



# **Physical and Chemical Data from Eolian Sediment Collected along a Transect from the Mojave Desert to the Colorado Plateau**

By Harland L. Goldstein, Richard L. Reynolds, Marith C. Reheis, James C. Yount, and Paul J. Lamothe

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## **Introduction**

This report presents data and describes the methodology for magnetic, geochemical, and textural measurements of sediment and bedrock samples collected along a transect across the Southwestern United States (fig. 1).

The results presented here support a study that examines compositional variations of mineral dust deposited during the past few centuries in isolated natural traps spanning a region from the Mojave Desert of southern California to the central Colorado Plateau (Goldstein and others, in press; fig. 1). In particular, the study addresses the spatial and temporal variations in dust composition in the context of landscape geochemistry over a large area of the southwestern United States.

## **Methods**

### **Site Selection and Sampling**

The sampling sites were determined on the basis of spatial coverage along the transect and occurrences of mature eolian sandstone substrates. The sediments for this study were collected from natural depressions (potholes) that weathered into mostly eolian sandstones of Jurassic age (table 1). The sampled potholes are topographically isolated, so sediment in them can come from only two sources — airborne dust and detritus derived from the immediately surrounding catchment of the sandstone surface. The surface area of individual potholes and their catchments ranged from about 0.5 to 1.0 m<sup>2</sup> and 50 to 100 m<sup>2</sup>, respectively.

Sediment in each pothole was sampled incrementally by depth. Three sediment samples from most potholes were collected with a trowel at depths of 0–1 cm, 1–2 cm, and 2–5 cm. Only

two sediment samples, 0–1 cm and 1–2 cm, were collected from site 05U–1. For each sample, about 50 grams of fine-grained material was obtained over an area of 0.5–1.0 m<sup>2</sup>. A sample of the bedrock in which the pothole formed was also collected. Pothole elevations were determined from 30-meter digital elevation models (National Elevation Dataset, <http://seamless.usgs.gov>).

## Laboratory Analysis

Samples were analyzed at the USGS Earth Surface Processes soils and magnetics laboratories (Denver, Colo.) for hygroscopic moisture factor, calcium carbonate percent, particle size, and magnetic properties (table 2). The soil analyses followed the protocols outlined in Singer and Janitzky (1986). Geochemical analysis was performed by the U.S. Geological Survey Geologic Discipline geochemistry laboratory (Denver, Colo.).

### Hygroscopic Moisture Factor

The hygroscopic moisture factor (table 2) is a measure of the moisture content of a sample at or near field conditions and is calculated by:

$$H = OD/AD, \text{ where}$$

H = hygroscopic moisture factor

OD = oven-dry sample weight (105°C; 16 hours)

AD = air-dry sample weight

### Calcium Carbonate Percent

Calcium carbonate percent (table 2) was measured using a Chittick apparatus (Dreimanis, 1962) as described by Machette (1986), whereby 6N HCl is applied to the sample and the gas evolved from the reaction displaces fluid within the Chittick apparatus. The volume of displaced liquid is used to calculate the percentage of calcium carbonate in the sample.

$$CaCO_3 \% = (VCO_2 * C)/WS, \text{ where}$$

CaCO<sub>3</sub> % = calcium carbonate percent

VCO<sub>2</sub> = The volume of liquid displaced during reaction in presence of HCl

C = Variable; (PB/TK)\*0.16, where

PB = barometric pressure in Hg mm

TK = temperature in Kelvin

WS = oven-dry sample weight (105°C; 16 hours)

## Particle-Size Analysis

Particle-size analysis (PSA) was performed on the <2-mm-size fraction of the pothole sediment and on bulk bedrock by using a laser analyzer (tables 2 and 3). Bedrock samples were lightly disaggregated to obtain the PSA sample. Prior to analysis, all samples were prepared by digesting organic matter and CaCO<sub>3</sub> using 30 percent H<sub>2</sub>O<sub>2</sub> and 15 percent HCl, respectively. Also prior to analysis, sodium hexametaphosphate was added to each sample to deflocculate clays.

## Magnetic Properties

Magnetic properties were determined on both <2-mm- and <63-μm-size fractions of the pothole samples as well as on bulk bedrock samples (tables 2 and 4). Magnetic properties determined included low-frequency and high-frequency magnetic susceptibility (MS<sub>lf</sub>, MS<sub>hf</sub>), anhysteretic remanent magnetization (ARM), and isothermal remanent magnetization (IRM).

### Magnetic Susceptibility

Magnetic susceptibility (MS) was measured by using a susceptometer with a sensitivity better than about  $4 \times 10^{-7}$  m<sup>3</sup>/kg. Samples were measured in a 0.1-mT (millitesla) induction at a low frequency of 600 Hz (MS<sub>lf</sub>) and high frequency of 6,000 Hz (MS<sub>hf</sub>). For each sample, the MS value was determined as the mean of four measurements. Frequency-dependent susceptibility was calculated as:

$$FDMS = (MS_{lf} - MS_{hf}) / MS_{lf}.$$

### Laboratory-Induced Magnetization

Measurements of anhysteretic remanent magnetization (ARM) and isothermal remanent magnetization (IRM) experiments were made by using a high-speed spinner magnetometer. Anhysteretic remanent magnetization was imparted in a decreasing alternating field from a peak induction of 100 mT and a DC bias of 0.1 mT. IRM magnetizations were generated at room temperature by using an impulse magnetizer. First, IRM was imparted in a 1.2-T induction (IRM<sub>1.2T</sub>). The samples then were magnetized in the opposite direction by using an induction of 0.3 T (IRM<sub>-0.3T</sub>). Hard isothermal remanent magnetization (HIRM) and the S-parameter were calculated as follows (King and Channel, 1991):

$$HIRM = (IRM_{1.2T} + IRM_{-0.3T})/2;$$

$$S = \text{IRM}_{0.3T} / \text{IRM}_{1.2T}$$

## Geochemical Analysis

Samples were analyzed for chemical properties by inductively coupled plasma–atomic emission spectrometry (ICP–AES), inductively coupled plasma–mass spectrometry (ICP–MS) and X-ray fluorescence (XRF) techniques (tables 2 and 5) (Lichte and others, 1987). Sediment and bedrock samples were analyzed on the <63- $\mu\text{m}$  and bulk size fractions, respectively, and were finely ground using a shatterbox.

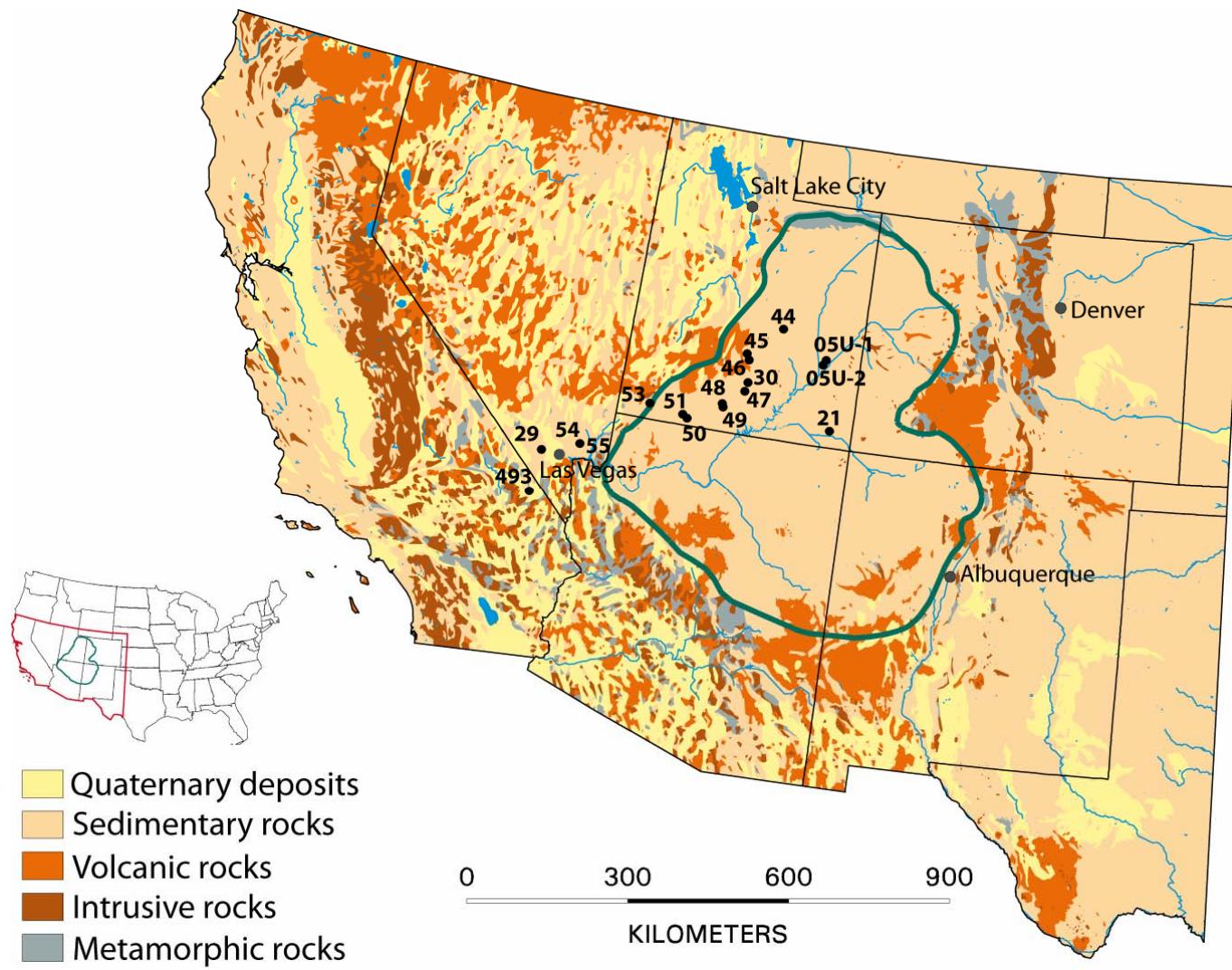
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**Figure 1.** Generalized geologic map of the Southwestern United States showing the southwest-northeast transect of sampled pothole sites (small closed circles). The transect runs from the Mojave Desert to the central Colorado Plateau. Green outline denotes the boundary of the Colorado Plateau. Sites 54 and 55 are in close proximity and are displayed as one point.

**Table 1. Pothole site location information.**

| Sampling site | Latitude <sup>1</sup> | Longitude <sup>1</sup> | Elevation <sup>2</sup><br>(meters) | Location                  | Bedrock type                          | Geologic map reference     |
|---------------|-----------------------|------------------------|------------------------------------|---------------------------|---------------------------------------|----------------------------|
| 44            | 38.8622               | -110.8369              | 2188                               | San Rafael Swell, Utah    | Navajo Sandstone                      | Williams and Hackman, 1983 |
| 45            | 38.3607               | -111.5304              | 2510                               | Bicknell, Utah            | Navajo Sandstone                      | Williams and Hackman, 1983 |
| 46            | 38.2601               | -111.4597              | 2262                               | Teasdale, Utah            | Navajo Sandstone                      | Williams and Hackman, 1983 |
| 47            | 37.7363               | -111.4414              | 1818                               | Escalante, Utah           | Navajo Sandstone                      | Hackman and Wyant, 1973    |
| 48            | 37.4726               | -111.8749              | 2046                               | GSENM, Utah <sup>3</sup>  | Entrada Sandstone                     | Hackman and Wyant, 1973    |
| 49            | 37.4199               | -111.8497              | 1859                               | GSENM, Utah <sup>3</sup>  | Navajo Sandstone                      | Hackman and Wyant, 1973    |
| 50            | 37.1322               | -112.5633              | 1690                               | Kanab, Utah               | Navajo Sandstone                      | Eppinger and others, 1990  |
| 51            | 37.1897               | -112.6646              | 1801                               | Mt. Carmel Junction, Utah | Carmel Limestone                      | Eppinger and others, 1990  |
| 53            | 37.2704               | -113.3988              | 1455                               | Leeds, Utah               | Navajo Sandstone                      | Eppinger and others, 1990  |
| 54            | 36.3874               | -114.6863              | 906                                | Buffington Pocket, Nevada | Aztec Sandstone (redbed) <sup>4</sup> | Bohannon, 1978             |
| 55            | 36.3867               | -114.6870              | 885                                | Buffington Pocket, Nevada | Aztec Sandstone (redbed) <sup>4</sup> | Bohannon, 1978             |
| 29            | 36.1664               | -115.4522              | 1345                               | Red Rocks, Nevada         | Aztec Sandstone (redbed) <sup>4</sup> | Page and others, 2005      |
| 30            | 37.8904               | -111.4067              | 1984                               | Boulder, Utah             | Navajo Sandstone                      | Hackman and Wyant, 1973    |
| 05U-1         | 38.4501               | -109.8169              | 1782                               | Island in the Sky, Utah   | Navajo Sandstone                      | Williams, 1964             |
| 05U-2         | 38.3668               | -109.8667              | 1879                               | Island in the Sky, Utah   | Navajo Sandstone                      | Williams, 1964             |
| 21            | 37.2934               | -109.5354              | 1421                               | Bluff, Utah               | Bluff Sandstone                       | Haynes and others, 1972    |
| 493           | 35.4387               | -115.5195              | 1615                               | Mescal Range, California  | Aztec Sandstone (redbed) <sup>4</sup> | Jennings, 1961             |

<sup>1</sup> Latitude and longitude displayed in NAD83 datum.

<sup>2</sup> Elevation determined from 30-m DEM.

<sup>3</sup> GSENM = Grand Staircase Escalante National Monument.

<sup>4</sup> Redbeds contain fine-grained hematite as grain coatings.

**Table 2. Summary data.**

This table lists common soils laboratory data and magnetic and chemical properties completed.

[**Sample no.**, Unique sample number (for example, 44/0-1); presented as site designation (44), and depth in centimeters (0-1).

**Hygroscopic moisture factor**, A laboratory measure of soil moisture at or near field conditions (driest conditions when values are closest to 1).

**CaCO<sub>3</sub> %**, Calcium carbonate percent measured using a Chittick apparatus (Machette, 1986).

**Sand, Silt, Clay %**, Sand, silt and clay percentages determined using a laser particle-size analyzer. For detailed particle-size data, see table 3.

**Magnetic properties completed**, Samples for which magnetic properties were determined. One column lists the magnetic properties that were determined for the <2-mm-size fraction and the other column lists the magnetic properties that were determined for the <63-μm-size fraction. Refer to text for property designations and appropriate table for specific magnetic property data.

**Chemistry completed**, Samples for which chemical analysis has been completed. Samples were analyzed by ICP-AES, ICP-MS and XRF techniques. Refer to appropriate table for specific chemistry data.

n.d., not determined; mm, millimeter]

| Sample no. | Hygroscopic moisture factor | CaCO <sub>3</sub> (%) | Sand (%) | Silt (%) | Clay (%) | Magnetic properties completed (<2 mm) (see table 4) | Magnetic properties (<63 micrometers) completed (see table 4) | Chemistry completed (see table 5) |
|------------|-----------------------------|-----------------------|----------|----------|----------|---|---|-----------------------------------|
| 44/0-1     | 0.997                       | 1.07                  | 75.98    | 18.48    | 3.89     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 44/1-2     | 0.996                       | 0.88                  | 79.35    | 13.98    | 5.07     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 44/2-5     | 0.996                       | 0.58                  | 80.30    | 11.53    | 6.30     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 44/Bedrock | n.d.                        | n.d.                  | 94.73    | 3.11     | 2.16     | MS, ARM, IRM  | n.d.  | ICP-AES, ICP-MS, XRF              |
| 45/0-1     | 0.998                       | 0.17                  | 86.88    | 9.21     | 3.21     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 45/1-2     | 0.998                       | 0.26                  | 86.53    | 8.20     | 4.42     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 45/2-5     | 0.997                       | 0.31                  | 83.10    | 9.57     | 6.04     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 45/Bedrock | n.d.                        | n.d.                  | 91.35    | 5.62     | 3.03     | MS, ARM, IRM  | n.d.  | ICP-AES, ICP-MS, XRF              |
| 46/0-1     | 0.997                       | 0.22                  | 92.30    | 4.33     | 2.70     | MS, ARM, IRM  | MS, ARM, IRM  | n.d.                              |
| 46/1-2     | 0.997                       | 0.27                  | 88.37    | 6.10     | 4.53     | MS, ARM, IRM  | MS, ARM, IRM  | n.d.                              |
| 46/2-5     | 0.997                       | 0.21                  | 76.07    | 13.93    | 7.95     | MS, ARM, IRM  | MS, ARM, IRM  | n.d.                              |
| 46/Bedrock | n.d.                        | n.d.                  | n.d.     | n.d.     | n.d.     | n.d.  | n.d.  | n.d.                              |
| 47/0-1     | 0.997                       | 0.24                  | 37.00    | 44.07    | 13.01    | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 47/1-2     | 0.997                       | 0.23                  | 29.80    | 46.36    | 17.77    | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 47/2-5     | 0.998                       | 0.28                  | 23.95    | 43.48    | 24.01    | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 47/Bedrock | n.d.                        | n.d.                  | 96.50    | 2.54     | 0.96     | MS, ARM, IRM  | n.d.  | ICP-AES, ICP-MS, XRF              |
| 48/0-1     | 0.997                       | 4.65                  | 71.53    | 16.14    | 9.17     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 48/1-2     | 0.997                       | 4.97                  | 76.13    | 11.72    | 8.95     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 48/2-5     | 0.997                       | 5.51                  | 74.02    | 11.93    | 9.57     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 48/Bedrock | n.d.                        | n.d.                  | 88.80    | 7.13     | 4.08     | MS, ARM, IRM  | n.d.  | ICP-AES, ICP-MS, XRF              |
| 49/0-1     | 0.998                       | 0.37                  | 80.93    | 14.14    | 3.47     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 49/1-2     | 0.998                       | 0.36                  | 84.67    | 10.17    | 3.58     | MS, ARM, IRM  | MS, ARM, IRM  | ICP-AES, ICP-MS, XRF              |
| 49/2-5     | 0.997                       | 0.31                  | 83.97    | 10.30    | 4.47     | MS, ARM, IRM  | n.d.  | n.d.                              |
| 49/Bedrock | n.d.                        | n.d.                  | 97.59    | 1.44     | 0.97     | MS, ARM, IRM  | n.d.  | ICP-AES, ICP-MS                   |

**Table 2. Summary data.—Continued**

| Sample no.    | Hygroscopic moisture factor | CaCO <sub>3</sub> (%) | Sand (%) | Silt (%) | Clay (%)     | Magnetic properties (<2 mm) completed<br>(see table 4) | Magnetic properties (<63 micrometers) completed<br>(see table 4) | Chemistry completed<br>(see table 5) |
|---------------|-----------------------------|-----------------------|----------|----------|--------------|--|--|--------------------------------------|
| 50/0-1        | 0.997                       | 0.76                  | 90.38    | 7.69     | 1.40         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 50/1-2        | 0.997                       | 0.93                  | 83.88    | 13.08    | 2.19         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 50/2-5        | 0.998                       | 1.04                  | 80.64    | 15.71    | 2.41         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 50/Bedrock    | n.d.                        | n.d.                  | 100.00   | 0.00     | 0.00         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 51/0-1        | 0.998                       | 0.20                  | 77.06    | 17.08    | 4.18         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 51/1-2        | 0.996                       | 0.22                  | 81.38    | 12.59    | 4.37         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 51/2-5        | 0.998                       | 0.38                  | 82.42    | 10.27    | 5.15         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 51/Bedrock    | n.d.                        | n.d.                  | n.d.     | n.d.     | MS, ARM, IRM | n.d.   | ICP-AES, ICP-MS, XRF   |                                      |
| 53/0-1        | 0.997                       | 0.14                  | 78.98    | 16.54    | 3.58         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 53/1-2        | 0.997                       | 0.13                  | 85.82    | 9.69     | 3.47         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 53/2-5        | 0.998                       | 0.13                  | 43.82    | 28.32    | 20.81        | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 53/Bedrock    | n.d.                        | n.d.                  | 93.32    | 4.94     | 1.74         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 54/0-1        | 0.998                       | 0.18                  | 65.17    | 27.83    | 4.93         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 54/1-2        | 0.998                       | 0.16                  | 68.74    | 17.07    | 9.79         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 54/2-5        | 0.998                       | 0.13                  | 63.41    | 16.73    | 13.08        | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 54/Bedrock    | n.d.                        | n.d.                  | 77.09    | 3.22     | 19.26        | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 55/0-1        | 0.996                       | 0.75                  | 66.51    | 26.18    | 5.10         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 55/1-2        | 0.998                       | 0.34                  | 59.78    | 26.20    | 9.47         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 55/2-5        | 0.997                       | 0.23                  | 64.72    | 21.46    | 8.97         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 55/Bedrock    | n.d.                        | n.d.                  | 95.71    | 2.49     | 1.80         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 29/0-1        | 0.999                       | 0.19                  | 68.35    | 23.49    | 5.19         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 29/1-2        | 0.998                       | 0.23                  | 56.98    | 27.62    | 10.87        | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 29/2-5        | 0.997                       | 0.20                  | 53.68    | 28.34    | 13.59        | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 29/Bedrock    | n.d.                        | n.d.                  | 92.28    | 5.42     | 2.30         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 30/0-1        | 0.997                       | 0.26                  | 66.97    | 23.17    | 7.98         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 30/1-2        | 0.998                       | 0.10                  | 44.67    | 31.34    | 17.49        | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 30/2-5        | 0.997                       | 0.21                  | 46.06    | 22.63    | 20.92        | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 30/Bedrock    | n.d.                        | n.d.                  | 91.97    | 5.50     | 2.53         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 05U-1/0-1     | 0.994                       | 1.02                  | 80.61    | 13.13    | 5.04         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 05U-1/1-2     | 0.991                       | 0.22                  | 89.77    | 5.74     | 3.64         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 05U-1/Bedrock | n.d.                        | 1.21                  | 95.88    | 2.40     | 1.72         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 05U-2/0-1     | 0.996                       | 0.36                  | 74.65    | 17.82    | 6.10         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 05U-2/1-2     | 0.993                       | 0.27                  | 76.56    | 15.85    | 6.15         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 05U-2/2-5     | 0.950                       | 0.24                  | 82.96    | 10.96    | 4.78         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 05U-2/Bedrock | n.d.                        | 0.19                  | 96.27    | 2.01     | 1.73         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 21/0-1        | 0.990                       | 2.25                  | 94.11    | 3.56     | 1.93         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 21/1-2        | 0.960                       | 1.71                  | 92.95    | 4.34     | 2.24         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 21/2-5        | 0.942                       | 1.68                  | 92.83    | 4.57     | 2.07         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 21/Bedrock    | n.d.                        | 2.15                  | 94.45    | 3.11     | 2.44         | MS, ARM, IRM   | n.d.   | ICP-AES, ICP-MS, XRF                 |
| 493/0-1       | 0.992                       | 0.28                  | 62.65    | 31.23    | 3.93         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 493/1-2       | 0.991                       | 0.20                  | 59.96    | 32.39    | 5.83         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 493/2-5       | 0.995                       | 0.32                  | 72.48    | 21.64    | 4.24         | MS, ARM, IRM   | MS, ARM, IRM   | ICP-AES, ICP-MS, XRF                 |
| 493/Bedrock   | n.d.                        | n.d.                  | n.d.     | n.d.     | n.d.         | n.d.   | n.d.   | ICP-AES, ICP-MS, XRF                 |

**Table 3. Particle size data.**

This table contains high-resolution particle-size data obtained using a laser particle-size analyzer. The particle size is displayed in accordance with the Wentworth scale (Wentworth, 1922). Values are reported as volume percent. Each value corresponds to the volume percent of the sample that has a grain size falling within that range.

[**microns**, micrometer; **n.d.**, not determined; **cm**, centimeter]

|             |             | 493     |       |        |        | 29     |         |        |        |        |         |
|-------------|-------------|---------|-------|--------|--------|--------|---------|--------|--------|--------|---------|
|             |             | Microns |       | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| <b>Sand</b> | Very Coarse | 2,000   | 1,680 | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,680   | 1,414 | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,414   | 1,189 | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,189   | 1,000 | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.00    |
|             | Coarse      | 1,000   | 841   | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 841     | 707   | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 707     | 595   | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 595     | 500   | 0.00   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 0.10    |
|             | Medium      | 500     | 420   | 0.12   | 0.00   | 0.00   | n.d.    | 0.00   | 0.00   | 0.00   | 1.25    |
|             |             | 420     | 354   | 1.22   | 0.34   | 1.38   | n.d.    | 0.12   | 0.17   | 0.00   | 2.69    |
|             |             | 354     | 297   | 2.75   | 1.89   | 3.66   | n.d.    | 2.12   | 2.07   | 1.06   | 4.81    |
|             |             | 297     | 250   | 4.12   | 3.45   | 5.69   | n.d.    | 4.75   | 4.48   | 3.16   | 7.43    |
|             | Fine        | 250     | 210   | 5.56   | 5.08   | 7.68   | n.d.    | 7.70   | 6.94   | 5.59   | 10.65   |
|             |             | 210     | 177   | 6.61   | 6.37   | 8.88   | n.d.    | 9.78   | 8.45   | 7.54   | 13.72   |
|             |             | 177     | 149   | 7.48   | 7.49   | 9.68   | n.d.    | 11.02  | 9.06   | 8.79   | 15.25   |
|             |             | 149     | 125   | 8.06   | 8.28   | 9.47   | n.d.    | 10.35  | 8.58   | 8.95   | 14.13   |
|             | Very Fine   | 125     | 105   | 7.69   | 7.92   | 8.37   | n.d.    | 8.37   | 6.76   | 7.27   | 10.53   |
|             |             | 105     | 88    | 7.23   | 7.38   | 7.28   | n.d.    | 6.54   | 4.99   | 5.44   | 6.54    |
|             |             | 88      | 74    | 6.45   | 6.48   | 5.91   | n.d.    | 4.62   | 3.38   | 3.67   | 3.49    |
|             |             | 74      | 63    | 5.35   | 5.27   | 4.47   | n.d.    | 2.98   | 2.12   | 2.22   | 1.71    |
| <b>Silt</b> | Coarse      | 63      | 53    | 5.04   | 4.85   | 3.86   | n.d.    | 2.22   | 1.57   | 1.49   | 0.93    |
|             |             | 53      | 44    | 4.63   | 4.37   | 3.29   | n.d.    | 1.74   | 1.29   | 1.01   | 0.43    |
|             |             | 44      | 37    | 3.64   | 3.39   | 2.45   | n.d.    | 1.37   | 1.06   | 0.69   | 0.16    |
|             |             | 37      | 31.2  | 3.02   | 2.83   | 1.99   | n.d.    | 1.32   | 1.43   | 0.94   | 0.10    |
|             | Medium      | 31.2    | 26.3  | 2.55   | 2.44   | 1.67   | n.d.    | 1.88   | 1.64   | 1.14   | 0.15    |
|             |             | 26.3    | 22.1  | 2.18   | 2.16   | 1.44   | n.d.    | 1.99   | 1.81   | 1.34   | 0.25    |
|             |             | 22.1    | 18.6  | 1.81   | 1.88   | 1.20   | n.d.    | 1.92   | 1.87   | 1.52   | 0.33    |
|             |             | 18.6    | 15.6  | 1.55   | 1.70   | 1.03   | n.d.    | 1.80   | 1.94   | 1.73   | 0.38    |
|             | Fine        | 15.6    | 13.1  | 1.30   | 1.50   | 0.86   | n.d.    | 1.60   | 1.92   | 1.88   | 0.38    |
|             |             | 13.1    | 11    | 1.11   | 1.34   | 0.73   | n.d.    | 1.40   | 1.91   | 2.05   | 0.36    |
|             |             | 11      | 9.3   | 0.94   | 1.17   | 0.61   | n.d.    | 1.20   | 1.83   | 2.14   | 0.33    |
|             |             | 9.3     | 7.8   | 0.87   | 1.12   | 0.57   | n.d.    | 1.15   | 1.93   | 2.41   | 0.33    |
|             | Very Fine   | 7.8     | 6.6   | 0.74   | 0.99   | 0.50   | n.d.    | 1.02   | 1.84   | 2.41   | 0.32    |
|             |             | 6.6     | 5.5   | 0.72   | 0.99   | 0.52   | n.d.    | 1.06   | 2.00   | 2.70   | 0.35    |
|             |             | 5.5     | 4.6   | 0.63   | 0.90   | 0.49   | n.d.    | 0.98   | 1.91   | 2.61   | 0.34    |
|             |             | 4.6     | 3.9   | 0.52   | 0.76   | 0.43   | n.d.    | 0.84   | 1.67   | 2.29   | 0.30    |
| <b>Clay</b> | Coarse      | 3.9     | 3.3   | 0.47   | 0.71   | 0.42   | n.d.    | 0.77   | 1.57   | 2.14   | 0.28    |
|             |             | 3.3     | 2.8   | 0.42   | 0.66   | 0.40   | n.d.    | 0.68   | 1.41   | 1.89   | 0.25    |
|             |             | 2.8     | 2.3   | 0.46   | 0.73   | 0.47   | n.d.    | 0.71   | 1.49   | 1.97   | 0.26    |
|             |             | 2.3     | 1.95  | 0.36   | 0.57   | 0.38   | n.d.    | 0.51   | 1.09   | 1.40   | 0.19    |
|             | Medium      | 1.95    | 1.64  | 0.35   | 0.54   | 0.38   | n.d.    | 0.46   | 0.99   | 1.25   | 0.17    |
|             |             | 1.64    | 1.38  | 0.32   | 0.50   | 0.36   | n.d.    | 0.39   | 0.85   | 1.05   | 0.15    |
|             |             | 1.38    | 1.16  | 0.30   | 0.44   | 0.34   | n.d.    | 0.33   | 0.74   | 0.88   | 0.13    |
|             |             | 1.16    | 0.98  | 0.27   | 0.38   | 0.30   | n.d.    | 0.28   | 0.62   | 0.72   | 0.10    |
|             | Fine        | 0.98    | 0.82  | 0.26   | 0.36   | 0.30   | n.d.    | 0.26   | 0.58   | 0.66   | 0.10    |
|             |             | 0.82    | 0.69  | 0.24   | 0.32   | 0.28   | n.d.    | 0.22   | 0.51   | 0.55   | 0.10    |
|             |             | 0.69    | 0.58  | 0.24   | 0.31   | 0.30   | n.d.    | 0.29   | 0.51   | 0.54   | 0.11    |
|             |             | 0.58    | 0.49  | 0.25   | 0.32   | 0.32   | n.d.    | 0.31   | 0.53   | 0.54   | 0.13    |
|             | Very Fine   |         | <0.49 | 2.20   | 1.83   | 1.65   | n.d.    | 2.97   | 4.53   | 4.40   | 0.35    |

**Table 3. Particle size data.—Continued**

|             |             | 55          |        |        |        | 54      |        |        |        |         |
|-------------|-------------|-------------|--------|--------|--------|---------|--------|--------|--------|---------|
|             |             | Microns     | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| <b>Sand</b> | Very Coarse | 2,000 1,680 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 4.87    |
|             |             | 1,680 1,414 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 3.22    |
|             |             | 1,414 1,189 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 2.28    |
|             |             | 1,189 1,000 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 2.25    |
|             | Coarse      | 1,000 841   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 2.56    |
|             |             | 841 707     | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 3.08    |
|             |             | 707 595     | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 3.63    |
|             |             | 595 500     | 0.00   | 0.00   | 0.00   | 0.80    | 0.04   | 0.00   | 0.00   | 4.10    |
|             | Medium      | 500 420     | 0.00   | 0.00   | 0.00   | 3.89    | 2.08   | 0.71   | 0.06   | 4.34    |
|             |             | 420 354     | 0.61   | 0.21   | 0.50   | 6.84    | 5.41   | 3.59   | 2.38   | 4.43    |
|             |             | 354 297     | 2.66   | 2.22   | 2.97   | 10.16   | 9.12   | 7.32   | 7.33   | 4.82    |
|             |             | 297 250     | 4.66   | 4.70   | 5.45   | 13.04   | 11.23  | 10.09  | 11.53  | 5.19    |
|             | Fine        | 250 210     | 6.75   | 7.16   | 7.75   | 14.72   | 11.37  | 11.43  | 13.34  | 5.78    |
|             |             | 210 177     | 8.23   | 8.62   | 9.03   | 13.29   | 9.04   | 10.61  | 11.58  | 6.11    |
|             |             | 177 149     | 9.25   | 9.24   | 9.61   | 11.48   | 6.32   | 8.65   | 8.18   | 6.11    |
|             |             | 149 125     | 9.52   | 8.67   | 8.91   | 8.90    | 4.27   | 6.41   | 4.91   | 5.44    |
|             | Very Fine   | 125 105     | 8.32   | 6.99   | 7.35   | 5.98    | 2.63   | 4.36   | 2.51   | 4.04    |
|             |             | 105 88      | 6.95   | 5.43   | 5.88   | 3.68    | 1.63   | 2.83   | 1.09   | 2.64    |
|             |             | 88 74       | 5.47   | 3.91   | 4.32   | 1.99    | 1.07   | 1.72   | 0.38   | 1.48    |
|             |             | 74 63       | 4.08   | 2.64   | 2.95   | 0.93    | 0.97   | 1.03   | 0.11   | 0.72    |
| <b>Silt</b> | Coarse      | 63 53       | 3.56   | 2.10   | 2.34   | 0.44    | 1.52   | 0.83   | 0.16   | 0.35    |
|             |             | 53 44       | 3.16   | 1.80   | 1.92   | 0.18    | 1.98   | 0.75   | 0.48   | 0.16    |
|             |             | 44 37       | 2.56   | 1.47   | 1.52   | 0.11    | 2.26   | 0.96   | 0.62   | 0.11    |
|             |             | 37 31.2     | 2.30   | 1.76   | 1.43   | 0.13    | 2.51   | 1.10   | 0.78   | 0.16    |
|             | Medium      | 31.2 26.3   | 2.14   | 1.88   | 1.43   | 0.17    | 2.65   | 1.12   | 0.88   | 0.24    |
|             |             | 26.3 22.1   | 2.01   | 1.93   | 1.46   | 0.20    | 2.66   | 1.13   | 0.94   | 0.31    |
|             |             | 22.1 18.6   | 1.80   | 1.90   | 1.42   | 0.19    | 2.48   | 1.09   | 0.95   | 0.33    |
|             |             | 18.6 15.6   | 1.61   | 1.86   | 1.38   | 0.17    | 2.29   | 1.08   | 1.00   | 0.32    |
|             | Fine        | 15.6 13.1   | 1.37   | 1.75   | 1.28   | 0.13    | 2.00   | 1.05   | 1.06   | 0.27    |
|             |             | 13.1 11     | 1.16   | 1.64   | 1.19   | 0.10    | 1.73   | 1.06   | 1.16   | 0.22    |
|             |             | 11 9.3      | 0.96   | 1.48   | 1.07   | 0.09    | 1.42   | 1.05   | 1.22   | 0.17    |
|             |             | 9.3 7.8     | 0.87   | 1.47   | 1.07   | 0.09    | 1.25   | 1.15   | 1.40   | 0.14    |
|             | Very Fine   | 7.8 6.6     | 0.74   | 1.34   | 0.99   | 0.10    | 0.99   | 1.13   | 1.42   | 0.12    |
|             |             | 6.6 5.5     | 0.73   | 1.39   | 1.05   | 0.12    | 0.88   | 1.25   | 1.61   | 0.12    |
|             |             | 5.5 4.6     | 0.65   | 1.30   | 1.01   | 0.13    | 0.69   | 1.22   | 1.60   | 0.11    |
|             |             | 4.6 3.9     | 0.56   | 1.14   | 0.90   | 0.13    | 0.52   | 1.11   | 1.45   | 0.09    |
| <b>Clay</b> | Coarse      | 3.9 3.3     | 0.53   | 1.09   | 0.89   | 0.13    | 0.44   | 1.09   | 1.43   | 0.09    |
|             |             | 3.3 2.8     | 0.49   | 1.02   | 0.85   | 0.13    | 0.39   | 1.03   | 1.36   | 0.08    |
|             |             | 2.8 2.3     | 0.56   | 1.15   | 0.99   | 0.15    | 0.45   | 1.18   | 1.57   | 0.09    |
|             |             | 2.3 1.95    | 0.44   | 0.90   | 0.81   | 0.12    | 0.38   | 0.94   | 1.25   | 0.07    |
|             | Medium      | 1.95 1.64   | 0.44   | 0.88   | 0.81   | 0.11    | 0.41   | 0.93   | 1.23   | 0.07    |
|             |             | 1.64 1.38   | 0.42   | 0.81   | 0.76   | 0.10    | 0.42   | 0.85   | 1.13   | 0.06    |
|             |             | 1.38 1.16   | 0.39   | 0.73   | 0.71   | 0.09    | 0.42   | 0.78   | 1.04   | 0.06    |
|             |             | 1.16 0.98   | 0.35   | 0.64   | 0.64   | 0.08    | 0.39   | 0.68   | 0.91   | 0.05    |
|             | Fine        | 0.98 0.82   | 0.36   | 0.62   | 0.64   | 0.08    | 0.40   | 0.64   | 0.87   | 0.07    |
|             |             | 0.82 0.69   | 0.35   | 0.54   | 0.59   | 0.07    | 0.39   | 0.56   | 0.77   | 0.01    |
|             |             | 0.69 0.58   | 0.37   | 0.54   | 0.63   | 0.08    | 0.41   | 0.55   | 0.76   | 0.00    |
|             |             | 0.58 0.49   | 0.41   | 0.56   | 0.67   | 0.09    | 0.44   | 0.56   | 0.77   | 0.00    |
|             | Very Fine   | <0.49       | 2.22   | 4.55   | 4.85   | 0.58    | 2.07   | 4.40   | 6.77   | 0.00    |

**Table 3. Particle size data.—Continued**

|             |             | 53      |       |        |        | 51     |         |        |        |        |         |
|-------------|-------------|---------|-------|--------|--------|--------|---------|--------|--------|--------|---------|
|             |             | Microns |       | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| <b>Sand</b> | Very Coarse | 2,000   | 1,680 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 1,680   | 1,414 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 1,414   | 1,189 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 1,189   | 1,000 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             | Coarse      | 1,000   | 841   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 841     | 707   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 707     | 595   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 595     | 500   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             | Medium      | 500     | 420   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 420     | 354   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 354     | 297   | 0.04   | 0.07   | 0.53   | 1.70    | 0.02   | 0.07   | 0.02   | n.d.    |
|             |             | 297     | 250   | 2.64   | 4.01   | 2.31   | 5.45    | 1.47   | 3.32   | 1.70   | n.d.    |
|             | Fine        | 250     | 210   | 6.37   | 8.56   | 4.40   | 9.94    | 4.74   | 6.71   | 5.28   | n.d.    |
|             |             | 210     | 177   | 10.08  | 13.98  | 6.10   | 14.11   | 7.73   | 10.09  | 9.17   | n.d.    |
|             |             | 177     | 149   | 13.79  | 18.17  | 7.22   | 17.34   | 10.97  | 13.18  | 13.19  | n.d.    |
|             |             | 149     | 125   | 15.47  | 17.28  | 7.37   | 16.37   | 13.80  | 14.91  | 16.04  | n.d.    |
|             | Very Fine   | 125     | 105   | 12.51  | 11.62  | 6.26   | 12.45   | 13.23  | 12.89  | 14.36  | n.d.    |
|             |             | 105     | 88    | 8.73   | 6.80   | 4.67   | 8.56    | 11.18  | 9.72   | 11.06  | n.d.    |
|             |             | 88      | 74    | 5.68   | 3.53   | 3.11   | 4.96    | 8.33   | 6.50   | 7.33   | n.d.    |
|             |             | 74      | 63    | 3.67   | 1.81   | 1.86   | 2.45    | 5.61   | 4.01   | 4.28   | n.d.    |
| <b>Silt</b> | Coarse      | 63      | 53    | 2.87   | 1.11   | 1.24   | 1.23    | 4.25   | 2.83   | 2.73   | n.d.    |
|             |             | 53      | 44    | 2.28   | 0.66   | 0.85   | 0.48    | 3.09   | 1.93   | 1.58   | n.d.    |
|             |             | 44      | 37    | 1.66   | 0.35   | 0.59   | 0.13    | 1.92   | 1.14   | 0.75   | n.d.    |
|             |             | 37      | 31.2  | 1.40   | 0.63   | 0.81   | 0.05    | 1.32   | 0.79   | 0.39   | n.d.    |
|             | Medium      | 31.2    | 26.3  | 1.27   | 0.84   | 0.98   | 0.14    | 0.99   | 0.66   | 0.25   | n.d.    |
|             |             | 26.3    | 22.1  | 1.17   | 0.95   | 1.16   | 0.23    | 0.82   | 0.65   | 0.24   | n.d.    |
|             |             | 22.1    | 18.6  | 1.00   | 0.91   | 1.31   | 0.31    | 0.71   | 0.63   | 0.46   | n.d.    |
|             |             | 18.6    | 15.6  | 0.85   | 0.78   | 1.50   | 0.35    | 0.65   | 0.61   | 0.47   | n.d.    |
|             | Fine        | 15.6    | 13.1  | 0.69   | 0.61   | 1.66   | 0.34    | 0.57   | 0.54   | 0.47   | n.d.    |
|             |             | 13.1    | 11    | 0.57   | 0.48   | 1.87   | 0.30    | 0.49   | 0.48   | 0.45   | n.d.    |
|             |             | 11      | 9.3   | 0.48   | 0.38   | 2.05   | 0.25    | 0.42   | 0.41   | 0.41   | n.d.    |
|             |             | 9.3     | 7.8   | 0.47   | 0.37   | 2.43   | 0.23    | 0.40   | 0.39   | 0.41   | n.d.    |
|             | Very Fine   | 7.8     | 6.6   | 0.44   | 0.36   | 2.58   | 0.21    | 0.36   | 0.36   | 0.38   | n.d.    |
|             |             | 6.6     | 5.5   | 0.49   | 0.43   | 3.09   | 0.23    | 0.38   | 0.40   | 0.43   | n.d.    |
|             |             | 5.5     | 4.6   | 0.49   | 0.44   | 3.20   | 0.24    | 0.37   | 0.40   | 0.44   | n.d.    |
|             |             | 4.6     | 3.9   | 0.44   | 0.41   | 3.01   | 0.23    | 0.34   | 0.37   | 0.42   | n.d.    |
| <b>Clay</b> | Coarse      | 3.9     | 3.3   | 0.42   | 0.41   | 3.00   | 0.23    | 0.35   | 0.38   | 0.43   | n.d.    |
|             |             | 3.3     | 2.8   | 0.39   | 0.38   | 2.82   | 0.22    | 0.35   | 0.38   | 0.44   | n.d.    |
|             |             | 2.8     | 2.3   | 0.44   | 0.43   | 3.09   | 0.25    | 0.42   | 0.45   | 0.54   | n.d.    |
|             |             | 2.3     | 1.95  | 0.33   | 0.32   | 2.29   | 0.19    | 0.35   | 0.37   | 0.44   | n.d.    |
|             | Medium      | 1.95    | 1.64  | 0.30   | 0.29   | 2.06   | 0.18    | 0.36   | 0.37   | 0.45   | n.d.    |
|             |             | 1.64    | 1.38  | 0.29   | 0.26   | 1.72   | 0.17    | 0.35   | 0.37   | 0.43   | n.d.    |
|             |             | 1.38    | 1.16  | 0.25   | 0.22   | 1.42   | 0.16    | 0.33   | 0.33   | 0.40   | n.d.    |
|             |             | 1.16    | 0.98  | 0.20   | 0.18   | 1.13   | 0.14    | 0.29   | 0.29   | 0.35   | n.d.    |
|             | Fine        | 0.98    | 0.82  | 0.20   | 0.20   | 0.99   | 0.17    | 0.30   | 0.30   | 0.37   | n.d.    |
|             |             | 0.82    | 0.69  | 0.22   | 0.23   | 0.79   | 0.04    | 0.32   | 0.32   | 0.38   | n.d.    |
|             |             | 0.69    | 0.58  | 0.25   | 0.26   | 0.75   | 0.00    | 0.36   | 0.38   | 0.43   | n.d.    |
|             |             | 0.58    | 0.49  | 0.30   | 0.29   | 0.76   | 0.00    | 0.41   | 0.44   | 0.49   | n.d.    |
|             | Very Fine   | <0.49   |       | 0.90   | 1.02   | 7.05   | 0.00    | 1.68   | 1.66   | 2.16   | n.d.    |

**Table 3. Particle size data.—Continued**

|             |             | 50      |       |        |        | 49     |         |        |        |        |         |
|-------------|-------------|---------|-------|--------|--------|--------|---------|--------|--------|--------|---------|
|             |             | Microns |       | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| <b>Sand</b> | Very Coarse | 2,000   | 1,680 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,680   | 1,414 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,414   | 1,189 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,189   | 1,000 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             | Coarse      | 1,000   | 841   | 0.00   | 0.00   | 0.00   | 0.12    | 0.00   | 0.00   | 0.00   | 0.48    |
|             |             | 841     | 707   | 0.00   | 0.00   | 0.00   | 3.10    | 0.00   | 0.00   | 0.00   | 3.46    |
|             |             | 707     | 595   | 0.00   | 0.00   | 0.00   | 9.29    | 0.00   | 0.25   | 0.00   | 7.17    |
|             |             | 595     | 500   | 0.78   | 0.00   | 0.29   | 15.33   | 0.26   | 1.91   | 0.68   | 10.82   |
|             | Medium      | 500     | 420   | 3.19   | 0.52   | 2.04   | 19.97   | 2.05   | 3.83   | 3.20   | 13.81   |
|             |             | 420     | 354   | 5.19   | 2.39   | 3.98   | 18.85   | 4.13   | 5.61   | 5.55   | 15.05   |
|             |             | 354     | 297   | 7.52   | 4.48   | 6.08   | 14.27   | 6.36   | 7.66   | 8.21   | 13.78   |
|             |             | 297     | 250   | 9.20   | 6.38   | 7.56   | 8.99    | 8.05   | 9.02   | 9.93   | 11.18   |
|             | Fine        | 250     | 210   | 10.52  | 8.21   | 8.67   | 5.26    | 9.38   | 10.05  | 10.98  | 8.55    |
|             |             | 210     | 177   | 10.61  | 9.39   | 8.97   | 2.73    | 9.78   | 9.83   | 10.48  | 5.77    |
|             |             | 177     | 149   | 10.23  | 10.50  | 8.92   | 1.33    | 9.53   | 9.08   | 9.40   | 3.65    |
|             |             | 149     | 125   | 9.76   | 10.74  | 8.60   | 0.57    | 8.79   | 8.27   | 8.30   | 2.10    |
|             | Very Fine   | 125     | 105   | 8.46   | 9.99   | 7.91   | 0.19    | 7.64   | 6.92   | 6.64   | 1.03    |
|             |             | 105     | 88    | 6.84   | 8.94   | 7.12   | 0.01    | 6.42   | 5.54   | 5.01   | 0.44    |
|             |             | 88      | 74    | 4.91   | 7.18   | 5.95   | 0.00    | 4.97   | 4.03   | 3.43   | 0.18    |
|             |             | 74      | 63    | 3.18   | 5.16   | 4.57   | 0.00    | 3.55   | 2.66   | 2.15   | 0.11    |
| <b>Silt</b> | Coarse      | 63      | 53    | 2.27   | 4.06   | 3.93   | 0.00    | 2.87   | 1.95   | 1.53   | 0.14    |
|             |             | 53      | 44    | 1.53   | 2.95   | 3.22   | 0.00    | 2.25   | 1.36   | 1.07   | 0.18    |
|             |             | 44      | 37    | 0.87   | 1.75   | 2.21   | 0.00    | 1.54   | 0.83   | 0.69   | 0.17    |
|             |             | 37      | 31.2  | 0.55   | 1.08   | 1.58   | 0.00    | 1.16   | 0.60   | 0.54   | 0.14    |
|             | Medium      | 31.2    | 26.3  | 0.39   | 0.67   | 1.13   | 0.00    | 0.92   | 0.50   | 0.49   | 0.10    |
|             |             | 26.3    | 22.1  | 0.32   | 0.44   | 0.81   | 0.00    | 0.77   | 0.46   | 0.49   | 0.06    |
|             |             | 22.1    | 18.6  | 0.29   | 0.31   | 0.56   | 0.00    | 0.64   | 0.44   | 0.48   | 0.03    |
|             |             | 18.6    | 15.6  | 0.27   | 0.26   | 0.41   | 0.00    | 0.55   | 0.44   | 0.49   | 0.03    |
|             | Fine        | 15.6    | 13.1  | 0.24   | 0.23   | 0.31   | 0.00    | 0.48   | 0.42   | 0.48   | 0.03    |
|             |             | 13.1    | 11    | 0.20   | 0.21   | 0.25   | 0.00    | 0.44   | 0.42   | 0.49   | 0.05    |
|             |             | 11      | 9.3   | 0.16   | 0.20   | 0.21   | 0.00    | 0.41   | 0.41   | 0.50   | 0.07    |
|             |             | 9.3     | 7.8   | 0.14   | 0.20   | 0.22   | 0.00    | 0.42   | 0.44   | 0.56   | 0.09    |
|             | Very Fine   | 7.8     | 6.6   | 0.12   | 0.18   | 0.21   | 0.00    | 0.41   | 0.44   | 0.57   | 0.09    |
|             |             | 6.6     | 5.5   | 0.12   | 0.19   | 0.23   | 0.00    | 0.45   | 0.50   | 0.66   | 0.10    |
|             |             | 5.5     | 4.6   | 0.11   | 0.19   | 0.23   | 0.00    | 0.44   | 0.50   | 0.66   | 0.09    |
|             |             | 4.6     | 3.9   | 0.10   | 0.17   | 0.21   | 0.00    | 0.40   | 0.46   | 0.60   | 0.08    |
| <b>Clay</b> | Coarse      | 3.9     | 3.3   | 0.10   | 0.17   | 0.21   | 0.00    | 0.39   | 0.45   | 0.59   | 0.07    |
|             |             | 3.3     | 2.8   | 0.10   | 0.18   | 0.20   | 0.00    | 0.37   | 0.42   | 0.54   | 0.07    |
|             |             | 2.8     | 2.3   | 0.13   | 0.22   | 0.25   | 0.00    | 0.41   | 0.46   | 0.60   | 0.07    |
|             |             | 2.3     | 1.95  | 0.11   | 0.19   | 0.21   | 0.00    | 0.32   | 0.35   | 0.44   | 0.06    |
|             | Medium      | 1.95    | 1.64  | 0.12   | 0.20   | 0.21   | 0.00    | 0.31   | 0.33   | 0.41   | 0.06    |
|             |             | 1.64    | 1.38  | 0.12   | 0.20   | 0.21   | 0.00    | 0.28   | 0.29   | 0.36   | 0.06    |
|             |             | 1.38    | 1.16  | 0.12   | 0.19   | 0.20   | 0.00    | 0.26   | 0.26   | 0.31   | 0.05    |
|             |             | 1.16    | 0.98  | 0.11   | 0.17   | 0.19   | 0.00    | 0.23   | 0.23   | 0.26   | 0.05    |
|             | Fine        | 0.98    | 0.82  | 0.12   | 0.17   | 0.19   | 0.00    | 0.23   | 0.22   | 0.25   | 0.05    |
|             |             | 0.82    | 0.69  | 0.11   | 0.17   | 0.18   | 0.00    | 0.22   | 0.19   | 0.23   | 0.04    |
|             |             | 0.69    | 0.58  | 0.12   | 0.17   | 0.18   | 0.00    | 0.22   | 0.19   | 0.24   | 0.04    |
|             |             | 0.58    | 0.49  | 0.12   | 0.18   | 0.19   | 0.00    | 0.24   | 0.20   | 0.25   | 0.05    |
|             | Very Fine   | <0.49   |       | 0.54   | 0.85   | 1.24   | 0.00    | 1.46   | 1.58   | 1.27   | 0.32    |

**Table 3. Particle size data.—Continued**

|             |             | 48      |       |        |        | 47     |         |        |        |        |         |
|-------------|-------------|---------|-------|--------|--------|--------|---------|--------|--------|--------|---------|
|             |             | Microns |       | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| <b>Sand</b> | Very Coarse | 2,000   | 1,680 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,680   | 1,414 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,414   | 1,189 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,189   | 1,000 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             | Coarse      | 1,000   | 841   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 841     | 707   | 0.00   | 0.00   | 0.00   | 0.01    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 707     | 595   | 0.00   | 0.00   | 0.00   | 1.35    | 0.00   | 0.00   | 0.00   | 0.52    |
|             |             | 595     | 500   | 0.00   | 0.00   | 0.00   | 4.19    | 0.00   | 0.00   | 0.00   | 3.64    |
|             | Medium      | 500     | 420   | 0.00   | 0.00   | 0.00   | 6.82    | 0.00   | 0.00   | 0.00   | 7.31    |
|             |             | 420     | 354   | 0.00   | 0.00   | 0.00   | 9.32    | 0.00   | 0.43   | 0.00   | 11.54   |
|             |             | 354     | 297   | 0.03   | 0.03   | 0.00   | 11.54   | 2.08   | 2.32   | 1.48   | 15.76   |
|             |             | 297     | 250   | 1.70   | 1.78   | 0.44   | 11.92   | 3.68   | 4.13   | 2.74   | 16.94   |
|             | Fine        | 250     | 210   | 3.93   | 4.41   | 2.60   | 10.73   | 5.25   | 5.22   | 3.97   | 14.42   |
|             |             | 210     | 177   | 6.21   | 7.25   | 5.42   | 9.08    | 5.63   | 5.14   | 4.26   | 10.99   |
|             |             | 177     | 149   | 9.00   | 10.39  | 8.99   | 7.45    | 5.35   | 4.39   | 3.95   | 7.49    |
|             |             | 149     | 125   | 11.75  | 13.58  | 12.90  | 5.84    | 4.52   | 3.17   | 3.13   | 4.43    |
|             | Very Fine   | 125     | 105   | 12.99  | 13.49  | 15.20  | 4.21    | 3.58   | 2.14   | 1.99   | 2.17    |
|             |             | 105     | 88    | 11.47  | 11.64  | 13.26  | 2.98    | 2.85   | 1.38   | 1.30   | 0.91    |
|             |             | 88      | 74    | 8.69   | 8.42   | 9.52   | 2.01    | 2.24   | 0.85   | 0.74   | 0.31    |
|             |             | 74      | 63    | 5.76   | 5.13   | 5.67   | 1.34    | 1.83   | 0.63   | 0.40   | 0.08    |
| <b>Silt</b> | Coarse      | 63      | 53    | 4.13   | 3.27   | 3.43   | 1.08    | 1.94   | 0.77   | 0.34   | 0.02    |
|             |             | 53      | 44    | 2.71   | 1.84   | 1.72   | 0.91    | 2.27   | 1.17   | 0.48   | 0.05    |
|             |             | 44      | 37    | 1.46   | 0.80   | 0.63   | 0.69    | 2.39   | 1.51   | 0.70   | 0.11    |
|             |             | 37      | 31.2  | 0.82   | 0.34   | 0.21   | 0.57    | 2.62   | 1.89   | 0.99   | 0.15    |
|             | Medium      | 31.2    | 26.3  | 0.50   | 0.16   | 0.07   | 0.47    | 2.84   | 2.25   | 1.32   | 0.18    |
|             |             | 26.3    | 22.1  | 0.40   | 0.12   | 0.05   | 0.40    | 3.02   | 2.59   | 1.70   | 0.19    |
|             |             | 22.1    | 18.6  | 0.43   | 0.28   | 0.27   | 0.33    | 3.05   | 2.83   | 2.06   | 0.17    |
|             |             | 18.6    | 15.6  | 0.51   | 0.36   | 0.39   | 0.29    | 3.12   | 3.13   | 2.52   | 0.15    |
|             | Fine        | 15.6    | 13.1  | 0.56   | 0.43   | 0.50   | 0.27    | 3.08   | 3.36   | 2.98   | 0.14    |
|             |             | 13.1    | 11    | 0.59   | 0.48   | 0.57   | 0.27    | 3.07   | 3.62   | 3.49   | 0.15    |
|             |             | 11      | 9.3   | 0.58   | 0.48   | 0.58   | 0.27    | 2.93   | 3.70   | 3.83   | 0.16    |
|             |             | 9.3     | 7.8   | 0.62   | 0.53   | 0.64   | 0.30    | 3.04   | 4.07   | 4.45   | 0.20    |
|             | Very Fine   | 7.8     | 6.6   | 0.61   | 0.55   | 0.63   | 0.30    | 2.83   | 3.94   | 4.52   | 0.22    |
|             |             | 6.6     | 5.5   | 0.72   | 0.66   | 0.73   | 0.34    | 2.95   | 4.25   | 5.05   | 0.25    |
|             |             | 5.5     | 4.6   | 0.76   | 0.71   | 0.77   | 0.33    | 2.68   | 3.95   | 4.84   | 0.23    |
|             |             | 4.6     | 3.9   | 0.75   | 0.72   | 0.75   | 0.30    | 2.24   | 3.34   | 4.20   | 0.19    |
| <b>Clay</b> | Coarse      | 3.9     | 3.3   | 0.80   | 0.78   | 0.81   | 0.29    | 2.01   | 3.01   | 3.87   | 0.16    |
|             |             | 3.3     | 2.8   | 0.82   | 0.80   | 0.83   | 0.28    | 1.73   | 2.57   | 3.38   | 0.13    |
|             |             | 2.8     | 2.3   | 1.00   | 0.98   | 1.01   | 0.31    | 1.76   | 2.59   | 3.46   | 0.13    |
|             |             | 2.3     | 1.95  | 0.82   | 0.81   | 0.84   | 0.25    | 1.25   | 1.79   | 2.43   | 0.09    |
|             | Medium      | 1.95    | 1.64  | 0.81   | 0.80   | 0.85   | 0.24    | 1.11   | 1.55   | 2.14   | 0.09    |
|             |             | 1.64    | 1.38  | 0.77   | 0.76   | 0.80   | 0.22    | 0.95   | 1.28   | 1.78   | 0.08    |
|             |             | 1.38    | 1.16  | 0.70   | 0.69   | 0.75   | 0.20    | 0.83   | 1.08   | 1.50   | 0.08    |
|             |             | 1.16    | 0.98  | 0.62   | 0.62   | 0.69   | 0.18    | 0.71   | 0.89   | 1.25   | 0.08    |
|             | Fine        | 0.98    | 0.82  | 0.65   | 0.64   | 0.71   | 0.17    | 0.69   | 0.83   | 1.16   | 0.10    |
|             |             | 0.82    | 0.69  | 0.66   | 0.64   | 0.70   | 0.16    | 0.63   | 0.72   | 1.01   | 0.02    |
|             |             | 0.69    | 0.58  | 0.73   | 0.69   | 0.76   | 0.18    | 0.65   | 0.72   | 1.01   | 0.00    |
|             |             | 0.58    | 0.49  | 0.80   | 0.74   | 0.82   | 0.20    | 0.69   | 0.75   | 1.04   | 0.00    |
|             | Very Fine   | <0.49   |       | 3.16   | 3.20   | 4.49   | 1.41    | 5.93   | 6.06   | 8.56   | 0.00    |

**Table 3. Particle size data.—Continued**

|             |             | 30      |       |        |        | 46     |         |        |        |        |         |
|-------------|-------------|---------|-------|--------|--------|--------|---------|--------|--------|--------|---------|
|             |             | Microns |       | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| <b>Sand</b> | Very Coarse | 2,000   | 1,680 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 1,680   | 1,414 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 1,414   | 1,189 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 1,189   | 1,000 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             | Coarse      | 1,000   | 841   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 841     | 707   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 707     | 595   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 595     | 500   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | n.d.    |
|             | Medium      | 500     | 420   | 0.00   | 0.00   | 0.00   | 1.47    | 0.00   | 0.00   | 0.00   | n.d.    |
|             |             | 420     | 354   | 0.16   | 0.00   | 0.32   | 4.85    | 1.92   | 2.41   | 0.00   | n.d.    |
|             |             | 354     | 297   | 2.46   | 1.72   | 2.61   | 8.27    | 5.18   | 6.72   | 2.19   | n.d.    |
|             |             | 297     | 250   | 5.46   | 3.99   | 5.34   | 11.27   | 9.01   | 10.66  | 5.67   | n.d.    |
|             | Fine        | 250     | 210   | 8.85   | 6.46   | 7.54   | 13.69   | 13.11  | 14.64  | 9.67   | n.d.    |
|             |             | 210     | 177   | 11.18  | 7.68   | 8.18   | 13.59   | 16.32  | 16.79  | 12.71  | n.d.    |
|             |             | 177     | 149   | 12.16  | 7.75   | 7.66   | 11.90   | 16.97  | 15.78  | 14.33  | n.d.    |
|             |             | 149     | 125   | 10.46  | 6.66   | 6.03   | 9.96    | 13.98  | 11.27  | 12.59  | n.d.    |
|             | Very Fine   | 125     | 105   | 7.30   | 4.76   | 4.06   | 7.33    | 8.51   | 6.05   | 8.81   | n.d.    |
|             |             | 105     | 88    | 4.71   | 3.09   | 2.50   | 4.99    | 4.42   | 2.64   | 5.56   | n.d.    |
|             |             | 88      | 74    | 2.75   | 1.73   | 1.29   | 3.02    | 2.00   | 1.02   | 3.06   | n.d.    |
|             |             | 74      | 63    | 1.50   | 0.83   | 0.54   | 1.64    | 0.88   | 0.38   | 1.50   | n.d.    |
|             | Coarse      | 63      | 53    | 0.97   | 0.44   | 0.23   | 0.96    | 0.45   | 0.15   | 0.77   | n.d.    |
|             |             | 53      | 44    | 0.66   | 0.26   | 0.08   | 0.53    | 0.19   | 0.06   | 0.34   | n.d.    |
|             |             | 44      | 37    | 0.79   | 0.40   | 0.11   | 0.30    | 0.07   | 0.04   | 0.13   | n.d.    |
|             |             | 37      | 31.2  | 1.00   | 0.62   | 0.20   | 0.26    | 0.08   | 0.08   | 0.22   | n.d.    |
|             | Medium      | 31.2    | 26.3  | 1.19   | 0.86   | 0.31   | 0.29    | 0.14   | 0.15   | 0.34   | n.d.    |
|             |             | 26.3    | 22.1  | 1.40   | 1.15   | 0.45   | 0.31    | 0.22   | 0.23   | 0.49   | n.d.    |
|             |             | 22.1    | 18.6  | 1.52   | 1.42   | 0.61   | 0.31    | 0.26   | 0.28   | 0.61   | n.d.    |
|             |             | 18.6    | 15.6  | 1.62   | 1.75   | 0.85   | 0.30    | 0.28   | 0.33   | 0.74   | n.d.    |
|             | Fine        | 15.6    | 13.1  | 1.66   | 2.07   | 1.15   | 0.27    | 0.27   | 0.35   | 0.84   | n.d.    |
|             |             | 13.1    | 11    | 1.70   | 2.44   | 1.54   | 0.26    | 0.26   | 0.39   | 0.97   | n.d.    |
|             |             | 11      | 9.3   | 1.70   | 2.71   | 1.91   | 0.25    | 0.26   | 0.45   | 1.09   | n.d.    |
|             |             | 9.3     | 7.8   | 1.85   | 3.20   | 2.47   | 0.28    | 0.31   | 0.58   | 1.32   | n.d.    |
|             | Very Fine   | 7.8     | 6.6   | 1.80   | 3.31   | 2.75   | 0.28    | 0.34   | 0.66   | 1.40   | n.d.    |
|             |             | 6.6     | 5.5   | 1.97   | 3.77   | 3.34   | 0.32    | 0.41   | 0.81   | 1.64   | n.d.    |
|             |             | 5.5     | 4.6   | 1.82   | 3.68   | 3.45   | 0.32    | 0.42   | 0.82   | 1.62   | n.d.    |
|             |             | 4.6     | 3.9   | 1.52   | 3.24   | 3.19   | 0.28    | 0.37   | 0.73   | 1.43   | n.d.    |
|             | Coarse      | 3.9     | 3.3   | 1.36   | 3.01   | 3.09   | 0.26    | 0.34   | 0.68   | 1.32   | n.d.    |
|             |             | 3.3     | 2.8   | 1.15   | 2.62   | 2.82   | 0.23    | 0.31   | 0.61   | 1.15   | n.d.    |
|             |             | 2.8     | 2.3   | 1.14   | 2.66   | 3.00   | 0.24    | 0.34   | 0.63   | 1.17   | n.d.    |
|             |             | 2.3     | 1.95  | 0.77   | 1.83   | 2.16   | 0.18    | 0.25   | 0.44   | 0.80   | n.d.    |
|             | Medium      | 1.95    | 1.64  | 0.65   | 1.56   | 1.93   | 0.16    | 0.22   | 0.38   | 0.68   | n.d.    |
|             |             | 1.64    | 1.38  | 0.54   | 1.25   | 1.60   | 0.15    | 0.20   | 0.32   | 0.55   | n.d.    |
|             |             | 1.38    | 1.16  | 0.45   | 1.01   | 1.34   | 0.13    | 0.17   | 0.26   | 0.44   | n.d.    |
|             |             | 1.16    | 0.98  | 0.37   | 0.81   | 1.10   | 0.12    | 0.14   | 0.21   | 0.36   | n.d.    |
|             | Fine        | 0.98    | 0.82  | 0.36   | 0.74   | 1.03   | 0.11    | 0.14   | 0.21   | 0.35   | n.d.    |
|             |             | 0.82    | 0.69  | 0.36   | 0.64   | 0.90   | 0.11    | 0.16   | 0.23   | 0.33   | n.d.    |
|             |             | 0.69    | 0.58  | 0.39   | 0.66   | 0.94   | 0.11    | 0.20   | 0.26   | 0.37   | n.d.    |
|             |             | 0.58    | 0.49  | 0.44   | 0.71   | 1.01   | 0.11    | 0.24   | 0.31   | 0.42   | n.d.    |
|             | Very Fine   |         | <0.49 | 1.88   | 6.51   | 10.39  | 0.62    | 0.68   | 1.01   | 2.06   | n.d.    |

**Table 3. Particle size data.—Continued**

|             |             | 45          |        |        |        | 44      |        |        |        |         |
|-------------|-------------|-------------|--------|--------|--------|---------|--------|--------|--------|---------|
|             |             | Microns     | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| <b>Sand</b> | Very Coarse | 2,000 1,680 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,680 1,414 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,414 1,189 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 1,189 1,000 | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             | Coarse      | 1,000 841   | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 841 707     | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 707 595     | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 595 500     | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             | Medium      | 500 420     | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|             |             | 420 354     | 0.00   | 0.00   | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 1.67    |
|             |             | 354 297     | 0.05   | 0.01   | 0.03   | 0.06    | 0.94   | 1.57   | 2.80   | 6.30    |
|             |             | 297 250     | 2.41   | 1.56   | 2.00   | 3.74    | 3.42   | 4.41   | 5.90   | 11.59   |
|             | Fine        | 250 210     | 5.27   | 6.29   | 5.82   | 8.50    | 5.99   | 7.39   | 9.31   | 17.64   |
|             |             | 210 177     | 9.17   | 10.94  | 9.99   | 14.43   | 8.30   | 9.95   | 11.58  | 19.94   |
|             |             | 177 149     | 13.56  | 16.61  | 14.20  | 20.27   | 10.37  | 12.04  | 12.79  | 16.90   |
|             |             | 149 125     | 17.01  | 17.98  | 16.75  | 19.88   | 11.75  | 12.25  | 11.91  | 11.00   |
|             | Very Fine   | 125 105     | 15.52  | 14.60  | 14.29  | 13.27   | 11.07  | 10.84  | 9.66   | 5.78    |
|             |             | 105 88      | 11.87  | 10.00  | 10.32  | 6.88    | 9.89   | 9.16   | 7.55   | 2.53    |
|             |             | 88 74       | 7.68   | 5.68   | 6.33   | 3.03    | 8.16   | 6.97   | 5.36   | 1.02    |
|             |             | 74 63       | 4.34   | 2.87   | 3.36   | 1.28    | 6.09   | 4.77   | 3.45   | 0.37    |
|             | Coarse      | 63 53       | 2.67   | 1.59   | 1.88   | 0.58    | 4.98   | 3.59   | 2.45   | 0.14    |
|             |             | 53 44       | 1.50   | 0.78   | 0.90   | 0.22    | 3.80   | 2.50   | 1.62   | 0.04    |
|             |             | 44 37       | 0.67   | 0.29   | 0.32   | 0.06    | 2.41   | 1.47   | 0.93   | 0.06    |
|             |             | 37 31.2     | 0.29   | 0.12   | 0.11   | 0.03    | 1.62   | 0.93   | 0.61   | 0.11    |
|             | Medium      | 31.2 26.3   | 0.15   | 0.09   | 0.06   | 0.13    | 1.13   | 0.65   | 0.47   | 0.17    |
|             |             | 26.3 22.1   | 0.17   | 0.26   | 0.16   | 0.22    | 0.83   | 0.50   | 0.41   | 0.22    |
|             |             | 22.1 18.6   | 0.24   | 0.33   | 0.23   | 0.31    | 0.63   | 0.43   | 0.38   | 0.23    |
|             |             | 18.6 15.6   | 0.32   | 0.39   | 0.30   | 0.37    | 0.53   | 0.40   | 0.37   | 0.22    |
|             | Fine        | 15.6 13.1   | 0.35   | 0.40   | 0.36   | 0.39    | 0.44   | 0.38   | 0.36   | 0.18    |
|             |             | 13.1 11     | 0.36   | 0.40   | 0.42   | 0.39    | 0.39   | 0.38   | 0.38   | 0.16    |
|             |             | 11 9.3      | 0.34   | 0.41   | 0.48   | 0.38    | 0.33   | 0.37   | 0.41   | 0.15    |
|             |             | 9.3 7.8     | 0.37   | 0.48   | 0.62   | 0.43    | 0.31   | 0.41   | 0.49   | 0.19    |
|             | Very Fine   | 7.8 6.6     | 0.38   | 0.53   | 0.73   | 0.46    | 0.27   | 0.42   | 0.54   | 0.23    |
|             |             | 6.6 5.5     | 0.46   | 0.69   | 0.96   | 0.57    | 0.28   | 0.51   | 0.68   | 0.32    |
|             |             | 5.5 4.6     | 0.49   | 0.74   | 1.05   | 0.58    | 0.28   | 0.54   | 0.73   | 0.35    |
|             |             | 4.6 3.9     | 0.46   | 0.70   | 1.01   | 0.52    | 0.26   | 0.52   | 0.71   | 0.34    |
|             | Coarse      | 3.9 3.3     | 0.44   | 0.67   | 0.98   | 0.47    | 0.28   | 0.54   | 0.73   | 0.33    |
|             |             | 3.3 2.8     | 0.40   | 0.60   | 0.88   | 0.40    | 0.29   | 0.53   | 0.72   | 0.31    |
|             |             | 2.8 2.3     | 0.42   | 0.61   | 0.89   | 0.39    | 0.38   | 0.62   | 0.82   | 0.34    |
|             |             | 2.3 1.95    | 0.29   | 0.42   | 0.60   | 0.25    | 0.33   | 0.49   | 0.63   | 0.26    |
|             | Medium      | 1.95 1.64   | 0.25   | 0.36   | 0.50   | 0.20    | 0.35   | 0.47   | 0.60   | 0.23    |
|             |             | 1.64 1.38   | 0.23   | 0.31   | 0.41   | 0.17    | 0.35   | 0.43   | 0.53   | 0.22    |
|             |             | 1.38 1.16   | 0.20   | 0.26   | 0.33   | 0.14    | 0.33   | 0.38   | 0.46   | 0.19    |
|             |             | 1.16 0.98   | 0.17   | 0.22   | 0.28   | 0.12    | 0.30   | 0.32   | 0.38   | 0.20    |
|             | Fine        | 0.98 0.82   | 0.18   | 0.22   | 0.28   | 0.12    | 0.30   | 0.32   | 0.37   | 0.08    |
|             |             | 0.82 0.69   | 0.19   | 0.23   | 0.28   | 0.12    | 0.30   | 0.31   | 0.34   | 0.00    |
|             |             | 0.69 0.58   | 0.21   | 0.25   | 0.30   | 0.13    | 0.33   | 0.33   | 0.35   | 0.00    |
|             |             | 0.58 0.49   | 0.24   | 0.27   | 0.33   | 0.14    | 0.36   | 0.35   | 0.37   | 0.00    |
|             | Very Fine   | <0.49       | 0.69   | 0.85   | 1.29   | 0.37    | 1.66   | 1.59   | 1.87   | 0.00    |

**Table 3. Particle size data.—Continued**

|      |             | Microns | 05U-1  |        |         | 05U-2  |        |        |         |
|------|-------------|---------|--------|--------|---------|--------|--------|--------|---------|
|      |             |         | 0-1 cm | 1-2 cm | Bedrock | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| Sand | Very Coarse | 2,000   | 1,680  | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Coarse      | 1,680   | 1,414  | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Coarse      | 1,414   | 1,189  | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Coarse      | 1,189   | 1,000  | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Medium      | 500     | 420    | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Medium      | 420     | 354    | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Medium      | 354     | 297    | 1.90   | 2.63    | 1.69   | 0.05   | 0.05   | 0.07    |
|      | Fine        | 297     | 250    | 4.66   | 6.13    | 4.63   | 2.61   | 2.56   | 3.39    |
|      | Fine        | 250     | 210    | 8.73   | 11.01   | 9.45   | 5.40   | 5.43   | 6.98    |
|      | Fine        | 210     | 177    | 12.72  | 16.62   | 15.21  | 9.33   | 9.62   | 11.40   |
| Silt | Very Fine   | 177     | 149    | 15.61  | 18.41   | 20.61  | 13.51  | 14.23  | 16.47   |
|      | Very Fine   | 149     | 125    | 14.31  | 15.33   | 19.45  | 15.60  | 16.51  | 18.13   |
|      | Very Fine   | 125     | 105    | 10.07  | 9.68    | 12.76  | 12.26  | 12.70  | 12.65   |
|      | Very Fine   | 105     | 88     | 6.48   | 5.56    | 7.05   | 8.06   | 8.03   | 8.08    |
|      | Very Fine   | 88      | 74     | 3.87   | 2.92    | 3.44   | 4.89   | 4.69   | 4.58    |
|      | Very Fine   | 74      | 63     | 2.26   | 1.49    | 1.60   | 2.93   | 2.73   | 2.51    |
|      | Coarse      | 63      | 53     | 1.52   | 0.85    | 0.83   | 2.12   | 1.92   | 1.60    |
|      | Coarse      | 53      | 44     | 1.00   | 0.42    | 0.36   | 1.55   | 1.35   | 0.94    |
|      | Coarse      | 44      | 37     | 0.65   | 0.17    | 0.11   | 1.08   | 0.88   | 0.46    |
|      | Coarse      | 37      | 31.2   | 0.64   | 0.14    | 0.05   | 0.99   | 0.79   | 0.36    |
| Clay | Medium      | 31.2    | 26.3   | 0.78   | 0.22    | 0.06   | 1.10   | 0.90   | 0.47    |
|      | Medium      | 26.3    | 22.1   | 0.94   | 0.32    | 0.09   | 1.24   | 1.07   | 0.66    |
|      | Medium      | 22.1    | 18.6   | 0.98   | 0.37    | 0.12   | 1.27   | 1.12   | 0.77    |
|      | Medium      | 18.6    | 15.6   | 0.97   | 0.38    | 0.13   | 1.24   | 1.10   | 0.79    |
|      | Fine        | 15.6    | 13.1   | 0.88   | 0.36    | 0.12   | 1.12   | 1.00   | 0.74    |
|      | Fine        | 13.1    | 11     | 0.79   | 0.34    | 0.10   | 1.02   | 0.91   | 0.68    |
|      | Fine        | 11      | 9.3    | 0.70   | 0.31    | 0.07   | 0.90   | 0.82   | 0.60    |
|      | Fine        | 9.3     | 7.8    | 0.69   | 0.34    | 0.05   | 0.90   | 0.83   | 0.60    |
|      | Very Fine   | 7.8     | 6.6    | 0.64   | 0.34    | 0.05   | 0.83   | 0.78   | 0.56    |
|      | Very Fine   | 6.6     | 5.5    | 0.69   | 0.40    | 0.07   | 0.89   | 0.85   | 0.61    |
| Clay | Coarse      | 5.5     | 4.6    | 0.67   | 0.41    | 0.10   | 0.84   | 0.82   | 0.60    |
|      | Coarse      | 4.6     | 3.9    | 0.59   | 0.38    | 0.10   | 0.74   | 0.73   | 0.54    |
|      | Coarse      | 3.9     | 3.3    | 0.57   | 0.37    | 0.11   | 0.71   | 0.69   | 0.52    |
|      | Coarse      | 3.3     | 2.8    | 0.52   | 0.35    | 0.10   | 0.65   | 0.64   | 0.48    |
|      | Coarse      | 2.8     | 2.3    | 0.57   | 0.38    | 0.10   | 0.70   | 0.70   | 0.52    |
|      | Coarse      | 2.3     | 1.95   | 0.44   | 0.30    | 0.08   | 0.53   | 0.53   | 0.40    |
|      | Medium      | 1.95    | 1.64   | 0.43   | 0.30    | 0.09   | 0.51   | 0.51   | 0.40    |
|      | Medium      | 1.64    | 1.38   | 0.43   | 0.32    | 0.11   | 0.51   | 0.52   | 0.40    |
|      | Medium      | 1.38    | 1.16   | 0.39   | 0.30    | 0.11   | 0.46   | 0.47   | 0.37    |
|      | Medium      | 1.16    | 0.98   | 0.33   | 0.25    | 0.11   | 0.37   | 0.38   | 0.31    |
| Clay | Fine        | 0.98    | 0.82   | 0.32   | 0.24    | 0.11   | 0.37   | 0.37   | 0.31    |
|      | Fine        | 0.82    | 0.69   | 0.33   | 0.26    | 0.12   | 0.39   | 0.40   | 0.33    |
|      | Fine        | 0.69    | 0.58   | 0.35   | 0.28    | 0.13   | 0.42   | 0.44   | 0.36    |
|      | Fine        | 0.58    | 0.49   | 0.38   | 0.30    | 0.14   | 0.48   | 0.50   | 0.40    |
| Clay | Very Fine   | <0.49   |        | 1.22   | 0.85    | 0.43   | 1.44   | 1.44   | 1.30    |
|      | Very Fine   |         |        |        |         |        |        |        | 0.40    |

**Table 3. Particle size data.—Continued**

|      |             | 21          |        |        |        |         |
|------|-------------|-------------|--------|--------|--------|---------|
|      |             | Microns     | 0-1 cm | 1-2 cm | 2-5 cm | Bedrock |
| Sand | Very Coarse | 2,000 1,680 | 0.00   | 0.00   | 0.00   | 0.00    |
|      |             | 1,680 1,414 | 0.00   | 0.00   | 0.00   | 0.00    |
|      |             | 1,414 1,189 | 0.00   | 0.00   | 0.00   | 0.00    |
|      |             | 1,189 1,000 | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Coarse      | 1,000 841   | 0.00   | 0.00   | 0.00   | 0.00    |
|      |             | 841 707     | 0.00   | 0.00   | 0.00   | 0.00    |
|      |             | 707 595     | 0.00   | 0.00   | 0.00   | 0.00    |
|      |             | 595 500     | 0.00   | 0.00   | 0.00   | 0.00    |
|      | Medium      | 500 420     | 0.95   | 0.98   | 1.26   | 0.00    |
|      |             | 420 354     | 4.23   | 3.40   | 3.81   | 1.38    |
|      |             | 354 297     | 7.89   | 6.88   | 7.06   | 4.24    |
|      |             | 297 250     | 11.79  | 11.02  | 10.56  | 8.21    |
|      | Fine        | 250 210     | 15.15  | 14.89  | 13.81  | 12.87   |
|      |             | 210 177     | 15.19  | 15.45  | 14.34  | 16.32   |
|      |             | 177 149     | 12.96  | 13.42  | 12.86  | 17.00   |
|      |             | 149 125     | 10.27  | 10.67  | 10.82  | 14.52   |
|      | Very Fine   | 125 105     | 7.03   | 7.26   | 7.86   | 10.07   |
|      |             | 105 88      | 4.50   | 4.63   | 5.30   | 5.76    |
|      |             | 88 74       | 2.67   | 2.78   | 3.27   | 2.81    |
|      |             | 74 63       | 1.49   | 1.59   | 1.88   | 1.28    |
| Silt | Coarse      | 63 53       | 0.90   | 1.00   | 1.19   | 0.64    |
|      |             | 53 44       | 0.47   | 0.55   | 0.69   | 0.27    |
|      |             | 44 37       | 0.22   | 0.28   | 0.35   | 0.09    |
|      |             | 37 31.2     | 0.16   | 0.22   | 0.24   | 0.05    |
|      | Medium      | 31.2 26.3   | 0.17   | 0.23   | 0.22   | 0.07    |
|      |             | 26.3 22.1   | 0.18   | 0.24   | 0.22   | 0.11    |
|      |             | 22.1 18.6   | 0.17   | 0.22   | 0.21   | 0.14    |
|      |             | 18.6 15.6   | 0.15   | 0.19   | 0.19   | 0.15    |
|      | Fine        | 15.6 13.1   | 0.13   | 0.16   | 0.16   | 0.15    |
|      |             | 13.1 11     | 0.11   | 0.14   | 0.14   | 0.14    |
|      |             | 11 9.3      | 0.10   | 0.13   | 0.12   | 0.13    |
|      |             | 9.3 7.8     | 0.12   | 0.15   | 0.14   | 0.16    |
|      | Very Fine   | 7.8 6.6     | 0.13   | 0.17   | 0.15   | 0.19    |
|      |             | 6.6 5.5     | 0.17   | 0.21   | 0.18   | 0.26    |
|      |             | 5.5 4.6     | 0.19   | 0.23   | 0.20   | 0.29    |
|      |             | 4.6 3.9     | 0.18   | 0.22   | 0.19   | 0.28    |
| Clay | Coarse      | 3.9 3.3     | 0.18   | 0.22   | 0.19   | 0.27    |
|      |             | 3.3 2.8     | 0.17   | 0.21   | 0.19   | 0.24    |
|      |             | 2.8 2.3     | 0.20   | 0.23   | 0.21   | 0.25    |
|      |             | 2.3 1.95    | 0.16   | 0.18   | 0.17   | 0.18    |
|      | Medium      | 1.95 1.64   | 0.16   | 0.19   | 0.17   | 0.17    |
|      |             | 1.64 1.38   | 0.16   | 0.19   | 0.18   | 0.16    |
|      |             | 1.38 1.16   | 0.15   | 0.18   | 0.17   | 0.14    |
|      |             | 1.16 0.98   | 0.13   | 0.15   | 0.15   | 0.12    |
|      | Fine        | 0.98 0.82   | 0.14   | 0.16   | 0.15   | 0.12    |
|      |             | 0.82 0.69   | 0.15   | 0.17   | 0.16   | 0.13    |
|      |             | 0.69 0.58   | 0.16   | 0.18   | 0.16   | 0.14    |
|      |             | 0.58 0.49   | 0.16   | 0.19   | 0.17   | 0.15    |
|      | Very Fine   | <0.49       | 0.41   | 0.47   | 0.53   | 0.38    |

**Table 4. Magnetic properties.**

[**Sample no.**, Unique sample number (for example, 44/0-1); presented as site designation (44), and depth in centimeters (0-1).

**MSlf and MShf**, Low frequency (lf) and high frequency (hf) magnetic susceptibility in  $\text{m}^3/\text{kg}$ .

**FDMS**, Frequency-dependent magnetic susceptibility. Expressed in percent and  $\text{m}^3/\text{kg}$ .

**ARM**, Anhysteretic remanent magnetization in  $\text{Am}^2/\text{kg}$ .

**IRM 1.2**, Isothermal remanent magnetization from a 1.2 tesla induction. Expressed in  $\text{Am}^2/\text{kg}$ .

**IRM -0.3**, Isothermal remanent magnetization from a -0.3 tesla induction. Expressed in  $\text{Am}^2/\text{kg}$ .

**HIRM**, Hard isothermal remanent magnetization: HIRM is calculated as:  $(\text{IRM1.2T} + \text{IRM-0.3T})/2$ .

**S**, (S parameter) calculated as  $\text{IRM-0.3T}/\text{IRM1.2T}$ .

**n.d.**, not determined; **Am<sup>2</sup>/kg**, Ampere meter squared per kilogram; **m<sup>3</sup>/kg**, cubic meter per kilogram; **mm**, millimeter; **T**, tesla; **μm**, micrometer; **%**, percent]

#### Magnetic properties for <2-mm-size fraction and bulk bedrock.

| Sample no.  | MSlf<br>( $\text{m}^3/\text{kg}$ ) | MShf<br>( $\text{m}^3/\text{kg}$ ) | FDMS<br>(%) | FDMS<br>( $\text{m}^3/\text{kg}$ ) | ARM<br>( $\text{Am}^2/\text{kg}$ ) | IRM1.2<br>( $\text{Am}^2/\text{kg}$ ) | IRM -0.3<br>( $\text{Am}^2/\text{kg}$ ) | HIRM<br>( $\text{Am}^2/\text{kg}$ ) | S    |
|-------------|------------------------------------|------------------------------------|-------------|------------------------------------|------------------------------------|---------------------------------------|---|-------------------------------------|------|
| 493/0-1     | 4.87E-07                           | 4.81E-07                           | 1.31        | 6.39E-09                           | 1.37E-04                           | 6.91E-03                              | 5.83E-03                                | 5.44E-04                            | 0.84 |
| 493/1-2     | 4.98E-07                           | 4.91E-07                           | 1.51        | 7.54E-09                           | 1.59E-04                           | 7.23E-03                              | 6.12E-03                                | 5.55E-04                            | 0.85 |
| 493/2-5     | 4.30E-07                           | 4.42E-07                           | -2.85       | -1.22E-08                          | 1.61E-04                           | 6.44E-03                              | 5.49E-03                                | 4.79E-04                            | 0.85 |
| 493/Bedrock | n.d.                               | n.d.                               | n.d.        | n.d.                               | n.d.                               | n.d.                                  | n.d.                                    | n.d.                                | n.d. |
| 29/0-1      | 2.54E-07                           | 2.50E-07                           | 1.87        | 4.75E-09                           | 7.14E-05                           | 3.51E-03                              | 3.05E-03                                | 2.27E-04                            | 0.87 |
| 29/1-2      | 2.31E-07                           | 2.27E-07                           | 1.79        | 4.14E-09                           | 7.55E-05                           | 3.45E-03                              | 3.03E-03                                | 2.11E-04                            | 0.88 |
| 29/2-5      | 1.36E-07                           | 1.34E-07                           | 1.46        | 1.98E-09                           | 5.45E-05                           | 2.10E-03                              | 2.07E-03                                | 1.15E-05                            | 0.99 |
| 29/Bedrock  | 5.76E-09                           | 9.68E-09                           | -67.99      | -3.92E-09                          | 5.31E-06                           | 1.42E-04                              | 7.63E-05                                | 3.29E-05                            | 0.54 |
| 55/0-1      | 3.89E-07                           | 3.82E-07                           | 1.88        | 7.31E-09                           | 8.51E-05                           | 5.02E-03                              | 4.54E-03                                | 2.38E-04                            | 0.91 |
| 55/1-2      | 3.82E-07                           | 3.76E-07                           | 1.45        | 5.52E-09                           | 8.92E-05                           | 4.70E-03                              | 4.17E-03                                | 2.68E-04                            | 0.89 |
| 55/2-5      | 2.82E-07                           | 2.77E-07                           | 1.79        | 5.04E-09                           | 7.37E-05                           | 3.43E-03                              | 3.03E-03                                | 2.02E-04                            | 0.88 |
| 55/Bedrock  | 7.27E-09                           | 1.09E-08                           | -50.03      | -3.64E-09                          | 2.18E-06                           | 1.11E-04                              | 1.55E-05                                | 4.77E-05                            | 0.14 |
| 54/0-1      | 2.43E-07                           | 2.36E-07                           | 2.76        | 6.69E-09                           | 6.34E-05                           | 3.56E-03                              | 3.07E-03                                | 2.45E-04                            | 0.86 |
| 54/1-2      | 1.90E-07                           | 1.84E-07                           | 3.17        | 6.03E-09                           | 7.00E-05                           | 3.01E-03                              | 2.02E-03                                | 4.94E-04                            | 0.67 |
| 54/2-5      | 8.62E-08                           | 8.63E-08                           | -0.18       | -1.55E-10                          | 3.98E-05                           | 1.34E-03                              | 7.70E-04                                | 2.84E-04                            | 0.58 |
| 54/Bedrock  | 2.36E-08                           | 2.67E-08                           | -13.13      | -3.10E-09                          | 2.97E-06                           | 3.76E-04                              | 2.07E-05                                | 1.78E-04                            | 0.06 |
| 53/0-1      | 1.61E-07                           | 1.60E-07                           | 1.01        | 1.63E-09                           | 4.31E-05                           | 2.26E-03                              | 1.94E-03                                | 1.58E-04                            | 0.86 |
| 53/1-2      | 1.25E-07                           | 1.22E-07                           | 3.11        | 3.90E-09                           | 5.21E-05                           | 1.82E-03                              | 1.58E-03                                | 1.19E-04                            | 0.87 |
| 53/2-5      | 1.92E-07                           | 1.86E-07                           | 2.90        | 5.56E-09                           | 5.83E-05                           | 3.33E-03                              | 2.83E-03                                | 2.46E-04                            | 0.85 |
| 53/Bedrock  | 2.92E-09                           | 5.78E-09                           | -98.30      | -2.87E-09                          | 4.29E-06                           | 1.19E-04                              | 1.00E-04                                | 9.19E-06                            | 0.85 |
| 51/0-1      | 2.15E-07                           | 2.07E-07                           | 3.95        | 8.50E-09                           | 8.87E-05                           | 2.35E-03                              | 1.96E-03                                | 1.98E-04                            | 0.83 |
| 51/1-2      | 1.67E-07                           | 1.61E-07                           | 3.63        | 6.07E-09                           | 8.60E-05                           | 2.09E-03                              | 1.75E-03                                | 1.66E-04                            | 0.84 |
| 51/2-5      | 1.69E-07                           | 1.61E-07                           | 4.41        | 7.45E-09                           | 8.37E-05                           | 1.85E-03                              | 1.70E-03                                | 7.65E-05                            | 0.92 |
| 51/Bedrock  | 5.46E-09                           | 8.96E-09                           | -64.29      | -3.51E-09                          | 2.19E-06                           | 8.37E-05                              | 7.68E-05                                | 3.44E-06                            | 0.92 |
| 50/0-1      | 6.91E-08                           | 6.78E-08                           | 1.95        | 1.35E-09                           | 3.15E-05                           | 1.06E-03                              | 7.97E-04                                | 1.31E-04                            | 0.75 |
| 50/1-2      | 5.18E-08                           | 5.28E-08                           | -1.79       | -9.27E-10                          | 2.79E-05                           | 8.52E-04                              | 5.87E-04                                | 1.32E-04                            | 0.69 |
| 50/2-5      | 5.17E-08                           | 5.19E-08                           | -0.33       | -1.68E-10                          | 2.13E-05                           | 4.15E-04                              | 3.00E-04                                | 5.73E-05                            | 0.72 |
| 50/Bedrock  | 2.94E-09                           | 6.76E-09                           | -129.50     | -3.81E-09                          | 2.40E-06                           | 1.12E-04                              | 5.85E-05                                | 2.66E-05                            | 0.52 |
| 49/0-1      | 8.78E-08                           | 8.66E-08                           | 1.37        | 1.20E-09                           | 3.13E-05                           | 9.80E-04                              | 8.83E-04                                | 4.85E-05                            | 0.90 |
| 49/1-2      | 6.83E-08                           | 7.07E-08                           | -3.53       | -2.41E-09                          | 2.45E-05                           | 6.97E-04                              | 5.53E-04                                | 7.20E-05                            | 0.79 |
| 49/2-5      | 6.03E-08                           | 6.20E-08                           | -2.85       | -1.72E-09                          | 1.05E-05                           | 6.57E-04                              | 5.39E-04                                | 5.87E-05                            | 0.82 |
| 49/Bedrock  | 2.26E-09                           | 5.00E-09                           | -121.09     | -2.74E-09                          | 3.69E-06                           | 1.85E-04                              | 1.66E-04                                | 9.30E-06                            | 0.90 |

**Table 4. Magnetic properties.—Continued**

Magnetic properties for <2-mm-size fraction and bulk bedrock—Continued.

| Sample no.    | MSif<br>(m <sup>3</sup> /kg) | MShf<br>(m <sup>3</sup> /kg) | FDMS<br>(%) | FDMS<br>(m <sup>3</sup> /kg) | ARM<br>(Am <sup>2</sup> /kg) | IRM1.2<br>(Am <sup>2</sup> /kg) | IRM -0.3<br>(Am <sup>2</sup> /kg) | HIRM<br>(Am <sup>2</sup> /kg) | S    |
|---------------|------------------------------|------------------------------|-------------|------------------------------|------------------------------|---------------------------------|-----------------------------------|-------------------------------|------|
| 48/0-1        | 9.86E-08                     | 1.01E-07                     | -2.39       | -2.36E-09                    | 1.47E-05                     | 9.33E-04                        | 9.24E-04                          | 4.63E-06                      | 0.99 |
| 48/1-2        | 6.68E-08                     | 6.60E-08                     | 1.15        | 7.70E-10                     | 1.12E-05                     | 6.57E-04                        | 5.76E-04                          | 4.02E-05                      | 0.88 |
| 48/2-5        | 7.22E-08                     | 7.68E-08                     | -6.39       | -4.62E-09                    | 2.53E-05                     | 6.47E-04                        | 5.66E-04                          | 4.02E-05                      | 0.88 |
| 48/Bedrock    | 5.00E-08                     | 5.27E-08                     | -5.21       | -2.61E-09                    | 3.22E-06                     | 1.31E-04                        | 2.25E-05                          | 5.44E-05                      | 0.17 |
| 47/0-1        | 2.03E-07                     | 1.99E-07                     | 1.94        | 3.93E-09                     | 6.90E-05                     | 2.93E-03                        | 2.37E-03                          | 2.77E-04                      | 0.81 |
| 47/1-2        | 1.77E-07                     | 1.72E-07                     | 3.23        | 5.73E-09                     | 5.52E-05                     | 2.63E-03                        | 2.21E-03                          | 2.10E-04                      | 0.84 |
| 47/2-5        | 1.17E-07                     | 1.18E-07                     | -1.11       | -1.30E-09                    | 2.93E-05                     | 1.60E-03                        | 1.22E-03                          | 1.89E-04                      | 0.76 |
| 47/Bedrock    | 4.06E-08                     | 4.40E-08                     | -8.44       | -3.43E-09                    | 7.04E-06                     | 2.09E-04                        | 1.66E-04                          | 2.13E-05                      | 0.80 |
| 30/0-1        | 1.70E-07                     | 1.65E-07                     | 2.72        | 4.61E-09                     | 4.83E-05                     | 3.49E-03                        | 3.06E-03                          | 2.17E-04                      | 0.88 |
| 30/1-2        | 1.46E-07                     | 1.45E-07                     | 0.29        | 4.28E-10                     | 4.46E-05                     | 2.06E-03                        | 1.84E-03                          | 1.12E-04                      | 0.89 |
| 30/2-5        | 4.44E-08                     | 4.98E-08                     | -12.26      | -5.44E-09                    | 2.57E-05                     | 6.41E-04                        | 5.37E-04                          | 5.20E-05                      | 0.84 |
| 30/Bedrock    | 4.20E-09                     | 8.01E-09                     | -90.88      | -3.81E-09                    | 2.94E-06                     | 6.83E-05                        | 5.67E-05                          | 5.79E-06                      | 0.83 |
| 46/0-1        | 3.34E-08                     | 3.59E-08                     | -7.40       | -2.47E-09                    | 2.24E-05                     | 3.81E-04                        | 3.43E-04                          | 1.92E-05                      | 0.90 |
| 46/1-2        | 2.71E-08                     | 2.68E-08                     | 1.06        | 2.88E-10                     | 2.01E-05                     | 3.38E-04                        | 3.68E-04                          | -1.50E-05                     | 1.09 |
| 46/2-5        | 4.21E-08                     | 4.50E-08                     | -6.81       | -2.87E-09                    | 1.79E-05                     | 5.66E-04                        | 5.18E-04                          | 2.45E-05                      | 0.91 |
| 46/Bedrock    | n.d.                         | n.d.                         | n.d.        | n.d.                         | n.d.                         | n.d.                            | n.d.                              | n.d.                          | n.d. |
| 45/0-1        | 7.25E-08                     | 7.38E-08                     | -1.78       | -1.29E-09                    | 1.96E-05                     | 8.39E-04                        | 7.88E-04                          | 2.59E-05                      | 0.94 |
| 45/1-2        | 6.58E-08                     | 6.84E-08                     | -4.03       | -2.65E-09                    | 2.45E-05                     | 6.10E-04                        | 5.40E-04                          | 3.51E-05                      | 0.89 |
| 45/2-5        | 4.84E-08                     | 4.67E-08                     | 3.44        | 1.66E-09                     | 2.14E-05                     | 5.17E-04                        | 4.70E-04                          | 2.31E-05                      | 0.91 |
| 45/Bedrock    | 3.47E-09                     | 8.68E-09                     | -149.70     | -5.20E-09                    | 3.51E-06                     | 8.95E-05                        | 7.62E-05                          | 6.65E-06                      | 0.85 |
| 44/0-1        | 9.30E-08                     | 9.60E-08                     | -3.29       | -3.06E-09                    | 3.17E-05                     | 1.03E-03                        | 8.08E-04                          | 1.11E-04                      | 0.78 |
| 44/1-2        | 6.63E-08                     | 6.87E-08                     | -3.59       | -2.38E-09                    | 1.61E-05                     | 7.89E-04                        | 6.64E-04                          | 6.26E-05                      | 0.84 |
| 44/2-5        | 5.18E-08                     | 5.52E-08                     | -6.72       | -3.48E-09                    | 1.33E-05                     | 6.45E-04                        | 5.21E-04                          | 6.19E-05                      | 0.81 |
| 44/Bedrock    | 3.21E-09                     | 7.26E-09                     | -126.29     | -4.05E-09                    | 3.38E-06                     | 5.96E-05                        | 5.14E-05                          | 4.07E-06                      | 0.86 |
| 05U-1/0-1     | 1.02E-07                     | 1.02E-07                     | -0.26       | -2.69E-10                    | 4.36E-05                     | 1.77E-03                        | 1.32E-03                          | 2.26E-04                      | 0.75 |
| 05U-1/1-2     | 3.60E-08                     | 3.77E-08                     | -4.76       | -1.71E-09                    | 2.59E-05                     | 6.36E-04                        | 4.39E-04                          | 9.85E-05                      | 0.69 |
| 05U-1/Bedrock | 4.34E-09                     | 6.68E-09                     | -53.80      | -2.34E-09                    | 5.80E-06                     | 1.59E-04                        | 6.27E-05                          | 4.82E-05                      | 0.39 |
| 05U-2/0-1     | 1.13E-07                     | 1.12E-07                     | 0.94        | 1.06E-09                     | 6.21E-05                     | 1.95E-03                        | 1.42E-03                          | 2.68E-04                      | 0.73 |
| 05U-2/1-2     | 9.65E-08                     | 9.62E-08                     | 0.26        | 2.55E-10                     | 5.59E-05                     | 1.70E-03                        | 1.22E-03                          | 2.41E-04                      | 0.72 |
| 05U-2/2-5     | 4.51E-08                     | 4.74E-08                     | -5.16       | -2.33E-09                    | 2.47E-05                     | 8.40E-04                        | 5.29E-04                          | 1.55E-04                      | 0.63 |
| 05U-2/Bedrock | 4.36E-09                     | 7.35E-09                     | -68.69      | -2.99E-09                    | 6.45E-06                     | 1.54E-04                        | 6.94E-05                          | 4.22E-05                      | 0.45 |
| 21/0-1        | 8.91E-08                     | 8.94E-08                     | -0.36       | -3.23E-10                    | 3.01E-05                     | 1.47E-03                        | 1.01E-03                          | 2.27E-04                      | 0.69 |
| 21/1-2        | 6.21E-08                     | 6.09E-08                     | 1.88        | 1.17E-09                     | 2.71E-05                     | 1.05E-03                        | 7.09E-04                          | 1.72E-04                      | 0.67 |
| 21/2-5        | 5.97E-08                     | 6.34E-08                     | -6.19       | -3.70E-09                    | 2.46E-05                     | 9.52E-04                        | 6.26E-04                          | 1.63E-04                      | 0.66 |
| 21/Bedrock    | 1.44E-08                     | 1.69E-08                     | -16.79      | -2.42E-09                    | 8.04E-06                     | 5.79E-04                        | 2.04E-04                          | 1.87E-04                      | 0.35 |

**Table 4. Magnetic properties.—Continued**

Magnetic properties for <63- $\mu\text{m}$ -size fraction.

| Sample no. | MSif<br>( $\text{m}^3/\text{kg}$ ) | MShf<br>( $\text{m}^3/\text{kg}$ ) | FDMS<br>(%) | FDMS<br>( $\text{m}^3/\text{kg}$ ) | ARM<br>( $\text{Am}^2/\text{kg}$ ) | IRM1.2<br>( $\text{Am}^2/\text{kg}$ ) | IRM -0.3<br>( $\text{Am}^2/\text{kg}$ ) | HIRM<br>( $\text{Am}^2/\text{kg}$ ) | S    |
|------------|------------------------------------|------------------------------------|-------------|------------------------------------|------------------------------------|---------------------------------------|---|-------------------------------------|------|
| 493/0-1    | 1.37E-06                           | 1.36E-06                           | 1.37        | 1.88E-08                           | 2.93E-04                           | 1.92E-02                              | 1.70E-02                                | 1.11E-03                            | 0.88 |
| 493/1-2    | 1.35E-06                           | 1.33E-06                           | 1.79        | 2.42E-08                           | 3.35E-04                           | 1.96E-02                              | 1.71E-02                                | 1.22E-03                            | 0.88 |
| 493/2-5    | 1.04E-06                           | 1.02E-06                           | 1.86        | 1.93E-08                           | 2.59E-04                           | 1.49E-02                              | 1.30E-02                                | 9.34E-04                            | 0.87 |
| 29/0-1     | 1.10E-06                           | 1.08E-06                           | 1.78        | 1.95E-08                           | 2.81E-04                           | 1.56E-02                              | 1.41E-02                                | 7.69E-04                            | 0.90 |
| 29/1-2     | 1.03E-06                           | 1.01E-06                           | 2.29        | 2.36E-08                           | 2.45E-04                           | 1.46E-02                              | 1.30E-02                                | 8.19E-04                            | 0.89 |
| 29/2-5     | 5.87E-07                           | 5.73E-07                           | 2.39        | 1.41E-08                           | 1.56E-04                           | 8.85E-03                              | 7.69E-03                                | 5.84E-04                            | 0.87 |
| 55/0-1     | 1.40E-06                           | 1.37E-06                           | 2.00        | 2.79E-08                           | 2.58E-04                           | 1.82E-02                              | 1.62E-02                                | 9.62E-04                            | 0.89 |
| 55/1-2     | 1.25E-06                           | 1.23E-06                           | 1.88        | 2.36E-08                           | 2.94E-04                           | 1.67E-02                              | 1.48E-02                                | 9.49E-04                            | 0.89 |
| 55/2-5     | 1.18E-06                           | 1.16E-06                           | 2.34        | 2.76E-08                           | 2.27E-04                           | 1.55E-02                              | 1.38E-02                                | 8.35E-04                            | 0.89 |
| 54/0-1     | 1.01E-06                           | 9.89E-07                           | 2.38        | 2.41E-08                           | 2.36E-04                           | 1.43E-02                              | 1.23E-02                                | 9.97E-04                            | 0.86 |
| 54/1-2     | 6.65E-07                           | 6.45E-07                           | 3.12        | 2.07E-08                           | 2.13E-04                           | 1.01E-02                              | 7.46E-03                                | 1.33E-03                            | 0.74 |
| 54/2-5     | 4.74E-07                           | 4.59E-07                           | 3.07        | 1.46E-08                           | 1.51E-04                           | 7.30E-03                              | 5.05E-03                                | 1.13E-03                            | 0.69 |
| 53/0-1     | 9.01E-07                           | 8.79E-07                           | 2.39        | 2.15E-08                           | 1.85E-04                           | 1.38E-02                              | 1.19E-02                                | 9.07E-04                            | 0.87 |
| 53/1-2     | 8.51E-07                           | 8.29E-07                           | 2.57        | 2.18E-08                           | 1.81E-04                           | 1.31E-02                              | 1.14E-02                                | 8.37E-04                            | 0.87 |
| 53/2-5     | 6.25E-07                           | 6.06E-07                           | 2.93        | 1.83E-08                           | 1.93E-04                           | 1.05E-02                              | 8.88E-03                                | 7.90E-04                            | 0.85 |
| 51/0-1     | 8.87E-07                           | 8.49E-07                           | 4.22        | 3.74E-08                           | 2.54E-04                           | 1.24E-02                              | 1.07E-02                                | 8.21E-04                            | 0.87 |
| 51/1-2     | 9.08E-07                           | 8.76E-07                           | 3.49        | 3.17E-08                           | 2.66E-04                           | 1.22E-02                              | 1.06E-02                                | 8.03E-04                            | 0.87 |
| 51/2-5     | 7.78E-07                           | 7.41E-07                           | 4.74        | 3.69E-08                           | 2.22E-04                           | 1.08E-02                              | 9.26E-03                                | 7.51E-04                            | 0.86 |
| 50/0-1     | 6.16E-07                           | 5.93E-07                           | 3.79        | 2.34E-08                           | 1.43E-04                           | 9.65E-03                              | 7.88E-03                                | 8.80E-04                            | 0.82 |
| 50/1-2     | 6.15E-07                           | 5.93E-07                           | 3.52        | 2.16E-08                           | 1.45E-04                           | 9.80E-03                              | 7.81E-03                                | 9.99E-04                            | 0.80 |
| 50/2-5     | 6.68E-07                           | 6.45E-07                           | 3.45        | 2.31E-08                           | 1.52E-04                           | 1.07E-02                              | 8.65E-03                                | 1.04E-03                            | 0.81 |
| 49/0-1     | 6.82E-07                           | 6.64E-07                           | 2.73        | 1.86E-08                           | 1.03E-04                           | 7.63E-03                              | 6.51E-03                                | 5.58E-04                            | 0.85 |
| 49/1-2     | 6.36E-07                           | 6.27E-07                           | 1.43        | 9.09E-09                           | 9.76E-05                           | 6.90E-03                              | 5.90E-03                                | 5.00E-04                            | 0.86 |
| 49/2-5     | n.d.                               | n.d.                               | n.d.        | n.d.                               | n.d.                               | n.d.                                  | n.d.                                    | n.d.                                | n.d. |
| 48/0-1     | 4.72E-07                           | 4.64E-07                           | 1.85        | 8.74E-09                           | 7.15E-05                           | 4.62E-03                              | 4.09E-03                                | 2.64E-04                            | 0.89 |
| 48/1-2     | 4.18E-07                           | 4.17E-07                           | 0.23        | 9.61E-10                           | 5.92E-05                           | 3.83E-03                              | 3.39E-03                                | 2.17E-04                            | 0.89 |
| 48/2-5     | 3.42E-07                           | 3.32E-07                           | 2.98        | 1.02E-08                           | 4.62E-05                           | 3.15E-03                              | 2.78E-03                                | 1.83E-04                            | 0.88 |
| 47/0-1     | 6.02E-07                           | 5.85E-07                           | 2.71        | 1.63E-08                           | 1.82E-04                           | 8.44E-03                              | 7.14E-03                                | 6.51E-04                            | 0.85 |
| 47/1-2     | 5.48E-07                           | 5.37E-07                           | 2.12        | 1.16E-08                           | 1.43E-04                           | 7.66E-03                              | 6.44E-03                                | 6.09E-04                            | 0.84 |
| 47/2-5     | 3.61E-07                           | 3.56E-07                           | 1.35        | 4.89E-09                           | 8.39E-05                           | 4.88E-03                              | 3.82E-03                                | 5.31E-04                            | 0.78 |
| 30/0-1     | 6.02E-07                           | 5.93E-07                           | 1.55        | 9.33E-09                           | 1.33E-04                           | 8.40E-03                              | 7.71E-03                                | 3.45E-04                            | 0.92 |
| 30/1-2     | 4.63E-07                           | 4.48E-07                           | 3.30        | 1.53E-08                           | 1.16E-04                           | 6.78E-03                              | 6.06E-03                                | 3.58E-04                            | 0.89 |
| 30/2-5     | 1.59E-07                           | 1.59E-07                           | 0.08        | 1.20E-10                           | 5.13E-05                           | 2.17E-03                              | 1.85E-03                                | 1.62E-04                            | 0.85 |
| 46/0-1     | 5.64E-07                           | 5.52E-07                           | 2.00        | 1.13E-08                           | 1.37E-04                           | 7.47E-03                              | 6.78E-03                                | 3.45E-04                            | 0.91 |
| 46/1-2     | 6.25E-07                           | 6.15E-07                           | 1.65        | 1.03E-08                           | 1.29E-04                           | 8.01E-03                              | 7.38E-03                                | 3.15E-04                            | 0.92 |
| 46/2-5     | 4.75E-07                           | 4.68E-07                           | 1.52        | 7.22E-09                           | 1.09E-04                           | 6.22E-03                              | 5.68E-03                                | 2.66E-04                            | 0.91 |
| 45/0-1     | 7.66E-07                           | 7.52E-07                           | 1.78        | 1.36E-08                           | 1.27E-04                           | 9.97E-03                              | 9.13E-03                                | 4.20E-04                            | 0.92 |
| 45/1-2     | 7.26E-07                           | 7.10E-07                           | 2.15        | 1.56E-08                           | 1.16E-04                           | 9.23E-03                              | 8.37E-03                                | 4.28E-04                            | 0.91 |
| 45/2-5     | 6.62E-07                           | 6.48E-07                           | 2.06        | 1.37E-08                           | 1.13E-04                           | 8.53E-03                              | 7.77E-03                                | 3.81E-04                            | 0.91 |
| 44/0-1     | 3.92E-07                           | 3.82E-07                           | 2.42        | 9.49E-09                           | 7.83E-05                           | 5.14E-03                              | 4.21E-03                                | 4.64E-04                            | 0.82 |
| 44/1-2     | 3.46E-07                           | 3.38E-07                           | 2.14        | 7.40E-09                           | 7.18E-05                           | 4.48E-03                              | 3.65E-03                                | 4.11E-04                            | 0.82 |
| 44/2-5     | 3.15E-07                           | 3.08E-07                           | 2.13        | 6.69E-09                           | 6.50E-05                           | 3.99E-03                              | 3.31E-03                                | 3.38E-04                            | 0.83 |
| 05U-1/0-1  | 4.53E-07                           | 4.46E-07                           | 1.68        | 7.62E-09                           | 1.26E-04                           | 7.37E-03                              | 5.63E-03                                | 8.67E-04                            | 0.76 |
| 05U-1/1-2  | 2.84E-07                           | 2.81E-07                           | 1.26        | 3.58E-09                           | 9.34E-05                           | 4.78E-03                              | 3.47E-03                                | 6.58E-04                            | 0.72 |
| 05U-2/0-1  | 3.77E-07                           | 3.70E-07                           | 1.82        | 6.85E-09                           | 1.37E-04                           | 6.08E-03                              | 4.59E-03                                | 7.47E-04                            | 0.75 |
| 05U-2/1-2  | 3.52E-07                           | 3.43E-07                           | 2.73        | 9.60E-09                           | 1.26E-04                           | 5.72E-03                              | 4.25E-03                                | 7.33E-04                            | 0.74 |
| 05U-2/2-5  | 2.24E-07                           | 2.23E-07                           | 0.67        | 1.50E-09                           | 6.85E-05                           | 3.72E-03                              | 2.47E-03                                | 6.23E-04                            | 0.67 |
| 21/0-1     | 3.81E-07                           | 3.78E-07                           | 0.97        | 3.69E-09                           | 7.53E-05                           | 5.50E-03                              | 3.84E-03                                | 8.29E-04                            | 0.70 |
| 21/1-2     | 3.32E-07                           | 3.28E-07                           | 1.32        | 4.40E-09                           | 7.02E-05                           | 4.97E-03                              | 3.32E-03                                | 8.25E-04                            | 0.67 |
| 21/2-5     | 3.11E-07                           | 3.06E-07                           | 1.32        | 4.11E-09                           | 6.48E-05                           | 4.66E-03                              | 3.09E-03                                | 7.85E-04                            | 0.66 |

**Table 5. Geochemical data.**

This table contains geochemical data obtained by ICP–AES (inductively coupled plasma–atomic emission spectrometry), ICP–MS (inductively coupled plasma–mass spectrometry), and XRF (X-ray fluorescence) techniques (Litche and others, 1987). All analyses were performed at the USGS Geologic Division geochemistry laboratory in Denver, Colorado, and are reported in parts per million (ppm) or percent (%).

[**Sample no.**, Unique sample number (for example, 44/0-1); presented as site designation (44), and depth in centimeters (0-1).

**n.d.**, not determined; <sup>\*</sup>, Zr (ppm) and Ti (%) obtained by XRF]

#### ICP–AES and XRF data

| Sample no.  | Al %  | Ca %   | Fe %  | K %   | Mg %   | Na %   | P %     | Mn ppm | Nd ppm | *Zr ppm | *Ti% |
|-------------|-------|--------|-------|-------|--------|--------|---------|--------|--------|---------|------|
| 493/0-1     | 5.98  | 1.46   | 2.91  | 2.00  | 0.975  | 1.21   | 0.0952  | 550    | 50.3   | 581     | 0.84 |
| 493/1-2     | 6.44  | 1.41   | 3.16  | 2.11  | 1.05   | 1.17   | 0.0982  | 572    | 43.6   | 562     | 0.84 |
| 493/2-5     | 6.64  | 1.35   | 3.26  | 2.16  | 1.04   | 1.07   | 0.0930  | 549    | 36.0   | 457     | 0.75 |
| 493/Bedrock | 6.12  | 4.82   | 2.04  | 2.30  | 1.83   | 1.46   | 0.0686  | 304    | 22.5   | 77      | 0.24 |
| 29/0-1      | 7.14  | 1.05   | 2.56  | 3.14  | 0.862  | 0.919  | 0.0661  | 394    | 29.3   | 485     | 0.72 |
| 29/1-2      | 7.39  | 0.933  | 2.46  | 3.11  | 0.778  | 0.867  | 0.0642  | 357    | 29.8   | 419     | 0.74 |
| 29/2-5      | 7.34  | 0.542  | 2.13  | 3.19  | 0.635  | 0.580  | 0.0366  | 273    | 26.5   | 284     | 0.63 |
| 29/Bedrock  | 1.73  | 0.0356 | 0.509 | 0.879 | 0.0861 | 0.0281 | 0.00782 | 61.3   | < 4    | 59      | 0.09 |
| 55/0-1      | 5.11  | 1.83   | 2.68  | 2.24  | 1.35   | 0.878  | 0.0848  | 515    | 34.8   | 764     | 0.71 |
| 55/1-2      | 5.71  | 1.24   | 2.94  | 2.48  | 1.17   | 0.768  | 0.0893  | 411    | 32.0   | 638     | 0.80 |
| 55/2-5      | 5.47  | 1.04   | 2.76  | 2.38  | 0.985  | 0.743  | 0.0782  | 348    | 29.1   | 631     | 0.75 |
| 55/Bedrock  | 1.40  | 0.0672 | 1.08  | 1.47  | 0.0686 | 0.0352 | 0.0327  | 24.6   | < 4    | 38      | 0.06 |
| 54/0-1      | 5.24  | 1.06   | 2.67  | 2.39  | 1.02   | 0.776  | 0.0839  | 461    | 30.3   | 399     | 0.63 |
| 54/1-2      | 6.06  | 0.697  | 3.15  | 2.71  | 0.977  | 0.524  | 0.104   | 345    | 29.4   | 233     | 0.66 |
| 54/2-5      | 5.60  | 0.573  | 2.79  | 2.62  | 0.837  | 0.426  | 0.0914  | 290    | 25.5   | 189     | 0.55 |
| 54/Bedrock  | 2.17  | 0.280  | 0.779 | 1.48  | 0.0690 | 0.0353 | 0.0571  | 135    | 5.46   | 52      | 0.06 |
| 53/0-1      | 5.61  | 0.692  | 2.01  | 3.08  | 0.498  | 0.843  | 0.0577  | 338    | 21.5   | 917     | 0.64 |
| 53/1-2      | 5.58  | 0.602  | 1.97  | 3.07  | 0.478  | 0.781  | 0.0515  | 329    | 20.8   | 869     | 0.68 |
| 53/2-5      | 7.95  | 0.435  | 2.09  | 2.83  | 0.467  | 0.620  | 0.0371  | 293    | 23.0   | 475     | 0.88 |
| 53/Bedrock  | 1.35  | 0.0716 | 0.473 | 0.620 | 0.0547 | 0.0248 | 0.0135  | 133    | < 4    | 52      | 0.10 |
| 51/0-1      | 5.40  | 0.854  | 2.66  | 2.49  | 0.674  | 0.642  | 0.0648  | 693    | 28.5   | 1,273   | 0.80 |
| 51/1-2      | 5.52  | 0.931  | 2.77  | 2.51  | 0.697  | 0.630  | 0.0654  | 748    | 27.4   | 1,260   | 0.78 |
| 51/2-5      | 5.40  | 1.27   | 2.64  | 2.43  | 0.694  | 0.552  | 0.0544  | 714    | 26.3   | 1,107   | 0.75 |
| 51/Bedrock  | 0.350 | 41.5   | 0.183 | 0.251 | 0.451  | 0.0302 | 0.0105  | 348    | < 4    | 10      | 0.02 |
| 50/0-1      | 4.20  | 1.13   | 2.05  | 2.53  | 0.569  | 0.528  | 0.0794  | 826    | 22.8   | 1,214   | 0.72 |
| 50/1-2      | 4.00  | 1.03   | 2.00  | 2.47  | 0.526  | 0.496  | 0.0733  | 846    | 22.9   | 1,531   | 0.80 |
| 50/2-5      | 4.14  | 1.10   | 2.12  | 2.51  | 0.551  | 0.520  | 0.0760  | 875    | 24.4   | 1,409   | 0.77 |
| 50/Bedrock  | 0.597 | 7.74   | 0.412 | 0.599 | 0.0467 | 0.0172 | 0.00826 | 392    | < 4    | 27      | 0.03 |
| 49/0-1      | 4.28  | 0.975  | 1.56  | 2.42  | 0.688  | 0.464  | 0.0722  | 355    | 28.4   | 1,772   | 0.71 |
| 49/1-2      | 4.48  | 0.938  | 1.50  | 2.44  | 0.671  | 0.442  | 0.0684  | 334    | 24.5   | 1,543   | 0.60 |
| 49/2-5      | n.d.  | n.d.   | n.d.  | n.d.  | n.d.   | n.d.   | n.d.    | n.d.   | n.d.   | n.d.    | n.d. |
| 49/Bedrock  | 0.683 | 0.0744 | 0.315 | 0.421 | 0.0287 | 0.0172 | 0.00994 | 30.5   | < 4    | 52      | 0.06 |
| 48/0-1      | 4.91  | 4.93   | 1.58  | 1.51  | 0.626  | 0.555  | 0.0768  | 426    | 24.0   | 1,229   | 0.67 |
| 48/1-2      | 4.51  | 5.31   | 1.41  | 1.51  | 0.546  | 0.561  | 0.0715  | 402    | 23.2   | 1,210   | 0.63 |
| 48/2-5      | 4.61  | 6.95   | 1.39  | 1.46  | 0.510  | 0.534  | 0.0674  | 386    | 25.6   | 1,147   | 0.65 |
| 48/Bedrock  | 1.72  | 1.02   | 7.37  | 0.109 | 0.0554 | 0.0504 | 0.0179  | 46.4   | 11.7   | 226     | 0.27 |
| 47/0-1      | 7.24  | 0.549  | 2.03  | 2.38  | 0.560  | 0.695  | 0.0441  | 288    | 23.6   | 592     | 0.73 |
| 47/1-2      | 7.49  | 0.519  | 2.03  | 2.38  | 0.555  | 0.668  | 0.0431  | 279    | 22.6   | 578     | 0.72 |
| 47/2-5      | 8.11  | 0.426  | 1.80  | 2.33  | 0.472  | 0.633  | 0.0256  | 221    | 21.9   | 410     | 0.73 |
| 47/Bedrock  | 1.53  | 0.0418 | 4.60  | 0.802 | 0.0855 | 0.0376 | 0.0491  | 245    | 6.33   | 49      | 0.07 |

**Table 5. Geochemical data.—Continued**

ICP–AES and XRF data—continued.

| Sample no.    | Al % | Ca %   | Fe %  | K %   | Mg %   | Na %   | P %     | Mn ppm | Nd ppm | *Zr ppm | *Ti% |
|---------------|------|--------|-------|-------|--------|--------|---------|--------|--------|---------|------|
| 30/0-1        | 8.01 | 0.293  | 1.95  | 2.05  | 0.368  | 0.330  | 0.0576  | 169    | 21.8   | 662     | 0.74 |
| 30/1-2        | 9.62 | 0.271  | 2.04  | 2.00  | 0.376  | 0.301  | 0.0624  | 146    | 25.0   | 486     | 0.75 |
| 30/2-5        | 10.9 | 0.182  | 1.90  | 1.91  | 0.336  | 0.167  | 0.0676  | 99.4   | 22.0   | 256     | 0.58 |
| 30/Bedrock    | 1.58 | 0.0351 | 0.583 | 0.869 | 0.0542 | 0.0319 | 0.0138  | 33.8   | 6.44   | 95      | 0.12 |
| 46/0-1        | n.d. | n.d.   | n.d.  | n.d.  | n.d.   | n.d.   | n.d.    | n.d.   | n.d.   | n.d.    | n.d. |
| 46/1-2        | n.d. | n.d.   | n.d.  | n.d.  | n.d.   | n.d.   | n.d.    | n.d.   | n.d.   | n.d.    | n.d. |
| 46/2-5        | n.d. | n.d.   | n.d.  | n.d.  | n.d.   | n.d.   | n.d.    | n.d.   | n.d.   | n.d.    | n.d. |
| 46/Bedrock    | n.d. | n.d.   | n.d.  | n.d.  | n.d.   | n.d.   | n.d.    | n.d.   | n.d.   | n.d.    | n.d. |
| 45/0-1        | 4.60 | 0.420  | 1.42  | 3.17  | 0.320  | 0.337  | 0.0457  | 246    | 18.9   | 2,569   | 0.71 |
| 45/1-2        | 4.38 | 0.384  | 1.42  | 3.11  | 0.294  | 0.313  | 0.0443  | 245    | 18.6   | 2,159   | 0.59 |
| 45/2-5        | 5.12 | 0.403  | 1.34  | 3.26  | 0.307  | 0.305  | 0.0415  | 226    | 19.4   | 2,387   | 0.71 |
| 45/Bedrock    | 1.86 | 0.0424 | 0.335 | 1.20  | 0.0900 | 0.0433 | 0.00759 | 26.8   | < 4    | 63      | 0.10 |
| 44/0-1        | 4.28 | 1.75   | 1.59  | 2.18  | 1.03   | 0.596  | 0.0754  | 325    | 30.4   | 1,514   | 0.61 |
| 44/1-2        | 4.23 | 1.74   | 1.49  | 2.20  | 0.994  | 0.598  | 0.0715  | 306    | 28.0   | 1,513   | 0.67 |
| 44/2-5        | 4.19 | 1.70   | 1.46  | 2.21  | 0.945  | 0.587  | 0.0692  | 296    | 29.1   | 1,554   | 0.71 |
| 44/Bedrock    | 2.02 | 0.350  | 0.232 | 1.14  | 0.0893 | 0.0344 | 0.00956 | 11.1   | 4.81   | 289     | 0.22 |
| 05U-1/0-1     | 5.77 | 0.597  | 2.06  | 3.06  | 0.718  | 0.483  | 0.078   | 346    | 28.1   | 991     | 0.98 |
| 05U-1/1-2     | 5.34 | 0.448  | 1.65  | 3.26  | 0.56   | 0.369  | 0.062   | 270    | 23.4   | 779     | 0.83 |
| 05U-1/Bedrock | 1.51 | 0.375  | 0.302 | 1.5   | 0.0746 | 0.0456 | 0.00698 | 130    | <4     | 142     | 0.12 |
| 05U-2/0-1     | 5.55 | 0.536  | 2.03  | 2.84  | 0.67   | 0.541  | 0.07    | 363    | 26.9   | 715     | 0.77 |
| 05U-2/1-2     | 5.7  | 0.503  | 1.99  | 2.95  | 0.64   | 0.552  | 0.0664  | 357    | 24.8   | 628     | 0.75 |
| 05U-2/2-5     | 5.31 | 0.366  | 1.72  | 2.97  | 0.555  | 0.487  | 0.0319  | 287    | 21.7   | 634     | 0.68 |
| 05U-2/Bedrock | 1.65 | 0.0335 | 0.212 | 1.75  | 0.0604 | 0.0555 | 0.00557 | 35.2   | <4     | 62      | 0.09 |
| 21/0-1        | 4    | 3.2    | 1.7   | 1.9   | 0.83   | 0.67   | 0.055   | 380    | 23     | 903     | 0.65 |
| 21/1-2        | 3.3  | 2.4    | 1.4   | 1.8   | 0.64   | 0.55   | 0.04    | 300    | 17     | 822     | 0.60 |
| 21/2-5        | 3.8  | 2.5    | 1.5   | 2     | 0.69   | 0.67   | 0.047   | 340    | 19     | 899     | 0.63 |
| 21/Bedrock    | 1.7  | 0.64   | 0.32  | 1.3   | 0.17   | 0.086  | 0.013   | 62     | <8     | 174     | 0.12 |

**Table 5. Geochemical data.—Continued**

## ICP-MS data

| Sample no.    | Ag<br>(ppm) | Al<br>(ppm) | As<br>(ppm) | Ba<br>(ppm) | Be<br>(ppm) | Bi<br>(ppm) | Ca<br>(ppm) | Cd<br>(ppm) | Ce<br>(ppm) | Co<br>(ppm) | Cr<br>(ppm) | Cs<br>(ppm) |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 493/0-1       | <2          | 69,600      | 8.9         | 903         | 2           | 0.3         | 17,100      | 0.3         | 204         | 9.8         | 56.8        | 6.8         |
| 493/1-2       | <2          | 77,000      | 11          | 882         | 2.2         | 0.31        | 16,900      | 0.32        | 163         | 10.7        | 62.8        | 8.3         |
| 493/2-5       | <2          | 66,500      | 10.1        | 691         | 2           | 0.21        | 13,000      | 0.24        | 88          | 9.2         | 54.4        | 8.4         |
| 493/Bedrock   | <2          | 35,600      | 8.8         | 413         | 0.98        | < 0.06      | 21,500      | 0.06        | 29          | 4           | 37          | 3.3         |
| 29/0-1        | <2          | 89,600      | 11.4        | 954         | 1.8         | 0.27        | 11,300      | 0.28        | 79.2        | 7.8         | 54          | 5.3         |
| 29/1-2        | <2          | 95,800      | 12.1        | 985         | 1.9         | 0.26        | 10,200      | 0.24        | 80.2        | 7.6         | 49          | 5.5         |
| 29/2-5        | <2          | 98,300      | 13.6        | 956         | 1.8         | 0.15        | 5,760       | 0.11        | 65.3        | 6.5         | 42          | 5.8         |
| 29/Bedrock    | <2          | 18,900      | 2.4         | 225         | 0.46        | < 0.06      | 314         | 0.01        | 10.1        | 0.94        | 12.8        | 1.1         |
| 55/0-1        | <2          | 56,600      | 13.8        | 652         | 1.5         | 0.31        | 17,700      | 0.28        | 96.4        | 7           | 55.6        | 4.6         |
| 55/1-2        | <2          | 67,800      | 18.3        | 640         | 2           | 0.26        | 12,100      | 0.26        | 73.7        | 7.5         | 60.6        | 6.1         |
| 55/2-5        | <2          | 65,200      | 17.1        | 617         | 1.9         | 0.17        | 9,870       | 0.18        | 68.4        | 6.8         | 56.8        | 6.1         |
| 55/Bedrock    | <2          | 15,200      | 3.4         | 337         | 0.22        | < 0.06      | 530         | 0.008       | 6.5         | 0.33        | 18.8        | 1           |
| 54/0-1        | <2          | 58,000      | 19.8        | 592         | 1.6         | 0.33        | 10,500      | 0.3         | 78.5        | 7           | 44.2        | 4.9         |
| 54/1-2        | <2          | 75,200      | 43          | 648         | 2.3         | 0.35        | 7,280       | 0.3         | 66.4        | 7.6         | 55.2        | 7.2         |
| 54/2-5        | <2          | 66,100      | 39          | 560         | 2           | 0.26        | 5,770       | 0.23        | 58.6        | 6.7         | 47.8        | 6.5         |
| 54/Bedrock    | <2          | 24,600      | 29.5        | 393         | 0.7         | < 0.06      | 3,120       | 0.08        | 11.6        | 1.6         | 41.7        | 0.93        |
| 53/0-1        | <2          | 65,500      | 6.4         | 942         | 1.3         | 0.31        | 6,340       | 0.23        | 48.8        | 5.8         | 47          | 4.9         |
| 53/1-2        | <2          | 70,900      | 6.9         | 1000        | 1.3         | 0.3         | 6,260       | 0.26        | 54.2        | 5.9         | 44.6        | 5.1         |
| 53/2-5        | <2          | 95,600      | 10.2        | 887         | 1.5         | 0.21        | 4,880       | 0.15        | 66.2        | 6.6         | 49.4        | 5.7         |
| 53/Bedrock    | <2          | 14,700      | 2.7         | 174         | 0.27        | < 0.06      | 764         | 0.04        | 12          | 2.7         | 37.6        | 1.1         |
| 51/0-1        | <2          | 56,800      | 9.8         | 583         | 1.6         | 0.25        | 8,020       | 0.29        | 61.6        | 8.6         | 53          | 5.5         |
| 51/1-2        | <2          | 56,900      | 9.2         | 593         | 1.6         | 0.25        | 8,070       | 0.29        | 61.4        | 8.6         | 54          | 5.5         |
| 51/2-5        | <2          | 58,600      | 10.3        | 582         | 1.8         | 0.24        | 12,200      | 0.31        | 65.2        | 9.2         | 51.4        | 5.9         |
| 51/Bedrock    | <2          | 3,200       | 1           | 19.5        | 0.18        | < 0.06      | 454,000     | 0.16        | 3           | 0.18        | 4           | 0.33        |
| 50/0-1        | <2          | 38,900      | 5.6         | 492         | 1.1         | 0.27        | 9,620       | 0.28        | 52.3        | 4.6         | 58.3        | 2.9         |
| 50/1-2        | <2          | 36,600      | 5           | 477         | 1           | 0.26        | 8,280       | 0.26        | 59.6        | 4.4         | 48          | 2.6         |
| 50/2-5        | <2          | 36,800      | 5.2         | 473         | 1           | 0.31        | 8,680       | 0.34        | 51.4        | 4.5         | 54.1        | 2.7         |
| 50/Bedrock    | <2          | 5,920       | 1.6         | 106         | 0.17        | < 0.06      | 81,700      | 0.05        | 4.4         | 0.68        | 40.4        | 0.38        |
| 49/0-1        | <2          | 46,000      | 6.1         | 692         | 1           | 0.26        | 9,520       | 0.24        | 59.4        | 4.3         | 37.4        | 3.1         |
| 49/1-2        | <2          | 42,700      | 4.9         | 664         | 0.87        | 0.22        | 7,460       | 0.21        | 48.3        | 3.6         | 40.8        | 2.9         |
| 49/2-5        | n.d.        |
| 49/Bedrock    | <2          | 7,510       | <1          | 100         | 0.15        | < 0.06      | 363         | 0.01        | 7.2         | 0.38        | 19.3        | 0.41        |
| 48/0-1        | <2          | 48,800      | 6.7         | 390         | 1.3         | 0.23        | 46,700      | 0.18        | 48.6        | 3.8         | 32.8        | 2.8         |
| 48/1-2        | <2          | 45,200      | 5.8         | 381         | 1.2         | 0.2         | 50,300      | 0.15        | 47.9        | 3.4         | 33.4        | 2.6         |
| 48/2-5        | <2          | 45,900      | 6.5         | 352         | 1.2         | 0.2         | 64,100      | 0.14        | 53.8        | 3.4         | 29.6        | 2.5         |
| 48/Bedrock    | <2          | 16,900      | 80.2        | 166         | 1.2         | 0.37        | 9,660       | 0.12        | 20.9        | 0.82        | 14.8        | 0.22        |
| 47/0-1        | <2          | 83,100      | 18.8        | 602         | 1.8         | 0.38        | 5,380       | 0.31        | 54.5        | 5.9         | 44.3        | 5.1         |
| 47/1-2        | <2          | 85,200      | 19.1        | 608         | 1.9         | 0.42        | 5,100       | 0.32        | 54.5        | 5.8         | 48.8        | 5.3         |
| 47/2-5        | <2          | 102,000     | 20.6        | 575         | 2           | 0.27        | 4,470       | 0.17        | 52.4        | 5.2         | 45.3        | 5           |
| 47/Bedrock    | <2          | 14,500      | 273         | 217         | 1.6         | < 0.06      | 461         | 0.32        | 8.6         | 2           | 14.9        | 1.2         |
| 30/0-1        | <2          | 107,000     | 233         | 671         | 1.5         | 0.24        | 3,260       | 0.26        | 62.7        | 5           | 41.3        | 5.4         |
| 30/1-2        | <2          | 115,000     | 294         | 540         | 1.6         | 0.27        | 2,930       | 0.22        | 63.4        | 5.1         | 38          | 5.5         |
| 30/2-5        | <2          | 129,000     | 303         | 544         | 1.7         | 0.19        | 2,250       | 0.14        | 53.5        | 4.2         | 33.8        | 5.8         |
| 30/Bedrock    | <2          | 15,900      | 59.2        | 341         | 0.34        | 0.07        | 409         | 0.03        | 14.9        | 0.58        | 33          | 1.3         |
| 46/0-1        | n.d.        |
| 46/1-2        | n.d.        |
| 46/2-5        | n.d.        |
| 46/Bedrock    | n.d.        |
| 45/0-1        | <2          | 42,000      | 19.6        | 675         | 0.82        | 0.12        | 2,820       | 0.1         | 29.2        | 2.9         | 43.4        | 4.4         |
| 45/1-2        | <2          | 33,300      | 14.2        | 616         | 0.59        | 0.07        | 1,540       | 0.06        | 17.8        | 2           | 25.9        | 3.6         |
| 45/2-5        | <2          | 48,500      | 20.7        | 723         | 0.82        | 0.11        | 2,770       | 0.09        | 29.2        | 2.7         | 41.4        | 4.7         |
| 45/Bedrock    | <2          | 20,600      | 4.6         | 293         | 0.41        | < 0.06      | 263         | 0.01        | 8.1         | 0.85        | 17.7        | 2           |
| 44/0-1        | <2          | 44,600      | 8.8         | 550         | 1.3         | 0.14        | 14,300      | 0.14        | 47.5        | 3.8         | 41.2        | 3.7         |
| 44/1-2        | <2          | 48,400      | 9.4         | 558         | 1.5         | 0.15        | 17,400      | 0.14        | 58.7        | 4.2         | 41.8        | 4           |
| 44/2-5        | <2          | 46,600      | 9.8         | 532         | 1.5         | 0.13        | 17,000      | 0.11        | 56.9        | 4.1         | 41.3        | 3.7         |
| 44/Bedrock    | <2          | 20,600      | 2.2         | 233         | 0.77        | < 0.06      | 3,120       | <0.007      | 11.8        | 0.62        | 21.2        | 1.8         |
| 05U-1/0-1     | <2          | 60,300      | 19.6        | 518         | 1.6         | 0.44        | 6,080       | 0.42        | 81.7        | 6.6         | 45          | 4.8         |
| 05U-1/1-2     | <2          | 57,000      | 15.6        | 494         | 1.4         | 0.4         | 4,670       | 0.47        | 53.8        | 5.4         | 33.5        | 4.3         |
| 05U-1/Bedrock | <2          | 14,700      | 1.6         | 296         | 0.29        | < 0.06      | 3,690       | 0.03        | 7.1         | 1           | 17.6        | 1.1         |
| 05U-2/0-1     | <2          | 56,600      | 19.1        | 504         | 1.4         | 0.62        | 5,460       | 0.62        | 58.4        | 6.5         | 41.7        | 4.7         |
| 05U-2/1-2     | <2          | 55,400      | 19.1        | 501         | 1.4         | 0.67        | 4,900       | 0.61        | 50.9        | 6.5         | 44          | 4.6         |
| 05U-2/2-5     | <2          | 55,300      | 18          | 498         | 1.4         | 0.67        | 3,950       | 0.48        | 47.6        | 5.6         | 41.9        | 4.4         |
| 05U-2/Bedrock | <2          | 18,400      | 4.7         | 347         | 0.36        | < 0.06      | 390         | 0.009       | 7.2         | 0.65        | 10.5        | 1.2         |
| 21/0-1        | <2          | 38,600      | 3.3         | 579         | 1.1         | 0.21        | 25,200      | 0.33        | 45          | 4.2         | 35.1        | 2.2         |
| 21/1-2        | <2          | 39,100      | 3.1         | 601         | 1           | 0.2         | 23,500      | 0.19        | 44.9        | 4           | 32.6        | 2.2         |
| 21/2-5        | <2          | 38,400      | 3.5         | 591         | 1.1         | 0.21        | 21,200      | 0.16        | 39.1        | 3.8         | 33.2        | 2.1         |
| 21/Bedrock    | <2          | 15,900      | <1          | 267         | 0.35        | < 0.06      | 7,680       | 0.01        | 9.4         | 0.81        | 14.2        | 0.81        |

**Table 5. Geochemical data.—Continued**

ICP-MS data—continued.

| Sample no.    | Cu<br>(ppm) | Fe<br>(ppm) | Ga<br>(ppm) | K<br>(ppm) | La<br>(ppm) | Li<br>(ppm) | Mg<br>(ppm) | Mn<br>(ppm) | Mo<br>(ppm) | Na<br>(ppm) | Nb<br>(ppm) | Ni<br>(ppm) |
|---------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 493/0-1       | 38.3        | 31,100      | 17.5        | 24,500     | 124         | 31.2        | 11,100      | 605         | 1.1         | 15,000      | 19          | 19.3        |
| 493/1-2       | 32.8        | 33,600      | 18.7        | 26,800     | 98.4        | 35.6        | 12,100      | 625         | 1.2         | 14,900      | 18          | 21.7        |
| 493/2-5       | 29.4        | 29,300      | 16.2        | 24,200     | 50.1        | 33.6        | 10,100      | 523         | 1           | 11,400      | 15          | 19.4        |
| 493/Bedrock   | 11.1        | 11,000      | 7.5         | 16,000     | 16.7        | 28          | 9,020       | 150         | 0.46        | 6,520       | 4.9         | 10.8        |
| 29/0-1        | 35.3        | 26,000      | 16.5        | 37,300     | 43.7        | 42.2        | 10,800      | 417         | 1.2         | 10,900      | 18          | 18.3        |
| 29/1-2        | 32.9        | 26,000      | 17.1        | 37,900     | 43.7        | 46          | 9,990       | 386         | 1           | 10,700      | 18          | 18.4        |
| 29/2-5        | 24.1        | 21,400      | 16.7        | 37,600     | 36.4        | 52.4        | 8,010       | 285         | 0.86        | 6,820       | 16          | 16.5        |
| 29/Bedrock    | 3.2         | 2,550       | 3.2         | 9,660      | 5.3         | 12.5        | 863         | 33.2        | 0.1         | 306         | 1.4         | 3           |
| 55/0-1        | 40.6        | 24,400      | 12.1        | 24,300     | 47.2        | 27          | 14,400      | 499         | 1.3         | 8,980       | 13          | 16          |
| 55/1-2        | 39.4        | 29,200      | 14.8        | 28,700     | 39.8        | 34.4        | 13,400      | 399         | 1.4         | 8,210       | 14          | 18.4        |
| 55/2-5        | 32.1        | 27,200      | 14.3        | 28,000     | 37.5        | 32.5        | 11,200      | 333         | 1.2         | 7,710       | 14          | 17.5        |
| 55/Bedrock    | 8           | 4,050       | 2.6         | 16,300     | 3.5         | 4.2         | 669         | 11.1        | 0.22        | 394         | 1           | 1.9         |
| 54/0-1        | 45.3        | 24,300      | 12.9        | 25,800     | 41.3        | 28.6        | 11,100      | 451         | 1.7         | 7,990       | 13          | 15.8        |
| 54/1-2        | 44.2        | 32,500      | 17.5        | 33,200     | 34.8        | 38.8        | 11,500      | 343         | 2.4         | 5,480       | 18          | 19.6        |
| 54/2-5        | 55.3        | 27,300      | 15.2        | 29,700     | 30.4        | 35          | 9,520       | 280         | 2.1         | 4,240       | 13          | 16.6        |
| 54/Bedrock    | 10.4        | 7,280       | 2.8         | 17,100     | 6.6         | 6.6         | 721         | 131         | 2.9         | 394         | 1.1         | 4.9         |
| 53/0-1        | 32.1        | 17,600      | 12.9        | 36,500     | 25.6        | 30.4        | 5,660       | 332         | 1           | 8,460       | 12          | 12.7        |
| 53/1-2        | 21.2        | 18,300      | 13.5        | 39,500     | 28          | 29.1        | 5,550       | 327         | 1.1         | 9,130       | 13          | 12.6        |
| 53/2-5        | 35.9        | 20,500      | 17.5        | 33,500     | 36.4        | 47.6        | 5,610       | 304         | 1.1         | 7,480       | 18          | 14.7        |
| 53/Bedrock    | 6.7         | 4,010       | 3.3         | 6,800      | 5           | 12.8        | 556         | 113         | 0.4         | 265         | 1.4         | 4.3         |
| 51/0-1        | 36.6        | 23,700      | 12.3        | 28,600     | 31.4        | 30.6        | 6,810       | 636         | 1.7         | 6,380       | 13          | 17.1        |
| 51/1-2        | 32.3        | 23,300      | 12.3        | 28,600     | 30.8        | 30.9        | 6,670       | 648         | 1.7         | 6,020       | 13          | 16.9        |
| 51/2-5        | 32.4        | 24,400      | 12.8        | 29,000     | 33.1        | 32.3        | 7,220       | 675         | 1.7         | 5,920       | 13          | 18.5        |
| 51/Bedrock    | 2.1         | 1,290       | 0.7         | 2,140      | 2           | 4.8         | 5,020       | 312         | 0.22        | 230         | 0.44        | 4.2         |
| 50/0-1        | 30.6        | 16,900      | 8           | 26,200     | 26.8        | 15.7        | 4,970       | 725         | 1           | 4,330       | 7.1         | 11.7        |
| 50/1-2        | 22.1        | 17,000      | 7.3         | 25,000     | 28.6        | 14.7        | 4,510       | 719         | 0.85        | 4,140       | 6.2         | 11.1        |
| 50/2-5        | 24          | 17,000      | 7.4         | 24,800     | 26.4        | 15.3        | 4,560       | 721         | 0.99        | 4,140       | 6           | 11.8        |
| 50/Bedrock    | 6.2         | 3,560       | 1           | 5,940      | 2.8         | 4.8         | 431         | 363         | 0.4         | 168         | 0.3         | 3.9         |
| 49/0-1        | 30.1        | 13,600      | 9           | 27,300     | 29.9        | 21.5        | 7,020       | 346         | 0.64        | 4,860       | 8           | 9.2         |
| 49/1-2        | 24.6        | 11,600      | 8.2         | 25,400     | 24.7        | 19.4        | 5,740       | 285         | 0.63        | 3,780       | 7.1         | 8.4         |
| 49/2-5        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        |
| 49/Bedrock    | 5.2         | 1,520       | 1.4         | 4,330      | 3.5         | 8.3         | 237         | 17.9        | 0.2         | 146         | 0.56        | 1.7         |
| 48/0-1        | 21.2        | 13,000      | 10.5        | 16,500     | 26.2        | 25          | 5,680       | 386         | 1           | 5,970       | 7.9         | 8           |
| 48/1-2        | 18.6        | 11,800      | 9.7         | 16,500     | 26.1        | 23.2        | 5,080       | 366         | 0.98        | 5,970       | 6.5         | 7.4         |
| 48/2-5        | 18.9        | 11,800      | 10.1        | 15,600     | 29.2        | 24.1        | 4,900       | 345         | 1           | 5,420       | 7.8         | 7.2         |
| 48/Bedrock    | 16.8        | 62,600      | 8.9         | 1,070      | 12.7        | 11.1        | 488         | 41.5        | 4.5         | 458         | 6.5         | 2           |
| 47/0-1        | 30.1        | 20,100      | 14.4        | 29,200     | 30.3        | 44.2        | 6,420       | 318         | 0.88        | 7,510       | 14          | 14.5        |
| 47/1-2        | 30.2        | 20,300      | 14.5        | 28,900     | 31.8        | 45.9        | 6,330       | 310         | 0.86        | 7,240       | 15          | 14.9        |
| 47/2-5        | 40.3        | 19,200      | 15.8        | 28,700     | 29.4        | 53.2        | 5,790       | 242         | 0.75        | 7,280       | 16          | 15          |
| 47/Bedrock    | 35.4        | 38,800      | 3.5         | 8,240      | 4.4         | 12.7        | 777         | 218         | 0.72        | 363         | 1.2         | 6.8         |
| 30/0-1        | 28.1        | 18,800      | 16.2        | 23,800     | 32.6        | 45.8        | 4,610       | 171         | 0.81        | 4,020       | 13          | 13.2        |
| 30/1-2        | 37.9        | 19,600      | 18.6        | 23,200     | 33.7        | 54.6        | 4,230       | 141         | 0.87        | 3,140       | 14          | 14.1        |
| 30/2-5        | 37.2        | 17,000      | 19.8        | 21,500     | 28.7        | 59.2        | 3,730       | 88          | 0.73        | 1,960       | 12          | 13.1        |
| 30/Bedrock    | 5.2         | 4,890       | 3.4         | 9,180      | 7.9         | 9.5         | 509         | 31.1        | 0.37        | 328         | 1.6         | 2.9         |
| 46/0-1        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        |
| 46/1-2        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        |
| 46/2-5        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        |
| 46/Bedrock    | n.d.        | n.d.        | n.d.        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        |
| 45/0-1        | 25.1        | 10,200      | 7.6         | 32,100     | 15.4        | 16          | 2,490       | 192         | 0.51        | 2,570       | 7.2         | 7.8         |
| 45/1-2        | 12.4        | 6,900       | 6           | 27,800     | 9.6         | 12.7        | 1,680       | 142         | 0.32        | 1,600       | 4.1         | 5.7         |
| 45/2-5        | 34.6        | 9,590       | 8.1         | 34,600     | 15.4        | 17.1        | 2,430       | 169         | 0.48        | 2,340       | 7.9         | 7.9         |
| 45/Bedrock    | 4.3         | 2,210       | 3.4         | 13,800     | 4.7         | 11.4        | 927         | 21.1        | 0.2         | 460         | 1.6         | 3.3         |
| 44/0-1        | 20.7        | 11,800      | 8.6         | 25,400     | 25.4        | 27.2        | 9,070       | 266         | 0.56        | 5,550       | 6.8         | 9.4         |
| 44/1-2        | 18.6        | 13,400      | 9.4         | 26,000     | 31.6        | 28.3        | 10,500      | 298         | 0.57        | 6,340       | 7.9         | 9.8         |
| 44/2-5        | 23.1        | 13,100      | 9           | 25,400     | 30.6        | 27.6        | 9,970       | 281         | 0.59        | 6,260       | 9.9         | 9.7         |
| 44/Bedrock    | 8           | 1,910       | 3.2         | 12,400     | 6.4         | 22.5        | 830         | 9.4         | 0.1         | 341         | 2.3         | 2.7         |
| 05U-1/0-1     | 32.6        | 21,700      | 12.4        | 32,900     | 41          | 27.7        | 7,870       | 369         | 1           | 5,610       | 19          | 16.6        |
| 05U-1/1-2     | 31.4        | 17,200      | 10.8        | 36,800     | 29          | 23.6        | 6,200       | 290         | 0.72        | 4,340       | 11          | 14          |
| 05U-1/Bedrock | 4.2         | 2,600       | 2.6         | 15,400     | 4           | 4.5         | 688         | 119         | 0.2         | 454         | 1.4         | 2.8         |
| 05U-2/0-1     | 33.2        | 20,000      | 11.3        | 30,300     | 29.7        | 29.7        | 6,930       | 367         | 0.89        | 5,950       | 12          | 15.7        |
| 05U-2/1-2     | 30.5        | 20,000      | 11.1        | 30,500     | 27.3        | 28.1        | 6,690       | 367         | 0.93        | 6,020       | 14          | 15.8        |
| 05U-2/2-5     | 24.4        | 18,000      | 10.5        | 32,400     | 24.6        | 26.7        | 6,120       | 310         | 0.75        | 5,580       | 10          | 14.1        |
| 05U-2/Bedrock | 3.4         | 1,970       | 2.9         | 19,600     | 4.1         | 6           | 650         | 34.2        | 0.09        | 547         | 1.1         | 2.2         |
| 21/0-1        | 18.7        | 14,800      | 7.7         | 19,300     | 23.6        | 21.1        | 7,210       | 345         | 0.51        | 6,630       | 5.2         | 8.4         |
| 21/1-2        | 16.8        | 14,000      | 7.8         | 19,800     | 22.9        | 20.5        | 6,820       | 327         | 0.44        | 6,690       | 5.3         | 7.9         |
| 21/2-5        | 20.1        | 13,700      | 7.4         | 20,100     | 20          | 20.3        | 6,200       | 309         | 0.43        | 6,720       | 5.7         | 7.7         |
| 21/Bedrock    | 3.9         | 3,380       | 3           | 11,300     | 5.3         | 9.7         | 1,560       | 49.4        | 0.2         | 750         | 1.8         | 2           |

**Table 5. Geochemical data.—Continued**

ICP-MS data—continued.

| Sample no.    | P<br>(ppm) | Pb<br>(ppm) | Rb<br>(ppm) | Sb<br>(ppm) | Sc<br>(ppm) | Sr<br>(ppm) | Th<br>(ppm) | Ti<br>(ppm) | Tl<br>(ppm) | U<br>(ppm) | V<br>(ppm) | Y<br>(ppm) | Zn<br>(ppm) |
|---------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|------------|------------|-------------|
| 493/0-1       | 1,000      | 45.6        | 104         | 1.9         | 11.1        | 371         | 14.7        | 4,880       | 0.68        | 2.62       | 83.6       | 26.5       | 96.7        |
| 493/1-2       | 998        | 43.2        | 113         | 2           | 12          | 384         | 15.5        | 4,970       | 0.74        | 2.79       | 90.7       | 28         | 102         |
| 493/2-5       | 771        | 29.7        | 103         | 1.9         | 10.3        | 316         | 12.7        | 3,840       | 0.7         | 2.2        | 80         | 23.5       | 84.6        |
| 493/Bedrock   | 405        | 12.4        | 58.1        | 1.1         | 3.7         | 409         | 3.8         | 1,270       | 0.44        | 0.89       | 30.6       | 7.9        | 30          |
| 29/0-1        | 718        | 46.3        | 141         | 1.3         | 8.8         | 253         | 12.1        | 3,890       | 0.87        | 2.36       | 65.1       | 21.9       | 71.2        |
| 29/1-2        | 692        | 37.3        | 146         | 1.2         | 8.9         | 255         | 12.9        | 3,920       | 0.88        | 2.56       | 65         | 22.4       | 65.5        |
| 29/2-5        | 368        | 28.3        | 157         | 0.93        | 7.5         | 207         | 10.1        | 3,320       | 0.94        | 2.15       | 54.6       | 17.7       | 45.9        |
| 29/Bedrock    | 64         | 6.42        | 35.6        | 0.2         | 1           | 30.5        | 1.3         | 309         | 0.23        | 0.24       | 4.8        | 2.9        | 3.7         |
| 55/0-1        | 824        | 46.5        | 89.8        | 1.1         | 8           | 236         | 12.8        | 3,520       | 0.5         | 2.51       | 58.7       | 22.5       | 65.9        |
| 55/1-2        | 911        | 30          | 109         | 1.1         | 9.5         | 245         | 12.8        | 3,980       | 0.56        | 2.55       | 66.5       | 24.2       | 67.2        |
| 55/2-5        | 758        | 21.2        | 107         | 0.99        | 9.1         | 231         | 12.9        | 3,600       | 0.53        | 2.38       | 61.7       | 23.5       | 58          |
| 55/Bedrock    | 148        | 6.46        | 45.8        | 0.2         | 0.8         | 43.8        | 0.87        | 190         | 0.24        | 0.19       | 3.1        | 2          | <3          |
| 54/0-1        | 839        | 45.2        | 91.6        | 1.4         | 7.8         | 342         | 10.2        | 3,150       | 0.53        | 2.07       | 57.8       | 20.1       | 67.5        |
| 54/1-2        | 1,170      | 36.2        | 120         | 1.6         | 10.5        | 716         | 12          | 3,580       | 0.63        | 2.46       | 73.5       | 24.9       | 69.5        |
| 54/2-5        | 967        | 28.5        | 107         | 1.3         | 8.9         | 649         | 10.4        | 2,680       | 0.57        | 2.51       | 61.4       | 21.7       | 57.9        |
| 54/Bedrock    | 566        | 8.22        | 37.4        | 0.28        | 2.2         | 351         | 1.23        | 214         | 0.21        | 0.55       | 17.4       | 3.9        | 10.3        |
| 53/0-1        | 559        | 46.4        | 137         | 1.1         | 5.6         | 222         | 8.47        | 2,730       | 0.86        | 1.86       | 45.1       | 15         | 69          |
| 53/1-2        | 526        | 43          | 143         | 1.1         | 6.1         | 230         | 9.1         | 2,890       | 0.9         | 2.02       | 47.6       | 16         | 62.5        |
| 53/2-5        | 382        | 33.8        | 130         | 1.3         | 7.4         | 243         | 11.8        | 4,200       | 0.86        | 2.5        | 61.8       | 18.4       | 58.9        |
| 53/Bedrock    | 128        | 9.58        | 25.4        | 0.54        | 1           | 66          | 1.76        | 393         | 0.18        | 0.26       | 7.7        | 3.1        | 12          |
| 51/0-1        | 577        | 34.5        | 98.5        | 1.1         | 8.2         | 130         | 11.2        | 3,530       | 0.74        | 2.58       | 58.2       | 22.4       | 74.5        |
| 51/1-2        | 549        | 32.2        | 97.8        | 1.1         | 8           | 124         | 10.5        | 3,360       | 0.76        | 2.48       | 56.4       | 21.2       | 75.9        |
| 51/2-5        | 520        | 31.9        | 100         | 1.1         | 8.5         | 129         | 12.6        | 3,360       | 0.79        | 2.63       | 59.7       | 23         | 75.3        |
| 51/Bedrock    | 108        | 1.14        | 5.3         | 0.08        | 0.6         | 217         | 0.42        | 126         | <0.08       | 0.44       | 5.5        | 2          | 6.5         |
| 50/0-1        | 658        | 35          | 75.1        | 0.58        | 4.9         | 94.8        | 7.38        | 3,110       | 0.42        | 1.96       | 39.3       | 19.4       | 49.6        |
| 50/1-2        | 570        | 37          | 70.4        | 0.49        | 4.7         | 87.4        | 8.98        | 3,270       | 0.4         | 2.26       | 38.7       | 20.5       | 43.8        |
| 50/2-5        | 569        | 39.1        | 70.4        | 0.53        | 4.9         | 86.3        | 8.09        | 3,320       | 0.41        | 2.12       | 39.5       | 20.4       | 46.9        |
| 50/Bedrock    | 76         | 3.05        | 15.8        | 0.1         | 0.5         | 24.4        | 0.76        | 111         | 0.08        | 0.19       | 2.6        | 3.2        | 4.1         |
| 49/0-1        | 642        | 31.6        | 88.6        | 0.66        | 5.2         | 125         | 11          | 3,040       | 0.62        | 3.32       | 49.3       | 22.6       | 45.5        |
| 49/1-2        | 506        | 27.9        | 81.8        | 0.6         | 4.6         | 107         | 8.75        | 2,510       | 0.56        | 2.71       | 43.2       | 19.3       | 39          |
| 49/2-5        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.       | n.d.       | n.d.        |
| 49/Bedrock    | 58         | 4.38        | 13.1        | 0.2         | 0.4         | 21.4        | 1.09        | 210         | 0.09        | 0.47       | 13         | 1.9        | 4.2         |
| 48/0-1        | 601        | 20.6        | 56.6        | 0.66        | 5.9         | 113         | 10.4        | 2,930       | 0.56        | 2.45       | 43.8       | 20         | 34.9        |
| 48/1-2        | 573        | 18.3        | 54.3        | 0.62        | 5.5         | 115         | 9.92        | 2,710       | 0.52        | 2.27       | 39.7       | 19.4       | 30.2        |
| 48/2-5        | 552        | 17.8        | 50.4        | 0.74        | 5.6         | 133         | 12          | 2,940       | 0.52        | 2.48       | 40.7       | 21         | 29          |
| 48/Bedrock    | 146        | 19.5        | 2.8         | 3.2         | 2           | 63          | 8.87        | 1,430       | 1.67        | 1.78       | 116        | 6.2        | 13.5        |
| 47/0-1        | 457        | 32.1        | 93.2        | 0.81        | 7           | 151         | 10.4        | 3,540       | 0.62        | 2.7        | 70.2       | 19.4       | 54.6        |
| 47/1-2        | 453        | 34.5        | 91.9        | 0.85        | 7.2         | 150         | 10.2        | 3,580       | 0.63        | 2.62       | 71.8       | 19.4       | 55.2        |
| 47/2-5        | 265        | 24.3        | 90.4        | 0.75        | 7.2         | 152         | 10          | 3,800       | 0.6         | 2.53       | 77.4       | 17.7       | 45.5        |
| 47/Bedrock    | 392        | 15.9        | 28.7        | 0.96        | 2.2         | 38          | 4.35        | 284         | 0.21        | 1.58       | 240        | 10         | 21.3        |
| 30/0-1        | 592        | 29.3        | 80.9        | 0.88        | 6.1         | 251         | 9.01        | 3,130       | 0.66        | 3.4        | 52.7       | 17.9       | 49.9        |
| 30/1-2        | 606        | 29.5        | 76.9        | 0.84        | 6.8         | 301         | 8.98        | 3,020       | 0.68        | 3.94       | 56.9       | 17         | 57.2        |
| 30/2-5        | 599        | 24.7        | 73.2        | 0.67        | 6.2         | 378         | 6.4         | 2,440       | 0.71        | 3.96       | 53.8       | 14.5       | 43.3        |
| 30/Bedrock    | 115        | 11          | 31.8        | 0.21        | 1           | 98.2        | 1.54        | 410         | 0.23        | 0.53       | 6.8        | 3          | 5.5         |
| 46/0-1        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.       | n.d.       | n.d.        |
| 46/1-2        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.       | n.d.       | n.d.        |
| 46/2-5        | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.       | n.d.       | n.d.        |
| 46/Bedrock    | n.d.       | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.        | n.d.       | n.d.       | n.d.       | n.d.        |
| 45/0-1        | 326        | 26.3        | 97.3        | 0.77        | 4.3         | 110         | 5.31        | 2,700       | 0.58        | 1.82       | 40.1       | 18         | 28.2        |
| 45/1-2        | 207        | 20.3        | 84.8        | 0.57        | 3           | 83.3        | 3.04        | 1,910       | 0.5         | 1.16       | 28.5       | 11.9       | 18.8        |
| 45/2-5        | 293        | 24.9        | 103         | 0.81        | 4.5         | 111         | 5.22        | 2,840       | 0.6         | 1.81       | 40.7       | 19.3       | 27.8        |
| 45/Bedrock    | 64         | 7.52        | 43.8        | 0.2         | 1.2         | 36.3        | 1.15        | 389         | 0.26        | 0.26       | 8.9        | 2.9        | 7           |
| 44/0-1        | 574        | 18.8        | 77.1        | 0.43        | 4.7         | 134         | 8.67        | 2,230       | 0.47        | 2.11       | 31.7       | 18.4       | 35.6        |
| 44/1-2        | 690        | 17.7        | 79.2        | 0.48        | 5.1         | 148         | 10.5        | 2,660       | 0.47        | 2.4        | 36.1       | 21.3       | 38.5        |
| 44/2-5        | 659        | 16.6        | 74.7        | 0.47        | 4.9         | 143         | 10.3        | 2,700       | 0.46        | 2.46       | 35.3       | 20.6       | 36.8        |
| 44/Bedrock    | 87         | 4.82        | 35.4        | 0.1         | 0.8         | 68.2        | 2.04        | 758         | 0.2         | 0.31       | 7          | 3.5        | 7.1         |
| 05U-1/0-1     | 794        | 34.3        | 94          | 0.99        | 7.7         | 169         | 13.9        | 4,230       | 0.64        | 3.24       | 58.5       | 25.1       | 75.1        |
| 05U-1/1-2     | 646        | 30.4        | 92.4        | 0.84        | 6.2         | 140         | 9.54        | 2,780       | 0.62        | 2.33       | 47         | 17.6       | 71.3        |
| 05U-1/Bedrock | 64         | 6.58        | 43.7        | 0.26        | 1.5         | 34.5        | 0.92        | 368         | 0.28        | 0.22       | 6.5        | 2.5        | 13          |
| 05U-2/0-1     | 698        | 45.6        | 91          | 0.87        | 7.4         | 171         | 9.58        | 3,370       | 0.6         | 2.67       | 55.4       | 20.2       | 73.7        |
| 05U-2/1-2     | 656        | 47          | 89.7        | 0.87        | 7           | 169         | 8.91        | 3,050       | 0.62        | 2.42       | 52.1       | 18.5       | 72.1        |
| 05U-2/2-5     | 308        | 46.4        | 92.5        | 0.72        | 6.5         | 154         | 8           | 2,630       | 0.64        | 2.13       | 47.8       | 15.7       | 53.8        |
| 05U-2/Bedrock | 53         | 8.18        | 52.1        | 0.2         | 0.9         | 54.6        | 0.88        | 276         | 0.34        | 0.23       | 5.3        | 1.8        | 5.6         |
| 21/0-1        | 449        | 19.4        | 65.2        | 0.41        | 4.3         | 131         | 7.73        | 2,350       | 0.42        | 2.16       | 37.1       | 16.9       | 43.8        |
| 21/1-2        | 414        | 17.9        | 66.1        | 0.42        | 4           | 122         | 7.41        | 2,290       | 0.42        | 2.01       | 34.7       | 16.5       | 33          |
| 21/2-5        | 393        | 16.1        | 67.2        | 0.41        | 3.8         | 115         | 6.26        | 2,340       | 0.41        | 1.87       | 33.4       | 15.7       | 33.7        |
| 21/Bedrock    | 122        | 5.6         | 35.4        | 0.2         | 0.9         | 35.4        | 1.42        | 484         | 0.22        | 0.55       | 7.4        | 3.6        | 7.2         |