

ATTACHMENT 4: FIELD LOGS

This attachment contains the groundwater sample collection field logs for the relatively shallow standpipe monitoring wells (MW-5 through MW-8, MW-10, MW-13, MW-15, and MW-16), as well as the field data sheets for the Westbay™ multiport wells (MW-3, MW-4, MW-11, MW-12, MW-14, and MW-17 through MW-26). Groundwater sample collection for the 1st Quarter 2014 sampling event was conducted by Blaine Tech Services, Inc.

WELL MONITORING DATA SHEET

Project #: 140124-AW1	Site: SPL
Sampler: AW	Gauging Date: 2-6-14
Well I.D.: MW-5	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 140	Depth to Water (DTW): 111.39
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	Flow Cell Type YSI-556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 117.11	

Purge Method:	Water	Sampling Method:
Disposable Bailer	2" Rediflo pump	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other _____	Dedicated Tubing
		Other: _____

Flow Rate = 1.5 gpm
 Start Purge Date = 2-6-14 0855 Pump @ 12.5'

18.6 (Gals.) X 3	= 55.8 Gals.	
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
0903	15.83	6.56	563	2	4.20	151.0	11	111.53
0909	15.88	6.59	567	4	4.16	148.8	20	111.53
0915	15.75	6.52	567	3	4.13	147.4	29	111.53
0921	15.74	6.51	569	2	4.14	148.2	38	111.53
0927	15.74	6.51	571	1	4.17	150.1	47	111.53
0933	15.74	6.51	575	1	4.15	151.2	56	111.53

Did well dewater? Yes No Gallons actually evacuated: 56

Sampling Date: 2-6-14 Sampling Time: 0935 Depth to Water: 111.53

Sample I.D.: MW-5 Laboratory: BC

Analyzed for: See COC Other: _____

EB I.D. (if applicable): _____ @ _____ Time Duplicate I.D. (if applicable): DUPE-6-1014 0945

FB I.D. (if applicable): _____ @ _____ Time Analyzed for: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140124-AW1	Site: JPL
Sampler: AW	Gauging Date: 2-6-14
Well I.D.: MW-6	Well Diameter: 2 3 (4) 6 8
Total Well Depth (TD): 245	Depth to Water (DTW): 213.11
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type YSI-556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 219.48	

Purge Method: Disposable Bailer Positive Air Displacement Electric Submersible ^{Waterra} 2" Rediflo pump (Dedicated) Extraction Pump Other _____

Sampling Method: Disposable Bailer Extraction Port Dedicated Tubing Other: _____

Flow Rate = 1.5 gpm
 Start Purge Date = 2-6-14 0730 Pump @ 230'

20.8 (Gals.) X	3	= 62.4 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
0737	21.02	6.51	1221	6	6.54	157.4	10.5	213.38
0744	21.03	6.49	1221	3	6.41	148.8	21	213.38
0751	21.10	6.49	1220	2	6.31	144.1	31.5	213.38
0758	21.05	6.49	1220	1	6.38	145.8	42	213.38
0805	21.09	6.48	1220	1	6.41	147.6	52.5	213.38
0812	21.05	6.38	1220	1	6.37	146.1	63	213.38

Did well dewater? Yes No Gallons actually evacuated: 63

Sampling Date: 2-6-14 Sampling Time: 0815 Depth to Water: 213.38

Sample I.D.: MW-6 Laboratory: BC

Analyzed for: See COC Other: _____

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

FB I.D. (if applicable): @ Time Analyzed for:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140124-AW1	Site: JPL
Sampler: AW	Gauging Date: 2-5-14
Well I.D.: MW-7	Well Diameter: 2 3 4 6 8
Total Well Depth (TD): 275	Depth to Water (DTW): 251.60
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type: YSI-356
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 256.28	

Purge Method: Disposable Bailer Positive Air Displacement Electric Submersible

Water: **2" Rediflo pump Dedicated**

Sampling Method: Disposable Bailer Extraction Pump Dedicated Tubing Other:

Flow Rate = 0.5gpm

Start Purge Date = 2/5/14 1050 Pump @ 265'

15.3 (Gals.) X 3 = 45.9 Gals.

1 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
1106	26.47	6.87	768	23	1.72	62.5	8	251.70
1122	26.21	6.84	764	16	2.28	73.5	16	251.70
1138	26.35	6.83	764	11	2.52	77.8	24	251.70
1154	26.11	6.82	763	5	2.65	82.6	32	251.70
1210	26.29	6.84	763	6	2.84	89.0	40	251.70
1226	26.38	6.81	764	6	2.72	84.3	48	251.70

Did well dewater? Yes No Gallons actually evacuated: 48

Sampling Date: 2-5-14 Sampling Time: 1230 Depth to Water: 251.70

Sample I.D.: MW-7 Laboratory: BC

Analyzed for: See COC Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): DUPE-5-1Q14 1240

FB I.D. (if applicable): @ Time Analyzed for:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140124-AW1	Site: JPL
Sampler: AW	Gauging Date: 2-6-14
Well I.D.: MW-8	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 205	Depth to Water (DTW): 177.32
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	Flow Cell Type <u>YSI-556</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 182.85	

Purge Method: Disposable Bailer Water 2" Rediflo Pump (Dedicated) Sampling Method: Disposable Bailer
 Positive Air Displacement Extraction Pump Extraction Port
 Electric Submersible Other _____ Dedicated Tying
 Other: _____

Flow Rate = 1.5 gpm
 Start Purge Date = 2-6-14 1016 Pump @ 195'

18.0 (Gals.) X	3	= 54 Gals.
I Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
1022	18.49	6.86	533	1	5.23	96.4	9	177.47
1028	18.59	6.82	542	1	5.14	95.7	18	177.47
1034	18.60	6.81	542	1	5.18	97.6	27	177.47
1040	18.55	6.80	542	1	5.16	100.3	36	177.47
1046	18.56	6.80	542	1	5.15	102.9	45	177.47
1052	18.56	6.80	541	1	5.17	104.2	54	177.47

Did well dewater? Yes No Gallons actually evacuated: 54

Sampling Date: 2-6-14 Sampling Time: 1055 Depth to Water: 177.47

Sample I.D.: MW-8 Laboratory: BC

Analyzed for: see COC Other: _____

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): DUPE-7-1314¹¹⁰⁵

FB I.D. (if applicable): @ Time Analyzed for: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: <u>140124-AW1</u>	Site: <u>JPL</u>
Sampler: <u>AW</u>	Gauging Date: <u>2-6-14</u>
Well I.D.: <u>MW-10</u>	Well Diameter: 2 3 <u>(4)</u> 6 8
Total Well Depth (TD): <u>155</u>	Depth to Water (DTW): <u>125.76</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	Flow Cell Type <u>YSI-556</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>131.60</u>	

Purge Method: Disposable Bailer Positive Air Displacement Electric Submersible

Watera 2" Rediflo pump (Dedicated) Extraction Pump

Other _____

Sampling Method: Disposable Bailer Extraction Port Dedicated Tubing

Other: _____

Flow Rate = 1.5 gpm

Start Purge Date = 2-6-14 1131 Pump @ 140'

<u>19.1</u> (Gals) X	<u>3</u>	<u>= 57.3</u> Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
<u>1138</u>	<u>20.56</u>	<u>6.55</u>	<u>1241</u>	<u>2</u>	<u>6.14</u>	<u>106.4</u>	<u>10.5</u>	<u>125.89</u>
<u>1144</u>	<u>20.57</u>	<u>6.53</u>	<u>1243</u>	<u>2</u>	<u>6.17</u>	<u>106.0</u>	<u>19.5</u>	<u>125.89</u>
<u>1151</u>	<u>20.59</u>	<u>6.52</u>	<u>1245</u>	<u>1</u>	<u>6.16</u>	<u>107.2</u>	<u>30</u>	<u>125.89</u>
<u>1157</u>	<u>20.57</u>	<u>6.51</u>	<u>1246</u>	<u>1</u>	<u>6.16</u>	<u>108.2</u>	<u>39</u>	<u>125.89</u>
<u>1204</u>	<u>20.61</u>	<u>6.51</u>	<u>1247</u>	<u>1</u>	<u>6.21</u>	<u>109.4</u>	<u>49.5</u>	<u>125.89</u>
<u>1210</u>	<u>20.59</u>	<u>6.51</u>	<u>1247</u>	<u>1</u>	<u>6.20</u>	<u>110.3</u>	<u>58.5</u>	<u>125.89</u>

Did well dewater? Yes (No) Gallons actually evacuated: 58.5

Sampling Date: 2-6-14 Sampling Time: 1215 Depth to Water: 125.89

Sample I.D.: MW-10 Laboratory: BC

Analyzed for: See COC Other: _____

EB I.D. (if applicable): _____ @ _____ Time Duplicate I.D. (if applicable): _____

FB I.D. (if applicable): _____ @ _____ Time Analyzed for: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140124-AW1	Site: JPL
Sampler: AW	Gauging Date: 2-5-14
Well I.D.: MW-13	Well Diameter: 2 3 4 6 8
Total Well Depth (TD): 235	Depth to Water (DTW): 219.56
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	Flow Cell Type: YSI-556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 222.64	

Purge Method: Disposable Bailer Positive Air Displacement Electric Submersible

Water: 2" Rediflo pump (Dedicated) Extraction Pump

Other: _____

Sampling Method: Disposable Bailer Extraction Port Dedicated Tubing

Other: _____

Flow Rate = 0.5 gpm

Start Purge Date = 2-5-14 0845

10.1 (Gals.) X	3	= 30.3 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
0857	24.68	6.62	1011	22	5.21	85.9	6	219.61
0907	26.17	6.62	1016	14	5.14	62.8	11	219.62
0917	26.13	6.61	1019	11	5.13	52.6	16	219.62
0927	26.10	6.59	1021	9	5.38	53.7	21	219.62
0937	25.78	6.59	1023	5	5.33	53.4	26	219.63
0947	25.59	6.57	1026	6	5.20	55.1	31	219.63

Did well dewater? Yes No Gallons actually evacuated: 31

Sampling Date: 2-5-14 Sampling Time: 0950 Depth to Water: 219.63

Sample I.D.: MW-13 Laboratory: BC

Analyzed for: See COC Other: _____

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): DUPE-4-1014 1000

FB I.D. (if applicable): @ Time Analyzed for: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140124-AW1	Site: JPL
Sampler: AW	Gauging Date: 2-5-14
Well I.D.: MW-15	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 74	Depth to Water (DTW): 33.34
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	Flow Cell Type: YSI-Pro Plus
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 41.47	

Purge Method: Disposable Bailer
 Positive Air Displacement
 Electric Submersible

Waters
 2" Rediflo pump (Dedicated)
 Extraction Pump
 Other _____

Sampling Method: Disposable Bailer
 Extraction Port
 Dedicated Tying
 Other _____

Flow Rate = 3 gpm
 Start Purge Date = 2-5-14 1307 Pump @ 54'

26.5 (Gals.) X	3	= 79.5 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.161

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
1312	17.34	6.95	516	1	0.21	94.9	15	33.34
1316	17.34	6.95	514	1	0.18	90.3	27	33.34
1321	17.32	6.95	515	1	0.19	87.3	42	33.34
1325	17.32	6.94	516	1	0.22	85.5	54	33.34
1330	17.32	6.94	516	1	0.39	82.5	69	33.34
1334	17.33	6.94	517	1	0.42	81.8	81	33.34

Did well dewater? Yes No Gallons actually evacuated: 81

Sampling Date: 2-5-14 Sampling Time: 1335 Depth to Water: 33.34

Sample I.D.: MW-15 Laboratory: BC

Analyzed for: See COC Other: _____

EB I.D. (if applicable): @ _____ Time Duplicate I.D. (if applicable): _____

FB I.D. (if applicable): @ _____ Time Analyzed for: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140124-AW1	Site: JPL
Sampler: AW	Gauging Date:
Well I.D.: MW-16	Well Diameter: 2 3 4 6 8
Total Well Depth (TD): 285	Depth to Water (DTW): 272.21
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type: YSI-556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: ~~Disposable Bailer~~ ~~Positive Air Displacement~~ ~~Electric Submersible~~ ~~Waterra 2" Rediflo pump~~ ~~Extraction Pump~~ ~~Other~~

Sampling Method: Disposable Bailer Extraction Port Dedicated Tubing Other:

Flow Rate= _____
 Start Purge Date= _____

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

(Gals.) X _____ = _____ Gals.
 1 Case Volume Specified Volumes Calculated Volume

Time	Temp (°)	pH	Cond. (mS or μS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
- DTW is below pump intake (20.5')								
- Sample collected w/ disp bailer								
1400	22.96	7.39	663	126	5.26	262	—	272.21

Did well dewater? Yes No Gallons actually evacuated: 0

Sampling Date: 2-5-14 Sampling Time: 1400 Depth to Water: 272.21

Sample I.D.: MW-16 Laboratory: BC

Analyzed for: See COC Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

FB I.D. (if applicable): @ Time Analyzed for:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-3
 SAMPLING DATE(S): 1-29-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 166.70'
 ATM. PRESSURE (PSI): (Start) 14.10 (Finish) 14.08
20.10" 19.70"

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: FMS2502
 PROJECT: JPL
 OPERATOR(S): A. Wolff
 WEATHER: Clear

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample			
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID	
1	1	✓	✓	✓	✓	✓	184.12	✓	182.20	✓	182.20	✓	184.12	22.5	467	8.25	90	6.81	120	1230	MW-3-4	
3	1	✓	✓	✓	✓	✓	91.06	✓	90.87	✓	90.89	✓	91.06	22.9	405	8.40	19	5.57	133	1310	MW-3-3	
	2	✓	✓	✓	✓	✓	90.56	✓	91.08	✓	91.64	✓	90.58									
2	1	✓	✓	✓	✓	✓	50.06	✓	55.54	✓				22.4	438	8.32	43	5.39	131	1400	MW-3-2	

Comments: DUPE-3-1Q14 @ Port 3
1320

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-4
 SAMPLING DATE(S) 1-27-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 131.13
 ATM. PRESSURE (PSI): (Start) 14.14 (Finish) 14.10
15.23 °C 16.11 °C

PROBE TYPE Sampler 0-500 psi
 SERIAL NO. EUS2502
 PROJECT: JPL
 OPERATOR(S) tab/dj
 WEATHER Clear

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample		
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
3	1	✓	✓	✓	✓	✓	100.71	✓	97.16	✓	97.16	✓	100.71	18.6	509	8.26	8	5.00	149	0900	MW-4-3
	2	✓	✓	✓	✓	✓	100.69	✓	97.10	✓	97.08	✓	100.69	21.4	10	8.01	5.71				
2	1	✓	✓	✓	✓	✓	62.87	✓	61.44	✓	61.44	✓	62.87	21.4	1021	8.01	15	5.71	177	1000	MW-4-2
1	1	✓	✓	✓	✓	✓	22.46	✓	26.17	✓	26.17	✓	22.47	19.1	503	8.00	35	5.48	140	1040	MW-4-1
	2	✓	✓	✓	✓	✓	22.02	✓	26.17	✓	26.17	✓	22.02								

