

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 first quarter 2015 sampling event was conducted by Blaine Tech Services, Inc.

WELL MONITORING DATA SHEET

Project #: <u>150130-AW1</u>	Site: <u>JPL, Pasadena</u>
Sampler: <u>HH</u>	Gauging Date: <u>01/30/15</u>
Well I.D.: <u>MW-5</u>	Well Diameter: 2 3 <u>(4)</u> 6 8
Total Well Depth (TD): <u>140.00</u>	Depth to Water (DTW): <u>112.49</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> <u>Grade</u>	Flow Cell Type <u>YSI Pro Plus</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>117.99</u>	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Watera
2" Rediflo pump Det.
Extraction Pump

Other _____

Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing

Other: _____

Flow Rate= 0.56 gpm @ 0950

Start Purge Date= 01/30/15 pump @ 125

<u>17.9</u> (Gals.) X	<u>3</u>	<u>= 53.7</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 μ S)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
1008	17.7	6.61	1019	6	5.91	129.6	9	112.61
1026	17.9	6.55	1014	4	5.80	124.5	18	112.62
1044	17.9	6.51	1016	3	5.73	121.7	27	112.62
1102	18.0	6.50	1018	3	5.69	120.1	36	112.62
1120	18.0	6.48	1019	3	5.65	117.4	45	112.62
1138	18.1	6.45	1023	3	5.60	115.8	54	112.62

Did well dewater? Yes No Gallons actually evacuated: 54

Sampling Date: 01/30/15 Sampling Time: 1139 Depth to Water: 112.62

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

Analyzed for: See C.O.C 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

**ms/msd*

WELL MONITORING DATA SHEET

Project #: <u>150130AW-1</u>	Site: <u>JPL, Pasadena</u>
Sampler: <u>HH</u>	Gauging Date: <u>01/30/15</u>
Well I.D.: <u>MW-6</u>	Well Diameter: 2 3 <u>(4)</u> 6 8
Total Well Depth (TD): <u>245</u>	Depth to Water (DTW): <u>220.94</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	Flow Cell Type <u>YSI Pro Plus</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>225.67</u>	

Purge Method: Water Sampling Method:

Disposable Bailer
 Positive Air Displacement
 Electric Submersible
 Other _____

2" Rediflo pump
 Extraction Pump
 Dedicated

Disposable Bailer
 Extraction Port
 Dedicated Tubing
 Other: _____

Flow Rate= 0.56 PM @ 0750

Start Purge Date= 01/30/15 pump @ 230'

<u>15.8</u> (Gals.) X	<u>3</u>	<u>=</u>	<u>47.4</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 μ S)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
0806	21.7	6.81	1226	29	5.72	82.4	8	221.36
0822	22.0	6.74	1235	14	5.60	77.5	16	221.39
0838	22.2	6.69	1239	9	5.52	75.1	24	221.40
0854	22.3	6.65	1241	8	5.50	73.4	32	221.40
0910	22.4	6.61	1244	8	5.46	72.8	40	221.40
0926	22.4	6.60	1242	7	5.41	70.6	48	221.40

Did well dewater? Yes No Gallons actually evacuated: 48

Sampling Date: 01/30/15 Sampling Time: 0927 Depth to Water: 221.40

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

Analyzed for: See COC Other: _____

EB I.D. (if applicable): _____ @ Time Duplicate I.D. (if applicable): DUP-4-1Q15 @ 0942

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 #: 150123-AW1	Site: JPL, Pasadena
Sampler: NV	Gauging Date: 1/23/15
Well I.D.: MW-7	Well Diameter: 2 3 (4) 6 8
Total Well Depth (TD): 268.54	Depth to Water (DTW): 256.80
Depth to Free Product: -	Thickness of Free Product (feet): -
Referenced to: PVC Grade	Flow Cell Type: YSI Pro +
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 259.14	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Waters
2" Rediflo pump Redicated
Extraction Pump
Other

11.74 Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing
Other:

Flow Rate = 0.5 GPM

Start Purge Date = 1/5/15

Pump @ 265'

7.6 (Gals.) X 3 = 22.8 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
1159	25.8	7.11	854	62	6.46	162.1	4.0	256.86
1207	26.2	7.13	855	57	6.57	155.2	8.0	256.88
1215	26.3	7.13	855	50	6.62	152.6	12.0	256.88
1223	26.4	7.15	854	42	6.61	151.4	16.0	256.88
1231	26.4	7.16	854	36	6.62	150.7	20.0	256.88
1237	26.4	7.16	854	34	6.57	149.9	23.0	256.88

Did well dewater? Yes No Gallons actually evacuated: 23.0

Sampling Date: 2/2/15 Sampling Time: 1238 Depth to Water: 256.88

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

Analyzed for: See CDC Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): DUP-7-1015 @ 1253

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 #: 150123-AW1	Site: JPL, Pasadena
Sampler: <i>nc</i>	Gauging Date: 1/23/15
Well I.D.: <i>MW-8</i>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 205	Depth to Water (DTW): 182.60
Depth to Free Product: -	Thickness of Free Product (feet): -
Referenced to: <u>PVC</u> Grade	Flow Cell Type <u>YSI Pro +</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 187.08	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Wattera
2" Rediflo pump *Orin*
Extraction Pump
Other _____

Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing

Flow Rate= 1 gpm

Start Purge Date= 2/2/15 *0848*

Pump @ 195'

14.6 (Gals.) X 3 = 43.8 Gals.
 1 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4" <i>22.40</i>	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
0855	19.8	6.53	788	3	5.53	50.7	7.5	183.04
0903	19.8	6.61	788	3	5.57	48.8	15.0	183.06
0910	19.8	6.61	787	4	5.58	47.4	22.5	183.06
0918	19.8	6.61	787	3	5.57	46.5	30.0	183.06
0925	19.8	6.61	787	3	5.57	44.4	37.5	183.06
0932	19.8	6.61	787	3	5.57	44.0	44.0	183.06

Did well dewater? Yes No Gallons actually evacuated: 44.0

Sampling Date: 2/2/15 Sampling Time: 0933 Depth to Water: 183.06

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

Analyzed for: See coc (MS/MSD) 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 #: 150123-AW1	Site: JPL, Pasadena
Sampler: NK	Gauging Date: 1/23/15
Well I.D.: MW-10	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 155	Depth to Water (DTW): 129.87
Depth to Free Product: -	Thickness of Free Product (feet): -
Referenced to: <u>PVC</u> Grade	Flow Cell Type: <u>181 Pro +</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

Flow Rate = 1 G.P.M.

Start Purge Date = 2/2/15 10:03 Pump @ 140'

16.3 (Gals.) X 3 = 48.9 Gals.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4" 25.13</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4" 25.13	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4" 25.13	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														
1 Case Volume	Specified Volumes	Calculated Volume															

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
1012	21.0	6.53	1392	2.1	7.55	130.2	8.5	130.05
1020	21.1	6.54	1394	1.6	7.56	125.7	17.0	130.06
1029	21.2	6.54	1394	1.7	7.56	124.4	25.5	130.06
1037	21.2	6.54	1393	1.6	7.60	125.2	34.0	130.06
1045	21.2	6.54	1393	1.4	7.64	124.7	42.0	130.06
1052	21.2	6.54	1390	1.2	7.60	124.1	49.0	130.04

Did well dewater? Yes No Gallons actually evacuated: 49.0

Sampling Date: 2/2/15 Sampling Time: 1053 Depth to Water: 130.06

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

Analyzed for: See CAC 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 #: 150123-AW1	Site: JPL, Pasadena
Sampler: NK	Gauging Date: 1/23/15
Well I.D.: MW-10	Well Diameter: 2 3 (4) 6 8
Total Well Depth (TD): 155	Depth to Water (DTW): 129.87
Depth to Free Product: -	Thickness of Free Product (feet): -
Referenced to: PVC Grade	Flow Cell Type: Pro +
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

