

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 3rd Quarter 2019. Water level measurements were recorded before the sampling event on July 19, 2019 for the relatively shallow standpipe monitoring wells and July 19, 24 and 25, 2019 for the Westbay™ multiport wells. Water level measurements were recorded after the sampling event on August 2, 2019 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 # 190719-AA1 Date 07/19/19 Client Titlewater

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	1000					24.66	Ded pump	
MW-5	4	0815					96.20	Ded pump	
MW-6	4	0854					214.70	Ded pump	
MW-7	4	0635					230.44	Ded pump	
MW-8	4	1145					161.03	Ded pump	
MW-9	4	0955					18.65	Ded pump	
MW-10	4	0645					110.80	Ded pump	
MW-13	4	0639					205.81	Ded pump	
MW-15	4	0818					30.41	Ded pump	
MW-16	4	1319					257.85	284.70	

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

WELL ID: MW-3
 DATE: 07/19/19
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1100.34
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoos
 ATM. PRESSURE (Patm): (start) 14.05 (finish) 14.07
 Temp: 22.58°C 20.21°C

DTW - 184.38'

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	653	650	218.38	233.27	218.38	23.10	505.74	147.26	653	1014
4	558	556	177.13	193.91	177.13	23.23	414.94	143.06	558	1016
3	346	344	84.98	102.48	84.98	22.32	204.01	141.99	346	1018
2	252	250	44.06	63.46	44.06	21.23	113.99	138.01	252	1020
1	172	170	14.11	34.62	14.11	20.03	47.45	124.55	172	1022

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-4
 DATE: 07/24/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1082.84
 WEATHER: Clear

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoag
 ATM. PRESSURE (P_{atm}): (start) 14.12 (finish) 14.14
 Temp: 22.10°C 21.59°C

DTW - 154.42

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	513	511	170.78	184.12	170.78	21.56	392.19	120.81	513	0704
4	392	390	118.03	131.75	118.03	19.55	271.37	120.63	392	0730
3	322	320	87.49	101.40	87.49	20.69	201.35	120.65	322	0735
2	240	238	51.62	60.50	51.62	22.93	120.84	119.16	240	0745
1	150	148	14.24	33.98	14.24	21.43	45.82	104.18	150	0747

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-11
 DATE: 07/19/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1139.3
 WEATHER: Clear
 DTW - 168.81'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hacy
 ATM. PRESSURE (Palm): (start) 14.06 (finish) 14.08
 Temp: 19.83°C 19.65°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	217.41	202.28	217.41	20.07	434.22	204.78	639	0802
4	524	522	167.88	168.72	167.88	20.67	356.80	167.20	524	0804
3	429	427	127.13	126.16	127.13	20.44	258.61	170.39	429	0806
2	259	259	53.43	56.96	53.43	19.31	98.97	160.03	259	0808
1	149	149	14.12	27.71	14.12	18.36	31.49	117.51	149	0810

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-12
 DATE: 07/19/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1102.14
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. 472502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoagy
 ATM. PRESSURE (Patm): (start) 14.05 (finish) 14.07
 Temp: 19.03°C 18.73°C

DTW - 130.80'

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	548	196.36	17.58	196.36	19.85	381.88	166.12	548	0830
4	436	436	147.74	14.40	147.74	20.48	293.80	142.20	436	0832
3	323	323	98.45	9.68	98.45	19.90	186.01	136.99	323	0834
2	243	242	63.66	6.55	63.66	19.20	109.58	133.42	243	0836
1	140	139	18.69	2.07	18.69	18.46	27.73	112.27	140	0838

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-14
 DATE: 07/19/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1173.47
 WEATHER: Clear

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoag
 ATM. PRESSURE (Patm): (start) 14.03 (finish) 14.07
 Temp: 19.43°C 19.58°C

DTW - 192.47'

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft) = (P2 - Patm) * 2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp - P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	540	538	166.03	161.06	166.03	20.08	339.20	200.80	540	0906
4	456	454	129.49	124.94	129.49	20.43	255.87	200.13	456	0908
3	382	381	97.35	92.94	97.35	20.27	182.05	199.95	382	0910
2	277	275	51.53	47.62	51.53	19.87	77.49	199.51	277	0912
1	207	205	21.03	17.62	21.03	19.60	8.28	198.72	207	0914