Comments: TB-1-1/27/14 0700 SB-1-1/27/14 0800 EB-1-1/27/14 0815 DUP-1-1Q14 @ Port 3 0910 MS/MSD @ Port 1

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-11
 SAMPLING DATE(S): 1-28-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 178.54
 ATM. PRESSURE (PSI): (Start) 14.17 (Finish) 14.16
14.38°C 17.67°C

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: E-MS2502
 PROJECT: JPL
 OPERATOR(S): A. Wolff
 WEATHER: Clear

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample		
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
4	1	✓	✓	✓	✓	✓	166.54	✓	162.78	✓	162.72	✓	166.54	14.1	266	8.87	4	8.47	-69	0740	MW-11-4
3	1	✓	✓	✓	✓	✓	126.60	✓	119.90	✓	119.90	✓	126.60	14.7	394	8.40	6	7.32	72	0820	MW-11-3
2	1	✓	✓	✓	✓	✓	52.76	✓	50.90	✓	50.92	✓	52.76	15.3	464	8.36	3	6.56	89	0850	MW-11-2
1	1	✓	✓	✓	✓	✓	14.20	✓	25.16	✓	25.14	✓	14.20	16.5	489	8.17	2	6.51	128	0920	MW-11-1
	2	✓	✓	✓	✓	✓	14.20	✓	25.14	✓	25.14	✓	14.20								

Comments: TR-2-1/28/14 0645 EB-2-1/28/14 0700 Level IV @ Port 1

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-12
 SAMPLING DATE(S): 1-28-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 107.18'
 ATM. PRESSURE (PSI): (Start) 14.13 (Finish) 14.11
19.72°C 16.57°C

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS2502
 PROJECT: JPL
 OPERATOR(S): AW/DF
 WEATHER: Clear

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters						Sample	
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psf)	Shoe Out	Port Pressure (psf)	Open Valve	Port Pressure (psf)	Close Valve / Shoe In	Pressure in MP Casing (psf)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
5	1	✓	✓	✓	✓	✓	209.54	✓	166.94	✓	166.89	✓	209.54	17.4	434	8.36	2	7.21	19	1110	MW-12-5
4	1	✓	✓	✓	✓	✓	160.77	✓	132.94	✓	132.92	✓	160.78	17.3	472	8.30	3	10.22	37	1145	MW-12-4
3	1	✓	✓	✓	✓	✓	112.61	✓	87.03	✓	87.01	✓	112.61	17.2	420	8.43	2	6.86	-1	1215	MW-12-3
2	1	✓	✓	✓	✓	✓	76.66	✓	53.66	✓	53.61	✓	76.66	17.3	533	8.10	3	6.67	-8	1245	MW-12-2
	2	✓	✓	✓	✓	✓	75.60	✓	53.67	✓	53.62	✓	75.60								
1	1	✓	✓	✓	✓	✓	31.00	✓	15.51	✓	15.36	✓	31.00	17.2	452	8.36	5	5.86	140	1350	MW-12-1
	2	✓	✓	✓	✓	✓	31.01	✓	15.44	✓	15.27	✓	31.01								

Comments: Level II @ Port 5 + Port 1 MS/MSD @ Port 2

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-14
 SAMPLING DATE(S): 1-27-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 153.11
 ATM. PRESSURE (PSI): (Start) 14.10 (Finish) 14.06
22.53 18.95

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO: EMS 2502
 PROJECT: JPL
 OPERATOR(S): K. Wolff
 WEATHER: Clear

Port Number	Run Number	Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)						Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample		
		Probe to Top Collar	Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time
5	1	✓	✓	✓	✓	✓	186.02	✓	163.49	✓	163.49	✓	186.02	20.6	345	8.55	4	6.42	20	1150	MW-14-5
4	1	✓	✓	✓	✓	✓	149.40	✓	127.13	✓	127.14	✓	149.40	19.6	719	8.28	3	6.20	163	1220	MW-14-4
3	1	✓	✓	✓	✓	✓	118.13	✓	95.06	✓	95.06	✓	118.13	19.1	1112	8.15	4	6.27	194	1250	MW-14-3
2	1	✓	✓	✓	✓	✓	72.37	✓	49.31	✓	49.31	✓	72.37	18.9	1202	8.15	3	7.06	206	1320	MW-14-2
1	1	✓	✓	✓	✓	✓	40.72	✓	19.18	✓	19.20	✓	40.72	18.9	1193	7.70	2	6.15	193	1350	MW-14-1
	2	✓	✓	✓	✓	✓	40.73	✓	19.18	✓	19.17	✓	40.73								

Comments: Level IV @ Port 3 MS/MSD @ Port 1

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-17
 SAMPLING DATE(S): 2-4-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 205.77'
 ATM. PRESSURE (PSI): (Start) 14.07 (Finish) 14.06
10.42°C 10.00°C

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS2502
 PROJECT: JPL
 OPERATOR(S): A. White
 WEATHER: Clear

Port Number	Run Number	Probe to Top Collar					Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)						Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters						Sample	
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (to port)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psf)	Shoe Out	Port Pressure (psf)	Open Valve	Port Pressure (psf)	Close Valve / Shoe In	Pressure in MP Casing (psf)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID					
4	1	✓	✓	✓	✓	✓	179.60	✓	148.67	✓	148.67	✓	179.60	12.0	530	8.60	2	8.60	201	0800	MW-17-4					
3	1	✓	✓	✓	✓	✓	130.14	✓	104.17	✓	104.18	✓	130.14	13.0	571	8.45	2	6.67	216	0835	MW-17-3					
2	1	✓	✓	✓	✓	✓	86.94	✓	65.14	✓	65.11	✓	86.94	13.5	451	8.29	8	7.41	192	0910	MW-17-2					
	2	✓	✓	✓	✓	✓	86.94	✓	65.11	✓	65.12	✓	86.94													

Comments: TB-7-2/4/14 EB-7-2/4/14 MS/MSD @ Part 2
0700 0710

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-18
 SAMPLING DATE(S): 2-4-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 292.26
 ATM. PRESSURE (PSI): (Start) 14.06 (Finish) 14.04
16.33°C 16.29°C

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EM52502
 PROJECT: JPL
 OPERATOR(S): twiff
 WEATHER: Cloudy

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters						Sample	
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
5	1	✓	✓	✓	✓	✓	187.81	✓	181.12	✓	181.11	✓	187.87	17.1	313	8.83	2	7.61	111	1040	MW-18-5
4	1	✓	✓	✓	✓	✓	136.54	✓	129.57	✓	129.58	✓	136.54	17.5	386	8.59	9	6.56	37	1115	MW-18-4
3	1	✓	✓	✓	✓	✓	75.61	✓	73.71	✓	73.68	✓	75.61	16.4	494	8.60	2	7.69	17	1150	MW-18-3
2	1	✓	✓	✓	✓	✓	33.60	✓	34.62	✓	34.62	✓	33.60	16.3	429	8.34	8	7.44	162	1230	MW-18-2
	2	✓	✓	✓	✓	✓	33.12	✓	34.61	✓	34.61	✓	33.12								

Comments: MS/MSD @ Port 2

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-19
 SAMPLING DATE(S): 2-3-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 135.41
 ATM. PRESSURE (PSI): (Start) 14.04 (Fresh) 14.09
13.20°C 16.34°C

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL
 OPERATOR(S): twj/af
 WEATHER: Clear

Port Number	Run Number	Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)						Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample		
		Probe to Top Collar	Shoe Out/ Close Valve/ Check Vacuum	Open Valve/ Apply Vacuum (5 psi)	Close Valve/ Shoe In/ Arm In	Locate Port/ Arm Out/ Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve/ Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
5	1	✓	✓	✓	✓	✓	172.60	✓	135.69	✓	135.69	✓	172.60	13.1	625	8.40	3	6.17	191	0730	MW-19-5
4	1	✓	✓	✓	✓	✓	149.21	✓	112.47	✓	112.46	✓	149.20	13.9	625	8.19	2	6.95	195	0800	MW-19-4
3	1	✓	✓	✓	✓	✓	126.57	✓	98.24	✓	98.24	✓	126.58	14.9	584	8.23	2	5.85	235	0830	MW-19-3
2	1	✓	✓	✓	✓	✓	92.78	✓	64.46	✓	64.41	✓	92.78	14.0	1026	8.00	25	6.39	234	0900	MW-19-2
1	1	✓	✓	✓	✓	✓	61.68	✓	34.60	✓	34.60	✓	61.68	13.5	483	8.25	150	6.94	223	0930	MW-19-1

Comments: TR-6-2/3/14 EB-6-2/3/14
0645 0700

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-20
 SAMPLING DATE(S): 1-29-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 192.51
 ATM. PRESSURE (PSI): (Start) 14.16 (Finish) 14.12
14.97°C 18.30°C

PROBE TYPE: Sampler
 SERIAL NO.: EMS2902
 PROJECT: JPL
 OPERATOR(S): XWolff
 WEATHER: clear

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)					Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample	
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
5	1	✓	✓	✓	✓	✓	322.84	✓	308.29	✓	308.27	✓	322.84	14.5	289	9.23	2	8.75	-89	0800	MW-20-5
4	2	✓	✓	✓	✓	✓	236.20	✓	215.37	✓	215.30	✓	236.19	15.6	292	9.35	1	8.17	-111	0840	MW-20-4
3	3	✓	✓	✓	✓	✓	176.33	✓	155.89	✓	155.89	✓	176.33	16.5	328	9.39	3	6.61	-94	0920	MW-20-3
2	4	✓	✓	✓	✓	✓	162.41	✓	85.23	✓	85.25	✓	162.41	17.0	428	8.56	2	7.94	29	0950	MW-20-2
1	5	✓	✓	✓	✓	✓	31.68	✓	15.06	✓	14.98	✓	31.68	17.9	492	8.28	2	5.83	-17	1030	MW-20-1
	2	✓	✓	✓	✓	✓	31.87	✓	15.14	✓	15.08	✓	31.87								
	3	✓	✓	✓	✓	✓	32.07	✓	15.04	✓	14.94	✓	32.07								

Comments: TB-3-1/29/14 0700 EB-3-1/29/14 0730 DUPE-2-1/2/14 @ Port 1 1040

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-21
 SAMPLING DATE(S): 2-3-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 117.55
 ATM. PRESSURE (PSI): (Start) 14.11 (Finish) 14.06
14.25°C 14.06°C

PROBE TYPE: Sampler 0-500psi
 SERIAL NO: EM52502
 PROJECT: JPL
 OPERATOR(S): KWJ/FF
 WEATHER: Clear

Port Number	Run Number	Probe to Top Collar					Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)						Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample	
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID				
5	1	✓	✓	✓	✓	✓	129.42	✓	136.82	✓	136.83	✓	129.40	17.3	814	8.32	4	7.07	184	1040	MW-21-5				
4	1	✓	✓	✓	✓	✓	102.38	✓	109.96	✓	109.96	✓	102.38	19.6	790	8.37	4	6.70	233	1115	MW-21-4				
3	1	✓	✓	✓	✓	✓	72.28	✓	80.04	✓	8.06	✓	72.29	19.6	1214	8.25	3	6.28	245	1150	MW-21-3				
2	1	✓	✓	✓	✓	✓	37.77	✓	45.79	✓	45.79	✓	37.76	21.9	1362	8.24	1	7.88	245	1225	MW-21-2				
1	1	✓	✓	✓	✓	✓	14.14	✓	14.41	✓	14.44	✓	14.14	18.8	926	8.01	1	5.85	244	1320	MW-21-1				
	2	✓	✓	✓	✓	✓	14.11	✓	14.42	✓	14.43	✓	14.12												

Comments: _____

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-22
 SAMPLING DATE(S): 1-30-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 160.46
 ATM. PRESSURE (PSI): (Start) 14.02 (Finish) 14.06
16.29°C 19.33°C

PROBE TYPE: Sampler
 SERIAL NO.: E152502
 PROJECT: JPL
 OPERATOR(S): RWLP
 WEATHER: Overcast

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample		
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
3	1	✓	✓	✓	✓	✓	115.61	✓	92.23	✓	92.23	✓	115.61	15.3	548	8.60	5	6.64	138	0700	MW-22-3
2	1	✓	✓	✓	✓	✓	89.31	✓	66.01	✓	66.00	✓	89.32	15.6	641	8.40	1	7.33	175	0730	MW-22-2
1	1	✓	✓	✓	✓	✓	52.01	✓	29.27	✓	29.20	✓	52.01	15.9	1170	7.92	8	6.63	193	0800	MW-22-1
	2	✓	✓	✓	✓	✓	51.97	✓	29.26	✓	29.20	✓	51.97								

Comments: TR-4-1/30/14 0600 EB-4-1/30/14 0620

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-23
 SAMPLING DATE(S): 1-31-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 108.11
 ATM. PRESSURE (PSI): (Start) 14.05 (Finish) 14.07
13.77 13.82

PROBE TYPE: Sampler G-Sens psi
 SERIAL NO.: E.M.S 2502
 PROJECT: JPL
 OPERATOR(S): taloff
 WEATHER: Clear

Port Number	Run Number	Probe to Top Collar					Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)							Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample	
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (3 psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID					
4	1	✓	✓	✓	✓	✓	101.36	✓	139.44	✓	139.44	✓	101.36	16.4	359	8.47	3	6.39	52	0700	MW-23-4					
3	1	✓	✓	✓	✓	✓	107.40	✓	89.01	✓	89.01	✓	107.40	13.8	464	8.29	2	6.70	12	0730	MW-23-3					
2	1	✓	✓	✓	✓	✓	79.34	✓	60.76	✓	60.76	✓	79.34	14.3	1096	7.98	1	7.31	152	0800	MW-23-2					
1	1	✓	✓	✓	✓	✓	43.87	✓	26.98	✓	26.96	✓	43.87	15.3	1178	7.08	27	6.97	157	0830	MW-23-1					
	2	✓	✓	✓	✓	✓	43.89	✓	26.97	✓	26.76	✓	43.89													

Comments: TB-5-1/31/14 SB-2-1/31/14 EB-5-1/31/14 Level III @ Part 2
0620 0630 0640

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-24
 SAMPLING DATE(S): 1-31-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 209.21
 ATM. PRESSURE (PSI): (Start) 14.04 (Finish) 14.02

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO: EM52807
 PROJECT: JPL
 OPERATOR(S): AW/AT
 WEATHER: Clouds

14.14°C 74.03°C

Port Number	Run Number	Probe to Top Collar		Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample	
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (g psi)	Close Valve / Shoe In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time
4	1	✓	✓	✓	✓	✓	167.04	145.24	✓	145.24	✓	167.06	18.7	241	9.53	2	7.01	-110	0950	MW-24-4
3	1	✓	✓	✓	✓	✓	116.13	97.76	✓	97.77	✓	116.43	18.9	435	8.55	1	7.60	-62	1020	MW-24-3
2	1	✓	✓	✓	✓	✓	89.43	71.04	✓	71.03	✓	89.42	18.1	541	8.35	1	7.59	25	1050	MW-24-2
1	1	✓	✓	✓	✓	✓	48.09	31.54	✓	31.54	✓	48.07	20.1	334	7.95	11	5.64	56	1120	MW-24-1
	2	✓	✓	✓	✓	✓	48.10	31.54	✓	31.51	✓	48.10								

Comments: _____

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-26
 SAMPLING DATE(S): 1-30-14
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 70.90
 ATM. PRESSURE (PSI): (Start) 14.14 (Finish) 14.11
15.65°C 18.60°C

PROBE TYPE: Sampler 0-500psi
 SERIAL NO.: EMS2502
 PROJECT: JPL
 OPERATOR(S): Amalfi
 WEATHER: Overcast

Port Number	Run Number	Probe to Top Collar	Surface Function Tests / Position Sampler (probe in top of collar) / (lower probe to port)				Sample Collection Checks (probe at sampling port in MP casing)						Field Parameters					Sample			
		Arm out / Land Probe	Shoe Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (if psi)	Close Valve / Shoe in / Arm in	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoe Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoe in	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample ID
2	1	✓	✓	✓	✓	✓	79.86	✓	59.41	✓	59.44	✓	79.86	16.5	760	8.42	15	6.73	164	0915	MW-26-2
1	1	✓	✓	✓	✓	✓	44.00	✓	24.60	✓	24.61	✓	44.00	17.0	788	8.07	102	5.88	175	0945	MW-26-1
	2	✓	✓	✓	✓	✓	39.98	✓	24.63	✓	24.63	✓	39.98								

Comments:

MS/MSD @ Port 1

ATTACHMENT 5: WATER LEVEL MEASUREMENTS

This attachment contains water level measurements for the JPL relatively shallow standpipe monitoring wells (MW-1, MW-5 through MW-10, MW-13, MW-15, and MW-16) and the Westbay™ multiport wells (MW-3, MW-4, MW-11, MW-12, MW-14, and MW-17 through MW-26) obtained during the 1st Quarter 2014. Water level measurements were recorded before the sampling event on January 24, 2014 for the relatively shallow standpipe monitoring wells and for the Westbay™ multiport wells. Water level measurements were recorded after the sampling event on February 7, 2014 for the relatively shallow standpipe monitoring wells and the Westbay™ multiport wells. Water levels for the shallow wells were measured using a Solinst™ water level meter. In the deep multiport wells, the hydraulic head at each sampling port was measured with a Westbay™ MOSDAX sampling probe. Water level measurements were conducted by Blaine Tech Services, Inc.

