

P-S FIELD LOG REV V1.31a

3-6100H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 5 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	19		
42.0	137.80	20		
42.5	139.44	21		
43.0	141.08	22		
43.5	142.72	23		
44.0	144.36	24		
44.5	146.00	25		
45.0	147.64	26		
45.5	149.28	27		
46.0	150.92	28		
46.5	152.56	29		
47.0	154.20	30		
47.5	155.84	31		
48.0	157.48	32		
48.5	159.12	33		
49.0	160.76	34		
49.5	162.40	35		
50.0	164.04	36		
50.5	165.68	37		
51.0	167.32	38		
51.5	168.96	39		
52.0	170.60	40		
52.5	172.24	41		
53.0	173.88	42		
53.5	175.52	43		
54.0	177.17	44		
54.5	178.81	45		
55.0	180.45	46		
55.5	182.09	47		
56.0	183.73	48		
56.5	185.37	49		
57.0	187.01	50		
57.5	188.65	51		
58.0	190.29	52		
58.5	191.93	53		
59.0	193.57	54		
59.5	195.21	55		
60.0	196.85	56		
60.5	198.49	56 c.c. 4/2/08 57		
61.0	200.13	58		
61.5	201.77	59		

P-S FIELD LOG REV V1.31a

B-610066 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 9/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 6 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	60		
62.5	205.05	61		
63.0	206.69	62		
63.5	208.33	63		
64.0	209.97	64		
64.5	211.61	65		
65.0	213.25	66		
65.5	214.90	67		
66.0	216.54	68		
66.5	218.18	69		
67.0	219.82	70		
67.5	221.46	71		
68.0	223.10	72		
68.5	224.74	73		
69.0	226.38	74		
69.5	228.02	75		
70.0	229.66	76		
70.5	231.30	77		
71.0	232.94	78		
71.5	234.58	79		
72.0	236.22	80		
72.5	237.86	81		
73.0	239.50	82		
73.5	241.14	83		
74.0	242.78	84		
74.5	244.42	85		
75.0	246.06	86		
75.5	247.70	87		
76.0	249.34	88		
76.5	250.98	89		1:27 pm
77.0	252.62			
77.5	254.27			
78.0	255.91			
78.5	257.55			
79.0	259.19			
79.5	260.83			
80.0	262.47			
80.5	264.11			
81.0	265.75			
81.5	267.39			
82.0	269.03			



B-610D^H ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASSED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft ; 3 7/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105' ; NO
DEPTH TO BEDROCK: 3 ft DEPTH TO WATER TABLE: 21 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; SALT WATER MUD ;
OTHER:
DEPTH TO BOREHOLE FLUID: 6 TIME SINCE LAST CIRCULATION: 11 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:43 am
ARRIVED ON SITE: 7 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-610dH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO OTHER
 MICROLOGGER* 5310 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

- 1 PROBE TILT TEST* 37.65 BRUNTON TILT* 38
- 2 PROBE TILT TEST* 90.66 BRUNTON TILT* 90
- 3 PROBE TILT TEST* 80 BRUNTON TILT* 8 AFTER LOG* yes
- 1 PROBE AZIMUTH TEST* 246.2 BRUNTON AZIMUTH* 242
- 2 PROBE AZIMUTH TEST* 184.9 BRUNTON AZIMUTH* 183
- 3 PROBE AZIMUTH TEST* 262.5 BRUNTON AZIMUTH* 260 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1.08	
DEPTH REF. OFFSET AT START*	3.64	
DEPTH REF. OFFSET AT END*	3.63	
AFTER SURVEY DEPTH ERROR*	.01	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B610dH400001	252.2 ft	2:21 pm	107.3 ft	2:30 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-6600H CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft; 3 7/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 105'/20'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 1 hr

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-6LDDH CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO _____ RG _____ OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 CALIPER PROBE* 5368 OTHER _____
 SHEAVE* COMPROBE OYO 10' 10' 10' _____ RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	<u>1.08</u> <u>1.5</u>	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	<u>5.74</u> <u>5.32</u>	
DEPTH REF. OFFSET AT END*	<u>5.75</u> <u>5.30</u>	
AFTER SURVEY DEPTH ERROR*	<u>.01</u> <u>.02</u>	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B610DHICALTEST01		2:49		2:50 pm
B610DHICALUP01	256.15'	3:06	98.7ft	3:21 pm
B610DHICALTEST02		3:36		3:37
B610DHICALUP02	111.45	4:12	14.7ft	4:22 pm
B610DHICALTEST03		4:31		4:32 pm

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	<u>4.507 IN</u>
AS MEAS.* B610DHICALTEST01	1.99	3.908	8.03	4.502
AS MEAS.* B610DHICALTEST02	1.97	3.940	7.99	4.502
AS MEAS. B610DHICALTEST03	1.961	3.908	8.01	4.502
AS MEAS.				
AS MEAS.				
AS MEAS.				

4.510 cc 4/2/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.



B-61074 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASED
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ; 3 3/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 20 ft ; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: None

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-610 Dtt ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: 2 OF 2

WINCH: COMPROBE _____ SILVER X OYO _____ OTHER _____
 MICROLOGGER* 5310 _____ 5772 X _____
 TELEVIEWER* ACOUSTIC #5174 X OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 d 103 _____ RG _____

1 PROBE TILT TEST* 36.5 BRUNTON TILT* 36
 2 PROBE TILT TEST* 89.27 BRUNTON TILT* 89
 3 PROBE TILT TEST* 3.80 BRUNTON TILT* 4 AFTER LOG* yes
 1 PROBE AZIMUTH TEST* 253.4 BRUNTON AZIMUTH* 252
 2 PROBE AZIMUTH TEST* 176.7 BRUNTON AZIMUTH* 180
 3 PROBE AZIMUTH TEST* 250.5 BRUNTON AZIMUTH* 250 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>1.5</u>	
DEPTH REF. OFFSET AT START*	<u>3.22</u>	
DEPTH REF. OFFSET AT END*	<u>3.17</u>	
AFTER SURVEY DEPTH ERROR*	<u>.05</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B610Dtt40002</u>	<u>120.9 ft</u>	<u>6:55pm</u>	<u>19 ft</u>	<u>7:21pm</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Ex (951) 549-1236



B-620DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*
 SITE*: Turkey Point NPP DATE*: 3/21/08, 3/23/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 1 OF 1

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD
 DIAMETERS AND DEPTH RANGES: 3.5" 0 TO 125 ft; 3" 125 TO 130 / 9" 10-105; 3 1/8" 105-215
 BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft / 215 ft
 CONDUCTOR CASING?: YES DEPTH TO BOTTOM OF CASING 25.5'; NO _____
 DEPTH TO BEDROCK: ~ 3 ft
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B620DHELOGTEST01		3/21/08	8:59 - 9:00 am
ELOG	B620DHELOGUP01	122.05 - 38.3 ft	3/21/08	9:29 - 9:37 am
P-S velocity	B620DHSUSPDJUN01	26.25 - 109.9 ft	3/21/08	10:20 am - 10:55 am
ATV	B620DHAUVP01	119.1 - 24 ft	3/21/08	12:02 - 12:35 pm
Caliper	B620DHCALTEST01		3/21/08	1:02 - 1:03 pm
Caliper	B620DHCALUP01	120.15 - 13.55 ft	3/21/08	1:16 - 1:28 pm
Caliper	B620DHCALTEST02		3/21/08	1:37 - 1:38 pm
ELOG	B620DHELOGTEST03	9:00 - 9:01 am	3/23/08	9:00 - 9:01 am
ELOG	B620DHELOGUP02	214.7 - 101.55 ft	3/23/08	11:00 - 11:11 am
P-S velocity	B620DHSUSPDJUN02	106.6 - 129.6 ft	3/23/08	11:44 - 12:00 pm
P-S velocity	B620DHSUSPDJUN03	121.4 - 200.13 ft	3/23/08	1:23 - 1:46 pm
Deviation	B620DHAUVP02	201.5 - 102 ft	3/23/08	4:53 - 4:58 pm
Caliper	B620DHCALTEST03		3/23/08	5:16 - 5:17 pm
Caliper	B620DHCALUP02	205.95 - 97.5 ft	3/23/08	5:31 - 5:42 pm
Caliper	B620DHCALTEST04		3/23/08	5:51 - 5:52 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-620DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 0 TO ; TO

BOREHOLE TOTAL DEPTH AS DRILLED*: 135 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING: 25.5 ft NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD ; SALT WATER MUD

OTHER:
DEPTH TO BOREHOLE FLUID: ϕ TIME SINCE LAST CIRCULATION: 3/20 2:30pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



B-6206DH ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	} REF TO GROUND SURFACE
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-1.33	
DEPTH REF. OFFSET AT START*	39.67	
DEPTH REF. OFFSET AT END*	39.65	
AFTER SURVEY DEPTH ERROR*	.02	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B620DH ELOG TEST 01		8:59		9:00am
B620DH ELOG UP01	122.05'	9:29	38.3 ft	9:37

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: Used Super gel -x + sure mud
 no figure sent

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



P-S FIELD LOG REV V1.31a



B-620 BH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED UNCASED X

DIAMETERS AND DEPTH RANGES*: 3.5" 0 TO 12.5' ; 3" , 12.5' TO 13.5'

BOREHOLE TOTAL DEPTH AS DRILLED*: 13.5 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 25.5 ft; NO _____

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 6 TIME SINCE LAST CIRCULATION: 3/20 2:30pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services — 115 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-620D4 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15 am
 ARRIVED ON SITE: 7:30 am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO X ; STORED WITH NEW 6.6V

WINCH COMPROBE GREY OYO RG OTH
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* .40
 DEPTH REF. OFFSET AT START* 2.1
 DEPTH REF. OFFSET AT END* 2.09
 AFTER SURVEY DEPTH ERROR* .01 } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B620D450SPDOWN01	26.25 ft	10:20 am	109.9 ft	10:55 am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

8-6200H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25	001		10:20 am
8.5	27.89	2		
9.0	29.53	3		
9.5	31.17	4		
10.0	32.81	5		
10.5	34.45	6		
11.0	36.09	7		
11.5	37.73	8		
12.0	39.37	9		
12.5	41.01	10		
13.0	42.65	11		
13.5	44.29	12		
14.0	45.93	13		
14.5	47.57	14		
15.0	49.21	15		
15.5	50.85	16		
16.0	52.49	17		
16.5	54.13	18		
17.0	55.77	19		
17.5	57.41	20		
18.0	59.06	21		
18.5	60.70	22		
19.0	62.34	23		
19.5	63.98	24		
20.0	65.62	25		
20.5	67.26	26		

P-S FIELD LOG REV V1.31B

B-6200H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/21/08 3/23/08
 CLIENT*: MACTEC JOB#: 8083
 AUTHOR*: C. Carter PAGE*: 4-28 OF 4
 cc 3/23/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL cc 7/16/08

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (If any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50	53	11:44 am 3/23
33.0	108.27	51	54	
33.5	109.91	52	55	10:55 (3/23)
34.0	111.55		56	
34.5	113.19		57	
35.0	114.83		58	
35.5	116.47		59	
36.0	118.11		60	
36.5	119.75		61	
37.0	121.39	62	62	1:23 (3/23)
37.5	123.03	63	63	
38.0	124.67	64	64	
38.5	126.31	70	65	
39.0	127.95	71	66	
39.5	129.59	72	67	cc 3/23/08 12:00 (3/23)
40.0	131.23	73		
40.5	132.87	74		
41.0	134.51	75		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-620DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 3.5" 0 TO 12.5 ft; 3", 12.5 TO 13.5 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 13.5 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 25.5'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 3/20 2:30pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:25 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-6200H ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER OYO _____ OTHER _____
 MICROLOGGER* 5310 _____ 5772 _____
 TELEVIEWER* ACOUSTIC #5174 OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 103 _____ RG _____

1 PROBE TILT TEST* 91.05 BRUNTON TILT* 91
 2 PROBE TILT TEST* 29.65 BRUNTON TILT* 30
 3 PROBE TILT TEST* 44.50 BRUNTON TILT* 44 AFTER LOG* yes
 1 PROBE AZIMUTH TEST* 311.1 BRUNTON AZIMUTH* 310
 2 PROBE AZIMUTH TEST* 132.6 BRUNTON AZIMUTH* 125
 3 PROBE AZIMUTH TEST* 77.2 BRUNTON AZIMUTH* 79 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>1.33</u>	
DEPTH REF. OFFSET AT START*	<u>3.39</u>	
DEPTH REF. OFFSET AT END*	<u>3.31</u>	
AFTER SURVEY DEPTH ERROR*	<u>.08</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B6200H AUV001	<u>119.1 ft</u>	<u>12:02 pm</u>	<u>24 ft</u>	<u>12:35 pm</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-620DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 3.5 0 TO 125 ft; 3", 125 TO 135 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 135 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25.5'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;

OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 3/20 2:30pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:45 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-620DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO _____ RG _____ OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 CALIPER PROBE* 5368 OTHER _____
 SHEAVE* COMPROBE OYO 10' 102' 101' _____ RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.33	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.49	
DEPTH REF. OFFSET AT END*	5.45	
AFTER SURVEY DEPTH ERROR*	.04	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B620DHCALTEST01		1:02		1:03 pm
B620DHCALUP01	120.15 ft	1:16 pm	13.55 ft	1:28 pm
B620DHCALTEST02		1:37		1:38 pm

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B620DHCALTEST01	1.978	3.977	8.03	4.519
AS MEAS.* B620DHCALTEST02	1.970	3.971	8.03	4.513
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

4.510 ca. 3' h/d

MAINTENANCE PERFORMED ON SITE*: _____ N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: _____ N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-620DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105'; 3 7/8" 105 TO 215 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 215 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 105 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: φ TIME SINCE LAST CIRCULATION: 10 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:10 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: 7:30 - 10:30 CAUSE: Drillers still drilling

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-620DH ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	} REF TO GROUND SURFACE
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	- 1.5	
DEPTH REF. OFFSET AT START*	39.5	
DEPTH REF. OFFSET AT END*	39.45	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B620DH6LOGUR03		9:00 am		9:01 am
B620DH6LOGUR02	214.7 ft	11:00 am	101.55 ft	11:11 am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: very conductive above 200 ft. Drillers used super gel + tiger salt

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-620Dtt P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*:	Turkey Point NPP	DATE*:	3/23/08
CLIENT*:	MACTEC	JOB*:	8083
AUTHOR*:	C. Carter	PAGE 1 OF *:	4

CONTACT:	_____	PHONE:	Off	Cell	_____
CONTACT:	_____	PHONE:	Off	Cell	_____
CONTACT:	_____	PHONE:	Off	Cell	_____
CONTACT:	_____	PHONE:	Off	Cell	_____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASED X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 105 ft; 3 1/8" 105 TO 215 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 215 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 105 ft; NO

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: ∅ TIME SINCE LAST CIRCULATION: 10 am / 12:30 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services - 11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-620tl P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00am
 ARRIVED ON SITE: 7:30am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW

WINCH COMPROBE GREY OYO RG OTH
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* .46 | .66
 DEPTH REF. OFFSET AT START* 2.04 | 1.84 } REF TO GROUND SURFACE
 DEPTH REF. OFFSET AT END* 2.04 | 1.82
 AFTER SURVEY DEPTH ERROR* 2.0 | .02

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B620DH SUSPOMNO2	106.6 ft	11:44am	129.6	12:00pm
B620DH SUSPOMNO3	121.4	1:23pm	202.13 ft	1:46pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: Receiver broke during (N/A if none)
 B620DH SUSPOMNO2 when it got caught by hole cave in.

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

R-620DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/21/08 3/23/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 4-3 cc 3/23/08 OF 9

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50	53	11:44 am 3/23
33.0	108.27	51	54	
33.5	109.91	52	55	10:55 (3/21)
34.0	111.55		56	
34.5	113.19		57	
35.0	114.83		58	
35.5	116.47		59	
36.0	118.11		60	
36.5	119.75		61	
37.0	121.39	67	62	1:23 (3/23)
37.5	123.03	68	63	
38.0	124.67	69	64	
38.5	126.31	70	65	
39.0	127.95	71	66	
39.5	129.59	72	67	cc 3/23/08 12:00 (3/23)
40.0	131.23	73		
40.5	132.87	74		
41.0	134.51	75		

P-S FIELD LOG REV V1.31a

B-620BH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/23/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 4 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	76		
42.0	137.80	77		
42.5	139.44	78		
43.0	141.08	79		
43.5	142.72	80		
44.0	144.36	81		
44.5	146.00	82		
45.0	147.64	83		
45.5	149.28	84		
46.0	150.92	85		
46.5	152.56	86		
47.0	154.20	87		
47.5	155.84	88		
48.0	157.48	89		
48.5	159.12	90		
49.0	160.76	91		
49.5	162.40	92		
50.0	164.04	93		
50.5	165.68	94		
51.0	167.32	95		
51.5	168.96	96		
52.0	170.60	97		
52.5	172.24	98		
53.0	173.88	99		
53.5	175.52	100		
54.0	177.17	101		
54.5	178.81	102		
55.0	180.45	103		
55.5	182.09	104		
56.0	183.73	105		
56.5	185.37	106		
57.0	187.01	107		
57.5	188.65	108		
58.0	190.29	109		
58.5	191.93	110		
59.0	193.57	111		
59.5	195.21	112		
60.0	196.85	113		
60.5	198.49	114		
61.0	200.13	115		1:46pm
61.5	201.77			



B-620dt ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ; 3 7/8 , 105 TO 215'

BOREHOLE TOTAL DEPTH AS DRILLED*: 215'

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 215'; NO
DEPTH TO BEDROCK: ~3ft DEPTH TO WATER TABLE: ~1ft

BOREHOLE FLUID: WATER; FRESH WATER MUD ; SALT WATER MUD

OTHER:
DEPTH TO BOREHOLE FLUID: ϕ TIME SINCE LAST CIRCULATION: 12:30pm

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE:

MOBILIZED FROM: Florida City DEPARTURE TIME: 7:10 am

ARRIVED ON SITE: 7:30 am

STANDBY TIME: 2-4:30 pm CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-620DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE _____ SILVER OYO _____ OTHER _____
 MICROLOGGER* 5310 _____ 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 103 _____ RG _____

(PROBE TILT TEST* 90.07 BRUNTON TILT* 90
 2. PROBE TILT TEST* 34.79 BRUNTON TILT* 35
 3. PROBE TILT TEST* 8.4 BRUNTON TILT* 8 AFTER LOG* yes
 1. PROBE AZIMUTH TEST* 268.3 BRUNTON AZIMUTH* 270
 2. PROBE AZIMUTH TEST* 333.0 BRUNTON AZIMUTH* 331
 3. PROBE AZIMUTH TEST* 239 BRUNTON AZIMUTH* 240 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>1.5</u>	
DEPTH REF. OFFSET AT START*	<u>3.22</u>	
DEPTH REF. OFFSET AT END*	<u>3.12</u>	
AFTER SURVEY DEPTH ERROR*	<u>.10</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B620DHA00P02</u>	<u>201.5 ft</u>	<u>4:53 pm</u>	<u>102 ft</u>	<u>4:58 pm</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



B-620DH CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft; 3 7/8" 105 TO 215 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 215 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 105 ft; NO _____

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD _____; SALT WATER MUD _____;

OTHER: _____

DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 12:30 pm

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 5:20 am cc 3/23/08

ARRIVED ON SITE: 7:30 am

STANDBY TIME: 2-4:30 CAUSE: Thunder/Lightning

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-620DH CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER OYO _____ RG _____ OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 CALIPER PROBE* 5368 OTHER _____
 SHEAVE* COMPROBE OYO 10' 10' 10' _____ RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.5	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.32	
DEPTH REF. OFFSET AT END*	5.35	
AFTER SURVEY DEPTH ERROR*	.03	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B620DHCALTEST03		5:16 pm		5:17 pm
B620DHCALTEST02	205.95 ft	5:31 pm	97.5 ft	5:42 pm
B620DHCALTEST04		5:51		5:52

CALIBRATION PLATE S/N 201	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.607 IN (114.3 MM)
AS MEAS.*	B620DHCALTEST03	1.995	3.977	8.03	4.529
AS MEAS.*	B620DHCALTEST04	1.970	3.971	8.047	4.519
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510 c.c. 3/23/08

MAINTENANCE PERFORMED ON SITE*: _____ N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: _____ N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

* ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B646 DHI DOWNHOLE VELOCITY FIELD LOG REV 1.1a

Borehole*

SITE*: Turkey Point DATE*: 6/5/08, 6/6/08
CLIENT*: Mactec JOB*: 8083
AUTHOR*: A. Marten PAGE 1 OF 3

CONTACT: Matt Cochran PHONE: Off Cell 803-261-5792

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED TIME SINCE GROUT 5/21 & 22/08

DIAMETERS AND DEPTH RANGES: 2" 0 TO 150' ; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 150'

DEPTH TO BEDROCK: ~3' DEPTH TO WATER TABLE: ~2'

WATER PUMPED FROM BOREHOLE*? YES NO - then what DEPTH TO WATER _____

to ~ 120' 6/5/08

to ~ 127' 6/6/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DHFIELD LOG REV 1.1.a.pdf



B640 DHT DOWNHOLE VELOCITY FIELD LOG
 Borehole*

SITE*: Turkey Point DATE*: 6/5/08 & 6/1/08
 CLIENT*: Mactec JOB*: 2 8083
 AUTHOR*: A. Martin PAGE # OF * 3

LOGGING CREW*: A. Martin / N. Baldwin
 MOBILIZED FROM: Florida City DEPARTURE TIME: 0645 (6/5/08) , 0930 (6/6/08) *Hold for fed. ers*
 ARRIVED ON SITE: 0705 (6/5/08) , 1015 (6/6/08) - *held at front gate*
 STANDBY TIME: 1015 - 1145 hrs (6/6/08) CAUSE: pumps well
 LOGGING STARTED: 1155 (6/5/08) LOGGING COMPLETED: 1700 (6/5/08)

WINCH HAND OTHER
 INSTRUMENT* Geode 3458 3459 Other _____
 GEOPHONES* BHG3 9501 Other BH93 B3079

Plank Orientation*: N15°E (MN) Sh Source Offset* 8'4" P Source Offset* 6'8"
 Surface geophones - If any-Offset Sh 10'7" P Offset 8'10"

P SOURCE Trip weight Drop Source
 Sh SOURCE _____

CHANNEL ASSIGNMENTS 1 - borehole vertical, 2 - borehole horiz. long, 3 - borehole horiz. trans.
4 - surface vertical, 5 - surface H1, 6 - surface H2

SAMPLE RATES: sample rate / record length
 Depth range 5 - 124.7' Sh-wave 20.833ms / 0.128s P-wave same
 Depth range _____ Sh-wave _____ P-wave _____
 Depth range _____ Sh-wave _____ P-wave _____

MAINTENANCE PERFORMED ON SITE*: repaired geophone clamp 1425-1600 hrs, clamp breaks again @ 1700 hrs, new clamps to be fed ex to site

EQUIPMENT PROBLEMS OR FAILURES*: 6/6/08 - 1200 hrs geophone not attached correctly to cable and drops into casing.

