarter of 2017. The 2017 first quarter water quality analytical data for the UPCO wells are summarized in Appendix E. Perchlorate results are provided in Table 6 for the UPCO wells and in Table 7 for the private wells. Perchlorate concentration trend plots and historical data for the UPCO wells are presented in Appendix A. Field parameter data collected during the first quarter 2017 sampling event are provided in Appendix F. Figure 6 presents a perchlorate concentration map for the first quarter of 2017.

4.2.1 Perchlorate

Concentrations of perchlorate measured during the first quarter of 2017 were consistent with results collected in previous years, and concentrations of perchlorate in site monitoring wells are generally stable or decreasing (Appendix A). During the first quarter 2017 monitoring event, perchlorate was detected in monitoring wells MW-1, MW-2, MW-13, MW-19, MW-20, EW-2, IW-1, and IW-3 at concentrations exceeding the groundwater cleanup goal of 14 µg/L. During the first quarter 2017 monitoring period, all perchlorate concentrations measured in samples collected from private wells were less than the groundwater cleanup goal of 14 µg/L.

Concentrations of perchlorate exceeding the groundwater cleanup goal of 14 µg/L were measured most recently within the area estimated to be approximately 300 feet wide and approximately 2,200 feet long, which extends from the vicinity of well IW-1 along the central-eastern property boundary to the vicinity of well MW-1 at the southern property boundary (Figure 6). The highest concentrations of perchlorate in groundwater were measured in wells located within the former C-Complex and former D-Complex, particularly within the former Waterbore Area.

Concentrations of perchlorate in groundwater measured in wells outside of these areas were lower than the groundwater cleanup goal of 14 µg/L. Concentrations are well-defined near the northern property boundary and were less than the laboratory reporting limit of 3.0 µg/L during the first quarter of 2017. The plume is stable, with perchlorate concentrations in the majority of wells either stable or decreasing (Appendix A).

4.2.2 Total Metals

Total arsenic, a Resource Conservation and Recovery Act listed metal, has historically been detected in UPCO monitoring well MW-18 (Arcadis 2016b). Results for the first quarter 2017 sampling event are presented in Appendix E. The total arsenic concentration in well MW-18 was 49.6 µg/L in the first quarter of 2017, which is less than the Arizona Aquifer Water Quality Standard (AWQS) of 50 µg/L.

4.2.3 Volatile Organic Compounds and 1,4-Dioxane

Volatile Organic Compounds (VOCs), including 1,1-dichloroethylene (1,1-DCE), were detected at low levels during groundwater sampling activities in the first quarter of 2017 (Appendix E). Concentrations of VOCs were less than the applicable AWQS.

1,4-Dioxane was detected at low levels in samples collected from wells MW-2, MW-20, and PW-1, at concentrations up to 10.1 µg/L (Appendix E). An AWQS has not been established for 1,4-dioxane.

5 QUALITY ASSURANCE AND DATA VERIFICATION

Analytical data provided by the laboratories were subjected to data review for quality control/quality assurance. A summary of the data verification is presented in Appendix G and Appendix H. Copies of the analytical data reports are provided in Appendix I.

Groundwater monitoring activities followed the quality assurance procedures outlined in the QAPP (H+A 2004b) and QAPP Addendum (Arcadis 2012b). The project-specific QAPP establishes procedures and guidance for the following:

- Data quality objectives (DQOs)
- Sample documentation and custody
- Sample container requirements
- Quality control (QC) procedures
- Quality assurance management including data management and data verification/validation procedures

Samples were collected and submitted to the laboratory in a manner that provided data representative of site conditions. Laboratory analyses were conducted according to analytical methods described in USEPA guidance manuals. Field QC samples included field duplicates, field blanks, and trip blanks. Laboratory QC samples included method blanks, laboratory control samples, and matrix spike/matrix spike duplicate samples.

Laboratory deliverables consist of Level II data packages (including a QC summary). Data reported by the laboratory have been verified to meet the DQOs. The results were considered usable for the intended purposes, and the project DQOs specified in the QAPP (H+A 2004b) and the QAPP Addendum (Arcadis 2012b) were met.

6 MONITORING WELL AND FENCE INSPECTION

During the fourth quarter of 2016, in response to the Hazardous Waste Field Inspection performed on October 20, 2016, repairs to the property fence were completed along with the installation of new security signs. A monitoring well and fence inspection was completed in the first quarter of 2017 (Appendix J).

7 REFERENCES

Arcadis. 2011a. Final Remedial Investigation Report, Universal Propulsion Company, Inc. June.

Arcadis. 2011b. Final 2010 Annual Monitoring Report, Universal Propulsion Company, Inc. July 14.

Arcadis. 2012a. Final 2011 Annual Monitoring Report, Universal Propulsion Company, Inc. February 27.

Arcadis. 2012b. Quality Assurance Project Plan Addendum, Universal Propulsion Company, Inc. July.

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Arcadis. 2014. Final 2013 Annual Monitoring Report, Universal Propulsion Company, Inc. February 21.

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Arcadis. 2016a. Final 2015 Annual Monitoring Report, Universal Propulsion Company, Inc. March 1.

Arcadis. 2016b. Updated Groundwater Monitoring Work Plan, Universal Propulsion Company, Inc. March.

Arcadis. 2016c. Corrective Measures Implementation Work Plan, Universal Propulsion Company, Inc. May 2.

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H+A. 2004a. Phase I Monitoring Well Construction Summary Report, Goodrich Universal Propulsion Company, Inc. July 16.

H+A. 2004b. Quality Assurance Project Plan, Goodrich Universal Propulsion Company, Inc. July 16.

Malcolm Pirnie. 2005. Phase II Monitoring Well Installation Report, Universal Propulsion Company, Inc. January 7.

Malcolm Pirnie. 2006. Phase III Monitoring Well Installation Report, Universal Propulsion Company, Inc. April.

Malcolm Pirnie. 2010. Final 2009 Annual Monitoring Report, Universal Propulsion Company, Inc. December 21.

TABLES

Table 1
UPCO Well Information
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Well ID	Easting	Northing	ADWR Number	Total Casing Depth (feet bgs)	Screened Interval (feet bgs)	Measuring Point Elevation (feet amsl)
MW-1	653227.14	987065.13	55-201495	240	190-240	1560.43
MW-2	653289.68	987649.25	55-201494	250	200-250	1571.22
MW-3	652625.62	988671.09	55-204197	271	221-271	1583.59
MW-4	654284.93	988971.85	55-204196	300	245-295	1620.34
MW-5	653971.17	988127.33	55-204195	285	230-280	1594.08
MW-6	652259.53	987361.63	55-204194	210	155-205	1551.65
MW-7	652125.72	986534.14	55-205001	210	155-205	1541.35
MW-8	653422.61	986160.23	55-205002	235	180-230	1542.18
MW-9	654356.82	986138.65	55-901548	255	200-250	1565.60
MW-10	651342.65	987055.87	55-901549	205	150-200	1536.11
MW-11	654182.70	987795.50	55-903736	315	260-310	1606.14
MW-12	653210.97	987117.21	55-903737	480	450-480	1560.91
MW-13	654137.59	988274.92	55-217221	490.5	440-490	1599.52
MW-14	653239.01	989362.53	55-217222	500	445-495	1602.48
MW-15	653225.43	989314.03	55-217223	325	270-320	1600.48
MW-16	652624.02	988727.69	55-913047	500	445-495	1585.36
MW-17	652108.14	987746.04	55-913046	260	205-255	1560.72
MW-18	652551.52	986026.10	55-911047	230	175-225	1533.53
MW-19	654123.16	988257.79	55-913045	305	250-300	1599.51
MW-20	653603.36	987861.04	55-914005	290	235-285	1580.87
MW-21	653452.17	987298.28	55-914006	270	215-265	1565.28
MW-22	653986.82	988397.29	55-222509	280	210-280	1598.46
PW-1	652363.12	987457.36	55-500290	500	420-480	1554.46
EW-1	654072.86	988197.93	55-222510	300	250-300	1594.88
EW-2	653202.70	987087.51	55-222511	305	210-305	1560.92
IW-1	654207.54	988310.57	55-222512	335	250-335	1595.52
IW-2	653918.36	988425.16	55-222513	285	210-285	1593.68
IW-3	653358.52	987678.13	55-222514	255	180-255	1568.96
RW-1	654327.57	988477.20	55-223676	340	265-340	1605.41
RW-2	654020.89	988671.20	55-223677	332	252-332	1605.31

Notes and Abbreviations:
Coordinates are expressed in North American Datum 83 State Plane Arizona Central (international feet).
ADWR = Arizona Department of Water Resources
amsl = above mean sea level
bgs = below ground surface

Table 2
Private Well Information
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Address	ADWR Well Registration ID	Well Use	Date Installed	Well Depth (feet)	Measuring Point Elevation (feet amsl)
104 E. Yearling	55-537512	Domestic	12/15/1992	200	NA
106 W. Yearling	55-583418	Domestic	NA	NA	NA
122 W. Yearling	NA	Domestic	NA	NA	NA
16 E. Yearling	55-578534	Domestic	1/26/2000	738	NA
18 E. Yearling	55-212662	Domestic	5/14/2007	520	1596.79
204 E. Yearling	55-550038	Domestic	8/17/1995	415	NA
218 E. Yearling	55-207497[a]	Domestic	2/28/2006	415	1617.01
25825 N. 1st Place	55-557685	Domestic	7/22/1996	495	NA
25903 N. 2nd Street	NA	Domestic	NA	NA	NA
308 E. Yearling	NA	Domestic	NA	NA	NA
412 E. Yearling	NA	Domestic	NA	NA	NA
424 E. Yearling	NA	Domestic	NA	NA	NA
520 E. Yearling	NA	Domestic	NA	NA	1635.71
604 E. Yearling	55-568440	Domestic	NA	NA	NA
8 W. Yearling	55-205738	Domestic	12/2/2005	260	NA

Notes and Abbreviations:
[a] = Replacement well installed in 2006.
ADWR = Arizona Department of Water Resources
amsl = above mean sea level
NA = Not available or corresponding ADWR registry number could not be identified with the current owner or address.

Table 3
Water Levels - UPCO Wells
Semi-Annual Monitoring Report for October 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Well ID	Date	Time	Depth to Water (feet)	Measuring Point Elevation (feet)	Groundwater Elevation (feet amsl)
MW-1	10/26/2016	17:21	213.14	1560.43	1347.29
	1/5/2017	17:47	212.93	1560.43	1347.50
MW-2	10/26/2016	18:38	223.95	1571.22	1347.27
	1/5/2017	17:54	224.13	1571.22	1347.09
MW-3	10/26/2016	14:40	248.46	1583.59	1335.13
	1/5/2017	14:28	248.85	1583.59	1334.74
MW-4	10/26/2016	16:15	280.27	1620.34	1340.07
	1/5/2017	16:10	280.27	1620.34	1340.07
MW-5	10/26/2016	18:18	246.64	1594.08	1347.44
	1/5/2017	-	246.80	1594.08	1347.28
MW-6	10/26/2016	17:42	170.58	1551.65	1381.07
	1/5/2017	17:10	171.60	1551.65	1380.05
MW-7	10/26/2016	15:15	158.65	1541.35	1382.70
	1/5/2017	15:05	158.56	1541.35	1382.79
MW-8	10/26/2016	15:34	194.93	1542.18	1347.25
	1/5/2017	15:26	195.03	1542.18	1347.15
MW-9	10/26/2016	15:44	218.04	1565.60	1347.56
	1/5/2017	15:35	218.18	1565.60	1347.42
MW-10	10/26/2016	15:07	150.18	1536.11	1385.93
	1/5/2017	14:55	149.98	1536.11	1386.13
MW-11	10/26/2016	17:55	258.99	1606.14	1347.15
	1/5/2017	17:18	259.19	1606.14	1346.95
MW-12	10/26/2016	16:59	214.79	1560.91	1346.12
	1/5/2017	16:55	213.82	1560.91	1347.09
MW-13	10/26/2016	19:05	252.35	1599.52	1347.17
	1/5/2017	18:03	252.48	1599.52	1347.04
MW-14	10/26/2016	14:10	277.95	1602.48	1324.53
	1/5/2017	14:10	277.95	1602.48	1324.53
MW-15	10/26/2016	14:18	275.94	1600.48	1324.54
	1/5/2017	14:16	276.35	1600.48	1324.13
MW-16	10/26/2016	14:33	264.87	1585.36	1320.49
	1/5/2017	14:35	265.44	1585.36	1319.92
MW-17	10/26/2016	14:55	211.85	1560.72	1348.87
	1/5/2017	14:46	211.93	1560.72	1348.79
MW-18	10/26/2016	15:25	131.80	1533.53	1401.73
	1/5/2017	15:18	131.84	1533.53	1401.69
MW-19	10/26/2016	19:13	252.35	1599.51	1347.16
	1/5/2017	18:20	252.49	1599.51	1347.02

Table 3
Water Levels - UPCO Wells
Semi-Annual Monitoring Report for October 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Well ID	Date	Time	Depth to Water (feet)	Measuring Point Elevation (feet)	Groundwater Elevation (feet amsl)
MW-20	10/26/2016	18:45	233.72	1580.87	1347.15
	1/5/2017	18:11	233.84	1580.87	1347.03
MW-21	10/26/2016	17:30	218.02	1565.28	1347.26
	1/5/2017	17:24	218.18	1565.28	1347.10
MW-22	10/26/2016	16:37	250.56	1598.46	1347.90
	1/5/2017	16:32	250.65	1598.46	1347.81
EW-1	10/26/2016	18:54	247.52	1594.88	1347.36
	1/5/2017	-	247.60	1594.88	1347.28
EW-2	10/26/2016	17:13	213.59	1560.92	1347.33
	1/5/2017	17:02	213.21	1560.92	1347.71
PW-1	10/26/2016	18:08	213.31	1554.46	1341.15
	1/5/2017	17:33	213.88	1554.46	1340.58
IW-1	10/26/2016	19:25	248.45	1595.52	1347.07
	1/5/2017	18:30	248.57	1595.52	1346.95
IW-2	10/26/2016	16:48	245.82	1593.68	1347.86
	1/5/2017	16:40	245.89	1593.68	1347.79
IW-3	10/26/2016	18:30	221.75	1568.96	1347.21
	1/5/2017	17:40	222.00	1568.96	1346.96
RW-1	10/26/2016	16:25	258.83	1605.41	1346.58
	1/5/2017	16:22	258.88	1605.41	1346.53
RW-2	10/26/2016	16:03	263.20	1605.31	1342.11
	1/5/2017	16:00	263.28	1605.31	1342.03

Notes and Abbreviations:
amsl = above mean sea level
- = data not available

Table 4
Monitoring Wells Sampled and Analyses Performed - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Date	Laboratory ID	Metals	Perchlorate		Organic Compounds		General Chemistry
			USEPA 200.8	USEPA 314.0	USEPA 332.0	USEPA 8260B	USEPA 8260B-SIM	SM18 2510B
MW-1	1/23/2017	FA40700-9		X				X
MW-2	1/23/2017	FA40700-10		X			X	X
MW-3	1/13/2017	440-174781-10			X			
MW-4	1/19/2017	440-174781-16			X			
MW-6	1/19/2017	FA40700-5		X				X
MW-7	1/17/2017	440-174781-11			X			
MW-8	1/13/2017	440-174781-8			X			
MW-9	1/17/2017	440-174781-12			X			
MW-10	1/13/2017	440-174781-9			X			
MW-11	1/18/2017	440-174781-13			X			
MW-12	1/11/2017	440-174781-1			X			

Table 4
Monitoring Wells Sampled and Analyses Performed - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Date	Laboratory ID	Metals	Perchlorate		Organic Compounds		General Chemistry
			USEPA 200.8	USEPA 314.0	USEPA 332.0	USEPA 8260B	USEPA 8260B-SIM	SM18 2510B
MW-13	1/19/2017	FA40700-7		X				X
MW-14	1/11/2017	440-174781-5			X			
MW-15	1/11/2017	440-174781-4			X			
MW-16	1/13/2017	440-174781-6			X			
MW-17	1/11/2017	440-174781-3			X			
MW-18	1/13/2017	FA40700-1 440-174781-7	X		X			
MW-19	1/24/2017	FA40700-13		X				X
MW-20	1/24/2017	FA40700-12		X			X	X
MW-21	1/18/2017	FA40700-4		X				X
MW-22	1/18/2017	440-174781-14			X			
EW-2	1/23/2017	FA40700-8		X			X	X
IW-1	1/24/2017	FA40700-14		X				X
IW-2	1/21/2017	440-174781-18			X			

Table 4
Monitoring Wells Sampled and Analyses Performed - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Date	Laboratory ID	Metals	Perchlorate		Organic Compounds		General Chemistry
			USEPA 200.8	USEPA 314.0	USEPA 332.0	USEPA 8260B	USEPA 8260B-SIM	SM18 2510B
IW-3	1/23/2017	FA40700-11		X				X
PW-1	1/18/2017	FA40700-2		X		X	X	X
RW-1	1/21/2017	440-174781-19			X			
RW-2	1/20/2017	440-174781-17			X			

Notes and Abbreviations:

USEPA test method 200.8 used for arsenic analyses.

USEPA test methods 314.0 and 332.0 used for perchlorate analyses.

USEPA test method 8260B used for volatile organic compound analyses.

USEPA test method 8260B-SIM used for 1,4-dioxane analyses.

Standard Method 2510B used for specific conductivity analyses.

USEPA = United States Environmental Protection Agency.

Table 5
Wells Sampled and Analyses Performed - Private Wells
Semi-Annual Monitoring Report July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Date Collected	Laboratory ID	USEPA Method
			332.0
104 E. Yearling	2/8/2017	440-177268-1	X
106 W. Yearling	2/8/2017	440-177271-1	X
122 W. Yearling	2/8/2017	440-177270-1	X
16 E. Yearling	2/8/2017	440-177263-1	X
18 E. Yearling	2/8/2017	440-177266-1	X
204 E. Yearling	2/8/2017	440-177282-1	X
218 E. Yearling	2/8/2017	440-177283-1	X
25825 N. 1st Place	2/8/2017	440-177286-1	X
308 E. Yearling	2/8/2017	440-177284-1	X
412 E. Yearling	2/8/2017	440-177285-1	X
424 E. Yearling	2/8/2017	440-177289-1	X
520 E. Yearling	2/8/2017	440-177288-1	X
604 E. Yearling	2/8/2017	440-177287-1	X
8 W. Yearling	2/8/2017	440-177264-1	X

Notes and Abbreviations:
USEPA = United States Environmental Protection Agency
USEPA test method is 332.0 used for perchlorate analyses.

Table 6
Perchlorate Results - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Date	Perchlorate (µg/L)	
		USEPA 314.0	USEPA 332.0
MW-1	1/23/2017	**65.4**	NA
MW-2	1/23/2017	**74.4**	NA
MW-3	1/13/2017	NA	0.38
MW-4	1/19/2017	NA	<1.0
MW-6	1/19/2017	3.7	NA
MW-7	1/17/2017	NA	0.50
MW-8	1/13/2017	NA	0.85
MW-9	1/17/2017	NA	0.67
MW-10	1/13/2017	NA	0.98
MW-11	1/18/2017	NA	3.6
MW-12	1/11/2017	NA	0.66
MW-13	1/19/2017	**575**	NA
MW-14	1/11/2017	NA	0.89
MW-15	1/11/2017	NA	0.63
MW-16	1/13/2017	NA	0.50
MW-17	1/11/2017	NA	0.36
MW-18	1/13/2017	NA	0.58
MW-19	1/24/2017	**11,100**	NA
MW-20	1/24/2017	**223**	NA
MW-21	1/18/2017	4.7	NA
MW-22	1/18/2017	NA	0.55
EW-2	1/23/2017	**49.3**	NA
IW-1	1/24/2017	**71,300**	NA
IW-2	1/21/2017	NA	0.12
IW-3	1/23/2017	**44.8**	NA
PW-1	1/18/2017	5.9	NA
RW-1	1/21/2017	NA	9.9
RW-2	1/20/2017	NA	0.15

Notes and Abbreviations:
Bold result indicates concentration exceeds Health Based Guidance Level.
Health Based Guidance Level for perchlorate is 14 µg/L.
< = Analyte not detected above the listed laboratory reporting limit.
µg/L = micrograms per liter
USEPA = United States Environmental Protection Agency
NA = not analyzed

Table 7
Perchlorate Results - Private Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Date	Perchlorate (µg/L)
		USEPA 332.0
104 E. Yearling	2/8/2017	0.59
106 W. Yearling	2/8/2017	0.49
122 W. Yearling	2/8/2017	0.48
16 E. Yearling	2/8/2017	0.46
18 E. Yearling	2/8/2017	0.52
204 E. Yearling	2/8/2017	0.51
218 E. Yearling	2/8/2017	0.56
25825 N. 1st Place	2/8/2017	0.53
308 E. Yearling	2/8/2017	0.67
412 E. Yearling	2/8/2017	1.1
424 E. Yearling	2/8/2017	1.2
520 E. Yearling	2/8/2017	1.0
604 E. Yearling	2/8/2017	1.1
8 W. Yearling	2/8/2017	0.50

Notes and Abbreviations:
Health Based Guidance Level for perchlorate is 14 µg/L.
µg/L = micrograms per liter
USEPA = United States Environmental Protection Agency

FIGURES

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Semi-annual Monitoring Report 07-2016 to 01-2017\Figure 1 site location map Q1 2017.mxd 3/22/2017

LEGEND

★ Approximate site location

NOTES

· Basemap source: ESRI National Geographic World Map.

N

0 4 8 Miles

Scale: 1" = 8 mi

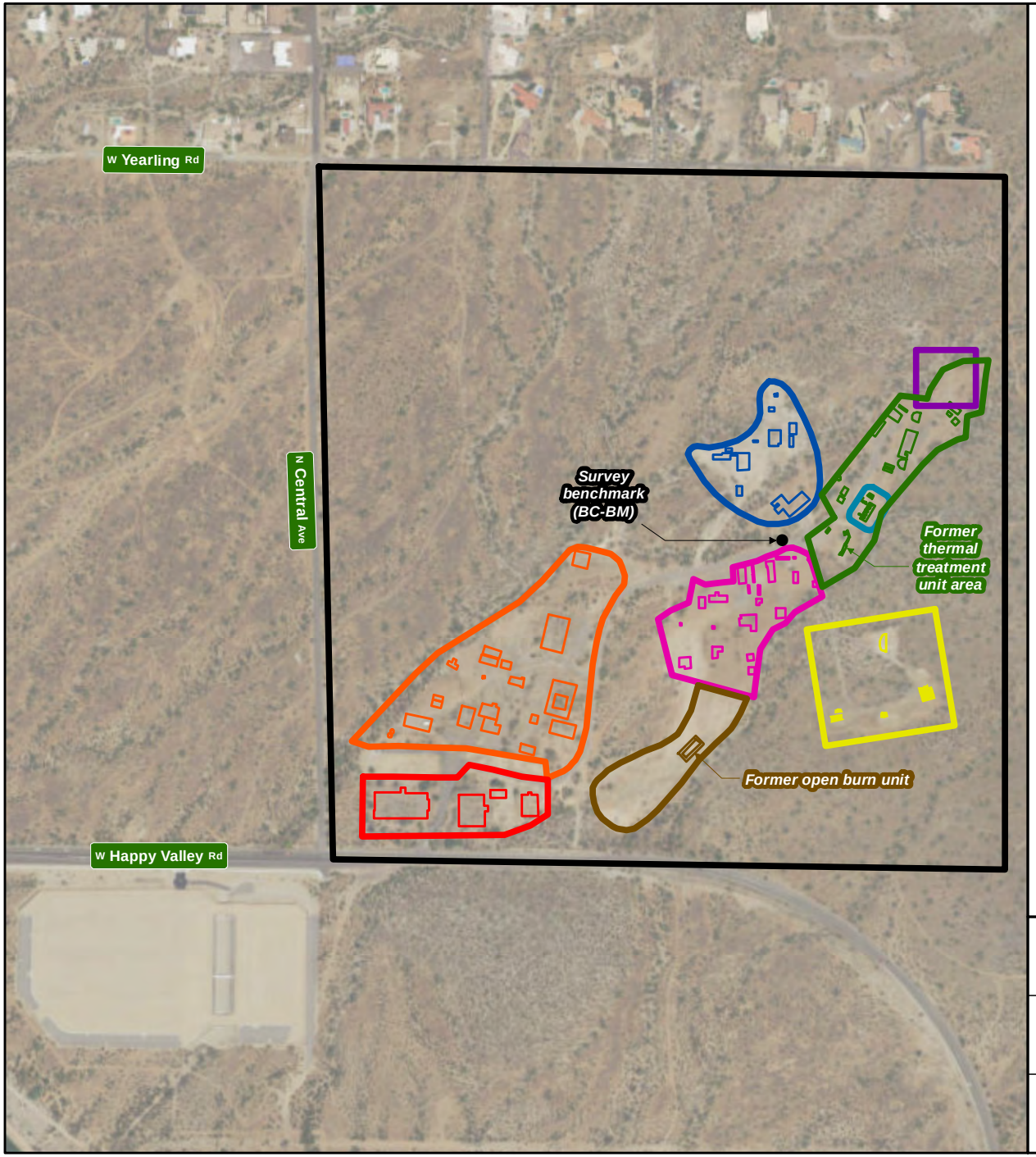
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 - JANUARY 2017

SITE LOCATION MAP

ARCADIS

FIGURE
1

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Semi-annual Monitoring Report 07-2016 to 01-2017\Figure 2 site facility map Q1 2017.mxd 3/22/2017



LEGEND

- Property boundary
- A-Complex
- B-Complex
- C-Complex
- D-Complex
- E-Complex/Storage Magazine Area
- F-Complex
- New Burn Area
- Old Burn Area
- Waterbore Area

NOTES

· Aerial photo source: ESRI World Imagery.

N

0 300 600 Feet

Scale: 1" = 600'

FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 - JANUARY 2017

SITE FACILITY MAP

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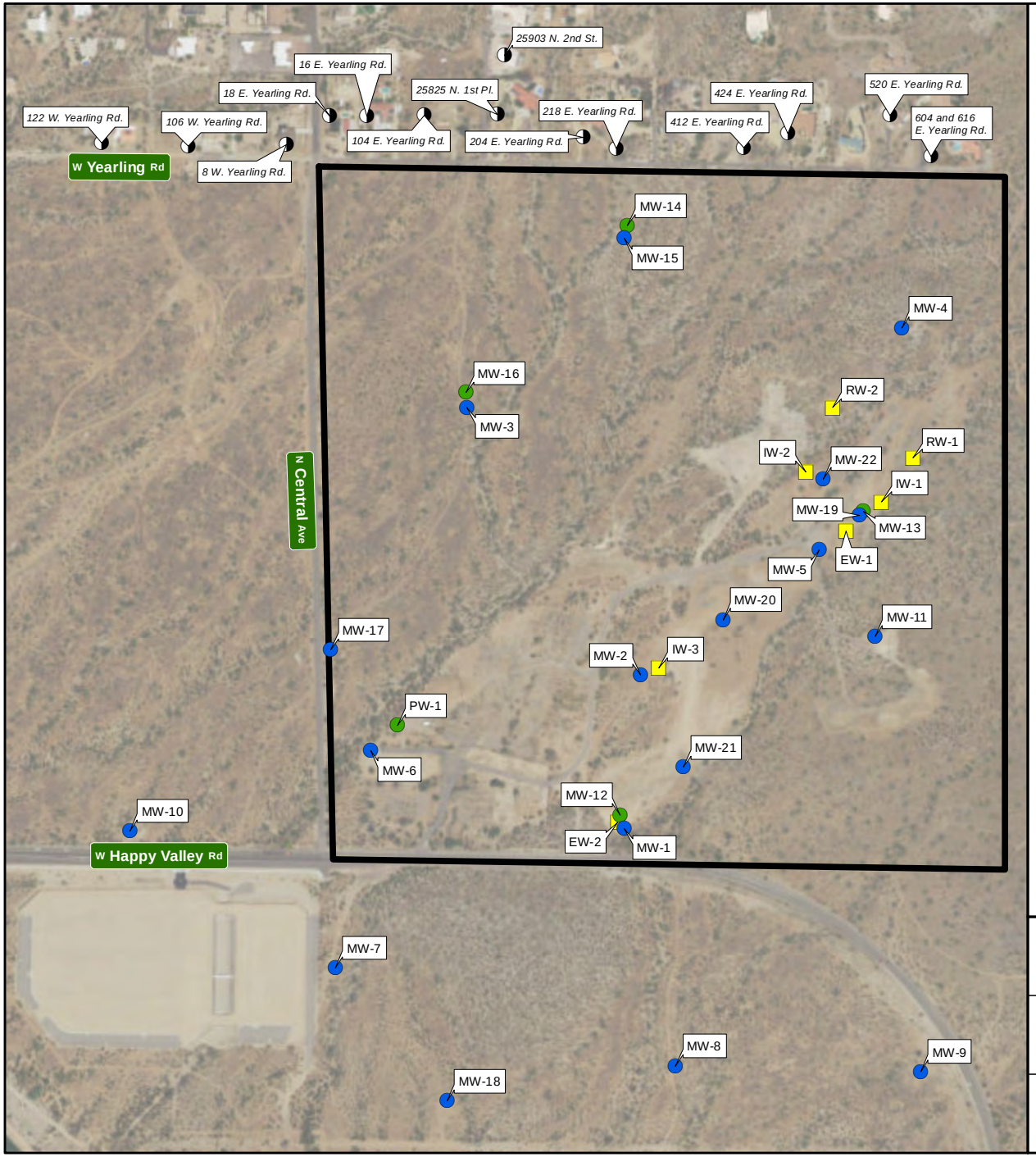
FIGURE
2

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Semi-annual Monitoring Report 07-2016 to 01-2017\Figure 3 well locations Q1 2017.mxd 3/22/2017



LEGEND

- Property boundary
- Groundwater monitoring well
- Groundwater monitoring well (deep)
- Planned remediation well
- Private well

NOTES

· Aerial photo source: ESRI World Imagery.

N

0 300 600 Feet

Scale: 1" = 600'

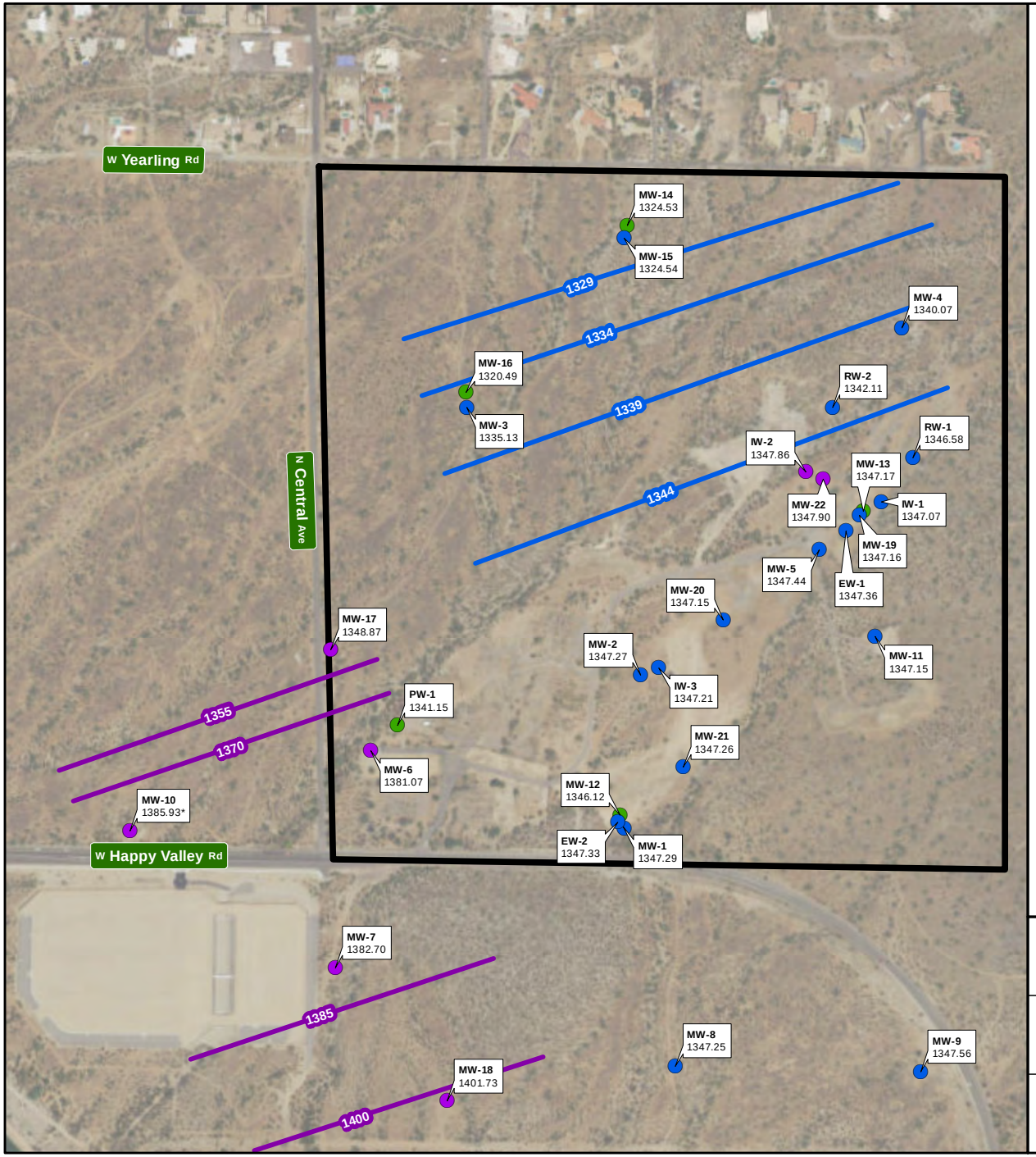
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 - JANUARY 2017

SITE MONITORING WELL LOCATIONS

ARCADIS

FIGURE
3

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Semi-annual Monitoring Report 07-2016 to 01-2017\Figure 4 GW elevations 10-2016.mxd 3/22/2017



LEGEND

- Property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

· Aerial photo source: ESRI World Imagery.
· Groundwater elevations are expressed in feet above mean sea level.
· * = well is not used in contouring.

N

0 300 600 Feet

Scale: 1" = 600'

FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 - JANUARY 2017

GROUNDWATER ELEVATIONS
OCTOBER 26, 2016

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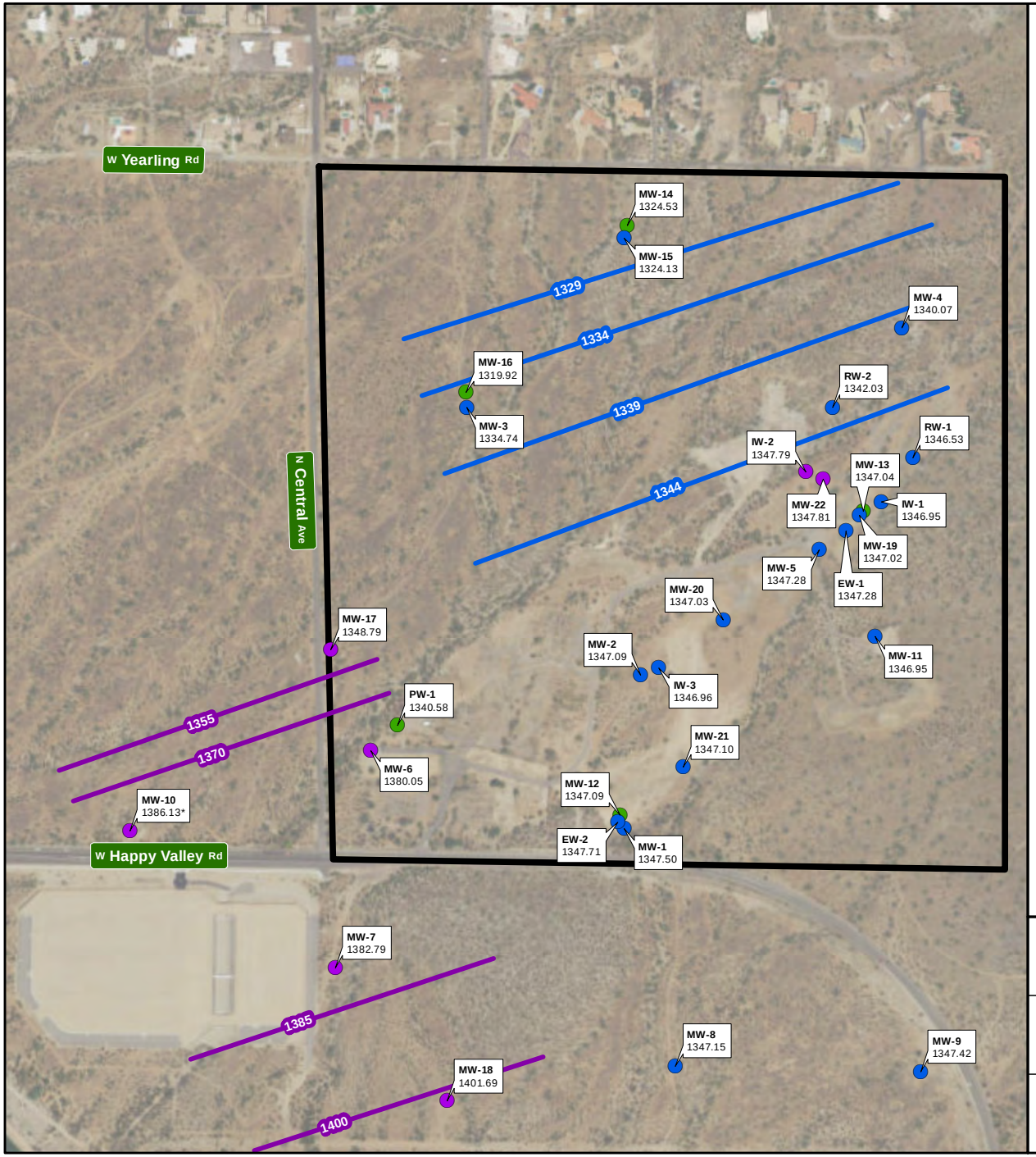
FIGURE
4

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Semi-annual Monitoring Report 07-2016 to 01-2017\Figure 5 GW elevations 01-2017.mxd 3/22/2017



LEGEND

- Property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

· Aerial photo source: ESRI World Imagery.
· Groundwater elevations are expressed in feet above mean sea level.
· * = well is not used in contouring.

N

0 300 600 Feet

Scale: 1" = 600'

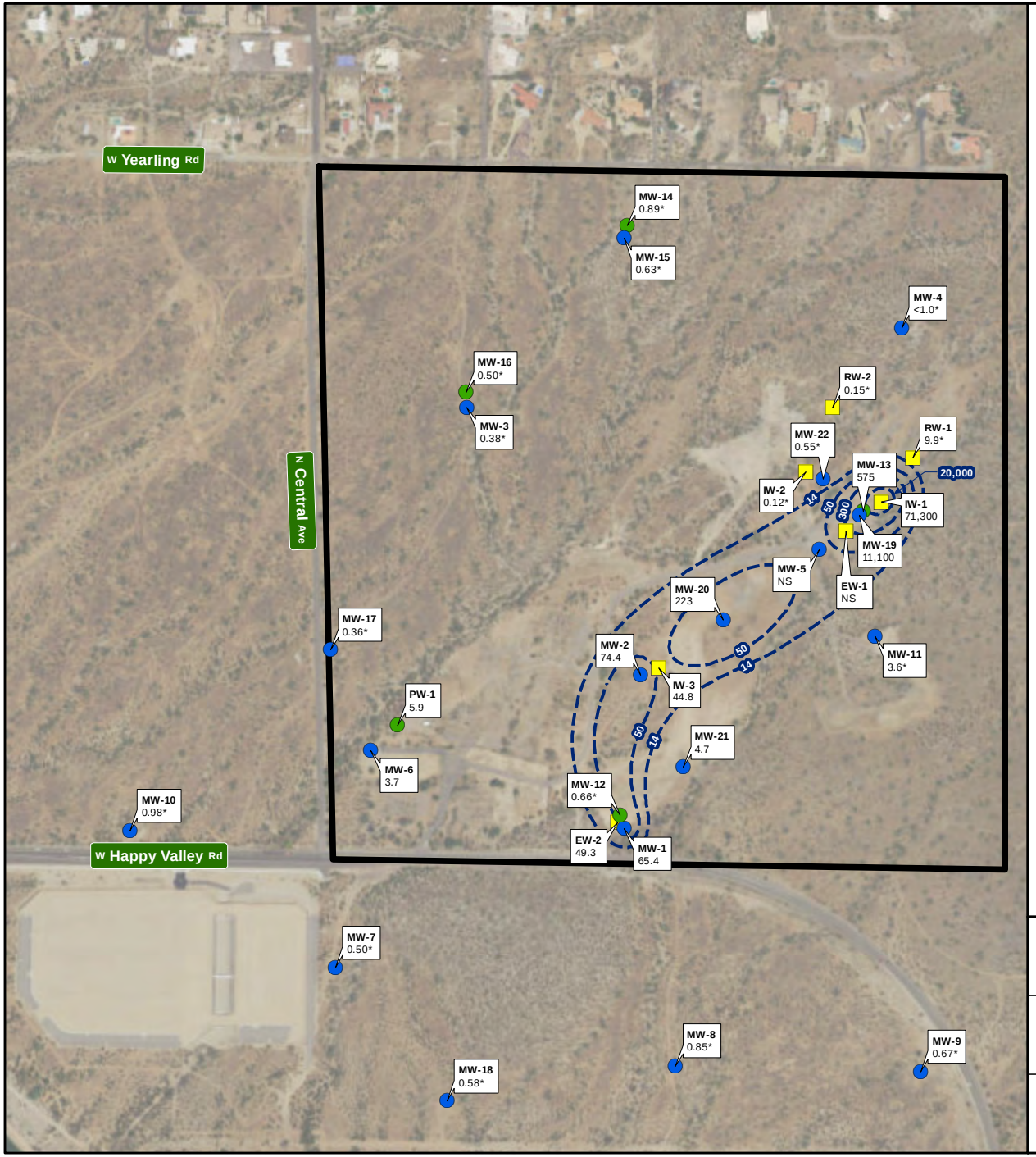
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 - JANUARY 2017

GROUNDWATER ELEVATIONS
JANUARY 5, 2017

ARCADIS

FIGURE
5

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Semi-annual Monitoring Report 07-2016 to 01-2017\Figure 6 perchlorate concentrations 01-2017.mxd 3/22/2017



LEGEND

- Property boundary
- Groundwater monitoring well
- Groundwater monitoring well (deep)
- Planned remediation well
- Perchlorate concentration contour (dashed where inferred)

NOTES

- Aerial photo source: ESRI World Imagery.
- Perchlorate concentrations are expressed in micrograms per liter (µg/L).
- Arizona Health Based Guidance Level (HBGL) for perchlorate = 14 µg/L.
- Wells were sampled from 1/11/2017 to 1/24/2017.
- Groundwater monitoring wells with deeper screens, depicted in green, are not used in contouring.
- * = sample was analyzed via United States Environmental Protection Agency (USEPA) Method 332.0; otherwise, sample was analyzed via USEPA Method 314.0.
- NS = not sampled.

N

Feet
0 300 600

Scale: 1" = 600'

FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
SEMI-ANNUAL MONITORING REPORT FOR JULY 2016 - JANUARY 2017

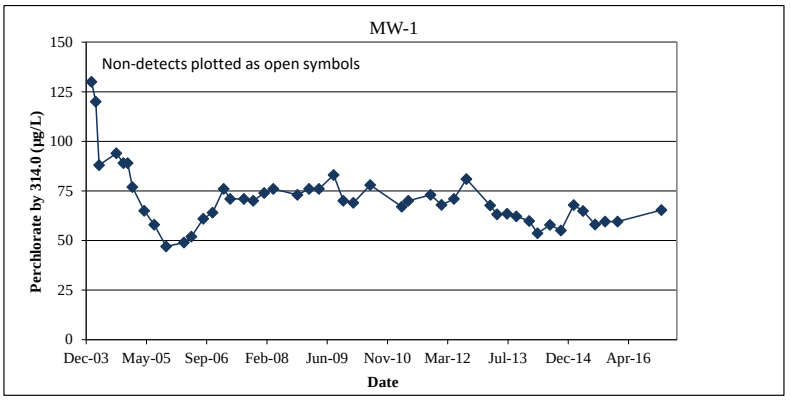
PERCHLORATE CONCENTRATIONS IN GROUNDWATER JANUARY 2017

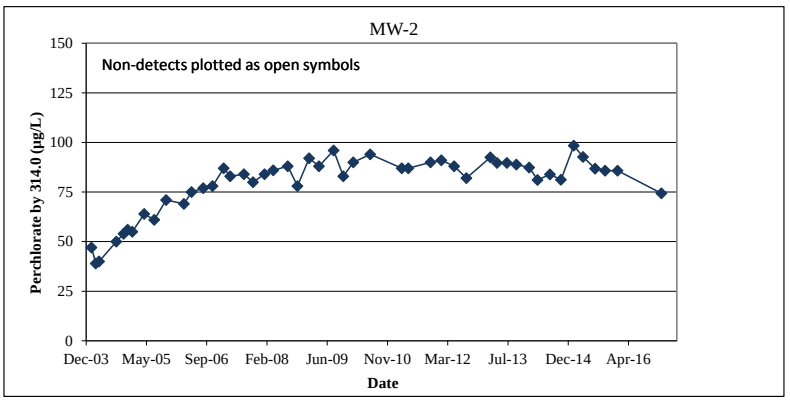
ARCADIS

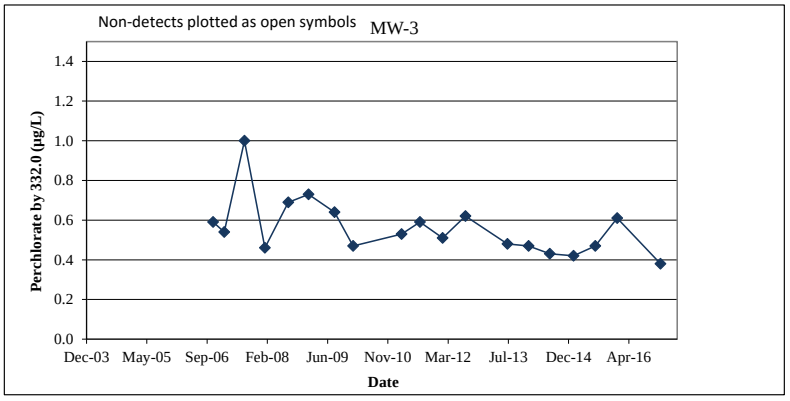
FIGURE
6

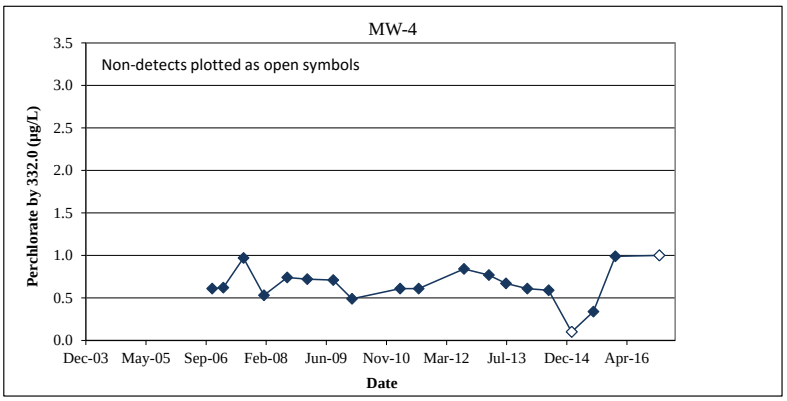
APPENDIX A

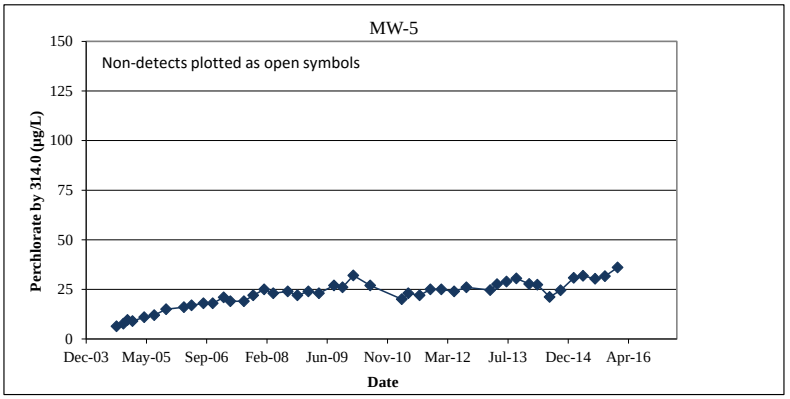
Historical Monitoring Well Perchlorate Time Concentration Curves – UPCO Wells

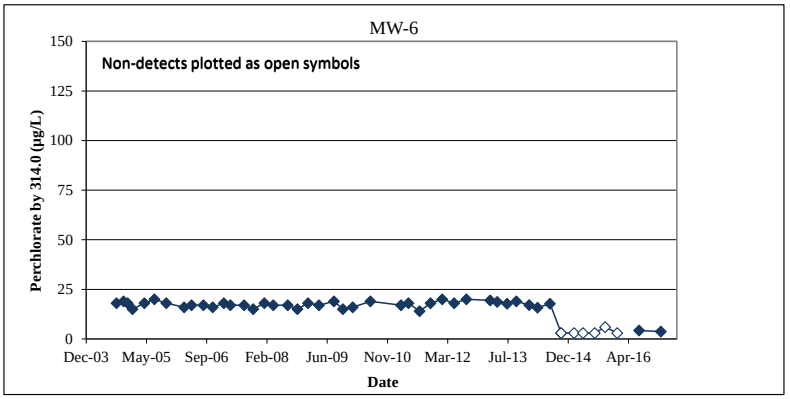

MW-1
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
150
125
100
75
50
25
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

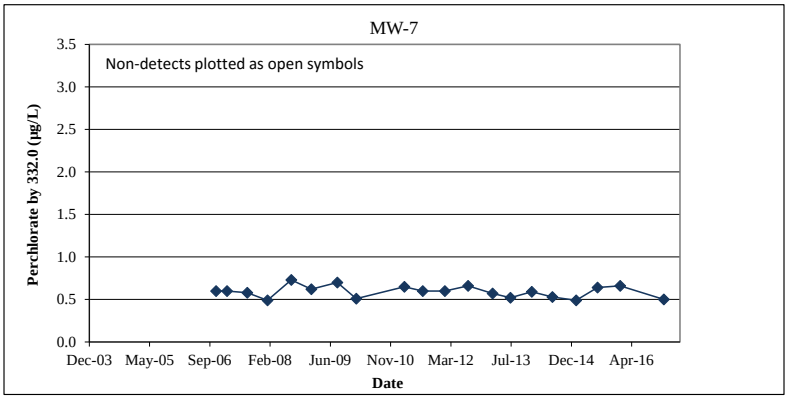

MW-2
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
150
125
100
75
50
25
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

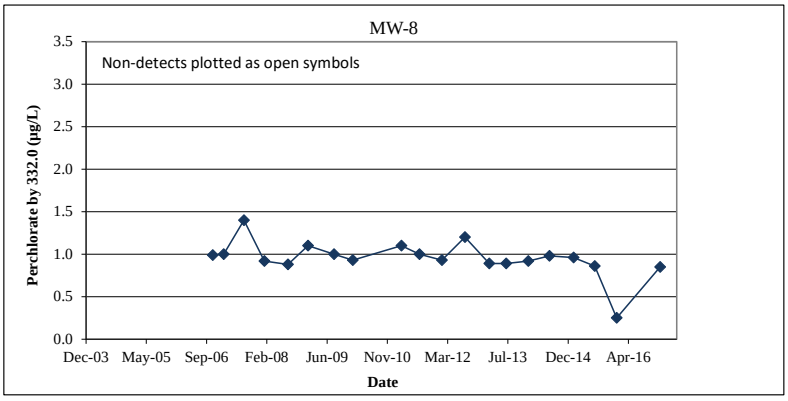

Non-detects plotted as open symbols
MW-3
Perchlorate by 332.0 (µg/L)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

