

**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 *REV 8/28/06*  
 CONTACT: STEVE CRISCENZO PHONE: 919-949-1707

BOREHOLE CONSTRUCTION: CASED    UNCASD   
 DIAMETERS AND DEPTH RANGES: 5" 0 TO 240 ; 8.7", 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

LOG TYPE	FILE NAME	DEPTH RANGE	DATE	TIMES
<i>Substation B</i>	<i>B901-001-B901-150</i>	<i>12.5m - 87.5m</i>	<i>8/28/06</i>	<i>15:52 - 17:35</i>



### P-S SUSPENSION VELOCITY FIELD LOG

*2/25 2/20/06*

SITE: NORTH ANNA COL B-901 901 DATE: 2/25/06  
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 \_\_\_\_\_ UNCASED   
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 <sup>901</sup> B-30+ DATE: 3/22/06  
 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  <sup>2005</sup>OTH   
 INSTRUMENT OYO 12004  15014  19029  <sup>2005</sup> 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' ⇒ .61m  
SO, TOP OF PROBE & TOP OF CASE =  $\frac{2.0}{2.5} - .61m = 1.39m$  DEPTH.  
BIT @ 1.87m

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: NORTH ANNA COL B-901 DATE 8/22/00  
 CLIENT: MACTEC JOB \_\_\_\_\_  
 AUTHOR: R. STELLER PAGE 3 OF 7

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS
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DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS
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	001		STEEL 4" CASE 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		

GEOVISION REPORT FOR NORTH ANNA COL BORING

SITE: NORTH ANNA COL 15-701 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
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DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS
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 SUPERVISION 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	90		
58.0	190.29	91		
58.5	191.93	92		
59.0	193.57	93		
59.5	195.21	94		
60.0	196.85	95		

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			NOT 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			



B-901 BORING GEOPHYSICS FIELD LOG SUMMARY

SITE: NORTH ANNA COL DATE: 8/29/06  
CLIENT: MACTEC JOB: 6410  
AUTHOR: R. STELLER PAGE 1 OF 2-1 *PARS 8/29/06*  
CONTACT: STEVE CRISCENZO PHONE: 919-949-1707  
BOREHOLE CONSTRUCTION: CASED  UNCASED   
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   
LOGGING CREW: R. STELLER

LOG TYPE	FILE NAME	DEPTH RANGE	DATE	TIMES
CALIPER TEST	B901 CALTEST01	∅	8/29/06	12:35 - 12:40
CALIPER/GAMMA	B901 CALUP01	298.0 - ∅	"	12:54 - 13:28
CALIPER TEST	B901 CALTEST02	∅	"	13:35 - 13:39
CALIPER TEST	B901 CALTEST03	∅	"	13:41 - 13:48
ACOUSTIC TV	B901 AMUP01	298.0' - 2.7'	"	14:35 - 16:05
ELOG TEST	B901 ELOGTEST01	∅	"	16:35 - 16:40
ELOG/GAMMA	B901 ELOGUP01	298.0 - 36.0'	"	16:57 - 17:27



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 240'; 2.7" 240 TO 300'  
BOREHOLE TOTAL DEPTH AS DRILLED: 300'  
CONDUCTOR CASING?: YES  DEPTH TO BOTTOM OF CASING 240'; NO \_\_\_\_\_  
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: \_\_\_\_\_

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: 1:48

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 \_\_\_\_\_  
 CALIPER PROBE 5368  OTHER \_\_\_\_\_

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

END ON EXTC-4.75

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
B901 CAL TEST 01	∅	12:35	∅	12:40
B901 CAL UP 01	298	12:54	∅	13:28
B901 CAL TEST 02	∅	13:35	∅	13:39
B901 CAL TEST 03	∅	<del>13:41</del> 13:41	∅	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		<del>2.12</del> 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  
 4.507 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: B/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 ANA 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: FedEx Business, VA 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  
 ELOG PROBE 5490  OTHER

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

EXH DEPTH INDICATION = 58.95'

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
<del>EE B901 ELOG TEST 01</del>	0	16:35	0	16:40
B901 ELOG UP 01	29.0'	16:57	36.0'	17:27

MAINTENANCE PERFORMED ON SITE: \_\_\_\_\_

EQUIPMENT PROBLEMS OR FAILURES: \_\_\_\_\_

SUGGESTIONS, ADDITIONS, CHANGES: \_\_\_\_\_





### B-901 BORING GEOPHYSICS FIELD LOG SUMMARY

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

CONTACT: STEVE CRISCENZO PHONE: 919-949-1707

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: 38'  
 BOREHOLE FLUID: WATER ; FRESH WATER MUD \_\_\_; SALT WATER MUD \_\_\_

LOGGING CREW: R. STELLER

9/11/06

LOG TYPE	FILE NAME	DEPTH RANGE	DATE	TIMES
<del>B901 Anu4P02</del>				
Acoustic TV	<u>B901 Anu4P02</u>	<u>125.0 - 100.0</u>	<u>9/11/06</u>	<u>15:14 - 15:25</u>
"	<u>B901 Anu4P03</u>	<u>125.0 - 100.0</u>	<u>"</u>	<u>15:32 - 15:43</u>



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' cas 9/11/06

CONDUCTOR CASING?: YES  DEPTH TO BOTTOM OF CASING 38' ; NO 4" 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 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>B901Au uP02</u>	<u>125</u>	<u>15:14</u>	<u>100'</u>	<u>15:25</u>
<u>B901Au uP03</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' PACCEL TEST



B-901 BORING GEOPHYSICS FIELD LOG SUMMARY

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

CONTACT: STEVE CRISCENZO PHONE: 919-949-1707

BOREHOLE CONSTRUCTION: CASSED \_\_\_\_\_ UNCASSED   
 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'  
 BOREHOLE FLUID: WATER \_\_\_\_\_; FRESH WATER MUD ; SALT WATER MUD \_\_\_\_\_

LOGGING CREW: R. STELLER \_\_\_\_\_

LOG TYPE	FILE NAME	DEPTH RANGE	DATE	TIMES
CALIPER TEST	B901CALTEST04	Ø	9/12/06	14:44 - 14:54
CALIPER/GAMMA	B901CALUP02	60.0' - Ø'	"	15:31 - 15:39
CALIPER TEST	B901CALTEST05	Ø	"	15:42 - 15:47
SUSPENSION RS	B901-201 → 301.00h	1.6' - 67.8'	"	15:56 - 16:31
ELOG TEST	B901ELOGTEST02	Ø	"	15:05 - 15:07
ELOG/GAMMA	B901ELOGUP02	80.0' - 24.9'	"	16:55 - 17:02



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 \_\_\_\_\_ UNCASED   
DIAMETERS AND DEPTH RANGES: 5" 0 TO 38.6' ; 3.7" , 38.6' TO 300.0'  
BOREHOLE TOTAL DEPTH AS DRILLED: 300'  
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: φ TIME SINCE LAST CIRCULATION: 1/2 HR

LOGGING CREW: R. STELLER  
VEHICLE(S) USED AND MILEAGE: RENTAL  
MOBILIZED FROM: Plattsburgh, VA DEPARTURE TIME: 6:50  
ARRIVED ON SITE: 7:45  
STANDBY TIME: \_\_\_\_\_ CAUSE: \_\_\_\_\_  
LOGGING STARTED: 10:49 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	14:49	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:  
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' ; 3.7" 526' 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-901 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: 15:50 LOGGING COMPLETED: 16:31  
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  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: 9/12/00  
 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	301		
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			