Flow Rate = 1.5 gpm

Start Purge Date = 2/4/15 1438

Pump # 140

16.3 (Gals.)	X	3	=	48.9	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
1443	21.9	6.59	1363	4.1	7.43	140.1	8	130.25
1449	21.4	6.65	1365	1.6	7.48	126.9	16.5	130.30
1454	21.3	6.64	1362	1.6	7.49	125.7	24.5	130.32
1500	21.3	6.64	1360	1.5	7.51	124.5	33.0	130.32
1505	21.3	6.64	1358	1.5	7.53	123.8	41.0	130.32
1510	21.3	6.64	1354	1.3	7.54	123.2	49.0	130.32

Did well dewater? Yes No Gallons actually evacuated: 49.0

Sampling Date: 2/4/15 Sampling Time: 1511 Depth to Water: 130.32

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 #: 150123-AW1	Site: JPL, Pasadena
Sampler: NK	Gauging Date: 2/2/15
Well I.D.: MW-13	Well Diameter: 2 3 (4) 6 8
Total Well Depth (TD): 234.00	Depth to Water (DTW): 226.60
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type: YSI Pro Plus
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

Flow Rate = _____
 Start Purge Date = _____

_____ (Gals.) X _____ = _____ 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
—	Inefficient		water	to	purge	w/	portable	pump
—	No		purge	sample	taken	,	confirmed	with
0810	19.4	6.98	1253	109	3.08	184.6	—	226.60

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Date: 2-2-15 Sampling Time: 0810 Depth to Water: 226.60

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

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 #: <u>150130AAW1</u>	Site: <u>SPL, Pasadena</u>
Sampler: <u>HA</u>	Gauging Date: <u>01/30/15</u>
Well I.D.: <u>MW-15</u>	Well Diameter: 2 3 <u>(4)</u> 6 8 <u> </u>
Total Well Depth (TD): <u>74.00</u>	Depth to Water (DTW): <u>33.84</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	Flow Cell Type <u>YSI Pro Plus</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>41.87</u>	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Water
2" Rediflo pump Ded.
Extraction Pump

Other _____

Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing

Other: _____

Flow Rate= 26 gpm @ 1149

Start Purge Date= 01/30/15 pump @ 54'

<u>26.2</u> (Gals.) X	<u>3</u>	<u>= 78.6</u> 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. (µS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
1156	17.7	7.20	561	4	1.81	130.9	14	34.12
1203	17.6	7.10	553	3	1.52	121.6	28	34.13
1210	17.5	7.05	551	2	1.45	114.3	42	34.13
1217	17.6	7.03	550	2	1.39	112.6	56	34.13
1224	17.8	7.01	548	2	1.35	110.4	60 70	34.13
1229	17.7	6.99	545	2	1.31	109.6	80	34.13

Did well dewater? Yes No Gallons actually evacuated: 80

Sampling Date: 01/30/15 Sampling Time: 1230 Depth to Water: 34.13

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

Analyzed for: (see c.o.o.) Other: _____

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): DUP-5-1015 (E) 1245

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>150130-AW1</u>	Site: <u>JPL, Pasadena</u>
Sampler: <u>HH</u>	Gauging Date: <u>01/30/15</u>
Well I.D.: <u>MW-16</u>	Well Diameter: 2 3 <u>(4)</u> 6 8 <u> </u>
Total Well Depth (TD):	Depth to Water (DTW): <u>280.11</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	Flow Cell Type <u>YET Pro PLUS</u>
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method:

~~Disposable Bailer
Positive Air Displacement
Electric Submersible~~

~~Watera
2" Rediflo pump
Extraction Pump
Other~~

Sampling Method:

(Disposable Bailer
Extraction Port
Dedicated Tubing

Other:

Flow Rate=

Start Purge Date=

	(Gals.) X	=	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 μ S)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
- Insufficient water to purge w/ portable pump -								
- Collected sample w/ disp. bailer -								
1300	23.4	7.04	655	71000	0.73	-51.4	—	

