

| <b>DOCKETED</b>         |                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------|
| <b>Docket Number:</b>   | 21-AFC-02                                                                            |
| <b>Project Title:</b>   | Willow Rock Energy Storage Center                                                    |
| <b>TN #:</b>            | 254800                                                                               |
| <b>Document Title:</b>  | Willow Rock Energy Storage Center Supplemental AFC Volume II - Appendix 54A - Part V |
| <b>Description:</b>     | N/A                                                                                  |
| <b>Filer:</b>           | Amanda Cooley                                                                        |
| <b>Organization:</b>    | Ellison Schneider Harris & Donlan LLP                                                |
| <b>Submitter Role:</b>  | Applicant Representative                                                             |
| <b>Submission Date:</b> | 3/1/2024 4:46:44 PM                                                                  |
| <b>Docketed Date:</b>   | 3/1/2024                                                                             |

## **APPENDIX C**

### **LABORATORY TESTING REPORTS**

**ROCK MECHANICS TESTING RESULTS FOR  
BOREHOLE ZEV-01-CH-23**

*Prepared for*

LANE POWER AND ENERGY SOLUTIONS, INC.

October 3, 2023

*Prepared by*



**AGAPITO ASSOCIATES, INC.**

715 Horizon Drive, Suite 340  
Grand Junction, CO 81506

1536 Cole Blvd., Bldg. 4, Suite 220  
Lakewood, CO 80401

## ROCK MECHANICS TESTING RESULTS FOR BOREHOLE ZEV-01-CH-23

### TABLE OF CONTENTS

|                                                                                           | <u>Page</u> |
|-------------------------------------------------------------------------------------------|-------------|
| <b>1.0 INTRODUCTION .....</b>                                                             | <b>1</b>    |
| <b>2.0 LABORATORY PROCEDURES .....</b>                                                    | <b>1</b>    |
| <b>3.0 TEST RESULTS .....</b>                                                             | <b>1</b>    |
| <br>Appendix A—Uniaxial Compressive Strength Test Datasheet .....                         | <br>A-1     |
| Appendix B—Stress-Strain Plots for Uniaxial Compressive Strength Tests .....              | B-1         |
| Appendix C—Before and After Photographs of Uniaxial Compressive Strength Test Specimens.. | C-1         |
| Appendix D—Triaxial Compression Test Datasheet .....                                      | D-1         |
| Appendix E—Before and After Photographs of Triaxial Compression Test Specimens.....       | E-1         |
| Appendix F—Splitting Tensile Strength (Brazilian) Test Datasheet .....                    | F-1         |
| Appendix G—After Photographs of Brazilian Test Specimens .....                            | G-1         |
| Appendix H—Point Load Test Datasheet.....                                                 | H-1         |
| Appendix I—Slake Durability Test Datasheet .....                                          | I-1         |
| Appendix J—Before and After Photographs of Slake Durability Test Specimens .....          | J-1         |

### LIST OF TABLES

|                                                                    | <u>Page</u> |
|--------------------------------------------------------------------|-------------|
| Table 1. Uniaxial Compressive Strength Test Results .....          | 3           |
| Table 2. Triaxial Compression Test Results.....                    | 3           |
| Table 3. Splitting Tensile Strength (Brazilian) Test Results ..... | 4           |
| Table 4. Point Load Test Results.....                              | 5           |
| Table 5. Slake Durability Test Results .....                       | 6           |

---

**DISCLAIMER OF LIABILITY:** *This work was prepared based on the core samples received and by carefully following the standards and procedures listed in this report. Neither Agapito Associates, Inc. (Agapito) nor any of its employees make any warranty, expressed or implied, or assumes **any** legal liability or responsibility for its application or usage. The user hereby acknowledges that the provisions of this disclaimer shall apply to all contents of this report.*



## 1.0 INTRODUCTION

Lane Power and Energy Solutions, Inc. (Lane) commissioned Agapito Associates, Inc. (Agapito) to complete a rock mechanics laboratory study to determine the mechanical properties of rock samples from core hole ZEV-CH-01-23 originating from the ZEVZAR site near Rosamond, California. Shipments of core were delivered to Agapito's Grand Junction, Colorado laboratory from May 2023 to June 2023. This laboratory report provides results of the rock mechanics core testing performed by Agapito on behalf of Lane.

This is a revised version of the ZEV-CH-01-23 rock mechanics testing report. All previous versions should be considered null and void. In this revised version, corrections were made to Table 2 after a fix was made to the "Corrected Failure Stress" column within the Triaxial Compression test results. The corrected calculation caused an increase in the Corrected Failure Stress between 1.4% and 5.1% compared to the previously reported results.

## 2.0 LABORATORY PROCEDURES

Prior to testing, specimens were prepared according to ASTM International (ASTM) standard D4543-08.<sup>1</sup> The following test types were performed by Agapito according to ASTM standards where applicable:

- Uniaxial (Unconfined) Compressive Strength (UCS) test: D7012-13<sup>2</sup>
- Triaxial Compression test: D7012-13<sup>3</sup>
- Splitting Tensile Strength test (Brazilian): D3967-08<sup>4</sup>
- Point Load Strength (Point Load) test: D5731-08<sup>5</sup>
- Slake Durability test: D4644-08<sup>6</sup>

## 3.0 TEST RESULTS

The laboratory results for the UCS tests are summarized in Table 1. Triaxial Compression test results are summarized in table 2. Brazilian test results are presented in Table 3. Point Load results are presented in Tables 4 and Slake Durability test results are presented in Table 5. Point Load testing has been shown to provide an approximation of compressive strength, and using a conversion factor of 21.0 to convert the Corrected Point Load Index ( $I_{S(50)}$ ) into approximate UCS provides the best approximation over a variety of rock types.<sup>7</sup>

---

<sup>1</sup> ASTM, "Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional Shape Tolerances," Designation D4543-08.

<sup>2</sup> ASTM, "Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperature," Designation D7012-13 (Methods C and D).

<sup>3</sup> ASTM, "Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperature," Designation D7012-13 (Methods A and B).

<sup>4</sup> American Society for Testing and Materials (ASTM), "Standard Test Method for Splitting Tensile Strength of Intact Rock Core Specimens," Designation D3967-08.

<sup>5</sup> ASTM, "Standard Test Method for Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classification," Designation D5731-08.

<sup>6</sup> ASTM, "Standard Test Method for Slake Durability of Shales and Similar Weak Rocks," Designation D4644-08.

<sup>7</sup> Rusnak, J. and Mark, C. (2000), "Using the Point Load Test to Determine the Uniaxial Compressive Strength of Coal Measure Rock," *19th Ground Control Conference in Mining*, West Virginia University, pp. 362–371.

Elastic properties are normally calculated from sample data collected between 0% and 55% of the ultimate strength of a sample as this is where most competent rock experiences its most-linear zone of elastic deformation. There were some samples where the zone of elastic deformation occurred during percentages of ultimate strength lower than expected, and some which did not enter elastic deformation for long enough to collect elastic properties. Elastic properties therefore had to be calculated individually based on data from zones of elastic deformation present for each specimen rather than the standard 0–55% of ultimate strength.

The datasheet for the UCS tests with failure mode descriptions is presented in Appendix A. Stress-strain plots for UCS tests are in Appendix B. The before and after photographs of UCS test specimens are displayed in Appendix C. The datasheet for the Triaxial Compression tests with failure mode descriptions is presented in Appendix D and the before and after photographs of Triaxial Compression test specimens are presented in Appendix E. The Brazilian test datasheet is presented in Appendix F, and after photographs of the Brazilian test specimens are presented in Appendix G. The Point Load test datasheet is presented in Appendix H. The Slake Durability test datasheet is presented in Appendix I, and the before and after photographs of the Slake Durability test specimens presented in Appendix J.

Table 1.    Uniaxial Compressive Strength Test Results

| Specimen No.                 | Hole ID      | Depth        |             | Rock Type                   | Weight<br>(oz)    | Average<br>Diameter<br>(inch) | Axial<br>Length<br>(inch)    | Density<br>(pcf) | Failure<br>Load<br>(lbf) | UCS<br>(psi) | Young's                            | Poisson's | Young's                            | Poisson's |
|------------------------------|--------------|--------------|-------------|-----------------------------|-------------------|-------------------------------|------------------------------|------------------|--------------------------|--------------|------------------------------------|-----------|------------------------------------|-----------|
|                              |              | From<br>(ft) | To<br>(ft)  |                             |                   |                               |                              |                  |                          |              | Modulus†<br>(×10 <sup>6</sup> psi) | Ratio‡    | Modulus‡<br>(×10 <sup>6</sup> psi) | Ratio‡    |
| ZEV-01 UCS-01                | ZEV-CH-01-23 | 2007.00      | 2008.00     | Granite                     | 38.15             | 2.38                          | 5.50                         | 168              | 103,465                  | 23,198       | 10.25                              | 0.34      | 10.07                              | 0.20      |
| ZEV-01 UCS-02                | ZEV-CH-01-23 | 2032.00      | 2033.00     | Granite                     | 38.26             | 2.39                          | 5.46                         | 168              | 63,985                   | 14,250       | 9.48                               | 0.30      | 8.01                               | 0.13      |
| ZEV-01 UCS-03                | ZEV-CH-01-23 | 2068.90      | 2069.90     | Granite                     | 39.77             | 2.40                          | 5.45                         | 175              | 87,490                   | 19,376       | 8.41                               | 0.32      | 7.26                               | 0.14      |
| ZEV-01 UCS-04                | ZEV-CH-01-23 | 2097.30      | 2098.40     | Granite                     | 37.79             | 2.39                          | 5.41                         | 168              | 56,220                   | 12,485       | 8.15                               | 0.22      | 6.37                               | 0.07      |
| ZEV-01 UCS-05                | ZEV-CH-01-23 | 2194.20      | 2195.00     | Granite                     | 37.77             | 2.40                          | 5.39                         | 167              | 59,500                   | 13,136       | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-06                | ZEV-CH-01-23 | 2219.70      | 2220.70     | Granite                     | 36.92             | 2.40                          | 5.24                         | 169              | 82,090                   | 18,191       | 9.52                               | 0.23      | 9.05                               | 0.08      |
| ZEV-01 UCS-07                | ZEV-CH-01-23 | 2248.80      | 2250.00     | Granite                     | 38.19             | 2.38                          | 5.49                         | 168              | 73,520                   | 16,477       | 10.41                              | 0.26      | 9.81                               | 0.12      |
| ZEV-01 UCS-08                | ZEV-CH-01-23 | 2415.10      | 2416.10     | Granite                     | 37.94             | 2.40                          | 5.38                         | 168              | 24,275                   | 5,349        | 5.24                               | 0.25      | 4.09                               | 0.01      |
| ZEV-01 UCS-09                | ZEV-CH-01-23 | 2450.40      | 2452.00     | Granite                     | 37.80             | 2.40                          | 5.34                         | 169              | 53,955                   | 11,914       | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-10                | ZEV-CH-01-23 | 2962.66      | 2963.33     | Granite                     | 37.91             | 2.40                          | 5.37                         | 169              | 103,625                  | 23,002       | 9.82                               | 0.29      | 8.73                               | 0.13      |
| ZEV-01 UCS-11                | ZEV-CH-01-23 | 2982.75      | 2983.33     | Granite                     | 39.26             | 2.40                          | 5.59                         | 168              | 106,270                  | 23,574       | 10.20                              | 0.32      | 9.81                               | 0.15      |
| ZEV-01 UCS-12                | ZEV-CH-01-23 | 3017.25      | 3017.91     | Granite                     | 37.96             | 2.40                          | 5.38                         | 169              | 47,520                   | 10,509       | 10.00                              | 0.20      | 9.29                               | 0.10      |
| ZEV-01 UCS-13                | ZEV-CH-01-23 | 1518.00      | 1519.30     | Granite                     | 36.51             | 2.40                          | 5.34                         | 163              | 38,625                   | 8,545        | 2.93                               | 0.17      | 1.53                               | 0.01      |
| ZEV-01 UCS-14                | ZEV-CH-01-23 | 1672.78      | 1673.85     | Granite                     | 37.56             | 2.39                          | 5.44                         | 166              | 13,555                   | 3,022        | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-15                | ZEV-CH-01-23 | 1750.00      | 1751.70     | Granite                     | 34.81             | 2.39                          | 4.97                         | 169              | 52,245                   | 11,631       | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-16                | ZEV-CH-01-23 | 1827.00      | 1827.80     | Granite                     | 35.48             | 2.39                          | 5.08                         | 168              | 46,355                   | 10,296       | 5.20                               | 0.27      | 4.76                               | 0.08      |
| ZEV-01 UCS-17                | ZEV-CH-01-23 | 1934.40      | 1935.40     | Granite                     | 37.46             | 2.38                          | 5.39                         | 168              | 79,395                   | 17,783       | 9.90                               | 0.20      | 8.98                               | 0.06      |
| ZEV-01 UCS-18                | ZEV-CH-01-23 | 2008.00      | 2009.00     | Granite                     | 37.01             | 2.38                          | 5.34                         | 168              | 91,085                   | 20,405       | 9.70                               | 0.26      | 9.64                               | 0.11      |
| ZEV-01 UCS-19                | ZEV-CH-01-23 | 2033.00      | 2034.00     | Granite                     | 37.49             | 2.39                          | 5.36                         | 169              | 54,170                   | 12,102       | 9.07                               | 0.23      | 7.17                               | 0.04      |
| ZEV-01 UCS-20                | ZEV-CH-01-23 | 2067.00      | 2068.80     | Granite                     | 36.99             | 2.40                          | 5.25                         | 169              | 78,690                   | 17,449       | 10.66                              | 0.26      | 10.06                              | 0.09      |
| ZEV-01 UCS-21                | ZEV-CH-01-23 | 2096.00      | 2097.00     | Granite                     | 38.31             | 2.40                          | 5.43                         | 169              | 74,755                   | 16,552       | 9.85                               | 0.21      | 6.94                               | 0.07      |
| ZEV-01 UCS-22                | ZEV-CH-01-23 | 2132.00      | 2132.90     | Granite                     | 36.20             | 2.39                          | 5.17                         | 169              | 109,730                  | 24,510       | 10.85                              | 0.12      | 10.76                              | 0.01      |
| ZEV-01 UCS-23                | ZEV-CH-01-23 | 2162.70      | 2163.40     | Granite                     | 37.40             | 2.39                          | 5.38                         | 167              | 68,565                   | 15,267       | 7.65                               | 0.28      | 5.63                               | 0.07      |
| ZEV-01 UCS-24                | ZEV-CH-01-23 | 2185.10      | 2186.60     | Granite                     | 37.08             | 2.40                          | 5.39                         | 164              | 32,075                   | 7,102        | 3.08                               | 0.30      | 2.05                               | 0.04      |
| ZEV-01 UCS-25                | ZEV-CH-01-23 | 2219.70      | 2220.70     | Granite                     | 37.10             | 2.40                          | 5.35                         | 166              | 61,160                   | 13,570       | 9.97                               | 0.18      | 9.14                               | 0.04      |
| ZEV-01 UCS-26                | ZEV-CH-01-23 | 2248.80      | 2250.00     | Granite                     | 37.54             | 2.38                          | 5.41                         | 168              | 85,350                   | 19,149       | 10.46                              | 0.21      | 12.33                              | 0.10      |
| ZEV-01 UCS-27                | ZEV-CH-01-23 | 2298.50      | 2299.33     | Granite                     | 37.03             | 2.41                          | 5.66                         | 155              | 2,645                    | 582          | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-28                | ZEV-CH-01-23 | 2327.75      | 2328.41     | Granite                     | 37.37             | 2.40                          | 5.66                         | 157              | 13,535                   | 2,990        | 1.51                               | 0.21      | 1.24                               | 0.04      |
| ZEV-01 UCS-29                | ZEV-CH-01-23 | 2332.08      | 2333.00     | Granite                     | 39.48             | 2.40                          | 5.82                         | 162              | 17,225                   | 3,805        | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-30                | ZEV-CH-01-23 | 2352.16      | 2352.66     | Granite                     | 38.31             | 2.40                          | 5.45                         | 168              | 100,015                  | 22,117       | 10.51                              | 0.32      | 9.09                               | 0.11      |
| ZEV-01 UCS-31                | ZEV-CH-01-23 | 2390.16      | 2390.75     | Granite                     | 38.35             | 2.40                          | 5.44                         | 168              | 56,995                   | 12,604       | 7.10                               | 0.22      | 5.07                               | 0.11      |
| ZEV-01 UCS-32                | ZEV-CH-01-23 | 2456.00      | 2456.90     | Granite                     | 38.04             | 2.40                          | 5.36                         | 169              | 87,750                   | 19,401       | 10.03                              | 0.35      | 9.92                               | 0.21      |
| ZEV-01 UCS-33                | ZEV-CH-01-23 | 2520.33      | 2521.50     | Granite                     | 38.73             | 2.40                          | 5.52                         | 168              | 105,920                  | 23,472       | 9.38                               | 0.25      | 8.38                               | 0.08      |
| ZEV-01 UCS-34                | ZEV-CH-01-23 | 2549.00      | 2550.00     | Granite                     | 36.96             | 2.40                          | 5.45                         | 161              | 11,830                   | 2,607        | 1.05                               | 0.25      | 0.71                               | 0.03      |
| ZEV-01 UCS-35                | ZEV-CH-01-23 | 2578.00      | 2579.00     | Granite                     | 37.77             | 2.41                          | 5.48                         | 164              | 13,450                   | 2,960        | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-36                | ZEV-CH-01-23 | 2617.00      | 2618.00     | Granite                     | 38.20             | 2.40                          | 5.41                         | 168              | 81,175                   | 17,917       | 9.16                               | 0.28      | 7.96                               | 0.10      |
| ZEV-01 UCS-37                | ZEV-CH-01-23 | 2647.00      | 2648.00     | Granite                     | 36.88             | 2.40                          | 5.43                         | 162              | 16,475                   | 3,628        | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-38                | ZEV-CH-01-23 | 2663.50      | 2664.25     | Granite                     | 39.15             | 2.40                          | 5.57                         | 168              | 62,970                   | 13,928       | 8.84                               | 0.22      | 6.78                               | 0.03      |
| ZEV-01 UCS-39                | ZEV-CH-01-23 | 2702.20      | 2703.40     | Granite                     | 38.06             | 2.39                          | 5.44                         | 168              | 54,375                   | 12,090       | 6.97                               | 0.24      | 6.15                               | 0.06      |
| ZEV-01 UCS-40                | ZEV-CH-01-23 | 2728.40      | 2729.70     | Granite                     | 36.06             | 2.39                          | 5.34                         | 162              | 41,435                   | 9,219        | -                                  | -         | -                                  | -         |
| ZEV-01 UCS-41                | ZEV-CH-01-23 | 2757.30      | 2758.10     | Granite                     | 36.81             | 2.39                          | 5.37                         | 165              | 96,985                   | 21,587       | 10.88                              | 0.17      | 11.21                              | 0.05      |
| ZEV-01 UCS-42                | ZEV-CH-01-23 | 2787.90      | 2788.65     | Granite                     | 35.74             | 2.39                          | 5.52                         | 156              | 17,635                   | 3,927        | 1.85                               | 0.26      | 1.07                               | 0.00      |
| ZEV-01 UCS-43                | ZEV-CH-01-23 | 2820.00      | 2821.00     | Granite                     | 38.17             | 2.40                          | 5.43                         | 168              | 102,825                  | 22,772       | 10.11                              | 0.23      | 9.37                               | 0.10      |
| ZEV-01 UCS-44                | ZEV-CH-01-23 | 2889.00      | 2890.00     | Granite                     | 33.67             | 2.36                          | 5.46                         | 152              | 20,185                   | 4,611        | 1.91                               | 0.28      | 1.18                               | 0.01      |
| †Tangent calculation method. |              | ft = feet    | oz = ounces | pcf = pounds per cubic foot | lbf = pound-force |                               | psi = pounds per square inch |                  |                          |              |                                    |           |                                    |           |
| ‡Secant calculation method.  |              |              |             |                             |                   |                               |                              |                  |                          |              |                                    |           |                                    |           |

Table 2.    Triaxial Compression Test Results

| Specimen No.  | Hole ID      | Depth        |            | Lithology | Weight<br>(oz) | Average<br>Diameter<br>(inch) | Axial<br>Length<br>(inch) | Density<br>(pcf) | Failure<br>Load<br>(lbs) | Confining<br>Pressure<br>(psi) | Corrected<br>Failure<br>Stress<br>(psi) |
|---------------|--------------|--------------|------------|-----------|----------------|-------------------------------|---------------------------|------------------|--------------------------|--------------------------------|-----------------------------------------|
|               |              | From<br>(ft) | To<br>(ft) |           |                |                               |                           |                  |                          |                                |                                         |
| ZEV-01 TRI-01 | ZEV-CH-01-23 | 2,010.10     | 2,011.00   | Granite   | 38.37          | 2.39                          | 5.49                      | 169              | 117,985                  | 1,500                          | 26,719                                  |
| ZEV-01 TRI-02 | ZEV-CH-01-23 | 2,035.00     | 2,036.00   | Granite   | 38.21          | 2.39                          | 5.46                      | 169              | 167,480                  | 2,500                          | 37,956                                  |
| ZEV-01 TRI-03 | ZEV-CH-01-23 | 2,071.00     | 2,072.00   | Granite   | 38.03          | 2.39                          | 5.42                      | 168              | 142,710                  | 1,500                          | 32,052                                  |
| ZEV-01 TRI-04 | ZEV-CH-01-23 | 2,104.10     | 2,105.40   | Granite   | 36.47          | 2.38                          | 5.26                      | 168              | 185,260                  | 2,500                          | 42,196                                  |
| ZEV-01 TRI-05 | ZEV-CH-01-23 | 2,200.10     | 2,201.00   | Granite   | 38.09          | 2.40                          | 5.40                      | 168              | 93,275                   | 1,500                          | 20,972                                  |
| ZEV-01 TRI-06 | ZEV-CH-01-23 | 2,237.00     | 2,238.30   | Granite   | 38.79          | 2.39                          | 5.52                      | 168              | 165,480                  | 2,500                          | 37,349                                  |
| ZEV-01 TRI-07 | ZEV-CH-01-23 | 2,441.33     | 2,442.00   | Granite   | 37.61          | 2.40                          | 5.32                      | 168              | 140,660                  | 1,500                          | 31,409                                  |
| ZEV-01 TRI-08 | ZEV-CH-01-23 | 2,467.50     | 2,468.10   | Granite   | 38.17          | 2.40                          | 5.50                      | 166              | 115,565                  | 2,500                          | 26,131                                  |
| ZEV-01 TRI-09 | ZEV-CH-01-23 | 2,477.00     | 2,477.66   | Granite   | 38.24          | 2.40                          | 5.47                      | 167              | 119,080                  | 1,500                          | 26,683                                  |
| ZEV-01 TRI-10 | ZEV-CH-01-23 | 2,980.00     | 2,981.00   | Granite   | 38.15          | 2.40                          | 5.43                      | 168              | 73,750                   | 2,500                          | 16,949                                  |
| ZEV-01 TRI-11 | ZEV-CH-01-23 | 3,009.25     | 3,010.00   | Granite   | 38.64          | 2.40                          | 5.47                      | 169              | 161,545                  | 1,500                          | 36,097                                  |
| ZEV-01 TRI-12 | ZEV-CH-01-23 | 3,018.00     | 3,018.41   | Granite   | 38.61          | 2.40                          | 5.49                      | 168              | 146,070                  | 2,500                          | 32,880                                  |

Table 3. Splitting Tensile Strength (Brazilian) Test Results

| Specimen No.  | Hole ID      | Depth     |         | Rock Type | Weight (oz) | Average Diameter (inch) | Axial Length (inch) | Density (pcf) | Failure Load (lb) | Splitting Tensile Strength (psi) |
|---------------|--------------|-----------|---------|-----------|-------------|-------------------------|---------------------|---------------|-------------------|----------------------------------|
|               |              | From (ft) | To (ft) |           |             |                         |                     |               |                   |                                  |
| ZEV-01_BTS-01 | ZEV-CH-01-23 | 2007.00   | 2008.00 | Granite   | 9.35        | 2.38                    | 1.36                | 167           | 8,425             | 1,661                            |
| ZEV-01_BTS-02 | ZEV-CH-01-23 | 2032.00   | 2033.00 | Granite   | 9.46        | 2.39                    | 1.37                | 167           | 5,789             | 1,129                            |
| ZEV-01_BTS-03 | ZEV-CH-01-23 | 2067.00   | 2068.80 | Granite   | 9.83        | 2.40                    | 1.40                | 167           | 7,213             | 1,364                            |
| ZEV-01_BTS-04 | ZEV-CH-01-23 | 2096.00   | 2097.00 | Granite   | 9.63        | 2.40                    | 1.37                | 168           | 6,432             | 1,247                            |
| ZEV-01_BTS-05 | ZEV-CH-01-23 | 2218.70   | 2219.70 | Granite   | 9.89        | 2.40                    | 1.41                | 168           | 3,132             | 590                              |
| ZEV-01_BTS-06 | ZEV-CH-01-23 | 2243.00   | 2244.00 | Granite   | 9.37        | 2.39                    | 1.35                | 167           | 3,546             | 699                              |
| ZEV-01_BTS-07 | ZEV-CH-01-23 | 2419.00   | 2420.33 | Granite   | 9.80        | 2.40                    | 1.39                | 168           | 7,539             | 1,440                            |
| ZEV-01_BTS-08 | ZEV-CH-01-23 | 2456.00   | 2456.90 | Granite   | 9.94        | 2.40                    | 1.41                | 168           | 8,007             | 1,502                            |
| ZEV-01_BTS-09 | ZEV-CH-01-23 | 2487.00   | 2488.00 | Granite   | 9.61        | 2.40                    | 1.38                | 166           | 6,576             | 1,265                            |
| ZEV-01_BTS-10 | ZEV-CH-01-23 | 2978.00   | 2978.58 | Granite   | 9.23        | 2.40                    | 1.31                | 168           | 7,425             | 1,501                            |
| ZEV-01_BTS-11 | ZEV-CH-01-23 | 3004.58   | 3005.41 | Granite   | 9.23        | 2.40                    | 1.32                | 167           | 6,559             | 1,319                            |
| ZEV-01_BTS-12 | ZEV-CH-01-23 | 1519.30   | 1520.10 | Granite   | 8.26        | 2.40                    | 1.23                | 160           | 3,077             | 665                              |
| ZEV-01_BTS-13 | ZEV-CH-01-23 | 1623.50   | 1624.90 | Granite   | 9.05        | 2.40                    | 1.30                | 167           | 3,503             | 716                              |
| ZEV-01_BTS-14 | ZEV-CH-01-23 | 1794.40   | 1795.40 | Granite   | 6.77        | 2.40                    | 0.98                | 165           | 4,726             | 1,278                            |
| ZEV-01_BTS-15 | ZEV-CH-01-23 | 1929.00   | 1930.40 | Granite   | 6.91        | 2.40                    | 1.01                | 163           | 4,791             | 1,256                            |
| ZEV-01_BTS-16 | ZEV-CH-01-23 | 2032.00   | 2033.00 | Granite   | 9.46        | 2.39                    | 1.37                | 167           | -                 | -                                |
| ZEV-01_BTS-17 | ZEV-CH-01-23 | 2067.00   | 2068.80 | Granite   | 9.83        | 2.40                    | 1.40                | 167           | -                 | -                                |
| ZEV-01_BTS-18 | ZEV-CH-01-23 | 2096.00   | 2097.00 | Granite   | 9.63        | 2.40                    | 1.37                | 168           | -                 | -                                |
| ZEV-01_BTS-19 | ZEV-CH-01-23 | 2129.20   | 2130.50 | Granite   | 9.30        | 2.39                    | 1.34                | 168           | 6,835             | 1,361                            |
| ZEV-01_BTS-20 | ZEV-CH-01-23 | 2161.10   | 2162.00 | Granite   | 7.04        | 2.39                    | 1.02                | 166           | 4,087             | 1,066                            |
| ZEV-01_BTS-21 | ZEV-CH-01-23 | 2185.10   | 2186.60 | Granite   | 6.65        | 2.40                    | 0.98                | 162           | 2,886             | 782                              |
| ZEV-01_BTS-22 | ZEV-CH-01-23 | 2243.00   | 2244.00 | Granite   | 8.73        | 2.39                    | 1.27                | 165           | 5,601             | 1,174                            |
| ZEV-01_BTS-23 | ZEV-CH-01-23 | 2284.25   | 2285.00 | Granite   | 9.24        | 2.40                    | 1.33                | 166           | 2,506             | 499                              |
| ZEV-01_BTS-24 | ZEV-CH-01-23 | 2302.00   | 2303.25 | Granite   | 8.61        | 2.40                    | 1.32                | 155           | 946               | 190                              |
| ZEV-01_BTS-25 | ZEV-CH-01-23 | 2323.00   | 2324.00 | Granite   | 8.01        | 2.40                    | 1.33                | 144           | 1,222             | 244                              |
| ZEV-01_BTS-26 | ZEV-CH-01-23 | 2371.25   | 2372.00 | Granite   | 8.58        | 2.40                    | 1.27                | 161           | 4,030             | 840                              |
| ZEV-01_BTS-27 | ZEV-CH-01-23 | 2397.66   | 2399.33 | Granite   | 8.94        | 2.40                    | 1.31                | 162           | 3,741             | 756                              |
| ZEV-01_BTS-28 | ZEV-CH-01-23 | 2524.20   | 2525.33 | Granite   | 8.84        | 2.40                    | 1.26                | 168           | 6,229             | 1,314                            |
| ZEV-01_BTS-29 | ZEV-CH-01-23 | 2535.50   | 2536.50 | Granite   | 8.63        | 2.40                    | 1.25                | 165           | 4,711             | 999                              |
| ZEV-01_BTS-30 | ZEV-CH-01-23 | 2584.75   | 2585.67 | Granite   | 8.58        | 2.41                    | 1.31                | 154           | 555               | 112                              |
| ZEV-01_BTS-31 | ZEV-CH-01-23 | 2618.00   | 2619.00 | Granite   | 9.01        | 2.41                    | 1.29                | 167           | 4,916             | 1,013                            |
| ZEV-01_BTS-32 | ZEV-CH-01-23 | 2622.80   | 2624.50 | Granite   | 8.78        | 2.40                    | 1.24                | 168           | 6,412             | 1,366                            |
| ZEV-01_BTS-33 | ZEV-CH-01-23 | 2656.50   | 2656.50 | Granite   | 8.95        | 2.40                    | 1.27                | 168           | 3,139             | 656                              |
| ZEV-01_BTS-34 | ZEV-CH-01-23 | 2686.90   | 2689.45 | Granite   | 7.94        | 2.41                    | 1.28                | 147           | 586               | 121                              |
| ZEV-01_BTS-35 | ZEV-CH-01-23 | 2739.70   | 2740.70 | Granite   | 8.74        | 2.39                    | 1.29                | 163           | 7,660             | 1,582                            |
| ZEV-01_BTS-36 | ZEV-CH-01-23 | 2773.70   | 2775.35 | Granite   | 8.80        | 2.40                    | 1.27                | 166           | 4,965             | 1,042                            |
| ZEV-01_BTS-37 | ZEV-CH-01-23 | 2803.00   | 2804.35 | Granite   | 8.98        | 2.39                    | 1.31                | 165           | 5,014             | 1,023                            |
| ZEV-01_BTS-38 | ZEV-CH-01-23 | 2842.20   | 2843.20 | Granite   | 8.46        | 2.40                    | 1.30                | 155           | 807               | 164                              |
| ZEV-01_BTS-39 | ZEV-CH-01-23 | 2874.80   | 2876.00 | Granite   | 9.10        | 2.40                    | 1.42                | 153           | 2,233             | 417                              |
| ZEV-01_BTS-40 | ZEV-CH-01-23 | 2902.50   | 2903.30 | Granite   | 8.88        | 2.40                    | 1.27                | 167           | 6,977             | 1,454                            |
| ZEV-01_BTS-41 | ZEV-CH-01-23 | 2942.00   | 2943.00 | Granite   | 9.25        | 2.40                    | 1.35                | 164           | 4,449             | 877                              |

Table 4. Point Load Test Results

| Specimen No.  | Hole ID      | From<br>(ft) | To<br>(ft) | Lithology | "Failure<br>Load" P<br>(lb) | Test<br>Orientation<br>(A/D) | Corrected<br>Point Load<br>Index, I <sub>S(50)</sub><br>(psi) | Estimated<br>UCS<br>(psi) |
|---------------|--------------|--------------|------------|-----------|-----------------------------|------------------------------|---------------------------------------------------------------|---------------------------|
| ZEV-01_PLT-01 | ZEV-CH-01-23 | 2,005.00     | 2,005.80   | Granite   | 4,518                       | A                            | 1,189                                                         | 24,961                    |
| ZEV-01_PLT-02 | ZEV-CH-01-23 | 2,036.00     | 2,037.00   | Granite   | 2,885                       | A                            | 716                                                           | 15,044                    |
| ZEV-01_PLT-03 | ZEV-CH-01-23 | 2,062.00     | 2,062.80   | Granite   | 3,826                       | A                            | 947                                                           | 19,895                    |
| ZEV-01_PLT-04 | ZEV-CH-01-23 | 2,094.60     | 2,095.90   | Granite   | 1,786                       | A                            | 458                                                           | 9,611                     |
| ZEV-01_PLT-05 | ZEV-CH-01-23 | 2,195.80     | 2,196.50   | Granite   | 2,736                       | A                            | 693                                                           | 14,548                    |
| ZEV-01_PLT-06 | ZEV-CH-01-23 | 2,238.30     | 2,239.60   | Granite   | 3,292                       | A                            | 826                                                           | 17,344                    |
| ZEV-01_PLT-07 | ZEV-CH-01-23 | 2,243.00     | 2,244.00   | Granite   | 1,746                       | A                            | 459                                                           | 9,647                     |
| ZEV-01_PLT-08 | ZEV-CH-01-23 | 2,426.00     | 2,427.00   | Granite   | 5,002                       | A                            | 1,281                                                         | 26,893                    |
| ZEV-01_PLT-09 | ZEV-CH-01-23 | 2,447.33     | 2,448.60   | Granite   | 4,856                       | A                            | 1,230                                                         | 25,820                    |
| ZEV-01_PLT-10 | ZEV-CH-01-23 | 2,472.80     | 2,473.50   | Granite   | 2,573                       | A                            | 899                                                           | 18,886                    |
| ZEV-01_PLT-11 | ZEV-CH-01-23 | 2,978.00     | 2,978.58   | Granite   | 2,762                       | A                            | 717                                                           | 15,063                    |
| ZEV-01_PLT-12 | ZEV-CH-01-23 | 2,993.00     | 2,994.00   | Granite   | 2,339                       | A                            | 630                                                           | 13,224                    |
| ZEV-01_PLT-13 | ZEV-CH-01-23 | 3,017.25     | 3,017.91   | Granite   | 4,485                       | A                            | 1,163                                                         | 24,415                    |
| ZEV-01_PLT-14 | ZEV-CH-01-23 | 1,562.40     | 1,563.40   | Granite   | 1,207                       | A                            | 379                                                           | 7,965                     |
| ZEV-01_PLT-15 | ZEV-CH-01-23 | 1,565.50     | 1,566.45   | Granite   | 543                         | A                            | 141                                                           | 2,958                     |
| ZEV-01_PLT-16 | ZEV-CH-01-23 | 1,575.00     | 1,576.30   | Granite   | 3,259                       | A                            | 1,025                                                         | 21,528                    |
| ZEV-01_PLT-17 | ZEV-CH-01-23 | 1,623.50     | 1,624.90   | Granite   | 3,324                       | A                            | 932                                                           | 19,570                    |
| ZEV-01_PLT-18 | ZEV-CH-01-23 | 1,646.00     | 1,646.70   | Granite   | 2,190                       | A                            | 710                                                           | 14,916                    |
| ZEV-01_PLT-19 | ZEV-CH-01-23 | 1,647.35     | 1,648.25   | Granite   | 2,687                       | A                            | 858                                                           | 18,009                    |
| ZEV-01_PLT-20 | ZEV-CH-01-23 | 1,754.90     | 1,755.50   | Granite   | 1,439                       | A                            | 453                                                           | 9,508                     |
| ZEV-01_PLT-21 | ZEV-CH-01-23 | 1,760.70     | 1,761.60   | Granite   | 2,691                       | A                            | 821                                                           | 17,249                    |
| ZEV-01_PLT-22 | ZEV-CH-01-23 | 1,779.60     | 1,781.30   | Granite   | 1,937                       | A                            | 610                                                           | 12,804                    |
| ZEV-01_PLT-23 | ZEV-CH-01-23 | 1,831.10     | 1,831.70   | Granite   | 1,800                       | A                            | 567                                                           | 11,898                    |
| ZEV-01_PLT-24 | ZEV-CH-01-23 | 1,867.80     | 1,868.30   | Granite   | 2,687                       | A                            | 860                                                           | 18,050                    |
| ZEV-01_PLT-25 | ZEV-CH-01-23 | 1,932.30     | 1,932.90   | Granite   | 3,357                       | A                            | 1,073                                                         | 22,542                    |
| ZEV-01_PLT-26 | ZEV-CH-01-23 | 1,933.00     | 1,933.60   | Granite   | 1,777                       | A                            | 559                                                           | 11,745                    |
| ZEV-01_PLT-27 | ZEV-CH-01-23 | 1,937.20     | 1,938.00   | Granite   | 3,608                       | A                            | 1,119                                                         | 23,502                    |
| ZEV-01_PLT-28 | ZEV-CH-01-23 | 1,961.00     | 1,961.50   | Granite   | 312                         | A                            | 100                                                           | 2,093                     |
| ZEV-01_PLT-29 | ZEV-CH-01-23 | 1,961.50     | 1,962.00   | Granite   | 1,312                       | A                            | 407                                                           | 8,539                     |
| ZEV-01_PLT-30 | ZEV-CH-01-23 | 2,133.00     | 2,133.60   | Granite   | 3,055                       | A                            | 963                                                           | 20,226                    |
| ZEV-01_PLT-31 | ZEV-CH-01-23 | 2,177.50     | 2,178.00   | Granite   | 811                         | A                            | 255                                                           | 5,356                     |
| ZEV-01_PLT-32 | ZEV-CH-01-23 | 2,244.00     | 2,244.60   | Granite   | 3,825                       | A                            | 1,030                                                         | 21,626                    |
| ZEV-01_PLT-33 | ZEV-CH-01-23 | 2,265.83     | 2,266.41   | Granite   | 1,151                       | A                            | 310                                                           | 6,504                     |
| ZEV-01_PLT-34 | ZEV-CH-01-23 | 2,312.50     | 2,322.00   | Granite   | 407                         | A                            | 111                                                           | 2,341                     |
| ZEV-01_PLT-35 | ZEV-CH-01-23 | 2,342.75     | 2,343.50   | Granite   | 2,835                       | A                            | 735                                                           | 15,443                    |
| ZEV-01_PLT-36 | ZEV-CH-01-23 | 2,367.58     | 2,368.00   | Granite   | 3,440                       | A                            | 950                                                           | 19,955                    |
| ZEV-01_PLT-37 | ZEV-CH-01-23 | 2,530.00     | 2,531.00   | Granite   | 3,176                       | A                            | 119                                                           | 2,504                     |
| ZEV-01_PLT-38 | ZEV-CH-01-23 | 2,554.00     | 2,554.80   | Granite   | -                           | -                            | -                                                             | -                         |
| ZEV-01_PLT-39 | ZEV-CH-01-23 | 2,590.00     | 2,591.00   | Granite   | 90                          | A                            | 23                                                            | 490                       |
| ZEV-01_PLT-40 | ZEV-CH-01-23 | 2,603.00     | 2,603.80   | Granite   | 666                         | A                            | 177                                                           | 3,711                     |
| ZEV-01_PLT-41 | ZEV-CH-01-23 | 2,632.75     | 2,634.33   | Granite   | 1,997                       | A                            | 531                                                           | 11,145                    |
| ZEV-01_PLT-42 | ZEV-CH-01-23 | 2,669.67     | 2,670.25   | Granite   | 328                         | A                            | 90                                                            | 1,896                     |
| ZEV-01_PLT-43 | ZEV-CH-01-23 | 2,689.85     | 2,690.65   | Granite   | 659                         | A                            | 173                                                           | 3,629                     |
| ZEV-01_PLT-44 | ZEV-CH-01-23 | 2,722.30     | 2,722.90   | Granite   | 4,092                       | A                            | 1,039                                                         | 21,814                    |
| ZEV-01_PLT-45 | ZEV-CH-01-23 | 2,763.25     | 2,763.90   | Granite   | 2,746                       | A                            | 750                                                           | 15,751                    |
| ZEV-01_PLT-46 | ZEV-CH-01-23 | 2,775.90     | 2,776.10   | Granite   | 1,803                       | A                            | 499                                                           | 10,474                    |
| ZEV-01_PLT-47 | ZEV-CH-01-23 | 2,804.35     | 2,805.00   | Granite   | 2,642                       | A                            | 712                                                           | 14,957                    |
| ZEV-01_PLT-48 | ZEV-CH-01-23 | 2,844.12     | 2,844.70   | Granite   | 2,276                       | A                            | 591                                                           | 12,421                    |
| ZEV-01_PLT-49 | ZEV-CH-01-23 | 2,873.30     | 2,874.00   | Granite   | 518                         | A                            | 138                                                           | 2,897                     |
| ZEV-01_PLT-50 | ZEV-CH-01-23 | 2,910.30     | 2,911.00   | Granite   | 836                         | A                            | 224                                                           | 4,699                     |

Table 5. Slake Durability Test Results

| Specimen ID                                               | Hole ID      | Sample Depth |         | Lithology | Slake Durability     |                           |                                        |
|-----------------------------------------------------------|--------------|--------------|---------|-----------|----------------------|---------------------------|----------------------------------------|
|                                                           |              | From (ft)    | To (ft) |           | Moisture Content (%) | Index, I <sub>d</sub> (2) | Retained Material Description (Type) * |
| ZEV-01_SLK-01                                             | ZEV-CH-01-23 | 2009.00      | 2010.00 | Granite   | 0.2%                 | 99.7                      | I                                      |
| ZEV-01_SLK-02                                             | ZEV-CH-01-23 | 2034.00      | 2035.00 | Granite   | 0.3%                 | 99.7                      | I                                      |
| ZEV-01_SLK-03                                             | ZEV-CH-01-23 | 2070.00      | 2071.00 | Granite   | 0.3%                 | 99.6                      | I                                      |
| ZEV-01_SLK-04                                             | ZEV-CH-01-23 | 2102.00      | 2102.90 | Granite   | 0.4%                 | 99.5                      | I                                      |
| ZEV-01_SLK-05                                             | ZEV-CH-01-23 | 2197.00      | 2198.20 | Granite   | 0.2%                 | 99.6                      | I                                      |
| ZEV-01_SLK-06                                             | ZEV-CH-01-23 | 2224.50      | 2225.50 | Granite   | 0.2%                 | 99.6                      | I                                      |
| ZEV-01_SLK-07                                             | ZEV-CH-01-23 | 2247.00      | 2248.00 | Granite   | 0.2%                 | 99.6                      | I                                      |
| ZEV-01_SLK-08                                             | ZEV-CH-01-23 | 2409.16      | 2410.33 | Granite   | 0.1%                 | 99.3                      | I                                      |
| ZEV-01_SLK-09                                             | ZEV-CH-01-23 | 2439.00      | 2440.96 | Granite   | 0.1%                 | 99.6                      | I                                      |
| ZEV-01_SLK-10                                             | ZEV-CH-01-23 | 2448.60      | 2450.00 | Granite   | 0.1%                 | 99.6                      | I                                      |
| ZEV-01_SLK-11                                             | ZEV-CH-01-23 | 2977.00      | 2977.91 | Granite   | 0.1%                 | 99.4                      | I                                      |
| ZEV-01_SLK-12                                             | ZEV-CH-01-23 | 3005.50      | 3006.50 | Granite   | 0.1%                 | 98.8                      | I                                      |
| ZEV-01_SLK-13                                             | ZEV-CH-01-23 | 1979.30      | 1980.60 | Granite   | 0.2%                 | 98.7                      | I                                      |
| ZEV-01_SLK-14                                             | ZEV-CH-01-23 | 1983.30      | 1984.20 | Granite   | 0.5%                 | 98.4                      | I                                      |
| ZEV-01_SLK-15                                             | ZEV-CH-01-23 | 2138.50      | 2140.00 | Granite   | 0.1%                 | 98.9                      | I                                      |
| ZEV-01_SLK-16                                             | ZEV-CH-01-23 | 2174.70      | 2175.80 | Granite   | 0.4%                 | 98.7                      | I                                      |
| ZEV-01_SLK-17                                             | ZEV-CH-01-23 | 2197.00      | 2198.20 | Granite   | 0.3%                 | 98.8                      | I                                      |
| ZEV-01_SLK-18                                             | ZEV-CH-01-23 | 2224.50      | 2225.50 | Granite   | 0.3%                 | 99.0                      | I                                      |
| ZEV-01_SLK-19                                             | ZEV-CH-01-23 | 2247.00      | 2248.00 | Granite   | 0.3%                 | 98.1                      | I                                      |
| ZEV-01_SLK-20                                             | ZEV-CH-01-23 | 2275.25      | 2276.25 | Granite   | 0.3%                 | 98.2                      | I                                      |
| ZEV-01_SLK-21                                             | ZEV-CH-01-23 | 2319.25      | 2320.33 | Granite   | 0.1%                 | 92.0                      | II                                     |
| ZEV-01_SLK-22                                             | ZEV-CH-01-23 | 2350.50      | 2351.66 | Granite   | 0.3%                 | 99.2                      | I                                      |
| ZEV-01_SLK-23                                             | ZEV-CH-01-23 | 2360.08      | 2360.75 | Granite   | 0.3%                 | 99.1                      | I                                      |
| ZEV-01_SLK-24                                             | ZEV-CH-01-23 | 2514.67      | 2516.00 | Granite   | 0.8%                 | 99.1                      | I                                      |
| ZEV-01_SLK-25                                             | ZEV-CH-01-23 | 2560.00      | 2561.00 | Granite   | 0.9%                 | 80.5                      | II                                     |
| ZEV-01_SLK-26                                             | ZEV-CH-01-23 | 2567.33      | 2568.00 | Granite   | 0.3%                 | 97.8                      | I                                      |
| ZEV-01_SLK-27                                             | ZEV-CH-01-23 | 2635.25      | 2636.50 | Granite   | 0.6%                 | 99.2                      | I                                      |
| ZEV-01_SLK-28                                             | ZEV-CH-01-23 | 2666.00      | 2667.00 | Granite   | 0.2%                 | 98.6                      | I                                      |
| ZEV-01_SLK-29                                             | ZEV-CH-01-23 | 2682.00      | 2683.70 | Granite   | 0.4%                 | 94.8                      | I                                      |
| ZEV-01_SLK-30                                             | ZEV-CH-01-23 | 2737.00      | 2739.00 | Granite   | 0.1%                 | 98.7                      | I                                      |
| ZEV-01_SLK-31                                             | ZEV-CH-01-23 | 2772.40      | 2773.00 | Granite   | 0.3%                 | 99.5                      | I                                      |
| ZEV-01_SLK-32                                             | ZEV-CH-01-23 | 2825.20      | 2825.80 | Granite   | 0.3%                 | 98.6                      | I                                      |
| ZEV-01_SLK-33                                             | ZEV-CH-01-23 | 2891.45      | 2892.00 | Granite   | 0.9%                 | 83.8                      | II                                     |
| ZEV-01_SLK-34                                             | ZEV-CH-01-23 | 2903.30      | 2903.70 | Granite   | 0.2%                 | 98.3                      | I                                      |
| ZEV-01_SLK-35                                             | ZEV-CH-01-23 | 2935.70      | 2938.50 | Granite   | 0.5%                 | 92.2                      | II                                     |
| * Type I = Retained pieces remained virtually unchanged   |              |              |         |           |                      |                           |                                        |
| II = Retained materials consist of large and small pieces |              |              |         |           |                      |                           |                                        |
| III = Retained materials is exclusively small fragments   |              |              |         |           |                      |                           |                                        |

## **APPENDIX A**

### **UNIAXIAL COMPRESSIVE STRENGTH (UCS) TEST DATASHEET**



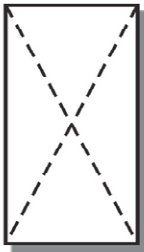
UNIAXIAL COMPRESSION TESTS

|         |              |                     |              |
|---------|--------------|---------------------|--------------|
| CLIENT: | Lane PES     | HOLE NO:            | ZEV-CH-01-23 |
| JOB NO: | 951-20       | MOISTURE CONDITION: | As received  |
| DATE:   | May 16, 2023 | TEMPERATURE:        | Ambient      |

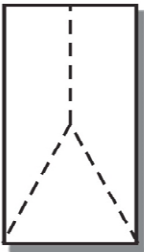
| Specimen No.  | Hole No.     | Depth     |          | Length of Interval (ft) | Weight (oz) | Diameter            |                     | Axial Length (inch) | Length-to-Diameter Ratio | Area (inch <sup>2</sup> ) | Density (pcf) | Specific Gravity |
|---------------|--------------|-----------|----------|-------------------------|-------------|---------------------|---------------------|---------------------|--------------------------|---------------------------|---------------|------------------|
|               |              | From (ft) | To (ft)  |                         |             | D <sub>1</sub> (in) | D <sub>2</sub> (in) |                     |                          |                           |               |                  |
| ZEV-01_UCS-01 | ZEV-CH-01-23 | 2,007.00  | 2,008.00 | 1.00                    | 38.15       | 2.38                | 2.38                | 5.50                | 2.3                      | 4.46                      | 168           | 2.7              |
| ZEV-01_UCS-02 | ZEV-CH-01-23 | 2,032.00  | 2,033.00 | 1.00                    | 38.26       | 2.39                | 2.39                | 5.46                | 2.3                      | 4.49                      | 168           | 2.7              |
| ZEV-01_UCS-03 | ZEV-CH-01-23 | 2,068.90  | 2,069.90 | 1.00                    | 39.77       | 2.40                | 2.40                | 5.45                | 2.3                      | 4.52                      | 175           | 2.8              |
| ZEV-01_UCS-04 | ZEV-CH-01-23 | 2,097.30  | 2,098.40 | 1.10                    | 37.79       | 2.39                | 2.40                | 5.41                | 2.3                      | 4.50                      | 168           | 2.7              |
| ZEV-01_UCS-05 | ZEV-CH-01-23 | 2,194.20  | 2,195.00 | 0.80                    | 37.77       | 2.40                | 2.40                | 5.39                | 2.2                      | 4.53                      | 167           | 2.7              |
| ZEV-01_UCS-06 | ZEV-CH-01-23 | 2,219.70  | 2,220.70 | 1.00                    | 36.92       | 2.40                | 2.40                | 5.24                | 2.2                      | 4.51                      | 169           | 2.7              |
| ZEV-01_UCS-07 | ZEV-CH-01-23 | 2,248.80  | 2,250.00 | 1.20                    | 38.19       | 2.38                | 2.38                | 5.49                | 2.3                      | 4.46                      | 168           | 2.7              |
| ZEV-01_UCS-08 | ZEV-CH-01-23 | 2,415.10  | 2,416.10 | 1.00                    | 37.94       | 2.40                | 2.40                | 5.38                | 2.2                      | 4.54                      | 168           | 2.7              |
| ZEV-01_UCS-09 | ZEV-CH-01-23 | 2,450.40  | 2,452.00 | 1.60                    | 37.80       | 2.40                | 2.40                | 5.34                | 2.2                      | 4.53                      | 169           | 2.7              |
| ZEV-01_UCS-10 | ZEV-CH-01-23 | 2,962.66  | 2,963.33 | 0.67                    | 37.91       | 2.40                | 2.39                | 5.37                | 2.2                      | 4.51                      | 169           | 2.7              |
| ZEV-01_UCS-11 | ZEV-CH-01-23 | 2,982.75  | 2,983.33 | 0.58                    | 39.26       | 2.40                | 2.40                | 5.59                | 2.3                      | 4.51                      | 168           | 2.7              |
| ZEV-01_UCS-12 | ZEV-CH-01-23 | 3,017.25  | 3,017.91 | 0.66                    | 37.96       | 2.40                | 2.40                | 5.38                | 2.2                      | 4.52                      | 169           | 2.7              |
| ZEV-01_UCS-13 | ZEV-CH-01-23 | 1,518.00  | 1,519.30 | 1.30                    | 36.51       | 2.40                | 2.40                | 5.34                | 2.2                      | 4.52                      | 163           | 2.6              |
| ZEV-01_UCS-14 | ZEV-CH-01-23 | 1,672.78  | 1,673.85 | 1.07                    | 37.56       | 2.39                | 2.39                | 5.44                | 2.3                      | 4.49                      | 166           | 2.7              |
| ZEV-01_UCS-15 | ZEV-CH-01-23 | 1,750.00  | 1,751.70 | 1.70                    | 34.81       | 2.39                | 2.39                | 4.97                | 2.1                      | 4.49                      | 169           | 2.7              |
| ZEV-01_UCS-16 | ZEV-CH-01-23 | 1,827.00  | 1,827.80 | 0.80                    | 35.48       | 2.40                | 2.39                | 5.08                | 2.1                      | 4.50                      | 168           | 2.7              |
| ZEV-01_UCS-17 | ZEV-CH-01-23 | 1,934.40  | 1,935.40 | 1.00                    | 37.46       | 2.38                | 2.39                | 5.39                | 2.3                      | 4.46                      | 168           | 2.7              |
| ZEV-01_UCS-18 | ZEV-CH-01-23 | 2,008.00  | 2,009.00 | 1.00                    | 37.01       | 2.38                | 2.38                | 5.34                | 2.2                      | 4.46                      | 168           | 2.7              |
| ZEV-01_UCS-19 | ZEV-CH-01-23 | 2,033.00  | 2,034.00 | 1.00                    | 37.49       | 2.38                | 2.39                | 5.36                | 2.2                      | 4.48                      | 169           | 2.7              |
| ZEV-01_UCS-20 | ZEV-CH-01-23 | 2,067.00  | 2,068.80 | 1.80                    | 36.99       | 2.40                | 2.40                | 5.25                | 2.2                      | 4.51                      | 169           | 2.7              |
| ZEV-01_UCS-21 | ZEV-CH-01-23 | 2,096.00  | 2,097.00 | 1.00                    | 38.31       | 2.40                | 2.40                | 5.43                | 2.3                      | 4.52                      | 169           | 2.7              |
| ZEV-01_UCS-22 | ZEV-CH-01-23 | 2,132.00  | 2,132.90 | 0.90                    | 36.20       | 2.39                | 2.39                | 5.17                | 2.2                      | 4.48                      | 169           | 2.7              |
| ZEV-01_UCS-23 | ZEV-CH-01-23 | 2,162.70  | 2,163.40 | 0.70                    | 37.40       | 2.39                | 2.39                | 5.38                | 2.3                      | 4.49                      | 167           | 2.7              |
| ZEV-01_UCS-24 | ZEV-CH-01-23 | 2,185.10  | 2,186.60 | 1.50                    | 37.08       | 2.40                | 2.40                | 5.39                | 2.2                      | 4.52                      | 164           | 2.6              |
| ZEV-01_UCS-25 | ZEV-CH-01-23 | 2,219.70  | 2,220.70 | 1.00                    | 37.10       | 2.40                | 2.40                | 5.35                | 2.2                      | 4.51                      | 166           | 2.7              |
| ZEV-01_UCS-26 | ZEV-CH-01-23 | 2,248.80  | 2,250.00 | 1.20                    | 37.54       | 2.38                | 2.38                | 5.41                | 2.3                      | 4.46                      | 168           | 2.7              |
| ZEV-01_UCS-27 | ZEV-CH-01-23 | 2,298.50  | 2,299.33 | 0.83                    | 37.03       | 2.41                | 2.41                | 5.66                | 2.4                      | 4.54                      | 155           | 2.5              |
| ZEV-01_UCS-28 | ZEV-CH-01-23 | 2,327.75  | 2,328.41 | 0.66                    | 37.37       | 2.40                | 2.40                | 5.66                | 2.4                      | 4.53                      | 157           | 2.5              |
| ZEV-01_UCS-29 | ZEV-CH-01-23 | 2,332.08  | 2,333.00 | 0.92                    | 39.48       | 2.40                | 2.40                | 5.82                | 2.4                      | 4.53                      | 162           | 2.6              |
| ZEV-01_UCS-30 | ZEV-CH-01-23 | 2,352.16  | 2,352.66 | 0.50                    | 38.31       | 2.40                | 2.40                | 5.45                | 2.3                      | 4.52                      | 168           | 2.7              |
| ZEV-01_UCS-31 | ZEV-CH-01-23 | 2,390.16  | 2,390.75 | 0.59                    | 38.35       | 2.40                | 2.40                | 5.44                | 2.3                      | 4.52                      | 168           | 2.7              |
| ZEV-01_UCS-32 | ZEV-CH-01-23 | 2,456.00  | 2,456.90 | 0.90                    | 38.04       | 2.40                | 2.40                | 5.36                | 2.2                      | 4.52                      | 169           | 2.7              |
| ZEV-01_UCS-33 | ZEV-CH-01-23 | 2,520.33  | 2,521.50 | 1.17                    | 38.73       | 2.40                | 2.40                | 5.52                | 2.3                      | 4.51                      | 168           | 2.7              |
| ZEV-01_UCS-34 | ZEV-CH-01-23 | 2,549.00  | 2,550.00 | 1.00                    | 36.96       | 2.40                | 2.41                | 5.45                | 2.3                      | 4.54                      | 161           | 2.6              |
| ZEV-01_UCS-35 | ZEV-CH-01-23 | 2,578.00  | 2,579.00 | 1.00                    | 37.77       | 2.40                | 2.41                | 5.48                | 2.3                      | 4.54                      | 164           | 2.6              |
| ZEV-01_UCS-36 | ZEV-CH-01-23 | 2,617.00  | 2,618.00 | 1.00                    | 38.20       | 2.40                | 2.40                | 5.41                | 2.3                      | 4.53                      | 168           | 2.7              |
| ZEV-01_UCS-37 | ZEV-CH-01-23 | 2,647.00  | 2,648.00 | 1.00                    | 36.88       | 2.40                | 2.40                | 5.43                | 2.3                      | 4.54                      | 162           | 2.6              |
| ZEV-01_UCS-38 | ZEV-CH-01-23 | 2,663.50  | 2,664.25 | 0.75                    | 39.15       | 2.40                | 2.40                | 5.57                | 2.3                      | 4.52                      | 168           | 2.7              |
| ZEV-01_UCS-39 | ZEV-CH-01-23 | 2,702.20  | 2,703.40 | 1.20                    | 38.06       | 2.39                | 2.39                | 5.44                | 2.3                      | 4.50                      | 168           | 2.7              |
| ZEV-01_UCS-40 | ZEV-CH-01-23 | 2,728.40  | 2,729.70 | 1.30                    | 36.06       | 2.39                | 2.39                | 5.34                | 2.2                      | 4.49                      | 162           | 2.6              |
| ZEV-01_UCS-41 | ZEV-CH-01-23 | 2,757.30  | 2,758.10 | 0.80                    | 36.81       | 2.39                | 2.39                | 5.37                | 2.2                      | 4.49                      | 165           | 2.6              |
| ZEV-01_UCS-42 | ZEV-CH-01-23 | 2,787.90  | 2,788.65 | 0.75                    | 35.74       | 2.39                | 2.39                | 5.52                | 2.3                      | 4.49                      | 156           | 2.5              |
| ZEV-01_UCS-43 | ZEV-CH-01-23 | 2,820.00  | 2,821.00 | 1.00                    | 38.17       | 2.40                | 2.40                | 5.43                | 2.3                      | 4.52                      | 168           | 2.7              |
| ZEV-01_UCS-44 | ZEV-CH-01-23 | 2,889.00  | 2,890.00 | 1.00                    | 33.67       | 2.37                | 2.36                | 5.46                | 2.3                      | 4.38                      | 152           | 2.4              |

| Specimen No.  | Lithological Description | Failure Load (lb) | UCS (psi) | Failure Mode Notes | Comments                                          |
|---------------|--------------------------|-------------------|-----------|--------------------|---------------------------------------------------|
| ZEV-01_UCS-01 | Granite                  | 103,465           | 23,198    | Axial              |                                                   |
| ZEV-01_UCS-02 | Granite                  | 63,985            | 14,250    | Axial              | Sample failed partly along pre-existing fractures |
| ZEV-01_UCS-03 | Granite                  | 87,490            | 19,376    | Shear              | Sample failed partly along pre-existing contact   |
| ZEV-01_UCS-04 | Granite                  | 56,220            | 12,485    | Axial              | Sample failed partly along pre-existing fractures |
| ZEV-01_UCS-05 | Granite                  | 59,500            | 13,136    | Axial/Shear        |                                                   |
| ZEV-01_UCS-06 | Granite                  | 82,090            | 18,191    | Axial              |                                                   |
| ZEV-01_UCS-07 | Granite                  | 73,520            | 16,477    | Axial              |                                                   |
| ZEV-01_UCS-08 | Granite                  | 24,275            | 5,349     | Shear              | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-09 | Granite                  | 53,955            | 11,914    | Axial/Shear        | Sample failed partly along pre-existing fractures |
| ZEV-01_UCS-10 | Granite                  | 103,625           | 23,002    | Axial              |                                                   |
| ZEV-01_UCS-11 | Granite                  | 106,270           | 23,574    | Axial              |                                                   |
| ZEV-01_UCS-12 | Granite                  | 47,520            | 10,509    | Shear              | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-13 | Granite                  | 38,625            | 8,545     | Axial/Shear        | Sample failed partly along pre-existing fractures |
| ZEV-01_UCS-14 | Granite                  | 13,555            | 3,022     | Axial              | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-15 | Granite                  | 52,245            | 11,631    | Axial              |                                                   |
| ZEV-01_UCS-16 | Granite                  | 46,355            | 10,296    | Axial              |                                                   |
| ZEV-01_UCS-17 | Granite                  | 79,395            | 17,783    | Axial              |                                                   |
| ZEV-01_UCS-18 | Granite                  | 91,085            | 20,405    | Axial              |                                                   |
| ZEV-01_UCS-19 | Granite                  | 54,170            | 12,102    | Axial              |                                                   |
| ZEV-01_UCS-20 | Granite                  | 78,690            | 17,449    | Axial              |                                                   |
| ZEV-01_UCS-21 | Granite                  | 74,755            | 16,552    | Axial              |                                                   |
| ZEV-01_UCS-22 | Granite                  | 109,730           | 24,510    | Axial              |                                                   |
| ZEV-01_UCS-23 | Granite                  | 68,565            | 15,267    | Axial              |                                                   |
| ZEV-01_UCS-24 | Granite                  | 32,075            | 7,102     | Shear              |                                                   |
| ZEV-01_UCS-25 | Granite                  | 61,160            | 13,570    | Axial              |                                                   |
| ZEV-01_UCS-26 | Granite                  | 85,350            | 19,149    | Axial              |                                                   |
| ZEV-01_UCS-27 | Granite                  | 2,645             | 582       | Axial/Shear        | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-28 | Granite                  | 13,535            | 2,990     | Axial              | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-29 | Granite                  | 17,225            | 3,805     | Axial              | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-30 | Granite                  | 100,015           | 22,117    | Axial              |                                                   |
| ZEV-01_UCS-31 | Granite                  | 56,995            | 12,604    | Axial/Shear        | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-32 | Granite                  | 87,750            | 19,401    | Axial              |                                                   |
| ZEV-01_UCS-33 | Granite                  | 105,920           | 23,472    | Axial              |                                                   |
| ZEV-01_UCS-34 | Granite                  | 11,830            | 2,607     | Axial/Shear        | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-35 | Granite                  | 13,450            | 2,960     | Axial              | Sample failed along pre-existing fracture         |
| ZEV-01_UCS-36 | Granite                  | 81,175            | 17,917    | Axial              |                                                   |
| ZEV-01_UCS-37 | Granite                  | 16,475            | 3,628     | Axial              |                                                   |
| ZEV-01_UCS-38 | Granite                  | 62,970            | 13,928    | Axial              | Sample failed partly along pre-existing fractures |
| ZEV-01_UCS-39 | Granite                  | 54,375            | 12,090    | Axial              |                                                   |
| ZEV-01_UCS-40 | Granite                  | 41,435            | 9,219     | Axial              |                                                   |
| ZEV-01_UCS-41 | Granite                  | 96,985            | 21,587    | Axial              |                                                   |
| ZEV-01_UCS-42 | Granite                  | 17,635            | 3,927     | Axial              |                                                   |
| ZEV-01_UCS-43 | Granite                  | 102,825           | 22,772    | Axial/Shear        |                                                   |
| ZEV-01_UCS-44 | Granite                  | 20,185            | 4,611     | Shear              |                                                   |