WELL GAUGING DATA

Project # 140124-411 Date 1-24-14 Client TideWater

Site JPL

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	0946	4					29.54	Pump		
MW-5	1136	4					111.11			
MW-6	1346	4					212.77			
MW-7	1200	4					251.67			
MW-8	1223	4					177.27			
MW-9	0952	4					20.73			
MW-10	1129	4					124.97			
MW-13	0604	4					219.13			
MW-15	1228	4					33.51			
MW-16	0613	4					271.38	↓	↓	

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MCW-3
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1100.34
 WEATHER: Overcast

PROBE TYPE: Westbay
 SERIAL NO.: Ems 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A Wolff
 ATM. PRESSURE (Patm): (start) 14.19 (finish) 14.22
20.36°C 19.60°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	653	650	221.91	226.87	221.91	22.54	490.70	162.30	653	1014
4	558	556	180.64	185.86	180.64	22.56	396.04	161.96	558	1015
3	346	344	88.41	94.32	88.41	22.02	184.66	161.14	346	1016
2	252	250	47.51	56.10	47.51	21.54	96.69	155.31	252	1017
1	172	171	14.32	25.09	14.32	20.48	25.15	146.85	172	1018

Comments: Collar defect at 2" above port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-4
 DATE: 1-27-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1082.84'
 WEATHER: Clear

PROBE TYPE: Sampler B-500 psi
 SERIAL NO.: E152507
 PROJECT: JPL
 OPERATOR(S): FWJ/PT
 ATM. PRESSURE (Patm): (start) 14.14 (finish) 14.10
15.23°C 16.11°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	513	510	184.49	179.41	184.49	20.66	381.28	131.72	513	0845
4	392	390	131.62	127.72	131.62	21.18	262.03	129.97	392	0847
3	322	321	100.71	97.16	100.71	21.02	191.53	130.47	322	0849
2	240	240	63.53	61.44	63.53	20.33	109.12	130.88	240	0854
1	150	150	24.19	26.17	24.19	18.62	27.75	122.25	150	0856

Comments: Collar detect is 2' above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-11
 DATE: 1-28-14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1139.30'
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS2502
 PROJECT: JPL
 OPERATOR(S): Arnold
 ATM. PRESSURE (Patm): (start) 14.17 (finish) 14.16
14.38 °C 17.67 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	639	634	216.20	190.79	216.19	19.98	407.46	231.54	639	0725
4	524	520	166.54	162.78	166.54	20.66	342.84	181.16	524	0729
3	429	425	125.60	119.92	125.60	20.24	243.97	185.03	429	0732
2	259	257	51.84	50.40	51.84	18.76	83.58	175.42	259	0734
1	149	149	14.22	25.14	14.22	18.06	25.31	123.69	149	0737

Comments: Collar detect is 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-12
 DATE: 1-28-14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1102.14
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS2502
 PROJECT: JPL
 OPERATOR(S): AJW/FF
 ATM. PRESSURE (P_{atm}): (start) 14.13 (finish) 14.11
19.72°C 16.57°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-P _{atm})*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	548	545	209.54	166.94	209.54	21.33	352.53	195.47	548	1053
4	436	434	160.75	132.96	160.76	21.50	274.14	161.86	436	1058
3	323	322	111.53	87.06	111.53	20.13	168.25	154.75	323	1100
2	243	242	76.66	53.67	76.66	19.04	91.22	151.78	243	1102
1	140	140	31.64	15.53	31.64	18.07	3.23	136.77	140	1104

Comments: Collar detect is 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-14
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1173.47
 WEATHER: Overcast

PROBE TYPE: Westbay
 SERIAL NO.: FMS 7502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (Patm): (start) 14.14 (finish) 14.15
24.06 °C 20.08 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	540	539	184.16	168.02	184.16	22.37	355.00	185.00	540	1331
4	456	455	147.62	127.28	147.62	22.15	261.01	194.99	456	1332
3	382	381	115.42	95.13	115.42	21.61	186.84	195.16	382	1333
2	277	276	69.72	49.40	69.72	21.05	81.34	195.66	277	1334
1	207	206	39.21	19.18	39.21	20.55	11.63	195.37	207	1335

Comments: Collar detect at 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-17
 DATE: 2-4-14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1191.21'
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EM32502
 PROJECT: JPL
 OPERATOR(S): AW/AF
 ATM. PRESSURE (Patm): (start) 14.07 (finish) 14.06
10.42°C 16.00

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(R)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	726	723	241.97	208.70	241.97	18.21	449.01	276.99	726	0734
4	582	579	179.60	148.76	179.60	18.56	310.73	271.27	582	0738
3	468	467	130.18	104.19	130.18	18.12	207.91	260.09	468	0746
2	370	369	87.56	65.12	87.56	17.11	117.77	252.23	370	0748
1	250	249	35.34	15.76	35.34	15.98	3.90	246.10	250	0751

Comments: ~~FB 7/24/14~~ ~~EB 7/24/14~~ Collar defect is 6" above sample port
~~0700~~ ~~0710~~

**WESTBAY™ GRUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MLW-19
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1142.94
 WEATHER: Overcast

PROBE TYPE: Westbay
 SERIAL NO.: EMS 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A wolf
 ATM. PRESSURE (Patm): (start) 14.16 (finish) 14.19
19.10 °C 17.96 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(f) = (P2 - Patm) * 2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp - P(f)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	498	496	171.47	135.47	171.47	19.03	279.86	218.14	498	1035
4	444	442	148.21	112.20	148.21	19.08	226.18	217.82	444	1036
3	392	390	125.67	98.29	125.67	19.10	194.09	197.91	392	1037
2	314	312	91.71	64.49	91.71	19.14	116.11	197.89	314	1038
1	242	240	60.52	34.80	60.52	18.92	47.62	194.38	242	1039

Comments: Collar detect at 6" above port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-21
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1059.10
 WEATHER: Overcast

PROBE TYPE: Westbay
 SERIAL NO.: Ems 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A Witt
 ATM. PRESSURE (P_{atm}): (start) 14.20 (finish) 14.24
19.00°C 18.86°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P ₂ -P _{atm})*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P ₂	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	372	372	125.81	137.02	125.81	19.48	203.25 203.05	80.65	372	1056
4	310	310	98.81	110.17	98.81	19.71	221.40	88.60	310	1057
3	240	241	68.82	80.27	68.82	19.35	152.42	87.58	240	1059
2	161	162	34.44	46.02	34.44	19.03	73.41	87.59	161	1100
1	90	92	14.31	18.11	14.31	18.92	9.02	80.98	90	1101

Comments: Collar detect is 2' above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-22
 DATE: 1-30-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1176.98'
 WEATHER: Overcast

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS2802
 PROJECT: JPL
 OPERATOR(S): Wolff
 ATM. PRESSURE (P_{atm}): (start) 14.02 (finish) 16.29°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-P _{atm})*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	588	586	201.74	171.01	201.74	20.71	262.18	225.82	588	0644
4	467	465	150.21	121.61	150.21	21.37	248.21	218.79	467	0647
3	389	388	115.61	92.23	115.61	21.19	180.43	208.57	389	0650
2	329	328	89.49	66.00	89.49	20.84	119.92	209.08	329	0655
1	245	244	52.61	29.27	52.61	20.37	35.18	209.82	245	0657

Comments: Collar detect is 1' above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MLW-23
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1108.84
 WEATHER: Overcast

PROBE TYPE: Westbay
 SERIAL NO.: Ems 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (Patm): (start) 14.18 (finish) 14.29
19.99°C 20.30°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	542	540	202.69	181.42	202.69	20.82	365.82	156.18	542	1120
4	445	442	160.61	139.49	160.61	21.19	289.09	155.91	445	1121
3	319	317	106.11	89.10	106.11	21.12	172.84	146.16	319	1122
2	254	252	77.91	60.88	77.91	20.89	107.74	146.26	254	1123
1	174	172	43.14	27.21	43.14	20.57	30.06	143.94	174	1124

Comments: Collar detect is 1' above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-24
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1200.94
 WEATHER: Overcast

PROBE TYPE: Westbay
 SERIAL NO.: Ems 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (Patm): (start) 14.1 (finish) 14.16
22.26 °C 22.28 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(ft) = (P2 - Patm) * 2.307$ ft/psi)	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi inside Casing	kg/cm² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	678	674	220.11	194.44	220.11	22.28	416.02	261.98	678	1209
4	554	551	166.38	145.25	166.38	22.32	302.54	251.40	554	1210
3	435	432	114.97	97.65	114.97	22.14	192.73	242.27	435	1211
2	373	370	88.06	71.14	88.06	21.90	131.57	241.43	373	1212
1	279	276	47.31	31.76	47.31	22.13	40.72	238.20	279	1213

Comments: Collar detect at 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-25
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 934.53
 WEATHER: overcast

PROBE TYPE: EM500 Westbay
 SERIAL NO.: EM52502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (Patm): (start) 14.24 (finish) 14.27
20.40 °C 20.37 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	713	710	213.98	220.22	213.98	21.64	475.20	237.80	713	0830
4	633	631	177.32	186.42	177.32	21.75	397.22	235.78	633	0832
3	503	501	121.13	130.82	121.13	21.49	268.95	234.05	503	0833
2	423	422	86.41	96.24	86.41	21.19	189.17	233.83	423	0834
1	358	357	58.18	67.90	58.18	20.84	123.79	234.21	358	0835

Comments: Collar detect is 2' above (2) Sample port below

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MLW-26
 DATE: 1-24-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1059.08
 WEATHER: Overcast

PROBE TYPE: Westbay
 SERIAL NO.: EMS 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (P_{atm}): (start) 14.20 (finish) 14.22
 19.166 °C 19.10 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft) = (P2 - P _{atm}) * 2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
2	213	212	76.86	59.41	76.56	19.47	104.30	110.70	215	0849
1	135	132	41.70	24.84	41.70	19.30	24.55	110.45	135	0850

Comments: _____

WELL GAUGING DATA

Project # 140124-AW1

Date 2-7-14

Client Tidewater

Site JPL

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	0904	4					29.44	Pump		
MW-5	1200	4					111.36			
MW-6	0829	4					213.12			
MW-7	0736	4					251.50			
MW-8	0718	4					176.70			
MW-9	0909	4					20.60			
MW-10	1207	4					125.41			
MW-13	0723	4					219.61			
MW-15	0714	4					33.40			
MW-16	1149	4					272.21	↓	↓	

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-3
 DATE: 2/7/14
 LOCATION: SPL
 ELEV. TOP OF WASTBAY CASING: 1100.34
 WEATHER: Cloudy

PROBE TYPE: Sampler 0-800 psi
 SERIAL NO: EMS 2502
 PROJECT: SPL
 OPERATOR(S): A Wolff
 ATM. PRESSURE (Patm): (start) 14.18 (finish) 14.19
14.88°C 14.32°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ² O Inside Casing	Trans. Temp. (oC)				
5	653	651	221.08	220.58	221.08	17.68	490.01	162.99	653	0921
4	558	556	179.83	175.69	179.83	19.03	395.07	142.33	558	0922
3	346	345	87.61	94.53	87.61	19.77	185.37	160.63	346	0923
2	252	251	46.69	56.33	46.69	19.64	97.24	154.76	252	0924
1	172	171	14.30	25.19	14.30	19.01	25.40	146.60	172	0925

Comments: Collar detect at 2" above Sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-4
 DATE: 2-7-14
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING _____
 WEATHER: _____

PROBE TYPE _____
 SERIAL NO. _____
 PROJECT JPL
 OPERATOR(S) _____
 ATM. PRESSURE (Patm): (start) _____ (finish) _____

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(ft) = (P2 - Patm) * 2.307$ ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
	- Unable to access well due to JPL parking structure construction									

Comments: _____

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-11
 DATE: 2/7/14
 LOCATION: SPL
 ELEV. TOP OF WASTBAY CASING 1139.30
 WEATHER: Clear

PROBE TYPE Bumper 0-320 psi
 SERIAL NO. EMS 2502
 PROJECT SPL
 OPERATOR(S) A Wolfe
 ATM. PRESSURE (P_{atm}): (start) 14.11 (finish) 14.13
15.52°C 18.26°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-P _{atm})*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ² O Inside Casing	Trans. Temp. (°C)				
5	639	637	212.30	198.00	212.30	19.47	424.23	214.77	639	0700
4	524	522	162.71	163.99	162.71	20.06	345.77	178.23	524	0701
3	429	427	121.91	121.31	121.91	19.92	247.31	181.69	429	0702
2	259	257	48.32	51.10	48.32	19.44	85.34	173.66	259	0703
1	149	148	14.22	25.16	14.22	18.79	25.49	123.51	149	0704

Comments: Collar detect is 6" above sample port

**WESTBAY™ GRDUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-12
 DATE: 2-7-14
 LOCATION: _____
 ELEV. TOP OF WESTBAY CASING _____
 WEATHER: _____

PROBE TYPE _____
 SERIAL NO. _____
 PROJECT _____
 OPERATOR(S) _____
 ATM. PRESSURE (Patm): (start) _____ (finish) _____

