

ATTACHMENT 4: FIELD LOGS

This attachment contains the groundwater sample collection field logs for the relatively shallow standpipe monitoring wells (MW-1, MW-5 through MW-9, 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 4th Quarter 2015 sampling event was conducted by Blaine Tech Services, Inc.

Note: the uppermost sampling port (i.e., Screen 1) in multi-port monitoring wells MW-12, MW-14, MW-17, MW-18, MW-20 and MW-21 were dry and could not be sampled during the fourth quarter.

WELL MONITORING DATA SHEET

Project #: 151016-TK1	Site: JPL, Pasadena
Sampler: TK	Gauging Date: 10-28-15
Well I.D.: MW-1	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 120'	Depth to Water (DTW): 37.16
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]: 53.73	

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 = 2 gpm

Start Purge Date = 10-28-15 @ 1000 pump ~ 95'

53.9 (Gals.) X	<u>3</u>	= 161.6 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
1014	18.6	7.33	508.8	6	1.62	176.3	28	37.97
1028	18.7	7.23	510.2	1	0.75	173.6	54	38.02
1041	18.7	7.23	508.2	1	0.68	167.4	82	38.03
1055	18.9	7.21	510.2	1	0.64	166.2	110	38.04
1108	19.0	7.19	512.3	1	0.63	163.6	136	38.04
1121	19.0	7.19	511.8	1	0.63	161.9	162	38.04

Did well dewater? Yes No Gallons actually evacuated: 162

Sampling Date: 10-28-15 Sampling Time: 1122 Depth to Water: 38.04

Sample I.D.: MW-1 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 #: 151016-TK1	Site: JPL, Pasadena
Sampler: TK	Gauging Date: 10-29-15
Well I.D.: MW-5	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 140'	Depth to Water (DTW): 124.11
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: <u>PVC</u> Grade	Flow Cell Type: Y51556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 127.29	

Purge Method: Water Sampling Method:

Disposable Bailer
 Positive Air Displacement
 Electric Submersible
 2" Rediflo pump
 Extraction Pump
 Other _____

Disposable Bailer
 Extraction Port
 Dedicated Tubing
 Other: _____

Flow Rate = 15.89 lpm @ 0.915

Start Purge Date = 10-29-15 pump ~ 125'

10.3 (Gals.) X 3 = 31.0 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
0921	17.8	6.73	907.4	2.4	4.40	150.2	6	124.25
0927	17.7	6.54	944.5	2	4.18	160.6	12	124.31
0933	17.6	6.50	963.6	2	4.06	167.4	18	124.34
0939	17.8	6.51	974.1	2	4.48	170.2	24	124.36
0945	17.6	6.50	977.3	2	4.57	174.7	30	124.36
0951	17.7	6.50	976.7	2	4.60	176.1	36	124.36

Did well dewater? Yes No Gallons actually evacuated: 36

Sampling Date: 10-29-15 Sampling Time: 0952 Depth to Water: 124.36

Sample I.D.: MW-5 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 #: 151016-TR1	Site: SPL, Pasadena
Sampler: TR	Gauging Date: 10-29-15
Well I.D.: MW-6	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 245'	Depth to Water (DTW): 231.25
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: <u>(PVC)</u> Grade	Flow Cell Type: 451 556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 234.00	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Water
2" Rediflo pump
Extraction Pump
Other

Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing
Other:

Flow Rate=

1.0 gpm

Start Purge Date=

10-29-15 00659

Plumbed ~ 235'

8.9 (Gals.) X 3 = 26.8 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 μ S)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
0704	21.9	5.93	1236	45	6.81	183.6	<u>15</u>	231.82
0708	21.8	5.96	1235	35	6.53	170.1	9	231.84
0713	22.3	5.98	1244	27	6.32	172.4	14	231.84
0717	22.4	6.12	1239	17	6.36	175.2	18	231.84
0722	22.2	6.14	1240	16	6.40	176.8	23	231.84
0726	22.3	6.15	1236	16	6.38	177.2	27	231.84

Did well dewater? Yes No Gallons actually evacuated: 27

Sampling Date: 10-29-15 Sampling Time: 0727 Depth to Water: 231.84

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

Analyzed for: see COC Other:

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

EB I.D. (if applicable): TB-9-102915 @ 0640 Time Analyzed for: VOCs

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 #: 151016-TK1	Site: JPL, Pasadena
Sampler: TK	Gauging Date: 10-15
Well I.D.: MW-7	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 275'	Depth to Water (DTW): 263.98
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]: —	