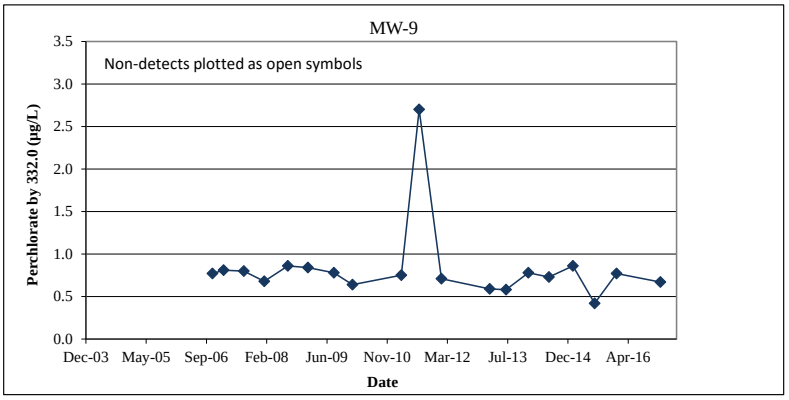

MW-4
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

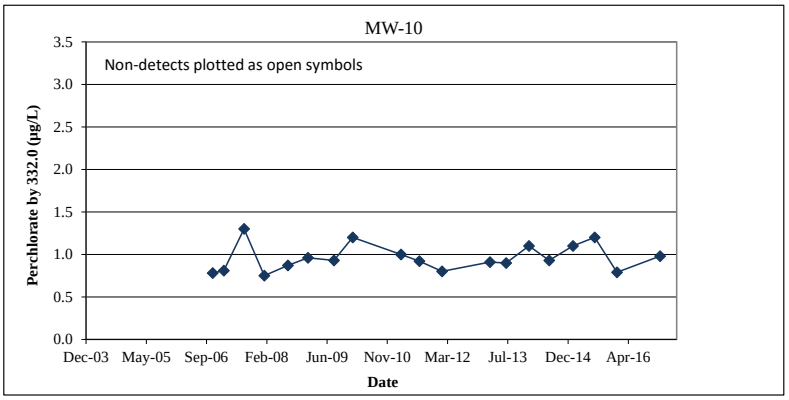

MW-5
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
150
125
100
75
50
25
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

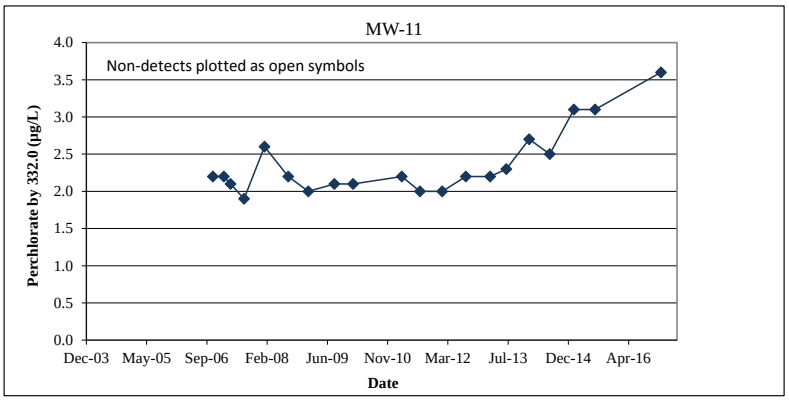

MW-6
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
150
125
100
75
50
25
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

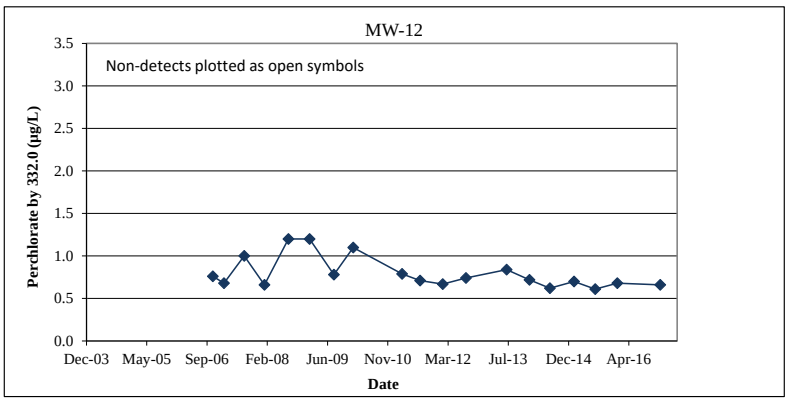

MW-7
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

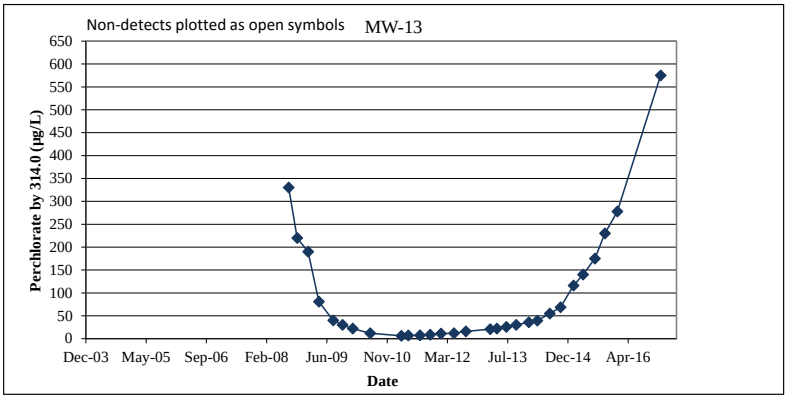

MW-8
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

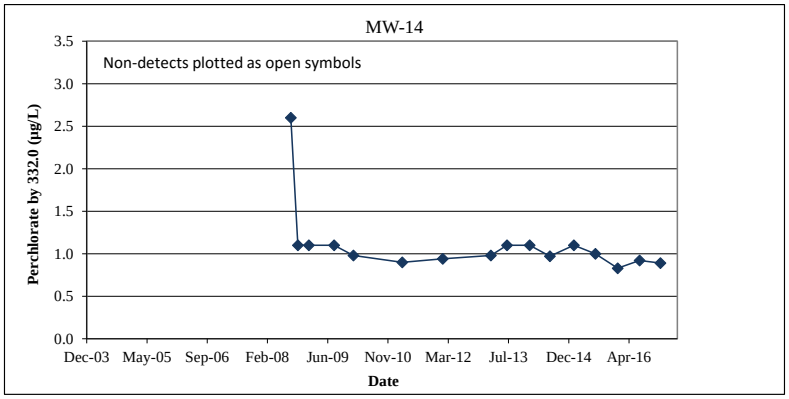

MW-9
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

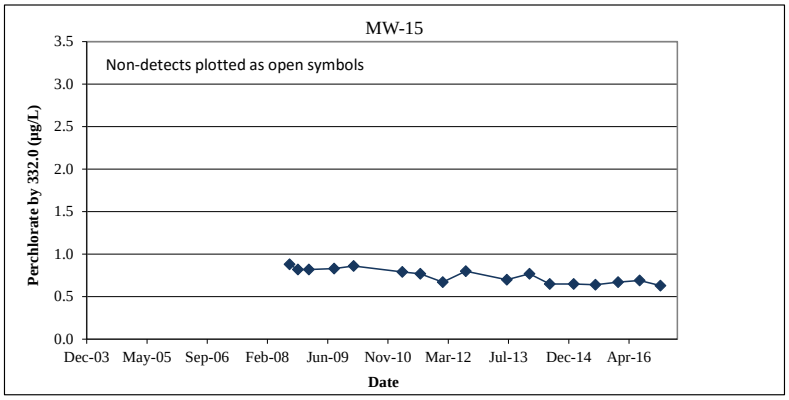

MW-10
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

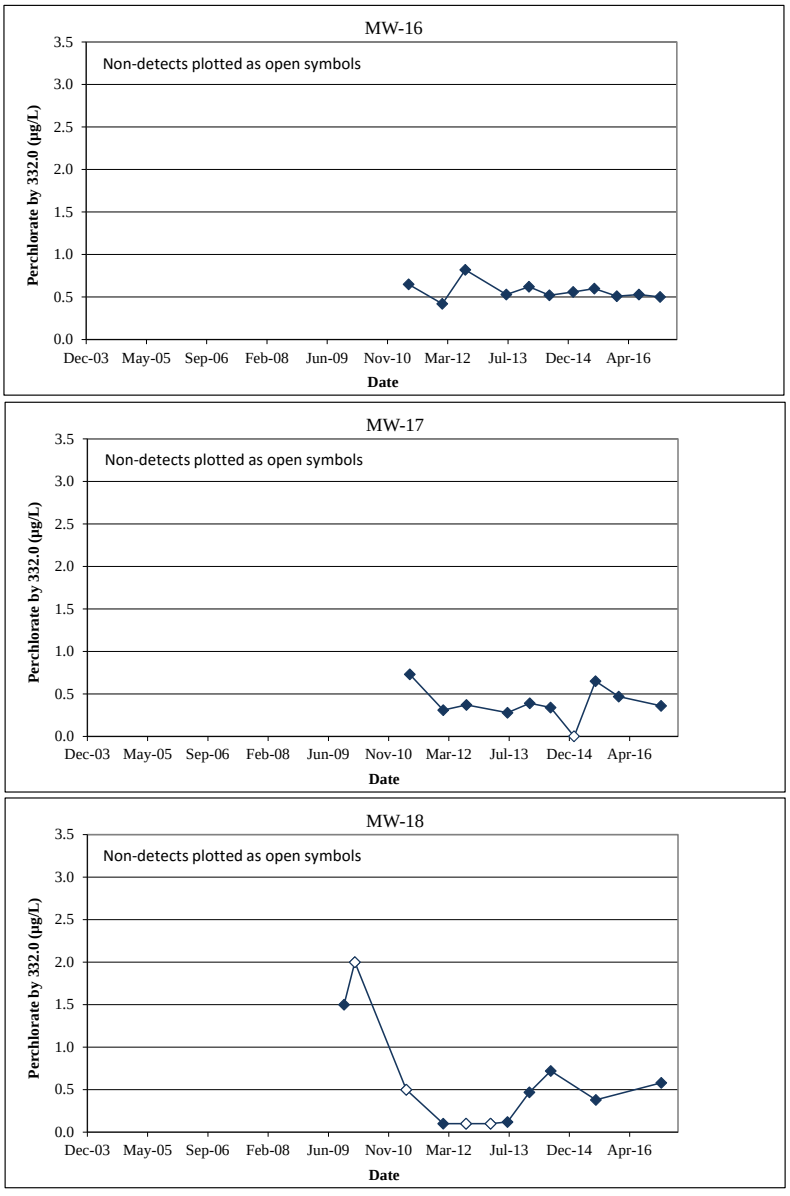

MW-11
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

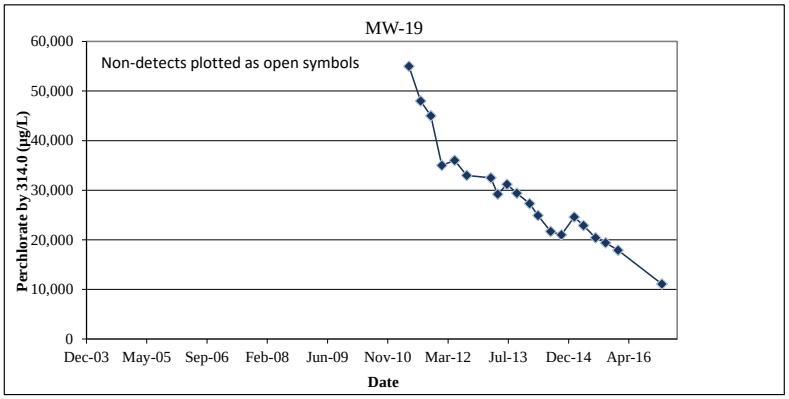

MW-12
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

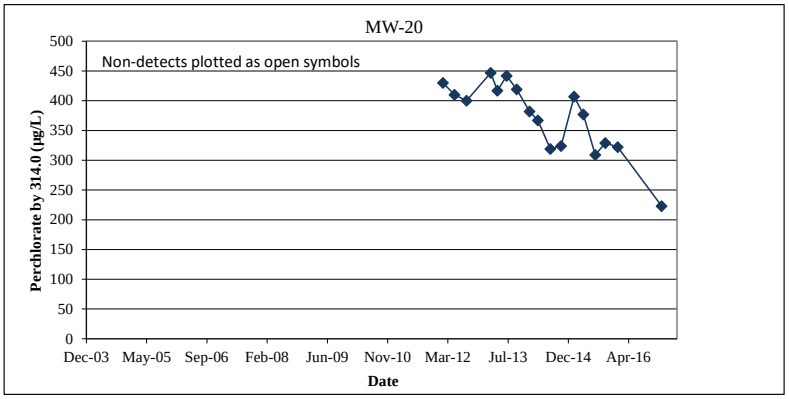

Non-detects plotted as open symbols
MW-13
Perchlorate by 314.0 (µg/L)
650
600
550
500
450
400
350
300
250
200
150
100
50
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

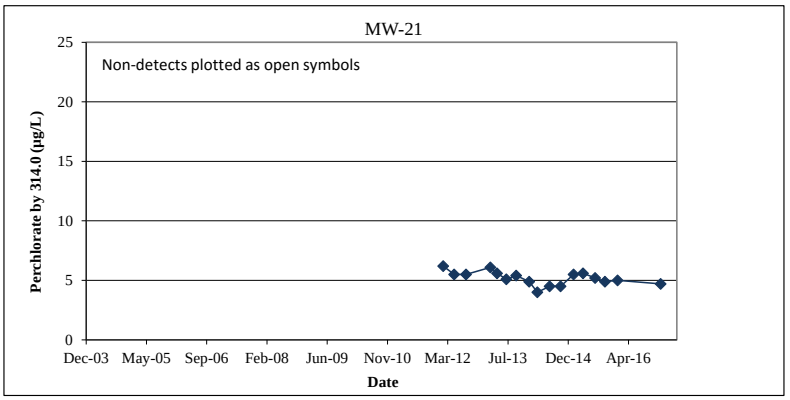

MW-14
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

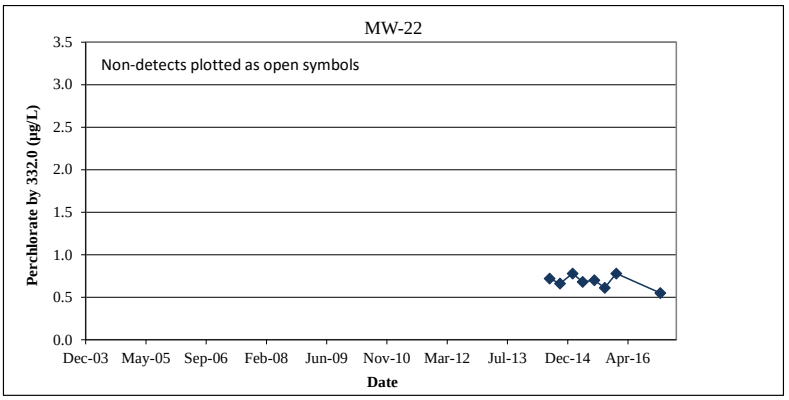

MW-15
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

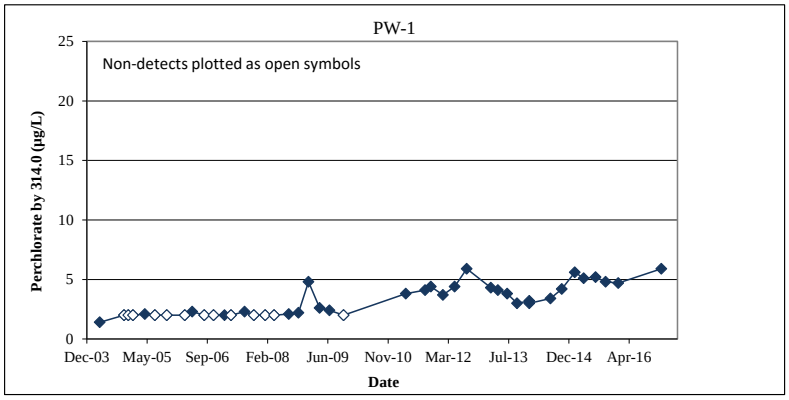

MW-16
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date
MW-17
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date
MW-18
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

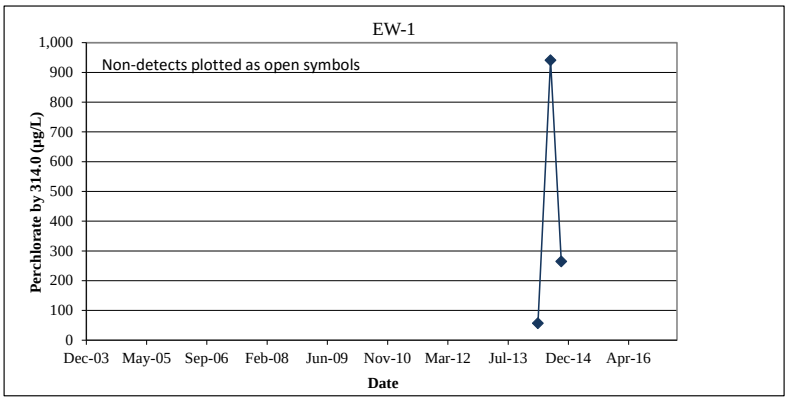

MW-19
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
60,000
50,000
40,000
30,000
20,000
10,000
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

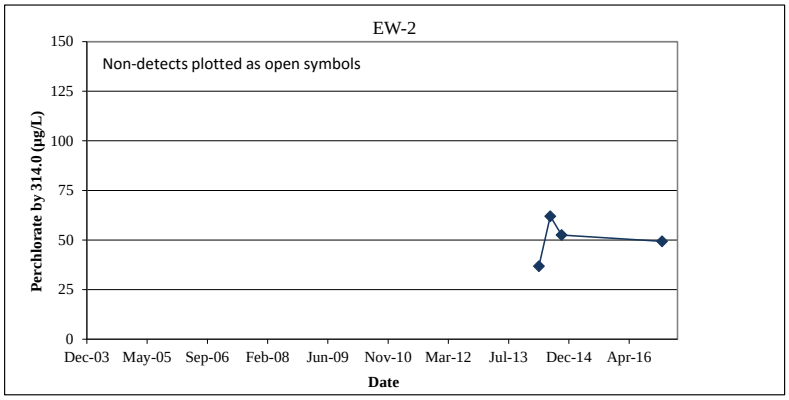

MW-20
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
500
450
400
350
300
250
200
150
100
50
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

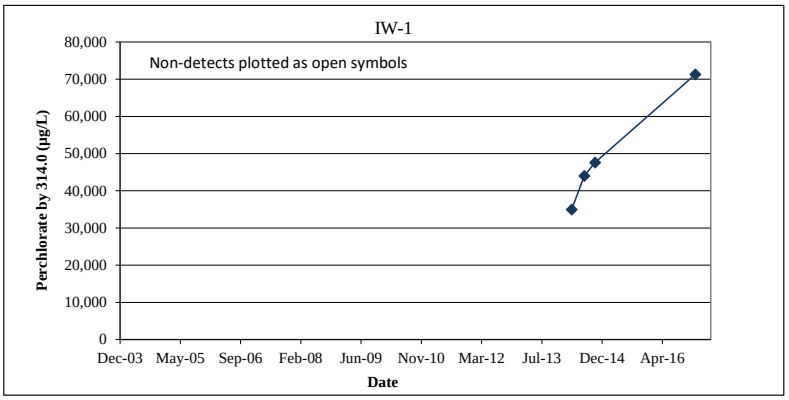

MW-21
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
25
20
15
10
5
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

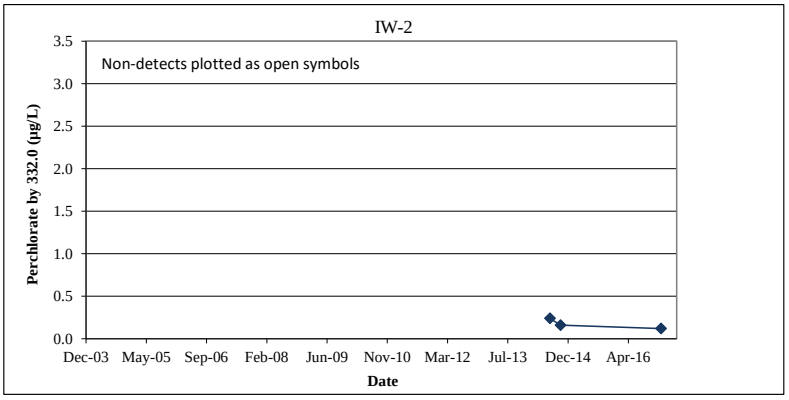

MW-22
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

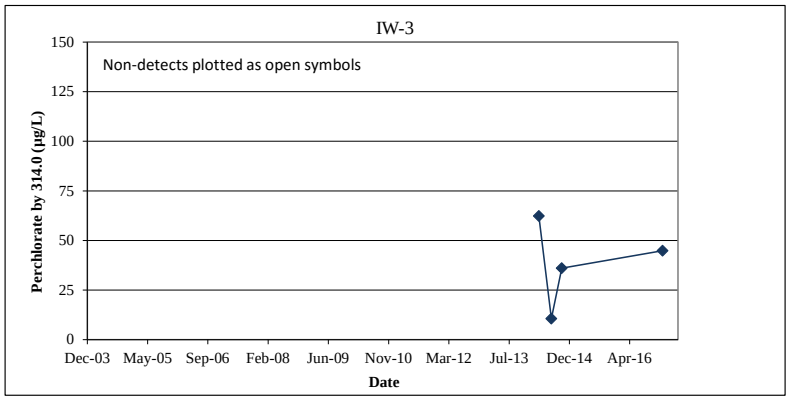

PW-1
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
25
20
15
10
5
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

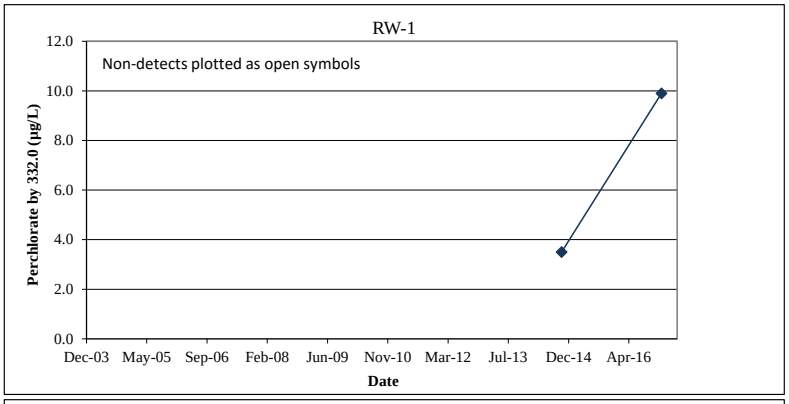

EW-1
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
1,000
900
800
700
600
500
400
300
200
100
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

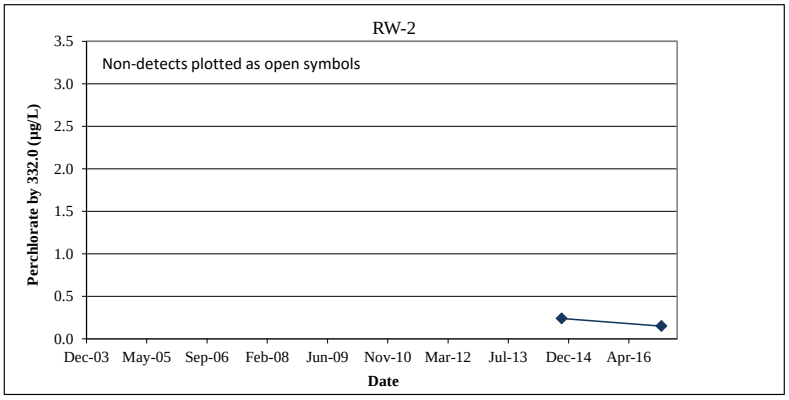

EW-2
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
150
125
100
75
50
25
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date


IW-1
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date


IW-2
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date


IW-3
Non-detects plotted as open symbols
Perchlorate by 314.0 (µg/L)
150
125
100
75
50
25
0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date


RW-1
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date


RW-2
Non-detects plotted as open symbols
Perchlorate by 332.0 (µg/L)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Dec-03
May-05
Sep-06
Feb-08
Jun-09
Nov-10
Mar-12
Jul-13
Dec-14
Apr-16
Date

APPENDIX B

Investigation-Derived Waste Management Summary

Sample Date	Lab Report Number	Sample ID	Bin/Tank ID Numbers	Waste Manifest Number(s)	Sample Location/Remarks	Analysis Method(s)	IDW Classification	Destination	Date(s) Disposed	Quantity (gallons)
First Quarter										
1/11/2017 1/13/2017 1/17/2017 1/18/2017 1/19/2017 1/20/2017	FA40700 440-174781-1	MW-3, MW-4, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18, MW-21, MW-22, PW-1, RW-2	Baker Tank 1	78462	Perchlorate impacted water	USEPA 314.0 USEPA 332.0 USEPA 200.8 USEPA 8260B USEPA 8260B-SIM	Non-Hazardous	Liquid Environmental Solutions	1/27/2017	5,000
1/21/2017 1/23/2017	FA40700 440-174781-1	MW-1, MW-2, EW-2, IW-2, IW-3, RW-1	Baker Tank 2	78463	Perchlorate impacted water	USEPA 314.0 USEPA 332.0 USEPA 8260B-SIM	Non-Hazardous	Liquid Environmental Solutions	1/27/2017	2,700
1/24/2017	FA40700	MW-19, MW-20, IW-1	Totes	1205882USEB	Perchlorate impacted water	USEPA 314.0 USEPA 8260B-SIM	Non-Hazardous	Stericycle	1/27/2017	930

Notes and Abbreviations:
IDW = investigative derived waste
USEPA = United States Environmental Protection Agency

CRIS #UNU132010 PHX

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	AZD980814479	1	(800) 424-9300	120588285EB

GENERATOR

5. Generator's Name and Mailing Address: Attn:Karen Mitteider
Universal Propulsion Company
3414 S 5th Street
Phoenix, AZ 85040
Generator's Phone:

Generator's Site Address (if different than mailing address):
Universal Propulsion Company
25401 N Central Ave
Phoenix, AZ 85085

6. Transporter 1 Company Name: Stericycle Specialty Waste Solutions, Inc.
U.S. EPA ID Number: MNS000110924

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address: US Ecology Beatty NV
12 miles south of Beatty on Hwy 95
Beatty, NV 89003
Facility's Phone: (800) 239-3943 Ext
U.S. EPA ID Number: NVT330010000

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	Non DOT Regulated Liquid (perchlorate impacted water)		TP	1 1/2	P	
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information: 1.070137747-4055

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Arthur [illegible] M.M.
Signature:
Month: 01 Day: 27 Year: 17

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: [illegible]
Signature:
Month: Day: Year:

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name:
Signature:
Month: Day: Year:

GENERATOR'S/SHIPPER'S INITIAL COPY

Form Rev. 3-05

[illegible] 0172561 N265773 PD012917

LIQUID ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

78463

Profile Number
5307

Generator Name	**Name:** LPCC **Phone:** (602) 435-0383	**Generator Address**	**Address:** 25401 N Central Ave **City:** Phoenix **State:** AZ **Zip:**

Check with your state and local regulatory agencies for manifest retention requirements. NOTE: Many regulatory agencies require records to be kept on-site and available to review for up to 3 years.

Waste Type

☐ Grease Trap ☐ Grit Trap ☐ Septic/Chemical Toilet ☐ Non-Industrial ☑ Industrial ☐ Special
☐ Used Cooking Oil ☐ Recyclable Used Oil

I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pusuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.

Generator Rep. Name (please print)	Assistant Construction Manager Craig Mills	**Generator Rep. Signature**	

Transporter Name	**Name:** MP Environmental **Phone:** (602) 278-1233	**Transporter Address**	**Address:** 3645 S. 52nd Ave **City:** Phoenix **State:** AZ **Zip:** 85

Waste Removed (Gallons)	2700	**Date** 1-27-17	**Time**

I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.

Driver Name (please print)	STEVE SMITH	**Driver Signature**	

Disposal Facility	Liquid Environmental Solutions of Arizona	**Address**	5159 West Van Buren Street Phoenix, AZ 85043
Waste Received (Gallons)	2700	**Date** 1-27-17	**Time**
Facility Rep. Name (please print)		**Facility Rep. Signature**	

WHITE - Generator Final Copy YELLOW - Liquid Environmental Solutions Copy GOLDENROD - Transporter Copy PINK - Generator 1st Copy

LIQUID ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

78462

Profile Number
5507

Generator Name	Name: UPCO Phone: (602) 438-0833	**Generator Address**	Address: 75401 N. CENTRAL AVE City: PHOENIX State: AZ Zip:

Check with your state and local regulatory agencies for manifest retention requirements. NOTE: Many regulatory agencies require records to be kept on-site and available to review for up to 3 years.

Waste Type

☐ Grease Trap ☐ Grit Trap ☐ Septic/Chemical Toilet ☐ Non-Industrial ☒ Industrial ☐ Special
☐ Used Cooking Oil ☐ Recyclable Used Oil

I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pusuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.

Generator Rep. Name (please print)		**Generator Rep. Signature**	

Transporter Name	Name: WP ENVIRONMENTAL Phone: (602) 304-1255	**Transporter Address**	Address: 3045 S 51ST AVE City: PHOENIX State: AZ Zip: 85043

Waste Removed (Gallons)	5000	**Date**	1-27-17
		Time	9:30 AM

I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.

Driver Name (please print)	STEVE SMITH	**Driver Signature**	

Disposal Facility	Liquid Environmental Solutions of Arizona	**Address**	5159 West Van Buren Street Phoenix, AZ 85043
Waste Received (Gallons)	5000	**Date**	1-27-17
		Time	
Facility Rep. Name (please print)		**Facility Rep. Signature**	

WHITE - Generator Final Copy YELLOW - Liquid Environmental Solutions Copy GOLDENROD - Transporter Copy PINK - Generator 1st Copy

APPENDIX C

Historical Water Levels – UPCO Wells

Appendix C
Historical Water Level Data - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-1	1/6/2004	1000	1557.19	206.64	1350.55
	3/19/2004	1000	1557.27	206.70	1350.57
	4/16/2004	1000	1557.27	206.66	1350.61
	9/7/2004	0804	1557.22	207.79	1349.43
	10/22/2004	1235	1557.22	207.42	1349.80
	11/22/2004	1055	1557.22	207.71	1349.51
	12/07/2004	1000	1557.22	207.80	1349.42
	1/17/2005	0715	1557.22	207.62	1349.60
	2/14/2005	1032	1557.22	207.52	1349.70
	3/15/2005	1205	1557.22	207.36	1349.86
	4/25/2005	0725	1557.22	207.47	1349.75
	5/20/2005	0800	1557.22	207.69	1349.53
	6/27/2005	0730	1557.22	207.82	1349.40
	7/18/2005	0716	1557.22	208.13	1349.09
	8/22/2005	0700	1557.22	208.04	1349.18
	9/22/2005	0804	1557.22	208.03	1349.19
	10/24/2005	0934	1557.22	208.03	1349.19
	12/02/2005	1245	1557.22	207.97	1349.25
	12/22/2005	1509	1557.22	208.15	1349.07
	1/27/2006	1125	1557.22	208.09	1349.13
	2/20/2006	1053	1557.22	208.04	1349.18
	3/20/2006	1525	1557.22	207.98	1349.24
	5/22/2006	0842	1557.22	208.08	1349.14
	8/28/2006	1242	1557.22	208.04	1349.18
	11/13/2006	0951	1557.22	208.04	1349.18
	2/12/2007	1215	1557.22	208.08	1349.14
	4/9/2007	1010	1557.22	208.03	1349.19
	7/30/2007	0855	1557.22	207.84	1349.38
	10/15/2007	1441	1557.22	208.16	1349.06
	1/14/2008	1153	1557.22	208.37	1348.85
	3/31/2008	1445	1557.22	208.24	1348.98
	4/29/2008	1420	1557.22	208.27	1348.95
	5/27/2008	1300	1557.22	208.37	1348.85
	6/27/2008	0755	1557.22	208.53	1348.69
	7/28/2008	1323	1557.22	208.50	1348.72
	8/29/2008	1628	1557.22	208.55	1348.67
	9/20/2008	1205	1557.22	208.44	1348.78
	10/14/2008	1440	1557.22	208.37	1348.85
	11/21/2008	1411	1557.22	208.36	1348.86
	12/15/2008	1143	1557.22	208.44	1348.78
	1/12/2009	0934	1557.22	208.41	1348.81
	2/16/2009	0915	1557.22	208.47	1348.75
	3/17/2009	1157	1557.22	208.42	1348.80
	4/13/2009	1131	1557.22	208.38	1348.84
	5/20/2009	0740	1557.22	208.71	1348.51
	6/15/2009	0739	1557.22	208.58	1348.64
	7/6/2009	0654	1557.22	208.58	1348.64
	8/13/2009	0619	1557.22	208.68	1348.54
	9/28/2009	0826	1560.43	211.92	1348.51
	10/27/2009	1539	1560.43	211.98	1348.45
	11/25/2009	1108	1560.43	212.29	1348.14
	12/18/2009	1142	1560.43	212.35	1348.08
	1/18/2010	1239	1560.43	212.47	1347.96
	6/8/2010	1225	1560.43	211.75	1348.68
	6/22/2010	1310	1560.43	211.76	1348.67

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-1 (cont.)	2/23/2011	1325	1560.43	211.71	1348.72
	3/22/2011	1125	1560.43	211.73	1348.70
	4/26/2011	0815	1560.43	211.77	1348.66
	5/27/2011	1047	1560.43	211.95	1348.48
	6/30/2011	1245	1560.43	211.79	1348.64
	7/25/2011	1102	1560.43	212.02	1348.41
	9/2/2011	1236	1560.43	211.81	1348.62
	9/27/2011	1508	1560.43	211.82	1348.61
	10/24/2011	1152	1560.43	211.88	1348.55
	11/28/2011	1146	1560.43	211.90	1348.53
	12/27/2011	1112	1560.43	211.92	1348.51
	1/19/2012	1242	1560.43	211.88	1348.55
	2/27/2012	1557	1560.43	211.90	1348.53
	3/27/2012	1040	1560.43	211.92	1348.51
	4/28/2012	1610	1560.43	211.90	1348.53
	5/8/2012	1205	1560.43	212.19	1348.24
	6/29/2012	1112	1560.43	212.02	1348.41
	7/30/2012	1818	1560.43	212.06	1348.37
	8/19/2012	1700	1560.43	212.02	1348.41
	9/6/2012	1130	1560.43	212.12	1348.31
	10/4/2012	1007	1560.43	212.20	1348.23
	2/19/2013	1512	1560.43	212.15	1348.28
	3/29/2013	1020	1560.43	212.36	1348.07
	4/29/2013	1700	1560.43	212.28	1348.15
	5/30/2013	2010	1560.43	212.31	1348.12
	6/16/2013	1325	1560.43	212.33	1348.10
	7/15/2013	1200	1560.43	212.49	1347.94
	8/6/2013	1833	1560.43	212.34	1348.09
	9/17/2013	1922	1560.43	212.37	1348.06
	10/7/2013	1403	1560.43	212.34	1348.09
	11/21/2013	1540	1560.43	212.42	1348.01
	12/6/2013	1431	1560.43	212.43	1348.00
	1/13/2014	1835	1560.43	212.49	1347.94
	2/28/2014	1900	1560.43	212.52	1347.91
	3/15/2014	1818	1560.43	212.50	1347.93
	3/31/2014	1649	1560.43	212.43	1348.00
	5/23/2014	1720	1560.43	212.64	1347.79
	6/14/2014	1356	1560.43	212.71	1347.72
	7/7/2014	1204	1560.43	212.24	1348.19
	9/29/2014	2126	1560.43	212.52	1347.91
	10/28/2014	1612	1560.43	212.48	1347.95
	11/27/2014	1818	1560.43	212.44	1347.99
	12/15/2014	1745	1560.43	212.53	1347.90
	1/19/2015	1550	1560.43	212.58	1347.85
	2/25/2015	1803	1560.43	212.58	1347.85
	3/26/2015	1632	1560.43	212.71	1347.72
	4/13/2015	1459	1560.43	212.73	1347.70
	5/23/2015	1600	1560.43	212.86	1347.57

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-1 (cont.)	6/15/2015	1908	1560.43	212.76	1347.67
	7/13/2015	1510	1560.43	212.72	1347.71
	8/31/2015	1825	1560.43	212.82	1347.61
	9/30/2015	1818	1560.43	212.82	1347.61
	10/26/2015	1908	1560.43	212.72	1347.71
	11/25/2015	1705	1560.43	212.73	1347.70
	12/10/2015	1627	1560.43	212.72	1347.71
	1/13/2016	1537	1560.43	212.93	1347.50
	4/22/2016	1512	1560.43	213.01	1347.42
	7/20/2016	1900	1560.43	213.05	1347.38
	10/26/2016	1721	1560.43	213.14	1347.29
	1/5/2017	1747	1560.43	212.93	1347.50
MW-2	1/6/2004	1000	1567.51	216.90	1350.61
	3/19/2004	1000	1567.67	217.40	1350.27
	4/16/2004	1000	1567.67	217.06	1350.61
	9/7/2004	0755	1567.62	218.06	1349.56
	10/22/2004	1245	1567.62	217.63	1350.00
	11/22/2004	1110	1567.62	218.10	1349.52
	12/07/2004	1000	1567.62	218.15	1349.47
	1/17/2005	0730	1567.62	218.02	1349.60
	2/14/2005	1025	1567.62	217.93	1349.69
	3/15/2005	1210	1567.62	217.83	1349.79
	4/25/2005	0715	1567.62	217.88	1349.74
	5/20/2005	0749	1567.62	218.06	1349.56
	6/27/2005	0725	1567.62	218.20	1349.42
	7/18/2005	0710	1567.62	218.53	1349.09
	8/22/2005	0706	1567.62	218.43	1349.19
	9/22/2005	0755	1567.62	218.44	1349.18
	10/24/2005	0926	1567.62	218.44	1349.18
	12/02/2005	1235	1567.62	218.34	1349.28
	12/22/2005	1503	1567.62	218.48	1349.14
	01/27/2006	1118	1567.62	218.47	1349.15
	02/20/2006	1045	1567.62	218.43	1349.19
	03/20/2006	1505	1567.62	218.33	1349.29
	05/22/2006	0827	1567.62	218.43	1349.19
	8/28/2006	1224	1567.62	218.35	1349.27
	11/13/2006	1005	1567.62	218.38	1349.24
	2/12/2007	1229	1567.62	218.48	1349.14
	4/9/2007	1016	1567.62	218.41	1349.21
	7/30/2007	0924	1567.62	218.19	1349.43
	10/15/2007	1457	1567.62	218.45	1349.17
	1/14/2008	1206	1567.62	218.70	1348.92
	3/31/2008	1545	1567.62	218.55	1349.07
	4/29/2008	1527	1567.62	218.54	1349.08
	5/27/2008	1309	1567.62	218.69	1348.93
	6/27/2008	0812	1567.62	218.89	1348.73
	7/28/2008	1333	1567.62	218.81	1348.81
	8/29/2008	1618	1567.62	218.83	1348.79
	9/20/2008	1215	1567.62	218.75	1348.87
	10/14/2008	1449	1567.62	218.69	1348.93
	11/21/2008	1420	1567.62	218.69	1348.93
	12/15/2008	1150	1567.62	218.77	1348.85
	1/12/2009	0941	1567.62	218.81	1348.81
	2/16/2009	0923	1567.62	218.85	1348.77
	3/17/2009	1203	1567.62	218.48	1349.14
	4/13/2009	1136	1567.62	218.73	1348.89

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-2 (cont.)	5/20/2009	0746	1567.62	219.05	1348.57
	6/15/2009	0750	1567.62	218.95	1348.67
	7/6/2009	0701	1567.62	218.95	1348.67
	8/13/2009	0627	1567.62	219.03	1348.59
	9/28/2009	0840	1571.22	222.74	1348.48
	10/27/2009	1543	1571.22	222.71	1348.51
	11/25/2009	1114	1571.22	223.06	1348.16
	12/18/2009	1243	1571.22	223.08	1348.14
	1/18/2010	1249	1571.22	223.25	1347.97
	6/8/2010	1237	1571.22	222.57	1348.65
	6/22/2010	1319	1571.22	222.57	1348.65
	2/23/2011	1330	1571.22	222.53	1348.69
	3/22/2011	1038	1571.22	222.60	1348.62
	4/26/2011	0820	1571.22	222.55	1348.67
	5/27/2011	1112	1571.22	222.56	1348.66
	6/30/2011	1302	1571.22	222.61	1348.61
	7/25/2011	1114	1571.22	222.84	1348.38
	9/2/2011	1359	1571.22	222.61	1348.61
	9/27/2011	1523	1571.22	221.61	1349.61
	10/24/2011	1200	1571.22	222.71	1348.51
	11/28/2011	1200	1571.22	222.71	1348.51
	12/27/2011	1121	1571.22	222.76	1348.46
	1/19/2012	1251	1571.22	222.71	1348.51
	2/27/2012	1608	1571.22	222.71	1348.51
	3/27/2012	1049	1571.22	222.76	1348.46
	4/28/2012	1645	1571.22	222.72	1348.50
	5/8/2012	1139	1571.22	222.97	1348.25
	6/29/2012	1215	1571.22	222.79	1348.43
	7/30/2012	1905	1571.22	222.82	1348.40
	8/19/2012	1820	1571.22	222.84	1348.38
	9/6/2012	1139	1571.22	222.92	1348.30
	10/4/2012	1027	1571.22	223.02	1348.20
	2/19/2013	1530	1571.22	222.93	1348.29
	3/29/2013	0943	1571.22	223.18	1348.04
	4/29/2013	1708	1571.22	223.18	1348.04
	5/30/2013	2020	1571.22	223.12	1348.10
	6/16/2013	1350	1571.22	223.11	1348.11
	7/15/2013	1200	1571.22	223.29	1347.93
	8/6/2013	1842	1571.22	223.13	1348.09
	9/17/2013	2020	1571.22	223.20	1348.02
	10/7/2013	1412	1571.22	223.14	1348.08
	11/21/2013	1636	1571.22	223.25	1347.97
	12/6/2013	1539	1571.22	223.22	1348.00
	1/13/2014	1845	1571.22	223.38	1347.84
	2/28/2014	1913	1571.22	223.30	1347.92
	3/15/2014	1828	1571.22	223.31	1347.91
	3/31/2014	1659	1571.22	223.25	1347.97
	5/23/2014	1734	1571.22	223.44	1347.78
	6/14/2014	1528	1571.22	223.53	1347.69
	7/7/2014	1214	1571.22	223.06	1348.16
	9/4/2014	1425	1571.22	223.21	1348.01
	9/27/2014	0057	1571.22	223.33	1347.89
	10/28/2014	1623	1571.22	223.31	1347.91
	11/27/2014	1830	1571.22	223.30	1347.92
	12/15/2014	1756	1571.22	223.39	1347.83

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-2 (cont.)	1/19/2015	1558	1571.22	223.39	1347.83
	2/25/2015	1815	1571.22	223.40	1347.82
	3/26/2015	1641	1571.22	223.48	1347.74
	4/13/2015	1508	1571.22	223.54	1347.68
	5/23/2015	1612	1571.22	223.58	1347.64
	6/15/2015	1920	1571.22	223.62	1347.60
	7/13/2015	1521	1571.22	223.60	1347.62
	8/31/2015	1834	1571.22	223.65	1347.57
	9/30/2015	1830	1571.22	223.65	1347.57
	10/26/2015	1918	1571.22	223.54	1347.68
	11/25/2015	1715	1571.22	223.59	1347.63
	12/10/2015	1636	1571.22	223.55	1347.67
	1/13/2016	1545	1571.22	223.76	1347.46
	4/22/2016	1520	1571.22	223.83	1347.39
	7/20/2016	1910	1571.22	223.91	1347.31
	10/26/2016	1838	1571.22	223.95	1347.27
	1/5/2017	1754	1571.22	224.13	1347.09
MW-3	1/19/2015	1156	1583.59	245.80	1337.79
	2/25/2015	1352	1583.59	246.03	1337.56
	3/26/2015	1226	1583.59	246.43	1337.16
	4/13/2015	1014	1583.59	246.43	1337.16
	5/23/2015	1143	1583.59	246.50	1337.09
	6/15/2015	1409	1583.59	246.49	1337.10
	7/13/2015	1009	1583.59	246.45	1337.14
	8/31/2015	1330	1583.59	246.77	1336.82
	9/30/2015	1310	1583.59	246.90	1336.69
	10/26/2015	1400	1583.59	246.82	1336.77
	11/25/2015	1232	1583.59	246.83	1336.76
	12/10/2015	1222	1583.59	246.95	1336.64
	9/7/2004	0730	1583.59	229.10	1354.50
	10/22/2004	1130	1583.59	227.92	1355.67
	11/22/2004	0940	1583.59	228.91	1354.68
	12/07/2004	1000	1583.59	229.03	1354.56
	1/17/2005	0745	1583.59	229.35	1354.24
	2/14/2005	1056	1583.59	229.73	1353.86
	3/15/2005	1150	1583.59	229.86	1353.73
	4/25/2005	0820	1583.59	229.94	1353.65
	5/20/2005	0826	1583.59	230.21	1353.38
	6/27/2005	0820	1583.59	230.30	1353.29
	7/18/2005	0736	1583.59	230.61	1352.98
	8/22/2005	0812	1583.59	230.63	1352.96
	9/22/2005	0825	1583.59	231.67	1351.92
	10/24/2005	0810	1583.59	230.94	1352.65
	11/30/2005	1240	1583.59	231.12	1352.47
	12/22/2005	1415	1583.59	231.15	1352.44
	1/27/2006	1048	1583.59	231.34	1352.25
	2/20/2006	0935	1583.59	231.47	1352.12
	3/21/2006	0735	1583.59	231.59	1352.00
	5/22/2006	0918	1583.59	231.91	1351.68
	8/28/2006	1004	1583.59	232.24	1351.35
	11/13/2006	1040	1583.59	232.82	1350.77
	2/12/2007	1235	1583.59	232.76	1350.83
	4/9/2007	1019	1583.59	233.11	1350.48
	7/30/2007	1149	1583.59	233.52	1350.07
	10/15/2007	0942	1583.59	234.45	1349.14

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-3 (cont.)	1/14/2008	1227	1583.59	234.93	1348.66
	3/31/2008	1331	1583.59	235.42	1348.17
	4/29/2008	1537	1583.59	235.21	1348.38
	5/27/2008	1406	1583.59	235.48	1348.11
	6/27/2008	1005	1583.59	235.66	1347.93
	7/28/2008	1456	1583.59	235.79	1347.80
	8/29/2008	1316	1583.59	236.07	1347.52
	9/20/2008	1120	1583.59	236.10	1347.49
	10/14/2008	1220	1583.59	236.30	1347.29
	11/21/2008	1130	1583.59	236.45	1347.14
	12/15/2008	1230	1583.59	236.59	1347.00
	1/12/2009	1108	1583.59	236.60	1346.99
	2/16/2009	1425	1583.59	236.86	1346.73
	3/17/2009	1224	1583.59	237.00	1346.59
	4/13/2009	1059	1583.59	237.07	1346.52
	5/20/2009	1117	1583.59	237.24	1346.35
	6/15/2009	1110	1583.59	237.31	1346.28
	7/6/2009	1419	1583.59	237.35	1346.24
	8/12/2009	1125	1583.59	237.47	1346.12
	9/28/2009	1148	1583.59	237.81	1345.78
	10/27/2009	0853	1583.59	237.82	1345.77
	11/25/2009	1008	1583.59	238.13	1345.46
	12/18/2009	1028	1583.59	238.13	1345.46
	1/18/2010	1051	1583.59	238.35	1345.24
	6/8/2010	1111	1583.59	239.06	1344.53
	6/22/2010	1105	1583.59	239.16	1344.43
	2/23/2011	1148	1583.59	240.15	1343.44
	3/22/2011	0911	1583.59	240.46	1343.13
	4/25/2011	1500	1583.59	240.53	1343.06
	5/27/2011	0917	1583.59	240.77	1342.82
	6/30/2011	1015	1583.59	240.81	1342.78
	7/25/2011	0921	1583.59	241.04	1342.55
	9/2/2011	0948	1583.59	241.11	1342.48
	9/27/2011	1406	1583.59	241.15	1342.44
	10/24/2011	1041	1583.59	241.23	1342.36
	11/28/2011	1008	1583.59	241.26	1342.33
	12/27/2011	0947	1583.59	241.42	1342.17
	1/19/2012	1105	1583.59	241.23	1342.36
	2/27/2012	1424	1583.59	241.26	1342.33
	3/27/2012	0854	1583.59	241.42	1342.17
	4/28/2012	1532	1583.59	241.85	1341.74
	5/8/2012	0920	1583.59	242.25	1341.34
	6/29/2012	1015	1583.59	242.24	1341.35
	7/30/2012	1515	1583.59	242.39	1341.20
	8/7/2012	1425	1583.59	242.32	1341.27
	9/6/2012	0944	1583.59	242.58	1341.01
	10/4/2012	0847	1583.59	242.76	1340.83
	2/19/2013	1313	1583.59	243.04	1340.55
	3/29/2013	0815	1583.59	243.47	1340.12
	4/29/2013	1417	1583.59	243.37	1340.22
	5/30/2013	1820	1583.59	243.58	1340.01
	6/16/2013	1138	1583.59	243.66	1339.93
	7/15/2013	1200	1583.59	243.74	1339.85
	8/6/2013	1503	1583.59	243.95	1339.64
	9/17/2013	1802	1583.59	243.89	1339.70

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-3 (cont.)	10/7/2013	1109	1583.59	244.01	1339.58
	11/21/2013	1305	1583.59	244.23	1339.36
	12/6/2013	1159	1583.59	244.45	1339.14
	1/13/2014	1604	1583.59	244.54	1339.05
	2/28/2014	1453	1583.59	244.65	1338.94
	3/15/2014	1508	1583.59	244.82	1338.77
	3/31/2014	1146	1583.59	244.83	1338.76
	5/23/2014	1504	1583.59	244.95	1338.64
	6/14/2014	1232	1583.59	244.96	1338.63
	7/7/2014	0807	1583.59	245.04	1338.55
	9/3/2014	1357	1583.59	245.24	1338.35
	9/25/2014	1849	1583.59	245.35	1338.24
	10/28/2014	1203	1583.59	245.62	1337.97
	11/27/2014	1357	1583.59	245.47	1338.12
	12/15/2014	1255	1583.59	245.69	1337.90
	1/19/2015	1156	1583.59	245.80	1337.79
	2/25/2015	1352	1583.59	246.03	1337.56
	3/26/2015	1226	1583.59	246.43	1337.16
	4/13/2015	1014	1583.59	246.43	1337.16
	5/23/2015	1143	1583.59	246.50	1337.09
	6/15/2015	1409	1583.59	246.49	1337.10
	7/13/2015	1009	1583.59	246.45	1337.14
	8/31/2015	1330	1583.59	246.77	1336.82
	9/30/2015	1310	1583.59	246.90	1336.69
	10/26/2015	1400	1583.59	246.82	1336.77
	11/25/2015	1232	1583.59	246.83	1336.76
	12/10/2015	1222	1583.59	246.95	1336.64
	1/13/2016	1153	1583.59	247.27	1336.32
	4/22/2016	1135	1583.59	247.77	1335.82
	7/20/2016	1447	1583.59	247.97	1335.62
	10/26/2016	1440	1583.59	248.46	1335.13
	1/5/2017	1428	1583.59	248.85	1334.74
MW-4	09/07/2004	0709	1620.34	269.13	1351.21
	10/22/2004	1100	1620.34	268.92	1351.42
	11/22/2004	0910	1620.34	269.58	1350.76
	12/07/2004	1000	1620.34	269.83	1350.51
	1/17/2005	0800	1620.34	269.84	1350.50
	2/14/2005	1004	1620.34	270.04	1350.30
	3/15/2005	1230	1620.34	270.15	1350.19
	4/25/2005	0645	1620.34	270.12	1350.22
	5/20/2005	0716	1620.34	270.22	1350.12
	6/27/2005	0750	1620.34	270.26	1350.08
	7/18/2005	0645	1620.34	270.56	1349.78
	8/22/2005	0721	1620.34	270.40	1349.94
	9/22/2005	0717	1620.34	270.44	1349.90
	10/24/2005	0847	1620.34	270.78	1349.56
	11/30/2005	1254	1620.34	270.82	1349.52
	12/22/2005	1427	1620.34	270.80	1349.54
	01/27/2006	0950	1620.34	271.05	1349.29
	02/20/2006	0850	1620.34	271.22	1349.12
	03/20/2006	1555	1620.34	271.28	1349.06
	05/22/2006	0857	1620.34	271.43	1348.91
	8/28/2006	1115	1620.34	271.82	1348.52
	11/13/2006	926	1620.34	271.33	1349.01
	2/12/2007	1135	1620.34	271.51	1348.83