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(f) = (P2 - Patm) * 2.307$ ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(f)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
	- Unable to access well due to JPL parking structure construction									

Comments: _____

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-14
 DATE: 2/7/14
 LOCATION: SPL
 ELEV. TOP OF WASTBAY CASING: 1173.47
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 PSI
 SERIAL NO.: Ems 2502
 PROJECT: SPL
 OPERATOR(S): A Wolff
 ATM. PRESSURE (Patm): (start) 14.10 (finish) 14.13
10.70 °C 19.07 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ² O Inside Casing	Trans. Temp. (oC)				
5	540	539	171.70	123.46	171.70	18.93	344.57	195.43	540	0815
4	456	455	135.14	127.12	135.14	19.44	260.73	195.26	456	0816
3	382	381	102.94	95.00	102.94	19.59	186.64	195.36	382	0817
2	277	276	57.19	49.27	57.19	19.46	81.14	195.86	277	0818
1	207	206	26.67	19.06	26.67	19.28	11.44	195.86	207	0819

Comments: Collar detect at 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-17
 DATE: 2/7/14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1191.21
 WEATHER: Cloudy

PROBE TYPE: Sampler 0-500 PSI
 SERIAL NO.: EMS 7502
 PROJECT: JPL
 OPERATOR(S): A Wolff
 ATM. PRESSURE (Patm): (start) 14.10 (finish) 14.18
16.56°C 16.40°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	776	724	240.48	208.81	240.48	17.83	449.20	276.80	726	0940
4	582	581	178.09	149.75	178.09	18.54	312.94	269.06	582	0941
3	468	467	128.64	105.80	128.64	18.00	211.55	256.45	468	0942
2	370	369	86.10	65.77	86.10	17.70	119.20	250.80	370	0943
1	250	249	33.94	15.77	33.94	16.83	385	246.15	250	0944

Comments: Collar detect is 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MLW-19
 DATE: 2/7/14
 LOCATION: SPL
 ELEV. TOP OF WASTBAY CASING: 1142.94
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: Ems 2502
 PROJECT: SPL
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (Patm): (start) 14.16 (finish) 14.17
15.56°C 17.26°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	498	496	171.53	136.19	171.53	16.64	281.52	216.48	498	0852
4	444	442	148.06	112.94	148.06	17.31	227.89	216.12	444	0853
3	392	390	125.56	98.68	125.56	17.72	194.99	197.01	392	0854
2	314	312	91.66	69.85	91.66	18.01	116.94	197.06	314	0855
1	242	241	60.44	34.82	60.44	18.03	47.66	194.34	242	0856

Comments: Collar defect at 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-20
 DATE: 2/7/14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1165.05
 WEATHER: Cloudy

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: FMS 2502
 PROJECT: JPL
 OPERATOR(S): A Wolff
 ATM. PRESSURE (Patm): (start) 14.10 (finish) 14.16
16.32°C 17.88°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(ft) = (P2 - Patm) \times 2.307$ ft/psi)	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	900	896	321.12	308.83	321.12	19.56	679.99	220.06	900	1021
4	700	696	234.13	216.53	234.13	21.03	467.01	232.00	700	1022
3	562	558	174.72	159.31	174.72	20.93	395.00	227.00	562	1023
2	392	389	100.90	86.43	100.90	19.86	166.87	225.13	392	1024
1	230	227	30.61	15.40	30.61	18.64	3.46	226.54	230	1025

Comments: Collar detect is 6" above sampling port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-21
 DATE: 2/7/14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1059.10
 WEATHER: Cloudy

PROBE TYPE: Sampler 0-800 PSI
 SERIAL NO.: EMS 2502
 PROJECT: JPL
 OPERATOR(S): A. Wolfe
 ATM. PRESSURE (Patm): (start) 14.16 (finish) 14.19
 19.10°C 18.25°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	372	371	126.02	136.88	126.02	19.44	283.12	88.88	372	1120
4	310	309	98.90	110.02	98.90	19.68	221.15	88.85	310	1121
3	240	240	68.81	80.11	68.81	19.61	152.15	87.85	240	1122
2	161	161	34.36	45.84	34.36	19.39	73.09	87.91	161	1123
1	90	89	14.27	14.46	14.27	19.07	0.69	89.31	90	1124

Comments: Collar defect is 2' above Sample Port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MLW-22
 DATE: 2/7/14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1176.98
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS 7502
 PROJECT: JPL Pasadena
 OPERATOR(S): A Wolff
 ATM. PRESSURE (Palm): (start) 14.07 (finish) 14.11
16.44 °C 19.93 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm² Outside Casing P2	mH₂O Inside Casing	Trans. Temp. (°C)				
5	588	587	200.21	171.82	200.21	19.27	363.43	224.07	588	0640
4	467	467	147.83	122.21	147.83	20.13	249.48	217.52	467	0641
3	389	389	114.06	92.35	114.06	20.42	180.59	208.41	389	0642
2	329	330	88.02	66.12	88.02	20.44	120.08	208.92	329	0643
1	245	245	51.16	29.31	51.16	20.25	75.16	209.89	245	0644

Comments: Collar detect is 1' above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-23
 DATE: 2/7/14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1108.84
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (Patm): (start) 14.13 (finish) 14.14
15.06°C 19.84°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(f) = (P2 - Patm) * 2.307$ ft/psi)	Depth to Water Outside Port (ft) DTW = Dp - P(f)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ² O Inside Casing	Trans. Temp. (°C)				
5	542	540	202.52	157.39	202.52	19.54	385.87	156.13	542	0614
4	445	442	160.61	139.53	160.61	19.82	289.30	155.70	445	0622
3	319	318	105.94	89.05	105.94	20.13	172.84	146.16	319	0623
2	254	253	77.76	60.80	77.76	20.15	107.67	146.33	254	0624
1	174	173	43.02	27.04	43.02	20.01	29.78	144.22	174	0625

Comments: Collar detect is 1' above sampler port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MW-24
 DATE: 2/7/14
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1200.94
 WEATHER: Clear

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL
 OPERATOR(S): A Wolff
 ATM. PRESSURE (Patm): (start) 14.07 (finish) 14.13
10.92°C 20.99°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	678	678	220.91	194.22	220.91	17.71	416.76	261.24	678	0753
4	554	552	166.43	145.40	166.43	19.06	302.98	251.02	554	0754
3	435	433	114.91	97.86	114.91	19.71	193.30	241.70	435	0755
2	373	371	87.92	71.12	87.92	20.04	131.61	241.39	373	0756
1	279	277	47.23	31.72	47.23	20.36	40.72	238.28	279	0757

Comments: Callor defect at 6" above sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

WELL ID: MLW-25
 DATE: 2/7/14
 LOCATION: SPL
 ELEV. TOP OF WASTBAY CASING: 934.53
 WEATHER: Cloudy

PROBE TYPE: Sampler 0-500
 SERIAL NO.: Ems 2502
 PROJECT: SPL
 OPERATOR(S): A Wolff
 ATM. PRESSURE (P_{atm}): (start) 14.25 (finish) 14.28
 18.06°C 19.96°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P ₂ -P _{atm})*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P ₂	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	713	710	211.93	220.31	211.93	19.76	475.38	237.62	713	1057
4	633	630	177.49	186.52	177.49	20.42	347.43	235.57	633	1058
3	503	500	121.17	130.92	121.17	20.58	269.16	233.84	503	1059
2	423	421	86.41	96.32	86.41	20.46	189.34	233.66	423	1100
1	358	356	58.22	68.01	58.22	20.30	124.02	233.98	358	1101

Comments: Collar defect is 2' below sample port

**WESTBAY™ GROUNDWATER MONITORING WELL
WATER LEVEL MEASUREMENT LOG SHEET**

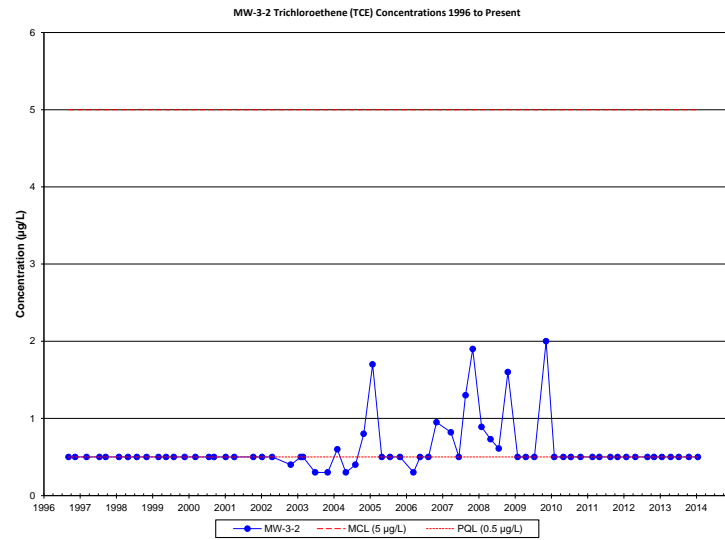
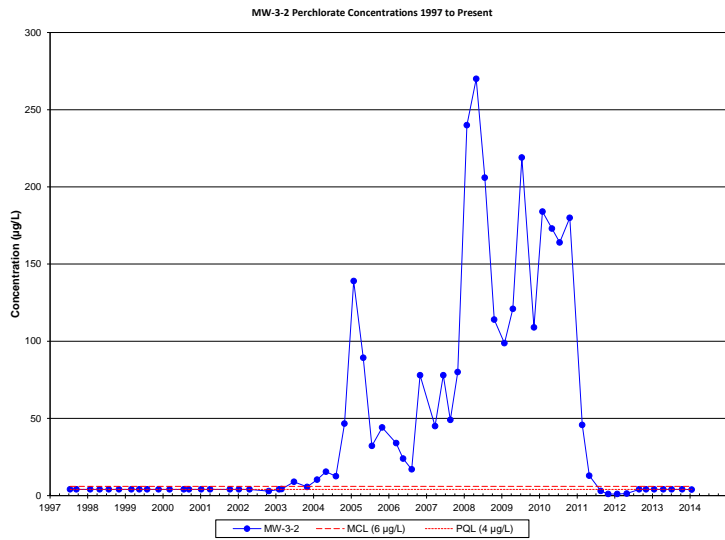
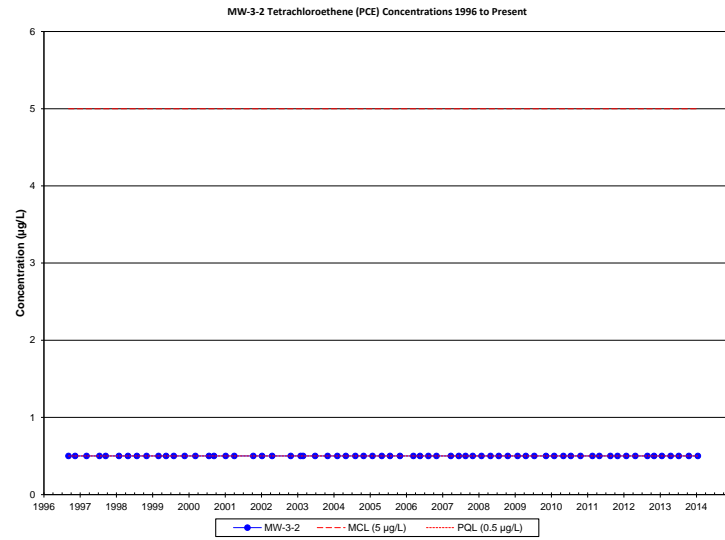
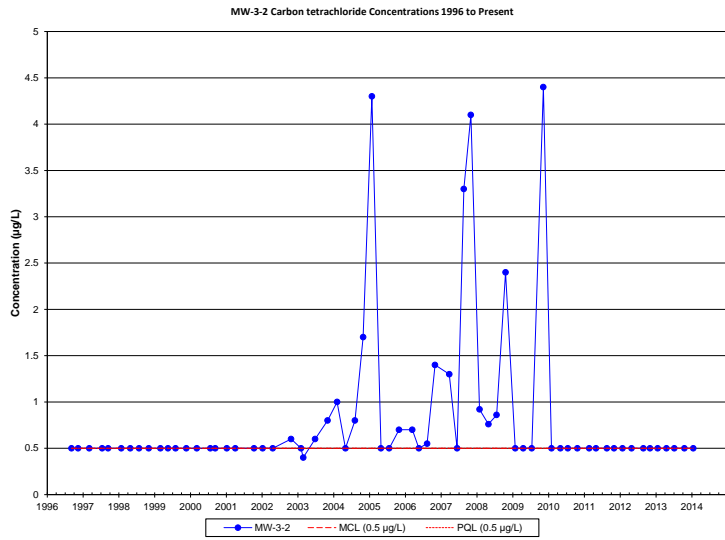
WELL ID: MW-26
 DATE: 2/7/14
 LOCATION: SPL
 ELEV. TOP OF WESTBAY CASING: 1059.08
 WEATHER: Cloudy

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: EMS 2502
 PROJECT: SPL
 OPERATOR(S): A. Wolff
 ATM. PRESSURE (Patm): (start) 14.19 (finish) 14.23
17.54 °C 18.08