Failure Mode Sketches



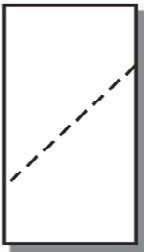
Cone



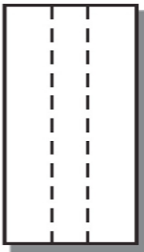
Cone and Axial Fracture/Columnar



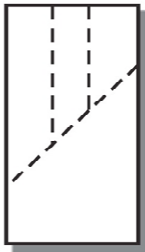
Cone and Shear



Shear



Axial Fracture/Columnar

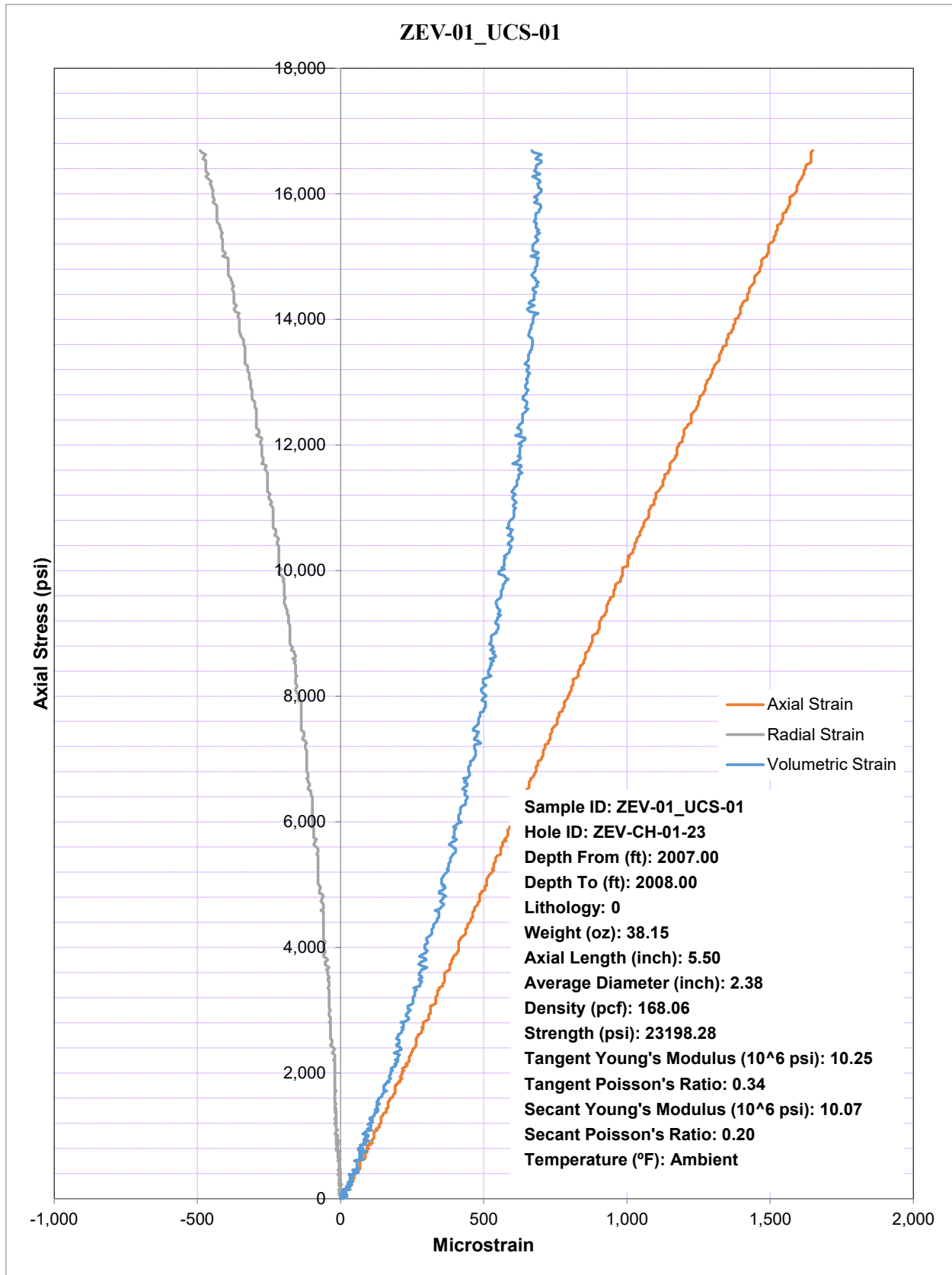


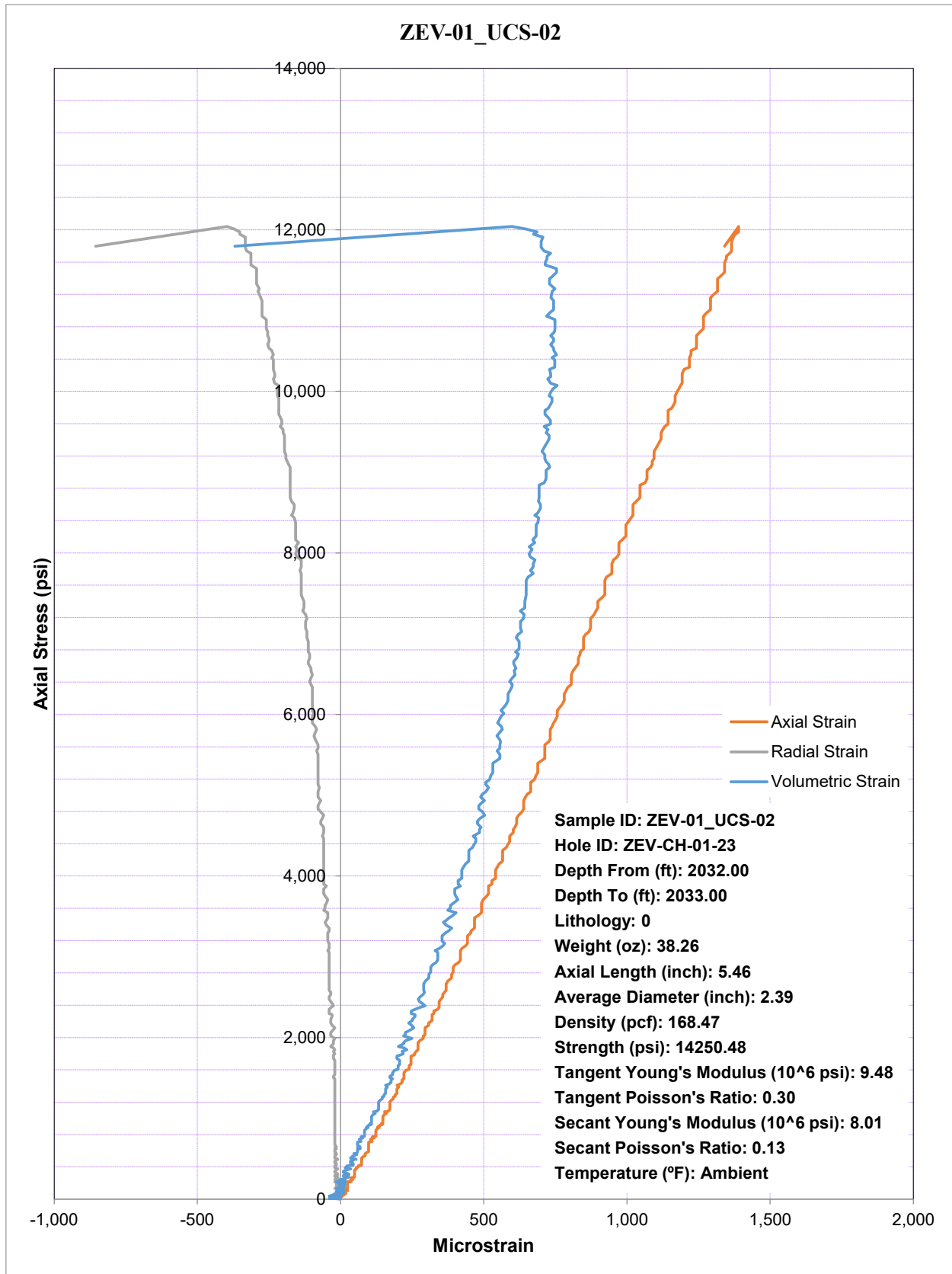
Shear and Axial Fracture/Columnar

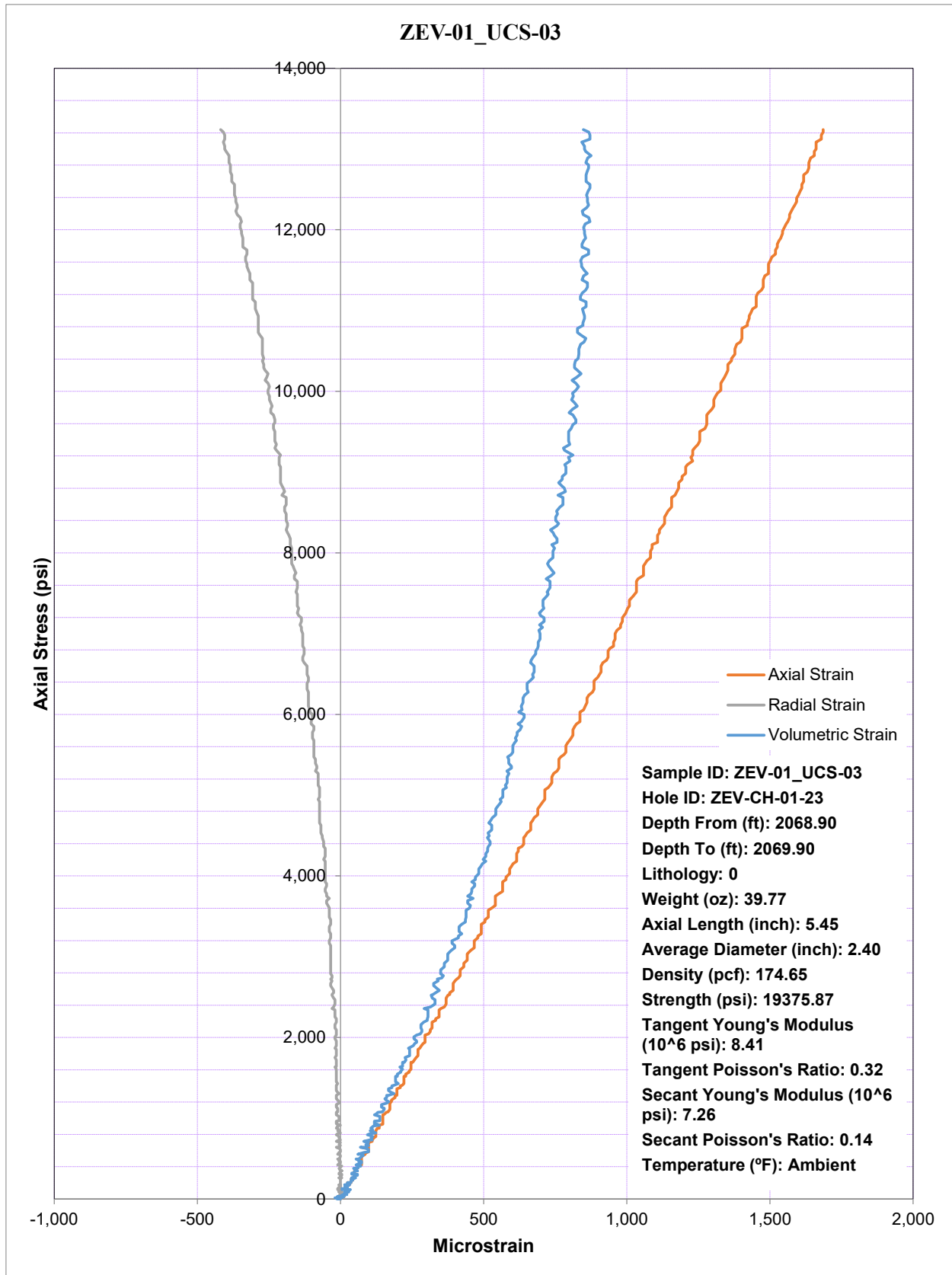


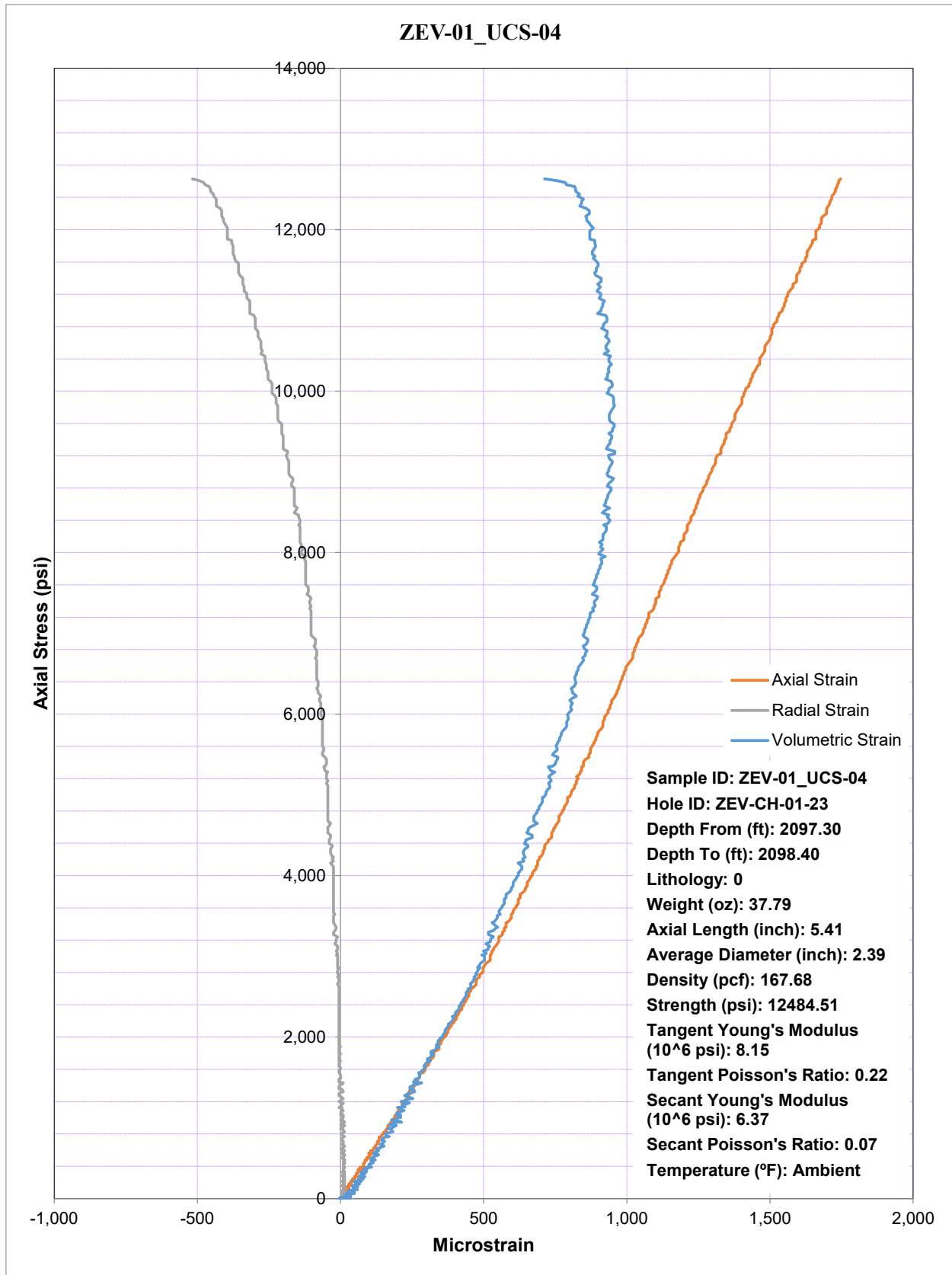
**APPENDIX B**

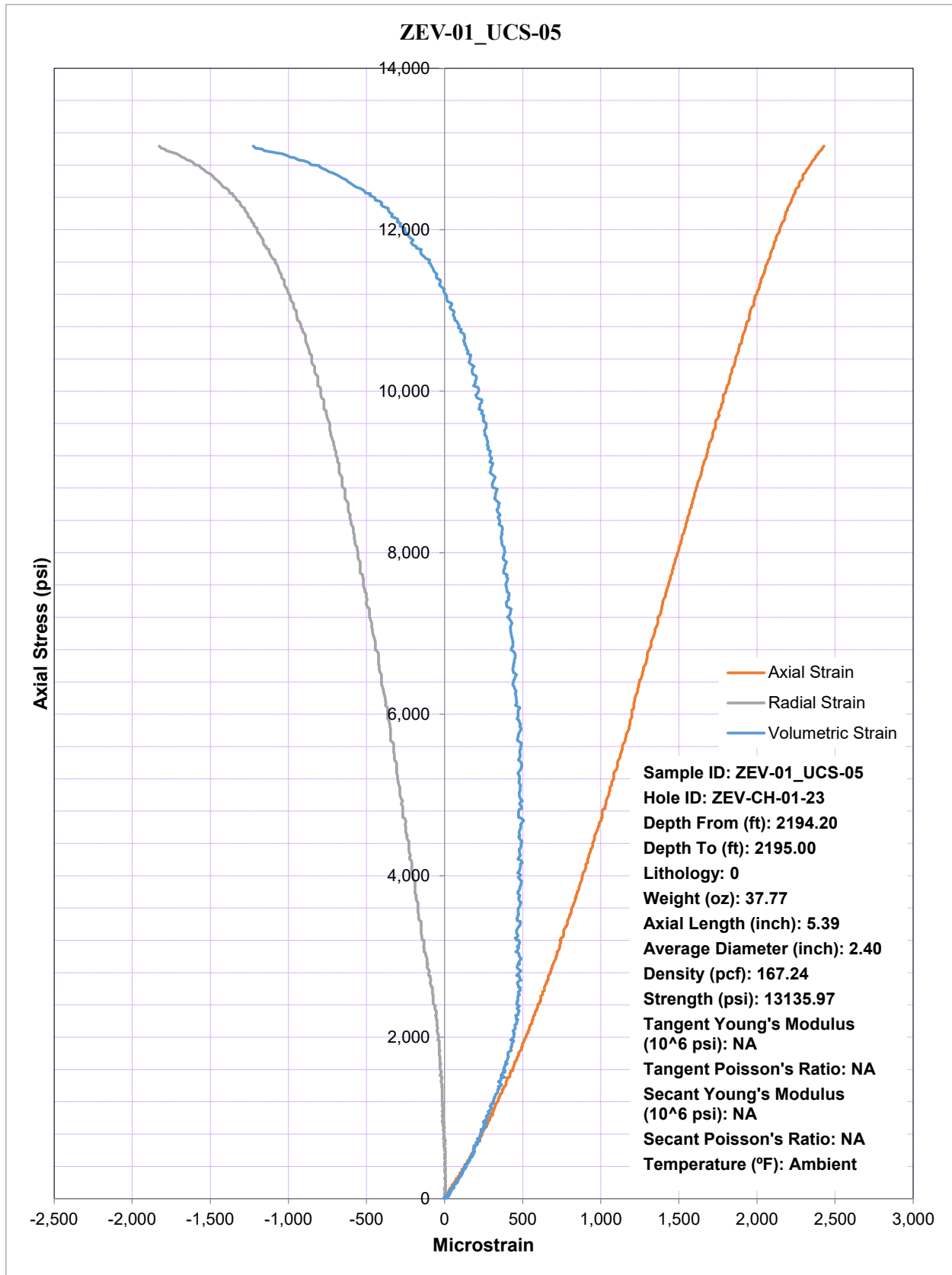
**STRESS-STRAIN PLOTS FOR  
UNIAXIAL COMPRESSIVE STRENGTH TEST SPECIMENS**

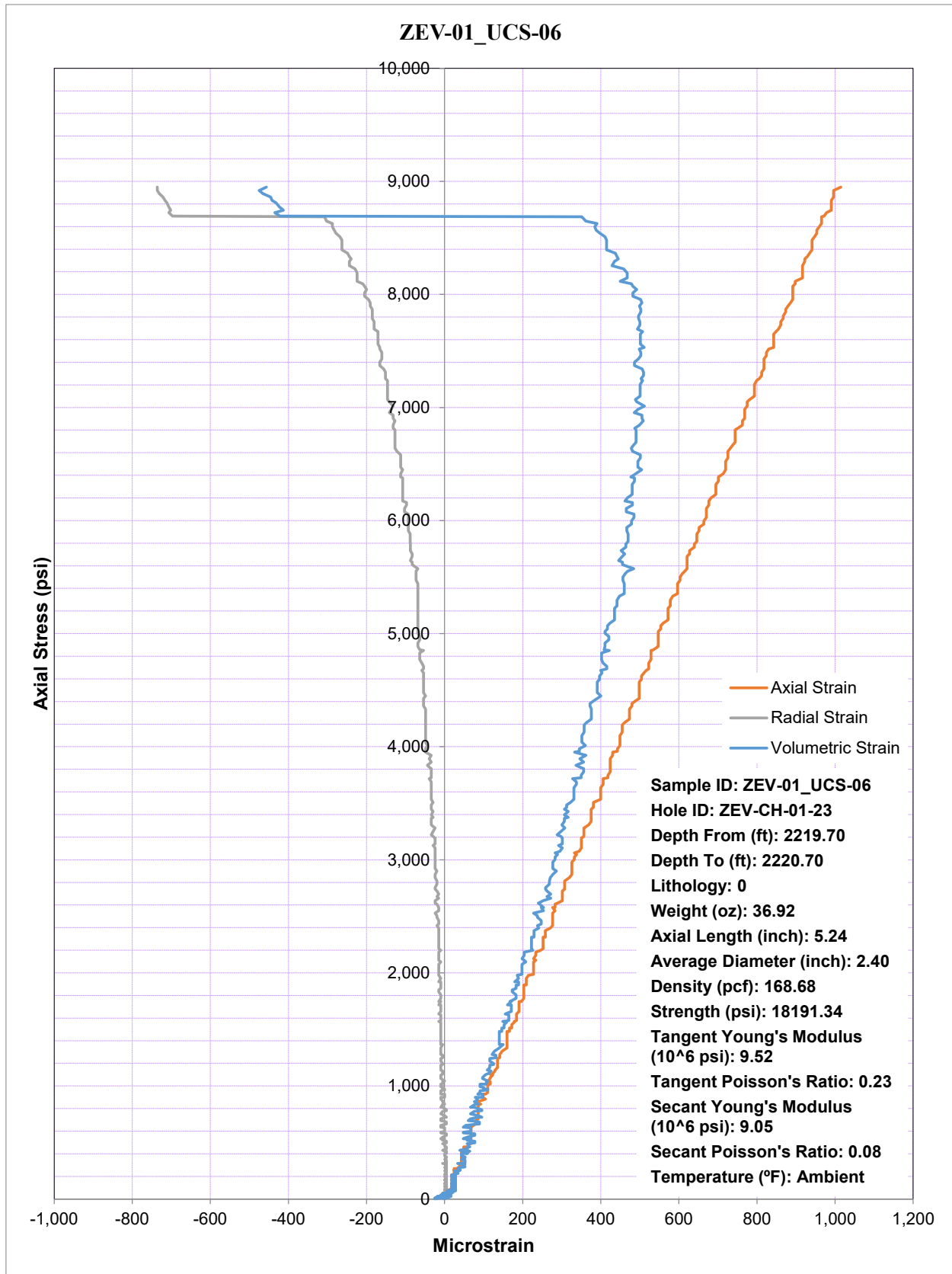


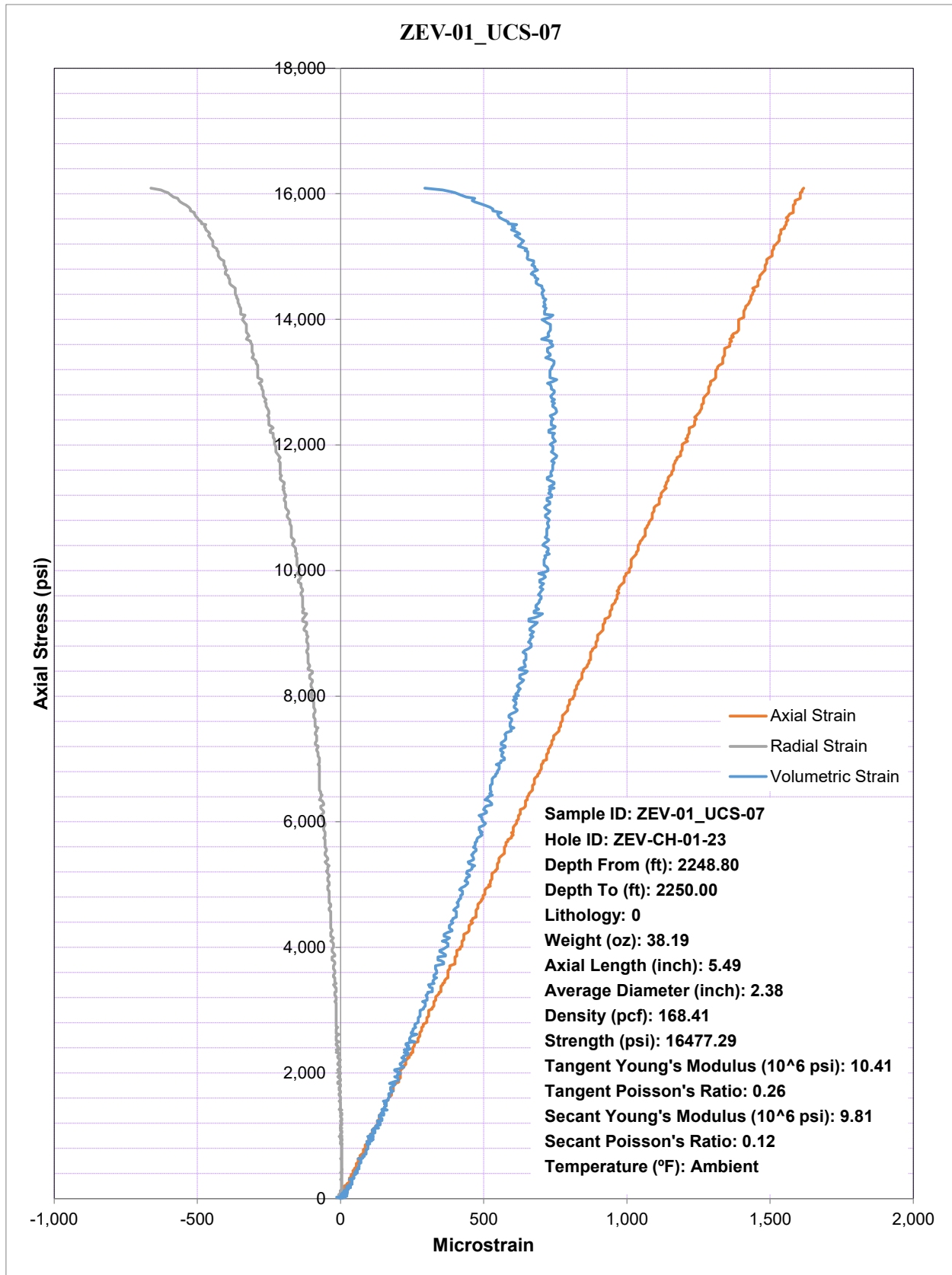




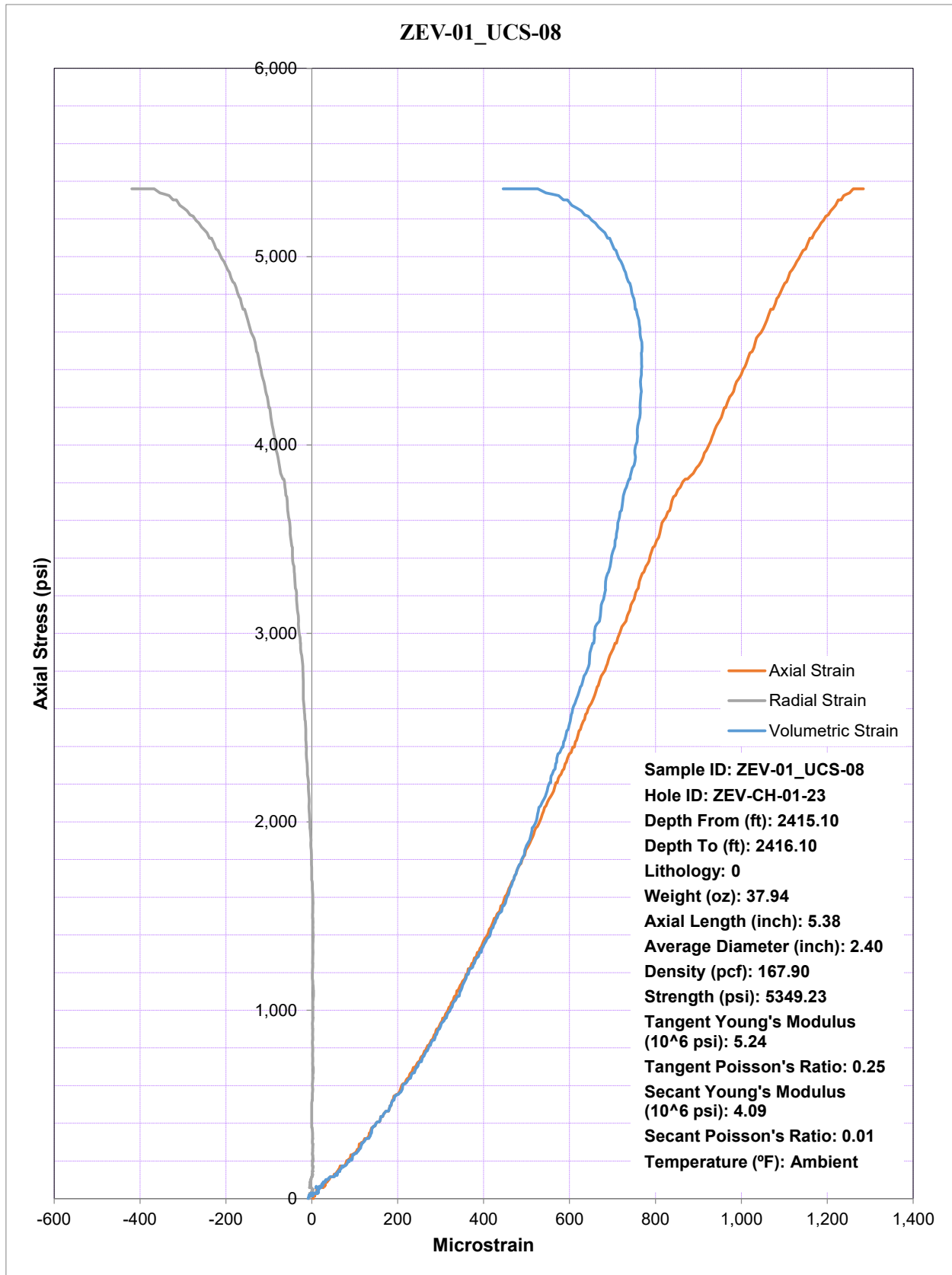


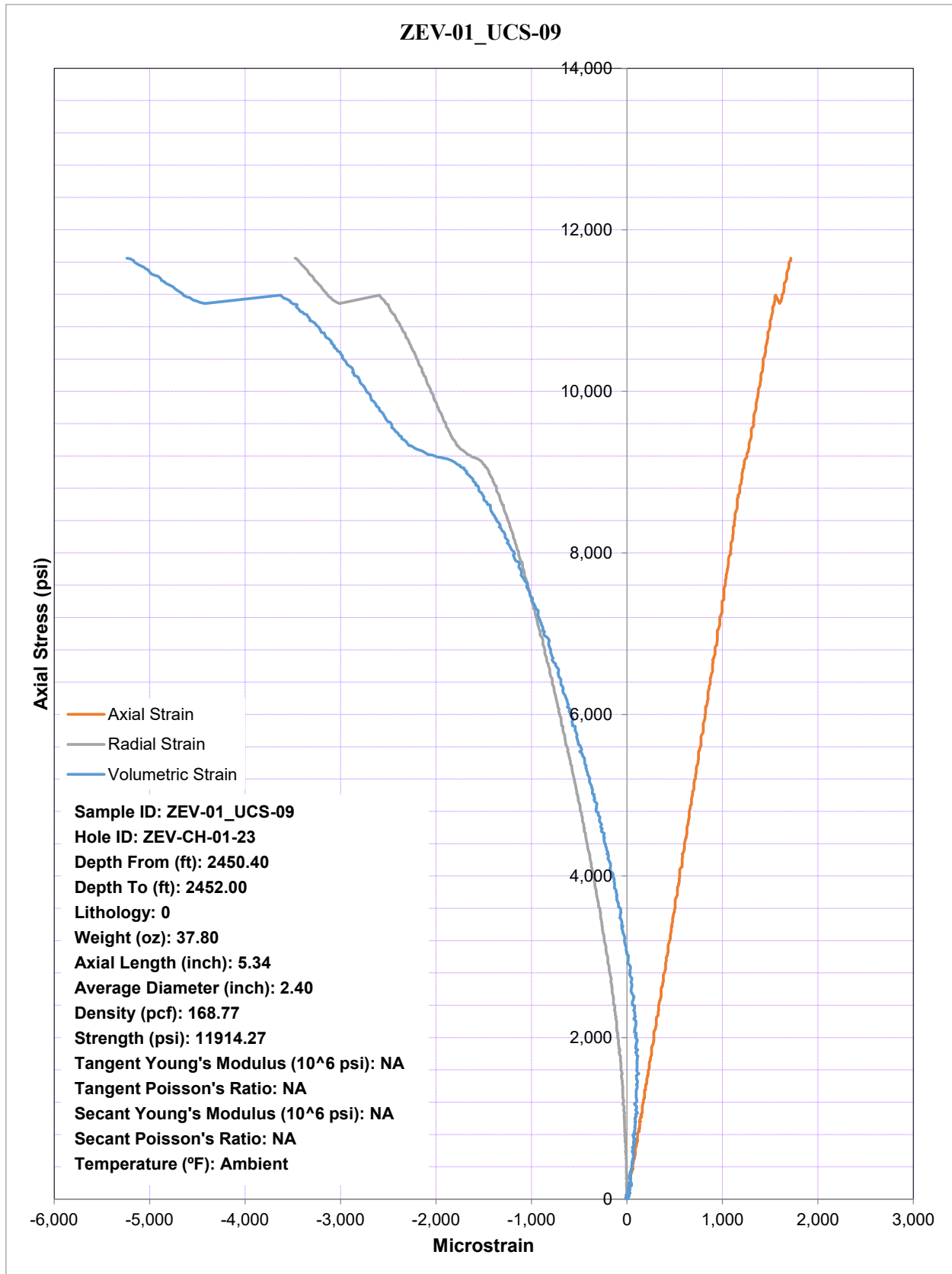


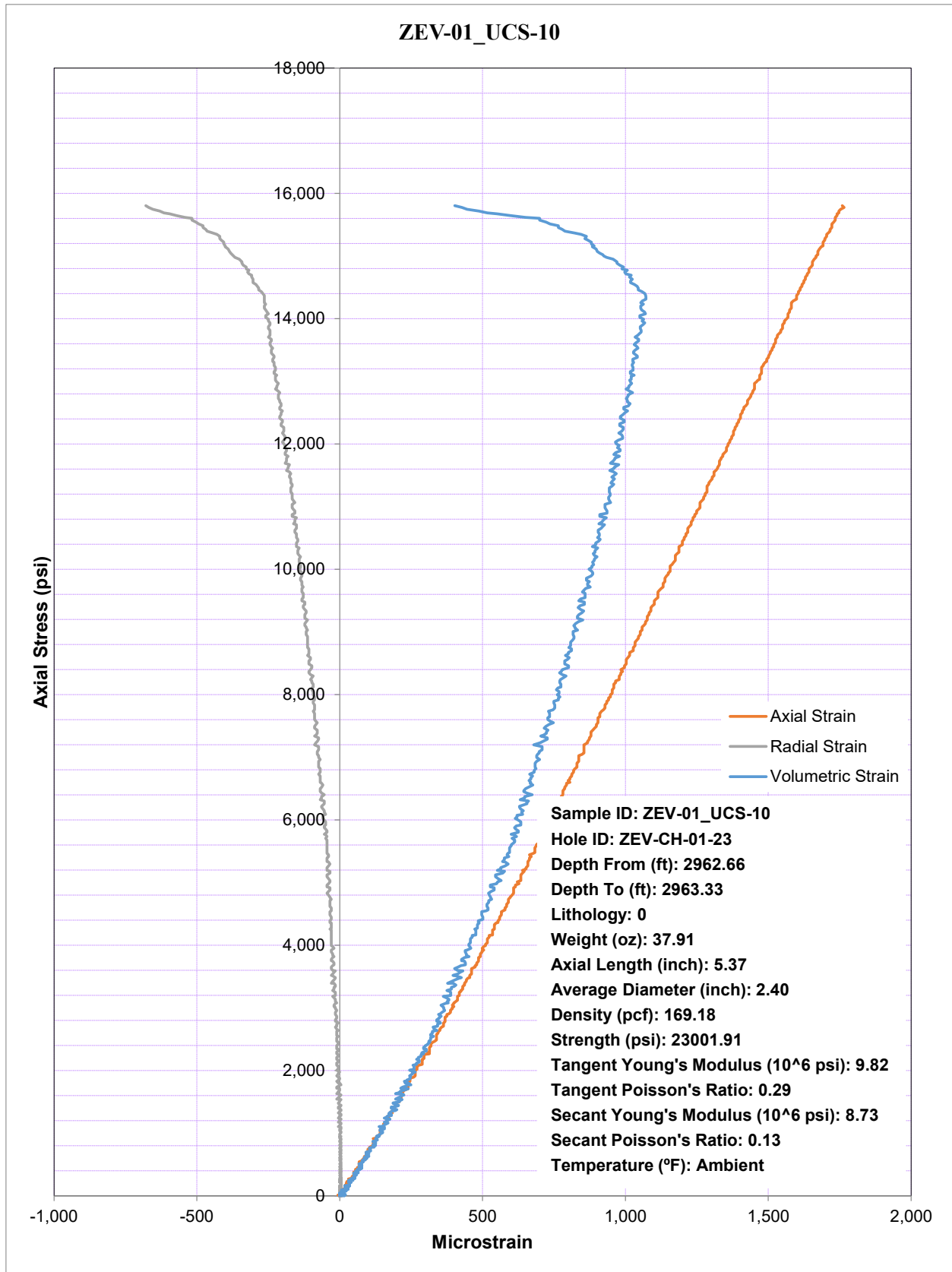


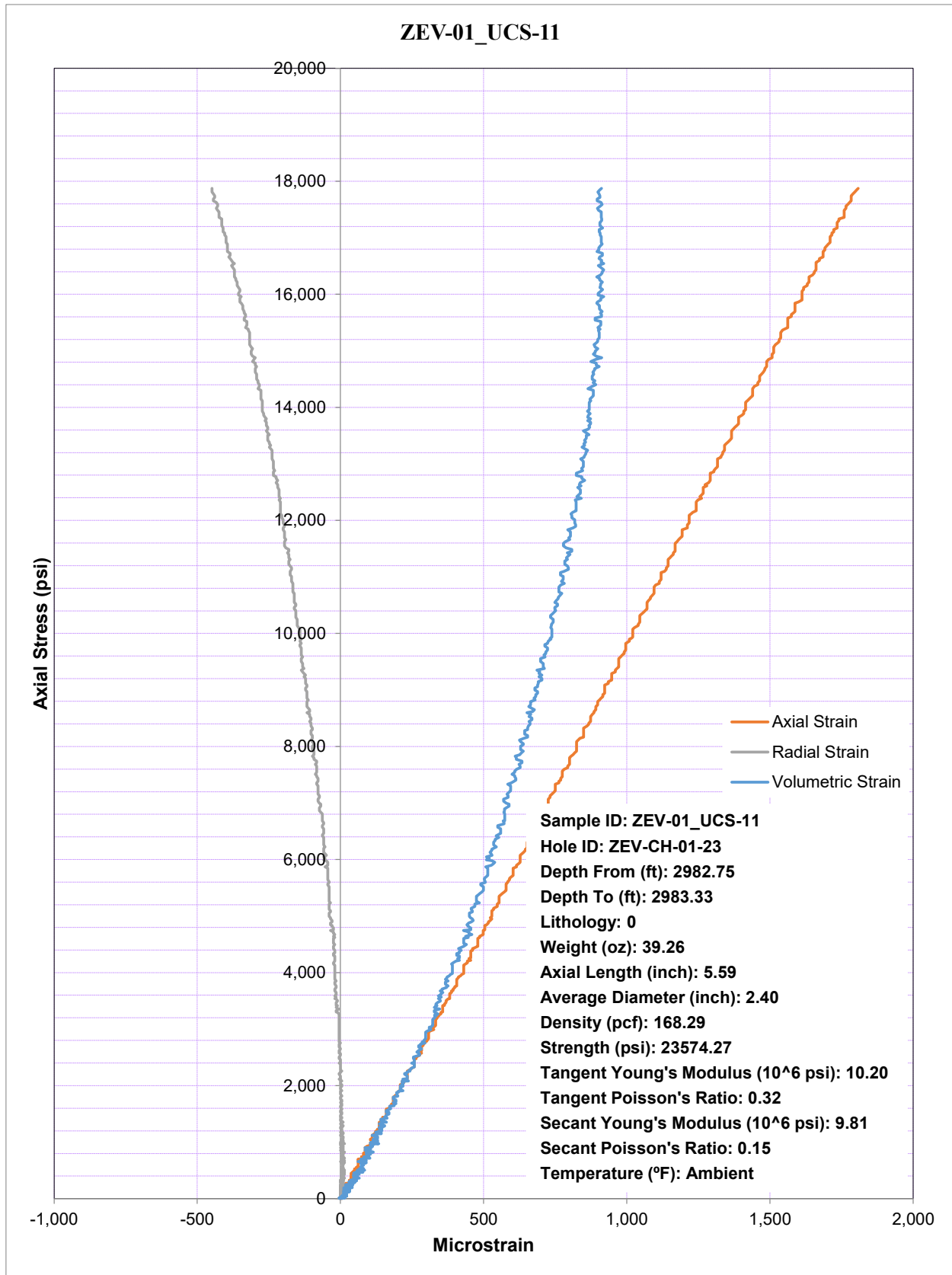


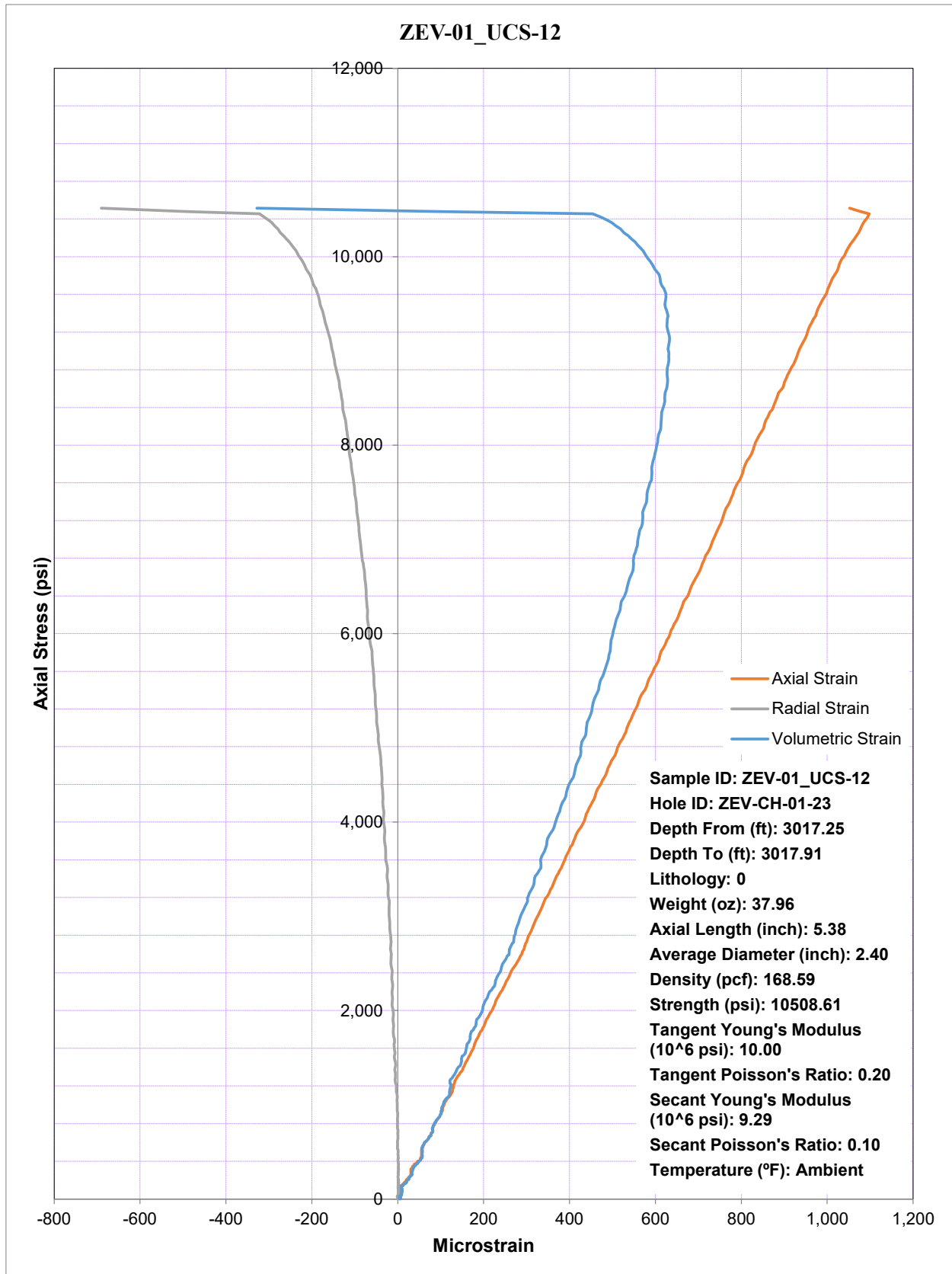


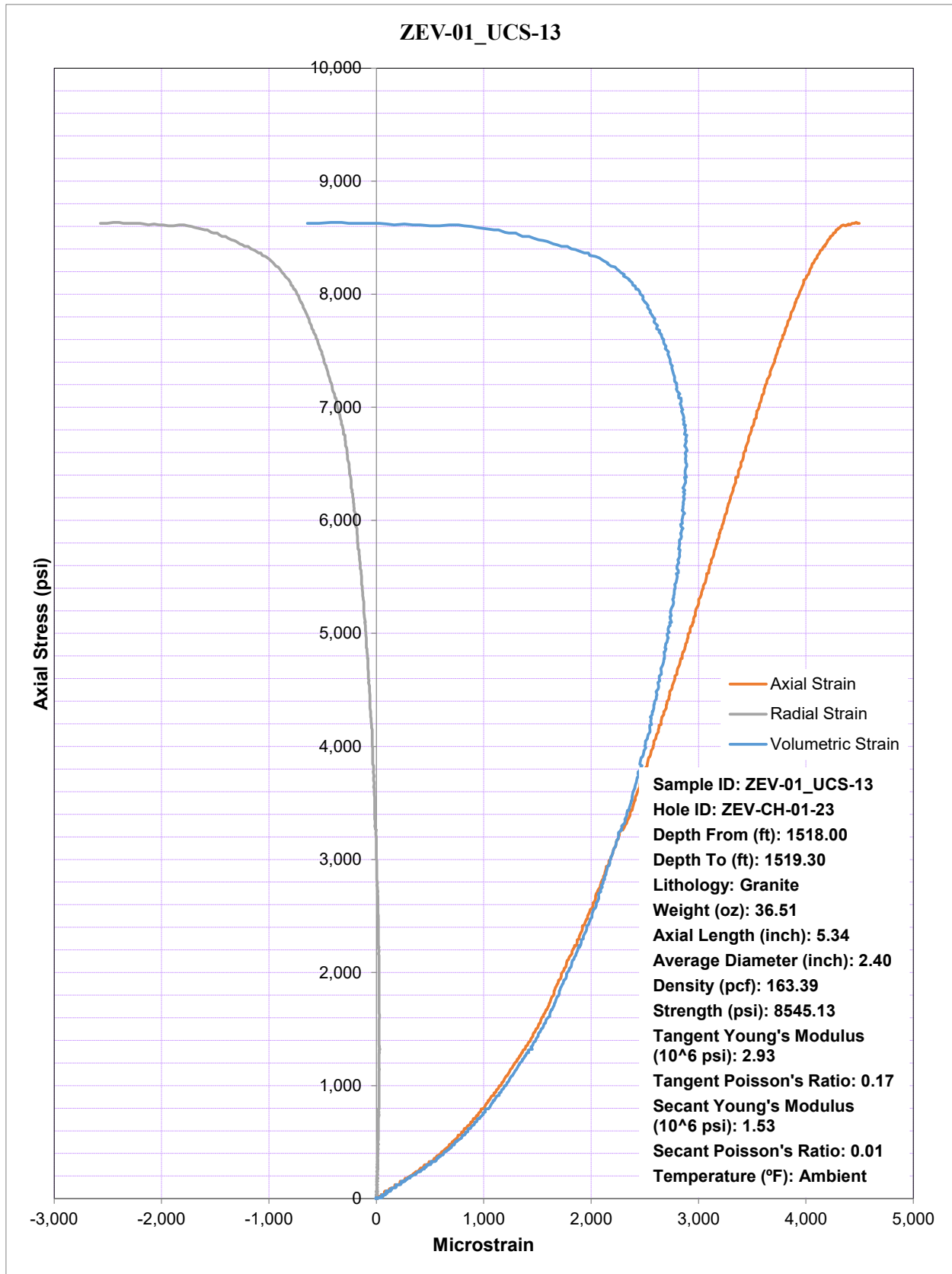


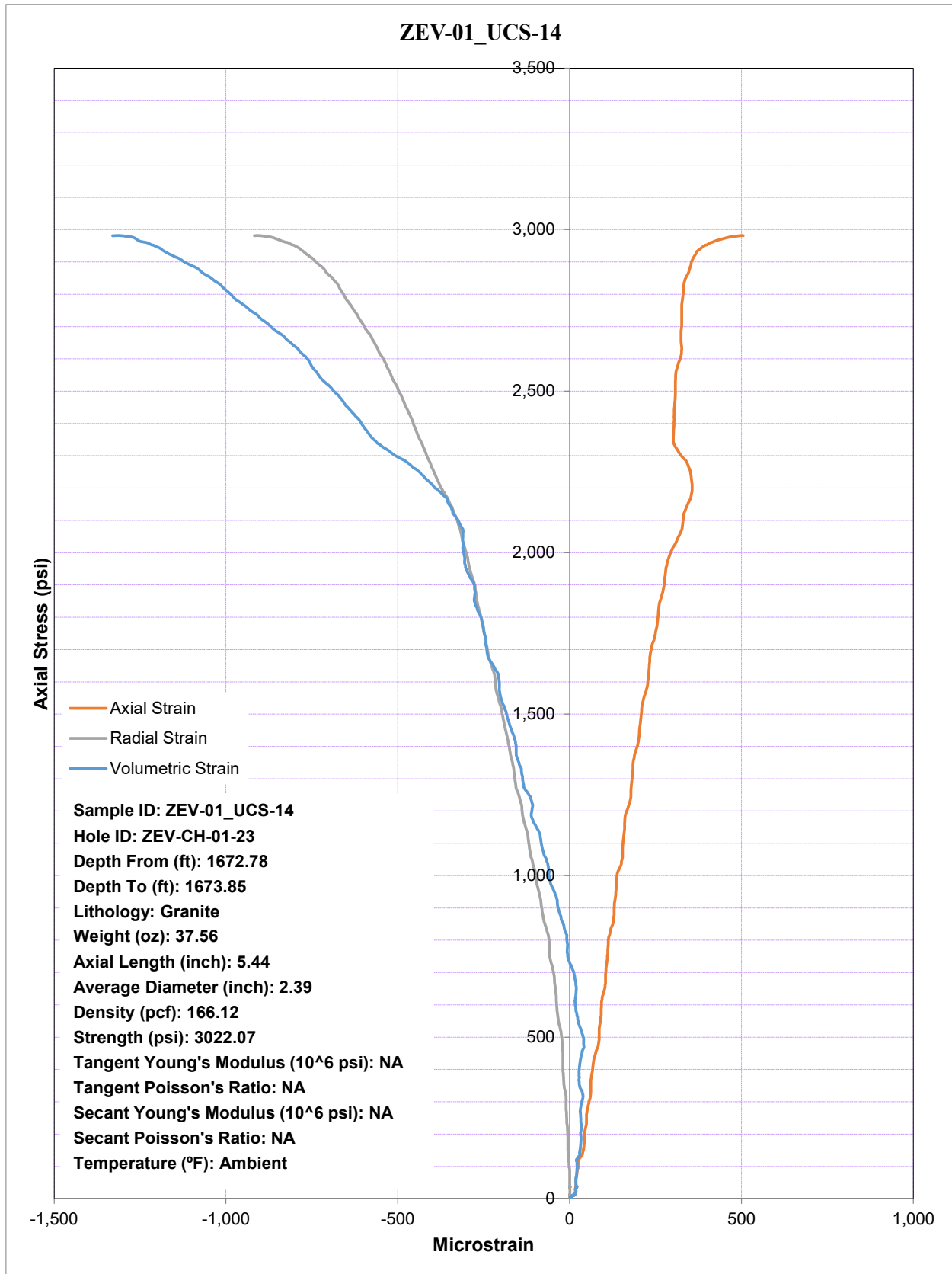


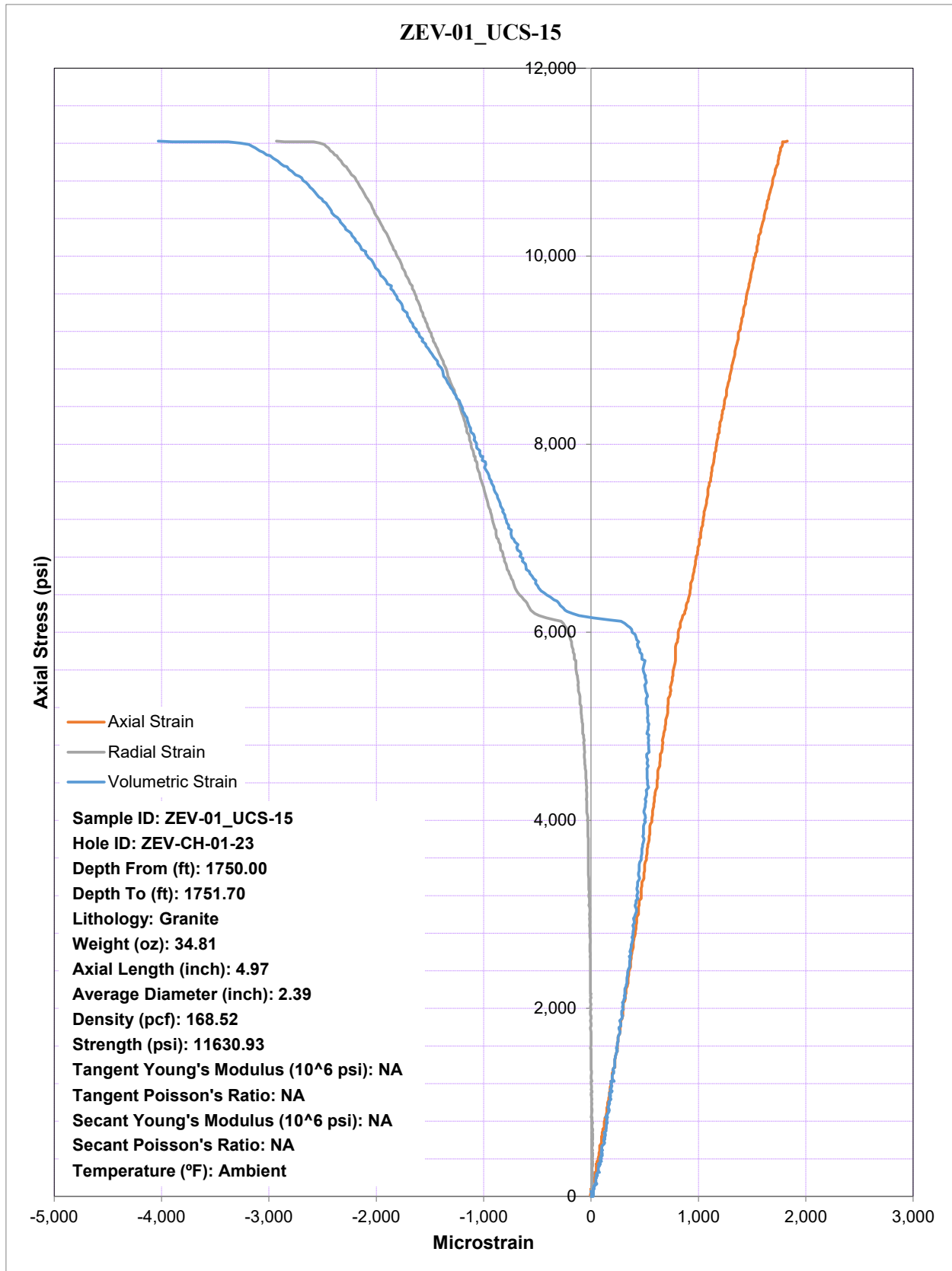




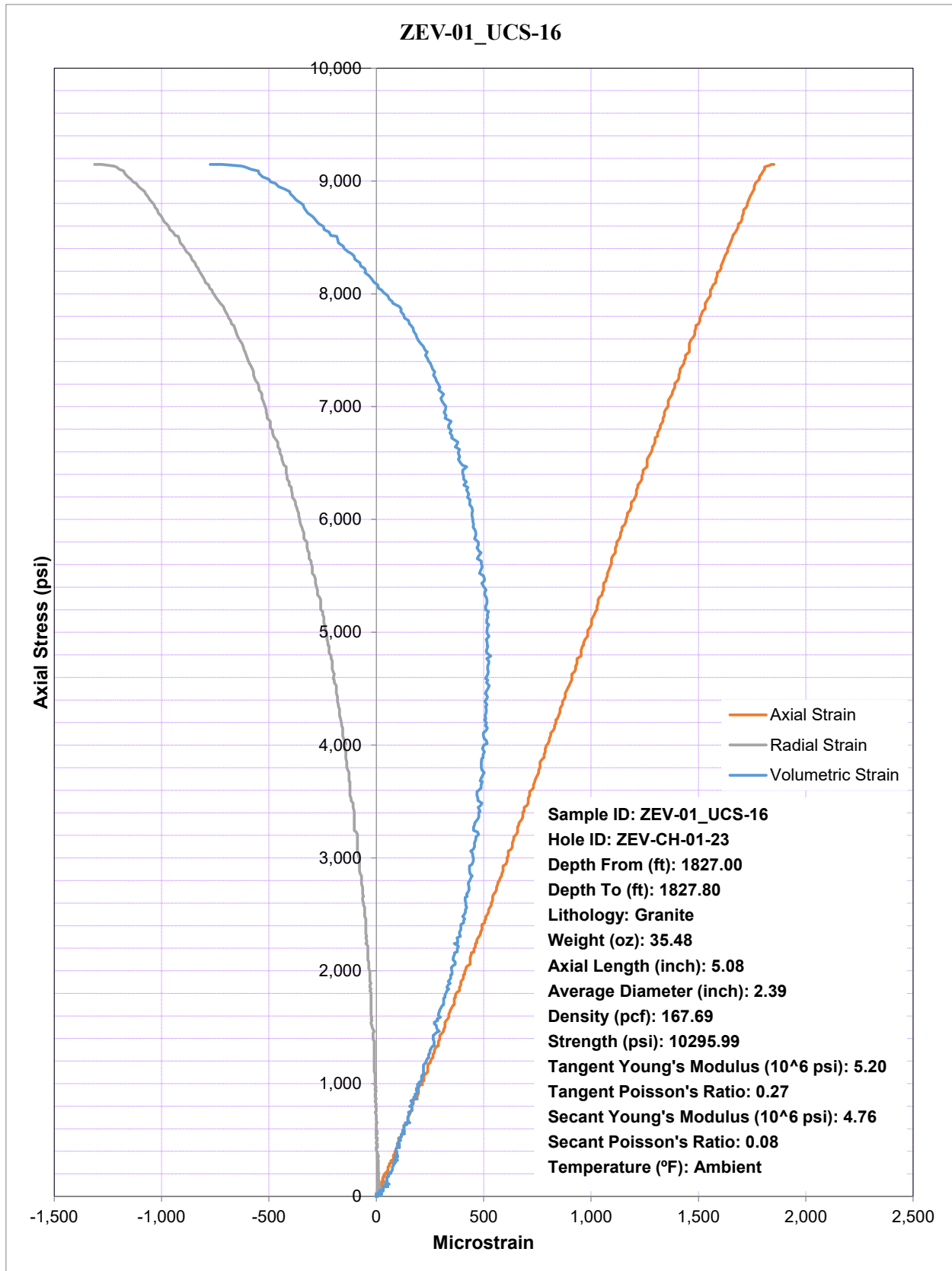


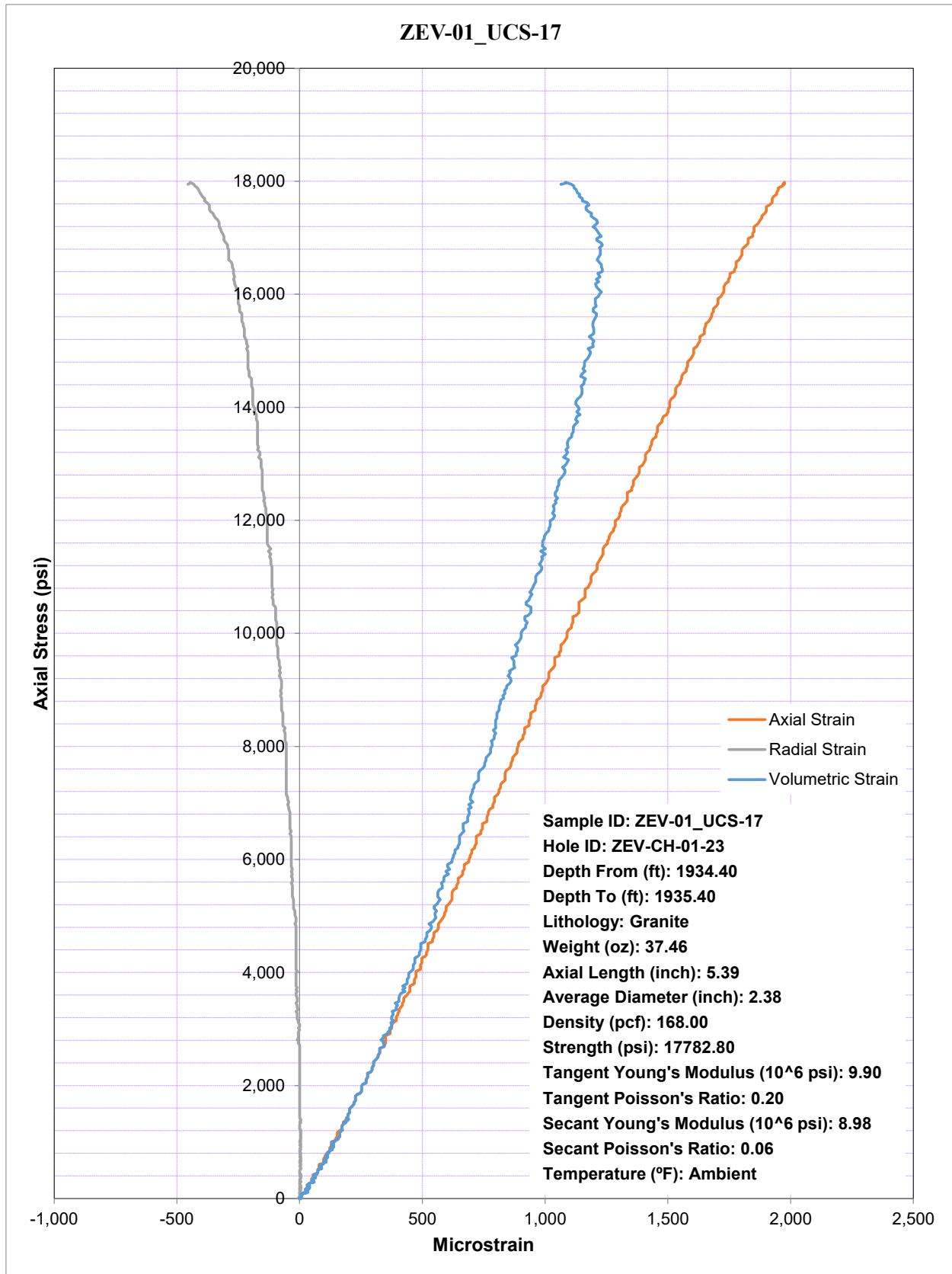


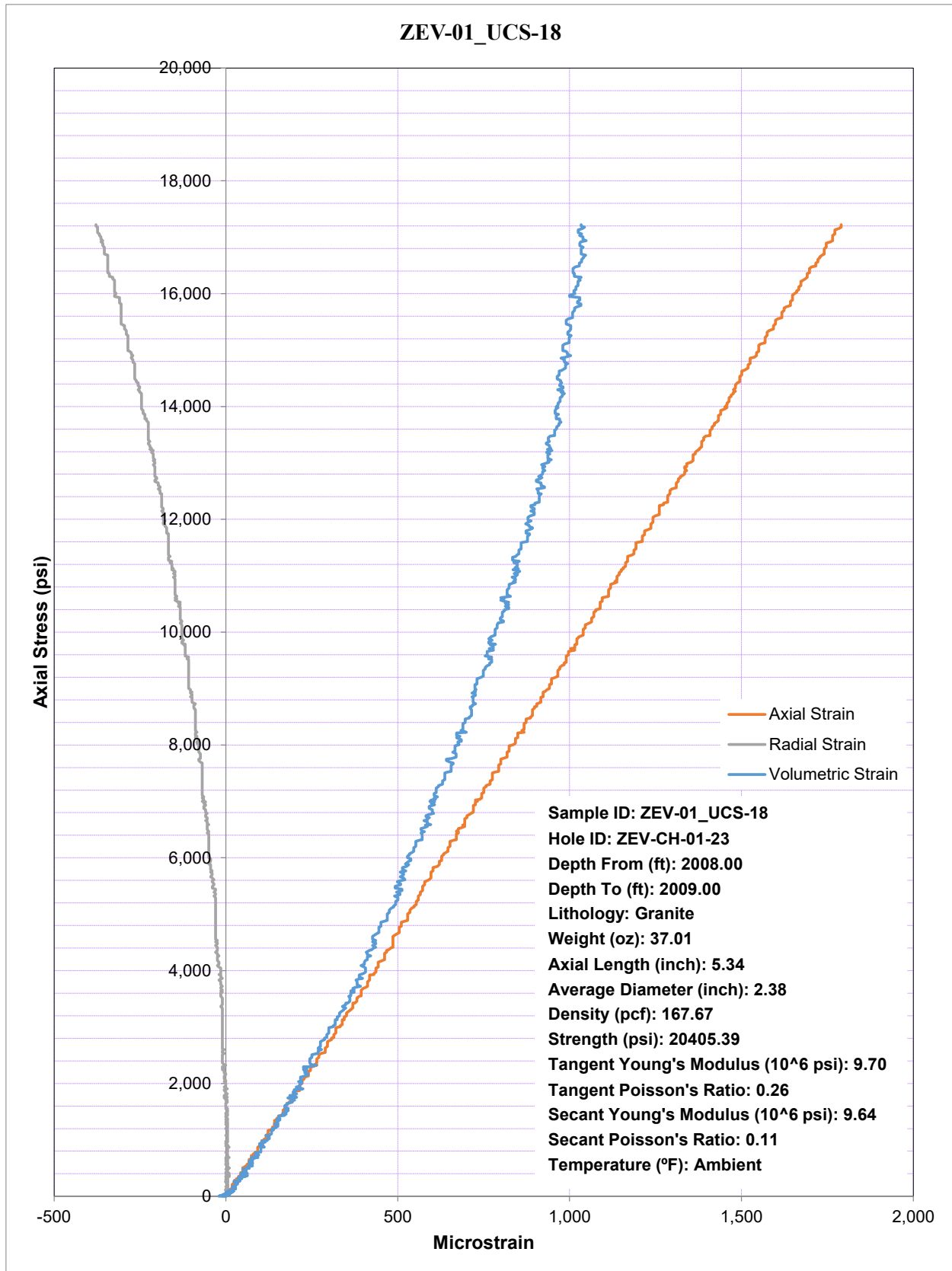


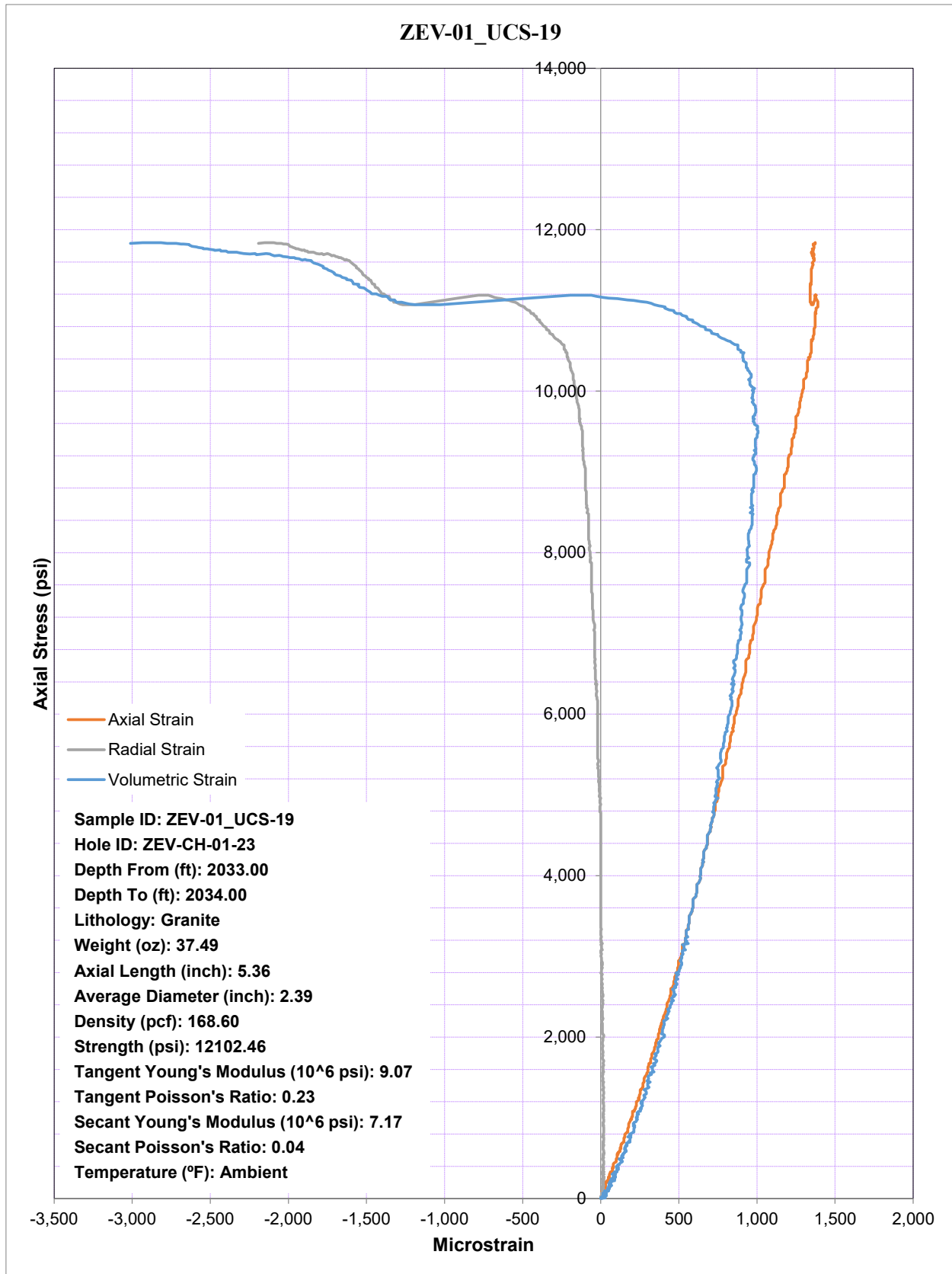


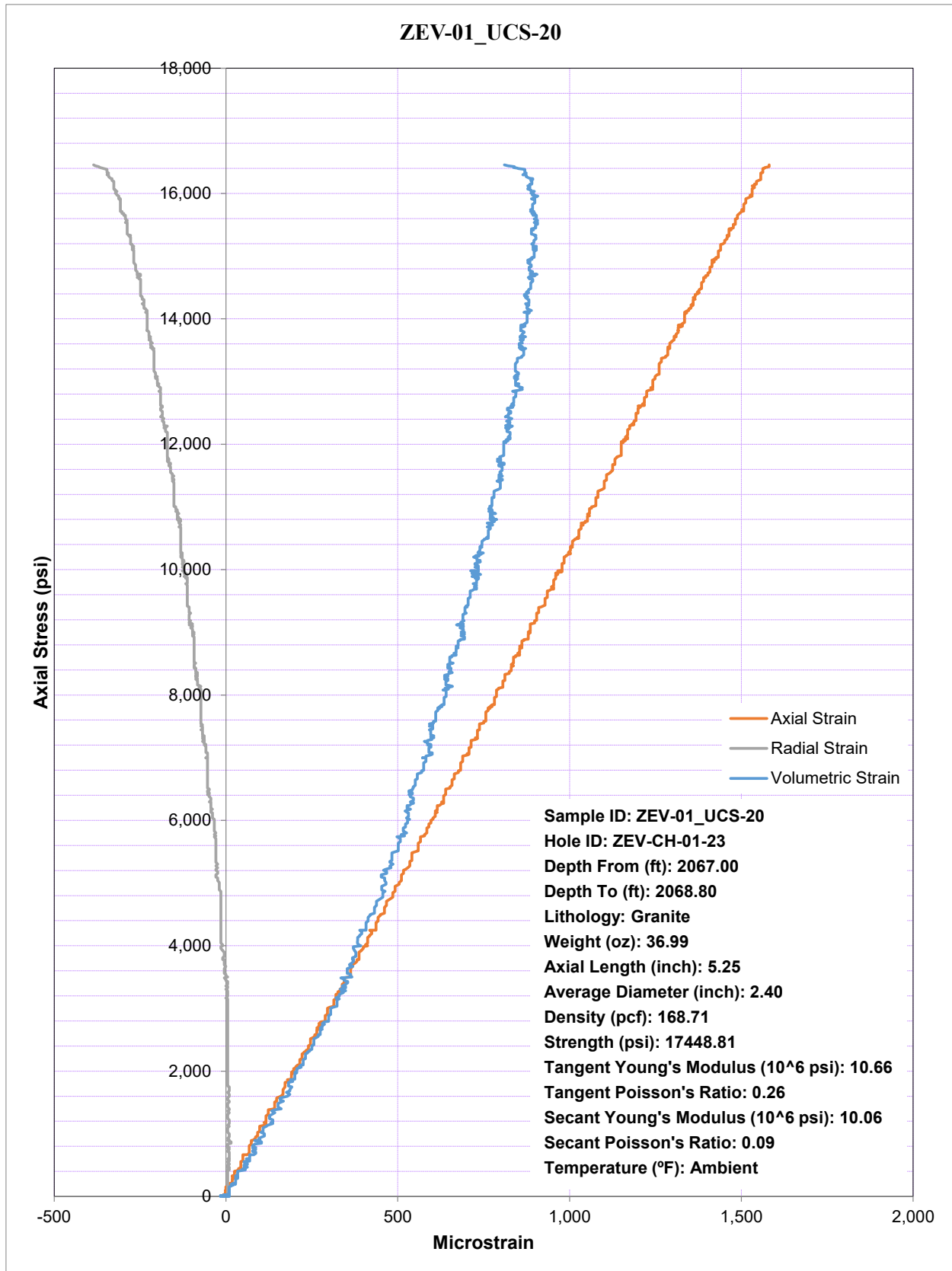


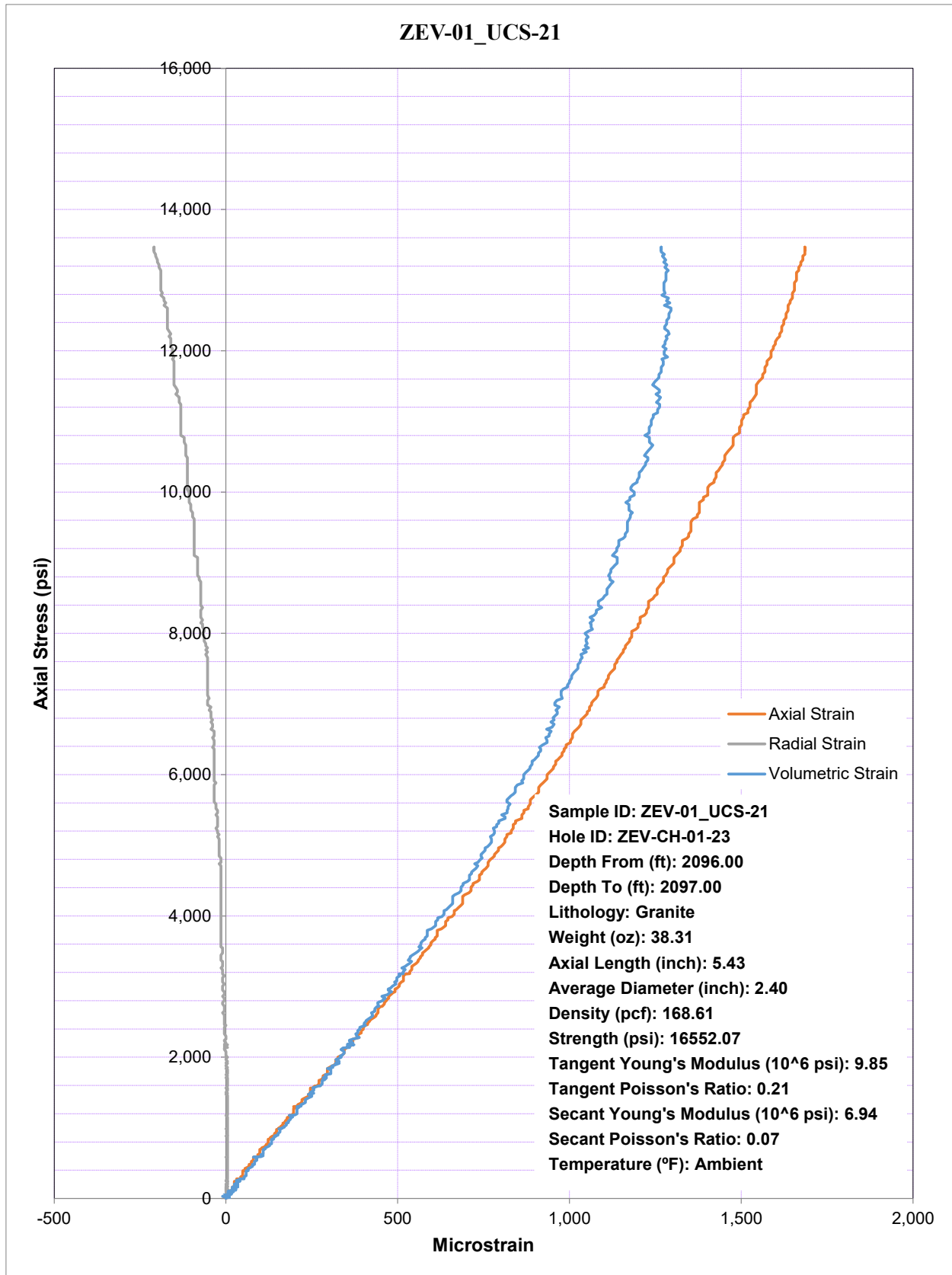


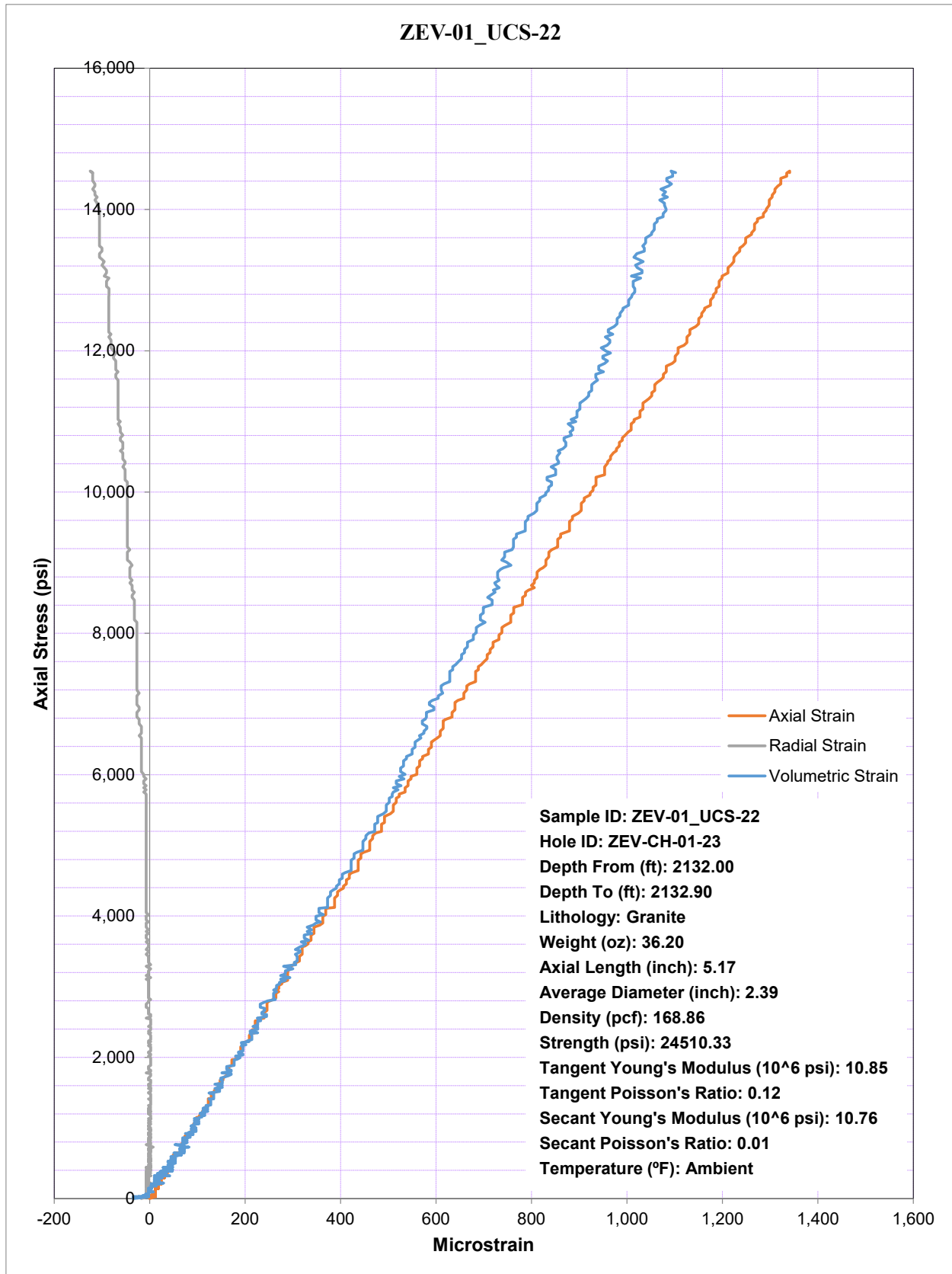


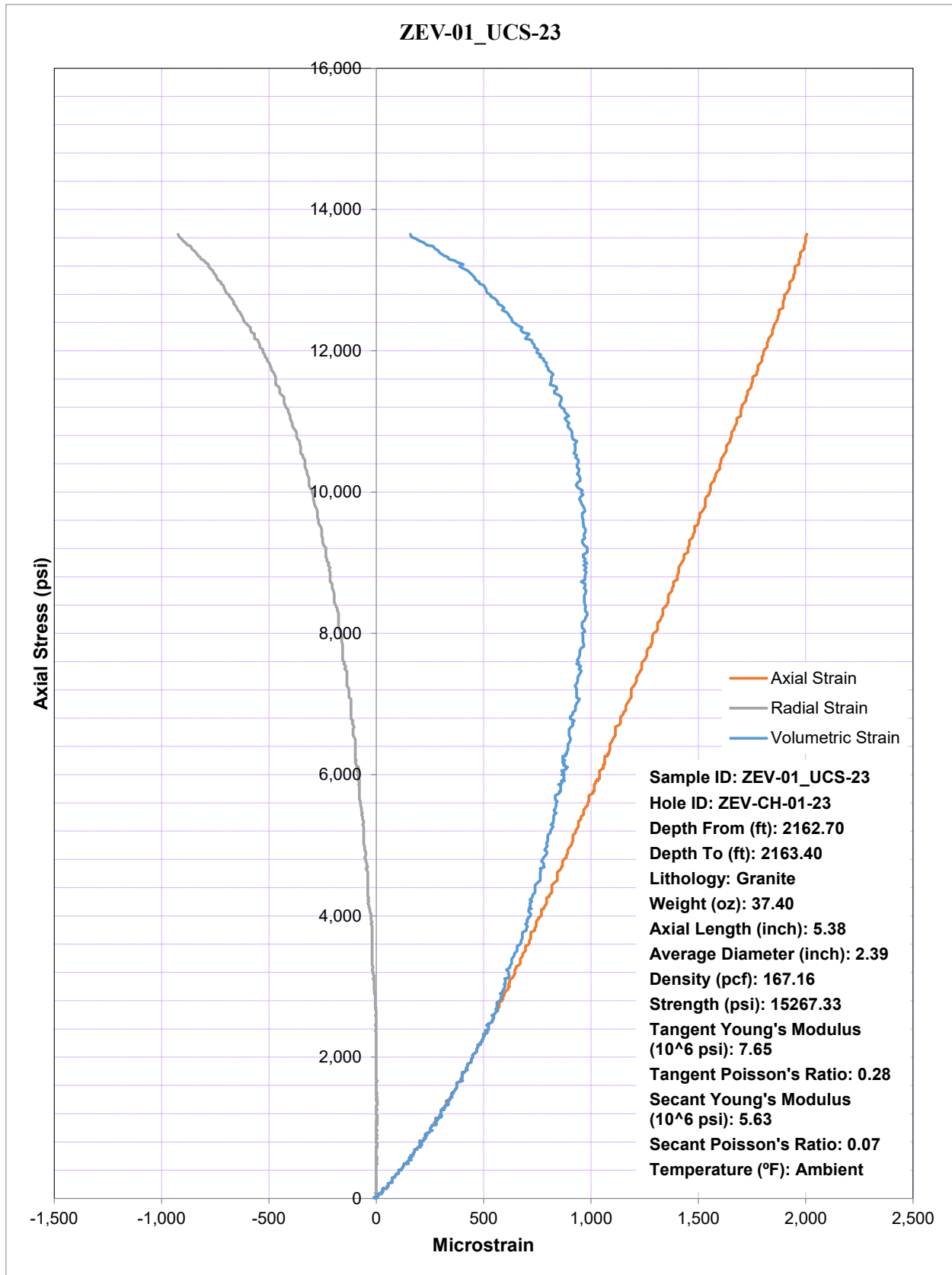




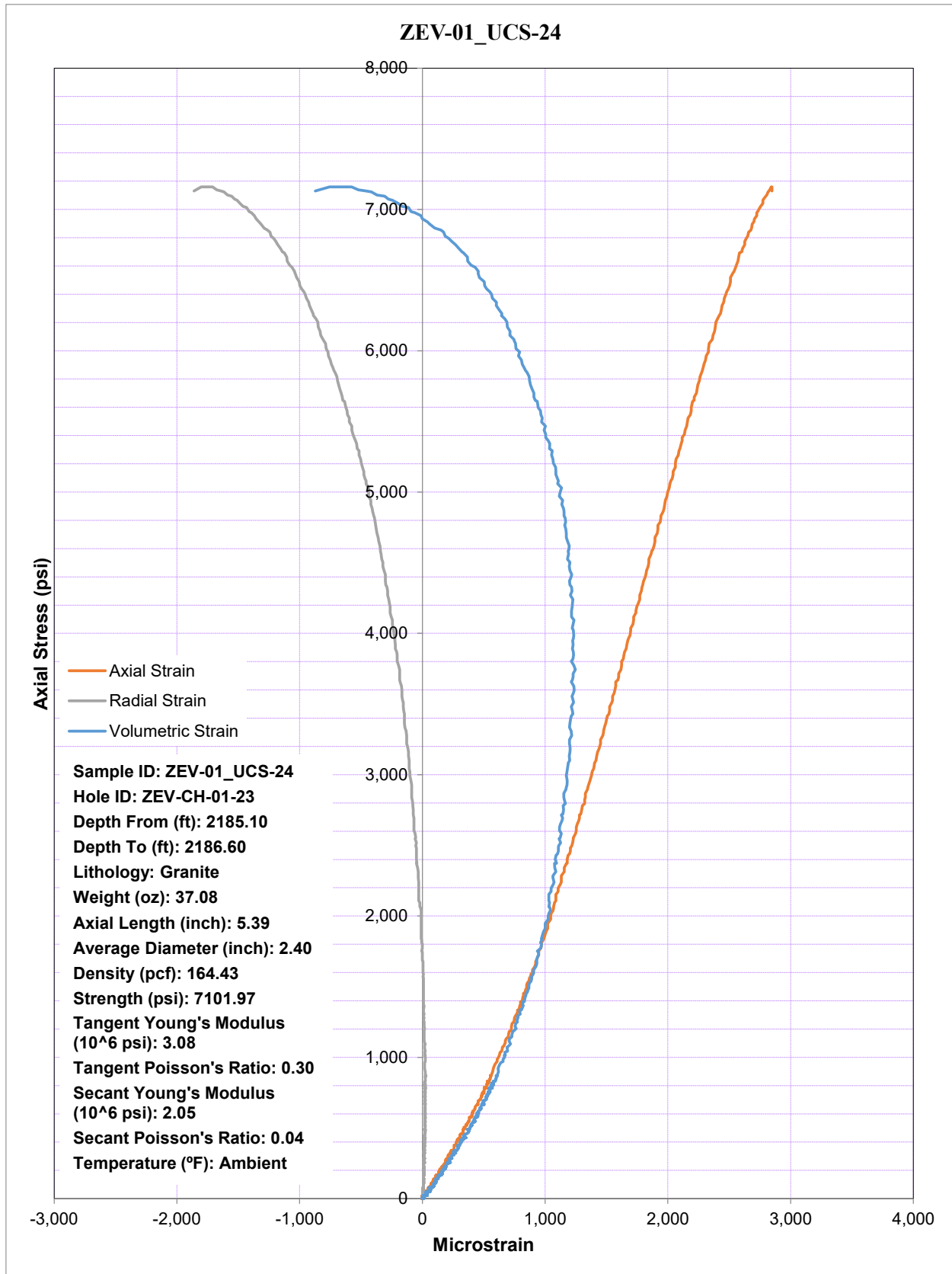


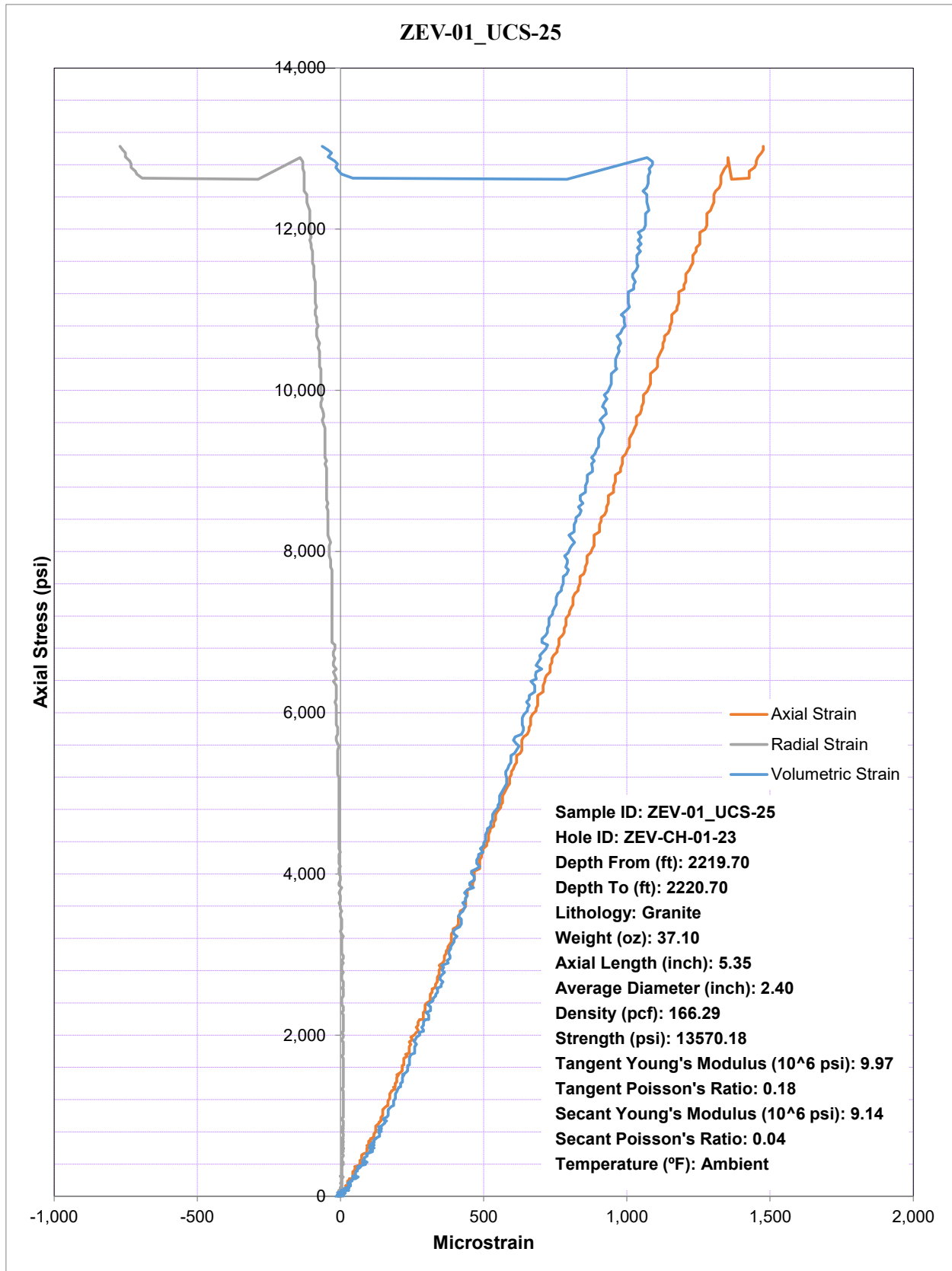


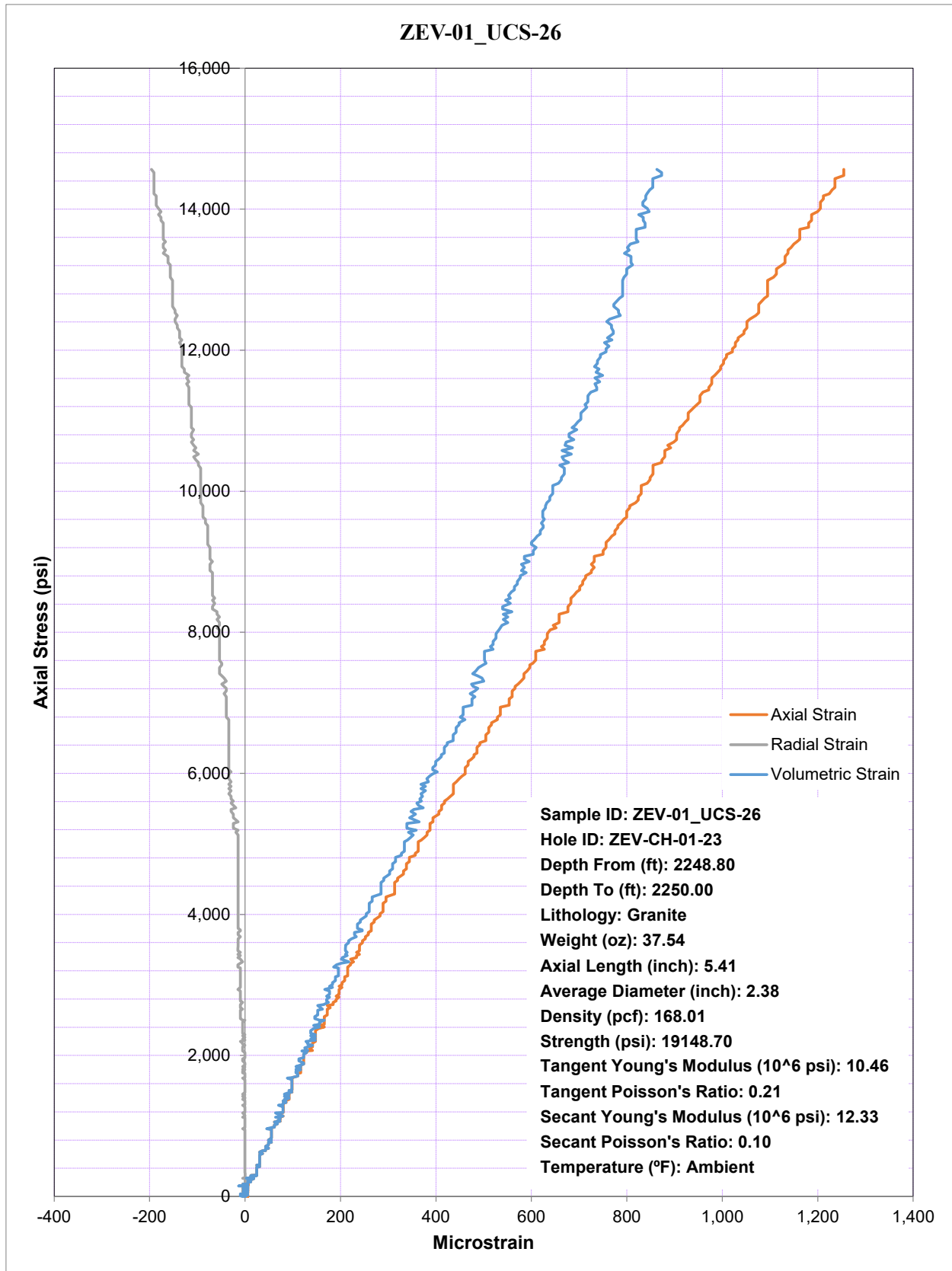


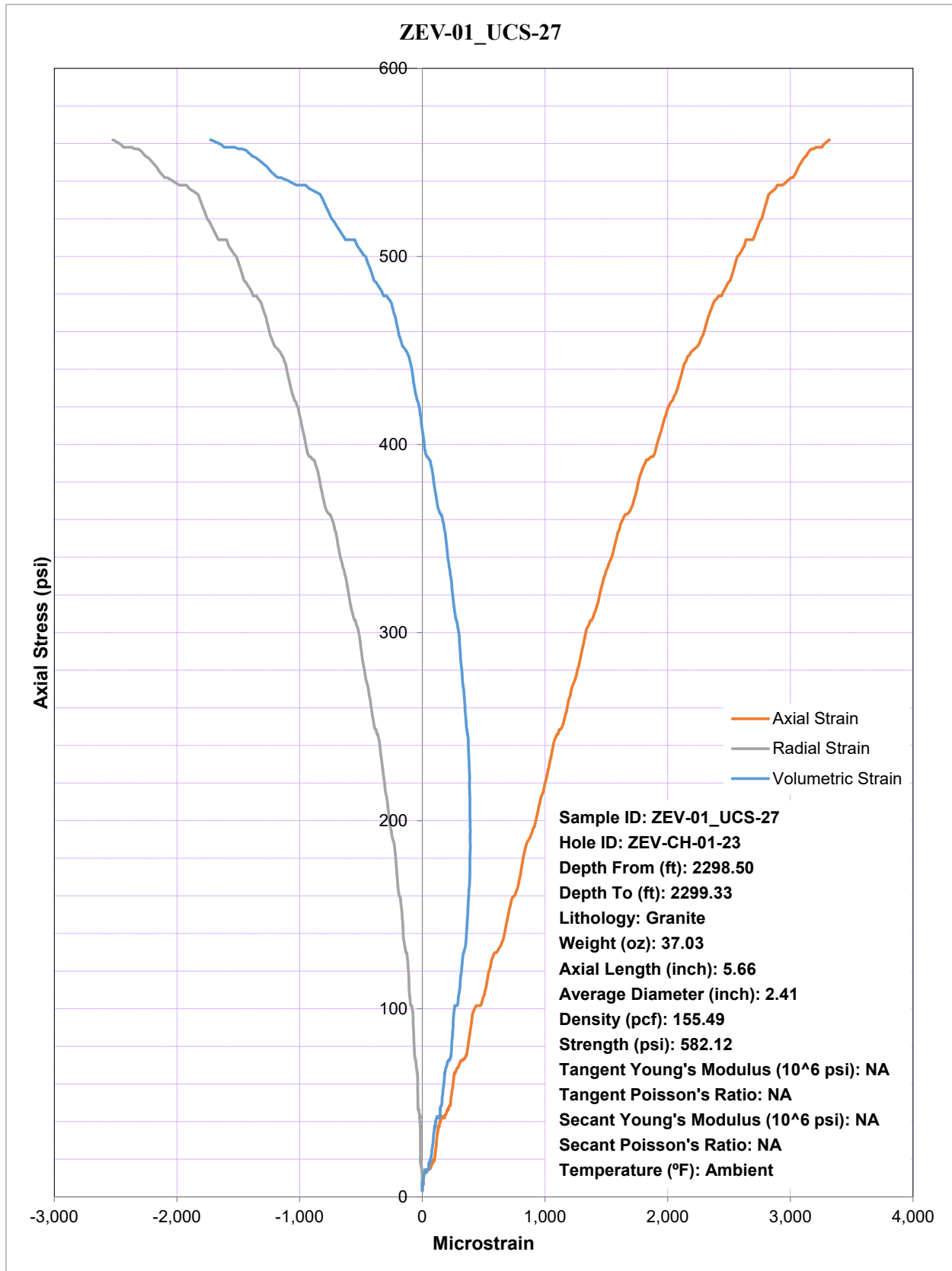


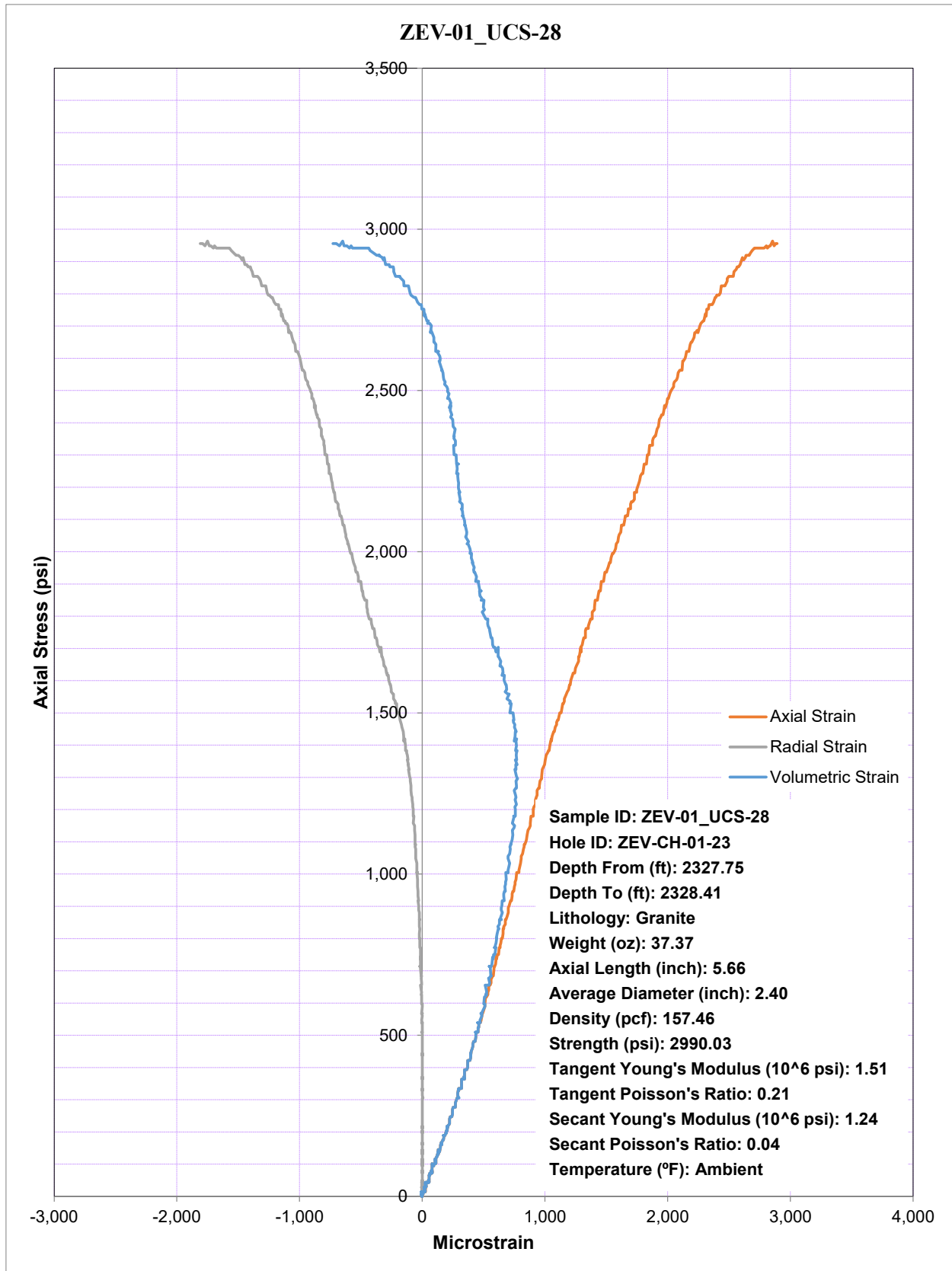


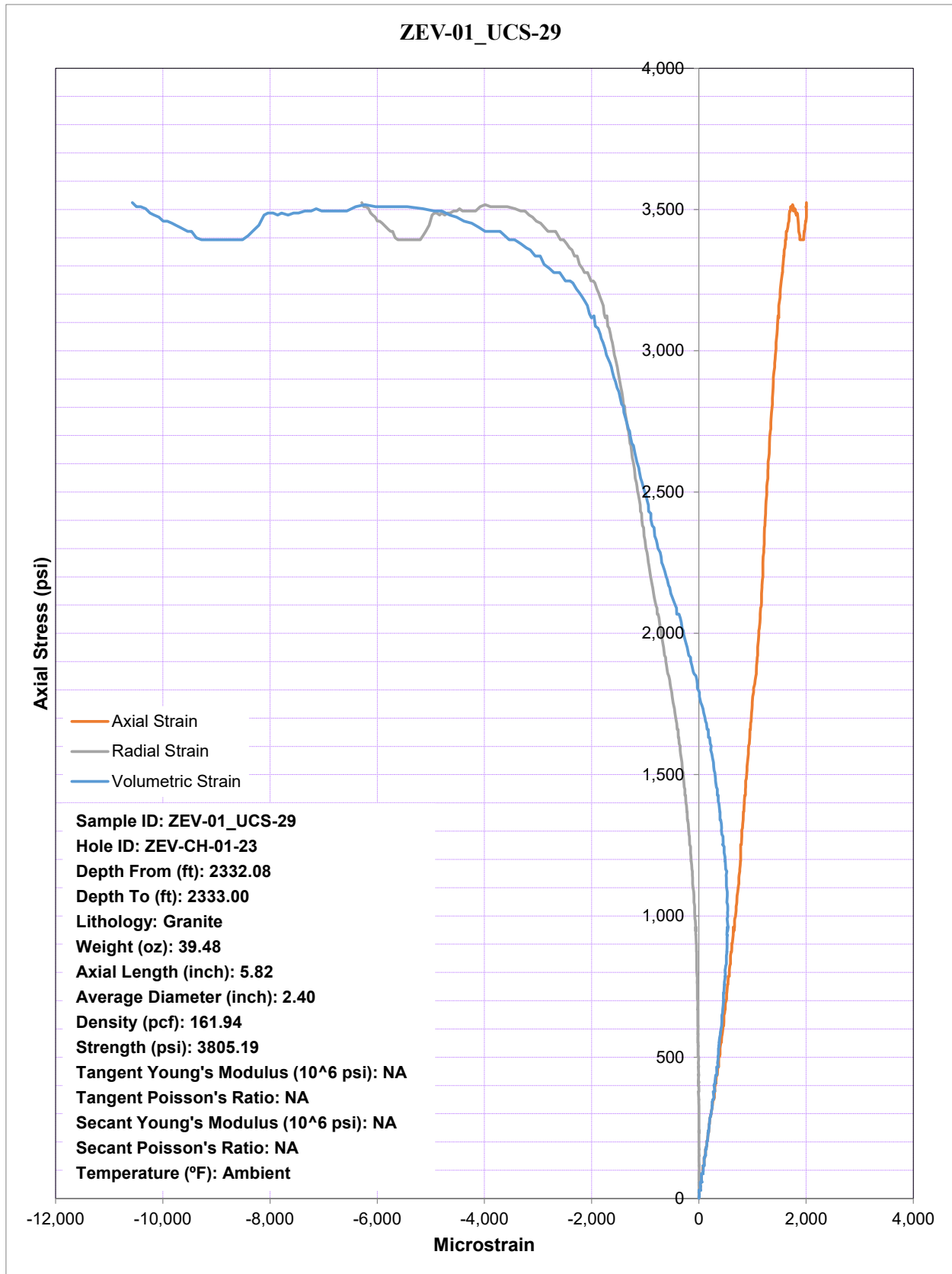


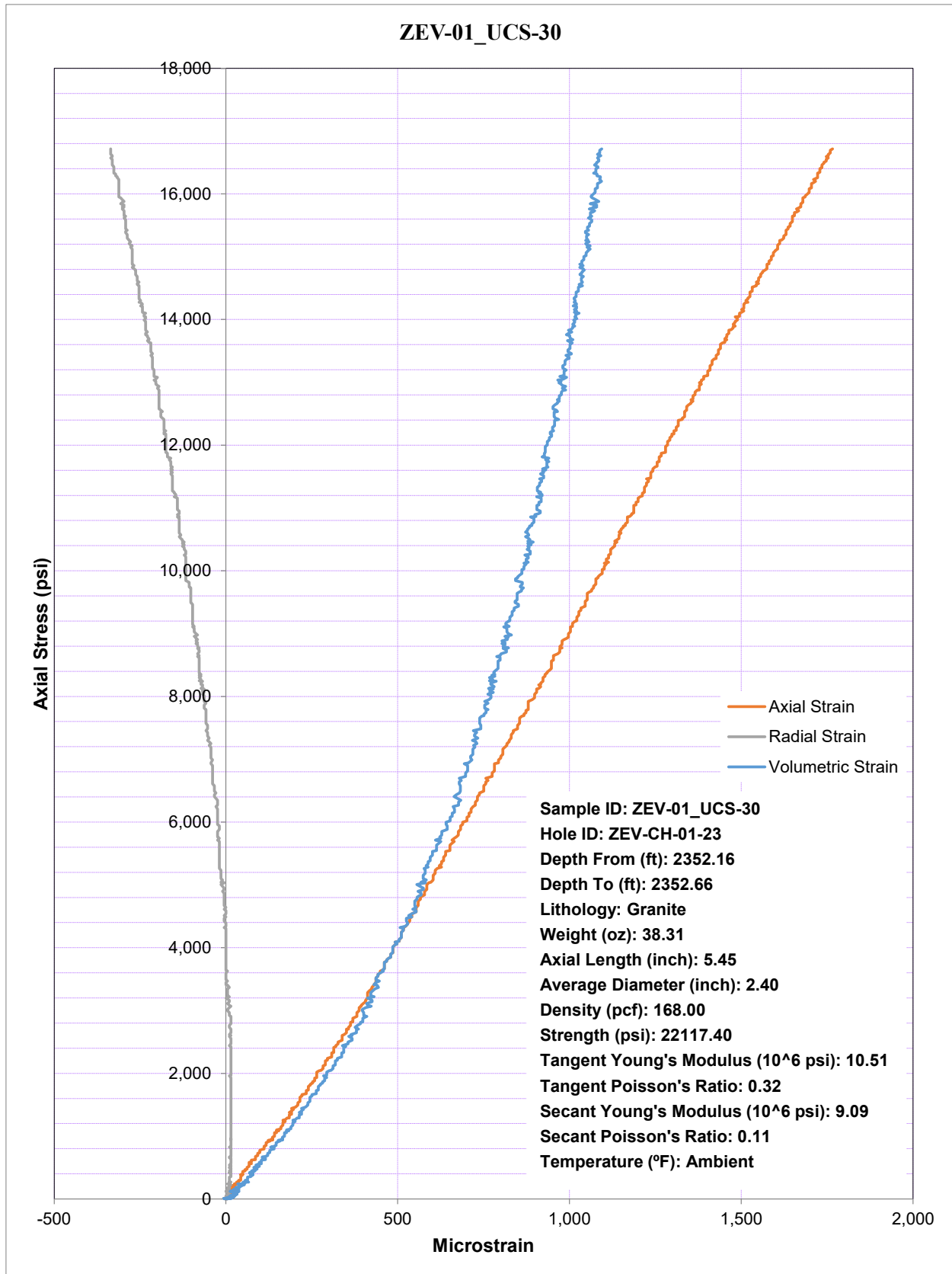


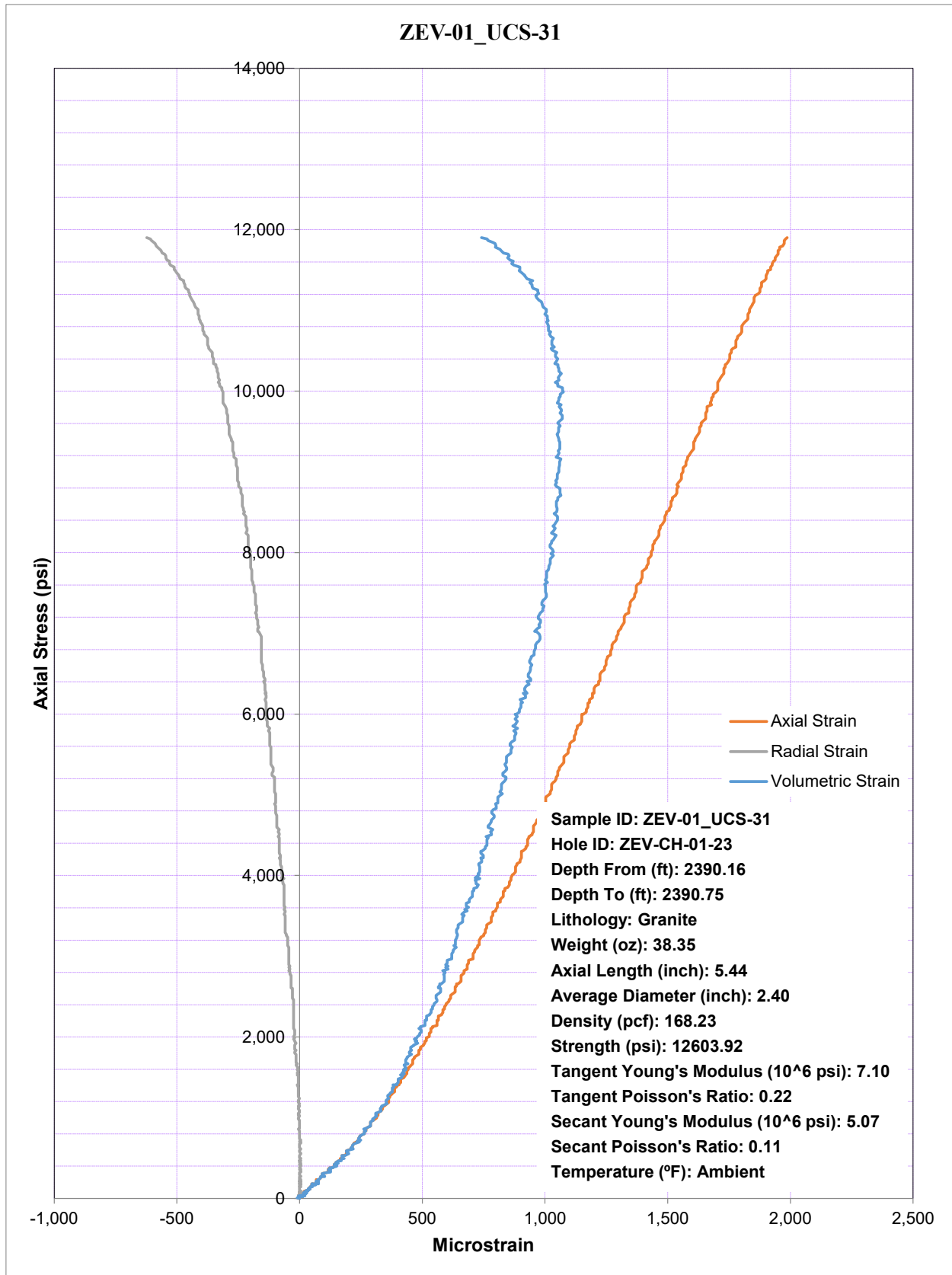




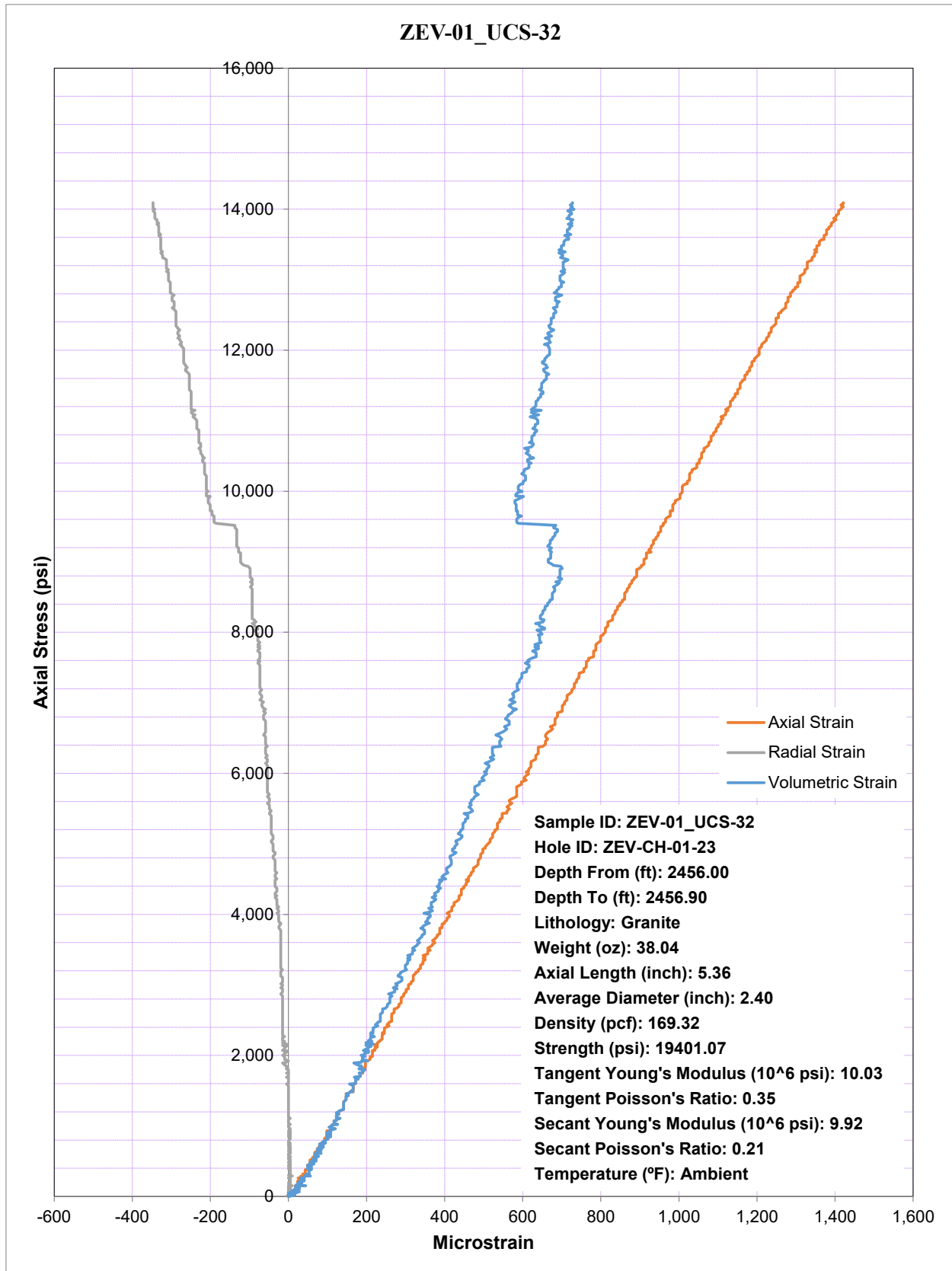


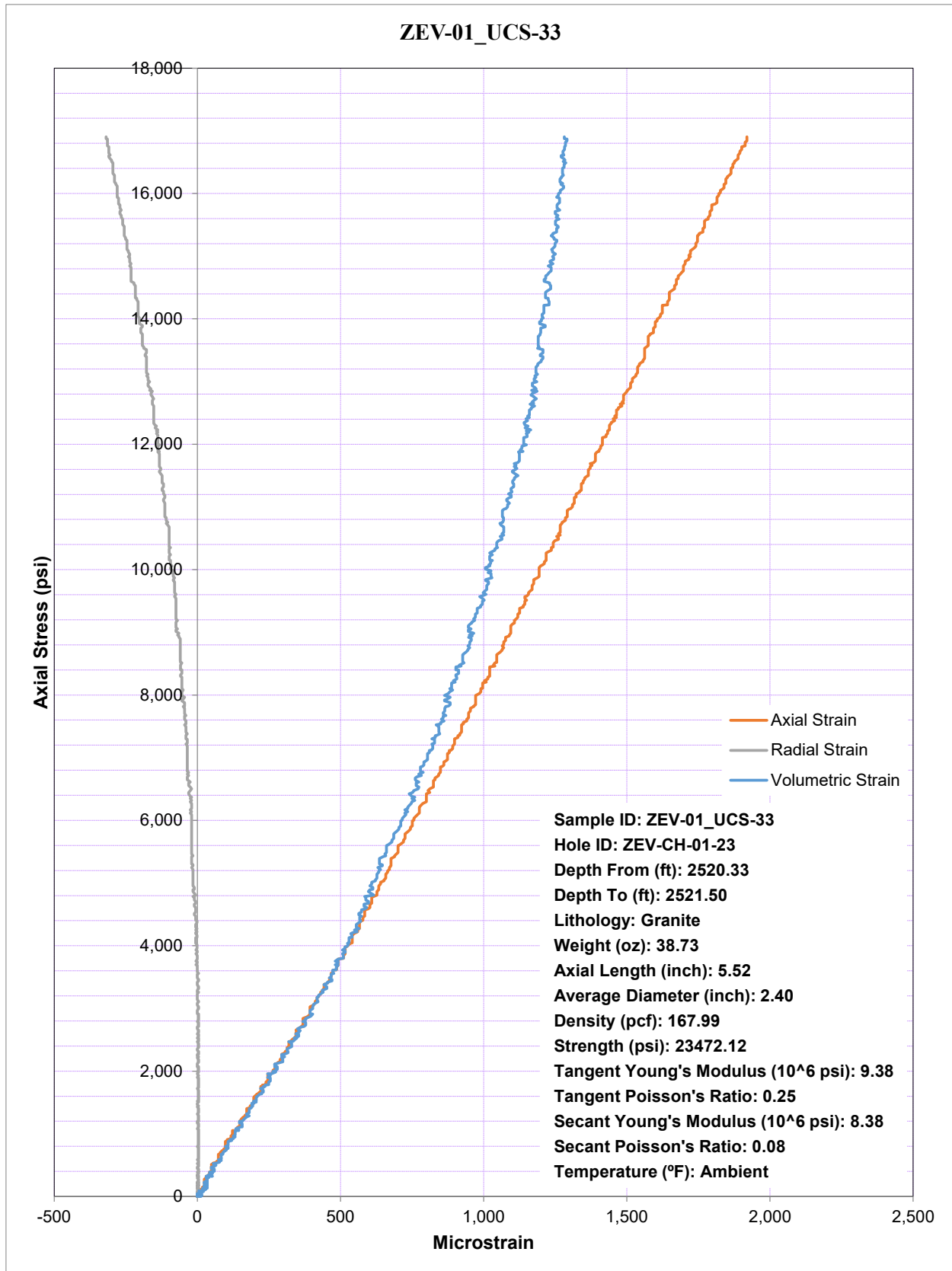


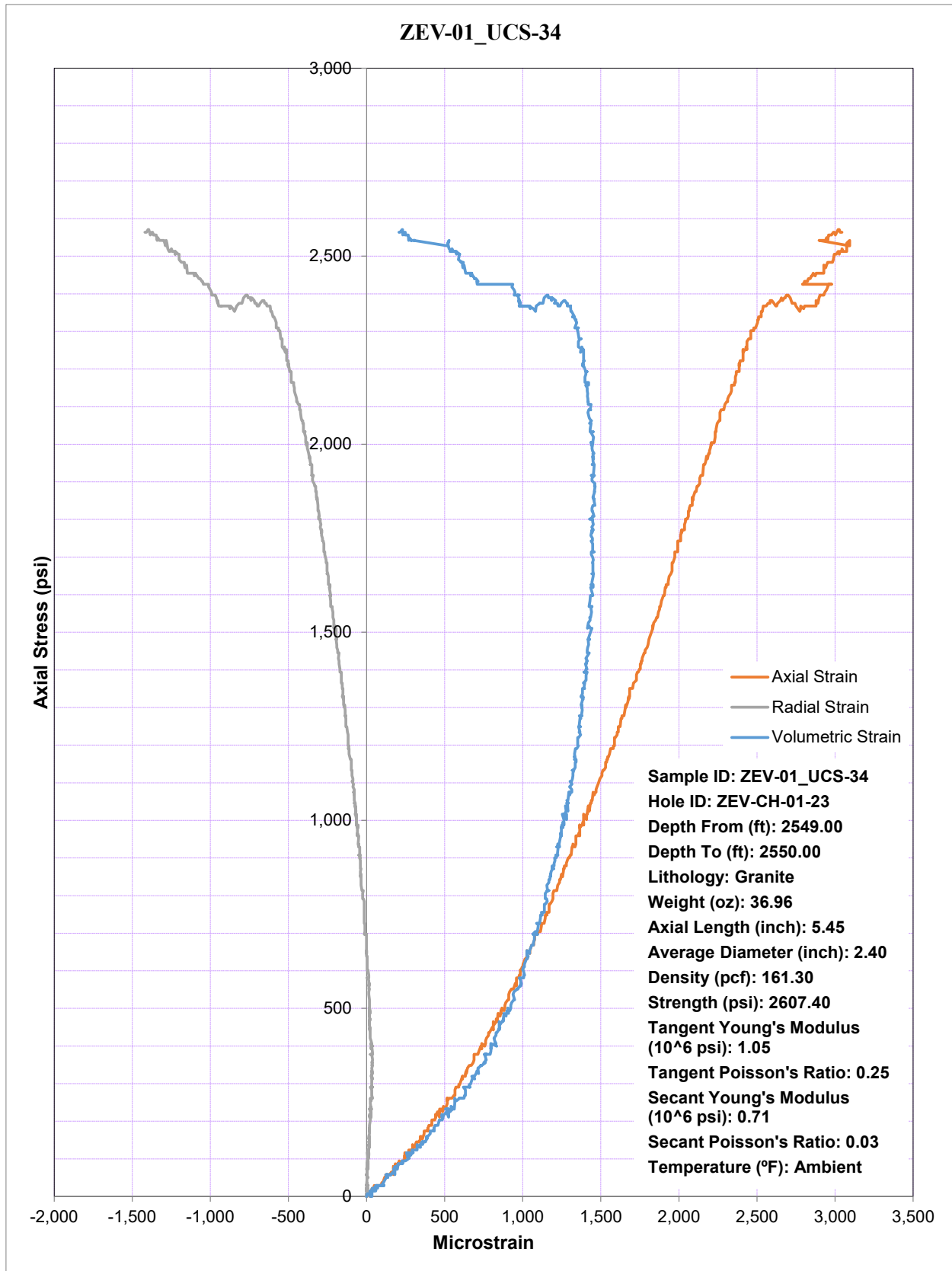


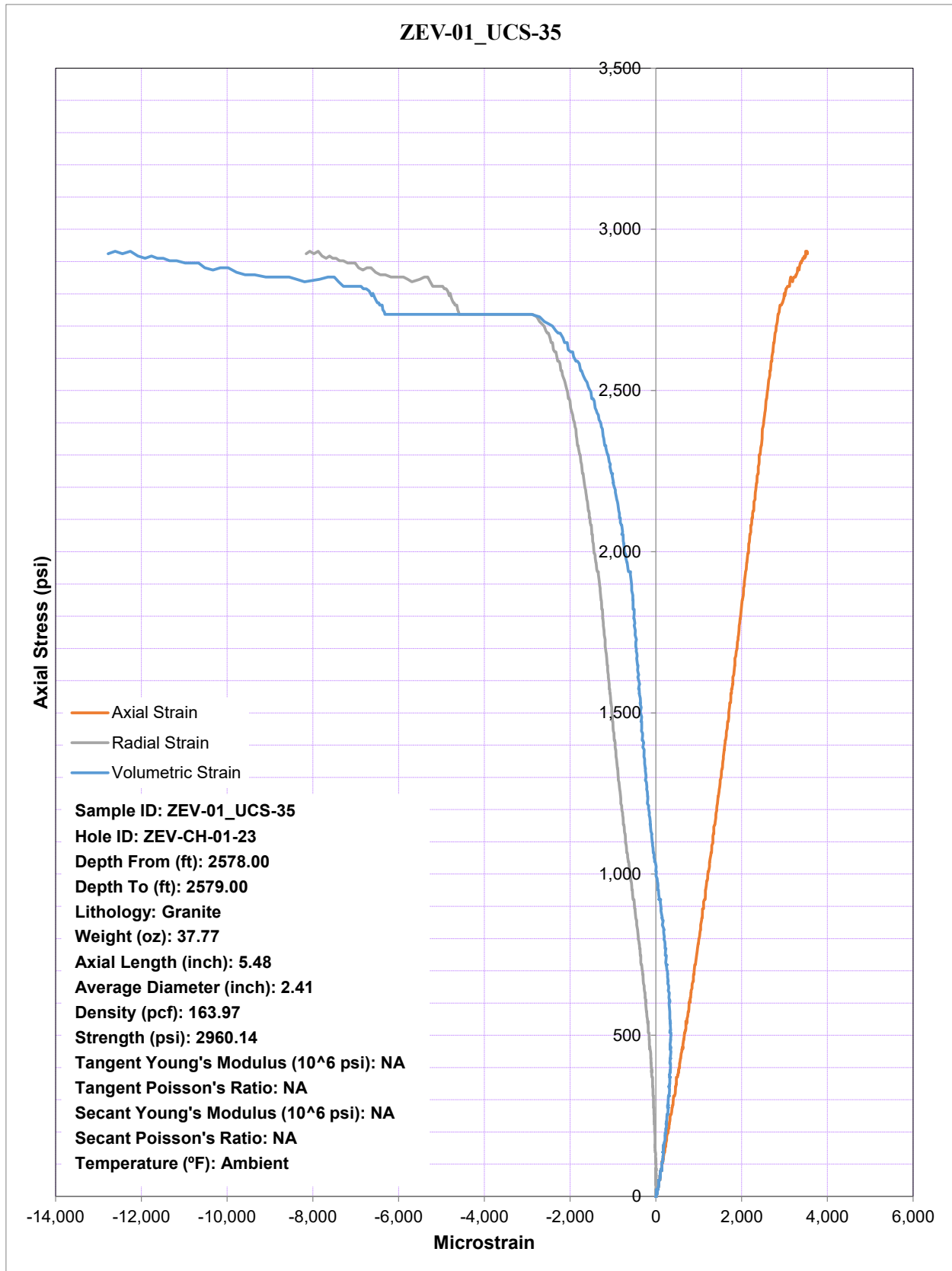


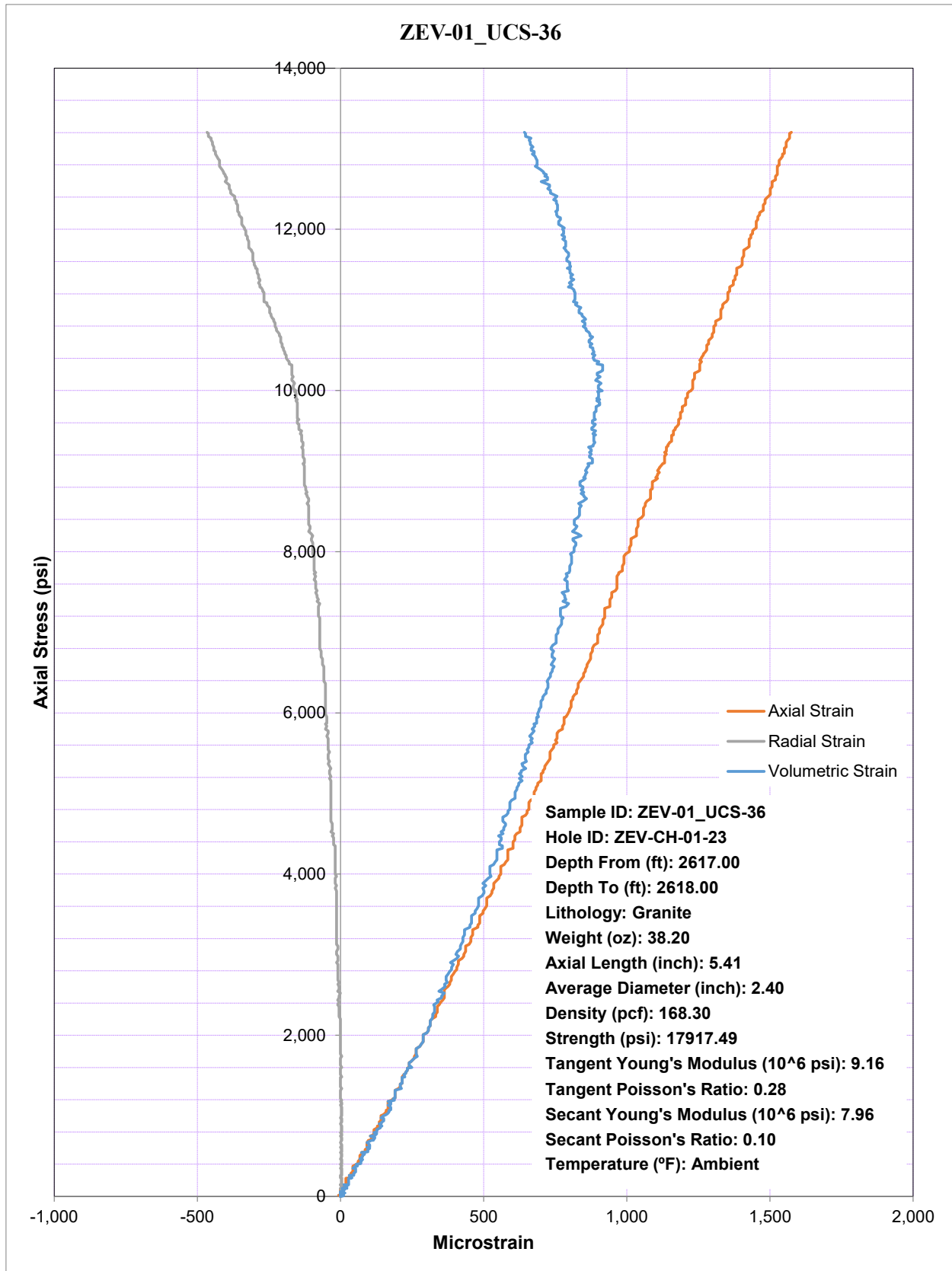


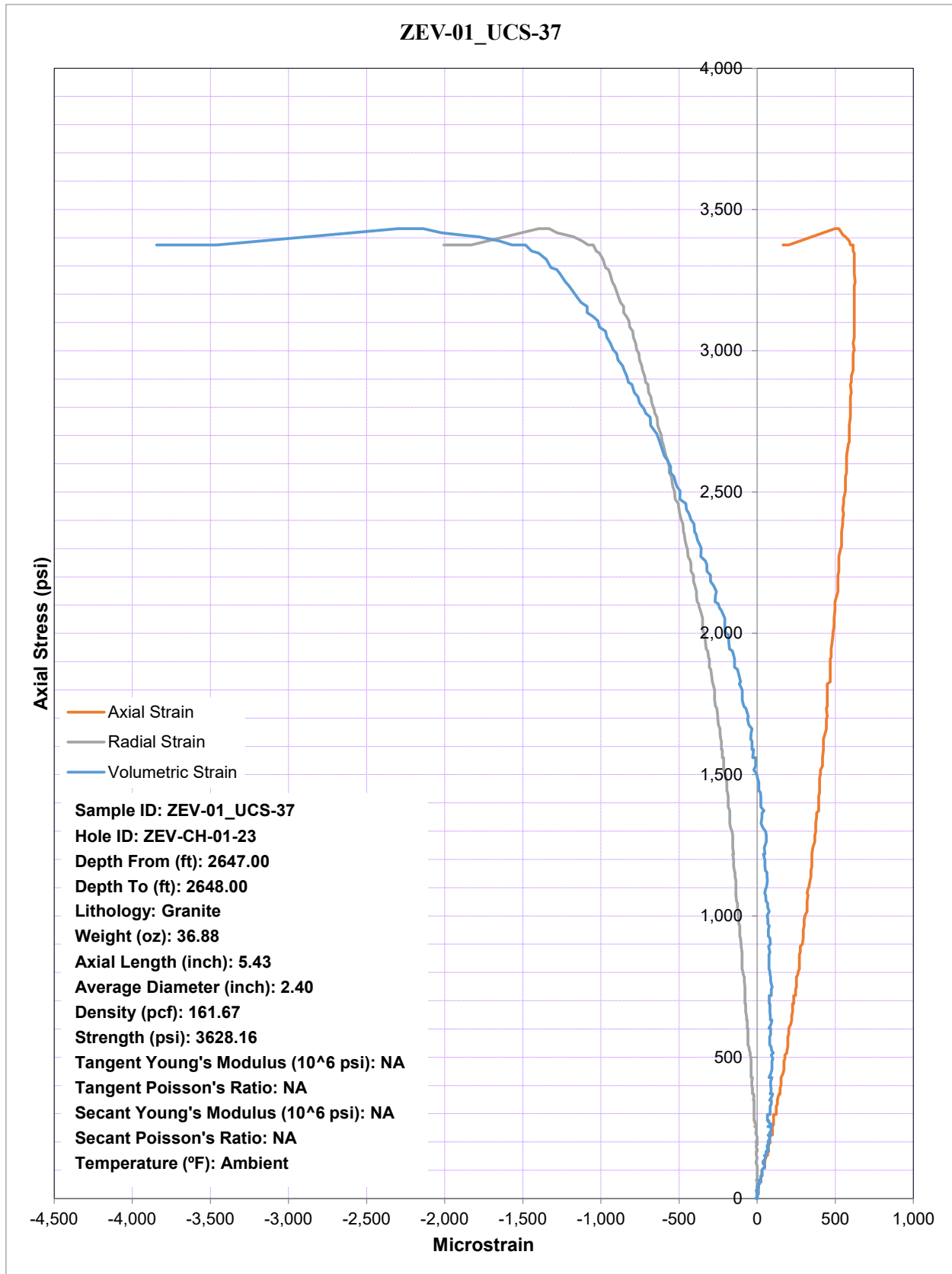


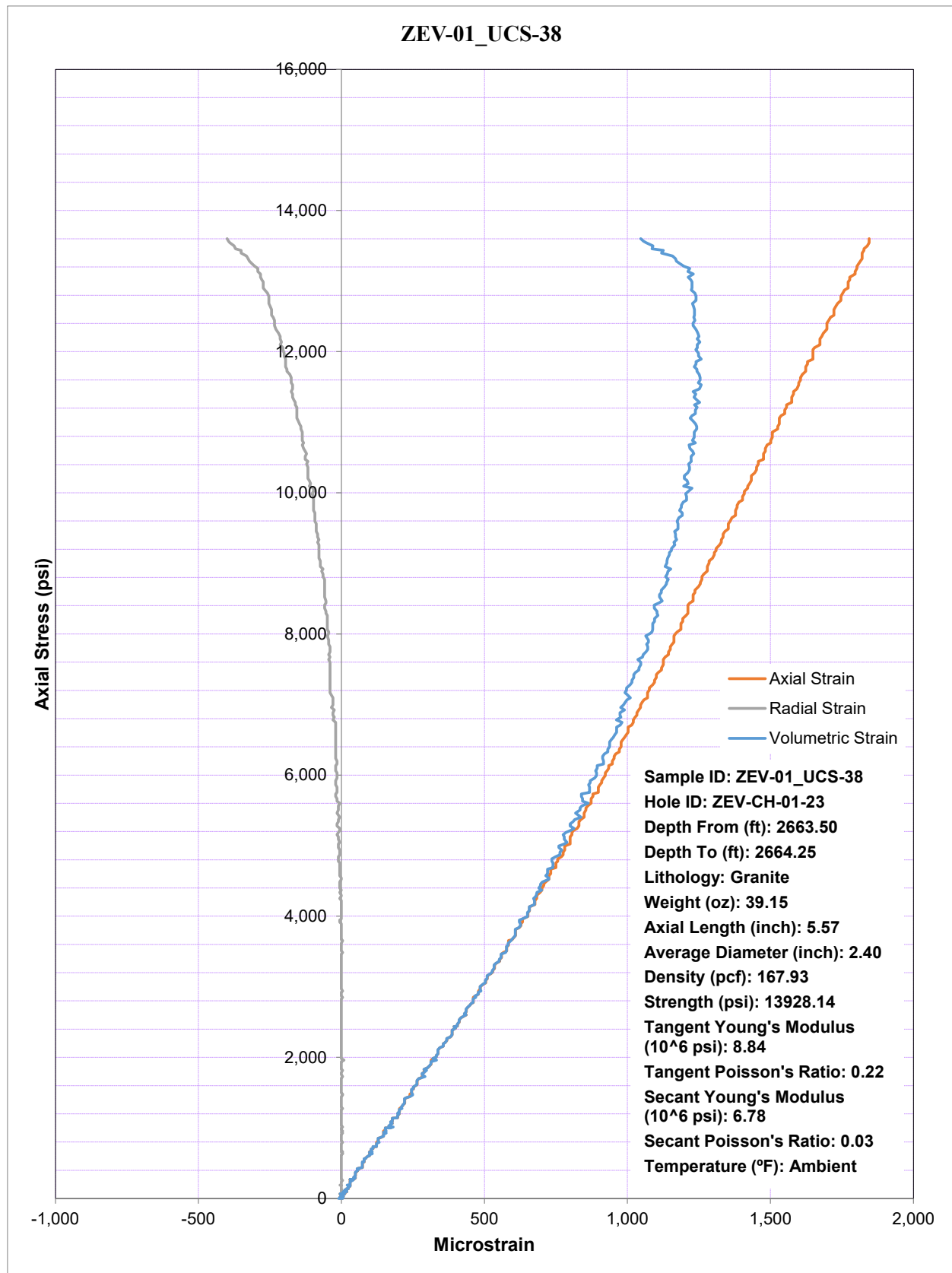


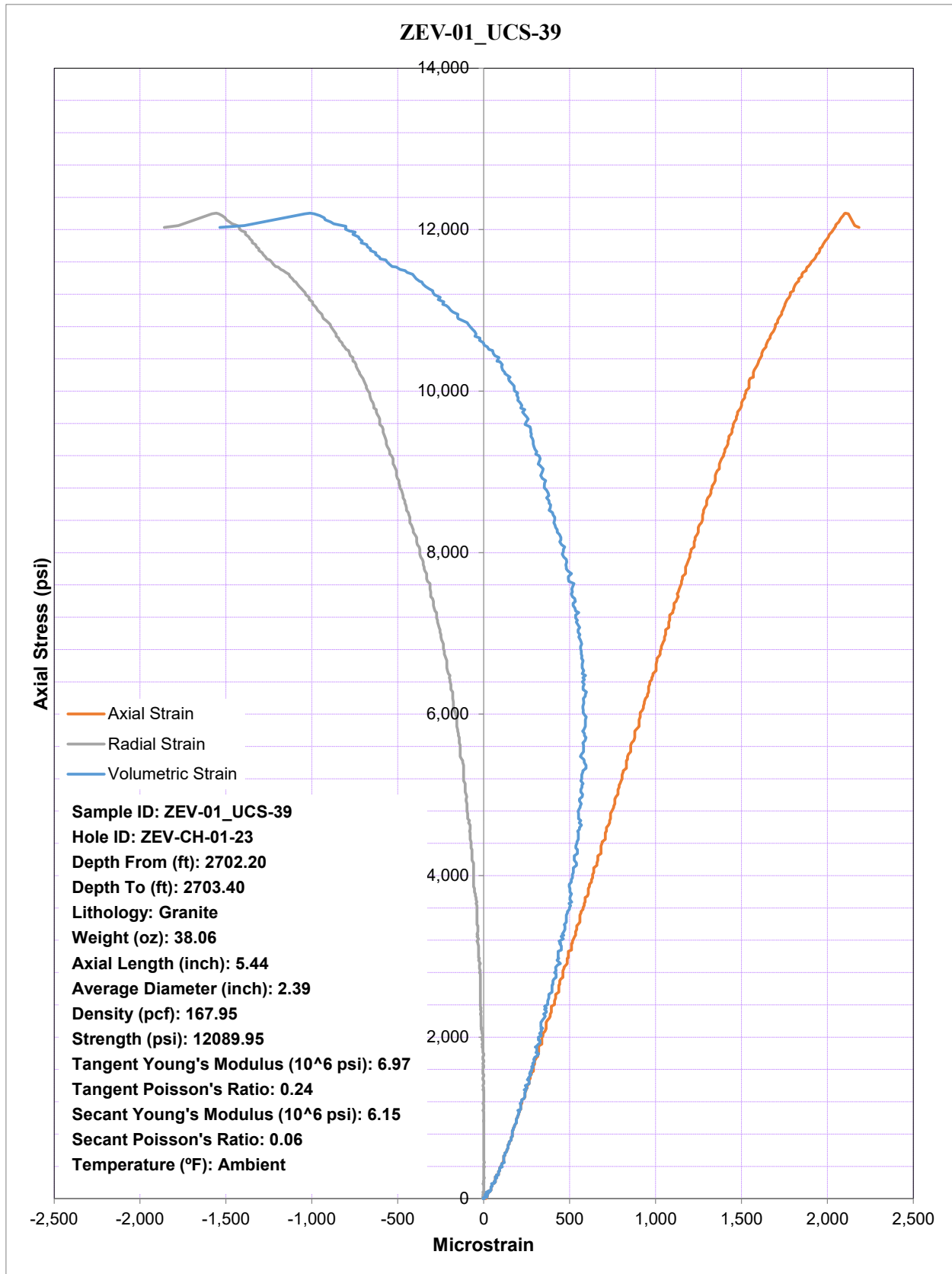




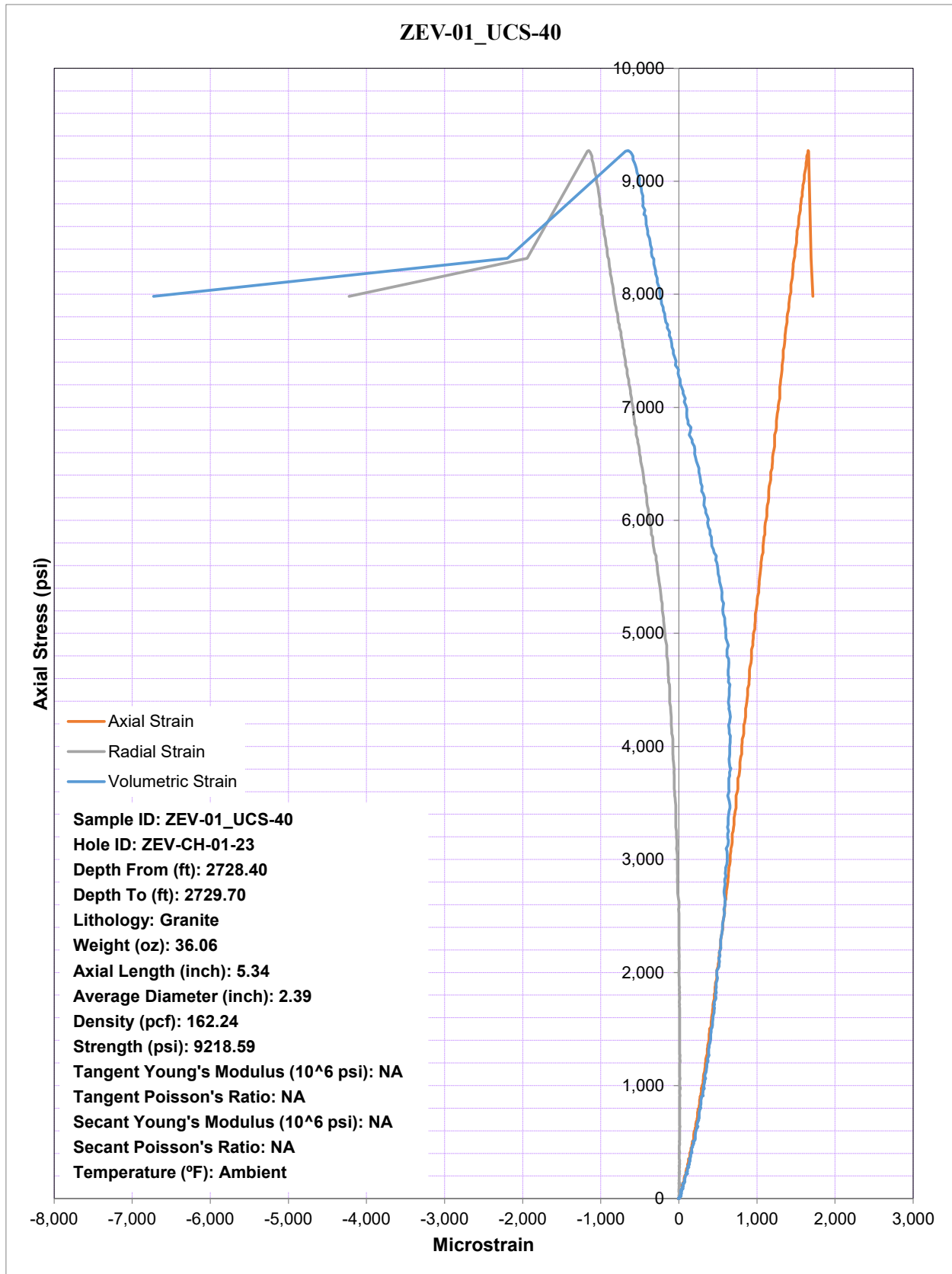


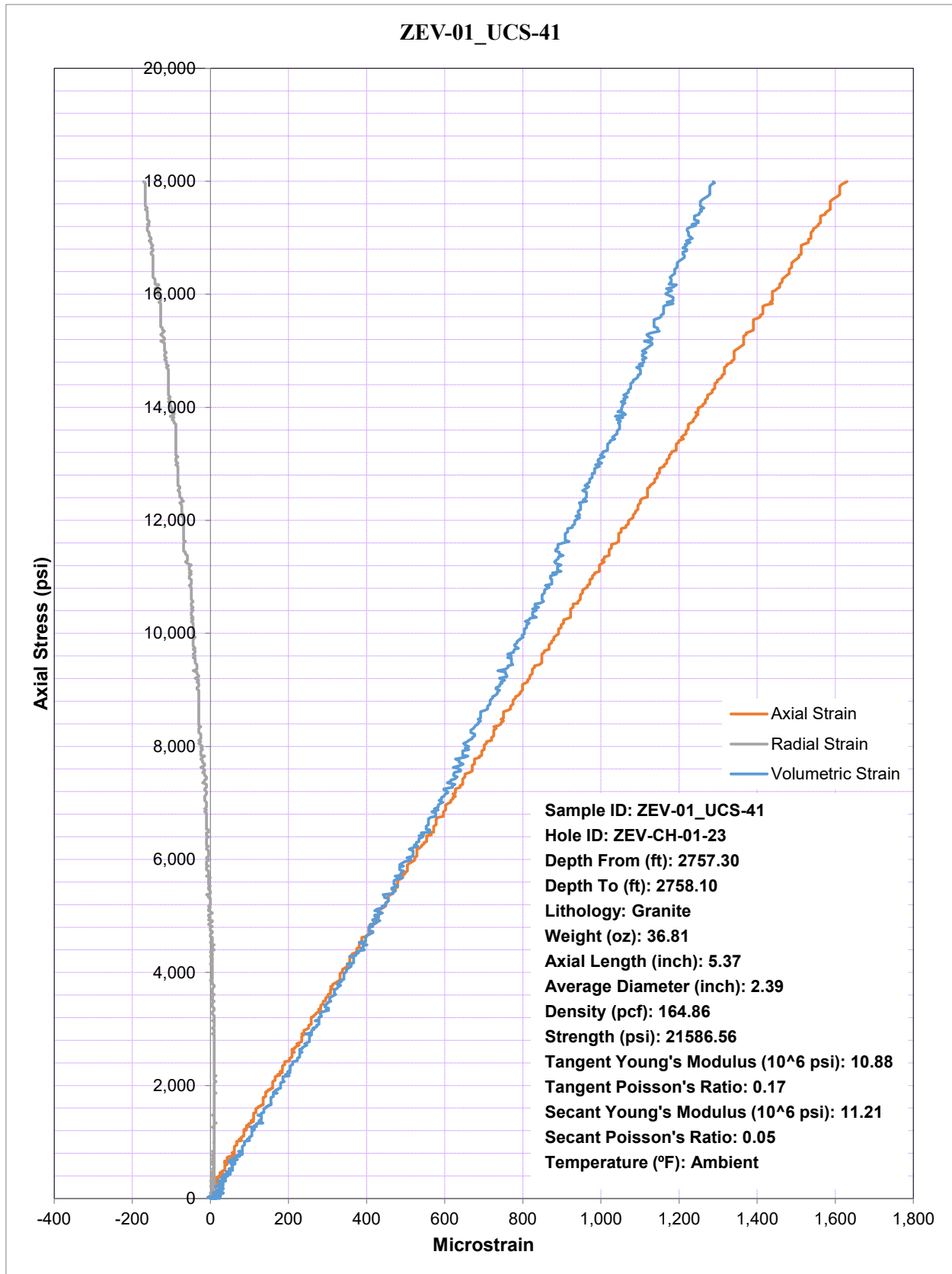


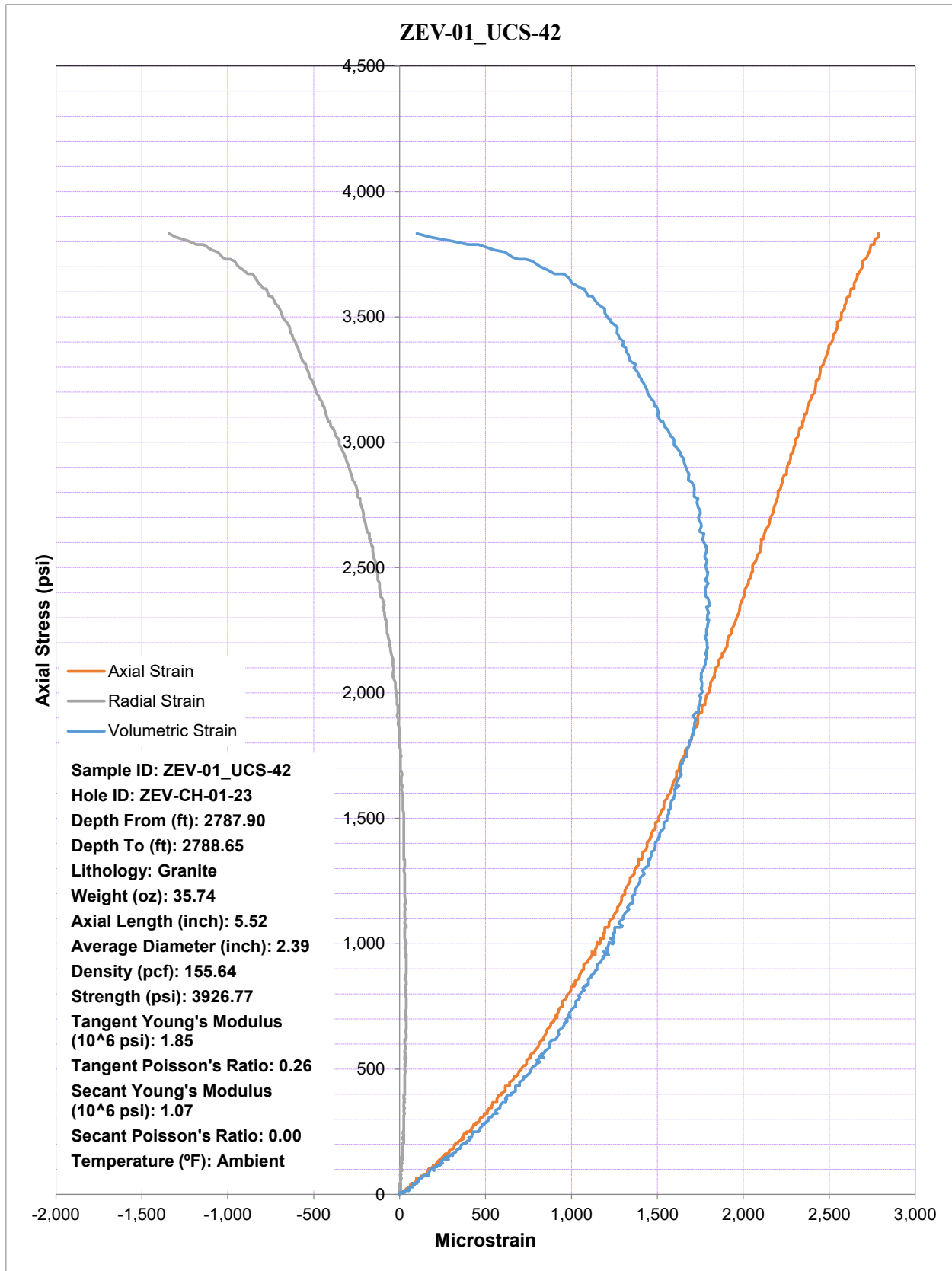


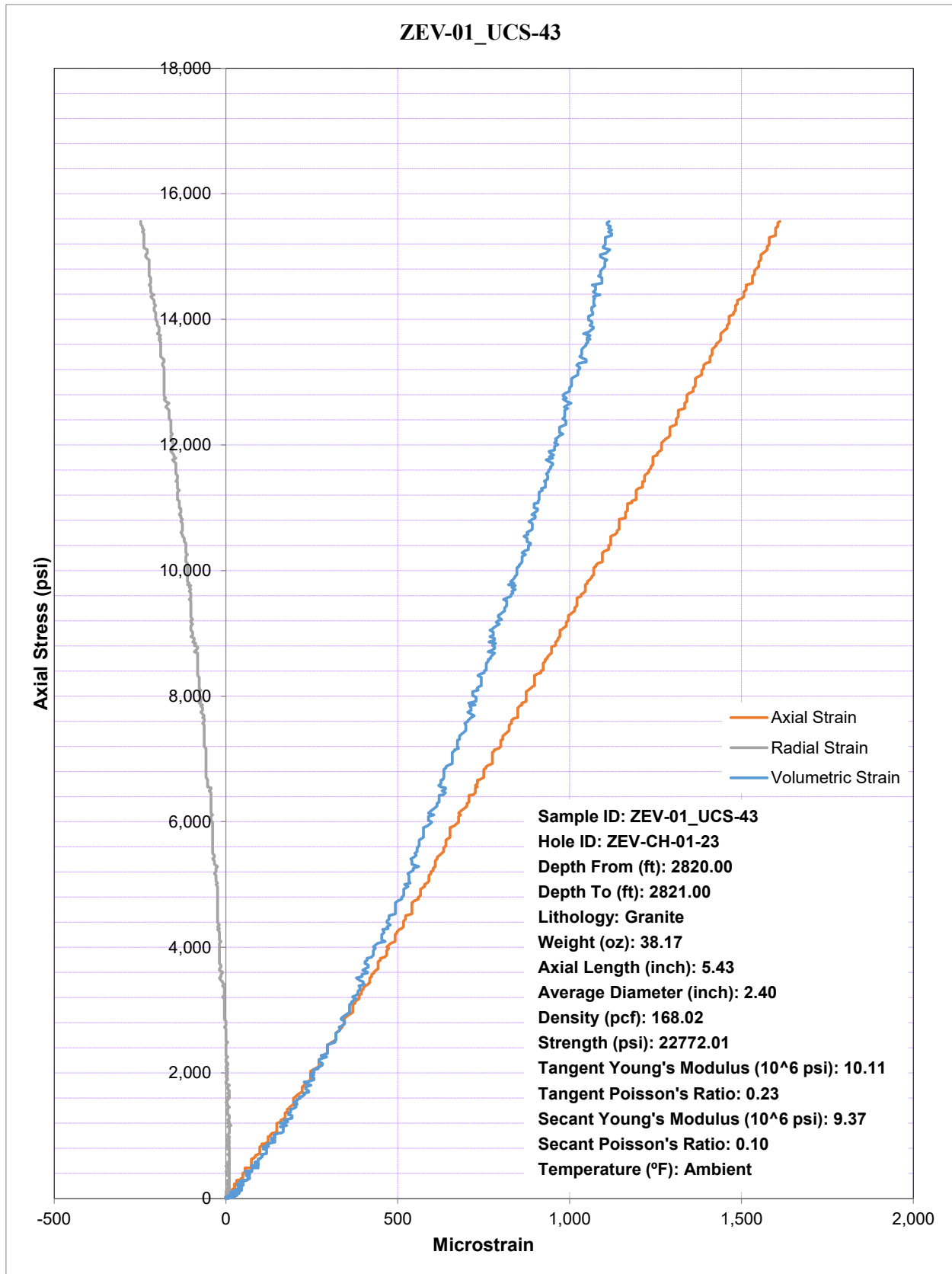


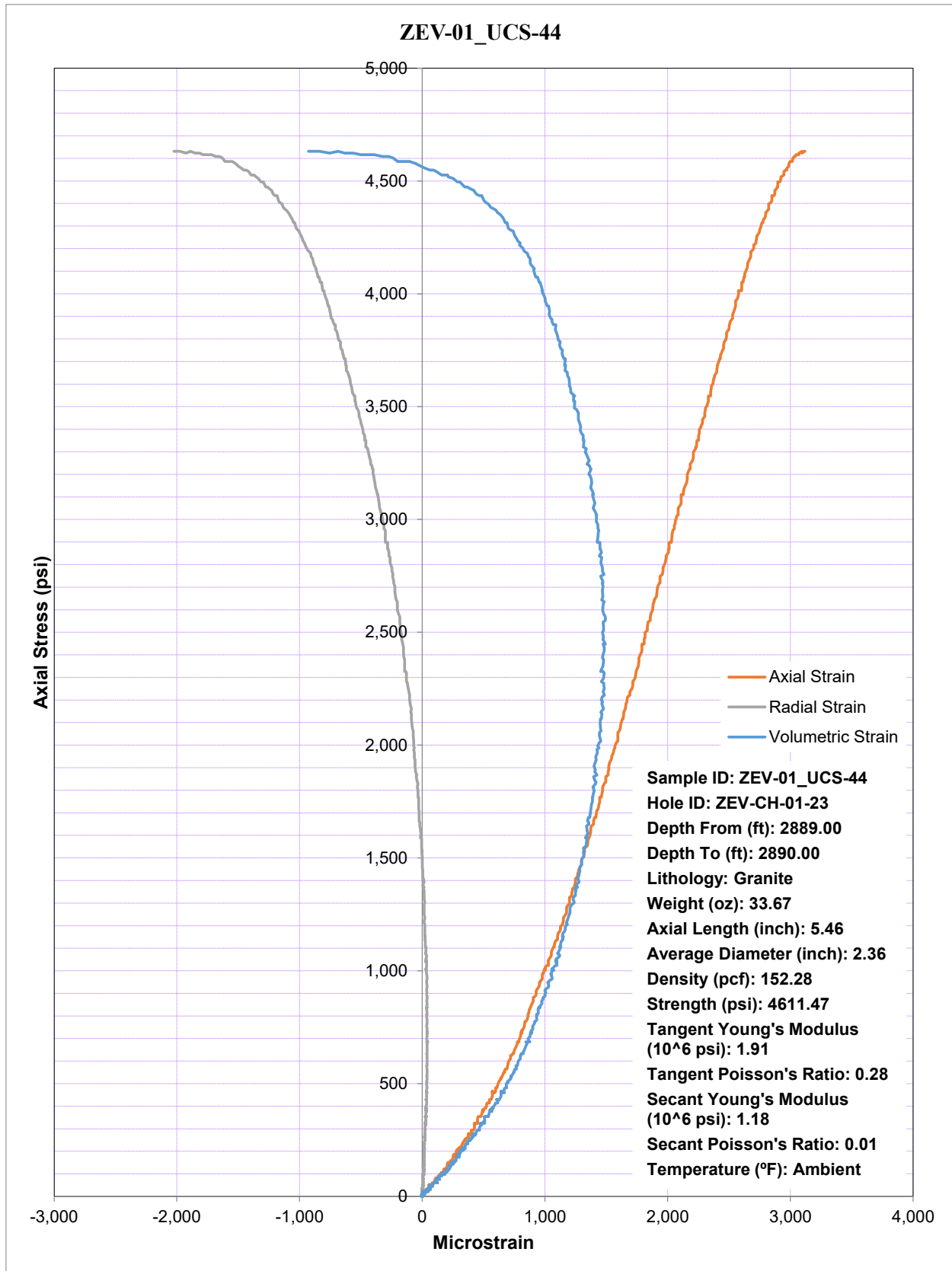












**APPENDIX C**

**BEFORE AND AFTER PHOTOGRAPHS  
OF UNIAXIAL COMPRESSIVE STRENGTH TEST SPECIMENS**



ZEV-01\_UCS-01—Before



ZEV-01\_UCS-01—After



ZEV-01\_UCS-02—Before



ZEV-01\_UCS-02—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens**





ZEV-01\_UCS-03—Before



ZEV-01\_UCS-03—After



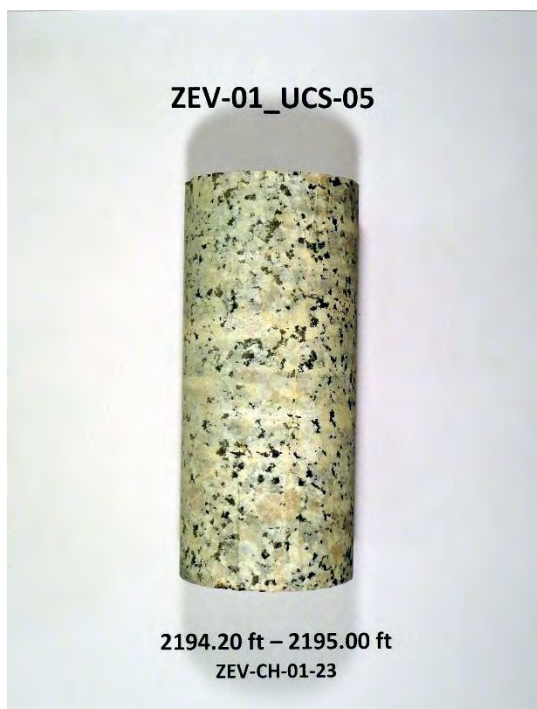
ZEV-01\_UCS-04—Before



ZEV-01\_UCS-04—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-01\_UCS-05—Before



ZEV-01\_UCS-05—After



ZEV-01\_UCS-06—Before



ZEV-01\_UCS-06—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-01\_UCS-07—Before



ZEV-01\_UCS-07—After



ZEV-01\_UCS-08—Before



ZEV-01\_UCS-08—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-01\_UCS-09—Before



ZEV-01\_UCS-09—After

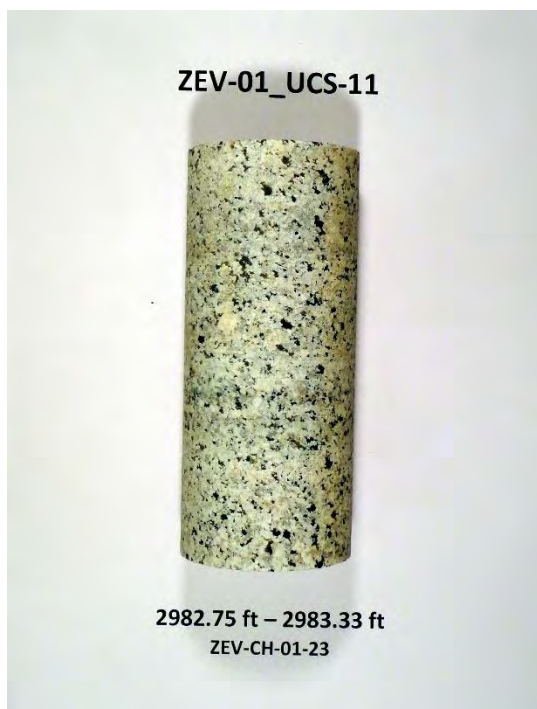


ZEV-01\_UCS-10—Before



ZEV-01\_UCS-10—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-01\_UCS-11—Before



ZEV-01\_UCS-11—After



ZEV-01\_UCS-12—Before



ZEV-01\_UCS-12—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*





ZEV-01-UCS-13—Before



ZEV-01-UCS-13—After



ZEV-01-UCS-14—Before



ZEV-01-UCS-14—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens**



ZEV-01-UCS-15—Before



ZEV-01-UCS-15—After



ZEV-01-UCS-16—Before



ZEV-01-UCS-16—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-01-UCS-17—Before



ZEV-01-UCS-17—After



ZEV-01-UCS-18—Before



ZEV-01-UCS-18—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-01-UCS-19—Before



ZEV-01-UCS-19—After



ZEV-01-UCS-20—Before



ZEV-01-UCS-20—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-01-UCS-21—Before



ZEV-01-UCS-21—After



ZEV-01-UCS-22—Before



ZEV-01-UCS-22—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-01-UCS-23—Before



ZEV-01-UCS-23—After



ZEV-01-UCS-24—Before



ZEV-01-UCS-24—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*





ZEV-01-UCS-25—Before



ZEV-01-UCS-25—After



ZEV-01-UCS-26—Before



ZEV-01-UCS-26—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



ZEV-01-UCS-27—Before



ZEV-01-UCS-27—After



ZEV-01-UCS-28—Before



ZEV-01-UCS-28—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*





ZEV-01-UCS-29—Before



ZEV-01-UCS-29—After



ZEV-01-UCS-30—Before



ZEV-01-UCS-30—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-01-UCS-31—Before



ZEV-01-UCS-31—After



ZEV-01-UCS-32—Before



ZEV-01-UCS-32—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*





ZEV-01-UCS-33—Before



ZEV-01-UCS-33—After



ZEV-01-UCS-34—Before



ZEV-01-UCS-34—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



ZEV-01-UCS-35—Before



ZEV-01-UCS-35—After



ZEV-01-UCS-36—Before



ZEV-01-UCS-36—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*





ZEV-01-UCS-37—Before



ZEV-01-UCS-37—After



ZEV-01-UCS-38—Before



ZEV-01-UCS-38—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-01-UCS-39—Before



ZEV-01-UCS-39—After



ZEV-01-UCS-40—Before



ZEV-01-UCS-40—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-01-UCS-41—Before



ZEV-01-UCS-41—After



ZEV-01-UCS-42—Before



ZEV-01-UCS-42—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



ZEV-01-UCS-43—Before



ZEV-01-UCS-43—After



ZEV-01-UCS-44—Before



ZEV-01-UCS-44—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (concluded)**

**ROCK MECHANICS TESTING RESULTS FOR  
BOREHOLE ZEV-CH-02-23**

*Prepared for*

LANE POWER AND ENERGY SOLUTIONS, INC.

September 28, 2023

*Prepared by*



**AGAPITO ASSOCIATES, INC.**

715 Horizon Drive, Suite 340  
Grand Junction, CO 81506

1536 Cole Blvd., Bldg. 4, Suite 220  
Lakewood, CO 80401

## ROCK MECHANICS TESTING RESULTS FOR BOREHOLE ZEV-CH-02-23

### TABLE OF CONTENTS

|                                                                                           | <u>Page</u> |
|-------------------------------------------------------------------------------------------|-------------|
| <b>1.0 INTRODUCTION .....</b>                                                             | <b>1</b>    |
| <b>2.0 LABORATORY PROCEDURES .....</b>                                                    | <b>1</b>    |
| <b>3.0 TEST RESULTS .....</b>                                                             | <b>1</b>    |
| <br>Appendix A—Uniaxial Compressive Strength Test Datasheet .....                         | <br>A-1     |
| Appendix B—Stress-Strain Plots for Uniaxial Compressive Strength Tests .....              | B-1         |
| Appendix C—Before and After Photographs of Uniaxial Compressive Strength Test Specimens.. | C-1         |
| Appendix D—Triaxial Compression Test Datasheet .....                                      | D-1         |
| Appendix E—Before and After Photographs of Triaxial Compression Test Specimens.....       | E-1         |
| Appendix F—Splitting Tensile Strength (Brazilian) Test Datasheet .....                    | F-1         |
| Appendix G—After Photographs of Brazilian Test Specimens .....                            | G-1         |
| Appendix H—Point Load Test Datasheet.....                                                 | H-1         |
| Appendix I—Slake Durability Test Datasheet .....                                          | I-1         |
| Appendix J—Before and After Photographs of Slake Durability Test Specimens .....          | J-1         |

### LIST OF TABLES

|                                                                                             | <u>Page</u> |
|---------------------------------------------------------------------------------------------|-------------|
| Table 1. Uniaxial Compressive Strength Test Results .....                                   | 3           |
| Table 2. Triaxial Compression Test Results.....                                             | 3           |
| Table 3. Splitting Tensile Strength (Brazilian) Test Results .....                          | 4           |
| Table 4. Point Load Test Results.....                                                       | 5           |
| Table 5. Slake Durability Test Results .....                                                | 6           |
| Table 6. List of Samples with Modified Data Ranges Used for Elastic Property Calculation... | 6           |

---

**DISCLAIMER OF LIABILITY:** *This work was prepared based on the core samples received and by carefully following the standards and procedures listed in this report. Neither Agapito Associates, Inc. (Agapito) nor any of its employees make any warranty, expressed or implied, or assumes **any** legal liability or responsibility for its application or usage. The user hereby acknowledges that the provisions of this disclaimer shall apply to all contents of this report.*

## 1.0 INTRODUCTION

Lane Power and Energy Solutions, Inc. (Lane) commissioned Agapito Associates, Inc. (Agapito) to complete a rock mechanics laboratory study to determine the mechanical properties of rock samples from core hole ZEV-CH-02-23, originating from the Zevzar site near Rosamond, California. Shipments of core were delivered to Agapito's Grand Junction, Colorado laboratory from May 2023 to June 2023. This laboratory report provides results of the rock mechanics core testing performed by Agapito on behalf of Lane.

## 2.0 LABORATORY PROCEDURES

Prior to testing, specimens were prepared according to ASTM International (ASTM) standard D4543-08.<sup>1</sup> The following test types were performed by Agapito according to ASTM standards where applicable:

- Uniaxial (unconfined) Compressive Strength (UCS) test: D7012-13<sup>2</sup>
- Triaxial compression test: D7012-13<sup>3</sup>
- Splitting tensile strength test (Brazilian): D3967-08<sup>4</sup>
- Point Load Strength (Point Load) test: D5731-08<sup>5</sup>
- Slake Durability test: D4644-08<sup>6</sup>

## 3.0 TEST RESULTS

The laboratory results for the UCS tests are summarized in Table 1. Triaxial Compression test results are summarized in Table 2. Brazilian test results are presented in Table 3. Point Load results are presented in Table 4 and Slake Durability test results are presented in Table 5. Point Load testing has been shown to provide an approximation of compressive strength, and using a conversion factor of 21.0 to convert the Corrected Point Load Index ( $I_{s(50)}$ ) into approximate UCS provides the best approximation over a variety of rock types.<sup>7</sup>

Elastic properties are normally calculated from sample data collected between 0% and 55% of the ultimate strength of a sample as this is where most competent rock experiences its most-linear zone of elastic deformation. There were some samples where the zone of elastic deformation occurred

---

<sup>1</sup> ASTM, "Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional Shape Tolerances," Designation D4543-08.

<sup>2</sup> ASTM, "Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperature," Designation D7012-13 (Methods C and D).

<sup>3</sup> ASTM, "Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperature," Designation D7012-13 (Methods A and B).

<sup>4</sup> American Society for Testing and Materials (ASTM), "Standard Test Method for Splitting Tensile Strength of Intact Rock Core Specimens," Designation D3967-08.

<sup>5</sup> ASTM, "Standard Test Method for Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classification," Designation D5731-08.

<sup>6</sup> ASTM, "Standard Test Method for Slake Durability of Shales and Similar Weak Rocks," Designation D4644-08.

<sup>7</sup> Rusnak, J. and Mark, C. (2000), "Using the Point Load Test to Determine the Uniaxial Compressive Strength of Coal Measure Rock," *19th Ground Control Conference in Mining*, West Virginia University, pp. 362–371.



during percentages of ultimate strength lower than expected, and some which did not enter elastic deformation for long enough to collect elastic properties. Elastic properties, therefore, had to be calculated individually based on data from zones of elastic deformation present for each specimen rather than the standard 0–55% of ultimate strength. To see which samples were calculated using nonstandard data ranges for elastic property calculation, refer to Table 6.

The datasheet for the UCS tests with failure mode descriptions is presented in Appendix A. Stress-strain plots for UCS tests are in Appendix B. The before and after photographs of UCS test specimens are displayed in Appendix C. The datasheet for the Triaxial Compression tests with failure mode descriptions is presented in Appendix D, and the before and after photographs of Triaxial Compression test specimens are presented in Appendix E. The Brazilian test datasheet is presented in Appendix F, and after photographs of the Brazilian test specimens are presented in Appendix G. The Point Load test datasheet is presented in Appendix H. The Slake Durability test datasheet is presented in Appendix I, and the before and after photographs of the Slake Durability test specimens presented in Appendix J.

Table 1.    Uniaxial Compressive Strength Test Results

| Specimen No.                 | Hole ID      | Depth        |             | Rock Type                   | Weight<br>(oz)    | Average<br>Diameter<br>(inch) | Axial<br>Length<br>(inch)    | Density<br>(pcf) | Failure<br>Load<br>(lbf) | UCS<br>(psi) | Young's                            | Poisson's | Young's                            | Poisson's |
|------------------------------|--------------|--------------|-------------|-----------------------------|-------------------|-------------------------------|------------------------------|------------------|--------------------------|--------------|------------------------------------|-----------|------------------------------------|-----------|
|                              |              | From<br>(ft) | To<br>(ft)  |                             |                   |                               |                              |                  |                          |              | Modulus†<br>(×10 <sup>6</sup> psi) | Ratio†    | Modulus‡<br>(×10 <sup>6</sup> psi) | Ratio‡    |
| ZEV-02 UCS-01                | ZEV-CH-02-23 | 1536.40      | 1538.00     | Granite                     | 38.20             | 2.40                          | 5.40                         | 169              | 91,200                   | 20,223       | 10.76                              | 0.22      | 10.31                              | 0.07      |
| ZEV-02 UCS-02                | ZEV-CH-02-23 | 1608.10      | 1610.00     | Granite                     | 37.05             | 2.38                          | 5.34                         | 169              | 101,585                  | 22,921       | 10.42                              | 0.20      | 9.66                               | 0.08      |
| ZEV-02 UCS-03                | ZEV-CH-02-23 | 1740.00      | 1741.30     | Granite                     | 37.87             | 2.39                          | 5.41                         | 169              | 62,575                   | 14,001       | 11.08                              | 0.23      | 11.16                              | 0.07      |
| ZEV-02 UCS-04                | ZEV-CH-02-23 | 1851.20      | 1852.00     | Granite                     | 37.17             | 2.38                          | 5.32                         | 169              | 70,210                   | 15,752       | 10.44                              | 0.20      | 10.82                              | 0.09      |
| ZEV-02 UCS-05                | ZEV-CH-02-23 | 1951.40      | 1952.75     | Granite                     | 36.70             | 2.40                          | 5.24                         | 168              | 82,370                   | 18,272       | 9.64                               | 0.23      | 9.83                               | 0.09      |
| ZEV-02 UCS-06                | ZEV-CH-02-23 | 2005.90      | 2006.60     | Granite                     | 37.05             | 2.39                          | 5.43                         | 164              | 119,855                  | 26,655       | 9.79                               | 0.23      | 9.35                               | 0.13      |
| ZEV-02 UCS-07                | ZEV-CH-02-23 | 2040.40      | 2041.10     | Granite                     | 38.43             | 2.39                          | 5.45                         | 169              | 122,525                  | 27,231       | 10.97                              | 0.30      | 10.87                              | 0.17      |
| ZEV-02 UCS-08                | ZEV-CH-02-23 | 2065.00      | 2066.00     | Granite                     | 38.14             | 2.40                          | 5.45                         | 168              | 102,155                  | 22,671       | 9.13                               | 0.35      | 8.52                               | 0.19      |
| ZEV-02 UCS-09                | ZEV-CH-02-23 | 2096.10      | 2097.50     | Granite                     | 37.22             | 2.38                          | 5.34                         | 169              | 73,870                   | 16,566       | 8.84                               | 0.22      | 7.34                               | 0.08      |
| ZEV-02 UCS-10                | ZEV-CH-02-23 | 2132.20      | 2133.40     | Granite                     | 37.96             | 2.39                          | 5.40                         | 169              | 116,465                  | 25,939       | 10.65                              | 0.26      | 10.98                              | 0.10      |
| ZEV-02 UCS-11                | ZEV-CH-02-23 | 2160.00      | 2162.00     | Granite                     | 37.56             | 2.39                          | 5.35                         | 169              | 106,260                  | 23,626       | 9.63                               | 0.27      | 9.13                               | 0.11      |
| ZEV-02 UCS-12                | ZEV-CH-02-23 | 2188.80      | 2190.00     | Granite                     | 37.30             | 2.38                          | 5.42                         | 167              | 131,835                  | 29,590       | 10.09                              | 0.30      | 9.21                               | 0.13      |
| ZEV-02 UCS-13                | ZEV-CH-02-23 | 2215.00      | 2216.00     | Granite                     | 38.16             | 2.39                          | 5.44                         | 169              | 91,580                   | 20,384       | 9.50                               | 0.29      | 8.81                               | 0.14      |
| ZEV-02 UCS-14                | ZEV-CH-02-23 | 2230.00      | 2231.20     | Granite                     | 36.68             | 2.39                          | 5.33                         | 166              | 25,480                   | 5,697        | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-15                | ZEV-CH-02-23 | 2295.20      | 2296.35     | Granite                     | 36.26             | 2.39                          | 5.21                         | 167              | -                        | -            | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-16                | ZEV-CH-02-23 | 2308.60      | 2309.30     | Granite                     | 37.46             | 2.40                          | 5.46                         | 164              | 8,525                    | 1,888        | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-17                | ZEV-CH-02-23 | 2341.00      | 2342.25     | Granite                     | 37.54             | 2.39                          | 5.38                         | 168              | 95,840                   | 21,408       | 8.58                               | 0.26      | 6.09                               | 0.09      |
| ZEV-02 UCS-18                | ZEV-CH-02-23 | 2382.80      | 2383.60     | Granite                     | 37.71             | 2.39                          | 5.44                         | 167              | 40,685                   | 9,099        | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-19                | ZEV-CH-02-23 | 2395.00      | 2396.30     | Granite                     | 34.52             | 2.39                          | 5.25                         | 158              | 10,550                   | 2,344        | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-20                | ZEV-CH-02-23 | 2441.25      | 2442.00     | Granite                     | 34.81             | 2.39                          | 5.02                         | 167              | 53,315                   | 11,872       | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-21                | ZEV-CH-02-23 | 2456.65      | 2457.45     | Granite                     | -                 | -                             | -                            | -                | -                        | -            | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-22                | ZEV-CH-02-23 | 2510.70      | 2511.20     | Granite                     | 35.83             | 2.40                          | 5.12                         | 167              | 50,135                   | 11,075       | 4.50                               | 0.25      | 2.74                               | 0.03      |
| ZEV-02 UCS-23                | ZEV-CH-02-23 | 2518.40      | 2519.00     | Granite                     | 34.27             | 2.39                          | 5.27                         | 156              | 5,180                    | 1,152        | 0.20                               | 0.29      | 0.13                               | 0.04      |
| ZEV-02 UCS-24                | ZEV-CH-02-23 | 2563.00      | 2564.00     | Granite                     | 35.39             | 2.39                          | 5.04                         | 169              | 110,400                  | 24,552       | 10.00                              | 0.31      | 9.61                               | 0.17      |
| ZEV-02 UCS-25                | ZEV-CH-02-23 | 2608.70      | 2609.10     | Granite                     | 35.24             | 2.40                          | 5.04                         | 167              | 27,875                   | 6,160        | 1.94                               | 0.21      | 1.07                               | 0.11      |
| ZEV-02 UCS-26                | ZEV-CH-02-23 | 2668.40      | 2669.50     | Granite                     | 38.25             | 2.39                          | 5.50                         | 168              | 73,545                   | 16,438       | 7.33                               | 0.31      | 6.23                               | 0.15      |
