P-S FIELD LOG REV V1.31a

B-6 (WDH) **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			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-610DH
Borehole*

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

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 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: ~1 ft
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD X ; SALT WATER MUD _____ ;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 11am

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

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

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-610DH
Borehole*

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

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 X 103___ RG____

1 PROBE TILT TEST* 37.65 BRUNTON TILT* 38
2 PROBE TILT TEST* 90.66 BRUNTON TILT* 90
3 PROBE TILT TEST* 8.1 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)	
MINUS CASING STICK-UP*	1.08	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.69	
DEPTH REF. OFFSET AT END*	3.63	
AFTER SURVEY DEPTH ERROR*	.01	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B610DHAUVP01	252.2 ft	2:21 pm	102.3 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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-610DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 4/2/08
JOB*: 8083
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 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'/20'; 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: 0 TIME SINCE LAST CIRCULATION: 11am

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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-610DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 4/2/08
JOB*: 8083
PAGE: PAGE 2 OF 2

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

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

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B610DHCALTEST01		2:49		2:50 pm
B610DHCALUP01	256.15'	3:06	98.7 ft	3:21 pm
B610DHCALTEST02		3:36		3:37
B610DHCALUP02	111.45	4:12	14.7 ft	4:27 pm
B610DHCALTEST03		4:31		4:32 pm

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B610DHCALTEST01	1.99	3.908	8.03	4.502
AS MEAS.*	B610DHCALTEST02	1.97	3.940	7.99	4.502
AS MEAS.	B610DHCALTEST03	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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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 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 105 ; 3 7/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES X 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 X ; SALT WATER MUD ____ ;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 11am

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

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

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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 X OYO____ OTHER____
MICROLOGGER* 5310___ 5772 X ____
TELEVIEWER* ACOUSTIC #5174 X OTHER____
SHEAVE* COMPROBE____ OYO 101___ 102 X 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)	
MINUS CASING STICK-UP*	1.5	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.22	
DEPTH REF. OFFSET AT END*	3.17	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B610DHAUD802	120.9 ft	6:55 pm	19 ft	7:21 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.*

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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 UNCASED X
DIAMETERS AND DEPTH RANGES: 3.5" 0 TO 125 ft ; 3" 125 TO 130 / 4" 0-105; 3 1/8" 105-215
BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft / 215 ft
CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING 25.5'; 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	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	B620DHSUSPDOWN01	26.25-109.9 ft	3/21/08	10:20 am - 10:55 am
ATV	B620DHAUUP01	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 - 13.55ft	3/21/08	1:16 - 1:28 pm
Caliper	B620DHCALTEST02	cc 3/23/08	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	B620DHSUSPDOWN02	106.6 - 129.6 ft	3/23/08	11:44a - 12:00 pm
P-S velocity	B620DHSUSPDOWN03	121.4 - 200.13 ft	3/23/08	1:23 - 1:46 pm
Deviation	B620DHAUUP02	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

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ELOG FIELD LOG REV 1.1a

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B-620 DH
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/21/08
JOB*: 8083
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 X
DIAMETERS AND DEPTH RANGES: _____ 0 TO _____; _____, _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 135 ft

SURFACE CASING?: YES 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: ∅ 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*

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ELOG FIELD LOG REV 1.1a

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B-620DH 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	X	OYO		RG		OTHER
MICROLOGGER*	5310		5772	X	OTHER				
ELOG PROBE*	5490	X	OTHER						
SHEAVE*	COMPROBE		OYO 101		102	X	103		RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-1.33	REF TO GROUND SURFACE
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
B620DHELOGTEST01		8:59		9:00am
B620DHELOGUP01	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 tiger salt

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

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P-S FIELD LOG REV V1.31a

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B-620 DH **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 125' ; 3", 125 TO 135

BOREHOLE TOTAL DEPTH AS DRILLED*: 135 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*: 0 TIME SINCE LAST CIRCULATION: 3/20 2:30pm

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

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P-S FIELD LOG REV V1.31a

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B-620DH 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 6.16V

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* 1.40
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
B620DHSUSPDOWN01	26.25 ft	10:20am	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*

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P-S FIELD LOG REV V1.31a

B-620DH **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 V1.31a

B-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 4
*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 (3/24)
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	68	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			

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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 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: Ø TIME SINCE LAST CIRCULATION: 3/20 2:30pm

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

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

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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 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* 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)	
MINUS CASING STICK-UP*	1.33	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.39	
DEPTH REF. OFFSET AT END*	3.31	
AFTER SURVEY DEPTH ERROR*	.08	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B620DHAUUP01	119.1 ft	12:02 pm	24 ft	12:35 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*

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B-620DH
Borehole*

CALIPER FIELD LOG

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 _____ UNCASED 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: Ø 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*

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B-620DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/21/08
JOB*: 8083
PAGE: PAGE 2 OF 2

WINCH: COMPROBE [ ] SILVER [Y] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
CALIPER PROBE* 5368 [X] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 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*	5.45	
AFTER SURVEY DEPTH ERROR*	.04	

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

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(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.					

cc 3/21 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*

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ELOG FIELD LOG REV 1.1a

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B-620DH
Borehole*

ELOG FIELD LOG

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 X
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 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

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*

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ELOG FIELD LOG REV 1.1a

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B-620DH
Borehole*

ELOG FIELD LOG

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

WINCH: COMPROBE ____ SILVER X 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*	-1.5	REF TO GROUND SURFACE
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
B620DHELOGTEST03		9:00 am		9:01 am
B620DHELOGUP02	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 gell + tiger salt

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

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P-S FIELD LOG REV V1.31a

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B-620DH
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

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 7/8" 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 Y ; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 10am - 12:30pm

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

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P-S FIELD LOG REV V1.31a

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B-620DH 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: 7:00 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO Y ; 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	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	2.04	1.84	
DEPTH REF. OFFSET AT END*	2.04	1.82	
AFTER SURVEY DEPTH ERROR*	0.0	.02	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B620DHSUSPOOOO2	106.6 ft	11:44am	129.6	12:50 pm
B620DHSUSP00003	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 B620DHSUSP00002 when it got caught by hole cave in. (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

COMMENTS:

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

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P-S FIELD LOG REV V1.31a

B-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 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	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-620DH 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			

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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 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 105 ; 3 7/8, 105 TO 215'

BOREHOLE TOTAL DEPTH AS DRILLED*: 215'

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 215' ; NO _____
DEPTH TO BEDROCK: ~3ft DEPTH TO WATER TABLE: ~1ft
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD X ; SALT WATER MUD _____ ;
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø 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: 9:30 am
STANDBY TIME: 2-4:30pm CAUSE: weather

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

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B-620DH
Borehole*

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

SITE*: Turkey Point NPP DATE*: 7/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE_____ SILVER Y OYO_____ OTHER_____
MICROLOGGER* 5310___ 5772 X
TELEVIEWER* ACOUSTIC #5174X___ OTHER_____
SHEAVE* COMPROBE_____ OYO 101___ 102X___ 103___ RG_____

1 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)	
MINUS CASING STICK-UP*	1.5	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	8.22	
DEPTH REF. OFFSET AT END*	3.12	
AFTER SURVEY DEPTH ERROR*	.10	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B620DHAUVP02	201.5 ft	4:53 pm	102 ft	4:58 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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-620DH
Borehole*

CALIPER FIELD LOG

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 _____ UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft ; 3 7/8" 105 TO 218 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 218 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105 ft; NO ____
DEPTH TO BEDROCK: ~35 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: 12:30pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: ~ 7:00 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*

CALIPER FIELD LOG REV 1.1a PDF

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B-620DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/23/08
JOB*: 8083
PAGE: PAGE 2 OF 2

WINCH: COMPROBE ____ SILVER X OYO ____ RG ____ OTHER ____
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
CALIPER PROBE* 5368 [X] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 103 [ ] 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
B620DHCALUP02	205.95 ft	5:31 pm	97.5 ft	5:42 pm
B620DHCALTEST04		5:51		5:52

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.607 IN~~
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(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 e.c. 3/31/11

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.*

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DH FIELD LOG REV 1.1a.pdf

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B640 DH1 (Borehole*) **DOWNHOLE VELOCITY FIELD LOG REV 1.1a**

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

CONTACT: Matt Cook PHONE: Off (Cell) 803-261-5791

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*

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DHFIELD LOG REV 1.1a.pdf

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B640 DHT DOWNHOLE VELOCITY FIELD LOG

Borehole*

SITE*: Turkey Point DATE*: 6/5/08 & 6/6/08
CLIENT*: Mactec JOB*: 2-8083
AUTHOR*: A. Martin PAGE 1 OF* 3 on 7/24/08

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

WINCH	HAND ✓		OTHER	
INSTRUMENT*	Geode 3458	✓	3459 ☐	Other
GEOPHONES*	BHG3 9501	✓	Other BHG3 B3079	

Plank Orientation*: N 15°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 Triple 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 20.833µs / 0.128s	P-wave same	
Depth range	Sh-wave	P-wave	
Depth range	Sh-wave	P-wave	

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

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

SUGGESTIONS, ADDITIONS, CHANGES:

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

1645hrs - could not get past bend in casing @ 125'
6/5/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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DH FIELD LOG REV 1.1a.pdf

B640 DHT **DOWNHOLE VELOCITY FIELD LOG**

Borehole*

SITE*: Turkey Point DATE*: 6/5/08 & 6/6/08
CLIENT*: Mactec 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	2	3	1	2	1	
10	↓	↓	↓	5	6	↓	↓	4	
15				8	9			7	
20				11	12			10	
25			↓	14	15		↓	13	
30			5	17	18		2	16	
35			6	20	21		3	19	
40			↓	23	24		↓	22	
45				26	27			25	
50				29	30			28	
55				32	33		↓	31	
60				35	~~38~~ 36		3	34	
65				38	39		4	37	
70				41	42		↓	40	← adj Pplot water@≈70'
75				44	45			43	
80			↓	47	48			46	
85			6	50	~~54~~ 51			49	
90			7	53	54			52	
95			10	56	57		↓	55	
100			↓	59	60		4	58	
105				62	63		5	61	
110				65	66		↓	64	
115				68	69			67	
120				71	72			70	
124.7			10	74	75	↓	5	73	
90	2	3	7	77	78	1	4	76	← water@≈62'
		end of day 6/5/08					end of day 6/6/08		

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DH FIELD LOG REV 1.1a.pdf

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B642(DH) DOWNHOLE VELOCITY FIELD LOG REV 1.1a