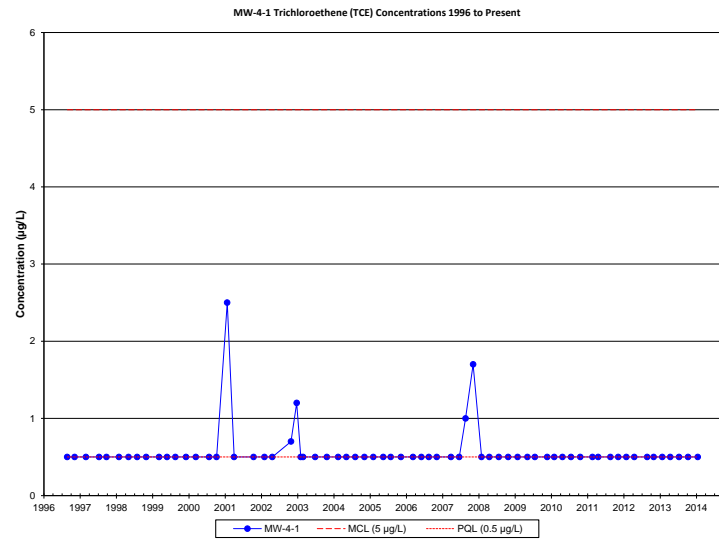
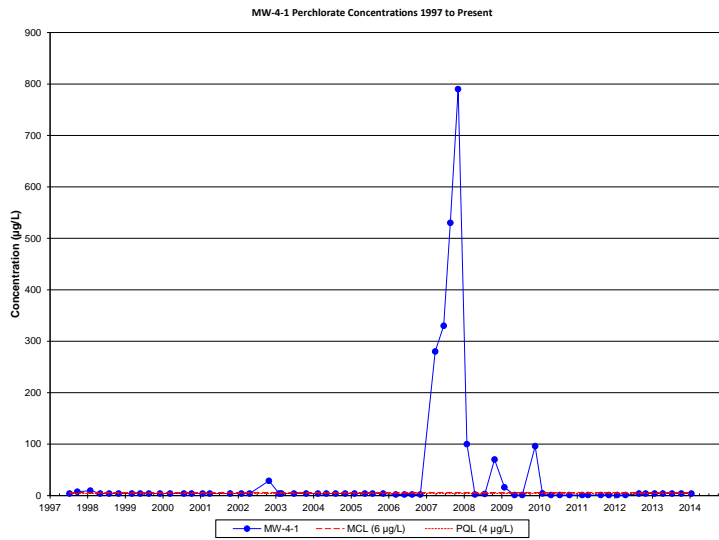
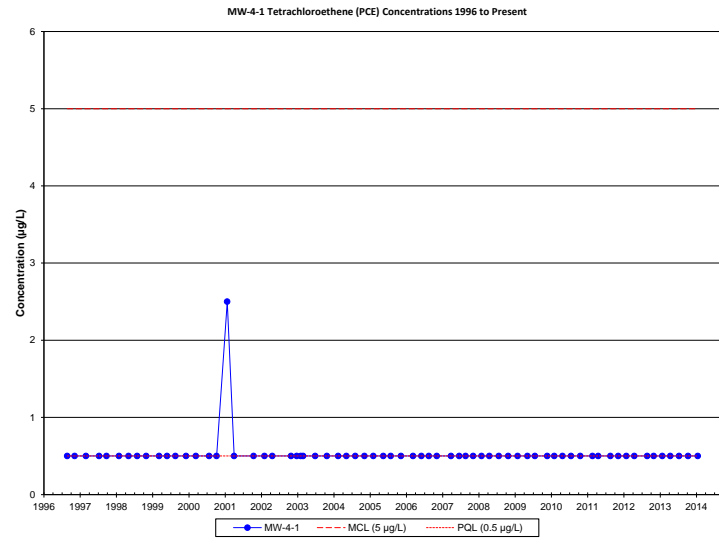
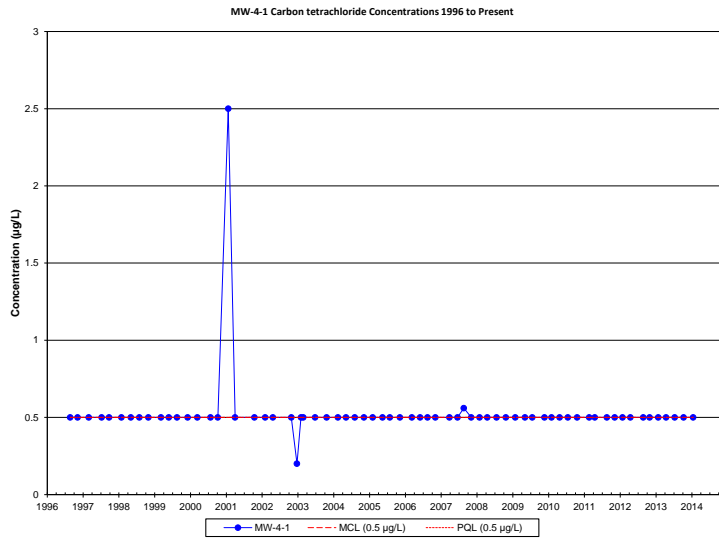
Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(f) = (P2 - Patm) * 2.307$ ft/psi	Depth to Water Outside Port (ft) $DTW = Dp - P(f)$	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mh ² O Inside Casing	Trans. Temp. (°C)				
2	215	212	76.36	59.43	76.36	17.52	104.37	110.63	215	1039
1	135	132	41.60	24.62	41.60	17.93	35.60	99.40	135	1040

Comments: _____

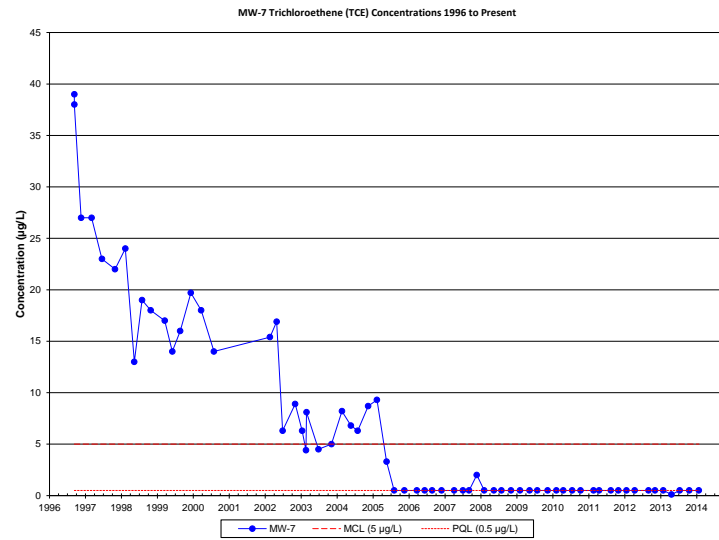
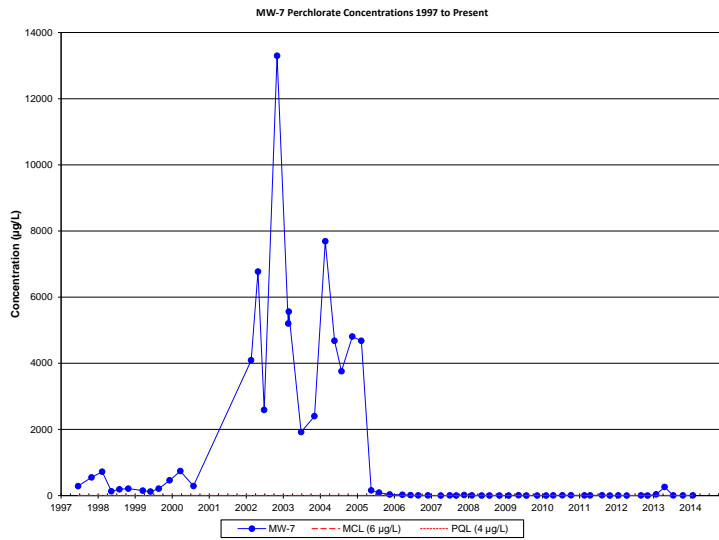
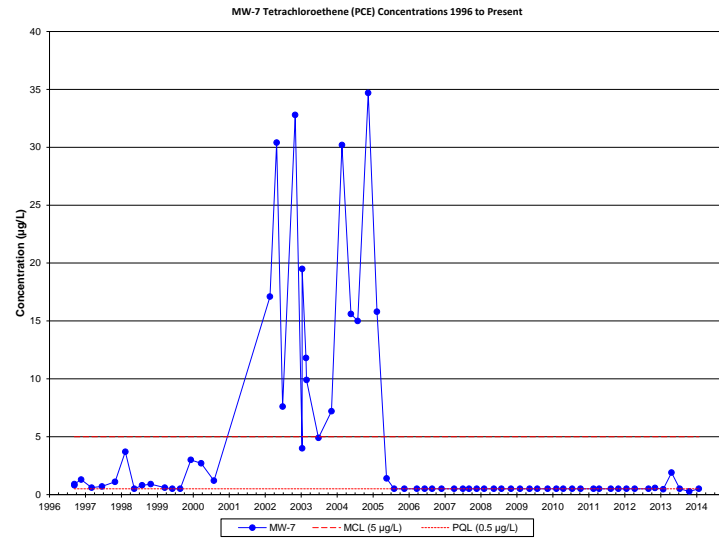
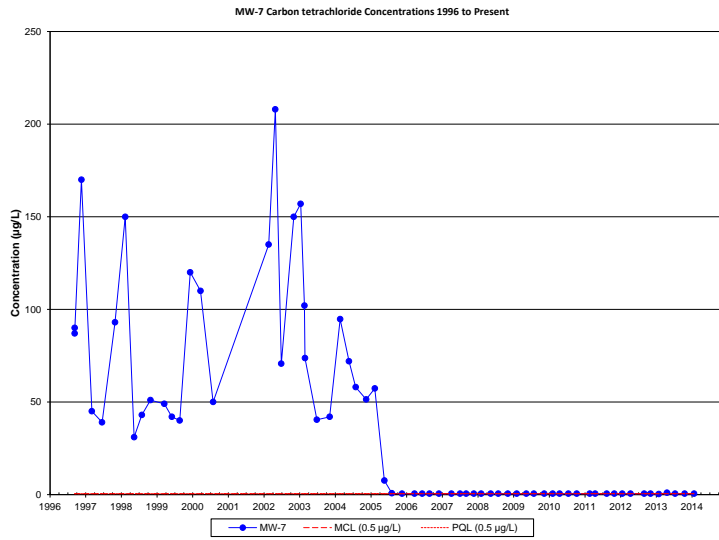
ATTACHMENT 6: TIME SERIES PLOTS



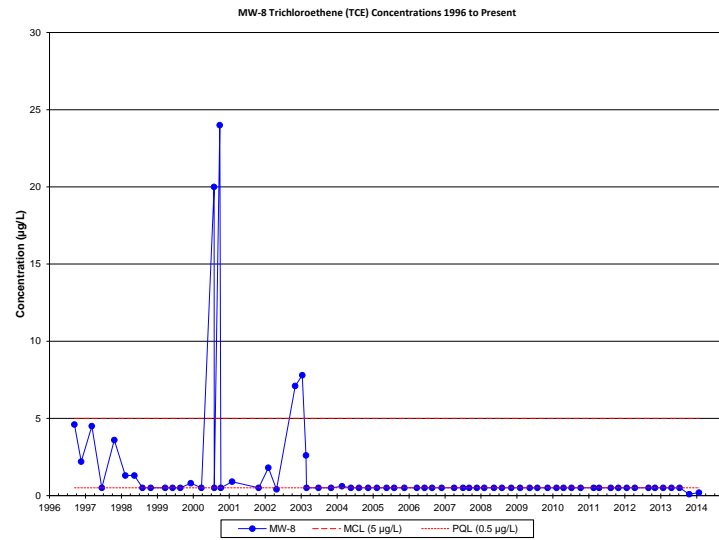
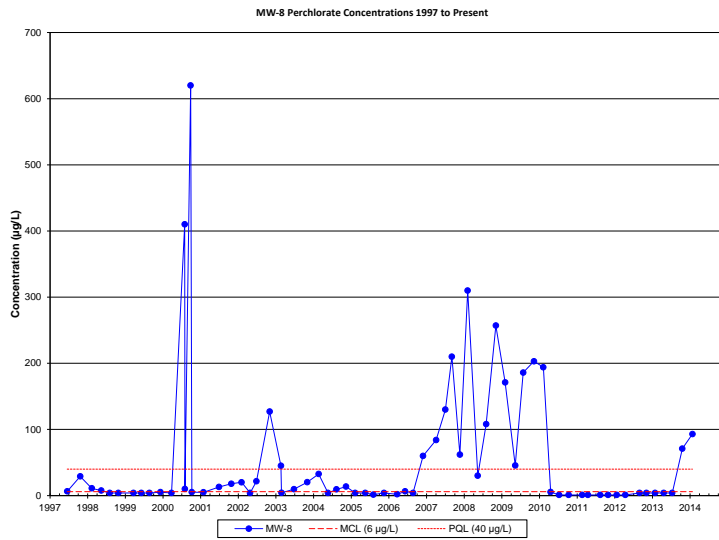
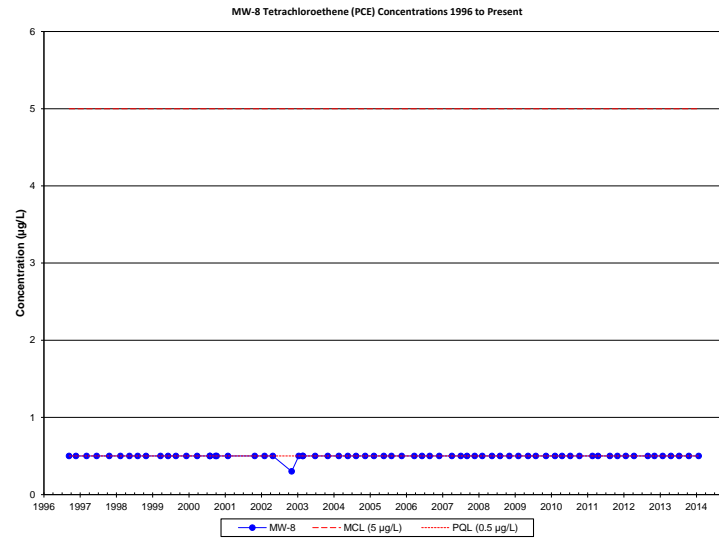
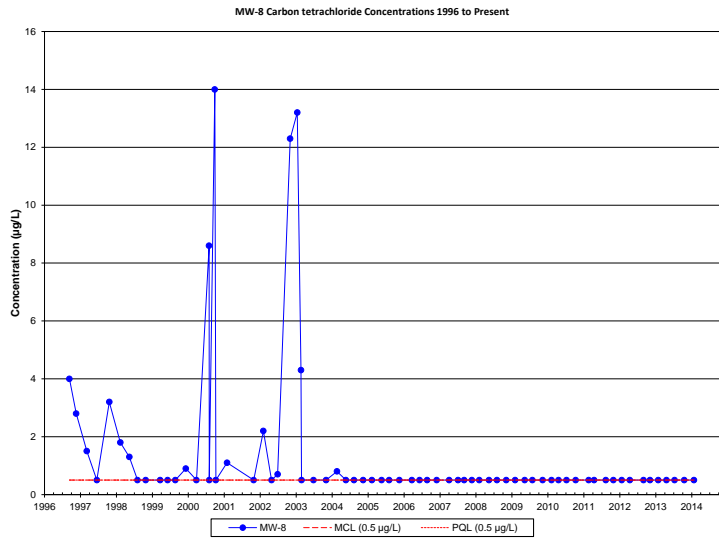
VOCs and Perchlorate Time Series Plots for MW-3-2