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: channel 3 - horizontal transverse comp. aligned // to plank

1645 hrs - could not get past bend in casing @ 125'
6/5/08
 ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.



B640(DH) DOWNHOLE VELOCITY FIELD LOG REV 1.1a

Borehole*

SITE*: Turkey Point NP DATE*: 6/26/08
CLIENT*: Macle JOB*: 8083
AUTHOR*: A. Martin PAGE 1 OF 3

CONTACT: Matt Cook PHONE: Off Cell 803-261-5792

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED 2" TIME SINCE GROUT 1 month
DIAMETERS AND DEPTH RANGES: 6" 0 TO 150'; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 150'

DEPTH TO BEDROCK: 23' DEPTH TO WATER TABLE: 21'

WATER PUMPED FROM BOREHOLE? YES NO - then what DEPTH TO WATER water pumped to 111'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DITFIELD LOG REV 1.1a.pdf



BG40(DUT) DOWNHOLE VELOCITY FIELD LOG
 Borehole*

SITE*: Turkey Point NP DATE*: 6/26/08
 CLIENT*: Mecten JOB*: 2 8085
 AUTHOR*: A. Martin PAGE: 1 OF * 3
 LOGGING CREW*: A. Martin / N. Bolduan
 MOBILIZED FROM: Florida City DEPARTURE TIME: 0630hr
 ARRIVED ON SITE: 0700hr
 STANDBY TIME: _____ CAUSE: _____
 LOGGING STARTED: 1210hr LOGGING COMPLETED: 1535hr

WINCH _____ HAND OTHER _____
 INSTRUMENT* Geode 3458 3459 Other _____
 GEOPHONES* BHG3 9501 Other BH93 51 ~ B5079

Plank Orientation*: N10E (NW) Sh Source Offset* 9.5' P Source Offset* 7'10"
 Surface geophones - If any-Offset Sh 13'5" P Offset 11'8"

P SOURCE Trough accelerated weight drop
 Sh SOURCE " " " "

CHANNEL ASSIGNMENTS 1 = borehole V, 2 = borehole HL, 3 = borehole HT
4 = surface V, 5 = surface H1, 6 = surface H2

SAMPLE RATES:
 Depth range 0 - 122 ft Sh-wave 20.333ms SR / .150 RLP-wave 59ms
 Depth range _____ Sh-wave _____ P-wave _____
 Depth range _____ Sh-wave _____ P-wave _____

MAINTENANCE PERFORMED ON SITE*: work on weight drops -

EQUIPMENT PROBLEMS OR FAILURES*: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DH FIELD LOG REV 1.1a.pdf

B64(DH) **DOWNHOLE VELOCITY FIELD LOG**

Borehole*

SITE*: Turkey Point WP DATE*: 6/26/08
 CLIENT*: Mecten JOB*: 8083
 AUTHOR*: A. Martin PAGE* 3 OF 3

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH* (Feet)	Sh CHANNEL NUMBERS*		# OF STACKS	SH FILE NUMBER*		P CHANNEL NUMBER*	# OF STACKS	P FILE NUMBER*
	HL*	HT		RED*	GRN*			
5	2	3	5	77	78	1	2	76
10			7	74	75		2	73
15			8	71	72		2	70
20			5	68	69		2	67
25			6	65	66		2	64
30			7	62	63		2	61
35			10	59	60		2	58
40			10	56	57		2	55
45			10	53	54		2	52
50			10	50	51		2	49
55			10	47	48		2	46
60			10	44	45		2	43
65			10	41	42		2	40
70			10	38/101	39/102		2	37
75			10	32/35/99	33/34/100		2	31/36*
80			10	29/97	30/98		2	28
85			10	26/95/103	27/96/104		2	25
90			10	23/93	24/94		3	22
95			10	20/91	21/92		2	19
100			10	17/89	18/90		2	16
105			10	14/87	15/88		2	13
110			10	11/85	12/86		2	10
115			10	8/83	9/84		2	7
120			10	5/81	6/82		3	4
125	2	3	10	2/79	3/80	1	2	1
END OF LOG <i>Copman</i> 6/26/08								

GEOVison Geophysical Services 1151 Pomona Rd. #P Corona, CA 92882 ph (951) 549-1234 fx (951) 549-1236
 * Let man air out of van tires @ 75' to better describe vehicle. Red weight (N side) is also beginning to slide more freely. Repeat lower portion of borehole.



B-701DH BORING GEOPHYSICS FIELD LOG SUMMARY
 Borehole*

SITE*: Turkey Point NPP DATE*: 4/17/08, 4/18/08, 4/20/08, 4/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 1 OF

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASSED X
 DIAMETERS AND DEPTH RANGES: 4" 0 TO 116 ft; 3 1/8" 116 TO 420 ft / 457.5 ft
 BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft / 457.5
 CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING 116 ft; NO _____
 DEPTH TO BEDROCK: ~3 ft
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B701DHELOGTEST01		4/17/08	1:02 - 1:04 pm
ELOG	B701DHELOGUP01	419.45 - 114.7 ft	4/17/08	4:24 - 4:55 pm
P-S velocity	B701DHSUSPDUM01	118.11 - 403.5 ft	4/17/08	5:27 - 6:47 pm
Caliper	B701DHCALTEST01		4/18/08	8:28 - 8:29 am
Caliper	B701DHCALUP01	407.1 - 110.75 ft	4/18/08	10:11 - 10:46 am
Caliper	B701DHCALTEST02		4/18/08	10:53 - 10:55 am
Deviation	B701DHALUP01	411.7 - 110.7 ft	4/18/08	11:29 - 11:46 am
ELOG	B701DHELOGTEST02		4/20/08	8:22 - 8:23 am
ELOG	B701DHELOGUP02	456.9 - 369.15 ft	4/20/08	11:39 - 11:48 am
Caliper	B701DHCALTEST03		4/21/08	11:21 - 11:22 am
Caliper	B701DHCALUP02	455.85 - 389.65 ft	4/21/08	11:43 - 11:50 am
Caliper	B701DHCALTEST04		4/21/08	12:08 - 12:10 pm
P-S velocity	B701DHSUSPDUM02	397 - 434.7 ft	4/21/08	12:45 - 1:08 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701DA ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/17/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASED
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116'; 3 1/8" 116 TO 420'

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 116'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____

OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 1:30pm / 4pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00am
ARRIVED ON SITE: 7:30am
STANDBY TIME: 8-12 CAUSE: Drillers drilling to 420'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



B-7013H ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 4/17/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 ELOG PROBE* 5490 OTHER _____
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	} REF TO GROUND SURFACE
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	2.25	
DEPTH REF. OFFSET AT START*	38.25	
DEPTH REF. OFFSET AT END*	38.8	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B701DH ELOG TEST 01</u>		<u>1:02</u>		<u>1:04 pm</u>
<u>B701DH ELOG UP 01</u>	<u>419.45 ft</u>	<u>4:24</u>	<u>114.7 ft</u>	<u>4:55</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: higher salt, higher mud ~~sup~~ super gel & sure mud used in drilling mud

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV 1.31a



B-701DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 4/17/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 7

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED UNCASED X cc 7/24/08
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 116 ft ; 3 1/8" 116 TO 420
BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft
SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 116 ft ; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD X ; SALT WATER MUD: _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: ∅ TIME SINCE LAST CIRCULATION: 4pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services - 115 F Pomona Road, Suite P, Colton, CA 92802 (951) 549-1234 Fx (951) 549-1238

P-S FIELD LOG REV V1.31a



B-701DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/17/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 7

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7 am
 ARRIVED ON SITE: 7:30 am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW
 WINCH COMPROBE GREY OYO RG OTH
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M (in the S/N)
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* -.69
 DEPTH REF. OFFSET AT START* 1.81
 DEPTH REF. OFFSET AT END* 1.81
 AFTER SURVEY DEPTH ERROR* .0
 } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B701DH SUSPENSION	118.11 ft	5:27 pm	403.5 ft	6:47 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

R-70104

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 9/11/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 3 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90			
21.5	70.54			
22.0	72.18			
22.5	73.82			
23.0	75.46			
23.5	77.10			
24.0	78.74			
24.5	80.38			
25.0	82.02			
25.5	83.66			
26.0	85.30			
26.5	86.94			
27.0	88.58			
27.5	90.22			
28.0	91.86			
28.5	93.50			
29.0	95.14			
29.5	96.78			
30.0	98.43			
30.5	100.07			
31.0	101.71			
31.5	103.35			
32.0	104.99			
32.5	106.63			
33.0	108.27			
33.5	109.91			
34.0	111.55			
34.5	113.19			
35.0	114.83			
35.5	116.47			
36.0	118.11	001		S:27
36.5	119.75	2		
37.0	121.39	3		
37.5	123.03	4		
38.0	124.67	5		
38.5	126.31	6		
39.0	127.95	7		
39.5	129.59	8		
40.0	131.23	9		
40.5	132.87	10		
41.0	134.51	11		

P-S FIELD LOG REV V1.31a

B-7610H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/17/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 4 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	12		
42.0	137.80	13		
42.5	139.44	14		
43.0	141.08	15		
43.5	142.72	16		
44.0	144.36	17		
44.5	146.00	18		
45.0	147.64	19		
45.5	149.28	20		
46.0	150.92	21		
46.5	152.56	22		
47.0	154.20	23		
47.5	155.84	24		
48.0	157.48	25		
48.5	159.12	26		
49.0	160.76	27		
49.5	162.40	28		
50.0	164.04	29		
50.5	165.68	30		
51.0	167.32	31		
51.5	168.96	32		
52.0	170.60	33		
52.5	172.24	34		
53.0	173.88	35		
53.5	175.52	36		
54.0	177.17	37		
54.5	178.81	38		
55.0	180.45	39		
55.5	182.09	40		
56.0	183.73	41		
56.5	185.37	42		
57.0	187.01	43		
57.5	188.65	44		
58.0	190.29	45		
58.5	191.93	46		
59.0	193.57	47		
59.5	195.21	48		
60.0	196.85	49		
60.5	198.49	50		
61.0	200.13	51		
61.5	201.77	52		

P-S FIELD LOG REV V1.31a

B-70101A

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 7/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 5 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	53		
62.5	205.05	54		
63.0	206.69	55		
63.5	208.33	56		
64.0	209.97	57		
64.5	211.61	58		
65.0	213.25	59		
65.5	214.90	60		
66.0	216.54	61		
66.5	218.18	62		
67.0	219.82	63		
67.5	221.46	64		
68.0	223.10	65		
68.5	224.74	66		
69.0	226.38	67		
69.5	228.02	68		
70.0	229.66	69		
70.5	231.30	70		
71.0	232.94	71		
71.5	234.58	72		
72.0	236.22	73		
72.5	237.86	74		
73.0	239.50	75		
73.5	241.14	76		
74.0	242.78	77		
74.5	244.42	78		
75.0	246.06	79		
75.5	247.70	80		
76.0	249.34	81		
76.5	250.98	82		
77.0	252.62	83		
77.5	254.27	84		
78.0	255.91	85		
78.5	257.55	86		
79.0	259.19	87		
79.5	260.83	88		
80.0	262.47	89		
80.5	264.11	90		
81.0	265.75	91		
81.5	267.39	92		
82.0	269.03	93		

P-S FIELD LOG REV V1.31a

B-7010H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 7/17/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 6 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
82.5	270.67	94		
83.0	272.31	95		
83.5	273.95	96		
84.0	275.59	97		
84.5	277.23	98		
85.0	278.87	99		
85.5	280.51	100		
86.0	282.15	101		
86.5	283.79	102		
87.0	285.43	103		
87.5	287.07	104		
88.0	288.71	105		
88.5	290.35	106		
89.0	291.99	107		
89.5	293.64	108		
90.0	295.28	109		
90.5	296.92	110		
91.0	298.56	111		
91.5	300.20	112		
92.0	301.84	113		
92.5	303.48	114		
93.0	305.12	115		
93.5	306.76	116		
94.0	308.40	117		
94.5	310.04	118		
95.0	311.68	119		
95.5	313.32	120		
96.0	314.96	121		
96.5	316.60	122		
97.0	318.24	123		
97.5	319.88	124		
98.0	321.52	125		
98.5	323.16	126		
99.0	324.80	127		
99.5	326.44	128		
100.0	328.08	129		
100.5	329.72	130		
101.0	331.36	131		
101.5	333.01	132		
102.0	334.65	133		
102.5	336.29	134		

P-S FIELD LOG REV V1 31a

B-70104H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/17/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 7 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
103.0	337.93	135		
103.5	339.57	136		
104.0	341.21	137		
104.5	342.85	138		
105.0	344.49	139		
105.5	346.13	140		
106.0	347.77	141		
106.5	349.41	142		
107.0	351.05	143		
107.5	352.69	144		
108.0	354.33	145		
108.5	355.97	146		
109.0	357.61	147		
109.5	359.25	148		
110.0	360.89	149		
110.5	362.53	150		
111.0	364.17	151		
111.5	365.81	152		
112.0	367.45	153		
112.5	369.09	154		
113.0	370.73	155		
113.5	372.38	156		
114.0	374.02	157		
114.5	375.66	158		
115.0	377.30	159		
115.5	378.94	160		
116.0	380.58	161		
116.5	382.22	162		
117.0	383.86	163		
117.5	385.50	164		
118.0	387.14	165		
118.5	388.78	166		
119.0	390.42	167		
119.5	392.06	168		
120.0	393.70	169		
120.5	395.34	170		
121.0	396.98	171		
121.5	398.62	172		
122.0	400.26	173		
122.5	401.90	174		
123.0	403.54	175		6:47pm



B-7010H CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116 ft; 3 7/8" 116' TO 470 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 116 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 9:30 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-7016H Borehole* CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 4/8/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5368 OTHER
 SHEAVE* COMPROBE OYO 10' 10' 10' RG

PROBE OFFSET	2.08M(6.82 FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	2.25	
DEPTH REF. OFFSET AT START*	4.57	
DEPTH REF. OFFSET AT END*	4.30	
AFTER SURVEY DEPTH ERROR*	.27	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DHICALTEST01		8:28am		8:29am
B701DHICALUP01	467.1 ft	10:11am	110.75 ft	10:41
B701DHICALTEST02		10:53		10:55am

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B701DHICALTEST01	2.0	3.965	8.01	4.53
AS MEAS.* B701DHICALTEST02	2.01	3.95	8.01	4.55
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

4.510" cc 4/8/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 DN ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116 ft ; 3 1/8 , 116 TO 420 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 116 ft ; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; SALT WATER MUD ;

OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 9:30 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 9 am
ARRIVED ON SITE: 1:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/18/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER OYO _____ OTHER _____
 MICROLOGGER* 5310 _____ 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 103 _____ RG _____

- 1 PROBE TILT TEST* 16.2 BRUNTON TILT* 16
- 2 PROBE TILT TEST* 90.1 BRUNTON TILT* 90
- 3 PROBE TILT TEST* 19.68 BRUNTON TILT* 19 AFTER LOG* yes
- 1 PROBE AZIMUTH TEST* 197.6 BRUNTON AZIMUTH* 193
- 2 PROBE AZIMUTH TEST* 199.1 BRUNTON AZIMUTH* 199
- 3 PROBE AZIMUTH TEST* 247.5 BRUNTON AZIMUTH* 255 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>2.25</u>	
DEPTH REF. OFFSET AT START*	<u>2.47</u>	
DEPTH REF. OFFSET AT END*	<u>2.47</u>	
AFTER SURVEY DEPTH ERROR*	<u>.03</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B701DHA000P01</u>	<u>411.7 ft</u>	<u>11:29</u>	<u>110.7 ft</u>	<u>11:46 am</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-701D^H

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 4/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116'; 3 7/8" 116' TO 457.5'

BOREHOLE TOTAL DEPTH AS DRILLED*: 457.5'

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 116'; NO
DEPTH TO BEDROCK: ~3ft DEPTH TO WATER TABLE: ~1ft
BOREHOLE FLUID: WATER; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 10:45am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00am
ARRIVED ON SITE: 7:15am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7010H ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 4/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	2.25	
DEPTH REF. OFFSET AT START*	38.75	
DEPTH REF. OFFSET AT END*	38.55	
AFTER SURVEY DEPTH ERROR*	.2	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7010HELOGTEST02		8:22		8:23
B7010HELOGLOG02	456.9	11:39	369.15	11:48

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 Quick gel, super gel x sure mud, tiger
 sub + tiger mud used for drilling mud

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV 1.31a



B-70104 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point COL DATE*: 4/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C-Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 160 ft; 3 7/8" 160 TO 457.5 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 457.5 ft
SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 160 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: Ø TIME SINCE LAST CIRCULATION: 10:30 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services - 14511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*
 SITE*: Turkey Point WPP DATE*: 4/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City DEPARTURE TIME: 7:00 am
 ARRIVED ON SITE: 7:15 am
 STANDBY TIME: _____ CAUSE: _____
 LOGGING STARTED: _____ LOGGING COMPLETED: _____

BATTERIES CHANGED BEFORE LOGGING: YES _____; NO x; STORED WITH NEW _____
 WINCH _____ COMPROBE GREY OYO RG OTH _____
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M (in no s/n)
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* .76
 DEPTH REF. OFFSET AT START* 1.79 } REF TO GROUND SURFACE
 DEPTH REF. OFFSET AT END* 1.70
 AFTER SURVEY DEPTH ERROR* .04

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B701DHSUSPDOWN02</u>	<u>39.7</u>	<u>12:45</u>	<u>434.7</u>	<u>1:08</u>

MAINTENANCE PERFORMED ON SITE*: n/a (N/A if none)
 EQUIPMENT PROBLEMS OR FAILURES*: n/a (N/A if none)
 SUGGESTIONS, ADDITIONS, CHANGES: _____
 COMMENTS: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
 GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-70604

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 4/17/08 4/21/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 23 OF 784 ^{4/21/08} _{4/21/08}

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
103.0	337.93	135		
103.5	339.57	136		
104.0	341.21	137		
104.5	342.85	138		
105.0	344.49	139		
105.5	346.13	140		
106.0	347.77	141		
106.5	349.41	142		
107.0	351.05	143		
107.5	352.69	144		
108.0	354.33	145		
108.5	355.97	146		
109.0	357.61	147		
109.5	359.25	148		
110.0	360.89	149		
110.5	362.53	150		
111.0	364.17	151		
111.5	365.81	152		
112.0	367.45	153		
112.5	369.09	154		
113.0	370.73	155		
113.5	372.38	156		
114.0	374.02	157		
114.5	375.66	158		
115.0	377.30	159		
115.5	378.94	160		
116.0	380.58	161		
116.5	382.22	162		
117.0	383.86	163		
117.5	385.50	164		
118.0	387.14	165		
118.5	388.78	166		
119.0	390.42	167		
119.5	392.06	168		
120.0	393.70	169		
120.5	395.34	170		
121.0	396.98	171	176	12:45 4/21
121.5	398.62	172	177	
122.0	400.26	173	178	
122.5	401.90	174	179	
123.0	403.54	175	180	

P-S FIELD LOG REV V1.31a

B-70104 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 4 OF 4 cur (10/08)

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18	181		
124.0	406.82	182		
124.5	408.46	183		
125.0	410.10	184		
125.5	411.75	185		
126.0	413.39	186		
126.5	415.03	187		
127.0	416.67	188		
127.5	418.31	189		
128.0	419.95	190		
128.5	421.59	191		
129.0	423.23	192		
129.5	424.87	193		
130.0	426.51	194		
130.5	428.15	195		
131.0	429.79	196		
131.5	431.43	197		
132.0	433.07	198		
132.5	434.71	197		108
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68			
140.0	459.32			
140.5	460.96			
141.0	462.60			
141.5	464.24			
142.0	465.88			
142.5	467.52			
143.0	469.16			
143.5	470.80			



B-701 DA CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASED X
DIAMETERS AND DEPTH RANGES: ~~4"~~ 4" 0 TO 160 ft; 3 7/8", 160 ft TO ~~457.5'~~ 457.5'
cc 4/21/08

BOREHOLE TOTAL DEPTH AS DRILLED*: 457.5

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 160'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: φ TIME SINCE LAST CIRCULATION: 10:30am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00 am
ARRIVED ON SITE: 7:15 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701DH CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 4/21/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5368 OTHER
 SHEAVE* COMPROBE OYO 10' 10' 10' RG

PROBE OFFSET 2.08M(6.82 FT) 12 IN MAX
 MINUS CASING STICK-UP* ca 4/21/08 ~~2.5~~ cc 4/21/08
 DEPTH REF. OFFSET AT START* 4.57 4.32 REF TO GROUND SURFACE
 DEPTH REF. OFFSET AT END* 4.10
 AFTER SURVEY DEPTH ERROR* 2.2

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DH CAL TEST 03		11:21		11:22 am
B701DH CAL UPO2	455.85 ft	11:43	389.65 ft	11:50 am
B701DH CAL TEST 04		12:08		12:10 pm

CALIBRATION PLATE S/N 201	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B701DH CAL TEST 03	1.976	3.97	8.04	4.55
AS MEAS.*	B701DH CAL TEST 04	2.02	3.92	8.01	4.55
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 4/21/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP DATE*: 5/3/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Garter R. STEUER 5/3/08 PAGE*: 1 OF 1

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD
 DIAMETERS AND DEPTH RANGES: 6" 0 TO 457 FT; 3.88" 457 TO 555.5 FT
 BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT
 CONDUCTOR CASING?: YES DEPTH TO BOTTOM OF CASING 457 FT NO (HQ3 Low)
 DEPTH TO BEDROCK: 2 FT
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____

LOGGING CREW: R. STEUER

245
5/3/08

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG TEST	B701DH ELOGT03	∅	5/3/08	08:50 - 08:55
ELOG/GAMMA	B701DH ELOGG03	555.0 - 457.0 FT	5/3/08	09:10 - 09:20
CALIPER TEST	B701DH CALI T03			
CALIPER TEST	B701DH CALI T03	∅	5/3/08	09:52 - 09:56
CALIPER/GAMMA	B701DH CALI G03	553.0 - 451.0 FT	5/3/08	10:10 - 10:23
CALIPER TEST	B701DH CALI T06	∅	5/3/08	10:36 - 10:39
SUSPENSION PS	B701DH SUSP DOC003	459.3 - 493.8 FT	5/3/08	11:17 - 11:31
SUSPENSION PS	B701DH SUSP DOC004	457.7 - 541.3 FT	5/3/08	11:33 - 12:20

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701DH ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STEWART PAGE: 1 OF 2
5/3/08

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 6" 0 TO 457'; 3.08, 457' TO 555.5'

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT (HQS ROD)

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 457'; NO _____
DEPTH TO BEDROCK: 2 FT DEPTH TO WATER TABLE: 20
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;

OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 2 1/2 HR

LOGGING CREW: G. Carter R. STEWART 5/3/08
VEHICLE(S) USED AND MILEAGE: PERMAN
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
ARRIVED ON SITE: 07:30
STANDBY TIME: NA CAUSE: NA