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-4 (cont.)	4/9/2007	1048	1620.34	271.66	1348.68
	7/30/2007	940	1620.34	272.63	1347.71
	10/15/2007	1324	1620.34	273.35	1346.99
	1/14/2008	1321	1620.34	273.81	1346.53
	3/31/2008	1316	1620.34	274.00	1346.34
	4/29/2008	1459	1620.34	273.76	1346.58
	5/27/2008	1350	1620.34	274.05	1346.29
	6/27/2008	928	1620.34	274.18	1346.16
	7/28/2008	1603	1620.34	274.22	1346.12
	8/29/2008	1217	1620.34	274.40	1345.94
	9/20/2008	749	1620.34	274.48	1345.86
	10/14/2008	1246	1620.34	274.68	1345.66
	11/21/2008	940	1620.34	274.70	1345.64
	12/15/2008	1214	1620.34	274.90	1345.44
	1/12/2009	1042	1620.34	274.93	1345.41
	2/16/2009	1457	1620.34	274.78	1345.56
	3/17/2009	1316	1620.34	275.07	1345.27
	4/13/2009	1227	1620.34	275.04	1345.30
	5/20/2009	1225	1620.34	275.19	1345.15
	6/15/2009	1140	1620.34	275.23	1345.11
	7/6/2009	1130	1620.34	275.26	1345.08
	8/12/2009	1246	1620.34	275.39	1344.95
	9/28/2009	1036	1620.34	275.50	1344.84
	10/27/2009	0837	1620.34	275.50	1344.84
	11/25/2009	0749	1620.34	275.86	1344.48
	12/18/2009	1045	1620.34	275.82	1344.52
	1/18/2010	1023	1620.34	275.97	1344.37
	6/8/2010	1323	1620.34	276.21	1344.13
	6/22/2010	1237	1620.34	276.35	1343.99
	2/23/2011	1220	1620.34	276.84	1343.50
	3/22/2011	1015	1620.34	276.97	1343.37
	4/25/2011	1548	1620.34	276.92	1343.42
	5/27/2011	0943	1620.34	276.94	1343.40
	6/30/2011	1045	1620.34	277.11	1343.23
	7/25/2011	0954	1620.34	277.39	1342.95
	9/2/2011	1310	1620.34	277.28	1343.06
	9/27/2011	1427	1620.34	277.29	1343.05
	10/24/2011	1059	1620.34	277.38	1342.96
	11/28/2011	1022	1620.34	277.53	1342.81
	12/27/2011	1002	1620.34	277.59	1342.75
	1/19/2012	1135	1620.34	277.38	1342.96
	2/27/2012	1429	1620.34	277.53	1342.81
	3/27/2012	0906	1620.34	277.59	1342.75
	4/28/2012	1449	1620.34	277.71	1342.63
	5/8/2012	1044	1620.34	278.13	1342.21
	6/29/2012	1017	1620.34	278.12	1342.22
	7/30/2012	1747	1620.34	278.05	1342.29
	8/7/2012	1528	1620.34	278.03	1342.31
	9/6/2012	0956	1620.34	278.16	1342.18
	10/4/2012	0937	1620.34	278.36	1341.98
	2/19/2013	1440	1620.34	278.14	1342.20
	3/29/2013	0849	1620.34	278.87	1341.47
	4/29/2013	1615	1620.34	278.23	1342.11
	5/30/2013	1920	1620.34	278.48	1341.86

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-4 (cont.)	6/16/2013	1245	1620.34	278.62	1341.72
	7/15/2013	1200	1620.34	279.46	1340.88
	8/6/2013	1638	1620.34	278.71	1341.63
	9/17/2013	1850	1620.34	278.55	1341.79
	10/7/2013	1225	1620.34	278.70	1341.64
	11/21/2013	1430	1620.34	278.82	1341.52
	12/6/2013	1335	1620.34	279.09	1341.25
	1/13/2014	1713	1620.34	279.17	1341.17
	2/28/2014	1710	1620.34	278.87	1341.47
	3/15/2014	1653	1620.34	279.09	1341.25
	3/31/2014	1603	1620.34	278.98	1341.36
	5/23/2014	1620	1620.34	278.90	1341.44
	6/14/2014	1418	1620.34	278.87	1341.47
	7/7/2014	1038	1620.34	279.14	1341.20
	9/4/2014	1224	1620.34	279.15	1341.19
	9/26/2014	2218	1620.34	279.25	1341.09
	10/28/2014	1408	1620.34	279.47	1340.87
	11/27/2014	1548	1620.34	279.30	1341.04
	12/15/2014	1505	1620.34	279.51	1340.83
	1/19/2015	1346	1620.34	279.54	1340.80
	2/25/2015	1616	1620.34	279.58	1340.76
	3/26/2015	1423	1620.34	279.88	1340.46
	4/13/2015	1259	1620.34	279.97	1340.37
	5/23/2015	1338	1620.34	279.98	1340.36
	6/15/2015	1639	1620.34	279.88	1340.46
	7/13/2015	1305	1620.34	279.90	1340.44
	8/31/2015	1536	1620.34	279.96	1340.38
	9/30/2015	1515	1620.34	280.10	1340.24
	10/26/2015	1620	1620.34	280.00	1340.34
	11/25/2015	1420	1620.34	279.93	1340.41
	12/10/2015	1356	1620.34	280.05	1340.29
	1/13/2016	1315	1620.34	280.38	1339.96
	4/22/2016	1300	1620.34	280.37	1339.97
	7/20/2016	1625	1620.34	280.37	1339.97
	10/26/2016	1615	1620.34	280.27	1340.07
	1/5/2017	1610	1620.34	280.27	1340.07
MW-5	09/07/2004	0815	1590.45	240.17	1350.28
	10/22/2004	1255	1590.45	239.67	1350.78
	11/22/2004	1135	1590.45	240.40	1350.05
	12/07/2004	1000	1590.45	240.49	1349.96
	1/17/2005	0815	1590.45	240.47	1349.98
	2/14/2005	1040	1590.45	240.44	1350.01
	3/15/2005	1220	1590.45	240.36	1350.09
	4/25/2005	0700	1590.45	240.38	1350.07
	5/20/2005	0735	1590.45	240.48	1349.97
	6/27/2005	0800	1590.45	240.58	1349.87
	7/18/2005	0700	1590.45	240.90	1349.55
	8/22/2005	0734	1590.45	240.81	1349.64
	9/22/2005	0730	1590.45	240.81	1349.64
	10/24/2005	0856	1590.45	240.85	1349.60
	11/30/2005	1304	1590.45	240.81	1349.64
	12/22/2005	1455	1590.45	240.90	1349.55
	1/27/2006	1111	1590.45	240.99	1349.46
	2/20/2006	1035	1590.45	240.94	1349.51
	3/20/2006	1540	1590.45	240.92	1349.53

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-5 (cont.)	5/22/2006	0848	1590.45	241.07	1349.38
	8/28/2006	1141	1590.45	240.97	1349.48
	11/13/2006	0935	1590.45	241.04	1349.41
	2/12/2007	1151	1590.45	241.09	1349.36
	4/9/2007	1042	1590.45	241.10	1349.35
	7/30/2007	1002	1590.45	240.81	1349.64
	10/15/2007	1427	1590.45	241.12	1349.33
	1/14/2008	1458	1590.45	241.28	1349.17
	3/31/2008	1048	1590.45	241.31	1349.14
	4/29/2008	1342	1590.45	241.28	1349.17
	5/27/2008	1532	1590.45	241.33	1349.12
	6/27/2008	0835	1590.45	241.48	1348.97
	7/28/2008	1646	1590.45	241.44	1349.01
	8/29/2008	1207	1590.45	241.45	1349.00
	9/20/2008	0755	1590.45	241.48	1348.97
	10/14/2008	1351	1590.45	241.43	1349.02
	11/21/2008	1328	1590.45	241.45	1349.00
	12/15/2008	1309	1590.45	241.43	1349.02
	1/12/2009	1253	1590.45	241.42	1349.03
	2/16/2009	1540	1590.45	241.45	1349.00
	3/17/2009	1407	1590.45	241.43	1349.02
	4/13/2009	1320	1590.45	241.43	1349.02
	5/20/2009	1315	1590.45	241.53	1348.92
	6/15/2009	1235	1590.45	241.57	1348.88
	7/6/2009	1454	1590.45	241.54	1348.91
	8/12/2009	1334	1590.45	241.58	1348.87
	9/28/2009	0913	1594.08	245.32	1348.76
	10/27/2009	1105	1594.08	245.38	1348.70
	11/25/2009	1054	1594.08	245.54	1348.54
	12/18/2009	1135	1594.08	245.59	1348.49
	1/19/2010	0743	1594.08	245.76	1348.32
	6/8/2010	1255	1594.08	245.39	1348.69
	6/22/2010	1329	1594.08	245.38	1348.70
	2/23/2011	1305	1594.08	245.38	1348.70
	3/22/2011	1055	1594.08	245.37	1348.71
	4/26/2011	0805	1594.08	245.43	1348.65
	5/27/2011	1019	1594.08	245.39	1348.69
	6/30/2011	1137	1594.08	245.41	1348.67
	7/25/2011	1031	1594.08	245.64	1348.44
	9/2/2011	1347	1594.08	245.44	1348.64
	9/27/2011	1455	1594.08	245.45	1348.63
	10/24/2011	1145	1594.08	245.50	1348.58
	11/28/2011	1134	1594.08	245.53	1348.55
	12/27/2011	1103	1594.08	245.56	1348.52
	1/19/2012	1231	1594.08	245.50	1348.58
	2/27/2012	1536	1594.08	245.53	1348.55
	3/27/2012	1023	1594.08	245.56	1348.52
	4/28/2012	1637	1594.08	245.56	1348.52
	5/8/2012	1112	1594.08	245.86	1348.22
	7/30/2012	1918	1594.08	245.70	1348.38
	8/19/2012	1555	1594.08	245.60	1348.48
	9/6/2012	1113	1594.08	245.70	1348.38
	10/4/2012	1037	1594.08	245.75	1348.33
	2/19/2013	1614	1594.08	245.77	1348.31
	3/29/2013	0912	1594.08	245.94	1348.14

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-5 (cont.)	4/29/2013	1715	1594.08	245.88	1348.20
	5/30/2013	1950	1594.08	245.91	1348.17
	6/16/2013	1315	1594.08	245.91	1348.17
	7/15/2013	1200	1594.08	246.02	1348.06
	8/6/2013	1824	1594.08	245.98	1348.10
	9/17/2013	2003	1594.08	246.02	1348.06
	10/7/2013	1354	1594.08	246.01	1348.07
	11/21/2013	1519	1594.08	246.06	1348.02
	12/6/2013	1415	1594.08	246.04	1348.04
	1/13/2014	1735	1594.08	246.10	1347.98
	2/28/2014	1849	1594.08	246.13	1347.95
	3/15/2014	1806	1594.08	246.13	1347.95
	3/31/2014	1642	1594.08	246.08	1348.00
	5/23/2014	1710	1594.08	246.34	1347.74
	6/14/2014	1459	1594.08	246.25	1347.83
	7/7/2014	1139	1594.08	245.97	1348.11
	9/4/2014	1338	1594.08	246.03	1348.05
	9/27/2014	0019	1594.08	246.13	1347.95
	10/28/2014	1600	1594.08	246.15	1347.93
	11/27/2014	1807	1594.08	246.12	1347.96
	12/15/2014	1732	1594.08	246.22	1347.86
	1/19/2015	1542	1594.08	246.23	1347.85
	2/25/2015	1752	1594.08	246.25	1347.83
	3/26/2015	1623	1594.08	246.38	1347.70
	4/13/2015	1438	1594.08	246.39	1347.69
	5/23/2015	1535	1594.08	246.42	1347.66
	6/15/2015	1845	1594.08	246.44	1347.64
	7/13/2015	1500	1594.08	246.33	1347.75
	8/31/2015	1815	1594.08	246.48	1347.60
	9/30/2015	1804	1594.08	246.48	1347.60
	10/26/2015	1857	1594.08	246.37	1347.71
	11/25/2015	1653	1594.08	246.40	1347.68
	12/10/2015	1600	1594.08	246.39	1347.69
	1/13/2016	1516	1594.08	246.60	1347.48
	4/22/2016	1450	1594.08	246.66	1347.42
	7/20/2016	1845	1594.08	246.11	1347.97
	10/26/2016	1818	1594.08	246.64	1347.44
	1/5/2017	-	1594.08	246.80	1347.28
MW-6	09/07/2004	0739	1548.22	162.22	1386.00
	10/22/2004	1224	1548.22	161.27	1386.95
	11/22/2004	1045	1548.22	161.77	1386.45
	12/07/2004	1000	1548.22	161.99	1386.23
	1/17/2005	0830	1548.22	162.32	1385.90
	2/14/2005	1121	1548.22	162.50	1385.72
	3/15/2005	1200	1548.22	160.38	1387.84
	4/25/2005	0735	1548.22	149.74	1398.48
	5/20/2005	0810	1548.22	148.31	1399.91
	6/27/2005	0810	1548.22	148.82	1399.40
	7/18/2005	0725	1548.22	149.61	1398.61
	8/22/2005	0749	1548.22	150.88	1397.34
	9/22/2005	0814	1548.22	151.89	1396.33
	10/24/2005	0903	1548.22	153.11	1395.11
	11/30/2005	1348	1548.22	154.16	1394.06
	12/22/2005	1447	1548.22	154.68	1393.54
	1/27/2006	1101	1548.22	155.56	1392.66

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-6 (cont.)	2/20/2006	1110	1548.22	156.10	1392.12
	3/20/2006	1625	1548.22	156.61	1391.61
	5/22/2006	1011	1548.22	157.80	1390.42
	8/28/2006	1216	1548.22	159.64	1388.58
	11/13/2006	1022	1548.22	161.11	1387.11
	2/12/2007	1300	1548.22	161.95	1386.27
	4/9/2007	1053	1548.22	161.63	1386.59
	7/30/2007	1016	1548.22	162.92	1385.30
	10/15/2007	1413	1548.22	163.95	1384.27
	1/14/2008	1520	1548.22	164.94	1383.28
	3/31/2008	0910	1548.22	165.42	1382.80
	4/29/2008	1520	1548.22	164.28	1383.94
	5/27/2008	1540	1548.22	163.05	1385.17
	6/27/2008	0850	1548.22	162.08	1386.14
	7/28/2008	1636	1548.22	161.50	1386.72
	8/29/2008	1037	1548.22	161.30	1386.92
	9/20/2008	0905	1548.22	161.33	1386.89
	10/14/2008	1402	1548.22	161.48	1386.74
	11/21/2008	1320	1548.22	161.71	1386.51
	12/15/2008	1253	1548.22	161.89	1386.33
	1/12/2009	1236	1548.22	162.28	1385.94
	2/16/2009	1528	1548.22	162.43	1385.79
	3/17/2009	1357	1548.22	162.81	1385.41
	4/13/2009	1305	1548.22	162.83	1385.39
	5/20/2009	1305	1548.22	162.78	1385.44
	6/15/2009	1222	1548.22	162.57	1385.65
	7/6/2009	1440	1548.22	162.50	1385.72
	8/12/2009	1324	1548.22	162.64	1385.58
	9/28/2009	0925	1551.65	166.25	1385.40
	10/27/2009	1129	1551.65	166.33	1385.32
	11/25/2009	1102	1551.65	167.02	1384.63
	12/18/2009	1120	1551.65	167.10	1384.55
	1/18/2010	1156	1551.65	167.37	1384.28
	6/8/2010	1146	1551.65	162.94	1388.71
	6/22/2010	1216	1551.65	162.17	1389.48
	2/23/2011	1255	1551.65	162.70	1388.95
	3/22/2011	0952	1551.65	163.03	1388.62
	4/26/2011	0811	1551.65	162.62	1389.03
	5/27/2011	1035	1551.65	162.82	1388.83
	6/30/2011	1201	1551.65	162.68	1388.97
	7/25/2011	1044	1551.65	163.13	1388.52
	9/2/2011	1227	1551.65	163.19	1388.46
	9/27/2011	1503	1551.65	163.47	1388.18
	10/24/2011	1138	1551.65	163.80	1387.85
	11/28/2011	1122	1551.65	164.37	1387.28
	12/27/2011	1053	1551.65	164.70	1386.95
	1/19/2012	1220	1551.65	163.80	1387.85
	2/27/2012	1526	1551.65	164.37	1387.28
	3/27/2012	1012	1551.65	164.70	1386.95
	4/28/2012	1555	1551.65	165.94	1385.71
	5/8/2012	1209	1551.65	166.45	1385.20
	6/29/2012	1040	1551.65	167.00	1384.65
	7/30/2012	1703	1551.65	167.28	1384.37
	8/17/2012	1838	1551.65	167.53	1384.12
	9/6/2012	1102	1551.65	167.92	1383.73

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-6 (cont.)	10/4/2012	0919	1551.65	168.28	1383.37
	2/19/2013	1551	1551.65	169.11	1382.54
	3/29/2013	0829	1551.65	169.90	1381.75
	4/29/2013	1722	1551.65	170.13	1381.52
	5/30/2013	2030	1551.65	170.14	1381.51
	6/16/2013	1408	1551.65	170.32	1381.33
	7/15/2013	1200	1551.65	170.03	1381.62
	8/6/2013	1812	1551.65	170.55	1381.10
	9/17/2013	1825	1551.65	170.32	1381.33
	10/7/2013	1322	1551.65	170.34	1381.31
	11/21/2013	1620	1551.65	170.65	1381.00
	12/6/2013	1525	1551.65	170.84	1380.81
	1/13/2014	1755	1551.65	170.68	1380.97
	2/28/2014	1820	1551.65	170.72	1380.93
	3/15/2014	1746	1551.65	170.66	1380.99
	3/31/2014	1630	1551.65	170.48	1381.17
	5/23/2014	1653	1551.65	172.86	1378.79
	6/14/2014	1444	1551.65	172.08	1379.57
	7/7/2014	1120	1551.65	171.94	1379.71
	9/4/2014	1313	1551.65	169.60	1382.05
	9/15/2014	0925	1551.65	170.08	1381.57
	10/28/2014	1533	1551.65	163.60	1388.05
	11/27/2014	1755	1551.65	165.60	1386.05
	12/15/2014	1715	1551.65	166.28	1385.37
	1/19/2015	1533	1551.65	167.08	1384.57
	2/25/2015	1236	1551.65	167.11	1384.54
	3/26/2015	1750	1551.65	167.42	1384.23
	4/13/2015	1427	1551.65	167.53	1384.12
	5/23/2015	1520	1551.65	167.29	1384.36
	6/15/2015	1830	1551.65	167.24	1384.41
	7/13/2015	1412	1551.65	166.96	1384.69
	8/31/2015	1720	1551.65	167.23	1384.42
	9/30/2015	1710	1551.65	167.32	1384.33
	10/26/2015	1808	1551.65	167.46	1384.19
	11/25/2015	1608	1551.65	167.44	1384.21
	12/10/2015	1515	1551.65	167.64	1384.01
	1/13/2016	1426	1551.65	168.16	1383.49
	4/22/2016	1403	1551.65	168.88	1382.77
	7/20/2016	1735	1551.65	169.70	1381.95
	10/26/2016	1742	1551.65	170.58	1381.07
	1/5/2017	1710	1551.65	171.60	1380.05
MW-7	10/22/2004	1200	1541.35	157.21	1384.14
	11/22/2004	0950	1541.35	154.14	1387.21
	12/07/2004	1000	1541.35	154.55	1386.80
	1/17/2005	0845	1541.35	155.02	1386.33
	2/14/2005	1111	1541.35	155.20	1386.15
	3/15/2005	1130	1541.35	155.48	1385.87
	4/25/2005	0840	1541.35	155.56	1385.79
	5/20/2005	0852	1541.35	155.56	1385.79
	6/27/2005	0845	1541.35	155.60	1385.75
	7/18/2005	0757	1541.35	155.94	1385.41
	8/22/2005	0838	1541.35	156.09	1385.26
	9/22/2005	0845	1541.35	156.37	1384.98
	10/24/2005	0837	1541.35	157.01	1384.34
	11/30/2005	1225	1541.35	157.41	1383.94

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-7 (cont.)	12/22/2005	1347	1541.35	157.73	1383.62
	1/27/2006	1034	1541.35	158.25	1383.10
	2/20/2006	0955	1541.35	158.58	1382.77
	3/20/2006	1645	1541.35	158.83	1382.52
	5/22/2006	0948	1541.35	159.39	1381.96
	8/28/2006	1027	1541.35	159.54	1381.81
	11/13/2006	1030	1541.35	159.48	1381.87
	2/12/2007	1250	1541.35	159.37	1381.98
	4/9/2007	1055	1541.35	159.30	1382.05
	7/30/2007	1121	1541.35	159.48	1381.87
	10/15/2007	0909	1541.35	160.12	1381.23
	1/14/2008	0903	1541.35	160.61	1380.74
	3/31/2008	1351	1541.35	160.53	1380.82
	4/29/2008	1254	1541.35	160.46	1380.89
	5/27/2008	1445	1541.35	160.63	1380.72
	6/27/2008	1050	1541.35	160.83	1380.52
	7/28/2008	1402	1541.35	160.92	1380.43
	8/29/2008	1300	1541.35	160.85	1380.50
	9/20/2008	1145	1541.35	160.98	1380.37
	10/14/2008	1057	1541.35	161.21	1380.14
	11/21/2008	1025	1541.35	161.22	1380.13
	12/15/2008	0823	1541.35	161.19	1380.16
	1/12/2009	0750	1541.35	161.39	1379.96
	2/16/2009	0956	1541.35	161.17	1380.18
	3/17/2009	0839	1541.35	161.42	1379.93
	4/13/2009	0843	1541.35	161.39	1379.96
	5/20/2009	0817	1541.35	161.49	1379.86
	6/15/2009	0826	1541.35	161.57	1379.78
	7/6/2009	0745	1541.35	161.58	1379.77
	8/12/2009	1137	1541.35	161.71	1379.64
	9/28/2009	0947	1541.35	161.71	1379.64
	10/27/2009	0749	1541.35	161.70	1379.65
	11/25/2009	0706	1541.35	162.06	1379.29
	12/18/2009	0828	1541.35	162.07	1379.28
	1/18/2010	0748	1541.35	162.03	1379.32
	6/8/2010	1343	1541.35	162.04	1379.31
	6/22/2010	1124	1541.35	162.16	1379.19
	2/23/2011	0850	1541.35	162.20	1379.15
	3/22/2011	0834	1541.35	162.36	1378.99
	4/25/2011	1327	1541.35	162.25	1379.10
	5/27/2011	0800	1541.35	162.24	1379.11
	6/30/2011	0800	1541.35	162.93	1378.42
	7/25/2011	0720	1541.35	162.66	1378.69
	9/2/2011	1200	1541.35	162.41	1378.94
	9/27/2011	1228	1541.35	162.42	1378.93
	10/24/2011	0843	1541.35	162.50	1378.85
	11/28/2011	0821	1541.35	162.64	1378.71
	12/27/2011	0845	1541.35	162.61	1378.74
	1/19/2012	0937	1541.35	162.50	1378.85
	2/27/2012	1316	1541.35	162.64	1378.71
	3/27/2012	0725	1541.35	162.61	1378.74
	4/28/2012	1300	1541.35	162.38	1378.97
	5/8/2012	0722	1541.35	162.68	1378.67
	6/29/2012	0859	1541.35	162.68	1378.67
	7/30/2012	1604	1541.35	162.61	1378.74

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-7 (cont.)	8/7/2012	0800	1541.35	162.69	1378.66
	9/6/2012	0815	1541.35	162.74	1378.61
	10/4/2012	0825	1541.35	162.82	1378.53
	2/19/2013	1344	1541.35	162.55	1378.80
	3/29/2013	0646	1541.35	163.93	1377.42
	4/29/2013	1430	1541.35	162.59	1378.76
	5/30/2013	1840	1541.35	162.63	1378.72
	6/16/2013	1146	1541.35	162.83	1378.52
	7/15/2013	1200	1541.35	164.64	1376.71
	8/6/2013	1522	1541.35	163.03	1378.32
	9/17/2013	1703	1541.35	162.55	1378.80
	10/7/2013	1140	1541.35	162.88	1378.47
	11/21/2013	1320	1541.35	162.60	1378.75
	12/6/2013	1220	1541.35	162.76	1378.59
	1/13/2014	1617	1541.35	162.67	1378.68
	2/28/2014	1559	1541.35	162.12	1379.23
	3/15/2014	1555	1541.35	162.30	1379.05
	3/31/2014	1248	1541.35	162.22	1379.13
	5/23/2014	1523	1541.35	162.04	1379.31
	6/14/2014	1317	1541.35	161.95	1379.40
	7/7/2014	0852	1541.35	162.00	1379.35
	9/4/2014	1120	1541.35	161.73	1379.62
	9/25/2014	2020	1541.35	161.74	1379.61
	10/28/2014	1259	1541.35	161.54	1379.81
	11/27/2014	1447	1541.35	160.94	1380.41
	12/15/2014	1352	1541.35	160.60	1380.75
	1/19/2015	1238	1541.35	160.13	1381.22
	2/25/2015	1503	1541.35	159.56	1381.79
	3/26/2015	1322	1541.35	159.47	1381.88
	4/13/2015	1155	1541.35	159.34	1382.01
	5/23/2015	1235	1541.35	159.11	1382.24
	6/15/2015	1515	1541.35	158.74	1382.61
	7/13/2015	1102	1541.35	158.77	1382.58
	8/31/2015	1435	1541.35	158.52	1382.83
	9/30/2015	1408	1541.35	158.58	1382.77
	10/26/2015	1513	1541.35	158.48	1382.87
	11/25/2015	1308	1541.35	158.31	1383.04
	12/10/2015	1255	1541.35	158.45	1382.90
	1/13/2016	1217	1541.35	158.70	1382.65
	4/22/2016	1157	1541.35	158.54	1382.81
	7/20/2016	1525	1541.35	158.57	1382.78
	10/26/2016	1515	1541.35	158.65	1382.70
	1/5/2017	1505	1541.35	158.56	1382.79
MW-8	10/22/2004	1212	1542.18	193.21	1348.97
	11/22/2004	1010	1542.18	192.27	1349.91
	12/07/2004	1000	1542.18	192.29	1349.89
	1/17/2005	0900	1542.18	192.27	1349.91
	2/14/2005	1130	1542.18	192.29	1349.89
	3/15/2005	1140	1542.18	192.27	1349.91
	4/25/2005	0850	1542.18	192.29	1349.89
	5/20/2005	0910	1542.18	192.50	1349.68
	6/27/2005	1015	1542.18	192.57	1349.61
	7/18/2005	0806	1542.18	192.88	1349.30
	8/22/2005	0850	1542.18	192.90	1349.28
	9/22/2005	0855	1542.18	192.84	1349.34

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-8 (cont.)	10/24/2005	0828	1542.18	192.89	1349.29
	11/30/2005	1218	1542.18	192.84	1349.34
	12/22/2005	1354	1542.18	192.91	1349.27
	1/27/2006	1024	1542.18	193.98	1348.20
	2/20/2006	1005	1542.18	192.93	1349.25
	3/20/2006	1658	1542.18	192.83	1349.35
	5/22/2006	0955	1542.18	192.97	1349.21
	8/28/2006	1035	1542.18	192.95	1349.23
	11/13/2006	0853	1542.18	192.98	1349.20
	2/12/2007	1125	1542.18	193.01	1349.17
	4/9/2007	1012	1542.18	192.79	1349.39
	7/30/2007	1104	1542.18	192.71	1349.47
	10/15/2007	0839	1542.18	193.18	1349.00
	1/14/2008	0844	1542.18	193.32	1348.86
	3/31/2008	1400	1542.18	193.17	1349.01
	4/29/2008	1706	1542.18	193.08	1349.10
	5/27/2008	1457	1542.18	193.25	1348.93
	6/27/2008	1029	1542.18	193.39	1348.79
	7/28/2008	1415	1542.18	193.36	1348.82
	8/29/2008	1252	1542.18	193.37	1348.81
	9/20/2008	1250	1542.18	193.35	1348.83
	10/14/2008	1110	1542.18	193.37	1348.81
	11/21/2008	0955	1542.18	193.38	1348.80
	12/15/2008	0811	1542.18	193.35	1348.83
	1/12/2009	0739	1542.18	193.34	1348.84
	2/16/2009	0943	1542.18	193.37	1348.81
	3/17/2009	0827	1542.18	193.38	1348.80
	4/13/2009	0834	1542.18	193.33	1348.85
	5/20/2009	0805	1542.18	193.55	1348.63
	6/15/2009	0815	1542.18	193.51	1348.67
	7/6/2009	0733	1542.18	193.49	1348.69
	8/12/2009	1148	1542.18	193.52	1348.66
	9/28/2009	1000	1542.18	193.70	1348.48
	10/27/2009	0806	1542.18	193.80	1348.38
	11/25/2009	0714	1542.18	193.99	1348.19
	12/18/2009	0839	1542.18	194.08	1348.10
	1/18/2010	0817	1542.18	194.20	1347.98
	6/8/2010	1415	1542.18	193.56	1348.62
	6/22/2010	1203	1542.18	193.62	1348.56
	2/23/2011	0825	1542.18	193.59	1348.59
	3/22/2011	0817	1542.18	193.66	1348.52
	4/25/2011	1313	1542.18	193.60	1348.58
	5/27/2011	0745	1542.18	193.65	1348.53
	6/30/2011	0739	1542.18	193.68	1348.50
	7/25/2011	0700	1542.18	193.85	1348.33
	9/2/2011	1121	1542.18	193.69	1348.49
	9/27/2011	1218	1542.18	193.70	1348.48
	10/24/2011	0827	1542.18	193.76	1348.42
	11/28/2011	0809	1542.18	193.74	1348.44
	12/27/2011	0834	1542.18	193.75	1348.43
	1/19/2012	0925	1542.18	193.76	1348.42
	2/27/2012	1307	1542.18	193.74	1348.44
	3/27/2012	0715	1542.18	193.75	1348.43
	4/28/2012	1329	1542.18	193.75	1348.43
	5/8/2012	0701	1542.18	194.07	1348.11

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-8 (cont.)	6/29/2012	0839	1542.18	194.10	1348.08
	7/30/2012	1639	1542.18	193.81	1348.37
	8/7/2012	1035	1542.18	193.89	1348.29
	9/6/2012	0805	1542.18	194.05	1348.13
	10/4/2012	0800	1542.18	194.04	1348.14
	2/19/2013	1412	1542.18	193.95	1348.23
	3/29/2013	0621	1542.18	194.13	1348.05
	4/29/2013	1525	1542.18	194.02	1348.16
	5/30/2013	1900	1542.18	194.09	1348.09
	6/16/2013	1210	1542.18	194.17	1348.01
	7/15/2013	1200	1542.18	196.02	1346.16
	8/6/2013	1647	1542.18	194.17	1348.01
	9/17/2013	1740	1542.18	194.12	1348.06
	10/7/2013	1210	1542.18	194.20	1347.98
	11/21/2013	1350	1542.18	194.22	1347.96
	12/6/2013	1245	1542.18	194.24	1347.94
	1/13/2014	1640	1542.18	194.27	1347.91
	2/28/2014	1623	1542.18	194.25	1347.93
	3/15/2014	1614	1542.18	194.28	1347.90
	3/31/2014	1348	1542.18	194.29	1347.89
	5/23/2014	1542	1542.18	194.38	1347.80
	6/14/2014	1334	1542.18	194.52	1347.66
	7/7/2014	1005	1542.18	194.16	1348.02
	9/4/2014	1146	1542.18	194.26	1347.92
	9/25/2014	2052	1542.18	194.32	1347.86
	10/28/2014	1325	1542.18	194.33	1347.85
	11/27/2014	1510	1542.18	194.23	1347.95
	12/15/2014	1423	1542.18	194.35	1347.83
	1/19/2015	1308	1542.18	194.40	1347.78
	2/25/2015	1532	1542.18	194.52	1347.66
	3/26/2015	1343	1542.18	194.54	1347.64
	4/13/2015	1229	1542.18	196.58	1345.60
	5/23/2015	1259	1542.18	194.61	1347.57
	6/15/2015	1546	1542.18	194.53	1347.65
	7/13/2015	1125	1542.18	194.54	1347.64
	8/31/2015	1508	1542.18	194.58	1347.60
	9/30/2015	1441	1542.18	194.63	1347.55
	10/26/2015	1546	1542.18	194.52	1347.66
	11/25/2015	1342	1542.18	194.54	1347.64
	12/10/2015	1328	1542.18	194.56	1347.62
	1/13/2016	1243	1542.18	194.74	1347.44
	4/22/2016	1230	1542.18	194.83	1347.35
	7/20/2016	1552	1542.18	194.82	1347.36
	10/26/2016	1534	1542.18	194.93	1347.25
	1/5/2017	1526	1542.18	195.03	1347.15
MW-9	2/14/2005	1139	1565.60	215.29	1350.31
	3/15/2005	1110	1565.60	215.36	1350.24
	4/25/2005	0955	1565.60	215.34	1350.26
	5/20/2005	0926	1565.60	215.36	1350.24
	6/27/2005	1030	1565.60	215.41	1350.19
	7/18/2005	0819	1565.60	215.68	1349.92
	8/22/2005	0902	1565.60	215.57	1350.03
	9/22/2005	0908	1565.60	215.59	1350.01
	10/24/2005	0818	1565.60	215.72	1349.88
	11/30/2005	1207	1565.60	215.70	1349.90

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-9 (cont.)	12/22/2005	1403	1565.60	215.64	1349.96
	1/27/2006	1014	1565.60	215.83	1349.77
	2/20/2006	1015	1565.60	215.84	1349.76
	3/20/2006	1710	1565.60	215.82	1349.78
	5/22/2006	1002	1565.60	216.03	1349.57
	8/28/2006	1047	1565.60	215.95	1349.65
	11/13/2006	0843	1565.60	216.07	1349.53
	2/12/2007	1258	1565.60	216.12	1349.48
	4/9/2007	1051	1565.60	216.19	1349.41
	7/30/2007	1051	1565.60	215.83	1349.77
	10/15/2007	0820	1565.60	216.16	1349.44
	1/14/2008	0822	1565.60	216.30	1349.30
	3/31/2008	1413	1565.60	216.26	1349.34
	4/29/2008	1716	1565.60	216.15	1349.45
	5/27/2008	1509	1565.60	216.24	1349.36
	6/27/2008	1039	1565.60	216.37	1349.23
	7/28/2008	1429	1565.60	216.34	1349.26
	8/29/2008	1247	1565.60	216.38	1349.22
	9/20/2008	1303	1565.60	216.42	1349.18
	10/14/2008	1120	1565.60	216.46	1349.14
	11/21/2008	1013	1565.60	216.51	1349.09
	12/15/2008	0800	1565.60	216.52	1349.08
	1/12/2009	0730	1565.60	216.53	1349.07
	2/16/2009	0933	1565.60	216.52	1349.08
	3/17/2009	0819	1565.60	216.56	1349.04
	4/13/2009	0827	1565.60	216.54	1349.06
	5/20/2009	0758	1565.60	216.58	1349.02
	6/15/2009	0806	1565.60	216.60	1349.00
	7/6/2009	0724	1565.60	216.61	1348.99
	8/12/2009	0929	1565.60	216.62	1348.98
	9/28/2009	1010	1565.60	216.68	1348.92
	10/27/2009	0825	1565.60	216.62	1348.98
	11/25/2009	0727	1565.60	216.80	1348.80
	12/18/2009	0900	1565.60	216.85	1348.75
	1/18/2010	0825	1565.60	216.94	1348.66
	6/8/2010	1445	1565.60	216.85	1348.75
	6/22/2010	1151	1565.60	216.92	1348.68
	2/23/2011	0810	1565.60	216.90	1348.70
	3/22/2011	0826	1565.60	216.92	1348.68
	4/25/2011	1300	1565.60	216.86	1348.74
	5/27/2011	0720	1565.60	216.93	1348.67
	6/30/2011	0705	1565.60	216.93	1348.67
	7/25/2011	0630	1565.60	217.11	1348.49
	9/2/2011	1102	1565.60	216.92	1348.68
	9/27/2011	1205	1565.60	216.94	1348.66
	10/24/2011	0812	1565.60	216.99	1348.61
	11/28/2011	0750	1565.60	216.95	1348.65
	12/27/2011	0820	1565.60	217.00	1348.60
	1/19/2012	0905	1565.60	216.99	1348.61
	2/27/2012	1251	1565.60	216.95	1348.65
	3/27/2012	0655	1565.60	217.00	1348.60
	4/28/2012	1341	1565.60	216.93	1348.67
	5/8/2012	0710	1565.60	217.29	1348.31
	6/29/2012	0830	1565.60	217.06	1348.54
	7/30/2012	1618	1565.60	216.99	1348.61

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-9 (cont.)	8/9/2012	1225	1565.60	217.03	1348.57
	9/6/2012	0745	1565.60	217.19	1348.41
	10/4/2012	0740	1565.60	217.22	1348.38
	2/19/2013	1400	1565.60	217.12	1348.48
	3/29/2013	0630	1565.60	217.36	1348.24
	4/29/2013	1537	1565.60	217.15	1348.45
	5/30/2013	1910	1565.60	217.23	1348.37
	6/16/2013	1220	1565.60	217.28	1348.32
	7/15/2013	1200	1565.60	219.17	1346.43
	8/6/2013	1655	1565.60	217.27	1348.33
	9/17/2013	1719	1565.60	217.27	1348.33
	10/7/2013	1152	1565.60	217.34	1348.26
	11/21/2013	1402	1565.60	217.38	1348.22
	12/6/2013	1257	1565.60	217.41	1348.19
	1/13/2014	1650	1565.60	217.44	1348.16
	2/28/2014	1634	1565.60	217.38	1348.22
	3/15/2014	1624	1565.60	217.42	1348.18
	3/31/2014	1359	1565.60	217.44	1348.16
	5/23/2014	1552	1565.60	217.47	1348.13
	6/14/2014	1345	1565.60	217.47	1348.13
	7/7/2014	1017	1565.60	217.56	1348.04
	9/4/2014	1155	1565.60	217.44	1348.16
	9/25/2014	2101	1565.60	217.47	1348.13
	10/28/2014	1337	1565.60	217.49	1348.11
	11/27/2014	1521	1565.60	217.39	1348.21
	12/15/2014	1433	1565.60	217.51	1348.09
	1/19/2015	1320	1565.60	217.54	1348.06
	2/25/2015	1544	1565.60	217.57	1348.03
	3/26/2015	1355	1565.60	217.69	1347.91
	4/13/2015	1237	1565.60	217.74	1347.86
	5/23/2015	1309	1565.60	217.76	1347.84
	6/15/2015	1600	1565.60	217.70	1347.90
	7/13/2015	1137	1565.60	217.72	1347.88
	8/31/2015	1520	1565.60	217.71	1347.89
	9/30/2015	1454	1565.60	217.75	1347.85
	10/26/2015	1558	1565.60	217.64	1347.96
	11/25/2015	1356	1565.60	217.69	1347.91
	12/10/2015	1340	1565.60	217.69	1347.91
	1/13/2016	1252	1565.60	217.88	1347.72
	4/22/2016	1242	1565.60	217.98	1347.62
	7/20/2016	1605	1565.60	217.94	1347.66
	10/26/2016	1544	1565.60	218.04	1347.56
	1/5/2017	1535	1565.60	218.18	1347.42
MW-10	2/14/2005	1106	1536.11	149.92	1386.19
	3/15/2005	1120	1536.11	149.71	1386.40
	4/25/2005	0830	1536.11	149.56	1386.55
	5/20/2005	0842	1536.11	149.33	1386.78
	6/27/2005	0835	1536.11	149.04	1387.07
	7/18/2005	0748	1536.11	149.08	1387.03
	8/22/2005	0828	1536.11	149.02	1387.09
	9/22/2005	0836	1536.11	148.88	1387.23
	10/24/2005	0755	1536.11	149.20	1386.91
	11/30/2005	1232	1536.11	149.27	1386.84
	12/22/2005	1341	1536.11	149.33	1386.78
	1/27/2006	1039	1536.11	149.48	1386.63

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-10 (cont.)	2/20/2006	0945	1536.11	149.56	1386.55
	3/20/2006	1635	1536.11	149.54	1386.57
	05/22/2006	0942	1536.11	149.66	1386.45
	8/28/2006	1015	1536.11	150.05	1386.06
	11/13/2006	1050	1536.11	150.45	1385.66
	2/12/2007	1307	1536.11	150.63	1385.48
	4/9/2007	1032	1536.11	150.75	1385.36
	7/30/2007	1134	1536.11	150.88	1385.23
	10/15/2007	0924	1536.11	151.45	1384.66
	1/14/2008	0919	1536.11	151.93	1384.18
	3/31/2008	1342	1536.11	152.04	1384.07
	4/29/2008	1234	1536.11	151.98	1384.13
	5/27/2008	1438	1536.11	152.20	1383.91
	6/27/2008	0950	1536.11	152.37	1383.74
	7/28/2008	1440	1536.11	152.48	1383.63
	8/29/2008	1305	1536.11	152.41	1383.70
	9/20/2008	1130	1536.11	152.58	1383.53
	10/14/2008	1049	1536.11	152.83	1383.28
	11/21/2008	1034	1536.11	152.88	1383.23
	12/15/2008	0831	1536.11	152.87	1383.24
	1/12/2009	0805	1536.11	153.14	1382.97
	2/16/2009	1003	1536.11	152.95	1383.16
	3/17/2009	0847	1536.11	153.23	1382.88
	4/13/2009	0851	1536.11	153.24	1382.87
	5/20/2009	0824	1536.11	153.28	1382.83
	6/15/2009	0835	1536.11	153.35	1382.76
	7/6/2009	0754	1536.11	153.42	1382.69
	8/12/2009	0940	1536.11	153.61	1382.50
	9/28/2009	1020	1536.11	153.62	1382.49
	10/27/2009	0816	1536.11	153.64	1382.47
	11/25/2009	0650	1536.11	153.98	1382.13
	12/18/2009	0908	1536.11	154.00	1382.11
	1/18/2010	0836	1536.11	154.02	1382.09
	6/8/2010	1135	1536.11	154.47	1381.64
	6/22/2010	1115	1536.11	154.54	1381.57
	2/23/2011	0900	1536.11	154.90	1381.21
	3/22/2011	0845	1536.11	154.95	1381.16
	4/25/2011	1337	1536.11	154.93	1381.18
	5/27/2011	0810	1536.11	154.93	1381.18
	6/30/2011	0821	1536.11	155.00	1381.11
	7/25/2011	0740	1536.11	155.40	1380.71
	9/2/2011	1215	1536.11	155.12	1380.99
	9/27/2011	1238	1536.11	155.22	1380.89
	10/24/2011	0856	1536.11	155.31	1380.80
	11/28/2011	0837	1536.11	155.51	1380.60
	12/27/2011	0853	1536.11	155.57	1380.54
	1/19/2012	0948	1536.11	155.31	1380.80
	2/27/2012	1326	1536.11	155.51	1380.60
	3/27/2012	0735	1536.11	155.57	1380.54
	4/28/2012	1245	1536.11	155.53	1380.58
	5/8/2012	0729	1536.11	155.79	1380.32
	6/29/2012	0915	1536.11	155.90	1380.21
	7/30/2012	1538	1536.11	155.92	1380.19
	8/7/2012	1300	1536.11	155.90	1380.21
	9/6/2012	0825	1536.11	155.99	1380.12

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-10 (cont.)	10/4/2012	0817	1536.11	156.08	1380.03
	2/19/2013	1334	1536.11	156.13	1379.98
	3/29/2013	0655	1536.11	156.48	1379.63
	4/29/2013	1628	1536.11	156.72	1379.39
	5/30/2013	1830	1536.11	156.39	1379.72
	6/16/2013	1230	1536.11	156.58	1379.53
	7/15/2013	1200	1536.11	156.60	1379.51
	8/6/2013	1728	1536.11	156.70	1379.41
	9/17/2013	1751	1536.11	156.53	1379.58
	10/7/2013	1239	1536.11	156.81	1379.30
	11/21/2013	1418	1536.11	156.74	1379.37
	12/6/2013	1318	1536.11	156.94	1379.17
	1/13/2014	1700	1536.11	156.96	1379.15
	2/28/2014	1547	1536.11	156.50	1379.61
	3/15/2014	1546	1536.11	156.65	1379.46
	3/31/2014	1233	1536.11	156.54	1379.57
	5/23/2014	1603	1536.11	156.33	1379.78
	6/14/2014	1310	1536.11	156.19	1379.92
	7/7/2014	0843	1536.11	156.24	1379.87
	9/4/2014	1055	1536.11	155.87	1380.24
	9/25/2014	1947	1536.11	155.93	1380.18
	10/28/2014	1249	1536.11	155.91	1380.20
	11/27/2014	1435	1536.11	155.60	1380.51
	12/15/2014	1340	1536.11	155.27	1380.84
	1/19/2015	1227	1536.11	154.49	1381.62
	2/25/2015	1449	1536.11	153.50	1382.61
	3/26/2015	1313	1536.11	153.09	1383.02
	4/13/2015	1143	1536.11	152.80	1383.31
	5/23/2015	1222	1536.11	152.25	1383.86
	6/15/2015	1504	1536.11	151.82	1384.29
	7/13/2015	1050	1536.11	151.66	1384.45
	8/31/2015	1423	1536.11	151.35	1384.76
	9/30/2015	1356	1536.11	151.25	1384.86
	10/26/2015	1500	1536.11	151.05	1385.06
	11/25/2015	1255	1536.11	150.78	1385.33
	12/10/2015	1243	1536.11	150.90	1385.21
	1/13/2016	1205	1536.11	151.09	1385.02
	4/22/2016	1148	1536.11	150.48	1385.63
	7/20/2016	1510	1536.11	150.23	1385.88
	10/26/2016	1507	1536.11	150.18	1385.93
	1/5/2017	1455	1536.11	149.98	1386.13
MW-11	12/22/2005	1517	1603.35	253.68	1349.67
	1/27/2006	0959	1603.35	253.76	1349.59
	2/20/2006	1030	1603.35	253.71	1349.64
	3/20/2006	1610	1603.35	253.71	1349.64
	5/22/2006	0906	1603.35	253.83	1349.52
	8/28/2006	1130	1603.35	253.78	1349.57
	11/13/2006	0943	1603.35	253.80	1349.55
	2/12/2007	1209	1603.35	253.86	1349.49
	4/9/2007	1036	1603.35	253.87	1349.48
	7/30/2007	0952	1603.35	253.51	1349.84
	10/15/2007	1358	1603.35	253.90	1349.45
	1/14/2008	1421	1603.35	254.07	1349.28
	4/29/2008	1354	1603.35	254.13	1349.22
	5/27/2008	1521	1603.35	254.12	1349.23

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-11 (cont.)	6/27/2008	0820	1603.35	254.20	1349.15
	7/28/2008	1617	1603.35	254.26	1349.09
	8/29/2008	1228	1603.35	254.28	1349.07
	9/20/2008	0830	1603.35	254.25	1349.10
	10/14/2008	1341	1603.35	254.23	1349.12
	11/21/2008	1300	1603.35	254.23	1349.12
	12/15/2008	1302	1603.35	254.20	1349.15
	1/12/2009	1218	1603.35	254.22	1349.13
	2/16/2009	1520	1603.35	254.20	1349.15
	3/17/2009	1328	1603.35	254.25	1349.10
	4/13/2009	1243	1603.35	254.24	1349.11
	5/20/2009	1240	1603.35	254.32	1349.03
	6/15/2009	1203	1603.35	254.35	1349.00
	7/6/2009	1212	1603.35	254.35	1349.00
	8/12/2009	1255	1603.35	254.38	1348.97
	9/28/2009	1101	1603.35	254.52	1348.83
	10/27/2009	1049	1603.35	254.61	1348.74
	11/25/2009	1027	1603.35	254.73	1348.62
	12/18/2009	1059	1603.35	254.80	1348.55
	1/18/2010	1125	1603.35	254.92	1348.43
	6/8/2010	1244	1606.14	257.63	1348.51
	6/22/2010	1248	1606.14	257.62	1348.52
	2/23/2011	1230	1606.14	257.60	1348.54
	3/22/2011	1025	1606.14	257.60	1348.54
	4/25/2011	1601	1606.14	257.58	1348.56
	5/27/2011	0952	1606.14	257.61	1348.53
	6/30/2011	1059	1606.14	257.64	1348.50
	7/25/2011	1008	1606.14	257.88	1348.26
	9/2/2011	1259	1606.14	257.65	1348.49
	9/27/2011	1437	1606.14	257.68	1348.46
	10/24/2011	1107	1606.14	257.72	1348.42
	11/28/2011	1051	1606.14	257.73	1348.41
	12/27/2011	1023	1606.14	257.78	1348.36
	1/19/2012	1156	1606.14	257.72	1348.42
	2/27/2012	1446	1606.14	257.73	1348.41
	3/27/2012	0927	1606.14	257.78	1348.36
	4/28/2012	1624	1606.14	257.77	1348.37
	5/8/2012	1125	1606.14	258.08	1348.06
	6/29/2012	1143	1606.14	257.84	1348.30
	7/30/2012	1801	1606.14	257.94	1348.20
	8/13/2012	1530	1606.14	257.86	1348.28
	9/6/2012	1017	1606.14	257.91	1348.23
	10/4/2012	0946	1606.14	257.98	1348.16
	2/19/2013	1452	1606.14	258.09	1348.05
	3/29/2013	0921	1606.14	258.17	1347.97
	4/29/2013	1606	1606.14	258.06	1348.08
	5/30/2013	1940	1606.14	258.14	1348.00
	6/16/2013	1254	1606.14	258.13	1348.01
	7/15/2013	1200	1606.14	258.36	1347.78
	8/6/2013	1706	1606.14	258.18	1347.96
	9/17/2013	1909	1606.14	258.22	1347.92
	10/7/2013	1300	1606.14	258.21	1347.93
	11/21/2013	1504	1606.14	258.27	1347.87
	12/6/2013	1406	1606.14	258.28	1347.86
	1/13/2014	1725	1606.14	258.32	1347.82

