

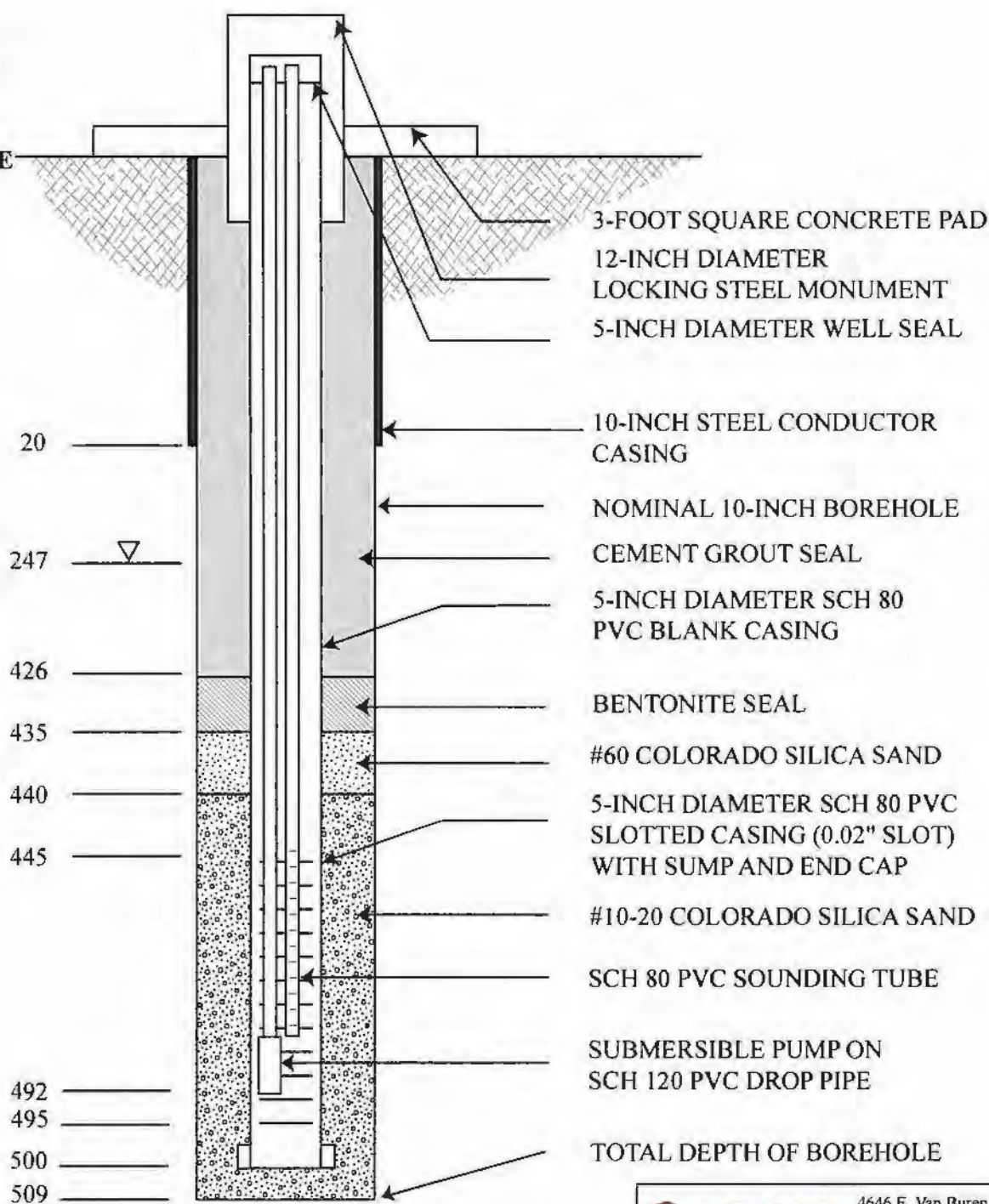
Universal Propulsion Company
2011 Annual Monitoring Report

Appendix A
Well Construction Diagrams



DEPTH
(FT BGS)

SURFACE



NOT TO SCALE



4646 E. Van Buren
St., Suite 400
Phoenix, AZ 85008

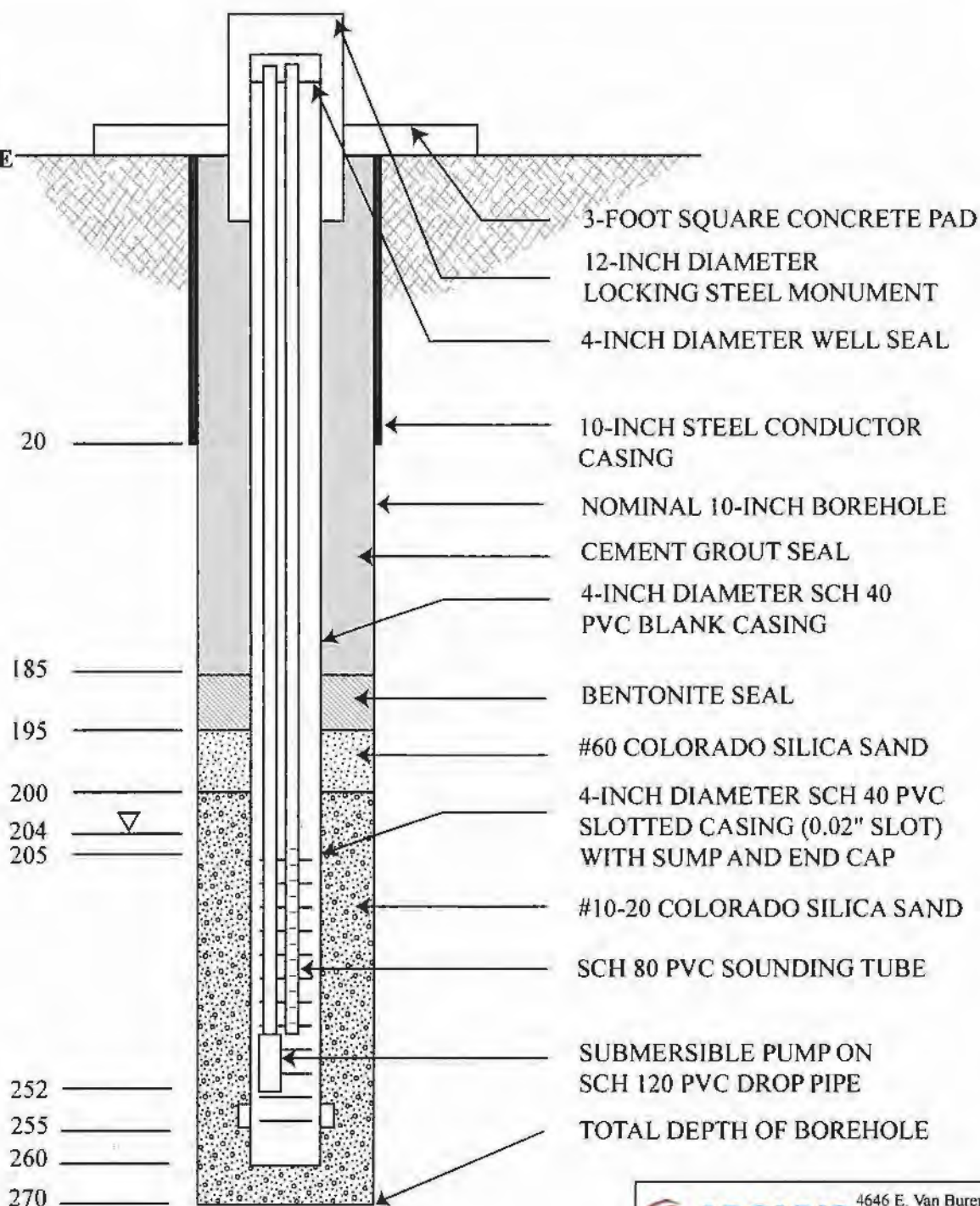
MW-16
As-Built Construction Diagram
2011 Annual Monitoring Report

February 2012

Figure A-1

DEPTH
(FT BGS)

SURFACE



NOT TO SCALE

 **ARCADIS** 4646 E. Van Buren
St., Suite 400
Phoenix, AZ 85008

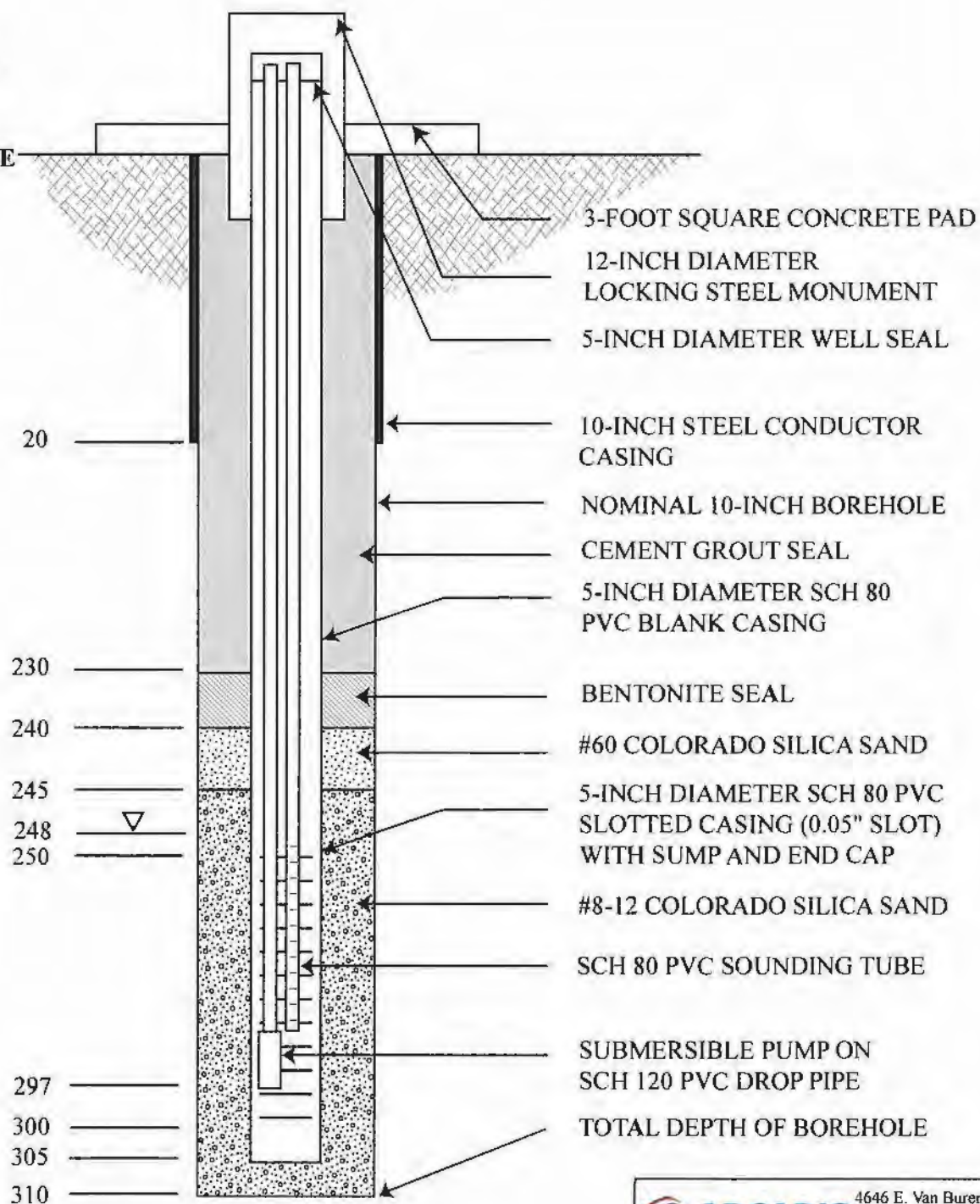
MW-17
As-Built Construction Diagram
2011 Annual Monitoring Report

February 2012

Figure A-2

DEPTH
(FT BGS)

SURFACE



NOT TO SCALE

 **ARCADIS** 4646 E. Van Buren St.
Suite 400
Phoenix, AZ 85008

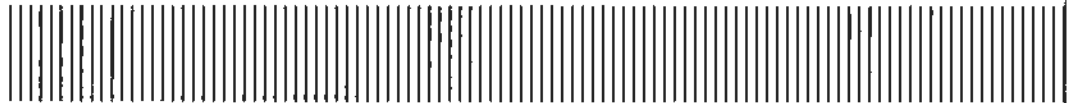
MW-19
As-Built Construction Diagram
2011 Annual Monitoring Report

February 2012

Figure A-3

Universal Propulsion Company
2011 Annual Monitoring Report

Appendix B
IDW Documents





LIQUID ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

86714

Profile Number

195699

Generator Name	Name: <u>WICO</u> Phone: <u>(602) 243-7338</u>	Generator Address	Address: <u>2401 N. Central Ave</u> City: <u>Phoenix</u> State: <u>AZ</u> Zip: <u>85027</u>
----------------	---------------------------------------------------	-------------------	------------------------------------------------------------------------------------------------

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	<input type="checkbox"/> Grease Trap <input type="checkbox"/> Grit Trap <input type="checkbox"/> Septic/Chemical Toilet <input checked="" type="checkbox"/> Non-Industrial <input type="checkbox"/> Industrial <input type="checkbox"/> Special <input type="checkbox"/> Used Cooking Oil <input type="checkbox"/> 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 pursuant 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)	<u>John M. Miller</u>	Generator Rep. Signature	<u>[Signature]</u>
------------------------------------	-----------------------	--------------------------	--------------------

Transporter Name	Name: <u>MPE</u> Phone: <u>(602) 243-6233</u>	Transporter Address	Address: <u>2401 N. Central Ave</u> City: <u>Phoenix</u> State: <u>AZ</u> Zip: <u>85027</u>
------------------	--------------------------------------------------	---------------------	------------------------------------------------------------------------------------------------

Waste Removed (Gallons)	<u>4000</u>	Date	<u>3-2-1</u>	Time	<u>9:30 a.m.</u>
-------------------------	-------------	------	--------------	------	------------------

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)	<u>John Miller</u>	Driver Signature	<u>[Signature]</u>
----------------------------	--------------------	------------------	--------------------

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

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number AZD980814470	2. Page 1 of 1	3. Emergency Response Phone 800-833-7802	4. Manifest Tracking Number 003953414 JJK			
5. Generator's Name and Mailing Address Universal Propulsion Company 25401 North Central Ave. Phoenix AZ 85085		Generator's Site Address (if different than mailing address)						
Generator's Phone:		U.S. EPA ID Number CAT000024247						
6. Transporter 1 Company Name MP Environmental Services		U.S. EPA ID Number						
7. Transporter 2 Company Name		U.S. EPA ID Number						
8. Designated Facility Name and Site Address Verona 107 S. Motor Ave. 1704 W. First St. AZ 85102		U.S. EPA ID Number CAD0008302903						
Facility's Phone: 828 334-5117								
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
			No.	Type				
		Non-RCRA Hazardous Waste Liquid (Perchlorate Impacted Water)	001	TT	1,000	e	134	
	2.							
	3.							
4.								
14. Special Handling Instructions and Additional Information 1) Pallet # 012484 MPE Job # 11843 Wear Proper Personal Protective Gear When Handling								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Officer's Printed/Typed Name Agent For UPCO: Craig L. Miller		Signature		Month		Day	Year	
				05		18	1	
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:					
	Transporter signature (for exports only):							
	17. Transporter Acknowledgment of Receipt of Materials							
	Transporter 1 Printed/Typed Name BRIAN CANNON	Signature		Month		Day	Year	
				05		18	1	
	Transporter 2 Printed/Typed Name	Signature		Month		Day	Year	
DESIGNATED FACILITY	18. Discrepancy							
	18a. Discrepancy Indication Space <input checked="" type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
	Actual Amount Received 1155 Gals. Manifest Reference Number:							
	18b. Alternate Facility (or Generator)		U.S. EPA ID Number					
	Facility's Phone:							
	18c. Signature of Alternate Facility (or Generator)		Month		Day	Year		
	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
	1. H039	2.	3.	4.				
	20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
	Printed/Typed Name: Yvonne Moreno		Signature		Month		Day	Year
					06		17	11



PLEASE CALL LANDFILL 24 HRS IN ADVANCE WITH SHIPPING NOTICE.

**NON - HAZARDOUS
WASTE MANIFEST**

FOR OFFICE USE ONLY

Customer Acct. No. _____

Ticket No. _____

GENERATOR**WM- 168690**Name Universal Production Co.

Generating Location _____

Address 25401 N. Central Ave.Phoenix, AZ 85085Phone No. 623-516-3340I.D. No. Control # 7342

PROFILE APPROVAL NO.	WASTE DESCRIPTION	QUANTITY	UNITS
<u>UWR</u> <u>101432</u>	<u>Soil</u>	<u>15</u>	<u>T</u>
<u> </u> <u> </u> <u> </u>	<u> </u> <u> </u> <u> </u>	<u> </u>	<u> </u>
<u> </u> <u> </u> <u> </u>	<u> </u> <u> </u> <u> </u>	<u> </u>	<u> </u>

UNIT
D - DRUM
B - BAG
C - CARTON
T - TONS
Y - YARDS
O - OTHER

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

for UPRC Orange, M. H. 4/19/2011 [Signature]
AUTHORIZED AGENT'S NAME (PRINT) DATE SIGNATURE**CONTRACTOR**

Name _____ Phone No. _____

Address _____

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

AUTHORIZED AGENT'S NAME (PRINT) DATE SIGNATURE**TRANSPORTER**Name MJR Phone No. 602-275 6233Address 3045 S. 51st Ave Driver's Name JAMES CHAMBERLAIN 5769Phoenix, AZ 85043 Vehicle's No. B. # 5695 (MW-16)

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

4/19/2011 [Signature] 4/19/2011 [Signature]
SHIPMENT DATE DRIVER'S SIGNATURE DELIVERY DATE DRIVER'S SIGNATURE**DISPOSAL FACILITY**

- ☐ BUTTERFIELD STATION FACILITY • 40404 South 99th Avenue • Mobile, Arizona 85239 • (602) 256-0630
- ☒ NORTHWEST REGIONAL LANDFILL • 19401 West Deer Valley Road • Surprise, Arizona 85387 • (623) 584-6065
- ☐ PAINTED DESERT LANDFILL • 9001 North Porter Avenue • Joseph City, Arizona 86032 • (520) 288-3605
- ☐ GRAY WOLF LANDFILL • 23355 East Highway 169 • Mile Post 11 • Dewey, Arizona 86327 • (520) 632-0370
- ☐ LONE CACTUS LANDFILL • 21402 North 7th Street • Phoenix, Arizona 85024 • (623) 516-0244
- ☐ IRONWOOD LANDFILL • 12720 East Highway 287 • Florence, Arizona 85232 • (520) 868-8778

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME (PRINT)

DATE

SIGNATURE

ORIGINAL - WHITE

DISPOSAL FACILITY - YELLOW

TRANSPORTER - PINK

GENERATOR - GOLDENROD



PLEASE CALL LANDFILL 24 HRS IN ADVANCE WITH SHIPPING NOTICE.

**NON - HAZARDOUS
WASTE MANIFEST**

FOR OFFICE USE ONLY

Customer Acct. No. _____

Ticket No. _____

GENERATOR**WM- 168689**Name Universal Population Co.

Generating Location _____

Address 25401 N. Central Ave.Phoenix, AZ 85085Phone No. 602-516-3340I.D. No. Control # 7342

PROFILE APPROVAL NO.	WASTE DESCRIPTION	QUANTITY	UNITS	UNIT
<u>UWR</u>	<u>10143212</u>	<u>15</u>	<u>T</u>	D - DRUM
<u> </u>	<u> </u>	<u> </u>	<u> </u>	B - BAG
<u> </u>	<u> </u>	<u> </u>	<u> </u>	C - CARTON
<u> </u>	<u> </u>	<u> </u>	<u> </u>	T - TONS
<u> </u>	<u> </u>	<u> </u>	<u> </u>	Y - YARDS
<u> </u>	<u> </u>	<u> </u>	<u> </u>	O - OTHER

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261: That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

Agent for UPRD: Tracy Miller 4/19/2011 Tracy Miller
AUTHORIZED AGENT'S NAME (PRINT) DATE SIGNATURE**CONTRACTOR**

Name _____ Phone No. _____

Address _____

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law: That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

AUTHORIZED AGENT'S NAME (PRINT) _____

DATE _____

SIGNATURE _____

TRANSPORTERName MPBPhone No. 602-2781-6233Address 3845 S. Sky Ave.Driver's Name DavidPhoenix, AZ 85043Vehicle's No. Bin # 5671 - (MW-16)

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law: That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

4/21/2011 David
SHIPMENT DATE DRIVER'S SIGNATURE4/21/2011 David
DELIVERY DATE DRIVER'S SIGNATURE**DISPOSAL FACILITY**

- ☐ BUTTERFIELD STATION FACILITY • 40404 South 99th Avenue • Mobile, Arizona 85239 • (602) 256-0630
- ☒ NORTHWEST REGIONAL LANDFILL • 19401 West Deer Valley Road • Surprise, Arizona 85387 • (623) 584-6065
- ☐ PAINTED DESERT LANDFILL • 9001 North Porter Avenue • Joseph City, Arizona 86032 • (520) 288-3605
- ☐ GRAY WOLF LANDFILL • 23355 East Highway 169 • Mile Post 11 • Dewey, Arizona 86327 • (520) 632-0370
- ☐ LONE CACTUS LANDFILL • 21402 North 7th Street • Phoenix, Arizona 85024 • (623) 516-0244
- ☐ IRONWOOD LANDFILL • 12720 East Highway 287 • Florence, Arizona 85232 • (520) 868-8778

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME (PRINT) _____

DATE _____

SIGNATURE _____

ORIGINAL - WHITE

DISPOSAL FACILITY - YELLOW

TRANSPORTER - PINK

GENERATOR - GOLDENROD



PLEASE CALL LANDFILL 24 HRS IN ADVANCE WITH SHIPPING NOTICE.

**NON - HAZARDOUS
WASTE MANIFEST**

FOR OFFICE USE ONLY

Customer Acct. No. _____

Ticket No. _____

GENERATOR**WM- 168688**Name Universal Populace Co.