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-17
 DATE: 07/24/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1191.21
 WEATHER: Clear
 DTW-208, 15'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: 250C
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Patm): (start) 14.03 (finish) 14.05
 Temp: 31.19°C 24.05°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	726	723	239.43	207.42	239.43	20.96	446.15	279.85	726	0943
4	582	579	172.07	149.74	172.07	20.02	313.08	268.92	582	0945
3	468	466	127.60	110.39	127.60	19.02	222.30	245.70	468	0947
2	370	368	85.00	72.51	85.00	17.73	134.91	235.09	370	0949
1	250	248	32.79	30.18	32.79	16.87	37.26	212.74	250	0951

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-18
 DATE: 07/19/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1225.41
 WEATHER: Clear
 DTW - 292.64'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoay
 ATM. PRESSURE (Patm): (start) 14.02 (finish) 14.03
 Temp: 23.99°C 18.87°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	mi ² O Inside Casing	Trans. Temp. (oC)				
5	684	684	184.79	180.97	184.79	22.11	385.15	298.85	684	1041
4	564	561	132.57	132.97	132.57	21.83	274.42	289.58	564	1043
3	424	422	71.78	81.26	71.78	20.81	155.12	268.88	424	1045
2	330	328	30.82	43.90	30.82	19.55	68.93	261.07	330	1047
1	270	268	14.14	18.93	14.14	18.92	11.33	258.67	270	1049

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-19
 DATE: 07/19/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1142.94
 WEATHER: Clear
 DTW - 140.17'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoan
 ATM. PRESSURE (Palm): (start) 14.06 (finish) 14.08
 Temp: 22.55°C 20.40°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (°C)				
5	498	496	169.37	141.95	169.37	22.29	295.04	202.96	498	1102
4	444	442	145.92	118.63	145.92	20.80	241.24	202.76	444	1104
3	392	392	123.33	102.87	123.33	20.46	204.88	187.12	392	1106
2	314	311	89.39	69.41	89.39	20.17	127.69	186.31	314	1108
1	242	240	58.32	40.55	58.32	19.69	61.11	180.89	242	1110

Comments: Collar Detect is 6" above sample port

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

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

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Harwood
 ATM. PRESSURE (Patm): (start) 14.02 (finish) 14.04
 Temp: 24.91°C = 20.35°C

DTW - 239.58'

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	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	900	896	301.86	309.32	301.86	22.88	681.26	218.74	900	1207
4	700	696	213.75	212.64	213.75	22.61	458.22	241.78	700	1209
3	562	558	154.87	152.33	154.87	21.74	319.08	242.92	562	1211
2	392	390	81.06	85.22	81.06	20.07	164.26	227.74	392	1213
1	230	228	14.15	14.53	14.15	18.15	1.18	228.82	230	1215

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-23
 DATE: 07/19/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1108.84
 WEATHER: Clear

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoang
 ATM. PRESSURE (Patm): (start) 14.01 (finish) 14.03
 Temp: 19.85°C 19.65°C

DTW - 140.34'

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	542	188.50	184.56	188.50	20.33	393.46	148.54	542	0705
4	445	443	146.49	142.57	146.49	20.96	296.59	148.41	445	0707
3	319	317	91.94	91.99	91.94	20.91	179.90	139.10	319	0709
2	254	252	63.79	64.15	63.78	20.65	115.67	138.33	254	0711
1	174	172	28.91	31.83	28.91	20.27	41.11	132.89	174	0713

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-24
 DATE: 07/25/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1200.94
 WEATHER: Cloudy
 DTW - 214.20'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2502
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoan
 ATM. PRESSURE (Patm): (start) 14.03 (finish) 14.05
 Temp: 23.07°C 22.21°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) $P(ft) = (P2 - Patm) * 2.307 \text{ ft/psi}$	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	678	678	215.39	192.84	215.39	22.47	424.05	253.95	678	0919
4	554	554	161.70	148.08	161.70	22.28	309.25	244.75	554	0927
3	435	435	110.10	101.04	110.10	21.94	200.73	234.27	435	0929
2	373	373	83.19	75.29	83.19	21.84	141.33	231.67	373	0931
1	279	279	42.42	38.25	42.42	22.16	57.03	221.97	279	0933