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-11 (cont.)	2/28/2014	1722	1606.14	258.32	1347.82
	3/15/2014	1707	1606.14	258.31	1347.83
	3/31/2014	1614	1606.14	258.33	1347.81
	5/23/2014	1629	1606.14	258.56	1347.58
	6/14/2014	1429	1606.14	258.47	1347.67
	7/7/2014	1047	1606.14	258.21	1347.93
	9/4/2014	1237	1606.14	258.27	1347.87
	9/26/2014	2241	1606.14	258.37	1347.77
	10/28/2014	1452	1606.14	258.37	1347.77
	11/27/2014	1705	1606.14	258.34	1347.80
	12/15/2014	1615	1606.14	258.43	1347.71
	1/19/2015	1448	1606.14	258.45	1347.69
	2/25/2015	1725	1606.14	258.48	1347.66
	3/26/2015	1538	1606.14	258.60	1347.54
	4/13/2015	1448	1606.14	258.62	1347.52
	5/23/2015	1547	1606.14	258.64	1347.50
	6/15/2015	18.57	1606.14	258.66	1347.48
	7/13/2015	1422	1606.14	258.54	1347.60
	8/31/2015	1732	1606.14	258.71	1347.43
	9/30/2015	1723	1606.14	258.69	1347.45
	10/26/2015	1820	1606.14	258.58	1347.56
	11/25/2015	1620	1606.14	258.61	1347.53
	12/10/2015	1527	1606.14	258.60	1347.54
	1/13/2016	1439	1606.14	258.81	1347.33
	4/22/2016	1412	1606.14	258.89	1347.25
	7/20/2016	1745	1606.14	258.92	1347.22
	10/26/2016	1755	1606.14	258.99	1347.15
	1/5/2017	1718	1606.14	259.19	1346.95
MW-12	12/22/2005	1440	1557.46	209.16	1348.30
	01/27/2006	1057	1557.46	209.20	1348.26
	02/20/2006	1100	1557.46	209.11	1348.35
	03/20/2006	1515	1557.46	209.09	1348.37
	05/22/2006	0836	1557.46	209.17	1348.29
	8/28/2006	1235	1557.46	209.12	1348.34
	11/13/2006	0956	1557.46	209.14	1348.32
	2/12/2007	1225	1557.46	209.23	1348.23
	4/9/2007	1110	1557.46	209.16	1348.30
	7/30/2007	0905	1557.46	208.88	1348.58
	10/15/2007	1345	1557.46	209.23	1348.23
	1/14/2008	1143	1557.46	209.46	1348.00
	3/31/2008	1428	1557.46	209.31	1348.15
	4/29/2008	1440	1557.46	209.31	1348.15
	5/27/2008	1255	1557.46	209.42	1348.04
	6/27/2008	0800	1557.46	209.63	1347.83
	7/28/2008	1344	1557.46	209.58	1347.88
	8/29/2008	1636	1557.46	209.58	1347.88
	9/20/2008	1200	1557.46	209.50	1347.96
	10/14/2008	1433	1557.46	209.40	1348.06
	11/21/2008	1400	1557.46	209.41	1348.05
	12/15/2008	1138	1557.46	209.50	1347.96
	1/12/2009	0930	1557.46	209.46	1348.00
	2/16/2009	0909	1557.46	209.52	1347.94
	3/17/2009	1152	1557.46	209.48	1347.98
	4/13/2009	1128	1557.46	209.45	1348.01
	5/20/2009	0736	1557.46	209.79	1347.67

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-12 (cont.)	6/15/2009	0737	1557.46	209.64	1347.82
	7/6/2009	0645	1557.46	209.66	1347.80
	8/13/2009	0615	1557.46	209.75	1347.71
	9/28/2009	0816	1560.91	213.59	1347.32
	10/27/2009	1532	1560.91	213.61	1347.30
	11/25/2009	1019	1560.91	213.94	1346.97
	12/18/2009	1106	1560.91	213.99	1346.92
	1/18/2010	1111	1560.91	214.11	1346.80
	6/8/2010	1215	1560.91	213.38	1347.53
	6/22/2010	1300	1560.91	213.38	1347.53
	2/23/2011	1240	1560.91	213.34	1347.57
	3/22/2011	1111	1560.91	213.39	1347.52
	4/25/2011	1613	1560.91	213.33	1347.58
	5/27/2011	1000	1560.91	212.37	1348.54
	6/30/2011	1120	1560.91	213.41	1347.50
	7/25/2011	1017	1560.91	213.67	1347.24
	9/2/2011	1250	1560.91	213.46	1347.45
	9/27/2011	1445	1560.91	213.43	1347.48
	10/24/2011	1113	1560.91	213.52	1347.39
	11/28/2011	1038	1560.91	213.52	1347.39
	12/27/2011	1012	1560.91	213.54	1347.37
	1/19/2012	1145	1560.91	213.52	1347.39
	2/27/2012	1435	1560.91	213.52	1347.39
	3/27/2012	0916	1560.91	213.54	1347.37
	4/28/2012	1605	1560.91	213.51	1347.40
	5/8/2012	1159	1560.91	213.90	1347.01
	6/29/2012	1051	1560.91	213.61	1347.30
	7/30/2012	1832	1560.91	213.67	1347.24
	8/13/2012	1153	1560.91	213.68	1347.23
	9/6/2012	1006	1560.91	213.70	1347.21
	10/4/2012	1002	1560.91	213.80	1347.11
	2/19/2013	1503	1560.91	213.74	1347.17
	3/29/2013	1012	1560.91	214.01	1346.90
	4/29/2013	1555	1560.91	213.81	1347.10
	5/30/2013	2000	1560.91	213.93	1346.98
	6/16/2013	1333	1560.91	213.95	1346.96
	7/15/2013	1200	1560.91	214.27	1346.64
	8/6/2013	1538	1560.91	213.98	1346.93
	9/17/2013	1930	1560.91	214.00	1346.91
	10/7/2013	1249	1560.91	213.94	1346.97
	11/21/2013	1530	1560.91	213.97	1346.94
	12/6/2013	1443	1560.91	214.04	1346.87
	1/21/2014	1652	1560.91	214.05	1346.86
	2/28/2014	1655	1560.91	214.11	1346.80
	3/15/2014	1640	1560.91	214.08	1346.83
	3/31/2014	1555	1560.91	214.06	1346.85
	5/23/2014	1611	1560.91	214.25	1346.66
	6/14/2014	1350	1560.91	214.37	1346.54
	7/7/2014	1030	1560.91	213.89	1347.02
	9/4/2014	1212	1560.91	214.00	1346.91
	9/26/2014	2208	1560.91	214.13	1346.78
	10/28/2014	1355	1560.91	214.09	1346.82
	11/27/2014	1535	1560.91	214.07	1346.84
	12/15/2014	1448	1560.91	214.18	1346.73

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-13	1/19/2015	1335	1560.91	214.20	1346.71
	2/25/2015	1600	1560.91	214.25	1346.66
	3/26/2015	1408	1560.91	214.34	1346.57
	4/13/2015	1248	1560.91	214.36	1346.55
	5/23/2015	1325	1560.91	214.42	1346.49
	6/15/2015	1625	1560.91	214.38	1346.53
	7/13/2015	1151	1560.91	214.31	1346.60
	8/31/2015	1642	1560.91	214.43	1346.48
	9/30/2015	1629	1560.91	214.46	1346.45
	10/26/2015	1730	1560.91	214.35	1346.56
	11/25/2015	1533	1560.91	214.37	1346.54
	12/10/2015	1455	1560.91	214.35	1346.56
	1/13/2016	1408	1560.91	214.56	1346.35
	4/22/2016	1344	1560.91	214.66	1346.25
	7/20/2016	1725	1560.91	214.68	1346.23
	10/26/2016	1659	1560.91	214.79	1346.12
	1/5/2017	1655	1560.91	213.82	1347.09
	8/29/2008	1138	1595.77	246.82	1348.95
	9/20/2008	0758	1595.77	246.75	1349.02
	10/14/2008	1506	1595.77	246.75	1349.02
	11/21/2008	1340	1595.77	246.78	1348.99
	12/15/2008	1315	1595.77	246.83	1348.94
	1/12/2009	1304	1595.77	246.79	1348.98
	2/16/2009	1547	1595.77	246.81	1348.96
	3/17/2009	1411	1595.77	246.80	1348.97
	4/13/2009	1329	1595.77	246.80	1348.97
	5/20/2009	1323	1595.77	246.90	1348.87
	6/15/2009	1243	1595.77	246.95	1348.82
	7/6/2009	1500	1595.77	246.89	1348.88
	8/12/2009	1349	1595.77	246.98	1348.79
	9/28/2009	0900	1599.52	250.74	1348.78
	10/27/2009	1056	1599.52	250.71	1348.81
	11/25/2009	1047	1599.52	250.98	1348.54
	12/18/2009	1129	1599.52	251.00	1348.52
	1/18/2010	1226	1599.52	251.13	1348.39
	6/8/2010	1310	1599.52	250.83	1348.69
	6/22/2010	1345	1599.52	250.87	1348.65
	2/23/2011	1315	1599.52	250.82	1348.70
	3/22/2011	1145	1599.52	250.86	1348.66
	4/26/2011	0826	1599.52	250.82	1348.70
	5/27/2011	1121	1599.52	250.82	1348.70
	6/30/2011	1326	1599.52	250.92	1348.60
	7/25/2011	1125	1599.52	251.22	1348.30
	9/2/2011	1321	1599.52	250.90	1348.62
	9/27/2011	1528	1599.52	250.87	1348.65
	10/24/2011	1130	1599.52	250.98	1348.54
	11/28/2011	1114	1599.52	250.93	1348.59
	12/27/2011	1044	1599.52	251.03	1348.49
	1/19/2012	1214	1599.52	250.98	1348.54
	2/27/2012	1517	1599.52	250.93	1348.59
	3/27/2012	1000	1599.52	251.03	1348.49
	4/28/2012	1632	1599.52	250.99	1348.53
	5/8/2012	1056	1599.52	251.36	1348.16
	6/29/2012	1155	1599.52	251.45	1348.07
	7/30/2012	1929	1599.52	251.16	1348.36

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-13 (cont.)	8/17/2012	1330	1599.52	251.18	1348.34
	9/6/2012	1050	1599.52	251.23	1348.29
	10/4/2012	1055	1599.52	251.28	1348.24
	2/19/2013	1626	1599.52	251.16	1348.36
	3/29/2013	0858	1599.52	251.52	1348.00
	4/29/2013	1651	1599.52	251.35	1348.17
	5/30/2013	1930	1599.52	251.35	1348.17
	6/16/2013	1305	1599.52	251.40	1348.12
	7/15/2013	1200	1599.52	251.45	1348.07
	8/6/2013	1800	1599.52	251.48	1348.04
	9/17/2013	1952	1599.52	251.44	1348.08
	10/7/2013	1343	1599.52	251.49	1348.03
	11/21/2013	1442	1599.52	251.49	1348.03
	12/6/2013	1350	1599.52	251.55	1347.97
	1/13/2014	1815	1599.52	251.61	1347.91
	2/28/2014	1836	1599.52	251.78	1347.74
	3/15/2014	1757	1599.52	251.59	1347.93
	3/31/2014	1638	1599.52	251.53	1347.99
	5/23/2014	1702	1599.52	251.83	1347.69
	6/14/2014	1452	1599.52	251.73	1347.79
	7/7/2014	1130	1599.52	251.58	1347.94
	9/4/2014	1328	1599.52	251.58	1347.94
	9/27/2014	0010	1599.52	251.67	1347.85
	10/28/2014	1545	1599.52	251.68	1347.84
	11/27/2014	1630	1599.52	251.60	1347.92
	12/15/2014	1537	1599.52	251.68	1347.84
	1/19/2015	1414	1599.52	251.70	1347.82
	2/25/2015	1650	1599.52	251.76	1347.76
	3/26/2015	1502	1599.52	251.89	1347.63
	4/13/2015	1348	1599.52	251.91	1347.61
	5/23/2015	1635	1599.52	251.94	1347.58
	6/15/2015	1938	1599.52	251.96	1347.56
	7/13/2015	1531	1599.52	257.88	1341.64
	8/31/2015	1845	1599.52	251.96	1347.56
	9/30/2015	1843	1599.52	251.99	1347.53
	10/26/2015	1928	1599.52	251.83	1347.69
	11/25/2015	1727	1599.52	251.89	1347.63
	12/10/2015	1645	1599.52	251.85	1347.67
	1/13/2016	1554	1599.52	252.10	1347.42
	4/22/2016	1527	1599.52	252.17	1347.35
	7/20/2016	1923	1599.52	252.22	1347.30
	10/26/2016	1905	1599.52	252.35	1347.17
	1/5/2017	1803	1599.52	252.48	1347.04
MW-14	8/29/2008	1340	1602.48	263.25	1339.23
	9/20/2008	0732	1602.48	263.38	1339.10
	10/14/2008	1152	1602.48	263.69	1338.79
	11/21/2008	1153	1602.48	264.15	1338.33
	12/15/2008	1045	1602.48	264.02	1338.46
	1/12/2009	1125	1602.48	263.57	1338.91
	2/16/2009	1220	1602.48	263.66	1338.82
	3/17/2009	1240	1602.48	264.03	1338.45
	4/13/2009	1033	1602.48	264.08	1338.40
	5/20/2009	1011	1602.48	264.55	1337.93
	6/15/2009	1032	1602.48	264.65	1337.83

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-14 (cont.)	7/6/2009	0932	1602.48	264.89	1337.59
	8/12/2009	1059	1602.48	265.10	1337.38
	9/28/2009	1240	1602.48	265.59	1336.89
	10/27/2009	0951	1602.48	265.78	1336.70
	11/25/2009	0958	1602.48	266.72	1335.76
	12/18/2009	0952	1602.48	265.98	1336.50
	1/18/2010	0953	1602.48	266.03	1336.45
	6/8/2010	1025	1602.48	266.04	1336.44
	6/22/2010	1048	1602.48	266.49	1335.99
	2/23/2011	1125	1602.48	266.62	1335.86
	3/22/2011	0927	1602.48	266.57	1335.91
	4/25/2011	1433	1602.48	266.85	1335.63
	5/27/2011	0900	1602.48	267.75	1334.73
	6/30/2011	0927	1602.48	267.44	1335.04
	7/25/2011	0845	1602.48	267.81	1334.67
	9/2/2011	1038	1602.48	268.00	1334.48
	9/27/2011	1322	1602.48	268.12	1334.36
	10/24/2011	1042	1602.48	268.11	1334.37
	11/28/2011	0935	1602.48	268.04	1334.44
	12/27/2011	0922	1602.48	268.10	1334.38
	1/19/2012	1035	1602.48	268.11	1334.37
	2/27/2012	1404	1602.48	268.04	1334.44
	3/27/2012	0826	1602.48	268.10	1334.38
	4/28/2012	1424	1602.48	268.76	1333.72
	5/8/2012	1001	1602.48	268.93	1333.55
	6/29/2012	0950	1602.48	268.67	1333.81
	7/30/2012	1430	1602.48	269.30	1333.18
	8/9/2012	0800	1602.48	269.46	1333.02
	9/6/2012	0916	1602.48	269.93	1332.55
	10/4/2012	0900	1602.48	269.90	1332.58
	2/19/2013	1243	1602.48	270.13	1332.35
	3/29/2013	0744	1602.48	270.23	1332.25
	4/29/2013	1450	1602.48	270.36	1332.12
	5/30/2013	1740	1602.48	270.64	1331.84
	6/16/2013	1100	1602.48	270.92	1331.56
	7/15/2013	1200	1602.48	271.29	1331.19
	8/6/2013	1715	1602.48	271.43	1331.05
	9/17/2013	1640	1602.48	271.30	1331.18
	10/7/2013	1045	1602.48	271.51	1330.97
	11/21/2013	1231	1602.48	272.03	1330.45
	12/6/2013	1136	1602.48	272.15	1330.33
	1/13/2014	1520	1602.48	271.88	1330.60
	2/28/2014	1534	1602.48	271.79	1330.69
	3/15/2014	1535	1602.48	271.68	1330.80
	3/31/2014	1218	1602.48	271.96	1330.52
	5/23/2014	1432	1602.48	272.35	1330.13
	6/14/2014	1300	1602.48	272.59	1329.89
	7/7/2014	0827	1602.48	272.90	1329.58
	9/3/2014	1430	1602.48	273.31	1329.17
	9/25/2014	1917	1602.48	273.30	1329.18
	10/28/2014	1237	1602.48	273.76	1328.72
	11/27/2014	1425	1602.48	273.30	1329.18
	12/15/2014	1324	1602.48	273.06	1329.42
	1/19/2015	1218	1602.48	272.96	1329.52

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-15	2/25/2015	1430	1602.48	272.92	1329.56
	3/26/2015	1259	1602.48	273.30	1329.18
	4/13/2015	1036	1602.48	273.42	1329.06
	5/23/2015	1203	1602.48	273.77	1328.71
	6/15/2015	1435	1602.48	273.81	1328.67
	7/13/2015	1029	1602.48	274.14	1328.34
	8/31/2015	1355	1602.48	275.12	1327.36
	9/30/2015	1355	1602.48	275.45	1327.03
	10/26/2015	1435	1602.48	275.48	1327.00
	11/25/2015	1206	1602.48	275.31	1327.17
	12/10/2015	1154	1602.48	275.42	1327.06
	1/13/2016	1118	1602.48	275.40	1327.08
	4/22/2016	1057	1602.48	276.17	1326.31
	7/20/2016	1423	1602.48	276.93	1325.55
	10/26/2016	1410	1602.48	277.95	1324.53
	1/5/2017	1410	1602.48	277.95	1324.53
	8/29/2008	1350	1600.48	261.95	1338.53
	9/20/2008	0729	1600.48	262.09	1338.39
	10/14/2008	1146	1600.48	262.18	1338.30
	11/21/2008	1200	1600.48	262.45	1338.03
	12/15/2008	1053	1600.48	262.58	1337.90
	1/12/2009	1137	1600.48	262.51	1337.97
	2/16/2009	1320	1600.48	262.53	1337.95
MW-15 (cont.)	3/17/2009	1251	1600.48	262.60	1337.88
	4/13/2009	1043	1600.48	262.72	1337.76
	5/20/2009	1021	1600.48	262.96	1337.52
	6/15/2009	1050	1600.48	263.03	1337.45
	7/6/2009	0949	1600.48	263.19	1337.29
	8/12/2009	1107	1600.48	263.36	1337.12
	9/28/2009	1259	1600.48	263.69	1336.79
	10/27/2009	0945	1600.48	263.80	1336.68
	11/25/2009	0952	1600.48	264.20	1336.28
	12/18/2009	0942	1600.48	264.28	1336.20
	1/18/2010	0942	1600.48	264.39	1336.09
	6/8/2010	1015	1600.48	264.50	1335.98
	6/22/2010	1030	1600.48	264.68	1335.80
	2/23/2011	1135	1600.48	265.33	1335.15
	3/22/2011	0932	1600.48	265.45	1335.03
	4/25/2011	1440	1600.48	265.35	1335.13
	5/27/2011	0901	1600.48	265.84	1334.64
	6/30/2011	0937	1600.48	265.90	1334.58
	7/25/2011	0855	1600.48	266.19	1334.29
	9/2/2011	1035	1600.48	266.25	1334.23
	9/27/2011	1329	1600.48	266.27	1334.21
	10/24/2011	0948	1600.48	266.51	1333.97
	11/28/2011	0947	1600.48	266.58	1333.90
	12/27/2011	0929	1600.48	266.70	1333.78
	1/19/2012	1045	1600.48	266.51	1333.97
	2/27/2012	1409	1600.48	266.58	1333.90
	3/27/2012	0834	1600.48	266.70	1333.78
	4/28/2012	1428	1600.48	267.14	1333.34
	5/8/2012	1018	1600.48	267.59	1332.89
	6/29/2012	0955	1600.48	267.43	1333.05
	7/30/2012	1439	1600.48	267.52	1332.96
	8/9/2012	0913	1600.48	267.76	1332.72

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-15 (cont.)	9/6/2012	0924	1600.48	268.04	1332.44
	10/4/2012	0905	1600.48	268.21	1332.27
	2/19/2013	1258	1600.48	268.60	1331.88
	3/29/2013	0752	1600.48	268.93	1331.55
	4/29/2013	1441	1600.48	268.78	1331.70
	5/30/2013	1750	1600.48	268.97	1331.51
	6/16/2013	1108	1600.48	269.17	1331.31
	7/15/2013	1200	1600.48	271.45	1329.03
	8/6/2013	1617	1600.48	269.51	1330.97
	9/17/2013	1651	1600.48	269.62	1330.86
	10/7/2013	1054	1600.48	269.80	1330.68
	11/21/2013	1242	1600.48	270.35	1330.13
	12/6/2013	1147	1600.48	270.29	1330.19
	1/13/2014	1530	1600.48	270.35	1330.13
	2/28/2014	1525	1600.48	270.38	1330.10
	3/15/2014	1525	1600.48	270.40	1330.08
	3/31/2014	1210	1600.48	270.49	1329.99
	5/23/2014	1440	1600.48	270.73	1329.75
	6/14/2014	1252	1600.48	270.85	1329.63
	7/7/2014	0833	1600.48	271.11	1329.37
	9/3/2014	1420	1600.48	271.39	1329.09
	9/25/2014	1925	1600.48	271.57	1328.91
	10/28/2014	1226	1600.48	271.89	1328.59
	11/27/2014	1418	1600.48	271.79	1328.69
	12/15/2014	1317	1600.48	271.90	1328.58
	1/19/2015	1212	1600.48	271.95	1328.53
	2/25/2015	1422	1600.48	271.88	1328.60
	3/26/2015	1249	1600.48	272.19	1328.29
	4/13/2015	1044	1600.48	272.33	1328.15
	5/23/2015	1210	1600.48	272.60	1327.88
	6/15/2015	1445	1600.48	272.45	1328.03
	7/13/2015	1038	1600.48	272.70	1327.78
	8/31/2015	1405	1600.48	273.14	1327.34
	9/30/2015	1344	1600.48	273.51	1326.97
	10/26/2015	1445	1600.48	273.53	1326.95
	11/25/2015	1216	1600.48	273.35	1327.13
	12/10/2015	1203	1600.48	273.82	1326.66
	1/13/2016	1125	1600.48	274.10	1326.38
	4/22/2016	1106	1600.48	274.60	1325.88
	7/20/2016	1430	1600.48	275.97	1324.51
	10/26/2016	1418	1600.48	275.94	1324.54
	1/5/2017	1416	1600.48	276.35	1324.13
MW-16	4/25/2011	1452	1585.36	253.89	1331.47
	5/27/2011	0914	1585.36	254.05	1331.31
	6/30/2011	0959	1585.36	254.26	1331.10
	7/25/2011	0914	1585.36	254.35	1331.01
	9/2/2011	0954	1585.36	254.40	1330.96
	9/27/2011	1400	1585.36	254.38	1330.98
	10/24/2011	1036	1585.36	254.59	1330.77
	11/28/2011	1000	1585.36	255.64	1329.72
	12/27/2011	0939	1585.36	254.84	1330.52
	1/19/2012	1056	1585.36	254.59	1330.77
	2/27/2012	1418	1585.36	255.64	1329.72
	3/27/2012	0845	1585.36	254.84	1330.52

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-16 (cont.)	4/28/2012	1526	1585.36	255.23	1330.13
	5/8/2012	0915	1585.36	255.73	1329.63
	6/29/2012	1004	1585.36	255.56	1329.80
	7/30/2012	1502	1585.36	255.71	1329.65
	8/10/2012	1315	1585.36	255.79	1329.57
	9/6/2012	0935	1585.36	256.19	1329.17
	10/4/2012	0843	1585.36	256.29	1329.07
	2/19/2013	1307	1585.36	256.89	1328.47
	3/29/2013	0804	1585.36	257.25	1328.11
	4/29/2013	1410	1585.36	257.20	1328.16
	5/30/2013	1810	1585.36	257.34	1328.02
	6/16/2013	1130	1585.36	257.53	1327.83
	7/15/2013	1200	1585.36	257.74	1327.62
	8/6/2013	1628	1585.36	257.84	1327.52
	9/17/2013	1813	1585.36	257.88	1327.48
	10/7/2013	1120	1585.36	258.11	1327.25
	11/21/2013	1254	1585.36	258.42	1326.94
	12/6/2013	1208	1585.36	258.57	1326.79
	1/13/2014	1555	1585.36	258.74	1326.62
	2/28/2014	1505	1585.36	258.98	1326.38
	3/15/2014	1515	1585.36	259.04	1326.32
	3/31/2014	1158	1585.36	259.26	1326.10
	5/23/2014	1510	1585.36	259.38	1325.98
	6/14/2014	1241	1585.36	259.56	1325.80
	7/7/2014	0811	1585.36	259.74	1325.62
	9/3/2014	1406	1585.36	259.95	1325.41
	9/25/2014	1859	1585.36	260.12	1325.24
	10/28/2014	1213	1585.36	260.49	1324.87
	11/27/2014	1404	1585.36	260.47	1324.89
	12/15/2014	1303	1585.36	260.67	1324.69
	1/19/2015	1204	1585.36	261.04	1324.32
	2/25/2015	1401	1585.36	261.19	1324.17
	3/26/2015	1235	1585.36	261.54	1323.82
	4/13/2015	1022	1585.36	261.70	1323.66
	5/23/2015	1151	1585.36	261.81	1323.55
	6/15/2015	1421	1585.36	261.82	1323.54
	7/13/2015	1018	1585.36	261.85	1323.51
	8/31/2015	1341	1585.36	262.24	1323.12
	9/30/2015	1322	1585.36	262.52	1322.84
	10/26/2015	1410	1585.36	262.51	1322.85
	11/25/2015	1240	1585.36	262.70	1322.66
	12/10/2015	1215	1585.36	262.88	1322.48
	1/13/2016	1145	1585.36	263.24	1322.12
	4/22/2016	1127	1585.36	263.82	1321.54
	7/20/2016	1455	1585.36	264.04	1321.32
	10/26/2016	1433	1585.36	264.87	1320.49
	1/5/2017	1435	1585.36	265.44	1319.92
MW-17	4/25/2011	1346	1560.72	206.72	1354.00
	5/27/2011	0814	1560.72	206.78	1353.94
	6/30/2011	0835	1560.72	206.92	1353.80
	7/25/2011	0800	1560.72	207.18	1353.54
	9/2/2011	1045	1560.72	206.93	1353.79
	9/27/2011	1248	1560.72	207.06	1353.66
	10/24/2011	0905	1560.72	207.15	1353.57
	11/28/2011	0851	1560.72	207.24	1353.48

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-17 (cont.)	12/27/2011	0901	1560.72	207.33	1353.39
	1/19/2012	1000	1560.72	207.15	1353.57
	2/27/2012	1338	1560.72	207.24	1353.48
	3/27/2012	0746	1560.72	207.33	1353.39
	4/28/2012	1511	1560.72	207.40	1353.32
	5/8/2012	0802	1560.72	207.89	1352.83
	6/29/2012	0926	1560.72	207.83	1352.89
	7/30/2012	1450	1560.72	207.87	1352.85
	8/9/2012	1120	1560.72	207.98	1352.74
	9/6/2012	0836	1560.72	208.11	1352.61
	10/4/2012	0831	1560.72	208.30	1352.42
	2/19/2013	1325	1560.72	208.39	1352.33
	3/29/2013	0724	1560.72	208.88	1351.84
	4/29/2013	1357	1560.72	208.67	1352.05
	5/30/2013	1800	1560.72	208.96	1351.76
	6/16/2013	1118	1560.72	209.04	1351.68
	7/15/2013	1200	1560.72	209.07	1351.65
	8/6/2013	1451	1560.72	209.23	1351.49
	9/17/2013	1623	1560.72	209.09	1351.63
	10/7/2013	1034	1560.72	209.33	1351.39
	11/21/2013	1218	1560.72	209.44	1351.28
	12/6/2013	1123	1560.72	209.71	1351.01
	1/13/2014	1546	1560.72	209.80	1350.92
	2/28/2014	1438	1560.72	209.68	1351.04
	3/15/2014	1450	1560.72	209.88	1350.84
	3/31/2014	1130	1560.72	209.92	1350.80
	5/23/2014	1453	1560.72	209.97	1350.75
	6/14/2014	1222	1560.72	210.04	1350.68
	7/7/2014	0756	1560.72	210.14	1350.58
	9/3/2014	1343	1560.72	210.11	1350.61
	9/25/2014	1826	1560.72	210.23	1350.49
	10/28/2014	1153	1560.72	210.52	1350.20
	11/27/2014	1345	1560.72	210.32	1350.40
	12/15/2014	1243	1560.72	210.50	1350.22
	1/19/2015	1147	1560.72	210.63	1350.09
	2/25/2015	1338	1560.72	210.60	1350.12
	3/26/2015	1212	1560.72	210.92	1349.80
	4/13/2015	1002	1560.72	210.99	1349.73
	5/23/2015	1130	1560.72	210.98	1349.74
	6/15/2015	1358	1560.72	210.84	1349.88
	7/13/2015	0957	1560.72	210.86	1349.86
	8/31/2015	1318	1560.72	210.90	1349.82
	9/30/2015	1256	1560.72	211.13	1349.59
	10/26/2015	1422	1560.72	210.97	1349.75
	11/25/2015	1150	1560.72	210.92	1349.80
	12/10/2015	1233	1560.72	211.04	1349.68
	1/13/2016	1135	1560.72	211.34	1349.38
	4/22/2016	1115	1560.72	211.52	1349.20
	7/20/2016	1412	1560.72	211.57	1349.15
	10/26/2016	1455	1560.72	211.85	1348.87
	1/5/2017	1446	1560.72	211.93	1348.79
MW-18	9/28/2009	0805	1533.53	181.20	1352.33
	10/27/2009	0754	1533.53	132.18	1401.35
	11/25/2009	0701	1533.53	131.17	1402.36
	12/18/2009	0819	1533.53	130.11	1403.42

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-18 (cont.)	1/18/2010	0758	1533.53	129.84	1403.69
	6/8/2010	1358	1533.53	129.81	1403.72
	6/22/2010	1133	1533.53	129.85	1403.68
	2/23/2011	0835	1533.53	130.17	1403.36
	3/22/2011	0810	1533.53	130.20	1403.33
	4/25/2011	1305	1533.53	130.99	1402.54
	5/27/2011	0737	1533.53	130.70	1402.83
	6/30/2011	0720	1533.53	130.61	1402.92
	7/25/2011	0645	1533.53	130.84	1402.69
	9/2/2011	1135	1533.53	130.99	1402.54
	9/27/2011	1210	1533.53	130.91	1402.62
	10/24/2011	0819	1533.53	130.88	1402.65
	11/28/2011	0800	1533.53	131.00	1402.53
	12/27/2011	0826	1533.53	130.98	1402.55
	1/19/2012	0915	1533.53	130.88	1402.65
	2/27/2012	1258	1533.53	131.00	1402.53
	3/27/2012	0705	1533.53	130.98	1402.55
	4/28/2012	1320	1533.53	130.82	1402.71
	5/8/2012	0639	1533.53	131.04	1402.49
	6/29/2012	0850	1533.53	130.85	1402.68
	7/30/2012	1650	1533.53	130.87	1402.66
	8/7/2012	0935	1533.53	130.88	1402.65
	9/6/2012	0755	1533.53	131.43	1402.10
	10/4/2012	0751	1533.53	131.14	1402.39
	2/19/2013	1425	1533.53	131.01	1402.52
	3/29/2013	0609	1533.53	131.73	1401.80
	4/29/2013	1512	1533.53	131.12	1402.41
	5/30/2013	1850	1533.53	131.03	1402.50
	6/16/2013	1200	1533.53	131.15	1402.38
	7/15/2013	1200	1533.53	131.10	1402.43
	8/6/2013	1440	1533.53	131.97	1401.56
	9/17/2013	1728	1533.53	131.19	1402.34
	10/7/2013	1212	1533.53	131.46	1402.07
	11/21/2013	1337	1533.53	131.51	1402.02
	12/6/2013	1233	1533.53	131.43	1402.10
	1/13/2014	1630	1533.53	131.54	1401.99
	2/28/2014	1613	1533.53	131.58	1401.95
	3/15/2014	1605	1533.53	131.61	1401.92
	3/31/2014	1302	1533.53	131.53	1402.00
	5/23/2014	1534	1533.53	131.44	1402.09
	6/14/2014	1326	1533.53	131.35	1402.18
	7/7/2014	0956	1533.53	131.46	1402.07
	9/4/2014	1138	1533.53	131.60	1401.93
	9/25/2014	2033	1533.53	131.60	1401.93
	10/28/2014	1314	1533.53	132.58	1400.95
	11/27/2014	1500	1533.53	131.93	1401.60
	12/15/2014	1410	1533.53	131.80	1401.73
	1/19/2015	1257	1533.53	131.88	1401.65
	2/25/2015	1522	1533.53	132.31	1401.22
	3/26/2015	1333	1533.53	131.95	1401.58
	4/13/2015	1220	1533.53	131.88	1401.65
	5/23/2015	1250	1533.53	131.82	1401.71
	6/15/2015	1532	1533.53	131.66	1401.87
	7/13/2015	1115	1533.53	131.80	1401.73
	8/31/2015	1455	1533.53	131.97	1401.56

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-19	9/30/2015	1430	1533.53	131.81	1401.72
	10/26/2015	1535	1533.53	131.75	1401.78
	11/25/2015	1330	1533.53	131.68	1401.85
	12/10/2015	1318	1533.53	131.80	1401.73
	1/13/2016	1232	1533.53	131.94	1401.59
	4/22/2016	1220	1533.53	131.85	1401.68
	7/20/2016	1540	1533.53	131.80	1401.73
	10/26/2016	1525	1533.53	131.80	1401.73
	1/5/2017	1518	1533.53	131.84	1401.69
	4/26/2011	0832	1599.51	250.80	1348.71
	5/27/2011	1127	1599.51	251.40	1348.11
	6/30/2011	1338	1599.51	250.87	1348.64
	7/25/2011	1132	1599.51	251.05	1348.46
	9/2/2011	1334	1599.51	250.88	1348.63
	9/27/2011	1534	1599.51	250.90	1348.61
	10/24/2011	1210	1599.51	250.94	1348.57
	11/28/2011	1214	1599.51	250.94	1348.57
	12/27/2011	1134	1599.51	251.00	1348.51
	1/19/2012	1300	1599.51	250.94	1348.57
	2/27/2012	1620	1599.51	250.94	1348.57
	3/27/2012	1056	1599.51	251.00	1348.51
	4/28/2012	1659	1599.51	250.99	1348.52
	5/8/2012	1107	1599.51	251.28	1348.23
	6/29/2012	1240	1599.51	251.06	1348.45
	7/30/2012	1953	1599.51	251.16	1348.35
	8/17/2012	2050	1599.51	251.18	1348.33
	9/6/2012	1146	1599.51	251.15	1348.36
	10/4/2012	1101	1599.51	251.27	1348.24
	2/19/2013	1645	1599.51	251.18	1348.33
MW-19 (cont.)	3/29/2013	0910	1599.51	251.46	1348.05
	4/29/2013	1740	1599.51	251.27	1348.24
	5/30/2013	2100	1599.51	251.42	1348.09
	6/16/2013	1428	1599.51	251.38	1348.13
	7/15/2013	1200	1599.51	251.86	1347.65
	8/6/2013	1915	1599.51	251.44	1348.07
	9/17/2013	2042	1599.51	251.48	1348.03
	10/7/2013	1431	1599.51	251.48	1348.03
	11/21/2013	1655	1599.51	251.46	1348.05
	12/6/2013	1610	1599.51	251.54	1347.97
	1/13/2014	1905	1599.51	251.58	1347.93
	2/28/2014	1933	1599.51	251.62	1347.89
	3/15/2014	1845	1599.51	251.61	1347.90
	3/31/2014	1752	1599.51	251.56	1347.95
	5/23/2014	1842	1599.51	251.93	1347.58
	6/14/2014	1554	1599.51	251.73	1347.78
	7/7/2014	1228	1599.51	251.36	1348.15
	9/4/2014	1511	1599.51	251.53	1347.98
	9/27/2014	0125	1599.51	251.64	1347.87
	10/28/2014	1703	1599.51	251.67	1347.84
	11/27/2014	1916	1599.51	251.61	1347.90
	12/15/2014	1847	1599.51	251.69	1347.82
	1/19/2015	1635	1599.51	251.71	1347.80
	2/25/2015	1850	1599.51	251.73	1347.78
	3/26/2015	1722	1599.51	251.88	1347.63

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-20	4/13/2015	1547	1599.51	251.89	1347.62
	5/23/2015	1712	1599.51	251.92	1347.59
	6/15/2015	2010	1599.51	251.99	1347.52
	7/13/2015	1602	1599.51	251.95	1347.56
	8/31/2015	1915	1599.51	252.00	1347.51
	9/30/2015	1920	1599.51	252.01	1347.50
	10/26/2015	1955	1599.51	251.86	1347.65
	11/25/2015	1757	1599.51	251.91	1347.60
	12/10/2015	1715	1599.51	251.88	1347.63
	1/13/2016	1623	1599.51	252.09	1347.42
	4/22/2016	1550	1599.51	252.19	1347.32
	7/20/2016	2000	1599.51	252.23	1347.28
	10/26/2016	1913	1599.51	252.35	1347.16
	1/5/2017	1820	1599.51	252.49	1347.02
	2/27/2012	1547	1580.87	232.39	1348.48
	3/27/2012	1032	1580.87	232.52	1348.35
	4/28/2012	1653	1580.87	232.42	1348.45
	5/8/2012	1131	1580.87	232.73	1348.14
	6/29/2012	1226	1580.87	232.50	1348.37
	7/30/2012	1942	1580.87	232.56	1348.31
	8/19/2012	1940	1580.87	232.62	1348.25
	9/6/2012	1122	1580.87	232.54	1348.33
	10/4/2012	1047	1580.87	232.68	1348.19
	2/19/2013	1633	1580.87	232.63	1348.24
	3/29/2013	0935	1580.87	232.87	1348.00
	4/29/2013	1731	1580.87	232.78	1348.09
	5/30/2013	2050	1580.87	232.78	1348.09
	6/16/2013	1418	1580.87	232.77	1348.10
	7/15/2013	1200	1580.87	232.88	1347.99
	8/6/2013	1853	1580.87	232.79	1348.08
	9/17/2013	2031	1580.87	232.88	1347.99
	10/7/2013	1422	1580.87	232.83	1348.04
	11/21/2013	1643	1580.87	232.93	1347.94
	12/6/2013	1553	1580.87	232.91	1347.96
	1/13/2014	1855	1580.87	232.96	1347.91
	2/28/2014	1921	1580.87	232.98	1347.89
	3/15/2014	1836	1580.87	233.00	1347.87
	3/31/2014	1712	1580.87	233.05	1347.82
	5/23/2014	1820	1580.87	233.20	1347.67
	6/14/2014	1544	1580.87	233.17	1347.70
	7/7/2014	1220	1580.87	232.73	1348.14
	9/4/2014	1445	1580.87	232.89	1347.98
	9/27/2014	0115	1580.87	233.01	1347.86
	10/28/2014	1645	1580.87	233.03	1347.84
	11/27/2014	1853	1580.87	233.00	1347.87
	12/15/2014	1825	1580.87	233.08	1347.79
	1/19/2015	1612	1580.87	233.07	1347.80
	2/25/2015	1834	1580.87	233.08	1347.79
	3/26/2015	1702	1580.87	233.20	1347.67
	4/13/2015	1527	1580.87	233.25	1347.62
	5/23/2015	1646	1580.87	233.28	1347.59
	6/15/2015	1945	1580.87	233.33	1347.54
	7/13/2015	1543	1580.87	233.18	1347.69
	8/31/2015	1856	1580.87	233.41	1347.46
	9/30/2015	1854	1580.87	233.36	1347.51

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-20 (cont.)	10/26/2015	1937	1580.87	233.24	1347.63
	11/25/2015	1736	1580.87	233.29	1347.58
	12/10/2015	1654	1580.87	233.25	1347.62
	1/13/2016	1605	1580.87	233.45	1347.42
	4/22/2016	1535	1580.87	233.52	1347.35
	7/20/2016	1935	1580.87	233.63	1347.24
	10/26/2016	1845	1580.87	247.52	1333.35
	1/5/2017	1811	1580.87	233.84	1347.03
MW-21	2/27/2012	1508	1565.28	216.84	1348.44
	3/27/2012	0949	1565.28	216.97	1348.31
	4/28/2012	1616	1565.28	216.84	1348.44
	5/8/2012	1152	1565.28	217.21	1348.07
	6/29/2012	1131	1565.28	216.94	1348.34
	7/30/2012	1848	1565.28	216.98	1348.30
	8/16/2012	1807	1565.28	216.99	1348.29
	9/6/2012	1039	1565.28	217.06	1348.22
	10/4/2012	1017	1565.28	217.12	1348.16
	2/19/2013	1521	1565.28	217.05	1348.23
	3/29/2013	0957	1565.28	217.27	1348.01
	4/29/2013	1640	1565.28	217.19	1348.09
	6/16/2013	1341	1565.28	217.22	1348.06
	7/15/2013	1200	1565.28	217.59	1347.69
	8/6/2013	1739	1565.28	217.25	1348.03
	9/17/2013	1939	1565.28	217.28	1348.00
	10/7/2013	1333	1565.28	217.26	1348.02
	11/21/2013	1555	1565.28	217.32	1347.96
	12/6/2013	1455	1565.28	217.33	1347.95
	1/13/2014	1805	1565.28	217.28	1348.00
	2/28/2014	1735	1565.28	217.38	1347.90
	3/15/2014	1720	1565.28	217.38	1347.90
	3/31/2014	1622	1565.28	217.35	1347.93
	5/23/2014	1637	1565.28	217.54	1347.74
	6/14/2014	1410	1565.28	217.61	1347.67
	7/7/2014	1058	1565.28	217.18	1348.10
	9/4/2014	1245	1565.28	217.30	1347.98
	9/26/2014	2255	1565.28	217.43	1347.85
	10/28/2014	1509	1565.28	217.38	1347.90
	11/27/2014	1728	1565.28	217.35	1347.93
	12/15/2014	1643	1565.28	217.45	1347.83
	1/19/2015	1508	1565.28	217.44	1347.84
	2/25/2015	1743	1565.28	217.45	1347.83
	3/26/2015	1557	1565.28	217.63	1347.65
	4/13/2015	1405	1565.28	217.65	1347.63
	5/23/2015	1450	1565.28	217.69	1347.59
	6/15/2015	1804	1565.28	217.69	1347.59
	7/13/2015	1435	1565.28	217.63	1347.65
	8/31/2015	1745	1565.28	217.72	1347.56
	9/30/2015	1735	1565.28	217.72	1347.56
	10/26/2015	1832	1565.28	217.62	1347.66
	11/25/2015	1630	1565.28	217.65	1347.63
	12/10/2015	1538	1565.28	217.64	1347.64
	1/13/2016	1450	1565.28	217.83	1347.45
	4/22/2016	1420	1565.28	217.90	1347.38
	7/20/2016	1805	1565.28	217.95	1347.33
	10/26/2016	1730	1565.28	218.02	1347.26

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-21 (cont.)	1/5/2017	1724	1565.28	218.18	1347.10
MW-22	3/31/2014	1724	1598.46	250.39	1348.07
	5/23/2014	1750	1598.46	250.00	1348.46
	6/14/2014	1506	1598.46	249.89	1348.57
	7/7/2014	1147	1598.46	248.11	1350.35
	9/4/2014	1347	1598.46	249.27	1349.19
	9/26/2014	2331	1598.46	249.53	1348.93
	10/28/2014	1438	1598.46	249.70	1348.76
	11/27/2014	1640	1598.46	249.65	1348.81
	12/15/2014	1548	1598.46	249.73	1348.73
	1/9/2015	1422	1598.46	249.81	1348.65
	2/25/2015	1700	1598.46	249.77	1348.69
	3/26/2015	1512	1598.46	250.06	1348.40
	4/13/2015	1330	1598.46	250.11	1348.35
	5/23/2015	1415	1598.46	250.15	1348.31
	6/15/2015	1720	1598.46	250.03	1348.43
	7/13/2015	1336	1598.46	250.10	1348.36
	8/31/2015	1618	1598.46	250.10	1348.36
	9/30/2015	1557	1598.46	250.18	1348.28
	10/26/2015	1705	1598.46	250.08	1348.38
	11/25/2015	1507	1598.46	249.98	1348.48
	12/10/2015	1430	1598.46	250.07	1348.39
	1/13/2016	1346	1598.46	250.55	1347.91
	4/22/2016	1325	1598.46	250.44	1348.02
	7/20/2016	1705	1598.46	250.43	1348.03
	10/26/2016	1637	1598.46	250.56	1347.90
	1/5/2017	1632	1598.46	250.65	1347.81
PW-1	9/6/2011	0620	1554.46	209.22	1345.24
	9/27/2011	1418	1554.46	208.93	1345.53
	10/24/2011	1120	1554.46	208.94	1345.52
	11/28/2011	1101	1554.46	209.11	1345.35
	12/27/2011	1032	1554.46	209.03	1345.43
	1/19/2012	1205	1554.46	208.98	1345.48
	2/27/2012	1458	1554.46	209.21	1345.25
	3/27/2012	0937	1554.46	209.44	1345.02
	4/28/2012	1547	1554.46	209.31	1345.15
	5/8/2012	1217	1554.46	209.77	1344.69
	6/29/2012	1031	1554.46	209.63	1344.83
	7/30/2012	1720	1554.46	209.66	1344.80
	8/16/2012	1345	1554.46	209.83	1344.63
	9/6/2012	1205	1554.46	209.94	1344.52
	10/4/2012	0926	1554.46	210.03	1344.43
	2/19/2013	1540	1554.46	209.76	1344.70
	3/29/2013	0836	1554.46	210.25	1344.21
	4/29/2013	1729	1554.46	210.40	1344.06
	5/30/2013	2040	1554.46	210.42	1344.04
	6/16/2013	1400	1554.46	210.48	1343.98
	7/15/2013	1200	1554.46	210.75	1343.71
	8/6/2013	1749	1554.46	210.78	1343.68
	9/17/2013	1835	1554.46	210.59	1343.87
	10/7/2013	1312	1554.46	210.73	1343.73
	11/21/2013	1611	1554.46	211.01	1343.45
	12/6/2013	1511	1554.46	211.15	1343.31
	1/13/2014	1745	1554.46	211.03	1343.43
	2/28/2014	1750	1554.46	211.04	1343.42

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
PW-1 (cont.)	3/15/2014	1732	1554.46	211.19	1343.27
	3/31/2014	1000	1554.46	211.30	1343.16
	5/23/2014	1645	1554.46	211.35	1343.11
	6/14/2014	1436	1554.46	211.55	1342.91
	7/7/2014	1114	1554.46	211.28	1343.18
	9/4/2014	1310	1554.46	211.52	1342.94
	9/15/2014	0934	1554.46	211.74	1342.72
	10/28/2014	1522	1554.46	211.88	1342.58
	11/27/2014	1745	1554.46	211.81	1342.65
	12/15/2014	1700	1554.46	211.95	1342.51
	1/19/2015	1520	1554.46	212.04	1342.42
	2/25/2015	1230	1554.46	212.04	1342.42
	3/26/2015	1607	1554.46	212.24	1342.22
	4/13/2015	1417	1554.46	212.22	1342.24
	5/23/2015	1508	1554.46	212.15	1342.31
	6/15/2015	1820	1554.46	212.17	1342.29
	7/13/2015	1446	1554.46	212.50	1341.96
	8/31/2015	1802	1554.46	212.38	1342.08
	9/30/2015	1752	1554.46	212.55	1341.91
	10/26/2015	1845	1554.46	212.50	1341.96
	11/25/2015	1645	1554.46	212.48	1341.98
	12/10/2015	1550	1554.46	212.51	1341.95
	1/13/2016	1505	1554.46	212.79	1341.67
	4/22/2016	1432	1554.46	212.87	1341.59
	7/20/2016	1820	1554.46	212.89	1341.57
	10/26/2016	1808	1554.46	213.31	1341.15
	1/5/2017	1733	1554.46	213.88	1340.58
EW-1	3/31/2014	1736	1594.88	246.85	1348.03
	5/23/2014	1811	1594.88	246.94	1347.94
	6/14/2014	1521	1594.88	246.84	1348.04
	7/7/2014	1242	1594.88	246.68	1348.20
	9/4/2014	1458	1594.88	246.74	1348.14
	9/27/2014	0105	1594.88	246.85	1348.03
	10/28/2014	1654	1594.88	246.88	1348.00
	11/27/2014	1905	1594.88	246.87	1348.01
	12/15/2014	1838	1594.88	246.91	1347.97
	1/19/2015	1619	1594.88	246.97	1347.91
	2/25/2015	1843	1594.88	246.99	1347.89
	3/26/2015	1712	1594.88	247.12	1347.76
	4/13/2015	1538	1594.88	247.11	1347.77
	5/23/2015	1700	1594.88	247.13	1347.75
	6/15/2015	1958	1594.88	247.20	1347.68
	7/13/2015	1553	1594.88	247.19	1347.69
	8/31/1915	1905	1594.88	247.20	1347.68
	9/30/2015	1907	1594.88	247.22	1347.66
	10/26/2015	1945	1594.88	247.10	1347.78
	11/25/2015	1745	1594.88	247.12	1347.76
	12/10/2015	1705	1594.88	247.13	1347.75
	1/13/2016	1616	1594.88	247.33	1347.55
	4/22/2016	1543	1594.88	247.38	1347.50
	7/20/2016	1945	1594.88	247.41	1347.47
	10/26/2016	1854	1594.88	247.52	1347.36
	1/5/2017	-	1594.88	247.60	1347.28
EW-2	3/31/2014	1653	1560.92	212.89	1348.03
	5/23/2014	1727	1560.92	213.06	1347.86

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
EW-2 (cont.)	6/14/2014	1402	1560.92	213.17	1347.75
	7/7/2014	1104	1560.92	212.70	1348.22
	9/4/2014	1254	1560.92	212.83	1348.09
	9/27/2014	0033	1560.92	212.92	1348.00
	10/28/2014	1459	1560.92	212.92	1348.00
	11/27/2014	1717	1560.92	212.88	1348.04
	12/15/2014	1631	1560.92	212.98	1347.94
	1/19/2015	1500	1560.92	213.00	1347.92
	2/25/2015	1735	1560.92	246.25	1314.67
	3/26/2015	1548	1560.92	213.15	1347.77
	4/13/2015	1356	1560.92	213.08	1347.84
	5/23/2015	1440	1560.92	213.23	1347.69
	6/15/2015	1750	1560.92	213.20	1347.72
	7/13/2015	1359	1560.92	213.22	1347.70
	8/31/2015	1652	1560.92	213.24	1347.68
	9/30/2015	1640	1560.92	213.28	1347.64
	10/26/2015	1740	1560.92	213.16	1347.76
	11/25/2015	1541	1560.92	213.17	1347.75
	12/10/2015	1503	1560.92	213.18	1347.74
	1/13/2016	1415	1560.92	213.66	1347.26
	4/22/2016	1352	1560.92	213.47	1347.45
	7/20/2016	1756	1560.92	213.49	1347.43
	10/26/2016	1713	1560.92	213.59	1347.33
	1/5/2017	1702	1560.92	213.82	1347.10
IW-1	3/31/2014	1743	1595.52	247.66	1347.86
	5/23/2014	1831	1595.52	248.03	1347.49
	6/14/2014	1605	1595.52	247.81	1347.71
	7/7/2014	1308	1595.52	247.58	1347.94
	9/4/2014	1522	1595.52	247.61	1347.91
	9/27/2014	0134	1595.52	247.73	1347.79
	10/28/2014	1715	1595.52	247.77	1347.75
	11/27/2014	1928	1595.52	247.70	1347.82
	12/15/2014	1903	1595.52	247.68	1347.84
	1/19/2015	1632	1595.52	247.81	1347.71
	2/25/2015	1903	1595.52	247.82	1347.70
	3/26/2015	1735	1595.52	247.95	1347.57
	4/13/2015	1556	1595.52	248.02	1347.50
	5/23/2015	1725	1595.52	248.02	1347.50
	6/15/2015	2025	1595.52	248.10	1347.42
	7/13/2015	1615	1595.52	248.08	1347.44
	8/31/2015	1930	1595.52	248.09	1347.43
	9/30/2015	1935	1595.52	248.11	1347.41
	10/26/2015	2010	1595.52	247.98	1347.54
	11/25/2015	1815	1595.52	248.01	1347.51
	12/10/2015	1728	1595.52	247.98	1347.54
	1/13/2016	1635	1595.52	248.21	1347.31
	4/22/2016	1600	1595.52	248.28	1347.24
	7/20/2016	2015	1595.52	248.32	1347.20
	10/26/2016	1925	1595.52	248.45	1347.07
	1/5/2017	1830	1595.52	248.57	1346.95
IW-2	3/31/2014	1729	1593.68	245.16	1348.52
	5/23/2014	1758	1593.68	245.29	1348.39
	6/14/2014	1513	1593.68	245.35	1348.33
	7/7/2014	1154	1593.68	241.90	1351.78
	9/4/2014	1358	1593.68	244.35	1349.33