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= _____

_____ (Gals.) X 2.72 = _____ 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
- Not enough water in well to purge -								
- Pump Broken, removed from well -								
- grab sample taken per client request -								
1200	22.7	7.02	776.1	637	4.86	169.3	—	263.98

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Date: 10-29-15 Sampling Time: 1200 Depth to Water: 263.98

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

Analyzed for: Seecoc Other: MSMSD

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 #: 151016-TK1	Site: JPL, Pasadena
Sampler: TK	Gauging Date: 10-28-15
Well I.D.: MW-8	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 205'	Depth to Water (DTW): 189.78
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]: 192.82	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Red 2" Rediflo pump
Extraction Pump
Other

Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing

Flow Rate=

1.6 gpm @ 1142

Start Purge Date=

10-28-15

pump @ 195'

9.9 (Gals.) X 3 = 29.7 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
1147	22.2	7.10	686.9	9	6.87	152.1	5	189.82
1152	21.8	6.81	693.5	11	6.95	140.2	10	189.96
1157	21.8	6.72	693.2	5	6.87	137.8	15	190.14
1202	21.8	6.68	693.6	4	6.93	136.1	20	190.16
1207	22.0	6.67	695.1	4	6.90	133.2	25	190.16
1212	22.0	6.67	696.0	4	6.89	131.8	30	190.16

Did well dewater? Yes No Gallons actually evacuated: 30

Sampling Date: 10-28-15 Sampling Time: 1213 Depth to Water: 190.16

Sample I.D.: MW-8 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 #: 151016-TK1	Site: JPC, Pasadena
Sampler: TK	Gauging Date: 10-28-15
Well I.D.: MW-9	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 69'	Depth to Water (DTW): 29.80
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]: 37.44	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Water
Red 2" Rediflo pump
Extraction Pump
Other: _____

Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing

Other: _____

Flow Rate= 30.2 70Hz 2 gpm

Start Purge Date= 10-28-15 @ 0840 pump ~ 50'

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

<u>29.8</u> (Gals.) X	<u>3</u>	<u>=</u>	<u>74.5</u> Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Time	Temp (°C)	pH	Cond. (mS or <u>µS</u>)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
0846	18.6	5.93	1216	95	1.78	172.1	<u>12</u>	30.39
0853	18.7	6.13	1210	36	0.98	144.6	26	30.54
0859	18.8	6.34	1148	22	0.86	126.7	38	30.72
0906	18.9	6.39	1181	25	0.84	124.7	52	30.73
0912	19.0	6.39	1176	24	0.78	122.3	64	30.73
0918	19.1	6.40	1171	23	0.79	124.5	76	30.73

Did well dewater? Yes No Gallons actually evacuated: 76

Sampling Date: 10-28-15 Sampling Time: 0919 Depth to Water: 30.73

Sample I.D.: MW-9 Laboratory: BC

Analyzed for: See COC Other: _____

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): DVP-8-4215 @ 0929

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 #: 151016-TK1	Site: SPL Pasadena
Sampler: TK	Gauging Date: 10-15
Well I.D.: MW-10	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 155'	Depth to Water (DTW): 138.51
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]: 141.81	

Purge Method:	Water	Sampling Method:
Disposable Bailer Positive Air Displacement Electric Submersible	<input checked="" type="checkbox"/> 2" Rediflo pump Extraction Pump Other _____	Disposable Bailer Extraction Port Dedicated Tubing Other: _____
Flow Rate= 1 gpm @ 0756		
Start Purge Date= 10-29-15	purge @ 140'	

10.7 (Gals.) X	3	= 32.2 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
0802	20.2	6.62	1288	7	6.71	153.2	6	138.53
0807	20.9	6.43	1279	5	6.78	155.6	11	138.54
0813	20.5	6.36	1284	2	6.80	144.8	17	138.54
0818	20.7	6.38	1282	1	6.82	146.7	22	138.54
0824	20.5	6.40	1283	1	6.89	151.6	28	138.54
0829	20.7	6.40	1284	1	6.87	152.3	33	138.54

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 33	
Sampling Date: 10-29-15	Sampling Time: 0830	Depth to Water: 138.54
Sample I.D.: MW-10	Laboratory: BC	
Analyzed for: See COC	Other: MSMSD	
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 #: 151016-TR1	Site: JPL, Pasadena
Sampler: TK	Gauging Date: 10-28-15
Well I.D.: MW-13	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 234.55	Depth to Water (DTW): 232.02
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: <u>PVC</u> Grade	Flow Cell Type: 451 556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: —	