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-25
 DATE: 07/15/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 934.53
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: 2502
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Patm): (start) 14.15 (finish) 14.14
 Temp: 25.23 C 20.36 C

DTW - 245.33'

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	712	217.56	213.86	217.56	23.27	459.44	253.56	713	1245
4	633	632	183.03	179.35	183.03	22.74	381.12	251.88	633	1247
3	503	501	172.05	123.57	172.05	21.96	252.43	250.57	503	1249
2	423	421	92.17	88.77	92.17	21.39	172.15	250.85	423	1251
1	358	357	63.88	60.27	63.88	20.98	106.40	251.60	358	1253

Comments: Collar Detect is 2' below sample port

WELL GAUGING DATA

Project # 120719-H#1 Date 08/02/19 Client Tidelands

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 <u>TOC</u>
MW-1	4	1144					27.05	Dee pump	↓
MW-5	4	0945				96.85	P.e.d pump		
MW-6	4	1038				217.03	Dee pump		
MW-7	4	0653				236.33	Dee pump		
MW-8	4	1002				161.34	Dee pump		
MW-9	4	1140				20.43	P.e.d pump		
MW-10	4	0941				115.70	P.e.d pump		
MW-13	4	0642				209.42	P.e.d pump		
MW-15	4	0950				32.34	P.e.d pump		
MW-16	4	0617				261.63	Dee pump		

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

WELL ID: MW-3
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING 1100.34
 WEATHER: Clear / Hot

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT JPL Pasadena
 OPERATOR(S) T. Horgan
 ATM. PRESSURE (Palm): (start) 14.17 (finish) 14.15

DTW - 184.23'

Temp: 28.57°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	653	650	218.37	232.71	218.37	25.41	504.24	148.76	653	1155
4	558	556	177.09	192.72	177.09	24.71	411.98	146.02	558	1157
3	346	344	84.98	101.15	84.98	23.57	200.73	145.27	346	1159
2	252	250	44.07	62.06	44.07	22.33	110.55	141.45	252	1201
1	172	170	14.20	32.79	14.20	20.94	43.03	128.97	172	1203

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-4
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WASTBAY CASING: 1082.84
 WEATHER: DTU - 154.60'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. 250F
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoan
 ATM. PRESSURE (Patm): (start) 14.12 (finish) 14.14
 Temp: 29.70°C 21.03°C

Port No.	Depth to Meas. Port Valve (ft)		Pressure Readings (psi)				Pressure Head Outside Port (ft) P(ft)=(P2-Patm)*2.307 ft/psi	Depth to Water Outside Port (ft) DTW = Dp-P(ft)	True Port Depth (Dp) (ft)	Time
	From Log (Dp)	From Cable	psi Inside Casing	kg/cm ² Outside Casing P2	mH ₂ O Inside Casing	Trans. Temp. (oC)				
5	513	511	170.42	183.68	170.42	25.90	391.17	121.83	513	1615
4	392	390	117.81	131.25	117.81	24.53	270.22	121.78	392	1617
3	322	320	87.40	100.89	87.40	23.57	200.18	121.82	322	1619
2	240	238	51.59	66.10	51.59	22.56	119.92	120.08	240	1621
1	150	148	14.14	33.28	14.14	21.19	44.20	105.80	150	1623

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-11
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1139.3
 WEATHER: Clear / Hot
 DTW - 171.72'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoang
 ATM. PRESSURE (Palm): (start) 74.08 (finish) 14.09
 Temp: 20.91°C 21.05°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	mi ² O Inside Casing	Trans. Temp. (oC)				
5	639	637	215.21	200.79	215.21	24.44	430.74	208.26	639	1014
4	524	522	166.52	167.35	166.52	23.60	353.59	170.41	524	1016
3	429	427	123.67	124.75	123.67	22.50	255.32	173.68	429	1018
2	259	258	52.08	55.49	52.08	21.10	95.53	163.47	259	1020
1	149	148	14.13	27.10	14.13	20.02	30.04	118.96	149	1022

