APPENDIX E

BORING GEOPHYSICAL LOGGING FIELD DATA LOGS

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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 RAS 8/28/06

CONTACT: STEVE CRISCENZO PHONE: 919-949-1707

BOREHOLE CONSTRUCTION: CASED · UNCASED ✓
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: ≈40'
BOREHOLE FLUID: WATER ✓ ; FRESH WATER MUD ; SALT WATER MUD ;

LOGGING CREW: R. STELLER

LOG TYPE	FILE NAME	DEPTH RANGE	DATE	TIMES
SUSPENSION PS	B901_001-B901-150	12.5m - 87.5m	8/28/06	15:52 - 17:35

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P-S SUSPENSION VELOCITY FIELD LOG

RAS 4/20/06

SITE: NORTH ANNA COL B-901 901 DATE: 8/28/06
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 ≈40' ; ~~≈40~~ 37' RAS, ≈40' TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: 300'
CONDUCTOR CASING?: YES ✓ DEPTH TO BOTTOM OF CASING ≈40' ; NO
DEPTH TO BEDROCK: ≈40' DEPTH TO WATER TABLE: ≈30'
BOREHOLE FLUID: WATER ✓ ; FRESH WATER MUD ; SALT WATER MUD ;
OTHER:
DEPTH TO BOREHOLE FLUID: ≈30' TIME SINCE LAST CIRCULATION: NA

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RAS 8/28/06

SITE: NORTH ANNA COL B-301 901 DATE: 8/28/06
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 STICK UP = 2.0' ⇒ .61 m
SO, TOP OF PROBE @ TOP OF CASE = ~~8.0~~ 2.5 - .61 m = ~~1.39~~ 1.89 m. DEPTH.
EXIT @ 1.97m

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: NORTH ANNA COL B-901 DATE 8/28/06
CLIENT: MACTEC JOB
AUTHOR: R. STELLER PAGE 4 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	001		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	59.08	12		
18.5	60.70	13		
19.0	62.34	14		
19.5	63.98	15		
20.0	65.62	16		

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: NORTH ANNA COL 15-901 DATE: 3/24/06
CLIENT: MACTEC JOB:
AUTHOR: R. STELLER PAGE 4 OF 7

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
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-901 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
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 SKIPPED
55.0	180.45	~~86~~ 85		
55.5	182.09	~~87~~ 86		
56.0	183.73	~~88~~ 87 RAS	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: 8/28/06
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
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-901 DATE: 12/28/06
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
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			107 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.D @ 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			

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B-901 BORING GEOPHYSICS FIELD LOG SUMMARY

SITE: NORTH ANNA COL
CLIENT: MACTEC
AUTHOR: R. STELLER

DATE: 8/29/06
JOB: 6410
PAGE 1 OF ~~2~~ 1 RAS 8/29/06

CONTACT: STEVE CRISCENZO

PHONE: 919-949-1707

BOREHOLE CONSTRUCTION: CASED ____ UNCASED ✓
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

LOG TYPE	FILE NAME	DEPTH RANGE	DATE	TIMES
CALIPER TEST	B901 CALTEST01	Ø	8/29/06	12:35 – 12:40
CALIPER/GAMMA	B901 CALUP01	298.0 – Ø	"	12:54 – 13:28
CALIPER TEST	B901 CALTEST02	Ø	"	13:35 – 13:39
CALIPER TEST	B901 CALTEST03	Ø	"	13:41 – 13:48
ACOUSTIC TV	B901 AMUP01	298.0' – 2.7'	"	14:35 – 16:05
ELOG TEST	B901 ELOG TEST01	Ø	"	16:35 – 16:40
ELOG/GAMMA	B901 ELOG UP01	298.0 – 36.0'	"	16:57 – 17:27

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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 ____ UNCASED ✓
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: ≈30'
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, VI DEPARTURE TIME: 10:30
ARRIVED ON SITE: 11:45
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 12:35 LOGGING COMPLETED: 13:48

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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 - 2.0'	ARMS - ____
DEPTH REF. OFFSET	4.82 FT	

ZERO ON EXIT = 4.75

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
B901 CALTEST 01	Ø	12:35	Ø	12:40
B901 CALUP 01	298	12:54	Ø	13:28
B901 CALTEST 02	Ø	13:35	Ø	13:39
B901 CALTEST 03	Ø	~~14~~:41 13	Ø	13:48
		RAS 8/29/06		

CALIBRATION PLATE S/N 201

		AS BUILT			
		1.968 IN	3.937 IN	8.000 IN	PVC FITTING 4.507 IN
	FILE NAME	(50 MM)	(100 MM)	203.2 MM	
AS MEAS.	B901 CALTEST 01	1.96	3.93	7.98	4.51
AS MEAS.	B901 CALTEST 02	2.12	3.95	7.99	4.53
AS MEAS.		RAS 8/29/06			
AS MEAS.	B901 CALTEST 03	2.10	3.98	8.02	4.54
AS MEAS.					
AS MEAS.					

