FINAL REPORT

ATTACHMENT C

Observation Well Logs

and Development Records

Slug Test Data

Packer Test Data

Volume 1 of 1

FINAL REPORT

ATTACHMENT C

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FINAL REPORT

ATTACHMENT C

This Attachment is one of a number of attachments that are part of the following report which was prepared by MACTEC Engineering & Consulting Inc.:

Data Report
SCE&G COL Project
V.C. Summer Nuclear Plant
Subsurface Investigation and Laboratory Testing
Bechtel Subcontract No. 25242-102-HC4-CY00-00001
MACTEC Job No. 6234-06-3534

For background and a description of scope of work contained in the report, please refer to the above referenced report. The report was addressed as follows:

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The following list shows other Attachments to the above report and their included information:

1.0 OBSERVATION WELLS

1.1 Exploratory Borings to Plan Well Installation

Exploratory borings were made near each OW location to obtain the information necessary for Bechtel to determine the depth(s) for the OW installation. The logs for these exploratory borings, which have the same numbers as the corresponding Observation Wells (OWs), are found in Attachment B of the report.

Exploratory borings for the OW locations may be classified as two types. The first type is those where the exploratory boring was not for geotechnical engineering information, but served only to obtain the information necessary for Bechtel to determine the depth for the OW screen. The soil portion of this type of exploratory boring may have been drilled with hollow-stem augers (HSA) and soil samples were obtained at approximately 5 ft depth intervals using the SPT sampler. These soil samples were suitable for laboratory testing but the SPT blow counts will not be used for geotechnical engineering purposes. The HSA drilling extended to the depth specified or to refusal to HSA drilling, and a one inch diameter PVC pipe (slotted) was placed in the boring as necessary to allow measurement of the water table depth over time for one to several days after the augers are removed. The depth to the water in the temporary PVC pipe was measured until the approximate stabilized water table depth was evaluated, after which the HSA boring was tremie grouted (using the one-inch PVC pipe as the tremie) and abandoned.

The second type of exploratory boring is one that is to be used for geotechnical information. In these, the drilling method was mud rotary (except within the upper 15 ft in some borings, where hollow stem augers were used) and the SPT samples were taken according to the Specification for the geotechnical borings. A temporary PVC pipe or other casing was used to keep these boreholes open, as necessary, to allow the water level within the borehole to equalize with the surrounding water table to provide the information necessary to determine the depth for the well screen(s) in the OW.

Following Bechtel's review of the exploratory borings including the depth to the water table as described above, the exploratory borings were filled with grout and abandoned. The observation wells were then installed using HSA, mud rotary, or air rotary drilling methods in accordance with the Specification and following Bechtel's directions for depth and other details. Diagrams of the wells are provided. The wells consist of PVC screen and riser pipe, sand filter pack, bentonite chips or pellets and cement bentonite grout. Protective steel well covers and concrete pads were placed at the surface as noted in the Specification.

1.2 Well Installation

Thirty One observation wells were installed on the site as part of this project – screened in the soil/weathered rock zone and in the rock. The wells were installed per Section 5.3 of the Specification.

Boreholes for installation of all observation wells were advanced using either hollow stem auger, mud rotary or air rotary drilling to make a nominal 6 inch hole diameter. The holes were advanced to depths specified by Bechtel's field representative.

As discussed in Section 1.1, the observation wells were installed in separate borings made nearby the geotechnical borings as instructed by Bechtel, with the exception of OW-227, OW-617, OW-622, and OW-625. The geotechnical borings B-227, B-617, OW-622, and B-625 were reamed out and/or deepened for installation of these associated monitoring wells. The lithology shown on the Observation Well Logs for OW-227, OW-617, OW-622, and OW-625 is from the borehole in which the well was installed. The lithology shown on the remainder of the Observation Well Logs is from the nearby companion geotechnical borehole. The geotechnical borings were generally made between about 5 and 20 feet from the observation well (See survey coordinates for actual offset distance).

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Upon reaching the designated depth for a well, slotted PVC casing connected to solid sections was set. A sand pack and bentonite seal were then placed. A grout plug was placed from the top of the bentonite seal to the ground surface to each borehole. The grout mix specified in Section 4.13 of the Specification was used.

The depth of the screened interval, length of the screen and general well configuration were designated in the field for each well by Bechtel's field representative. Since the ground surface elevations at the wells sites were not determined until after the well pads were placed, the top of the PVC casing elevation, less the casing stickup above ground surface as measured at the time of installation, was used to back-calculate the ground surface elevation shown on the observation well logs. All water depth measurements are referenced to the top of the PVC casing. The elevation of the top of the casing was also used along with measurements of the well sections to calculate elevations for the well monitoring interval.

Construction details for all 31 wells are included in Appendix C-1 herein.

All wells were capped with a lockable steel well cover extending approximately two feet above grade. A concrete pad, two feet square and six inches thick, was also placed around each well cover per the Specification.

1.3 Well Development

After well installation was completed, wells were developed by pumping and bailing. The development procedure agreed to with Bechtel was first to bail until the water shows minimal sediment, then pump to remove at least 3 standing well volumes of water, cycling the pump on and off to create a surging effect. A well was considered developed when the pumped water was reasonably clear of suspended sediment and relatively clear to sight.

All wells were developed satisfactorily using the planned procedure. Well development records are included in Appendix C-2 herein.

2.0 Field Permeability Tests

2.1 Slug Tests

Field permeability testing was conducted in each observation well (except OW 501)using procedures described in Section 8 of ASTM D 4044. This procedure is commonly termed the slug test method. Slug testing involves establishing a static water level, lowering a solid cylinder into the well to cause an increase of water level in the well and monitoring the time rate for the well water level to return to the pre-test static level. This method is commonly called the "slug-in" method. After that stabilization, the slug is rapidly removed to create a lowering of the water level in the well, and the time rate for water to recover to the pre-test static level is recorded. This method is commonly called the "Slug-out" method. Electronic transducers and data loggers are used for measuring the water levels and times during the test.

Table C-2 is a Slug Test Data Summary Sheet. Charts (graphs) of the water surface versus time during the slug tests are in Appendix C-3. The test data, the data logger output sheets, are contained on the CD included herein.

2.2 Packer tests

Field permeability testing by the packer method was conducted in selected exploratory borings using test procedures described in ASTM D 4630, modified to use a manually read flow meter rather than a digitally recorded one. The packer testing method involved establishing and maintaining a constant pressure in the packer test interval or test length, measured by an electronic transducer, and determining the rate of inflow associated with maintaining the pressure. The test method is thus know as the constant head injection test". Five pressure values were generally used in each test interval. The boring locations for packer testing were identified in Bechtel's letter No. 25242-102-T14-CY00-00022 dated June 9, 2006. That letter changes the test location and depths shown in the Specification to a scope of two test lengths (packer intervals) in each of four borings (B205, B212, B305, and B330). Boring B212 displayed difficulty in inserting the packers leading to concern about retrieving the packer assembly from the bore hole. Accordingly, Bechtel changed the requested test location from B212 to B201. Bechtel also requested a test length (packer interval) of 10 feet in all the tested borings instead of 5 feet as stated in the Specifications.

The purpose of the packer testing was to establish the coefficient of permeability (also called hydraulic conductivity) of the rock in the packer test length. Tables C-3 through C-6 show the calculated coefficient of permeability from the packer tests. Figures C-1 through C-4 show the flow rate versus pressure. The CD with the test data is included herein.

3.0 Water Level Measurements

On June 23, 2006 and again on July 25, 2006, MACTEC representatives checked water levels in 30 of the 31 monitoring wells. OW-501, located inside the existing VC Summer plant, was not monitored as part of this effort, due to the fact that this well was not installed until August 2, 2006. Measurements were made using an electric water level meter and referenced to the notched top of the casing. Water levels recorded are in Table C-7.

TABLE C-1
OBSERVATION WELL CONSTRUCTION DETAILS SUMMARY
SCE&G COL PROJECT
MACTEC ENGINEERING AND CONSULTING, INC.
PROJECT # 6234-06-3534S

WELL ID	Well Diameter (inches)	Drilling Method	Boring Diameter (inches)	Ground Surface Elevation (feet, msl)	Top of Casing Elevation (feet, msl)	Top of Bentonite Seal (feet, bgs)	Top of Sand (feet, bgs)	Screened Interval (feet, bgs)	Screen Length (feet)	Sump Length[1] (feet)	Total Well Depth (feet, bgs)
OW-205A	2	AR	6	423.3	425.9	76	80	98.5-108.5	10	0.5	110
OW-205B	2	HSA	6.25	422.9	425	45.9	49.9	54.9-59.9	5	0.5	60
OW-212	2	HSA	6.25	396.2	399.3	50	53	56-66	10	0.5	68
OW-213	2	HSA	6.25	402.1	404.5	38.5	41.5	44.75-54.75	10	0.5	55.25
OW-227	2	AR	6	422.7	425.1	64	67	71.25-81.25	10	2.5	84.25
OW-233	2	AR	6	426.2	428.3	70	74	99-119	20	0.5	120
OW-305A	2	AR	6	424.9	427.8	90	95	119.5-139.5	20	0.5	141
OW-305B	2	AR	6	423.7	426.3	47	51	54.5-64.6	10	0.5	66.5
OW-312	2	HSA	6.25	425.1	427.1	23.3	26.4	30.5-35.5	5	0.5	36.5
OW-313	2	HSA	6.25	420.9	423.8	41.1	44.1	48-58	10	0.5	59
OW-327	2	AR	6	410.7	413.4	48	51.5	55-65	10	0.5	66
OW-333	2	AR	6	394.5	397.1	49	52	60-70	10	0.5	71
OW-401A	2	AR	6	404.1	406.3	60	76	80-90	10	2.5	92.5
OW-401B	2	MR	6	404.1	406.8	52	57	60-65	5	0.5	66
OW-405	2	MR/AR	6	392.6	395.4	38	41	44-54	10	2.5	58.5
OW-501	2	MR	6	429.5	431.9	13	17.5	20-30	10	2.5	32
OW-612	2	MR	6	406.8	409.4	41	44.5	47.5-57.5	10	2.5	62
OW-614	2	MR	6	376.1	379.1	15.5	18.5	21.5-31.5	10	2.5	33
OW-617	2	HSA	6.25	447.2	450.1	89.6	93	98-108	10	0.5	108
OW-618	2	HSA	6.25	307.4	310.5	10	13.8	18.5-28.5	10	2.5	32.5
OW-619	2	AR	6	405.7	407.7	73.5	79.5	83-103	20	0.5	104
OW-620	2	MR	6	382.8	385	71	74	76.6-86.5	10	2.5	91
OW-621A	2	AR	6	420.9	423.5	74	80	87.3-97.3	10	0.5	97.3
OW-621B	2	HAS/AR	6.25/6	421.2	423.6	52	55	60-70	10	0.5	71
OW-622	2	AR	6	438.1	440.7	40.9	44.5	48.5-58.5	10	0.5	62
0W-623	2	AR	6	439.6	441.8	67.5	72	76.5-86.5	10	2.5	90
0W-624	2	AR	6	359.3	361.6	41.5	45	48.5-58.5	10	2.5	62
OW-625	2	HSA	6.25	403.2	405.9	74	80.5	84.5-104.5	20	0.5	108
OW-626	2	MR	6	416.4	418.8	55	63	71-81	10	2.5	85
OW-627A	2	AR	6	327.6	330.3	42	64	66-86	20	0.5	86
OW-627B	2	HSA	6.25	326.9	329.5	32	37	43-53	10	2.5	56

NOTES:

[1] Sumps with a length of 0.5 inches are generally included as part of the over all screen length.

HSA Hollow stem augers.
AR Air rotary/air hammer drilling method
MR Mud rotary drilling method

TOC Top of the well casing
bgs Below ground surface
msl Mean sea level
NA Not Applicable

Prepared By/Date mfc 1/26/07

Checked By/Date CBS 1/26/07

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TABLE C-2
SLUG TEST DATA SUMMARY SHEET
SCE&G COL PROJECT
MACTEC ENGINEERING AND CONSULTING, INC.
PROJECT # 6234-06-3534S

	Monitoring Well Dimension Data										Aquifer Data			Slug Test Type			
WELL ID	Well Diameter (inches)	Drilling Method	Boring Diameter (inches)	Ground Surface Elevation (feet, msl)	Top of Casing Elevation (feet, msl)	Top of Sand (feet, bgs)	Screened Interval (feet, bgs)	Screen Length (feet)	Sump Length[1] (feet)	Total Well Depth (feet, bgs)	Static Water Level[2] (feet, TOC)	Depth of Well Penetration (feet) [4]	Saturated Thickness (feet) [4]	Slug Dimensions	Test Type	Rising Head Maximum Displacement[3] (feet)	Falling Head Maximum Displacement[3] (feet)
OW-205A	2	AR	6	423.3	425.9	80	98.5-108.5	10	0.5	110	68.27	44.23	44.23	1	B, R, F	9.13	5.125
OW-205B	2	HSA	6.25	422.9	425	49.9	54.9-59.9	5	0.5	60	59.81	2.69	2.69	2	B, R	0.347	
OW-212	2	HSA	6.25	396.2	399.3	53	56-66	10	0.5	68	47.95	22.55	22.55	1	B, R, F	1.629	3.267
OW-213	2	HSA	6.25	402.1	404.5	41.5	44.75-54.75	10	0.5	55.25	45.29	12.46	12.46	1	B, R	3.265	
OW-227	2	AR	6	422.7	425.1	67	71.25-81.25	10	2.5	84.25	63.70	23.05	23.05	2	B, R, F	5.406	4.434
OW-233	2	AR	6	426.2	428.3	74	99-119	20	0.5	120	102.95	19.55	19.55	3	B, R	0.792	
OW-305A	2	AR	6	424.9	427.8	95	119.5-139.5	20	0.5	141	59.64	83.86	83.86	2	B, R, F	6.119	5.341
OW-305B	2	AR	6	423.7	426.3	51	54.5-64.6	10	0.5	66.5	58.92	10.08	10.08	1	B,R	6.56	
OW-312	2	HSA	6.25	425.1	427.1	26.4	30.5-35.5	5	0.5	36.5	DRY	NA	NA	NA	NA	NA	NA
OW-313	2	HSA	6.25	420.9	423.8	44.1	48-58	10	0.5	59	51.05	10.45	10.45	2	B, R	2.817	
OW-327	2	AR	6	410.7	413.4	51.5	55-65	10	0.5	66	54.25	14.25	14.25	1	B, R	3.322	
OW-333	2	AR	6	394.5	397.1	52	60-70	10	0.5	71	62.85	10.65	10.65	2	B, R	4.369	
OW-401A	2	AR	6	404.1	406.3	76	80-90	10	2.5	92.5	55.19	39.81	39.81	2	B, R, F	6.543	3.418
OW-401B	2	MR	6	404.1	406.8	57	60-65	5	0.5	66	55.80	12.70	12.70	2	B, R, F	7.944	5.482
OW-405	2	MR/AR	6	392.6	395.4	41	44-54	10	2.5	58.5	41.65	19.35	19.35	2	B, R, F	3.128	5.631
OW-612	2	MR	6	406.8	409.4	44.5	47.5-57.5	10	2.5	62	52.05	12.45	12.45	2	B, R	2.211	
OW-614	2	MR	6	376.1	379.1	18.5	21.5-31.5	10	2.5	33	28.91	6.59	6.59	2	B, R	3.45	
OW-617	2	HSA	6.25	447.2	450.1	93	98-108	10	0.5	108	100.70	9.80	9.80	2	B, R	3.65	
OW-618	2	HSA	6.25	307.4	310.5	13.8	18.5-28.5	10	2.5	32.5	7.05	27.95	27.95	2	B, R, F	3.548	5.243
OW-619	2	AR	6	405.7	407.7	79.5	83-103	20	0.5	104	104.00	2.50	2.50	4	B, R	1.081	
OW-620	2	MR	6	382.8	385	74	76.6-86.5	10	2.5	91	36.98	56.52	56.52	2	B, R, F	5.695	5.893
OW-621A	2	AR	6	420.9	423.5	80	87.3-97.3	10	0.5	97.3	97.30	2.50	2.50	1	B, R	2.252	
OW-621B	2	HAS/AR	6.25/6	421.2	423.6	55	60-70	10	0.5	71	54.95	18.55	18.55	2	B, R, F	6.438	5.44
OW-622	2	AR	6	438.1	440.7	44.5	48.5-58.5	10	0.5	62	46.67	17.83	17.83	1	B, R, F	5.402	4.161
0W-623	2	AR	6	439.6	441.8	72	76.5-86.5	10	2.5	90	72.10	20.40	20.40	2	B, R, F	4.569	5.66
0W-624	2	AR	6	359.3	361.6	45	48.5-58.5	10	2.5	62	56.67	7.83	7.83	2	B, R	5.872	
OW-625	2	HSA	6.25	403.2	405.9	80.5	84.5-104.5	20	0.5	108	89.00	21.50	21.50	2	B, R	3.272	
OW-626	2	MR	6	416.4	418.8	63	71-81	10	2.5	85	49.90	37.60	37.60	2	B, R, F	3.959	5.872*
OW-627A	2	AR	6	327.6	330.3	64	66-86	20	0.5	86	65.03	23.47	23.47	1	B, R, F	4.38	4.166**
OW-627B	2	HSA	6.25	326.9	329.5	37	43-53	10	2.5	56	12.39	46.11	46.11	2	B, R, F	9.85	5.616

NOTES:

[1] Sumps with a length of 0.5 inches are generally included as part of the over all screen length.

[2] Static water levels recorded prior to running the slug test.

[3] Water levels has been corrected to reflect total displacement (from time 0).

[4] Survey data not available at the time of this draft report. The correction from bgs to toc assumes a stickup of 2.5 feet for all wells.

HSA Hollow stem augers.
AR Air rotary/air hammer drilling method
MR Mud rotary drilling method
TOC Top of the well casing
bgs Below ground surface
msl Mean sea level
1 Slug weight = 8.40 pounds, diameter = 1.6 inches, length = 5.5 feet
2 Slug weight = 9.09 pounds, diameter = 1.625 inches, length = 5.5 feet
3 Slug weight = 3.94 pounds, diameter = 1.1 inches, length = 4.46 feet
4 Approximately 1/4 gallon (bail well dry).
B Background Test
R Rising Head Test
F Falling Head Test
* Water level corrected using recovery data (last point).
** Water level corrected using field mesurments (see field notes)

Prepared By/Date mfc 1/26/07

Checked By/Date CES 1/26/07

DCN 362Rev2

TABLE C-3
B201 Packer Test Results
SCE&G COL PROJECT
MACTEC ENGINEERING AND CONSULTING, INC.
PROJECT # 6234-06-3534S

Given Parameters	
Test Section Length ℓ, ft:	10
Radius of Borehole r_o, ft:	0.1667
GW Elevation, ft:	65

Interval: 65-75

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy	
1	0	4.8	3.33	22.51	8.58	0.0000	51.95	-	
2	0	20.5	3.05	44.71	7.46	0.0000	103.18	-	
3	0.4	42.4	2.83	68.31	6.83	0.0009	157.64	12	(1)
4	0	9.4	2.62	33.67	6.45	0.0000	77.70	-	
5	0.467	40.4	2.44	67.99	6.45	0.0010	156.90	14	(1)
							K_e, ft/year	0	

Interval: 86-96

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy	
1	0	0	13.97	28.94	0.703	0.0000	66.78	-	
2	0.3	13.9	18.37	53.49	20.37	0.0007	123.44	11	(1)
3	6.4	42.1	14.69	79.99	19.46	0.0143	184.59	159	(1)
4	1	0.9	12.33	40.14	17.01	0.0022	92.63	49	
5	6	42.2	10.94	79.65	18.37	0.0134	183.81	150	(1)
							K_e, ft/year	49	

Notes:

Q = flow rate, gallons per minute (GPM)

Test Number, flow rate (GPM) and gauge pressure taken from field measurements. Pressures above, at and below the test section collected via pressure transducers.

P_g is equal to gauge pressure, P_T is pressure above the top packer (psi), P_M is pressure at the test section (psi), P_B is pressure below bottom packer (psi)

H_M is P_M coverted to feet of head (P_g*144in^2/ft^2 / γ_w)

K_e = ((Q/H_M)*(1/ℓ))*1/2π*ln(R/r_o)*(525,600 min/year)*(.1337 ft^3/gal)

R is equal to total length between packers, ℓ

Radius of borehole (r_o) taken from outside diameter of boring, 4 inches

Pressure taken from final data point for transducers prior to shut-in test

(1) indicates data beyond the linear range of Q v H_M

By: MJD 8/25/06

CK: CES 8/25/06

TABLE C-4
B205 Packer Test Results
SCE&G COL PROJECT
MACTEC ENGINEERING AND CONSULTING, INC.
PROJECT # 6234-06-3534S

Given Parameters

Test Section Length ℓ, ft:	10
Radius of Borehole r_o, ft:	0.1667
GW Elevation, ft:	58.2

Interval: 59-69

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy
1	5.2	5.3	-0.153	21.19	4.87	0.0116	48.90	487
2	8.8	17.9	-0.155	42.05	5.8	0.0196	97.04	415
3	12.8	41	-0.155	62.21	7.21	0.0285	143.56	408
4	6.2	5.7	-0.156	31.43	4.52	0.0138	72.53	392
5	12.2	41.4	-0.158	63.29	6.67	0.0272	146.05	383
							K_e, ft/year	**417**

Interval: 96-106

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy
1	NR	NR	-	-	-	-	-	-
2	0	NR	0.8	24.06	22.09	0.0000	55.52	-
3	0	9.3	0.702	35.91	21.65	0.0000	82.87	-
4B	0	43.5	0.649	82.17	23.11	0.0000	189.62	-
							K_e, ft/year	**0**

Notes:

Q = flow rate, gallons per minute (GPM)

Test Number, flow rate (GPM) and gauge pressure taken from field measurements. Pressures above, at and below the test section collected via pressure transducers.

P_g is equal to gauge pressure, P_T is pressure above the top packer (psi), P_M is pressure at the test section (psi), P_B is pressure below bottom packer (psi)

H_M is PT coverted to feet of head (P_g*144in^2/ft^2 / γ_w)

K_e = ((Q/H_M)*($1/\ell$))*1/2π*ln(R/r_o)*(525,600 min/year)*(.1337 ft^3/gal)

R is equal to total length between packers, ℓ

Radius of borehole (r_o) taken from outside diameter of boring, 4 inches

Pressure taken from final data point for transducers prior to shut-in test

NR = Test 1 not run, Test 2 surface gauge pressure not recorded

By: MKD 8/25/06

CK: CES 8/25/06

TABLE C-5
B305 Packer Test Results
SCE&G COL PROJECT
MACTEC ENGINEERING AND CONSULTING, INC.
PROJECT # 6234-06-3534S

Given Parameters

Test Section Length ℓ, ft:	10
Radius of Borehole r_o, ft:	0.1667
GW Elevation, ft:	57.2

Interval: 62-72

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy
1	1	9.7	1.27	21.06	9.55	0.0022	48.60	94
2	1.8	14.3	1.19	41.63	9.39	0.0040	96.07	86
3	2.6	33.7	1.15	63.01	9.38	0.0058	145.41	82
4	1.4	9.3	1.07	31.59	9.32	0.0031	72.90	88
5	2.6	34.1	1.1	62.97	9.33	0.0058	145.32	82
							K_e, ft/year	**86**

Interval: 72-82

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy
1	0	0	13.57	26.68	26.98	0.0000	61.57	-
2	0	20.5	8.17	46.93	24.47	0.0000	108.30	-
3	0.1	42	7.14	70.88	72.93	0.0002	163.57	3 (1)
4	0	8.8	6.16	35.14	40.91	0.0000	81.09	-
5	0	39.2	5.39	69.99	74.86	0.0000	161.52	-
							K_e, ft/year	**0**

Notes:

Q = flow rate, gallons per minute (GPM)

Test Number, flow rate (GPM) and gauge pressure taken from field measurements. Pressures above, at and below the test section collected via pressure transducers.

P_g is equal to gauge pressure, P_T is pressure above the top packer (psi), P_M is pressure at the test section (psi), P_B is pressure below bottom packer (psi)

H_M is PT coverted to feet of head (P_g*144in^2/ft^2 / γ_w)

K_e = ((Q/H_M)*(1/ℓ))*1/2π*ln(R/r_o)*(525,600 min/year)*(.1337 ft^3/gal)

R is equal to total length between packers, ℓ

By: MJD 8/25/06

Radius of borehole (r_o) taken from outside diameter of boring, 4 inches

Pressure taken from final data point for transducers prior to shut-in test

CK: CES 8/25/06

(1) indicates data beyond the linear range of Q v H_M

TABLE C-6
B330 Packer Test Results
SCE&G COL PROJECT
MACTEC ENGINEERING AND CONSULTING, INC.
PROJECT # 6234-06-3534S

Given Parameters

Test Section Length ℓ, ft:	10
Radius of Borehole r_o, ft:	0.1667
GW Elevation, ft:	51.5

Interval: 57-67

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy
1	0	3.7	5.67	18.36	14.27	0.0000	42.37	-
2	0.1	16.1	3.85	38.1	9.89	0.0002	87.92	5
3	0.1	37.2	3.32	59.79	12.01	0.0002	137.98	3
4	0.2	8.3	4.81	28.74	9.24	0.0004	66.32	14
5	0.1	33.4	2.86	58.47	8.91	0.0002	134.93	3
							K_e, ft/year	**5**

Interval: 67-77

Test Number	Q, GPM	Pg, psi	P_T, psi	P_M, psi	P_B, psi	Q, cfs	H_M, ft	K_e, fpy	
1	0	7.5	0.48	21.31	16.96	0.0000	49.18	-	
2	2.2	13.6	0.284	43.89	12.5	0.0049	101.28	99	
3	4.6	35.5	0.361	65.01	11.57	0.0103	150.02	140	(1)
4	1.4	2.2	0.233	32.53	14.01	0.0031	75.07	85	
5	4.2	34.6	0.195	64.21	13.16	0.0094	148.18	130	(1)
							K_e, ft/year	**92**	

Notes:

Q = flow rate, gallons per minute (GPM)

Test Number, flow rate (GPM) and gauge pressure taken from field measurements. Pressures above, at and below the test section collected via pressure transducers.

P_g is equal to gauge pressure, P_T is pressure above the top packer (psi), P_M is pressure at the test section (psi), P_B is pressure below bottom packer (psi)

H_M is PT coverted to feet of head (P_g*144in^2/ft^2 / γ_w)

K_e = ((Q/H_M)*(1/ℓ))*1/2π*ln(R/r_o)*(525,600 min/year)*(.1337 ft^3/gal)

R is equal to total length between packers, ℓ

By: MJD 8/25/06

Radius of borehole (r_o) taken from outside diameter of boring, 4 inches

Pressure taken from final data point for transducers prior to shut-in test

CK: CES 8/25/06

(1) indicates data beyond the linear range of Q v H_M

TABLE C-7
WATER LEVEL DATA SUMMARY SHEET
SCE&G COL PROJECT
MACTEC ENGINEERING AND CONSULTING, INC.
PROJECT # 6234-06-3534S

WELL ID	Ground Surface Elevation (feet, msl)	Top of Casing Elevation (feet, msl)	DTW 6/23/2006 (feet, btoc)	DTW 7/25/2006 (feet, btoc)	Water Level Meter Make and Model	Water Level Meter Serial No.
OW-205A	423.3	425.9	68.61	68.61	Solinst Model 101	41882
OW-205B	422.9	425	60.05	59.99	Solinst Model 101	41882
OW-212	396.2	399.3	47.90	48.25	Solinst Model 101	41882
OW-213	402.1	404.5	45.33	45.42	Solinst Model 101	41882
OW-227	422.7	425.1	63.64	63.76	Solinst Model 101	41882
OW-233	426.2	428.3	105.85	88.45	Solinst Model 101	41882
OW-305A	424.9	427.8	59.60	59.51	Solinst Model 101	41882
OW-305B	423.7	426.3	58.90	58.82	Solinst Model 101	41882
OW-312	425.1	427.1	DRY	DRY	Solinst Model 101	41882
OW-313	420.9	423.8	51.00	51.11	Solinst Model 101	41882
OW-327	410.7	413.4	54.17	54.25	Solinst Model 101	41882
OW-333	394.5	397.1	63.22	62.37	Solinst Model 101	41882
OW-401A	404.1	406.3	55.11	55.31	Solinst Model 101	41882
OW-401B	404.1	406.8	55.76	55.94	Solinst Model 101	41882
OW-405	392.6	395.4	41.60	41.72	Solinst Model 101	41882
OW-501	429.5	431.9	installed 8/2/2006	installed 8/2/2006	Solinst Model 101	41882
OW-612	406.8	409.4	52.05	52.15	Solinst Model 101	41882
OW-614	376.1	379.1	29.18	29.95	Solinst Model 101	41882
OW-617	447.2	450.1	100.84	100.95	Solinst Model 101	41882
OW-618	307.4	310.5	7.00	7.16	Solinst Model 101	41882
OW-619	405.7	407.7	104.66	103.81	Solinst Model 101	41882
OW-620	382.8	385	36.91	37.20	Solinst Model 101	41882
OW-621A	420.9	423.5	97.60	95.98	Solinst Model 101	41882
OW-621B	421.2	423.6	54.95	55.05	Solinst Model 101	41882
OW-622	438.1	440.7	46.70	46.76	Solinst Model 101	41882
0W-623	439.6	441.8	72.10	72.16	Solinst Model 101	41882
0W-624	359.3	361.6	59.13	54.05	Solinst Model 101	41882
OW-625	403.2	405.9	88.95	88.79	Solinst Model 101	41882
OW-626	416.4	418.8	49.87	49.99	Solinst Model 101	41882
OW-627A	327.6	330.3	71.75	62.80	Solinst Model 101	41882
OW-627B	326.9	329.5	12.18	12.31	Solinst Model 101	41882

NOTES:

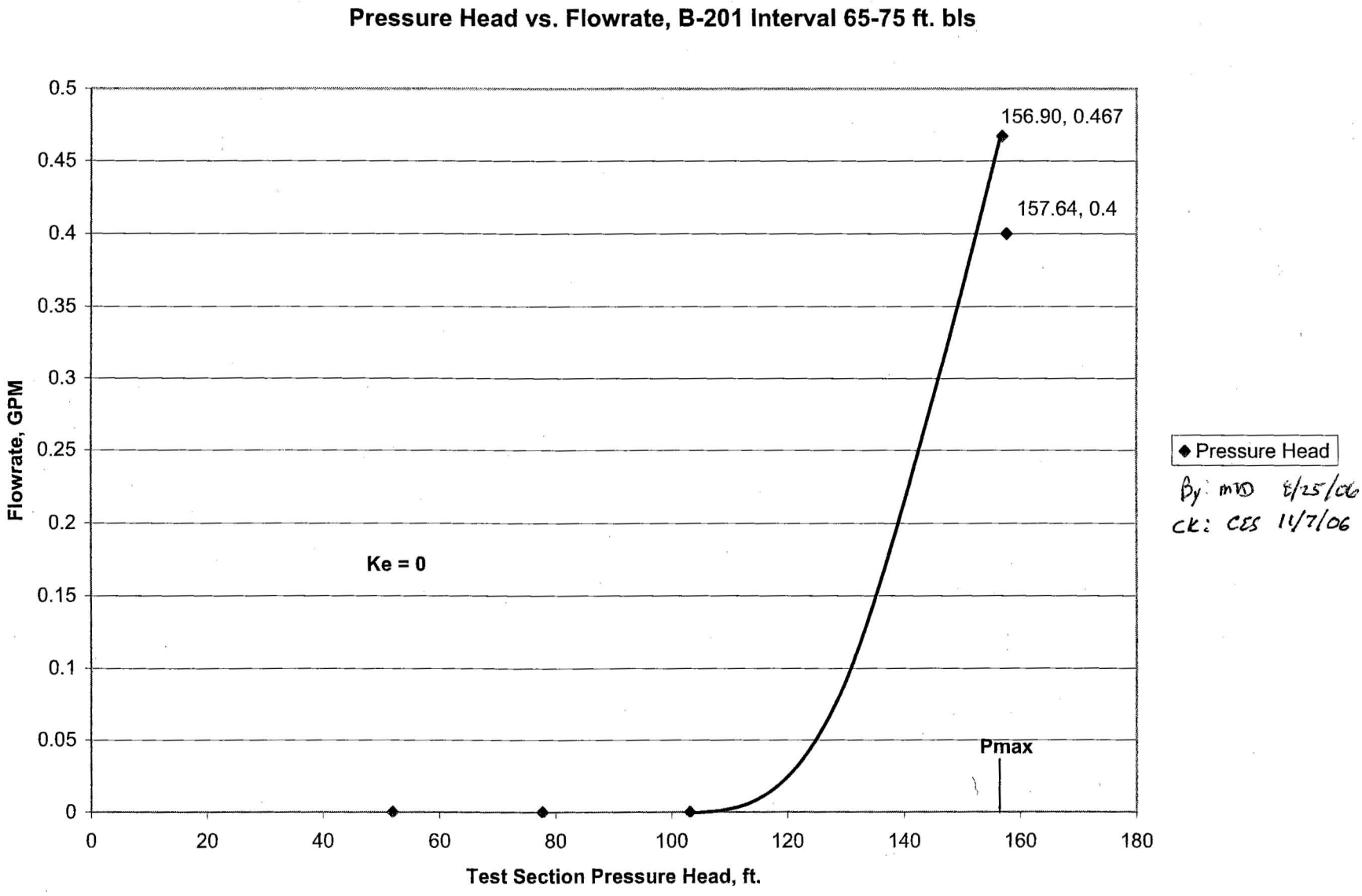
TOC	Top of the well casing
bgs	Below ground surface
DTW	Depth to Water
btoc	Below Top of Casing
msl	Mean sea level
NA	Not Applicable

Prepared By/Date
MFC 10/5/06
Checked By/Date
CES 11/7/06

FINAL REPORT

ATTACHMENT C

Figures C-1 through C-4

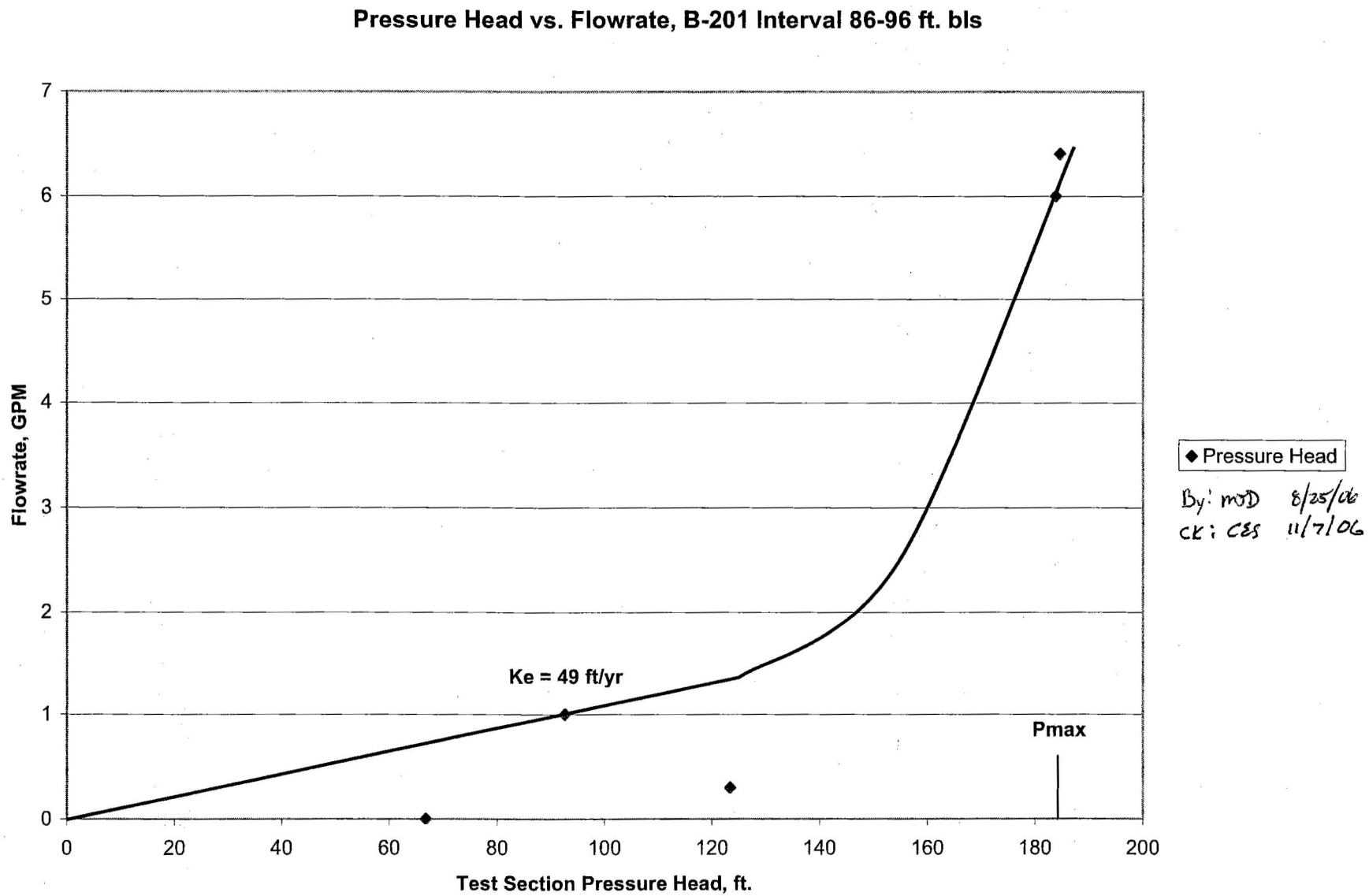


D_w = 65 ft

P_{max} = 65 + (70-65)(0.57)

P_{max} = 67.85 psi = 157 ft

Figure C-1 (1 of 2) B201 Packer Flow Rate vs Pressure

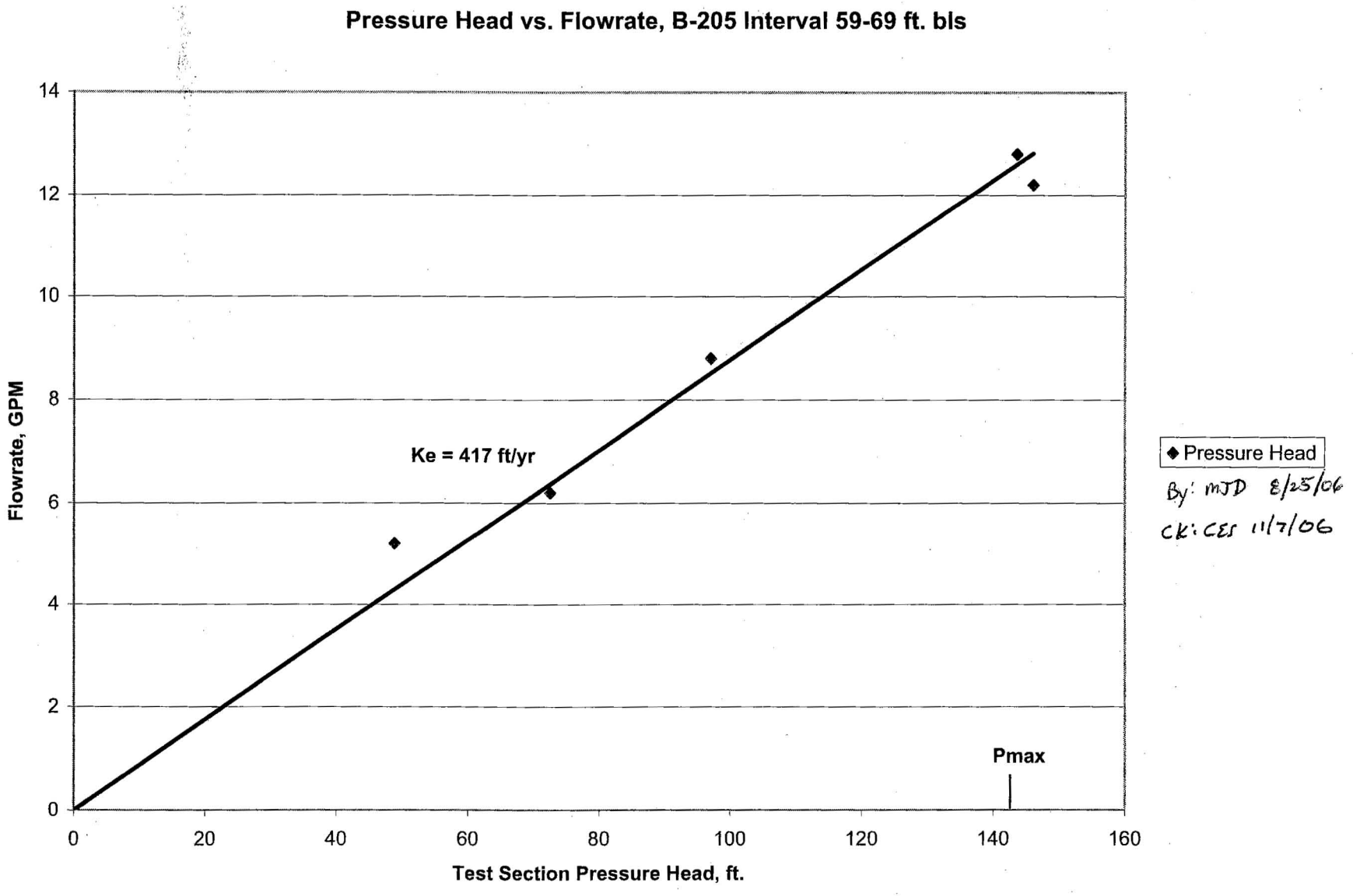


D_w = 65 ft

P_{max} = 65 + (91-65)(0.57)

P_{max} = 79.82 psi = 184 ft

Figure C-1 (2 of 2) B201 Packer Flow Rate vs Pressure



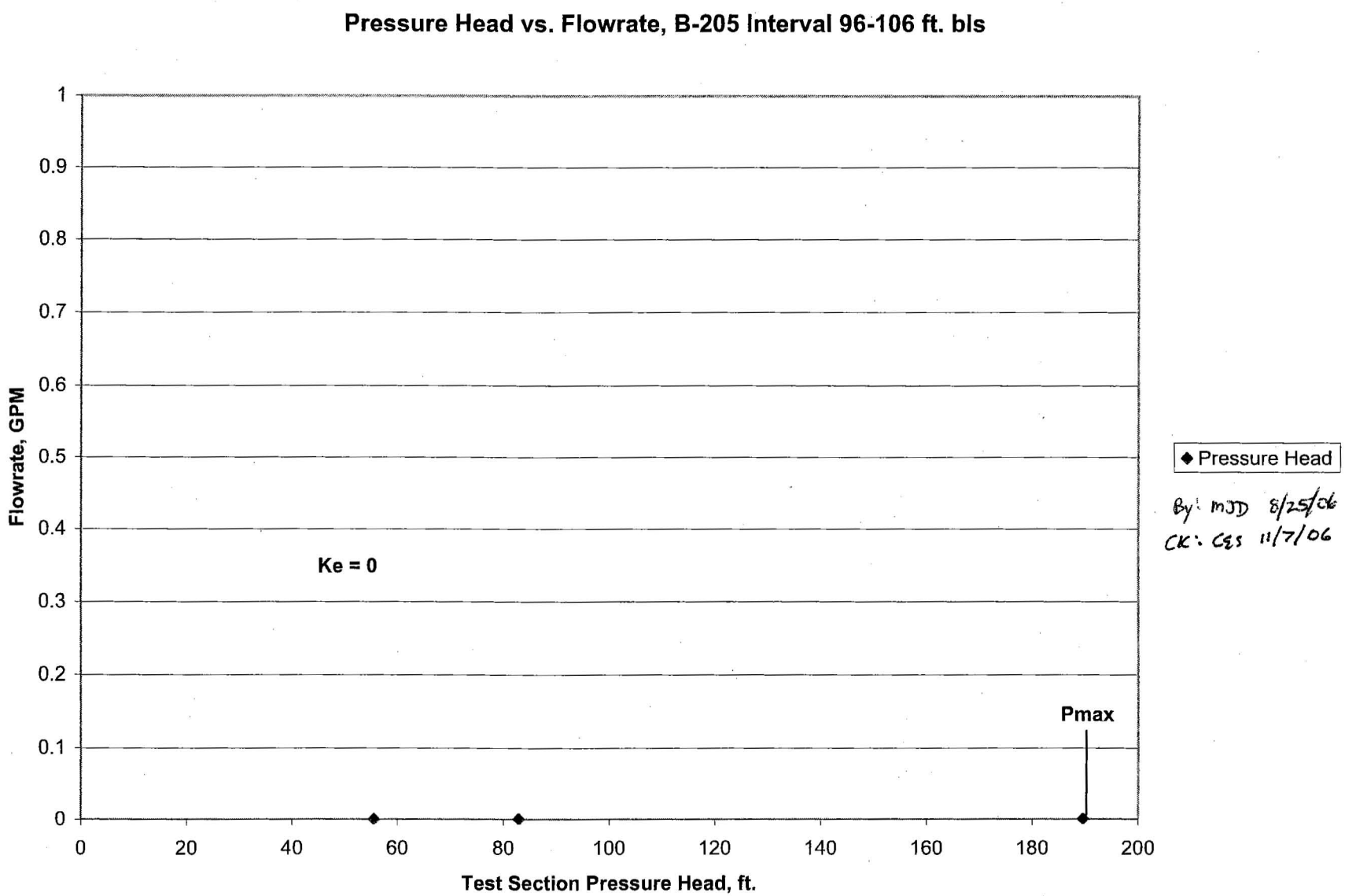
By: MJD 8/25/06
CK: CES 11/7/06

D_w = 58.2 ft

P_{max} = 58.2 + (64-58.2)(0.57)

P_{max} = 61.4 psi = 142 ft

Figurre C-2 (1 of 2) B 205 Packer Flow Rate vs Pressure

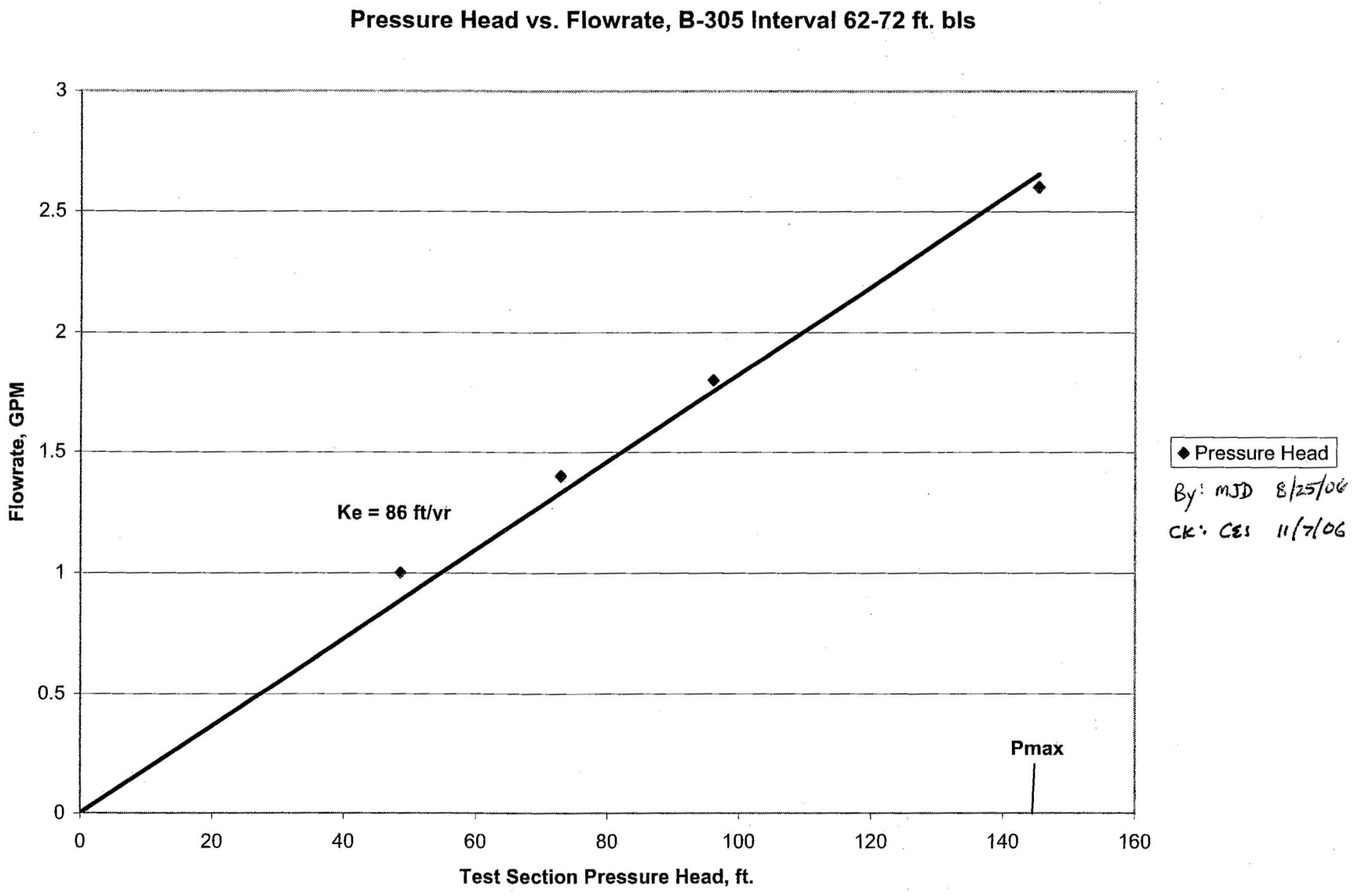


D_w = 58.2 ft

P_{max} = 58.2 + (101-58.2)(0.57)

P_{max} = 82.5 psi = 190 ft

Figure C-2 (2 of 2) B-205 Packer Flow Rate vs Pressure

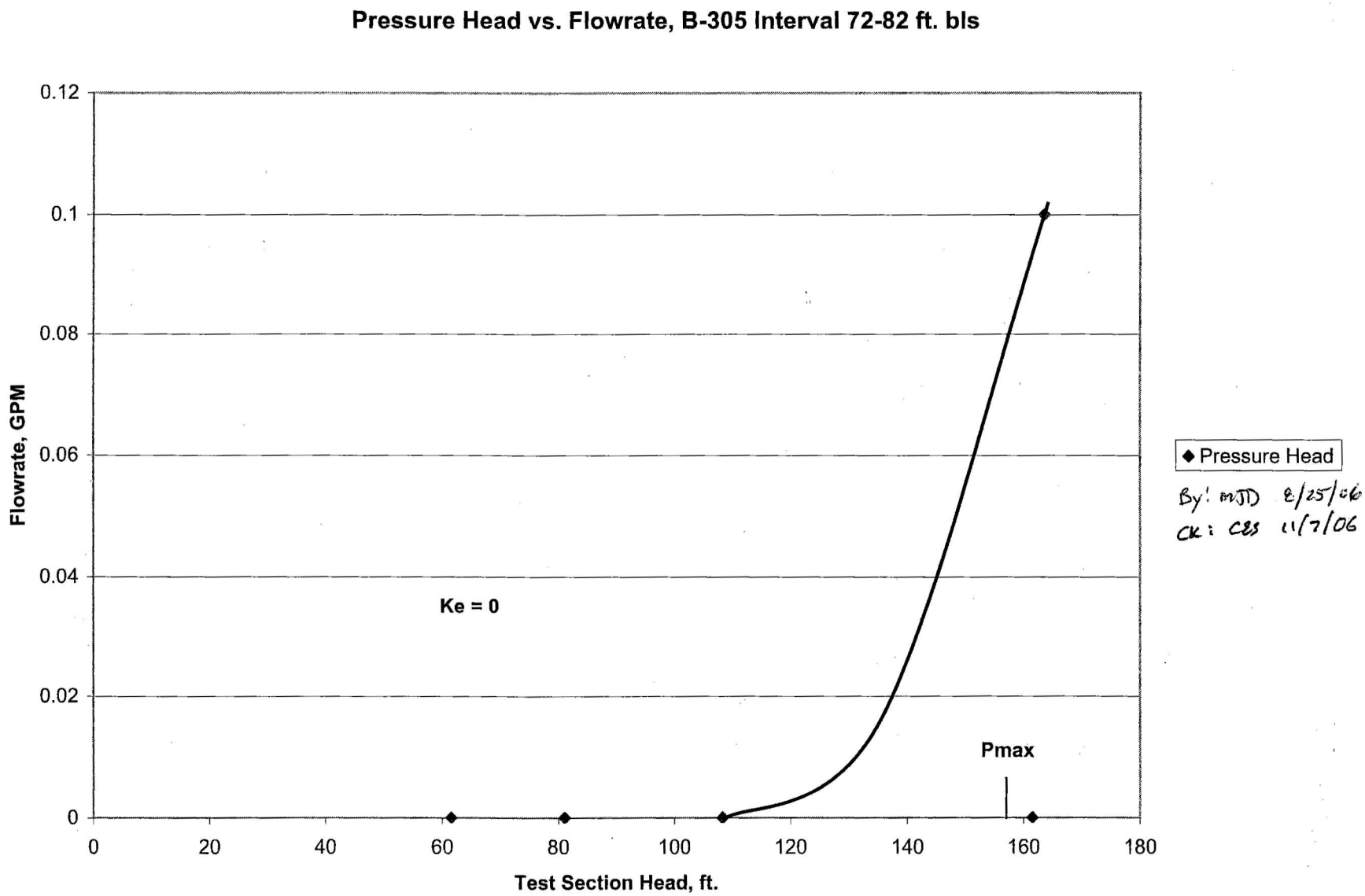


D_w = 57.2 ft

P_{max} = 57.2 + (67-57.2)(0.57)

P_{max} = 62.7 psi = 145 ft

Figure C-3(1 of 2) B-305 Packer Flow Rate vs Pressure



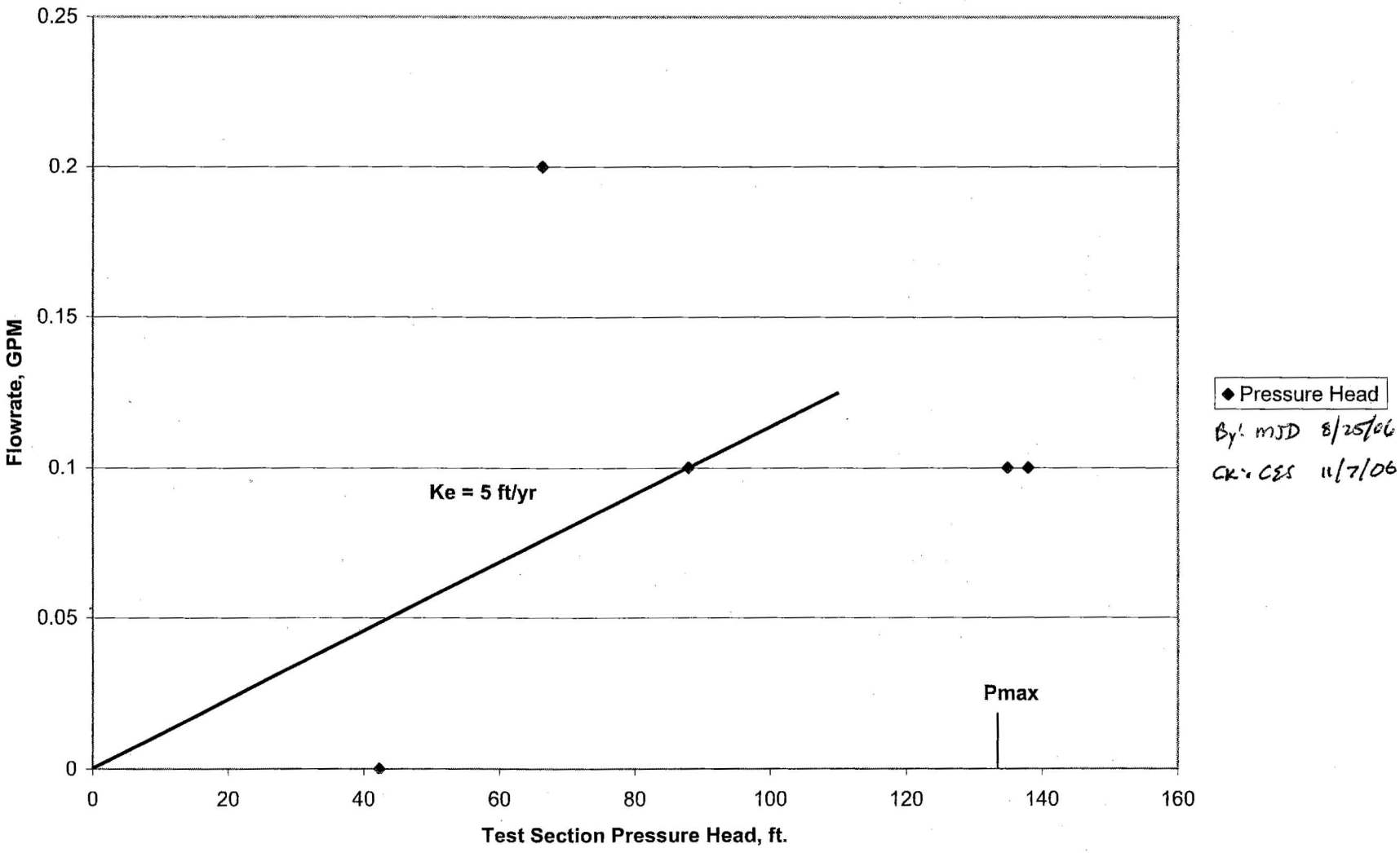
D_w = 57.2 ft

P_{max} = 57.2 + (77-57.2)(0.57)

P_{max} = 68.4 psi = 158 ft

Figure C-3 (2 of 2) B-305 Packer Flow Rate vs Pressure

Pressure Head vs. Flowrate, B-330 Interval 57-67 ft. bls



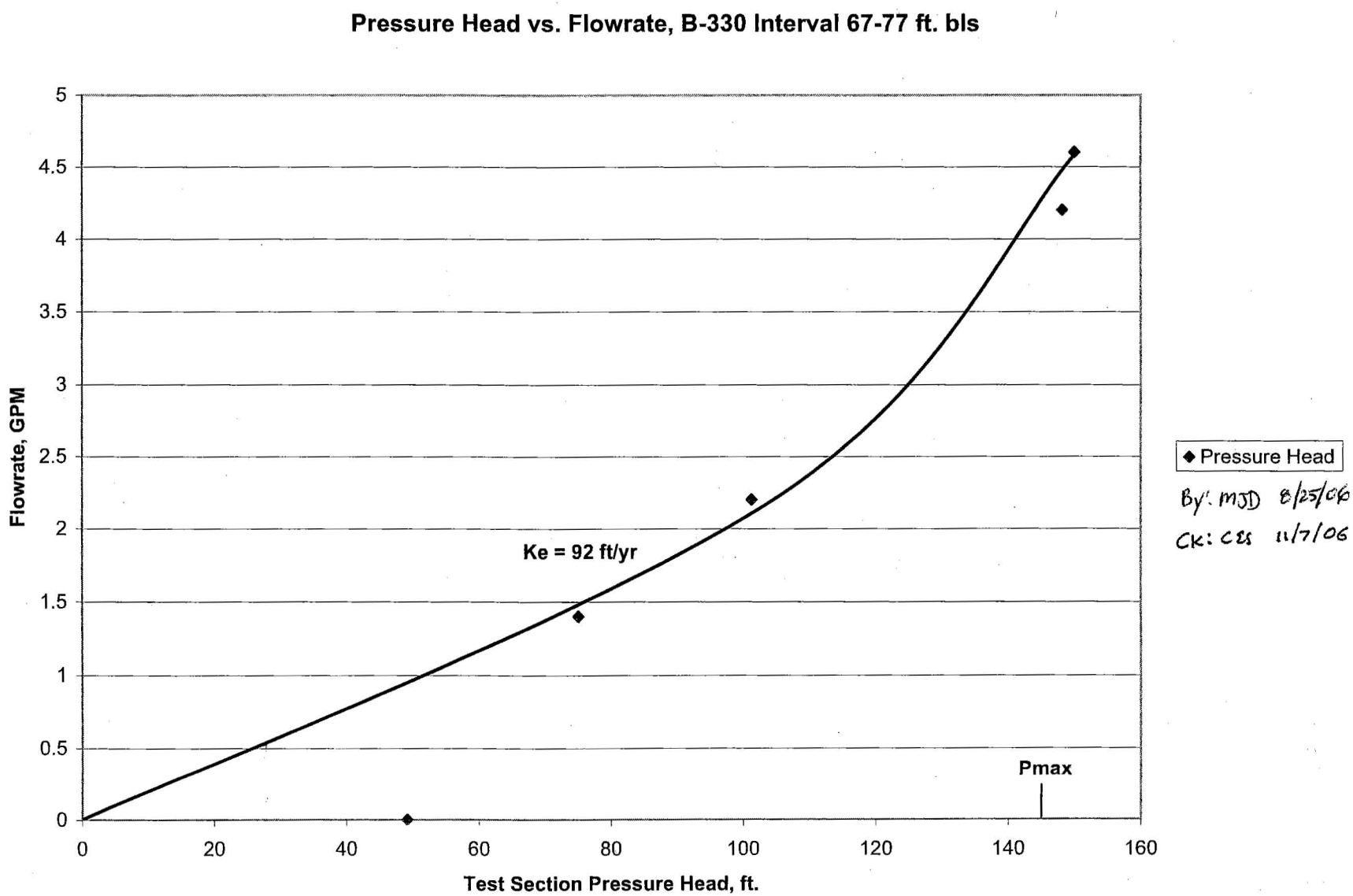
By: MJD 8/25/06
CK: CES 11/7/06

D_w = 51.5 ft

P_{max} = 51.5+ (62.5-51.5)(0.57)

P_{max} = 57.5 psi = 133 ft

Figure C-4 (1 of 2) B-330 Packer Flow Rate vs Pressure



D_w = 51.5 ft

P_{max} = 51.5 + (72.5-51.5)(0.57)

P_{max} = 63.2 psi = 146 ft

Figure C-4 (2 of 2) B-330 Packer Flow Rate vs Pressure

Final Report

Appendix C-1

Observation Well Logs

NOTE ABOUT GROUNDWATER DEPTHS FOR OBSERVATION WELL LOGS IN ATTACHMENT C, APPENDIX C-1

The water depths on these logs are from observations during drilling of the exploratory borings, whose logs are in Attachment B. Because water was introduced during rotary and core drilling, the water depths on the observation well logs may not represent the stabilized water depths. For stabilized water depths at the observation wells, the information in Attachment C, Table C-7 should be consulted.

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-205A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Nuclear Island	Total Depth 175 feet
Drilling Contractor and Rig (for Well) Nichols/McCall / IR T3W	Elevation at Boring 423.1 feet / Ground Water Depth	Depth to Bedrock 54 feet
Sampling Method (Boring) Split Spoon	Elevation at Well 423.3 feet / No. of Samples 15	Date Started (Well) 5/30/06
	Borehole Inclination 0 / Logged by B. Sharp	Date Completed (Well) 5/30/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	2 3 4	14/18					CL-ML	CLAY silty (CL-ML); red (2.5 YR 4/8); damp, medium stiff; fine sand 5%; small roots, small rock fragments. RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Started drilling 5/1/06 Residuum	
2-3		SPT 2	4 4 8	14/18					ML	SILT sandy (ML); red (2.5 YR 4/8); damp, stiff; 22% sand; RESIDUUM		
4-5		SPT 3	3 4 6	4/18						SAA, large rock fragment, wet	Rock clogged SPT sampler opening	
6-7		SPT 4	3 4 5	16/18						SILT sandy (ML); dark red (2.5 YR 3/2); moist, stiff, 29% sand; RESIDUUM		
8-9		SPT 5	2 4 5	14/18								
10-11		SPT 6	2 3 7	14/18						SILT sandy (ML); red (2.5 YR 4/8); moist; stiff; 35% sand; RESIDUUM		
12-13		SPT 7	2 3 5	13/18						SILT (ML); SAA except red and yellow (2.5 YR 4/8 and 2.5 YR 7/8); medium stiff		
14-15												
16-17												
18-19		SPT 8	2 4 5	15/18						SILT sandy (ML); strong brown (7.5 YR 5/8); moist; stiff; 38% sand; micaceous. RESIDUUM		
20-21												
22-23									SM	SAND silty (SM); yellowish red (5 YR 4/6); moist; medium dense; 40% fines; low plasticity; micaceous. RESIDUUM		
24-25		SPT 9	6 8 10	17/18								
26-27									SM	SAND silty with gravel (SM); yellowish red (5 YR 4/6); moist; medium dense; 34% fines, 15% gravels, low plasticity; 1 to 3 cm sized rock fragments, weathered schist, micaceous. RESIDUUM		
28-29		SPT 10	13 18 10	14/18								
30-31												
32-33												
34-35		SPT 11	21 13 10	8/18					GW-GM	GRAVEL sandy with silt (GW-GM); red (silt) (2.5 YR 5/6), black (gravel) (Glay 1 2.5 /N), wet, micaceous, 30% sand, 7% fines, 1 to 4 cm sized weathered schist.	Rig jumping	
36-37												
38-39		SPT 12	26 21 16	0/18						NO RECOVERY		

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-205A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										NO RECOVERY *(Continued from previous page)*	Saprolite End of day 5/1/06, water level at 5 ft. Begin of day 5/2/06, cave in at 35 ft	
41												
42												
43												
44		SPT 13	6 6 10	13/18					SM	SAND silty (SM); strong brown (7.5 YR 5/8); moist, medium dense, 38% fines, 4% gravels, micaceous, low plasticity, weathered schist. SAPROLITE		
45												
46												
47												
48												
49		SPT 14	8 12 14	15/18						SAND silty (SM); micaceous; 44% fines, 11% gravels		
50												
51												
52												
53												
54		SPT 15	50/6	0/6						NO RECOVERY. PARTIALLY WEATHERED ROCK BORING TERMINATED AT 54.0 ft. see rock log		
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: Nuclear Island		Total Depth: 175 feet
Drilling Contractor and Rig: Nichols/McCall / IR T3W	Elevation at Boring: 423.1 feet	Ground Water Depth	Depth to Bedrock: 54 feet
Casing Size and Depth (Boring): 4 / 54 feet	Elevation at Well: 423.3 feet	No. of Core Boxes: 9	Date Started: 5/30/06
	Borehole Inclination: 0	Logged by: B. Sharp	Date Completed: 5/30/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
54	1	0.0 / 1.0	0	CW	R0			NO RECOVERY	Partially weathered rock Spoon refusal. Switch to HQ rock coring	
55–57	2	1.5 / 5.0	12	HW	R2 to R3			QUARTZ DIORITE; white and very dark gray (Glay 1 8/8, 3/3); granitic texture; some staining	NOTE: Samples and Lithology Information are from adjacent boring. Begin of day 5/8/06, water level at 45 ft.	
57–60				CW	R0					
60–63	3	3.8 / 5.0	52	HW	R2			QUARTZ DIORITE; SAA; igneous texture Granodiorite zone		
63–65				F	R4					
65–70	4	4.9 / 5.0	98	F	R4 to R5					
70–75	5	5.0 / 5.0	100	F	R4 to R5			Quartz dike	End of day 5/8/06, water level at 23 ft. Begin of 5/9/06, water level at 56 ft.	
75–80	6	5.0 / 5.0	100	F	R4 to R5					
80–83	7	2.5 / 5.0	42	F	R5			No recovery from 82.5 to 85 ft	Drilling rate increased, highly weathered rock was not recovered from 82.5 to 85 ft.	
82				MW						
83–85				HW	R1				Top of sound rock?	
85–90	8	5.0 / 5.0	90	F	R4 to R5			Large quartz dike		
90–94	9	5.0 / 5.0	90	F	R4 to R5			SAA, foliation at 94°		

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
94										
95										
96										
97	10	5.0/5.0	96	F	R4 to R5					
98										
99								Quartz dike		
100								Quartz dike		
101								HORNBLENDE GNEISS; greenish gray, light gray, very dark gray (Gley 1 7/N, 3/N, 5/5GY); foliation at 35°, hornblende, schist		
102	11	5.0/5.0	80	F	R4 to R5					
103										
104										
105								Foliation at 35°		
106										
107	12	5.0/5.0	92	F	R4 to R5					
108										
109										
110								SAA, hornblende, schist, quartz, feldspar		
111										
112	13	5.0/5.0	100	F	R4 to R5					
113								Quartz dike		
114										
115										
116										
117	14	5.0/5.0	100	F	R4 to R5			Quartz dike		
118										
119										
120										
121								QUARTZ DIORITE with zones of HORNBLENDE GNEISS and Granodiorite; greenish gray, light gray, very dark gray. (Gley 1 7/N, 3/N, 5/5GY), flow and texture, breccia, texture from 121 to 122.5 ft. fine to medium grained, quartz, hornblende, schist, feldspar, bi Breccia texture 121 to 122.5 ft		
122	15	5.0/5.0	100	F	R4					
123										
124								Quartz dike		
125										
126								HORNBLENDE GNEISS with zone of QUARTZ DIORITE (125 to 125.5 ft); greenish gray, light gray, and very dark gray (Gley 7/N, 3/N, 5/5GY); fine grained foliation at 30°. Hornblende, biotite, schist, quartz.	End of day 5/9/06, water level at 15 ft.	
127	16	5.0/5.0	100	F	R5				Begin of day 5/10/06, water level at 58 ft.	
128										
129										
130										
131								Quartz dike		
132	17	5.0/5.0	100	F	R5					
133										
134										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
134										
135										
136										
137	18	5.0/5.0	100	F	R5			Granodiorite dike fine to medium grained		
138										
139								Granodiorite dike		
140										
141								MIGMATITE; mixture of Granodiorite schist and Gneiss; light gray, very dark gray and black (Glay 1 7/N, 3/N, 2.5/N); fine to medium grained; some foliation at 15° (142 ft), flowing texture from 140 to 143 ft, then igneous texture from 143 to 145 ft; quart		
142	19	5.0/5.0	96	F	R4 to R5					
143										
144										
145										
146								MIGMATITE; mixture of granodiorite, hornblende gneiss; black, light gray and white (Gley 1 8/N, 7/N, 3/N); fine to medium grained; flowing texture; quartz, biotite, schist, K-spar, hornblende.		
147	20	5.0/5.0	100	F	R5					
148										
149										
150										
151								QUARTZ DIORITE; light gray, very dark gray (Gley 1 7/N, 3/N); fine to medium grained; igneous texture; quartz, biotite, schist, K-spar, hornblende.		
152	21	5.0/5.0	100	F	R5			Quartz dike		
153										
154										
155										
156								QUARTZ DIORITE with zones of Hornblende Gneiss; greenish gray, light, very dark gray (Gley 1 7/N, 3/N, 5/5GY); fine to medium grained; some foliation 15°, hornblende, quartz, biotite, schist		
157	22	5.0/5.0	100	F	R5					
158										
159										
160										
161								HORNBLENDE GNEISS; greenish gray, light gray, and very dark gray (Gley 1 7/N, 3/N, 5/5GY); fine to medium grained, foliation at 30°, hornblende, quartz, feldspar, biotite, schist.	End of day 5/10/06, water level at 5 ft.	
162	23	5.0/5.0	100	F	R4 to R5			Pegmatite dikes	Begin of day 5/11/06, water level at 58 ft.	
163										
164								Pegmatite dikes		
165										
166								Pegmatite dikes		
167	24	5.0/5.0	100	F	R5					
168										
169										
170								HORNBLENDE GNEISS; fine grained, banded texture, foliation at 30°		
171										
172	25	5.0/5.0	100	F	R5			CORING TERMINATED AT 175.0 ft.		
173										
174										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
174										
175									Boring terminated at 175 ft. on 5/11/06, water level at 10 ft	
176										
177										
178										
179										
180										
181										
182										
183										
184										
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187										
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203										
204										
205										
206										
207										
208										
209										
210										
211										
212										
213										
214										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-205B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well): Hollow Stem Auger / 6.25 inch	Boring Location: Nuclear Island	Total Depth: 175 feet
Drilling Contractor and Rig (for Well): Poole/Gregg / Rhino	Elevation at Boring: 423.1 feet; Ground Water Depth:	Depth to Bedrock: 54 feet
Sampling Method (Boring): Split Spoon	Elevation at Well: 422.9 feet; No. of Samples: 15	Date Started (Well): 5/15/06
	Borehole Inclination: 0; Logged by: M. Cooke	Date Completed (Well): 5/15/06

Reviewed by / Date: M. Cooke 5/15/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	2 3 4	14/18					CL-ML	CLAY silty (CL-ML); red (2.5 YR 4/8); damp, medium stiff; fine sand 5%; small roots, small rock fragments. RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Started drilling 5/1/06 Residuum	
2-3		SPT 2	4 4 8	14/18					ML	SILT sandy (ML); red (2.5 YR 4/8); damp, stiff; 22% sand; RESIDUUM		
4-5		SPT 3	3 4 6	4/18						SAA, large rock fragment, wet	Rock clogged SPT sampler opening	
6-7		SPT 4	3 4 5	16/18						SILT sandy (ML); dark red (2.5 YR 3/2); moist, stiff, 29% sand; RESIDUUM		
8-9		SPT 5	2 4 5	14/18								
10-11		SPT 6	2 3 7	14/18						SILT sandy (ML); red (2.5 YR 4/8); moist; stiff; 35% sand; RESIDUUM		
12-13		SPT 7	2 3 5	13/18						SILT (ML); SAA except red and yellow (2.5 YR 4/8 and 2.5 YR 7/8); medium stiff		
14-15												
16-17												
18-19		SPT 8	2 4 5	15/18						SILT sandy (ML); strong brown (7.5 YR 5/8); moist; stiff; 38% sand; micaceous. RESIDUUM		
20-21												
22-23									SM	SAND silty (SM); yellowish red (5 YR 4/6); moist; medium dense; 40% fines; low plasticity; micaceous. RESIDUUM		
24-25		SPT 9	6 8 10	17/18								
26-27									SM	SAND silty with gravel (SM); yellowish red (5 YR 4/6); moist; medium dense; 34% fines, 15% gravels, low plasticity; 1 to 3 cm sized rock fragments, weathered schist, micaceous. RESIDUUM		
28-29		SPT 10	13 18 10	14/18								
30-31												
32-33												
34-35		SPT 11	21 13 10	8/18					GW	GRAVEL sandy with silt (GW); red (silt) (2.5 YR 5/6), black (gravel) (Glay 1 2.5 /N), wet, micaceous, 30% sand, 7% fines, 1 to 4 cm sized weathered schist.	Rig jumping	
36-37												
38-39		SPT 12	26 21 16	0/18						NO RECOVERY		

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-205B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40–43										NO RECOVERY *(Continued from previous page)*	Saprolite End of day 5/1/06, water level at 5 ft. Begin of day 5/2/06, cave in at 35 ft	
44–48		SPT 13	6 6 10	13/18					SM	SAND silty (SM); strong brown (7.5 YR 5/8); moist, medium dense, 38% fines, 4% gravels, micaceous, low plasticity, weathered schist. SAPROLITE		
49–53		SPT 14	8 12 14	15/18						SAND silty (SM); micaceous; 44% fines, 11% gravels		
54		SPT 15	50/6	0/6						NO RECOVERY. PARTIALLY WEATHERED ROCK BORING TERMINATED AT 54.0 ft. see rock log		
55–80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Hollow Stem Auger / 6.25 inch	Boring Location: Nuclear Island		Total Depth: 175 feet
Drilling Contractor and Rig: Poole/Gregg / Rhino	Elevation at Boring: 423.1 feet	Ground Water Depth:	Depth to Bedrock: 54 feet
Casing Size and Depth (Boring): 4 / 54 feet	Elevation at Well: 422.9 feet	No. of Core Boxes: 9	Date Started: 5/15/06
	Borehole Inclination: 0	Logged by: M. Cooke	Date Completed: 5/15/06

Reviewed by / Date: M. Cooke 5/15/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
54	1	0.0 / 1.0	0	CW	R0			NO RECOVERY	Partially weathered rock	
55									Spoon refusal. Switch to HQ rock coring	
56				HW	R2 to R3			QUARTZ DIORITE; white and very dark gray (Glay 1 8/8, 3/3); granitic texture; some staining	NOTE: Samples and Lithology Information are from adjacent boring.	
57	2	1.5 / 5.0	12							
58										
59				CW	R0				Begin of day 5/8/06, water level at 45 ft.	
60										
61								QUARTZ DIORITE; SAA; igneous texture		
62				HW	R2					
63	3	3.8 / 5.0	52					Granodiorite zone		
64				F	R4					
65										
66										
67										
68	4	4.9 / 5.0	98	F	R4 to R5					
69										
70									End of day 5/8/06, water level at 23 ft.	
71									Begin of 5/9/06, water level at 56 ft.	
72										
73	5	5.0 / 5.0	100	F	R4 to R5			Quartz dike		
74										
75										
76										
77										
78	6	5.0 / 5.0	100	F	R4 to R5					
79										
80										
81				F	R5					
82				MW						
83	7	2.5 / 5.0	42					No recovery from 82.5 to 85 ft	Drilling rate increased, highly weathered rock was not recovered from 82.5 to 85 ft.	
84				HW	R1					
85									Top of sound rock?	
86										
87								Large quartz dike		
88	8	5.0 / 5.0	90	F	R4 to R5					
89										
90										
91								SAA, foliation at 94°		
92										
93	9	5.0 / 5.0	90	F	R4 to R5					
94										

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
94										
95										
96										
97	10	5.0/5.0	96	F	R4 to R5					
98										
99								Quartz dike		
100								Quartz dike		
101								HORNBLENDE GNEISS; greenish gray, light gray, very dark gray (Gley 1 7/N, 3/N, 5/5GY); foliation at 35°, hornblende, schist		
102	11	5.0/5.0	80	F	R4 to R5					
103										
104										
105								Foliation at 35°		
106										
107	12	5.0/5.0	92	F	R4 to R5					
108										
109										
110								SAA, hornblende, schist, quartz, feldspar		
111										
112	13	5.0/5.0	100	F	R4 to R5					
113								Quartz dike		
114										
115										
116										
117	14	5.0/5.0	100	F	R4 to R5			Quartz dike		
118										
119										
120										
121								QUARTZ DIORITE with zones of HORNBLENDE GNEISS and Granodiorite; greenish gray, light gray, very dark gray. (Gley 1 7/N, 3/N, 5/5GY), flow and texture, breccia, texture from 121 to 122.5 ft. fine to medium grained, quartz, hornblende, schist, feldspar, bi Breccia texture 121 to 122.5 ft		
122	15	5.0/5.0	100	F	R4					
123										
124								Quartz dike		
125										
126								HORNBLENDE GNEISS with zone of QUARTZ DIORITE (125 to 125.5 ft); greenish gray, light gray, and very dark gray (Gley 7/N, 3/N, 5/5GY); fine grained foliation at 30°. Hornblende, biotite, schist, quartz.	End of day 5/9/06, water level at 15 ft.	
127	16	5.0/5.0	100	F	R5				Begin of day 5/10/06, water level at 58 ft.	
128										
129										
130										
131								Quartz dike		
132	17	5.0/5.0	100	F	R5					
133										
134										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
134										
135										
136										
137	18	5.0/5.0	100	F	R5			Granodiorite dike fine to medium grained		
138										
139								Granodiorite dike		
140										
141								MIGMATITE; mixture of Granodiorite schist and Gneiss; light gray, very dark gray and black (Glay 1 7/N, 3/N, 2.5/N); fine to medium grained; some foliation at 15°		
142	19	5.0/5.0	96	F	R4 to R5			(142 ft), flowing texture from 140 to 143 ft, then igneous		
143								texture from 143 to 145 ft; quart		
144										
145										
146								MIGMATITE; mixture of granodiorite, hornblende		
147	20	5.0/5.0	100	F	R5			gneiss; black, light gray and white (Gley 1 8/N, 7/N,		
148								3/N); fine to medium grained; flowing texture; quartz,		
149								biotite, schist, K-spar, hornblende.		
150										
151								QUARTZ DIORITE; light gray, very dark gray (Gley 1		
152	21	5.0/5.0	100	F	R5			7/N, 3/N); fine to medium grained; igneous texture;		
153								quartz, biotite, schist, K-spar, hornblende.		
154								Quartz dike		
155										
156								QUARTZ DIORITE with zones of Hornblende Gneiss;		
157	22	5.0/5.0	100	F	R5			greenish gray, light, very dark gray (Gley 1 7/N, 3/N,		
158								5/5GY); fine to medium grained; some foliation 15°,		
159								hornblende, quartz, biotite, schist		
160										
161								HORNBLENDE GNEISS; greenish gray, light gray, and	End of day 5/10/06, water level	
162	23	5.0/5.0	100	F	R4 to R5			very dark gray (Gley 1 7/N, 3/N, 5/5GY); fine to medium	at 5 ft.	
163								grained, foliation at 30°, hornblende, quartz, feldspar,	Begin of day 5/11/06, water	
164								biotite, schist.	level at 58 ft.	
165								Pegmatite dikes		
166								Pegmatite dikes		
167	24	5.0/5.0	100	F	R5					
168								Pegmatite dikes		
169										
170										
171								HORNBLENDE GNEISS; fine grained, banded texture,		
172	25	5.0/5.0	100	F	R5			foliation at 30°		
173								CORING TERMINATED AT 175.0 ft.		
174										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-205B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
174										
175									Boring terminated at 175 ft. on 5/11/06, water level at 10 ft	
176										
177										
178										
179										
180										
181										
182										
183										
184										
185										
186										
187										
188										
189										
190										
191										
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200										
201										
202										
203										
204										
205										
206										
207										
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211										
212										
213										
214										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-212

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Hollow Stem Auger / 6.25 inch	Boring Location Adjacent to Power Block		Total Depth 68.5 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Rhino	Elevation at Boring 397.2 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 396.2 feet	No. of Samples 20	Date Started (Well) 5/25/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/25/06

Reviewed by / Date M. Cooke 6/11/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	2 2 5	16/18					SM	**SAND** silty (SM), dark brown, (7.5 YR 3/3); moist, very loose; 70% fine grained sand, 30% fine organic rich roots.	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	5 6 8	16/18					CL-ML	**CLAY** silty (CL-ML); red (10 R 3/6); moist; 50% clay, 45% silt, 5% fine sand. RESIDUUM		
3												
4		SPT 3	5 8 11	14/18					CL-ML	SAA, grading down to sandy clay, red (10 R 4/8)		
5												
6									SC	**SAND** clayey (SC); red (10 R 4/8); moist, loose to medium dense; 60 to 70 % fine sand; 30 to 40% fines. RESIDUUM		
7		SPT 4	5 8 11	17/18								
8									ML	**SILT** sandy (ML); dark red (2.5 YR 3/6); moist; medium stiff; 65 to 70% silt, 30 to 35 % fine sand, trace clay, micaceous. RESIDUUM		
9		SPT 5	4 8 7	18/18								
10												
11									SM	**SAND** silty (SM); dark reddish brown (2.5 Y 3/4); moist, loose; 60 to 70 % fine sand; 30 to 40 % silt, micaceous; some black manganese staining.		
12		SPT 6	4 3 4	18/18								
13												
14		SPT 7	3 4 4	18/18						SAA, dark brown (7.5 YR 3/4)	On 5/8/06 switched from hollow stem auger to mud rotary 3 7/8 inch tricone bit	
15									ML	**SILT** sandy (ML); strong brown (7.5 YR 5/8) and (7.5 YR 4/6), and black (7.5 YR 2.5/1); moist, medium stiff to stiff, 15 to 25 % fine grained sand, micaceous, with faint thin subhorizontal foliation; abundant black manganese staining; SAPROLITE		
16												
17												
18												
19		SPT 8	3 4 4	14/18								
20												
21												
22												
23												
24		SPT 9	4 5 5	14/18						SAA, reddish brown (5 Y R 4/3); soft to medium stiff; increase in sand content possible sandy silt (25 to 35% fine grained sand)		
25												
26												
27									SM	**SAND** silty (SM); strong brown (7.5 YR 4/6); medium dense; moist; 60 to 70 % fine sand; 30 to 40 % silt, micaceous; faint relict subhorizontal foliations with black 7.5 YR 2.5/1, manganese staining, SAPROLITE		
28												
29		SPT 10	3 5 8	16/18								
30												
31												
32												
33												
34		SPT 11	4 5 6	18/18								
35												
36												
37												
38												
39		SPT 12	5 6 6	18/18								
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-212

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40–43										**SAND** silty (SM); strong brown (7.5 YR 4/6); medium dense; moist; 60 to 70 % fine sand; 30 to 40 % silt, micaceous; faint relict subhorizontal foliations with black 7.5 YR 2.5/1, manganese staining, SAPROLITE *(Continued from previous page)*		
44–45		SPT 13	4 5 7	18/18						**SAND** silty (SM); greenish black (10 GY 2.5/1); grayish green (5 G 4/2); dark yellowish brown (10 YR 4/6); light greenish gray (10 Y 8/1)		
46–48												
49–50		SPT 14	5 5 11	18/18						**SAND** silty (SM); strong brown (7.5 YR 5/6) with very dark greenish gray (5 BG 3/1) and greenish black (5 BG 2.5/1) and white (5 Y 8/1)		
51									SM		3 7/8 tricone refusal at 51 ft.	
52		SPT 15	20 15 15	3/18						Very dense sand to PARTIALLY WEATHERED ROCK; amphibolite schist; bluish black (5 PB 2.5/1) with some completely weathered white (10 YR 8/1); feldspar.		
53		SPT 16	25 34 50/4	7/18							2 7/8 tricone refusal at 52.5 ft. In both cases above after SPT, bit advanced after previous refusal	
54–55		SPT 17	13 13 12	18/18					SM	SAA, strong brown (7.5 YR 4/6) silty sand matrix with zones of completely weathered white feldspar and zones of bluish black amphibolite schist	Able to advance tricone after SPT sampler	
56–57												
57–58									SM	**SAND** silty (SM); strong brown (7.5 YR 4/6); white (N 8/1); bluish black (5 PB 2.5/1) and trace black (10 YR 2/1); moist, medium dense; 60 to 70% fine grained sand ; 30 to 40 % fines;PARTIALLY WEATHERED ROCK; structure dipping 10 to 40°; zones of completely weathered granodiorite, zones of completely weathered gneiss and zones of completely weathered amphibolite; SAPROLITE		
59–60		SPT 18	26 24 28	15/18								
61–62									SM		7 7/8 tricone refusal at 61 ft	
63–64		SPT 19	12 13 12	18/18						Very dense sand to PARTIALLY WEATHERED ROCK; amphibolite schist with saprolitic zones of completely weathered feldspar and biotite, strong brown (7.5 YR 4/6); bluish black (5 PB 2.5/1), and white (10 YR 8/1); moist, medium dense.		
65–67												
67–68										**SAND** silty (SM); strong brown (7.5 YR 4/6); white (2.5 Y 8/1); bluish black (5 PB 2.5/1); moist; medium dense; 60 to 70 % fine grained sand; 30 to 40% fines; distinct relict irregular flow bonding/foliation; dipping 10 to 25°, white relict feldspar zones with bluish black amphibolite. PARTIALLY WEATHERED ROCK; separated by zones of strong black, micaceous-rich zones; migmatite SAPROLITE.	5 7/8 tricone refusal on 5/9/06	
69		SPT 20	50/0	0/0							2 7/8 tricone refusal at 68.5 ft.	
70–74											5/10/06 lost core barrel; borehole abandoned; see boring B-212A 5 ft ENE of B-212	
74–75										PARTIALLY WEATHERED ROCK BORING TERMINATED AT 68.5 ft.		
75–80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-213

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Hollow Stem Auger / 6.25 inch	Boring Location Adjacent to Power Block		Total Depth 150 feet
Drilling Contractor and Rig (for Well) Poole/Gregg / Rhino	Elevation at Boring 401.5 feet	Ground Water Depth	Depth to Bedrock 59.2 feet
Sampling Method (Boring) Standard	Elevation at Well 402.1 feet	No. of Samples 15	Date Started (Well) 5/30/06
	Borehole Inclination 0	Logged by C. Gandy	Date Completed (Well) 5/30/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	1, 2, 3	1.5/18					CL-ML	**CLAY** silty (CL-ML); dark reddish brown (5 YR 3/4); moist; medium stiff; fine to medium grained; medium to high plasticity. RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2-3		SPT 2	2, 4, 4	16/18					SM			
3-5		SPT 3	3, 3, 5	15/18					SC	**SAND** silty (SM); dark reddish brown (5 YR 3/4); moist; loose; fine to medium grained; low plasticity; RESIDUUM		
5-7		SPT 4	3, 3, 5	16/18					SM	**SAND** clayey (SC); dark red (10 R 3/6); moist; loose; fine to medium grained; low to medium plasticity; slightly micaceous; RESIDUUM		
7-10		SPT 5	4, 7, 11	17/18						**SAND** silty (SM); dark red (10 R 3/6); moist; medium dense; fine to medium grained; no plasticity; slightly micaceous; RESIDUUM		
11-12		SPT 6	2, 4, 4	13/18					SM	SAA; yellowish red (5 YR 4/6); moist; loose; fine to coarse grained		
13-15		SPT 7	2, 3, 4	12/18					SM	**SAND** silty (SM); strong brown (7.5 YR 4/6); moist; loose; fine to coarse grained; no plasticity; slightly micaceous. SAPROLITE	First saprolitic sample	
17-18									SM	SAA; moist with gravel		
19-20		SPT 8	2, 4, 5	15/18								
22-23									SM	**SAND** silty (SM); strong brown (7.5 YR 5/6); moist; loose; fine to medium grained; mottled with black and red; slightly micaceous; no plasticity. SAPROLITE		
24-25		SPT 9	2, 3, 5	16/18								
27-28									SM	SAA; medium dense		
29-30		SPT 10	3, 5, 6	17/18								
32-33									SM	**SAND**; silty (SM); strong brown (7.5 YR 5/6); moist; medium dense; fine to medium grained; mottled with black and red; no plasticity. SAPROLITE		
34-35		SPT 11	5, 6, 7	15/18								
39-40		SPT 12	6, 10, 11	17/18								

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-213

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40												
41												
42									ML	**SILT** sandy (ML); black (10 YR 2/1); moist; very stiff; fine to medium grained; trace mica; no plasticity; SAPROLITE	End day 5/22/06 5/23/06 8:30 am, water level at 32 ft.	
43												
44		SPT 13	4 6 10	18/18								
45												
46												
47												
48												
49		SPT 14	6 9 14	18/18								
50												
51												
52									SM	**SAND** silty (SM); olive brown (2.5 Y 4/3); moist; dense; fine to coarse grained; mottled with black and white; no plasticity; slightly micaceous; SAPROLITE		
53												
54		SPT 15	10 18 20	18/18								
55												
56												
57												
58										No recovery PARTIALLY WEATHERED ROCK BORING TERMINATED AT 59.2 ft.	Partially weathered rock Drill bit refusal at 58.8 ft. Casing advanced to 59.2 ft	
59		SPT 16	50/1.5	0/1.5								
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-227

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Adjacent to Power Block	Total Depth 84.25 feet
Drilling Contractor and Rig (for Well) Nichols/McCall / IR T3W	Elevation at Boring 425.1 feet / Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 422.7 feet / No. of Samples 15	Date Started (Well) 5/25/06
	Borehole Inclination 0 / Logged by M. Cooke	Date Completed (Well) 5/25/06

Reviewed by / Date: M. Cooke 5/27/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks
0											WELL
1	/	SPT 1	9 11 5	11/18					SM	**SAND** silty (SM); olive gray (5 Y 3/2); moist; medium dense; fine sand, ~20% silt, some rock fragment; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring.
2	/	SPT 2	7 7 9	16/18					ML	**SILT** sandy (ML); moderate reddish brown (10 R 4/6); moist; very stiff; fine sand ~15%; low plasticity; RESIDUUM	Residuum
4	/	SPT 3	9 9 9	12/18					SM	**SAND** silty (SM); pale reddish brown (10 R 5/4); moist; medium dense; fine sand; ~20% silt. SAPROLITE	First saprolitic sample
6	/	SPT 4	4 5 6	0.1/18					ML	**SILT** sandy (ML); pale reddish brown (10 R 5/4); moist; stiff; low plasticity; fine sand; ~20% sand; small roots; large rock; SAPROLITE	Rock block sampler
8	/	SPT 5	5 7 7	12/18					SM	**SAND** silty (SM); moderate yellowish brown (10 YR 5/4); moist; medium dense; fine sand ~30% fines; SAPROLITE	
10	/	SPT 6	5 8 12	12/18							
12	/	SPT 7	3 2 4	8/18					ML	**SILT** sandy (ML); pale reddish brown (10 R 5/4); moist; medium stiff; ~10% fine sand; low plasticity; RESIDUUM	Lack saprolitic structure
14											
16									SM	**SAND** silty (SM); dark yellowish orange (10 YR 6/6); moist; medium dense; ~45% silt; SAPROLITE	Saprolitic structure reappears
18	/	SPT 8	5 6 11	12/18							
20									ML	**SILT** sandy (ML); moderate yellowish brown (10 YR 5/4); moist; very stiff; fine sand 30%; low plasticity; micaceous; SAPROLITE	
22	/	SPT 9	8 9 9	8/18							
24											
26											
28	/	SPT 10	7 9 12	12/18						SAA; ~40% sand	
30											
32									SM	**SAND** silty (SM); dark yellowish brown (10 YR 6/6); moist; medium dense; 30% silt; micaceous; SAPROLITE	
34	/	SPT 11	11 13 16	12/18							
36											
38									ML	**SILT** sandy (ML); dark yellowish brown (10 YR 4/2); moist; very stiff; low; ~55% fine sand; low plasticity; micaceous; SAPROLITE	
40	/	SPT 12	9 11 16	14/18							

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-227

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SILT** sandy (ML); dark yellowish brown (10 YR 4/2); moist; very stiff; low; ~55% fine sand; low plasticity; micaceous; SAPROLITE *(Continued from previous page)*		
41												
42												
43												
44		SPT 13	11 13 17	16/18						**SILT** sandy (ML); moderate yellowish brown (10 YR 5/4)		
45												
46												
47												
48												
49		SPT 14	11 12 20	14/18						SAA; moderate brown (5 YR 4/4), 60% fine sand; very micaceous; SAPROLITE		
50												
51												
52									ML	**SILT** sandy (ML); dark yellowish brown (10 YR 4/2); moist; very stiff; fine sand 70% silt; low plasticity; very micaceous; PARTIALLY WEATHERED ROCK	Partially weathered rock	
53												
54		SPT 15	17 50/5	12/11						BORING TERMINATED AT 54.5 ft.	End of drilling 4/13/06, 4/14/06 No groundwater encountered	
55												
56												
57												
58												
59												
60												
61												
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79												
80												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-227

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
80												
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												
91												
92												
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112												
113												
114												
115												
116												
117												
118												
119												
120												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-233

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Adjacent to Power Block		Total Depth 120 feet
Drilling Contractor and Rig (for Well) Nichols/McCall / IR T3W	Elevation at Boring 426.1 feet	Ground Water Depth	Depth to Bedrock 37.4 feet
Sampling Method (Boring) Standard	Elevation at Well 426.2 feet	No. of Samples 11	Date Started (Well) 5/25/06
	Borehole Inclination 0	Logged by M. Cooke	Date Completed (Well) 5/25/06

Reviewed by / Date M. Cooke 6/11/06

Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-2		SPT 1	0 1 2	13/18					SM	**SAND** (SM); red (2.5 YR 5/8); dry; very loose; silty; fine	NOTE: Samples and Lithology Information are from adjacent boring.	
2-4		SPT 2	3 3 3	9/18						SAA; orange (5 YR 5/8) and red; loose		
4-6		SPT 3	4 7 8	15/18					ML	**SILT** (ML); red and orange (10 R 4/6 and 5 YR 6/8); damp; medium stiff; trace mica		
6-8		SPT 4	4 4 7	14/18					SM	**SAND** (SM); dusky red, brown and white (10 R 3/6, 7.5 YR 5/8); moist to damp; medium dense; in 2 to 3 inch bands; silty; trace mica;		
8-10		SPT 5	8 13 19	16/18					GM	**GRAVEL** (GM); red (10 R 3/6), brown (1.7 YR 5/8), and gray; damp; dense; weathered granite or granodiorite; split spoon like a rock core; gneiss; SAPROLITE	First saprolitic sample	
10-12		SPT 6	5 7 10	17/18					SM	**SAND** silty (SM); red and brown (10 R 4/6 and 5 YR 6/8); damp; medium dense; fine; foliated; SAPROLITE		
12-14		SPT 7	5 6 7	13/18						SAA; red (10 R 5/4); damp; medium dense; silty; micaceous; fine to coarse		
18-20		SPT 8	2 6 7	10/18						SAA; brown and red (7.5 YR 5/8 and 10 R 5/6)		
22-24		SPT 9	2 5 7	9/18						SAA; brown, red and beige, as above with manganese staining		
28-30		SPT 10	3 5 8	10/18						SAA; red (10 R 5/6)		
32-34		SPT 11	3 5 9	14/18						SAA; beige; damp; medium dense; silty; micaceous		
34-36									ML	**SILT** sandy (ML); orange (7.5 6/8); damp; stiff; sandy; manganese stained Refusal at 37.4 ft, drilled casing to 37.5 ft, see rock log		

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-233

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: Adjacent to Power Block		Total Depth: 120 feet
Drilling Contractor and Rig: Nichols/McCall / IR T3W	Elevation at Boring: 426.1 feet	Ground Water Depth	Depth to Bedrock: 37.4 feet
Casing Size and Depth (Boring): 3.5 / 37.5 feet	Elevation at Well: 426.2 feet	No. of Core Boxes	Date Started: 5/25/06
	Borehole Inclination: 0	Logged by: M. Cooke	Date Completed: 5/25/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
38								GRANODIORITE; fine grained 3 to 1 mm quartz, orthoclase, biotite	Tricone refusal 4/13/06; casing drilled to 37.5 ft	
39										
40									NOTE: Samples and Lithology Information are from adjacent boring.	
41	1	7.9/8.0	58	MW				Amphibolite schist	Lost water return	
42								40.7 to 43 Felsic gneiss	Very low drilling resistance	
43									No water return from 41.2 to 41.4 ft	
44								GRANODIORITE; biotite and dark minerals; quartz and orthoclase; phaneritic	Very low drilling resistance 41.8 to 42.2 ft	
45										
46				SW	R3			AMPHIBOLITE SCHIST; foliation angle 45°		
47	2	5.0/5.0	100							
48				F	R3					
49										
50										
51								GRANODIORITE biotite, orthoclase and quartz		
52										
53	3	4.9/4.9	100	F	R4					
54										
55								AMPHIBOLITE SCHIST, gneiss		
56								GNEISS; biotite; foliated at 43°; flow banded texture; chalcopyrite porphyroblasts.		
57										
58	4	4.5/4.6	100	F	R4			Schist amphibolite xenoliths; migmatite biotite gneiss		
59										
60								Igneous texture		
61										
62	5	5.0/5.0	100	F	R5			GRANODIORITE mafics; chalcopyrite		
63										
64								AMPHIBOLITE SCHIST; 60° foliation		
65										
66										
67	6	5.0/5.0	100	F	R4			GRANODIORITE; with 2 inch amphibolite schist xenoliths		
68										
69										
70										
71								GNEISS, chalcopyrite, some biotite		
72										
73	7	5.0/5.0	100	F	R4			AMPHIBOLITE SCHIST and GRANODIORITE CORING TERMINATED AT 75.0 ft.		
74										
75										
76									End of drilling 4/18/06 water at 37 ft	
77										

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-233

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88										
89										
90										
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105										
106										
107										
108										
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110										
111										
112										
113										
114										
115										
116										
117										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-233

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
118										
119										
120										
121										
122										
123										
124										
125										
126										
127										
128										
129										
130										
131										
132										
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143										
144										
145										
146										
147										
148										
149										
150										
151										
152										
153										
154										
155										
156										
157										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-305A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Nuclear Island	Total Depth 175 feet
Drilling Contractor and Rig (for Well) Nichols/McCall / IR T3W	Elevation at Boring 423.9 feet / Ground Water Depth	Depth to Bedrock 57.5 feet
Sampling Method (Boring) Standard	Elevation at Well 424.9 feet / No. of Samples 14	Date Started (Well) 5/29/06
	Borehole Inclination 0 / Logged by B. Sharp	Date Completed (Well) 5/29/06

Reviewed by / Date M. Cooke 6/11/06

Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	2 3 2	15/18					SM	SAND silty (SM); red (2.5 YR 4/6); loose; fine to medium grained; trace clay; low to medium plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	3 5 11	15/18						SAA; medium dense; 32% fines		
3												
4		SPT 3	5 10 11	16/18						SAND silty (SM); red (2.5 YR 4/6); medium dense; trace clay; contains mica; no plasticity; 47% fines; RESIDUUM		
5												
6		SPT 4	3 6 7	12/18						SAA		
7												
8		SPT 5	3 5 7	16/18						SAND silty (SM); red (2.5 YR 4/8); medium dense; fine to medium grained; trace clay; very micaceous; low plasticity; 29% fines; RESIDUUM		
9												
10		SPT 6	4 6 9	12/18						SAA; brown (7.5 YR 4/4); red and white		
11												
12		SPT 7	3 6 8	15/18						SAA; 31% fines		
13												
14												
15												
16												
17												
18												
19		SPT 8	3 7 8	14/18						SAND silty (SM); brown (10 YR 4/3); red and white; medium dense; fine to medium grained; micaceous; 34% fines RESIDUUM		
20												
21												
22										SAND silty (SM); brown (10 YR 4/3); red and white; medium dense; fine to coarse grained; very micaceous; no plasticity; RESIDUUM		
23												
24		SPT 9	3 6 9	16/18								
25												
26												
27												
28												
29		SPT 10	4 6 8	14/18						SAA; 25% fines		
30												
31												
32											Top of saprolite	
33												
34		SPT 11	4 6 7	16/18								
35												
36												
37												
38												
39		SPT 12	3 4 8	15/18						SAA; 27% fines		
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-305A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										SAND silty (SM); red (2.5 YR 4/6); loose; fine to medium grained; trace clay; low to medium plasticity; RESIDUUM *(Continued from previous page)*		
44		SPT 13	4 5 8	15/18						SAA, black and white		
49		SPT 14	3 6 8	16/18						SAA; 24% fines		
52										No recovery PARTIALLY WEATHERED ROCK BORING TERMINATED AT 57.5 ft. see rock log		
54		SPT 15	50/5	0/5								
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-305A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: Nuclear Island		Total Depth: 175 feet
Drilling Contractor and Rig: Nichols/McCall / IR T3W	Elevation at Boring: 423.9 feet	Ground Water Depth	Depth to Bedrock: 57.5 feet
Casing Size and Depth (Boring): 4 / 57.5 feet	Elevation at Well: 424.9 feet	No. of Core Boxes	Date Started: 5/29/06
	Borehole Inclination: 0	Logged by: B. Sharp	Date Completed: 5/29/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
58								GRANODIORITE; black and white; weathered zone from 57.5 to 60.6 ft; 35 to 45° dipping joints; some pyrite mineralization along joint surfaces	Tricone bit refusal at 57.5 ft on 4/28/06	
59	1	4.7/5.0	58	MW	R1			Fracture zone 57.5 to 60.6 ft		
60										
61				SW	R3				NOTE: Samples and Lithology Information are from adjacent boring.	
62								GRANODIORITE; black and white with xenoliths of black amphibolite schist.	Top of sound rock	
63										
64										
65	2	4.0/5.0	74	F	R3 to R4			Fracture zone 64 to 64.5 ft		
66										
67										
68										
69										
70	3	5.0/5.0	100	F	R3 to R4					
71										
72										
73								GRANODIORITE MIGMATITE; black and white with some scattered xenoliths of black amphibolite schist fine to coarse grained		
74										
75	4	5.0/5.0	100	F	R4					
76										
77										
78										
79								AMPHIBOLITE SCHIST; black; fine grained		
80	5	5.0/5.0	100	F	R4				5/1/06 5:30 pm at water at 52.5 ft	
81									5/2/06 7:30 am at water at 45.5 ft.	
82										
83								HORNBLENDE GNEISS; black; fine grained; some quartz dikes		
84										
85	6	5.0/5.0	96	F	R4				End drilling on 5/2/06	
86									Begin drilling 5/13/06 at 1:45 pm water at 53.5 ft	
87										
88								Some quartz dikes and zones of granodiorite with pyrite visible at 89.0 to 89.8 ft and 90.7 to 91.3 ft		
89										
90	7	5.0/5.0	100	F	R4					
91										
92										
93								Granodiorite intrusion from 93.0 to 93.3 ft.; moderately fractured		
94										
95	8	5.0/5.0	100	F	R4					
96										
97										

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

SCE&G COL : 6234-06-3534

MACTEC

WELL LOG ROCK - WELL No. OW-305A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
98									End drilling 5/13/06 at 5:15 pm water at 28.0 ft. Begin day 5/14/06 at 7:30 am water at 50.0 ft.	
99	9	4.0/4.0	100	F	R4					
100										
101										
102								Some granodiorite intrusions	End day 5/14/06 Begin day 5/15/06 at 7:45 am water at 53.0 ft.	
103										
104	10	5.0/5.0	100	F	R4					
105								Granodiorite intrusion 0.2 ft with pyrite visible		
106								BIOTITE GNEISS MIGMATITE; black and white; fine to medium grained; some quartz dikes and small granodiorite intrusions; some small xenoliths of amphibolite schist at 30 to 60° foliation		
107										
108										
109	11	5.0/5.0	100							
110										
111				F	R4					
112										
113										
114	12	5.0/5.0	100							
115										
116				F	R4					
117										
118										
119	13	5.0/5.0	100	F	R4					
120										
121										
122								AMPHIBOLITE SCHIST; black with zones of granodiorite; black and white; quartz dikes; fine to medium grained		
123										
124	14	5.0/5.0	100	F	R4					
125										
126										
127										
128										
129	15	5.0/5.0	96	F	R4					
130										
131										
132										
133										
134	16	5.0/5.0	100	F	R4			Granodiorite zone from 134.2 to 134.6 ft		
135								HORNBLENDE GNEISS; black; fine grained; some small xenoliths of black amphibolite schist		
136										
137										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-305A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
138										
139	17	5.0/5.0	88	F	R4			BIOTITE GNEISS and QUARTZ and PLAGIOCLASE GNEISS; black and white; fine to medium grained; 20 to 40° foliation; some small xenoliths of amphibolite schist. Totally healed vertical discontinuity	End day 5/15/06 Begin day 5/16/06 at 8:15 am water at 94 ft.	
140										
141										
142										
143								BIOTITE GNEISS; bluish black; fine grained; with zones of granodiorite migmatite; quartz dikes and scattered xenoliths of black amphibolite schist		
144	18	5.0/5.0	96	F	R4					
145										
146										
147										
148								GRANODIORITE; black and white; fine to medium grained with zones of fine grained; black amphibolite schist		
149	19	5.0/5.0	58	F	R4					
150										
151										
152										
153										
154	20	5.0/5.0	86	F	R4					
155										
156										
157										
158										
159	21	5.0/5.0	100	F	R4					
160										
161										
162										
163										
164	22	5.0/5.0	90	F	R4					
165										
166										
167								Feldspar and quartz vein visible		
168								CORING TERMINATED AT 175.0 ft.		
169	23	5.0/5.0	78	F	R4					
170										
171										
172										
173	24	3.5/3.5	91	F	R4					
174										
175										
176									Boring terminated on 5/16/06	
177										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-305B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Nuclear Island	Total Depth 175 feet
Drilling Contractor and Rig (for Well) Nichols/McCall / IR T3W	Elevation at Boring 423.9 feet / Ground Water Depth	Depth to Bedrock 57.5 feet
Sampling Method (Boring) Split Spoon	Elevation at Well 423.7 feet / No. of Samples 14	Date Started (Well) 5/26/06
	Borehole Inclination 0 / Logged by B. Sharp	Date Completed (Well) 5/26/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	2 3 2	15/18					SM	SAND silty (SM); red (2.5 YR 4/6); loose; fine to medium grained; trace clay; low to medium plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	3 5 11	15/18						SAA; medium dense; 32% fines		
3												
4		SPT 3	5 10 11	16/18						SAND silty (SM); red (2.5 YR 4/6); medium dense; trace clay; contains mica; no plasticity; 47% fines; RESIDUUM		
5												
6		SPT 4	3 6 7	12/18						SAA		
7												
8		SPT 5	3 5 7	16/18						SAND silty (SM); red (2.5 YR 4/8); medium dense; fine to medium grained; trace clay; very micaceous; low plasticity; 29% fines; RESIDUUM		
9												
10		SPT 6	4 6 9	12/18						SAA; brown (7.5 YR 4/4); red and white		
11												
12		SPT 7	3 6 8	15/18						SAA; 31% fines		
13												
14												
15												
16												
17												
18												
19		SPT 8	3 7 8	14/18						SAND silty (SM); brown (10 YR 4/3); red and white; medium dense; fine to medium grained; micaceous; 34% fines RESIDUUM		
20												
21												
22										SAND silty (SM); brown (10 YR 4/3); red and white; medium dense; fine to coarse grained; very micaceous; no plasticity; RESIDUUM		
23												
24		SPT 9	3 6 9	16/18								
25												
26												
27												
28												
29		SPT 10	4 6 8	14/18						SAA; 25% fines		
30												
31												
32											Top of saprolite	
33												
34		SPT 11	4 6 7	16/18								
35												
36												
37												
38												
39		SPT 12	3 4 8	15/18						SAA; 27% fines		
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-305B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40–43										SAND silty (SM); red (2.5 YR 4/6); loose; fine to medium grained; trace clay; low to medium plasticity; RESIDUUM *(Continued from previous page)*		
44–45		SPT 13	4 5 8	15/18						SAA, black and white		
46–48												
49–50		SPT 14	3 6 8	16/18						SAA; 24% fines		
51–53										No recovery PARTIALLY WEATHERED ROCK BORING TERMINATED AT 57.5 ft. see rock log		
54		SPT 15	50/5	0/5								
55–80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-305B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: Nuclear Island		Total Depth: 175 feet
Drilling Contractor and Rig: Nichols/McCall / IR T3W	Elevation at Boring: 423.9 feet	Ground Water Depth	Depth to Bedrock: 57.5 feet
Casing Size and Depth (Boring): 4 / 57.5 feet	Elevation at Well: 423.7 feet	No. of Core Boxes	Date Started: 5/26/06
	Borehole Inclination: 0	Logged by: B. Sharp	Date Completed: 5/26/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
58										
59				MW	R1			GRANODIORITE; black and white; weathered zone from 57.5 to 60.6 ft; 35 to 45° dipping joints; some pyrite mineralization along joint surfaces	Tricone bit refusal at 57.5 ft on 4/28/06	
60	1	4.7/5.0	58					Fracture zone 57.5 to 60.6 ft		
61				SW	R3				NOTE: Samples and Lithology Information are from adjacent boring.	
62										
63								GRANODIORITE; black and white with xenoliths of black amphibolite schist.	Top of sound rock	
64										
65	2	4.0/5.0	74	F	R3 to R4			Fracture zone 64 to 64.5 ft		
66										
67										
68										
69										
70	3	5.0/5.0	100	F	R3 to R4					
71										
72										
73										
74										
75	4	5.0/5.0	100	F	R4			GRANODIORITE MIGMATITE; black and white with some scattered xenoliths of black amphibolite schist fine to coarse grained		
76										
77										
78										
79								AMPHIBOLITE SCHIST; black; fine grained		
80	5	5.0/5.0	100	F	R4				5/1/06 5:30 pm at water at 52.5 ft	
81									5/2/06 7:30 am at water at 45.5 ft.	
82										
83								HORNBLENDE GNEISS; black; fine grained; some quartz dikes		
84										
85	6	5.0/5.0	96	F	R4				End drilling on 5/2/06	
86									Begin drilling 5/13/06 at 1:45 pm water at 53.5 ft	
87										
88								Some quartz dikes and zones of granodiorite with pyrite visible at 89.0 to 89.8 ft and 90.7 to 91.3 ft		
89										
90	7	5.0/5.0	100	F	R4					
91										
92										
93								Granodiorite intrusion from 93.0 to 93.3 ft.; moderately fractured		
94										
95	8	5.0/5.0	100	F	R4					
96										
97										

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-305B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
98									End drilling 5/13/06 at 5:15 pm water at 28.0 ft. Begin day 5/14/06 at 7:30 am water at 50.0 ft.	
99	9	4.0/4.0	100	F	R4					
100										
101										
102								Some granodiorite intrusions	End day 5/14/06 Begin day 5/15/06 at 7:45 am water at 53.0 ft.	
103										
104	10	5.0/5.0	100	F	R4					
105								Granodiorite intrusion 0.2 ft with pyrite visible		
106								BIOTITE GNEISS MIGMATITE; black and white; fine to medium grained; some quartz dikes and small granodiorite intrusions; some small xenoliths of amphibolite schist at 30 to 60° foliation		
107										
108										
109	11	5.0/5.0	100							
110										
111				F	R4					
112										
113										
114	12	5.0/5.0	100							
115										
116				F	R4					
117										
118										
119	13	5.0/5.0	100	F	R4					
120										
121										
122								AMPHIBOLITE SCHIST; black with zones of granodiorite; black and white; quartz dikes; fine to medium grained		
123										
124	14	5.0/5.0	100	F	R4					
125										
126										
127										
128										
129	15	5.0/5.0	96	F	R4					
130										
131										
132										
133										
134	16	5.0/5.0	100	F	R4			Granodiorite zone from 134.2 to 134.6 ft		
135								HORNBLENDE GNEISS; black; fine grained; some small xenoliths of black amphibolite schist		
136										
137										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-305B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
138										
139	17	5.0/5.0	88	F	R4			BIOTITE GNEISS and QUARTZ and PLAGIOCLASE GNEISS; black and white; fine to medium grained; 20 to 40° foliation; some small xenoliths of amphibolite schist. Totally healed vertical discontinuity	End day 5/15/06 Begin day 5/16/06 at 8:15 am water at 94 ft.	
140										
141										
142										
143								BIOTITE GNEISS; bluish black; fine grained; with zones of granodiorite migmatite; quartz dikes and scattered xenoliths of black amphibolite schist		
144	18	5.0/5.0	96	F	R4					
145										
146										
147								GRANODIORITE; black and white; fine to medium grained with zones of fine grained; black amphibolite schist		
148										
149	19	5.0/5.0	58	F	R4					
150										
151										
152										
153										
154	20	5.0/5.0	86	F	R4					
155										
156										
157										
158										
159	21	5.0/5.0	100	F	R4					
160										
161										
162										
163										
164	22	5.0/5.0	90	F	R4					
165										
166										
167								Feldspar and quartz vein visible		
168								CORING TERMINATED AT 175.0 ft.		
169	23	5.0/5.0	78	F	R4					
170										
171										
172										
173	24	3.5/3.5	91	F	R4					
174										
175										
176									Boring terminated on 5/16/06	
177										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-312

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Hollow Stem Auger / 6.25 inch	Boring Location Adjacent to Power Block		Total Depth 115 feet
Drilling Contractor and Rig (for Well) Poole/Gregg / Rhino	Elevation at Boring 425.2 feet	Ground Water Depth	Depth to Bedrock 35 feet
Sampling Method (Boring) Split Spoon	Elevation at Well 425.1 feet	No. of Samples 11	Date Started (Well) 5/12/06
	Borehole Inclination 0	Logged by B. Sharp	Date Completed (Well) 5/12/06

Reviewed by / Date M. Cooke 6/11/06

Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0–1		SPT 1	1 3 4	13/18					ML	**SILT** sandy (ML); red (2.5 YR 4/6); damp; medium stiff; fine sand ~40%; low plasticity; micaceous; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
1–2		SPT 2	3 4 7	11/18						SAA, except stiff		
2–3												
3–4		SPT 3	2 3 5	16/18						**SILT** sandy (ML); red (2.5 YR 4/6); moist; medium stiff; fine sand ~30%; low plasticity; micaceous; RESIDUUM		
4–5												
5–6												
6–7		SPT 4	4 5 7	14/18					ML	**SILT** sandy (ML); red (2.5 YR 4/8); moist; stiff; fine sand ~15% low plasticity; micaceous; RESIDUUM		
7–8									ML	**SILT** sandy (ML); red (2.5 YR 4/6); moist; stiff; fine sand ~35% low plasticity; micaceous; RESIDUUM		
8–9		SPT 5	3 4 5	16/18								
9–10												
10–11												
11–12		SPT 6	3 4 7	16/18								
12–13									ML	**SILT** sandy (ML) reddish brown (2.5 YR 4/4); moist; stiff; fine sand ~30%; low plasticity; micaceous; RESIDUUM		
13–14		SPT 7	3 4 6	14/18								
14–15												
15–16												
16–17									ML	**SILT** sandy (ML); brown (7.5 YR 4/4); moist; stiff; fine sand ~15%; low plasticity; micaceous; SAPROLITE	Top of saprolite	
17–18												
18–19		SPT 8	5 6 8	14/18								
19–20												
20–21												
21–22									ML	**SILT** sandy (ML); brown and red (7.5 YR 4/4 and 2.5 YR 4/6); moist; very stiff; fine sand ~5% low plasticity; micaceous; SAPROLITE		
22–23												
23–24		SPT 9	5 6 9	16/18								
24–25												
25–26												
26–27												
27–28												
28–29												
29–30		SPT 10	5 7 8	14/18								
30–31												
31–32												
32–33									ML	**SILT** sandy (ML); strong brown (7.5 YR 4/6); moist; hard; fine sand ~20%; low plasticity; micaceous; small rock fragments; PARTIALLY WEATHERED ROCK	Partially weathered rock	
33–34												
34–35		SPT 11	50/6	6/6						REFUSAL, see rock log		
35–36												
36–37												
37–38												
38–39												
39–40												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-312

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Hollow Stem Auger / 6.25 inch	Boring Location: Adjacent to Power Block		Total Depth: 115 feet
Drilling Contractor and Rig: Poole/Gregg / Rhino	Elevation at Boring: 425.2 feet	Ground Water Depth:	Depth to Bedrock: 35 feet
Casing Size and Depth (Boring): 3.25 / 35 feet	Elevation at Well: 425.1 feet	No. of Core Boxes: 6	Date Started: 5/12/06
	Borehole Inclination: 0	Logged by: B. Sharp	Date Completed: 5/12/06

Reviewed by / Date: M. Cooke 6/11/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
35	1	0.1 / 5.0	2	CW to HW	R0			Weathered zone; little recovery Dike at 35.0 ft of granite pegmatite	Refusal at 35.0 ft, switch to HQ coring water level at 7 ft. End of 4/25/06 Beginning of 4/26/06 NOTE: Samples and Lithology Information are from adjacent boring. Cave in depth at 26 ft. Top of moderately weathered rock at 40 ft. Top of sound rock at 41.7 ft.	
40	2	4.3 / 5.0	54	SW	R3 R4			MIGMATITE gneiss with schist, granodiorite and quartz diorite; gray to very dark gray (Gley 1 6/6, Gley 1 3/6); flow band texture 40 to 41.7 ft slightly weathered granodiorite schist dike at 4 ft.		
45	3	5.0 / 5.0	100	F	R4					
50	4	4.0 / 4.0	100	F	R4			MIGMATITE with zones of schist, granodiorite, and biotite gneiss; gray to very dark gray and greenish gray (Gley 1 6/6 and Gley 1 3/6, Gley 1 5/10 GY); flow band texture from 50 to 52.5 ft.	End of drilling 4/26/06 water level at 10 ft Begin day 4/27/06, water level at 44 ft.	
55	5	1.0 / 1.0	100	F	R4			BIOTITE GNEISS ZONE; light gray to very dark gray (Gley 1 6/6 and Gley 1 3/6); foliation 20° gneiss texture MIGMATITE; light gray to dark gray (Gley 1 7/4 and 4/N)		
60	6	5.0 / 5.0	98	F	R4					
65	7	4.8 / 4.8	96	F	R4 to R5			BIOTITE GNEISS with bands of schist; light gray to dark gray (Gley 1 7/4 and Gley 1 4/N); foliation at 30°		
70	8	5.0 / 5.0	92	F	R4 to R5			BIOTITE GNEISS and schists xenoliths; gray and very dark gray (Gley 1 6/N, 3/N); gneiss texture; some foliation at 64.8 to 65.4 ft 25°		
75	9	5.0 / 5.0	100	F	R4 to R5			AMPHIBOLITE SCHIST (69.8 to 72.6 ft) and BIOTITE GNEISS (72.6 to 74.8 ft); gray to very dark gray (Gley 1 6/N, 3/N). Foliation at 30°; bands or quartz from 69.8 to 71.8 ft. breccia texture at 72.5 ft, quartz biotite		

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-312

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
75	10	5.0/5.0	100	F	R4 to R5			BIOTITE GNEISS; with bands of schist; gray to dark gray (Gley 1 3/N, 6/N); pegmatite texture (79.3 to 79.8 ft); gneiss texture with foliation of 45°; biotite; quartz; chalcopyrite; feldspar.	End of 4/27/06, water level at 12 ft Begin day 4/29/06, water level at 37.5 ft.	
80	11	5.0/5.0	86	F	R4			MIGMATITE; mixture of AMPHIBOLITE SCHIST; black and white (Gley 1 8/N and 2.5/N); white zones of coarse granodiorite black and white; coarse grain; quartz, biotite	End of 4/29/06, water level at 37.5 ft. Begin day 4/30/06, water level at 52 ft.	
85	12	5.0/5.0	100	F	R4			SAA; fine to medium; zones of breccia texture		
90	13	5.0/5.0	96	F	R4 to R5			MIGMATITE; mixture of GRANODIORITE and BIOTITE GNEISS and SCHIST; black, white, light gray (Gley 1 8/N and 2.5/N, 7/N)); irregular flow banding; quartz, biotite		
95	14	5.0/5.0	100	F	R4 to R5					
100	15	5.0/5.0	100	F	R4 to R5			MIGMATITE; mixture of GRANODIORITE and SCHIST; black, white, light gray (Gley 1 8/N and 2.5/N, 7/N)\); igneous texture	End of day 4/30/06 Begin of day 5/1/06, water level at 54 ft.	
105	16	5.0/5.0	100	F	R4 to R5					
110	17	5.2/5.2	100	F	R4 to R5			Quartz dike		
115										

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-312

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
115								CORING TERMINATED AT 115.0 ft.	Coring terminated on 5/1/06 at 115.0 ft.	
116										
117										
118										
119										
120										
121										
122										
123										
124										
125										
126										
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										
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140										
141										
142										
143										
144										
145										
146										
147										
148										
149										
150										
151										
152										
153										
154										
155										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-313

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Hollow Stem Auger / 6.25 inch	Boring Location Adjacent to Power Block		Total Depth 150 feet
Drilling Contractor and Rig (for Well) Poole/Gregg / Rhino	Elevation at Boring 420.5 feet	Ground Water Depth	Depth to Bedrock 61 feet
Sampling Method (Boring) Standard	Elevation at Well 420.9 feet	No. of Samples 16	Date Started (Well) 5/13/06
	Borehole Inclination 0	Logged by B. Sharp	Date Completed (Well) 5/13/06

Reviewed by / Date M. Cooke 5/22/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	8 5 3	10/18					ML	**SILT** sandy (ML); yellowish red (5 YR 4/6); damp; medium stiff; 60% silt, 40% clay; no plasticity; very micaceous; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2-3		SPT 2	3 3 5	12/18								
4-5		SPT 3	2 3 4	16/18					SM	**SAND** silty (SM); strong brown (7.5 YR 5/6); loose, 60% sand, 40% silt, non plastic to low plasticity, micaceous; RESIDUUM		
6-7		SPT 4	2 4 5	13/18								
8-9		SPT 5	2 4 5	14/18								
10-11		SPT 6	2 4 6	14/18						SAA dark yellowish brown (10 YR 4/4); mottled with black and white		
12-13		SPT 7	3 3 5	14/18						**SAND** silty (SM); strong brown (7.5 YR 5/6)		
14-15												
16-17		SPT 8	3 5 5	15/18								
18-19									SM	**SAND** silty (SM); brown (10 YR 4/3); mottled with white and red; medium dense; non-plastic; micaceous; RESIDUUM to SAPROLITE	First saprolitic sample	
20-21		SPT 9	3 5 6	15/18								
22-23		SPT 10	4 6 8	17/18						SAA, mottled with black, white and yellowish red.		
24-25										SAA; mottled with black, white, and reddish brown		
26-27		SPT 11	4 6 7	16/18								
28-29												
30-31		SPT 12	4 7 9	16/18								
32-33												
34-35												
36-37												
38-39												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-313

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SAND** silty (SM); brown (10 YR 4/3); mottled with white and red; medium dense; non-plastic; micaceous; RESIDUUM to SAPROLITE *(Continued from previous page)*		
41												
42												
43												
44		SPT 13	5 7 9	15/18								
45												
46												
47									SM	**SAND** silty (SM); very dark grayish brown (3/2); very dense; contains rock fragments and mica; PARTIALLY WEATHERED ROCK		
48												
49		SPT 14	50/2	3/2								
50												
51												
52									SM	**SAND** silty (SM); brown (10 YR 4/3); mottled with black, white, and yellowish brown; dense; fine to coarse with angular gravel, non-plastic; micaceous; SAPROLITE		
53												
54		SPT 15	11 13 18	16/18								
55												
56												
57												
58												
59		SPT 16	6 13 50/3.5	15/15.5								
60										**SAND** silty (SM); brown (10 YR 4/3); mottled with black, white, and yellowish brown; dense; fine to coarse with angular gravel, non-plastic; micaceous; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 61.0 ft.	Partially weathered rock	
61		SPT 17	50/.25	0/0.25								
62												
63												
64												
65												
66												
67												
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73												
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76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-327

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Adjacent to Power Block		Total Depth 66 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 410.8 feet	Ground Water Depth	Depth to Bedrock 49.3 feet
Sampling Method (Boring) Standard	Elevation at Well 410.7 feet	No. of Samples 14	Date Started (Well) 5/29/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/29/06

Reviewed by / Date M. Cooke 6/12/06

Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	4 5 8	18/18					CL	**CLAY** sandy (CL); red (10 R 4/6); with tan/gray mottling; damp; medium stiff; 50 to	NOTE: Samples and Lithology Information are	
2-3		SPT 2	4 6 8	10/18					SM	60% clay, 40 to 50% fine grained sand and silt; low plasticity; gradational contact below; RESIDUUM	from adjacent boring. Residuum Slow drilling	
4-5		SPT 3	3 4 6	18/18						**SAND** silty,clayey (SM); red (10 R 4/6); mottled; moist; medium dense; 50 to 60% fine grained sand; 40 to 50% silt; some clay; RESIDUUM	Losing water	
6-7		SPT 4	4 4 6	15/18						SAND silty (SM); red (2.5 YR 4/8); loose;70 to 80% fine grained sand; 20 to 30% silt; trace clay; micaceous RESIDUUM		
8-9		SPT 5	4 4 7	17/18						SAA; but less silt 10 to 20% SAA; yellowish red (5 YR 5/8); medium dense; grading downward to red (2.5 YR 4/8) below 9.5 ft. localized clay-rich (white kaolinite) zone from 8.5 to 8.6 ft		
10-11		SPT 6	3 3 4	17/18					SM	SAND silty (SM); loose; faint structure sub horizontal yellowish brown and black thin (1/16 to 1/8 inch thick) banding; SAPROLITE		
12-13		SPT 7	4 5 7	18/18						SAA; red (10 R 4/6); medium dense; no structure; localized micaceous zones	End of day 4/14/06 water level at 7.6 ft. Begin day 4/17/06 water level dry	
14-15		SPT 8	3 3 5	18/18						**SAND** silty (SM); red (10 R 4/6) with localized zones of strong brown (7.5 YR 5/8); moist; loose; 80 to 90% fine grained sand, 10 to 20% silt; SAPROLITE		
16-17		SPT 9	5 10 16	18/18					SP-SM	**SAND** slightly silty (SP-SM); strong brown (7.5 YR 5/8); to yellowish brown (10 YR 5/8); below 24.7 ft; moist; medium dense; 90% fine grained sand, 10% silt, trace silt below 24.7 ft.; SAPROLITE		
18-19		SPT 10	10 6 7	17/18					SM	**SAND** silty (SM); yellowish brown (10 YR 5/8); and (2.5 YR 4/8); medium dense; some black manganese staining, 80% fine grained sand, 20% silt; SAPROLITE		
20-21		SPT 11	5 7 10	18/18						SAA; dark red (2.5 YR 3/6); with alternating zones of yellowish brown (10 YR 5/8); moist; medium dense; some black manganese staining; 80% fine grained sand, 20% silt; SAPROLITE	Drilling becomes very hard Easier drilling from 37.5 to 38.5 ft	
22-23		SPT 12	8 14 15	18/18						**SAND** silty (SM) olive brown (2.5 Y 4/4); and light olive brown (2.5 Y 5/6); moist; medium		

Project Name : Job Number

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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-327

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										dense; with thin stringers (up to 1/8 inch thick) of black manganese staining; micaceous; SAPROLITE		
41												
42												
43												
44		SPT 13	9 10 12	18/18						**SAND** silty (SM); yellowish brown (10 YR 5/8); and (2.5 YR 4/8); medium dense; some black manganese staining, 80% fine grained sand, 20% silt; SAPROLITE *(Continued from previous page)*		
45												
46										SAA; yellowish brown (10 YR 5/8); to dark reddish brown below 44.8 ft; some light gray/white (5 YR 7/1), 80% fine grained sand, 20 % silt; micaceous		
47												
48												
49		SPT 14	46 50/3	9/9						AMPHIBOLITE; black (10 YR 2/1); highly weathered; rock fragments up to 5 cm in diameter; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 49.3 ft., see rock log	Tricone casing advancement tool plugging up from 47.5 to 48.5 ft. NOTE: Samples and Lithology Information are from adjacent boring. End of day 4/17/06 water level at 41.7 ft. Begin day 4/18/06	
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
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80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-327

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: Adjacent to Power Block		Total Depth: 66 feet
Drilling Contractor and Rig: Smith/Gregg / Fraste Multidrill XL	Elevation at Boring: 410.8 feet	Ground Water Depth	Depth to Bedrock: 49.3 feet
Casing Size and Depth (Boring): 3.5 / 49.3 feet	Elevation at Well: 410.7 feet	No. of Core Boxes	Date Started: 5/29/06
	Borehole Inclination: 0	Logged by: C. Bruce	Date Completed: 5/29/06

Reviewed by / Date: M. Cooke 6/12/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
50–54	1	0.0 / 5.0	0	HW / CW	R3 / R0			AMPHIBOLITE SCHIST; dark gray/black (5 Y 2.5/1); fine to medium grained; foliation not obvious; highly weathered; washed away in drill cuttings; SAPROLITE/PARTIALLY WEATHERED ROCK		
55–59	2	1.9 / 5.0	24	HW / MW / SW	R3 / R4			QUARTZ, BIOTITE, HORNBLENDE, and PLAGIOCLASE GNEISS; dark gray/black and white 54.3 to 54.8 ft with heavy brown oxidation staining; foliation dipping 60 to 70° CORING TERMINATED AT 59.3 ft.		
60–89									Borehole terminated on 4/18/06 at 59.3 ft. water at 45.3 ft	

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-333

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Adjacent to Power Block		Total Depth 85 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 394.4 feet	Ground Water Depth	Depth to Bedrock 26.1 feet
Sampling Method (Boring) Standard	Elevation at Well 394.5 feet	No. of Samples 19	Date Started (Well) 5/28/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/28/06

Reviewed by / Date M. Cooke 6/12/06

Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	2 2 3	9/18					SM	**SAND** silty (SM); brown (2.5 YR 3/3); dry; loose	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	5 9 10	14/18						**SAND** silty (SM); red (10 R 3/4); dry; medium dense		
3												
4		SPT 3	5 9 14	14/18						**SAND** silty (SM); dark red (2.5 YR 3/6); dry; medium dense; trace mica		
5												
6		SPT 4	7 10 15	15/18						**SAND** silty (SM); dark red (2.5 YR 4/6); dry; medium dense; micaceous		
7												
8		SPT 5	5 7 11	15/18						SAA		
9												
10												
11		SPT 6	3 5 6	14/18					SM	**SAND** silty (SM); orange (5 YR 5/8); damp; medium dense; micaceous; fine to medium grained; SAPROLITE	Saprolite	
12												
13		SPT 7	3 3 5	18						SAA; pink orange (7.5 YR 7/6); damp; loose; 15% mica; SAPROLITE		
14												
15												
16												
17												
18												
19		SPT 8	2 3 5	12/18					SM	SAA; white to brown; (7.5 YR 8/1 and 7.5 YR 5/4); damp; loose; 30% mica; SAPROLITE		
20												
21												
22										**SAND** silty; (SM); brown (5 YR 5/4); damp; very dense; fine gravel; micaceous; rock fragments; PARTIALLY WEATHERED ROCK	Difficult drilling	
23												
24		SPT 9	16 50/0.2	6/6.2						Tricone refusal 25.9 ft, advanced casing to 26.1 ft, see rock log		
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-333

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: Adjacent to Power Block		Total Depth: 85 feet
Drilling Contractor and Rig: Smith/Gregg / Fraste Multidrill XL	Elevation at Boring: 394.4 feet	Ground Water Depth	Depth to Bedrock: 26.1 feet
Casing Size and Depth (Boring): 3.5 / 26.1 feet	Elevation at Well: 394.5 feet	No. of Core Boxes: 3	Date Started: 5/28/06
	Borehole Inclination: 0	Logged by: C. Bruce	Date Completed: 5/28/06

Reviewed by / Date: M. Cooke 6/12/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
27–30	1	3.8 / 3.9	100	F	R3			GRANODIORITE; biotite; quartz and orthoclase	NOTE: Samples and Lithology Information are from adjacent boring.	
30–36	2	5.8 / 10.0	47.5	F MW CW	R3 R2 R0			No recovery; PARTIALLY WEATHERED ROCK		
36–45	3	3.5 / 5.0	0	HW CW	R0			Highly weathered igneous texture, coarse grain size 4 mm and more, >10% mafics ~20% diorite		
45–50	4	4.4 / 5.0	40	HW SW	R1 R3			GRANODIORITE; biotite; coarse grained quartz and orthoclase	Bottom of highly weathered	
50–55	5	4.5 / 5.0	70	SW CW to HW MW SW	R2 to R3 R0 to R1 R2 R3				End of day 4/18/06 Begin day 4/19/06	
55–60	6	5.0 / 5.0	100	SW to F	R3					
60–65	7	4.4 / 5.0	17	HW SW to F CW to HW	R1 R3 R0 to R1					
66										

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-333

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
67	8	4.8 / 5.0	72.5	HW to MW	R2					
68				CW	R0					
69				SW	R2 to R3					
70				HW	R1					
71										
72	9	3.7 / 5.0	65	SW to F	R3					
73										
74										
75										
76										
77										
78										
79								1 inch dike 40° aplite	Discolored discontinuity	
80	10	10.0 / 10.0	99	SW to F	R3			1 inch dike 40° aplite		
81								1 inch dike 40° aplite		
82										
83										
84										
85										
86								CORING TERMINATED AT 86.0 ft	Bottom of core at 85 ft on 4/19/06	
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										
101										
102										
103										
104										
105										
106										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-401A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Cooling Tower	Total Depth 120 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 404 feet / Ground Water Depth	Depth to Bedrock 64 feet
Sampling Method (Boring) Standard	Elevation at Well 404.1 feet / No. of Samples 17	Date Started (Well) 5/15/06
	Borehole Inclination 0 / Logged by C. Bruce	Date Completed (Well) 5/17/06

Reviewed by / Date M. Cooke 5/22/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	4 5 7	18/18					ML	**SILT** sandy (ML); moderate reddish brown (10 R 4/6); damp; stiff; fine sand ~30%; low plasticity; FILL	NOTE: Samples and Lithology Information are from adjacent boring. Fill	
2-3		SPT 2	8 11 12	13/18					ML	**SILT** sandy (ML); moderate reddish brown (10 YR 4/6); moist; very stiff; fine sand ~ 40%; low plasticity; RESIDUUM	Residuum	
4-5		SPT 3	2 18 10	18/18						**SILT** sandy (ML); moderate red (5 R 4/6); moist; very stiff; fine sand ~10%; low plasticity; slightly micaceous; RESIDUUM		
6-7		SPT 4	4 5 6	13/18						**SILT** sandy (ML); moderate reddish brown (10 R 4/6); moist; stiff; fine sand ~ 40%; low plasticity; slightly micaceous; RESIDUUM		
8-9		SPT 5	7 4 6	14/18					ML	**SILT** sandy (ML); light brown (5 YR 5/6); moist; stiff; fine sand ~40%; low plasticity; slightly micaceous; SAPROLITE	Saprolite	
10-11		SPT 6	6 6 6	18/18						**SILT** (ML); light brown (5 YR 5/6); moist; stiff; fine sand ~5%; low plasticity; micaceous; banded; SAPROLITE		
12-13		SPT 7	2 3 6	14/18						SAA		
14-15												
16-17												
18-19		SPT 8	4 4 8	15/18						SAA		
20-21												
22-23												
24-25		SPT 9	4 5 9	18/18						SAA; ~10% fine sand		
26-27		SPT 9A	4 6 8	16/18						SILT (ML); moderate reddish brown (10 R 4/6); moist; stiff; fine sand ~5%; low plasticity; micaceous; SAPROLITE	Hard drilling, check for rock at 26.5 ft	
28-29		SPT 10	4 5 6	18/18						**SILT** sandy (ML); pale reddish brown (10 R 5/4); moist; stiff; fine sand ~10%; low plasticity; micaceous; SAPROLITE	End of day 4/17/06 Begin day 4/18/06. No water to 28 ft	
30-31												
32-33												
34-35		SPT 11	6 8 13	18/18						**SILT** sandy (ML); dark yellowish orange (10 YR 6/6); moist; very stiff; fine sand ~30%; low plasticity; micaceous; SAPROLITE		
36-37												
38-39		SPT 12	6 8 13	15/18						SAA		
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-401A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SILT** sandy (ML); light brown (5 YR 5/6); moist; stiff; fine sand ~40%; low plasticity; slightly micaceous; SAPROLITE *(Continued from previous page)*		
41												
42												
43												
44		SPT 13	8 10 12	18						SAA		
45												
46												
47												
48												
49		SPT 14	6 11 15	14/18						SAA		
50												
51												
52									SM	**SAND** silty (SM); medium light gray (N 6 6/0); moist; medium dense; fine sand ~60%; SAPROLITE		
53												
54		SPT 15	12 14 14	14/18								
55												
56									ML	**SILT** sandy (ML); greenish black (N 2); moist; hard; fine sand ~30%; low plasticity; small quartz fragments; micaceous; SAPROLITE		
57												
58												
59		SPT 16	17 27 50	18/18								
60												
61												
62									ML	**SILT** sandy (ML); dark yellowish orange (10 YR 6/8); moist; hard; fine sand ~40%; low plasticity; small quartz fragments; PARTIALLY WEATHERED ROCK	Partially weathered rock	
63												
64		SPT 17	50/6	6/6						BORING TERMINATED AT 64.0 ft. see rock log		
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-401A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: Cooling Tower		Total Depth: 120 feet
Drilling Contractor and Rig: Smith/Gregg / Fraste Multidrill XL	Elevation at Boring: 404 feet	Ground Water Depth	Depth to Bedrock: 64 feet
Casing Size and Depth (Boring): 3.5 / 64 feet	Elevation at Well: 404.1 feet	No. of Core Boxes: 4	Date Started: 5/15/06
	Borehole Inclination: 0	Logged by: C. Bruce	Date Completed: 5/17/06

Reviewed by / Date: M. Cooke 5/22/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
64										
65										
66	1	1.1 / 5.0	16	RS	R0			AMPHIBOLITE SCHIST with GRANODIORITE; very dark gray and white (10 YR 2/1); and (Gley 1 8 /1); intrusion 30% foliated	Switched to coring. NQ sampler used (Triple tube samples) NOTE: Samples and Lithology Information are from adjacent boring.	
67										
68				SW						
69				F						
70				SW				GRANODIORITE; with amphibolite dikes and intrusions		
71	2	4.5 / 5.0	76		R4					
72				F						
73								MIGMATITE GNEISS zones of SCHIST and GRANODIORITE; very dark gray and white (10 YR 2/1); and (Gley 8/1); fine to medium grained		
74				HW	R2					
75									End of day 4/18/06, water at 4 ft	
76	3	5.0 / 5.0	100	F	R4			Foliation from 76 to 77 ft.	Begin day 4/19/06, no water to 74 ft	
77										
78								AMPHIBOLITE SCHIST with GRANODIORITE intrusions		
79										
80										
81	4	5.0 / 5.0	100	F	R4					
82										
83										
84				SW						
85								AMPHIBOLITE SCHIST; dark gray (10 YR 2/1); fine grained; foliation ~30°		
86	5	5.0 / 5.0	86	F	R4					
87										
88				SW				GRANODIORITE with SCHIST intrusions; fine to medium grained		
89				F						
90								MIGMATITE GNEISS		
91	6	5.0 / 5.0	88	F	R4					
92										
93										
94										
95										
96	7	5.0 / 5.0	88	F	R4					
97										
98										
99								With flowing bands of SCHIST and GRANODIORITE		
100										
101	8	5.0 / 5.0	86	F	R4			MIGMATITE GNEISS with intrusions of SCHIST at 100.5 ft to 101.2 ft; fine to medium grained		
102										
103										
104										

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-401A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
104										
105										
106	9	5.0/5.0	20	F	R4					
107										
108										
109								Flowing texture with GRANODIORITE and SCHIST		
110										
111	10	5.0/5.0	88	F	R4					
112										
113										
114	11	1.0/1.0	100	F	R4					
115								MIGMATITE GNEISS		
116										
117	12	5.0/5.0	100	F	R4			CORING TERMINATED AT 120.0 ft.		
118										
119										
120									Boring terminated at 120 ft, water at 4 ft. on 4/19/06	
121										
122										
123										
124										
125										
126										
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										
139										
140										
141										
142										
143										
144										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-401B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Mud Rotary / 6 inch	Boring Location Cooling Tower		Total Depth 120 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 404 feet	Ground Water Depth	Depth to Bedrock 64 feet
Sampling Method (Boring) Split Spoon	Elevation at Well 404.1 feet	No. of Samples 17	Date Started (Well) 5/11/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/11/06

Reviewed by / Date M. Cooke 5/23/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0									ML	**SILT** sandy (ML); moderate reddish brown (10 R 4/6); damp; stiff; fine sand ~30%; low plasticity; FILL	NOTE: Samples and Lithology Information are from adjacent boring.	
1												
2									ML	**SILT** sandy (ML); moderate reddish brown (10 YR 4/6); moist; very stiff; fine sand ~ 40%; low plasticity; RESIDUUM	Fill Residuum	
3												
4										**SILT** sandy (ML); moderate red (5 R 4/6); moist; very stiff; fine sand ~10%; low plasticity; slightly micaceous; RESIDUUM		
5												
6												
7										**SILT** sandy (ML); moderate reddish brown (10 R 4/6); moist; stiff; fine sand ~ 40%; low plasticity; slightly micaceous; RESIDUUM		
8									ML	**SILT** sandy (ML); light brown (5 YR 5/6); moist; stiff; fine sand ~40%; low plasticity; slightly micaceous; SAPROLITE	Saprolite	
9												
10												
11										**SILT** (ML); light brown (5 YR 5/6); moist; stiff; fine sand ~5%; low plasticity; micaceous; banded; SAPROLITE		
12												
13										SAA		
14												
15												
16												
17												
18												
19										SAA		
20												
21												
22												
23												
24										SAA; ~10% fine sand		
25												
26												
27										SILT (ML); moderate reddish brown (10 R 4/6); moist; stiff; fine sand ~5%; low plasticity; micaceous; SAPROLITE	Hard drilling, check for rock at 26.5 ft	
28											End of day 4/17/06	
29										**SILT** sandy (ML); pale reddish brown (10 R 5/4); moist; stiff; fine sand ~10%; low plasticity; micaceous; SAPROLITE	Begin day 4/18/06. No water to 28 ft	
30												
31												
32												
33												
34										**SILT** sandy (ML); dark yellowish orange (10 YR 6/6); moist; very stiff; fine sand ~30%; low plasticity; micaceous; SAPROLITE		
35												
36												
37												
38												
39										SAA		
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-401B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SILT** sandy (ML); light brown (5 YR 5/6); moist; stiff; fine sand ~40%; low plasticity; slightly micaceous; SAPROLITE *(Continued from previous page)*		
41												
42												
43												
44										SAA		
45												
46												
47												
48												
49										SAA		
50												
51												
52									SM	**SAND** silty (SM); medium light gray (N 6 6/0); moist; medium dense; fine sand ~60%; SAPROLITE		
53												
54												
55												
56									ML	**SILT** sandy (ML); greenish black (N 2); moist; hard; fine sand ~30%; low plasticity; small quartz fragments; micaceous; SAPROLITE		
57												
58												
59												
60												
61												
62									ML	**SILT** sandy (ML); dark yellowish orange (10 YR 6/8); moist; hard; fine sand ~40%; low plasticity; small quartz fragments; PARTIALLY WEATHERED ROCK	Partially weathered rock	
63												
64										BORING TERMINATED AT 64.0 ft. see rock log		
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-401B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Mud Rotary / 6 inch	Boring Location: Cooling Tower		Total Depth: 120 feet
Drilling Contractor and Rig: Smith/Gregg / Fraste Multidrill XL	Elevation at Boring: 404 feet	Ground Water Depth	Depth to Bedrock: 64 feet
Casing Size and Depth (Boring): 3.5 / 64 feet	Elevation at Well: 404.1 feet	No. of Core Boxes: 4	Date Started: 5/11/06
	Borehole Inclination: 0	Logged by: C. Bruce	Date Completed: 5/11/06

Reviewed by / Date: M. Cooke 5/23/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
64										
65										
66	1	1.1 / 5.0	16	RS	R0			AMPHIBOLITE SCHIST with GRANODIORITE; very dark gray and white (10 YR 2/1); and (Gley 1 8 /1); intrusion 30% foliated	Switched to coring. NQ sampler used (Triple tube samples) NOTE: Samples and Lithology Information are from adjacent boring.	
67										
68				SW						
69				F						
70				SW				GRANODIORITE; with amphibolite dikes and intrusions		
71	2	4.5 / 5.0	76		R4					
72				F						
73								MIGMATITE GNEISS zones of SCHIST and GRANODIORITE; very dark gray and white (10 YR 2/1); and (Gley 8/1); fine to medium grained		
74				HW	R2					
75									End of day 4/18/06, water at 4 ft	
76	3	5.0 / 5.0	100	F	R4			Foliation from 76 to 77 ft.	Begin day 4/19/06, no water to 74 ft	
77										
78								AMPHIBOLITE SCHIST with GRANODIORITE intrusions		
79										
80										
81	4	5.0 / 5.0	100	F	R4					
82										
83										
84				SW						
85								AMPHIBOLITE SCHIST; dark gray (10 YR 2/1); fine grained; foliation ~30°		
86	5	5.0 / 5.0	86	F	R4					
87										
88				SW				GRANODIORITE with SCHIST intrusions; fine to medium grained		
89				F						
90								MIGMATITE GNEISS		
91	6	5.0 / 5.0	88	F	R4					
92										
93										
94										
95										
96	7	5.0 / 5.0	88	F	R4					
97										
98										
99								With flowing bands of SCHIST and GRANODIORITE		
100										
101	8	5.0 / 5.0	86	F	R4			MIGMATITE GNEISS with intrusions of SCHIST at 100.5 ft to 101.2 ft; fine to medium grained		
102										
103										
104										

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-401B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
104										
105										
106	9	5.0/5.0	20	F	R4					
107										
108										
109								Flowing texture with GRANODIORITE and SCHIST		
110										
111	10	5.0/5.0	88	F	R4					
112										
113										
114	11	1.0/1.0	100	F	R4					
115								MIGMATITE GNEISS		
116										
117	12	5.0/5.0	100	F	R4			CORING TERMINATED AT 120.0 ft.		
118										
119										
120									Boring terminated at 120 ft, water at 4 ft. on 4/19/06	
121										
122										
123										
124										
125										
126										
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
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138										
139										
140										
141										
142										
143										
144										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-405

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Mud Rotary/Air Rotary / 6 inch	Boring Location Cooling Tower		Total Depth 58.5 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 392 feet	Ground Water Depth	Depth to Bedrock 47.2 feet
Sampling Method (Boring) Standard	Elevation at Well 392.6 feet	No. of Samples 13	Date Started (Well) 5/11/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/15/06

Reviewed by / Date: M. Cooke 5/15/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0											NOTE: Samples and Lithology Information are from adjacent boring.	
1		SPT 1	1 1 1	14/18					SM	**SAND** (SM); red (2.5 YR 5/6); dry; very loose; silty; trace mica		
2		SPT 2	2 3 4	15/18						**SAND** silty (SM); orange red and black (10 YR 5/6, 10 R 3/4 and 2.5/N); dry; loose; fine; micaceous	Residuum	
3												
4		SPT 3	3 4 5	16/18						SAA, color change to brown at 4.6 ft (10 YR 4/3); fine; heavily micaceous; SAPROLITE		
5									ML	**SILT** sandy (ML); orange and red (7.5 YR 5/8 to 10 R 3/6), 8 inch of pinkish white (7.5 YR 8/2); moist; stiff; SAPROLITE	Saprolite	
6		SPT 4	2 6 7	18/18								
7												
8												
9		SPT 5	5 13 12	16/18					SM	**SAND** silty (SM); brown (7.5 YR 5/7); damp; medium dense; black bands, white vein from toe to 8 inch; SAPROLITE		
10												
11		SPT 6	7 8 12	16/18						SAA; olive yellow (2.5 Y 6/6); moist; medium dense; fine to coarse grained; foliated; black layered; some gravel grains		
12												
13												
14		SPT 7	7 13 9	14/18						SAA; black and brown, white from 14.5 ft; medium dense; fines (2.5 YR 5/6); heavily micaceous		
15												
16												
17												
18												
19		SPT 8	4 7 10	13/18						SAA; reddish yellow (7.5 YR 6/8); with sandier beige/white bands (10 YR 6/2); moist; medium dense; micaceous; manganese stains; SAPROLITE		
20												
21												
22												
23												
24		SPT 9	5 7 9	18						**SAND** silty (SM); brown (10 YR 5/3); moist; medium dense; white, beige and orange; manganese staining; micaceous; SAPROLITE		
25												
26												
27												
28												
29		SPT 10	5 9 14	18						SAA; grayish brown (10 YR 5/2); moist; medium dense; fine grained; orange manganese staining; SAPROLITE		
30												
31												
32												
33												
34		SPT 11	30 20 29	14/18						**SAND** silty (SM); very dark brown (10 YR 3/3); moist; very dense; fine to medium grained; white to brown bands 1 to 4 inch; micaceous		
35												
36												
37												
38											Partially weathered rock	
39		SPT 12	6 50/0.5	4/6.5					SM			
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-405

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SAND** silty (SM); black and white salt and pepper (1 Gley 4/1); moist; fine to medium grained; micaceous; PARTIALLY WEATHERED ROCK *(Continued from previous page)*		
41												
42												
43												
44		SPT 13	20 50/1	6 7						**SAND** gravely (SM); pink (2.5 YR 8/3); and brown (2.5 Y R 5/2); moist; very dense; micaceous; PARTIALLY WEATHERED ROCK Tricone refusal 46.9 ft.; drilled with casing to 47.2 ft, see rock log		
45												
46												
47												
48												
49												
50												
51												
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Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-405

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Mud Rotary/Air Rotary / 6 inch	Boring Location: Cooling Tower		Total Depth: 58.5 feet
Drilling Contractor and Rig: Smith/Gregg / Fraste Multidrill XL	Elevation at Boring: 392 feet	Ground Water Depth	Depth to Bedrock: 47.2 feet
Casing Size and Depth (Boring): 3.5 / 47.3 feet	Elevation at Well: 392.6 feet	No. of Core Boxes: 1	Date Started: 5/11/06
	Borehole Inclination: 0	Logged by: C. Bruce	Date Completed: 5/15/06

Reviewed by / Date: M. Cooke 5/15/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
48	1	4.5 / 5.4	51	HW	R1			PEGMATITE K-spar and quartz; large grained; highly weathered granodiorite, orthoclase, quartz; moderately weathered pegmatite, granite grains	NOTE: Samples and Lithology Information are from adjacent boring. Rapid bit advance 47.4 to 47.8 ft	
49				MW						
50				SW	R3			GNEISS, quartz, mica, biotite, orthoclase, foliated 60°, medium size grains		
51				MW	R2			CORING TERMINATED AT 52.6 ft.		
52									End of drilling 4/13/06; water at 32 ft.	
53										
54										
55										
56										
57										
58										
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60										
61										
62										
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See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-501

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Mud Rotary / 6 inch	Boring Location Makeup Water Structure		Total Depth 80 feet
Drilling Contractor and Rig (for Well) White/MACTEC / CME 55	Elevation at Boring 430 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 429.5 feet	No. of Samples 25	Date Started (Well) 8/2/06
	Borehole Inclination 0	Logged by C. Gandy	Date Completed (Well) 8/2/06

Reviewed by / Date M. Cooke 8/4/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks
0-1		SPT 1	10 13 16	14/18					ML	SILT (ML); red and brown (10 R 4/8 and 10 YR 6/4); dry; very stiff; with trace gravel and organics (small roots); FILL	NOTE: Samples and Lithology Information are from adjacent boring.
2-3		SPT 2	6 9 12	15/18					SM	SAND silty, clayey (SM); brown, gray (10 YR 5/3); dry to moist; medium dense	Fill
4-5		SPT 3	7 9 11	10/18						SAA	
6-7		SPT 4	3 3 2	0/18						No recovery	MACTEC Diedrich D50, Cain serial # 100 use to drill 0 to 11 ft; MACTEC Raleigh CME 55 LC, White serial # 331145 use to drill deeper than 11 ft
8-9		SPT 5	5 15 14	7/18						SAA	
10-11		SPT 6	50/3	5/3					SM	SAND silty (SM); reddish brown (2.5 YR 4/4); moist; very dense due to gravel; with 1 inch diameter gravel; non plastic; organics; FILL	Refusal in rubble fill 7/22/06 at 11 ft Offset 10 ft; retry; refusal at offset on 7/22/06
12-13		SPT 7	1 2 2	4/18						SAA; reddish brown (5 YR 4/4); very loose	Begin day 7/25/06; used casing advancing for CME 55 LC MACTEC Raleigh
14-15		SPT 8	1 1 1	6.5/18						SAA; very loose	
16-17		SPT 9	0 1 1	4/18					SP	SAND (SP); yellowish red (5 YR 5/8); wet; very loose; non plastic; organics; no silt; FILL	
18-19		SPT 10	1 2 1	10/18					ML	SILT sandy (ML); strong brown (7.5 YR 5/6); very soft; moist to wet; low plasticity; 65% silt, 35% sand; organics; FILL	
20-21		SPT 11	3 2 4	18/18						SILT sandy, gravely (ML); brown (7.5 YR 5/4); moist; medium stiff due to gravel; low plasticity; gravel ~1 inch in diameter; FILL	
22-23		SPT 12	2 3 3	18/18					CL-ML	CLAY sitly (CL-ML); dark reddish brown; (2.5 YR 3/4); moist; medium stiff; medium plasticity; 70% clay, 25% silt; 5% sand; micaceous; RESIDUUM	Bottom of fill, top of residuum
24-25		SPT 13	3 4 5	18/18						SAA; dark red (2.5 YR 3/6); damp; stiff; medium plasticity; ~50/50% clay and silt; increasing mica content; RESIDUUM	
26-27		SPT 14	3 2 3	18/18						CLAY, silty, sandy (CL-ML); damp to moist; medium stiff; 45% clay, 45% silt, 10% sand; micaceous	End of day 7/25/06 Begin day 7/26/06
28-29		SPT 15	1 3 3	16/18						SAA; yellowish red (5 YR 4/6); damp; medium stiff; medium plasticity	

WELL

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-501

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40									SM	SAND silty, gravely (SM); red (2.5 YR 4/8); wet; medium stiff; 80% sand, 20% silt; non plastic; micaceous; gravel ~1 inch diameter		
41												
42										*(Continued from previous page)*		
43									ML	SILT sandy (ML); reddish brown (5 YR 4/4); damp; medium stiff; low plasticity; 80% silt, 20% sand; micaceous; SAPROLITE	Saprolite	
44		SPT 16	3 3 5	18/18								
45												
46												
47												
48												
49		SPT 17	5 5 8	18/18						SAA; very dark brown (7.5 YR 2.5/2) to light brown (7.5 YR 6/3); stiff		
50												
51												
52												
53												
54		SPT 18	5 12 20	18/18						SAA; except hard; 70% silt, 30% sand		
55												
56												
57												
58												
59		SPT 19	12 17 27	16/18						SAA		
60										SILT sandy (ML); black (7.5 YR 2.5/1); damp; hard; low plasticity; 80% silt, 20% sand; micaceous; SAPROLITE		
61												
62												
63												
64		SPT 20	24 50/6	11/12						SILT sandy (ML); light brown (7.5 YR 6/3); to black (7.5 YR 2.5/1)		
65												
66												
67												
68												
69		SPT 21	22 37 47	15.5/18						SAA		
70												
71												
72												
73												
74		SPT 22	39 50/4	11/10						SAA; pebble to gravel size clasts; angular ~20% volume		
75												
76												
77												
78												
79		SPT 23	22 27 50/2	12/14						SAA; strong brown (7.5 YR 5/6); 55% silt, 45% sand		
80												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-501

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
80										BORING TERMINATED at 80 ft	7/26/06; water level at 20.7 ft 7/27/06; water level at 20.4 ft Borehole terminated at 80 ft on 7/26/06	
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												
91												
92												
93												
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Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-612

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Mud Rotary / 6 inch	Boring Location Relocated Access Road		Total Depth 70 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 405 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 406.8 feet	No. of Samples 16	Date Started (Well) 5/2/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/2/06

Reviewed by / Date M. Cooke 5/8/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0											NOTE: Samples and Lithology Information are from adjacent boring.	
1		SPT 1	6 6 7	11/18					ML	**SILT** sandy (ML); red (10 R 4/6); damp; medium stiff; 70% silt, 30% fine grained sand, trace clay; with root fragments; some mica; low plasticity; RESIDUUM		
2		SPT 2	6 7 9	11.5/18					SM		Residuum	
3										**SAND** silty (SM); dark red (10 R 3/6); damp; loose; 50 to 60 % fine grained sand; 40 to 50 % silt; trace clay; some mica; RESIDUUM		
4		SPT 3	3 6 7	12.5/18					ML			
5										**SILT** sandy (ML); red (10 R 4/8); moist; medium stiff; 70 to 80% silt; 20 to 30% fine grained sand; low plasticity; micaceous; RESIDUUM		
6										SAA		
7		SPT 4	4 5 6	7/18								
8												
9		SPT 5	3 3 3	9/18					SM	**SAND** silty (SM); yellowish red (5 YR 4/6); moist; loose; 50 to 60% fine grained sand; 40 to 50% silt; RESIDUUM		
10												
11										SAA		
12		SPT 6	2 3 3	11/18								
13												
14		SPT 7	3 5 4	9/18					SM	**SAND** silty (SM); yellowish red (5 YR 4/6); moist; loose; 50 to 60% fine grained sand; 40 to 50% silt; ; some faint remnant structure; micaceous from 14.8 to 15 ft; SAPROLITE	Saprolite	
15										Thin zones of less silty sand (possibly SP) at 15 and 19 ft	End of day 4/12/06; water level 5.7 ft	
16											Begin day 4/13/06	
17												
18												
19		SPT 8	3 1 4	12/18						**SAND** silty (SM); dark yellowish brown (10 YR 3/4); moist; very loose; 60 to 70% fine grained sand; 30 to 40% silt; micaceous; SAPROLITE		
20												
21												
22												
23												
24		SPT 9	3 4 7	14/18						**SAND** silty (SM); light olive brown (2.5 Y 5/3); moist; loose; 70 to 80% fine to medium grained; sand; trace coarse grained sand; 20 to 30% silt; micaceous; SAPROLITE		
25												
26												
27												
28									ML	**SILT** sandy (ML); dark yellowish brown (10 YR 3/6); loose; 70 to 80% silt; 20 to 30% fine grained sand; micaceous; SAPROLITE		
29		SPT 10	2 4 4	17/18								
30										SAA; color change becoming light olive brown 2.5 Y 5/6		
31												
32												
33												
34		SPT 11	3 4 5	18/18						SAA; brown (7.5 YR 4/3); moist; medium stiff; 80 to 90% silt; 10 to 20% fine grained sand; micaceous; faint relict sub horizontal foliation; abundant black manganese staining; SAPROLITE		
35											Hard drilling from 34.7 to 35.0 ft	
36												
37									SM	SAND sitly (SM); dark yellowish brown (10 YR 4/6); moist; loose; 50 to 60% fine grained sand; micaceous; thin stringers of manganese staining throughout; SAPROLITE		
38												
39		SPT 12	3 3 5	15/18								
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-612

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40											Harder drilling from 39.7 to 40.0 ft	
41												
42									ML	SILT sandy (ML); dark yellowish brown (10 YR 4/4); moist; very stiff; SAPROLITE		
43											Harder drilling from 42.5 to 43.5 ft	
44		SPT 13	5 7 10	18/18								
45												
46												
47									SM	**SAND** silty (SM); grayish brown (2.5 Y 5/2); moist; medium dense; 70% fine grained sand; some coarse grained weathered quartz; 30% silt; SAPROLITE		
48												
49		SPT 14	12 14 10	18/18								
50										SAA; olive brown (2.5 Y 4/3)		
51												
52												
53												
54		SPT 15	8 11 13	15.5/18						SILT sandy (SM) with gravel; highly weathered granitic fragments (mostly quartz); up to 1 cm in diameter		
55												
56												
57											Very hard drilling from 57.0 to 57.5 ft	
58												
59		SPT 16	50/5	5/5					SM	**SAND** silty (SM); very dark grayish brown (2.5 Y 3/2); moist; very dense; 70 to 80% medium grained to fine grained sand; 20 to 30% silt; same coarse grained quartz; PARTIALLY WEATHERED ROCK	Partially weathered rock Hard drilling below 59.0 ft	
60											Drilling very hard; cuttings of quartz	
61												
62		SPT 17	50/0	0/0						BORING TERMINATED AT 62.0 ft.	Refusal at 62 ft on 4/13/06; water level at 5.5 ft 4/14/06; water level at 17 ft	
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-614

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Mud Rotary / 6 inch	Boring Location Relocated Access Road		Total Depth 34.8 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 375 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 376.1 feet	No. of Samples 11	Date Started (Well) 5/8/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/8/06

Reviewed by / Date M. Cooke 5/8/06

Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	2 3 7	12/18					SM	**SAND** silty (SM); reddish brown (2.5 YR 4/4); dry; loose; organic roots	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	4 3 2	10/18						SAND very sitly (SM); red (2.5 YR 4/6); dry; loose;		
3									ML	**SILT** sandy (ML); red (2.5 YR 3/6); damp; stiff		
4		SPT 3	2 5 8	12/18								
5												
6		SPT 4	6 10 14	15/18						**SILT** sandy (ML); red (2.5 to 2.5/2); damp; very stiff; very dusky		
7												
8		SPT 5	6 10 13	18/18						SAA	Losing circulation	
9												
10		SPT 6	5 11 13	18						SAA; red (2.5 YR 3/6); dry; very stiff;		
11												
12		SPT 7	4 6 9	18						SAA; reddish brown (5 YR 5/4); damp; micaceous; lower sand content than above		
13												
14												
15												
16												
17												
18												
19		SPT 8	2 3 4	12/18					ML	**SILT** (ML); orange, beige, black (5 YR 5/8), (5 YR 7/2), (5 YR 2.5/1); moist; medium stiff; micaceous; SAPROLITE	Saprolite	
20												
21												
22												
23												
24		SPT 9	2 2 4	14/18						**SILT** (ML); brown (7.5 YR 3/4); medium stiff; micaceous; SAPROLITE		
25												
26												
27												
28												
29		SPT 10	3 3 7	18					SM	**SAND** silty (SM); brown (7.5 YR 5/3); moist; loose to medium dense; manganese staining; micaceous; SAPROLITE		
30												
31												
32												
33												
34		SPT 11	50/2	2/2					SM	**SAND** silty (SM); dark gray pepper appearance (Grey 4/1); PARTIALLY WEATHERED ROCK	Partially weathered rock	
35										BORING TERMINATED AT 34.8 ft.	Refusal on 4/12/06	
36												
37												
38												
39												
40												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-617

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Hollow Stem Auger / 6.25 inch	Boring Location Existing Access Road		Total Depth 108 feet
Drilling Contractor and Rig (for Well) Poole/Gregg / Rhino	Elevation at Boring 450.1 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 447.2 feet	No. of Samples 25	Date Started (Well) 5/24/06
	Borehole Inclination 0	Logged by C Gandy	Date Completed (Well) 5/24/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	3 7 9	11/18					ML	**SILT** (ML); dark red (10 R 3/4); dry; stiff; trace sand and mica; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	11 15 20	12/18						**SILT** (ML); dark red (10 R 3/4); dry; hard; trace sand and mica		
3												
4		SPT 3	8 13 15	18/18						SAA		
5												
6		SPT 4	8 13 19	18/18						SAA		
7												
8		SPT 5	7 8 10	18/18						**SILT** (ML); dark red (10 R 3/6); dry; very stiff; trace fine sand and mica		
9												
10		SPT 6	9 11 13	18/18						**SILT** (ML); red (2.5 YR 4/6); very stiff; sandy, gravel at 12.4 to 12.8 ft.		
11												
12		SPT 7	9 12 16	18/18						SAA; no gravel; stiff		
13												
14		SPT 8	8 12 23	18/18						**SILT** (ML) yellowish red (5 YR 5/8); dry; hard; trace fine sand		
15												
16												
17												
18												
19												
20												
21												
22									SM	**SAND** silty (SM); reddish yellow (7.5 YR 6/8); dry; medium dense		
23												
24		SPT 9	6 9 12	18/18								
25												
26												
27												
28												
29		SPT 10	5 7 10	18/18						**SAND** silty (SM); red (10 R 4/8); medium dense; fine sand; with 5% coarse sand/fine gravel at 29 ft		
30												
31												
32												
33												
34		SPT 11	3 6 10	18/18					ML	**SILT** sandy (ML); red (5 YR 5/8); slightly damp; very stiff; coarse sand and gravel; trace mica; SAPROLITE	Saprolite	
35												
36												
37												
38									SM	**SAND** silty (SM); mottled white, pale red (10 R 7/6); orange to white with black streaks; slightly damp; medium dense; little to no mica; SAPROLITE		
39		SPT 12	3 5 8	18/18								
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-617

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SAND** silty (SM); mottled white, pale red (10 R 7/6); orange to white with black streaks; slightly damp; medium dense; little to no mica; SAPROLITE *(Continued from previous page)*		
44		SPT 13	3 6 9	16/18						SAA; more pale red		
47									ML	**SILT** (ML); strong brown (7.5 YR 5/8); brownish orange with black vein, white veins; damp; stiff; little mica; SAPROLITE		
49		SPT 14	4 6 8	18/18								
54		SPT 15	5 7 9	16/18						SAA 54 to 55.5 ft red (10 R 4/8); and some white silt, trace mica; SAPROLITE		
59		SPT 16	3 6 9	17/18						**SILT** sandy (ML); strong brown (7.5 YR 4/6); stiff; trace mica; SAPROLITE		
64		SPT 17	4 8 10	16/18						SILT sandy (ML); brown/orange (5 YR 5/8); yellowish red; very stiff; fine sand; SAPROLITE		
69		SPT 18	4 7 9	18/18						**SILT** (ML); brown (7.5 YR 5/8); very stiff; micaceous; SAPROLITE		
74		SPT 19	7 10 12	18/18						**SILT** (ML); brown to white; very stiff; micaceous; SAPROLITE		
79		SPT 20	7 10 13	18/18						**SILT** sandy (ML); brown (7.5 YR 5/8); dry; very stiff; black veins; SAPROLITE		

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-617

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
80										**SILT** (ML); strong brown (7.5 YR 5/8); brownish orange with black vein, white veins; damp; stiff; little mica; SAPROLITE *(Continued from previous page)*		
84		SPT 21	8 12 12	18/18						SAA; with layer 84 to 84.4 ft white; silt with gravel		
89		SPT 22	6 11 15	18/18						**SILT** sandy (ML); brown (7.5 YR 5/8); dry; very stiff; black veins; mica; SAPROLITE	End of day 4/5/06 Begin day 4/6/06; no water to 88.5 ft	
91									SM	**SAND** silty (SM); white with some orange and black (10 YR 8/4); dense; very pale brown; mica; quartz gravel in tip of spoon		
93		SPT 23	11 12 22	18/18								
96									SM	**SAND** silty (SM); white with brown and black specks; very dense; fine to coarse sand size; SAPROLITE	More difficult drilling	
99		SPT 24	23 38 50/5	12/17						**SAND** (SM); brown (7.5 YR 7/8); very dense; fine; no coarse sand; black veins; mica; PARTIALLY WEATHERED ROCK		
104		SPT 25	50/2	2/2					SM	**SAND** silty (SM); black with white pepper appearance; wet; very dense; PARTIALLY WEATHERED ROCK		
105										BORING TERMINATED AT 105.0 ft.	Refusal at 105.0 ft. on 4/6/06; water level at 104 ft NOTE: Unslotted sump section occupies last 0.5 ft of screen length as shown	
120												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-618

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well): Hollow Stem Auger / 6.25 inch	Boring Location: South of Switchyard	Total Depth: 32.6 feet
Drilling Contractor and Rig (for Well): Poole/Gregg / Rhino	Elevation at Boring: 308.2 feet; Ground Water Depth	Depth to Bedrock
Sampling Method (Boring): Standard	Elevation at Well: 307.4 feet; No. of Samples: 10	Date Started (Well): 5/12/06
	Borehole Inclination: 0; Logged by: B. Sharp	Date Completed (Well): 5/12/06

Reviewed by / Date: M. Cooke 5/22/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	2 4 6	10/18					SM	**SAND** silty (SM); dark reddish brown (5 YR 3/4); dry; loose; trace clay; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
1-2		SPT 2	15 21 22	18/18						**SAND** silty (SM); reddish gray (5 YR 5/2); dry; dense		
3-4		SPT 3	9 13 19	18/18						**SAND** silty (SM); pale yellow (5 Y 7/3); dry; dense		
5-6		SPT 4	10 13 10	18/18						**SAND** (SM); pale olive (5 Y 6/4); dry; medium dense; fine to gravel		
7-8		SPT 5	7 9 10	18/18						**SAND** silty (SM); olive (5 Y 4/3) and orange; medium dense; micaceous		
9-10		SPT 6	10 11 15	18/18						SAA		
11-12		SPT 7	9 16 27	16/18						**SAND** silty (SM); dark olive gray (5 Y 3/2); dry; dense; fine to medium grained; micaceous		
13-14		SPT 8	10 14 16	14/18					SM	**SAND** silty (SM); olive gray (5 Y 5/4); moist; medium dense to dense; micaceous; SAPROLITE	Saprolite	
15-16		SPT 9	20 31 20	15/18						**SAND** silty (SM); olive gray (5 Y 5/4); wet; very dense; poorly sorted; fine to fine gravel; trace mica; SAPROLITE		
17-18		SPT 10	2 5 17	12/18						**SAND** silty (SM); dark gray olive tint (5 Y 4/1); wet; medium dense; fine to very coarse to gravel; micaceous; gravel 15%; SAPROLITE BORING TERMINATED AT 32.6 ft.	Auger refusal at 32.6 ft on 4/10/06. Water level at 13 ft	

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-619

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location West of Southern Nuclear Island	Total Depth 104 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 405.1 feet / Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 405.7 feet / No. of Samples 18	Date Started (Well) 5/27/06
	Borehole Inclination 0 / Logged by C. Bruce	Date Completed (Well) 5/28/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	2 4 4	12/18					CL-ML	**CLAY** silty (CL-ML); dark reddish brown (2.5 Y 3/4); damp; medium stiff; 10% fine grained sand; some roots; low plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2-3		SPT 2	3 4 7	17/18					ML	SILT sandy (ML); dark red (10 R 3/6); dry to damp; medium stiff; 15 to 25% fine grained sand; low plasticity; RESIDUUM		
4-5		SPT 3	6 9 12	18/18						SAA; dark reddish brown (5 YR 3/4); very stiff		
6-7		SPT 4	5 7 10	17/18					ML	SAA; some weathered quartz fragments from 7.4 to 7.5 ft; some manganese staining		
8-9		SPT 5	5 5 7	10/18						SAND silty (SM); dark reddish brown (5 YR 3/4); grading down to dark olive brown (2.5 Y 3/3); damp; medium dense; micaceous; RESIDUUM		
10-11									SM	SAA; olive brown (2.5 Y 4/4) 30 to 40% silt		
12-13		SPT 6	5 5 7	17/18						SAA; olive brown (2.5 Y 4/4); 30 to 40% silt		
14-15		SPT 7	5 8 8	13/18						SAA		
16-17												
18-19		SPT 8	6 6 10	15/18						SAA; light olive brown (2.5 Y 5/4); damp; loose; 30 to 40% silt; micaceous; some manganese staining; RESIDUUM	End day 4/10/06, no water encountered Begin day 4/11/06, no water encountered	
20-21												
22-23												
24-25		SPT 9	7 7 10	18/18						SAA; grading down to yellowish brown (10 YR 5/8)		
26-27												
28-29		SPT 10	6 7 8	13/18						SAA		
30-31												
32-33												
34-35		SPT 11	9 9 10	18/18						SAA; brown (7.5 YR 4/4); damp; medium dense; 30 to 40% silt; micaceous; RESIDUUM		
36-37												
38-39		SPT 12	8 11 14	18/18					SM	SAND silty (SM); pale olive (5 Y 6/4); damp; medium dense; 30 to 40% silt; SAPROLITE	Saprolite at 38.5 ft	
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-619

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										SAND silty (SM); pale olive (5 Y 6/4); damp; medium dense; 30 to 40% silt; SAPROLITE *(Continued from previous page)*		
44		SPT 13	8 10 14	18/18						SAA		
48									ML	**SILT** clayey (ML); yellowish brown (10 YR 5/6); moist; very stiff; fine grained sand 10% mottled; SAPROLITE		
49		SPT 14	7 9 11	18/18								
53									SP-SM	**SAND** silty (SP-SM); dark yellowish brown (10 YR 3/6); moist; medium dense; fine grained sand; 10% silt; micaceous; abundant mafic mineral; faint sub horizontal foliation; SAPROLITE		
54		SPT 15	8 12 14	17/18								
59		SPT 16	8 14 16	18/18						SAA		
64		SPT 17	9 50/1	7/6					SP-SM	**SAND** (SP-SM); dark olive brown (2.5 Y 3/3); moist; very dense; fine grained sand; some silt; micaceous; relict mafic minerals; faint sub horizontal structure; PARTIALLY WEATHERED ROCK	Partially weathered rock	
66		SPT 18	50/0	0/0						BORING TERMINATED AT 66.0 ft	Auger refusal on 4/11/06; no water	

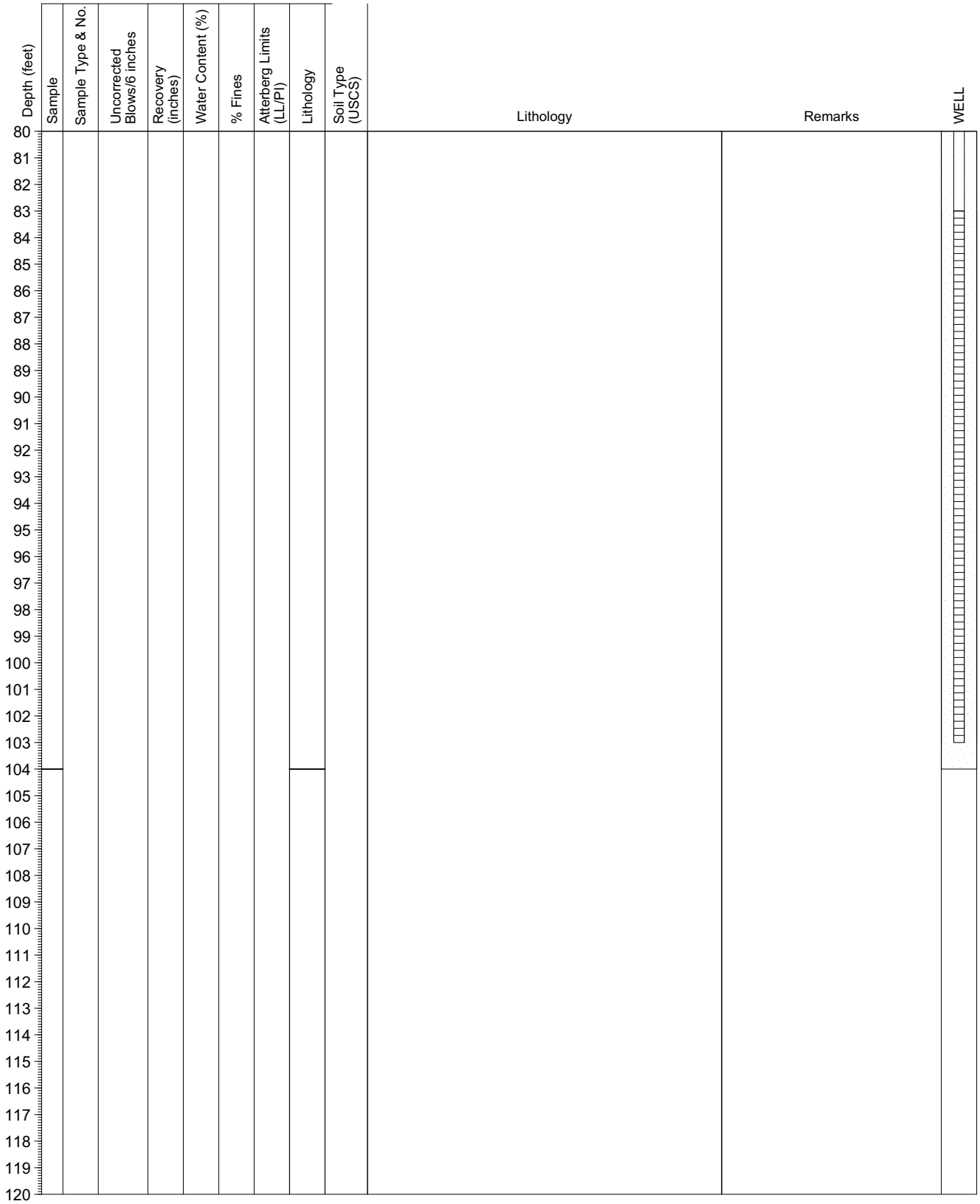
Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-619

Lithologic and Sampling Information from adjacent companion boring.



Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-620

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Mud Rotary / 6 inch	Boring Location North of Northern Nuclear Island		Total Depth 100 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 381.7 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring)	Elevation at Well 382.8 feet	No. of Samples	Date Started (Well) 4/30/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/1/06

Reviewed by / Date M. Cooke 5/8/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	1 2 3	14/18					CL-ML	**CLAY** silty sandy (CL-ML); dark brown (10 YR 3/3); moist; medium stiff; 50% clay, 20% silt, 30% sand; low to medium plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum Saprolite	
2-3		SPT 2	2 3 8	16/18					ML	**SILT** sandy (ML); brown (10 YR 4/3); moist; stiff; 70% silt, 30% sand; low plasticity; contains small roots; SAPROLITE		
4-5		SPT 3	13 21 39	18/18					SM	**SAND** silty (SM); dark yellowish brown (10 YR 4/6); damp; very dense; 70% sand, 30% silt; slightly micaceous; SAPROLITE		
6-7		SPT 4	7 20 13	18/18						SAA; pale brown (10 YR 6/3); damp; dense; 75% sand, 25% silt; contains quartz angular rock fragments; SAPROLITE		
8-9		SPT 5	5 9 11	18/18						SAA; light brownish gray (10 YR 6/2); damp; medium dense; 60% sand; 40% silt; grades to 50% silt, 50% sand from 8.5 to 9.0 ft and (10 YR 4/3); slightly micaceous; SAPROLITE		
10-11		SPT 6	6 9 13	18/18						SAA; gray (10 YR 6/1); damp; medium dense; 70% sand, 30% silt; slightly micaceous; SAPROLITE		
12-13		SPT 7	7 8 10	14/18						SAA; light brownish gray (10 YR 6/2); damp; medium dense; 70% sand, 30% silt; slightly micaceous; SAPROLITE		
14-15												
16-17												
18-19		SPT 8	5 7 10	18/18						SAA; light brownish gray (10 YR 6/2); damp; medium dense; 65% sand, 35% silt; slightly micaceous; SAPROLITE		
20-21												
22-23		SPT 9	4 7 9	18/18					ML	**SILT** sandy (ML); dark yellowish brown (10 YR 4/4); moist; very stiff; 75% silt, 25% sand; low plasticity; very slightly micaceous; SAPROLITE		
24-25												
26-27									SM	**SAND** silty (SM); light yellowish brown (2.5 Y R 6/4); moist; medium dense; 65% sand, 35% silt; slightly micaceous; SAPROLITE		
28-29		SPT 10	6 7 9	18/18					ML	**SILT** sandy (ML); yellowish brown (10 YR 5/4); moist; very stiff; 75% silt, 25% sand; low plasticity; slightly micaceous; SAPROLITE		
30-31												
32-33									SM	**SAND** silty (SM); yellowish brown (10 YR 5/4); moist; dense, 65% sand, 35% silt; slightly micaceous; SAPROLITE		
34-35		SPT 11	13 24 26	18/18								
36-37												
38-39		SPT 12	6 12 14	18/18						SAA; dark gray (10 YR 4/1); moist; medium dense; 55% sand, 45% silt; SAPROLITE		

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-620

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40											End of day 4/7/06 water at 39 ft. Begin day 4/8/06 at 8:00 am water at 34.6 ft.	
41												
42									ML	**SILT** sandy (ML); brown (10 YR 5/3); moist; very stiff; 65% silt, 35% sand; no to low plasticity; micaceous; SAPROLITE		
43												
44		SPT 13	6 8 13	16/18								
45												
46												
47									SM	**SAND** silty (SM); brown (10 YR 5/3); moist; dense; 60% sand, 40% silt; micaceous; SAPROLITE		
48												
49		SPT 14	7 11 24	12/18								
50												
51												
52												
53												
54		SPT 15	6 11 22	13/18						SAA; dark grayish brown (10 YR 4/2); moist; dense; 60% sand, 40% silt; micaceous; SAPROLITE		
55												
56												
57									ML	**SILT** sandy (ML); brown (10 Y R 4/3); moist; hard; 55% silt, 45% sand; no to low plasticity; micaceous; SAPROLITE		
58												
59		SPT 16	9 17 35	14/18								
60												
61												
62												
63												
64		SPT 17	10 18 27	13/18						SAA; dark grayish brown (10 YR 4/2); moist; hard; 55% silt, 45% sand; no to low plasticity; slightly micaceous; SAPROLITE		
65												
66												
67									ML	**SILT** sandy (ML); grayish brown (10 YR 5/2); moist; hard; 55% silt 45% sand; no to low plasticity; micaceous; PARTIALLY WEATHERED ROCK		
68												
69		SPT 18	22 50/4	10/10								
70												
71												
72									ML	**SILT** sandy (ML); grayish brown (10 YR 5/2); moist; hard; 55% silt; 45% sand; no to low plasticity; micaceous; SAPROLITE		
73												
74		SPT 19	12 25 45	13/18								
75												
76												
77									SM	**SAND** silty (SM); grayish brown (10 YR 5/2); moist; very dense; 65% sand, 35% silt; micaceous; PARTIALLY WEATHERED ROCK	Partially weathered rock	
78												
79		SPT 20	50/6	6/6								
80												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-620

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
80										**SAND** silty (SM); grayish brown (10 YR 5/2); moist; very dense; 65% sand, 35% silt; micaceous; PARTIALLY WEATHERED ROCK *(Continued from previous page)*		
84		SPT 21	50/4	4/4						SAA; except yellowish brown (10 YR 5/4)		
89		SPT 22	50/5.5	5.5/5.5						SAA except dark grayish brown (10 YR 4/2)		
94		SPT 23	50/2.5	2.5/2.5						SAA; light brownish gray (10 YR 6/2); damp to moist; very dense; 70% sand, 30% silt; micaceous; PARTIALLY WEATHERED ROCK		
99		SPT 24	50/1	1/1						**SAND** silty (SM); grayish brown (10 YR 5/2); damp; very dense; 80% sand, 20% silt; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 100.0 ft.	Boring terminated on 4/10/06 Begin day 4/11/06 at 8:30 am water at 31.6 ft	
120												

Project Name : Job Number
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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-621A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location North of Northern Nuclear Island	Total Depth 100 feet
Drilling Contractor and Rig (for Well) Nichols/McCall / IR T3W	Elevation at Boring 421.5 feet / Ground Water Depth	Depth to Bedrock 58.5 feet
Sampling Method (Boring) Standard	Elevation at Well 420.9 feet / No. of Samples 15	Date Started (Well) 5/26/06
	Borehole Inclination 0 / Logged by B. Sharp	Date Completed (Well) 5/26/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	3 4 4	15/18					CL-ML	**CLAY** silty, sandy (CL-ML); yellowish red (5 YR 4/6); damp; medium stiff; 50% clay, 30% silt, 20% sand; low to medium plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
1-2		SPT 2	6 8 9	16/18					ML			
2-3										**SILT** sandy (ML); red (2.5 YR 5/8); damp; very stiff; 70% silt, 30% sand; no plasticity; RESIDUUM		
3-4		SPT 3	6 7 7	15/18								
4-5										**SILT** sandy (ML); red (2.5 YR 4/6); stiff; 85% silt, 15% sand; no plasticity; slightly micaceous; RESIDUUM		
5-6												
6-7		SPT 4	3 3 5	14/18						**SILT** (ML); yellowish brown (10 YR 5/4); medium stiff; 90% silt, 10% sand; no plasticity; RESIDUUM		
7-8												
8-9		SPT 5	5 7 8	15/18						**SILT** sandy (ML); dark red (2.5 YR 3/6); stiff; 80% silt, 20% sand; no plasticity; slightly micaceous; RESIDUUM		
9-10												
10-11												
11-12		SPT 6	2 3 4	16/18						**SILT** sandy (ML); yellowish red (5 YR 4/6); medium stiff; 85% silt, 15% sand; no plasticity; slightly micaceous; RESIDUUM		
12-13												
13-14		SPT 7	2 4 4	16.5/18						**SILT** sandy (ML); dark red (2.5 YR 3/6); medium stiff; 75% silt, 25% sand; no plasticity; micaceous; RESIDUUM		
14-15												
15-16												
16-17												
17-18												
18-19		SPT 8	2 3 6	18/18						**SILT** sandy (ML); yellowish red (5 YR 5/8); stiff; 70% silt, 30% sand; no plasticity; slightly micaceous; RESIDUUM		
19-20												
20-21												
21-22												
22-23												
23-24		SPT 9	1 2 3	16/18						**SILT** sandy (ML); yellowish red (5 YR 4/6); medium stiff; 70% silt, 30% sand; no plasticity; slightly micaceous; RESIDUUM		
24-25												
25-26												
26-27												
27-28												
28-29		SPT 10	3 5 8	20/18						**SILT** sandy, clayey (ML); yellowish brown (10 YR 5/8); stiff; 70% silt, 30% sand; low to medium plasticity; slightly micaceous; RESIDUUM		
29-30												
30-31												
31-32												
32-33												
33-34		SPT 11	5 9 13	19/18						**SILT** sandy, (ML); dark yellowish brown (10 YR 4/6); very stiff; 70% silt, 25% sand, 5% clay; low to medium plasticity; trace of clay; slightly micaceous; RESIDUUM		
34-35												
35-36												
36-37												
37-38												
38-39												
39-40		SPT 12	10 11 8	13/18						**SILT** sandy, (ML) dark yellowish brown (10 YR 4/6); very stiff; 70% silt, 30% sand; low		

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-621A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40–43										plasticity; trace clay; slightly micaceous; RESIDUUM **SILT** sandy (ML); red (2.5 YR 5/8); damp; very stiff; 70% silt, 30% sand; no plasticity; RESIDUUM		
44–45		SPT 13	10 28 50/4	19/16						*(Continued from previous page)* **SILT** sandy (ML); black (10 YR 2/1); hard; 70% silt, 30% sand; no plasticity; slightly micaceous; RESIDUUM		
46–48												
49–50		SPT 14	24 36 19	16/18						**SILT** sandy (ML); black (7.5 YR 2.5/1); hard; 70% silt, 30% sand; no plasticity; contains rock fragments; slightly micaceous; RESIDUUM	End of day 4/11/06 Begin day 4/12/06 at 8:00 am water at 24.0 ft	
51–52												
53–54		SPT 15	50/4	1/4					GP	GRAVEL (GP); Amphibolite schist fragments; black; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 58.8 ft		
55–80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-621A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring	Boring Location		Total Depth
Air Rotary / 6 inch	North of Northern Nuclear Island		100 feet
Drilling Contractor and Rig	**Elevation at Boring**	**Ground Water Depth**	**Depth to Bedrock**
Nichols/McCall / IR T3W	421.5 feet		58.5 feet
Casing Size and Depth (Boring)	**Elevation at Well**	**No. of Core Boxes**	**Date Started**
3 / 58.5 feet	420.9 feet	3	5/26/06
	Borehole Inclination	**Logged by**	**Date Completed**
	0	B. Sharp	5/26/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
59	1	1.0 / 2.5	0	CW to MW	R0 to R3			Completely weathered zone of PARTIALLY WAETHERED ROCK or SAPROLITE containing 1 ft of AMPHIBOLITE SCHIST recovered in core	NOTE: Samples and Lithology Information are from adjacent boring.	
62	2	0.5 / 5.0	0	CW to MW	R0 to R3			Completely weathered zone of PARTIALLY WAETHERED ROCK or SAPROLITE containing thin zone of BIOTITE GNEISS recovered in core		
67	3	2.8 / 5.0	1	CW to MW	R0 to R3			Completely weathered zone of PARTIALLY WAETHERED ROCK or SAPROLITE containing 2.8 ft of AMPHIBOLITE SCHIST recovered in core		
72	4	3.4 / 5.0	46	HW	R0 to R3			GRANODIORITE and highly weathered to completely weathered PARTIALLY WEATHERED ROCK or SAPROLITE		
74				F	R4			BIOTITE GNEISS; white and gray; fine to medium grained; foliation at 30°		
77	5	5.0 / 5.0	100	F	R4				30% loss of coring water return	
81	6	5.0 / 5.0	100	F	R4				End of day 4/13/06 Begin day 4/14/06	
86	7	4.8 / 5.0	96	F	R4			MIGMATITE; gneiss with granodiorite and amphibolite schist; black and white to dark gray; fine to coarse grained; pyrite visible	End drilling 4/14/06 Begin drilling 4/17/06 at 12:50 pm water at 63 ft	
91	8	5.0 / 5.0	100	F	R4				End drilling 4/17/06 Begin drilling 4/18/06	
98		5.0								

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-621A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
99	9	5.0	100	F	R4			BIOTITE GNEISS CORING TERMINATED AT 101.0 ft.	Run #6 recovery taken as 5 ft because 0.5 ft of core left in hole Boring terminated at 101.0 ft. on 4/18/06	
100										
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										
113										
114										
115										
116										
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120										
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122										
123										
124										
125										
126										
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-621B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well): Air Rotary / 6 inch	Boring Location: North of Northern Nuclear Island	Total Depth: 100 feet
Drilling Contractor and Rig (for Well): Nichols/McCall / IR T3W	Elevation at Boring: 421.5 feet; Ground Water Depth:	Depth to Bedrock: 58.5 feet
Sampling Method (Boring): Split Spoon	Elevation at Well: 421.2 feet; No. of Samples: 15	Date Started (Well): 5/25/06
	Borehole Inclination: 0; Logged by: B. Sharp	Date Completed (Well): 5/25/06

Reviewed by / Date: M. Cooke 5/27/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-2		SPT 1	3 4 4	15/18					CL-ML	**CLAY** silty, sandy (CL-ML); yellowish red (5 YR 4/6); damp; medium stiff; 50% clay, 30% silt, 20% sand; low to medium plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2-4		SPT 2	6 8 9	16/18					ML	**SILT** sandy (ML); red (2.5 YR 5/8); damp; very stiff; 70% silt, 30% sand; no plasticity; RESIDUUM		
4-6		SPT 3	6 7 7	15/18						**SILT** sandy (ML); red (2.5 YR 4/6); stiff; 85% silt, 15% sand; no plasticity; slightly micaceous; RESIDUUM		
6-8		SPT 4	3 3 5	14/18						**SILT** (ML); yellowish brown (10 YR 5/4); medium stiff; 90% silt, 10% sand; no plasticity; RESIDUUM		
8-10		SPT 5	5 7 8	15/18						**SILT** sandy (ML); dark red (2.5 YR 3/6); stiff; 80% silt, 20% sand; no plasticity; slightly micaceous; RESIDUUM		
10-12		SPT 6	2 3 4	16/18						**SILT** sandy (ML); yellowish red (5 YR 4/6); medium stiff; 85% silt, 15% sand; no plasticity; slightly micaceous; RESIDUUM		
12-14		SPT 7	2 4 4	16.5/18						**SILT** sandy (ML); dark red (2.5 YR 3/6); medium stiff; 75% silt, 25% sand; no plasticity; micaceous; RESIDUUM		
14-16		SPT 8	2 3 6	18/18						**SILT** sandy (ML); yellowish red (5 YR 5/8); stiff; 70% silt, 30% sand; no plasticity; slightly micaceous; RESIDUUM		
16-18		SPT 9	1 2 3	16/18						**SILT** sandy (ML); yellowish red (5 YR 4/6); medium stiff; 70% silt, 30% sand; no plasticity; slightly micaceous; RESIDUUM		
18-20		SPT 10	3 5 8	20/18						**SILT** sandy, clayey (ML); yellowish brown (10 YR 5/8); stiff; 70% silt, 30% sand; low to medium plasticity; slightly micaceous; RESIDUUM		
20-22		SPT 11	5 9 13	19/18						**SILT** sandy, (ML); dark yellowish brown (10 YR 4/6); very stiff; 70% silt, 25% sand, 5% clay; low to medium plasticity; trace of clay; slightly micaceous; RESIDUUM		
22-24		SPT 12	10 11 8	13/18						**SILT** sandy, (ML) dark yellowish brown (10 YR 4/6); very stiff; 70% silt, 30% sand; low		

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-621B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										plasticity; trace clay; slightly micaceous; RESIDUUM		
41										**SILT** sandy (ML); red (2.5 YR 5/8); damp; very stiff; 70% silt, 30% sand; no plasticity; RESIDUUM		
42										*(Continued from previous page)*		
43												
44		SPT 13	10 28 50/4	19/16						**SILT** sandy (ML); black (10 YR 2/1); hard; 70% silt, 30% sand; no plasticity; slightly micaceous; RESIDUUM		
45												
46												
47												
48												
49		SPT 14	24 36 19	16/18						**SILT** sandy (ML); black (7.5 YR 2.5/1); hard; 70% silt, 30% sand; no plasticity; contains rock fragments; slightly micaceous; RESIDUUM	End of day 4/11/06 Begin day 4/12/06 at 8:00 am water at 24.0 ft	
50												
51												
52									GP	GRAVEL (GP); Amphibolite schist fragments; black; PARTIALLY WEATHERED ROCK		
53												
54		SPT 15	50/4	1/4						BORING TERMINATED AT 58.8 ft		
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
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74												
75												
76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-621B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: North of Northern Nuclear Island		Total Depth: 100 feet
Drilling Contractor and Rig: Nichols/McCall / IR T3W	Elevation at Boring: 421.5 feet	Ground Water Depth	Depth to Bedrock: 58.5 feet
Casing Size and Depth (Boring): 3 / 60.4 feet	Elevation at Well: 421.2 feet	No. of Core Boxes: 3	Date Started: 5/25/06
	Borehole Inclination: 0	Logged by: B. Sharp	Date Completed: 5/25/06

Reviewed by / Date: M. Cooke 5/27/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
59	1	1.0 / 2.5	0	CW to MW	R0 to R3			Completely weathered zone of PARTIALLY WAETHERED ROCK or SAPROLITE containing 1 ft of AMPHIBOLITE SCHIST recovered in core	NOTE: Samples and Lithology Information are from adjacent boring.	
62	2	0.5 / 5.0	0	CW to MW	R0 to R3			Completely weathered zone of PARTIALLY WAETHERED ROCK or SAPROLITE containing thin zone of BIOTITE GNEISS recovered in core		
66	3	2.8 / 5.0	1	CW to MW	R0 to R3			Completely weathered zone of PARTIALLY WAETHERED ROCK or SAPROLITE containing 2.8 ft of AMPHIBOLITE SCHIST recovered in core		
71	4	3.4 / 5.0	46	HW	R0 to R3			GRANODIORITE and highly weathered to completely weathered PARTIALLY WEATHERED ROCK or SAPROLITE		
74				F	R4			BIOTITE GNEISS; white and gray; fine to medium grained; foliation at 30°		
76	5	5.0 / 5.0	100	F	R4				30% loss of coring water return	
81	6	5.0 / 5.0	100	F	R4				End of day 4/13/06 Begin day 4/14/06	
86	7	4.8 / 5.0	96	F	R4			MIGMATITE; gneiss with granodiorite and amphibolite schist; black and white to dark gray; fine to coarse grained; pyrite visible	End drilling 4/14/06 Begin drilling 4/17/06 at 12:50 pm water at 63 ft	
91	8	5.0 / 5.0	100	F	R4				End drilling 4/17/06 Begin drilling 4/18/06	
96		5.0								

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

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WELL LOG ROCK - WELL No. OW-621B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
99	9	5.0	100	F	R4			BIOTITE GNEISS CORING TERMINATED AT 101.0 ft.	Run #6 recovery taken as 5 ft because 0.5 ft of core left in hole Boring terminated at 101.0 ft. on 4/18/06	
100										
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										
113										
114										
115										
116										
117										
118										
119										
120										
121										
122										
123										
124										
125										
126										
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-622

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location North of Northern Nuclear Island		Total Depth 70 feet
Drilling Contractor and Rig (for Well) Nichols/McCall / IR T3W	Elevation at Boring 437.7 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 438.1 feet	No. of Samples 14	Date Started (Well) 5/25/06
	Borehole Inclination 0	Logged by M. Cooke	Date Completed (Well) 5/25/06

Reviewed by / Date: M. Cooke 5/25/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	4 8 8	14/18					ML	**SILT** sandy (ML); (2.5 YR 5/8); moist; very stiff; 70% silt, 30% sand; low plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2-3		SPT 2	6 7 8	16/18						SAA; stiff		
4-5		SPT 3	5 5 7	18/18						SAA; stiff		
6-7		SPT 4	5 7 9	18/18					SM	**SAND** silty (SM); (7.5 YR 6/8); damp to moist; medium dense; 60% sand, 40% silt; poorly graded RESIDUUM		
8-9		SPT 5	2 4 5	18/18					ML	SILT sandy (ML); (2.5 YR 5/8); damp to moist; medium stiff; 65% silt; 35% sand; low plasticity; RESIDUUM		
10-11		SPT 6	2 5 6	18/18					SM	**SAND** silty (SM); (7.5 YR 6/8); damp to moist; medium dense; 60% sand, 40% silt; RESIDUUM		
12-13		SPT 7	3 5 7	18/18						**SAND** silty (SM); (10 YR 5/6); damp to moist; medium dense; 55% sand, 45% silt; very micaceous; RESIDUUM		
14-15		SPT 8	3 4 5	18/18						**SAND** silty (SM); (10 YR 6/4); damp to moist; loose; 75% sand; 25% silt; RESIDUUM		
16-17		SPT 9	5 7 7	18/18						SAA; except medium dense; RESIDUUM		
18-19											Medium stiff to hard	
20-21		SPT 10	3 5 5	18/18					SM	**SAND** silty (SM); (10 YR 7/4 to 10 YR 5/4); moist; loose; 70% sand, 30% silt; micaceous; SAPROLITE	Saprolite	
22-23		SPT 11	4 7 50/5	18/17					ML	**SILT** sandy (ML); 7.5 YR 4/6; moist; medium stiff to hard; 60% silt, 40% sand; low plasticity; SAPROLITE		
24-25									ML	**SILT** sandy (ML); PARTIALLY WEATHERED ROCK	Hard ledges and lenses from 35 to 38.5 ft	
26-27												
28-29		SPT 12	13 18 32	18/18					SM			
30-31												
32-33												
34-35												
36-37												
38-39												
40												

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-622

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SAND** silty (SM); 10 YR 3/1; moist; very dense; 80% sand, 20% silt; contains <1/2 diameter gravel size rock fragments that could not be broken down by SPT; SAPROLITE *(Continued from previous page)*		
41												
42											Hard drilling from 42 to 45 ft	
43												
44		SPT 13	50/1.5"	1.5 / 1.5						**SAND** silty (SM); 10 YR 8/1; moist; 85% sand; 15% silt; PARTIALLY WEATHERED ROCK		
45		SPT 14	50/0	0 / 0						BORING TERMINATED AT 45.0 ft.	Auger refusal at 45 ft. on 4/6/06 water at 44.4 ft 4/7/06 water level at 44 ft	
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
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Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-623

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location Northeast of Nuclear Island		Total Depth 90 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 439.6 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 439.6 feet	No. of Samples 19	Date Started (Well) 5/25/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/26/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	2 3 5	8/18					ML	**SILT** sandy (ML); dark reddish brown (5 YR 3/4); dry; medium stiff; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	5 6 7	12/18						**SILT** sandy (ML); dark reddish brown (2.5 YR 2.5/3); dry; stiff		
3												
4		SPT 3	5 8 16	15/18						**SILT** sandy (ML); dark reddish brown (2.5 YR 2.5/4); dry; very stiff		
5												
6		SPT 4	9 13 17	18/18						**SILT** (ML); red (10 R 3/6); dry; hard		
7												
8		SPT 5	11 17 26	18/18						**SILT** (ML); red (10 R 3/6); dry; hard		
9												
10		SPT 6	11 13 17	18/18						**SILT** (ML); red (10 R 4/6); dry; hard		
11												
12		SPT 7	11 16 18	18/18						SAA; damp		
13												
14		SPT 8	4 7 12	18/18						**SILT** sandy (ML); reddish yellow (5 YR 6/8); damp; very stiff		
15												
16												
17												
18												
19		SPT 9	4 7 9	18/18						**SILT** (ML); red (2.5 YR 4/6); dry; very stiff; trace mica		
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		SPT 10	7 9 7	18/18					ML	SILT (ML); yellowish red (5 YR 4/6); very stiff; SAPROLITE contains sand lenses 28.5 to 28.7 ft and 29.5 to 30 ft; SAPROLITE	Saprolite	
30												
31												
32												
33												
34		SPT 11	3 3 6	18/18						**SILT** sandy (ML); red (2.5 YR 4/6); dry to damp; stiff; with black veins; micaceous; SAPROLITE		
35												
36												
37												
38												
39		SPT 12	5 6 7	18/18						**SILT** sandy (ML); red and orange with black veins; dry; stiff		
40												

Project Name : Job Number

SCE&G COL : 6234-06-3534

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WELL LOG SOIL - Well No. OW-623

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										SILT (ML); yellowish red (5 YR 4/6); very stiff; SAPROLITE contains sand lenses 28.5 to 28.7 ft and 29.5 to 30 ft; SAPROLITE *(Continued from previous page)*		
44		SPT 13	7 7 13	17/18						**SILT** sandy (ML) with lense of SAND (SM); (10 YR 6/4) 44.5 to 45 ft		
49		SPT 14	17 16 17	18/18						**SILT** (ML); yellowish brown (10 YR 5/8); dry; hard		
54		SPT 15	7 9 15	18/18						**SILT** sandy (ML); brown (7.5 YR 5/8); dry; very stiff; vein of very pale olive; micaceous; black veins		
59		SPT 16	7 11 22	18/18						SAA		
64		SPT 17	8 7 10	18/18						**SILT** sandy (ML); brown (7.5 YR 5/8); micaceous		
65									SM	SAND silty (SM); white; micaceous	Difficult slow drilling progress	
69		SPT 18	10 50/5.5	6/11.5					SM	SAND silty (SM); (1.4/N); rock chips encountered; PARTIALLY WEATHERED ROCK Auger refusal at 73.9 ft boring terminated	End drilling 4/6/06 no water Resume 4/7/06 at 8:30 am no water Difficult drilling scraping Water encountered at 71.6 ft	
74		SPT 19	50/1	1/1							Auger refusal at 73.9 ft. on 4/7/06; waeter at 71.6 ft	
80												

Project Name : Job Number

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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-623

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
80												
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												
91												
92												
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120												

Project Name : Job Number
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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-624

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location East of Nuclear Island		Total Depth 70 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 359 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 359.3 feet	No. of Samples 10	Date Started (Well) 5/24/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 5/24/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0											NOTE: Samples and Lithology Information are from adjacent boring.	
1		SPT 1	1 2 5	12/18					SM	**SAND** silty (SM); dark yellowish brown (10 YR 4/6); dry; loose; RESIDUUM	Residuum	
2		SPT 2	4 9 19	13/18						**SAND** (SM); black and brown (7.5 YR 4/6 and 5 YR 2.5/1); dry; medium dense; trace silt		
3									SM	**SAND** (SM); yellowish brown (10 YR 4/4); dry; medium dense; well graded with traces of gravel and trace fines		
4		SPT 3	21 30 35	18/18								
5											Difficult drilling	
6		SPT 4	20 50/4	8/10					SM	**SAND** (SM); very dark gray (2.5 Y 3/1); dry; fine sand; trace silt; some gravel; PARTIALLY WEATHERED ROCK	Difficult drilling Partially weathered rock 5.5 to 8.0 ft	
7												
8									SM	**SAND** (SM); very dark gray (10 YR 3/1); dry; dense; fine sand; gravel	Saprolite 8.0 to 10.5 ft.	
9		SPT 5	30 31 45	13/18								
10												
11		SPT 6	50/5.5	5.5/5.5					SM	**SAND** (SM); greenish black (10 GY) fine with gravel, coarse sand, rock pieces; PARTIALLY WEATHERED ROCK	Difficult drilling Partially weathered rock at 10.5 ft	
12												
13												
14		SPT 7	27 50/6	10/12						**SAND** (SM); dry; dense; brown and greenish black with gravel; fine sand; trace silt; PARTIALLY WEATHERED ROCK		
15											Auger scraping	
16												
17												
18												
19		SPT 8	50/2.4	2/2.4						**SAND** silty (SM) brown (10 YR 5/3); dry; very dense; fine to medium sand with gravel; PARTIALLY WEATHERED ROCK		
20												
21												
22												
23												
24		SPT 9	50/4	2/4						**SAND** (SM); greenish black (10 GY); fine to gravel; trace silt; PARTIALLY WEATHERED ROCK		
25												
26												
27												
28												
29		SPT 10	50/6	5/6						SAND silty (SM); fine to gravel; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 31.6 ft.		
30												
31												
32											Auger refusal at 31.6 ft on 4/10/06; no water	
33												
34												
35												
36												
37												
38												
39												
40												

Project Name : Job Number

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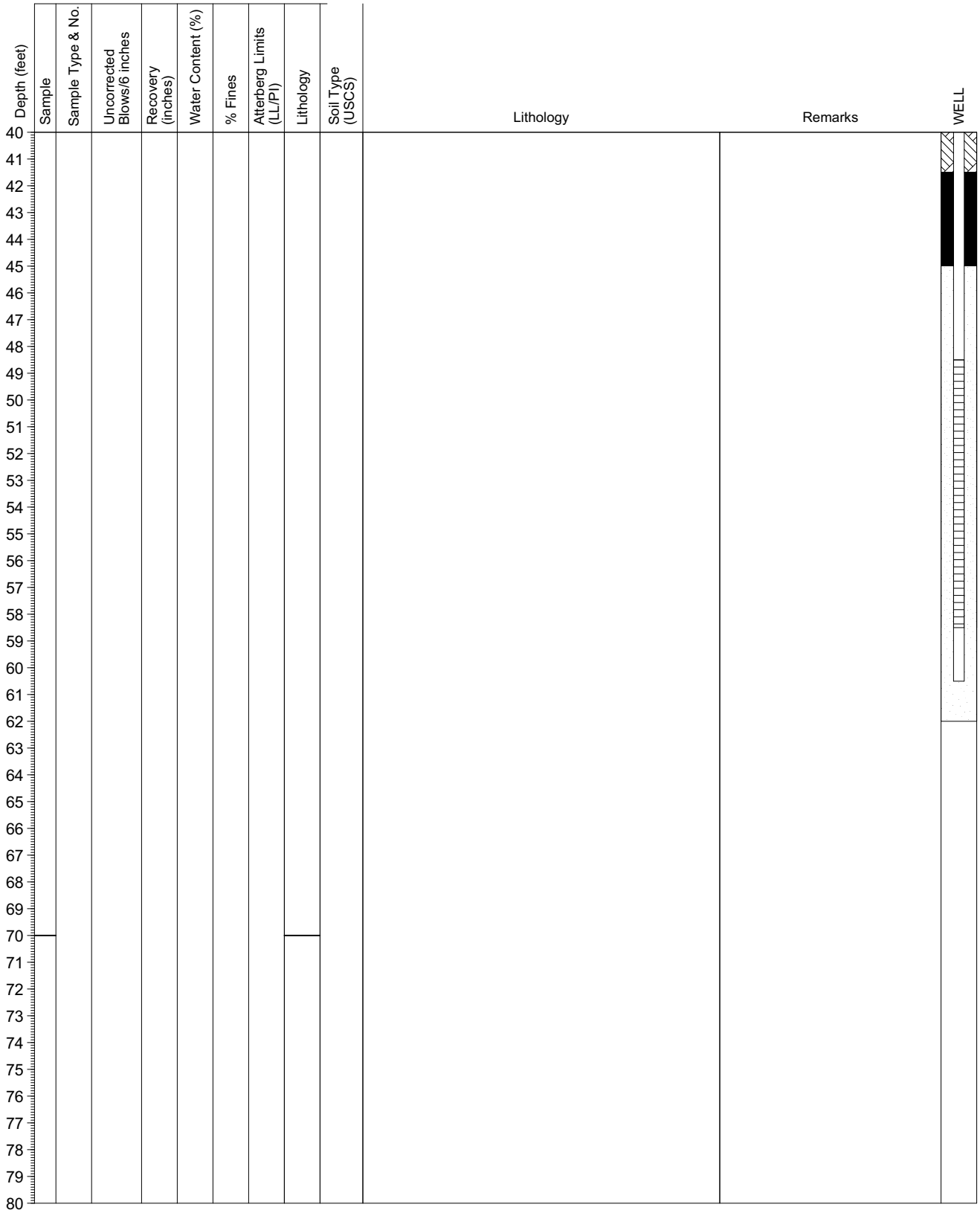
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-624

Lithologic and Sampling Information from adjacent companion boring.



