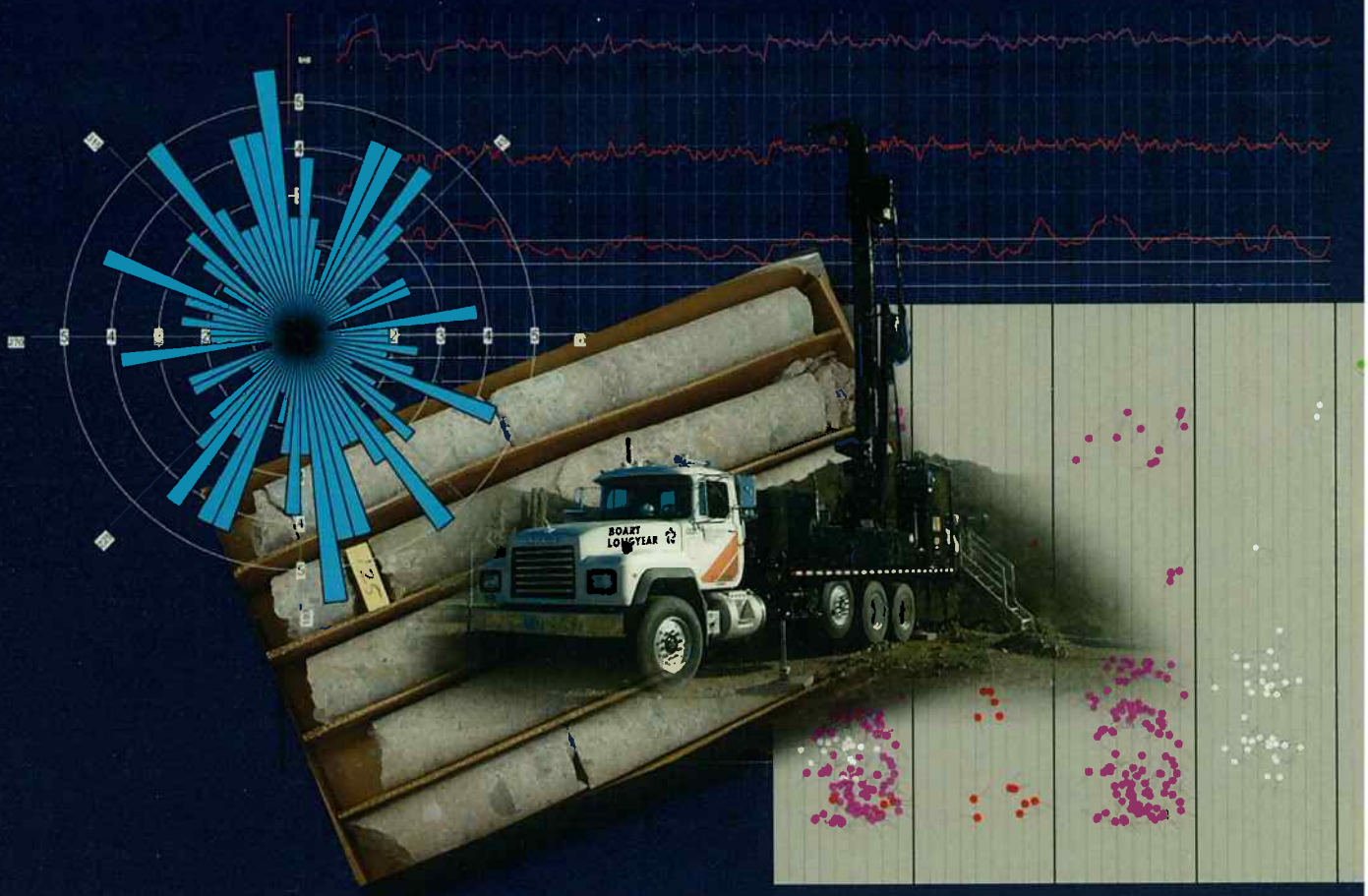
2010 ANNUAL MONITORING REPORT

Universal Propulsion Co. Inc.



July 2011

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July 14, 2011

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

Re: Final 2010 Annual Monitoring Report
Universal Propulsion Company, Inc.
Phoenix, Arizona 85085

Dear Mr. Olm:

Please find attached the Final 2010 Annual Monitoring Report for the Universal Propulsion Company, Inc. (UPCO).

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 gather 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.

Please contact Ms. Karen Mittleider at (602) 243-2338 if you have any questions or need additional information.

Sincerely,

Guy Ogino
Site Leader

cc: Robin Thomas, ADEQ
Anthony Leverock, ADEQ
David Haag, ADEQ
Bruce Campbell, ASLD
Philip McNeely, City of Phoenix
Donn Stoltzfus, City of Phoenix
Karen Mittleider, Goodrich Interiors
David Gordon, ARCADIS

Universal Propulsion Company, Inc.

25401 North Central Avenue • Phoenix, Arizona 85085

2010 Annual Monitoring Report

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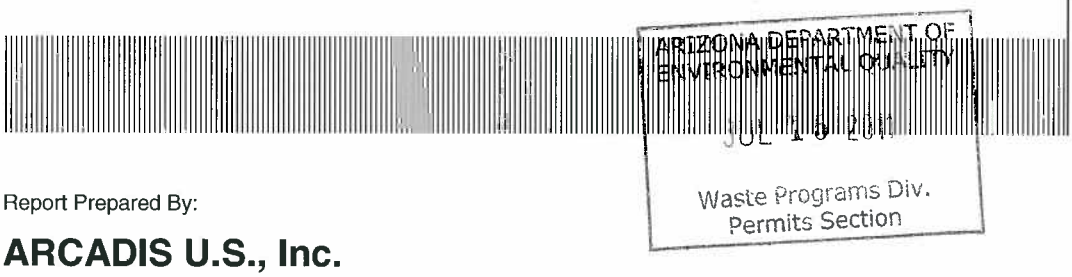

Report Prepared By:

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ARCADIS

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1. Introduction

This Annual Monitoring Report (report) summarizes the monitoring activities conducted at the Universal Propulsion Company, Inc. (UPCO) facility (site) in Phoenix, Arizona during 2010. This report continues to be part of an overall site characterization for soil and groundwater pursuant to Consent Order (Order) No. P-136-04 entered into between UPCO and the Arizona Department of Environmental Quality (ADEQ).

This report is supported by the Remedial Investigation Work Plan (Hargis+Associates, Inc. (H+A), 2004a), Quality Assurance Project Plan (QAPP) (H+A, 2004b), Groundwater Monitoring Plan (Malcolm Pirnie, 2004), Updated Groundwater Monitoring Plan (Malcolm Pirnie, 2008a), Addendum to the Supplemental Groundwater Investigation Work Plan (Malcolm Pirnie, 2009b), and the QAPP Addendum (Malcolm Pirnie, 2009c). This report consists of the following:

- facility description;
- summary of previous groundwater investigations;
- summary of monitoring activities for the year;
- lists 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 UPCO facility groundwater monitor wells;
- maps of groundwater elevation data;
- trend graphs of perchlorate concentrations for the UPCO facility groundwater monitor wells;
- investigation derived waste (IDW) documentation;
- copies of laboratory reports and data verification summaries; and
- recommendations for updates to the monitoring plan.

1.1. Site Description

The UPCO operations were transferred to a facility in Fairfield, California in the fourth quarter of 2009. Demolition of the UPCO facility occurred throughout 2009 and was completed in January 2010. The site is located approximately two miles north of the Deer Valley Airport, Phoenix, Arizona (Figure 1). Specifically, the facility was at the intersection of Central Avenue and Happy Valley Road at an address of 25401 North Central Avenue. The site is within the southeast quarter 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 previous manufacturing areas and restricts general access. Locks secure each gate and well vault to limit access and deter vandalism.

3.2.3. Private Wells Sampling

Private wells incorporated into the groundwater monitoring program were sampled using existing dedicated submersible pumps. Groundwater samples were only collected in the second quarter of 2010 since a site access agreement between UPCO and the State Land Department had not been granted for the fourth quarter to sample the onsite wells. Private wells have historically been sampled concurrently with a quarterly sampling event that includes the onsite monitor wells. A list of private wells that were sampled in 2010, including dates and analysis performed, is included in Table 5. Two private wells that have historically been monitored were not sample in 2010. The resident at 106 West Yearling was reportedly purchasing water due to insufficient well production prior to and during the second quarter 2010 sampling event, therefore a sample was not collected. The private well at 218 West Yearling Road was not sampled during the second quarter after two attempts to reach the resident for well access.

3.2.4. Soil Vapor Monitor Well Sampling

Soil vapor monitor well, SVMW-1, was sampled during the second quarter of 2010 from each nested interval. A vacuum pump was used to purge approximately three well volumes at a flow rate of less than one cubic feet per minute. A one liter Summa canister fitted with a dedicated one liter per minute flow restrictor was used at each sample interval for time-integrated sample collection.

3.3. Well Head Modification Activities

An existing flush grade monitor well head vault at MW-11 was converted to 4-foot above grade monument vault in January 2010 to improve monitor well security after facility demolition activities were complete. The well drop pipe, sounding tube and well pipe were extended to maintain pre-modification pump intake and screened sounding tube depth below ground surface. The revised as-built well construction diagram is provided in Appendix A.

3.4. Survey

A state registered land surveyor established horizontal and vertical control MW-11 (as discussed in Section 3.3). The vertical coordinates of the sounding port, top of casing, and ground surface were surveyed in the Arizona State Plane Coordinate System (NGVD 29) with units of international feet above mean sea level. The measuring point elevation of the PVC sounding tube port contained in the well seal was measured to the nearest 0.01 foot. The measuring point was marked on the north side of the port. The horizontal coordinates of the well were surveyed in the Arizona State Plane Coordinate System,

Central Zone, North American Datum 1983 (NAD 83) with units of international feet. Survey information is provided in Table 1.

3.5. Investigative Derived Waste

Groundwater monitoring activities in 2010 generated purge water that was managed as investigative derived waste (IDW). The purge water was temporarily stored on-site in a poly tank prior to being transported offsite by MP Environmental for disposal at Liquid Environmental Solutions. In 2010, 6,200 gallons of non-hazardous purge water was generated at the site. IDW documentation for 2010 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 monitor wells and private wells located near the north property boundary at 218 East Yearling Road and 520 East Yearling Road using electronic water level equipment and pressure transducers. Private well locations are shown in Figure 4.

Historic depth to groundwater measurements and groundwater elevations for site and private wells are summarized in Appendix C. Historic hydrographs are presented in Appendix D. Groundwater elevation maps for 2010 are provided on Figures 5 through 7.

The highest water elevations were observed in late 2004 to early 2005, and the lowest elevations for a majority of the wells were observed in 2009 and 2010. A potential geologic structure (Malcolm Pirnie, 2009a) is located east of the area monitored by MW-6, MW-7, MW-10, and MW-18 and generally on the west side of the UPCO facility. Groundwater elevations on the west side of the structure are approximately 30 feet higher than on the east side of the structure. The wells located east of the potential geologic structure, with the exception of MW-3, showed a nearly static/slightly declining water level trend. The difference between the minimum and maximum groundwater elevations measured in each of these wells in 2010 (i.e., the groundwater elevation decline) varied between 0.09 feet in monitor well MW-9 and 0.73 feet in monitor well MW-12. Monitor well MW-3 continues to show a generally larger decline in groundwater elevation with a groundwater elevation difference of 2.90 feet.

West of the potential geologic structure, groundwater elevations were also declining. However, monitor well MW-6 exhibited a rising trend during 2010. The rise of 5.02 feet in MW-6 may be the result of the inactivity of the facility production well PW-1, higher than normal precipitation in the first quarter of 2010, and a small 2010 data set. The difference between the minimum and maximum groundwater elevations varied by 0.13 and 0.52 feet in monitor wells MW-7 and MW-10, and 0.04 feet in monitor well MW-18. The rising trend previously noted at MW-18 appears to have stabilized.

4.2. Groundwater Quality Data

Tables presenting water quality analytical data for the UPCO monitor wells are summarized in Appendix E. The perchlorate results for the UPCO monitor wells are provided in Table 6. The perchlorate results for the private wells are provided in Table 7. A table presenting historic water quality analytical data for the private wells is provided in Appendix F. Perchlorate concentration trend plots for each UPCO monitor well are presented in Appendix G. Field parameter data collected during the 2010 sampling events is provided in Appendix H. Figures 8 and 9 present perchlorate concentration maps for the First and Second Quarters of 2010, respectively.

4.2.1. Perchlorate

The Arizona Department of Health Services (ADHS) Health Based Guidance Level (HBGL) identified by ADEQ in the Order is 14 µg/L for perchlorate. The laboratory reporting limit using the Order-specified EPA Method 314.0 is 2.0 µg/L. During the 2010 monitoring period, perchlorate was detected in monitor wells MW-1, MW-2, MW-5, MW-6, MW-11, and MW-13. Perchlorate was detected in groundwater samples collected from MW-1 at concentrations ranging from 69 µg/L to 78 µg/L; from MW-2 at concentrations ranging from 90 µg/L to 94 µg/L; from MW-5 at concentrations ranging from 27 µg/L to 32 µg/L; from MW-6 at concentrations ranging from 16 µg/L to 19 µg/L; from MW-13 at concentrations ranging from 12 µg/L to 22 µg/L and from MW-11 at a concentration of 2.0 µg/L.

Perchlorate was not detected at concentrations above the laboratory reporting limit (2.0 µg/L) in the remaining UPCO monitor wells.

During the 2010 monitoring period, perchlorate was not detected in the private domestic wells at a concentration above the EPA Method 314.0 laboratory reporting limit of 2.0 µg/L.

Groundwater collected from the site wells that historically have not detected perchlorate at concentrations above 2.0 µg/L, and each of the private domestic wells, were analyzed for perchlorate using two analytical test methods. The two methods included EPA Method 314.0, which is specified in the Order, and EPA Method 332.0. Two methods were performed for a comparative analysis between different perchlorate analytical testing methods. The results of the perchlorate comparative analyses for the site wells are included in Table 6, and show Method 332.0 concentration values ranging between 0.47 µg/L in monitor well MW-3 and 2.1 µg/L in monitor well MW-11. The results of the

perchlorate comparative analysis for the private wells are included in Table 7, and show Method 332.0 concentration values ranging between 0.58 µg/L and 1.2 µg/L.

4.2.2. VOCs

Two VOCs were detected during 2010 groundwater sampling activities including 1,4-dioxane and trichloroethene. 1,4-dioxane was detected in MW-2 at a concentration of 2.7 µg/L. An Aquifer Water Quality Standard (AWQS) has not been established for 1,4-dioxane. Trichloroethene (TCE) was detected in MW-3 at a concentration of 5.4 µg/L. The AWQS for TCE is 5.0 µg/L. TCE has not been detected in the UPCO monitor wells since groundwater monitoring began in 2004. There were no historical operations in the vicinity of MW-3. The TCE detection will be confirmed during the 2011 monitoring activities. Results for monitor well groundwater quality are provided in Appendix E.

4.2.3. Metals

Arsenic was detected in each of the UPCO monitor wells and ranged in concentration from 0.0014 mg/L to 0.051 mg/L in monitor well MW-18. The AWQS for arsenic is 0.05 mg/L. Barium was detected in each of the UPCO monitor wells and ranged in concentration from 0.0022 mg/L to 0.28 mg/L. The AWQS for barium is 2 mg/L. Chromium was detected in monitor wells MW-1, MW-2, MW-3, MW-5, MW-6, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, and MW-18 and ranged in concentration from 0.0015 mg/L to 0.031 mg/L. The AWQS for chromium is 0.1 mg/L. Lead was detected in monitor wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-10, and MW-14, and ranged in concentration from 0.0012 mg/L to 0.0029 mg/L. The AWQS for lead is 0.050 mg/L. Selenium was detected in monitor wells MW-11 and MW-14 and ranged in concentration from 0.0023 mg/L to 0.0027 mg/L. The AWQS for selenium is 0.05 mg/L. No other metals analyzed during the monitoring period were detected above the laboratory detection limits. Results for monitor well groundwater quality are provided in Appendix E.

4.3. Soil Vapor Quality Data

Soil gas samples were collected from soil vapor monitor well SVMW-1 and analytical results are provided in Table 8. The primary COPC, 1,1-DCE, ranged from 330 ppbv at 200 feet bgs to 11,000 ppbv at 100 feet bgs. Acetone ranged from less than 280 ppbv at 100 feet bgs to 740 ppbv at 40 feet bgs. Other VOCs detected in the soil gas samples, at a lower concentration, included, 2-butanone (MEK), tetrachloroethene and trichloroethene. Soil vapor monitoring well results are provided in Table 8.

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 I. Copies of the analytical data reports are provided in Appendix J.

Groundwater monitoring activities followed the quality assurance procedures outlined in the QAPP (H+A, 2004b) and QAPP Addendum (Malcolm Pirnie, 2009c). The project specific QAPP establishes procedures and guidance for the following:

- data quality objectives;
- sample documentation and custody;
- sample container requirements;
- quality control procedures; and
- quality assurance management including, data management and data verification/validation procedures.

Samples were collected and submitted to the laboratory in a manner that provides data that are representative of site conditions. Laboratory analyses were conducted according to analytical methods described in EPA guidance manuals. Field quality control (QC) samples included field duplicates and trip blanks. Laboratory QC samples included method blanks, laboratory control samples (LCS), and matrix spike/matrix spike duplicate (MS/MSD) samples.

Laboratory deliverables consist of Level II data packages (including a QC summary). Data reported by the laboratory has been verified that the data meets the data quality objectives. The results were considered usable for the intended purposes, and the project data quality objectives (DQOs) specified in the QAPP (H+A, 2004b) and QAPP Addendum (Malcolm Pirnie, 2009c) were met.

6. Future Monitoring Activities

The 2010 monitoring program was conducted in accordance with the procedures and methods outlined in the Updated Groundwater Monitoring Plan (Malcolm Pirnie, 2008a). UPCO revised the monitoring program in 2010 to include the quarterly monitoring requirements for groundwater monitoring well MW-18, and planned monitoring wells MW-16, MW-17, and MW-19. Former production well PW-1 will continue to be utilized for site-wide monitoring well once the well has been converted to a monitor well. Private domestic wells will continue to be monitored on a semi-annual basis, in the first and third quarters of 2011. The shift in the private well monitoring schedule was due to the delay in obtaining the long term site access agreement from the State Land Department. The 2011 sampling and analysis schedule is summarized in Table 10.

7. References

Hargis + Associates, Inc. (H+A), 2004a. Draft Remedial Investigation Work Plan, Volume 1 of II, Goodrich Universal Propulsion Company, Inc., June 11, 2004.

_____, 2004b. Quality Assurance Project Plan, Goodrich Universal Propulsion Company, Inc., July 16, 2004.

_____, 2004c. Monitoring Well Construction Summary Report, Goodrich Universal Propulsion Company, Inc., July 16, 2004.

Malcolm Pirnie, Inc., 2004. Groundwater Monitoring Plan, Universal Propulsion Company, Inc., December 16, 2004.

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

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

_____, 2008a. Updated Groundwater Monitoring Plan, Universal Propulsion Company, Inc., March 14, 2008.

_____, 2008b. Supplemental Soil and Soil Gas Investigation Work Plan, Universal Propulsion Company, Inc., March 2008.

_____, 2008c. Groundwater Monitoring Pressure Transducer Assessment, Universal Propulsion Company, Inc., March, 2008.

_____, 2008d. 2007 Annual Groundwater Report, Universal Propulsion Company, Inc., May 15, 2008.

_____, 2008e. Supplemental Groundwater Investigation Work Plan, Universal Propulsion Company, Inc., March 14, 2008.

_____, 2009a. draft Interim RI Report, Universal Propulsion Company, Inc., February 13, 2009.

_____, 2009b. Addendum to the Supplemental Groundwater Investigation Work Plan, Universal Propulsion Company, Inc., April 10, 2009.

_____ , 2009c. Quality Assurance Project Plan Addendum; Groundwater Monitoring Program, Universal Propulsion Company, Inc., August 2009.

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

Universal Propulsion Company
2010 Annual Monitoring Report

Tables

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Table 1
UPCO Monitor Well Information

Well ID	Longitude	Latitude	ADWR Number	Total Casing Depth (feet bgs)	Screened Interval (feet bgs)	Measuring Point Elevation *** (feet amsl)
MW-1	112°04'13.76"W	33°42'47.61"N	55-201495	240	190-240	1557.22 [1560.43]
MW-2	112°04'13.03"W	33°42'53.39"N	55-201494	250	200-250	1567.62 [1571.22]
MW-3	112°04'20.91"W	33°43'03.49"N	55-204197	271	221-271	1583.59
MW-4	112°04'01.27"W	33°43'06.49"N	55-204196	300	245-295	1620.34
MW-5	112°04'04.97"W	33°42'58.13"N	55-204195	285	230-280	1590.45 [1594.08]
MW-6	112°04'25.09"W	33°42'50.47"N	55-204194	210	155-205	1548.22 [1551.65]
MW-7	112°04'26.79"W	33°42'42.34"N	55-205001	210	155-205	1541.35
MW-8	112°04'11.43"W	33°42'38.66"N	55-205002	235	180-230	1542.18
MW-9	112°04'00.37"W	33°42'38.46"N	55-901548	255	200-250	1565.60
MW-10	112°04'36.07"W	33°42'47.49"N	55-901549	205	150-200	1536.11
MW-11	112°04'02.46"W	33°42'54.85"N	55-903736	315	260-310	1603.35 [1606.14]
MW-12	112°04'13.93"W	33°42'88.09"N	55-903737	480	450-480	1557.46 [1560.91]
MW-13	112°04'02.97"W	33°42'59.55"N	55-217221	490	440-490	1595.77 [1599.52]
MW-14	112°04'13.66"W	33°43'10.34"N	55-217222	500	445-495	1602.48
MW-15	112°04'13.82"W	33°43'09.86"N	55-217223	325	270-320	1600.48
MW-18	112°04'21.74"W	33°42'37.32"N	55-911047	230	175-225	1533.53
SVMW-1*	112°04'17.61"W	33°42'52.99"N	55-909947	200**	30 - 40 90 - 100 140 - 150 190 - 200	NA
Production Well (PW-1)	112°04'24.00"W	33°42'51.40"N	55-500290	500	420-480	1554.55

Notes:

Monitor wells MW-16, MW-17, and MW-19 installation proposed but not installed.

* = SVMW-1 is a Soil Vapor Montioring Well constructed above groundwater level

** = Total depth of the nested well

*** = Measuring points were resurveyed on September 28, 2009 at wells MW-1, MW-2, MW-5, MW-6, MW-12, and MW-13 and on June 10, 2010 at MW-11 after monument installation, revised elevation is indicated in brackets.

NA = Not applicable

amsl = Above mean sea level

Table 2
Private Well Information

Address	ADWR Well Registraiton ID	Well Use	Date Installed	Well Depth (Feet)	Measuring Point Elevation (feet amsl)
616/604 E. YEARLING	NA	Domestic	NA	NA	NA
520 E. YEARLING	NA	Domestic	NA	NA	1635.71
424 E. YEARLING	NA	Domestic	NA	NA	NA
412 E. YEARLING	NA	Domestic	NA	NA	NA
218 E. YEARLING	55-207497*	Domestic	2/28/2006	415	1617.01
204 E. YEARLING	NA	Domestic	NA	NA	NA
25903 N. 2ND ST	NA	Domestic	NA	NA	NA
25825 N. 1ST PLACE	55-557685	Domestic	7/22/1996	495	NA
16 E. YEARLING	55-578534	Domestic	1/26/2000	738	NA
18 E. YEARLING	55-212662	Domestic	5/14/2007	520	1596.79
8 W. YEARLING	55-205738	Domestic	12/2/2005	260	NA
106 W. YEARLING	55-583418	Domestic	1/9/2001	440	NA
122 W. YEARLING	NA	Domestic	NA	NA	NA

Notes:
NA = not available or corresponding ADWR registry number could not be identified with the current owner or address.
* = Replacement well installed in 2006

Table 3
UPCO Monitor Wells Sampled and Analyses Performed in 2010

Sample ID	Date	Laboratory ID	Analytes and EPA Method					
			Metals		Perchlorate		Volatile Organic Compounds	
			200.8	245.1	314.0	332.0	8260B	8260B-SIM
MW-1	01/25/10	PTA1143-04	X	X	X		X	X
	06/14/10	PTF0841-01			X			
MW-2	01/25/10	PTA1143-05	X	X	X		X	X
	06/14/10	PTF0841-03			X			
MW-3	01/20/10	PTA0939-05	X	X	X		X	X
	01/20/10	PTA0942-01				X		
MW-4	01/20/10	PTA0939-04	X	X	X		X	X
	01/20/10	PTA0941-01				X		
MW-5	01/25/10	PTA1143-03	X	X	X		X	X
	06/14/10	PTF0841-04			X			
MW-6	01/20/10	PTA0939-01	X	X	X		X	X
	06/15/10	PTF0911-01			X			
MW-7	01/22/10	PTA1099-03	X	X	X		X	X
	01/22/10	PTA1100-01				X		
MW-8	01/20/10	PTA0939-07	X	X	X		X	X
	01/20/10	PTA0944-01				X		
MW-9	01/20/10	PTA0939-06	X	X	X		X	X
	01/20/10	PTA0943-01				X		
MW-10	01/20/10	PTA0939-08	X	X	X		X	X
	01/20/10	PTA0945-01				X		
MW-11	01/21/10	PTA1040-03	X	X	X		X	X
	01/21/10	PTA1038-01				X		
MW-12	01/21/10	PTA1040-04	X	X			X	X
	01/21/10	PTA1040-04RE1			X			
	01/21/10	PTA1039-01				X		
MW-13	01/22/10	PTA1099-05	X	X	X		X	
	06/15/10	PTF0911-02			X			
MW-14	01/20/10	PTA0939-09	X	X	X		X	X
	01/20/10	PTA0940-01				X		
MW-15	01/22/10	PTA1099-04	X	X	X		X	X
	01/22/10	PTA1101-01				X		
MW-18	01/27/10	PTA1251-03	X	X	X		X	X
	01/27/10	PTA1252-01				X		

Notes:
EPA test method 200.8 used for arsenic, barium, cadium, chromium, lead, selenium, silver, calcium, magnesium, potasium and sodium analyses
EPA test method 245.1 used for mercury analysis
EPA test methods 314.0 and 332.0 used for perchlorate analyses
EPA test method 8260B used for volatile organic compound analyses
EPA test method 8260B-SIM used for 1,4-dioxane analysis
Monitor wells MW-16, MW-17, and MW-19 are proposed but not installed

Table 4
2010 UPCO Monitor Well Water Levels

Well ID	Date	Depth to Water (ft)	Measuring Point Elevation (ft)	Groundwater Elevation (ft amsl)
MW-1	1/18/2010	212.47	1560.43	1347.96
	6/8/2010	211.75	1560.43	1348.68
	6/22/2010	211.76	1560.43	1348.67
MW-2	1/18/2010	223.25	1571.22	1347.97
	6/8/2010	222.57	1571.22	1348,65
	6/22/2010	222.57	1571.22	1348.65
MW-3	1/18/2010	238.35	1583.59	1345.24
	6/8/2010	239.06	1583.59	1344.53
	6/22/2010	239.16	1583.59	1344.43
MW-4	1/18/2010	275.97	1620.34	1344.37
	6/8/2010	276.21	1620.34	1344.13
	6/22/2010	276.35	1620.34	1343.99
MW-5	1/18/2010	245.76	1594.08	1348.32
	6/8/2010	245.39	1594.08	1348.69
	6/22/2010	245.38	1594.08	1348.70
MW-6	1/18/2010	167.37	1551.65	1384.28
	6/8/2010	162.94	1551.65	1388.71
	6/22/2010	162.17	1551.65	1389.48
MW-7	1/18/2010	162.03	1541.35	1379.32
	6/8/2010	162.04	1541.35	1379.31
	6/22/2010	162.16	1541.35	1379.19
MW-8	1/18/2010	194.2	1542.18	1347.98
	6/8/2010	193.56	1542.18	1348.62
	6/22/2010	193.62	1542.18	1348.56
MW-9	1/18/2010	216.94	1565.6	1348.66
	6/8/2010	216.85	1565.60	1348.75
	6/22/2010	216.92	1565.60	1348.68
MW-10	1/18/2010	154.02	1536.11	1382.09
	6/8/2010	154.47	1536.11	1381.64
	6/22/2010	154.54	1536.11	1381.57

Table 4
2010 UPCO Monitor Well Water Levels

Well ID	Date	Depth to Water (ft)	Measuring Point Elevation (ft)	Groundwater Elevation (ft amsl)
MW-11	1/18/2010	254.92	1603.35	1348.43
	6/8/2010	257.63	1606.14	1348.51
	6/22/2010	257.62	1606.14	1348.52
MW-12	1/18/2010	214.11	1560.91	1346.80
	6/8/2010	213.38	1560.91	1347.53
	6/22/2010	213.38	1560.91	1347.53
MW-13	1/18/2010	251.13	1599.52	1348.39
	6/8/2010	250.83	1599.52	1348.69
	6/22/2010	250.87	1599.52	1348.65
MW-14	1/18/2010	266.03	1602.48	1336.45
	6/8/2010	266.04	1602.48	1336.44
	6/22/2010	266.49	1602.48	1335.99
MW-15	1/18/2010	264.39	1600.48	1336.09
	6/8/2010	264.50	1600.48	1335.98
	6/22/2010	264.68	1600.48	1335.80
MW-18	1/18/2010	129.84	1533.53	1403.69
	6/8/2010	129.81	1533.53	1403.72
	6/22/2010	129.85	1533.53	1403.68
PW-1	1/18/2010	213.10	1554.55	1341.45
	6/8/2010	208.96	1554.55	1345.59
	6/22/2010	208.89	1554.55	1345.66

Notes:
Measuring points were resurveyed on September 28, 2009 at wells MW-1, MW-2, MW-5, MW-6, MW-12, and MW-13.
Measuring point was resurveyed on June 10, 2010 at well MW-11.
Monitor wells MW-16, MW-17, and MW-19 are proposed but not installed
ft = feet
amsl = Above mean sea level

Table 5
Private Wells Sampled and Analyses Performed in 2010

Sample ID	Date Collected	Laboratory ID	EPA Method	
			314.0	332.0
616/604 E. Yearling	06/17/10	PTF1091-01	X	
	06/17/10	PTF1106-01		X
520 E. Yearling	06/17/10	PTF1092-01	X	
	06/17/10	PTF1107-01		X
424 E. Yearling	06/17/10	PTF1089-01	X	
	06/17/10	PTF1105-01		X
412 E. Yearling	06/17/10	PTF1093-01	X	
	06/17/10	PTF1108-01		X
204 E. Yearling	06/17/10	PTF1084-01	X	
	06/17/10	PTF1098-01		X
25903 N. 2nd St.	06/17/10	PTF1094-01	X	
	06/17/10	PTF1110-01		X
25825 N. 1st Pl.	06/16/10	PTF1009-01	X	
	06/16/10	PTF1010-01		X
16 E. Yearling	06/17/10	PTF1085-01	X	
	06/17/10	PTF1099-01		X
18 E. Yearling	06/17/10	PTF1082-01	X	
	06/17/10	PTF1097-01		X
8 W. Yearling	06/17/10	PTF1087-01	X	
	06/17/10	PTF1103-01		X
122 W. Yearling	06/17/10	PTF1095-01	X	
	06/17/10	PTF1111-01		X

Notes:
EPA test methods 314.0 and 332.0 used for perchlorate analyses
218 East Yearling was not sampled; unable to gain access to well after 2 attempts to contact resident.
106 West Yearling was reportedly purchasing water due to insufficient well production prior to and during the second quarter 2010 sampling event.

