



## GEOTECHNICAL BORING LOG

Prepared By NB Date 12/3/09  
Checked By DSC Date 12-3-09

SHEET 1 OF 3

|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
|----------------------------------------------------|---------------|-------------------------------------------------------------|--------|------------------------------------|----------------|-----------------------|----|------------------------------------|----|-----------------------------------|-------|-----------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| BECHTEL PROJECT NO.: 25161                         |               |                                                             |        | MACTEC PROJECT NO.: 6468-09-2473   |                |                       |    | COUNTY: Louisa, VA                 |    |                                   |       | GEOLOGIST: C. Baldwin |                           |                                                                                                                                                                                                                    |  |  |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |               |                                                             |        |                                    |                |                       |    | DRILLER: D. Rhodes                 |    |                                   |       | FLUID LEVEL (ft)      |                           |                                                                                                                                                                                                                    |  |  |
| BORING NO.: W-9                                    |               |                                                             |        | DRILL METHOD: Mud Rotary/Rock Core |                |                       |    | DRILL MACHINE: CME-45C Track (RAL) |    |                                   |       | 0 HR.                 |                           | NA                                                                                                                                                                                                                 |  |  |
| GROUND ELEV.: 320.2 ft (NAVD88)                    |               |                                                             |        | NORTHING: 3,909,601 US ft (NAD83)  |                |                       |    | EASTING: 11,686,022 US ft (NAD83)  |    |                                   |       | 24 HR.                |                           | 34.4                                                                                                                                                                                                               |  |  |
| TOTAL DEPTH: 151.0 ft                              |               | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |        |                                    |                |                       |    | ROD TYPE: AWJ                      |    | HAMMER (ID):140-lb. Auto (MEC-12) |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| DATE STARTED: 10/20/09                             |               | COMPLETED: 10/27/09                                         |        | HOLE DIA.: 3"                      |                | CASING DEPTH: 63.3 ft |    | CORE SIZE: NQ3                     |    | BITS USED: 2-7/8" Tri-Cone        |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| ELEV.<br>(ft)                                      | DEPTH<br>(ft) | BLOW COUNT                                                  |        |                                    | BLOWS PER FOOT |                       |    |                                    |    | SAMP.<br>NO.                      | MOI   | LOG                   | SOIL AND ROCK DESCRIPTION |                                                                                                                                                                                                                    |  |  |
|                                                    |               | 0.5ft                                                       | 0.5ft  | 0.5ft                              | 0              | 20                    | 40 | 60                                 | 80 | 100                               |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 320.2                                              |               |                                                             |        |                                    | Ground Surface |                       |    |                                    |    |                                   |       |                       | 320.2                     | 0.0                                                                                                                                                                                                                |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           | No sampling from 0.0 to 8.6 feet due to soft dig utility clearance by Dominion Personnel                                                                                                                           |  |  |
| 311.6                                              | 8.6           |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       | 311.6                     | 8.6                                                                                                                                                                                                                |  |  |
| 309.7                                              | 10.5          | 7                                                           | 7      | 8                                  |                | 15                    |    |                                    |    |                                   | SS-1  |                       |                           | RESIDUAL SOIL: Silty SAND (SM), reddish yellow (7.5YR 6/6), medium dense, moist, fine to medium grained sand, little mica, relict rock fabric                                                                      |  |  |
| 306.7                                              | 13.5          | 5                                                           | 5      | 8                                  |                | 13                    |    |                                    |    |                                   | SS-2  |                       |                           |                                                                                                                                                                                                                    |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 301.9                                              | 18.3          | 7                                                           | 8      | 12                                 |                | 20                    |    |                                    |    |                                   | SS-3  |                       |                           | 18.3 ft: Brown (7.5YR 5/2)                                                                                                                                                                                         |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 296.9                                              | 23.3          | 8                                                           | 8      | 12                                 |                | 20                    |    |                                    |    |                                   | SS-4  |                       |                           | 23.3 ft: Dense                                                                                                                                                                                                     |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 291.9                                              | 28.3          | 12                                                          | 15     | 21                                 |                | 36                    |    |                                    |    |                                   | SS-5  |                       |                           | 28.3 ft: Pinkish gray (7.5YR 6/2), very dense                                                                                                                                                                      |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 286.9                                              | 33.3          | 26                                                          | 28     | 42                                 |                | 70                    |    |                                    |    |                                   | SS-6  |                       |                           | 33.3 ft: Brown (7.5YR 5/3)                                                                                                                                                                                         |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 281.9                                              | 38.3          | 26                                                          | 42     | 58                                 |                | 100/4.0               |    |                                    |    |                                   | SS-7  |                       |                           |                                                                                                                                                                                                                    |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 276.9                                              | 43.3          | 18                                                          | 24     | 36                                 |                | 60                    |    |                                    |    |                                   | SS-8  |                       |                           | WEATHERED ROCK: Severely weathered QUARTZ BIOTITE GNEISS (Sample as Silty SAND (SM), light olive brown (2.5Y 5/4), very dense, moist, fine to medium grained sand, some mica)                                      |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 271.9                                              | 48.3          | 46                                                          | 54/0.2 |                                    |                | 100/0.7               |    |                                    |    |                                   | SS-9  |                       |                           | RESIDUAL SOIL: Silty SAND (SM), light olive brown (2.5Y 5/4), very dense, moist, fine to medium grained sand, some mica, relict rock fabric                                                                        |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 266.9                                              | 53.3          | 26                                                          | 33     | 63                                 |                | 96                    |    |                                    |    |                                   | SS-10 |                       |                           | WEATHERED ROCK: Severely weathered QUARTZ BIOTITE GNEISS (Sample as Silty SAND (SM), dark yellowish brown (10YR 4/6) and dark grayish brown (2.5Y 4/2), very dense, moist, fine to medium grained sand, some mica) |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 261.9                                              | 58.3          | 33                                                          | 66     | 34/0.2                             |                | 100/0.7               |    |                                    |    |                                   | SS-11 |                       |                           | RESIDUAL SOIL: Silty SAND (SM), dark grayish brown (2.5Y 4/2), very dense, moist, fine to medium grained sand, some mica, relict rock fabric                                                                       |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 256.9                                              | 63.3          | 50/0.4                                                      |        |                                    |                | 50/0.4                |    |                                    |    |                                   | SS-12 |                       |                           | WEATHERED ROCK: Severely weathered QUARTZ BIOTITE GNEISS (Sample as Silty SAND (SM), dark grayish brown (2.5Y 4/2) and very dark gray (2.5Y 3/1), very dense, moist, fine to medium grained sand, some mica)       |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 251.9                                              | 68.3          | 21                                                          | 28     | 43                                 |                | 71                    |    |                                    |    |                                   | SS-13 |                       |                           | RESIDUAL SOIL: Silty SAND (SM), dark grayish brown (2.5Y 4/2), very dense, moist, fine to medium grained sand, some mica, relict rock fabric                                                                       |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
| 246.9                                              | 73.3          | 50/0.3                                                      |        |                                    |                | 50/0.3                |    |                                    |    |                                   | SS-14 |                       |                           | WEATHERED ROCK: Severely weathered QUARTZ BIOTITE GNEISS (Sample as Silty SAND (SM), dark grayish brown (2.5Y 4/2) and very dark gray (2.5Y 3/1), very dense, moist, fine to medium grained sand, some mica)       |  |  |
|                                                    |               |                                                             |        |                                    |                |                       |    |                                    |    |                                   |       |                       |                           |                                                                                                                                                                                                                    |  |  |
|                                                    |               | 50/0.2                                                      |        |                                    |                | 50/0.2                |    |                                    |    |                                   | SS-15 |                       |                           |                                                                                                                                                                                                                    |  |  |

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09

|                                                    |  |                                                             |  |                                        |               |                                                                        |                                    |                |  |                            |  |
|----------------------------------------------------|--|-------------------------------------------------------------|--|----------------------------------------|---------------|------------------------------------------------------------------------|------------------------------------|----------------|--|----------------------------|--|
| BECHTEL PROJECT NO.: 25161                         |  | MACTEC PROJECT NO.: 6468-09-2473                            |  | COUNTY: Louisa, VA                     |               | GEOLOGIST: C. Baldwin                                                  |                                    |                |  |                            |  |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |  |                                                             |  | DRILLER: D. Rhodes                     |               | FLUID LEVEL (ft)<br><br>0 HR.            NA<br><br>24 HR.         34.4 |                                    |                |  |                            |  |
| BORING NO.: W-9                                    |  | DRILL METHOD: Mud Rotary/Rock Core                          |  | DRILL MACHINE: CME-45C Track (RAL)     |               |                                                                        |                                    |                |  |                            |  |
| GROUND ELEV.: 320.2 ft      (NAVD88)               |  | NORTHING: 3,909,601      US ft (NAD83)                      |  | EASTING: 11,686,022      US ft (NAD83) |               |                                                                        |                                    |                |  |                            |  |
| TOTAL DEPTH: 151.0 ft                              |  | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |  |                                        | ROD TYPE: AWJ |                                                                        | HAMMER (ID): 140-lb. Auto (MEC-12) |                |  |                            |  |
| DATE STARTED: 10/20/09                             |  | COMPLETED: 10/27/09                                         |  | HOLE DIA.: 3"                          |               | CASING DEPTH: 63.3 ft                                                  |                                    | CORE SIZE: NQ3 |  | BITS USED: 2-7/8" Tri-Cone |  |

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09





SHEET 3 OF 3

| BECHTEL PROJECT NO.: 25161                         |               |                                                             | MACTEC PROJECT NO.: 6468-09-2473   |               |                              | COUNTY: Louisa, VA                 |    |                                    | GEOLOGIST: C. Baldwin |                            |              |            |                           |                                                                                                                                                                                                                            |       |
|----------------------------------------------------|---------------|-------------------------------------------------------------|------------------------------------|---------------|------------------------------|------------------------------------|----|------------------------------------|-----------------------|----------------------------|--------------|------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |               |                                                             |                                    |               |                              | DRILLER: D. Rhodes                 |    |                                    | FLUID LEVEL (ft)      |                            |              |            |                           |                                                                                                                                                                                                                            |       |
| BORING NO.: W-9                                    |               |                                                             | DRILL METHOD: Mud Rotary/Rock Core |               |                              | DRILL MACHINE: CME-45C Track (RAL) |    |                                    | 0 HR. NA              |                            |              |            |                           |                                                                                                                                                                                                                            |       |
| GROUND ELEV.: 320.2 ft (NAVD88)                    |               |                                                             | NORTHING: 3,909,601 US ft (NAD83)  |               |                              | EASTING: 11,686,022 US ft (NAD83)  |    |                                    | 24 HR. 34.4           |                            |              |            |                           |                                                                                                                                                                                                                            |       |
| TOTAL DEPTH: 151.0 ft                              |               | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |                                    |               |                              | ROD TYPE: AWJ                      |    | HAMMER (ID): 140-lb. Auto (MEC-12) |                       |                            |              |            |                           |                                                                                                                                                                                                                            |       |
| DATE STARTED: 10/20/09                             |               | COMPLETED: 10/27/09                                         |                                    | HOLE DIA.: 3" |                              | CASING DEPTH: 63.3 ft              |    | CORE SIZE: NQ3                     |                       | BITS USED: 2-7/8" Tri-Cone |              |            |                           |                                                                                                                                                                                                                            |       |
| ELEV.<br>(ft)                                      | DEPTH<br>(ft) | BLOW COUNT                                                  |                                    |               | BLOWS PER FOOT               |                                    |    |                                    |                       |                            | SAMP.<br>NO. | LOG<br>MOI | SOIL AND ROCK DESCRIPTION |                                                                                                                                                                                                                            |       |
|                                                    |               | 0.5ft                                                       | 0.5ft                              | 0.5ft         | 0                            | 20                                 | 40 | 60                                 | 80                    | 100                        |              |            |                           |                                                                                                                                                                                                                            |       |
| 170.6                                              |               |                                                             |                                    |               | Continued from previous page |                                    |    |                                    |                       |                            |              |            |                           |                                                                                                                                                                                                                            |       |
|                                                    |               |                                                             |                                    |               |                              |                                    |    |                                    |                       |                            |              |            |                           | 169.2                                                                                                                                                                                                                      | 151.0 |
|                                                    |               |                                                             |                                    |               |                              |                                    |    |                                    |                       |                            |              |            |                           | Boring and coring terminated at 151.0 feet.<br><br>Boring closed by tremie method with cement-bentonite grout.<br><br>24 hour water level measured on 10/27/2009 prior to drilling. Borehole was at a depth of 146.0 feet. |       |

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09



SHEET 1 OF 1

|                                                    |  |                                                             |                       |                                                          |                                    |                  |
|----------------------------------------------------|--|-------------------------------------------------------------|-----------------------|----------------------------------------------------------|------------------------------------|------------------|
| BECHTEL PROJECT NO.: 25161                         |  | MACTEC PROJECT NO.: 6468-09-2473                            |                       | COUNTY: Louisa, VA                                       | GEOLOGIST: C. Baldwin              |                  |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |  |                                                             |                       | DRILLER: D. Rhodes                                       |                                    | FLUID LEVEL (ft) |
| BORING NO.: W-9                                    |  | DRILL METHOD: Mud Rotary/Rock Core                          |                       | DRILL MACHINE: CME-45C Track (RAL)                       |                                    |                  |
| GROUND ELEV.: 320.2 ft (NAVD88)                    |  | NORTHING: 3,909,601 US ft (NAD83)                           |                       | EASTING: 11,686,022 US ft (NAD83)                        |                                    | 0 HR. NA         |
|                                                    |  |                                                             |                       |                                                          |                                    | 24 HR. 34.4      |
| TOTAL DEPTH: 151.0 ft                              |  | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |                       |                                                          | HAMMER (ID): 140-lb. Auto (MEC-12) |                  |
| DATE STARTED: 10/20/09                             |  | COMPLETED: 10/27/09                                         | CASING DEPTH: 63.3 ft | CORE BARREL TYPE: Wireline NQ3 Triple Tube, series 6 bit |                                    |                  |

| ELEV.<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft)                    | RUN               |                  | SAMP.<br>NO. | STRATA            |                  | L<br>O<br>G | DESCRIPTION AND REMARKS                                                                                                                                                                                                                                                                                                            |
|---------------|---------------|-------------|----------------------------------------------|-------------------|------------------|--------------|-------------------|------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |               |             |                                              | REC.<br>(ft)<br>% | RQD<br>(ft)<br>% |              | REC.<br>(ft)<br>% | RQD<br>(ft)<br>% |             |                                                                                                                                                                                                                                                                                                                                    |
|               |               |             |                                              |                   |                  |              |                   |                  |             | Begin Coring @ 92.3 ft                                                                                                                                                                                                                                                                                                             |
| 227.9         | 92.3          | 3.7         | N=50/0.0<br>1:28/0.7<br>1:58<br>2:00<br>2:00 | (2.8)<br>76%      | (1.0)<br>27%     | RUN 1        | (8.8)<br>31%      | (2.3)<br>8%      |             | WEATHERED ROCK and HARD ROCK: Grayish brown and gray, with orange staining, severely to moderately severely weathered, very close to close fracturing, soft to moderately hard, QUARTZ BIOTITE GNEISS (3 joints at 50-60°, open)                                                                                                   |
| 224.2         | 96.0          | 5.0         | 2:03<br>1:45<br>2:06<br>3:10<br>2:35         | (0.4)<br>8%       | (0.0)<br>0%      | RUN 2        |                   |                  |             |                                                                                                                                                                                                                                                                                                                                    |
| 219.2         | 101.0         | 5.0         | 4:25<br>1:49<br>1:30<br>1:52<br>1:45         | (0.2)<br>4%       | (0.0)<br>0%      | RUN 3        |                   |                  |             | 99.5 ft: Complete loss of drill fluid circulation (1 joint at 10°, open)                                                                                                                                                                                                                                                           |
| 214.2         | 106.0         | 5.0         | 1:55<br>2:19<br>1:22<br>1:26<br>1:30         | (0.2)<br>4%       | (0.0)<br>0%      | RUN 4        |                   |                  |             |                                                                                                                                                                                                                                                                                                                                    |
| 209.2         | 111.0         | 2.5         | 3:20<br>2:38                                 | (2.0)<br>80%      | (0.0)<br>0%      | RUN 5        |                   |                  |             |                                                                                                                                                                                                                                                                                                                                    |
| 206.7         | 113.5         | 2.5         | 3:13/0.5<br>1:05/0.5<br>4:09<br>3:22         | (0.6)<br>24%      | (0.0)<br>0%      | RUN 6        |                   |                  |             | (2 joints at 30°, open)                                                                                                                                                                                                                                                                                                            |
| 204.2         | 116.0         | 5.0         | 3:43<br>3:51<br>3:17<br>3:53<br>5:08         | (2.6)<br>52%      | (1.3)<br>26%     | RUN 7        |                   |                  |             | (2 joints at 10°, tight to open; 4 joints at 30°, tight to open; 1 joint at 80°, tight)                                                                                                                                                                                                                                            |
| 199.2         | 121.0         | 5.0         | 4:33<br>4:29<br>3:32<br>3:44<br>3:30         | (5.0)<br>100%     | (4.0)<br>80%     | RUN 8        | (10.3)<br>86%     | (4.6)<br>38%     |             | HARD ROCK: Gray to dark gray, with trace orange staining, moderately weathered, very close to moderately close fracturing, moderately hard, BIOTITE QUARTZ GNEISS (5 joints at 10°, tight; 1 joint at 50°, tight; 1 joint at 70°, tight)                                                                                           |
| 194.2         | 126.0         | 5.0         | 3:44<br>3:04<br>2:35<br>3:01<br>3:16         | (3.3)<br>66%      | (0.6)<br>12%     | RUN 9        |                   |                  |             | (1 joint at 0°, open; 1 joint at 40°, tight; 1 joint at 70°, tight)                                                                                                                                                                                                                                                                |
| 189.2         | 131.0         | 2.0         | 2:34<br>5:32                                 | (2.0)<br>100%     | (0.0)<br>0%      | RUN 10       |                   |                  |             | (1 joint at 70°, tight; many mechanical breaks)                                                                                                                                                                                                                                                                                    |
| 187.2         | 133.0         | 3.0         | 3:22<br>4:56<br>3:08                         | (2.5)<br>83%      | (2.0)<br>67%     | RUN 11       | (2.5)<br>83%      | (2.0)<br>67%     |             | HARD ROCK: Gray and dark gray with trace orange staining, moderately weathered, close to moderately close fracturing, moderately hard, QUARTZ BIOTITE GNEISS (6 joints at 0-10°, tight; 1 joint at 30°, tight)                                                                                                                     |
| 184.2         | 136.0         | 5.0         | 5:14<br>4:36<br>8:16<br>7:05<br>5:41         | (5.0)<br>100%     | (4.3)<br>86%     | RUN 12       | (15.0)<br>100%    | (12.6)<br>84%    |             | HARD ROCK: Gray, dark gray, and white, with trace orange staining, moderately to slightly weathered, very close to wide fracturing, moderately hard to hard, BIOTITE QUARTZ GNEISS with trace magnetite (4 joints at 0-10°, tight; quartz + feldspar vein from 137.0-139.1 feet) (4 joints at 0-10°, tight; 1 joint at 50°, tight) |
| 179.2         | 141.0         | 5.0         | 3:29<br>3:21<br>3:27<br>4:52<br>7:31         | (5.0)<br>100%     | (4.6)<br>92%     | RUN 13       |                   |                  |             |                                                                                                                                                                                                                                                                                                                                    |
| 174.2         | 146.0         | 5.0         | 5:39<br>4:24<br>5:20<br>5:07<br>8:09         | (5.0)<br>100%     | (3.7)<br>74%     | RUN 14       |                   |                  |             | (11 joints at 10°, tight; 1 joint at 70°, tight)                                                                                                                                                                                                                                                                                   |
| 169.2         | 151.0         |             |                                              |                   |                  |              |                   |                  |             | Boring and coring terminated at 151.0 feet.                                                                                                                                                                                                                                                                                        |
|               |               |             |                                              |                   |                  |              |                   |                  |             | Boring closed by tremie method with cement-bentonite grout.                                                                                                                                                                                                                                                                        |
|               |               |             |                                              |                   |                  |              |                   |                  |             | 24 hour water level measured on 10/27/2009 prior to drilling. Borehole was at a depth of 146.0 feet.                                                                                                                                                                                                                               |

NORTH ANNA 3 CORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09



W-9- Box 1



W-9- Box 2



W-9- Box 3



|                                                    |       |                                                             |       |                                    |                |                       |    |                                   |    |                                   |       |                     |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
|----------------------------------------------------|-------|-------------------------------------------------------------|-------|------------------------------------|----------------|-----------------------|----|-----------------------------------|----|-----------------------------------|-------|---------------------|---------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------|--|--|--|--|--|
| BECHTEL PROJECT NO.: 25161                         |       |                                                             |       | MACTEC PROJECT NO.: 6468-09-2473   |                |                       |    | COUNTY: Louisa, VA                |    |                                   |       | GEOLOGIST: R. Clark |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |       |                                                             |       |                                    |                |                       |    | DRILLER: R. Landeros              |    |                                   |       | FLUID LEVEL (ft)    |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| BORING NO.: W-10                                   |       |                                                             |       | DRILL METHOD: Mud Rotary/Rock Core |                |                       |    | DRILL MACHINE: CME-550X (ATL)     |    |                                   |       | 0 HR. NA            |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| GROUND ELEV.: 319.1 ft (NAVD88)                    |       |                                                             |       | NORTHING: 3,909,599 US ft (NAD83)  |                |                       |    | EASTING: 11,685,820 US ft (NAD83) |    |                                   |       | 24 HR. 31.5         |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| TOTAL DEPTH: 153.0 ft                              |       | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |       |                                    |                |                       |    | ROD TYPE: AWJ                     |    | HAMMER (ID):140-lb. Auto (MEC-05) |       |                     |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| DATE STARTED: 10/13/09                             |       | COMPLETED: 10/16/09                                         |       | HOLE DIA.: 3"                      |                | CASING DEPTH: 43.0 ft |    | CORE SIZE: NQ3                    |    | BITS USED: 2-7/8" Tri-Cone        |       |                     |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| ELEV.                                              | DEPTH | BLOW COUNT                                                  |       |                                    | BLOWS PER FOOT |                       |    |                                   |    |                                   | SAMP. | LOG                 | SOIL AND ROCK DESCRIPTION |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| (ft)                                               | (ft)  | 0.5ft                                                       | 0.5ft | 0.5ft                              | 0              | 20                    | 40 | 60                                | 80 | 100                               | NO.   | MOI                 |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| 319.1                                              |       |                                                             |       |                                    | Ground Surface |                       |    |                                   |    |                                   |       |                     |                           |  | 319.1                                                                                                                                                                                                                                             |  | 0.0                                                                                      |  |  |  |  |  |
|                                                    |       |                                                             |       |                                    |                |                       |    |                                   |    |                                   |       |                     |                           |  |                                                                                                                                                                                                                                                   |  | No sampling from 0.0 to 8.7 feet due to soft dig utility clearance by Dominion Personnel |  |  |  |  |  |
| 310.4                                              | 8.7   | 8                                                           | 10    | 12                                 |                |                       |    |                                   |    |                                   | SS-1  |                     | 310.4                     |  | 8.7                                                                                                                                                                                                                                               |  |                                                                                          |  |  |  |  |  |
| 307.9                                              | 11.2  | 7                                                           | 11    | 16                                 |                |                       |    |                                   |    |                                   | SS-2  |                     |                           |  | RESIDUAL SOIL: Silty SAND (SM), light yellowish brown (10YR 6/4), medium dense, moist, fine to coarse grained sand, relict rock fabric                                                                                                            |  |                                                                                          |  |  |  |  |  |
| 305.2                                              | 13.9  | 10                                                          | 12    | 16                                 |                |                       |    |                                   |    |                                   | SS-3  |                     |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| 301.1                                              | 18.0  | 15                                                          | 12    | 14                                 |                |                       |    |                                   |    |                                   | SS-4  |                     |                           |  |                                                                                                                                                                                                                                                   |  |                                                                                          |  |  |  |  |  |
| 296.1                                              | 23.0  | 8                                                           | 10    | 15                                 |                |                       |    |                                   |    |                                   | SS-5  |                     |                           |  | 23.0 ft: Dark yellowish brown (10YR 4/4), some mica                                                                                                                                                                                               |  |                                                                                          |  |  |  |  |  |
| 291.1                                              | 28.0  | 2                                                           | 14    | 56                                 |                |                       |    |                                   |    |                                   | SS-6  |                     |                           |  | 28.0 ft: Dark yellowish brown (10YR 4/4) and pale yellow (5Y 8/2), very dense, trace gravel sized, angular quartz rock fragments                                                                                                                  |  |                                                                                          |  |  |  |  |  |
| 286.1                                              | 33.0  | 9                                                           | 12    | 15                                 |                |                       |    |                                   |    |                                   | SS-7  |                     |                           |  | 33.0 ft: Dark yellowish brown (10YR 4/4), medium dense, wet                                                                                                                                                                                       |  |                                                                                          |  |  |  |  |  |
| 281.1                                              | 38.0  | 10                                                          | 12    | 19                                 |                |                       |    |                                   |    |                                   | SS-8  |                     |                           |  | 38.0 ft: Yellowish brown (10YR 5/4), dense                                                                                                                                                                                                        |  |                                                                                          |  |  |  |  |  |
| 276.1                                              | 43.0  | 50/0.3                                                      |       |                                    |                |                       |    |                                   |    |                                   | SS-9  |                     |                           |  | 278.1 41.0                                                                                                                                                                                                                                        |  |                                                                                          |  |  |  |  |  |
| 271.1                                              | 48.0  | 50/0.0                                                      |       |                                    |                |                       |    |                                   |    |                                   | SS-10 |                     |                           |  | 275.8 43.3                                                                                                                                                                                                                                        |  |                                                                                          |  |  |  |  |  |
|                                                    |       |                                                             |       |                                    |                |                       |    |                                   |    |                                   |       |                     |                           |  | WEATHERED ROCK: Severely weathered BIOTITE QUARTZ GNEISS (Sampled as Silty SAND (SM), brown (10YR 4/3), very dense, wet, few gravel sized, angular quartz and rock fragments)                                                                     |  |                                                                                          |  |  |  |  |  |
|                                                    |       |                                                             |       |                                    |                |                       |    |                                   |    |                                   |       |                     |                           |  | WEATHERED ROCK and HARD ROCK: Light gray, brown, and light pinkish gray, with yellowish brown and reddish brown staining, severely to moderately weathered, close fracturing, soft to moderately hard, BIOTITE QUARTZ GNEISS with trace magnetite |  |                                                                                          |  |  |  |  |  |

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09

|                                                    |  |                                                             |               |                                   |               |                                                     |                                    |                            |  |
|----------------------------------------------------|--|-------------------------------------------------------------|---------------|-----------------------------------|---------------|-----------------------------------------------------|------------------------------------|----------------------------|--|
| BECHTEL PROJECT NO.: 25161                         |  | MACTEC PROJECT NO.: 6468-09-2473                            |               | COUNTY: Louisa, VA                |               | GEOLOGIST: R. Clark                                 |                                    |                            |  |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |  |                                                             |               | DRILLER: R. Landeros              |               | FLUID LEVEL (ft)<br><br>0 HR. NA<br><br>24 HR. 31.5 |                                    |                            |  |
| BORING NO.: W-10                                   |  | DRILL METHOD: Mud Rotary/Rock Core                          |               | DRILL MACHINE: CME-550X (ATL)     |               |                                                     |                                    |                            |  |
| GROUND ELEV.: 319.1 ft (NAVD88)                    |  | NORTHING: 3,909,599 US ft (NAD83)                           |               | EASTING: 11,685,820 US ft (NAD83) |               |                                                     |                                    |                            |  |
| TOTAL DEPTH: 153.0 ft                              |  | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |               |                                   | ROD TYPE: AWJ |                                                     | HAMMER (ID): 140-lb. Auto (MEC-05) |                            |  |
| DATE STARTED: 10/13/09                             |  | COMPLETED: 10/16/09                                         | HOLE DIA.: 3" | CASING DEPTH: 43.0 ft             |               | CORE SIZE: NQ3                                      |                                    | BITS USED: 2-7/8" Tri-Cone |  |

| ELEV.<br>(ft) | DEPTH<br>(ft) | BLOW COUNT |       |       | BLOWS PER FOOT               | SAMP.<br>NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION                                                                                                                                                                                                                                     |
|---------------|---------------|------------|-------|-------|------------------------------|--------------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |               | 0.5ft      | 0.5ft | 0.5ft |                              |              |     |     |                                                                                                                                                                                                                                                               |
| 244.3         |               |            |       |       | Continued from previous page |              |     |     |                                                                                                                                                                                                                                                               |
|               |               |            |       |       |                              |              |     |     | WEATHERED ROCK and HARD ROCK: Light gray, brown, and light pinkish gray, with yellowish brown and reddish brown staining, severely to moderately weathered, close fracturing, soft to moderately hard, BIOTITE QUARTZ GNEISS with trace magnetite (continued) |
|               |               |            |       |       |                              |              |     |     | HARD ROCK: Light gray and light pinkish gray, with orange and reddish brown staining, moderately to slightly weathered, close to wide fracturing, moderately hard to very hard, BIOTITE QUARTZ GNEISS with trace magnetite                                    |





SHEET 3 OF 3

|                                                    |  |  |                                                             |  |  |                                   |  |  |                                   |  |  |
|----------------------------------------------------|--|--|-------------------------------------------------------------|--|--|-----------------------------------|--|--|-----------------------------------|--|--|
| BECHTEL PROJECT NO.: 25161                         |  |  | MACTEC PROJECT NO.: 6468-09-2473                            |  |  | COUNTY: Louisa, VA                |  |  | GEOLOGIST: R. Clark               |  |  |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |  |  |                                                             |  |  | DRILLER: R. Landeros              |  |  | FLUID LEVEL (ft)                  |  |  |
| BORING NO.: W-10                                   |  |  | DRILL METHOD: Mud Rotary/Rock Core                          |  |  | DRILL MACHINE: CME-550X (ATL)     |  |  | 0 HR. NA                          |  |  |
| GROUND ELEV.: 319.1 ft (NAVD88)                    |  |  | NORTHING: 3,909,599 US ft (NAD83)                           |  |  | EASTING: 11,685,820 US ft (NAD83) |  |  | 24 HR. 31.5                       |  |  |
| TOTAL DEPTH: 153.0 ft                              |  |  | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |  |  | ROD TYPE: AWJ                     |  |  | HAMMER (ID):140-lb. Auto (MEC-05) |  |  |
| DATE STARTED: 10/13/09                             |  |  | COMPLETED: 10/16/09                                         |  |  | HOLE DIA.: 3"                     |  |  | CASING DEPTH: 43.0 ft             |  |  |
|                                                    |  |  |                                                             |  |  | CORE SIZE: NQ3                    |  |  | BITS USED: 2-7/8" Tri-Cone        |  |  |

| ELEV.<br>(ft) | DEPTH<br>(ft) | BLOW COUNT |       |       | BLOWS PER FOOT               |    |    |    |    |     | SAMP.<br>NO. | LOG | SOIL AND ROCK DESCRIPTION                                                                                                                                                                                                                                                                     |
|---------------|---------------|------------|-------|-------|------------------------------|----|----|----|----|-----|--------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |               | 0.5ft      | 0.5ft | 0.5ft | 0                            | 20 | 40 | 60 | 80 | 100 |              |     |                                                                                                                                                                                                                                                                                               |
| 169.5         |               |            |       |       | Continued from previous page |    |    |    |    |     |              |     |                                                                                                                                                                                                                                                                                               |
|               |               |            |       |       |                              |    |    |    |    |     |              |     | <div style="border: 1px solid black; padding: 5px;"> <p>Boring and coring terminated at 153.0 feet.</p> <p>Boring closed by tremie method with cement-bentonite grout.</p> <p>24 hour water level measured on 10/16/2009 prior to drilling. Borehole was at a depth of 128.0 feet.</p> </div> |

NORTH ANNA 3 BORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09



SHEET 1 OF 2

|                                                    |  |                                                             |                       |                                                          |                                    |                                                     |
|----------------------------------------------------|--|-------------------------------------------------------------|-----------------------|----------------------------------------------------------|------------------------------------|-----------------------------------------------------|
| BECHTEL PROJECT NO.: 25161                         |  | MACTEC PROJECT NO.: 6468-09-2473                            |                       | COUNTY: Louisa, VA                                       | GEOLOGIST: R. Clark                |                                                     |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |  |                                                             |                       | DRILLER: R. Landeros                                     |                                    | FLUID LEVEL (ft)<br><br>0 HR. NA<br><br>24 HR. 31.5 |
| BORING NO.: W-10                                   |  | DRILL METHOD: Mud Rotary/Rock Core                          |                       | DRILL MACHINE: CME-550X (ATL)                            |                                    |                                                     |
| GROUND ELEV.: 319.1 ft (NAVD88)                    |  | NORTHING: 3,909,599 US ft (NAD83)                           |                       | EASTING: 11,685,820 US ft (NAD83)                        |                                    |                                                     |
| TOTAL DEPTH: 153.0 ft                              |  | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |                       |                                                          | HAMMER (ID): 140-lb. Auto (MEC-05) |                                                     |
| DATE STARTED: 10/13/09                             |  | COMPLETED: 10/16/09                                         | CASING DEPTH: 43.0 ft | CORE BARREL TYPE: Wireline NQ3 Triple Tube, series 6 bit |                                    |                                                     |

| ELEV.<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft)                        | RUN               |                  | SAMP.<br>NO. | STRATA            |                  | L<br>O<br>G | DESCRIPTION AND REMARKS                                                                                                                                                                                                                           |
|---------------|---------------|-------------|--------------------------------------------------|-------------------|------------------|--------------|-------------------|------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |               |             |                                                  | REC.<br>(ft)<br>% | RQD<br>(ft)<br>% |              | REC.<br>(ft)<br>% | RQD<br>(ft)<br>% |             |                                                                                                                                                                                                                                                   |
|               |               |             |                                                  |                   |                  |              |                   |                  |             | Begin Coring @ 43.3 ft                                                                                                                                                                                                                            |
| 275.8         | 43.3          | 4.7         | 3:25/0.7<br>3:39<br>3:28<br>3:31<br>2:20         | (3.8)<br>81%      | (2.7)<br>57%     | RUN 1        | (22.4)<br>56%     | (12.0)<br>30%    | 275.8       | WEATHERED ROCK and HARD ROCK: Light gray, brown, and light pinkish gray, with yellowish brown and reddish brown staining, severely to moderately weathered, close fracturing, soft to moderately hard, BIOTITE QUARTZ GNEISS with trace magnetite |
| 271.1         | 48.0          | 5.0         | N=50/0.0<br>1:47<br>2:25<br>2:52<br>2:28<br>2:31 | (1.3)<br>26%      | (0.3)<br>6%      | RUN 2        |                   |                  |             | (2 joints at 0°, tight; 2 joints at 45°, tight, 1 joint at 65°, tight; 1 joint at 90°, open)<br>(2 joints at 35°, tight)                                                                                                                          |
| 266.1         | 53.0          | 5.0         | 1:38<br>1:01<br>1:30<br>0:55<br>1:03             | (3.8)<br>76%      | (2.7)<br>54%     | RUN 3        |                   |                  |             | (3 joints at 35°, tight; 4 joints at 45-50°, tight; 1 joint at 90°, tight)                                                                                                                                                                        |
| 261.1         | 58.0          | 5.0         | 1:06<br>1:15<br>1:35<br>1:25<br>1:30             | (3.5)<br>70%      | (2.2)<br>44%     | RUN 4        |                   |                  |             | (5 joints at 30°, tight; 2 joints at 45°, tight)                                                                                                                                                                                                  |
| 256.1         | 63.0          | 5.0         | 0:45<br>1:31<br>1:52<br>1:55<br>1:56             | (2.5)<br>50%      | (1.3)<br>26%     | RUN 5        |                   |                  |             | (4 joints at 0-10°, tight; 2 joints at 45°, tight)                                                                                                                                                                                                |
| 251.1         | 68.0          | 5.0         | 2:02<br>2:22<br>1:38<br>2:55<br>2:26             | (3.1)<br>62%      | (1.9)<br>38%     | RUN 6        |                   |                  |             | (4 joints at 35-45°, tight; 1 quartz vein <0.1 ft thick at 20°)                                                                                                                                                                                   |
| 246.1         | 73.0          | 5.0         | 1:55<br>1:45<br>1:52<br>1:57<br>1:38             | (2.2)<br>44%      | (0.6)<br>12%     | RUN 7        |                   |                  |             | (2 joints at 45°, tight; 3 joints at 60°, tight)                                                                                                                                                                                                  |
| 241.1         | 78.0          | 5.0         | 1:28<br>1:35<br>1:38<br>1:50<br>1:21             | (2.2)<br>44%      | (0.3)<br>6%      | RUN 8        |                   |                  |             | (3 joints at 0°, tight; 2 joints at 45°, tight)                                                                                                                                                                                                   |
| 236.1         | 83.0          | 5.0         | 1:21<br>2:38<br>2:58<br>2:20<br>2:39             | (4.1)<br>82%      | (2.0)<br>40%     | RUN 9        | (59.4)<br>85%     | (30.0)<br>43%    | 236.1       | HARD ROCK: Light gray and light pinkish gray, with orange and reddish brown staining, moderately to slightly weathered, close to wide fracturing, moderately hard to very hard, BIOTITE QUARTZ GNEISS with trace magnetite                        |
| 231.1         | 88.0          | 5.0         | 2:39<br>2:08<br>2:18<br>2:10<br>2:10             | (4.4)<br>88%      | (1.1)<br>22%     | RUN 10       |                   |                  |             | (6 joints at 30-45°, tight)<br>(11 joints at 0-10°, tight; 3 joints at 45°, tight)                                                                                                                                                                |
| 226.1         | 93.0          | 5.0         | 1:22<br>1:29<br>1:02<br>1:03<br>1:22             | (4.7)<br>94%      | (2.5)<br>50%     | RUN 11       |                   |                  |             | (6 joints at 0-10°, tight; 2 joints at 45°, tight)                                                                                                                                                                                                |
| 221.1         | 98.0          | 5.0         | 2:24<br>1:54<br>2:34<br>2:02<br>2:03             | (4.7)<br>94%      | (2.5)<br>50%     | RUN 12       |                   |                  |             | (4 joints at 0-10°, tight; 7 joints at 45°, tight)                                                                                                                                                                                                |
| 216.1         | 103.0         | 5.0         | 2:34<br>2:45<br>2:33<br>2:46<br>2:50             | (4.7)<br>94%      | (2.5)<br>50%     | RUN 13       |                   |                  |             | (4 joints at 0-10°, tight; 3 joints at 45°, tight)                                                                                                                                                                                                |
| 211.1         | 108.0         | 5.0         | 1:43<br>1:38<br>2:17<br>2:28<br>2:34             | (4.2)<br>84%      | (3.3)<br>66%     | RUN 14       |                   |                  |             | (4 joints at 10-20°, tight with trace iron staining; 1 joint at 65°, tight with trace iron staining)                                                                                                                                              |
| 206.1         | 113.0         | 5.0         | 2:02<br>2:20<br>1:53<br>2:24<br>2:11             | (4.5)<br>90%      | (1.4)<br>28%     | RUN 15       |                   |                  |             | (7 joints at 0-10°, tight with trace iron staining; 2 joints at 45°, tight; 1 joint at 65°, tight; 1 joint at 90°, tight)                                                                                                                         |
| 201.1         | 118.0         |             |                                                  |                   |                  |              |                   |                  |             |                                                                                                                                                                                                                                                   |

NORTH ANNA 3 CORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09



SHEET 2 OF 2

|                                                    |                                                             |                                   |                                                          |
|----------------------------------------------------|-------------------------------------------------------------|-----------------------------------|----------------------------------------------------------|
| BECHTEL PROJECT NO.: 25161                         | MACTEC PROJECT NO.: 6468-09-2473                            | COUNTY: Louisa, VA                | GEOLOGIST: R. Clark                                      |
| SITE DESCRIPTION: North Anna Power Station, Unit 3 |                                                             | DRILLER: R. Landeros              | FLUID LEVEL (ft)                                         |
| BORING NO.: W-10                                   | DRILL METHOD: Mud Rotary/Rock Core                          | DRILL MACHINE: CME-550X (ATL)     | 0 HR. NA                                                 |
| GROUND ELEV.: 319.1 ft (NAVD88)                    | NORTHING: 3,909,599 US ft (NAD83)                           | EASTING: 11,685,820 US ft (NAD83) | 24 HR. 31.5                                              |
| TOTAL DEPTH: 153.0 ft                              | SAMPLE METHODS: ASTM D 1586-08a; 2488-09a; 2113-08; 6032-08 |                                   | HAMMER (ID): 140-lb. Auto (MEC-05)                       |
| DATE STARTED: 10/13/09                             | COMPLETED: 10/16/09                                         | CASING DEPTH: 43.0 ft             | CORE BARREL TYPE: Wireline NQ3 Triple Tube, series 6 bit |

| ELEV.<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft)            | RUN               |                  | SAMP.<br>NO. | STRATA            |                  | L<br>O<br>G | DESCRIPTION AND REMARKS                                                                                                                                                                                                                                                                               |
|---------------|---------------|-------------|--------------------------------------|-------------------|------------------|--------------|-------------------|------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |               |             |                                      | REC.<br>(ft)<br>% | RQD<br>(ft)<br>% |              | REC.<br>(ft)<br>% | RQD<br>(ft)<br>% |             |                                                                                                                                                                                                                                                                                                       |
|               |               |             |                                      |                   |                  |              |                   |                  |             | Continued from previous page                                                                                                                                                                                                                                                                          |
| 196.1         | 123.0         | 5.0         | 2:48<br>2:25<br>2:33<br>2:44<br>2:52 | (2.8)<br>56%      | (1.1)<br>22%     | RUN 16       |                   |                  |             | (5 joints at 0-10°, tight; 3 joints at 45°, tight)<br>HARD ROCK: Light gray and light pinkish gray, with orange and reddish brown staining, moderately to slightly weathered, close to wide fracturing, moderately hard to very hard, BIOTITE QUARTZ GNEISS with trace magnetite ( <i>continued</i> ) |
| 191.1         | 128.0         | 5.0         | 1:55<br>2:06<br>2:05<br>2:08<br>2:11 | (4.6)<br>92%      | (2.0)<br>40%     | RUN 17       |                   |                  |             | (4 joints at 0-10°, tight; 2 joints at 65°, tight)                                                                                                                                                                                                                                                    |
| 186.1         | 133.0         | 5.0         | 2:31<br>2:49<br>2:42<br>2:41<br>2:47 | (4.4)<br>88%      | (3.2)<br>64%     | RUN 18       |                   |                  |             | (2 joints at 0°, tight; 1 joint at 20°, tight; 1 joint at 35°, tight; 1 joint at 65°, tight)                                                                                                                                                                                                          |
| 181.1         | 138.0         | 5.0         | 2:31<br>2:28<br>2:41<br>2:36<br>2:28 | (5.0)<br>100%     | (1.4)<br>28%     | RUN 19       |                   |                  |             | (6 joints at 0-10°, tight; 1 joint at 45°, tight; 1 joint at 65°, tight; 1 joint at 90°, tight)                                                                                                                                                                                                       |
| 176.1         | 143.0         | 5.0         | 1:57<br>2:08<br>2:10<br>2:05<br>3:41 | (4.5)<br>90%      | (3.2)<br>64%     | RUN 20       |                   |                  |             | (6 joints at 40°, tight; 3 joints at 60°, tight; 1 joint at 90°, tight; quartz vein from 142.3-143.0 ft)                                                                                                                                                                                              |
| 171.1         | 148.0         | 5.0         | 2:11<br>2:18<br>3:27<br>3:21<br>3:05 | (2.2)<br>44%      | (0.0)<br>0%      | RUN 21       |                   |                  |             | (quartz vein from 143.0-144.2 ft; 1 joint at 45°, tight, 1 joint at 90°, tight)                                                                                                                                                                                                                       |
| 166.1         | 153.0         | 5.0         | 4:45<br>3:07<br>2:25<br>3:01<br>3:08 | (4.6)<br>92%      | (3.8)<br>76%     | RUN 22       |                   |                  |             | (5 joints at 45°, tight to open)                                                                                                                                                                                                                                                                      |
|               |               |             |                                      |                   |                  |              |                   |                  |             | 166.1 153.0                                                                                                                                                                                                                                                                                           |
|               |               |             |                                      |                   |                  |              |                   |                  |             | Boring and coring terminated at 153.0 feet.<br><br>Boring closed by tremie method with cement-bentonite grout.<br><br>24 hour water level measured on 10/16/2009 prior to drilling. Borehole was at a depth of 128.0 feet.                                                                            |

NORTH ANNA 3 CORE NORTH ANNA 3 PROJECT.GPJ NORTH ANNA 3.GDT 12/3/09

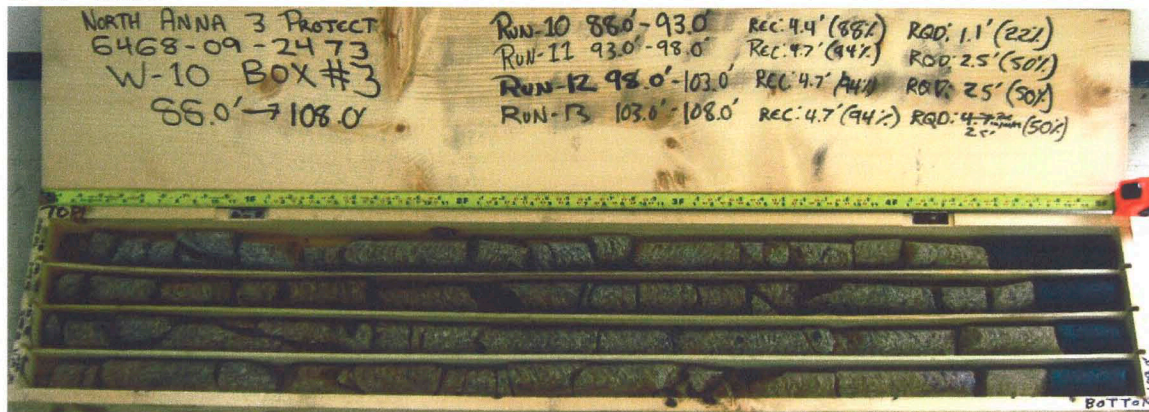




W-10- Box 1



W-10- Box 2



W-10- Box 3



W-10- Box 4





W-10 - Box 5