Project Name : Job Number
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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-625

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Hollow Stem Auger / 6.25 inch	Boring Location East of Cooling Tower Area	Total Depth 108 feet
Drilling Contractor and Rig (for Well) Poole/Gregg / Rhino	Elevation at Boring 404.2 feet / Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 403.2 feet / No. of Samples 26	Date Started (Well) 5/8/06
	Borehole Inclination 0 / Logged by C. Bruce	Date Completed (Well) 5/23/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	1 2 5	10/18					ML	**SILT** (ML); dusky red (2.5 YR 3/6); dry; medium stiff; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	5 6 10	2/18						SAA; very stiff		
3		SPT 3	7 9 13	16/18						SAA		
4												
5												
6		SPT 4	14 24 28	18/18					ML	**SILT** (ML); dusky red (2.5 YR 3/6); and strong brown (7.5 YR 5/8); dry; hard; mottled		
7												
8		SPT 5	11 15 19	18/18						**SILT** (ML); red (2.5 YR 4/8); dry; very stiff		
9												
10												
11		SPT 6	9 11 11	18/18						SAA; very stiff		
12												
13		SPT 7	5 8 9	18/18						SAA; very stiff		
14												
15												
16												
17												
18												
19		SPT 8	4 5 7	18/18						**SILT** (ML); orange at top of the interval white fine sand at base (10 YR 6/8); brownish yellow from 19.5 to 20 ft; white sand at 20 ft; stiff		
20											Sand interval 19.5 to 20 ft	
21												
22												
23												
24		SPT 9	3 4 5	18/18						**SILT** (ML); brown (7.5 YR 5/8); dry; stiff; micaceous; trace fine sand		
25												
26												
27												
28												
29		SPT 10	4 6 7	18/18						**SILT** (ML); brown (7.5 YR 5/8); medium stiff; micaceous; trace fine sand		
30												
31												
32												
33												
34		SPT 11	4 6 8	18/18					ML	**SILT** (ML); tan and brown; damp; stiff; mottled with black banding; ferns or manganese; SAPROLITE	Saprolite	
35												
36												
37												
38												
39		SPT 12	3 4 6	18/18						SAA		
40												

Project Name : Job Number

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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-625

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SILT** (ML); tan and brown; damp; stiff; mottled with black banding; ferns or manganese; SAPROLITE *(Continued from previous page)*		
44		SPT 13	4 7 8	18/18						**SILT** sandy (ML); pale yellow (2.5 Y 8/2); with black specks damp; medium stiff; with trace gravel; SAPROLITE		
48									SP-SM	**SAND** (SM-SP); white (2.5 Y 8/1); dry; medium dense; fine sand; gravely	Harder drilling 47 ft	
49		SPT 14	16 11 12	18/18								
52									SM	**SAND** (SM); pale yellow (2.5 Y 8/3); dry; medium dense; micaceous; trace silt		
54		SPT 15	4 7 8	18/18								
57									ML	**SILT** sandy (ML); olive (5 Y 5/4); dry; medium dense; micaceous; very stiff		
59		SPT 16	6 8 10	18/18								
64		SPT 17	5 7 10	18/18						**SILT** (ML); strong brown (7.5 YR 5/8); black vein; dry; stiff; micaceous; SAPROLITE	Sample not as sandy and no gravel 63.5, 68.5 and 73.5 ft	
69		SPT 18	5 8 11	18/18						SAA; grading down to pale brown (10 YR 8/3); damp; very stiff		
74		SPT 19	6 9 10	18/18						**SILT** (ML); strong brown (7.5 YR 5/8); black vein; very stiff;; micaceous; trace fine sand; SAPROLITE		
79		SPT 20	8 11 15	18						**SILT** sandy (ML); reddish yellow (7.5 YR 7/8); damp to dry; very stiff; micaceous;		
80												

Project Name : Job Number

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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-625

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
80										SAPROLITE **SILT** sandy (ML); olive (5 Y 5/4); dry; medium dense; micaceous; very stiff *(Continued from previous page)*		
84		SPT 21	4 8 10	18					ML	**SILT** (ML); reddish yellow (7.5 YR 6/8); damp; very stiff; micaceous; black veins; SAPROLITE		
88									SM	**SAND** silty (SM); 7.5 YR 8/1.5); damp; medium dense; very fine; very micaceous; black vein		
89		SPT 22	8 10 16	18								
94		SPT 23	7 10 14	18/18						**SAND** silty (SM); white (7.5 YR 8/1); damp; medium dense; very fine; micaceous		
98									ML	**SILT** (ML); yellowish brown (10 YR 8/6); hard; micaceous; black veins; color change to very pale brown (10 YR 8/2) at 99.6 ft; SAPROLITE	End of day 4/4/06 water level at 88.4 Begin day 4/5/06; water at 86.8 ft	
99		SPT 24	11 19 24	15/18								
104		SPT 25	8 14 19	16/18					ML	**SILT** sandy (ML); very pale brown (10 YR 8/6); and brown of various shades; medium dense; black vein; micaceous; SAPROLITE		
109		SPT 26	47 50/1	7/7					SM	**SAND** silty (SM); black and white with brown orange staining; damp to dry; dense; fine to medium sand; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 110.0 ft	Auger refusal at 110 ft on 4/5/06; water level at 98.4 ft	
120												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-626

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Mud Rotary / 6 inch	Boring Location Existing Access Road		Total Depth 85 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 417.2 feet	Ground Water Depth	Depth to Bedrock
Sampling Method (Boring) Standard	Elevation at Well 416.4 feet	No. of Samples 25	Date Started (Well) 4/28/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 4/29/06

Reviewed by / Date M. Cooke 5/8/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0												
1		SPT 1	3 4 6	14/18					CL-ML	**CLAY** silty (CL-ML); (10 R 4/8); moist; stiff to very stiff; 45% clay; 45% silt; 10% sand; low to medium plasticity; RESIDUUM	NOTE: Samples and Lithology Information are from adjacent boring. Residuum	
2		SPT 2	3 7 8	18/18								
3												
4		SPT 3	4 7 10	16/18								
5												
6									ML	**SILT** sandy (ML); (10 R 4/8 to 10 R 5/8); moist; stiff; 75% silt, 25% sand; low plasticity; RESIDUUM		
7		SPT 4	3 6 9	18/18								
8												
9		SPT 5	3 4 7	18/18								
10												
11												
12		SPT 6	3 4 6	16/18					ML	**SILT** sandy (ML); (5 YR 5/8 to 10 YR 6/6); damp to moist; stiff; 55% silt, 45% sand; slightly micaceous; SAPROLITE	Saprolite	
13												
14		SPT 7	3 4 5	18/18					ML	SAA		
15												
16												
17												
18												
19		SPT 8	3 4 6	18/18						SAA		
20												
21												
22												
23									SM	**SAND** silty (SM); (10 YR 7/8 to 10 YR 5/8 to 10 YR 4/6); moist to wet; loose; 55% sand, 45% silt; slightly to very micaceous; SAPROLITE		
24		SPT 9	3 4 6	18/18								
25												
26												
27												
28												
29		SPT 10	4 7 7	18/18						SAA; medium dense		
30												
31												
32											Hard zone	
33												
34		SPT 11	3 5 7	18/18						SAA; medium dense		
35												
36												
37												
38												
39		SPT 12	2 3 6	18/18						SAA; medium dense		
40												

Project Name : Job Number

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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-626

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40										**SAND** silty (SM); (10 YR 7/8 to 10 YR 5/8 to 10 YR 4/6); moist to wet; loose; 55% sand, 45% silt; slightly to very micaceous; SAPROLITE *(Continued from previous page)*		
44		SPT 13	3 6 7	18/18						SAA; medium dense		
49		SPT 14	3 5 7	18/18						SAA; medium dense		
54		SPT 15	4 6 9	18/18						SAA; medium dense; wet		
59		SPT 16	4 7 10	18/18						SAA; medium dense		
64		SPT 17	5 9 14	18/18						SAA except 10 YR 6/4		
69		SPT 18	5 10 14	18/18						SAA 10 YR 6/4		
70											End day 4/4/06; water at 61 ft Begin day 4/5/06; water at 50.4 ft	
74		SPT 19	2 11 18	18/18						**SAND** silty (SM); (10 YR 6/8); moist to wet; medium dense; 65% sand; 35% silt; micaceous; SAPROLITE		
79		SPT 20	15 23 31	18/18						**SAND** silty (SM); (10 YR 4/1 to 10 YR 7/1); moist; very dense; 65% sand; 35% silt; slightly		
80												

Project Name : Job Number

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SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-626

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
80										micaceous; SAPROLITE		
81										**SAND** silty (SM); (10 YR 7/8 to 10 YR 5/8 to 10 YR 4/6); moist to wet; loose; 55% sand, 45% silt; slightly to very micaceous; SAPROLITE		
82										*(Continued from previous page)*		
83										**SAND** silty (SM); (10 YR 6/6); moist; dense; 75% sand, 25% silt; slightly micaceous; SAPROLITE		
84		SPT 21	6 18 24	18/18								
85												
86												
87												
88									SM	**SAND** silty (SM); (5 YR 5/8); moist; 80% sand, 20% silt; PARTIALLY WEATHERED ROCK		
89		SPT 22	26 50/4.5	10/10.5								
90												
91												
92												
93									SM	**SAND** silty (SM); (2.5 Y 8/1); moist; very dense; 80% sand; 20% silt; SAPROLITE		
94		SPT 23	11 28 38	9/18								
95												
96												
97												
98									ML	**SILT** (ML) sandy (5 Y 4/1); moist; 55% silt, 45% sand; non plasticity; very micaceous; PARTIALLY WEATHERED ROCK		
99		SPT 24	33 50/6	10/12								
100												
101												
102												
103									SM	**SAND** silty (SM); (10 YR 4/1); 75% sand, 25% silt; PARTIALLY WEATHERED ROCK		
104		SPT 25	50/1.5	1.5/1.5						BORING TERMINATED AT 103.6 ft.	Refusal ta 103.6 ft. on 4/5/06; water at 55.5 ft 4/6/06; water at 54.3 ft	
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-627A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Air Rotary / 6 inch	Boring Location South of Nuclear Island		Total Depth 100 feet
Drilling Contractor and Rig (for Well) Smith/Gregg / Fraste Multidrill XL	Elevation at Boring 326.3 feet	Ground Water Depth	Depth to Bedrock 57.5 feet
Sampling Method (Boring) Standard	Elevation at Well 327.6 feet	No. of Samples 15	Date Started (Well) 6/6/06
	Borehole Inclination 0	Logged by C. Bruce	Date Completed (Well) 6/7/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	4 7 8	12/18					CL	**CLAY** sandy (CL); red (2.5 YR 4/6); moist; stiff; 70% clay; 30% sand; low to medium plasticity; contains small sized roots; FILL	NOTE: Samples and Lithology Information are from adjacent boring.	
2-3		SPT 2	1 1 1	12/18					SC	**SAND** clayey (SC); pinkish gray (7.5 YR 7/2); moist; very loose; 60% sand; 40% clay; ALLUVIUM	Fill Top of alluvium	
4-5		SPT 3	1 3 6	12/18						SAA; except loose; ALLUVIUM		
6-7		SPT 4	1 3 7	4/18						SAA; loose		
8-9		SPT 5	14 13 12	18/18						SAA; except medium dense; ALLUVIUM		
10-11											End of day 4/11/06; water at 0 ft	
12-13		SPT 6	3 7 7	18/18						**SAND** clayey (SC); gray to brownish yellow (10 YR 5/1 to 10 YR 6/6); moist; medium dense; 70% sand, 30% clay; ALLUVIUM	Begin day 4/12/06; water at 0 ft	
14-15		SPT 7	4 4 3	12/18						SAA; except light gray (10 YR 7/2); and loose; ALLUVIUM		
16-17												
18-19		SPT 8	13 28 38	14/18					SM	**SAND** silty (SM); dark yellowish brown (10 YR 3/6); moist; very dense; 70% sand; 30% silt; SAPROLITE	Bottom of alluvium, top of saprolite	
20-21												
22-23									ML	**SILT** sandy (ML); dark yellowish brown (10 YR 3/6); moist; very stiff; 60% silt, 40% sand; no to low plasticity; SAPROLITE		
24-25		SPT 9	4 8 10	12/18								
26-27												
28-29		SPT 10	5 5 11	18/18						SAA; except micaceous; SAPROLITE	100% water loss	
30-31												
32-33									SM	**SAND** silty (SM); yellowish brown (10 YR 5/6); moist; very dense; 65% sand, 35% silt; micaceous; SAPROLITE		
34-35		SPT 11	20 50/4	10/10							Continued to loose 100% circulation from 35 to 38.5 ft	
36-37												
38-39									ML	**SILT** sandy (ML); strong brown (7.5 YR 4/6); moist; hard; 55% silt, 45% sand; low plasticity; SAPROLITE		
40		SPT 12	12 17 38	18/18								

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-627A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40												
41												
42												
43									SM	**SAND** silty (SM); yellowish brown (10 YR 5/6); moist; very dense; 60% sand, 40% silt; slightly micaceous; SAPROLITE		
44		SPT 13	33 27 50/5	13/17								
45												
46											Top of Partially weathered rock; very hard drilling from 46 to 47 ft	
47												
48												
49		SPT 14	50/4	4/4						**SAND** silty (SM); yellowish brown (10 YR 5/6); moist; very dense; 65% sand, 35% silt;slightly micaceous; PARTIALLY WEATHERED ROCK	End day 4/12/06 water at 0 ft. Begin day 4/13/06 water at 12 ft	
50												
51												
52											End of day on 4/13/06; water at 5 ft Begin day on 4/17/06 water at 27.5 ft	
53												
54		SPT 15	50/4	4/4						**SAND** silty (SM); yellowish brown (10 YR 5/4); moist; very dense; 75% sand, 25% silt; micaceous; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 57.5 ft		
55											End day 4/17/06 water at 27 ft Begin day 4/18/06 water at 27 ft	
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-627A

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring: Air Rotary / 6 inch	Boring Location: South of Nuclear Island		Total Depth: 100 feet
Drilling Contractor and Rig: Smith/Gregg / Fraste Multidrill XL	Elevation at Boring: 326.3 feet	Ground Water Depth	Depth to Bedrock: 57.5 feet
Casing Size and Depth (Boring): 4 / 57.5 feet	Elevation at Well: 327.6 feet	No. of Core Boxes: 3	Date Started: 6/6/06
	Borehole Inclination: 0	Logged by: C. Bruce	Date Completed: 6/7/06

Reviewed by / Date: M. Cooke 6/14/06
Reviewed by / Date: CES 1/26/07

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
58	1	1.0/1.0	0	RS to CW	R0 to R2			GRANODIORITE; white to black (10 YR 8/1 to 2/1); coarse grained; quartz, feldspar, hornblende, biotite	Tricone refusal at 57.5 ft on 4/18/06 see rock log	
59								GRANODIORITE	NOTE: Samples and Lithology Information are from adjacent boring.	
60	2	2.7/2.7	100	SW	R3				Top of sound rock	
61									End day 4/18/06 water at 0 ft	
62								GRANODIORITE	Begin day 4/19/06 water at 12 ft	
63					R3					
64	3	5.0/5.0	100	F	to					
65					R4					
66										
67								SAA; except fine grained from 70.3 to 71.9 ft.		
68										
69	4	5.0/5.0	100	F	R3 to R4					
70										
71										
72								GRANODIORITE		
73										
74	5	5.0/5.0	100	F	R3 to R4					
75										
76										
77	6	2.1/2.1	100	F	R3 to R4					
78										
79	7	1.6/1.6	100	F	R3 to R4					
80										
81	8	1.3/1.3	100	F	R3 to R4					
82									End day 4/19/06 water at 0 ft	
83					R3				Begin day 4/20/06 water at 19 ft	
84	9	5.0/5.0	100	F	to					
85					R4			QUARTZ MONZONITE; light gray (10 YR 7/1); fine grained; quartz, feldspar, hornblende, biotite		
86								GRANODIORITE; light gray (10 R 7/1); fine grained; quartz, feldspar, biotite		
87					R2				End day 4/20/06 water at 0 ft	
88					to			QUARTZ MONZONITE; light gray (10 YR 7/1); fine grained; quartz, feldspar, hornblende, biotite	Begin day 4/24/06 water at 34.2 ft	
89	10	5.0/5.0	87	F	R3					
90					R3			GRANODIORITE; white to black (10 YR 8/1 to 2/1); coarse grained; quartz; feldspar; hornblende; biotite		
91					to R4			CORING TERMINATED AT 101.5 ft.	NOTE: Unslotted sump section occupies last 0.5 ft of screen length as shown	
92										
93										
94	11	5.0/5.0	95	F	R3 to R4					
95										
96										
97	12	2.0	100	F	R3 to					

See page 2 for abbreviations of terms related to weathering, strength, and discontinuities.

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG ROCK - WELL No. OW-627A

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Lithology	Remarks	WELL
98		2.0			R4					
99	13	3.0 / 3.0	100	F	R3 to R4				End day 4/24/06 water at 0 ft Begin day 4/25/06 water at 31.4 ft 6 inches cored left in hole counted in run #13 recovery Boring terminated at 101.5 ft water at 0 ft on 4/25/06	
100										
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										
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137										

Project Name : Job Number
MACTEC
SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-627B

Lithologic and Sampling Information from adjacent companion boring.

Type and Diameter of Boring (for Well) Hollow Stem Auger / 6.25 inch	Boring Location South of Nuclear Island	Total Depth 100 feet
Drilling Contractor and Rig (for Well) Poole/Gregg / Rhino	Elevation at Boring 326.3 feet / Ground Water Depth	Depth to Bedrock 57.5 feet
Sampling Method (Boring) Split Spoon	Elevation at Well 326.9 feet / No. of Samples 15	Date Started (Well) 5/22/06
	Borehole Inclination 0 / Logged by C. Bruce	Date Completed (Well) 5/22/06

Reviewed by / Date M. Cooke 6/14/06
Reviewed by / Date CES 1/26/07

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
0-1		SPT 1	4 7 8	12/18					CL	**CLAY** sandy (CL); red (2.5 YR 4/6); moist; stiff; 70% clay; 30% sand; low to medium plasticity; contains small sized roots; FILL	NOTE: Samples and Lithology Information are from adjacent boring.	
2-3		SPT 2	1 1 1	12/18					SC	**SAND** clayey (SC); pinkish gray (7.5 YR 7/2); moist; very loose; 60% sand; 40% clay; ALLUVIUM	Fill Top of alluvium	
4-5		SPT 3	1 3 6	12/18						SAA; except loose; ALLUVIUM		
6-7		SPT 4	1 3 7	4/18						SAA; loose		
8-9		SPT 5	14 13 12	18/18						SAA; except medium dense; ALLUVIUM		
10-11											End of day 4/11/06; water at 0 ft	
12-13		SPT 6	3 7 7	18/18						**SAND** clayey (SC); gray to brownish yellow (10 YR 5/1 to 10 YR 6/6); moist; medium dense; 70% sand, 30% clay; ALLUVIUM	Begin day 4/12/06; water at 0 ft	
14-15		SPT 7	4 4 3	12/18						SAA; except light gray (10 YR 7/2); and loose; ALLUVIUM		
16-17												
18-19		SPT 8	13 28 38	14/18					SM	**SAND** silty (SM); dark yellowish brown (10 YR 3/6); moist; very dense; 70% sand; 30% silt; SAPROLITE	Bottom of alluvium, top of saprolite	
20-21												
22-23									ML	**SILT** sandy (ML); dark yellowish brown (10 YR 3/6); moist; very stiff; 60% silt, 40% sand; no to low plasticity; SAPROLITE		
24-25		SPT 9	4 8 10	12/18								
26-27												
28-29		SPT 10	5 5 11	18/18						SAA; except micaceous; SAPROLITE	100% water loss	
30-31												
32-33									SM	**SAND** silty (SM); yellowish brown (10 YR 5/6); moist; very dense; 65% sand, 35% silt; micaceous; SAPROLITE		
34-35		SPT 11	20 50/4	10/10							Continued to loose 100% circulation from 35 to 38.5 ft	
36-37												
38-39									ML	**SILT** sandy (ML); strong brown (7.5 YR 4/6); moist; hard; 55% silt, 45% sand; low plasticity; SAPROLITE		
40		SPT 12	12 17 38	18/18								

Project Name : Job Number

MACTEC

SCE&G COL : 6234-06-3534

WELL LOG SOIL - Well No. OW-627B

Lithologic and Sampling Information from adjacent companion boring.

Depth (feet)	Sample	Sample Type & No.	Uncorrected Blows/6 inches	Recovery (inches)	Water Content (%)	% Fines	Atterberg Limits (LL/PI)	Lithology	Soil Type (USCS)	Lithology	Remarks	WELL
40												
41												
42												
43									SM	**SAND** silty (SM); yellowish brown (10 YR 5/6); moist; very dense; 60% sand, 40% silt; slightly micaceous; SAPROLITE		
44		SPT 13	33 27 50/5	13/17								
45												
46											Top of Partially weathered rock; very hard drilling from 46 to 47 ft	
47												
48												
49		SPT 14	50/4	4/4						**SAND** silty (SM); yellowish brown (10 YR 5/6); moist; very dense; 65% sand, 35% silt;slightly micaceous; PARTIALLY WEATHERED ROCK	End day 4/12/06 water at 0 ft. Begin day 4/13/06 water at 12 ft	
50												
51												
52											End of day on 4/13/06; water at 5 ft	
53											Begin day on 4/17/06 water at 27.5 ft	
54		SPT 15	50/4	4/4						**SAND** silty (SM); yellowish brown (10 YR 5/4); moist; very dense; 75% sand, 25% silt; micaceous; PARTIALLY WEATHERED ROCK BORING TERMINATED AT 57.5 ft		
55											End day 4/17/06 water at 27 ft	
56											Begin day 4/18/06 water at 27 ft	
57												
58												
59												
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Final Report

Appendix C-2

Well Development Records

Work Instruction Well Development

SCE&G COL Project
MACTEC Engineering and Consulting, Inc.

Issued To: Chris Bruce/Kyle Miller/ Bill Sharp / Jeremy Harmon / Mandel Harvey / Chris Gandy
Location: SCE&G COL Project Field Office Date: May 14, 2006
Issued By: Matthew F. Cooke, Site Coordinator MACTEC Project No.: 6234-06-3534
Valid Thru: 5/14/06 To 5/14/07 Rev. No. 0

Task Description: Performance and logging of observation well development of **31 Observation Wells** as listing in the Specification. Provide assistance in other drilling-related or geologic tasks as assigned.

Applicable Technical Procedures or Plans, or other reference: SCE&G COL Geotechnical Work Plan, Specification Section 5.3.6.

Specific Instructions (*note attachments where necessary*): See attached instructions for **Well Development Procedure prepared by Bechtel Hydrogeologist**.

Special Instructions: If unexpected conditions are encountered refer to page 2-6 of the Work Plan.

Report Format: Completed Forms As Follows: Daily Field Report, Well Development Record.

Specific Quality Assurance Procedures Applicable: None

Hold Points or Witness Points: Direction to develop well received from Site Coordinator.
Instructions or specifications received from Bechtel Representative.

Records: All records generated shall be considered QA Records.

Reviewed and Approved By: (*Note: Only one signature is required to issue*)
Project Manager (MACTEC): _____ Date: _____
Project Principal (MACTEC): _____ Date: _____
Site Coordinator _____ Date: 5/14/06

No. of Pages: 2 DCN: SC83

OBSERVATION WELL DEVELOPMENT PROCEDURE
SCE&G V C SUMMER SITE

1. Measure water levels and determine the standing well volume using the installation record for each well. The standing well volume is calculated based on the size of the well and the depth of water within the well pipe (using the formula 0.167 gallons per foot for 2" diameter well).
2. Bail the well until it is moderately clean with minimal sediment.
3. Using a submersible pump (without a check value), remove ~~2 to~~ at least 3 standing well volumes. Pump the wells resulting in appreciable drawdown. Periodically vary the pumping rate and the depth of the pump intake. Randomly turn the pump off an on, using the head of the water in the pump discharge column to flush back into the well, surging the well screen and filterpack.
4. A well is considered developed when the pumped water is reasonably free of suspended sediment and relatively clear to sight.
5. In the event, the formation is of such low permeability that the well recharge is very slow; it may not be possible to remove the planned number of well volumes. If the well becomes dry, pumping will cease and recovery of the water level will be monitored to judge the feasibility of continued pumping. In this case, well development will be considered complete after three pump-downs and recoveries are done. If recovery is extremely slow, such that the water level does not recover within 8 hours, contact the Project Principal for further direction.
6. Water removed during development process should be directed away from the well location by either discharging the pump output at least 30 feet away from the well or by storing it in containers for disposal in wooded or grass areas removed from the well. In either case, care should be taken to ensure that the discharged water does not create an erosion problem. Water disposal should be coordinated with MACTEC's site supervisor.

Well Development Record

Well No.: OW-205A

Project No.: 6234-06-3534	Logged By: C. GANDY		
Client Name: BECHTEL	Project Name: JCEG COL PROJECT		Checked By: MFC
Well Installation Date: 5/30/06	Start Date: 6/5/06		Finish Date: 6/8/06
Well Development Date: 6/5/06	Start Time: 1125		Finish Time: 1048
Initial Water Level (ft.): SEE LOG (66.4' 6/5/06)			
Water Level during **Initial** Pumping/Purging (ft).: 66.4'			
Water Level at **Termination** of Pumping/Purging (ft).: DRY			
Weather: GOOD			

Height of Water Column: 44 (ft.)

44 0.16 gal./ft. (2 in.)
x ____ 0.65 gal./ft. (4 in.)
____ 1.5 gal./ft. (6 in.)
____ gal./ft. (____ in.) = 7 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	7:30	N/A	N/A	N/A	~1.0	SLIGHTLY TO CLEAR
2	—	N/A	N/A	N/A	N/A	TURBID
2.8	—	N/A	N/A	N/A	N/A	TURBID
DRY - WELL STILL TURBID, WILL LET RECHARGE AND CHECK TOMORROW						
4						
6/7/06 5	1900	NA	NA	NA	NA	Cloudy
6/7/06 DRY 6/8/06 7	1048					Slight to Cloudy
DRY						

Notes: Resume 5:00 pm 06-07-06

6/7/06 - Developed with Pump. Surged Pump up and Down and turned pump on and off to generate surge into filter pack

Well Developers Signature: [signature]

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN SC83

Well Development Record

Well No.: OW 205B

Project No.: 6234-06-3534	Logged By: KYLE MILLER		
Client Name: BECHTEL	Project Name: VC SUMMER	Checked By: MFC 6/5/06	
Well Installation Date: 5/15/06	Start Date: 5/16/06	Finish Date: ~~5/22/06~~ MFC 5/16/06	
Well Development Date: 5/16/06	Start Time: 3:10 PM	Finish Time: ~~1:30~~ 11:21	
Initial Water Level (ft.): ~~N/A~~ 59.5' (61' ~~59.6~~ TD)		(TOC)	
Water Level during **Initial** Pumping/Purging (ft).: 59.5'		(TOC)	
Water Level at **Termination** of Pumping/Purging (ft).: (DRY) 61'		(TOC)	
Weather: P. CLOUDY ~80's °F			

Height of Water Column: 1.5 (ft.)

x ✓ 0.16 gal./ft. (2 in.)
~~0.65 gal./ft. (4 in.)~~
~~1.5 gal./ft. (6 in.)~~

0.16 gal./ft. (2 in.) = 0.24 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
~~5/16~~ 5/16 5		N/A	N/A	N/A	N/A	VERY DRY
5/17 ~~7~~ 10	9:55 AM				N/A	MODERATE DRY
5/22 12	11:21 AM				N/A	slight-mod, DRY
6/7 14	1638					slight to Mod DRY
6/8 15	1050	CNA	NA	NA	NA	moderate to cloudy DRY

Notes:

WELL DEVELOPED WITH BAILER

DCN 5083

Well Developers Signature: KMH

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

Well Development Record

Well No.: OW-212

Project No.: 6234-06-3534	Logged By: Bill Sharp	
Client Name: Bechtel	Project Name: SCE+G CoL	Checked By:
Well Installation Date: 5/25/06	Start Date: 5-28-06	Finish Date:
Well Development Date: 5-28-06	Start Time: 1235	Finish Time:

Initial Water Level (ft.): 49.05' btoc (3' stickup)

Water Level during **Initial** Pumping/Purging (ft).: 49.05' btoc

Water Level at **Termination** of Pumping/Purging (ft).: 3:45, 6/9/06, 48.82' BTC

Weather:

Height of Water Column: 19.25' (ft.)

19.25 × 0.16 gal./ft. (2 in.) / 0.65 gal./ft. (4 in.) / 1.5 gal./ft. (6 in.) = 3.08 Well Volume (gal.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1250				bail	Brown/turbid
4	(3:45 to 4:15)	Removed 10 gals Did not go dry.			Bail	Brown
6/10/06 6	1141				Bail	Med. Turbid
8	1500				Bail	Cloud-Clear
6/11/06 10	1020	NA	NA	NA	Bail	1st 1/2 gallon to mo dewato. → Same as 6/10

Notes: t.d 68.30' btoc (3' stick up); bailed 1st well volume using bailer on 5-28-06

6/10/06 GW@49.1 BTOC

6/11/06 GW@49.2 BTOC

Well Developers Signature: Bill Sharp

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

Well Development Record

Well No.: OW-213

Project No.: 6234-06-3534	Logged By: C. GAHAY		
Client Name: BECHTEL	Project Name: SCE&G COL PROJECT		Checked By: MFC
Well Installation Date: 5/30/06		Start Date: 6/5/06	Finish Date: 6/5/06
Well Development Date: 6/5/06		Start Time: 1525	Finish Time: 1618
Initial Water Level (ft.): 42.95'			
Water Level during **Initial** Pumping/Purging (ft).: 42.95'			
Water Level at **Termination** of Pumping/Purging (ft).:			
Weather:			

Height of Water Column: 12 (ft.)

12 × 0.16 gal./ft. (2 in.) = 1.92 Well Volume (gal./ft.)

_____ × 0.65 gal./ft. (4 in.)

_____ 1.5 gal./ft. (6 in.)

_____ gal./ft. (_____ in.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1525	N/A	N/A	N/A	BAILED	VERY
2	1540	N/A	N/A	N/A	3 MIN	VERY TO MODERATE
3	1545	N/A	N/A	N/A	" "	" "
4	1549	N/A	N/A	N/A	" "	" "
5	1552	N/A	N/A	N/A	" "	SLIGHT TO CLEAR
6	1555	N/A	N/A	N/A	" "	" "
7	1558	N/A	N/A	N/A	" "	CLEAR
8	1601	N/A	N/A	N/A	"	CLEAR
9	1604	N/A	N/A	N/A	" "	" "
10	1607	↓	↓	↓	" "	" "
11	1610				" "	" "
12	1613	↓	↓	↓	4 MIN	" "
13	1616	N/A	N/A	N/A	" "	" "
13.5	1618	N/A	N/A	N/A	4 MIN	" "

Notes:

WELL WILL NOT GO DRY

Well Developers Signature: C. Gahay

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN 5083

Well Development Record

Well No.: OW-227

Project No.: 6234-06-3534	Logged By: Bill Sharp	
Client Name: Bechtel	Project Name: SLE+G EOL	Checked By: mfc 6/5/06
Well Installation Date: 5-25-06	Start Date: 5-27-06	Finish Date: 5/27/06
Well Development Date: 5-27-06	Start Time: 1205	Finish Time: 1555
Initial Water Level (ft.): 63.68' btoc (2.5' stickup)		
Water Level during **Initial** Pumping/Purging (ft).: 63.68' btoc		
Water Level at **Termination** of Pumping/Purging (ft).:		
Weather: Sunny 90s		

Height of Water Column: 22.65 (ft.)
22.65 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
0.16 gal./ft. (_____ in.) = 3.6 Well Volume (gal.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1220				bail	cloudy
2	1256				0.67	turbid
3	1302				0.67	turbid
4	1308				0.67	moderate
5	1314				0.67	moderate
6	1320				0.67	moderate
7	1440	← Let well recover			0.85	cloudy
8	1445				0.85	clear
9	1450				0.85	cloudy
10	1455				0.85	cloudy
Let	well recover	until 1550 →			w.l. 66.78' btoc	
11	1555				0.85	clear

Notes: used bailer to purge 1st well volume. Pumped well dry after purging 6.5 well volumes; Let well recover for 1.2 hours then tagged w.l. at 65.54' btoc; pumped and surged well again until well wont dry again (after pumping another 3.5 well volumes - total of 10 well volumes)

Well Developers Signature: Bill Sharp

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

* used pump as surge block, raising and lowering pump several times after each 5-gallons of pumping

PCN 5083

Well Development Record

Well No.: OW-233

Project No.: 3646 COL PROJECT	Logged By: C. Gandy/M. Cooke		
Client Name: BECHTEL	Project Name: 6234-06-3534		Checked By: mfc
Well Installation Date: 5/25/06	Start Date: 6/5/06		Finish Date: 6/7/06
Well Development Date: 6/5/06	Start Time: ~~1445~~		Finish Time: 1620
Initial Water Level (ft.): 111' (6/5/06)	114.9 (6/7/06 1615)	112.1 5/11/06 1445	
Water Level during **Initial** Pumping/Purging (ft).: 111' (6/5/06)			
Water Level at **Termination** of Pumping/Purging (ft).:			
Weather: GOOD			

Height of Water Column: 9 (ft.)

9 × 0.16 gal./ft. (2 in.) = 1.44 Well Volume (gal./ft.)

_____ × 0.65 gal./ft. (4 in.)

_____ × 1.5 gal./ft. (6 in.)

_____ gal./ft. (_____ in.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1445	N/A	N/A	N/A	N/A	SLIGHTLY TO CLEAR
2	1505	N/A	N/A	N/A	N/A (BAILED)	" "
DRY						
6/7/06 mfc 6/7/06 mfc 2.5	1620	NA	NA	NA	NA	Slight to Clear

Notes: 5/11/06: MACTEC + Bechtel concur that water level should be obtained on 6/12/06 without further development due to low recharge rate.

Well Developers Signature: _____

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN 5083

Well Development Record

Well No.: OW-305A

Project No.: 6234-06-3534	Logged By: C-GAHY/M.COOKE		
Client Name: BECHTEL	Project Name: SCE&G COL PROJECT		Checked By: MFC
Well Installation Date: 5-29-06	Start Date: 6/6/06		Finish Date: 6/6/06
Well Development Date: 6/6/06	Start Time: 1030		Finish Time: 1600
Initial Water Level (ft.): 60.5 BTOC			
Water Level during **Initial** Pumping/Purging (ft).: 60.5 BTOC (58.5)			
Water Level at **Termination** of Pumping/Purging (ft).:			
Weather: SUNNY, NICE			

Height of Water Column: ~~58.5~~ (ft.)
CEG 6/6/06

82.5 x 0.16 gal./ft. (2 in.)
____ x 0.65 gal./ft. (4 in.)
____ x 1.5 gal./ft. (6 in.)
____ x ____ gal./ft. (____ in.) = 13.2 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1030	N/A	N/A	N/A	~:45	CLEAR
2	1145				~3:00	CLEAR
3	1345				~2:30	CLEAR
4	1425				~3:00	CLEAR
5	1530				BAIL	CLEAR
6	1600	NA	NA	NA	Bail	Clear

Notes: Pumped 4 Well Volumes
Bailed 2 Well Volumes

Well Developers Signature: [signature]

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN SC 83

Dano

Well Development Record

Project No.: 6234-06-3534	Logged By: Bill Sharp	Well No.: OW-305 B
Client Name: Bechtel	Project Name: SCE + G COL	Checked By: MF
Well Installation Date: 5-26-07	Start Date: 5-27-06	Finish Date: 6/6/06
Well Development Date: 5-27-06	Start Time: 1400	Finish Time: 1020

Initial Water Level (ft.): 58.87' btoc (2.5' stick up)

Water Level during **Initial** Pumping/Purging (ft).: 58.87' btoc

Water Level at **Termination** of Pumping/Purging (ft).:

Weather: Sunny, 90s

Height of Water Column: 9.13 (ft.)

9.13 0.16 gal./ft. (2 in.)
x ______ 0.65 gal./ft. (4 in.)
______ 1.5 gal./ft. (6 in.)
______ gal./ft. (_____ in.) = 1.46 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1					bail	gray/turbid
2					bail	gray/turbid
3					bail	gray/turbid
4					bail	cloudy
5					bail	cloudy/milky
6					bail	milky
Logged by CEG 6/6/06 → 7	0930	N/A	N/A	N/A	:45	MODERATE
8	0933	N/A	↓	↓	↓	" "
9	0937	↓				MOD.-SLIGHT
10	0941					MOD.-SLIGHT
DRY → 11	0945					" "
12	1015					SLIGHT-CLEAR
13	1018				↓	" "
DRY → 14	1021	↓	↓	↓	1:30	" "

Notes: t.d. 68.0' btoc (2.5' stick up) bailed dry?? after 3 well volumes; let well recover for 0.8 hrs.; tagged w.l. @ 58.90' btoc. Immediately after purging 6th well volume tagged w.l. at 59.50 btoc on 5-27-06

Well Developers Signature: Bill Sharp / [signature]

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

DCN 5C83

Well Development Record

Well No.: OW 31Z

Project No.: 6234-06-353F	Logged By: KYLE MILLER		
Client Name: BECHTEL	Project Name: VC SUMMER		Checked By: MFC 6/5/06
Well Installation Date: 5/12/06	Start Date: 5/16/06		Finish Date: 5/16/06
Well Development Date: 5/16/06	Start Time: 3:00 PM		Finish Time:
Initial Water Level (ft.): ~~40~~ N/A	(TD 40)	(TOC)	
Water Level during **Initial** Pumping/Purging (ft).:			
Water Level at **Termination** of Pumping/Purging (ft).:			
Weather: P. CLOUDY ~80's °F			

Height of Water Column: _____ (ft.)

_____ 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
_____ gal./ft. (_____ in.) = _____ Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):

Notes: WELL IS DRY - 3:00 PM (5/16/06)
DRY 6/10/06 MFC 6/10/06

DCN 5083

Well Developers Signature: KMiller

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Well Development Record

Well No.: GW-313

Project No.: 6234-06-3534	Logged By: KYLE MILLER/CHRIS GANDY	
Client Name: Bechtel	Project Name: V.C. Summers	Checked By: mfc 6/5/06
Well Installation Date: 5/13/06	Start Date: 5/22/06	Finish Date: 5/23/06
Well Development Date: 5/22/06	Start Time: 0900	Finish Time: 1030 AM
Initial Water Level (ft.): 50' (TOC)		
Water Level during **Initial** Pumping/Purging (ft).: 50' (TOC)		
Water Level at **Termination** of Pumping/Purging (ft).: 49.8'		
Weather: CLOUDY 80's °F		

Height of Water Column: 11.0 (ft.)

✓ 0.16 gal./ft. (2 in.)
~~x 0.65 gal./ft. (4 in.)~~
~~1.5 gal./ft. (6 in.)~~

0.16 gal./ft. (2 in.) = 1.76 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
BAILER 2	~ 9:00 AM	N/A	N/A	N/A	N/A	VERY
PUMP 13	~ 9:50 AM	↓	↓	↓	0.6 gal/min	MODERATE
PUMP 2.6	~ 10:30 AM	↓	↓	↓	0.16 g/m	SLIGHT-CLEAR

Notes: well developed with bailer, then pump was used to attempt to purge dry. well did not purge dry.

DCN 5083

Well Developers Signature: K Miller

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Well Development Record

Well No.: OW-327

Project No.: 6234-06-35345	Logged By: MFC		
Client Name: Bechtel	Project Name: SCE+G COLSITE		Checked By: MFC
Well Installation Date: 3/29/06	Start Date: ~~3/29/06~~ 6/8/06		Finish Date: 6/9/06
Well Development Date: 6/8/06 - 6/9/06	Start Time: 1500		Finish Time: 1120

Initial Water Level (ft.): 54.50

Water Level during **Initial** Pumping/Purging (ft).: 54.50 BTOC (69.5 = TWD BTOC)

Water Level at **Termination** of Pumping/Purging (ft).: DRY

Weather:

Height of Water Column: 15 (ft.)
15 x 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
2.4 gal./ft. (2 in.) = 2.4 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1500				Bail	Mod Turbid
3.5	1520	NA	NA	NA	1.0	Mod Turbid
6.0 DRY →	1630	NA	NA	NA	1.0	Cloudy
12.0 Total DRY →	1030 6/9/06	NA	NA	NA	0.1	Slightly Cloudy
15 DRY	1120 6/9/06	NA	NA	NA	0.1	Clear

Notes: Bailed 1st Well Volume.

Well Developers Signature: _____

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN 5083

Well Development Record

Well No.:	OW-333
Project No.: 1239-06-3534	Logged By: M. Harvey
Client Name: BECHTEL	Project Name: SCE&G CoL Project
Checked By: MFC	
Well Installation Date: 5/28/06	Start Date: 06-07-06
Finish Date: 06-07-06	
Well Development Date: 0-0	Start Time: 1015
Finish Time: 3:30	

Initial Water Level (ft.): 60.65' BGS ~~69.65' deep~~ MH 6-7-6

Water Level during **Initial** Pumping/Purging (ft).:

Water Level at **Termination** of Pumping/Purging (ft).:

Weather:

Height of Water Column: 9 (ft.) x 1 0.16 gal./ft. (2 in.) / 0.65 gal./ft. (4 in.) / 1.5 gal./ft. (6 in.) / gal./ft. (in.) = 1.44 Well Volume (gal.) ~~ft.~~ MH 6-7-6

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
MH 6-7-6 ~~1 0 2~~ 2	1030	bailed from 1015 to		1030		very turbid, muddy
~~2~~ 3	1035	went dry after pumping		1 volume –	recharge slow	very turbid
4	1045	reduced flow rate				
6	1107	pumped dry	allow for recharge	surge	pump	muddy
8	1137	restarted at	1027 pumped dry			turbid
11	1228	let pump	low flow	restart at	1137	clear
14	surge make	muddy resume pumping		1242		muddy
17	pump dry					cloudy
18	1:58	pump dry, let recharge				cloudy
21	230	resume	213 let pump dry low flow			cloudy/clean
25	324	resume	300, clearer,			clear

Notes:

69.65 Total depth BGS Bailed first two volumes, – highly turbid.
1049-6-7-6 pump dry, turn off pump allow recharge.

Well Developers Signature: Mandy Harvey

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN 5083

Well Development Record

Well No.: 401a

Project No.: 6234-06-3534	Logged By: KYLE MILLER/CHRIS GANDY	
Client Name: BECHTEL	Project Name: VC SUMMERS	Checked By: MFC
Well Installation Date: 5/15/06	Start Date: 5/23/06	Finish Date: 5/23/06
Well Development Date: 5/23/06	Start Time: 8:50 AM	Finish Time: 1300

Initial Water Level (ft.): 56.8' TOC (stick-up = 3.7') BOTTOM OF WELL = 96.2' TOC

Water Level during **Initial** Pumping/Purging (ft).: 56.8 (TOC)

Water Level at **Termination** of Pumping/Purging (ft).: DRY

Weather: P. CLOUDY ~80°F

Height of Water Column: ~~35.1~~ (ft.) 39.4'

✓ 0.16 gal./ft. (2 in.)
~~x 0.65 gal./ft. (4 in.)~~
~~1.5 gal./ft. (6 in.)~~
0.16 gal./ft. (2 in.) = 6.3 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
Bailer 1/2	8:50 AM	N/A	N/A	N/A BAIL	~~0.5g/min~~ N/A	VERY
Pump 2	9:30 AM	N/A	N/A	N/A	0.5g/min	slight-mod, (DRY)
Pump ~~3~~	10:25 AM	N/A	N/A	N/A	0.5g/min	slight (DRY)
4	1:00 PM	N/A	N/A	N/A	0.5g/min	slight (DRY)

Notes: - Pad and casing not yet completed (5/23/06) - 3.7' stick-up of 2" well casing
- Well developed with bailer, then pump was used to purge well dry

DCN 5083

Well Developers Signature: [signature]

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Well Development Record

Well No.: OW 401 B

Project No.: 6234-06-3534	Logged By: KYLE MILLER		
Client Name: BECHTEL	Project Name: VC SUMMER		Checked By: MT C
Well Installation Date: 5/11/06		Start Date: 5/16/06	Finish Date: 5/17/06
Well Development Date: 5/16/06		Start Time: 11:55	Finish Time: 9:00 AM
Initial Water Level (ft.): 52.3	65.5		
Water Level during **Initial** Pumping/Purging (ft).: 52.3			
Water Level at **Termination** of Pumping/Purging (ft).: 54.5			
Weather: P. CLOUDY ~80's (°F)			

Height of Water Column: 13.2 (ft.)

✓ 0.16 gal./ft. (2 in.)
~~x 0.65 gal./ft. (4 in.)~~
~~1.5 gal./ft. (6 in.)~~
0.16 gal./ft. (2 in.) = 2.11 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	11:55	N/A	N/A	N/A	N/A	VERY
½ 1.5	12:45	N/A	N/A	N/A	N/A	VERY DRY
2.5	8:45	N/A	N/A	N/A	N/A	slightly DRY
3.25	9:00 AM	N/A	N/A	N/A	N/A	slightly DRY

1½ DRY
slig DRY
DRY (5/17)

Notes: Well developed with Bailer
Dry at noted intervals

DCN 5083

Well Developers Signature: KM Miller

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Well Development Record

Well No.: OW-405

Project No.: 6234-06-3534	Logged By: KYLE MILLER/CHRIS GANDY		
Client Name: Bechtel	Project Name: V.C. Summers		Checked By: MFC
Well Installation Date: 5/11/06		Start Date: 5/22/06	Finish Date: 5/23/06
Well Development Date: 5/22/06		Start Time: 1300	Finish Time: 2200 PM
Initial Water Level (ft.): 41.7' (TOC)			
Water Level during **Initial** Pumping/Purging (ft).: 41.7' (TOC)			
Water Level at **Termination** of Pumping/Purging (ft).: 41.7' (TOC)			
Weather: CLOUDY 80's OF			

Height of Water Column: 16.3 (ft.)

✓ 0.16 gal./ft. (2 in.)
x ~~0.65 gal./ft. (4 in.)~~
~~1.5 gal./ft. (6 in.)~~
0.16 gal./ft. (2 in.) = 2.61 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
BAILER 1/2	1:00PM	N/A	N/A	N/A	N/A	VERY
PUMP 6	1:30PM	↓	↓	↓	1.3 g/min	MODERATE
PUMP 10	2:00PM				1.3 g/min	SLIGHT-CLEAR

Notes: Well developed with bailer, then pump was used to attempt to purge well dry. Well did not purge dry

DCN 5083

Well Developers Signature: K M

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Well Development Record

Well No.: OW-501

Project No.: 6234-06-3534	Logged By: MTHCOOKE	
Client Name: Bechtel	Project Name: ~~62~~ SCE+G COL	Checked By: MTC
Well Installation Date: 8/2/06	Start Date: 8/4/06	Finish Date: 8/6/06
Well Development Date: 8/4/06 - 8/6/06	Start Time: 1000	Finish Time: 1032
Initial Water Level (ft.): 8.7		
Water Level during **Initial** Pumping/Purging (ft).: 8.7		
Water Level at **Termination** of Pumping/Purging (ft).:		
Weather: Hot		

Height of Water Column: 23.3 (ft.) X 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
_____ gal./ft. (_____ in.) = 0.5 Well Volume (gal./ft.)

~~Number of~~ Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity ~~(NTU's):~~ V'sual
5	1023	NA	NA	NA	NO.5	Very Turbid
5	1035	NA	NA	NA		Turbid
5	1045	NA	NA	NA		Turbid
5	1100	NA	NA	NA		Mod Turbid
		NA	NA	NA		Mod Turbid
5	0920	NA	NA	NA		Cloudy
5	0934	NA	NA	NA	0.5	Cloudy.
Dry after 10 gallons 8/6/06						
5	1000	NA	NA	NA	0.25	Slight
5	1030	NA	NA	NA	0.25	Clear
Dry After 10 8/6/06						

Dry 8/4/06 after 20 gallons

Begin 8/6/06

Notes: Surged pump up and down during development.

DCN 5083

Well Developers Signature: _____

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

Well Development Record

Well No.: DW612

Project No.: 6234-06-3534	Logged By: KYLE MILLER	
Client Name: BECHTEL	Project Name: VC SUMMER	Checked By: MFC
Well Installation Date: 5/3/06	Start Date: 5/16/06	Finish Date: 5/17/06
Well Development Date: 5/16/06	Start Time: 1:55 pm	Finish Time: 10:30 AM
Initial Water Level (ft.): 52.1' (62.5' Total Depth)		TOC casing
Water Level during **Initial** Pumping/Purging (ft).: 52.1		
Water Level at **Termination** of Pumping/Purging (ft).: 51.7		
Weather: P. CLOUDY ~80's °F		

Height of Water Column: 10.4 (ft.)
✓ 0.16 gal./ft. (2 in.)
x ~~0.65 gal./ft.~~ (4 in.)
~~1.5 gal./ft.~~ (6 in.)
0.16 gal./ft. (2 in.) = 1.66 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1:55 (PM)	N/A	N/A	N/A	N/A	VERY
3.5	6:30 PM				N/A	VERY (DRY)
4.5	8:30 AM				Pump 0.5/5min	VERY (DRY)
5.5	9:40 AM				1.5/5min	MODERATE (DRY)
6.5	10:30 AM				1.5/5min	SLIGHTLY (DRY)

5/16 06
5/17
5/17
5/17

Notes: DEVELOPED WITH BAILER FOR FIRST TWO PURGES, THEN USED PUMP!

DCN 5083

Well Developers Signature: [signature]

FIGURE 9

Well Development Record

Well No.: OW614

Project No.: 6234-06-3534	Logged By: KYLE MILLER	
Client Name: BECHTEL	Project Name: VC SUMMER	Checked By: mtc 6/10/06
Well Installation Date: 5/8/06	Start Date: 5/16/06	Finish Date: ~~5/16/06~~ 5/16/06 mtc 6/10/06
Well Development Date: 5/16/06	Start Time: ~~11:~~ 8:30	Finish Time: 5:50 PM
Initial Water Level (ft.): 30.2	TD = 33.1' (TOC)	
Water Level during **Initial** Pumping/Purging (ft).: 30.2'	(TD = 33.1') (TOC measurements)	
Water Level at **Termination** of Pumping/Purging (ft).: 30.3	30.20	
Weather: P. CLOUDY 80's (°F)		

Height of Water Column: 3.1 (ft.)

- ✓ 0.16 gal./ft. (2 in.)
- ~~0.65 gal./ft. (4 in.)~~
- ~~1.5 gal./ft. (6 in.)~~

x 0.16 gal./ft. (2 in.) = 0.496 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
4	8:30 (AM)	N/A	N/A	N/A	~~0.5/5min~~	VERY
12	8:34	N/A	N/A	N/A	~~0.5/5min~~	VERY
43	8:40	N/A			~~0.5/5min~~	VERY
14 ← Well Dry	8:47				~~0.5/5min~~	VERY
2	← Recharge					
45	9:48				~~0.5/5min~~	VERY
46 ← Well Dry	9:54	← Recharge			0.5/ ~~5min~~	VERY
8 ← Well Dry	10:45	← Recharge			NA	slight to mod.
10.5 ← DRY (6)	5:50 PM				N/A	slight-mod.
12.5 6/9/06	15:00	(4 gallons)	dry NA	NA	Bail	Turbid
18.5 6/10/06 DRY	1545				NA Bail	

Notes:

- Well Developed with Bailer
- well went dry after 4, 6, 8 well volumes. Allowed to recharge in between.

10.5 (KM 5/17/06)

6/10/06 - WL @ 30.3 BTOC 1428 Notes: 1st Bailer Cloudy, Rust Red/BN Turbidity + Minor sediments DCN 5083

Well Developers Signature: [signature]

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Well Development Record

Well No.: OW-617.

Project No.: 6234-06-3534	Logged By: Bill Sharp	
Client Name: Bechtel	Project Name: SCE+G COL	Checked By: MFC
Well Installation Date: 5/24/06	Start Date: 5-29-06	Finish Date: 6/10/06
Well Development Date: 5-29-06	Start Time: 1015	Finish Time: 1430
Initial Water Level (ft.): 100.97' btoc (3' stick up)		
Water Level during **Initial** Pumping/Purging (ft).: 100.97	100.95 (6/09/06)	
Water Level at **Termination** of Pumping/Purging (ft).: DRY		
Weather:		

Height of Water Column: 5.43 (ft.)

5.43 x 0.16 gal./ft. (2 in.) = 0.9 gal./ft. (____ in.) Well Volume (gal.)

_____ 0.65 gal./ft. (4 in.)

_____ 1.5 gal./ft. (6 in.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1030					brown/ muddy
DRY → tagged	w.l. @ 105.38 after bailing dry - 1st					recharge
DRY → 2	1500	bailed dry after	well fully		recovered	brown/ muddy
DRY → 3	1515	bailed	1 gallon			Very turbid
3.75	1430				Bail	Cloudy to Turbid
DRY → 6/10/06						

Notes: t.d. 106.40' btoc (3' stick up)
Tagged WL @101' BTOC 6/10/06
Notes: 6/10/06 1st Bailer Cloudy-Clear. 2nd + 3rd Turbid w/ some sediment.

Well Developers Signature: Bill Sharp

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCM 5083

Well Development Record

Well No.: OW-C18

Project No.: 6234-06-3534	Logged By: KYLE MILLER		
Client Name: BECHTEL	Project Name: VC SUMMER		Checked By: mfc
Well Installation Date: 5/12/06	Start Date: 5/17/06		Finish Date: ~~5/17/06~~ 6/9/06 mfc
Well Development Date: 5/17/06 - 6/9/06	Start Time: 11:50 AM		Finish Time: 12:35 PM
Initial Water Level (ft.): 7.0 (TOC)	32.7 TD (TOC)		
Water Level during **Initial** Pumping/Purging (ft).: 7.0			
Water Level at **Termination** of Pumping/Purging (ft).: 6.9	7.10	6/09/06	
Weather: P. CLOUDY ~80's (°F)			

Height of Water Column: 5.7 (ft.)

✓ 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
0.16 gal./ft. (2 in.) = 4.11 Well Volume (gal./ft.)

Number of Well Volumes: Total gallons	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
4.5	11:50 AM	NA	NA	NA	Bail	Mod.
DRY → 6.0 gal	12:00	NA	NA	NA	pump 1g/1min	Mod (Dry)
DRY → 5.0 gal	12:15 PM	N/A	N/A	NA	Pump 3g/3min	Slight-Mod (Dry)
6.0 gal	12:35 PM	N/A	N/A	NA	Pump 5g/3min	Slight-Mod (Dry)
12 gal	17:05 6/9/06	NA	NA	NA	0.25	Clear

Notes: WELL DEVELOPED WITH BAILER, THEN PUMP WAS USED TO PURGE THE 2ND, 3RD, AND 4TH TIMES

DCN 5083

Well Developers Signature: _____

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

Well Development Record

Project No.: 6234-06-3534	Logged By: JR Harmon	Well No.: 619
Client Name: SCE&G	Project Name: SCE&G COL	Checked By: MFC
Well Installation Date: 5/28/06	Start Date: 6/6/06	Finish Date: 6/9/06
Well Development Date: 6/6/06	Start Time: 1430	Finish Time: 1430

Initial Water Level (ft.): NA (see note 1)

Water Level during **Initial** Pumping/Purging (ft).: DRY Added Water See Below

Water Level at **Termination** of Pumping/Purging (ft).: See Below.

Weather:

Height of Water Column: ____ (ft.) x ____ 0.16 gal./ft. (2 in.) ____ 0.65 gal./ft. (4 in.) ____ 1.5 gal./ft. (6 in.) ____ gal./ft. (____ in.) = ____ Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
6/6/06	1430	– Added 5 gals, bailed 2 bailers = clear to slighty Turbite				
	1445	– Added another 10 gals – Bailing, surging with bailer, bailing				
	1530	– Total 5 gals removed = muddy visible H_2O				
	1600	– Bailed 1 1/2 additional gallons = very muddy with ~~fines~~ Removing most of water from well (fines ok)				
	1605	– Added 4 gal potable H_2O. Let sit overnight				
6/7/06	~~1500~~ (GP)	1545 – 1600 Bailed 4 gals. Dry.				
6/9/06	1430	Bailed 3/4 gallon first Bailer clear rest Turbid (Dry) Let stand over weekend				

Notes:

① Cook & Day could not get a WL Reading at 1100. WL meter to ~97', well Depth 106' from stick up. Tag Tap slight wet bottom ~5 ft of well depths.

*Water added to well per instructions from Bechtel Rep. Garrett Day. Put in 14 gallons. Removed ~11.5 gallons total went dry each day of Bailing

FIGURE 9

Well Developers Signature: [signature]

Graphics\Misc.\Forms — MACTEC Engineering and Consulting, Inc.

DCN 5083

Well Development Record

Well No.:	OW-620
Project No.: 6234-06-35345	Logged By: CookO/Brnco
Client Name: Bechtel	Project Name: SCF+G COL ~~mfc 5/14/06~~
Checked By: mfC	
Well Installation Date: 5/1/06	Start Date: ~~5/14/06~~
Finish Date: 5/14/06	
Well Development Date: 5/14/06	Start Time: 1045
Finish Time: 1430	

Initial Water Level (ft.): 39.7 (TWD = 75.4)

Water Level during **Initial** Pumping/Purging (ft).: 39.7

Water Level at **Termination** of Pumping/Purging (ft).: 38.3

Weather: Partly Cloudy ~70s

~~Height of Water Column: 35.7 (ft.) 35.7 x 0.16 gal./ft. (2 in.) 0.65 gal./ft. (4 in.) 1.5 gal./ft. (6 in.) 35.7 gal./ft. (____ in.) = ________ Well Volume (gal./ft.)~~ mfC 5/14/06

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity ~~(NTU's):~~ (visual)
1	1120	NA	NA	NA		Cloudy
2	1125	NA	NA	NA	1.25	Cloudy
3	1128	NA	NA	NA	1.25	Cloudy
4	1132	NA	NA	NA	1.25	Cloudy
6	1139	NA	NA	NA	1.25	Mod. Cloudy
8	1147	NA	NA	NA	1.25	Mod. Cloudy
12	1204	NA	NA	NA	1.25	Mod. Cloudy
14	1217	NA	NA	NA	1.25	Mod Cloudy
28	1430	NA	NA	NA	1.25	Clear

Notes: 2" Well Vol Initial = $\frac{\pi(0.17)^2}{4} \times 35.7 = 0.78\ ft^2$ = 5.82 gallons

Bailed ~3 gallons from Well, then began pumping with SS. Monsoon 12 Volt pump. Surged with pump periodically by lifting up and down.

Well Developers Signature: [signature]

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

DCN 5C83

Well Development Record

Well No.: OW-621A

Project No.: 6234-06-3534	Logged By: Bill Sharp/MFC		
Client Name: SCE+G Bechtel COL	Project Name: SCE+G COL	Checked By: MFC	
Well Installation Date: 5-26-06	Start Date: 5-27-06	Finish Date: 6/9/06	
Well Development Date: 5-27-06	Start Time: 1005	Finish Time: 1545	

Initial Water Level (ft.): 69.88' btoc (2.3' stick up) t.d. 99.30' btoc

Water Level during **Initial** Pumping/Purging (ft).: 69.88 btoc

Water Level at **Termination** of Pumping/Purging (ft).:

Weather: Sunny 90s WTS 5-29-06

99.3' t.d - 69.88 (w.l) ~~- 2 sump~~ = 29.4' water column

Height of Water Column: 29.4 (ft.)

29.4 x 0.16 gal./ft. (2 in.)
x 0.65 gal./ft. (4 in.)
1.5 gal./ft. (6 in.)
0.16 gal./ft. (in.) = 4.7 Well Volume (gal.)

WTS 5-29-06 4.7

191.75
6-7-6
915am
hard bottom
96.55
BGS

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1030				Bail	Moderate
1.5	1045				Bail	Moderate
5-28-06 2.0*	0950				Bail	brown/turbid
*bailed dry after 1.5 well volumes on 5-27-06	dry after bailing	bailing on 5-28-06 at 0820	≈ 2.5 gallons first thing	1210		5-28-06 morning
- measured w.l. @ 91.44	w.l. on 5-29-06 @ 0908 (recovered ≈ 0.5' in ≈ 23 hours)	5-29-06 ≈ 0.5'	after almost 23 hours of recovery until dry - tagged w.l. @ 98.3' btoc @ 0918 w.l. 97.7' (recovered			91.93' btoc
- measured w.l. @ 91.44 bailed immediately after bailing dry - measured rate of recovery 0.6' in 6 minutes, ≈ 0.1' /min)	≈ 1.3 gallons of water from					on 5-29-06
6/7/06 1400 1 gallon	1400-1430	NA	NA	NA	NA	Moderate
1545						

Notes: Bailed well dry after 1.5 well volumes on 5-27-06; tagged w.l. after bailing 1.5 well volumes at 95.1' btoc

5-7-6 - begin pumping at 0928 in the morning - not enough water to fill tubing - can't pump

6/7/06 1400 GW @ 94.2 Below TOC; @ 1545 GW @ 97.05

DCN 5083

Well Developers Signature: Bill Sharp

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Page 1 of 2

Well Development Record

Well No.: ~~OW-627~~ OW-621A

Project No.: 6234-06-35345	Logged By: CookB	
Client Name: BECHTEL	Project Name: SCE+G COL	Checked By: MFC
Well Installation Date: 5/26/06	Start Date: 5/27/06	Finish Date: 6/9/06
Well Development Date: 5/27/06 →	Start Time: 500 Pg. 1	Finish Time: 1545

Initial Water Level (ft.): 94.2 BTOC on 6/7/06 (2.3' stickup) TWD = 99.4 BTOC

Water Level during **Initial** Pumping/Purging (ft).: 94.2

Water Level at **Termination** of Pumping/Purging (ft).: Dry

Weather:

Height of Water Column: 5.2 (ft.)

5.2 0.16 gal./ft. (2 in.)
x ____ 0.65 gal./ft. (4 in.)
____ 1.5 gal./ft. (6 in.)
0.83 gal./ft. (2 in.) = 0.83 Well Volume (gal./ft.)

Development 6/7/06 →

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1400	NA	NA	NA	NA	Moderate
Dry →						
2	1545	NA	NA	NA	NA	Moderate
Dry →						

Notes:

Water Column Ht = 99.4 - 94.2 = 5.2

6/9/06 - Tagged GW @ 98.9. Well not fully Recharged after development on 6/7/06. Only ~ 4" water in well. Allow to recharge for WL Round on 6/12.

Well Developers Signature: [signature]

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

OCIV 5083

Page 2 of 2

Well Development Record

Well No.: OW-621 B

Project No.: 6234-06-3534	Logged By: Bill Sharp		
Client Name: SLE+G Bechtel COL	Project Name: SLE+G COL		Checked By: mtc
Well Installation Date: 5-25-06	Start Date: 5-27-06		Finish Date: 5-27-06
Well Development Date: 5-27-06	Start Time: 0857		Finish Time: 0945
Initial Water Level (ft.): 50.5' bgs			
Water Level during **Initial** Pumping/Purging (ft).: 50.5			
Water Level at **Termination** of Pumping/Purging (ft).: 69.43			
Weather: Sunny			

Height of Water Column: 17.8 (ft.)

17.8 × 0.16 gal./ft. (2 in.) = 2.8 Well Volume (gal.)

_____ × 0.65 gal./ft. (4 in.)

_____ 1.5 gal./ft. (6 in.)

_____ gal./ft. (_____ in.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	0900				bail	moderate
2	0918				0.8	moderate
3	0922				0.8	moderate
4	0926				0.8	moderate
5	0930				0.8	moderate
6	0934				0.8	sl. turbid
7	0938				0.8	clear
8	0942				0.8	clear
9	0945				0.8	clear

Notes: Removed 1st well volume with bailer
Pumped a total of ~ 27 gallons
- Clear and free of sediment;
- used pump as a surge block, periodically raising and lowering pump

Well Developers Signature: Bill Sharp

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

DCN 5083

Well Development Record

Well No.: OW-622

Project No.: 6234-06-3534	Logged By: Bill Sharp		
Client Name: Bechtel	Project Name: SCE+G CoC		Checked By: MFC
Well Installation Date: 5-25-06	Start Date: 5-27-06		Finish Date: 6/7/06
Well Development Date: 5-27-06	Start Time: 1620		Finish Time: 0910

Initial Water Level (ft.): 44.90' btoc (1.2' stick up)

Water Level during **Initial** Pumping/Purging (ft).: 44.90' btoc 6/7/06 ▽ 45.1

Water Level at **Termination** of Pumping/Purging (ft).:

Weather: Sunny 90s

Height of Water Column: 14.85' (14.85 (ft.))

14.85 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
0.16 gal./ft. (____ in.) = 2.4 Well Volume (gal.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1630				ba.1	turbid/gray
2	1635				0.6	turbid/gray
3	1639				0.6	turbid/gray
4	1643				0.6	turbid/gray
5	1647				0.6	turbid/gray
6	1651				0.6	turbid/gray
7	1655				0.6	cloudy
9	831					Murky
11	839					Milky Cloudy
13	846	Surged well with Pump + turned Pump off				Murky
15	852					Milky Cloudy
17	857					milky Cloudy
19	910	turned pump off				cloudy/clear

6-7-06 (M. Harvey)

Notes: t.d. 59.75' btoc (1.2' stick up); bailed 1st well volume; tagged w.l. after purging 7 volumes @ 18.2' bgs (had ≈ 4 minutes to recover before I actually got w.l. tape down well)
- Surged well by raising and lowering pump repeatedly after each 5 gallons of water pumped.

Well Developers Signature: Bill Sharp

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN 5083

Well Development Record

Well No.: OW-623

Project No.: 6234-06-3534	Logged By: Bill Sharp	
Client Name: Bechtel	Project Name: SCE+G CoC	Checked By: MF CC 6/6/06
Well Installation Date: 5/26/06	Start Date: 5-28-06	Finish Date: ~~6/5/06~~ 6/5/06
Well Development Date: 5-28-06	Start Time: 1035	Finish Time:

Initial Water Level (ft.): 72.00' btoc (2.2' stick up)

Water Level during **Initial** Pumping/Purging (ft).: 72.00'

Water Level at **Termination** of Pumping/Purging (ft).:

Weather: Sunny; 90's

Height of Water Column: 19.80 (ft.) 19.80

x 0.16 gal./ft. (2 in.)
0.65 gal./ft. (4 in.)
1.5 gal./ft. (6 in.)
0.16 gal./ft. (____ in.) = 3.2 Well Volume (gal.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1035				ba.	brown/turbid
2	1056				0.8	moderate
3	1116				0.7	moderate
4	1122				0.6	slightly turbid
Surged well by raising and lowering pump several times						
5	1133				0.6	brown/turbid
6	1145	- pumped dry after 6 well volumes			0.5	brown/turbid
Lod to leave and pick up fully charged battery for pump - Low voltage on this one						
w.l. after recovering ≈ 1.75 hrs @ 73.4' btoc						
7	1335				0.7	brown/turbid
8	1340				0.6	milky
9	1352	Surged pump up and down			0.5	brown/turbid
10	1409	surged pump up and down			0.6	moderate
well pumped dry		after 10 well volumes				

Notes: t.d. 91.8' btoc (2.2' stick up) -
on 5-28-06 measured recharge rate - w.l. recovered from 86.2' to 84.3' in ≈ 12 minutes (≈ 1' recovery every 6 minutes)
* PUMPED 4.5 MORE WELL VOLUMES, WELL PRODUCED SLIGHTLY TURBID WATER
CEG 6/5/06

Well Developers Signature: Bill Sharp

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN 5083

Well Development Record

Well No.: OW-624.

Project No.: 6234-06-3534	Logged By: Bill Sharp	
Client Name: Bechtel	Project Name: SCE+G COL	Checked By: mfc
Well Installation Date: 5/24/06	Start Date: 5-28-06	Finish Date: 6/9/06
Well Development Date: 5-28-06	Start Time: 1550	Finish Time: 0935
Initial Water Level (ft.): 55.22' btoc (0.8' stick up) 57.6 (6/8/06)		
Water Level during **Initial** Pumping/Purging (ft).: 55.22		
Water Level at **Termination** of Pumping/Purging (ft).:		
Weather:		

Height of Water Column: 1.23' (ft)
1.23' 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
0.16 gal./ft. (2 in.) = 1.1 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1605				bail	gray/turbid
1.50	1615				bail	gray/turbid
well	bailed dry	after	≈ 1.5 Well	Volumes	bail	
2.5	1545	NA	NA	NA	bail	slight (1st 1/2 gallon) to moderate
3.5	0935	NA	NA	NA	bail	Same

6/8/06 DRY
6/09/06 Dry

Notes: T.d. 62.45' btoc (0.8' stick up)
Tagged GW @ 59.96 BTOC 6/9/06. Well not fully Recharged after development on 6/8/06. Let well recharge for WL Read on 6/12/06

Well Developers Signature: Bill Sharp/MACTEC

FIGURE 9

MACTEC Engineering and Consulting, Inc.

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DCN SC 83

Well Development Record

Well No.: OW-625

Project No.: 6234-06-3534	Logged By: Bill Sharp / M. Cooke		
Client Name: Bechtel	Project Name: SCE+G COL		Checked By: MFC
Well Installation Date: 5/23/06	Start Date: 5-25-06		Finish Date: 6/8/06
Well Development Date: 5-28-06	Start Time: 1510		Finish Time: 1345

Initial Water Level (ft.): 89.24' btoc (3' stickup) 89.4 (6/8/06)

Water Level during **Initial** Pumping/Purging (ft).: 89.24' btoc

Water Level at **Termination** of Pumping/Purging (ft).: 90.8 6/8/00

Weather: Sunny 90s

Height of Water Column: 19.56' (ft.)

19.56 × 0.16 gal./ft. (2 in.) = 3.1 Well Volume (gal.)

0.65 gal./ft. (4 in.)

1.5 gal./ft. (6 in.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1535	NA	NA	NA	bail	brown/turbid
3 (6/8/06 ↓)	1200	NA	NA	NA	0.75	Moderate
7	1220	NA	NA	NA	0.75	Slight-Cloudy
8	1230	NA	NA	NA	0.75	slight to clear
18	1345	NA	NA	NA	0.75	Slightly Cloudy

Notes: t.d. 110.80' btoc (3' stickup); bailed 1st well volume with bailer

Pumped 17 Volumes with Pump. Raised and lowered pump during purge to surge filter Pack. Turned pump on and off to allow water to fall into well and surge filter Pack MFC 6/8/06

Well Developers Signature: Bill Sharp / [illegible]

FIGURE 9

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

DCN SC 83

Well Development Record

Well No.: OW-626

Project No.: 6234-06-3534	Logged By: C Bruce / M. Cooke		
Client Name: Bechtel	Project Name: SAE/6 Col Project		Checked By: mfc
Well Installation Date: 5/15/06	Start Date: 8:5/15/06		Finish Date: 5/15/06
Well Development Date: 5/15/06	Start Time: 8:40		Finish Time: 1500
Initial Water Level (ft.): 49.61	TD 85.31		
Water Level during **Initial** Pumping/Purging (ft).: ~~NA~~ mfc 5/22/06 49.61			
Water Level at **Termination** of Pumping/Purging (ft).: ~~NA~~ 49.8			
Weather: Clear warm mfc 5/16/06			

Height of Water Column: 35.7 (ft.)

_____ 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
0.16 gal./ft. (2 in.) = 5.7 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
6 gal 1	8:50	NA	NA	NA	0.5 Bail	Cloudy
Blow	Fuses	am	pump	when	setting up	Very high
10 gal 2*	11:00	NA	NA	NA	1 gal	Turbid
Dry						
16 gal 3	1400	NA	NA	NA	~0.5 gpm	Clear
Dry						
19 gal 3.5	1500	NA	NA	NA	~0.25	Clear
~~Dry~~						
End @	1500					

Notes:

* Dry @ 8 gallons turn pump down to 0.5 gpm
Dry @ 10 gallons Let stand (recover) for ~3 hours
Pumped Dry and allowed to Recover 3 times.

Well Developers Signature: [signature]

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

DCH SC 83

Well Development Record

Well No.: OW-627a

Project No.: 6234-06-3535	Logged By: C. BRUCE	
Client Name: Bechtel	Project Name: SCE & G Col Project	Checked By: MFC
Well Installation Date: 6/7/06	Start Date: 6/09	Finish Date: 6/10/06
Well Development Date: 6/09/06	Start Time: 1130	Finish Time: 1600

Initial Water Level (ft.): 14.9 6/10/06 GWE 80.1 BTOC

Water Level during **Initial** Pumping/Purging (ft).: 14.9 (6/9/06) 80.1 6/10/06

Water Level at **Termination** of Pumping/Purging (ft).: Dry.

Weather: Clear Warm

Height of Water Column: _____ (ft.)
_____ 0.16 gal./ft. (2 in.)
x _____ 0.65 gal./ft. (4 in.)
_____ 1.5 gal./ft. (6 in.)
_____ gal./ft. (_____ in.) = _____ Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	1130	NA	NA	NA	0.5 (Bail)	Turbid
15 dry	1340	NA	NA	NA	0.5 pump	Cloudy
15.3 (2 gal) dry	16:00	NA	NA	NA	0.01	Cloudy
3 gallons clear Dry	16:00	NA	NA	NA	Bail	Clear to Mod Turbid

Notes: Surged pump several times during initial (15 volume) development, water ~~would be~~ was turbid but cleared up fast.
Water level dropped to ±84 feet with very slow recovery
Bailed 3 gallons on 6/10/06, Well going dry. 1st 1/2 gallon clear. rest Mod. Turbid

Well Developers Signature: _____

FIGURE 9

Graphics\Misc.\Forms

MACTEC Engineering and Consulting, Inc.

DCN SC83

Well Development Record

Well No.: OW-627b

Project No.: 6234-06-35345	Logged By: C Bruce		
Client Name: Bechtel	Project Name: SCE&C Col Project		Checked By: mfc
Well Installation Date: 5/22/06		Start Date: 6/09/06	Finish Date: 6/10/06
Well Development Date: 6/09/06		Start Time: 1415	Finish Time: 1620
Initial Water Level (ft.): 12.55 / 25.25 (6/10/06) TD 58.6			
Water Level during **Initial** Pumping/Purging (ft).:			
Water Level at **Termination** of Pumping/Purging (ft).: 43.1 6/10/06			
Weather: Clear warm			

Height of Water Column: 46.05 (ft.)
✓ 0.16 gal./ft. (2 in.)
x ____ 0.65 gal./ft. (4 in.)
____ 1.5 gal./ft. (6 in.)
46.05 gal./ft. (2" in.) = 7.368 Well Volume (gal./ft.)

Number of Well Volumes:	Time:	Temperature:	pH:	Conductivity:	Approximate Pumping Rate (gal./min.):	Turbidity (NTU's):
1	14:15	NA	NA	NA	0.5 (bail)	Turbid
dry 2	14:30	NA	NA	NA	0.25	Turbid
3	15:30	NA	NA	NA	0.25	Turbid
dry 3.2 (1 gal)		NA	NA	NA	0.0	Turbid
6/10 5 gallons	1620	NA	NA	NA	Bail	Clear to cloudy

Notes:

Well Developers Signature: [signature]

FIGURE 9

MACTEC Engineering and Consulting, Inc.

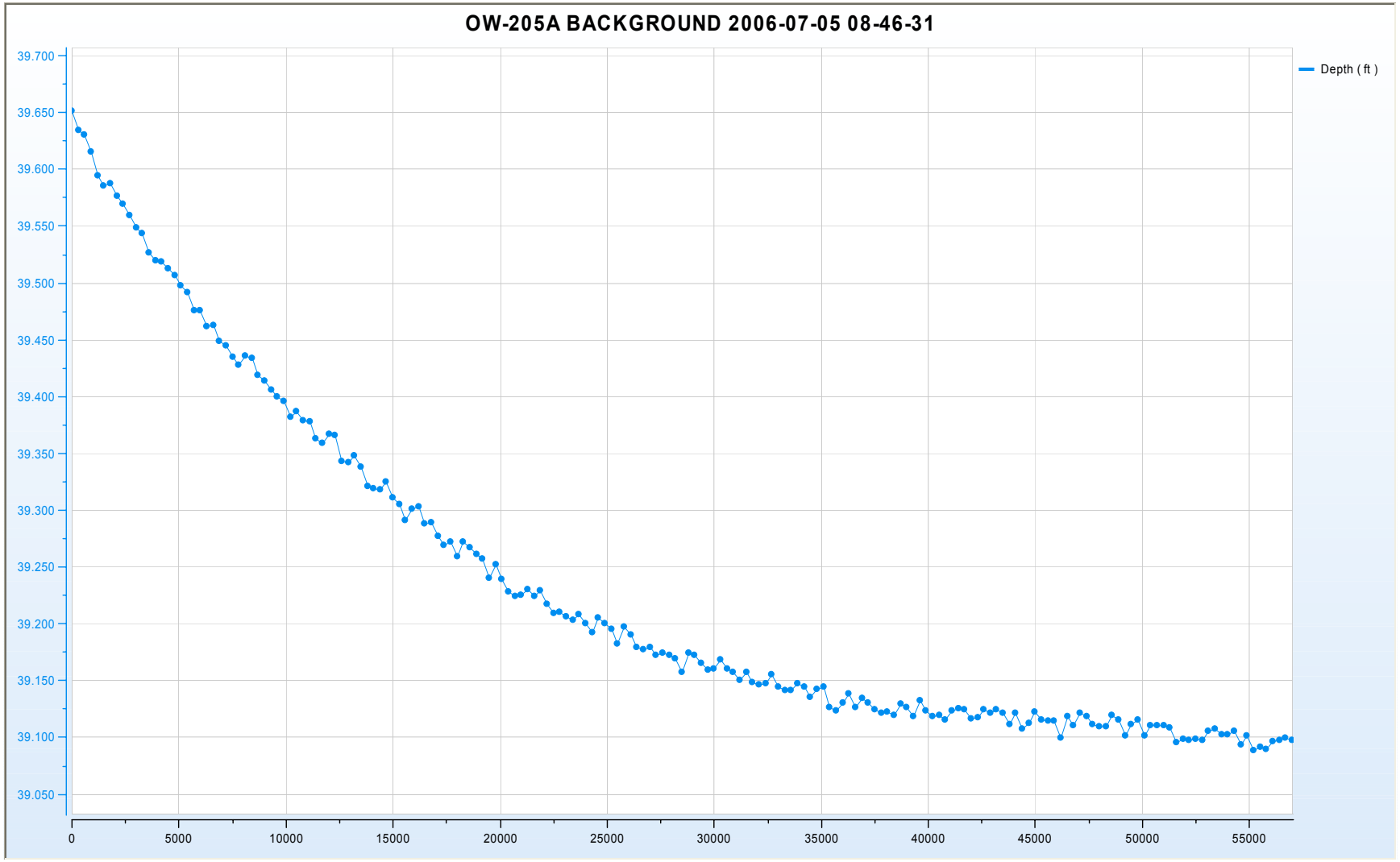
Graphics\Misc.\Forms

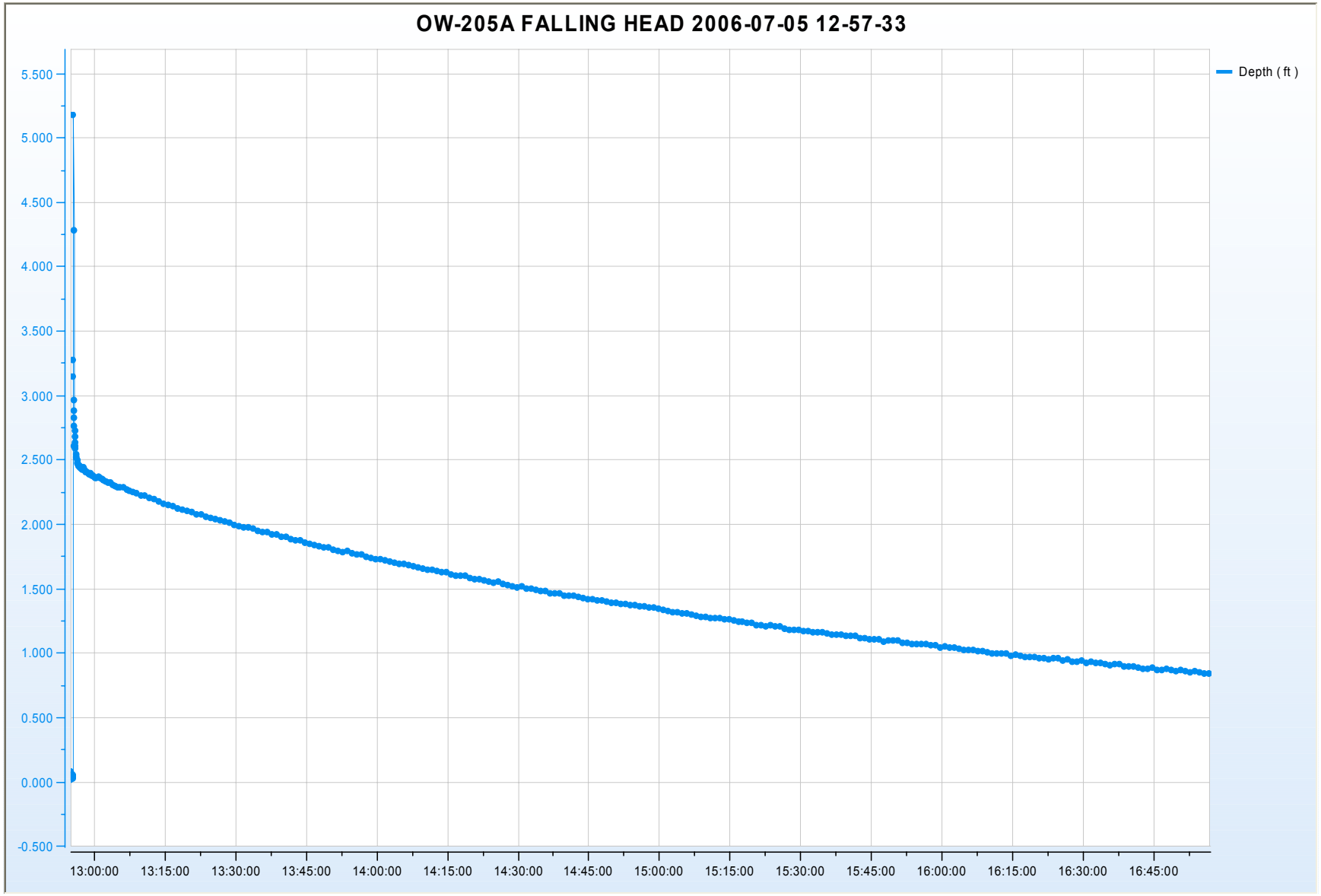
mfc 6/11/06
DCN 5083

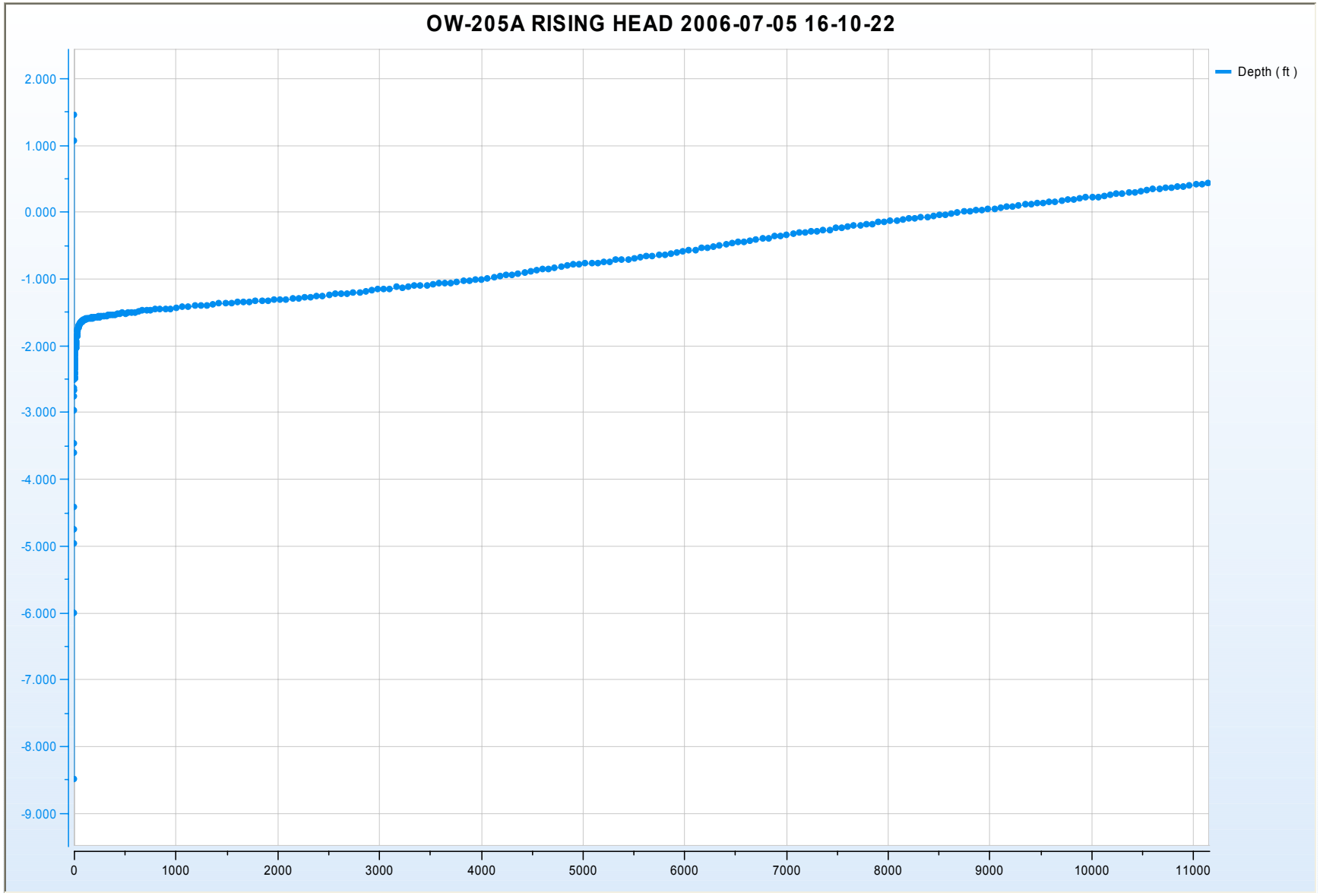
Final Report

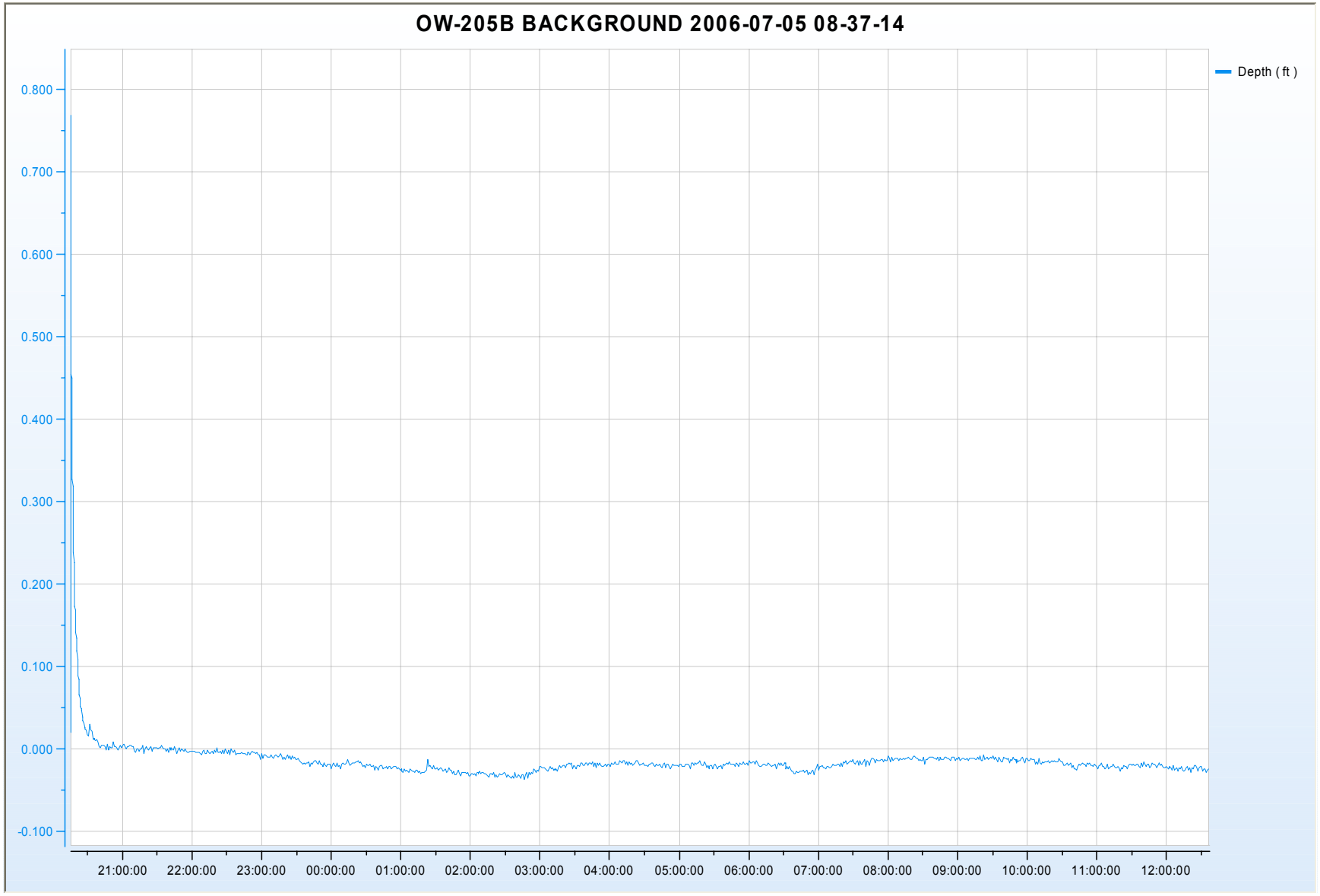
Appendix C-3

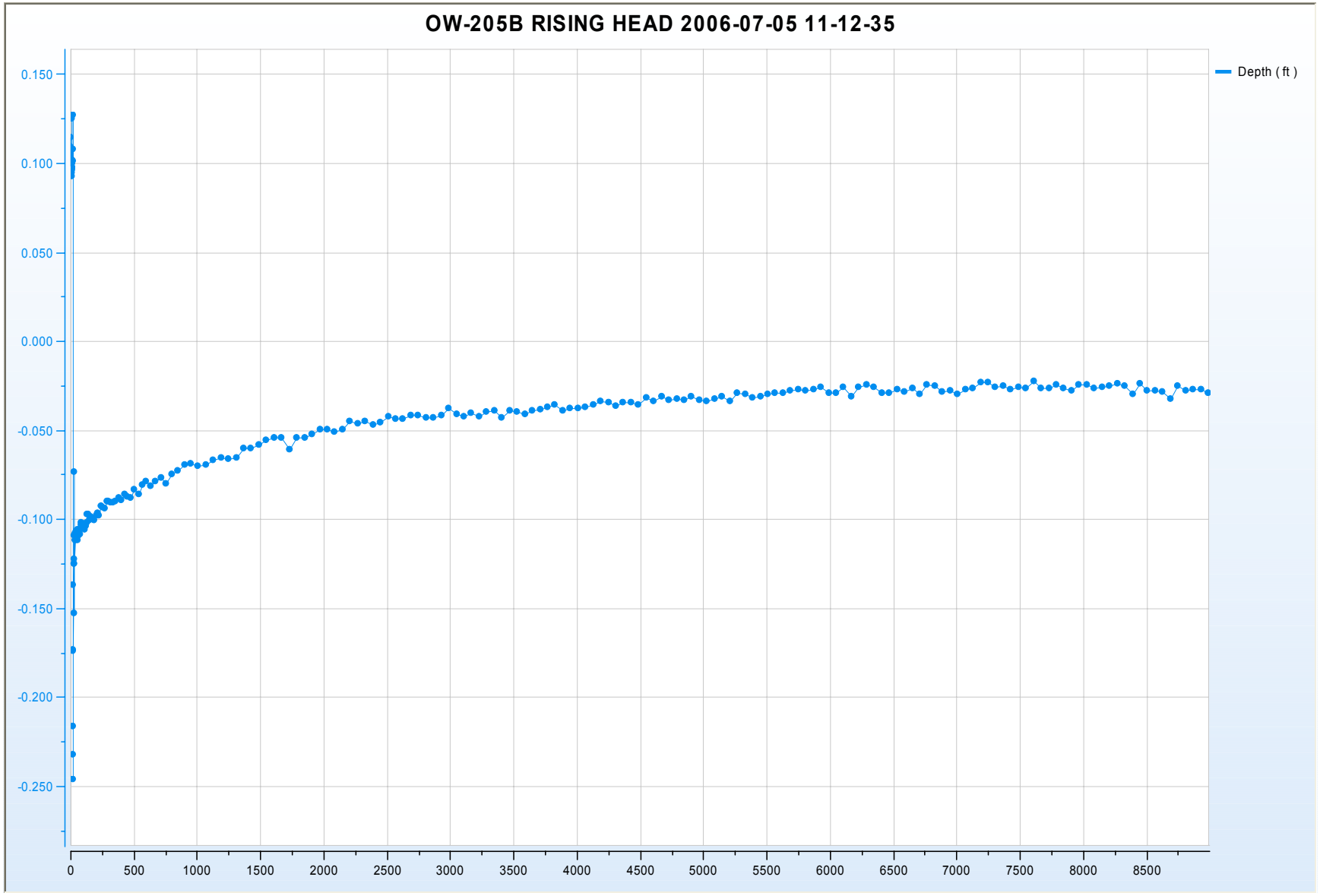
Slug Test Charts

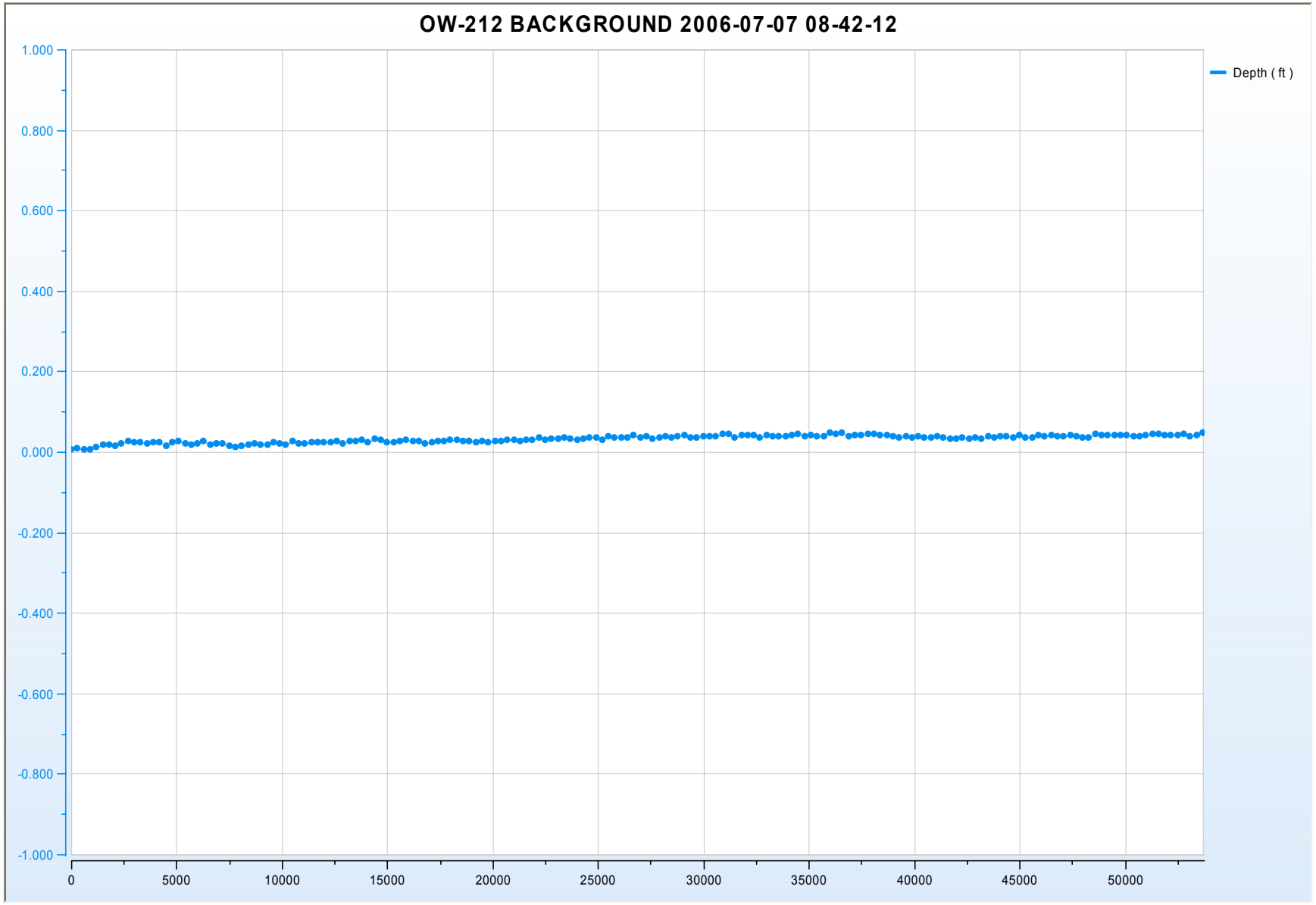

OW-205A BACKGROUND 2006-07-05 08-46-31
Depth (ft)
39.700
39.650
39.600
39.550
39.500
39.450
39.400
39.350
39.300
39.250
39.200
39.150
39.100
39.050
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
55000

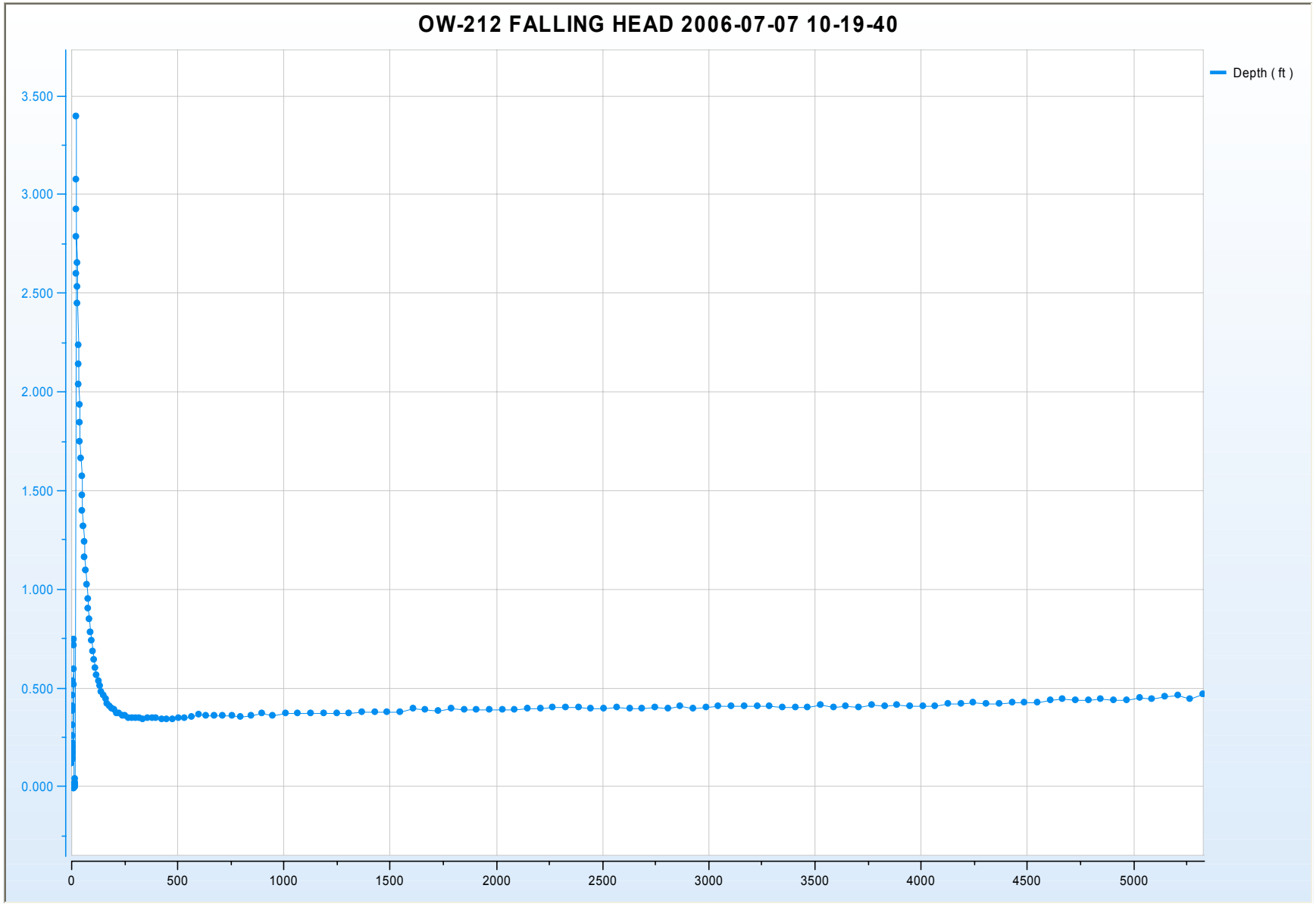

OW-205A FALLING HEAD 2006-07-05 12-57-33
Depth (ft)
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
13:00:00
13:15:00
13:30:00
13:45:00
14:00:00
14:15:00
14:30:00
14:45:00
15:00:00
15:15:00
15:30:00
15:45:00
16:00:00
16:15:00
16:30:00
16:45:00

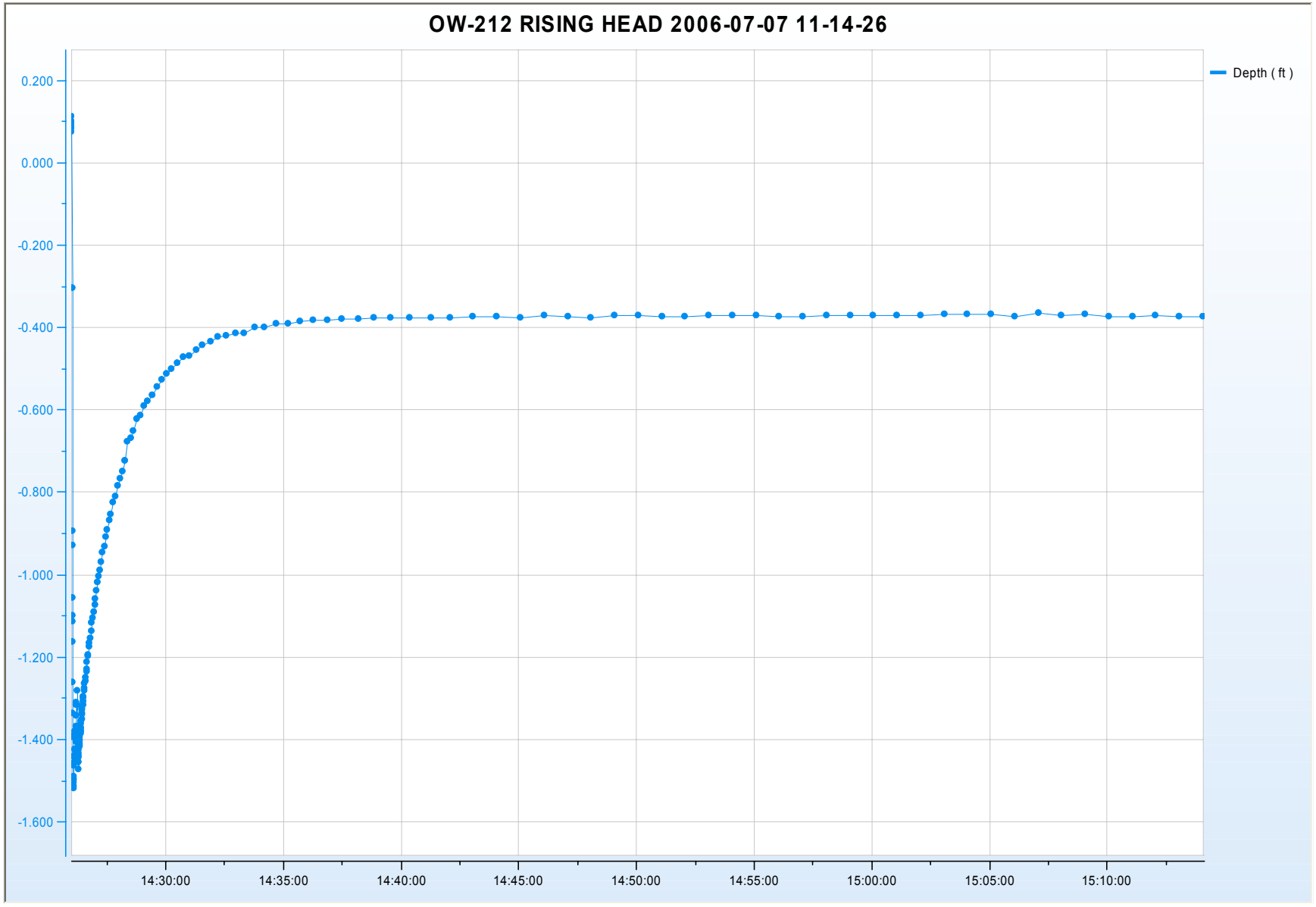

OW-205A RISING HEAD 2006-07-05 16-10-22
Depth (ft)
2.000
1.000
0.000
-1.000
-2.000
-3.000
-4.000
-5.000
-6.000
-7.000
-8.000
-9.000
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000

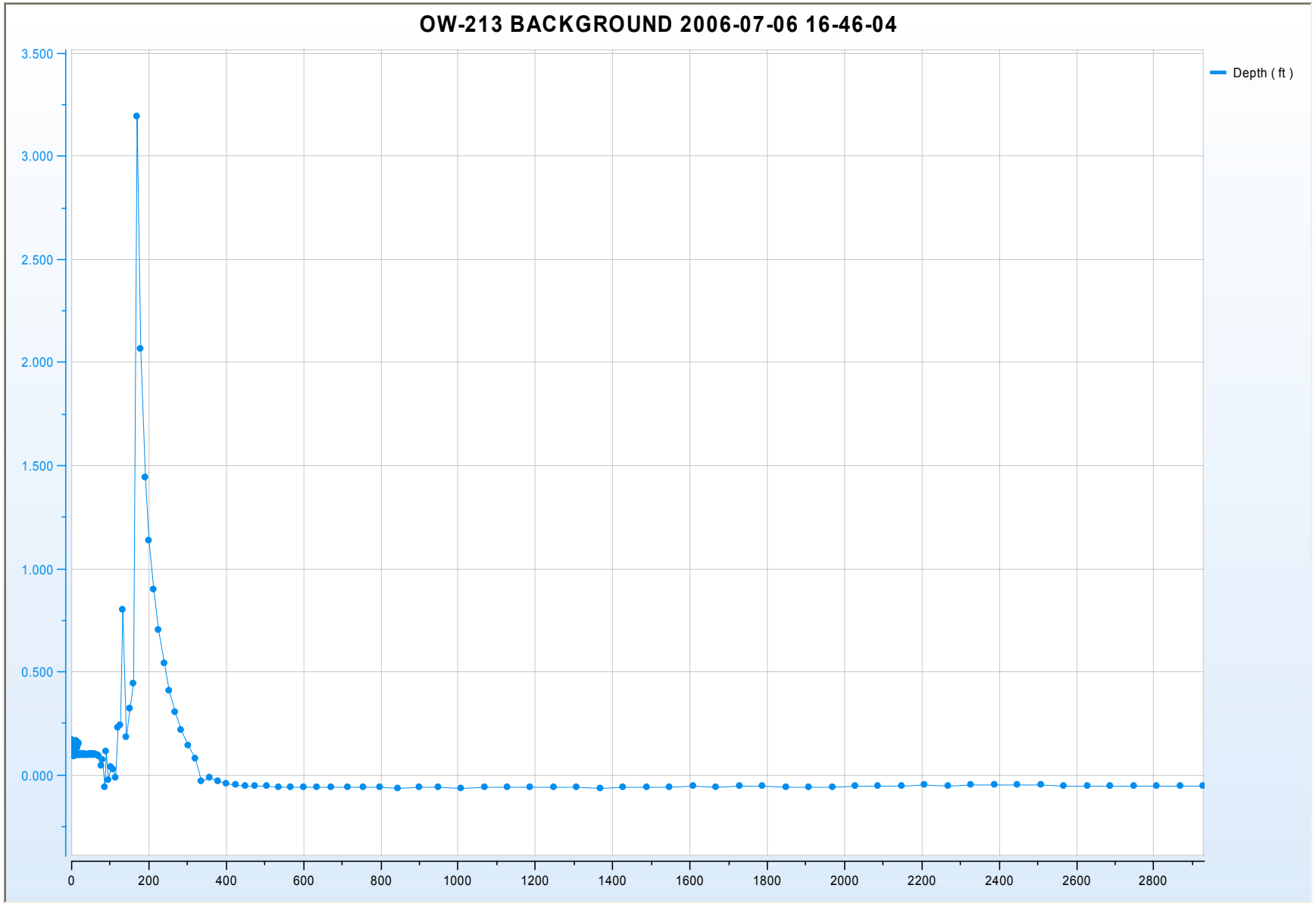

OW-205B BACKGROUND 2006-07-05 08-37-14
Depth (ft)
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
21:00:00
22:00:00
23:00:00
00:00:00
01:00:00
02:00:00
03:00:00
04:00:00
05:00:00
06:00:00
07:00:00
08:00:00
09:00:00
10:00:00
11:00:00
12:00:00

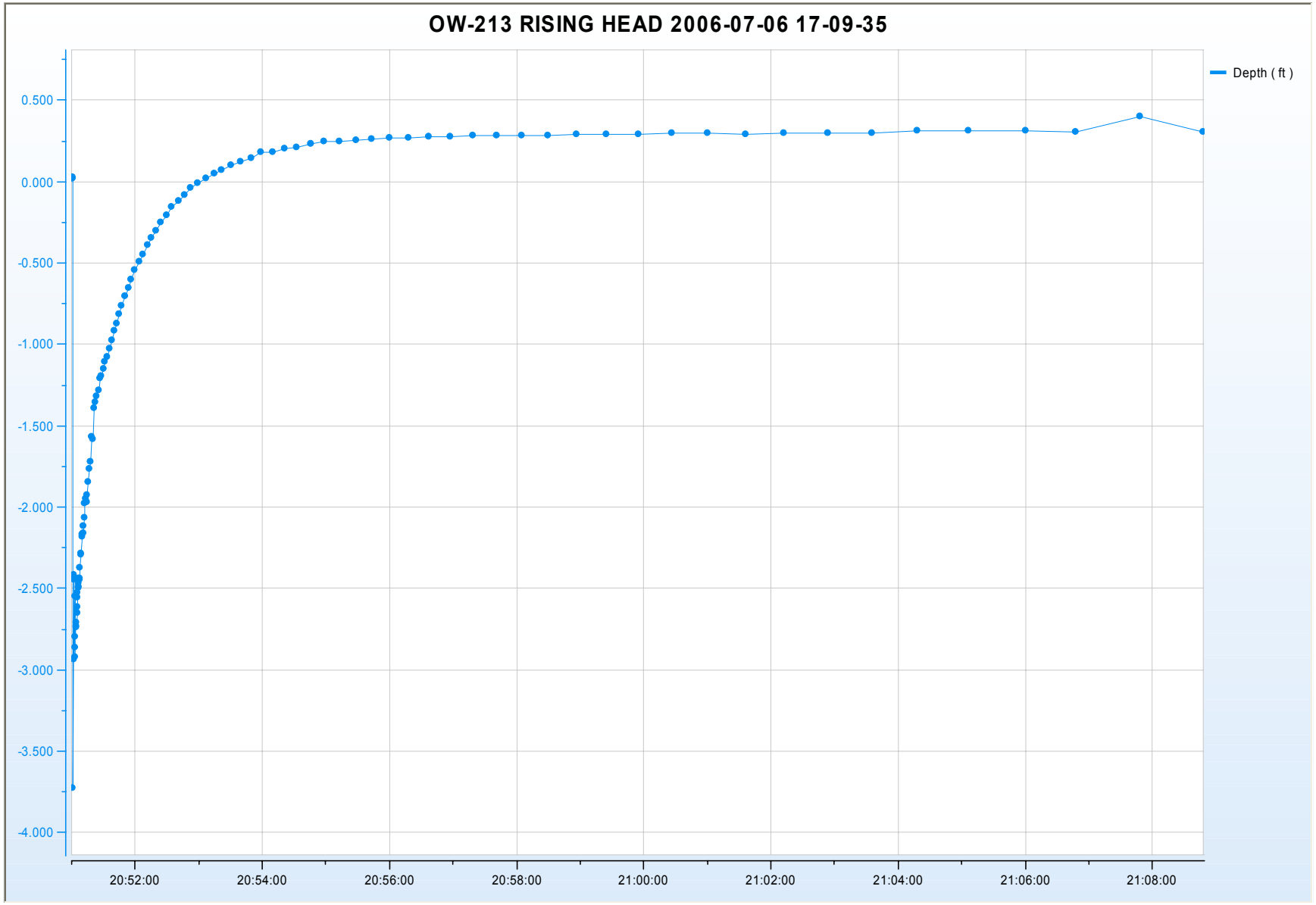

OW-205B RISING HEAD 2006-07-05 11-12-35
Depth (ft)
0.150
0.100
0.050
0.000
-0.050
-0.100
-0.150
-0.200
-0.250
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500

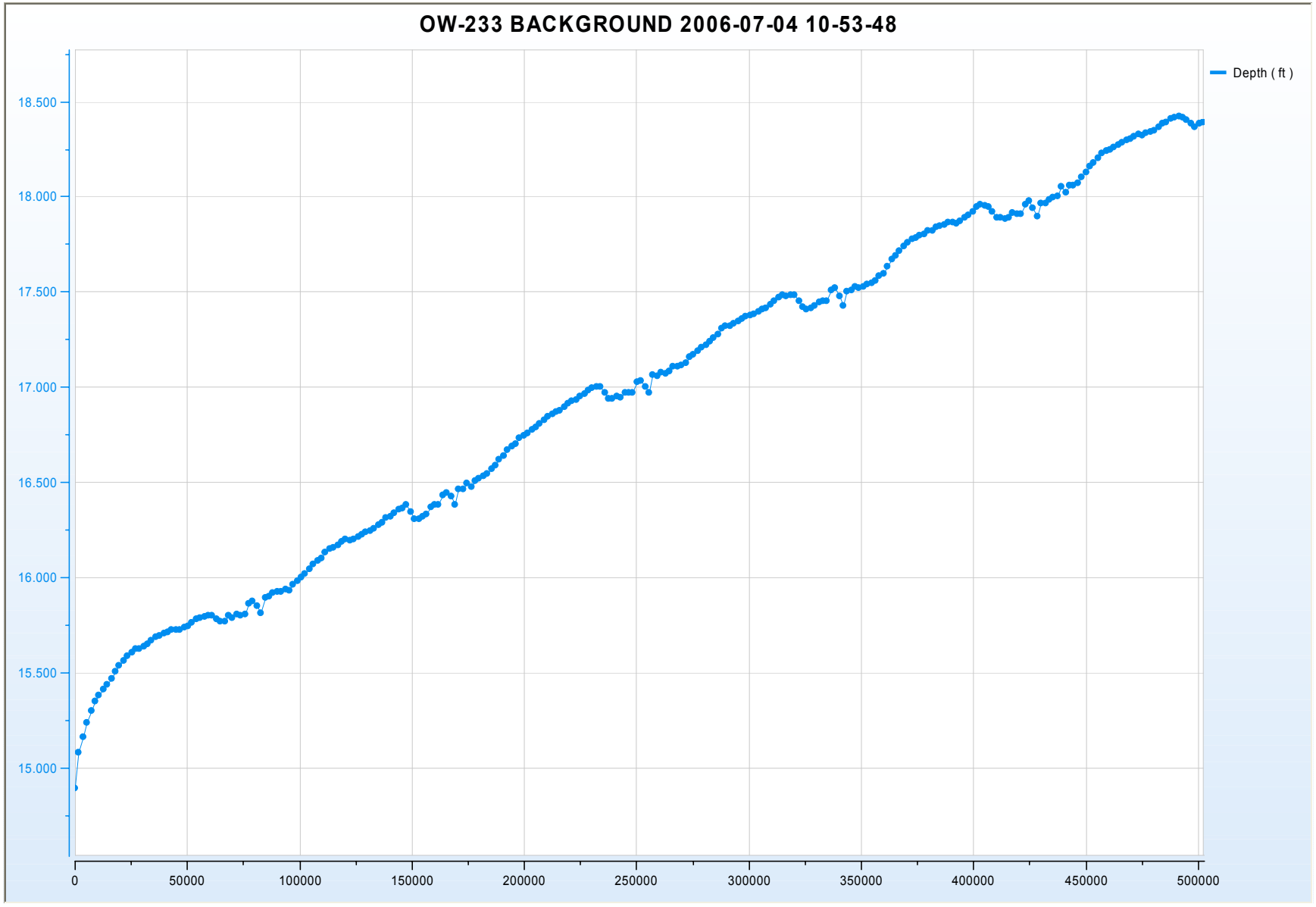

OW-212 BACKGROUND 2006-07-07 08-42-12
Depth (ft)
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000

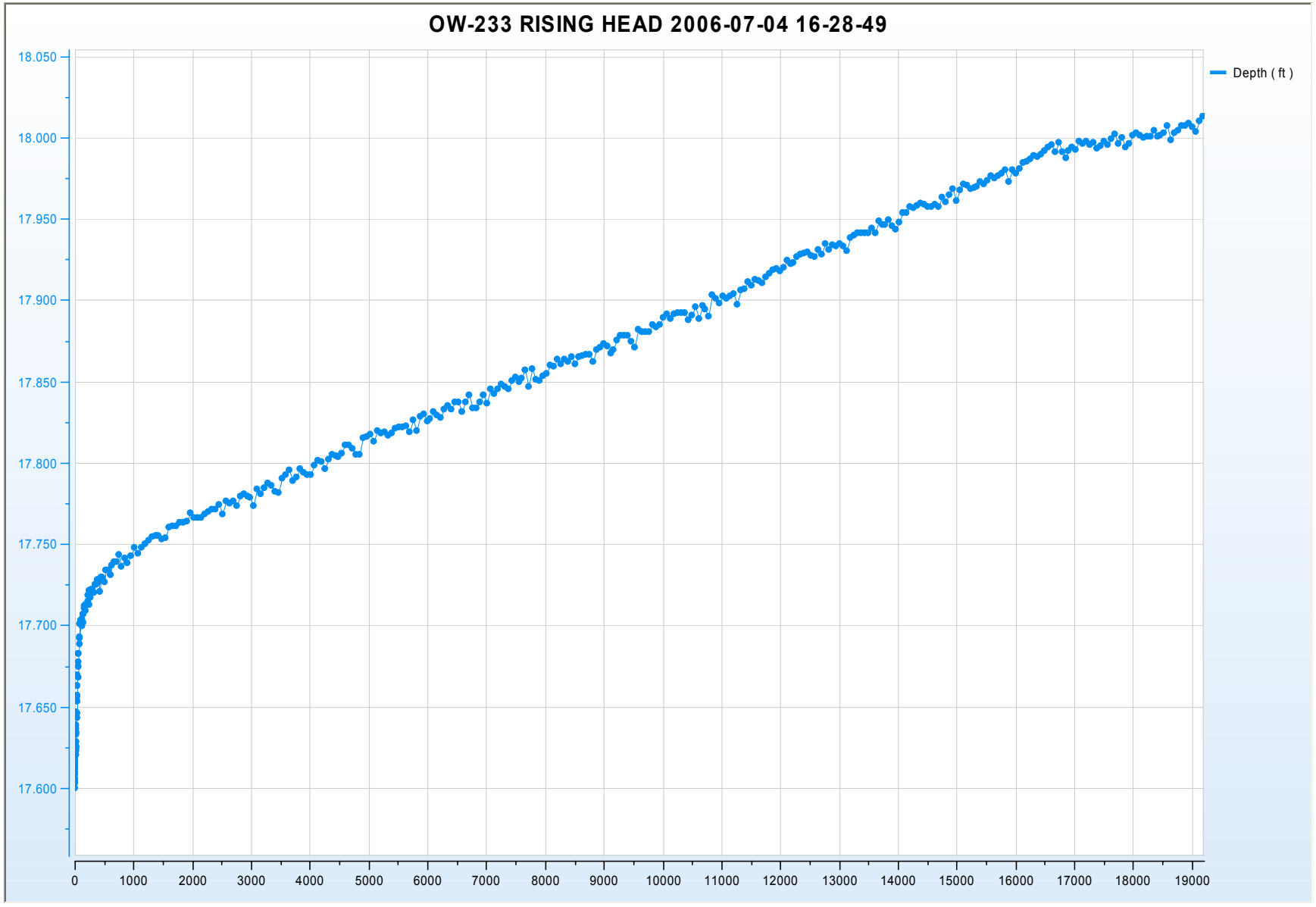

OW-212 FALLING HEAD 2006-07-07 10-19-40
Depth (ft)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000

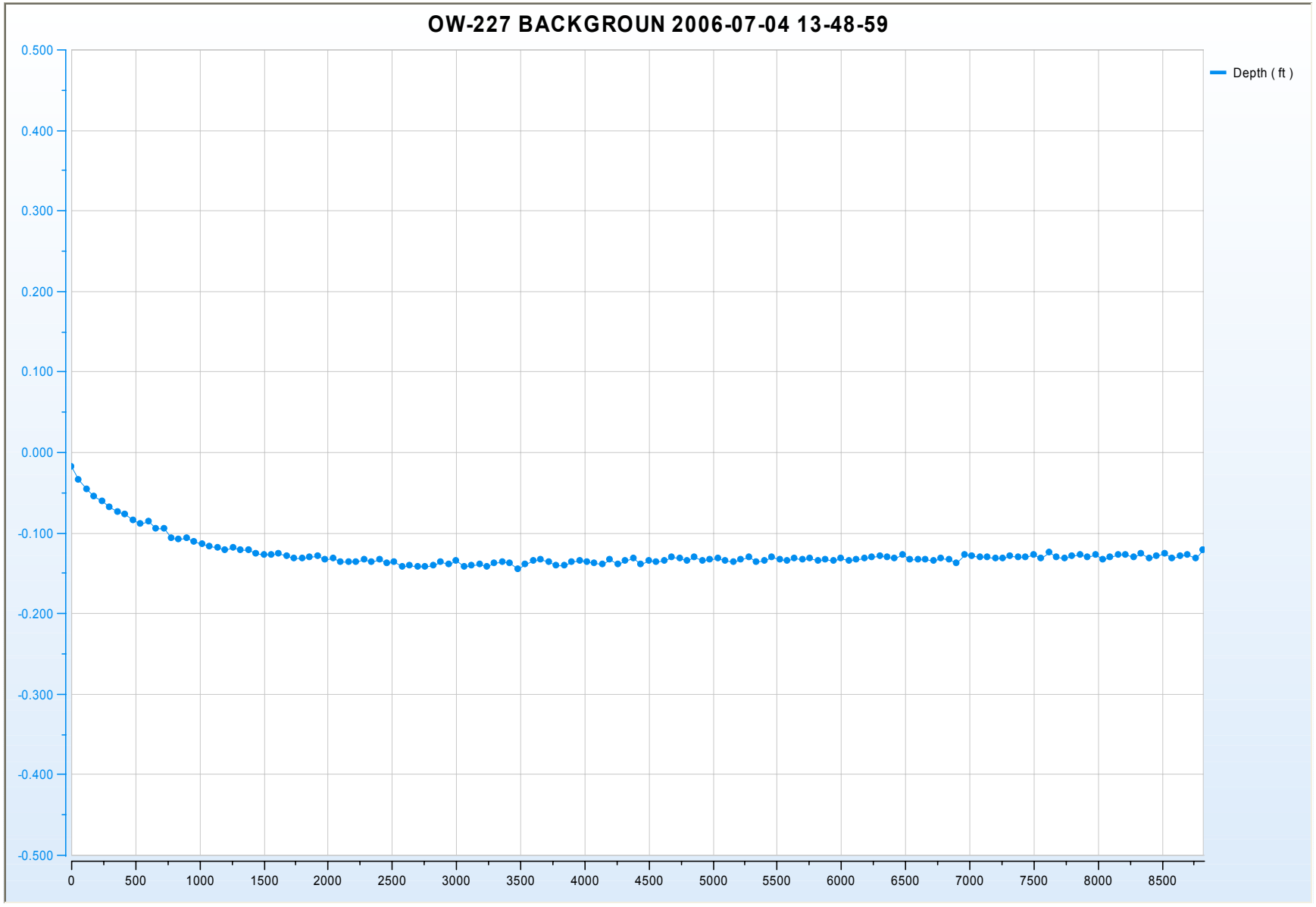

OW-212 RISING HEAD 2006-07-07 11-14-26
Depth (ft)
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
-1.200
-1.400
-1.600
14:30:00
14:35:00
14:40:00
14:45:00
14:50:00
14:55:00
15:00:00
15:05:00
15:10:00

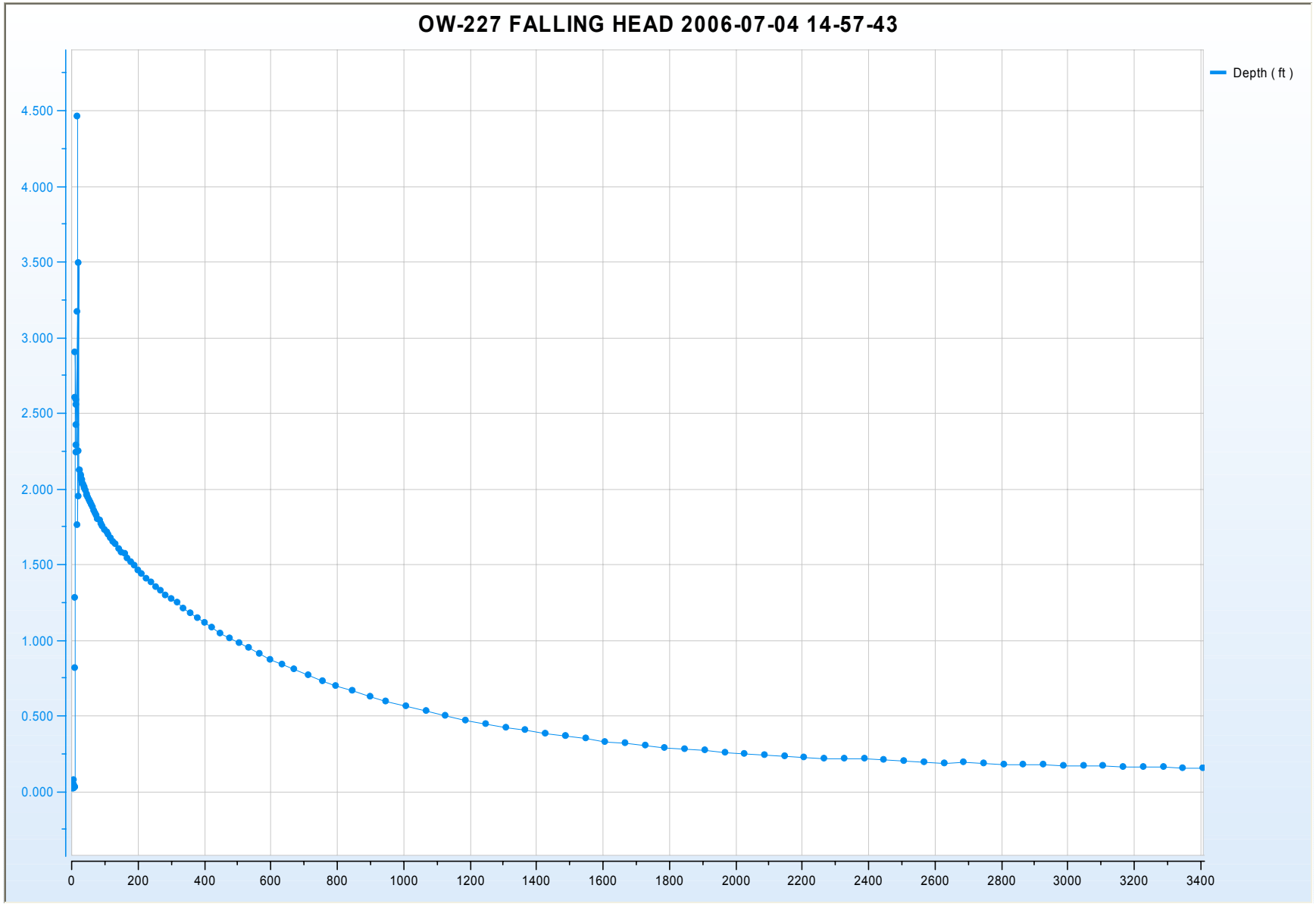

OW-213 BACKGROUND 2006-07-06 16-46-04
Depth (ft)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800

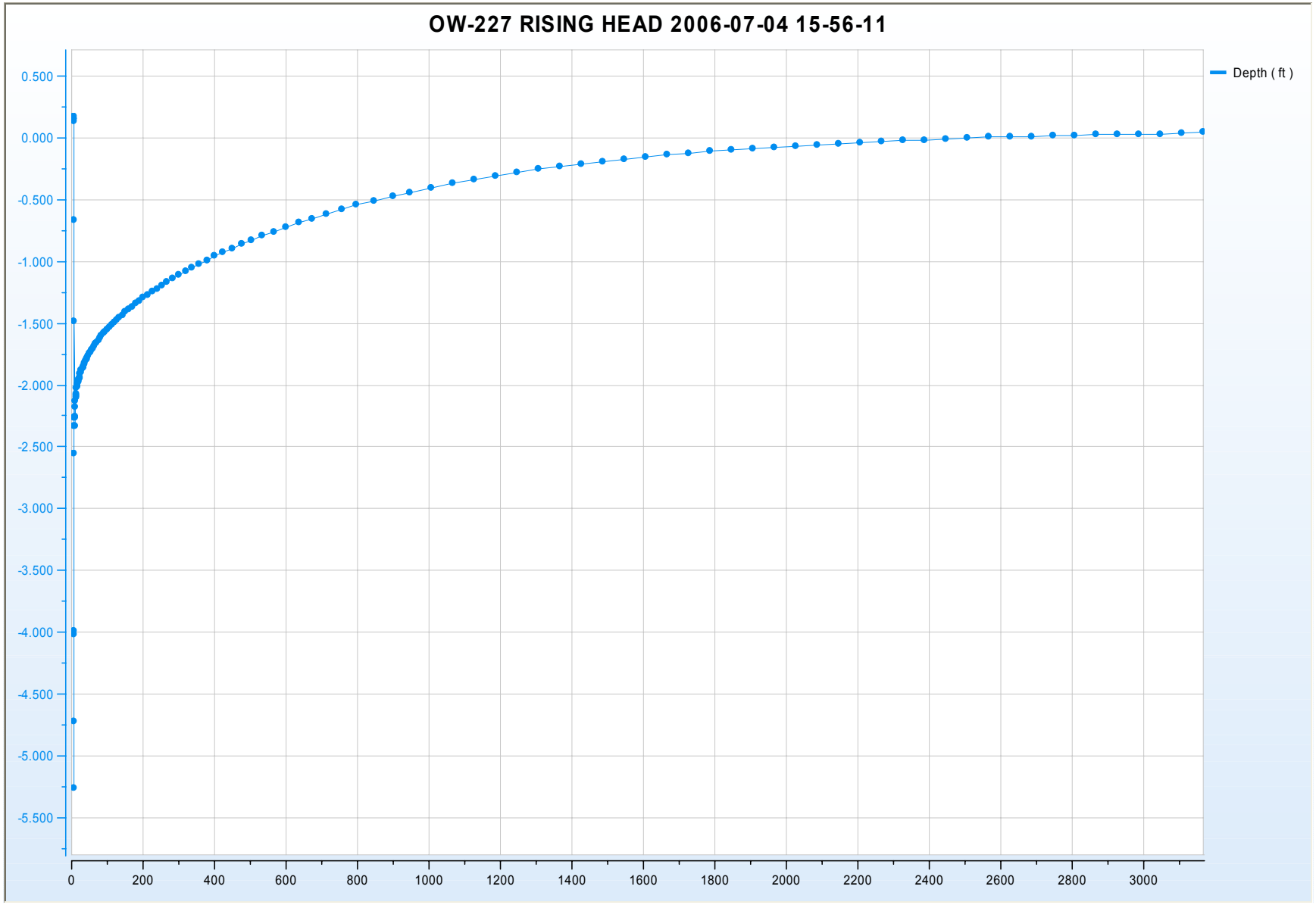

OW-213 RISING HEAD 2006-07-06 17-09-35
Depth (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
20:52:00
20:54:00
20:56:00
20:58:00
21:00:00
21:02:00
21:04:00
21:06:00
21:08:00

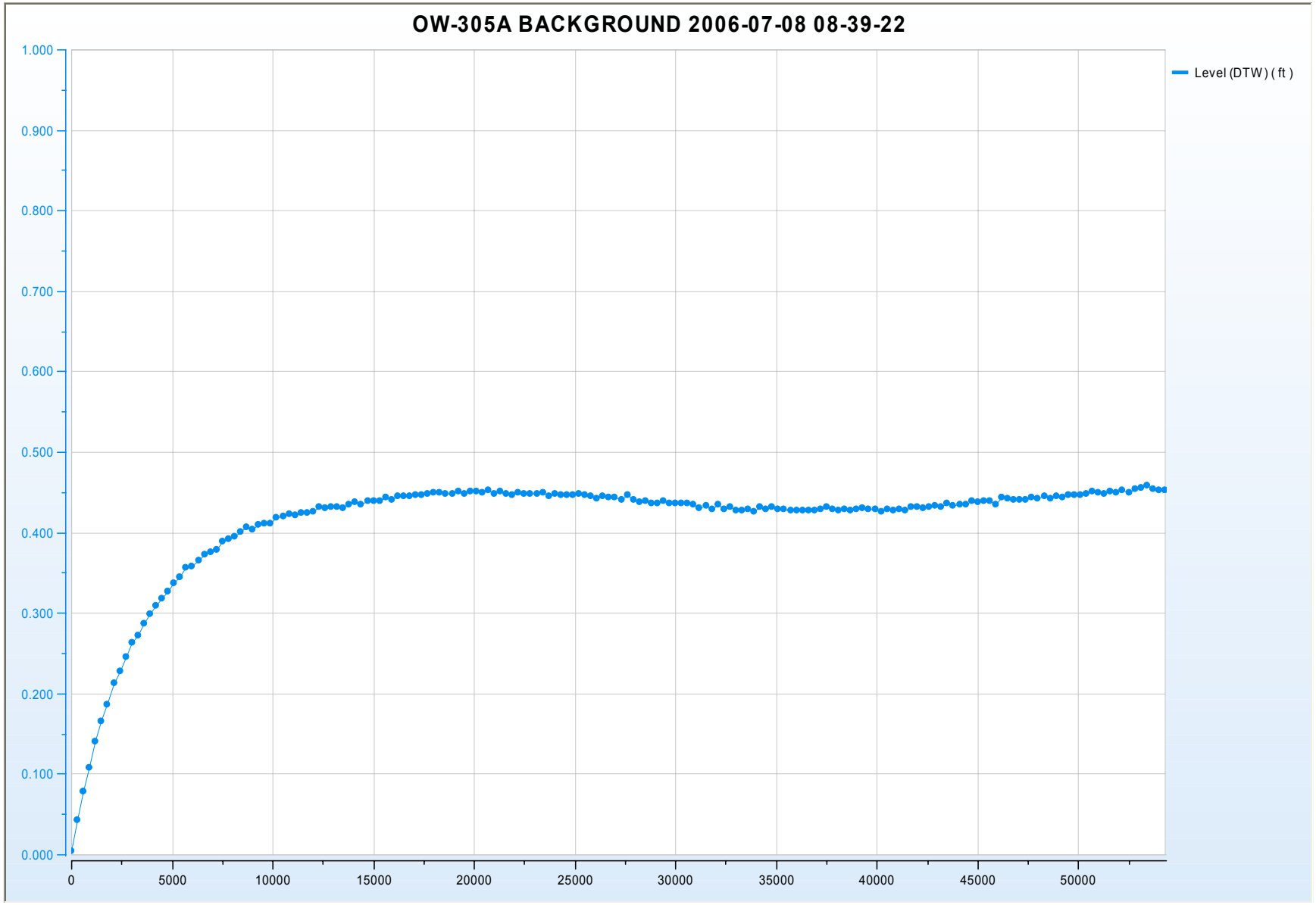

OW-233 BACKGROUND 2006-07-04 10-53-48
Depth (ft)
18.500
18.000
17.500
17.000
16.500
16.000
15.500
15.000
0
50000
100000
150000
200000
250000
300000
350000
400000
450000
500000

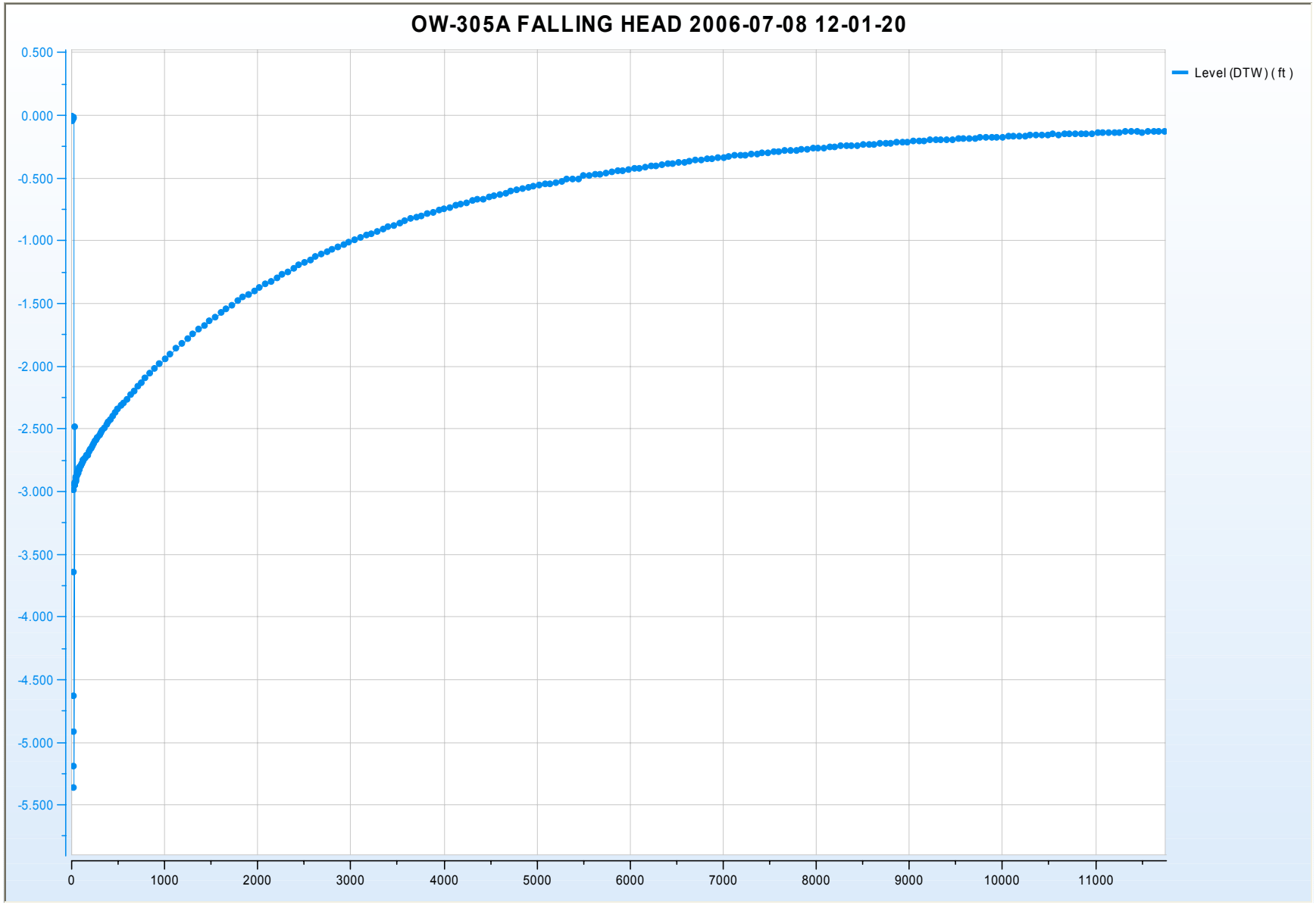

OW-233 RISING HEAD 2006-07-04 16-28-49
Depth (ft)
18.050
18.000
17.950
17.900
17.850
17.800
17.750
17.700
17.650
17.600
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000

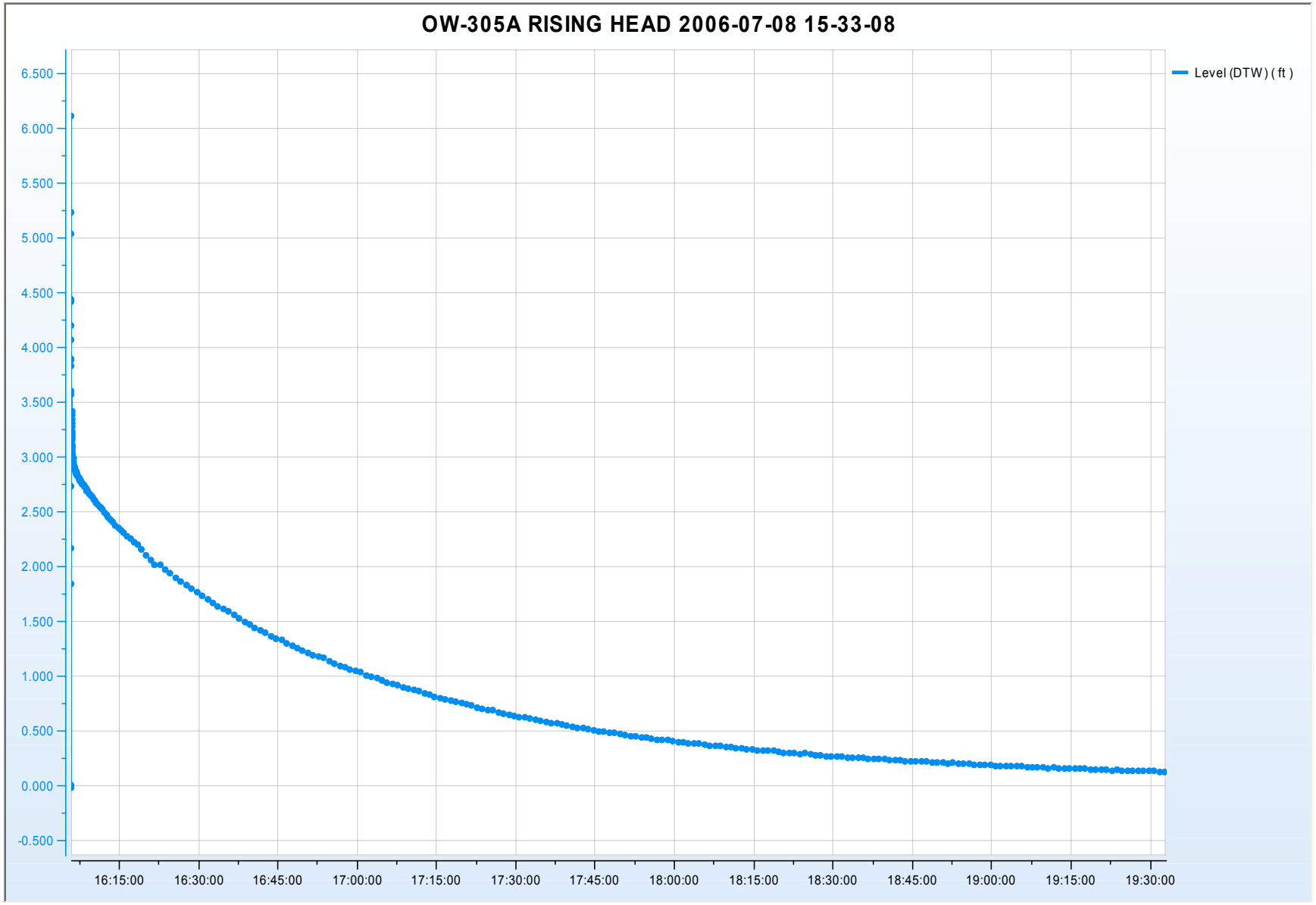

OW-227 BACKGROUN 2006-07-04 13-48-59
Depth (ft)
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
-0.300
-0.400
-0.500
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500

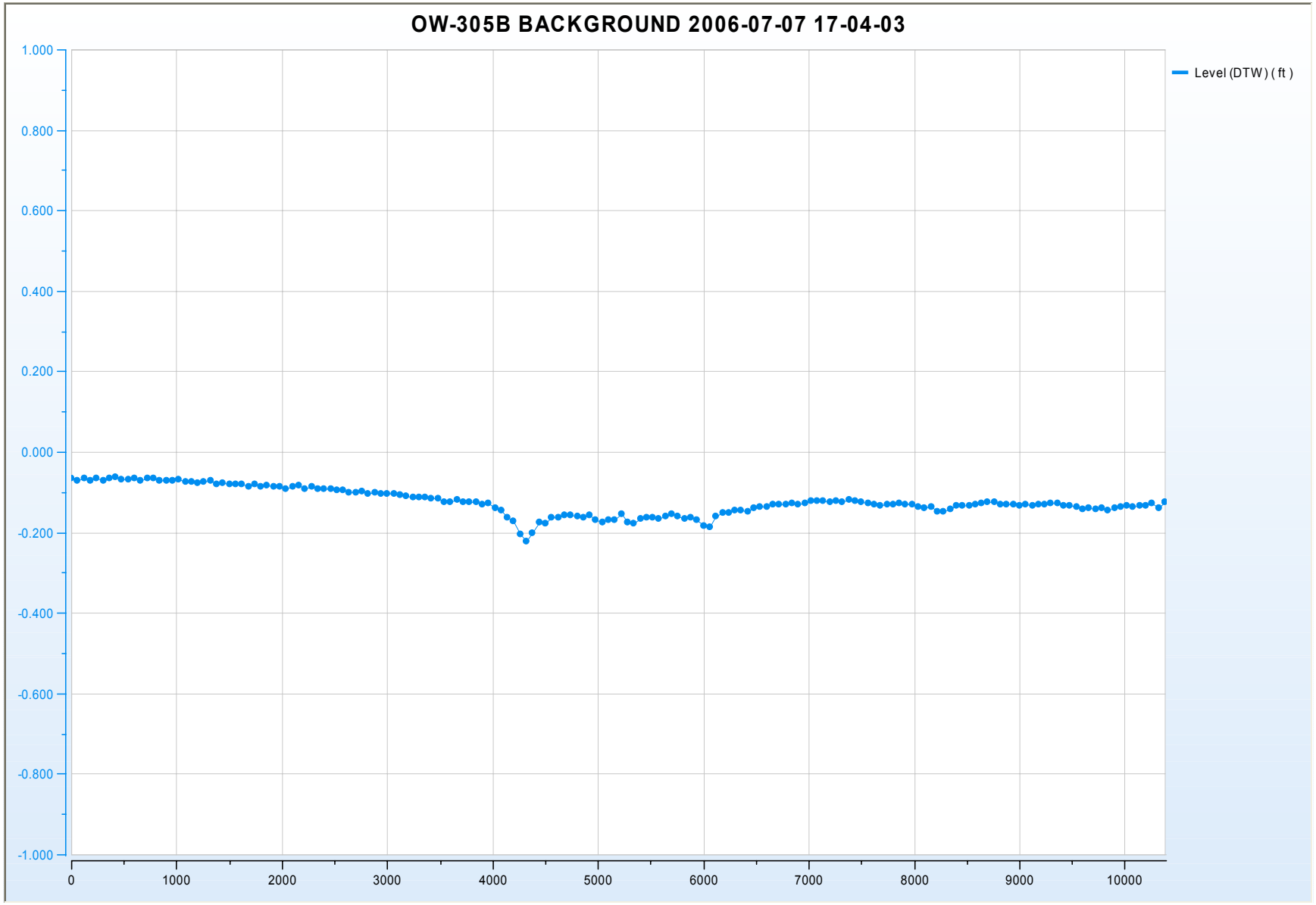

OW-227 FALLING HEAD 2006-07-04 14-57-43
Depth (ft)
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400

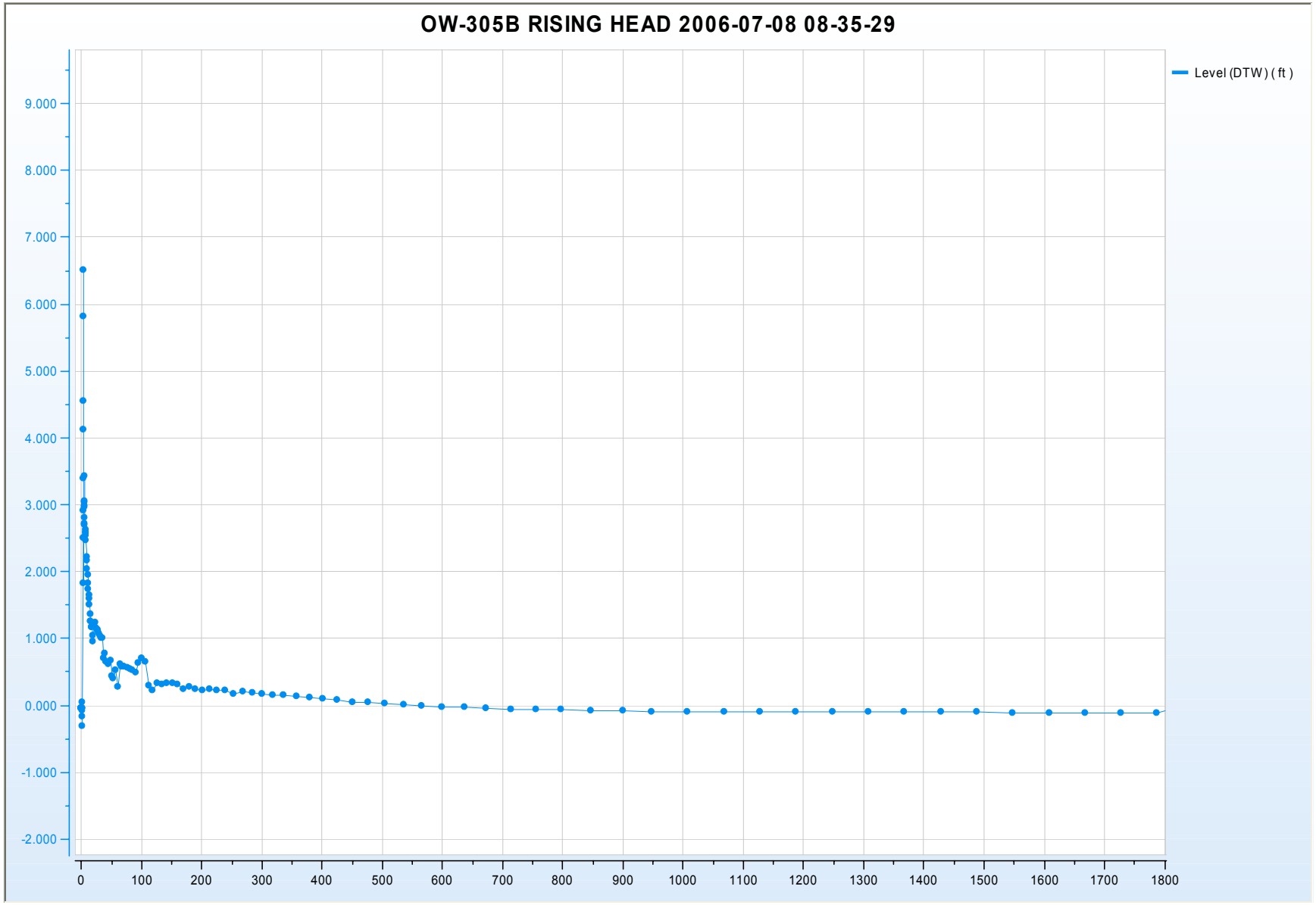

OW-227 RISING HEAD 2006-07-04 15-56-11
Depth (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000

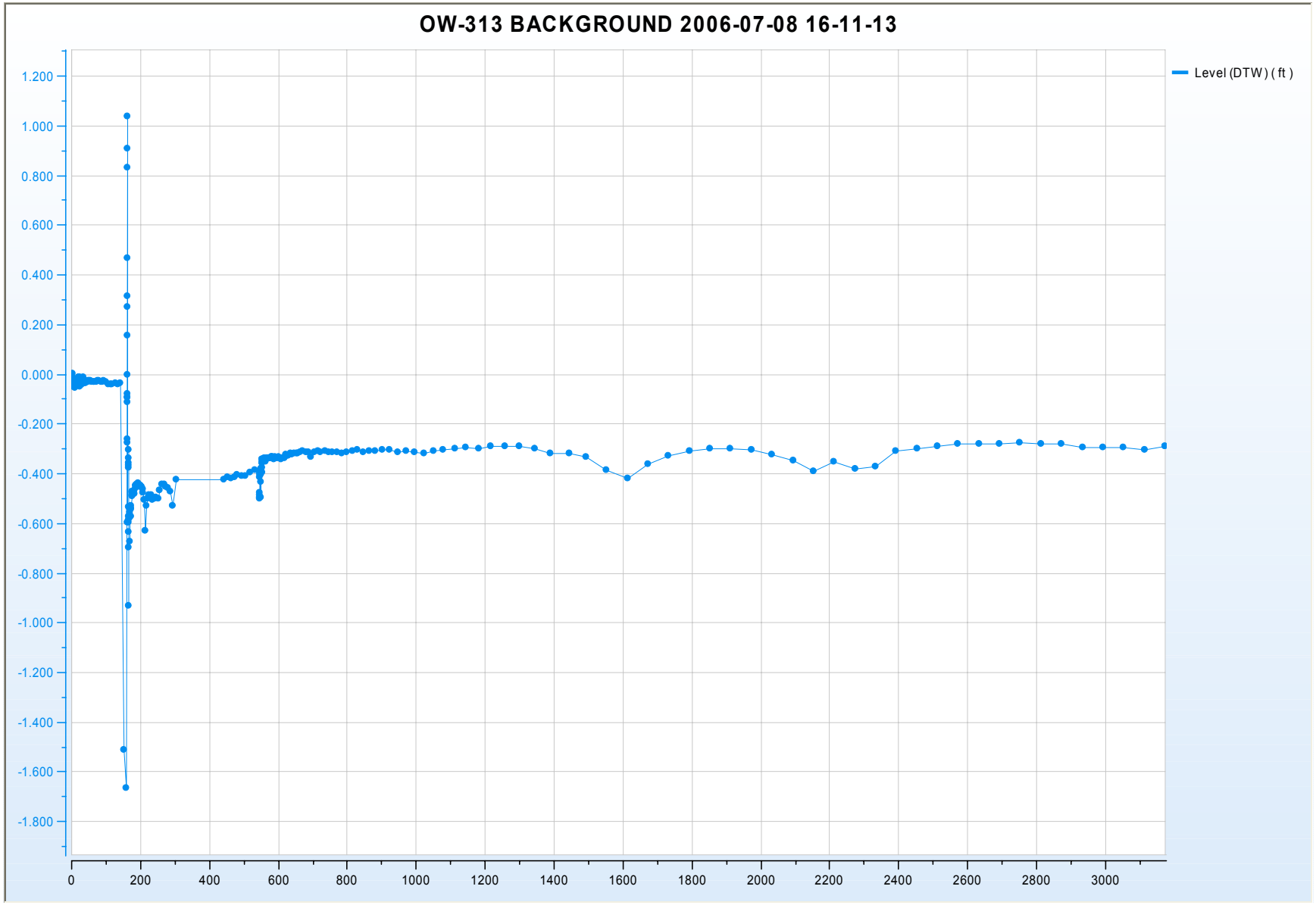

OW-305A BACKGROUND 2006-07-08 08-39-22
Level (DTW) (ft)
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000

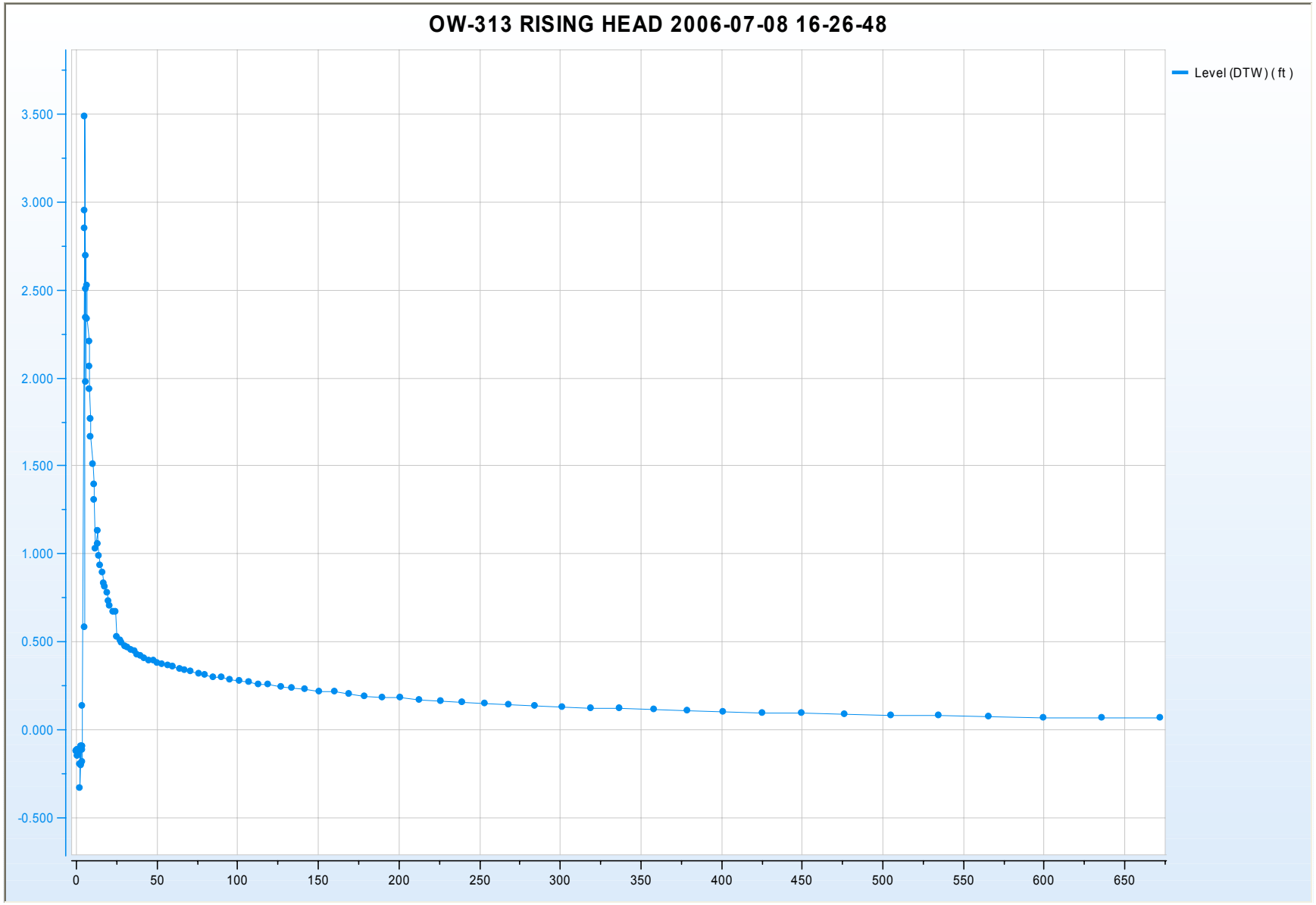

OW-305A FALLING HEAD 2006-07-08 12-01-20
Level (DTW) (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000

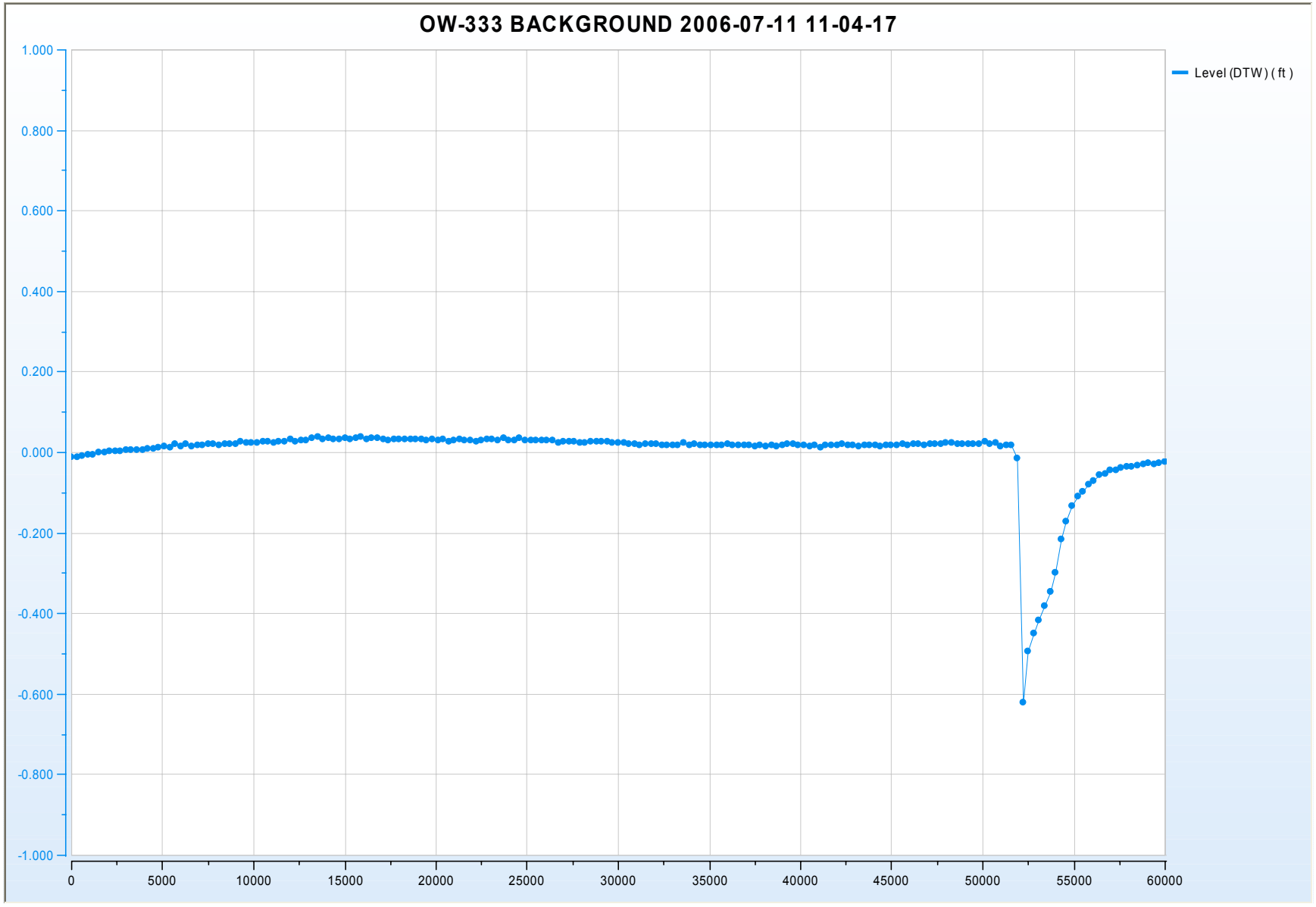

OW-305A RISING HEAD 2006-07-08 15-33-08
Level (DTW) (ft)
6.500
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
16:15:00
16:30:00
16:45:00
17:00:00
17:15:00
17:30:00
17:45:00
18:00:00
18:15:00
18:30:00
18:45:00
19:00:00
19:15:00
19:30:00

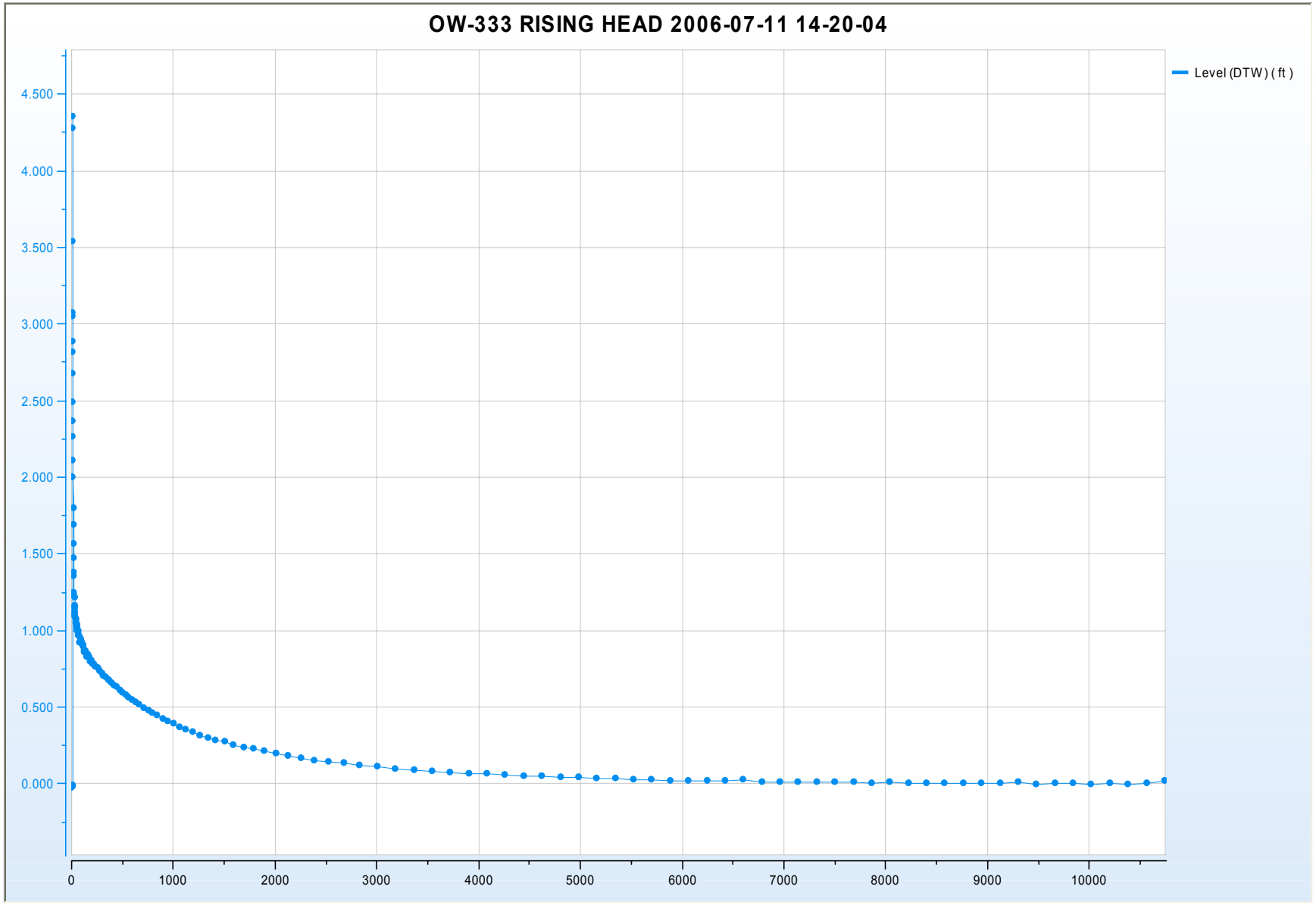

OW-305B BACKGROUND 2006-07-07 17-04-03
Level (DTW) (ft)
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

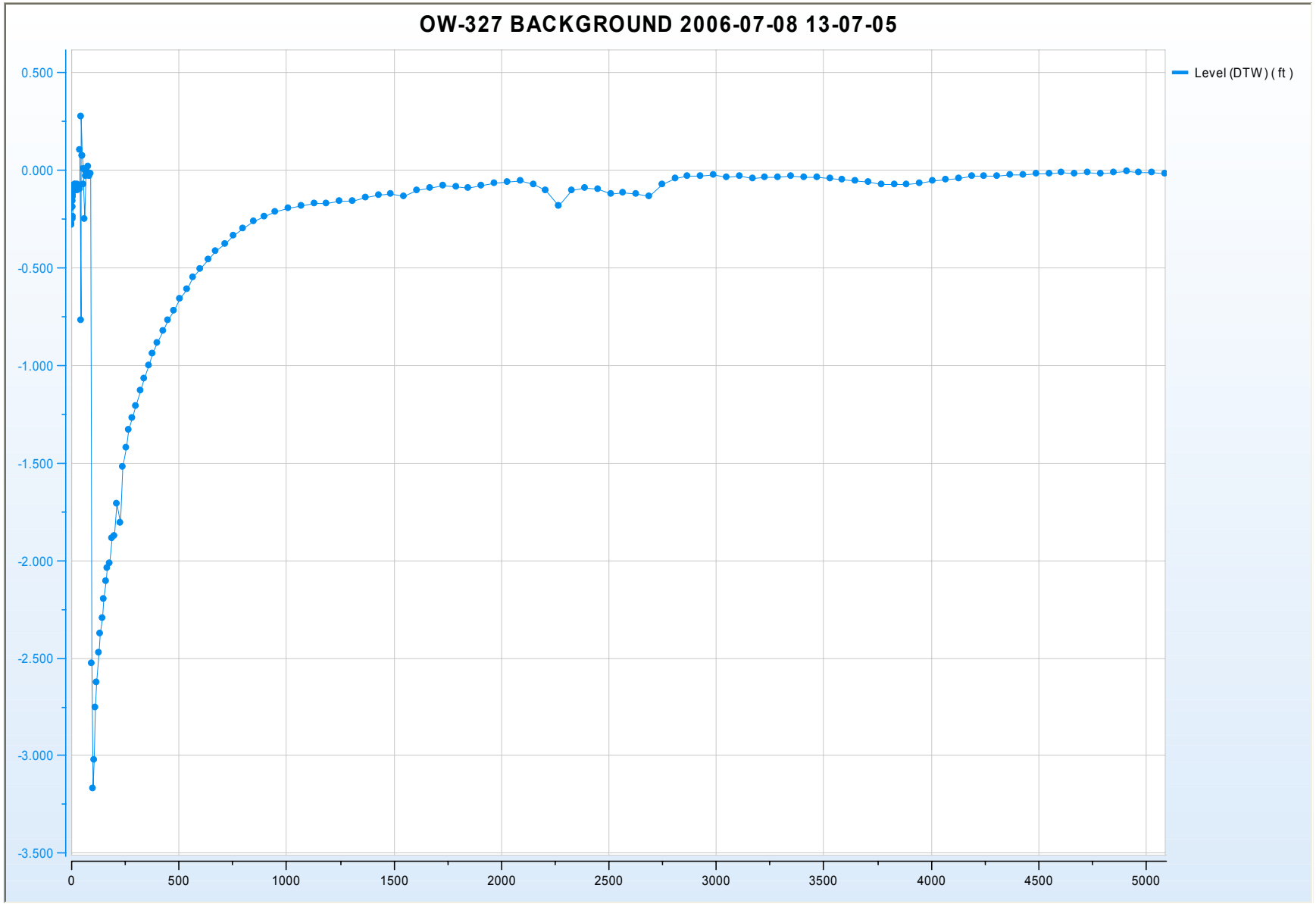

OW-305B RISING HEAD 2006-07-08 08-35-29
Level (DTW) (ft)
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
-1.000
-2.000
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800

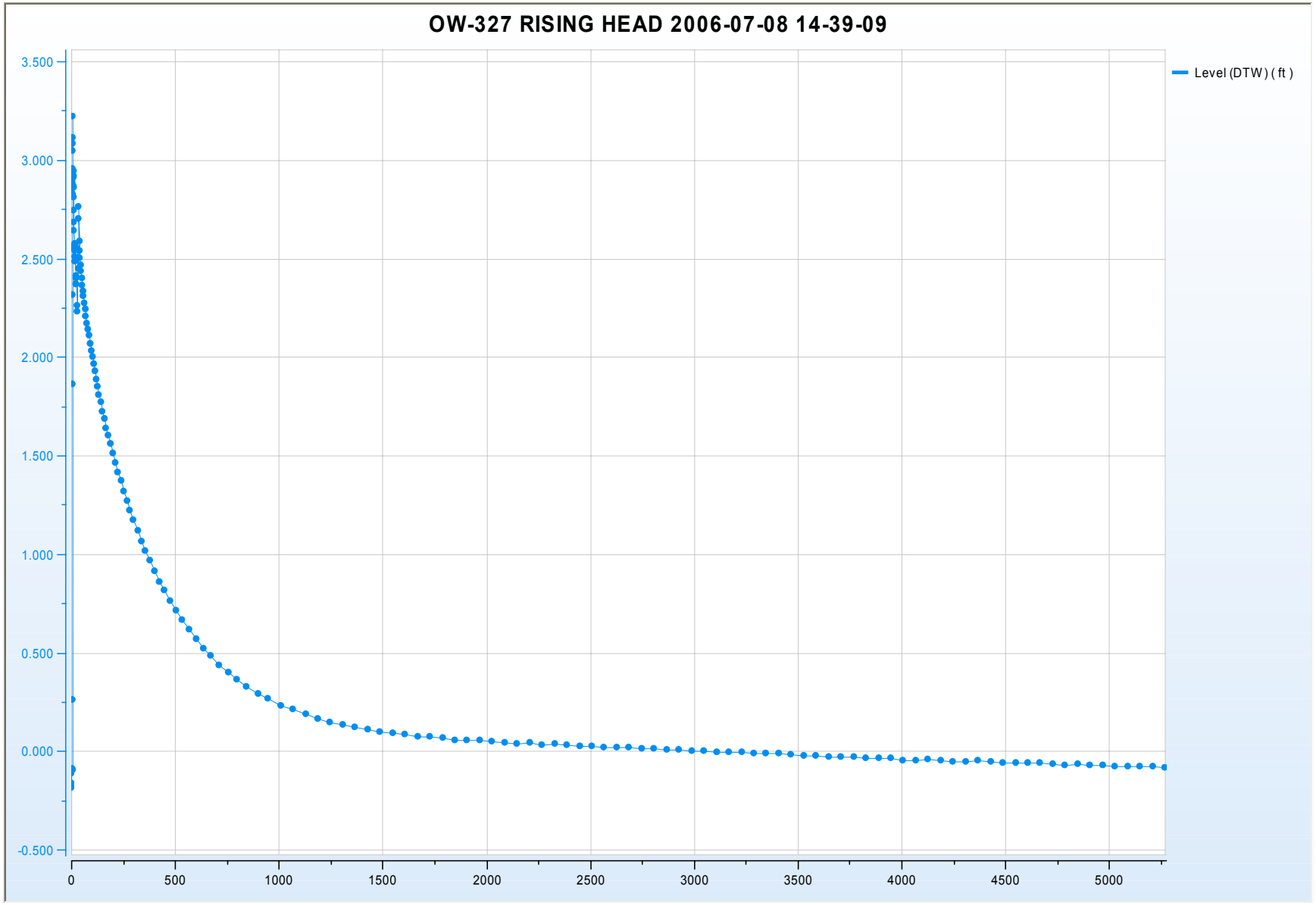

OW-313 BACKGROUND 2006-07-08 16-11-13
Level (DTW) (ft)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
-1.200
-1.400
-1.600
-1.800
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000

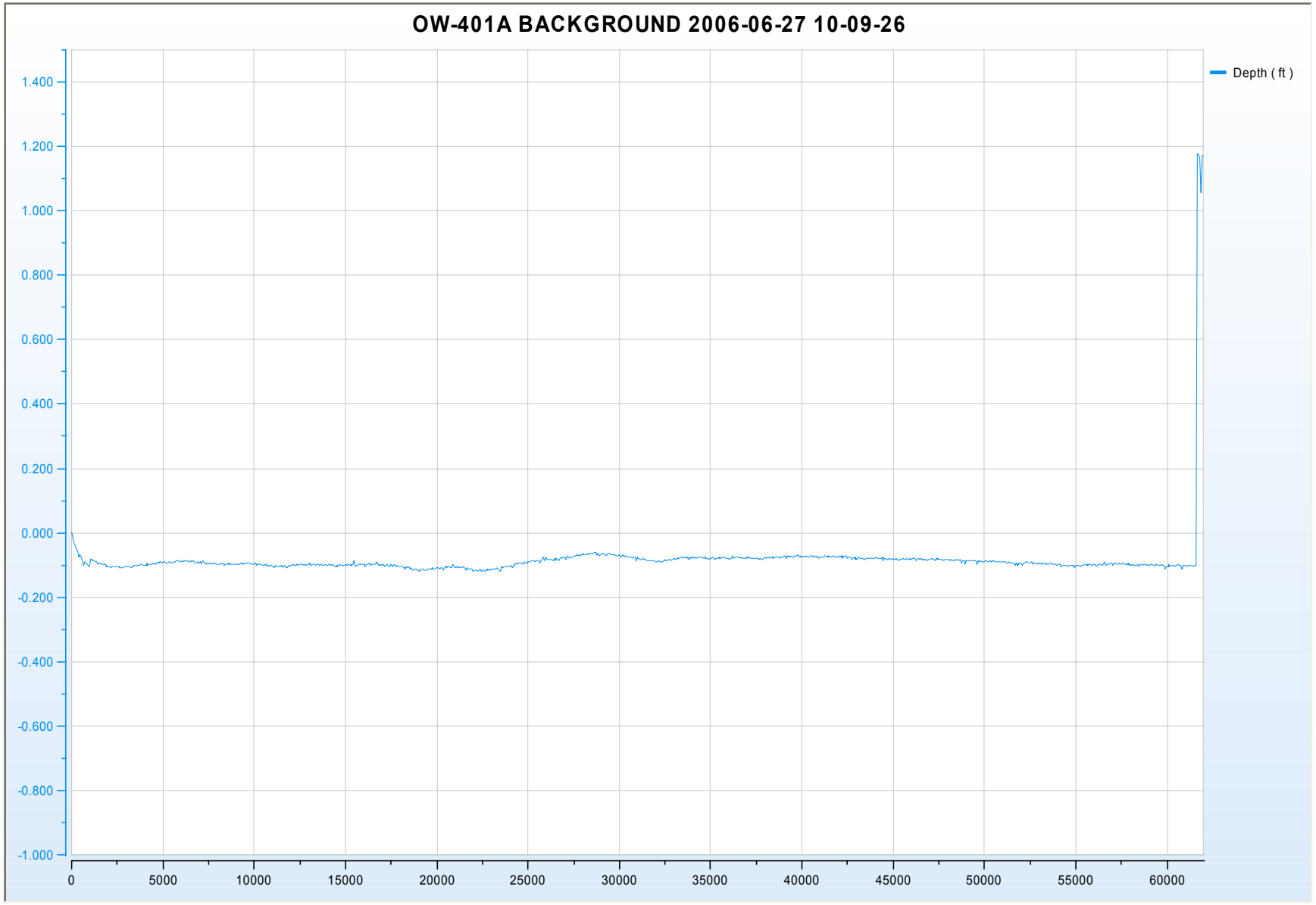

OW-313 RISING HEAD 2006-07-08 16-26-48
Level (DTW) (ft)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
50
100
150
200
250
300
350
400
450
500
550
600
650

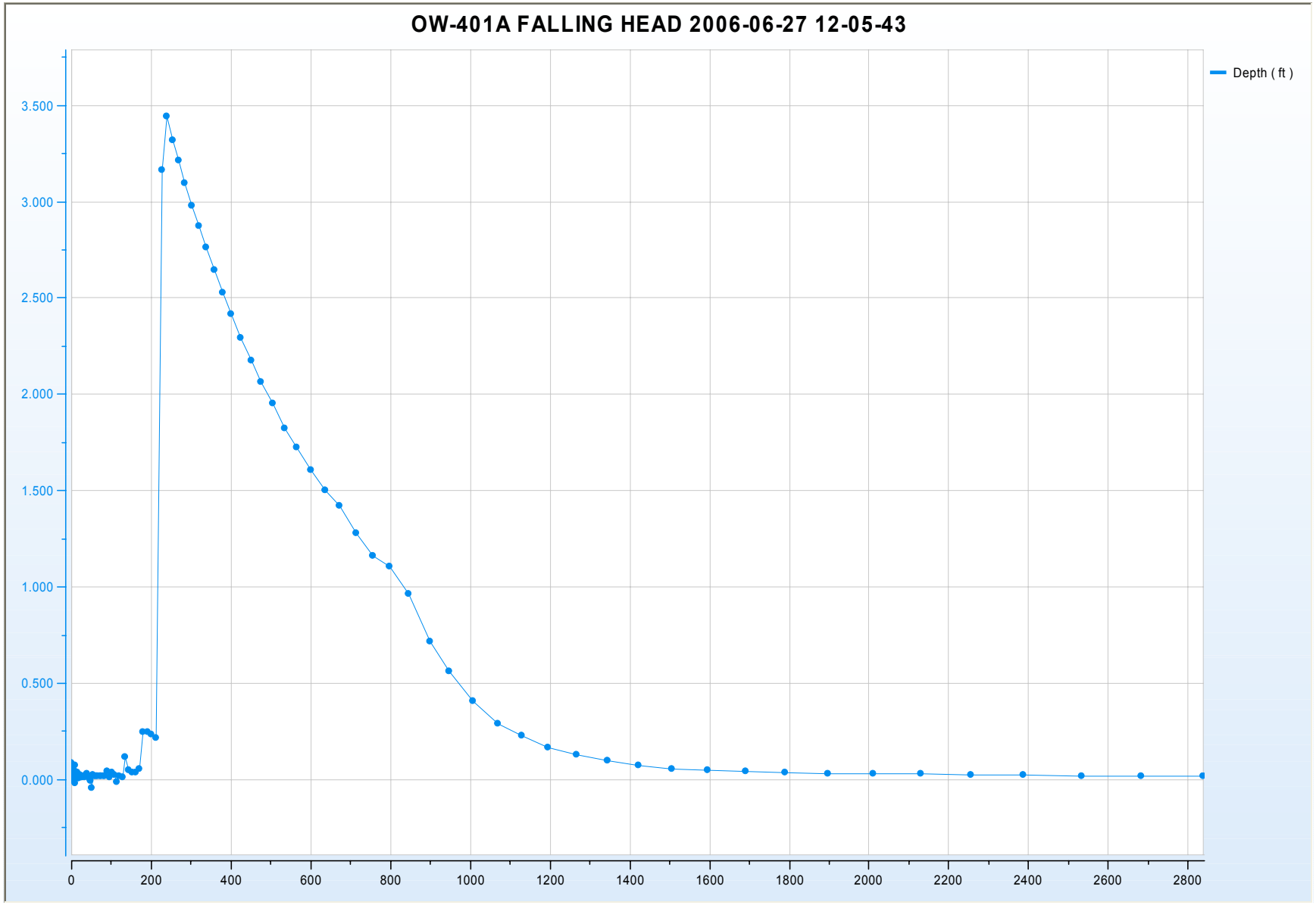

OW-333 BACKGROUND 2006-07-11 11-04-17
Level (DTW) (ft)
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
55000
60000

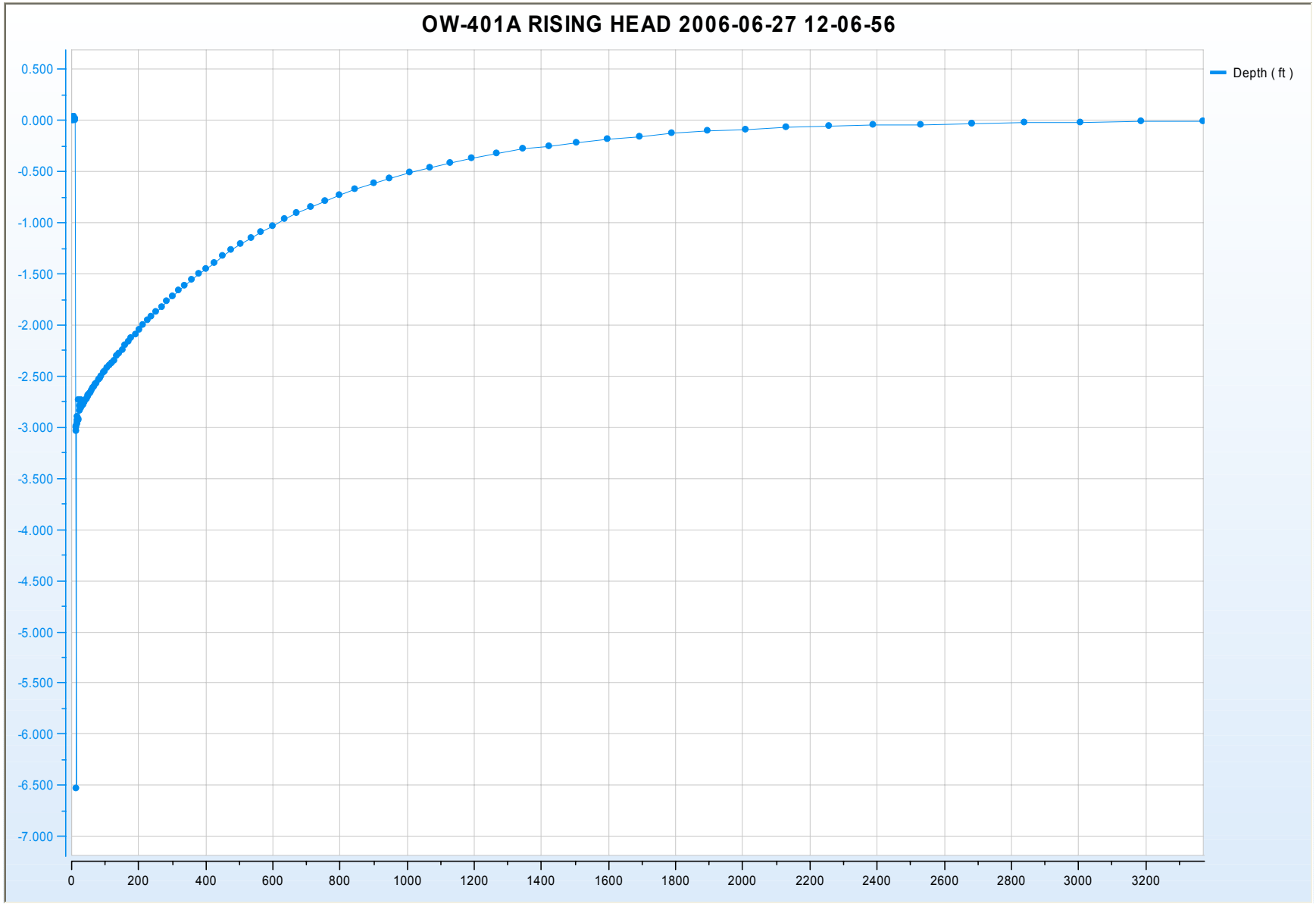

OW-333 RISING HEAD 2006-07-11 14-20-04
Level (DTW) (ft)
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

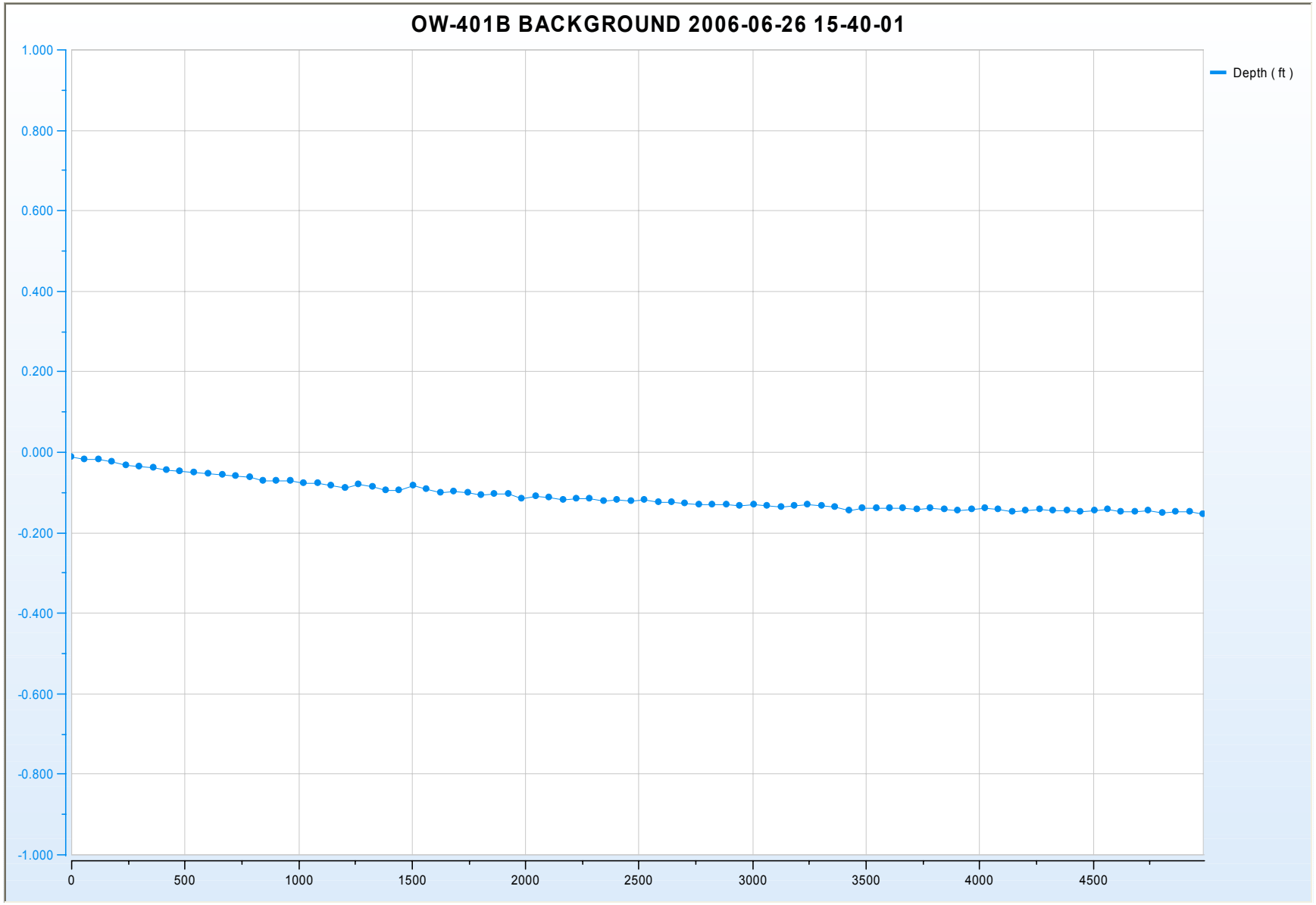

OW-327 BACKGROUND 2006-07-08 13-07-05
Level (DTW) (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000

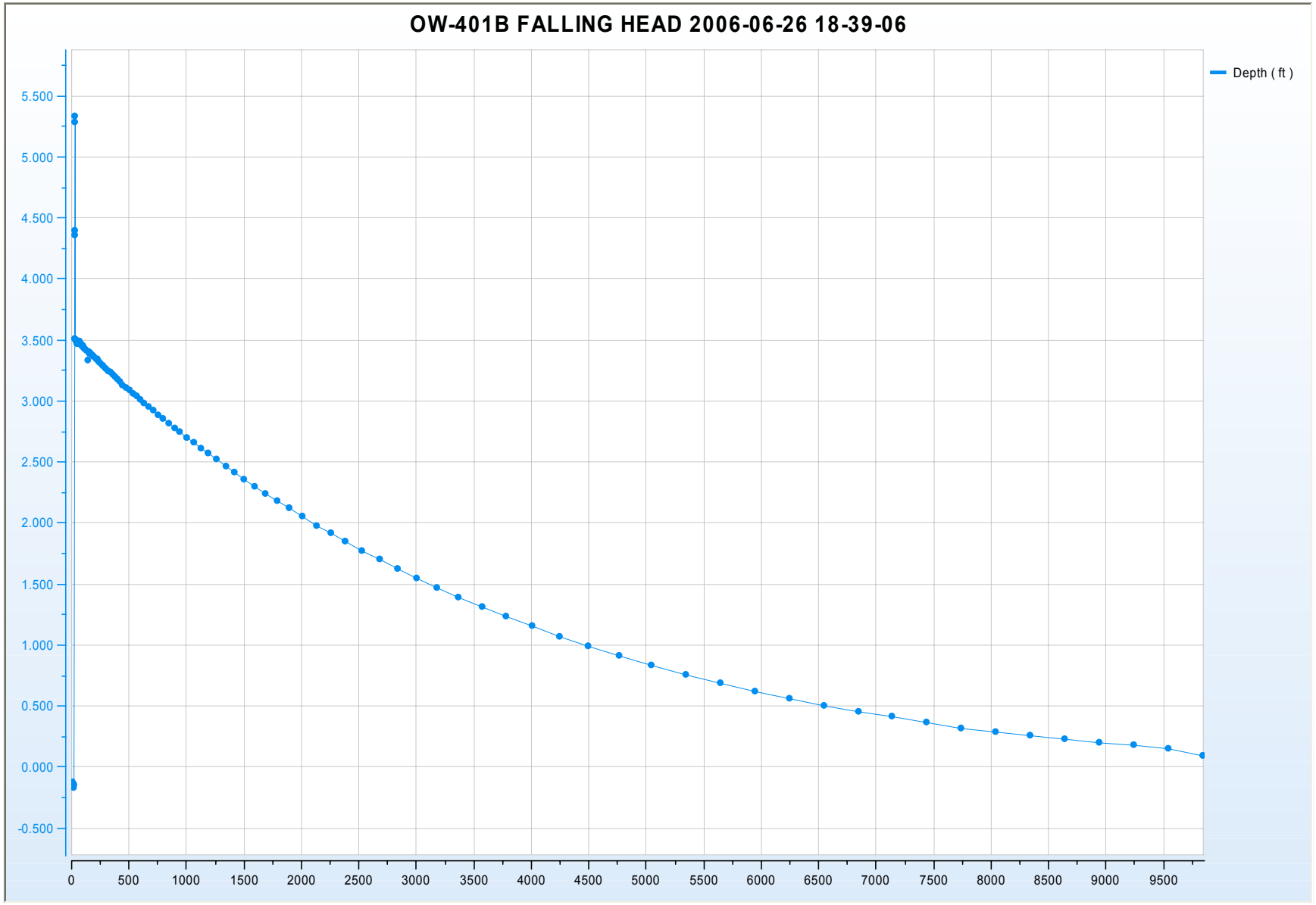

OW-327 RISING HEAD 2006-07-08 14-39-09
Level (DTW) (ft)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000

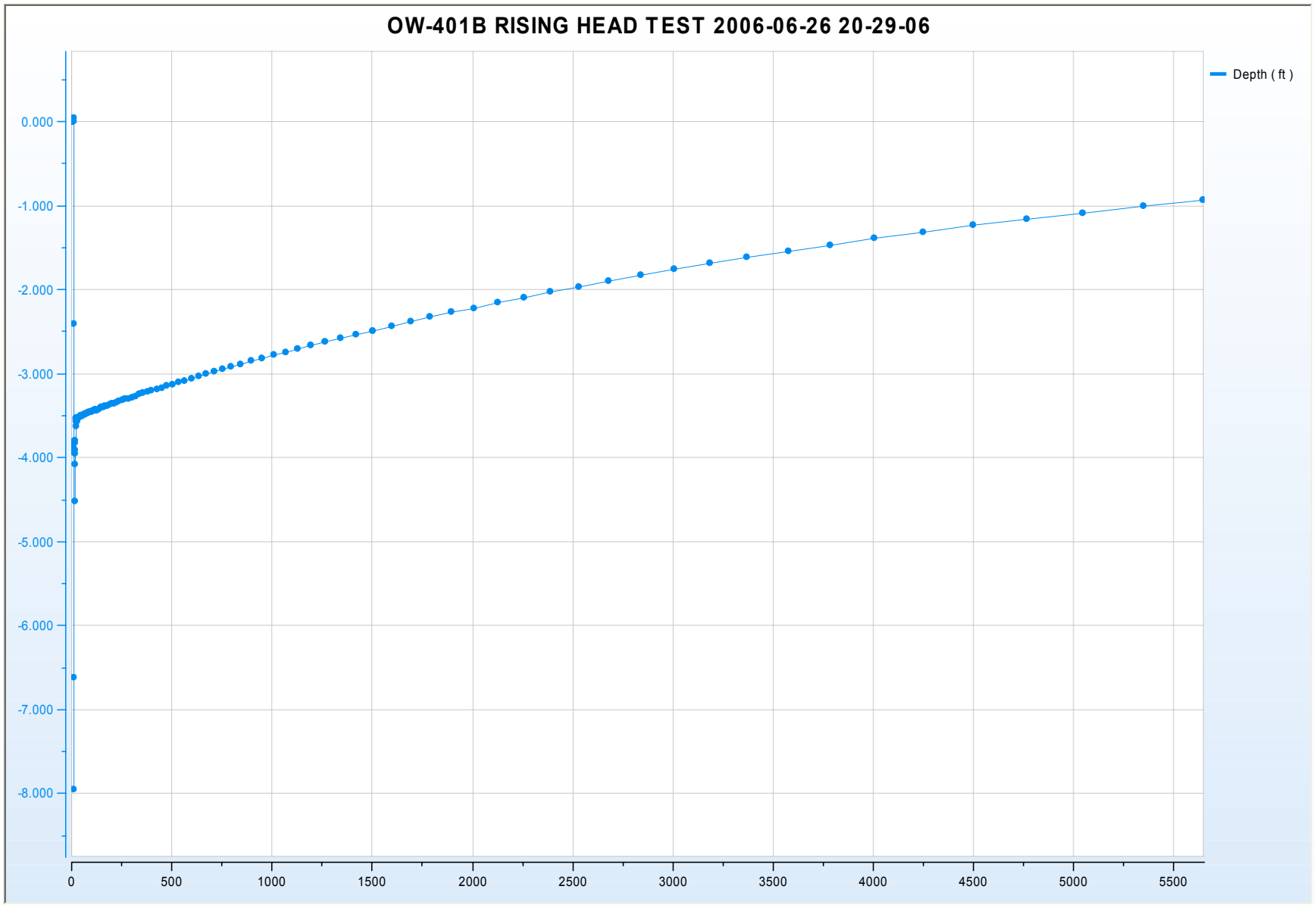

OW-401A BACKGROUND 2006-06-27 10-09-26
Depth (ft)
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
55000
60000

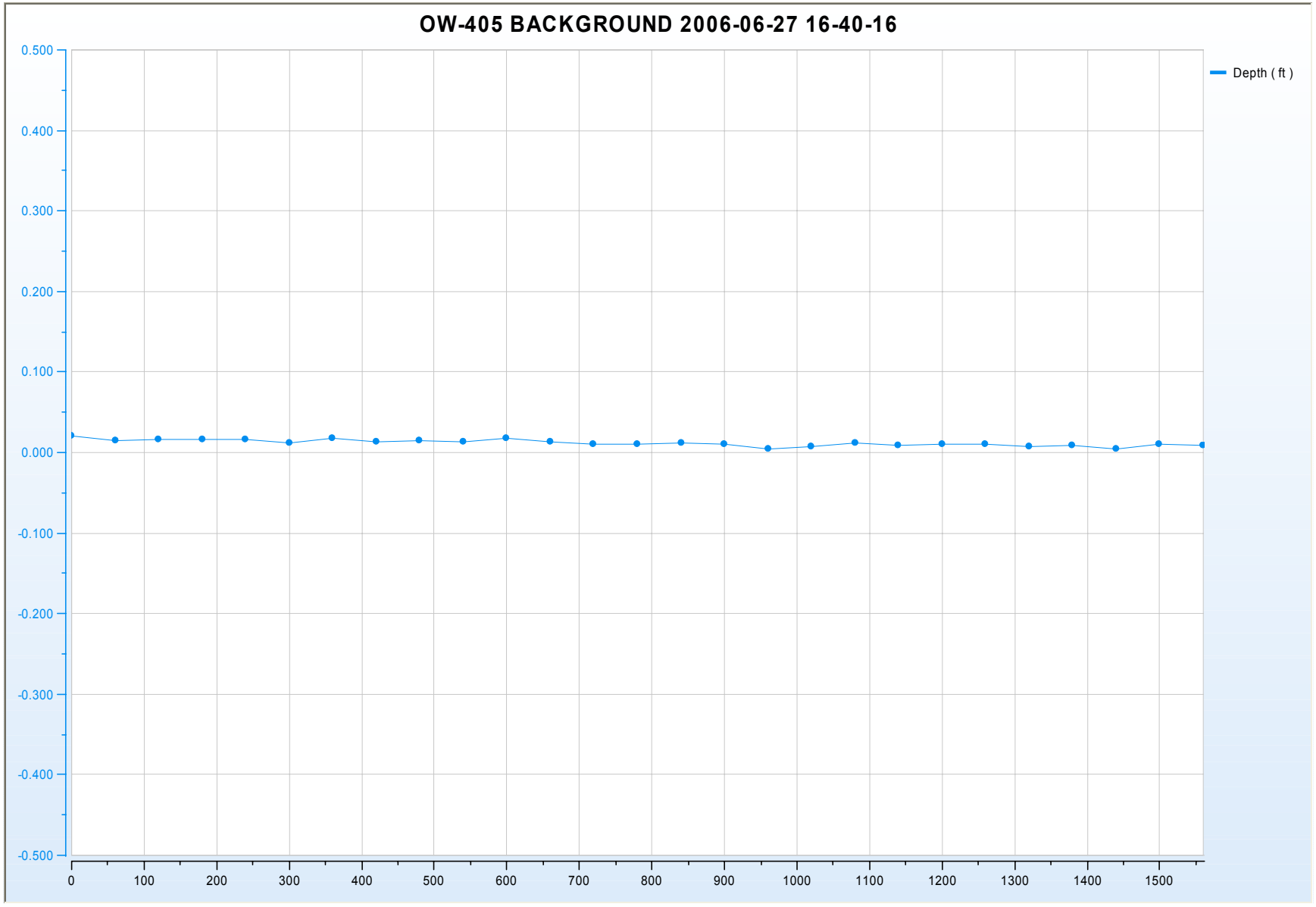

OW-401A FALLING HEAD 2006-06-27 12-05-43
Depth (ft)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800

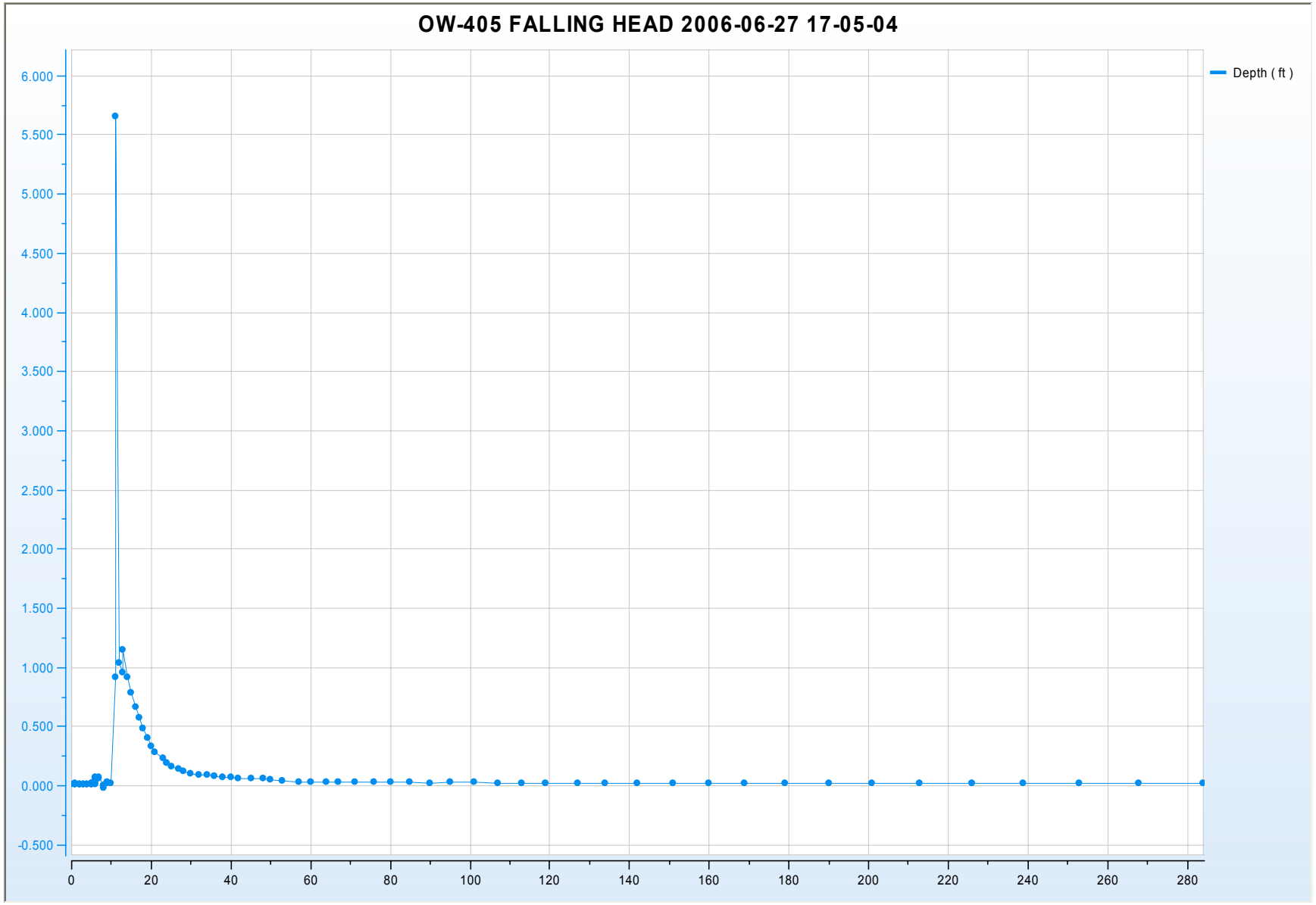

OW-401A RISING HEAD 2006-06-27 12-06-56
Depth (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
-6.000
-6.500
-7.000
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200

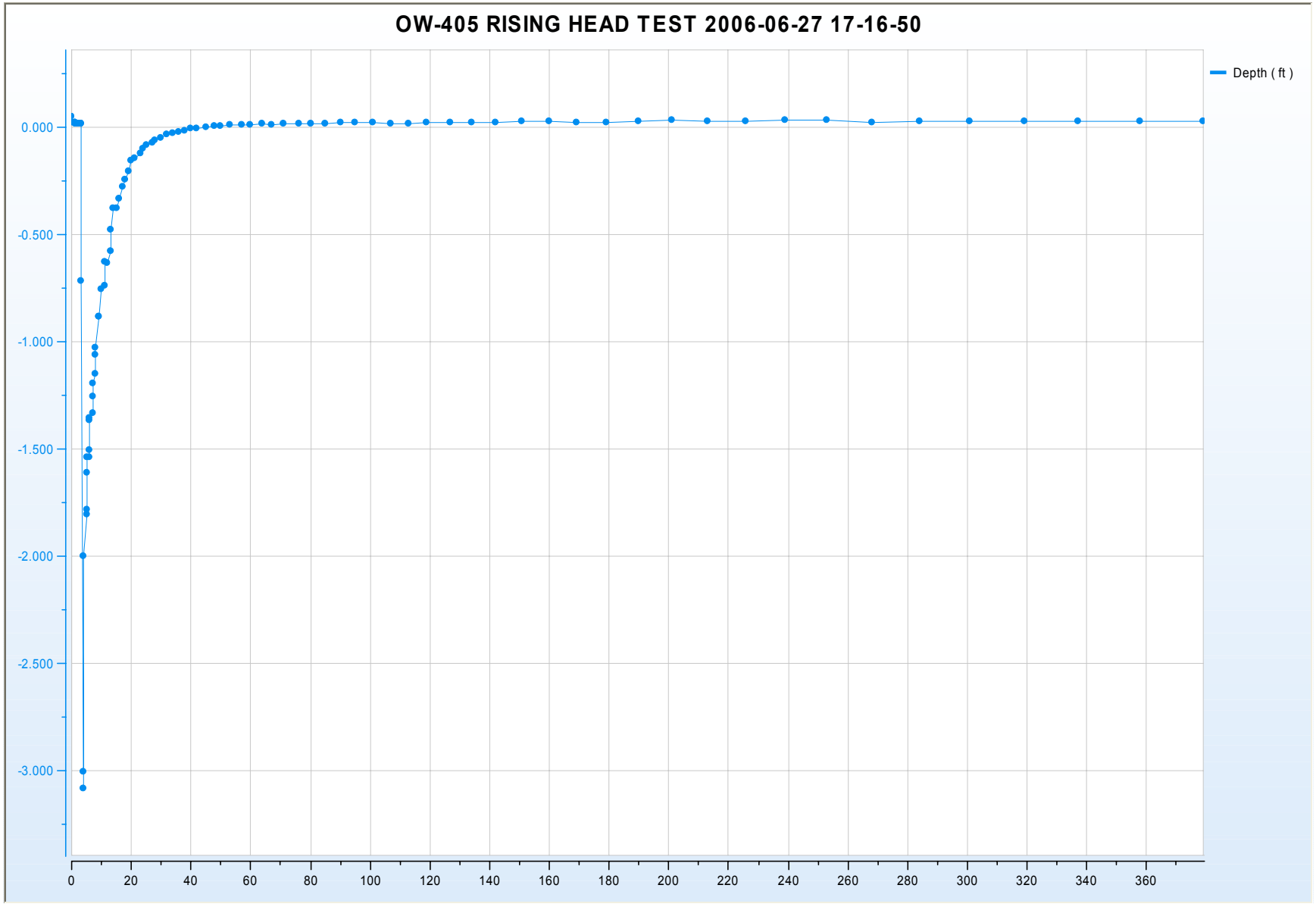

OW-401B BACKGROUND 2006-06-26 15-40-01
Depth (ft)
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500

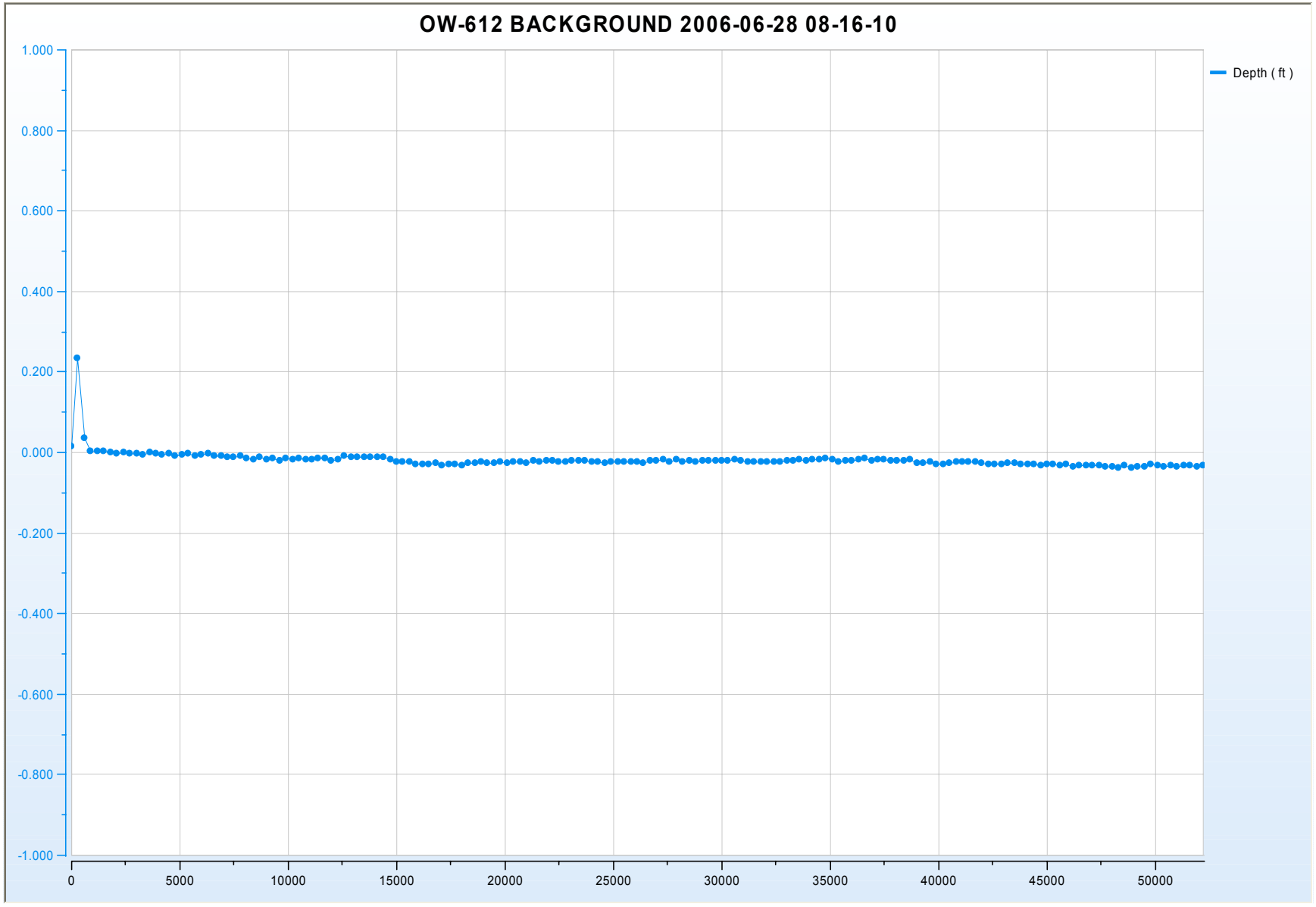

OW-401B FALLING HEAD 2006-06-26 18-39-06
Depth (ft)
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500
9000
9500

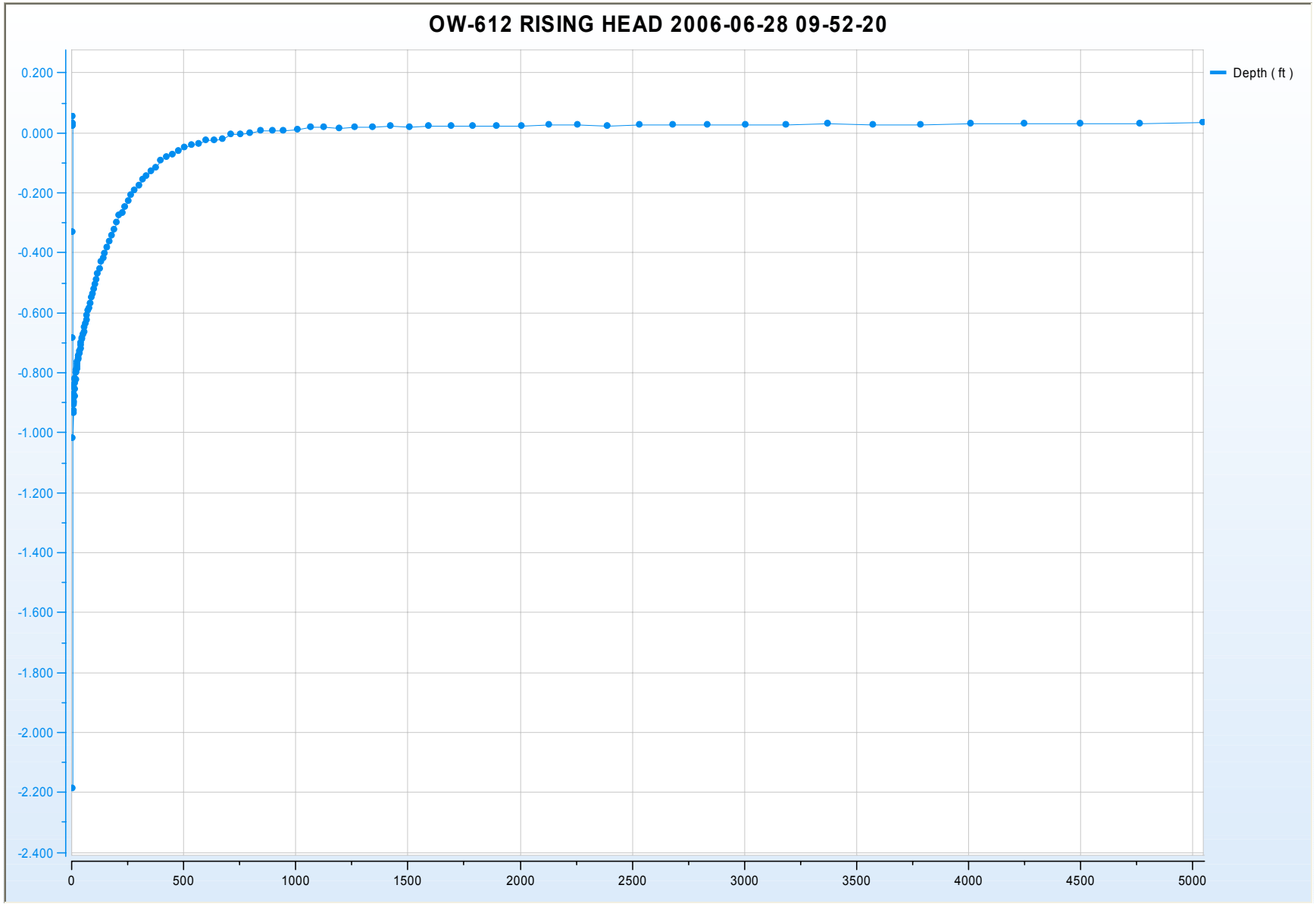

OW-401B RISING HEAD TEST 2006-06-26 20-29-06
Depth (ft)
0.000
-1.000
-2.000
-3.000
-4.000
-5.000
-6.000
-7.000
-8.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500

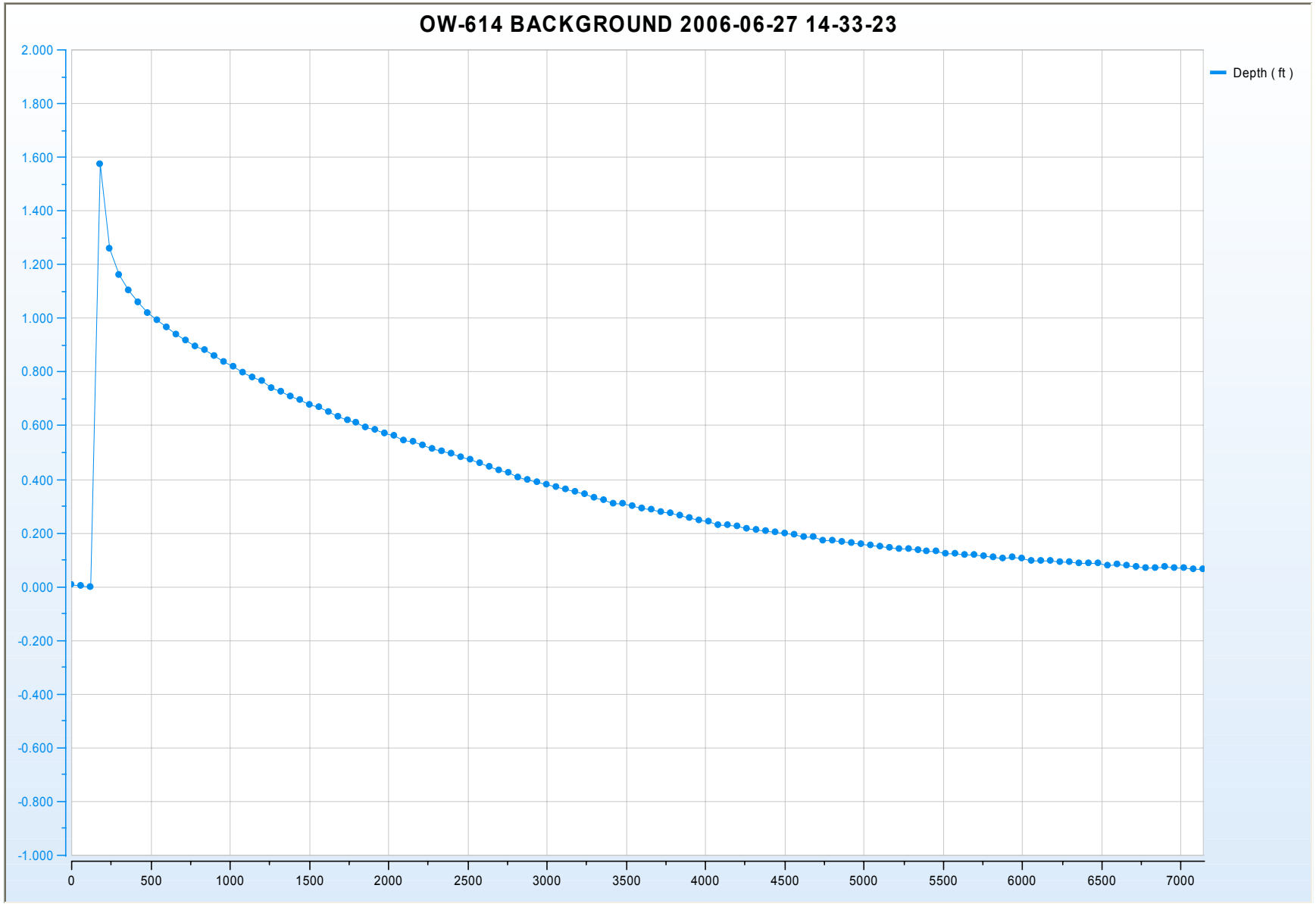

OW-405 BACKGROUND 2006-06-27 16-40-16
Depth (ft)
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
-0.300
-0.400
-0.500
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500

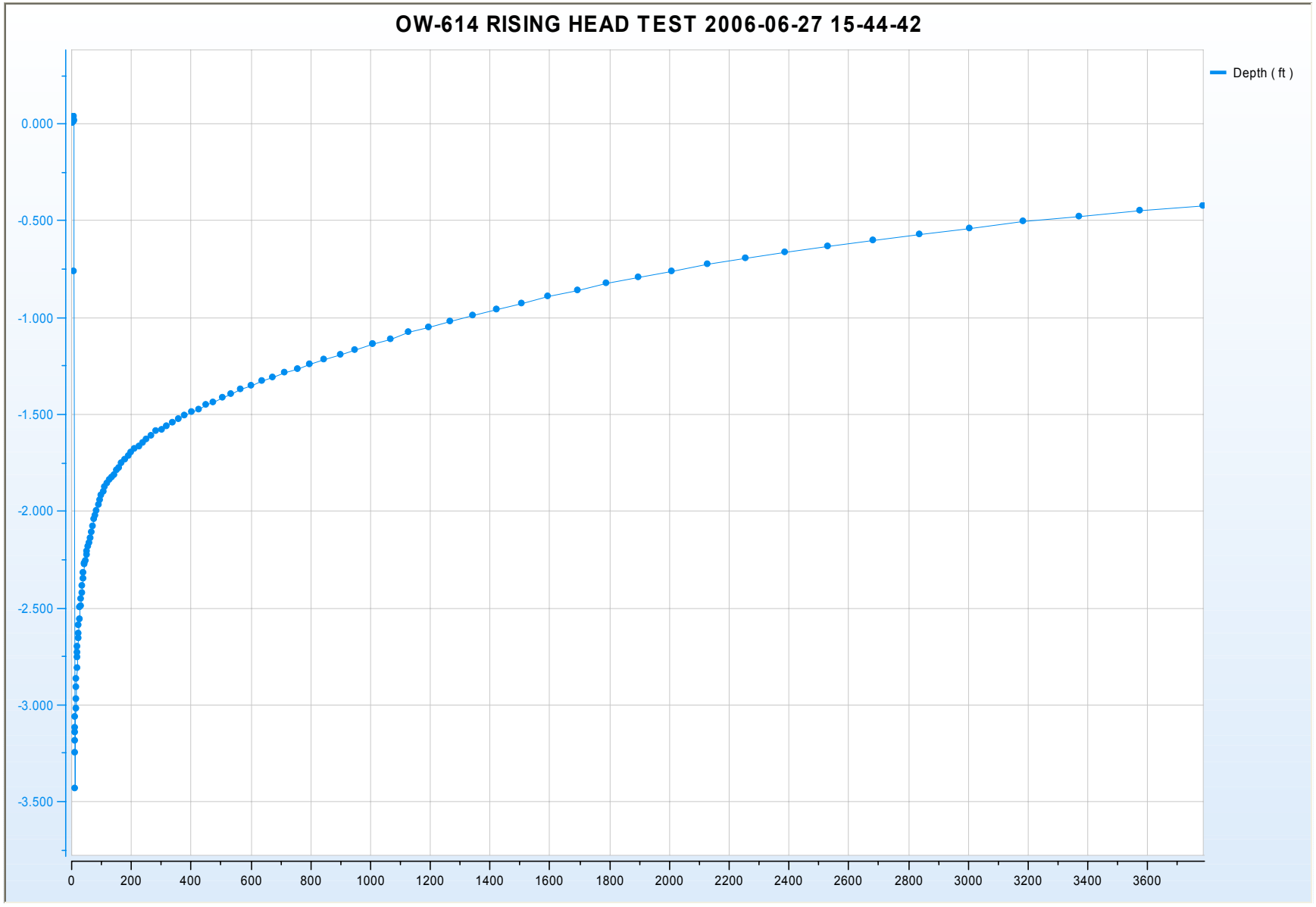

OW-405 FALLING HEAD 2006-06-27 17-05-04
Depth (ft)
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280

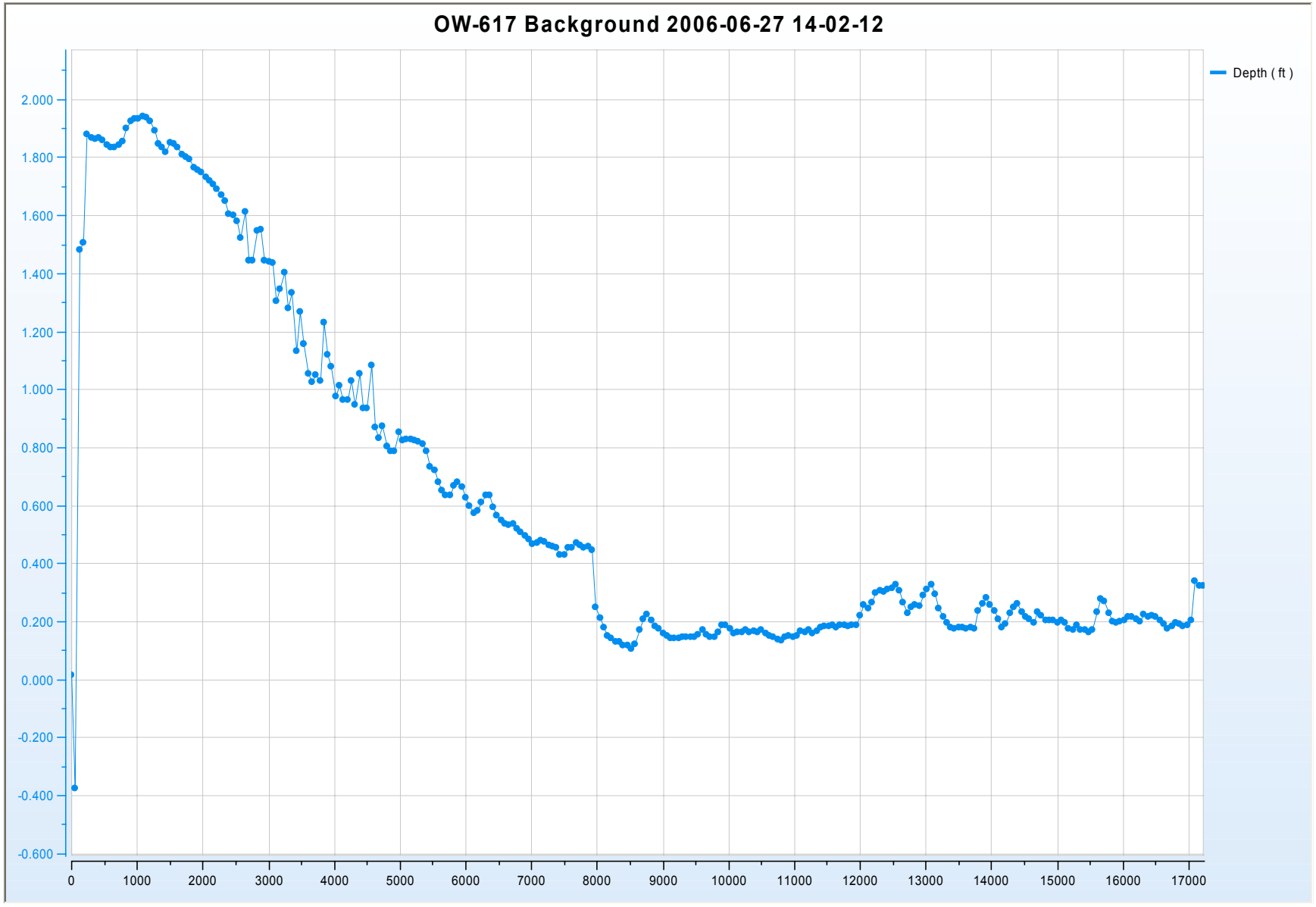

OW-405 RISING HEAD TEST 2006-06-27 17-16-50
Depth (ft)
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360

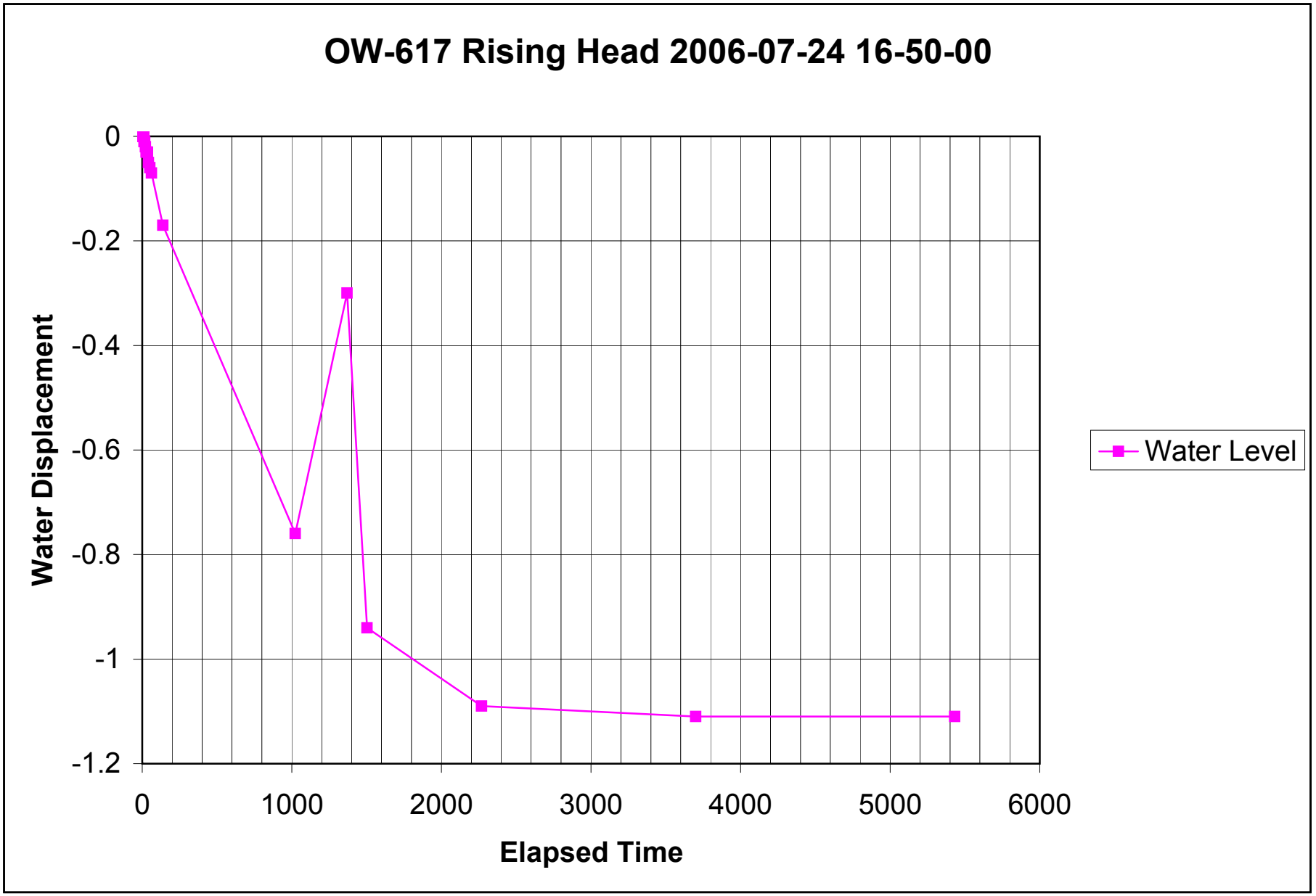

OW-612 BACKGROUND 2006-06-28 08-16-10
Depth (ft)
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000

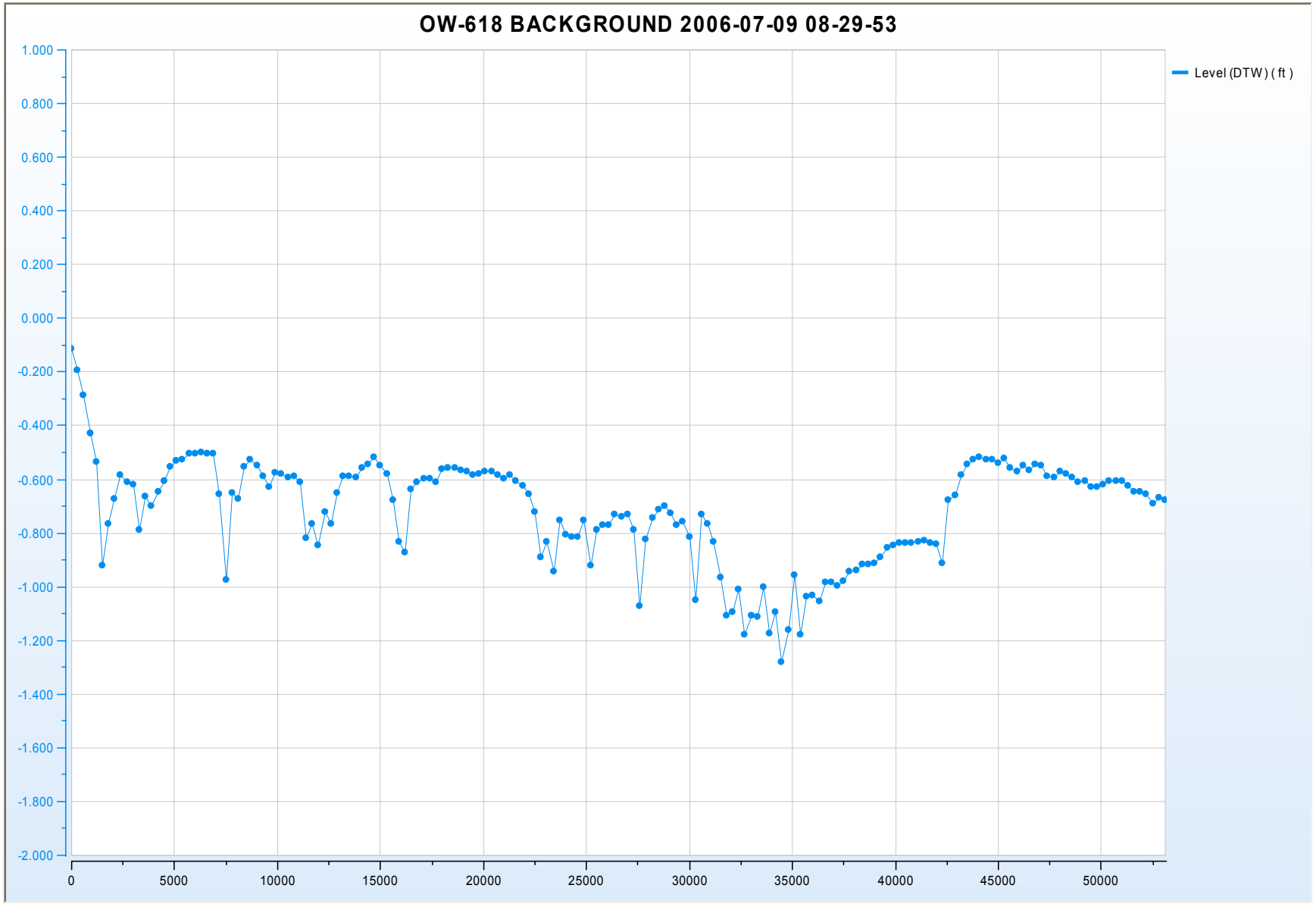

OW-612 RISING HEAD 2006-06-28 09-52-20
Depth (ft)
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
-1.200
-1.400
-1.600
-1.800
-2.000
-2.200
-2.400
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000

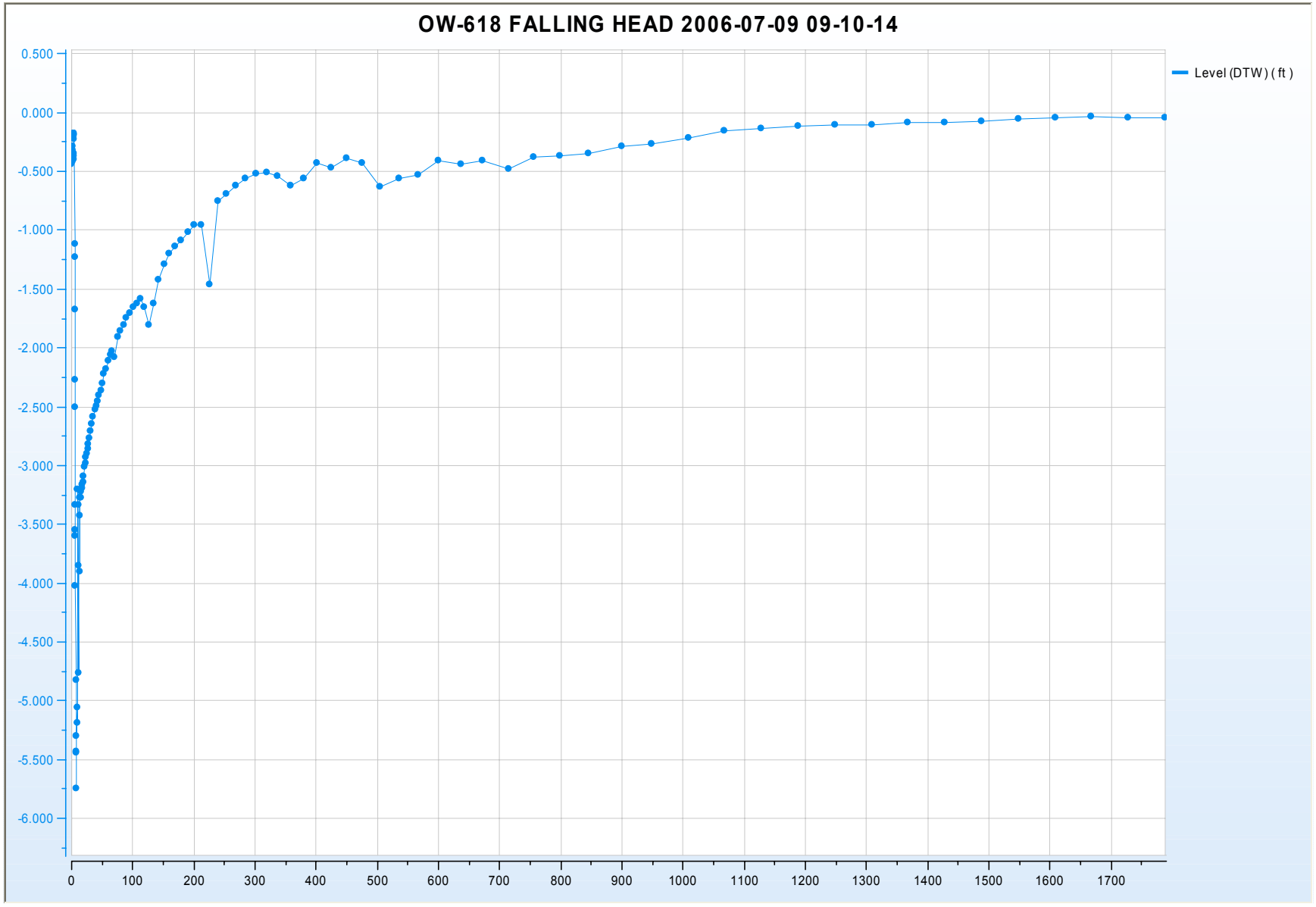

OW-614 BACKGROUND 2006-06-27 14-33-23
Depth (ft)
2.000
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000

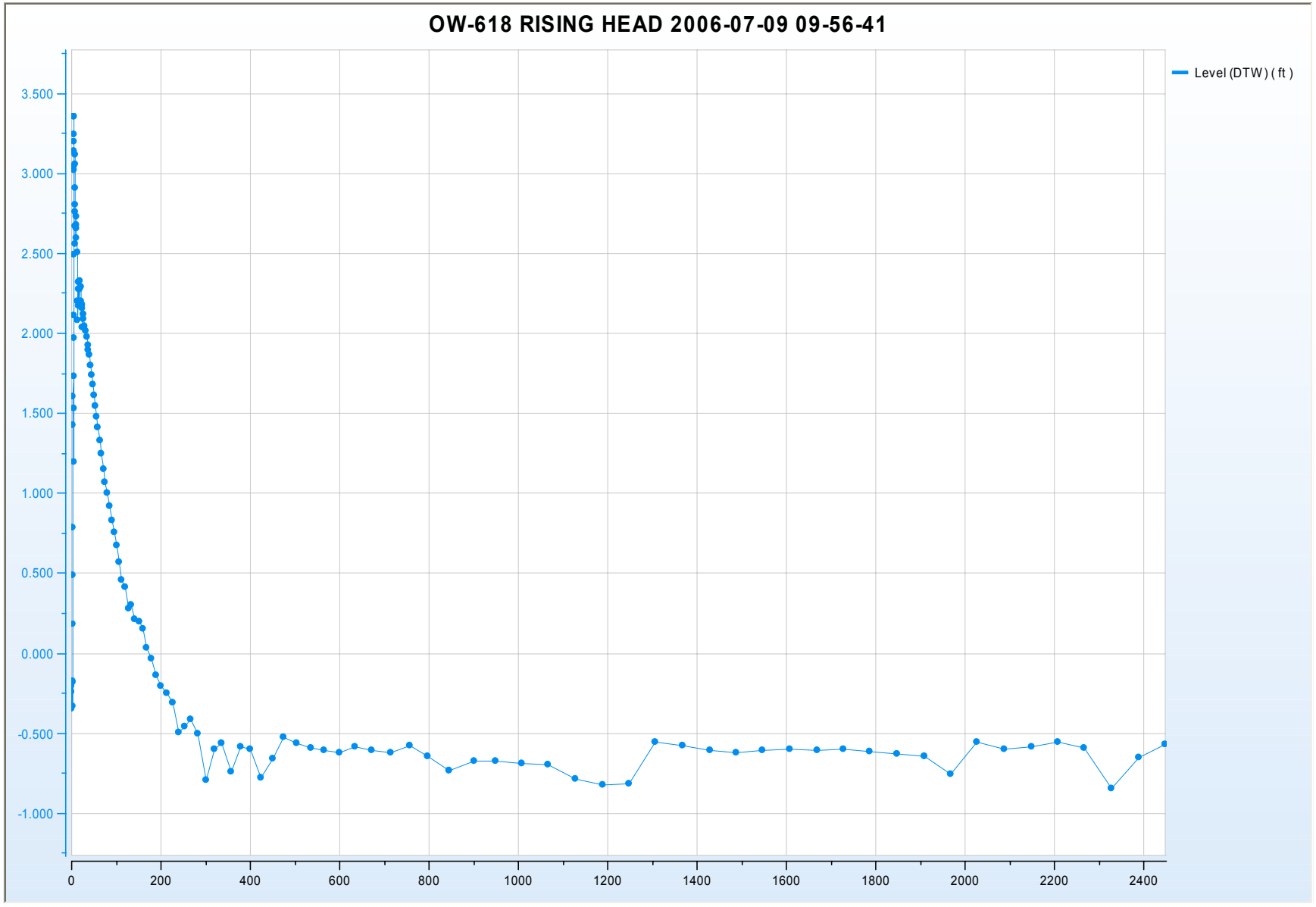

OW-614 RISING HEAD TEST 2006-06-27 15-44-42
Depth (ft)
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600

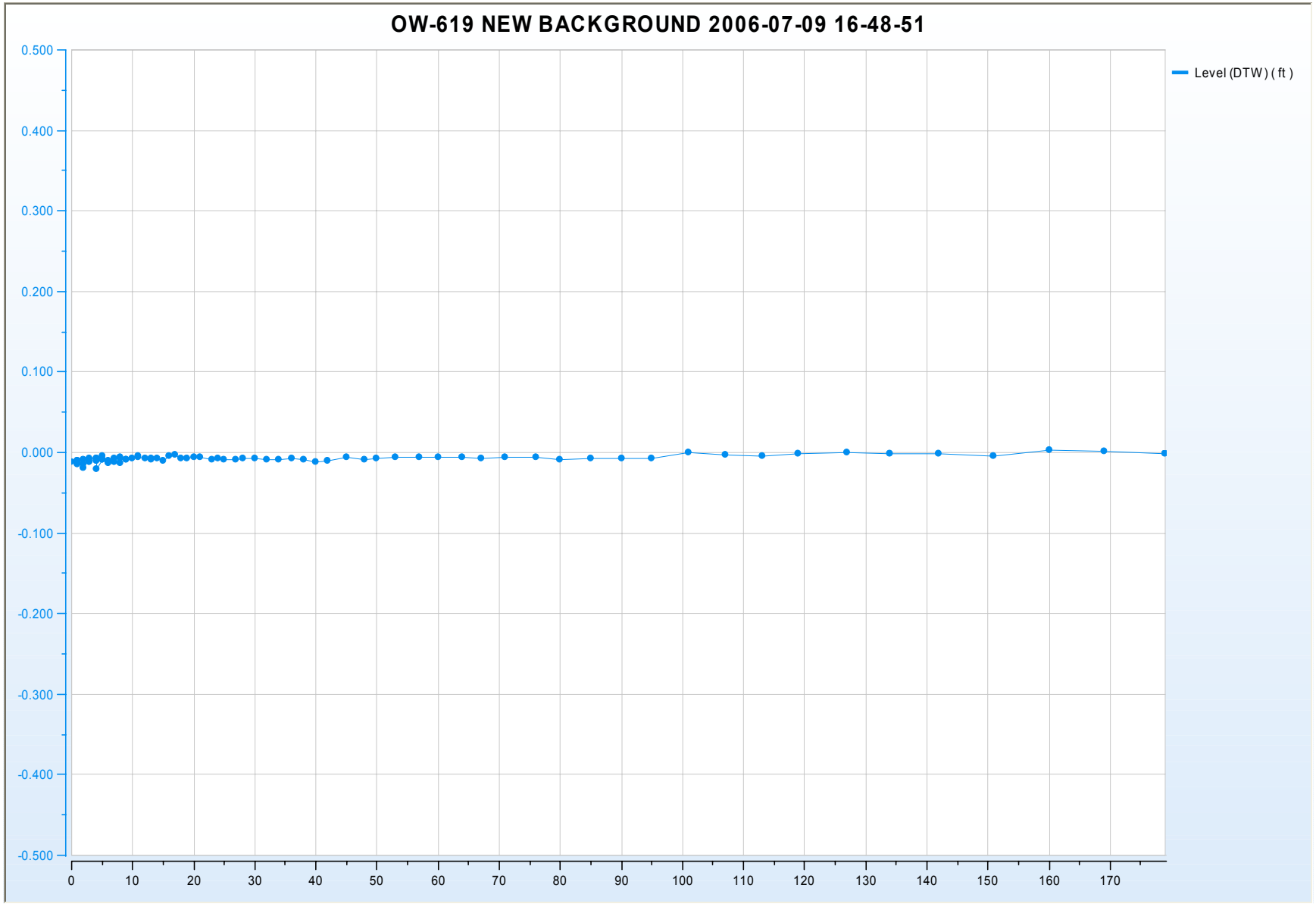

OW-617 Background 2006-06-27 14-02-12
Depth (ft)
2.000
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000

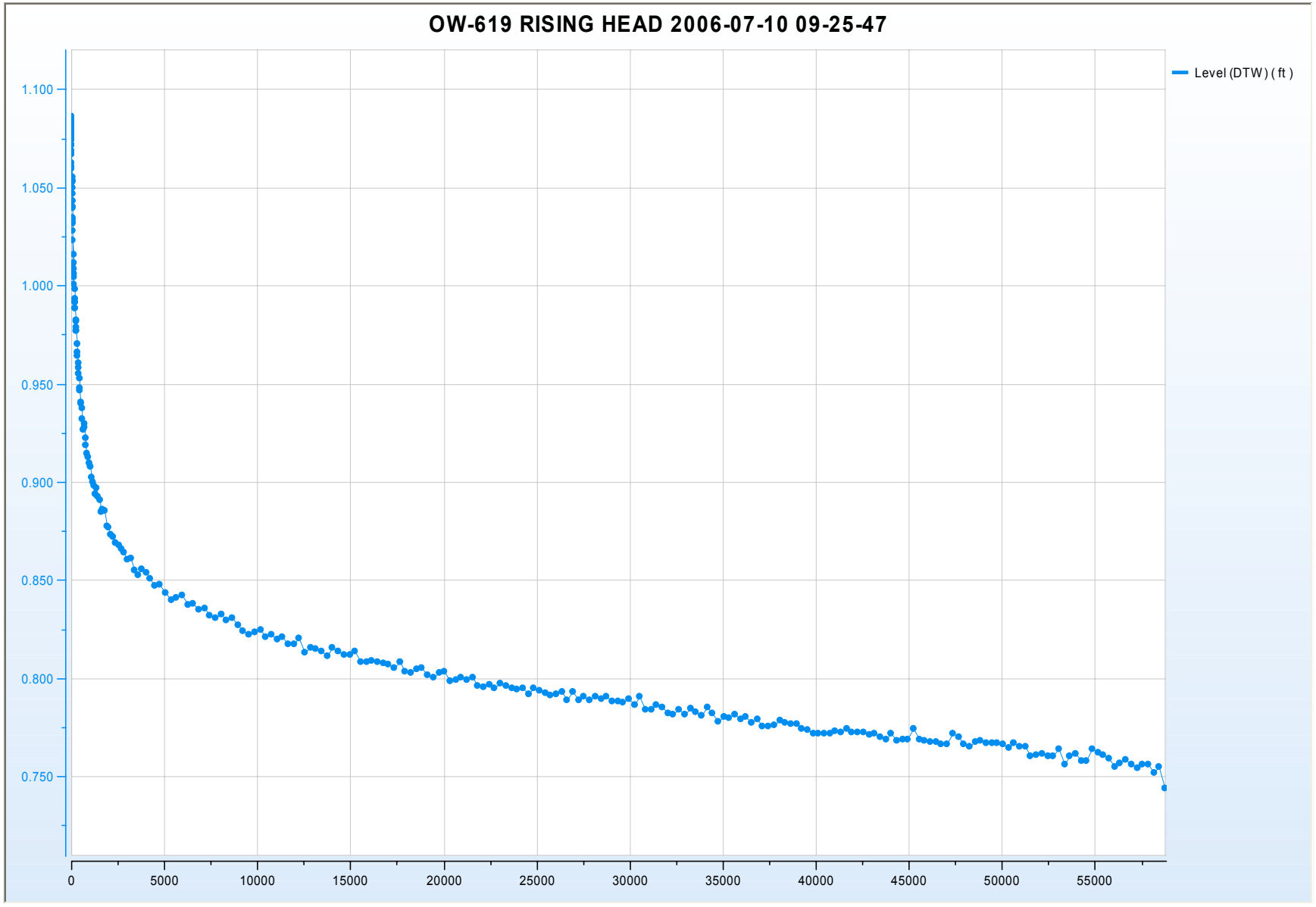

OW-617 Rising Head 2006-07-24 16-50-00
Water Displacement
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
0
1000
2000
3000
4000
5000
6000
Elapsed Time
Water Level

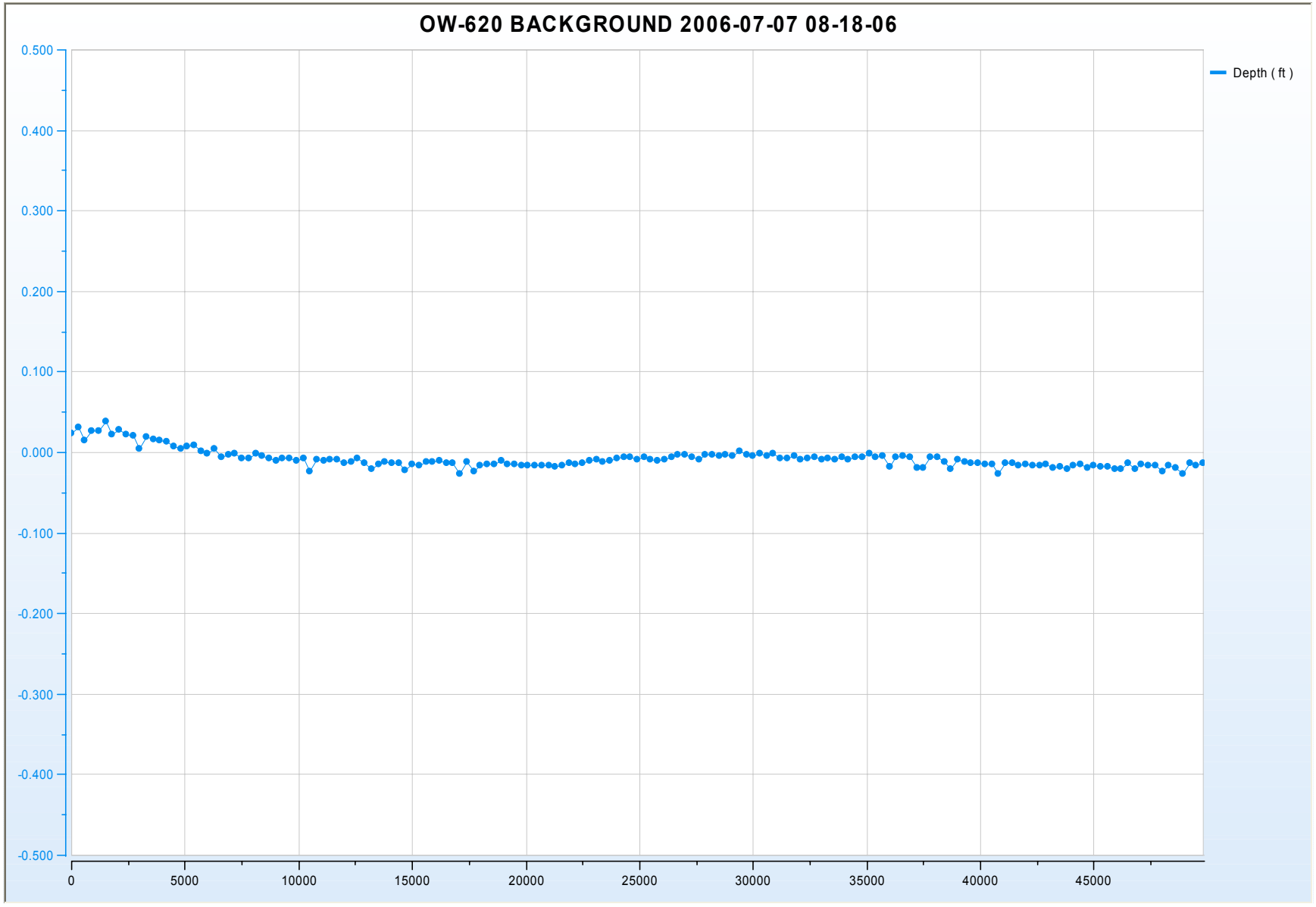

OW-618 BACKGROUND 2006-07-09 08-29-53
Level (DTW) (ft)
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
-1.200
-1.400
-1.600
-1.800
-2.000
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000

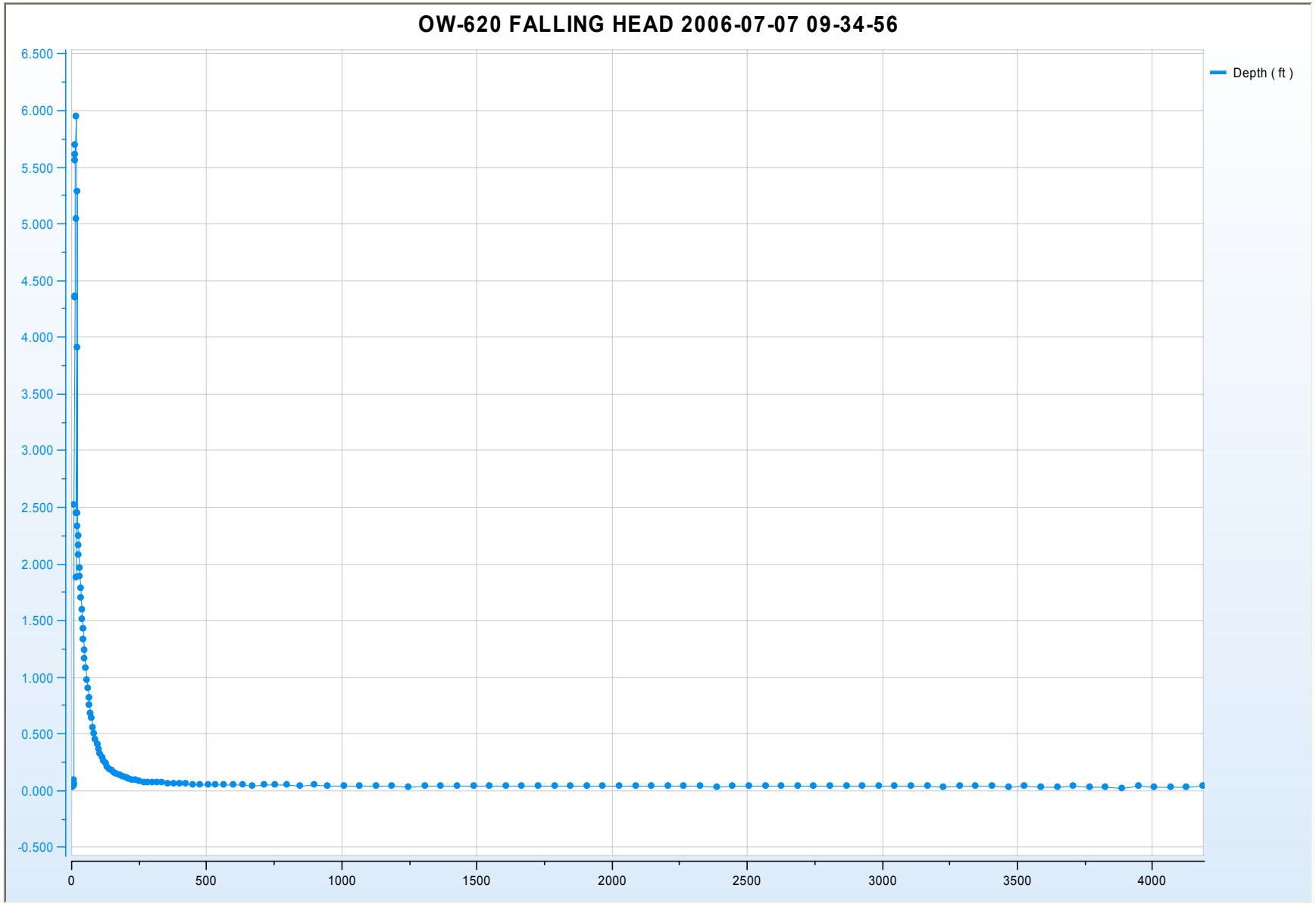

OW-618 FALLING HEAD 2006-07-09 09-10-14
Level (DTW) (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
-6.000
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700

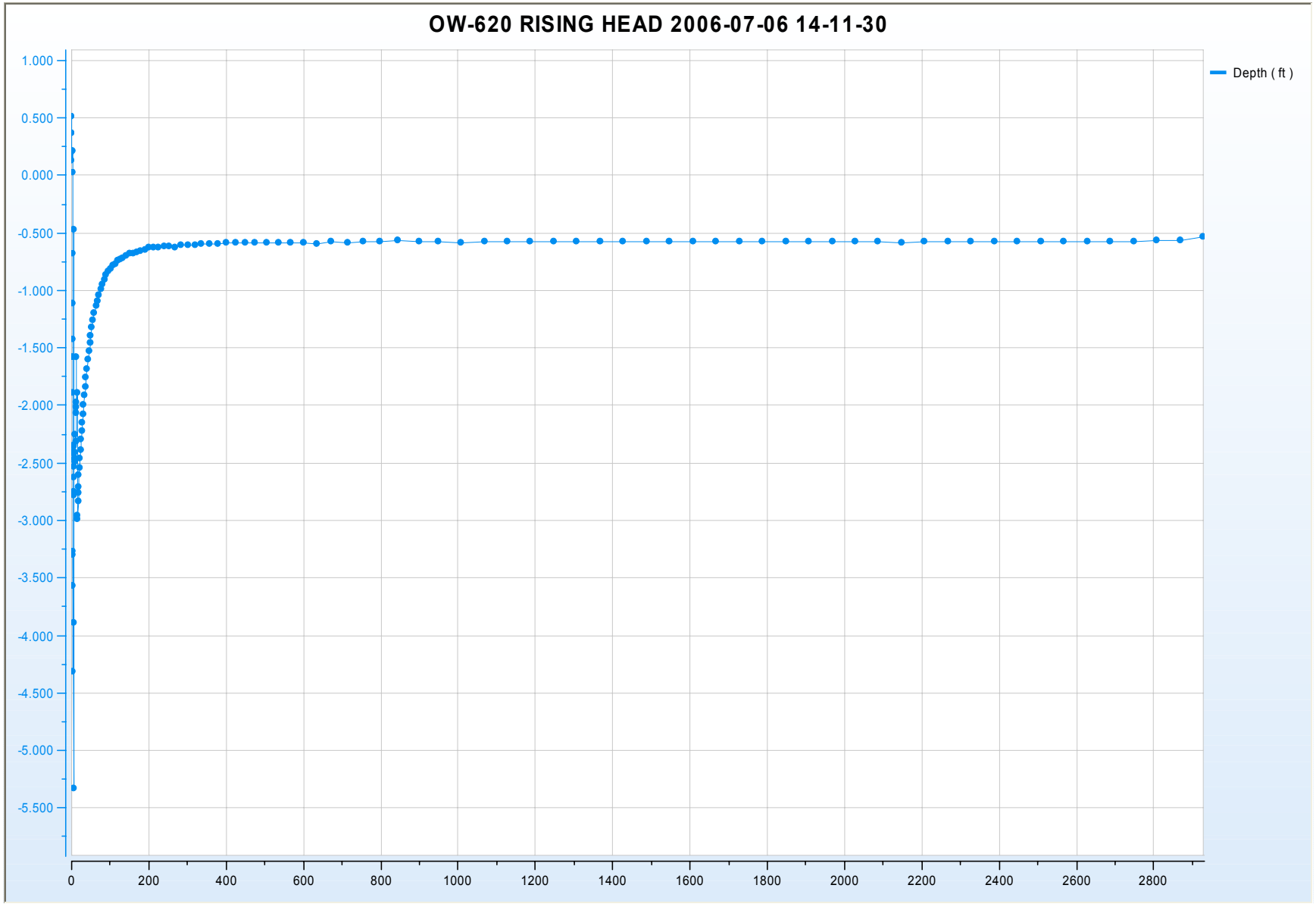

OW-618 RISING HEAD 2006-07-09 09-56-41
Level (DTW) (ft)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
-1.000
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400

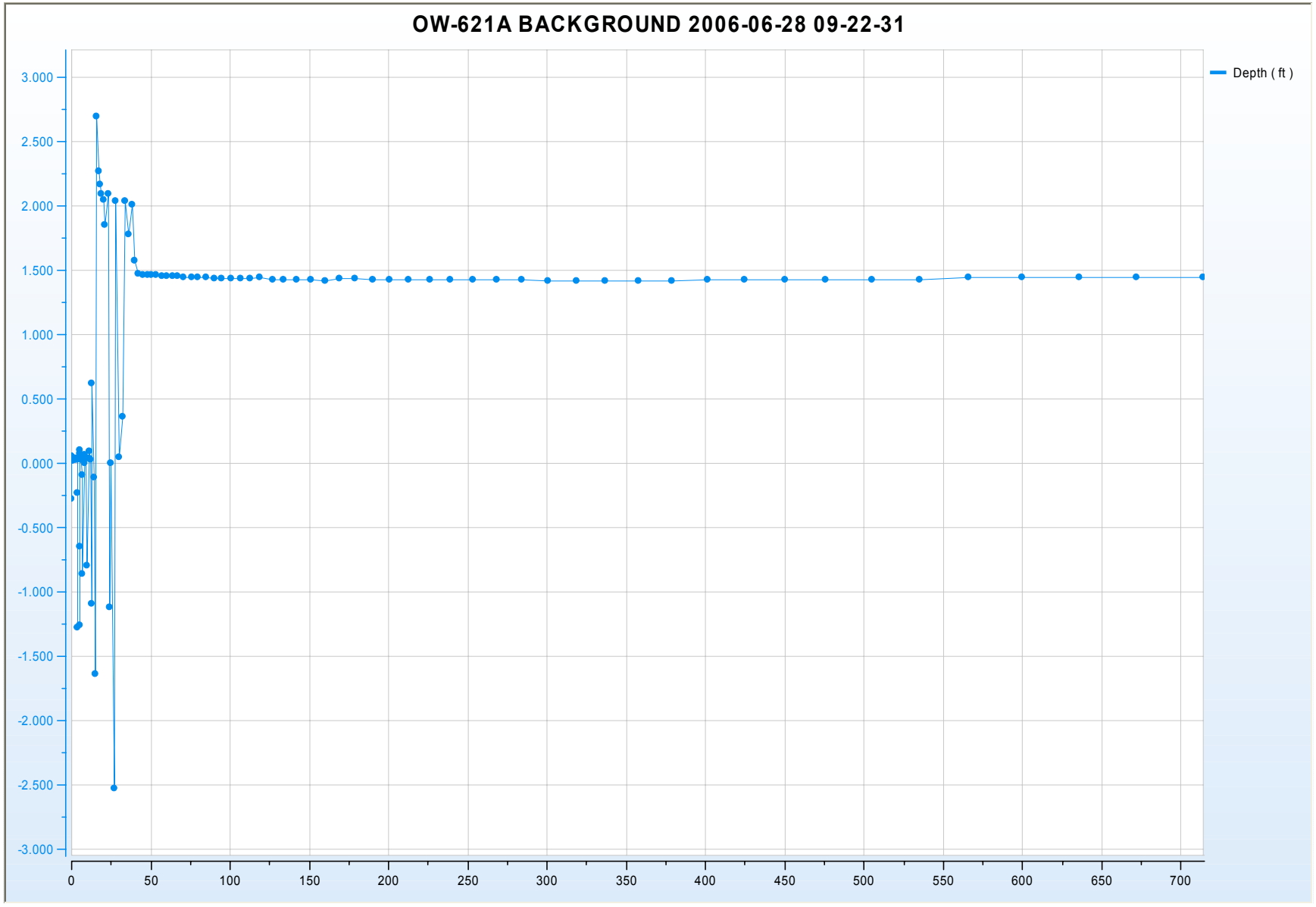

OW-619 NEW BACKGROUND 2006-07-09 16-48-51
Level (DTW) (ft)
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
-0.300
-0.400
-0.500
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170

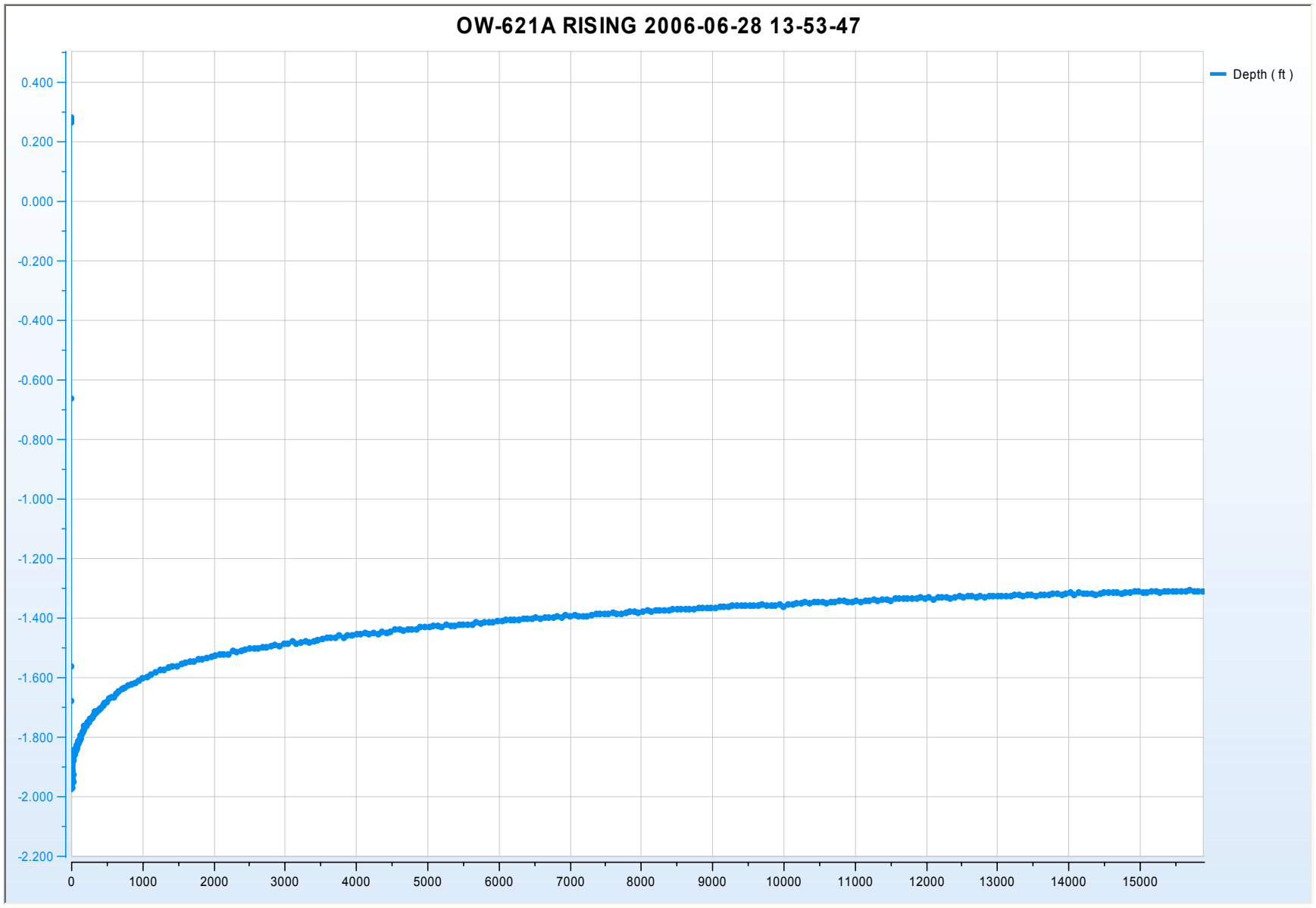

OW-619 RISING HEAD 2006-07-10 09-25-47
Level (DTW) (ft)
1.100
1.050
1.000
0.950
0.900
0.850
0.800
0.750
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
55000

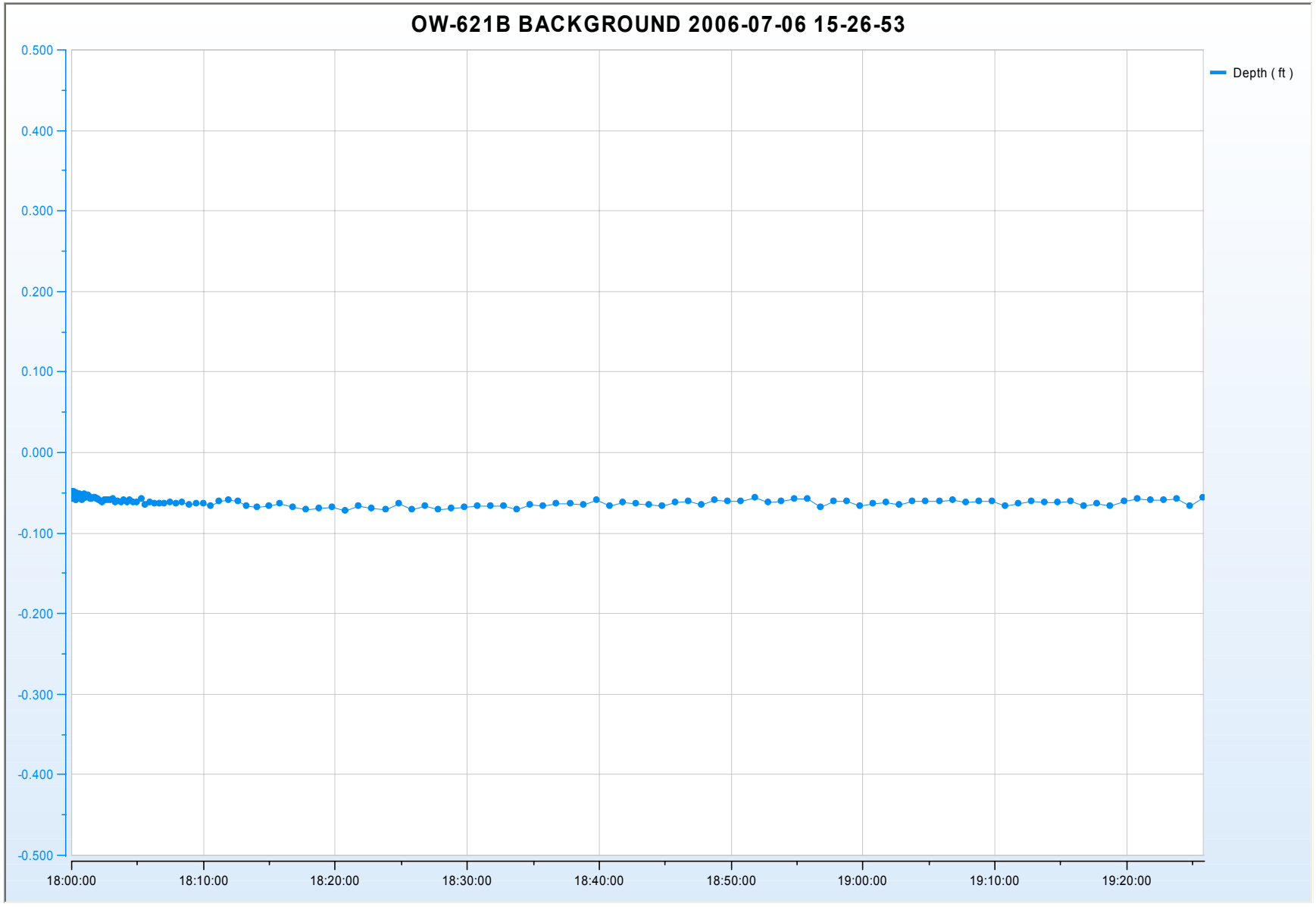

OW-620 BACKGROUND 2006-07-07 08-18-06
Depth (ft)
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
-0.300
-0.400
-0.500
0
5000
10000
15000
20000
25000
30000
35000
40000
45000

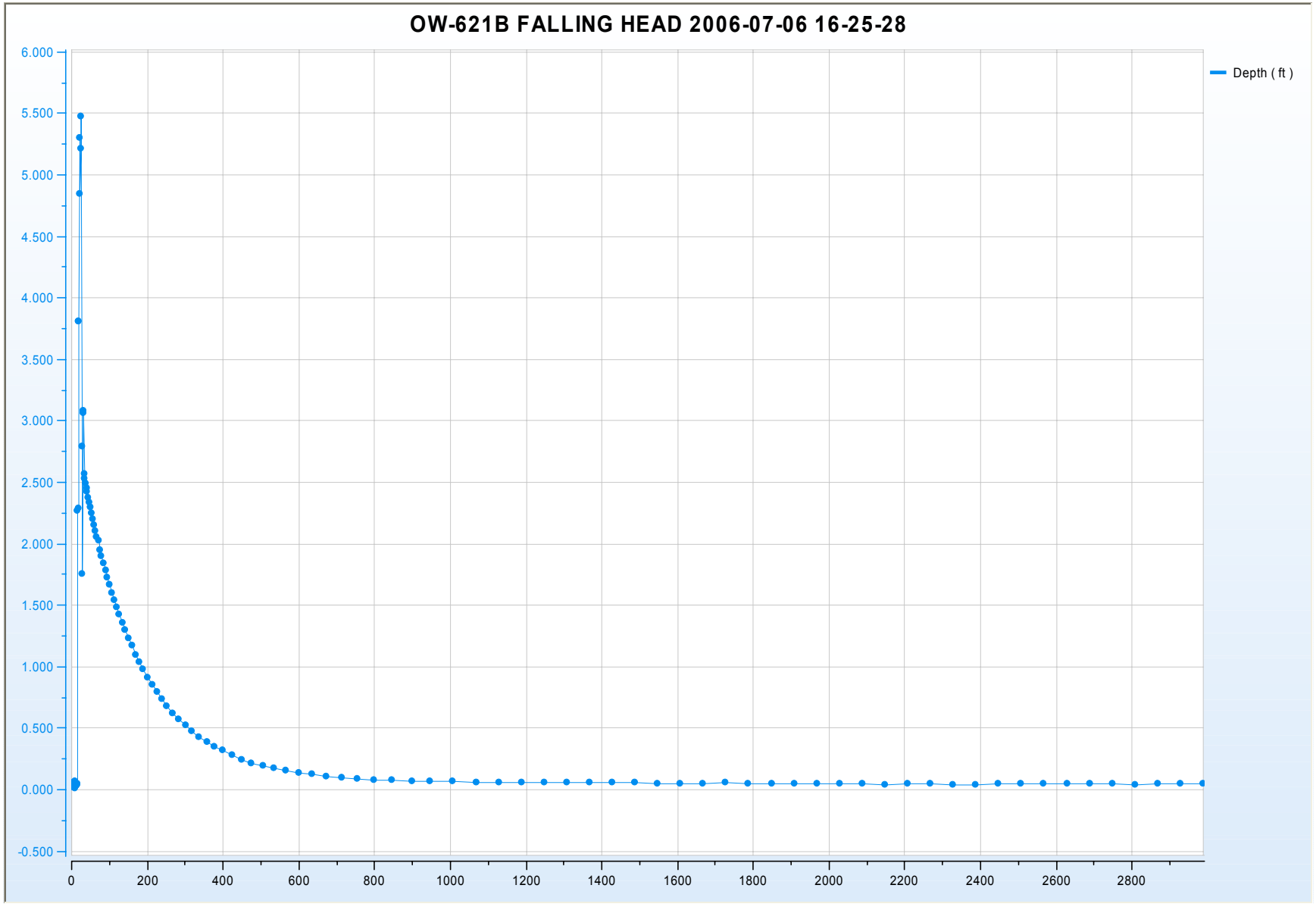

OW-620 FALLING HEAD 2006-07-07 09-34-56
Depth (ft)
6.500
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
500
1000
1500
2000
2500
3000
3500
4000

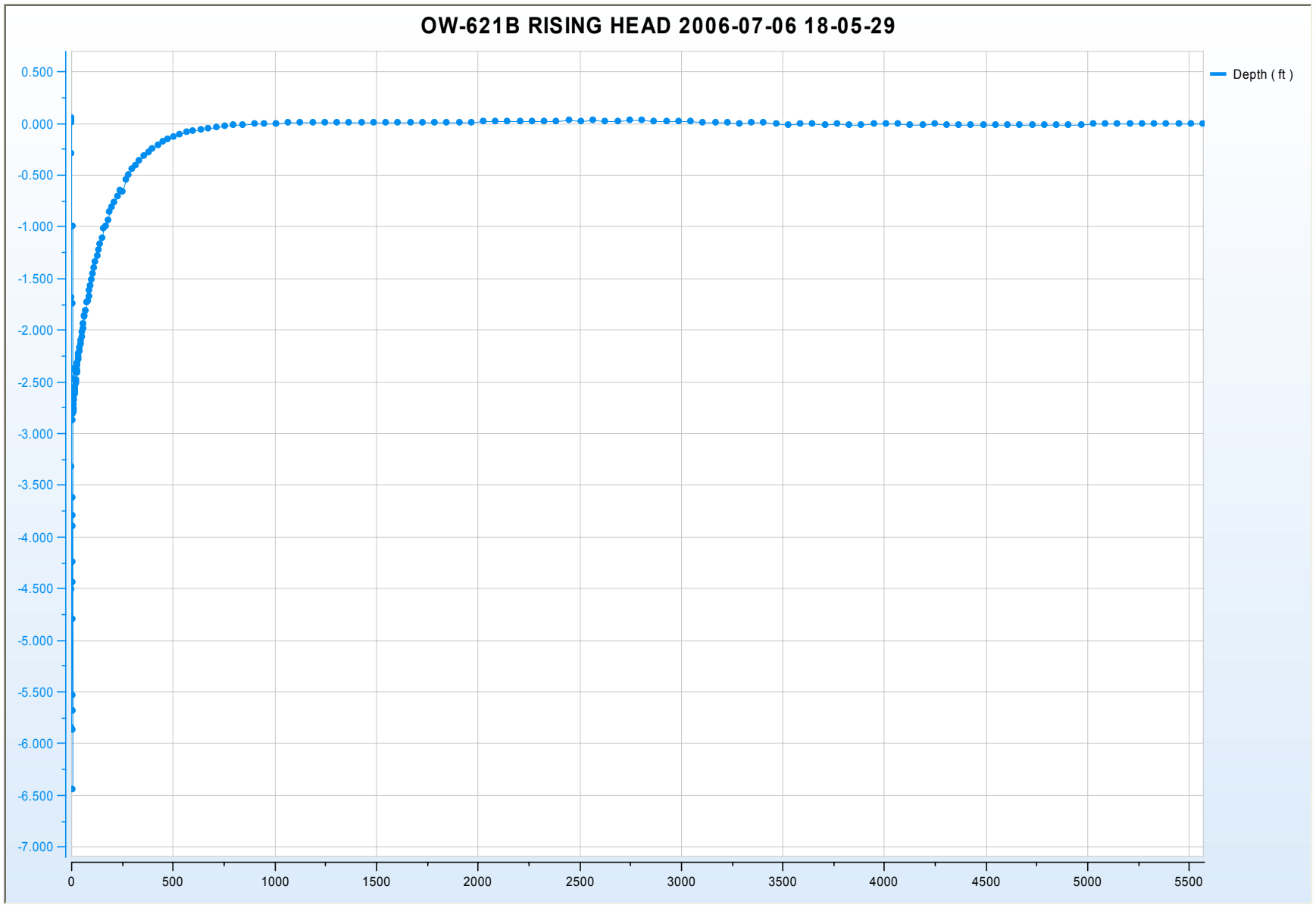

OW-620 RISING HEAD 2006-07-06 14-11-30
Depth (ft)
1.000
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800

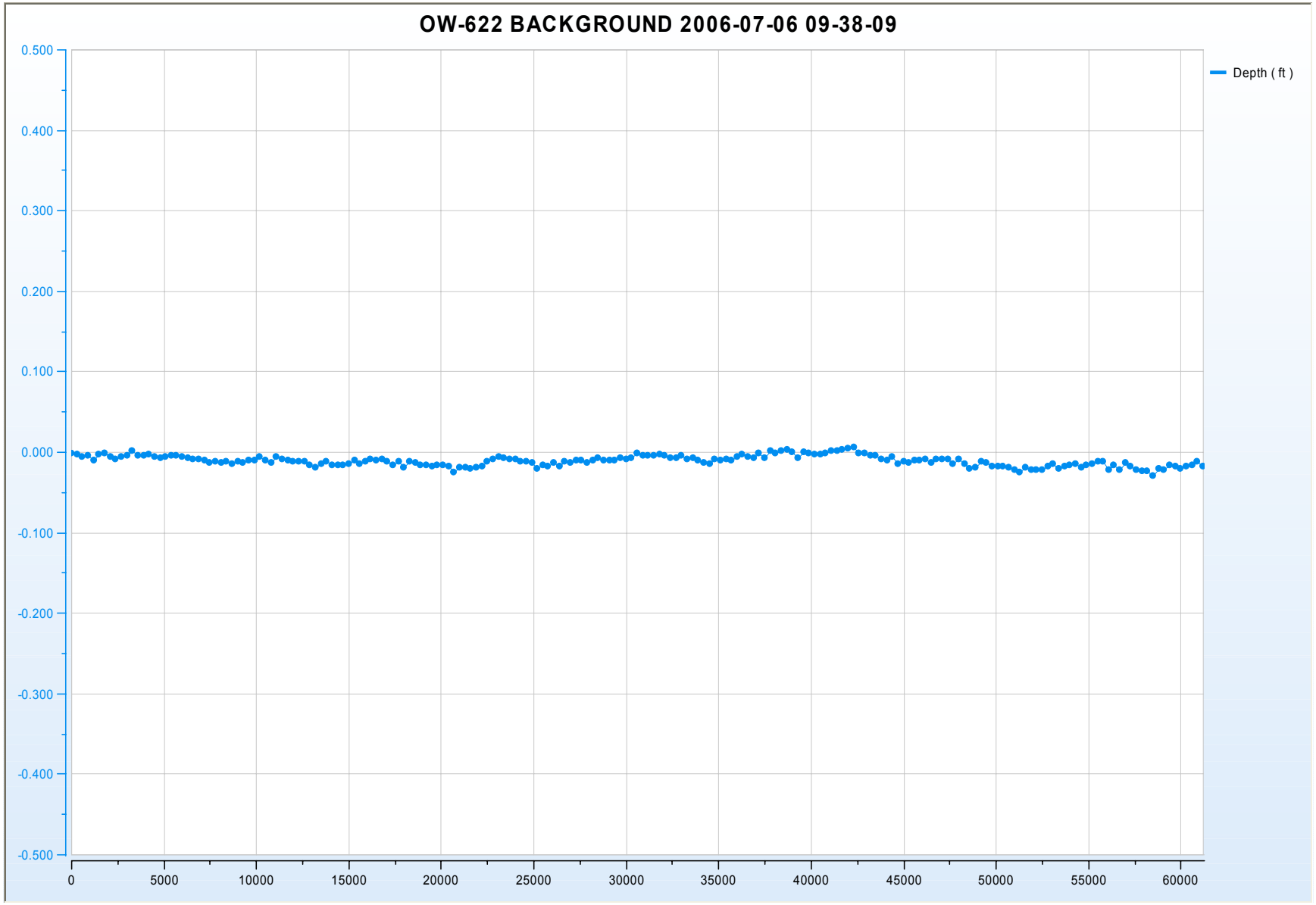

OW-621A BACKGROUND 2006-06-28 09-22-31
Depth (ft)
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700

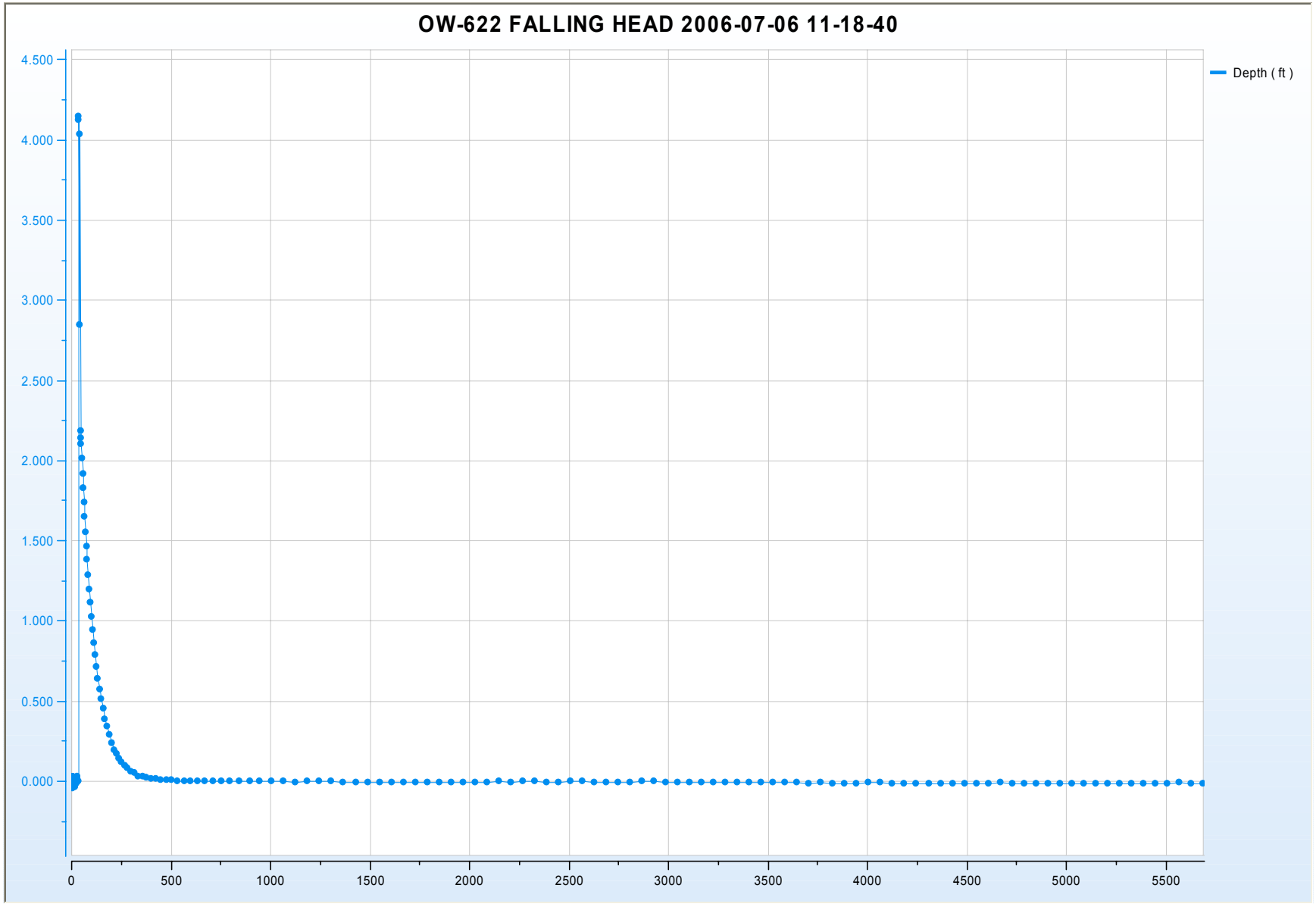

OW-621A RISING 2006-06-28 13-53-47
Depth (ft)
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
-1.200
-1.400
-1.600
-1.800
-2.000
-2.200
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000

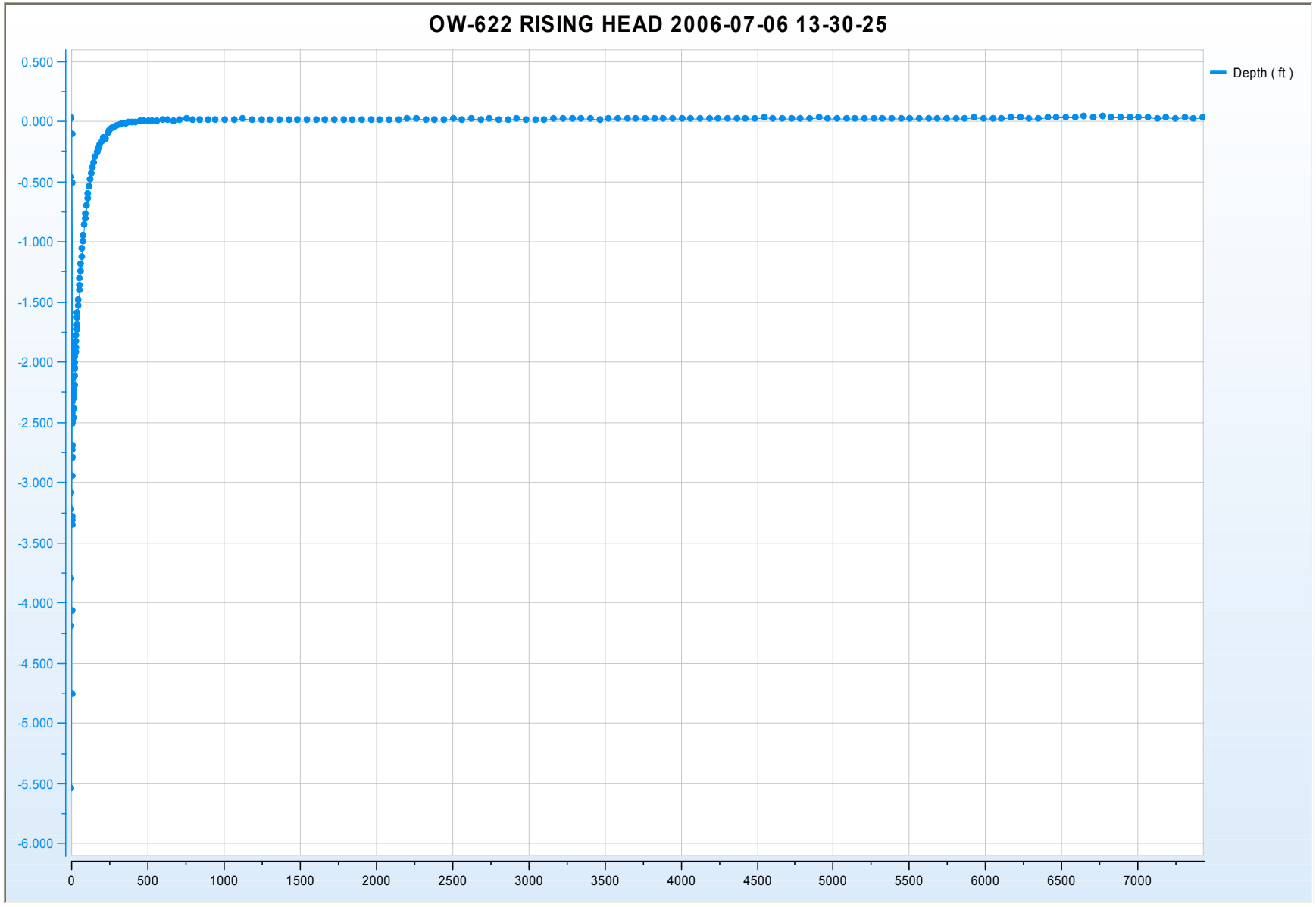

OW-621B BACKGROUND 2006-07-06 15-26-53
Depth (ft)
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
-0.300
-0.400
-0.500
18:00:00
18:10:00
18:20:00
18:30:00
18:40:00
18:50:00
19:00:00
19:10:00
19:20:00

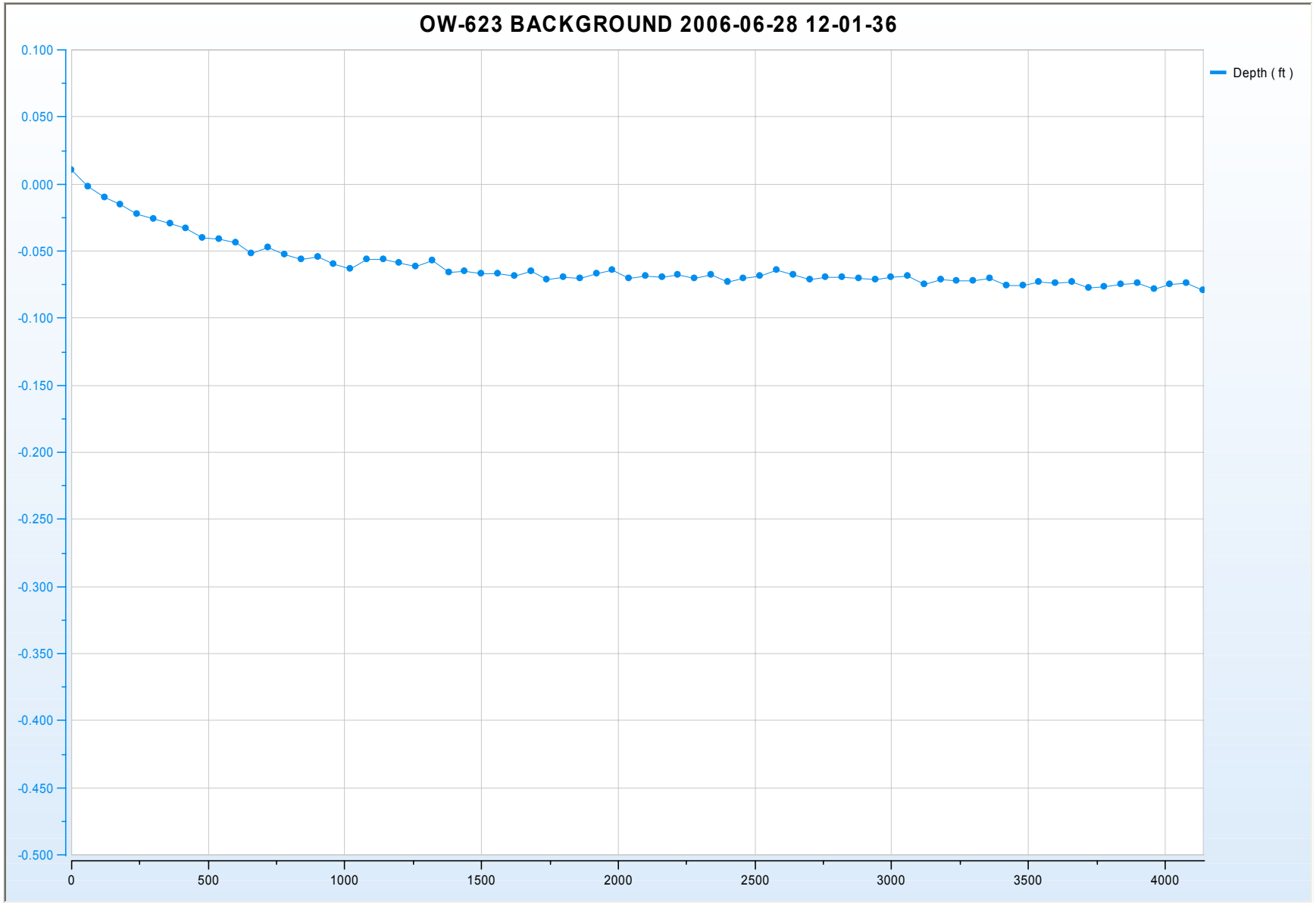

OW-621B FALLING HEAD 2006-07-06 16-25-28
Depth (ft)
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800

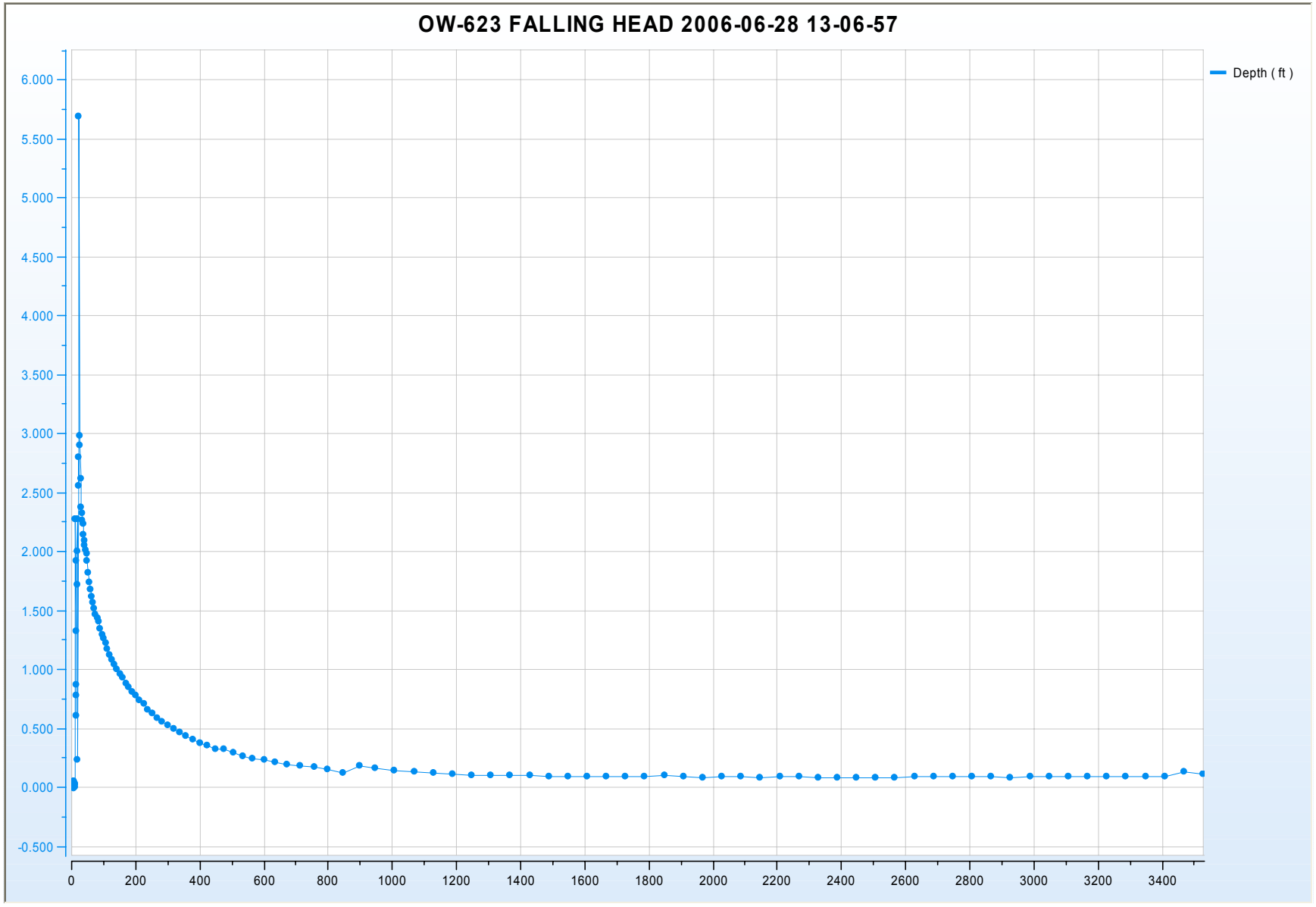

OW-621B RISING HEAD 2006-07-06 18-05-29
Depth (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
-6.000
-6.500
-7.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500

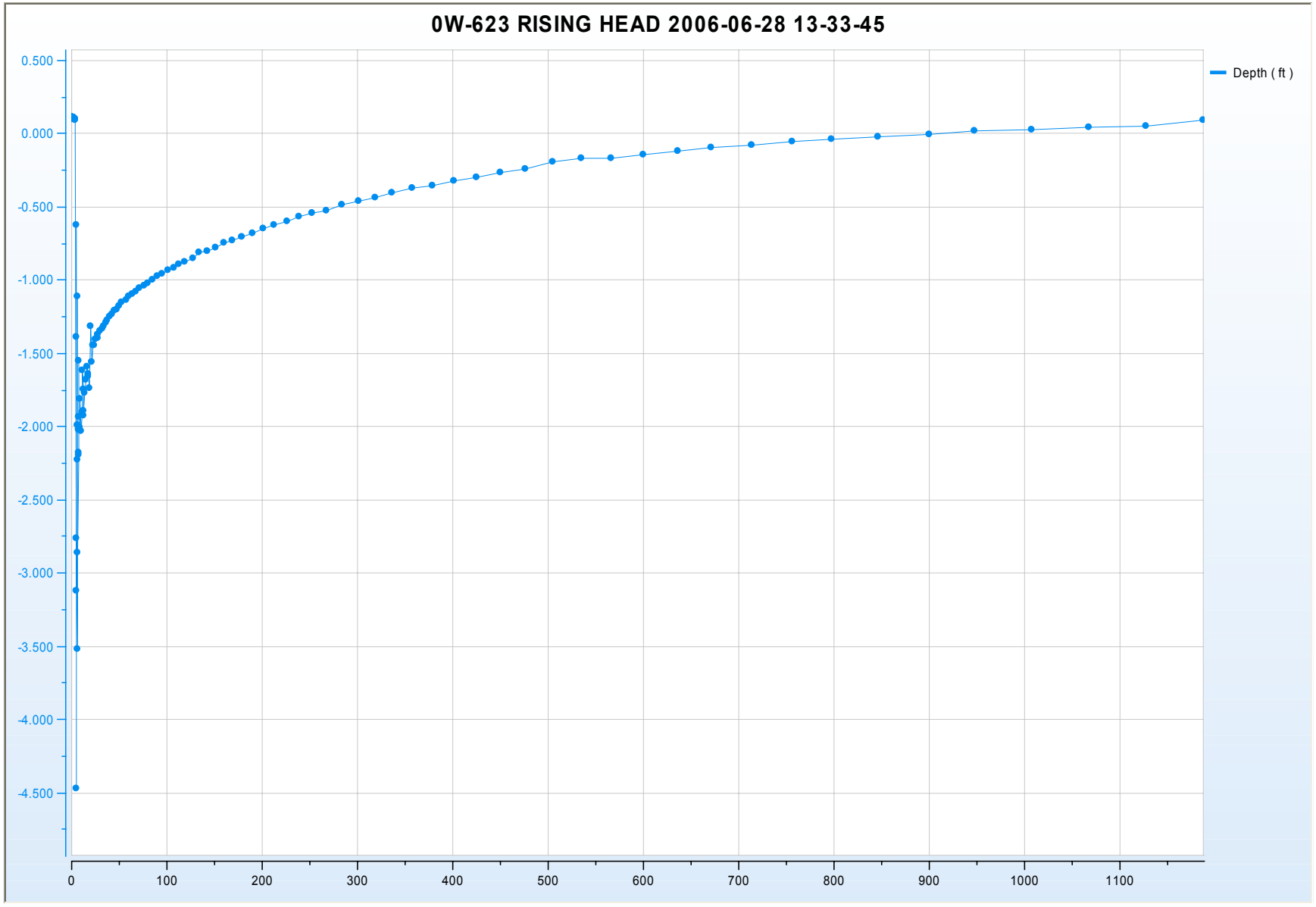

OW-622 BACKGROUND 2006-07-06 09-38-09
Depth (ft)
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
-0.300
-0.400
-0.500
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
55000
60000

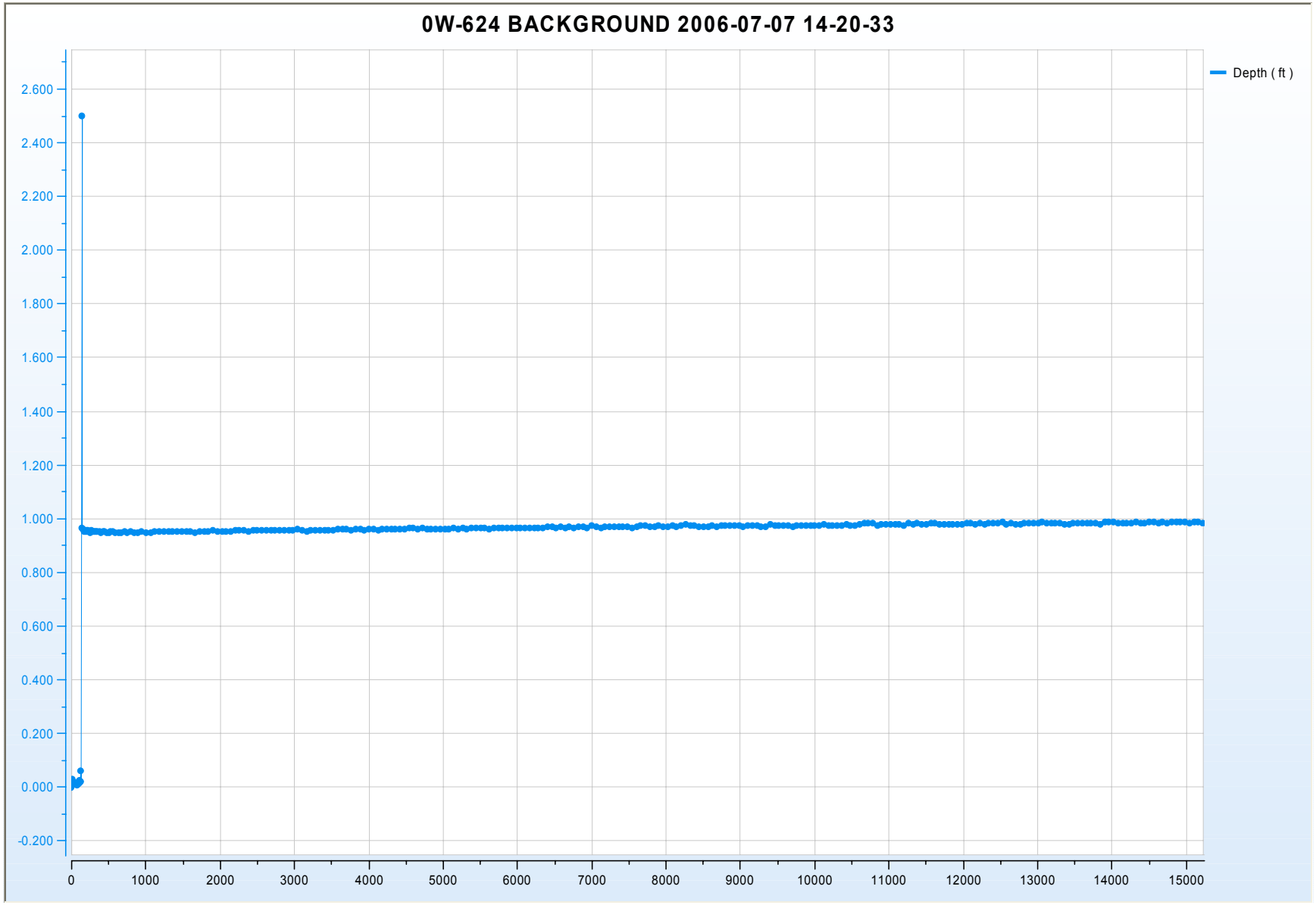

OW-622 FALLING HEAD 2006-07-06 11-18-40
Depth (ft)
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500

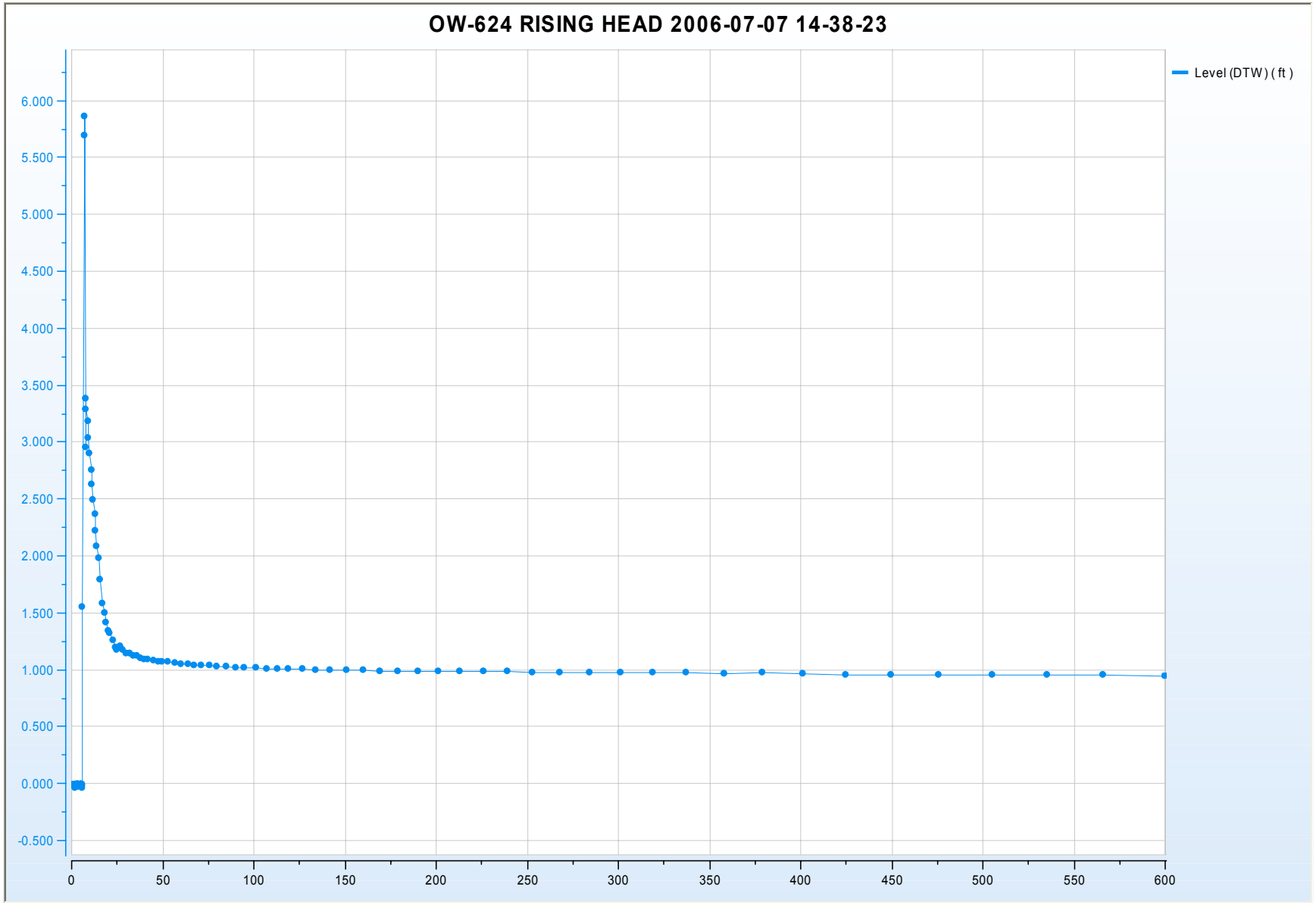

OW-622 RISING HEAD 2006-07-06 13-30-25
Depth (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
-6.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000

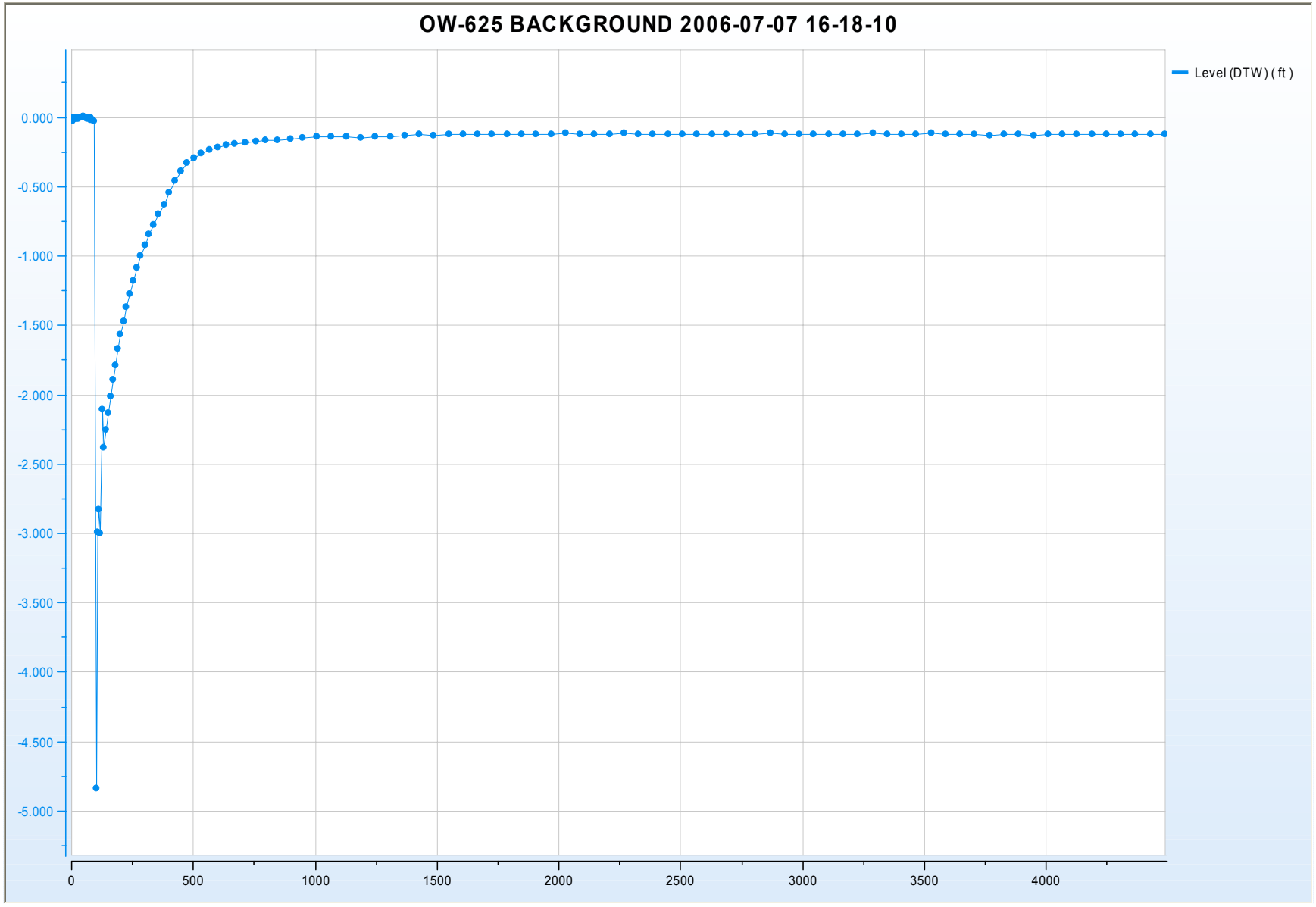

OW-623 BACKGROUND 2006-06-28 12-01-36
Depth (ft)
0.100
0.050
0.000
-0.050
-0.100
-0.150
-0.200
-0.250
-0.300
-0.350
-0.400
-0.450
-0.500
0
500
1000
1500
2000
2500
3000
3500
4000

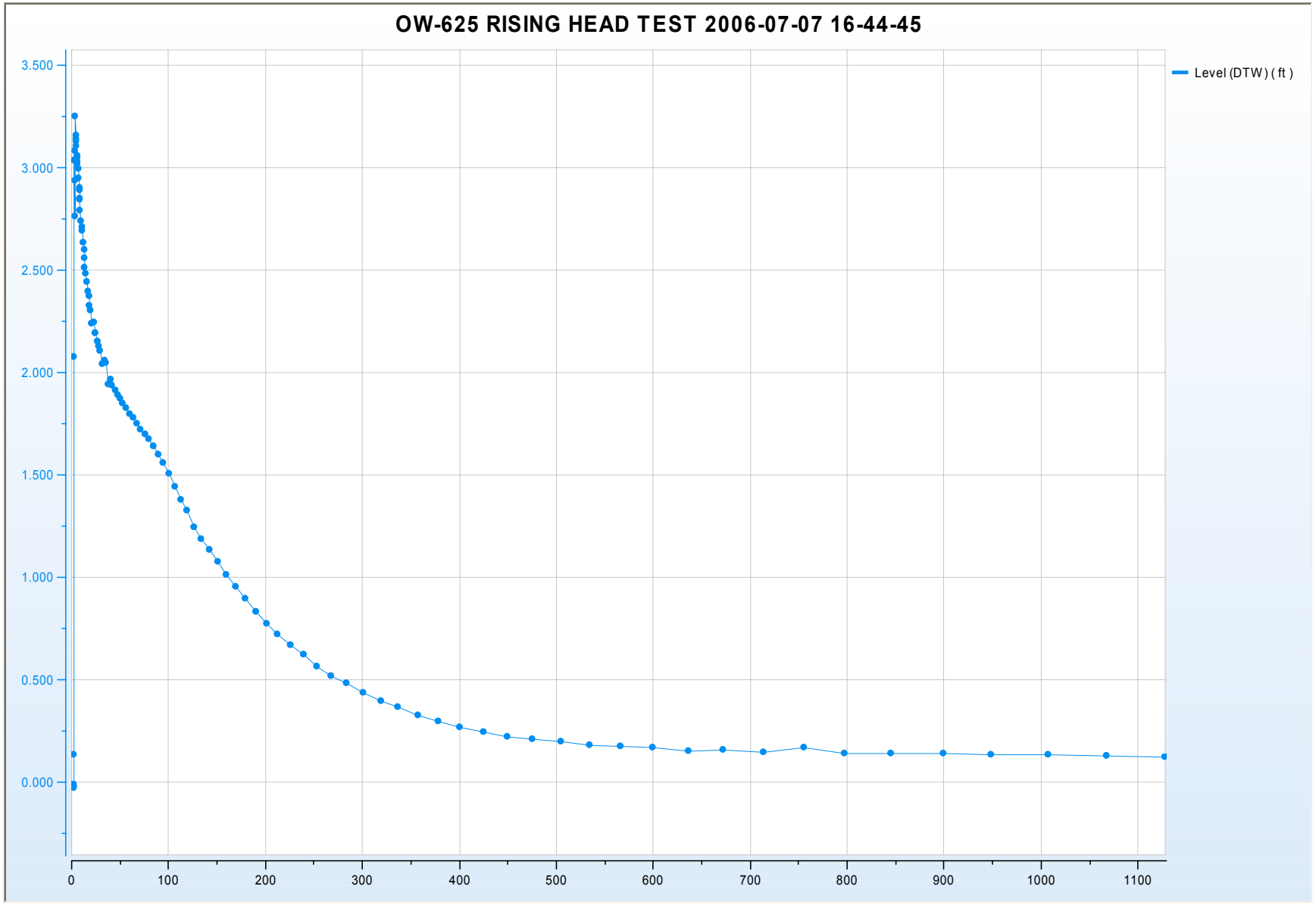

OW-623 FALLING HEAD 2006-06-28 13-06-57
Depth (ft)
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400

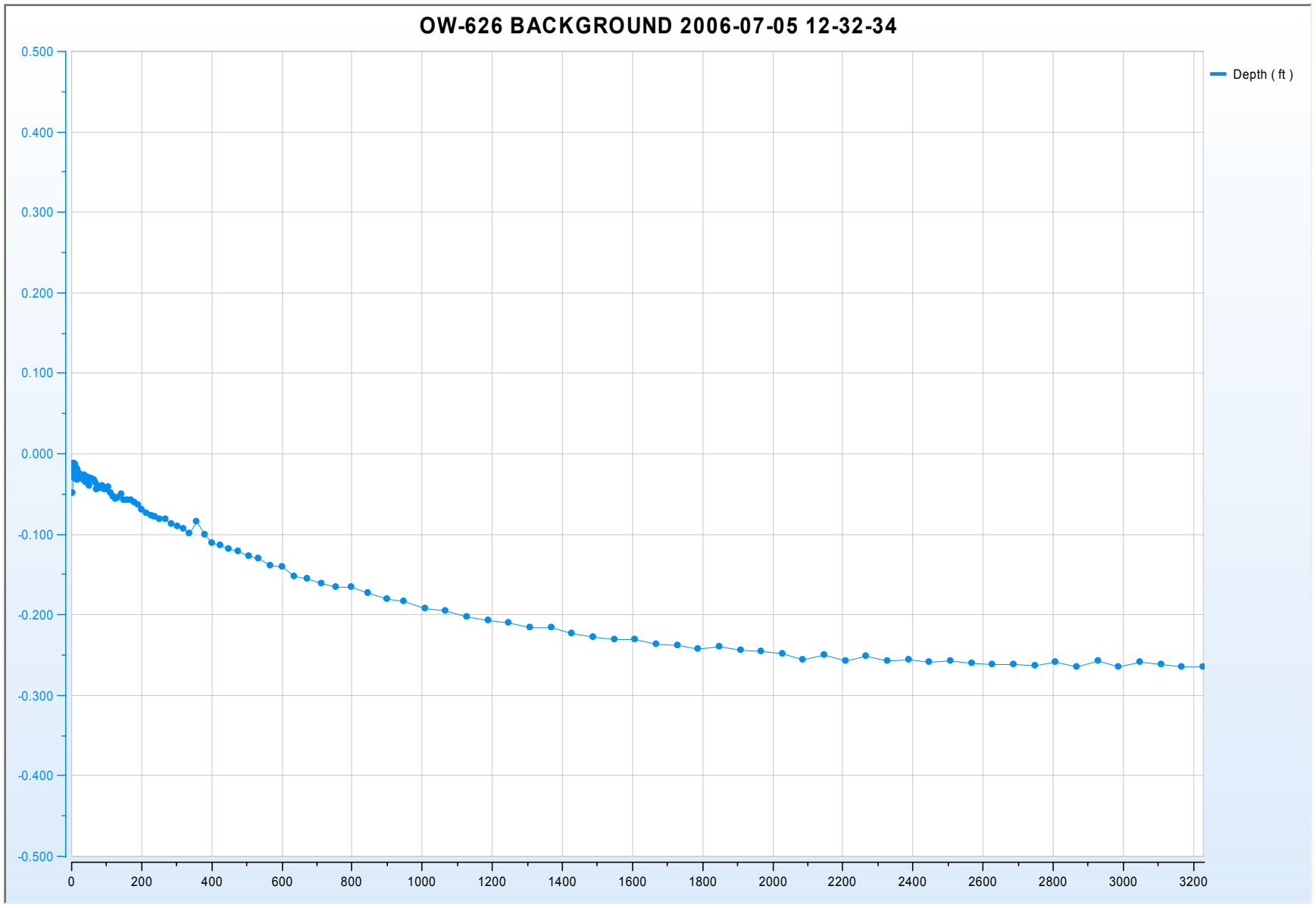

0W-623 RISING HEAD 2006-06-28 13-33-45
Depth (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
0
100
200
300
400
500
600
700
800
900
1000
1100

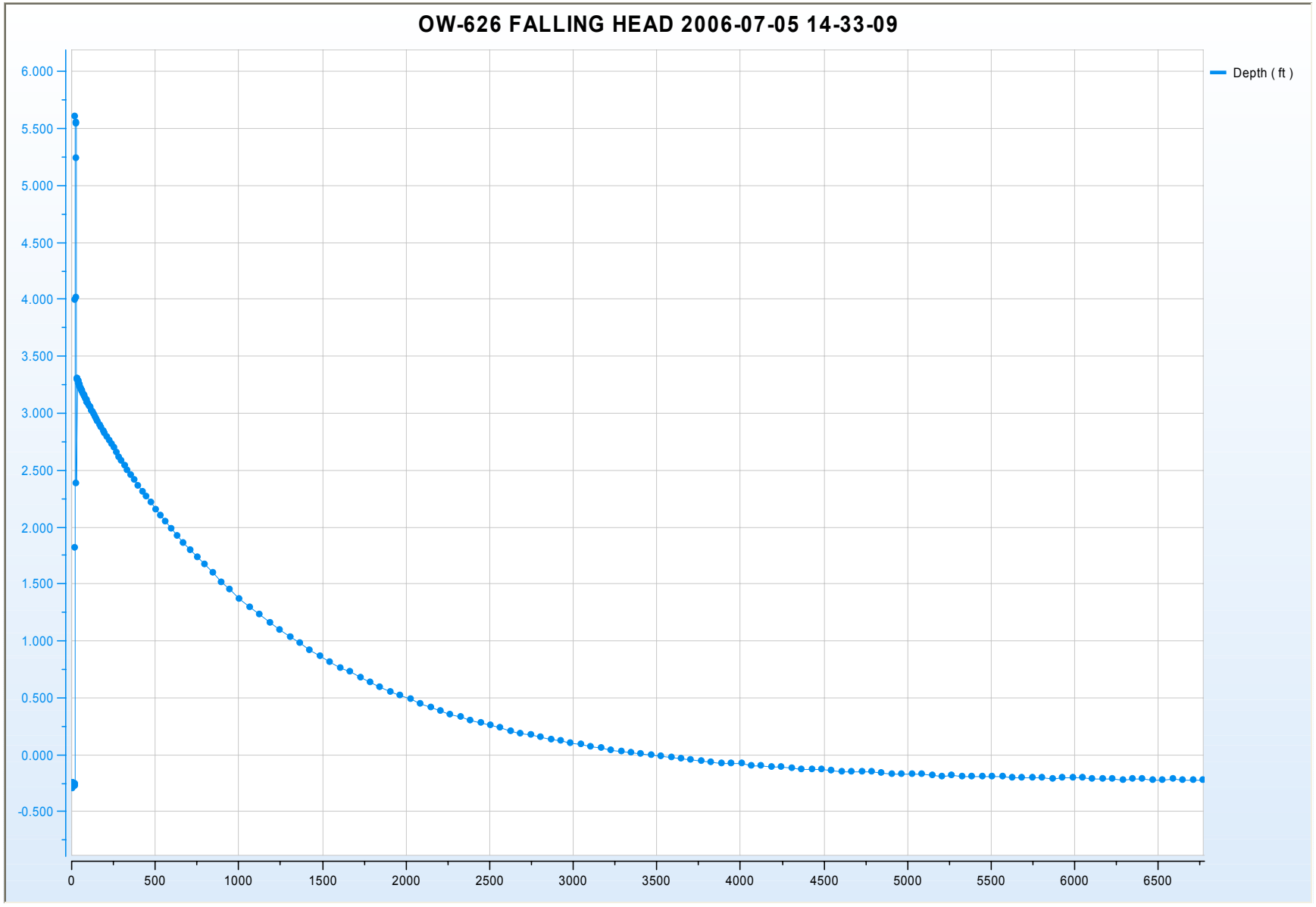

0W-624 BACKGROUND 2006-07-07 14-20-33
Depth (ft)
2.600
2.400
2.200
2.000
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000

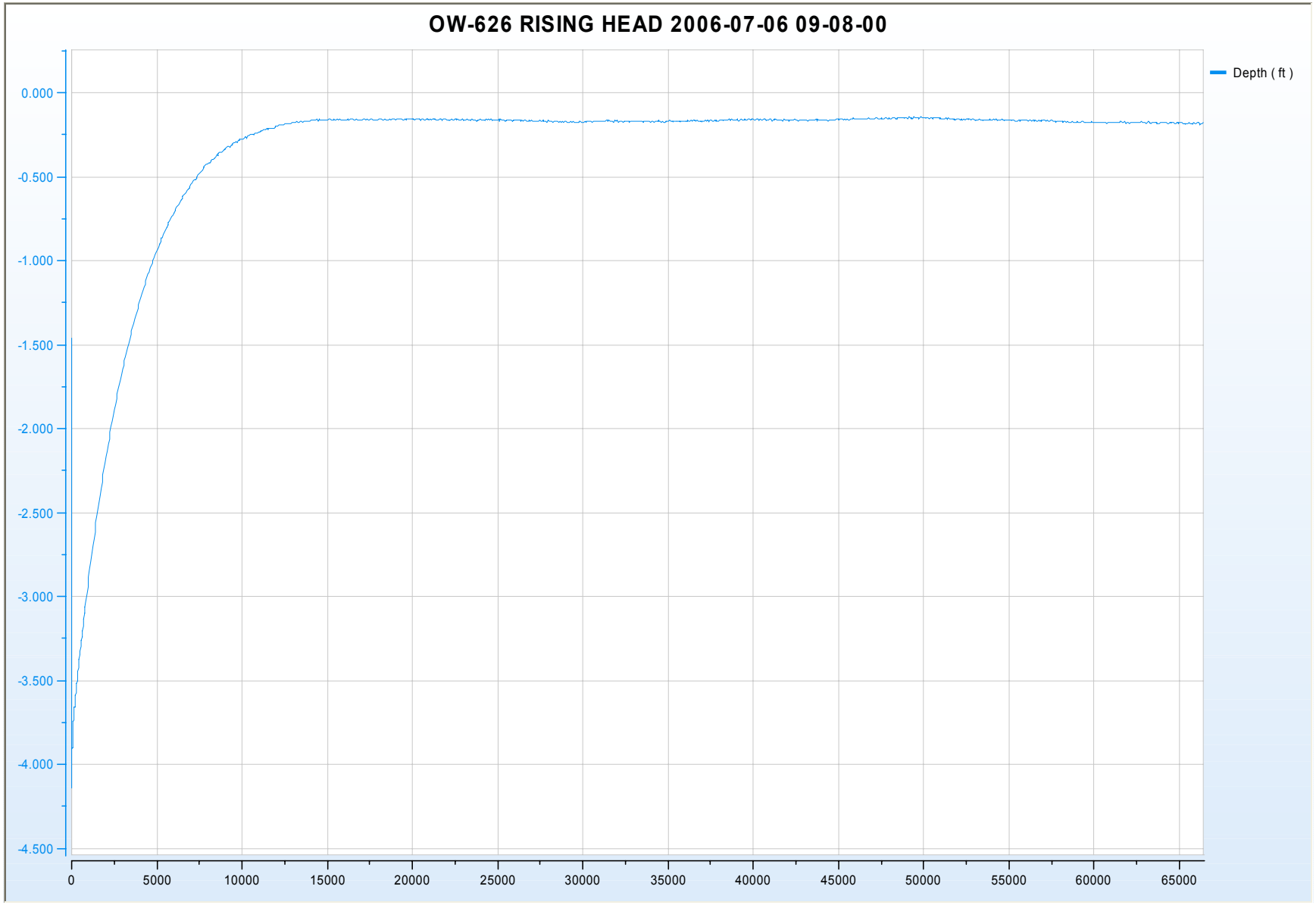

OW-624 RISING HEAD 2006-07-07 14-38-23
Level (DTW) (ft)
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
50
100
150
200
250
300
350
400
450
500
550
600

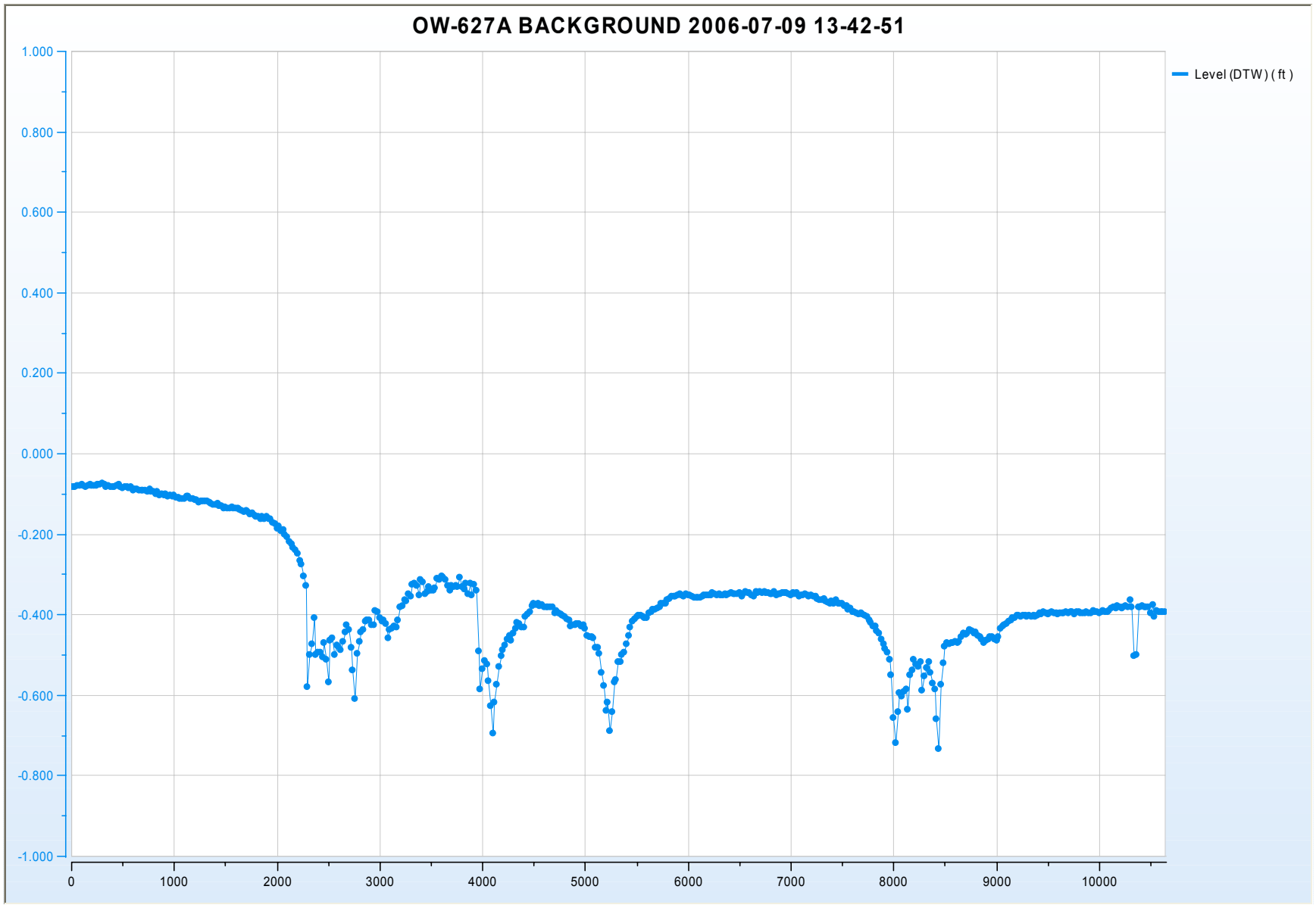

OW-625 BACKGROUND 2006-07-07 16-18-10
Level (DTW) (ft)
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
0
500
1000
1500
2000
2500
3000
3500
4000

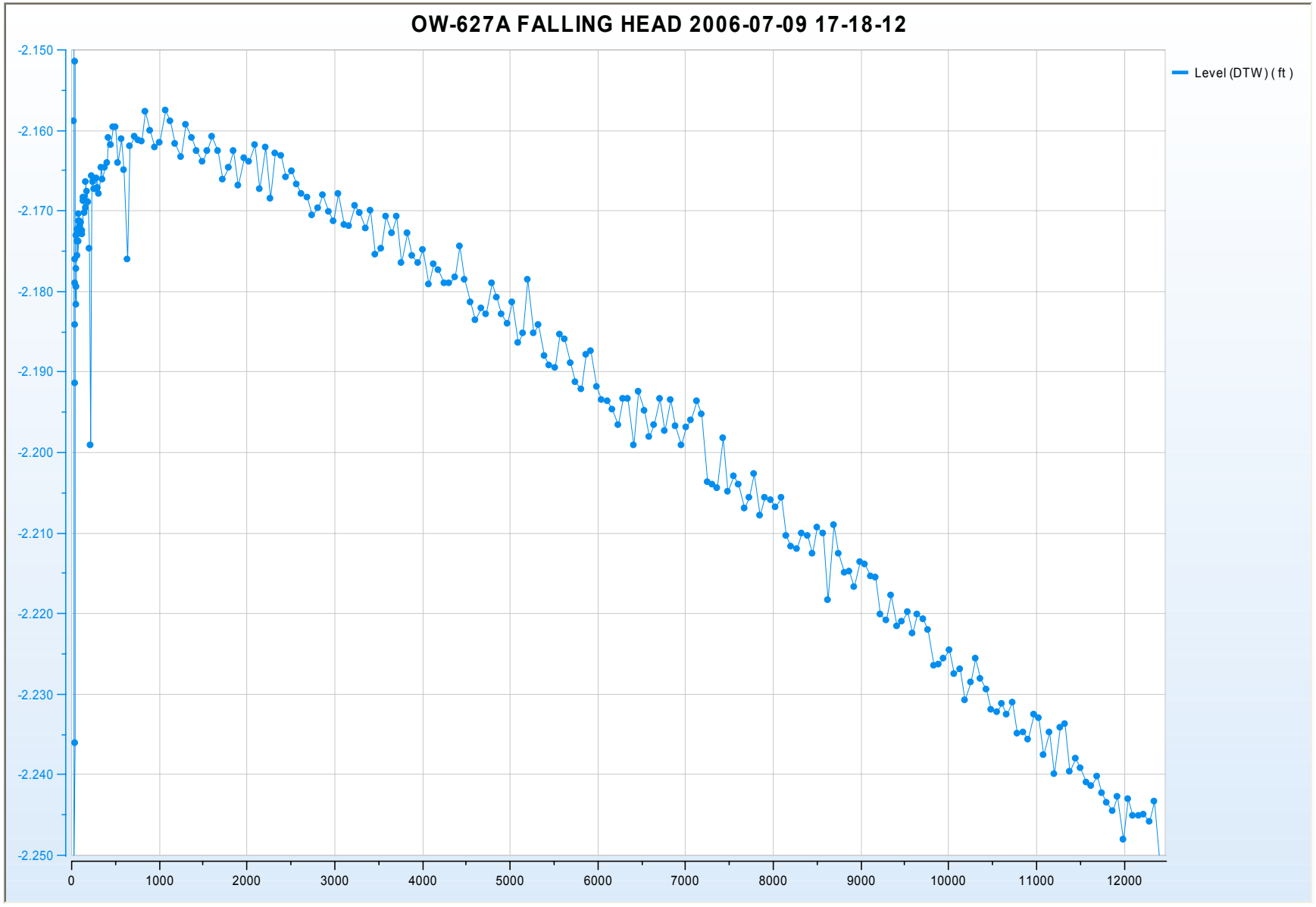

OW-625 RISING HEAD TEST 2006-07-07 16-44-45
Level (DTW) (ft)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
100
200
300
400
500
600
700
800
900
1000
1100

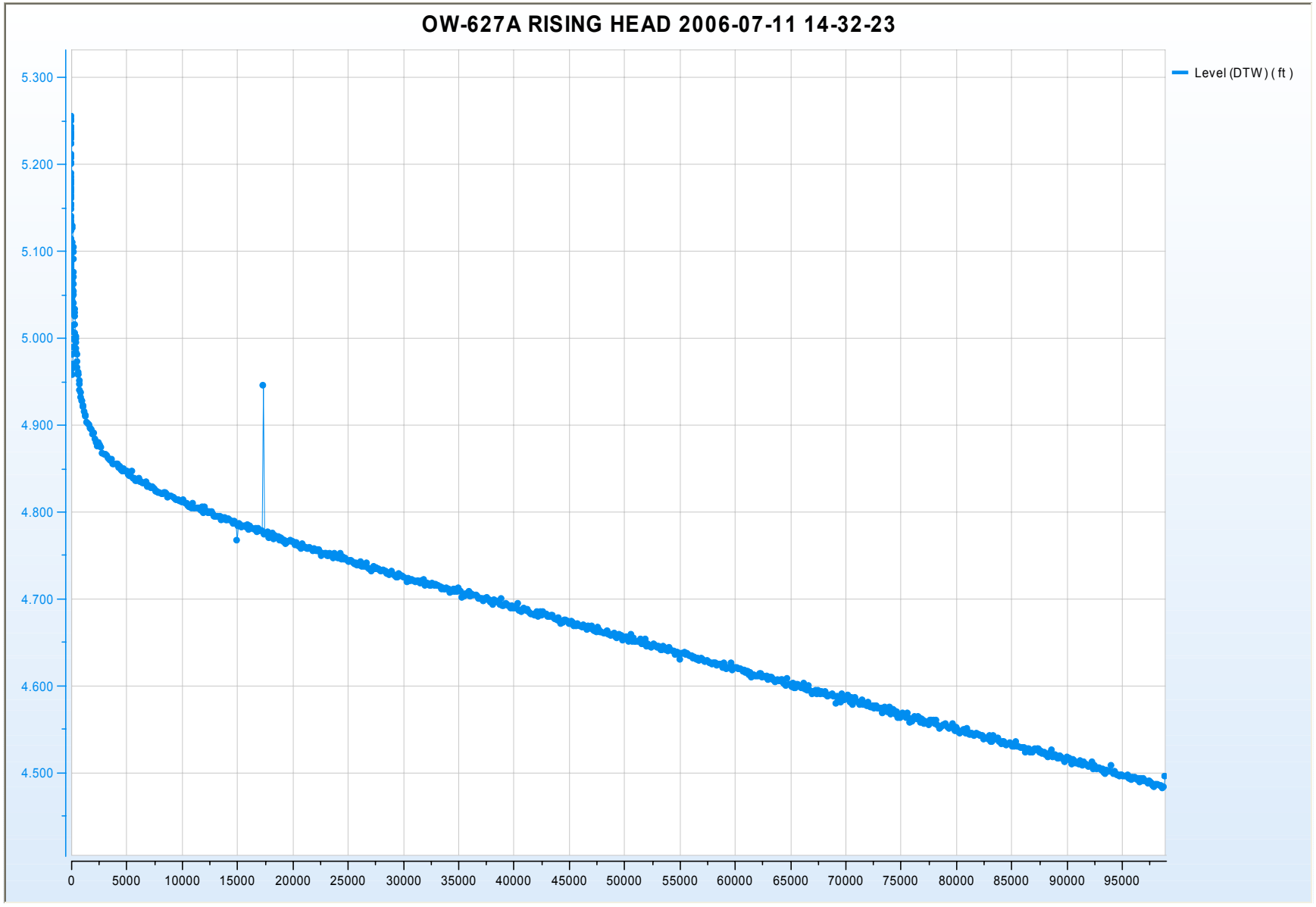

OW-626 BACKGROUND 2006-07-05 12-32-34
Depth (ft)
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
-0.300
-0.400
-0.500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200

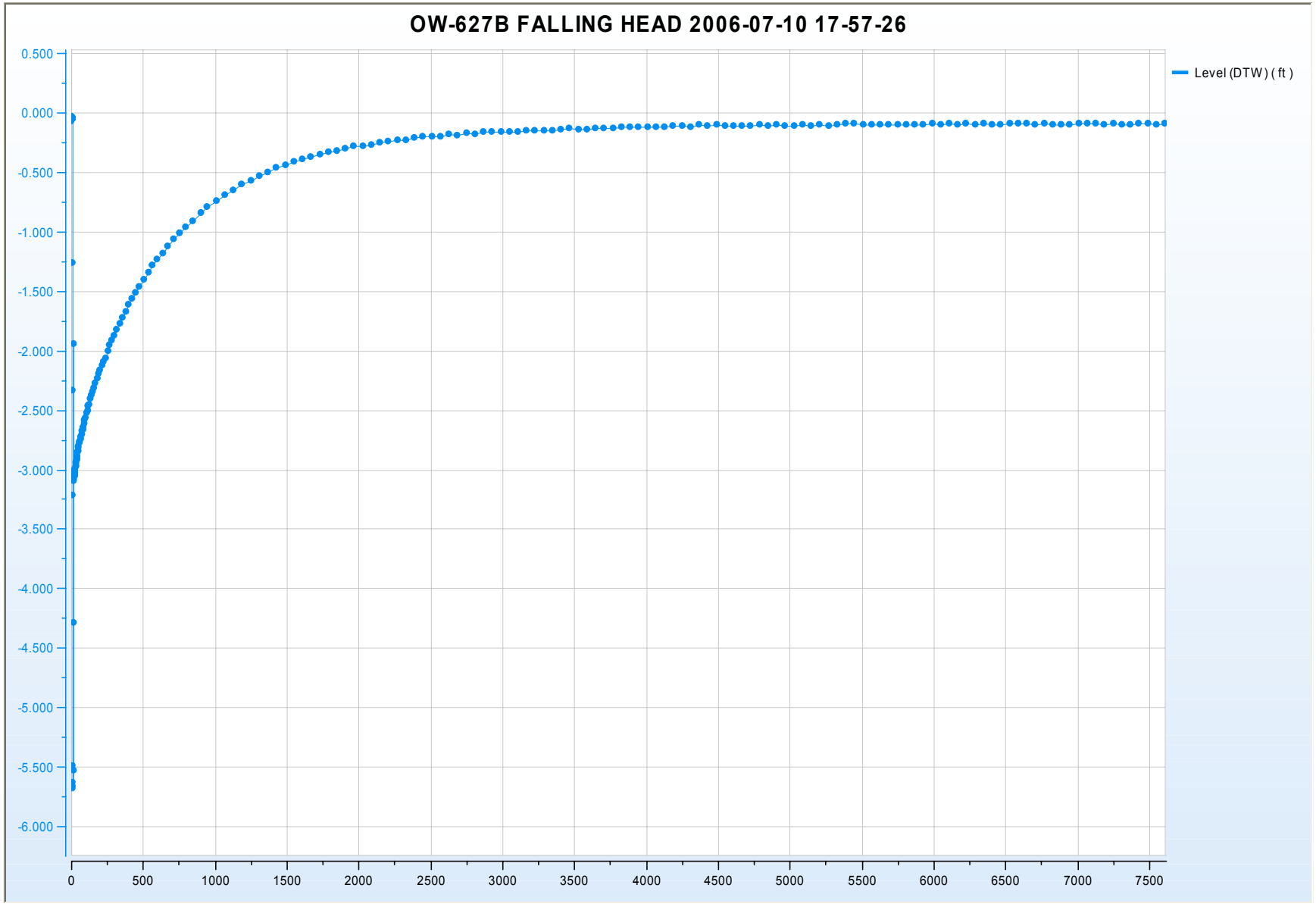

OW-626 FALLING HEAD 2006-07-05 14-33-09
Depth (ft)
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500

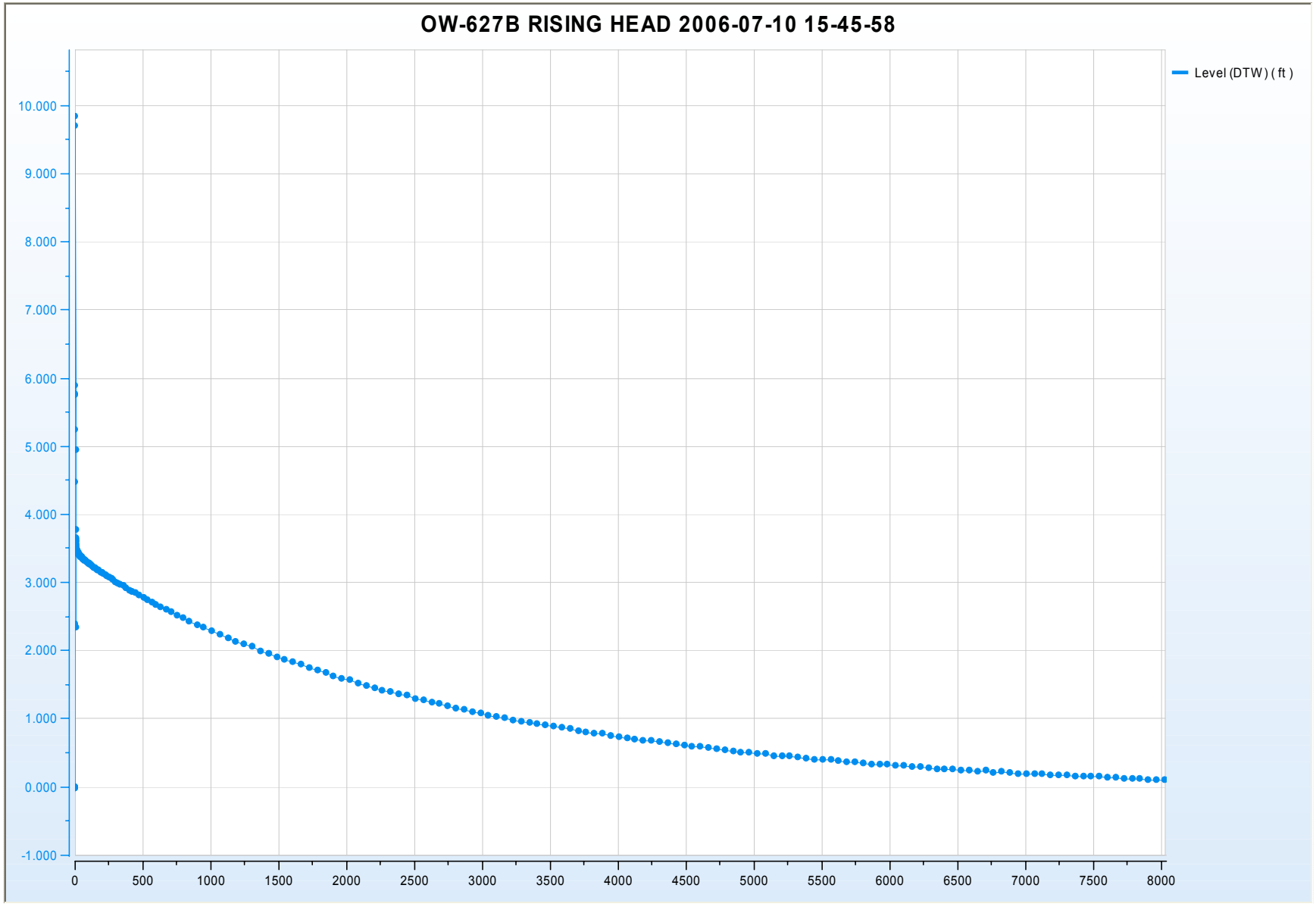

OW-626 RISING HEAD 2006-07-06 09-08-00
Depth (ft)
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
55000
60000
65000


OW-627A BACKGROUND 2006-07-09 13-42-51
Level (DTW) (ft)
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
-0.600
-0.800
-1.000
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


OW-627A FALLING HEAD 2006-07-09 17-18-12
Level (DTW) (ft)
-2.150
-2.160
-2.170
-2.180
-2.190
-2.200
-2.210
-2.220
-2.230
-2.240
-2.250
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000


OW-627A RISING HEAD 2006-07-11 14-32-23
Level (DTW) (ft)
5.300
5.200
5.100
5.000
4.900
4.800
4.700
4.600
4.500
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
55000
60000
65000
70000
75000
80000
85000
90000
95000


OW-627B FALLING HEAD 2006-07-10 17-57-26
Level (DTW) (ft)
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
-4.000
-4.500
-5.000
-5.500
-6.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500


OW-627B RISING HEAD 2006-07-10 15-45-58
Level (DTW) (ft)
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
-1.000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000