| ZEV-02 UCS-27                | ZEV-CH-02-23 | 2673.00      | 2673.80     | Granite                     | 34.26             | 2.39                          | 5.06                         | 163              | 81,475                   | 18,210       | 7.19                               | 0.17      | 5.46                               | 0.05      |
| ZEV-02 UCS-28                | ZEV-CH-02-23 | 2703.10      | 2703.45     | Granite                     | -                 | -                             | -                            | -                | -                        | -            | -                                  | -         | -                                  | -         |
| ZEV-02 UCS-29                | ZEV-CH-02-23 | 2761.85      | 2762.80     | Granite                     | 34.19             | 2.39                          | 5.52                         | 149              | 6,295                    | 1,398        | 0.38                               | 0.28      | 0.25                               | 0.08      |
| ZEV-02 UCS-30                | ZEV-CH-02-23 | 2788.00      | 2789.00     | Granite                     | 31.40             | 2.38                          | 5.33                         | 143              | 3,545                    | 797          | 0.13                               | 0.27      | 0.13                               | 0.10      |
| ZEV-02 UCS-31                | ZEV-CH-02-23 | 2842.60      | 2843.50     | Granite                     | 38.64             | 2.40                          | 5.54                         | 167              | 77,835                   | 17,259       | 14.97                              | 0.32      | 13.40                              | 0.13      |
| ZEV-02 UCS-32                | ZEV-CH-02-23 | 2852.40      | 2853.75     | Granite                     | 38.34             | 2.39                          | 5.47                         | 168              | 84,825                   | 18,864       | 6.18                               | 0.18      | 4.81                               | 0.07      |
| ZEV-02 UCS-33                | ZEV-CH-02-23 | 2891.40      | 2892.00     | Granite                     | 36.61             | 2.40                          | 5.21                         | 168              | 93,765                   | 20,766       | 9.28                               | 0.29      | 7.88                               | 0.11      |
| ZEV-02 UCS-34                | ZEV-CH-02-23 | 2906.00      | 2907.00     | Granite                     | 37.70             | 2.40                          | 5.38                         | 168              | 99,985                   | 22,134       | 8.97                               | 0.32      | 7.84                               | 0.18      |
| ZEV-02 UCS-35                | ZEV-CH-02-23 | 2910.20      | 2911.30     | Granite                     | 36.50             | 2.40                          | 5.23                         | 166              | 68,495                   | 15,131       | 6.02                               | 0.23      | 4.99                               | 0.10      |
| ZEV-02 UCS-36                | ZEV-CH-02-23 | 2946.20      | 2946.80     | Granite                     | 37.70             | 2.40                          | 5.32                         | 169              | 59,565                   | 13,118       | 7.64                               | 0.24      | 6.59                               | 0.09      |
| ZEV-02 UCS-37                | ZEV-CH-02-23 | 2955.00      | 2956.40     | Granite                     | 37.04             | 2.41                          | 5.22                         | 168              | 88,805                   | 19,524       | 8.48                               | 0.21      | 6.53                               | 0.10      |
| ZEV-02 UCS-38                | ZEV-CH-02-23 | 2970.00      | 2971.00     | Granite                     | 34.33             | 2.41                          | 4.80                         | 170              | 42,850                   | 9,417        | 7.01                               | 0.25      | 4.39                               | 0.03      |
| ZEV-02 UCS-39                | ZEV-CH-02-23 | 3012.00      | 3013.00     | Granite                     | 37.27             | 2.38                          | 5.37                         | 168              | 69,500                   | 15,596       | 8.96                               | 0.21      | 8.10                               | 0.10      |
| ZEV-02 UCS-40                | ZEV-CH-02-23 | 3030.00      | 3030.60     | Granite                     | 34.20             | 2.39                          | 5.00                         | 165              | 22,620                   | 5,045        | -                                  | -         | -                                  | -         |
| †Tangent calculation method. |              | ft = feet    | oz = ounces | pcf = pounds per cubic foot | lbf = pound-force |                               | psi = pounds per square inch |                  |                          |              |                                    |           |                                    |           |
| ‡Secant calculation method.  |              |              |             |                             |                   |                               |                              |                  |                          |              |                                    |           |                                    |           |

Table 2.    Triaxial Compression Test Results

| Specimen No.  | Hole ID      | Depth        |            | Lithology | Weight<br>(oz) | Average<br>Diameter<br>(inch) | Axial<br>Length<br>(inch) | Density<br>(pcf) | Failure<br>Load<br>(lbs) | Confining<br>Pressure<br>(psi) | Corrected<br>Failure<br>Stress<br>(psi) |
|---------------|--------------|--------------|------------|-----------|----------------|-------------------------------|---------------------------|------------------|--------------------------|--------------------------------|-----------------------------------------|
|               |              | From<br>(ft) | To<br>(ft) |           |                |                               |                           |                  |                          |                                |                                         |
| ZEV-02 TRI-01 | ZEV-CH-02-23 | 1,999.10     | 1,999.80   | Granite   | 37.98          | 2.40                          | 5.35                      | 170              | 168,805                  | 1,500                          | 37,680                                  |
| ZEV-02 TRI-02 | ZEV-CH-02-23 | 2,002.00     | 2,002.65   | Granite   | 37.94          | 2.40                          | 5.41                      | 167              | 110,610                  | 2,500                          | 25,070                                  |
| ZEV-02 TRI-03 | ZEV-CH-02-23 | 2,030.00     | 2,031.00   | Granite   | 37.84          | 2.40                          | 5.36                      | 169              | 181,425                  | 1,500                          | 40,617                                  |
| ZEV-02 TRI-04 | ZEV-CH-02-23 | 2,069.00     | 2,070.00   | Granite   | 37.82          | 2.39                          | 5.40                      | 168              | 168,055                  | 2,500                          | 37,936                                  |
| ZEV-02 TRI-05 | ZEV-CH-02-23 | 2,094.00     | 2,095.00   | Granite   | 38.39          | 2.39                          | 5.48                      | 169              | 127,235                  | 1,500                          | 28,712                                  |
| ZEV-02 TRI-06 | ZEV-CH-02-23 | 2,123.00     | 2,123.80   | Granite   | 38.55          | 2.38                          | 5.53                      | 169              | 189,405                  | 2,500                          | 42,991                                  |
| ZEV-02 TRI-07 | ZEV-CH-02-23 | 2,151.50     | 2,153.40   | Granite   | 37.14          | 2.39                          | 5.31                      | 168              | 109,035                  | 1,500                          | 24,690                                  |
| ZEV-02 TRI-08 | ZEV-CH-02-23 | 2,184.00     | 2,185.00   | Granite   | 36.51          | 2.38                          | 5.46                      | 162              | 138,520                  | 2,500                          | 31,635                                  |
| ZEV-02 TRI-09 | ZEV-CH-02-23 | 2,213.50     | 2,215.00   | Granite   | 37.92          | 2.39                          | 5.41                      | 169              | 110,780                  | 1,500                          | 25,015                                  |
| ZEV-02 TRI-10 | ZEV-CH-02-23 | 2,295.20     | 2,296.35   | Granite   | 36.25          | 2.39                          | 5.20                      | 167              | 85,555                   | 2,500                          | 18,804                                  |
| ZEV-02 TRI-11 | ZEV-CH-02-23 | 2,358.50     | 2,359.00   | Granite   | 37.03          | 2.39                          | 5.33                      | 167              | 39,660                   | 1,500                          | 8,698                                   |
| ZEV-02 TRI-12 | ZEV-CH-02-23 | 2,392.20     | 2,393.35   | Granite   | 36.14          | 2.39                          | 5.43                      | 160              | 48,710                   | 2,500                          | 11,450                                  |
| ZEV-02 TRI-13 | ZEV-CH-02-23 | 2,771.25     | 2,772.00   | Granite   | 35.1           | 2.39                          | 5.10                      | 165              | 178,275                  | 1,500                          | 40,038                                  |
| ZEV-02 TRI-14 | ZEV-CH-02-23 | 2,772.00     | 2,772.75   | Granite   | 35.3           | 2.39                          | 5.15                      | 165              | 216,550                  | 2,500                          | 48,767                                  |
| ZEV-02 TRI-15 | ZEV-CH-02-23 | 2,772.75     | 2,773.50   | Granite   | 34.3           | 2.39                          | 4.99                      | 165              | 179,595                  | 1,500                          | 40,332                                  |

Table 3. Splitting Tensile Strength (Brazilian) Test Results

| Specimen No.  | Hole ID      | Depth        |            | Rock Type | Weight<br>(oz) | Average<br>Diameter<br>(inch) | Axial<br>Length<br>(inch) | Density<br>(pcf) | Failure<br>Load<br>(lb) | Splitting<br>Tensile<br>Strength<br>(psi) |
|---------------|--------------|--------------|------------|-----------|----------------|-------------------------------|---------------------------|------------------|-------------------------|-------------------------------------------|
|               |              | From<br>(ft) | To<br>(ft) |           |                |                               |                           |                  |                         |                                           |
| ZEV-02 BTS-01 | ZEV-CH-02-23 | 1592.10      | 1594.30    | Granite   | 8.95           | 2.39                          | 1.28                      | 168              | 5,844                   | 1,214                                     |
| ZEV-02 BTS-02 | ZEV-CH-02-23 | 1687.10      | 1688.70    | Granite   | 9.39           | 2.40                          | 1.34                      | 168              | 7,786                   | 1,545                                     |
| ZEV-02 BTS-03 | ZEV-CH-02-23 | 1782.90      | 1784.00    | Granite   | 8.61           | 2.39                          | 1.24                      | 166              | 6,116                   | 1,309                                     |
| ZEV-02 BTS-04 | ZEV-CH-02-23 | 1888.00      | 1889.50    | Granite   | 9.34           | 2.39                          | 1.34                      | 168              | 6,710                   | 1,335                                     |
| ZEV-02 BTS-05 | ZEV-CH-02-23 | 1992.30      | 1993.60    | Granite   | 9.27           | 2.40                          | 1.32                      | 167              | 7,143                   | 1,433                                     |
| ZEV-02 BTS-06 | ZEV-CH-02-23 | 2015.00      | 2016.00    | Granite   | 8.68           | 2.39                          | 1.24                      | 168              | 6,852                   | 1,473                                     |
| ZEV-02 BTS-07 | ZEV-CH-02-23 | 2059.00      | 2060.00    | Granite   | 9.53           | 2.39                          | 1.35                      | 169              | 7,698                   | 1,515                                     |
| ZEV-02 BTS-08 | ZEV-CH-02-23 | 2081.00      | 2082.30    | Granite   | 8.92           | 2.39                          | 1.28                      | 167              | 4,234                   | 879                                       |
| ZEV-02 BTS-09 | ZEV-CH-02-23 | 2108.75      | 2110.00    | Granite   | 9.10           | 2.39                          | 1.32                      | 166              | 5,726                   | 1,158                                     |
| ZEV-02 BTS-10 | ZEV-CH-02-23 | 2141.50      | 2142.75    | Granite   | 9.46           | 2.39                          | 1.36                      | 168              | 8,253                   | 1,618                                     |
| ZEV-02 BTS-11 | ZEV-CH-02-23 | 2170.40      | 2171.80    | Granite   | 8.67           | 2.39                          | 1.25                      | 167              | 7,230                   | 1,545                                     |
| ZEV-02 BTS-12 | ZEV-CH-02-23 | 2195.00      | 2196.60    | Granite   | 9.21           | 2.39                          | 1.32                      | 168              | 6,196                   | 1,249                                     |
| ZEV-02 BTS-13 | ZEV-CH-02-23 | 2238.00      | 2239.00    | Granite   | 9.66           | 2.40                          | 1.34                      | 172              | 1,033                   | 204                                       |
| ZEV-02 BTS-14 | ZEV-CH-02-23 | 2261.00      | 2261.80    | Granite   | 8.99           | 2.39                          | 1.33                      | 163              | 6,577                   | 1,322                                     |
| ZEV-02 BTS-15 | ZEV-CH-02-23 | 2295.20      | 2296.35    | Granite   | 8.59           | 2.39                          | 1.26                      | 164              | 4,459                   | 942                                       |
| ZEV-02 BTS-16 | ZEV-CH-02-23 | 2333.00      | 2334.00    | Granite   | 8.90           | 2.38                          | 1.30                      | 166              | 4,487                   | 923                                       |
| ZEV-02 BTS-17 | ZEV-CH-02-23 | 2353.70      | 2354.60    | Granite   | 8.74           | 2.39                          | 1.29                      | 163              | 5,256                   | 1,088                                     |
| ZEV-02 BTS-18 | ZEV-CH-02-23 | 2383.60      | 2384.70    | Granite   | 9.36           | 2.39                          | 1.38                      | 164              | 2,618                   | 507                                       |
| ZEV-02 BTS-19 | ZEV-CH-02-23 | 2405.00      | 2406.00    | Granite   | 8.38           | 2.37                          | 1.30                      | 158              | 1,237                   | 256                                       |
| ZEV-02 BTS-20 | ZEV-CH-02-23 | 2453.00      | 2453.90    | Granite   | 8.74           | 2.39                          | 1.29                      | 162              | -                       | -                                         |
| ZEV-02 BTS-21 | ZEV-CH-02-23 | 2472.20      | 2472.80    | Granite   | 8.52           | 2.39                          | 1.23                      | 168              | 2,935                   | 639                                       |
| ZEV-02 BTS-22 | ZEV-CH-02-23 | 2502.30      | 2503.00    | Granite   | 9.20           | 2.39                          | 1.35                      | 164              | 3,334                   | 657                                       |
| ZEV-02 BTS-23 | ZEV-CH-02-23 | 2527.80      | 2528.40    | Granite   | 8.14           | 2.42                          | 1.38                      | 138              | 66                      | 12                                        |
| ZEV-02 BTS-24 | ZEV-CH-02-23 | 2561.70      | 2563.00    | Granite   | 8.08           | 2.39                          | 1.18                      | 164              | 5,826                   | 1,313                                     |
| ZEV-02 BTS-25 | ZEV-CH-02-23 | 2633.60      | 2634.40    | Granite   | 8.28           | 2.39                          | 1.21                      | 166              | 4,962                   | 1,097                                     |
| ZEV-02 BTS-26 | ZEV-CH-02-23 | 2645.25      | 2645.65    | Granite   | 8.75           | 2.38                          | 1.35                      | 157              | 1,609                   | 319                                       |
| ZEV-02 BTS-27 | ZEV-CH-02-23 | 2668.40      | 2669.50    | Granite   | 9.10           | 2.39                          | 1.34                      | 164              | 6,241                   | 1,245                                     |
| ZEV-02 BTS-28 | ZEV-CH-02-23 | 2771.75      | 2773.50    | Granite   | 8.93           | 2.39                          | 1.31                      | 164              | 7,659                   | 1,561                                     |
| ZEV-02 BTS-29 | ZEV-CH-02-23 | 2861.35      | 2862.00    | Granite   | 8.90           | 2.40                          | 1.27                      | 167              | 3,528                   | 736                                       |
| ZEV-02 BTS-30 | ZEV-CH-02-23 | 2896.40      | 2897.50    | Granite   | 9.28           | 2.40                          | 1.34                      | 167              | 4,473                   | 890                                       |
| ZEV-02 BTS-31 | ZEV-CH-02-23 | 2912.50      | 2913.70    | Granite   | 9.46           | 2.40                          | 1.37                      | 165              | 3,463                   | 673                                       |
| ZEV-02 BTS-32 | ZEV-CH-02-23 | 2917.50      | 2918.00    | Granite   | 8.60           | 2.40                          | 1.22                      | 168              | 3,755                   | 815                                       |
| ZEV-02 BTS-33 | ZEV-CH-02-23 | 2938.40      | 2938.40    | Granite   | 8.56           | 2.40                          | 1.27                      | 161              | 4,281                   | 893                                       |
| ZEV-02 BTS-34 | ZEV-CH-02-23 | 2950.00      | 2951.20    | Granite   | 8.41           | 2.41                          | 1.21                      | 165              | 3,845                   | 842                                       |
| ZEV-02 BTS-35 | ZEV-CH-02-23 | 2971.90      | 2972.45    | Granite   | 9.91           | 2.41                          | 1.41                      | 167              | 6,228                   | 1,171                                     |
| ZEV-02 BTS-36 | ZEV-CH-02-23 | 3013.00      | 3013.90    | Granite   | 9.23           | 2.38                          | 1.34                      | 167              | 5,167                   | 1,031                                     |

Table 4. Point Load Test Results

| Specimen No.  | Hole ID      | From<br>(ft) | To<br>(ft) | Lithology | "Failure<br>Load" P<br>(lb) | Test<br>Orientation<br>(A/D) | Corrected<br>Point Load<br>Index, I <sub>S(50)</sub><br>(psi) | Estimated<br>UCS<br>(psi) |
|---------------|--------------|--------------|------------|-----------|-----------------------------|------------------------------|---------------------------------------------------------------|---------------------------|
| ZEV-02 PLT-01 | ZEV-CH-02-23 | 1,567.80     | 1,568.80   | Granite   | 3,646                       | A                            | 985                                                           | 20,679                    |
| ZEV-02 PLT-02 | ZEV-CH-02-23 | 1,570.00     | 1,572.00   | Granite   | 3,379                       | A                            | 901                                                           | 18,919                    |
| ZEV-02 PLT-03 | ZEV-CH-02-23 | 1,580.65     | 1,582.50   | Granite   | 1,245                       | A                            | 331                                                           | 6,956                     |
| ZEV-02 PLT-04 | ZEV-CH-02-23 | 1,617.00     | 1,618.40   | Granite   | 5,177                       | A                            | 1,333                                                         | 27,988                    |
| ZEV-02 PLT-05 | ZEV-CH-02-23 | 1,637.00     | 1,639.20   | Granite   | 3,254                       | A                            | 867                                                           | 18,217                    |
| ZEV-02 PLT-06 | ZEV-CH-02-23 | 1,667.70     | 1,669.55   | Granite   | 2,512                       | A                            | 670                                                           | 14,070                    |
| ZEV-02 PLT-07 | ZEV-CH-02-23 | 1,755.00     | 1,756.30   | Granite   | 4,052                       | A                            | 1,130                                                         | 23,736                    |
| ZEV-02 PLT-08 | ZEV-CH-02-23 | 1,759.00     | 1,760.00   | Granite   | 3,769                       | A                            | 1,065                                                         | 22,360                    |
| ZEV-02 PLT-09 | ZEV-CH-02-23 | 1,775.00     | 1,776.30   | Granite   | 2,335                       | A                            | 638                                                           | 13,401                    |
| ZEV-02 PLT-10 | ZEV-CH-02-23 | 1,862.00     | 1,864.00   | Granite   | 780                         | A                            | 213                                                           | 4,478                     |
| ZEV-02 PLT-11 | ZEV-CH-02-23 | 1,877.50     | 1,879.00   | Granite   | 2,908                       | A                            | 755                                                           | 15,857                    |
| ZEV-02 PLT-12 | ZEV-CH-02-23 | 1,886.60     | 1,887.85   | Granite   | 2,963                       | A                            | 781                                                           | 16,409                    |
| ZEV-02 PLT-13 | ZEV-CH-02-23 | 1,970.00     | 1,971.90   | Granite   | 3,332                       | A                            | 875                                                           | 18,382                    |
