

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 2021. Water level measurements were recorded before the sampling event on March 19, 2021, for the relatively shallow standpipe monitoring wells and March 19, 24, 25, and 26, 2021 for the Westbay™ multiport wells. Water level measurements were recorded after the sampling event on April 1, 2021, 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 # 210319-HH1 Date 03/19/21 Client Tidewater

Site JPL Pasadena CA

Well ID	Well Size (in.)	Time Gauged	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
MW-1	4	0905					25.22	Ded pump	
MW-5	4	1144					133.91	135.36	
MW-6	4	1100					DRY	238.13	
MW-7	4	1525					DRY	267.24	
MW-8	4	1300					DRY	201.66	
MW-9	4	0900					19.45	Ded pump	
MW-10	4	1135					DRY	153.25	
MW-13	4	1335					DRY	234.16	
MW-15	4	1256					30.94	Ded pump	
MW-16	4	1516					283.64	284.32	✓

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

WELL ID: MW-3
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1100.34
 WEATHER: Clear
DTW - 194.90

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: FMS 25012
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Huang
 ATM. PRESSURE (Patm): (start) 14.16 (finish) 14.05
 Temp: 17.52 18.32C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(ft) = (P2 - Patm) * 2.307 \text{ ft/psi}$	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	miH ₂ O Inside Casing	Trans. Temp. (oC)				
5	653	651	214.27	217.23	214.27	18.47	468.48	184.52	653	0923
4	558	556	172.99	176.41	172.99	18.85	374.31	183.69	558	0925
3	346	344	80.73	84.70	80.73	18.83	162.74	183.26	346	0927
2	252	250	39.79	44.84	39.79	18.68	70.78	181.22	252	0929
1	172	170	14.24	16.54	14.24	18.37	5.49	166.51	172	0931

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-4
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1082.84
 WEATHER: Clear
DTW - 161.95'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoang
 ATM. PRESSURE (Patm): (start) 14.13 (finish) 14.15
 Temp: 21.51°C 20.09°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(f) = (P2 - Patm) * 2.307 \text{ ft/psi}$	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	513	511	167.47	167.34	167.47	21.30	353.46	159.54	513	1212
4	392	390	114.80	114.97	114.80	21.50	232.64	159.36	392	1214
3	322	320	84.29	84.86	84.29	21.45	163.17	158.83	322	1216
2	240	238	48.52	49.63	48.52	21.29	81.90	158.10	240	1218
1	150	148	14.26	14.26	14.26	20.41	0.30	149.70	150	1219

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-11
 DATE: 08/19/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1139.3
 WEATHER: Clear
 DTW - 208.58'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Haas
 ATM. PRESSURE (Patm): (start) 74.13 (finish) 14.13
 Temp: 25.28°C 20.60°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(f) = (P2 - Patm) * 2.307 \text{ ft/psi}$	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	mi ² O Inside Casing	Trans. Temp. (oC)				
5	639	637	200.20	177.63	200.20	24.14	377.19	261.81	639	1347
4	524	523	150.73	150.99	150.73	23.43	315.74	208.26	524	1349
3	429	427	109.85	109.06	109.85	22.87	219.00	210.00	429	1351
2	259	257	36.21	40.17	36.21	21.93	60.07	198.93	259	1353
1	149	147	14.20	21.59	14.20	21.07	17.21	131.79	149	1355

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-12
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1102.14
 WEATHER: Clear

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoan
 ATM. PRESSURE (P_{atm}): (start) 14.16 (finish) 14.18
 Temp: 17.61C 18.09C

DTW - 143.98'

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 (D _p) (ft)	Time
	From Log (D _p)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mi ² O Inside Casing	Trans. Temp. (oC)				
5	548	547	190.67	154.23	190.67	19.45	323.14	224.86	548	1234
4	436	434	171.99	123.11	171.99	19.31	251.35	184.65	436	1236
3	323	322	92.93	77.03	92.93	19.32	145.04	177.96	323	1238
2	243	241	58.05	43.04	58.05	18.90	66.63	176.37	243	1240
1	140	139	14.20	14.25	14.20	18.56	0.21	139.79	140	1241

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-14
 DATE: 08/19/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1173.47
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoang
 ATM. PRESSURE (Palm): (start) 14.10 (finish) 14.13
 Temp: 19.40°C 20.05°C

DTW - 195.64'