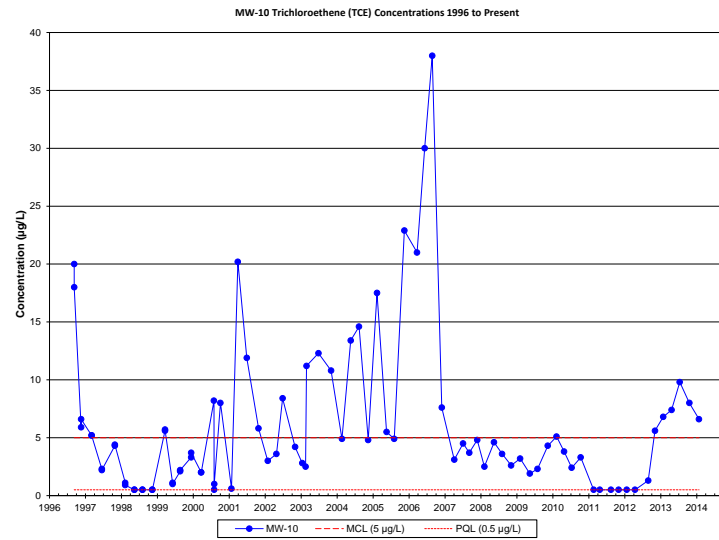
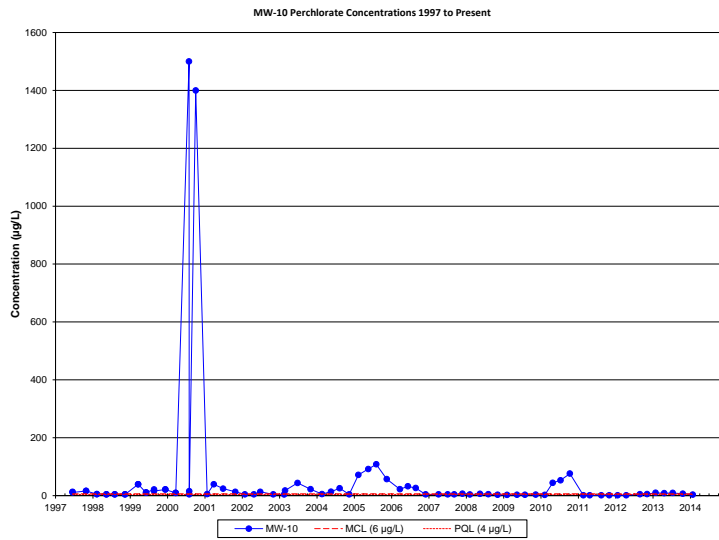
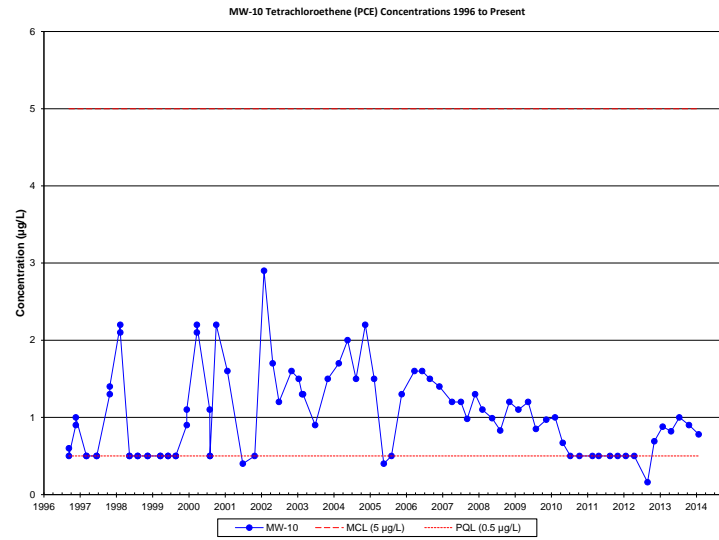
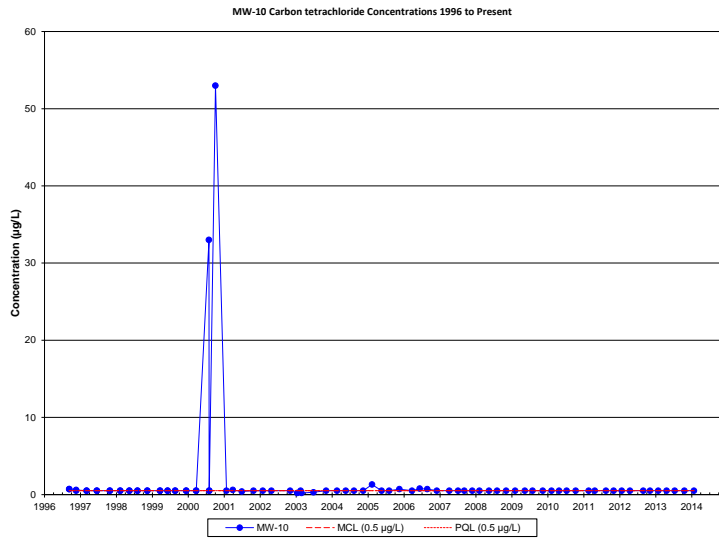
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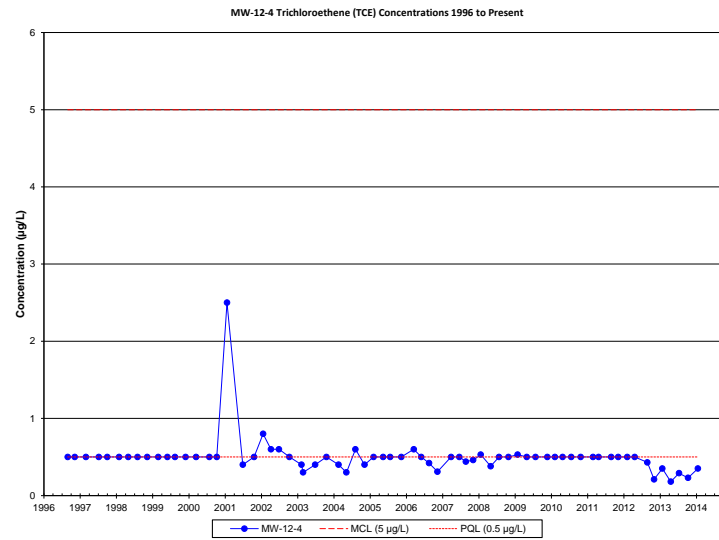
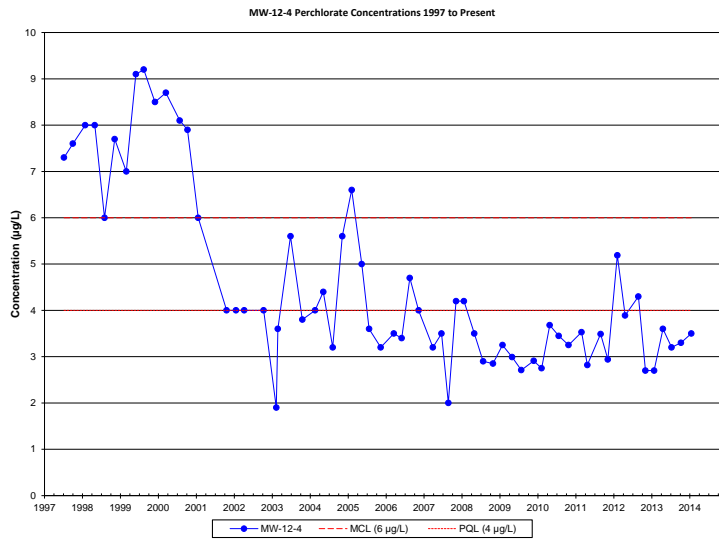
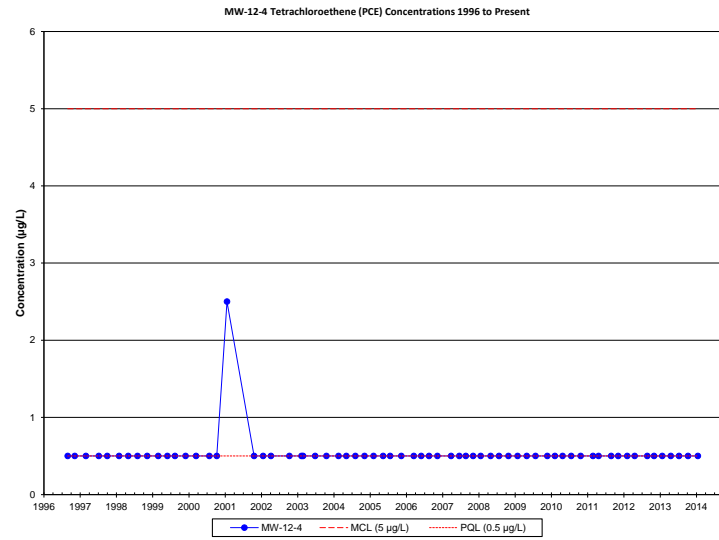
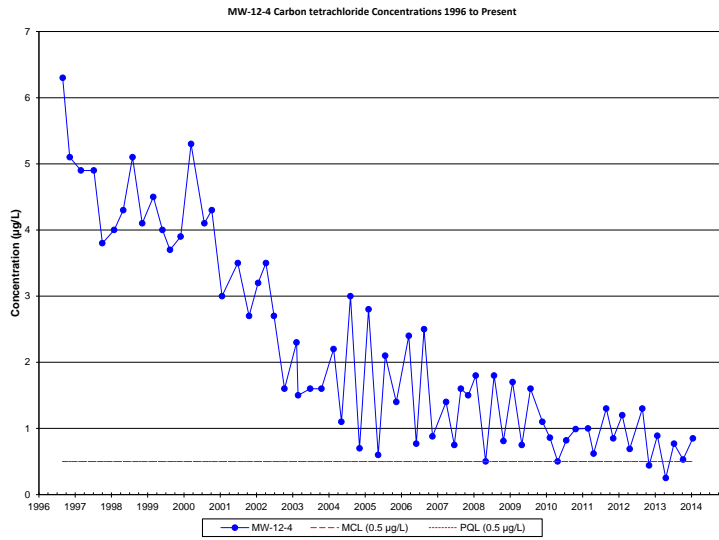
VOCs and Perchlorate Time Series Plots for MW-7



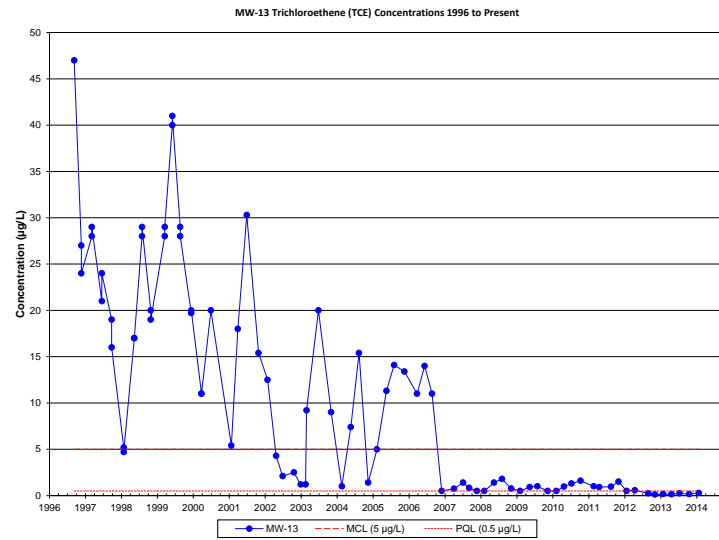
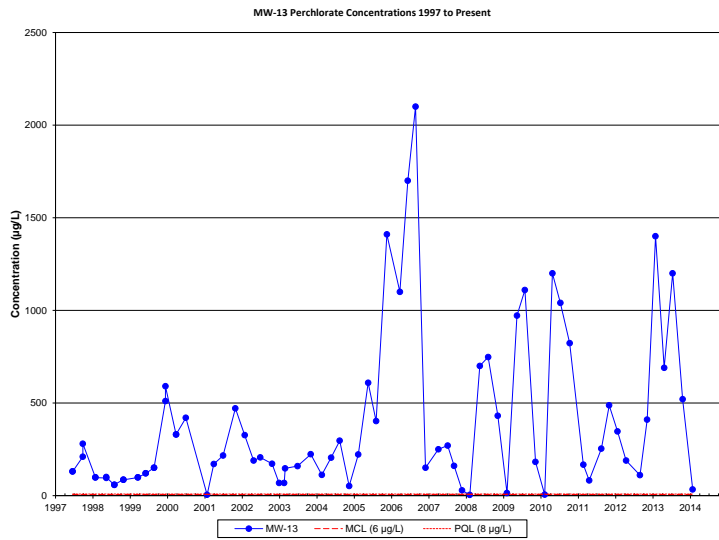
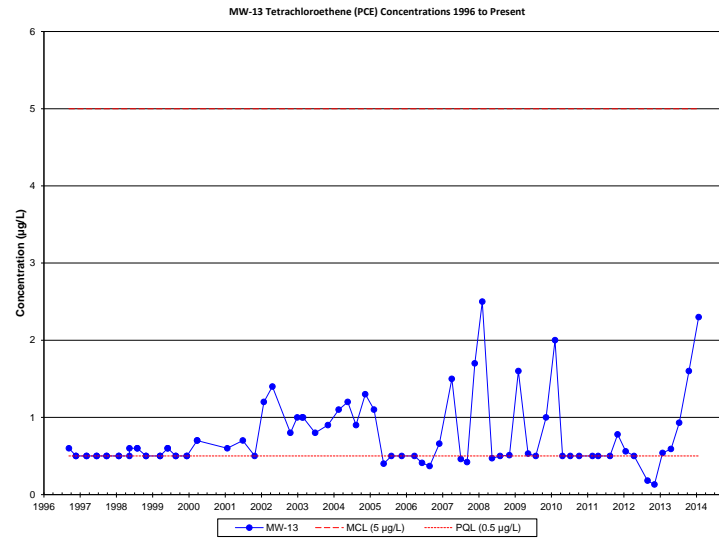
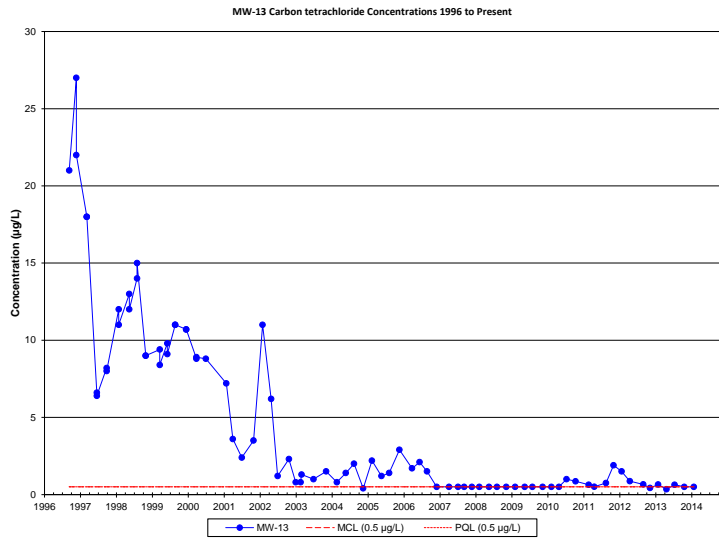
VOCs and Perchlorate Time Series Plots for MW-8



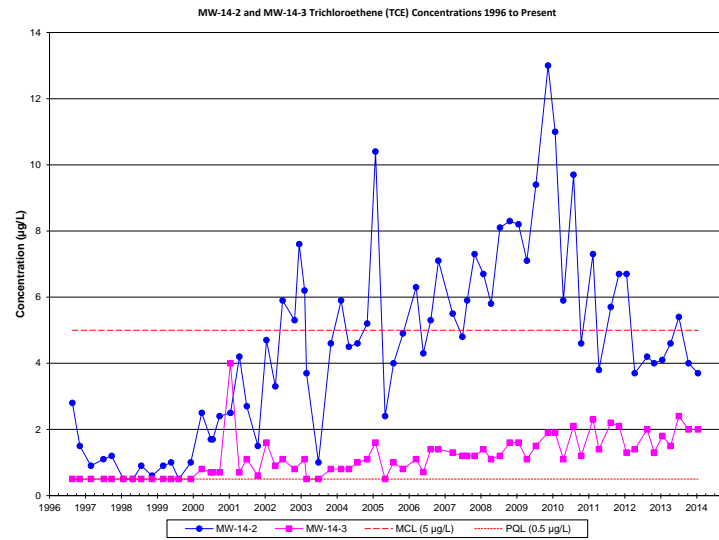
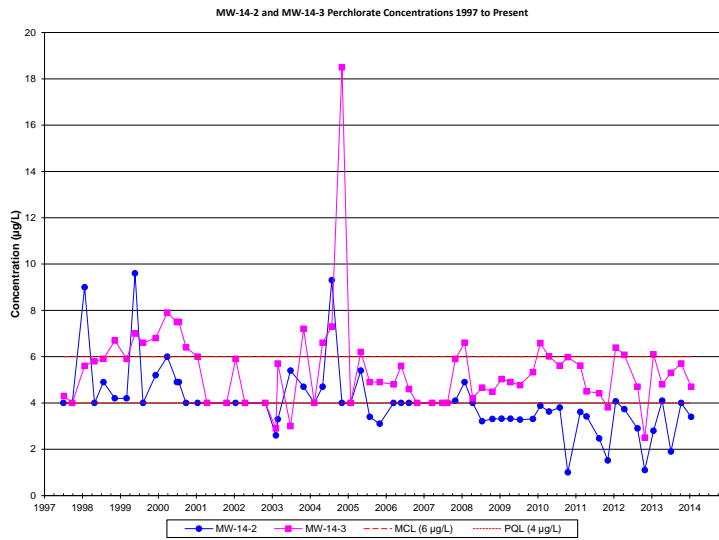
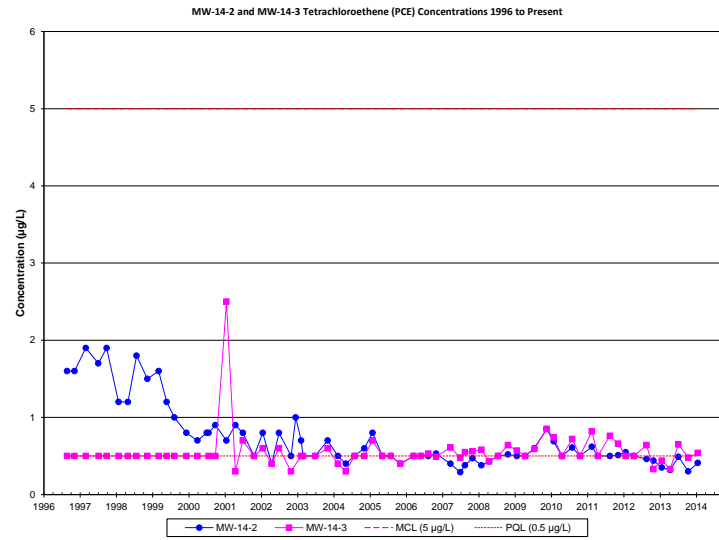
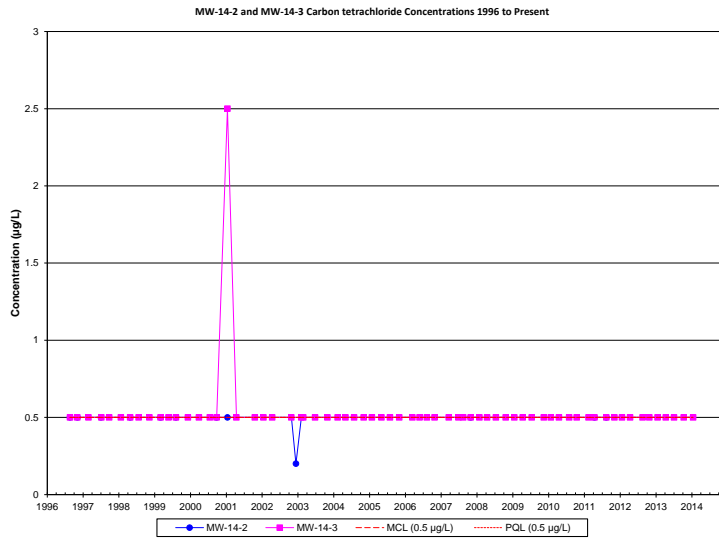
VOCs and Perchlorate Time Series Plots for MW-10



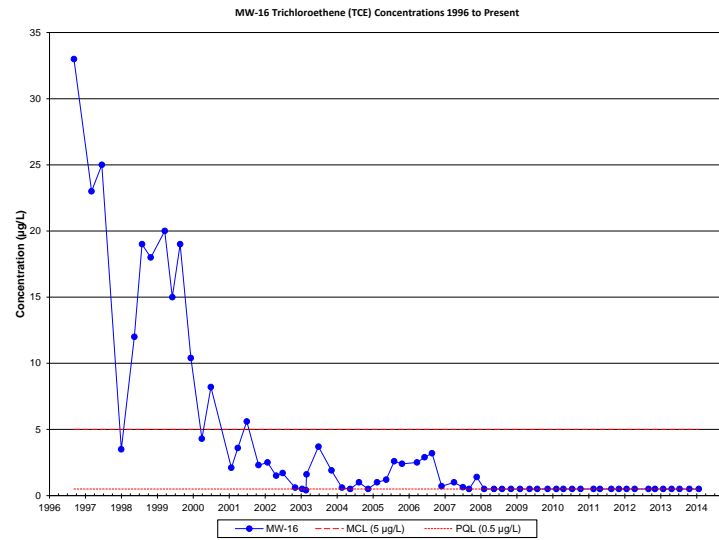
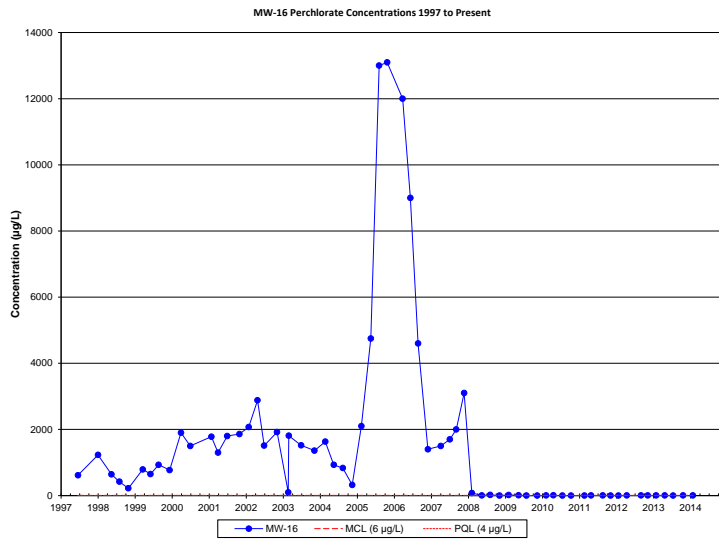
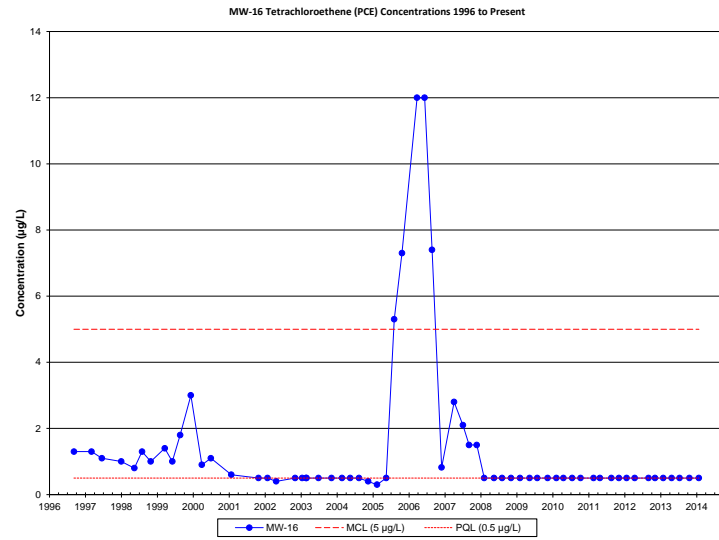
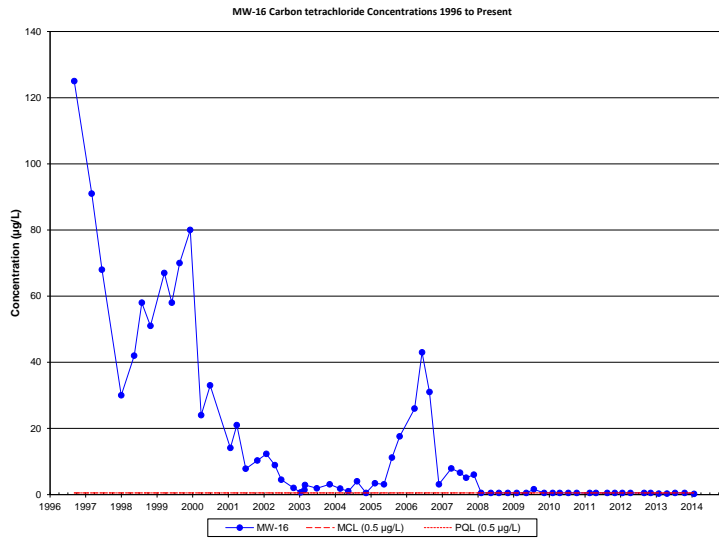
VOCs and Perchlorate Time Series Plots for MW-12-4



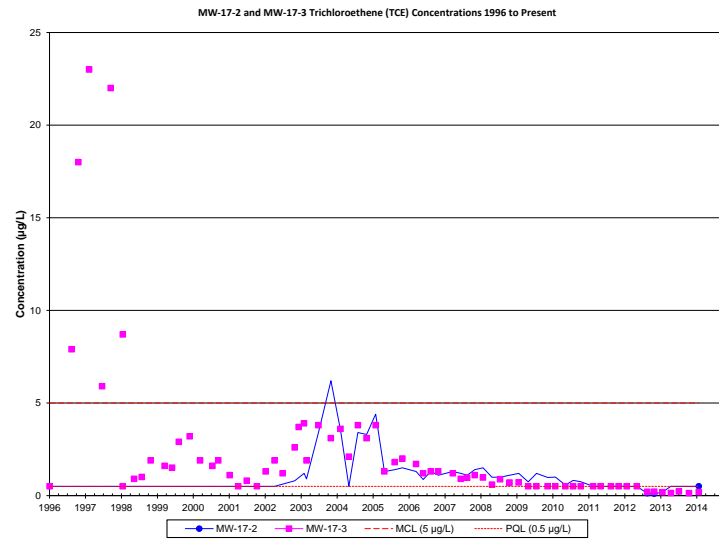
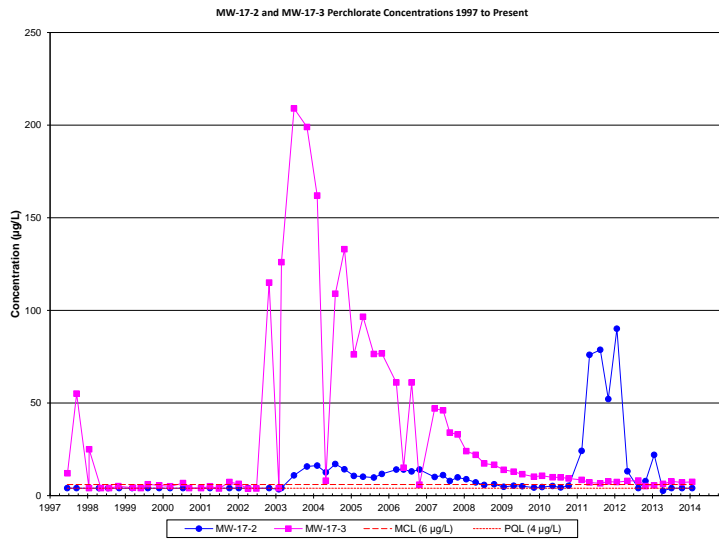
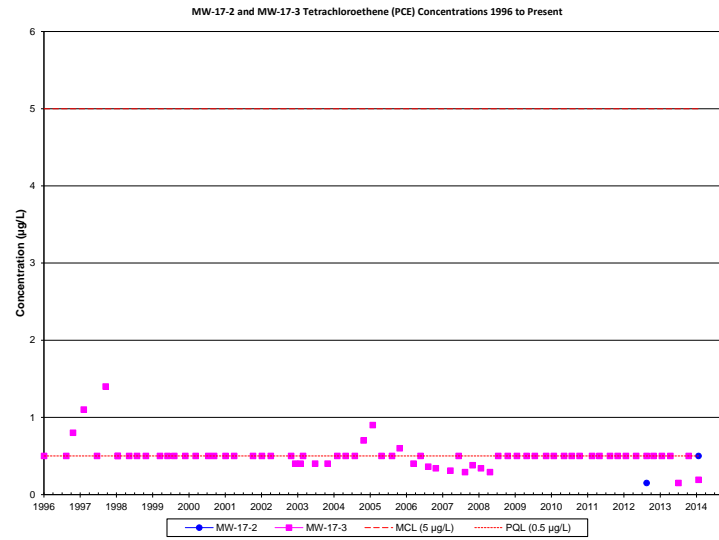
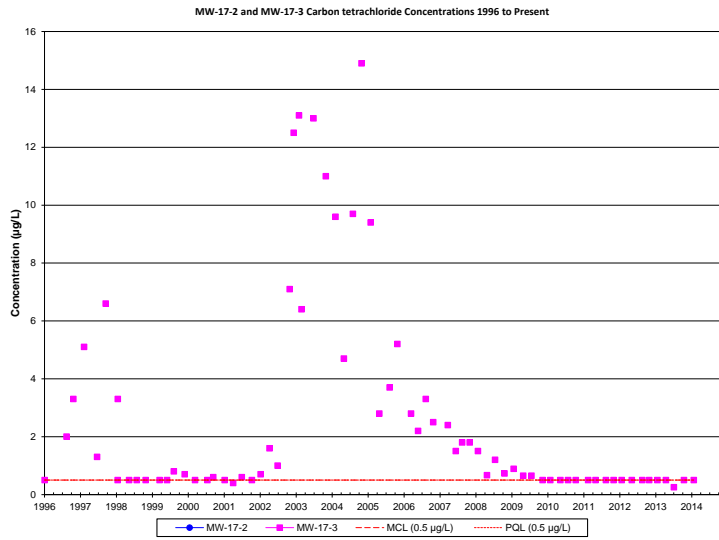
VOCs and Perchlorate Time Series Plots for MW-13