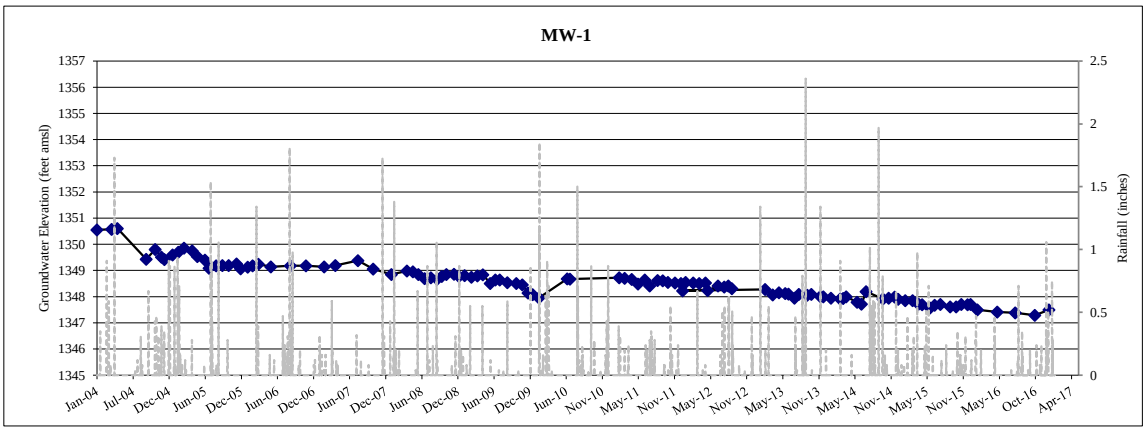
Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
IW-2 (cont.)	9/26/2014	2340	1593.68	244.65	1349.03
	10/28/2014	1445	1593.68	244.86	1348.82
	11/27/2014	1649	1593.68	244.83	1348.85
	12/15/2014	1559	1593.68	244.86	1348.82
	1/19/2015	1429	1593.68	244.01	1349.67
	2/25/2015	1712	1593.68	244.95	1348.73
	3/26/2015	1527	1593.68	245.29	1348.39
	4/13/2015	1338	1593.68	245.36	1348.32
	5/23/2015	1428	1593.68	245.37	1348.31
	6/15/2015	1730	1593.68	245.30	1348.38
	7/13/2015	1348	1593.68	245.31	1348.37
	8/31/2015	1630	1593.68	245.33	1348.35
	9/30/2015	1615	1593.68	245.43	1348.25
	10/26/2015	1718	1593.68	245.31	1348.37
	11/25/2015	1520	1593.68	245.20	1348.48
	12/10/2015	1443	1593.68	245.29	1348.39
	1/13/2016	1355	1593.68	245.60	1348.08
	4/22/2016	1334	1593.68	245.68	1348.00
	7/20/2016	1715	1593.68	245.69	1347.99
	10/26/2016	1648	1593.68	245.82	1347.86
	1/5/2017	1640	1593.68	245.89	1347.79
IW-3	3/31/2014	1706	1568.96	221.06	1347.90
	5/23/2014	1741	1568.96	221.05	1347.91
	6/14/2014	1536	1568.96	221.33	1347.63
	7/7/2014	1255	1568.96	220.78	1348.18
	9/4/2014	1436	1568.96	220.95	1348.01
	9/27/2014	0048	1568.96	221.10	1347.86
	10/28/2014	1633	1568.96	221.09	1347.87
	11/27/2014	1840	1568.96	221.09	1347.87
	12/15/2014	1812	1568.96	221.17	1347.79
	1/19/2015	1606	1568.96	221.19	1347.77
	2/25/2015	1820	1568.96	221.21	1347.75
	3/26/2015	1653	1568.96	221.33	1347.63
	4/13/2015	1518	1568.96	221.34	1347.62
	5/23/2015	1622	1568.96	221.37	1347.59
	6/15/2015	1930	1568.96	221.42	1347.54
	8/31/2015	1705	1568.96	221.50	1347.46
	9/30/2015	1656	1568.96	221.44	1347.52
	10/26/2015	1755	1568.96	221.31	1347.65
	11/25/2015	1555	1568.96	221.33	1347.63
	12/10/2015	1615	1568.96	221.32	1347.64
	1/13/2016	1528	1568.96	221.56	1347.4
	4/22/2016	1500	1568.96	221.62	1347.34
	7/20/2016	1834	1568.96	221.69	1347.27
	10/26/2016	1830	1568.96	221.75	1347.21
	1/5/2017	1740	1568.96	222.00	1346.96
RW-1	9/4/2014	0846	1605.41	258.09	1347.32
	9/26/2014	2323	1605.41	258.04	1347.37
	10/28/2014	1428	1605.41	258.13	1347.28
	11/27/2014	1620	1605.41	257.94	1347.47
	12/15/2014	1524	1605.41	258.06	1347.35
	1/19/2015	1405	1605.41	258.10	1347.31
	2/25/2015	1645	1605.41	258.13	1347.28
	3/26/2015	1451	1605.41	258.38	1347.03
	4/13/2015	1320	1605.41	258.44	1346.97

Well ID	Date	Time	Measuring Point Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
RW-1 (cont.)	5/23/2015	1358	1605.41	258.43	1346.98
	6/15/2015	1703	1605.41	258.35	1347.06
	7/13/2015	1328	1605.41	258.34	1347.07
	8/31/2015	1606	1605.41	258.33	1347.08
	9/30/2015	1545	1605.41	258.44	1346.97
	10/26/2015	1650	1605.41	258.28	1347.13
	11/25/2015	1453	1605.41	258.27	1347.14
	12/10/2015	1420	1605.41	258.30	1347.11
	1/13/2016	1337	1605.41	258.53	1346.88
	4/22/2016	1315	1605.41	258.70	1346.71
	7/20/2016	1650	1605.41	258.62	1346.79
	10/26/2016	1625	1605.41	238.83	1366.58
	1/5/2017	1622	1605.41	263.28	1342.13
RW-2	9/2/2014	1104	1605.31	264.89	1340.42
	9/26/2014	2228	1605.31	261.67	1343.64
	10/28/2014	1417	1605.31	261.85	1343.46
	11/27/2014	1559	1605.31	261.61	1343.70
	12/15/2014	1516	1605.31	261.82	1343.49
	1/19/2015	1354	1605.31	261.86	1343.45
	2/25/2015	1630	1605.31	261.91	1343.40
	3/26/2015	1439	1605.31	262.24	1343.07
	4/13/2015	1309	1605.31	262.32	1342.99
	5/23/2015	1347	1605.31	262.33	1342.98
	6/15/2015	1648	1605.31	262.25	1343.06
	7/13/2015	1316	1605.31	262.26	1343.05
	8/31/2015	1550	1605.31	262.29	1343.02
	9/30/2015	1530	1605.31	262.40	1342.91
	10/26/2015	1633	1605.31	262.26	1343.05
	11/25/2015	1434	1605.31	262.23	1343.08
	12/10/2015	1408	1605.31	262.33	1342.98
	1/13/2016	1325	1605.31	262.61	1342.70
	4/22/2016	1309	1605.31	262.87	1342.44
	7/20/2016	1636	1605.31	262.88	1342.43
	10/26/2016	1603	1605.31	263.20	1342.11
	1/5/2017	1600	1605.31	263.28	1342.03

Notes and Abbreviations:
amsl = above mean sea level
- = not available

APPENDIX D

Groundwater Hydrographs – UPCO Wells


MW-1
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
Nov-11
May-12
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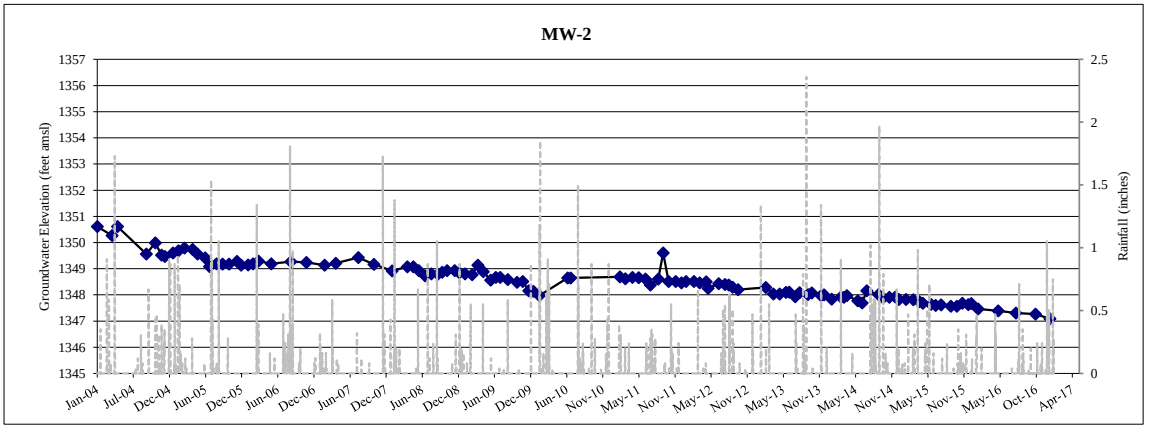
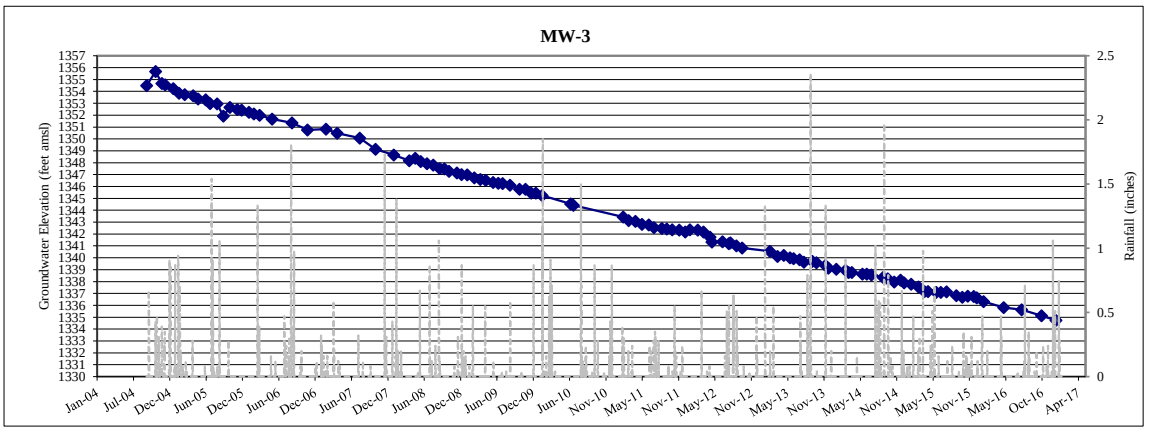
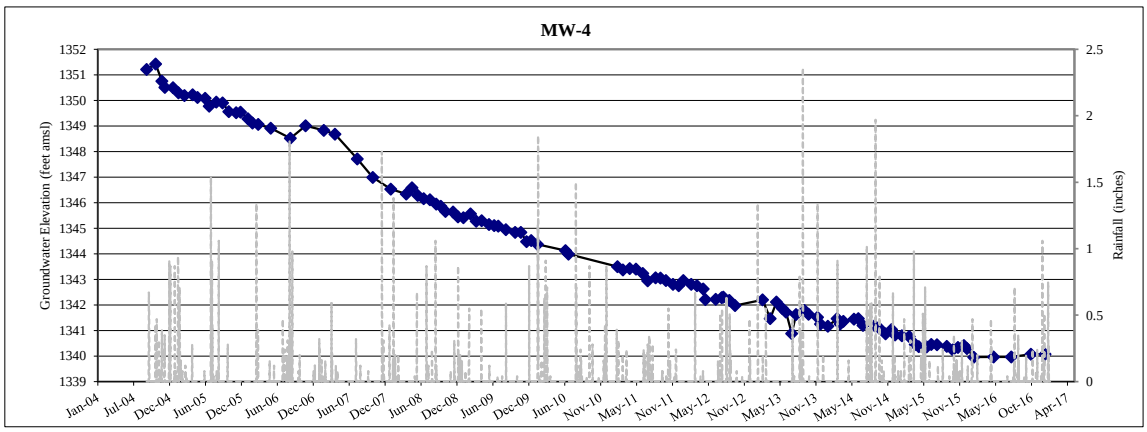
May-13
Nov-13
May-14
Nov-14
May-15
Nov-15
May-16
Oct-16
Apr-17


MW-2
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
Nov-11
May-12
Nov-12
May-13
Nov-13
May-14
Nov-14
May-15
Nov-15
May-16
Oct-16
Apr-17


MW-3
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
1344
1343
1342
1341
1340
1339
1338
1337
1336
1335
1334
1333
1332
1331
1330
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
Nov-11
May-12
Nov-12
May-13
Nov-13
May-14
Nov-14
May-15
Nov-15
May-16
Oct-16
Apr-17


MW-4
Groundwater Elevation (feet amsl)
Rainfall (inches)
1352
1351
1350
1349
1348
1347
1346
1345
1344
1343
1342
1341
1340
1339
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
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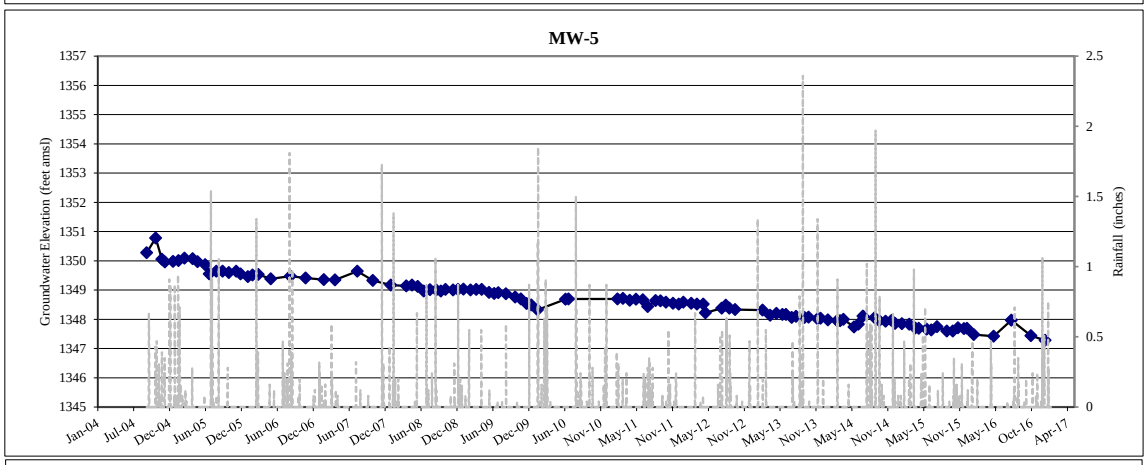
Apr-17


MW-5
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
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Jul-04
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Jun-05
Dec-05
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Nov-10
May-11
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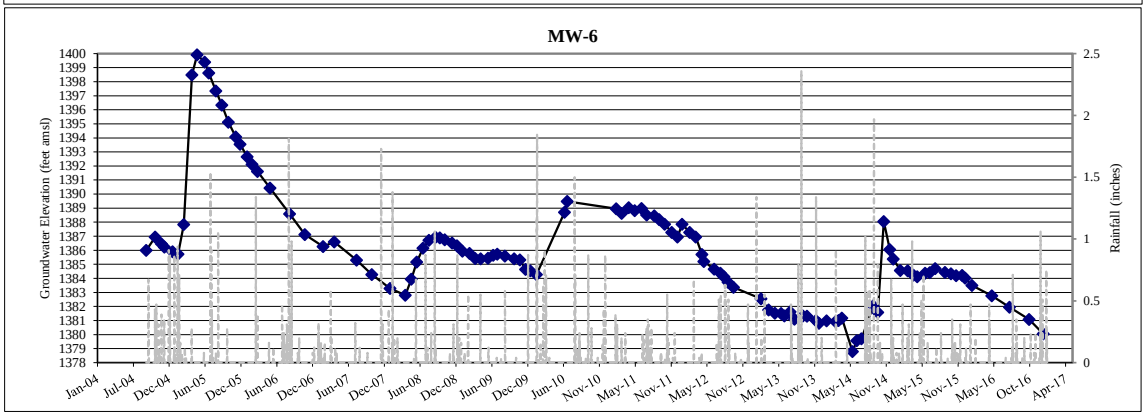
May-16
Oct-16
Apr-17


MW-6
Groundwater Elevation (feet amsl)
Rainfall (inches)
1400
1399
1398
1397
1396
1395
1394
1393
1392
1391
1390
1389
1388
1387
1386
1385
1384
1383
1382
1381
1380
1379
1378
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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May-16
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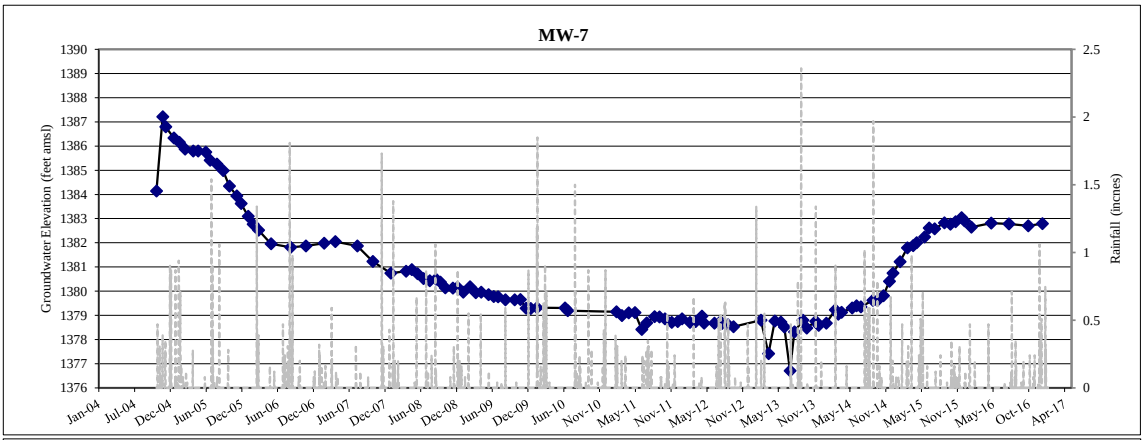
Apr-17


MW-7
Groundwater Elevation (feet amsl)
Rainfall (inches)
1390
1389
1388
1387
1386
1385
1384
1383
1382
1381
1380
1379
1378
1377
1376
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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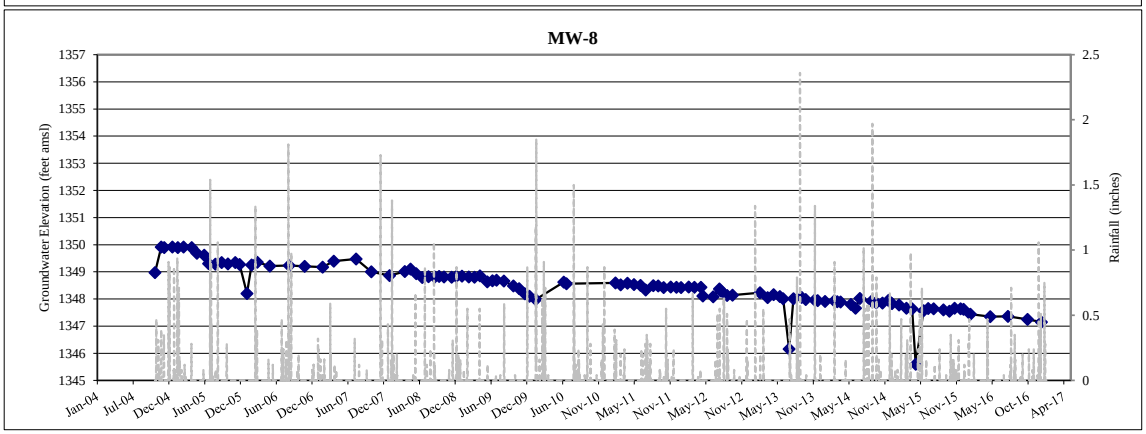
Apr-17


MW-8
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
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Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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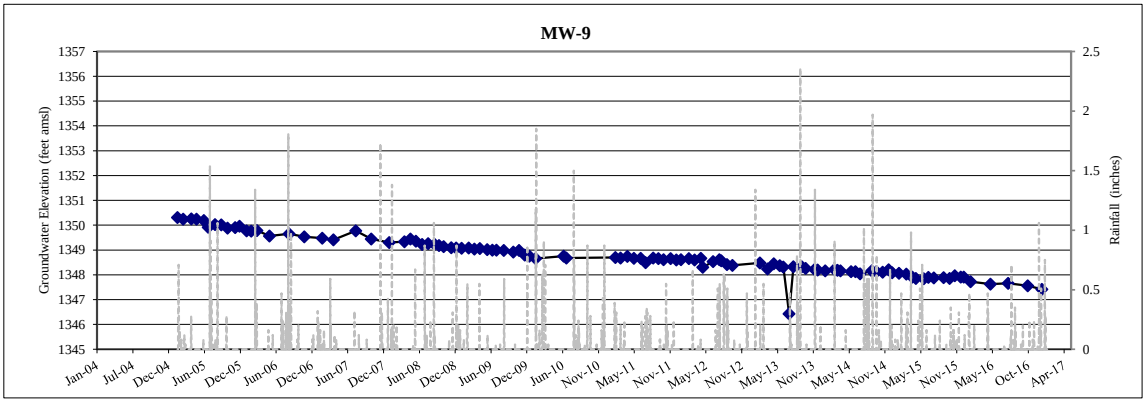
Apr-17


MW-9
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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May-16
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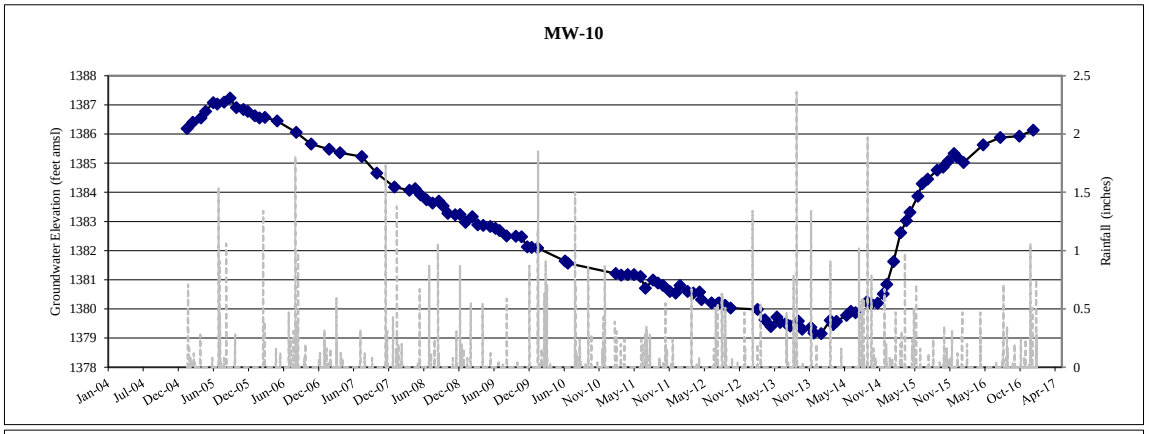
Apr-17


MW-10
Groundwater Elevation (feet amsl)
Rainfall (inches)
1388
1387
1386
1385
1384
1383
1382
1381
1380
1379
1378
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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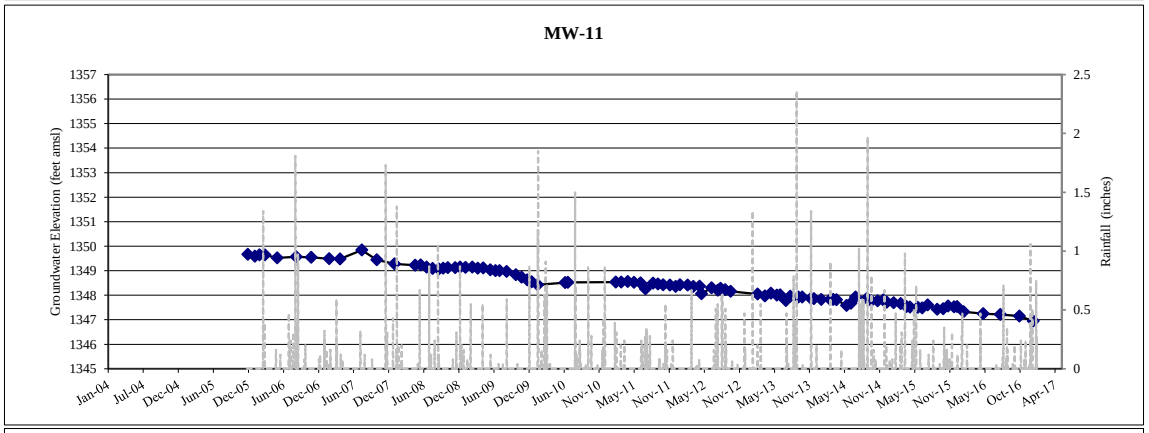
May-16
Oct-16
Apr-17


MW-11
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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May-13
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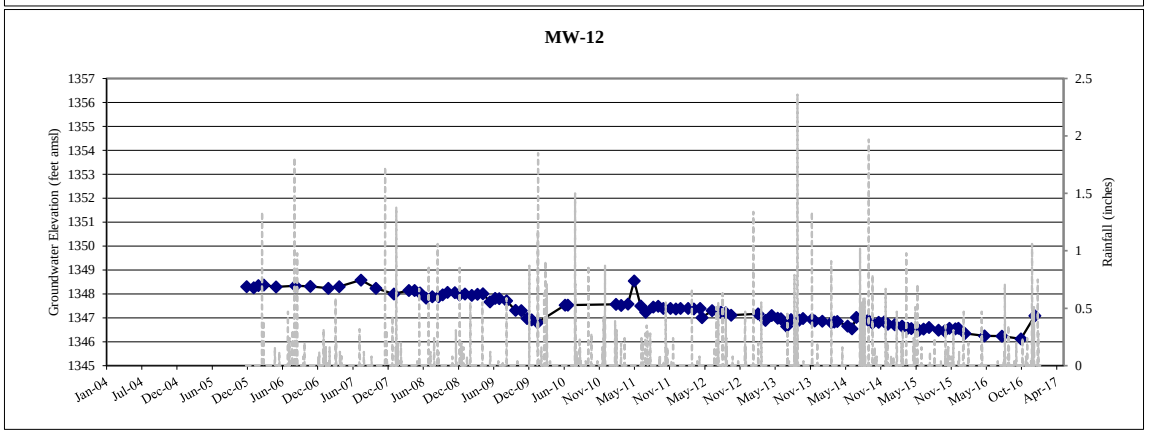
Nov-15
May-16
Oct-16
Apr-17


MW-12
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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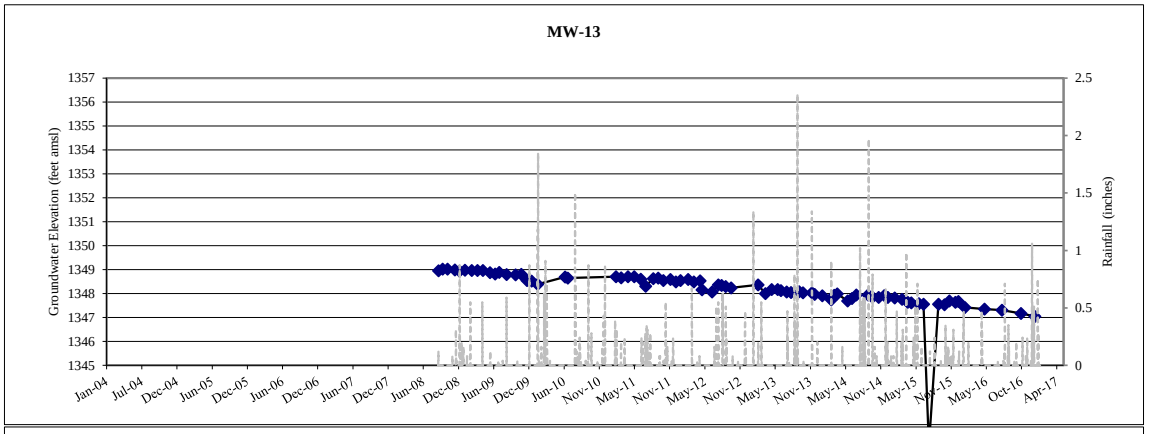
May-15
Nov-15
May-16
Oct-16
Apr-17


MW-13
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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May-16
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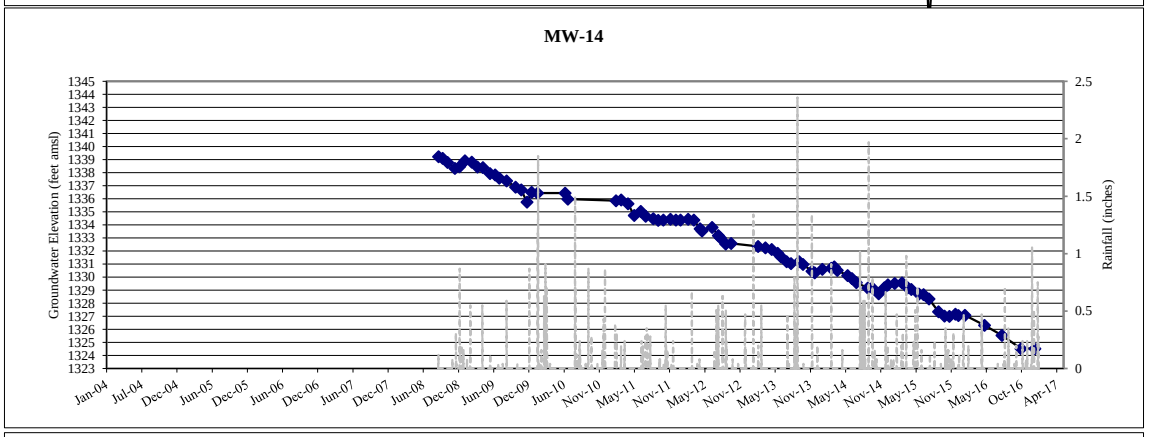
Apr-17


MW-14
Groundwater Elevation (feet amsl)
Rainfall (inches)
1345
1344
1343
1342
1341
1340
1339
1338
1337
1336
1335
1334
1333
1332
1331
1330
1329
1328
1327
1326
1325
1324
1323
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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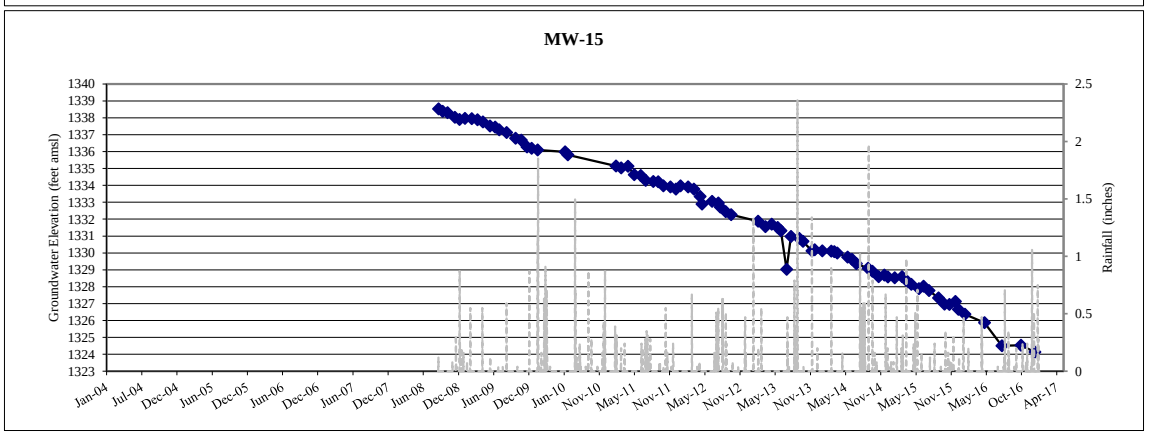
May-16
Oct-16
Apr-17


MW-15
Groundwater Elevation (feet amsl)
Rainfall (inches)
1340
1339
1338
1337
1336
1335
1334
1333
1332
1331
1330
1329
1328
1327
1326
1325
1324
1323
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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Nov-15
May-16
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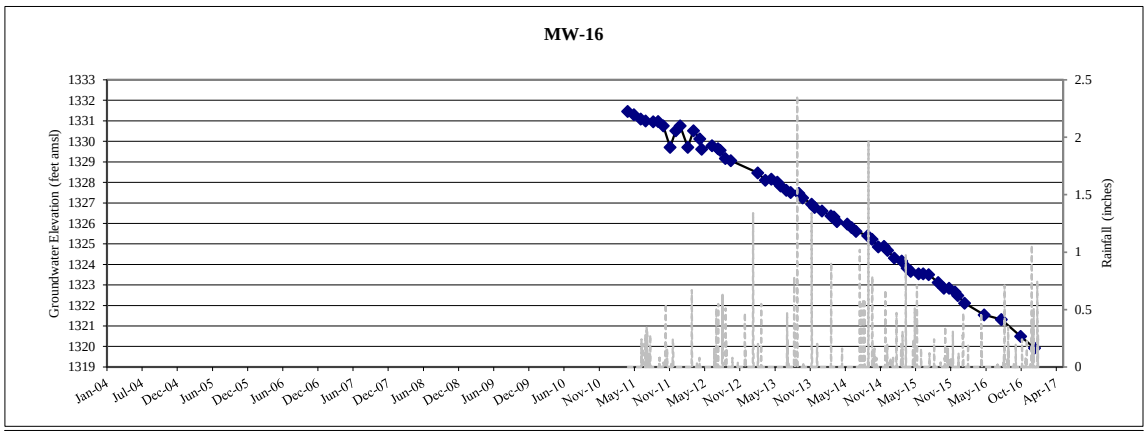
Apr-17


MW-16
Groundwater Elevation (feet amsl)
Rainfall (inches)
1333
1332
1331
1330
1329
1328
1327
1326
1325
1324
1323
1322
1321
1320
1319
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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May-16
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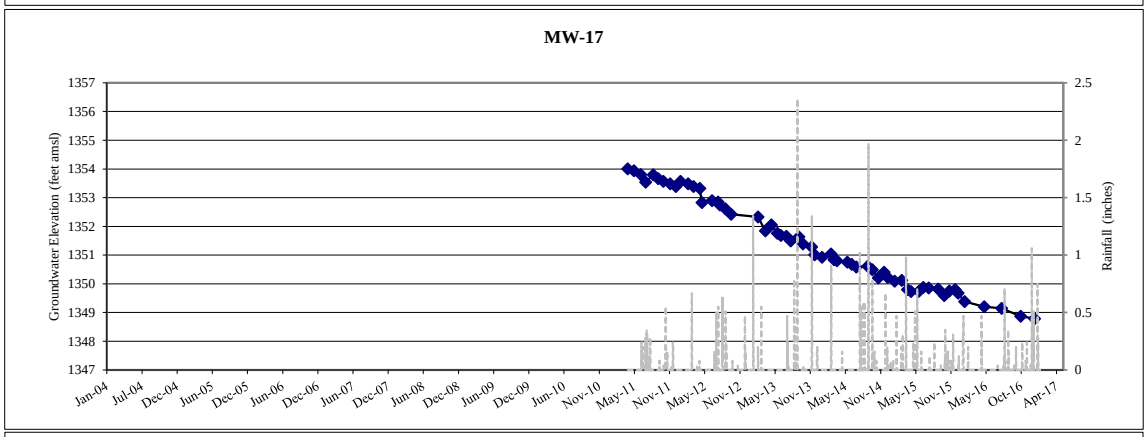
Apr-17


MW-17
Groundwater Elevation (feet amsl)
Rainfall (inches)
1357
1356
1355
1354
1353
1352
1351
1350
1349
1348
1347
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
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Jun-10
Nov-10
May-11
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May-16
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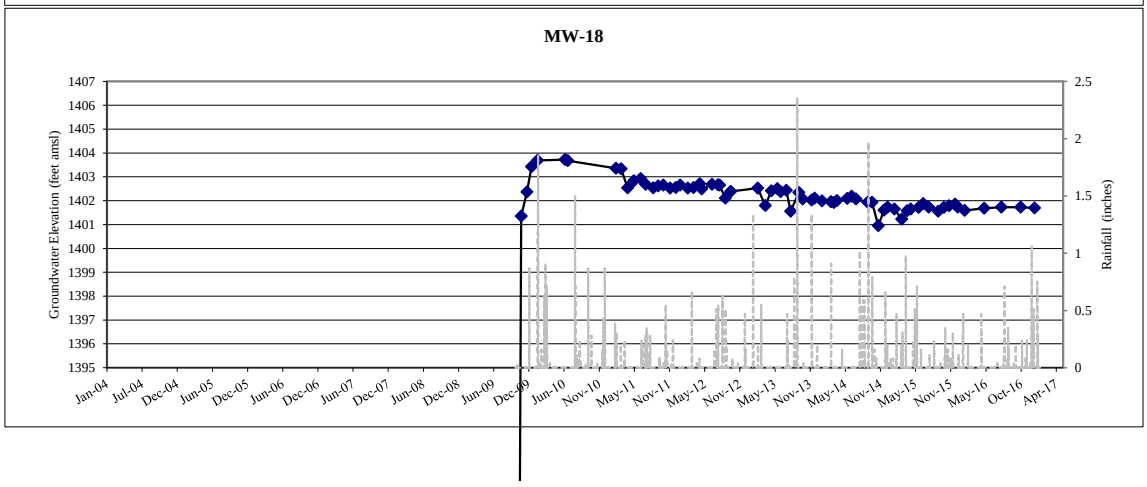
Apr-17


MW-18
Groundwater Elevation (feet amsl)
Rainfall (inches)
1407
1406
1405
1404
1403
1402
1401
1400
1399
1398
1397
1396
1395
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
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Jun-10
Nov-10
May-11
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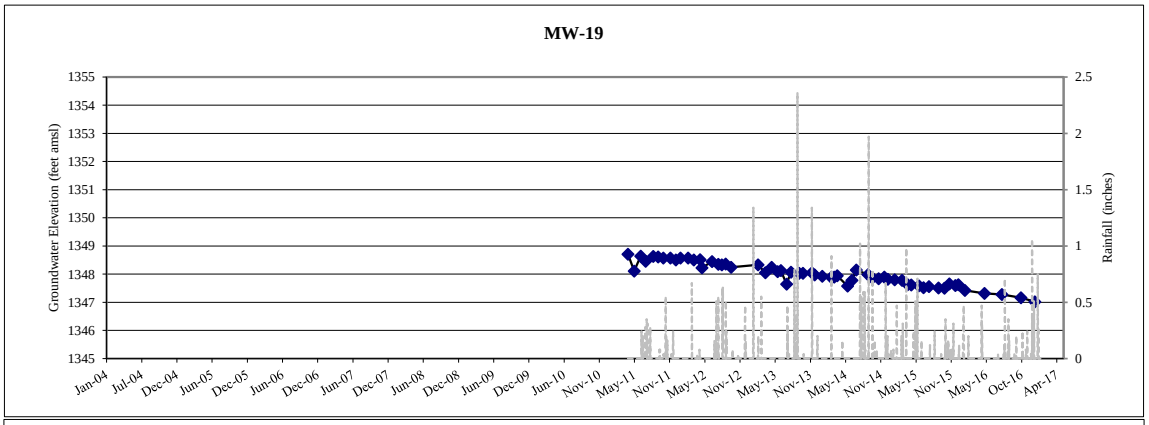
Nov-15
May-16
Oct-16
Apr-17


MW-19
Groundwater Elevation (feet amsl)
Rainfall (inches)
1355
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
Nov-11
May-12
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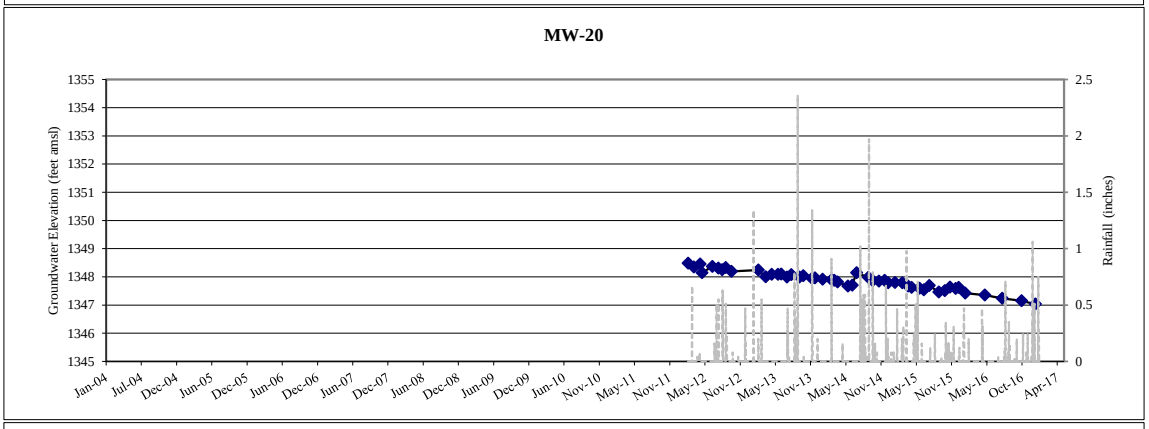
May-13
Nov-13
May-14
Nov-14
May-15
Nov-15
May-16
Oct-16
Apr-17


MW-20
Groundwater Elevation (feet amsl)
Rainfall (inches)
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1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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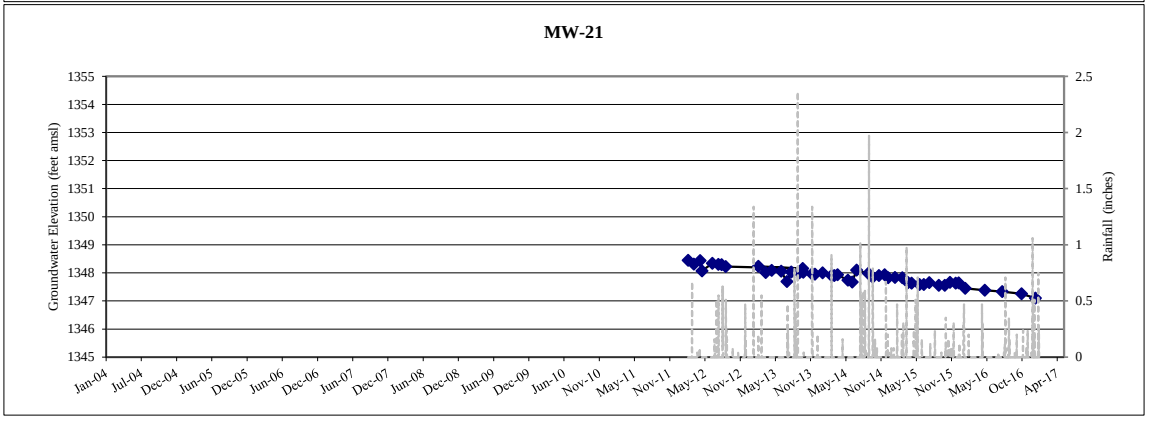
Nov-14
May-15
Nov-15
May-16
Oct-16
Apr-17


MW-21
Groundwater Elevation (feet amsl)
Rainfall (inches)
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1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
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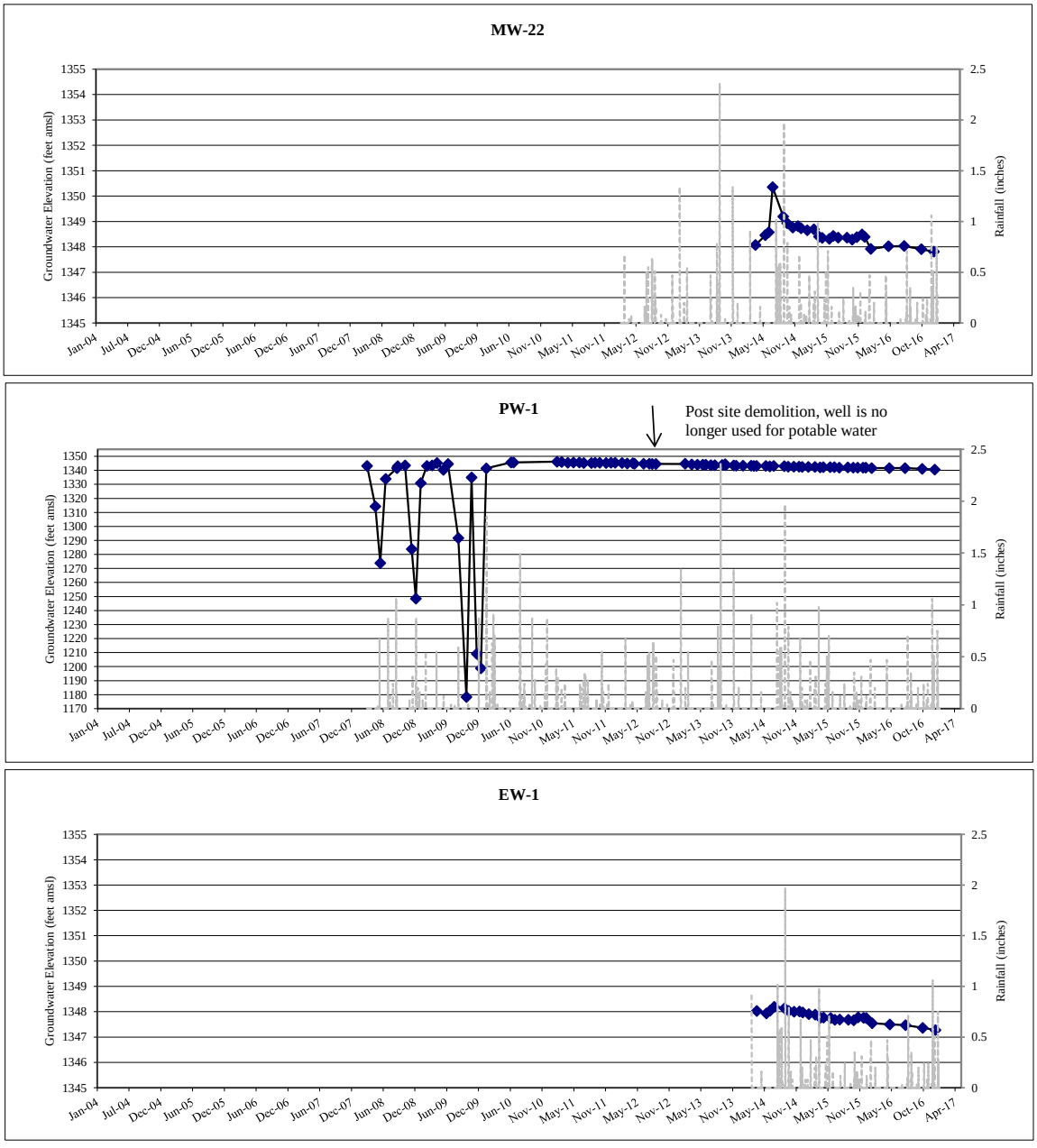
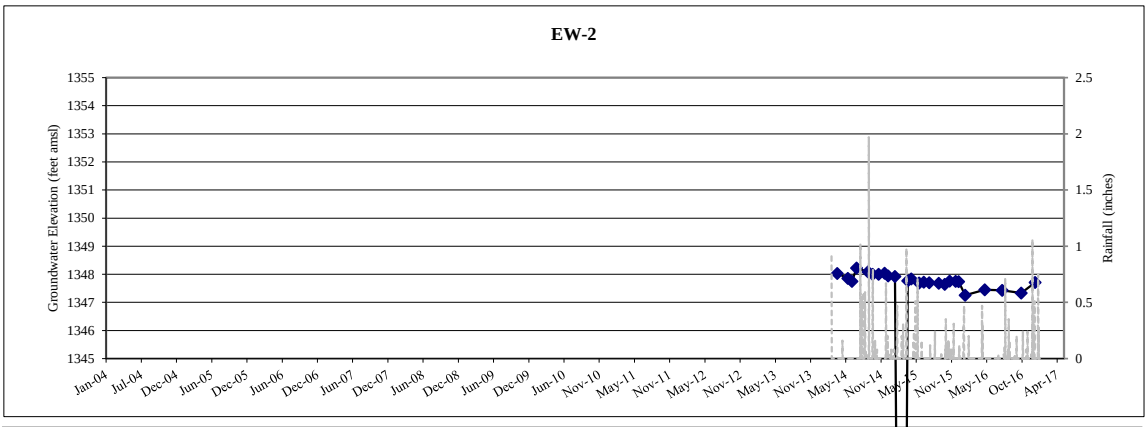
May-16
Oct-16
Apr-17


MW-22
Groundwater Elevation (feet amsl)
Rainfall (inches)
PW-1
Post site demolition, well is no longer used for potable water
Groundwater Elevation (feet amsl)
Rainfall (inches)
EW-1
Groundwater Elevation (feet amsl)
Rainfall (inches)


EW-2
Groundwater Elevation (feet amsl)
Rainfall (inches)
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1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
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Jun-07
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Jun-10
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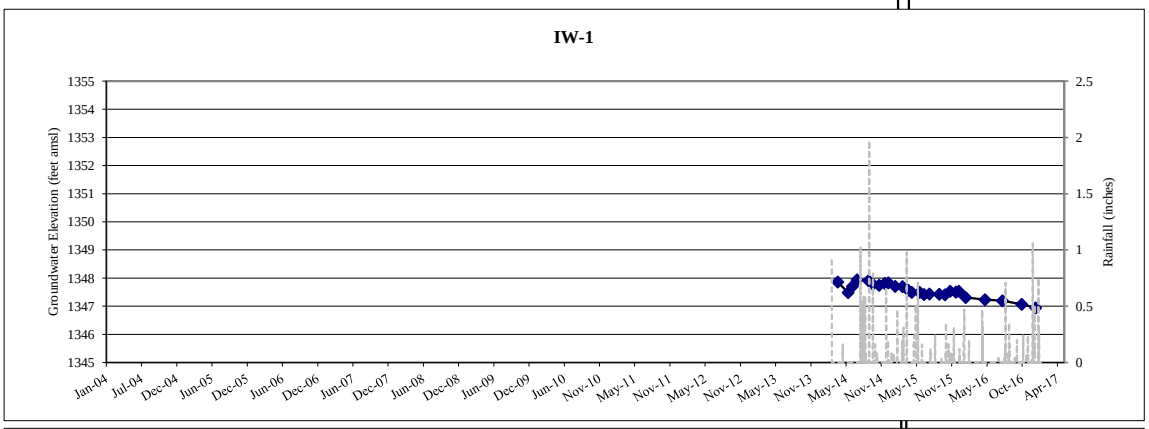
Apr-17


IW-1
Groundwater Elevation (feet amsl)
Rainfall (inches)
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1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
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Jun-10
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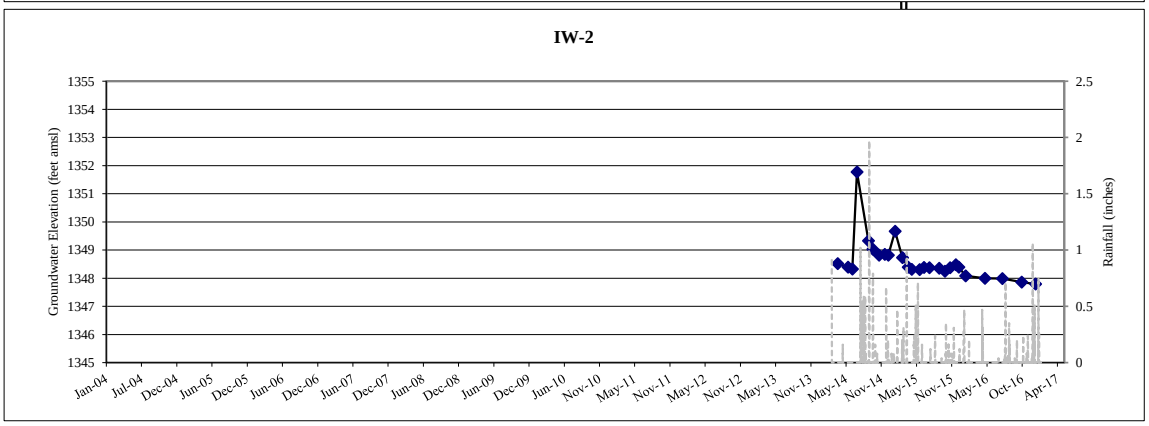
Apr-17