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: 01/30/15 Sampling Time: 1300 Depth to Water: 280.11

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

Analyzed for: See C.O.C Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): DUP-6-1Q15@315

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): 2-5-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 170.17
 ATM. PRESSURE (PSI): (Start) 14.13 (Finish) 14.10
14.12°C 17.28°C

PROBETYPE: Sampler 0-500 psi
 SERIAL NO.: EMS2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): AW
 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			
		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
1	1	✓	✓	✓	✓	✓	185.72	✓	188.71	✓	188.93	✓	185.72	13.3	584.1	6.48	86	9.43	256	0720	MW-3-4
2	2	✓	✓	✓	✓	✓	185.72	✓	188.91	✓	188.96	✓	185.72					8.51			
3	1	✓	✓	✓	✓	✓	94.84	✓	97.26	✓	97.27	✓	94.84	14.4	555.7	7.11	25	2.51	148	0810	MW-3-3
2	1	✓	✓	✓	✓	✓	53.84	✓	56.43	✓	56.42	✓	53.83	16.2	543.1	7.43	4	2.98	157	0845	MW-3-2

Comments: TB-8-02/05/15 EB-7-02/05/15 MS/MSD @ Port 4
0430 0650

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-11
 SAMPLING DATE(S) 2-4-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 181.70
 ATM. PRESSURE (PSI): (Start) 14.13 (Finish) 14.11
15.51°C 18.67°C

PROBE TYPE Sampler 0-500psi
 SERIAL NO. EM2502
 PROJECT: JPL Pasadena
 OPERATOR(S) AW
 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		
		Arm out/ Land Probe	Shoe Out/ Close Valve/ Chuck 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
4	1	✓	✓	✓	✓	✓	165.19	✓	165.24	✓	165.14	✓	165.19	14.5	252.1	6.82	4	4.59	-72	0730	MW-11-4
3	1	✓	✓	✓	✓	✓	125.21	✓	121.56	✓	121.34	✓	125.22	14.7	414.6	7.07	3	6.01	70	0810	MW-11-3
2	1	✓	✓	✓	✓	✓	51.43	✓	50.33	✓	50.28	✓	51.41	18.1	460.8	7.51	3	5.43	22	0850	MW-11-2
1	1	✓	✓	✓	✓	✓	14.20	✓	23.64	✓	23.64	✓	14.21	18.6	522.5	7.68	4	4.25	45	0925	MW-11-1
	2	✓	✓	✓	✓	✓	14.21	✓	23.64	✓	23.64	✓	14.22								

Comments: TB-07-0401/15 EB-6-02/14/15 Level IV @ Port 1
0630 0650

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-12
 SAMPLING DATE(S) 1-30-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 149.51
 ATM. PRESSURE (PSI): (Start) 14.03 (Finish) 14.03
19.09°C 16.66°C

PROBE TYPE Sampler 0-500 psi
 SERIAL NO. EMS2502
 PROJECT: JPL Pasadena
 OPERATOR(S) KW
 WEATHER Clouds

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	Shoo Out/ Close Valve/ Check Vacuum	Open Valve/ Apply Vacuum (g psi)	Close Valve/ Shoo In/ Arm In	Locate Port/ Arm Out/ Land Probe	Shoo Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve/ Shoo In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample	
5	1	✓	✓	✓	✓	✓	190.93	✓	180.03	✓	180.03	✓	190.91	17.2	458.9	8.03	3	5.47	-24	1035	MW-12-5
4	1	✓	✓	✓	✓	✓	142.16	✓	137.18	✓	137.11	✓	142.17	17.1	494.8	8.06	2	5.40	28	1115	MW-12-4
3	1	✓	✓	✓	✓	✓	93.93	✓	88.46	✓	88.43	✓	93.92	16.6	417.0	8.29	4	5.71	-21	1150	MW-12-3
2	1	✓	✓	✓	✓	✓	58.94	✓	54.27	✓	54.31	✓	58.97	16.5	554.3	8.25	3	5.32	-20	1230	MW-12-2
1	1	✓	✓	✓	✓	✓	14.13	✓	16.23	✓	16.27	✓	14.13	16.6	593.6	8.36	3	5.27	102	1330	MW-12-1
	2	✓	✓	✓	✓	✓	14.10	✓	16.21	✓	16.21	✓	14.12								

