

**APPENDIX F.5**

**UNCONFINED COMPRESSIVE STRENGTH TESTS  
ON ROCK CORE**

**NORTH ANNA COL**

**DATA REPORT REV. 0  
JANUARY 23, 2007**

**MACTEC PROJECT NO. 6468-06-1472**

**Tice, Al**

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**From:** Davie, John [jdavie@bechtel.com]  
**Sent:** Wednesday, November 29, 2006 8:08 AM  
**To:** Tice, Al  
**Cc:** Baker, Richard  
**Subject:** RE: Rock cores

Al,

For the chipped cores, I would go ahead and test them, and make a note about the chipping somewhere in the results sheet. If you think the fracture in the one core will significantly impact the result, then I would not test it.

John

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**From:** Tice, Al [mailto:JATICE@mactec.com]  
**Sent:** Wednesday, November 29, 2006 7:31 AM  
**To:** Davie, John  
**Subject:** Rock cores

The lab has noted the following cores that were damaged in the preparation process. The cores are weathered rock, and during the end preparation process, they developed chips on the core edge and one was fractured. Due to the nature of this rock, any rock resubmitted of the same type, would probably yield the same results. Please advise.

B907 90.0 UCSS

B920 90.15 UC

B910 91.1 UCSS

B907 51.85 UC

B901 117.45 UCSS - Fractured, not tested JAJ 1-19-07

*J. Allan Tice, P. E.*

*Senior Principal/Assistant Vice President*

*MACTEC*

*919-831-8052 office*

*919-349-7579 cell*

*919-831-8137 fax*

1/20/2007



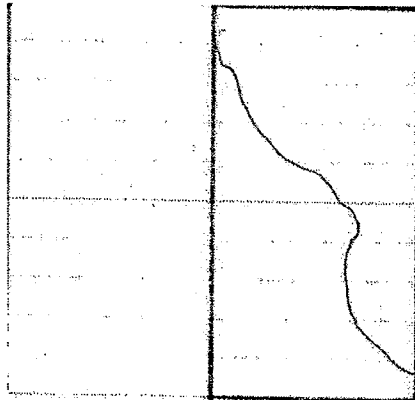
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 901  
Sample Depth (ft): 54  
Tested By: Jacob B. Mock  
Test Date: 12/1/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.492</b>
<b>Specimen Length, inch</b>	<b>5.273</b>
<b>Length/Diameter Ratio</b>	<b>2.12</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>160</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>4.4</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>4,347</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>4,375</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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BORE# B-901  
DEPTH = 54.0



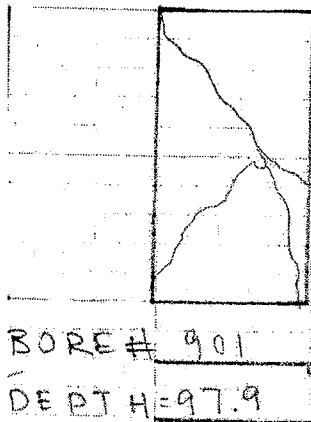
**Unconfined Compressive Strength of Intact Rock Core Specimens  
ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 901  
**Sample Depth (ft):** 97.9  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.500</b>
<b>Specimen Length, inch</b>	<b>5.341</b>
<b>Length/Diameter Ratio</b>	<b>2.14</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>162</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>5.5</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>12,533</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>12,629</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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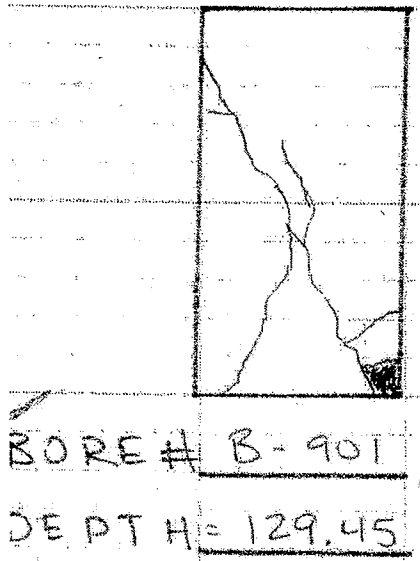
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 901  
**Sample Depth (ft):** 129.45  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-22-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.492</b>
<b>Specimen Length, inch</b>	<b>5.349</b>
<b>Length/Diameter Ratio</b>	<b>2.15</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>164</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.1</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>14,054</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>14,171</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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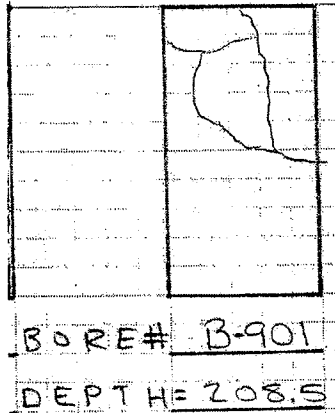
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 901  
**Sample Depth (ft):** 208.5  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.396</b>
<b>Specimen Length, inch</b>	<b>5.316</b>
<b>Length/Diameter Ratio</b>	<b>2.22</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>8.0</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>12,626</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>12,777</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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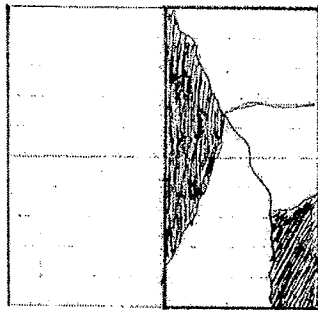
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 901  
**Sample Depth (ft):** 240.5  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DJC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.388</b>
<b>Specimen Length, inch</b>	<b>5.348</b>
<b>Length/Diameter Ratio</b>	<b>2.24</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>165</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>7.2</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>23,315</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>23,619</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE# B-901  
 DEPTH=240.5



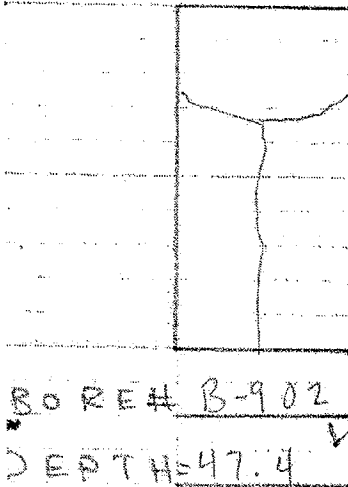
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 902  
**Sample Depth (ft):** 47.4  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.400</b>
<b>Specimen Length, inch</b>	<b>5.345</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>20,750</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>21,007</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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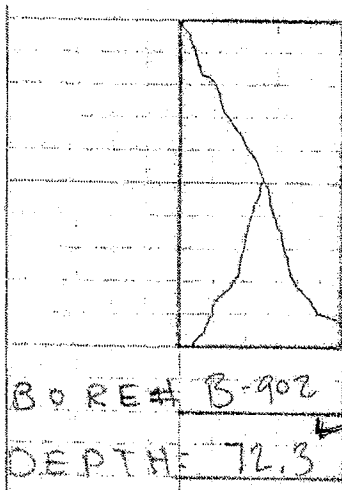
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
 Project Number: 6468061472  
 Boring Number: 902  
 Sample Depth (ft): 72.3  
 Tested By: Jacob B. Mock  
 Test Date: 12/1/2006

Reviewed By: DSC  
 Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.398</b>
<b>Specimen Length, inch</b>	<b>5.339</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>164</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>7.2</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>24,794</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>25,100</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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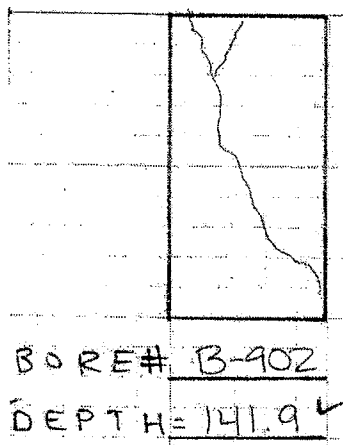
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 902  
Sample Depth (ft): 141.9  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.400</b>
<b>Specimen Length, inch</b>	<b>5.312</b>
<b>Length/Diameter Ratio</b>	<b>2.21</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>170</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>5.8</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>6,901</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>6,982</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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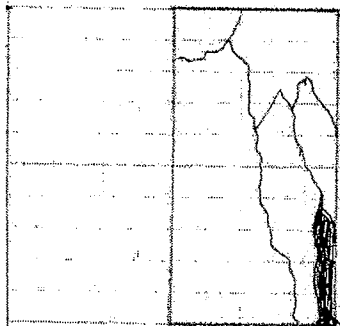
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 902  
Sample Depth (ft): 184.55  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.398</b>
<b>Specimen Length, inch</b>	<b>5.364</b>
<b>Length/Diameter Ratio</b>	<b>2.24</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>7.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>26,956</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>27,303</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE# B-902  
DEPTH=184.55



**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 907  
Sample Depth (ft): 51.85  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-22-07

Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.447
Specimen Length, inch	5.290
Length/Diameter Ratio	2.16
Unit Weight (lbs/ft <sup>3</sup> )	152
Test Duration (Time to Failure in Minutes)	12.4
Unconfined Compressive Strength, psi (from test)	948
Unconfined Compressive Strength, psi (with L/D correction)	957
Type of Break	Shear

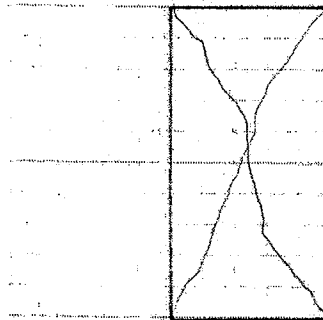
Comments: Test specimen ends slightly chipped. Tested "as is" with approval from Bechtel.

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BORE# B-907  
DEPTH=51.85'



**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 907  
Sample Depth (ft): 90  
Tested By: Jacob B. Mock  
Test Date: 12/13/2006

Reviewed By: DSC  
Review Date: 1-22-07

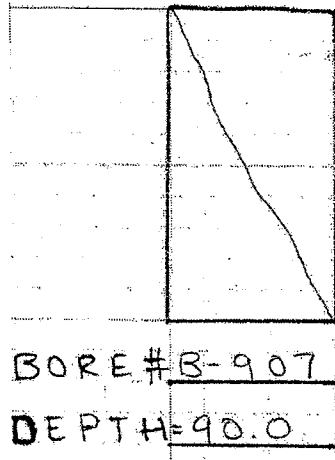
Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.462
Specimen Length, inch	5.234
Length/Diameter Ratio	2.13
Unit Weight (lbs/ft <sup>3</sup> )	155
Test Duration (Time to Failure in Minutes)	9.4
Unconfined Compressive Strength, psi (from test)	746
Unconfined Compressive Strength, psi (with L/D correction)	751
Type of Break	Shear

Comments: Test assigned for stress-strain, but side roughness prevented attachment of strain gages. Test was changed to unconfined only with approval by Bechtel.

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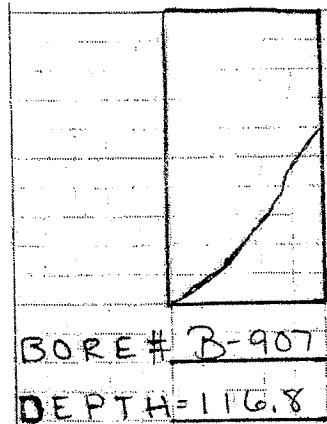
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 907  
**Sample Depth (ft):** 116.8  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.470
Specimen Length, inch	5.271
Length/Diameter Ratio	2.13
Unit Weight (lbs/ft <sup>3</sup> )	173
Test Duration (Time to Failure in Minutes)	6.2
Unconfined Compressive Strength, psi (from test)	4,564
Unconfined Compressive Strength, psi (with L/D correction)	4,599
Type of Break	Shear

Comments: \_\_\_\_\_  
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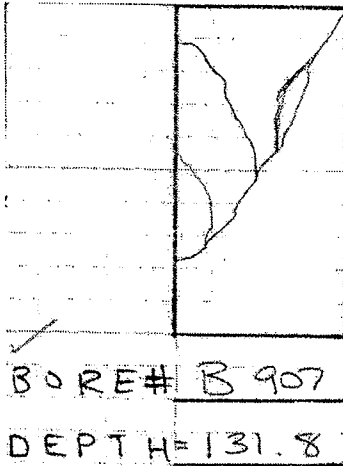
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 907  
**Sample Depth (ft):** 131.8  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Quartz-Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.482</b>
<b>Specimen Length, inch</b>	<b>5.318</b>
<b>Length/Diameter Ratio</b>	<b>2.14</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>173</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>4.5</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>8,451</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>8,519</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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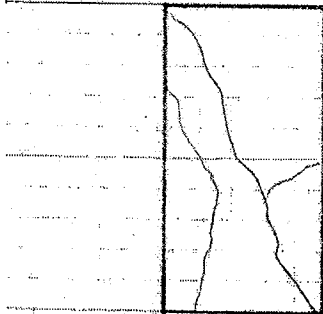
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 907  
**Sample Depth (ft):** 200  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.498
Specimen Length, inch	5.349
Length/Diameter Ratio	2.14
Unit Weight (lbs/ft <sup>3</sup> )	165
Test Duration (Time to Failure in Minutes)	7.0
Unconfined Compressive Strength, psi (from test)	20,007
Unconfined Compressive Strength, psi (with L/D correction)	20,166
Type of Break	Cone & Shear

Comments: \_\_\_\_\_  
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BORE# -B-907  
DEPTH = 200.0





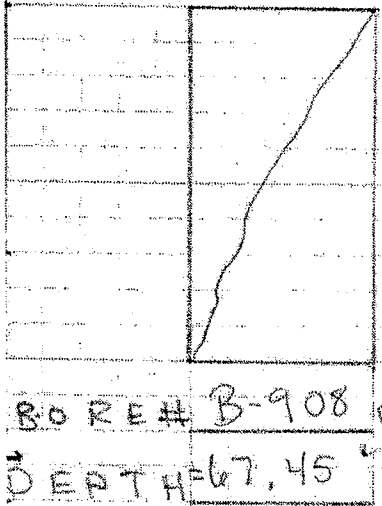
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 908  
Sample Depth (ft): 67.45  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.385
Specimen Length, inch	5.319
Length/Diameter Ratio	2.23
Unit Weight (lbs/ft <sup>3</sup> )	163
Test Duration (Time to Failure in Minutes)	6.0
Unconfined Compressive Strength, psi (from test)	5,408
Unconfined Compressive Strength, psi (with L/D correction)	5,476
Type of Break	Shear

Comments: \_\_\_\_\_  
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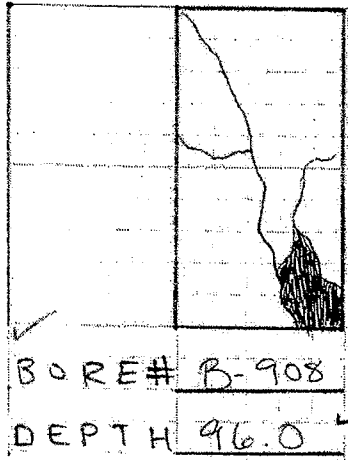
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 908  
Sample Depth (ft): 96  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.392
Specimen Length, inch	5.307
Length/Diameter Ratio	2.22
Unit Weight (lbs/ft <sup>3</sup> )	163
Test Duration (Time to Failure in Minutes)	6.2
Unconfined Compressive Strength, psi (from test)	16,961
Unconfined Compressive Strength, psi (with L/D correction)	17,164
Type of Break	Shear

Comments: \_\_\_\_\_  
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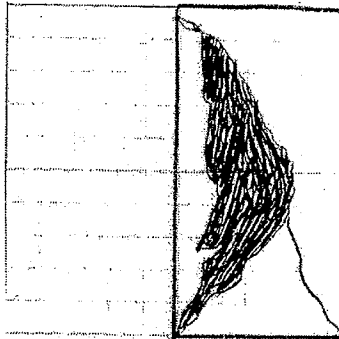
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
 Project Number: 6468061472  
 Boring Number: 908  
 Sample Depth (ft): 112.7  
 Tested By: Jacob B. Mock  
 Test Date: 12/12/2006

Reviewed By: DSC  
 Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz-Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.381</b>
<b>Specimen Length, inch</b>	<b>5.316</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>178</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>5.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>15,092</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>15,284</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-908  
 DEPTH 112.7



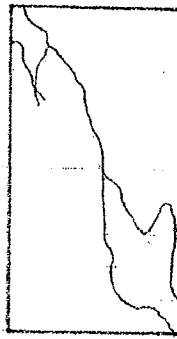
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 908  
**Sample Depth (ft):** 146.8  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/12/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.382
Specimen Length, inch	5.305
Length/Diameter Ratio	2.23
Unit Weight (lbs/ft <sup>3</sup> )	173
Test Duration (Time to Failure in Minutes)	5.3
Unconfined Compressive Strength, psi (from test)	7,592
Unconfined Compressive Strength, psi (with L/D correction)	7,687
Type of Break	Shear

Comments: \_\_\_\_\_  
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BORE # B-908  
DEPTH = 146.8



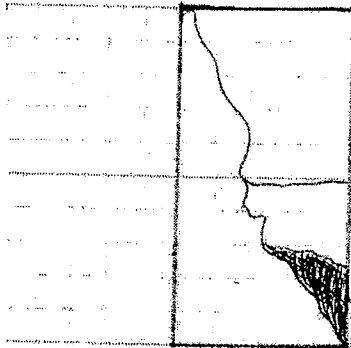
**Unconfined Compressive Strength of Intact Rock Core Specimens  
ASTM D 7012-04**

Project Name: North Anna COL  
 Project Number: 6468061472  
 Boring Number: 909  
 Sample Depth (ft): 96.5  
 Tested By: Jacob B. Mock  
 Test Date: 11/30/2006

Reviewed By: DSC  
 Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz-Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.389</b>
<b>Specimen Length, inch</b>	<b>5.279</b>
<b>Length/Diameter Ratio</b>	<b>2.21</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>190</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>4.5</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>5,830</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>5,897</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-909  
 DEPTH = 96.5'



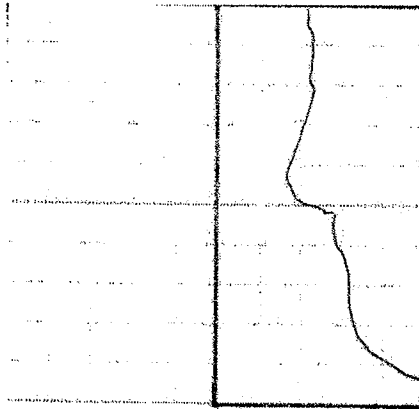
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 909  
**Sample Depth (ft):** 107.35  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.386
Specimen Length, inch	5.349
Length/Diameter Ratio	2.24
Unit Weight (lbs/ft <sup>3</sup> )	179
Test Duration (Time to Failure in Minutes)	4.0
Unconfined Compressive Strength, psi (from test)	3,887
Unconfined Compressive Strength, psi (with L/D correction)	3,938
Type of Break	Shear

Comments: \_\_\_\_\_  
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BORE # B-909  
DEPTH = 107.35



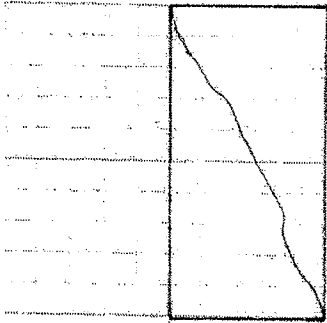
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
 Project Number: 6468061472  
 Boring Number: 909  
 Sample Depth (ft): 127.35  
 Tested By: Jacob B. Mock  
 Test Date: 11/30/2006

Reviewed By: DSC  
 Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz-Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.388</b>
<b>Specimen Length, inch</b>	<b>5.349</b>
<b>Length/Diameter Ratio</b>	<b>2.24</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>174</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>5.4</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>8,062</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>8,167</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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BORE # B 909  
 DEPTH = 127.35'



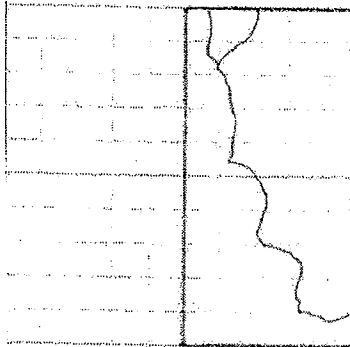
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 909  
Sample Depth (ft): 187.26  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz-Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.392</b>
<b>Specimen Length, inch</b>	<b>5.317</b>
<b>Length/Diameter Ratio</b>	<b>2.22</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>175</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>9,193</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>9,305</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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B O R E # B-909  
D E P T H = 187.26'





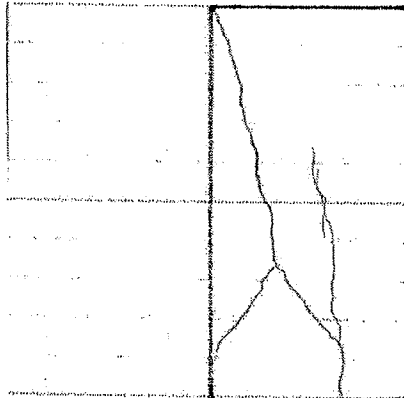
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 910  
Sample Depth (ft): 53.05  
Tested By: Jacob B. Mock  
Test Date: 12/1/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Biotite Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.378
Specimen Length, inch	5.268
Length/Diameter Ratio	2.22
Unit Weight (lbs/ft <sup>3</sup> )	159
Test Duration (Time to Failure in Minutes)	7.7
Unconfined Compressive Strength, psi (from test)	6,854
Unconfined Compressive Strength, psi (with L/D correction)	6,935
Type of Break	Shear

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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BORE# B 910  
DEPTH = 53.05



Unconfined Compressive Strength of Intact Rock Core Specimens

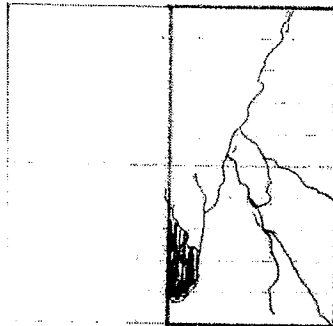
ASTM D 7012-04

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 910  
Sample Depth (ft): 120.9  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Biotite Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.396
Specimen Length, inch	5.271
Length/Diameter Ratio	2.20
Unit Weight (lbs/ft <sup>3</sup> )	163
Test Duration (Time to Failure in Minutes)	7.9
Unconfined Compressive Strength, psi (from test)	9,293
Unconfined Compressive Strength, psi (with L/D correction)	9,395
Type of Break	Columnar

Comments: \_\_\_\_\_  
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BORE # B-910  
DEPTH = 120.9 ft



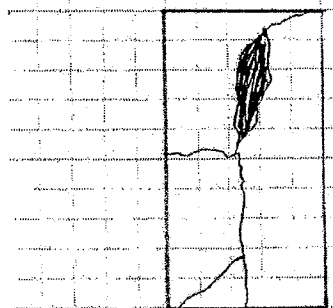
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
 Project Number: 6468061472  
 Boring Number: 910  
 Sample Depth (ft): 142.1  
 Tested By: Jacob B. Mock  
 Test Date: 11/30/2006

Reviewed By: DSC  
 Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.402</b>
<b>Specimen Length, inch</b>	<b>5.353</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>168</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>10.4</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>28,479</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>28,834</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-910 E  
 DEPTH = 142.1 F



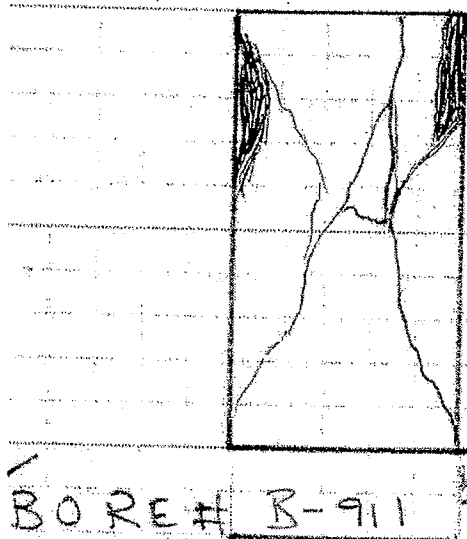
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 911  
**Sample Depth (ft):** 44.25  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Quartz Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.377</b>
<b>Specimen Length, inch</b>	<b>5.285</b>
<b>Length/Diameter Ratio</b>	<b>2.22</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>162</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>10,086</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>10,209</b>
<b>Type of Break</b>	<b>Cone</b>

Comments: \_\_\_\_\_  
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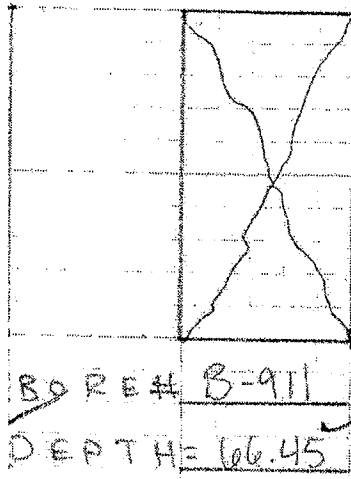
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
 Project Number: 6468061472  
 Boring Number: 911  
 Sample Depth (ft): 66.45  
 Tested By: Jacob B. Mock  
 Test Date: 11/30/2006

Reviewed By: DSC  
 Review Date: 1-19-07

Rock Type	Quartz Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.395
Specimen Length, inch	5.345
Length/Diameter Ratio	2.23
Unit Weight (lbs/ft <sup>3</sup> )	164
Test Duration (Time to Failure in Minutes)	10.9
Unconfined Compressive Strength, psi (from test)	24,338
Unconfined Compressive Strength, psi (with L/D correction)	24,646
Type of Break	Cone

Comments: \_\_\_\_\_  
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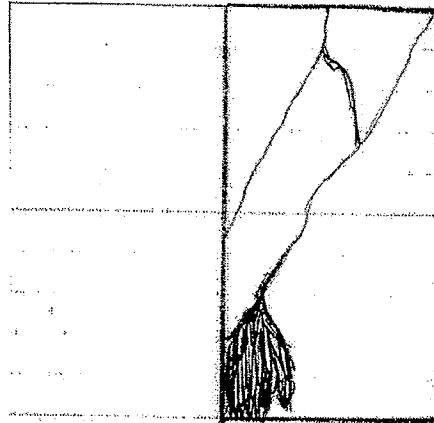
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 911  
**Sample Depth (ft):** 97.55  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/1/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

Rock Type	Quartz Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.402
Specimen Length, inch	5.363
Length/Diameter Ratio	2.23
Unit Weight (lbs/ft <sup>3</sup> )	163
Test Duration (Time to Failure in Minutes)	3.5
Unconfined Compressive Strength, psi (from test)	6,479
Unconfined Compressive Strength, psi (with L/D correction)	6,561
Type of Break	Shear

Comments: \_\_\_\_\_  
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BORE # B-911  
DEPTH = 97.55



Unconfined Compressive Strength of Intact Rock Core Specimens

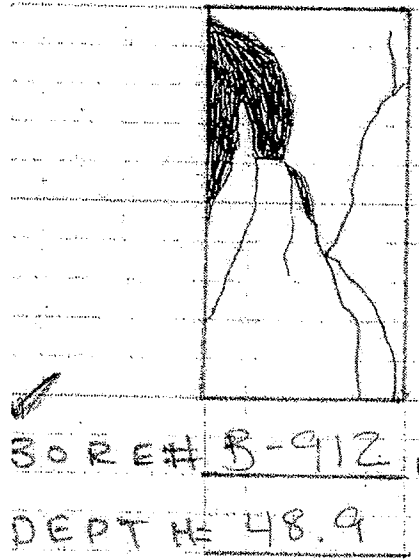
ASTM D 7012-04

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 912  
Sample Depth (ft): 48.9  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.396
Specimen Length, inch	5.258
Length/Diameter Ratio	2.19
Unit Weight (lbs/ft <sup>3</sup> )	163
Test Duration (Time to Failure in Minutes)	4.7
Unconfined Compressive Strength, psi (from test)	12,853
Unconfined Compressive Strength, psi (with L/D correction)	12,992
Type of Break	Cone & Shear

Comments: \_\_\_\_\_  
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**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 912  
Sample Depth (ft): 62.2  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

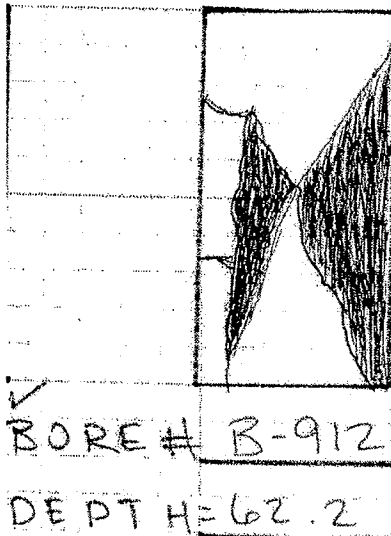
Rock Type	Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.399
Specimen Length, inch	5.256
Length/Diameter Ratio	2.19
Unit Weight (lbs/ft <sup>3</sup> )	164
Test Duration (Time to Failure in Minutes)	N/A
Unconfined Compressive Strength, psi (from test)	32,338
Unconfined Compressive Strength, psi (with L/D correction)	32,680
Type of Break	Cone & Shear

Comments: Test time was lost during data transfer from P3 strain indicator to laptop after test was complete.

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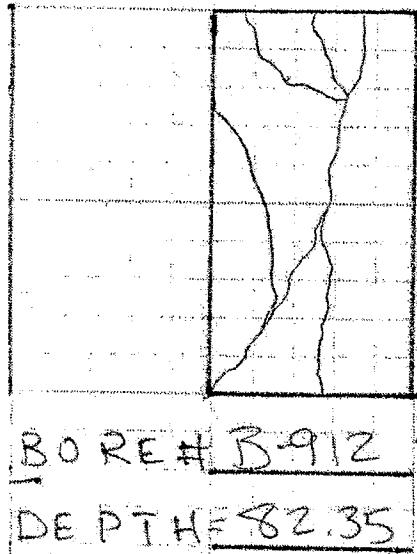
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 912  
Sample Depth (ft): 82.35  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.403</b>
<b>Specimen Length, inch</b>	<b>5.250</b>
<b>Length/Diameter Ratio</b>	<b>2.18</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>8.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>27,079</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>27,356</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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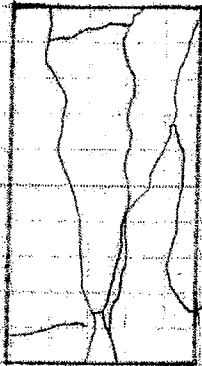
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 912  
**Sample Depth (ft):** 143.85  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/12/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.403</b>
<b>Specimen Length, inch</b>	<b>5.256</b>
<b>Length/Diameter Ratio</b>	<b>2.19</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>161</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>5.4</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>15,832</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>15,996</b>
<b>Type of Break</b>	<b>Columnar</b>

Comments: \_\_\_\_\_  
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BORE # B-912 L  
DEPTH-143.85



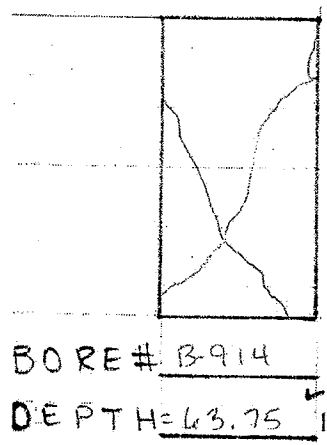
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 914  
Sample Depth (ft): 63.75  
Tested By: Jacob B. Mock  
Test Date: 12/1/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.396</b>
<b>Specimen Length, inch</b>	<b>5.341</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>169</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>5.8</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>17,645</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>17,866</b>
<b>Type of Break</b>	<b>Cone</b>

Comments: \_\_\_\_\_  
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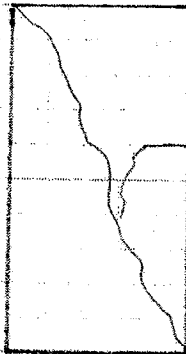
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 914  
**Sample Depth (ft):** 75.25  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DSC  
**Review Date:** 1-22-07

<b>Rock Type</b>	<b>Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.398</b>
<b>Specimen Length, inch</b>	<b>5.319</b>
<b>Length/Diameter Ratio</b>	<b>2.22</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>164</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>10.8</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>36,169</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>36,600</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-914  
DEPTH = 75.25



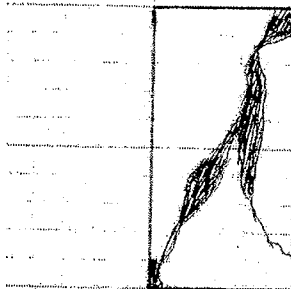
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 914  
Sample Depth (ft): 120.55  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.393</b>
<b>Specimen Length, inch</b>	<b>5.315</b>
<b>Length/Diameter Ratio</b>	<b>2.22</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>169</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.0</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>17,727</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>17,942</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-914  
DEPTH = 120.55'



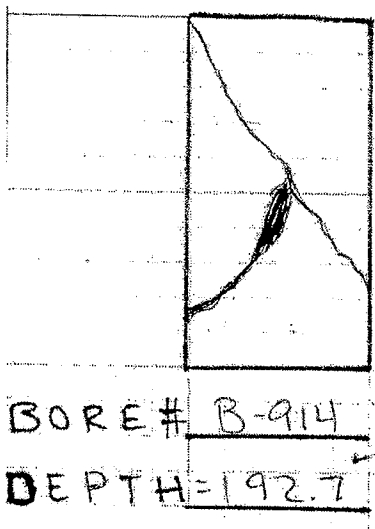
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 914  
Sample Depth (ft): 192.7  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.400</b>
<b>Specimen Length, inch</b>	<b>5.319</b>
<b>Length/Diameter Ratio</b>	<b>2.22</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>9.3</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>29,808</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>30,162</b>
<b>Type of Break</b>	<b>Cone</b>

Comments: \_\_\_\_\_  
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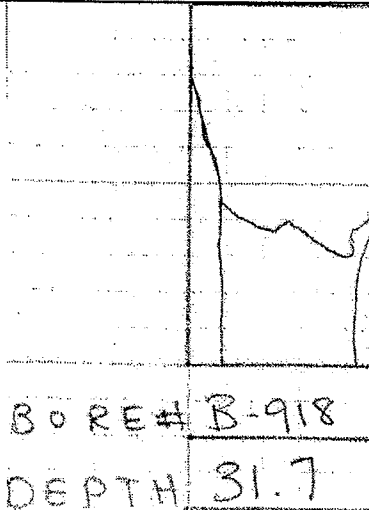
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
 Project Number: 6468061472  
 Boring Number: 918  
 Sample Depth (ft): 31.7  
 Tested By: Jacob B. Mock  
 Test Date: 12/12/2006

Reviewed By: DSC  
 Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.385</b>
<b>Specimen Length, inch</b>	<b>5.285</b>
<b>Length/Diameter Ratio</b>	<b>2.22</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>164</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>3.3</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>18,815</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>19,038</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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Unconfined Compressive Strength of Intact Rock Core Specimens

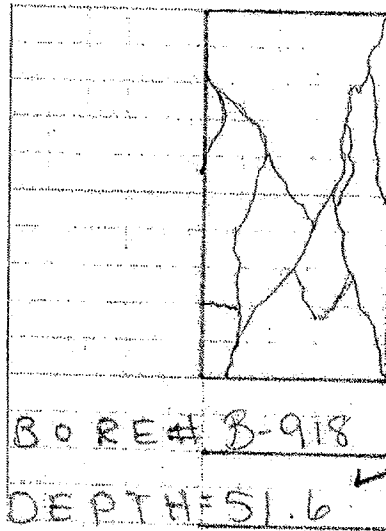
ASTM D 7012-04

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 918  
Sample Depth (ft): 51.6  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Biotite-Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.396
Specimen Length, inch	5.285
Length/Diameter Ratio	2.21
Unit Weight (lbs/ft <sup>3</sup> )	165
Test Duration (Time to Failure in Minutes)	5.0
Unconfined Compressive Strength, psi (from test)	15,236
Unconfined Compressive Strength, psi (with L/D correction)	15,409
Type of Break	Cone

Comments: \_\_\_\_\_  
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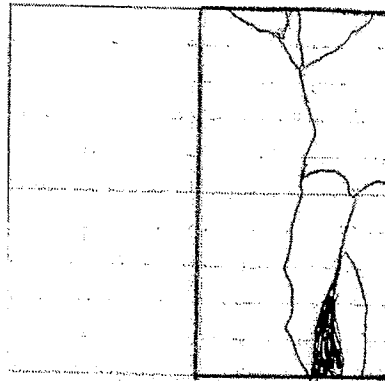
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 918  
Sample Depth (ft): 60.7  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Biotite-Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.399
Specimen Length, inch	5.321
Length/Diameter Ratio	2.22
Unit Weight (lbs/ft <sup>3</sup> )	164
Test Duration (Time to Failure in Minutes)	5.9
Unconfined Compressive Strength, psi (from test)	20,816
Unconfined Compressive Strength, psi (with L/D correction)	21,064
Type of Break	Columnar

Comments: \_\_\_\_\_  
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BORE # B-918  
DEPTH = 60.7



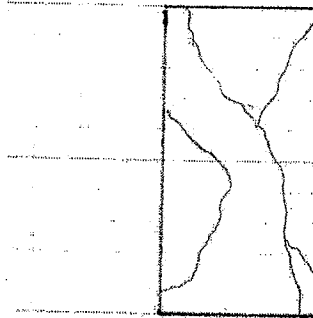
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 918  
Sample Depth (ft): 122  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.404</b>
<b>Specimen Length, inch</b>	<b>5.250</b>
<b>Length/Diameter Ratio</b>	<b>2.18</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>166</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>7.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>33,270</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>33,610</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-918  
DEPTH=122.0'



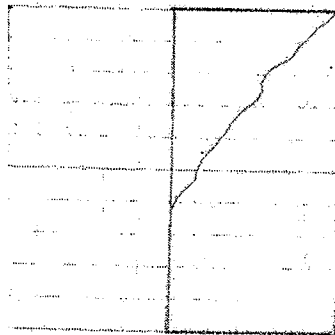
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 920  
**Sample Depth (ft):** 90.15  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DSC  
**Review Date:** 1-22-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.385</b>
<b>Specimen Length, inch</b>	<b>5.278</b>
<b>Length/Diameter Ratio</b>	<b>2.21</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>160</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>1,010</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>1,021</b>
<b>Type of Break</b>	<b>Shear</b>

**Comments:** Sample had chips on end. Tested "as is" with approval of Bechtel.  
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BORING # B-920  
DEPTH = 90.15



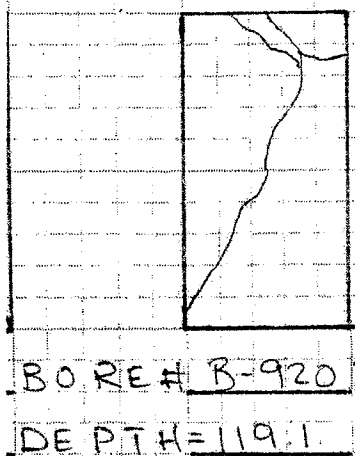
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 920  
**Sample Depth (ft):** 119.1  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** *DSS*  
**Review Date:** *1-19-07*

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.386</b>
<b>Specimen Length, inch</b>	<b>5.329</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>181</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.2</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>9,337</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>9,456</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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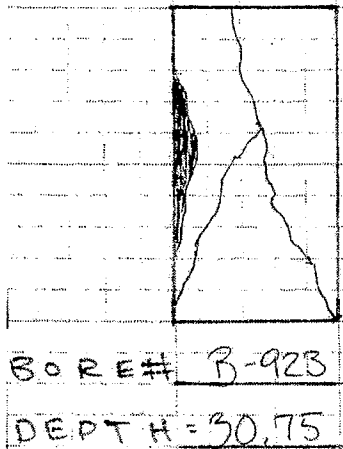
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 923  
Sample Depth (ft): 30.75  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Biotite-Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.391
Specimen Length, inch	5.349
Length/Diameter Ratio	2.24
Unit Weight (lbs/ft <sup>3</sup> )	162
Test Duration (Time to Failure in Minutes)	9.7
Unconfined Compressive Strength, psi (from test)	26,439
Unconfined Compressive Strength, psi (with L/D correction)	26,779
Type of Break	Cone & Shear

Comments: \_\_\_\_\_  
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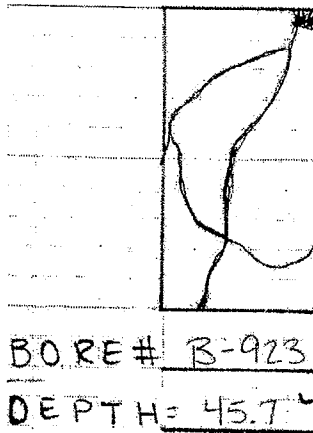
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 923  
Sample Depth (ft): 45.7  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSS  
Review Date: 1-19-07

Rock Type	Biotite-Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.392
Specimen Length, inch	5.328
Length/Diameter Ratio	2.23
Unit Weight (lbs/ft <sup>3</sup> )	163
Test Duration (Time to Failure in Minutes)	10.2
Unconfined Compressive Strength, psi (from test)	13,312
Unconfined Compressive Strength, psi (with L/D correction)	13,477
Type of Break	Shear

Comments: \_\_\_\_\_  
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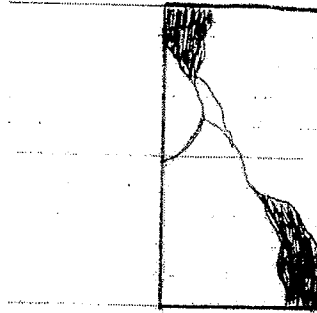
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 924  
**Sample Depth (ft):** 21.7  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.387</b>
<b>Specimen Length, inch</b>	<b>5.333</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>162</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>7.3</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>10,455</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>10,588</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-924  
DEPTH = 21.7



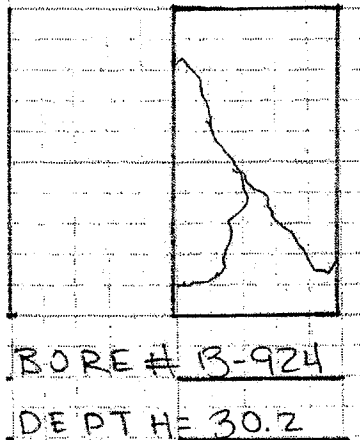
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 924  
Sample Depth (ft): 30.2  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.389</b>
<b>Specimen Length, inch</b>	<b>5.346</b>
<b>Length/Diameter Ratio</b>	<b>2.24</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>8.2</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>14,918</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>15,110</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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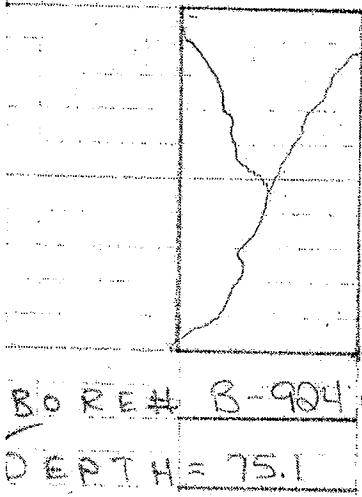
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 924  
**Sample Depth (ft):** 75.1  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DJS  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.395</b>
<b>Specimen Length, inch</b>	<b>5.333</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>179</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.2</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>5,611</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>5,681</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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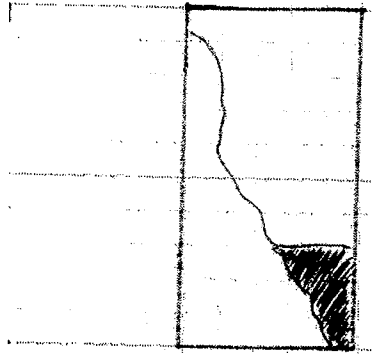
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 927  
**Sample Depth (ft):** 42.95  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Quartz-Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.392</b>
<b>Specimen Length, inch</b>	<b>5.347</b>
<b>Length/Diameter Ratio</b>	<b>2.24</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>8.6</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>19,044</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>19,288</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-927  
DEPTH = 42.95'



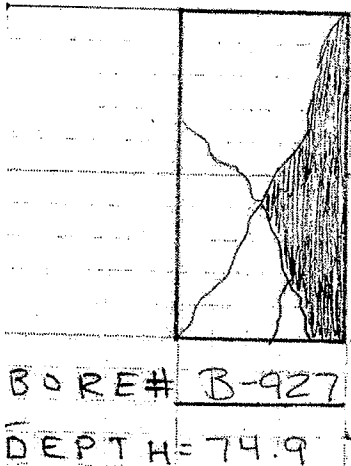
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 927  
Sample Depth (ft): 74.9  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: PSC  
Review Date: 1-19-07

Rock Type	Quartz-Biotite Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.390
Specimen Length, inch	5.326
Length/Diameter Ratio	2.23
Unit Weight (lbs/ft <sup>3</sup> )	164
Test Duration (Time to Failure in Minutes)	8.4
Unconfined Compressive Strength, psi (from test)	29,925
Unconfined Compressive Strength, psi (with L/D correction)	30,297
Type of Break	Cone

Comments: \_\_\_\_\_  
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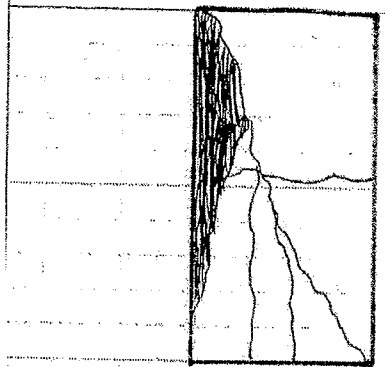
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 927  
Sample Depth (ft): 96.25  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Quartz-Biotite Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.393</b>
<b>Specimen Length, inch</b>	<b>5.353</b>
<b>Length/Diameter Ratio</b>	<b>2.24</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>164</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>8.1</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>27,906</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>28,266</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
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BORE # B-927  
DEPTH = 96.25 <sup>ft</sup>



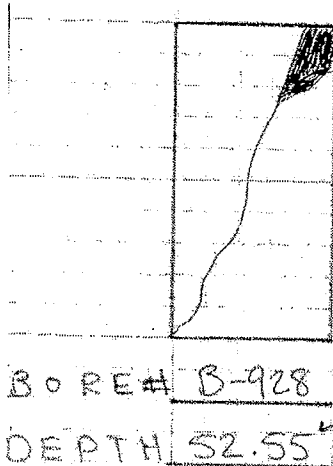
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 928  
Sample Depth (ft): 52.55  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.388</b>
<b>Specimen Length, inch</b>	<b>5.333</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>153</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>7.8</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>1,302</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>1,318</b>
<b>Type of Break</b>	<b>Shear</b>

Comments: \_\_\_\_\_  
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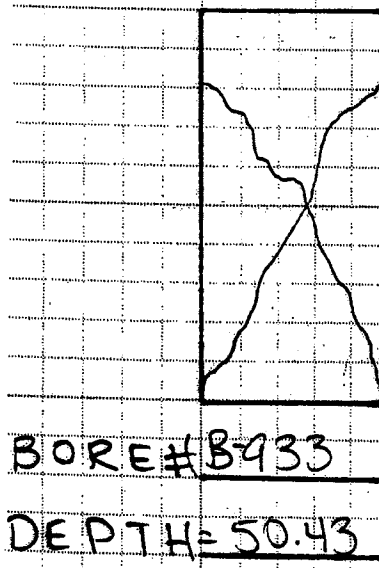
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 933  
Sample Depth (ft): 50.45  
Tested By: Jacob B. Mock  
Test Date: 11/30/2006

Reviewed By: DSC  
Review Date: 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.390</b>
<b>Specimen Length, inch</b>	<b>5.334</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>163</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>9.3</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>19,153</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>19,395</b>
<b>Type of Break</b>	<b>Cone</b>

Comments: \_\_\_\_\_  
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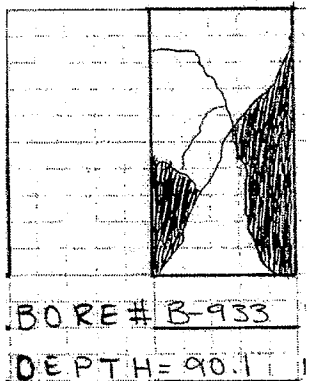
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 933  
**Sample Depth (ft):** 90.1  
**Tested By:** Jacob B. Mock  
**Test Date:** 11/30/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.388</b>
<b>Specimen Length, inch</b>	<b>5.316</b>
<b>Length/Diameter Ratio</b>	<b>2.23</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>164</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>10.5</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>30,616</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>30,993</b>
<b>Type of Break</b>	<b>Cone</b>

Comments: \_\_\_\_\_  
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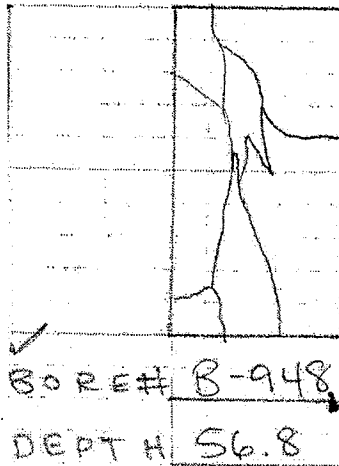
**Unconfined Compressive Strength of Intact Rock Core Specimens**  
**ASTM D 7012-04**

**Project Name:** North Anna COL  
**Project Number:** 6468061472  
**Boring Number:** 948  
**Sample Depth (ft):** 56.8  
**Tested By:** Jacob B. Mock  
**Test Date:** 12/12/2006

**Reviewed By:** DSC  
**Review Date:** 1-19-07

<b>Rock Type</b>	<b>Biotite-Quartz Gneiss</b>
<b>Moisture Condition</b>	<b>As Received</b>
<b>Specimen Diameter, inch</b>	<b>2.393</b>
<b>Specimen Length, inch</b>	<b>5.283</b>
<b>Length/Diameter Ratio</b>	<b>2.21</b>
<b>Unit Weight (lbs/ft<sup>3</sup>)</b>	<b>162</b>
<b>Test Duration (Time to Failure in Minutes)</b>	<b>6.2</b>
<b>Unconfined Compressive Strength, psi (from test)</b>	<b>16,896</b>
<b>Unconfined Compressive Strength, psi (with L/D correction)</b>	<b>17,089</b>
<b>Type of Break</b>	<b>Cone &amp; Shear</b>

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_







Unconfined Compressive Strength of Intact Rock Core Specimens

ASTM D 7012-04

Project Name: North Anna COL  
Project Number: 6468061472  
Boring Number: 948  
Sample Depth (ft): 76.1  
Tested By: Jacob B. Mock  
Test Date: 12/12/2006

Reviewed By: DSC  
Review Date: 1-19-07

Rock Type	Biotite-Quartz Gneiss
Moisture Condition	As Received
Specimen Diameter, inch	2.395
Specimen Length, inch	5.253
Length/Diameter Ratio	2.19
Unit Weight (lbs/ft <sup>3</sup> )	167
Test Duration (Time to Failure in Minutes)	6.4
Unconfined Compressive Strength, psi (from test)	22,198
Unconfined Compressive Strength, psi (with L/D correction)	22,435
Type of Break	Cone & Shear

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



BORE # B-948  
DEPTH = 76.1