

ASTM D 7012-10, Method C (with deviations per SDDR-33)

| Test Date | 12-31-13 |
|--|-------------------------------------|
| Project Name | Clinch River SMR |
| Project No. | 6468-13-1072 |
| Boring No. & Run No. | Boring No.: MP-218 Run No.: N/A |
| Sample No. | CL9-6-ABG |
| Sample Depth, (ft) | 67.8'-68.8' |
| Lithologic Sample Description | See Boring Log |
| Load Direction (with respect to lithology) | Vertical |
| Moisture Condition at Time of Test | Laboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) | 2.41 |
| Average Length from Dimension Log, (in) | 5.40 |
| Mass from Dimension Log, (g) | 1078.76 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log |
| Temperature at Time of Test | Room temperature (70.0°F) |
| Loading Rate, (lb/sec) | 130 |
| Maximum Load, (lb) | 14460 |
| Description of Specimen After Test | Shear |
| (Include Photograph ID No.) | MP-218 CL9-6-ABG after test (2).JPG |
| Uniaxial Compressive Strength, (psi) | 3171 |
| Tested by / Date | MEH 12-31-13 MEH 1/11/14 |
| Reviewed by / Date | TL 1-2-14 P 1/13/14 |
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| Notes: | | | |
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| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| Test Date | 12-27-13 |
|--|---|
| Project Name | Clinch River SMR |
| Project No. | 6468-13-1072 |
| Boring No. & Run No. | Boring No.: MP-218 Run No.: N/A |
| Sample No. | CL9-2-ABG |
| Sample Depth, (ft) | 71.3'-72.3' |
| Lithologic Sample Description | See Boring Log |
| Load Direction (with respect to lithology) | Vertical |
| Moisture Condition at Time of Test | Laboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) | 2.41 |
| Average Length from Dimension Log, (in) | 5.70 |
| Mass from Dimension Log, (g) | 1135.52 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log |
| Temperature at Time of Test | Room temperature (71.2°F) |
| Loading Rate, (lb/sec) | 130 |
| Maximum Load, (lb) | 13380 |
| Description of Specimen After Test (Include Photograph ID No.) | Columnar MP-218 CL9-2-ABG after test.JPG |
| Uniaxial Compressive Strength, (psi) | 2934 |
| Tested by / Date | MEH 12-27-13 MEH 1/11/14 |
| Reviewed by / Date | TL 1-2-14 1 1 13 14 |

| Notes: | | | |
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| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| Test Date | 12-31-13 |
|--|--|
| | |
| Project Name | Clinch River SMR |
| Project No. | 6468-13-1072 |
| Boring No. & Run No. | Boring No.: MP-218 Run No.: N/A |
| Sample No. | CL9-7-ABG |
| Sample Depth, (ft) | 72.3'-73.3' |
| Lithologic Sample Description | See Boring Log |
| Load Direction (with respect to lithology) | Vertical |
| Moisture Condition at Time of Test | Laboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) | 2.40 |
| Average Length from Dimension Log, (in) | 5.49 |
| Mass from Dimension Log, (g) | 1098.96 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log |
| Temperature at Time of Test | Room temperature (70.1°F) |
| Loading Rate, (lb/sec) | 130 |
| Maximum Load, (lb) | 20270 |
| Description of Specimen After Test (Include Photograph ID No.) | Shear/slight columnar MP-218 CL9-7-ABG after test (2).JPG |
| Uniaxial Compressive Strength, (psi) | 4485 |
| Tested by / Date | MEH 12-31-13 MEH 1/1/14 |
| Reviewed by / Date | TL 1-2-14 1 1 13 14 |

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| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| Test Date | 12-27-13 | |
|--|--|--|
| Project Name | Clinch River SMR | |
| Project No. | 6468-13-1072 | |
| Boring No. & Run No. | Boring No.: MP-218 Run No.: N/A | |
| Sample No. | CL9-3-ABG | |
| Sample Depth, (ft) | 79.5'-80.5' | |
| Lithologic Sample Description | See Boring Log | |
| Load Direction (with respect to lithology) | Vertical | |
| Moisture Condition at Time of Test | Laboratory Air-Dry | |
| Average Diameter from Dimension Log, (in.) | 2.39 | |
| Average Length from Dimension Log, (in) | 5.68 | |
| Mass from Dimension Log, (g) | 1125.17 | |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log | |
| Temperature at Time of Test | Room temperature (70.1°F) | |
| Loading Rate, (lb/sec) | 130 | |
| Maximum Load, (lb) | 5090 | |
| Description of Specimen After Test (Include Photograph ID No.) | Shear MP-218 CL9-3-ABG after test.JPG | |
| Uniaxial Compressive Strength, (psi) | 1134 | |
| Tested by / Date | MEH 12-27-13 MEH 1/11/14 | |
| Reviewed by / Date | TL 1-2-14 1 1 1 13 14 | |
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| Notes: | | | |
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| Equipment Used | ID No. | Calibration Due |
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| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| Test Date | 12-31-13 |
|--|-------------------------------------|
| Project Name | Clinch River SMR |
| Project No. | 6468-13-1072 |
| Boring No. & Run No. | Boring No.: MP-218 Run No.: N/A |
| Sample No. | CL9-8-ABG |
| Sample Depth, (ft) | 80.5'-81.5' |
| Lithologic Sample Description | See Boring Log |
| Load Direction (with respect to lithology) | Vertical |
| Moisture Condition at Time of Test | Laboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) | 2.40 |
| Average Length from Dimension Log, (in) | 5.58 |
| Mass from Dimension Log, (g) | 1107.86 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log |
| Temperature at Time of Test | Room temperature (70.4°F) |
| Loading Rate, (lb/sec) | 130 |
| Maximum Load, (lb) | 9280 |
| Description of Specimen After Test | Shear |
| (Include Photograph ID No.) | MP-218 CL9-8-ABG after test (2).JPG |
| Uniaxial Compressive Strength, (psi) | 2053 |
| Tested by / Date | MEH 12-31-13 MEH 1/11/14 |
| Reviewed by / Date | TL 1-2-14 |

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| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| T D | 140.07.40 |
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| Test Date | 12-27-13 |
| Project Name | Clinch River SMR |
| Project No. | 6468-13-1072 |
| Boring No. & Run No. | Boring No.: MP-218 Run No.: N/A |
| Sample No. | CL9-4-ABG |
| Sample Depth, (ft) | 85.3'-86.3' |
| Lithologic Sample Description | See Boring Log |
| Load Direction (with respect to lithology) | Vertical |
| Moisture Condition at Time of Test | Laboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) | 2.40 |
| Average Length from Dimension Log, (in) | 5.74 |
| Mass from Dimension Log, (g) | 1150.62 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log |
| Temperature at Time of Test | Room temperature (69.5°F) |
| Loading Rate, (lb/sec) | 130 |
| Maximum Load, (lb) | 17610 |
| Description of Specimen After Test | Columnar |
| (Include Photograph ID No.) | MP-218 CL9-4-ABG after test.JPG |
| Uniaxial Compressive Strength, (psi) | 3896 |
| Tested by / Date | MEH 12-27-13 MEH 1/11/14 |
| Reviewed by / Date | TL 1-2-14 |

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| Equipment Used | ID No. | Calibration Due |
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| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| | 2-31-13 |
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| Project Name CI | CL L D' CLAD |
| | Clinch River SMR |
| Project No. 64 | 468-13-1072 |
| Boring No. & Run No. | Soring No.: MP-218 Run No.: N/A |
| Sample No. CL | CL9-9-ABG |
| Sample Depth, (ft) 86 | 6.3'-87.3' |
| Lithologic Sample Description Se | ee Boring Log |
| Load Direction (with respect to lithology) | /ertical |
| Moisture Condition at Time of Test La | aboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) 2. | .40 |
| Average Length from Dimension Log, (in) 5. | .49 |
| Mass from Dimension Log, (g) 10 | 099.91 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | lo, see Dimension Log |
| Temperature at Time of Test Ro | loom temperature (70.4°F) |
| Loading Rate, (lb/sec) 13 | 30 |
| Maximum Load, (lb) 26 | 6340 |
| Description of Specimen After Test Co | Columnar |
| (Include Photograph ID No.) | ЛР-218 CL9-9-ABG after test (3).JPG |
| Uniaxial Compressive Strength, (psi) 58 | 827 |
| Tested by / Date M | MEH 12-31-13 MEH 1/11/14 |
| Reviewed by / Date TL | L 1-2-14 1 1 13/14 |

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| Equipment Used | ID No. | Calibration Due |
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| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| Test Date | 12-27-13 |
|--|---|
| Project Name | Clinch River SMR |
| Project No. | 6468-13-1072 |
| Boring No. & Run No. | Boring No.: MP-218 Run No.: N/A |
| Sample No. | CL9-5-ABG |
| Sample Depth, (ft) | 90.3'-91.3' |
| Lithologic Sample Description | See Boring Log |
| Load Direction (with respect to lithology) | Vertical |
| Moisture Condition at Time of Test | Laboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) | 2.40 |
| Average Length from Dimension Log, (in) | 5.73 |
| Mass from Dimension Log, (g) | 1138.99 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log |
| Temperature at Time of Test | Room temperature (69.6°F) |
| Loading Rate, (lb/sec) | 130 |
| Maximum Load, (lb) | 13890 |
| Description of Specimen After Test (Include Photograph ID No.) | Columnar/ slight shear MP-218 CL9-5-ABG after test (2).JPG |
| Uniaxial Compressive Strength, (psi) | 3073 |
| Tested by / Date | MEH 12-27-13 MEH 1/11/14 |
| Reviewed by / Date | TL 1-2-14 1 1 13/14 |