Table 6
2010 UPCO Monitor Well Perchlorate Results

Sample ID	Date	Perchlorate (ug/L)	
		EPA 314.0	EPA 332.0
MW-1	01/25/10	69	NA
	06/14/10	78	NA
MW-2	01/25/10	90	NA
	06/14/10	94	NA
MW-3	01/20/10	<2.0	0.47 J
MW-4	01/20/10	<2.0	0.49 J
MW-5	01/25/10	32	NA
	06/14/10	27	NA
MW-6	01/20/10	16	NA
	06/15/10	19	NA
MW-7	01/22/10	<2.0	0.51 J
MW-8	01/20/10	<2.0	0.93 J
MW-9	01/20/10	<2.0	0.64 J
MW-10	01/20/10	<2.0	1.2 J
MW-11	01/21/10	2.0	2.1 J
MW-12	01/21/10	<2.0	1.1 J
MW-13	01/22/10	22	NA
	06/15/10	12	NA
MW-14	01/20/10	<2.0	0.98 J
MW-15	01/22/10	<2.0	0.86 J
MW-18	01/27/10	<2.0	<2.0 UJ

Notes:
NA = Not analyzed
< = Analyte not detected above the listed laboratory reporting limit
J = Analyte was positively identified, however the result should be considered an estimated value
UJ = The reporting limit is considered an estimated value
ug/L = Micrograms per liter

Table 7
2010 Private Well Perchlorate Results

Sample ID	Date	Perchlorate (ug/L)	
		EPA 314.0	EPA 332.0
616/604 E. Yearling	06/17/10	<2.0	0.91 J
520 E. Yearling	06/17/10	<2.0	1.2 J
424 E. Yearling	06/17/10	<2.0	1.1 J
412 E. Yearling	06/17/10	<2.0	1.0 J
204 E. Yearling	06/17/10	<2.0	0.62 J
25903 N. 2nd St.	06/17/10	<2.0	0.65 J
25825 N. 1st Pl.	06/16/10	<2.0	0.89
16 E. Yearling	06/17/10	<2.0	0.58 J
18 E. Yearling	06/17/10	<2.0	0.81 J
8 W. Yearling	06/17/10	<2.0	0.62 J
106 W. Yearling*	06/17/10	NA	NA
218 E. Yearling**	06/17/10	NA	NA
122 W. Yearling	06/17/10	<2.0	0.65 J

Notes:

* = 106 West Yearling was reportedly purchasing water due to insufficient well production prior to and during the second quarter 2010 sampling event.

** = 218 East Yearling was not sampled; unable to gain access to well after 2 attempts to contact resident.

ug/L = Micrograms per liter

< = Analyte not detected above the listed laboratory reporting limit

J = Analyte was positively identified, however the result should be considered an estimated value

NA=Not analyzed

Table 8
Soil Vapor Monitor Well (SVMW-1) Results

Parameter	SVMW-1-30-40	SVMW-1-90-100	SVMW-1-140-150	SVMW-1-190-200
	6/16/2010	6/16/2010	6/16/2010	6/16/2010
Volatile Organic Compounds (ppbv)				
1,1,1-Trichloroethane	<7.6	<7.4	<7.4	<7.4
1,1,2,2-Tetrachloroethane	<7.6	<7.4	<7.4	<7.4
1,1,2-Trichloroethane	<7.6	<7.4	<7.4	<7.4
1,1-Dichloroethane	<7.6	13	<7.4	<7.4
1,1-Dichloroethene	650	11000	620	330
1,2,4-Trichlorobenzene	<30	<30	<29	<30
1,2,4-Trimethylbenzene	<7.6	<7.4	<7.4	<7.4
1,2-Dibromoethane (EDB)	<7.6	<7.4	<7.4	<7.4
1,2-Dichlorobenzene	<7.6	<7.4	<7.4	<7.4
1,2-Dichloroethane	<7.6	<7.4	<7.4	<7.4
1,2-Dichloropropane	<7.6	<7.4	<7.4	<7.4
1,3,5-Trimethylbenzene	<7.6	<7.4	<7.4	<7.4
1,3-Butadiene	<7.6	<7.4	<7.4	<7.4
1,3-Dichlorobenzene	<7.6	<7.4	<7.4	<7.4
1,4-Dichlorobenzene	<7.6	<7.4	<7.4	<7.4
2,2,4-Trimethylpentane	<7.6	<7.4	<7.4	<7.4
2-Butanone (MEK)	66 J	37 J	73 J	40 J
2-Hexanone	<15	<15	<15	<15
2-Propanol	<30	<30	<29	<30
4-Ethyltoluene	<7.6	<7.4	<7.4	<7.4
4-Methyl-2-pentanone (MIBK)	<15	<15	<15	<15
Acetone	740 J	280 J	710 J	380 J
Allyl Chloride	<7.6	<7.4	<7.4	<7.4
Benzene	<7.6	<7.4	<7.4	<7.4
Benzyl Chloride	<30	<30	<29	<30
Bromodichloromethane	<7.6	<7.4	<7.4	<7.4
Bromoethene(Vinyl Bromide)	<7.6	<7.4	<7.4	<7.4
Bromoform	<7.6	<7.4	<7.4	<7.4
Bromomethane	<7.6	<7.4	<7.4	<7.4
Carbon disulfide	<7.6	<7.4	<7.4	<7.4
Carbon tetrachloride	<7.6	<7.4	<7.4	<7.4
Chlorobenzene	<7.6	<7.4	<7.4	<7.4
Chloroethane	<7.6	<7.4	<7.4	<7.4
Chloroform	<7.6	<7.4	<7.4	<7.4
Chloromethane	<7.6	<7.4	<7.4	<7.4
cis-1,2-Dichloroethene	<7.6	<7.4	<7.4	<7.4
cis-1,3-Dichloropropene	<7.6	<7.4	<7.4	<7.4
Cyclohexane	<7.6	<7.4	<7.4	<7.4
Dibromochloromethane	<7.6	<7.4	<7.4	<7.4
Dichlorodifluoromethane	<7.6	<7.4	<7.4	<7.4
Dichlorotetrafluoroethane(F-114)	<7.6	<7.4	<7.4	<7.4
Ethyl Acetate	<7.6	<7.4	<7.4	<7.4
Ethylbenzene	<7.6	<7.4	<7.4	<7.4
Freon 113	<7.6	<7.4	<7.4	<7.4
Heptane	<7.6	<7.4	<7.4	<7.4

Table 8
Soil Vapor Monitor Well (SVMW-1) Results

Parameter	SVMW-1-30-40	SVMW-1-90-100	SVMW-1-140-150	SVMW-1-190-200
	6/16/2010	6/16/2010	6/16/2010	6/16/2010
Volatile Organic Compounds (ppbv)				
Hexachlorobutadiene	<15	<15	<15	<15
Hexane	<7.6	<7.4	<7.4	<7.4
Isopropylbenzene	<7.6	<7.4	<7.4	<7.4
m,p-Xylenes	<15	<15	<15	<15
Methylene Chloride	<7.6	<7.4	<7.4	<7.4
Methyl-tert-butyl Ether (MTBE)	<15	<15	<15	<15
Naphthalene	<76	<74	<74	<74
n-Butylbenzene	<7.6	<7.4	<7.4	<7.4
n-Nonane	<7.6	<7.4	<7.4	<7.4
n-Octane	<7.6	<7.4	<7.4	<7.4
n-Propylbenzene	<7.6	<7.4	<7.4	<7.4
o-Xylene	<7.6	<7.4	<7.4	<7.4
Propene	<7.6	<7.4	<7.4	<7.4
sec-Butylbenzene	<7.6	<7.4	<7.4	<7.4
Styrene	<7.6	<7.4	<7.4	<7.4
tert-Butylbenzene	<7.6	<7.4	<7.4	<7.4
Tetrachloroethene	420	640	240	87
Tetrahydrofuran	<30	<30	<29	<30
Toluene	<7.6	11	<7.4	<7.4
trans-1,2-Dichloroethene	<7.6	<7.4	<7.4	<7.4
trans-1,3-Dichloropropene	<7.6	<7.4	<7.4	<7.4
Trichloroethene	<7.6	31	<7.4	<7.4
Trichlorofluoromethane	<7.6	<7.4	<7.4	<7.4
Vinyl Acetate	<7.6	<7.4	<7.4	<7.4
Vinyl chloride	<7.6	<7.4	<7.4	<7.4

Notes:

< = Analyte was not detected above the listed laboratory reporting limit

J = Analyte was positively identified, however the result should be considered an estimated value

ppbv = Parts per billion by volume

Table 9
Proposed 2011 UPCO Sampling and Analysis Schedule

Well ID	Water levels	Quarter Sampled in 2011	Analyses Performed		
			Perchlorate	Metals	VOCs
MW-1	Conducted on a monthly basis	1	X (314.0)	X (200.8)	X
		2	X (314.0)		
		3	X (314.0)		X
		4	X (314.0)		
MW-2	Conducted on a monthly basis	1	X (314.0)	X (200.8)	X
		2	X (314.0)		
		3	X (314.0)		X
		4	X (314.0)		
MW-3	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-4	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-5	Conducted on a monthly basis	1	X (314.0)	X (200.8)	X
		2	X (314.0)		
		3	X (314.0)		
		4	X (314.0)		
MW-6	Conducted on a monthly basis	1	X (314.0)	X (200.8)	X
		2	X (314.0)		
		3	X (314.0)		
		4	X (314.0)		
MW-7	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-8	Conducted on a monthly basis	1	X (314 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)	X (200.8)	
		4			

Table 9
Proposed 2011 UPCO Sampling and Analysis Schedule

Well ID	Water levels	Quarter Sampled in 2011	Analyses Performed		
			Perchlorate	Metals	VOCs
MW-9	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-10	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-11	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-12	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-13	Conducted on a monthly basis	1	X (314.0)	X (200.8)	X
		2	X (314.0)		
		3	X (314.0)		
		4	X (314.0)		
MW-14	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-15	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)		
		4			
MW-16 ***	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332**)		
		4			

Table 9
Proposed 2011 UPCO Sampling and Analysis Schedule

Well ID	Water levels	Quarter Sampled in 2011	Analyses Performed		
			Perchlorate	Metals	VOCs
MW-17 ***	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332**)		
		4			
MW-18	Conducted on a monthly basis	1	X (314.0 & 332)	X (200.8)	X
		2			
		3	X (314.0 & 332)	X (200.8)	
		4			
MW-19***	Conducted on a monthly basis	1	X (314.0)	X (200.8)	X
		2	X (314.0)		
		3	X (314.0)		
		4	X (314.0)		
PW-1	Conducted on a monthly basis	1	X (314.0)	X (200.8)	X
		2	X (314.0)		
		3	X (314.0)		X
		4	X (314.0)		
SVMW-1*	Conducted on a monthly basis	1			X (TO-15)
		2			X (TO-15)
		3			X (TO-15)
		4			X (TO-15)
Private Wells	Conducted on a monthly basis****	1	X (314.0 & 332)		
		2			
		3	X (314.0 & 332)		
		4			

Notes:
Perchlorate = Test as indicated
Metals = Arsenic, barium, cadmium, chromium, lead, mercury (245.1), selenium, silver, and as noted
VOCs = Volatile organic compounds include 8260B list and 1,4-dioxane. Soil gas samples analyzed by Method TO-15
* = Soil vapor monitoring well with sample collection in 1 liter Summa cannisters
** = Perchlorate analysis using EPA Method 332 is dependent on initial results < 2.0 micrograms per liter
*** = MW-16, MW-17, and MW-19 will be sampled for Ca, Mg, K, Na, (200.7); Cl, SO4, NO3/NO2 (E300); carbonate/bicarbonate/hydroxide alkalinity (M2320 B); and total dissolved solids (M2540 C) during the first scheduled sampling event after well installation. Sampling schedule is based on anticipated installation schedule and projected perchlorate concentrations detected in each well. If perchlorate is detected in MW-16 or MW-17, the sampling frequency will be increased to quarterly.
**** = Water levels for private wells will be conducted at 218 E. Yearling and 520 E. Yearling

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2010 Annual Monitoring Report

Figures

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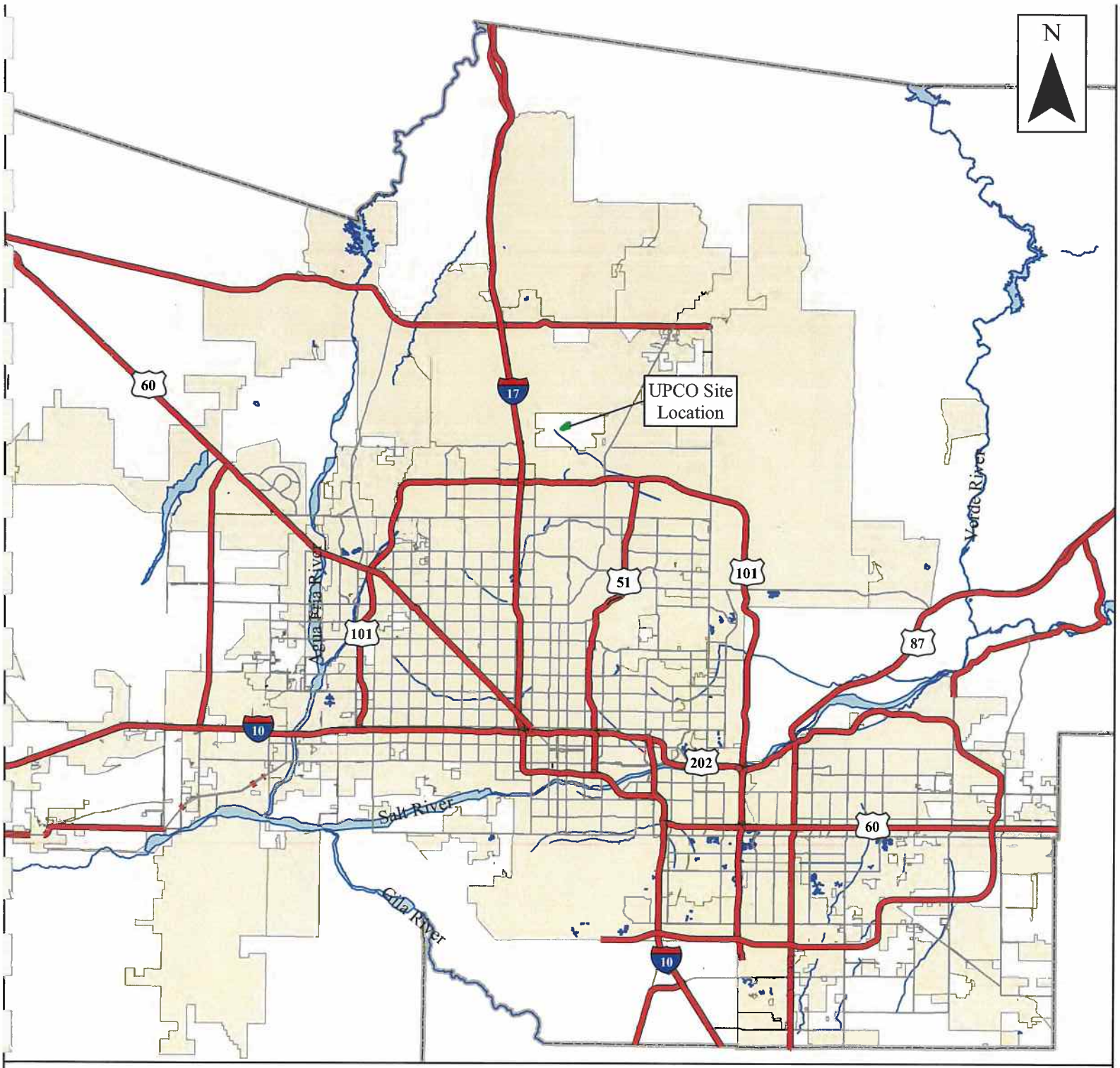

Legend

- Highways, Freeways
- Primary Roads
- Rivers
- Site Location
- County Boundaries
- Lakes
- City Boundaries

0 2.5 5 10 15

Miles

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Site Location Map
2010 Annual Monitoring Report

July 2011 | **Figure 1**

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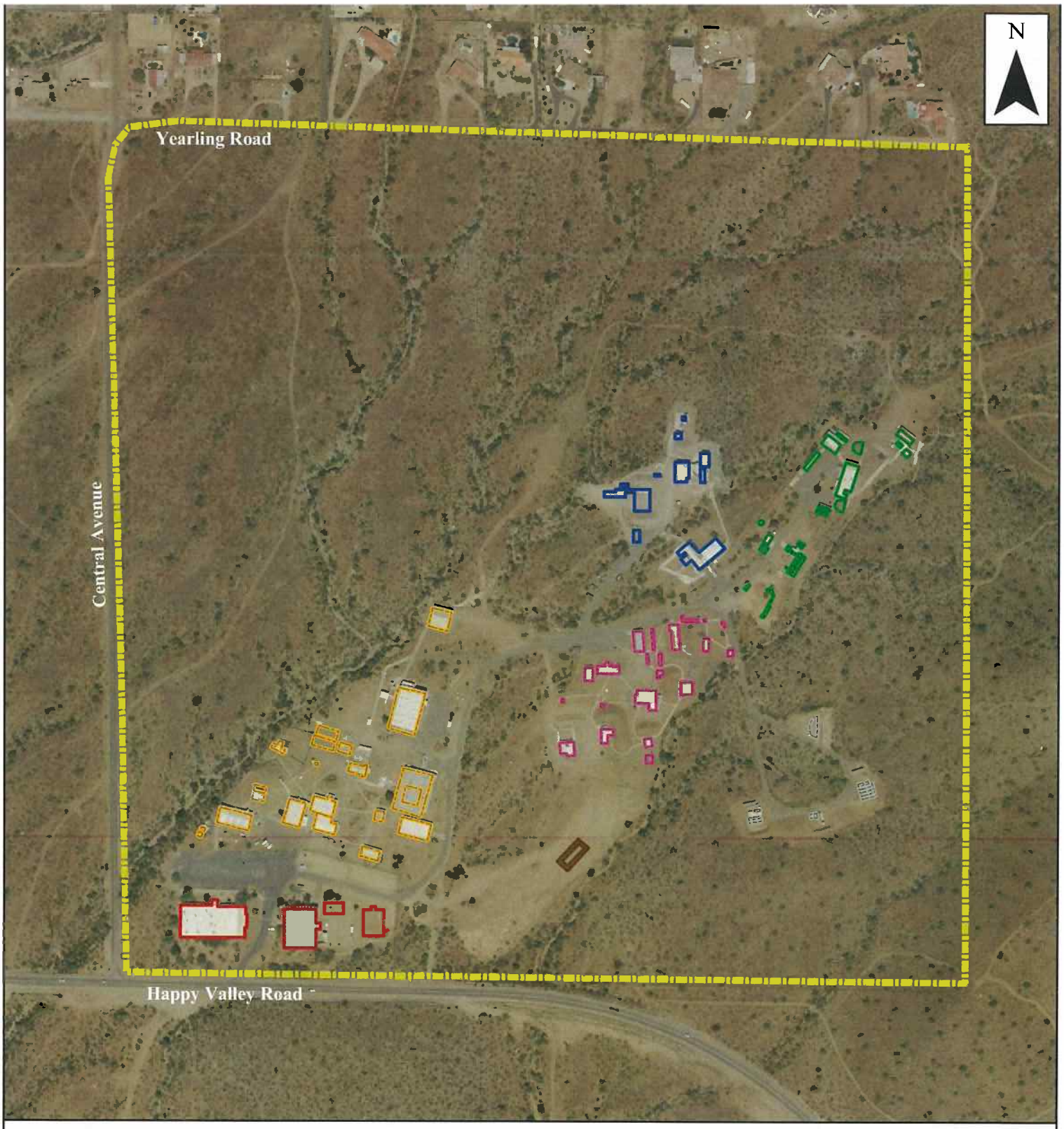

Legend

- A-Complex
- B-Complex
- C-Complex
- D-Complex
- E-Complex
- F-Complex
- Open Burn Unit
- Lease Property Boundary

0 200 400 600 800

Feet

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Site Facilities Map
2010 Annual Monitoring Report

July 2011 | **Figure 2**

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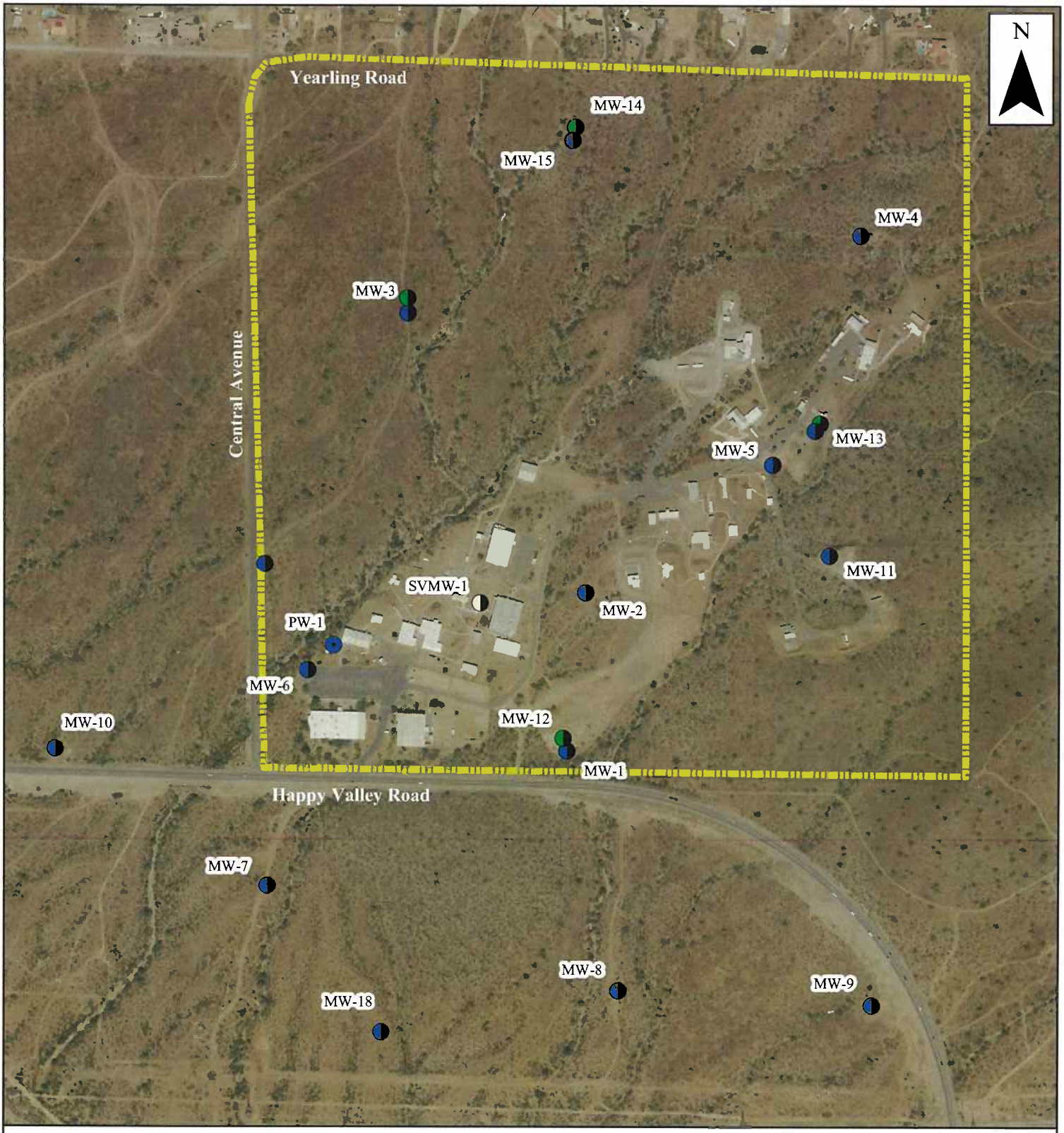

Legend

- Deep Monitor Well
- Monitor Well
- Former Production Well
- Soil Vapor Monitor Well
- Lease Property Boundary

Note: SVMW-1 is a soil vapor monitoring well installed above water level.