Generating Location _____

Address 25401 N. Central Ave.Phoenix, AZ 85085Phone No. 623-516-3340I.D. No. Control # 7342

PROFILE APPROVAL NO.	WASTE DESCRIPTION	QUANTITY	UNITS
WWR 10143212	S.S. 1	15	T

UNIT
D - DRUM
B - BAG
C - CARTON
T - TONS
Y - YARDS
O - OTHER

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

Agent for UPP: Craig Miller

AUTHORIZED AGENT'S NAME (PRINT)

DATE

SIGNATURE

CONTRACTOR

Name _____

Phone No. _____

Address _____

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

AUTHORIZED AGENT'S NAME (PRINT)

DATE

SIGNATURE

TRANSPORTERName MPRPhone No. 602-278-6233Address 3045 S 52nd AveDriver's Name John ChalkPhoenix, AZ 85043Vehicle's No. B.# 5619 - (MW-16)

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

4/21/11

SHIPMENT DATE

DRIVER'S SIGNATURE

DELIVERY DATE

DRIVER'S SIGNATURE

DISPOSAL FACILITY

- ☐ BUTTERFIELD STATION FACILITY • 40404 South 99th Avenue • Mobile, Arizona 85239 • (602) 256-0630
- ☒ NORTHWEST REGIONAL LANDFILL • 19401 West Deer Valley Road • Surprise, Arizona 85387 • (623) 584-6065
- ☐ PAINTED DESERT LANDFILL • 9001 North Porter Avenue • Joseph City, Arizona 86032 • (520) 288-3605
- ☐ GRAY WOLF LANDFILL • 23355 East Highway 169 • Mile Post 11 • Dewey, Arizona 86327 • (520) 632-0370
- ☐ LONE CACTUS LANDFILL • 21402 North 7th Street • Phoenix, Arizona 85024 • (623) 516-0244
- ☐ IRONWOOD LANDFILL • 12720 East Highway 287 • Florence, Arizona 85232 • (520) 868-8778

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME (PRINT)

DATE

SIGNATURE

ORIGINAL - WHITE

DISPOSAL FACILITY - YELLOW

TRANSPORTER - PINK

GENERATOR - GOLDENROD



PLEASE CALL LANDFILL 24 HRS IN ADVANCE WITH SHIPPING NOTICE.

**NON - HAZARDOUS
WASTE MANIFEST**

FOR OFFICE USE ONLY

Customer Acct. No. _____

Ticket No. _____

GENERATOR**WM- 168687**Name Universal Population Co.

Generating Location _____

Address 25401 N. Central Ave.Phoenix, AZ 85085Phone No. 623-516-3340I.D. No. Control # 7342

PROFILE APPROVAL NO.	WASTE DESCRIPTION	QUANTITY	UNITS	UNIT
<u>11WK</u> <u>101432</u> <u>12</u>	<u>Soil</u>	<u>10</u>	<u>T</u>	D - DRUM B - BAG C - CARTON T - TONS Y - YARDS O - OTHER
<u> </u> <u> </u> <u> </u>	<u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	<u> </u>	<u> </u>	
<u> </u> <u> </u> <u> </u>	<u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	<u> </u>	<u> </u>	

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

Agent for UPCO Credit Mktg. 4/19/11 [Signature]
AUTHORIZED AGENT'S NAME (PRINT) DATE SIGNATURE**CONTRACTOR**

Name _____

Phone No. _____

Address _____

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law: That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

AUTHORIZED AGENT'S NAME (PRINT) DATE SIGNATURE**TRANSPORTER**Name MPEPhone No. 602-278-6233Address 5045 S. 31st Ave.Driver's Name Randy HartmanPhoenix, AZ 85043Vehicle's No. B-1 5769-(MD-17)

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law: That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

4/21/11 [Signature] 4/21/11
SHIPMENT DATE DRIVER'S SIGNATURE DELIVERY DATE DRIVER'S SIGNATURE**DISPOSAL FACILITY**

- ☐ BUTTERFIELD STATION FACILITY • 40404 South 99th Avenue • Mobile, Arizona 85239 • (602) 256-0630
- ☒ NORTHWEST REGIONAL LANDFILL • 19401 West Deer Valley Road • Surprise, Arizona 85387 • (623) 584-6065
- ☐ PAINTED DESERT LANDFILL • 9001 North Porter Avenue • Joseph City, Arizona 86032 • (520) 288-3605
- ☐ GRAY WOLF LANDFILL • 23355 East Highway 169 • Mile Post 11 • Dewey, Arizona 86327 • (520) 632-0370
- ☐ LONE CACTUS LANDFILL • 21402 North 7th Street • Phoenix, Arizona 85024 • (623) 516-0244
- ☐ IRONWOOD LANDFILL • 12720 East Highway 287 • Florence, Arizona 85232 • (520) 868-8778

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME (PRINT)

ORIGINAL - WHITE

DISPOSAL FACILITY - YELLOW

DATE

TRANSPORTER - PINK

SIGNATURE

GENERATOR - GOLDENROD



PLEASE CALL LANDFILL 24 HRS IN ADVANCE WITH SHIPPING NOTICE.

**NON - HAZARDOUS
WASTE MANIFEST**

FOR OFFICE USE ONLY

Customer Acct. No. _____

Ticket No. _____

GENERATOR**WM- 168675**Name Universal Waste Co

Generating Location _____

Address 3301 N. Central AvePhoenix, AZ 85005Phone No. 602-717-2500I.D. No. WM 1# 7345

PROFILE APPROVAL NO.	WASTE DESCRIPTION	QUANTITY	UNITS																				
<table><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>1</td><td>4</td><td>3</td><td>2</td><td>1</td><td>1</td><td>2</td><td></td></tr></table>	0	0	0	0	0	0	0	0	0	0	1	0	1	4	3	2	1	1	2		<u>Soil</u>	<u>10</u>	<u>T</u>
0	0	0	0	0	0	0	0	0	0														
1	0	1	4	3	2	1	1	2															
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UNIT
D - DRUM
B - BAG
C - CARTON
T - TONS
Y - YARDS
O - OTHER

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261; That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

Agent for UPCA

AUTHORIZED AGENT'S NAME (PRINT)

4/27/2011

DATE

[Signature]

SIGNATURE

CONTRACTOR

Name _____

Phone No. _____

Address _____

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law; That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

AUTHORIZED AGENT'S NAME (PRINT)

DATE

SIGNATURE

TRANSPORTERName TP Environmental ServicesPhone No. 602-278-6233Address 3045 S 51st AveDriver's Name JAVAD CHAKPhoenix, AZ 85043Vehicle's No. Bu # 5709

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40CFR Part 261 or any applicable state law; That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulation.

4/28/11

SHIPMENT DATE

[Signature]

DRIVER'S SIGNATURE

04-29-11

DELIVERY DATE

[Signature]

DRIVER'S SIGNATURE

DISPOSAL FACILITY

- ☐ BUTTERFIELD STATION FACILITY • 40404 South 99th Avenue • Mobile, Arizona 85239 • (602) 256-0630
- ☒ NORTHWEST REGIONAL LANDFILL • 19401 West Deer Valley Road • Surprise, Arizona 85387 • (623) 584-6065
- ☐ PAINTED DESERT LANDFILL • 9001 North Porter Avenue • Joseph City, Arizona 86032 • (520) 288-3605
- ☐ GRAY WOLF LANDFILL • 23355 East Highway 169 • Mile Post 11 • Dewey, Arizona 86327 • (520) 632-0370
- ☐ LONE CACTUS LANDFILL • 21402 North 7th Street • Phoenix, Arizona 85024 • (623) 516-0244
- ☐ IRONWOOD LANDFILL • 12720 East Highway 287 • Florence, Arizona 85232 • (520) 868-8778

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME (PRINT)

DATE

SIGNATURE

ORIGINAL - WHITE

DISPOSAL FACILITY - YELLOW

TRANSPORTER - PINK

GENERATOR - GOLDENROD

Liquid Environmental Solutions of Arizona
5159 West Van Buren Street Phoenix, AZ 85043 (800) 756-7084 (602) 278-3442 www.liquidenviro.com



LIQUID ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

95005

Profile Number

18-099

Generator Name	Name: <u>LIQUID ENVIRONMENTAL SOLUTIONS</u>	Generator Address	Address: <u>25401</u>	
	Phone: ()		City: <u>Phoenix</u> State: <u>AZ</u> Zip: <u>85043</u>	

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	<input type="checkbox"/> Grease Trap	<input type="checkbox"/> Grit Trap	<input type="checkbox"/> Septic/Chemical Toilet	<input checked="" type="checkbox"/> Non-Industrial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Special
	<input type="checkbox"/> Used Cooking Oil	<input type="checkbox"/> 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 pursuant 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)	<u>Bryan Buckner</u>	Generator Rep. Signature	<u>[Signature]</u>
---------------------------------------	----------------------	--------------------------	--------------------

Transporter Name	Name: <u>LIQUID ENVIRONMENTAL SOLUTIONS</u>	Transporter Address	Address: <u>25401</u>	
	Phone: ()		City: <u>Phoenix</u> State: <u>AZ</u> Zip: <u>85043</u>	

Waste Removed (Gallons)	<u>3000</u>	Date	Time
		<u>4-15-11</u>	

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)	<u>Drew</u>	Driver Signature	<u>[Signature]</u>
-------------------------------	-------------	------------------	--------------------

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

NON-HAZARDOUS WASTE MANIFEST

96053

725933

Waste No. 100

75697

Generator Name: _____ Address: _____ City: _____ State: _____ Zip: _____
 Phone: _____ Email: _____

This manifest is required by state regulatory agencies for manifesting hazardous waste. Not all state regulatory agencies require manifests for all types of waste. Please refer to the state regulatory agency for more information.

Waste Type: _____ Quantity: _____
 Container Type: _____

The generator is responsible for ensuring that the waste is properly packaged, labeled, and manifested. The transporter is responsible for ensuring that the waste is properly transported and disposed of. The receiver is responsible for ensuring that the waste is properly received and disposed of. The generator, transporter, and receiver are all responsible for ensuring that the waste is properly manifested.

Signature: _____ Date: _____
 Title: _____

Signature: _____ Date: _____
 Title: _____

Signature: _____ Date: _____
 Title: _____

The generator is responsible for ensuring that the waste is properly packaged, labeled, and manifested. The transporter is responsible for ensuring that the waste is properly transported and disposed of. The receiver is responsible for ensuring that the waste is properly received and disposed of. The generator, transporter, and receiver are all responsible for ensuring that the waste is properly manifested.

Signature: _____ Date: _____
 Title: _____

Signature: _____ Date: _____
 Title: _____

Signature: _____ Date: _____
 Title: _____

Signature: _____ Date: _____
 Title: _____

The generator is responsible for ensuring that the waste is properly packaged, labeled, and manifested. The transporter is responsible for ensuring that the waste is properly transported and disposed of. The receiver is responsible for ensuring that the waste is properly received and disposed of. The generator, transporter, and receiver are all responsible for ensuring that the waste is properly manifested.



LIQUID ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

903857

94598

01777

Profile Number

19569

Generator Name	Name: <u>Universal Paving</u>	Generator Address	Address: <u>25401 Cantor Ave</u>	
	Phone: ()		City: <u>Phx</u> State: <u>AZ</u> Zip: <u></u>	

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	<input type="checkbox"/> Grease Trap	<input type="checkbox"/> Grit Trap	<input type="checkbox"/> Septic/Chemical Toilet	<input type="checkbox"/> Non-Industrial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Special
	<input type="checkbox"/> Used Cooking Oil	<input type="checkbox"/> 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 pursuant 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)	<u>Leo G...</u>	Generator Rep. Signature	<u>[Signature]</u>
---------------------------------------	-----------------	--------------------------	--------------------

Transporter Name	Name: <u>MPE</u>	Transporter Address	Address: <u>3045 S...</u>
	Phone: ()		City: <u>Phx</u> State: <u>AZ</u> Zip: <u></u>

Waste Removed (Gallons)	<u>4500</u>	Date	Time
		<u>8-10-11</u>	

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)	<u>Don</u>	Driver Signature	<u>[Signature]</u>
-------------------------------	------------	------------------	--------------------

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043
Waste Received (Gallons)	<u>4500</u>	Date	Time
		<u>8-10-11</u>	
Facility Rep. Name (please print)	<u>[Signature]</u>	Facility Rep. Signature	<u>[Signature]</u>

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

NON-HAZARDOUS WASTE MANIFEST

M P Environmental Services, Inc.

3045 S. 51st Avenue • Phoenix, AZ 85043 • (602) 278-6233

203883

PROFILE NO. 82211



NOTE: This form to be in lieu of the Toxic Substance Controls hazardous waste manifest. To be used for NON-HAZARDOUS WASTES only.

Name : Universal Propulsion Company

Mailing Address : 25401 North Central Ave.

City / State / Zip : Phoenix AZ 85085

Phone No : 602-278-6233 Contact : Craig L. Miller

Signature: [Signature] Date: 08 / 22 / 11

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS

Waste Description : perchlorate impacted water

Generating Location : 25401 N. Central Ave. Phoenix, AZ 85085

Handling Instructions : _____

Quantity : 300 [] BBL [x] GLS [] YDS [] TONS

CONTAINER TYPE: [] TANK TRUCK [] DUMP TRUCK [] DRUMS [] BINS [x] OTHER Tote

DESIGNATED FACILITY :

NAME : Stericycle ADDRESS : 2844 West Broadway Road

CITY/STATE/ZIP: Phoenix AZ 85041 PHONE # : 602 276-7602

MP ENVIRONMENTAL SERVICES, INC.

3045 S. 51st Avenue
Phoenix, AZ 85043
602 / 278-6233

TICKET# A283241 TRACT/TRLR# 991

Bin No's _____

Signature: [Signature]

Date 8-22-11

P/U DATE: 8-22-11 Job # 11843

Name : Stericycle

Address : 2844 West Broadway Road

City/State/Zip : Phoenix AZ 85041

Phone No : 602 276-7602

Discrepancy : _____

Disposal Method :

☐ Landfill Other _____

Time : _____ am
pm

Signature : [Signature] Date : 08 / 22 / 11

TO BE COMPLETED BY GENERATOR

TRANSPORTER

SD FACILITY

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number A Z D 9 8 0 8 1 4 4 7 9	2. Page 1 of 1	3. Emergency Response Phone 900-832-7602	4. Manifest Tracking Number 003953414 JJK		
5. Generator's Name and Mailing Address Universal Propulsion Company 25401 North Central Ave. Phoenix AZ 85085		Generator's Site Address (if different than mailing address)					
Generator's Phone:							
6. Transporter 1 Company Name MP Environmental Services		U.S. EPA ID Number C A T 0 0 0 6 2 4 2 4 7					
7. Transporter 2 Company Name		U.S. EPA ID Number					
8. Designated Facility Name and Site Address Veeba 107 S. Motor Ave. AZUSA CA 01702		U.S. EPA ID Number C A D 0 0 8 3 0 2 9 0 3					
Facility's Phone: 828 334-5117							
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt/Vol	13. Waste Codes
		Non-RCRA Hazardous Waste Liquid (Perchlorate Impacted Water)	0 0 1	TT	1,000	G	134
	2.						
	3.						
	4.						
14. Special Handling Instructions and Additional Information 1) Profile # 072484 MPE Job #11843 Wear Proper Personal Protective Gear When Handling							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name Agent For UPCO: Craig L. Miller		Signature <i>[Signature]</i>		Month Day Year 0 8 1 8 1 1			
INTL	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:				
	Transporter signature (for exports only):						
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials		Signature		Month Day Year		
	Transporter 1 Printed/Typed Name KIM CRAINCH		Signature <i>[Signature]</i>		Month Day Year 0 8 1 8 1 1		
DESIGNATED FACILITY	18. Discrepancy						
	18a. Discrepancy Indication Space <input checked="" type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Actual Amount Received 1155 Gals.		Manifest Reference Number:				
	18b. Alternate Facility (or Generator)		U.S. EPA ID Number				
	Facility's Phone:						
	18c. Signature of Alternate Facility (or Generator)		Month Day Year				
	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
	1. H39		2.		3.		
	20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name Vivian Moreno		Signature <i>[Signature]</i>		Month Day Year 0 8 1 8 1 1			

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number	
		A Z R 0 0 0 3 5 8 4 0	1	1-800-824-8804	004142209 FLE	
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)				
Stericycle Specialty Waste Solutions Inc. PHX 3544 W Broadway Phoenix AZ 85041		802.276.7602				
6. Transporter 1 Company Name		U.S. EPA ID Number			MNSD00110020	
Stericycle Specialty Waste Solutions, Inc.						
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address		U.S. EPA ID Number				
US Ecology (Beatty) 12 miles south of Beatty on Hwy 95 Beatty NV 89309		800-238-3943			NVT330010000	
Facility's Phone:						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
		No.	Type			
	1. Non-RCRA / Non-DOT Liquid					
	ERG HAZARDOUS 310137 U-1571	1	TP	2000	P	NA
	2.					
	3.					
	4.					
14. Special Handling Instructions and Additional Information						
1108386WV JOB # OUT-HX-11-08 OBS 1108074						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name		Signature		Month	Day	Year
Carlos Moreira		[Signature]		8	23	11
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter signature (for exports only): _____ Date leaving U.S.: _____						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name		Signature		Month	Day	Year
Carlos Moreira		[Signature]		8	23	11
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number: _____						
18b. Alternate Facility (or Generator)		U.S. EPA ID Number				
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator)		Signature		Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. H039		2.		3.		4.
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name		Signature		Month	Day	Year
[Signature]		[Signature]		8	23	11

NON-HAZARDOUS WASTE MANIFEST

NON-HAZARDOUS WASTE MANIFEST

Phoenix, AZ

Phoenix, AZ

AMW 101610AZ

Phoenix, AZ

MPE Environmental Services, Inc.
3045 S. 51st Avenue • Phoenix, AZ 85043 • (602) 278-6233

201653

PROFILE NO. 103111



NOTE: This form to be in lieu of the Toxic Substance Controls hazardous waste manifest. To be used for NON-HAZARDOUS WASTES only.

Name: Universal Provision Company
Mailing Address: 25401 North Central Ave.
City / State / Zip: Phoenix AZ 85043
Phone No: Contact:
Signature: X Agent [Signature] Date: 10 / 31 / 11

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS

Waste Description: perfluorinated liquid waste
Generating Location: 25401 N. Central Ave. Phoenix, AZ 85043
Handling Instructions:
Quantity: 300 [] BBL [x] GLS [] YDS [] TONS
CONTAINER TYPE: [] TANK TRUCK [] DUMP TRUCK [] DRUMS [] BINS [x] OTHER

DESIGNATED FACILITY:

NAME: Starway ADDRESS: 2544 West Broadway Road
CITY/STATE/ZIP: Phoenix AZ 85041 PHONE #: 602 278-7502

MP ENVIRONMENTAL SERVICES, INC.
3045 S. 51st Avenue
Phoenix, AZ 85043
602 / 278-6233

TICKET# TRACT/TRLR# /
Bin No's
Signature:
Date
P/U DATE: Job #

Name: Address: 2544 West Broadway Road
City/State/Zip: Phoenix AZ 85041
Phone No: 602 278-7502 Disposal Method: [] Landfill [x] Other
Time: am pm
Discrepancy:

Signature: [Signature] Date: 11 / 09 / 11

TO BE COMPLETED BY GENERATOR

TRANSPORTER

TSD FACILITY



LIQUID ENVIRONMENTAL SOLUTIONS

NON-HAZARDOUS WASTE MANIFEST

96008

Profile Number

195699

Generator Name	Name: <u>UPCO</u>	Generator Address	Address: <u>25401 Central Ave</u>	
	Phone: <u>(623) 516-3340</u>		City: <u>Phoenix</u> State: <u>AZ</u> Zip: <u>85027</u>	

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	<input type="checkbox"/> Grease Trap	<input type="checkbox"/> Grit Trap	<input type="checkbox"/> Septic/Chemical Toilet	<input checked="" type="checkbox"/> Non-Industrial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Special
	<input type="checkbox"/> Used Cooking Oil	<input type="checkbox"/> 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 pursuant 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)	<u>Agent for UPCO</u> <u>Craig Miller</u>	Generator Rep. Signature	
---------------------------------------	----------------------------------------------	--------------------------	--

Transporter Name	Name: <u>MPR</u>	Transporter Address	Address: <u>3045 S. 51st Ave</u>	
	Phone: <u>(602) 278-6733</u>		City: <u>Phoenix</u> State: <u>AZ</u> Zip: <u>85043</u>	

Waste Removed (Gallons)	<u>1200 Gals</u>	Date	Time
		<u>11-2-11</u>	<u>9:00A</u>

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)	<u>Chad Tucker</u>	Driver Signature	
-------------------------------	--------------------	------------------	--

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043	
-------------------	-------------------------------------------	---------	-------------------------------------------------	--

Waste Received (Gallons)	<u>1200</u>	Date	Time
		<u>11/2/11</u>	

Facility Rep. Name (please print)	<u>Sonal D</u>	Facility Rep. Signature	
--------------------------------------	----------------	-------------------------	--

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

Liquid Environmental Solutions of Arizona

5159 West Van Buren Street Phoenix, AZ 85043 (800) 756-7084 (602) 278-3442 www.liquidenviro.com

BULKING HISTORY REPORT

Current User Carlos

Thursday, January 05, 2012

Container Number

1112049PHXWaste Stream Non-RCRA / Non-DOT LiquidContainer Size 274

Outbound Manifest

Ship Date

CD

TSDf

DOT Consolidation

1112028

US Ecology (Beatty)

Bulking

Original
Container

Date

Generator

Job

Manifest

Line

Container

PSN

Talent

12/12/2011 Universal Propulsion Company

PHX-11-11-104

11104

1

0001

Non-RCRA / Non-DOT Liquid
N/A

CM

ENVIROSOLVE SHIPPING LOAD REPORT

Beatty
Load

uesday, December 14, 2011

Manifest	Line	Container	Job	Barcode	PSN	Generator	Facility
VEHICLE				304	Trailer		
				B1112063PHX	Pesticides, liquid, toxic, n.o.s		US Ecology (Beatty)
				B1112065PHX	Corrosive liquid, acidic, inorganic, n.o.s		US Ecology (Beatty)
				B1112066PHX	Corrosive liquid, acidic, inorganic, n.o.s		US Ecology (Beatty)
				B1103016PHX	Corrosive liquid, acidic, inorganic, n.o.s		US Ecology (Beatty)
				B1112061PHX	Pesticides, liquid, toxic, n.o.s		US Ecology (Beatty)
				B1112060PHX	Pesticides, liquid, toxic, n.o.s		US Ecology (Beatty)
				B1112058PHX	Pesticides, liquid, toxic, n.o.s		US Ecology (Beatty)
12020	1	0003	PHX-11-12-020	C00121130	Corrosive liquid, acidic, inorganic, n.o.s	Metro Plating	US Ecology (Beatty)
				B1112053PHX	Pesticides, liquid, toxic, n.o.s		US Ecology (Beatty)
				B1111148PHX	Latex Paint		US Ecology (Beatty)
				B1112067PHX	Corrosive solid, basic, inorganic, n.o.s		US Ecology (Beatty)
				B1110104PHX	Toxic solid, inorganic, n.o.s		US Ecology (Beatty)
				B1111136PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
				B1112049PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
12020	1	0002	PHX-11-12-020	C00121129	Corrosive liquid, acidic, inorganic, n.o.s	Metro Plating	US Ecology (Beatty)
12020	1	0001	PHX-11-12-020	C00121128	Corrosive liquid, acidic, inorganic, n.o.s	Metro Plating	US Ecology (Beatty)
12020	1	0004	PHX-11-12-020	C00121131	Corrosive liquid, acidic, inorganic, n.o.s	Metro Plating	US Ecology (Beatty)
				B1112055PHX	Pesticides, liquid, toxic, n.o.s		US Ecology (Beatty)
				B1112050PHX	Corrosive solid, basic, inorganic, n.o.s		US Ecology (Beatty)
				B1111149PHX	Latex Paint		US Ecology (Beatty)
				B1111156PHX	Paint related material -including paint thinning, drying, removing, or reducing compound-		US Ecology (Beatty)
				B1112026PHX	Latex Paint		US Ecology (Beatty)
				B1110080PHX	Corrosive liquid, basic, inorganic, n.o.s		US Ecology (Beatty)
				B1012065PHX	Ammonia solutions ~ relative density between 0.680 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent Ammonia-		US Ecology (Beatty)
				B1112052PHX	Corrosive liquid, basic, inorganic, n.o.s		US Ecology (Beatty)
				B1111142PHX	Polychlorinated biphenyls, solid		US Ecology (Beatty)
				B1112051PHX	Corrosive liquid, acidic, inorganic, n.o.s		US Ecology (Beatty)
				B1112068PHX	Corrosive solid, basic, inorganic, n.o.s		US Ecology (Beatty)
				B1112064PHX	Corrosive liquid, acidic, inorganic, n.o.s		US Ecology (Beatty)
				B1112070PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
				B1112069PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
				B1112062PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
				B1112058PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
				B1112054PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
				B1112059PHX	Non-RCRA / Non-DOT Liquid		US Ecology (Beatty)
				B1111148PHX	Latex Paint		US Ecology (Beatty)
				B1111147PHX	Hypochlorite solutions		US Ecology (Beatty)