| ZEV-02 PLT-14 | ZEV-CH-02-23 | 1,977.00     | 1,978.70   | Granite   | 2,417                       | A                            | 643                                                           | 13,510                    |
| ZEV-02 PLT-15 | ZEV-CH-02-23 | 1,988.60     | 1,990.00   | Granite   | 4,126                       | A                            | 1,155                                                         | 24,250                    |
| ZEV-02 PLT-16 | ZEV-CH-02-23 | 2,007.00     | 2,008.00   | Granite   | 3,958                       | A                            | 1,067                                                         | 22,406                    |
| ZEV-02 PLT-17 | ZEV-CH-02-23 | 2,048.70     | 2,050.00   | Granite   | 4,315                       | A                            | 1,150                                                         | 24,141                    |
| ZEV-02 PLT-18 | ZEV-CH-02-23 | 2,078.00     | 2,078.60   | Granite   | 4,010                       | A                            | 1,157                                                         | 24,299                    |
| ZEV-02 PLT-19 | ZEV-CH-02-23 | 2,100.00     | 2,101.00   | Granite   | 3,171                       | A                            | 824                                                           | 17,314                    |
| ZEV-02 PLT-20 | ZEV-CH-02-23 | 2,135.50     | 2,137.00   | Granite   | 5,326                       | A                            | 1,421                                                         | 29,844                    |
| ZEV-02 PLT-21 | ZEV-CH-02-23 | 2,163.10     | 2,165.00   | Granite   | 3,429                       | A                            | 937                                                           | 19,669                    |
| ZEV-02 PLT-22 | ZEV-CH-02-23 | 2,192.20     | 2,194.25   | Granite   | 4,366                       | A                            | 1,195                                                         | 25,096                    |
| ZEV-02 PLT-23 | ZEV-CH-02-23 | 2,222.00     | 2,223.30   | Granite   | 1,240                       | A                            | 322                                                           | 6,764                     |
| ZEV-02 PLT-24 | ZEV-CH-02-23 | 2,257.00     | 2,257.60   | Granite   | 657                         | A                            | 176                                                           | 3,706                     |
| ZEV-02 PLT-25 | ZEV-CH-02-23 | 2,283.20     | 2,283.80   | Granite   | 264                         | A                            | 74                                                            | 1,550                     |
| ZEV-02 PLT-26 | ZEV-CH-02-23 | 2,314.40     | 2,315.00   | Granite   | 3,703                       | A                            | 987                                                           | 20,724                    |
| ZEV-02 PLT-27 | ZEV-CH-02-23 | 2,341.20     | 2,342.25   | Granite   | 2,930                       | A                            | 792                                                           | 16,624                    |
| ZEV-02 PLT-28 | ZEV-CH-02-23 | 2,375.40     | 2,376.00   | Granite   | 529                         | A                            | 143                                                           | 3,002                     |
| ZEV-02 PLT-29 | ZEV-CH-02-23 | 2,397.50     | 2,398.65   | Granite   | 583                         | A                            | 152                                                           | 3,187                     |
| ZEV-02 PLT-30 | ZEV-CH-02-23 | 2,447.55     | 2,448.20   | Granite   | 3,365                       | A                            | 921                                                           | 19,336                    |
| ZEV-02 PLT-31 | ZEV-CH-02-23 | 2,460.60     | 2,461.65   | Granite   | 596                         | A                            | 155                                                           | 3,252                     |
| ZEV-02 PLT-32 | ZEV-CH-02-23 | 2,495.60     | 2,496.50   | Granite   | 666                         | A                            | 188                                                           | 3,955                     |
| ZEV-02 PLT-33 | ZEV-CH-02-23 | 2,522.60     | 2,523.10   | Granite   | 905                         | A                            | 236                                                           | 4,946                     |
| ZEV-02 PLT-34 | ZEV-CH-02-23 | 2,538.40     | 2,538.80   | Granite   | 1,196                       | A                            | 307                                                           | 6,456                     |
| ZEV-02 PLT-35 | ZEV-CH-02-23 | 2,552.50     | 2,553.00   | Granite   | 732                         | A                            | 195                                                           | 4,091                     |
| ZEV-02 PLT-36 | ZEV-CH-02-23 | 2,575.30     | 2,575.70   | Granite   | 2,238                       | A                            | 602                                                           | 12,650                    |
| ZEV-02 PLT-37 | ZEV-CH-02-23 | 2,612.00     | 2,612.35   | Granite   | 2,944                       | A                            | 802                                                           | 16,852                    |
| ZEV-02 PLT-38 | ZEV-CH-02-23 | 2,643.10     | 2,643.50   | Granite   | 3,494                       | A                            | 929                                                           | 19,512                    |
| ZEV-02 PLT-39 | ZEV-CH-02-23 | 2,672.20     | 2,672.65   | Granite   | 2,016                       | A                            | 546                                                           | 11,458                    |
| ZEV-02 PLT-40 | ZEV-CH-02-23 | 2,704.65     | 2,705.00   | Granite   | 2,725                       | A                            | 691                                                           | 14,507                    |
| ZEV-02 PLT-41 | ZEV-CH-02-23 | 2,774.20     | 2,774.80   | Granite   | -                           | -                            | -                                                             | -                         |
| ZEV-02 PLT-42 | ZEV-CH-02-23 | 2,802.40     | 2,808.80   | Granite   | 4,350                       | A                            | 1,189                                                         | 24,970                    |
| ZEV-02 PLT-43 | ZEV-CH-02-23 | 2,832.80     | 2,833.30   | Granite   | 2,687                       | A                            | 743                                                           | 15,608                    |
| ZEV-02 PLT-44 | ZEV-CH-02-23 | 2,847.20     | 2,847.70   | Granite   | 2,478                       | A                            | 670                                                           | 14,066                    |
| ZEV-02 PLT-45 | ZEV-CH-02-23 | 2,873.90     | 2,874.50   | Granite   | 1,892                       | A                            | 522                                                           | 10,968                    |
| ZEV-02 PLT-46 | ZEV-CH-02-23 | 2,886.70     | 2,887.35   | Granite   | 322                         | A                            | 83                                                            | 1,752                     |
| ZEV-02 PLT-47 | ZEV-CH-02-23 | 2,908.30     | 2,908.90   | Granite   | 2,786                       | A                            | 848                                                           | 17,817                    |
| ZEV-02 PLT-48 | ZEV-CH-02-23 | 2,934.40     | 2,935.00   | Granite   | 3,091                       | A                            | 813                                                           | 17,081                    |
| ZEV-02 PLT-49 | ZEV-CH-02-23 | 2,948.00     | 2,948.70   | Granite   | 1,723                       | A                            | 446                                                           | 9,366                     |
| ZEV-02 PLT-50 | ZEV-CH-02-23 | 2,964.00     | 2,965.00   | Granite   | 1,670                       | A                            | 432                                                           | 9,071                     |

Table 5. Slake Durability Test Results

| Specimen ID                                                                                                                                                                     | Hole ID      | Sample Depth |            | Lithology | Slake Durability           |                              |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|------------|-----------|----------------------------|------------------------------|-------------------------|
|                                                                                                                                                                                 |              | From<br>(ft) | To<br>(ft) |           | Moisture<br>Content<br>(%) | Retained Material            |                         |
|                                                                                                                                                                                 |              |              |            |           |                            | Index,<br>I <sub>d</sub> (2) | Description<br>(Type) * |
| ZEV-02_SLK-01                                                                                                                                                                   | ZEV-CH-02-23 | 1866.00      | 1867.00    | Granite   | 0.9%                       | 62.2                         | II                      |
| ZEV-02_SLK-02                                                                                                                                                                   | ZEV-CH-02-23 | 1969.00      | 1970.00    | Granite   | 0.4%                       | 99.3                         | I                       |
| ZEV-02_SLK-03                                                                                                                                                                   | ZEV-CH-02-23 | 1976.00      | 1977.00    | Granite   | 0.2%                       | 99.2                         | I                       |
| ZEV-02_SLK-04                                                                                                                                                                   | ZEV-CH-02-23 | 2010.40      | 2011.40    | Granite   | 0.2%                       | 98.5                         | I                       |
| ZEV-02_SLK-05                                                                                                                                                                   | ZEV-CH-02-23 | 2060.00      | 2061.00    | Granite   | 0.2%                       | 99.0                         | I                       |
| ZEV-02_SLK-06                                                                                                                                                                   | ZEV-CH-02-23 | 2085.00      | 2086.10    | Granite   | 0.2%                       | 98.2                         | I                       |
| ZEV-02_SLK-07                                                                                                                                                                   | ZEV-CH-02-23 | 2111.60      | 2112.85    | Granite   | 0.2%                       | 98.9                         | I                       |
| ZEV-02_SLK-08                                                                                                                                                                   | ZEV-CH-02-23 | 2148.00      | 2149.45    | Granite   | 0.3%                       | 99.5                         | I                       |
| ZEV-02_SLK-09                                                                                                                                                                   | ZEV-CH-02-23 | 2172.30      | 2174.00    | Granite   | 0.3%                       | 99.8                         | I                       |
| ZEV-02_SLK-10                                                                                                                                                                   | ZEV-CH-02-23 | 2207.00      | 2209.00    | Granite   | 0.4%                       | 99.2                         | I                       |
| ZEV-02_SLK-11                                                                                                                                                                   | ZEV-CH-02-23 | 2230.00      | 2231.20    | Granite   | 0.4%                       | 97.8                         | I                       |
| ZEV-02_SLK-12                                                                                                                                                                   | ZEV-CH-02-23 | 2232.20      | 2233.50    | Granite   | 0.8%                       | 87.6                         | II                      |
| ZEV-02_SLK-13                                                                                                                                                                   | ZEV-CH-02-23 | 2251.10      | 2252.00    | Granite   | 0.6%                       | 99.0                         | I                       |
| ZEV-02_SLK-14                                                                                                                                                                   | ZEV-CH-02-23 | 2286.00      | 2286.60    | Granite   | 0.5%                       | 96.8                         | I                       |
| ZEV-02_SLK-15                                                                                                                                                                   | ZEV-CH-02-23 | 2314.40      | 2315.00    | Granite   | 0.8%                       | 99.4                         | I                       |
| ZEV-02_SLK-16                                                                                                                                                                   | ZEV-CH-02-23 | 2345.30      | 2346.40    | Granite   | 0.3%                       | 99.4                         | I                       |
| ZEV-02_SLK-17                                                                                                                                                                   | ZEV-CH-02-23 | 2382.80      | 2383.60    | Granite   | 0.6%                       | 99.0                         | I                       |
| ZEV-02_SLK-18                                                                                                                                                                   | ZEV-CH-02-23 | 2408.60      | 2409.40    | Granite   | 0.6%                       | 97.1                         | I                       |
| ZEV-02_SLK-19                                                                                                                                                                   | ZEV-CH-02-23 | 2439.00      | 2440.00    | Granite   | 0.3%                       | 97.7                         | I                       |
| ZEV-02_SLK-20                                                                                                                                                                   | ZEV-CH-02-23 | 2441.70      | 2442.20    | Granite   | 0.7%                       | 96.6                         | I                       |
| ZEV-02_SLK-21                                                                                                                                                                   | ZEV-CH-02-23 | 2455.65      | 2456.25    | Granite   | 0.4%                       | 95.9                         | II                      |
| ZEV-02_SLK-22                                                                                                                                                                   | ZEV-CH-02-23 | 2510.70      | 2511.20    | Granite   | 0.5%                       | 97.4                         | I                       |
| ZEV-02_SLK-23                                                                                                                                                                   | ZEV-CH-02-23 | 2534.20      | 2534.60    | -         | -                          | -                            | 0                       |
| ZEV-02_SLK-24                                                                                                                                                                   | ZEV-CH-02-23 | 2563.00      | 2564.00    | Granite   | 0.3%                       | 99.6                         | I                       |
| ZEV-02_SLK-25                                                                                                                                                                   | ZEV-CH-02-23 | 2582.00      | 2582.40    | Granite   | 0.2%                       | 97.1                         | II                      |
| ZEV-02_SLK-26                                                                                                                                                                   | ZEV-CH-02-23 | 2594.00      | 2594.30    | Granite   | 0.6%                       | 97.4                         | I                       |
| ZEV-02_SLK-27                                                                                                                                                                   | ZEV-CH-02-23 | 2628.80      | 2629.20    | Granite   | 0.4%                       | 90.1                         | II                      |
| ZEV-02_SLK-28                                                                                                                                                                   | ZEV-CH-02-23 | 2630.00      | 2631.00    | Granite   | 0.6%                       | 88.5                         | II                      |
| ZEV-02_SLK-29                                                                                                                                                                   | ZEV-CH-02-23 | 2673.00      | 2673.80    | Granite   | 3.0%                       | 58.4                         | II                      |
| ZEV-02_SLK-30                                                                                                                                                                   | ZEV-CH-02-23 | 2698.50      | 2699.00    | Granite   | 0.4%                       | 89.6                         | II                      |
| ZEV-02_SLK-31                                                                                                                                                                   | ZEV-CH-02-23 | 2736.10      | 2736.55    | Granite   | 0.7%                       | 49.2                         | II                      |
| ZEV-02_SLK-32                                                                                                                                                                   | ZEV-CH-02-23 | 2763.00      | 2764.20    | Granite   | 2.9%                       | 74.4                         | II                      |
| ZEV-02_SLK-33                                                                                                                                                                   | ZEV-CH-02-23 | 2779.20      | 2780.00    | Granite   | 0.4%                       | 99.4                         | I                       |
| ZEV-02_SLK-34                                                                                                                                                                   | ZEV-CH-02-23 | 2791.70      | 2792.00    | Granite   | 0.5%                       | 83.4                         | II                      |
| ZEV-02_SLK-36                                                                                                                                                                   | ZEV-CH-02-23 | 2872.00      | 2873.00    | Granite   | 0.3%                       | 99.5                         | I                       |
| ZEV-02_SLK-37                                                                                                                                                                   | ZEV-CH-02-23 | 2890.00      | 2891.40    | Granite   | 0.3%                       | 98.9                         | I                       |
| ZEV-02_SLK-38                                                                                                                                                                   | ZEV-CH-02-23 | 2913.70      | 2914.55    | Granite   | 0.3%                       | 99.1                         | I                       |
| ZEV-02_SLK-39                                                                                                                                                                   | ZEV-CH-02-23 | 2920.00      | 2920.50    | Granite   | 0.4%                       | 99.2                         | I                       |
| ZEV-02_SLK-40                                                                                                                                                                   | ZEV-CH-02-23 | 2952.00      | 2953.00    | Granite   | 0.3%                       | 98.7                         | I                       |
| ZEV-02_SLK-41                                                                                                                                                                   | ZEV-CH-02-23 | 2955.00      | 2956.40    | Granite   | 0.8%                       | 98.8                         | I                       |
| ZEV-02_SLK-42                                                                                                                                                                   | ZEV-CH-02-23 | 2984.00      | 2985.00    | Granite   | 0.7%                       | 87.4                         | II                      |
| * Type I = Retained pieces remained virtually unchanged<br>II = Retained materials consist of large and small pieces<br>III = Retained materials is exclusively small fragments |              |              |            |           |                            |                              |                         |

Table 6. List of Samples with Modified Data Ranges Used for Elastic Property Calculation

| Specimen No.       | Hole ID      | Test Type | Range of data used for elastic properties calculation<br>(percent of sample maximum strength) |             |                   |             |
|--------------------|--------------|-----------|-----------------------------------------------------------------------------------------------|-------------|-------------------|-------------|
|                    |              |           | Tangent Properties                                                                            |             | Secant Properties |             |
|                    |              |           | Lower Limit                                                                                   | Upper Limit | Lower Limit       | Upper Limit |
| Standard Procedure | -            | -         | 45                                                                                            | 55          | 0                 | 50          |
| ZEV-02 UCS-23      | ZEV-CH-02-23 | UCS       | 23                                                                                            | 32          | 0                 | 27.5        |
| ZEV-02 UCS-25      | ZEV-CH-02-23 | UCS       | 25                                                                                            | 35          | 0                 | 30          |
| ZEV-02 UCS-29      | ZEV-CH-02-23 | UCS       | 35                                                                                            | 45          | 0                 | 40          |
| ZEV-02 UCS-30      | ZEV-CH-02-23 | UCS       | 17                                                                                            | 25          | 0                 | 21          |
| ZEV-02 UCS-31      | ZEV-CH-02-23 | UCS       | 17                                                                                            | 25          | 0                 | 21          |
| ZEV-02 UCS-38      | ZEV-CH-02-23 | UCS       | 60                                                                                            | 70          | 0                 | 65          |

## **APPENDIX A**

### **UNIAXIAL COMPRESSIVE STRENGTH (UCS) TEST DATASHEET**





UNIAXIAL COMPRESSION TESTS

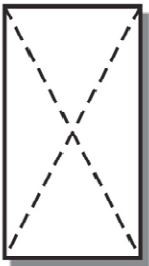
|         |               |
|---------|---------------|
| CLIENT: | Lane PES      |
| JOB NO: | 951-20        |
| DATE:   | July 20, 2023 |

|                     |              |
|---------------------|--------------|
| HOLE NO:            | ZEV-CH-02-23 |
| MOISTURE CONDITION: | As received  |
| TEMPERATURE:        | Ambient      |

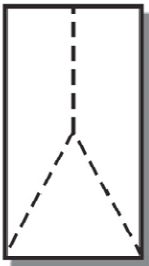
| Specimen No.  | Hole No.     | Depth     |          | Length of Interval (ft) | Weight (oz) | Diameter            |                     | Axial Length (inch) | Length-to-Diameter Ratio | Area (inch <sup>2</sup> ) | Density (pcf) | Specific Gravity |
|---------------|--------------|-----------|----------|-------------------------|-------------|---------------------|---------------------|---------------------|--------------------------|---------------------------|---------------|------------------|
|               |              | From (ft) | To (ft)  |                         |             | D <sub>1</sub> (in) | D <sub>2</sub> (in) |                     |                          |                           |               |                  |
| ZEV-02_UCS-01 | ZEV-CH-02-23 | 1,536.40  | 1,538.00 | 1.60                    | 38.20       | 2.40                | 2.40                | 5.40                | 2.3                      | 4.51                      | 169           | 2.7              |
| ZEV-02_UCS-02 | ZEV-CH-02-23 | 1,608.10  | 1,610.00 | 1.90                    | 37.05       | 2.37                | 2.38                | 5.34                | 2.2                      | 4.43                      | 169           | 2.7              |
| ZEV-02_UCS-03 | ZEV-CH-02-23 | 1,740.00  | 1,741.30 | 1.30                    | 37.87       | 2.39                | 2.39                | 5.41                | 2.3                      | 4.47                      | 169           | 2.7              |
| ZEV-02_UCS-04 | ZEV-CH-02-23 | 1,851.20  | 1,852.00 | 0.80                    | 37.17       | 2.38                | 2.38                | 5.32                | 2.2                      | 4.46                      | 169           | 2.7              |
| ZEV-02_UCS-05 | ZEV-CH-02-23 | 1,951.40  | 1,952.75 | 1.35                    | 36.70       | 2.40                | 2.40                | 5.24                | 2.2                      | 4.51                      | 168           | 2.7              |
| ZEV-02_UCS-06 | ZEV-CH-02-23 | 2,005.90  | 2,006.60 | 0.70                    | 37.05       | 2.39                | 2.39                | 5.43                | 2.3                      | 4.50                      | 164           | 2.6              |
| ZEV-02_UCS-07 | ZEV-CH-02-23 | 2,040.40  | 2,041.10 | 0.70                    | 38.43       | 2.39                | 2.39                | 5.45                | 2.3                      | 4.50                      | 169           | 2.7              |
| ZEV-02_UCS-08 | ZEV-CH-02-23 | 2,065.00  | 2,066.00 | 1.00                    | 38.14       | 2.40                | 2.40                | 5.45                | 2.3                      | 4.51                      | 168           | 2.7              |
| ZEV-02_UCS-09 | ZEV-CH-02-23 | 2,096.10  | 2,097.50 | 1.40                    | 37.22       | 2.38                | 2.39                | 5.34                | 2.2                      | 4.46                      | 169           | 2.7              |
| ZEV-02_UCS-10 | ZEV-CH-02-23 | 2,132.20  | 2,133.40 | 1.20                    | 37.96       | 2.39                | 2.39                | 5.40                | 2.3                      | 4.49                      | 169           | 2.7              |
| ZEV-02_UCS-11 | ZEV-CH-02-23 | 2,160.00  | 2,162.00 | 2.00                    | 37.56       | 2.39                | 2.39                | 5.35                | 2.2                      | 4.50                      | 169           | 2.7              |
| ZEV-02_UCS-12 | ZEV-CH-02-23 | 2,188.80  | 2,190.00 | 1.20                    | 37.30       | 2.38                | 2.38                | 5.42                | 2.3                      | 4.46                      | 167           | 2.7              |
| ZEV-02_UCS-13 | ZEV-CH-02-23 | 2,215.00  | 2,216.00 | 1.00                    | 38.16       | 2.39                | 2.39                | 5.44                | 2.3                      | 4.49                      | 169           | 2.7              |
| ZEV-02_UCS-14 | ZEV-CH-02-23 | 2,230.00  | 2,231.20 | 1.20                    | 36.68       | 2.39                | 2.39                | 5.33                | 2.2                      | 4.47                      | 166           | 2.7              |
| ZEV-02_UCS-15 | ZEV-CH-02-23 | 2,295.20  | 2,296.35 | 1.15                    | 36.26       | 2.39                | 2.40                | 5.21                | 2.2                      | 4.50                      | 167           | 2.7              |
| ZEV-02_UCS-16 | ZEV-CH-02-23 | 2,308.60  | 2,309.30 | 0.70                    | 37.46       | 2.40                | 2.40                | 5.46                | 2.3                      | 4.52                      | 164           | 2.6              |
| ZEV-02_UCS-17 | ZEV-CH-02-23 | 2,341.00  | 2,342.25 | 1.25                    | 37.54       | 2.39                | 2.39                | 5.38                | 2.3                      | 4.48                      | 168           | 2.7              |
| ZEV-02_UCS-18 | ZEV-CH-02-23 | 2,382.80  | 2,383.60 | 0.80                    | 37.71       | 2.39                | 2.39                | 5.44                | 2.3                      | 4.47                      | 167           | 2.7              |
| ZEV-02_UCS-19 | ZEV-CH-02-23 | 2,395.00  | 2,396.30 | 1.30                    | 34.52       | 2.40                | 2.39                | 5.25                | 2.2                      | 4.50                      | 158           | 2.5              |
| ZEV-02_UCS-20 | ZEV-CH-02-23 | 2,441.25  | 2,442.00 | 0.75                    | 34.81       | 2.39                | 2.39                | 5.02                | 2.1                      | 4.49                      | 167           | 2.7              |
| ZEV-02_UCS-21 | ZEV-CH-02-23 | 2,456.65  | 2,457.45 | 0.80                    | -           | -                   | -                   | -                   | -                        | -                         | -             | -                |
| ZEV-02_UCS-22 | ZEV-CH-02-23 | 2,510.70  | 2,511.20 | 0.50                    | 35.83       | 2.40                | 2.40                | 5.12                | 2.1                      | 4.53                      | 167           | 2.7              |
| ZEV-02_UCS-23 | ZEV-CH-02-23 | 2,518.40  | 2,519.00 | 0.60                    | 34.27       | 2.39                | 2.40                | 5.27                | 2.2                      | 4.50                      | 156           | 2.5              |
| ZEV-02_UCS-24 | ZEV-CH-02-23 | 2,563.00  | 2,564.00 | 1.00                    | 35.39       | 2.39                | 2.39                | 5.04                | 2.1                      | 4.50                      | 169           | 2.7              |
| ZEV-02_UCS-25 | ZEV-CH-02-23 | 2,608.70  | 2,609.10 | 0.40                    | 35.24       | 2.40                | 2.40                | 5.04                | 2.1                      | 4.52                      | 167           | 2.7              |
| ZEV-02_UCS-26 | ZEV-CH-02-23 | 2,668.40  | 2,669.50 | 1.10                    | 38.25       | 2.39                | 2.39                | 5.50                | 2.3                      | 4.47                      | 168           | 2.7              |
| ZEV-02_UCS-27 | ZEV-CH-02-23 | 2,673.00  | 2,673.80 | 0.80                    | 34.26       | 2.39                | 2.39                | 5.06                | 2.1                      | 4.47                      | 163           | 2.6              |
| ZEV-02_UCS-28 | ZEV-CH-02-23 | 2,703.10  | 2,703.45 | 0.35                    | -           | -                   | -                   | -                   | -                        | -                         | -             | -                |
| ZEV-02_UCS-29 | ZEV-CH-02-23 | 2,761.85  | 2,762.80 | 0.95                    | 34.19       | 2.39                | 2.40                | 5.52                | 2.3                      | 4.50                      | 149           | 2.4              |
| ZEV-02_UCS-30 | ZEV-CH-02-23 | 2,788.00  | 2,789.00 | 1.00                    | 31.40       | 2.39                | 2.37                | 5.33                | 2.2                      | 4.45                      | 143           | 2.3              |
| ZEV-02_UCS-31 | ZEV-CH-02-23 | 2,842.60  | 2,843.50 | 0.90                    | 38.64       | 2.39                | 2.40                | 5.54                | 2.3                      | 4.51                      | 167           | 2.7              |
| ZEV-02_UCS-32 | ZEV-CH-02-23 | 2,852.40  | 2,853.75 | 1.35                    | 38.34       | 2.39                | 2.39                | 5.47                | 2.3                      | 4.50                      | 168           | 2.7              |
| ZEV-02_UCS-33 | ZEV-CH-02-23 | 2,891.40  | 2,892.00 | 0.60                    | 36.61       | 2.40                | 2.40                | 5.21                | 2.2                      | 4.52                      | 168           | 2.7              |
| ZEV-02_UCS-34 | ZEV-CH-02-23 | 2,906.00  | 2,907.00 | 1.00                    | 37.70       | 2.40                | 2.40                | 5.38                | 2.2                      | 4.52                      | 168           | 2.7              |
| ZEV-02_UCS-35 | ZEV-CH-02-23 | 2,910.20  | 2,911.30 | 1.10                    | 36.50       | 2.40                | 2.40                | 5.23                | 2.2                      | 4.53                      | 166           | 2.7              |
| ZEV-02_UCS-36 | ZEV-CH-02-23 | 2,946.20  | 2,946.80 | 0.60                    | 37.70       | 2.40                | 2.41                | 5.32                | 2.2                      | 4.54                      | 169           | 2.7              |
| ZEV-02_UCS-37 | ZEV-CH-02-23 | 2,955.00  | 2,956.40 | 1.40                    | 37.04       | 2.41                | 2.41                | 5.22                | 2.2                      | 4.55                      | 168           | 2.7              |
| ZEV-02_UCS-38 | ZEV-CH-02-23 | 2,970.00  | 2,971.00 | 1.00                    | 34.33       | 2.41                | 2.41                | 4.80                | 2.0                      | 4.55                      | 170           | 2.7              |
| ZEV-02_UCS-39 | ZEV-CH-02-23 | 3,012.00  | 3,013.00 | 1.00                    | 37.27       | 2.38                | 2.38                | 5.37                | 2.3                      | 4.46                      | 168           | 2.7              |
| ZEV-02_UCS-40 | ZEV-CH-02-23 | 3,030.00  | 3,030.60 | 0.60                    | 34.20       | 2.39                | 2.39                | 5.00                | 2.1                      | 4.48                      | 165           | 2.6              |

| Specimen No.  | Lithological Description | Failure Load (lb) | UCS (psi) | Failure Mode Notes | Comments                                                |
|---------------|--------------------------|-------------------|-----------|--------------------|---------------------------------------------------------|
| ZEV-02_UCS-01 | Granite                  | 91,200            | 20,223    | Axial              |                                                         |
| ZEV-02_UCS-02 | Granite                  | 101,585           | 22,921    | Shear              |                                                         |
| ZEV-02_UCS-03 | Granite                  | 62,575            | 14,001    | Axial              | Failed partially along pre-existing fractures           |
| ZEV-02_UCS-04 | Granite                  | 70,210            | 15,752    | Axial/Shear        | Partial failure along pre-existing fractures            |
| ZEV-02_UCS-05 | Granite                  | 82,370            | 18,272    | Axial              |                                                         |
| ZEV-02_UCS-06 | Granite                  | 119,855           | 26,655    | Axial              |                                                         |
| ZEV-02_UCS-07 | Granite                  | 122,525           | 27,231    | Shear              |                                                         |
| ZEV-02_UCS-08 | Granite                  | 102,155           | 22,671    | Axial              |                                                         |
| ZEV-02_UCS-09 | Granite                  | 73,870            | 16,566    | Axial              |                                                         |
| ZEV-02_UCS-10 | Granite                  | 116,465           | 25,939    | Axial/Shear        |                                                         |
| ZEV-02_UCS-11 | Granite                  | 106,260           | 23,626    | Axial              |                                                         |
| ZEV-02_UCS-12 | Granite                  | 131,835           | 29,590    | Axial              | Partial failure along pre-existing fractures            |
| ZEV-02_UCS-13 | Granite                  | 91,580            | 20,384    | Axial              |                                                         |
| ZEV-02_UCS-14 | Granite                  | 25,480            | 5,697     | Axial              | Failed along pre-existing fractures                     |
| ZEV-02_UCS-15 | Granite                  | -                 | -         | -                  | Tested As Triaxial Test (ZEV-02_TRI-10)                 |
| ZEV-02_UCS-16 | Granite                  | 8,525             | 1,888     | Axial/Shear        | Many pre-existing fractures, largely failed along pre's |
| ZEV-02_UCS-17 | Granite                  | 95,840            | 21,408    | Axial/Shear        |                                                         |
| ZEV-02_UCS-18 | Granite                  | 40,685            | 9,099     | Axial              |                                                         |
| ZEV-02_UCS-19 | Granite                  | 10,550            | 2,344     | Axial              |                                                         |
| ZEV-02_UCS-20 | Granite                  | 53,315            | 11,872    | Axial              |                                                         |
| ZEV-02_UCS-21 | Granite                  | -                 | -         | -                  | Sample broken during preparation                        |
| ZEV-02_UCS-22 | Granite                  | 50,135            | 11,075    | Axial              |                                                         |
| ZEV-02_UCS-23 | Granite                  | 5,180             | 1,152     | Axial              | Samples failed along pre-existing fractures             |
| ZEV-02_UCS-24 | Granite                  | 110,400           | 24,552    | Axial              |                                                         |
| ZEV-02_UCS-25 | Granite                  | 27,875            | 6,160     | Axial              | Partial failure along pre-existing fractures            |
| ZEV-02_UCS-26 | Granite                  | 73,545            | 16,438    | Axial              |                                                         |
| ZEV-02_UCS-27 | Granite                  | 81,475            | 18,210    | Axial              |                                                         |
| ZEV-02_UCS-28 | Granite                  | -                 | -         | -                  | Sample broken during preparation                        |
| ZEV-02_UCS-29 | Granite                  | 6,295             | 1,398     | Axial              |                                                         |
| ZEV-02_UCS-30 | Granite                  | 3,545             | 797       | Axial              |                                                         |
| ZEV-02_UCS-31 | Granite                  | 77,835            | 17,259    | Axial              |                                                         |
| ZEV-02_UCS-32 | Granite                  | 84,825            | 18,864    | Axial              |                                                         |
| ZEV-02_UCS-33 | Granite                  | 93,765            | 20,766    | Shear              | Sample failed along pre-existing fracture               |
| ZEV-02_UCS-34 | Granite                  | 99,985            | 22,134    | Axial              |                                                         |
| ZEV-02_UCS-35 | Granite                  | 68,495            | 15,131    | Axial              |                                                         |
| ZEV-02_UCS-36 | Granite                  | 59,565            | 13,118    | Axial              |                                                         |
| ZEV-02_UCS-37 | Granite                  | 88,805            | 19,524    | Axial              |                                                         |
| ZEV-02_UCS-38 | Granite                  | 42,850            | 9,417     | Shear              | Sample failed along pre-existing fracture               |
| ZEV-02_UCS-39 | Granite                  | 69,500            | 15,596    | Axial              |                                                         |
| ZEV-02_UCS-40 | Granite                  | 22,620            | 5,045     | Axial              |                                                         |

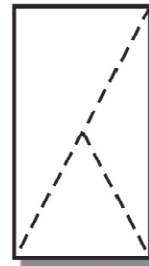
Failure Mode Sketches



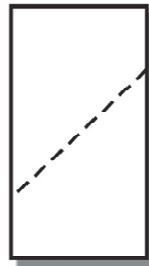
Cone



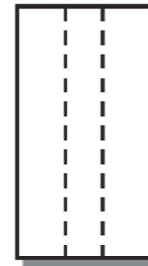
Cone and Axial Fracture/Columnar



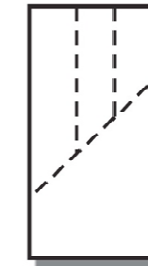
Cone and Shear



Shear



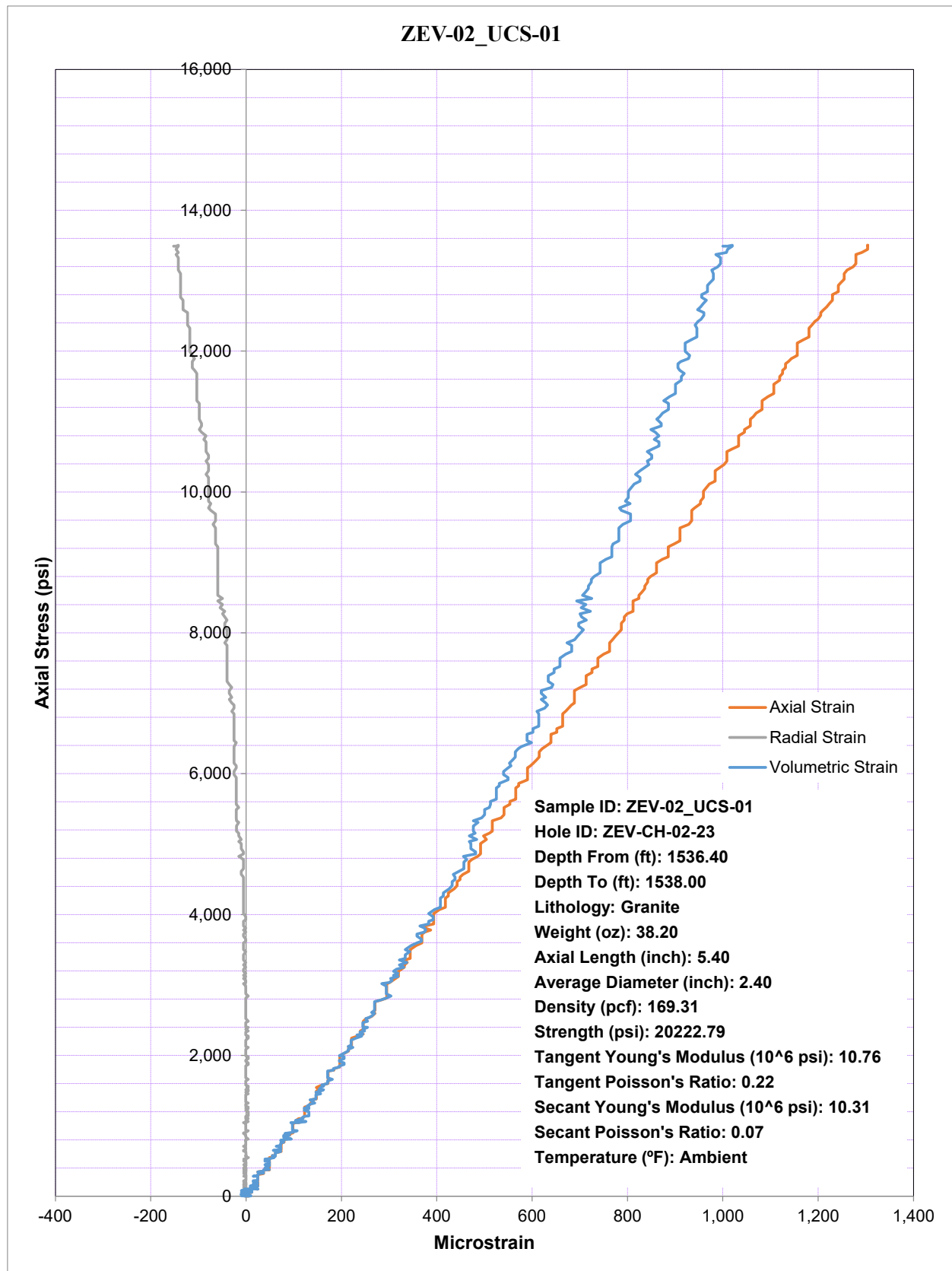
Axial Fracture/Columnar

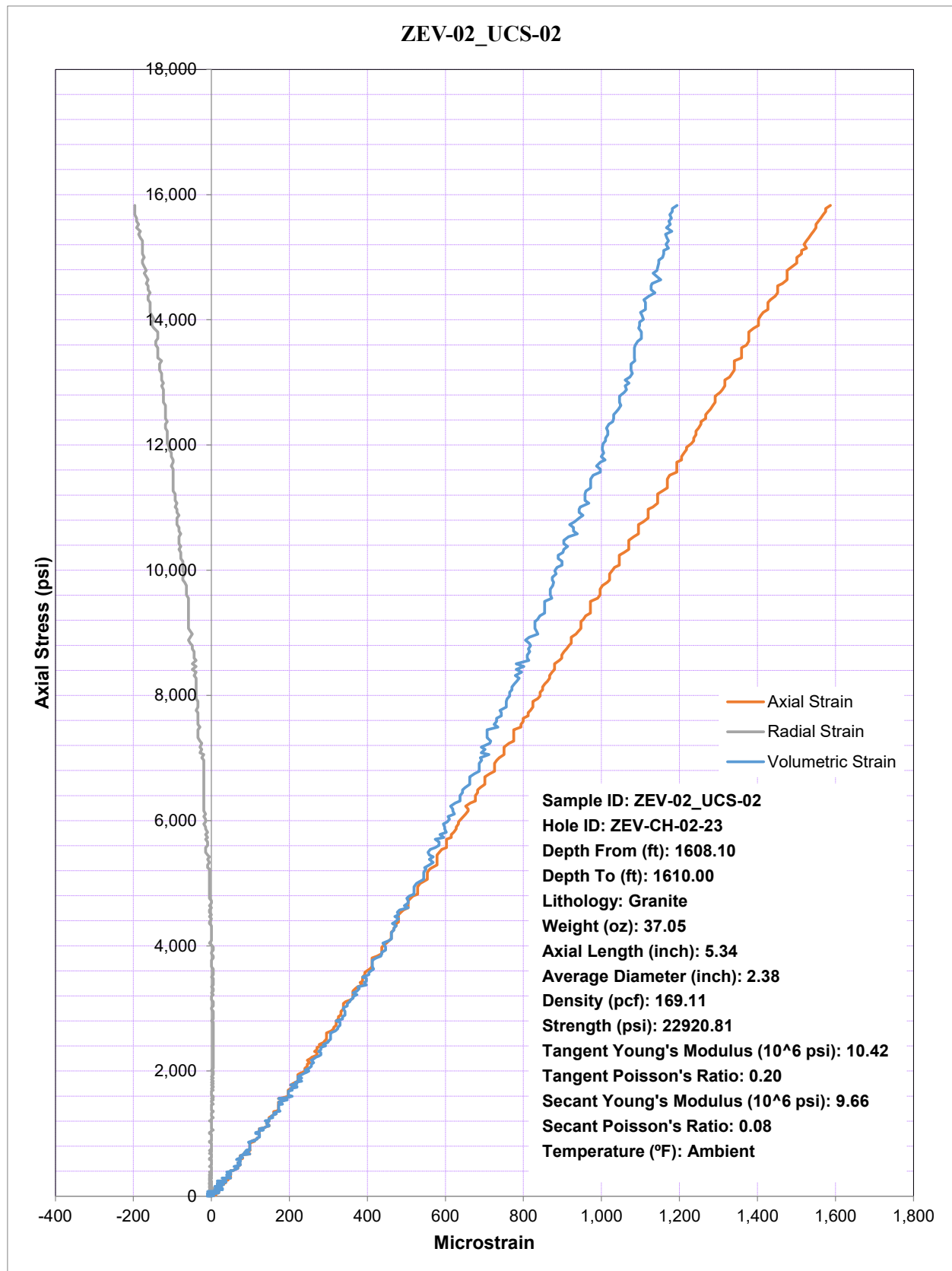


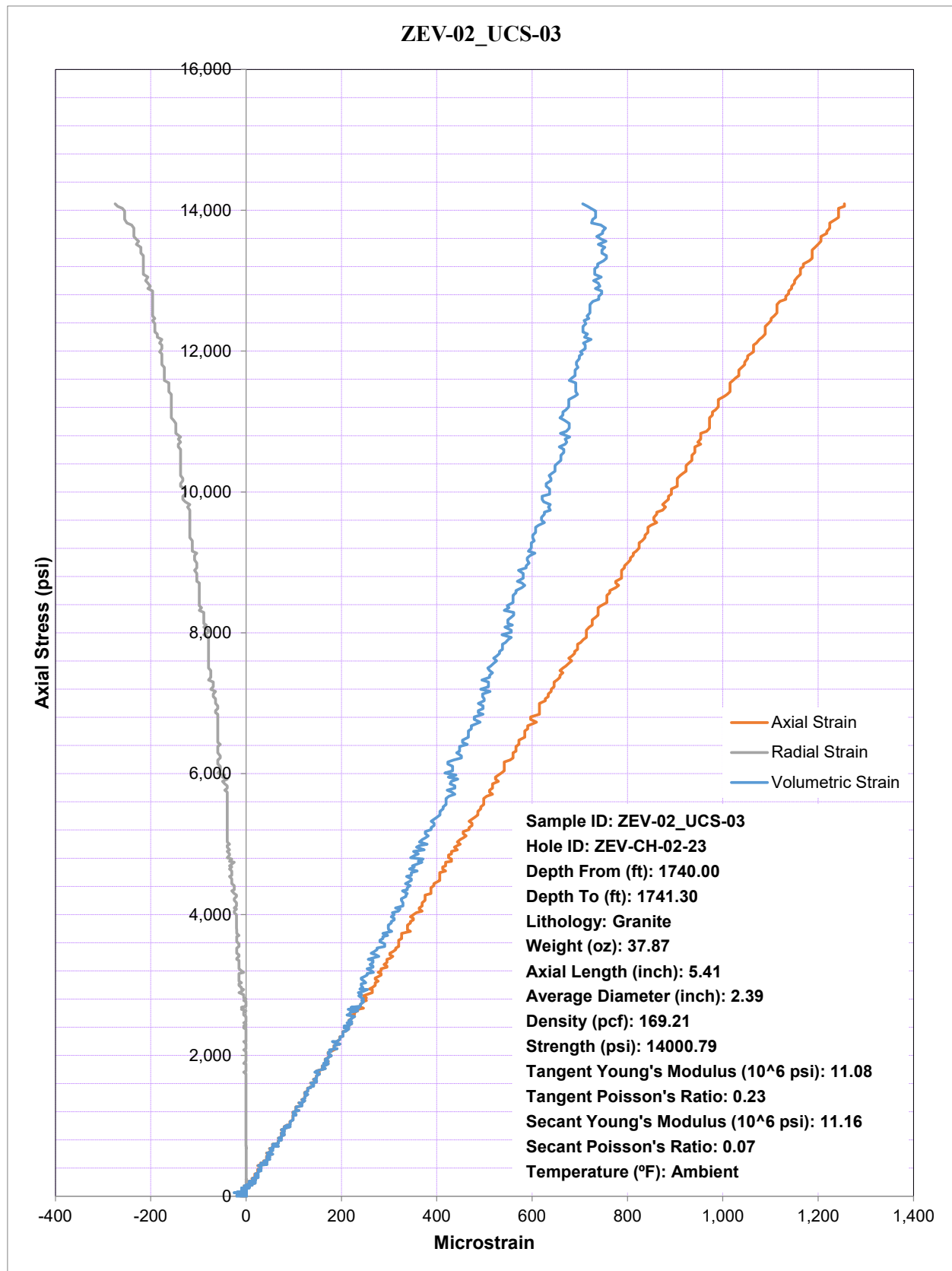
Shear and Axial Fracture/Columnar

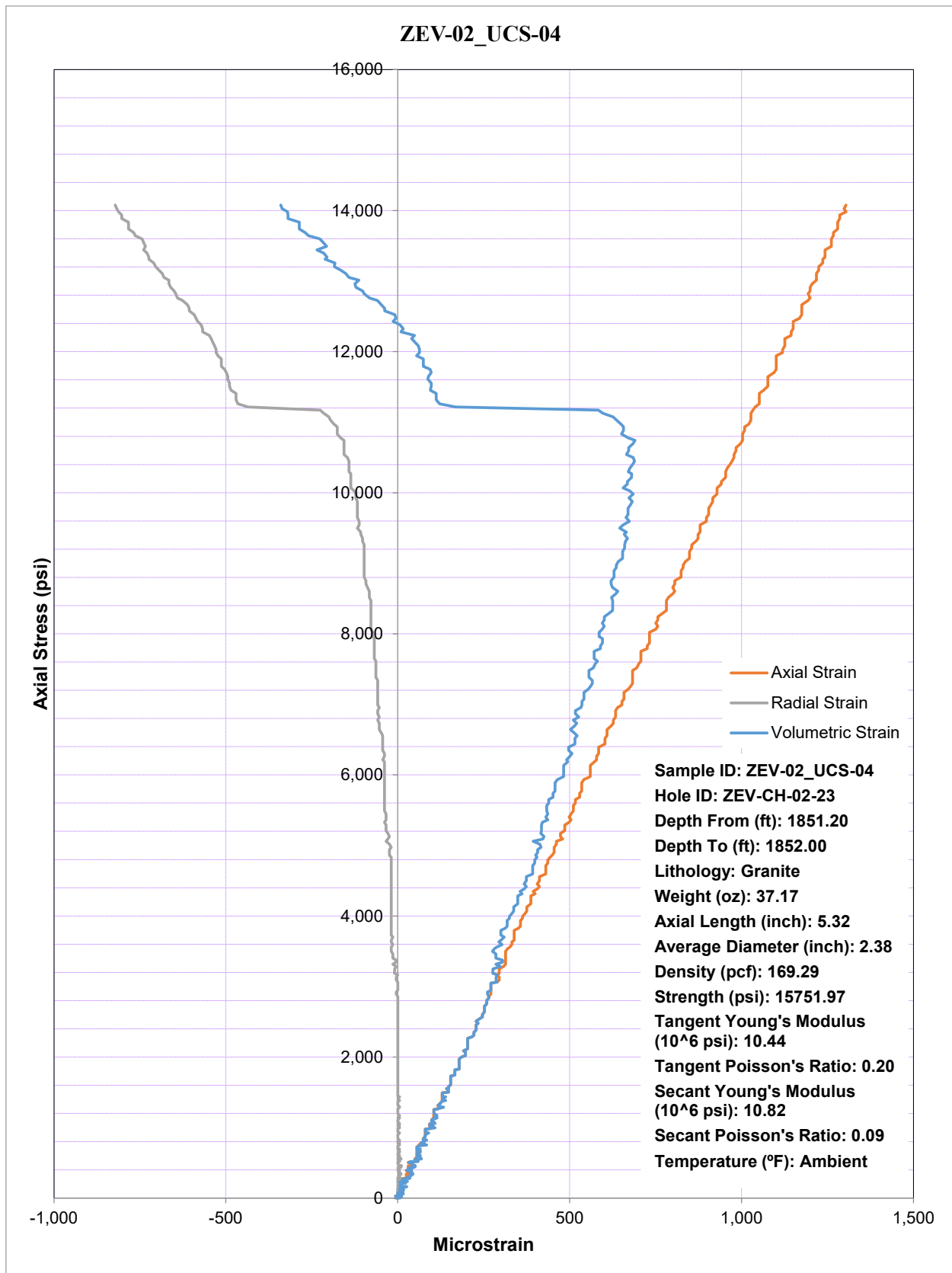
**APPENDIX B**

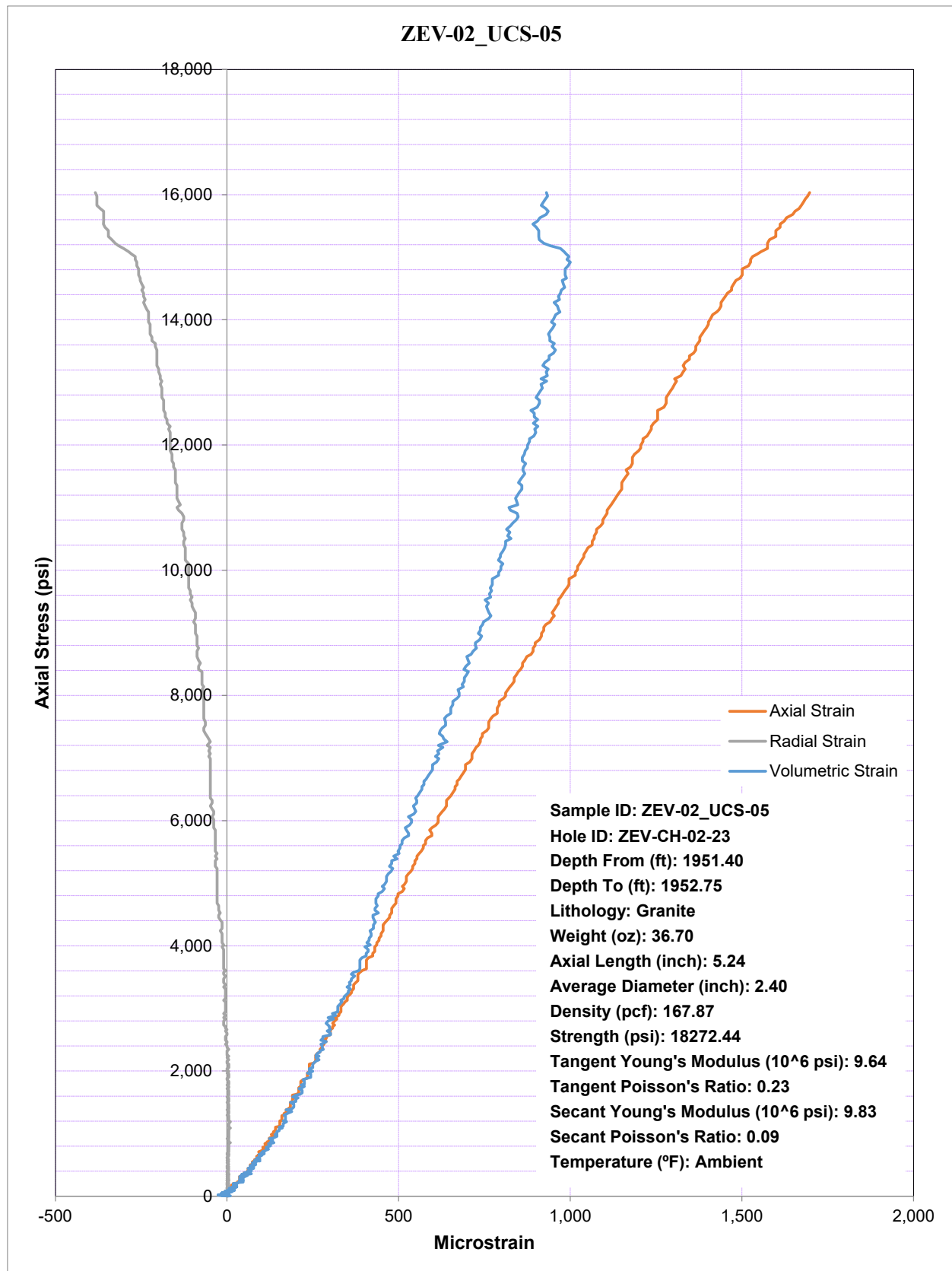
**STRESS-STRAIN PLOTS FOR  
UNIAXIAL COMPRESSIVE STRENGTH TEST SPECIMENS**



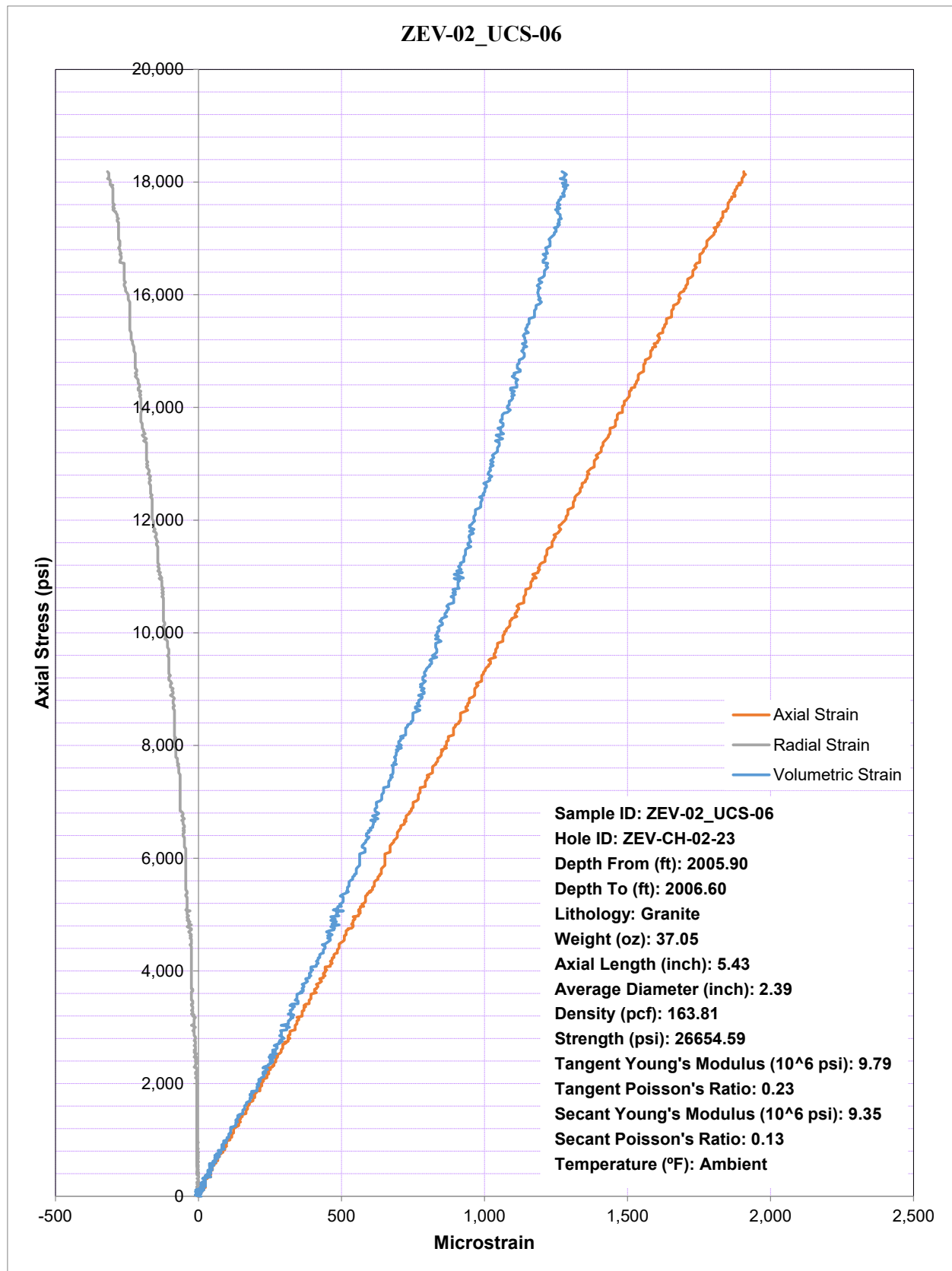


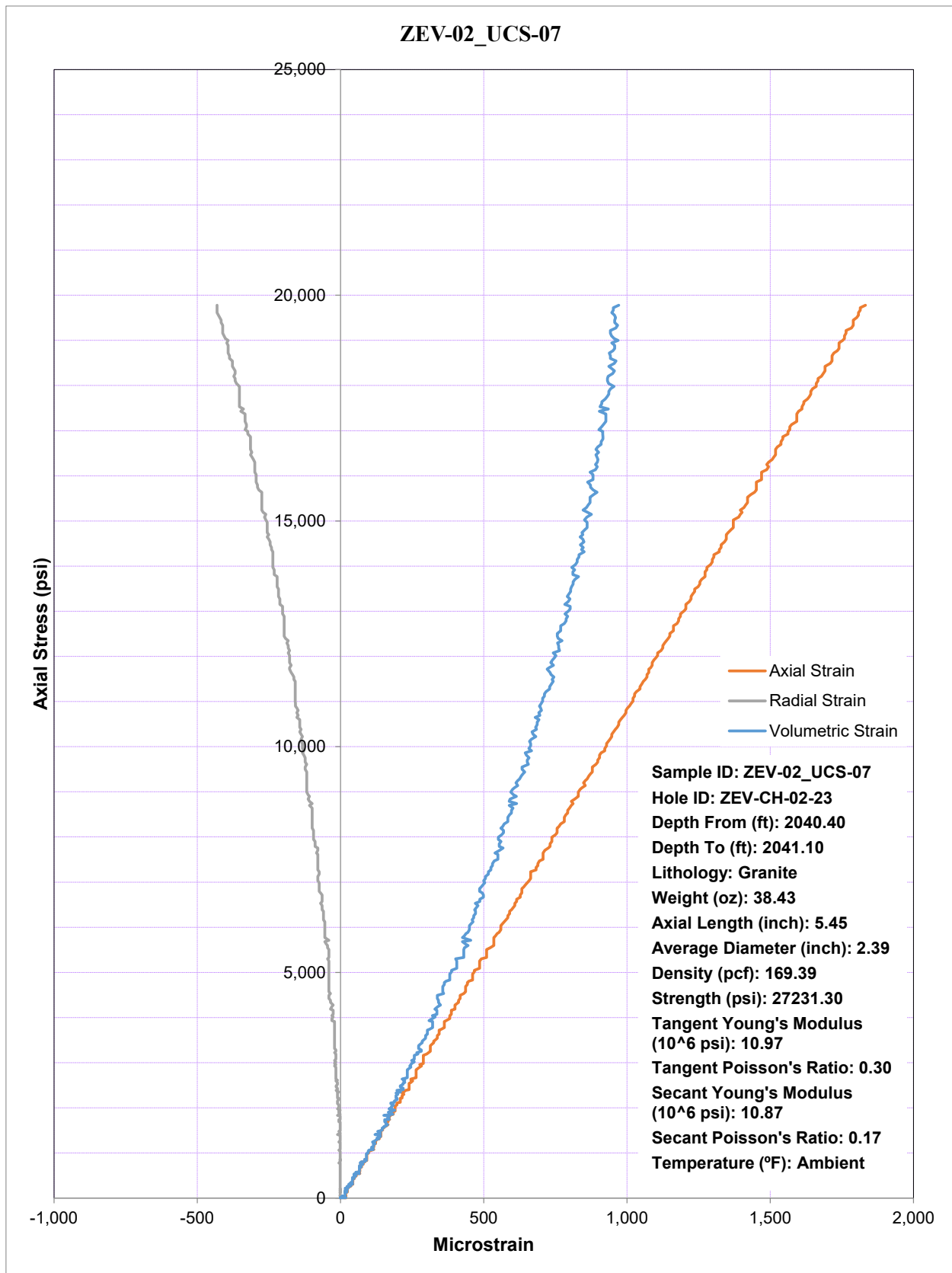


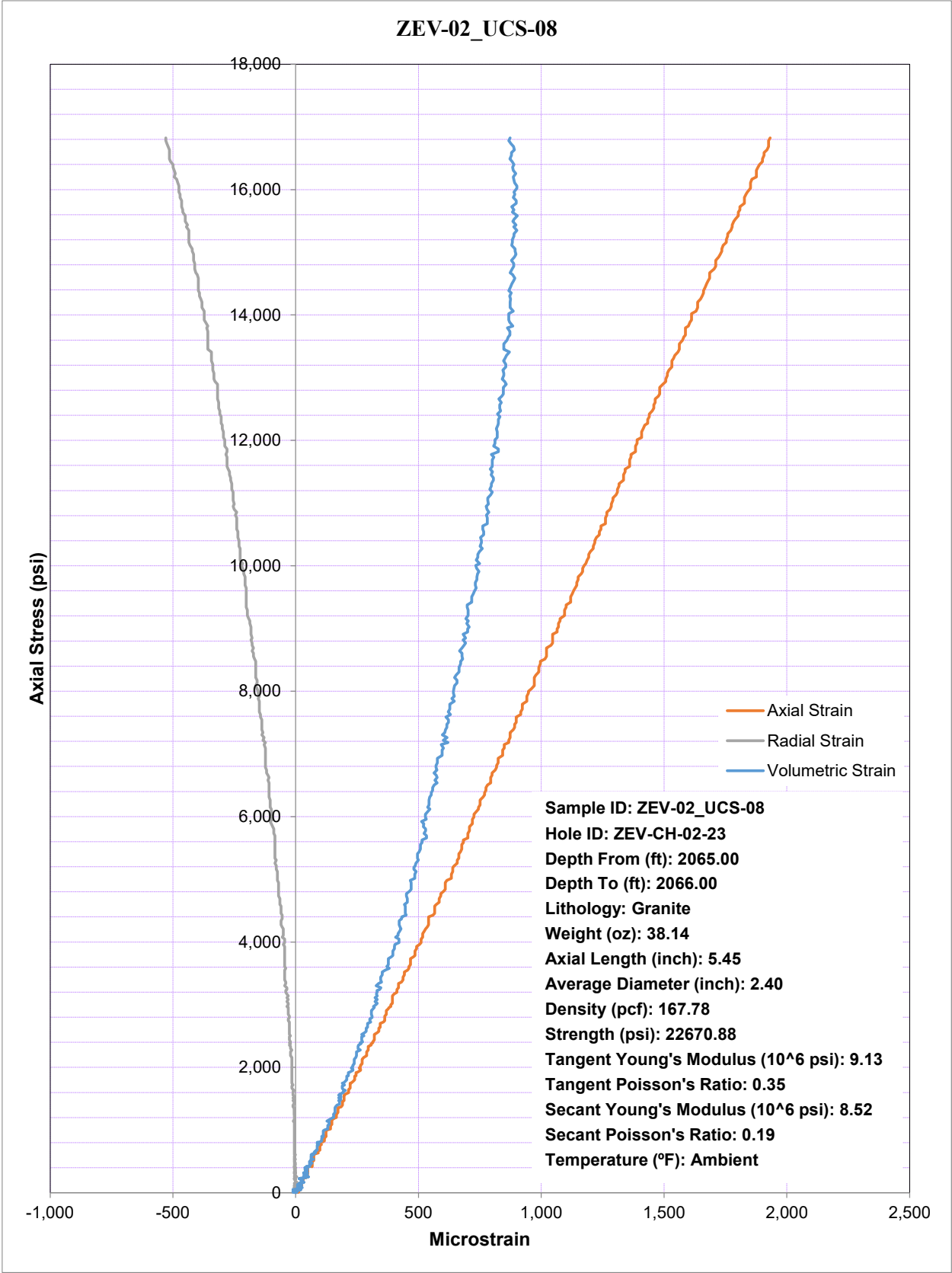


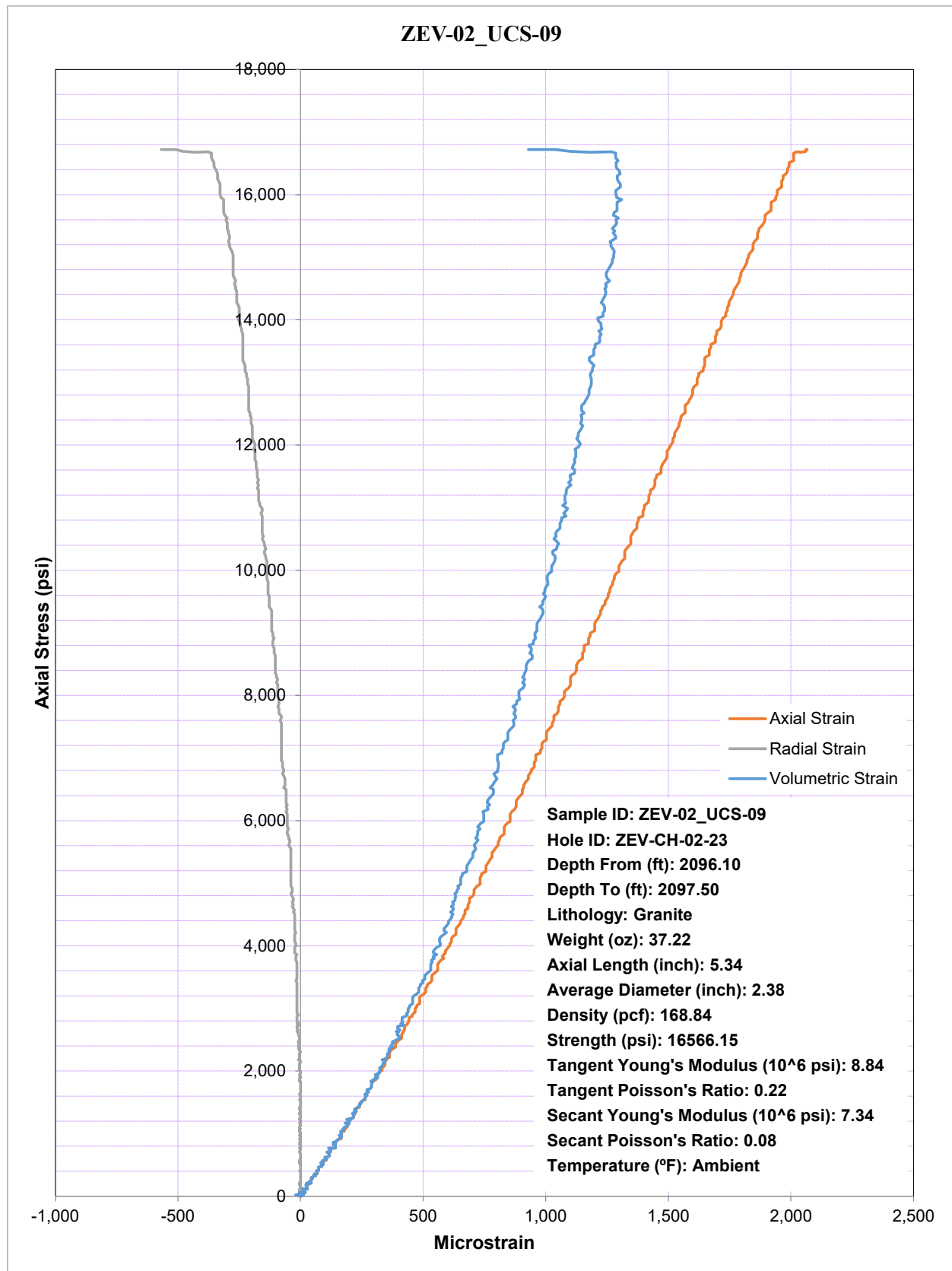


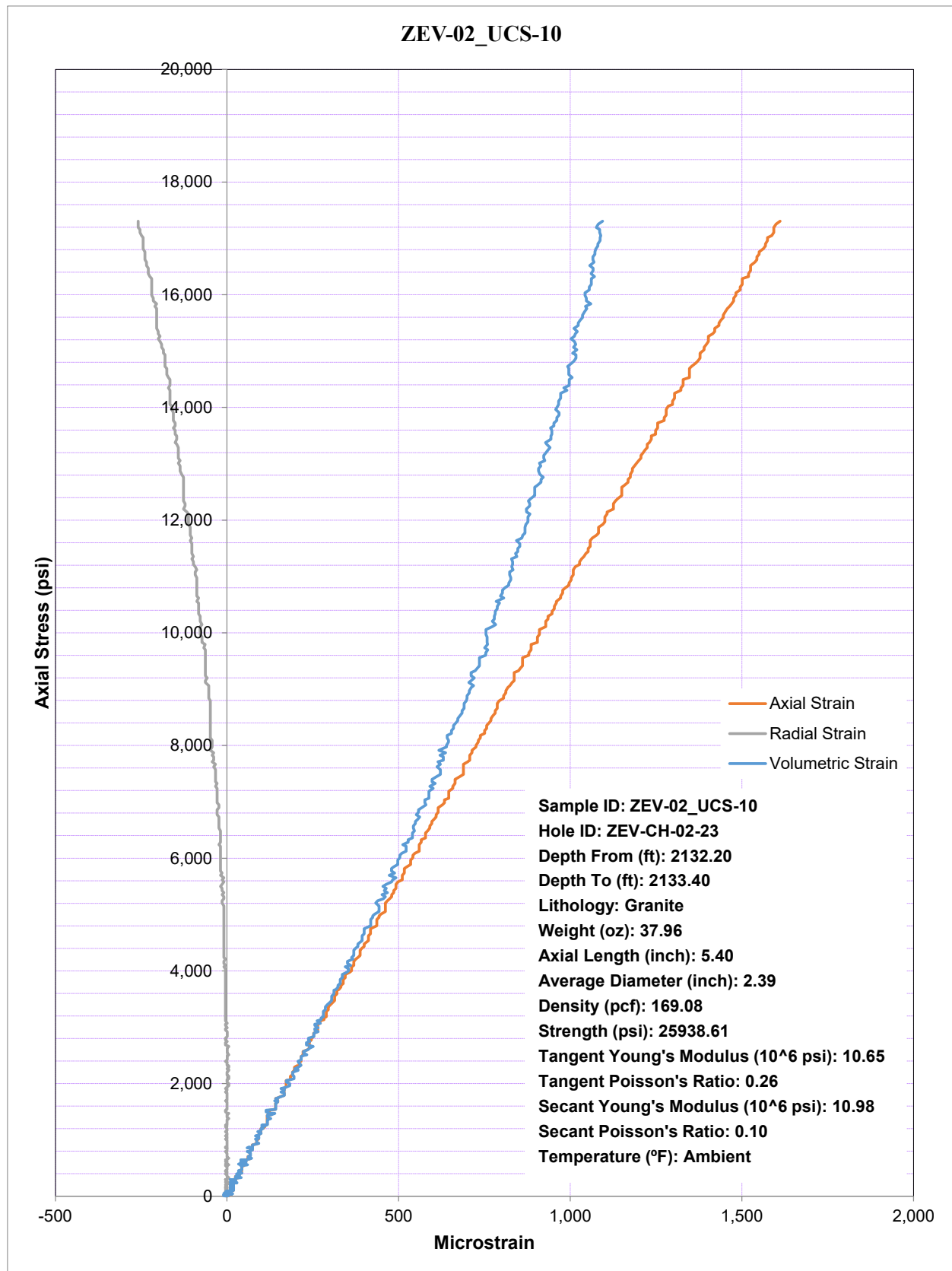


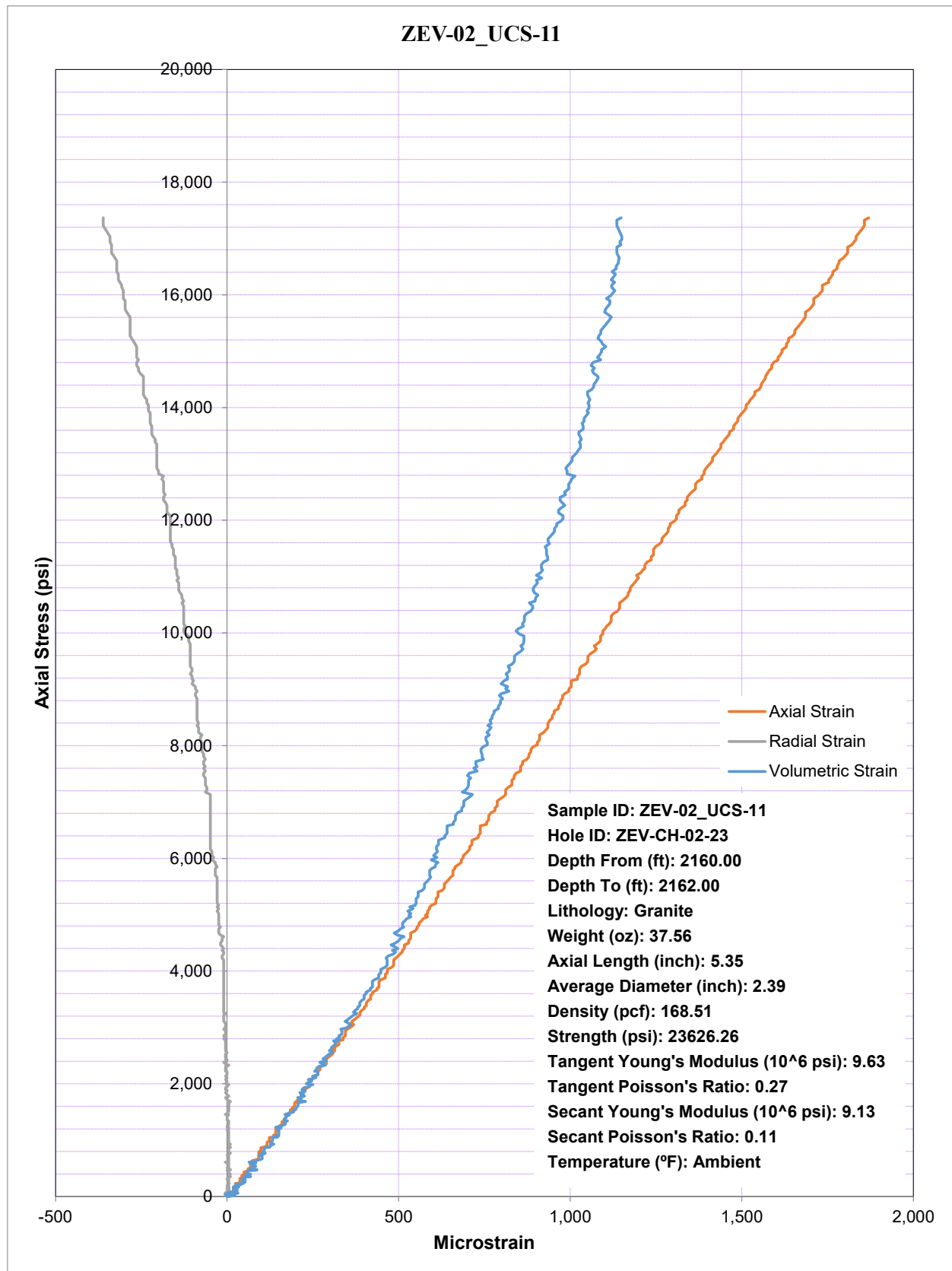


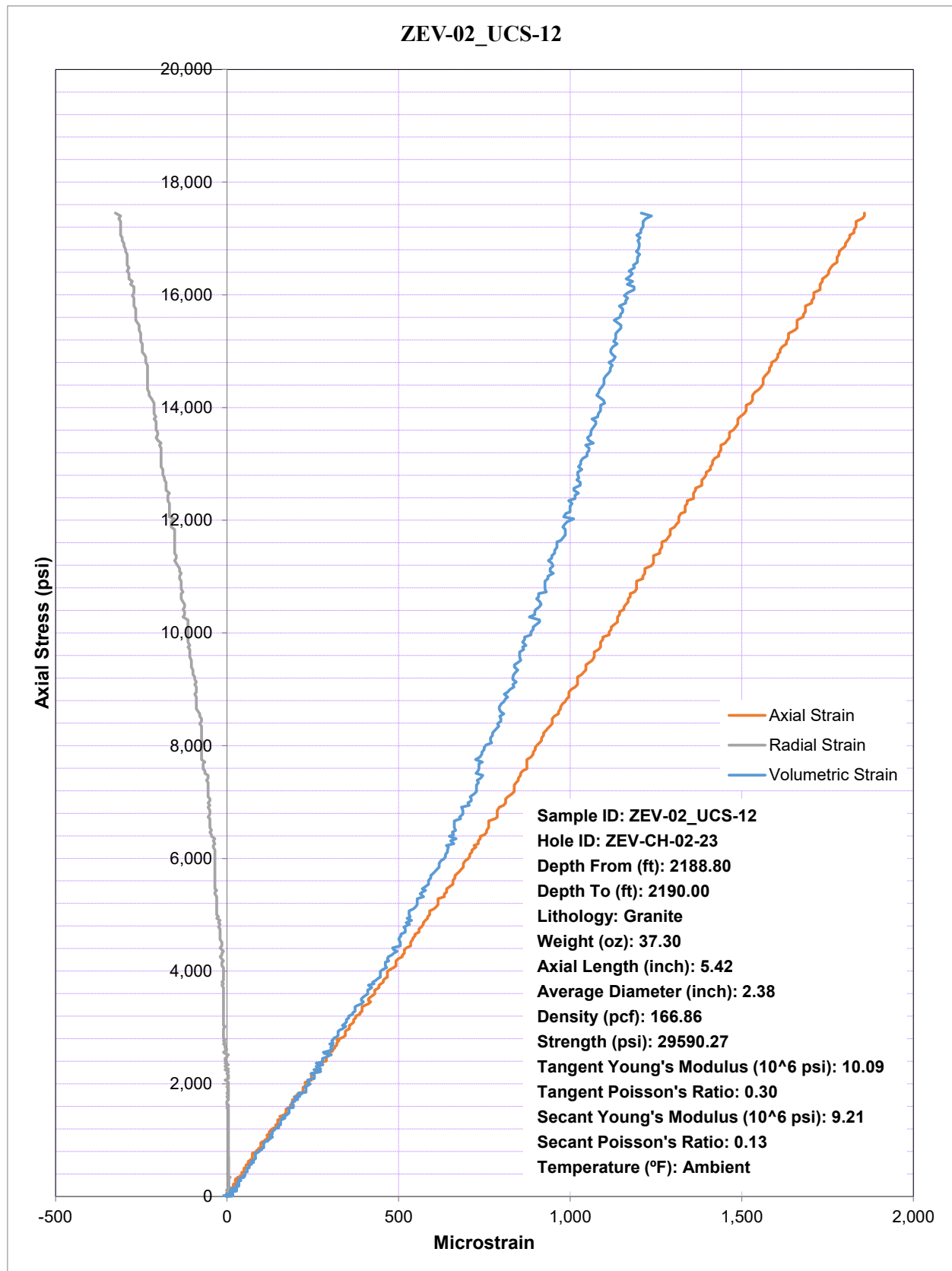




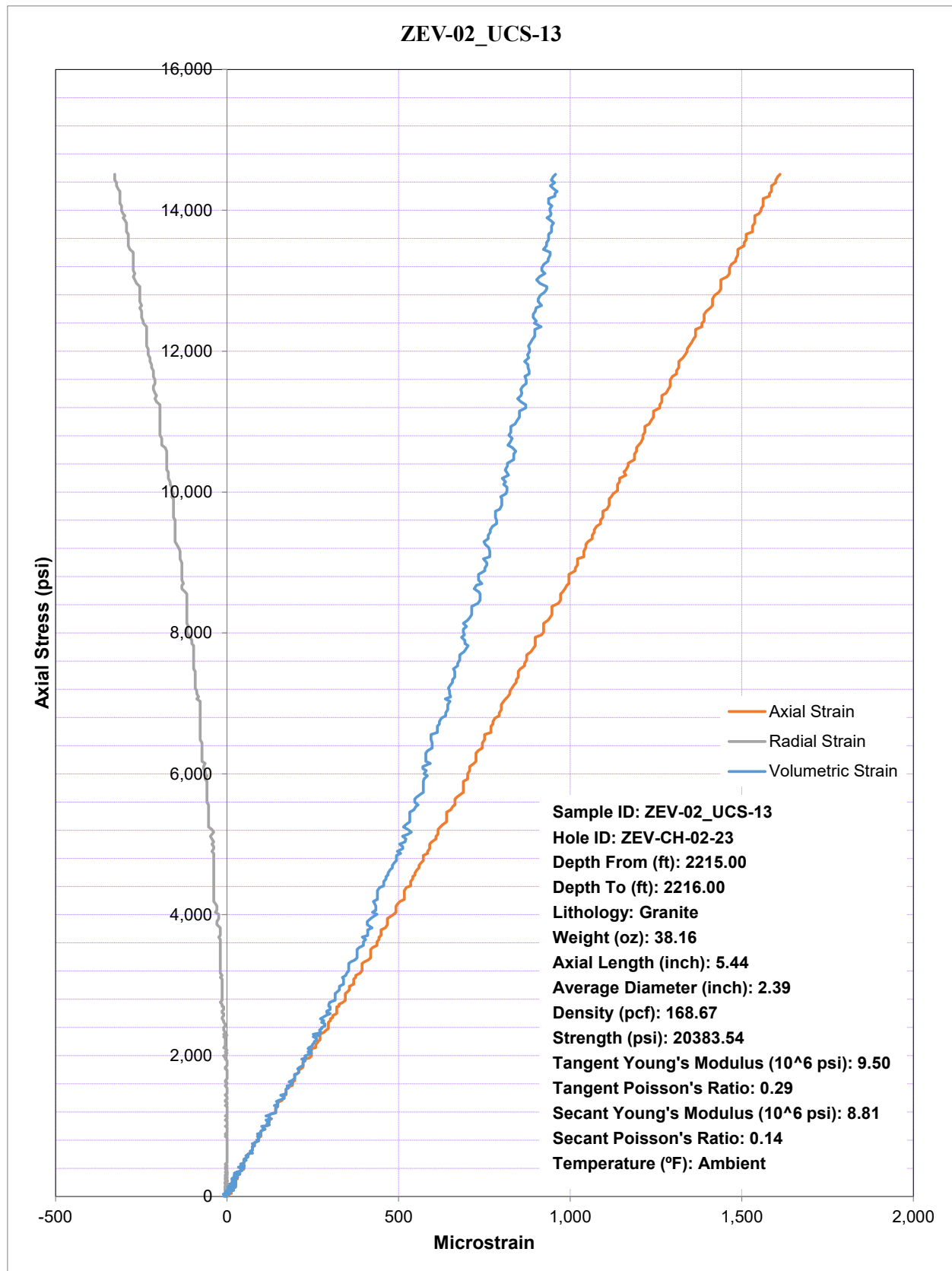


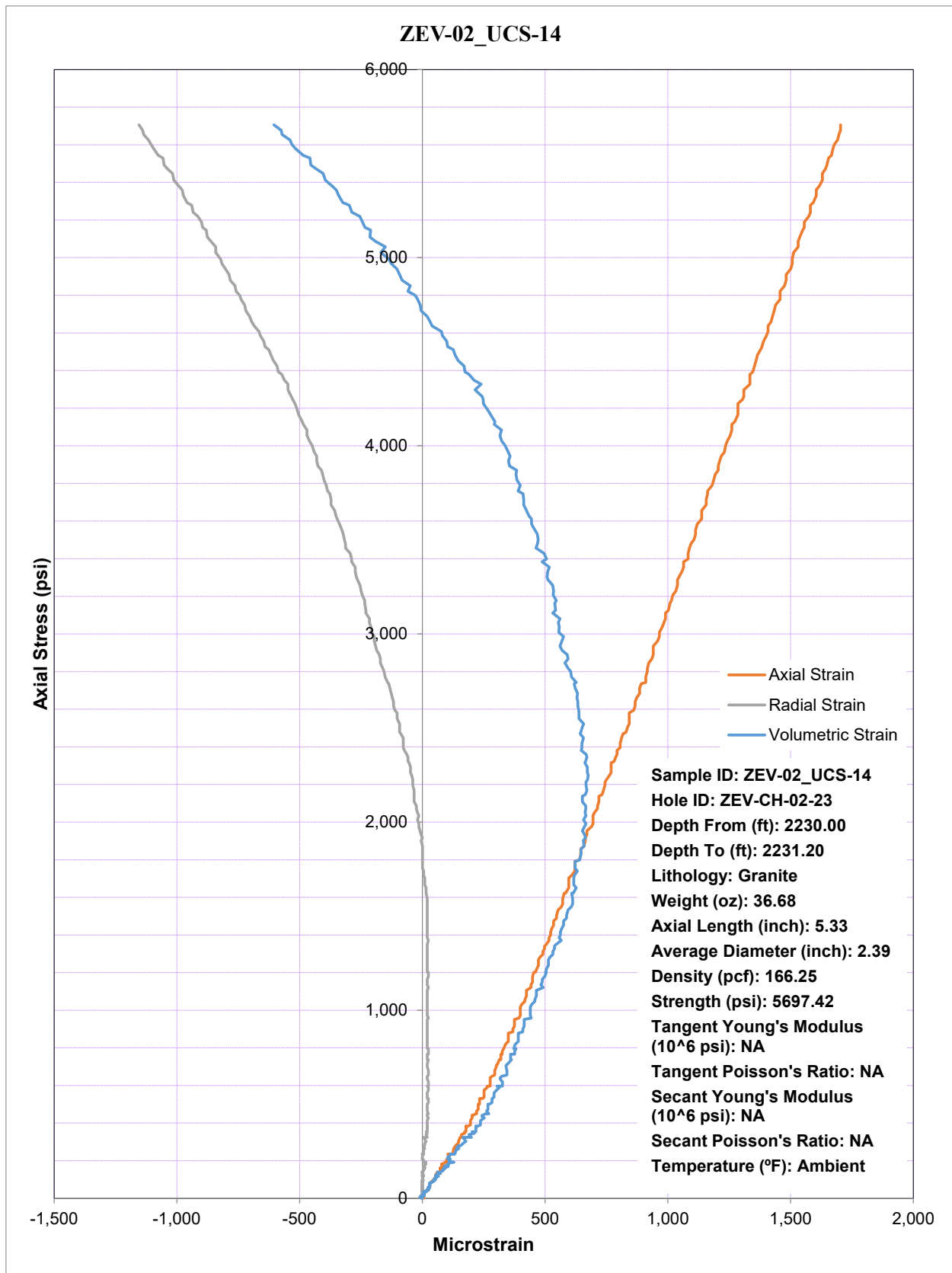


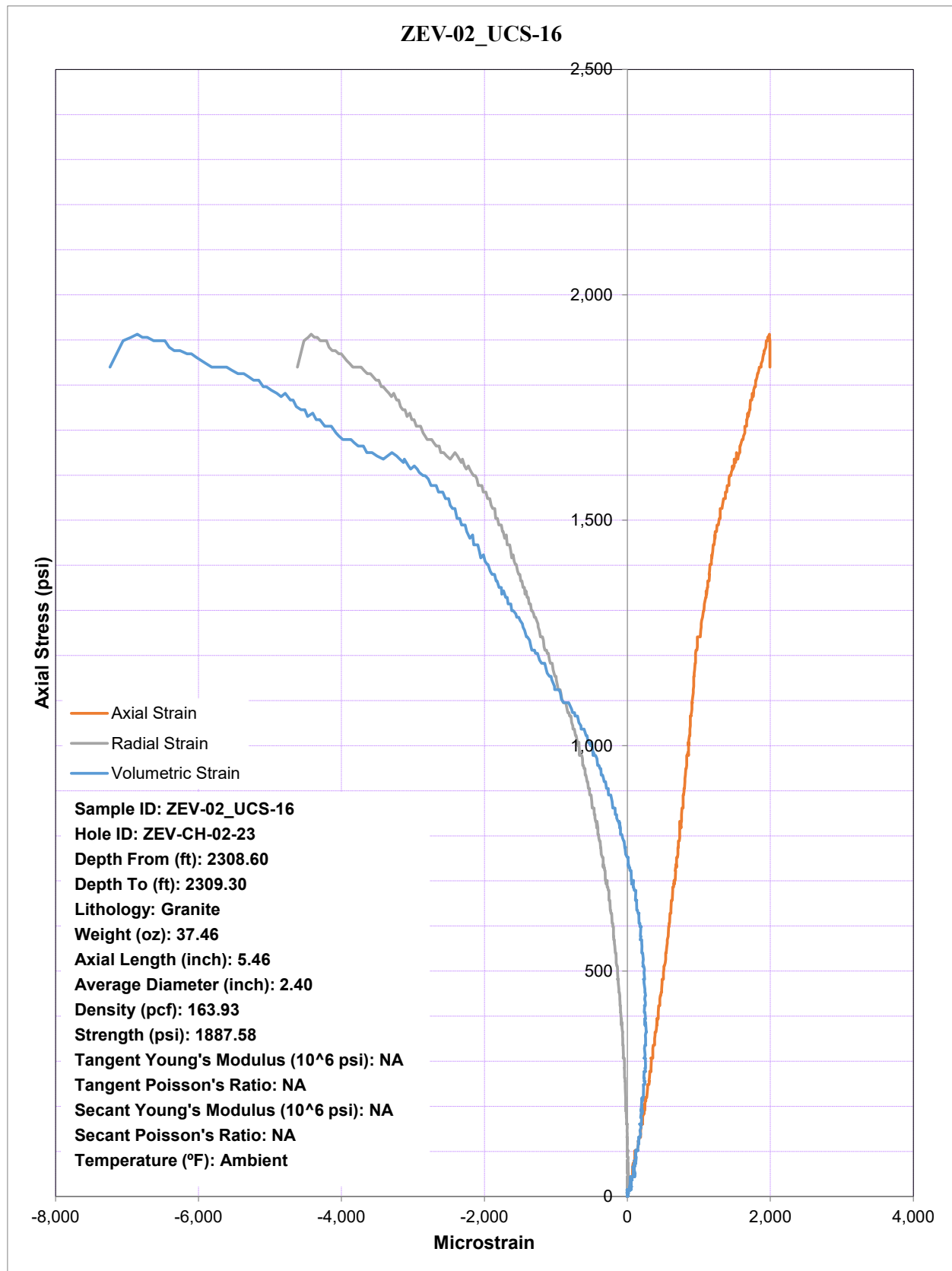


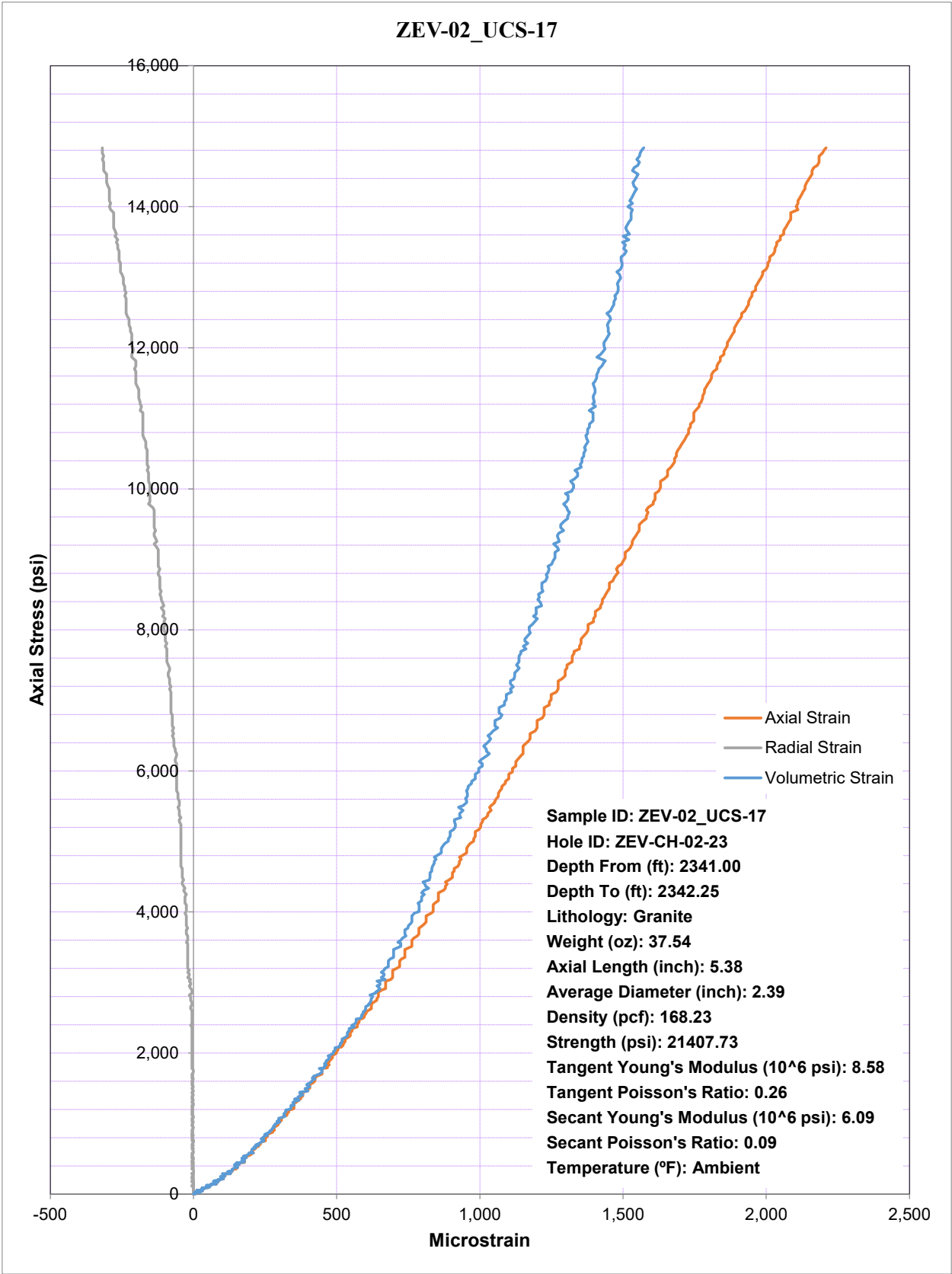


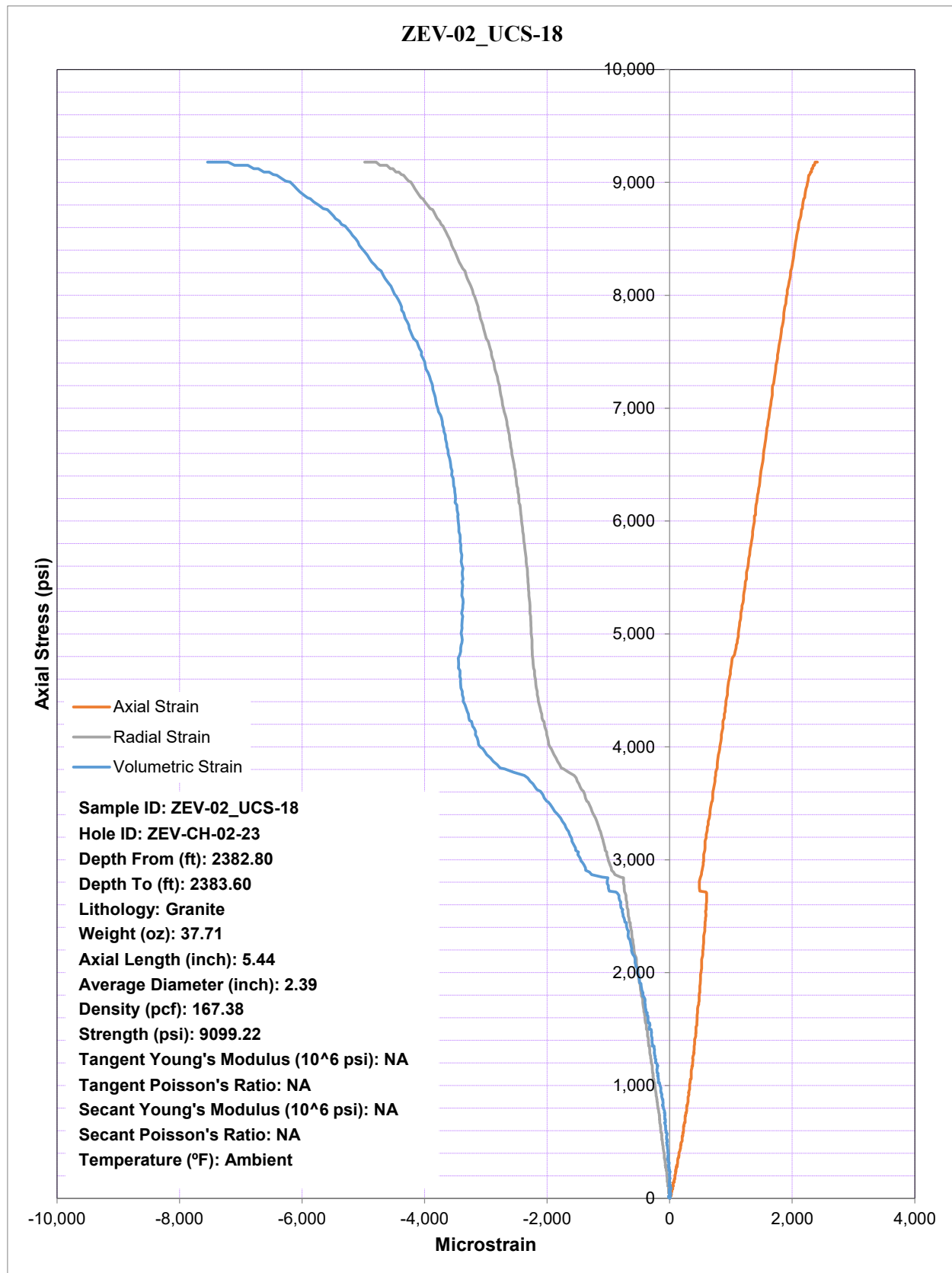


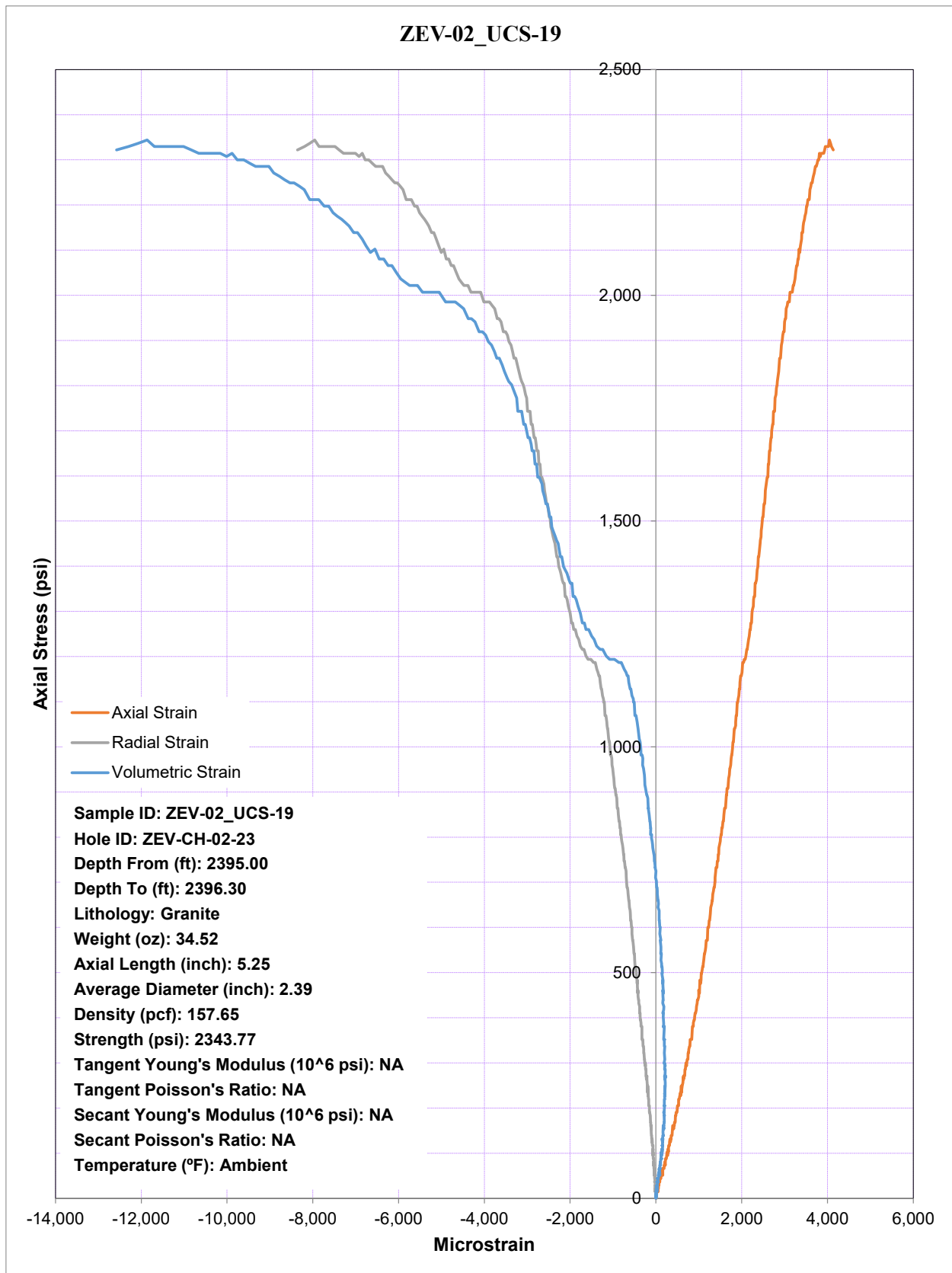


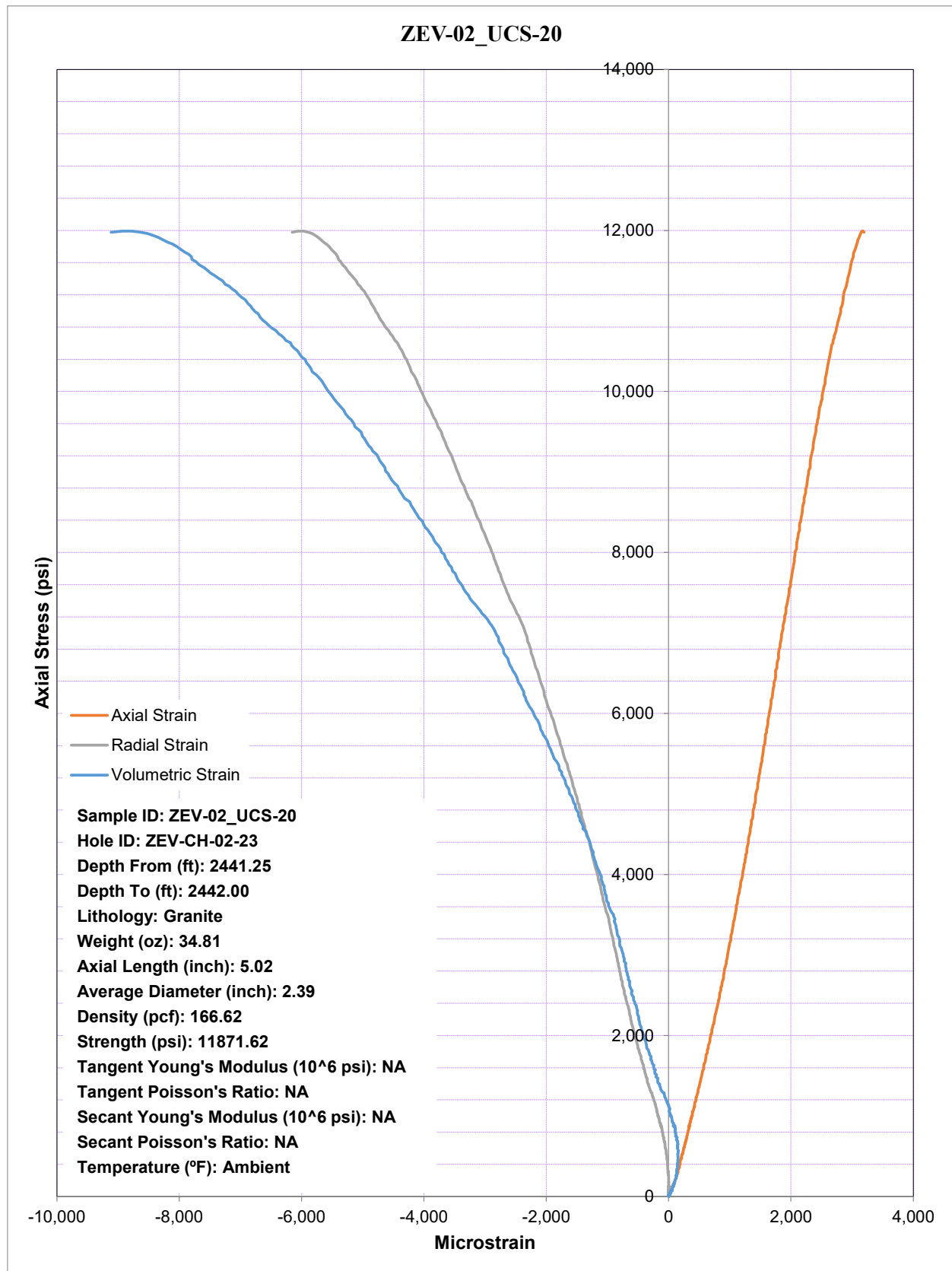




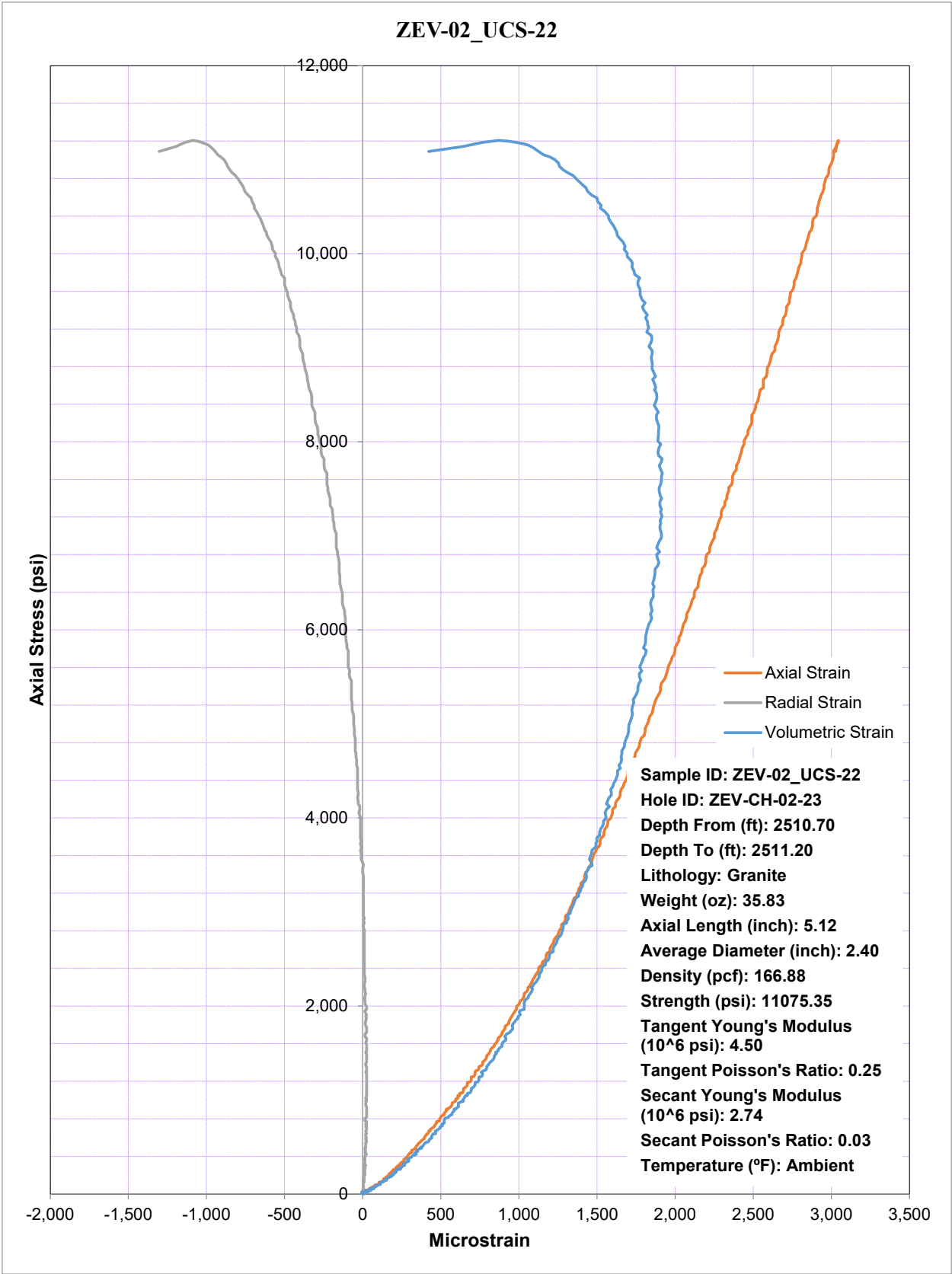


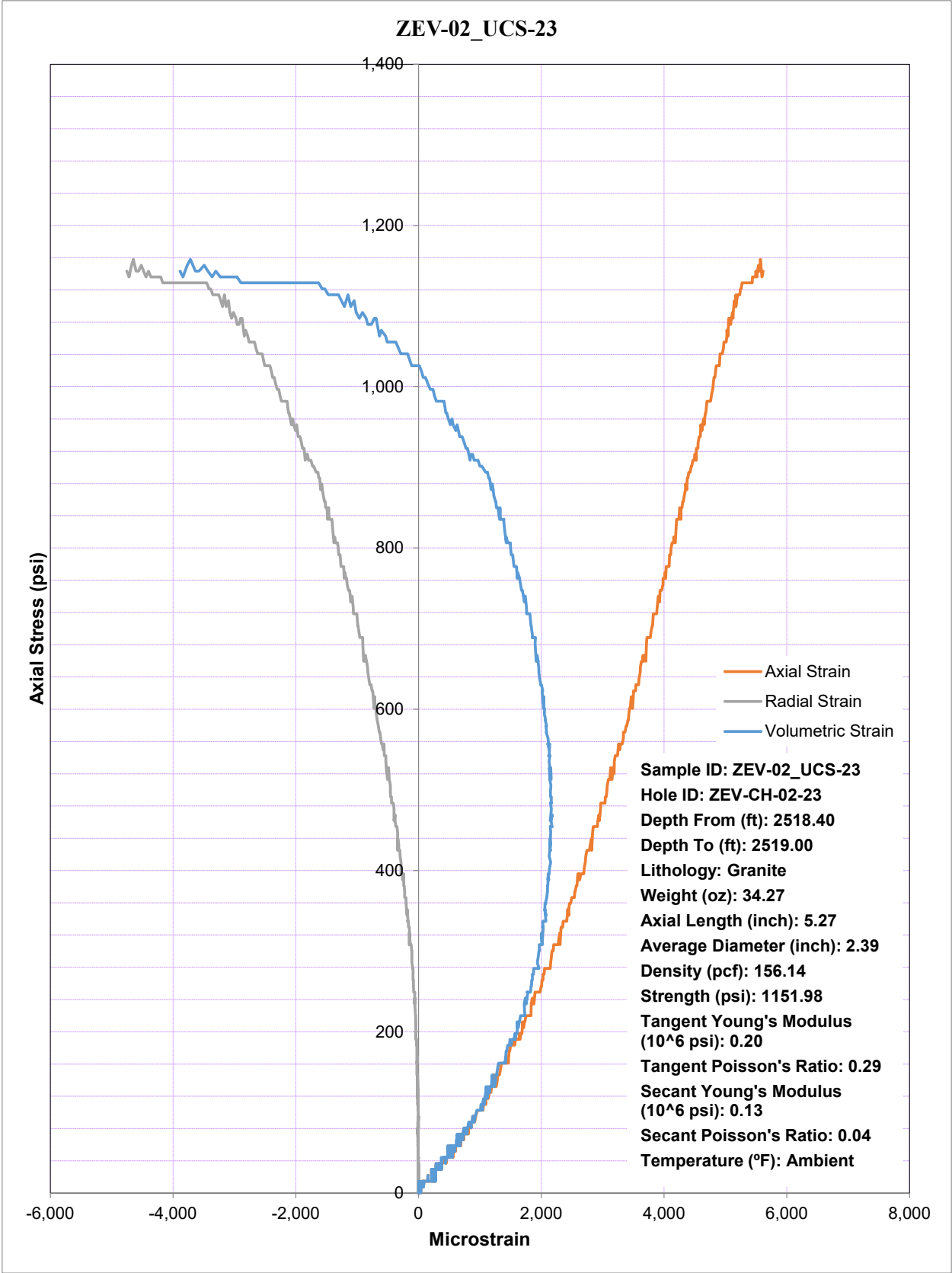


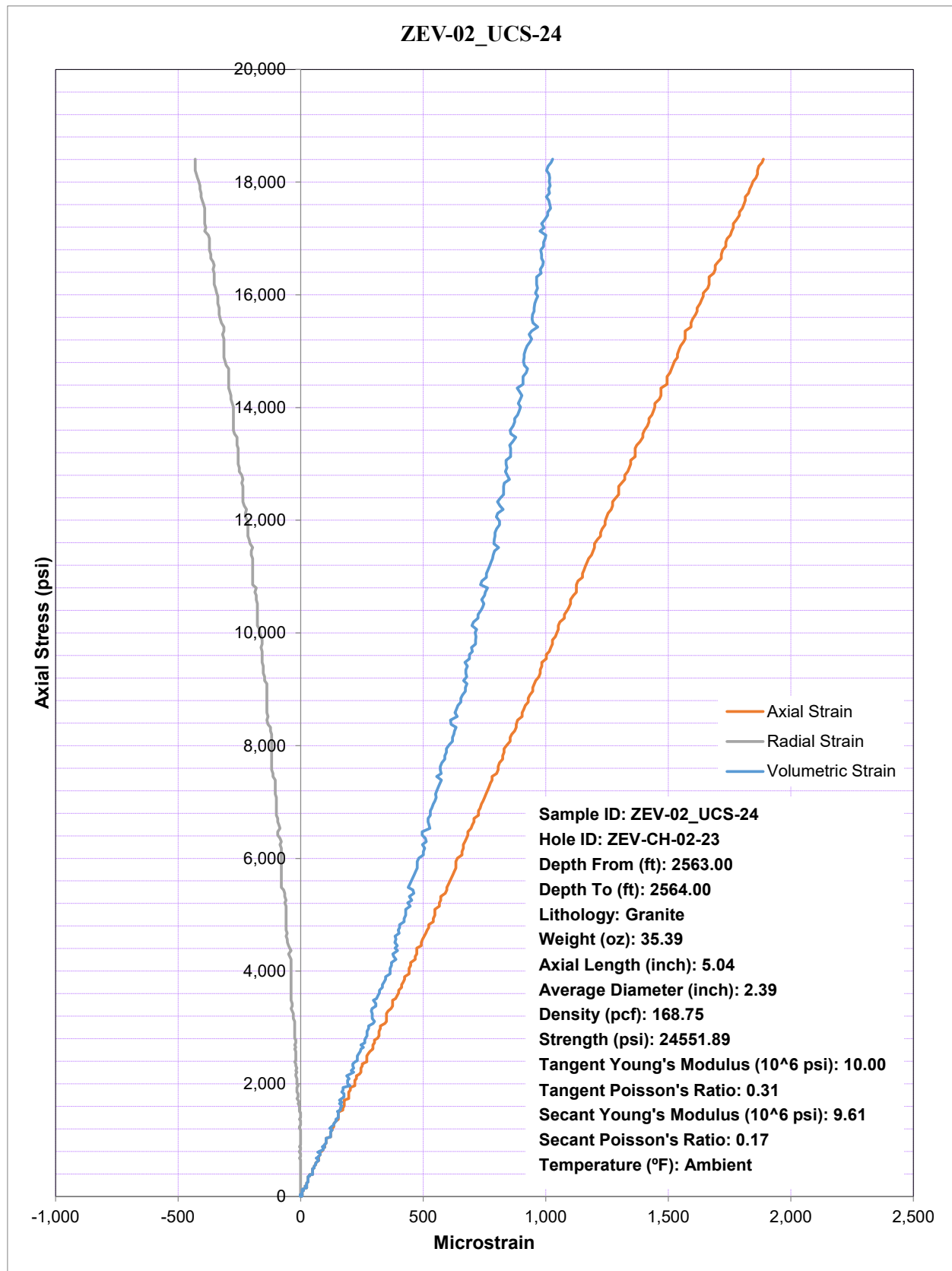


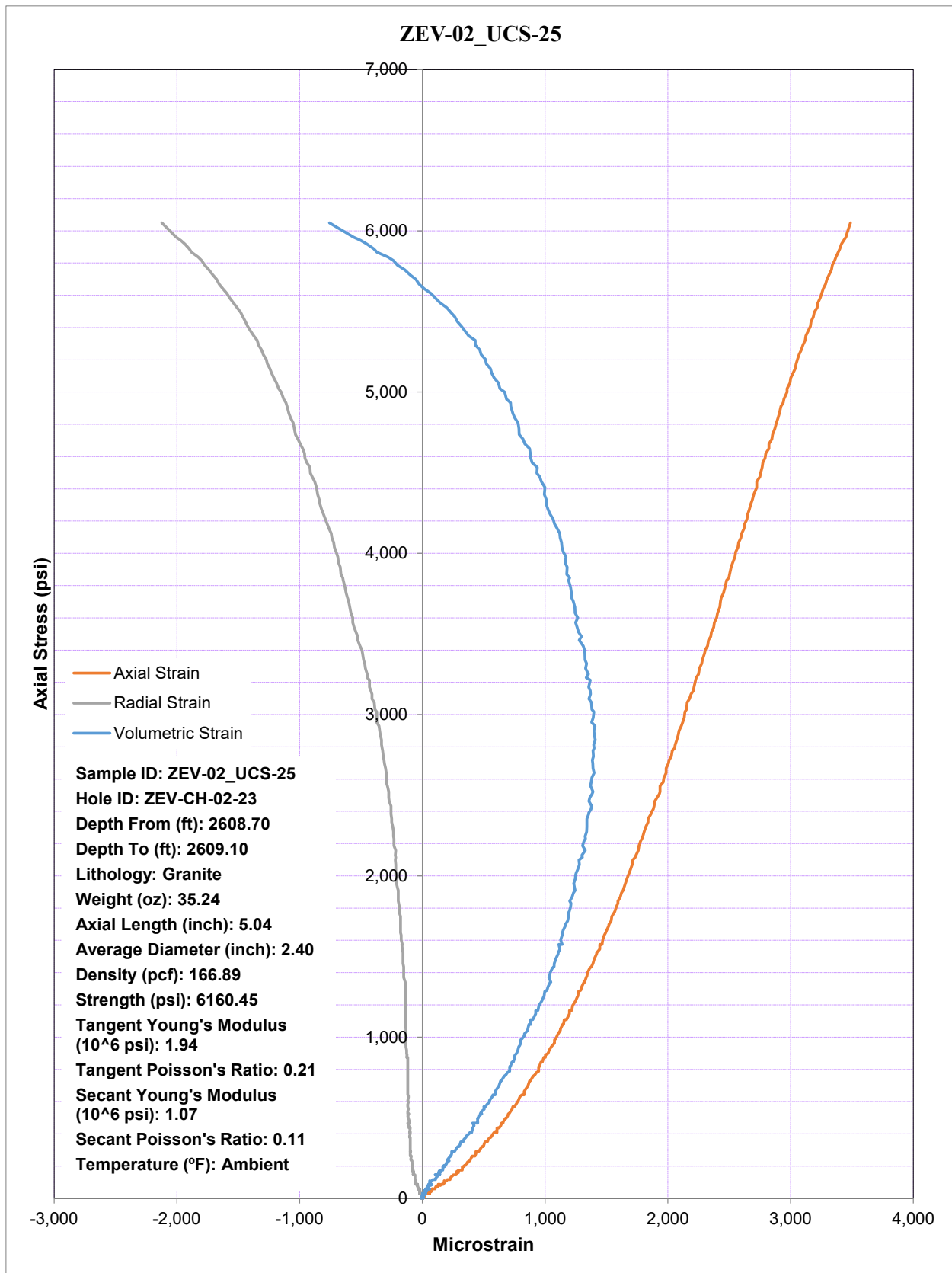


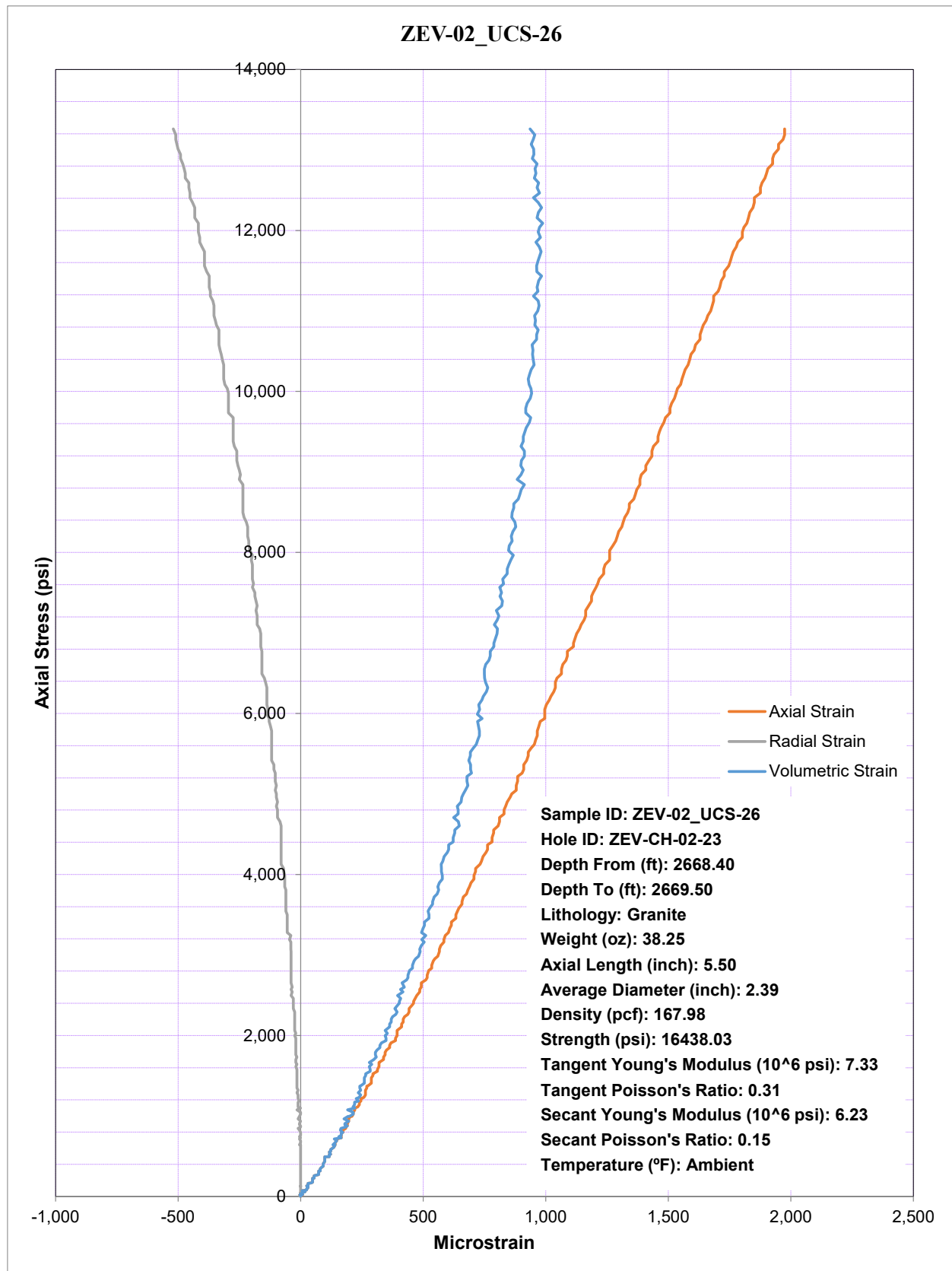


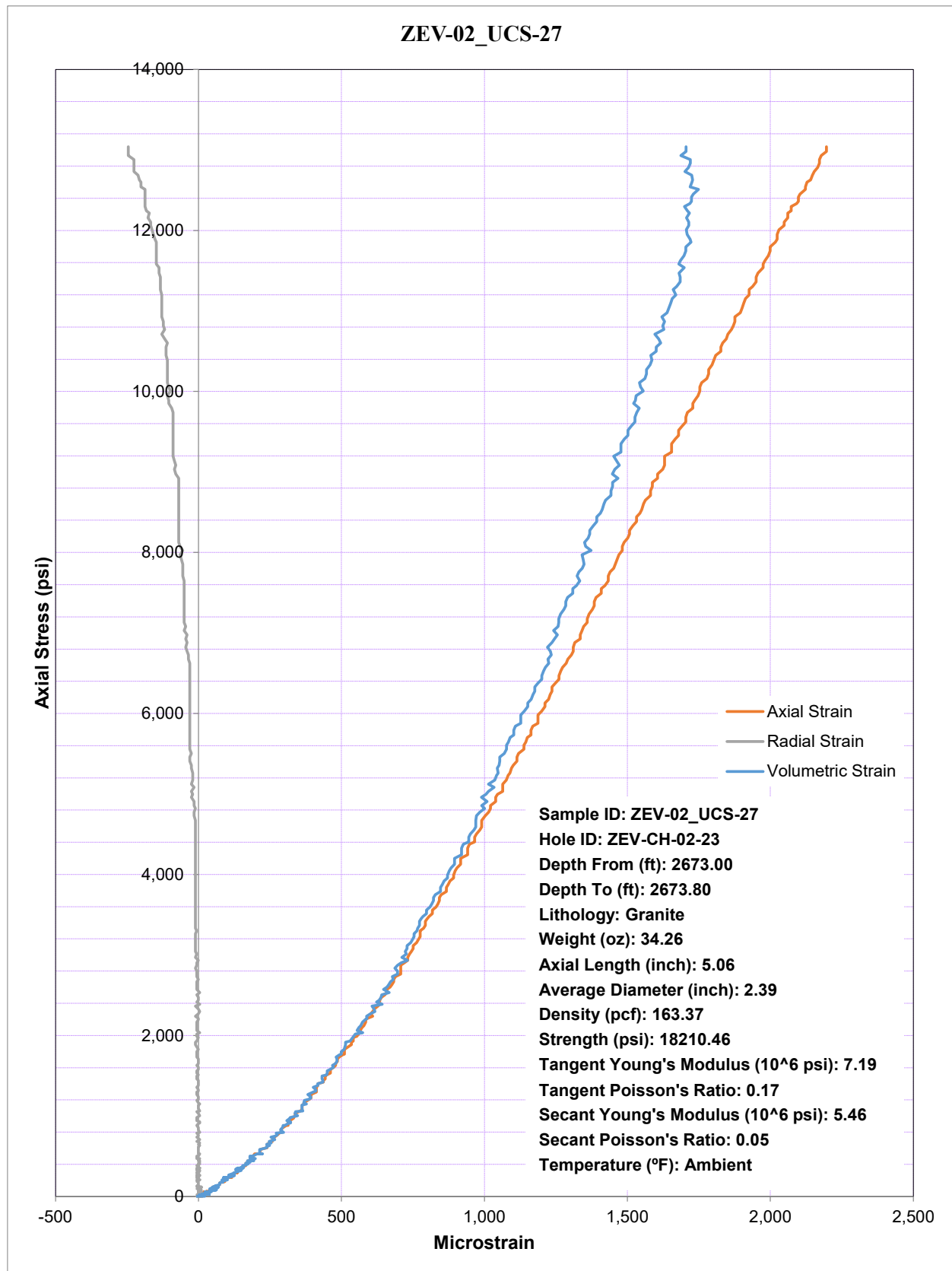


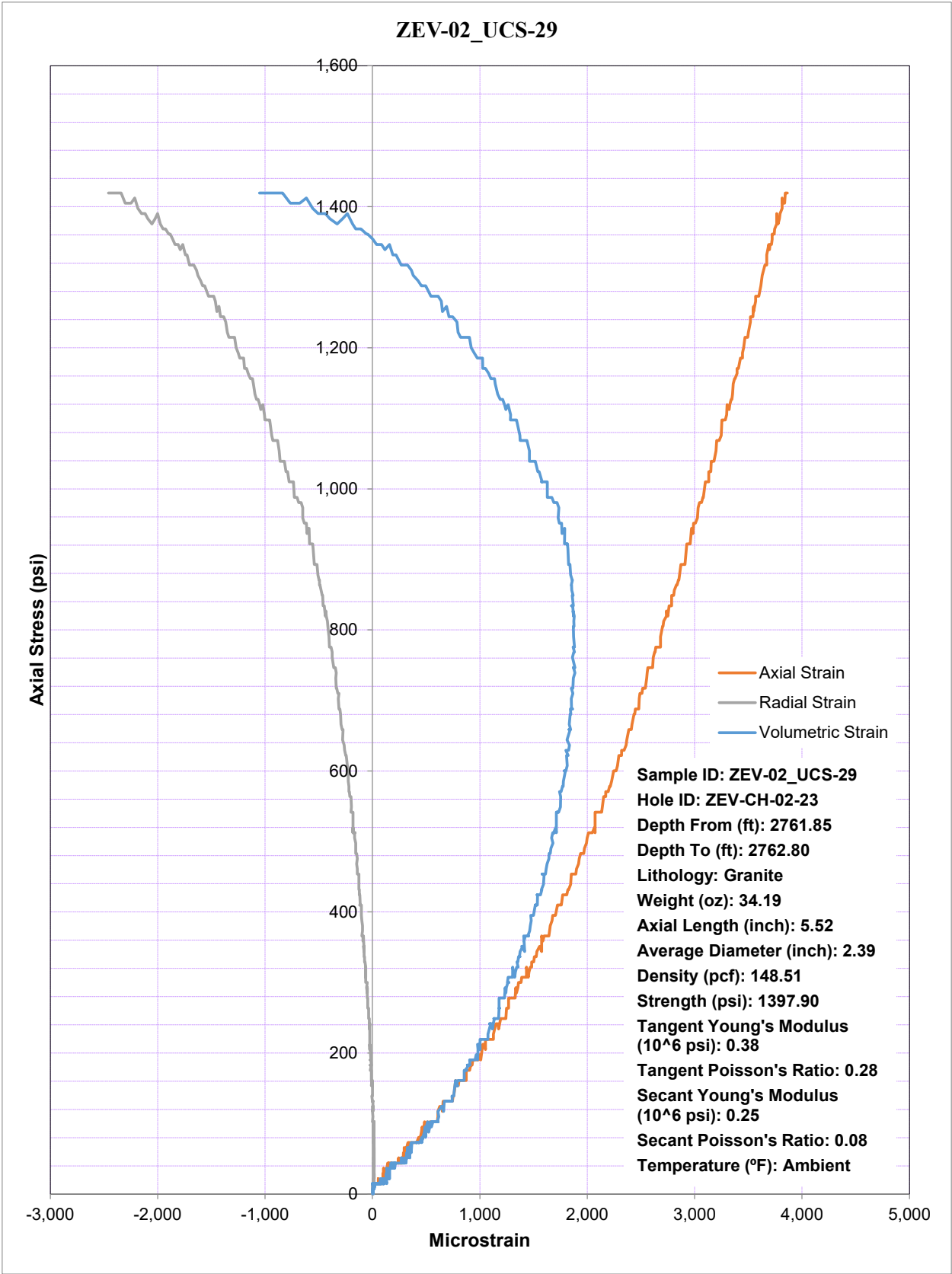




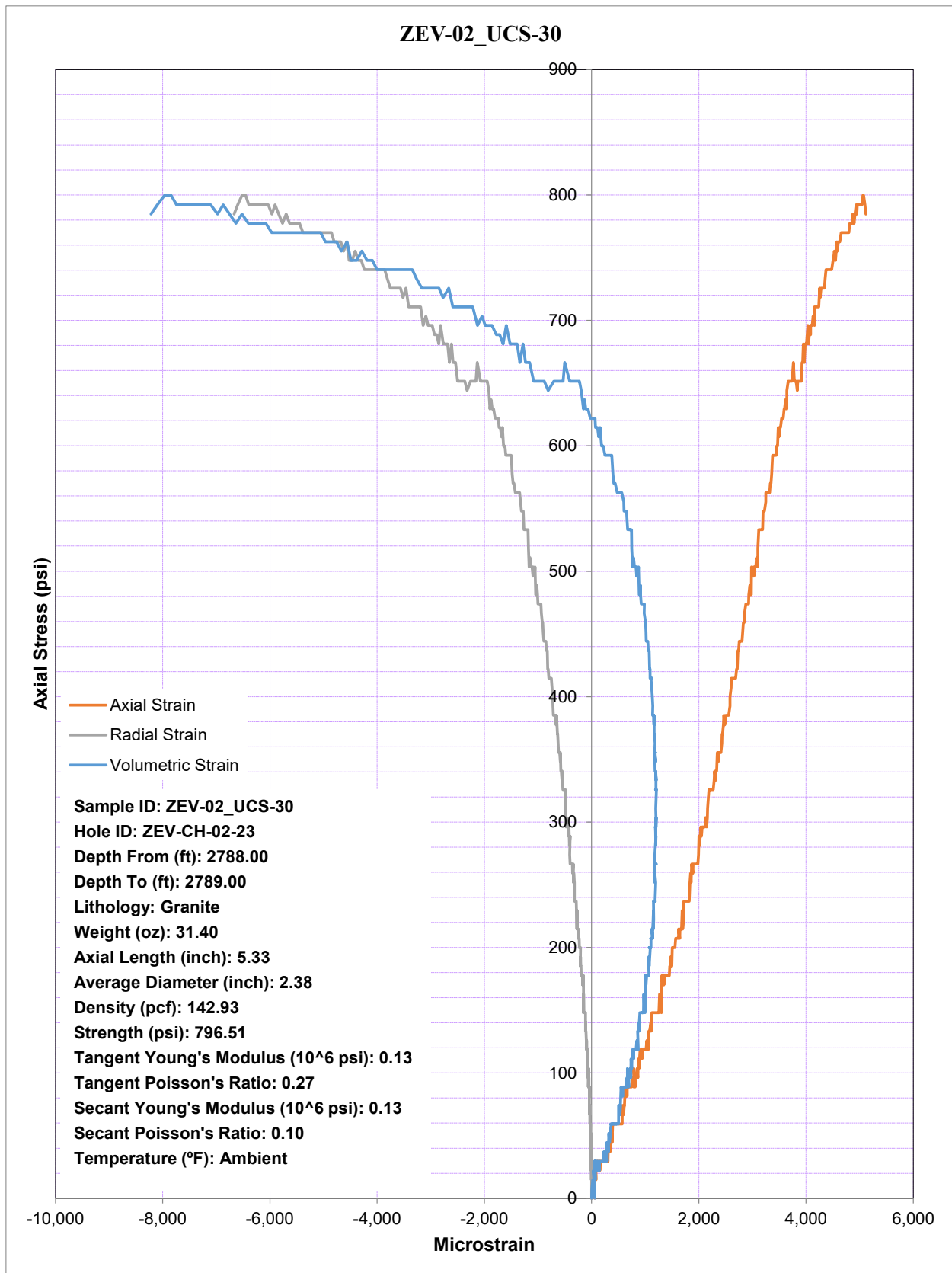


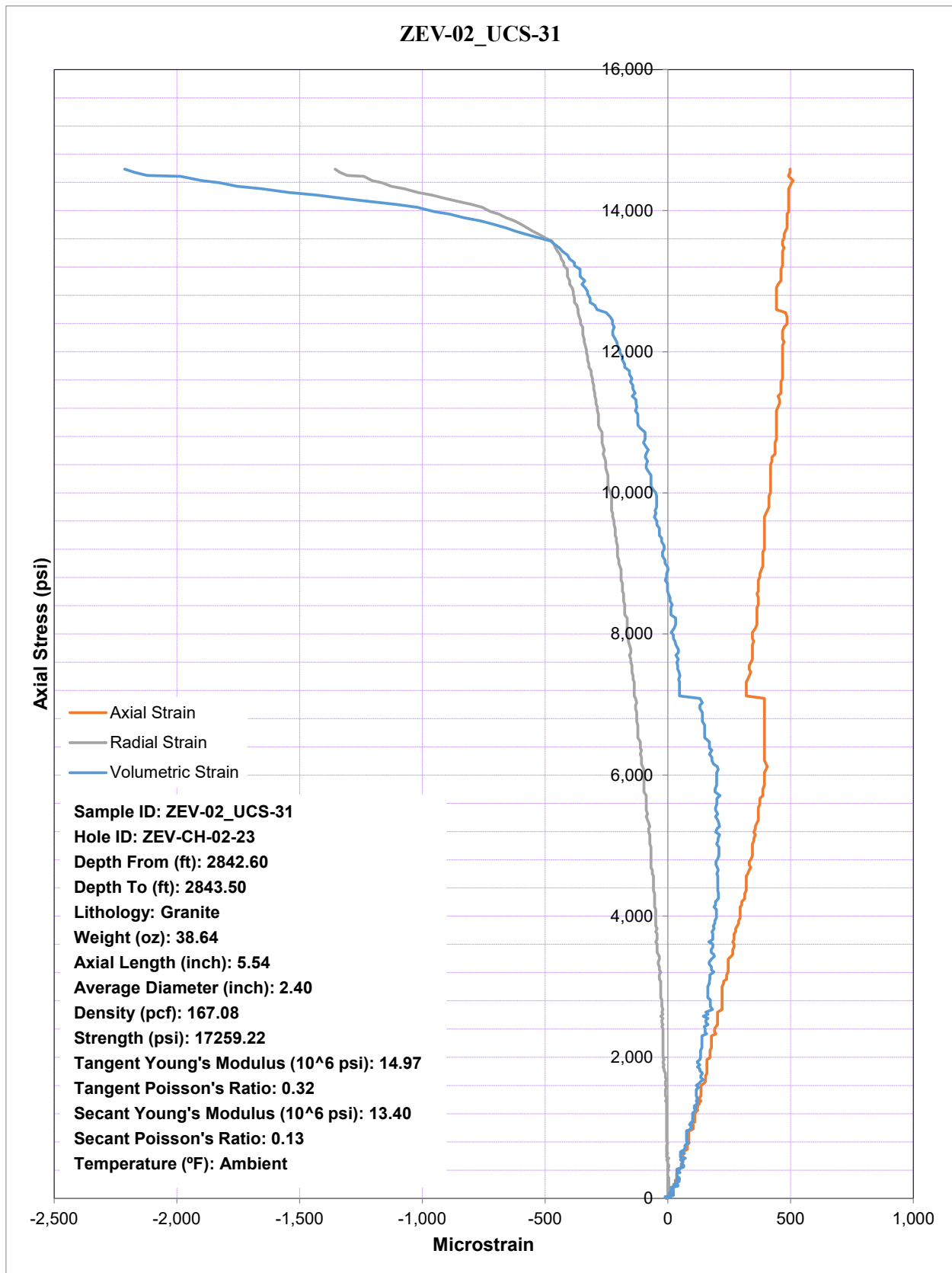


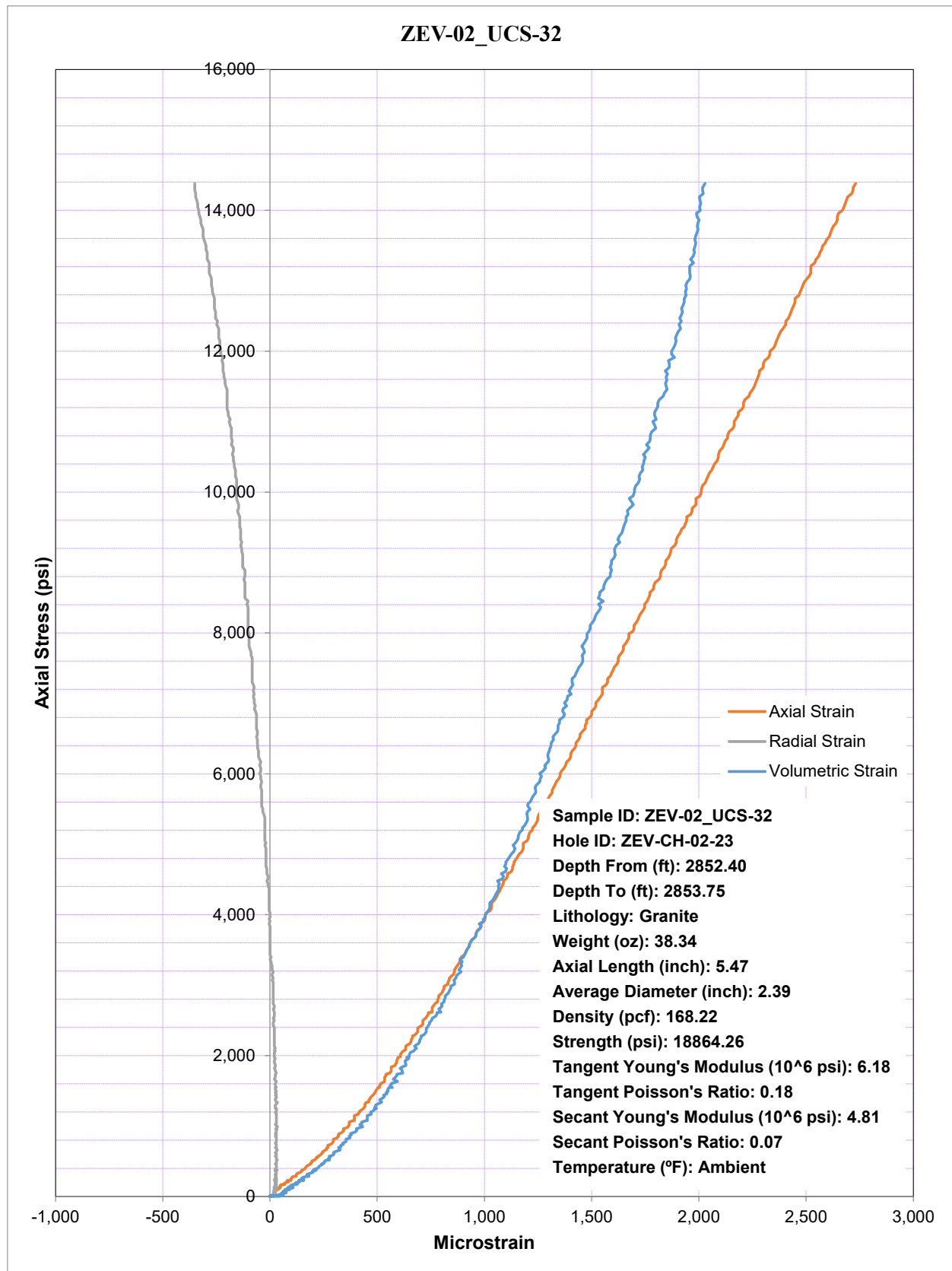


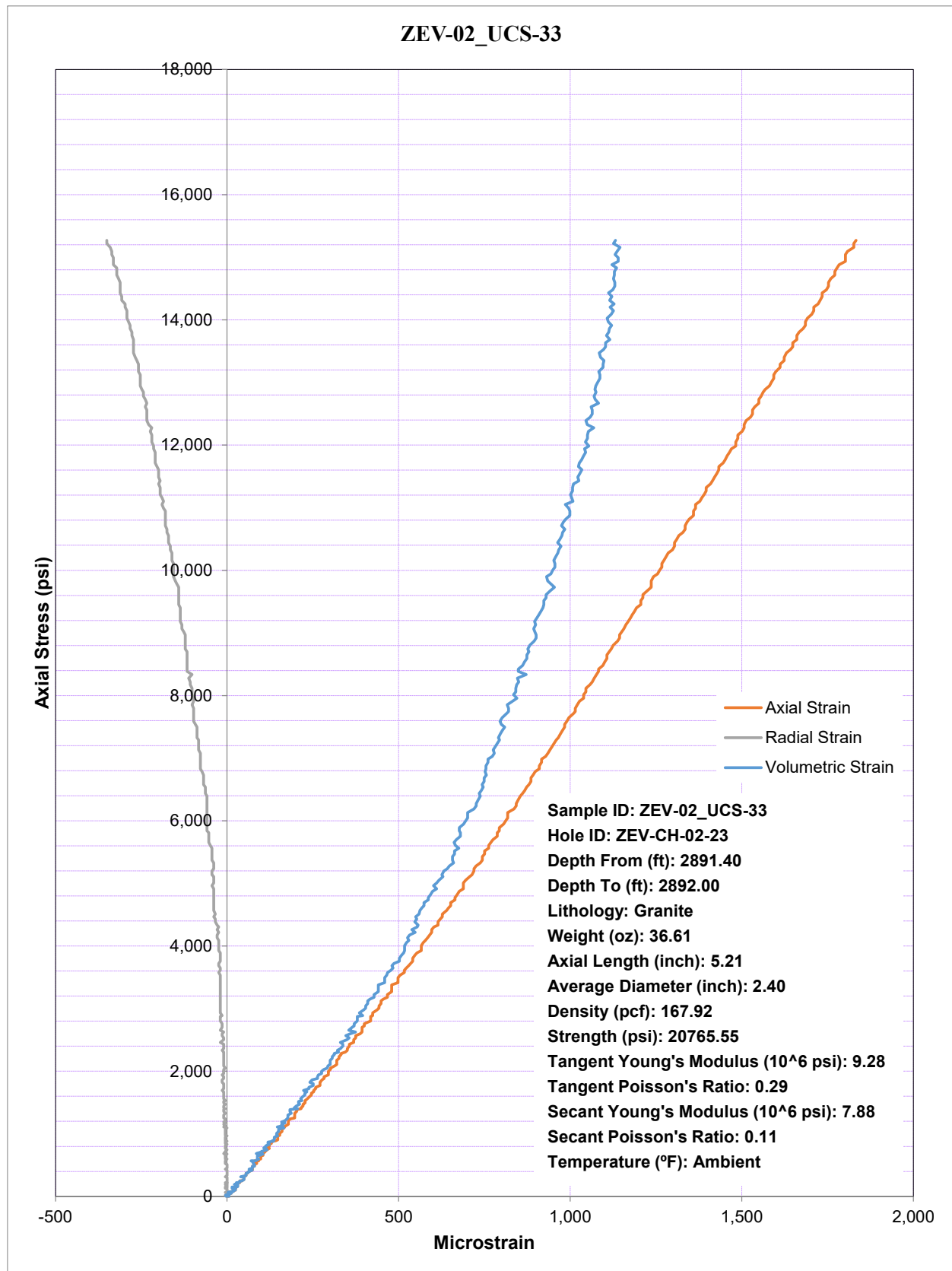


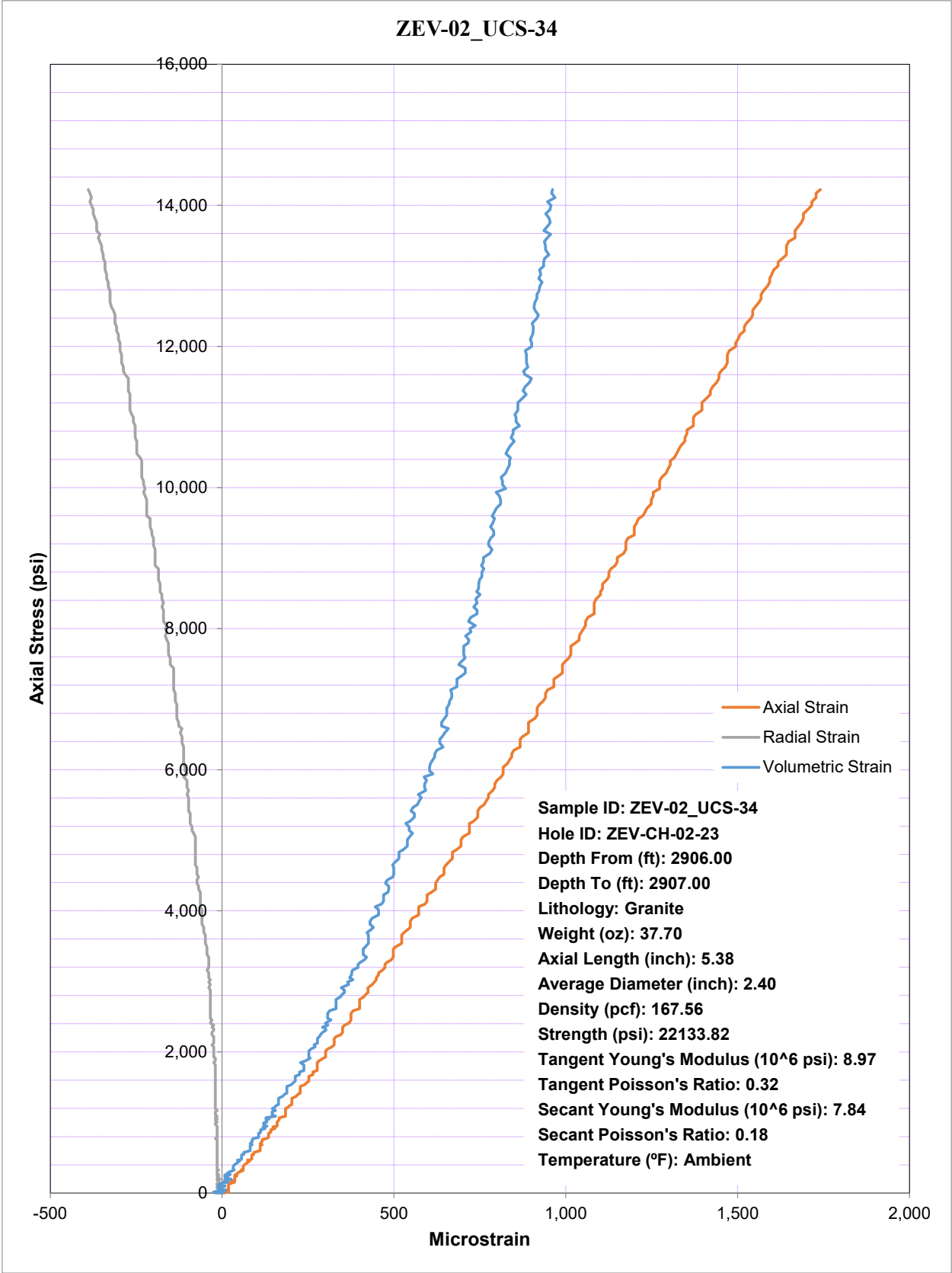


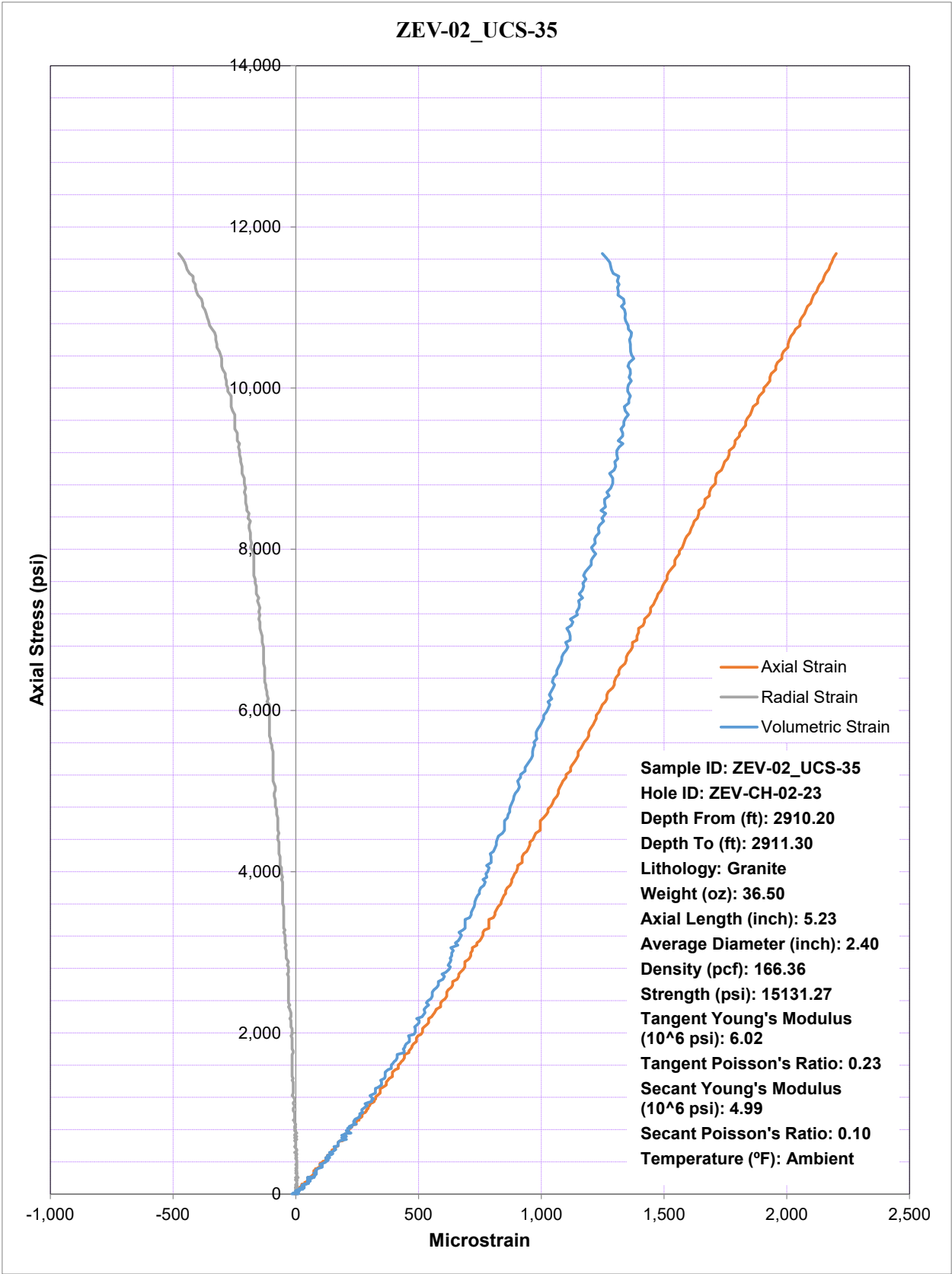


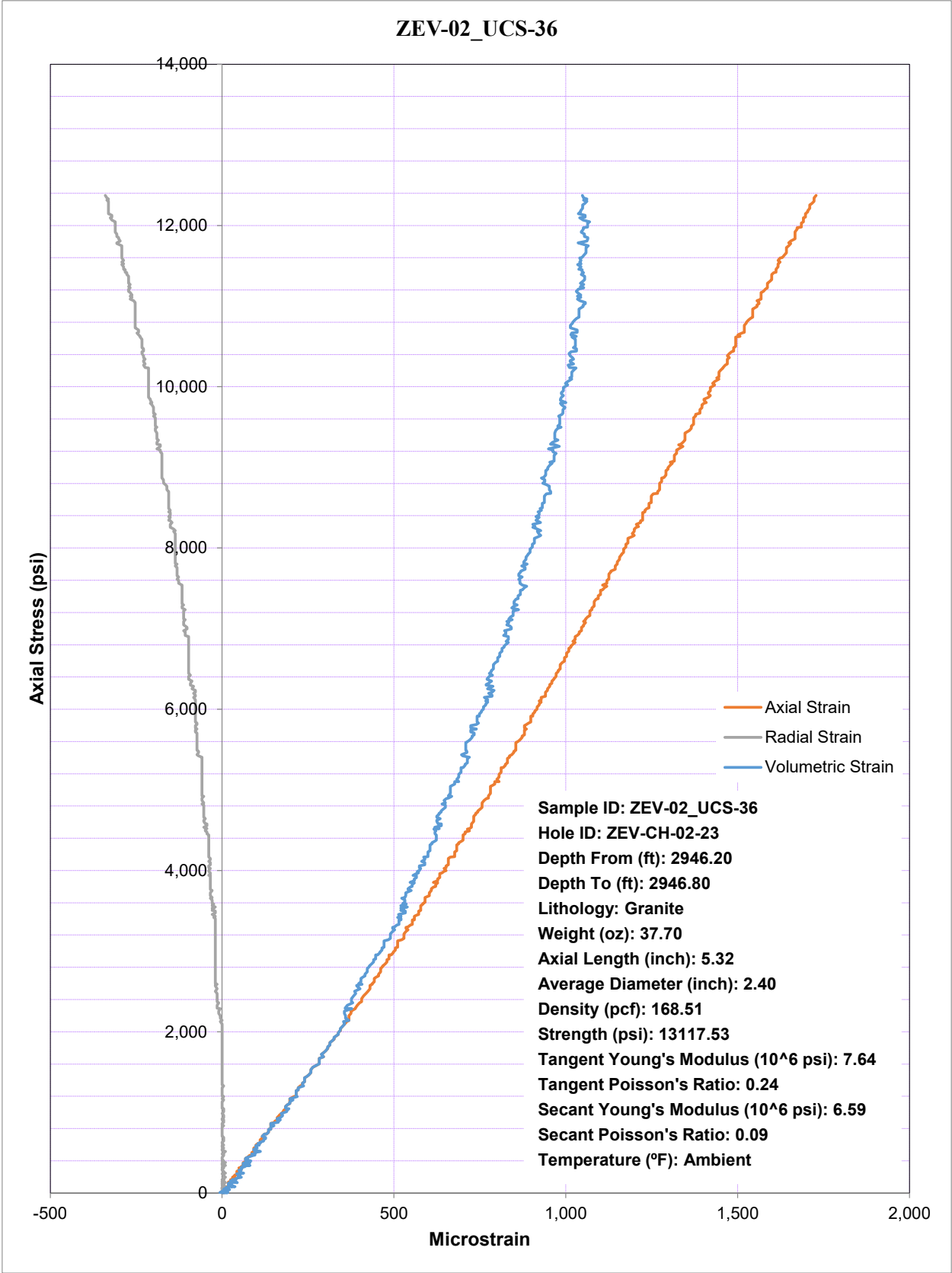




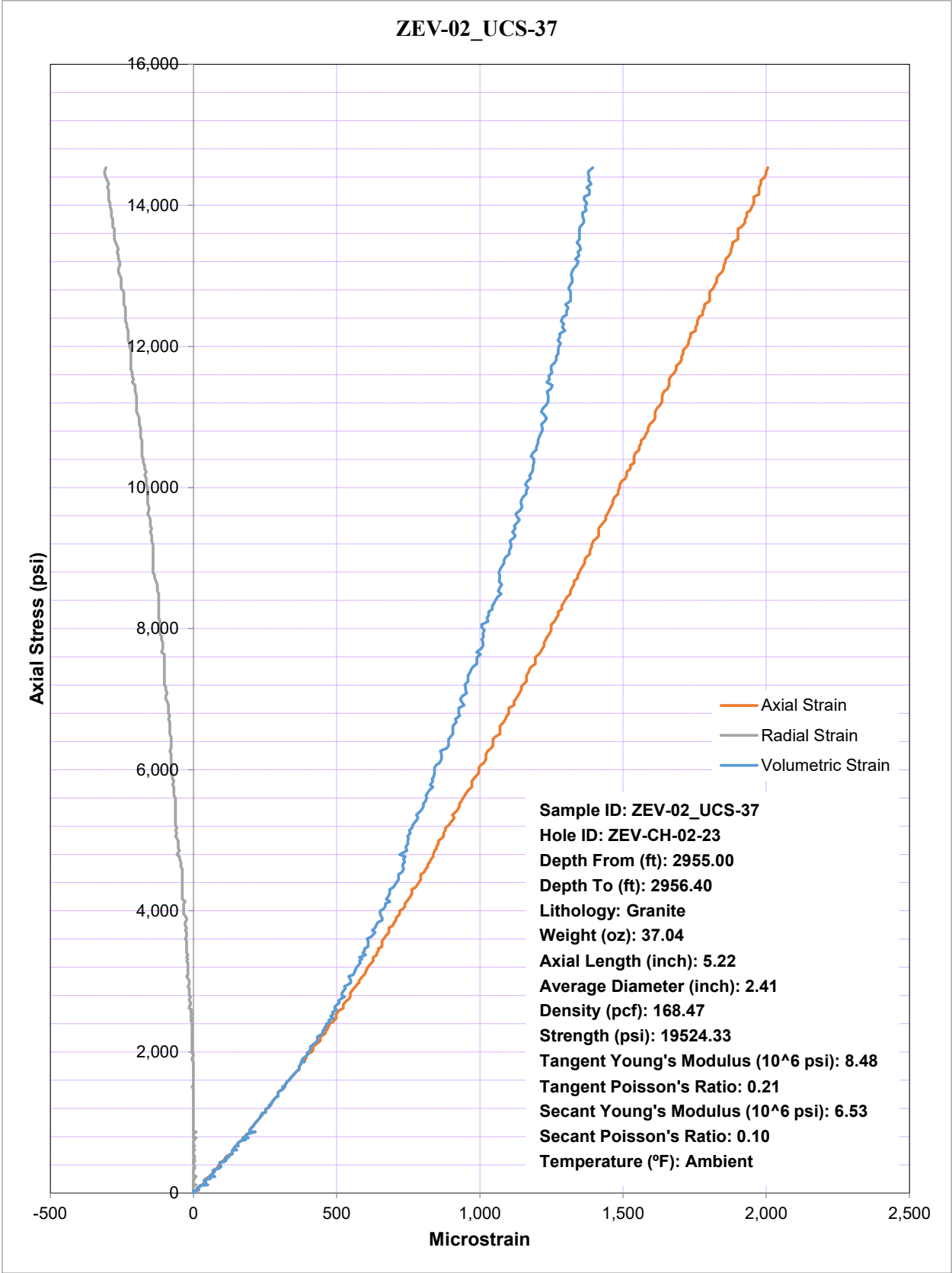


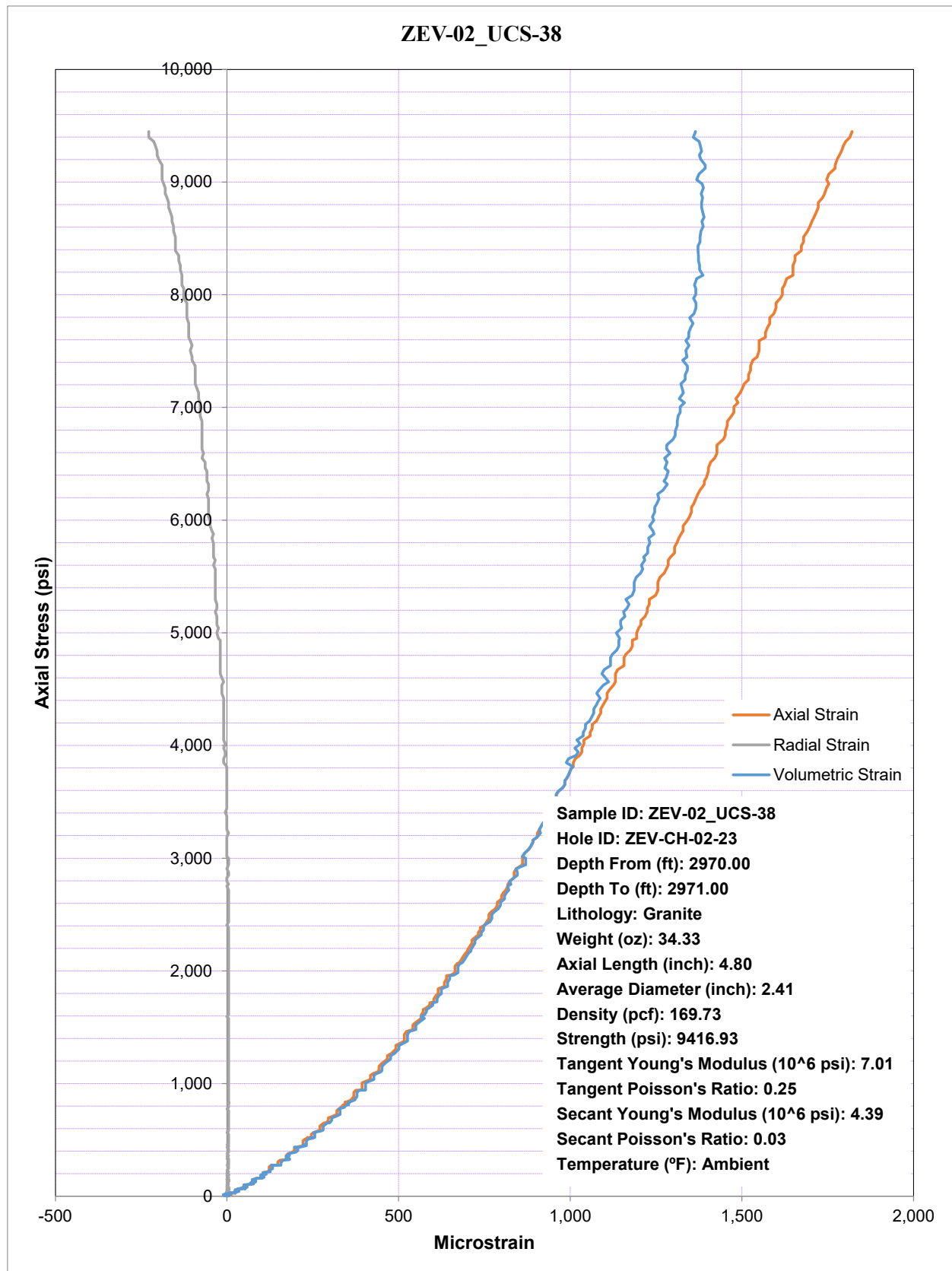


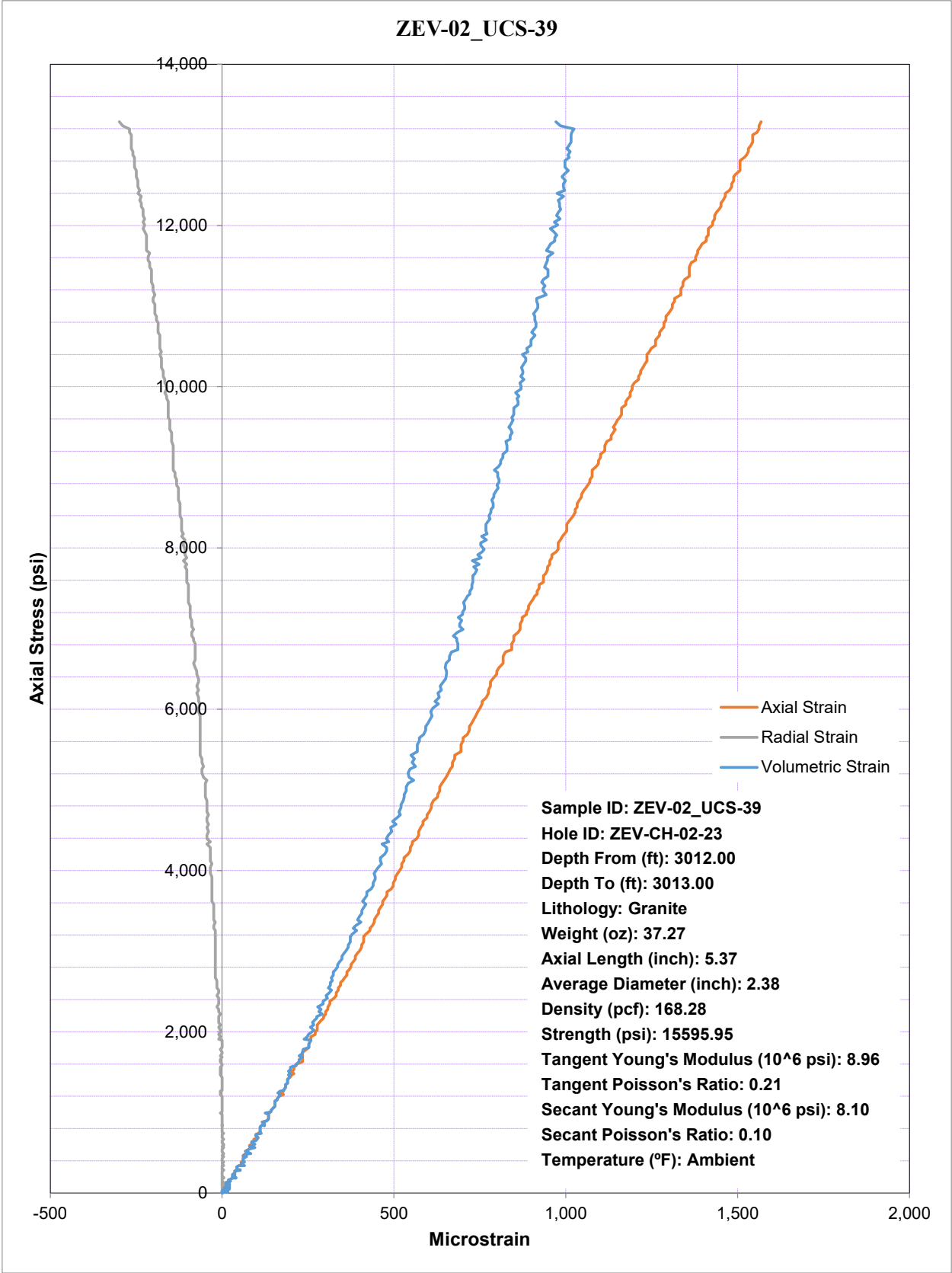


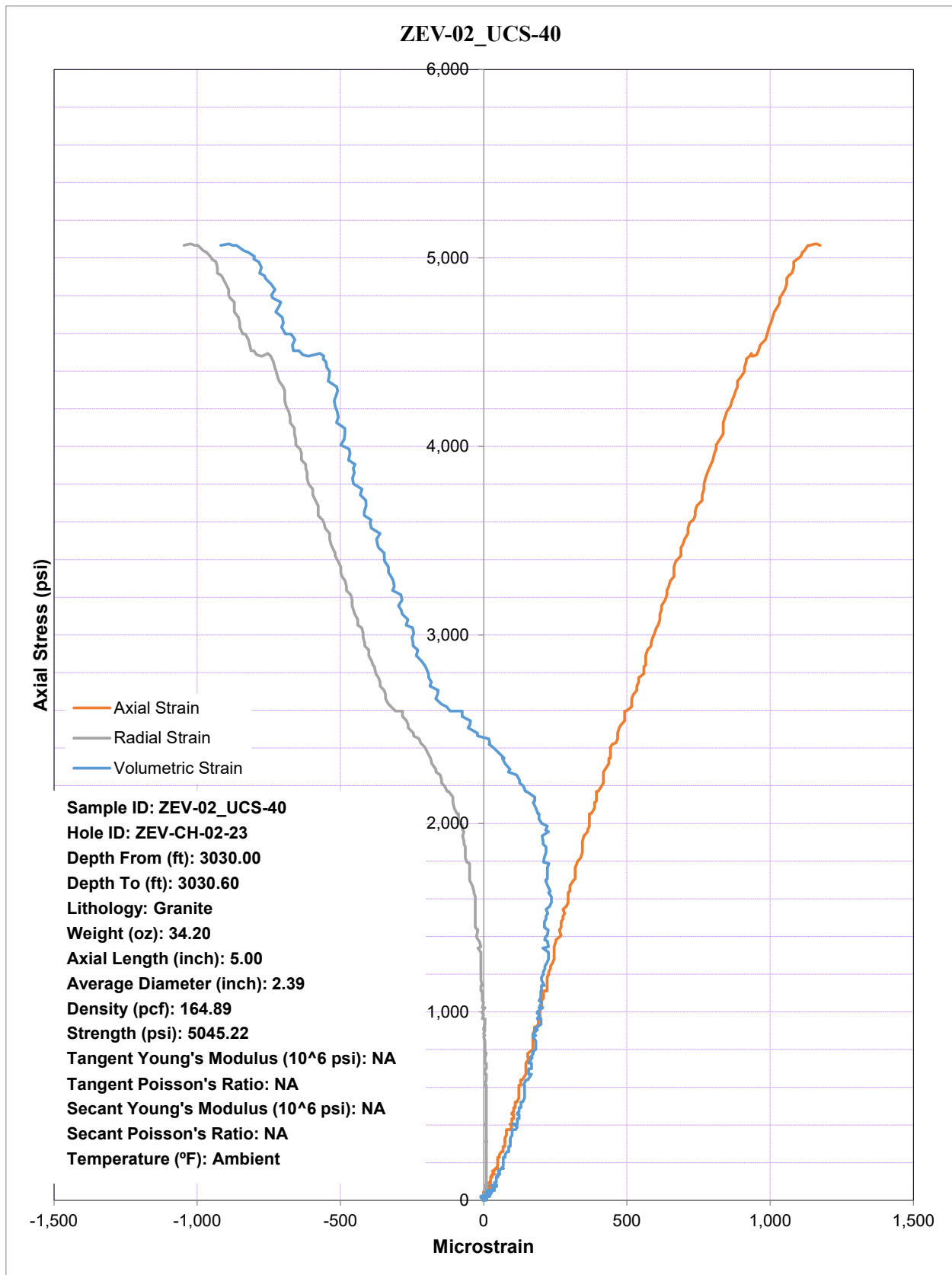










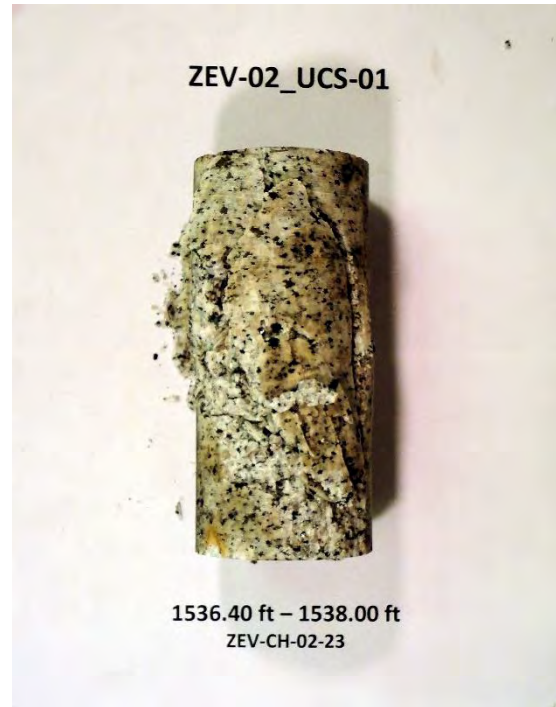


**APPENDIX C**

**BEFORE AND AFTER PHOTOGRAPHS  
OF UNIAXIAL COMPRESSIVE STRENGTH TEST SPECIMENS**



ZEV-02\_UCS-01—Before



ZEV-02\_UCS-01—After



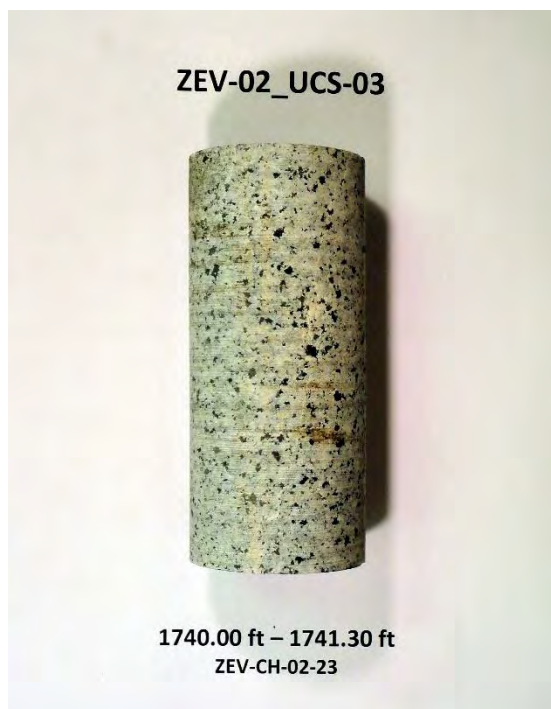
ZEV-02\_UCS-02—Before



ZEV-02\_UCS-02—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens**

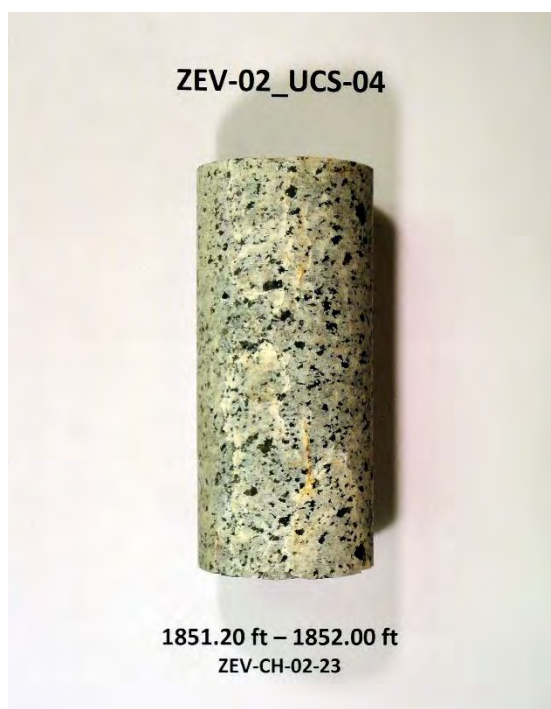




ZEV-02\_UCS-03—Before



ZEV-02\_UCS-03—After

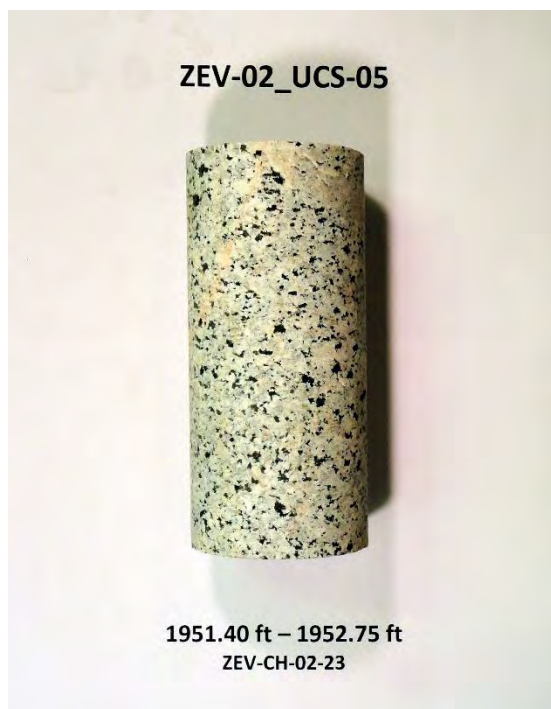


ZEV-02\_UCS-04—Before



ZEV-02\_UCS-04—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



ZEV-02\_UCS-05—Before



ZEV-02\_UCS-05—After



ZEV-02\_UCS-06—Before



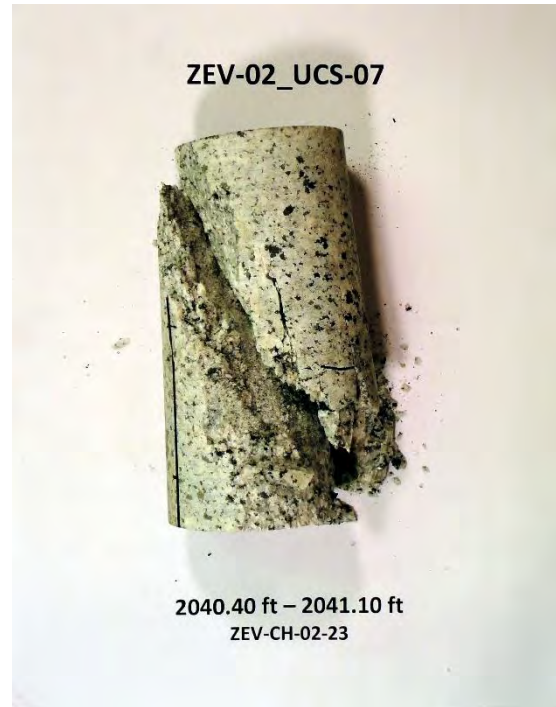
ZEV-02\_UCS-06—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





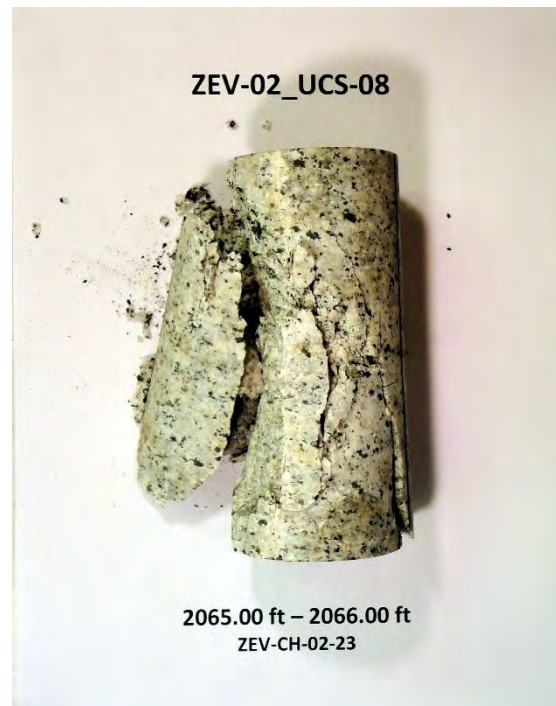
ZEV-02\_UCS-07—Before



ZEV-02\_UCS-07—After



ZEV-02\_UCS-08—Before



ZEV-02\_UCS-08—After

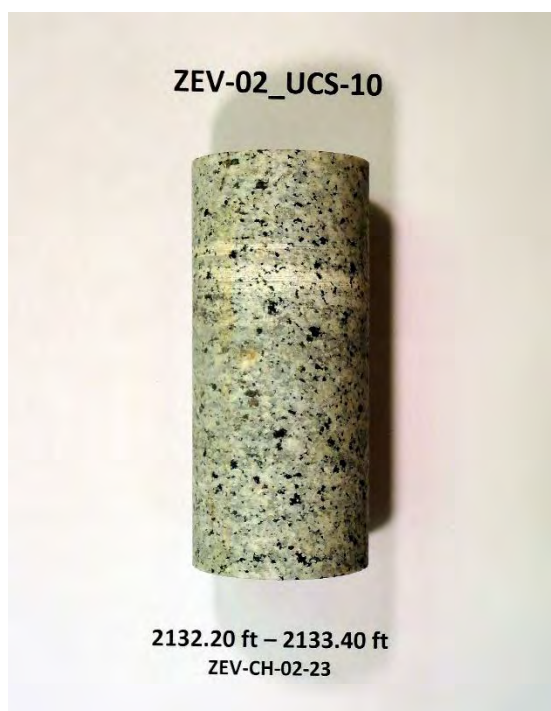
**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



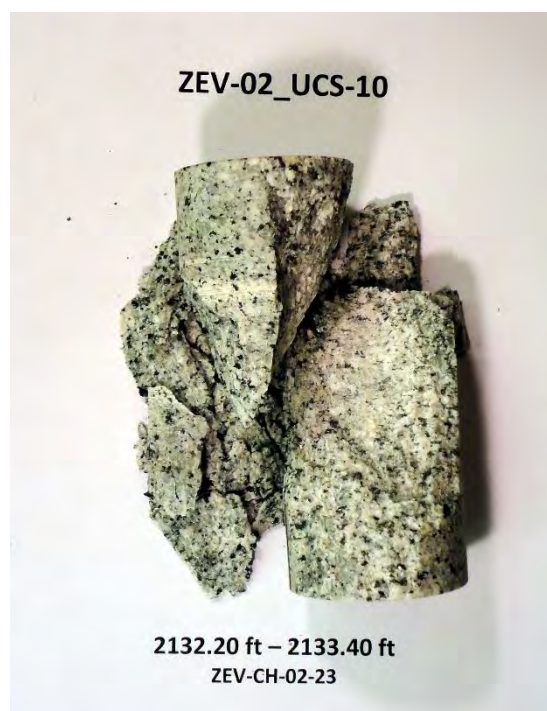
ZEV-02\_UCS-09—Before



ZEV-02\_UCS-09—After



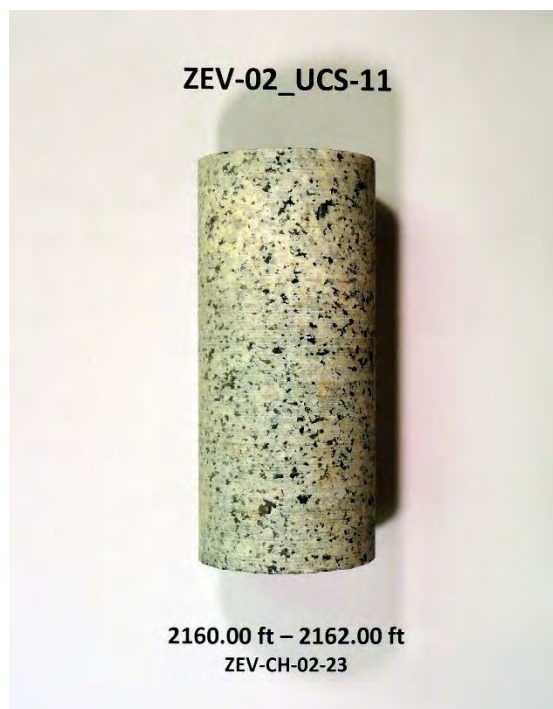
ZEV-02\_UCS-10—Before



ZEV-02\_UCS-10—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-02\_UCS-11—Before



ZEV-02\_UCS-11—After



ZEV-02\_UCS-12—Before



ZEV-02\_UCS-12—After

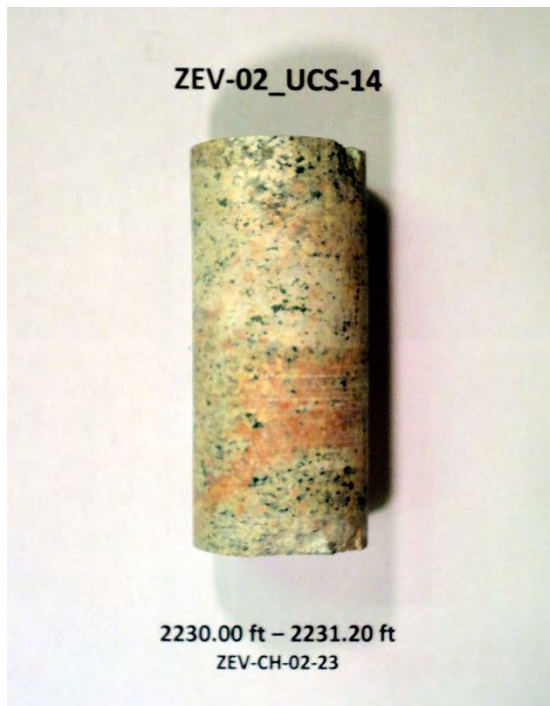
**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



ZEV-02-UCS-13—Before



ZEV-02-UCS-13—After



ZEV-02-UCS-14—Before



ZEV-02-UCS-14—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens**





ZEV-02-UCS-16—Before



ZEV-02-UCS-16—After

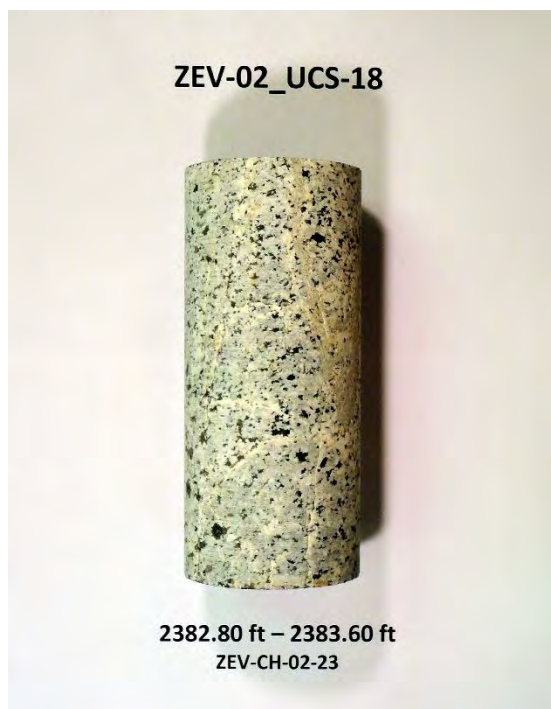


ZEV-02-UCS-17—Before

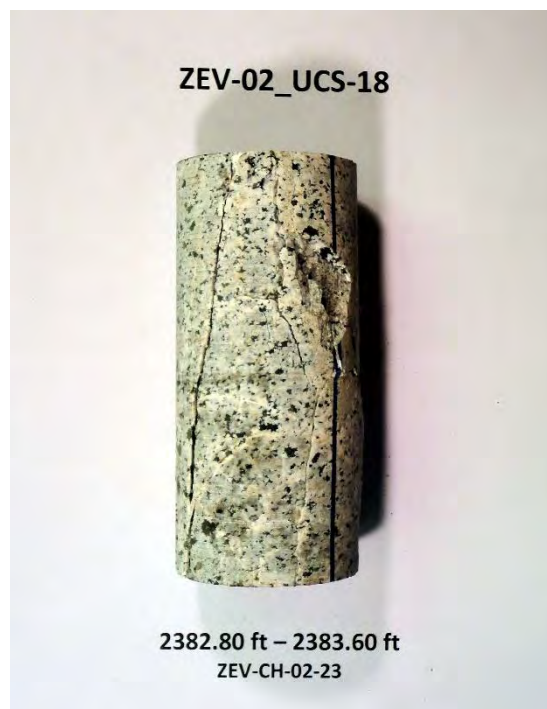


ZEV-02-UCS-17—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-02-UCS-18—Before



ZEV-02-UCS-18—After



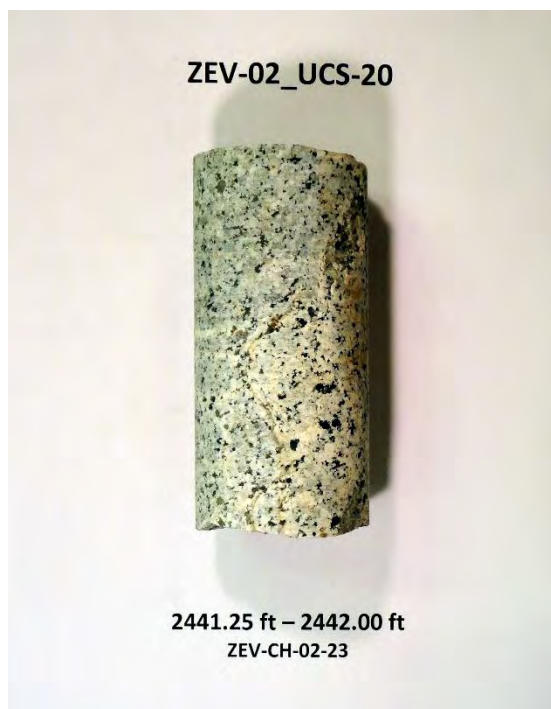
ZEV-02-UCS-19—Before



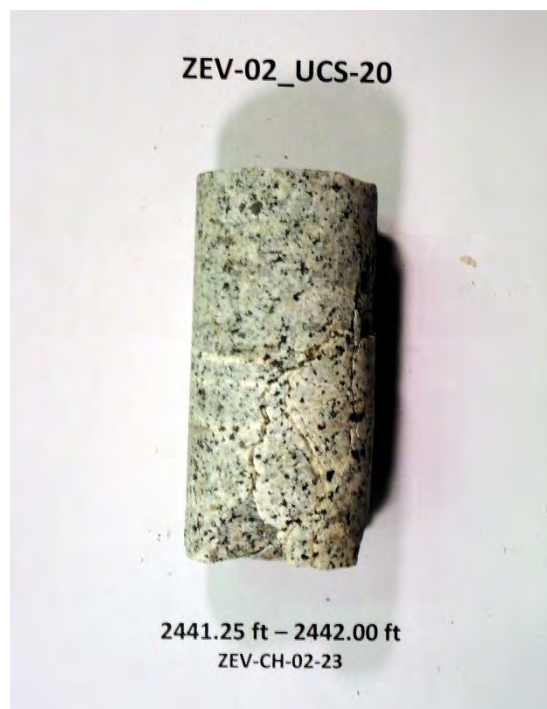
ZEV-02-UCS-19—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*

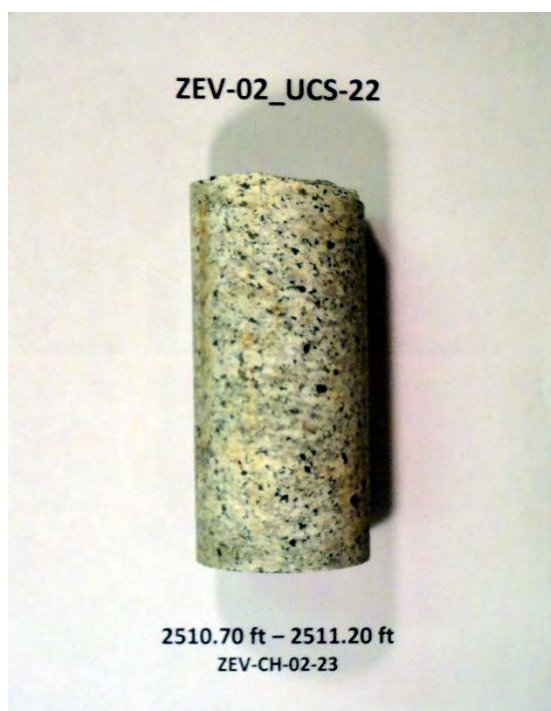




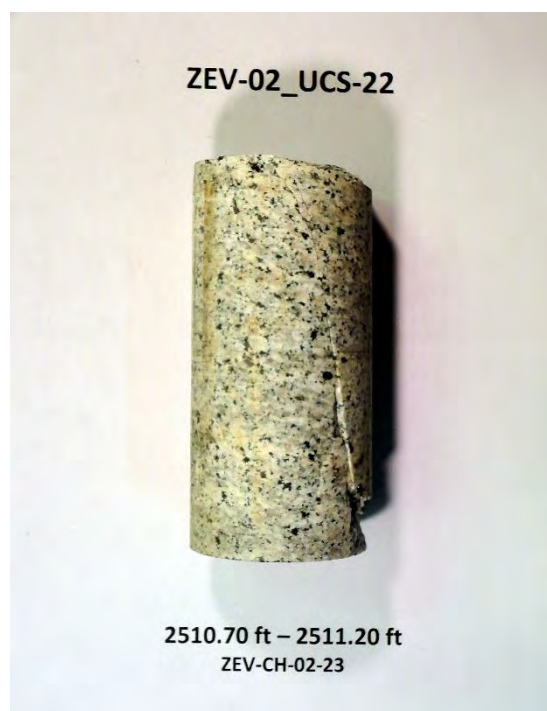
ZEV-02-UCS-20—Before



ZEV-02-UCS-20—After



ZEV-02-UCS-22—Before



ZEV-02-UCS-22—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-02-UCS-23—Before



ZEV-02-UCS-23—After



ZEV-02-UCS-24—Before



ZEV-02-UCS-24—After

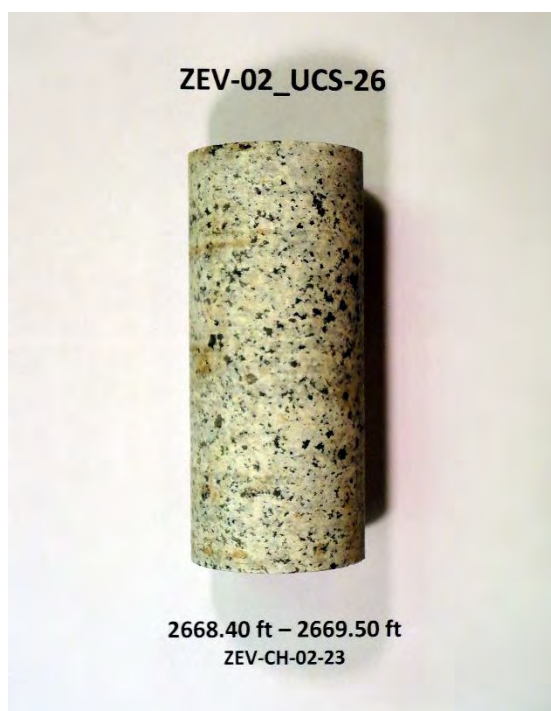
**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



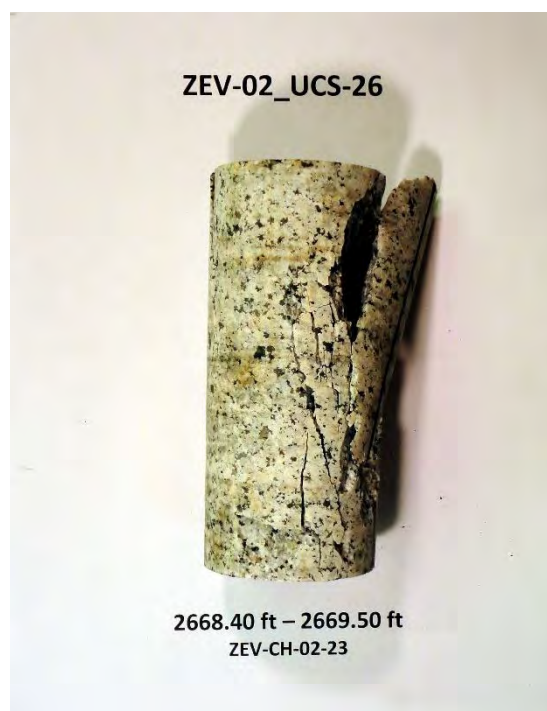
ZEV-02-UCS-25—Before



ZEV-02-UCS-25—After



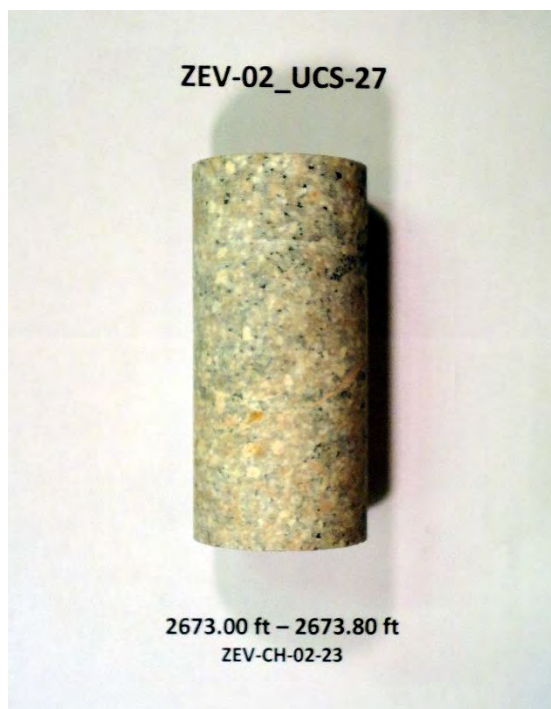
ZEV-02-UCS-26—Before



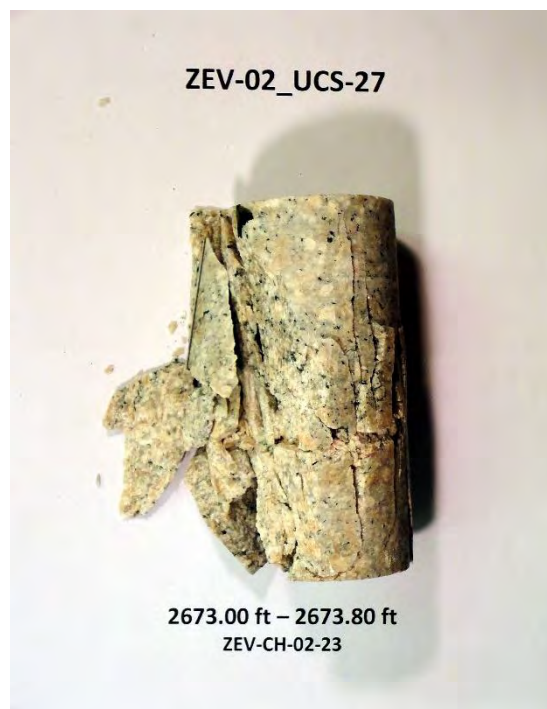
ZEV-02-UCS-26—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-02-UCS-27—Before



ZEV-02-UCS-27—After



ZEV-02-UCS-29—Before

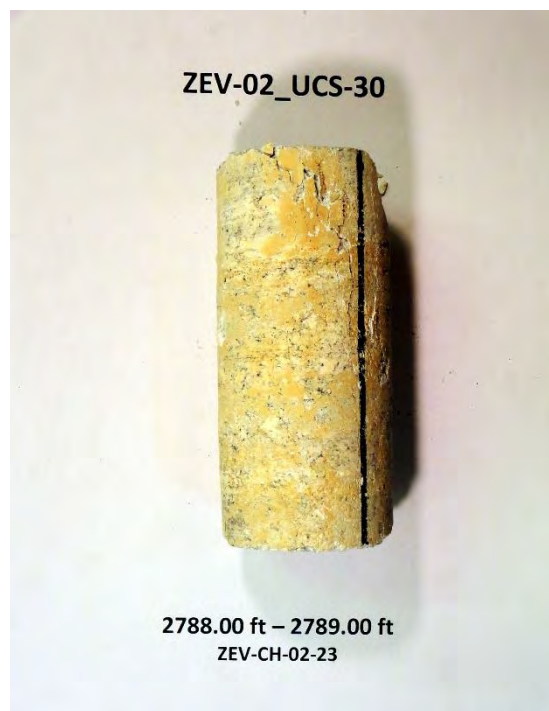


ZEV-02-UCS-29—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**



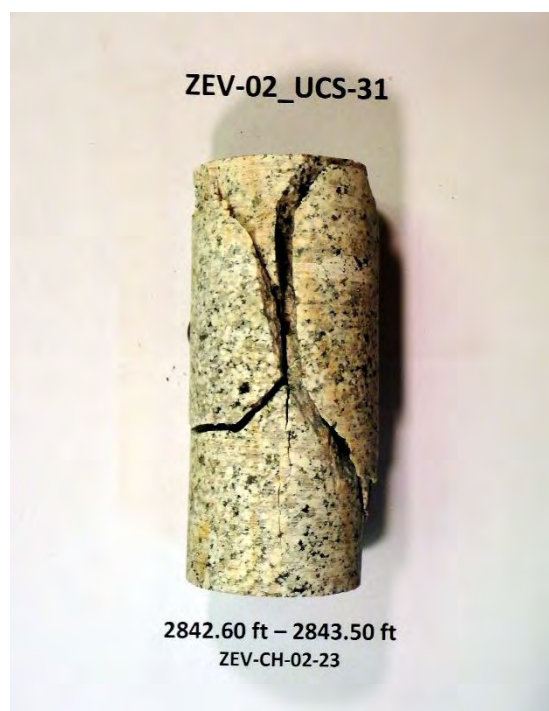
ZEV-02-UCS-30—Before



ZEV-02-UCS-30—After



ZEV-02-UCS-31—Before



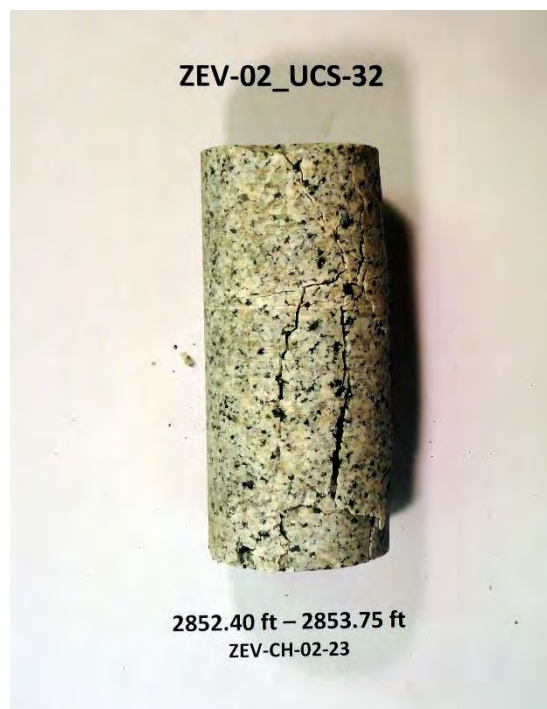
ZEV-02-UCS-31—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*





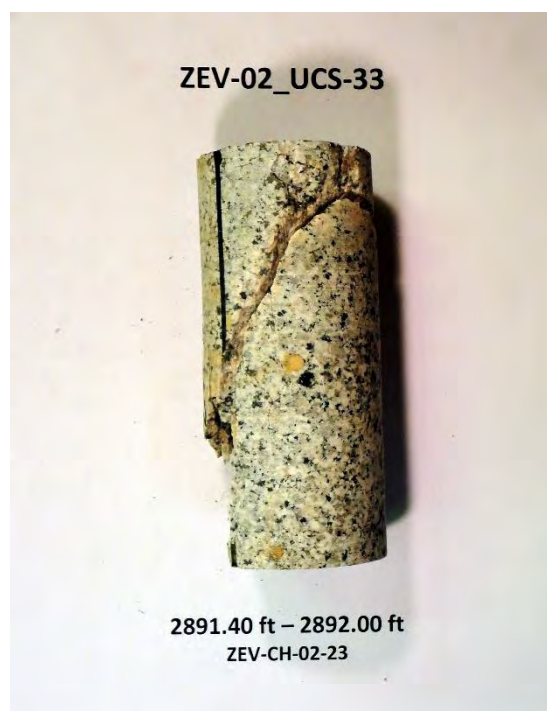
ZEV-02-UCS-32—Before



ZEV-02-UCS-32—After



ZEV-02-UCS-33—Before

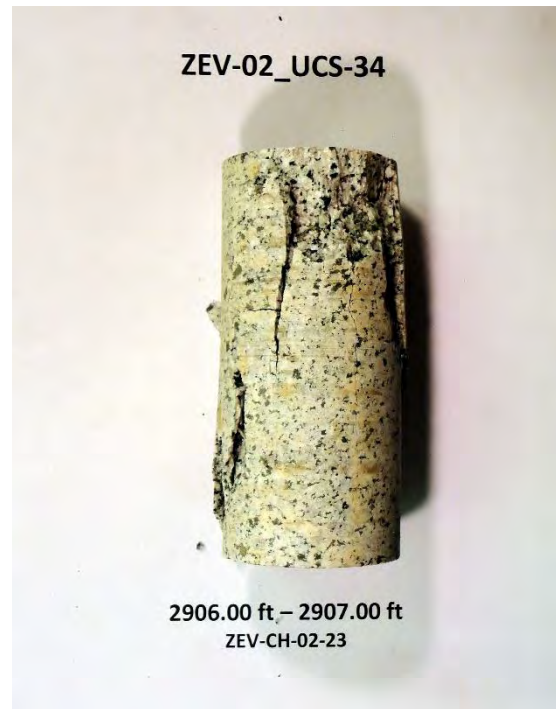


ZEV-02-UCS-33—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



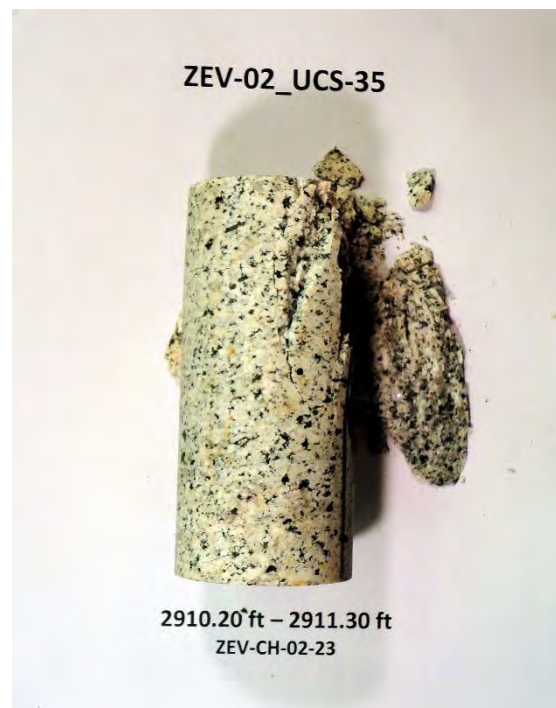
ZEV-02-UCS-34—Before



ZEV-02-UCS-34—After



ZEV-02-UCS-35—Before



ZEV-02-UCS-35—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**

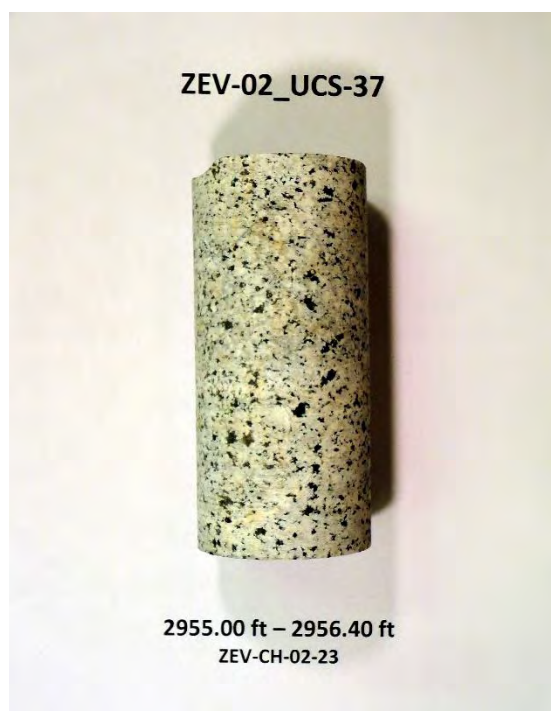




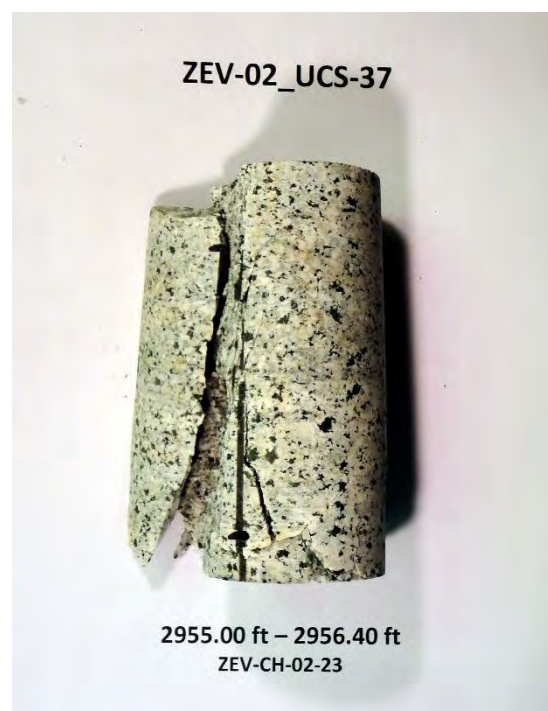
ZEV-02-UCS-36—Before



ZEV-02-UCS-36—After



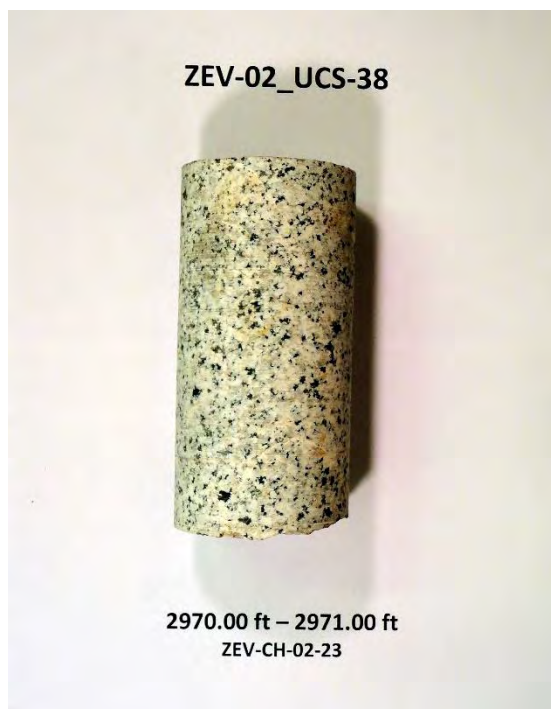
ZEV-02-UCS-37—Before



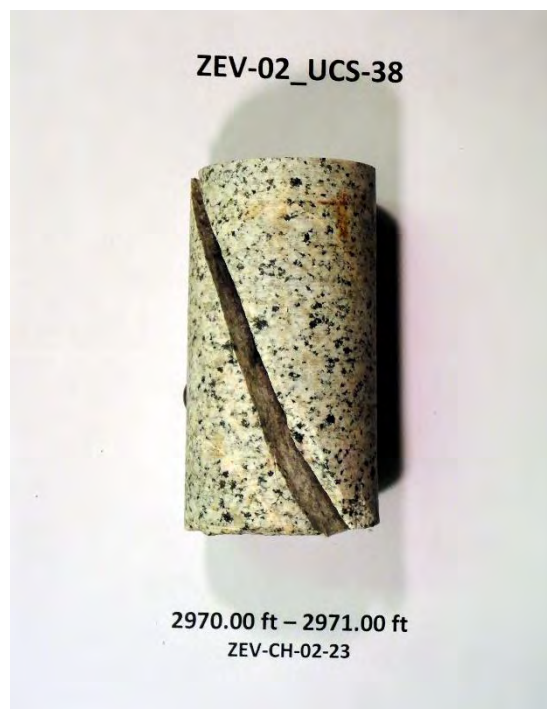
ZEV-02-UCS-37—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens (continued)**





ZEV-02-UCS-38—Before



ZEV-02-UCS-38—After



ZEV-02-UCS-39—Before

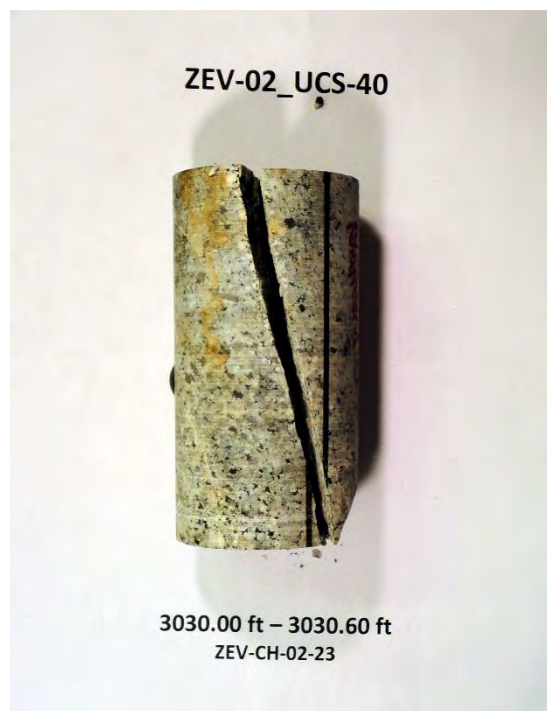


ZEV-02-UCS-39—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(continued)*



ZEV-02-UCS-40—Before



ZEV-02-UCS-40—After

**Figure C-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens** *(concluded)*

**APPENDIX D**

**TRIAXIAL COMPRESSION TEST DATASHEET**



AGAPITO ASSOCIATES, INC.  
2913 Hill Avenue, #B  
Grand Junction, CO 81504 USA  
970-242-4220

TRIAXIAL COMPRESSION TESTS

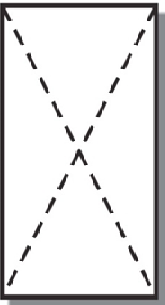
|            |               |
|------------|---------------|
| CLIENT     | Lane PES      |
| JOB NUMBER | 951-20        |
| DATE       | July 20, 2023 |

|                    |              |
|--------------------|--------------|
| HOLE NUMBER        | ZEV-CH-01-23 |
| MOISTURE CONDITION | As received  |
| TEMPERATURE        | Ambient      |

| Specimen No.  | Hole No.     | Interval  |          | Length of Interval (ft) | Weight (oz) | Diameter            |                     | Axial Length (in) | Length-to-Diameter Ratio | Area (in <sup>2</sup> ) | Volume (in <sup>3</sup> ) | Density (pcf) | Specific Gravity |
|---------------|--------------|-----------|----------|-------------------------|-------------|---------------------|---------------------|-------------------|--------------------------|-------------------------|---------------------------|---------------|------------------|
|               |              | From (ft) | To (ft)  |                         |             | D <sub>1</sub> (in) | D <sub>2</sub> (in) |                   |                          |                         |                           |               |                  |
| ZEV-02_TRI-01 | ZEV-CH-02-23 | 1,999.10  | 1,999.80 | 0.70                    | 37.98       | 2.40                | 2.40                | 5.35              | 2.2                      | 4.52                    | 24.20                     | 170           | 2.72             |
| ZEV-02_TRI-02 | ZEV-CH-02-23 | 2,002.00  | 2,002.65 | 0.65                    | 37.94       | 2.40                | 2.40                | 5.41              | 2.3                      | 4.52                    | 24.48                     | 167           | 2.68             |
| ZEV-02_TRI-03 | ZEV-CH-02-23 | 2,030.00  | 2,031.00 | 1.00                    | 37.84       | 2.40                | 2.39                | 5.36              | 2.2                      | 4.51                    | 24.15                     | 169           | 2.71             |
| ZEV-02_TRI-04 | ZEV-CH-02-23 | 2,069.00  | 2,070.00 | 1.00                    | 37.82       | 2.39                | 2.39                | 5.40              | 2.3                      | 4.50                    | 24.31                     | 168           | 2.69             |
| ZEV-02_TRI-05 | ZEV-CH-02-23 | 2,094.00  | 2,095.00 | 1.00                    | 38.39       | 2.39                | 2.39                | 5.48              | 2.3                      | 4.49                    | 24.59                     | 169           | 2.70             |
| ZEV-02_TRI-06 | ZEV-CH-02-23 | 2,123.00  | 2,123.80 | 0.80                    | 38.55       | 2.38                | 2.39                | 5.53              | 2.3                      | 4.47                    | 24.68                     | 169           | 2.70             |
| ZEV-02_TRI-07 | ZEV-CH-02-23 | 2,151.50  | 2,153.40 | 1.90                    | 37.14       | 2.39                | 2.39                | 5.31              | 2.2                      | 4.48                    | 23.81                     | 168           | 2.70             |
| ZEV-02_TRI-08 | ZEV-CH-02-23 | 2,184.00  | 2,185.00 | 1.00                    | 36.51       | 2.38                | 2.38                | 5.46              | 2.3                      | 4.46                    | 24.38                     | 162           | 2.59             |
| ZEV-02_TRI-09 | ZEV-CH-02-23 | 2,213.50  | 2,215.00 | 1.50                    | 37.92       | 2.39                | 2.39                | 5.41              | 2.3                      | 4.49                    | 24.30                     | 169           | 2.70             |
| ZEV-02_TRI-10 | ZEV-CH-02-23 | 2,295.20  | 2,296.35 | 1.15                    | 36.25       | 2.39                | 2.39                | 5.20              | 2.2                      | 4.49                    | 23.38                     | 167           | 2.68             |
| ZEV-02_TRI-11 | ZEV-CH-02-23 | 2,358.50  | 2,359.00 | 0.50                    | 37.03       | 2.39                | 2.39                | 5.33              | 2.2                      | 4.49                    | 23.93                     | 167           | 2.68             |
| ZEV-02_TRI-12 | ZEV-CH-02-23 | 2,392.20  | 2,393.35 | 1.15                    | 36.14       | 2.39                | 2.39                | 5.43              | 2.3                      | 4.49                    | 24.36                     | 160           | 2.57             |
| ZEV-02_TRI-13 | ZEV-CH-02-23 | 2,771.25  | 2,772.00 | 0.75                    | 35.09       | 2.39                | 2.39                | 5.10              | 2.1                      | 4.49                    | 22.92                     | 165           | 2.65             |
| ZEV-02_TRI-14 | ZEV-CH-02-23 | 2,772.00  | 2,772.75 | 0.75                    | 35.31       | 2.39                | 2.39                | 5.15              | 2.2                      | 4.50                    | 23.14                     | 165           | 2.64             |
| ZEV-02_TRI-15 | ZEV-CH-02-23 | 2,772.75  | 2,773.50 | 0.75                    | 34.29       | 2.39                | 2.39                | 4.99              | 2.1                      | 4.49                    | 22.40                     | 165           | 2.65             |

| Specimen No.  | Lithological Description | Confining Pressure (psi) | Failure Load (lb) | Failure Stress (psi) | Failure Mode Notes | Comments                                  |
|---------------|--------------------------|--------------------------|-------------------|----------------------|--------------------|-------------------------------------------|
| ZEV-02_TRI-01 | Granite                  | 1,500                    | 168,805           | 37,314               | Shear              |                                           |
| ZEV-02_TRI-02 | Granite                  | 2,500                    | 110,610           | 24,460               | Axial/Shear        | Sample failed along pre-existing fracture |
| ZEV-02_TRI-03 | Granite                  | 1,500                    | 181,425           | 40,255               | Axial/Shear        |                                           |
| ZEV-02_TRI-04 | Granite                  | 2,500                    | 168,055           | 37,335               | Axial/Shear        |                                           |
| ZEV-02_TRI-05 | Granite                  | 1,500                    | 127,235           | 28,355               | Shear              | Sample failed along pre-existing fracture |
| ZEV-02_TRI-06 | Granite                  | 2,500                    | 189,405           | 42,405               | Axial/Shear        |                                           |
| ZEV-02_TRI-07 | Granite                  | 1,500                    | 109,035           | 24,335               | Axial              |                                           |
| ZEV-02_TRI-08 | Granite                  | 2,500                    | 138,520           | 31,052               | Axial              |                                           |
| ZEV-02_TRI-09 | Granite                  | 1,500                    | 110,780           | 24,657               | Axial              |                                           |
| ZEV-02_TRI-10 | Granite                  | 2,500                    | 85,555            | 19,035               | Axial              | Sample failed along pre-existing fracture |
| ZEV-02_TRI-11 | Granite                  | 1,500                    | 39,660            | 8,838                | Axial/Shear        | Sample failed along pre-existing fracture |
| ZEV-02_TRI-12 | Granite                  | 2,500                    | 48,710            | 10,855               | Axial              | Sample failed along pre-existing fracture |
| ZEV-02_TRI-13 | Granite                  | 1,500                    | 178,275           | 39,680               | Axial/Shear        | Some axial failure.                       |
| ZEV-02_TRI-14 | Granite                  | 2,500                    | 216,550           | 48,169               | Axial/Shear        |                                           |
| ZEV-02_TRI-15 | Granite                  | 1,500                    | 179,595           | 39,974               | Axial              |                                           |

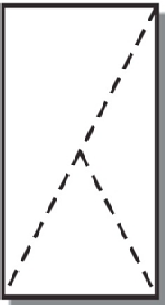
Failure Mode Sketches



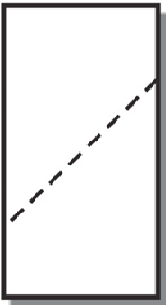
Cone



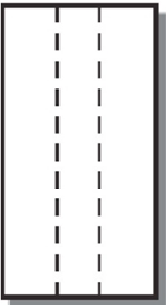
Cone and Axial Fracture/Columnar



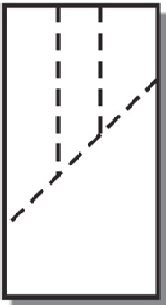
Cone and Shear



Shear



Axial Fracture/Columnar

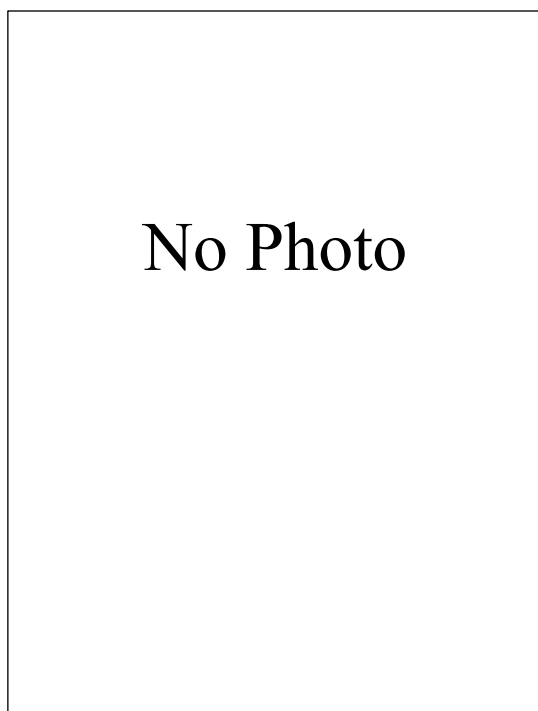


Shear and Axial Fracture/Columnar

**APPENDIX E**

**BEFORE AND AFTER PHOTOGRAPHS OF  
TRIAXIAL COMPRESSION TEST SPECIMENS**





ZEV-02\_TRI-01—Before



ZEV-02\_TRI-01—After



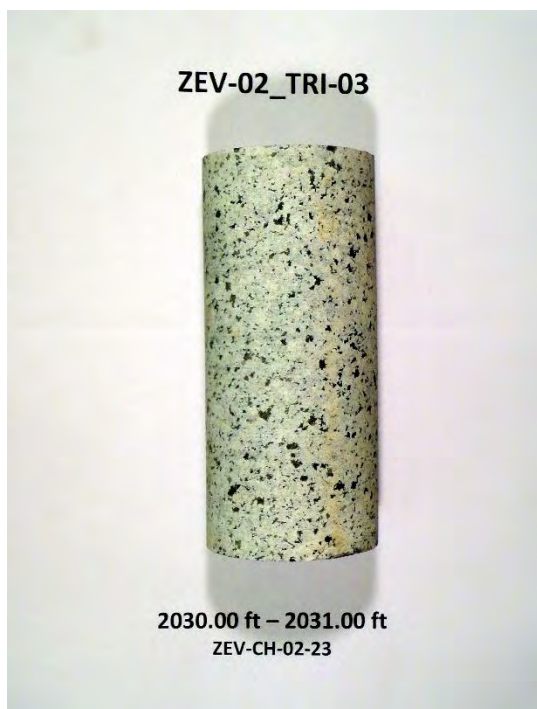
ZEV-02\_TRI-02—Before



ZEV-02\_TRI-02—After

**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens**





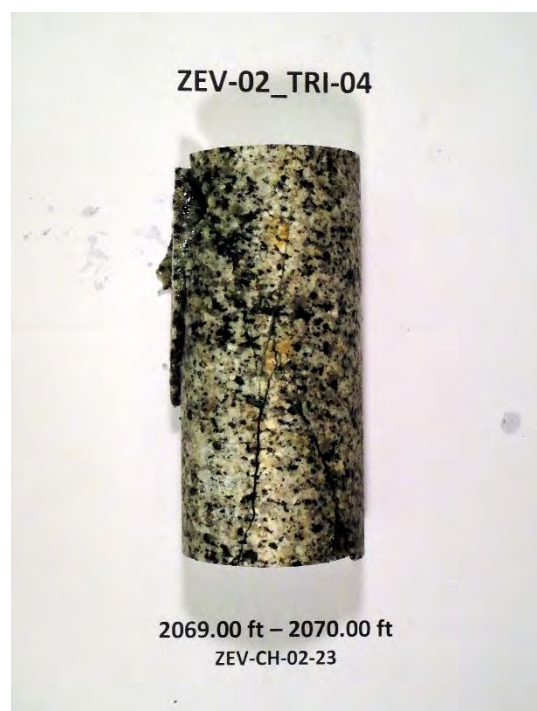
ZEV-02\_TRI-03—Before



ZEV-02\_TRI-03—After



ZEV-02\_TRI-04—Before



ZEV-02\_TRI-04—After

**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens** *(continued)*



ZEV-02\_TRI-05—Before



ZEV-02\_TRI-05—After



ZEV-02\_TRI-06—Before



ZEV-02\_TRI-06—After

**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens** *(continued)*





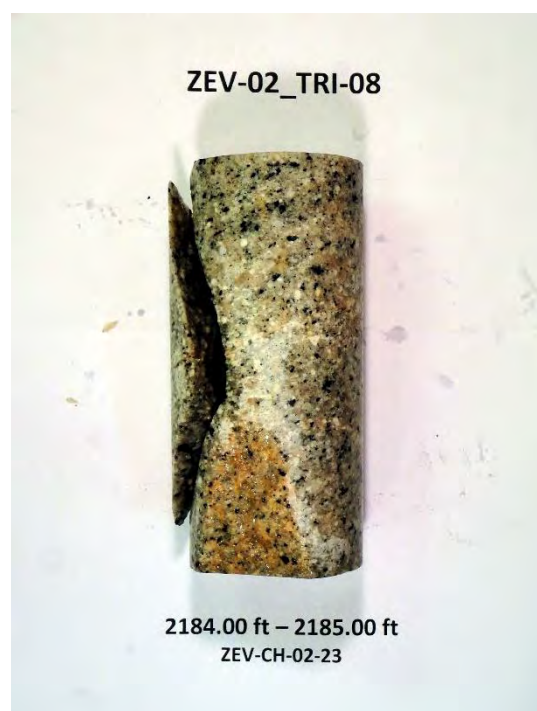
ZEV-02\_TRI-07—Before



ZEV-02\_TRI-07—After



ZEV-02\_TRI-08—Before



ZEV-02\_TRI-08—After

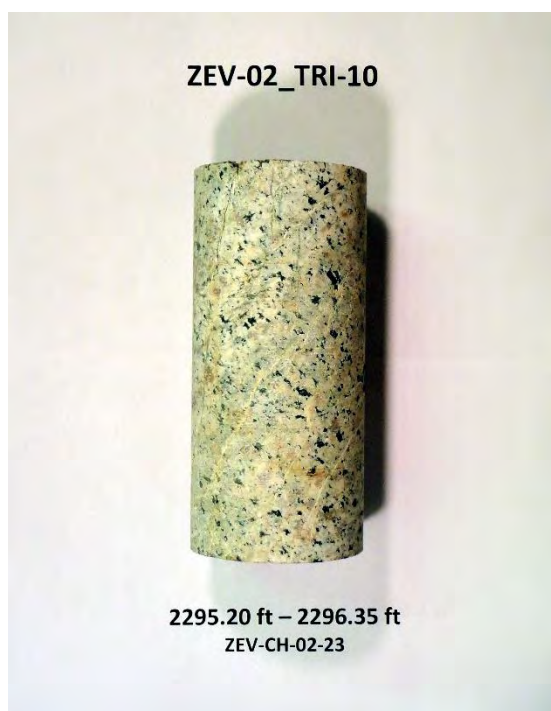
**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens** *(continued)*



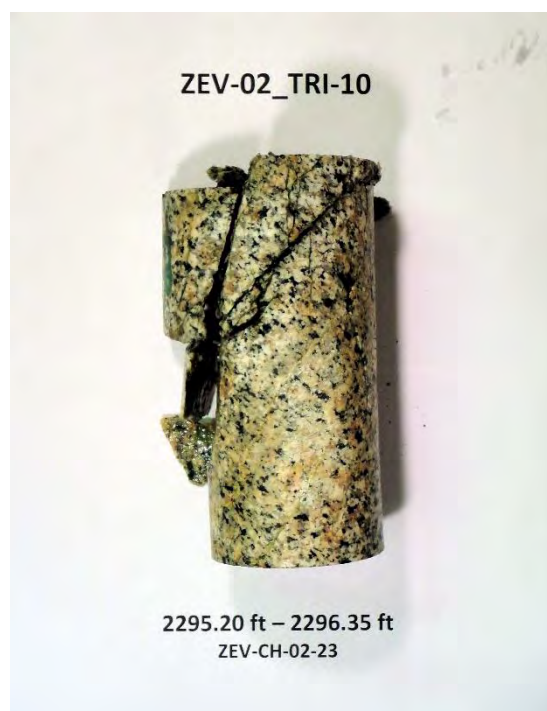
ZEV-02\_TRI-09—Before



ZEV-02\_TRI-09—After



ZEV-02\_TRI-10—Before



ZEV-02\_TRI-10—After

**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens** *(continued)*





ZEV-02\_TRI-11—Before



ZEV-02\_TRI-11—After



ZEV-02\_TRI-12—Before

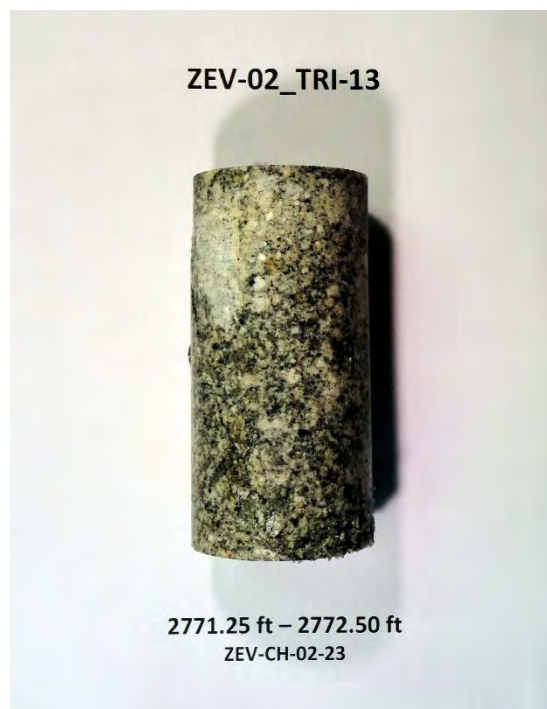


ZEV-02\_TRI-12—After

**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens** *(continued)*



ZEV-02\_TRI-13—Before



ZEV-02\_TRI-13—After



ZEV-02\_TRI-14—Before



ZEV-02\_TRI-14—After

**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens** *(continued)*





ZEV-02\_TRI-15—Before



ZEV-02\_TRI-15—After

**Figure E-1. Before and After Photographs of Triaxial Compressive Strength Test Specimens** *(concluded)*

## **APPENDIX F**

### **SPLITTING TENSILE STRENGTH (BRAZILIAN) TEST DATASHEET**



AGAPITO ASSOCIATES, INC.  
2913 Hill Avenue, #B  
Grand Junction, CO 81504 USA  
970-242-4220

INDIRECT TENSILE STRENGTH  
(BRAZILIAN) TESTS

|            |               |
|------------|---------------|
| CLIENT     | Lane PES      |
| JOB NUMBER | 951-20        |
| DATE       | July 20, 2023 |

|                    |              |
|--------------------|--------------|
| HOLE NUMBER        | ZEV-CH-01-23 |
| MOISTURE CONDITION | As Received  |
| TEMPERATURE        | Ambient      |

| Specimen No.  | Hole No.     | Depth     |          | Length of Interval (ft) | Weight (oz) | Diameter            |                     | Axial Length (inch) | Area (inch <sup>2</sup> ) | Density (pcf) | Specific Gravity |
|---------------|--------------|-----------|----------|-------------------------|-------------|---------------------|---------------------|---------------------|---------------------------|---------------|------------------|
|               |              | From (ft) | To (ft)  |                         |             | D <sub>1</sub> (in) | D <sub>2</sub> (in) |                     |                           |               |                  |
| ZEV-02_BTS-01 | ZEV-CH-02-23 | 1,592.10  | 1,594.30 | 2.20                    | 8.95        | 2.39                | 2.39                | 1.28                | 4.49                      | 168           | 2.7              |
| ZEV-02_BTS-02 | ZEV-CH-02-23 | 1,687.10  | 1,688.70 | 1.60                    | 9.39        | 2.40                | 2.40                | 1.34                | 4.51                      | 168           | 2.7              |
| ZEV-02_BTS-03 | ZEV-CH-02-23 | 1,782.90  | 1,784.00 | 1.10                    | 8.61        | 2.39                | 2.39                | 1.24                | 4.50                      | 166           | 2.7              |
| ZEV-02_BTS-04 | ZEV-CH-02-23 | 1,888.00  | 1,889.50 | 1.50                    | 9.34        | 2.39                | 2.39                | 1.34                | 4.47                      | 168           | 2.7              |
| ZEV-02_BTS-05 | ZEV-CH-02-23 | 1,992.30  | 1,993.60 | 1.30                    | 9.27        | 2.40                | 2.40                | 1.32                | 4.53                      | 167           | 2.7              |
| ZEV-02_BTS-06 | ZEV-CH-02-23 | 2,015.00  | 2,016.00 | 1.00                    | 8.68        | 2.39                | 2.40                | 1.24                | 4.50                      | 168           | 2.7              |
| ZEV-02_BTS-07 | ZEV-CH-02-23 | 2,059.00  | 2,060.00 | 1.00                    | 9.53        | 2.39                | 2.39                | 1.35                | 4.50                      | 169           | 2.7              |
| ZEV-02_BTS-08 | ZEV-CH-02-23 | 2,081.00  | 2,082.30 | 1.30                    | 8.92        | 2.39                | 2.39                | 1.28                | 4.48                      | 167           | 2.7              |
| ZEV-02_BTS-09 | ZEV-CH-02-23 | 2,108.75  | 2,110.00 | 1.25                    | 9.10        | 2.39                | 2.39                | 1.32                | 4.48                      | 166           | 2.7              |
| ZEV-02_BTS-10 | ZEV-CH-02-23 | 2,141.50  | 2,142.75 | 1.25                    | 9.46        | 2.39                | 2.39                | 1.36                | 4.48                      | 168           | 2.7              |
| ZEV-02_BTS-11 | ZEV-CH-02-23 | 2,170.40  | 2,171.80 | 1.40                    | 8.67        | 2.39                | 2.39                | 1.25                | 4.50                      | 167           | 2.7              |
| ZEV-02_BTS-12 | ZEV-CH-02-23 | 2,195.00  | 2,196.60 | 1.60                    | 9.21        | 2.39                | 2.39                | 1.32                | 4.48                      | 168           | 2.7              |
| ZEV-02_BTS-13 | ZEV-CH-02-23 | 2,238.00  | 2,239.00 | 1.00                    | 9.66        | 2.40                | 2.40                | 1.34                | 4.52                      | 172           | 2.7              |
| ZEV-02_BTS-14 | ZEV-CH-02-23 | 2,261.00  | 2,261.80 | 0.80                    | 8.99        | 2.39                | 2.39                | 1.33                | 4.49                      | 163           | 2.6              |
| ZEV-02_BTS-15 | ZEV-CH-02-23 | 2,295.20  | 2,296.35 | 1.15                    | 8.59        | 2.39                | 2.39                | 1.26                | 4.50                      | 164           | 2.6              |
| ZEV-02_BTS-16 | ZEV-CH-02-23 | 2,333.00  | 2,334.00 | 1.00                    | 8.90        | 2.38                | 2.37                | 1.30                | 4.44                      | 166           | 2.7              |
| ZEV-02_BTS-17 | ZEV-CH-02-23 | 2,353.70  | 2,354.60 | 0.90                    | 8.74        | 2.39                | 2.39                | 1.29                | 4.49                      | 163           | 2.6              |
| ZEV-02_BTS-18 | ZEV-CH-02-23 | 2,383.60  | 2,384.70 | 1.10                    | 9.36        | 2.39                | 2.39                | 1.38                | 4.49                      | 164           | 2.6              |
| ZEV-02_BTS-19 | ZEV-CH-02-23 | 2,405.00  | 2,406.00 | 1.00                    | 8.38        | 2.38                | 2.37                | 1.30                | 4.43                      | 158           | 2.5              |
| ZEV-02_BTS-20 | ZEV-CH-02-23 | 2,453.00  | 2,453.90 | 0.90                    | 8.74        | 2.39                | 2.39                | 1.29                | 4.50                      | 162           | 2.6              |
| ZEV-02_BTS-21 | ZEV-CH-02-23 | 2,472.20  | 2,472.80 | 0.60                    | 8.52        | 2.39                | 2.39                | 1.23                | 4.47                      | 168           | 2.7              |
| ZEV-02_BTS-22 | ZEV-CH-02-23 | 2,502.30  | 2,503.00 | 0.70                    | 9.20        | 2.39                | 2.39                | 1.35                | 4.49                      | 164           | 2.6              |
| ZEV-02_BTS-23 | ZEV-CH-02-23 | 2,527.80  | 2,528.40 | 0.60                    | 8.14        | 2.42                | 2.42                | 1.38                | 4.61                      | 138           | 2.2              |
| ZEV-02_BTS-24 | ZEV-CH-02-23 | 2,561.70  | 2,563.00 | 1.30                    | 8.08        | 2.39                | 2.39                | 1.18                | 4.50                      | 164           | 2.6              |
| ZEV-02_BTS-25 | ZEV-CH-02-23 | 2,633.60  | 2,634.40 | 0.80                    | 8.28        | 2.39                | 2.39                | 1.21                | 4.47                      | 166           | 2.7              |
| ZEV-02_BTS-26 | ZEV-CH-02-23 | 2,645.25  | 2,645.65 | 0.40                    | 8.75        | 2.38                | 2.39                | 1.35                | 4.46                      | 157           | 2.5              |
| ZEV-02_BTS-27 | ZEV-CH-02-23 | 2,668.40  | 2,669.50 | 1.10                    | 9.10        | 2.39                | 2.39                | 1.34                | 4.47                      | 164           | 2.6              |
| ZEV-02_BTS-28 | ZEV-CH-02-23 | 2,771.75  | 2,773.50 | 1.75                    | 8.93        | 2.39                | 2.39                | 1.31                | 4.50                      | 164           | 2.6              |
| ZEV-02_BTS-29 | ZEV-CH-02-23 | 2,861.35  | 2,862.00 | 0.65                    | 8.90        | 2.40                | 2.40                | 1.27                | 4.51                      | 167           | 2.7              |
| ZEV-02_BTS-30 | ZEV-CH-02-23 | 2,896.40  | 2,897.50 | 1.10                    | 9.28        | 2.40                | 2.40                | 1.34                | 4.51                      | 167           | 2.7              |
| ZEV-02_BTS-31 | ZEV-CH-02-23 | 2,912.50  | 2,913.70 | 1.20                    | 9.46        | 2.40                | 2.40                | 1.37                | 4.53                      | 165           | 2.6              |
| ZEV-02_BTS-32 | ZEV-CH-02-23 | 2,917.50  | 2,918.00 | 0.50                    | 8.60        | 2.40                | 2.40                | 1.22                | 4.52                      | 168           | 2.7              |
| ZEV-02_BTS-33 | ZEV-CH-02-23 | 2,937.60  | 2,938.40 | 0.80                    | 8.56        | 2.40                | 2.40                | 1.27                | 4.53                      | 161           | 2.6              |
| ZEV-02_BTS-34 | ZEV-CH-02-23 | 2,950.00  | 2,951.20 | 1.20                    | 8.41        | 2.41                | 2.41                | 1.21                | 4.54                      | 165           | 2.6              |
| ZEV-02_BTS-35 | ZEV-CH-02-23 | 2,971.90  | 2,972.45 | 0.55                    | 9.91        | 2.41                | 2.41                | 1.41                | 4.55                      | 167           | 2.7              |
| ZEV-02_BTS-36 | ZEV-CH-02-23 | 3,013.00  | 3,013.90 | 0.90                    | 9.23        | 2.38                | 2.38                | 1.34                | 4.46                      | 167           | 2.7              |

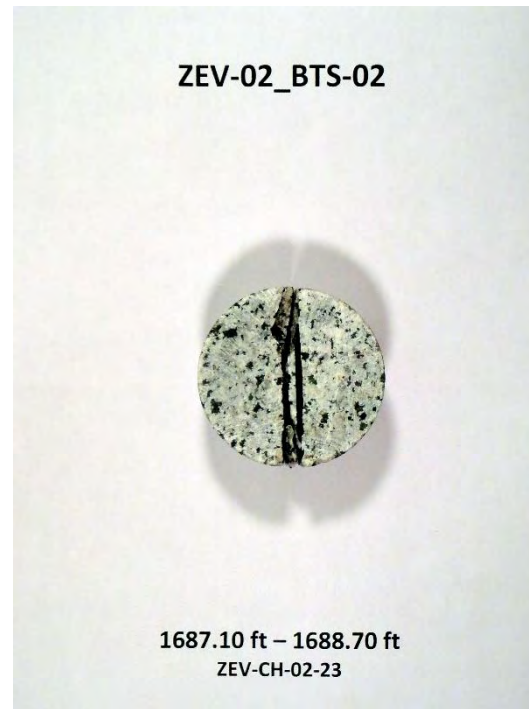
| Specimen No.  | Lithological Description | Failure Load (lb) | Splitting Tensile Strength (psi) | Failure Mode Notes                                                 |
|---------------|--------------------------|-------------------|----------------------------------|--------------------------------------------------------------------|
| ZEV-02_BTS-01 | Granite                  | 5,844             | 1,214                            | Tensile - slightly off center                                      |
| ZEV-02_BTS-02 | Granite                  | 7,786             | 1,545                            | Tensile - Center                                                   |
| ZEV-02_BTS-03 | Granite                  | 6,116             | 1,309                            | Tensile - Center. Secondary along pre-existing fracture            |
| ZEV-02_BTS-04 | Granite                  | 6,710             | 1,335                            | Tensile - Off cener                                                |
| ZEV-02_BTS-05 | Granite                  | 7,143             | 1,433                            | Tensile - slightly off center                                      |
| ZEV-02_BTS-06 | Granite                  | 6,852             | 1,473                            | Tensile - slightly off center                                      |
| ZEV-02_BTS-07 | Granite                  | 7,698             | 1,515                            | Tensile - Center                                                   |
| ZEV-02_BTS-08 | Granite                  | 4,234             | 879                              | Tensile - Center                                                   |
| ZEV-02_BTS-09 | Granite                  | 5,726             | 1,158                            | Tensile - Center                                                   |
| ZEV-02_BTS-10 | Granite                  | 8,253             | 1,618                            | Tensile - Center, Secondary along pre-exising fracture             |
| ZEV-02_BTS-11 | Granite                  | 7,230             | 1,545                            | Tensile - Center                                                   |
| ZEV-02_BTS-12 | Granite                  | 6,196             | 1,249                            | Tensile - Center                                                   |
| ZEV-02_BTS-13 | Granite                  | 1,033             | 204                              | Shear? May need dupe                                               |
| ZEV-02_BTS-14 | Granite                  | 6,577             | 1,322                            | Tensile - Center, Secondary along pre-exising fracture             |
| ZEV-02_BTS-15 | Granite                  | 4,459             | 942                              | Tensile - Center, Secondary along pre-exisiting fracture           |
| ZEV-02_BTS-16 | Granite                  | 4,487             | 923                              | Tensile - Center, Secondary along pre-exising fracture             |
| ZEV-02_BTS-17 | Granite                  | 5,256             | 1,088                            | Tensile - Center                                                   |
| ZEV-02_BTS-18 | Granite                  | 2,618             | 507                              | Tensile - Center, Highly Fractured                                 |
| ZEV-02_BTS-19 | Granite                  | 1,237             | 256                              | Tensile - Off Cener, Highly Fractured                              |
| ZEV-02_BTS-20 | Granite                  | -                 | -                                | Sample broken prior to testing                                     |
| ZEV-02_BTS-21 | Granite                  | 2,935             | 639                              | Tensile - Off Center, Highly Fractured                             |
| ZEV-02_BTS-22 | Granite                  | 3,334             | 657                              | Tensile - Slightly off center, secondaries along pre-existing frac |
| ZEV-02_BTS-23 | Granite                  | 66                | 12                               | Sample very soft, crumbled at very low load                        |
| ZEV-02_BTS-24 | Granite                  | 5,826             | 1,313                            | Tensile - Center                                                   |
| ZEV-02_BTS-25 | Granite                  | 4,962             | 1,097                            | Tensile Center                                                     |
| ZEV-02_BTS-26 | Granite                  | 1,609             | 319                              | Tensile - Off Center, Highly Fractured                             |
| ZEV-02_BTS-27 | Granite                  | 6,241             | 1,245                            | Tensile - Center                                                   |
| ZEV-02_BTS-28 | Granite                  | 7,659             | 1,561                            | Tensile - Center                                                   |
| ZEV-02_BTS-29 | Granite                  | 3,528             | 736                              | Tensile - Slightly off-center                                      |
| ZEV-02_BTS-30 | Granite                  | 4,473             | 890                              | Tensile - Center, Secondary along pre-existing fracture            |
| ZEV-02_BTS-31 | Granite                  | 3,463             | 673                              | Tensile - Slightly off center, secondaries along pre-existing frac |
| ZEV-02_BTS-32 | Granite                  | 3,755             | 815                              | Tensile - Slightly off Center                                      |
| ZEV-02_BTS-33 | Granite                  | 4,281             | 893                              | Tensile - Slightly off Cener                                       |
| ZEV-02_BTS-34 | Granite                  | 3,845             | 842                              | Tensile - Off Center                                               |
| ZEV-02_BTS-35 | Granite                  | 6,228             | 1,171                            | Tensile - Slightly off center                                      |
| ZEV-02_BTS-36 | Granite                  | 5,167             | 1,031                            | Tensile - Center, Secondary along pre-existing fracture            |

**APPENDIX G**

**AFTER PHOTOGRAPHS OF BRAZILIAN TEST SPECIMENS**



ZEV-02\_BTS-01—After



ZEV-02\_BTS-02—After



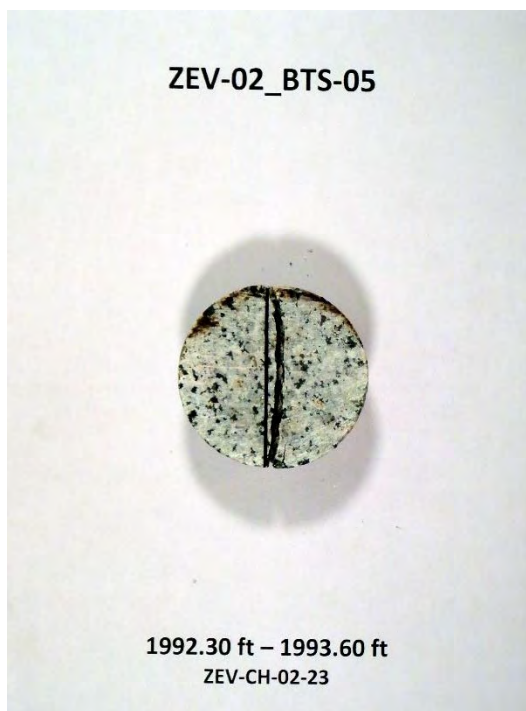
ZEV-02\_BTS-03—After



ZEV-02\_BTS-04—After

**Figure G-1. After Photographs of Brazilian Test Specimens**

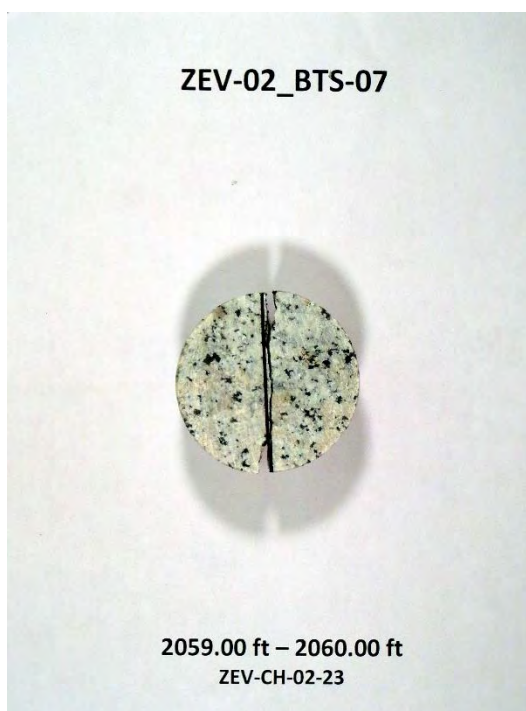




ZEV-02\_BTS-05—After



ZEV-02\_BTS-06—After



ZEV-02\_BTS-07—After



ZEV-02\_BTS-08—After

**Figure G-1. After Photographs of Brazilian Test Specimens** *(continued)*

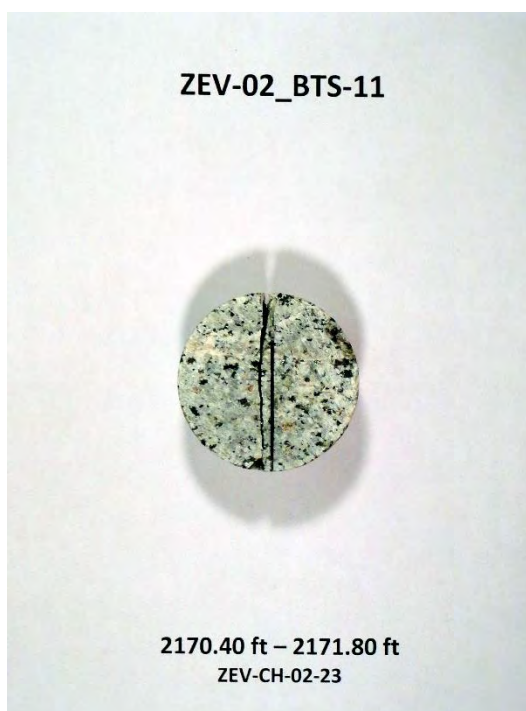




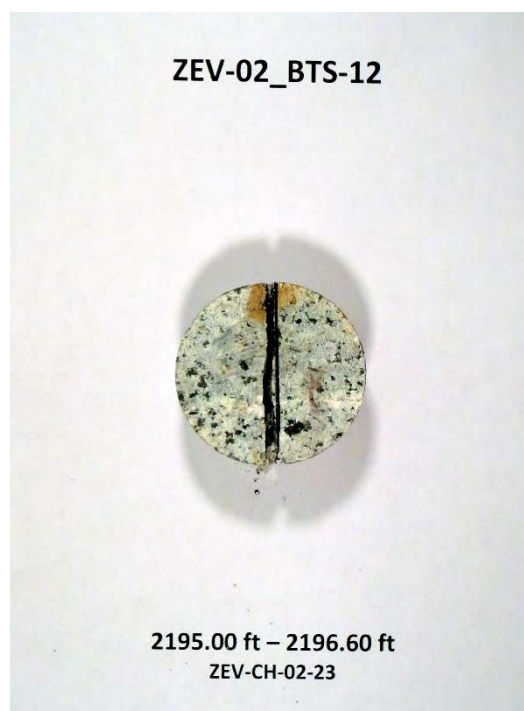
**ZEV-02\_BTS-09—After**



**ZEV-02\_BTS-10—After**



**ZEV-02\_BTS-11—After**



**ZEV-02\_BTS-12—After**

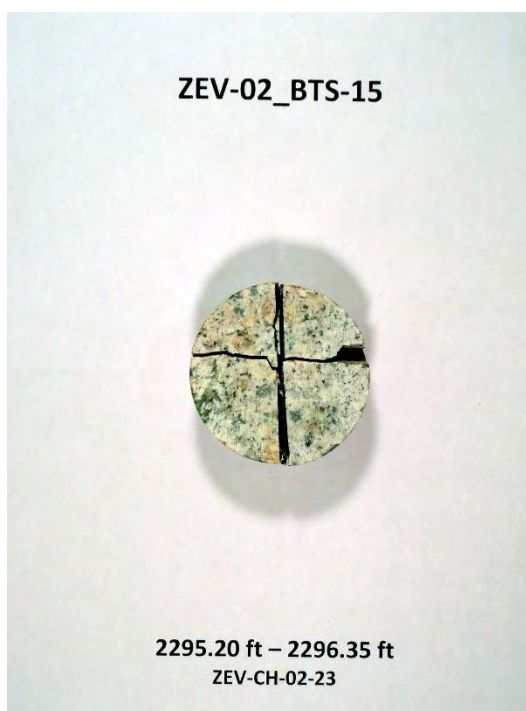
**Figure G-1. After Photographs of Brazilian Test Specimens (continued)**



ZEV-02\_BTS-13—After



ZEV-02\_BTS-14—After



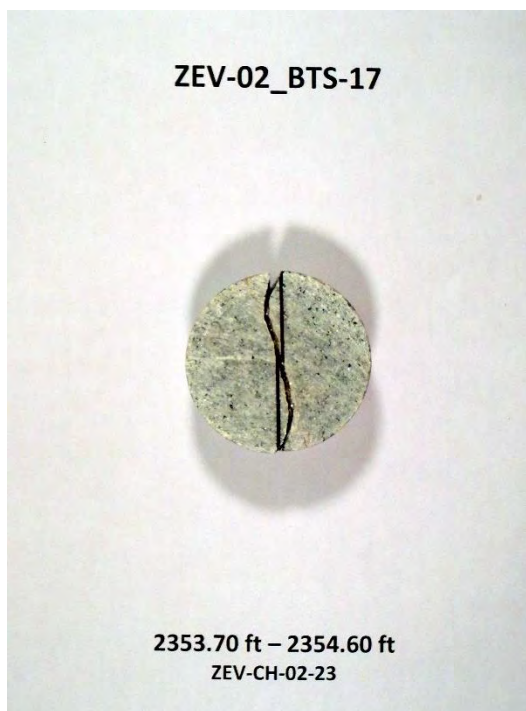
ZEV-02\_BTS-15—After



ZEV-02\_BTS-16—After

**Figure G-1. After Photographs of Brazilian Test Specimens** *(continued)*

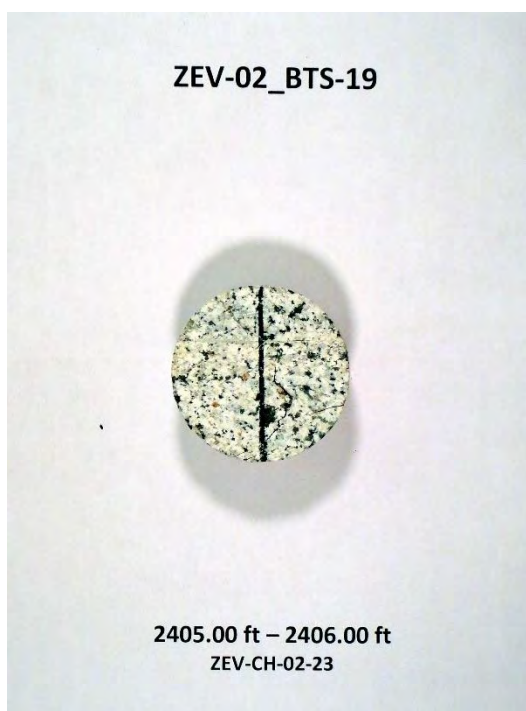




ZEV-02\_BTS-17—After



ZEV-02\_BTS-18—After



ZEV-02\_BTS-19—After



ZEV-02\_BTS-21—After

**Figure G-1. After Photographs of Brazilian Test Specimens** *(continued)*



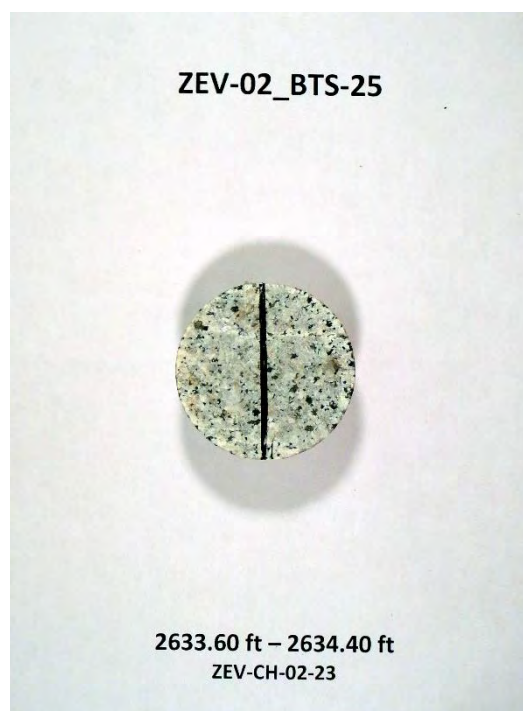
ZEV-02\_BTS-22—After



ZEV-02\_BTS-23—After



ZEV-02\_BTS-24—After



ZEV-02\_BTS-25—After

**Figure G-1. After Photographs of Brazilian Test Specimens** *(continued)*





ZEV-02\_BTS-26—After



ZEV-02\_BTS-27—After



ZEV-02\_BTS-28—After



ZEV-02\_BTS-29—After

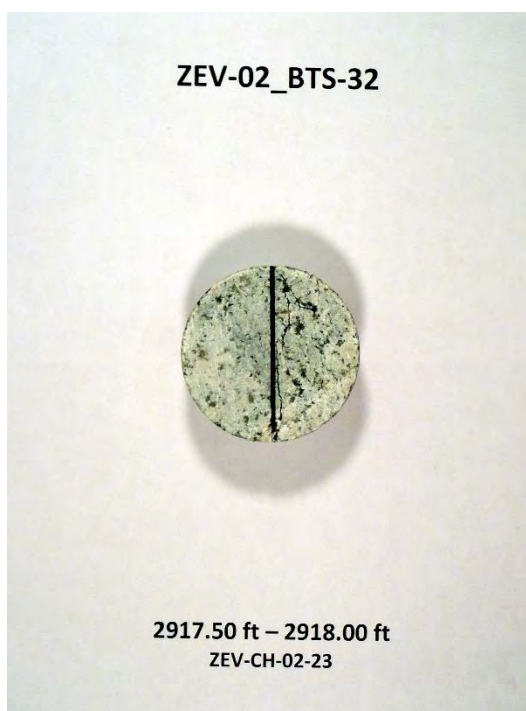
**Figure G-1. After Photographs of Brazilian Test Specimens** *(continued)*



ZEV-02\_BTS-30—After



ZEV-02\_BTS-31—After



ZEV-02\_BTS-32—After



ZEV-02\_BTS-33—After

**Figure G-1. After Photographs of Brazilian Test Specimens** *(continued)*





ZEV-02\_BTS-34—After

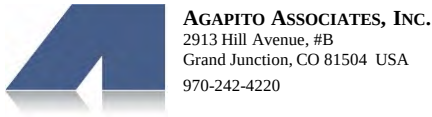


ZEV-02\_BTS-35—After

**Figure G-1. After Photographs of Brazilian Test Specimens** *(concluded)*

**APPENDIX H**

**POINT LOAD TEST DATASHEET**



POINT LOAD TESTS

| CLIENT<br>JOB NUMBER<br>DATE | Lane PES      |                 | HOLE NUMBER<br>MOISTURE CONDITION<br>TEMPERATURE |                              |                       |                        |          |          |                       |                                                  | ZEV-CH-01-23                                       |                           |                                                      |           |           |  |
|------------------------------|---------------|-----------------|--------------------------------------------------|------------------------------|-----------------------|------------------------|----------|----------|-----------------------|--------------------------------------------------|----------------------------------------------------|---------------------------|------------------------------------------------------|-----------|-----------|--|
|                              | 951-20        |                 |                                                  |                              |                       |                        |          |          |                       |                                                  | As Received                                        |                           |                                                      |           |           |  |
|                              | July 20, 2023 |                 |                                                  |                              |                       |                        |          |          |                       |                                                  | Ambient                                            |                           |                                                      |           |           |  |
| Sample No.                   | Hole ID       | Depth From (ft) | Depth To (ft)                                    | Failure Gauge Pressure (psi) | "Failure Load" P (lb) | Test Orientation (A/D) | D (inch) | W (inch) | D <sub>e</sub> (inch) | D <sub>e</sub> <sup>2</sup> (inch <sup>2</sup> ) | Uncorrected Point Load Index, I <sub>s</sub> (psi) | Size Correction Factor, F | Corrected Point Load Index, I <sub>S(50)</sub> (psi) | UCS (psi) | Lithology |  |
| ZEV-02_PLT-01                | ZEV-CH-02-23  | 1567.80         | 1568.80                                          | 2,103                        | 3,646                 | A                      | 1.20     | 2.39     | 1.91                  | 3.65                                             | 998                                                | 0.99                      | 985                                                  | 20,679    | Granite   |  |
| ZEV-02_PLT-02                | ZEV-CH-02-23  | 1570.00         | 1572.00                                          | 1,949                        | 3,379                 | A                      | 1.22     | 2.39     | 1.93                  | 3.72                                             | 909                                                | 0.99                      | 901                                                  | 18,919    | Granite   |  |
| ZEV-02_PLT-03                | ZEV-CH-02-23  | 1580.65         | 1582.50                                          | 718                          | 1,245                 | A                      | 1.22     | 2.40     | 1.93                  | 3.72                                             | 334                                                | 0.99                      | 331                                                  | 6,956     | Granite   |  |
| ZEV-02_PLT-04                | ZEV-CH-02-23  | 1617.00         | 1618.40                                          | 2,986                        | 5,177                 | A                      | 1.28     | 2.39     | 1.97                  | 3.89                                             | 1,332                                              | 1.00                      | 1,333                                                | 27,988    | Granite   |  |
| ZEV-02_PLT-05                | ZEV-CH-02-23  | 1637.00         | 1639.20                                          | 1,877                        | 3,254                 | A                      | 1.22     | 2.39     | 1.93                  | 3.72                                             | 876                                                | 0.99                      | 867                                                  | 18,217    | Granite   |  |
| ZEV-02_PLT-06                | ZEV-CH-02-23  | 1667.70         | 1669.55                                          | 1,449                        | 2,512                 | A                      | 1.22     | 2.39     | 1.93                  | 3.71                                             | 676                                                | 0.99                      | 670                                                  | 14,070    | Granite   |  |
| ZEV-02_PLT-07                | ZEV-CH-02-23  | 1755.00         | 1756.30                                          | 2,337                        | 4,052                 | A                      | 1.16     | 2.37     | 1.87                  | 3.50                                             | 1,156                                              | 0.98                      | 1,130                                                | 23,736    | Granite   |  |
| ZEV-02_PLT-08                | ZEV-CH-02-23  | 1759.00         | 1760.00                                          | 2,174                        | 3,769                 | A                      | 1.14     | 2.37     | 1.86                  | 3.45                                             | 1,093                                              | 0.97                      | 1,065                                                | 22,360    | Granite   |  |
| ZEV-02_PLT-09                | ZEV-CH-02-23  | 1775.00         | 1776.30                                          | 1,347                        | 2,335                 | A                      | 1.18     | 2.39     | 1.90                  | 3.60                                             | 649                                                | 0.98                      | 638                                                  | 13,401    | Granite   |  |
| ZEV-02_PLT-10                | ZEV-CH-02-23  | 1862.00         | 1864.00                                          | 450                          | 780                   | A                      | 1.18     | 2.39     | 1.90                  | 3.60                                             | 217                                                | 0.98                      | 213                                                  | 4,478     | Granite   |  |
| ZEV-02_PLT-11                | ZEV-CH-02-23  | 1877.50         | 1879.00                                          | 1,677                        | 2,908                 | A                      | 1.26     | 2.40     | 1.96                  | 3.84                                             | 757                                                | 1.00                      | 755                                                  | 15,857    | Granite   |  |
| ZEV-02_PLT-12                | ZEV-CH-02-23  | 1886.60         | 1887.85                                          | 1,709                        | 2,963                 | A                      | 1.24     | 2.39     | 1.94                  | 3.77                                             | 786                                                | 0.99                      | 781                                                  | 16,409    | Granite   |  |
| ZEV-02_PLT-13                | ZEV-CH-02-23  | 1970.00         | 1971.90                                          | 1,922                        | 3,332                 | A                      | 1.24     | 2.40     | 1.95                  | 3.79                                             | 880                                                | 0.99                      | 875                                                  | 18,382    | Granite   |  |
| ZEV-02_PLT-14                | ZEV-CH-02-23  | 1977.00         | 1978.70                                          | 1,394                        | 2,417                 | A                      | 1.22     | 2.40     | 1.93                  | 3.72                                             | 649                                                | 0.99                      | 643                                                  | 13,510    | Granite   |  |
| ZEV-02_PLT-15                | ZEV-CH-02-23  | 1988.60         | 1990.00                                          | 2,380                        | 4,126                 | A                      | 1.14     | 2.40     | 1.87                  | 3.49                                             | 1,182                                              | 0.98                      | 1,155                                                | 24,250    | Granite   |  |
| ZEV-02_PLT-16                | ZEV-CH-02-23  | 2007.00         | 2008.00                                          | 2,283                        | 3,958                 | A                      | 1.20     | 2.40     | 1.91                  | 3.66                                             | 1,081                                              | 0.99                      | 1,067                                                | 22,406    | Granite   |  |
| ZEV-02_PLT-17                | ZEV-CH-02-23  | 2048.70         | 2050.00                                          | 2,489                        | 4,315                 | A                      | 1.22     | 2.39     | 1.93                  | 3.72                                             | 1,160                                              | 0.99                      | 1,150                                                | 24,141    | Granite   |  |
| ZEV-02_PLT-18                | ZEV-CH-02-23  | 2078.00         | 2078.60                                          | 2,313                        | 4,010                 | A                      | 1.10     | 2.39     | 1.83                  | 3.36                                             | 1,195                                              | 0.97                      | 1,157                                                | 24,299    | Granite   |  |
| ZEV-02_PLT-19                | ZEV-CH-02-23  | 2100.00         | 2101.00                                          | 1,829                        | 3,171                 | A                      | 1.26     | 2.39     | 1.96                  | 3.84                                             | 826                                                | 1.00                      | 824                                                  | 17,314    | Granite   |  |
| ZEV-02_PLT-20                | ZEV-CH-02-23  | 2135.50         | 2137.00                                          | 3,072                        | 5,326                 | A                      | 1.22     | 2.39     | 1.93                  | 3.71                                             | 1,435                                              | 0.99                      | 1,421                                                | 29,844    | Granite   |  |
| ZEV-02_PLT-21                | ZEV-CH-02-23  | 2163.10         | 2165.00                                          | 1,978                        | 3,429                 | A                      | 1.18     | 2.40     | 1.90                  | 3.60                                             | 952                                                | 0.98                      | 937                                                  | 19,669    | Granite   |  |
| ZEV-02_PLT-22                | ZEV-CH-02-23  | 2192.20         | 2194.25                                          | 2,518                        | 4,366                 | A                      | 1.18     | 2.39     | 1.90                  | 3.59                                             | 1,216                                              | 0.98                      | 1,195                                                | 25,096    | Granite   |  |
| ZEV-02_PLT-23                | ZEV-CH-02-23  | 2222.00         | 2223.30                                          | 715                          | 1,240                 | A                      | 1.26     | 2.39     | 1.96                  | 3.84                                             | 323                                                | 1.00                      | 322                                                  | 6,764     | Granite   |  |
| ZEV-02_PLT-24                | ZEV-CH-02-23  | 2257.00         | 2257.60                                          | 379                          | 657                   | A                      | 1.20     | 2.41     | 1.92                  | 3.68                                             | 179                                                | 0.99                      | 176                                                  | 3,706     | Granite   |  |
| ZEV-02_PLT-25                | ZEV-CH-02-23  | 2283.20         | 2283.80                                          | 152                          | 264                   | A                      | 1.14     | 2.40     | 1.87                  | 3.49                                             | 76                                                 | 0.98                      | 74                                                   | 1,550     | Granite   |  |
| ZEV-02_PLT-26                | ZEV-CH-02-23  | 2314.40         | 2315.00                                          | 2,136                        | 3,703                 | A                      | 1.22     | 2.39     | 1.93                  | 3.72                                             | 996                                                | 0.99                      | 987                                                  | 20,724    | Granite   |  |
| ZEV-02_PLT-27                | ZEV-CH-02-23  | 2341.20         | 2342.25                                          | 1,690                        | 2,930                 | A                      | 1.20     | 2.39     | 1.91                  | 3.65                                             | 802                                                | 0.99                      | 792                                                  | 16,624    | Granite   |  |
| ZEV-02_PLT-28                | ZEV-CH-02-23  | 2375.40         | 2376.00                                          | 305                          | 529                   | A                      | 1.20     | 2.39     | 1.91                  | 3.65                                             | 145                                                | 0.99                      | 143                                                  | 3,002     | Granite   |  |
| ZEV-02_PLT-29                | ZEV-CH-02-23  | 2397.50         | 2398.65                                          | 336                          | 583                   | A                      | 1.26     | 2.39     | 1.96                  | 3.83                                             | 152                                                | 1.00                      | 152                                                  | 3,187     | Granite   |  |
| ZEV-02_PLT-30                | ZEV-CH-02-23  | 2447.55         | 2448.20                                          | 1,941                        | 3,365                 | A                      | 1.18     | 2.39     | 1.90                  | 3.59                                             | 937                                                | 0.98                      | 921                                                  | 19,336    | Granite   |  |
| ZEV-02_PLT-31                | ZEV-CH-02-23  | 2460.60         | 2461.65                                          | 344                          | 596                   | A                      | 1.26     | 2.40     | 1.96                  | 3.84                                             | 155                                                | 1.00                      | 155                                                  | 3,252     | Granite   |  |
| ZEV-02_PLT-32                | ZEV-CH-02-23  | 2495.60         | 2496.50                                          | 384                          | 666                   | A                      | 1.14     | 2.37     | 1.86                  | 3.44                                             | 193                                                | 0.97                      | 188                                                  | 3,955     | Granite   |  |
| ZEV-02_PLT-33                | ZEV-CH-02-23  | 2522.60         | 2523.10                                          | 522                          | 905                   | A                      | 1.26     | 2.39     | 1.96                  | 3.83                                             | 236                                                | 1.00                      | 236                                                  | 4,946     | Granite   |  |
| ZEV-02_PLT-34                | ZEV-CH-02-23  | 2538.40         | 2538.80                                          | 690                          | 1,196                 | A                      | 1.28     | 2.39     | 1.97                  | 3.90                                             | 307                                                | 1.00                      | 307                                                  | 6,456     | Granite   |  |
| ZEV-02_PLT-35                | ZEV-CH-02-23  | 2552.50         | 2553.00                                          | 422                          | 732                   | A                      | 1.22     | 2.40     | 1.93                  | 3.72                                             | 197                                                | 0.99                      | 195                                                  | 4,091     | Granite   |  |
| ZEV-02_PLT-36                | ZEV-CH-02-23  | 2575.30         | 2575.70                                          | 1,291                        | 2,238                 | A                      | 1.20     | 2.40     | 1.92                  | 3.67                                             | 610                                                | 0.99                      | 602                                                  | 12,650    | Granite   |  |
| ZEV-02_PLT-37                | ZEV-CH-02-23  | 2612.00         | 2612.35                                          | 1,698                        | 2,944                 | A                      | 1.18     | 2.40     | 1.90                  | 3.61                                             | 815                                                | 0.98                      | 802                                                  | 16,852    | Granite   |  |
| ZEV-02_PLT-38                | ZEV-CH-02-23  | 2643.10         | 2643.50                                          | 2,015                        | 3,494                 | A                      | 1.22     | 2.40     | 1.93                  | 3.73                                             | 937                                                | 0.99                      | 929                                                  | 19,512    | Granite   |  |
| ZEV-02_PLT-39                | ZEV-CH-02-23  | 2672.20         | 2672.65                                          | 1,163                        | 2,016                 | A                      | 1.20     | 2.38     | 1.91                  | 3.64                                             | 553                                                | 0.99                      | 546                                                  | 11,458    | Granite   |  |
| ZEV-02_PLT-40                | ZEV-CH-02-23  | 2704.65         | 2705.00                                          | 1,572                        | 2,725                 | A                      | 1.30     | 2.40     | 1.99                  | 3.97                                             | 687                                                | 1.01                      | 691                                                  | 14,507    | Granite   |  |
| ZEV-02_PLT-41                | ZEV-CH-02-23  | 2774.20         | 2774.80                                          | -                            | -                     | -                      | -        | -        | -                     | -                                                | -                                                  | -                         | -                                                    | -         | Granite   |  |
| ZEV-02_PLT-42                | ZEV-CH-02-23  | 2802.40         | 2808.80                                          | 2,509                        | 4,350                 | A                      | 1.18     | 2.39     | 1.90                  | 3.60                                             | 1,209                                              | 0.98                      | 1,189                                                | 24,970    | Granite   |  |
| ZEV-02_PLT-43                | ZEV-CH-02-23  | 2832.80         | 2833.30                                          | 1,550                        | 2,687                 | A                      | 1.16     | 2.40     | 1.88                  | 3.54                                             | 758                                                | 0.98                      | 743                                                  | 15,608    | Granite   |  |
| ZEV-02_PLT-44                | ZEV-CH-02-23  | 2847.20         | 2847.70                                          | 1,429                        | 2,478                 | A                      | 1.20     | 2.39     | 1.91                  | 3.65                                             | 679                                                | 0.99                      | 670                                                  | 14,066    | Granite   |  |
| ZEV-02_PLT-45                | ZEV-CH-02-23  | 2873.90         | 2874.50                                          | 1,091                        | 1,892                 | A                      | 1.18     | 2.36     | 1.88                  | 3.55                                             | 533                                                | 0.98                      | 522                                                  | 10,968    | Granite   |  |
| ZEV-02_PLT-46                | ZEV-CH-02-23  | 2886.70         | 2887.35                                          | 186                          | 322                   | A                      | 1.26     | 2.41     | 1.97                  | 3.86                                             | 83                                                 | 1.00                      | 83                                                   | 1,752     | Granite   |  |
| ZEV-02_PLT-47                | ZEV-CH-02-23  | 2908.30         | 2908.90                                          | 1,607                        | 2,786                 | A                      | 1.02     | 2.40     | 1.77                  | 3.13                                             | 890                                                | 0.95                      | 848                                                  | 17,817    | Granite   |  |
| ZEV-02_PLT-48                | ZEV-CH-02-23  | 2934.40         | 2935.00                                          | 1,783                        | 3,091                 | A                      | 1.24     | 2.39     | 1.94                  | 3.78                                             | 818                                                | 0.99                      | 813                                                  | 17,081    | Granite   |  |
| ZEV-02_PLT-49                | ZEV-CH-02-23  | 2948.00         | 2948.70                                          | 994                          | 1,723                 | A                      | 1.26     | 2.41     | 1.96                  | 3.86                                             | 446                                                | 1.00                      | 446                                                  | 9,366     | Granite   |  |
| ZEV-02_PLT-50                | ZEV-CH-02-23  | 2964.00         | 2965.00                                          | 963                          | 1,670                 | A                      | 1.26     | 2.41     | 1.97                  | 3.86                                             | 432                                                | 1.00                      | 432                                                  | 9,071     | Granite   |  |
| ZEV-02_PLT-51                | ZEV-CH-02-23  | 2971.10         | 2971.90                                          | 2,470                        | 4,282                 | A                      | 1.30     | 2.41     | 2.00                  | 3.98                                             | 1,076                                              | 1.01                      | 1,082                                                | 22,728    | Granite   |  |
| ZEV-02_PLT-52                | ZEV-CH-02-23  | 3016.20         | 3016.70                                          | 1,672                        | 2,899                 | A                      | 1.18     | 2.39     | 1.89                  | 3.59                                             | 808                                                | 0.98                      | 794                                                  | 16,678    | Granite   |  |
| ZEV-02_PLT-53                | ZEV-CH-02-23  | 3020.00         | 3020.80                                          | 2,006                        | 3,478                 | A                      | 1.22     | 2.39     | 1.93                  | 3.71                                             | 938                                                | 0.99                      | 929                                                  | 19,510    | Granite   |  |
| ZEV-02_PLT-54                | ZEV-CH-02-23  | 3036.00         | 3036.80                                          | 1,901                        | 3,296                 | A                      | 1.16     | 2.38     | 1.88                  | 3.53                                             | 935                                                | 0.98                      | 915                                                  | 19,217    | Granite   |  |

**APPENDIX I**

**SLAKE DURABILITY TEST DATASHEET**



SLAKE DURABILITY TESTS

|            |               |
|------------|---------------|
| CLIENT     | Lane PES      |
| JOB NUMBER | 951-20        |
| DATE       | July 20, 2023 |

|                    |              |
|--------------------|--------------|
| HOLE NUMBER        | ZEV-CH-01-23 |
| MOISTURE CONDITION | As Received  |
| OVEN TEMPERATURE   | 230 ± 10 °F  |

SYMBOLS:

|   |                                                               |                |                                                                |
|---|---------------------------------------------------------------|----------------|----------------------------------------------------------------|
| A | Weight of drum plus sample at natural moisture content (oz)   | D              | Weight of drum plus oven-dried sample before second cycle (oz) |
| B | Weight of drum plus oven-dried sample before first cycle (oz) | W <sub>F</sub> | Weight of drum plus oven-dried sample after second cycle (oz)  |
| C | Weight of drum (oz)                                           |                |                                                                |

| Specimen No.  | Hole ID      | Interval  |          | Length of Interval (ft) | A (oz) | B (oz) | C (oz) | D (oz) | Water Temperature Cycle 1 |            | W <sub>F</sub> (oz) | Water Temperature Cycle 2 |            | Moisture Content (%) | Slake Durability Index I <sub>d</sub> (2) | Retained Materials Description |       |
|---------------|--------------|-----------|----------|-------------------------|--------|--------|--------|--------|---------------------------|------------|---------------------|---------------------------|------------|----------------------|-------------------------------------------|--------------------------------|-------|
|               |              | From (ft) | To (ft)  |                         |        |        |        |        | Before (°F)               | After (°F) |                     | Before (°F)               | After (°F) |                      |                                           | Lithology                      | Type* |
| ZEV-02_SLK-01 | ZEV-CH-02-23 | 1,866.00  | 1,867.00 | 1.00                    | 69.645 | 69.500 | 53.400 | 63.730 | 82.0                      | 81.4       | 63.420              | 73.2                      | 78.5       | 0.9%                 | 62.2                                      | Granite                        | II    |
| ZEV-02_SLK-02 | ZEV-CH-02-23 | 1,969.00  | 1,970.00 | 1.00                    | 71.435 | 71.370 | 53.410 | 71.290 | 82.0                      | 81.4       | 71.245              | 73.2                      | 78.5       | 0.4%                 | 99.3                                      | Granite                        | I     |
| ZEV-02_SLK-03 | ZEV-CH-02-23 | 1,976.00  | 1,977.00 | 1.00                    | 69.755 | 69.720 | 52.675 | 69.625 | 82.0                      | 81.4       | 69.580              | 73.2                      | 78.5       | 0.2%                 | 99.2                                      | Granite                        | I     |
| ZEV-02_SLK-04 | ZEV-CH-02-23 | 2,010.40  | 2,011.40 | 1.00                    | 71.200 | 71.165 | 53.650 | 71.055 | 80.4                      | 80.2       | 70.910              | 78.5                      | 80.1       | 0.2%                 | 98.5                                      | Granite                        | I     |
| ZEV-02_SLK-05 | ZEV-CH-02-23 | 2,060.00  | 2,061.00 | 1.00                    | 71.110 | 71.075 | 54.920 | 70.970 | 80.4                      | 80.2       | 70.915              | 78.5                      | 80.1       | 0.2%                 | 99.0                                      | Granite                        | I     |
| ZEV-02_SLK-06 | ZEV-CH-02-23 | 2,085.00  | 2,086.10 | 1.10                    | 73.335 | 73.305 | 55.325 | 73.200 | 80.4                      | 80.2       | 72.980              | 78.5                      | 80.1       | 0.2%                 | 98.2                                      | Granite                        | I     |
| ZEV-02_SLK-07 | ZEV-CH-02-23 | 2,111.60  | 2,112.85 | 1.25                    | 73.270 | 73.235 | 55.400 | 73.115 | 79.5                      | 78.4       | 73.045              | 80.1                      | 79.4       | 0.2%                 | 98.9                                      | Granite                        | I     |
| ZEV-02_SLK-08 | ZEV-CH-02-23 | 2,148.00  | 2,149.45 | 1.45                    | 71.140 | 71.080 | 53.395 | 70.995 | 61.9                      | 70.2       | 70.985              | 73.4                      | 76.9       | 0.3%                 | 99.5                                      | Granite                        | I     |
| ZEV-02_SLK-09 | ZEV-CH-02-23 | 2,172.30  | 2,174.00 | 1.70                    | 70.235 | 70.180 | 53.405 | 70.165 | 61.9                      | 70.2       | 70.150              | 73.4                      | 76.9       | 0.3%                 | 99.8                                      | Granite                        | I     |
| ZEV-02_SLK-10 | ZEV-CH-02-23 | 2,207.00  | 2,209.00 | 2.00                    | 68.870 | 68.805 | 52.660 | 68.710 | 61.9'                     | 70.2       | 68.675              | 73.4                      | 76.9       | 0.4%                 | 99.2                                      | Granite                        | I     |
| ZEV-02_SLK-11 | ZEV-CH-02-23 | 2,230.00  | 2,231.20 | 1.20                    | 70.465 | 70.405 | 53.640 | 70.150 | 79.4                      | 78.4       | 70.035              | 77.0                      | 76.4       | 0.4%                 | 97.8                                      | Granite                        | I     |
| ZEV-02_SLK-12 | ZEV-CH-02-23 | 2,232.20  | 2,233.50 | 1.30                    | 70.495 | 70.375 | 54.900 | 68.985 | 79.4                      | 78.4       | 68.460              | 77.0                      | 76.4       | 0.8%                 | 87.6                                      | Granite                        | II    |
| ZEV-02_SLK-13 | ZEV-CH-02-23 | 2,251.10  | 2,252.00 | 0.90                    | 72.615 | 72.515 | 55.320 | 72.380 | 79.4                      | 78.4       | 72.350              | 77.0                      | 76.4       | 0.6%                 | 99.0                                      | Granite                        | I     |
| ZEV-02_SLK-14 | ZEV-CH-02-23 | 2,286.00  | 2,286.60 | 0.60                    | 73.815 | 73.720 | 55.385 | 73.325 | 78.1                      | 78.0       | 73.125              | 76.1                      | 74.7       | 0.5%                 | 96.8                                      | Granite                        | I     |
| ZEV-02_SLK-15 | ZEV-CH-02-23 | 2,314.40  | 2,315.00 | 0.60                    | 71.505 | 71.360 | 53.405 | 71.295 | 65.8                      | 72.4       | 71.250              | 65.6                      | 74.0       | 0.8%                 | 99.4                                      | Granite                        | I     |
| ZEV-02_SLK-16 | ZEV-CH-02-23 | 2,345.30  | 2,346.40 | 1.10                    | 70.655 | 70.610 | 53.405 | 70.525 | 65.8                      | 72.4       | 70.500              | 65.6                      | 74.0       | 0.3%                 | 99.4                                      | Granite                        | I     |
| ZEV-02_SLK-17 | ZEV-CH-02-23 | 2,382.80  | 2,383.60 | 0.80                    | 70.640 | 70.540 | 52.660 | 70.410 | 65.8                      | 72.4       | 70.370              | 65.6                      | 74.0       | 0.6%                 | 99.0                                      | Granite                        | I     |
| ZEV-02_SLK-18 | ZEV-CH-02-23 | 2,408.60  | 2,409.40 | 0.80                    | 71.080 | 70.980 | 53.640 | 70.595 | 73.0                      | 74.6       | 70.470              | 73.8                      | 74.6       | 0.6%                 | 97.1                                      | Granite                        | I     |
| ZEV-02_SLK-19 | ZEV-CH-02-23 | 2,439.00  | 2,440.00 | 1.00                    | 72.235 | 72.180 | 54.905 | 71.845 | 73.0                      | 74.6       | 71.790              | 73.8                      | 74.6       | 0.3%                 | 97.7                                      | Granite                        | I     |
| ZEV-02_SLK-20 | ZEV-CH-02-23 | 2,441.70  | 2,442.20 | 0.50                    | 73.075 | 72.950 | 55.310 | 72.510 | 73.0                      | 74.6       | 72.345              | 73.8                      | 74.6       | 0.7%                 | 96.6                                      | Granite                        | I     |
| ZEV-02_SLK-21 | ZEV-CH-02-23 | 2,455.65  | 2,456.25 | 0.60                    | 73.600 | 73.520 | 54.395 | 73.030 | 74.5                      | 74.4       | 72.735              | 74.3                      | 74.6       | 0.4%                 | 95.9                                      | Granite                        | II    |
| ZEV-02_SLK-22 | ZEV-CH-02-23 | 2,510.70  | 2,511.20 | 0.50                    | 71.295 | 71.200 | 53.390 | 70.875 | 66.4                      | 69.3       | 70.740              | 60.5                      | 67.9       | 0.5%                 | 97.4                                      | Granite                        | I     |
| ZEV-02_SLK-23 | ZEV-CH-02-23 | 2,534.20  | 2,534.60 | 0.40                    | -      | -      | -      | -      | -                         | -          | -                   | -                         | -          | -                    | -                                         | -                              |       |
| ZEV-02_SLK-24 | ZEV-CH-02-23 | 2,563.00  | 2,564.00 | 1.00                    | 69.315 | 69.265 | 53.400 | 69.230 | 66.4                      | 69.3       | 69.205              | 60.5                      | 67.9       | 0.3%                 | 99.6                                      | Granite                        | I     |
| ZEV-02_SLK-25 | ZEV-CH-02-23 | 2,582.00  | 2,582.40 | 0.40                    | 69.775 | 69.740 | 52.660 | 69.400 | 66.4                      | 69.3       | 69.250              | 60.5                      | 67.9       | 0.2%                 | 97.1                                      | Granite                        | II    |
| ZEV-02_SLK-26 | ZEV-CH-02-23 | 2,594.00  | 2,594.30 | 0.30                    | 71.315 | 71.215 | 53.640 | 70.885 | 69.0                      | 72.4       | 70.755              | 67.0                      | 71.0       | 0.6%                 | 97.4                                      | Granite                        | I     |
| ZEV-02_SLK-27 | ZEV-CH-02-23 | 2,628.80  | 2,629.20 | 0.40                    | 72.580 | 72.505 | 54.915 | 71.180 | 69.0                      | 72.4       | 70.765              | 67.0                      | 71.0       | 0.4%                 | 90.1                                      | Granite                        | II    |
| ZEV-02_SLK-28 | ZEV-CH-02-23 | 2,630.00  | 2,631.00 | 1.00                    | 72.235 | 72.130 | 55.310 | 70.560 | 69.0                      | 72.4       | 70.200              | 67.0                      | 71.0       | 0.6%                 | 88.5                                      | Granite                        | II    |
| ZEV-02_SLK-29 | ZEV-CH-02-23 | 2,673.00  | 2,673.80 | 0.80                    | 73.450 | 72.925 | 55.395 | 67.135 | 70.2                      | 72.6       | 65.630              | 71.6                      | 72.8       | 3.0%                 | 58.4                                      | Granite                        | II    |
| ZEV-02_SLK-30 | ZEV-CH-02-23 | 2,698.50  | 2,699.00 | 0.50                    | 71.280 | 71.210 | 53.400 | 69.720 | 68.0                      | 73.2       | 69.360              | 60.0                      | 66.4       | 0.4%                 | 89.6                                      | Granite                        | II    |
| ZEV-02_SLK-31 | ZEV-CH-02-23 | 2,736.10  | 2,736.55 | 0.45                    | 70.445 | 70.320 | 53.405 | 63.210 | 68.0                      | 73.2       | 61.725              | 60.0                      | 66.4       | 0.7%                 | 49.2                                      | Granite                        | II    |
| ZEV-02_SLK-32 | ZEV-CH-02-23 | 2,763.00  | 2,764.20 | 1.20                    | 70.045 | 69.550 | 52.670 | 66.605 | 68.0                      | 73.2       | 65.230              | 60.0                      | 66.4       | 2.9%                 | 74.4                                      | Granite                        | II    |
| ZEV-02_SLK-33 | ZEV-CH-02-23 | 2,779.20  | 2,780.00 | 0.80                    | 69.940 | 69.870 | 53.645 | 69.810 | 72.8                      | 76.9       | 69.780              | 64.0                      | 69.4       | 0.4%                 | 99.4                                      | Granite                        | I     |
| ZEV-02_SLK-34 | ZEV-CH-02-23 | 2,791.70  | 2,792.00 | 0.30                    | 73.060 | 72.970 | 54.915 | 70.300 | 72.8                      | 76.9       | 69.975              | 64.0                      | 69.4       | 0.5%                 | 83.4                                      | Granite                        | II    |
| ZEV-02_SLK-35 | ZEV-CH-02-23 | 2,860.10  | 2,861.35 | 1.25                    | 71.915 | 71.860 | 55.310 | 71.790 | 72.8                      | 76.9       | 71.740              | 64.0                      | 69.4       | 0.3%                 | 99.3                                      | Granite                        | I     |
| ZEV-02_SLK-36 | ZEV-CH-02-23 | 2,872.00  | 2,873.00 | 1.00                    | 70.955 | 70.905 | 55.400 | 70.855 | 76.4                      | 76.9       | 70.830              | 64.4                      | 69.9       | 0.3%                 | 99.5                                      | Granite                        | I     |
| ZEV-02_SLK-37 | ZEV-CH-02-23 | 2,890.00  | 2,891.40 | 1.40                    | 70.905 | 70.850 | 53.395 | 70.705 | 67.1                      | 71.9       | 70.650              | 70.3                      | 70.8       | 0.3%                 | 98.9                                      | Granite                        | I     |
| ZEV-02_SLK-38 | ZEV-CH-02-23 | 2,913.70  | 2,914.55 | 0.85                    | 71.435 | 71.385 | 53.400 | 71.275 | 67.1                      | 71.9       | 71.230              | 70.3                      | 70.8       | 0.3%                 | 99.1                                      | Granite                        | I     |
| ZEV-02_SLK-39 | ZEV-CH-02-23 | 2,920.00  | 2,920.50 | 0.50                    | 70.890 | 70.825 | 52.665 | 70.730 | 67.1                      | 71.9       | 70.680              | 70.3                      | 70.8       | 0.4%                 | 99.2                                      | Granite                        | I     |
| ZEV-02_SLK-40 | ZEV-CH-02-23 | 2,952.00  | 2,953.00 | 1.00                    | 70.990 | 70.935 | 53.635 | 70.800 | 71.9                      | 73.5       | 70.705              | 70.8                      | 71.0       | 0.3%                 | 98.7                                      | Granite                        | I     |
| ZEV-02_SLK-41 | ZEV-CH-02-23 | 2,955.00  | 2,956.40 | 1.40                    | 72.800 | 72.660 | 54.920 | 72.520 | 71.9                      | 73.5       | 72.445              | 70.8                      | 71.0       | 0.8%                 | 98.8                                      | Granite                        | I     |
| ZEV-02_SLK-42 | ZEV-CH-02-23 | 2,984.00  | 2,985.00 | 1.00                    | 72.640 | 72.525 | 55.310 | 70.690 | 71.9                      | 73.5       | 70.350              | 70.8                      | 71.0       | 0.7%                 | 87.4                                      | Granite                        | II    |

\* Type I = Retained pieces remained virtually unchanged  
II = Retained materials consist of large and small pieces  
III = Retained materials is exclusively small fragments