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 (Op)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	540	539	164.69	149.05	164.69	20.05	311.33	228.67	540	1114
4	456	455	138.17	112.76	138.17	20.33	227.61	228.39	456	1116
3	382	381	95.99	80.67	95.99	20.36	153.58	228.42	382	1118
2	277	277	51.17	35.02	51.17	20.17	48.26	228.74	277	1119
1	207	206	50.18 19.70	14.20	50.18 19.70	19.99	0.23	206.77	207	1121

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-17
 DATE: 03/25/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1191.21
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2822
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hagen
 ATM. PRESSURE (Palm): (start) 13.97 (finish) 13.99
 Temp: 13.47°C 17.09°C

DTW - 209.40

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(ft) = (P2 - Patm) \cdot 2.307 \text{ ft/psi}$	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	726	726	238.82	186.02	238.82	17.12	396.92	329.08	726	0757
4	582	582	176.43	128.88	176.43	18.24	265.10	316.90	582	0759
3	468	467	126.96	95.14	126.96	18.17	187.26	280.74	468	0801
2	370	370	84.37	55.52	84.37	17.76	95.86	274.14	370	0803
1	250	249	32.15	14.19	32.15	17.29	0.51	249.49	250	0805

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-18
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1225.41
 WEATHER: Clear
 DTW - 294.55

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hagan
 ATM. PRESSURE (Patm): (start) 14.09 (finish) 14.15
 Temp: 14.70 °C 17.79 °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	684	682	184.01	160.71	184.01	16.53	338.25	345.75	684	0836
4	564	562	131.96	113.62	131.96	17.68	229.62	334.38	564	0838
3	424	422	71.11	63.35	71.11	18.01	113.64	310.36	424	0839
2	330	328	30.16	23.47	30.16	17.87	22.79	307.21	330	0841
1	270	268	14.21	14.23	14.21	17.76	0.32	269.68	270	0843

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-19
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1142.94
 WEATHER: Clear
PTW-141.38

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: FMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S):
 ATM. PRESSURE (Patm): (start) 17.11 (finish) 14.13
 Temp: 24.42 C 21.06 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	498	496	168.77	116.17	168.77	23.46	235.45	262.55	498	1421
4	444	442	145.35	92.96	145.35	22.75	181.91	262.09	444	1423
3	392	390	122.95	85.51	122.95	22.23	164.72	227.28	392	1425
2	314	312	88.95	52.07	88.95	21.71	87.57	226.43	314	1427
1	242	241	57.64	32.59	57.64	21.12	19.56	222.44	242	1429

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-20
 DATE: 07/19/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1165.05
 WEATHER: Clear
 DTW-243.27

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): Tuffery
 ATM. PRESSURE (Patm): (start) 14.19 (finish) 14.22
 Temp: 17.05°C 18.56

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	900	897	300.11	294.84	300.11	17.36	647.46	252.54	900	0754
4	700	697	213.22	196.47	213.22	19.50	420.52	279.48	700	0756
3	562	561	159.17	142.09	154.17	19.87	295.07	266.93	562	0758
2	392	389	^{153.10} 79.51	71.01	^{153.40} 79.51	19.35	131.08	260.92	392	0800
1	230	226	14.23	14.24	14.23	18.64	0.12	229.88	230	0802

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-21
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1059.10
 WEATHER: clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoang
 ATM. PRESSURE (Patm): (start) 14.17 (finish) 14.15
 Temp: 20.57°C 19.84°C

DTW - 117.28'

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	372	371	125.85	123.48	125.85	20.33	252.18	119.82	372	1037
4	310	309	98.78	96.64	98.78	20.39	190.26	119.74	310	1039
3	240	240	68.82	66.74	68.82	20.21	121.28	118.72	240	1041
2	161	161	34.40	32.57	34.40	20.02	42.45	118.55	161	1043
1	90	89	14.19	14.22	14.19	19.84	0.12	89.88	90	1045

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-22
 DATE: 03/24/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1176.98
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoes
 ATM. PRESSURE (Patm): (start) 14.03 (finish) 14.06
 Temp: 17.08 °C 20.39 °C

DTW - 221.42

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	588	587	173.87	156.31	173.87	19.67	328.24	259.76	588	0729
4	467	466	121.45	107.30	121.45	20.72	215.17	251.83	467	0731
3	389	387	87.65	78.87	87.65	20.93	149.59	239.41	389	0733
2	329	328	61.59	52.70	61.59	20.82	89.21	239.79	329	0735
1	245	244	24.63	16.10	24.63	20.57	4.78	240.22	245	0737

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-23
 DATE: 03/26/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1108.84
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS8502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hous
 ATM. PRESSURE (Patm): (start) 14.11 (finish) 14.07
 Temp: 13.10°C 19.75°C