TRANSPORTER'S COPY

Appendix D
IDW Management Summary
Fourth Quarter 2011 Monitoring Report

Sample Date	Lab Report Number	Sample ID	Bin/Tank ID Numbers	Waste Manifest Number (s)	Sample Location/Remarks	Analysis Method(s)	IDW Classification	Destination	Date(s) Disposed	Quantity solid (tons) or liquid (gallons)
10/26/2011	PUJ1701	MW-19	Tote	201653	Perchlorate impacted water (MW-19)	EPA 314.0	Non-Hazardous	Stericycle	11/9/2011	300 gallons

Universal Propulsion Company
2011 Annual Monitoring Report

Appendix C
Historic Water Level Data



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
	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

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 (cont.)	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
	2/23/2011	1560.43	211.71	1348.72
	3/22/2011	1560.43	211.73	1348.70
	4/26/2011	1560.43	211.77	1348.66
	5/27/2011	1560.43	211.95	1348.48
	6/30/2011	1560.43	211.79	1348.64
	7/25/2011	1560.43	212.02	1348.41
	9/2/2011	1560.43	211.81	1348.62
	9/27/2011	1560.43	211.82	1348.61
	10/24/2011	1560.43	211.88	1348.55
	11/28/2011	1560.43	211.90	1348.53
	12/27/2011	1560.43	211.92	1348.51
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

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 (cont.)	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
	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
	2/23/2011	1571.22	222.53	1348.69
	3/22/2011	1571.22	222.60	1348.62
	4/26/2011	1571.22	222.55	1348.67
	5/27/2011	1571.22	222.56	1348.66
	6/30/2011	1571.22	222.61	1348.61
	7/25/2011	1571.22	222.84	1348.38
	9/2/2011	1571.22	222.61	1348.61
	9/27/2011	1571.22	221.61	1349.61
	10/24/2011	1571.22	222.71	1348.51
	11/28/2011	1571.22	222.71	1348.51
	12/27/2011	1571.22	222.76	1348.46

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	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
	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

Appendix C
Historic Water Level Data
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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-3 (cont.)	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
	2/23/2011	1583.59	240.15	1343.44
	3/22/2011	1583.59	240.46	1343.13
	4/25/2011	1583.59	240.53	1343.06
	5/27/2011	1583.59	240.77	1342.82
	6/30/2011	1583.59	240.81	1342.78
	7/25/2011	1583.59	241.04	1342.55
	9/2/2011	1583.59	241.11	1342.48
	9/27/2011	1583.59	241.15	1342.44
	10/24/2011	1583.59	241.23	1342.36
	11/28/2011	1583.59	241.26	1342.33
	12/27/2011	1583.59	241.42	1342.17
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
	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

Appendix C
Historic Water Level Data
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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-4 (cont.)	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
	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
	2/23/2011	1620.34	276.84	1343.50
	3/22/2011	1620.34	276.97	1343.37
	4/25/2011	1620.34	276.92	1343.42
	5/27/2011	1620.34	276.94	1343.40
	6/30/2011	1620.34	277.11	1343.23
	7/25/2011	1620.34	277.39	1342.95
	9/2/2011	1620.34	277.28	1343.06
	9/27/2011	1620.34	277.29	1343.05
	10/24/2011	1620.34	277.38	1342.96
	11/28/2011	1620.34	277.53	1342.81
	12/27/2011	1620.34	277.59	1342.75
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

Appendix C
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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-5 (cont.)	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
	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

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-5 (cont.)	2/23/2011	1594.08	245.38	1348.70
	3/22/2011	1594.08	245.37	1348.71
	4/26/2011	1594.08	245.43	1348.65
	5/27/2011	1594.08	245.39	1348.69
	6/30/2011	1594.08	245.41	1348.67
	7/25/2011	1594.08	245.64	1348.44
	9/2/2011	1594.08	245.44	1348.64
	9/27/2011	1594.08	245.45	1348.63
	10/24/2011	1594.08	245.50	1348.58
	11/28/2011	1594.08	245.53	1348.55
	12/27/2011	1594.08	245.56	1348.52
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
	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

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-6 (cont.)	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
	2/23/2011	1551.65	162.70	1388.95
	3/22/2011	1551.65	163.03	1388.62
	4/26/2011	1551.65	162.62	1389.03
	5/27/2011	1551.65	162.82	1388.83
	6/30/2011	1551.65	162.68	1388.97
	7/25/2011	1551.65	163.13	1388.52
	9/2/2011	1551.65	163.19	1388.46
	9/27/2011	1551.65	163.47	1388.18
	10/24/2011	1551.65	163.80	1387.85
	11/28/2011	1551.65	164.37	1387.28
	12/27/2011	1551.65	164.70	1386.95
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

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-7 (cont.)	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
	2/23/2011	1541.35	162.20	1379.15
	3/22/2011	1541.35	162.36	1378.99
	4/25/2011	1541.35	162.25	1379.10
	5/27/2011	1541.35	162.24	1379.11
	6/30/2011	1541.35	162.93	1378.42
	7/25/2011	1541.35	162.66	1378.69
	9/2/2011	1541.35	162.41	1378.94
	9/27/2011	1541.35	162.42	1378.93

Appendix C
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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-7 (cont.)	10/24/2011	1541.35	162.50	1378.85
	11/28/2011	1541.35	162.64	1378.71
	12/27/2011	1541.35	162.61	1378.74
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
	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

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-8 (cont.)	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
	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
	2/23/2011	1542.18	193.59	1348.59
	3/22/2011	1542.18	193.66	1348.52
	4/25/2011	1542.18	193.60	1348.58
	5/27/2011	1542.18	193.65	1348.53
	6/30/2011	1542.18	193.68	1348.50
	7/25/2011	1542.18	193.85	1348.33
	9/2/2011	1542.18	193.69	1348.49
	9/27/2011	1542.18	193.70	1348.48
	10/24/2011	1542.18	193.76	1348.42
	11/28/2011	1542.18	193.74	1348.44
	12/27/2011	1542.18	193.75	1348.43
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

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-9 (cont.)	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
	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
	2/23/2011	1565.60	216.90	1348.70
	3/22/2011	1565.60	216.92	1348.68
	4/25/2011	1565.60	216.86	1348.74
	5/27/2011	1565.60	216.93	1348.67
	6/30/2011	1565.60	216.93	1348.67
	7/25/2011	1565.60	217.11	1348.49
	9/2/2011	1565.60	216.92	1348.68
	9/27/2011	1565.60	216.94	1348.66
	10/24/2011	1565.60	216.99	1348.61
	11/28/2011	1565.60	216.95	1348.65
	12/27/2011	1565.60	217.00	1348.60
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

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-10 (cont.)	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
	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
	2/23/2011	1536.11	154.90	1381.21
	3/22/2011	1536.11	154.95	1381.16
	4/25/2011	1536.11	154.93	1381.18
	5/27/2011	1536.11	154.93	1381.18
	6/30/2011	1536.11	155.00	1381.11
	7/25/2011	1536.11	155.40	1380.71
	9/2/2011	1536.11	155.12	1380.99
	9/27/2011	1536.11	155.22	1380.89

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-10 (cont.)	10/24/2011	1536.11	155.31	1380.80
	11/28/2011	1536.11	155.51	1380.60
	12/27/2011	1536.11	155.57	1380.54
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
	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
	2/23/2011	1603.35	254.81	1348.54
	3/22/2011	1603.35	254.81	1348.54
	4/25/2011	1603.35	254.79	1348.56
	5/27/2011	1603.35	254.82	1348.53
	6/30/2011	1603.35	254.85	1348.50
	7/25/2011	1603.35	255.09	1348.26

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-11 (cont.)	9/2/2011	1603.35	254.86	1348.49
	9/27/2011	1603.35	254.89	1348.46
	10/24/2011	1603.35	254.93	1348.42
	11/28/2011	1603.35	254.94	1348.41
	12/27/2011	1603.35	254.99	1348.36
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
	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
	2/23/2011	1560.91	213.34	1347.57
	3/22/2011	1560.91	213.39	1347.52
	4/25/2011	1560.91	213.33	1347.58

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Well Identification	Date of Measurement	Measuring Point Elevation (ft amsl)	Depth to Water from Measuring Point (ft)	Groundwater Elevation (ft amsl)
MW-12 (cont.)	5/27/2011	1560.91	212.37	1348.54
	6/30/2011	1560.91	213.41	1347.50
	7/25/2011	1560.91	213.67	1347.24
	9/2/2011	1560.91	213.46	1347.45
	9/27/2011	1560.91	213.43	1347.48
	10/24/2011	1560.91	213.52	1347.39
	11/28/2011	1560.91	213.52	1347.39
	12/27/2011	1560.91	213.54	1347.37
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
	2/23/2011	1599.52	250.82	1348.70
	3/22/2011	1599.52	250.86	1348.66
	4/26/2011	1599.52	250.82	1348.70
	5/27/2011	1599.52	250.82	1348.70
	6/30/2011	1599.52	250.92	1348.60
	7/25/2011	1599.52	251.22	1348.30
	9/2/2011	1599.52	250.90	1348.62
	9/27/2011	1599.52	250.87	1348.65
	10/24/2011	1599.52	250.98	1348.54
	11/28/2011	1599.52	250.93	1348.59
	12/27/2011	1599.52	251.03	1348.49
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

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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 (cont.)	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
	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
	2/23/2011	1602.48	266.62	1335.86
	3/22/2011	1602.48	266.57	1335.91
	4/25/2011	1602.48	266.85	1335.63
	5/27/2011	1602.48	267.75	1334.73
	6/30/2011	1602.48	267.44	1335.04
	7/25/2011	1602.48	267.81	1334.67
	9/2/2011	1602.48	268.00	1334.48
	9/27/2011	1602.48	268.12	1334.36
	10/24/2011	1602.48	268.11	1334.37
	11/28/2011	1602.48	268.04	1334.44
	12/27/2011	1602.48	268.10	1334.38
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

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-15 (cont.)	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
	2/23/2011	1600.48	265.33	1335.15
	3/22/2011	1600.48	265.45	1335.03
	4/25/2011	1600.48	265.35	1335.13
	5/27/2011	1600.48	265.84	1334.64
	6/30/2011	1600.48	265.90	1334.58
	7/25/2011	1600.48	266.19	1334.29
	9/2/2011	1600.48	266.25	1334.23
	9/27/2011	1600.48	266.27	1334.21
	10/24/2011	1600.48	266.51	1333.97
	11/28/2011	1600.48	266.58	1333.90
	12/27/2011	1600.48	266.70	1333.78
MW-16	4/25/2011	1585.36	253.89	1331.47
	5/27/2011	1585.36	254.05	1331.31
	6/30/2011	1585.36	254.26	1331.10
	7/25/2011	1585.36	254.35	1331.01
	9/2/2011	1585.36	254.40	1330.96
	9/27/2011	1585.36	254.38	1330.98
	10/24/2011	1585.36	254.59	1330.77
	11/28/2011	1585.36	255.64	1329.72
	12/27/2011	1585.36	254.84	1330.52
MW-17	4/25/2011	1560.72	206.72	1354.00
	5/27/2011	1560.72	206.78	1353.94
	6/30/2011	1560.72	206.92	1353.80
	7/25/2011	1560.72	207.18	1353.54
	9/2/2011	1560.72	206.93	1353.79
	9/27/2011	1560.72	207.06	1353.66
	10/24/2011	1560.72	207.15	1353.57
	11/28/2011	1560.72	207.24	1353.48
	12/27/2011	1560.72	207.33	1353.39
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
	2/23/2011	1533.53	130.17	1403.36
	3/22/2011	1533.53	130.20	1403.33

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)
MW-18 (cont.)	4/25/2011	1533.53	130.99	1402.54
	5/27/2011	1533.53	130.70	1402.83
	6/30/2011	1533.53	130.61	1402.92
	7/25/2011	1533.53	130.84	1402.69
	9/2/2011	1533.53	130.99	1402.54
	9/27/2011	1533.53	130.91	1402.62
	10/24/2011	1533.53	130.88	1402.65
	11/28/2011	1533.53	131.00	1402.53
	12/27/2011	1533.53	130.98	1402.55
MW-19	4/25/2011	1599.51	250.80	1348.71
	5/27/2011	1599.51	251.40	1348.11
	6/30/2011	1599.51	250.87	1348.64
	7/25/2011	1599.51	251.05	1348.46
	9/2/2011	1599.51	250.88	1348.63
	9/27/2011	1599.51	250.90	1348.61
	10/24/2011	1599.51	250.94	1348.57
	11/28/2011	1599.51	250.94	1348.57
	12/27/2011	1599.51	251.00	1348.51
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
	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
	9/27/2011	1554.55	209.02	1345.53

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 (cont.)	10/24/2011	1554.55	209.03	1345.52
	11/28/2011	1554.55	209.20	1345.35
	12/27/2011	1554.55	209.12	1345.43
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
	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
	2/23/2011	1596.79	NA	NA

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	3/30/2007	1617.01	325.20	1291.81
	5/25/2007	1617.01	313.19	1303.82
	6/4/2007	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
	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
	2/23/2011	1617.01	336.65	1280.36
	4/25/2011	1596.79	321.91	1274.88
	5/27/2011	1596.79	322.90	1273.89
	6/30/2011	1596.79	336.25	1260.54
	7/25/2011	1596.79	335.35	1261.44
	9/27/2011	1596.79	330.03	1266.76
	10/24/2011	1596.79	331.12	1265.67

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 (cont.)	11/28/2011	1596.79	327.42	1269.37
	12/27/2011	1596.79	NA	NA
520 East Yearling	3/30/2007	1635.71	293.60	1342.11
	5/25/2007	1635.71	293.68	1342.03
	6/4/2007	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
	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
	2/23/2011	1635.71	300.58	1335.13
	4/25/2011	1635.71	NM	NM
	5/27/2011	1635.71	302.03	1333.68
	6/30/2011	1635.71	302.28	1333.43
	7/25/2011	1635.71	303.19	1332.52

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 (cont.)	10/24/2011	1635.71	303.45	1332.26
	11/28/2011	1635.71	303.25	1332.46

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

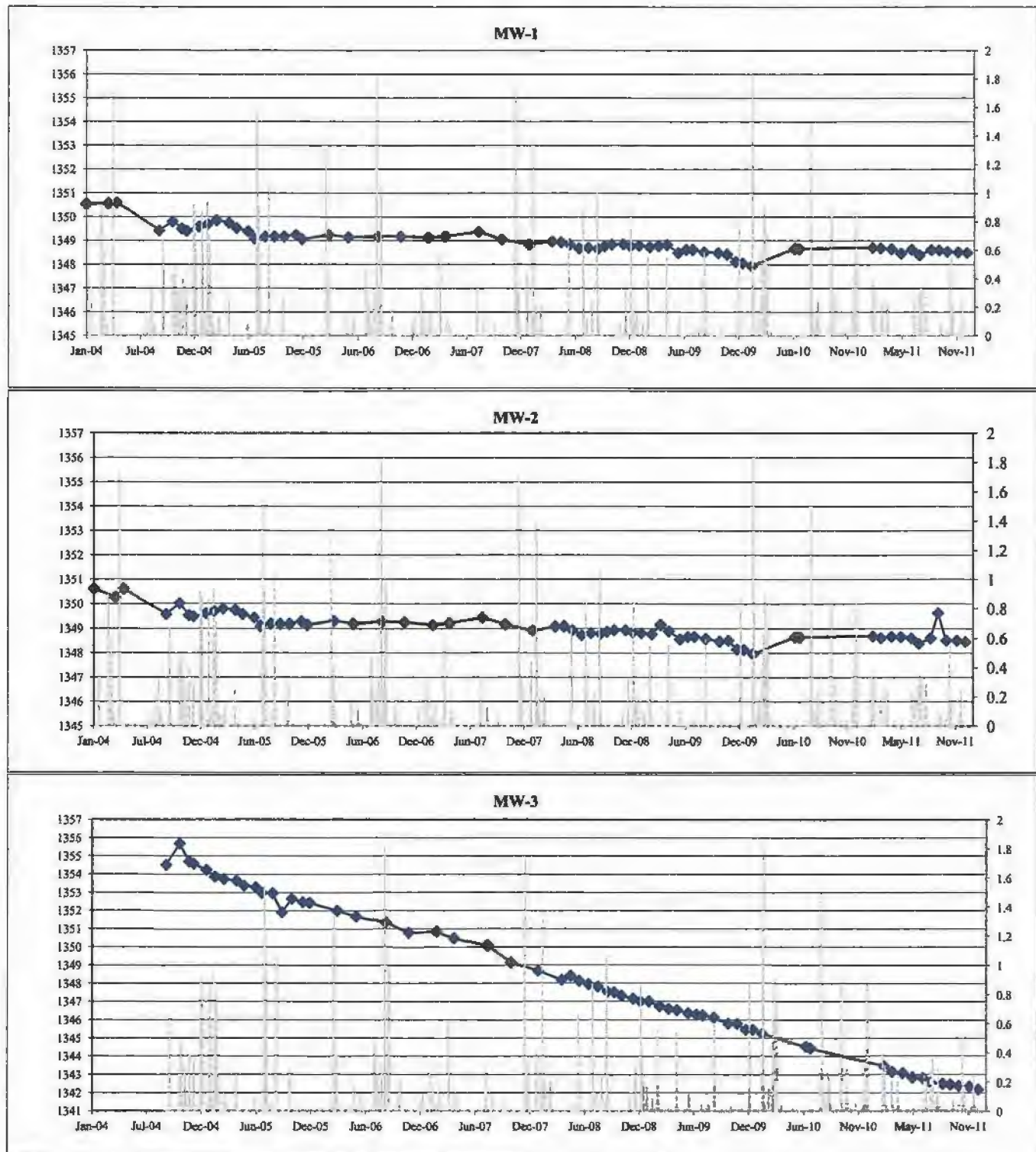
dry = Sounder did not detect water

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Appendix D
Monitor Well Hydrographs

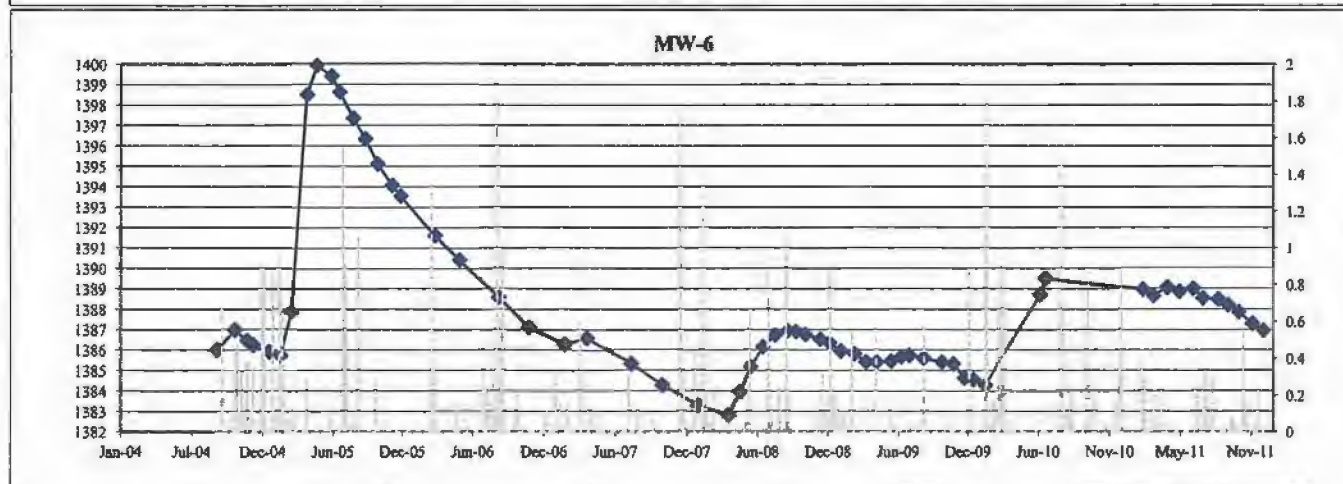
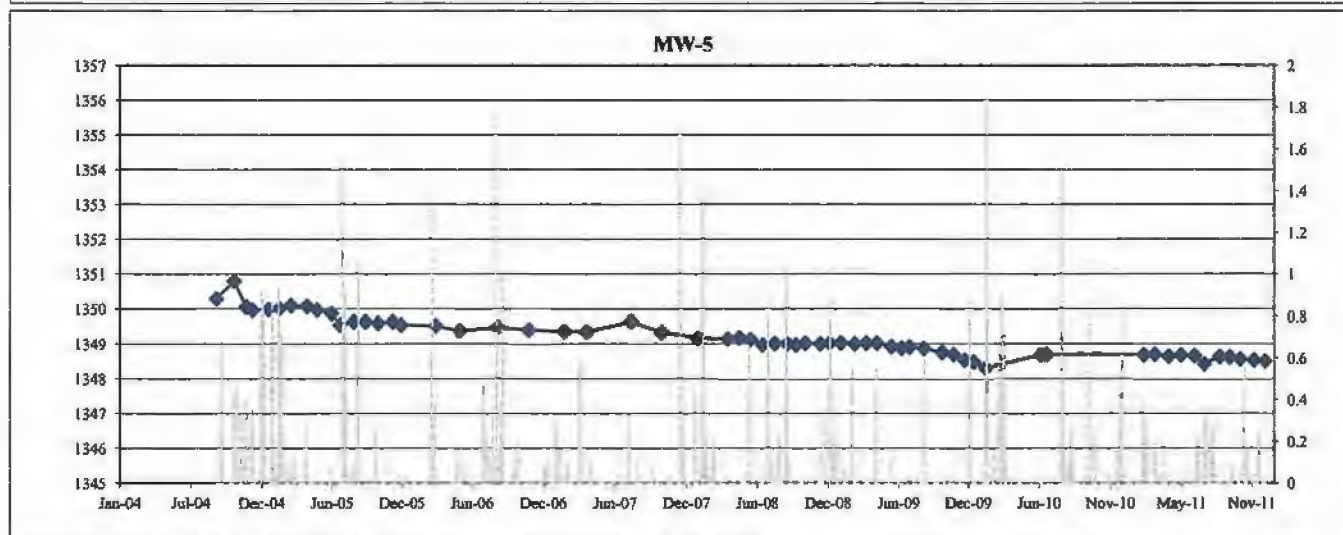
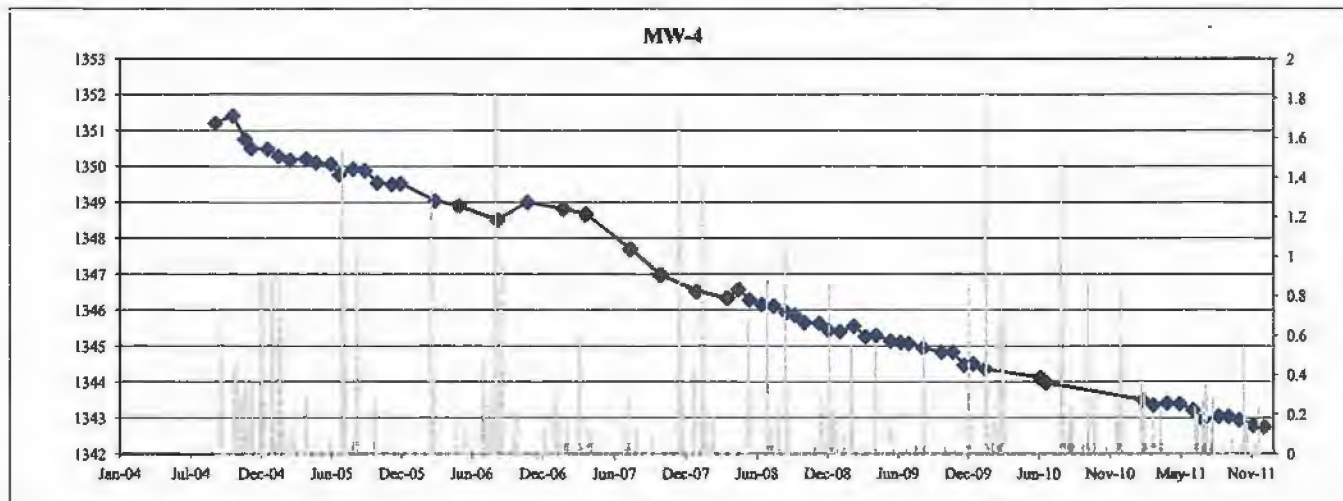


Appendix D **Well Hydrographs (feet amsl) with Precipitation (in/day)**



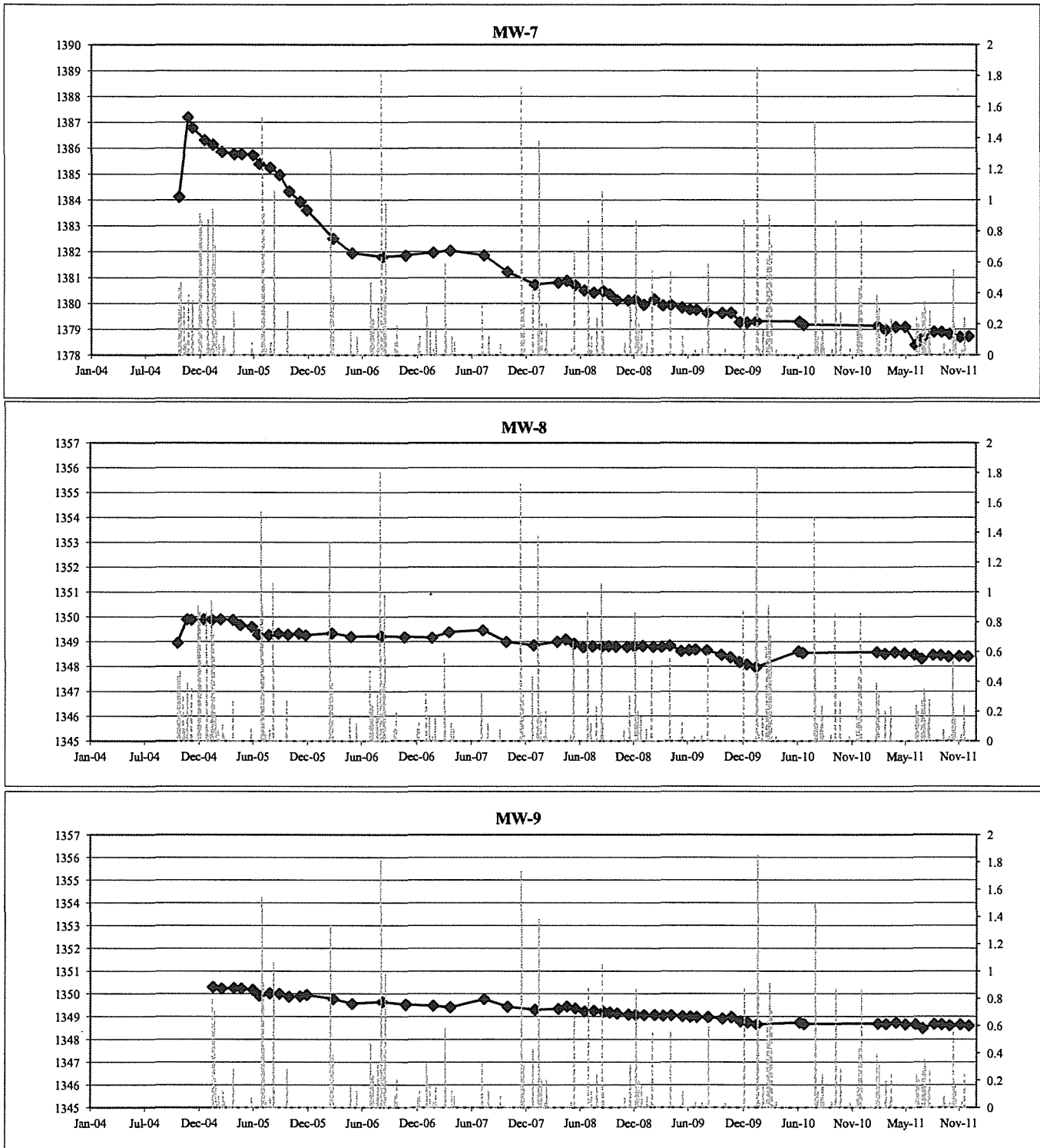
Appendix D

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



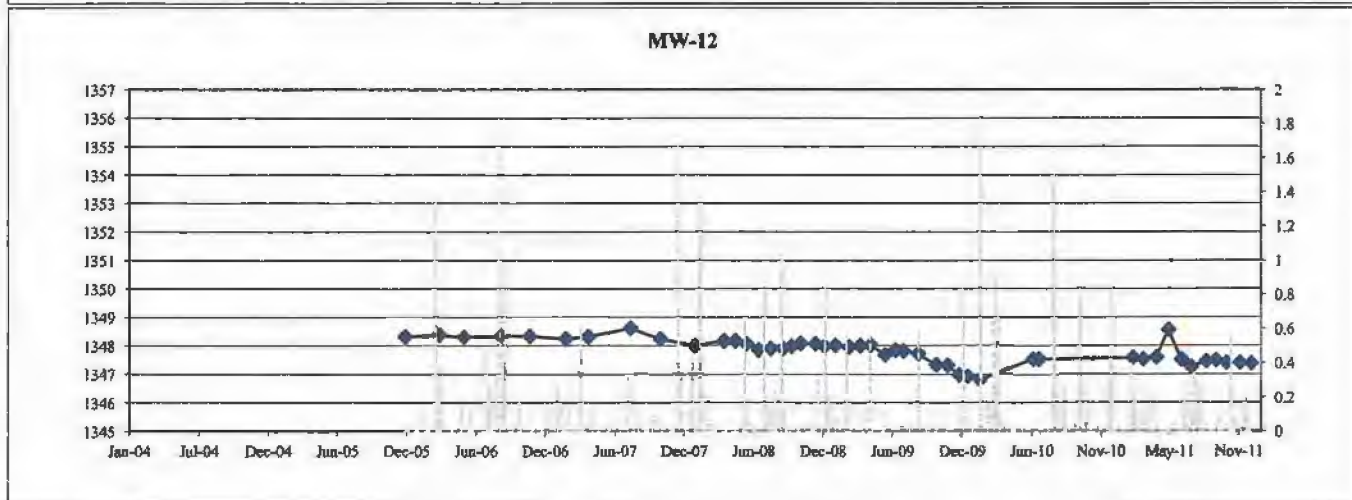
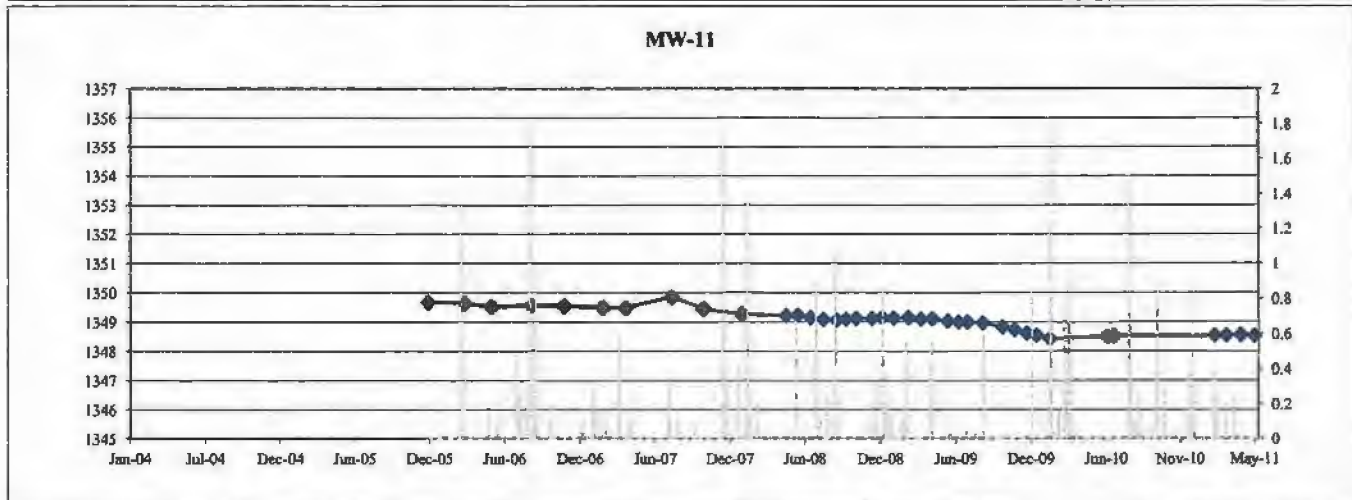
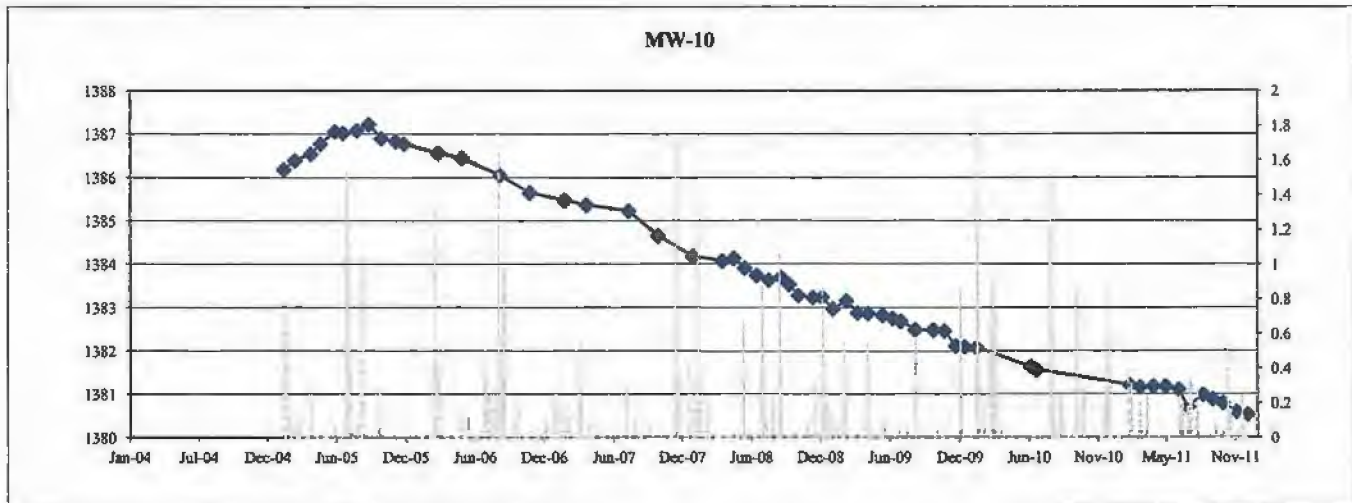
Appendix D

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



Appendix D

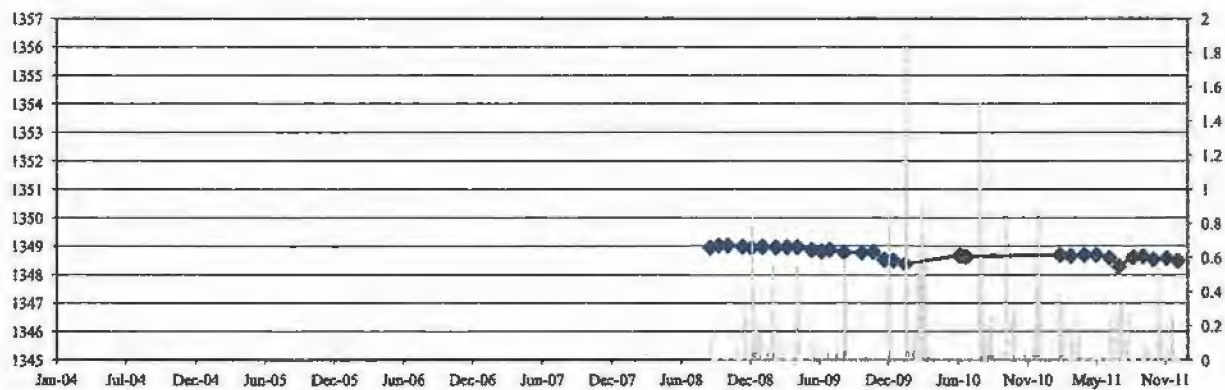
Well Hydrographs (feet amsl) with Precipitation (in/day)



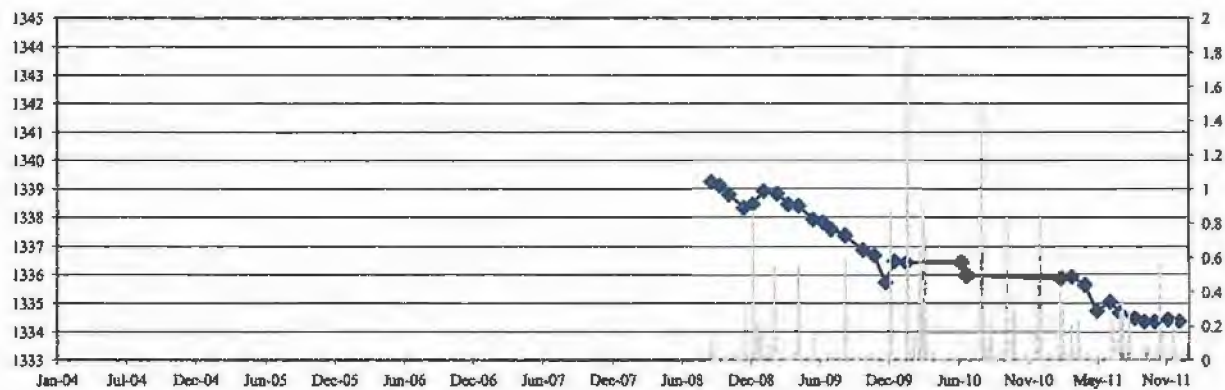
Appendix D

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

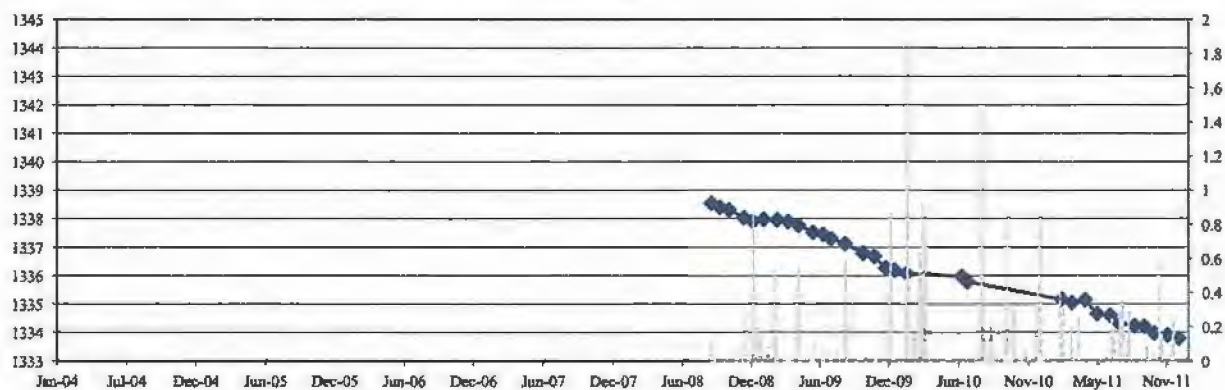
MW-13



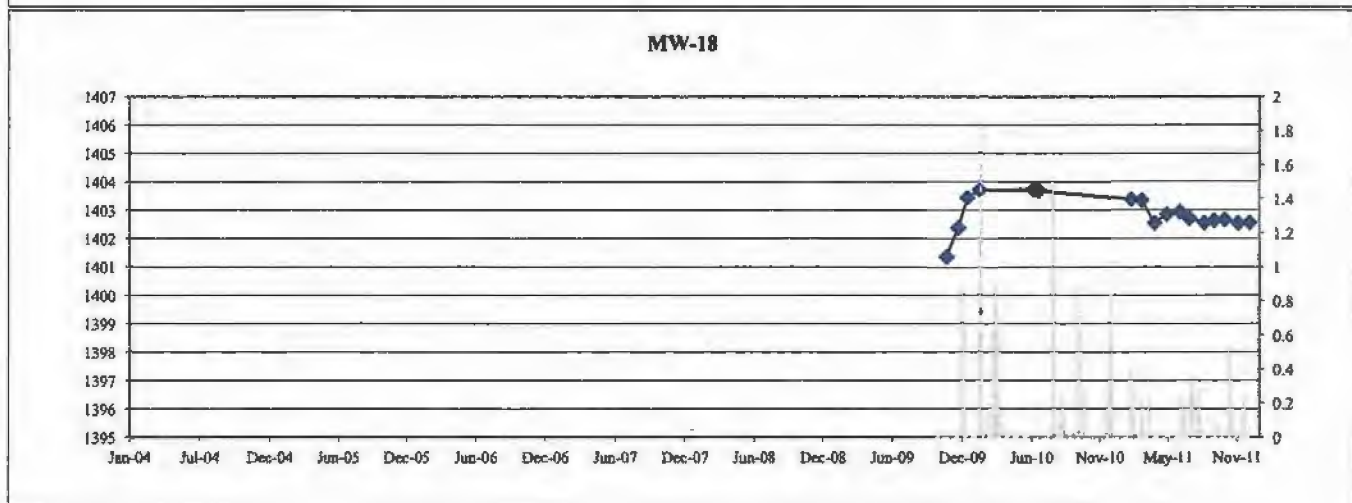
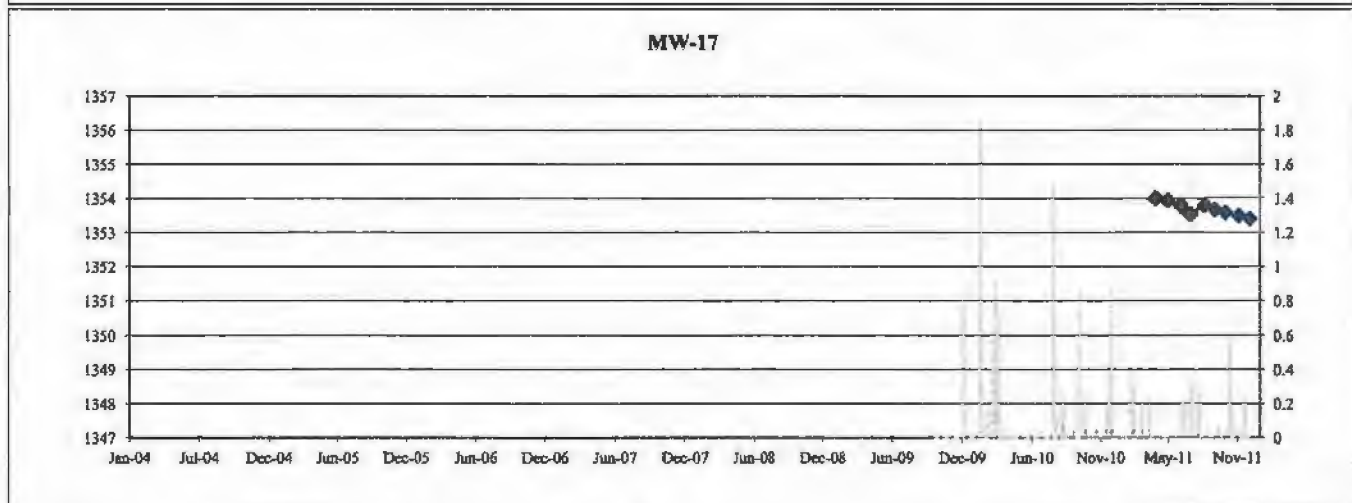
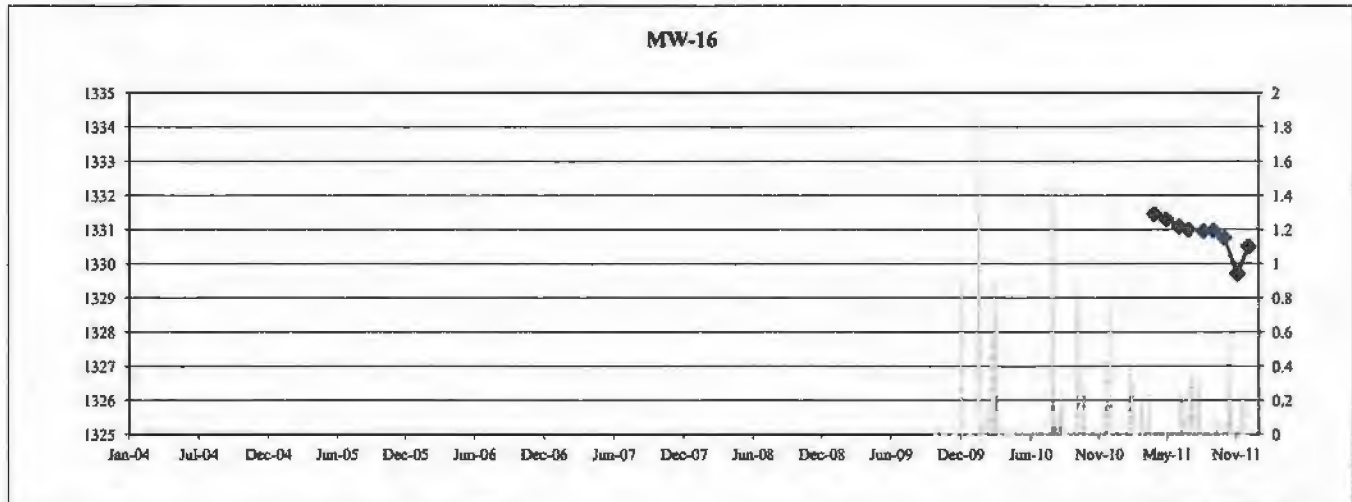
MW-14