0 250 500 750 1,000

Feet

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UPCO Monitor Wells
2010 Annual Monitoring Report

July 2011 | **Figure 3**

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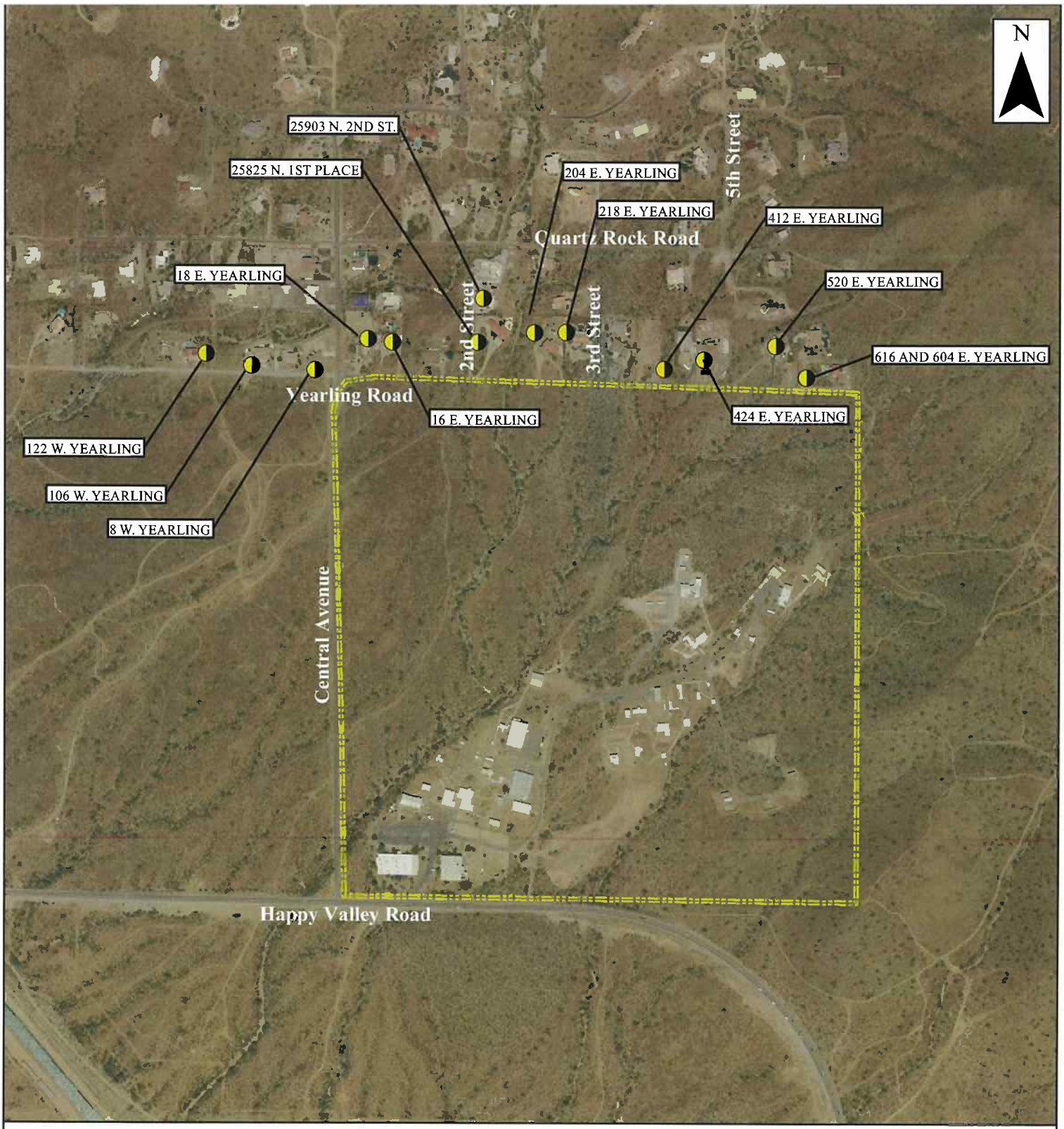

Legend

- Private Domestic Wells
- Lease Property Boundary

0 250 500 750 1,000
Feet

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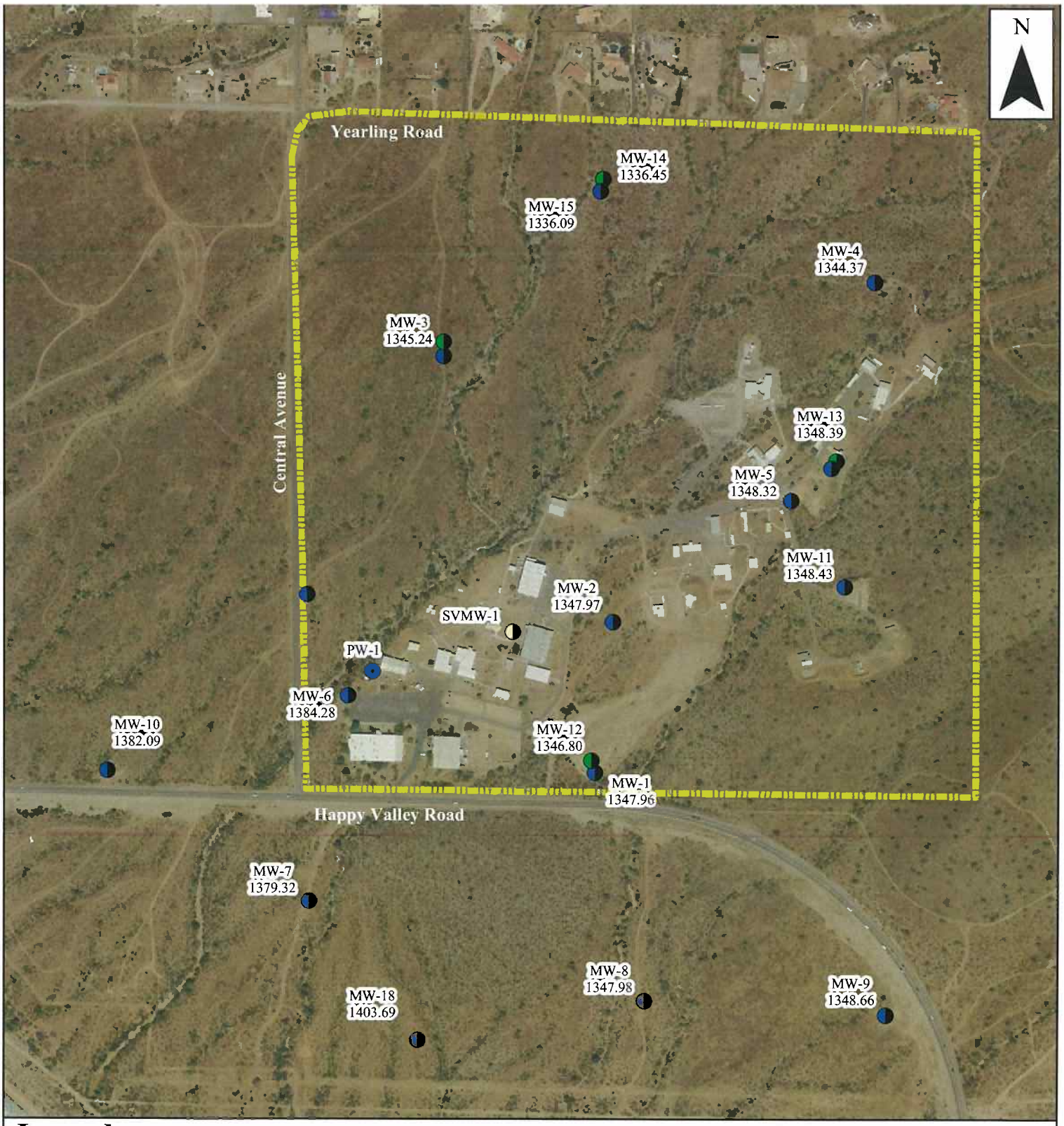
Private Wells
2010 Annual Monitoring Report

July 2011 | **Figure 4**

M:\3994003\GIS\Projects_MXD\Annual_Groundwater_Report\2010 Report\ Figure 4



Legend

- Deep Monitor Well
- Monitor Well
- Former Production Well
- Soil Vapor Monitor Well
- Lease Property Boundary

MW-1 — Well ID
1347.96 — Groundwater Elevation (ft amsl)

0 250 500 750 1,000
Feet

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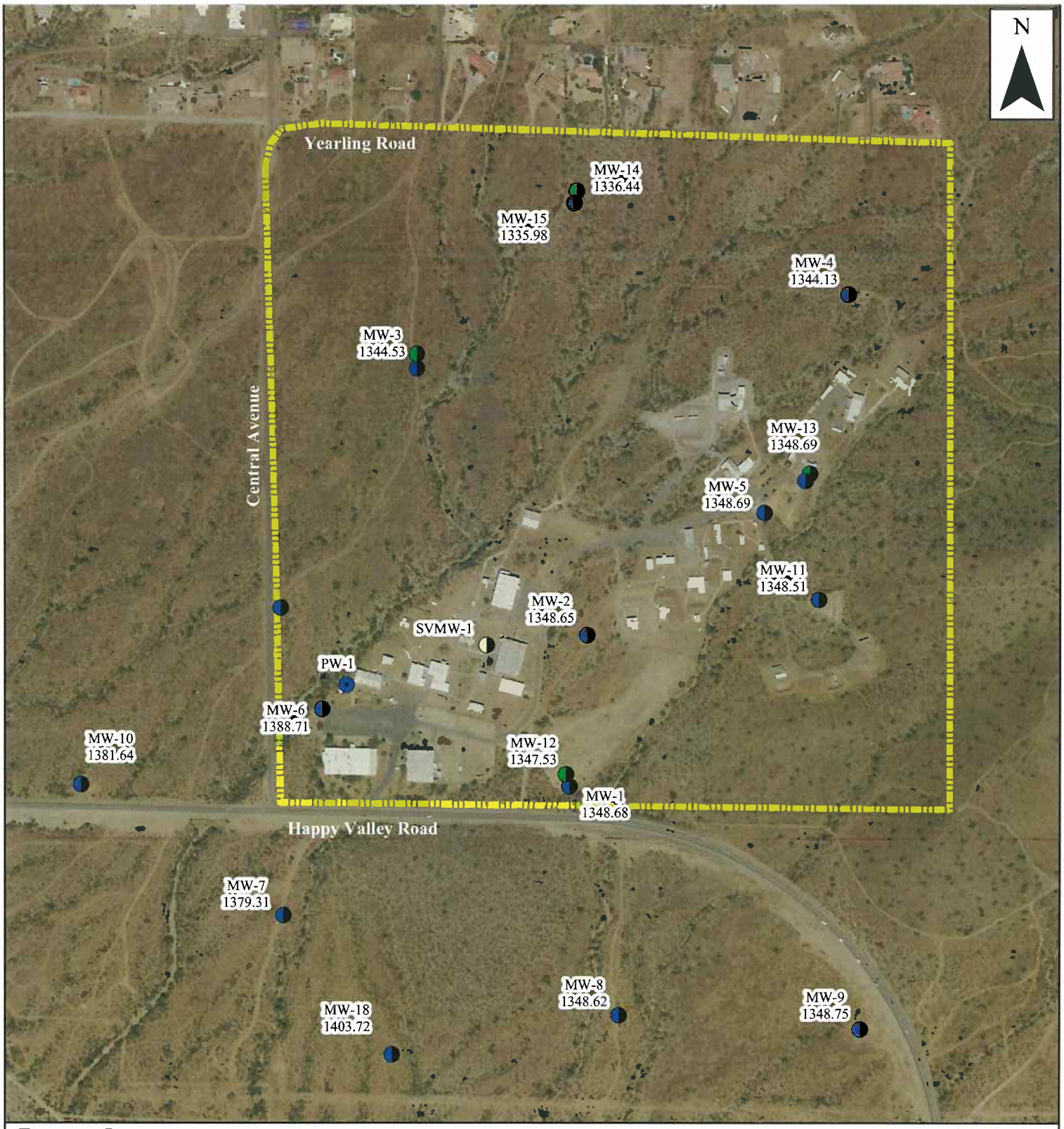
Groundwater Elevation
January 18, 2010
2010 Annual Monitoring Report

July 2011 | **Figure 5**

M:\3994003\GIS\Projects_MXD\Annual_Groundwater_Report\2010 report\Figure 5.mxd



Legend

- Deep Monitor Well
- Monitor Well
- Former Production Well
- Soil Vapor Monitor Well
- Lease Property Boundary

MW-1 — Well ID
1348.68 — Groundwater Elevation (ft amsl)

0 250 500 750 1,000
Feet

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Groundwater Elevation
June 8, 2010
2010 Annual Monitoring Report

July 2011 | **Figure 6**

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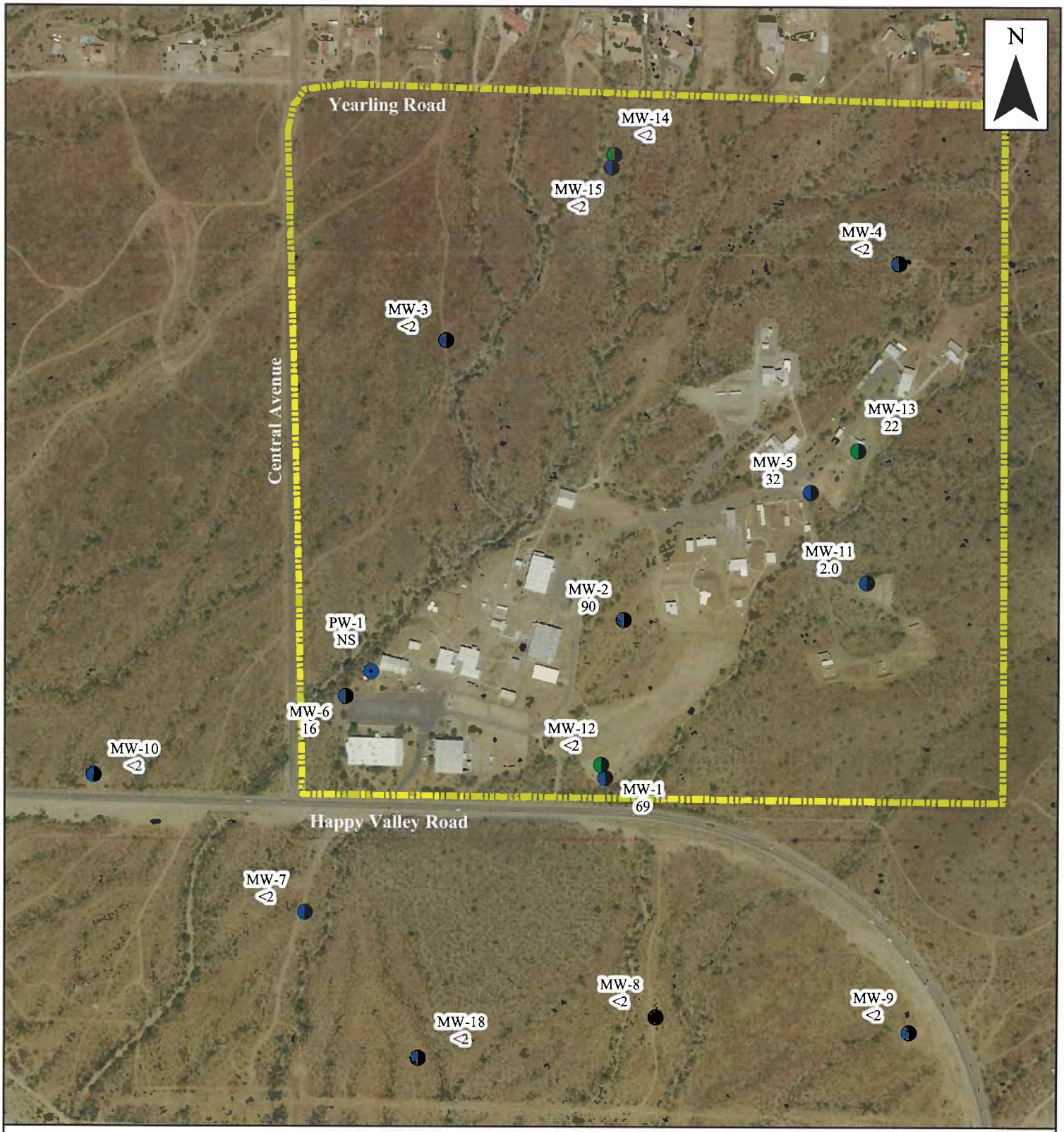

Legend

- Deep Monitor Well
- Monitor Well
- Former Production Well
- Lease Property Boundary

MW-1 / 69 — Well ID / Perchlorate Concentration (µg/L)

NS = not sampled

0 250 500 750 1,000

Feet

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First Quarter 2010
Perchlorate Concentration Map
2010 Annual Monitoring Report

July 2011 | **Figure 8**

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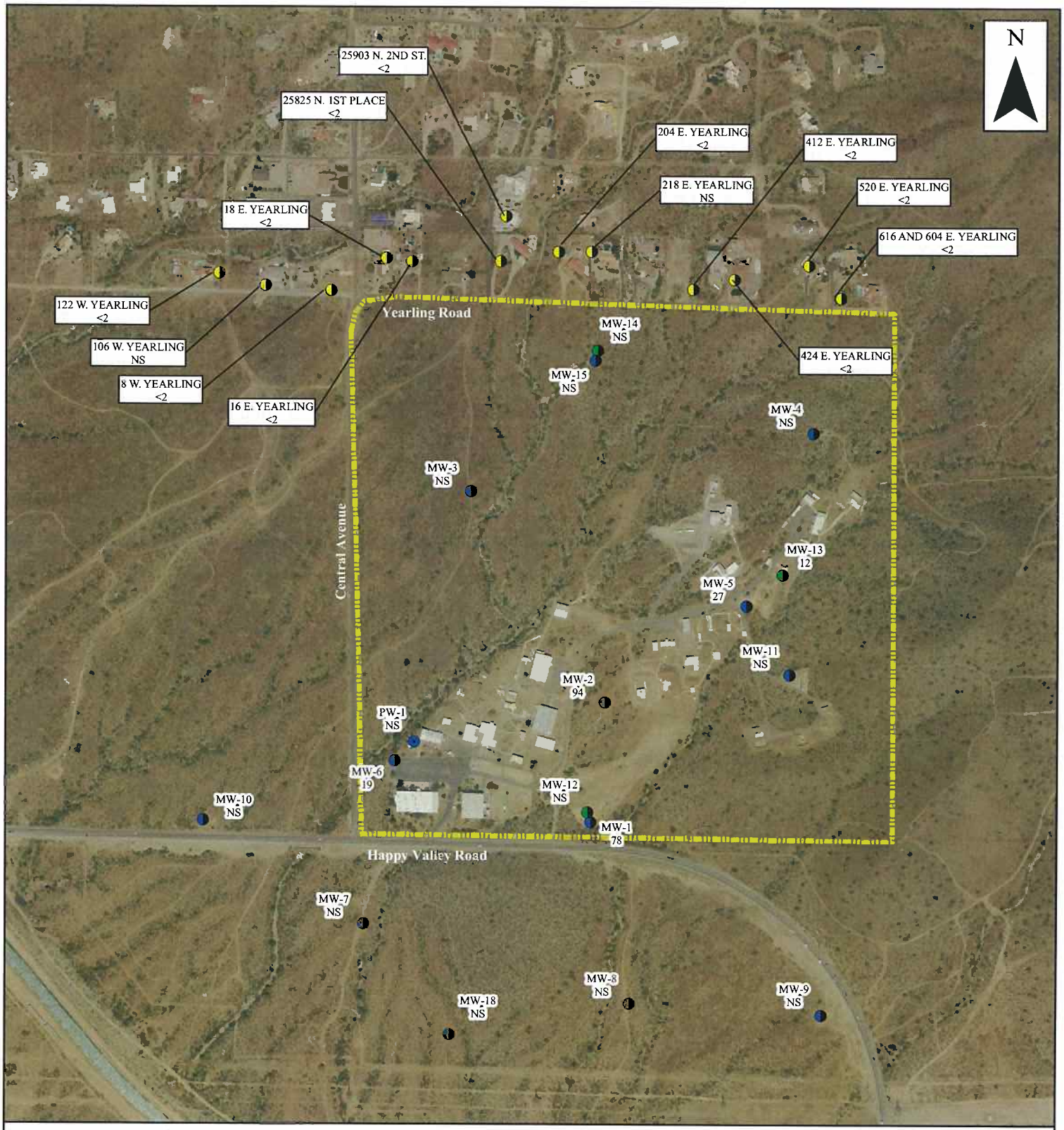

Legend

- Deep Monitor Well
- Monitor Well
- Former Production Well
- Private Domestic Wells
- Lease Property Boundary

MW-1 / 78 — Well ID / Perchlorate Concentration (µg/L)

NS = not sampled

0 250 500 750 1,000

Feet

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Second Quarter 2010
Perchlorate Concentration Map
2010 Annual Monitoring Report

July 2011 | **Figure 9**

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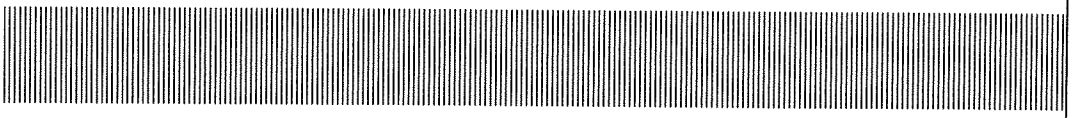
Universal Propulsion Company
2010 Annual Monitoring Report

Appendix A
Well Construction Diagram



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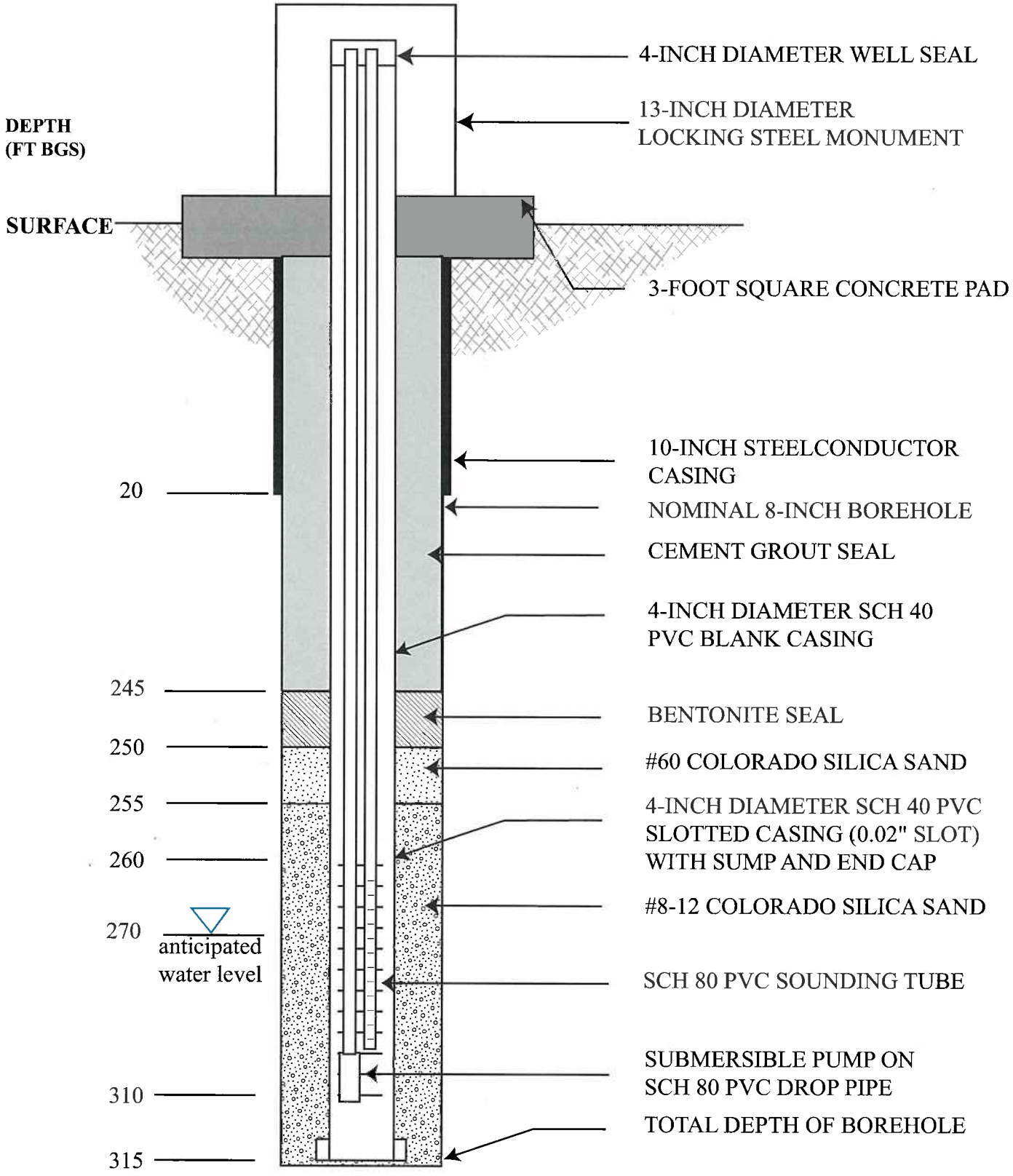

NOT TO SCALE

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MW-11
As-Built Construction Diagram

2010 Annual Monitoring Report

July 2011	**Appendix A**

M:\3994003\300 Monitor Well Install\As Builts

Universal Propulsion Company
2010 Annual Monitoring Report

Appendix B
IDW Documents

ARCADIS

3994003

LIQUID ENVIRONMENTAL SOLUTIONS

liquid ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

73908

Profile Number
19729

Generator Name	**Name:** [illegible] **Phone:** ( )	**Generator Address**	**Address:** [illegible] **City:** **State:** **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)	Ryan Schaffer	**Generator Rep. Signature**	[signature]

Transporter Name	**Name:** **Phone:** ( )	**Transporter Address**	**Address:** **City:** **State:** **Zip:**

Waste Removed (Gallons)	4200	**Date**	**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)		**Driver Signature**	[signature]

Disposal Facility	Liquid Environmental Solutions of Arizona	**Address**	5159 West Van Buren Street Phoenix, AZ 85043	
Waste Received (Gallons)		**Date**		**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

liquid ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

50002

017747

Profile Number
175629

Generator Name	Name: UPCO Phone: (602) 241-1770	**Generator Address**	Address: City: 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

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: MPE Phone: (602) 27- 6233	**Transporter Address**	Address: 5 5 Ave. City: State: AZ Zip:

Waste Removed (Gallons)	1000	**Date** 6-1-10	**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)		**Driver Signature**	

Disposal Facility	Liquid Environmental Solutions of Arizona	**Address**	5159 West Van Buren Street Phoenix, AZ 85043
Waste Received (Gallons)		**Date**	**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

LIQUID ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

50002
017741

Profile Number

Generator Name	**Name:** MPC **Phone:** (602) 271-1770	**Generator Address**	**Address:** [illegible] **City:** [illegible] **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

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 Pesource 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)	[illegible]	**Generator Rep. Signature**	[illegible]