IW-2
Groundwater Elevation (feet amsl)
Rainfall (inches)
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1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
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Jun-10
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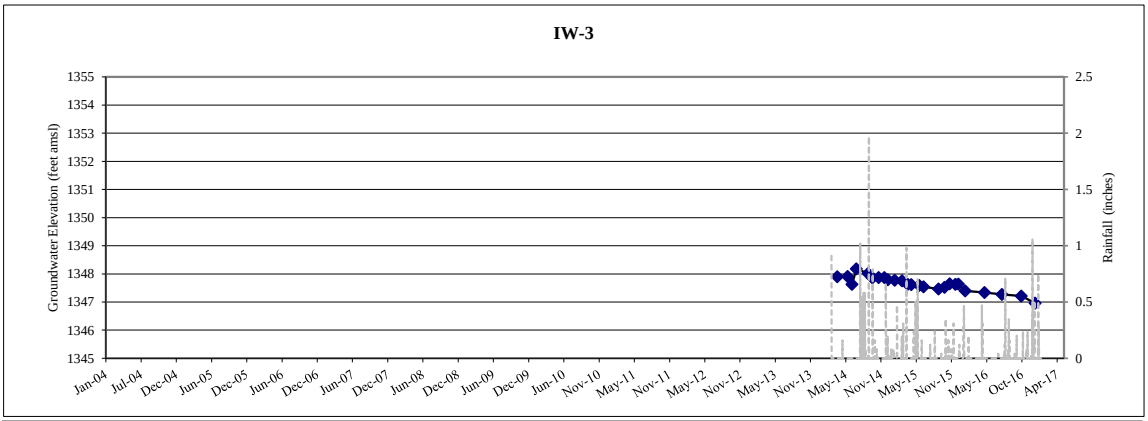
Apr-17


IW-3
Groundwater Elevation (feet amsl)
Rainfall (inches)
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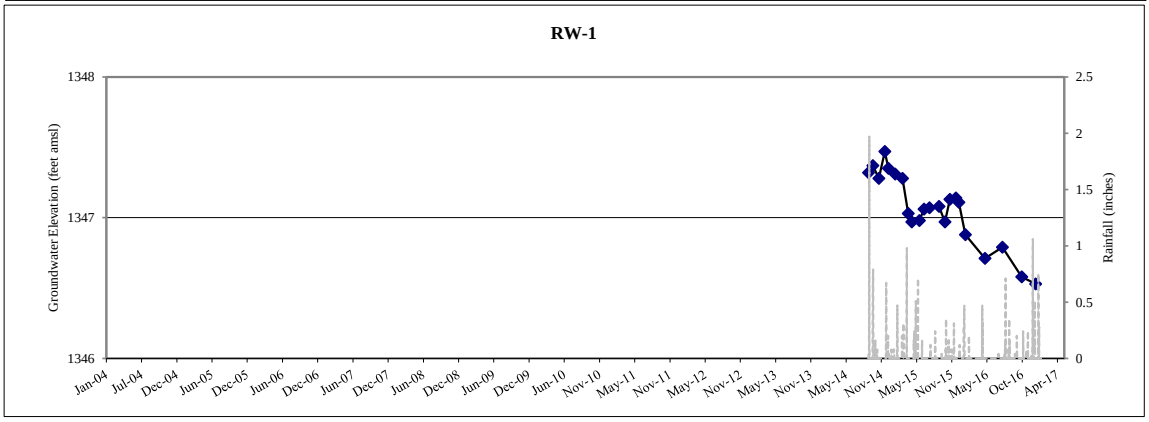
1354
1353
1352
1351
1350
1349
1348
1347
1346
1345
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
Nov-11
May-12
Nov-12
May-13
Nov-13
May-14
Nov-14
May-15
Nov-15
May-16
Oct-16
Apr-17


RW-1
Groundwater Elevation (feet amsl)
Rainfall (inches)
1348
1347
1346
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
Nov-11
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Nov-14
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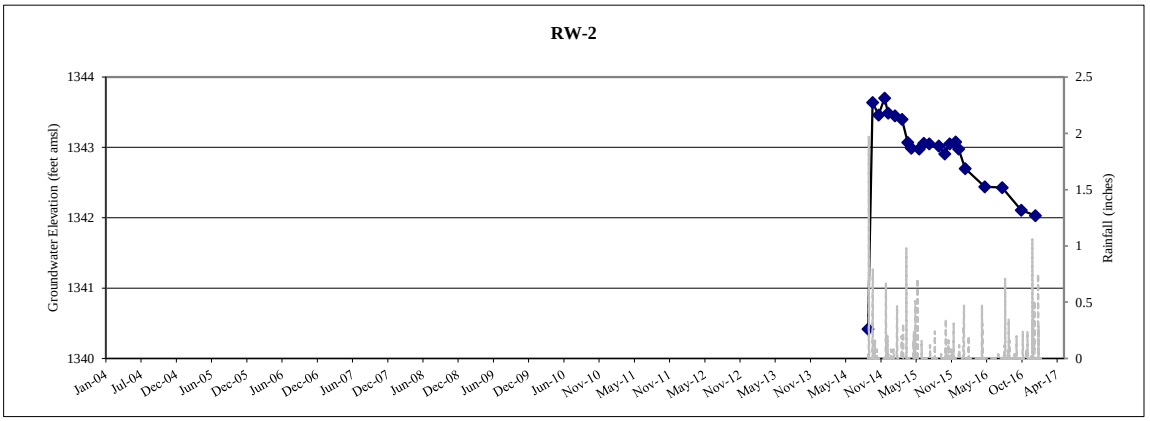
May-16
Oct-16
Apr-17


RW-2
Groundwater Elevation (feet amsl)
Rainfall (inches)
1344
1343
1342
1341
1340
2.5
2
1.5
1
0.5
0
Jan-04
Jul-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Nov-10
May-11
Nov-11
May-12
Nov-12
May-13
Nov-13
May-14
Nov-14
May-15
Nov-15
May-16
Oct-16
Apr-17

APPENDIX E

Water Quality Data

Parameter Total Metals (µg/L)	AWQS	MW-2 1/23/2017	MW-18 1/13/2017	MW-20 1/24/2017	EW-2 1/23/2017	PW-1 1/18/2017
Arsenic	50	NA	49.6	NA	NA	NA
VOCs (µg/L)						
1,1-Dichloroethylene	7	NA	NA	NA	NA	3.0
1,4-Dioxane	NE	2.8	NA	10.1	<1.0	2.0

Notes:
µg/L = micrograms per liter
AWQS = Arizona Aquifer Water Quality Standard
NE = AWQS not established
NA = not analyzed
< = Analyte not detected above the listed laboratory reporting limit
VOC = volatile organic compound

APPENDIX F

Field Data

WELL ID: MW-1

Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 240
Depth to Water-DTW$_0$ (ft bmp): 212.93
Height of water-hW (ft): 27.07

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 36.86
3- Casing Volume (g): 110.58

Purge Start Date/ Time: 1/23/17 @ 1638
Purge Rate (gpm): 5.3 avg
Pressure gauge (psi): 4
~~Calculated purge time~~:
Chain of Custody sample date: 1/23/17
Chain of Custody sample time: 1707
Purge End Time: 1708
Time Duration of Purge (min): 30
Volume Purged (g): ~160

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1645	1650	1655	1700	1705			
DTW	212.58	213.80						
Temperature (°C)	27.90	28.04	27.93	27.94	28.01	pull @ 1707		
Conductivity (ms/cm)	0.336	.338	.336	.338	.338	sample		
Salinity (ppt)	0.16	0.16	.16	.16	.16 (.15)			
DO (%)	38.6	50.9	58.3	62.3	66.8			
DO (mg/L)	3.02	3.98	4.57	4.87	5.22			
pH	7.18	7.20	7.21	7.22	7.22			
ORP (mv)	2.1	-80.3	25.2	-96.5	-88.7			
NTU	0.42	0.60	.54	.38	.33			

Wacko

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

OK

Target flow: valve fully open through hose bib

Sample: EPA 3140

Samplers Initials: MK

WELL ID: MW-2 Project: 03994018.0021

Total Depth of Well-TD (ft bgs): 250
Depth to Water-DTW$_0$ (ft bmp): 224.13
Height of water-hW (ft): 25.87

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 35.22
3- Casing Volume (g): 105.66

Purge Start Date/ Time: 1/23/17 @ 1730
Purge Rate (gpm): 10.3 avg
Pressure gauge (psi): 8
~~Calculated purge time~~:
Chain of Custody sample date: 1/23/17
Chain of Custody sample time: 1757
Purge End Time: 1759
Time Duration of Purge (min): 29
Volume Purged (g): ~300

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1735	1740	1745	1750	1755			
DTW	225.8	225.9						
Temperature (*C)	27.88	27.96	27.98	27.96	27.98			
Conductivity (ms/cm)	.378	.376	.376	.376	.376			
Salinity (ppt)	0.18	.18	.18	.18	.18	Sampled @ 1757		
DO (%)	54.7	72.8	78.3	80.9	82.2			
DO (mg/L)	4.29	5.71	6.12	6.34	6.43			
pH	7.31	7.32	7.33	7.33	7.34			
ORP (mv)	-86.2	-86.4	-69.2	-66.4	-64.7			
NTU	0.49	0.38	0.33	0.37	0.41			

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: valve fully open through hose bib

Sample: EPA 314.0 & 1,4 dioxane

Samplers Initials: MA

WELL ID: MW-3 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 271
Depth to Water-DTW$_0$ (ft bmp): 248.85
Height of water-hW (ft): ~

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g): X

Purge Start Date/ Time: 1/12/17 @ 1430
Purge Rate (gpm):
Pressure gauge (psi): 50
~~Estimated purge dry time~~:

Purge End Time: 1448
Time Duration of Purge (min): 18
Volume Purged (g): ~50

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 246.98
% Recovery (DTW$_0$/DTW$_1$ >95%): 99
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1730 pump off: 1737
Volume to Purge in drop pipe (g): 11
Chain of Custody sample date: 1/13/17
Chain of Custody sample time: 1737
Approximate Volume Purged (g): ~25

Day 2

Time of Test	1435	1440	1445	1448		1735		
DTW	259.5	261.5	266.0	—				
Temperature (*C)	28.15	28.90	29.08	Well		28.42		
Conductivity (ms/cm)	0.270	.271	.273			.271	Sampled @	1737
Salinity (ppt)	0.13	.13	.13	dry		0.13		
DO (%)	75.0	84.0	78.8			80.5		
DO (mg/L)	5.85	6.46	6.05			6.25		
pH	6.84	7.00	7.06			6.79		
ORP (mv)	298.0	228.0	194.6			288.4		
NTU	0.98	.95	.95			.93		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sampled EPA 332.0

Target flow: Day 1 (5 gpm/~~30~~ psi through ~~hose bib~~); ~~Day 2 (fully open through hose bib, 6gpm/50psi)~~ 5

Samplers Initials: MM

WELL ID: MW-4 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 300
Depth to Water-DTW$_0$ (ft bmp): 280.38(t) tip of pump
Height of water-hW (ft): —

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g): X

Purge Start Date/ Time: 1/18/17 @ 1325
Purge Rate (gpm):
Pressure gauge (psi): 10 / 2
~~Estimated purge dry time~~:

Purge End Time: 1332
Time Duration of Purge (min): 7
Volume Purged (g): ~20

DAY 2
Depth to Water-DTW$_1$ (ft bmp): —
% Recovery (DTW$_0$/DTW$_1$ >95%): —
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1656 pump off: 1701
Volume to Purge in drop pipe (g): 12
Chain of Custody sample date: 1/19/17
Chain of Custody sample time: 1760
Approximate Volume Purged (g): n/a

Day 2

Time of Test	1328	1331	1332		1658			
DTW	—				—			
Temperature (°C)	27.52	27.66	Well		26.67		Sampled @	
Conductivity (ms/cm)	0.370	.370	dry		.371			1700
Salinity (ppt)	0.18	.18			.18			
DO (%)	30.3	16.9			28.3			
DO (mg/L)	2.37	1.34			2.28			
pH	6.98	7.02			7.08			
ORP (mv)	-56.0	-20.0			-75.0			
NTU	1.44	1.32			1.07			

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

(all through flow cell)

Target flow: Day 1 (2 gpm/ 70 psi through tygon/barb); Day 2 (4 gpm/ 50 psi through garden hose)

EPA 332.0

Samplers Initials: MM

WELL ID: MW-6

Project: 3994018.0021

* Run MS/MSD (3)

* Dup = FD011917 @ 1200

Total Depth of Well-TD (ft bgs): 210
Depth to Water-DTW$_0$ (ft bmp): 171.60
Height of water-hW (ft): —

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g): X

Purge Start Date/ Time: 1/18/17 @ 1242
Purge Rate (gpm):
Pressure gauge (psi): 80
~~Estimated purge dry time:~~

Purge End Time: 1253
Time Duration of Purge (min): 11
Volume Purged (g): ~25

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 170.82
% Recovery (DTW$_0$/DTW$_1$ >95%): 99
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1435 pump off: 1443
Volume to Purge in drop pipe (g): 8
Chain of Custody sample date: 1/19/17
Chain of Custody sample time: 1442
Approximate Volume Purged (g): ~20

DAY 2

Time of Test	1245	1248	1251	1253		1440		
DTW	188.7	—	—			—		
Temperature (*C)	27.70	28.04	28.23	Well		26.63		
Conductivity (ms/cm) c-	.409	.413	.424			.420		
Salinity (ppt)	0.19	.20	.20	dry		.20		
DO (%)	3.9	4.7	7.4			14.0	Sampled @ 1442	
DO (mg/L)	0.31	0.37	0.58			1.12		
pH	6.68	6.71	6.78			6.70		
ORP (mv)	-16.7	24.3	26.2			14.5		
NTU	(green							

Notes: (Visual observations or Smells during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: Day 1 (4 gpm/ 90 psi through hose bib); Day 2 (same as Day 1) Water green from injection

EPA 314.0 (3)

Samplers Initials: MH

WELL ID: MW-7

Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 210
Depth to Water-DTW$_0$ (ft bmp): 158.56
Height of water-hW (ft): 51.44

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 70.04
3- Casing Volume (g): 210.12

Purge Start Date/ Time: 1/17/17 @1410
Purge Rate (gpm): 5.5 avg
Pressure gauge (psi): 4
~~Calculated purge time~~:
Chain of Custody sample date: 1/17/17
Chain of Custody sample time: 1447
Purge End Time: 1448
Time Duration of Purge (min): 38
Volume Purged (g): ~210

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1420	1430	1435	1440	1445			
DTW	177.3	181.0	182.0	182.7	183.3			
Temperature (*C)	27.84	27.91	27.93	27.97	27.95			
Conductivity (ms/cm)	.299	.299	.299	.299	.299			
Salinity (ppt)	0.14	0.14	.14	.14	.14	Sampled @		
DO (%)	119.2	118.2	118.7	118.6	118.8		1447	
DO (mg/L)	9.35	9.26	9.30	9.28	9.31			
pH	7.22	7.24	7.25	7.26	7.27			
ORP (mv)	173.9	166.0	162.0	157.9	155.0			
NTU	.97	.90	.92	.88	.71			

Notes: (Visual observations or Smells during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: valve fully open through hose bib JK sampled EPA 332.0

Samplers Initials: [illegible]

WELL ID: MW-8 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 235
Depth to Water-DTW$_0$ (ft bmp): 195.03
Height of water-hW (ft): ~

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g):

Purge Start Date/ Time: 1/12/17 @ 1555
Purge Rate (gpm):
Pressure gauge (psi): 80
Estimated ~~purge~~ dry time:

Purge End Time: 1612
Time Duration of Purge (min): 17
Volume Purged (g): ~50

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 195.07
% Recovery (DTW$_0$/DTW$_1$ >95%): 100
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1630 pump off: 1638
Volume to Purge in drop pipe (g): 9
Chain of Custody sample date: 1/13/17
Chain of Custody sample time: 1637
Approximate Volume Purged (g): ~20

Day 2

Time of Test	1600	1605	1610	Well dry @ 1612	1635			
DTW								
Temperature (°C)	26.99	28.55	28.69		27.85			
Conductivity (ms/cm)	.190	.186	.190		.192			
Salinity (ppt)	.09	.09	.09		.09			
DO (%)	25.4	63.5	54.0		68.7			
DO (mg/L)	2.01	4.92	4.17		5.38			
pH	8.22	8.60	8.38		8.47			
ORP (mv)	56.3	52.5	58.1		101.4			
NTU	0.97	0.94	1.07		1.01			

Sampled @ 1637

(Low Flow)

Notes: (Visual observations or Smells during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: Day 1 (2.7 gpm/ 80 psi through hose bib) Day 2 (5 gpm/ 80 psi through hose bib)

Sampled: 332.0

Samplers Initials: WH

WELL ID: MW-9 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 258
Depth to Water-DTW$_0$ (ft bmp): 218.18
Height of water-hW (ft): 39.82

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 54.22
3- Casing Volume (g): 162.66

Purge Start Date/ Time: 1/17/17 @ 1535
Purge Rate (gpm): 5.1 avg
Pressure gauge (psi): 5
~~Calculated purge time:~~
Chain of Custody sample date: 1/17/17
Chain of Custody sample time: 1617
Purge End Time: 1618
Time Duration of Purge (min): 43
Volume Purged (g): ~ 220

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1545	1550	1555	1600	1605	1610	1615	
DTW	232.2		233.9	234.3	234.8	235	—	
Temperature (°C)	28.28		28.35	28.32	28.35	28.36	@	28.34
Conductivity (ms/cm)	.379		.378	.376	.375	.374 Sampled	.373	
Salinity (ppt)	.18	MISSED	0.18	.18	.18	.18	1617 .18	
DO (%)	21.9		31.6	36.7	46.6	49.9	51.5	
DO (mg/L)	1.71		2.46	2.85	3.62	3.88	4.00	
pH	7.11		7.12	7.13	7.13	7.14	7.15	
ORP (mv)	41.2		40.1	48.8	66.1	70.7	67.1	
NTU	.95	(call)	.96	.82	.80	.92	.94	

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: fully open OK Sampled EPA 332.0

Samplers Initials: AM

WELL ID: MW-10 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 208
Depth to Water-DTW$_0$ (ft bmp): 149.98
Height of water-hW (ft): —

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g): X
Purge Start Date/ Time: 1/12/17 @1638
Purge Rate (gpm):
Pressure gauge (psi): 80
~~Estimated purge dry time~~:
Purge End Time: 1659
Time Duration of Purge (min): 21
Volume Purged (g): ~50

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 152.12
% Recovery (DTW$_0$/DTW$_1$ >95%): 98
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1650 pump off: 1658
Volume to Purge in drop pipe (g): 8
Chain of Custody sample date: 1/13/17
Chain of Custody sample time: 1657
Approximate Volume Purged (g): ~20

Day 2

Time of Test	1645	1650	1655	1659	1655			
DTW	165.3	174.4	183.4	—				
Temperature (°C)	27.99	28.07	28.19	Well	27.53			
Conductivity (ms/cm)	.319	.318	.318		.318	Sampled @		
Salinity (ppt)	.15	.15	.15	dry	.15		1657	
DO (%)	61.0	66.4	82.2		73.1			
DO (mg/L)	4.77	5.19	6.40		5.77			
pH	7.14	7.20	7.27		7.27			
ORP (mv)	112.6	116.6	119.2		137.1			
NTU	.96	1.06	.90		0.92			

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: Day 1 (2.6 gpm/80 psi through hose bib); Day 2 (2.3 gpm/ 80 psi through hose bib)

Sampled: EPA 332.0

Samplers Initials: MM

WELL ID: MW-11

Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 315
Depth to Water-DTW$_0$ (ft bmp): 259.19
Height of water-hW (ft): 55.81

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 75.99
3- Casing Volume (g): 227.98

Purge Start Date/ Time: 1/18/17 @ 1610
Purge Rate (gpm): 5.3 avg
Pressure gauge (psi): 4
~~Calculated purge time~~:
Chain of Custody sample date: 1/18/17
Chain of Custody sample time: 1652
Purge End Time: 1653
Time Duration of Purge (min): 43
Volume Purged (g): ~230

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1620	1630	1635	1640	16.45	1650		
DTW	259.7	259.8						
Temperature (°C)	28.34	28.39	28.39	28.40	28.40	28.42		
Conductivity (ms/cm)	.532	.534	.534	.534	.534	.534	Collected @ 1652	
Salinity (ppt)	.25	.26	.26	.26	.26	.26		
DO (%)	75.7	76.4	77.7	77.2	76.8	77.6		
DO (mg/L)	5.88	5.93	6.03	5.99	5.96	6.02		
pH	7.18	7.19	7.19	7.26	7.20	7.20		
ORP (mv)	68.7	80.2	83.6	86.5	88.6	90.6		
NTU	.82	.90	.86	.72	.70	.68		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: fully open EPA 332.0

Samplers Initials: VAA

WELL ID: MW-12 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 480
Depth to Water-DTW$_0$ (ft bmp): 213.82
Height of water-hW (ft): 266.18 Note: hW = TD - DTW

1-Casing Volume (g) = **38g + (1.02g/ft * hW)**

DAY 1
1- Casing Volume (g): 309.5
3- Casing Volume (g): 928.5

Purge Start Date/ Time: 1/11/17 @ 1250
Purge Rate (gpm): 14 avg
Pressure gauge (psi): 14
~~Calculated purge time~~:
Chain of Custody sample date: 1/11/17
Chain of Custody sample time: 1412
Purge End Time: 1413
Time Duration of Purge (min): 35+25
Volume Purged (g): 850 (loops)

Note: 300 (g-sec/min) / X (sec to fill 5g)

Pump off @ 1325 (Pump 500 g)
Pump on @ 1348

Time of Test	1305	1320	1400	1405	1410			
DTW	218.8							
Temperature (°C)	29.38	29.42	29.38	29.42	29.44			
Conductivity (ms/cm)	0.373	.365	.362	.362	.361			
Salinity (ppt)	0.18	.17	0.17	.17	.17			
DO (%)	31.7	50.1	58.1	59.1	60.5			
DO (mg/L)	2.42	3.82	4.43	4.51	4.62			
pH	6.95	7.04	7.11	7.11	7.12			
ORP (mv)	100.5	121.9	131.0	130.4	129.8			
NTU	0.92	0.95	.096	0.94	0.90			

Sampled @ 1412

Notes: (Visual observations or Smells during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: fully open Sampled: EPA 332.0

Samplers Initials: JM

WELL ID: MW-13 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 490.5
Depth to Water-DTW$_0$ (ft bmp): 252.48
Height of water-hW (ft): 238.02
Well pipe is 5" nominal PVC screened from 440' to 490' Note: hW = TD - DTW

1-Casing Volume (g) = **38g + (1.02g/ft * hW)**

DAY 1
1- Casing Volume (g): 280.78
3- Casing Volume (g): 842.34
Purge Start Date/ Time: 1/19/17 @ 1755 + 1918
Purge Rate (gpm): 12.5 avg
Pressure gauge (psi): 5
~~Calculated purge time:~~
Chain of Custody sample date: 1/19/17
Chain of Custody sample time: 1947
Purge End Time: 1948
Time Duration of Purge (min): 40 / 30=70
Volume Purged (g): ~~500 / 380~~ 880

Note: 300 (g-sec/min) / X (sec to fill 5g)

Pump off @ 1835 (500g)
pump on @ 1918

Time of Test	1810	1825	1935	1940	1945	~~1950~~		
DTW	302.4	304.2	303.7	304.9	306.2			
Temperature (°C)	29.00	29.08	29.10	29.09	29.15			
Conductivity (ms/cm)@	.368	.370	.370	.369	.369	Sampled @ 1947		
Salinity (ppt)	.17	.17	.18	.17	.17			
DO (%)	21.8	22.5	23.5	22.9	22.9			
DO (mg/L)	1.67	1.72	1.81	1.76	1.76			
pH	7.24	7.27	7.29	7.30	7.30			
ORP (mv)	15.8	22.6	36.3	34.1	32.9			
NTU	2.34	2.12	2.57	2.40	2.11			

Notes: (Visual observations or Smells during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: full open to purge, ~ 5 gpm to sample Sampled EPA 314.0

Samplers Initials: BMS

WELL ID: MW-14 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 500
Depth to Water-DTW_0 (ft bmp): 277.93
Height of water-hW (ft): —

Note: hW = TD - DTW

1-Casing Volume (g) = **38g + (1.02g/ft * hW)**

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g): X

Purge Start Date/ Time: 1/10/17 @ 1610
Purge Rate (gpm): 4.7 avg
Pressure gauge (psi): 10 start / "0"
~~Estimated purge dry time~~:

Purge End Time: 1652
Time Duration of Purge (min): 42
Volume Purged (g): ~200

DAY 2
Depth to Water-DTW_1 (ft bmp): 277.93
% Recovery (DTW_0/DTW_1 >95%): 100
OR 24-hr since DAY 1
Purge Start Date/Time. 1/11/17
pump on: 1605 pump off: 1638
Volume to Purge in drop pipe (g):
Chain of Custody sample date: 1/11/17
Chain of Custody sample time: 1437
Approximate Volume Purged (g): ~200

→ off @ 1652 (~2gpm)

Time of Test	1625	1640	1650	1620	1625	1630	1635	
DTW	+370							
Temperature (°C)	28.99	29.22	29.44	29.04	29.01	29.10	29.15	
Conductivity (ms/cm)	.687	.689	.689	.694	.695	.695	.695	Sampled @ 1637
Salinity (ppt)	0.33	0.33	.33	0.33	0.33	.33	.34	
DO (%)	24.9	25.5	26.5	68.8	58.6	57.3	56.8	
DO (mg/L)	1.91	1.95	2.02	5.26	4.49	4.40	4.35	
pH	6.85	6.88	6.89	6.98	6.99	6.99	6.99	
ORP (mv)	116.5	119.0	120.6	133.1	134.6	135.8	136.1	
NTU	0.96	0.93	1.01	0.96	0.97	0.96	0.95	

Notes: (Visual observations or Smells during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sampled EPA 332.0

Target flow: Day 1 (fully open, purge till dry or 1.25 casing volumes); Day 2 (fully open)

Samplers Initials: M. Tran

WELL ID: MW-15 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 330
Depth to Water-DTW$_0$ (ft bmp): 276.35
Height of water-hW (ft): 53.65
Well pipe is 4" nominal PVC screened from 270' to 320' Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 73.05
3- Casing Volume (g): 219.15

Purge Start Date/ Time: 1/11/17 @ 1517
Purge Rate (gpm): 0.1 avg
Pressure gauge (psi): 4
~~Calculated purge time~~:
Chain of Custody sample date: 1/11/17
Chain of Custody sample time: 1552
Purge End Time: 1553
Time Duration of Purge (min): 36
Volume Purged (g): 220

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1530	1535	1540	1545	1550			
DTW	289.2	293.4	294.8	296.0	—			
Temperature (°C)	28.55	28.53	28.60	28.63	28.67			
Conductivity (ms/cm)[c]	.400	.401	.403	.403	.403			
Salinity (ppt)	0.19	.19	.19	.19	.19			
DO (%)	63.2	62.9	61.7	62.0	62.5			
DO (mg/L)	4.96	4.88	4.77	4.80	4.83			
pH	7.06	7.07	7.07	7.08	7.08			
ORP (mv)	125.6	129.8	130.9	131.8	132.6			
NTU	0.95	0.89	.89	.96	.92			

Sampled @ 1552

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: fully open to purge and sample Sampled EPA 332.0

Samplers Initials: AM

WELL ID: MW-16 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 505
Depth to Water-DTW$_0$ (ft bmp): 265.44
Height of water-hW (ft): 239.56

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 326.18
3- Casing Volume (g): 978.55

Purge Start Date/ Time: 1/13/17 @1230
Purge Rate (gpm): _____
Pressure gauge (psi): 12
~~Calculated purge time~~: _____
Chain of Custody sample date: 1/13/17
Chain of Custody sample time: 1522
Purge End Time: _____
Time Duration of Purge (min): _____
Volume Purged (g): ~~1500~~ ~950

Note: 300 (g-sec/min) / X (sec to fill 5g)

pump off @ 1332 (500g)
pump on @ 1425

Time of Test	1245	1315	1330	1440	1455	1510	1515	1520
DTW	345.							
Temperature (*C)	29.21	29.88	29.83	29.80	29.81	29.88	29.85	29.88
Conductivity (ms/cm)	.425	.428	.429	.428	.429	.427	.427	.427
Salinity (ppt)	.20	.20	.20	.20	.20	.20	.20	.20
DO (%)	26.3	30.7	30.5	35.2	32.6	33.9	34.7	34.7
DO (mg/L)	2.01	2.32	2.31	2.68	2.47	2.56	2.63	2.63
pH	6.87	7.00	7.02	7.07	7.08	7.10	7.10	7.10
ORP (mv)	250.7	176.6	166.4	149.0	142.9	140.4	139.3	139.0
NTU	0.90	0.94	.097	1.00	.92	.96	.90	.88

sampled @ 1522

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: sampled EPA 332.0

Samplers Initials: JAH

WELL ID: MW-17 Project ~~0399418.0021~~

Total Depth of Well-TD (ft bgs): 260
Depth to Water-DTW$_0$ (ft bmp): 211.93
Height of water-hW (ft): 48.07
4-inch well casing, screen 205 to 255 feet

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 65.45
3- Casing Volume (g): 196.36

Purge Start Date/ Time: 1/10/17 @ 1535
Purge Rate (gpm): 5.2 avg
Pressure gauge (psi): 40
~~Estimated purge dry time~~:

Purge End Time: 1554
Time Duration of Purge (min): 19
Volume Purged (g): ~~1/00~~

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 212.08
% Recovery (DTW$_0$/DTW$_1$ >95%): 100%
OR <24-hr since DAY 1 Purge Start Date/Time.
pump on: 1435 pump off: 1443
Volume to Purge in drop pipe (g): 10.5
Chain of Custody sample date: 1/11/17
Chain of Custody sample time: 1442
Approximate Volume Purged (g): 50

Note: 300 (g-~~sec/min~~) / X (sec to fill 5g)

Day 2

Time of Test	1540	1545	1550	1554	1440		
DTW	227.4	227.8	235.6	240.1	—		
Temperature (*C)	27.89	28.28	28.32	Well	27.97		
Conductivity (ms/cm)	0.303	.304	.300		.294		
Salinity (ppt)	0.14	0.14	.14	dry	.14	Sampled @ 1442	
DO (%)	51.4	41.2	49.9		87.2		
DO (mg/L)	4.01	3.21	3.88		6.83		
pH	7.01	7.05	7.12		7.31		
ORP (mv)	227.8	200.0	184.0		142.1		
NTU	0.95	0.97	0.97		0.96		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sampled EPA 332.0

Target flow: 40 psi / 40 psi

Samplers Initials: MH

WELL ID: MW-18 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 232.6
Depth to Water-DTW$_0$ (ft bmp): 131.93
Height of water-hW (ft):
Well pipe is 4" nominal PVC screened from 175' to 225' Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g):
3- Casing Volume (g): X

Purge Start Date/ Time: 1/12/17 @ 1522
Purge Rate (gpm): .5
Pressure gauge (psi): 50
~~Estimated purge dry time~~:

Purge End Time: 1541
Time Duration of Purge (min): 19
Volume Purged (g): 100g

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 194.21
% Recovery (DTW$_0$/DTW$_1$ >95%):
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1610 pump off: 1618
Volume to Purge in drop pipe (g): 13
Chain of Custody sample date: 1/13/17
Chain of Custody sample time: 1617
Approximate Volume Purged (g): ~25

Note: 300 (g-sec/min) / X (sec to fill 5g)

→ Dry @ 1541

Time of Test	1525	1530	1535	1540	1615		
DTW	168.3	180.4	209.3	—	—		
Temperature (*C)	26.65	27.57	27.65	27.64	27.25	Sampled @ 1617	
Conductivity (ms/cm)	.353	.346	.352	.350	.346		
Salinity (ppt)	.17	.16	.17	.17	.16		
DO (%)	78.0	13.1	29.4	14.3	43.4		
DO (mg/L)	6.23	1.03	2.32	1.12	3.44		
pH	7.45	7.41	7.53	7.62	7.66		
ORP (mv)	138.0	42.5	45.8	57.1	126.5		
NTU	1.07	0.97	1.00	—	1.84		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sampled EPA 332.0, Arsenic

Target flow: 50 psi

Samplers Initials: MA

WELL ID: MW-19 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 305
Depth to Water-DTW$_0$ (ft bmp): 252.49
Height of water-hW (ft): 52.51
5-inch nominal casing, screen 250-300 feet

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 71.50
3- Casing Volume (g): 214.50

Purge Start Date/ Time: 1/24/17 @ 1440
Purge Rate (gpm): 13.3 avg
Pressure gauge (psi): 35
~~Calculated purge time~~:
Chain of Custody sample date: 1/24/17
Chain of Custody sample time: 1500
Purge End Time: 1501
Time Duration of Purge (min): 21
Volume Purged (g): 280

Note: 300 (g-sec/min) / X (sec to fill 5g)

Total

Time of Test	1445	1450	1455	1500			
DTW	270.3	271.3	272.8	—			
Temperature (°C)	27.89	27.94	27.99	27.98			
Conductivity (ms/cm)	.368	.373	.375	.375			
Salinity (ppt)	0.17	.18	.18	0.18			
DO (%)	92.2	94.0	92.6	91.9			
DO (mg/L)	7.22	7.36	7.25	7.19			
pH	7.37	7.36	7.37	7.37			
ORP (mv)	-261.1	-252.8	-255.4	-249.3			
NTU	0.32	.30	.25	.20			

sampled @ 1500

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sample: EPA 314.0

Target flow: 30 psi

Samplers Initials: KM

WELL ID: MW-20 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 290
Depth to Water-DTW$_0$ (ft bmp): 233.84
Height of water-hW (ft): 56.16
5-inch nominal casing, screen 235-285 feet

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 76.47
3- Casing Volume (g): 229.41

Purge Start Date/ Time: 1/24/17 @ 1355
Purge Rate (gpm): 11.4
Pressure gauge (psi): 35
~~Calculated purge time~~:
Chain of Custody sample date: 1/24/17
Chain of Custody sample time: 1422
Purge End Time: 1424
Time Duration of Purge (min): 29
Volume Purged (g): 330 g

Note: 300 (g-sec/min) / X (sec to fill 5g)

Tube

Time of Test	1400	1405	1410	1415	1420		
DTW	235.4	235.5					
Temperature (*C)	28.00	28.11	28.05	28.06	28.03		
Conductivity (ms/cm)	.414	.421	.424	.427	.428		
Salinity (ppt)	0.20	.20	.20	.20	.20		
DO (%)	34.9	58.5	67.5	74.3	76.7		
DO (mg/L)	2.74	4.57	5.27	5.81	6.00		
pH	7.01	7.14	7.11	7.14	7.16		
ORP (mv)	-235.1	-276.6	-330.7	-250.3	-228.0	← out of range	
NTU	0.20	0.36	0.27	.31	.22		

@ 1422 sampled

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sampled: EPA 314.0 & 1,4 dioxane

Target flow: 35 psi

Samplers Initials: MM

WELL ID: MW-21 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 270
Depth to Water-DTW$_0$ (ft bmp): 218.18
Height of water-hW (ft): 51.82
5-inch nominal casing, screen 215-265 feet

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 70.56
3- Casing Volume (g): 211.68

Purge Start Date/ Time: 1/18/17 @ 1752
Purge Rate (gpm): 13.9 avg.
Pressure gauge (psi): 30
~~Calculated purge time~~:
Chain of Custody sample date: 1/18/17
Chain of Custody sample time: 1822
Purge End Time: 1823
Time Duration of Purge (min): 31
Volume Purged (g): ~430

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1800	1805	1810	1815	1820		
DTW	238.3	240.1	242.3	243.4	244.1		
Temperature (°C)	27.97	28.00	27.98	27.96	27.97		
Conductivity (ms/cm)	0.313	.311	.312	.312	.312	sampled @ 1822	
Salinity (ppt)	0.15	.15	.15	.15	.15		
DO (%)	61.1	68.9	69.7	74.7	77.2		
DO (mg/L)	4.78	5.39	5.46	5.85	6.04		
pH	7.18	7.20	7.24	7.22	7.22		
ORP (mv)	85.8	80.8	71.1	69.1	71.7		
NTU	.94	.90	.88	.81	.77		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sampled

Target flow: 30psi; EPA 314.0

Samplers Initials: MA

WELL ID: MW-22

Project: 3994018.0021

★ Run MS/MSD (3)
Duplicate = FD011817 @ 1200

Total Depth of Well-TD (ft bgs): 280
Depth to Water-DTW$_0$ (ft bmp): 250.65
Height of water-hW (ft): —

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g): _____

Purge Start Date/ Time: 1/17/17 @ 1705
Purge Rate (gpm): _____
Pressure gauge (psi): 40
~~Estimated purge dry time~~: _____

Purge End Time: 1726
Time Duration of Purge (min): 21
Volume Purged (g): ~50

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 250.78
% Recovery (DTW$_0$/DTW$_1$ >95%): 100
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1715 pump off: 1725
Volume to Purge in drop pipe (g): _____
Chain of Custody sample date: 1/18/17
Chain of Custody sample time: 1722
Approximate Volume Purged (g): 20

Well dry @ 1726 Day 2

Time of Test	1710	1715	1720	1725		1720		
DTW	258.1	265.3	271.4	273.8		—		
Temperature (°C)	26.62	27.79	28.37	28.57		26.69		
Conductivity (ms/cm)	.332	.313	.314	.312		.314	Sampled @ 1722	
Salinity (ppt)	0.16	.15	.15	.15		.15		
DO (%)	17.0	7.3	8.9	33.0		7.2		
DO (mg/L)	1.36	0.57	0.69	2.56		0.58		
pH	7.32	7.31	7.34	7.44		7.42		
ORP (mv)	-131.8	-115.6	-58.6	19.3		57.6		
NTU	0.97	12.7	10.2	15.8		28.7		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: 40 psi Day 2 40 psi

★ EPA 332.0 + MS/MSD + DUP(FD011817)

Samplers Initials: MM

WELL ID: PW-1

Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 505
Depth to Water-DTW$_0$ (ft bmp): 213.88
Height of water-hW (ft): 291.12
(6.25" diameter case)

Note: hW = TD - DTW

1-Casing Volume (g) = **49g + (1.59g/ft * Hw)**

DAY 1
1- Casing Volume (g): 511.88
3- Casing Volume (g): 1535.64

Purge Start Date/ Time: 1/18/16 @ 1416
Purge Rate (gpm): 1 avg
Pressure gauge (psi): 15/10
~~Calculated purge time~~:
Chain of Custody sample date: 1/18/16
Chain of Custody sample time: 1452
Purge End Time: 1457
Time Duration of Purge (min): ~~1459~~ 41
Volume Purged (g): 450

Okay to Sample when the well is stable (Nesky)

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1430	1435	1440	1445	1450	
DTW	240.1	252.4	262.4	272.0	278.1	
Temperature (*C)	29.02	29.02	29.02	28.98	28.99	
Conductivity (ms/cm)	.383	.382	.383	.385	.387	Sampled @ 1452
Salinity (ppt)	.18	.18	.18	.18	.18	
DO (%)	56.0	62.8	64.1	63.2	60.4	
DO (mg/L)	4.31	4.83	4.93	4.86	4.64	
pH	7.56	7.59	7.59	7.58	7.56	
ORP (mv)	25.2	33.2	37.4	41.3	41.4	
NTU	1.01	.98	1.35	1.22	1.30	

Notes: (Visual observations or odors during sampling, Well vault-seal and headwork's condition, Access issues, Equipment issues, etc)

Target flow: fully open

Sampled EPA 314.0, 1,4 dioxane, 1,1 dichloroethene

Samplers Initials: MH

WELL ID: EW-2 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 305
Depth to Water-DTW$_0$ (ft bmp): 213.21
Height of water-hW (ft): 91.79

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 124.98
3- Casing Volume (g): 374.94

Purge Start Date/ Time: 1/23/17 @ 1433
Purge Rate (gpm): 15.5 avg
Pressure gauge (psi): 20 psi
~~Calculated purge time~~:
Chain of Custody sample date: 1/23/17
Chain of Custody sample time: 1502
Purge End Time: 1504
Time Duration of Purge (min): 31
Volume Purged (g): ~480

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1440	1445	1450	1455	1500			
DTW	213.2	213.2						
Temperature (*C)	27.93	27.82	27.81	27.85	27.77		@	
Conductivity (ms/cm)	.427	.424	.423	.421	.422			
Salinity (ppt)	.20	.20	.20	.20	.20	Sampled		
DO (%)	24.2	27.9	34.8	44.6	44.7		1502	
DO (mg/L)	1.89	2.19	2.73	3.49	3.51			
pH	7.00	7.04	7.05	7.07	7.08			
ORP (mv)	-44.7	46.5	36.3	32.9	29.0			
NTU	5.24	2.34	1.27	0.90	1.01			

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: wide open

Sample: 3140 + 1,4 dioxane

Samplers Initials: MM

WELL ID: IW-1 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 335
Depth to Water-DTW$_0$ (ft bmp): 248.58
Height of water-hW (ft): 86.42

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 117.67
3- Casing Volume (g): 353.01

Purge Start Date/ Time: 1/24/17 @ 1578
Purge Rate (gpm): 7.27
Pressure gauge (psi): 2
~~Calculated purge time:~~
Chain of Custody sample date: 1/24/17
Chain of Custody sample time: 1602
Purge End Time: 1602
Time Duration of Purge (min): 44
Volume Purged (g): ~320

Note: 300 (g-sec/min) / X (sec to fill 5g)

(Tote ~330 g)

Time of Test	1530	1540	1545	1550	1555	1600		
DTW	249.0	249.1	249.2					
Temperature (°C)	28.07	28.11	28.12	28.15	28.10	28.14		
Conductivity (ms/cm)	.474	.478	.478	.478	.479	.479		
Salinity (ppt)	0.23	.23	.23	.23	.23	.23		
DO (%)	76.2	80.5	81.8	82.8	82.9	83.7		
DO (mg/L)	5.57	6.28	6.38	6.45	6.47	6.53		
pH	7.26	7.30	7.31	7.32	7.32	7.33		
ORP (mv)	-239.9	-234.8	-236.6	-231.6	-230.7	-228.5		
NTU	5.43	4.24	3.43	3.02	2.46	2.21		

Sampled @ 1602

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: wide open Sampled: EPA 314.0

Samplers Initials: MA

WELL ID: IW-2 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 285
Depth to Water-DTW$_0$ (ft bmp): 245.89
Height of water-hW (ft): —

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g):

Purge Start Date/ Time: 1/20/17 @ 1525
Purge Rate (gpm): 3.6 avg
Pressure gauge (psi): 30 psi
~~Estimated~~ purge dry time:

Purge End Time: 1547
Time Duration of Purge (min): 22
Volume Purged (g): ~80 g

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 250.8
% Recovery (DTW$_0$/DTW$_1$ >95%): 98
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1355 pump off: 1402
Volume to Purge in drop pipe (g):
Chain of Custody sample date: 1/21/17
Chain of Custody sample time: 1402
Approximate Volume Purged (g): ~30

Day 2

Time of Test	1530	1535	1540	1545	1547	1400		
DTW	251.8	~~250~~ 253	270.7	279.2	well	—		
Temperature (°C)	26.77	27.83	27.91	27.99	dry	27.02		
Conductivity (ms/cm)	.375	.358	.355	.352		.368	SM 1402	
Salinity (ppt)	.18	.17	.17	.17		.17		
DO (%)	8.5	13.9	13.4	13.1		25.8		
DO (mg/L)	.67	1.11	1.08	1.06		2.03		
pH	6.88	7.38	7.40	7.42		7.47		
ORP (mv)	-59.3	-38.5	-33.4	-31.8		10.2		
NTU	5.32	2.81	2.33	2.41		2.57		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: 30 psi Day 2 30 psi

Sampled EPA 332.0

Samplers Initials: MM

WELL ID: IW-3 Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 285
Depth to Water-DTW$_0$ (ft bmp): 222.00
Height of water-hW (ft): 63

Note: hW = TD - DTW

1-Casing Volume (g) =1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): ~~222~~ 85.78
3- Casing Volume (g): 257.34

Purge Start Date/ Time: 1/23/17 @ 1838
Purge Rate (gpm): 8.6 avg
Pressure gauge (psi): 7
~~Calculated purge time~~:
Chain of Custody sample date: 1/23/17
Chain of Custody sample time: 1912
Purge End Time: 1913
Time Duration of Purge (min): 35
Volume Purged (g): ~300

Note: 300 (g-sec/min) / X (sec to fill 5g)

Time of Test	1850	1855	1900	1905	1910			
DTW	222.3	222.3						
Temperature (°C)	27.99	28.01	28.01	28.05	28.06			
Conductivity (ms/cm)	0.430	.431	.431	.431	.431			
Salinity (ppt)	0.20	.21	.21	.21	.21			
DO (%)	7.3	9.6	10.5	11.7	12.6			
DO (mg/L)	0.57	.25	.82	0.91	.98			
pH	7.42	7.43	7.44	7.44	7.44			
ORP (mv)	-131.5	-137.0	-142.8	-165.5	-156.6			
NTU	1.21	.96	.86	.78	.72			

Collected @ 1912

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow:

Sampled / EPA 314.0

Samplers Initials: MM

WELL ID: RW-1

Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 340
Depth to Water-DTW$_0$ (ft bmp): 258.88
Height of water-hW (ft): 81.12

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): 110.45
3- Casing Volume (g): 331.35

Purge Start Date/ Time: 1/24/17 @ 1728
Purge Rate (gpm): 1.2 avg
Pressure gauge (psi): 30 psi / 40 psi
~~Estimated purge dry time~~: _____ min

Purge End Time: 1803
Time Duration of Purge (min): 35
Volume Purged (g): ~4420

~~**DAY 2**~~
Depth to Water-DTW$_1$ (ft bmp): _____
% Recovery (DTW$_0$/DTW$_1$ >95%): _____
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: pump off:
Volume to Purge in drop pipe (g): _____
Chain of Custody sample date: _____
Chain of Custody sample time: _____
Approximate Volume Purged (g): _____

Time of Test	1735	1740	1745	1750	1755	1800		
DTW	271.2	277.2	280.4	282.2	284.4	286.6		
Temperature (*C)	27.80	27.87	27.94	27.91	27.90	27.95		
Conductivity (ms/cm)	.385	.385	.383	.381	.383	.382	Sample @ 1802	
Salinity (ppt)	.18	.18	.18	.18	.18	.18		
DO (%)	22.6	25.8	39.7	38.7	39.7	39.0		
DO (mg/L)	1.73	2.03	3.11	3.03	3.11	3.05		
pH	7.12	7.14	7.15	7.19	7.19	7.20		
ORP (mv)	-13.7	0.0	33.1	44.0	48.9	53.8		
NTU	1.29	2.31	3.46	1.34	1.25	1.31		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Sample EPA 332.0

Target flow: 40 psi

Day 2

* Rewired for NB controller

Samplers Initials: LH

WELL ID: RW-2

Project: 3994018.0021

Total Depth of Well-TD (ft bgs): 332
Depth to Water-DTW$_0$ (ft bmp): 263.28
Height of water-hW (ft): _____

Note: hW = TD - DTW

1-Casing Volume (g) = 1.3616 g/ft * hW

DAY 1
1- Casing Volume (g): X
3- Casing Volume (g): _____

Purge Start Date/ Time: 1/19/17 @ 1610
Purge Rate (gpm): 5 avg
Pressure gauge (psi): 80
~~Estimated purge dry time~~: _____

Purge End Time: 1634
Time Duration of Purge (min): 24
Volume Purged (g): ~120

DAY 2
Depth to Water-DTW$_1$ (ft bmp): 263.25
% Recovery (DTW$_0$/DTW$_1$ >95%): 100
OR 24-hr since DAY 1 Purge Start Date/Time.
pump on: 1615 pump off: 1633
Volume to Purge in drop pipe (g): _____
Chain of Custody sample date: 1/20/17
Chain of Custody sample time: 1622
Approximate Volume Purged (g): ~100

Day 2

Time of Test	1615	1620	1625	1630	1634	1620		
DTW	~	~	~	~		~		
Temperature (°C)	28.28	28.41	28.40	28.45	Well	27.74		
Conductivity (ms/cm)	.401	.401	.401	.402		.398		
Salinity (ppt)	.19	.19	.19	.19	dry	.19	Sampled @ 1622	
DO (%)	8.5	9.2	9.7	10.3		18.3		
DO (mg/L)	0.66	0.72	0.76	.80		1.49		
pH	6.97	6.98	7.00	7.03		7.07		
ORP (mv)	-119.4	-145.3	-145.3	-140.9		12.3		
NTU	0.91	.87	3.2	7.2	↓	1.34		

Notes: (Visual observations or odors during sampling, Well vault-seal-and headwork's condition, Access issues, Equipment issues, etc)

Target flow: 80 psi; Day 2 80 psi
(controller removed) EPA 332.0

Samplers Initials: MA

APPENDIX G

Data Verification Summary for Compliance Groundwater Monitoring Samples - UPCO Wells

Appendix G
First Quarter Data Verification Summary for Compliance Groundwater Monitoring Samples – UPCO Wells

1. Introduction

This Data Verification Summary for compliance groundwater monitoring samples presents results for groundwater samples collected from the former Universal Propulsion Company, Inc. (UPCO) facility located in Phoenix, Arizona (site) during the January 2017 monitoring event. The data review was performed in accordance with the procedures specified in the Remedial Investigation Workplan Vol. II Quality Assurance Project Plan (QAPP; Hargis + Associates, Inc. 2004), United States Environmental Protection Agency (USEPA) Functional Guidelines for Inorganic Data Review (USEPA 2002), and quality assurance and quality control (QC) parameters set by the project laboratories (Accutest Laboratories, Inc. [Accutest] and TestAmerica, Inc. [TestAmerica]).

Arcadis U.S., Inc. collected 28 groundwater samples and submitted the samples for analysis as follows:

- One groundwater sample was collected and submitted to Accutest for arsenic analysis by USEPA Methods 200.8.
- One groundwater sample was collected and submitted to Accutest for 1,1-dichloroethylene analysis by USEPA Method 8260B.
- Four groundwater samples were collected and submitted to Accutest for 1,4-dioxane analysis by USEPA Method 8260B-SIM.
- Eleven groundwater samples were collected and submitted to Accutest for perchlorate analysis using USEPA Method 314.0
- Seventeen groundwater samples were collected and submitted to TestAmerica for perchlorate analysis using USEPA Method 332.0.

Additionally, four field quality assurance samples (field blank, field duplicates, and trip blanks) were collected and analyzed as part of the sampling program. Table 1 lists the samples and associated analytical parameters.

2. Quality Control Parameters Reviewed

Sample results were subject to a Level III data review that includes an evaluation of the following QC parameters:

Appendix G
First Quarter Data Verification Summary for Compliance Groundwater Monitoring Samples – UPCO Wells

- Chain of custody
- Sample preservation and temperature upon laboratory receipt
- Holding times
- Blank contamination (trip blanks, field blanks, and method blanks)
- Laboratory control sample (LCS) recovery
- Blank spike (BS) recovery
- Matrix spike (MS)/matrix spike duplicate (MSD) recovery and relative percent difference (RPD)
- Surrogate recovery (for organic parameters)
- Field duplicates

The data qualifiers used to qualify analytical results associated with the QC parameters outside the established data quality objectives (DQOs) are defined below:

J	The analyte was positively identified; however, the result should be considered an estimated value.
UJ	The reporting limit is considered an estimated value.
R	QC indicates that the data are not usable.

Results qualified as "J" or "UJ" are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, according to USEPA guidelines.

The samples associated with this groundwater monitoring event did not require data qualification.

2.1 Chain of Custody

Chain of custody documentation associated with project samples was found to be incomplete as the sample time for PW-1 was missing from the chain of custody. The correct sample time was identified from the field documentation and the laboratory report corrected. Chain of custody forms did include the correct sample identifications, date of collection, requested parameters, and relinquished/received signatures.

2.2 Sample Preservation and Temperature upon Laboratory Receipt

Samples were received preserved and intact by the laboratory. Samples were received at the correct temperature (4± 2 degrees Celsius) at the project laboratories.

2.3 Holding Times

Samples were extracted and analyzed within the holding time limits set by the respective USEPA methods.