Comments: Level IV @ Part 5

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-14
 SAMPLING DATE(S) 1-29-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 187.51
 ATM. PRESSURE (PSI): (Start) 14.16 (Finish) 14.16
17.13°C 18.92°C

PROBE TYPE Sampler 0-500 psi
 SERIAL NO. EM52502
 PROJECT: JPL Pasadena
 OPERATOR(S) tw
 WEATHER Clouds / Light Rain

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	Shoo Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoo In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoo Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoo In	Pressure in MP Casing (psi)	Sample Temp (°F)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time
5	1	✓	✓	✓	✓	✓	171.11	✓	160.14	✓	160.14	✓	171.10	62.9	344.6	5.90	6	4.44	125	0740	MW-14-5
4	1	✓	✓	✓	✓	✓	134.46	✓	123.72	✓	123.71	✓	134.76	64.1	731.9	6.23	2	5.01	200	0820	MW-14-4
3	1	✓	✓	✓	✓	✓	101.70	✓	91.59	✓	91.59	✓	101.70	65.4	1185.0	6.61	3	5.65	185	0855	MW-14-3
	2	✓	✓	✓	✓	✓	101.73	✓	91.58	✓	91.57	✓	101.71	65.7				4.40	151		
2	1	✓	✓	✓	✓	✓	57.40	✓	45.79	✓	45.79	✓	57.40	65.7	1199	7.14	2	4.40	151	0940	MW-14-2
1	1	✓	✓	✓	✓	✓	25.28	✓	15.31	✓	15.29	✓	25.29	67.6	1233	7.20	12	3.36	18	1015	MW-14-1
	2	✓	✓	✓	✓	✓	25.27	✓	15.31	✓	15.22	✓	25.27								

Comments: TB-2-01/27/15 EB-2-01/27/15 MS/MSD @ Port 3
0645 0715

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-18
 SAMPLING DATE(S): 1-28-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 293.14
 ATM. PRESSURE (PSI): (Start) 14.09 (Finish) 14.10
18.44°C 17.57°C

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

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	
5	1	✓	✓	✓	✓	✓	187.43	✓	181.79	✓	181.78	✓	187.43	14.2	301	8.29	3	4.42	40	1015	MW-18-5	
4	1	✓	✓	✓	✓	✓	136.14	✓	130.62	✓	130.62	✓	136.17	18.8	386.8	8.28	3	5.50	8	1100	MW-18-4	
3	1	✓	✓	✓	✓	✓	73.70	✓	73.11	✓	73.12	✓	73.70	19.3	547.2	8.09	2	6.41	75	1135	MW-18-3	
	2	✓	✓	✓	✓	✓	73.72	✓	73.12	✓	73.12	✓	73.71									
2	1	✓	✓	✓	✓	✓	32.64	✓	31.66	✓	31.68	✓	32.65	19.5	490.2	8.23	3	3.41	-5	1300	MW-18-2	
	2	✓	✓	✓	✓	✓	32.04	✓	31.68	✓	31.68	✓	32.64									

Comments: Level IV @ Port 4 MS/MSD @ Port 3

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-19
 SAMPLING DATE(S): 1-26-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 136.16
 ATM. PRESSURE (PSI): (Start) 14.08 (Finish) 14.06
22.10°C 17.04°C

PROBE TYPE: Sampler
 SERIAL NO.: EMS 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): kw
 WEATHER: Cloudy

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		
		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
5	1	✓	✓	✓	✓	✓	172.31	✓	140.07	✓	140.07	✓	172.31	19.2	618.0	8.28	2	4.75	40	1040	MW-19-5
4	1	✓	✓	✓	✓	✓	148.87	✓	116.71	✓	116.69	✓	148.87	19.0	567.7	8.41	2	4.41	48	1120	MW-19-4
3	1	✓	✓	✓	✓	✓	126.28	✓	97.70	✓	97.71	✓	126.28	19.4	720.2	8.19	3	3.93	33	1155	MW-19-3
	2	✓	✓	✓	✓	✓	126.28	✓	97.71	✓	97.71	✓	126.28	19.4	720.2	8.19	3	3.93	33	1155	MW-19-3
2	1	✓	✓	✓	✓	✓	92.32	✓	63.47	✓	63.48	✓	92.34	20.3	1067	8.02	23	4.04	83	1300	MW-19-2
1	1	✓	✓	✓	✓	✓	61.00	✓	32.72	✓	32.73	✓	61.03	19.9	604.3	8.45	11	3.60	66	1335	MW-19-1

Comments: DUP-1-1015 @ Port 3

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-20
 SAMPLING DATE(S): 1-26-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 193.68
 ATM. PRESSURE (PSI): (Start) 14.120 (Finish) 14.14
17.70°C 19.13°C

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: E15 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): A. Weiff
 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
5	1	✓	✓	✓	✓	✓	322.27	✓	305.09	✓	305.09	✓	322.27	16.4	273.2	6.98	2	8.11	-63	0740	MW-20-5
4	1	✓	✓	✓	✓	✓	235.61	✓	213.98	✓	213.98	✓	235.56	17.5	310.3	7.88	2	5.53	-115	0220	MW-20-4
3	1	✓	✓	✓	✓	✓	175.80	✓	151.90	✓	151.94	✓	175.78	20.4	5302.0	8.62	3	5.11	-119	0900	MW-20-3
2	1	✓	✓	✓	✓	✓	101.98	✓	80.44	✓	80.46	✓	101.98	18.4	804.5	7.92	3	4.42	-35	0940	MW-20-2
1	1	✓	✓	✓	✓	✓	31.53	✓	14.29	✓	14.29	✓	31.53	Port is dry. No							Sample Collected

Comments: TB-1-01/26/15 0645 SB-1-01/26/15 0700 EB-1-01/26/15 0705 Level 16 @ Port 4

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-22
 SAMPLING DATE(S): 1-29-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 162.16
 ATM. PRESSURE (PSI): (Start) 14.06 (Finish) 14.09
18.83°C 19.06°C

PROBE TYPE: Sampler 0-500
 SERIAL NO.: FMS2502
 PROJECT: JPL Pasadena
 OPERATOR(S): AW
 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	Shoo Out / Close Valve / Check Vacuum	Open Valve / Apply Vacuum (5 psi)	Close Valve / Shoo In / Arm In	Locate Port / Arm Out / Land Probe	Pressure in MP Casing (psi)	Shoo Out	Port Pressure (psi)	Open Valve	Port Pressure (psi)	Close Valve / Shoo In	Pressure in MP Casing (psi)	Sample Temp (°C)	SC (µS/cm)	pH	Turbidity (NTU)	Dissolved Oxygen (ppm)	ORP (mV)	Sample Time	Sample
3	1	✓	✓	✓	✓	✓	114.88	✓	90.29	✓	90.28	✓	114.87	17.4	477.1	6.40	2	5.83	137	0700	MW-22-3
2	1	✓	✓	✓	✓	✓	88.89	✓	64.09	✓	64.07	✓	88.87	17.3	630.8	7.29	3	5.00	143	0800	MW-22-2
1	1	✓	✓	✓	✓	✓	51.22	✓	26.84	✓	26.84	✓	51.22	18.2	1194	7.37	12	4.97	143	0840	MW-22-1
	2	✓	✓	✓	✓	✓	51.23	✓	26.88	✓	26.87	✓	51.21								