Transporter Name	**Name:** MPC **Phone:** (602) 27[illegible]-6233	**Transporter Address**	**Address:** [illegible] **City:** [illegible] **State:** AZ **Zip:** 85043

Waste Removed (Gallons)	240	**Date**	**Time**
		[illegible]	

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)	[illegible]	**Driver Signature**	[illegible]

Disposal Facility	Liquid Environmental Solutions of Arizona	**Address**	5159 West Van Buren Street Phoenix, AZ 85043
Waste Received (Gallons)		**Date**	**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

Universal Propulsion Company
2010 Annual Monitoring Report

Appendix C
Historic Water Level Data

ARCADIS

3994003

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-1	1/6/2004	1557.19	206.64	1350.55
	3/19/2004	1557.22	206.70	1350.57
	4/16/2004	1557.22	206.66	1350.61
	9/7/2004	1557.22	207.79	1349.43
	10/22/2004	1557.22	207.42	1349.80
	11/22/2004	1557.22	207.71	1349.51
	12/7/2004	1557.22	207.80	1349.42
	1/17/2005	1557.22	207.62	1349.60
	2/14/2005	1557.22	207.52	1349.70
	3/15/2005	1557.22	207.36	1349.86
	4/25/2005	1557.22	207.47	1349.75
	5/20/2005	1557.22	207.69	1349.53
	6/27/2005	1557.22	207.82	1349.40
	7/18/2005	1557.22	208.13	1349.09
	8/22/2005	1557.22	208.04	1349.18
	9/22/2005	1557.22	208.03	1349.19
	10/24/2005	1557.22	208.03	1349.19
	12/2/2005	1557.22	207.97	1349.25
	12/22/2005	1557.22	208.15	1349.07
	3/20/2006	1557.22	207.98	1349.24
	5/22/2006	1557.22	208.08	1349.14
	8/28/2006	1557.22	208.04	1349.18
	11/13/2006	1557.22	208.04	1349.18
	2/12/2007	1557.22	208.08	1349.14
	4/9/2007	1557.22	208.03	1349.19
	7/30/2007	1557.22	207.84	1349.38
	10/15/2007	1557.22	208.16	1349.06
	1/14/2008	1557.22	208.37	1348.85
	3/31/2008	1557.22	208.24	1348.98
	4/29/2008	1557.22	208.27	1348.95
	5/27/2008	1557.22	208.37	1348.85
	6/27/2008	1557.22	208.53	1348.69
	7/28/2008	1557.22	208.50	1348.72
	8/29/2008	1557.22	208.55	1348.67
	9/20/2008	1557.22	208.44	1348.78
	10/14/2008	1557.22	208.37	1348.85
	11/21/2008	1557.22	208.36	1348.86
	12/15/2008	1557.22	208.44	1348.78
	1/12/2009	1557.22	208.41	1348.81
	2/16/2009	1557.22	208.47	1348.75

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-1	3/17/2009	1557.22	208.42	1348.80
	4/13/2009	1557.22	208.38	1348.84
	5/20/2009	1557.22	208.71	1348.51
	6/15/2009	1557.22	208.58	1348.64
	7/6/2009	1557.22	208.58	1348.64
	8/13/2009	1557.22	208.68	1348.54
	9/28/2009	1560.43	211.92	1348.51
	10/27/2009	1560.43	211.98	1348.45
	11/25/2009	1560.43	212.29	1348.14
	12/18/2009	1560.43	212.35	1348.08
	1/18/2010	1560.43	212.47	1347.96
	6/8/2010	1560.43	211.75	1348.68
	6/22/2010	1560.43	211.76	1348.67
MW-2	1/6/2004	1567.51	216.90	1350.61
	3/19/2004	1567.67	217.40	1350.27
	4/16/2004	1567.67	217.06	1350.61
	9/7/2004	1567.62	218.06	1349.56
	10/22/2004	1567.62	217.62	1350.00
	11/22/2004	1567.62	218.10	1349.52
	12/7/2004	1567.62	218.15	1349.47
	1/17/2005	1567.62	218.02	1349.60
	2/14/2005	1567.62	217.93	1349.69
	3/15/2005	1567.62	217.83	1349.79
	4/25/2005	1567.62	217.88	1349.74
	5/20/2005	1567.62	218.06	1349.56
	6/27/2005	1567.62	218.20	1349.42
	7/18/2005	1567.62	218.53	1349.09
	8/22/2005	1567.62	218.43	1349.19
	9/22/2005	1567.62	218.44	1349.18
	10/24/2005	1567.62	218.44	1349.18
	12/2/2005	1567.62	218.34	1349.28
	12/22/2005	1567.62	218.48	1349.14
	3/20/2006	1567.62	218.33	1349.29
	5/22/2006	1567.62	218.43	1349.19
	8/28/2006	1567.62	218.35	1349.27
	11/13/2006	1567.62	218.38	1349.24
	2/12/2007	1567.62	218.48	1349.14
	4/9/2007	1567.62	218.41	1349.21
	7/30/2007	1567.62	218.19	1349.43
	10/15/2007	1567.62	218.45	1349.17

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-2	1/14/2008	1567.62	218.70	1348.92
	3/31/2008	1567.62	218.55	1349.07
	4/29/2008	1567.62	218.54	1349.08
	5/27/2008	1567.62	218.69	1348.93
	6/27/2008	1567.62	218.89	1348.73
	7/28/2008	1567.62	218.81	1348.81
	8/29/2008	1567.62	218.83	1348.79
	9/20/2008	1567.62	218.75	1348.87
	10/14/2008	1567.62	218.69	1348.93
	11/21/2008	1567.62	218.69	1348.93
	12/15/2008	1567.62	218.77	1348.85
	1/12/2009	1567.62	218.81	1348.81
	2/16/2009	1567.62	218.85	1348.77
	3/17/2009	1567.62	218.48	1349.14
	4/13/2009	1567.62	218.73	1348.89
	5/20/2009	1567.62	219.05	1348.57
	6/15/2009	1567.62	218.95	1348.67
	7/6/2009	1567.62	218.95	1348.67
	8/13/2009	1567.62	219.03	1348.59
	9/28/2009	1571.22	222.74	1348.48
	10/27/2009	1571.22	222.71	1348.51
	11/25/2009	1571.22	223.06	1348.16
	12/18/2009	1571.22	223.08	1348.14
	1/18/2010	1571.22	223.25	1347.97
	6/8/2010	1571.22	222.57	1348.65
	6/22/2010	1571.22	222.57	1348.65
MW-3	9/7/2004	1583.59	229.10	1354.50
	10/22/2004	1583.59	227.92	1355.67
	11/22/2004	1583.59	228.91	1354.68
	12/7/2004	1583.59	229.03	1354.56
	1/17/2005	1583.59	229.35	1354.24
	2/14/2005	1583.59	229.73	1353.86
	3/15/2005	1583.59	229.86	1353.73
	4/25/2005	1583.59	229.94	1353.65
	5/20/2005	1583.59	230.21	1353.38
	6/27/2005	1583.59	230.30	1353.29
	7/18/2005	1583.59	230.61	1352.98
	8/22/2005	1583.59	230.63	1352.96
	9/22/2005	1583.59	231.67	1351.92
	10/24/2005	1583.59	230.94	1352.65

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-3	11/30/2005	1583.59	231.12	1352.47
	12/22/2005	1583.59	231.15	1352.44
	3/21/2006	1583.59	231.59	1352.00
	5/22/2006	1583.59	231.91	1351.68
	8/28/2006	1583.59	232.24	1351.35
	11/13/2006	1583.59	232.82	1350.77
	2/12/2007	1583.59	232.76	1350.83
	4/9/2007	1583.59	233.11	1350.48
	7/30/2007	1583.59	233.52	1350.07
	10/15/2007	1583.59	234.45	1349.14
	1/14/2008	1583.59	234.93	1348.66
	3/31/2008	1583.59	235.42	1348.17
	4/29/2008	1583.59	235.21	1348.38
	5/27/2008	1583.59	235.48	1348.11
	6/27/2008	1583.59	235.66	1347.93
	7/28/2008	1583.59	235.79	1347.80
	8/29/2008	1583.59	236.07	1347.52
	9/20/2008	1583.59	236.10	1347.49
	10/14/2008	1583.59	236.30	1347.29
	11/21/2008	1583.59	236.45	1347.14
	12/15/2008	1583.59	236.59	1347.00
	1/12/2009	1583.59	236.60	1346.99
	2/16/2009	1583.59	236.86	1346.73
	3/17/2009	1583.59	237.00	1346.59
	4/13/2009	1583.59	237.07	1346.52
	5/20/2009	1583.59	237.24	1346.35
	6/15/2009	1583.59	237.31	1346.28
	7/6/2009	1583.59	237.35	1346.24
	8/12/2009	1583.59	237.47	1346.12
	9/28/2009	1583.59	237.81	1345.78
	10/27/2009	1583.59	237.82	1345.77
	11/25/2009	1583.59	238.13	1345.46
	12/18/2009	1583.59	238.13	1345.46
	1/18/2010	1583.59	238.35	1345.24
	6/8/2010	1583.59	239.06	1344.53
	6/22/2010	1583.59	239.16	1344.43
MW-4	9/7/2004	1620.34	269.13	1351.21
	10/22/2004	1620.34	268.92	1351.42
	11/22/2004	1620.34	269.58	1350.76
	12/7/2004	1620.34	269.83	1350.51

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-4	1/17/2005	1620.34	269.84	1350.50
	2/14/2005	1620.34	270.04	1350.30
	3/15/2005	1620.34	270.15	1350.19
	4/25/2005	1620.34	270.12	1350.22
	5/20/2005	1620.34	270.22	1350.12
	6/27/2005	1620.34	270.26	1350.08
	7/18/2005	1620.34	270.56	1349.78
	8/22/2005	1620.34	270.40	1349.94
	9/22/2005	1620.34	270.44	1349.90
	10/24/2005	1620.34	270.78	1349.56
	11/30/2005	1620.34	270.82	1349.52
	12/22/2005	1620.34	270.80	1349.54
	3/20/2006	1620.34	271.28	1349.06
	5/22/2006	1620.34	271.43	1348.91
	8/28/2006	1620.34	271.82	1348.52
	11/13/2006	1620.34	271.33	1349.01
	2/12/2007	1620.34	271.51	1348.83
	4/9/2007	1620.34	271.66	1348.68
	7/30/2007	1620.34	272.63	1347.71
	10/15/2007	1620.34	273.35	1346.99
	1/14/2008	1620.34	273.81	1346.53
	3/31/2008	1620.34	274.00	1346.34
	4/29/2008	1620.34	273.76	1346.58
	5/27/2008	1620.34	274.05	1346.29
	6/27/2008	1620.34	274.18	1346.16
	7/28/2008	1620.34	274.22	1346.12
	8/29/2008	1620.34	274.40	1345.94
	9/20/2008	1620.34	274.48	1345.86
	10/14/2008	1620.34	274.68	1345.66
	11/21/2008	1620.34	274.70	1345.64
	12/15/2008	1620.34	274.90	1345.44
	1/12/2009	1620.34	274.93	1345.41
	2/16/2009	1620.34	274.78	1345.56
	3/17/2009	1620.34	275.07	1345.27
	4/13/2009	1620.34	275.04	1345.30
	5/20/2009	1620.34	275.19	1345.15
	6/15/2009	1620.34	275.23	1345.11
	7/6/2009	1620.34	275.26	1345.08
	8/12/2009	1620.34	275.39	1344.95
	9/28/2009	1620.34	275.50	1344.84

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-4	10/27/2009	1620.34	275.50	1344.84
	11/25/2009	1620.34	275.86	1344.48
	12/18/2009	1620.34	275.82	1344.52
	1/18/2010	1620.34	275.97	1344.37
	6/8/2010	1620.34	276.21	1344.13
	6/22/2010	1620.34	276.35	1343.99
MW-5	9/7/2004	1590.45	240.17	1350.28
	10/22/2004	1590.45	239.67	1350.78
	11/22/2004	1590.45	240.40	1350.05
	12/7/2004	1590.45	240.49	1349.96
	1/17/2005	1590.45	240.47	1349.98
	2/14/2005	1590.45	240.44	1350.01
	3/15/2005	1590.45	240.36	1350.09
	4/25/2005	1590.45	240.38	1350.07
	5/20/2005	1590.45	240.48	1349.97
	6/27/2005	1590.45	240.58	1349.87
	7/18/2005	1590.45	240.90	1349.55
	8/22/2005	1590.45	240.81	1349.64
	9/22/2005	1590.45	240.81	1349.64
	10/24/2005	1590.45	240.85	1349.60
	11/30/2005	1590.45	240.81	1349.64
	12/22/2005	1590.45	240.90	1349.55
	3/20/2006	1590.45	240.92	1349.53
	5/22/2006	1590.45	241.07	1349.38
	8/28/2006	1590.45	240.97	1349.48
	11/13/2006	1590.45	241.04	1349.41
	2/12/2007	1590.45	241.09	1349.36
	4/9/2007	1590.45	241.10	1349.35
	7/30/2007	1590.45	240.81	1349.64
	10/15/2007	1590.45	241.12	1349.33
	1/14/2008	1590.45	241.28	1349.17
	3/31/2008	1590.45	241.31	1349.14
	4/29/2008	1590.45	241.28	1349.17
	5/27/2008	1590.45	241.33	1349.12
	6/27/2008	1590.45	241.48	1348.97
	7/28/2008	1590.45	241.44	1349.01
	8/29/2008	1590.45	241.45	1349.00
	9/20/2008	1590.45	241.48	1348.97
	10/14/2008	1590.45	241.43	1349.02
	11/21/2008	1590.45	241.45	1349.00

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-5	12/15/2008	1590.45	241.43	1349.02
	1/12/2009	1590.45	241.42	1349.03
	2/16/2009	1590.45	241.45	1349.00
	3/17/2009	1590.45	241.43	1349.02
	4/13/2009	1590.45	241.43	1349.02
	5/20/2009	1590.45	241.53	1348.92
	6/15/2009	1590.45	241.57	1348.88
	7/6/2009	1590.45	241.54	1348.91
	8/12/2009	1590.45	241.58	1348.87
	9/28/2009	1594.08	245.32	1348.76
	10/27/2009	1594.08	245.38	1348.70
	11/25/2009	1594.08	245.54	1348.54
	12/18/2009	1594.08	245.59	1348.49
	1/18/2010	1594.08	245.76	1348.32
	6/8/2010	1594.08	245.39	1348.69
	6/22/2010	1594.08	245.38	1348.70
MW-6	9/7/2004	1548.22	162.22	1386.00
	10/22/2004	1548.22	161.27	1386.95
	11/22/2004	1548.22	161.77	1386.45
	12/7/2004	1548.22	161.99	1386.23
	1/17/2005	1548.22	162.32	1385.90
	2/14/2005	1548.22	162.50	1385.72
	3/15/2005	1548.22	160.38	1387.84
	4/25/2005	1548.22	149.74	1398.48
	5/20/2005	1548.22	148.31	1399.91
	6/27/2005	1548.22	148.82	1399.40
	7/18/2005	1548.22	149.61	1398.61
	8/22/2005	1548.22	150.88	1397.34
	9/22/2005	1548.22	151.89	1396.33
	10/24/2005	1548.22	153.11	1395.11
	11/30/2005	1548.22	154.16	1394.06
	12/22/2005	1548.22	154.68	1393.54
	3/20/2006	1548.22	156.61	1391.61
	5/22/2006	1548.22	157.80	1390.42
	8/28/2006	1548.22	159.64	1388.58
	11/13/2006	1548.22	161.11	1387.11
	2/12/2007	1548.22	161.95	1386.27
	4/9/2007	1548.22	161.63	1386.59
	7/30/2007	1548.22	162.92	1385.30
	10/15/2007	1548.22	163.95	1384.27

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-6	1/14/2008	1548.22	164.94	1383.28
	3/31/2008	1548.22	165.42	1382.80
	4/29/2008	1548.22	164.28	1383.94
	5/27/2008	1548.22	163.05	1385.17
	6/27/2008	1548.22	162.08	1386.14
	7/28/2008	1548.22	161.50	1386.72
	8/29/2008	1548.22	161.30	1386.92
	9/20/2008	1548.22	161.33	1386.89
	10/14/2008	1548.22	161.48	1386.74
	11/21/2008	1548.22	161.71	1386.51
	12/15/2008	1548.22	161.89	1386.33
	1/12/2009	1548.22	162.28	1385.94
	2/16/2009	1548.22	162.43	1385.79
	3/17/2009	1548.22	162.81	1385.41
	4/13/2009	1548.22	162.83	1385.39
	5/20/2009	1548.22	162.78	1385.44
	6/15/2009	1548.22	162.57	1385.65
	7/6/2009	1548.22	162.50	1385.72
	8/12/2009	1548.22	162.64	1385.58
	9/28/2009	1551.65	166.25	1385.40
	10/27/2009	1551.65	166.33	1385.32
	11/25/2009	1551.65	167.02	1384.63
	12/18/2009	1551.65	167.10	1384.55
	1/18/2010	1551.65	167.37	1384.28
	6/8/2010	1551.65	162.94	1388.71
	6/22/2010	1551.65	162.17	1389.48
MW-7	10/22/2004	1541.35	157.21	1384.14
	11/22/2004	1541.35	154.14	1387.21
	12/7/2004	1541.35	154.55	1386.80
	1/17/2005	1541.35	155.02	1386.33
	2/14/2005	1541.35	155.20	1386.15
	3/15/2005	1541.35	155.48	1385.87
	4/25/2005	1541.35	155.56	1385.79
	5/20/2005	1541.35	155.56	1385.79
	6/27/2005	1541.35	155.60	1385.75
	7/18/2005	1541.35	155.94	1385.41
	8/22/2005	1541.35	156.09	1385.26
	9/22/2005	1541.35	156.37	1384.98
	10/24/2005	1541.35	157.01	1384.34
	11/30/2005	1541.35	157.41	1383.94

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-7	12/22/2005	1541.35	157.73	1383.62
	3/20/2006	1541.35	158.83	1382.52
	5/22/2006	1541.35	159.39	1381.96
	8/28/2006	1541.35	159.54	1381.81
	11/13/2006	1541.35	159.48	1381.87
	2/12/2007	1541.35	159.37	1381.98
	4/9/2007	1541.35	159.30	1382.05
	7/30/2007	1541.35	159.48	1381.87
	10/15/2007	1541.35	160.12	1381.23
	1/14/2008	1541.35	160.61	1380.74
	3/31/2008	1541.35	160.53	1380.82
	4/29/2008	1541.35	160.46	1380.89
	5/27/2008	1541.35	160.63	1380.72
	6/27/2008	1541.35	160.83	1380.52
	7/28/2008	1541.35	160.92	1380.43
	8/29/2008	1541.35	160.85	1380.50
	9/20/2008	1541.35	160.98	1380.37
	10/14/2008	1541.35	161.21	1380.14
	11/21/2008	1541.35	161.22	1380.13
	12/15/2008	1541.35	161.19	1380.16
	1/12/2009	1541.35	161.39	1379.96
	2/16/2009	1541.35	161.17	1380.18
	3/17/2009	1541.35	161.42	1379.93
	4/13/2009	1541.35	161.39	1379.96
	5/20/2009	1541.35	161.49	1379.86
	6/15/2009	1541.35	161.57	1379.78
	7/6/2009	1541.35	161.58	1379.77
	8/12/2009	1541.35	161.71	1379.64
	9/28/2009	1541.35	161.71	1379.64
	10/27/2009	1541.35	161.70	1379.65
	11/25/2009	1541.35	162.06	1379.29
	12/18/2009	1541.35	162.07	1379.28
	1/18/2010	1541.35	162.03	1379.32
	6/8/2010	1541.35	162.04	1379.31
	6/22/2010	1541.35	162.16	1379.19
MW-8	10/22/2004	1542.18	193.21	1348.97
	11/22/2004	1542.18	192.27	1349.91
	12/7/2004	1542.18	192.29	1349.89
	1/17/2005	1542.18	192.27	1349.91
	2/14/2005	1542.18	192.29	1349.89

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-8	3/15/2005	1542.18	192.27	1349.91
	4/25/2005	1542.18	192.29	1349.89
	5/20/2005	1542.18	192.50	1349.68
	6/27/2005	1542.18	192.57	1349.61
	7/18/2005	1542.18	192.88	1349.30
	8/22/2005	1542.18	192.90	1349.28
	9/22/2005	1542.18	192.84	1349.34
	10/24/2005	1542.18	192.89	1349.29
	11/30/2005	1542.18	192.84	1349.34
	12/22/2005	1542.18	192.91	1349.27
	3/20/2006	1542.18	192.83	1349.35
	5/22/2006	1542.18	192.97	1349.21
	8/28/2006	1542.18	192.95	1349.23
	11/13/2006	1542.18	192.98	1349.20
	2/12/2007	1542.18	193.01	1349.17
	4/9/2007	1542.18	192.79	1349.39
	7/30/2007	1542.18	192.71	1349.47
	10/15/2007	1542.18	193.18	1349.00
	1/14/2008	1542.18	193.32	1348.86
	3/31/2008	1542.18	193.17	1349.01
	4/29/2008	1542.18	193.08	1349.10
	5/27/2008	1542.18	193.25	1348.93
	6/27/2008	1542.18	193.39	1348.79
	7/28/2008	1542.18	193.36	1348.82
	8/29/2008	1542.18	193.37	1348.81
	9/20/2008	1542.18	193.35	1348.83
	10/14/2008	1542.18	193.37	1348.81
	11/21/2008	1542.18	193.38	1348.80
	12/15/2008	1542.18	193.35	1348.83
	1/12/2009	1542.18	193.34	1348.84
	2/16/2009	1542.18	193.37	1348.81
	3/17/2009	1542.18	193.38	1348.80
	4/13/2009	1542.18	193.33	1348.85
	5/20/2009	1542.18	193.55	1348.63
	6/15/2009	1542.18	193.51	1348.67
	7/6/2009	1542.18	193.49	1348.69
	8/12/2009	1542.18	193.52	1348.66
	9/28/2009	1542.18	193.70	1348.48
	10/27/2009	1542.18	193.80	1348.38
	11/25/2009	1542.18	193.99	1348.19

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-8	12/18/2009	1542.18	194.08	1348.10
	1/18/2010	1542.18	194.20	1347.98
	6/8/2010	1542.18	193.56	1348.62
	6/22/2010	1542.18	193.62	1348.56
MW-9	2/14/2005	1565.60	215.29	1350.31
	3/15/2005	1565.60	215.36	1350.24
	4/25/2005	1565.60	215.34	1350.26
	5/20/2005	1565.60	215.36	1350.24
	6/27/2005	1565.60	215.41	1350.19
	7/18/2005	1565.60	215.68	1349.92
	8/22/2005	1565.60	215.57	1350.03
	9/22/2005	1565.60	215.59	1350.01
	10/24/2005	1565.60	215.72	1349.88
	11/30/2005	1565.60	215.70	1349.90
	12/22/2005	1565.60	215.64	1349.96
	3/20/2006	1565.60	215.82	1349.78
	5/22/2006	1565.60	216.03	1349.57
	8/28/2006	1565.60	215.95	1349.65
	11/13/2006	1565.60	216.07	1349.53
	2/12/2007	1565.60	216.12	1349.48
	4/9/2007	1565.60	216.19	1349.41
	7/30/2007	1565.60	215.83	1349.77
	10/15/2007	1565.60	216.16	1349.44
	1/14/2008	1565.60	216.30	1349.30
	3/31/2008	1565.60	216.26	1349.34
	4/29/2008	1565.60	216.15	1349.45
	5/27/2008	1565.60	216.24	1349.36
	6/27/2008	1565.60	216.37	1349.23
	7/28/2008	1565.60	216.34	1349.26
	8/29/2008	1565.60	216.38	1349.22
	9/20/2008	1565.60	216.42	1349.18
	10/14/2008	1565.60	216.46	1349.14
	11/21/2008	1565.60	216.51	1349.09
	12/15/2008	1565.60	216.52	1349.08
	1/12/2009	1565.60	216.53	1349.07
	2/16/2009	1565.60	216.52	1349.08
	3/17/2009	1565.60	216.56	1349.04
	4/13/2009	1565.60	216.54	1349.06
	5/20/2009	1565.60	216.58	1349.02
	6/15/2009	1565.60	216.60	1349.00

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-9	7/6/2009	1565.60	216.61	1348.99
	8/12/2009	1565.60	216.62	1348.98
	9/28/2009	1565.60	216.68	1348.92
	10/27/2009	1565.60	216.62	1348.98
	11/25/2009	1565.60	216.80	1348.80
	12/18/2009	1565.60	216.85	1348.75
	1/18/2010	1565.60	216.94	1348.66
	6/8/2010	1565.60	216.85	1348.75
	6/22/2010	1565.60	216.92	1348.68
MW-10	2/14/2005	1536.11	149.92	1386.19
	3/15/2005	1536.11	149.71	1386.40
	4/25/2005	1536.11	149.56	1386.55
	5/20/2005	1536.11	149.33	1386.78
	6/27/2005	1536.11	149.04	1387.07
	7/18/2005	1536.11	149.08	1387.03
	8/22/2005	1536.11	149.02	1387.09
	9/22/2005	1536.11	148.88	1387.23
	10/24/2005	1536.11	149.20	1386.91
	11/30/2005	1536.11	149.27	1386.84
	12/22/2005	1536.11	149.33	1386.78
	3/20/2006	1536.11	149.54	1386.57
	5/22/2006	1536.11	149.66	1386.45
	8/28/2006	1536.11	150.05	1386.06
	11/13/2006	1536.11	150.45	1385.66
	2/12/2007	1536.11	150.63	1385.48
	4/9/2007	1536.11	150.75	1385.36
	7/30/2007	1536.11	150.88	1385.23
	10/15/2007	1536.11	151.45	1384.66
	1/14/2008	1536.11	151.93	1384.18
	3/31/2008	1536.11	152.04	1384.07
	4/29/2008	1536.11	151.98	1384.13
	5/27/2008	1536.11	152.20	1383.91
	6/27/2008	1536.11	152.37	1383.74
	7/28/2008	1536.11	152.48	1383.63
	8/29/2008	1536.11	152.41	1383.70
	9/20/2008	1536.11	152.58	1383.53
	10/14/2008	1536.11	152.83	1383.28
	11/21/2008	1536.11	152.88	1383.23
	12/15/2008	1536.11	152.87	1383.24
	1/12/2009	1536.11	153.14	1382.97

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-10	2/16/2009	1536.11	152.95	1383.16
	3/17/2009	1536.11	153.23	1382.88
	4/13/2009	1536.11	153.24	1382.87
	5/20/2009	1536.11	153.28	1382.83
	6/15/2009	1536.11	153.35	1382.76
	7/6/2009	1536.11	153.42	1382.69
	8/12/2009	1536.11	153.61	1382.50
	9/28/2009	1536.11	153.62	1382.49
	10/27/2009	1536.11	153.64	1382.47
	11/25/2009	1536.11	153.98	1382.13
	12/18/2009	1536.11	154.00	1382.11
	1/18/2010	1536.11	154.02	1382.09
	6/8/2010	1536.11	154.47	1381.64
	6/22/2010	1536.11	154.54	1381.57
MW-11	12/22/2005	1603.35	253.68	1349.67
	3/20/2006	1603.35	253.71	1349.64
	5/22/2006	1603.35	253.83	1349.52
	8/28/2006	1603.35	253.78	1349.57
	11/13/2006	1603.35	253.80	1349.55
	2/12/2007	1603.35	253.86	1349.49
	4/9/2007	1603.35	253.87	1349.48
	7/30/2007	1603.35	253.51	1349.84
	10/15/2007	1603.35	253.90	1349.45
	1/14/2008	1603.35	254.07	1349.28
	4/29/2008	1603.35	254.13	1349.22
	5/27/2008	1603.35	254.12	1349.23
	6/27/2008	1603.35	254.20	1349.15
	7/28/2008	1603.35	254.26	1349.09
	8/29/2008	1603.35	254.28	1349.07
	9/20/2008	1603.35	254.25	1349.10
	10/14/2008	1603.35	254.23	1349.12
	11/21/2008	1603.35	254.23	1349.12
	12/15/2008	1603.35	254.20	1349.15
	1/12/2009	1603.35	254.22	1349.13
	2/16/2009	1603.35	254.20	1349.15
	3/17/2009	1603.35	254.25	1349.10
	4/13/2009	1603.35	254.24	1349.11
	5/20/2009	1603.35	254.32	1349.03
	6/15/2009	1603.35	254.35	1349.00
	7/6/2009	1603.35	254.35	1349.00