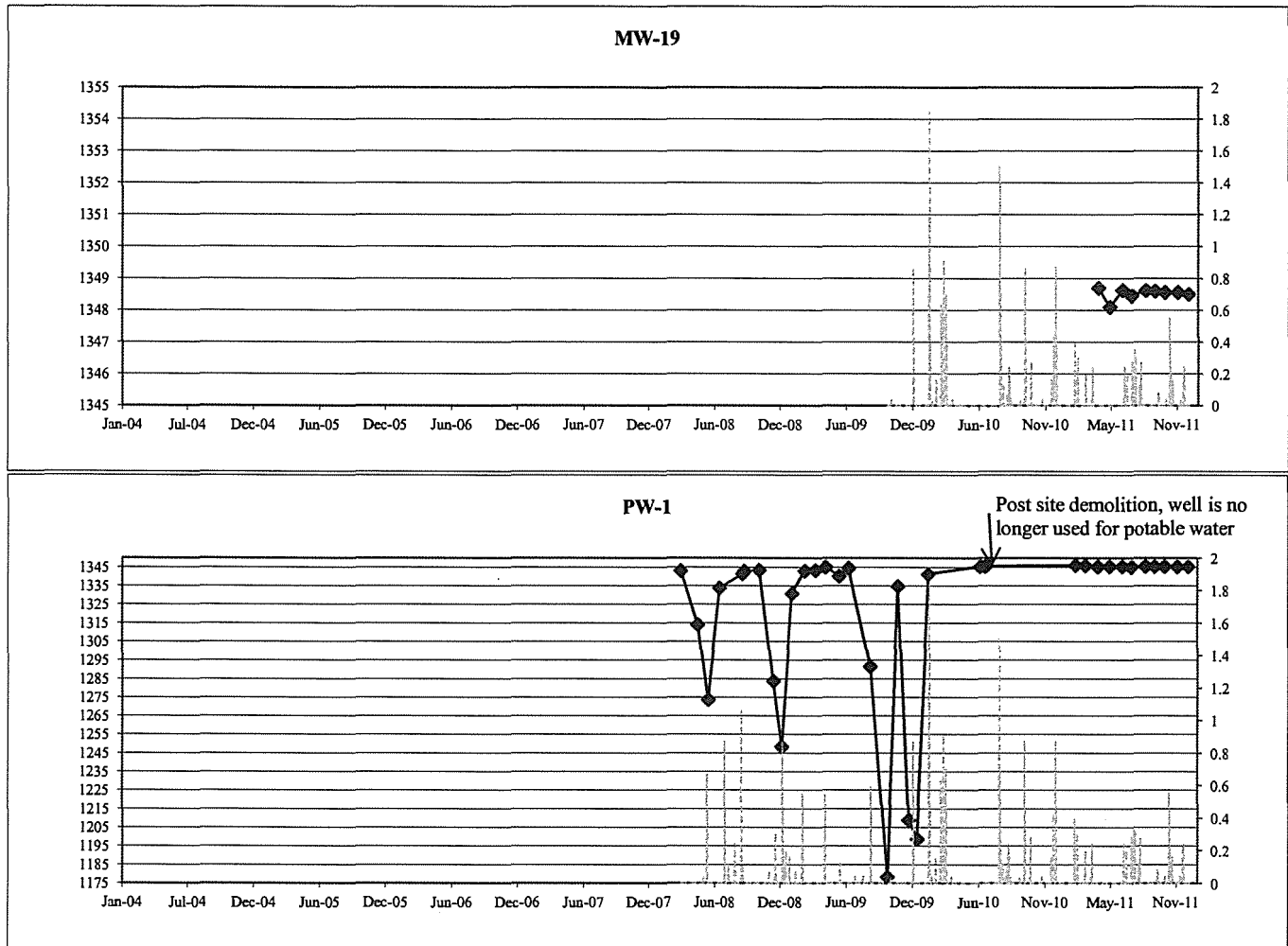
MW-15



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

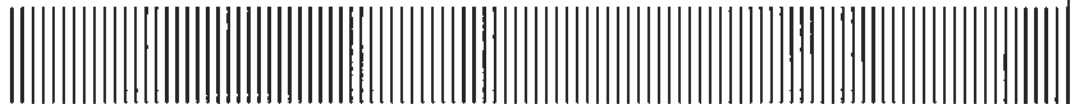


Appendix D **Well Hydrographs (feet amsl) with Precipitation (in/day)**



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Appendix E
2011 Monitor Well Water Quality



Appendix E
2011 Monitor Well Groundwater Quality Summary

Parameter	MW-1 3/2/2011	MW-1 10/27/2011	MW-2 3/2/2011	MW-2 10/27/2011	MW-3 2/25/2011	MW-4 2/25/2011	MW-5 3/2/2011	MW-6 2/25/2011	MW-7 2/25/2011	MW-8 3/1/2011	MW-8 7/28/2011	MW-9 3/1/2011	MW-10 2/25/2011	MW-11 2/28/2011	MW-12 3/1/2011	MW-13 3/2/2011	MW-14 3/1/2011	MW-15 3/1/2011	MW-16 4/28/2011	MW-17 4/28/2011	MW-18 3/30/2011	MW-18 8/2/2011	MW-19 4/28/2011	PW-1 3/30/2011	PW-1 9/6/2011	
Inorganics (mg/L)																										
Arsenic	0.011	NA	0.0086	NA	0.0057	0.0031	0.010	0.0084	0.026	0.048	0.046	0.0084	0.018	0.0079	0.0074	0.0048	0.0019	0.0030	0.0025	0.0071	0.040	<0.10	0.014	0.010	NA	
Barium	0.042	NA	0.070	NA	0.017	0.071	0.052	0.015	0.060	0.012	0.0065	0.062	0.0073	0.13	0.028	0.055	0.29	0.23	0.11	0.15	0.015	0.015	0.046	0.0067	NA	
Cadmium	<0.0010	NA	<0.0010	NA	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	NA	
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	41	35	NA	NA	30	NA	NA	
Chromium	0.0025	NA	0.014	NA	<0.0010	<0.0010	0.030	0.0015	0.0027	0.023	0.022	<0.0010	0.0025	0.0083	0.0068	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.031	0.0031	<0.010	0.024	0.0026	NA
Lead	0.0029	NA	0.010	NA	0.0020	0.0026	0.0033	0.018	0.0011	0.0046	0.0055	<0.0010	0.0014	<0.0010	0.0027	0.0028	0.011	0.0037	<0.0010	0.013	<0.0010	<0.015	0.0019	0.0012	NA	
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.5	15	NA	NA	12	NA	NA	
Mercury	<0.00020	NA	<0.00020	NA	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	NA	
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9	6.8	NA	NA	7.5	NA	NA	
Selenium	<0.0020	NA	<0.0020	NA	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0044	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	<0.0020	<0.10	0.0028	<0.0020	NA	
Silver	<0.0010	NA	<0.0010	NA	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010 UJ	<0.0010	<0.0010 UJ	<0.0010	<0.0010	<0.0010 UJ	<0.0010	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010	<0.0050	<0.0010	<0.010	<0.0010	<0.0010 UJ	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	35	NA	NA	39	NA	NA	
Volatile Organic Compounds (ug/L)																										
1,1,1,2-Tetrachloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	5.0	6.2	
1,2,3-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<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	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<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	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5	
1,2-Dibromomethane (EDB)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<0.50	<0.50	<0.50	<0.50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<							

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Appendix F
Historic Private Well Water Quality
Data



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)
106 W. 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
	7/26/2011	<2.0 UJ	0.57
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
	2/25/2011	<2.0	0.68
16 E. Yearling	7/26/2011	<2.0 UJ	0.63
	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
	2/24/2011	<2.0	1.8
	7/26/2011 **	<2.0 UJ	0.65
18 E. Yearling***	7/26/2011	2.0 J	2.1
	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	2/23/2011	<2.0	0.00099
	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
	2/23/2011	<2.0	0.00089
218 E. Yearling	7/26/2011	<2.0 UJ	0.72
	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

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)
218 E. Yearling (cont.)	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
	2/23/2011	<2.0	0.0010
	7/26/2011	<2.0 UJ	0.69
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
	2/24/2011	<2.0	1.0
	7/27/2011	<2.0 UJ	0.67
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
	2/24/2011	<2.0	0.88
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
	2/25/2011	<2.0	1.3
	7/27/2011	<2.0 UJ	1.3
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

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)
424 E. Yearling (cont.)	6/17/2010	<2.0	1.1 J
	2/25/2011	<2.0	1.7
	7/26/2011	<2.0 UJ	1.7
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
	2/23/2011	<2.0	0.0014
	7/26/2011	<2.0 UJ	1.4
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
	7/26/2011	<2.0 UJ	1.2
	2/25/2011	<2.0	1.1
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
	2/24/2011	<2.0	0.71
	7/26/2011	<2.0 UJ	0.74

Notes:

< = Analyte not detected above the listed laboratory reporting limit

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

UJ = Estimated reporting limit

NA = Not analyzed

ug/L = Micrograms per liter

* = not sampled during first quarter 2011; unable to gain access to well after two attempts to contact resident

** = Well in front yard sampled for comparison purposes, labeled as 16 E. Yearling Yard

*** = not sampled during second quarter 2011; unable to gain access to well after two attempts to contact resident

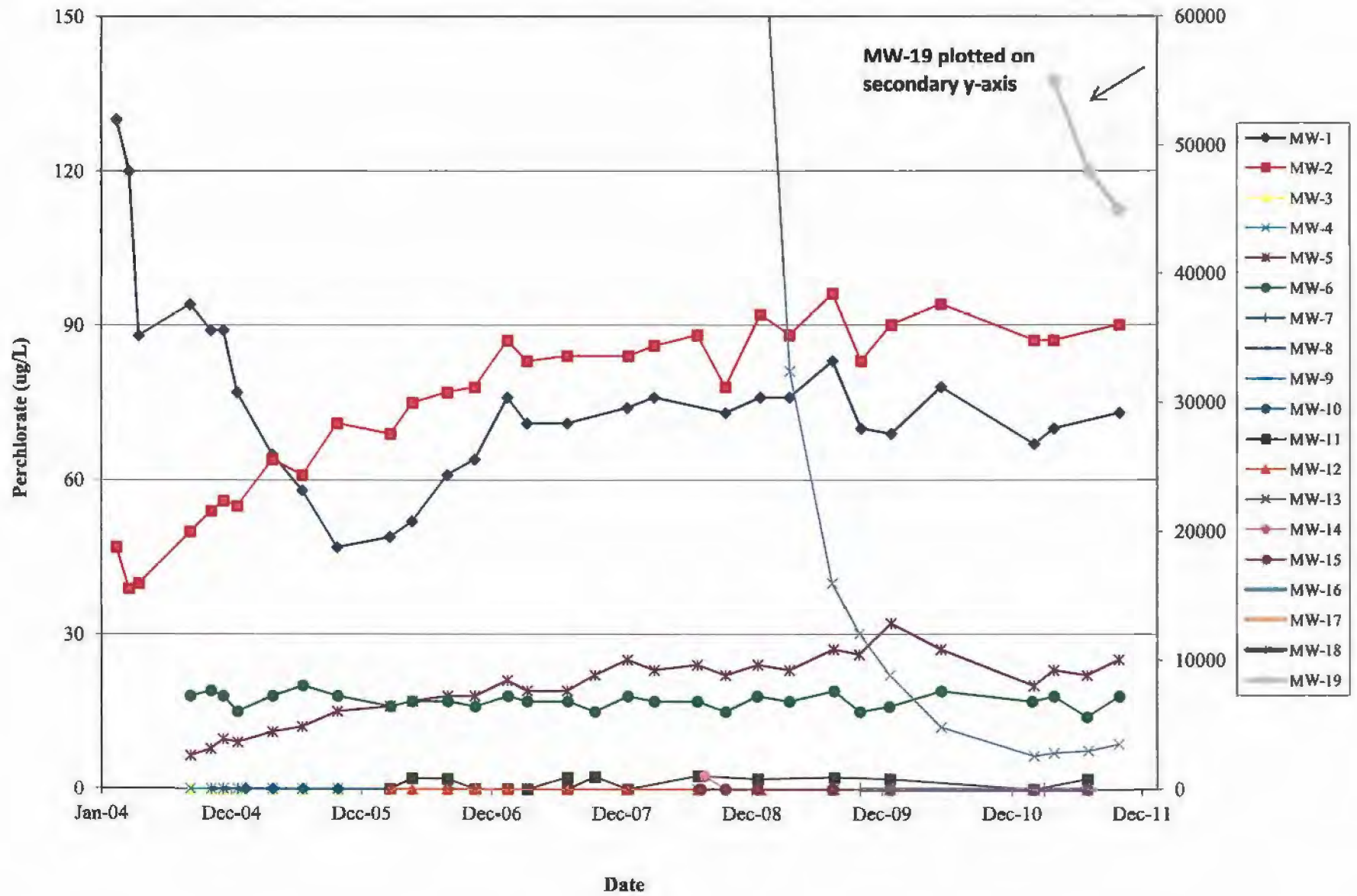
**** = Older well located in front yard of 218 E. Yearling that previously supplied both 204 E. Yearling and 218 E. Yearling residences before installation of new wells in back yards of both residences.

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Appendix G
Historic Perchlorate Concentration
Graph – Monitor Wells



Appendix G **Historic Monitor Well Perchlorate Concentration Graph**



Universal Propulsion Company
2011 Annual Monitoring Report

Appendix H
Summary of 2011 Field Data



Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
First Quarter 2011	MW-1	3/2/2011	35	13:43	28.37	493	5.90
	MW-1	3/2/2011	70	13:48	28.43	492	5.89
	MW-1	3/2/2011	105	13:53	28.46	489	6.97
	MW-1	3/2/2011	140	13:58	28.48	485	7.04
	MW-1	3/2/2011	175	14:03	28.43	482	7.10
	MW-1	3/2/2011	196	14:06	purge end time		
	MW-2	3/2/2011	30	15:04	28.27	543	6.45
	MW-2	3/2/2011	60	15:07	28.40	544	5.82
	MW-2	3/2/2011	90	15:10	28.43	543	6.00
	MW-2	3/2/2011	120	15:13	28.42	539	6.20
	MW-2	3/2/2011	150	15:16	28.38	536	6.34
	MW-2	3/2/2011	180	15:19	28.37	533	6.53
	MW-2	3/2/2011	370	15:38	purge end time		
	MW-3	2/24/2011	10	13:06	28.09	329	6.01
	MW-3	2/24/2011	25	13:09	28.56	332	6.05
	MW-3	2/24/2011	40	13:12	28.72	332	6.08
	MW-3	2/24/2011	50	13:14	28.61	331	6.08
	MW-3	2/24/2011	60	13:16	28.67	331	6.11
	MW-3	2/24/2011	65	13:17	dry		
	MW-4	2/24/2011	8	11:23	27.21	453	6.08
	MW-4	2/24/2011	18	11:27	28.60	471	6.18
	MW-4	2/24/2011	25	11:30	29.24	478	6.20
	MW-4	2/24/2011	30	11:32	dry		
	MW-5	3/2/2011	40	12:17	28.51	483	7.67
	MW-5	3/2/2011	73	12:22	28.58	476	7.67
	MW-5	3/2/2011	107	12:27	28.61	463	7.78
	MW-5	3/2/2011	147	12:33	28.58	446	7.87
	MW-5	3/2/2011	180	12:38	28.59	436	7.93
	MW-5	3/2/2011	213	12:43	28.53	432	7.91
	MW-5	3/2/2011	247	12:48	purge end time		
	MW-6	2/25/2011	7	12:04	26.91	462	5.90
	MW-6	2/25/2011	14	12:06	27.85	476	6.00
	MW-6	2/25/2011	24	12:09	28.14	478	6.05
	MW-6	2/25/2011	35	12:12	28.36	481	6.11
	MW-6	2/25/2011	45	12:15	28.46	482	6.12
	MW-6	2/25/2011	56	12:18	28.15	481	6.12
	MW-6	2/25/2011	70	12:22	dry		
	MW-7	2/27/2011	10	13:28	27.63	504	8.53
	MW-7	2/27/2011	40	13:34	27.82	500	6.50
	MW-7	2/27/2011	70	13:40	27.78	496	8.49
	MW-7	2/27/2011	100	13:46	27.88	492	8.44
	MW-7	2/27/2011	130	13:52	27.93	488	8.51
	MW-7	2/27/2011	160	13:58	27.82	481	8.35
	MW-7	2/27/2011	190	14:04	purge end time		
	MW-8	2/28/2011	14	12:15	28.64	318	9.99
	MW-8	2/28/2011	27	12:20	29.02	320	9.98
	MW-8	2/28/2011	40	12:25	29.63	325	10.66
	MW-8	2/28/2011	54	12:30	29.88	325	10.54
	MW-8	2/28/2011	68	12:35	30.11	328	10.71
	MW-8	2/28/2011	81	12:40	30.17	328	10.54
	MW-8	2/28/2011	95	12:45	30.24	331	10.37
	MW-8	2/28/2011	149	13:05	dry		
	MW-9	3/1/2011	15	12:44	28.15	579	7.46
	MW-9	3/1/2011	37	12:50	28.39	576	7.28

Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
First Quarter 2011 (cont.)	MW-9	3/1/2011	60	12:56	28.47	577	7.30
	MW-9	3/1/2011	82	13:02	28.46	569	7.47
	MW-9	3/1/2011	105	13:08	28.46	563	7.43
	MW-9	3/1/2011	128	13:14	28.47	556	7.43
	MW-9	3/1/2011	158	13:22	purge end time		
	MW-10	2/24/2011	5	13:50	27.51	384	6.00
	MW-10	2/24/2011	11	13:54	28.17	389	6.06
	MW-10	2/24/2011	15	13:57	28.44	391	6.10
	MW-10	2/24/2011	19	14:00	28.89	393	6.15
	MW-10	2/24/2011	24	14:03	28.93	393	6.16
	MW-10	2/24/2011	28	14:06	28.95	394	6.17
	MW-10	2/24/2011	33	14:09	28.98	395	6.10
	MW-10	2/24/2011	67	14:32	purge end time		
	MW-11	2/28/2011	11	14:41	28.15	885	7.14
	MW-11	2/28/2011	37	14:48	28.56	874	7.51
	MW-11	2/28/2011	64	14:55	28.58	847	7.66
	MW-11	2/28/2011	90	15:02	28.59	832	7.73
	MW-11	2/28/2011	116	15:09	28.59	827	7.74
	MW-11	2/28/2011	150	15:18	purge end time		
	MW-12	3/1/2011	23	14:12	28.62	577	6.86
	MW-12	3/1/2011	140	14:22	29.25	582	7.29
	MW-12	3/1/2011	256	14:32	29.38	562	7.27
	MW-12	3/1/2011	372	14:42	29.55	553	7.47
	MW-12	3/1/2011	488	14:52	29.63	549	7.42
	MW-12	3/1/2011	500	14:53	purge stop		
	MW-12	3/1/2011	--	15:10	purge start		
	MW-12	3/1/2011	611	15:20	29.53	541	7.65
	MW-12	3/1/2011	721	15:30	purge stop		
	MW-12	3/1/2011	--	15:33	purge start		
	MW-12	3/1/2011	721	15:33	29.54	539	7.42
	MW-12	3/1/2011	975	15:56	purge end time		
	MW-13	3/2/2011	33	8:28	28.95	571	8.52
	MW-13	3/2/2011	144	8:38	29.46	571	8.17
	MW-13	3/2/2011	367	8:58	29.55	578	8.08
	MW-13	3/2/2011	400	9:01	purge stop		
	MW-13	3/2/2011	--	9:25	purge start		
	MW-13	3/2/2011	400	9:25	29.50	553	7.21
	MW-13	3/2/2011	609	9:45	29.47	586	6.99
	MW-13	3/2/2011	819	10:05	29.52	590	7.46
	MW-13	3/2/2011	850	10:08	purge stop		
	MW-13	3/2/2011	--	10:30	purge start		
	MW-13	3/2/2011	1275	11:13	purge end time		
	MW-14	2/28/2011	21	9:54	28.75	1058	7.80
	MW-14	2/28/2011	72	10:04	29.23	1059	5.68
	MW-14	2/28/2011	103	10:10	29.15	1055	5.87
	MW-14	2/28/2011	134	10:16	29.04	1053	6.37
	MW-14	2/28/2011	181	10:25	29.23	1055	6.63
	MW-14	2/28/2011	207	10:30	29.56	1057	7.11
	MW-14	2/28/2011	233	10:35	29.80	1060	7.39
	MW-14	2/28/2011	336	10:55	purge end time		
	MW-15	3/1/2011	10	9:29	28.23	594	7.69
	MW-15	3/1/2011	40	9:35	28.84	609	7.67
	MW-15	3/1/2011	70	9:41	28.86	566	7.57
	MW-15	3/1/2011	100	9:47	28.92	567	7.55

Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
First Quarter 2011 (cont.)	MW-15	3/1/2011	160	9:59	28.90	567	7.51
	MW-15	3/1/2011	165	10:00	28.90	567	7.48
	MW-15	3/1/2011	185	10:04	purge end time		
	MW-18	3/29/2011	30	15:48	28.08	0.382	7.20
	MW-18	3/29/2011	55	15:53	28.29	0.373	7.41
	MW-18	3/29/2011	80	15:58	28.40	0.363	7.41
	MW-18	3/29/2011	105	16:03	28.61	0.347	7.50
	MW-18	3/29/2011	115	16:05	dry		
Second Quarter 2011	MW-1	4/26/2011	28	12:12	28.39	440	6.60
	MW-1	4/26/2011	63	12:17	28.58	440	6.82
	MW-1	4/26/2011	98	12:22	28.61	434	6.94
	MW-1	4/26/2011	133	12:27	28.62	434	7.01
	MW-1	4/26/2011	168	12:32	28.62	435	7.03
	MW-1	4/26/2011	189	12:35	purge end time		
	MW-2	4/26/2011	70	14:25	28.55	487	6.65
	MW-2	4/26/2011	100	14:28	28.62	481	6.82
	MW-2	4/26/2011	130	14:31	28.63	478	6.91
	MW-2	4/26/2011	160	14:34	28.60	476	6.97
	MW-2	4/26/2011	190	14:37	28.63	472	6.99
	MW-2	4/26/2011	220	14:40	28.61	471	7.01
	MW-2	4/26/2011	240	14:42	purge end time		
	MW-5	4/26/2011	33	10:20	28.67	432	6.70
	MW-5	4/26/2011	67	10:25	28.72	426	6.90
	MW-5	4/26/2011	100	10:30	28.74	419	6.99
	MW-5	4/26/2011	134	10:35	28.77	412	7.04
	MW-5	4/26/2011	167	10:40	28.76	407	7.07
	MW-5	4/26/2011	200	10:45	28.77	405	7.08
	MW-5	4/26/2011	234	10:50	28.78	405	7.09
	MW-5	4/26/2011	254	10:53	purge end time		
	MW-6	4/26/2011	11	9:15	27.87	513	6.64
	MW-6	4/26/2011	21	9:18	28.44	518	6.82
	MW-6	4/26/2011	31	9:21	28.72	527	6.91
	MW-6	4/26/2011	42	9:24	28.71	526	6.95
	MW-6	4/26/2011	52.5	9:27	purge end time		
	MW-13	4/27/2011	19	9:20	29.56	514	6.55
	MW-13	4/27/2011	111	9:30	29.71	513	6.83
	MW-13	4/27/2011	203	9:40	29.79	519	6.89
	MW-13	4/27/2011	296	9:50	29.80	524	6.94
	MW-13	4/27/2011	389	10:00	29.65	529	6.96
	MW-13	4/27/2011	481	10:10	29.67	524	6.98
	MW-13	4/27/2011	--	10:10	purge stop		
	MW-13	4/27/2011	--	11:15	purge start		
	MW-13	4/27/2011	481	11:15	29.55	525	7.13
	MW-13	4/27/2011	574	11:25	29.58	521	7.10
	MW-13	4/27/2011	666	11:35	29.64	524	7.08
	MW-13	4/27/2011	759	11:45	29.63	524	7.06
	MW-13	4/27/2011	851	11:55	29.64	522	7.06
	MW-13	4/27/2011	860	11:56	purge end time		
	MW-16	4/28/2011	23	8:40	29.79	565	6.38
	MW-16	4/28/2011	98	8:50	29.80	562	6.62
	MW-16	4/28/2011	174	9:00	30.01	568	6.75
	MW-16	4/28/2011	249	9:10	30.20	571	6.82
	MW-16	4/28/2011	325	9:20	30.28	578	6.83
	MW-16	4/28/2011	400	9:30	30.34	578	6.84

Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
Second Quarter 2011 (cont.)	MW-16	4/28/2011	--	9:30	purge stop		
	MW-16	4/28/2011	--	10:00	purge start		
	MW-16	4/28/2011	400	10:00	30.01	576	6.89
	MW-16	4/28/2011	480	10:10	30.11	566	6.91
	MW-16	4/28/2011	560	10:20	30.23	573	6.92
	MW-16	4/28/2011	640	10:30	30.36	576	6.94
	MW-16	4/28/2011	720	10:40	30.38	574	6.95
	MW-16	4/28/2011	800	10:50	30.40	572	6.97
	MW-16	4/28/2011	--	10:50	purge stop		
	MW-16	4/28/2011	--	11:10	purge start		
	MW-16	4/28/2011	800	11:10	30.07	577	6.97
	MW-16	4/28/2011	925	11:20	30.11	571	6.96
	MW-16	4/28/2011	1050	11:30	30.21	568	6.96
	MW-16	4/28/2011	1050	11:30	purge stop		
	MW-16	4/28/2011	--	11:51	purge end time		
	MW-17	4/27/2011	6	7:12	28.35	432	6.75
	MW-17	4/27/2011	24	7:18	28.68	454	6.84
	MW-17	4/27/2011	33	7:21	28.88	451	6.88
	MW-17	4/27/2011	42	7:24	28.90	445	6.91
	MW-17	4/27/2011	52	7:27	28.93	443	6.92
	MW-17	4/27/2011	64	7:31	29.00	437	6.93
	MW-17	4/27/2011	73	7:34	29.08	426	6.94
	MW-17	4/27/2011	82	7:37	29.20	416	6.95
	MW-17	4/27/2011	91	7:40	29.43	416	6.97
	MW-17	4/27/2011	100	7:43	29.48	414	6.98
	MW-17	4/27/2011	109	7:46	water level not changing		
	MW-17	4/27/2011	115	7:48	29.20	412	6.98
	MW-17	4/27/2011	124	7:51	28.87	408	6.98
	MW-17	4/27/2011	133	7:54	dry		
	MW-19	4/28/2011	36	13:08	28.33	526	6.15
	MW-19	4/28/2011	72	13:11	28.36	521	6.38
	MW-19	4/28/2011	108	13:14	28.40	512	6.52
	MW-19	4/28/2011	144	13:17	28.41	512	6.57
	MW-19	4/28/2011	180	13:20	28.35	506	6.63
	MW-19	4/28/2011	216	13:23	28.35	505	6.68
	MW-19	4/28/2011	252	13:26	28.35	502	6.71
	MW-19	4/28/2011	288	13:29	28.36	499	6.75
	MW-19	4/28/2011	420	13:40	purge end time		
Third Quarter 2011	MW-1	8/1/2011	0	11:15	29.19	524	7.87
	MW-1	8/1/2011	35	11:20	28.47	414	7.52
	MW-1	8/1/2011	70	11:25	28.51	412	7.49
	MW-1	8/1/2011	105	11:30	28.54	407	7.45
	MW-1	8/1/2011	140	11:35	purge end time		
	MW-2	8/1/2011	0	12:15	28.92	454	7.88
	MW-2	8/1/2011	50	12:20	28.04	452	7.68
	MW-2	8/1/2011	100	12:25	28.06	446	7.66
	MW-2	8/1/2011	150	12:30	28.07	442	7.64
	MW-2	8/1/2011	170	12:32	purge end time		
	MW-3	7/27/2011	0	14:05	28.65	354	7.99
	MW-3	7/27/2011	23	14:10	28.51	342	7.78
	MW-3	7/27/2011	46	14:15	29.10	333	7.63
	MW-3	7/27/2011	55	14:17	dry		
	MW-4	7/28/2011	0	6:15	26.57	469	7.63
	MW-4	7/28/2011	11	6:20	27.37	468	7.54

Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
Third Quarter 2011 (cont.)	MW-4	7/28/2011	22	6:25	dry		
	MW-5	7/29/2011	0	10:15	28.69	424	7.71
	MW-5	7/29/2011	27	10:20	28.53	410	7.65
	MW-5	7/29/2011	53	10:25	28.63	384	7.67
	MW-5	7/29/2011	80	10:30	28.66	346	7.69
	MW-5	7/29/2011	107	10:35	28.68	342	7.72
	MW-5	7/29/2011	133	10:40	28.69	346	7.70
	MW-5	7/29/2011	160	10:45	28.20	349	7.72
	MW-5	7/29/2011	--	10:45	purge end time		
	MW-6	7/28/2011	0	15:05	28.72	456	7.60
	MW-6	7/28/2011	20	15:10	28.36	481	7.45
	MW-6	7/28/2011	40	15:15	28.49	476	7.45
	MW-6	7/28/2011	--	15:16	dry		
	MW-7	7/28/2011	0	7:49	27.46	369	7.86
	MW-7	7/28/2011	25	7:54	27.62	361	7.94
	MW-7	7/28/2011	50	7:59	27.70	367	7.81
	MW-7	7/28/2011	75	8:04	27.77	346	7.77
	MW-7	7/28/2011	100	8:09	27.79	351	7.76
	MW-7	7/28/2011	125	8:14	27.32	317	7.75
	MW-7	7/28/2011	150	8:19	27.85	292	7.77
	MW-7	7/28/2011	175	8:24	27.87	368	7.75
	MW-7	7/28/2011	200	8:29	27.89	251	7.75
	MW-7	7/28/2011	--	8:30	purge end time		
	MW-8	7/27/2011	0	11:35	28.21	231	8.84
	MW-8	7/27/2011	31	11:40	dry		
	MW-8	7/27/2011	50	11:43	purge end time		
	MW-9	7/27/2011	0	7:50	28.26	476	7.44
	MW-9	7/27/2011	24	7:55	28.39	472	7.36
	MW-9	7/27/2011	49	8:00	28.43	465	7.38
	MW-9	7/27/2011	73	8:05	28.61	436	7.41
	MW-9	7/27/2011	97	8:10	28.47	432	7.41
	MW-9	7/27/2011	121	8:15	28.47	431	7.42
	MW-9	7/27/2011	146	8:20	28.47	421	7.43
	MW-9	7/27/2011	170	8:25	purge end time		
	MW-10	7/28/2011	0	12:47	28.32	400	7.70
	MW-10	7/28/2011	13	12:52	28.47	398	7.57
	MW-10	7/28/2011	30	12:59	29.43	392	7.39
	MW-10	7/28/2011	45	13:05	29.63	388	7.42
	MW-10	7/28/2011	57.5	13:10	29.70	384	7.46
	MW-10	7/28/2011	--	13:13	purge end time		
	MW-10	7/28/2011	--	13:15	dry		
	MW-11	7/29/2011	0	8:45	28.34	630	7.67
	MW-11	7/29/2011	25	8:50	28.37	630	7.62
	MW-11	7/29/2011	49	8:55	28.48	579	7.49
	MW-11	7/29/2011	74	9:00	28.50	540	7.47
	MW-11	7/29/2011	123	9:10	28.51	458	7.45
	MW-11	7/29/2011	147	9:15	28.63	515	7.42
	MW-11	7/29/2011	196	9:25	28.61	530	7.42
	MW-11	7/29/2011	245	9:35	28.63	380	7.43
	MW-11	7/29/2011	--	9:35	purge end time		
	MW-12	7/29/2011	0	11:20	28.42	460	7.65
	MW-12	7/29/2011	120	11:30	29.20	461	7.39
	MW-12	7/29/2011	240	11:40	29.46	451	7.41
	MW-12	7/29/2011	360	11:50	29.97	426	7.46

Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
Third Quarter 2011 (cont.)	MW-12	7/29/2011	480	12:00	29.50	418	7.44
	MW-12	7/29/2011	--	12:00	stop purge		
	MW-12	7/29/2011	--	12:35	start purge		
	MW-12	7/29/2011	480	12:35	29.35	451	7.62
	MW-12	7/29/2011	600	12:45	29.51	438	7.46
	MW-12	7/29/2011	720	12:55	29.50	421	7.44
	MW-12	7/29/2011	840	13:05	29.54	411	7.49
	MW-12	7/29/2011	960	13:15	29.55	390	7.46
	MW-12	7/29/2011	--	13:15	purge end time		
	MW-13	8/2/2011	0	11:15	28.88	278	7.73
	MW-13	8/2/2011	51	11:20	29.24	365	7.60
	MW-13	8/2/2011	152	11:30	29.36	289	7.51
	MW-13	8/2/2011	253	11:40	29.40	339	7.53
	MW-13	8/2/2011	354	11:50	29.41	255	7.53
	MW-13	8/2/2011	455	12:00	29.43	366	7.56
	MW-13	8/2/2011	556	12:10	29.47	380	7.55
	MW-13	8/2/2011	657	12:20	29.44	315	7.55
	MW-13	8/2/2011	758	12:30	29.44	359	7.55
	MW-13	8/2/2011	859	12:40	29.45	346	7.55
	MW-13	8/2/2011	900	12:44	purge end time		
	MW-14	8/1/2011	0	8:05	29.18	772	7.48
	MW-14	8/1/2011	50	8:10	29.28	748	7.31
	MW-14	8/1/2011	100	8:15	29.20	699	7.22
	MW-14	8/1/2011	150	8:20	29.18	673	7.18
	MW-14	8/1/2011	162	8:25	29.37	641	7.14
	MW-14	8/1/2011	175	8:30	29.57	622	7.13
	MW-14	8/1/2011	187	8:35	30.00	609	7.11
	MW-14	8/1/2011	200	8:40	30.21	627	7.15
	MW-14	8/1/2011	212	8:45	30.48	625	7.13
	MW-14	8/1/2011	225	8:50	30.60	624	7.13
	MW-14	8/1/2011	237	8:55	30.86	623	7.14
	MW-14	8/1/2011	250	9:00	31.07	627	7.16
	MW-14	8/1/2011	275	9:10	30.96	630	7.10
	MW-14	8/1/2011	287	9:15	31.17	624	7.11
	MW-14	8/1/2011	312	9:25	31.34	604	7.11
	MW-14	8/1/2011	337	9:35	31.44	599	7.11
	MW-14	8/1/2011	350	9:40	purge end time		
	MW-15	7/29/2011	0	6:55	27.29	506	8.00
	MW-15	7/29/2011	22	7:00	28.73	495	7.58
	MW-15	7/29/2011	45	7:05	28.82	485	7.54
	MW-15	7/29/2011	67	7:10	28.98	476	7.47
	MW-15	7/29/2011	90	7:15	NR	NR	NR
	MW-15	7/29/2011	135	7:20	29.09	433	7.40
	MW-15	7/29/2011	158	7:25	29.11	413	7.39
	MW-15	7/29/2011	180	7:30	29.13	389	7.38
	MW-15	7/29/2011	202	7:35	29.14	382	7.37
	MW-15	7/29/2011	225	7:40	29.18	357	7.36
	MW-15	7/29/2011	247	7:45	29.21	382	7.35
	MW-15	7/29/2011	270	7:50	29.26	352	7.35
	MW-15	7/29/2011	--	7:50	purge end time		
	MW-16	8/2/2011	0	8:00	28.77	519	7.80
	MW-16	8/2/2011	50	8:05	29.42	515	7.52
	MW-16	8/2/2011	150	8:15	29.43	479	7.41
	MW-16	8/2/2011	205	8:25	29.65	460	7.38

Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
Third Quarter 2011 (cont.)	MW-16	8/2/2011	260	8:35	29.87	436	7.38
	MW-16	8/2/2011	315	8:45	30.03	403	7.38
	MW-16	8/2/2011	370	8:55	30.08	508	7.38
	MW-16	8/2/2011	425	9:05	320.10	366	7.39
	MW-16	8/2/2011	480	9:15	30.14	418	7.47
	MW-16	8/2/2011	--	9:15	stop purge		
	MW-16	8/2/2011	480	9:45	start purge		
	MW-16	8/2/2011	514	9:50	29.47	517	7.63
	MW-16	8/2/2011	581	10:00	29.85	455	7.41
	MW-16	8/2/2011	648	10:10	30.00	418	7.38
	MW-16	8/2/2011	716	10:20	30.16	400	7.38
	MW-16	8/2/2011	783	10:30	30.21	351	7.38
	MW-16	8/2/2011	850	10:40	30.27	405	7.38
	MW-16	8/2/2011	--	10:45	purge end time		
	MW-17	8/1/2011	0	6:00	26.24	430	7.13
	MW-17	8/1/2011	15	6:05	27.51	411	7.21
	MW-17	8/1/2011	30	6:10	28.18	400	7.24
	MW-17	8/1/2011	45	6:15	28.76	393	7.31
	MW-17	8/1/2011	75	6:25	29.00	382	7.35
	MW-17	8/1/2011	90	6:30	29.06	380	7.39
	MW-17	8/1/2011	120	6:40	29.11	363	7.49
	MW-17	8/1/2011	135	6:45	29.14	353	7.51
	MW-17	8/1/2011	150	6:50	29.15	355	7.54
	MW-17	8/1/2011	165	6:55	29.15	351	7.58
	MW-17	8/1/2011	195	7:05	29.19	347	7.58
	MW-17	8/1/2011	210	7:10	29.22	346	7.59
	MW-17	8/1/2011	225	7:15	29.24	345	7.60
	MW-17	8/1/2011	--	7:15	purge end time		
	MW-18	8/1/2011	0	14:05	27.57	395	8.38
	MW-18	8/1/2011	25	14:10	27.70	397	8.24
	MW-18	8/1/2011	50	14:15	27.74	392	8.28
	MW-18	8/1/2011	75	14:20	27.79	372	8.35
	MW-18	8/1/2011	100	14:25	27.88	326	8.49
	MW-18	8/1/2011	110	14:27	purge end time		
	MW-18	8/1/2011	--	14:29	dry		
	MW-19	8/3/2011	0	6:10	26.56	26.56	8.61
	MW-19	8/3/2011	80	6:15	27.82	27.82	7.98
	MW-19	8/3/2011	160	6:20	28.89	27.89	7.90
	MW-19	8/3/2011	240	6:25	27.92	27.92	7.90
	MW-19	8/3/2011	--	6:25	purge end time		
Fourth Quarter 2011	MW-1	10/27/2011	54	8:32	27.44	415	7.54
	MW-1	10/27/2011	81	8:37	27.54	417	8.32
	MW-1	10/27/2011	108	8:42	27.38	417	7.75
	MW-1	10/27/2011	124	8:45	sampled		
	MW-1	10/27/2011	140	8:48	purge end time		
	MW-2	10/27/2011	39	9:25	27.34	464	7.68
	MW-2	10/27/2011	78	9:30	27.18	460	7.60
	MW-2	10/27/2011	117	9:35	28.13	455	7.57
	MW-2	10/27/2011	124	9:36	sampled		
	MW-2	10/27/2011	210	9:47	purge end time		
	MW-5	10/26/2011	20	12:25	28.97	412	7.52
	MW-5	10/26/2011	40	12:30	29.04	402	7.70
	MW-5	10/26/2011	60	12:35	29.06	401	7.79
	MW-5	10/26/2011	80	12:40	29.18	398	7.82

Appendix H

2011 Field Data Summary

Quarter Sampled	Well ID	Date	Purge Volume (gallons)	Time (HH:MM)	Temperature (°C)	Conductivity (µs/cm)	pH (SU)
Fourth Quarter 2011 (cont.)	MW-5	10/26/2011	101	12:45	29.19	399	7.81
	MW-5	10/26/2011	121	12:50	29.11	398	7.77
	MW-5	10/26/2011	141	12:55	29.11	398	7.76
	MW-5	10/26/2011	165	13:01	purge end time		
	MW-6	10/26/2011	20	11:35	27.59	492	7.56
	MW-6	10/26/2011	40	11:40	28.31	493	7.48
	MW-6	10/26/2011	60	11:45	purge end time		
	MW-13	10/26/2011	110	8:35	29.17	473	7.58
	MW-13	10/26/2011	221	8:45	29.03	475	7.63
	MW-13	10/26/2011	331	8:55	28.97	477	7.61
	MW-13	10/26/2011	442	9:05	28.87	477	7.56
	MW-13	10/26/2011	--	9:05	purge stop		
	MW-13	10/26/2011	--	9:35	purge start		
	MW-13	10/26/2011	442	9:35	26.92	479	7.62
	MW-13	10/26/2011	552	9:45	28.59	475	7.54
	MW-13	10/26/2011	662	9:55	28.57	475	7.56
	MW-13	10/26/2011	773	10:05	28.62	475	7.56
	MW-13	10/26/2011	850	10:12	purge end time		
	MW-19	10/27/2011	53	10:49	27.89	500	7.74
	MW-19	10/27/2011	107	10:54	28.28	510	7.82
	MW-19	10/27/2011	160	10:59	28.27	509	7.78
	MW-19	10/27/2011	224	11:05	sampled		
	MW-19	10/27/2011	235	11:06	purge end time		
	PW-1	10/25/2011	101	11:35	29.37	462	7.98
	PW-1	10/25/2011	201	11:45	29.29	458	7.99
	PW-1	10/25/2011	302	11:55	29.28	462	8.00
	PW-1	10/25/2011	554	12:20	29.33	472	8.00
	PW-1	10/25/2011	654	12:30	29.41	480	7.90
	PW-1	10/25/2011	755	12:40	29.43	476	7.98
	PW-1	10/25/2011	855	12:50	29.39	476	7.91
	PW-1	10/25/2011	1107	13:15	29.62	473	8.01
	PW-1	10/25/2011	1208	13:25	29.48	487	7.95
	PW-1	10/25/2011	1308	13:35	29.39	480	7.97
	PW-1	10/25/2011	1409	13:45	29.41	480	7.92
	PW-1	10/25/2011	1560	14:00	29.23	482	7.89
	PW-1	10/25/2011	--	14:06	purge end time		

Notes:

NR = Not recorded

HH:MM = Hour : Minute

°C = Degrees Celsius

us/cm - Microsiemen per centimeter

SU = Standard unit

Universal Propulsion Company
2011 Annual Monitoring Report

Appendix I
2011 Data Verification Summaries



1.0 INTRODUCTION

This summary presents data verification results for private residential wells adjacent to Universal Propulsion Company, Inc. (UPCO) during the February and March 2011 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 12 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.

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- method blanks;
- laboratory control samples/laboratory control sample duplicates (LCS/LCSD); and
- matrix spike/matrix spike duplicates (MS/MSD).

Results did not require qualification based on the data verification.

1.2 Data Qualifiers

The data qualifiers used to qualify analytical results associated with QC parameters outside 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 USEPA guidelines. The results associated with this sampling event required no data qualification.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

Samples were received below the correct temperature ($4\pm 2^{\circ}$ Celsius) at the project laboratory. Samples received by the laboratory on March 1, 2011 had a temperature of 0.8° Celsius. This temperature outlier did not significantly impact sample results; therefore, data qualification was not required.

1.4 Holding Times

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

1.5 Blank Contamination

Method blanks were performed at the required frequencies. Target compounds were not detected in the blanks.

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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".

Percent recoveries and RPDs for the LCS/LCS duplicate were within acceptance limits.

1.7 MS/MSD Recovery and RPD

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

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

1.8 Completeness Summary

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

$$\begin{aligned} \% \text{ Contract Completeness} = & \\ & \frac{(\text{Number of contract compliant results})}{\text{Number of reported results}} \\ & \times 100 \end{aligned}$$

$$\begin{aligned} \% \text{ Technical Completeness} = & \\ & \frac{(\text{Number of usable results})}{\text{Number of reported results}} \\ & \times 100 \end{aligned}$$

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, MS/MSD, and LCS attained for the field samples was 100 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table B-2. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table B-1
Sampling and Analysis Schedule
First Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
122 W. Yearling	PUB1608-01	2/25/2011	N	Perchlorate by EPA Method 314.0
	PUB1615-01	2/25/2011	N	Perchlorate by EPA Method 332.0
16 E. Yearling	PUB1530-01	2/24/2011	N	Perchlorate by EPA Method 314.0
	PUB1535-01	2/24/2011	N	Perchlorate by EPA Method 332.0
18 E. Yearling	PUB1430-01	2/23/2011	N	Perchlorate by EPA Method 314.0
	PUB1434-01	2/23/2011	N	Perchlorate by EPA Method 332.0
204 E. Yearling	PUB1431-01	2/23/2011	N	Perchlorate by EPA Method 314.0
	PUB1435-01	2/23/2011	N	Perchlorate by EPA Method 332.0
218 E. Yearling	PUB1429-01	2/23/2011	N	Perchlorate by EPA Method 314.0
	PUB1433-01	2/23/2011	N	Perchlorate by EPA Method 332.0
25825 N. 1st Place	PUB1531-01	2/24/2011	N	Perchlorate by EPA Method 314.0
	PUB1536-01	2/24/2011	N	Perchlorate by EPA Method 332.0
25903 N. 2nd Street	PUB1533-01	2/24/2011	N	Perchlorate by EPA Method 314.0
	PUB1537-01	2/24/2011	N	Perchlorate by EPA Method 332.0
412 E. Yearling	PUB1609-01	2/25/2011	N	Perchlorate by EPA Method 314.0
	PUB1614-01	2/25/2011	N	Perchlorate by EPA Method 332.0
424 E. Yearling	PUB1611-01	2/25/2011	N	Perchlorate by EPA Method 314.0
	PUB1612-01	2/25/2011	N	Perchlorate by EPA Method 332.0
520 E. Yearling	PUB1428-01	2/23/2011	N	Perchlorate by EPA Method 314.0
	PUB1432-01	2/23/2011	N	Perchlorate by EPA Method 332.0
604-616 E. Yearling	PUB1610-01	2/25/2011	N	Perchlorate by EPA Method 314.0
	PUB1613-01	2/25/2011	N	Perchlorate by EPA Method 332.0
8 W. Yearling	PUB1529-01	2/24/2011	N	Perchlorate by EPA Method 314.0
	PUB1534-01	2/24/2011	N	Perchlorate by EPA Method 332.0

Notes:

N = Normal sample

Table B-2
Completeness Summary
First Quarter 2011 Groundwater 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)	12	12	100	12	100
Perchlorate (Method 332.0)	12	12	100	12	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

1.0 INTRODUCTION

This summary presents data verification results for private residential wells adjacent to Universal Propulsion Company, Inc. (UPCO) during the July 2011 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 12 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 C-1 lists the samples and associated analytical parameters.