Borehole*

SITE*: Turkey Point NP — DATE*: 6/26/08
CLIENT*: Mactec — 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: ≈3' DEPTH TO WATER TABLE: ≈ 1'

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

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

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DH FIELD LOG REV 1.1a.pdf

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B640(DHT) DOWNHOLE VELOCITY FIELD LOG

Borehole*

SITE*: Turkey Point NP DATE*: 6/26/08
CLIENT*: Mactec JOB*: 2 8085
AUTHOR*: A.Martin PAGE 1 OF * 3

LOGGING CREW*: A.Martin / N. Belchuw
MOBILIZED FROM: Florida City DEPARTURE TIME: 0630hr
ARRIVED ON SITE: 0700hr
STANDBY TIME: CAUSE:
LOGGING STARTED: 1210hrs LOGGING COMPLETED: 1585hr

WINCH	HAND ✓		OTHER		
INSTRUMENT*	Geode 3458	✓	3459	☐	Other
GEOPHONES*	BHG3 9501	☐	Other	BHG3 s/n B3079	

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

P SOURCE Trylon 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 - 122ft Sh-wave 20.833µs SR/.15s RL P-wave 5µs
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*

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DH FIELD LOG REV 1.1a.pdf

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

Borehole*

SITE*: Turkey Point NPP DATE*: 6/26/08
CLIENT*: Mactec JOB*: 8083
AUTHOR*: A.Morton 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
122	2	3	10	2/79	3/80	1	3	1
	END OF LOG				6/26/08			

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* Let more air out of various @ 75' to settle decomp vehicle. Red weight (N side) is also beginning to slide more freely. Repeat lower portion of borehole.

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B-701DH
Borehole*

BORING GEOPHYSICS FIELD LOG SUMMARY

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 — UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116 ft ; 3 7/8" 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 Y ; 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	B701DHSUSPDOWN01	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	10:11-10:41 am
Caliper	B701DHCALTEST02		4/18/08	10:53-10:55 am
Deviation	B701DHAUVUP01	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	B701DHSUSPDOWN02	397-434.7 ft	4/21/08	12:45-1:08 pm

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

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ELOG FIELD LOG REV 1.1a

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B-701DA
Borehole*

ELOG FIELD LOG

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 X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116' ; 3 7/8", 116 TO 420'

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 116' ; 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: 1:30pm / 4pm

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

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

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ELOG FIELD LOG REV 1.1a

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B-701DH 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	X	OYO		RG		OTHER
MICROLOGGER*	5310		5772	X	OTHER				
ELOG PROBE*	5490	X	OTHER						
SHEAVE*	COMPROBE		OYO 101		102	X	103		RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	2.25	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	38.75	
DEPTH REF. OFFSET AT END*	38.8	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DH ELOG TEST01		1:02		1:04pm
B701DH ELOGUP01	419.45 ft	4:24	114.7 ft	4:55

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

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)
cc 4/17/08

SUGGESTIONS, ADDITIONS, CHANGES: sugar salt, sugar mud ~~soap~~ & super gel x
same mud used in drilling mud

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

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P-S FIELD LOG REV V1.31a

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B-701DH
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

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*: 9" 0 TO 116 ft ; 3 7/8" 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*: Ø TIME SINCE LAST CIRCULATION: 4pm

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

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P-S FIELD LOG REV V1.31a

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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: 7:30am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES X ; 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	☒	1m 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* -.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 SUSPDOWN01	118.11 ft	5:27pm	403.5 ft	6:47pm

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*

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P-S FIELD LOG REV V1.31a

R-7010H

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		5:27
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-7610B GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 4/11/08

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-7018H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/7/08
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-701DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/17/08

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-7010H GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 9/17/08

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

CALIPER FIELD LOG REV 1.1a.PDF

GEOVision
geophysical services

B-701DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 4/18/08
JOB*: 8083
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 116 ft ; 3 7/8", 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: 0 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*

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

GEOVision *geophysical services*

B-701DH Borehole* CALIPER FIELD LOG

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

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

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	2.25	REF TO GROUND SURFACE
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*
B701DHCALTEST01		8:28am		8:29am
B701DHCALUP01	407.1 ft	10:11am	110.75 ft	10:41
B701DHCALTEST02		10:53		10:55am

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B701DHCALTEST01	2.0	3.965	8.01	4.53
AS MEAS.*	B701DHCALTEST02	2.01	3.95	8.01	4.55
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 4hd

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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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geophysical services

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 7/8, 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: ϕ 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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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 X OYO ____ OTHER ____
MICROLOGGER* 5310 ____ 5772 X
TELEVIEWER* ACOUSTIC #5174 X OTHER ____
SHEAVE* COMPROBE ____ OYO 101 ____ 102 X 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)	
MINUS CASING STICK-UP*	2.25	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	2.47	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	2.44	REF TO GROUND SURFACE
AFTER SURVEY DEPTH ERROR*	.03	REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B701DHAUUP01	411.7 ft	11:29	110.7 ft	11:46am

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*

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ELOG FIELD LOG REV 1 1b

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geophysical services

B-701DH
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 4/30/08
JOB*: 8083
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 X
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 X DEPTH TO BOTTOM OF CASING 116' ; NO _____
DEPTH TO BEDROCK: ~3ft DEPTH TO WATER TABLE: ~1ft
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD X ; 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*

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ELOG FIELD LOG REV 1.1a

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B-7010H
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 4/20/08
JOB*: 8083
PAGE: PAGE 2 OF 2

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

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	2.25	REF TO GROUND SURFACE
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
B7010HELOGUP02	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: Quik gel, super gel x save mud, tiger salt + tiger mud used for drilling mud

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

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P-S FIELD LOG REV V1.31a

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geophysical services

B-701D-H
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

SITE*: Turkey Point COL DATE*: 4/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C-Center 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 _____ UNCASED X
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 160 ft ; 3 1/8 160 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*: 0 TIME SINCE LAST CIRCULATION: 10:30 am

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

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P-S FIELD LOG REV V1.31a

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

Borehole*

SITE*: Turkey Point NPP 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	im 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
DEPTH REF. OFFSET AT END*	1.70
AFTER SURVEY DEPTH ERROR*	.04

} REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B701DHSUSPDOWN02	397	12:45	434.7	1:08

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*

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P-S FIELD LOG REV V1.31a

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

SITE*: Turkey Point NPP DATE*: 4/17/08 4/21/08

CLIENT*:MACTEC JOB*: 8083

AUTHOR*: C. Carter PAGE* 7-3 OF 7-4 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-201DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/21/08

CLIENT*:MACTEC JOB*: 8083

AUTHOR*: C. Carter PAGE* 4 OF 4 cont'd 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	199		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			

CALIPER FIELD LOG REV 1.1a.PDF

GEOVision
geophysical services

B-701 DH
Borehole*

CALIPER FIELD LOG

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"~~ cc 4/21/08 0 TO 160 ft ; 3 7/8 , 160 ft TO ~~455~~ 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: 0 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*

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CALIPER FIELD LOG REV 1.1a PDF

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B-701DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 4/22/08
JOB*: 8083
PAGE: PAGE 2 OF 2

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

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	cc 4/22/08 ~~5~~ -2.5	cc 4/22/08
DEPTH REF. OFFSET AT START*	~~4.57~~ 4.32	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	4.10	
AFTER SURVEY DEPTH ERROR*	.22	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DHCALTEST03		11:21		11:22 am
B701DHCALUP02	455.85 ft	11:43	389.65 ft	11:50 am
B701DHCALTEST04		12:08		12:10 pm

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B701DHCALTEST03	1.976	3.97	8.04	4.55
AS MEAS.*	B701DHCALTEST04	2.02	3.92	8.04	4.55
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 4/22/08

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*

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B-701DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*:Turkey Point NPP DATE*: 5/3/08

CLIENT*:MACTEC JOB*:8083

AUTHOR*:~~C. Carter~~ R. STELLER 5/3/08 PAGE*: 1 OF 1

CONTACT: PHONE:

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

CONDUCTOR CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 457 FT; NO (HQ3 Rod)

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	B701DH ELOGTEST03	∅	5/3/08	08:50 - 08:55
ELOG/GAMMA	B701DH ELOG+GP03	555.0 - 457.0 FT	5/3/08	09:14 - 09:26
~~CALIBR TEST~~	~~B701DH ELOG+GP03~~			
CALIPER TEST	B701DH CALTEST05	∅	5/3/08	09:52 - 09:56
CALIPER/GAMMA	B701DH CALLP03	553.0 - 451.0 FT	5/3/08	10:10 - 10:23
CALIPER TEST	B701DH CALTEST06	∅	5/3/08	10:36 - 10:39
SUSPENSION PS	B701DH SUSP DOWN03	459.3 - 493.8 FT	5/3/08	11:17 - 11:31
SUSPENSION PS	B701DH SUSP DOWN04	457.7 - 541.3 FT	5/3/08	11:33 - 12:20

BAS 5/5/08

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

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ELOG FIELD LOG REV 1.1a

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B-701DH
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~G. Carter~~ R. STELLER 5/3/08 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 UNCASED ✓
DIAMETERS AND DEPTH RANGES: 6" 0 TO 457' ; 3.08 , 457' TO 555.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT (HQ3 ROD)

SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 457' ; 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: Ø TIME SINCE LAST CIRCULATION: ~1/2 HR

LOGGING CREW: ~~C. Carter~~ R. STELLER 5/3/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City, Fl. DEPARTURE TIME: 0700
ARRIVED ON SITE: 07:30
STANDBY TIME: NA CAUSE: NA

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

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ELOG FIELD LOG REV 1.1a

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B710DH
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: ~~C. Carter~~ R. STELLER 5/3/08

DATE*: 5/3/08
JOB*: 8083
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*	- 3.3'	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	37.7'	
DEPTH REF. OFFSET AT END*	37.6'	
AFTER SURVEY DEPTH ERROR*	-0.1'	

B701 LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
~~B710DHELOG TEST03~~	0	08:50	0	09:55
~~B710T Rpt 5/3/08~~				
B701DHELOG UP03	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*

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CALIPER FIELD LOG REV 1.1a PDF

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B-701DH CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. Carter~~ R. STELLER 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 _____ UNCASED ✓
DIAMETERS AND DEPTH RANGES: 6" 0 TO 457' ; 3.88", 457 TO 555.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT

(HQ3 ROD)

SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 457FT; 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: ~1 HR

LOGGING CREW: ~~C. Carter~~ R. STELLER 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.*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-701 DH
Borehole

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: ~~C. Carter~~ R. Steller 7/24/08

DATE*: 8/3/08
JOB*: 8083
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*	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*
B701 DHCALTEST05	Ø	9:52	Ø	9:56
B701 DH CALUP03	353.0'	10:10	451.0'	10:23
B701 DH CALTEST06	Ø	10:36	Ø	10:39

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	4.507 IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B701DHCALTEST05	1.96	3.92	7.99	4.56
AS MEAS.*	B701 DH CALTEST06	1.96	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.*

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P-S FIELD LOG REV VI.31a

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B-701 DH
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. Carter~~ R. 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 (HQ3 ROD)
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*

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P-S FIELD LOG REV V1.31a

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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*: ~~C. Carter~~ R. STELLER 5/3/08 PAGE 2 OF * 5

LOGGING CREW*: ~~C. Carter~~ R. STELLER 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 Slauer			
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* 0

} REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B701DH SUSP DOWN 03	140m	10:17	151.0 m	11:31
B701DH SUSP DOWN 04	150.5m	11:53	139.5m	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.*

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P-S FIELD LOG REV V1.31a

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

SITE*: TURKEY POINT COL DATE*: 5/3/08

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: R. 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		HQ3 ROD TO 457 FT
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		

P-S FIELD LOG REV V1.31a

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

SITE*: TURKEY POINT COL DATE*: 5/3/08

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	309 363		
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 V1.31a

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

SITE*: TURKEY POINT COL DATE*: 5/3/08

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: R. STELLER 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			HYD @ 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.D. @ 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			

GEOVision
geophysical services

B-701 DH Borehole*

BORING GEOPHYSICS FIELD LOG SUMMARY

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

CONTACT: PHONE:

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
CONDUCTOR CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 457' ; NO (HOLE STEEL ROD)
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	B701DHELOGTEST04	∅	5/5/08	11:20 – 11:24
ELOG/GAMMA	B701DHELOGUP04	615.3 – 450.0 FT	5/5/08	11:45 – 12:04
CALIPER TEST	B701DHCALTEST07	∅	5/5/08	12:33 – 12:35
CALIPER/GAMMA	B701DHCALUP04	612.0 – 450.0 FT	5/5/08	12:46 – 13:04
CALIPER TEST	B701DHCALTEST08	∅	5/5/08	13:14 – 13:16
SUSPENSION PS	B701_4724-9541.0RG	459.3 – 602.0 FT	5/5/08	14:18 – 14:58
ACOUSTIC TELEVIEW	B701DHALLUP02	610.0 – 400.0 FT	5/5/08	16:47 – 17:34

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

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ELOG FIELD LOG REV 1.1a

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geophysical services

B-701 DH 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: 1 OF 2

CONTACT: _____ PHONE: Off _____ Cell _____

CONTACT: _____ PHONE: Off _____ Cell _____

CONTACT: _____ PHONE: Off _____ Cell _____

CONTACT: GLEN BAIR 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 ; 3.88", 457 FT TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 457 FT (HQ3 CSG); 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: 1 HR

LOGGING CREW: ~~C. Carter~~ R. STELLER 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.*

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ELOG FIELD LOG REV 1.1a

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geophysical services

B-701 DH 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 101		102	✓	103		RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	+32.8 FT	
MINUS CASING STICK-UP*	-3.3 FT	REF TO GROUND SURFACE
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
B701DHBUMTEST04	0	11:20	0	11:24
B701DHELOGUP04	615.3 FT	11:45	450.0 FT	12:04

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

EQUIPMENT PROBLEMS OR FAILURES*: N/A RAS 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 Fx (951) 549-1236*

CALIPER FIELD LOG REV 1.1a.PDF

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D-701 DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. Carter~~ R. STELLER 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 _____ UNCASED ✓
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT ; 3.88" 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 @ 3 GPS)
DEPTH TO BEDROCK: 15 FT DEPTH TO WATER TABLE: 2 Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ✓; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: ± 2HR

LOGGING CREW: ~~C. Carter~~ R. STELLER 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*

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CALIPER FIELD LOG REV 1.1a.PDF

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geophysical services

B-701 DH — Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP — DATE*: 5/5/08
CLIENT*: MACTEC — JOB*: 8083
AUTHOR*: ~~C. Carter~~ D. STELLER 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 101 ☐ 102 ☑ 103 ☐ 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*
B701DHCALTEST07	0	12:33	0	12:35
B701DHCALUP04	612.0 FT	12:46	450.0FT	13:04
B701DHCALTEST08	0	13:14	0	13:16

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	4.507 IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B701DHCALTEST07	1.97	3.93	8.02	4.57
AS MEAS.*	B701DHCALTEST08	1.98	3.94	8.03	4.51
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

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

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

SUGGESTIONS, ADDITIONS, CHANGES: ____

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

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P-S FIELD LOG REV V1.31a

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geophysical services

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

Borehole

SITE*: Turkey Point NPP DATE*: 5/5/09

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: ~~C. Carter~~ 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*: 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 457 FT; NO (HQ3 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: > 3 HR

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

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P-S FIELD LOG REV V1.31a

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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. STELLER 5/5/08 PAGE 2 OF * 6

LOGGING CREW*: ~~G. Carter~~ R. STELLER 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* 1.0 m
DEPTH REF. OFFSET AT START* 1.5 m } REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END* 1.5 m
AFTER SURVEY DEPTH ERROR* 0

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B701DH SUSPDOWN 05	140 m (459.3 FT.)	14:18	183.5 m (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:
COMMENTS: N/A

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

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P-S FIELD LOG REV V1.31a

B-701 DI

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURKEY POINT COL DATE*: 5/5/08

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: R. 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			NO3 ROD 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 REV V1.31a

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

SITE*: TURKEY POINT COL DATE*: 5/5/08

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: R. STELLER PAGE* 9 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
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 DH GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURKEY POINT COL DATE*: 3/5/08

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		HIT @ 183.75 @ 14:58
184.0	603.67			BOTTOM MEASUREMENT?
184.5	605.31			

P-S FIELD LOG REV V1.31a

B-701 DH GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURKEY POINT COL. DATE*: 5/5/08

CLIENT*: MACTEC JOB*: BOB3

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

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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 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' ; 3.88", 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: ≈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: ≈7 HR

LOGGING CREW: ~~G. Carter~~ R. Steiner 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*

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-701 DH Borehole* ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. Carter~~ R. STELLER 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* 90°
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)	
MINUS CASING STICK-UP*	2.4	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	2.32'	
DEPTH REF. OFFSET AT END*	2.20'	
AFTER SURVEY DEPTH ERROR*	-0.12'	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B701DHAmu002	010.0 FT	16:47	400.0 FT	17:34

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*

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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: 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
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	B701DHELOGUP05	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	B701DHELOGUP06	155.0 – 20.0 FT	5/7/08	10:26 – 10:41
CALIPER TEST	B701DHCALTEST09	ϕ	5/7/08	10:54 – 10:56
CALIPER/GAMMA	B701DHCALUP05	155.0 – ϕ	5/7/08	11:05 – 11:22
CALIPER TEST	B701DHCALTEST10	ϕ	5/7/08	11:26 – 11:28
SUSPENSION PS	B701DHSUSPDOWN07	16.4 – 134.5 FT	5/7/08	12:15 – 12:47
ACOUSTIC TELE	B701DHACUP03	125.0 – 15.0 FT	5/7/08	13:16 – 13:45
ACOUSTIC TELE	B701DHACUP04	~~25.0~~ ϕ – ~~25.0~~ ϕ FT PDA	5/7/08	~~15:08~~ 14:38 – ~~15:11~~ 14:47 QA/QC 7/24/08
SUSPENSION PS	B701DHSUSPDOWN08	1.6 – 23.0 FT PDA	5/7/08	15:00 – 15:11
CALIPER TEST	B701DHCALTEST11	ϕ	5/7/08	15:20 – 15:23
CALIPER/GAMMA	B701DHCALUP06	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*

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ELOG FIELD LOG REV 1.1a

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geophysical services

B-7010vt
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: ~~C. Carter~~ R. Steuer 5/6/08

DATE*: 5/6/08
JOB*: 8083
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 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 427 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: ~1 1/2 HR.

LOGGING CREW: ~~C. Carter~~ R. Steuer 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*

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ELOG FIELD LOG REV 1.1a

GEOVision
geophysical services

B-701 DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: ~~C. Carter~~ R. Steuber 5/6/08

DATE*: 5/6/08
JOB*: 8083
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 FT	
MINUS CASING STICK-UP*	-3.3 FT	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	37.7 FT.	
DEPTH REF. OFFSET AT END*	37.8 FT	
AFTER SURVEY DEPTH ERROR*	+0.1 FT	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DHELOGTEST05	0	09:40	0	09:42
B701DHELOGUP 05	485.0 FT	13:13	425.0 FT	13:20

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

*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*

P-S FIELD LOG REV V1.31a

GEOVision
geophysical services

B-701 DH
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

SITE*: Turkey Point NPP DATE*: 5/6/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. Carter~~ R. 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?: YES DEPTH TO BOTTOM OF CASING 427 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: ≈ 1/2 HR

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

GEOVision Geophysical Services—1157 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 FX (951) 549-1236

P-S FIELD LOG REV V1.31a

GEOVision
geophysical services

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

Borehole*

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

LOGGING CREW*: ~~C. 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* 0
} REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
NO DATA COLLECTED, BORING OBSTRUCTED @ 424.2	NA	NA	NA	NA

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

B-701 DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURKEY POINT COL DATE*: 5/6/08

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: R. STELZER 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			OBSTRUCTED @ 125.6m
126.0	413.39			TD @ 424.2'
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			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

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B-701 DH ELOG 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

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 457 FT ; 3.88, 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT 16 FT RAS 5/7/08

SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING ~~27 FT~~ ; NO
DEPTH TO BEDROCK: 63 FT DEPTH TO WATER TABLE: 20
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, 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*

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ELOG FIELD LOG REV 1.1a

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B-701 DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. Carter~~, R. SIEVER 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 101 ☐ 102 ☑ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	+32.8 ~~10 FT~~	RAS 5/7/08
MINUS CASING STICK-UP*	-1.0 ~~3.2 FT~~	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	40.0 FT	
DEPTH REF. OFFSET AT END*	~~40.0 FT~~	
AFTER SURVEY DEPTH ERROR*	0	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DHELOGTEST06	0	10:14	0	10:16
B701DHELOG06	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.*

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CALIPER FIELD LOG REV 1.1a PDF

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B-701 OH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. 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

RUN 1 RUN 2.
SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 16FT ; 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: ~1 HR.

LOGGING CREW: ~~C. 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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-701 DH Borehole* CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~C. Carter~~ R. STEELMAN 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 101 [ ] 102 [✓] 101 [ ] RG [ ]

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.0 FT	0.5FT
DEPTH REF. OFFSET AT START*	5.82 FT	6.32 FT REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.8 FT	6.30 FT
AFTER SURVEY DEPTH ERROR*	-0.02 FT	-0.02 FT

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DHCALTEST09	0	10:54	0	10:56
B701DHCALUP05	155.0 FT	11:05	0	11:22
B701DHCALTEST10	0	11:26	0	11:28
B701DHCALTEST11	0	15:20	0	15:25
B701DHCALUP06	155.0	15:33	0	15:50
B701DHCALTEST12	0	15:53	0	15:56

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	4.507 IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B701DHCALTEST09	2.01	3.96	8.02	4.53
AS MEAS.*	B701DHCALTEST10	1.96	3.92	8.00	4.49
AS MEAS.	B701DHCALTEST11	1.92	3.88	7.96	4.46
AS MEAS.	B701DHCALTEST12	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*

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P-S FIELD LOG REV V1.31a

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

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~G. Carter~~ 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 _____ 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?: RUN 1 DEPTH TO BOTTOM OF CASING 16FT ; 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: ≈ 2HR

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

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P-S FIELD LOG REV V1.31a

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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. Steuber 5/7/08 PAGE 2 OF * 4

LOGGING CREW*: C. Carter, R. Steuber 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 Siuen		
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
DEPTH REF. OFFSET AT START* 2.2 m
DEPTH REF. OFFSET AT END* 2.2 m
AFTER SURVEY DEPTH ERROR* 0

-0.1 m
REF TO GROUND SURFACE 2.4 m

LOG NAME* RAS 5/7/08	START DEPTH*	START TIME	END DEPTH *	END TIME
B701 DH Susp DOWN 07	40.4 FT	12:15	134.5 FT	13:47
B701 DH Susp ~~UP~~ DOWN 08 RAS 5/7/08	1.64 FT	15:00	23.0 FT	15:11

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

B-761 DH 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		6" STEEL CASE TO 16'
5.5	18.04	763 954		ON RUN #7 (RUN 1 FOR DAY)
6.0	19.69	764 955		
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	815 843		rooms 1 @ 12:07
32.0	104.99	816 8112		
32.5	106.63	817 841		
33.0	108.27	818 840		
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		rooms 1
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

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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 ; 8.88", 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES Run1 DEPTH TO BOTTOM OF CASING 16FT ; NO Run 2
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

LOGGING CREW: ~~G. Carter~~ R. STELLER 5/7/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City DEPARTURE TIME: 07:00
ARRIVED ON SITE: 09:30
STANDBY TIME: N/A CAUSE: N/A

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

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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. Mercer 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* 263°
PROBE AZIMUTH TEST* 338.6 BRUNTON AZIMUTH* 344°
PROBE AZIMUTH TEST* 75.4° BRUNTON AZIMUTH* 75° AFTER LOG* ____

	Run 1	Run 2
PROBE OFFSET*	1.44M(4.72FT)	
MINUS CASING STICK-UP*	1.0 FT	0.5 FT
DEPTH REF. OFFSET AT START*	3.72 FT	4.22 FT
DEPTH REF. OFFSET AT END*	5.75	4.20 FT
AFTER SURVEY DEPTH ERROR*	+0.03	+0.02 FT.

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DHAmvuP03	125.0 FT	13:16	15.0	13:45
B701DHAmvuP04	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*

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GEOVision
geophysical services

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

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B704GDHELOGTEST02		3/8/08	10:09 - 10:10 am
ELOG	B704GDHELOGUP01	129 - 39.5 ft	3/8/08	11:08 - 11:20 am
PS velocity	B704GDHSUSPDOWN01	26.25 - 116.47 ft	3/8/08	12:19 - 1:04 pm
ATV	B704GDHAUUP01	119.4 - 5.5 ft	3/8/08	2:11 - 2:47 pm
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 - 11:36 am
ELOG	B704GDHELOGTEST03		3/9/08	9:07 - 9:09
ELOG	B704GDHELOGUP03	163.05 - 103.15 ft	3/9/08	10:11 - 10:08
PS velocity	B704GDHSUSPDOWN02	116.47 - 149.28'	3/9/08	10:44 - 11:00 am
Deviation	B704GDHAUUP02	157.2 - 108.5 ft	3/9/08	11:46 - 11:48 am
Caliper	B704GDHCALTEST03		3/9/08	12:19 - 12:20 pm
Caliper	B704GDHCALUP02	155.4 - 105.05 ft	3/9/08	12:36 - 12:41 pm
Caliper	B704GDHCALTEST04		3/9/08	12:51 - 12:52 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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ELOG FIELD LOG REV 1.1a

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R-704 GDH 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 UNCASED X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft ; 5" 24 ft TO 133 ft

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

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 24 ft ; NO
DEPTH TO BEDROCK: 9' DEPTH TO WATER TABLE: ϕ
BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; 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 - 10:00 cc 3/8/08 CAUSE: weather

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

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ELOG FIELD LOG REV 1.1a

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B-704GDH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/8/08
JOB*: 8083
PAGE: PAGE 2 OF 2

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

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	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
B704GDHELOGTEST02		10:09 am		10:10 am
B704GDHELOGUP01	129 ft	11:08 am	39.5 ft	11:20 am
B704GDHELOGUP02	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*

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P-S FIELD LOG REV V1.31a

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B-704GDH
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

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: ϕ
BOREHOLE FLUID: WATER ____ ; FRESH WATER MUD X ; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: ϕ TIME SINCE LAST CIRCULATION: 4pm 3/7

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

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P-S FIELD LOG REV V1.31a

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B-7046DH 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: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: 7:30 - 10 am CAUSE: weather
LOGGING STARTED: LOGGING COMPLETED:

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

WINCH COMPROBE [ ] GREY [X] OYO [ ] RG [ ] OTH ____
INSTRUMENT* OYO 12004 [ ] 15014 [ ] 19029 [ ] RG 160023 [X] 160024 [ ]
RECEIVER S/N* 12008 [ ] 20042 [ ] 26066 [ ] 11001 [ ] 23053 [ ] 30086 [X]
ISOLATION TUBE S/N* 300083 [ ] 24053 [ ] 28068 [ ] 28072 [X] 2M ____
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 103 [ ] RG [ ]
MICROLOGGER* 5310 [ ] 5772 [X] NOT APPLICABLE (OYO) [ ]
PROBE OFFSET* OYO 2.0M [ ] RG 2.5M [X]

MINUS CASING STICK-UP* .31 m
DEPTH REF. OFFSET AT START* 2.19 m
DEPTH REF. OFFSET AT END* 2.19 m
AFTER SURVEY DEPTH ERROR* .02 m
} REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B7046DHSUSPDOWN01	26.25 ft	12:14pm	116.47 ft	1:04 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*

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B-26H 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 V1.31a

B-7@160ft **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* 4 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
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		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

GEOVision
geophysical services

B-204GDH
Borehole*

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

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

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 24 ft ; NO ___
DEPTH TO BEDROCK: 46 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: 4pm 3/7

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

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

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-704GDH 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)	
MINUS CASING STICK-UP*	-1.0	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.72	
DEPTH REF. OFFSET AT END*	3.67	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B704GDH4000P01	119.4 ft	2:11 pm	5.5 ft	2:47 pm

cc 3/8/08

MAINTENANCE PERFORMED ON SITE*: ~~none~~ changed to 6" centralizer due to borehole diameter (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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-704GDH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/8/08
JOB*: 8083
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 ; 5" 24 ft TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 24 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: 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 - 10:30 rc 3/8/08 CAUSE: weather

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

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CALIPER FIELD LOG REV 1.1a.PDF

GEOVision geophysical services

B-704GDH (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 [X] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
CALIPER PROBE* 5368 [X] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 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*
B704GDHCALTEST01		3:05 pm		3:06 pm
B704GDHCALUP01	121.0 ft	3:22 pm	8.6 ft	3:33 pm
B704GDHCALTEST02		3:41 pm		3:42 pm

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN 4.510" cc 3/8/08
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B704GDHCALTEST01	1.99	3.98	8.04	4.53
AS MEAS.*	B704GDHCALTEST02	1.931	3.975	8.02	4.53
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:

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

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ELOG FIELD LOG REV 1 1a

GEOVision
geophysical services

B-704 GDH
Borehole*

ELOG FIELD LOG

cc 3/9/08

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/8/08
JOB*: 8083
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 _____

cc 3/18/08
BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft 1634

114 ft
SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 24 ft cc 3/18/08 ; NO ____
DEPTH TO BEDROCK: 4' DEPTH TO WATER TABLE: ∅
BOREHOLE FLUID: WATER ____ ; FRESH WATER MUD X ; 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 min* CAUSE: _____
cc 3/9/08

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

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ELOG FIELD LOG REV 1.1a

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B-7046DH
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	X	OYO		RG		OTHER
MICROLOGGER*	5310		5772	X	OTHER				
ELOG PROBE*	5490	X	OTHER						
SHEAVE*	COMPROBE		OYO	101		102 X	103		RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-2.0	REF TO GROUND SURFACE
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
B7046DH ELOGTEST03		9:07		9:09am
B7046DHELOGUP03	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*

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P-S FIELD LOG REV V1.31a

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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 ~~X~~ cc 3/9/08 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?: ~~114 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*

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P-S FIELD LOG REV V1.31a

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B-2046DH 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 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* -.61 m
DEPTH REF. OFFSET AT START* 1.89 m
DEPTH REF. OFFSET AT END* 1.88
AFTER SURVEY DEPTH ERROR* .01 m

} REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B2046DHSUSPDOWN02	35.5 m	10:44am	45.5 m	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*

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P-S FIELD LOG REV V1.31a

B-7016DH 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* 3 & 4 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-7046DH **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		Lit 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

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B-204GDR
Borehole*

CALIPER FIELD LOG

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: 41' 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: 7 am
STANDBY TIME: _____ CAUSE: _____

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

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CALIPER FIELD LOG REV 1.1a.PDF

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B-7046DH Borehole* CALIPER 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 [X] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
CALIPER PROBE* 5368 [X] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 101 [ ] 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

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN 4.510" cc 3/9/08
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(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.					

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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-7046DH
Borehole*

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

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 _____ 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?: YES X DEPTH TO BOTTOM OF CASING 114 ft ; NO ____
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER ____; FRESH WATER MUD X ; 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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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)	
MINUS CASING STICK-UP*	-2.0	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	2.72	
DEPTH REF. OFFSET AT END*	2.70	
AFTER SURVEY DEPTH ERROR*	.02	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B704GDHA0UP02	157.2 ft	11:46am	108.5 ft	11:48am

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*

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B-708DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

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

CONTACT: PHONE:

BOREHOLE CONSTRUCTION: CASED UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft ; TO
BOREHOLE TOTAL DEPTH AS DRILLED*:
CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING 25.5'; NO
DEPTH TO BEDROCK: 3.5 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; 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	B708DHSVSPDOWN01	27.89-72.18 ft	3/9/08	4:53 - 5:13 pm
PS velocity	B708DHSVSPDOWN02	68.9-104.99 ft	3/10/08	9:47 - 10:05 am
ATV	B708DHATVUP01	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	B708DHSVSPDOWN03	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	B708DHATVUP02	251.3 - 94.9 ft	3/13/08	3:32 - 3:46 pm
ATV	B708DHATVUP03	118.4 - 97.4 ft	3/13/08	4:12 - 4:20 pm

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

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ELOG FIELD LOG REV 1 1a

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B-708DH
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/9/08
JOB*: 8083
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 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: 0
BOREHOLE FLUID: WATER ____; FRESH WATER MUD X; SALT WATER MUD ____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 3 pm

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*

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ELOG FIELD LOG REV 1.1a

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B-708DH 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	X	OYO		RG		OTHER
MICROLOGGER*	5310		5772	X	OTHER				
ELOG PROBE*	5490	X	OTHER						
SHEAVE*	COMPROBE		OYO 101		102	X	103		RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-1.33	REF TO GROUND SURFACE
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
B708DHELOGTEST01		2:57		2:58
B708DHELOGUP01	125.41'	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*

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P-S FIELD LOG REV V1.31a

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B-708bH
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

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*: CASED _____ UNCASED 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

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

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P-S FIELD LOG REV V1.31a

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geophysical services

B-708DH
Borehole*

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

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 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*	-.40	-.4	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	2.1	2.1	
DEPTH REF. OFFSET AT END*	2.08	2.1	
AFTER SURVEY DEPTH ERROR*	.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	3/9
B708DHSUSPDOWN02	68.9 ft	9:47am	104.99 ft	10:05am	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*

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P-S FIELD LOG REV V1.31a

B-708DH **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 3/13/08

AUTHOR*: C. Carter PAGE* ~~1~~ 34 OF ~~4~~ 8 4 cc 7/10/08

*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
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	103.36	50		
32.0	104.99	51		10:05 (3/10)
32.5	106.63			
33.0	108.27	52		11:52 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		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

GEOVision
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B-7084 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 _____ UNCASED 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: 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 DEPARTURE TIME: 6:30 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

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

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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)	
MINUS CASING STICK-UP*	-1.33	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	7.39	
DEPTH REF. OFFSET AT END*	3.05	
AFTER SURVEY DEPTH ERROR*	.34	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B708DHA00P01	100.96 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 slack a number of times from 80'-60'

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

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CALIPER FIELD LOG REV 1.1a PDF

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B-708D4
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/10/08
JOB*: 8083
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 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: 9am

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

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

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CALIPER FIELD LOG REV 1.1a PDF

GEOVision geophysical services

B-708DH Borehole* CALIPER FIELD LOG

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

WINCH: COMPROBE [ ] SILVER [X] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
CALIPER PROBE* 5368 [X] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 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*
B708DHCALTEST01		1:27		1:28 pm
B708DHCAL_UP01	116.65 ft	1:49	15.35 ft	2:01 pm
B708DHCALTEST02		2:09		2:11 pm

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B708DHCALTEST01	1.961	3.96	7.99	4.53
AS MEAS.*	B708DHCALTEST02	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*

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ELOG FIELD LOG REV 4.1a

GEOVision
geophysical services

B-708DH
Borehole*

ELOG 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 _____

CONTACT: _____ 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 25.5 ft ; 3 3/4" 25.5 TO 26.5

BOREHOLE TOTAL DEPTH AS DRILLED*: 26.5 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105.8' ; NO ____
DEPTH TO BEDROCK: ~3 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: 6:45 am
ARRIVED ON SITE: 7am
STANDBY TIME: _____ CAUSE: _____

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

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ELOG FIELD LOG REV 1.1a

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geophysical services

B-708DH ELOG 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	X	OYO		RG		OTHER
MICROLOGGER*	5310		5772	X	OTHER				
ELOG PROBE*	5490	X	OTHER						
SHEAVE*	COMPROBE		OYO 101		102	X	103		RG

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	1.25	REF TO GROUND SURFACE
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
B-708DHELOGTEST02		8:25am		8:26am
B708DHELOG UP02	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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-7080 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 ____ UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ; 3 3/4" 25.5 TO 265.4'

BOREHOLE TOTAL DEPTH AS DRILLED*: 265

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105.8'; NO ____
DEPTH TO BEDROCK: ~359 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*

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CALIPER FIELD LOG REV 1.1a PDF

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B-708D H (Borehole*)

CALIPER FIELD LOG

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

WINCH: COMPROBE [ ] SILVER [X] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
CALIPER PROBE* 5368 [✓] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 101 [ ] 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*	5.50	
AFTER SURVEY DEPTH ERROR*	.07	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B708DHCALTEST03		1:22		1:23 pm
B708DHCALUP02	252.25'	1:42	94.35'	1:57
B708DHCALTEST04	252.25'	2:07	94.35'	2:08
	cc 3/13/08		cc 3/13/08	

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B708DHCALTEST03	1.983	3.986	8.06	4.53
AS MEAS.*	B708DHCALTEST04	1.99	3.986	8.05	4.517
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 3/13

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*

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P-S FIELD LOG REV V1.31a

GEOVision
geophysical services

B-708DH **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 X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 25.5' ; 3 3/4, 25.5 TO 265'

BOREHOLE TOTAL DEPTH AS DRILLED*: 265'

SURFACE CASING?: Y DEPTH TO BOTTOM OF CASING 105.8'; NO _____

DEPTH TO BEDROCK: ~34' DEPTH TO WATER TABLE: 6'

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

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 9am

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

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P-S FIELD LOG REV V1.31a

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B-708DH 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 ea 7/16/08

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

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

WINCH	COMPROBE	☐	GREY	☐	OYO	☐	RG	☐	OTH
INSTRUMENT*	OYO 12004	☐	15014	☐	19029	☐	RG 160023	X	160024 ☐
RECEIVER S/N*	12008	☐	20042	☐	26066	☐	11001 ☐	23053	☐ 30086 X
ISOLATION TUBE S/N*	300083	☐	24053	☐	28068	☐	28072 X	2M	
SHEAVE*	COMPROBE	☐	OYO 101	☐	102 X	103 ☐		RG	☐
MICROLOGGER*	5310	☐	5772	X	NOT APPLICABLE (OYO)				☐
PROBE OFFSET*	OYO 2.0M	☐			RG 2.5M	X			

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
B708DHSUSPDown103	108.27'	11:52	247.7	12:44 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.*

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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, 3/13/08

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		11:52 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-708DH **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-708DH **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 PM
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

GEOVision
geophysical services

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 _____ UNCASED 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 105.8/98.5 ; 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: 9am

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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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 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* 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* 325 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* 52 43.1 BRUNTON AZIMUTH* 49 AFTER LOG* yes
cc 3/13/08

PROBE OFFSET*	1.44M(4.72FT)		
MINUS CASING STICK-UP*	1.25	3.5	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.47	1.22	
DEPTH REF. OFFSET AT END*	3.39	1.13	
AFTER SURVEY DEPTH ERROR*	.08	.09	

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

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*

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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: CASED UNCASED X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5'; 4", 19.5 TO 143ft / 273 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 143 / 273 ft
CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING 19.5 / 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 - 38.45 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	B710GDHCALTEST01		3/11/08	4:12 - 4:13 pm
*	Caliper	B710GDHCALUP01	132.35 - 13.4 ft	3/11/08	4:26 - 4:39 pm
*	Caliper	B710GDHCALTEST02		3/11/08	4:46 - 4:47 pm
*	ELOG	B710GDHELOG TEST02		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	124 - 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	B710GDHCALTEST03		3/18/08	2:40 - 2:42 pm
	Caliper	B710GDHCALUP02	257.95 - 108.6 ft	3/18/08	2:59 - 3:15 pm
	Caliper	B710GDHCALTEST04		3/18/08	3:29 - 3:31 pm

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

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ELOG FIELD LOG REV 1.1a

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B-710GDH 3/18/08 c.c 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 X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 20' ; 4" 20' TO 143 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 143 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 19.5' ; NO _____
DEPTH TO BEDROCK: 23 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: 12pm

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

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

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ELOG FIELD LOG REV 1.1a

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B-710GDH cc 3/18/08
~~B-710-DH~~ ELOG FIELD LOG
Borehole*

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

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

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-.92	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	40.08	
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
~~B710DHELOGTEST01~~		~~11:47~~		~~11:48am~~
~~B710DHELOGUP01~~	~~140.6 ft~~	~~12:34pm~~	~~38.45 ft~~	~~12:45pm~~
B710GDHELOGTEST01		11:47am		11:48am
B710GDHELOGUP01	140.6 ft	12:34pm	38.45 ft	12:45pm

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*

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P-S FIELD LOG REV V1.31a

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B-7106DH cc 3/18/08
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 _____ UNCASED X
DIAMETERS AND DEPTH RANGES*: 6" 0 TO 20 ft ; 4" 20 TO 143
BOREHOLE TOTAL DEPTH AS DRILLED*: 143 ft
SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 19.5 ft NO _____
DEPTH TO BEDROCK: ~3 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: 12 pm

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

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P-S FIELD LOG REV V1.31a

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B-710GDH
~~B-710DH~~ Borehole*

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

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: ~~8~~ 9:45am
ARRIVED ON SITE: 10 am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