Purge Method:

Disposable Bailer
Positive Air Displacement
Electric Submersible

Waters

2" Rediflo pump
Extraction Pump
Other

Sampling Method:

Disposable Bailer
Extraction Port
Dedicated Tubing

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 µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
— Depth to water is below pump depth —								
— Insufficient water to use portable pump —								
— sample collected w/ Disp. bailer —								
0730	19.8	6.22	965.4	71000	4.01	221	—	

Did well dewater? Yes No Gallons actually evacuated: —

Sampling Date: 10-28-15 Sampling Time: 0730 Depth to Water: 232.02

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

Analyzed for: Perchlore + VOCs Other:

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

EB I.D. (if applicable): TB-8-102815 @ 0710 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 #: 151016-TK1	Site: JPL, Pasadena
Sampler: TK	Gauging Date: 10-28-15
Well I.D.: MW-15	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 74'	Depth to Water (DTW): 41.47
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]: 47.98	

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 = 2 gpm

Start Purge Date = 10-28-15 @ 1236 pump # 259

21.2 (Gals.) X 3 = 63.5 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 * 0.163

Time	Temp (°C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Gals. Removed	DTW
1242	19.2	7.18	569.2	1	2.12	158.3	12	41.86
1247	18.6	7.00	568.1	1	1.97	153.2	22	41.89
1253	18.5	6.96	569.7	1	1.78	152.7	34	41.89
1258	18.5	6.95	567.2	1	1.84	152.3	44	41.89
1304	18.5	6.96	570.1	1	1.76	153.7	56	41.89
1309	18.5	6.96	569.3	1	1.78	154.2	66	41.89

Did well dewater? Yes No Gallons actually evacuated: 66

Sampling Date: 10-28-15 Sampling Time: 1310 Depth to Water: 41.89

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

Analyzed for: see cœc 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 #: 151016-TK1	Site: JPL, Pasadena
Sampler: TK	Gauging Date: 10-29-15
Well I.D.: MW-16	Well Diameter: 2 3 ④ 6 8
Total Well Depth (TD): 284.65	Depth to Water (DTW): 283.86
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Referenced to: PVC Grade	Flow Cell Type: 891 556
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: _____	

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

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

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
- Water level is below pump depth -								
- Insufficient water to use portable pump -								
- Sample collected w/ Disposable Bailer -								
1040	21.8	7.10	835.1	>1000	4.42	86.3	—	

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Date: 10-29-15 Sampling Time: 1040 Depth to Water: 283.86

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

Analyzed for: Perchlorate + VOCs 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): 10-26-15
 LOCATION: overflow, outside parking lot west of
 WATER LEVEL INSIDE CASING: 170.57
 ATM. PRESSURE (PSI): (Start) 14.06 (Finish) 14.02

PROBE TYPE: Westbay 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): JTC
 WEATHER: Clear, Warm

Temp °C: 23.50 20.63

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) mg/L	ORP (mV)	Sample Time	Sample
5	1	✓	✓	✓	✓	✓	227.09	✓	225.95	✓	225.96	✓	227.09	21.2	564.3	8.25	4.0	9.67	110	1050	MW-3-5
4	1	✓	✓	✓	✓	✓	185.70	✓	185.09	✓	185.09	✓	185.71	22.3	586.1	8.16	21.8	9.02	113	1120	MW-3-4
	2	✓	✓	✓	✓	✓	185.69	✓	185.08	✓	185.08	✓	185.70								
3	1	✓	✓	✓	✓	✓	93.34	✓	93.40	✓	93.40	✓	93.35	22.4	573.4	8.03	14.4	8.64	95	1215	MW-3-3
2	1	✓	✓	✓	✓	✓	52.37	✓	52.67	✓	52.68	✓	52.39	23.1	604.6	7.89	4.5	8.40	90	1235	MW-3-2
1	1	✓	✓	✓	✓	✓	16.46	✓	20.68	✓	20.68	✓	16.50	23.9	566.2	8.00	8.0	5.12	95	1310	MW-3-1
	2	✓	✓	✓	✓	✓	16.01	✓	20.68	✓	20.69	✓	16.01								

Comments:

DUP #6 Port 4
@ 1130

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-11
 SAMPLING DATE(S): 10-27-15
 LOCATION: Mariner/Explorer Rd. Bld. 277
 WATER LEVEL INSIDE CASING: 188.07
 ATM. PRESSURE (PSI): (Start) 14.05 (Finish) 14.07