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- method blanks;
- laboratory control samples/laboratory control sample duplicates (LCS/LCSD);
- matrix spike/matrix spike duplicates (MS/MSD); and,
- laboratory duplicates.

Results that required data qualification are listed in Table C-2.

1.2 Data Qualifiers

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

- J The analyte was positively identified; however, the result should be considered an estimated value.
- UJ The reporting limit is considered an estimated value.

R 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 USEPA guidelines.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

Samples collected were received preserved and intact at the project laboratory. The samples were received by the laboratory at the correct temperature ($4\pm 2^{\circ}$ Celsius).

1.4 Holding Times

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

1.5 Blank Contamination

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

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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".

Percent recoveries and RPDs for the LCS/LCS duplicate were within acceptance limits.

1.7 MS/MSD Recovery and RPD

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

- If MS or MSD recovery for an analyte is above acceptance limits but the analyte is not detected in the associated analytical batch, then data qualification was not required.
- If MS or MSD recovery for an analyte is above acceptance limits and the analyte is detected in the associated analytical batch, the 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 were within acceptance limits except for the following:

- The MS and MSD recoveries for perchlorate (64 percent and 66 percent, respectively) were below acceptance limits (80 to 120 percent) for the analytical batch 11H0224. Data qualification was not required because the spiked sample was not project specific (i.e., batch QC).
- The MSD recovery for perchlorate (122 percent) was above acceptance limits (80 to 120 percent) for the analytical batch 11H0225. Data qualification was not required because the spiked sample was not project specific (i.e., batch QC).

1.8 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 laboratory duplicate RPD for perchlorate (38 percent) was above acceptance limits (15 percent) for the analytical batch 11G1033. Samples were qualified “J” and “UJ” to indicate a potential bias.

1.9 Completeness Summary

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

$$\% \text{ Contract Completeness} =$$

$$\frac{(\text{Number of contract compliant results}/\text{Number of reported results})}{x 100}$$

$$\begin{aligned} \% \text{ Technical Completeness} = \\ (\text{Number of usable results}/\text{Number of reported results}) \\ x 100 \end{aligned}$$

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, MS/MSD, and LCS attained for the field samples was 50 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table C-3. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table C-1
Sampling and Analysis Schedule
Third Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
122 W. Yearling	PUG1629-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1615-01	7/26/2011	N	Perchlorate by EPA Method 332.0
16 E. Yearling Yard	PUG1632-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1620-01	7/26/2011	N	Perchlorate by EPA Method 332.0
16 E. Yearling	PUG1632-02	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1620-02	7/26/2011	N	Perchlorate by EPA Method 332.0
204 E. Yearling	PUG1631-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1619-01	7/26/2011	N	Perchlorate by EPA Method 332.0
218 E. Yearling	PUG1612-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1609-01	7/26/2011	N	Perchlorate by EPA Method 332.0
106 W. Yearling	PUG1639-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1621-01	7/26/2011	N	Perchlorate by EPA Method 332.0
424 E. Yearling	PUG1637-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1623-01	7/26/2011	N	Perchlorate by EPA Method 332.0
520 E. Yearling	PUG1635-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1626-01	7/26/2011	N	Perchlorate by EPA Method 332.0
604 E. Yearling	PUG1634-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1627-01	7/26/2011	N	Perchlorate by EPA Method 332.0
8 W. Yearling	PUG1630-01	7/26/2011	N	Perchlorate by EPA Method 314.0
	PUG1617-01	7/26/2011	N	Perchlorate by EPA Method 332.0
412 E. Yearling	PUG1727-01	7/27/2011	N	Perchlorate by EPA Method 314.0
	PUG1723-01	7/27/2011	N	Perchlorate by EPA Method 332.0
25825 N. 1st Place	PUG1729-01	7/27/2011	N	Perchlorate by EPA Method 314.0
	PUG1724-01	7/27/2011	N	Perchlorate by EPA Method 332.0

Notes:

N = Normal sample

Table C-2
Qualified Results
Third Quarter 2011 Groundwater Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
218 E. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
122 W. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
8 W. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
204 E. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
16 E. Yearling Yard	Perchlorate	2.0	ug/l	J	Qualified due to laboratory duplicate RPD exceedance
16 E. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
604 E. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
520 E. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
424 E. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
106 W. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
412 E. Yearling	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance
25825 N. 1st Place	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance

Notes:

ug/l = microgram per liter

J = Estimated value

UJ = Estimated detection limit

RPD = relative percent difference

Table C-3
Completeness Summary
Third Quarter 2011 Groundwater 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)	12	0 ^a	0	12	100
Perchlorate (Method 332.0)	12	12	100	12	100
TOTALS	24	12	50	24	100

a = Qualified due to laboratory duplicate RPD exceedance

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

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the February and March 2011 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 17 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- perchlorate by USEPA Methods 314.0 and 332.0;
- metals by USEPA Methods 200.8 and 245.1; and
- volatile organic compounds (VOCs) by USEPA Method 8260B.

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

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- blank contamination (method blanks and trip blank);
- laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery and relative percent difference (RPD);
- matrix spike/matrix spike duplicate (MS/MSD) recovery and RPD;
- field duplicates and lab duplicates; and
- surrogates (for organic parameters).

Qualified results are summarized in Table A-2.

1.2 Data Qualifiers

The data qualifiers used to qualify analytical results associated with QC parameters outside 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 USEPA guidelines.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

Samples were received at the correct temperature ($4 \pm 2^\circ$ Celsius) at the project laboratory. Samples received by the laboratory on March 1, 2011 had a temperature of 0.8° Celsius. This temperature outlier did not significantly impact sample results; therefore, data qualification was not required.

1.4 Holding Times

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

1.5 Blank Contamination

Method blanks and trip blanks were performed at the required frequencies. Target compounds were not detected in the blanks.

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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”.

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

- The LCS and LCS duplicate for analytical batch 11C0051 had high recoveries for vinyl acetate (164 and 167 percent, respectively). Data qualification was not required because the analyte was not detected in the associated samples.
- The LCS and LCS duplicate for analytical batch 11C0246 had high recoveries for vinyl acetate (176 and 166 percent, respectively). Data qualification was not required because the analyte was not detected in the associated samples.
- The LCS and LCS duplicate for analytical batch 11C0014 had high recoveries for vinyl acetate (155 and 162 percent, respectively). Data qualification was not required because the analyte was not detected in the associated samples.
- The RPD for the LCS and LCS duplicate recoveries for iodomethane was high (12 percent) for analytical batch 11C0014. Data qualification was not required because the LCS, LCS duplicate, MS, and MSD were all within control limits.
- The LCS and LCS duplicate for analytical batch 11D0228 had high recoveries for iodomethane (164 and 149 percent, respectively). Data qualification was not required because the analyte was not detected in the associated samples.

1.7 MS/MSD Recovery and RPD

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

- If MS or MSD recovery for an analyte is above acceptance limits but the analyte is not detected in the associated analytical batch, then data qualification was not required.
- If MS or MSD recovery for an analyte is above acceptance limits and the analyte is detected in the associated analytical batch, the 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/MSD for analytical batch 11C0051 had high recoveries for vinyl acetate (164 and 162 percent). Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MS/MSD for analytical batch 11C0246 had high recoveries for vinyl acetate (182 and 164 percent). Data qualification was not required because the analyte was not detected in the associated samples.
- The MS/MSD for analytical batch 11C0072 had low recoveries for silver. Data were qualified "UJ" for samples MW-8, MW-9, MW-12, MW-14, and MW-15 to indicate a potential low bias.
- The MS/MSD for analytical batch 11B1017 had low recoveries for silver. Data qualification was not required because the spiked samples were non project-specific (i.e., batch QC).
- The RPDs for the MS/MSD recoveries for analytical batch 11D0228 were high for MEK and 1,1-dichloroethene (44 and 28 percent, respectively). Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MS/MSD for analytical batch 11C1198 had low recoveries for silver (12 and 17 percent). Since both MW-18 and PW-1 were spiked, and the MS/MSD recoveries were within control limits for MW-18, data was qualified "UJ" for sample PW-1 to indicate a potential low bias.
- The MSD for analytical batch 11D0910 had low recovery for perchlorate (76 percent). Data was qualified "UJ" to indicate a potential low bias.

1.8 Lab 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 frequencies for perchlorate. Laboratory duplicates were within acceptance limits except for the following:

- The laboratory duplicate RPDs for analytical batch 11C0020 were above acceptance limits for perchlorate (35 and 42 percent). Data qualification was not required because the duplicate was non project-specific (i.e., batch QC).

1.9 Field Duplicates

One field duplicate was collected during this monitoring event and submitted for analysis. The RPD between the field duplicate and its associated sample was calculated and is presented in Table A-3. The field duplicate was 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.

1.9 Surrogates

Surrogates for all organic parameters were recovered within acceptance limits.

2.0 Completeness Summary

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

$$\begin{aligned} \% \text{ Contract Completeness} = & \\ & (\text{Number of contract compliant results} / \\ & \text{Number of reported results}) \\ & \times 100 \end{aligned}$$

$$\begin{aligned} \% \text{ Technical Completeness} = & \\ & (\text{Number of usable results} / \text{Number of reported results}) \\ & \times 100 \end{aligned}$$

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, MS/MSD, and LCS/LCSD attained for the field samples was 96 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table A-4. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table A-1
Sampling and Analysis Schedule
First Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
TB022511-1	PUB1607-01	2/25/2011	TB	VOCs
TB022511-2	PUB1607-02	2/25/2011	TB	VOCs
MW-4	PUB1607-03	2/25/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-10	PUB1607-04	2/25/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-7	PUB1607-05	2/25/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-3	PUB1607-06	2/25/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-6	PUB1607-07	2/25/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB022811-1	PUB1675-01	2/28/2011	TB	VOCs
TB022811-2	PUB1675-02	2/28/2011	TB	1,4-Dioxane
MW-11	PUB1675-03	2/28/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB030111-1	PUC0073-01	3/1/2011	TB	VOCs
TB030111-2	PUC0073-02	3/1/2011	TB	1,4-Dioxane
MW-14	PUC0073-03	3/1/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-15	PUC0073-04	3/1/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-8	PUC0073-05	3/1/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-9	PUC0073-06	3/1/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-12	PUC0073-07	3/1/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB030211-1	PUC0174-01	3/2/2011	TB	VOCs
TB030211-2	PUC0174-02	3/2/2011	TB	1,4-Dioxane
MW-13	PUC0174-03	3/2/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-5	PUC0174-04	3/2/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-1	PUC0174-05	3/2/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-2	PUC0174-06	3/2/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
FD030211-01	PUC0174-07	3/2/2011	FD of MW-2	VOCs, 1,4-Dioxane, Metals, Perchlorate
TB033011-1	PUC1922-01	3/30/2011	TB	VOCs
TB033011-2	PUC1922-02	3/30/2011	TB	1,4-Dioxane
MW-18	PUC1922-03	3/30/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
PW-1	PUC1922-04	3/30/2011	N	VOCs, 1,4-Dioxane, Metals, Perchlorate
MW-4	PUB1616-01	2/25/2011	N	Perchlorate by EPA Method 332.0
MW-10	PUB1617-01	2/25/2011	N	Perchlorate by EPA Method 332.0
MW-7	PUB1618-01	2/25/2011	N	Perchlorate by EPA Method 332.0
MW-3	PUB1619-01	2/25/2011	N	Perchlorate by EPA Method 332.0
MW-11	PUB1676-01	2/28/2011	N	Perchlorate by EPA Method 332.0
MW-15	PUC0074-01	3/1/2011	N	Perchlorate by EPA Method 332.0
MW-14	PUC0075-01	3/1/2011	N	Perchlorate by EPA Method 332.0
MW-8	PUC0076-01	3/1/2011	N	Perchlorate by EPA Method 332.0
MW-9	PUC0077-01	3/1/2011	N	Perchlorate by EPA Method 332.0
MW-12	PUC0078-01	3/1/2011	N	Perchlorate by EPA Method 332.0
MW-18	PUC1923-01	3/30/2011	N	Perchlorate by EPA Method 332.0

Notes:

N = normal field sample

FD = field duplicate

TB = trip blank

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

VOCs = volatile organic compounds by EPA Method 8260B.

Perchlorate = EPA Method 314.0

Table A-2
Qualified Results
First Quarter 2011 Groundwater Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
MW-14	Silver	<0.0010	mg/l	UJ	Qualified due to low MS/MSD recovery
MW-15	Silver	<0.0010	mg/l	UJ	Qualified due to low MS/MSD recovery
MW-8	Silver	<0.0010	ug/l	UJ	Qualified due to low MS/MSD recovery
MW-9	Silver	<0.0010	ug/l	UJ	Qualified due to low MS/MSD recovery
MW-12	Silver	<0.0010	ug/l	UJ	Qualified due to low MS/MSD recovery
PW-1	Silver	<0.0010	ug/l	UJ	Qualified due to low MS/MSD recovery
MW-18	Perchlorate	<0.50	ug/l	UJ	Qualified due to low MS/MSD recovery

Notes:

ug/l = microgram per liter

UJ = Estimated detection limit

MS/MSD = Matrix spike/matrix spike duplicate samples

Table A-3
Field Duplicate Summary
First Quarter 2011 Groundwater Monitoring Report

Sample ID / Field Duplicate ID	Parameters	Sample Result	Field Duplicate Result	RPD (%)
MW-2 / FD030211-01	Organics (ug/l)			
	VOCs by EPA 8260B	ND	ND	NC
	1,4-Dioxane	2.6	2.6	<1.0
	Inorganics (mg/l)			
	Arsenic	0.0086	0.0087	1.2
	Barium	0.070	0.071	1.4
	Cadmium	<0.0010	<0.0010	NC
	Chromium	0.014	0.014	<1.0
	Lead	0.010	0.0082	20
	Mercury	<0.00020	<0.00020	NC
	Selenium	<0.0020	<0.0020	NC
	Silver	<0.0010	<0.0010	NC
	Perchlorate by EPA 314.0	87	92	10

Table A-4
Completeness Summary
First Quarter 2011 Groundwater Monitoring Report

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Inorganics					
Arsenic	17	17	100	17	100
Barium	17	17	100	17	100
Cadmium	17	17	100	17	100
Chromium	17	17	100	17	100
Lead	17	17	100	17	100
Mercury	17	17	100	17	100
Selenium	17	17	100	17	100
Silver	17	11 ^a	65	17	100
Perchlorate (Method 314.0)	17	17	100	17	100
Perchlorate (Method 332.0)	11	10 ^a	91	11	100
Organics					
VOCs (Method 8260B)	17	17	100	17	100
1,4-Dioxane	17	17	100	17	100
TOTAL	198	191	96	198	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 low MS/MSD recovery

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the April 2011 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 3 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- alkalinity by Standard Method 2320B;
- inorganics by USEPA Methods 300.0 and 314.0;
- metals by USEPA Methods 200.7, 200.8, and 245.1;
- total dissolved solids by Standard Method 2540C; and
- volatile organic compounds (VOCs) by USEPA Method 8260B.

Additionally, three field quality assurance samples (i.e., field duplicate and trip blanks) were collected and analyzed as part of the sampling program. 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);
- 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 ($4 \pm 2^{\circ}$ 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.

2.4.2 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/LCS duplicate percent recoveries and RPDs were within acceptance limits.

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 percent recovery associated with the analytical batch 11D1069 was outside of acceptance limits for calcium, and the MS and MS duplicate percent recoveries were outside acceptance limits for sodium. Data qualification was not required because the spiked samples were non project-specific (i.e., batch QC).
- The MS percent recovery and RPD associated with the analytical batch 11E0034 were outside acceptance limits for mercury. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).

2.8 DUPLICATES

2.8.1 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 frequencies for the following parameters: perchlorate, alkalinity, and total dissolved solids.

2.8.2 Field Duplicates

One field duplicate was collected during this monitoring event and submitted for analysis. The RPD between the field duplicate and its associated sample was calculated and presented in Table B-2. The field duplicate was 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 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
Second Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
TB042811-1	PUD1699-01	4/28/2011	TB	VOCs
TB042811-2	PUD1699-02	4/28/2011	TB	1,4-Dioxane
MW-17	PUD1699-03	4/28/2011	N	VOCs, 1,4-Dioxane, Metals, Inorganics, Total Dissolved Solids, Alkalinity
MW-16	PUD1699-04	4/28/2011	N	VOCs, 1,4-Dioxane, Metals, Inorganics, Total Dissolved Solids, Alkalinity
MW-19	PUD1699-05	4/28/2011	N	VOCs, 1,4-Dioxane, Metals, Inorganics, Total Dissolved Solids, Alkalinity
FD042811-01	PUD1699-06	4/28/2011	FD of MW-19	VOCs, 1,4-Dioxane, Metals, Inorganics, Total Dissolved Solids, Alkalinity

Notes:

VOCs = volatile organic compounds analyzed by USEPA Method 8260B

Metals = arsenic, barium, cadmium, calcium, chromium, lead, magnesium, mercury, potassium, selenium, silver, and sodium.

Inorganics = chloride, nitrate-n, and sulfate by EPA method 300.0 and perchlorate by EPA method 314.0

N = normal field sample

TB = trip blank

Table B-2
Field Duplicate Summary
Second Quarter 2011 Monitoring Report

Sample ID / Field Duplicate ID	Parameters	Sample Result	Field Duplicate Result	RPD (%)
MW-19/ FD042811-01	VOCs (ug/l)			
	All analytes	ND	ND	NC
	1,4-Dioxane	ND	ND	NC
	Metals (mg/l)			
	Arsenic	0.014	0.014	<1.0
	Barium	0.046	0.045	2.2
	Cadmium	<0.0010	<0.0010	NC
	Calcium	30	30	<1.0
	Chromium	0.024	0.025	4.1
	Lead	0.0019	0.0015	0.0004
	Magnesium	12	12	<1.0
	Mercury	<0.00020	<0.00020	NC
	Potassium	7.1	7.5	0.4
	Selenium	0.0028	0.0027	0.0001
	Silver	<0.0010	<0.0010	NC
	Sodium	39	37	5.3
	Inorganics (mg/l)			
	Chloride	22	22	<1.0
	Nitrate-N	7.8	7.8	<1.0
	Sulfate	12	12	<1.0
	Perchlorate (ug/l)	55000	53000	3.7
	Alkalinity (mg/l)			
	Alkalinity as CaCO ₃	120	110	8.7
	Bicarbonate Alkalinity as CaCO ₃	120	110	8.7
	Carbonate Alkalinity as CaCO ₃	<6.0	<6.0	NC
	Hydroxide Alkalinity as CaCO ₃	<6.0	<6.0	NC
	Alkalinity, Phenolphthalein	<6.0	<6.0	NC
	Total Dissolved Solids (mg/l)			
	Total Dissolved Solids	350	350	<1.0

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 B-3
Completeness Summary
Second Quarter 2011 Groundwater Monitoring Report

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Volatile Organic Compounds					
All analytes	3	3	100	3	100
1,4-Dioxane	3	3	100	3	100
Metals					
Arsenic	3	3	100	3	100
Barium	3	3	100	3	100
Cadmium	3	3	100	3	100
Calcium	3	3	100	3	100
Chromium	3	3	100	3	100
Lead	3	3	100	3	100
Magnesium	3	3	100	3	100
Mercury	3	3	100	3	100
Potassium	3	3	100	3	100
Selenium	3	3	100	3	100
Silver	3	3	100	3	100
Sodium	3	3	100	3	100
Inorganics					
Chloride	3	3	100	3	100
Nitrate-N	3	3	100	3	100
Sulfate	3	3	100	3	100
Perchlorate	3	3	100	3	100
Alkalinity					
Alkalinity as CaCO ₃	3	3	100	3	100
Bicarbonate Alkalinity as CaCO ₃	3	3	100	3	100
Carbonate Alkalinity as CaCO ₃	3	3	100	3	100
Hydroxide Alkalinity as CaCO ₃	3	3	100	3	100
Alkalinity, Phenolphthalein	3	3	100	3	100
Total Dissolved Solids					
Total Dissolved Solids	3	3	100	3	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

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the April 2011 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 7 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- perchlorate by USEPA Method 332.0.

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, 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 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 ($4 \pm 2^\circ$ Celsius) at the project laboratory except the following:

- Samples collected on April 26, 2011 and April 27, 2011 were received at 1.4 and 0.2 degrees Celsius, respectively. These temperature outliers 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.

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 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
Second Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
MW-5	PUD1525-01	4/26/2011	N	Perchlorate by USEPA Method 332.0
MW-1	PUD1525-02	4/26/2011	N	Perchlorate by USEPA Method 332.0
MW-2	PUD1525-03	4/26/2011	N	Perchlorate by USEPA Method 332.0
MW-6	PUD1587-01	4/27/2011	N	Perchlorate by USEPA Method 332.0
MW-13	PUD1587-02	4/27/2011	N	Perchlorate by USEPA Method 332.0
MW-16	PUD1694-01	4/28/2011	N	Perchlorate by USEPA Method 332.0
MW-17	PUD1695-01	4/28/2011	N	Perchlorate by USEPA Method 332.0

Notes:

N = normal field sample

Table C-2
Completeness Summary
Second Quarter 2011 Groundwater Monitoring Report

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Inorganics					
Perchlorate 332.0	7	7	100	7	100

Notes:

Number of samples used in completeness calculations includes field samples and field duplicates, but not 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

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the July, August, and September 2011 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 20 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- perchlorate by USEPA Methods 314.0 and 332.0;
- metals by USEPA Methods 200.7, 200.8 and 245.1;
- volatile organic compounds (VOCs) by USEPA Method 8260B; and
- 1,4-dioxane by USEPA Method 8260B.