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B710DH ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 6/3/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter P. STELLER PAGE: PAGE 2 OF 2
5/3/08

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	+ 32.8	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	- 3.3'	
DEPTH REF. OFFSET AT START*	37.7'	
DEPTH REF. OFFSET AT END*	37.6'	
AFTER SURVEY DEPTH ERROR*	- 0.1'	

B710 LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B710DH ELOG 03	Ø	08:50	Ø	09:56
4710 Bore 5/3/08				
B710DH ELOG 03	555.0	09:14	457.0'	09:26

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701DH CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STEWEN 5/3/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: MIAMI-DADE RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 6" 0 TO 457' ; 3.88" 457' TO 555.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT (H93 ROD)

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 457 FT; NO _____
DEPTH TO BEDROCK: 13 FT DEPTH TO WATER TABLE: 20
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 01 HR

LOGGING CREW: G. Carter R. STEWEN 5/3/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
ARRIVED ON SITE: 07:30
STANDBY TIME: NA CAUSE: NA

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701DH CALIPER FIELD LOG
 Borehole'

SITE*: Turkey Point NPP DATE*: 8/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter R. SREWEN 1/24/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5368 OTHER
 SHEAVE* COMPROBE OYO 10' 10' 10' RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	3.3'	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.52'	
DEPTH REF. OFFSET AT END*	3.55'	
AFTER SURVEY DEPTH ERROR*	+0.03'	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DH CAL TEST 05	Ø	9:52	Ø	9:56
B701DH CAL UP 03	353.0'	10:10	451.0'	10:23
B701DH CAL TEST 06	Ø	10:36	Ø	10:39

CALIBRATION PLATE S/N 201	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B701DH CAL TEST 05	1.96	3.92	7.99	4.56
AS MEAS.* B701DH CAL TEST 06	1.98	3.94	8.00	4.56
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

MAINTENANCE PERFORMED ON SITE*: NA (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: NA (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: NA

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV 1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole

SITE*: Turkey Point NPP DATE*: 5/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter Q. STELLER 5/3/08 PAGE 1 OF * 5

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED UNCASED
DIAMETERS AND DEPTH RANGES*: 6" 0 TO 457 FT; 3.88" 457 TO 555.5 FT
BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT
SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 457 FT; NO (HQ'S ROD)
DEPTH TO BEDROCK: ~ 3 FT DEPTH TO WATER TABLE: ~ 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD: _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: ~ 2 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services - 1154 Pomona Road, Suite P, Corona, CA 92626 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/3/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Garter P. STEUER 5/3/08 PAGE 2 OF* 5

LOGGING CREW*: G. Garter P. STEUER 5/3/08
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
 ARRIVED ON SITE: 07:30
 STANDBY TIME: CAUSE:
 LOGGING STARTED: 11:17 LOGGING COMPLETED: 12:20

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW
 WINCH COMPROBE GREY OYO RG OTH Silva
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* 1.0m
 DEPTH REF. OFFSET AT START* 1.5m
 DEPTH REF. OFFSET AT END* 1.5m
 AFTER SURVEY DEPTH ERROR* ϕ
 } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DH SUSP DOWN 03	140m	11:17	151.0m	11:31
B701DH SUSP DOWN 04	150.5m	11:33	159.5m	12:20

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)
 EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)
 SUGGESTIONS, ADDITIONS, CHANGES: N/A
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-701 DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: P. STELLER PAGE* 3 OF 5
 ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18			
124.0	406.82			
124.5	408.46			
125.0	410.10			
125.5	411.75			
126.0	413.39			
126.5	415.03			
127.0	416.67			
127.5	418.31			
128.0	419.95			
128.5	421.59			
129.0	423.23			
129.5	424.87			
130.0	426.51			
130.5	428.15			
131.0	429.79			
131.5	431.43			
132.0	433.07			
132.5	434.71			
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68		373	
140.0	459.32	300	372	
140.5	460.96	301	371	
141.0	462.60	302	370	
141.5	464.24	303	369	
142.0	465.88	304	368	
142.5	467.52	305	367	
143.0	469.16	306	366	
143.5	470.80	307	365	

H&B ROD TO 457 FT

P-S FIELD LOG REV V1.31a

B-701DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: R. STELLER PAGE* 4 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
144.0	472.44	308 364		
144.5	474.08	309 365		
145.0	475.72	310 362		
145.5	477.36	311 361		
146.0	479.00	312 360		
146.5	480.64	313 359		
147.0	482.28	314 358		
147.5	483.92	315 357		
148.0	485.56	316 356		
148.5	487.20	317 355		
149.0	488.85	318 354		
149.5	490.49	319 353		
150.0	492.13	320 352		
150.5	493.77	321 351		
151.0	495.41	322		
151.5	497.05	323		
152.0	498.69	324		
152.5	500.33	325		
153.0	501.97	326		
153.5	503.61	327		
154.0	505.25	328		
154.5	506.89	329		
155.0	508.53	330		
155.5	510.17	331		
156.0	511.81	332		
156.5	513.45	333		
157.0	515.09	334		
157.5	516.73	335		
158.0	518.37	336		
158.5	520.01	337		
159.0	521.65	338		
159.5	523.29	339		
160.0	524.93	340		
160.5	526.57	341		
161.0	528.22	342		
161.5	529.86	343		
162.0	531.50	344		
162.5	533.14	345		
163.0	534.78	346		
163.5	536.42	347		
164.0	538.06	348		

P-S FIELD LOG REV V1.3 In

B-701 DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/3/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: P. STEUER PAGE* 5 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
164.5	539.70	349		
165.0	541.34	350		
165.5	542.98			BOTTOM MEASUREMENT?
166.0	544.62			Hgt @ 165.3 m.
166.5	546.26			
167.0	547.90			
167.5	549.54			
168.0	551.18			
168.5	552.82			
169.0	554.46			T.O. @ 555.5'
169.5	556.10			
170.0	557.74			
170.5	559.38			
171.0	561.02			
171.5	562.66			
172.0	564.30			
172.5	565.94			
173.0	567.59			
173.5	569.23			
174.0	570.87			
174.5	572.51			
175.0	574.15			
175.5	575.79			
176.0	577.43			
176.5	579.07			
177.0	580.71			
177.5	582.35			
178.0	583.99			
178.5	585.63			
179.0	587.27			
179.5	588.91			
180.0	590.55			
180.5	592.19			
181.0	593.83			
181.5	595.47			
182.0	597.11			
182.5	598.75			
183.0	600.39			
183.5	602.03			
184.0	603.67			
184.5	605.31			



B-701 DH BORING GEOPHYSICS FIELD LOG SUMMARY
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Gatter R. STELLER 5/5/08 PAGE*: 1 OF 1

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD
 DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; 3.88" 457 TO 615.5 FT
 BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT
 CONDUCTOR CASING?: YES DEPTH TO BOTTOM OF CASING 457'; NO (HQ2 STEEL LOG)
 DEPTH TO BEDROCK: ± 3 FT
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____

LOGGING CREW: R. STELLER

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG TEST	B701DHCAUTEST01	∅	5/5/08	11:20 - 11:24
ELOG/GAMMA	B701DHCAUT01	615.3 - 450.0 FT	5/5/08	11:45 - 12:04
CALIBER TEST	B701DHCAUTEST02	∅	5/5/08	12:33 - 12:35
CALIBER/GAMMA	B701DHCAUT02	612.0 - 450.0 FT	5/5/08	12:46 - 13:04
CALIBER TEST	B701DHCAUTEST03	∅	5/5/08	13:14 - 13:16
SUSPENSION PS	B701-472-PSH.002	451.3 - 402.0 FT	5/5/08	14:18 - 14:50
ACOUSTIC TELEVIEW	B701DHCAUT02	610.0 - 400.0 FT	5/5/08	16:47 - 17:34

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701 DH ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter R. STEWEN 5/5/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
 CONTACT: _____ PHONE: Off Cell
 CONTACT: _____ PHONE: Off Cell
 CONTACT: GLEN BLAIR PHONE: Off Cell 931-242-6501
 COMPANY: MILLER -

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
 BOREHOLE CONSTRUCTION: CASED UNCASED
 DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; 3.00", 457 FT TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING: 457 FT (HQ 3 000); NO _____
 DEPTH TO BEDROCK: 23' DEPTH TO WATER TABLE: 20'
 BOREHOLE FLUID: WATER; FRESH WATER MUD ; SALT WATER MUD _____
 OTHER: _____
 DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 1 HR

LOGGING CREW: C. Carter R. STEWEN 5/5/08
 VEHICLE(S) USED AND MILEAGE: _____
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:30
 ARRIVED ON SITE: 10:00
 STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



B-701 04 ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter R. STELLER 5/5/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 10 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	+62.2 FT	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	- 3.3 FT	
DEPTH REF. OFFSET AT START*	37.7 FT	
DEPTH REF. OFFSET AT END*	37.6 FT	
AFTER SURVEY DEPTH ERROR*	- 0.1 FT	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DHELMTEST04	Ø	11:20	Ø	11:24
B701DHELDGLP04	615.3 FT	11:48	450.0 FT	12:04

MAINTENANCE PERFORMED ON SITE*: N/A RAS 7/20/08 (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A RAS 7/20/08 (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



D-701 DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter P. STEWEL 5/5/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: MIAMI-DADE RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; ~~3.85~~, 457 FT TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 457 FT NO (N Q3 ROD)
DEPTH TO BEDROCK: 15 FT DEPTH TO WATER TABLE: 0 FT
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 2 HR

LOGGING CREW: G. Carter P. STEWEL 5/5/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:30
ARRIVED ON SITE: 10:00
STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-701 DH CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter D. STEWART 5/5/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO _____ RG _____ OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 CALIPER PROBE* 5368 OTHER _____
 SHEAVE* COMPROBE OYO 10' 10' 10' RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	3.3 FT	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.52 FT	
DEPTH REF. OFFSET AT END*	3.45	
AFTER SURVEY DEPTH ERROR*	-0.07 FT	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DH CALTEST07	Ø	12:33	Ø	12:35
B701DH CALUP04	612.0 FT	12:46	450.0 FT	13:04
B701DH CALTEST08	Ø	13:14	Ø	13:16

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B701DH CALTEST07	1.97	3.93	8.02	4.57
AS MEAS.* B701DH CALTEST08	1.98	3.94	8.03	4.51
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

MAINTENANCE PERFORMED ON SITE*: N/A CAL 7/24/08 (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A CAL 7/24/08 (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Garter R. STELLER 5/5/08 PAGE 1 OF * 6

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASED
DIAMETERS AND DEPTH RANGES*: 1 1/2" 0 TO 457 FT; 5.00" 457 TO 615.5 FT
BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT
SURFACE CASING?: DEPTH TO BOTTOM OF CASING 457 FT; NO (103 ROD)
DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: 4
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 3 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services 1151 Feniona Road, Suite P, Corona, CA 92622 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: ~~G. Carter~~ R. STEUER 5/5/08 PAGE 2 OF * 6

LOGGING CREW*: ~~G. Carter~~ R. STEUER 5/5/08
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:30
 ARRIVED ON SITE: 10:00
 STANDBY TIME: N/A CAUSE: N/A
 LOGGING STARTED: 14:18 LOGGING COMPLETED: 14:58

BATTERIES CHANGED BEFORE LOGGING: YES _____; NO ; STORED WITH NEW _____
 WINCH _____ COMPROBE GREY OYO RG OTH Silver
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M _____
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* 1.0m
 DEPTH REF. OFFSET AT START* 1.5m } REF TO GROUND SURFACE
 DEPTH REF. OFFSET AT END* 1.5m
 AFTER SURVEY DEPTH ERROR* φ

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701 DH SUSP DOWN 05	140m (459.3 FT.)	14:18	183.5m (602.0 FT.)	14:58

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)
 EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)
 SUGGESTIONS, ADDITIONS, CHANGES: N/A
 COMMENTS: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

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P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURKEY POINT COL DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: P. STELLER PAGE* 3 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18			
124.0	406.82			
124.5	408.46			
125.0	410.10			
125.5	411.75			
126.0	413.39			
126.5	415.03			
127.0	416.67			
127.5	418.31			
128.0	419.95			
128.5	421.59			
129.0	423.23			
129.5	424.87			
130.0	426.51			
130.5	428.15			
131.0	429.79			
131.5	431.43			
132.0	433.07			
132.5	434.71			
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68			N03 200 TO 457 FT
140.0	459.32	A74		
140.5	460.96	A75		
141.0	462.60	A76		
141.5	464.24	A77		
142.0	465.88	A78		
142.5	467.52	A79		
143.0	469.16	A80		
143.5	470.80	A81		

P-S FIELD LOG REVVI.31a

B-701 Dr **GEOVISION SUSPENSION LOGGING FIELD NOTES**
 SITE*: TURKEY POINT COL DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: R. STEWEL PAGE* 9 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
144.0	472.44	482		
144.5	474.08	483		
145.0	475.72	484		
145.5	477.36	485		
146.0	479.00	486		
146.5	480.64	487		
147.0	482.28	488		
147.5	483.92	489		
148.0	485.56	490		
148.5	487.20	491		
149.0	488.85	492		
149.5	490.49	493		
150.0	492.13	494		
150.5	493.77	495		
151.0	495.41	496		
151.5	497.05	497		
152.0	498.69	498		
152.5	500.33	499		
153.0	501.97	500		
153.5	503.61	501		
154.0	505.25	502		
154.5	506.89	503		
155.0	508.53	504		
155.5	510.17	505		
156.0	511.81	506		
156.5	513.45	507		
157.0	515.09	508		
157.5	516.73	509		
158.0	518.37	510		
158.5	520.01	511		
159.0	521.65	512		
159.5	523.29	513		
160.0	524.93	514		
160.5	526.57	515		
161.0	528.22	516		
161.5	529.86	517		
162.0	531.50	518		
162.5	533.14	519		
163.0	534.78	520		
163.5	536.42	521		
164.0	538.06	522		

P-S FIELD LOG REV V1.31a

B-701 DA **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: R. STELLER PAGE* 5 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
164.5	539.70	523		
165.0	541.34	524		
165.5	542.98	525		
166.0	544.62	526		
166.5	546.26	527		
167.0	547.90	528		
167.5	549.54	529		
168.0	551.18	530		
168.5	552.82	531		
169.0	554.46	532		
169.5	556.10	533		
170.0	557.74	534		
170.5	559.38	535		
171.0	561.02	536		
171.5	562.66	537		
172.0	564.30	538		
172.5	565.94	539		
173.0	567.59	540		
173.5	569.23	541		
174.0	570.87	542		
174.5	572.51	543		
175.0	574.15	544		
175.5	575.79	545		
176.0	577.43	546		
176.5	579.07	547		
177.0	580.71	548		
177.5	582.35	549		
178.0	583.99	550		
178.5	585.63	551		
179.0	587.27	552		
179.5	588.91	553		
180.0	590.55	554		
180.5	592.19	555		
181.0	593.83	556		
181.5	595.47	557		
182.0	597.11	558		
182.5	598.75	559		
183.0	600.39	560		
183.5	602.03	561		
184.0	603.67			HTC 183.75 @ 14:58 BOTTOM MEASUREMENT?
184.5	605.31			

P-S FIELD LOG REVVI.31a

B-701D4 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: BOB'S
 AUTHOR*: R. STEWART PAGE* 6 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
185.0	606.96			
185.5	608.60			
186.0	610.24			
186.5	611.88			
187.0	613.52			
187.5	615.16			T.D. @ 615.5 FT
188.0	616.80			
188.5	618.44			
189.0	620.08			
189.5	621.72			
190.0	623.36			
190.5	625.00			
191.0	626.64			
191.5	628.28			
192.0	629.92			
192.5	631.56			
193.0	633.20			
193.5	634.84			
194.0	636.48			
194.5	638.12			
195.0	639.76			
195.5	641.40			
196.0	643.04			
196.5	644.69			
197.0	646.33			
197.5	647.97			
198.0	649.61			
198.5	651.25			
199.0	652.89			
199.5	654.53			
200.0	656.17			
200.5	657.81			
201.0	659.45			
201.5	661.09			
202.0	662.73			
202.5	664.37			
203.0	666.01			
203.5	667.65			
204.0	669.29			
204.5	670.93			
205.0	672.57			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STEWEN 5/5/08 PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457'; 3.8", 457' TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: _____

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 457'; NO 4" STEEL
DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: ∅
BOREHOLE FLUID: WATER ; FRESH WATER MUD _____; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: ≈ 7 HR

LOGGING CREW: G. Carter R. STEWEN 5/5/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City DEPARTURE TIME: 09:30
ARRIVED ON SITE: 10:00
STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter R. Steiner 5/5/08 PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER OYO _____ OTHER _____
 MICROLOGGER* 5310 _____ 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 103 _____ RG _____

PROBE TILT TEST* 89.8 BRUNTON TILT* 70°
 PROBE TILT TEST* 14.3 BRUNTON TILT* 14°
 PROBE TILT TEST* 0.2° BRUNTON TILT* 0° AFTER LOG*
 PROBE AZIMUTH TEST* 135.9° BRUNTON AZIMUTH* 126°
 PROBE AZIMUTH TEST* 242.1° BRUNTON AZIMUTH* 240°
 PROBE AZIMUTH TEST* 32.6° BRUNTON AZIMUTH* 35° AFTER LOG*

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>2.4</u>	
DEPTH REF. OFFSET AT START*	<u>2.32'</u>	
DEPTH REF. OFFSET AT END*	<u>2.20'</u>	
AFTER SURVEY DEPTH ERROR*	<u>-0.12'</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B701DH Au 802</u>	<u>010.0 FT</u>	<u>16:47</u>	<u>100.0 FT</u>	<u>17:34</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08, 5/7/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter R. STELLER 5/6/08 PAGE*: 1 OF 1

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASSED _____ UNCASSED
 DIAMETERS AND DEPTH RANGES: 1" 0 TO 457 FT; 3.88" 457 TO 615.5 FT
 BOREHOLE TOTAL DEPTH AS DRILLED*: 605.5 FT
 CONDUCTOR CASING?: YES DEPTH TO BOTTOM OF CASING 427 FT, NO _____
 DEPTH TO BEDROCK: 3 FT
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____

LOGGING CREW: R. STELLER

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG TEST	B701DHELOGTEST05	φ	5/6/08	09:40 - 09:42
ELOG/GAMMA	B701DHELOGG05	485.0 - 425.0 FT	5/6/08	13:13 - 13:20
SUSPENSION PS	NO DATA COLLECTED - HOLE OBSTRUCTED @ 424.2 FT		5/6/08	N/A
ELOG TEST	B701DHELOGTEST06	φ	5/7/08	10:14 - 10:16
ELOG/GAMMA	B701DHELOGG06	155.0 - 20.0 FT	5/7/08	10:20 - 10:41
CALIPER TEST	B701DHCALTEST09	φ	5/7/08	10:54 - 10:56
CALIPER/GAMMA	B701DHCALG05	155.0 - φ	5/7/08	11:05 - 11:22
CALIPER TEST	B701DHCALTEST10	φ	5/7/08	11:26 - 11:28
SUSPENSION PS	B701DHSUSP0007	16.4 - 134.5 FT	5/7/08	12:15 - 12:47
ACOUSTIC TELE	B701DHALL003	125.0 - 15.0 FT	5/7/08	13:16 - 13:45
ACOUSTIC TELE	B701DHALL004	25.0 - 23.0 FT	5/7/08	14:00 - 14:47
SUSPENSION PS	B701DHSUSP0008	1.6 - 23.0 FT	5/7/08	15:00 - 15:11
CALIPER TEST	B701DHCALTEST11	φ	5/7/08	15:20 - 15:23
CALIPER/GAMMA	B701DHCALG06	155.0 - φ	5/7/08	15:33 - 15:50
CALIPER TEST	B701DHCALTEST12	φ	5/7/08	15:53 - 15:56

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-70104 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter P. STEWEE 5/6/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457' PL; 3.88" 457 TO 615.5' PL

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5' PL

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 427' PL; NO _____
DEPTH TO BEDROCK: 23' PL DEPTH TO WATER TABLE: ±0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 2 1/2 HR.

LOGGING CREW: C. Carter P. STEWEE 5/6/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
ARRIVED ON SITE: 07:30
STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701 D4 ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter R. STEWART PAGE: PAGE 2 OF 2
5/6/08

WINCH: COMPROBE SILVER OYO RG OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 ELOG PROBE* 5490 OTHER _____
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	<u>+ 32.8 FT</u>	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>- 3.3 FT</u>	
DEPTH REF. OFFSET AT START*	<u>37.7 FT</u>	
DEPTH REF. OFFSET AT END*	<u>37.8 FT</u>	
AFTER SURVEY DEPTH ERROR*	<u>+0.1 FT</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B701DHELOGTEST05</u>	<u>0</u>	<u>09:40</u>	<u>0</u>	<u>09:42</u>
<u>B701DHELOGUP 05</u>	<u>425.0 FT</u>	<u>13:13</u>	<u>425.0 FT</u>	<u>13:20</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-901D14 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 5/6/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~G. Carter~~ P. STELLER 5/6/08 PAGE 1 OF * 3

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASED

DIAMETERS AND DEPTH RANGES*: 4' 0 TO 457' FT; 3.88", 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: DEPTH TO BOTTOM OF CASING 42.7 FT NO

DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: 2 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 1 1/2 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services 11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701 D4 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter P. STELLER 5/6/08 PAGE 2 OF * 3

LOGGING CREW*: G. Carter 5/6/08
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
 ARRIVED ON SITE: 07:30
 STANDBY TIME: CAUSE:
 LOGGING STARTED: NA LOGGING COMPLETED: NA

BATTERIES CHANGED BEFORE LOGGING: YES ___; NO ; STORED WITH NEW ___
 WINCH COMPROBE GREY OYO RG OTH SILVER
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M ___
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* - 1.0m
 DEPTH REF. OFFSET AT START* 1.5m
 DEPTH REF. OFFSET AT END* 1.5m
 AFTER SURVEY DEPTH ERROR* φ
 } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>NO DATA COLLECTED, BODING</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>OBSTRUCTED @ 424.2</u>				

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)
 EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)
 SUGGESTIONS, ADDITIONS, CHANGES: N/A
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92702 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-701 DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COI DATE*: 5/6/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: B. STEWART PAGE* 3 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18			
124.0	406.82			
124.5	408.46			
125.0	410.10			
125.5	411.75			
126.0	413.39			CONSTRUCTION @ 125.6m
126.5	415.03			TIP @ 424.2'
127.0	416.67			
127.5	418.31			
128.0	419.95			
128.5	421.59			
129.0	423.23			
129.5	424.87			
130.0	426.51			
130.5	428.15			4" STEEL CASE TO 428'
131.0	429.79			
131.5	431.43	--		
132.0	433.07			
132.5	434.71			
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68			
140.0	459.32			
140.5	460.96			
141.0	462.60			
141.5	464.24			
142.0	465.88			
142.5	467.52			
143.0	469.16			
143.5	470.80			BOTTOM MEASUREMENT?