DTW - 141.87'

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	mi ² O Inside Casing	Trans. Temp. (oC)				
5	542	542	188.02	166.53	188.02	17.57	351.63	190.37	542	0727
4	445	444	145.98	124.61	145.98	18.99	254.92	190.08	445	0729
3	319	318	91.34	76.05	91.34	19.60	138.28	180.72	319	0731
2	254	253	63.15	47.86	63.15	19.76	77.86	176.14	254	0733
1	174	173	28.35	14.15	28.35	19.73	0.09	173.91	174	0735

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-24
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1200.94
 WEATHER: Clear
 DTW - 232.95'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Patm): (start) 14.09 (finish) 14.07
 Temp: 22.79°C 23.04°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 Leg (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	678	676	207.15	176.71	207.15	22.89	375.16	302.84	678	1453
4	554	552	153.46	129.83	153.46	22.83	267.01	286.99	554	1455
3	435	433	101.90	84.98	101.90	22.67	163.54	271.46	435	1457
2	373	371	75.08	58.24	75.08	22.55	101.85	271.15	373	1459
1	279	277	34.28	18.05	34.28	22.89	9.14	269.86	279	1501

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-25
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 934.53
 WEATHER: Clear
 DTW - 248.77

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 4
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hagan
 ATM. PRESSURE (Patm): (start) 14.20 (finish) 14.22
 Temp: 10.01°C 18.88°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	713	711	216.04	215.47	216.04	14.49	464.33	248.67	713	0719
4	633	631	181.66	181.48	181.66	16.17	385.91	247.09	633	0720
3	503	502	125.38	125.78	125.38	17.43	257.42	245.58	503	0722
2	423	421	90.67	91.17	90.67	18.06	177.57	245.43	423	0723
1	358	356	62.44	62.84	62.44	18.44	112.21	245.79	358	0724

Comments: Collar Detect is 2' below sample port

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

WELL ID: MW-26
 DATE: 03/19/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1059.08
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EIMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoang
 ATM. PRESSURE (Patm): (start) 74.13 (finish) 14.18
 Temp: 17.55°C 18.90°C

DTW - 59.22'

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)				
2	215	211	81.52	46.41	81.52		74.47	140.53	215	0951
1	135	132	46.73	14.26	46.73		0.30	134.70	135	0953

Comments: Collar Detect is 2' below sample port

WELL GAUGING DATA

Project # 210319-HH1 Date 04/01/21 Client Tidelwater

Site JPL Pasadena CA

Well ID	Well Size (in.)	Time Gauged	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
MW-1	4	0925					24.53	Ded pump	↓
MW-5	4	1450					133.82	135.36	
MW-6	4	1032					DRY	238.94	
MW-7	4	1442					DRY	267.21	
MW-8	4	1136					DRY	201.63	
MW-9	4	0928					16.85	Ded pump	
MW-10	4	1110					DRY	153.24	
MW-13	4	1114					DRY	234.16	
MW-15	4	1431					30.59	Ded pump	
MW-16	4	1435					283.55	284.35	

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

WELL ID: MW-3
 DATE: 09/01/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1100.34
 WEATHER: Clear
 DTW - 196.11'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoan
 ATM. PRESSURE (P_{atm}): (start) 14.05 (finish) 14.08
 Temp: 19.49 19.17°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 P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	653	651	213.46	212.40	213.46	20.05	469.13	183.87	653	0913
4	558	556	172.19	176.59	172.19	20.10	374.98	183.02	558	0915
3	346	344	79.93	84.99	79.93	19.76	163.66	182.34	346	0917
2	252	250	39.01	45.01	39.01	19.46	71.42	180.58	252	0919
1	172	170	14.16	17.19	14.16	19.11	7.24	164.76	172	0921

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-4
 DATE: 9/1/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1082.84
 WEATHER: cloudy

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): C. Henderson / T. Hoang
 ATM. PRESSURE (Patm): (start) 14.02 (finish) 14.07
 Temp: 23.16°C 20.62°C

DTW 165.24

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	511	165.91	167.56	165.91	22.78	354.22	158.78	513	13:42
4	392	390	113.22	115.14	113.22	22.62	233.28	158.72	392	13:45
3	322	320	82.72	84.84	82.72	22.37	163.38	158.62	322	13:46
2	240	238	46.96	49.70	46.96	21.95	82.31	157.69	240	13:48
1	150	148	14.18	14.14	14.18	21.16	0.39	149.61	150	13:50