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

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- blank contamination (method blanks and trip blank);
- laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery and relative percent difference (RPD);
- matrix spike/matrix spike duplicate (MS/MSD) recovery and RPD;
- field duplicates and lab duplicates; and
- surrogates (for organic parameters).

Qualified results are summarized in Table B-2.

1.2 Data Qualifiers

The data qualifiers used to qualify analytical results associated with QC parameters outside 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 USEPA guidelines.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

Samples were received preserved and intact at the project laboratory. The samples were received by the laboratory at the correct temperature ($4 \pm 2^\circ$ Celsius).

1.4 Holding Times

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

1.5 Blank Contamination

Method blanks and trip blanks were performed at the required frequencies. Target compounds were not detected in the blanks.

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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”.

Percent recoveries and RPDs for the LCS/LCS duplicate were within acceptance limits.

1.7 MS/MSD Recovery and RPD

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

- If MS or MSD recovery for an analyte is above acceptance limits but the analyte is not detected in the associated analytical batch, then data qualification was not required.
- If MS or MSD recovery for an analyte is above acceptance limits and the analyte is detected in the associated analytical batch, the 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/MSD recoveries for perchlorate (23 and -60 percent) were below the acceptance limits (80 to 120 percent) for analytical batch 11H0583. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MS/MSD recoveries for perchlorate (64 and 66 percent) were below the acceptance limits (80 to 120 percent) for analytical batch 11H0224. Data qualification was not required because the spiked sample was non project-specific (i.e., batch QC).
- The MSD recovery for perchlorate (78 percent) was below the acceptance limits (80 to 120 percent) for analytical batch 11H0582. Data qualification was not required because the MS and LCS recoveries were within acceptance limits.

1.8 Lab 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 frequencies for perchlorate. Laboratory duplicates were within acceptance limits except for the following:

- The laboratory duplicate RPD for analytical batch 11G1033 was above acceptance limits for perchlorate (38 percent). The laboratory duplicate sample is a private well sample collected near the UPCO monitoring wells (see Appendix B). Data was qualified "UJ" to indicate a potential bias.

1.9 Field Duplicates

Two field duplicates were collected during this monitoring event and submitted for analysis. The RPDs between the field duplicates and the associated samples were calculated and are presented in Table B-3. 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 duplicates met acceptance criteria.

1.9 Surrogate Recovery

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

2.0 Completeness Summary

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

$$\begin{aligned} \% \text{ Contract Completeness} = & \\ & \frac{(\text{Number of contract compliant results}/}{\text{Number of reported results}} \\ & \times 100 \end{aligned}$$

$$\% \text{ Technical Completeness} =$$

$$\frac{(Number\ of\ usable\ results/Number\ of\ reported\ results)}{x\ 100}$$

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, MS/MSD, and LCS/LCSD attained for the field samples was 99 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table B-4. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table B-2
Qualified Results
Third Quarter 2011 Groundwater Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
MW-9	Perchlorate	< 2.0	ug/l	UJ	Qualified due to laboratory duplicate RPD exceedance

Notes:

ug/l = microgram per liter

UJ = estimated detection limit

MS/MSD = matrix spike/matrix spike duplicate samples

Table B-3
Field Duplicate Summary
Third Quarter 2011 Groundwater Monitoring Report

Sample ID / Field Duplicate ID	Parameters	Sample Result	Field Duplicate Result	RPD (%)
MW-18 / DUP	Inorganics (mg/l)			
	Arsenic	<0.10	<0.10	NC
	Barium	0.015	0.016	<1.0
	Cadmium	<0.0010	<0.0010	NC
	Chromium	<0.010	<0.010	NC
	Lead	<0.015	<0.015	NC
	Mercury	<0.00020	<0.00020	NC
	Selenium	<0.10	<0.10	NC
	Silver	<0.010	<0.010	NC
	Perchlorate by EPA 314.0 (ug/l)	<2.0	<2.0	NC
	Perchlorate by EPA 332.0 (ug/l)	<0.10	<0.10	NC
MW-2 / DUP	Organics (ug/l)			
	1,4-Dioxane	2.7	2.6	<1.0
	Inorganics (ug/l)			
	Perchlorate by EPA 314.0	84	83	<1.0

Notes:

mg/l = milligram per liter

ug/l = microgram per liter

RPD = relative percent difference; [(difference)/(average)]*100

ND = analyte was not detected

NC = not calculated

< = less than the method detection limit

Table B-4
Completeness Summary
Third Quarter 2011 Groundwater Monitoring Report

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Inorganics					
Arsenic	2	2	100	2	100
Barium	2	2	100	2	100
Cadmium	2	2	100	2	100
Chromium	2	2	100	2	100
Lead	2	2	100	2	100
Mercury	2	2	100	2	100
Selenium	2	2	100	2	100
Silver	2	2	100	2	100
Perchlorate (Method 314.0)	20	20	100	20	100
Perchlorate (Method 332.0)	13	12 ^a	92	13	100
Organics					
VOCs	66	66	100	66	100
1,4-Dioxane	3	3	100	3	100
TOTAL	118	117	99	118	100

^a Qualified due to laboratory duplicate RPD exceedance

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

RPD = relative percent difference

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 February 2011 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 4 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.

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- method blanks;
- laboratory control samples/laboratory control sample duplicates (LCS); and
- common laboratory contaminants.

Qualified results are summarized in Table C-2.

1.2 Data Qualifiers

The data qualifiers used to qualify analytical results associated with QC parameters outside 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 USEPA guidelines. The results associated with this sampling event required no data qualification.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

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

1.4 Holding Times

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

1.5 Blank Contamination

Method blanks were performed at the required frequencies. Target compounds were not detected in the blanks.

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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".

Percent recoveries and RPDs for the LCS/LCS duplicates were within acceptance limits.

1.7 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 February 24, 2011. Data were qualified “J” to indicate a potential bias.
- Methylene chloride was detected in samples SVMW-1-30-40 and SVMW-1-90-100 collected February 24, 2011. Data were qualified “J” to indicate a potential bias.
- Cyclohexane was detected in sample SVMW-1-90-100 collected February 24, 2011. Data was qualified “J” to indicate a potential bias.
- 2-Butanone was detected in sample SVMW-1-140-150 collected February 24, 2011. Data was qualified “J” to indicate a potential bias.

1.8 Completeness Summary

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

$$\begin{aligned} &\% \text{ Contract Completeness} = \\ &(\text{Number of contract compliant results} / \\ &\text{Number of reported results}) \\ &\quad \times 100 \end{aligned}$$

$$\begin{aligned} &\% \text{ Technical Completeness} = \\ &(\text{Number of usable results} / \text{Number of reported results}) \\ &\quad \times 100 \end{aligned}$$

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, and LCS/LCSD attained for the field samples was 97 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table C-3. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table C-1
Sampling and Analysis Schedule
First Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
SVMW-1-30-40	PUB1539-01	2/24/2011	N	VOCs
SVMW-1-90-100	PUB1539-02	2/24/2011	N	VOCs
SVMW-1-140-150	PUB1539-03	2/24/2011	N	VOCs
SVMW-1-190-200	PUB1539-04	2/24/2011	N	VOCs

Notes:

N = Normal sample

VOCs = volatile organic compounds, analyzed by USEPA Method TO-15

Table C-2
Qualified Results
First Quarter 2011 Groundwater Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
SVMW-1-30-40	Acetone	76	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-30-40	Methylene chloride	1.0	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Acetone	25	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Cyclohexane	0.76	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Methylene chloride	3.0	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	Acetone	46	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	2-Butanone	9.6	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	Acetone	45	ug/m ³	J	Qualified due to presence of common laboratory contaminant

Notes:

ug/m³ = microgram per cubic meter

J = Estimated result

Table C-3
Completeness Summary
First Quarter 2011 Groundwater Monitoring Report

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	3 ^a	75	4	100
Cyclohexane	4	3 ^a	75	4	100
Methylene Chloride	4	2 ^a	50	4	100
All other analytes	264	264	100	264	100
TOTAL	280	272	97	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.

1.0 INTRODUCTION

This summary presents data verification results for groundwater samples collected from Universal Propulsion Company, Inc. (UPCO) wells during the October 2011 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 7 groundwater samples were collected and submitted to TestAmerica for the following parameters:

- perchlorate by USEPA Method 314.0;
- volatile organic compounds (VOCs) by USEPA Method 8260B; and
- 1,4-dioxane by USEPA Method 8260B.

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

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- blank contamination (method blanks and trip blank);
- laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery and relative percent difference (RPD);
- matrix spike/matrix spike duplicate (MS/MSD) recovery and RPD;
- field duplicates and lab duplicates; and
- surrogates (for organic parameters).

Results did not require qualification based on the data verification.

1.2 Data Qualifiers

The data qualifiers used to qualify analytical results associated with QC parameters outside 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 USEPA guidelines.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

Samples were received preserved and intact at the project laboratory. The samples were received by the laboratory at the correct temperature ($4 \pm 2^\circ$ Celsius).

1.4 Holding Times

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

1.5 Blank Contamination

Method blanks and trip blanks were performed at the required frequencies. Target compounds were not detected in the blanks, with the following exception:

- 1,2,3-Trichlorobenzene was detected in the method blank for analytical batch 11K0098. Data qualification was not required because 1,2,3-trichlorobenzene was not detected in the associated samples.

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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”.

Percent recoveries and RPDs for the LCS/LCS duplicate were within acceptance limits.

1.7 MS/MSD Recovery and RPD

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

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

1.8 Lab 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 frequencies for perchlorate. Laboratory duplicates were within acceptance limits.

1.9 Field Duplicates

One field duplicate was collected during this monitoring event and submitted for analysis. The RPDs between the field duplicate and the associated sample were calculated and are presented in Table A-2. The field duplicate was 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.

1.9 Surrogate Recovery

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

2.0 Completeness Summary

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

$$\begin{aligned} \% \text{ Contract Completeness} = \\ & \frac{(\text{Number of contract compliant results})}{\text{Number of reported results}} \\ & \times 100 \end{aligned}$$

$$\begin{aligned} \% \text{ Technical Completeness} = \\ & \frac{(\text{Number of usable results})}{\text{Number of reported results}} \\ & \times 100 \end{aligned}$$

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, MS/MSD, and LCS/LCSD attained for the field samples was 100 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table A-3. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table A-1
Sampling and Analysis Schedule
Fourth Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
PW-1	PUJ1621-01	10/25/2011	N	Perchlorate
MW-13	PUJ1621-02	10/26/2011	N	Perchlorate
MW-5	PUJ1621-03	10/26/2011	N	Perchlorate
MW-2	PUJ1701-01	10/27/2011	N	VOCs, 1,4-Dioxane, Perchlorate
MW-6	PUJ1701-02	10/27/2011	N	Perchlorate
MW-1	PUJ1701-03	10/27/2011	N	VOCs, 1,4-Dioxane, Perchlorate
MW-19	PUJ1701-04	10/27/2011	N	Perchlorate
FD102711	PUJ1701-05	10/27/2011	FD of MW-2	VOCs, 1,4-Dioxane, Perchlorate
TB102711	PUJ1701-06	10/27/2011	TB	VOCs, 1,4-Dioxane

Notes:

N = normal field sample

FD = field duplicate

TB = trip blank

VOCs = volatile organic compounds by EPA Method 8260B

Perchlorate = EPA Method 314.0

Table A-2
Field Duplicate Summary
Fourth Quarter 2011 Groundwater Monitoring Report

Sample ID / Field Duplicate ID	Parameters	Sample Result	Field Duplicate Result	RPD (%)
MW-2 / DUP	Organics (ug/l)			
	VOCs	ND	ND	NC
	1,4-Dioxane	2.8	2.7	<1.0
	Inorganics (ug/l)			
	Perchlorate	90	91	<1.0

Notes:

ug/l = microgram per liter

RPD = relative percent difference; $[(\text{difference})/(\text{average})]*100$

ND = analyte was not detected

NC = not calculated

< = less than the method detection limit

Table A-3
Completeness Summary
Fourth Quarter 2011 Groundwater Monitoring Report

Parameters	Total Number of Samples	Number in Contractual Compliance	Percent Contractual Compliance	Number of Usable Results	Percent Technical Compliance
Organics					
VOCs	132	132	100	132	100
1,4-Dioxane	2	2	100	2	100
Inorganics					
Perchlorate	7	7	100	7	100
TOTAL	141	141	100	141	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

RPD = relative percent difference

Table C-1
Sampling and Analysis Schedule
First Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
SVMW-1-30-40	PUB1539-01	2/24/2011	N	VOCs
SVMW-1-90-100	PUB1539-02	2/24/2011	N	VOCs
SVMW-1-140-150	PUB1539-03	2/24/2011	N	VOCs
SVMW-1-190-200	PUB1539-04	2/24/2011	N	VOCs

Notes:

N = Normal sample

VOCs = volatile organic compounds, analyzed by USEPA Method TO-15

Table C-2
Qualified Results
First Quarter 2011 Groundwater Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
SVMW-1-30-40	Acetone	76	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-30-40	Methylene chloride	1.0	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Acetone	25	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Cyclohexane	0.76	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Methylene chloride	3.0	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	Acetone	46	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	2-Butanone	9.6	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	Acetone	45	ug/m ³	J	Qualified due to presence of common laboratory contaminant

Notes:

ug/m³ = microgram per cubic meter

J = Estimated result

Table C-3
Completeness Summary
First Quarter 2011 Groundwater Monitoring Report

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	3 ^a	75	4	100
Cyclohexane	4	3 ^a	75	4	100
Methylene Chloride	4	2 ^a	50	4	100
All other analytes	264	264	100	264	100
TOTAL	280	272	97	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.

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 April 2011 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 soil-gas samples were collected during the monitoring event and submitted to TestAmerica for the following parameters:

- volatile organic compounds (VOCs) by USEPA Method TO15.

Table D-1 presents a summary of the sample identifications, laboratory sample identifications, and requested 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);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD); and
- Calibration Verification 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.

Results from this monitoring/investigation event that required data qualification are provided in Table D-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 respective project laboratory. The samples were received by the laboratory at the correct temperature (20 degrees Celsius).

2.3 HOLDING TIMES

All samples were analyzed within the method-specific holding time limits.

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 the method blanks.

2.4.4 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 detected in the samples and were qualified “J” to indicate a potential bias.

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:

- The LCS recovery for naphthalene and n-butylbenzene (156 and 135 percent, respectively) was above acceptance limits for the analytical batch 11D1017. Data qualification was not required because the associated samples were not detected for these analytes.
- The LCS duplicate recovery for several analytes was above acceptance limits for the analytical batch 11D1017. Data qualification was not required because the associated samples were not detected for these analytes.

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 99 percent (4 out of a total 280 results required qualification). The technical completeness attained for this monitoring period was 100 percent. The completeness results are provided in Table D-3. The results for the performance monitoring events were considered usable for the intended purposes and the project DQOs have been met.

Table D-1
Sampling and Analysis Schedule
Second Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
SVMW-1-30-40	PUD1452-01	4/25/2011	N	VOCs
SVMW-1-90-100	PUD1452-02	4/25/2011	N	VOCs
SVMW-1-140-150	PUD1452-03	4/25/2011	N	VOCs
SVMW-1-190-200	PUD1452-04	4/25/2011	N	VOCs

Table D-2
Qualified Results
Second Quarter 2011 Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
SVMW-1-30-40	Acetone	1500	ppbv	J	Qualified due to common laboratory contaminant
SVMW-1-90-100	Acetone	2500	ppbv	J	Qualified due to common laboratory contaminant
SVMW-1-140-150	Acetone	1200	ppbv	J	Qualified due to common laboratory contaminant
SVMW-1-190-200	2-Butanone	84	ppbv	J	Qualified due to common laboratory contaminant

Notes:

ppbv = parts per billion by volume

J = estimated result

Table D-3
Completeness Summary
Second Quarter 2011 Groundwater Monitoring Report

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	1 ^a	25	4	100
2-Butanone	4	3 ^a	75	4	100
All other analytes	4	4	100	4	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 common laboratory contaminant

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 July 2011 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 4 samples were collected and submitted to TestAmerica for the following parameters:

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

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

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- method blanks;
- laboratory control samples/laboratory control sample duplicates (LCS);
- surrogates; and
- common laboratory contaminants.

Qualified results are summarized in Table D-2.

1.2 Data Qualifiers

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

- J The analyte was positively identified; however, the result should be considered an estimated value.
- UJ The reporting limit is considered an estimated value.
- R 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 USEPA guidelines. The results associated with this sampling event required no data qualification.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

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

1.4 Holding Times

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

1.5 Blank Contamination

Method blanks were performed at the required frequencies. Target compounds were not detected in the blanks.

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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".

Percent recoveries and RPDs for the LCS and LCS duplicates were within acceptance limits except for the following:

- The LCS recovery for 4-methyl-2-pentanone (131 percent) and 2-hexanone (134 percent), and the LCS and LCS duplicate recoveries for benzyl chloride (133 and 142 percent, respectively), were above acceptance limits for the analytical batch

11H0026. Data qualification was not required because the associated samples were not detected for these analytes.

1.7 Surrogates

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

1.8 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-1-90-100, SVMW-1-140-150, and SVMW-1-190-200 collected July 26, 2011. Data were qualified "J" to indicate a potential bias.
- Methylene chloride was detected in samples SVMW-1-30-40 and SVMW-1-90-100 collected July 26, 2011. Data were qualified "J" to indicate a potential bias.
- Cyclohexane was detected in sample SVMW-1-30-40 collected July 26, 2011. Data was qualified "J" to indicate a potential bias.
- MEK was detected in samples SVMW-1-90-100, SVMW-1-140-150, and SVMW-1-190-200 collected July 26, 2011. Data were qualified "J" to indicate a potential bias.

1.9 Completeness Summary

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

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

$$\begin{aligned} \% \text{ Technical Completeness} = \\ & \left(\frac{\text{Number of usable results}}{\text{Number of reported results}} \right) \end{aligned}$$

x 100

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, and LCS/LCSD attained for the field samples was 97 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table D-3. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table D-1
Sampling and Analysis Schedule
Third Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
SVMW-1-30-40	PUG1642-01	7/26/2011	N	VOCs
SVMW-1-90-100	PUG1642-02	7/26/2011	N	VOCs
SVMW-1-140-150	PUG1642-03	7/26/2011	N	VOCs
SVMW-1-190-200	PUG1642-04	7/26/2011	N	VOCs

Notes:

N = Normal sample

VOCs = volatile organic compounds, analyzed by USEPA Method TO-15

Table D-2
Qualified Results
Third Quarter 2011 Groundwater Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
SVMW-1-30-40	Cyclohexane	1.9	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-30-40	Methylene chloride	11	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Acetone	260	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	2-Butanone	140	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Methylene chloride	7.6	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	Acetone	290	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	2-Butanone	170	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	Acetone	330	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	2-Butanone	200	ug/m ³	J	Qualified due to presence of common laboratory contaminant

Notes:

ug/m³ = microgram per cubic meter

J = Estimated result

Table D-3
Completeness Summary
Third Quarter 2011 Groundwater Monitoring Report

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	1 ^a	25	4	100
2-Butanone	4	1 ^a	25	4	100
Cyclohexane	4	3 ^a	75	4	100
Methylene Chloride	4	2 ^a	50	4	100
All other analytes	264	264	100	264	100
TOTAL	280	271	97	280	100

^a Qualified due to presence of common laboratory contaminant.

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

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 October 2011 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 4 samples were collected and submitted to TestAmerica for the following parameters:

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

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

1.1 Data Quality Assessment

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

- sample receipt temperatures;
- holding times;
- method blanks;
- laboratory control samples/laboratory control sample duplicates (LCS);
- surrogates; and
- common laboratory contaminants.

Qualified results are summarized in Table B-2.

1.2 Data Qualifiers

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

- J The analyte was positively identified; however, the result should be considered an estimated value.
- UJ The reporting limit is considered an estimated value.
- R 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 USEPA guidelines. The results associated with this sampling event required no data qualification.

1.3 Sample Preservation and Temperature Upon Laboratory Receipt

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

1.4 Holding Times

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

1.5 Blank Contamination

Method blanks were performed at the required frequencies. Target compounds were not detected in the blanks.

1.6 LCS/LCS Duplicate Recovery and Relative Percent Difference

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 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 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".

Percent recoveries and RPDs for the LCS and LCS duplicates were within acceptance limits.

1.7 Surrogates

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

1.8 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 October 25, 2011. Data were qualified "J" to indicate a potential bias.
- Methylene chloride was detected in sample SVMW-1-30-40 collected October 25, 2011. Data was qualified "J" to indicate a potential bias.
- MEK was detected in samples SVMW-1-30-40 and SVMW-1-190-200 collected October 25, 2011. Data were qualified "J" to indicate a potential bias.

1.9 Completeness Summary

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

$$\begin{aligned} \% \text{ Contract Completeness} = & \\ & (\text{Number of contract compliant results} / \\ & \text{Number of reported results}) \\ & \times 100 \end{aligned}$$

$$\begin{aligned} \% \text{ Technical Completeness} = & \\ & (\text{Number of usable results} / \text{Number of reported results}) \\ & \times 100 \end{aligned}$$

The overall contract completeness included the evaluation of the protocol and contract deviations for holding times, blanks, and LCS/LCSD attained for the field samples was 98 percent. The technical completeness, which included all QC parameters, attained for the field samples was 100 percent. The completeness results are provided in Table C-3. All of the results were considered usable for the intended purposes and the project DQOs have been met.

Table B-1
Sampling and Analysis Schedule
Fourth Quarter 2011 Groundwater Monitoring Report

Sample ID	Lab ID	Collected	Sample Type	Parameters
SVMW-1-30-40	PUJ1542-01	10/25/2011	N	VOCs
SVMW-1-90-100	PUJ1542-02	10/25/2011	N	VOCs
SVMW-1-140-150	PUJ1542-03	10/25/2011	N	VOCs
SVMW-1-190-200	PUJ1542-04	10/25/2011	N	VOCs

Notes:

N = Normal sample

VOCs = volatile organic compounds, analyzed by USEPA Method TO-15

Table B-2
Qualified Results
Fourth Quarter 2011 Groundwater Monitoring Report

Sample ID	Analyte	Result	Units	Data Qualifier	Comments
SVMW-1-30-40	Acetone	520	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-30-40	2-Butanone	190	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-30-40	Methylene chloride	9.7	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-90-100	Acetone	240	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-140-150	Acetone	260	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	Acetone	290	ug/m ³	J	Qualified due to presence of common laboratory contaminant
SVMW-1-190-200	2-Butanone	97	ug/m ³	J	Qualified due to presence of common laboratory contaminant

Notes:

ug/m³ = microgram per cubic meter

J = Estimated result

Table B-3
Completeness Summary
Fourth Quarter 2011 Groundwater Monitoring Report

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	2 ^a	50	4	100
Methylene Chloride	4	3 ^a	50	4	100
All other analytes	268	268	100	268	100
TOTAL	280	273	98	280	100

^a Qualified due to presence of common laboratory contaminant.

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

Universal Propulsion Company
2011 Annual Monitoring Report

Appendix J
Laboratory Reports (CD)