2.4 Blank Contamination

2.4.1 Method Blanks

Method blanks were analyzed at the appropriate frequency as specified in the project laboratory's QAPP. Target compounds were not detected in method blanks.

2.4.2 Field Blanks

Field blanks were analyzed at the appropriate frequency as specified in the Remedial Investigation Workplan Vol. II QAPP (Hargis + Associates, Inc. 2004). Target compounds were not detected in the field blanks.

2.4.3 Trip Blanks

Trip blanks were analyzed at the appropriate frequency as specified in the Remedial Investigation Workplan Vol. II QAPP (Hargis + Associates, Inc. 2004). Target compounds were not detected in the trip blanks.

2.5 Laboratory Control Sample Recovery

LCS recoveries were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS, but the analyte was not detected in the associated batch, data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS and the analyte was detected in the associated batch, the analyte results were qualified "J."
- If the analyte recovery was below acceptance limits for LCS, the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J" for detected results).

LCS percent recoveries were within acceptance limits.

2.6 Blank Spike Recovery

BS recovery was performed at the required frequency and was evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the BS, but the analyte was not detected in the associated batch, data qualification was not required.
- If the analyte recovery was above acceptance limits for the BS and the analyte was detected in the associated batch, the analyte results were qualified "J."
- If the analyte recovery was below acceptance limits for the BS, the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J" for detected results).
- If the analyte recovery was less than 10%, analyte results in the associated analytical batch were rejected and qualified "R."

BS recovery was within acceptance limits.

2.7 Matrix Spike/Matrix Spike Duplicate Recovery and Relative Percent Difference

MS/MSD samples were analyzed at the required frequency and were evaluated based on the following criteria:

- If the MS or MSD recovery for an analyte was above acceptance limits, but the analyte was not detected in the associated analytical batch, data qualification was not required.
- If the MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, analyte results were qualified "J."
- Low MS/MSD recoveries for inorganic parameters resulted in sample qualification of the associated analytical batch ("UJ" for non-detects and "J" for detected results).

- Results were not qualified based on non-project-specific MS/MSD (i.e., batch QC) recoveries.

MS/MSD percent recoveries and RPDs were within acceptance limits.

2.8 Surrogate Recovery

Surrogate recoveries for the organic analyses were within laboratory acceptance limits.

2.9 Field Duplicates

Two field duplicates were collected during this monitoring event and submitted for analysis. RPDs between the field duplicates and their associated samples were calculated and are presented in Table 2. The field duplicates were evaluated based on the following criteria:

- If an analyte was detected at a concentration greater than five times the method reporting limit, the RPD should be less than 25%.

- If an analyte was detected between the sample and field duplicate less than five times the method reporting limit, the difference between the sample and the field duplicate should not exceed the method reporting limit.

The field duplicates met acceptance criteria.

3. Completeness Summary

Two types of completeness were calculated for this project: contract and technical. Results indicated as not reportable by the laboratory were not included in the completeness calculations. The following equations were used to calculate the two types of completeness:

$$\%\ Contractual\ Compliance = \left(\frac{Number\ of\ contract\ compliant\ results}{Number\ of\ reported\ results}\right) \times 100$$

$$\%\ Technical\ Compliance = \left(\frac{Number\ of\ usable\ results}{Number\ of\ reported\ results}\right) \times 100$$

The overall contract completeness was 10%, and includes the evaluation of protocol, contract deviations, and QC parameters listed in Section 2. The technical completeness

attained for this monitoring period was 100%. Table 3 provides completeness results. Results for the performance monitoring events were considered usable for the intended purposes and the project DQOs were met.

4. References

Hargis + Associates, Inc. 2004. Remedial Investigation Workplan Vol. II Quality Assurance Project Plan, Goodrich Universal Propulsion Company, Inc. July 6, 2004.

USEPA. 2002. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. EPA540/R-01/008. July 2002.

Attachments:
Table 1 First Quarter Sampling and Analysis Schedule – UPCO Wells
Table 2 First Quarter Field Duplicate Summary – UPCO Wells
Table 3 First Quarter Completeness Summary -UPCO Wells

Appendix G - Table 1
First Quarter Sampling and Analysis Schedule - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Lab ID	Collected	Sample Type	Parameters
MW-1	FA40700-9	1/23/2017	N	Perchlorate (314.0)
MW-2	FA40700-10	1/23/2017	N	Perchlorate (314.0), 1,4-dioxane
MW-3	440-174781-10	1/13/2017	N	Perchlorate (332.0)
MW-4	440-174781-16	1/19/2017	N	Perchlorate (332.0)
MW-6	FA40700-5	1/19/2017	N	Perchlorate (314.0)
MW-7	440-174781-11	1/17/2017	N	Perchlorate (332.0)
MW-8	440-174781-8	1/13/2017	N	Perchlorate (332.0)
MW-9	440-174781-12	1/17/2017	N	Perchlorate (332.0)
MW-10	440-174781-9	1/13/2017	N	Perchlorate (332.0)
MW-11	440-174781-13	1/18/2017	N	Perchlorate (332.0)
MW-12	440-174781-1	1/11/2017	N	Perchlorate (332.0)
MW-13	FA40700-7	1/19/2017	N	Perchlorate (314.0)
MW-14	440-174781-5	1/11/2017	N	Perchlorate (332.0)
MW-15	440-174781-4	1/11/2017	N	Perchlorate (332.0)
MW-16	440-174781-6	1/13/2017	N	Perchlorate (332.0)
MW-17	440-174781-3	1/11/2017	N	Perchlorate (332.0)
MW-18	FA40700-1 440-174781-7	1/13/2017	N	Perchlorate (332.0), Arsenic
MW-19	FA40700-13	1/24/2017	N	Perchlorate (314.0)
MW-20	FA40700-12	1/24/2017	N	Perchlorate (314.0), 1,4-dioxane
MW-21	FA40700-4	1/18/2017	N	Perchlorate (314.0)
MW-22	440-174781-14	1/18/2017	N	Perchlorate (332.0)
EW-2	FA40700-8	1/23/2017	N	Perchlorate (314.0), 1,4-dioxane
IW-1	FA40700-14	1/24/2017	N	Perchlorate (314.0)
IW-2	440-174781-18	1/21/2017	N	Perchlorate (332.0)
IW-3	FA40700-11	1/23/2017	N	Perchlorate (314.0)
PW-1	FA40700-2	1/18/2017	N	Perchlorate (314.0), 1,1-Dichloroethylene, 1,4-dioxane

Appendix G - Table 1
First Quarter Sampling and Analysis Schedule - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Lab ID	Collected	Sample Type	Parameters
RW-1	440-174781-19	1/21/2017	N	Perchlorate (332.0)
RW-2	440-174781-17	1/20/2017	N	Perchlorate (332.0)
FB011117	440-174781-2	1/11/2017	FB	Perchlorate (332.0)
FD011817	440-174781-15	1/18/2017	FD of MW-22	Perchlorate (332.0)
FD011917	FA40700-6	1/19/2017	FD of MW-6	Perchlorate (314.0)
TB011817	FA40700-3	1/18/2017	TB	1,4-dioxane

Notes:
1,1-Dichloroethylene = USEPA Method 8260B
1,4-dioxane = USEPA Method 8260B-SIM
Arsenic = USEPA Methods 200.8
FB = field blank
FD = field duplicate
N = normal field sample
TB = trip blank
USEPA = United States Environmental Protection Agency

Appendix G - Table 2
First Quarter Field Duplicate Summary - UPCO Wells
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID/ Field Duplicate ID	Parameters	Sample Result	Field Duplicate Result	RL	RPD (%)	Difference
MW-6/FD011917	**Other Inorganics (µg/L)**					
	Perchlorate (314.0)	3.7	4.1	3.0	--	0.4
MW-22/FD011817	**Other Inorganics (µg/L)**					
	Perchlorate (332.0)	0.55	0.52	0.10	5.6	--

Notes and Abbreviations:
-- = not applicable
% = percent
RL = reporting limit
RPD = relative percent difference; [(difference)/(average)]*100
µg/L = micrograms per liter

Appendix G - Table 3
First Quarter Completeness Summary - UPCO Wells
Semi-Annual Monitoring Report for October 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Inorganics					
Perchlorate (Method 314.0)	11	11	100%	11	100%
Perchlorate (Method 332.0)	17	17	100%	17	100%
Metals					
Arsenic	1	1	100%	1	100%
VOCs					
1,1-Dichloroethylene	1	1	100%	1	100%
1,4-Dioxane	4	4	100%	4	100%
TOTAL	**34**	**34**	100%	**34**	100%

Notes:
Number of samples used in completeness calculations includes field samples, but not field duplicates or blanks.
Percent Contractual Compliance = (Number of contract compliant results/Number of reported results) * 100.
Percent Technical Compliance = (Number of usable results/Number of reported results) * 100.

APPENDIX H

Data Verification Summary for Compliance Groundwater Monitoring Samples - Private Wells

Appendix H
First Quarter Data Verification Summary for
Perchlorate Comparison - Private Well Samples

1. Introduction

This Data Verification Summary presents results for groundwater samples collected from private residential wells adjacent to the former Universal Propulsion Company, Inc. (UPCO) facility located in Phoenix, Arizona (site) during the February 2017 monitoring event. The data review was performed in accordance with the procedures specified in the Remedial Investigation Workplan Vol. II Quality Assurance Project Plan (QAPP; Hargis + Associates, Inc. 2004), United States Environmental Protection Agency (USEPA) Functional Guidelines for Inorganic Data Review (USEPA 2002), and quality assurance and quality control (QC) parameters set by the project laboratory (TestAmerica, Inc. [TestAmerica]).

Fourteen groundwater samples were collected and submitted to TestAmerica for perchlorate analyses by USEPA Method 332.0.

Table 1 lists the samples and associated analytical parameters.

2. Quality Control Parameters Reviewed

Sample results were subject to a Level III data review that includes an evaluation of the following QC parameters:

- Chain of custody
- Sample preservation and temperature upon laboratory receipt
- Holding times
- Blank contamination (method blanks)
- Laboratory control sample (LCS) recovery
- Matrix spike (MS) /matrix spike duplicate (MSD) recovery and relative percent difference (RPD)

The data qualifiers used to qualify analytical results associated with QC parameters outside data quality objectives (DQOs) are defined below:

J The analyte was positively identified; however, the result should be considered an estimated value.

UJ The reporting limit is considered an estimated value.

R QC indicates that the data are not usable.

Appendix H
First Quarter Data Verification Summary for
Perchlorate Comparison - Private Well Samples

Results qualified as “J” or “UJ” are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, according to USEPA guidelines.

The sample results did not require any data qualification.

2.1 Chain of Custody

Chain of custody documentation associated with project samples was found to be complete. Chains of custody included sample identifications, date and time of collection, requested parameters, and relinquished/received signatures.

2.2 Sample Preservation and Temperature upon Laboratory Receipt

Samples were received preserved and intact by the laboratory. Samples were received at the correct temperature (4±2 degrees Celsius [°C]) at the project laboratory with the following exception, all samples received at TestAmerica on February 17, 2017 were received at 0.9°C. The sample results were not biased by this temperature outlier.

2.3 Holding Times

Samples were extracted and analyzed within the holding time limits set by the respective USEPA methods.

2.4 Blank Contamination

2.4.1 Method Blanks

Method blanks were analyzed at the appropriate frequency as specified by the project laboratory. Target compounds were not detected in the method blanks.

2.5 Laboratory Control Sample Recovery

LCS recoveries were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS, but the analyte was not detected in the associated batch, data qualification was not required.

- If the analyte recovery was above acceptance limits for the LCS and the analyte was detected in the associated batch, analyte results were qualified "J."

- If the analyte recovery was below acceptance limits for the LCS, the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J" for detected results).

LCS percent recoveries were within acceptance limits.

2.6 Matrix Spike/Matrix Spike Duplicate Recovery and Relative Percent Difference

MS/MSD samples were analyzed at the required frequency and were evaluated by the following criteria:

- If MS or MSD recovery for an analyte was above acceptance limits, but the analyte was not detected in the associated analytical batch, data qualification was not required.

- If MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, the analyte results were qualified "J."

- Low MS/MSD recoveries for inorganic parameters resulted in sample qualification of the associated analytical batch ("UJ" for non-detects and "J" for detected results).

- Results were not qualified based on non-project-specific MS/MSD (i.e., batch QC) recoveries.

Percent recoveries and RPDs for the MS/MSD samples were within acceptance limits.

3. Completeness Summary

Two types of completeness were calculated for this project: contract and technical. As specified in the project DQOs, the goal for completeness for the site is 90%. Results indicated as not reportable by the laboratory were not included in the completeness calculations. The following equations were used to calculate the two types of completeness:

Appendix H
First Quarter Data Verification Summary for
Perchlorate Comparison - Private Well Samples

$$\%\ Contractual\ Compliance = \left(\frac{Number\ of\ contract\ compliant\ results}{Number\ of\ reported\ results}\right)\times 100$$

$$\%\ Technical\ Compliance = \left(\frac{Number\ of\ usable\ results}{Number\ of\ reported\ results}\right)\times 100$$

The overall contractual compliance was 100%, and included the evaluation of protocol, contract deviations, and QC parameters listed in Section 2. The technical completeness attained for this monitoring period was 100%. Table 2 provides compliance results. All results were considered usable for the intended purposes and the project DQOs have been met.

4. References

Hargis + Associates, Inc. 2004. Remedial Investigation Workplan Vol. II Quality Assurance Project Plan, Goodrich Universal Propulsion Company, Inc. July 6.

USEPA. 2002. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. EPA540/R-01/008. July.

Attachments:
Table 1 First Quarter Sampling and Analysis Schedule
Table 2 First Quarter Completeness Summary

Appendix H -Table 1
First Quarter Sampling and Analysis Schedule
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Sample ID	Lab ID	Collected	Sample Type	Parameters
104 E. Yearling	440-177268-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
106 W. Yearling	440-177271-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
122 W. Yearling	440-177270-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
16 E. Yearling	440-177263-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
18 E. Yearling	440-177266-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
204 E. Yearling	440-177282-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
218 E. Yearling	440-177283-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
25825 N. 1st Place	440-177286-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
308 E. Yearling	440-177284-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
412 E. Yearling	440-177285-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
424 E. Yearling	440-177289-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
520 E. Yearling	440-177288-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
604 E. Yearling	440-177287-1	2/8/2017	N	Perchlorate by USEPA Method 332.0
8 W. Yearling	440-177264-1	2/8/2017	N	Perchlorate by USEPA Method 332.0

Notes:
USEPA = United States Environmental Protection Agency
N = normal field sample

Appendix H - Table 2
First Quarter Completeness Summary
Semi-Annual Monitoring Report for July 2016 - January 2017
Former Universal Propulsion Company, Inc. Facility
Phoenix, Arizona

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Inorganics					
Perchlorate (Method 332.0)	14	14	100%	14	100%
TOTAL	**14**	**14**	100%	**14**	100%

Notes:
Number of samples used in completeness calculations includes field samples, but not field duplicates or blanks.
Percent Contractual Compliance = (Number of contract compliant results/Number of reported results) * 100.
Percent Technical Compliance = (Number of usable results/Number of reported results) * 100.

APPENDIX I

Laboratory Analytical Results (on CD located on back cover)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-174781-1
Client Project/Site: UTC/UPCO

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Cassandra McCloud

Authorized for release by:
2/7/2017 4:57:01 PM

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-174781-1	MW-12	Water	01/11/17 14:12	01/26/17 09:35
440-174781-2	FB011117	Water	01/11/17 13:00	01/26/17 09:35
440-174781-3	MW-17	Water	01/11/17 14:42	01/26/17 09:35
440-174781-4	MW-15	Water	01/11/17 15:52	01/26/17 09:35
440-174781-5	MW-14	Water	01/11/17 16:37	01/26/17 09:35
440-174781-6	MW-16	Water	01/13/17 15:22	01/26/17 09:35
440-174781-7	MW-18	Water	01/13/17 16:17	01/26/17 09:35
440-174781-8	MW-8	Water	01/13/17 16:37	01/26/17 09:35
440-174781-9	MW-10	Water	01/13/17 16:57	01/26/17 09:35
440-174781-10	MW-3	Water	01/13/17 17:37	01/26/17 09:35
440-174781-11	MW-7	Water	01/17/17 14:47	01/26/17 09:35
440-174781-12	MW-9	Water	01/17/17 16:17	01/26/17 09:35
440-174781-13	MW-11	Water	01/18/17 16:52	01/26/17 09:35
440-174781-14	MW-22	Water	01/18/17 17:22	01/26/17 09:35
440-174781-15	FD011817	Water	01/18/17 12:00	01/26/17 09:35
440-174781-16	MW-4	Water	01/19/17 17:00	01/26/17 09:35
440-174781-17	RW-2	Water	01/20/17 16:22	01/26/17 09:35
440-174781-18	IW-2	Water	01/21/17 14:02	01/26/17 09:35
440-174781-19	RW-1	Water	01/21/17 18:02	01/26/17 09:35

Job ID: 440-174781-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-174781-1

Comments
No additional comments.

Receipt
The samples were received on 1/26/2017 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

HPLC/IC
Method(s) 332.0: The following sample was diluted due to the nature of the sample matrix: MW-4 (440-174781-16). Elevated reporting limits (RLs) are provided. Mass of 99/101 biased low it means some source of interference has same mass of 101 (perchlorate) contributing to sample, result were bias high for the straight run

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: MW-12 — **Lab Sample ID: 440-174781-1**
Date Collected: 01/11/17 14:12 — **Matrix: Water**
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.66		0.10		ug/L			01/30/17 15:03	1

Client Sample ID: FB011117 — **Lab Sample ID: 440-174781-2**
Date Collected: 01/11/17 13:00 — **Matrix: Water**
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			01/30/17 15:20	1

Client Sample ID: MW-17 — **Lab Sample ID: 440-174781-3**
Date Collected: 01/11/17 14:42 — **Matrix: Water**
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.36		0.10		ug/L			01/30/17 15:38	1

Client Sample ID: MW-15 — **Lab Sample ID: 440-174781-4**
Date Collected: 01/11/17 15:52 — **Matrix: Water**
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.63		0.10		ug/L			01/30/17 15:56	1

Client Sample ID: MW-14 — **Lab Sample ID: 440-174781-5**
Date Collected: 01/11/17 16:37 — **Matrix: Water**
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.89		0.10		ug/L			01/30/17 16:14	1

Client Sample ID: MW-16 — **Lab Sample ID: 440-174781-6**
Date Collected: 01/13/17 15:22 — **Matrix: Water**
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.50		0.10		ug/L			01/30/17 16:34	1

Client Sample ID: MW-18 — **Lab Sample ID: 440-174781-7**
Date Collected: 01/13/17 16:17 — **Matrix: Water**
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.58		0.10		ug/L			01/30/17 16:51	1

Client Sample ID: MW-8
Lab Sample ID: 440-174781-8
Date Collected: 01/13/17 16:37
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.85		0.10		ug/L			01/30/17 17:09	1

Client Sample ID: MW-10
Lab Sample ID: 440-174781-9
Date Collected: 01/13/17 16:57
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.98		0.10		ug/L			01/31/17 10:29	1

Client Sample ID: MW-3
Lab Sample ID: 440-174781-10
Date Collected: 01/13/17 17:37
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.38		0.10		ug/L			01/31/17 10:47	1

Client Sample ID: MW-7
Lab Sample ID: 440-174781-11
Date Collected: 01/17/17 14:47
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.50		0.10		ug/L			01/31/17 11:42	1

Client Sample ID: MW-9
Lab Sample ID: 440-174781-12
Date Collected: 01/17/17 16:17
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.67		0.10		ug/L			01/31/17 12:00	1

Client Sample ID: MW-11
Lab Sample ID: 440-174781-13
Date Collected: 01/18/17 16:52
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	3.6		0.10		ug/L			01/31/17 12:18	1

Client Sample ID: MW-22
Lab Sample ID: 440-174781-14
Date Collected: 01/18/17 17:22
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.55		0.10		ug/L			02/03/17 08:11	1

Client Sample ID: FD011817
Lab Sample ID: 440-174781-15
Date Collected: 01/18/17 12:00
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.52		0.10		ug/L			01/31/17 12:40	1

Client Sample ID: MW-4
Lab Sample ID: 440-174781-16
Date Collected: 01/19/17 17:00
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		1.0		ug/L			02/02/17 14:49	10

Client Sample ID: RW-2
Lab Sample ID: 440-174781-17
Date Collected: 01/20/17 16:22
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.15		0.10		ug/L			01/31/17 13:16	1

Client Sample ID: IW-2
Lab Sample ID: 440-174781-18
Date Collected: 01/21/17 14:02
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.12		0.10		ug/L			01/31/17 14:10	1

Client Sample ID: RW-1
Lab Sample ID: 440-174781-19
Date Collected: 01/21/17 18:02
Matrix: Water
Date Received: 01/26/17 09:35

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	9.9		0.50		ug/L			02/02/17 10:08	5

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Client Sample ID: MW-12
Date Collected: 01/11/17 14:12
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 15:03	MN	TAL IRV

Client Sample ID: FB011117
Date Collected: 01/11/17 13:00
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 15:20	MN	TAL IRV

Client Sample ID: MW-17
Date Collected: 01/11/17 14:42
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 15:38	MN	TAL IRV

Client Sample ID: MW-15
Date Collected: 01/11/17 15:52
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 15:56	MN	TAL IRV

Client Sample ID: MW-14
Date Collected: 01/11/17 16:37
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 16:14	MN	TAL IRV

Client Sample ID: MW-16
Date Collected: 01/13/17 15:22
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 16:34	MN	TAL IRV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Client Sample ID: MW-18
Date Collected: 01/13/17 16:17
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 16:51	MN	TAL IRV

Client Sample ID: MW-8
Date Collected: 01/13/17 16:37
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385126	01/30/17 17:09	MN	TAL IRV

Client Sample ID: MW-10
Date Collected: 01/13/17 16:57
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 10:29	MN	TAL IRV

Client Sample ID: MW-3
Date Collected: 01/13/17 17:37
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 10:47	MN	TAL IRV

Client Sample ID: MW-7
Date Collected: 01/17/17 14:47
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 11:42	MN	TAL IRV

Client Sample ID: MW-9
Date Collected: 01/17/17 16:17
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 12:00	MN	TAL IRV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Client Sample ID: MW-11
Date Collected: 01/18/17 16:52
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 12:18	MN	TAL IRV

Client Sample ID: MW-22
Date Collected: 01/18/17 17:22
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			386241	02/03/17 08:11	MN	TAL IRV

Client Sample ID: FD011817
Date Collected: 01/18/17 12:00
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 12:40	MN	TAL IRV

Client Sample ID: MW-4
Date Collected: 01/19/17 17:00
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		10			385973	02/02/17 14:49	MN	TAL IRV

Client Sample ID: RW-2
Date Collected: 01/20/17 16:22
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 13:16	MN	TAL IRV

Client Sample ID: IW-2
Date Collected: 01/21/17 14:02
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			385412	01/31/17 14:10	MN	TAL IRV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Client Sample ID: RW-1
Date Collected: 01/21/17 18:02
Date Received: 01/26/17 09:35

Lab Sample ID: 440-174781-19
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		5			385973	02/02/17 10:08	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-385126/5
Matrix: Water
Analysis Batch: 385126

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			01/30/17 09:53	1

Lab Sample ID: LCS 440-385126/1003
Matrix: Water
Analysis Batch: 385126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	5.00	4.75		ug/L		95	80 - 120

Lab Sample ID: MRL 440-385126/6
Matrix: Water
Analysis Batch: 385126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.100	0.117		ug/L		117	50 - 150

Lab Sample ID: 440-174781-1 MS
Matrix: Water
Analysis Batch: 385126

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.66		5.00	5.55		ug/L		98	80 - 120

Lab Sample ID: 440-174781-1 MSD
Matrix: Water
Analysis Batch: 385126

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.66		5.00	5.53		ug/L		97	80 - 120	0	20

Lab Sample ID: MB 440-385412/4
Matrix: Water
Analysis Batch: 385412

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			01/31/17 10:06	1

Lab Sample ID: LCS 440-385412/1002
Matrix: Water
Analysis Batch: 385412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	5.00	4.62		ug/L		92	80 - 120

Lab Sample ID: MRL 440-385412/3
Matrix: Water
Analysis Batch: 385412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.100	0.130		ug/L		130	50 - 150

Lab Sample ID: 440-174781-9 MS
Matrix: Water
Analysis Batch: 385412

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.98		5.00	6.52		ug/L		111	80 - 120

Lab Sample ID: 440-174781-9 MSD
Matrix: Water
Analysis Batch: 385412

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.98		5.00	6.08		ug/L		102	80 - 120	7	20

Lab Sample ID: MB 440-385973/6
Matrix: Water
Analysis Batch: 385973

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/02/17 09:26	1

Lab Sample ID: LCS 440-385973/1003
Matrix: Water
Analysis Batch: 385973

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	5.00	4.75		ug/L		95	80 - 120

Lab Sample ID: MRL 440-385973/4
Matrix: Water
Analysis Batch: 385973

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.100	0.148		ug/L		148	50 - 150

Lab Sample ID: 440-175166-D-2 MS
Matrix: Water
Analysis Batch: 385973

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	8.9	F1	5.00	11.4	F1	ug/L		50	80 - 120

Lab Sample ID: 440-175166-D-2 MSD
Matrix: Water
Analysis Batch: 385973

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	8.9	F1	5.00	11.3	F1	ug/L		46	80 - 120	1	20

Lab Sample ID: MB 440-386241/4
Matrix: Water
Analysis Batch: 386241

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/03/17 07:46	1

Method: 332.0 - Perchlorate (Continued)

Lab Sample ID: LCS 440-386241/1002
Matrix: Water
Analysis Batch: 386241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	5.00	4.79		ug/L		96	80 - 120

Lab Sample ID: MRL 440-386241/3
Matrix: Water
Analysis Batch: 386241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.100	0.140		ug/L		140	50 - 150

Lab Sample ID: 440-174781-14 MS
Matrix: Water
Analysis Batch: 386241

Client Sample ID: MW-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.55		5.00	5.34		ug/L		96	80 - 120

Lab Sample ID: 440-174781-14 MSD
Matrix: Water
Analysis Batch: 386241

Client Sample ID: MW-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.55		5.00	5.40		ug/L		97	80 - 120	1	20

HPLC/IC

Analysis Batch: 385126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-174781-1	MW-12	Total/NA	Water	332.0	
440-174781-2	FB011117	Total/NA	Water	332.0	
440-174781-3	MW-17	Total/NA	Water	332.0	
440-174781-4	MW-15	Total/NA	Water	332.0	
440-174781-5	MW-14	Total/NA	Water	332.0	
440-174781-6	MW-16	Total/NA	Water	332.0	
440-174781-7	MW-18	Total/NA	Water	332.0	
440-174781-8	MW-8	Total/NA	Water	332.0	
MB 440-385126/5	Method Blank	Total/NA	Water	332.0	
LCS 440-385126/1003	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-385126/6	Lab Control Sample	Total/NA	Water	332.0	
440-174781-1 MS	MW-12	Total/NA	Water	332.0	
440-174781-1 MSD	MW-12	Total/NA	Water	332.0	

Analysis Batch: 385412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-174781-9	MW-10	Total/NA	Water	332.0	
440-174781-10	MW-3	Total/NA	Water	332.0	
440-174781-11	MW-7	Total/NA	Water	332.0	
440-174781-12	MW-9	Total/NA	Water	332.0	
440-174781-13	MW-11	Total/NA	Water	332.0	
440-174781-15	FD011817	Total/NA	Water	332.0	
440-174781-17	RW-2	Total/NA	Water	332.0	
440-174781-18	IW-2	Total/NA	Water	332.0	
MB 440-385412/4	Method Blank	Total/NA	Water	332.0	
LCS 440-385412/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-385412/3	Lab Control Sample	Total/NA	Water	332.0	
440-174781-9 MS	MW-10	Total/NA	Water	332.0	
440-174781-9 MSD	MW-10	Total/NA	Water	332.0	

Analysis Batch: 385973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-174781-16	MW-4	Total/NA	Water	332.0	
440-174781-19	RW-1	Total/NA	Water	332.0	
MB 440-385973/6	Method Blank	Total/NA	Water	332.0	
LCS 440-385973/1003	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-385973/4	Lab Control Sample	Total/NA	Water	332.0	
440-175166-D-2 MS	Matrix Spike	Total/NA	Water	332.0	
440-175166-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Analysis Batch: 386241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-174781-14	MW-22	Total/NA	Water	332.0	
MB 440-386241/4	Method Blank	Total/NA	Water	332.0	
LCS 440-386241/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-386241/3	Lab Control Sample	Total/NA	Water	332.0	
440-174781-14 MS	MW-22	Total/NA	Water	332.0	
440-174781-14 MSD	MW-22	Total/NA	Water	332.0	

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-174781-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-17 *
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-17 *
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[X] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

Page 1 of 2

Client Name/Address: ARCADIS / UTC
14201 N. 87th St.
Scottsdale, AZ

Project/PO Number: UTC/UPCO 03994018.0021

Project Manager: Michael Nesky

Phone Number: 480-905-9311

Sampler: M. Tani

Email Address: on file

Analysis Required

	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	EPA 332.0									Special Instructions
1	MW-12	GW	125ml	1	1/11/17	1412	none	X									
2	FB011117	Aq		1		1300		X									
3	MW-17			1		1442		X									
4	MW-15			1		1552		X									
5	MW-14			1		1637		X									
6	MW-16			1	1/13/17	1522		X									
7	MW-18			1		1617		X									
8	MW-8			1		1637		X									
9	MW-10			1		1657		X									
10	MW-3			1		1737		X									
11	MW-7			1	1/17/17	1447		X									
12	MW-9			1	1/17/17	1617		X									
13	MW-11			1	1/18/17	1652		X									
14	MW-22			3	1/18/17	1722		X									RUN MS/MSD

440-174781 Chain of Custody

Fed: 6715962204 20

CS 2.1/2.4 IR-SC6

Relinquished By:	Date/Time:	Received By:	Date/Time:
M. Tani	1/24/17 1600	[signature]	1/24/17 16:00
[signature]	1-25-17 1543		
		[signature]	1-25-17 1543

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal X

Sample Integrity: (Check)
intact ____ on ice X

2.2°C

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

[signature] 1-25-17 1700 Rec'd by: Vu Bau [signature] 1/26/17 9:35

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

(X) Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

Client Name/Address: Arcadis / LTTC 14201 N. 87th St., 135 Scottsdale	Project/PO Number: LTTC / UPCO 03994018.0021
Project Manager: Michael Nesky	Phone Number: 480-905-9311
Sampler: M. Tami	Email Address: on file

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: EPA 332.0	Special Instructions
15 FD011817	GW	125ml	1	1/18/17	1200	none	X	
16 MW-4			1	1/19/17	1700		X	
17 RW-2			1	1/20/17	1622		X	
18 IW-2			1	1/21/17	1402		X	
19 RW-1			1	1/21/17	1802		X	

(CS) 2.1/2.4 IR-SC6

Relinquished By:	Date/Time:	Received By:	Date/Time:
M. Tami	1/24/17 1600		1-24-17 1600
	1-25-17 1543		
		Received in Lab By:	1-25-17 1543

Turnaround Time: (Check)

same day ____ 72 hours ____

24 hours ____ 5 days ____

48 hours ____ normal ____

Sample Integrity: (Check)

intact ____ on ice X 2.2°C

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

1-25-17 1703 Rec'd by: VuBanh COC 1/26/17 9:35

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-174781-1

Login Number: 174781
List Number: 1
Creator: Garcia, Veronica G

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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e-Hardcopy 2.0
Automated Report

Technical Report for

United Technologies Corporation

AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

3994018.0021

SGS Accutest Job Number: FA40700

Sampling Dates: 01/13/17 - 01/24/17

Report to:

Arcadis
410 North 44th St Suite 1000
Phoenix, AZ 85008
Michael.Nesky@arcadis.com; Thomas.Vespalec@arcadis.com;
Amanda.Peterson@arcadis.com; Justin.Provolt@arcadis.com
ATTN: Michael Nesky

Total number of pages in report: 55

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(L-A-B L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, GA, IA, KY, MA, NV, OK, OR, UT, WA

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Test results relate only to samples analyzed.

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Sample Summary

United Technologies Corporation

Job No: FA40700

AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ
Project No: 3994018.0021

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA40700-1	01/13/17	16:17	MT	01/26/17	AQ	Ground Water	MW-18
FA40700-2	01/18/17	14:52	MT	01/26/17	AQ	Ground Water	PW-1
FA40700-3	01/18/17	00:00	MT	01/26/17	AQ	Trip Blank Water	TB011817
FA40700-4	01/18/17	18:22	MT	01/26/17	AQ	Ground Water	MW-21
FA40700-5	01/19/17	14:42	MT	01/26/17	AQ	Ground Water	MW-6
FA40700-5D	01/19/17	14:42	MT	01/26/17	AQ	Water Matrix Spike	MW-6
FA40700-5S	01/19/17	14:42	MT	01/26/17	AQ	Water Dup/MSD	MW-6
FA40700-6	01/19/17	12:00	MT	01/26/17	AQ	Ground Water	FD011917
FA40700-7	01/19/17	19:47	MT	01/26/17	AQ	Ground Water	MW-13
FA40700-8	01/23/17	15:02	MT	01/26/17	AQ	Ground Water	EW-2
FA40700-9	01/23/17	17:07	MT	01/26/17	AQ	Ground Water	MW-1
FA40700-10	01/23/17	17:57	MT	01/26/17	AQ	Ground Water	MW-2
FA40700-11	01/23/17	19:12	MT	01/26/17	AQ	Ground Water	IW-3

Sample Summary
(continued)

United Technologies Corporation

Job No: FA40700

AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ
Project No: 3994018.0021

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA40700-12	01/24/17	14:22	MT	01/26/17	AQ	Ground Water	MW-20
FA40700-13	01/24/17	15:00	MT	01/26/17	AQ	Ground Water	MW-19
FA40700-14	01/24/17	16:02	MT	01/26/17	AQ	Ground Water	IW-1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: United Technologies Corporation **Job No:** FA40700

Site: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ **Report Date** 2/9/2017 6:20:39 PM

13 Samples and 1 Trip Blank were collected on/between 01/13/2017 and 01/24/2017 and were received at SGS Accutest Southeast (SASE) on 01/26/2017 properly preserved, at 4 Deg. C and intact. These Samples received an SASE job number of FA40700. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** VM3992

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA40728-7MS, FA40728-7MSD were used as the QC samples indicated.

FA40728-7MS: Sample was treated with an anti-foaming agent.

FA40728-7MSD: Sample was treated with an anti-foaming agent.

Volatiles by GCMS By Method SW846 8260B BY SIM

Matrix: AQ **Batch ID:** VZ1663

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA40772-6MS, FA40772-6MSD were used as the QC samples indicated.

Metals By Method EPA 200.8

Matrix: AQ **Batch ID:** N: MP98518

FA40700-1 for Arsenic: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method EPA 314

Matrix: AQ **Batch ID:** N: GP3030

FA40700-2 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-4 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-5 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-6 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-7 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-8 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-9 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-10 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-11 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-12 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-13 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-14 for Perchlorate: Analysis performed at SGS Accutest, Dayton, NJ.

GP3030-D1: AZ: R9

Wet Chemistry By Method SM2510 B-11/SW 9050A

Matrix: AQ **Batch ID:** N: GN58784

FA40700-2 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.

FA40700-4 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method SM2510 B-11/SW 9050A

Matrix: AQ **Batch ID:** N: GN58784

FA40700-5 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-6 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-7 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-8 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-9 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-10 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-11 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-12 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-13 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.
FA40700-14 for Specific Conductivity: Analysis performed at SGS Accutest, Dayton, NJ.

SGS Accutest (SASE) certifies that this report meets the project requirements for analytical data produced for the samples as received at SASE and as stated on the COC. SASE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SASE Quality Manual except as noted above. This report is to be used in its entirety. SASE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

_____ Date: February 9, 2017

Lovelie Metzgar, QA Officer (signature on file)

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	SGS Accutest Southeast	**Job No**	FA40700
Site:	UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ	**Report Date**	2/9/2017 3:44:59 PM

On 02/01/2017, 13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 2.1 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of FA40700 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method EPA 200.8

Matrix: AQ **Batch ID:** MP98518

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC36616-1MS, JC36616-1MSD were used as the QC samples for metals.

Wet Chemistry By Method EPA 314

Matrix: AQ **Batch ID:** GP3030

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) FA40700-5MS, FA40700-7MS, FA40700-5DUP were used as the QC samples for Perchlorate.
- RPD(s) for Duplicate for Perchlorate are outside control limits for sample GP3030-D1. RPD acceptable due to low duplicate and sample concentrations.

Wet Chemistry By Method SM2510 B-11/SW 9050A

Matrix: AQ **Batch ID:** GN58784

- Sample(s) FA40700-14DUP, FA40700-5DUP were used as the QC samples for Specific Conductivity.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: FA40700
Account: United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ
Collected: 01/13/17 thru 01/24/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA40700-1	**MW-18**					
Arsenic [a]		49.6	1.0		ug/l	EPA 200.8
FA40700-2	**PW-1**					
1,1-Dichloroethylene		3.0	1.0		ug/l	SW846 8260B
1,4-Dioxane		2.0	1.0		ug/l	SW846 8260B BY SIM
Perchlorate [a]		5.9	3.0		ug/l	EPA 314
Specific Conductivity [a]		445	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-3	**TB011817**					
No hits reported in this sample.						
FA40700-4	**MW-21**					
Perchlorate [a]		4.7	3.0		ug/l	EPA 314
Specific Conductivity [a]		352	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-5	**MW-6**					
Perchlorate [b]		3.7	3.0		ug/l	EPA 314
Specific Conductivity [a]		461	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-6	**FD011917**					
Perchlorate [a]		4.1	3.0		ug/l	EPA 314
Specific Conductivity [a]		454	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-7	**MW-13**					
Perchlorate [a]		575	75		ug/l	EPA 314
Specific Conductivity [a]		413	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-8	**EW-2**					
Perchlorate [a]		49.3	9.0		ug/l	EPA 314
Specific Conductivity [a]		459	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-9	**MW-1**					
Perchlorate [a]		65.4	9.0		ug/l	EPA 314
Specific Conductivity [a]		374	7.5		umhos/cm	SM2510 B-11/SW 9050A

Summary of Hits

Job Number: FA40700
Account: United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ
Collected: 01/13/17 thru 01/24/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA40700-10	**MW-2**					
1,4-Dioxane		2.8	1.0		ug/l	SW846 8260B BY SIM
Perchlorate [a]		74.4	12		ug/l	EPA 314
Specific Conductivity [a]		416	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-11	**IW-3**					
Perchlorate [a]		44.8	9.0		ug/l	EPA 314
Specific Conductivity [a]		479	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-12	**MW-20**					
1,4-Dioxane		10.1	1.0		ug/l	SW846 8260B BY SIM
Perchlorate [a]		223	30		ug/l	EPA 314
Specific Conductivity [a]		464	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-13	**MW-19**					
Perchlorate [a]		11100	3000		ug/l	EPA 314
Specific Conductivity [a]		416	7.5		umhos/cm	SM2510 B-11/SW 9050A
FA40700-14	**IW-1**					
Perchlorate [a]		71300	12000		ug/l	EPA 314
Specific Conductivity [a]		525	7.5		umhos/cm	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.
(b) Analysis performed at SGS Accutest, Dayton, NJ. AZ:R9

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-18		
Lab Sample ID:	FA40700-1	**Date Sampled:**	01/13/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic [a]	49.6	1.0	ug/l	1	02/03/17	02/09/17	ANJ	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: N:MA41346
(2) Prep QC Batch: N:MP98518

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	PW-1		
Lab Sample ID:	FA40700-2	**Date Sampled:**	01/18/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
Method:	SW846 8260B BY SIM	**Percent Solids:**	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z44096.D	1	02/01/17	MM	n/a	n/a	VZ1663
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	99%		74-125%
2037-26-5	Toluene-D8	101%		88-111%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PW-1		
Lab Sample ID:	FA40700-2	**Date Sampled:**	01/18/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M93310.D	1	01/30/17	KM	n/a	n/a	VM3992
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
75-35-4	1,1-Dichloroethylene	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		83-118%
17060-07-0	1,2-Dichloroethane-D4	101%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PW-1		
Lab Sample ID:	FA40700-2	**Date Sampled:**	01/18/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	5.9	3.0	ug/l	1	02/01/17 16:12	ANJ	EPA 314
Specific Conductivity [a]	445	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TB011817		
Lab Sample ID:	FA40700-3	**Date Sampled:**	01/18/17
Matrix:	AQ - Trip Blank Water	**Date Received:**	01/26/17
Method:	SW846 8260B BY SIM	**Percent Solids:**	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z44092.D	1	02/01/17	MM	n/a	n/a	VZ1663
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	98%		74-125%
2037-26-5	Toluene-D8	101%		88-111%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-21		
Lab Sample ID:	FA40700-4	**Date Sampled:**	01/18/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	4.7	3.0	ug/l	1	02/01/17 16:29	ANJ	EPA 314
Specific Conductivity [a]	352	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-6		
Lab Sample ID:	FA40700-5	**Date Sampled:**	01/19/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	3.7	3.0	ug/l	1	02/01/17 15:20	ANJ	EPA 314
Specific Conductivity [b]	461	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ. AZ:R9
(b) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FD011917		
Lab Sample ID:	FA40700-6	**Date Sampled:**	01/19/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	4.1	3.0	ug/l	1	02/01/17 16:46	ANJ	EPA 314
Specific Conductivity [a]	454	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-13		
Lab Sample ID:	FA40700-7	**Date Sampled:**	01/19/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	575	75	ug/l	25	02/02/17 18:50	ANJ	EPA 314
Specific Conductivity [a]	413	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	EW-2		
Lab Sample ID:	FA40700-8	**Date Sampled:**	01/23/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
Method:	SW846 8260B BY SIM	**Percent Solids:**	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z44097.D	1	02/01/17	MM	n/a	n/a	VZ1663
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	99%		74-125%
2037-26-5	Toluene-D8	100%		88-111%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EW-2		
Lab Sample ID:	FA40700-8	**Date Sampled:**	01/23/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	49.3	9.0	ug/l	3	02/02/17 19:07	ANJ	EPA 314
Specific Conductivity [a]	459	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	FA40700-9	**Date Sampled:**	01/23/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	65.4	9.0	ug/l	3	02/02/17 19:25	ANJ	EPA 314
Specific Conductivity [a]	374	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	FA40700-10	**Date Sampled:**	01/23/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
Method:	SW846 8260B BY SIM	**Percent Solids:**	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z44098.D	1	02/01/17	MM	n/a	n/a	VZ1663
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	2.8	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	98%		74-125%
2037-26-5	Toluene-D8	102%		88-111%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	FA40700-10	**Date Sampled:**	01/23/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	74.4	12	ug/l	4	02/02/17 19:42	ANJ	EPA 314
Specific Conductivity [a]	416	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	IW-3		
Lab Sample ID:	FA40700-11	**Date Sampled:**	01/23/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	44.8	9.0	ug/l	3	02/02/17 19:59	ANJ	EPA 314
Specific Conductivity [a]	479	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-20		
Lab Sample ID:	FA40700-12	**Date Sampled:**	01/24/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
Method:	SW846 8260B BY SIM	**Percent Solids:**	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z44099.D	1	02/01/17	MM	n/a	n/a	VZ1663
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	10.1	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	99%		74-125%
2037-26-5	Toluene-D8	102%		88-111%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-20		
Lab Sample ID:	FA40700-12	**Date Sampled:**	01/24/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	223	30	ug/l	10	02/02/17 20:16	ANJ	EPA 314
Specific Conductivity [a]	464	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-19		
Lab Sample ID:	FA40700-13	**Date Sampled:**	01/24/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	11100	3000	ug/l	1000	02/02/17 20:34	ANJ	EPA 314
Specific Conductivity [a]	416	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	IW-1		
Lab Sample ID:	FA40700-14	**Date Sampled:**	01/24/17
Matrix:	AQ - Ground Water	**Date Received:**	01/26/17
		Percent Solids:	n/a
Project:	AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Perchlorate [a]	71300	12000	ug/l	4000	02/02/17 20:51	ANJ	EPA 314
Specific Conductivity [a]	525	7.5	umhos/cm	1	02/01/17	ANJ	SM2510 B-11/SW 9050A

(a) Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Arizona Qualifiers
- Chain of Custody

Arizona Qualifiers

Job Number: FA40700
Account: UTC United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

The following Arizona qualifiers have been applied to data and/or QC in this report.

Qual	Description
R9	Sample RPD exceeded the laboratory acceptance limit.

SGS PHOENIX ACCUTEST

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

1 of 2

FED-EX Tracking # 7782 7539 7207
SGS Accutest Quote #
Bottle Order Control #
SGS Accutest NC Job #: C FA40700

Client / Reporting Information

Company Name: Arcadis / UTC
Address: 14201 N. 87th St. #135
City: Scottsdale State: Az Zip: 85260
Project Contact: Amanda Peterson (NESKY)
Phone #: 480-905-9311
Samplers's Name: M. Tani

Project Information

Project Name: UTC / UPCO
Street: Happy Valley & Central
City: Phx State: AZ
Project #: 03994018.0021
EMAIL: amanda.peterson@arcadis.com
Client Purchase Order #

Requested Analysis

SGS Accutest Sample ID	Sample ID / Field Point / Point of Collection	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Arsenic (200.8)	314.0 (EPA)	1,4 dioxane (8260B-SIM)	1,1 dichloroethene (8260)
1	MW-18	1/13/17	1617	MA	GW	1			X						X			
2	PW-1	1/18/17		MA	GW	7	6				1					X	X	X
3	TB011817	1/18/17	—	—	Aq	2	2										X	
4	MW-21	1/18/17	1822	MA	GW	1					X					X		
5 ⊗	MW-6	1/19/17	1442			3					3					X		
6	FD011917 ⊗	1/19/17	1200			1					X					X		
7	MW-13	1/19/17	1947			1					X					X		
8	EW-2	1/23/17	1502			4	3				1					X	X	
9	MW-1	1/23/17	1707			1					X					X		
MA	~~trip blank~~					2	X										X	

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

LAB USE ONLY

Turnaround Time (Business days)

- [X] 10 Day — normal
- [ ] 5 Day
- [ ] 3 Day
- [ ] 2 Day
- [ ] 1 Day
- [ ] Same Day

Approved By:/ Date:

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [ ] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [ ] EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

⊗ Run MS/MSD on MW-6 (green dye)

Emergency T/A data available VIA Lablink

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	1/24/17 1600	1 [signature]	2 [signature]	1-25-17/12:15	2 [signature]
Relinquished by: 3 [signature]	Date Time: 1/24/17 1700	Received By: 3 Fed-ex	Relinquished By: 4 FX	Date Time: 01-26-17	Received By: 4 J. Corral (NSE) 09:30
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On Ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. 4.0 °C

5.2 5

FA40700: Chain of Custody
Page 1 of 4

SGS PHOENIX ACCUTEST

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

2 of 2

FED-EX Tracking #	Bottle Order Control #
SGS Accutest Quote #	SGS Accutest NC Job #: C FA40700

Client / Reporting Information

Company Name	Arcadis
Address	14201 N. 87th St. #135
City / State / Zip	Scottsdale Az 85260
Project Contact:	Amanda Peterson (Nesky)
Phone #	480-905-9311
Samplers's Name	M. Tani

Project Information

Project Name:	UTC / VPCO
Street	Happy Valley + Central
City / State	Phx Az
Project #	03994018.6021
EMAIL:	amanda.peterson@arcadis.com
Client Purchase Order #	

Requested Analysis

SGS Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	NCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	314.0 (EPA)	1,4 dioxane (8260BSM)										
10	MW-2	1/23/17	1757	MA	GW	4	3				1				X	X										
11	IW-3	1/23/17	1912	MA	GW						1				X											
12	MW-20	1/24/17	1422	MA	GW	4	3				1				X	X										
13	MW-19	↓	1500	↓	↓	1					1				X											
14	IW-1	↓	1602	↓	↓	1					1				X											

Matrix Codes

WW- Wastewater
GW- Ground Water
SW- Surface Water
SO- Soil
OI-Oil
WP-Wipe
LIQ - Non-aqueous Liquid
AIR
DW- Drinking Water (Perchlorate Only)

LAB USE ONLY

Turnaround Time (Business days)

Approved By:/ Date:

- [ ] 10 Day
- [ ] 5 Day
- [ ] 3 Day
- [ ] 2 Day
- [ ] 1 Day
- [ ] Same Day

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [ ] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [ ] EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M Tani	1/24/17 1600	1 [signature]	2 [signature]	1-25-17/12:15	2 [signature]
Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3 [signature]	1-24-17 1700	Fed-Ex	4 FX	01-26-17	4 J. Coppel (AHF) 29:30
Relinquished by:	Date Time:	Received By:	Custody Seal #	Appropriate Bottle / Pres. Y / N	Headspace Y / N	On Ice Y / N	Cooler Temp.
5		5		Labels match Coc? Y / N	Separate Receiving Check List used: Y / N		oC

5.2

5

FA40700: Chain of Custody
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SGS ACCUTEST - ORLANDO SAMPLE RECEIPT CONFIRMATION

SGS ACCUTEST'S JOB NUMBER: FA 40700 CLIENT: ARCADIS PROJECT: WTC UPCO

DATE/TIME RECEIVED: 01-26-17 09:30 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER DELIVERY OTHER:

AIRBILL NUMBERS: 7782 7539 7207

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [X] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [ ] TRIP BLANK NOT ON COC
- [X] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [X] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM_____ 5-GRAM_____

NUMBER OF 5035 FIELD KITS ? _____

NUMBER OF LAB FILTERED METALS ? _____

TEMPERATURE INFORMATION

- [ ] IR THERM ID 1 CORR. FACTOR +0.8
- [ ] OBSERVED TEMPS: 3.2
- [ ] CORRECTED TEMPS: 4.0 (USED FOR LIMS)

SAMPLE INFORMATION

- [ ] INCORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- [ ] ID'S ON COC DO NOT MATCH LABEL
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- [ ] BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] RESIDUAL CHLORINE PRESENT LOT#_____

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

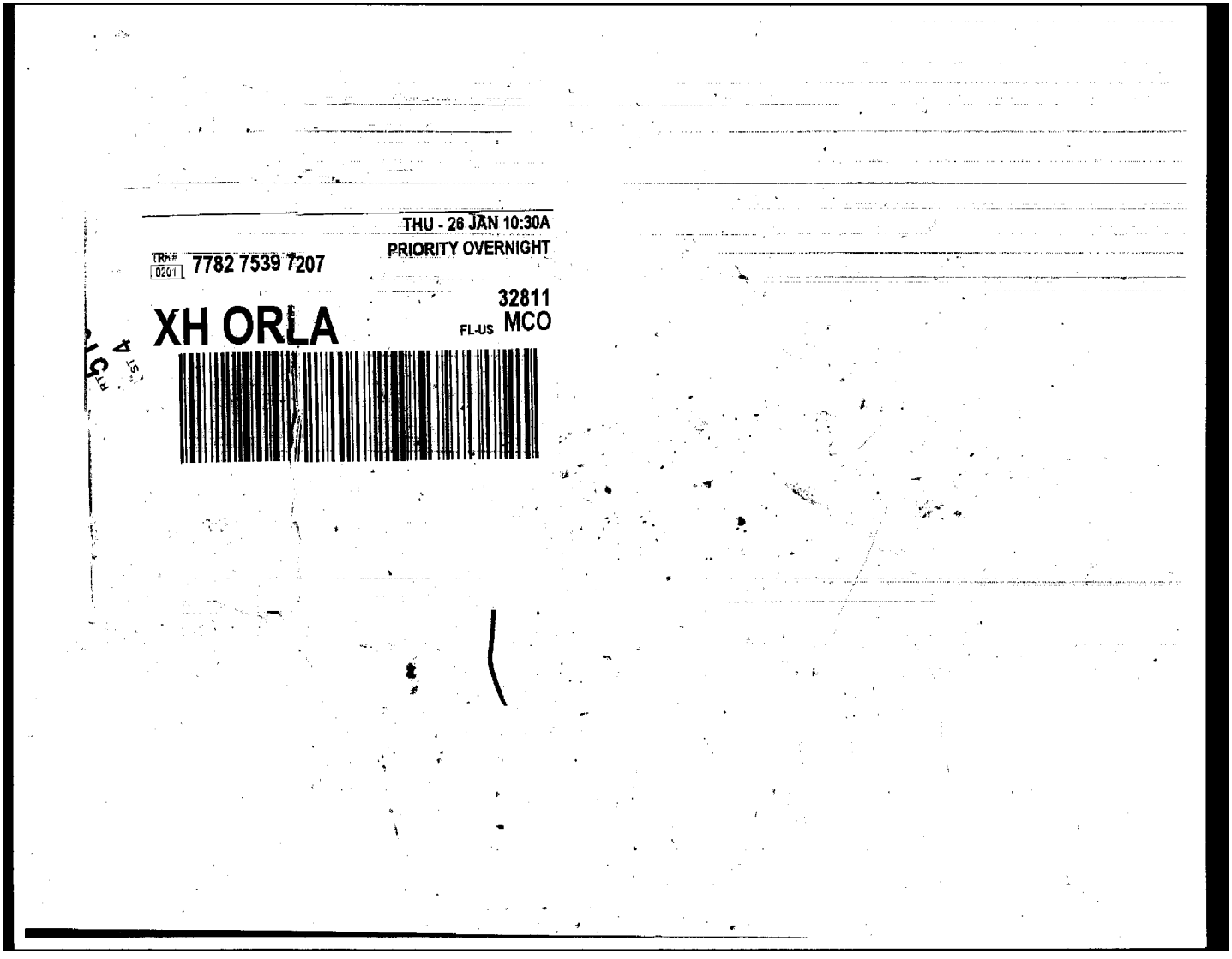
TEST STRIP LOT#s pH 0-3 230315 pH 10-12 219813A OTHER (specify) _____

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE: 01-26-17 REVIEWER SIGNATURE/DATE: KD 01-26-17

NF 02/16 receipt confirmation 020116.xls

5.2 5



FA40700: Chain of Custody
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GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA40700
Account: UTC United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ1663-MB	Z44089.D	1	02/01/17	MM	n/a	n/a	VZ1663

The QC reported here applies to the following samples: **Method:** SW846 8260B BY SIM

FA40700-2, FA40700-3, FA40700-8, FA40700-10, FA40700-12

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
17060-07-0	1,2-Dichloroethane-D4	98%	74-125%
2037-26-5	Toluene-D8	102%	88-111%

Method Blank Summary

Job Number: FA40700
Account: UTC United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM3992-MB	M93307.D	1	01/30/17	KM	n/a	n/a	VM3992

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA40700-2

CAS No.	Compound	Result	RL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	104%	83-118%
17060-07-0	1,2-Dichloroethane-D4	101%	79-125%
2037-26-5	Toluene-D8	97%	85-112%
460-00-4	4-Bromofluorobenzene	98%	83-118%

Blank Spike Summary

Job Number: FA40700
Account: UTC United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ1663-BS	Z44088.D	1	02/01/17	MM	n/a	n/a	VZ1663

The QC reported here applies to the following samples: **Method:** SW846 8260B BY SIM

FA40700-2, FA40700-3, FA40700-8, FA40700-10, FA40700-12

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
123-91-1	1,4-Dioxane	20	20.0	100	65-121

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	99%	74-125%
2037-26-5	Toluene-D8	100%	88-111%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA40700
Account: UTC United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM3992-BS	M93306.D	1	01/30/17	KM	n/a	n/a	VM3992

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA40700-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	24.8	99	78-137

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	83-118%
17060-07-0	1,2-Dichloroethane-D4	97%	79-125%
2037-26-5	Toluene-D8	99%	85-112%
460-00-4	4-Bromofluorobenzene	98%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA40700
Account: UTC United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA40772-6MS	Z44103.D	1	02/01/17	MM	n/a	n/a	VZ1663
FA40772-6MSD	Z44104.D	1	02/01/17	MM	n/a	n/a	VZ1663
FA40772-6 [a]	Z44093.D	1	02/01/17	MM	n/a	n/a	VZ1663

The QC reported here applies to the following samples: **Method:** SW846 8260B BY SIM

FA40700-2, FA40700-3, FA40700-8, FA40700-10, FA40700-12

CAS No.	Compound	FA40772-6 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
123-91-1	1,4-Dioxane	1.9		20	22.2	102	20	22.5	103	1	65-121/27

CAS No.	Surrogate Recoveries	MS	MSD	FA40772-6	Limits
17060-07-0	1,2-Dichloroethane-D4	99%	99%	98%	74-125%
2037-26-5	Toluene-D8	102%	102%	102%	88-111%

(a) Sample was not preserved to a pH < 2.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA40700
Account: UTC United Technologies Corporation
Project: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA40728-7MS [a]	M93328.D	1	01/30/17	KM	n/a	n/a	VM3992
FA40728-7MSD [a]	M93329.D	1	01/30/17	KM	n/a	n/a	VM3992
FA40728-7 [b]	M93321.D	1	01/30/17	KM	n/a	n/a	VM3992

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA40700-2

CAS No.	Compound	FA40728-7 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	1.0	U	25	24.4	98	25	24.5	98	0	78-137/18

CAS No.	Surrogate Recoveries	MS	MSD	FA40728-7	Limits
1868-53-7	Dibromofluoromethane	99%	99%	104%	83-118%
17060-07-0	1,2-Dichloroethane-D4	97%	99%	105%	79-125%
2037-26-5	Toluene-D8	98%	99%	98%	85-112%
460-00-4	4-Bromofluorobenzene	100%	100%	99%	83-118%

(a) Sample was treated with an anti-foaming agent.
(b) Sample was not preserved to a pH < 2. Sample was treated with an anti-foaming agent.