Comments: TB-4-01/29/15 EB-4-01/29/15 Level IV @ Port 1
0545 1045

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-23
 SAMPLING DATE(S) 1-30-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 181.24
 ATM. PRESSURE (PSI): (Start) 14.04 (Finish) 14.03
18.36°C 19.01°C

PROBE TYPE Sampler 0-500
 SERIAL NO. EUS2502
 PROJECT: JPL, Pasadena
 OPERATOR(S) AW
 WEATHER Rain

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
4	1	✓	✓	✓	✓	✓	161.16	✓	139.86	✓	139.87	✓	161.17	17.0	363.6	6.42	1	6.28	206	0740	MW-23-4
3	1	✓	✓	✓	✓	✓	106.74	✓	87.66	✓	87.67	✓	106.74	16.1	527.1	6.87	4	5.43	110	0820	MW-23-3
2	1	✓	✓	✓	✓	✓	78.44	✓	59.39	✓	59.37	✓	78.46	17.0	1175	7.07	3	9.91	148	0855	MW-23-2
	2	✓	✓	✓	✓	✓	78.43	✓	59.36	✓	59.34	✓	78.44					6.68	137		
1	1	✓	✓	✓	✓	✓	43.02	✓	25.01	✓	25.01	✓	43.05	17.2	1232	7.45	3	6.68	137	0930	MW-23-1
	2	✓	✓	✓	✓	✓	43.06	✓	25.01	✓	24.96	✓	43.06								

Comments: TB-5-01/30/15 SB-2-01/30/15 E13-5-01/30/15 DUP-3-10/15 @ Port 2
0636 0650 0700 0910

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-24
 SAMPLING DATE(S) 1-27-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 200.23
 ATM. PRESSURE (PSI): (Start) 14.11 (Finish) 14.07
23.10°C 21.56°C

PROBE TYPE Sampler 0-500 psi
 SERIAL NO. EM52502
 PROJECT: JPL, Pasadena
 OPERATOR(S) AW
 WEATHER Clouds

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 (g psi)	Close Valve/ Shoe In/ Atm 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
5	1	✓	✓	✓	✓	✓	106.74	✓	145.79	✓	145.79	✓	106.76	21.1	252	8.90	8	5.35	-71	1115	MW-24-4
3	1	✓	✓	✓	✓	✓	115.04	✓	96.53	✓	96.54	✓	115.04	20.6	309.5	8.48	5	3.60	-85	1200	MW-24-3
2	1	✓	✓	✓	✓	✓	88.10	✓	69.49	✓	69.49	✓	88.10	20.8	575.8	7.98	4	4.25	-10	1300	MW-24-2
1	1	✓	✓	✓	✓	✓	46.91	✓	29.38	✓	29.38	✓	46.91	20.6	726.9	7.82	3	4.29	36	1340	MW-24-1
	2	✓	✓	✓	✓	✓	46.90	✓	29.41	✓	29.41	✓	46.91								

Comments: Level III @ Port 2

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-26
 SAMPLING DATE(S): 1-29-15
 LOCATION: JPL
 WATER LEVEL INSIDE CASING: 65.25
 ATM. PRESSURE (PSI): (Start) 14.10 (Finish) 14.12
21.82°C 19.52°C

PROBE TYPE: Sampler 0-500 psi
 SERIAL NO.: FMS2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): KW
 WEATHER: Hazy

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	
2	1	✓	✓	✓	✓	✓	82.34	✓	55.21	✓	55.22	✓	82.36	21.4	671.1	8.61	23	4.14	115	1235	MW-26-2	
1	1	✓	✓	✓	✓	✓	46.42	✓	19.61	✓	19.60	✓	46.46	21.3	640.1	8.01	14	3.51	21	1330	MW-26-1	
2	2	✓	✓	✓	✓	✓	46.42	✓	19.52	✓	19.42	✓	46.41									
3	3	✓	✓	✓	✓	✓	46.89	✓	19.51	✓	19.48	✓	46.89									

Comments: DUP-2-1015 @ port 1
1345