Antarctic Meteorite Newsletter
Volume 43, Number 1 February 2020

## Antarctic Meteorite News

*Kevin Righter, Antarctic Meteorite Curator*

The Spring 2020 Antarctic Meteorite Newsletter features the announcement of 391 new meteorites from the Dominion Range (DOM), Elephant Moraine (EET), Grosvenor Mountains (GRO), Nodtvedt Nunataks (NOD), Mt. Prestrud (PRE), and Devil's Glacier (DEV). Newly available meteorites include 2 lunar breccias (*likely paired with DOM 18262 from the Fall 2019 newsletter), an acapulcoite, brecciated eucrite, EH3 chondrite, CO3 and CK5 chondrites, and an L6 chondrite with a wadsleyite-bearing shock melt vein. This is the first report of occurrence of large discrete wadsleyite grains in a US Antarctic meteorite; smaller grains were found interspersed with ringwoodite in ALH 78003 (Ohtani et al., 2006). The wadsleyite and ringwoodite grains in GRO 17151 are optically distinct and clearly identifiable by their green and blue-purplish color, respectively. We also provide a summary of the 2019-20 ANSMET field season, the Smithsonian Report, and re-classifications of several chondrites.

### Bibliography

Our online bibliography of peer-reviewed papers reporting data on samples from our collection, was updated in January with 54 new papers mostly from 2018. There are now >1600 papers compiled in the bibliography.

### Field photos

We have added numerous field photos to the collection webpage, including all available field images from 1976-77 to 2006-07 ANSMET field teams. In brief, there are some years with only partial coverage and other years with no coverage. Seasons since 2001-02 timeframe have almost complete coverage. A full description of the field images is available here:

https://curator.jsc.nasa.gov/antmet/collection_curation.cfm?section=fieldimages

There are more coming so keep checking for updates.

### Reclassification of LAP 031275

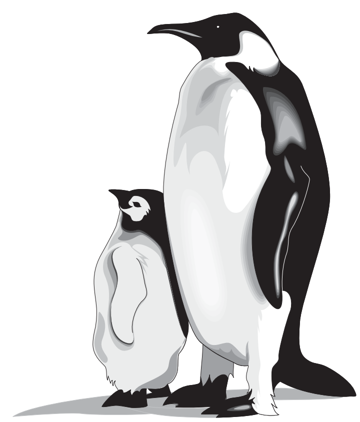
LAP 031275 was announced as an R5 chondrite in the September 2006 newsletter. Subsequent studies have showed that it is more likely an R3.6 (Lunning et al., 2020). From their paper is taken the following passage which nicely summarizes the reasons why this meteorite can be reclassified as an R3.6 with some confidence:

A periodical issued by the Meteorite Working Group to inform scientists of the basic characteristics of specimens recovered in the Antarctic.

Edited by Cecilia Satterwhite, Kellye Pando and Kevin Righter, NASA Johnson Space Center,Houston, Texas 77058

## Inside this Issue





**Sample Request Deadline March 6, 2020**

**MWG Meets March 20-21, 2020**

*"The broad range in olivine and pyroxene major element compositions is not consistent with previous classification of this chondrite as a petrologic type 5.*

*Type 5 chondrites are characterized by equilibrated olivine and pyroxene (i.e., homogeneous major element compositions). LAP 031275, excluding the melt clast, contains olivine with a range from $Fa_1$ to $Fa_{47}$ and average $Fa_{32\pm13}$ and low-Ca ($Wo_{0-1}$) pyroxene with a range of $Fs_{3-30}$ and average $Fs_{20\pm11}$.*

*Type 4 is characterized by homogenous olivine compositions; the coefficient of variation of the Fa-content of olivine in LAP 031275 is 39%.*

*In ordinary chondrites, coefficients with variation of 40–50% are associated with petrologic type 3.5 (Sears et al.1982). The chondrules in LAP 031275 consistently have recrystallized mesostases, which are generally more consistent with petrologic type 3.5–3.9 (Brearley and Jones 1998). The olivine (both in chondrules and matrices) in the host breccia consistently have <0.1 wt% $Cr_2O_3$, which is consistent with type 3.6–3.7 ordinary chondrites because ordinary chondrites with types <3.6 have chondrule olivine with $Cr_2O_3$ concentrations that extend to higher concentrations, up to 0.6 wt% $Cr_2O_3$ (Brearley and Jones 1998). LAP 031275 based on petrologic type scale developed for ordinary chondrites olivine Fa coefficient of variation suggested petrologic type 3.5, the recrystallized mesostasis suggested type 3.5–3.9, and the $Cr_2O_3$ concentrations in olivine are consistent with type 3.6–3.7. The petrologic type scheme for ordinary chondrites does not seem to map perfectly onto this R chondrite, but these features indicate a petrologic type for LAP 031275 that is near type 3.5 but also slightly above 3.5. Therefore, we suggest LAP031275 has a petrologic type 3.6, as well as being an apparently unbrecciated R3.6 chondrite."*

Brearley, A. J., & Jones, R. H. (1998). Planetary materials. *Reviews in Mineralogy and Geochemistry*, *36*, 3-1.

Lunning, N. G., Bischoff, A., Gross, J., Patzek, M., Corrigan, C. M., & McCoy, T. J. (2020). Insights into the formation of silica-rich achondrites from impact melts in Rumuruti-type chondrites. *Meteoritics & Planetary Science*, *55*(1), 130-148.

Sears, D. W., Grossman, J. N., & Melcher, C. L. (1982). Chemical and physical studies of type 3 chondrites. I- Metamorphism related studies of Antarctic and other type 3 ordinary chondrites. *Geochimica et Cosmochimica Acta*, *46*(12), 2471-2481.

For the full newsletter and further information about the new meteorites, go to: **https://curator.jsc.nasa.gov/antmet/amn/amn.cfm#n431**

## Report from the Smithsonian

*Cari Corrigan, Geologist (Dept. of Mineral Sci.)*

This newsletter reports 391 new classifications, including some interesting features in meteorites that we don't usually see (check out the description of GRO 17151 for an example). Things are going a little better here at the Smithsonian than they were last year at this time when we had to condense our newsletter classification process into a 2 week period. While we usually do concentrate our efforts into the month or so before a newsletter is due to be published, it is always nice not to have to be in quite that big of a rush!

In personnel news, Chris Anders and Greg Polley, who were hired with collections funds awarded to Meteorites Collections Manager Julie Hoskin, have been with us since October 2018. Greg recently transitioned into a full time federal position serving all collections at the Museum (congrats to Greg!) but thankfully Chris is still here (and honing his thin section making skills among other very helpful skills!). Since these two contracts were renewed for a second year (with additional funds obtained by Julie), we were able to hire Sophia Lee to help us out in the Division of Meteorites, and we welcomed her on board just before the holidays.

You may recall from the last newsletter that we were recently awarded money to digitize each Antarctic meteorite's data pack and we are in the process of finalizing the organization of this very important archival endeavour.

## ANSMET 2019-20 Field Season

*Jim Karner, University of Utah*

Our 2019-20 field season to the Davis Nunataks and Mount Ward (DW) just finished and resulted in 346 recovered meteorites. That total includes a few achondrites, several carbonaceous chondrites, and about four or five we're unsure of what type they are- hopefully something awesome! This year's team was led by ANSMET personnel Jim Karner, John Schutt, and Brian Rougeux, joined by ANSMET vets Cindy Evans and Marc Caffee, and filled out with newbies Lauren Angotti, Nicole Lunning, Emilie Dunham, and Alex Gerst.

Our goal before the start of this season was to complete search and recovery efforts at DW. We'd worked parts or all of six seasons there, and recovered close to 3000 meteorites from the site, but we still had some systematic sweeping to do and a few moraines to explore. But alas, all sorts of delays from the very start the season rendered that goal unachievable. First off, the main team was delayed in Christchurch, NZ for eleven days. Bad weather and poor runway conditions at McMurdo Station kept flights from reaching Antarctica, so the team patiently waited in NZ. The team finally got down to the ice on December 13 and a week later the groom team made it to DW. The groom team needed to plow and buff up the landing strip at DW for the Basler aircraft that would soon bring in the rest of the team. The strip was groomed and ready in about three days but then the Basler was unavailable (i.e., being used elsewhere), so the team was delayed again; this time the team waited patiently in McMurdo. The whole team eventually made it out to DW, and searching started in earnest on December 31. The team spent the next three weeks performing skidoo sweeps on the blue ice and foot-searching the moraines that surround the ice fields. The team found a surprising amount of meteorites in (newly?) exposed wind-rows on the blue ice near camp (Figure 1), and on the far reaches of blue ice north of Mt. Ward (Figure 2) two areas that had not been previously searched.

The team continued search and recovery efforts until January 23, when lousy weather started up and pull-out efforts began; the whole team was out of the field by January 27. This year's team made great strides towards completing efforts at DW in the limited field time they had. ANSMET plans on returning to DW next year, and hopefully we will finish up efforts DW then!

# *New Meteorites*

## 2016, 2017, 2018 Collection

Pages 5-19 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 42(2), August, 2019. Specimens of special petrologic type (carbonaceous chondrite, unequilibrated ordinary chondrite, achondrite, etc.) are represented by separate descriptions unless they are paired with previously described meteorites. However, some specimens of non-special petrologic type are listed only as single line entries in Table 1. For convenience, new specimens of special petrological type are also recast in Table 2.

Macroscopic descriptions of stony meteorites were performed at NASA/JSC. These descriptions summarize hand-specimen features observed during initial examination. Classification is based on microscopic petrography and reconnaissance-level electron microprobe analyses using polished sections prepared from a small chip of each meteorite. For each stony meteorite the sample number assigned to the preliminary examination section is included. In some cases, however, a single microscopic description was based on thin sections of several specimens believed to be members of a single fall.

Meteorite descriptions contained in this issue were contributed by the following individuals:

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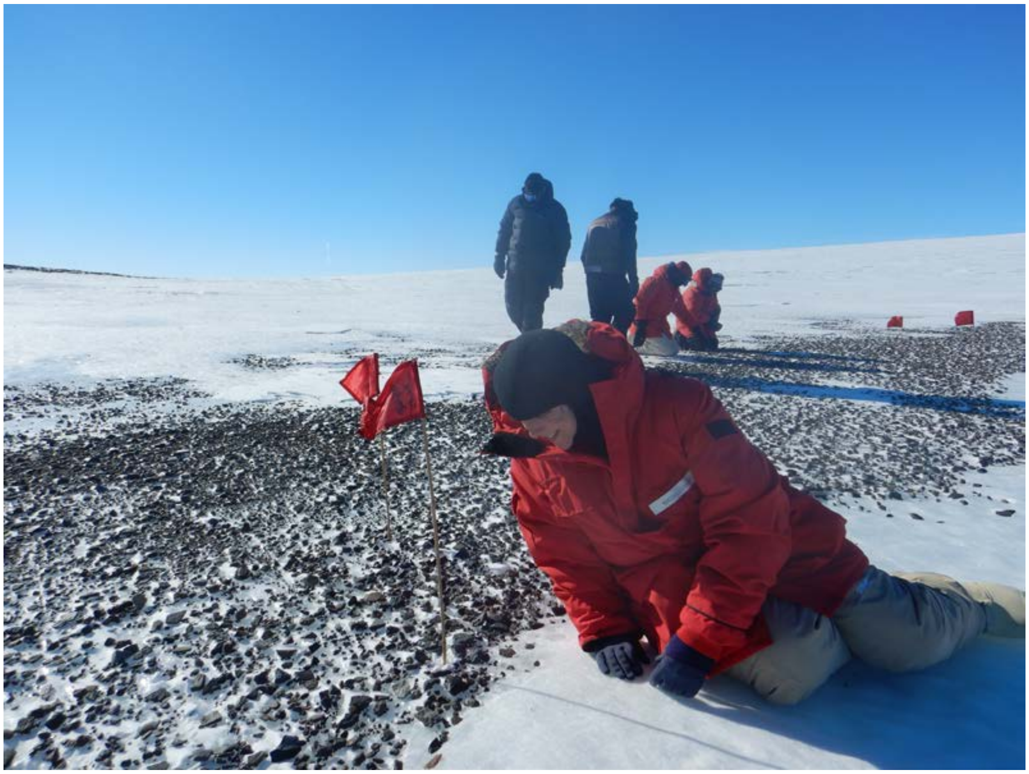

*Figure 1. ANSMET's Nicole Lunning spots a meteorite in a wind-row.*

*Figure 2. An ANSMET team member heads out to the vast fields of blue ice north of Mt. Ward.*

**Table 1**
**Newly Classified Antarctic Meteorites**

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| EET 16001 | SEM | 181.58 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.47 |
| EET 16003 | SEM | 220.52 | H5 CHONDRITE | B/C | A | 17 | 15 | 5.34 |
| EET 16004 | SEM | 265.32 | L6 CHONDRITE | B | A/B | 25 | 21 | 4.78 |
| EET 16005 | SEM | 251.98 | L5 CHONDRITE | A/B | B | 25 | 21 | 4.75 |
| EET 16007 | SEM | 84.05 | LL6 CHONDRITE | B | A/B | 28 | 22 | 4.43 |
| EET 16008 | SEM | 90.47 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.52 |
| EET 16009 | SEM | 105.74 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.55 |
| EET 16010 | SEM | 114.33 | H6 CHONDRITE | B | A/B | 18 | 16 | 5.18 |
| EET 16011 | | 90.89 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.77 |
| EET 16012 | SEM | 102.81 | L5 CHONDRITE | A/B | A/B | 24 | 21 | 4.79 |
| EET 16013 | SEM | 79.77 | L5 CHONDRITE | A/B | B | 25 | 21 | 4.75 |
| EET 16014 | SEM | 82.66 | L6 CHONDRITE | B | B | 26 | 22 | 4.66 |
| EET 16015 | SEM | 52.06 | L5 CHONDRITE | A/B | A/B | 24 | 20 | 4.51 |
| EET 16017 | SEM | 110.69 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.66 |
| EET 16018 | SEM | 55.65 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.64 |
| EET 16019 | SEM | 60.59 | L6 CHONDRITE | B | A/B | 25 | 21 | 4.8 |
| EET 16022 | | 217.32 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.81 |
| EET 16023 | SEM | 337.63 | L6 CHONDRITE | A/B | A/B | 25 | 20 | 4.68 |
| EET 16024 | SEM | 160.72 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.18 |
| EET 16025 | SEM | 122.28 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.5 |
| EET 16026 | SEM | 91.59 | L6 CHONDRITE | B | B | 25 | 21 | 4.55 |
| EET 16027 | SEM | 59.48 | L6 CHONDRITE | B | B | 25 | 22 | 4.68 |
| EET 16028 | SEM | 60.46 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.72 |
| EET 16030 | SEM | 24.7 | L6 CHONDRITE | A/B | A/B | 25 | 22 | 4.6 |
| EET 16031 | SEM | 22.92 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.54 |
| EET 16032 | SEM | 31.92 | L6 CHONDRITE | A/B | A/B | 26 | 21 | 4.61 |
| EET 16033 | SEM | 17.63 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.69 |
| EET 16034 | SEM | 55.68 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.49 |
| EET 16035 | SEM | 28.11 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.66 |
| EET 16036 | SEM | 27.7 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.63 |
| EET 16037 | SEM | 18.35 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.61 |
| EET 16038 | SEM | 30.53 | L6 CHONDRITE | A/B | A/B | 24 | 21 | 4.65 |
| EET 16041 | SEM | 70.57 | H4 CHONDRITE | B | A/B | 19 | 17 | 4.55 |
| EET 16042 | SEM | 80.67 | L6 CHONDRITE | A/B | A | 26 | 22 | 4.55 |
| EET 16051 | | 38.038 | H5 CHONDRITE | A/B | A | 19 | 17 | 5.23 |
| EET 16052 | SEM | 28.222 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.6 |
| EET 16053 | SEM | 42.693 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.56 |
| EET 16054 | SEM | 25.317 | L6 CHONDRITE | A/B | A | 26 | 22 | 4.69 |
| EET 16055 | SEM | 17.719 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.72 |
| EET 16056 | SEM | 36.684 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.73 |
| EET 16057 | SEM | 46.706 | H5 CHONDRITE | B | A | 20 | 19 | 5.15 |
| EET 16058 | SEM | 24.66 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.37 |
| EET 16059 | SEM | 61.273 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.64 |
| EET 16060 | SEM | 11.545 | L6 CHONDRITE | A/B | A | 26 | 22 | 4.58 |
| EET 16061 | SEM | 13.26 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.91 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| EET 16062 | SEM | 12.474 | L5 CHONDRITE | A/B | A | | 22 | 4.72 |
| EET 16063 | SEM | 14.85 | H4 CHONDRITE | B | A/B | 21 | | 5.23 |
| EET 16064 | SEM | 14.542 | L5 CHONDRITE | A/B | A | 24 | 21 | 4.7 |
| EET 16065 | SEM | | L6 CHONDRITE | A/B | A/B | 24 | 21 | 4.58 |
| EET 16066 | SEM | 29.738 | L5 CHONDRITE | A/B | A | 25 | | 4.54 |
| EET 16067 | SEM | 19.483 | L5 CHONDRITE | A/B | A | 26 | 22 | 4.64 |
| EET 16068 | SEM | 22.846 | L5 CHONDRITE | B | A/B | 25 | 20 | 4.6 |
| EET 16069 | SEM | 16.473 | L6 CHONDRITE | B | A | 25 | 21 | 4.66 |
| EET 16070 | SEM | 17.56 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.71 |
| EET 16071 | SEM | 22.67 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.72 |
| EET 16072 | SEM | 23.33 | L5 CHONDRITE | A/B | A | 25 | 23 | 4.6 |
| EET 16073 | SEM | 18.08 | L5 CHONDRITE | A/B | A | 26 | 22 | 4.68 |
| EET 16074 | SEM | 19.77 | L5 CHONDRITE | A/B | A | 24 | 22 | 4.67 |
| EET 16075 | SEM | 23.58 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.72 |
| EET 16076 | SEM | 20.28 | L5 CHONDRITE | B | A | 25 | 20 | 4.65 |
| EET 16077 | SEM | 17.77 | H6 CHONDRITE | B | A | 20 | | 5.08 |
| EET 16078 | SEM | 6.7 | H6 CHONDRITE | B | A | 21 | 18 | 5.22 |
| EET 16080 | SEM | 8.282 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.62 |
| EET 16081 | SEM | 10.314 | L5 CHONDRITE | A/B | A/B | 25 | | 4.72 |
| EET 16082 | SEM | 9.71 | L5 CHONDRITE | B | A/B | 24 | 21 | 4.88 |
| EET 16083 | SEM | 5.645 | L6 CHONDRITE | A/B | A/B | 25 | 22 | 4.8 |
| EET 16084 | SEM | 14.145 | LL6 CHONDRITE | B | A/B | 28 | 24 | 4.48 |
| EET 16085 | SEM | 16.205 | H6 CHONDRITE | B | A/B | 20 | 18 | 5.13 |
| EET 16086 | SEM | 7.617 | H6 CHONDRITE | B | A/B | 20 | 18 | 5.19 |
| EET 16087 | SEM | 21.465 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.62 |
| EET 16088 | SEM | 25.194 | L5 CHONDRITE | B | A/B | 25 | 21 | 4.58 |
| EET 16089 | SEM | 7.645 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.59 |
| EET 16090 | SEM | 32.38 | H5 CHONDRITE | B | A/B | 20 | 18 | 5.02 |
| EET 16091 | SEM | 20.46 | L6 CHONDRITE | B | A | 25 | 21 | 4.6 |
| EET 16092 | SEM | 32.2 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.51 |
| EET 16093 | SEM | 9.99 | LL5 CHONDRITE | B | A/B | 28 | 25 | 4.46 |
| EET 16094 | SEM | 11.26 | L5 CHONDRITE | B | A/B | 25 | 21 | 4.74 |
| EET 16095 | SEM | 9.25 | H6 CHONDRITE | B/C | A/B | 19 | 18 | 5.27 |
| EET 16096 | SEM | 9.07 | L5 CHONDRITE | A/B | A/B | 24 | 21 | 4.65 |
| EET 16098 | SEM | 10.4 | L5 CHONDRITE | B/C | B | 25 | 22 | 4.57 |
| EET 16099 | SEM | 10.65 | L5 CHONDRITE | B/C | A/B | 26 | 23 | 4.72 |
| EET 16101 | SEM | 16.19 | H4 CHONDRITE | A/B | A | 17 | 16 | 5.1 |
| EET 16102 | SEM | 18.09 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.69 |
| EET 16103 | SEM | 13.97 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.58 |
| EET 16104 | SEM | 16.51 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.53 |
| EET 16105 | SEM | 12.67 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.65 |
| EET 16106 | SEM | 17.44 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.67 |
| EET 16107 | SEM | 12.41 | L5 CHONDRITE | A/B | A | 25 | 22 | 4.72 |
| EET 16108 | SEM | 9.84 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.63 |
| EET 16109 | SEM | 10.51 | L5 CHONDRITE | A/B | A | 25 | 22 | 4.7 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| EET 16110 | SEM | 6.475 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.66 |
| EET 16111 | SEM | 4.541 | L5 CHONDRITE | A/B | A | 25 | 22 | 4.93 |
| EET 16112 | SEM | 14.865 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.69 |
| EET 16113 | SEM | 12.85 | L6 CHONDRITE | A/B | A/B | 25 | 22 | 4.56 |
| EET 16114 | SEM | 29.755 | H6 CHONDRITE | B | A | 20 | 18 | 5.2 |
| EET 16115 | SEM | 8.725 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.73 |
| EET 16116 | SEM | 18.058 | L5 CHONDRITE | A/B | A/B | 25 | | 4.5 |
| EET 16117 | SEM | 10.325 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.74 |
| EET 16118 | SEM | 12.604 | L5 CHONDRITE | A/B | A | 25 | 22 | 4.68 |
| EET 16120 | SEM | 4.65 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.04 |
| EET 16121 | SEM | 3.72 | L6 CHONDRITE | B | A | 26 | 23 | 4.65 |
| EET 16122 | SEM | 5.48 | L6 CHONDRITE | A/B | A | 25 | 21 | 5.06 |
| EET 16123 | SEM | 3.86 | H6 CHONDRITE | B | A | 20 | 18 | 5.32 |
| EET 16124 | SEM | 8.2 | H5 CHONDRITE | B/C | A | 20 | 19 | 5.28 |
| EET 16125 | SEM | 2.53 | L5 CHONDRITE | B | A | 25 | 22 | 4.52 |
| EET 16126 | SEM | 4.24 | L6 CHONDRITE | B/C | A | 25 | 22 | 4.67 |
| EET 16130 | SEM | 4.22 | L5 CHONDRITE | A/B | A | 26 | 24 | 4.59 |
| EET 16131 | SEM | 4.47 | L6 CHONDRITE | B | A | 25 | 22 | 4.6 |
| EET 16132 | SEM | 2.87 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.06 |
| EET 16133 | SEM | 3.76 | H6 CHONDRITE | B/C | A | 20 | 18 | 4.98 |
| EET 16134 | SEM | 3.13 | H5 CHONDRITE | B | A | 20 | 19 | 5.1 |
| EET 16135 | SEM | 4.03 | L5 CHONDRITE | B | A | 25 | | 4.9 |
| EET 16136 | SEM | 3.48 | L6 CHONDRITE | A/B | A | 25 | 22 | 4.69 |
| EET 16137 | SEM | 2.47 | L6 CHONDRITE | B | A | 25 | 22 | 4.47 |
| EET 16138 | SEM | 2.46 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.06 |
| EET 16139 | SEM | 4.15 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.68 |
| EET 16140 | SEM | 1.48 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.01 |
| EET 16141 | SEM | 1.2 | H6 CHONDRITE | B/C | A | 19 | 17 | 5.04 |
| EET 16142 | | 1.67 | L4 CHONDRITE | B | A | 25 | 13-29 | 4.57 |
| EET 16143 | SEM | 2.05 | L6 CHONDRITE | B/C | A | 25 | 20 | 4.69 |
| EET 16144 | SEM | 2.24 | LL5 CHONDRITE | A/B | A/B | 31 | 27 | 3.57 |
| EET 16145 | SEM | 3.17 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.03 |
| EET 16146 | SEM | 2.15 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.02 |
| EET 16147 | SEM | 2.26 | L6 CHONDRITE | A/B | A | 25 | 20 | 4.49 |
| EET 16148 | SEM | 1.36 | H5 CHONDRITE | B/C | A | 20 | 17 | 5.19 |
| EET 16149 | SEM | 2.49 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 4.99 |
| EET 16150 | SEM | 3.619 | L6 CHONDRITE | B | A/B | 25 | 21 | 4.71 |
| EET 16151 | SEM | 6.48 | L6 CHONDRITE | A/B | A/B | 25 | 22 | 4.74 |
| EET 16152 | SEM | 5.754 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.68 |
| EET 16153 | SEM | 4.757 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.81 |
| EET 16154 | | 6.409 | L3.5 CHONDRITE | A/B | A/B | 1-26 | 9-22 | 4.44 |
| EET 16155 | SEM | 8.468 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.55 |
| EET 16156 | SEM | 5.456 | L6 CHONDRITE | A/B | A/B | 25 | | 4.75 |
| EET 16157 | SEM | 3.265 | L6 CHONDRITE | B | A/B | 26 | | 4.64 |
| EET 16158 | | 4.067 | L5 CHONDRITE | A/B | A/B | 27 | 23 | 4.8 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| EET 16159 | SEM | 3.869 | L6 CHONDRITE | A/B | A/B | 26 | 22 | 4.65 |
| EET 16160 | SEM | 3.63 | L5 CHONDRITE | B | A | 26 | 22 | 4.61 |
| EET 16161 | SEM | 1.9 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.02 |
| EET 16162 | SEM | 2.43 | L6 CHONDRITE | B | A/B | 25 | 21 | 4.67 |
| EET 16163 | SEM | 3.5 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 4.93 |
| EET 16164 | SEM | 2.58 | H6 CHONDRITE | B/C | A/B | 19 | 17 | 5.06 |
| EET 16165 | SEM | 1.41 | L5 CHONDRITE | C | B | 24 | | 4.56 |
| EET 16166 | | 3.97 | L4 CHONDRITE | A/B | A/B | 24 | 13-20 | 4.68 |
| EET 16167 | SEM | 2.42 | H4 CHONDRITE | C | B | 19 | 17 | 5.2 |
| EET 16168 | | 2.72 | ACAPULCOITE | B/C | B/C | 7 | 3-8 | 5.17 |
| EET 16169 | SEM | 4.49 | L5 CHONDRITE | B | A/B | 25 | 21 | 4.85 |
| EET 16175 | SEM | 2.93 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.03 |
| EET 16176 | SEM | 2.39 | L6 CHONDRITE | A/B | A | 25 | 21 | 4.7 |
| EET 16177 | SEM | 1.56 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.15 |
| EET 16178 | | 1.52 | CK5 CHONDRITE | A/B | A | 30 | 25 | 4.78 |
| EET 16179 | SEM | 1.07 | L6 CHONDRITE | A/B | A | 26 | 23 | 4.61 |
| EET 16180 | SEM | 1.14 | H6 CHONDRITE | | A | 20 | 19 | 5.03 |
| EET 16181 | SEM | 2.26 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.03 |
| EET 16182 | SEM | 1.14 | L6 CHONDRITE | | A | 26 | 22 | 4.55 |
| EET 16183 | SEM | 1.27 | H6 CHONDRITE | B/C | A | 16 | 15 | 5.06 |
| EET 16184 | SEM | 2.13 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.04 |
| EET 16185 | SEM | 1.31 | L6 CHONDRITE | B/C | A | 25 | 20 | 4.55 |
| EET 16186 | SEM | 1.47 | H5 CHONDRITE | B/C | A | 21 | 19 | 5 |
| EET 16187 | SEM | 2.75 | H5 CHONDRITE | B/C | A | 20 | 18 | 5.01 |
| EET 16188 | SEM | 1.49 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.04 |
| EET 16189 | SEM | 1.36 | LL6 CHONDRITE | B | A | 29 | | 4.68 |
| EET 16190 | SEM | 4.72 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.06 |
| EET 16191 | SEM | 2.02 | H6 CHONDRITE | B/C | A | 21 | 19 | 5.03 |
| EET 16192 | SEM | 2.84 | L5 CHONDRITE | B/C | A | 27 | 22 | 4.56 |
| EET 16193 | SEM | 1.5 | L6 CHONDRITE | B/C | A | 22 | 20 | 5.02 |
| EET 16194 | SEM | 3.86 | L6 CHONDRITE | A/B | A | 26 | 22 | 4.63 |
| EET 16195 | SEM | 1.24 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.06 |
| | | | | | | | | |
| DEV 17280 | | 44.69 | L5 CHONDRITE | A/B | A/B | 27 | 23 | 4.7 |
| DEV 17281 | SEM | 1.38 | H5 CHONDRITE | A/B | A | 19 | | 5.14 |
| | | | | | | | | |
| GRO 17002 | SEM | 6.74 | H6 CHONDRITE | B/C | AB | 18 | 16 | 5.16 |
| GRO 17003 | | 99.35 | H6 CHONDRITE | B/C | B | 20 | 17 | 5.19 |
| GRO 17005 | SEM | 10.06 | H5 CHONDRITE | B/C | A/B | 19 | 17 | 4.59 |
| GRO 17007 | SEM | 35.07 | H6 CHONDRITE | B/C | A/B | 19 | 17 | 4.9 |
| GRO 17008 | SEM | 39.26 | H6 CHONDRITE | B/C | A/B | 19 | 17 | 5.19 |
| GRO 17009 | | 44.56 | L3.8 CHONDRITE | B | B | 6-23 | 3-24 | 4.39 |
| GRO 17010 | SEM | 17.609 | H6 CHONDRITE | B | A | 20 | 18 | 5.167 |
| GRO 17011 | SEM | 12.412 | L6 CHONDRITE | B | A | 25 | 21 | 4.438 |
| GRO 17012 | SEM | 9.296 | H6 CHONDRITE | B | A | 20 | 17 | 5.13 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| GRO 17013 | SEM | 16.777 | L6 CHONDRITE | B | A | 25 | 21 | 4.43 |
| GRO 17014 | SEM | 11.145 | H6 CHONDRITE | B | A | 20 | 18 | 5.14 |
| GRO 17015 | SEM | 11.136 | H5 CHONDRITE | B | A | 19 | 17 | 5.3 |
| GRO 17016 | SEM | 30.45 | H6 CHONDRITE | B | A | 19 | 17 | 4.84 |
| GRO 17017 | | 23.653 | H5 CHONDRITE | B/C | A/B | 17 | 15 | 5.039 |
| GRO 17018 | SEM | 12.656 | L6 CHONDRITE | B | B | 25 | 22 | 4.648 |
| GRO 17019 | | 3.204 | L5 CHONDRITE | B | A | 25 | 21 | 4.637 |
| GRO 17020 | SEM | 59.83 | H6 CHONDRITE | B/C | B | 20 | | 5.26 |
| GRO 17021 | SEM | 116.54 | H5 CHONDRITE | B | A/B | 19 | 17 | 5.13 |
| GRO 17023 | SEM | 37.92 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5 |
| GRO 17024 | SEM | 71.04 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.04 |
| GRO 17025 | SEM | 52.73 | H6 CHONDRITE | B/Ce | A/B | 20 | 17 | 5.1 |
| GRO 17026 | | 92.43 | L3.4 CHONDRITE | B | A | 6-26 | 3-17 | 3.78 |
| GRO 17027 | SEM | 87.93 | L6 CHONDRITE | B/C | A/B | 26 | 21 | 4.68 |
| GRO 17028 | SEM | 80.95 | L4 CHONDRITE | B | A/B | 25 | 21 | 4.66 |
| GRO 17029 | SEM | 363.69 | H6 CHONDRITE | B/C | B | 20 | 17 | 5.28 |
| GRO 17030 | SEM | 20.694 | L5 CHONDRITE | A/B | A | 24 | 20 | 4.717 |
| GRO 17031 | SEM | 25.246 | H6 CHONDRITE | B | A | 19 | 16 | 4.857 |
| GRO 17032 | SEM | 35.919 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.6 |
| GRO 17033 | SEM | 26.689 | H5 CHONDRITE | B | A | 19 | 17 | 4.97 |
| GRO 17034 | SEM | 16.699 | L6 CHONDRITE | B | A | 25 | 21 | 4.54 |
| GRO 17035 | SEM | 25.572 | H6 CHONDRITE | A/B | A | 20 | 18 | 4.82 |
| GRO 17036 | | 19.203 | LL4 CHONDRITE | B | A | 29 | 6-25 | 3.768 |
| GRO 17037 | SEM | 40.973 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.56 |
| GRO 17040 | SEM | 195.164 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.06 |
| GRO 17041 | SEM | 186.291 | H6 CHONDRITE | B/Ce | A | 19 | 17 | 5.15 |
| GRO 17042 | SEM | 133.935 | H6 CHONDRITE | B | a | 20 | 18 | 5.14 |
| GRO 17043 | | 175.33 | H5 CHONDRITE | B | A/B | 19 | 17 | 5.31 |
| GRO 17044 | SEM | 154.461 | H5 CHONDRITE | A/Be | A/B | 19 | 17 | 4.98 |
| GRO 17045 | SEM | 158.66 | H6 CHONDRITE | B/Ce | A/B | 20 | 18 | 5.15 |
| GRO 17046 | SEM | 79.87 | H6 CHONDRITE | B/C | A/B | 20 | | 5.18 |
| GRO 17047 | SEM | 60.39 | H5 CHONDRITE | B/C | A/B | 21 | 19 | 5.08 |
| GRO 17050 | | 954.2 | H4 CHONDRITE | B | A | 19 | 3-17 | 5.12 |
| GRO 17052 | | 1578.3 | L6 CHONDRITE | B/Ce | A | 25 | 21 | 4.69 |
| GRO 17053 | SEM | 2502.8 | L5 CHONDRITE | A/Be | A | 25 | 20 | 4.91 |
| GRO 17054 | SEM | 1168.61 | L6 CHONDRITE | A/Be | A | 25 | 24 | 4.76 |
| GRO 17055 | SEM | 3192.08 | LL5 CHONDRITE | B | A | 28 | | 4.21 |
| GRO 17056 | SEM | 524.29 | L5 CHONDRITE | A/Be | A/B | 25 | 21 | 4.73 |
| GRO 17057 | | 2144.7 | L5 CHONDRITE | A/Be | A | 25 | 21 | 4.66 |
| GRO 17058 | SEM | 9485 | L5 CHONDRITE | A/Be | A | 25 | 22 | 4.92 |
| GRO 17061 | SEM | 219.386 | H6 CHONDRITE | B/Ce | A/B | 20 | 18 | 5.15 |
| GRO 17062 | | 388.56 | H5 CHONDRITE | B | A/B | 19 | 17 | 5.09 |
| GRO 17065 | SEM | 268.96 | H6 CHONDRITE | Be | B | 20 | 19 | 3.104 |
| GRO 17066 | SEM | 142.33 | H5 CHONDRITE | B | B | 21 | 19 | 5.2 |
| GRO 17067 | SEM | 275.54 | H6 CHONDRITE | B | A/B | 19 | 19 | 5.3 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| GRO 17068 | SEM | 174.84 | H6 CHONDRITE | B | A | 20 | 18 | 5.17 |
| GRO 17069 | SEM | 114.85 | H5 CHONDRITE | Be | B | | 18 | 4.42 |
| GRO 17071 | SEM | 184.077 | H6 CHONDRITE | B/Ce | A/B | 19 | 17 | 5.14 |
| GRO 17072 | SEM | 71.59 | H5 CHONDRITE | A/B | A/B | 20 | 18 | 5.17 |
| GRO 17073 | SEM | 287.54 | H5 CHONDRITE | B/C | A | 20 | 17 | 5.06 |
| GRO 17074 | SEM | 436.73 | H5 CHONDRITE | B/Ce | B | 20 | 17 | 5.17 |
| GRO 17075 | | 109.77 | H5 CHONDRITE | B | A/B | 18 | 16 | 5.07 |
| GRO 17076 | SEM | 150.23 | H6 CHONDRITE | B/C | A/B | 20 | 17 | 5.04 |
| GRO 17077 | | 101.7 | L4 CHONDRITE | A/B | A/B | 24 | 13-20 | 4.88 |
| GRO 17078 | SEM | 104.8 | H5 CHONDRITE | B/C | A/B | 19 | 17 | 5.14 |
| GRO 17079 | SEM | 111.48 | H6 CHONDRITE | B/C | A/B | 20 | 17 | 5.12 |
| GRO 17080 | SEM | 138.87 | LL6 CHONDRITE | A/B | A/B | 28 | 23 | 4.77 |
| GRO 17081 | SEM | 277.19 | L5 CHONDRITE | A/B | A | 26 | 24 | 4.72 |
| GRO 17082 | SEM | 309.88 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.2 |
| GRO 17083 | SEM | 166.37 | H6 CHONDRITE | B/C | A/B | 21 | 19 | 5.1 |
| GRO 17084 | SEM | 121.27 | H6 CHONDRITE | Be | A | 20 | | 5.05 |
| GRO 17085 | SEM | 40.839 | L6 CHONDRITE | B | B | 25 | 21 | 4.797 |
| GRO 17086 | SEM | 109.798 | H5 CHONDRITE | Be | AB | 20 | 18 | 5.122 |
| GRO 17087 | | 41.982 | L5 CHONDRITE | A/B | A | 25 | 21 | 4.88 |
| GRO 17088 | SEM | 57.111 | H5 CHONDRITE | A/Be | A | 19 | 17 | 4.978 |
| GRO 17089 | SEM | 40.471 | H6 CHONDRITE | Be | A | 20 | 17 | 4.968 |
| GRO 17090 | SEM | 18.591 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.52 |
| GRO 17091 | SEM | 10.428 | H6 CHONDRITE | B/C | A | 19 | 17 | 4.73 |
| GRO 17092 | SEM | 11.488 | H6 CHONDRITE | B/C | A/B | | 18 | 5.03 |
| GRO 17093 | SEM | 5.676 | H6 CHONDRITE | B/C | A | 18 | 16 | 4.78 |
| GRO 17094 | | 5.03 | H5 CHONDRITE | B/C | A | 19 | 17 | 4.86 |
| GRO 17095 | SEM | 18.315 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.04 |
| GRO 17096 | SEM | 30.262 | L6 CHONDRITE | B/C | A | 26 | 21 | 4.22 |
| GRO 17097 | SEM | 13.995 | H5 CHONDRITE | B | A | 19 | 17 | 5.26 |
| GRO 17100 | SEM | 1168.46 | L6 CHONDRITE | B/Ce | A/B | 25 | 21 | 4.85 |
| GRO 17101 | SEM | 2811.74 | H6 CHONDRITE | B/Ce | A/B | 20 | 18 | 5.26 |
| GRO 17103 | SEM | 2703.04 | H5 CHONDRITE | B/Ce | A/B | 20 | 18 | 5.18 |
| GRO 17104 | SEM | 688.39 | L6 CHONDRITE | B | B | 25 | 22 | 4.789 |
| GRO 17105 | SEM | 694.32 | L5 CHONDRITE | A/Be | A | 26 | 22 | 4.69 |
| GRO 17106 | SEM | 250.76 | H6 CHONDRITE | B | A | 20 | 17 | 5.105 |
| GRO 17107 | | 564.73 | L6 CHONDRITE | A/Be | A | 27 | 23 | 4.66 |
| GRO 17109 | SEM | 467.59 | H6 CHONDRITE | Be | B/C | | 18 | 5.14 |
| GRO 17110 | SEM | 6.71 | H6 CHONDRITE | B/C | A/B | 20 | 17 | 5.1 |
| GRO 17111 | | 8.5 | L6 CHONDRITE | B/C | A/B | 25 | 21 | 4.49 |
| GRO 17112 | | 16.32 | EH3 CHONDRITE | B/C | B | 0.5 | 0-1 | 4.95 |
| GRO 17113 | | 32.07 | L5 CHONDRITE | B | A/B | 26 | 21 | 3.93 |
| GRO 17114 | SEM | 22.96 | H6 CHONDRITE | B/C | B | 18 | 16 | 5.24 |
| GRO 17115 | SEM | 15.66 | L5 CHONDRITE | B | A/B | 24 | 21 | 4.75 |
| GRO 17116 | SEM | 32.86 | L6 CHONDRITE | B/C | A/B | 25 | 23 | 4.36 |
| GRO 17117 | | 11.03 | H5 CHONDRITE | B/C | A/B | 19 | 17 | 4.89 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| GRO 17118 | SEM | 17 | L6 CHONDRITE | B/C | A/B | 25 | 21 | 4.5 |
| GRO 17120 | | 91.43 | L4 CHONDRITE | Be | A/B | 24 | 20 | 4.71 |
| GRO 17121 | SEM | 101.87 | H6 CHONDRITE | B/C | A/B | 21 | 20 | 5.25 |
| GRO 17122 | SEM | 136.2 | LL5 CHONDRITE | B | A | 28 | 24 | 4.62 |
| GRO 17123 | SEM | 70.14 | H6 CHONDRITE | B/C | A | 21 | 19 | 5.04 |
| GRO 17124 | SEM | 24.21 | L5 CHONDRITE | B/C | A | 26 | 21 | 4.49 |
| GRO 17125 | SEM | 39.64 | H6 CHONDRITE | B/C | B | 21 | 19 | 5.07 |
| GRO 17126 | SEM | 32.94 | H6 CHONDRITE | B | A | 21 | 19 | 5.04 |
| GRO 17127 | SEM | 25.96 | L6 CHONDRITE | B/C | A | 25 | 21 | 4.53 |
| GRO 17129 | SEM | 26.95 | L6 CHONDRITE | B | A | 25 | 21 | 4.71 |
| GRO 17130 | SEM | 7.78 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 4.96 |
| GRO 17131 | SEM | 14.59 | L6 CHONDRITE | B/C | A/B | 26 | 22 | 4.23 |
| GRO 17132 | SEM | 8.51 | H5 CHONDRITE | B/C | A/B | 19 | 17 | 4.79 |
| GRO 17133 | SEM | 14.01 | H5 CHONDRITE | B | B | 20 | 18 | 5.14 |
| GRO 17134 | SEM | 14.02 | H6 CHONDRITE | B/C | B | 20 | 18 | 4.81 |
| GRO 17135 | | 9.75 | L4 CHONDRITE | A/B | A/B | 27 | 12-27 | 4.32 |
| GRO 17136 | SEM | 18.34 | H6 CHONDRITE | B/C | B | 21 | 18 | 4.74 |
| GRO 17137 | SEM | 11.57 | H6 CHONDRITE | B | B | 18 | 16 | 4.69 |
| GRO 17140 | SEM | 728.43 | L6 CHONDRITE | B | A/B | 25 | 22 | 4.9 |
| GRO 17141 | SEM | 1188.99 | L6 CHONDRITE | Be | A/B | 25 | 22 | 4.75 |
| GRO 17143 | SEM | 697.48 | L5 CHONDRITE | A/Be | A/B | 25 | 21 | 4.82 |
| GRO 17144 | SEM | 160.67 | L5 CHONDRITE | A/B | A/B | 25 | 21 | 4.46 |
| GRO 17145 | SEM | 186.24 | L6 CHONDRITE | A/B | A/B | 25 | 21 | 4.73 |
| GRO 17146 | SEM | 290.11 | L6 CHONDRITE | A/B | B | 25 | 22 | 4.88 |
| GRO 17147 | SEM | 250.31 | L6 CHONDRITE | Be | A/B | 25 | 22 | 5 |
| GRO 17148 | | 189.84 | H5 CHONDRITE | A/B | A/B | 19 | 17 | 5.18 |
| GRO 17149 | SEM | 136.28 | H5 CHONDRITE | B/C | A/B | 19 | 17 | 4.97 |
| GRO 17150 | SEM | 64.88 | H6 CHONDRITE | B/C | B | 20 | 18 | 4.92 |
| GRO 17151 | | 59.36 | L6 CHONDRITE | B/C | A/B | 24 | 21 | 4.64 |
| GRO 17152 | SEM | 48.64 | H6 CHONDRITE | B/Ce | A/B | 19 | 17 | 5.02 |
| GRO 17153 | SEM | 82.36 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.17 |
| GRO 17154 | SEM | 50.32 | L6 CHONDRITE | Be | A/B | 25 | 21 | 4.7 |
| GRO 17155 | SEM | 55.22 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.11 |
| GRO 17156 | | 40.94 | L4 CHONDRITE | B | A | 24 | 20 | 4.64 |
| GRO 17157 | SEM | 69.3 | H5 CHONDRITE | B/Ce | A/B | 21 | 18 | 4.99 |
| GRO 17158 | SEM | 97.35 | H5 CHONDRITE | Be | A/B | 19 | 17 | 4.92 |
| GRO 17159 | SEM | 85.52 | L5 CHONDRITE | B/C | A/B | 25 | 21 | 4.69 |
| GRO 17160 | SEM | 76.6 | H6 CHONDRITE | B/C | A | 19 | 17 | 5.18 |
| GRO 17161 | SEM | 65.6 | L5 CHONDRITE | A/B | A/B | 25 | 22 | 4.61 |
| GRO 17162 | | 93.83 | L6 CHONDRITE | B | B | 24 | 20 | 4.68 |
| GRO 17163 | SEM | 61.77 | H6 CHONDRITE | B/C | A | 20 | 18 | 4.93 |
| GRO 17164 | SEM | 116.16 | H5 CHONDRITE | B/Ce | A | 19 | | 5.04 |
| GRO 17165 | SEM | 150.48 | H5 CHONDRITE | B/C | A | 20 | 18 | 5.24 |
| GRO 17166 | SEM | 174.11 | L5 CHONDRITE | B | A/B | 25 | 22 | 4.59 |
| GRO 17167 | | 121.65 | L3.4 CHONDRITE | Be | A/B | 1-35 | 5-12 | 4.08 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| GRO 17170 | SEM | 302.29 | H5 CHONDRITE | A/B | A/B | 19 | 17 | 5.23 |
| GRO 17171 | SEM | 321.34 | H5 CHONDRITE | B | A/B | 19 | 19 | 5.28 |
| GRO 17172 | SEM | 219.35 | H5 CHONDRITE | B/Ce | A/B | 20 | 18 | 5.25 |
| GRO 17173 | SEM | 473.9 | H6 CHONDRITE | B/Ce | A | 20 | 19 | 5.25 |
| GRO 17174 | SEM | 94.16 | H6 CHONDRITE | B/Ce | A | 19 | 17 | 5.05 |
| GRO 17177 | | 65.77 | L3.4 CHONDRITE | B/Ce | A | 5-36 | 3-17 | 4.33 |
| GRO 17178 | SEM | 89.41 | H6 CHONDRITE | B/C | B | 20 | 18 | 4.12 |
| GRO 17179 | SEM | 93.28 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.05 |
| GRO 17183 | | 17.766 | L5 CHONDRITE | A/B | A | 25 | 21 | 5.02 |
| GRO 17184 | SEM | 8.77 | H5 CHONDRITE | B | A | 20 | 17 | 5.26 |
| GRO 17187 | SEM | 118.514 | L6 CHONDRITE | B | A | 25 | 21 | 3.71 |
| GRO 17190 | | 25.328 | L5 CHONDRITE | A/B | B/C | 24 | 20 | 4.86 |
| GRO 17191 | SEM | 29.47 | H6 CHONDRITE | B/Ce | A | 20 | 19 | 4.98 |
| GRO 17192 | SEM | 45.995 | H6 CHONDRITE | B/Ce | A | 20 | 19 | 5.05 |
| GRO 17193 | SEM | 25.604 | H6 CHONDRITE | B/C | A | 21 | 18 | 5.04 |
| GRO 17194 | SEM | 38.739 | H6 CHONDRITE | B/C | A | 20 | 17 | 5.17 |
| GRO 17196 | SEM | 51.408 | H6 CHONDRITE | B/C | A | 20 | 18 | 5.22 |
| GRO 17197 | SEM | 19.48 | H6 CHONDRITE | B/Ce | A | 20 | 17 | 4.83 |
| GRO 17198 | SEM | 34.771 | H6 CHONDRITE | B/Ce | A | 20 | 18 | 4.92 |
| GRO 17199 | SEM | 32.036 | H6 CHONDRITE | B/Ce | A | 19 | 17 | 4.98 |
| GRO 17201 | SEM | 87.154 | H5 CHONDRITE | A/B | A | 20 | 18 | 5.21 |
| GRO 17202 | SEM | 74.281 | H5 CHONDRITE | A/B | A/B | 19 | 17 | 5.226 |
| GRO 17203 | SEM | 81.269 | L5 CHONDRITE | Be | B | 26 | 22 | 4.7 |
| GRO 17204 | SEM | 18.968 | H6 CHONDRITE | Be | A/B | 20 | 18 | 4.809 |
| GRO 17205 | SEM | 48.284 | H6 CHONDRITE | Be | A | 20 | 17 | 5.201 |
| GRO 17206 | SEM | 19.622 | H6 CHONDRITE | Be | A | 20 | 18 | 4.967 |
| GRO 17207 | SEM | 6.535 | H6 CHONDRITE | B | A | 20 | 17 | 5.062 |
| GRO 17208 | SEM | 8.19 | H5 CHONDRITE | Be | A | 20 | 17 | 4.908 |
| GRO 17209 | SEM | 10.254 | LL5 CHONDRITE | A/B | A/B | 28 | | 4.435 |
| | | | | | | | | |
| NOD 17220 | SEM | 2.277 | L5 CHONDRITE | A/B | A | 25 | 20 | 5.23 |
| NOD 17221 | SEM | 1.583 | L5 CHONDRITE | B | A | 26 | 22 | 4.44 |
| NOD 17222 | SEM | 7.578 | H6 CHONDRITE | A/B | A | 20 | 18 | 5.3 |
| NOD 17223 | SEM | 6.069 | H6 CHONDRITE | B | A | 20 | 18 | 5.286 |
| NOD 17224 | | 4.97 | H5 CHONDRITE | AB | A | 18 | 16 | 5.3 |
| NOD 17225 | | 10.044 | H4 CHONDRITE | B | A/B | 17 | 15 | 5.282 |
| NOD 17226 | SEM | 7.066 | H6 CHONDRITE | A/B | A | 20 | 19 | 5.186 |
| NOD 17227 | SEM | 4.776 | H5 CHONDRITE | A/B | A | 20 | 18 | 5.187 |
| NOD 17228 | | 12.026 | H4 CHONDRITE | B | A/B | 17 | 15 | 5.28 |
| NOD 17229 | SEM | 5.255 | H6 CHONDRITE | A/B | A | 21 | 19 | 5.261 |
| NOD 17230 | SEM | 4.71 | LL6 CHONDRITE | B | B | 29 | 24 | 4.579 |
| NOD 17231 | SEM | 4.22 | H4 CHONDRITE | A/B | B | 20 | 18 | 5.32 |
| NOD 17232 | SEM | 3.97 | H6 CHONDRITE | B/C | A/B | | 19 | 5.25 |
| NOD 17233 | SEM | 2.89 | H6 CHONDRITE | B/C | A/B | 21 | 18 | 5.31 |
| NOD 17234 | SEM | 1.6 | H5 CHONDRITE | B/C | A/B | 21 | 19 | 5.27 |

| Sample Number | | Weight (g) | Classification | Weathering | Fracturing | %Fa | %Fs | Magnetic Susceptibility |
|---|---|---|---|---|---|---|---|---|
| NOD 17235 | SEM | 0.94 | L6 CHONDRITE | A/B | A/B | 25 | 22 | 4.66 |
| NOD 17236 | SEM | 10.17 | H6 CHONDRITE | B/C | A/B | 20 | 17 | 5.21 |
| NOD 17237 | SEM | 7.01 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.35 |
| NOD 17238 | SEM | 4.35 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.29 |
| NOD 17239 | SEM | 7.78 | H5 CHONDRITE | B/C | A/B | 20 | 18 | 5.24 |
| NOD 17240 | SEM | 7.641 | H6 CHONDRITE | B | A | 21 | 20 | 5.215 |
| NOD 17242 | SEM | 6.801 | H6 CHONDRITE | B | B | 20 | 18 | 5.157 |
| NOD 17243 | SEM | 4.178 | H6 CHONDRITE | B | A | 21 | 19 | 5.22 |
| NOD 17244 | SEM | 12.314 | H6 CHONDRITE | B | B | 21 | 19 | 5.27 |
| NOD 17245 | SEM | 6.785 | H6 CHONDRITE | B | A | 19 | 18 | 5.23 |
| NOD 17246 | SEM | 18.535 | H4 CHONDRITE | B | A | 21 | 19 | 5.29 |
| NOD 17247 | SEM | 18.23 | H6 CHONDRITE | B | A | 19 | 18 | 5.24 |
| NOD 17248 | | 32.864 | H4 CHONDRITE | A/B | A | 17 | 15 | 5.06 |
| NOD 17249 | SEM | 24.379 | H6 CHONDRITE | B | B | 20 | 18 | 5.14 |
| NOD 17250 | SEM | 4.8 | H6 CHONDRITE | B/C | A/B | 20 | 17 | 5.32 |
| NOD 17251 | SEM | 4.26 | H4 CHONDRITE | B | B | 20 | 17 | 5.28 |
| NOD 17252 | SEM | 2.22 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.28 |
| NOD 17253 | SEM | 5.47 | H4 CHONDRITE | B | B | 21 | 19 | 5.14 |
| NOD 17254 | SEM | 7.14 | H6 CHONDRITE | B/C | A/B | 21 | 19 | 5.24 |
| NOD 17255 | SEM | 3.69 | H6 CHONDRITE | B/C | A/B | 20 | 19 | 5.29 |
| NOD 17256 | SEM | 7.61 | H6 CHONDRITE | B/C | A/B | 20 | 18 | 5.29 |
| NOD 17257 | SEM | 30.15 | LL5 CHONDRITE | A/B | A/B | 27 | 23 | 4.6 |
| NOD 17258 | SEM | 81.01 | H5 CHONDRITE | A/B | A/B | 19 | 17 | 4.58 |
| NOD 17259 | SEM | 30.87 | L6 CHONDRITE | B | B | 26 | 22 | 5.26 |
| | | | | | | | | |
| PRE 17270 | | 27.72 | L6 CHONDRITE | A/B | A/B | 26 | 22 | 2.4 |
| PRE 17273 | | 49.47 | L6 CHONDRITE | B/C | A/B | 26 | | 4.91 |
| PRE 17274 | | 96.69 | L5 CHONDRITE | B | A/B | 25 | 21 | 4.71 |
| PRE 17276 | | 121.86 | H6 CHONDRITE | A/B | A/B | 19 | 18 | 5.19 |
| | | | | | | | | |
| DOM 18019 | | 52.791 | CO3 CHONDRITE | A/B | B | 1-44 | 1-7 | 4.64 |
| DOM 18069 | | 35.9 | CO3 CHONDRITE | A/B | A | 1-41 | | 4.73 |
| DOM 18070 | | 63.445 | CO3 CHONDRITE | A | A/B | 3 | | 4.81 |
| DOM 18242 | | 15.92 | LUNAR-BASALTIC BRECCIA | A/B | B | | 31-52 | 4.28 |
| DOM 18244 | | 25.065 | LUNAR-BASALTIC BRECCIA | A/B | A | | 20-64 | 4.2 |
| DOM 18293 | | 8.33 | EUCRITE(BRECCIATED) | A | A/B | | 30-63 | 2.87 |

# Table 2
# Newly Classified Meteorites Listed by Type

## Achondrites

| Sample Number | Weight(g) | Classification | Weathering | Fracturing | %Fa | %Fs |
|---|---|---|---|---|---|---|
| EET 16168 | 2.72 | ACAPULCOITE | B/C | B/C | 7 | 3-8 |
| DOM 18242 | 15.92 | LUNAR-BASALTIC BRECCIA | A/B | B | | 31-52 |
| DOM 18244 | 25.065 | LUNAR-BASALTIC BRECCIA | A/B | A | | 20-64 |
| DOM 18293 | 8.33 | EUCRITE(BRECCIATED) | A | A/B | | 30-63 |

## Carbonaceous Chondrites

| Sample Number | Weight(g) | Classification | Weathering | Fracturing | %Fa | %Fs |
|---|---|---|---|---|---|---|
| EET 16178 | 1.52 | CK5 CHONDRITE | A/B | A | 30 | 25 |
| DOM 18019 | 52.791 | CO3 CHONDRITE | A/B | B | 1-44 | 1-7 |
| DOM 18069 | 35.9 | CO3 CHONDRITE | A/B | A | 1-41 | |
| DOM 18070 | 63.445 | CO3 CHONDRITE | A | A/B | 3 | |

## Chondrites

| Sample Number | Weight(g) | Classification | Weathering | Fracturing | %Fa | %Fs |
|---|---|---|---|---|---|---|
| GRO 17112 | 16.32 | EH3 CHONDRITE | B/C | B | 0.5 | 0-1 |
| GRO 17026 | 92.43 | L3.4 CHONDRITE | B | A | 6-26 | 3-17 |
| GRO 17167 | 121.65 | L3.4 CHONDRITE | Be | A/B | 1-35 | 5-12 |
| GRO 17177 | 65.77 | L3.4 CHONDRITE | B/Ce | A | 5-36 | 3-17 |
| EET 16154 | 6.409 | L3.5 CHONDRITE | A/B | A/B | 1-26 | 9-22 |
| GRO 17009 | 44.56 | L3.8 CHONDRITE | B | B | 6-23 | 3-24 |
| GRO 17151 | 59.36 | L6 CHONDRITE | B/C | A/B | 24 | 21 |

## **Notes to Tables 1 and 2:

"Weathering" Categories:

A: Minor rustiness; rust haloes on metal particles and rust stains along fractures are minor.
B: Moderate rustiness; large rust haloes occur on metal particles and rust stains on internal fractures are extensive.
C: Severe rustiness; metal particles have been mostly stained by rust throughout.
E: Evaporite minerals visible to the naked eye.

"Fracturing" Categories:

A: Minor cracks; few or no cracks are conspicuous to the naked eye and no cracks penetrate the entire specimen.
B: Moderate cracks; several cracks extend across exterior surfaces and the specimen can be readily broken along the cracks.
C: Severe cracks; specimen readily crumbles along cracks that are both extensive and abundant.

Classification of the ordinary chondrites in Table 1 & 2 was done by Energy Dispersive Spectroscopic (EDS) methods using a Scanning Electron Microscope (SEM). This can include the analysis of several olivine and pyroxene grains to determine the approximate Fayalite and Ferrosilite values of the silicates, grouping them into H, L or LL chondrites. Petrologic types are determined by optical microscopy and are assigned based on the distinctiveness of chondrule boundaries on broken surfaces of a 1-3 g chip. While this technique is suitable for general characterization and delineation of equilibrated ordinary chondrites, those undertaking detailed study of any meteorite classified by optical methods alone should use caution. It is recommended that a polished thin section be requested to accompany any chip and appropriate steps for a more detailed characterization should be undertaken by the user. (Cari Corrigan, Smithsonian Institution)

# Table 3

## Tentative Pairings for New Meteorites

Table 3 summarizes possible pairings of the new specimens with each other and with previously classified specimens based on descriptive data in this newsletter issue. Readers who desire a more comprehensive review of the meteorite pairings in the U.S. Antarctic collection should refer to the compilation provided by Dr. E.R.D. Scott, as published in the Antarctic Meteorite Newsletter vol. 9 (no. 2) (June 1986). Possible pairings were updated in Meteoritical Bulletins 76, 79, 82 through 106, which are available online from the Meteoritical Society webpage:

http://www.lpi.usra.edu/meteor/metbull.php

**CO3 CHONDRITE**

DOM 18069 and DOM 18070 with DOM 18019

**L3.4 CHONDRITE**

GRO 17167 and GRO 17177 with GRO 17026

**LUNAR-BASALTIC BRECCIA**

DOM 18244 with DOM 18242

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **EET 16154** | Elephant Moraine | 24411 | 1.9 x 1.6 x 1.2 | 6.409 | L3.5 Chondrite |

**Macroscopic Description: Curtis Calva**
The exterior is covered with dark brown fusion crust with rough areas and iridescent weathering spots. The interior is a fine- grained black matrix with light colored chondrules up to 2 mm, some rusted. One chondrule has dark green minerals inside of it.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**
The section exhibits numerous well-defined chondrules (up to 1.5 mm) in a black matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is present. The meteorite is moderately weathered. Silicates are unequilibrated; olivines range from $Fa_{1-26}$ and pyroxenes from $Fs_{9-22}$. The meteorite is an L3 chondrite (estimated subtype 3.5).

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **EET 16168** | Elephant Moraine | 24413 | 1.3 X 1.4 X 0.9 | 2.720 | Acapulcoite |

**Macroscopic Description: Kellye Pando**
Possible fusion crust covers about 40% of the exterior. It is dark brown with orange rust and shiny varnish all over. Exposed interior is heavily rust stained to a dark orange-brown with some round inclusions visible. Fresh interior is dark matrix that is heavily rusted to an orange-brown color with large metal inclusions throughout.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**
The section consists of an equigranular aggregate of olivine, pyroxene, plagioclase, and metal with minor sulfide and chromite. Average grain size is 0.3 mm with some grains up to 1 mm. The section is modestly weathered. Olivine ($Fa_7$) and pyroxene ($Fs_8$) are homogenous. Three calcic pyroxene grains were analyzed ($Fs_3$). The meteorite is an acapulcoite.

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **EET 16178** | Elephant Moraine | 24614 | 1.4 X 1.4 X 0.3 | 1.52 | CK5 Chondrite |

**Macroscopic Description: Cecilia Satterwhite**
The sample has a black exterior with some patches of fusion crust. Fresh interior is a grey matrix with minor oxidation and some light inclusions.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**
The section consists of large (up to 1.5 mm), poorly defined chondrules in a matrix of finer-grained silicates, sulfides and abundant magnetite grains. The meteorite is little weathered, but extensively shock blackened. Silicates are homogeneous. Olivine is $Fa_{30}$ and orthopyroxene is $Fs_{25}$. The meteorite is a CK5 chondrite.

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **GRO 17009** | Grosvenor Mountains | 25648 | 4.0 X 3.0 X 2.5 | 44.560 | L3.8 Chondrite |

**Macroscopic Description: Kellye Pando**
A rough, black, fractured, pitted fusion crust with iridescent weathering halos covers about 85% of the exterior. Exposed areas are grey matrix with large (up to 1 mm) rounded inclusions visible and has mostly been weathered to a dark brown. Fresh interior matrix is weathered to orange-brown with some darker inclusions visible.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**
The section exhibits numerous well-defined chondrules (up to 1.5 mm) in a black matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is abundant. The meteorite is moderately weathered. Silicates are unequilibrated; olivines range from $Fa_{6-23}$, with most grains $Fa_{22}$, and pyroxenes from $Fs_{3-24}$. The meteorite is an L3 chondrite (estimated subtype 3.8).

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **GRO 17026** | Grosvenor Mountains | 25519 | 5.4 X 4.0 X 2.2 | 92.430 | L3.4 Chondrite |
| **GRO 17167** | | 25769 | 4.4 X 5.2 X 3.4 | 121.650 | |
| **GRO 17177** | | 25509 | 5.0 X 3.5 X 1.1 | 65.770 | |

**Macroscopic Description: Kellye Pando, Cecilia Satterwhite**

70% - 90% of the exteriors are covered with black/brown rough fusion crust with some pitting, larger fractures and numerous small iridescent weathering spots. Areas without fusion crust show abundant inclusions/chondrules in grey matrix with some red-brown varnish also present. Interiors are dark grey to black matrix with abundant inclusions/chondrules, some large (up to 4 mm) that range in color from dark brown to light grey. Oxidation is scattered throughout and there are areas of rust.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**

The sections exhibit numerous well-defined chondrules (up to 1.5 mm) in a black matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is abundant. The meteorites are moderately weathered. Silicates are unequilibrated; olivines range from $Fa_{1-36}$ and pyroxenes from $Fs_{3-17}$. The meteorites are L3 chondrites (estimated subtype 3.4).

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **GRO 17112** | Grosvenor Mountains | 25511 | 2.9 X 2.5 X 1.9 | 16.320 | EH3 Chondrite |

**Macroscopic Description: Kellye Pando**

A very dark red-brown possible fusion crust that is fractured with orange rust spots covers about 30% of exterior while exposed areas are weathered with a dark red-brown varnish. Some spherical inclusions are visible. Fresh interior is a fine-grained matrix that is weathered to a dark orange-brown color with metal inclusions throughout.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**

The section shows an aggregate of chondrules (up to 1 mm), chondrule fragments, and pyroxene grains in a matrix of about 30% metal and sulfide. Chondrules contain moderate to significant abundances of olivine. Weathering is modest, with staining of some enstatite grains and minor alteration of metal and sulfides. Microprobe analyses show the olivine is $Fa_{0.5}$ and pyroxene is $Fs_{0-1}$. FeNi metal contains 2.7 wt.% Si. The meteorite is an EH3 enstatite chondrite.

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **GRO 17151** | Grosvenor Mountains | 25776 | 2.9 X 4.1 X 2.3 | 59.360 | L6 Chondrite |

**Macroscopic Description: Kellye Pando**

60% of exterior is covered with dark brown-black fusion crust that is pitted with some fracturing and a few iridescent weathering halos. Exposed surfaces are grey matrix with small black and metal inclusions throughout as well as some lighter brown round inclusions visible and heavily rusted to a dark orange brown. Fresh interior is light grey matrix with small black and metal inclusions throughout and a few black veins present. The matrix is heavily rusted to a dark brown with some patches of lighter orange-brown rust.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**

The meteorite is an unexceptional L6 chondrite ($Fa_{24}$, $Fs_{21}$) with an exceptional network of shock veins at one end of the section. The shock veins reach up to several millimeters in width and contain networks of metal-sulfide intergrowths including larger composite particles with dendritic iron-nickel metal in a matrix of iron sulfide. Most exceptional is the occurrence of grains exceeding 200 microns in diameter that have a distinct greenish-blue color in plane polarized light. Their occurrence and appearance are suggestive of wadsleyite (a high-pressure polymorph of olivine) and their composition of $Fa_{24}$ is consistent with this interpretation.

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **DOM 18019** | Dominion Range | 25719 | 3.8 X 3.2 X 2.6 | 52.791 | CO3 Chondrite |
| **DOM 18069** | | 24933 | 3.5 X 2.6 X 2.7 | 35.900 | |
| **DOM 18070** | | 24835 | 5.0 X 3.7 X 2.5 | 63.445 | |

**Macroscopic Description: Curtis Calva, Kellye Pando**

Exteriors are covered with a very dark brown fusion crust that is rough and fractured with small areas of frothy texture and some light-colored spots less than 1 mm. Exposed interiors are very dark grey-black with small light-colored spots. Fresh interiors are very dark grey-black with small light grey-brown inclusions less than 1 mm. There is some weathering along fracture lines.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**

The sections consist of abundant small (up to 1 mm) chondrules, chondrule fragments and mineral grains in a dark matrix. Metal and sulfide occur within and rimming the chondrules. Olivine ranges in composition from $Fa_{1-45}$. Three pyroxene analyses range from $Fs_{1-7}$. The meteorites are CO3 chondrites.

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **DOM 18242** | Dominion Range | 24563 | 3.0 X 2.1 X 2.2 | 15.920 | Lunar-Basaltic Breccia |
| **DOM 18244** | Dominion Range | 25846 | 3.0 X 2.0 X 2.5 | 25.065 | Lunar-Basaltic Breccia |

**Macroscopic Description: Curtis Calva, Kellye Pando**

Exteriors have dark brown fusion crust that is rough with light spots less than 1 mm. Exposed areas are dark grey brown with some fracturing and small (0.5-1 mm) white inclusions. There are also some light grey-brown inclusions that are up to 3 mm in size. Fresh interiors are dark grey-black matrix with inclusions that are white, light brown or grey and up to 3 mm in size.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**

These sections are similar enough that one description will suffice. They consist of a highly brecciated assemblage of mostly single mineral grains ranging up to 0.5 mm in size. Grains are dominated by pyroxene and plagioclase (no olivine grains were analyzed in these sections). Polymineralic igneous fragments/clasts include coarse grained gabbro and symplectites. Melt veins and pockets were observed in both sections. Pyroxene is dominantly pigeonite with fine exsolution, with orthopyroxene of $Fs_{30}Wo_{3}$ and augite $Fs_{20-64}Wo_{20-39}$. Fe/Mn of pyroxenes ranges from ~50-70. Plagioclase is calcic with $An_{91-99}Or_{0.1-0.3}$. These meteorites are lunar basaltic breccias, likely regolith breccias and are most certainly paired with DOM 18262 pairing group reported in the Fall 2019 newsletter.

| Sample No. | Location | Field No. | Dimensions (cm) | Weight (g) | Classification |
|---|---|---|---|---|---|
| **DOM 18293** | Dominion Range | 25082 | 1.8 X 2.1 X 1.5 | 8.330 | Eucrite (Brecciated) |

**Macroscopic Description: Kellye Pando**

90% of the exterior is covered with a black fractured fusion crust that is shiny in some areas and rough in others. Exposed areas are light grey matrix with white and black inclusions less than 0.5 mm. Fresh interior is light grey matrix with white and black inclusions less than 0.5 mm as well as some larger areas of white matrix up to 2 mm.

**Thin Section (,2) Description: Cari Corrigan, Tim McCoy**

This meteorite is dominated by fine-grained (~200 micron average grain size) basaltic material which occurs as both the host and clasts within this meteorite. Occasional coarser-grained clasts, with grain sizes up to 1 mm, are observed. Fine grained aphanitic clasts are also present. Mineral compositions are homogeneous with orthopyroxene ($Fs_{60-63}Wo_{3-6}$), with lamellae of augite ($Fs_{30}Wo_{41}$), and plagioclase ($An_{84-92}Or_{0.5-2}$). The Fe/Mn ratio of the pyroxene is ~31-34. The meteorite is a brecciated eucrite.

## *Sample Request Guidelines*

The Meteorite Working Group (MWG), is a peer-review committee which meets twice a year to guide the collection, curation, allocation, and distribution of the U.S. collection of Antarctic meteorites. The deadline for submitting a request is 2 weeks prior to the scheduled meeting

Requests that are received by the MWG secretary by March 06, 2020 deadline will be reviewed at the MWG meeting on March 20-21, 2020 in Houston, TX. Requests that are received after the deadline may be delayed for review until MWG meets again in the Fall of 2020. Please submit your requests on time. Questions pertaining to sample requests can be directed to the MWG secretary by e-mail, or phone.

Requests for samples are welcomed from research scientists of all countries, regardless of their current state of funding for meteorite studies. Graduate student requests should have a supervising scientist listed to confirm access to facilities for analysis. All sample requests will be reviewed in a timely manner. Sample requests that do not meet the curatorial allocation guidelines will be reviewed by the Meteorite Working Group (MWG). Issuance of samples does not imply a commitment by any agency to fund the proposed research. Requests for financial support must be submitted separately to an appropriate funding agency. As a matter of policy, U.S. Antarctic meteorites are the property of the U.S. government, and all allocations are subject to recall.

Samples can be requested from any meteorite that has been made available through announcement in any issue of the ***Antarctic Meteorite Newsletter*** (beginning with 1(1) in June, 1978). Many of the meteorites have also been described in five *Smithsonian Contributions to the Earth Sciences*: Nos. 23, 24, 26, 28, and 30. Tables containing all classified meteorites as of August 2006 have been published in the Meteoritical Bulletins and *Meteoritics* and *Meteoritics and Planetary Science.*

They are also available online at:

https://meteoritical.org/publications/the-meteoritical-bulletin

The most current listing is found online at:

http://curator.jsc.nasa.gov/antmet/us_clctn.cfm

All sample requests should be made electronically using the form at:

**http://curator.jsc.nasa.gov/antmet/requests.cfm**

The purpose of the sample request form is to obtain all information MWG needs prior to their deliberations to make an informed decision on the request. Please use this form if possible.

The preferred method of request transmittal is via e-mail. Please send requests and attachments to:

**JSC-ARES-MeteoriteRequest@nasa.gov**

Type **MWG Request** in the e-mail subject line. Please note that the form has signature blocks. The signature blocks should only be used if the form is sent via Fax or mail.

Each request should accurately refer to meteorite samples by their respective identification numbers and should provide detailed scientific justification for proposed research. Specific requirements for samples, such as sizes or weights, particular locations (if applicable) within individual specimens, or special handling or shipping procedures should be explained in each request. Some meteorites are small, of rare type, or are considered special because of unusual properties. Therefore, it is very important that all requests specify both the optimum amount of material needed for the study and the minimum amount of material that can be used. Requests for thin sections that will be used in destructive procedures such as ion probe, laser ablation, etch, or repolishing must be stated explicitly.

Consortium requests should list the members in the consortium. All necessary information should be typed on the electronic form, although informative attachments (reprints of publication that explain rationale, flow diagrams for analyses, etc.) are welcome.

### Antarctic Meteorite Laboratory Contact Numbers

Please submit request to**: JSC-ARES-MeteoriteRequest@nasa.gov**


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## *Meteorites On-Line*

Several meteorite web sites are available to provide information on meteorites from Antarctica and elsewhere in the world. Some specialize in information on martian meteorites and on possible life on Mars. Here is a general listing of ones we have found. We have not included sites focused on selling meteorites even though some of them have general information. Please contribute information on other sites so we can update the list.

| | |
|---|---|
| **JSC Curator, Antarctic meteorites** | http://curator.jsc.nasa.gov/antmet/ |
| **JSC Curator, HED Compendium** | http://curator.jsc.nasa.gov/antmet/hed/ |
| **JSC Curator, Lunar Meteorite Compendium** | http://curator.jsc.nasa.gov/antmet/lmc/ |
| **JSC Curator, Martian Meteorite Compendium** | http://curator.jsc.nasa.gov/antmet/mmc/ |
| **ANSMET** | http://caslabs.case.edu/ansmet/ |
| **Smithsonian Institution** | http://mineralsciences.si.edu/ |
| **Lunar Planetary Institute** | http://www.lpi.usra.edu |
| **NIPR Antarctic meteorites** | http://www.nipr.ac.jp/ |
| **Meteoritical Bulletin online Database** | http://www.lpi.usra.edu/meteor/metbull.php |
| **Museo Nazionale dell'Antartide** | http://www.mna.it/collezioni/catalogo-meteoriti-sede-di-siena |
| **BMNH general meteorites** | https://www.nhm.ac.uk/our-science/collections/mineralogy-collections.html |
| **UHI planetary science discoveries** | http://www.psrd.hawaii.edu/index.html |
| **Meteoritical Society** | http://www.meteoriticalsociety.org/ |
| **Meteoritics and Planetary Science** | https://onlinelibrary.wiley.com/journal/19455100 |
| **Meteorite Times Magazine** | https://www.meteorite-times.com/ |
| **Geochemical Society** | http://www.geochemsoc.org |
| **Washington Univ. Lunar Meteorite** | http://meteorites.wustl.edu/lunar/moon_meteorites.htm |
| **Washington Univ. "meteor-wrong"** | http://meteorites.wustl.edu/meteorwrongs/meteorwrongs.htm |
| **Portland State Univ. Meteorite Lab** | http://meteorites.pdx.edu/ |
| **Northern Arizona University** | https://www.cefns.nau.edu/geology/naml/ |
| **Martian Meteorites** | http://www.imca.cc/mars/martian-meteorites.htm |

### Other Websites of Interest

| | |
|---|---|
| **OSIRIS-REx** | http://osiris-rex.lpl.arizona.edu/ |
| **Mars Exploration** | http://mars.jpl.nasa.gov |
| **Rovers** | http://marsrovers.jpl.nasa.gov/home/ |
| **Near Earth Asteroid Rendezvous** | http://near.jhuapl.edu/ |
| **Stardust Mission** | http://stardust.jpl.nasa.gov |
| **Genesis Mission** | http://genesismission.jpl.nasa.gov |
| **ARES** | http://ares.jsc.nasa.gov/ |
| **Astromaterials Curation** | http://curator.jsc.nasa.gov/ |
| **Hayabusa2** | http://www.hayabusa2.jaxa.jp/en/ |