* = Outside of Control Limits.

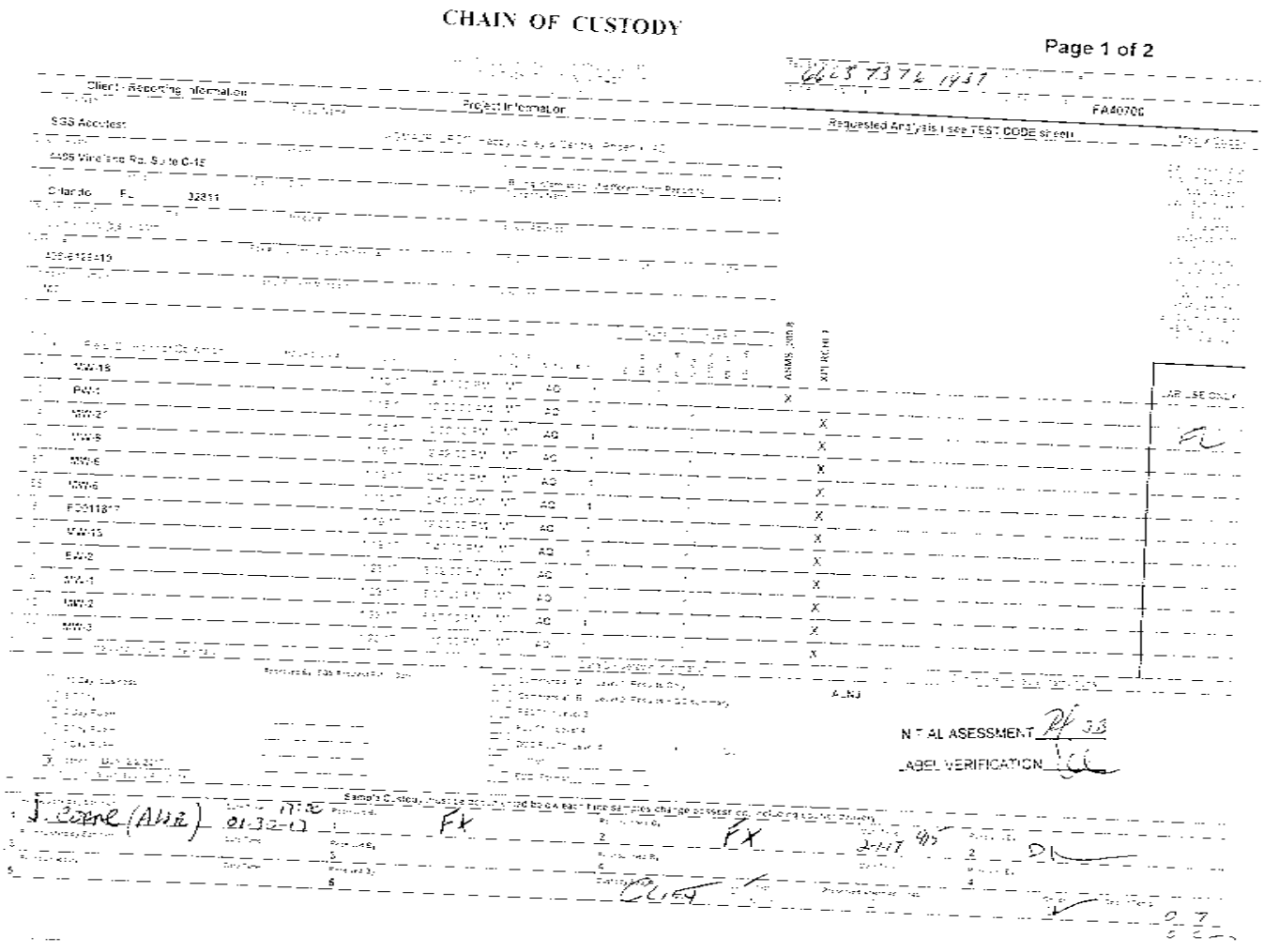
Misc. Forms

Custody Documents and Other Forms

(SGS Accutest New Jersey)

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

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6623 7372 1937

FA40700

Client / Reporting Information

Project Information

Requested Analysis (see TEST CODE sheet)

SGS Accutest

4405 Vineland Rd. Suite C-15

Orlando FL 32811

Billing Information (if different from Report to)

Sample Custody must be documented below each time samples change possession, including courier delivery.

	MW-15											
	PW-1											
	MW-2											
	MW-8											
	MW-6											
	MW-6											
	FD011817											
	MW-13											
	EW-2											
	MW-1											
	MW-2											
	MW-3											

LAB USE ONLY

FL

NITRAL ASESSMENT

LABEL VERIFICATION

J. Coene (AWR) 01-30-13 17:00 FX FX 2-1-17 9:15

FA40700: Chain of Custody

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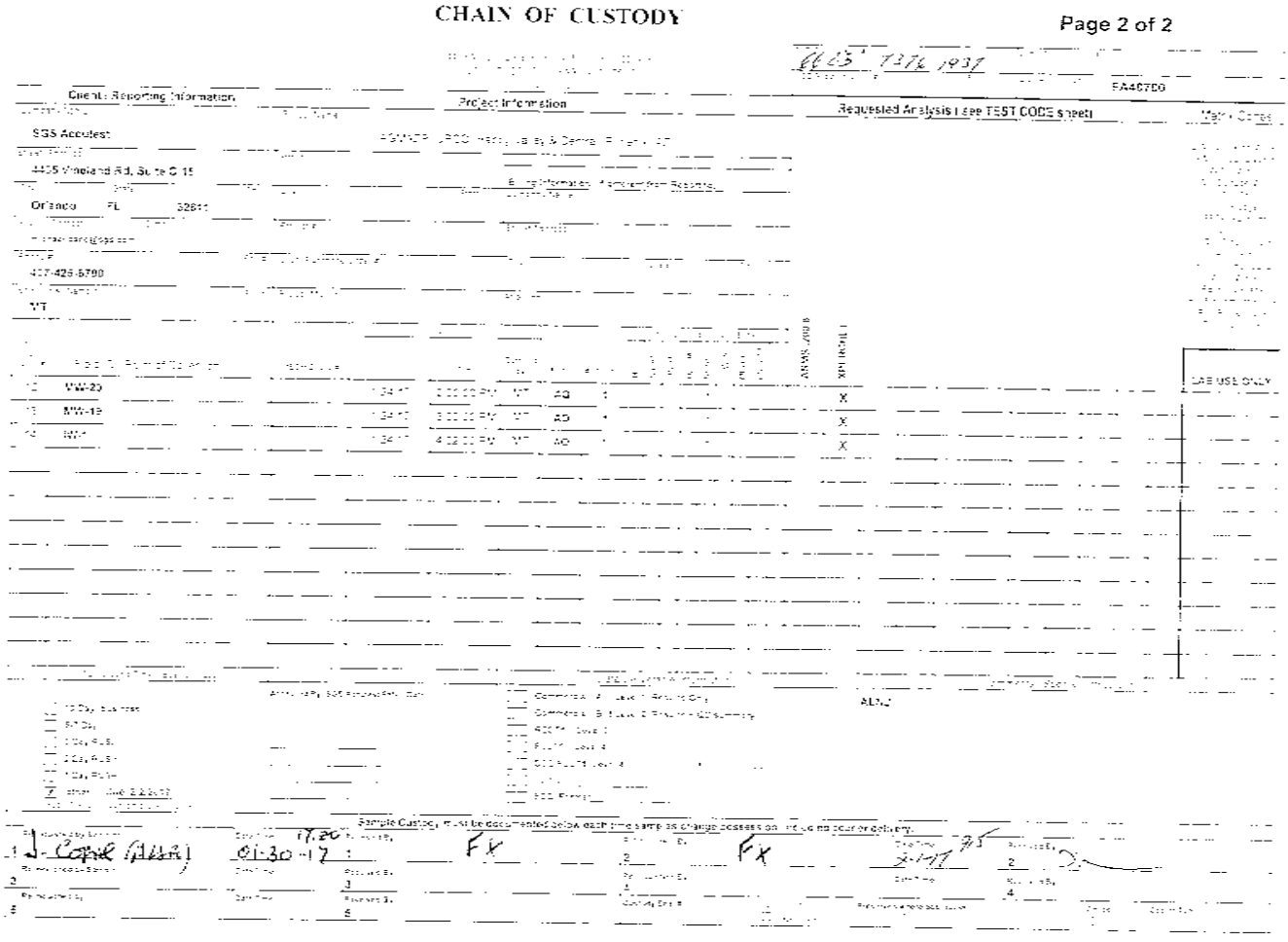
SGS Accutest New Jersey



CHAIN OF CUSTODY

Page 2 of 2

FA40700

Client/Reporting Information

Project Information

Requested Analysis (see TEST CODE sheet)

Matrix Codes

SGS Accutest

4405 Vineland Rd, Suite C-15

Orlando FL 32811

407-425-6700

MT

12	MW-20	1-24-17	2:00:00 PM	MT	AQ	1		X	
13	MW-19	1-24-17	3:00:00 PM	MT	AQ	1		X	
14	MW-1	1-24-17	4:02:00 PM	MT	AQ	1		X	

LAB USE ONLY

Sample Custody must be documented below each time samples change possession, including courier delivery.

1 J. Cole (ASA) 01-30-17 17:20 Fx

2 Fx 2-1-17 9:15

3

4

5

FA40700: Chain of Custody
Page 2 of 3

SGS Accutest Sample Receipt Summary

Job Number: FA40700 **Client:** _____ **Project:** _____

Date / Time Received: 2/1/2017 9:15:00 AM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (0.7);

Cooler Temps (Corrected) °C: Cooler 1: (2.1);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

SM089-02
Rev. Date 12/1/16

7.1
7

FA40700: Chain of Custody
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Metals Analysis

QC Data Summaries

(SGS Accutest New Jersey)

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA40700
Account: ALSE - SGS Accutest Southeast
Project: UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

QC Batch ID: MP98518
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 02/03/17

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	5.3	1.3		
Antimony	2.0	.12	.26		
Arsenic	1.0	.012	.034	0.0061	<1.0
Barium	1.0	.014	.028		
Beryllium	0.50	.0035	.013		
Boron	50	1.4			
Cadmium	0.50	.0052	.12		
Calcium	250	6.6	3.7		
Chromium	4.0	.031	.1		
Cobalt	0.50	.003	.018		
Copper	4.0	.17	.14		
Iron	50	.37	2		
Lead	0.50	.009	.011		
Magnesium	250	.4	3.6		
Manganese	1.0	.018	.095		
Molybdenum	1.0	.016	.23		
Nickel	4.0	.036	.11		
Potassium	250	3	8.8		
Selenium	1.0	.031	.12		
Silver	2.0	.0065	.041		
Sodium	250	1.6	2.5		
Strontium	5.0	.0095	.015		
Thallium	0.50	.0045	.013		
Tin	5.0	.051	.38		
Titanium	1.0	.08	.56		
Vanadium	4.0	.02	.2		
Zinc	10	.27	1.2		

Associated samples MP98518: FA40700-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA40700
Account: ALSE - SGS Accutest Southeast
Project: UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

QC Batch ID: MP98518
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 02/03/17

Metal	JC36616-1 Original	MS	Spikelot MPX200.8	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	0.026	96.6	100	96.6	70-130
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP98518: FA40700-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA40700
Account: ALSE - SGS Accutest Southeast
Project: UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

QC Batch ID: MP98518
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 02/03/17

Metal	JC36616-1 Original	MSD	Spikelot MPX200.8	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	0.026	98.1	100	98.1	4.7	10
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP98518: FA40700-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA40700
Account: ALSE - SGS Accutest Southeast
Project: UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

QC Batch ID: MP98518
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 02/03/17

Metal	BSP Result	Spikelot MPX200.8	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	97.4	100	97.4	85-115
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP98518: FA40700-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

General Chemistry

QC Data Summaries

(SGS Accutest New Jersey)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA40700
Account: ALSE - SGS Accutest Southeast
Project: UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Perchlorate	GP3030/GN58818	3.0	0.0	ug/l	25	26.4	105.6	85-115%
Perchlorate	GP3030/GN58818			ug/l	8	7.15	89.4	85-115%
Perchlorate	GP3030/GN58856	3.0	0.89	ug/l	25	26.0	104.0	85-115%
Perchlorate	GP3030/GN58856			ug/l	8	8.70	108.8	85-115%

Associated Samples:
Batch GP3030: FA40700-2, FA40700-4, FA40700-5, FA40700-6, FA40700-7, FA40700-8, FA40700-9, FA40700-10, FA40700-11, FA40700-12, FA40700-13, FA40700-14
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA40700
Account: ALSE - SGS Accutest Southeast
Project: UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Perchlorate	GP3030/GN58818	FA40700-5	ug/l	3.7	6.4	53.5(a)	0-15%
Specific Conductivity	GN58784	FA40700-5	umhos/cm	461	460	0.2	0-10%
Specific Conductivity	GN58784	FA40700-14	umhos/cm	525	523	0.4	0-10%

Associated Samples:
Batch GP3030: FA40700-2, FA40700-4, FA40700-5, FA40700-6, FA40700-7, FA40700-8, FA40700-9, FA40700-10, FA40700-11, FA40700-12, FA40700-13, FA40700-14
Batch GN58784: FA40700-2, FA40700-4, FA40700-5, FA40700-6, FA40700-7, FA40700-8, FA40700-9, FA40700-10, FA40700-11, FA40700-12, FA40700-13, FA40700-14
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA40700
Account: ALSE - SGS Accutest Southeast
Project: UTC: AGMAZP: UPCO, Happy Valley & Central, Phoenix, AZ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Perchlorate	GP3030/GN58818	FA40700-5	ug/l	3.7	25	29.8	104.4	80-120%
Perchlorate	GP3030/GN58856	FA40700-7	ug/l	575	1250	1920	96.1	80-120%

Associated Samples:
Batch GP3030: FA40700-2, FA40700-4, FA40700-5, FA40700-6, FA40700-7, FA40700-8, FA40700-9, FA40700-10, FA40700-11, FA40700-12, FA40700-13, FA40700-14
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177263-1
Client Project/Site: UTC/UPCO

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Cassandra McCloud

Authorized for release by:
2/27/2017 11:57:13 AM

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177263-1	16 E. Yeraling	Water	02/08/17 16:45	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Job ID: 440-177263-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177263-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Client Sample ID: 16 E. Yeraling
Date Collected: 02/08/17 16:45
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177263-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.46		0.10		ug/L			02/21/17 08:45	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Client Sample ID: 16 E. Yeraling
Date Collected: 02/08/17 16:45
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177263-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 08:45	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	5.00	4.04		ug/L		81	80 - 120

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.100	0.109		ug/L		109	50 - 150

Lab Sample ID: 440-177263-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: 16 E. Yeraling
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120

Lab Sample ID: 440-177263-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: 16 E. Yeraling
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177263-1	16 E. Yeraling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-1 MS	16 E. Yeraling	Total/NA	Water	332.0	
440-177263-1 MSD	16 E. Yeraling	Total/NA	Water	332.0	

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: UTC/UPCO

TestAmerica Job ID: 440-177263-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-17 *
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-17 *
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C 177263

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	16 E. Yearling	2/8/17	1645	M. Tani	GW	1					1				1	

440-177263 Chain of Custody

Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day *(200% markup)*	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/16/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature]	Relinquished By: 4 2/17/17 10:05	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On Ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. 0.4/0.9 oC

TRK-6715 9622 5535

3.5° ph.

LB 2/17/17

2/27/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177263-1

Login Number: 177263

List Source: TestAmerica Irvine

List Number: 1

Creator: Escalante, Maria I

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177264-1
Client Project/Site: 8 W. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 11:56:08 AM

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 8 W. Yearling

TestAmerica Job ID: 440-177264-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177264-1	8 W. Yearling	Water	02/08/17 17:10	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 8 W. Yearling

TestAmerica Job ID: 440-177264-1

Job ID: 440-177264-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177264-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 8 W. Yearling

TestAmerica Job ID: 440-177264-1

Client Sample ID: 8 W. Yearling
Date Collected: 02/08/17 17:10
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177264-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.50		0.10		ug/L			02/21/17 09:39	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 8 W. Yearling

TestAmerica Job ID: 440-177264-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 8 W. Yearling

TestAmerica Job ID: 440-177264-1

Client Sample ID: 8 W. Yearling
Date Collected: 02/08/17 17:10
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177264-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 09:39	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 8 W. Yearling

TestAmerica Job ID: 440-177264-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177264-1	8 W. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 8 W. Yearling

TestAmerica Job ID: 440-177264-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C 177264

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

Project Information

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	8 W. Yearling	2/8/17	1710	M. Tani	GW	1					1				1	

440-177264 Chain of Custody

Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day (200% markup)	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/8/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature] 2/17/17 10:05	Relinquished By:	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On Ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. 0.4/0.9 oC

TRK-6715 9622 5535 3.5 ohm 1k.85

LB 2/17/17

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177264-1

Login Number: 177264
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177266-1
Client Project/Site: 18 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 12:08:49 PM

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Receipt Checklists 13

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 18 E. Yearling

TestAmerica Job ID: 440-177266-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177266-1	18 E. Yearling	Water	02/08/17 17:00	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 18 E. Yearling

TestAmerica Job ID: 440-177266-1

Job ID: 440-177266-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177266-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 18 E. Yearling

TestAmerica Job ID: 440-177266-1

Client Sample ID: 18 E. Yearling
Date Collected: 02/08/17 17:00
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177266-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.52		0.10		ug/L			02/21/17 09:57	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 18 E. Yearling

TestAmerica Job ID: 440-177266-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 18 E. Yearling

TestAmerica Job ID: 440-177266-1

Client Sample ID: 18 E. Yearling
Date Collected: 02/08/17 17:00
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177266-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 09:57	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 18 E. Yearling

TestAmerica Job ID: 440-177266-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177266-1	18 E. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 18 E. Yearling

TestAmerica Job ID: 440-177266-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUS.JDY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C 177266

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

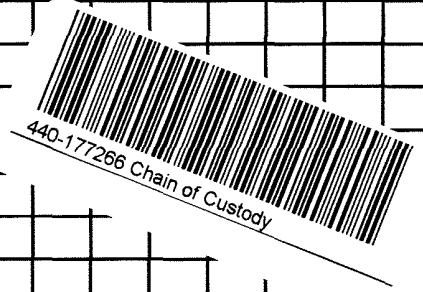
Project Information

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	18 E. Yearling	2/8/17	1700	M. Tani	GW	1					1				1	

440-177266 Chain of Custody



Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day (200% markup)	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/16/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature] 2/17/17 10:05	Relinquished By:	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On Ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. 0.4/0.9 oC

TRK-6715 9622 5535 3.5 PW 12.85

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177266-1

Login Number: 177266
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177268-1
Client Project/Site: 104 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 2:46:53 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 104 E. Yearling

TestAmerica Job ID: 440-177268-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177268-1	104 E. Yearling	Water	02/08/17 16:30	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 104 E. Yearling

TestAmerica Job ID: 440-177268-1

Job ID: 440-177268-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177268-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 104 E. Yearling

TestAmerica Job ID: 440-177268-1

Client Sample ID: 104 E. Yearling
Date Collected: 02/08/17 16:30
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177268-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.59		0.10		ug/L			02/21/17 10:19	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 104 E. Yearling

TestAmerica Job ID: 440-177268-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 104 E. Yearling

TestAmerica Job ID: 440-177268-1

Client Sample ID: 104 E. Yearling
Date Collected: 02/08/17 16:30
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177268-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 10:19	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 104 E. Yearling

TestAmerica Job ID: 440-177268-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177268-1	104 E. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 104 E. Yearling

TestAmerica Job ID: 440-177268-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

177268

ACCUTEST LABORATORIES
2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C

Client / Reporting Information

Company Name	Project Name:	UTC / UPCO
ARCADIS		
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue	
City: Phoenix	State: AZ	Zip: 85008
City: Phoenix	State: AZ	
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001	
Phone #: O: (602) 797-4574	EMAIL: amanda.peterson@arcadis-us.com	
Samplers's Name: Matt Tani	Client Purchase Order #	

Requested Analysis

Matrix Codes

WW- Wastewater
GW- Ground Water
SW- Surface Water
SO- Soil
OI-Oil
WP-Wipe
LIQ - Non-aqueous Liquid
AIR
DW- Drinking Water (Perchlorate Only)
DW- Drinking Water

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection: Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332
	104 E Yearling	2/8/17	1630	M.Tani	GW	1					1				1

LAB USE ONLY

440-177268 Chain of Custody

Turnaround Time (Business days)

Approved By:/ Date:

- [ ] 10 Day
- [ ] 5 Day
- [ ] 3 Day (125% markup)
- [ ] 2 Day (150% markup)
- [ ] 1 Day *(200% markup)*
- [ ] Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker
- [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	M.Tani	2/16/17 1250	1	2	2/16/17	2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4 2/17/17 10:05		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #		
			5			

Appropriate Bottle / Pres. Y / N | Headspace Y / N | On Ice Y / N | Cooler Temp. ____ °C

Labels match Coc? Y / N | Separate Receiving Check List used: Y / N

TRK - 6715 9622 5535

0.4/9.9 IR 85 35° Phx

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3/16/2017

LB 2/17/17

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177268-1

Login Number: 177268
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177270-1
Client Project/Site: 122 W. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 3:06:35 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Receipt Checklists 13

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 122 W. Yearling

TestAmerica Job ID: 440-177270-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177270-1	122 W. Yearling	Water	02/08/17 17:25	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 122 W. Yearling

TestAmerica Job ID: 440-177270-1

Job ID: 440-177270-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177270-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 122 W. Yearling

TestAmerica Job ID: 440-177270-1

Client Sample ID: 122 W. Yearling — **Lab Sample ID: 440-177270-1**
Date Collected: 02/08/17 17:25 — **Matrix: Water**
Date Received: 02/17/17 10:05

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.48		0.20		ug/L			02/21/17 10:38	2

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 122 W. Yearling

TestAmerica Job ID: 440-177270-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 122 W. Yearling

TestAmerica Job ID: 440-177270-1

Client Sample ID: 122 W. Yearling
Date Collected: 02/08/17 17:25
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177270-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		2			389458	02/21/17 10:38	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 122 W. Yearling

TestAmerica Job ID: 440-177270-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177270-1	122 W. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 122 W. Yearling

TestAmerica Job ID: 440-177270-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control # 172270
Accutest Quote #	Accutest NC Job #: C

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	

Project Information

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	122 W. Yearling	2/16/17 (2/8/17)	1725	M. Tani	GW	1					1				1	

440-177270 Chain of Custody

Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day *(200% markup)*	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/16/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature] 2/17/17	Relinquished By: 4 10:05	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. ____ oC

TRK-6715 9622 553 7 50 Ph 0.4/0.9 10.85

4/3/17

Page 12 of 13

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177270-1

Login Number: 177270
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177271-1
Client Project/Site: 106 W. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 3:12:35 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 106 W. Yearling

TestAmerica Job ID: 440-177271-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177271-1	106 W. Yearling	Water	02/08/17 17:15	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 106 W. Yearling

TestAmerica Job ID: 440-177271-1

Job ID: 440-177271-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177271-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 106 W. Yearling

TestAmerica Job ID: 440-177271-1

Client Sample ID: 106 W. Yearling — **Lab Sample ID: 440-177271-1**
Date Collected: 02/08/17 17:15 — **Matrix: Water**
Date Received: 02/17/17 10:05

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.49		0.20		ug/L			02/21/17 10:56	2

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 106 W. Yearling

TestAmerica Job ID: 440-177271-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 106 W. Yearling

TestAmerica Job ID: 440-177271-1

Client Sample ID: 106 W. Yearling
Date Collected: 02/08/17 17:15
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177271-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		2			389458	02/21/17 10:56	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 106 W. Yearling

TestAmerica Job ID: 440-177271-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177271-1	106 W. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 106 W. Yearling

TestAmerica Job ID: 440-177271-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

177271

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C

Client / Reporting Information

Company Name: ARCADIS
Address: 410 N 44th St, Suite 1000
City: Phoenix State: AZ Zip: 85008
Project Contact: Amanda Peterson
Phone #: O: (602) 797-4590
Samplers's Name: Matt Tani

Project Information

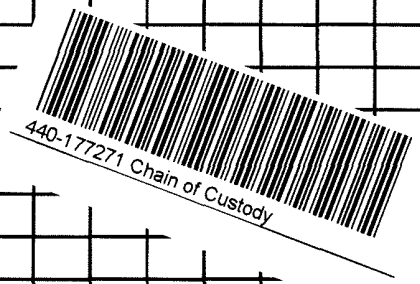
Project Name: UTC / UPCO
Street: 25401 North Central Avenue
City: Phoenix State: AZ
Project #: 03994018.0021.00001
EMAIL: Amanda.Peterson@arcadis.com
Client Purchase Order #:

Requested Analysis

Matrix Codes

WW- Wastewater
GW- Ground Water
SW- Surface Water
SO- Soil
OI-Oil
WP-Wipe
LIQ - Non-aqueous Liquid
AIR
DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection: Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	106 W. Yearling	2/8/17	1715	M Tani	GW	1					1				1	



Turnaround Time (Business days)

Approved By:/ Date:

- [X] 10 Day
- [ ] 5 Day
- [ ] 3 Day (125% markup)
- [ ] 2 Day (150% markup)
- [ ] 1 Day *(200% markup)*
- [ ] Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____
Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	M. Tani	2/8/17 1250	1	2	2/9/17	2
3			3	4		4
5			5	Custody Seal #		

Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N Cooler Temp.
Labels match Coc? Y / N Separate Receiving Check List used: Y / N _____oC

TR L-671C-9622.55.35 PM 04/05 IR 8F

2/17/17

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177271-1

Login Number: 177271
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177282-1
Client Project/Site: 204 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 3:57:28 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 204 E. Yearling

TestAmerica Job ID: 440-177282-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177282-1	204 E. Yearling	Water	02/08/17 16:25	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 204 E. Yearling

TestAmerica Job ID: 440-177282-1

Job ID: 440-177282-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177282-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 204 E. Yearling

TestAmerica Job ID: 440-177282-1

Client Sample ID: 204 E. Yearling
Date Collected: 02/08/17 16:25
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177282-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.51		0.10		ug/L			02/21/17 11:14	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 204 E. Yearling

TestAmerica Job ID: 440-177282-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 204 E. Yearling

TestAmerica Job ID: 440-177282-1

Client Sample ID: 204 E. Yearling
Date Collected: 02/08/17 16:25
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177282-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 11:14	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	5.00	4.04		ug/L		81	80 - 120

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.100	0.109		ug/L		109	50 - 150

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 204 E. Yearling

TestAmerica Job ID: 440-177282-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177282-1	204 E. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 204 E. Yearling

TestAmerica Job ID: 440-177282-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C 177282

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

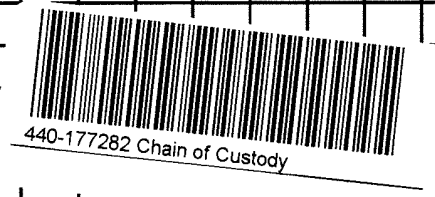
Project Information

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	204 E. Yearling	2/8/17	1625	M. Tani	GW	1					1				1	

440-177282 Chain of Custody



Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day *(200% markup)*	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/16/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature] 2/17/17 10:05	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N Labels match Coc? Y / N Separate Receiving Check List used: Y / N	Cooler Temp. _____ oC

TRK-6715 9622 5535

250 PM 0.4/0.9 IR.85

2/17/17

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177282-1

Login Number: 177282
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177283-1
Client Project/Site: 218 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 4:19:09 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 218 E. Yearling

TestAmerica Job ID: 440-177283-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177283-1	218 E. Yearling	Water	02/08/17 16:15	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 218 E. Yearling

TestAmerica Job ID: 440-177283-1

Job ID: 440-177283-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177283-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 218 E. Yearling

TestAmerica Job ID: 440-177283-1

Client Sample ID: 218 E. Yearling
Date Collected: 02/08/17 16:15
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177283-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.56		0.10		ug/L			02/21/17 11:32	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 218 E. Yearling

TestAmerica Job ID: 440-177283-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 218 E. Yearling

TestAmerica Job ID: 440-177283-1

Client Sample ID: 218 E. Yearling
Date Collected: 02/08/17 16:15
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177283-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 11:32	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 218 E. Yearling

TestAmerica Job ID: 440-177283-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177283-1	218 E. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 218 E. Yearling

TestAmerica Job ID: 440-177283-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking # | Bottle Order Control #

Accutest Quote # | Accutest NC Job #: C 177283

Client / Reporting Information

Company Name: ARCADIS
Address: 410 N 44th St, Suite 1000
City: Phoenix State: AZ Zip: 85008
Project Contact: Amanda Peterson
Phone #: O: (602) 797-4590
Samplers's Name: Matt Tani

Project Information

Project Name: UTC / UPCO
Street: 25401 North Central Avenue
City: Phoenix State: AZ
Project #: 03994018.0021.00001
EMAIL: Amanda.Peterson@arcadis.com
Client Purchase Order #

Requested Analysis

Matrix Codes

WW- Wastewater
GW- Ground Water
SW- Surface Water
SO- Soil
OI-Oil
WP-Wipe
LIQ - Non-aqueous Liquid
AIR
DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	218 E. Yearling	2/8/17	1615	M. Tani	GW	1					1				1	

440-177283 Chain of Custody

Turnaround Time (Business days)

Approved By:/ Date:

- [X] 10 Day
- [ ] 5 Day
- [ ] 3 Day (125% markup)
- [ ] 2 Day (150% markup)
- [ ] 1 Day *(200% markup)*
- [ ] Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____
Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	M. Tani	2/16/17 1250				
2					2/16/17	
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			2/17/17 10:05			
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N Cooler Temp.	
					Labels match Coc? Y / N Separate Receiving Check List used: Y / N	____oC

TRK - 6715 9622 5535

2/17/17

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177283-1

Login Number: 177283
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177284-1
Client Project/Site: 308 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 4:24:10 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 308 E. Yearling

TestAmerica Job ID: 440-177284-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177284-1	308 E. Yearling	Water	02/08/17 16:05	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 308 E. Yearling

TestAmerica Job ID: 440-177284-1

Job ID: 440-177284-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177284-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client: ARCADIS U.S., Inc.
Project/Site: 308 E. Yearling

TestAmerica Job ID: 440-177284-1

Client Sample ID: 308 E. Yearling
Date Collected: 02/08/17 16:05
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177284-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.67		0.10		ug/L			02/21/17 12:26	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 308 E. Yearling

TestAmerica Job ID: 440-177284-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 308 E. Yearling

TestAmerica Job ID: 440-177284-1

Client Sample ID: 308 E. Yearling
Date Collected: 02/08/17 16:05
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177284-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 12:26	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 308 E. Yearling

TestAmerica Job ID: 440-177284-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177284-1	308 E. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 308 E. Yearling

TestAmerica Job ID: 440-177284-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control # 177284
Accutest Quote #	Accutest NC Job #: C

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

Project Information

Requested Analysis

Matrix Codes

WW- Wastewater
GW- Ground Water
SW- Surface Water
SO- Soil
OI-Oil
WP-Wipe
LIQ - Non-aqueous Liquid
AIR
DW- Drinking Water (Perchlorate Only)
DW- Drinking Water

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	308 E. Yearling	2/8/17	1605	M. Tani	GW	1					1				1	

440-177284 Chain of Custody

Turnaround Time (Business days)

Approved By:/ Date:

- [X] 10 Day
- [ ] 5 Day
- [ ] 3 Day (125% markup)
- [ ] 2 Day (150% markup)
- [ ] 1 Day *(200% markup)*
- [ ] Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/8/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature]	Relinquished By: 4 2/17/17 10:05	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #		

Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N Cooler Temp. _____ oC
Labels match Coc? Y / N Separate Receiving Check List used: Y / N

LB 2/17/17

TPH - 6715 9622 5535

0.4/0.9 IR-85

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177284-1

Login Number: 177284
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177285-1
Client Project/Site: 412 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 4:28:48 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177285-1	412 E. Yearling	Water	02/08/17 15:55	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

Job ID: 440-177285-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177285-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

Client Sample ID: 412 E. Yearling
Date Collected: 02/08/17 15:55
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177285-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	1.1		0.50		ug/L			02/20/17 14:29	5

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

Client Sample ID: 412 E. Yearling
Date Collected: 02/08/17 15:55
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177285-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		5			389218	02/20/17 14:29	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389218/4
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/20/17 08:22	1

Lab Sample ID: LCS 440-389218/1002
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.20		ug/L		84	80 - 120		

Lab Sample ID: MRL 440-389218/3
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.130		ug/L		130	50 - 150		

Lab Sample ID: 440-177100-A-1 MS
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.77		5.00	4.88		ug/L		82	80 - 120		

Lab Sample ID: 440-177100-A-1 MSD
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.77		5.00	5.00		ug/L		85	80 - 120	2	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

HPLC/IC

Analysis Batch: 389218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177285-1	412 E. Yearling	Total/NA	Water	332.0	
MB 440-389218/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389218/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389218/3	Lab Control Sample	Total/NA	Water	332.0	
440-177100-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177100-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 412 E. Yearling

TestAmerica Job ID: 440-177285-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C 177285

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

Project Information

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	412 E. Yearling	2/8/17	1555	M. Tani	GW	1					1				1	

440-177285 Chain of Custody

Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day *(200% markup)*	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M Tani	2/8/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature] 2/17/17	Relinquished By: 4 10:05	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On Ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. _____ oC

TRK-6715 9622 5525 [illegible] 2.5°C Phx

LB 2/17/17

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177285-1

Login Number: 177285
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177286-1
Client Project/Site: 25825 N. 1st Place
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 4:48:52 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 25825 N. 1st Place

TestAmerica Job ID: 440-177286-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177286-1	25825 N. 1st Place	Water	02/08/17 16:35	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 25825 N. 1st Place

TestAmerica Job ID: 440-177286-1

Job ID: 440-177286-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177286-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 25825 N. 1st Place

TestAmerica Job ID: 440-177286-1

Client Sample ID: 25825 N. 1st Place
Date Collected: 02/08/17 16:35
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177286-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.53		0.10		ug/L			02/21/17 12:44	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 25825 N. 1st Place

TestAmerica Job ID: 440-177286-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 25825 N. 1st Place

TestAmerica Job ID: 440-177286-1

Client Sample ID: 25825 N. 1st Place
Date Collected: 02/08/17 16:35
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177286-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 12:44	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 25825 N. 1st Place

TestAmerica Job ID: 440-177286-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177286-1	25825 N. 1st Place	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 25825 N. 1st Place

TestAmerica Job ID: 440-177286-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C 177286

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #

Project Information

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	25825 N. 1st Place	2/8/17	1635	M. Tani	GW	1					1				1	

440-177286 Chain of Custody

Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day (200% markup)	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature]	Relinquished By: 4 2/17/17 10:05	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On Ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. _____ oC

LB 2/17/17

TRK - 6715 9622 5535

04/0.5 2 50 OK

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177286-1

Login Number: 177286
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177287-1
Client Project/Site: 604 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 4:53:42 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 604 E. Yearling

TestAmerica Job ID: 440-177287-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177287-1	604 E. Yearling	Water	02/08/17 15:35	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 604 E. Yearling

TestAmerica Job ID: 440-177287-1

Job ID: 440-177287-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177287-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 604 E. Yearling

TestAmerica Job ID: 440-177287-1

Client Sample ID: 604 E. Yearling
Date Collected: 02/08/17 15:35
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177287-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	1.1		0.50		ug/L			02/20/17 15:06	5

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 604 E. Yearling

TestAmerica Job ID: 440-177287-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 604 E. Yearling

TestAmerica Job ID: 440-177287-1

Client Sample ID: 604 E. Yearling
Date Collected: 02/08/17 15:35
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177287-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		5			389218	02/20/17 15:06	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389218/4
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/20/17 08:22	1

Lab Sample ID: LCS 440-389218/1002
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.20		ug/L		84	80 - 120		

Lab Sample ID: MRL 440-389218/3
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.130		ug/L		130	50 - 150		

Lab Sample ID: 440-177100-A-1 MS
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.77		5.00	4.88		ug/L		82	80 - 120		

Lab Sample ID: 440-177100-A-1 MSD
Matrix: Water
Analysis Batch: 389218

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.77		5.00	5.00		ug/L		85	80 - 120	2	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 604 E. Yearling

TestAmerica Job ID: 440-177287-1

HPLC/IC

Analysis Batch: 389218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177287-1	604 E. Yearling	Total/NA	Water	332.0	
MB 440-389218/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389218/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389218/3	Lab Control Sample	Total/NA	Water	332.0	
440-177100-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177100-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 604 E. Yearling

TestAmerica Job ID: 440-177287-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C 177287

Client / Reporting Information			Project Information	
Company Name: ARCADIS			Project Name: UTC / UPCO	
Address: 410 N 44th St, Suite 1000			Street: 25401 North Central Avenue	
City: Phoenix	State: AZ	Zip: 85008	City: Phoenix	State: AZ
Project Contact: Amanda Peterson			Project #: 03994018.0021.00001	
Phone #: O: (602) 797-4590			EMAIL: Amanda.Peterson@arcadis.com	
Samplers's Name: Matt Tani			Client Purchase Order #	

Requested Analysis: Perchlorate EPA 332

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection: Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	604 E. Yearling	2/8/17	1535	M. Tani	GW	1					1				1	

Turnaround Time (Business days)	Approved By:/ Date:
X 10 Day	
5 Day	
3 Day (125% markup)	
2 Day (150% markup)	
1 Day (200% markup)	
Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information	
Commercial "A" - Results only	
X Commercial "B" - Results with QC summaries	
Commerical "B+" - Results, QC, and chromatograms	
FULT1 - Level 4 data package	
EDF for Geotracker	X EDD Format___ under separate cover
Provide EDF Global ID	
Provide EDF Logcode:	

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	M. Tani	2/16/17 1250	1	2	2/16/17	2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4 2/17/17 10:05	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Labels match Coc? Y / N	Headspace Y / N; Separate Receiving Check List used: Y / N; On Ice Y / N; Cooler Temp. ____oC

LB 2/17/17

Page 12 of 13

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177287-1

Login Number: 177287
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177288-1
Client Project/Site: 520 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 4:59:00 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 520 E. Yearling

TestAmerica Job ID: 440-177288-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177288-1	520 E. Yearling	Water	02/08/17 15:20	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 520 E. Yearling

TestAmerica Job ID: 440-177288-1

Job ID: 440-177288-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177288-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 520 E. Yearling

TestAmerica Job ID: 440-177288-1

Client Sample ID: 520 E. Yearling
Date Collected: 02/08/17 15:20
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177288-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	1.0		0.10		ug/L			02/21/17 13:02	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 520 E. Yearling

TestAmerica Job ID: 440-177288-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 520 E. Yearling

TestAmerica Job ID: 440-177288-1

Client Sample ID: 520 E. Yearling
Date Collected: 02/08/17 15:20
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177288-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 13:02	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			5.00	4.04		ug/L		81	80 - 120		

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			0.100	0.109		ug/L		109	50 - 150		

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120		

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 520 E. Yearling

TestAmerica Job ID: 440-177288-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177288-1	520 E. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 520 E. Yearling

TestAmerica Job ID: 440-177288-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

177288

CHAIN OF CUSTODY

ACCUTEST® LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C

Client / Reporting Information

Company Name: ARCADIS	Project Name: UTC / UPCO
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

Project Information

Requested Analysis

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Perchlorate EPA 332	LAB USE ONLY
	520 E. Yearling	2/8/17	1520	M. Tani	GW	1					1				1	

440-177288 Chain of Custody

Turnaround Time (Business days)

		Approved By:/ Date:
X	10 Day	
	5 Day	
	3 Day (125% markup)	
	2 Day (150% markup)	
	1 Day *(200% markup)*	
	Same Day (300% markup)	

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Tani	2/8/17 1250	1 [signature]	2 [signature]	2/16/17	2
Relinquished by: 3	Date Time:	Received By: 3 [signature]	Relinquished By: 4 2/17/17 1005	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Headspace Y / N; On Ice Y / N; Labels match Coc? Y / N; Separate Receiving Check List used: Y / N	Cooler Temp. _____ oC

TRK-6715 9627 5535 [illegible] 250 Phx

2/17/17

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177288-1

Login Number: 177288
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-177289-1
Client Project/Site: 424 E. Yearling
Revision: 1

For:
ARCADIS U.S., Inc.
410 N. 44th Street
Ste 1000
Phoenix, Arizona 85008

Attn: Amanda Peterson

Authorized for release by:
3/16/2017 5:04:49 PM
Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Designee for

Lena Davidkova, Project Manager II
(949)261-1022
lena.davidkova@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: 424 E. Yearling

TestAmerica Job ID: 440-177289-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-177289-1	424 E. Yearling	Water	02/08/17 15:45	02/17/17 10:05

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: 424 E. Yearling

TestAmerica Job ID: 440-177289-1

Job ID: 440-177289-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-177289-1

Comments
No additional comments.

Receipt
The sample was received on 2/17/2017 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: 424 E. Yearling

TestAmerica Job ID: 440-177289-1

Client Sample ID: 424 E. Yearling
Date Collected: 02/08/17 15:45
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177289-1
Matrix: Water

Method: 332.0 - Perchlorate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	1.2		0.10		ug/L			02/21/17 13:20	1

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: 424 E. Yearling

TestAmerica Job ID: 440-177289-1

Method	Method Description	Protocol	Laboratory
332.0	Perchlorate	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: 424 E. Yearling

TestAmerica Job ID: 440-177289-1

Client Sample ID: 424 E. Yearling
Date Collected: 02/08/17 15:45
Date Received: 02/17/17 10:05

Lab Sample ID: 440-177289-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	332.0		1			389458	02/21/17 13:20	MN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 332.0 - Perchlorate

Lab Sample ID: MB 440-389458/4
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10		ug/L			02/21/17 08:22	1

Lab Sample ID: LCS 440-389458/1002
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	5.00	4.04		ug/L		81	80 - 120

Lab Sample ID: MRL 440-389458/3
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.100	0.109		ug/L		109	50 - 150

Lab Sample ID: 440-177263-A-1 MS
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.46		5.00	4.85		ug/L		88	80 - 120

Lab Sample ID: 440-177263-A-1 MSD
Matrix: Water
Analysis Batch: 389458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.46		5.00	5.40		ug/L		99	80 - 120	11	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: 424 E. Yearling

TestAmerica Job ID: 440-177289-1

HPLC/IC

Analysis Batch: 389458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-177289-1	424 E. Yearling	Total/NA	Water	332.0	
MB 440-389458/4	Method Blank	Total/NA	Water	332.0	
LCS 440-389458/1002	Lab Control Sample	Total/NA	Water	332.0	
MRL 440-389458/3	Lab Control Sample	Total/NA	Water	332.0	
440-177263-A-1 MS	Matrix Spike	Total/NA	Water	332.0	
440-177263-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	332.0	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: 424 E. Yearling

TestAmerica Job ID: 440-177289-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-18
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY

177289

ACCUTEST LABORATORIES

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest NC Job #: C

Client / Reporting Information

Company Name	Project Name: UTC / UPCO
ARCADIS	
Address: 410 N 44th St, Suite 1000	Street: 25401 North Central Avenue
City: Phoenix State: AZ Zip: 85008	City: Phoenix State: AZ
Project Contact: Amanda Peterson	Project #: 03994018.0021.00001
Phone #: O: (602) 797-4590	EMAIL: Amanda.Peterson@arcadis.com
Samplers's Name: Matt Tani	Client Purchase Order #:

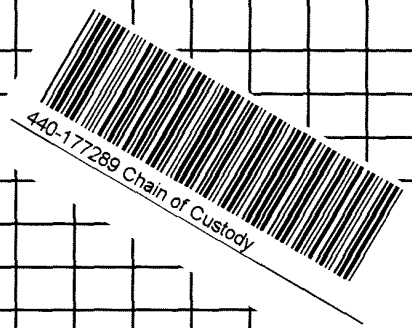
Requested Analysis

EPA 332.0

Matrix Codes

WW- Wastewater
GW- Ground Water
SW- Surface Water
SO- Soil
OI-Oil
WP-Wipe
LIQ - Non-aqueous Liquid
AIR
DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection: Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	LAB USE ONLY
	424 E. Yearling	2/8/17	1545	M. Tani	GW	1					X				X



Turnaround Time (Business days)

Approved By:/ Date:

- [X] 10 Day
- [ ] 5 Day
- [ ] 3 Day (125% markup)
- [ ] 2 Day (150% markup)
- [ ] 1 Day *(200% markup)*
- [ ] Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [X] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [X] EDD Format___ under separate cover

Provide EDF Global ID _____

Provide EDF Logcode: _____

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	M. Tani	2/16/17 1250		2	2/16/17	2
3	Relinquished by:	Date Time:	Received By: 2/17/17 10:05	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N Cooler Temp.	Labels match Coc? Y / N Separate Receiving Check List used: Y / N ____oC

TRK - 6716 9622 5535

2/17/17

Page 12 of 13

3/16/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-177289-1

Login Number: 177289
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX J

Monitoring Well and Security Fencing Inspection

MONITORING WELL & SECURITY FENCING INSPECTION LOG
UNIVERSAL PROPULSION COMPANY, INC. (UPCO)
(40 CFR 264.15)

Inspector Name (Print): Matt Tani Date: 1/5/17

Inspector Signature: M. Tani Time 1350

Monitoring Well or Equipment Identification	In Operational Condition? (Y/N)	Secured? (Y/N)	Comments
MW-1	Y	Y	
MW-2	Y	Y	
MW-3	Y	Y	
MW-4	Y	Y	
MW-5	Y	Y	
MW-6	Y	Y	
MW-7	Y	Y	
MW-8	Y	Y	
MW-9	Y	Y	
MW-10	Y	Y	
MW-11	Y	Y	
MW-12	Y	Y	
MW-13	Y	Y	
MW-14	Y	Y	
MW-15	Y	Y	
MW-16	Y	Y	
MW-17	Y	Y	
MW-18	Y	Y	
MW-19	Y	Y	
MW-20	Y	Y	
MW-21	Y	Y	
MW-22	Y	Y	
PW-1	Y	Y	
SVMW-1	Y	Y	
EW-1	Y	Y	
EW-2	Y	Y	
IW-1	Y	Y	
IW-2	Y	Y	
IW-3	Y	Y	
RW-1	Y	Y	
RW-2	Y	Y	
UPCO Interior Fence, Gates, & Locks	Y	Y	
ASLD Exterior Fence, Gates, & Locks	Y	Y	
Off-Site Wells' Fence, Gates, & Locks	Y	Y	

ID	Corrective Action	Date Corrected

Arcadis U.S., Inc.

14201 N 87th Street

Suite 135

Scottsdale, Arizona 85260

Tel 480 905 9311

Fax 480 905 9353

www.arcadis.com