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-11	8/12/2009	1603.35	254.38	1348.97
	9/28/2009	1603.35	254.52	1348.83
	10/27/2009	1603.35	254.61	1348.74
	11/25/2009	1603.35	254.73	1348.62
	12/18/2009	1603.35	254.80	1348.55
	1/18/2010	1603.35	254.92	1348.43
	6/8/2010	1606.14	257.63	1348.51
	6/22/2010	1606.14	257.62	1348.52
MW-12	12/22/2005	1557.46	209.16	1348.30
	3/20/2006	1557.46	209.09	1348.37
	5/22/2006	1557.46	209.17	1348.29
	8/28/2006	1557.46	209.12	1348.34
	11/13/2006	1557.46	209.14	1348.32
	2/12/2007	1557.46	209.23	1348.23
	4/9/2007	1557.46	209.16	1348.30
	7/30/2007	1557.46	208.85	1348.61
	10/15/2007	1557.46	209.23	1348.23
	1/14/2008	1557.46	209.46	1348.00
	3/31/2008	1557.46	209.31	1348.15
	4/29/2008	1557.46	209.31	1348.15
	5/27/2008	1557.46	209.42	1348.04
	6/27/2008	1557.46	209.63	1347.83
	7/28/2008	1557.46	209.58	1347.88
	8/29/2008	1557.46	209.58	1347.88
	9/20/2008	1557.46	209.50	1347.96
	10/14/2008	1557.46	209.40	1348.06
	11/21/2008	1557.46	209.41	1348.05
	12/15/2008	1557.46	209.50	1347.96
	1/12/2009	1557.46	209.46	1348.00
	2/16/2009	1557.46	209.52	1347.94
	3/17/2009	1557.46	209.48	1347.98
	4/13/2009	1557.46	209.45	1348.01
	5/20/2009	1557.46	209.79	1347.67
	6/15/2009	1557.46	209.64	1347.82
	7/6/2009	1557.46	209.66	1347.80
	8/13/2009	1557.46	209.75	1347.71
	9/28/2009	1560.91	213.59	1347.32
	10/27/2009	1560.91	213.61	1347.30
	11/25/2009	1560.91	213.94	1346.97
	12/18/2009	1560.91	213.99	1346.92

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-12	1/18/2010	1560.91	214.11	1346.80
	6/8/2010	1560.91	213.38	1347.53
	6/22/2010	1560.91	213.38	1347.53
MW-13	8/29/2008	1595.77	246.82	1348.95
	9/20/2008	1595.77	246.75	1349.02
	10/14/2008	1595.77	246.75	1349.02
	11/21/2008	1595.77	246.78	1348.99
	12/15/2008	1595.77	246.83	1348.94
	1/12/2009	1595.77	246.79	1348.98
	2/16/2009	1595.77	246.81	1348.96
	3/17/2009	1595.77	246.80	1348.97
	4/13/2009	1595.77	246.80	1348.97
	5/20/2009	1595.77	246.90	1348.87
	6/15/2009	1595.77	246.95	1348.82
	7/6/2009	1595.77	246.89	1348.88
	8/12/2009	1595.77	246.98	1348.79
	9/28/2009	1599.52	250.74	1348.78
	10/27/2009	1599.52	250.71	1348.81
	11/25/2009	1599.52	250.98	1348.54
	12/18/2009	1599.52	251.00	1348.52
	1/18/2010	1599.52	251.13	1348.39
	6/8/2010	1599.52	250.83	1348.69
	6/22/2010	1599.52	250.87	1348.65
MW-14	8/29/2008	1602.48	263.25	1339.23
	9/20/2008	1602.48	263.38	1339.10
	10/14/2008	1602.48	263.69	1338.79
	11/21/2008	1602.48	264.15	1338.33
	12/15/2008	1602.48	264.02	1338.46
	1/12/2009	1602.48	263.57	1338.91
	2/16/2009	1602.48	263.66	1338.82
	3/17/2009	1602.48	264.03	1338.45
	4/13/2009	1602.48	264.08	1338.40
	5/20/2009	1602.48	264.55	1337.93
	6/15/2009	1602.48	264.65	1337.83
	7/6/2009	1602.48	264.89	1337.59
	8/12/2009	1602.48	265.10	1337.38
	9/28/2009	1602.48	265.59	1336.89
	10/27/2009	1602.48	265.78	1336.70
	11/25/2009	1602.48	266.72	1335.76
	12/18/2009	1602.48	265.98	1336.50

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-14	1/18/2010	1602.48	266.03	1336.45
	6/8/2010	1602.48	266.04	1336.44
	6/22/2010	1602.48	266.49	1335.99
MW-15	8/29/2008	1600.48	261.95	1338.53
	9/20/2008	1600.48	262.09	1338.39
	10/14/2008	1600.48	262.18	1338.30
	11/21/2008	1600.48	262.45	1338.03
	12/15/2008	1600.48	262.58	1337.90
	1/12/2009	1600.48	262.51	1337.97
	2/16/2009	1600.48	262.53	1337.95
	3/17/2009	1600.48	262.60	1337.88
	4/13/2009	1600.48	262.72	1337.76
	5/20/2009	1600.48	262.96	1337.52
	6/15/2009	1600.48	263.03	1337.45
	7/6/2009	1600.48	263.19	1337.29
	8/12/2009	1600.48	263.36	1337.12
	9/28/2009	1600.48	263.69	1336.79
	10/27/2009	1600.48	263.80	1336.68
	11/25/2009	1600.48	264.20	1336.28
	12/18/2009	1600.48	264.28	1336.20
	1/18/2010	1600.48	264.39	1336.09
	6/8/2010	1600.48	264.50	1335.98
	6/22/2010	1600.48	264.68	1335.80
MW-18	9/28/2009	1533.53	181.20	1352.33
	10/7/2009	1533.53	137.39	1396.14
	10/27/2009	1533.53	132.18	1401.35
	11/25/2009	1533.53	131.17	1402.36
	12/18/2009	1533.53	130.11	1403.42
	1/18/2010	1533.53	129.84	1403.69
	6/8/2010	1533.53	129.81	1403.72
	6/22/2010	1533.53	129.85	1403.68
PW-1	3/13/2008	1554.55	211.31	1343.24
	4/29/2008	1554.55	240.30	1314.25
	5/27/2008	1554.55	280.72	1273.83
	6/27/2008	1554.55	220.65	1333.90
	8/29/2008	1554.55	213.00	1341.55
	9/3/2008	1554.55	211.54	1343.01
	9/20/2008	1554.55	NM	NM
	10/14/2008	1554.55	210.93	1343.62
	11/21/2008	1554.55	270.60	1283.95

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
PW-1	12/15/2008	1554.55	305.95	1248.60
	1/12/2009	1554.55	223.60	1330.95
	2/16/2009	1554.55	211.37	1343.18
	3/17/2009	1554.55	211.00	1343.55
	4/13/2009	1554.55	209.26	1345.29
	5/20/2009	1554.55	214.21	1340.34
	6/15/2009	1554.55	209.89	1344.66
	8/12/2009	1554.55	262.80	1291.75
	9/28/2009	1554.55	376.20	1178.35
	10/27/2009	1554.55	219.60	1334.95
	11/25/2009	1554.55	345.45	1209.10
	12/18/2009	1554.55	355.78	1198.77
	1/18/2010	1554.55	213.10	1341.45
	6/8/2010	1554.55	208.96	1345.59
	6/22/2010	1554.55	208.89	1345.66
18 East Yearling	3/30/07	1596.79	NA	NA
	5/25/07	1596.79	NA	NA
	6/4/07	1596.79	NA	NA
	6/20/2007	1596.79	NA	NA
	7/30/2007	1596.79	NA	NA
	8/2/2007	1596.79	351.13	1245.66
	8/30/2007	1596.79	346.66	1250.13
	9/12/2007	1596.79	365.49	1231.30
	9/24/2007	1596.79	358.82	1237.97
	9/27/2007	1596.79	365.22	1231.57
	10/15/2007	1596.79	362.45	1234.34
	11/19/2007	1596.79	363.82	1232.97
	12/11/2007	1596.79	360.47	1236.32
	1/14/2008	1596.79	354.74	1242.05
	3/13/2008	1596.79	358.96	1237.83
	5/16/2008	1596.79	350.67	1246.12
	7/28/2008	1596.79	below transducer	NM
	8/29/2008	1596.79	258.19	1338.60
	10/14/2008	1596.79	362.65	1234.14
	12/3/2008	1596.79	358.64	1238.15
	12/15/2008	1596.79	358.88	1237.91
	1/12/2009	1596.79	357.04	1239.75
	2/16/2009	1596.79	355.66	1241.13
	3/17/2009	1596.79	358.48	1238.31
	4/13/2009	1596.79	369.10	1227.69

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
18 East Yearling	5/20/2009	1596.79	399.30	1197.49
	6/15/2009	1596.79	372.35	1224.44
	7/6/2009	1596.79	377.89	1218.90
	8/12/2009	1596.79	399.60	1197.19
	9/28/2009	1596.79	dry	dry
	10/27/2009	1596.79	dry	dry
	11/25/2009	1596.79	dry	dry
	12/18/2009	1596.79	392.78	1204.01
	1/18/2010	1596.79	dry	dry
	6/8/2010	1596.79	NA	NA
	6/22/2010	1596.79	NA	NA
218 East Yearling	3/30/2007	1617.01	325.20	1291.81
	5/25/07	1617.01	313.19	1303.82
	6/4/07	1617.01	325.92	1291.09
	6/20/2007	1617.01	317.50	1299.51
	7/30/2007	1617.01	NA	NA
	8/2/2007	1617.01	NA	NA
	8/30/2007	1617.01	313.80	1303.21
	9/12/2007	1617.01	334.26	1282.75
	9/24/2007	1617.01	NA	NA
	9/27/2007	1617.01	317.38	1299.63
	10/15/2007	1617.01	323.81	1293.20
	11/19/2007	1617.01	322.32	1294.69
	12/11/2007	1617.01	315.75	1301.26
	1/14/2008	1617.01	313.32	1303.69
	3/13/2008	1617.01	obstruction	NM
	5/16/2008	1617.01	344.85	1272.16
	7/28/2008	1617.01	316.35	1300.66
	8/29/2008	1617.01	329.46	1287.55
	10/14/2008	1617.01	340.00	1277.01
	12/3/2008	1617.01	317.34	1299.67
	12/15/2008	1617.01	313.89	1303.12
	1/12/2009	1617.01	310.40	1306.61
	2/16/2009	1617.01	314.42	1302.59
	3/17/2009	1617.01	311.95	1305.06
	4/13/2009	1617.01	311.63	1305.38
	5/20/2009	1617.01	332.30	1284.71
	6/15/2009	1617.01	321.86	1295.15
	7/6/2009	1617.01	325.00	1292.01
	8/12/2009	1617.01	325.93	1291.08

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
218 East Yearling	9/28/2009	1617.01	323.18	1293.83
	10/27/2009	1617.01	324.80	1292.21
	11/25/2009	1617.01	322.86	1294.15
	12/18/2009	1617.01	320.08	1296.93
	1/18/2010	1617.01	327.30	1289.71
	6/8/2010	1617.01	NA	NA
	6/22/2010	1617.01	NA	NA
520 East Yearling	3/30/07	1635.71	293.60	1342.11
	5/25/07	1635.71	293.68	1342.03
	6/4/07	1635.71	292.33	1343.38
	6/20/2007	1635.71	292.54	1343.17
	7/30/2007	1635.71	293.69	1342.02
	8/2/2007	1635.71	NA	NA
	8/30/2007	1635.71	292.04	1343.67
	9/12/2007	1635.71	294.56	1341.15
	9/24/2007	1635.71	294.59	1341.12
	9/27/2007	1635.71	295.18	1340.53
	10/15/2007	1635.71	294.94	1340.77
	11/19/2007	1635.71	295.66	1340.05
	12/11/2007	1635.71	295.41	1340.30
	1/14/2008	1635.71	295.30	1340.41
	3/13/2008	1635.71	294.71	1341.00
	5/16/2008	1635.71	295.80	1339.91
	7/28/2008	1635.71	296.54	1339.17
	8/29/2008	1635.71	305.50	1330.21
	10/14/2008	1635.71	297.20	1338.51
	12/3/2008	1635.71	297.37	1338.34
	12/15/2008	1635.71	297.42	1338.29
	1/12/2009	1635.71	296.90	1338.81
	2/16/2009	1635.71	296.90	1338.81
	3/17/2009	1635.71	297.42	1338.29
	4/13/2009	1635.71	299.90	1335.81
	5/20/2009	1635.71	298.10	1337.61
	6/15/2009	1635.71	298.18	1337.53
	7/6/2009	1635.71	311.26	1324.45
	8/12/2009	1635.71	311.69	1324.02
	9/28/2009	1635.71	312.45	1323.26
	10/27/2009	1635.71	290.65	1345.06
	11/25/2009	1635.71	299.85	1335.86
	12/18/2009	1635.71	299.38	1336.33

Appendix C
Historic Water Level Data
UPCO and Private Wells

Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
520 East Yearling	1/18/2010	1635.71	299.30	1336.41
	6/8/2010	1635.71	300.29	1335.42
	6/22/2010	1635.71	300.39	1335.32

Note:

Measured depth to water and calculated groundwater elevations at private wells may not represent actual static water levels because these are active pumping wells, subject to frequent water level fluctuations.

NM = Not measured

NA = No access

dry = Sounder did not detect water

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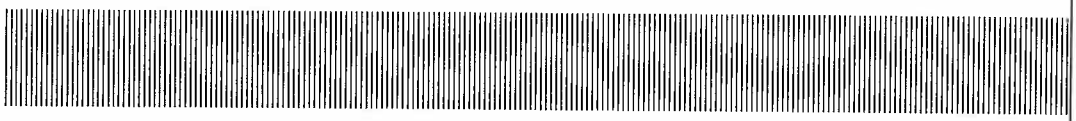
Appendix D
Monitor Well Hydrographs



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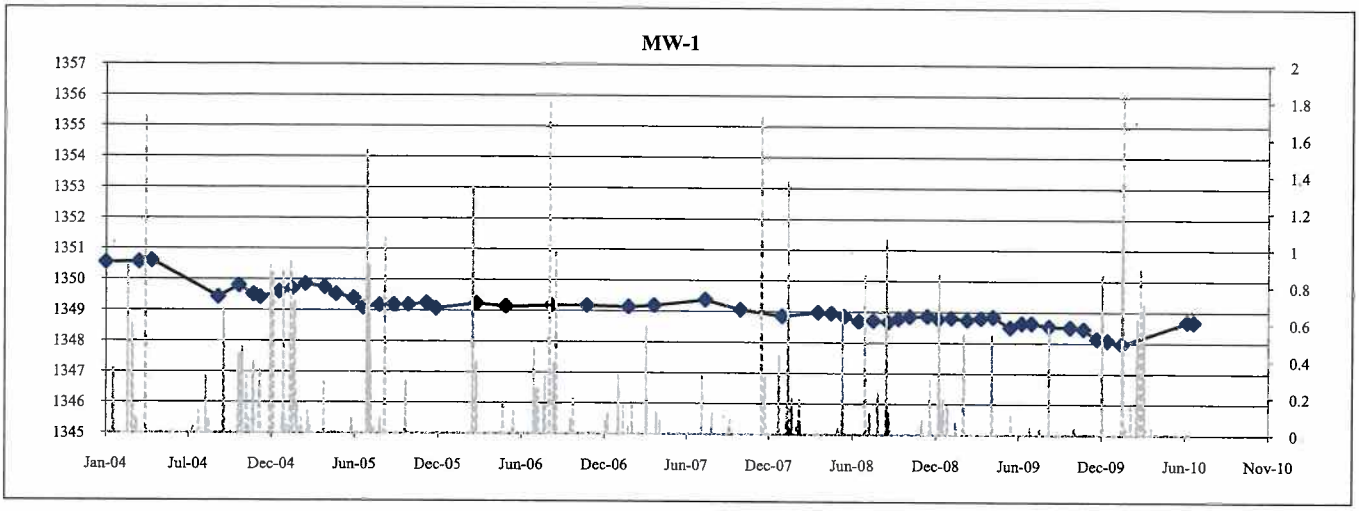
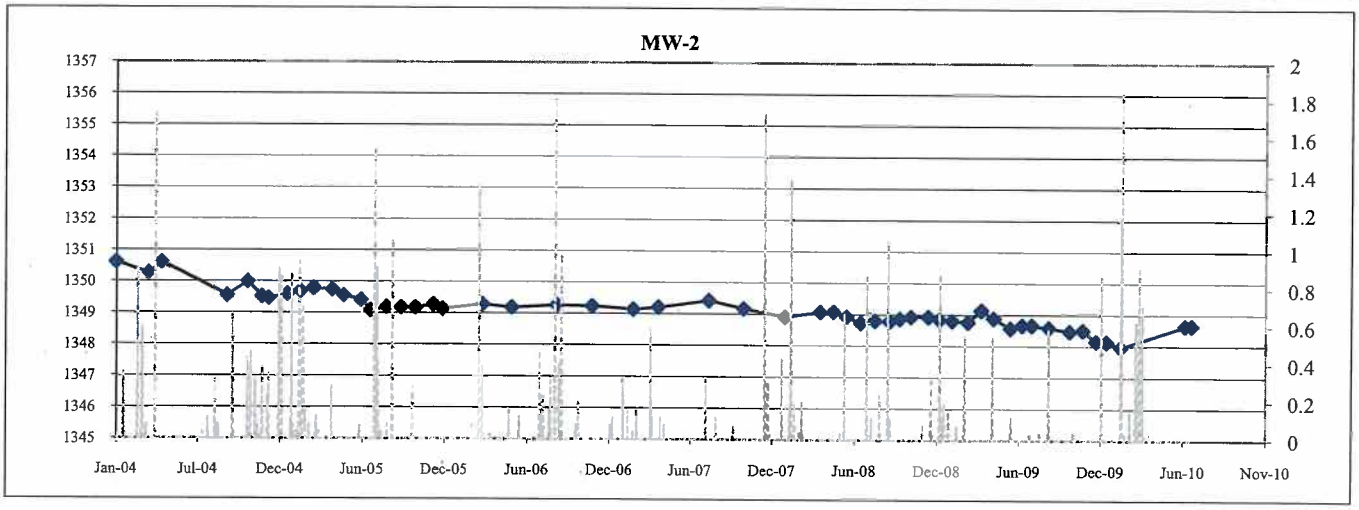
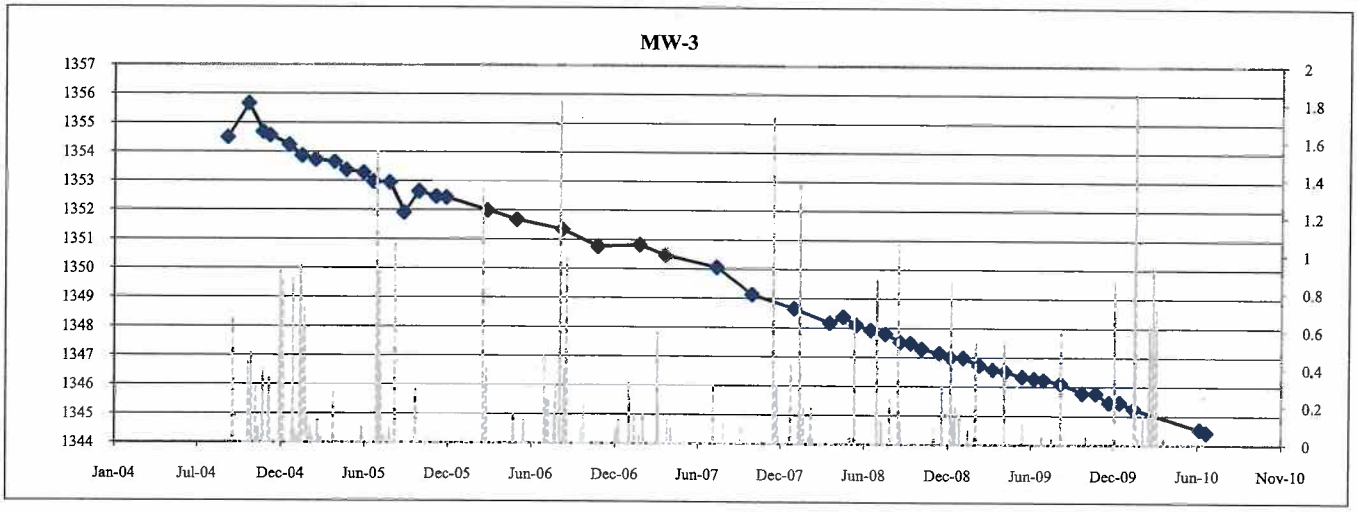
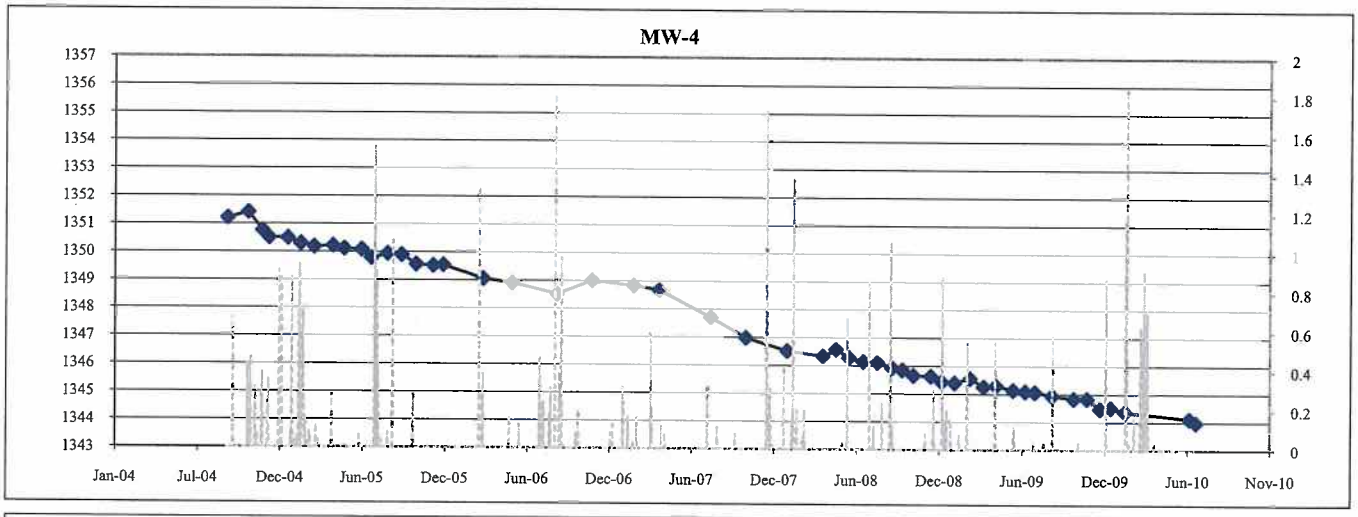
Appendix D
Well Hydrographs (feet amsl) with Precipitation (in/day)

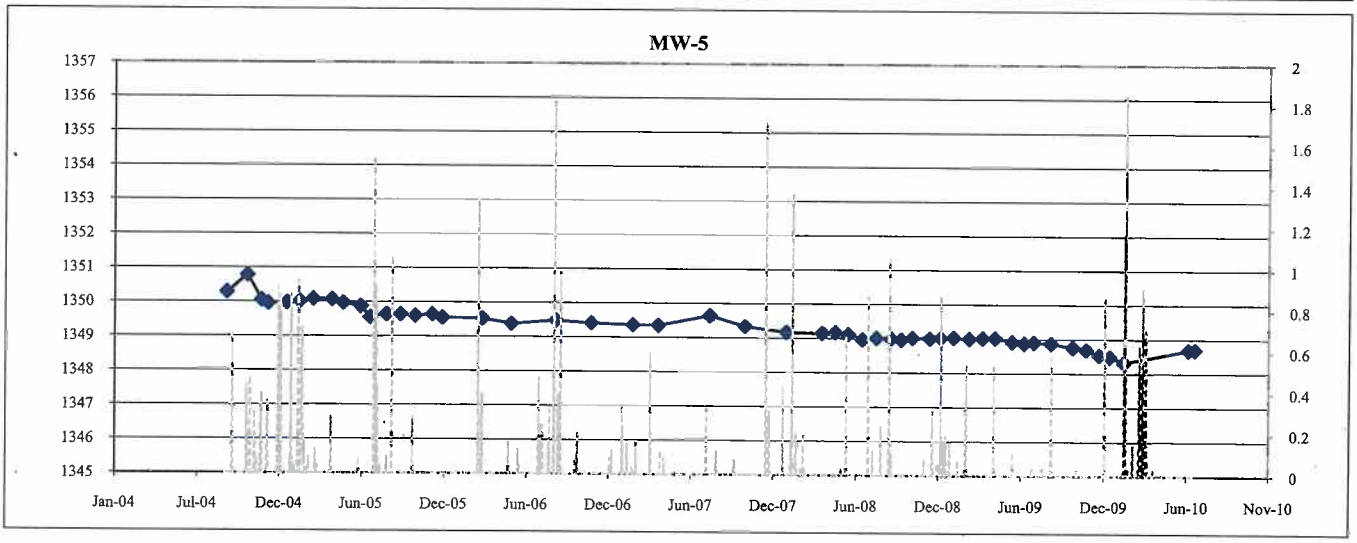


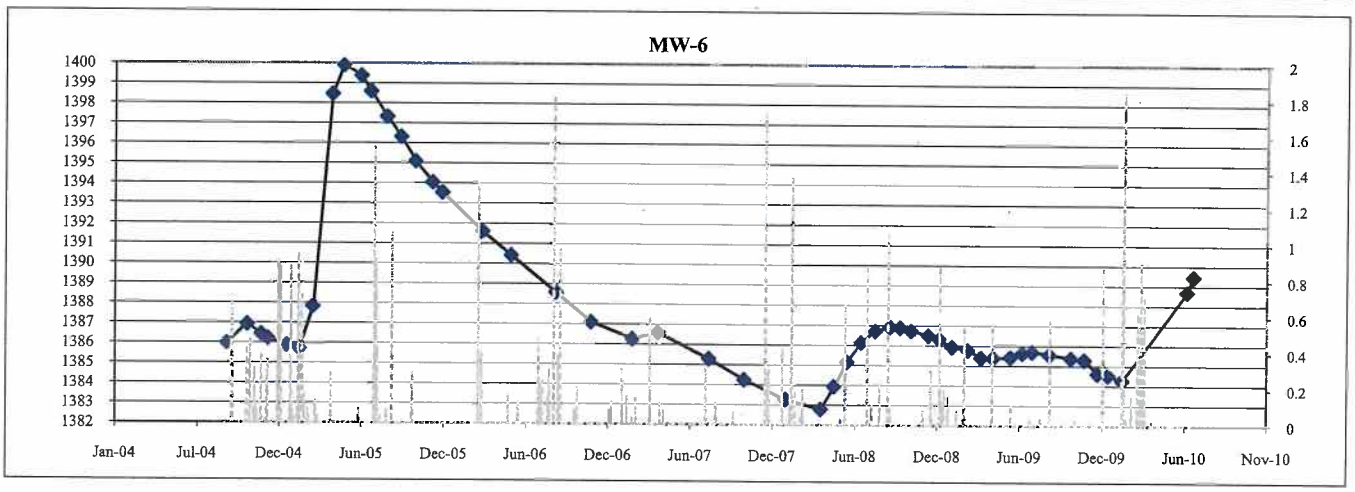




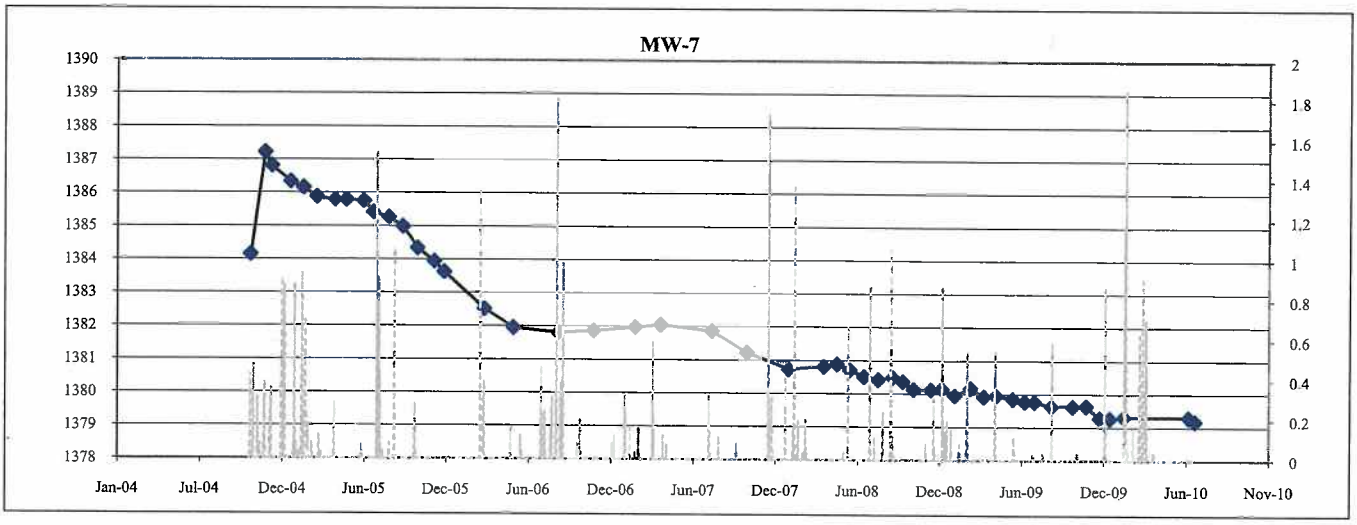
Appendix D
Well Hydrographs (feet amsl) with Precipitation (in/day)