MAINTENANCE PERFORMED ON SITE: ____

EQUIPMENT PROBLEMS OR FAILURES: ____

SUGGESTIONS, ADDITIONS, CHANGES: ____

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B-901 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____ UNCASED ✓
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: NA DEPTH TO WATER TABLE: ≈30'
BOREHOLE FLUID: WATER ✓; FRESH WATER MUD____; SALT WATER MUD ____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: ≈30' TIME SINCE LAST CIRCULATION: NA

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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: 11:48
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	-	- 2.0
DEPTH REF. OFFSET		2.72 FT.

END ZERO = 2.66 FT.

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
B901 AM UP 01	278	14:35	2.66	16:05

MAINTENANCE PERFORMED ON SITE:

EQUIPMENT PROBLEMS OR FAILURES:

SUGGESTIONS, ADDITIONS, CHANGES:

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B-901 ELOG FIELD LOG

SITE: NORTH ANNA COL DATE: 8/22/06
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'; 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' 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: FREDERICKSBURG, VA DEPARTURE TIME: 10:30
ARRIVED ON SITE: 11:45
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 16:35 LOGGING COMPLETED: _____

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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_____
ELOG PROBE 5490 ✓ OTHER_____

PROBE OFFSET	2.50M(8.20 FT)	
CASING STICK-UP	- 2.0 + 32.8	
DEPTH REF. OFFSET	39.0'	EXIT DEPTH INDICATION = 58.95'

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
~~EL~~ B901 ELOG TEST01	ϕ	16:35	ϕ	16:40
B901 ELOG UP 01	298'0	16:57	36.0'	17:27

MAINTENANCE PERFORMED ON SITE:_____

EQUIPMENT PROBLEMS OR FAILURES:_____

SUGGESTIONS, ADDITIONS, CHANGES:_____

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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 ____ UNCASED ✓
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

LOG TYPE	FILE NAME	DEPTH RANGE	DATE	TIMES
~~B901AMUP01~~				
ACOUSTIC TV.	B901AMUP02	125.0 – 100.0	9/11/06	15:14 – 15:25
"	B901AMUP03	125.0 – 100.0	"	15:32 – 15:43

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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 ____ UNCASED ✓
DIAMETERS AND DEPTH RANGES: 5" 0 TO 38' ; 3.7", 38 TO 300'
BOREHOLE TOTAL DEPTH AS DRILLED: ~~3.7"~~ 300' RAS 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: ~~230'~~ 22.5' TIME SINCE LAST CIRCULATION: NA

RAS 9/11/06

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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: FREDERICKSBURG, VA 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	- ____	- 2.0
DEPTH REF. OFFSET	____	2.72 FT.

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
B901AMUP02	125	15:14	100'	15:25
B901AMUP03	125	15:32	100'	15:43.

MAINTENANCE PERFORMED ON SITE:

EQUIPMENT PROBLEMS OR FAILURES:

SUGGESTIONS, ADDITIONS, CHANGES: INTERVAL 107'-117' PACKER TEST.

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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: CASED ____ UNCASED ✓
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	B901CALTEST 04	Ø	9/12/06	14:49 – 14:54
CALIPER/GAMMA	B901CALUP02	60.0' – Ø'	"	15:31 – 15:39
CALIPER TEST	B901CALTEST.05	Ø	"	15:42 – 15:47
SUSPENSION PS	B901_301 → 341.00'	1.6' – 67.3'	"	15:56 – 16:31
ELOG TEST	B901ELOG TEST02	Ø	"	15:05 – 15:07
ELOG/GAMMA	B901ELOGUP02	80.0' – 24.9'	"	16:55 – 17:02

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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: Ø TIME SINCE LAST CIRCULATION: ½ HR

LOGGING CREW: R. STELLER
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: FREDERICKSBURG, VA DEPARTURE TIME: 6:50
ARRIVED ON SITE: 7:45
STANDBY TIME: CAUSE:
LOGGING STARTED: 14:49 LOGGING COMPLETED: 15:47

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SITE: NORTH ANNA COL B-901 DATE: 9/12/06
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 CASING STICK-UP DEPTH REF. OFFSET	12 IN MAX 2.08M(6.82 FT) ARMS - 0.0" 6.82'	24 IN MAX ARMS - ___

LOG NAME	START DEPTH	START TIME	END DEPTH	END TIME
B901 CALTEST04	Ø	14:49	Ø	14:54
B901 CALUP02	60.0'	15:31	Ø	15:39
B901 CALTEST05	Ø	15:42	Ø	15:47

CALIBRATION PLATE S/N 201

		AS BUILT		
		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	1.72	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: ___

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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 ____ 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' DEPTH TO WATER TABLE:
BOREHOLE FLUID: WATER ____; FRESH WATER MUD ✓; SALT WATER MUD ____;
OTHER:
DEPTH TO BOREHOLE FLUID: ∅ TIME SINCE LAST CIRCULATION: 14 hr

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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: RENTAL
MOBILIZED FROM: FREDERICKSBURG, 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:
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: HEAD @ 2.5m (GROUND LEVEL)
HEAD ON FRONT = 2.5m.

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SITE:_NORTH ANNA COL B-901 DATE: 9/12/06
CLIENT:_MACTEC JOB:_6410
AUTHOR:_R. STELLER PAGE 3 OF ~~3~~ 4

RAS 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
20.5	67.26	341		
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			