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-11
 DATE: 4/1/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1139.3
 WEATHER: clear, sunny

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): L. Henderson / T. Hanning
 ATM. PRESSURE (Palm): (start) 14.03 (finish) 14.06

DTW - 208.80'

Temp: 31.08°C 21.66°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	639	637	200.08	177.13	200.08	27.78	376.27	262.73	639	1117
4	524	523	150.62	150.91	150.62	26.29	315.78	208.22	524	1119
3	429	427	109.73	109.08	109.73	25.04	219.28	209.72	429	1122
2	259	257	36.11	40.79	36.11	23.40	61.74	197.26	259	1125
1	149	147	14.14	22.26	14.14	22.30	18.99	130.01	149	1128

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-12
 DATE: 04/01/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1102.14
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. E115 2507
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Phalg
 ATM. PRESSURE (Patm): (start) 74.03 (finish) 74.05
 Temp: 19.27°C 19.19°C

DTW - 143.88'

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)				
5	548	546	190.45	153.71	190.45	19.95	322.24	225.76	548	1402
4	436	434	141.82	123.01	141.82	20.30	251.42	184.58	436	1404
3	323	321	92.74	77.13	92.74	20.13	145.57	177.43	323	1406
2	243	241	57.89	43.30	57.89	19.82	67.53	175.47	243	1408
1	140	138	14.11	14.16	14.11	19.40	0.30	139.70	140	1410

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-14
 DATE: 04/01/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1173.47
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hill
 ATM. PRESSURE (P_{atm}): (start) 14.02 (finish) 14.03
 Temp: 22.29 °C 21.09 °C

DTW - 196.01'

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	540	539	164.35	148.89	164.35	22.61	311.15	228.85	540	1037
4	456	454	127.93	112.62	127.93	22.49	227.47	228.53	456	1039
3	382	381	95.54	80.50	95.54	22.20	153.37	228.63	382	1041
2	277	277	50.02	34.87	50.02	21.51	48.10	228.90	277	1043
1	207	206	50.02 19.17	14.19	50.02 19.17	21.13	0.39	206.61	207	1045

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-17
 DATE: 09/01/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1191.21
 WEATHER: Clear

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMT 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Howard
 ATM. PRESSURE (Patm): (start) 14.02 (finish) 14.04
 Temp: 50.12°C 18.57°C

DTW - 209.41'

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	726	725	838.57	179.34	838.57	19.98	381.39	344.61	726	0825
4	582	581	176.42	126.68	176.42	20.10	259.91	322.09	582	0827
3	468	467	126.98	93.42	126.98	19.75	183.18	284.82	468	0829
2	370	369	84.26	55.06	84.26	19.22	94.68	275.32	370	0831
1	250	249	32.17	14.15	32.17	18.61	0.30	249.70	250	0833

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-18
 DATE: 9/1/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING 1225.41
 WEATHER: clear, sunny

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) L. Henderson / T. Hoang
 ATM. PRESSURE (Patm): (start) 14.01 (finish) 14.03

DTU 294.60

Temp: 19.01°C 18.76°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	684	682	183.86	159.73	183.86	20.39	336.18	347.82	684	0847
4	564	562	131.72	113.01	131.72	20.62	228.39	335.61	564	0849
3	424	422	70.92	63.30	70.92	20.25	113.71	310.29	424	0852
2	330	328	29.94	24.04	29.94	19.39	23.14	306.86	330	0855
1	270	268	14.16	14.25	14.16	19.04	0.55	269.45	270	0858

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-19
 DATE: 4/1/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1142.94
 WEATHER: Clear, Sunny

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoang / L. Henderson
 ATM. PRESSURE (Patm): (start) 14.05 (finish) 14.04
 Temp: 16.49°C 18.44°C

DTW - 141.62

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	498	496	168.71	115.51	168.71	18.25	234.07	263.93	498	0754
4	444	442	145.27	92.34	145.27	18.60	180.62	263.38	444	0757
3	392	390	122.69	85.25	122.69	19.03	164.26	227.74	392	0759
2	314	312	88.84	51.81	88.84	19.18	87.11	226.89	314	0802
1	242	241	57.57	22.42	57.57	18.67	19.31	222.69	242	0805

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-20
 DATE: 04/01/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1165.05
 WEATHER: Clear
 DTW - 243.24'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S):
 ATM. PRESSURE (Patm): (start) 14.03 (finish) 14.06
 Temp: 17.62°C 18.97°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	900	897	300.11	294.40	300.11	18.68	646.81	253.19	900	0725
4	700	697	213.11	195.33	213.11	20.40	418.26	281.74	700	0727
3	562	561	153.12	141.10	153.12	20.51	293.15	268.85	562	0729
2	392	390	79.38	70.71	79.38	19.95	130.76	261.24	392	0731
1	230	228	14.15	14.16	14.15	19.01	0.30	229.70	230	0733

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-21
 DATE: 4/11/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1059.10
 WEATHER: clear, sunny

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): L. Henderson / T. Hoang
 ATM. PRESSURE (Patm): (start) 14.07 (finish) 14.11
 Temp: 24.17°C 20.14°C

DTW - 117.71

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 (Op) (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	372	371	125.61	123.30	125.61	23.09	251.99	120.01	372	1001
4	310	309	98.62	96.44	98.62	22.55	190.03	119.97	310	1003
3	240	240	68.58	66.57	68.58	31.11	121.12	118.88	240	1006
2	161	161	34.18	32.37	34.18	20.48	42.22	118.78	161	1009
1	90	89	14.15	14.18	14.15	20.24	0.25	89.75	90	1012

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-22
 DATE: 04/01/01
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1176.98
 WEATHER: clear

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 8582
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hagan
 ATM. PRESSURE (Patm): (start) 14.02 (finish) 14.03

DTW - 222.51'

Temp: 24.98°C 22.91°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	588	586	173.24	156.16	173.24	24.45	327.92	260.08	588	1309
4	467	466	120.87	107.18	120.87	24.11	214.92	252.08	467	1311
3	389	387	87.04	78.87	87.04	23.73	149.61	239.39	389	1313
2	329	327	61.01	52.69	61.01	23.21	89.21	239.79	329	1315
1	245	244	24.10	16.77	24.10	22.65	5.08	239.92	245	1317

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-23
 DATE: 07/01/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1108.84
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Patm): (start) 14.04 (finish) 14.05
 Temp: 25.19°C 21.89°C

DTW - 141.84'

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	542	541	157.78	166.14	187.78	24.72	350.89	191.11	542	1143
4	445	444	145.83	124.24	145.83	23.98	254.23	190.77	445	1145
3	319	318	91.18	76.08	91.18	23.51	138.51	180.49	319	1147
2	254	253	63.14	47.92	63.14	22.93	78.16	175.84	254	1149
1	174	173	28.30	14.16	28.30	22.45	0.28	173.72	174	1151

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-24
 DATE: 4/11/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1200.94
 WEATHER: cloudy

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): L. Henderson / M. Hoang
 ATM. PRESSURE (Patm): (start) 14.01 (finish) 13.98
 Temp: 19.45°C 22.20°C

DTW - 2'35.44

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	676	205.77	176.40	205.77	21.10	374.63	303.37	678	1422
4	554	552	152.28	129.63	152.28	21.46	266.74	287.26	554	1425
3	435	433	100.70	84.99	100.70	21.59	163.75	271.25	435	1427
2	373	371	73.82	68.46	73.82	21.68	102.55	270.45	373	1430
1	279	277	33.06	19.11	33.05	21.91	11.77	267.23	279	1432

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-25
 DATE: 04/01/21
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 934.53
 WEATHER: Clear
 DTW - 248.60

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoag / L. Henderson
 ATM. PRESSURE (P_{atm}): (start) 14.11 (finish) 14.13
 Temp: 19.60 26.48

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(R) = (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. (oC)				
5	713	711	216.07	215.50	216.07	20.27	464.61	248.39	713	0652
4	633	631	181.62	181.50	181.62	20.73	386.17	246.83	633	0655
3	503	502	125.37	125.40	125.37	20.82	257.67	245.33	503	0658
2	423	421	90.66	91.18	90.66	20.73	177.80	245.20	423	0700
1	358	356	62.38	62.82	62.38	20.63	112.37	245.63	358	0702

Comments: Collar Detect is 2' below sample port

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

WELL ID: MW-26
 DATE: 4/11/21
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING 1059.08
 WEATHER: cloudy
 DTW - 59.49

PROBE TYPE Westbay Sampler G-500psi
 SERIAL NO. CMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) I. Henderson / T. Hoang
 ATM. PRESSURE (Patm): (start) 14.07 (finish) 14.07
 Temp: 27.31°C 23.71

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)				
2	215	211	81.23	46.06	81.23	25.27	73.80	141.20	215	1238
1	135	132	46.46	14.18	46.46	24.27	0.25	134.75	135	1240

Comments: Collar Detect is 2' below sample port