PROBE TYPE: Westbay 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPC Pasadena
 OPERATOR(S): JTC
 WEATHER: Clear

temp °C: 20.55 20.09

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 (mg/L)	ORP (mV)	Sample Time	Sample
5	1	✓	✓	✓	✓	✓	212.04	✓	197.90	✓	197.87	✓	212.04	16.8	335.3	7.15	9.2	10.12	170	0725	MW-11-5
	2	✓	✓	✓	✓	✓	211.04	✓	197.87	✓	197.88	✓	211.05								
4	1	✓	✓	✓	✓	✓	163.36	✓	161.81	✓	161.80	✓	163.37	18.2	263.4	7.92	4.4	8.08	7	0835	MW-11-4
	2	✓	✓	✓	✓	✓	163.37	✓	161.81	✓	161.80	✓	163.38								
3	1	✓	✓	✓	✓	✓	127.56	✓	117.72	✓	117.69	✓	127.56	16.4	432.7	6.02	5.8	6.72	190	0920	MW-11-3
2	1	✓	✓	✓	✓	✓	49.22	✓	46.68	✓	46.66	✓	49.24	18.9	492.3	7.54	4.6	8.35	50	0950	MW-11-2
	2	✓	✓	✓	✓	✓	49.24	✓	46.67	✓	46.65	✓	49.26								
1	1	✓	✓	✓	✓	✓	14.09	✓	22.46	✓	22.44	✓	14.08	20.2	559.9	7.51	4.1	5.34	121	1030	MW-11-1
	2	✓	✓	✓	✓	✓	14.08	✓	22.46	✓	22.46	✓	14.08								

Comments: TB-7-102715 @ 0620 (12) DUP #7 @ Port 4 MSMSD @ Port 2
EB-7-102715 @ 0645 Level IV Validation - @ Port 5
Call Dave about grab sample Analyzers (12)

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-12
 SAMPLING DATE(S): 10-26-15
 LOCATION: Parking structure (East, upper)
 WATER LEVEL INSIDE CASING: 151.96
 ATM. PRESSURE (PSI): (Start) 14.05 (Finish) 14.03
 Temp °C: 23.18 17.49

PROBE TYPE: Westbay 0-scoops
 SERIAL NO.: Ems 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): TF
 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) mg/L	ORP (mV)	Sample Time	Sample
5	1	✓	✓	✓	✓	✓	190.94	✓	175.59	✓	175.57	✓	190.95	19.7	474.2	7.62	3.9	8.97	160	1145	MW-12-5
	2	✓	✓	✓	✓	✓	190.94	✓	175.57	✓	175.56	✓	190.94								
4	1	✓	✓	✓	✓	✓	142.22	✓	133.34	✓	133.33	✓	142.22	20.3	505.1	7.76	2.4	7.60	148	1250	MW-12-4
3	1	✓	✓	✓	✓	✓	91.38	✓	84.74	✓	84.74	✓	91.39	20.5	382.3	8.37	5.7	6.06	147	1420	MW-12-3
	2	✓	✓	✓	✓	✓	91.35	✓	84.73	✓	84.73	✓	91.36								
2	1	✓	✓	✓	✓	✓	56.48	✓	50.53	✓	50.52	✓	56.48	20.7	563.6	7.54	3.7	6.72	149	1450	MW-12-2
	2	✓	✓	✓	✓	✓	56.48	✓	50.53	✓	50.53	✓	56.48								
1	1	✓	✓	✓	✓	✓	14.10	✓	14.11	✓	14.11	✓	14.10	Port is Dry	No Sample collected.						

Comments:

msms DE Port 5

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-18
 SAMPLING DATE(S): 10-21-15
 LOCATION: 814 Altadena Dr. / Floricita
 WATER LEVEL INSIDE CASING: 295.34
 ATM. PRESSURE (PSI): (Start) 14.02 (Finish) 13.98
 Temp °C: 24.42 22.59

PROBE TYPE: Westbay 0-500psi
 SERIAL NO.: Evms 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): TK
 WEATHER: Clear, windy