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-14
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1173.47
 WEATHER: Clear / Hot

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoang
 ATM. PRESSURE (Palm): (start) 14.09 (finish) 14.10
 Temp: 30.19°C 21.47°C

DTW - 192.86'

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	540	539	165.74	160.03	165.74	26.92	336.68	203.32	540	1048
4	456	454	129.23	123.89	129.23	25.16	253.31	202.69	456	1050
3	382	381	97.12	91.87	97.12	23.89	179.44	202.56	382	1052
2	277	275	51.36	46.59	51.36	22.38	74.98	202.02	277	1054
1	207	206	20.86	16.66	20.86	21.54	5.93	201.07	207	1056

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-17
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1191.21
 WEATHER: Clear/Hot
 DTW - 205.20'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoang
 ATM. PRESSURE (Patm): (start) 14.10 (finish) 14.17
 Temp: 26.71°C 23.09°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	726	726	239.02	206.05	239.02	23.06	442.90	283.10	726	1217
4	582	582	176.68	149.46	176.68	22.10	312.28	269.72	582	1219
3	468	466	127.46	110.05	127.46	20.57	221.36	246.64	468	1221
2	370	369	84.81	72.23	84.81	18.02	134.11	235.89	370	1223
1	250	248	32.72	28.86	32.72	17.35	34.05	215.95	250	1225

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-18
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1225.41
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: 2508
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hooley
 ATM. PRESSURE (Patm): (start) 14.07 (finish) 14.08
 Temp: 23.13°C 21.55°C

DTW - 292.85'

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	684	683	184.55	178.81	184.55	22.15	380.06	303.94	684	1237
4	564	562	132.84	131.53	132.84	20.85	270.98	293.02	564	1239
3	424	422	71.63	79.94	71.63	20.03	151.96	272.04	424	1241
2	330	328	30.79	42.56	30.79	18.92	65.73	264.27	330	1243
1	270	268	14.19	17.54	14.19	18.42	8.01	261.99	270	1245

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-19
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1142.94
 WEATHER: clear
DTW - 140.33'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: 2508
 PROJECT: JPL Pasadena
 OPERATOR(S): To Hoang
 ATM. PRESSURE (Patm): (start) 14.11 (finish) 14.13
 Temp: 33.12°C 24.59°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	169.08	140.26	169.08	26.02	291.03	206.97	498	1330
4	444	442	145.51	117.00	145.51	24.34	237.37	206.63	444	1332
3	392	392	123.16	101.66	123.16	23.08	201.98	190.02	392	1334
2	314	311	89.35	68.28	89.35	22.04	124.97	189.03	314	1336
1	242	239	58.11	39.37	58.11	21.22	58.27	183.73	242	1338

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-20
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1165.05
 WEATHER: Clear / Hot
 DTW - 239.59'

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. 8508
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoay
 ATM. PRESSURE (P_{atm}): (start) 14.15 (finish) 14.16
 Temp: 29.15°C 30.90°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. (oC)				
5	900	896	301.42	308.51	301.42	24.81	679.09	220.91	900	1538
4	700	696	214.81	210.06	214.81	23.79	451.96	248.04	700	1540
3	562	558	154.73	151.11	154.73	22.51	315.97	246.03	562	1542
2	392	390	81.93	84.42	81.93	19.72	162.11	229.89	392	1544
1	230	228	80.96	14.18	80.96	19.48	0.07	229.93	230	1546

Comments: Collar Detect is 6" above sample port

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

WELL ID: MW-21
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1059.10
 WEATHER: Clear/Hot
 DTW - 115.86'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoang
 ATM. PRESSURE (Patm): (start) 14.17 (finish) 14.15
 Temp: 20.18°C 21.95°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	372	371	126.32	136.31	126.32	22.58	281.78	90.22	372	1108
4	310	309	99.45	109.45	99.45	22.00	219.81	90.19	310	1110
3	240	240	69.48	79.72	69.48	21.26	151.22	88.78	240	1112
2	161	160	34.99	45.78	34.99	20.56	72.92	88.08	161	1114
1	90	89	14.18	15.08	14.18	20.12	2.10	87.90	90	1116

Comments: Collar Detect is 2' above sample port

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

WELL ID: MW-22
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1176.98
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO: 2508
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Horgan
 ATM. PRESSURE (Patm): (start) 74.06 (finish) 14.04
 Temp: 22.51°C 20.99°C

DTW - 196.38'

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	184.60	173.62	184.60	22.18	368.10	219.90	588	0811
4	467	466	132.22	123.17	132.22	20.34	251.72	215.28	467	0813
3	389	388	98.40	92.75	98.40	20.69	181.54	207.46	389	0855
2	329	328	72.27	66.81	72.27	20.67	121.69	207.31	329	0859
1	245	244	35.50	31.76	35.50	20.09	40.83	204.17	245	0903

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-23
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1108.84
 WEATHER: Clear

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO.: 2508
 PROJECT: JPL Pasadena
 OPERATOR(S): T. Hoenig
 ATM. PRESSURE (Patm): (start) 74.17 (finish) 14.11
 Temp: 20.66 20.10 °C

DTW - 140.42'

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	mti'O Inside Casing	Trans. Temp. (oC)				
5	542	541	188.47	183.27	188.47	20.95	390.37	151.63	542	0928
4	445	443	146.63	141.32	146.63	21.27	293.59	151.41	445	0930
3	319	318	91.95	90.79	91.95	21.10	177.02	141.98	319	0932
2	254	252	63.80	62.93	63.80	20.78	112.74	141.26	254	0934
1	174	172	29.02	30.44	29.02	20.32	37.79	136.21	174	0936

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-24
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 1200.94
 WEATHER: Clear
 DTW - 215.16'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT JPL Pasadena
 OPERATOR(S) T. Horn
 ATM. PRESSURE (Palm): (start) 14.06 (finish) 14.07
 Temp: 21.54°C 20.31°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	678	677	214.71	197.25	214.71	22.01	422.62	255.38	678	0716
4	554	553	161.07	147.46	161.07	22.05	307.75	246.25	554	0718
3	435	434	109.48	100.36	109.48	21.91	199.09	235.91	435	0720
2	373	372	82.75	74.55	82.75	21.89	139.55	233.45	373	0722
1	279	278	41.95	37.72	41.95	21.75	54.58	224.42	279	0725

Comments: Collar Detect is 1' above sample port

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

WELL ID: MW-25
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING 934.53
 WEATHER: clear / hot
 DTW - 245.50'

PROBE TYPE Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT JPL Pasadena
 OPERATOR(S) T. Hoz
 ATM. PRESSURE (Patm): (start) 14.22 (finish) 14.20
 Temp: 32.40°C 24.39°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(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	217.13	213.37	217.13	26.96°C	459.44	253.56	713	1512
4	633	632	182.67	179.37	182.67	25.30°C	381.00	252.00	633	1514
3	503	501	126.45	123.59	126.45	23.83°C	252.32	250.68	503	1516
2	423	421	91.76	88.84	91.76	22.94°C	172.15	250.85	423	1518
1	358	357	63.44	60.38	63.44	22.28°C	106.49	251.51	358	1520

Comments: Collar Detect is 2' below sample port

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

WELL ID: MW-26
 DATE: 08/02/19
 LOCATION: JPL
 ELEV. TOP OF WESTBAY CASING: 1059.08
 WEATHER: clear / Hot

PROBE TYPE: Westbay Sampler 0-500psi
 SERIAL NO. 2508
 PROJECT: JPL Pasadena
 OPERATOR(S):
 ATM. PRESSURE (Patm): (start) 14.17 (finish) 14.19
 Temp: 33.91°C 29.05°C

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(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)				
2	215	211	79.44	54.56	79.44	31.97	104.71	110.29	215	1446
1	135	131	44.60	24.58	44.60	28.15	24.02	110.98	135	1448

Comments: Collar Detect is 2' below sample port