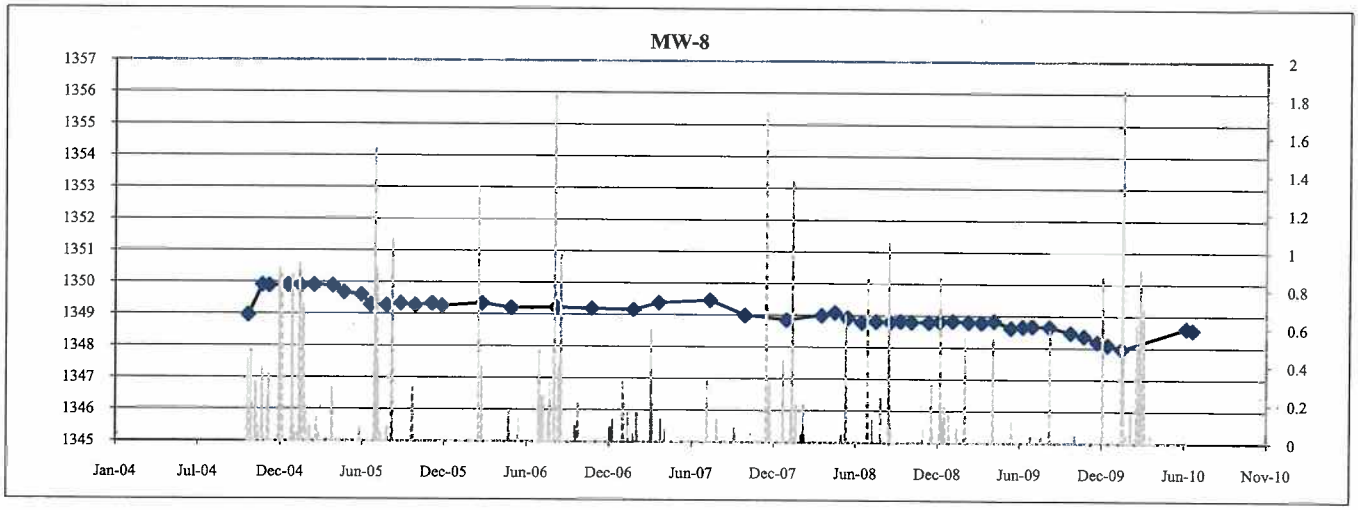


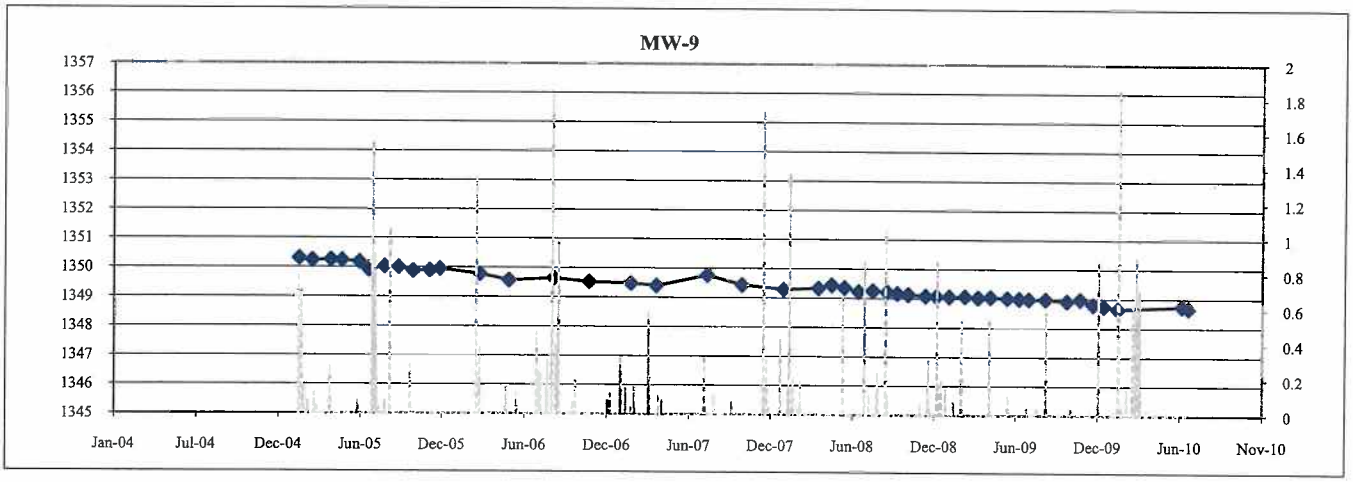




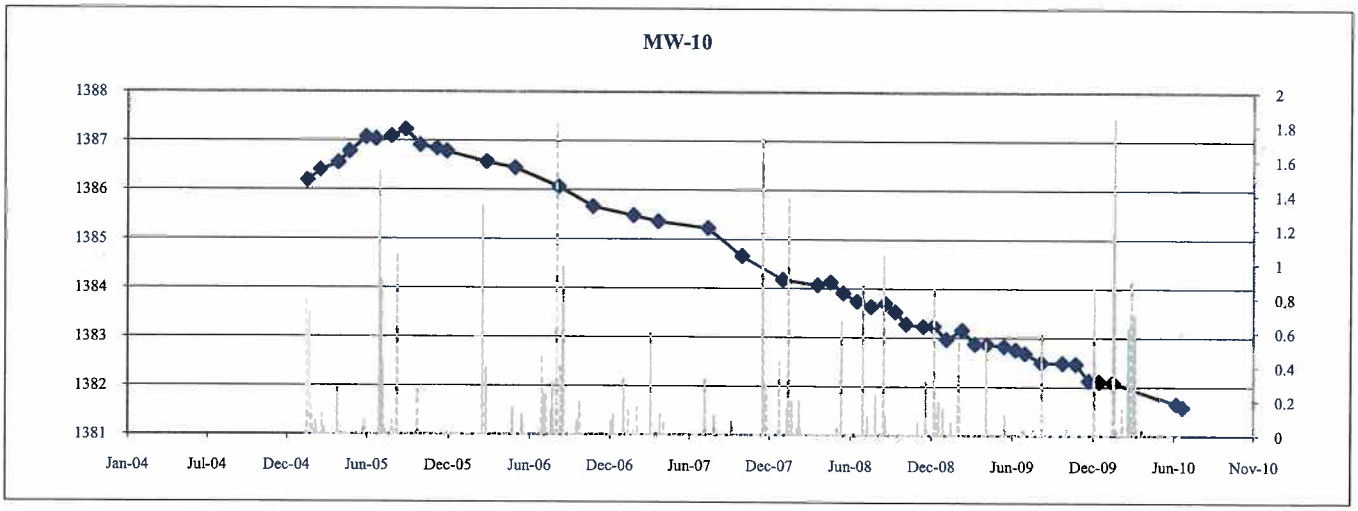
Appendix D
Well Hydrographs (feet amsl) with Precipitation (in/day)

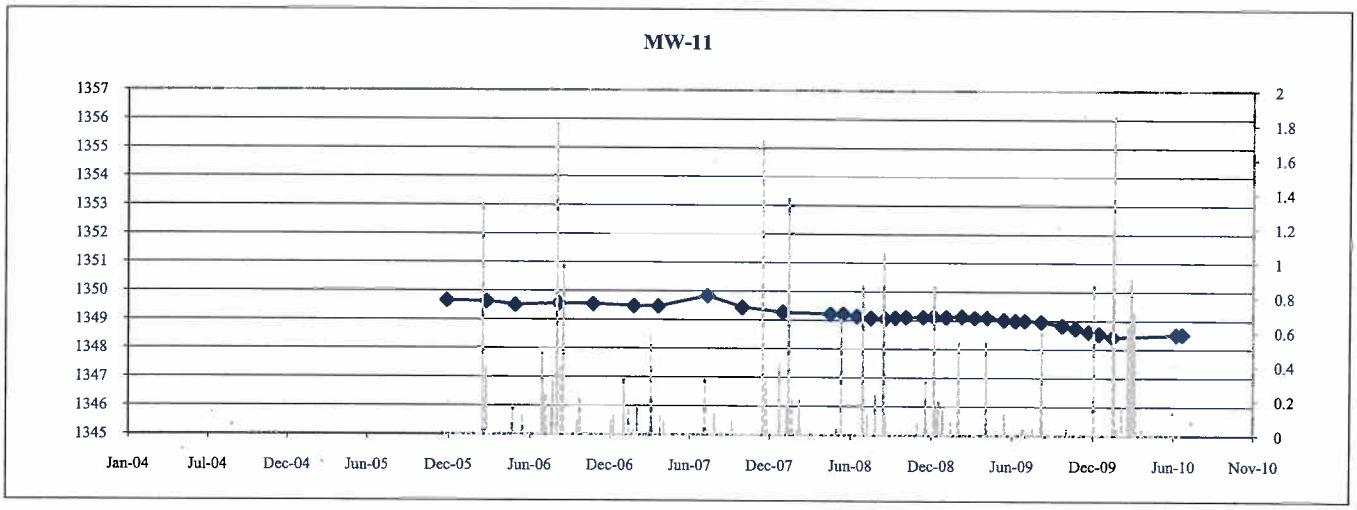


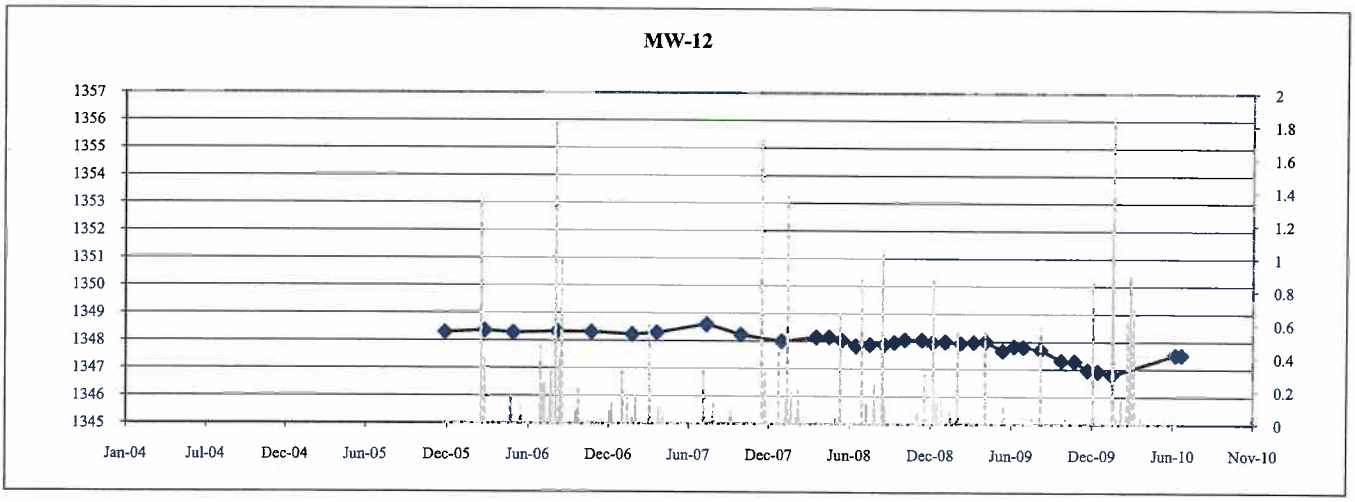




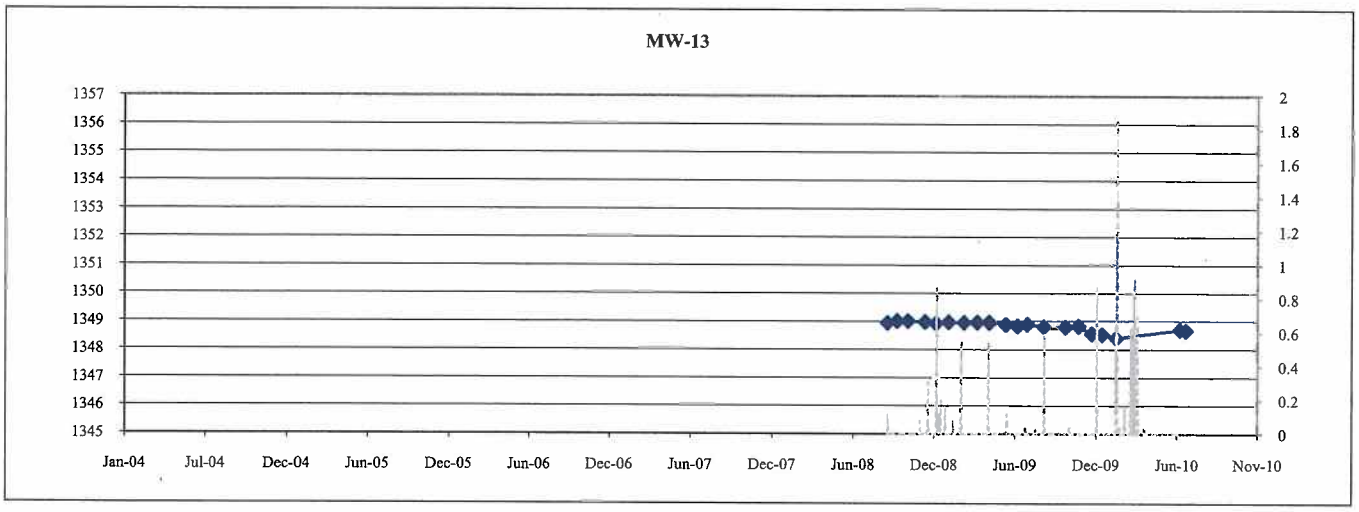
Appendix D
Well Hydrographs (feet amsl) with Precipitation (in/day)

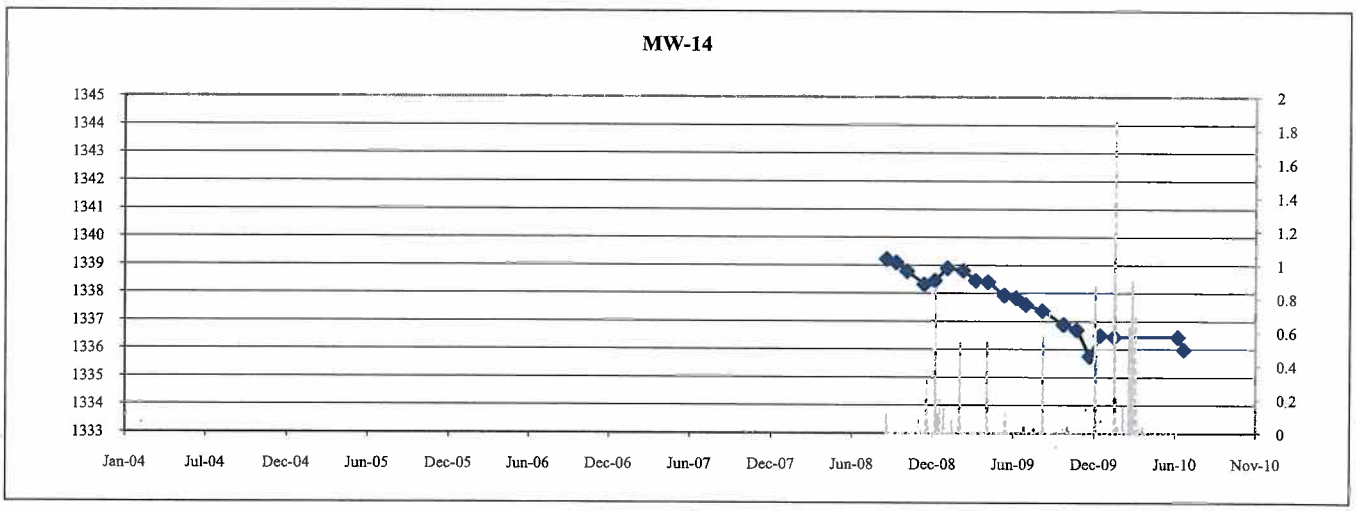


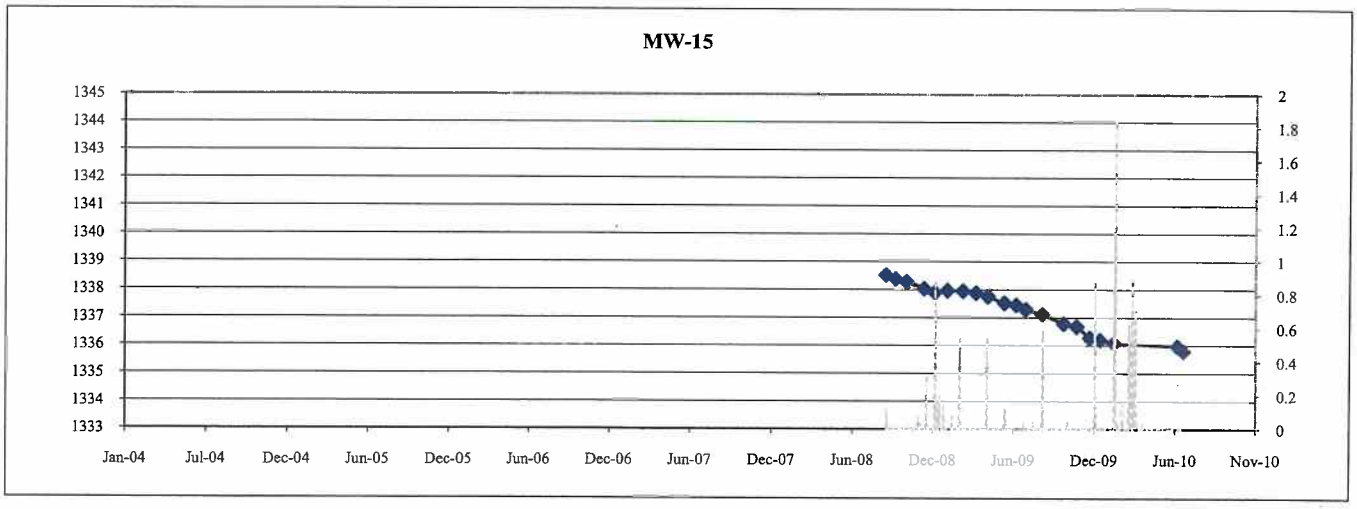




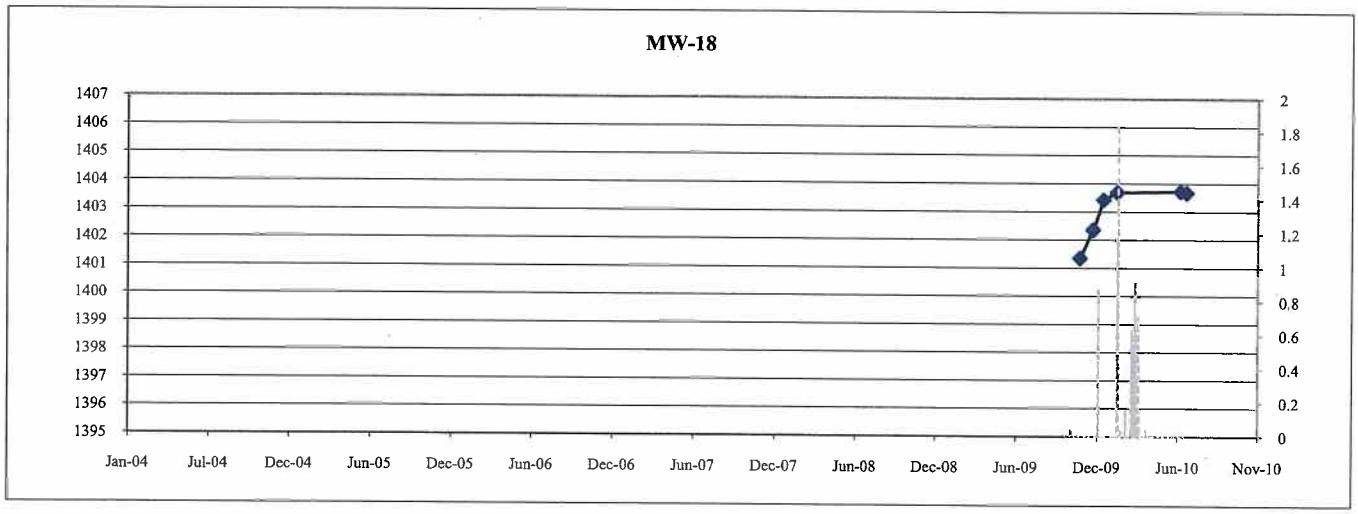
Appendix D
Well Hydrographs (feet amsl) with Precipitation (in/day)

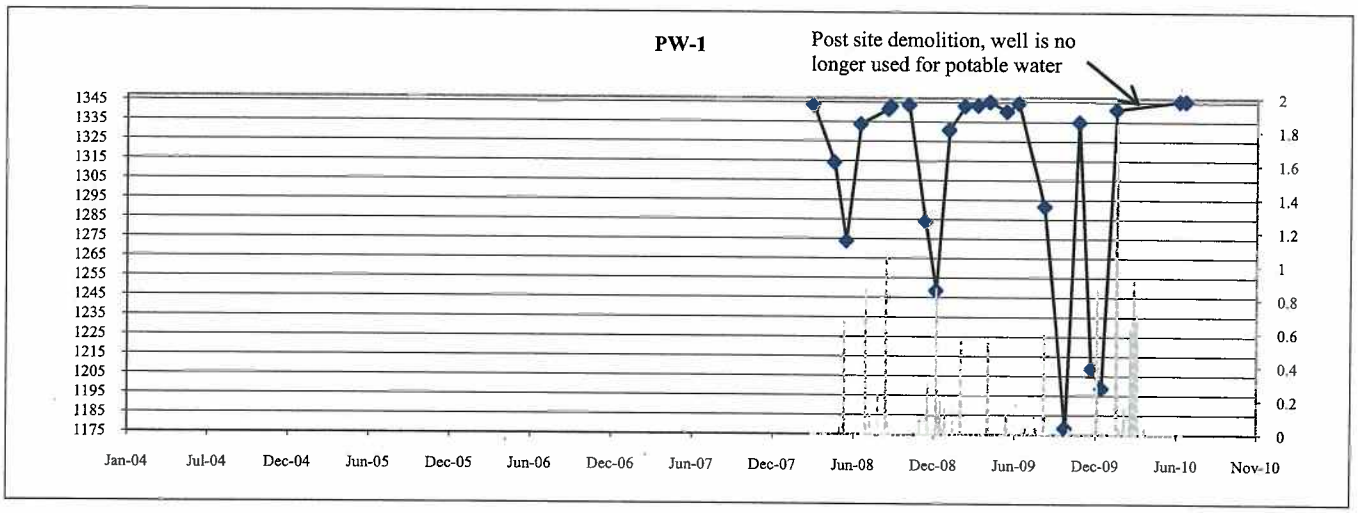






Appendix D
Well Hydrographs (feet amsl) with Precipitation (in/day)





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Appendix E
2010 Monitor Well Water Quality

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Appendix E
Monitor Well Groundwater Quality Summary

Parameter	MW-1 1/25/2010	MW-1 6/14/2010	MW-2 1/25/2010	MW-2 6/14/2010	MW-3 1/20/2010	MW-4 1/20/2010	MW-5 1/25/2010	MW-5 6/14/2010	MW-6 1/20/2010	MW-6 6/15/2010	MW-7 1/22/2010	MW-8 1/20/2010
Inorganics (mg/L)												
Arsenic	0.010	NA	0.0082	NA	0.0053	0.0026	0.010	NA	0.0068	NA	0.026	0.048
Barium	0.044	NA	0.074	NA	0.022	0.078	0.053	NA	0.016	NA	0.0065	0.0022
Cadmium	<0.0010	NA	<0.0010	NA	<0.0010	<0.0010	<0.0010	NA	<0.0010	NA	<0.0010	<0.0010
Chromium	0.0023	NA	0.015	NA	0.0020	<0.0010	0.031	NA	0.0032	NA	0.0030	0.024
Lead	0.0015	NA	0.0013	NA	0.0019	0.0014	0.0017	NA	0.0013	NA	<0.0010	0.0029
Mercury	<0.00020	NA	<0.00020	NA	<0.00020	<0.00020	<0.00020	NA	<0.00020	NA	<0.00020	<0.00020
Selenium	<0.0020	NA	<0.0020	NA	<0.0020	<0.0020	<0.0020	NA	<0.0020	NA	<0.0020	<0.0020
Silver	<0.0010	NA	<0.0010	NA	<0.0010	<0.0010	<0.0010	NA	<0.0010	NA	<0.0010	<0.0010
Volatile Organic Compounds (ug/L)												
1,1,1,2-Tetrachloroethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,1,1-Trichloroethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,1,2,2-Tetrachloroethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,1,2-Trichloroethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,1-Dichloroethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,1-Dichloroethene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,1-Dichloropropene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,2,3-Trichlorobenzene	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
1,2,3-Trichloropropane	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
1,2,4-Trichlorobenzene	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
1,2,4-Trimethylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,2-Dibromo-3-chloropropane	<2.5	NA	<2.5	NA	<2.5	<2.5	<2.5	NA	<2.5	NA	<2.5	<2.5
1,2-Dibromoethane (EDB)	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,2-Dichlorobenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,2-Dichloroethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,2-Dichloropropane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,3,5-Trimethylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,3-Dichlorobenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,3-Dichloropropane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,4-Dichlorobenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
1,4-Dioxane	<1.0	NA	2.7	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
2,2-Dichloropropane	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
2-Butanone (MEK)	<2.5	NA	<2.5	NA	<2.5	<2.5	<2.5	NA	<2.5	NA	<2.5	<2.5
2-Chlorotoluene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
2-Hexanone	<2.5	NA	<2.5	NA	<2.5	<2.5	<2.5	NA	<2.5	NA	<2.5	<2.5
4-Chlorotoluene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
4-Methyl-2-pentanone (MIBK)	<2.5	NA	<2.5	NA	<2.5	<2.5	<2.5	NA	<2.5	NA	<2.5	<2.5
Acetone	<10	NA	<10	NA	<10	<10	<10	NA	<10	NA	<10	<10
Benzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Bromobenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Bromochloromethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Bromodichloromethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Bromoform	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
Bromomethane	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
Carbon disulfide	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Carbon tetrachloride	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Chlorobenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Chloroethane	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0

Appendix E
Monitor Well Groundwater Quality Summary

Parameter	MW-1 1/25/2010	MW-1 6/14/2010	MW-2 1/25/2010	MW-2 6/14/2010	MW-3 1/20/2010	MW-4 1/20/2010	MW-5 1/25/2010	MW-5 6/14/2010	MW-6 1/20/2010	MW-6 6/15/2010	MW-7 1/22/2010	MW-8 1/20/2010
Volatile Organic Compounds (ug/L)												
Chloroform	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Chloromethane	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
cis-1,2-Dichloroethene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
cis-1,3-Dichloropropene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Dibromochloromethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Dibromomethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Dichlorodifluoromethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Ethylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Hexachlorobutadiene	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
Iodomethane	<2.5	NA	<2.5	NA	<2.5	<2.5	<2.5	NA	<2.5	NA	<2.5	<2.5
Isopropylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Methylene Chloride	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0
Methyl-tert-butyl Ether (MTBE)	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Naphthalene	<2.5	NA	<2.5	NA	<2.5	<2.5	<2.5	NA	<2.5	NA	<2.5	<2.5
n-Butylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
n-Propylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Perchlorate	69	78	90	94	0.47 J	0.49 J	32	27	16	19	0.51 J	0.93 J
p-Isopropyltoluene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
sec-Butylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Styrene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
tert-Butylbenzene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Tetrachloroethene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Toluene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
trans-1,2-Dichloroethene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
trans-1,3-Dichloropropene	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Trichloroethene	<0.50	NA	<0.50	NA	5.4	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Trichlorofluoromethane	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Vinyl Acetate	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Vinyl chloride	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50
Xylenes, Total	<1.0	NA	<1.0	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	<1.0

Notes:
NA = Not analyzed
< = Analyte not detected above the listed laboratory reporting limit
J = Estimated value
UJ = Estimated reporting limit
mg/L = Milligrams per liter
ug/L = Micrograms per liter

Appendix E
Monitor Well Groundwater Quality Summary

Parameter	MW-9 1/20/2010	MW-10 1/20/2010	MW-11 1/21/2010	MW-12 1/21/2010	MW-13 1/22/2010	MW-13 6/15/2010	MW-14 1/20/2010	MW-15 1/22/2010	MW-18 1/27/2010
Inorganics (mg/L)									
Arsenic	0.0079	0.018	0.0072	0.0074	0.0046	NA	0.0014	0.0030	0.051
Barium	0.061	0.0086	0.14	0.027	0.064	NA	0.28	0.25	0.015
Cadmium	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	NA	<0.0010	<0.0010	<0.0010
Chromium	<0.0010	0.0027	0.0051	0.0071	0.0015	NA	0.0021	<0.0010	0.013
Lead	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	NA	0.0016	<0.0010	<0.0010
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	NA	<0.00020	<0.00020	<0.00020
Selenium	<0.0020	<0.0020	0.0027	<0.0020	<0.0020	NA	0.0023	<0.0020	<0.0020
Silver	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	NA	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds (ug/L)									
1,1,1,2-Tetrachloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,1-Dichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,1-Dichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,1-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,2,3-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
1,2,4-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,2-Dibromo-3-chloropropane	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5
1,2-Dibromoethane (EDB)	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,2-Dichloropropane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,3,5-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,3-Dichloropropane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
1,4-Dioxane	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
2,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
2-Butanone (MEK)	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5
2-Chlorotoluene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
2-Hexanone	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5
4-Chlorotoluene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
4-Methyl-2-pentanone (MIBK)	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5
Acetone	<10	<10	<10	<10	<10	NA	<10	<10	<10
Benzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Bromobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Bromochloromethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Bromodichloromethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
Carbon disulfide	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Carbon tetrachloride	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Chlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0

Appendix E
Monitor Well Groundwater Quality Summary

Parameter	MW-9 1/20/2010	MW-10 1/20/2010	MW-11 1/21/2010	MW-12 1/21/2010	MW-13 1/22/2010	MW-13 6/15/2010	MW-14 1/20/2010	MW-15 1/22/2010	MW-18 1/27/2010
Volatile Organic Compounds (ug/L)									
Chloroform	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Dibromochloromethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Dibromomethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Dichlorodifluoromethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Ethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Hexachlorobutadiene	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
Iodomethane	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5
Isopropylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Methylene Chloride	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0
Methyl-tert-butyl Ether (MTBE)	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Naphthalene	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5
n-Butylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
n-Propylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Perchlorate	0.64 J	1.2 J	2.1 J	1.1 J	22	12	0.98 J	0.86 J	<2.0 UJ
p-Isopropyltoluene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
sec-Butylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Styrene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
tert-Butylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Tetrachloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Toluene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Trichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Trichlorofluoromethane	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Vinyl Acetate	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Vinyl chloride	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50
Xylenes, Total	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0

Notes:
NA = Not analyzed
< = Analyte not detected above the listed laboratory reporting limit
J = Estimated value
UJ = Estimated reporting limit
mg/L = Milligrams per liter
ug/L = Micrograms per liter

Universal Propulsion Company
2010 Annual Monitoring Report

Appendix F
Historic Private Well Water Quality Data

ARCADIS

3994003

Appendix F
Historic Private Well Water Quality Data

Sample ID	Date Collected	Perchlorate	
		EPA Method 314.0 (ug/L)	EPA Method 332.0 (ug/L)
104 E. Yearling	11/15/2006	<2.0	2.0
	12/28/2007	<2.0	1.3
	4/1/2008	<2.0	1.1
	10/15/2008	<2.0	0.75
	4/16/2009	<2.0	0.65
122 W.Yearling	12/28/2007	<2.0	1.4
	4/1/2008	<2.0	1.2
	10/13/2008	<2.0	0.72
	4/16/2009	<2.0	0.67
	10/30/2009	<2.0	1.2
	6/17/2010	<2.0	0.65 J
16 E Yearling	11/19/2004	<2.0	NA
	4/29/2005	<2.0	NA
	10/28/2005	<2.0	NA
	5/23/2006	<2.0	NA
	11/13/2006	<2.0	0.68
	10/16/2007	<2.0	0.64
	4/1/2008 *	<2.0	2.6
	4/1/2008	<2.0	2.9
	10/15/2008	<2.0	0.77
	4/17/2009	<2.0	0.63
	10/30/2009	<2.0	1.0
	6/17/2010	<2.0	0.58 J
18 E.Yearling	10/27/2005	<2.0	NA
	5/23/2006	<2.0	NA
	11/14/2006	<2.0	0.94
	4/4/2007	<2.0	0.98
	10/16/2007	<2.0	0.77
	4/1/2008	<2.0	1.0
	10/15/2008	<2.0	1.1
	4/16/2009	<2.0	0.86
	10/30/2009	<2.0	1.1
	6/17/2010	<2.0	0.81 J
204 E.Yearling	10/27/2005	<2.0	NA
	4/16/2009	<2.0	0.64
	10/30/2009	<2.0	1.3
	6/17/2010	<2.0	0.62 J
218 E Yearling***	11/19/2004	<2.0	NA
	10/28/2005	<2.0	NA
	5/23/2006	<2.0	NA
	11/14/2006	<2.0	0.68
	4/4/2007	<2.0	0.67
	10/16/2007	<2.0	NA
	4/1/2008	<2.0	1.3
	10/15/2008	<2.0	0.80
	10/15/2008 **	<2.0	0.73
	4/16/2009	<2.0	0.68
	10/30/2009	<2.0	1.2

Appendix F
Historic Private Well Water Quality Data

Sample ID	Date Collected	Perchlorate	
		EPA Method 314.0 (ug/L)	EPA Method 332.0 (ug/L)
25825 N 1st Place	11/17/2004	<2.0	NA
	4/28/2005	<2.0	NA
	10/28/2005	<2.0	NA
	5/23/2006	<2.0	NA
	11/14/2006	<2.0	1.0
	4/4/2007	<2.0	0.93
	10/16/2007	<2.0	0.89
	4/1/2008	<2.0	1.1
	10/15/2008	<2.0	0.97
	4/16/2009	<2.0	0.89
	10/30/2009	<2.0	1.2
	6/16/2010	<2.0	0.89
25903 N 2nd St	11/19/2004	<2.0	NA
	10/28/2005	<2.0	NA
	5/23/2006	<2.0	NA
	11/14/2006	<2.0	0.78
	4/4/2007	<2.0	0.76
	4/1/2008	2.2	3.1
	10/15/2008	<2.0	0.84
	4/16/2009	<2.0	0.88
	10/30/2009	<2.0	1.3
	6/17/2010	<2.0	0.65 J
412 E Yearling	11/19/2004	<2.0	NA
	4/29/2005	<2.0	NA
	10/28/2005	<2.0	NA
	5/23/2006	<2.0	NA
	4/1/2008	<2.0	2.1
	10/15/2008	<2.0	1.5
	4/16/2009	<2.0	1.1
	10/30/2009	<2.0	1.5
	6/17/2010	<2.0	1.0 J
424 E Yearling	1/19/2008	<2.0	1.2
	4/1/2008	<2.0	2.2
	10/15/2008	<2.0	1.6
	4/16/2009	<2.0	1.2
	10/30/2009	<2.0	1.8
	6/17/2010	<2.0	1.1 J
520 E Yearling	11/17/2004	<2.0	NA
	4/28/2005	<2.0	NA
	5/23/2006	<2.0	NA
	11/14/2006	<2.0	1.5
	4/4/2007	2.4	1.3
	10/16/2007	<2.0	1.4
	4/1/2008	<2.0	2.2
	10/15/2008	<2.0	1.3
	4/16/2009	<2.0	1.3
	10/30/2009	<2.0	1.9
	6/17/2010	<2.0	1.2 J

Appendix F
Historic Private Well Water Quality Data

Sample ID	Date Collected	Perchlorate	
		EPA Method 314.0 (ug/L)	EPA Method 332.0 (ug/L)
604/616 E. Yearling	11/17/2004	<2.0	NA
	4/29/2005	<2.0	NA
	10/28/2005	<2.0	NA
	5/23/2006	<2.0	NA
	11/14/2006	<2.0	1.1
	4/6/2007	<2.0	1.2
	10/16/2007	<2.0	1.0
	4/1/2008	<2.0	1.5
	10/15/2008	<2.0	1.1
	4/16/2009	<2.0	0.98
	10/30/2009	<2.0	1.6
	6/17/2010	<2.0	0.91 J
8 W. Yearling	12/28/2007	<2.0	1.2
	4/4/2008	<2.0	0.78
	10/15/2008	<2.0	1.1
	10/30/2009	<2.0	1.1
	6/17/2010	<2.0	0.62 J

Notes:
ug/L = Micrograms per liter
< = Analyte not detected above the listed laboratory reporting limit
* = Well in front yard sampled for comparison purposes, labeled as 16 E. Yearling - N
** = Older well located in front yard of 218 E. Yearling that previously supplied both 204 E.Yearling and 218 E. Yearling residences before installation of new wells in back yards of both residences.
***=218 East Yearling was not sampled; unable to gain access to well after 2 attempts to contact resident
J = Analyte was positively identified, however the result should be considered an estimated value
NA = Not analyzed

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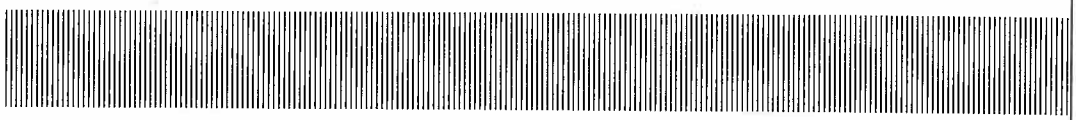
Appendix G
Historic Perchlorate Concentration Graph – Monitor Wells



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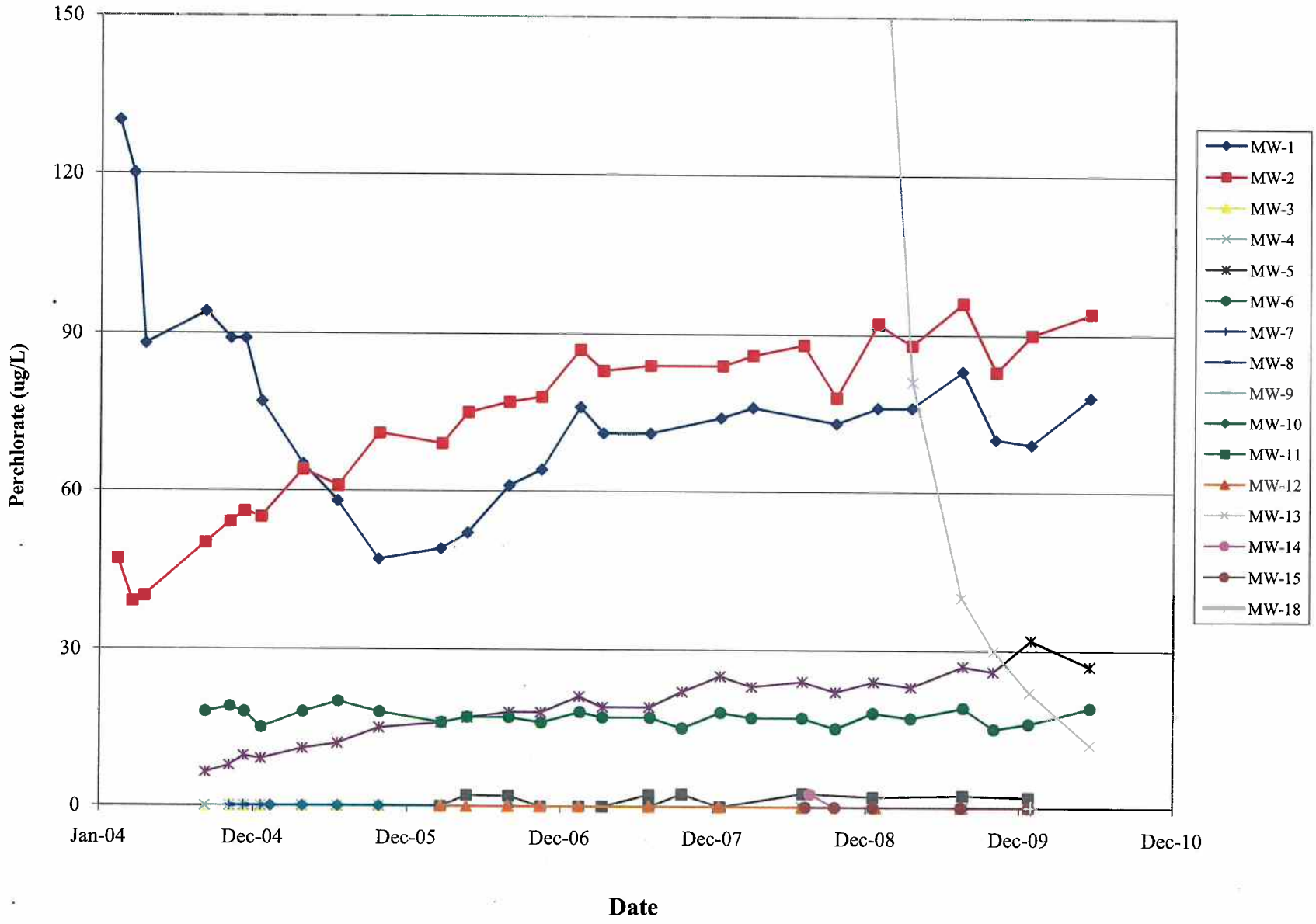
Appendix G
Historic Monitor Well Perchlorate Concentration Graph



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Appendix H
Summary of 2010 Field Data

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Appendix H
2010 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
First Quarter 2010	MW-1	1/25/2010	21	9:37	26.10	583	7.86
	MW-1	1/25/2010	41	9:41	26.94	591	7.93
	MW-1	1/25/2010	58	9:44	27.06	593	7.95
	MW-1	1/25/2010	87	9:50	27.03	594	7.98
	MW-1	1/25/2010	112	9:55	27.13	597	8.00
	MW-1	1/25/2010	138	10:00	27.18	598	8.01
	MW-1	1/25/2010	204	10:13	purge end time		
	MW-2	1/25/2010	18	11:54	26.50	631	7.90
	MW-2	1/25/2010	47	11:57	26.43	613	7.97
	MW-2	1/25/2010	76	12:00	27.40	603	8.01
	MW-2	1/25/2010	92	12:02	27.38	601	7.98
	MW-2	1/25/2010	116	12:04	27.40	625	8.01
	MW-2	1/25/2010	234	12:18	purge end time		
	MW-3	1/19/2010	8	10:31	26.95	733	7.36
	MW-3	1/19/2010	18	10:33	28.03	737	7.44
	MW-3	1/19/2010	27	10:35	28.17	732	7.46
	MW-3	1/19/2010	37	10:37	28.29	738	7.48
	MW-3	1/19/2010	49	10:39	28.38	741	7.50
	MW-3	1/19/2010	59	10:41	28.43	743	7.52
	MW-3	1/19/2010	65	10:43	dry		
	MW-4	1/19/2010	8	9:21	26.03	980	7.94
	MW-4	1/19/2010	12	9:23	27.44	968	7.98
	MW-4	1/19/2010	18	9:26	dry		
	MW-5	1/25/2010	21	8:26	24.05	578	7.90
	MW-5	1/25/2010	41	8:29	26.73	564	7.57
	MW-5	1/25/2010	68	8:34	26.78	554	7.72
	MW-5	1/25/2010	99	8:39	27.03	550	7.84
	MW-5	1/25/2010	141	8:47	26.87	545	8.01
	MW-5	1/25/2010	151	8:49	26.83	543	8.01
	MW-5	1/25/2010	213	9:00	purge end time		
	MW-6	1/19/2010	12	8:21	24.06	975	7.45
	MW-6	1/19/2010	18	8:23	24.83	990	7.65
	MW-6	1/19/2010	30	8:27	26.64	1008	7.76
	MW-6	1/19/2010	36	8:29	27.21	1049	7.81
	MW-6	1/19/2010	44	8:32	27.05	1034	7.84
	MW-6	1/19/2010	52	8:35	dry		
	MW-7	1/22/2010	35	8:15	25.60	419	6.56
	MW-7	1/22/2010	58	8:19	25.96	420	6.70
	MW-7	1/22/2010	100	8:25	26.02	418	6.92
	MW-7	1/22/2010	126	8:30	25.97	416	7.02
	MW-7	1/22/2010	168	8:37	26.11	415	7.11
	MW-7	1/22/2010	198	8:42	26.16	414	7.16
	MW-7	1/22/2010	264	8:53	purge end time		
	MW-8	1/19/2010	6	11:52	27.12	550	7.76
	MW-8	1/19/2010	20	11:57	27.73	527	7.93
	MW-8	1/19/2010	35	12:02	28.35	502	8.11
	MW-8	1/19/2010	48	12:07	29.15	509	8.12
	MW-8	1/19/2010	57	12:13	29.21	523	8.10
	MW-8	1/19/2010	64	12:18	29.14	520	8.10
	MW-8	1/19/2010	73	12:26	dry		
	MW-9	1/20/2010	28	11:42	26.48	540	5.59
	MW-9	1/20/2010	50	11:46	27.29	543	5.79
	MW-9	1/20/2010	80	11:52	27.48	544	6.01

Appendix H
2010 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
First Quarter 2010	MW-9	1/20/2010	112	11:57	27.60	543	6.15
	MW-9	1/20/2010	134	12:01	27.50	539	6.22
	MW-9	1/20/2010	154	12:05	27.36	533	6.27
	MW-9	1/20/2010	171	12:08	27.63	534	6.27
	MW-9	1/20/2010	234	12:19	purge end time		
	MW-10	1/19/2010	10	13:14	27.64	867	7.64
	MW-10	1/19/2010	20	13:18	28.35	876	7.66
	MW-10	1/19/2010	28	13:21	28.41	880	7.60
	MW-10	1/19/2010	35	13:24	28.51	888	7.58
	MW-10	1/19/2010	45	13:29	28.60	887	7.60
	MW-10	1/19/2010	47	13:30	dry		
	MW-11	1/21/2010	74	8:40	25.31		6.45
	MW-11	1/21/2010	113	8:47	25.82		6.66
	MW-11	1/21/2010	157	8:55	26.07		6.76
	MW-11	1/21/2010	212	9:05	26.12	1428	6.83
	MW-11	1/21/2010	256	9:13	24.84	1517	6.85
	MW-11	1/21/2010	322	9:25	purge end time		
	MW-12	1/21/2010	36	11:28	26.15	1083	6.76
	MW-12	1/21/2010	89	11:32	26.21	1078	6.77
	MW-12	1/21/2010	203	11:43	28.42	1107	6.82
	MW-12	1/21/2010	399	12:00	28.02	1035	6.84
	MW-12	1/21/2010	505	12:10	purge stop		
	MW-12	1/21/2010	56	13:10	27.62	1047	6.56
	MW-12	1/21/2010	123	13:16	27.98	1044	6.50
	MW-12	1/21/2010	224	13:25	28.04	1037	6.49
	MW-12	1/21/2010	482	13:48	purge end time		
	MW-13	1/22/2010	50	12:36	26.65	588	7.28
	MW-13	1/22/2010	96	12:41	27.97	597	7.26
	MW-13	1/22/2010	284	12:59	27.56	580	7.29
	MW-13	1/22/2010	377	13:08	28.29	602	7.37
	MW-13	1/22/2010	473	13:18	27.38	576	7.38
	MW-13	1/22/2010	531	13:24	purge stop		
	MW-13	1/22/2010	48	14:00	27.97	568	7.36
	MW-13	1/22/2010	125	14:08	27.99	567	7.31
	MW-13	1/22/2010	202	14:16	28.07	577	7.36
	MW-13	1/22/2010	288	14:25	28.01	577	7.35
	MW-13	1/22/2010	547	14:52	purge end time		
	MW-14	1/19/2010	30	14:28	28.01	1640	7.59
	MW-14	1/19/2010	85	14:34	28.81	1680	7.57
	MW-14	1/19/2010	141	14:43	28.44	1667	7.48
	MW-14	1/19/2010	159	14:48	28.40	1666	7.50
	MW-14	1/19/2010	187	14:57	29.93	1689	7.53
	MW-14	1/19/2010	219	15:07	29.12	1699	7.51
	MW-14	1/19/2010	231	15:15	29.34	1703	7.50
	MW-14	1/19/2010	237	15:19	purge end time		
	MW-15	1/22/2010	18	10:28	25.44	588	7.08
	MW-15	1/22/2010	46	10:32	26.74	599	7.03
	MW-15	1/22/2010	82	10:39	26.87	598	7.05
	MW-15	1/22/2010	118	10:45	27.44	603	7.10
	MW-15	1/22/2010	188	10:58	27.63	597	7.18
	MW-15	1/22/2010	241	11:07	27.65	591	7.23
	MW-15	1/22/2010	328	11:23	purge end time		
	MW-18	1/26/2010	0	9:30	25.07	550	8.93

Appendix H
2010 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
First Quarter 2010	MW-18	1/26/2010	10	9:47	25.13	541	9.12
	MW-18	1/26/2010	20	10:02	24.06	542	9.18
	MW-18	1/26/2010	29	10:18	25.53	544	9.10
	MW-18	1/26/2010	38	10:32	25.80	552	9.15
	MW-18	1/26/2010	50	10:52	25.79	552	9.15
	MW-18	1/26/2010	62	11:11	26.02	711	9.14
	MW-18	1/26/2010	71	11:27	26.56	566	9.20
	MW-18	1/26/2010	83	11:46	26.47	532	9.18
	MW-18	1/26/2010	95	12:06	26.34	522	9.27
	MW-18	1/26/2010	106	12:23	26.41	525	9.35
	MW-18	1/26/2010	120	12:46	26.49	527	9.39
	MW-18	1/26/2010	131	13:04	26.57	536	9.35
	MW-18	1/26/2010	146	13:30	26.64	540	9.52
	MW-18	1/26/2010	153	13:40	26.61	643	9.81
	MW-18	1/26/2010	160	13:52	purge end time		
Second Quarter 2010	MW-1	6/14/2010	10	12:02	28.43	463	6.76
	MW-1	6/14/2010	35	12:07	29.16	412	7.07
	MW-1	6/14/2010	60	12:12	29.20	413	7.16
	MW-1	6/14/2010	85	12:17	29.22	414	7.18
	MW-1	6/14/2010	110	12:22	29.12	414	7.15
	MW-2	6/14/2010	18	13:22	29.45	454	6.74
	MW-2	6/14/2010	53	13:26	29.66	452	6.95
	MW-2	6/14/2010	88	13:30	28.62	442	7.09
	MW-2	6/14/2010	114	13:33	28.56	440	7.13
	MW-5	6/14/2010	11	14:30	28.82	399	6.81
	MW-5	6/14/2010	39	14:35	29.26	393	6.96
	MW-5	6/14/2010	66	14:40	29.26	391	7.19
	MW-5	6/14/2010	94	14:45	29.32	388	7.12
	MW-5	6/14/2010	121	14:50	29.39	388	7.22
	MW-5	6/14/2010	149	14:55	29.36	386	7.30
	MW-6	6/14/2010	8	10:57	28.13	471	7.01
	MW-6	6/14/2010	28	11:02	28.71	469	7.11
	MW-6	6/14/2010	40	11:05	28.98	471	7.14
	MW-6	6/14/2010	56	11:09	29.15	476	7.15
	MW-6	6/14/2010	68	11:12	dry		
	MW-13	6/15/2010	78	10:20	30.04	485	7.09
	MW-13	6/15/2010	189	10:30	30.13	486	7.34
	MW-13	6/15/2010	300	10:40	30.24	489	7.37
	MW-13	6/15/2010	411	10:50	30.23	488	7.39
	MW-13	6/15/2010	522	11:00	30.18	484	7.37
	MW-13	6/15/2010	911	11:35	30.35	480	7.02
	MW-13	6/15/2010	56	11:45	30.29	481	7.21

Notes:
HH:MM = Hour : Minute
°C = Degrees Celsius
us/cm - Microsiemen per centimeter
SU = Standard unit

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Appendix I
2010 Data Verification Summaries

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GROUNDWATER MONITORING DATA VERIFICATION SUMMARY PRIVATE WELLS – JUNE 2010

1.0 INTRODUCTION

This summary presents data verification results for private residential wells adjacent to Universal Propulsion Company, Inc. (UPCO) during the June 2010 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), USEPA Functional Guidelines for Inorganic Data Review (USEPA, 2002), and quality assurance and control parameters set by the project laboratory (TestAmerica).

A total of 11 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- perchlorate by USEPA Method 314.0; and
- perchlorate by USEPA Method 332.0.

Table B-1 lists the samples and associated analytical parameters.

2.0 QUALITY CONTROL PARAMETERS REVIEWED

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

- Chain-of-Custody;
- Sample preservation and Temperature Upon Laboratory Receipt;
- Holding Times;
- Blank Contamination (method blanks, trip blanks);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD); and
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives 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 Quality control indicates that the data is 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, per EPA guidelines.

Qualified results are summarized in Table B-2.

2.1 CHAIN-OF-CUSTODY

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

2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact at the project laboratory. Samples were received at the correct temperature (4±2° Celsius) at the project laboratory.

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 Blank

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

2.5 LCS RECOVERY AND RPD

LCS/LCS duplicates 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 or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J".
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then 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 percent, the analyte results in the associated analytical batch were rejected and qualified "R".

LCS/LCSD percent recoveries and RPDs were within acceptance limits.

2.6 MS/MSD RECOVERY AND RPD

MS/MSD samples were performed at the required frequency and were evaluated by 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, then 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, then analyte results were qualified "J".
- Low MS/MSD recoveries for inorganic parameters result in sample qualification of the associated analytical batch.
- Low MS/MSD recoveries for organic parameters result in the data qualification of the unspiked sample rather than the analytical batch.
- Results were not qualified based on non-project specific MS/MSD (i.e., batch QC) recoveries.

Percent recoveries and RPDs for the MS/MSD duplicate were within acceptance limits except for the following:

- The MS for analytical batch 10F2953 had a recovery for perchlorate (method 332.0) of 77 percent, which was below acceptance limits. Data were qualified "J" for associated samples in the analytical batch, to indicate a potential low bias.

3.0 COMPLETENESS SUMMARY

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

$$\%\ \text{Contract Completeness} = \left(\frac{\text{Number of contract compliant results}}{\text{Number of reported results}}\right) \times 100$$

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

The overall contract completeness, which includes the evaluation of protocol and contract deviations, which includes the evaluation of the QC parameters listed in Section 2.0, was 9.1 percent. The technical completeness attained for this monitoring period was 100 percent. The completeness results are provided in Table B-3. The results for the performance monitoring events were considered usable for the intended purposes and the project DQOs have been met.

Table B-1
Sampling and Analysis Schedule

Sample ID	Lab ID	Collected	Sample Type	Parameters
25825 N 1st Place	PTF1009-01	6/16/2010	N	Perchlorate[1]
	PTF1010-01	6/16/2010	N	Perchlorate[2]
122 W Yearling	PTF1095-01	6/17/2010	N	Perchlorate[1]
	PTF1111-01	6/17/2010	N	Perchlorate[2]
8 W Yearling	PTF1087-01	6/17/2010	N	Perchlorate[1]
	PTF1103-01	6/17/2010	N	Perchlorate[2]
18 E Yearling	PTF1082-01	6/17/2010	N	Perchlorate[1]
	PTF1097-01	6/17/2010	N	Perchlorate[2]
204 E Yearling	PTF1084-01	6/17/2010	N	Perchlorate[1]
	PTF1098-01	6/17/2010	N	Perchlorate[2]
25903 N 2nd St	PTF1094-01	6/17/2010	N	Perchlorate[1]
	PTF1110-01	6/17/2010	N	Perchlorate[2]
412 E Yearling	PTF1093-01	6/17/2010	N	Perchlorate[1]
	PTF1108-01	6/17/2010	N	Perchlorate[2]
520 E Yearling	PTF1092-01	6/17/2010	N	Perchlorate[1]
	PTF1107-01	6/17/2010	N	Perchlorate[2]
616-604 E Yearling	PTF1091-01	6/17/2010	N	Perchlorate[1]
	PTF1106-01	6/17/2010	N	Perchlorate[2]
424 E Yearling	PTF1089-01	6/17/2010	N	Perchlorate[1]
	PTF1105-01	6/17/2010	N	Perchlorate[2]
16 E Yearling	PTF1085-01	6/17/2010	N	Perchlorate[1]
	PTF1099-01	6/17/2010	N	Perchlorate[2]

Notes:

[1] Perchlorate by USEPA Method 314.0

[2] Perchlorate by USEPA Method 332.0

N = normal field sample

Table B-2
Qualified Results

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
122 W Yearling	Perchlorate (method 332.0)	0.65	ug/l	J	Qualified due to low MS/MSD recovery
8 W Yearling	Perchlorate (method 332.0)	0.62	ug/l	J	Qualified due to low MS/MSD recovery
18 E Yearling	Perchlorate (method 332.0)	0.81	ug/l	J	Qualified due to low MS/MSD recovery
204 E Yearling	Perchlorate (method 332.0)	0.62	ug/l	J	Qualified due to low MS/MSD recovery
25903 N 2nd St	Perchlorate (method 332.0)	0.65	ug/l	J	Qualified due to low MS/MSD recovery
412 E Yearling	Perchlorate (method 332.0)	1.0	ug/l	J	Qualified due to low MS/MSD recovery
520 E Yearling	Perchlorate (method 332.0)	1.2	ug/l	J	Qualified due to low MS/MSD recovery
616-604 E Yearling	Perchlorate (method 332.0)	0.91	ug/l	J	Qualified due to low MS/MSD recovery
424 E Yearling	Perchlorate (method 332.0)	1.1	ug/l	J	Qualified due to low MS/MSD recovery
16 E Yearling	Perchlorate (method 332.0)	0.58	ug/l	J	Qualified due to low MS/MSD recovery

Notes:
ug/l = microgram per liter
J = Estimated result
MS/MSD = Matrix spike/matrix spike duplicate samples

Table B-3
Completeness Summary

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Perchlorate (USEPA Method 314.0)					
Perchlorate	11	11	100	11	100
Perchlorate (USEPA Method 332.0)					
Perchlorate	11	1	9.1	11	100

Notes:
Number of samples used in completeness calculations includes field samples but not field duplicates or trip 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

GROUNDWATER MONITORING DATA VERIFICATION SUMMARY SITE MONITORING WELLS – JANUARY 2010

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the January 2010 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), USEPA Functional Guidelines for Organic and Inorganic Data Review (USEPA, 1999 and 2002), and quality assurance and control parameters set by the project laboratory (TestAmerica).

A total of 16 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- metals by USEPA Methods 200.8, and 245.1;
- perchlorate by USEPA Method 314.0; and
- volatile organic compounds (VOCs) by USEPA Method 8260B.

Additionally, eleven field quality assurance samples (i.e., trip blanks and field duplicate) were collected and analyzed as part of the sampling program. Table A-1 lists the samples and associated analytical parameters.

2.0 QUALITY CONTROL PARAMETERS REVIEWED

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

- Chain-of-Custody
- Sample preservation and Temperature Upon Laboratory Receipt;
- Holding Times;
- Blank Contamination (method blanks, trip blanks);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD;

- Duplicates (field duplicate, laboratory duplicates); and
- Calibration.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives 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 Quality control indicates that the data is 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, per EPA guidelines.

The results associated with this sampling event required no data qualification.

2.1 CHAIN-OF-CUSTODY

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

2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact at the project laboratory. Samples were received at the correct temperature (4±2° Celsius) at the project laboratory with the following exception:

- Samples collected on January 22, 2010, were received at 1.4 degrees Celsius. This temperature outlier did not significantly impact the sample results; therefore, data qualification was not required.
- Samples collected on January 25, 2010, were received at 1.6 degrees Celsius. This temperature outlier did not significantly impact the sample results; therefore, data qualification was not required.

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 Blank

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 Trip Blank

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

2.5 SURROGATE RECOVERY

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

2.6 LCS RECOVERY AND RPD

LCS/LCS duplicates 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 or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J".
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then 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 percent, the analyte results in the associated analytical batch were rejected and qualified "R".

LCS/LCSD percent recoveries and RPDs were within acceptance limits except for the following:

- For the analytical batch 10B0036, the LCS and LCS duplicate percent recoveries exceeded the control limits for tert-butylbenzene. Data qualification was not required because the associated samples were not analyzed for tert-butylbenzene within this analytical batch.

2.7 MS/MSD RECOVERY AND RPD

MS/MSD samples were performed at the required frequency and were evaluated by 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, then 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, then analyte results were qualified "J".
- Low MS/MSD recoveries for inorganic parameters result in sample qualification of the associated analytical batch.
- Low MS/MSD recoveries for organic parameters result in the data qualification of the unspiked sample rather than the analytical batch.
- 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 except for the following:

- The MS and MS duplicate percent recoveries associated with the analytical batch 10A0749 were outside of acceptance limits for several analytes. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MS percent recovery associated with the analytical batch 10A0850 was outside acceptance limits for trichloroethene. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MS duplicate percent recovery associated with the analytical batch 10B0085 was outside acceptance limits for total xylenes. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MS duplicate percent recovery associated with the analytical batch 10A0798 was outside acceptance limits for carbon disulfide. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MS duplicate percent recovery associated with the analytical batch 10B0034 was outside acceptance limits for dibromomethane and 4-methyl-2-pentanone (MIBK). Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).

2.8 DUPLICATES

2.8.1 Field Duplicates

One field duplicate was collected during the monitoring event and submitted for analysis. The RPDs between the field duplicate and its associated sample were calculated and are presented in Table A-2. The field duplicates were evaluated by 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 percent.
- If an analyte was detected at a concentration that is less than five times the method reporting limit, then the difference between the sample and the field duplicate should not exceed the method reporting limit.
- Duplicate RPDs are calculated by dividing the difference of the concentrations by the average of the concentrations.

Field duplicate RPDs were within acceptance limits.

2.8.2 Laboratory Duplicates

Laboratory duplicates are evaluated based on the acceptance limits set forth by the project laboratory's guidelines. Laboratory duplicates were performed at the appropriate frequency for perchlorate. Laboratory duplicates were within acceptance limits except for the following:

- The RPD between the original and duplicate sample result for analytical batch 10A0701 was outside acceptance limits. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The RPD between the original and duplicate sample result for analytical batch 10A0754 was outside acceptance limits. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).

2.9 CALIBRATION

The Method 8260B continuing calibration verification (CCV) standards were within acceptance limits, except for the following:

- The second source CCV recovery associated with analytical batch 10A0747 had recoveries above acceptance limits for carbon disulfide. Data qualification was not required because the analyte was not detected in the associated samples.
- The second source curve for verification following the calibration for analytical batch 10B0036 was above acceptance limits for tert-butylbenzene.

Data qualification was not required because tert-butylbenzene was not detected in the associated samples.

- The second source CCV recovery associated with analytical batch 10A0798 had recoveries above acceptance limits for carbon disulfide. Data qualification was not required because the analyte was not detected in the associated samples.

3.0 COMPLETENESS SUMMARY

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

$$\%\ \text{Contract Completeness} = \left(\frac{\text{Number of contract compliant results}}{\text{Number of reported results}}\right) \times 100$$

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

The overall contract completeness, which includes the evaluation of protocol and contract deviations, which includes the evaluation of the QC parameters listed in Section 2.0, was 100 percent. The technical completeness attained for this monitoring period was 100 percent. The completeness results are provided in Table A-3. The results for the performance monitoring events were considered usable for the intended purposes and the project DQOs have been met.

Table A-1
Sampling and Analysis Schedule

Sample ID	Lab ID	Collected	Sample Type	Parameters
MW-6	PTA0939-01	1/20/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB012010-01	PTA0939-02	1/20/2010	TB	VOCs
TB012010-02	PTA0939-03	1/20/2010	TB	1,4-Dioxane
MW-4	PTA0939-04	1/20/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-3	PTA0939-05	1/20/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-9	PTA0939-06	1/20/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-8	PTA0939-07	1/20/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-10	PTA0939-08	1/20/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-14	PTA0939-09	1/20/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB012110-1	PTA1040-01	1/21/2010	TB	VOCs
TB012110-2	PTA1040-02	1/21/2010	TB	1,4-Dioxane
MW-11	PTA1040-03	1/21/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-12	PTA1040-04	1/21/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB012210-1	PTA1099-01	1/22/2010	TB	VOCs
TB012210-2	PTA1099-02	1/22/2010	TB	1,4-Dioxane
MW-7	PTA1099-03	1/22/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-15	PTA1099-04	1/22/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-13	PTA1099-05	1/22/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB012510-1	PTA1143-01	1/25/2010	TB	VOCs
TB012510-2	PTA1143-02	1/25/2010	TB	1,4-Dioxane
MW-5	PTA1143-03	1/25/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-1	PTA1143-04	1/25/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-2	PTA1143-05	1/25/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
FD012510	PTA1143-06	1/25/2010	FD	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB012710-1	PTA1251-01	1/27/2010	TB	VOCs
TB012710-2	PTA1251-02	1/27/2010	TB	1,4-Dioxane
MW-18	PTA1251-03	1/27/2010	N	VOCs, 1,4-Dioxane, Metals, Perchlorate

Notes:

Metals = arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

VOCs = volatile organic compounds analyzed by USEPA Method 8260B.

Perchlorate = USEPA Method 314.0.

N = normal field sample

TB = trip blank

Table A-2
Field Duplicate Summary

Sample ID / Field Duplicate ID	Parameters	Sample Result	Field Duplicate Result	RPD (%)
MW-2/ FD012510	Volatile Organic Compounds (ug/l)			
	1,4-Dioxane	2.7	2.5	7.7
	All Other Analytes	ND	ND	NC
	Inorganics (mg/l)			
	Arsenic	0.0082	0.0084	2.4
	Barium	0.074	0.076	2.7
	Cadmium	<0.001	<0.001	NC
	Chromium	0.015	0.015	<1.0
	Lead	0.0013	0.0017	27
	Mercury	<0.0002	<0.0002	NC
	Selenium	<0.002	<0.002	NC
	Silver	<0.001	<0.001	NC
	Perchlorate (ug/l)	90	94	4.3

Notes:
RPD = Relative percent difference; [(difference)/(average)]*100
ND = No analytes detected
NC = Not calculated
Field duplicate RPD acceptance limits is 25 percent for results greater than 5 times the reporting limit; for results less than 5 times the reporting limit, the difference between sample and field duplicate results should be less than the reporting limit
Bolded results required data qulification.

Table A-3
Completeness Summary

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Volatile Organic Compounds (8260)					
All Analytes	16	16	100	16	100
1,4-Dioxane	16	16	100	16	100
Metals					
All Analytes	16	16	100	16	100
Other Inorganics					
Perchlorate	16	16	100	16	100

Notes:
Number of samples used in completeness calculations includes field samples but not field duplicates or trip 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

DATA VERIFICATION SUMMARY FOR PERCHLORATE COMPARISON GROUNDWATER MONITORING SAMPLES – JANUARY 2010

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the January 2010 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), USEPA Functional Guidelines for Inorganic Data Review (USEPA, 2002), and quality assurance and control parameters set by the project laboratory (TestAmerica).

A total of 11 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- perchlorate by USEPA Method 332.0.

Table B-1 lists the samples and associated analytical parameters.

2.0 QUALITY CONTROL PARAMETERS REVIEWED

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

- Chain-of-Custody
- Sample preservation and Temperature Upon Laboratory Receipt;
- Holding Times;
- Blank Contamination (method blanks, trip blanks);
- Laboratory Control Sample (LCS) Recovery;
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD; and
- Internal Standard Recovery.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives 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 Quality control indicates that the data is 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, per EPA guidelines.

The results associated with this sampling event that required data qualification are provided in Table B-2.

2.1 CHAIN-OF-CUSTODY

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

2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact at the project laboratory. Samples were received at the correct temperature (4±2° Celsius) at the project laboratory except the following:

- Samples collected on January 20, 2010 were received at 1.0 degree Celsius. The temperature outlier did not significantly impact the sample results; therefore, data qualification was not required.
- Samples collected on January 22, 2010 were received at 1.4 degrees Celsius. The temperature outlier did not significantly impact the sample results; therefore, data qualification was not required.

2.3 HOLDING TIMES

Samples were extracted and analyzed within the holding time limit set by the respective USEPA method.

2.4 BLANK CONTAMINATION

2.4.1 Method Blank

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

2.5 LCS RECOVERY

LCS percent 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 or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J".
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then 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 percent, the analyte results in the associated analytical batch were rejected and qualified "R".

LCS percent recoveries were within acceptance limits.

2.6 MS/MSD RECOVERY AND RPD

MS/MSD samples were performed at the required frequency and were evaluated by 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, then 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, then analyte results were qualified "J".
- Low MS/MSD recoveries for inorganic parameters result in sample qualification of the associated analytical batch.
- Low MS/MSD recoveries for organic parameters result in the data qualification of the unspiked sample rather than the analytical batch.
- 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.

2.7 INTERNAL STANDARD RECOVERY

The Internal Standard recovery was outside of method limits for analytical batches 10B0376 and 10B0630 and matrix interference was confirmed. Associated samples were qualified "UJ" and "J" to indicate a potential bias.

3.0 COMPLETENESS SUMMARY

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

$$\%\ \text{Contract Completeness} = \left(\frac{\text{Number of contract compliant results}}{\text{Number of reported results}}\right) \times 100$$

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

The overall contract completeness, which includes the evaluation of protocol and contract deviations, which includes the evaluation of the QC parameters listed in Section 2.0, was 0 percent. The technical completeness attained for this monitoring period was 100 percent. The completeness results are provided in Table B-3. The results for the performance monitoring events were considered usable for the intended purposes and the project DQOs have been met.

Table B-1
Sampling and Analysis Schedule

Sample ID	Lab ID	Collected	Sample Type	Parameters
MW-14	PTA0940-01	1/20/2010	N	Perchlorate by USEPA Method 332.0
MW-4	PTA0941-01	1/20/2010	N	Perchlorate by USEPA Method 332.0
MW-3	PTA0942-01	1/20/2010	N	Perchlorate by USEPA Method 332.0
MW-9	PTA0943-01	1/20/2010	N	Perchlorate by USEPA Method 332.0
MW-8	PTA0944-01	1/20/2010	N	Perchlorate by USEPA Method 332.0
MW-10	PTA0945-01	1/20/2010	N	Perchlorate by USEPA Method 332.0
MW-11	PTA1038-01	1/21/2010	N	Perchlorate by USEPA Method 332.0
MW-12	PTA1039-01	1/21/2010	N	Perchlorate by USEPA Method 332.0
MW-7	PTA1100-01	1/22/2010	N	Perchlorate by USEPA Method 332.0
MW-15	PTA1101-01	1/22/2010	N	Perchlorate by USEPA Method 332.0
MW-18	PTA1252-01	1/27/2010	N	Perchlorate by USEPA Method 332.0

Notes:

N = normal field sample

Table B-2
Qualified Results

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
MW-14	Perchlorate	0.98	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-4	Perchlorate	0.49	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-3	Perchlorate	0.47	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-9	Perchlorate	0.64	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-8	Perchlorate	0.93	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-10	Perchlorate	1.2	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-11	Perchlorate	2.1	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-12	Perchlorate	1.1	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-7	Perchlorate	0.51	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-15	Perchlorate	0.86	ug/l	J	Qualified due to Internal Standard recovery outisde the method limits.
MW-18	Perchlorate	<2.0	ug/l	UJ	Qualified due to Internal Standard recovery outisde the method limits.

Notes:
ug/L - micrograms per liter
J = estimated result

Table B-3
Completeness Summary

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Inorganics					
Perchlorate 332.0	11	0[a]	0	11	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

a = Qualified due to Internal Standard recovery outside the method limits

GROUNDWATER MONITORING DATA VERIFICATION SUMMARY SITE MONITORING WELLS – JUNE 2010

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the June 2010 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), USEPA Functional Guidelines for Organic and Inorganic Data Review (USEPA, 1999 and 2002), and quality assurance and control parameters set by the project laboratory (TestAmerica).

A total of five groundwater samples were collected and submitted to TestAmerica for the following parameters:

- perchlorate by USEPA Method 314.0

Additionally, one field quality assurance samples (i.e., field duplicate) was collected and analyzed as part of the sampling program. Table A-1 lists the samples and associated analytical parameters.

2.0 QUALITY CONTROL PARAMETERS REVIEWED

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

- Chain-of-Custody
- Sample preservation and Temperature Upon Laboratory Receipt;
- Holding Times;
- Blank Contamination (method blanks, trip blanks);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD; and
- Duplicates (field duplicates).

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives 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 Quality control indicates that the data is 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, per EPA guidelines.

The results associated with this sampling event required no data qualification.

2.1 CHAIN-OF-CUSTODY

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

2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact at the project laboratory. Samples were received at the correct temperature (4±2° Celsius) at the project laboratory.

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 Blank

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

2.5 LCS RECOVERY AND RPD

LCS/LCS duplicates 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 or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J".
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then 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 percent, the analyte results in the associated analytical batch were rejected and qualified "R".

LCS/LCSD percent recoveries and RPDs were within acceptance limits.

2.6 MS/MSD RECOVERY AND RPD

MS/MSD samples were performed at the required frequency and were evaluated by 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, then 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, then analyte results were qualified "J".
- Low MS/MSD recoveries for inorganic parameters result in sample qualification of the associated analytical batch.
- Low MS/MSD recoveries for organic parameters result in the data qualification of the unspiked sample rather than the analytical batch.
- 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.

2.7 DUPLICATES

2.7.1 Field Duplicates

One field duplicate was collected during this monitoring event and submitted for analysis. The RPD between the field duplicate and its associated samples were calculated and presented in Table A-2. Field duplicates were evaluated by the following criteria:

- If an analyte is detected at a concentration greater than five times the method reporting limit, the RPD should be less than 25 percent.
- If an analyte is 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 duplicate met acceptance criteria.

3.0 COMPLETENESS SUMMARY

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

$$\%\ \text{Contract Completeness} = \left(\frac{\text{Number of contract compliant results}}{\text{Number of reported results}}\right) \times 100$$

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

The overall contract completeness, which includes the evaluation of protocol and contract deviations, which includes the evaluation of the QC parameters listed in Section 2.0, was 100 percent. The technical completeness attained for this monitoring period was 100 percent. The completeness results are provided in Table A-3. The results for the performance monitoring events were considered usable for the intended purposes and the project DQOs have been met.

Table A-1
Sampling and Analysis Schedule
Second Quarter 2010 Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
MW-1	PTF0841-01	6/14/2010	N	Perchlorate
FD06142010	PTF0841-02	6/14/2010	FD of MW-1	Perchlorate
MW-2	PTF0841-03	6/14/2010	N	Perchlorate
MW-5	PTF0841-04	6/14/2010	N	Perchlorate
MW-6	PTF0911-01	6/15/2010	N	Perchlorate
MW-13	PTF0911-02	6/15/2010	N	Perchlorate

Notes:

Perchlorate = USEPA Method 314.0.

N = normal field sample

FD = field duplicate

Table A-2
Field Duplicate Summary
Second Quarter 2010 Monitoring Report

Sample ID / Field Duplicate ID	Parameters	Sample Result	Field Duplicate Result	RPD (%)
MW-1/ FD06142010	Inorganics (ug/l)			
	Perchlorate	78	78	0.0

Notes:
RPD = Relative percent difference; [(difference)/(average)]*100
ND = No analytes detected
NC = Not calculated
Field duplicate RPD acceptance limits is 25 percent for results greater than 5 times the reporting limit; for results less than 5 times the reporting limit, the difference between sample and field duplicate results should be less than the reporting limit

Table A-3
Completeness Summary
Second Quarter 2010 Monitoring Report

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Inorganics					
Perchlorate (Method 314.0)	5	5	100	5	100

Notes:
Number of samples used in completeness calculations includes field samples but not field duplicates or trip 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

DATA VERIFICATION SUMMARY FOR SOIL-VAPOR MONITOR WELL SAMPLES – JUNE 2010

1.0 INTRODUCTION

This summary presents data verification results for soil-gas samples collected from the soil-vapor monitoring well at Universal Propulsion Company, Inc. (UPCO) during the June 2010 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), USEPA Functional Guidelines for Organic Data Review (USEPA, 1999), and quality assurance and control parameters set by the project laboratory (TestAmerica).

A total of four samples were collected and submitted to TestAmerica for the following parameters:

- volatile organic compounds (VOCs) by USEPA Method TO-15

Table C-1 lists the samples and associated analytical parameters.

2.0 QUALITY CONTROL PARAMETERS REVIEWED

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

- Chain-of-Custody;
- Sample preservation and Temperature Upon Laboratory Receipt;
- Holding Times;
- Blank Contamination (method blanks); and
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD).

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives 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 Quality control indicates that the data is 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, per EPA guidelines.

2.1 CHAIN-OF-CUSTODY

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

2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact at the project laboratory. Samples were received at the correct temperature (ambient) at the project laboratory.

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 Blank

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

2.5 LCS RECOVERY AND RPD

LCS/LCS duplicates 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 or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J".
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then 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 percent, the analyte results in the associated analytical batch were rejected and qualified "R".

LCS/LCSD percent recoveries and RPDs were within acceptance limits.

2.6 COMMON LABORATORY CONTAMINANTS

Per USEPA guidelines, common laboratory contaminants for VOC analysis are acetone, 2-butanone (MEK), cyclohexane, and methylene chloride. Analytical results are qualified if the detected sample concentration is less than 10 times the method reporting limit. Common lab contaminant compounds were not detected in the samples associated with the monitoring events except for the following:

- Acetone was detected in samples SVMW-1-30-40, SVMW-1-90-100, SVMW-1-140-150, and SVMW-1-190-200 collected June 16, 2010. Data were qualified "J" to indicate a potential bias.
- 2-Butanone (MEK) was detected in samples SVMW-1-30-40, SVMW-1-90-100, SVMW-1-140-150, and SVMW-1-190-200 collected June 16, 2010. Data were qualified "J" to indicate a potential bias.

3.0 COMPLETENESS SUMMARY

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

$$\%\ \text{Contract Completeness} = \left(\frac{\text{Number of contract compliant results}}{\text{Number of reported results}}\right) \times 100$$

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

The overall contract completeness, which includes the evaluation of protocol and contract deviations, which includes the evaluation of the QC parameters listed in Section 2.0, was 97.1 percent. The technical completeness attained for this monitoring period was 100 percent. The completeness results are provided in Table C-2. The results for the

performance monitoring events were considered usable for the intended purposes and the project DQOs have been met.

Table C-1
Sampling and Analysis Schedule

Sample ID	Lab ID	Collected	Sample Type	Parameters
SVMW-1-30-40	PTF1008-01	6/16/2010	N	VOCs
SVMW-1-90-100	PTF1008-02	6/16/2010	N	VOCs
SVMW-1-140-150	PTF1008-03	6/16/2010	N	VOCs
SVMW-1-190-200	PTF1008-04	6/16/2010	N	VOCs

Table C-2
Qualified Results

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
SVMW-1-30-40	Acetone	740	ppbv	J	Qualified due to presence of common laboratory contaminant
SVMW-1-30-40	2-Butanone	66	ppbv	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Acetone	280	ppbv	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	2-Butanone	37	ppbv	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	Acetone	710	ppbv	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	2-Butanone	73	ppbv	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	Acetone	380	ppbv	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	2-Butanone	40	ppbv	J	Qualified due to presence of common laboratory contaminant

Notes:
ppbv = parts per billion by volume
J = Estimated result

Table C-3
Completeness Summary

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Volatile Organic Compounds by EPA Method TO-15					
Acetone	4	0[a]	0	4	100
2-Butanone	4	0[a]	0	4	100
All other analytes	272	272	100	272	100
TOTAL	**280**	**272**	**97.1**	**280**	**100**

Notes:
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

[a] Qualified due to presence of common laboratory contaminant.

Universal Propulsion Company
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Appendix J
Laboratory Reports (CD)

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