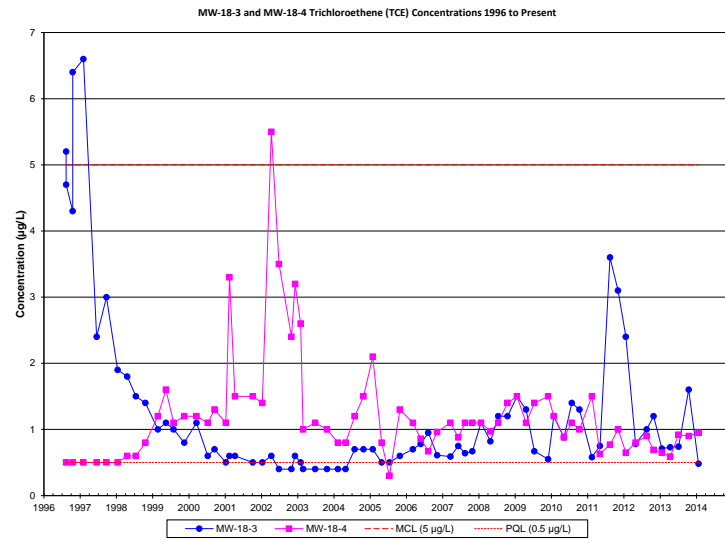
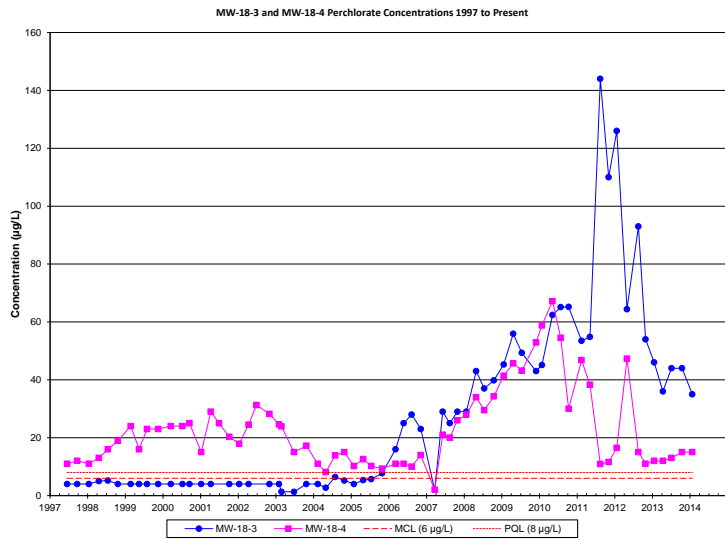
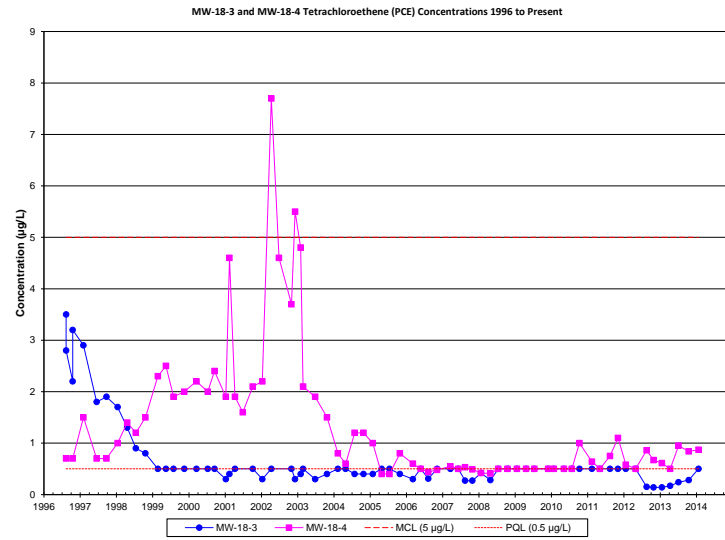
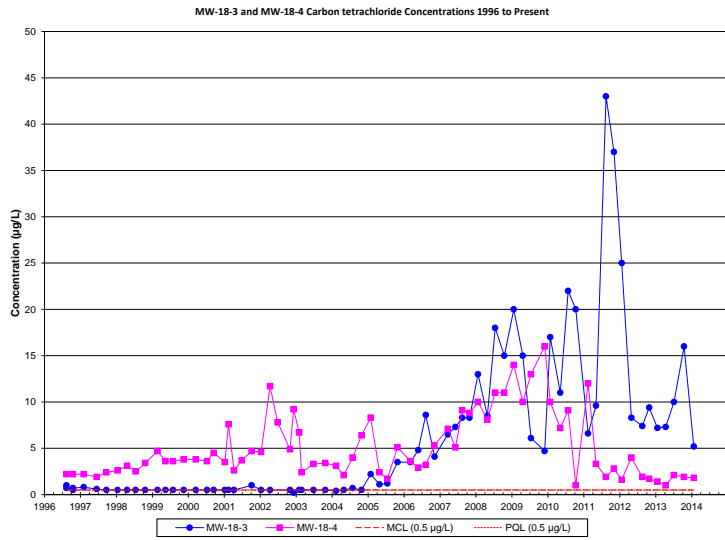
VOCs and Perchlorate Time Series Plots for MW-14-2 and MW-14-3



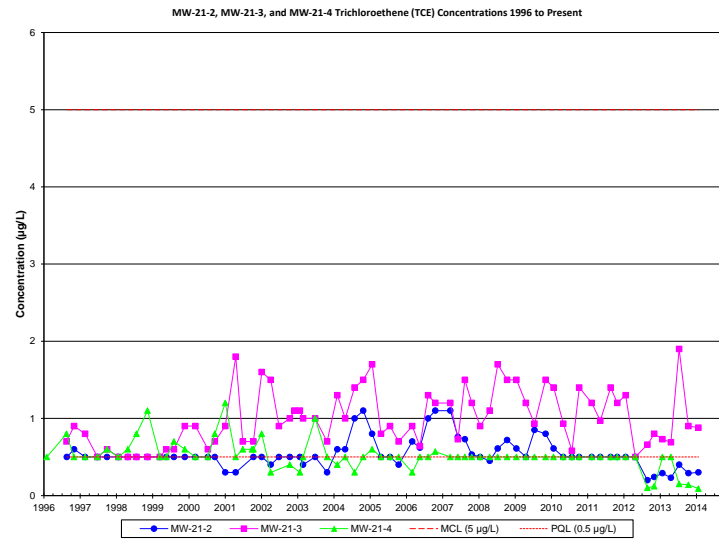
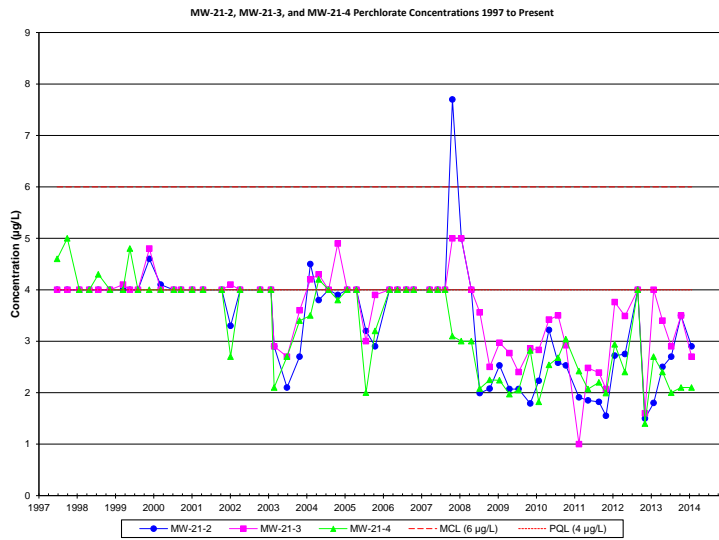
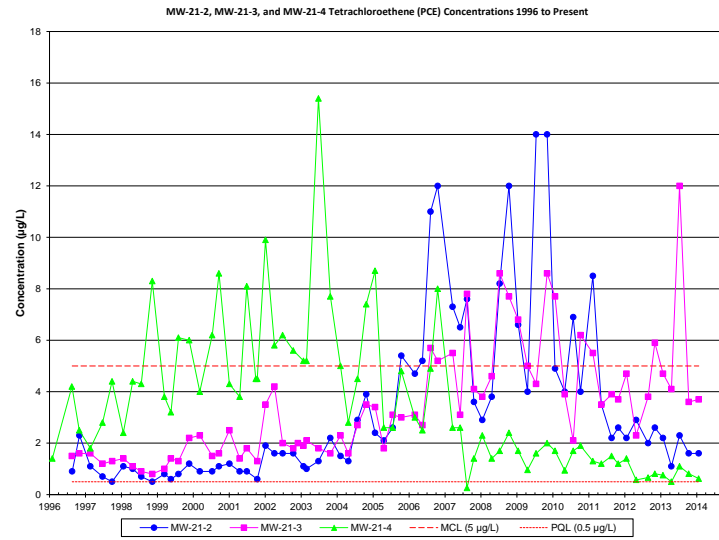
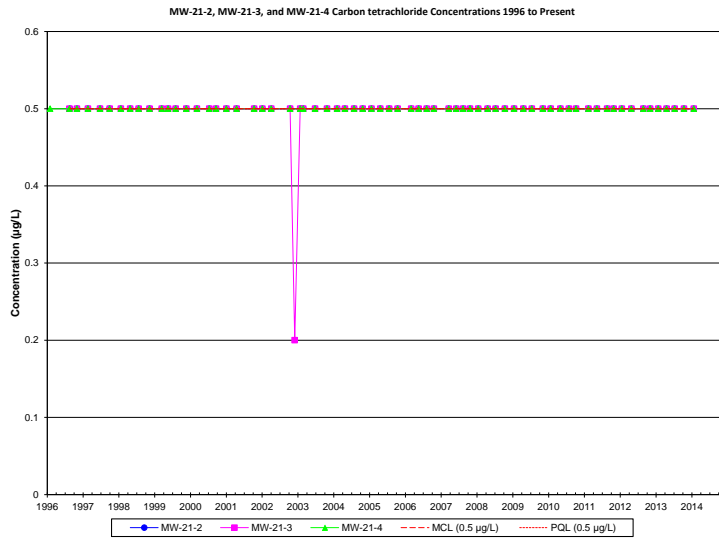
VOCs and Perchlorate Time Series Plots for MW-16



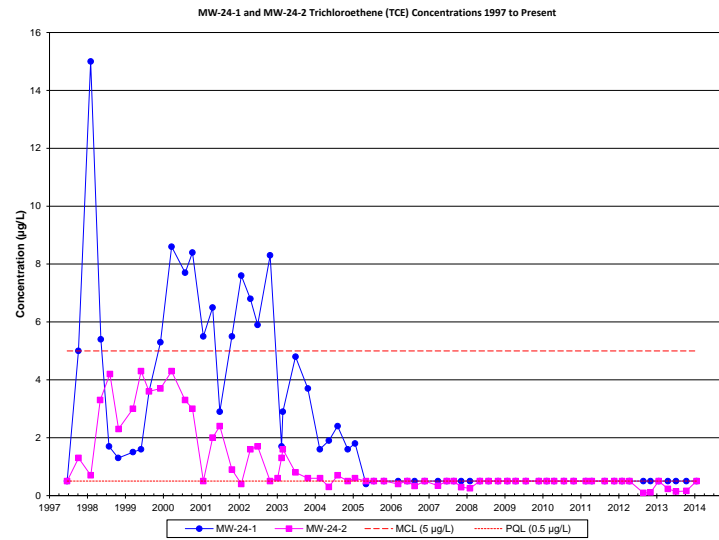
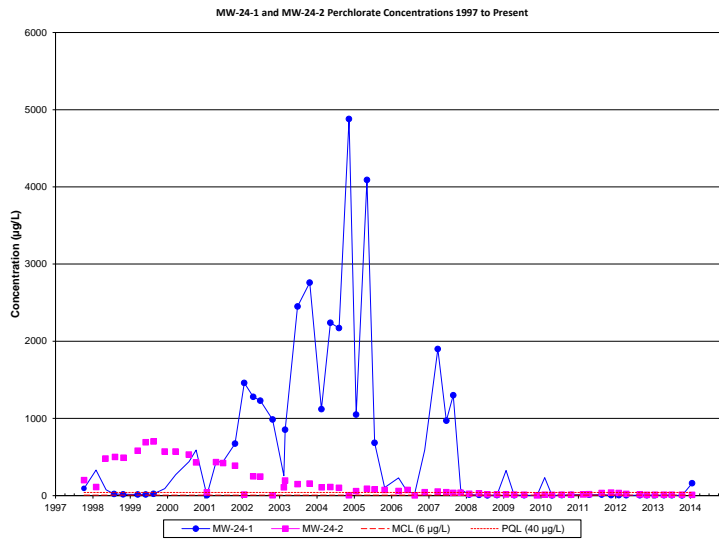
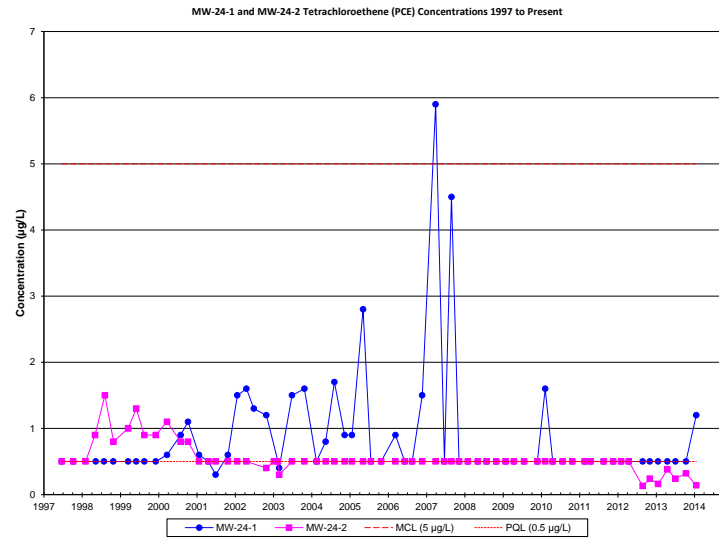
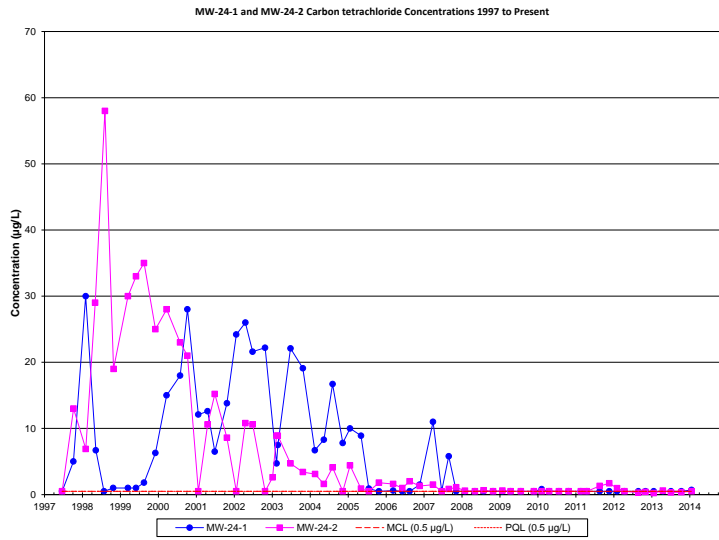
VOCs and Perchlorate Time Series Plots for MW-17-2 and MW-17-3



VOCs and Perchlorate Time Series Plots for MW-18-3 and MW-18-4



VOCs and Perchlorate Time Series Plots for MW-21-2 and MW-21-3 and MW-21-4



VOCs and Perchlorate Time Series Plots for MW-24-1 and MW-24-2