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| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

| 12-31-13 | |
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| 11 01 10 | |
| Clinch River SMR | |
| 6468-13-1072 | |
| Boring No.: MP-218 Run No.: N/A | |
| CL9-10-ABG | |
| 91.3'-92.3' | |
| See Boring Log | |
| Vertical | |
| Laboratory Air-Dry | |
| 2.40 | |
| 5.42 | |
| 1075.73 | |
| No, see Dimension Log | |
| Room temperature (69.7°F) | |
| 130 | |
| 16190 | |
| Columnar MP-218 CL9-10-ABG after test (3).JPG | |
| 3582 | |
| MEH 12-31-13 MEH 1/11/14 | |
| TL 1-2-14 ()13/14 | |
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| Notes: | | | |
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| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

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| Test Date | 1-30-14 | |
|--|--|--|
| Project Name | Clinch River SMR | |
| Project No. | 6468-13-1072 | |
| Boring No. & Run No. | Boring No.: MP-219A Run No.: N/A | |
| Sample No. | L3-51-BG | |
| Sample Depth, (ft) | 134.1 - 134.7 | |
| Lithologic Sample Description | See Boring Log | |
| Load Direction (with respect to lithology) | Vertical | |
| Moisture Condition at Time of Test | Laboratory Air-Dry | |
| Average Diameter from Dimension Log, (in.) | 2.39 | |
| Average Length from Dimension Log, (in) | 5.50 | |
| Mass from Dimension Log, (g) | 1086.74 | |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log | |
| Temperature at Time of Test | Room temperature (72.1°F) | |
| Loading Rate, (lb/sec) | 160 | |
| Maximum Load, (lb) | 15720 | |
| Description of Specimen After Test (Include Photograph ID No.) | Shear along weak planes MP-219A L3-51 BG after test (2).JPG | |
| Uniaxial Compressive Strength, (psi) | 3501 | |
| Tested by / Date | MEH 1-30-14 MEH 1/31/14 | |
| Reviewed by / Date | TL 1-31-14 1/31/14 | |
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Notes:

Approval to proceed with testing provided by

Mr. John Damm with Bechtel on 1-30-14.

| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 5/26/14 |
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Post-Test Photo:





ASTM D 7012-10, Method C (with deviations per SDDR-33)

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| Test Date | 1-7-14 |
|--|--|
| Project Name | Clinch River SMR |
| Project No. | 6468-13-1072 |
| Boring No. & Run No. | Boring No.: MP-220 Run No.: N/A |
| Sample No. | L2-36 BG |
| Sample Depth, (ft) | 81.3′ – 82.7′ |
| Lithologic Sample Description | See Boring Log |
| Load Direction (with respect to lithology) | Vertical |
| Moisture Condition at Time of Test | Laboratory Air-Dry |
| Average Diameter from Dimension Log, (in.) | 2.38 |
| Average Length from Dimension Log, (in) | 5.36 |
| Mass from Dimension Log, (g) | 1058.70 |
| Conforms to ASTM D4543 Dimensional Requirements? If no, explain below. | No, see Dimension Log |
| Temperature at Time of Test | Room temperature (66.0°F) |
| Loading Rate, (lb/sec) | 130 |
| Maximum Load, (lb) | 24160 |
| Description of Specimen After Test (Include Photograph ID No.) | Columnar/Shear MP-220 L2-36 BG after test.JPG |
| Uniaxial Compressive Strength, (psi) | 5429 |
| Tested by / Date | GW 1-7-14 6-W 01/13/14 |
| Reviewed by / Date | TL 1-10-14 2 1/13/14 |
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Notes:

Approval to proceed with testing provided by
Mr. John Damm with Bechtel on 1-6-14.

| Equipment Used | ID No. | Calibration Due |
|-----------------|----------|-----------------|
| Loading Device | CLT-0004 | 5/22/14 |
| Thermometer | CLT-0555 | 9/19/14 |
| Bearing Blocks | CLT-0054 | 2/3/14 |
| Bearing Surface | CLT-0716 | 1/25/14 |
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Post-Test Photo:

