

APPENDIX E

BORING GEOPHYSICAL LOGGING

FIELD DATA LOGS



B-901 BORING GEOPHYSICS FIELD LOG SUMMARY

SITE: NORTH ANNA COL DATE: 8/28/06
CLIENT: MACTEC JOB: _____
AUTHOR: R. STELLER PAGE 1 OF 2-1 200 8/28/06

CONTACT: STEVE CRISCENZO _____ PHONE: 919-949-1707 _____

BOREHOLE CONSTRUCTION: CASED ☐ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO 240; 3.7", 40 TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: 300'
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 240'; NO ☐
DEPTH TO BEDROCK: 240'
BOREHOLE FLUID: WATER ☒; FRESH WATER MUD ☐; SALT WATER MUD ☐

LOGGING CREW: R. STELLER

[illegible]



P-S SUSPENSION VELOCITY FIELD LOG

DATE: 2/20/06

SITE: NORTH ANNA COL B-901 DATE: 2/20/06

CLIENT: MACTEC JOB: _____

AUTHOR: R. STELLER PAGE 1 OF 7

CONTACT: STEVE CRISCENZO OFFICE PHONE: 919-831-8047

CELL PHONE: 919-949-1707

CONTACT: _____ OFFICE PHONE: _____

PHONE: _____

CONTACT: _____ PHONE: _____

PHONE: _____

CONTACT: _____ PHONE: _____

PHONE: _____

DRILLER: _____ PHONE: _____

COMPANY: _____ PHONE: _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

EA#: _____

BOREHOLE DESIGNATION: B-901 LOCATION: _____

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

BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒

DIAMETERS AND DEPTH RANGES: 5" 0 TO 240'; 240' TO 300'

BOREHOLE TOTAL DEPTH AS DRILLED: 300'

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 240'; NO _____

DEPTH TO BEDROCK: 240' DEPTH TO WATER TABLE: 230'

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

OTHER: _____

DEPTH TO BOREHOLE FLUID: 230' TIME SINCE LAST CIRCULATION: NA



RAS 3/28/06

SITE: NORTH ANNA COL ⁹⁰¹ B-30+ DATE: 3/28/06
CLIENT: MACTEC JOB: _____
AUTHOR: R. STELLER PAGE 2 OF 7

LOGGING CREW: R. STELLER
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: FREDERICKSBURG, VA DEPARTURE TIME: 7:15
ARRIVED ON SITE: 8:00
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 15:52 LOGGING COMPLETED: 17:35
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 ☐ ^{RAS} OTH ☒
INSTRUMENT OYO 12004 ☐ 15014 ☐ 19029 ☒ ^{RAS} RG 160023 ☒ 160024 ☐
RECEIVER S/N 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: OYO #19029 APPEARS NOT TO
DISPLAY NEGATIVE GOING SIGNALS - LOSS OF NEGATIVE SUPPLY?

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: CASE STILL UP = 2.0' $\Rightarrow$.61 m
SO, TOP OF PROBE & TOP OF CASE = $\frac{2.0}{2.5} \cdot .61 \text{ m} = 1.39 \text{ m}$ DEPTH.
END @ 1.87 m

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: NORTH ANNA COL B-901 DATE 8/28/88
CLIENT: MACTEC JOB
AUTHOR: R. STELLER PAGE 3 OF 7

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	CO1		STEEL 4" CASING TO 40'
13.0	42.65	2		
13.5	44.29	3		
14.0	45.93	4		
14.5	47.57	5		
15.0	49.21	6		
15.5	50.85	7		
16.0	52.49	8		
16.5	54.13	9		
17.0	55.77	10		
17.5	57.41	11		
18.0	59.05	12		
18.5	60.70	13		
19.0	62.34	14		
19.5	63.98	15		
20.0	65.62	16		

SITE: NORTH ANNA COL 15-201 DATE: 3/2/06
CLIENT: MACTEC JOB:
AUTHOR: S. STELLER PAGE: 4 OF 7

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
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20.5	67.26	17		
21.0	68.90	18		
21.5	70.54	19		
22.0	72.18	20		
22.5	73.82	21		
23.0	75.46	22		
23.5	77.10	23		
24.0	78.74	24		
24.5	80.38	25		
25.0	82.02	26		
25.5	83.66	27		
26.0	85.30	28		
26.5	86.94	29		
27.0	88.58	30		
27.5	90.22	31		
28.0	91.86	32		
28.5	93.50	33		
29.0	95.14	34		
29.5	96.78	35		
30.0	98.43	36		
30.5	100.07	37		
31.0	101.71	38		
31.5	103.35	39		
32.0	104.99	40		
32.5	106.63	41		
33.0	108.27	42		
33.5	109.91	43		
34.0	111.55	44		
34.5	113.19	45		
35.0	114.83	46		
35.5	116.47	47		
36.0	118.11	48		
36.5	119.75	49		
37.0	121.39	50		
37.5	123.03	51		
38.0	124.67	52		
38.5	126.31	53		
39.0	127.95	54		
39.5	129.59	55		Hand ↓
40.0	131.23	56		

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: NORTH ANNA COL B-90 DATE: 8/28/06
CLIENT: MACTEC JOB:
AUTHOR: R. STELLER PAGE 5 OF 7

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
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40.5	132.87	57		
41.0	134.51	58		
41.5	136.15	59		
42.0	137.80	60		
42.5	139.44	61		
43.0	141.08	62		
43.5	142.72	63		
44.0	144.36	64		
44.5	146.00	65		
45.0	147.64	66		
45.5	149.28	67		
46.0	150.92	68		
46.5	152.56	69		
47.0	154.20	70		
47.5	155.84	71		
48.0	157.48	72		
48.5	159.12	73		
49.0	160.76	74		
49.5	162.40	75		
50.0	164.04	76		
50.5	165.68	77		
51.0	167.32	78		
51.5	168.96	79		
52.0	170.60	80		
52.5	172.24	81		
53.0	173.88	82		
53.5	175.52	83		
54.0	177.17	84		
54.5	178.81	85		54.5m Sign Dated
55.0	180.45	86 85		
55.5	182.09	87 86		
56.0	183.73	88 87	LAB 8/28/06	
56.5	185.37	89 88		
57.0	187.01	90 89		
57.5	188.65	91		
58.0	190.29	92		
58.5	191.93	93		
59.0	193.57	94		
59.5	195.21	95		
60.0	196.85	96		

SITE: NORTH ANNA COL B 901 DATE: 2/28/06
CLIENT: MACTEC JOB:
AUTHOR: R. STELLER PAGE 6 OF 7

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
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60.5	198.49	96		
61.0	200.13	97		
61.5	201.77	98		
62.0	203.41	99		
62.5	205.05	100		
63.0	206.69	101		
63.5	208.33	102		
64.0	209.97	103		
64.5	211.61	104		
65.0	213.25	105		
65.5	214.90	106		
66.0	216.54	107		
66.5	218.18	108		
67.0	219.82	109		
67.5	221.46	110		
68.0	223.10	111		
68.5	224.74	112		
69.0	226.38	113		
69.5	228.02	114		
70.0	229.66	115		
70.5	231.30	116		
71.0	232.94	117		
71.5	234.58	118		
72.0	236.22	119		
72.5	237.86	120		
73.0	239.50	121		
73.5	241.14	122		
74.0	242.78	123		
74.5	244.42	124		
75.0	246.06	125		
75.5	247.70	126		
76.0	249.34	127		
76.5	250.98	128		
77.0	252.62	129		
77.5	254.27	130		
78.0	255.91	131		
78.5	257.55	132		
79.0	259.19	133		
79.5	260.83	134		
80.0	262.47	135		

SITE: NORTH ANNA COL B-801 DATE: 2/28/06
CLIENT: MACTEC JOB:
AUTHOR: R STELLER PAGE 7 OF 7

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
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80.5	264.11	136		
81.0	265.75	137		
81.5	267.39	138		
82.0	269.03	139		
82.5	270.67	140		
83.0	272.31	141		
83.5	273.95	142		
84.0	275.59	143		
84.5	277.23	144		
85.0	278.87	145		
85.5	280.51	146		
86.0	282.15	147		
86.5	283.79	148		
87.0	285.43	149		
87.5	287.07	150		BOTTOM MEASUREMENT ?
88.0	288.71			AT BOTTOM 87.8 m
88.5	290.35			
89.0	291.99			
89.5	293.64			
90.0	295.28			
90.5	296.92			
91.0	298.56			
91.5	300.20			T.O. @ 300'
92.0	301.84			
92.5	303.48			
93.0	305.12			
93.5	306.76			
94.0	308.40			
94.5	310.04			
95.0	311.68			
95.5	313.32			
96.0	314.96			
96.5	316.60			
97.0	318.24			
97.5	319.88			
98.0	321.52			
98.5	323.16			
99.0	324.80			
99.5	326.44			
100.0	328.08			



BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO 30'; 3.7", 30' TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: 300'
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 30'; NO 4" STEEL
DEPTH TO BEDROCK: 30'
BOREHOLE FLUID: WATER ☒; FRESH WATER MUD _____; SALT WATER MUD _____;

[illegible]



B-901 CALIPER FIELD LOG

SITE: NORTH ANNA COL DATE: 8/29/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 1 OF 2

CONTACT: _____	OFFICE PHONE: _____
	CELL PHONE: _____
CONTACT: _____	OFFICE PHONE: _____
	PHONE: _____
CONTACT: _____	PHONE: _____
	PHONE: _____
CONTACT: _____	PHONE: _____
	PHONE: _____
DRILLER: _____	PHONE: _____
COMPANY: _____	PHONE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

BOREHOLE DESIGNATION: B-901 LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO ~40'; 3.7" ~40 TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: 300'
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING ~40'; NO _____
DEPTH TO BEDROCK: NA DEPTH TO WATER TABLE: ~20'
BOREHOLE FLUID: WATER ☒; FRESH WATER MUD _____; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: ~30' TIME SINCE LAST CIRCULATION: _____

LOGGING CREW: R. STELLER
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: FREDERICKSBURG, VA DEPARTURE TIME: 10:30
ARRIVED ON SITE: 11:45
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 12:35 LOGGING COMPLETED: 13:48

SITE: NORTH ANNA COL B-901 DATE: 8/29/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER 5301 ☒ OTHER OTHER
CALIPER PROBE 5368 ☒ OTHER OTHER

PROBE OFFSET	12 IN MAX 2.08M(6.82 FT)	24 IN MAX
CASING STICK-UP	ARMS - <u>2.0</u>	ARMS - <u> </u>
DEPTH REF. OFFSET	<u>4.82 FT</u>	

END ON EXIT - 4.75

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
B901 CAL TEST 01	ϕ	12:35	ϕ	12:40
B901 CAL UP 01	298	12:54	ϕ	13:28
B901 CAL TEST 02	ϕ	13:35	ϕ	13:39
B901 CAL TEST 03	ϕ	13:41	ϕ	13:48
		13 PAS		
		8/29/06		

CALIBRATION PLATE S/N 201

		AS BUILT		
	FILE NAME	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN 203.2 MM
AS MEAS.	B901 CAL TEST 01	1.96	3.93	7.98
AS MEAS.	B901 CAL TEST 02	2.12	3.95	7.99
AS MEAS.		PAS 8/29/06		
AS MEAS.	B901 CAL TEST 03	2.10	3.98	8.02
AS MEAS.				
AS MEAS.				

PVC FITTING
4.587 IN

4.51

4.53

4.54

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____



B-201

TELEVIEWER FIELD LOG

SITE: NORTH ANNA COL DATE: 8/29/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 1 OF 2

CONTACT: _____	OFFICE PHONE: _____
	CELL PHONE: _____
CONTACT: _____	OFFICE PHONE: _____
	PHONE: _____
CONTACT: _____	PHONE: _____
	PHONE: _____
CONTACT: _____	PHONE: _____
	PHONE: _____
DRILLER: _____	PHONE: _____
COMPANY: _____	PHONE: _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

BOREHOLE DESIGNATION: B-901 LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO 38'; 3.7" 38' TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: 320'
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 38'; NO 4" STEEL
DEPTH TO BEDROCK: NA DEPTH TO WATER TABLE: 230'
BOREHOLE FLUID: WATER ☒; FRESH WATER MUD _____; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 230' TIME SINCE LAST CIRCULATION: NA



SITE: NORTH ANNA COL B-901 DATE: 8/29/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 2 OF 2

LOGGING CREW: R. STELLER
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: _____ DEPARTURE TIME: 10:30
ARRIVED ON SITE: 11:45
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 14:35 LOGGING COMPLETED: 16:05

WINCH: _____ COMPROBE _____ SILVER ☒ OYO _____ OTHER _____
MICROLOGGER 5301 ☒ OTHER _____
TELEVIEWER OPTICAL #5117 _____ ACOUSTIC #5174 ☒ OTHER _____

PROBE TILT TEST 90.81° BRUNTON TILT 91°
PROBE AZIMUTH TEST 232.9° BRUNTON AZIMUTH 227°

PROBE OFFSET	OPTICAL 1.88M(6.17FT)	ACOUSTIC 1.44M(4.72FT)
CASING STICK-UP	- _____	- <u>2.0</u>
DEPTH REF. OFFSET		<u>2.72 FT.</u>

END ZERO = 2.66 FT.

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
<u>B901 A4 up 01</u>	<u>278</u>	<u>14:35</u>	<u>2.66</u>	<u>16:05</u>

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____



B-901 ELOG FIELD LOG

SITE: NORTH ANNA COL _____ DATE: 8/29/06
CLIENT: MACTEC _____ JOB: 6410
AUTHOR: R. STELLER _____ PAGE 1 OF 2

CONTACT: _____	OFFICE PHONE: _____
	CELL PHONE: _____
CONTACT: _____	OFFICE PHONE: _____
	PHONE: _____
CONTACT: _____	PHONE: _____
	PHONE: _____
CONTACT: _____	PHONE: _____
	PHONE: _____
DRILLER: _____	PHONE: _____
COMPANY: _____	PHONE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

BOREHOLE DESIGNATION: B-901 LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO 38'; 3.7" 38' TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: 300'
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 38'; NO 4" STEEL
DEPTH TO BEDROCK: 238' DEPTH TO WATER TABLE: 22'
BOREHOLE FLUID: WATER ☒; FRESH WATER MUD _____; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 22' TIME SINCE LAST CIRCULATION: NA

LOGGING CREW: R. STELLER _____
VEHICLE(S) USED AND MILEAGE: RENTAL _____
MOBILIZED FROM: FEDERICO'S BUS, 01 DEPARTURE TIME: 10:30
ARRIVED ON SITE: 11:45
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 12:35 LOGGING COMPLETED: _____

SITE: NORTH ANNA COL B-901 DATE: 8/29/00
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER 5301 ☒ OTHER OTHER
ELOG PROBE 5490 ☒ OTHER OTHER

PROBE OFFSET	2.50M(8.20 FT)
CASING STICK-UP	- 2.0 + 32.8
DEPTH REF. OFFSET	<u>39.0'</u> EXT DEPTH INDICATION = 58.95'

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
EE B901 ELOG TEST 01	ϕ	16:35	ϕ	16:40
B901 ELOG UP 01	292.0	16:57	36.0'	17:27

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____

LOGGING CREW: _R. STELLER_____

[illegible]