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

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
~~B710DHSUSPDOWN01~~	~~21.33~~	~~1:27pm~~	~~127.95~~	~~2:05pm~~
B710GDHSUSPDOWN01	21.33 ft	1:27pm	127.95 ft	2:05pm

cc 11/9/08

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*

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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

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~~ 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 3/18/08
B-710DH

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 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	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

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B-710GDH ac 3/28/08

~~B-710DH~~ ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/4/08
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 19.5' ; 4" 19.5' TO 143'

BOREHOLE TOTAL DEPTH AS DRILLED*: 143'

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 19.5' ; 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: 12-pm--

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

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

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-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 X OYO____ OTHER____
MICROLOGGER* 5310___ 5772 X
TELEVIEWER* ACOUSTIC #5174 X OTHER____
SHEAVE* COMPROBE____ OYO 101____ 102 X 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* 252.8 BRUNTON AZIMUTH* 245 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	
MINUS CASING STICK-UP*	.92	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.8	
DEPTH REF. OFFSET AT END*	3.74	
AFTER SURVEY DEPTH ERROR*	.06	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
cc 3/19/08 ~~B710DH4UUP01~~	~~120.5 ft~~	~~3:06~~	~~17.1 ft~~	~~3:38pm~~
B710GDH4UUP01	120.5 ft	3:06pm	17.1 ft	3:38pm

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*

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CALIPER FIELD LOG REV 1.1a PDF

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B-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: 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 ft DEPTH TO WATER TABLE: _____
BOREHOLE FLUID: WATER ____ ; FRESH WATER MUD X ; 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*

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CALIPER FIELD LOG REV 1.1a.PDF

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R-710GDH cc 3/18/08
~~B-710DH~~

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/11/08
JOB*: 8083
PAGE: PAGE 2 OF 2

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

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

cc 3/19/08

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507~~ IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	~~B710DHCALTEST01~~	~~1.968~~	~~3.912~~	~~8.00~~	~~4.517~~
AS MEAS.*	~~B710DHCALTEST02~~	~~1.983~~	~~3.953~~	~~8.03~~	~~4.517~~
AS MEAS.					
AS MEAS.	B710GDHCALTEST01	1.968	3.912	8.00	4.517
AS MEAS.	B710GDHCALTEST02	1.983	3.953	8.03	4.517
AS MEAS.					

4.510 cc 3/11/08
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*

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ELOG FIELD LOG REV 1.1a

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B-710GDH cc 3/18/08
~~B-710124~~

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: CASED _____ UNCASED _____
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5'; 4" 19.5' TO 273'

BOREHOLE TOTAL DEPTH AS DRILLED*: 273

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 115 ft; NO ___
DEPTH TO BEDROCK: ~ 34 ft DEPTH TO WATER TABLE: 6
BOREHOLE FLUID: WATER ___; FRESH WATER MUD X; 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*

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ELOG FIELD LOG REV 1.1a

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B-710GDH cc 3/18/08
~~B-710DH~~ ELOG 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 [X] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
ELOG PROBE* 5490 [X] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 103 [ ] RG [ ]

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	~~+32.8~~ cc 3/18/08	
MINUS CASING STICK-UP*	- 1.08	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	39.92	
DEPTH REF. OFFSET AT END*	39.95	
AFTER SURVEY DEPTH ERROR*	.03	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
cc 3/18/08 ~~B710DHTEST01~~		10:04		10:05am
B710DHELOGTEST01		10:04		10:05am
CC 3/19/08 B710DHELOGUP02	270.6 ft	10:29	94.8 ft	10:49
B710GDHELOG TEST02		10:04am		10:05am
B710GDHELOG UP02	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: cc 3/18/08 Very Low ~~High~~ resistivity above 200'.

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

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P-S FIELD LOG REV V1.31a

GEOVision
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B-710GDH cc 3/18/08
~~B-710DH~~
Borehole

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

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 _____ UNCASED X
DIAMETERS AND DEPTH RANGES*: 6" 0 TO 19.5' ; 4" 19.5 TO 273 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 273 ft
SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 113 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER ____; FRESH WATER MUD X ; SALT WATER MUD: _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: ~10 ft TIME SINCE LAST CIRCULATION: 9am

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

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P-S FIELD LOG REV V1.31a

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B-710DH cc 3/18/08 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 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* .33
DEPTH REF. OFFSET AT START* 2.17
DEPTH REF. OFFSET AT END* 2.14
AFTER SURVEY DEPTH ERROR* .03
} REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
~~B710DH5USPDOWN02~~	~~121.4 ft~~	~~12:19 pm~~	~~252.6~~	~~1:02 pm~~
cc 1/9/08				
~~B710DH~~				
B710GDH5USPDOWN02	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*

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B-710GDH cc 3/18/08

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* 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	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-710GDH cc 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* 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		1:02pm
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

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geophysical services

B-7106DH 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 _____ UNCASED _____
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5' ; 4" 17.5 TO 273'

BOREHOLE TOTAL DEPTH AS DRILLED*: 273 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 115' ; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~0
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 DEPARTURE TIME: 8:30 am
ARRIVED ON SITE: 8:45 am
STANDBY TIME: _____ CAUSE: _____

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

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-710GDH 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 X 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)	
MINUS CASING STICK-UP*	-1.08	REF TO GROUND SURFACE
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
B710GDHAUUP02	253.7 ft	2:08pm	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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-710GDH
Borehole*

CALIPER FIELD LOG

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 _____ UNCASED X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5 ft ; 4" 19.5' TO 273 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 273 ft

SURFACE CASING?: YES Y DEPTH TO BOTTOM OF CASING 115 ft ; NO ____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0
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*

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CALIPER FIELD LOG REV 1.1a.PDF

GEOVision geophysical services

B-7106DH (Borehole*) CALIPER 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 X 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*	.09	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B7106DHCALTEST03		2:40		2:42 pm
B7106DHCALUP02	257.95	2:59 pm	108.6	3:15 pm
B7106DHCALTEST04		3:29 pm		3:31 pm

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	~~4.507 IN~~ 4.510
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B7106DHCALTEST03	1.971	3.971	7.998	4.543
AS MEAS.*	B7106DHCALTEST04	1.999	3.986	8.09	4.517
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

cc 3/18/08

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*

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GEVision
geophysical services

B-720GDH 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 UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73 ft ; 3 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	B720GDHELOGTEST01		3/20/08	11:07 - 11:08 am
ELOG	B720GDHELOG UP01	219.4 - 69.7 ft	3/20/08	11:37 - 11:54 am
P-S velocity	B720GDHSUSPDOWN01	23.0m - 61.0m	3/20/08	12:44 - 1:29 pm
Deviation	B720GDHAUUP01	200.4 - 7 ft	3/20/08	2:37 - 2:47
Caliper	B720GDHCALTEST01		3/20/08	3:15 - 3:16
Caliper	B720GDHCALUP01	202.5 - 59.55 ft	3/20/08	3:33 - 3:47
Caliper	B720GDHCALTEST02		3/20/08	4:00 - 4:01
ELOG	B720GDHELOGUP02	131.15 - 30.95 ft	3/20/08	5:00 - 5:11 pm
P-S velocity	P720GDHSUSPDOWN02	8.0m - 37.0m	3/20/08	5:34 - 6:07 pm
ATV	B720GDHAUUP02	120.4 - 19.7 ft	3/20/08	6:53 - 7:22 pm
Caliper	B720GDHCALTEST03		3/20/08	7:41 - 7:42 pm
Caliper	B720GDHCALUP02	82.1 - 16.3 ft	3/20/08	7:53 - 8:00 pm
Caliper	B720GDHCALTEST04		3/20/08	8:07 - 8:08 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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ELOG FIELD LOG REV 1.1a

GEOVision
geophysical services

B-720GDH
Borehole*

ELOG FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/20/08
JOB*: 8083
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 X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73' ; 3 7/8 73 TO 220'

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 73 1/2 5' ; 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

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 3/4 CAUSE: _____

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

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ELOG FIELD LOG REV 1.1a

GEOVision
geophysical services

B-7206DH 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 [X] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
ELOG PROBE* 5490 [X] OTHER
SHEAVE* COMPROBE [X] OYO 101 [ ] 102 [X] 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*	32.35	30.90
AFTER SURVEY DEPTH ERROR*	.37	.02

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7206DHELOGTEST01		11:07am		11:08am
B7206DHELOGUP01	219.4 ft	11:37am	69.7 ft	11:54am
B7206DHELOGUP02	131.15 ft	5:00pm	30.95 ft	5:11pm

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.*

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P-S FIELD LOG REV V1.31a

GEOVision
geophysical services

B-720GDH

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 _____ UNCASED X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 73'; 3 7/8", 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft /225 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 73 ft; NO _____

DEPTH TO BEDROCK: ~3 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: 10:30 am

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

GEOVision Geophysical Services—11511 Pomona Road, Suite P, Corona, CA 92880 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

GEOVision geophysical services

B-7206DH 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 X; STORED WITH NEW ____

WINCH	COMPROBE [ ]		GREY [X]	OYO [ ]	RG [ ]	OTH ____		
INSTRUMENT* OYO	12004 [ ]	15014 [ ]	19029 [ ]		RG	160023 [X]	160024 [ ]	
RECEIVER S/N*	12008 [ ]	20042 [ ]	26066 [ ]	11001 [ ]		23053 [ ]	30086 [X]	
ISOLATION TUBE S/N*	300083 [ ]	24053 [ ]	28068 [ ]	28072 [X]	2M ____			
SHEAVE* COMPROBE [ ]	OYO 101 [ ]	102 [X]	103 [ ]		RG [ ]			
MICROLOGGER*	5310 [ ]	5772 [X]	NOT APPLICABLE (OYO) [ ]					
PROBE OFFSET*	OYO 2.0M [X] cc 3/20/08		RG 2.5M [X]					

MINUS CASING STICK-UP*	2.46 m	3.08 m	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	.04 m	-.58	
DEPTH REF. OFFSET AT END*	.28	-.57	
AFTER SURVEY DEPTH ERROR*	.24	.01	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B7206DHSUSPDOWN01	23.0m	12:44pm	61.0m	1:29pm
B7206DHSUSPDOWN02	8.0m	5:34pm	37.0m	6:07pm

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

EQUIPMENT PROBLEMS OR FAILURES*: Run1: 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*

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P-S FIELD LOG REV V1.31a

B-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		5:34
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		

P-S FIELD LOG REV V1.31a

B-720 GDH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*:Turkey Point NPP DATE*: 3/20/08

