

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 4th Quarter 2020. Water level measurements were recorded before the sampling event on October 23, 2020 for the relatively shallow standpipe monitoring wells and October 23, 28, 29 and 30, 2020 for the Westbay™ multiport wells. Water level measurements were recorded after the sampling event on November 06, 2020 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 # 201023-HH1 Date 10-23-20 Client Tide Water

Site JPL - Pasadena

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	1047					39.81	28.1 Pec pump	 V
MW-5	4	1318				133.51	Del pump		
MW-6	4	1232				Dry	Dry 237.96		
MW-7	4	1545				Dry	267.47		
MW-8	4	1535				77.94	Del pump		
MW-9	4	1042				34.32	Del pump		
MW-10	4	1309				146.46	Del pump		
MW-13	4	1431				DRY	234.26		
MW-15	4	1417				45.11	Del pump		
MW-16	4	1540				DRY	284.71		

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

WELL ID: MW-3
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1100.34
 WEATHER: Clear
DTW - 181.61'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: 101-120 EMS 4702502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Housley
 ATM. PRESSURE (P_{atm}): (start) 14.06 (finish) 14.12
 Temp: 18.76 °C 18.12 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(f) - (P2 - P_{atm}) * 2.307 \text{ ft/psi}$	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	653	651	218.88	218.25	218.88	18.99	471.07	181.93	653	1102
4	558	556	177.59	177.89	177.59	19.21	377.96	180.04	558	1104
3	346	344	80 85.90	86.26	85.90	19.10	166.57	179.43	346	1105
2	252	250	44.48	47.40	44.48	18.90	77.05	174.95	252	1107
1	172	170	14.21	17.30	14.21	18.58	7.47	164.53	172	1108

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-4
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING 1082.84
 WEATHER: Clear
 DTW - 152.25

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. FMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoang
 ATM. PRESSURE (P_{atm}): (start) 14.11 (finish) 14.11
 Temp: 22.87°C 20.75°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(f) = (P2 - P _{atm}) * 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	513	511	171.48	169.46	171.48	22.51	358.39	154.61	513	1346
4	392	390	118.09	117.09	118.09	22.49	237.57	154.43	392	1348
3	322	320	88.12	86.85	88.12	22.24	167.81	154.19	322	1349
2	240	238	52.49	52.05	52.49	21.95	87.53	152.47	240	1350
1	150	148	14.21	16.51	14.21	21.23	5.54	144.46	150	1351

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-11
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1139.3
 WEATHER: Cloudy
 DTW - 204.20'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 8502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoay
 ATM. PRESSURE (Patm): (start) 14.10 (finish) 14.09
 Temp: 21.63°C 19.85°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	202.15	179.01	202.15	21.62	380.45	258.55	639	1444
4	524	522	152.52	152.09	152.52	21.71	318.34	205.66	524	1445
3	429	427	111.69	110.63	111.69	21.34	222.69	206.31	429	1447
2	259	257	38.06	42.37	38.06	20.85	65.22	193.78	259	1449
1	149	147	14.16	21.03	14.16	20.32	15.99	133.01	149	1450

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-12
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1102.14
 WEATHER: Clear
 DTW-13384'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Henry
 ATM. PRESSURE (Patm): (start) 14.10 (finish) 14.11
 Temp: 19.43°C 19.00°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	548	547	195.07	155.55	195.07	19.95	326.33	221.67	548	1407
4	436	435	146.98	124.80	146.48	20.35	255.38	180.62	436	1408
3	323	322	97.25	79.35	97.25	20.20	150.53	172.47	323	1410
2	243	242	62.34	45.78	62.34	19.90	73.09	169.91	243	1411
1	140	139	17.43	14.19	17.43	19.46	0.21	139.79	140	1412

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-14
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1173.47
 WEATHER: dtw 194.61 - clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS2502
 PROJECT: JPL Pasadena
 OPERATOR(S): J. Horny
 ATM. PRESSURE (Palm): (start) 14.05 (finish) 14.07
 Temp: 20.18°C 20.14°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	540	544	105.09	149.45	105.09	21.18	312.37	227.63	540	1249
4	456	454	128.57	113.30	128.57	21.24	228.97	227.03	456	1252
3	382	380	98.36	81.25	98.36	21.06	155.03	226.97	382	1253
2	277	275	50.64	35.71	50.64	20.74	49.97	227.03	277	1255
1	207	205	20.12	14.16	20.12	20.45	0.25	206.75	207	1256

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-17
 DATE: 10/29/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1191.21
 WEATHER: clear, sunny

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT JPL Pasadena
 OPERATOR(S) L. Henderson
 ATM. PRESSURE (Palm): (start) 13.99 (finish) 14.06
 Temp: 37.78°C 21.14

DTW: 209.12

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	726	724	239.03	180.00	239.03	23.75	382.99	343.01	726	1233
4	582	581	176.65	128.05	176.65	22.22	263.14	318.86	582	1237
3	468	466	127.21	95.87	127.21	20.92	188.90	279.10	468	1239
2	370	369	84.63	57.85	84.63	19.71	101.19	268.81	370	1241
1	250	249	32.44	14.25	32.44	18.47	0.60	249.40	250	1243

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-18
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1225.41
 WEATHER: Clear
 DTW - 294.30'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hickey
 ATM. PRESSURE (Patm): (start) 14.02 (finish) 14.05
 Temp: 18.52°C 18.92°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft) = (P2 - Patm) * 2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	684	682	184.13	161.63	184.13	20.04	339.15	344.85	684	10:19
4	564	562	132.02	115.29	132.02	20.39	233.63	330.37	564	10:21
3	424	424	71.14	66.25	71.14	20.15	120.49	303.51	424	10:22
2	330	328	30.21	28.35	30.21	19.67	33.06	296.94	330	10:23
1	270	268	14.18	14.18	14.18	19.31	0.37	269.63	270	10:24

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-19
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1142.94
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoay
 ATM. PRESSURE (Palm): (start) 14.08 (finish) 14.06
 Temp: 18.14°C 18.13°C

DTW - 140.94'

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) <small>P(ft)=(P2-Patm)*2.307 ft/psi</small>	Depth to Water Outside Port (ft) <small>DTW = Dp-P(ft)</small>	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	168.97	117.41	168.97	18.55	238.38	259.62	498	0947
4	444	442	145.61	94.24	145.61	18.82	184.93	259.07	444	0949
3	392	390	123.07	87.48	123.07	19.03	169.33	222.67	392	0951
2	314	312	89.21	54.27	89.21	19.16	92.72	221.28	314	0953
1	242	240	57.90	25.66	57.90	19.14	26.72	215.28	242	0955

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-20
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1165.05
 WEATHER: Clear
 DTW - 240.59'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 8502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Patm): (start) 14.06 (finish) 14.05
 Temp: 19.99°C 19.90°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft) = (P2 - Patm) * 2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	900	898	301.42	296.95	301.42	20.59	652.63	247.37	900	0917
4	700	698	214.45	194.93	214.45	21.40	417.27	282.73	700	0919
3	562	560	154.35	139.17	154.35	21.35	288.63	273.37	562	0921
2	392	390	80.51	73.32	80.51	20.65	136.71	255.29	392	0923
1	230	228	14.19	14.13	14.18	19.70	0.16	229.84	230	0925

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-21
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1059.10
 WEATHER: Clear
 DTW - 116.75'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Heagy
 ATM. PRESSURE (P_{atm}): (start) 14.13 (finish) 14.16
 Temp: 19.88°C 19.51°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	372	371	120.08	124.61	124.08	19.92	254.88	117.12	372	1152
4	310	309	99.08	97.76	99.08	20.01	192.93	117.07	310	1153
3	240	240	69.12	67.93	69.12	19.99	124.12	115.88	240	1155
2	161	161	34.64	33.84	34.64	19.73	45.47	115.53	161	1156
1	90	89	14.20	14.70	14.20	19.60	1.31	88.69	90	1157

Comments: Collar Detect is 2' above sample port

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

WELL ID: NW-22
 DATE: 10/28/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1176.98
 WEATHER: Clear
DTW-221.14'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 282
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hous
 ATM. PRESSURE (Patm): (start) 14.11 (finish) 14.15
 Temp: 17.88°C 20.30°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. (oC)				
5	588	586	174.10	152.51	174.10	19.82	330.82	257.18	588	0722
4	467	466	121.66	108.41	121.66	20.68	217.55	249.45	467	0724
3	389	387	87.81	80.10	87.81	20.89	152.24	236.76	389	0726
2	329	327	61.77	54.02	61.77	20.88	92.07	236.93	329	0728
1	245	244	24.83	18.28	24.83	20.66	9.62	235.38	245	0730

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-23
 DATE: 10/30/20
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1108.84
 WEATHER: Clear
 DTW - 141.20

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. FMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoang
 ATM. PRESSURE (P_{atm}): (start) 14.11 (finish) 14.13
 Temp: 17.72°C 20.33°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-P _{atm})*2.307 ft/psi)	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	542	540	188.28	167.47	188.28	20.06	353.80	188.20	542	0735
4	445	443	146.20	125.55	146.20	20.83	257.09	187.91	445	0738
3	319	317	91.57	77.41	91.57	20.91	146.03	172.97	319	0740
2	254	253	63.38	49.39	63.38	20.72	81.39	172.61	254	0742
1	174	172	28.58	16.11	28.58	20.46	4.61	169.39	174	0744

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-24
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1200.94
 WEATHER: cloudy
 DTW - 229.91'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Palm): (start) 14.07 (finish) 14.05
 Temp: 19.81°C 22.21°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	678	670	208.41	178.16	208.41	21.18	378.56	299.44	678	1507
4	554	552	154.81	131.31	154.81	21.55	270.47	283.53	554	1509
3	435	433	103.25	86.88	103.25	21.64	167.97	267.03	435	1510
2	373	371	76.31	60.69	76.31	21.70	107.55	265.45	373	1511
1	279	277	35.61	22.44	35.61	21.83	19.31	259.69	279	1512

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-25
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 934.53
 WEATHER: Clear
 DTW - 247.80

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 4700 ⁴⁷⁰⁰ 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hagan
 ATM. PRESSURE (Palm): (start) 74.15 (finish) 14.13
 Temp: 18.38°C 19.11°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft) = (P2 - Patm) * 2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	713	712	216.46	214.60	216.46	19.53	462.44	250.56	713	0844
4	633	631	182.01	180.58	182.01	20.27	383.95	249.05	633	0845
3	503	501	125.75	124.86	125.75	20.44	255.41	247.59	503	0847
2	423	422	91.08	90.21	91.08	20.48	175.47	247.53	423	0849
1	358	357	62.77	61.79	62.77	20.44	109.91	248.09	358	0851

Comments: Collar Detect is 2' below sample port

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

WELL ID: MW-26
 DATE: 10/23/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1059.08
 WEATHER: Clear
 DTW - 59.20'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoag
 ATM. PRESSURE (Patm): (start) 14.13 (finish) 14.10
 Temp: 18.88°C 19.39°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)				
2	215	211	81.48	49.48	81.48	19.16	81.55	133.45	215	1128
1	135	131	46.67	15.82	46.67	19.26	3.90	131.10	135	1130

Comments: Collar Detect is 2' below sample port

WELL GAUGING DATA

Project # ~~2015-201106-HH~~ ^{HH} Date 11/06/20 Client Tidewater
201023-HH1

Site JPL - Pasadena

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	1420					40.69	Ded pump	↓
MW-5	4	0927				133.84	DED PUMP		
MW-6	4	0940				DRY	237.96		
MW-7	4	1439				DRY	267.40		
MW-8	4	0844				77.15	DED PUMP		
MW-9	4	1416				35.40	Ded pump		
MW-10	4	0934				150.50	DED PUMP		
MW-13	4	0915				DRY	234.92		
MW-15	4	0808				46.43	DED PUMP		
MW-16	4	0815				DRY	284.95		

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

WELL ID: MW-3
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1100.34
 WEATHER: Clear
DTW-194.63

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EM52502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Palm): (start) 13.95 (finish) 13.95
 Temp: 23.87°C M. 78

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(R)	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	213.93	218.18	213.93	23.05	471.16	181.84	653	1334
4	558	556	172.69	176.46	172.69	22.66	374.91	183.09	558	1336
3	346	345	80.45	85.82	80.45	21.66	165.80	180.20	346	1338
2	252	250	39.50	46.88	39.50	20.77	75.97	176.03	252	1340
1	172	170	14.07	16.55	14.07	20.41	6.00	166.00	172	1342

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-4
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1082.64
 WEATHER: Clear
 DTW-161.73

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hagan
 ATM. PRESSURE (Patm): (start) 14.03 (finish) 14.01
 Temp: 18.35 19.10

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(R)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	513	511	167.33	169.24	167.33	19.02	358.07	154.93	513	0736
4	392	390	114.64	116.85	114.64	19.96	237.21	154.79	392	0737
3	322	320	84.17	86.55	84.17	20.40	167.30	154.70	322	0739
2	240	237	48.38	51.62	48.38	20.41	86.72	153.28	240	0741
1	150	147	14.11	15.40	14.11	20.09	3.16	146.84	150	0742

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-11
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1139.3
 WEATHER: Clear
 PTW - 205.70

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoan
 ATM. PRESSURE (Palm): (start) 13.97 (finish) 14.00
 Temp: 21.22°C 20.02

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Palm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	639	637	201.24	178.46	201.24	21.60	379.48	259.52	639	0906
4	524	522	151.77	151.59	151.77	21.71	317.49	206.51	524	0907
3	429	427	111.05	110.30	111.05	21.55	222.23	206.77	429	0908
2	259	257	37.35	42.00	37.35	21.05	64.67	194.33	259	0910
1	149	147	14.09	20.40	14.09	20.41	14.83	134.17	149	0911

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-12
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1102.14
 WEATHER: Clear
 DTW-134.76

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: FMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hacy
 ATM. PRESSURE (Patm): (start) 14.00 (finish) 14.00
 Temp: 16.68 17.96

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	548	547	194.52	155.01	194.52	17.43	325.31	222.69	548	0755
4	436	435	145.86	121.46	145.86	18.25	254.83	181.17	436	0757
3	323	322	96.69	79.00	96.69	18.56	149.96	173.05	323	0758
2	243	242	61.87	45.35	61.87	18.50	72.32	170.68	243	0759
1	140	138	16.95	14.10	16.95	18.36	0.23	139.77	140	0800

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-14
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1173.47
 WEATHER: Clear
 DTW - 195.60

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoag
 ATM. PRESSURE (Palm): (start) 13.96 (finish) 13.98
 Temp: 24.59 20.84

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	540	539	164.54	149.87	164.54	23.91	313.54	226.46	540	0954
4	456	455	128.01	113.61	128.01	23.47	229.89	226.11	456	0956
3	382	381	95.84	81.54	95.84	22.84	155.91	226.09	382	0957
2	277	275	50.45 50.45	35.87	50.10 50.45	22.22	50.55	226.45	277	0959
1	207	20	19.57	14.17	19.57	21.20	0.48	206.52	207	1001

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-17
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1191.21
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoag
 ATM. PRESSURE (Palm): (start) 13.89 (finish) 13.90
 Temp: 22.11 18.80

DTW - 209.31

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. (oC)				
5	726	724	238.85	179.11	238.85	21.76	381.16	344.84	726	1242
4	582	580	176.21	127.40	176.21	21.55	261.87	320.13	582	1244
3	468	466	126.81	95.36	126.81	20.91	187.95	280.05	468	1245
2	370	368	89.25	57.34	89.25	20.10	100.24	269.76	370	1247
1	250	248	32.11	14.11	32.11	19.40	0.51	249.49	250	1248

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-18
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING _____
 WEATHER: Clear
~~ATW - 174.55'~~ DTW - 294.55'

PROBE TYPE: Westbay O-Scope
 SERIAL NO. [REDACTED]
 PROJECT: [REDACTED] JPL Pasadena
 OPERATOR(S): I. Holey
 ATM. PRESSURE (Patm): (start) 13.87 (finish) 13.90
22.18 °C 19.49 °C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(f) = (P2 - Patm) * 2.307 f(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. (°C)				
5	684	682	183.83	160.00	183.83	22.32	337.12	346.88	684	1305
4	564	562	131.67	114.51	131.67	21.84	232.18	331.82	564	1307
3	424	422	70.83	65.56	70.83	21.21	119.25	304.75	424	1309
2	330	328	29.90	27.45	29.90	20.55	31.33	298.67	330	1311
1	270	268	14.03	14.12	14.03	20.00	0.58	269.42	270	1313

Comments: Collar/cable is 6" above sample port

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

WELL ID: MW-19
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1142.94
 WEATHER: Clear
 DTW - 141.46'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hacy
 ATM. PRESSURE (Palm): (start) 13.94 (finish) 13.96
 Temp: 22.02' 19.75°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft) = (P2 - Patm) * 2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	498	495	168.67	115.48	168.67	21.35	234.25	263.75	498	1215
4	444	441	145.22	92.51	145.22	20.91	181.26	262.74	444	1218
3	392	389	122.71	86.74	122.71	20.66	167.95	224.05	392	1220
2	314	311	88.89	53.18	88.85	20.49	90.53	223.47	314	1221
1	242	239	57.59	24.88	57.59	20.25	25.24	216.76	242	1222

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-20
 DATE: 11/00/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1165.05
 WEATHER: Clear
 DTW-243.76'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 8502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoang
 ATM. PRESSURE (P_{atm}): (start) 13.99 (finish) 13.96
 Temp: 22.67 18.44

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(f) = (P2 - P _{atm}) * 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	900	898	299.78	296.22	299.78	22.39	651.10	248.90	900	1127
4	700	698	213.07	143.76	213.07	22.88	414.73	285.27	700	1132
3	562	560	152.93	138.40	152.93	22.33	287.01	274.99	562	1134
2	392	390	79.04	72.74	79.04	21.11	135.54	256.46	392	1136
1	230	230	14.07	14.15	14.07	19.84	7.29	222.71	230	1138

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-21
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1059.10
 WEATHER: clear
 DTW - 117.41

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. FMS2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hovey
 ATM. PRESSURE (P_{atm}): (start) 14.03 (finish) 14.02
 Temp. 21.51 19.79

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. (oC)				
5	372	371	125.67	124.52	125.67	21.83	254.90	117.10	372	1019
4	310	310	98.61	97.65	98.61	20.70	192.91	117.09	310	1022
3	240	240	68.59	67.76	68.59	20.54	123.96	116.04	240	1026
2	161	161	34.20	33.58	34.20	20.09	45.06	115.94	161	1028
1	90	89	14.08	14.12	14.08	19.88	0.21	89.79	90	1029

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-22
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1176.98
 WEATHER: Cloudy
DTW-221.42

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: EM52502
 PROJECT: JPL Pasadena
 OPERATOR(S): I. Hoan
 ATM. PRESSURE (Patm): (start) 14.00 (finish) 13.98
 Temp: 19.15 20.53

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	173.69	157.59	173.69	20.28	331.26	256.74	588	0708
4	467	466	121.29	108.58	121.29	20.80	218.20	248.80	467	0713
3	389	388	87.49	80.32	87.49	20.93	153.00	236.00	389	0714
2	329	327	61.49	54.21	61.49	20.98	92.76	236.24	329	0715
1	245	243	24.54	17.97	24.54	20.84	9.16	235.84	245	0716

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-23
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1108.84
 WEATHER: clear

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoxley
 ATM. PRESSURE (Patm): (start) 14.00 (finish) 14.00
 Temp: 23.80 21.36

DTW = 141.65

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	540	187.83	167.58	187.83	22.98	354.31	187.69	542	0645
4	445	443	145.85	125.66	145.85	22.84	257.60	187.40	445	0647
3	319	317	91.23	77.60	91.23	22.56	146.73	172.27	319	0648
2	254	253	63.04	49.48	63.04	22.20	81.85	172.15	254	0649
1	174	172	28.29	15.93	28.29	21.76	4.45	169.55	174	0650

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-24
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1200.94
 WEATHER: Clear
 DTW - 232.91'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoay
 ATM. PRESSURE (Patm): (start) 13.98 (finish) 13.96
 Temp: 17.52 22.00

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	678	676	207.01	177.78	207.01	19.11	377.89	300.11	678	0826
4	554	552	153.37	131.06	153.37	19.98	270.10	283.90	554	0830
3	435	433	101.82	86.66	101.82	20.35	167.67	267.33	435	0832
2	373	371	74.92	60.52	74.92	21.75	107.37	265.63	373	0836
1	279	277	34.15	27.04	34.15	21.38	20.90	258.10	279	0834

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-25
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 934.53
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoarey
 ATM. PRESSURE (Patm): (start) 14.05 (finish) 14.08
 Temp: 22.95°C 21.42

DTW - 248.65'

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	216.00	214.68	216.00	22.91	462.85	250.15	713	1057
4	633	631	181.52	180.68	181.52	22.77	384.42	248.58	633	1059
3	503	501	125.19	124.97	125.19	22.48	255.89	247.11	503	1101
2	423	421	90.59	90.34	90.59	22.18	176.00	247.00	423	1102
1	358	356	62.29	61.95	62.29	21.91	110.51	247.49	358	1103

Comments: Collar Detect is 2' below sample port

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

WELL ID: MW-26
 DATE: 11/06/20
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1059.08
 WEATHER: Clear
 DTW - 59.71'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. EMS 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoeny
 ATM. PRESSURE (Palm): (start) 13.99 (finish) 13.95
 Temp: 21.63°C 20.98°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(f) = (P2 - P1) * 2.307 f/psi	Depth to Water Outside Port (ft) DTW = Dp - P(f)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
2	215	211	81.06	48.72	81.06	21.52	80.12	134.88	215	1358
1	135	131	46.25	15.03	46.25	21.17	2.40	132.60	135	1400

Comments: Collar Detect is 2' below sample port