B-901

TELEVIEWER FIELD LOG

SITE: NORTH ANNA COL _____ DATE: 9/11/06
CLIENT: MACTEC _____ JOB: 6410
AUTHOR: R. STELLER _____ PAGE 1 OF 2

CONTACT: _____	OFFICE PHONE: _____
_____	CELL PHONE: _____
CONTACT: _____	OFFICE PHONE: _____
_____	PHONE: _____
CONTACT: _____	PHONE: _____
_____	PHONE: _____
CONTACT: _____	PHONE: _____
_____	PHONE: _____
DRILLER: _____	PHONE: _____
COMPANY: _____	PHONE: _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

BOREHOLE DESIGNATION: B-901 LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO 38'; 3.7" 38' TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: 5.7" 300' 1203 9/11/06
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 38'; NO 8" STEEL
DEPTH TO BEDROCK: NA DEPTH TO WATER TABLE: _____
BOREHOLE FLUID: WATER ☒; FRESH WATER MUD _____; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 240' 22.5' TIME SINCE LAST CIRCULATION: NA

cas 9/11/06



SITE: NORTH ANNA COL B-901 DATE: 9/11/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 2 OF 2

LOGGING CREW: R. STELLER
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: POCONO, PA DEPARTURE TIME: 8:30
ARRIVED ON SITE: 8:00
STANDBY TIME: CAUSE:
LOGGING STARTED: 15:14 9/11/06 LOGGING COMPLETED: 15:43
WINCH: COMPROBE ☒ SILVER ☒ OYO OTHER
MICROLOGGER 5301 ☒ OTHER
TELEVIEWER OPTICAL #5117 ACOUSTIC #5174 ☒ OTHER

PROBE TILT TEST 89.8° BRUNTON TILT 89.5°
PROBE AZIMUTH TEST 257.2° BRUNTON AZIMUTH 245.0°

PROBE OFFSET	OPTICAL 1.88M(6.17FT)	ACOUSTIC 1.44M(4.72FT)
CASING STICK-UP		<u>2.0</u>
DEPTH REF. OFFSET		<u>2.72 FT.</u>

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
<u>B901AUG02</u>	<u>125</u>	<u>15:14</u>	<u>100'</u>	<u>15:25</u>
<u>B901AUG03</u>	<u>125</u>	<u>15:32</u>	<u>100'</u>	<u>15:43</u>

MAINTENANCE PERFORMED ON SITE:

EQUIPMENT PROBLEMS OR FAILURES:

SUGGESTIONS, ADDITIONS, CHANGES: INTERVAL 107-117' PACER TEST



LOGGING CREW: R. STELLER

[illegible]



B-901 CALIPER FIELD LOG

SITE: NORTH ANNA COL DATE: 9/12/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 1 OF 2

CONTACT: _____	OFFICE PHONE: _____
_____	CELL PHONE: _____
CONTACT: _____	OFFICE PHONE: _____
_____	PHONE: _____
CONTACT: _____	PHONE: _____
_____	PHONE: _____
CONTACT: _____	PHONE: _____
_____	PHONE: _____
DRILLER: _____	PHONE: _____
COMPANY: _____	PHONE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

BOREHOLE DESIGNATION: B-901 LOCATION: _____

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

BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒

DIAMETERS AND DEPTH RANGES: 5" 0 TO 38.6'; 3.7", 38.6' TO 300.0'

BOREHOLE TOTAL DEPTH AS DRILLED: 300.0'

CONDUCTOR CASING?: YES _____ DEPTH TO BOTTOM OF CASING _____; NO ☒

DEPTH TO BEDROCK: 38.6' DEPTH TO WATER TABLE: _____

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

OTHER: _____

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

LOGGING CREW: R. STELLER
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Flower Creek, VA DEPARTURE TIME: 6:30
ARRIVED ON SITE: 7:45
STANDBY TIME: CAUSE:
LOGGING STARTED: 14:49 LOGGING COMPLETED: 15:47

SITE: NORTH ANNA COL B-901 DATE: 2/12/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER 5301 ☒ OTHER
CALIPER PROBE 5368 ☒ OTHER

