Supplemental Table 3. Petrographic study data measured in percentages (%). M (matrix), V (voids), Qtz (quartz), Kfs (potassium feldspar), Pl (plagioclases), Mc (microcline), Bt (biotite), Ms (muscovite), Msp (muscovite pseudomorph), Tur (tourmaline), Grt (garnet), Am-Px (anphibole and pyroxene), Gs (granitic stones), Ags (altered granite stone), Sh (shale), Qtzt (quartzite), Sd (sandstone), Sl-Ph (slate and phyllite), Clst (claystone), Vs (volcanic stones), Vg (volcanic glass), Op (opaque minerals), Gg (grog).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample | M | V | Qtz | Kfs | Pl | Mc | Bt | Ms | Msp | Tur | Grt | Am-Px | Gs | AGs | Sh | Qtzt | Clst | Sd | Sl-Ph | Vs | Vg | Op | Gg |
| 1 | 78.98 | 5.69 | 9.40 | 0.28 | 0.56 | - | 0.56 | 0.56 | - | - | - | 0.28 | 3.13 | - | - | - | - | - | - | - | 0.28 | 0.28 | - |
| 2 | 55.18 | 4.42 | 25.37 | 1.47 | 0.59 | - | 2.51 | 0.29 | - | 0.10 | 0.44 | 0.10 | 9.14 | - | - | - | - | - | - | - | 0.10 | 0.29 | - |
| 3 | 80.43 | 2.72 | 8.99 | 0.27 | 0.27 | - | 2.45 | 1.08 | - | - | - | 0.54 | 1.63 | - | - | - | - | - | - | 0.27 | 0.81 | 0.54 | - |
| 4 | 56.71 | 6.83 | 21.64 | 1.59 | 0.45 | 0.45 | 2.73 | 1.59 | - | 0.22 | - | 0.22 | 7.12 | - | - | - | - | - | - | - | - | 0.45 | - |
| 5 | 66.58 | 3.76 | 10.05 | 1.00 | - | - | 0.25 | 0.25 | - | - | - | - | 0.50 | - | - | - | - | 7.57 | 9.29 | - | - | 0.75 | - |
| 6 | 56.63 | 6.14 | 22.97 | 1.94 | 1.61 | - | 2.58 | - | - | - | 0.64 | - | 7.17 | - | - | - | - | - | - | - | - | 0.32 | - |
| 7 | 55.95 | 8.38 | 11.30 | 0.59 | 2.08 | 0.89 | 1.48 | 0.59 | - | - | - | 0.89 | - | - | - | - | - | - | - | 16.96 | - | 0.89 | - |
| 8 | 79.02 | 3.28 | 8.22 | 0.32 | 0.32 | - | 3.28 | 0.98 | - | - | - | - | 2.30 | - | - | - | - | - | - | 0.32 | 1.64 | 0.32 | - |
| 9 | 85.92 | 1.32 | 6.16 | 0.88 | 0.44 | - | 0.88 | 0.88 | - | - | - | 0.44 | 0.88 | - | - | - | - | - | - | 0.88 | 0.44 | 0.88 | - |
| 10 | 64.60 | 3.31 | 15.30 | 1.02 | 0.51 | - | 2.29 | 1.27 | - | 0.25 | 0.25 | 0.25 | 9.69 | - | 0.25 | - | - | - | - | 0.25 | 0.51 | 0.25 | - |
| 11 | 54.86 | 3.12 | 15.27 | 2.43 | 0.34 | 0.34 | 5.55 | 0.34 | - | - | - | 0.34 | 16.37 | - | - | - | - | - | - | - | - | 1.04 | - |
| 12 | 48.29 | 8.77 | 16.37 | 3.21 | 1.46 | 0.29 | 5.84 | 1.75 | - | - | - | 0.29 | 12.28 | - | 0.29 | - | - | - | - | 0.2 | 0.58 | 0.29 | - |
| 13 | 52.88 | 5.89 | 19.27 | 1.81 | 0.68 | 0.68 | 3.85 | 1.58 | - | - | - | 0.22 | 12.69 | - | - | - | - | - | - | - | - | 0.45 | - |
| 14 | 90.48 | 2.92 | 3.24 | 0.16 | 0.32 | - | 0.32 | 0.64 | - | - | - | 0.16 | 0.64 | - | 0.16 | - | - | - | - | - | 0.64 | 0.32 | - |
| 15 | 70.06 | 8.09 | 11.09 | 4.76 | 0.79 | - | 1.12 | 0.15 | - | - | - | 0.15 | 3.34 | - | - | - | - | - | - | 0.15 | 0.15 | 0.15 | - |
| 16 | 82.63 | 2.60 | 7.29 | 1.04 | 1.56 | - | 1.04 | 0.52 | - | - | - | 0.10 | 2.60 | - | - | - | - | - | - | 0.10 | - | 0.52 | - |
| 17 | 87.63 | 5.18 | 5.29 | 0.40 | 0.20 | - | 0.40 | 0.40 | - | 0.10 | - | 0.10 | 0.20 | - | - | - | - | - | - | - | - | 0.10 | - |
| 18 | 53.48 | 6.54 | 20.56 | 0.56 | 0.56 | 0.18 | 2.06 | 3.74 | - | 0.18 | - | - | 11.96 | - | - | - | - | - | - | - | - | 0.18 | - |
| 19 | 50.83 | 6.05 | 18.42 | 3.42 | 0.26 | 0.26 | 5.52 | 3.94 | - | 0.26 | - | 0.26 | 10.26 | - | - | - | - | - | - | 0.26 | - | 0.26 | - |
| 20 | 60.05 | 5.41 | 16.29 | 0.51 | 0.51 | - | 3.60 | 2.57 | - | - | - | - | 9.53 | - | 0.77 | - | - | - | - | 0.51 | - | 0.25 | - |
| 21 | 72.30 | 5.33 | 5.10 | - | 0.22 | - | 0.22 | 0.22 | - | - | - | - | - | - | - | - | - | 3.19 | 10.70 | 0.45 | - | 0.68 | 1.59 |
| 22 | 70.97 | 3.12 | 5.46 | - | 0.19 | 0.10 | 0.39 | 0.19 | - | - | - | 0.10 | - | - | - | - | - | 2.53 | 7.80 | - | 0.19 | 0.19 | 8.77 |
| 23 | 77.04 | 2.22 | 6.92 | - | 0.27 | - | - | - | - | - | - | - | - | - | - | - | - | 2.49 | 6.37 | - | 0.27 | 0.27 | 4.15 |
| 24 | 81.51 | 1.95 | 5.84 | - | 0.32 | - | - | 0.32 | - | - | - | - | - | - | - | - | - | 0.97 | 6.17 | - | 0.32 | - | 2.60 |
| 25 | 77.78 | 3.36 | 9.69 | 0.94 | 1.41 | - | 2.12 | 0.47 |  | - | 0.70 | 0.23 | 3.07 | - | - | - | - | - | - | - | - | 0.23 | - |
| 26 | 71.18 | 2.54 | 6.78 | 0.10 | 0.10 | - | 0.10 | 0.10 | - | - | - | - | - | - | - | - | 0.56 | 2.24 | 9.89 | - | - | 0.10 | 6.21 |
| 27 | 72.75 | 2.76 | 5.52 | 0.61 | 0.30 | - | 0.30 | 0.30 | - | - | - | 0.30 | - | - | - | - | - | 2.45 | 4.60 | - | - | 0.30 | 9.81 |
| 28 | 74.58 | 4.04 | 10.40 | 1.16 | 1.73 | - | 2.31 | 0.58 | - | - | - | 0.58 | 2.60 | - | - | - | - | - | - | - | 1.73 | 0.29 | - |
| 29 | 75.51 | 2.91 | 7.26 | 0.19 | 0.19 | - | 0.19 | 0.19 | - | - | - | 0.19 |  | - | - | - | - | 4.01 | 6.69 | - |  | 0.19 | 2.48 |
| 30 | 75.48 | 3.07 | 9.92 | 1.65 | 0.23 | - | 0.23 | 0.23 | - | - | - | 0.23 | 0.23 | - | - | - | - | 1.89 | 5.67 | - | 0.23 | 0.23 | 0.71 |
| 31 | 94.00 | 2.06 | 2.75 | 0.34 | 0.17 | - | 0.17 | 0.17 | - | - | - | - | - | - | - | - | - | - | - | - | 0.17 | 0.17 | - |
| 32 | 72.85 | 4.57 | 6.72 | 2.15 | 0.27 | 2.69 | 1.34 | 0.54 | - | - | - | - | 8.87 | - | - | - | - | - | - | - | - | - | - |
| 33 | 82.89 | 3.13 | 6.51 | 0.73 | 0.61 | - | 0.96 | 0.36 | - | 0.12 | - | 0.24 | 1.32 | - | - | - | - | - | - | 0.84 | 2.05 | 0.24 | - |
| 34 | 82.72 | 2.55 | 7.95 | 0.56 | - | - | 1.70 | 0.85 | - | - | - | - | 2.55 | - | - | - | - | - | - | - | 0.56 | 0.28 | - |
| 35 | 69.07 | 3.74 | 10.60 | 0.62 | 1.03 | - | 1.87 | 0.62 | - | - | - | 0.62 | 5.82 | - | 0.62 | - | - | - | - | 2.07 | 1.66 | 1.66 | - |
| 36 | 53.00 | 7.84 | 16.66 | 1.96 | 0.39 | 0.19 | 1.17 | 0.98 | - | - | - | 0.58 | 13.72 | - | 2.74 | - | - | - | - | 0.39 | 0.19 | 0.19 | - |
| 37 | 58.87 | 6.55 | 15.54 | 1.87 | 1.87 | 0.56 | 2.62 | 1.49 | - | 0.18 | - | 0.37 | 7.67 | - | 0.37 | - | - | - | - | 0.93 | 0.18 | 0.93 | - |
| 38 | 58.00 | 7.00 | 7.00 | 2.67 | 0.67 | - | 1.00 | 0.67 | - | 0.33 | 0.33 | - | 20.00 | - | - | - | - | - | - | - | - | 0.66 | - |
| 39 | 92.00 | 4.67 | 0.67 | 0.67 | 0.33 | - | 0.33 | 0.33 | - | - | - | - | - | - | - | - | - | - | - | - | 0.67 | 0.33 | - |
| 40 | 70.54 | 3.64 | 3.97 | 1.00 | 0.33 | - | 0.66 | 0.33 | - | - | - | - | 18.87 | - | - | - | - | - | - | - | 0.33 | 0.33 | - |
| 41 | 93.00 | 3.34 | 1.67 | 0.33 | 0.33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.00 | 0.33 | - |
| 42 | 87.67 | 4.00 | 4.00 | 0.67 | 0.33 | - | 0.33 | 0.33 | - | 0.33 | - | - | 1.00 | - | - | - | - | - | - | - | 0.67 | 0.67 | - |
| 43 | 52.18 | 7.87 | 19.43 | 2.09 | 1.84 | 0.49 | 2.83 | 1.72 | - | - | - | 0.12 | 11.07 | - | - | - | - | - | - | 0.12 | 0.12 | 0.12 | - |
| 44 | 57.06 | 8.49 | 18.33 | 1.34 | 1.21 | 0.40 | 0.80 | 0.40 | - | 0.13 | - | 0.26 | 9.30 | - | - | - | - | - | - | 0.94 | 0.67 | 0.67 | - |
| 45 | 57.69 | 7.33 | 3.33 | 3.00 | 0.33 | 0.33 | 1.00 | 0.33 | - | 0.67 | - | - | 24.33 | - | - | - | - | - | - | - | 1.00 | 0.33 | - |
| 46 | 66.78 | 4.51 | 5.48 | 1.29 | 0.64 | - | - | 5.16 | 6.45 | - | - | - | - | 9.03 | - | - | - | - | - | - | - | 0.33 | - |
| 47 | 55.67 | 6.00 | 10.33 | 4.00 | 1.00 | - | 3.67 | 1.00 | - | 0.33 | - | 0.33 | 16.67 | - | - | - | - | - | - | - | 0.67 | 0.33 | - |
| 48 | 54.16 | 6.61 | 19.51 | 1.43 | 1.32 | 0.11 | 3.64 | 1.65 | - | 0.22 | - | 0.22 | 8.82 | - | - | - | - | - | - | 0.66 | 0.99 | 0.66 | - |
| 49 | 75.67 | 2.99 | 7.69 | 0.99 | 0.25 | 0.50 | 0.74 | 0.25 | - | - | - | - | 10.67 | - | - | - | - | - | - | - | - | 0.25 | - |
| 50 | 64.85 | 2.85 | 8.57 | 0.23 | 0.47 | - | 0.47 | 0.23 | - | - | - | 0.47 | 0.71 | - | 1.66 | 0.23 | - | 3.57 | 13.80 | 0.23 | 1.66 | - | - |
| 51 | 85.89 | 2.95 | 6.04 | 0.29 | 0.29 | - | 0.88 | 0.14 | - | - | - | 0.14 | 0.73 | - | - | - | - | - | - | 0.59 | 1.92 | 0.14 |  |
| 52 | 59.85 | 4.70 | 27.25 | 1.17 | 0.44 | - | 0.44 | 0.14 | - | 0.14 | - | 0.44 | 5.14 | - | - | - | - | - | - | - | - | 0.29 | - |
| 53 | 49.37 | 4.20 | 33.06 | 3.11 | 0.93 | 0.31 | 1.24 | 1.24 | - | 0.15 | 0.31 | 0.47 | 4.83 | - | - | - | - | - | - | - | - | 0.78 | - |
| 54 | 72.98 | 2.36 | 11.32 | 1.01 | 1.01 | - | 3.36 | 0.34 | - | - | 0.11 | - | 7.40 | - | - | - | - | - | - | - | - | 0.11 | - |
| 55 | 56.90 | 4.64 | 18.30 | 1.36 | 1.36 | 0.54 | 4.64 | 1.36 | - | 0.27 | - | 0.27 | 6.55 | - | - | - | - | - | - | 3.27 | 0.27 | 0.27 | - |
| 56 | 80.62 | 3.89 | 6.28 | 0.29 | 0.59 | - | 2.09 | 1.49 | - | - | - | 0.29 | 0.89 | - | - | - | - | - | - | 0.59 | 1.49 | 1.49 | - |
| 57 | 80.08 | 5.67 | 8.44 | 0.79 | 0.53 | - | 0.67 | 0.39 | - | - | - | 0.13 | 0.53 | - | - | - | - | - | - | 0.39 | 2.12 | 0.26 | - |
| 58 | 84.55 | 2.36 | 5.71 | 0.3 | 0.98 | 0.19 | 2.36 | 0.10 | - | - | 0.30 | 0.10 | 2.36 | - | - | - | - | - | - | - | 0.30 | 0.39 | - |
| 59 | 61.41 | 7.98 | 13.24 | 1.08 | 1.27 | . | 4.71 | 0.72 | - | - | - | 0.18 | 7.07 | - | 0.18 | - | - | - | - | 0.90 | 0.54 | 0.72 | - |
| 60 | 65.93 | 6.18 | 13.70 | 0.58 | 0.19 | - | 0.96 | 0.77 | - | 0.15 | - | 0.15 | 9.27 | - | 1.74 | - | - | - | - | - | - | 0.38 | - |
| 61 | 57.97 | 6.92 | 22.63 | 1.33 | 1.20 | 0.53 | 2.40 | 0.13 | - | 0.13 | 1.06 | 0.13 | 4.52 | - | - | - | - | - | - | 0.13 | 0.26 | 0.36 | - |
| 62 | 45.55 | 8.88 | 17.37 | 0.20 | 1.41 | 0.40 | 4.80 | 2.62 | - | 0.20 |  | 0.20 | 17.57 | - | - | - | - | - | - | 0.40 | 0.20 | 0.20 | - |
| 63 | 43.71 | 7.73 | 19.20 | 1.74 | 1.74 | 0.99 | 7.98 | 3.99 | - | - | - | 0.24 | 10.72 | - | 0.24 | - | - | - | - | 0.99 | 0.49 | 0.24 | - |
| 64 | 42.83 | 6.04 | 19.87 | 1.29 | 1.29 | 1.72 | 4.53 | 1.94 | - | - | - | 0.21 | 19.43 | - | - | - | - | - | - | 0.21 | - | 0.64 | - |
| 65 | 55.98 | 7.62 | 18.60 | 1.94 | 2.71 | 1.03 | 3.75 | 1.81 | - | 0.12 | - | 0.26 | 4.26 | - | - | - | - | - | - | 0.64 | 1.16 | 0.12 | - |
| 66 | 57.48 | 6.95 | 22.91 | 1.78 | 1.22 | 0.94 | 1.03 | 0.94 | - | 0.10 | - | 0.47 | 4.60 | - | - | - | - | - | - | 0.37 | 0.28 | 0.75 | 0.18 |
| 67 | 50.18 | 7.90 | 17.93 | 2.53 | 0.51 | 0.30 | 7.70 | 1.62 | - | 0.10 | - | 0.20 | 9.32 | - | - | - | - | - | - | 0.20 | 1.11 | 0.40 | - |
| 68 | 53.58 | 9.13 | 17.74 | 0.80 | 1.07 | 0.26 | 4.30 | 2.41 | - | 0.26 | - | 0.26 | 8.87 | - | - | - | - | - | - | 0.80 | 0.26 | 0.26 | - |
| 69 | 54.11 | 8.64 | 14.73 | 0.78 | 0.98 | 0.19 | 1.76 | 1.17 | - | 0.19 | - | 0.58 | 11.78 | - | 3.73 | - | - | - | - |  | 0.39 | 0.39 | - |
| 70 | 52.28 | 6.95 | 20.41 | 2.42 | 1.01 | 0.51 | 4.53 | 1.31 | - | - | - | 0.10 | 9.57 | - | - | - | - | - | - | - | 0.30 | 0.51 |  |
| 71 | 46.00 | 6.51 | 15.96 | 0.16 | - | 0.16 | 2.28 | 2.28 | - | - | - | 0.10 | 19.06 | - | 7.49 | - | - | - | - | - | - | - | - |
| 72 | 49.48 | 5.46 | 16.40 | 1.59 | 2.73 | 0.91 | 5.23 | 2.73 | - | - | - | 0.22 | 14.35 | - | - | - | - | - | - | 0.45 | - | 0.45 | - |
| 73 | 53.17 | 5.57 | 14.56 | 2.51 | 1.25 | 0.35 | 4.49 | 1.61 | - | 0.17 | - | 0.17 | 14.74 | - | - | - | - | - | - | 0.53 | 0.35 | 0.53 | - |
| 74 | 43.44 | 4.76 | 18.76 | 0.84 | 3.64 | 1.12 | 6.72 | 4.76 | - | 0.28 | - | - | 13.44 | - | - | - | - | - | - | 0.28 | 1.68 | 0.28 | - |
| 75 | 69.00 | 4.68 | 10.33 | 4.00 | 1.33 | - | 3.33 | 0.33 | - | - | - | - | 6.00 | - | - | - | - | - | - | - | - | 0.67 | - |
| 76 | 49.76 | 5.46 | 7.92 | 0.27 | 0.27 | - | - | 0.54 | - | - | - | 0.27 | - | - | - | - | - | 10.38 | 24.86 | - | - | 0.27 | - |
| 77 | 64.18 | 8.89 | 8.89 | 0.36 | 0.84 | - | 0.60 | 1.08 | - | - | - | - | 14.56 | - | - | - | - | - | - | 0.36 | - | 0.24 | - |
| 78 | 59.11 | 5.29 | 12.81 | 0.83 | 0.83 | - | 0.83 | 1.11 | - | - | - | 0.27 | 18.10 | - | - | - | - | - | - | - | - | 0.27 | - |
| 79 | 70.79 | 4.69 | 12.62 | 0.23 | 0.23 | - | 3.27 | 2.80 | - | - | - | - | 5.14 | - | - | - | - | - | - | - | - | 0.23 | - |
| 80 | 76.72 | 1.04 | 11.76 | 2.42 | 0.35 | - | 1.73 | - | - | - | - | 0.10 | 5.19 | - | - | - | - | - | - | - | - | 0.69 | - |
| 81 | 54.69 | 7.32 | 17.80 | 1.26 | 1.14 | 1.14 | 3.03 | 2.77 | - | 0.13 | - | - | 9.34 | - | - | - | - | - | - | 0.38 | 0.75 | 0.25 | - |
| 82 | 66.22 | 6.15 | 15.82 | 0.66 | 1.75 | - | 1.31 | 1.09 | - | 0.21 | - | 0.66 | 1.97 | - | - | - | - | - | - | 1.53 | 1.97 | 0.66 | - |
| 83 | 74.82 | 3.23 | 9.70 | 0.64 | 0.97 | - | 1.29 | 0.64 | - | - | - | 0.64 | - | - | - | - | - | - | - | 0.32 | 7.11 | 0.64 | - |
| 84 | 74.07 | 2.34 | 7.87 | 0.21 | 0.42 | - | 0.21 | 0.21 | - | - | - | 0.21 | - | - | - | - | - | 1.91 | 7.66 | - | - | 0.21 | 4.68 |
| 85 | 75.68 | 2.90 | 8.30 | 0.19 | 0.58 | - | 0.19 | 0.19 | - | - | - | - | - | - | - | - | - | 0.97 | 7.92 | - | - | - | 1.00 |
| 86 | 72.61 | 2.40 | 5.48 | 0.34 | 0.34 | - | 0.34 | - | - | - | - | 0.34 | - | - | - | - | - | 2.40 | 11.99 | - | 0.68 | 0.34 | 2.74 |
| 87 | 69.40 | 3.30 | 13.00 | 0.70 | 0.10 | - | 0.47 | 0.10 | - | - | - | 0.10 | - | - | 0.23 | - | 0.23 | 1.41 | 5.67 | - | - | 0.10 | 4.96 |
| 88 | 69.70 | 5.70 | 6.20 | - | 0.60 | - | - | 0.20 | - | - | - | 0.20 | - | - | - | - | - | 2.00 | 12.80 | - | 0.60 | 0.40 | 1.60 |
| 89 | 76.48 | 2.79 | 9.77 | 1.05 | 0.69 | 0.17 | 1.22 | 0.52 | - | - | - | 0.52 | 4.71 | - | - | - | - | - | - | 0.34 | 1.22 | 0.52 | - |
| 90 | 78.19 | 2.10 | 5.52 | 0.26 | 0.26 | - | 0.26 | 0.26 | - | - | - | - | - | - | - | - | - | 1.58 | 7.37 | - | - | 0.26 | 3.94 |
| 91 | 71.07 | 3.53 | 12.38 | 0.22 | 0.22 | - | 0.44 | 0.22 |  | - | - | 0.44 | - | - | - | - | - | 1.10 | 2.43 | - | 0.66 | 0.22 | 7.07 |
| 92 | 77.48 | 2.99 | 7.12 | 0.23 | 0.23 | - | 0.23 | 0.23 | - | - | - | - | - | - | - | - | - | 1.60 | 5.98 | - | - | 0.23 | 3.68 |
| 93 | 75.11 | 3.56 | 7.12 | 1.48 | 1.78 | - | 0.59 | 0.29 | - | - | - | 0.89 | 5.63 | - | - | - | - | - | - | 2.37 | - | 1.18 | - |
| 94 | 75.88 | 3.56 | 10.27 | 1.18 | 0.40 | - | 0.40 | 0.40 | - | - | - | 0.40 | - | - | - | - | - | 0.79 | 2.37 | - | 0.79 | 0.40 | 3.16 |
| 95 | 75.61 | 4.07 | 7.12 | 1.01 | 0.40 | 0.20 | 1.22 | 0.20 | - | - | - | 0.20 | 0.81 | - | - | - | 0.61 | - | -- | - | - | 0.20 | 8.35 |
| 96 | 79.12 | 3.61 | 5.67 | 0.26 | 0.26 | - | 0.26 | 0.26 | - | - | - | 0.26 | - | - | - | - | - | 1.03 | 4.64 | - | 0.51 | 0.26 | 3.86 |
| 97 | 78.11 | 1.59 | 7.12 | 1.27 | 0.50 | - | 0.50 | 0.50 | - | - | - | 0.25 | - | - | - | - | - | 0.76 | 5.85 | - | 0.25 | 0.25 | 3.05 |
| 98 | 77.37 | 3.21 | 5.14 | 0.16 | 0.32 | 0.16 | - | 0.16 | - | - | - | 0.16 | - | - | - | - | - | 1.44 | 4.81 | - | - | 0.33 | 6.42 |