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	✓	✓	✓	✓	✓	187.71	✓	179.89	✓	179.87	✓	187.70	21.9	325.6	8.38	6.8	7.48	151	1100	MW-18-5	
4	1	✓	✓	✓	✓	✓	135.41	✓	128.01	✓	128.03	✓	135.43	22.4	412.6	7.94	5.6	7.03	149	1135	MW-18-4	
	2	✓	✓	✓	✓	✓	135.40	✓	128.03	✓	128.03	✓	135.40									
3	1	✓	✓	✓	✓	✓	74.41	✓	70.95	✓	70.95	✓	74.41	22.3	544.6	7.77	4.7	6.86	145	1235	MW-18-3	
2	1	✓	✓	✓	✓	✓	33.96	✓	30.82	✓	30.82	✓	33.97	21.8	505.5	7.62	4.0	6.79	110	1310	MW-18-2	
1	1	✓	✓	✓	✓	✓	14.07	✓	14.09	✓	14.09	✓	14.07	Port is Dry. No sample collected								

Comments: MSMSP @ Port 4 Level IV validation @ Port 2

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-20
 SAMPLING DATE(S): 10-19-15
 LOCATION: Church Park/lot, Mountainview + Lincoln
 WATER LEVEL INSIDE CASING: 242.03
 ATM. PRESSURE (PSI): (Start) 14.11 (Finish) 14.11

PROBE TYPE: EMS westbay sampler 0-500psi
 SERIAL NO.: EMS 2508
 PROJECT: JPL, Pasadena
 OPERATOR(S): TIC
 WEATHER: Partly cloudy

Temp (C): 22.36 , 18.30

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) <i>mg/L</i>	ORP (mV)	Sample Time	Sample	
5	1	✓	✓	✓	✓	✓	305.57	✓	303.60	✓	303.60	✓	305.57	16.8	293.2	7.65	5.2	11.19	-4	0725	MW-20-5	
4	1	✓	✓	✓	✓	✓	218.44	✓	212.47	✓	212.46	✓	218.44	18.0	321.9	8.22	4.6	10.97	-53	0805	MW-20-4	
	2	✓	✓	✓	✓	✓	218.42	✓	212.47	✓	212.46	✓	218.43									
3	1	✓	✓	✓	✓	✓	158.34	✓	150.89	✓	150.88	✓	158.35	19.0	356.6	8.69	4.2	8.48	-76	0920	MW-20-3	
2	1	✓	✓	✓	✓	✓	84.32	✓	79.59	✓	79.60	✓	84.33	19.2	456.1	8.32	4.4	7.20	29	0950	MW-20-2	
1	1	✓	✓	✓	✓	✓	14.14	✓	14.18	✓	14.18	✓	14.14	Port is Dry. No sample collected								

Comments: TB-1-101915 @ 0610 EB-1-101915 @ 0630 DUP Port 4 @ 0840 Level II @ Port 3 SB-1-1019-15 @ 0640

Collar detect 6" above sample port

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-23
 SAMPLING DATE(S) 10-23-15
 LOCATION: Road 'C' Parking lot Handicap
 WATER LEVEL INSIDE CASING: 110.69
 ATM. PRESSURE (PSI): (Start) 14.08 (Finish) 14.08
 Temp °C: 20.45 21.82

PROBE TYPE Westbay 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S) TK
 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) mg/L	ORP (mV)	Sample Time	Sample
5	1	✓	✓	✓	✓	✓	203.08	✓	177.65	✓	177.62	✓	203.08	17.2	387.3	8.69	3.6	7.31	21	0720	MW-23-5
4	1	✓	✓	✓	✓	✓	161.05	✓	135.75	✓	135.75	✓	161.06	16.5	367.2	7.87	2.8	9.87	81	0750	MW-23-4
3	1	✓	✓	✓	✓	✓	106.42	✓	83.65	✓	83.65	✓	106.44	16.8	540.5	7.37	2.1	10.95	143	0820	MW-23-3
2	1	✓	✓	✓	✓	✓	78.21	✓	55.43	✓	55.43	✓	78.22	17.4	1158	7.19	1.9	8.12	145	0850	MW-23-2
1	1	✓	✓	✓	✓	✓	43.67	✓	21.34	✓	21.34	✓	43.66	18.5	1245	6.83	1.9	8.52	117	0930	MW-23-1
	2	✓	✓	✓	✓	✓	43.65	✓	21.33	✓	21.33	✓	43.66								

Comments: TB-5-102315 @ 0630
EB-5-102315 @ 0650
SB-5-102315 @ 0640
DUP #5 @ port 1 @ 0945

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-24
 SAMPLING DATE(S): 10-22-15
 LOCATION: Aero Dr. JPL
 WATER LEVEL INSIDE CASING: 207.76
 ATM. PRESSURE (PSI): (Start) 14.04 (Finish) 14.01

PROBE TYPE: Westbay 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): TR
 WEATHER: Clear

Temp °C: 17.92 22.60

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
5	1	✓	✓	✓	✓	✓	219.71	✓	193.10	✓	193.10	✓	219.71	22.0	412.8	7.88	5.1	9.9	146	1030	MW-24-5
4	1	✓	✓	✓	✓	✓	165.98	✓	142.09	✓	142.09	✓	165.99	22.4	236.9	9.15	5.8	5.84	-69	1110	MW-24-4
3	1	✓	✓	✓	✓	✓	114.39	✓	92.85	✓	92.85	✓	114.38	22.3	355.5	8.50	4.3	6.55	-93	1140	MW-24-3
	2	✓	✓	✓	✓	✓	114.37	✓	92.86	✓	92.86	✓	114.37								
2	1	✓	✓	✓	✓	✓	87.38	✓	66.00	✓	66.00	✓	87.38	22.2	593.6	8.03	4.5	7.91	69	1230	MW-24-2
1	1	✓	✓	✓	✓	✓	46.81	✓	26.36	✓	26.36	✓	46.82	22.9	770.2	7.49	2.2	6.68	80	1300	MW-24-1
	2	✓	✓	✓	✓	✓	46.79	✓	26.37	✓	26.37	✓	46.80								
	3	✓	✓	✓	✓	✓	45.73	✓	26.37	✓	26.37	✓	45.74								

Comments: USMSD @ Port 1 DUP #4 @ Port 3
@ 1200

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-25
 SAMPLING DATE(S): 10-20-15
 LOCATION: Pasadena City Hall
 WATER LEVEL INSIDE CASING: 262.31
 ATM. PRESSURE (PSI): (Start) 14.13 (Finish) 14.10

PROBE TYPE: Westbay D-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL, Pasadena
 OPERATOR(S): TK
 WEATHER: clear

Temp (°C) 26.80 24.00

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	✓	✓	✓	✓	✓	213.95	✓	213.44	✓	213.44	✓	213.95	22.3	413.1	8.56	5.3	7.36	-44	1110	MW-25-5
4	1	✓	✓	✓	✓	✓	179.42	✓	180.25	✓	180.25	✓	179.42	23.0	827.2	7.51	4.3	9.10	70	1140	MW-25-4
3	1	✓	✓	✓	✓	✓	123.09	✓	125.69	✓	125.69	✓	123.10	22.2	731.7	7.50	2.9	8.65	134	1220	MW-25-3
2	1	✓	✓	✓	✓	✓	88.32	✓	92.20	✓	92.20	✓	88.33	23.0	794.2	7.38	4.9	9.06	102	1245	MW-25-2
1	1	✓	✓	✓	✓	✓	60.02	✓	64.66	✓	64.66	✓	60.02	22.8	920.1	7.30	5.9	8.71	96	1320	MW-25-1
	2	✓	✓	✓	✓	✓	60.50	✓	64.67	✓	64.67	✓	60.51								

Comments: MS/MSD @ Port I

WESTBAY™ GROUNDWATER MONITORING WELL
FIELD DATA LOG SHEET

WELL ID: MW-26
 SAMPLING DATE(S) 10-21-15 / 10/23/15
 LOCATION: Muir Pasadena HS Parking lot (off campus)
 WATER LEVEL INSIDE CASING: 66.65
 ATM. PRESSURE (PSI): (Start) 14.05 (Finish) 14.06
 Temp °C: 33.77 21.01 / 30.49 21.28

PROBE TYPE Westbay 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: IPL, Pasadena
 OPERATOR(S) JR
 WEATHER Sunny

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) mg/L	ORP (mV)	Sample Time	Sample
2	1	✓	✓	✓	✓	✓	80.20	✓	53.55	✓	53.55	✓	80.22	23.5	683.9	8.22	7.3	5.10	135	1445	MW-26-2
	2	✓	✓	✓	✓	✓	80.19	✓	53.56	✓	53.56	✓	80.20								on 10/21/15
1	1	✓	✓	✓	✓	✓	45.76	✓	18.84	✓	18.85	✓	45.78	23.6	785.0	7.24	22.8	4.40	103	1350	on 10/23/15
	2	✓	✓	✓	✓	✓	45.30	✓	18.85	✓	18.85	✓	45.31								MW-26-1

Comments: Level II validation @ Port 2