PROBE OFFSET	12 IN MAX 2.08M(6.82 FT)	24 IN MAX
CASING STICK-UP	ARMS - <u>0.0"</u>	ARMS -
DEPTH REF. OFFSET	<u>6.82'</u>	

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
B901 CALTEST04	Ø	14:41	Ø	14:54
B901 CALTEST02	60.0'	15:31	Ø	15:39
B901 CALTEST05	Ø	15:42	Ø	15:47

CALIBRATION PLATE S/N 201		AS BUILT		
	FILE NAME	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN 203.2 MM
AS MEAS.	B901 CALTEST04	1.97	3.91	7.99
AS MEAS.	B901 CALTEST05	1.92	3.89	7.98
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

PVC coupling
4.51 INCHES.
4.51
4.47

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____



P-S SUSPENSION VELOCITY FIELD LOG

SITE: NORTH ANNA COL B-901 DATE: 9/12/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 1 OF 4

CONTACT: STEVE CRISCENZO OFFICE PHONE: 919-831-8047
CELL PHONE: 919-949-1707
CONTACT: OFFICE PHONE:
PHONE:
CONTACT: PHONE:
PHONE:
CONTACT: PHONE:
PHONE:
PHONE:
DRILLER: PHONE:
COMPANY: PHONE:

DIRECTIONS TO SITE:

GENERAL SITE CONDITIONS/LOCATION:

EA#:
BOREHOLE DESIGNATION: B-901 LOCATION:
COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO 38.6'; 5.7" 586' TO 300.0'
BOREHOLE TOTAL DEPTH AS DRILLED: 300'
CONDUCTOR CASING?: YES DEPTH TO BOTTOM OF CASING: ; NO ☒
DEPTH TO BEDROCK: 38' DEPTH TO WATER TABLE:
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD ;
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 14d



SITE: NORTH ANNA COL B-201 DATE: 9/12/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 2 OF 4

LOGGING CREW: R. STELLER
VEHICLE(S) USED AND MILEAGE: PENTAL
MOBILIZED FROM: FARMERSBURG, VA DEPARTURE TIME: 6:30
ARRIVED ON SITE: 7:45
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 15:56 LOGGING COMPLETED: 16:31
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: _____ LOGGING COMPLETED: _____
DEMOLISHED 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 ☐ 30086 ☒

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: 2600 @ 2.5m (GROUND LEVEL)
2600 ON SURF @ 2.5m.

SITE: NORTH ANNA COL B-901 DATE: 9/12/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 3 OF 3 4
RM 9/16

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64	301		
1.0	3.28	302		
1.5	4.92	303		
2.0	6.56	304		
2.5	8.20	305		
3.0	9.84	306		
3.5	11.48	307		
4.0	13.12	308		
4.5	14.76	309		
5.0	16.40	310		
5.5	18.04	311		
6.0	19.69	312		
6.5	21.33	313		
7.0	22.97	314		
7.5	24.61	315		
8.0	26.25	316		
8.5	27.89	317		
9.0	29.53	318		
9.5	31.17	319		
10.0	32.81	320		
10.5	34.45	321		
11.0	36.09	322		
11.5	37.73	323		
12.0	39.37	324		
12.5	41.01	325		
13.0	42.65	326		
13.5	44.29	327		
14.0	45.93	328		
14.5	47.57	329		
15.0	49.21	330		
15.5	50.85	331		
16.0	52.49	332		
16.5	54.13	333		
17.0	55.77	334		
17.5	57.41	335		
18.0	59.06	336		
18.5	60.70	337		
19.0	62.34	338		
19.5	63.98	339		
20.0	65.62	340		

SITE: NORTH ANNA COL B-901 DATE: 9/12/06
CLIENT: MACTEC JOB: 6410
AUTHOR: R. STELLER PAGE 4 OF 4

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
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20.5	67.26	3A1		
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			
36.5	119.75			
37.0	121.39			
37.5	123.03			
38.0	124.67			
38.5	126.31			
39.0	127.95			
39.5	129.59			
40.0	131.23			