ELOG FIELD LOG REV 1.1a



B-201 DH ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~G. Carter~~ R. STEWART 5/7/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT ; 5.08, 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT 10 FT RAS 5/7/08

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING: 27 FT; NO _____

DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: ∞

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____

OTHER: _____

DEPTH TO BOREHOLE FLUID: \emptyset TIME SINCE LAST CIRCULATION: ∞

LOGGING CREW: ~~G. Carter~~ R. STEWART 5/7/08

VEHICLE(S) USED AND MILEAGE: Rental

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:00

ARRIVED ON SITE: 09:30

STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701 DH ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/2/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter, R. STEUER 5/7/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 10' 102' 103' RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	+32.8 10 FT	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.0 9.2 FT	
DEPTH REF. OFFSET AT START*	48.0 FT	
DEPTH REF. OFFSET AT END*	20.0 FT	
AFTER SURVEY DEPTH ERROR*	Ø	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DH ELOG TEST LOG	Ø	10:14	Ø	10:16
B701DH ELOG LOG	155.0 FT	10:26	20.0	10:41

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

CALIPER FIELD LOG REV 1.1a PDF



B-701 DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STELLER 5/7/08 PAGE: 1 OF 2
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: MIAMI-DADE RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD Y
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT ; 3.88" 457 TO 615.5 FT
BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT
SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 16 FT ; NO ✓
DEPTH TO BEDROCK: 0.3 FT DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD ✓ ; SALT WATER MUD _____ ;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 0 HR.

LOGGING CREW: G. Carter R. STELLER 5/7/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:00
ARRIVED ON SITE: 09:30
STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701 DH CALIPER FIELD LOG
 Boraholo*

SITE*: Turkey Point NPP DATE*: 5/7/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter, P. STEWEE 5/7/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO _____ RG _____ OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 CALIPER PROBE* 5368 OTHER _____
 SHEAVE* COMPROBE OYO 10' 10' 10' _____ RG

PROBE OFFSET	2.08M(6.82 FT)	} 0.5 FT 4.32 FT 6.30 FT REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1.0 FT	
DEPTH REF. OFFSET AT START*	5.82 FT	
DEPTH REF. OFFSET AT END*	5.8 FT	
AFTER SURVEY DEPTH ERROR*	-0.02 FT	-0.02 FT

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DH CALTEST 09	0	10:54	0	10:56
B701DH CALTEST 05	155.0 FT	11:05	0	11:22
B701DH CALTEST 10	0	11:26	0	11:28
B701DH CALTEST 11	0	15:20	0	15:23
B701DH CALTEST 06	155.0	15:33	0	15:50
B701DH CALTEST 12	0	15:53	0	15:56

CALIBRATION PLATE S/N 201	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B701DH CALTEST 09	2.01	3.96	8.00	4.53
AS MEAS.*	B701DH CALTEST 10	1.96	3.90	8.00	4.49
AS MEAS.	B701DH CALTEST 11	1.92	3.88	7.96	4.46
AS MEAS.	B701DH CALTEST 12	1.93	3.89	7.97	4.46
AS MEAS.					
AS MEAS.					

MAINTENANCE PERFORMED ON SITE*: _____ (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: _____ (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Garter R. SIELLER 5/7/08 PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 457 FT; 3.88", 457 TO 615.5 FT
BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT
SURFACE CASING?: Run 1 DEPTH TO BOTTOM OF CASING 16 FT; NO Run 2
DEPTH TO BEDROCK: ± 3 FT DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: Ø TIME SINCE LAST CIRCULATION: ± 2 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services—1151 Pomona Road, Suite P, Corona, CA 92622 (951) 549-1234 Fx (951) 549-1236

P S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
 Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: G. Carter R. STEWART 5/7/08 PAGE 2 OF * 4

LOGGING CREW*: C. Carter R. STEWART 5/7/08
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:00
 ARRIVED ON SITE: 09:30
 STANDBY TIME: N/A CAUSE: N/A
 LOGGING STARTED: 12:15 LOGGING COMPLETED: 15:11

BATTERIES CHANGED BEFORE LOGGING: YES ___; NO ✓; STORED WITH NEW ___
 WINCH COMPROBE GREY OYO RG OTH SIVEN
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M ___
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* -0.3 m } -0.1 m
 DEPTH REF. OFFSET AT START* 2.2 m } REF TO GROUND SURFACE 2.4 m
 DEPTH REF. OFFSET AT END* 2.2 m
 AFTER SURVEY DEPTH ERROR* Ø

LOG NAME*	DATE	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B-701 DH Susp ^{Down} 07</u>	<u>5/7/08</u>	<u>16.4 FT</u>	<u>12:15</u>	<u>134.5 FT</u>	<u>12:47</u>
<u>B-701 DH Susp ^{Down} 08</u>	<u>5/7/08</u>	<u>1.64 FT</u>	<u>15:00</u>	<u>23.0 FT</u>	<u>15:11</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
 GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92802 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV 1.31a

B-761 DW **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL. DATE*: 5/7/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: R. STELLER 5/7/08 PAGE* 3 OF 4
 ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64	944		
1.0	3.28	945		
1.5	4.92	946		
2.0	6.56	947		
2.5	8.20	948		
3.0	9.84	949		
3.5	11.48	950		
4.0	13.12	951		
4.5	14.76	952		
5.0	16.40	762 953		
5.5	18.04	763 954		6" STEEL CASE TO 16'
6.0	19.69	764 955		ON RUN #7 (RUN 1 FOR DATA)
6.5	21.33	765 956		
7.0	22.97	766 957		
7.5	24.61	767		
8.0	26.25	768		
8.5	27.89	769		
9.0	29.53	770		
9.5	31.17	771		
10.0	32.81	772		
10.5	34.45	773		
11.0	36.09	774		
11.5	37.73	775		
12.0	39.37	776		
12.5	41.01	777		
13.0	42.65	778		
13.5	44.29	779		
14.0	45.93	780		
14.5	47.57	781		
15.0	49.21	782		
15.5	50.85	783		
16.0	52.49	784		
16.5	54.13	785		
17.0	55.77	786		
17.5	57.41	787		
18.0	59.06	788		
18.5	60.70	789		
19.0	62.34	790		
19.5	63.98	791		
20.0	65.62	792		
20.5	67.26	793		

P-S FIELD LOG REV V1.31a

B-701 DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/7/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: R. STELLER PAGE* 4 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	794		
21.5	70.54	795		
22.0	72.18	796		
22.5	73.82	797		
23.0	75.46	798		
23.5	77.10	799		
24.0	78.74	800		
24.5	80.38	801		
25.0	82.02	802		
25.5	83.66	803		
26.0	85.30	804		
26.5	86.94	805		
27.0	88.58	806		
27.5	90.22	807		
28.0	91.86	808		
28.5	93.50	809		
29.0	95.14	810		
29.5	96.78	811		
30.0	98.43	812		
30.5	100.07	813		
31.0	101.71	814		
31.5	103.35	815	8A3	80ms ↓ @ 12:47
32.0	104.99	816	812	
32.5	106.63	817	8A1	
33.0	108.27	818	8A0	
33.5	109.91	819	839	
34.0	111.55	820	838	
34.5	113.19	821	837	
35.0	114.83	822	836	
35.5	116.47	823	835	
36.0	118.11	824		20ms ↓
36.5	119.75	825		
37.0	121.39	826		
37.5	123.03	827		
38.0	124.67	828		
38.5	126.31	829		
39.0	127.95	830		
39.5	129.59	831		
40.0	131.23	832		
40.5	132.87	833		
41.0	134.51	834		@ 12:10

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 OH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STELLER 5/7/08 PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; 3.88" 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES Runs 2 DEPTH TO BOTTOM OF CASING 16 FT; NO Runs 2
DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: 0 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 2 HR

LOGGING CREW: G. Carter R. STELLER 5/7/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City DEPARTURE TIME: 09:00
ARRIVED ON SITE: 09:30
STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-701 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter R. Brewer 5/7/08 PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO OTHER
 MICROLOGGER* 5310 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE TILT TEST* 93.6° BRUNTON TILT* 93°
 PROBE TILT TEST* 8.7° BRUNTON TILT* 9°
 PROBE TILT TEST* 0.2° BRUNTON TILT* 0° AFTER LOG*
 PROBE AZIMUTH TEST* 269.1° BRUNTON AZIMUTH* 243°
 PROBE AZIMUTH TEST* 330.6° BRUNTON AZIMUTH* 344°
 PROBE AZIMUTH TEST* 75.4° BRUNTON AZIMUTH* 75° AFTER LOG*

PROBE OFFSET*	1.44M(4.72FT)	Run 1	Run 2
MINUS CASING STICK-UP*	1.0 FT		
DEPTH REF. OFFSET AT START*	3.72 FT		
DEPTH REF. OFFSET AT END*	5.75		
AFTER SURVEY DEPTH ERROR*	+0.03		
		0.5 FT	4.20 FT
		REF TO GROUND SURFACE	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DHANUP03	125.0 FT	13:16	15.0	13:45
B701DHANUP04	25.0 FT	14:38	6	14:47

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-704GDH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08, 3/9/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 1 OF 1

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD
 DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft ; 5" 24 TO 133 ft
 BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft
 CONDUCTOR CASING?: YES DEPTH TO BOTTOM OF CASING 24' ; NO
 DEPTH TO BEDROCK: 4'
 BOREHOLE FLUID: WATER _____ FRESH WATER MUD SALT WATER MUD _____

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B704GDHELOGTEST02		3/8/08	10:09 - 10:10am
ELOG	B704GDHELOGUP01	129 - 39.5 ft	3/8/08	11:08 - 11:20am
PS velocity	B704GDHSUSP000001	26.25 - 116.47 ft	3/8/08	12:14 - 1:04pm
ATV	B704GDHAUUP01	119.4 - 5.5 ft	3/8/08	2:11 - 2:47pm
Caliper	B704GDHCALTEST01		3/8/08	3:05 - 3:06
Caliper	B704GDHCALUP01	121.0 - 8.6 ft	3/8/08	3:22 - 3:33
Caliper	B704GDHCALTEST02		3/8/08	3:41 - 3:42
ELOG	B704GDHELOGUP02	129.5 - 37.45	3/8/08	11:26 - 11:36am
ELOG	B704GDHELOGTEST03		3/9/08	9:07 - 9:09
ELOG	B704GDHELOGUP03	163.05 - 103.75 ft	3/9/08	10:11 - 10:08
PS velocity	B704GDHSUSP000002	116.47 - 149.28'	3/9/08	10:44 - 11:00am
Deviation	B704GDHAUUP02	157.2 - 108.5 ft	3/9/08	11:46 - 11:48am
Caliper	B704GDHCALTEST03		3/9/08	12:19 - 12:20pm
Caliper	B704GDHCALUP02	155.4 - 105.05 ft	3/9/08	12:36 - 12:41pm
Caliper	B704GDHCALTEST04		3/9/08	12:51 - 12:52pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



R-704GDH ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD

DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft ; 5" 24 ft TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: ~~129 ft~~ ^{cc 3/8/08} 133 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 24 ft; NO _____

DEPTH TO BEDROCK: 7' DEPTH TO WATER TABLE: φ

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;

OTHER: _____

DEPTH TO BOREHOLE FLUID: φ TIME SINCE LAST CIRCULATION: 4pm 3/7

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am

ARRIVED ON SITE: 7 am

STANDBY TIME: 7:30 - 10:30 ^{cc 3/8/08} CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-704G011 ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/68
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.5	02
MINUS CASING STICK-UP*	-1.0	
DEPTH REF. OFFSET AT START*	40	40
DEPTH REF. OFFSET AT END*	39.95	39.95
AFTER SURVEY DEPTH ERROR*	.05	.05

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B704GDH ELOGTEST02		10:09 am		10:10 am
B704GDH ELOGUP01	129 ft	11:08 am	39.5 ft	11:20 am
B704GDH ELOGUP02	129.5 ft	11:26	37.45 ft	11:36

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-704Gdt1 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*:	Turkey Point NPP	DATE*:	3/8/08
CLIENT*:	MACTEC	JOB*:	8083
AUTHOR*:	C. Carter	PAGE 1 OF*:	4

CONTACT:	PHONE: Off	Cell
CONTACT:	PHONE: Off	Cell
CONTACT:	PHONE: Off	Cell
CONTACT:	PHONE: Off	Cell

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASED _____

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 24 ft ; 5" , 24 TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 24 ft ; NO _____

DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: ∅

BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD x ; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: ∅ TIME SINCE LAST CIRCULATION: 4pm 3/7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services — 11511 Pomona Road, Suite F, Corona, CA 92622 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-204GDH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*
 SITE*: Turkey Point NPP DATE*: 3/8/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
 ARRIVED ON SITE: 7am
 STANDBY TIME: 7:30 - 10am CAUSE: weather
 LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ___; NO x; STORED WITH NEW ___
 WINCH COMPROBE GREY OYO RG OTH ___
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* .31m
 DEPTH REF. OFFSET AT START* 2.19m
 DEPTH REF. OFFSET AT END* 2.17m
 AFTER SURVEY DEPTH ERROR* .02m
 } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B704GDHsus? Down 01	26.25 ft	12:14pm	116.47 ft	1:04pm

MAINTENANCE PERFORMED ON SITE*: NA (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: NA (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
 GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

B-204^{GDH}

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/8/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25	001		12:34 pm
8.5	27.89	2		
9.0	29.53	3		
9.5	31.17	4		
10.0	32.81	5		
10.5	34.45	6		
11.0	36.09	7		
11.5	37.73	8		
12.0	39.37	9		
12.5	41.01	10		
13.0	42.65	11		
13.5	44.29	12		
14.0	45.93	13		
14.5	47.57	14		
15.0	49.21	15		
15.5	50.85	16		
16.0	52.49	17		
16.5	54.13	18		
17.0	55.77	19		
17.5	57.41	20		
18.0	59.06	21		
18.5	60.70	22		
19.0	62.34	23		
19.5	63.98	24		
20.0	65.62	25		
20.5	67.26	26		

P-S FIELD LOG REV VI.31a

B-70160H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/8/08 3/9/08
 CLIENT*: MACTEC JOB*: 8083 cc 3/9/08
 AUTHOR*: C. Carter PAGE*: 43 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50		
33.0	108.27	51		
33.5	109.91	52		
34.0	111.55	53		
34.5	113.19	54		
35.0	114.83	55		
35.5	116.47	56 57		1:07 10:44am (3/9)
36.0	118.11	58		
36.5	119.75	59		
37.0	121.39	60		
37.5	123.03	61		
38.0	124.67	62		
38.5	126.31	63		
39.0	127.95	64		
39.5	129.59	65		
40.0	131.23	66		
40.5	132.87	67		
41.0	134.51	68		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



8-2046DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24' ; 5" 25' TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 24 ft ; NO
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: ∅
BOREHOLE FLUID: WATER ; FRESH WATER MUD ; SALT WATER MUD _____ ;

OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 4pm 3/7

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: 7:30 - 10 CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7046D11 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
 MICROLOGGER* 5310 5772 X
 TELEVIEWER* ACOUSTIC #5174 X OTHER
 SHEAVE* COMPROBE OYO 101 102 X 103 RG

- 1 PROBE TILT TEST* 26.65 BRUNTON TILT* 2.6
- 2 PROBE TILT TEST* 88.36 BRUNTON TILT* 87
- 3 PROBE TILT TEST* 52.10 BRUNTON TILT* 52 AFTER LOG* X
- 1 PROBE AZIMUTH TEST* 59.1 BRUNTON AZIMUTH* 61
- 2 PROBE AZIMUTH TEST* 348.9 BRUNTON AZIMUTH* 348
- 3 PROBE AZIMUTH TEST* 56.8 BRUNTON AZIMUTH* 55 AFTER LOG* X

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>-1.0</u>	
DEPTH REF. OFFSET AT START*	<u>3.72</u>	
DEPTH REF. OFFSET AT END*	<u>3.67</u>	
AFTER SURVEY DEPTH ERROR*	<u>.05</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046D11JUP01	119.4 ft	2:11 pm	5.5 ft	2:47 pm

MAINTENANCE PERFORMED ON SITE*: cc 3/8/08
6" centralizer due to borehole diameter ~~not~~ changed to (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



8-7046BH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 7/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft ; 5" 24 ft TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 24 ft ; NO _____
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD ; SALT WATER MUD _____ ;
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 4pm 3/7

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7am
STANDBY TIME: 7:30-10:00 on 7/8/08 CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-204GDH
 Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 3/8/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5368 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	-1.0	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.82	
DEPTH REF. OFFSET AT END*	5.70	
AFTER SURVEY DEPTH ERROR*	.12	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B704GDHICALTEST01		3:05 pm		3:06 pm
B704GDHICALUP01	121.0 ft	3:22 pm	8.6 ft	3:33 pm
B704GDHICALTEST02		3:41 pm		3:42 pm

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B704GDHICALTEST01	1.99	3.98	8.04	4.53
AS MEAS.* B704GDHICALTEST02	1.931	3.975	8.02	4.53
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

4.510" @ 3/8/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-704 GDT ELOG FIELD LOG

Borehole*
SITE*: Turkey Point NPP DATE*: cc 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD _____
DIAMETERS AND DEPTH RANGES: _____ 0 TO _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: ~~133 ft~~ 163 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING: ~~24 ft~~ 114 ft NO
DEPTH TO BEDROCK: 4' DEPTH TO WATER TABLE: ∅
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 4.3/7 9am
cc 3/9/08

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: 2:30 am CAUSE: _____
cc 3/9/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1 to



B-704GDH ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	} REF TO GROUND SURFACE
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-2.0	
DEPTH REF. OFFSET AT START*	39.0	
DEPTH REF. OFFSET AT END*	38.9	
AFTER SURVEY DEPTH ERROR*	.1	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B704GDH ELOG T89 T03		9:07		9:09 am
B704GDH ELOG VP03	163.05 ft	10:01	103.75 ft	10:08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-704GDH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED ~~UNCASED~~ ^{cc} 3/9/08 ~~3/18/08~~ UNCASED ~~X~~
DIAMETERS AND DEPTH RANGES*: 6" 0 TO 24 ft ; 3 7/8" 114 TO 163 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 163 ft
SURFACE CASING?: ^{cc} 3/9/08 ~~174 ft~~ X DEPTH TO BOTTOM OF CASING 114 ft; NO
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: 12 ft TIME SINCE LAST CIRCULATION: 9 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services 115 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 FX (951) 549-1236

P-S FIELD LOG REV V1.31a



B-20460H P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 4/

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
 ARRIVED ON SITE: 7am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: 10:45am LOGGING COMPLETED: 11:00am

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW _____
 WINCH COMPROBE GREY OYO RG OTH _____
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M _____
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* -.61m
 DEPTH REF. OFFSET AT START* 1.88m
 DEPTH REF. OFFSET AT END* 1.88
 AFTER SURVEY DEPTH ERROR* .01m } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046D45USDOWN02	35.5m	10:44am	45.5m	11:00am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92702 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-70160H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/8/08 3/9/08
 CLIENT*: MACTEC JOB*: 8083 cc 3/9/08
 AUTHOR*: C. Carter PAGE*: 484 OF 4
 ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL cc 7/10/08

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50		
33.0	108.27	51		
33.5	109.91	52		
34.0	111.55	53		
34.5	113.19	54		
35.0	114.83	55		
35.5	116.47	56	57	1:04 10:44am (3/9)
36.0	118.11	58		
36.5	119.75	59		
37.0	121.39	60		
37.5	123.03	61		
38.0	124.67	62		
38.5	126.31	63		
39.0	127.95	64		
39.5	129.59	65		
40.0	131.23	66		
40.5	132.87	67		
41.0	134.51	68		

P-S FIELD LOG REV V1.31a

B-7046DII

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP _____ DATE*: 3/9/08
 CLIENT*: MACTEC _____ JOB*: 8083
 AUTHOR*: C. Carter _____ PAGE*: 4 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	69		
42.0	137.80	70		
42.5	139.44	71		
43.0	141.08	72		
43.5	142.72	73		
44.0	144.36	74		
44.5	146.00	75		
45.0	147.64	76		
45.5	149.28	77		hit bottom @ 45.6m 11:00am
46.0	150.92			
46.5	152.56			
47.0	154.20			
47.5	155.84			
48.0	157.48			
48.5	159.12			
49.0	160.76			
49.5	162.40			
50.0	164.04			
50.5	165.68			
51.0	167.32			
51.5	168.96			
52.0	170.60			
52.5	172.24			
53.0	173.88			
53.5	175.52			
54.0	177.17			
54.5	178.81			
55.0	180.45			
55.5	182.09			
56.0	183.73			
56.5	185.37			
57.0	187.01			
57.5	188.65			
58.0	190.29			
58.5	191.93			
59.0	193.57			
59.5	195.21			
60.0	196.85			
60.5	198.49			
61.0	200.13			
61.5	201.77			

CALIPER FIELD LOG REV 1.1a.PDF



B-7046BH CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASED X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft; 3 7/8" 114 ft TO 163 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 163 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 114 ft; NO _____
DEPTH TO BEDROCK: 4' DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 12 ft TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-7046DH CALIPER FIELD LOG
 Borehole

SITE*: Turkey Point NPP DATE*: 3/19/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5368 OTHER
 SHEAVE* COMPROBE OYO 10 102 103 RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	-2.0	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	4.82	
DEPTH REF. OFFSET AT END*	4.72	
AFTER SURVEY DEPTH ERROR*	.10	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B7046DHCALTEST03		12:19		12:20
B7046DHCALUP02	155.4 ft	12:36	105.05 ft	12:41
B7046DHCALTEST04		12:51		12:52

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B7046DHCALTEST03	2.02	4.02	8.04	4.56
AS MEAS.*	B7046DHCALTEST04	2.00	3.99	8.03	4.55
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 3/19/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-7046D11 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 6" 0 TO 2.4 ft ; 3 7/8" 114 TO 163 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 163 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 114 ft ; NO _____
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 12 ft TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7046DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
 MICROLOGGER* 5310 5772 X
 TELEVIEWER* ACOUSTIC #5174 X OTHER
 SHEAVE* COMPROBE OYO 101 102 X 103 RG

1 PROBE TILT TEST* 52.4 BRUNTON TILT* 52
 2 PROBE TILT TEST* 92.18 BRUNTON TILT* 92
 3 PROBE TILT TEST* 27.79 BRUNTON TILT* 28 AFTER LOG* yes
 1 PROBE AZIMUTH TEST* 58.0 BRUNTON AZIMUTH* 61
 2 PROBE AZIMUTH TEST* 351.9 BRUNTON AZIMUTH* 351
 3 PROBE AZIMUTH TEST* 63.4 BRUNTON AZIMUTH* 61 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>-2.0</u>	
DEPTH REF. OFFSET AT START*	<u>2.72</u>	
DEPTH REF. OFFSET AT END*	<u>2.70</u>	
AFTER SURVEY DEPTH ERROR*	<u>.02</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046DH100P02	157.2 ft	11:46 am	108.5 ft	11:48 am

MAINTENANCE PERFORMED ON SITE*: N/A cc 7/24/08 (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A cc 7/24/08 (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fax (951) 549-1236



B-708DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08, 3/10/08, 3/13/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 1 OF 1 cc 7/10/08

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASSED
 DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft ; _____ TO _____
 BOREHOLE TOTAL DEPTH AS DRILLED*: _____
 CONDUCTOR CASING?: YES DEPTH TO BOTTOM OF CASING 25.5' ; NO _____
 DEPTH TO BEDROCK: 3.5 ft
 BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD ; SALT WATER MUD _____

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B708DHELOGTEST01		3/9/08	2:57 - 2:58 pm
ELOG	B708DHELOGUP01	125.4 - 35.95 ft	3/9/08	4:11 - 4:21 pm
PS velocity	B708DHSUSPDOWN01	27.89 - 72.18 ft	3/9/08	4:53 - 5:13 pm
PS velocity	B708DHSUSPDOWN02	68.9 - 104.99 ft	3/10/08	9:47 - 10:08 am
ATV	B708DHAUUP01	100.9 - 19.9 ft	3/10/08	11:59 - 12:33 pm
Caliper	B708DHCALTEST01		3/10/08	1:27 - 1:28 pm
Caliper	B708DHCALUP01	116.65 - 15.35 ft	3/10/08	1:49 - 2:01 pm
Caliper	B708DHCALTEST02		3/10/08	2:09 - 2:11 pm
ELOG	B708DHELOGTEST02		3/13/08	8:25 - 8:26 am
ELOG	B708DHELOGUP02	260.7 - 102.3 ft	3/13/08	10:59 - 11:15 am
PS velocity	B708DHSUSPDOWN03	108.27 - 247.7 ft	3/13/08	11:52 - 12:44 pm
Caliper	B708DHCALTEST03		3/13/08	1:22 - 1:23 pm
Caliper	B708DHCALUP02	252.25 - 94.35'	3/13/08	1:42 - 1:57 pm
Caliper	B708DHCALTEST04		3/13/08	2:07 - 2:08
Deviation	B708DHAUUP02	251.3 - 94.9 ft	3/13/08	3:32 - 3:40 pm
ATV	B708DHAUUP03	118.4 - 97.4 ft	3/13/08	4:12 - 4:20 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-708DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft ; 3 3/4" 25.5 TO 130 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25.5 ft. NO _____
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: ∅
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 3 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-708D46 Borehole* ELOG FIELD LOG

SITE*: Turkey Point NPP DATE*: 3/9/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 10' 10' 10' RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.33	
DEPTH REF. OFFSET AT START*	39.67	
DEPTH REF. OFFSET AT END*	39.35	
AFTER SURVEY DEPTH ERROR*	.32	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708D4ELOGTEST01		2:57		2:58
B708D4ELOGUP01	125.4'	4:11 pm	35.95 ft	4:21 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-708BH **P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a**

Borehole

SITE*: Turkey Point NPP DATE*: 3/9/08, 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASSED _____ UNCASSED X
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 25.5 ft; 3 1/4", 25.5 TO 130 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft
SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 25.5'; NO _____
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: Ø TIME SINCE LAST CIRCULATION: 3 pm / 9 am 3/10

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services — 11541 Pomona Road, Suite P, Corona, CA 92622 (951) 549-1234 Fx (951) 549-1236



B-708DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08, 3/10/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am / 6:30 3/10/08
 ARRIVED ON SITE: 7am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: 4:53 pm / 9:47am LOGGING COMPLETED: 5:13 pm / 10:05am

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW _____
 WINCH COMPROBE GREY OYO RG OTH _____
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M _____
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* $\frac{-0.40}{-0.4}$
 DEPTH REF. OFFSET AT START* $\frac{2.1}{2.1}$ } REF TO GROUND SURFACE
 DEPTH REF. OFFSET AT END* $\frac{2.08}{2.1}$
 AFTER SURVEY DEPTH ERROR* $\frac{.02}{.0}$

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708DHSUSPDOWN01	27.89 ft	4:53 pm	72.18 ft	5:13 pm
B708DHSUSPDOWN02	68.9 ft	9:47 am	104.99 ft	10:05 am

3/9
3/10

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92802(951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-708D11 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/19/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25			
8.5	27.89	001		4.53
9.0	29.53	2		
9.5	31.17	3		
10.0	32.81	4		
10.5	34.45	5		
11.0	36.09	6		
11.5	37.73	7		
12.0	39.37	8		
12.5	41.01	9		
13.0	42.65	10		
13.5	44.29	11		
14.0	45.93	12		
14.5	47.57	13		
15.0	49.21	14		
15.5	50.85	15		
16.0	52.49	16		
16.5	54.13	17		
17.0	55.77	18		
17.5	57.41	19		
18.0	59.06	20		
18.5	60.70	21		
19.0	62.34	22		
19.5	63.98	23		
20.0	65.62	24		
20.5	67.26	25		

P-S FIELD LOG REV V1.31a

B-708DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/9/08, 3/10/08, 3/12/08
 CLIENT*: MACTEC JOB*: 8083 cc 3/12/08
 AUTHOR*: C. Carter PAGE*: ~~34~~ 34 OF ~~84~~ 84 cl 7/20/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (If any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	26 29		4:47 am (3/10)
21.5	70.54	27 30		
22.0	72.18	28 31		5:13 pm
22.5	73.82	32		
23.0	75.46	33		
23.5	77.10	34		
24.0	78.74	35		
24.5	80.38	36		
25.0	82.02	37		
25.5	83.66	38		
26.0	85.30	39		
26.5	86.94	40		
27.0	88.58	41		
27.5	90.22	42		
28.0	91.86	43		
28.5	93.50	44		
29.0	95.14	45		
29.5	96.78	46		
30.0	98.43	47		
30.5	100.07	48		
31.0	101.71	49		
31.5	103.36	50		
32.0	104.99	51		10:05 (3/10)
32.5	106.63			
33.0	108.27	52		11:52 3/12
33.5	109.91	53 152		
34.0	111.55	54 151		
34.5	113.19	55 150		
35.0	114.83	56 149		
35.5	116.47	57 148		
36.0	118.11	58 147		
36.5	119.75	59 146		
37.0	121.39	60 145		
37.5	123.03	61 144		
38.0	124.67	62 143		
38.5	126.31	63 142		
39.0	127.95	64 141		
39.5	129.59	65 140		
40.0	131.23	66 139		
40.5	132.87	67 138		
41.0	134.51	68		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-708D 4 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft; 3 3/4" 25.5 TO 130 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25.5'; NO _____
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: Ø

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;

OTHER: _____

DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City DEPARTURE TIME: 6:30 am

ARRIVED ON SITE: 7 am

STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.



B-708DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE ___ SILVER X OYO ___ OTHER ___
 MICROLOGGER* 5310 ___ 5772 X
 TELEVIEWER* ACOUSTIC #5174 X OTHER ___
 SHEAVE* COMPROBE ___ OYO 101 ___ 102 X 103 ___ RG ___

1 PROBE TILT TEST* 90.05 BRUNTON TILT* 90
 2 PROBE TILT TEST* 52.59 BRUNTON TILT* 53
 3 PROBE TILT TEST* 12.4 BRUNTON TILT* 12 AFTER LOG* yes
 1 PROBE AZIMUTH TEST* 351.2 BRUNTON AZIMUTH* 353
 2 PROBE AZIMUTH TEST* 43.4 BRUNTON AZIMUTH* 49
 3 PROBE AZIMUTH TEST* 14.1 BRUNTON AZIMUTH* 16 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>-1.33</u>	
DEPTH REF. OFFSET AT START*	<u>7.39</u>	
DEPTH REF. OFFSET AT END*	<u>3.65</u>	
AFTER SURVEY DEPTH ERROR*	<u>.34</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708DH0001	100.9 ft	11:59	19.9 ft	12:33 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: The cable went stuck a number of times from 80' - 100'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-708011 CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft; 3 3/4" 25.5 TO 130.5 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25.5'; NO _____
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:30 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



3-10801 CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5368 OTHER
 SHEAVE* COMPROBE OYO 10' 102' 103' RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.33	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.49	
DEPTH REF. OFFSET AT END*	5.30	
AFTER SURVEY DEPTH ERROR*	.19	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B708DHICALTEST01		1:27		1:28 pm
B708DHICALUP01	116.65 ft	1:49	15.35 ft	2:01 pm
B708DHICALTEST02		2:09		2:11 pm

FILE NAME	CALIBRATION PLATE S/N 201			PVC FITTING
	AS BUILT	AS BUILT	AS BUILT	
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B708DHICALTEST01	1.961	3.96	7.99	4.53
AS MEAS.* B708DHICALTEST02	1.946	4.00	8.04	4.54
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

cc 3/10/08
4.510

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-708D#

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft; 3 3/4" 25.5 TO 26.5

BOREHOLE TOTAL DEPTH AS DRILLED*: 26.5 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 105.8'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: φ
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: φ TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



R-708DH ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/3/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 10' 102' 103' RG

PROBE LENGTH	2.50M(8.20 FT)	} REF TO GROUND SURFACE
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	1.25	
DEPTH REF. OFFSET AT START*	39.75	
DEPTH REF. OFFSET AT END*	39.60	
AFTER SURVEY DEPTH ERROR*	.15	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
R-708DHELO6TEST02		8:25am		8:26am
R708DHELO6UP02	260.76'	10:59	102.3'	11:15

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-708D H
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD 2x
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5; 3 3/4" 25.5 TO 265 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 265

SURFACE CASING?: YES x DEPTH TO BOTTOM OF CASING 105.8'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD x; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-268D H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5368 OTHER
 SHEAVE* COMPROBE OYO 10 102 10 RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.25	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.57	
DEPTH REF. OFFSET AT END*	5.56	
AFTER SURVEY DEPTH ERROR*	.07	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B708DHCALEST03		1:22		1:23 pm
B708DHCALUP02	252.25'	1:42	94.35'	1:57
B708DHCALEST04	252.25'	2:07	94.35'	2:08
	cc 3/13/08		cc 3/13/08	

CALIBRATION PLATE S/N 201	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.510 IN (114.3 MM)
AS MEAS.*	B708DHCALEST03	1.983	3.986	8.06	4.53
AS MEAS.*	B708DHCALEST04	1.99	3.986	8.05	4.517
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 3/13/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-708D4 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/13/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 1 OF * 5

CONTACT: _____ PHONE: Off Cell _____
 CONTACT: _____ PHONE: Off Cell _____
 CONTACT: _____ PHONE: Off Cell _____
 CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
 BOREHOLE CONSTRUCTION*: CASED _____ UNCASED
 DIAMETERS AND DEPTH RANGES*: 4" 0 TO 25.5'; 3 3/4" 25.5' TO 265'
 BOREHOLE TOTAL DEPTH AS DRILLED*: 265'
 SURFACE CASING?: DEPTH TO BOTTOM OF CASING 105.8'; NO
 DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD; _____
 OTHER: _____
 DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 9am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
 GEOVision Geophysical Services - 1457 Pomona Road, Suite P, Corona, CA 92626 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-708D P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 5 ca 7/10/08

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
 ARRIVED ON SITE: 7am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: 11:52 LOGGING COMPLETED: 12:44pm

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW
 WINCH COMPROBE GREY OYO RG OTH
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* -.38
 DEPTH REF. OFFSET AT START* 2.12
 DEPTH REF. OFFSET AT END* 2.11
 AFTER SURVEY DEPTH ERROR* .01
 } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708DH SUSP DOWN/03	108.27'	11:52	247.7	12:44pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)
 EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)
 SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
 GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92802 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1 31a

B-7080H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/9/08, 3/10/08, 3/13/08

CLIENT*: MACTEC

JOB*: 8083 ec 3/13/08

AUTHOR*: C. Carter

PAGE* 3 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	26	29	9:47 am (3/10)
21.5	70.54	27	30	
22.0	72.18	28	31	5:13 pm
22.5	73.82		32	
23.0	75.46		33	
23.5	77.10		34	
24.0	78.74		35	
24.5	80.38		36	
25.0	82.02		37	
25.5	83.66		38	
26.0	85.30		39	
26.5	86.94		40	
27.0	88.58		41	
27.5	90.22		42	
28.0	91.86		43	
28.5	93.50		44	
29.0	95.14		45	
29.5	96.78		46	
30.0	98.43		47	
30.5	100.07		48	
31.0	101.71		49	
31.5	103.35		50	
32.0	104.99		51	10:05 (3/10)
32.5	106.63			
33.0	108.27		52	11:32 3/13
33.5	109.91		53 152	
34.0	111.55		54 151	
34.5	113.19		55 150	
35.0	114.83		56 149	
35.5	116.47		57 148	
36.0	118.11		58 147	
36.5	119.75		59 146	
37.0	121.39		60 145	
37.5	123.03		61 144	
38.0	124.67		62 143	
38.5	126.31		63 142	
39.0	127.95		64 141	
39.5	129.59		65 140	
40.0	131.23		66 139	
40.5	132.87		67 138	
41.0	134.51		68	

P-S FIELD LOG REV V1.31a

B-70815H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/13/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 4 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	69		
42.0	137.80	70		
42.5	139.44	71		
43.0	141.08	72		
43.5	142.72	73		
44.0	144.36	74		
44.5	146.00	75		
45.0	147.64	76		
45.5	149.28	77		
46.0	150.92	78		
46.5	152.56	79		
47.0	154.20	80		
47.5	155.84	81		
48.0	157.48	82		
48.5	159.12	83		
49.0	160.76	84		
49.5	162.40	85		
50.0	164.04	86		
50.5	165.68	87		
51.0	167.32	88		
51.5	168.96	89		
52.0	170.60	90		
52.5	172.24	91		
53.0	173.88	92		
53.5	175.52	93		
54.0	177.17	94		
54.5	178.81	95		
55.0	180.45	96		
55.5	182.09	97		
56.0	183.73	98		
56.5	185.37	99		
57.0	187.01	100		
57.5	188.65	101		
58.0	190.29	102		
58.5	191.93	103		
59.0	193.57	104		
59.5	195.21	105		
60.0	196.85	106		
60.5	198.49	107		
61.0	200.13	108		
61.5	201.77	109		

P-S FIELD LOG REV V1.31a

B-708Dfl

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/13/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 5 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	110		
62.5	205.05	111		
63.0	206.69	112		
63.5	208.33	113		
64.0	209.97	114		
64.5	211.61	115		
65.0	213.25	116		
65.5	214.90	117		
66.0	216.54	118		
66.5	218.18	119		
67.0	219.82	120		
67.5	221.46	121		
68.0	223.10	122		
68.5	224.74	123		
69.0	226.38	124		
69.5	228.02	125		
70.0	229.66	126		
70.5	231.30	127		
71.0	232.94	128		
71.5	234.58	129		
72.0	236.22	130		
72.5	237.86	131		
73.0	239.50	132		
73.5	241.14	133		
74.0	242.78	134		
74.5	244.42	135		
75.0	246.06	136		
75.5	247.70	137		12:44
76.0	249.34			
76.5	250.98			
77.0	252.62			
77.5	254.27			
78.0	255.91			
78.5	257.55			
79.0	259.19			
79.5	260.83			
80.0	262.47			
80.5	264.11			
81.0	265.75			
81.5	267.39			
82.0	269.03			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-708DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5; 3 3/4 25.5' TO 265'

BOREHOLE TOTAL DEPTH AS DRILLED*: 265 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105.2/98.5; NO _____
DEPTH TO BEDROCK: ~3 DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 1am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45
ARRIVED ON SITE: 7
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-708DN ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER OYO _____ OTHER _____
 MICROLOGGER* 5310 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 103 _____ RG _____

1 PROBE TILT TEST* 43.0 BRUNTON TILT* 43
 2 PROBE TILT TEST* 90.4 BRUNTON TILT* 91 cc 3/13/08
 3 PROBE TILT TEST* 51.82 BRUNTON TILT* 323 52 AFTER LOG* yes
 1 PROBE AZIMUTH TEST* 329.4 BRUNTON AZIMUTH* 325
 2 PROBE AZIMUTH TEST* 67.8 BRUNTON AZIMUTH* 68
 3 PROBE AZIMUTH TEST* 5243.1 BRUNTON AZIMUTH* 49 AFTER LOG* yes
 cc 3/13/08

PROBE OFFSET*	1.44M(4.72FT)
MINUS CASING STICK-UP*	<u>1.25</u> <u>13.5</u>
DEPTH REF. OFFSET AT START*	<u>3.47</u> <u>1.25</u> REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	<u>3.39</u> <u>1.13</u>
AFTER SURVEY DEPTH ERROR*	<u>.08</u> <u>.09</u>

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708DH4UUP02	<u>251.3 ft</u>	<u>3:32</u>	<u>94.9 ft</u>	<u>3:40</u>
B708DH4UUP03	<u>118.4 ft</u>	<u>4:12</u>	<u>97.4 ft</u>	<u>4:20</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: Pulled casing to 98.5' for B708DH4UUP03

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-710GDH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08, 3/18/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 1 OF 1

CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASIED _____ UNCASIED X
 DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5'; 4" 17.5 TO 143ft / 273ft
 BOREHOLE TOTAL DEPTH AS DRILLED*: 143 / 273 ft
 CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING: 12.5 / 115'; NO _____
 DEPTH TO BEDROCK: ~ 3 ft
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;

LOGGING CREW: C. Carter

* On 3/19/08 a "G" was added to all digit file names that did not originally have one

	LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
*	ELOG	B710GDHELOGTEST01		3/11/08	11:47 - 11:48 am
*	ELOG	B710GDHELOGUP01	140.6 - 384.5 ft	3/11/08	12:34 pm - 12:45 pm
*	P-S velocity	B710GDHSUSPDOWN01	21.33 - 127.95 ft	3/11/08	1:27 - 2:05 pm
*	ATV	B710GDHAUUP01	120.5 - 17.1 ft	3/11/08	3:06 - 3:38 pm
*	Caliper	B710GDHICALTEST01		3/11/08	4:12 - 4:13 pm
*	Caliper	B710GDHICALUP01	132.35 - 13.4 ft	3/11/08	4:26 - 4:39 pm
*	Caliper	B710GDHICALTEST02		3/11/08	4:46 - 4:47 pm
*	ELOG	B710GDHELOGTEST02		3/18/08	10:04 - 10:05 am
*	ELOG	B710GDHELOGUP02	270.6 - 94.8 ft	3/18/08	10:29 - 10:49 am
*	P-S velocity	B710GDHSUSPDOWN02	121.4 - 252.6'	3/18/08	12:19 - 1:02 pm
	Deviation	B710GDHAUUP02	253.7 - 102.2 ft	3/18/08	2:08 - 2:16 pm
	Caliper	B710GDHICALTEST03		3/18/08	2:40 - 2:42 pm
	Caliper	B710GDHICALUP02	257.95 - 108.6 ft	3/18/08	2:59 - 3:15 pm
	Caliper	B710GDHICALTEST04		3/18/08	3:29 - 3:31 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7106DH 3/18/08 cc 7/24/08
B-710DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 6" 0 TO 20'; 4" 20' TO 143 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 143 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 19.5'; NO _____
DEPTH TO BEDROCK: 13.5 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 12 pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 9:45 am
ARRIVED ON SITE: 10 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



B-710601 cc 3/18/08
~~B-710601~~ ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	- .92	
DEPTH REF. OFFSET AT START*	40.08	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	40.00	
AFTER SURVEY DEPTH ERROR*	.08	

cc 3/19/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B710601HELOGTEST01		11:47		11:48 am
B710601HELOGUP01	140.6 ft	12:34 pm	38.45 ft	12:45 pm
B710601HELOGTEST01		11:47 am		11:48 am
B710601HELOGUP01	140.6 ft	12:34 pm	38.45 ft	12:45 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV 1.31a



B-7106DH ca. 3/11/08
B-7106H

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*:	Turkey Point NPP	DATE*:	3/11/08
CLIENT*:	MACTEC	JOB*:	8083
AUTHOR*:	C. Carter	PAGE 1 OF *:	4

CONTACT:	PHONE: Off	Cell
CONTACT:	PHONE: Off	Cell
CONTACT:	PHONE: Off	Cell
CONTACT:	PHONE: Off	Cell

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASD

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 20 ft ; 4" 20 TO 143

BOREHOLE TOTAL DEPTH AS DRILLED*: 143 ft

SURFACE CASING?: DEPTH TO BOTTOM OF CASING 19.5 ft, NO

DEPTH TO BEDROCK: ~3 DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 12 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services 1155 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-710GDH
 B-710DH

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter cc 3/11/08
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 9:45am
 ARRIVED ON SITE: 10am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW

WINCH COMPROBE GREY OYO RG OTH
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* -.28
 DEPTH REF. OFFSET AT START* 2.22
 DEPTH REF. OFFSET AT END* 2.21
 AFTER SURVEY DEPTH ERROR* .01
 } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B-710DH SUSP DOWN 01	21.33	1:27 pm	127.95 ft	2:05 pm
B-710GDH SUSP DOWN 01	21.33 ft	1:27 pm	127.95 ft	2:05 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92702 (951) 549-1234 Fx (951) 549-1236

B-7106DH cc 3/11/08

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/11/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33	001		6.27
7.0	22.97	2 cc 3/11/08		
7.5	24.61	3		
8.0	26.25	4		
8.5	27.89	5		
9.0	29.53	6		
9.5	31.17	7		
10.0	32.81	8		
10.5	34.45	9		
11.0	36.09	10		
11.5	37.73	11		
12.0	39.37	12		
12.5	41.01	13		
13.0	42.65	14		
13.5	44.29	15		
14.0	45.93	16		
14.5	47.57	17		
15.0	49.21	18		
15.5	50.85	19		
16.0	52.49	20		
16.5	54.13	21		
17.0	55.77	22		
17.5	57.41	23		
18.0	59.06	24		
18.5	60.70	25		
19.0	62.34	26		
19.5	63.98	27		
20.0	65.62	28		
20.5	67.26	29		

B-7106DH cc 3/11/08
 B-7106DH

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/11/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 4 OF 14

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	30		
21.5	70.54	31		
22.0	72.18	32		
22.5	73.82	33		
23.0	75.46	34		
23.5	77.10	35		
24.0	78.74	36		
24.5	80.38	37		
25.0	82.02	38		
25.5	83.66	39		
26.0	85.30	40		
26.5	86.94	41		
27.0	88.58	42		
27.5	90.22	43		
28.0	91.86	44		
28.5	93.50	45		
29.0	95.14	46		
29.5	96.78	47		
30.0	98.43	48		
30.5	100.07	49		
31.0	101.71	50		
31.5	103.35	51		
32.0	104.99	52		
32.5	106.63	53		
33.0	108.27	54		
33.5	109.91	55		
34.0	111.55	56		
34.5	113.19	57		
35.0	114.83	58		
35.5	116.47	59		
36.0	118.11	60		
36.5	119.75	61		
37.0	121.39	62		
37.5	123.03	63		
38.0	124.67	64		
38.5	126.31	65		
39.0	127.95	66		2.05
39.5	129.59			
40.0	131.23			
40.5	132.87			
41.0	134.51			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-710GDH cc 3/18/08