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: C. Carter PAGE* 3 4 cc 3/20/08 OF 4 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	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

B-7206H GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*:Turkey Point NPP DATE*: 3/20/08

CLIENT*: MACTEC JOB*: 8083

AUTHOR*: C. Carter PAGE* 4 5 OF 4 5 ~~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

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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 UNCASED X
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 X DEPTH TO BOTTOM OF CASING 73 ft ; NO
DEPTH TO BEDROCK: ~34 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: 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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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B-7206DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a
Borehole*

SITE*: Turkey Point NPP DATE*: 3/25/08
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)	
MINUS CASING STICK-UP*	8.08	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	-3.36	
DEPTH REF. OFFSET AT END*	-3.36	
AFTER SURVEY DEPTH ERROR*	0	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B7206DHAUDP01	200.4 ft	2:37 pm	~7 ft	2:47 pm

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

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

SUGGESTIONS, ADDITIONS, CHANGES:

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

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B-7206

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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 _____ UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73'; 3 7/8" 73 TO 220'

BOREHOLE TOTAL DEPTH AS DRILLED*: 220

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 21'; NO _____
DEPTH TO BEDROCK: ~34' 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: 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*

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf

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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 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)	
MINUS CASING STICK-UP*	-10.08	REF TO GROUND SURFACE
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
B720GDHAUVP02	120.45ft	6:53	19.7 ft	7:22pm

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*

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CALIPER FIELD LOG REV 1.1a.PDF

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B-7206DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/20/08
JOB*: 8083
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 73 ft ; 3 7/8 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 73 ft/20.5' ; NO _____
DEPTH TO BEDROCK: ~3 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: 10:30am

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: 6-5 3/19 CAUSE: _____

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

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CALIPER FIELD LOG REV 1.1a.PDF

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B-7206DH
Borehole*
CALIPER FIELD LOG

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/20/08
JOB*: 8083
PAGE: PAGE 2 OF 2

cc 3/20/08

WINCH: COMPROBE [ ] SILVER [X] OYO [ ] RG [ ] OTHER [ ]
MICROLOGGER* 5310 [ ] 5772 [X] OTHER
CALIPER PROBE* 5368 [X] OTHER
SHEAVE* COMPROBE [ ] OYO 101 [ ] 102 [X] 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	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	-1.25	-3.20	
AFTER SURVEY DEPTH ERROR*	.02	.06	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B7206DHCALTEST01		3:15		3:16
B7206DHCALUP01	202.5 ft	3:33	59.55 ft	3:47
B7206DHCALTEST02		4:00		4:01
B7206DHCALTEST03		7:41		7:42
B7206DHCALTEST04		8:07		8:08
B7206DHCALUP02	82.1 ft	7:53	16.3 ft	8:00

CALIBRATION PLATE S/N 201

		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	4.507 IN
	FILE NAME	(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B7206DHCALTEST01	1.968	3.978	8.02	4.530
AS MEAS.*	B7206DHCALTEST02	1.942	3.927	7.999	4.504
AS MEAS.	B7206DHCALTEST03	1.977	3.953	8.05	4.513
AS MEAS.	B7206DHCALTEST04	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*

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DH FIELD LOG REV 1.1a.pdf

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B740 (DH) **DOWNHOLE VELOCITY FIELD LOG REV 1.1a**

Borehole*

SITE*: Turkey Pt N?
CLIENT*: Mactec
AUTHOR*: A. Martin

DATE*: 6/24/08 & 6/25/08
JOB*: 8083
PAGE 1 OF * 3

CONTACT: Matt Cooke PHONE: Off (Cell) 303-241-5792

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*

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DH FIELD LOG REV 1.1a.pdf

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B740 (DH5) **DOWNHOLE VELOCITY FIELD LOG**
Borehole*

SITE*: Turkey Point nP
CLIENT*: Mactec
AUTHOR*: A. Morton

DATE*: 6/24/08 & 6/25/08
JOB*: 8083
PAGE 1 OF 2 * 3

LOGGING CREW*: A. Morton / N. Baldwin
MOBILIZED FROM: Florida City
DEPARTURE TIME: 0715am
ARRIVED ON SITE: 0745hrs
STANDBY TIME:
CAUSE:
LOGGING STARTED: 1145hrs / 0800hrs (6/24/08 / 6/25/08)
LOGGING COMPLETED: 1640 / 1100hrs 1115hrs (6/24/08 / 6/25/08) on 6/24/08

WINCH	HAND ✓		OTHER	
INSTRUMENT*	Geode 3458	✓	3459 ☐	Other
GEOPHONES*	BHG3 9501	☐	Other BHG3 s/n B3079	

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 Triple accelerated weight drop
Sh SOURCE "

CHANNEL ASSIGNMENTS 1 = borehole V, 2 = borehole Htl, 3 = borehole Htr
4 = surface V, 5 = surface Htl, 6 = surface Htr

SAMPLE RATES:
Depth range 5'-148' Sh-wave 20.833/ms 5R/0.1755 RL P-wave 20.833/ms 5R/0.0755 RL
Depth range Sh-wave P-wave
Depth range Sh-wave P-wave

MAINTENANCE PERFORMED ON SITE*: NA CP 7/24/08

EQUIPMENT PROBLEMS OR FAILURES*: Difficulty with contact closure triggers on highly conductive ground — no impact on data quality.

SUGGESTIONS, ADDITIONS, CHANGES:

COMMENTS:

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

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DH FIELD LOG REV 1.1a.pdf

B740 (DH) **DOWNHOLE VELOCITY FIELD LOG**
Borehole*

SITE*: Turkey Point NP DATE*: 6/24/08 & 6/25/08 on 6/24/08
CLIENT*: MACTEC 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	8	59	60	1	5	107
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
126			12	11	12		6	78
130			12	9	10		6	77
135			10	7	8		8	76
140			10	5	6		8	75
141			10	3	4		8	74
142 *	2	3	10	1/61	2/62	1	5	73
90'	Noise		65 - 70					
			End of log		cgh — 6/25/08			
Note: File 99 - 103			with 16lb sledge hammer					

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* edit depth

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, CDRom, 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

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 Vs and Vp 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 Antony 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

OYO SUSPENSION P-S VELOCITY LOGGING SETUP

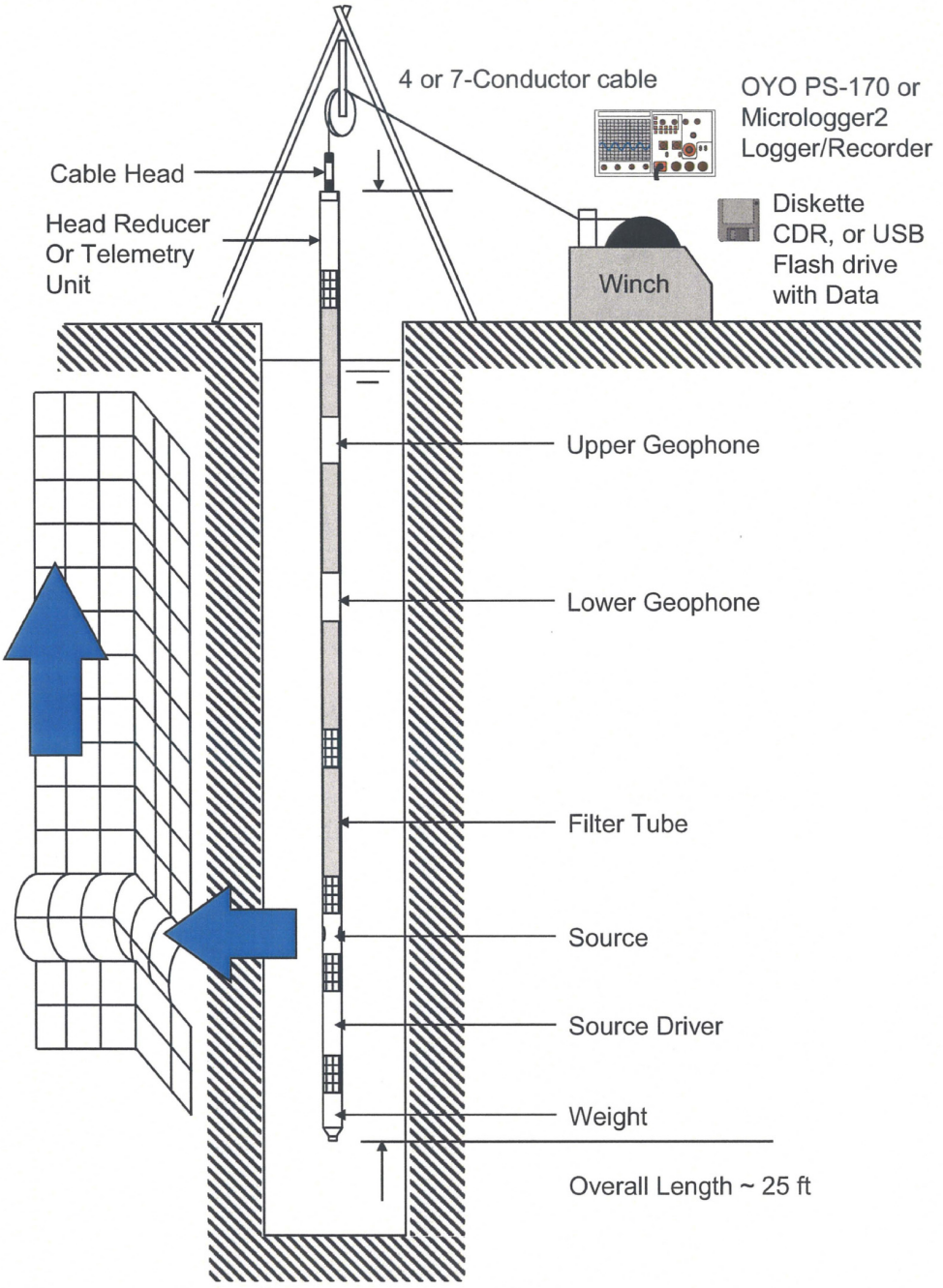


Figure 1. Suspension PS logging method setup

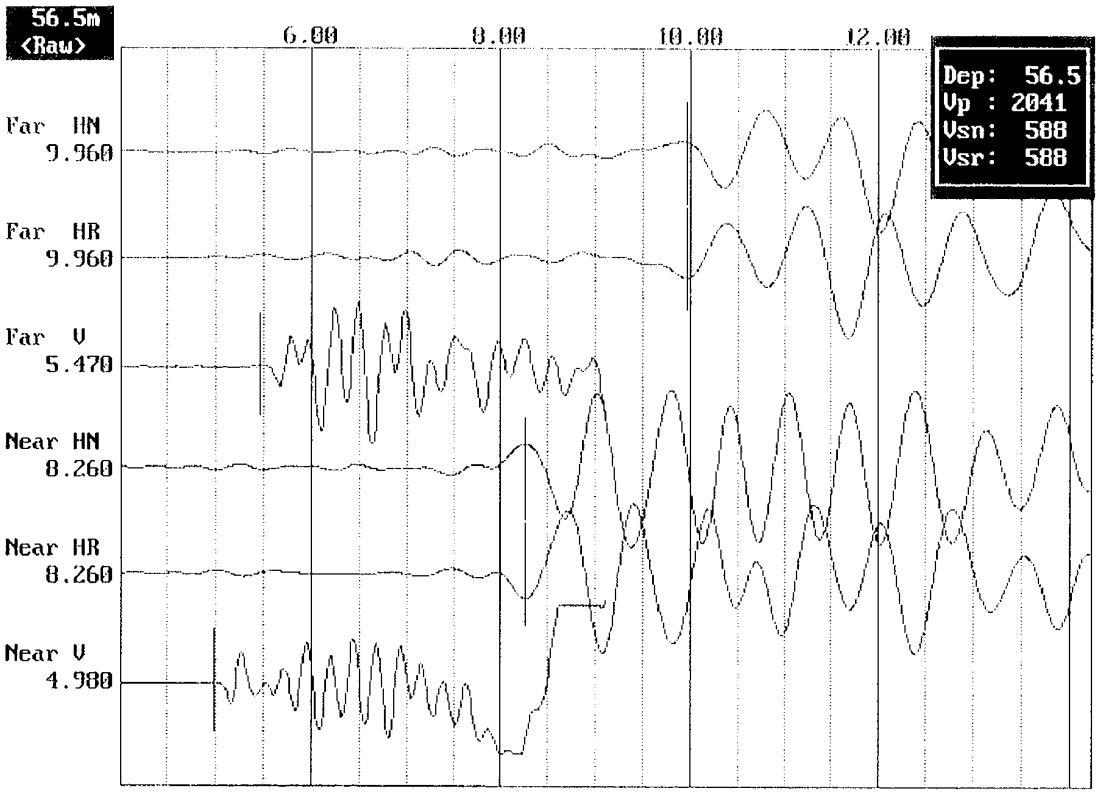


Figure 2. Sample suspension method waveform data showing horizontal normal and reversed (HR and HN), and vertical (V) waveforms received at the near (bottom 3 channels) and far (top 3 channels) geophones. The arrivals in milliseconds for each pick are shown on the left. The box in the upper right corner shows the depth in the borehole and the velocities calculated based on the picks.

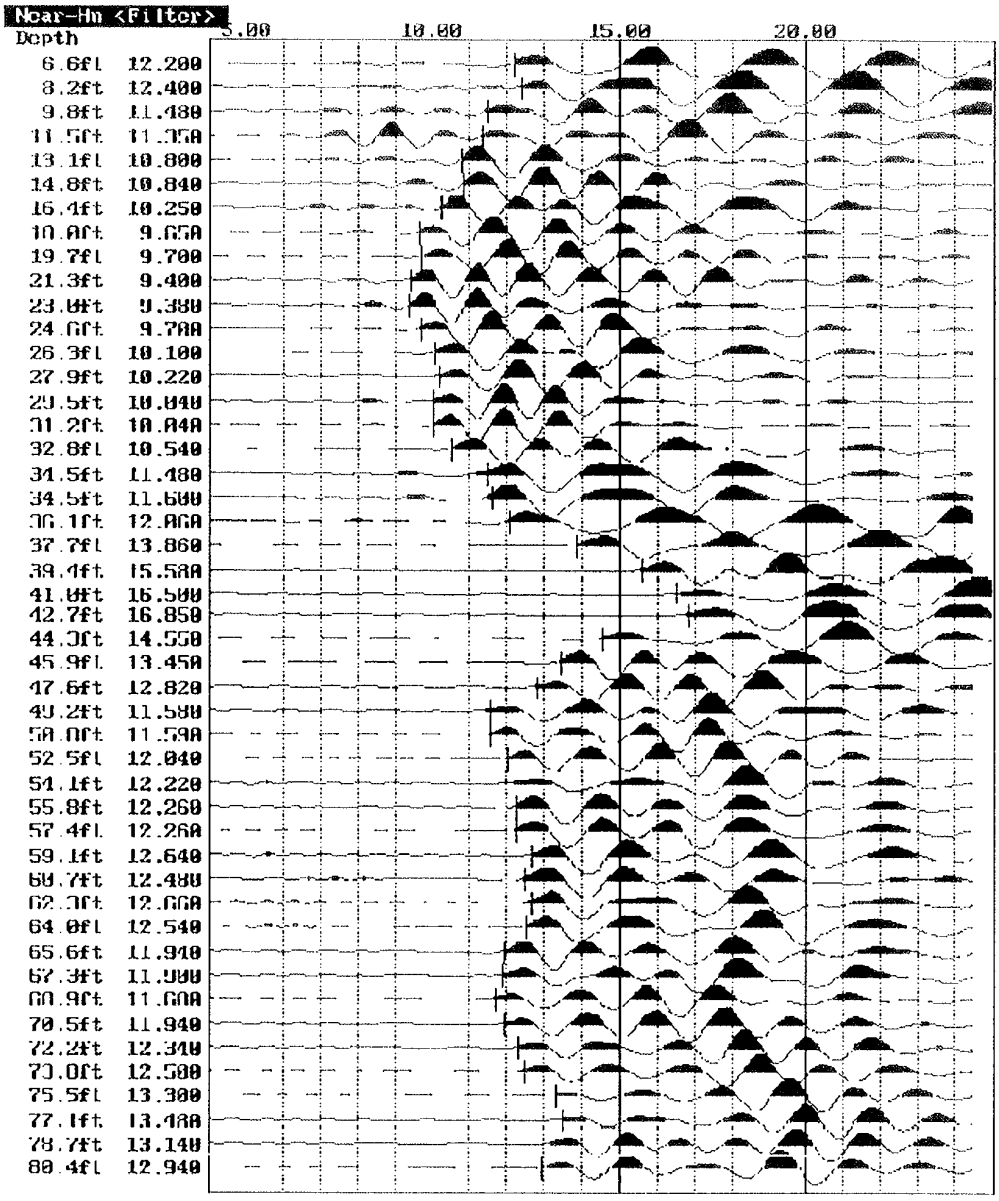


Figure 3. Sample composite waveform plot for normal shear waves received at the near geophone in a single borehole

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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_____ UNCASED_____
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:_____

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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:_____
_____
_____
_____
_____
_____

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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 diamater, 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 [signature] Date 04/12/06

References:

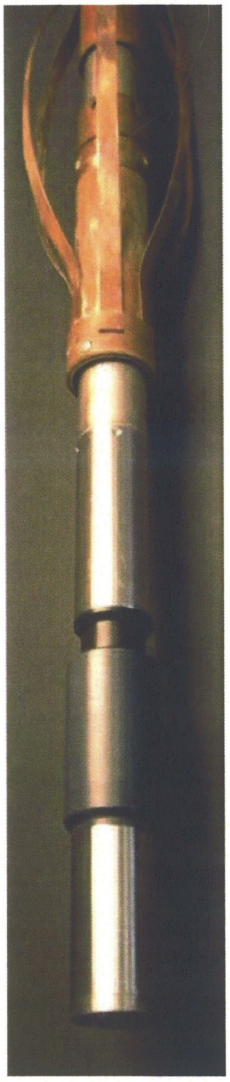
1. "Standard test Methods for Crosshole Seismic Testing", ASTM Standard D4428/D4428M-91, July 1991, Philadelphia, PA

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 Televiewer (HiRAT). The required equipment includes:

1. The Robertson High-Resolution Acoustic Televiewer (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

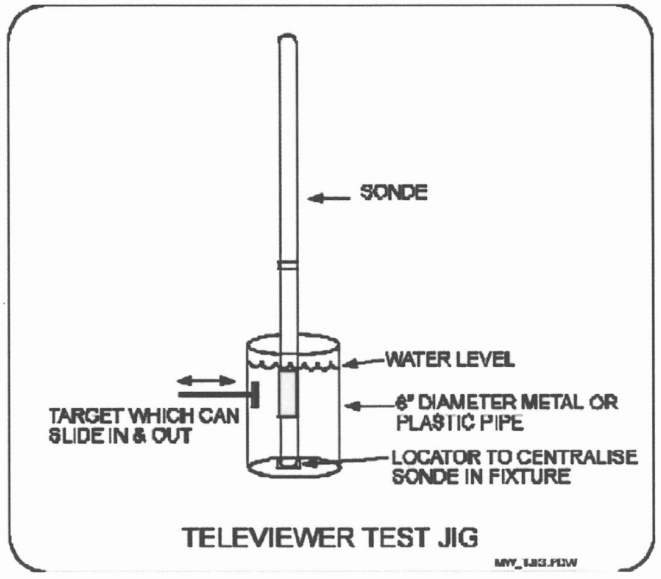
This tool is designed for fluid-filled boreholes between 67 and 150mm (3-6in) in rock. Since fine cracks are usually not visible in the walls of soil borings, the televiewers add very little information from a soil boring than a simple video. Now if the boring has soil AND rock, televiewer visuals in the soil may still be useful.

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.



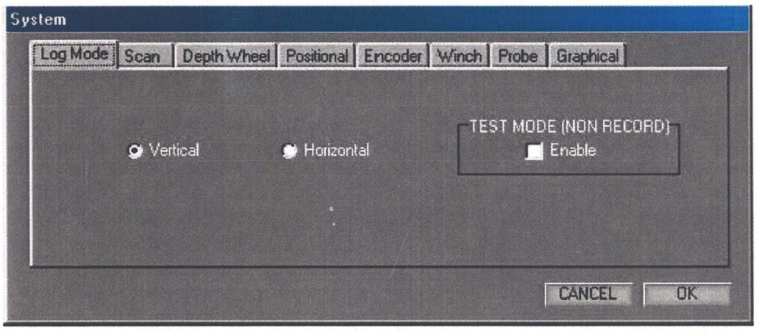
TELEVIEWER TEST JIG

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: