Cosmochemist and Meteoriticist
Dr. Laurence A.J. Garvie

Dr. Laurence Garvie
504 West Orchid Lane
Chandler, AZ 85225

30th April, 2019

Mr. Victor Pracas,
Glendale, AZ

Dear Mr. Victor Pracas,

Enclosed and attached are the data for the 156 specimens that I, Laurence Garvie, and Ruben Garcia examined on the 30th of April, 2019. On this date, Ruben Garcia and I examined and analyzed a total of 156 samples that ranged in weight from 951.5 kg to 2.5 kg. Each mass was examined visually and analyzed with a hand-held x-ray fluorescence (XRF) spectrometer. The XRF generates high-energy x-rays, which in turn excite x-rays from the sample. The wavelengths and intensities of the excited x-rays are then converted to determine the bulk composition of the area being analyzed.

Visual examination: The samples all possessed considerable heft for their size above that expected for typical silicate-bearing rocks. Many of the samples exhibited geometric surface patterns consistent with that seen for iron meteorites that have a Widmanstätten pattern. Some samples showed a regmaglypted surface consistent with surface features seen from iron meteorites.

Chemical examination: Each sample was analyzed with a hand-held XRF (Tables 1 and 2). The XRF detects x-rays for elements that have an atomic weight above silicon. A flat surface was analyzed on each sample, with an acquisition time of between 10.6 and 14.6 s. The XRF data shows the predominance of iron in each sample. Each point also showed two additional elements – nickel (Ni), and cobalt (Co). The 2σ error for each analysis shown in Tables 1 and 2 are ±3% for Ni and ±14% for Co. Every sample showed weight percent levels of Fe, Ni, and Co, which is consistent with iron meteorites. In addition, elements typically present in terrestrial steels, such as manganese, molybdenum, and vanadium were not detected in the samples.

Conclusion: Each of the 156 samples examined (labelled 1-S to 59-S; 1-M to 93-M; and A, B, C, and D) have visual and chemical characteristics consistent with iron meteorites.

Sincerely,

Dr. L A T

Dr. Laurence A.J. Garvie
Meteorite Scientist

Mr. Ruben Garcia
Meteorite Expert