~~B-710GDH~~ ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/16/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION: CASED UNCASD

DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5' ; 4" 19.5' TO 143'

BOREHOLE TOTAL DEPTH AS DRILLED*: 143'

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 19.5' ; NO

DEPTH TO BEDROCK: ~3' DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER ; FRESH WATER MUD ; SALT WATER MUD

OTHER:

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 12 pm

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE:

MOBILIZED FROM: Florida City DEPARTURE TIME: 9:45 am

ARRIVED ON SITE: 10 am

STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



geophysical services

R-710GDH 3/18/08
~~B-710DH~~

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO OTHER
 MICROLOGGER* 5310 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

- 1 PROBE TILT TEST* 41.88 BRUNTON TILT* 42
- 2 PROBE TILT TEST* 88.51 BRUNTON TILT* 88
- 3 PROBE TILT TEST* 28.80 BRUNTON TILT* 29 AFTER LOG* yes
- 1 PROBE AZIMUTH TEST* 189.2 BRUNTON AZIMUTH* 186
- 2 PROBE AZIMUTH TEST* 284.9 BRUNTON AZIMUTH* 290
- 3 PROBE AZIMUTH TEST* 252.7 BRUNTON AZIMUTH* 245 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	.92	
DEPTH REF. OFFSET AT START*	3.8	
DEPTH REF. OFFSET AT END*	3.74	
AFTER SURVEY DEPTH ERROR*	.06	

cc 3/19/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B710DH4VUP01	120.5 ft	3:06	17.1 ft	3:38 pm
B710GDH4VUP01	120.5 ft	3:06 pm	17.1 ft	3:38 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Ex (951) 549-1236



B-710 CDH cc 3/11/08
B-110 CDH CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASED X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5 ; 4" 19.5 TO 143

BOREHOLE TOTAL DEPTH AS DRILLED*: 143 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 19.5'; NO
DEPTH TO BEDROCK: 3.6ft DEPTH TO WATER TABLE:
BOREHOLE FLUID: WATER; FRESH WATER MUD; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 6 TIME SINCE LAST CIRCULATION: 12 pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 9:45 am
ARRIVED ON SITE: 10 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a)PDF



R-710GDH cc 3/18/08
~~B-710DH~~ CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO _____ RG _____ OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 CALIPER PROBE* 5368 OTHER _____
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	.92	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.9	
DEPTH REF. OFFSET AT END*	5.85	
AFTER SURVEY DEPTH ERROR*	.05	

cc 3/19/08

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B710DHCALTEST01	/	4:12	/	4:13
B710DHCALUP01	132.35 ft	4:26 pm	13.4 ft	4:39 pm
B710DHCALTEST02	/	4:46 pm	/	4:47 pm
B710GDHCALTEST01		4:12		4:13 pm
B710GDHCALUP01	132.35 ft	4:26 pm	13.4 ft	4:39 pm
B710GDHCALTEST02		4:46 pm		4:47 pm

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.607 IN (114.3 MM)
AS MEAS.* B710DHCALTEST01	1.968	3.912	8.000	4.517
AS MEAS.* B710DHCALTEST02	1.983	3.953	8.03	4.517
AS MEAS.				
AS MEAS. B710GDHCALTEST01	1.968	3.912	8.000	4.517
AS MEAS. B710GDHCALTEST02	1.983	3.953	8.03	4.517
AS MEAS.				

cc 4.510 3/19/08

cc 3/19/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-710GDH cc 3/18/08
~~B-7102H~~

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASSED _____ UNCASSED _____
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5' ; 4" 19.5' TO 273'

BOREHOLE TOTAL DEPTH AS DRILLED*: 273

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 115 ft ; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 6
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ~10' TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:30am
ARRIVED ON SITE: 8:45 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-710GDH
~~B-710DH~~ cc 3/18/08
 Borehole* ELOG FIELD LOG

SITE*: Turkey Point NPP DATE*: 3/18/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 10' 10' 10' RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	45.5 +32.8 cc 3/18/08	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	- 1.08	
DEPTH REF. OFFSET AT START*	39.92	
DEPTH REF. OFFSET AT END*	39.95	
AFTER SURVEY DEPTH ERROR*	.03	

cc 3/18/08
 cc 3/19/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B710DHTEST07		10:04		10:05am
B710DHELOG TEST07		10:04		10:05am
B710DHELOGUP02	270.6 ft	10:29	94.8 ft	10:49
B710GDHELOG TEST02		10:04am		10:05am
B710GDHELOGUP02	270.6 ft	10:29am	94.8 ft	10:49am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: low resistivity above 200' cc 3/18/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-710GDH cc 3/18/08

~~B-710GDH~~ P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*:	Turkey Point NPP	DATE*:	3/18/08
CLIENT*:	MACTEC	JOB*:	8083
AUTHOR*:	C. Carter	PAGE 1 OF *:	5

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASSED

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 19.5' ; 4" 19.5' TO 273 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 273 ft

SURFACE CASING?: DEPTH TO BOTTOM OF CASING 11.5 ft; NO

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD;

OTHER: _____

DEPTH TO BOREHOLE FLUID*: ~10 ft TIME SINCE LAST CIRCULATION: 1am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services - 1151 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236



^{6 cc 3/18/08}
 B-710DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 5

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:30 am
 ARRIVED ON SITE: 8:45 am
 STANDBY TIME: CAUSE:
 LOGGING STARTED: 12:19 pm LOGGING COMPLETED: 1:02 pm

BATTERIES CHANGED BEFORE LOGGING: YES ___; NO ; STORED WITH NEW ___
 WINCH COMPROBE GREY OYO RG OTH ___
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M RG 2.5M
 MINUS CASING STICK-UP* .33
 DEPTH REF. OFFSET AT START* 2.17
 DEPTH REF. OFFSET AT END* 2.14
 AFTER SURVEY DEPTH ERROR* .03
 } REF TO GROUND SURFACE

cc
 1/19/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B710DH SUSP DOWN 02	121.4 ft	12:19 pm	252.6	1:02 pm
B710DH				
B710GDHSUSP DOWN 02	121.4 ft	12:19 pm	252.6 ft	1:02 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
 COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92632 (951) 549-1234 Fx (951) 549-1236

B-710GDH cc 3/18/08
~~B-710GDH~~

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/11/08, 3/18/08
 CLIENT*: MACTEC JOB*: 8083 cc 3/18/08
 AUTHOR*: C. Carter PAGE*: 43 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	30		
21.5	70.54	31		
22.0	72.18	32		
22.5	73.82	33		
23.0	75.46	34		
23.5	77.10	35		
24.0	78.74	36		
24.5	80.38	37		
25.0	82.02	38		
25.5	83.66	39		
26.0	85.30	40		
26.5	86.94	41		
27.0	88.58	42		
27.5	90.22	43		
28.0	91.86	44		
28.5	93.50	45		
29.0	95.14	46		
29.5	96.78	47		
30.0	98.43	48		
30.5	100.07	49		
31.0	101.71	50		
31.5	103.35	51		
32.0	104.99	52		
32.5	106.63	53		
33.0	108.27	54		
33.5	109.91	55		
34.0	111.55	56		
34.5	113.19	57		
35.0	114.83	58		
35.5	116.47	59		
36.0	118.11	60		
36.5	119.75	61		
37.0	121.39	62	67	12:19 pm (3/18)
37.5	123.03	63	68	
38.0	124.67	64	69	
38.5	126.31	65	70	
39.0	127.95	66	71	2:05 (3/11)
39.5	129.59		72	
40.0	131.23		73	
40.5	132.87		74	
41.0	134.51		75	

B-710GDH 3/18/08
 B-710DH

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/18/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 7 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	76		
42.0	137.80	77		
42.5	139.44	78		
43.0	141.08	79		
43.5	142.72	80		
44.0	144.36	81		
44.5	146.00	82		
45.0	147.64	83		
45.5	149.28	84		
46.0	150.92	85		
46.5	152.56	86		
47.0	154.20	87		
47.5	155.84	88		
48.0	157.48	89		
48.5	159.12	90		
49.0	160.76	91		
49.5	162.40	92		
50.0	164.04	93		
50.5	165.68	94		
51.0	167.32	95		
51.5	168.96	96		
52.0	170.60	97		
52.5	172.24	98		
53.0	173.88	99		
53.5	175.52	100		
54.0	177.17	101		
54.5	178.81	102		
55.0	180.45	103		
55.5	182.09	104		
56.0	183.73	105		
56.5	185.37	106		
57.0	187.01	107		
57.5	188.65	108		
58.0	190.29	109		
58.5	191.93	110		
59.0	193.57	111		
59.5	195.21	112		
60.0	196.85	113		
60.5	198.49	114		
61.0	200.13	115		
61.5	201.77	116		

B-710 GDH cc 3/15/08
B-710-H

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/15/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 5 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	117		
62.5	205.05	118		
63.0	206.69	119		
63.5	208.33	120		
64.0	209.97	121		
64.5	211.61	122		
65.0	213.25	123		
65.5	214.90	124		
66.0	216.54	125		
66.5	218.18	126		
67.0	219.82	127		
67.5	221.46	128		
68.0	223.10	129		
68.5	224.74	130		
69.0	226.38	131		
69.5	228.02	132		
70.0	229.66	133		
70.5	*231.30	134		
71.0	232.94	135		
71.5	234.58	136		
72.0	236.22	137		
72.5	237.86	138		
73.0	239.50	139		
73.5	241.14	140		
74.0	242.78	141		
74.5	244.42	142		
75.0	246.06	143		
75.5	247.70	144		
76.0	249.34	145		
76.5	250.98	146		
77.0	252.62	147		1:02 pm
77.5	254.27			
78.0	255.91			
78.5	257.55			
79.0	259.19			
79.5	260.83			
80.0	262.47			
80.5	264.11			
81.0	265.75			
81.5	267.39			
82.0	269.03			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7106D# ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DRILLER _____ PHONE: Off Cell _____
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD _____
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5'; 4" 17.5 TO 273'

BOREHOLE TOTAL DEPTH AS DRILLED*: 273.4'

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 115'; NO _____
DEPTH TO BEDROCK: ~3' DEPTH TO WATER TABLE: ~0'
BOREHOLE FLUID: WATER _____; FRESH WATER MUD +; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: ~10.4' TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 8:30 am
ARRIVED ON SITE: 8:45 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7106 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER OYO _____ OTHER _____
 MICROLOGGER* 5310 _____ 5772
 TELEVIEWER* ACOUSTIC #5174 OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 103 _____ RG _____

1 PROBE TILT TEST* 34.04 BRUNTON TILT* 34
 2 PROBE TILT TEST* 86.06 BRUNTON TILT* 86
 3 PROBE TILT TEST* 19.8 BRUNTON TILT* 20 AFTER LOG* yes
 1 PROBE AZIMUTH TEST* 183.6 BRUNTON AZIMUTH* 187
 2 PROBE AZIMUTH TEST* 295.5 BRUNTON AZIMUTH* 300
 3 PROBE AZIMUTH TEST* 244.0 BRUNTON AZIMUTH* 247 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.08	
DEPTH REF. OFFSET AT START*	3.64	
DEPTH REF. OFFSET AT END*	3.57	
AFTER SURVEY DEPTH ERROR*	.07	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7106DH000P02	253.7 ft	2:08 pm	102.2 ft	2:16

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



B-7106DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5 ft; 4" 17.5' TO 273 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 273 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 115 ft; NO _____

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: Ø

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____

OTHER: _____
DEPTH TO BOREHOLE FLUID: ~10 ft TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:30am

ARRIVED ON SITE: 8:45 am

STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-7106DH CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER OYO _____ RG _____ OTHER _____
 MICROLOGGER* 5310 5772 OTHER _____
 CALIPER PROBE* 5368 OTHER _____
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.08	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.74	
DEPTH REF. OFFSET AT END*	5.65	
AFTER SURVEY DEPTH ERROR*	0.9	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B7106DH CAL TEST 03		2:40		2:42 pm
B7106DH CAL UP 02	257.95	2:59 pm	108.6	3:15 pm
B7106DH CAL TEST 04		3:29 pm		3:31 pm

CALIBRATION PLATE S/N 201	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B7106DH CAL TEST 03	1.977	3.971	7.999	4.543
AS MEAS.*	B7106DH CAL TEST 04	1.999	3.986	8.09	4.517
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

cc 3/18/08
 4.510

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-7206DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: 1 OF 1
 CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
 DIAMETERS AND DEPTH RANGES: 4" 0 TO 73 ft ; 2 7/8" 73 TO 220 ft
 BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft
 CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING 73/20.5; NO _____
 DEPTH TO BEDROCK: ~3 ft
 BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B7206 ^{PH} ELOGTEST01		3/20/08	11:07 - 11:08 am
ELOG	B7206DH ELOGUP01	219.4 - 69.7 ft	3/20/08	11:37 - 11:54 am
P-S velocity	B7206DHSUSP02M01	23.0m - 61.0m	3/20/08	12:44 - 1:29 pm
Deviation	B7206DH AVUP01	200.4 - -7 ft	3/20/08	2:37 - 2:47
Caliper	B7206DH CALTEST01		3/20/08	3:15 - 3:16
Caliper	B7206DH CALUP01	202.5 - 59.55 ft	3/20/08	3:33 - 3:47
Caliper	B7206DH CALTEST02		3/20/08	4:00 - 4:01
ELOG	B7206 ^{PH} ELOGUP02	131.15 - 30.95 ft	3/20/08	5:00 - 5:11 pm
P-S velocity	P7206DH SUSP02M02	8.0m - 37.0m	3/20/08	5:34 - 6:07 pm
ATV	B7206DH AVUP02	120.4 - 19.7 ft	3/20/08	6:53 - 7:22 pm
Caliper	B7206DH CALTEST03		3/20/08	7:41 - 7:42 pm
Caliper	B7206DH CALUP02	82.1 - 16.3 ft	3/20/08	7:53 - 8:00 pm
Caliper	B7206DH CALTEST04		3/20/08	8:07 - 8:08 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7206DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED*
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73'; 3 1/8" 73' TO 220'

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 73 1/2'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: ~0 TIME SINCE LAST CIRCULATION: 10:30am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15
ARRIVED ON SITE: 7:30
STANDBY TIME: 8-5 3/19 CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7206D11 ELOG FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 ELOG PROBE* 5490 OTHER
 SHEAVE* COMPROBE OYO 101 102 103 RG

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	32.8 32.8
MINUS CASING STICK-UP*	8.08 10.08
DEPTH REF. OFFSET AT START*	32.92 30.92 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	32.55 30.90
AFTER SURVEY DEPTH ERROR*	.37 .02

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7206D11ELOGTEST01		11:07am		11:08am
B7206D11ELOGUP01	219.4 ft	11:37am	69.7 ft	11:54am
B7206D11ELOGUP02	131.15 ft	5:00 pm	30.95 ft	5:11 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: "Tiger salt" was added to high yield bentonite drilling mud from 0-73 ft. Resistivity is very low above 200 ft.
 cc 3/20/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



8-7206011 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 5

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 73' ; 3 7/8" 73 TO 220 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft
SURFACE CASING?: DEPTH TO BOTTOM OF CASING: 73-ft; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD: _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: ~0 TIME SINCE LAST CIRCULATION: 10:30 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services — 11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236



B-720604 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF * 45 cc 3/20/08

LOGGING CREW*: C. Carter
 MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:15 am
 ARRIVED ON SITE: 7:30 am
 STANDBY TIME: 8-5 3/19 " CAUSE:
 LOGGING STARTED: 12:44 LOGGING COMPLETED: 1:29 pm

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ; STORED WITH NEW _____
 WINCH COMPROBE GREY OYO RG OTH _____
 INSTRUMENT* OYO 12004 15014 19029 RG 160023 160024
 RECEIVER S/N* 12008 20042 26066 11001 23053 30086
 ISOLATION TUBE S/N* 300083 24053 28068 28072 2M _____
 SHEAVE* COMPROBE OYO 101 102 103 RG
 MICROLOGGER* 5310 5772 NOT APPLICABLE (OYO)
 PROBE OFFSET* OYO 2.0M ^{cc 3/20/08} RG 2.5M
 MINUS CASING STICK-UP* 2.46 m } 3.08 m
 DEPTH REF. OFFSET AT START* .09 m } -.58
 DEPTH REF. OFFSET AT END* .28 } -.57
 AFTER SURVEY DEPTH ERROR* .24 } .01
 REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B720604SVSPDOWN01	23.0m	12:44pm	61.0m	1:29pm
B720604SVSPDOWN02	8.0m	5:34pm	37.0m	6:07pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: Run 1: wireline on drill rig pulled down (N/A if none)
 2m when probe came out of borehole fluid. Depth read - 2.19m @ Ref pt.
 SUGGESTIONS, ADDITIONS, CHANGES: After running the ATV I realized the
 COMMENTS: casing was set @ 20.5ft. I was told it was set at 25ft

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

8-720604 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE* 3 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25	78		S:34
8.5	27.89	79		
9.0	29.53	80		
9.5	31.17	81		
10.0	32.81	82		
10.5	34.45	83		
11.0	36.09	84		
11.5	37.73	85		
12.0	39.37	86		
12.5	41.01	87		
13.0	42.65	88		
13.5	44.29	89		
14.0	45.93	90		
14.5	47.57	91		
15.0	49.21	92		
15.5	50.85	93		
16.0	52.49	94		
16.5	54.13	95		
17.0	55.77	96		
17.5	57.41	97		
18.0	59.06	98		
18.5	60.70	99		
19.0	62.34	100		
19.5	63.98	101		
20.0	65.62	102		
20.5	67.26	103		

B-720^{GDH}

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/20/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 34 of 32008 OF 45

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	104		
21.5	70.54	105		
22.0	72.18	106		
22.5	73.82	107		
23.0	75.46	001 108		12:44
23.5	77.10	2 109		
24.0	78.74	3 110		
24.5	80.38	4 111		
25.0	82.02	5 112		
25.5	83.66	6 113		
26.0	85.30	7 114		
26.5	86.94	8 115		
27.0	88.58	9 116		
27.5	90.22	10 117		
28.0	91.86	11 118		
28.5	93.50	12 119		
29.0	95.14	13 120		
29.5	96.78	14 121		
30.0	98.43	15 122		
30.5	100.07	16 123		
31.0	101.71	17 124		
31.5	103.35	18 125		
32.0	104.99	19 126		
32.5	106.63	20 127		
33.0	108.27	21 128		
33.5	109.91	22 129		
34.0	111.55	23 130		
34.5	113.19	24 131		
35.0	114.83	25 132		
35.5	116.47	26 133		
36.0	118.11	27 134		
36.5	119.75	28 135		
37.0	121.39	29 136		6:07
37.5	123.03	30		
38.0	124.67	31		
38.5	126.31	32		
39.0	127.95	33		
39.5	129.59	34		
40.0	131.23	35		
40.5	132.87	36		
41.0	134.51	37		

P-S FIELD LOG REV V1.31a

8-72660H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP _____ DATE*: 3/20/08

CLIENT*: MACTEC _____ JOB*: 8083

AUTHOR*: C. Carter _____ PAGE* 45 OF 45 u 3/20/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	38		
42.0	137.80	39		
42.5	139.44	40		
43.0	141.08	41		
43.5	142.72	42		
44.0	144.36	43		
44.5	146.00	44		
45.0	147.64	45		
45.5	149.28	46		
46.0	150.92	47		
46.5	152.56	48		
47.0	154.20	49		
47.5	155.84	50		
48.0	157.48	51		
48.5	159.12	52		
49.0	160.76	53		
49.5	162.40	54		
50.0	164.04	55		
50.5	165.68	56		
51.0	167.32	57		
51.5	168.96	58		
52.0	170.60	59		
52.5	172.24	60		
53.0	173.88	61		
53.5	175.52	62		
54.0	177.17	63		
54.5	178.81	64		
55.0	180.45	65		
55.5	182.09	66		
56.0	183.73	67		
56.5	185.37	68		
57.0	187.01	69		
57.5	188.65	70		
58.0	190.29	71		
58.5	191.93	72		
59.0	193.57	73		
59.5	195.21	74		
60.0	196.85	75		
60.5	198.49	76		
61.0	200.13	77		1:29
61.5	201.77			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-720GDH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER Phillip PHONE: Off Cell

COMPANY: MACTEC

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73 ft; 3 3/8", 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 73 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ~ Ø TIME SINCE LAST CIRCULATION: 10:30 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7206DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: _____ COMPROBE _____ SILVER X OYO _____ OTHER _____
 MICROLOGGER* 5310 _____ 5772 X _____
 TELEVIEWER* ACOUSTIC #5174 X OTHER _____
 SHEAVE* COMPROBE _____ OYO 101 _____ 102 X 103 _____ RG _____

- 1 PROBE TILT TEST* 96.22 BRUNTON TILT* 90
- 2 PROBE TILT TEST* 10.16 BRUNTON TILT* 10
- 3 PROBE TILT TEST* 19.24 BRUNTON TILT* 19 AFTER LOG* yes
- 1 PROBE AZIMUTH TEST* 33.6 BRUNTON AZIMUTH* 36
- 2 PROBE AZIMUTH TEST* 72.10 BRUNTON AZIMUTH* 74
- 3 PROBE AZIMUTH TEST* 115.5 BRUNTON AZIMUTH* 119 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>8.08</u>	
DEPTH REF. OFFSET AT START*	<u>-3.36</u>	
DEPTH REF. OFFSET AT END*	<u>-3.36</u>	
AFTER SURVEY DEPTH ERROR*	<u>0</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B7206DH10001</u>	<u>200.4 ft</u>	<u>2:37 pm</u>	<u>~7 ft</u>	<u>2:47 pm</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7206DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD

DIAMETERS AND DEPTH RANGES: 4" 0 TO 73'; 3 7/8" 73 TO 220'

BOREHOLE TOTAL DEPTH AS DRILLED*: 220

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 21'; NO _____

DEPTH TO BEDROCK: ~3ft DEPTH TO WATER TABLE: ~0

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;

OTHER: _____
DEPTH TO BOREHOLE FLUID: ~0 TIME SINCE LAST CIRCULATION: 10:30am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City DEPARTURE TIME: 7:15 am

ARRIVED ON SITE: 7:30 am

STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-720604 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
 MICROLOGGER* 5310 5772 X
 TELEVIEWER* ACOUSTIC #5174 X OTHER
 SHEAVE* COMPROBE OYO 101 102 X 103 RG

1 PROBE TILT TEST* 19.01 BRUNTON TILT* 19
 2 PROBE TILT TEST* 90.43 BRUNTON TILT* 90
 3 PROBE TILT TEST* 10.88 BRUNTON TILT* 11 AFTER LOG* yes
 1 PROBE AZIMUTH TEST* 19.3 BRUNTON AZIMUTH* 21
 2 PROBE AZIMUTH TEST* 70.3 BRUNTON AZIMUTH* 74
 3 PROBE AZIMUTH TEST* 144.6 BRUNTON AZIMUTH* 146 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-10.08	
DEPTH REF. OFFSET AT START*	-5.36	
DEPTH REF. OFFSET AT END*	-5.34	
AFTER SURVEY DEPTH ERROR*	.02	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B720604AVVP07</u>	<u>120.4 SL</u>	<u>6:53</u>	<u>19.7 ft</u>	<u>7:22 pm</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Ex (951) 549-1236



B-7206DH CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73 ft; 3 7/8 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 73 ft / 20.5'; NO _____

DEPTH TO BEDROCK: ~ 3 ft DEPTH TO WATER TABLE: φ

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ; SALT WATER MUD _____;

OTHER: _____

DEPTH TO BOREHOLE FLUID: ~ φ TIME SINCE LAST CIRCULATION: 10:30 am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:45 am

ARRIVED ON SITE: 7:30 am

STANDBY TIME: 8-5 3/19 CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.



B-220GDH CALIPER FIELD LOG
 Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO ^{cc 3/20/08} RG OTHER
 MICROLOGGER* 5310 5772 OTHER
 CALIPER PROBE* 5388 OTHER
 SHEAVE* COMPROBE OYO 10 102 101 RG

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	8.08	10.08
DEPTH REF. OFFSET AT START*	-1.23	-3.26
DEPTH REF. OFFSET AT END*	-1.25	-3.70
AFTER SURVEY DEPTH ERROR*	.02	.06

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B720GDHICALTEST01		3:15		3:16
B720GDHICALUP01	202.5 ft	3:33	59.55 ft	3:47
B720GDHICALTEST02		4:00		4:01
B720GDHICALTEST03		7:41		7:42
B720GDHICALTEST04		8:07		8:08
B720GDHICALUP02	82.1 ft	7:53	16.3 ft	8:00

CALIBRATION PLATE S/N 201	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B720GDHICALTEST01	1.968	3.978	8.02	4.530
AS MEAS.*	B720GDHICALTEST02	1.942	3.927	7.999	4.504
AS MEAS.	B720GDHICALTEST03	1.977	3.953	8.05	4.513
AS MEAS.	B720GDHICALTEST04	1.977	3.986	8.02	4.50
AS MEAS.					
AS MEAS.					

4.510 cc 3/20/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DITFIELD LOG REV 1.1a.pdf



B740 (DIT) **DOWNHOLE VELOCITY FIELD LOG REV 1.1a**

Borehole*
SITE*: Turkey Pt NP DATE*: 6/24/08 & 6/25/08
CLIENT*: Mactec JOB*: 8083
AUTHOR*: A. Martin PAGE 1 OF * 8

CONTACT: Matt Cook PHONE: Off Cell 803-261-5792
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED 2" TIME SINCE GROUT 3+ weeks
DIAMETERS AND DEPTH RANGES: 6" 0 TO 150'; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 150'
DEPTH TO BEDROCK: ≈ 3' DEPTH TO WATER TABLE: ≈ 1'

WATER PUMPED FROM BOREHOLE? YES NO - then what DEPTH TO WATER water pumped to 110'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DHFIELD LOG REV 1.1a.pdf



B740 (DHW) **DOWNHOLE VELOCITY FIELD LOG**
 Borehole*

SITE*: Turkey Point COP DATE*: 6/24/08 & 6/25/08
 CLIENT*: Mectec JOB*: 8083
 AUTHOR*: P. Martin PAGE 1 OF 3

LOGGING CREW*: A. Martin / N. Boldwin
 MOBILIZED FROM: Florida City DEPARTURE TIME: 0715am
 ARRIVED ON SITE: 0745hr
 STANDBY TIME: _____ CAUSE: _____
 LOGGING STARTED: 1145hr / 0800hr LOGGING COMPLETED: 1400 / 1100hrs
6/24/08 6/25/08 6/24/08 6/25/08

WINCH _____ OTHER _____
 INSTRUMENT* Geode 3458 3459 Other _____
 GEOPHONES* BHG3 9501 Other BHG3 9501

Plank Orientation*: N82W (MN) Sh Source Offset* 9'11" P Source Offset* 11'
 Surface geophones - If any-Offset Sh 16'8" P Offset 17'8"

P SOURCE Trough acceleration weight drop
 Sh SOURCE _____

CHANNEL ASSIGNMENTS 1 = borehole V, 2 = borehole H-L, 3 = borehole H-R
4 = surface V, 5 = surface H-L, 6 = surface H-R

SAMPLE RATES:
 Depth range 5'-14'8" Sh-wave 20.833m SR/0.175s P-wave 20.833m SR/0.075s RL
 Depth range _____ Sh-wave _____ P-wave _____
 Depth range _____ Sh-wave _____ P-wave _____

MAINTENANCE PERFORMED ON SITE*: NA

EQUIPMENT PROBLEMS OR FAILURES*: Difficulty with contact closure triggers a highly conductive ground - no impact on data quality.

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DH FIELD LOG REV 1.1a.p3f

B740 (DHT) **DOWNHOLE VELOCITY FIELD LOG**

Borehole*

SITE*: Turkey Point NP

DATE*: 6/24/08 & 6/25/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: A. Marten

PAGE* 3 OF 3

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH* (Feet)	Sh CHANNEL NUMBERS*		# OF STACKS	SH FILE NUMBER*		P CHANNEL NUMBER*	# OF STACKS	P FILE NUMBER*
	HL*	HT		RED*	GRN*			
5	2	3	8	59	60	1	5	103
10			8	57	58		5	102
15			8	55	56		5	101
20			8	53	54		5	100
25			8	51	52		1/5	98/99
30			8	49/71	50/72		2	97
35			8	47	48		5	96
40			8	45	46		5	95
45			8	43	44		5	94
50			9	41	42		5	93
55			8	39	40		7	92
60			8	37	38		5	91
65			10	35	36		6	90
70			10	33	34		6	89
75			10	31	32		6	88
80			10	29	30		5	87
85			10	27	28		5	86
90			10	25/63	26/64		6	85
95			12	23	24		5	84
100			10	21	22		5	83
105			10	19	20		6	82
110			10	17	18		6	81
115			10	15	16		6	80
120			12	13	14		6	79
125			12	11	12		6	78
130			12	9	10		6	77
135			10	7	8		8	76
140	✓	✓	10	5	6	✓	8	75
145			10	3	4		8	74
148*	2	3	10	1/61	2/62	1	5	73
30'	Noise		65-70					
				END OF LOG	CSH	6/25/08		
				Note: Files 90-103 with 16lb sledge hammer				

* edit data

APPENDIX G

BORING GEOPHYSICAL LOGGING

FIELD MEASUREMENT PROCEDURES

PROCEDURE FOR OYO P-S SUSPENSION SEISMIC VELOCITY LOGGING

Background

This procedure describes a method for measuring shear and compressional wave velocities in soil and rock. The OYO P-S Suspension Method is applied by generating shear and compressional waves in a borehole using the OYO P-S Suspension Logger borehole tool and measuring the travel time between two receiver geophones or hydrophones located in the same tool.

Objective

The outcome of this procedure is a plot and table of P and S_H wave velocity versus depth for each borehole. Standard analysis is performed on receiver to receiver data. Data is presented in report format, with digital data files transmitted in Excel, Word or ASCII format.

Instrumentation

1. OYO Model 170 Digital Logging Recorder or equivalent
2. OYO P-S Suspension Logger probe or equivalent, including two sets horizontal and vertical geophones, seismic source, and power supply for the source and receivers
3. Winch and winch controller, with logging cable
4. Batteries to operate P-S Logger and winch

The Suspension P-S Logger system, manufactured by OYO Corporation, or the Robertson Digital P-S Suspension Probe with the Robertson Micrologger2 are currently the only commercially available suspension logging systems. As shown in Figure 1, these systems consists of a borehole probe suspended by a cable and a recording/control electronics package on the surface.

The suspension system probe consists of a combined reversible polarity solenoid horizontal shear-wave generator (S_H) and compressional-wave generator (P), joined to



two biaxial geophones by a flexible isolation cylinder. The separation of the two geophones is one meter, allowing average wave velocity in the region between the geophones to be determined by inversion of the wave travel time between the two geophones. The total length of the probe is approximately 7 meters; the center point of the geophones is approximately 4 meters above the bottom end of the probe.

The probe receives control signals from, and sends the amplified geophone signals to, the instrumentation package on the surface via an armored 4 or 7 conductor cable. The cable is wound onto the drum of a winch and is used to support the probe. Cable travel is measured by a rotary encoder to provide probe depth data.

The entire probe is suspended by the cable and may be centered in the borehole by nylon "whiskers." Therefore, source motion is not coupled directly to the borehole walls; rather, the source motion creates a horizontally propagating pressure wave in the fluid filling the borehole and surrounding the source. This pressure wave produces a horizontal displacement of the soil forming the wall of the borehole. This displacement propagates up and down the borehole wall, in turn causing a pressure wave to be generated in the fluid surrounding the geophones as the soil displacement wave passes their location.

Environmental Conditions

The OYO P-S Suspension Logging Method can be used in either cased or uncased boreholes. For best results, the uncased borehole must be between 10 and 20 cm in diameter, or 4 to 8 inches. A cased borehole may be as small as 3 inches, if properly grouted (see below) and the grout annulus does not exceed 1 inch.

Uncased boreholes are preferred because the effects of the casing and grouting are removed. It is recommended that the borehole be drilled using the rotary mud method. This method does little damage to the borehole wall, and the drilling fluid coats and seals the borehole wall reducing fluid loss and wall collapse. The borehole fluid is required for the logging, and must be well circulated prior to logging.

If the borehole must be cased, the casing must be PVC and properly installed and grouted. Any voids in the grout will cause problems with the data. Likewise, large grout bulbs used to fill cavities will also cause problems. The grout must be set before testing. This means the grouting must take place at least 48 hours before testing.

For borehole casing, applicable preparation procedures are presented in ASTM Standard D4428/D4428M-91 Section 4.1 (see ASTM website for copy).

Calibration

Calibration of the digital recorder is required. Calibration is limited to the timing accuracy of the recorder. GEOVision's Seismograph Calibration Procedure or equivalent should be used. Calibration must be performed on an annual basis.



Measurement Procedure

The entire probe is lowered into the borehole to a specific measurement depth by the winch. A measurement sequence is then initiated by the operator from the instrumentation package control panel. No further operator intervention is then needed to complete the measurement sequence described below.

The system electronics activates the SH-wave source in one direction and records the output of the two horizontally oriented geophone axes which are situated parallel to the axis of motion of the source. The source is then activated in the opposite direction, and the horizontal output signals are again recorded, producing a SH-wave record of polarity opposite to the previous record. The source is finally actuated in the first direction again, and the responses of the vertical geophone axes to the resultant P-wave are recorded during this sampling.

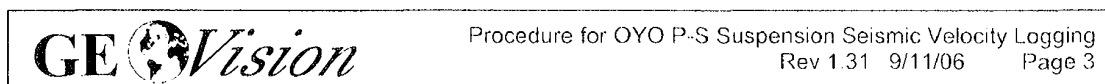
The data from each geophone during each source activation is recorded as a different channel on the recording system. The seismograph has at least six channels (two simultaneous recording channels), each with at least a 12 bit 1024 sample record. Newer seismographs may have longer record lengths. The recorded data is displayed on a CRT or LCD display and possibly on paper tape output as six channels with a common time scale. Data is stored on digital media for further processing. Up to 8 sampling sequences can be stacked (averaged) to improve the signal to noise ratio of the signals.

Review of the data on the display or paper tape allows the operator to set the gains, filters, delay time, pulse length (energy), sample rate, and stacking number in order to optimize the quality of the data before recording. In the case of the Model 170, printed data is verified by the operator prior to moving the probe. In the case of the Robertson Micrologger2, storage on the hard disk should be verified from time-to-time, certainly before exiting the borehole.

Typical depth spacing for measurements is 1.0 meters, or 3.3 feet. Alternative spacing is 0.5 meter, or 1.6 feet.

Required Field Records

- 1) Field log for each borehole showing
 - a) Borehole identification
 - b) Date of test
 - c) Tester or data recorder



- d) Description of measurement
 - e) Any deviations from test plan and action taken as a result
 - f) QA Review
- 2) Paper output records are no longer required, since the Micrologger2 cannot generate them. However, data must be stored in at least 2 places prior to leaving the site
 - 3) List of record ID numbers (for data on digital media) and corresponding depth
 - 4) Diskettes, CD Rom, or USB flash drives with backup copies of data on hard disk, labeled with borehole designation, record ID numbers, date, and tester name.

An example Field Log is attached to this procedure.


Analysis

Following completion of field work, the recorded digital records are processed by computer using the OYO Corporation software program PSLOG and interactively analyzed by an experienced geophysicist to produce plots and tables of P and S_H wave velocity versus depth.

The digital time series records from each depth are transferred to a personal computer for analysis. Figure 2 shows a sample of the data from a single depth. These digital records are analyzed to locate the first minima on the vertical axis records, indicating the arrival of P-wave energy. The difference in travel time between these arrivals is used to calculate the P-wave velocity for that 1-meter interval. When observable, P-wave arrivals on the horizontal axis records are used to verify the velocities determined from the vertical axis data. In addition, the soil velocity calculated from the travel time from source to first receiver is compared to the velocity derived from the travel time between receivers.

The digital records are studied to establish the presence of clear SH-wave pulses, as indicated by the presence of opposite polarity pulses on each pair of horizontal records. Ideally, the SH-wave signals from the 'normal' and 'reverse' source pulses are very nearly inverted images of each other. Digital FFT – IFFT lowpass filtering are used to remove the higher frequency P-wave signal from the SH-wave signal.

The first maxima are picked for the 'normal' signals and the first minima are picked for the 'reverse' signals. The absolute arrival time of the 'normal' and 'reverse' signals may vary by +/- 0.2 milliseconds, due to differences in actuation time of the solenoid source caused by constant mechanical bias in the source or by borehole inclination. This variation does not affect the velocity determinations, as the differential time is measured between arrivals of waves created by the same source actuation. The final velocity

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value is the average of the values obtained from the 'normal' and 'reverse' source actuations.

In Figure 2, the time difference over the 1-meter interval of 1.70 millisecond is equivalent to a SH-wave velocity of 588 m/sec. Whenever possible, time differences are determined from several phase points on the S_H -wave pulse trains to verify the data obtained from the first arrival of the S_H -wave pulse. In addition, the soil velocity calculated from the travel time from source to first receiver is compared to the velocity derived from the travel time between receivers.

Figure 3 is a sample composite plot of the far normal horizontal geophone records for a range of depths. This plot shows the waveforms at each depth, clearly showing the S-wave arrivals. This display format is used during analysis to observe trends in velocity with changing depth.

Once the proper picks are entered in PSLOG, the picks are transferred to an Excel spreadsheet where V_s and V_p are calculated. The spreadsheet allows output for presentation in charts and tables.


Standard analysis is performed on receiver 1 to receiver 2 data, with separate analysis performed on source to receiver data as a quality assurance procedure.

Registered Geophysicist Anthony Martin Date 9/11/06

QA Review [Signature] Date 9/11/06

References:

1. "In Situ P and S Wave Velocity Measurement", Ohya, S. 1986. Proceedings of In-Situ '86, *Use of In-Situ Tests In Geotechnical Engineering*, an ASCE Specialty Conference sponsored by the Geotechnical Engineering Division of ASCE and co-sponsored by the Civil Engineering Dept of Virginia Tech.
2. Guidelines for Determining Design Basis Ground Motions, Report TR-102293, Electric Power Research Institute, Palo Alto, California, November 1993, Sections 7 and 8.
3. "Standard test Methods for Crosshole Seismic Testing", ASTM Standard D4428/D4428M-91, July 1991, Philadelphia, PA

	Procedure for OYO P-S Suspension Seismic Velocity Logging
	Rev 1.31 9/11/06 Page 5

OYO SUSPENSION P-S VELOCITY LOGGING SETUP

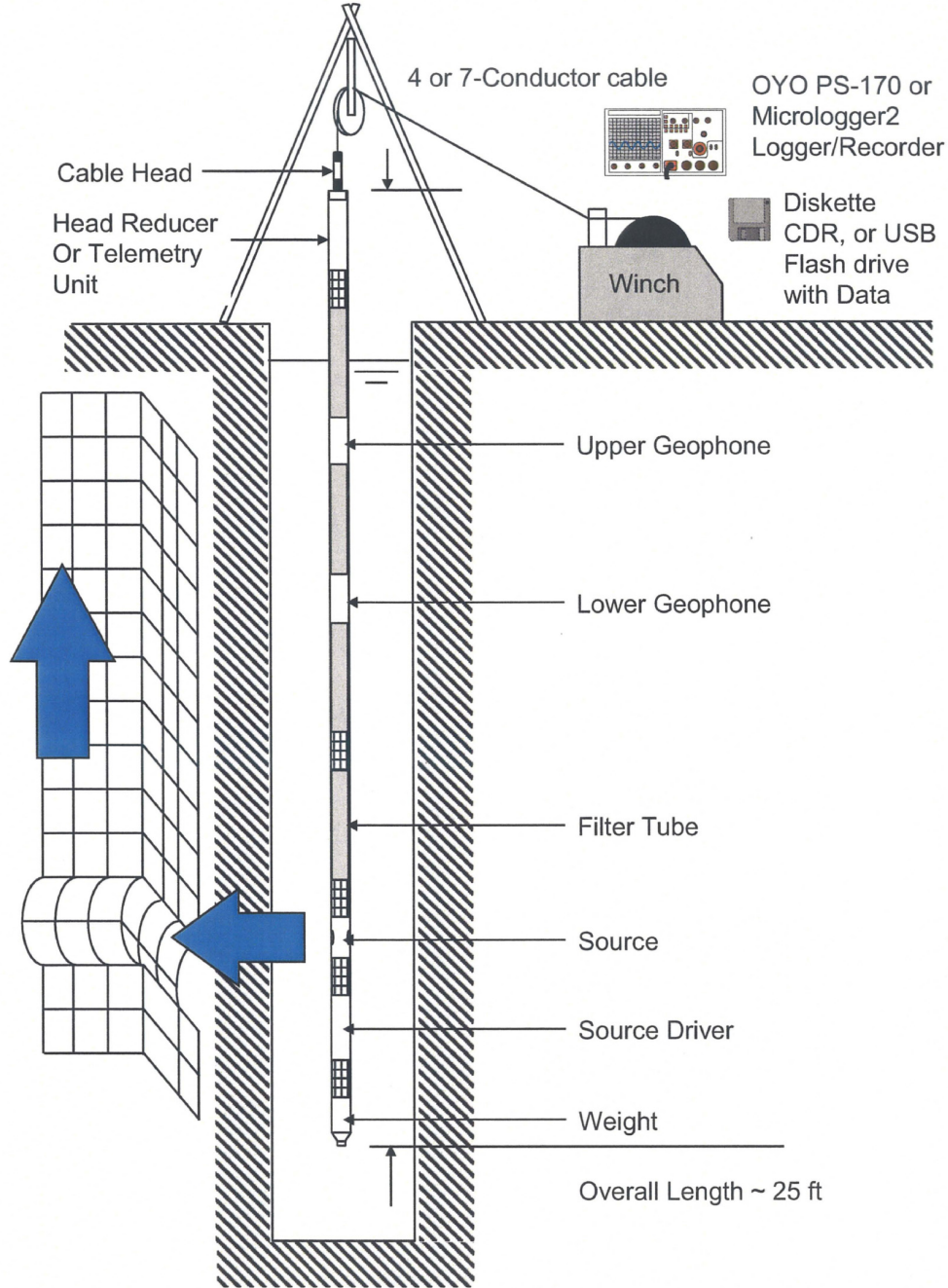


Figure 1. Suspension PS logging method setup

GE *Vision* Procedure for OYO P-S Suspension Seismic Velocity Logging
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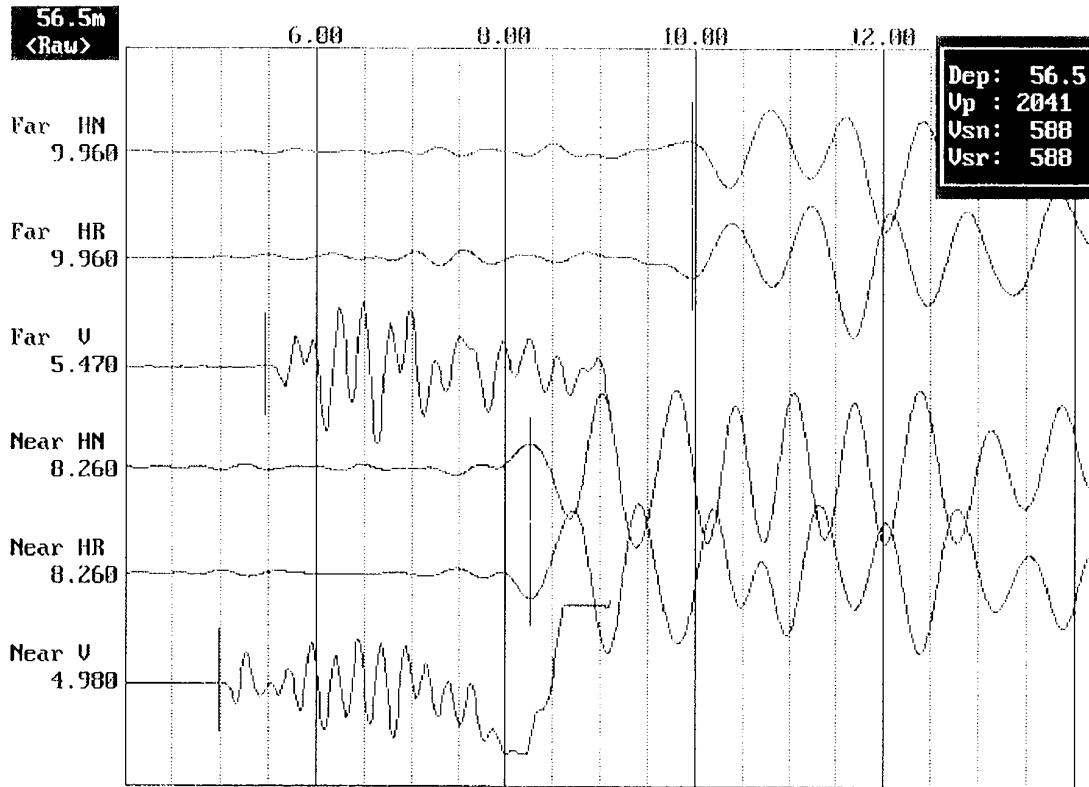


Figure 2. Sample suspension method waveform data showing horizontal normal and reversed (HR and HN), and vertical (V) waveforms received at the near (bottom 3 channels) and far (top 3 channels) geophones. The arrivals in milliseconds for each pick are shown on the left. The box in the upper right corner shows the depth in the borehole and the velocities calculated based on the picks.

