



| MACTEC PROJECT NO.: 6468-06-1472 | | | | COUNTY Louisa, VA | | | | GEOLOGIST J. Howard | | | | | |
|----------------------------------|---------------|-------------------------------|-------|-------------------|------------------------------|--------------------------|----|---|----|--------------------------|------------|---------------------------|--|
| SITE DESCRIPTION NORTH ANNA COL | | | | | | | | | | GROUND WATER (ft) | | | |
| BORING NO. B-905 | | DRILL METHOD: Mud Rotary/Core | | | | SAMPLE METHODS: SPT/CORE | | | | 0 HR. 23.0 | | | |
| COLLAR ELEV. 306.8 ft (NAVD88) | | NORTHING 3,909,733 | | US ft (NAD83) | | EASTING 11,685,822 | | US ft (NAD83) | | 24 HR. 21.9 | | | |
| TOTAL DEPTH 150.4 ft | | DRILL MACHINE CME 550 ATV | | | | DRILLER: G. Akins | | | | HAMMER TYPE 140 lbs Auto | | | |
| DATE STARTED 9/19/06 | | | | COMPLETED 9/25/06 | | | | CORE BARREL TYPE: HQ 3 triple tube-wireline | | | | | |
| ELEV. (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | |
| | | 0.5ft | 0.5ft | 0.5ft | 0 | 20 | 40 | 60 | 80 | | | | 100 |
| 231.9 | | | | | Continued from previous page | | | | | | | | |
| | | | | | | | | | | | | 229.0 77.8 | Weathered Rock: Tan-gray, severely weathered, BIOTITE GNEISS |
| | | | | | | | | | | | | 226.6 80.2 | Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS |
| | | | | | | | | | | | | 185.0 121.8 | Weathered Rock: BIOTITE GNEISS-little to no recovery |
| | | | | | | | | | | | | 181.4 125.4 | Hard Rock: Gray-tan and blue-gray, moderately weathered to fresh, very close to wide fracturing, hard to very hard, BIOTITE GNEISS, locally with quartz and feldspar veins |
| | | | | | | | | | | | | 159.2 147.6 | |

NORTH ANNA COL ...jRE NORTH ANNA COL DATA REPORT REV0.GPJ NORTH ANNA COL.GDT 1/19/07



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| BORING NO. B-905 | | | DRILL METHOD: Mud Rotary/Core | | | | | SAMPLE METHODS: SPT/CORE | | | | | 0 HR. 23.0 | | |
| COLLAR ELEV. 306.8 ft (NAVD88) | | | NORTHING 3,909,733 | | US ft (NAD83) | | EASTING 11,685,822 | | US ft (NAD83) | | 24 HR. 21.9 | | | | |
| TOTAL DEPTH 150.4 ft | | | DRILL MACHINE CME 550 ATV | | | DRILLER: G. Akins | | | HAMMER TYPE 140 lbs Auto | | | | | | |
| DATE STARTED 9/19/06 | | | COMPLETED 9/25/06 | | | CORE BARREL TYPE: HQ 3 triple tube-wireline | | | | | | | | | |
| ELEV. (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION | | |
| | | 0.5ft | 0.5ft | 0.5ft | 0 | 20 | 40 | 60 | 80 | | | | | 100 | |
| 157.1 | | | | | | | | | | | | | Continued from previous page | | |
| | | | | | | | | | | | | | 156.4 | Hard Rock: Blue-gray and brown, moderately to slightly weathered, moderately close fracturing, moderately hard, BIOTITE GNEISS (continued) Boring and coring terminated at 150.4 ft in Hard Rock: Hard, BIOTITE GNEISS | 150.4 |

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| BORING NO. B-905 | | | DRILL METHOD: Mud Rotary/Core | | | | SAMPLE METHODS: SPT/CORE | | | | 0 HR. 23.0 | | |
| COLLAR ELEV. 306.8 ft (NAVD88) | | | NORTHING 3,909,733 | | US ft (NAD83) | | EASTING 11,685,822 | | US ft (NAD83) | | 24 HR. 21.9 | | |
| TOTAL DEPTH 150.4 ft | | | DRILL MACHINE CME 550 ATV | | | | DRILLER: G. Akins | | | HAMMER TYPE 140 lbs Auto | | | |
| DATE STARTED 9/19/06 | | | | COMPLETED 9/25/06 | | | CORE BARREL TYPE: HQ 3 triple tube-wireline | | | | | | |
| CORE SIZE HQ3 | | | | TOTAL RUN 124.3 ft | | | | | | | | | |
| ELEV. (ft) | DEPTH (ft) | RUN (ft) | DRILL RATE (Min/ft) | RUN | | SAMP. NO. | STRATA | | L O G | DESCRIPTION AND REMARKS | | | |
| | | | | REC. (ft) % | ROD (ft) % | | REC. (ft) % | ROD (ft) % | | | | | |
| Begin Coring @ 26.1 ft | | | | | | | | | | | | | |
| 280.7 | 26.1 | 4.4 | N=50/0.0 2:00 | (2.2) 50% | (2.2) 50% | 1 | | | | 280.7 | Hard Rock: Tan gray, moderately to very slightly weathered, close to moderately close fracturing, medium hard to hard, QUARTZ GNEISS | 26.1 | |
| 276.3 | 30.5 | 4.9 | 1:30/0.4 2:00 | (3.9) 80% | (3.0) 61% | 2 | | | | | | | |
| 271.4 | 35.4 | 5.1 | 1:45 1:15 1:30 3:00/0.9 | (5.1) 100% | (5.1) 100% | 3 | | | | | (2 joints at 80°) | | |
| 266.3 | 40.5 | 5.0 | 3:00 3:00 2:30 3:15 3:30/1.1 | (4.7) 94% | (4.7) 94% | 4 | | | | 266.3 | Hard Rock: Blue-gray to tan-gray, moderately weathered to fresh, close to moderately close fracturing, hard to very hard, BIOTITE GNEISS (1 joint at 40°, 1 joint at 75°, 2 joints at 20°; loss of circulation from 44.4 to 44.6 ft) | 40.5 | |
| 261.3 | 45.5 | 4.9 | 3:45 4:15 5:00 7:15 4:30 | (4.9) 100% | (4.9) 100% | 5 | | | | | (1 joint at 10°, 1 joint at 80°, 2 joints at 50°) | | |
| 256.4 | 50.4 | 4.8 | 5:00 7:00 7:15 10:30 9:30/0.9 | (4.2) 88% | (3.4) 71% | 6 | | | | | | | |
| 251.6 | 55.2 | 5.1 | 3:00 8:30 7:15 6:45 7:30/0.8 | (5.1) 100% | (4.2) 82% | 7 | | | | | (4 joints at 30-40°) | | |
| 246.5 | 60.3 | 4.9 | 9:15 3:45 3:00 2:30 4:00/1.1 | (4.9) 100% | (4.9) 100% | 8 | | | | | (2 joints at 20°, 2 joints at 40°) | | |
| 241.6 | 65.2 | 5.1 | 3:45 3:00 6:30 8:00/0.9 | (4.8) 94% | (4.0) 78% | 9 | | | | | (3 joints at 30°, 1 joint at 10°) | | |
| 236.5 | 70.3 | 2.9 | 6:00 3:00 1:45 2:00 2:15/1.1 | (2.9) 100% | (1.3) 45% | 10 | | | | | (5 joints at 10°, 1 joint at 50°, 1 joint at 85°; trace epidote) | | |
| 233.6 | 73.2 | 7.0 | 2:30/0.9 3:30 4:00 3:30 3:45 2:30 3:30 5:00 | (5.3) 76% | (4.7) 67% | 11 | | | | | (4 joints at 10°, 1 joint at 85°) | | |
| 229.0 | | | | | | | | | | 229.0 | Weathered Rock: Tan-gray, severely weathered, BIOTITE GNEISS | 77.8 | |
| 226.6 | 80.2 | 5.3 | 2:30 4:30 4:45 5:00 6:00 5:15 | (5.3) 100% | (3.8) 72% | 12 | | | | 226.6 | Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS (7 joints at 20°, 3 joints at 80°) | 80.2 | |
| 221.3 | 85.5 | 5.0 | 2:45 2:00 3:45 3:30 4:30 | (3.3) 66% | (0.5) 10% | 13 | | | | | | | |
| 216.3 | 90.5 | 5.0 | 2:30 2:00 2:15 2:00 2:00 | (3.5) 70% | (1.3) 26% | 14 | | | | | (2 joints at 40°, 1 joint at 85°) | | |
| 211.3 | 95.5 | 5.0 | 1:45 1:30 1:30 1:15 1:00 | (4.5) 90% | (3.8) 76% | 15 | | | | | (3 joints at 60°, 1 joint at 85°) | | |
| 206.3 | 100.5 | | | | | | | | | | | | |

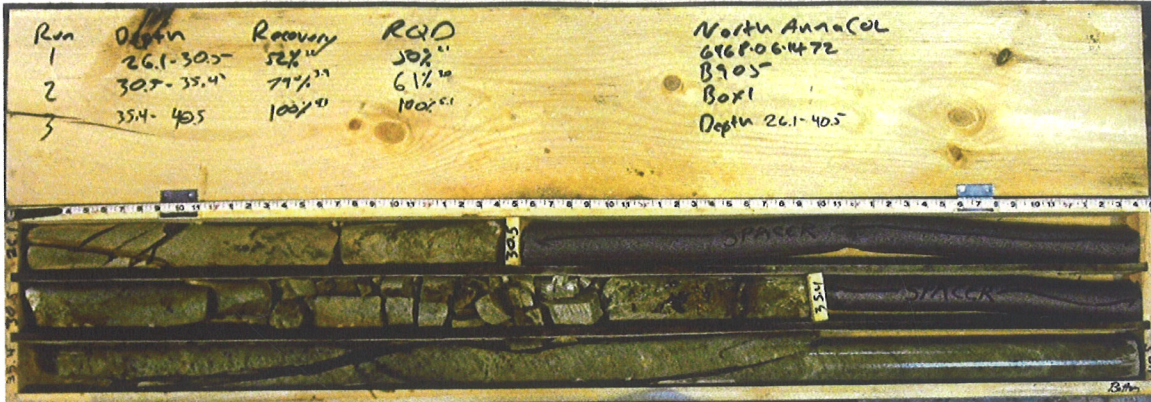
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| SITE DESCRIPTION NORTH ANNA COL | | | | | | GROUND WATER (ft) | |
| BORING NO. B-905 | | DRILL METHOD: Mud Rotary/Core | | SAMPLE METHODS: SPT/CORE | | 0 HR. 23.0 | |
| COLLAR ELEV. 306.8 ft (NAVD88) | | NORTHING 3,909,733 US ft (NAD83) | | EASTING 11,685,822 US ft (NAD83) | | 24 HR. 21.9 | |
| TOTAL DEPTH 150.4 ft | | DRILL MACHINE CME 550 ATV | | DRILLER: G. Akins | | HAMMER TYPE 140 lbs Auto | |
| DATE STARTED 9/19/06 | | COMPLETED 9/25/06 | | CORE BARREL TYPE: HQ 3 triple tube-wireline | | | |
| CORE SIZE HQ3 | | TOTAL RUN 124.3 ft | | | | | |

| ELEV. (ft) | DEPTH (ft) | RUN (ft) | DRILL RATE (Min/ft) | RUN | | SAMP. NO. | STRATA | | L O G | DESCRIPTION AND REMARKS |
|------------|------------|----------|--|---------------|---------------|-----------|-------------|------------|-------|---|
| | | | | REC. (ft) % | RQD (ft) % | | REC. (ft) % | RQD (ft) % | | |
| | | | | | | | | | | Continued from previous page |
| 201.3 | 105.5 | 5.0 | 1:30 ND ND ND ND | (5.0) 100% | (4.8) 96% | 16 | | | | (2 joints at 10°, 2 joints at 60-70°) Hard Rock: Gray-tan, light gray, and blue-gray, moderate severely weathered to fresh, very close to moderately close fracturing, medium hard to hard, BIOTITE GNEISS (continued) |
| | | 5.0 | 2:00 1:45 1:30 1:15 1:45 | (5.0) 100% | (4.5) 90% | 17 | | | | (1 joint at 20°, 2 joints at 40-50°; quartz+feldspar veins) |
| 196.3 | 110.5 | | | | | | | | | |
| | | 5.0 | 2:45/2.0 2:00 1:30 1:45 | (4.7) 94% | (4.2) 84% | 18 | | | | (4 joints at 10-20°, 2 joints at 50°) |
| 191.3 | 115.5 | | | | | | | | | |
| | | 5.0 | 1:30 1:15 1:30 1:45 1:45 | (4.3) 86% | (2.7) 54% | 19 | | | | (3 joints at 30-40°, 4 joints at 50-60°) |
| 186.3 | 120.5 | | | | | | | | | |
| | | 4.9 | 3:00 3:15 2:00 2:15 2:30/0.9 | (1.6) 33% | (0.4) 8% | 20 | | | | 185.0 ----- 121.8 Weathered Rock: BIOTITE GNEISS-little to no recovery |
| 181.4 | 125.4 | | | | | | | | | 181.4 ----- 125.4 |
| | | 2.0 | 2:00/2.0 | (2.0) 100% | (1.2) 60% | 21 | | | | Hard Rock: Gray-tan and blue-gray, moderately weathered to fresh, very close to wide fracturing, hard to very hard, BIOTITE GNEISS, locally with quartz and feldspar veins |
| 179.4 | 127.4 | | | | | | | | | (3 joints at 30°) |
| | | 3.2 | 1:15 1:00 2:00 | (2.6) 81% | (1.2) 38% | 22 | | | | |
| 176.2 | 130.6 | | | | | | | | | |
| | | 4.9 | 0:30/0.2 2:15 2:00 4:00 3:00 4:30/0.9 | (4.9) 100% | (4.9) 100% | 23 | | | | (2 joints at 40°, 1 joint at 30°, 1 joint at 0°; quartz+feldspar veins) |
| 171.3 | 135.5 | | | | | | | | | |
| | | 3.2 | 6:30 6:00 12:30 | (3.2) 100% | (3.2) 100% | 24 | | | | -No Joints |
| 168.1 | 138.7 | | | | | | | | | |
| | | 6.6 | 4:00/0.2 6:30 6:30 3:00 3:30 4:00 6:00/1.6 | (6.6) 100% | (6.6) 100% | 25 | | | | -No Joints |
| 161.5 | 145.3 | | | | | | | | | |
| | | 5.1 | 6:45 6:15 2:30 2:30 | (5.1) 100% | (5.0) 98% | 26 | | | | (3 joints at 40°) |
| 159.2 | | | | | | | | | | 159.2 ----- 147.8 |
| | | | | | | | | | | Hard Rock: Blue-gray and brown, moderately to slightly weathered, moderately close fracturing, moderately hard, BIOTITE GNEISS |
| 156.4 | 150.4 | | | | | | | | | 156.4 ----- 150.4 |
| | | | | | | | | | | Coring terminated at 150.4 ft in Hard Rock: Hard, BIOTITE GNEISS |

NORTH ANNA COL CORE DATA REPORT REV0.GPJ NORTH ANNA COL GDT 1/19/07



B-905 – Box 1



B-905 – Box 2

B-905 – Box 3



B-905 - Box 4

B-905 - Box 5



B-905 - Box 6

B-905 - Box 7



B-905 - Box 8
B-905 - Box 9