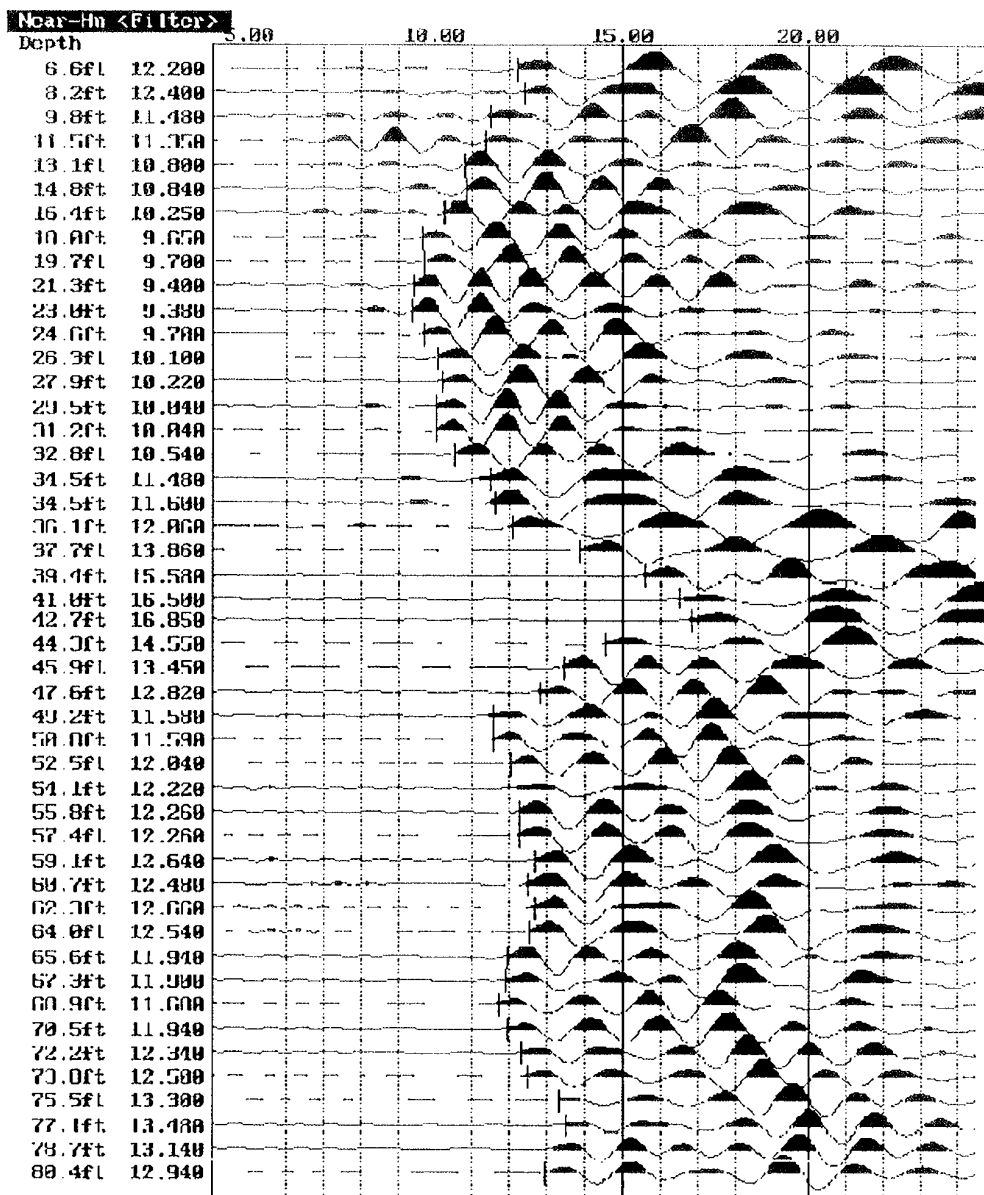


Figure 3. Sample composite waveform plot for normal shear waves received at the near geophone in a single borehole



P-S SUSPENSION VELOCITY FIELD LOG

SITE: _____ DATE: _____
CLIENT: _____ JOB: _____
AUTHOR: _____ PAGE 1 OF _____

CONTACT: _____ OFFICE PHONE: _____
PHONE: _____
CONTACT: _____ OFFICE PHONE: _____
PHONE: _____
CONTACT: _____ PHONE: _____
PHONE: _____
CONTACT: _____ PHONE: _____
PHONE: _____
DRILLER: _____ PHONE: _____
COMPANY: _____ PHONE: _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

EA#: _____
BOREHOLE DESIGNATION: _____ LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD _____

DIAMETERS AND DEPTH RANGES: _____ 0 TO _____ ; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED: _____

CONDUCTOR CASING?: YES _____ DEPTH TO BOTTOM OF CASING _____ ; NO _____

DEPTH TO BEDROCK: _____ DEPTH TO WATER TABLE: _____

BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD _____ ; SALT WATER MUD _____ ;

OTHER: _____

DEPTH TO BOREHOLE FLUID: _____ TIME SINCE LAST CIRCULATION: _____



SITE: _____ DATE: _____
CLIENT: _____ JOB: _____
AUTHOR: _____ PAGE 2 OF _____

LOGGING CREW: _____
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: _____ DEPARTURE TIME: _____
ARRIVED ON SITE: _____
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: _____ LOGGING COMPLETED: _____
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: _____ LOGGING COMPLETED: _____
DEMOBILIZED TO: _____ ARRIVAL TIME: _____
ADDITIONAL DEMOB TIME: _____ REASON: _____

BATTERIES CHANGED BEFORE LOGGING: YES _____; NO _____; STORED WITH NEW _____
WINCH COMPROBE GREY OYO RG OTH
INSTRUMENT OYO 12004 15014 19029 RG 160023 160024
RECEIVER S/N 12008 20042 26066 11001 23053

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: _____

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: _____ DATE: _____
 CLIENT: _____ JOB: _____
 AUTHOR: _____ PAGE _____ OF _____

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25			
8.5	27.89			
9.0	29.53			
9.5	31.17			
10.0	32.81			
10.5	34.45			
11.0	36.09			
11.5	37.73			
12.0	39.37			
12.5	41.01			
13.0	42.65			
13.5	44.29			
14.0	45.93			
14.5	47.57			
15.0	49.21			
15.5	50.85			
16.0	52.49			
16.5	54.13			
17.0	55.77			
17.5	57.41			
18.0	59.06			

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: _____ DATE: _____
 CLIENT: _____ JOB: _____
 AUTHOR: _____ PAGE _____ OF _____

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
18.5	60.70			
19.0	62.34			
19.5	63.98			
20.0	65.62			
20.5	67.26			
21.0	68.90			
21.5	70.54			
22.0	72.18			
22.5	73.82			
23.0	75.46			
23.5	77.10			
24.0	78.74			
24.5	80.38			
25.0	82.02			
25.5	83.66			
26.0	85.30			
26.5	86.94			
27.0	88.58			
27.5	90.22			
28.0	91.86			
28.5	93.50			
29.0	95.14			
29.5	96.78			
30.0	98.43			
30.5	100.07			
31.0	101.71			
31.5	103.35			
32.0	104.99			
32.5	106.63			
33.0	108.27			
33.5	109.91			
34.0	111.55			
34.5	113.19			
35.0	114.83			
35.5	116.47			
36.0	118.11			

PROCEDURE FOR DOWNHOLE SEISMIC VELOCITY LOGGING

Background

This procedure describes a method for measuring shear and compressional wave velocities in soil and rock. The Downhole Method is applied by generating shear and compressional waves at the surface and measuring the travel time between the surface and the borehole.

Objective

The outcome of this procedure is a plot and table of P and S_H wave velocity versus depth for each borehole. Alternatively or additionally, travel time plots may also be produced. Data is presented in report format, with ASCII data files and digital records transmitted on disk.

Instrumentation

1. OYO Model 170 Digital Seismograph, Geometrics Strataview or equivalent
2. Downhole probe, including horizontal and vertical geophones, fluxgate compass for orientation downhole, and system for locking probe against the side of the borehole
3. Sledge hammer with impulse switch to trigger recording
4. Winch and logging cable
5. Batteries to operate seismograph and controls for downhole probe
6. Various cables



Downhole soil velocities are measured using a variable azimuth downhole geophone and a seismograph. This system orients the downhole geophones parallel to the axis of excitation at the surface, insuring that signals received at the downhole geophones are of maximum amplitude, and are not subject to errors in travel time caused by incorrect phase of first arrival picks, as found with non-orientable downhole probes.

The downhole probe consists of a horizontal and vertical geophone mounted on a rotatable structure with a fluxgate magnetometer compass sensor. The compass/geophone assembly is mounted with preamplifiers and compass drive circuitry inside a 2.5 inch diameter case approximately 30 inches in length. The compass/geophone assembly can be rotated from the surface control module to match the azimuth of the horizontal geophone axis with the azimuth of the surface shear wave source. The probe receives control signals from, and sends the amplified geophone signals to, instrumentation on the surface via a 4- or 7-conductor cable. Cable travel is measured to provide probe depth data. The probe is locked into the borehole by inflation of an external rubber bladder or motor-driven spring clamp that runs the length of the probe.

Sledge hammer blows against the ends of a steel capped traction plank are used as an S_H -wave energy source. The traction plank is weighted by placing under the wheel or wheels of a truck. Sledge hammer blows against a striker plate on the surface are used as a P-wave energy source. System triggering is performed by a hammer switch mounted on the sledgehammer handle.

In operation, the S_H -wave produced by swinging the hammer in one direction produces an output at the downhole horizontal geophones which is digitized and recorded. The hammer is then swung in the opposite direction, and the horizontal output signals are again recorded, producing a shear-wave record of polarity opposite to the previous record. A vertical hammer blow is executed, and the response of the vertical geophone to the resultant P-wave is recorded.

The signal from each geophone generated by each hammer blow is recorded as a different channel on the recording system. The recorded data is displayed on the seismograph display. Data and all system parameters are stored on disk for further processing. Multiple hammer blows can be summed to improve the signal-to-noise ratio of the signals.

Review of the displayed data on the display allows the operator to set the gains, filters, sample rate, and summing number in order to optimize the quality of the data before recording to disk.



Environmental Conditions

For best results, the borehole should be between 7.5 and 17 cm in diameter, or 3 to 6 inches.

The locking method requires that soil boreholes be cased with PVC for best results. Casing is not required in hard rock boreholes. If installed, the casing must be properly installed and grouted. The best method is using a tremie tube to pump grout from the bottom. Any voids in the grout will cause problems with the data. Likewise, large grout bulbs used to fill cavities will also cause problems. The grout must be set before testing. This means the grouting must take place at least 48 hours before testing.

For borehole casing, applicable preparation procedures are presented in ASTM Standard D4428/D4428M-91 Section 4.1 (see ASTM website for copy).

The seismograph must be protected from rain. The downhole probe may or may not be submersible (depending on type). The procedure below provides for emptying the borehole of water.

Calibration

Calibration of the seismograph is required.

Downhole Measurement Procedure

Prior to performing downhole measurements each borehole casing may be emptied using a submersible pump or bailer. The downhole probe compass azimuth is checked at the surface, and compared to the azimuth of the traction plank S_H -wave source. The mechanical or electronic depth encoders are set to zero with the geophones located at ground level. The probe is then lowered to the bottom of the borehole at the desired intervals. At each desired depth, the probe is locked in place. The compass/geophone assembly is then rotated to match the azimuth of the surface S_H -source. At each sampling depth a minimum of two opposite horizontal records and one vertical record is acquired, and the gains adjusted as necessary to get good signal to noise ratio. The waveform data from each depth is checked on the display, and recorded before moving to the next depth. Upon removal of the probe from the borehole, depth indications are re-checked with the geophones located at ground level.

Typical depth spacing for measurements is 1.5 meters, or 5 feet. Alternative spacing is 1 meter, or 3 feet.



Deviations From Above Written Methods And Procedures

It is permissible for on-site personnel to deviate from this procedure with respect to the size and number of sledge hammers, the size of the traction plank, the weight of the truck, removing water from the borehole (not needed for submersible geophone packages), or the use of a winch (manual lowering is acceptable for shallow depths), and sequence of horizontal and vertical records, provided adequate waveforms are obtained.

Required Field Records

- 1) Field log for each borehole showing
 - a) Borehole identification
 - b) Date of test
 - c) Tester or data recorder
 - d) Description of measurement
 - e) Offset of centerpoint of plank and P-wave striker plate from the borehole collar
 - f) Any deviations from test plan and action taken as a result
 - g) Field check of data validity, performed by tester during data collection
 - h) List of record ID numbers (for data on disk) and corresponding depth
- 2) Data on hard disk with backup copies of data on removable media, labeled with borehole designation, record ID numbers, date, and tester name.

Downhole Analysis

Records are analyzed to locate the first arrival of energy on each downhole geophone record. The horizontal records are studied to verify the presence of clear S_H -wave pulses, as indicated by the presence of opposite polarity pulses on each pair of horizontal records. Ideally, the shear-wave signals from the 'normal' and 'reverse' hammer blows are very nearly inverted images of each other. Digital low-pass filtering may be used to remove the higher frequency converted P-wave signal and cultural noise from the S_H -wave signal.



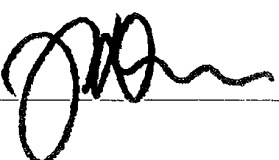
Total travel time is corrected for changes in path length due to offset of the source from the borehole collar, and then plotted versus depth.

Results are further presented in the form of velocity profiles with depth for both P- and S_H-wave velocities.

QA Review


This procedure has been reviewed and approved by the undersigned.

Registered Geophysicist Anthony Martin Date 04/12/06

QA Review  Date 04/12/06

References:

1. "Standard test Methods for Crosshole Seismic Testing", ASTM Standard D4428/D4428M-91, July 1991, Philadelphia, PA

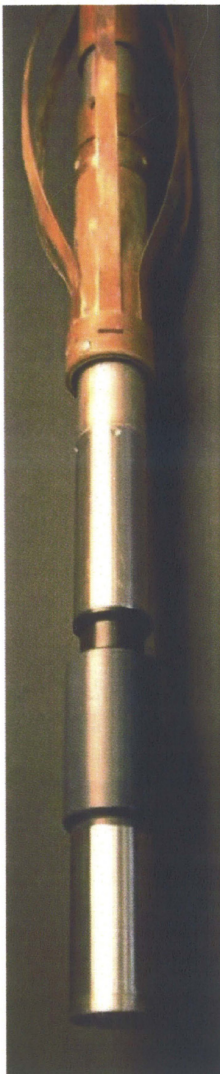
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PROCEDURE FOR USING THE ROBERTSON GEOLOGGING HI-RESOLUTION ACOUSTIC TELEVIEWER (HiRAT)

Reviewed 2/13/06

Background

The acoustic televiewer is a device for producing a qualitative image of the wall of a borehole. Because it uses ultrasound rather than visible light it is able to work in dirty or opaque borehole fluids, although heavy drilling mud will cause excessive dispersion of the acoustic beam. The picture below shows the sonde's lower nylon section, and one of the bowspring attachments which are used to centralize the sonde in the borehole.



Pulses of ultrasound (0.5 - 1.5MHz) are generated by a piezo-electric resonator. The pulses are transmitted through the oil in which the resonator is immersed, through the wall of the acoustic housing, then propagate through the borehole fluid and are reflected from the wall of the borehole. The reflected energy is picked up by the same transducer, from which is recorded both the **amplitude** of the returned pulse and the **travel-time** which have elapsed. Blanking must be applied to prevent the transducer from registering reflections from the inside surface of the acoustic housing. The material of the housing is chosen so that its acoustic properties are similar to the oil which fills it. The housing is not designed to withstand borehole fluid pressures, but has a piston device to allow equalization between inside and outside pressure.

The **amplitude** of the returned pulse is a function of the acoustic reflectivity of the borehole wall. If the beam strikes a hard borehole wall normally to the surface the energy will be returned to the transducer and a strong return will be recorded. If the formation is softer, then less energy will be reflected. Also, if the surface of the borehole is rough, or effectively missing because of the presence of a fracture or other structure, then energy will be dispersed and a poor return will be recorded.

The **travel-time** is a simple function of the diameter of the borehole and the velocity of sound in the borehole fluid (typically 1.5Km/sec). An A/D converter monitors the output from the transducer once the blanking period has expired and a comparator is used to detect the peak amplitude during the sampling window.

The coaxially-mounted transducer has a planar radiating surface, but the vibration characteristics are such that the acoustic pulse is emitted as a 'pencil' beam. The emitted beam is deflected by a planar mirror so that it leaves the acoustic housing at right angles to the sonde axis. The mirror is rotated to scan the borehole wall. The ultrasound pulses are synchronized with rotation of the mirror so that up to 360 pulses are emitted in every revolution. Because of the time which must elapse for the two-way transit of the borehole fluid, there is an upper limit upon the number of radial samples that may be acquired from a borehole of a particular radius. In larger boreholes, therefore, it may be necessary to reduce the number of radial samples. The sonde is able to operate at 90, 180 or 360 samples per revolution.

An image of the borehole wall is produced by moving the sonde along the borehole axis while it is scanning radially. By the same logic as shown above, it can be seen that any horizontal point will be imaged by more than one sweep of the acoustic beam so long as the axial movement of the sonde during one complete sweep is no greater than the beam diameter. An upper limit is therefore imposed upon the logging speed which will be a function of the rotational speed of the transducer, the radial sampling interval and borehole diameter.

Objective

The objective of this procedure is to provide a pseudo "core" of the borehole, and map the orientation and angles of cracks and voids in rock boreholes.

Instrumentation

This procedure is written specifically for the Robertson Geologging High-Resolution Acoustic Televiwer (HiRAT). The required equipment includes:

1. The Robertson High-Resolution Acoustic Televiwer (HiRAT) sonde with centralizers
2. A 4-conductor wire-line winch with cable at least 30m (100ft) longer than the depth of the borehole (RG Smart Winch or equivalent. GEOVision has adapted all our 4-conductor winches)
3. A sheave with depth encoder with minimum 500 pulse/revolution
4. A Robertson Geologging Micrologger II
5. A laptop with Winlogger installed and the following minimum system requirements:
 - Windows 98SE or above
 - 64M System memory
 - 800x600x24 SVGA Display with DirectX 8.0
 - 500Mhz CPU
 - USB 2.0 connection
6. Battery power supply with cables

Environmental Conditions

This tool is designed for fluid-filled boreholes between 67 and 150mm (3-6in) in rock. Since fine cracks are usually not visible in the walls of soil borings, the televiwers add very little information from a soil boring than a simple video. Now if the boring has soil AND rock, televiwer visuals in the soil may still be useful.



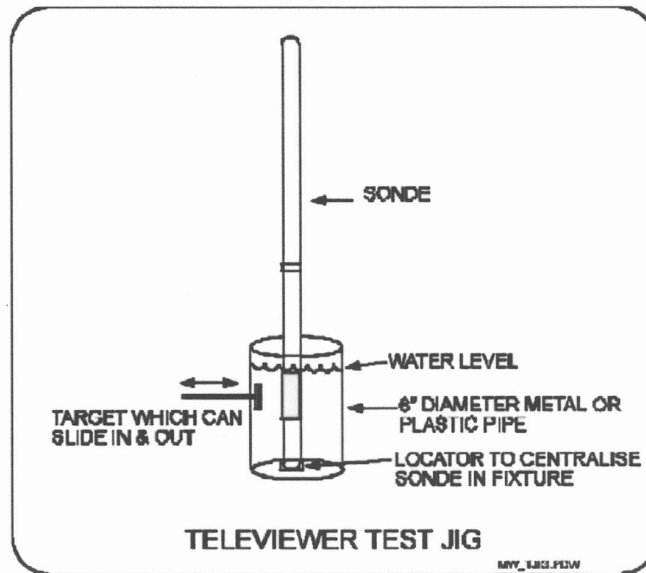
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Calibration

The acoustic televiewer uses the variability in reflectance and the travel time to make an image of the borehole wall, mostly resulting from relative differences of materials and the physical characteristics of the wall. Since these are relative measurements, no field calibration of the sonde is required. However, it is important that the same location in the borehole be checked at the start and finish of the logging to make sure that the response or functionality haven't changed during the measurement.

A test fixture may be used to check function of the acoustic televiewer prior to use. This test fixture should comprise a plastic pipe, with a known internal diameter between 3 and 6 inches. This should be filled with water and the sonde stood upright in the fixture. A target made of metal or metal foil is glued on the inside of the container, or optionally on a seal and shaft so that it can be moved in and out on a line radial to the center-line of the pipe. A representation of this is shown in the figure below.

The purpose of this test fixture is to check the ability of the sonde to differentiate between materials of different acoustic reflectances, and different travel times, and to check the calibration of the caliper function of the sensor using the measured diameter of the pipe. However, if calibrated caliper measurements are required, it is recommended that a mechanical 3-arm caliper tool be used for this purpose because it can be calibrated in the field prior to use. The HiRAT will give very accurate results but this procedure does not cover calibration.

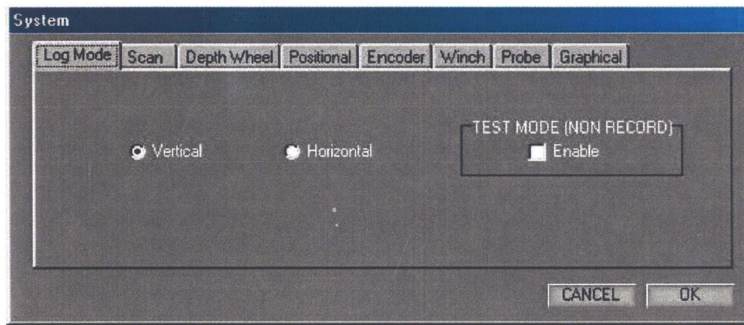


Hi-RAT Field Procedure

Because the logging software is a standalone module, there are a number of settings which must be initialized independently of the WinLogger software. These include the depth measurement subsystem and sonde operating modes. Click on 'System' on the menu bar to show the following dialog boxes:

1.0 Log Mode

The sonde can operate in three distinct modes:



- Vertical mode is used for boreholes which are drilled from the surface and are deviated at less than 70 degrees from the vertical. Most exploration boreholes will fall into this class. In this mode the image is orientated according to compass directions (magnetic co-ordinates).
- Horizontal mode is used for boreholes which are sub-horizontal so their inclination will probably exceed 70 degrees from the vertical. Boreholes in this class would normally be drilled as part of ground investigations for tunneling and mining, drilling ahead of a drive to determine the nature and extent of fracturing. In this mode the image is orientated according to gravitational coordinates (up/down) since there is no unique point of the image circle which can be orientated to North with any precision.
- Test mode is used to exercise all sonde functions without creating a log. The image will scroll on the screen in the normal fashion, and orientation readouts will be refreshed continuously.

2.0 Scan Parameters

The scan parameters control the radial sampling of the borehole. The values will be retained between logging sessions, so the sonde will be initialized correctly at power-on. There are three parameters in the dialog:

