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Results of the 1991 U.S. Bureau of Mines Colville Mining District Study

By Mark P. Meyer and Joseph M. Kurtak



UNITED STATES DEPARTMENT OF THE INTERIOR

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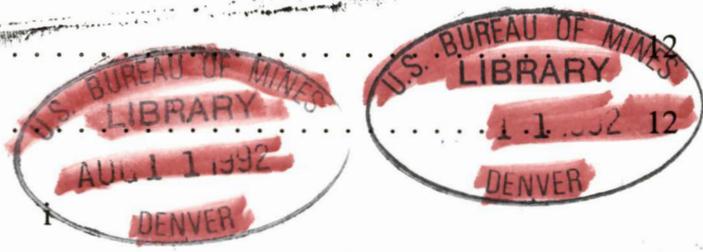


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UNIT OF MEASURE ABBREVIATIONS USED IN THIS REPORT

°	degree
%	percent
F	Fahrenheit
oz/t	troy ounce per short ton
ppb	parts per billion
ppm	parts per million
t	short ton

Results of the 1991 U.S. Bureau of Mines Colville Mining District Study

By Mark P. Meyer¹ and Joseph M. Kurtak²

ABSTRACT

The U.S. Bureau of Mines is conducting a four-year study to assess the mineral resources and the mineral development potential of the Colville Mining District. This study is part of the Bureau's ongoing statewide mining district evaluation program. The mining district is in northern Alaska and includes the Colville River drainage basin and a part of the southern National Petroleum Reserve - Alaska. Section 105(c) of the Naval Petroleum Reserves Act of 1976 mandated that a mineral inventory of the petroleum reserve be completed. During 1977 and 1978, the USGS conducted preliminary regional geologic mapping and regional geochemical sampling while the Bureau conducted site-specific examinations and detailed sampling of identified mineral occurrences. This report summarizes the Bureau's 1991 field program.

During 1991, the Bureau spent 56 days studying the area between Rampart Creek and the Okokmilaga River within the southern part of the mining district. The reconnaissance section of the study concentrated on the location and identification of deposits of barium, chromium, copper, lead, manganese, silver, zinc as well as other types of mineralization. Nineteen mineral occurrences, including twelve occurrences that were previously unreported, were identified, examined, and sampled. Anomalously high concentrations of antimony, arsenic, barium, cadmium, chromium, manganese, nickel, strontium, and titanium were found in several drainages. Detailed geologic mapping along with rock and soil sampling were conducted at Drenchwater Creek, Kady, Kivliktort Mountain East, Kivliktort Mountain West, Koiyaktot Mountain East, Koiyaktot Mountain West, and Story Creek. Bulk samples collected from Drenchwater Creek, Story Creek, and western Ivotuk Hills were sent to Bureau Research Centers for chemical analyses, characterization, and beneficiation studies.

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INTRODUCTION

In 1991, the U.S. Bureau of Mines (Bureau) initiated the four-year Colville Mining District (CMD) study in order to evaluate the mineral deposits and their development potential (fig. 1). The mining district in northern Alaska includes the Colville River drainage basin and a part of the southern National Petroleum Reserve - Alaska (NPRA). Section 105(c) of the Naval Petroleum Reserves Act of 1976 (PL 94-258) mandated that a mineral inventory of the NPRA be completed. The Bureau and the U.S. Geological Survey (USGS) were responsible for the original 105(c) mineral inventory during 1977 and 1978. The USGS conducted regional geologic mapping and regional geochemical sampling programs while the Bureau conducted site-specific examinations and detailed sampling of mineral occurrences. The 1991 study of the CMD is part of the Bureau's ongoing statewide mining district evaluation program.

The ultimate objectives of this investigation are to: 1) identify the mineral deposits of the CMD; 2) study the application of modern beneficiation technologies on known deposits, and perform a probabilistic mineral resource and economic assessment of the mining district; and 3) perform mining feasibility studies using approximate mine models. This investigation is a cooperative effort involving the Bureau and the Alaska Division of Geological and Geophysical Surveys (DGGS).

In 1991, the Bureau conducted both reconnaissance sampling of the central part of the mining district and completed detailed examinations of selected mineral occurrences. This report summarizes the work completed during the 1991 field season and is the first in a series of annual summary reports covering the Bureau's CMD field work.

LAND STATUS

Land ownership of the CMD includes those managed by the Bureau of Land Management (BLM), U.S. National Park Service (NPS), State of Alaska, and Native regional and village corporations. The BLM manages the NPRA which is open for oil and gas exploration but unavailable for mineral exploration and development. The NPS manages the Gates of the Arctic National Park, Preserve, and Wilderness, which are closed to oil, gas, and mineral exploration and development. The State of Alaska has selected land in the area which include those that are and are not available for mineral exploration and development. Native regional and village corporations have selected lands in the area. These native lands may be available for mineral exploration and development subject to the management policies of the corporations. Small parcels of private inholdings are also located within the CMD.

LOCATION AND ACCESS

The CMD is in northern Alaska along the northern slope of the Brooks Range (fig. 1). The area includes the northern divide drained northward by the Colville, Kokolik, Kugra, Kukpowruk, Meade, Titaluk, and Utukok Rivers into the Arctic Ocean. Three physiographic provinces cover the area and include: the Arctic Coastal Plain, the Arctic Foothills, and the Central and Eastern Brooks Range. The Arctic Coastal Plain physiographic division is characterized by a low lying smooth plain rising from the Arctic Ocean southward to an elevation

of 600 feet. Numerous lakes occur in the low lying areas and an occasional abrupt scarp, up to 200 feet high, separates the coastal plain from the foothills. The Arctic Foothills physiographic division consists of rolling plateaus and low linear mountains. The northern mountains, rising in elevation from 600 to 3,500 feet, have broad east-trending ridges dominated by mesa-like mountains. The southern mountains are characterized by irregular buttes, knobs, mesas, east-trending ridges ranging from 1,200 to 3,500 feet, and intervening gently undulating tundra plains. The Central and Eastern Brooks Range physiographic division is composed of rugged glaciated east-trending ridges with elevations ranging from 3,000 to 7,000 feet (372)³. The higher elevations in the Brooks Range are devoid of trees and have lichens covering the rocky slopes. At the lower elevations the vegetation grades into typical tundra species with stunted alder and willow along the river gravel bars.

Villages within the study area include Umiat and Anaktuvuk Pass. Umiat is located on the north bank of the Colville River 75 miles south of Harrison Bay. Anaktuvuk Pass is located on the southern boundary of the study area at the headwaters of the John and Anaktuvuk Rivers.

There are no roads, highways, or railroads within the study area. A few useable gravel airstrips are within the study area and these are at Umiat, Ivotuk, Kikiktat Mountain, Anaktuvuk Pass, and Galbraith Lake. An airstrip, located 20 miles west of the study area, along Eagle Creek, is useful for access to the western part of the study area. Access to the villages and base camps within the study area is by aircraft from either Barrow, Bettles, Deadhorse, Fairbanks, or Kotzebue. The Dalton Highway, just outside the eastern boundary of the study area, makes for access to the eastern part of the study area.

CLIMATE

The north slope of the Brooks Range lies within a zone of continuous permafrost (372). Average summer temperatures range between 29° and 44° F and winter temperatures average between -26° and -6° F in Barrow (191). Mid-day temperatures of 85° F have been experienced at the Ivotuk airstrip. Strong winds blow persistently throughout the year, generally blowing in from either the southwest or northeast. Summer afternoon rainstorms and thunderstorms arrive from the southwest while morning fog banks move in from the Arctic Ocean to the northeast.

Annual precipitation in the area is low, less than 5 inches of snow falls in Barrow and 11 inches in Anaktuvuk Pass, making the area technically a desert. Precipitation occurs mostly as snow, but scattered light rain is common during the summer months, along with occasional thunder storms during the afternoons (191).

GEOLOGIC SETTING

The CMD consists of an intensely folded and faulted middle Paleozoic suite through lower Mesozoic sedimentary succession overlying a basement of lower Paleozoic and Precambrian sedimentary, volcanic, and plutonic rocks (134). Two major terranes are in the study area: a

³Underlined numbers in parentheses refer to the references found in the bibliography preceding the appendix.

southern basement section, and a northern overlying section. The southern section is composed of Devonian black shale and chert of the Mississippian Lisburne Group, overlain by argillite and chert of the Permian Siksikpuk Formation. This in turn is overlain by lime chert, limestone, and shale of the Triassic Shublik Formation (101). This thin sequence is overlain, to the north, by a thick section of Cretaceous age coarse clastic rocks (101).

Metallic mineral deposits found within the CMD consist of sediment- and/or volcanic-hosted sulfide deposits (134). The predominant type of metallic mineral deposits are the shale-hosted Zn-Pb-(Ba) deposits. These deposits occur within thrust sheets of Mississippian shale, sandstone, and limestone (101). Also located in the area are occurrences of breccia-hosted sphalerite, and galena within upper Devonian to lower Mississippian sandstone, siltstone, shale, and limestone (101).

Other types of mineral deposits occurring in the CMD include coal, oil sands, strategic and critical minerals, and industrial minerals. Industrial minerals include phosphate, barite, and clay. Limestone of the Mississippian Lisburne Group covers a large section of the study area and sand and gravel deposits are along the river drainages.

PREVIOUS STUDIES

The USGS started investigating Alaska's Northslope for mineral and fuel resources in the early 1900's (43-44, 216, 329). Additional investigations occurred during the 1920's (336) with a lull in exploration during the 1930's followed by renewed interest during the 1940's and 1950's for oil (288). A USGS metallic mineral resource appraisal program was conducted between 1974 and 1982 (102, 231, 277, 359). Cobb published the first summary of metallic resources of Northern Alaska in 1975 (104) including mineral occurrences within the CMD study area. An update report of the metallic resources was published in 1981 (109).

Currently the USGS, with assistance from the DGGS, is conducting an Alaska Mineral Resource Appraisal Program (AMRAP) study on the Killik River quadrangle. The USGS wrote an administrative report summarizing the historical geologic, geochemical, and geophysical work that has been conducted within the Howard Pass, western Killik River, and Misheguk Mountain quadrangles (326).

Private companies and Native corporations have carried out exploration within the NPRA. Regional reconnaissance studies were conducted during the late 1950's and early 1960's, while site-specific studies were conducted at Drenchwater Creek, Story Creek, and Kivliktort Mountain during the 1980's (326).

The Bureau and the USGS appraised the mineral resources of the southern part of the NPRA during 1977 and 1978. During the field investigations, the USGS conducted regional geological mapping to determine the geological setting of the NPRA and mapped in detail zones of mineral potential. Regional geochemical surveys (359-360) were conducted by the USGS; the analytical results and preliminary interpretation were used in selecting areas of anomalous concentrations of specific elements for further detailed sampling and investigations. Eighty drainages with anomalous mineral concentrations were identified from the USGS geochemical surveys. The Bureau's field work consisted of traversing those drainages containing the geochemical anomalies in search of the source rock. Stream sediments and select rock samples were collected from the drainages to define and identify further zones of mineralization. Due

to time constraints, the Bureau examined only 25 of the drainages with lead-zinc anomalies during the two years of field work (189-193). The drainages containing geochemical anomalies are within a 120-mile long east southeast - west - northwest trending mineral belt that may be an eastern extension of the mineralized terrain that hosts the world-class Red Dog lead-zinc-silver mine, located southwest of the NPRA.

Additional sulfide mineralization was identified and sampled, by the Bureau, in widely scattered areas along the geochemical trends delineating the regions east-west geological structure. Barium, chromium, fluorite, phosphate, rare earth elements (e.g. lanthanum, scandium, and yttrium), and vanadium were also noted within the NPRA (189-193).

The Bureau conducted an 8-day program during 1990 to get an orientation and overview of the area and its known mineralization. Nine mineralized occurrences were visited including: Drenchwater Creek, Isiktut Mountain, Kivliktort Mountain East, Kivliktort Mountain West, Koiyaktot Mountain West, Lisburne Ridge, Otuk Creek, Safari Creek, and Story Creek (237).

1991 FIELD PROGRAM

The Bureau started a four-year field study program of the CMD during 1991. The study area covers approximately 10 million acres from a combination of 16.64 million acres within the Colville River drainage and 23 million acres within the NPRA. Two separate crews were working in the area: one crew carried out a regional reconnaissance of the study area, a second crew worked on site-specific investigations which included detailed geologic mapping and rock and soil sampling at Drenchwater Creek, Kady, Kivliktort Mountain East, Kivliktort Mountain West, Koiyaktot Mountain East, Koiyaktot Mountain West, and Story Creek.

The part of the study area between Rampart Creek, to the west, and the Okokmilaga River, to the east, was investigated during 1991 for lead, zinc, copper, silver, barium, manganese, chromium, as well as other types of mineralization. Approximately 97% of the identified USGS geochemical stream sediment anomalies were followed up during the 56-day field season. A total of 202 rock and placer samples were collected during the regional reconnaissance portion of the study; 534 samples were collected during the site-specific portion of the study (Appendix). Sample locations are plotted on a set of 1:250,000 scale base maps (figs. 2-4). Site-specific sample locations are also plotted on figures 5 and 6.

Bulk samples were taken for characterization and testing at three locations. Two bulk samples, one from Story Creek and the other from Ivotuk Hills, were sent to the Bureau's Research Center in Albany, Oregon, while the third bulk sample, from Drenchwater Creek, was sent to the Bureau's Research Center in Salt Lake City, Utah. Chemical analyses of the Story Creek bulk sample are listed in Table 1 and the chemical analyses of the Ivotuk Hills bulk sample are listed in Table 2. Chemical analyses for the Drenchwater Creek bulk sample are not available at this time. Characterization and beneficiation studies of the bulk samples have not yet been started by either of the Research Centers.

TABLE 1. - Chemical analyses of the Story Creek bulk sample

Analyses (%)								
Co	Cu	Fe	Mn	Ni	Pb	S	SiO ₂	Zn
0.017	0.014	3.76	0.085	0.028	2.11	3.18	71.2	5.37

TABLE 2. - Chemical analyses of the Ivotuk Hills bulk sample

Analyses (%)						
C	TOC	CaO	MgO	Mn	P ₂ O ₅	S
3.47	2.93	45.9	0.71	0.004	36.61	0.671

Analyses (%)						
SiO ₂	V	La	Nd	Th	U (ppm)	Y
9.52	0.11	0.012	0.021	0.002	150	0.022

TOC Total organic carbon

SAMPLING

Rock samples consisted of fresh, altered, and/or mineralized material that was collected from either outcrop, rubblecrop, or float, in/or near mineral occurrences or apparent mineral occurrences. Rock samples collected were of six types: 1) continuous chip; rock fragments broken in a continuous line for a measured distance across an exposure; 2) random chip; rock fragments collected at random points from an apparently homogenous mineralized occurrence; 3) chip channel; rock fragments collected along a channel of uniform width and depth across the exposure of mineralized rock; 4) channel; rock fragments and dust collected from a channel of uniform width and depth cut across an exposure of mineralized rock; 5) select; rock collected from the highest grade portion of a mineralized zone; and 6) grab; rock collected more or less at random from an outcrop or float.

Soil samples were collected from the thin C horizon characteristic of arctic soils. Samples collected near the surface were obtained with a plastic hand trowel while stainless steel hand augers were used to sample the horizon beneath a 1 to 2.5 foot thick tundra cover.

Placer samples were collected from stream and river gravel bars in areas having anomalous

48 inch sluice box. The concentrates collected in the sluice box were then panned down to produce approximately 75 grams of concentrate. The panning method consisted of collecting a concentrate by panning down a 16 inch pan load of stream or bank gravel. If more than one pan was collected from the same location, the concentrate was combined and analyzed as one sample. All the concentrates were analyzed for the elements listed in the appendix.

Bulk rock samples were collected from 3 different parts of the study area. The samples were collected from sections of the mineral occurrences which were considered to be generally representative of high-grade mineralization. Bulk rock samples weighed between 200 and 300 lbs each.

ANALYTICAL PROCEDURES

Analytical procedures for the placer samples involved gravimetric recovery and weighing of the visible platinum or gold, grinding the remaining concentrate to pass through -140 mesh, and performing an inductively coupled plasma (ICP) spectroscopic analysis to determine the elemental content. Further analysis by atomic fluorescence spectroscopy (AFS) was performed to determine the quantity of gold, platinum, and/or palladium contained in the placer concentrates⁴. Rock samples were ground to -140 mesh and analyzed by ICP spectroscopy. Any sample that contained visible quantities of minerals composed of either silver, copper, lead, zinc, or PGM minerals were fire assayed or analyzed by atomic absorption spectroscopy. Soil samples were sieved through an 80 mesh screen prior to analysis. The detection limits for the elements that were analyzed by ICP, AFS, and fire assay methods are listed in Tables 3 and 4.

RESULTS

This report presents the findings of the field investigations which were completed during the 1991 field season; it is not a comprehensive or conclusive discussion of the entire CMD project.

The location of the samples taken during the 1991 field season are shown on figures 2, 3, 4, 5, and 6. The locations of the mineral occurrences examined during the 1991 field season are shown on figures 2 and 3. The appendix correlates the map numbers with the name and/or location of the mineral occurrence, and lists information on the U.S. public land survey grid, year the sample was collected, sample site and type, basic rock types, and analytical results for each sample.

In the discussion below, sample results are referred to by sample location and number. Sample location refers to the actual geographic location or occurrence name where a sample was collected in the field. Sample number refers to the number that was assigned to a sample when it was collected in the field. Map number refers to the numbering system used on figures 2, 3, and 4, that is used to geographically represent the locations of samples. Some map numbers represent more than one sample number due to tight sample spacing in the field.

⁴All placer sample values correspond to the concentration of elements in the sample concentrate.

and 4, that is used to geographically represent the locations of samples. Some map numbers represent more than one sample number due to tight sample spacing in the field.

MINERALIZED OCCURRENCES

Nineteen mineral occurrences were examined and sampled during the 1991 regional reconnaissance. The seven previously reported occurrences include; Drenchwater Creek, Kady, Kivliktort Mountain East, Kivliktort Mountain West, Koiyaktot Mountain East, Story Creek, and Vidlee (See figures 2, and 3 for property locations). Detailed mapping and sampling were conducted at Drenchwater Creek, Kady, Kivliktort Mountain East, Kivliktort Mountain West, Koiyaktot Mountain East, Koiyaktot Mountain West, and Story Creek. Twelve of the occurrences were previously unreported and include; Ivotuk Hills, Kakivilak Creek, Kakivilak Creek North, Koiyaktot Mountain West, Kurupa River Southwest, Outwash Creek North, Outwash Creek Northeast, Outwash Creek South, Outwash Creek Southeast, Outwash Creek South-Southwest, Outwash Creek Southwest, and Outwash Creek West. The mineral occurrences are discussed in alphabetical order.

According to the literature research conducted prior to these field studies, the following occurrences have not been previously documented publicly: Ivotuk Hills, Kakivilak Creek, Kakivilak Creek North, Kivliktort Mountain East, Kivliktort Mountain West, Koiyaktot Mountain East, Kurupa River Southwest, Outwash Creek North, Outwash Creek Northeast, Outwash Creek South, Outwash Creek Southeast, Outwash Creek South-Southwest, Outwash Creek Southwest, and Outwash Creek West.

Drenchwater Creek

The Drenchwater Creek occurrence is between Drenchwater and Wager Creeks which drain the DeLong Mountains. Site-specific work on the occurrence included detailed geologic mapping, soil, rock, and bulk sampling, and a geophysical survey by a USGS crew.

Rocks in the vicinity are mainly interbedded shales and silicified mudstone of the Mississippian-Pennsylvanian Kuna and Siksikpuk Formations. Intercalated with the sedimentary rocks are tuffaceous volcanic rocks and trachytes. The entire sequence strikes approximately N 70° W and dips to the south. The rocks have been thrust faulted to the north, causing possible repetition of some units, and have been offset by several north-south trending near-vertical faults.

Sulfides consist mainly of pyrite, sphalerite, and galena occur as: 1) semi-massive and massive pods and lenses within silicified mudstones; and 2) fracture fillings and veinlets up to 1 inch wide cutting the silicified mudstone, shale, and tuff. Many fracture surfaces show no visible sulfides but contain abundant boxworks after sphalerite.

A total of 22,500 feet of gridline was surveyed in at the occurrence as a base for geochemical sampling, geologic mapping, and geophysical surveys (fig. 5). Grids were located both on the east and west side of Drenchwater Creek. Where possible, both rock and soil samples were collected at 100 foot intervals along the gridlines and all known mineralized outcrops were sampled. Samples from mineralized outcrops contained up to 10% zinc (sample no. 5393), 9.8% lead (sample no. 5366), 1.46 oz/t silver (sample no. 5366), and 2,000 ppm barium (sample no. 5289). Soil samples contained up to 5,525 ppm zinc (sample no. 5084),

10,000 ppm lead (sample nos. 5220 and 5327), and 2,000 ppm barium (sample nos. 5041 and 5106). Soil samples containing anomalously high levels of zinc and lead concentrations outline a trend which extends for up to 3,200 feet across the south side of the east grid. No significant geochemical anomalies were noted in the soil and rock samples collected from the west grid.

The geology of the main mineralized area was mapped (1:2400 scale) by a Geology Department graduate student from the University of Alaska, Fairbanks. This information will be published as a thesis at a later date (376).

USGS geophysicists conducted magnetometer and gravimetric surveys over the eastern grid. The magnetic survey showed no anomalies, but a gravity high extends from gridline 3W+00 to 4E+00. At this point the high is offset approximately 500 feet to the northeast to gridline 8E+5N. It then continues east along strike through gridline 20E+6N (247). The results of the geophysical surveys will be published at a later date by the USGS.

Ivotuk Hills

The Ivotuk Hills phosphate occurrence is along Otuk Creek on the western end of the hills. Two samples (4080, 4219) taken of Mississippian Lisburne Group oölitic limestone contained 126 and 150 ppm uranium. A bulk sample of the oölitic limestone contained 36.61% P₂O₅ and 150 ppm uranium (Table 2).

Kady

This sulfide occurrence is near the headwaters of an unnamed tributary of Outwash Creek within the Gates of the Arctic National Park (fig. 3). This occurrence was identified as a result of USGS geochemical sampling in this area (133).

Rocks in the area consist of sandstone and siltstone members of the upper Devonian-lower Mississippian Kanayut Conglomerate which has been intensely folded with fold axis trending in an approximate east-west orientation. The occurrence consists of sulfide-bearing veins and quartz-cemented sandstone/mudstone vein breccias which cut the Kanayut conglomerate. The vein breccia pinches and swell along strike and contain massive and disseminated sphalerite, galena, and chalcopyrite. The veins are oriented primarily: north-south and northeast.

The largest concentration of sulfides occurs at the main zone, where rubblecrop and float indicate a width ranging from 12 to 100 feet traceable along strike for 750 feet. The sulfide-rich breccias have been extensively weathered. Exposures contain abundant limonite stain and boxwork structures. The main zone had 6 samples (4071-76) taken which contained <0.01 - 23.56% lead, 1.30 - 35.79% zinc, 0.035 - 700 ppm copper, and 0.009 - 4.04 oz/t silver. A grab sample (5447) across a 35 foot wide zone of float from the vein contained 1.96% lead, 10% zinc, 15.1 ppm silver, and 29 ppb gold. The south zone (Red Anchor vein) had three samples (4181-83) taken which contained 0.01 - 8.99% lead, <0.01 - 1.00% zinc, <0.01 - 10.91% copper, and 5.0 ppm - 2.68 oz/t silver. The northwest zone (Kady-extension) had two samples (4222-23) taken which contained 0.02 - 0.06% lead, 0.03 - 0.40% zinc, and 0.14 - 2.69% copper. The central zone (Advil vein) had four samples (4155, 4171-73) taken which contained <0.01 - 0.44% lead, 2.20 - 22.01% zinc, and 0.36 - 3.64% copper. A 10 foot continuous chip sample (5556) across the width of the Advil vein contained 0.10% lead, 10% zinc, 11.4 ppm

silver, 1.66% copper, and 82 ppb gold.

Kakivilak Creek

A piece of highly anomalous mineralized float was found on an unnamed northwest tributary of Kakivilak Creek within the Gates of the Arctic National Park (fig. 3). One sample (4194) from the slate float with visible pyrite, galena, and chalcopyrite contained 15.37% lead, 0.07% zinc, and 0.64% copper. The source of the float was not located during the 1991 field season.

Kakivilak Creek North

The Kakivilak Creek North occurrence is along a ridge near the headwaters of Kakivilak Creek within the Gates of the Arctic National Park (fig 3). Three samples (4195-97) were taken from quartz veins containing visible galena, chalcopyrite, and sphalerite. The veins crop out along the crest of a south-trending ridge. The samples contained 0.08 - 3.61% lead, 0.03 - 7.72% zinc, and <0.01 - 0.64% copper. A quartz vein containing visible galena was sampled along the southeastern part of the ridge. A sample (4217) of this vein contained 3.41% lead, 0.11% zinc, and 46 ppm copper. A piece of quartz float (sample no. 4218) located downslope from the main quartz veins with visible galena contained 2.44% lead, 1.14% zinc, and 0.02% copper. Anomalously high silver, 2.76 oz/t (sample no. 4196), was noted from this occurrence.

Kivliktort Mountain East

The Kivliktort Mountain East area (fig. 2) was reexamined after the discovery of sulfides in 1990 (237). Ridgetops and gullies near the head of the drainage were prospected in an effort to locate the source of the sulfide-bearing float found in the stream bottom. Sulfide float and rubblecrop were located at the 2,650 foot elevation on the west side of a small southerly tributary to the main drainage. Here the Kanayut Conglomerate contains numerous quartz veinlets and quartz-cemented sandstone breccia. Galena and malachite staining were observed in the veinlets and breccia. A select sample (5433) contained 4.31% lead, 0.12% zinc, and 2.4 oz/t silver. The sulfides were confined to a 20 by 50 foot area. Further prospecting in the vicinity located no extensions to the mineralization.

Kivliktort Mountain West

The Kivliktort Mountain West occurrence (fig. 2) is at the western end of Kivliktort Mountain, straddling an eastern tributary to the Etivluk River. It was discovered by the Bureau in 1990 (237). Sulfides at the occurrence are associated with the Shanin Lake member of the upper Mississippian-lower Devonian Kanayut Conglomerate. The conglomerate occurs as klippe juxtaposed over shales and siltstones of the younger Stuver member of the Kanayut. Silicified sandstone breccias occur locally and are best exposed as rubble in frost boil zones at the base of several of the klippe. The breccias are exposed along bleached weathering surfaces which can be spotted from a distance.

The sandstone breccias contain scattered sulfides over a 2,500 by 4,200 foot area on both the east and west sides of the Etivluk tributary. Sphalerite and minor galena occur both as fine-grained matrix cement and as fragments within the breccias. Locally, up to 1 inch square fragments of sphalerite occur. The dissolution of the sphalerite during weathering has left vugs in the sandstone breccia. Samples of the sandstone breccia contain up to 15 % zinc (5437), 1.5 % lead (5441), 3.4 oz/t silver (5442), and 2,000 ppm barium (5551, 5554).

Massive sphalerite also occurs as fracture fillings in unbrecciated sandstone. A sample of the massive sphalerite (5601) contained up to 31.4% zinc, 0.49% lead, and 5.9 oz/t silver. The largest exposure of the mineralized rubble occurs in a 50 by 150 foot frost boil zone 800 feet northeast of the creek at an elevation of 2,100 feet. The amount of sulfides exposed at the occurrence is not significant, but may indicate a sulfide zone to the south, covered by the upper plates of thrust sheets.

Koiyaktot Mountain East

The Koiyaktot Mountain East occurrence is on an unnamed tributary of the Nigu River draining the southeastern part of Koiyaktot Mountain (fig. 2). Ten samples (4059-62, 4115-16, 4118, 4128-29, 5565) were taken from frost boils along a north-south trending zone of quartz veinlets and quartz-cemented sandstone breccia float and rubble containing galena and sphalerite that is locally massive. The samples contained <0.01 - 39.89% lead, 0.03 - 23.94% zinc, 4 - 875 ppm copper, and 4.14 - 53.59 oz/t silver.

Koiyaktot Mountain West

The Koiyaktot Mountain West occurrence (fig. 2), on the west side of Koiyaktot Mountain, 4.5 miles northeast of Iuyorurak Pass, was discovered by the Bureau during 1990 (237). Rocks in the area consist of northwest-striking, south-dipping, Kanayut sandstone which locally contains numerous small folds. Within the sandstone a series of four small mineralized zones are scattered over a 0.5 mile distance along a north-south linear trend. The largest zone consists of a 50 by 300 foot area of quartz vein stockwork and sandstone breccia float. The float locally contains pieces of massive sphalerite cut by quartz and galena veinlets. Samples (5459, 5464) contain up to 43.9% zinc, 3.27% lead, and 7.15 oz/t silver.

Kurupa River Southwest

The Kurupa River Southwest occurrence is on an unnamed tributary of the Kurupa River within the Gates of the Arctic National Park (fig. 3). Five samples (4167-70, 4200) of bedrock consisting of sandstone with quartz veining with visible chalcopyrite and malachite staining contained 0.01 - 0.56% copper. A sample of malachite and azurite stained float (4187) with visible chalcopyrite contained 0.15% copper.

Outwash Creek North

The Outwash Creek North mineral occurrence is near the headwaters of Outwash Creek

within the Gates of the Arctic National Park (fig. 3). Four samples (4162-65) of float material from sandstone to conglomerate contained <0.01 - 1.49% lead, 0.01 - 0.29% zinc, <0.01 - 0.87% copper, and 238 ppm - 2.96% manganese. The source of the float was not located during the 1991 field season.

Outwash Creek Northeast

The Outwash Creek Northeast occurrence is on an unnamed tributary of Outwash Creek within the Gates of the Arctic National Park (fig. 3). Two samples (4179, 4201) of sandstone and quartz with azurite and malachite staining contained 29 and 23 ppm lead, 0.20 and 0.57% zinc, and 0.13 and 0.09% copper, respectively. A sample (4178) of float contained 1.09% lead, 49 ppm zinc, and 45 ppm copper. The source of the mineralization was not located during the 1991 field season.

Outwash Creek South

The Outwash Creek South mineral occurrence is near the headwaters of an unnamed tributary of Outwash Creek within the Gates of the Arctic National Park (fig. 3). Two samples (4202-03) of sandstone rubblecrop with visible galena and pyrite contain 0.6 and 0.18% lead and 1.98 and 0.28% zinc, respectively. The source of the float was not located during the 1991 field season.

Outwash Creek Southeast

The Outwash Creek Southeast mineral occurrence is near the headwaters of Outwash Creek within the Gates of the Arctic National Park (fig. 3). A sample (4205) taken of quartz float with visible galena and sphalerite contained 0.33% lead, 7.26% zinc, and 173 ppm copper. A sample (4206) taken of siltstone with visible manganese and iron oxides contained 0.53% manganese and >10% iron.

Outwash Creek South-Southwest

The Outwash Creek South-Southwest mineral occurrence is in an unnamed tributary of Outwash Creek within the Gates of the Arctic National Park (fig. 3). Two samples (4156, 4158) of quartz veins with visible galena and pyrite contained 25.39 and 3.30% lead, 0.07 and 0.17% zinc, 0.08 and 0.09% copper, respectively, and sample 4156 contains 10.27 oz/t silver. A sample (4157) of quartz rubblecrop with visible galena contained 7.26% lead, 9.31% zinc, 0.08% copper, and 3.72 oz/t silver. A sample (4159) of silicified shale float with visible galena and sphalerite contained 1.64% lead, 4.96% zinc, 163 ppm copper, and 1.18% manganese.

Outwash Creek Southwest

The Outwash Creek Southwest occurrence is at the headwaters of an unnamed tributary of Outwash Creek within the Gates of the Arctic National Park (fig. 3). Two samples (4153-54)

of conglomerate and sandstone rubblecrop with visible galena and sphalerite contained 0.1 and 0.62% lead, 2.51 and 2.79% zinc, 711 and 4,370 ppm manganese, and 729 and 1,161 ppm nickel, respectively.

Outwash Creek West

The Outwash Creek West occurrence is located at the headwaters of an unnamed tributary of Outwash Creek within the Gates of the Arctic National Park (fig. 3). A sample (4138) of a quartz vein with visible sphalerite, galena, and pyrite contained 1.95% lead, 7.05% zinc, and 0.16% copper. Four samples (4135-37, 4139) of quartz float in the area contained 0.26 - 8.93% lead, 2.67 - 24.04% zinc, and 133 - 2,303 ppm copper. Sample 4139 contained 4.99 oz/t silver.

Story Creek

The Story Creek mineral occurrence is at the headwaters of a southeastern tributary of Story Creek (fig. 2). Detailed site-specific work on the occurrence included geologic mapping, soil and rock sampling, and bulk sampling.

The occurrence consists of a N65° E trending sulfide-bearing zone up to 270 feet wide that extends for at least 2,800 feet along strike. The zone is hosted within sandstone and siltstone of the upper Devonian-lower Mississippian Stuver member of the Kanayut Conglomerate. East-west trending thrust faults occur within the Stuver and the entire member has been thrust north over the highly deformed Mississippian Kayak Shale. Sulfides, found in float and rubblecrop within the zone, consist of sphalerite and galena mixed with quartz as matrix and fragments in siltstone breccia, as massive banded layers, and in quartz veinlets up to 0.5 inch thick. Numerous barren quartz veinlets also occur within the Stuver member. Pieces of massive barite and weathered sphalerite, which is locally coated with hydrozincite, can be occasionally found in association with sulfides. The sulfide-bearing rocks appear to terminate against or are covered by a thrust-fault on the south side of the mineralized zone. Fold axes within the Stuver member parallel the trend of the sulfide-bearing zone.

A total of 4,700 feet of gridline was surveyed at Story Creek and used as a base for geochemical sampling and geologic mapping. Soil and rock samples were collected at 100 foot intervals along the gridline and all known mineralized outcrops were sampled. The sample locations are shown on figure 6. A sample of sulfide-rich float (5294) contained up to 18.94% zinc, 30.03% lead, and 20.29 oz/t silver. Continuous chip samples (5426-30) taken across 28 feet of rubblecrop contained 14.19% zinc, 3.94% lead, and 4.63 oz/t silver. The samples came from a portion of a larger zone with an apparent width of 100 feet. Soil samples collected along the gridline contained up to 0.34% lead, 0.24% zinc (5526), and 0.15% barium (5412).

The geology of the occurrence was mapped at a scale of 1:2,400 by a graduate student at the University of Alaska, Fairbanks. The results of that work will be eventually published as a thesis (376).

A high-grade bulk sample collected from this mineral occurrence contained 5.37% zinc, 2.11% lead, and 0.014% copper (Table 1).

Vidlee

The Vidlee mineral occurrence is near the headwaters of Itilyargiok Creek within the Gates of the Arctic National Park (fig. 3) was subsequently identified by a USGS geochemical sampling program (133). Three areas of mineralization were identified by the Bureau in 1991. Five samples (4130-34) of sandstone and quartz taken from the Northern Zone contained <2 ppm - 3.47% lead, 21 - 75 ppm zinc, and <0.5 - 32 ppm silver. The central zone had sandstone with quartz bedrock (sample 4152) which contained 0.92% lead, 10.44% zinc, and 32.5 ppm silver while a sample (4151) of float contained 1.4% lead, 12.14% zinc, and 46.6 ppm silver. The southern zone had 6 samples (4145-50) taken of sandstone bedrock with quartz containing 0.18 - 56.93% lead, 0.09 - 9.8% zinc, and 3.7 ppm - 37.54 oz/t silver.

Other anomalous mineral concentrations

The Bureau identified anomalously high mineral concentrations in several drainages, but were unable to locate any in-place mineralization. These drainages include the Rampart - Wager creek area containing elevated barite, manganese, chromite, titanium, and strontium concentrations. Samples from the Cutaway Creek and Twistem Creek contained elevated levels of barite. The Outwash Creek - Kurupa River area contained anomalously high barite, manganese, nickel, cadmium, arsenic, and titanium. The Koiyaktot Mountain area contained elevated concentrations of cadmium and antimony.

CONCLUSIONS

The 1991 field reconnaissance part of the CMD study identified, located, and sampled nineteen mineral occurrences containing elevated levels of lead, zinc, copper, silver, manganese, and/or nickel. A site specific part of the study conducted detailed examinations on seven of the previously identified occurrences. Anomalously high antimony, arsenic, barite, cadmium, chromite, manganese, nickel, strontium, and titanium concentrations were also found that may indicate additional mineral occurrences in the Cutaway Creek, Koiyaktot Mountain, Kurupa River, Mt. Bupto, Outwash Creek Rampart Creek, Twistem Creek, and the Wager Creek areas.

TABLE 3. - 1990 Sample Analysis Detection Limits

Element	Lower limit (ppm)	Upper limit (ppm)	Element	Lower limit (ppm)	Upper limit (ppm)
ICP-Atomic Emission Spectroscopy			Sn	20	2,000
Ag	0.2	50	Sr	1	2,000
Al	0.02 %	10.00 %	Ta	1	2,000
As	5	2,000	Te	10	2,000
Ba	1	2,000	Ti	0.05 %	10.00 %
Bi	5	2,000	V	1	2,000
Ca	0.05 %	10.00 %	W	10	2,000
Cd	1	2,000	Y	1	2,000
Co	1	20,000	Zn	0.0002 %	2.0 %
Cr	1	20,000	Zr	1	2,000
Cu	1	20,000	Quantitative Analysis		
Fe	0.01 %	10.00 %	Pb	0.01 %	10.00 %
Ga	2	2,000	Zn	0.01 %	4.00 %
K	0.05 %	10.00 %	Fire Assay		
La	1	2,000	Ag	0.02 oz/t	Not reported
Li	1	2,000	PGM-Nickel Sulfide Fire Assay/INAA		
Mg	0.05 %	10.00 %	Au	1 ppb	10,000 ppb
Mn	0.01 %	10.00 %	Pt	20 ppb	10,000 ppb
Mo	1	20,000	Pb	20 ppb	10,000 ppb
Na	0.05 %	10.00 %	Ir	1 ppb	10,000 ppb
Nb	1	2,000	Os	10 ppb	10,000 ppb
Ni	1	20,000	Ru	50 ppb	10,000 ppb
Pb	0.0002 %	1.0 %	Rh	5 ppb	10,000 ppb
Sb	5	2,000			

TABLE 4. - 1991 Sample Analysis Lower Detection Limits

Quantitative Analysis - FA			
Ba...	0.01 %	Mn...	0.01 %
Cr...	0.01 %	Pb...	0.01 %
Cu...	0.01 %	Zn...	0.01 %
Fire Assay - DCP			
Ag...	0.02 oz/t	Pd...	1 ppb
Au...	1 ppb	Pt...	1 ppb
Atomic Emission Spectroscopy - ICP			
Ag...	0.5 ppm	Mo...	1 ppm
Al...	0.01 %	Na...	0.01 %
As...	5 ppm	Nb...	5 ppm
Ba...	5 ppm	Ni...	1 ppm
Bi...	5 ppm	Pb...	2 ppm
Ca...	0.01 %	Sb...	5 ppm
Cd...	2 ppm	Sn...	20 ppm
Co...	1 ppm	Sr...	1 ppm
Cr...	2 ppm	Ta...	5 ppm
Cu...	1 ppm	Te...	25 ppm
Fe...	0.01 %	Ti...	0.01 %
Ga...	10 ppm	V....	2 ppm
K....	0.01 %	W....	20 ppm
La...	5 ppm	Y....	5 ppm
Li...	2 ppm	Zn...	2 ppm
Mg...	0.01 %	Zr...	5 ppm
Mn...	5 ppm		

TABLE 4. - 1991 Sample Analysis Lower Detection Limits -- Continued

Inst. Neutron Activation			
Ce...	1 ppm	Nd...	1 ppm
Dy...	0.1 ppm	Pr...	1 ppm
Er...	1 ppm	Sm...	0.01 ppm
Eu...	0.1 ppm	Tb...	0.1 ppm
Gd...	1 ppm	Th...	0.1 ppm
Ho...	0.1 ppm	Tm...	1 ppm
La...	0.1 ppm	U...	0.1 ppm
Lu...	0.01 ppm	Yb...	0.1 ppm
DC Plasma Emission			
Ge...	10 ppm		

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APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
4001	HP54	1990		Safari Creek	Colville	Sandstone	Rubblecrop	Grab	Howard Pass	B-3	12S	25W	13	SW	Umiat	
4002	HP76	1990		Isikut Mtn	Colville	Alluvium	Stream	Placer	Howard Pass	A-2	33N	09E	25	SE	Kateel River	
4003	HP75	1990		Isikut Mtn	Colville	Alluvium	Stream	Placer	Howard Pass	A-2	33N	09E	25	SE	Kateel River	
4004	HP74	1990		Kivliktort Mtn	Colville	Alluvium	Stream	Placer	Howard Pass	B-2	34N	10E	31	NE	Kateel River	
4005	HP72	1990	Kivliktort Mtn West	Kivliktort Mtn	Colville	Chert	Rubblecrop	Grab	Howard Pass	B-2	34N	10E	30	SE	Kateel River	
4006	HP71	1990	Kivliktort Mtn West	Kivliktort Mtn	Colville	Shale	Outcrop	Random chip	Howard Pass	B-2	34N	10E	30	SE	Kateel River	
4007	HP77	1990	Kivliktort Mtn East	Kivliktort Mtn	Colville	Conglomerate	Rubblecrop	Grab	Howard Pass	B-1	33N	10E	13	SW	Kateel River	
4008	HP80	1990	Kivliktort Mtn East	Kivliktort Mtn	Colville	Alluvium	Stream	Placer	Howard Pass	B-1	33N	11E	18	NE	Kateel River	
4009	HP86	1990	Kolyaktot Mtn West	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Grab	Howard Pass	A-1	33N	11E	34	NW	Kateel River	
4010	HP85	1990	Kolyaktot Mtn West	Kolyaktot Mtn	Colville	Massive sulfides	Outcrop	Select	Howard Pass	A-1	33N	11E	34	NW	Kateel River	
4011	HP29	1990	Drenchwater Creek	Drenchwater Creek	Colville	Alluvium	Stream	Placer	Howard Pass	C-5	10S	29W	16	NW	Umiat	
4012	HP73	1990	Kivliktort Mtn West	Kivliktort Mtn	Colville	Massive sulfides	Rubblecrop	Grab	Howard Pass	B-2	34N	10E	29	NW	Kateel River	
4013	HP73	1990	Kivliktort Mtn West	Kivliktort Mtn	Colville	Massive sulfides	Rubblecrop	Select	Howard Pass	B-2	34N	10E	29	NW	Kateel River	
4014	HP73	1990	Kivliktort Mtn West	Kivliktort Mtn	Colville	Massive sulfides	Float	Grab	Howard Pass	B-2	34N	10E	29	NW	Kateel River	
4015	HP79	1990	Kivliktort Mtn East	Kivliktort Mtn	Colville	Massive sulfides	Float	Grab	Howard Pass	B-1	33N	10E	13	SE	Kateel River	
4016	KR2	1990		Otuk Creek	Colville	Shale	Outcrop	Random chip	Killik River	B-5	11S	16W	20	NW	Umiat	
4017	HP21	1991	Rampart Ck West	Rampart Creek	Colville	Mafic Intrusive	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	16	NE	Umiat	
4018	HP22	1991	Rampart Ck West	Rampart Creek	Colville	Chert	Rubblecrop	Select	Howard Pass	C-5	10S	30W	16	NE	Umiat	
4019	HP20	1991	Rampart Ck West	Rampart Creek	Colville	Mafic Intrusive	Rubblecrop	Select	Howard Pass	C-5	10S	30W	16	NW	Umiat	
4020	HP55	1990		Safari Creek	Colville	Shale	Rubblecrop	Random chip	Howard Pass	B-3	12S	25W	24	NW	Umiat	
4021	HP46	1990		Lisburne Ridge	Colville	Limestone	Float	Grab	Howard Pass	C-1	10S	20W	3	NE	Umiat	
4022	HP53	1990		Safari Creek	Colville	Chert	Outcrop	Channel	Howard Pass	B-3	12S	25W	13	SE	Umiat	
4023	KR4	1990		Otuk Creek	Colville	Alluvium	Stream	Placer	Killik River	B-5	34N	14E	30	NE	Kateel River	
4024	KR5	1990		Otuk Creek	Colville	Alluvium	Stream	Placer	Killik River	B-5	12S	16W	30	SE	Umiat	
4025	HP83	1990	Kolyaktot Mtn West	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Select	Howard Pass	A-1	33N	11E	27	SW	Kateel River	
4026	HP84	1990	Kolyaktot Mtn West	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Select	Howard Pass	A-1	34N	11E	34	NE	Kateel River	
4027	HP19	1991	Rampart Ck West	Rampart Creek	Colville	Chert	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	9	SW	Umiat	
4028	HP18	1991		Rampart Creek	Colville	Chert	Outcrop	Chip channel	Howard Pass	C-5	10S	30W	9	SE	Umiat	
4029	HP12	1991	Rampart Ck East	Rampart Creek	Colville	Chert	Outcrop	Chip channel	Howard Pass	C-5	09S	30W	35	NE	Umiat	
4030	HP11	1991	Rampart Ck East	Rampart Creek	Colville	Chert	Outcrop	Grab	Howard Pass	C-5	30N	09E	35	NE	Umiat	
4031	HP15	1991	Rampart Ck East	Rampart Creek	Colville	Chert	Outcrop	Grab	Howard Pass	C-5	09S	30W	35	SE	Umiat	
4032	HP16	1991	Rampart Ck East	Rampart Creek	Colville	Chert	Outcrop	Select	Howard Pass	C-5	09S	30W	35	SE	Umiat	
4033	HP13	1991	Rampart Ck East	Rampart Creek	Colville	Chert	Outcrop	Select	Howard Pass	C-5	09S	30W	35	SE	Umiat	
4034	HP14	1991	Rampart Ck East	Rampart Creek	Colville	Quartz	Rubblecrop	Grab	Howard Pass	C-5	09S	30W	35	SE	Umiat	
4035	HP10	1991		Rolling Pin Creek	Colville	Chert	Outcrop	Grab	Howard Pass	C-5	09S	29W	26	SE	Umiat	
4036	HP52	1991		Mt Bupto	Colville	Shale	Outcrop	Grab	Howard Pass	B-3	11S	24W	16	NE	Umiat	
4037	HP42	1991		Kiligwa River	Colville	Chert	Outcrop	Grab	Howard Pass	C-5	10S	28W	32	NE	Umiat	
4038	HP37	1991		Kiligwa River	Colville	Chert	Outcrop	Grab	Howard Pass	C-5	10S	28W	20	SW	Umiat	
4039	HP34	1991	Wager Ck Barite	Wager Creek	Colville	Felsic Intrusive	Float	Grab	Howard Pass	C-5	10S	29W	27	NW	Umiat	
4040	HP34	1991	Wager Ck Barite	Wager Creek	Colville	Chert	Rubblecrop	Grab	Howard Pass	C-5	10S	29W	27	NW	Umiat	
4041	HP33	1991	Wager Ck Barite	Wager Creek	Colville	Chert	Outcrop	Grab	Howard Pass	C-5	10S	29W	27	NW	Umiat	
4042	HP35	1991		Wager Creek	Colville	Arkose - tuff	Outcrop	Grab	Howard Pass	C-5	10S	29W	23	NW	Umiat	
4043	HP32	1991	Wager Ck West	Wager Creek	Colville	Mafic Intrusive	Outcrop	Grab	Howard Pass	C-5	10S	29W	14	SW	Umiat	
4044	HP59	1991		Safari Creek	Colville	Shale	Float	Grab	Howard Pass	B-4	12S	26W	26	NE	Umiat	
4045	HP60	1991		Safari Creek	Colville	Shale	Float	Grab	Howard Pass	B-4	12S	26W	26	SE	Umiat	
4046	HP17	1991		Rampart Creek	Colville	Chert	Rubblecrop	Select	Howard Pass	C-5	10S	30W	1	NW	Umiat	
4047	HP27	1991	Rolling Pin Creek	Rolling Pin Creek	Colville	Chert	Float	Grab	Howard Pass	C-5	10S	29W	18	SW	Umiat	
4048	HP27	1991	Rolling Pin Creek	Rolling Pin Creek	Colville	Chert	Outcrop	Contin chip	Howard Pass	C-5	10S	29W	18	SW	Umiat	
4049	HP28	1991	Rolling Pin Creek	Rolling Pin Creek	Colville	Chert	Outcrop	Random chip	Howard Pass	C-5	10S	29W	18	NE	Umiat	
4051	HP51	1991		Mt Bupto	Colville	Dolomite	Outcrop	Select	Howard Pass	C-3	11S	24W	4	SE	Umiat	
4052	HP50	1991		Mt Bupto	Colville	Dolomite	Outcrop	Random chip	Howard Pass	C-3	11S	29W	4	NE	Umiat	
4053	HP49	1991		Mt Bupto	Colville	Dolomite	Rubblecrop	Select	Howard Pass	C-3	11S	29W	4	NE	Umiat	
4054	HP48	1991	Mt Bupto North	Mt Bupto	Colville	Mafic Intrusive	Rubblecrop	Select	Howard Pass	C-3	10S	24W	33	SE	Umiat	
4055	HP47	1991	Mt Bupto North	Mt Bupto	Colville	Mafic Intrusive	Outcrop	Random chip	Howard Pass	C-3	10S	24W	33	SE	Umiat	
4056	HP26	1991	Rolling Pin Creek	Rolling Pin Creek	Colville	Chert	Outcrop	Random chip	Howard Pass	C-5	10S	29W	18	NE	Umiat	
4057	HP8	1991		Jubilee Ck trib	Colville	Chert	Float	Grab	Howard Pass	C-5	09S	30W	2	NE	Umiat	
4058	HP9	1991		Jubilee Ck trib	Colville	Chert	Float	Grab	Howard Pass	C-5	09S	30W	2	NE	Umiat	
4059	HP90	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Grab	Howard Pass	A-1	32N	12E	9	NW	Kateel River	

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
4060	HP90	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Select	Howard Pass	A-1	32N	12E	9	NW	Kateel River	
4061	HP90	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Select	Howard Pass	A-1	32N	12E	9	NW	Kateel River	
4062	HP90	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Select	Howard Pass	A-1	32N	12E	9	NW	Kateel River	
4063	HP83	1991		Kolyaktot Mtn trib	Colville	Conglomerate	Float	Grab	Howard Pass	A-1	33N	12E	31	SW	Kateel River	
4064	HP25	1991		Rampart Creek	Colville	Chert	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	28	SE	Umiat	
4065	HP24	1991		Rampart Creek	Colville	Chert	Outcrop	Random chip	Howard Pass	C-5	10S	30W	27	NW	Umiat	
4066	HP58	1991		Safari Creek	Colville	Shale	Outcrop	Grab	Howard Pass	B-4	12S	26W	26	NE	Umiat	
4067	KR79	1991		Kugukpak Creek	Colville	Shale	Float	Grab	Killik River	A-1	32N	23E	10	SE	Kateel River	
4068	KR80	1991		Kugukpak Creek	Colville	Sandstone	Float	Grab	Killik River	A-1	32N	23E	14	SW	Kateel River	
4069	KR82	1991		Suluak Ck trib	Colville	Sandstone	Float	Grab	Killik River	A-1	32N	23E	26	SE	Kateel River	
4070	KR81	1991		Suluak Ck trib	Colville	Shale	Float	Grab	Killik River	A-1	32N	23E	26	SE	Kateel River	
4071	KR36	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Rubblecrop	Select	Killik River	A-4	32N	17E	3	SW	Kateel River	
4072	KR36	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Rubblecrop	Select	Killik River	A-4	32N	17E	3	SW	Kateel River	
4073	KR41	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Rubblecrop	Select	Killik River	A-4	32N	17E	3	SW	Kateel River	
4074	KR41	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Outcrop	Select	Killik River	A-4	32N	17E	3	SW	Kateel River	
4075	KR41	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Outcrop	Select	Killik River	A-4	32N	17E	4	NE	Kateel River	0.07
4076	KR41	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Rubblecrop	Grab	Killik River	A-4	32N	17E	4	NE	Kateel River	0.05
4077	KR56	1991		Outwash Ck trib	Colville	Shale	Outcrop	Select	Killik River	B-4	33N	16E	7	SW	Kateel River	<0.01
4078	KR57	1991		Outwash Ck trib	Colville	Shale	Outcrop	Select	Killik River	B-4	33N	16E	7	SW	Kateel River	<0.01
4079	KR58	1991		Outwash Ck trib	Colville	Quartz	Float	Grab	Killik River	B-4	33N	16E	2	SW	Kateel River	
4080	KR2	1991	Ivotuk Hills	Otuk Creek	Colville	Limestone	Outcrop	Random chip	Killik River	B-5	11S	16W	20	NW	Umiat	
4081	HP43	1991		Killigwa River	Colville	Chert	Rubblecrop	Grab	Howard Pass	C-4	10S	28W	14	SE	Umiat	
4082	HP44	1991		Killigwa River	Colville	Chert	Rubblecrop	Grab	Howard Pass	C-4	10S	28W	14	SE	Umiat	
4083	HP45	1991		Killigwa River	Colville	Chert	Outcrop	Contin chip	Howard Pass	C-4	10S	28W	11	NE	Umiat	
4084	HP36	1991		Wager Creek	Colville	Andesite	Rubblecrop	Grab	Howard Pass	C-5	10S	29W	24	NE	Umiat	
4085	HP61	1991		Safari Creek	Colville	Shale	Outcrop	Select	Howard Pass	B-4	12S	26W	26	SE	Umiat	
4086	HP56	1991		Story Creek	Colville	Chert	Outcrop	Random chip	Howard Pass	B-4	12S	26W	23	NW	Umiat	
4087	HP63	1991	Middle Fork	Safari Creek	Colville	Chert	Float	Grab	Howard Pass	B-3	34N	05E	16	NE	Kateel River	
4088	HP64	1991	Middle Fork	Safari Creek	Colville	Shale	Outcrop	Contin chip	Howard Pass	B-3	34N	05E	16	NE	Kateel River	
4089	HP62	1991	Middle Fork	Safari Creek	Colville	Chert	Float	Grab	Howard Pass	B-3	34N	05E	16	SW	Kateel River	
4090	HP23	1991	Rampart Ck West	Rampart Creek	Colville	Mafic intrusive	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	16	NE	Umiat	
4091	HP23	1991	Rampart Ck West	Rampart Creek	Colville	Mafic intrusive	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	16	NE	Umiat	
4092	HP23	1991	Rampart Ck West	Rampart Creek	Colville	Mafic intrusive	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	16	NC	Umiat	
4093	HP20	1991	Rampart Ck West	Rampart Creek	Colville	Mafic intrusive	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	16	NW	Umiat	
4094	HP19	1991	Rampart Ck West	Rampart Creek	Colville	Mafic intrusive	Rubblecrop	Grab	Howard Pass	C-5	10S	30W	16	NW	Umiat	
4095	HP7	1991		Jubilee Creek	Colville	Chert	Outcrop	Grab	Howard Pass	C-5	08S	29W	18	SE	Umiat	
4096	HP3	1991		Liberator Ridge	Colville	Sandstone	Rubblecrop	Grab	Howard Pass	D-4	07S	27W	17	SE	Umiat	
4097	HP3	1991		Liberator Ridge	Colville	Conglomerate	Outcrop	Grab	Howard Pass	D-4	07S	27W	17	SE	Umiat	
4098	HP6	1991		Stan Ridge	Colville	Mafic intrusive	Outcrop	Grab	Howard Pass	C-4	08S	27W	36	NW	Umiat	
4099	HP30	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mafic intrusive	Rubblecrop	Grab	Howard Pass	C-5	10S	29W	16	SC	Umiat	
4100	HP65	1991		Memorial Creek	Colville	Sandstone	Float	Grab	Howard Pass	B-3	34N	05E	13	SE	Kateel River	
4101	HP66	1991		Memorial Creek	Colville	Sandstone	Float	Select	Howard Pass	B-3	34N	06E	18	SW	Kateel River	
4102	HP67	1991		Memorial Creek	Colville	Sandstone	Float	Select	Howard Pass	B-3	34N	06E	18	SW	Kateel River	
4103	HP68	1991		Ipsnavik Creek	Colville	Sandstone	Float	Grab	Howard Pass	B-3	34N	05E	24	SE	Kateel River	
4104	HP1	1991		Etigonik Mtn	Colville	Alluvium	Stream	Placer	Howard Pass	D-4	05S	26W	32	SW	Umiat	
4105	HP1	1991		Etigonik Mtn	Colville	Alluvium	Stream	Placer	Howard Pass	D-4	05S	26W	32	SW	Umiat	
4106	HP2	1991		Killigwa River	Colville	Alluvium	Stream	Placer	Howard Pass	D-5	06S	28W	15	SW	Umiat	
4107	HP5	1991		Anuk Creek	Colville	Alluvium	Stream	Placer	Howard Pass	D-4	08S	26W	8	SW	Umiat	
4108	HP5	1991		Anuk Creek	Colville	Alluvium	Stream	Pan Con	Howard Pass	D-4	08S	26W	8	SW	Umiat	
4109	HP4	1991		Anuk Creek	Colville	Sandstone	Float	Grab	Howard Pass	D-4	08S	26W	8	SW	Umiat	
4110	HP4	1991		Anuk Creek	Colville	Conglomerate	Float	Grab	Howard Pass	D-4	08S	26W	8	SW	Umiat	
4111	HP4	1991		Anuk Creek	Colville	Sandstone	Float	Grab	Howard Pass	D-4	08S	26W	8	SW	Umiat	
4112	KR6	1991		Nigu River	Colville	Conglomerate	Float	Select	Killik River	A-5	33N	13E	29	NW	Kateel River	
4113	KR7	1991		Nigu River	Colville	Sandstone	Float	Select	Killik River	A-5	33N	13E	29	NE	Kateel River	
4114	KR8	1991		Nigu River	Colville	Conglomerate	Float	Select	Killik River	A-5	32N	13E	2	NW	Kateel River	
4115	HP89	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Sandstone	Float	Select	Howard Pass	A-1	32N	12E	9	NW	Kateel River	
4116	HP90	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Massive sulfides	Rubblecrop	Select	Howard Pass	A-1	32N	12E	9	NE	Kateel River	
4117	KR9	1991		Ivotuk Creek	Colville	Sandstone	Float	Grab	Killik River	A-5	33N	14E	4	NW	Kateel River	

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
4118	HP88	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Sandstone	Float	Grab	Howard Pass	A-1	32N	12E	9	NW	Kateel River	
4119	HP82	1991	Kolyaktot Mtn West	Kolyaktot Mtn	Colville	Sandstone	Outcrop	Grab	Howard Pass	A-1	33N	11E	27	SE	Kateel River	
4120	HP82	1991	Kolyaktot Mtn West	Kolyaktot Mtn	Colville	Sandstone	Outcrop	Grab	Howard Pass	A-1	33N	11E	27	SE	Kateel River	
4121	HP39	1991		Wager Creek	Colville	Mafic intrusive	Float	Grab	Howard Pass	C-5	10S	29W	35	NE	Umiat	
4122	HP39	1991		Wager Creek	Colville	Chert	Rubblecrop	Grab	Howard Pass	C-5	10S	29W	35	NE	Umiat	
4123	HP40	1991		Twistem Creek	Colville	Chert	Outcrop	Select	Howard Pass	C-5	11S	28W	6	SW	Umiat	
4124	HP38	1991		Twistem Creek	Colville	Chert	Outcrop	Select	Howard Pass	C-5	10S	29W	36	SE	Umiat	
4125	HP41	1991	Twistem Ck Barite	Twistem Creek	Colville	Barite	Outcrop	Select	Howard Pass	C-5	10S	28W	31	SW	Umiat	
4126	KR73	1991		Suluak River trib	Colville	Conglomerate	Float	Grab	Killik River	A-2	33N	22E	35	NE	Kateel River	
4127	KR78	1991		Suluak River trib	Colville	Sandstone	Float	Grab	Killik River	A-2	32N	23E	17	NE	Kateel River	
4128	HP90	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Massive sulfides	Float	Grab	Howard Pass	A-1	32N	12E	9	NE	Kateel River	
4129	HP90	1991	Kolyaktot Mtn East	Kolyaktot Mtn	Colville	Massive sulfides	Float	Grab	Howard Pass	A-1	32N	12E	9	NE	Kateel River	
4130	KR12	1991	Vidlee	Itiliargiok Creek	Colville	Quartz	Float	Grab	Killik River	A-4	32N	16E	31	NE	Kateel River	
4131	KR15	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Random chip	Killik River	A-4	32N	16E	30	SE	Kateel River	
4132	KR15	1991	Vidlee	Itiliargiok Creek	Colville	Quartz	Outcrop	Random chip	Killik River	A-4	32N	16E	30	SE	Kateel River	
4133	KR14	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Random chip	Killik River	A-4	32N	16E	30	SE	Kateel River	
4134	KR13	1991	Vidlee	Itiliargiok Creek	Colville	Quartz	Outcrop	Random chip	Killik River	A-4	32N	16E	31	NW	Kateel River	
4135	KR22	1991	Outwash Ck West	Etivluk Creek	Colville	Quartz	Float	Grab	Killik River	A-4	32N	16E	17	SW	Kateel River	
4136	KR21	1991	Outwash Ck West	Etivluk Creek	Colville	Quartz	Float	Grab	Killik River	A-4	32N	16E	20	NE	Kateel River	
4137	KR21	1991	Outwash Ck West	Etivluk Creek	Colville	Quartz	Float	Grab	Killik River	A-4	32N	16E	17	SW	Kateel River	
4138	KR21	1991	Outwash Ck West	Etivluk Creek	Colville	Quartz	Outcrop	Random chip	Killik River	A-4	32N	16E	17	SW	Kateel River	
4139	KR22	1991	Outwash Ck West	Etivluk Creek	Colville	Quartz	Float	Grab	Killik River	A-4	32N	16E	17	SW	Kateel River	
4140	KR40	1991	Kady	Outwash Ck trib	Colville	Sandstone	Float	Grab	Killik River	A-4	32N	17E	4	NE	Kateel River	<0.01
4141	KR3	1991	Cone Hill	Ileriak Creek	Colville	Mafic intrusive	Rubblecrop	Grab	Killik River	B-5	11S	15W	20	NW	Umiat	
4142	KR72	1991		Suluak Ck trib	Colville	Conglomerate	Outcrop	Select	Killik River	A-2	33N	22E	35	NW	Kateel River	
4143	KR71	1991		Suluak Ck trib	Colville	Conglomerate	Outcrop	Grab	Killik River	A-2	33N	22E	35	NW	Kateel River	
4144	KR77	1991		Suluak Ck trib	Colville	Sandstone	Float	Select	Killik River	A-2	32N	22E	24	NE	Kateel River	
4145	KR11	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	16E	32	SW	Kateel River	
4146	KR11	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	16E	32	SW	Kateel River	
4147	KR11	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	16E	32	SW	Kateel River	
4148	KR11	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	16E	32	SW	Kateel River	
4149	KR11	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	16E	32	SW	Kateel River	
4150	KR11	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Select	Killik River	A-4	32N	16E	32	SW	Kateel River	
4151	KR16	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Rubblecrop	Select	Killik River	A-4	32N	16E	29	SW	Kateel River	
4152	KR16	1991	Vidlee	Itiliargiok Creek	Colville	Sandstone	Outcrop	Select	Killik River	A-4	32N	16E	29	SW	Kateel River	
4153	KR17	1991	Outwash Ck SW	Outwash Ck trib	Colville	Conglomerate	Rubblecrop	Select	Killik River	A-4	32N	16E	20	SE	Kateel River	
4154	KR17	1991	Outwash Ck SW	Outwash Ck trib	Colville	Sandstone	Rubblecrop	Select	Killik River	A-4	32N	16E	20	SE	Kateel River	
4155	KR37	1991	Kady	Outwash Ck trib	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	17E	4	SE	Kateel River	0.59
4156	KR18	1991	Outwash Ck SSW	Outwash Ck trib	Colville	Quartz/shale	Outcrop	Select	Killik River	A-4	32N	16E	28	NW	Kateel River	0.08
4157	KR18	1991	Outwash Ck SSW	Outwash Ck trib	Colville	Quartz	Rubblecrop	Select	Killik River	A-4	32N	16E	28	NW	Kateel River	0.08
4158	KR18	1991	Outwash Ck SSW	Outwash Ck trib	Colville	Quartz	Outcrop	Select	Killik River	A-4	32N	16E	28	NW	Kateel River	0.09
4159	KR19	1991	Outwash Ck SSW	Outwash Ck trib	Colville	Felsic intrusive	Float	Grab	Killik River	A-4	32N	16E	21	SW	Kateel River	<0.01
4160	KR20	1991		Outwash Ck trib	Colville	Conglomerate	Float	Grab	Killik River	A-4	32N	16E	16	SE	Kateel River	<0.01
4161	KR54	1991		Outwash Ck trib	Colville	Sandstone	Float	Grab	Killik River	A-4	33N	17E	28	SW	Kateel River	0.09
4162	KR51	1991	Outwash Ck North	Outwash Ck trib	Colville	Sandstone	Rubblecrop	Grab	Killik River	A-4	33N	17E	33	NW	Kateel River	
4163	KR52	1991	Outwash Ck North	Outwash Ck trib	Colville	Conglomerate	Float	Select	Killik River	A-4	33N	17E	33	NW	Kateel River	0.87
4164	KR50	1991	Outwash Ck North	Outwash Ck trib	Colville	Quartz/shale	Float	Grab	Killik River	A-4	33N	17E	33	SW	Kateel River	
4165	KR52	1991	Outwash Ck North	Outwash Ck trib	Colville	Quartz	Float	Grab	Killik River	A-4	33N	17E	33	NW	Kateel River	<0.01
4166	KR53	1991		Outwash Ck trib	Colville	Sandstone	Float	Grab	Killik River	A-4	33N	17E	28	SW	Kateel River	0.21
4167	KR64	1991	Karupa River SW	Karupa River trib	Colville	Sandstone	Outcrop	Rep chip	Killik River	A-3	33N	18E	28	SW	Kateel River	0.23
4168	KR63	1991	Karupa River SW	Karupa River trib	Colville	Sandstone	Outcrop	Rep chip	Killik River	A-3	33N	18E	28	SW	Kateel River	0.01
4169	KR64	1991	Karupa River SW	Karupa River trib	Colville	Sandstone	Outcrop	Rep chip	Killik River	A-3	33N	18E	28	SW	Kateel River	0.14
4170	KR63	1991	Karupa River SW	Karupa River trib	Colville	Quartz	Outcrop	Select	Killik River	A-3	33N	18E	28	SW	Kateel River	0.41
4171	KR37	1991	Kady	Outwash Ck trib	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	17E	4	SE	Kateel River	0.36
4172	KR37	1991	Kady	Outwash Ck trib	Colville	Sandstone	Outcrop	Chip channel	Killik River	A-4	32N	17E	4	SE	Kateel River	1.29
4173	KR37	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Outcrop	Select	Killik River	A-4	32N	17E	4	SE	Kateel River	3.64
4174	KR35	1991	Kady	Outwash Ck trib	Colville	Sandstone	Outcrop	Select	Killik River	A-4	32N	17E	4	SE	Kateel River	0.01
4175	HP70	1991		Tukuto Creek	Colville	Shale	Float	Grab	Howard Pass	B-2	34N	08E	24	SE	Kateel River	<0.01

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
4176	KR44	1991		Outwash Ck trib	Colville	Sandstone	Outcrop	Select	Killik River	A-4	32N	17E	3	NE	Kateel River	<0.01
4177	KR43	1991		Outwash Ck trib	Colville	Sandstone	Rubblecrop	Grab	Killik River	A-4	32N	17E	3	NE	Kateel River	<0.01
4178	KR24	1991	Outwash Ck NE	Outwash Ck trib	Colville	Sandstone	Float	Grab	Killik River	A-4	32N	16E	11	SE	Kateel River	<0.01
4179	KR24	1991	Outwash Ck NE	Outwash Ck trib	Colville	Sandstone	Outcrop	Select	Killik River	A-4	32N	16E	11	SE	Kateel River	0.13
4180	HP69	1991		Ipnavik River	Colville	Sandstone	Rubblecrop	Grab	Howard Pass	B-3	34N	07E	29	SW	Kateel River	
4181	KR34	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Rubblecrop	Grab	Killik River	A-4	32N	17E	4	SW	Kateel River	0.53
4182	KR34	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Rubblecrop	Select	Killik River	A-4	32N	17E	4	SW	Kateel River	<0.01
4183	KR33	1991	Kady	Outwash Ck trib	Colville	Massive sulfides	Rubblecrop	Select	Killik River	A-4	32N	17E	9	NW	Kateel River	10.91
4184	KR23	1991		Outwash Ck trib	Colville	Quartz	Rubblecrop	Grab	Killik River	A-4	32N	16E	1	SE	Kateel River	<0.01
4185	KR68	1991		Karupa River trib	Colville	Sandstone	Rubblecrop	Select	Killik River	A-3	33N	18E	22	NE	Kateel River	
4186	KR66	1991		Karupa River trib	Colville	Shale	Float	Grab	Killik River	A-3	33N	18E	33	SE	Kateel River	0.07
4187	KR65	1991	Karupa River SW	Karupa River trib	Colville	Shale	Float	Grab	Killik River	A-3	33N	18E	33	NW	Kateel River	0.15
4188	KR49	1991		Outwash Creek	Colville	Quartz	Float	Grab	Killik River	A-4	33N	17E	33	SE	Kateel River	<0.01
4189	KR44	1991		Outwash Creek	Colville	Shale	Float	Grab	Killik River	A-4	32N	17E	3	SE	Kateel River	
4190	KR58	1991		Karupa Hills	Colville	Chert	Rubblecrop	Select	Killik River	B-4	34N	17E	14	NE	Kateel River	
4191	KR59	1991		Karupa Hills	Colville	Chert	Rubblecrop	Select	Killik River	B-4	34N	17E	11	SE	Kateel River	
4192	KR75	1991		Togoyuk Ck trib	Colville	Conglomerate	Outcrop	Select	Killik River	A-2	32N	21E	13	SE	Kateel River	
4193	KR29	1991		Kakivilak Creek	Colville	Quartz	Float	Grab	Killik River	A-4	32N	17E	33	SW	Kateel River	
4194	KR28	1991	Kakivilak Creek	Kakivilak Creek	Colville	Shale	Float	Grab	Killik River	A-4	32N	17E	28	SE	Kateel River	0.08
4195	KR31	1991	Kakivilak Ck North	Kakivilak Creek	Colville	Shale	Outcrop	Select	Killik River	A-4	32N	17E	22	NW	Kateel River	0.64
4196	KR32	1991	Kakivilak Ck North	Kakivilak Creek	Colville	Quartz	Outcrop	Select	Killik River	A-4	32N	17E	22	NW	Kateel River	<0.01
4197	KR32	1991	Kakivilak Ck North	Kakivilak Creek	Colville	Quartz	Outcrop	Select	Killik River	A-4	32N	17E	22	NW	Kateel River	<0.01
4198	KR42	1991		Outwash Ck trib	Colville	Coal	Rubblecrop	Grab	Killik River	A-4	33N	17E	35	SW	Kateel River	0.27
4199	KR42	1991		Outwash Ck trib	Colville	Sandstone	Rubblecrop	Grab	Killik River	A-4	33N	17E	35	SW	Kateel River	<0.01
4200	KR64	1991	Karupa River SW	Karupa River trib	Colville	Sandstone	Outcrop	Select	Killik River	A-3	34N	18E	28	SW	Kateel River	0.56
4201	KR25	1991	Outwash Ck NE	Outwash Ck trib	Colville	Sandstone	Outcrop	Select	Killik River	A-4	32N	16E	11	SE	Kateel River	0.09
4202	KR26	1991	Outwash Ck South	Outwash Ck trib	Colville	Sandstone	Rubblecrop	Grab	Killik River	A-4	32N	17E	18	SW	Kateel River	<0.01
4203	KR27	1991	Outwash Ck South	Outwash Ck trib	Colville	Sandstone	Rubblecrop	Select	Killik River	A-4	32N	17E	18	SW	Kateel River	<0.01
4204	KR46	1991		Outwash Creek	Colville	Shale	Rubblecrop	Grab	Killik River	A-4	32N	17E	2	NW	Kateel River	
4205	KR48	1991	Outwash Ck SE	Outwash Creek	Colville	Quartz	Float	Grab	Killik River	A-4	32N	17E	2	NW	Kateel River	<0.01
4206	KR47	1991	Outwash Creek SE	Outwash Creek	Colville	Siltstone	Rubblecrop	Grab	Killik River	A-4	32N	17E	2	NE	Kateel River	
4207	KR67	1991		Karupa River trib	Colville	Sandstone	Float	Grab	Killik River	A-3	33N	18E	23	SW	Kateel River	
4208	KR61	1991		Karupa Hills	Colville	Chert	Outcrop	Grab	Killik River	B-4	34N	17E	12	SE	Kateel River	
4209	KR74	1991	Togoyuk Ck Barite	Togoyuk Creek	Colville	Sandstone	Float	Grab	Killik River	A-2	32N	22E	4	NE	Kateel River	
4210	KR38	1991	Kady	Outwash Ck trib	Colville	Sandstone	Float	Select	Killik River	A-4	32N	17E	4	SW	Kateel River	0.22
4211	KR76	1991		Kanorgiksak Creek	Colville	Quartz	Outcrop	Select	Killik River	A-2	32N	22E	35	NE	Kateel River	<0.01
4212	KR61	1991		Karupa Hills	Colville	Quartz	Outcrop	Select	Killik River	B-4	34N	17E	13	NE	Kateel River	
4213	KR84	1991		Kikoyat Creek	Colville	Sandstone	Float	Grab	Killik River	B-1	34N	24E	25	NW	Kateel River	0.02
4214	KR85	1991		Grizzly Mtn	Colville	Shale	Float	Grab	Killik River	A-1	32N	25E	1	SW	Kateel River	<0.01
4216	KR83	1991		Fire Ck trib	Colville	Conglomerate	Float	Grab	Killik River	B-1	34N	24E	14	NE	Kateel River	
4217	KR30	1991	Kakivilak Ck North	Kakivilak Creek	Colville	Quartz	Outcrop	Select	Killik River	A-4	32N	17E	22	SW	Kateel River	<0.01
4218	KR31	1991	Kakivilak Ck North	Kakivilak Creek	Colville	Quartz	Rubblecrop	Select	Killik River	A-4	32N	17E	22	SW	Kateel River	0.02
4219	KR1	1991	Ivotuk Hills	Otuk Creek	Colville	Limestone	Outcrop	Select	Killik River	B-5	11S	16W	20	NW	Kateel River	
4220	KR62	1991		Karupa River trib	Colville	Quartz	Rubblecrop	Select	Killik River	A-3	33N	18E	21	SW	Kateel River	0.20
4221	KR69	1991		Karupa River trib	Colville	Sandstone	Float	Grab	Killik River	B-3	33N	18E	18	SE	Kateel River	0.10
4222	KR39	1991	Kady--extension	Outwash Ck trib	Colville	Quartz	Outcrop	Select	Killik River	A-4	32N	17E	4	NW	Kateel River	2.69
4223	KR39	1991	Kady--extension	Outwash Ck trib	Colville	Quartz	Outcrop	Channel	Killik River	A-4	32N	17E	4	NW	Kateel River	0.14
4224	SP1	1991		Killik River trib	Colville	Shale	Float	Grab	Survey Pass	D-4	28N	19E	18	SE	Kateel River	0.03
4225	KR10	1991		Siavlat Mtn trib	Colville	Quartz	Float	Grab	Killik River	A-5	31N	15E	19	SE	Kateel River	<0.01
4226	KR10	1991		Siavlat Mtn trib	Colville	Chert	Float	Grab	Killik River	A-5	31N	15E	19	SE	Kateel River	1.45
4241	KR70	1991		Irvik Ck trib	Colville	Sandstone	Rubblecrop	Grab	Killik River	A-3	33N	20E	20	SW	Kateel River	<0.01
5001	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5002	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5003	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5004	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5005	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5006	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5007	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
5241	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Outcrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5242	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Rubblecrop	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5243	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5244	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/quartz	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5245	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5246	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Qtzite	Rubblecrop	Bulk sample	Howard Pass	C5	10S	29W	16		Umiat	
5247	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Qtzite	Rubblecrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5248	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Qtzite	Outcrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5249	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Qtzite	Rubblecrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5250	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5251	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Rubblecrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5252	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Rubblecrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5253	HP57	1991	Story Creek	Story Creek	Colville	sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5254	HP57	1991	Story Creek	Story Creek	Colville		Soil	Howard Pass	Howard Pass	B4	12S	26W	23	SW	Umiat	
5255	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5256	HP57	1991	Story Creek	Story Creek	Colville		Soil	Howard Pass	Howard Pass	B4	12S	26W	23	SW	Umiat	
5257	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5258	HP57	1991	Story Creek	Story Creek	Colville		Soil	Howard Pass	Howard Pass	B4	12S	26W	23	SW	Umiat	
5259	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5260	HP57	1991	Story Creek	Story Creek	Colville		Soil	Howard Pass	Howard Pass	B4	12S	26W	23	SW	Umiat	
5261	HP57	1991	Story Creek	Story Creek	Colville	shale breccia	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5262	HP57	1991	Story Creek	Story Creek	Colville		Soil	Howard Pass	Howard Pass	B4	12S	26W	23	SW	Umiat	
5263	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5264	HP57	1991	Story Creek	Story Creek	Colville		Soil	Howard Pass	Howard Pass	B4	12S	26W	23	SW	Umiat	
5265	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/tuff	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5266	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Sulfides	outcrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5267	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Sulfides	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5268	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5269	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5270	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Rubblecrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5271	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5272	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone/chert	Rubblecrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5273	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5274	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5275	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5276	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville		Soil	Howard Pass	Howard Pass	C5	10S	29W	16		Umiat	
5277	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5278	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville		Soil	Howard Pass	Howard Pass	C5	10S	29W	16		Umiat	
5279	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5280	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville		Soil	Howard Pass	Howard Pass	C5	10S	29W	16		Umiat	
5281	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone/chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5282	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville		Soil	Howard Pass	Howard Pass	C5	10S	29W	16		Umiat	
5283	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5284	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville		Soil	Howard Pass	Howard Pass	C5	10S	29W	16		Umiat	
5285	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5286	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Tuff/chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5287	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Tuff/mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5288	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville		Soil	Howard Pass	Howard Pass	C5	10S	29W	16		Umiat	
5289	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Tuff/chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5290	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville		Soil	Howard Pass	Howard Pass	C5	10S	29W	16		Umiat	
5291	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Rubblecrop	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5292	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Outcrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5293	HP57	1991	Story Creek	Story Creek	Colville	Sandstone			Howard Pass	B4	12S	26W	23	SW	Umiat	
5294	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5295	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Outcrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5296	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5297	HP57	1991	Story Creek	Story Creek	Colville	mudstone	Rubblecrop	Rand. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5298	HP57	1991	Story Creek	Story Creek	Colville	Mudstone	Rubblecrop	Rand. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
5357	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/quartz	Float	Select	Howard Pass	C5	10S	29W	16		Umiat	
5358	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Float	Select	Howard Pass	C5	10S	29W	16		Umiat	
5359	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/quartz	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5360	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5361	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5362	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5363	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Felsite	Rubblecrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5364	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Felsite	Outcrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5365	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/quartz	Rubblecrop	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5366	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Tuff	Outcrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5367	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Tuff	Outcrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5368	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/qtzite	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5369	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5370	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Tuff/qtzite	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5371	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5372	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Tuff/chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5373	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5374	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Qtzite	Rubblecrop	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5375	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/qtzite	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5376	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5377	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5378	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5379	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5380	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5381	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5382	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5383	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5384	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5385	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5386	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5387	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5388	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone/chert	Float	Grab	Howard Pass	C5	10S	29W	16		Umiat	
5389	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5390	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville			Soil	Howard Pass	C5	10S	29W	16		Umiat	
5391	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5392	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert/quartz	Outcrop	Select	Howard Pass	C5	10S	29W	16		Umiat	
5393	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Qtzite	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5394	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Qtzite	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5395	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5396	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Sulfides	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5397	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5398	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5399	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5400	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Mudstone	Outcrop	Cont. chip	Howard Pass	C5	10S	29W	16		Umiat	
5401	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5402	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5403	HP57	1991	Story Creek	Story Creek	Colville	Shale	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5404	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5405	HP57	1991	Story Creek	Story Creek	Colville	Shale	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5406	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5407	HP57	1991	Story Creek	Story Creek	Colville	Shale	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5408	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5409	HP57	1991	Story Creek	Story Creek	Colville	Shale	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5410	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5411	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5412	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5413	HP57	1991	Story Creek	Story Creek	Colville	Shale	Rubblecrop	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5414	HP57	1991	Story Creek	Story Creek	Colville	Shale	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
5415	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5416	HP57	1991	Story Creek	Story Creek	Colville	Shale	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5417	HP57	1991	Story Creek	Story Creek	Colville	Shale	Outcrop	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5418	HP57	1991	Story Creek	Story Creek	Colville	Shale	Outcrop	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5419	HP57	1991	Story Creek	Story Creek	Colville	Shale	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5420	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5421	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5422	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5423	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5424	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5425	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Rubblecrop	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5426	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Rubblecrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5427	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Rubblecrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5428	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Rubblecrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5429	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Rubblecrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5430	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Rubblecrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5431	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Outcrop	Cont. chip	Howard Pass	B4	12S	26W	23	SW	Umiat	
5432	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5433	HP78	1991	Kivliktort East	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B1	33N	10E	13	SW	Kateel River	
5434	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5435	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5436	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5437	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5438	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sulfides	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5439	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sulfides	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5440	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Outcrop	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5441	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5442	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5443	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Float	Select	Killik River	A4	32N	17E	4	SW	Kateel River	
5444	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Outcrop	Rand. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5445	HP36	1991	Kady	Outwash Ck	Colville	Sulfides	Float	Select	Killik River	A4	32N	17E	4	SW	Kateel River	
5446	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Rubblecrop	Rand. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5447	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Float	Rand. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5448	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Outcrop	Cont. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5449	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Outcrop	Grab	Killik River	A4	32N	17E	4	SW	Kateel River	
5450	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Rubblecrop	Rand. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5451	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Outcrop	Cont. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5452	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Outcrop	Cont. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5453	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Outcrop	Cont. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5454	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Float	Grab	Killik River	A4	32N	17E	4	SW	Kateel River	
5455	HP36	1991	Kady	Outwash Ck	Colville	Sulfides	Float	Select	Killik River	A4	32N	17E	4	SW	Kateel River	
5456	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Outcrop	Cont. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5457	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Rubblecrop	Grab	Killik River	A4	32N	17E	4	SW	Kateel River	
5458	HP36	1991	Kady	Outwash Ck	Colville	Quartz vein	Float	Select	Killik River	A4	32N	17E	4	SW	Kateel River	
5459	HP84	1991	Kolyaktot West	Kolyaktot Mtn	Colville	Sulfides	Float	Select	Howard Pass	A1	33N	11E	34	N	Kateel River	
5460	HP84	1991	Kolyaktot West	Kolyaktot Mtn	Colville	Quartz vein	Float	Select	Howard Pass	A1	33N	11E	34	N	Kateel River	
5461	HP84	1991	Kolyaktot West	Kolyaktot Mtn	Colville	Quartz vein	Float	Select	Howard Pass	A1	33N	11E	27	SW	Kateel River	
5462	HP84	1991	Kolyaktot West	Kolyaktot Mtn	Colville	Sandstone	Float	Select	Howard Pass	A1	33N	11E	28	NE	Kateel River	
5464	HP84	1991	Kolyaktot West	Kolyaktot Mtn	Colville	Gossan	Float	Select	Howard Pass	A1	33N	11E	27	SW	Kateel River	
5502	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5503	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5504	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5505	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5506	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5507	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5508	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5509	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5510	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	

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APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
5511	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5512	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5513	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5514	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5515	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5516	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5517	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5518	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5519	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5520	HP57	1991	Story Creek	Story Creek	Colville	Siltstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5521	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5522	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5523	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5524	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5525	HP31	1991	Drenchwater Creek	Drenchwater Creek	Colville	Chert	Outcrop	Rand. chip	Howard Pass	C5	10S	29W	16		Umiat	
5526	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5527	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5528	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5529	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5530	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5531	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5532	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5533	HP57	1991	Story Creek	Story Creek	Colville	Quartz	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	
5534	HP57	1991	Story Creek	Story Creek	Colville	Quartz	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5535	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5536	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5537	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5538	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5539	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5540	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5541	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5542	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5543	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5544	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5545	HP57	1991	Story Creek	Story Creek	Colville	Sulfides	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	1.99
5546	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Select	Howard Pass	B4	12S	26W	23	SW	Umiat	2.86
5547	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5548	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5549	HP57	1991	Story Creek	Story Creek	Colville			Soil	Howard Pass	B4	12S	26W	23	SW	Umiat	
5550	HP57	1991	Story Creek	Story Creek	Colville	Sandstone	Float	Grab	Howard Pass	B4	12S	26W	23	SW	Umiat	
5551	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Outcrop	Select	Howard Pass	B2	34N	10E	31		Kateel River	
5552	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Grab	Howard Pass	B2	34N	10E	31		Kateel River	
5553	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31		Kateel River	
5554	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31		Kateel River	
5555	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Float	Select	Howard Pass	B2	34N	10E	31		Kateel River	
5556	KR36	1991	Kady	Outwash Ck trib	Colville	Sulfides	Outcrop	Rand. chip	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5556	KR36	1991	Kady	Outwash Ck trib	Colville				Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5557	KR36	1991	Kady	Outwash Ck trib	Colville	Sandstone	Outcrop	Rand. chip	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5558	KR36	1991	Kady	Outwash Ck trib	Colville	Quartz vein	Rubblecrop	Select	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5559	KR36	1991	Kady	Outwash Ck trib	Colville	Quartz vein	Outcrop	Rand. chip	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5560	KR36	1991	Kady	Outwash Ck trib	Colville	Sulfides	Outcrop	Select	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5561	KR36	1991	Kady	Outwash Ck trib	Colville	Quartz vein	Outcrop	Cont. chip	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5562	KR36	1991	Kady	Outwash Ck trib	Colville	Sulfides	Outcrop	Rand. chip	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5563	KR36	1991	Kady	Outwash Ck trib	Colville	Quartz vein	Rubblecrop	Select	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5564	KR36	1991	Kady	Outwash Ck trib	Colville	Quartz vein	Float	Grab	Killik RiverHowa	A4	32N	17E	4	SW	Kateel River	
5565	HP90	1991	Koiyaktot East	Koiyaktot Mtn	Colville	Quartz vein	Float	Grab	Howard Pass	A1	32N	12E	9	NE	Kateel River	
5601	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Sandstone	Rubblecrop	Select	Howard Pass	B2	34N	10E	31	E	Kateel River	
5602	HP73	1991	Kivliktort West	Kivliktort Mtn	Colville	Massive barite	Float	select	Howard Pass	B2	34N	10E	31	E	Kateel River	

APPENDIX. 1990–1991 CMD Sample Analytical Results

Sample no.	Map no.	Year	Property name	Location name	Mining district	Basic rock type	Sample site	Sample type	Quad name	Quad no.	TWP	RNG	Section	Quarter section	Meridian	Cu %
5603	KR36	1991	Kady	Outwash Ck trib	Colville	Quartz vein	Outcrop	Cont. chip	Killik River	A4	32N	17E	4	SW	Kateel River	
5604	KR36	1991	Kady	Outwash Ck trib	Colville	Quartz vein	Float	Grab	Killik River	A4	32N	17E	4	SW	Kateel River	
5605	HP73	1991	Kolyaktot West	Kolyaktot Mtn	Colville	Quartz veins	Float	Select	Howard Pass	A1	33N	11E	34	N	Kateel River	

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
4001	0.0031	0.0172				3.0	10			<1	44	10	<1.0	<5	<5	18	>10.00	2,200	35	215	65	128	<20	21
4002	0.0054	0.0172				1.8	54			<1	115	45	<1.0	7	31	<5	>10.00	3,200	<10	1,196	263	142	<20	25
4003	0.0034	0.0265				1.1	41			<1	85	32	<1.0	5	<5	<5	9.58	<10	<10	840	303	121	<20	22
4004	0.0023	0.0172				1.4	37			<1	103	41	<1.0	17	<5	<5	>10.00	2,500	<10	490	189	128	<20	<10
4005	0.0022	0.0177				0.4	16			<1	48	12	<1.0	<5	<5	<5	4.22	300	<10	1,051	150	101	<20	<10
4006	0.0040	0.0124				0.7	20			<1	52	14	<1.0	<5	10	<5	5.02	400	<10	467	137	93	<20	<10
4007	0.0300	0.4381				2.5	23			5	109	55	<1.0	<5	34	15	>10.00	6,500	15	288	168	88	<20	<10
4008	0.0395	0.0633				1.9	38			<1	106	45	<1.0	8	<5	5	>10.00	4,500	12	396	321	127	<20	<10
4009	0.7940	49.9100				>50.0	204			216	23	80	1,679.0	359	209	404	4.87	<100	238	8	99	2	87	<10
4010	0.8317	0.5317				10.5	6			2	53	14	13.0	11	<5	<5	>10.00	6,300	<10	200	184	103	<20	<10
4011	0.0048	0.0367				1.4	68			3	89	24	<1.0	<5	39	<5	5.47	1,800	<10	>2,000	134	233	<20	<10
4012	2.0800	15.8200				>50.0	171			107	9	39	730.0	140	115	117	1.98	<100	121	172	182	21	<20	<10
4013	2.7600	31.5000				>50.0	328			171	16	93	1,712.0	251	149	248	1.45	<100	218	87	140	13	59	<10
4014	1.5800	7.3600				>50.0	100			51	11	16	394.0	76	87	46	0.78	<100	54	358	228	24	55	<10
4015	0.0691	19.5700				15.7	394			122	147	79	1,062.0	180	376	881	3.16	200	165	132	239	25	73	<10
4016	0.0089	0.0482				3.8	13			2	59	7	<1.0	<5	148	14	>10.00	700	78	110	743	188	<20	40
4017				0.05		<0.5	159	<2	96	4	67	42	<2.0	22	16	6	9.69	1,323	<25	>2,000	160	347	<20	<20
4018						<0.5	45	<2	74	<1	55	18	<2.0	21	17	<5	1.88	10,702	<25	>2,000	40	51	<20	<20
4019				0.04		<0.5	34	<2	68	2	30	17	<2.0	12	15	<5	4.18	1,138	<25	>2,000	114	147	<20	<20
4020	0.0014	0.0635				1.1	17			<1	98	19	<1.0	16	<5	37	>10.00	1,200	27	51	123	85	<20	24
4021	0.0012	0.0099				<0.2	7			<1	29	12	<1.0	19	9	18	1.20	800	<10	1,127	35	51	<20	<10
4022	0.0029	0.0509				0.8	37			3	75	12	<1.0	39	12	<5	>10.00	700	<10	325	103	71	<20	<10
4023	0.0050	0.3090				0.5	42			<1	95	37	<1.0	<5	5	<5	9.51	1,800	<10	>2,000	378	137	<20	24
4024	0.0053	0.0330				2.1	54			2	113	43	<1.0	<5	11	<5	>10.00	3,500	29	982	1,103	142	<20	<10
4025	0.2460	13.1900				0.5	531			83	11	62	687.0	145	57	147	3.77	<100	93	167	321	12	27	<10
4026	1.5500	2.4100				21.0	41			15	8	12	81.0	41	59	16	2.10	<100	<10	400	284	28	30	<10
4027				0.04		<0.5	16	<2	52	2	28	7	<2.0	9	9	<5	1.38	624	<25	>2,000	240	18	<20	<20
4028						<0.5	15	<2	27	7	10	3	<2.0	11	<5	<5	1.33	53	<25	>2,000	196	22	<20	<20
4029						<0.5	4	<2	6	3	14	3	<2.0	<5	<5	<5	>10.00	3,891	<25	1,039	79	54	25	<20
4030						<0.5	62	<2	20	5	16	5	<2.0	10	<5	<5	1.72	86	<25	1,022	195	47	<20	<20
4031						0.9	39	<2	20	2	16	3	<2.0	13	19	6	1.41	132	<25	1,323	384	59	<20	<20
4032						<0.5	8	<2	32	1	18	11	<2.0	14	<5	<5	3.13	3,017	<25	509	38	31	<20	<20
4033						<0.5	23	<2	47	2	28	8	<2.0	9	14	6	1.17	1,617	<25	>2,000	360	19	<20	<20
4034						<0.5	40	<2	85	2	15	10	<2.0	9	23	<5	2.78	12,304	<25	1,053	23	44	<20	<20
4035						0.7	25	<2	34	6	24	6	<2.0	7	21	<5	0.86	437	<25	>2,000	343	28	<20	<20
4036						0.9	46	<2	44	6	22	3	<2.0	16	20	<5	1.12	375	<25	1,953	156	101	<20	<20
4037						0.8	7	<2	24	1	7	<1	<2.0	10	18	<5	1.39	52	<25	175	263	10	<20	<20
4038						<0.5	38	<2	25	10	17	6	<2.0	13	<5	<5	0.75	1,231	<25	>2,000	363	17	<20	<20
4039						<0.5	9	<2	13	1	3	2	<2.0	<5	18	<5	0.40	20	<25	1,537	23	16	<20	<20
4040						<0.5	24	<2	51	9	28	5	<2.0	14	16	8	1.57	654	<25	>2,000	320	18	<20	<20
4041						<0.5	9	<2	28	<1	13	4	<2.0	9	19	<5	1.32	276	<25	>2,000	338	31	<20	<20
4042						<0.5	11	15	587	7	25	2	<2.0	<5	5	<5	0.81	149	<25	130	49	36	<20	<20
4043				0.07		0.5	95	13	132	5	140	43	<2.0	7	<5	7	6.85	1,146	<25	1,046	226	276	22	<20
4044						1.8	13	13	85	4	77	18	<2.0	<5	<5	<5	>10.00	7,793	<25	145	27	36	39	<20
4045						1.6	15	27	121	5	55	15	<2.0	<5	<5	<5	>10.00	3,546	<25	175	30	46	26	<20
4046						<0.5	55	8	108	10	48	8	<2.0	<5	21	<5	5.13	310	<25	999	110	53	<20	<20
4047						<0.5	25	12	176	2	26	10	<2.0	15	26	8	1.80	>20,000	35	>2,000	32	56	<20	<20
4048						<0.5	57	<2	149	3	47	7	<2.0	<5	17	<5	2.12	1,284	<25	>2,000	175	46	<20	<20
4049						<0.5	47	<2	150	1	65	18	<2.0	<5	<5	<5	1.65	2,435	<25	>2,000	285	21	<20	<20
4051						<0.5	4	10	121	8	56	5	<2.0	18	12	7	0.43	332	29	46	23	73	<20	<20
4052						<0.5	3	<2	55	<1	15	2	<2.0	10	13	<5	0.17	423	<25	74	180	32	<20	<20
4053						<0.5	4	<2	63	3	15	1	<2.0	12	17	<5	0.17	111	<25	78	128	28	<20	<20
4054						1.3	421	8	73	1	57	18	<2.0	<5	20	<5	3.23	511	<25	92	155	151	<20	24
4055				0.09		2.6	1,211	<2	108	2	59	22	<2.0	15	21	5	4.18	613	<25	50	115	191	<20	<20
4056						<0.5	53	8	77	<1	62	6	<2.0	<5	<5	<5	>10.00	341	<25	588	189	32	<20	<20
4057						<0.5	37	<2	72	5	23	2	<2.0	7	13	<5	1.25	576	<25	>2,000	300	14	<20	<20
4058						1.5	105	193	279	5	29	3	<2.0	<5	277	<5	5.45	461	<25	599	157	206	<20	<20
4059	37.0400	21.8600				>50.0	389	>10,000	>20,000	148	14	43	1,130.5	134	145	>2,000	3.69	24	<25	24	68	<2	149	<20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
4060	15.3200	16.3500				>50.0	503	>10,000	>20,000	125	14	31	856.1	112	85	507	2.35	28	<25	22	167	8	135	<20
4061	14.7800	9.3100				>50.0	382	>10,000	>20,000	91	14	19	614.3	76	94	446	1.99	28	<25	17	269	4	135	<20
4062	3.3800	0.2200				47.8	818	>10,000	2,323	10	18	<1	11.3	10	25	57	1.76	402	<25	74	324	34	<20	<20
4063						1.5	17	522	439	3	238	63	<2.0	7	68	6	>10.00	7,692	<25	151	185	91	<20	<20
4064						1.3	23	122	96	4	24	<1	<2.0	<5	29	<5	0.69	79	<25	>2,000	213	96	<20	24
4065						<0.5	39	39	105	2	36	5	<2.0	5	17	<5	3.50	129	<25	39	186	148	<20	<20
4066						<0.5	7	12	141	2	24	4	<2.0	<5	<5	<5	>10.00	5,331	<25	220	67	54	<20	<20
4067						<0.5	9	12	105	36	18	7	<2.0	5	<5	<5	6.91	9,165	<25	64	112	40	<20	<20
4068						<0.5	5	<2	360	10	33	8	<2.0	<5	12	<5	5.38	374	<25	34	149	82	<20	<20
4069						0.7	22	<2	155	6	31	8	<2.0	7	47	<5	3.69	460	<25	99	228	84	<20	<20
4070						<0.5	5	<2	136	6	26	11	<2.0	8	42	<5	5.92	150	<25	42	167	52	<20	<20
4071	0.3200	22.9800				>50.0	387	2900	>20,000	178	10	55	880.2	143	131	199	1.06	34	<25	53	278	10	70	<20
4072	23.5600	23.4600				>50.0	354	>10,000	>20,000	150	19	32	1,140.3	135	116	173	0.55	16	<25	10	128	6	63	<20
4073	0.0900	12.4500				12.6	5,428	864	>20,000	102	38	61	1,067.2	101	120	67	1.58	29	<25	11	322	3	56	<20
4074	0.0900	1.3000				3.6	3,454	731	12,461	23	19	5	105.5	16	44	9	0.82	34	<25	40	367	5	<20	-20
4075	<0.0100	35.7900				5.1	844	207	>20,000	240	20	87	>2,000.0	<5	242	89	1.14	29	<25	14	173	8	81	<20
4076	<0.0100	23.8800				0.9	688	154	>20,000	152	32	63	1,807.7	<5	269	57	0.87	23	<25	10	190	3	84	<20
4077	<0.0100	0.1200				<0.5	20	44	1,941	12	51	23	4.7	<5	<5	<5	>10.00	11,779	<25	1,714	135	160	<20	<20
4078	<0.0100	0.3000				<0.5	86	58	2,893	5	46	15	<2.0	<5	<5	<5	>10.00	15,845	<25	275	69	109	<20	<20
4079						<0.5	1,194	3	272	1	6	<1	<2.0	<5	32	<5	1.35	399	<25	118	244	12	<20	<20
4080						0.8	23	7	305	11	49	6	18.8	<5	54	<5	0.44	187	<25	283	104	307	<20	<20
4081						<0.5	38	7	82	41	33	3	(2.0)	<5	28	8	1.04	56	<25	1,063	339	77	<20	<20
4082						0.7	56	5	96	18	23	3	<2.0	6	18	9	3.37	48	<25	>2,000	254	73	<20	<20
4083						<0.5	122	7	126	7	34	9	<2.0	8	39	6	2.01	9,126	<25	1,817	143	46	<20	20
4084						<0.5	4	3	65	6	15	1	<2.0	<5	<5	<5	0.66	1,716	<25	166	173	16	<20	<20
4085						0.9	25	15	241	4	78	34	<2.0	<5	<5	<5	>10.00	4,098	<25	125	42	46	42	23
4086						0.8	51	3444	2,304	5	29	4	3.9	<5	17	14	4.59	1,228	<25	359	160	80	<20	<20
4087						0.9	41	47	1,601	10	82	21	<2.0	30	55	<5	>10.00	7,327	<25	226	72	49	46	<20
4088						<0.5	19	9	360	1	61	13	<2.0	<5	<5	<5	>10.00	4,294	<25	240	159	72	<20	<20
4089						<0.5	37	25	3,230	3	122	38	33.8	<5	34	<5	>10.00	7,487	<25	283	70	40	<20	<20
4090						<0.5	18	<2	103	6	30	2	<2.0	<5	18	<5	2.66	284	<25	813	449	83	<20	<20
4091						<0.5	252	<2	210	3	45	40	<2.0	14	33	6	>10.00	1,400	<25	912	46	517	<20	<20
4092						<0.5	136	<2	134	5	87	36	<2.0	18	29	8	7.20	1,146	<25	1,526	154	282	24	<20
4093						<0.5	38	<2	175	<1	27	12	<2.0	<5	29	<5	3.90	982	<25	>2,000	126	152	<20	45
4094						<0.5	174	<2	159	1	54	39	<2.0	14	34	<5	8.35	1,394	<25	>2,000	65	324	<20	<20
4095						0.7	6	<2	73	2	10	<1	<2.0	6	35	11	0.24	77	<25	338	194	15	<20	<20
4096						<0.5	55	<2	104	3	149	25	<2.0	14	43	<5	4.49	2,192	<25	1,110	454	190	<20	<20
4097						<0.5	51	<2	81	1	72	17	<2.0	<5	12	<5	4.30	1,342	<25	840	294	169	<20	<20
4098						0.6	195	<2	134	3	51	34	<2.0	26	50	<5	7.95	1,364	<25	>2,000	71	349	25	<20
4099						<0.5	184	<2	163	3	65	36	<2.0	15	19	<5	8.75	1,421	<25	1,142	101	387	<20	<20
4100						<0.5	33	<2	54	1	43	10	<2.0	<5	16	8	3.10	737	<25	233	158	92	<20	<20
4101						<0.5	14	<2	72	2	108	37	<2.0	<5	28	<5	>10.00	8,381	<25	171	129	79	<20	<20
4102						<0.5	29	<2	69	3	92	28	<2.0	<5	8	<5	>10.00	7,381	<25	203	149	86	<20	<20
4103						<0.5	6	<2	46	<1	32	10	<2.0	17	25	<5	7.07	2,496	<25	105	97	66	<20	<20
4104						<0.5	44	67	247	10	121	51	<2.0	<5	224	78	>10.00	2,298	<25	116	14,026	380	<20	<20
4105						<0.5	42	46	278	5	91	32	<2.0	<5	93	8	6.54	2,610	<25	1,461	1,379	246	<20	<20
4106						<0.5	86	36	221	5	92	33	<2.0	7	37	<5	5.46	7,235	<25	>2,000	976	245	<20	<20
4107						<0.5	69	25	142	4	90	25	<2.0	7	<5	<5	5.55	7,133	<25	>2,000	1,872	255	<20	<20
4108						<0.5	66	30	130	3	91	22	<2.0	6	38	10	5.14	2,649	<25	>2,000	373	209	<20	<20
4109						<0.5	56	<2	117	<1	113	23	<2.0	10	37	<5	5.18	1,088	<25	1,665	407	198	<20	<20
4110						<0.5	60	<2	121	32	112	21	<2.0	<5	23	<5	3.98	1,314	<25	540	254	173	<20	<20
4111						4.4	93	13	36	7	36	27	<2.0	54	27	<5	2.36	>20,000	<25	>2,000	39	71	<20	<20
4112						<0.5	20	<2	55	5	32	17	<2.0	<5	71	<5	4.87	5,002	<25	157	92	88	<20	<20
4113						0.8	25	<2	492	5	34	16	<2.0	17	52	7	5.80	3,090	<25	140	92	77	<20	<20
4114						0.7	20	<2	320	3	8	<1	3.9	<5	18	<5	1.35	58	<25	136	406	36	<20	<20
4115	<0.0100	0.0700				6.1	13	153	637	1	62	17	<2.0	<5	<5	<5	>10.00	6,465	<25	158	157	88	<20	<20
4116	31.4000	23.9400				>50.0	430	>10,000	>20,000	154	14	42	1,404.1	135	104	1344	3.35	161	<25	11	85	3	93	<20
4117						2.5	46	279	558	1	13	4	4.5	6	26	<5	1.27	88	<25	52	240	21	<20	<20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm	
4118						1.3	4	105	87	<1	6	<1	<2.0	<5	16	<5	0.32	30	<25	74	233	26	<20	<20	
4119						<0.5	7	<2	37	2	19	3	<2.0	<5	6	<5	3.15	752	<25	179	195	36	<20	<20	
4120						<0.5	2	<2	35	1	45	10	<2.0	<5	<5	<5	>10.00	7,370	<25	65	187	33	<20	<20	
4121						<0.5	387	<2	168	1	18	36	<2.0	<5	<5	<5	>10.00	1,970	<25	1,597	40	480	<20	<20	
4122						<0.5	35	<2	36	6	16	<1	<2.0	<5	20	<5	1.62	223	<25	430	246	23	<20	<20	
4123						<0.5	66	<2	54	2	27	3	<2.0	<5	8	<5	0.66	1,289	<25	1,756	309	34	<20	<20	
4124						0.7	24	4	107	24	22	<1	3.0	<5	38	<5	1.00	323	<25	133	428	19	<20	<20	
4125			53.98			<0.5	6	<2	31	2	3	<1	<2.0	<5	12	<5	0.36	23	<25	432	10	41	<20	<20	
4126						<0.5	12	<2	54	<1	20	2	<2.0	<5	<5	<5	2.58	39	<25	227	297	44	<20	<20	
4127						<0.5	8	4	35	<1	9	1	<2.0	<5	17	<5	0.81	88	<25	501	268	30	<20	<20	
4128	39.8900	0.1000				>50.0	875	>10,000	906	77	35	5	7.0	<5	26	290	0.57	50	<25	45	282	15	22	<20	
4129	6.6500	0.0300				>50.0	437	>10,000	300	5	7	<1	2.3	<5	7	66	0.45	51	<25	118	347	25	<20	<20	
4130	3.4700	<0.0100				32.0	27	>10,000	38	1	11	<1	<2.0	<5	<5	29	0.48	61	<25	48	348	5	<20	<20	
4131	0.0500	0.0100				0.7	9	302	75	8	18	3	<2.0	<5	17	<5	1.52	329	<25	200	257	41	<20	<20	
4132						<0.5	8	164	42	3	20	33	<2.0	<5	15	<5	1.76	159	<25	186	294	44	<20	<20	
4133						0.7	11	9	21	2	17	1	<2.0	<5	44	<5	2.77	294	<25	122	241	81	<20	<20	
4134	<0.0100	<0.0100				0.8	473	<2	51	<1	16	6	<2.0	11	30	<5	4.25	3,510	<25	244	191	49	<20	<20	
4135	0.2600	24.0400				24.1	2,303	2969	>20,000	175	10	45	1,305.4	152	618	153	4.64	111	105	22	215	6	130	<20	
4136	1.5500	5.4300				42.2	819	>10,000	>20,000	46	59	352	339.0	48	1968	187	>10.00	153	<25	29	212	<2	51	<20	
4137	0.6300	2.6700				47.5	133	6126	>20,000	23	12	11	206.9	24	393	42	1.22	103	<25	57	313	19	25	<20	
4138	1.9500	7.0500				33.9	1,627	>10,000	>20,000	114	122	405	418.6	72	1517	174	>10.00	268	<25	23	256	6	61	<20	
4139	8.9300	11.7000				>50.0	667	>10,000	>20,000	110	10	6	840.0	93	135	161	2.21	60	<25	18	286	6	66	<20	
4140	0.2000	<0.0100				0.9	40	1585	125	2	7	2	<2.0	<5	104	5	0.40	31	<25	48	220	21	<20	<20	
4141						0.6	88	201	601	9	35	31	<2.0	6	33	<5	>10.00	1,517	<25	160	47	406	<20	<20	
4142						1.5	14	401	506	6	17	<1	5.1	<5	23	<5	1.44	68	<25	101	366	46	<20	<20	
4143						<0.5	17	43	95	8	29	6	<2.0	<5	30	6	>10.00	75	<25	58	316	32	<20	<20	
4144						<0.5	33	<2	124	2	37	14	<2.0	<5	<5	<5	4.59	491	<25	245	182	96	<20	<20	
4145	0.1800	3.0800				5.6	51	1674	>20,000	41	22	4	183.2	33	150	44	1.69	244	<25	121	214	100	35	<20	
4146	2.8500	2.8700				>50.0	3,088	>10,000	>20,000	35	31	164	243.0	44	1274	211	2.77	33	<25	54	253	32	43	<20	
4147																									
4148	0.1800	0.0900				3.7	169	1699	791	<1	15	8	4.3	<5	135	16	1.76	82	<25	117	334	73	<20	<20	
4149	2.8000	1.9600				>50.0	510	>10,000	18,415	18	8	<1	169.2	16	211	439	1.28	30	<25	86	305	62	<20	<20	
4150	56.9300	9.8000				>50.0	1,056	>10,000	>20,000	108	5	9	876.8	89	78	466	1.75	13	<25	<5	78	3	84	<20	
4151	1.4000	12.1400				46.6	82	>10,000	>20,000	114	9	3	555.5	88	128	113	2.20	30	<25	15	320	4	38	<20	
4152	0.9200	10.4400				32.5	115	8962	>20,000	122	19	10	776.0	73	89	96	2.05	45	<25	35	385	21	59	<20	
4153	0.6200	2.5100				6.9	49	5838	>20,000	38	729	138	167.7	24	1237	215	1.85	711	<25	78	373	29	<20	<20	
4154	0.1000	2.7900				3.2	89	850	>20,000	27	1161	198	205.6	26	1741	224	8.87	4,370	<25	91	245	25	27	<20	
4155	0.7500	5.6900				5.5	5,260	6333	>20,000	45	90	69	517.1	<5	186	37	2.38	96	<25	25	192	27	44	<20	
4156	25.3900	0.0700				>50.0	719	>10,000	712	<1	5	17	6.6	<5	206	275	1.53	418	<25	14	192	14	21	<20	
4157	7.2600	9.3100				>50.0	785	>10,000	>20,000	68	12	10	685.1	<5	153	323	1.59	123	<25	5	309	<2	42	<20	
4158	3.3000	0.1700				35.7	915	>10,000	1,524	1	28	89	7.6	<5	752	216	0.70	33	<25	21	318	5	21	<20	
4159	1.6400	4.9600				2.9	163	>10,000	>20,000	41	6	23	287.9	<5	20	25	6.21	11,844	<25	29	33	27	21	<20	
4160	0.0400	0.0100				2.9	11	399	266	<1	4	<1	<2.0	<5	36	<5	0.41	68	<25	139	337	38	<20	<20	
4161	0.0400	0.0800				<0.5	947	294	740	2	18	13	2.4	<5	<5	<5	6.41	4,354	<25	302	56	38	<20	<20	
4162					2.96	<0.5	22	55	308	2	50	21	<2.0	<5	<5	<5	>10.00	>20,000	<25	527	71	89	<20	<20	
4163	1.4900	0.2900				6.3	7,845	>10,000	2,605	3	105	47	11.0	<5	212	15	0.88	238	<25	145	212	15	<20	<20	
4164																									
4165	<0.0100	0.0100				<0.5	96	55	183	<1	20	8	<2.0	<5	43	<5	0.89	825	<25	85	218	24	<20	<20	
4166	0.2900	0.0700				<0.5	2,170	2482	735	<1	2454	816	<2.0	<5	998	106	4.57	5,017	<25	91	94	42	<20	<20	
4167	<0.0100	<0.0100				<0.5	2,315	21	23	<1	41	24	<2.0	<5	50	<5	0.70	158	<25	55	250	36	<20	<20	
4168	<0.0100	<0.0100				<0.5	378	35	22	7	47	35	<2.0	<5	98	<5	0.72	173	<25	45	240	36	<20	<20	
4169	<0.0100	<0.0100				<0.5	1,455	13	14	2	10	5	<2.0	<5	142	<5	0.58	29	<25	57	321	31	<20	<20	
4170	<0.0100	<0.0100				1.2	4,075	15	15	<1	24	21	<2.0	<5	62	<5	0.72	82	<25	23	243	14	<20	<20	
4171	<0.0100	2.2000				1.7	3,589	43	19,935	20	45	19	184.2	<5	94	9	0.93	31	<25	43	336	20	<20	<20	
4172	0.4400	10.8900				8.2	12,213	3281	>20,000	80	202	95	1,167.2	<5	110	54	2.60	37	<25	9	260	3	83	<20	
4173	0.0300	22.0100				5.7	>20,000	303	>20,000	173	113	115	>2,000.0	<5	176	58	6.08	23	<25	12	193	7	140	<20	
4174	0.3400	5.5400				6.2	431	2902	>20,000	61	11	16	295.6	<5	96	27	0.89	32	<25	117	356	19	48	<20	
4175	<0.0100	0.0400				<0.5	46	33	428	10	72	21	<2.0	<5	<5	<5	>10.00	4,138	<25	1,089	71	60	<20	<20	

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm	
4176	0.1600	0.0300				<0.5	52	1561	297	3	5	<1	<2.0	<5	<5	<5	0.47	40	<25	51	257	25	<20	<20	
4177	<0.0100	<0.0100				<0.5	333	10	174	3	9	4	<2.0	<5	10	<5	0.66	79	<25	122	268	34	<20	<20	
4178	1.0900	<0.0100				10.8	45	8227	49	<1	10	4	<2.0	<5	76	8	0.33	25	<25	21	265	8	<20	<20	
4179	<0.0100	0.2000				<0.5	1,213	29	1,831	3	99	53	9.1	<5	22	<5	0.35	174	<25	74	240	34	<20	<20	
4180						<0.5	25	41	128	<1	31	11	<2.0	<5	<5	<5	5.71	1,967	<25	75	39	37	<20	<20	
4181	0.1000	0.5700				5.0	5,342	923	5,457	7	9	6	31.1	<5	70	<5	1.03	32	<25	67	364	11	<20	<20	
4182	8.9900	1.0000				>50.0	240	>10,000	9,337	9	21	5	53.9	<5	91	105	0.37	31	<25	49	171	42	<20	<20	
4183	0.0100	<0.0100				>50.0	>20,000	160	53	<1	148	18	<2.0	<5	61	<5	9.84	22	<25	10	346	3	88	<20	
4184	0.1700	0.0400				0.9	325	1453	419	<1	8	3	4.5	<5	10	<5	0.52	39	<25	67	336	13	<20	<20	
4185						1.9	316	17	19	6	37	14	<2.0	<5	77	30	2.22	583	<25	56	325	91	30	<20	
4186	<0.0100	0.0100				<0.5	835	<2	35	3	23	18	<2.0	<5	<5	<5	8.85	13,006	<25	108	28	58	<20	<20	
4187	<0.0100	<0.0100				<0.5	1,514	<2	18	2	28	14	<2.0	<5	56	13	0.77	97	<25	29	419	16	<20	<20	
4188	0.8400	0.5100				10.2	30	8684	>20,000	67	6	18	270.8	<5	123	67	0.90	43	<25	24	524	11	<20	<20	
4189						0.8	37	574	1,604	10	105	60	5.3	<5	82	31	8.91	4,772	<25	263	188	96	30	<20	
4190						0.8	30	<2	32	20	32	7	<2.0	<5	74	12	1.81	108	<25	>2,000	107	67	<20	<20	
4191						4.7	1,546	17	166	14	104	74	<2.0	<5	77	20	5.73	>20,000	<25	>2,000	131	103	<20	<20	
4192						0.8	10	<2	<2	<1	40	11	<2.0	<5	<5	<5	3.34	342	<25	34	307	47	<20	<20	
4193						>50.0	847	>10,000	631	<1	9	23	5.9	<5	262	403	2.74	3,046	<25	48	16	29	<20	<20	
4194	15.3700	0.0700				8.5	6,430	807	272	<1	709	59	<2.0	<5	532	17	8.54	370	<25	26	339	37	<20	<20	
4195	0.0800	0.0300				12.5	112	2695	>20,000	78	25	14	338.9	<5	88	55	2.70	1,255	<25	38	216	11	<20	<20	
4196	0.2500	7.7200				>50.0	31	>10,000	397	<1	28	5	2.9	<5	116	13	0.57	119	<25	39	347	17	<20	<20	
4197	3.6100	0.0300				2.1	2,729	133	754	<1	96	46	6.3	<5	146	<5	1.20	67	<25	11	360	<2	<20	<20	
4198	0.0100	0.0800				<0.5	26	22	177	4	32	3	<2.0	<5	54	23	0.55	37	<25	433	197	150	<20	<20	
4199	<0.0100	0.0300				<0.5	14	10	265	2	47	20	<2.0	<5	<5	<5	>10.00	5,217	<25	322	108	52	<20	<20	
4200	<0.0100	<0.0100				0.6	5,236	<2	26	3	151	131	<2.0	<5	182	7	1.12	214	<25	47	386	31	<20	<20	
4201	<0.0100	0.5700				2.5	1,020	23	5,880	7	23	24	34.7	<5	59	<5	1.30	152	<25	42	353	16	<20	<20	
4202	0.6000	1.9800				5.1	64	6438	>20,000	32	14	9	83.4	<5	111	39	1.59	35	<25	46	472	34	<20	<20	
4203	0.1800	0.2800				1.6	23	1909	3,049	9	6	2	9.6	<5	49	26	1.04	50	<25	98	460	32	<20	<20	
4204						<0.5	95	41	234	13	102	46	<2.0	<5	23	32	>10.00	15,225	<25	846	95	82	42	<20	
4205	0.3300	7.2600				5.8	173	3488	>20,000	87	30	60	639.4	<5	225	70	1.32	78	<25	25	437	7	61	<20	
4206					0.56	<0.5	9	18	171	9	102	45	<2.0	<5	82	36	>10.00	5,332	<25	167	135	96	45	<20	
4207			0.02			1.1	198	35	218	<1	34	15	<2.0	<5	69	25	4.12	635	<25	125	272	104	27	<20	
4208						1.1	53	50	46	<1	53	9	<2.0	<5	<5	<5	2.16	295	<25	1,406	83	67	<20	<20	
4209			0.02			2.6	33	4	<2	8	38	10	<2.0	<5	<5	<5	>10.00	152	<25	70	312	23	<20	<20	
4210	0.1800	4.7300				5.8	2,266	1840	>20,000	65	19	15	235.4	<5	100	41	1.17	<5	<25	40	287	13	<20	<20	
4211	0.0200	0.0100				1.0	14	64	127	<1	29	10	<2.0	<5	30	12	3.51	842	<25	19	320	12	<20	<20	
4212																									
4213	<0.0100	0.0200				2.2	194	6	73	6	26	18	<2.0	<5	89	30	8.78	2,838	<25	172	79	52	<20	<20	
4214	0.0400	0.0200				<0.5	36	222	100	<1	29	12	<2.0	<5	<5	<5	4.40	1,589	<25	111	293	37	<20	<20	
4216						0.9	12	35	14	<1	13	3	<2.0	<5	13	5	1.60	63	<25	115	308	50	<20	<20	
4217	3.4100	0.1100				49.8	50	>10,000	1,214	<1	37	8	10.6	<5	136	26	0.60	615	<25	30	300	19	<20	<20	
4218	2.4400	1.1400				39.9	189	>10,000	11,292	15	19	16	62.2	<5	66	35	0.44	227	<25	26	233	29	<20	<20	
4219						4.0	72	97	365	31	84	6	42.4	<5	41	15	0.29	51	<25	403	206	673	<20	<20	
4220	<0.0100	<0.0100				0.5	1,947	12	39	<1	15	11	<2.0	<5	<5	5	1.04	287	<25	37	349	15	<20	<20	
4221	<0.0100	<0.0100				2.2	980	21	31	<1	81	17	<2.0	<5	26	34	4.81	368	<25	160	857	251	<20	<20	
4222	0.0600	0.4000				7.1	>20,000	545	3,881	6	35	22	18.7	<5	64	19	3.25	457	<25	36	289	22	<20	<20	
4223	0.0200	0.0300				1.5	1,459	132	280	<1	28	16	3.2	<5	76	<5	0.67	256	<25	108	260	72	<20	<20	
4224	<0.0100	<0.0100				0.9	378	<2	21	<1	15	4	<2.0	<5	25	6	0.82	202	<25	81	345	23	<20	<20	
4225	0.0100	0.0200				1.0	52	40	202	<1	32	10	<2.0	<5	27	<5	2.51	596	<25	42	357	31	<20	<20	
4226	0.0200	0.0100				3.1	16,002	89	23	<1	762	263	<2.0	<5	130	13	2.88	<5	<25	45	297	21	<20	<20	
4241	<0.0100	0.0100				0.7	63	24	70	<1	26	20	<2.0	<5	<5	22	2.72	1,552	<25	213	286	54	<20	<20	
5001						5.9	11	425	691	3	8	-1	4	7	-5	16	0	26	-25	845	265	26	-20	-20	
5002						6.1	48	1257	70	38	174	9	-2	-5	55	29	1	197	-25	520	104	100	-20	-20	
5003						22.2	52	2950	167	31	121	6	-2	-5	68	68	2	73	-25	278	121	129	-20	-20	
5004						5.5	13	1294	7	3	19	4	-2	-5	-5	19	1	55	-25	350	483	29	-20	-20	
5005						11.4	33	2473	96	23	67	7	-2	-5	47	51	2	167	-25	322	108	165	-20	-20	
5006						5.4	9	157	10	4	22	2	-2	9	-5	12	1	41	-25	388	425	34	-20	-20	
5007						7.6	33	1018	65	27	82	8	-2	-5	56	47	2	130	-25	483	147	160	-20	-20	

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Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	NI ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5008						7.3	33	932	41	22	43	6	-2	-5	48	35	2	32	-25	404	108	80	-20	-20
5009						5.0	45	684	104	15	31	5	-2	-5	79	37	1	13	-25	842	69	70	-20	-20
5010						2.5	54	727	356	11	53	6	-2	-5	42	-5	1	15	-25	1,660	68	102	-20	-20
5011						<0.5	83	216	416	7	41	7	-2	-5	22	-5	4	72	-25	1,127	101	80	-20	-20
5012						<0.5	60	130	412	5	55	8	-2	-5	32	-5	4	54	-25	1,600	83	101	-20	-20
5013						1.9	66	282	153	6	35	4	-2	-5	-5	-5	1	17	-25	1,168	74	88	-20	-20
5014						4.7	60	171	33	8	49	3	-2	-5	38	7	2	6	-25	384	128	68	-20	50
5015						1.6	21	463	148	2	12	4	-2	-5	9	8	1	106	-25	1,199	281	53	-20	-20
5016						4.1	26	1720	92	9	49	7	-2	-5	52	44	1	196	-25	539	36	53	-20	-20
5017						6.4	86	1397	441	8	22	11	-2	-5	36	14	2	253	-25	1,270	49	54	-20	-20
5018						1.9	17	62	170	4	17	7	-2	-5	27	-5	1	168	-25	1,018	20	38	-20	-20
5019						1.9	16	42	107	11	28	9	-2	-5	23	-5	2	910	-25	1,161	33	40	-20	-20
5020						2.6	17	8	68	3	20	9	-2	-5	15	-5	0	162	-25	959	19	32	-20	-20
5021						3.2	30	197	1,500	9	65	13	-2	-5	37	-5	6	1,911	-25	926	46	57	-20	-20
5022						3.1	78	23	611	15	78	17	-2	-5	36	12	3	943	-25	225	48	76	-20	-20
5023						<0.5	38	64	113	9	60	7	-2	-5	20	-5	3	153	-25	790	135	101	-20	-20
5024						1.8	55	-2	58	26	108	1	2	-5	20	-5	1	195	-25	242	429	113	-20	-20
5025						8.0	86	4	456	20	123	7	5	-5	19	11	2	2,279	-25	1,082	327	267	-20	-20
5026						15.6	97	58	350	22	126	8	6	-5	9	9	2	1,021	-25	583	374	310	-20	-20
5027						26.8	141	90	930	29	298	7	11	-5	19	19	3	1,180	-25	227	512	388	-20	-20
5028						3.0	12	19	10	3	32	1	-2	-5	-5	-5	0	45	-25	213	382	33	-20	-20
5029						1.8	12	25	(2)	1	15	3	-2	-5	-5	-5	0	41	-25	253	355	14	-20	-20
5030						1.9	51	95	98	10	52	5	-2	-5	24	-5	3	504	-25	1,186	99	153	-20	-20
5031						4.8	40	129	45	16	79	-1	-2	-5	25	14	1	22	-25	218	346	122	-20	-20
5032						2.2	9	153	11	3	16	3	-2	-5	-5	13	1	41	-25	441	415	37	-20	-20
5033						10.1	38	1001	32	30	42	-1	-2	-5	27	47	2	43	-25	107	117	189	-20	-20
5034						1.8	10	197	20	5	12	2	-2	6	-5	-5	1	34	-25	412	387	45	-20	-20
5035						7.0	49	157	75	19	40	-1	-2	-5	23	10	2	32	-25	740	325	320	-20	-20
5036						2.8	23	639	303	5	14	3	-2	-5	-5	19	1	41	-25	495	427	30	-20	-20
5037						6.4	33	632	30	18	36	-1	-2	-5	30	18	2	34	-25	392	103	100	-20	-20
5038						2.3	6	286	4	1	6	3	-2	-5	-5	8	0	26	-25	662	229	51	-20	-20
5039						7.6	24	3495	43	19	30	-1	-2	5	54	43	3	62	-25	316	81	99	-20	-20
5040						<0.5	5	16	(2)	1	6	3	-2	-5	-5	-5	0	26	-25	1,842	228	12	-20	-20
5041						0.7	27	107	57	14	9	-1	-2	-5	8	6	3	219	-25	2,000	50	113	-20	-20
5042						<0.5	65	137	45	-1	28	18	-2	9	-5	-5	4	543	-25	1,788	229	151	-20	-20
5043						<0.5	206	126	483	5	97	56	-2	-5	20	18	3	3,202	-25	998	29	45	-20	-20
5044						<0.5	131	10	88	2	46	29	-2	15	-5	-5	7	1,015	-25	802	170	273	-20	-20
5045						<0.5	8	6	73	2	50	-1	-2	8	17	15	3	2,268	-25	996	15	22	-20	-20
5046						0.5	30	52	89	9	26	-1	-2	6	-5	7	2	91	-25	888	44	78	-20	-20
5047						1.5	42	105	207	10	31	-1	-2	6	23	15	2	97	-25	1,134	60	77	-20	-20
5048						3.2	3	160	11	1	-1	-1	-2	-5	-5	5	0	20	-25	791	51	18	-20	-20
5049						5.0	33	276	47	14	7	-1	-2	-5	49	64	5	69	-25	211	27	49	-20	-20
5050						<0.5	4	77	(2)	1	1	-1	-2	6	19	21	0	11	-25	109	67	18	-20	-20
5051						1.3	34	89	87	16	10	-1	-2	-5	54	17	4	78	-25	338	47	62	-20	-20
5052						1.1	4	32	(2)	1	1	2	-2	7	5	9	0	5	-25	417	51	24	-20	-20
5053						1.9	78	142	155	73	51	8	7	6	123	34	3	163	-25	361	111	115	-20	-20
5054						<0.5	5	24	137	2	6	1	-2	-5	42	7	0	95	-25	627	52	38	-20	-20
5055						<0.5	37	70	599	15	57	7	-2	-5	139	30	5	484	-25	441	37	70	-20	-20
5056						<0.5	5	15	2	-1	1	-1	-2	8	-5	-5	0	6	-25	493	45	44	-20	-20
5057						1.0	26	101	66	9	9	-1	-2	-5	49	14	2	55	-25	427	36	76	-20	-20
5058						<0.5	6	96	24	5	2	-1	-2	10	-5	10	0	8	-25	488	57	33	-20	-20
5059						1.9	53	522	98	8	11	-1	-2	-5	59	39	10	83	-25	217	49	79	-20	-20
5060						<0.5	9	41	5	4	7	1	2	11	38	-5	0	12	-25	265	80	37	-20	-20
5061						0.9	37	359	130	14	6	-1	-2	-5	215	36	5	88	-25	176	92	133	-20	-20
5062						0.8	5	209	(2)	9	3	-1	-2	-5	-5	-5	0	10	-25	1,177	51	34	-20	-20
5063						4.2	65	824	158	7	19	-1	-2	6	28	61	10	44	-25	183	38	73	21	-20
5064						<0.5	39	15	463	4	34	2	-2	-5	-5	-5	4	498	-25	437	41	108	-20	-20
5065						<0.5	51	76	327	8	38	13	-2	12	46	12	5	523	-25	1,067	51	134	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5066						<0.5	34	26	148	4	29	2	-2	-5	-5	6	3	569	-25	771	45	116	-20	-20
5067						0.7	4	128	(2)	2	-1	-1	-2	7	-5	-5	0	6	-25	1,320	42	13	-20	-20
5068						1.4	35	119	47	7	4	-1	-2	8	46	14	4	29	-25	235	26	33	-20	-20
5069						1.1	7	378	57	4	9	2	3	-5	-5	-5	1	38	-25	131	365	13	-20	-20
5070						24.9	76	3609	239	37	24	-1	-2	-5	202	111	10	120	-25	178	103	115	-20	-20
5071						15.8	54	1015	71	30	25	-1	-2	-5	97	39	5	30	-25	320	136	138	-20	-20
5072						4.2	62	1011	33	18	35	-1	-2	-5	50	12	3	29	-25	196	284	154	-20	-20
5073						13.9	290	1300	30	50	22	1	-2	-5	10	35	3	51	-25	127	97	115	-20	-20
5074						6.0	111	462	24	18	18	-1	-2	-5	10	25	0	55	-25	93	53	75	-20	-20
5075						3.1	43	399	12	11	15	-1	-2	6	15	13	2	26	-25	323	66	75	-20	-20
5076						<0.5	4	322	162	5	6	-1	-2	8	21	6	1	157	-25	88	42	15	-20	-20
5077						5.3	101	1439	559	17	25	8	-2	-5	125	31	6	595	-25	339	53	82	25	-20
5078						<0.5	54	49	134	7	15	4	-2	-5	6	7	3	948	-25	866	29	77	-20	-20
5079						<0.5	4	14	57	4	3	5	-2	12	-5	-5	2	336	-25	944	49	39	-20	-20
5080						0.6	42	72	123	5	20	7	-2	-5	-5	9	3	1,109	-25	770	44	94	-20	-20
5081						<0.5	4	12	102	3	3	6	-2	12	-5	-5	2	549	-25	2,000	38	41	-20	-20
5082						0.6	80	48	135	35	24	4	-2	-5	44	14	3	433	-25	1,051	46	96	-20	-20
5083						2.2	14	175	1,159	5	3	1	2	9	-5	14	1	15	-25	190	104	28	-20	-20
5084						6.5	115	262	5,525	23	55	3	2	-5	114	51	10	279	-25	238	39	67	20	-20
5085	0.2300	0.5700				8.4	15	1948	4,933	8	4	3	20	12	25	27	1	12	-25	78	154	19	-20	-20
5086						20.4	56	3203	1,674	30	13	-1	-2	-5	403	107	10	249	-25	156	32	59	-20	-20
5087						21.7	121	9493	234	20	41	2	-2	-5	39	151	4	234	-25	300	98	117	-20	-20
5088						7.0	11	438	1,945	5	1	3	8	5	-5	22	1	15	-25	851	105	26	-20	-20
5089						6.2	11	366	41	1	21	3	-2	7	-5	18	1	44	-25	493	507	36	-20	-20
5090						2.7	9	183	11	4	19	2	-2	-5	-5	6	1	48	-25	510	478	29	-20	-20
5091						6.5	33	1208	49	19	23	-1	-2	-5	34	57	2	53	-25	477	71	107	-20	-20
5092						4.9	15	220	54	5	18	2	-2	-5	-5	11	1	62	-25	530	552	29	-20	-20
5093						12.1	54	1719	65	32	29	1	-2	-5	25	78	2	92	-25	194	85	181	-20	-20
5094						2.4	9	146	74	3	16	-1	-2	-5	-5	22	1	57	-25	946	395	37	-20	-20
5095						6.5	60	1057	153	16	36	-1	-2	-5	66	57	3	94	-25	774	71	100	-20	-20
5096						2.1	11	236	4	3	17	3	-2	11	-5	12	1	40	-25	451	436	49	-20	-20
5097						5.0	58	843	66	21	32	-1	-2	-5	45	64	3	65	-25	506	104	126	-20	-20
5098	<0.0100	<0.0100																						
5099						<0.5	5	125	2	3	3	-1	-2	7	-5	-5	0	8	-25	622	105	37	-20	-20
5100						0.8	33	654	38	13	21	-1	-2	6	81	18	3	14	-25	934	41	93	-20	-20
5101						3.8	21	1437	258	3	13	4	2	12	-5	19	1	43	-25	322	386	38	-20	-20
5102						14.8	121	2530	5,434	29	34	15	17	-5	157	90	10	988	-25	312	65	107	-20	-20
5103						3.6	9	885	102	4	8	2	-2	14	19	37	1	41	-25	1,230	383	35	-20	-20
5105						<0.5	24	63	125	10	33	-1	-2	-5	-5	-5	3	322	-25	573	54	105	-20	-20
5106						0.6	24	13	104	6	15	-1	-2	-5	21	-5	1	143	-25	2,000	17	44	-20	-20
5107						1.3	47	536	694	13	102	22	-2	-5	15	14	7	6,861	-25	1,794	100	100	-20	-20
5108						3.2	67	558	501	11	68	7	-2	-5	33	10	3	1,881	-25	508	200	129	-20	-20
5109						2.6	57	170	438	15	76	10	-2	-5	32	29	8	581	-25	841	224	130	-20	-20
5110						0.6	15	19	24	-1	23	3	-2	6	-5	-5	1	225	-25	1,319	166	53	-20	-20
5111						5.2	92	38	126	12	83	-1	-2	-5	25	8	2	120	-25	191	379	166	-20	-20
5112						<0.5	16	21	18	2	21	4	-2	7	12	9	1	251	-25	1,228	216	51	-20	-20
5113						5.5	66	3	288	11	109	6	6	-5	8	-5	2	671	-25	594	212	210	-20	37
5114						10.0	67	119	357	20	137	8	-2	11	27	14	3	674	-25	165	305	185	-20	-20
5115						0.9	20	43	(2)	4	36	5	-2	7	6	-5	1	75	-25	267	643	27	-20	-20
5116						3.2	51	211	84	18	58	4	-2	-5	59	17	6	258	-25	253	132	141	-20	-20
5117						<0.5	53	18	25	2	48	16	-2	9	-5	-5	3	445	-25	1,748	302	120	-20	-20
5118						0.8	99	35	171	7	98	23	-2	-5	-5	11	4	1,181	-25	1,065	85	156	-20	-20
5119						<0.5	11	195	3	3	7	-1	-2	-5	-5	18	1	34	-25	926	262	44	-20	-20
5120						2.1	31	526	49	18	14	-1	-2	-5	32	77	6	117	-25	609	94	145	-20	-20
5121						1.4	6	315	15	4	14	1	-2	-5	-5	-5	1	44	-25	710	435	20	-20	-20
5122						<0.5	20	58	13	20	8	-1	-2	-5	11	-5	4	25	-25	1,523	99	153	-20	-20
5123						3.9	35	111	17	12	53	-1	-2	-5	16	8	1	15	-25	343	267	134	-20	-20
5124						1.4	10	91	24	7	24	3	-2	10	-5	-5	1	54	-25	482	386	53	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	NI ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5125						1.9	12	176	110	4	18	2	-2	-5	-5	9	1	422	-25	387	217	50	-20	-20
5126						0.6	47	84	900	14	49	13	-2	5	52	22	4	669	-25	1,268	63	85	-20	-20
5127						<0.5	3	15	(2)	3	2	-1	-2	10	-5	14	0	9	-25	519	65	35	-20	-20
5128						0.7	5	55	(2)	1	2	-1	-2	5	18	-5	0	8	-25	288	57	36	-20	-20
5129						<0.5	7	41	25	2	2	1	-2	8	-5	9	1	21	-25	520	76	39	-20	-20
5130						<0.5	58	452	409	5	15	-1	-2	-5	87	28	6	138	-25	556	55	104	-20	-20
5131						<0.5	7	44	69	4	4	-1	-2	-5	-5	14	1	105	-25	423	57	40	-20	-20
5132						1.4	34	297	203	4	24	-1	-2	-5	67	26	3	65	-25	658	38	76	-20	-20
5133						<0.5	7	31	42	1	2	-1	-2	12	-5	-5	1	15	-25	475	63	37	-20	-20
5134						<0.5	26	145	95	6	12	-1	-2	-5	30	19	5	30	-25	531	29	68	-20	-20
5135						<0.5	6	18	135	-1	4	2	-2	-5	-5	-5	1	98	-25	310	36	40	-20	-20
5136						<0.5	25	156	153	6	22	-1	-2	-5	74	20	4	60	-25	791	31	80	-20	-20
5137						0.5	38	44	527	6	42	4	-2	-5	29	-5	5	377	-25	811	65	130	-20	-20
5138						3.0	36	276	24	16	24	-1	-2	-5	-5	9	5	41	-25	607	84	111	-20	-20
5139						3.7	21	336	47	7	22	2	-2	-5	-5	12	1	32	-25	242	372	96	-20	-20
5140						19.5	93	1907	42	32	49	-1	-2	-5	24	58	2	29	-25	195	305	270	-20	-20
5141						1.5	10	238	17	2	13	2	-2	8	-5	14	1	46	-25	590	461	33	-20	-20
5142						10.0	40	3288	101	21	41	-1	-2	6	44	38	3	77	-25	162	147	155	-20	-20
5143						1.3	31	500	191	4	24	11	-2	7	7	11	2	255	-25	690	359	91	-20	-20
5144						5.8	105	2608	286	15	46	7	-2	-5	35	23	7	265	-25	252	126	172	-20	-20
5145						3.9	14	810	742	4	7	2	-2	10	6	11	1	33	-25	399	380	30	-20	-20
5146						<0.5	48	11	70	2	35	10	-2	9	9	-5	2	361	-25	2,000	349	77	-20	-20
5147						1.3	84	79	457	68	91	9	-2	-5	22	-5	3	406	-25	2,000	95	148	-20	-20
5148						1.9	71	27	191	13	80	8	-2	-5	-5	-5	3	3,030	-25	736	91	141	-20	-20
5149						<0.5	4	39	141	3	6	-1	-2	-5	8	-5	1	1,331	-25	625	141	19	-20	-20
5150						1.3	19	543	3,260	21	70	3	-2	-5	46	30	10	4,521	-25	718	43	76	21	-20
5151						<0.5	6	34	81	3	16	3	-2	16	-5	13	1	504	-25	209	524	6	-20	-20
5152						0.9	23	152	139	12	28	3	-2	-5	52	-5	5	242	-25	767	78	92	-20	-20
5153						3.6	72	17	66	10	52	-1	-2	11	58	14	2	44	-25	545	248	126	-20	-20
5154						3.0	20	26	17	6	31	2	-2	6	-5	-5	1	304	-25	706	539	71	-20	-20
5155						2.4	118	2	95	14	77	-1	-2	8	18	6	2	34	-25	63	427	160	-20	-20
5156						0.6	8	128	180	3	6	2	-2	11	25	12	2	198	-25	326	46	20	-20	-20
5157						1.7	93	476	669	12	46	9	-2	-5	60	42	6	656	-25	1,170	68	68	-20	-20
5158						<0.5	10	33	1,571	4	18	2	5	8	-5	7	1	762	-25	2,000	46	11	-20	-20
5159						0.7	112	197	1,840	9	65	44	5	-5	81	32	6	2,438	-25	664	50	55	-20	-20
5160						<0.5	21	14	233	1	9	6	-2	11	-5	11	2	280	-25	301	45	38	-20	-20
5161						0.7	173	254	879	5	56	43	-2	-5	122	21	9	1,038	-25	286	53	75	-20	-20
5162						0.6	7	27	83	2	6	2	-2	-5	14	-5	0	35	-25	771	56	31	-20	-20
5163						<0.5	27	37	108	3	17	-1	-2	-5	32	16	3	56	-25	535	23	67	-20	-20
5164						<0.5	5	67	8	2	3	-1	-2	-5	-5	13	0	14	-25	708	73	39	-20	-20
5165						0.8	28	254	84	3	20	-1	-2	-5	45	20	4	48	-25	628	31	67	-20	-20
5166						0.7	6	23	124	5	8	-1	-2	16	-5	-5	1	176	-25	231	46	44	-20	-20
5167						<0.5	26	96	100	9	15	-1	-2	-5	49	11	6	49	-25	525	27	75	-20	-20
5168						<0.5	4	60	3	4	3	-1	-2	-5	-5	-5	0	11	-25	563	44	36	-20	-20
5169						<0.5	24	83	50	8	12	-1	-2	-5	17	19	6	19	-25	517	24	73	-20	-20
5170						0.7	5	24	30	-1	5	2	-2	8	15	6	1	103	-25	457	168	42	-20	-20
5171						<0.5	29	33	698	7	50	4	3	7	44	6	2	547	-25	475	33	82	-20	-20
5172						<0.5	25	-2	748	3	41	9	-2	-5	8	8	6	1,033	-25	833	52	137	-20	-20
5173						1.5	17	130	19	2	47	2	-2	8	9	-5	0	42	-25	459	371	71	-20	-20
5174						<0.5	28	108	398	6	29	5	-2	-5	29	25	5	391	-25	977	71	146	-20	-20
5175						2.5	4	150	78	10	-1	-1	-2	7	9	12	0	17	-25	416	56	23	-20	-20
5176						10.7	37	1154	92	11	12	-1	-2	-5	47	79	10	117	-25	1,199	62	82	-20	-20
5177						1.3	5	341	13	2	4	1	-2	14	19	11	1	20	-25	1,340	139	29	-20	-20
5178						3.5	29	704	133	17	16	-1	-2	-5	37	16	6	48	-25	594	76	131	-20	-20
5179						4.8	26	338	12	5	31	3	-2	14	15	16	0	31	-25	296	393	91	-20	-20
5180						8.3	66	859	26	20	42	-1	-2	-5	20	43	1	12	-25	185	244	156	-20	-20
5181						1.4	10	154	3	3	20	2	-2	6	-5	-5	1	45	-25	294	505	31	-20	-20
5182						8.3	83	2108	59	67	86	1	-2	-5	73	21	3	33	-25	73	184	132	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5183						0.8	10	148	6	10	13	3	-2	-5	8	-5	1	47	-25	958	452	25	-20	-20
5184						<0.5	10	102	(2)	5	11	2	-2	13	37	5	1	43	-25	759	404	30	-20	-20
5185						0.6	11	196	18	1	10	3	-2	8	-5	-5	1	29	-25	1,605	261	48	-20	-20
5186						4.6	43	1758	39	30	19	-1	-2	-5	33	31	7	79	-25	76	115	190	-20	-20
5187						1.1	9	139	6	3	6	2	-2	11	8	11	1	22	-25	1,668	183	50	-20	-20
5188						3.8	42	884	36	22	13	-1	-2	5	28	34	3	31	-25	1,084	98	154	-20	-20
5189						1.0	12	54	18	1	8	1	-2	-5	-5	-5	1	46	-25	1,318	470	25	-20	-20
5190						1.9	6	195	9	4	2	-1	-2	-5	9	6	0	15	-25	509	59	25	-20	-20
5191						<0.5	37	73	384	12	30	5	-2	9	58	20	3	733	-25	1,011	29	65	-20	-20
5192						1.1	26	72	55	13	20	3	-2	-5	19	7	3	72	-25	1,288	65	88	-20	-20
5193						2.7	13	373	281	3	8	2	-2	10	10	7	1	40	-25	475	412	22	-20	-20
5194						2.1	42	329	44	16	11	-1	-2	-5	55	37	5	56	-25	714	53	68	-20	-20
5195						0.7	5	42	3	2	2	-1	-2	10	9	8	0	8	-25	479	60	33	-20	-20
5196						0.7	34	106	269	6	7	-1	-2	-5	34	23	5	78	-25	410	71	125	-20	-20
5197						0.6	7	41	24	2	3	1	-2	-5	32	14	1	51	-25	1,401	110	34	-20	-20
5198						<0.5	24	18	216	3	19	-1	-2	-5	-5	9	2	209	-25	1,056	20	62	-20	-20
5199						<0.5	17	50	155	7	30	5	-2	-5	34	-5	3	728	-25	914	29	65	-20	-20
5200						<0.5	6	20	159	3	6	7	-2	-5	-5	-5	3	557	-25	1,412	34	45	-20	-20
5201						1.4	2	-2	(2)	3	12	-1	-2	6	5	6	0	78	-25	229	349	13	-20	-20
5202						2.9	1	131	(2)	2	12	-1	-2	-5	56	28	0	77	-25	993	109	27	-20	-20
5203						6.2	14	274	(2)	43	16	-1	-2	6	121	86	6	86	-25	272	34	63	-20	-20
5204						1.6	20	20	18	3	15	8	-2	-5	-5	11	2	250	-25	428	347	59	-20	-20
5205						3.8	26	975	27	29	16	-1	-2	14	116	55	6	44	-25	462	59	86	-20	-20
5206						1.8	13	215	23	6	14	1	-2	11	17	17	1	40	-25	1,227	420	33	-20	-20
5207						3.2	36	269	55	17	31	-1	-2	16	58	35	4	35	-25	843	129	78	-20	-20
5208	0.0100	0.1600				3.7	8	81	1,701	-1	6	3	7	-5	-5	12	1	188	-25	210	469	6	-20	-20
5209						2.9	24	313	41	13	14	-1	-2	21	69	35	3	24	-25	1,044	62	59	-20	-20
5210						0.6	63	37	251	6	36	20	-2	16	25	14	5	596	-25	1,249	301	162	-20	-20
5211						6.3	40	1160	74	29	16	-1	-2	12	48	54	3	27	-25	1,590	90	78	-20	-20
5212						1.9	8	174	14	5	10	1	-2	9	29	18	0	43	-25	794	204	33	-20	-20
5213						4.6	53	615	48	15	35	3	-2	14	18	27	2	55	-25	1,824	146	144	-20	-20
5214						4.1	13	308	19	8	24	1	-2	11	35	36	1	28	-25	285	401	55	-20	-20
5215						8.9	39	1706	46	30	42	-1	-2	16	62	69	1	11	-25	488	218	133	-20	-20
5216						3.0	12	663	21	6	10	1	-2	13	18	23	1	29	-25	433	325	43	-20	-20
5217						8.6	54	3082	132	12	51	2	-2	15	27	37	3	48	-25	816	246	163	-20	-20
5218	0.1700	<0.0100																						
5219						4.2	10	1354	17	6	8	1	-2	9	18	29	1	32	-25	357	382	22	-20	-20
5220						45.9	61	10000	226	50	27	6	-2	13	115	189	6	282	-25	676	149	137	-20	-20
5221						1.1	6	64	49	2	3	-1	-2	7	46	9	1	12	-25	871	92	37	-20	-20
5222						0.9	29	133	320	6	25	2	-2	-5	31	17	4	97	-25	838	47	88	-20	-20
5223						2.1	8	84	57	5	5	2	-2	21	53	13	0	240	-25	439	61	52	-20	-20
5224						1.1	37	95	468	7	36	9	-2	8	38	11	5	229	-25	893	67	116	-20	-20
5225						1.4	32	114	410	28	39	10	-2	7	48	16	5	374	-25	336	68	106	-20	-20
5226						0.9	5	13	115	5	6	-1	-2	-5	9	-5	0	63	-25	177	46	56	-20	-20
5227						2.3	40	220	609	11	38	12	-2	14	56	18	4	291	-25	979	48	99	-20	-20
5228						1.6	22	33	388	8	27	5	-2	24	6	17	3	322	-25	826	47	107	-20	-20
5229						1.2	23	98	88	6	8	-1	-2	16	59	19	4	44	-25	540	31	69	-20	-20
5230						1.4	9	73	8	5	8	-1	-2	-5	-5	17	1	29	-25	1,387	319	21	-20	-20
5231						1.8	38	244	93	14	11	3	-2	-5	25	23	7	249	-25	423	98	108	-20	-20
5232						1.8	15	304	107	3	12	3	-2	9	31	16	1	28	-25	1,104	217	50	-20	-20
5233						1.0	4	36	8	4	6	2	-2	-5	-5	15	0	26	-25	973	294	28	-20	-20
5234						1.7	11	63	26	4	12	2	-2	-5	14	13	1	34	-25	379	356	27	-20	-20
5235						2.0	36	223	56	14	18	5	-2	15	40	11	3	249	-25	764	101	135	-20	-20
5236						2.2	15	65	7	19	15	2	-2	10	31	14	0	29	-25	499	278	35	-20	-20
5237						4.0	43	827	85	18	25	6	-2	9	37	39	4	358	-25	754	122	148	-20	-20
5238						6.0	38	704	44	23	46	-1	-2	17	32	17	3	66	-25	499	116	118	-20	-20
5239						1.6	16	145	20	10	13	1	-2	10	18	5	1	31	-25	145	296	33	-20	-20
5240						9.7	62	560	55	20	62	-1	-2	7	21	29	3	11	-25	244	197	144	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5241	0.1600	5.1800				26.5	122	1726	20,000	73	29	13	180	-5	61	79	1	103	-25	61	386	39	-20	-20
5242	0.0100	0.0100				3.0	8	98	204	-1	26	-1	-2	-5	13	8	1	208	-25	136	417	33	-20	-20
5243	0.0300	0.0200				3.2	6	301	119	1	29	2	-2	-5	5	18	1	(5)	-25	182	379	43	-20	-20
5244	0.0900	0.1400				6.5	50	934	1,563	9	34	10	7	-5	-5	26	1	221	-25	217	354	55	-20	-20
5245	<0.0100	0.0400				1.1	5	4	68	4	14	3	-2	-5	38	5	1	285	-25	56	446	9	-20	-20
5246	Add data from SLRC																							
5247	1.9000	9.2300				26.4	12	10000	20,000	132	15	17	131	-5	136	282	2	16	-25	234	380	11	-20	-20
5248	-9.0000	-9.0000				50.0	162	10000	20,000	185	31	90	679	-5	256	526	3	120	-25	130	285	21	-20	-20
5249	-9.0000	-9.0000				50.0	35	10000	20,000	67	22	14	63	-5	234	193	2	94	-25	432	520	17	-20	-20
5250	0.1600	0.1400				5.8	14	1655	1,630	4	18	6	8	-5	7	14	1	40	-25	176	405	35	-20	-20
5251	0.1900	0.0400				5.2	21	1836	395	53	27	4	4	-5	23	25	1	136	-25	240	432	33	-20	-20
5252	0.3200	0.5100				21.5	91	3429	5,732	15	28	8	28	-5	18	31	1	(5)	-25	118	460	30	-20	-20
5253						<0.5	25	20	106	2	35	8	-2	-5	12	-5	3	1,026	-25	174	303	65	-20	-20
5254																								
5255						<0.5	22	13	77	-1	30	10	-2	-5	-5	-5	4	687	-25	170	318	59	-20	-20
5256						<0.5	31	18	54	7	46	5	-2	-5	-5	-5	3	375	-25	634	116	164	-20	-20
5257						<0.5	20	20	111	2	51	16	-2	-5	29	-5	5	935	-25	116	296	52	-20	-20
5258						<0.5	32	16	61	4	60	10	-2	-5	21	-5	3	702	-25	515	103	133	-20	-20
5259						<0.5	19	325	281	-1	50	15	-2	-5	-5	-5	5	921	-25	162	296	57	-20	-20
5260						<0.5	34	29	224	-1	46	10	-2	-5	21	-5	3	484	-25	482	100	127	-20	-20
5261						2.1	29	444	1,775	112	33	4	5	-5	61	64	2	315	-25	306	253	86	-20	-20
5262						1.0	34	334	356	-1	37	13	-2	-5	19	-5	3	754	-25	513	101	124	-20	-20
5263						<0.5	22	427	1,773	20	29	9	8	-5	-5	24	3	722	-25	565	251	96	-20	-20
5264						4.1	45	1702	401	3	41	20	-2	-5	32	19	3	1,343	-25	614	106	136	-20	-20
5265						0.9	5	53	16	15	8	-1	-2	6	8	-5	0	33	-25	474	344	10	-20	-20
5266	0.3300	10.0000				22.9	102	3026	20,000	138	67	57	334	-5	156	144	10	22	-25	96	180	20	-20	-20
5267	0.3900	8.5800				13.5	88	3761	20,000	93	102	45	248	-5	103	80	10	90	-25	112	185	36	-20	-20
5268	0.1500	0.1200				6.4	35	1534	1,439	7	43	8	5	-5	39	34	2	49	-25	292	230	85	-20	-20
5269						1.6	8	196	142	9	7	1	-2	-5	8	16	1	22	-25	228	207	36	-20	-20
5270	0.1100	0.0100				3.8	6	1099	128	2	21	-1	-2	-5	-5	10	1	15	-25	45	479	25	-20	-20
5271	0.0300	<0.0100				4.3	5	254	66	28	28	-1	-2	-5	6	19	0	20	-25	106	328	270	-20	-20
5272	0.0400	0.0300				4.3	16	357	211	10	31	1	-2	-5	15	9	1	132	-25	55	515	207	-20	-20
5273	0.0500	0.2600				4.1	14	414	2,850	14	30	-1	3	-5	36	9	2	103	-25	154	494	36	-20	-20
5274						4.2	35	271	51	12	46	13	-2	15	48	24	1	51	-25	180	409	58	-20	-20
5275						2.3	9	65	17	11	10	-1	-2	10	16	14	1	28	-25	208	391	28	-20	-20
5276						12.2	79	502	44	28	112	-1	-2	7	40	33	4	9	-25	239	279	204	-20	-20
5277						1.6	11	37	14	5	14	2	-2	10	-5	13	1	32	-25	436	260	45	-20	-20
5278						11.4	57	1354	46	45	44	1	-2	8	35	27	7	53	-25	419	183	209	-20	-20
5279						1.8	13	63	6	11	13	1	-2	7	16	16	1	29	-25	245	286	35	-20	-20
5280						9.0	29	537	13	15	43	-1	-2	6	19	20	4	12	-25	413	165	122	-20	-20
5281						1.6	6	54	9	4	10	-1	-2	12	8	13	0	32	-25	213	435	15	-20	-20
5282						11.8	50	572	27	31	54	2	-2	9	34	16	4	15	-25	369	346	213	-20	-20
5283						2.7	11	70	16	14	22	1	-2	7	-5	14	1	42	-25	424	473	31	-20	-20
5284						1.4	35	233	121	16	12	3	-2	-5	44	11	6	219	-25	790	80	84	-20	-20
5285						0.7	4	51	7	2	5	-1	-2	9	19	12	0	25	-25	1,706	301	8	-20	-20
5286						0.8	4	55	4	9	9	1	-2	15	32	10	1	28	-25	762	267	11	-20	-20
5287						0.9	5	5	15	8	10	-1	-2	6	8	7	1	91	-25	233	279	8	-20	-20
5288						2.1	89	509	139	8	50	22	-2	12	44	23	9	1,336	-25	782	328	272	-20	-20
5289						2.5	19	101	790	5	23	4	-2	13	35	19	1	134	-25	2,000	317	49	-20	-20
5290						1.2	27	129	196	16	10	-1	-2	14	113	19	9	163	-25	899	53	63	-20	-20
5291	0.0900	0.5200				<0.5	20	803	5,252	15	11	4	21	7	6	-5	3	864	-25	377	251	85	-20	-20
5292	0.1300	0.4900				<0.5	30	1206	4,844	11	26	10	19	6	39	10	6	2,055	-25	717	218	115	-20	-20
5293	0.2100	0.8100				3.7	28	2001	7,852	13	6	2	47	6	11	42	3	928	-25	540	225	77	-20	-20
5294	10.0000	18.9400				50.0	374	10000	20,000	109	103	66	1289	113	101	880	3	113	30	118	112	18	118	-20
5295						<0.5	24	1274	3,751	8	33	10	17	7	9	13	7	2,287	-25	794	230	128	29	-20
5296	0.3200	0.5500				3.1	27	2675	5,674	8	23	6	36	11	15	45	5	1,526	-25	1,038	268	97	-20	-20
5297	0.9500	0.4400				7.0	20	8666	4,113	5	4	-1	12	7	-5	55	2	649	-25	494	200	81	-20	-20
5298	0.3300	0.4000				2.0	9	3109	3,887	5	9	-1	13	-5	14	33	3	932	-25	560	213	78	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5299						<0.5	23	77	212	55	27	9	-2	-5	29	-5	3	447	-25	226	230	79	-20	-20
5300						<0.5	31	46	139	-1	61	16	-2	-5	-5	-5	3	731	-25	610	109	132	-20	-20
5301						0.5	19	54	142	3	27	3	-2	-5	9	-5	2	1,350	-25	910	28	69	-20	-20
5302						<0.5	15	3	234	5	19	4	-2	-5	-5	-5	3	326	-25	689	40	104	-20	-20
5303						<0.5	19	16	103	4	13	4	-2	-5	27	17	2	223	-25	647	35	86	-20	-20
5304						<0.5	37	32	340	3	13	5	-2	-5	-5	-5	4	551	-25	1,338	30	14	-20	-20
5305						0.7	42	180	67	9	16	-1	-2	-5	32	10	4	59	-25	1,018	44	77	-20	-20
5306						0.7	31	64	219	6	24	2	-2	6	32	12	3	66	-25	75	39	69	-20	-20
5307						2.0	48	196	38	10	15	-1	-2	-5	47	15	1	58	-25	121	51	73	-20	-20
5308						0.9	6	62	10	5	2	-1	-2	12	12	-5	0	14	-25	561	57	23	-20	-20
5309						0.7	39	70	92	15	5	-1	-2	-5	80	32	7	50	-25	502	50	54	-20	-20
5310						1.0	6	38	42	2	3	2	-2	-5	-5	8	1	147	-25	1,178	45	37	-20	-20
5311						0.7	21	79	110	5	6	-1	-2	-5	51	22	4	103	-25	444	32	52	-20	-20
5312						13.4	38	1821	31	14	49	-1	-2	-5	21	22	1	17	-25	176	123	64	-20	-20
5313						2.6	9	331	200	4	4	2	-2	9	-5	-5	1	19	-25	864	155	66	-20	-20
5314						10.1	63	2702	65	22	31	-1	-2	-5	53	35	5	29	-25	96	221	131	-20	-20
5315						7.6	71	755	62	18	28	2	-2	6	24	18	3	29	-25	610	275	151	-20	-20
5316						3.0	73	240	73	12	17	2	-2	9	6	-5	2	44	-25	497	99	139	-20	-20
5317						3.0	45	245	58	10	15	1	-2	-5	31	-5	2	48	-25	581	115	105	-20	-20
5318						38.1	35	9702	2,535	13	3	1	7	6	143	16	8	15	-25	487	128	18	-20	-20
5319	0.4700	0.1900				16.4	14	4730	1,961	-1	8	-1	6	6	77	40	5	23	28	256	202	35	-20	-20
5320						19.5	14	5083	4,479	14	7	3	12	12	84	11	2	15	-25	165	132	20	-20	-20
5321						2.6	46	2067	813	33	20	3	-2	-5	157	16	10	110	-25	427	61	89	-20	-20
5322						3.8	9	349	32	5	18	4	-2	11	-5	8	0	35	-25	661	451	41	-20	-20
5323						6.3	43	1180	102	15	21	2	-2	-5	28	48	3	249	-25	190	109	162	-20	-20
5324						1.9	16	346	70	2	17	3	-2	-5	-5	8	1	58	-25	2,000	320	43	-20	-20
5325						8.2	52	2944	102	36	32	-1	-2	-5	73	108	10	62	-25	46	194	237	-20	-20
5326	1.5500	1.9700				41.7	8	10000	19,403	-1	10	-1	29	21	78	77	1	50	-25	180	402	11	-20	-20
5327						27.3	51	10000	1,274	48	12	1	-2	-5	220	105	5	145	-25	145	88	154	-20	-20
5328	2.1900	4.6900				50.0	36	10000	20,000	18	14	15	153	37	97	96	2	59	64	113	435	8	-20	-20
5329						7.0	62	2052	287	19	19	4	-2	-5	23	25	3	391	-25	990	79	132	-20	-20
5330						4.9	66	63	234	15	71	23	3	8	30	11	3	2,777	-25	374	197	213	-20	-20
5331						7.3	72	75	232	18	57	4	-2	18	42	18	3	111	-25	1,646	306	268	-20	-20
5332						2.3	3	174	19	7	4	-1	-2	12	30	45	1	18	-25	1,306	105	34	-20	-20
5333						5.3	20	187	13	12	11	-1	-2	6	49	62	2	14	-25	353	32	62	-20	-20
5334						5.2	16	374	402	5	11	2	2	9	14	26	1	38	-25	524	410	28	-20	-20
5335						6.0	40	1323	26	12	34	-1	-2	16	24	39	1	27	-25	458	88	94	-20	-20
5336						6.3	10	1087	39	12	13	-1	-2	8	20	32	1	32	-25	386	357	32	-20	-20
5337						16.9	52	4851	106	15	27	-1	-2	14	25	136	1	31	-25	938	134	104	-20	23
5338						5.1	19	1278	393	31	17	3	4	14	54	34	1	44	-25	988	461	42	-20	-20
5339						2.6	73	166	49	9	39	3	-2	8	21	11	1	34	-25	1,023	177	140	-20	-20
5340																								
5341						2.0	10	23	6	15	16	2	-2	9	7	7	0	35	-25	671	386	25	-20	-20
5342						2.5	378	170	77	13	24	3	-2	-5	11	-5	3	101	-25	883	90	151	-20	-20
5343						2.7	7	155	5	7	8	-1	-2	-5	62	45	2	32	-25	159	157	27	-20	-20
5344						12.6	56	187	13	16	5	-1	-2	9	35	205	4	35	-25	253	34	71	-20	-20
5345	0.0100	0.8100				0.7	5	9	60	5	13	2	-2	-5	19	11	1	267	-25	55	424	10	-20	-20
5346						<0.5	4	9	187	7	7	5	-2	-5	25	-5	2	358	-25	1,452	61	44	-20	-20
5347						1.5	11	-2	23	11	12	-1	-2	8	8	-5	1	31	-25	1,082	344	29	-20	-20
5348						1.3	90	187	83	13	40	21	-2	-5	-5	8	5	698	-25	2,000	104	172	-20	-20
5349						1.5	13	27	7	6	16	-1	-2	9	-5	-5	1	38	-25	390	384	36	-20	-20
5350						5.3	82	336	56	43	46	10	-2	22	56	18	4	703	-25	292	156	178	-20	-20
5351						4.5	11	-2	69	13	25	1	-2	8	-5	10	1	44	-25	277	456	39	-20	-20
5352						10.9	58	285	42	31	70	-1	-2	14	58	28	3	60	-25	340	312	195	-20	-20
5353						2.7	10	35	9	6	16	1	-2	9	13	-5	1	52	-25	296	569	28	-20	-20
5354						12.4	76	323	39	27	65	-1	-2	15	57	17	3	82	-25	323	411	209	-20	-20
5355						2.2	23	18	21	13	27	3	-2	13	30	13	2	124	-25	1,068	451	67	-20	-20
5356						8.4	74	493	10	25	26	1	-2	19	79	21	10	25	-25	207	194	126	-20	-20

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Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5357						11.2	17	2412	1,175	6	12	2	6	-5	40	44	1	47	-25	487	365	34	-20	-20
5358	0.0400	0.1900				9.3	17	304	2,005	10	8	1	13	-5	-5	24	1	(5)	-25	319	337	29	-20	-20
5359						5.9	11	580	21	6	22	1	-2	-5	15	29	1	47	-25	400	457	23	-20	-20
5360						12.1	41	1642	44	7	32	1	-2	16	44	42	1	126	-25	568	46	61	-20	-20
5361						2.0	44	318	143	7	17	1	-2	7	29	35	3	46	-25	1,081	27	77	-20	-20
5362						3.2	31	189	316	8	26	3	-2	15	53	25	3	233	-25	919	30	76	-20	-20
5363						2.4	21	48	183	10	13	9	-2	15	63	33	4	329	-25	128	81	48	-20	-20
5364	1.7100	3.5000				3.0	45	290	146	10	22	2	-2	-5	191	40	4	84	-25	1,356	30	83	33	-20
5365						8.5	7	161	62	13	16	1	-2	9	9	27	1	39	-25	135	338	16	-20	-20
5366	9.8100	0.5100				50.0	26	10000	5,273	4	60	15	12	-5	75	179	3	(5)	-25	70	152	74	-20	-20
5367						<0.5	14	156	196	6	20	7	-2	7	25	9	8	337	-25	60	124	85	-20	-20
5368						1.7	6	588	41	3	6	-1	-2	6	20	10	0	44	-25	1,591	298	40	-20	-20
5369						1.4	25	121	37	10	12	3	-2	13	45	11	3	292	-25	784	81	123	-20	-20
5370						2.1	7	128	7	15	11	2	-2	-5	30	12	1	50	-25	312	394	17	-20	-20
5371						6.9	30	327	30	21	28	2	-2	11	113	110	9	245	-25	576	69	86	-20	-20
5372						2.3	5	97	5	3	5	-1	-2	5	16	14	1	39	-25	668	146	24	-20	-20
5373						2.6	98	191	160	9	56	22	-2	22	48	24	8	1,607	-25	485	279	247	-20	-20
5374						1.7	4	104	7	5	7	-1	-2	-5	33	19	1	29	-25	313	120	17	-20	-20
5375						3.1	8	413	15	4	11	-1	-2	6	8	17	1	36	-25	255	370	23	-20	-20
5376						1.1	51	18	19	15	13	1	-2	19	83	18	6	23	-25	994	82	157	20	-20
5377						1.6	9	84	12	8	5	-1	-2	9	19	11	1	26	-25	539	191	45	-20	-20
5378						1.1	6	68	12	3	5	1	-2	-5	11	14	1	24	-25	403	241	43	-20	-20
5379						1.5	11	123	5	9	12	-1	-2	11	12	5	1	33	-25	195	289	26	-20	-20
5380						8.5	58	435	38	31	17	3	-2	29	64	41	10	182	-25	542	180	196	28	-20
5381						1.0	9	90	117	2	8	1	-2	8	7	17	1	33	-25	612	177	54	-20	-20
5382						2.2	47	191	51	36	22	5	-2	-5	42	10	10	260	-25	532	154	171	-20	-20
5383						1.2	9	54	6	7	10	-1	-2	-5	-5	13	1	51	-25	676	211	51	-20	-20
5384						2.1	44	257	95	23	25	8	-2	15	44	9	8	624	-25	828	179	200	-20	-20
5385						8.0	35	925	45	25	56	-1	-2	-5	42	18	4	32	-25	376	207	176	-20	-20
5386						3.7	7	18	5	5	22	-1	-2	6	6	11	0	29	-25	164	370	40	-20	-20
5387						10.4	43	576	15	28	60	-1	-2	10	32	23	3	14	-25	504	185	150	-20	-20
5388						2.8	10	52	10	13	18	-1	-2	12	12	12	1	43	-25	923	289	74	-20	-20
5389						11.1	51	418	11	29	43	-1	-2	16	57	19	2	16	-25	378	198	174	-20	-20
5390						10.1	67	581	15	22	39	2	-2	19	45	17	2	18	-25	810	243	201	-20	-20
5391						2.2	15	355	16	11	16	1	-2	10	34	23	1	42	-25	482	263	60	-20	-20
5392	2.6200	5.1400				28.6	39	10000	20,000	97	29	25	120	-5	98	103	2	164	-25	160	452	69	21	-20
5393	2.8800	10.0000				43.2	70	10000	20,000	482	90	46	258	-5	189	269	4	258	-25	180	458	90	43	-20
5394	0.2900	2.7900				11.5	38	3045	20,000	199	58	23	74	-5	90	110	2	117	-25	602	464	157	31	-20
5395	0.1800	0.6000				8.8	30	1752	6,635	22	19	4	23	-5	43	40	1	66	-25	78	432	64	-20	-20
5396	0.3400	4.8600				17.2	66	3366	20,000	97	100	30	131	-5	177	104	10	304	-25	133	246	51	45	-20
5397	0.1500	0.2800				5.8	40	1355	2,965	4	47	12	8	-5	24	30	1	35	-25	68	279	67	-20	-20
5398	0.0800	0.0900				4.2	22	701	724	14	38	6	4	-5	8	23	1	82	-25	147	410	53	-20	-20
5399	9.6600	0.0800				50.0	35	10000	770	1	8	-1	-2	-5	-5	480	2	85	-25	93	343	60	-20	-20
5400	0.2000	3.0500				14.3	35	2017	20,000	45	21	8	67	-5	30	58	1	58	-25	47	325	38	-20	-20
5401	0.8600	0.2800				2.2	55	7724	2,800	14	21	4	7	-5	-5	26	5	844	-25	321	191	75	-20	-20
5402						14.6	72	2774	1,139	4	51	22	-2	-5	8	52	3	1,223	-25	549	113	140	-20	-20
5403						0.5	34	298	2,765	9	21	6	4	-5	-5	19	4	516	-25	915	179	62	-20	-20
5404						<0.5	37	578	1,403	3	56	39	24	-5	-5	-5	3	2,150	-25	650	98	108	-20	-20
5405						<0.5	18	175	1,066	6	23	6	-2	-5	-5	10	3	470	-25	252	201	67	-20	-20
5406						<0.5	37	238	352	2	53	23	-2	-5	25	-5	2	1,154	-25	635	105	118	-20	-20
5407						3.0	18	434	1,851	6	12	3	-2	-5	28	30	3	397	-25	617	262	54	20	-20
5408						0.5	52	471	1,031	-1	60	32	11	-5	50	-5	3	1,645	-25	570	110	124	22	216
5409						<0.5	18	180	1,430	3	37	15	2	-5	-5	13	6	1,286	-25	283	187	69	-20	-20
5410						<0.5	44	209	665	-1	50	22	4	-5	18	-5	3	806	-25	668	98	120	-20	58
5411						3.7	15	533	975	1	4	1	-2	-5	13	36	2	327	-25	448	221	64	-20	-20
5412						1.2	51	1203	1,265	1	39	20	6	-5	31	-5	3	937	-25	1,464	89	100	-20	-20
5413						<0.5	14	581	1,043	3	23	6	-2	6	9	14	3	823	-25	306	237	77	-20	-20
5414						1.7	25	616	3,087	5	16	3	7	-5	9	17	4	852	-25	1,979	227	74	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5415						1.3	54	682	2,213	2	57	27	12	-5	-5	-5	4	1,401	-25	701	107	124	-20	-20
5416	0.0500	0.2200				<0.5	12	434	2,093	5	28	10	7	-5	16	6	4	1,283	-25	361	218	64	-20	-20
5417						<0.5	28	128	873	2	39	16	-2	-5	-5	6	6	1,003	-25	346	218	98	-20	-20
5418						<0.5	16	31	154	3	36	13	-2	-5	-5	-5	4	700	-25	304	211	84	-20	-20
5419						<0.5	11	49	754	1	38	16	-2	6	-5	-5	6	990	-25	244	240	75	-20	-20
5420						<0.5	16	55	353	3	53	20	-2	-5	-5	-5	7	1,474	-25	296	180	82	-20	-20
5421	3.0800	0.5700				28.3	27	10000	5,316	5	35	11	25	-5	26	124	6	2,225	-25	553	170	55	-20	-20
5422	1.4100	0.0900				20.0	34	10000	867	-1	33	2	8	-5	81	245	2	360	-25	332	288	43	-20	-20
5423	0.4000	0.4500				4.7	101	3852	4,375	6	15	2	12	-5	-5	46	6	1,135	-25	728	231	77	21	-20
5424	<0.0100	0.2300				<0.5	17	96	2,247	4	40	13	13	-5	-5	-5	4	893	-25	276	223	79	-20	-20
5425	2.1200	1.4500				50.0	118	10000	14,207	17	-1	3	72	17	-5	73	1	68	-25	597	332	22	23	-20
5426	3.4600	9.0300				50.0	223	10000	20,000	112	159	11	467	60	97	574	2	425	-25	390	171	108	55	-20
5427	3.7900	54.2300				50.0	886	10000	20,000	233	14	84	2000	208	192	778	3	33	73	74	99	10	183	-20
5428	6.6700	5.0100				50.0	128	10000	20,000	46	13	9	248	36	54	96	2	205	-25	471	244	93	42	-20
5429	1.5800	1.1700				34.4	78	10000	11,191	13	34	4	60	15	36	169	3	422	-25	694	270	115	30	-20
5430	4.2500	1.5200				50.0	51	10000	15,012	17	12	4	86	17	-5	106	3	634	-25	172	230	90	35	-20
5431	0.1700	0.3200				3.0	17	1849	10,080	11	33	8	60	17	21	8	5	1,469	-25	1,099	167	109	-20	-20
5432	0.8200	10.0000				50.0	359	8765	20,000	311	2	82	2000	247	224	621	3	50	413	75	85	14	165	1002
5433	4.3100	0.1200				50.0	168	10000	518	-1	24	2	2	-5	79	165	1	69	-25	184	264	34	-20	-20
5434	0.2500	10.0000				50.0	243	2300	20,000	60	-1	17	889	108	80	272	1	20	49	336	182	16	67	-20
5435	0.1000	10.0000				50.0	71	867	20,000	99	-1	26	1000	143	81	113	1	18	37	179	219	15	66	-20
5436	0.1100	0.1600				2.5	4	733	1,467	-1	7	7	6	-5	-5	13	0	48	-25	2,000	242	12	-20	-20
5437	0.6900	10.0000				50.0	138	7486	20,000	51	-1	25	946	123	64	112	1	19	-25	311	308	7	59	-20
5438	0.0600	10.0000				50.0	535	607	20,000	151	23	123	2000	239	206	306	2	10	80	90	93	3	103	256
5439	0.7200	10.0000				50.0	165	7996	20,000	139	3	39	1595	191	145	163	1	21	66	141	275	-2	86	-20
5440	0.0900	0.2000				2.5	6	817	2,311	-1	12	12	10	-5	-5	5	0	154	-25	2,000	416	16	-20	-20
5441	1.5400	10.0000				50.0	160	10000	20,000	38	-1	23	583	86	58	143	1	22	48	378	343	13	44	-20
5442	1.1400	10.0000				50.0	284	10000	20,000	51	-1	30	799	112	78	166	1	19	-25	267	250	8	68	-20
5443	10.0000	0.0600				50.0	332	10000	729	36	211	40	7	16	334	961	0	10	35	135	201	8	-20	-20
5444	0.1000	2.2200				8.2	1,746	1626	20,000	-1	5	11	207	30	50	43	1	31	-25	167	500	16	24	-20
5445	0.4900	10.0000				12.9	330	5765	20,000	136	-1	166	2000	226	157	132	2	26	41	33	248	-2	96	-20
5446	0.7600	2.8600				11.5	470	8503	20,000	-1	2	16	135	36	70	32	2	30	-25	52	528	14	30	-20
5447	1.9600	10.0000				15.1	259	10000	20,000	48	3	44	975	120	144	75	2	197	39	86	430	19	55	-20
5448	0.8600	10.0000				8.3	563	10000	20,000	98	23	88	2000	179	125	101	1	26	41	88	402	19	77	-20
5449	0.0400	7.7900				17.2	558	560	20,000	25	3	30	702	71	89	112	2	31	-25	60	518	14	56	-20
5450	0.0600	0.4700				1.7	339	559	4,472	-1	-1	3	26	7	-5	-5	1	22	-25	81	479	12	-20	-20
5451	0.0100	0.6600				3.6	3,594	148	6,952	-1	5	10	58	8	47	9	1	29	-25	43	628	11	-20	-20
5452	0.0200	0.4300				0.9	513	243	4,708	-1	-1	4	29	12	39	-5	1	34	-25	51	612	10	-20	-20
5453	0.4400	0.5400				4.9	131	4580	5,047	-1	-1	6	35	-5	43	-5	1	18	-25	16	458	6	-20	-20
5454	10.0000	0.7900				50.0	2,905	10000	8,054	-1	23	10	49	24	69	350	1	23	30	94	473	24	-20	-20
5455	10.0000	0.7000				50.0	2,798	10000	7,799	-1	143	22	46	34	102	2000	0	11	55	29	172	11	-20	-20
5456	0.9100	2.2800				4.7	497	10000	12,924	-1	19	10	154	14	28	25	1	32	-25	259	469	65	-20	-20
5457	0.2400	<0.0100				26.1	14,560	2372	127	13	64	39	-2	23	43	19	3	30	-25	25	517	6	36	-20
5458	0.0200	2.9500				20.0	20,000	478	20,000	-1	23	17	108	65	93	32	4	150	-25	31	421	6	30	-20
5459	3.2700	43.9000				50.0	404	10000	20,000	147	11	64	1274	220	174	402	3	20	92	11	200	-2	84	-20
5460	0.4100	0.0700				19.3	140	3764	1,136	-1	-1	2	3	-5	-5	34	1	38	-25	106	414	19	-20	-20
5461	0.2200	0.2400				7.1	55	2071	2,428	-1	1	3	6	-5	-5	24	2	230	-25	169	401	29	-20	-20
5462	0.0700	0.1300				3.8	21	502	868	-1	-1	-1	7	-5	-5	25	1	13	-25	198	242	33	-20	-20
5464	0.0300	10.0000				50.0	652	377	20,000	72	-1	66	782	133	95	144	4	35	53	219	233	11	62	-20
5502						<0.5	16	50	229	2	28	7	-2	6	-5	-5	3	601	-25	210	260	74	-20	-20
5503						<0.5	43	25	110	1	54	34	-2	-5	-5	-5	4	1,746	-25	416	106	123	-20	-20
5504						<0.5	19	70	1,493	4	16	5	7	-5	-5	8	3	449	-25	192	349	62	23	-20
5505						<0.5	13	302	956	3	43	4	-2	12	16	21	3	1,003	-25	366	243	76	-20	-20
5506						<0.5	33	131	628	-1	64	23	3	-5	27	-5	3	2,119	-25	681	98	96	-20	-20
5507						<0.5	7	104	702	3	29	5	-2	-5	-5	-5	6	2,826	-25	448	215	80	-20	-20
5508	10.0000	10.0000				50.0	426	10000	20,000	160	505	50	1439	130	226	2000	2	155	41	36	173	18	119	-20
5509						<0.5	52	53	253	-1	66	24	-2	-5	14	-5	4	1,131	-25	675	130	132	-20	-20
5510						3.2	7	495	1,204	3	33	5	4	6	10	45	5	1,380	-25	284	284	67	21	-20

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Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5511						<0.5	46	129	211	-1	59	18	-2	-5	-5	6	4	1,159	-25	534	111	103	-20	-20
5512						6.0	5	1262	935	2	31	4	5	-5	37	96	3	837	-25	284	344	79	22	-20
5513						<0.5	14	85	411	-1	25	7	-2	6	-5	21	4	906	-25	208	276	67	-20	-20
5514						<0.5	46	40	150	-1	50	16	-2	-5	-5	-5	4	1,012	-25	632	108	136	-20	-20
5515						<0.5	14	84	431	2	24	8	-2	-5	8	21	3	571	-25	242	321	65	-20	-20
5516						<0.5	73	57	157	-1	74	31	-2	-5	16	-5	5	1,604	-25	713	107	127	-20	-20
5517						<0.5	12	33	134	-1	34	13	-2	6	-5	-5	6	2,084	-25	340	204	89	21	-20
5518						<0.5	27	55	584	81	55	17	-2	6	23	-5	6	895	-25	299	193	106	23	-20
5519						<0.5	21	86	578	12	36	7	-2	-5	33	-5	6	1,458	-25	338	218	101	-20	-20
5520						<0.5	16	60	195	8	29	12	-2	-5	82	-5	4	1,149	-25	309	242	78	25	-20
5521						<0.5	50	25	296	-1	74	18	-2	-5	11	-5	3	598	-25	788	137	188	-20	-20
5522						<0.5	16	32	132	4	43	14	-2	-5	-5	-5	7	2,362	-25	224	191	78	-20	-20
5523						1.9	41	901	1,073	-1	47	19	5	-5	51	14	3	1,271	-25	1,816	102	123	-20	-20
5524						<0.5	7	103	430	-1	13	3	-2	-5	15	-5	5	1,754	-25	490	222	85	-20	-20
5525						2.5	9	315	28	11	8	2	-2	-5	47	11	1	115	-25	92	123	33	-20	-20
5526						7.8	58	3434	2,423	4	46	18	3	-5	42	45	3	1,050	-25	905	116	157	-20	-20
5527	0.9400	1.1600				17.4	50	6686	10,758	11	17	6	68	13	24	59	4	882	-25	183	220	72	-20	-20
5528	0.3000	0.2800				4.5	26	2966	2,790	3	23	6	8	8	-5	39	4	1,022	-25	765	246	75	-20	-20
5529						3.8	53	1792	2,727	92	60	32	10	-5	45	15	3	1,404	-25	740	138	157	-20	-20
5530						3.2	15	1013	1,727	4	14	2	-2	5	47	49	3	625	-25	524	180	80	-20	-20
5531						<0.5	49	96	1,264	18	65	30	-2	-5	28	-5	4	1,138	-25	771	117	140	-20	-20
5532						<0.5	16	71	520	3	47	16	-2	6	-5	-5	7	1,600	-25	860	202	104	25	-20
5533	2.9400	1.8000				50.0	21	10000	18,016	19	10	4	72	20	64	190	1	325	-25	132	256	47	-20	-20
5534						<0.5	24	269	867	3	37	14	-2	-5	16	7	4	1,298	-25	468	162	109	-20	-20
5535						<0.5	44	417	2,063	9	69	37	15	-5	23	-5	3	2,330	-25	905	119	131	-20	-20
5536						<0.5	27	118	2,010	9	58	15	9	9	-5	-5	8	2,733	-25	783	194	132	-20	-20
5537						<0.5	54	213	4,339	10	67	40	20	-5	-5	-5	4	1,802	-25	914	111	151	-20	-20
5538						<0.5	23	766	1,650	3	39	15	2	-5	-5	15	6	1,466	-25	404	169	103	-20	-20
5539						<0.5	48	187	2,517	6	59	26	15	-5	14	-5	4	1,244	-25	776	110	138	-20	-20
5540						<0.5	14	64	2,589	5	61	20	20	-5	-5	-5	8	1,853	-25	644	149	103	-20	-20
5541						<0.5	20	173	1,193	5	24	10	-2	-5	-5	-5	4	700	-25	284	231	88	-20	-20
5542						<0.5	28	56	644	2	37	9	-2	-5	-5	-5	5	912	-25	305	161	94	-20	-20
5543						<0.5	45	101	449	5	52	14	-2	-5	48	-5	3	534	-25	757	122	168	-20	-20
5544						<0.5	29	44	438	2	49	17	-2	-5	6	-5	4	723	-25	393	175	110	-20	-20
5545	10.0000					50.0	377	10000	20,000	186	-1	29	1439	131	123	310	1	75	45	36	177	9	101	-20
5546	0.4100					25.1	45	10000	4,737	7	19	7	28	12	33	117	4	1,295	-25	267	174	48	31	-20
5547						<0.5	44	58	482	3	55	16	-2	-5	20	-5	3	756	-25	528	94	127	-20	-20
5548						<0.5	24	179	1,016	4	25	10	6	7	6	6	3	537	-25	243	317	71	-20	-20
5549						<0.5	50	1123	3,303	5	52	11	7	-5	21	18	3	591	-25	1,228	136	200	-20	-20
5550						<0.5	30	618	2,880	4	15	5	9	6	-5	12	5	1,592	-25	550	327	71	-20	-20
5551	3.2200	0.0900				43.1	26	10000	1,255	-1	10	9	4	-5	35	160	0	72	-25	2,000	254	14	-20	-20
5552	1.0700	2.7400				42.5	46	10000	20,000	-1	-1	5	148	27	19	75	1	25	-25	1,620	325	15	-20	-20
5553	0.4100	4.3400				6.9	77	4328	20,000	-1	-1	10	188	42	23	30	1	30	-25	921	458	14	21	-20
5554	0.2000	0.3800				9.0	90	1814	3,830	-1	1	19	15	21	35	31	0	28	-25	2,000	182	14	-20	-20
5555	1.3100	4.1100				49.7	105	10000	20,000	-1	-1	10	189	38	9	100	1	14	-25	895	206	20	26	-20
5556	0.1000	10.0000				11.4	16,585	965	20,000	110	15	37	1107	127	87	59	2	24	-25	296	275	-2	82	-20
5556	0.0300	8.8800				7.4	7,691	307	20,000	84	33	55	817	84	62	61	2	34	-25	21	388	3	67	-20
5557	0.0200	1.0800				1.1	719	156	11,742	13	14	11	78	10	19	13	1	90	-25	105	334	24	-20	-20
5558	<0.0100	5.1200				3.0	2,454	104	20,000	55	20	20	450	54	131	32	1	27	-25	53	363	9	-20	-20
5559	<0.0100	10.0000				1.1	1,559	135	20,000	95	70	50	837	91	161	30	1	39	-25	93	389	24	62	-20
5560	1.8000	10.0000				16.0	397	10000	20,000	183	73	130	2000	170	226	105	1	24	-25	58	166	17	100	-20
5561	<0.0100	1.0600				2.8	264	154	12,630	12	13	6	112	13	72	16	1	36	-25	135	347	32	-20	-20
5562	0.1000	10.0000				6.3	5,419	997	20,000	122	251	230	1784	124	151	85	2	63	-25	31	295	12	89	-20
5563	1.7100	1.4400				7.9	163	10000	14,804	14	102	14	114	14	574	63	1	27	-25	40	366	15	21	-20
5564	<0.0100	9.7500				2.2	172	172	20,000	88	15	35	675	67	142	48	3	34	-25	21	303	6	48	-20
5565	7.4900	0.5500				50.0	1,376	10000	6,015	6	13	3	25	6	14	20	2	242	-25	69	357	29	-20	-20
5601	0.4900	31.4200				50.0	30	4949	20,000	183	7	38	1009	155	125	103	1	24	-25	510	223	11	88	-20
5602	0.0300	0.0700				0.6	36	166	1,036	-1	8	29	3	8	-5	-5	1	29	-25	2,000	71	10	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Pb %	Zn %	Ba %	Cr %	Mn %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	NI ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Sb ppm	Fe %	Mn ppm	Te ppm	Ba ppm	Cr ppm	V ppm	Sn ppm	W ppm
5603	0.0600	0.2200				4.9	17,280	525	2,310	3	15	9	11	26	15	-5	2	204	-25	200	343	6	21	-20
5604	1.8300	0.7100				16.5	108	10000	7,559	7	8	4	31	8	20	10	1	29	-25	875	393	6	-20	-20
5605	1.5600	1.1900				22.1	131	10000	12,029	13	11	3	47	18	10	36	2	269	-25	200	358	46	-20	-20

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Tl %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
4001	27	<2	6	13	0.07	1.41	5.92	2.38	0.19	0.33	15.00	98	13	24	24	38	<20		<5	<10	1	<50					
4002	44	<2	25	<1	0.26	5.13	0.30	0.11	0.24	1.04	14.00	115	25	106	7	22	<20		<5	<10	2	<50					
4003	40	<2	24	<1	0.28	5.38	0.26	0.10	0.22	1.00	12.00	128	21	109	16	36	<20		<5	<10	1	<50					
4004	24	<2	21	<1	0.26	4.65	0.29	0.19	0.24	1.05	10.00	75	20	90	5	32	<20		<5	<10	<1	<50					
4005	40	<2	38	<1	0.41	4.27	0.71	0.23	0.57	0.89	11.00	62	27	155	8	33	<20		<5	<10	2	<50					
4006	48	<2	36	<1	0.36	4.96	0.80	0.14	0.58	0.82	15.00	59	24	148	5	26	<20		<5	<10	<1	<50					
4007	20	<2	20	<1	0.19	2.76	0.06	<0.05	0.11	0.47	11.00	152	15	83	6	24	<20		<5	<10	2	<50					
4008	22	<2	22	8	0.25	3.92	0.21	0.06	0.18	0.87	16.00	99	17	94	4	31	<20		<5	<10	<1	<50					
4009	6	3	<1	<1	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<1	2	<1	<1									7.48				
4010	7	<2	11	<1	0.12	1.52	0.52	0.20	0.07	0.58	7.00	34	12	32	12	26	<20		<5	<10	<1	<50					
4011	36	<2	<1	<1	0.54	2.98	0.71	0.63	0.38	0.34	5.00	145	21	44	6	29	<20		<5	<10	<1	<50					
4012	24	8	<1	<1	0.07	1.02	<0.05	<0.05	<0.05	0.33	2.00	17	8	19	131	<88	<20		<5	<10	1	<50	6.01				
4013	19	19	2	<1	<0.05	0.67	<0.05	<0.05	<0.05	0.25	2.00	20	4	14									4.35				
4014	26	<2	2	<1	0.09	1.24	<0.05	<0.05	<0.05	0.41	<1	27	8	25	94	<70	<20		<5	<10	2	<60	1.70				
4015	20	3	5	<1	0.09	0.95	0.06	<0.05	0.13	0.43	5.00	18	2	53	220	<150	<20		<5	<10	<1	<140	0.43				
4016	11	<2	23	55	<0.05	0.52	2.86	3.75	0.12	0.12	17.00	71	55	19	3	32	<20		<5	<10	1	<50					
4017	12	<10	<5	45	0.90	5.41	4.11	6.93	2.43	0.28	44.00	236	18	97	6	22	16										
4018	13	16	10	60	0.08	1.48	7.02	>10.00	0.31	0.53	7.00	382	14	22	2	8	5										
4019	32	13	<5	27	0.32	4.73	1.78	1.26	4.82	0.11	8.00	146	11	29	3	10	5										
4020	16	<2	3	47	0.08	1.95	2.43	9.06	0.11	0.38	10.00	56	26	27	4	29	<20		<5	<10	<1	<50					
4021	3	<2	10	<1	0.07	0.46	0.48	>10.00	0.17	0.14	4.00	310	14	6	5	25	<20		<5	<10	<1	<50					
4022	39	<2	18	15	0.09	2.12	5.12	>10.00	0.10	0.53	8.00	267	34	32	27	<70	<20		<5	<10	3	<120					
4023	82	<2	27	<1	0.29	6.14	0.53	0.23	0.33	1.05	14.00	76	25	112	5	29	<20		<5	<10	2	<50					
4024	46	<2	7	<1	0.20	3.29	0.40	0.22	0.22	0.76	10.00	126	17	78	8	43	<20		<5	<10	<1	<50					
4025	12	<2	>1	<1	<0.05	0.53	<0.05	<0.05	<0.05	0.22	<1	7	6	5									3.05				
4026	33	<2	9	<1	0.10	1.23	<0.05	<0.05	0.05	0.48	1.00	19	12	31	52	67	<20		<5	<10	2	<50	0.56				
4027	32	<10	<5	<5	0.04	1.01	0.33	0.79	0.21	0.28	<5	69	8	12	3	14	3										
4028	17	<10	>5	34	0.05	1.17	0.18	0.05	0.10	0.44	<5	40	<5	20	3	6	4										
4029	21	<10	6	79	0.09	1.22	1.84	3.69	0.15	0.42	16.00	110	11	21	1	12	3										
4030	23	<10	13	<5	0.15	2.05	0.27	0.04	0.16	0.61	<5	94	11	44	3	7	4										
4031	31	<10	6	<5	0.06	1.10	0.13	0.06	0.06	0.41	<5	31	8	23	11	15	9										
4032	12	<10	<5	66	0.03	0.64	8.37	>10.00	<0.01	0.22	7.00	1090	8	25	8	7	2										
4033	18	<10	<5	11	0.04	0.98	0.33	0.07	0.04	0.12	<5	53	5	21	3	15	5										
4034	4	<10	13	75	0.07	1.35	2.04	>10.00	0.81	0.21	11.00	808	16	49	4	11	6										
4035	27	<10	<5	<5	0.05	1.03	0.14	0.08	0.04	0.30	<5	52	<5	18	4	11	4										
4036	22	<10	7	<5	0.08	1.63	0.41	0.56	0.11	0.46	<5	50	8	33	8	12	8										
4037	6	<10	<5	<5	<0.01	0.05	<0.01	0.01	<0.01	<0.01	<5	9	<5	<5	3	7	3										
4038	44	<10	6	11	0.05	1.10	0.09	0.10	0.43	0.22	<5	117	5	27	3	10	5										
4039	4	<10	<5	<5	0.02	0.52	<0.01	<0.01	0.34	<0.01	<5	144	<5	<5	3	10	6										
4040	64	<10	<5	<5	0.03	0.95	0.33	0.76	0.16	0.25	<5	238	6	12	3	12	6										
4041	15	<10	<5	13	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<5	32	<5	8	3	9	4										
4042	115	16	17	23	0.29	2.49	0.04	0.74	0.07	0.25	128.00	49	<5	230	<1	<5	<1										
4043	45	14	38	28	1.07	4.47	5.32	>10.00	1.47	0.37	62.00	837	18	138	3	12	7										
4044	14	<10	<5	63	0.09	1.33	2.87	1.18	0.48	0.53	31.00	46	18	38	3	5	<1										
4045	20	<10	<5	23	0.10	1.19	3.55	4.28	0.28	0.35	23.00	50	13	30	1	<5	3										
4046	29	<10	8	<5	0.12	1.46	0.53	0.10	0.37	0.62	5.00	42	9	58	2	5	3										
4047	23	26	9	15	0.07	0.78	0.53	>10.00	0.10	0.02	9.00	711	14	19	4	<5	4										
4048	40	<10	11	<5	0.14	1.94	0.88	0.68	0.22	0.78	6.00	109	11	51	2	<5	4										
4049	55	<10	<5	11	0.05	0.77	0.73	0.35	0.08	0.21	<5	84	<5	34	2	<5	2										
4051	3	<10	9	108	<0.01	0.04	>10.00	>10.00	0.03	<0.01	9.00	48	8	<5	4	13	9										
4052	36	<10	<5	34	<0.01	0.03	0.90	>10.00	<0.01	<0.01	7.00	74	39	<5	3	10	5										
4053	15	<10	<5	49	<0.01	0.04	1.77	>10.00	<0.01	<0.01	7.00	54	72	<5	2	10	3										
4054	9	22	<5	56	0.24	5.24	1.76	>10.00	0.32	0.06	15.00	58	7	31	44	9	5										
4055	8	31	<5	53	0.26	4.77	2.09	>10.00	0.46	0.05	12.00	45	6	27	29	12	4										
4056	22	<10	<5	14	0.07	1.06	0.30	0.26	0.47	0.42	<5	37	7	35	8	9	5										
4057	35	<10	<5	38	0.05	1.06	0.45	0.14	0.15	0.20	<5	68	<5	1313	26	<5	2										
4058	26	<10	<5	59	0.38	3.43	0.84	0.51	1.99	0.34	<5	138	19	112	14	5	2						33.92				
4059	<2	19	<5	<5	<0.01	0.11	0.05	<0.01	0.03	0.05	<5	3	<5	<5	4	17	19										

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
4060	13	<10	<5	<5	0.03	0.44	0.06	0.01	0.05	0.15	<5	9	<5	<5	5	6	10						15.66				
4061	16	<10	<5	<5	0.01	0.29	0.05	<0.01	0.03	0.09	<5	9	<5	<5	2	<5	10						10.07				
4062	29	<10	19	<5	0.09	1.69	0.08	0.03	0.05	0.62	<5	32	6	19	84	<5	<1										
4063	8	<10	12	<5	0.09	1.63	0.91	0.80	0.07	0.33	<5	97	35	26	<1	<5	2										
4064	4	<10	9	41	0.33	3.35	0.22	0.36	3.35	0.45	9.00	42	7	67	<1	<5	2										
4065	24	<10	18	13	0.17	3.00	0.76	0.52	2.13	0.36	6.00	52	18	50	8	<5	16										
4066	29	<10	<5	28	0.09	1.64	2.08	1.71	0.28	0.44	6.00	95	11	22	<1	<5	<1										
4067	17	<10	10	56	0.08	1.53	2.64	9.95	0.10	0.26	7.00	144	21	12	2	<5	<1										
4068	33	<10	12	16	0.25	3.35	1.36	0.32	0.82	0.12	6.00	22	7	32	1	7	<1										
4069	26	<10	18	9	0.34	3.59	0.75	0.46	0.88	0.36	9.00	49	10	44	1	<5	<1										
4070	19	<10	8	<5	0.16	2.67	1.01	0.06	0.52	0.18	5.00	19	<5	24	2	<5	<1										
4071	16	13	<5	<5	0.03	0.58	0.07	0.02	0.05	0.19	<5	4	<5	<5	58	<5	<1						2.14				
4072	9	23	<5	<5	0.02	0.36	0.07	<0.01	0.04	0.12	<5	3	<5	<5	59	<5	3						4.04				
4073	34	34	<5	<5	<0.01	0.23	0.05	<0.01	0.05	0.07	9.00	3	<5	<5	30	<5	<1										
4074	74	<10	<5	<5	0.01	0.40	0.06	0.01	0.05	0.09	5.00	5	<5	<5	9	<5	<1										
4075	25	43	<5	<5	0.01	0.27	<0.01	0.01	0.14	0.12	6.00	8	<5	<5	31	9	1	<10									
4076	27	34	<5	<5	<0.01	0.23	<0.01	<0.01	0.03	0.04	<5	5	<5	<5	11	<5	2	<10									
4077	38	12	31	<5	0.25	2.99	1.47	2.55	0.51	0.37	5.00	212	90	75	4	11	1	<10									
4078	36	13	49	<5	0.10	3.09	1.35	4.01	0.36	0.41	<5	223	173	38	3	<5	<1	<10									
4079	29	<10	<5	<5	0.02	0.63	0.05	0.11	0.06	0.17	<5	14	<5	<5	3	9	<1	<10									
4080	3	<10	87	<5	<0.01	0.30	0.32	>10.00	0.21	0.09	10.00	577	168	10	1	7	3	<10						138	39	<50	74
4081	38	<10	12	<5	0.05	0.63	0.13	0.03	0.02	0.32	<5	57	6	29	14	25	11										
4082	24	<10	13	<5	0.12	1.45	0.31	0.04	0.15	0.88	<5	104	8	44	9	20	8										
4083	17	14	15	<5	0.11	1.87	1.09	2.69	1.53	0.40	6.00	571	14	68	7	21	6										
4084	29	<10	6	6	<0.01	0.16	0.92	>10.00	<0.01	<0.01	11.00	112	<5	13	5	23	4										
4085	20	<10	<5	79	0.06	0.98	3.79	7.11	0.05	0.27	16.00	47	13	26	11	24	6										
4086	45	<10	27	9	0.36	3.91	0.23	0.15	0.04	0.56	9.00	52	16	116	6	21	7										
4087	31	20	<5	57	0.06	1.52	2.51	0.76	0.28	0.46	14.00	32	12	19	2	<5	<1										
4088	60	<10	22	33	0.20	2.82	1.06	0.63	0.13	0.45	7.00	76	24	59	<1	6	<1										
4089	17	<10	<5	53	0.10	1.99	1.91	0.61	0.37	0.66	6.00	31	8	27	36	<5	<1										
4090	18	<10	28	<5	0.39	2.22	0.30	0.08	0.37	0.63	7.00	40	12	87	3	<5	<1										
4091	13	18	<5	78	1.21	3.95	2.74	5.25	2.30	0.29	16.00	216	19	12	4	30	29										
4092	10	19	<5	60	0.69	5.06	3.99	6.88	2.16	0.24	14.00	260	13	22	3	15	10										
4093	30	<10	<5	<5	0.32	4.06	1.56	1.70	4.16	0.15	<5	225	7	16	2	6	2										
4094	11	16	<5	56	0.84	4.95	3.10	7.78	1.95	0.21	12.00	213	16	31	4	15	9										
4095	5	<10	<5	21	0.01	0.19	0.40	8.36	0.06	0.07	7.00	201	<5	<5	3	<5	<1										
4096	30	13	11	35	0.55	4.32	2.56	>10.00	1.34	0.55	20.00	157	17	50	3	5	4										
4097	24	<10	8	31	0.49	3.47	2.02	8.61	1.29	0.49	13.00	184	15	48	3	<5	3										
4098	12	20	<5	60	0.79	3.66	2.64	7.70	2.11	0.65	19.00	579	13	24	6	10	12										
4099	17	19	<5	36	0.85	4.40	3.00	7.83	1.84	0.28	14.00	229	15	36	2	<5	10										
4100	18	<10	15	13	0.29	3.30	0.16	0.06	0.11	0.84	7.00	117	11	50	<1	<5	<1										
4101	12	<10	20	26	0.15	2.29	0.77	1.26	0.10	0.45	6.00	128	47	38	1	<5	<1										
4102	13	<10	16	80	0.14	2.32	0.72	0.70	0.07	0.39	8.00	97	25	29	<1	<5	<1										
4103	10	<10	18	32	0.14	2.07	2.93	8.75	0.08	0.38	13.00	122	22	25	1	<5	<1										
4104	23	24	14	<5	0.93	4.09	1.79	5.38	1.06	0.60	7.00	141	18	28	187	<5	2										
4105	38	15	12	<5	0.55	2.85	1.37	4.04	1.28	0.82	12.00	132	14	44	4	<5	3										
4106	27	<10	14	<5	0.47	3.05	1.67	4.28	1.20	0.47	9.00	732	26	31	41	<5	5										
4107	39	11	14	<5	0.65	4.51	1.98	3.53	1.51	0.92	12.00	174	19	53	3	<5	5										
4108	47	12	18	<5	0.56	5.64	2.13	2.57	1.49	1.16	15.00	134	21	71	3	<5	5										
4109	40	15	13	35	0.55	4.37	2.61	3.90	1.65	0.68	15.00	122	14	48	1	7	3										
4110	37	<10	17	20	0.34	3.04	2.13	5.74	1.02	0.81	10.00	189	14	41	4	<5	4										
4111	19	127	40	24	0.08	1.59	0.72	5.00	0.15	0.38	7.00	185	106	15	3	<5	1										
4112	19	<10	30	78	0.06	2.75	3.71	>10.00	0.40	0.73	8.00	233	56	30	2	<5	3										
4113	22	17	21	53	0.17	3.02	3.57	8.14	0.52	0.67	13.00	151	31	40	1	6	<1										
4114	9	<10	21	18	0.05	0.76	0.08	0.05	0.05	0.18	<5	58	13	7	4	<5	1										
4115	7	<10	16	36	0.15	2.05	0.55	0.94	0.06	0.57	<5	133	24	33	3	<5	<1										
4116	<2	<10	<5	<5	0.02	0.28	0.05	<0.01	0.03	0.11	<5	4	<5	<5	81	<5	<1						53.59				
4117	64	<10	5	42	0.05	0.95	0.11	0.04	0.06	0.19	<5	14	<5	7	2	<5	<1										

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
4118	5	<10	23	8	0.09	1.55	0.07	0.01	0.04	0.19	<5	75	7	19	1	<5	<1										
4119	13	<10	26	19	0.15	2.29	0.11	0.02	0.06	0.49	<5	147	9	36	<1	<5	<1										
4120	10	<10	21	<5	0.07	0.93	0.53	0.11	0.04	0.19	<5	119	7	12	1	<5	<1										
4121	7	<10	<5	53	1.61	3.88	2.00	5.68	1.69	0.15	12.00	165	28	47	13	30	175										
4122	38	<10	8	48	0.09	1.49	0.19	0.03	0.24	0.47	<5	66	<5	28	3	<5	2										
4123	20	<10	6	24	0.06	1.29	0.17	0.05	0.46	0.28	<5	75	5	29	<1	9	3										
4124	8	<10	<5	30	<0.01	0.13	0.09	0.15	0.04	0.03	<5	31	<5	<5	8	<5	<1										
4125	4	<10	<5	34	0.04	0.45	0.08	0.03	0.31	0.04	<5	151	<5	<5	<1	<5	1										
4126	9	<10	10	<5	0.08	1.17	0.18	0.03	0.29	0.29	<5	34	7	14	3	7	<1										
4127	8	<10	10	<5	0.06	1.14	0.18	0.12	0.58	0.17	<5	45	<5	13	3	<5	<1										
4128	18	<10	18	88	0.06	0.50	0.02	0.02	0.10	0.23	<5	33	<5	9	109	17	2						28.00				
4129	30	<10	23	27	0.14	1.29	0.09	0.05	0.06	0.52	<5	53	8	34	58	6	<1						4.14				
4130	30	<10	<5	32	0.02	0.39	0.07	0.02	0.03	0.12	<5	20	<5	<5	3	11	<1										
4131	10	<10	10	5	0.08	2.02	0.36	0.53	0.64	0.56	<5	72	8	19	3	<5	<1										
4132	18	<10	9	26	0.12	2.36	0.57	0.41	0.72	0.57	<5	81	5	22	2	6	<1										
4133	8	<10	16	<5	0.31	2.87	0.41	0.24	0.92	1.10	7.00	52	6	36	5	9	<1										
4134	10	<10	9	59	0.12	2.09	1.68	6.11	0.53	0.50	8.00	194	17	18	2	6	<1										
4135	6	17	<5	6	0.01	0.57	0.02	0.01	0.09	0.20	6.00	5	<5	<5	44	<5	<1										
4136	3	<10	<5	<5	<0.01	0.26	0.07	0.04	0.04	0.09	<5	4	<5	<5	91	18	2										
4137	6	<10	12	8	0.07	1.30	0.09	0.02	0.06	0.55	<5	10	<5	9	9	8	<1										
4138	5	<10	<5	34	<0.01	0.17	0.06	<0.01	0.03	0.05	6.00	8	<5	<5	92	16	1										
4139	3	<10	26	<5	<0.01	0.28	0.06	<0.01	0.04	0.10	<5	6	7	<5	16	6	<1						4.99				
4140	44	<10	<5	<5	0.04	0.89	0.02	0.09	0.04	0.34	<5	12	<5	<5	5	11	<1	<10									
4141	9	13	10	74	1.60	4.52	1.90	5.03	3.36	0.31	22.00	108	28	97	2	<5	2										
4142	9	<10	11	<5	0.08	1.34	0.18	0.08	0.55	0.26	<5	31	7	16	1	<5	<1										
4143	6	<10	6	10	0.09	0.94	0.13	0.08	0.35	0.22	<5	16	<5	14	3	<5	<1										
4144	34	<10	10	41	0.31	3.38	1.17	0.35	1.52	0.54	7.00	44	9	40	3	8	1										
4145	10	11	21	32	0.36	3.59	0.23	0.25	0.11	1.24	7.00	22	12	41	8	10	1										
4146	8	<10	7	16	0.11	1.15	0.10	0.05	0.07	0.72	7.00	13	<5	18	370	5	<1						2.90				
4147																											
4148	10	<10	18	28	0.25	1.84	0.13	0.03	0.09	1.03	<5	17	6	35	49	7	<1						8.48				
4149	13	<10	19	14	0.15	1.58	0.12	0.18	0.07	1.00	<5	19	14	23	41	<5	1						8.68				
4150	2	17	<5	<5	0.01	0.22	<0.01	0.01	0.02	0.08	<5	3	<5	<5	168	<5	4						37.54				
4151	11	<10	<5	<5	0.01	0.23	0.05	0.01	0.04	0.10	<5	5	<5	<5	27	<5	2										
4152	13	<10	12	<5	0.08	0.80	0.07	0.04	0.05	0.32	<5	17	<5	8	23	<5	2										
4153	<2	<10	19	<5	0.04	1.18	0.10	0.05	0.05	0.52	<5	12	6	15	4	<5	2										
4154	3	<10	12	<5	0.05	1.50	0.23	0.11	0.09	0.76	<5	10	<5	18	6	5	2										
4155	30	18	<5	<5	0.05	0.94	0.02	0.45	0.06	0.33	11.00	18	7	10	64	5	<1	<10									
4156	7	<10	7	<5	0.05	1.25	0.05	0.17	0.07	0.51	<5	10	<5	17	17	11	<1						10.27				
4157	3	<10	<5	<5	<0.01	0.18	<0.01	0.01	0.03	0.06	<5	3	<5	<5	17	8	<1	<10					3.72				
4158	6	<10	16	<5	0.01	0.34	<0.01	0.05	0.06	0.25	21.00	5	<5	560	70	9	<1	<10									
4159	18	16	<5	<5	0.03	0.93	2.07	>10.00	0.26	0.14	55.00	367	43	226	11	12	1	<10									
4160	8	<10	15	<5	0.04	0.83	0.02	0.12	0.04	0.21	<5	72	13	13	2	<5	<1	<10									
4161	17	<10	<5	<5	0.07	1.10	2.83	8.54	0.21	0.28	22.00	70	23	50	2	11	<1	<10									
4162	45	19	5	<5	0.21	2.66	1.29	1.02	0.49	0.72	25.00	59	39	68	3	10	1	<10									
4163	54	<10	<5	<5	0.02	0.83	0.07	0.28	0.06	0.22	18.00	18	<5	6	36	7	<1	<10									
4164																											
4165	50	<10	5	<5	0.06	1.00	0.05	0.42	0.08	0.27	<5	16	<5	7	1	10	<1	<10									
4166	26	<10	<5	<5	0.04	0.76	2.12	6.43	0.07	0.27	11.00	30	12	14	8	10	1	<10									
4167	29	<10	11	<5	0.13	1.49	0.11	0.26	0.47	0.44	9.00	10	<5	17	3	14	<1	<10									
4168	25	<10	7	<5	0.10	1.32	0.12	0.45	0.61	0.46	6.00	11	<5	16	10	5	<1	<10									
4169	22	<10	<5	<5	0.09	0.77	0.01	0.01	0.30	0.53	12.00	11	<5	25	12	9	<1	<10									
4170	36	<10	<5	<5	0.04	0.79	0.02	0.09	0.22	0.24	10.00	6	<5	7	4	<5	<1	<10									
4171	49	<10	<5	<5	0.06	0.90	0.01	<0.01	0.08	0.31	10.00	9	<5	9	16	11	<1	<10									
4172	34	29	<5	<5	<0.01	0.41	<0.01	<0.01	0.04	0.06	26.00	3	<5	<5	31	7	<1	<10									
4173	16	38	<5	<5	<0.01	0.23	<0.01	<0.01	0.03	0.05	66.00	6	<5	<5	13	9	2	<10									
4174	44	17	<5	<5	0.06	1.00	0.02	0.01	0.06	0.30	<5	11	<5	7	32	<5	<1	<10									
4175	26	<10	<5	<5	0.15	2.35	1.43	0.78	0.53	0.51	11.00	59	10	62	3	5	<1	<10									

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm		
4176	22	<10	10	<5	0.06	0.85	0.02	<0.01	0.04	0.35	<5	13	<5	9	6	<5	<1	<10											
4177	10	<10	12	<5	0.05	1.00	0.04	0.03	0.04	0.38	<5	26	7	11	4	<5	<1	<10											
4178	29	<10	<5	<5	0.01	0.35	<0.01	<0.01	0.05	0.15	<5	4	<5	<5	35	9	<1	<10											
4179	12	<10	7	<5	0.08	1.12	0.03	0.68	0.08	0.52	<5	15	<5	16	2	8	<1	<10											
4180	16	<10	<5	<5	0.05	1.03	5.25	>10.00	0.20	0.34	15.00	442	10	31	3	5	<1	<10											
4181	40	<10	<5	<5	0.02	0.61	0.02	0.04	0.06	0.19	12.00	9	<5	5	12	8	<1	<10											
4182	28	<10	8	<5	0.10	1.44	0.08	0.09	0.09	0.76	<5	13	<5	16	29	7	<1	<10					2.68						
4183	33	<10	<5	<5	<0.01	0.20	<0.01	<0.01	0.04	0.02	208.00	2	<5	19	15	5	2	<10					1.60						
4184	54	<10	<5	<5	0.03	0.68	0.02	0.03	0.06	0.19	<5	7	<5	<5	57	<5	<1	<10											
4185	25	17	19	<5	0.42	2.71	0.30	0.64	0.13	0.42	21.00	71	12	81	2	7	1	<10											
4186	8	<10	<5	<5	0.07	1.42	4.57	>10.00	0.23	0.35	18.00	80	14	33	3	10	2	<10											
4187	14	<10	<5	<5	0.06	0.80	0.09	0.25	0.15	0.17	7.00	12	<5	<5	1	12	1	<10											
4188	24	<10	<5	<5	0.02	0.40	0.01	0.06	0.05	0.11	<5	9	<5	<5	7	6	<1	<10											
4189	40	30	7	<5	0.29	3.04	0.35	0.20	0.19	0.77	19.00	35	20	72	2	7	<1	<10											
4190	36	<10	17	<5	0.18	2.68	0.49	0.02	0.29	0.96	10.00	102	10	49	7	<5	2												
4191	60	<10	18	<5	0.24	3.59	1.36	2.80	1.16	0.38	19.00	196	39	35	422	26	4												
4192	5	<10	18	<5	0.08	1.34	0.06	0.02	0.28	0.40	<5	21	13	22	7	<5	1												
4193	4	<10	13	<5	<0.01	0.14	0.03	>10.00	0.06	0.04	19.00	38	105	<5	155	6	1						9.78						
4194	4	<10	12	<5	0.17	1.57	0.10	0.19	0.10	0.45	21.00	10	8	26	57	7	1												
4195	14	<10	<5	<5	0.04	0.67	0.85	2.79	0.06	0.26	5.00	39	6	7	7	7	1												
4196	14	<10	7	<5	0.06	1.09	0.04	0.02	0.06	0.42	<5	14	<5	11	6	8	1							2.76					
4197	5	<10	<5	<5	<0.01	0.35	0.02	0.02	0.04	0.14	6.00	3	<5	<5	8	6	1												
4198	194	18	29	<5	0.58	5.16	0.24	0.07	0.31	1.05	23.00	79	20	106	3	<5	3	<10											
4199	26	<10	<5	<5	0.18	2.07	0.75	1.53	0.33	0.53	10.00	63	19	51	39	6	1	<10											
4200	24	<10	10	<5	0.09	1.58	0.08	0.22	0.11	0.46	13.00	11	12	14	4	7	<1	<10											
4201	31	<10	>5	<5	0.03	0.70	0.03	0.15	0.06	0.21	<5	13	<5	<5	22	<5	<1	<10											
4202	13	<10	9	<5	0.04	0.71	0.03	0.07	0.05	0.26	<5	25	11	9	3	7	1	<10											
4203	8	<10	9	<5	0.07	0.87	0.03	0.02	0.06	0.31	<5	32	5	14	2	11	1	<10											
4204	22	46	6	<5	0.20	3.31	2.13	1.47	0.45	1.46	23.00	63	14	67	1	10	<1	<10											
4205	42	18	>5	<5	0.01	0.56	0.03	0.02	0.05	0.07	<5	7	<5	<5	119	8	<1	<10											
4206	15	36	15	<5	0.26	3.39	1.51	3.41	0.38	0.85	25.00	49	19	58	3	8	<1	<10											
4207	127	19	14	<5	0.35	3.41	1.48	0.89	1.67	0.55	17.00	81	10	52	3	5	1	<10											
4208	27	<10	19	<5	0.22	3.37	0.65	0.03	0.28	0.60	9.00	71	14	58	2	6	3												
4209	6	<10	8	<5	0.08	0.99	0.03	<0.01	0.24	0.28	6.00	16	<5	16	9	8	3												
4210	36	<10	5	<5	0.05	0.56	0.01	<0.01	0.06	0.20	7.00	12	<5	12	43	<5	1												
4211	22	<10	<5	<5	0.02	0.53	1.20	4.04	0.09	0.07	7.00	57	6	5	3	9	1												
4212																													
4213	16	<10	9	<5	0.11	1.93	4.87	>10.00	0.33	0.22	26.00	164	26	27	3	<5	1												
4214	43	<10	9	<5	0.13	2.35	0.74	0.76	0.21	0.25	5.00	24	8	23	3	7	1												
4216	14	<10	12	<5	0.08	1.41	0.14	0.18	0.07	0.32	<5	33	8	22	3	6	2												
4217	8	<10	8	<5	0.06	1.05	0.03	3.80	0.06	0.32	6.00	33	10	9	11	<5	1												
4218	4	<10	14	<5	0.04	0.75	0.03	>10.00	0.05	0.37	18.00	28	93	6	11	6	1												
4219	6	<10	138	<5	<0.01	0.44	0.28	>10.00	0.24	0.20	29.00	741	245	<5	4	11	5							40.0	<50		93		
4220	17	<10	<5	<5	0.05	1.10	0.27	0.86	0.52	0.21	6.00	25	<5	5	2	9	1	<10											
4221	57	32	28	<5	1.92	3.54	0.81	0.88	0.24	0.54	42.00	77	16	227	3	8	<1	<10											
4222	30	<10	7	<5	0.05	0.87	0.02	3.40	0.09	0.27	57.00	25	8	13	12	6	2												
4223	26	<10	17	<5	0.19	1.93	0.07	2.71	0.13	0.54	11.00	26	14	26	19	8	1												
4224	10	<10	6	<5	0.09	1.35	0.10	0.05	0.23	0.35	<5	17	<5	14	5	6	<1												
4225	132	<10	7	<5	0.07	1.33	0.85	1.89	0.09	0.17	5.00	36	5	10	2	8	1												
4226	74	<10	5	<5	0.08	1.28	0.10	0.03	0.13	0.27	33.00	13	<5	14	16	5	1												
4241	39	11	9	<5	0.25	2.10	0.65	1.27	0.69	0.20	9.00	33	11	39	5	9	1	<10											
5001	86		-5	-5	0.03	0.43	0.04	-0	-0.01	0.11	-5.00	10	-5	12	5	-5	-10												
5002	40	-10	22	21	0.16	1.10	0.09	0	0.12	0.54	9.00	48	17	57	16	25	16	19											
5003	39	-10	19	25	0.14	0.97	0.05	0	0.13	0.42	6.00	39	13	51	31	10	12	28											
5004	76	-10	-5	-5	0.02	0.34	0.05	0	-0.01	0.05	-5.00	9	-5	7	5	-5	4	-10											
5005	31	-10	26	-5	0.18	1.19	0.11	0	0.19	0.49	7.00	53	15	65	18	-5	10	18											
5006	40	-10	-5	-5	0.01	0.22	0.03	0	-0.01	0.04	-5.00	7	-5	9	5	5	5	-10											
5007	62	-10	43	-5	0.26	1.55	0.10	0	0.17	0.53	31.00	65	18	130	17	19	11	33											

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Tl %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
5008	90	-10	56	-5	0.17	1.87	0.02	0	0.11	0.55	65.00	54	18	233	21	78	13	32									
5009	115	-10	46	25	0.28	2.64	0.02	0	0.19	0.86	84.00	37	20	289	19	78	8	31									
5010	60	-10	45	-5	0.18	2.28	-0.01	0	0.13	1.09	21.00	46	29	156	20	91	10	18									
5011	69	-10	25	-5	0.37	2.13	-0.01	0	0.16	0.77	36.00	51	22	226	16	86	7	21									
5012	57	-10	34	-5	0.54	2.04	-0.01	0	0.15	0.91	65.00	59	27	262	43	221	19	22									
5013	61	-10	42	-5	0.44	1.87	0.02	0	0.14	0.88	34.00	46	28	224	11	-5	6	22									
5014	21	-10	17	-5	0.15	0.92	-0.01	-0	0.05	0.34	8.00	27	14	55	6	-5	8	17									
5015	86	-10	10	-5	0.13	1.14	0.22	0	0.14	0.32	-5.00	34	-5	27	4	-5	4	-10									
5016	36	-10	28	-5	0.33	1.03	0.05	0	0.18	0.45	24.00	40	15	96	-5		8	46									
5017	87	-10	16	9	0.18	1.39	0.07	-0	0.19	0.89	92.00	27	12	307	-5		5	28									
5018	64	-10	33	-5	0.24	1.76	0.08	0	0.17	0.86	63.00	40	17	279	-5		3	30									
5019	66	-10	27	-5	0.26	2.37	0.09	0	0.18	0.83	84.00	62	16	356	-5		6	35									
5020	61	-10	56	-5	0.24	1.94	0.04	0	0.17	0.97	59.00	52	16	263	-5		2	27									
5021	60	-10	36	-5	0.15	1.89	0.09	1	0.18	0.50	85.00	57	20	186	78		16	21									
5022	15	-10	17	-5	0.10	1.79	0.15	1	0.18	0.34	20.00	40	29	44	40		13	-10									
5023	47	-10	29	-5	0.27	1.75	0.07	0	0.16	0.42	48.00	46	18	134	-5		10	22									
5024	22	-10	25	7	0.13	1.03	0.12	0	0.01	0.54	-5.00	41	14	42	-5		10	-10									
5025	29	-10	26	24	0.15	1.77	0.22	1	0.19	0.61	-5.00	60	40	53	-5		24	-10									
5026	24	-10	33	-5	0.11	1.77	0.18	2	0.09	0.49	-5.00	58	49	54	-5		23	18									
5027	22	-10	40	-5	0.13	1.90	0.17	2	0.05	0.44	-5.00	73	61	83	-5		40	22									
5028	13	-10	-5	86	-0.01	0.12	0.02	0	-0.01	-0.01	-5.00	5	-5	-5	2	-5	4	-10									
5029	22	-10	-5	-5	-0.01	0.13	0.02	0	-0.01	-0.01	-5.00	4	-5	-5	2	-5	3	-10									
5030	48	-10	19	13	0.30	1.92	0.30	0	0.35	0.76	11.00	57	10	101	3	-5	7	12									
5031	26	11	40	-5	0.20	2.02	0.18	0	0.04	0.84	9.00	39	8	85	4	6	17	-10									
5032	51	-10	-5	-5	0.01	0.29	0.03	0	-0.01	0.05	-5.00	8	-5	6	2	-5	4	-10									
5033	41	-10	27	13	0.18	1.11	0.07	0	-0.01	0.44	10.00	37	7	78	8	6	15	19									
5034	64	-10	-5	22	0.03	0.45	0.04	0	-0.01	0.09	-5.00	11	-5	13	5	9	4	-10									
5035	25	-10	41	12	0.13	2.19	0.20	0	0.12	0.82	9.00	53	25	86	7	-5	11	11									
5036	79	-10	-5	-5	0.03	0.48	0.04	-0	-0.01	0.12	-5.00	17	-5	13	3	-5	3	-10									
5037	36	-10	36	-5	0.10	1.69	0.10	0	0.04	0.59	6.00	41	13	65	7	-5	9	22									
5038	39	-10	11	46	0.11	1.36	0.10	-0	0.03	0.52	-5.00	27	6	39	5	-5	3	-10									
5039	44	-10	29	65	0.15	1.57	0.11	0	0.04	0.68	-5.00	100	10	65	4	-5	7	12									
5040	15	-10	-5	-5	-0.01	0.06	0.02	-0	-0.01	-0.01	-5.00	26	-5	-5	3	8	2	-10									
5041	93	18	9	20	0.32	1.13	0.14	-0	0.19	1.00	79.00	70	-5	206	7	-5	9	19									
5042	61	-10	5	19	0.40	2.60	1.13	2	0.87	0.19	11.00	75	10	41	3	10	6	-10									
5043	76	23	-5	-5	0.17	1.03	0.07	0	0.19	0.91	168.00	19	-5	337	5	31	8	34									
5044	12	-10	-5	-5	0.65	3.38	2.06	5	1.59	0.17	13.00	133	11	38	3	11	10	-10									
5045	60	28	36	14	0.17	1.89	0.14	0	0.14	0.82	136.00	63	7	447	5	-5	3	37									
5046	94	19	50	7	0.27	3.14	0.15	0	0.28	1.22	140.00	64	10	401	2	6	4	30									
5047	91	20	58	-5	0.27	2.09	0.13	0	0.20	1.03	131.00	59	12	392	5	-5	5	30									
5048	83	11	35	-5	0.15	1.61	0.05	0	0.06	0.69	42.00	38	9	271	2	10	2	24									
5049	121	16	50	-5	0.29	3.12	0.06	0	0.20	0.72	168.00	91	12	607	3	-5	-1	50									
5050	93	-10	27	-5	0.17	1.67	0.04	0	0.05	0.46	45.00	22	10	189	5	-5	3	18									
5051	90	24	70	-5	0.34	6.64	0.16	0	0.48	1.29	167.00	83	20	683	4	-5	-1	41									
5052	82	-10	27	-5	0.31	1.45	0.02	-0	0.03	0.09	38.00	28	26	477	2	7	3	-10									
5053	98	21	72	38	0.41	2.56	0.13	0	0.29	0.90	140.00	95	18	451	3	-5	2	28									
5054	118	-10	37	-5	0.36	1.43	0.03	0	0.05	0.39	49.00	28	10	228	1	-5	2	15									
5055	148	16	44	11	0.53	2.93	0.05	0	0.21	0.63	100.00	48	15	381	3	7	-1	21									
5056	128	13	16	-5	0.40	1.82	0.03	-0	0.07	0.50	68.00	12	11	254	2	-5	2	11									
5057	137	20	43	27	0.40	2.46	0.06	0	0.15	0.63	59.00	36	11	275	-5		-1	15									
5058	116	-10	16	44	0.37	1.37	0.02	0	0.04	0.20	48.00	14	8	206	1	9	2	-10									
5059	119	-10	8	8	0.37	3.19	0.06	0	0.27	0.47	79.00	27	5	239	10	7	2	30									
5060	102	10	25	55	0.36	1.09	0.03	-0	0.04	0.31	36.00	18	9	167	3	-5	3	17									
5061	151	25	68	32	0.47	3.33	0.06	0	0.20	0.98	86.00	133	15	418	5	-5	1	27									
5062	92	-10	17	-5	0.35	3.70	0.03	0	0.21	0.22	72.00	17	12	240	-1	-5	2	17									
5063	149	-10	11	22	0.48	3.00	0.04	0	0.19	0.42	91.00	33	8	332	7	6	2	50									
5064	107	18	45	-5	0.68	3.29	0.10	0	0.22	0.90	98.00	52	25	393	1	15	2	24									
5065	79	26	49	7	0.57	2.64	0.14	0	0.20	0.97	85.00	47	24	318	3	36	3	17									

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
5066	86	16	42	24	0.80	3.17	0.12	0	0.18	0.84	84.00	51	18	306	3	11	5	21									
5067	65	-10	27	30	0.15	1.53	0.05	-0	0.04	0.68	55.00	26	8	258	2	7	3	24									
5068	76	26	46	-5	0.30	3.69	0.08	0	0.19	0.77	139.00	38	15	654	-1	-5	48										
5069	52	-10	13	-5	0.03	0.72	0.03	-0	-0.01	0.09	21.00	16	-5	47	3	11	3	-10									
5070	74	-10	11	63	0.38	2.05	0.09	0	0.30	0.75	161.00	70	6	287	9	5	3	70									
5071	71	17	70	13	0.42	2.50	0.12	0	0.16	0.87	149.00	112	13	305	6	8	8	33									
5072	29	10	34	-5	0.23	1.95	0.18	0	0.06	0.67	29.00	50	9	109	12	-5	15	11									
5073	10	-10	32	7	0.09	1.82	0.10	0	0.08	0.38	15.00	26	33	47	27	-5	21	-10									
5074	10	-10	17	-5	0.09	1.27	0.11	0	0.09	0.40	13.00	23	10	56	13	8	18	-10									
5075	23	-10	23	-5	0.15	1.85	0.13	0	0.09	0.45	15.00	42	8	75	7	-5	7	-10									
5076	151	13	42	27	0.28	2.36	0.03	0	0.09	0.40	93.00	40	18	374	2	7	2	32									
5077	154	19	57	34	0.49	3.45	0.13	0	0.35	0.62	155.00	84	25	511	23	16	4	37									
5078	50	19	57	17	0.52	2.95	0.22	0	1.13	1.20	85.00	46	26	290	4	10	2	15									
5079	12	-10	25	-5	0.38	1.53	0.09	0	2.47	1.52	63.00	47	12	247	2	-5	2	14									
5080	48	15	40	11	0.47	2.62	0.26	0	0.97	1.11	77.00	47	17	237	2	8	2	12									
5081	44	-10	21	-5	0.35	1.98	0.11	1	1.57	1.69	67.00	115	11	216	3	7	2	12									
5082	45	17	47	10	0.36	2.28	0.25	0	0.60	1.25	54.00	72	17	203	22	26	11	14									
5083	75	10	28	-5	0.23	1.34	0.05	-0	0.05	0.62	50.00	28	9	167	5	10	3	35									
5084	192	25	23	70	0.40	3.88	0.07	0	0.32	1.08	206.00	54	24	903	13	5	2	91									
5085	150	-10	31	-5	0.16	0.91	0.02	-0	0.02	0.14	54.00	18	9	205	19	7	2	53									
5086	696	24	28	31	0.43	2.58	0.05	0	0.17	0.62	164.00	70	18	619	54	6	1	74									
5087	53	11	29	5	0.33	2.17	0.24	0	0.34	0.71	25.00	94	11	120	22	10	6	26									
5088	95	10	30	-5	0.15	1.08	0.04	-0	0.02	0.36	43.00	30	9	151	10	5	2	33									
5089	65	-10	-5	-5	0.02	0.35	0.04	-0	-0.01	0.09	-5.00	14	-5	13	10	12	6	-10									
5090	33	-10	32	8	0.05	1.23	0.04	-0	0.01	0.21	32.00	29	-5	114	4	10	5	-10									
5091	55	-10	81	-5	0.22	2.44	0.06	0	0.08	0.38	88.00	136	12	253	9	-5	4	21									
5092	38	-10	7	34	0.03	0.43	0.07	0	0.02	0.03	6.00	14	-5	16	6	7	4	-10									
5093	59	11	55	20	0.23	2.31	0.11	0	0.12	0.58	73.00	80	10	192	14	-5	10	24									
5094	71	-10	27	-5	0.06	1.05	0.04	-0	0.02	0.23	31.00	26	5	105	4	9	4	15									
5095	78	14	53	6	0.24	2.72	0.12	0	0.18	0.81	129.00	71	11	299	9	-5	6	27									
5096	66	-10	12	-5	0.03	0.70	0.04	0	-0.01	0.12	14.00	17	-5	39	4	10	5	-10									
5097	78	14	63	-5	0.28	2.92	0.14	0	0.19	0.80	134.00	80	13	339	8	-5	5	25									
5098																											
5099	104	-10	16	-5	0.34	1.05	0.02	-0	0.04	0.37	43.00	9	8	198	2	7	3	-10									
5100	172	27	53	-5	0.64	7.71	0.03	0	0.43	0.78	136.00	60	17	478	4	-5	1	24									
5101	86	-10	7	26	0.05	0.74	0.05	-0	-0.01	0.18	7.00	14	-5	28	4	10	4	-10									
5102	343	25	27	24	0.53	2.69	0.08	0	0.20	0.71	119.00	67	18	399	24	8	2	62									
5103	48	-10	7	-5	0.13	0.73	0.05	-0	-0.01	0.22	7.00	26	-5	23	15	8	5	-10									
5105	104	17	31	18	0.37	2.53	0.20	0	0.23	1.25	88.00	154	11	265	4	-5	4	16									
5106	94	18	79	-5	0.32	2.92	0.14	0	0.21	1.23	116.00	93	14	398	4	7	1	23									
5107	65	14	47	-5	0.24	2.73	0.15	0	0.21	0.60	113.00	79	19	237	6	9	6	19									
5108	47	11	32	17	0.30	3.33	0.21	0	0.24	0.67	82.00	80	24	244	10	15	9	27									
5109	51	-10	34	-5	0.28	2.43	0.15	0	0.16	0.61	71.00	80	20	158	6	8	6	16									
5110	50	-10	8	-5	0.09	1.55	0.11	0	-0.01	0.37	-5.00	33	-5	24	6	8	5	-10									
5111	26	-10	29	9	0.20	1.93	0.18	0	0.08	0.47	17.00	56	24	69	9	16	11	-10									
5112	43	-10	7	-5	0.08	1.47	0.12	0	0.01	0.32	-5.00	35	-5	20	5	8	5	-10									
5113	22	12	24	-5	0.14	2.00	0.20	1	0.13	0.47	5.00	60	35	50	12	8	11	-10									
5114	31	-10	33	-5	0.16	2.32	0.19	2	0.11	0.47	-5.00	98	37	68	12	12	17	12									
5115	85	-10	-5	-5	0.04	0.58	0.04	-0	-0.01	0.13	-5.00	12	-5	13	4	8	4	-10									
5116	38	-10	32	-5	0.33	2.27	0.35	0	0.44	0.78	9.00	89	14	116	12	8	10	-10									
5117	33	-10	-5	-5	0.28	2.81	1.57	3	0.65	0.21	-5.00	95	8	23	4	11	5	-10									
5118	49	-10	23	34	0.35	2.69	0.39	0	0.35	0.90	12.00	89	16	98	13	32	7	-10									
5119	95	-10	9	-5	0.10	1.31	0.09	0	-0.01	0.37	-5.00	41	-5	23	4	9	5	-10									
5120	59	11	31	-5	0.48	2.75	0.22	0	0.24	0.54	19.00	117	13	142	17	31	14	41									
5121	19	-10	-5	81	0.02	0.36	0.04	0	-0.01	0.07	-5.00	17	-5	-5	2	8	3	-10									
5122	65	14	5	-5	0.37	3.14	0.18	0	0.17	0.91	13.00	194	-5	108	10	42	10	11									
5123	24	-10	38	-5	0.21	2.16	0.19	0	0.05	0.95	21.00	51	10	92	10	30	13	-10									
5124	50	-10	13	47	0.09	1.56	0.08	0	0.02	0.39	10.00	36	-5	54	3	10	4	-10									

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm	
5125	60	-10	32	-5	0.09	2.15	0.23	1	0.07	0.45	31.00	46	6	103	4	17	5	-10										
5126	91	19	65	-5	0.37	6.42	0.20	0	0.38	1.97	100.00	83	22	409	9	40	3	24										
5127	124	-10	41	-5	0.39	7.05	0.04	0	0.22	0.35	83.00	19	17	311	2	7	-1	-10										
5128	140	11	34	-5	0.44	7.10	0.03	0	0.21	0.37	82.00	18	17	308	3	-5	-1	-10										
5129	96	16	55	38	0.36	6.07	0.04	0	0.14	0.27	73.00	49	24	295	2	-5	-1	-10										
5130	138	16	35	37	0.52	3.52	0.06	0	0.18	1.40	77.00	58	13	334	9	28	2	18										
5131	147	15	50	-5	0.45	7.50	0.04	0	0.18	0.46	80.00	24	19	359	-1	-5	-1	-10										
5132	149	22	57	-5	0.32	3.46	0.07	0	0.16	0.94	55.00	44	14	315	14	48	3	19										
5133	146	13	35	-5	0.40	7.22	0.04	0	0.16	0.54	69.00	19	19	334	2	6	-1	-10										
5134	115	18	38	-5	0.44	3.88	0.07	0	0.25	1.09	94.00	41	14	408	13	57	5	20										
5135	131	13	49	-5	0.44	5.28	0.03	0	0.06	0.26	54.00	29	23	345	2	-5	-1	-10										
5136	147	20	61	34	0.48	3.89	0.07	0	0.25	1.21	89.00	55	17	391	5	8	5	18										
5137	84	11	38	20	0.58	2.93	0.14	0	0.14	0.66	61.00	73	20	214	3	-5	3	18										
5138	20	-10	21	30	0.11	1.76	0.10	0	0.07	0.37	20.00	30	8	63	5	14	12	-10										
5139	61	-10	8	-5	0.04	0.55	0.04	0	-0.01	0.10	-5.00	12	-5	16	4	5	5	-10										
5140	38	-10	45	7	0.16	2.05	0.16	0	0.11	0.84	24.00	37	15	115	19	5	24	25										
5141	71	-10	6	-5	0.05	0.87	0.06	-0	-0.01	0.21	-5.00	16	-5	18	3	-5	1	-10										
5142	45	-10	30	15	0.16	1.56	0.09	0	0.05	0.63	6.00	57	9	33	5	9	21											
5143	74	-10	-5	-5	0.21	1.58	0.68	1	0.39	0.14	-5.00	48	7	26	3	7	3	-10										
5144	64	13	22	5	0.39	2.86	0.45	0	0.47	1.78	63.00	74	10	206	-5		23											
5145	103	-10	-5	36	0.02	0.47	0.03	0	-0.01	0.09	-5.00	23	-5	7	5	5	3	-10										
5146	24	-10	13	30	0.16	2.04	0.54	1	0.39	0.28	-5.00	140	15	41	2	7	3	-10										
5147	75	13	46	-5	0.39	3.01	0.34	0	0.49	1.92	84.00	146	20	279	2	10	7	18										
5148	52	10	32	8	0.21	3.97	0.30	1	0.33	1.67	69.00	122	19	182	8	20	12	11										
5149	51	-10	32	66	0.07	3.24	1.11	9	0.03	0.05	54.00	65	9	167	-1	7	-1	-10										
5150	141	20	68	6	0.27	4.85	0.20	2	0.30	0.57	293.00	104	20	653	2	-5	4	42										
5151	11	-10	-5	25	-0.01	0.31	0.03	0	-0.01	-0.01	10.00	6	-5	30	1	9	2	-10										
5152	104	17	95	-5	0.31	9.22	0.15	0	0.61	0.71	180.00	133	20	437	7	5	9	26										
5153	35	15	31	19	0.21	2.48	0.22	0	0.18	0.59	20.00	66	23	73	4	-5	9	-10										
5154	41	-10	-5	61	0.04	0.76	0.09	0	0.02	0.19	-5.00	26	-5	16	3	5	3	-10										
5155	30	-10	43	-5	0.16	2.00	0.16	0	0.05	0.88	6.00	63	21	67	8	5	18	-10										
5156	115	17	100	-5	0.16	9.64	0.09	0	0.40	1.07	170.00	64	19	431	2	8	1	-10										
5157	134	21	52	36	0.29	10.00	0.13	0	0.59	1.84	202.00	84	16	651	3	-5	3	28										
5158	109	16	108	-5	0.17	6.26	0.09	2	0.30	1.22	168.00	41	20	445	8	8	1	-10										
5159	96	20	80	24	0.28	8.59	0.14	0	0.53	1.67	182.00	66	19	530	3	-5	29											
5160	179	12	50	21	0.42	5.99	0.05	0	0.26	0.77	100.00	32	35	384	-1	10	-1	-10										
5161	152	11	25	30	0.41	4.82	0.06	0	0.24	1.42	93.00	52	14	331	4	-5	2											
5162	118	13	81	-5	0.38	6.45	0.06	0	0.25	1.09	81.00	78	17	296	2	9	-1	-10										
5163	63	21	58	-5	0.40	5.40	0.10	0	0.30	1.95	90.00	47	15	403	3	-5	7	13										
5164	144	16	43	-5	0.41	7.06	0.05	0	0.27	0.64	93.00	33	16	350	2	9	-1	-10										
5165	95	20	38	19	0.36	4.45	0.08	0	0.23	1.75	78.00	42	13	396	8	-5	8	16										
5166	181	19	51	21	0.55	9.19	0.03	0	0.36	0.46	109.00	26	24	425	3	11	1	-10										
5167	155	22	47	-5	0.50	8.63	0.07	0	0.48	1.28	109.00	50	16	463	5	-5	2	17										
5168	136	15	44	-5	0.46	8.69	0.03	0	0.32	0.54	102.00	24	20	373	3	9	1	-10										
5169	169	18	30	22	0.52	3.30	0.03	0	0.16	0.76	88.00	26	11	376	3	-5	2	17										
5170	65	-10	28	-5	0.22	3.42	0.03	0	-0.01	0.36	26.00	19	16	202	49	-5	-1	-10										
5171	136	22	68	25	0.72	3.67	0.06	0	0.21	0.66	103.00	67	28	443	2	5	2	23										
5172	88	20	37	28	0.81	3.44	0.14	0	0.24	1.00	100.00	66	23	413	-1	-5	2	17										
5173	49	-10	16	-5	0.09	1.38	0.06	0	-0.01	0.25	9.00	34	6	49	47	-5	3	-10										
5174	79	15	41	12	0.83	3.13	0.18	0	0.20	1.49	82.00	96	17	291	5	-5	8	17										
5175	90	13	91	27	0.23	6.10	0.07	0	0.14	0.64	109.00	86	18	340	3	-5	-1	-10										
5176	106	19	31	36	0.33	4.80	0.12	0	0.29	1.21	208.00	91	12	651	6	-5	3	80										
5177	93	-10	59	-5	0.20	4.03	0.05	0	0.01	0.32	66.00	60	14	254	12	8	-1	-10										
5178	96	17	53	-5	0.53	5.49	0.16	0	0.31	1.10	152.00	127	14	398	5		4	42										
5179	60	-10	9	-5	0.06	1.11	0.08	0	-0.01	0.37	5.00	16	-5	25	11	16	6	-10										
5180	51	-10	20	-5	0.15	1.37	0.10	0	-0.01	0.51	7.00	47	-5	56	5	7	11	11										
5181	51	-10	-5	-5	0.03	0.48	0.04	-0	-0.01	0.10	-5.00	10	-5	15	3	10	3	-10										
5182	31	-10	50	-5	0.13	1.05	0.07	0	-0.01	0.44	-5.00	98	12	-5	11	14		24										

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
5183	83	-10	-5	-5	0.03	0.49	0.04	0	-0.01	0.10	-5.00	13	-5	11	3	-5	-1	-10									
5184	62	-10	-5	91	0.04	0.65	0.05	-0	-0.01	0.16	-5.00	12	-5	14	2	-5	-1	-10									
5185	51	-10	10	-5	0.09	1.51	0.10	-0	-0.01	0.35	-5.00	45	-5	24	2	-5	1	-10									
5186	54	10	25	-5	0.42	2.96	0.27	0	0.18	1.23	21.00	176	13	137	12	7	13	-10									
5187	59	-10	10	-5	0.11	1.86	0.12	-0	-0.01	0.40	-5.00	49	5	30	2	-5	2	-10									
5188	66	13	33	-5	0.36	3.40	0.27	0	0.18	1.06	26.00	166	15	159	12	-5	14	11									
5189	32	-10	-5	24	0.02	0.41	0.04	-0	-0.01	0.09	-5.00	25	-5	10	-1	-5	-1	-10									
5190	102	-10	69	-5	0.21	6.71	0.06	0	0.16	0.53	126.00	75	21	368	1	-5	-1	-10									
5191	52	21	59	25	0.37	7.75	0.39	0	0.39	1.76	128.00	94	21	467	2	-5	3	27									
5192	65	16	52	-5	0.25	4.48	0.23	0	0.26	1.45	97.00	71	14	347	3	5	7	19									
5193	94	-10	-5	-5	0.04	0.58	0.04	0	-0.01	0.14	-5.00	11	-5	15	8	-5	-1	-10									
5194	116	24	62	-5	0.42	5.94	0.13	0	0.31	0.99	183.00	112	21	721	5	6	5	50									
5195	136	10	48	-5	0.32	5.38	0.04	0	0.10	0.28	63.00	61	21	271	1	-5	11	-10									
5196	72	18	39	48	0.62	4.31	0.17	0	0.19	0.80	80.00	112	17	325	1	6	3	18									
5197	85	11	45	-5	0.31	5.16	0.08	0	0.35	0.94	66.00	59	16	248	15	5	-1	-10									
5198	44	22	58	-5	0.44	5.38	0.11	0	0.20	1.42	81.00	65	23	442	2	-5	2	11									
5199	48	17	44	-5	0.38	4.44	0.21	0	0.76	2.08	77.00	70	19	295	5	23	9	15									
5200	21	12	56	14	0.46	6.55	0.21	1	3.10	2.32	96.00	181	26	374	-1	7	-1	-10									
5201	39	-10	13	-5	0.03	0.32	-0.01	0	0.05	0.06	8.00	18	-5	15	2	-5	-1	-10									
5202	97	14	71	-5	0.14	2.77	0.01	0	0.08	0.21	180.00	51	14	333	3	-5	-1	-10									
5203	152	25	115	-5	0.29	4.90	0.06	0	0.21	0.44	256.00	187	21	566	6	6	3	-10									
5204	54	-10	13	-5	0.15	1.29	0.38	1	0.27	0.11	16.00	37	7	46	4	10	4	-10									
5205	75	21	30	16	0.25	1.25	-0.01	0	0.10	0.43	166.00	56	9	275	4	15	3	-10									
5206	39	-10	20	-5	0.03	0.81	-0.01	0	0.02	0.11	11.00	32	-5	43	2	14	3	-10									
5207	57	17	47	-5	0.24	1.99	0.05	0	0.10	0.96	182.00	67	10	358	4	14	3	-10									
5208	29	-10	8	-5	0.01	0.33	-0.01	-0	0.07	0.05	6.00	13	-5	26	7	6	2	-10									
5209	73	22	54	-5	0.23	1.73	0.04	0	0.08	0.99	123.00	59	12	404	19	19	6	-10									
5210	29	-10	11	22	0.42	3.18	2.14	4	1.05	0.14	24.00	137	11	51	4	18	7	-10									
5211	78	25	59	23	0.26	1.93	0.07	0	0.15	1.18	162.00	80	13	468	42	12	4	-10									
5212	55	10	61	7	0.12	2.35	-0.01	0	-0.01	0.12	64.00	77	12	235	3	11	4	-10									
5213	35	-10	21	9	0.24	1.48	0.17	0	0.18	0.78	23.00	59	10	88	77	14	5	-10									
5214	71	-10	7	-5	0.05	0.79	-0.01	0	-0.01	0.23	-5.00	13	-5	21	8	14	7	-10									
5215	51	-10	23	-5	0.14	0.95	-0.01	-0	-0.01	0.46	-5.00	38	6	39	17	15	8	-10									
5216	93	8	-5	0	0.63	-0.01	0.01	-0	0.10	-5.00	23.00	-5	17	7	12	3	-10										
5217	82	-10	24	-5	0.11	1.21	0.04	0	-0.01	0.41	9.00	46	11	55	27	13	8	-10									
5218																											
5219	80	-10	-5	-5	0.02	0.35	-0.01	-0	-0.01	-0.01	-5.00	14	-5	-5	5	13	3	-10									
5220	98	17	37	12	0.27	1.81	0.21	0	0.33	0.78	44.00	178	12	149	20	39	7	-10									
5221	124	17	28	29	0.40	3.35	-0.01	0	0.05	0.42	50.00	15	13	319	5	14	1	-10									
5222	118	15	37	-5	0.44	2.05	-0.01	0	0.15	1.65	73.00	40	17	324	4	12	1	-10									
5223	149	22	45	-5	0.52	3.48	-0.01	0	0.05	0.42	73.00	23	17	374	4	19	3	-10									
5224	118	19	32	29	0.58	2.09	-0.01	0	0.18	1.21	94.00	51	13	317	5	12	3	-10									
5225	74	14	21	6	0.52	1.49	-0.01	0	0.15	0.91	79.00	25	10	280	4	18	3	-10									
5226	106	14	27	10	0.49	2.86	-0.01	0	-0.01	0.22	64.00	15	20	380	3	13	3	-10									
5227	107	22	33	10	0.53	2.11	-0.01	0	0.16	1.60	89.00	33	17	324	4	13	2	-10									
5228	80	19	36	15	0.67	2.04	0.03	0	0.12	1.00	90.00	37	18	324	13	11	3	-10									
5229	72	17	23	24	0.45	1.68	-0.01	0	0.18	1.56	87.00	35	10	295	7	12	2	-10									
5230	24	-10	10	-5	0.03	0.52	-0.01	-0	-0.01	-0.01	7.00	32	-5	22	5	19	3	-10									
5231	79	12	28	16	0.40	2.14	0.02	0	0.15	1.09	131.00	59	9	339	133	12	6	-10									
5232	73	-10	11	-5	0.09	1.45	-0.01	0	-0.01	0.36	-5.00	37	-5	34	8	23	5	-10									
5233	28	-10	-5	26	0.05	0.69	-0.01	-0	-0.01	0.12	-5.00	26	-5	18	6	19	4	-10									
5234	29	-10	-5	-5	0.03	0.48	-0.01	-0	-0.01	0.04	-5.00	9	-5	11	6	14	4	-10									
5235	53	15	22	-5	0.42	1.81	0.14	0	0.19	0.86	49.00	108	11	150	9	12	24	-10									
5236	45	-10	8	-5	0.03	0.45	-0.01	-0	-0.01	0.06	-5.00	15	-5	13	6	14	4	-10									
5237	52	10	26	12	0.50	2.04	0.20	0	0.36	0.85	61.00	90	12	196	65	16	9	-10									
5238	31	13	32	17	0.19	1.34	0.04	0	0.04	0.54	21.00	69	10	101	17	27	10	-10									
5239	37	-10	-5	-5	0.03	0.43	-0.01	-0	-0.01	0.04	-5.00	9	-5	11	5	17	3	-10									
5240	19	-10	20	8	0.07	0.43	-0.01	0	-0.01	0.19	-5.00	29	19	15	10	17	19	-10									

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm		
5241	137	-10	-5	-5	0.02	0.41	-0.01	0	0.06	0.11	-5.00	6	-5	8	11	7	5	-10											
5242	54	-10	-5	-5	0.01	0.21	-0.01	0	0.06	0.06	-5.00	9	-5	10	9	8	3	-10											
5243	91	-10	-5	-5	0.01	0.27	-0.01	0	0.06	0.07	-5.00	6	-5	7	8	7	6	-10											
5244	129	-10	8	-5	0.06	0.90	0.04	-0	0.08	0.30	-5.00	20	7	24	9	-5	4	-10											
5245	38	-10	24	-5	0.02	0.88	-0.01	0	0.07	0.05	16.00	27	-5	32	2	5	-1	-10											
5246																													
5247	21	-10	-5	-5	-0.01	0.09	-0.01	0	0.05	0.03	-5.00	8	-5	-5	13	7	3	-10											
5248	32	-10	-5	-5	-0.01	0.15	-0.01	-0	0.06	0.03	-5.00	9	-5	-5	17	6	4	-10											
5249	23	-10	-5	-5	-0.01	0.11	-0.01	0	0.06	0.04	-5.00	9	5	-5	15	7	4	-10											
5250	102	-10	7	-5	0.04	0.62	0.02	-0	0.07	0.21	-5.00	16	-5	13	6	5	4	-10											
5251	115	-10	10	-5	0.04	0.46	0.01	-0	0.11	0.16	-5.00	19	-5	14	9	8	2	-10											
5252	141	-10	5	-5	0.03	0.47	-0.01	-0	0.07	0.12	-5.00	19	-5	8	8	7	3	-10											
5253	34	-10	20	-5	0.37	2.40	0.22	1	0.12	0.42	12.00	41	13	147	2	11	1	-10											
5254																													
5255	31	-10	9	-5	0.30	2.49	0.10	0	0.16	0.48	11.00	36	8	94	2	7	1	-10											
5256	85	21	27	-5	0.75	4.50	0.28	0	0.48	1.01	48.00	87	17	166	3	12	-1	-10											
5257	31	-10	9	-5	0.20	2.20	0.17	0	0.11	0.28	9.00	27	8	68	1	13	1	-10											
5258	70	20	20	-5	0.71	4.40	0.24	0	0.42	0.64	40.00	70	15	158	2	11	1	-10											
5259	36	-10	10	-5	0.23	2.40	0.10	0	0.11	0.34	8.00	27	6	72	1	11	1	-10											
5260	67	17	20	-5	0.75	4.11	0.22	0	0.38	0.62	38.00	72	15	158	1	16	1	-10											
5261	55	10	37	-5	0.32	3.34	0.13	0	0.21	0.63	7.00	53	12	70	3	9	-1	-10											
5262	64	18	22	-5	0.73	4.42	0.22	0	0.39	0.99	39.00	73	16	163	2	14	-1	-10											
5263	49	14	29	-5	0.43	3.94	0.16	0	0.26	0.64	10.00	60	11	98	3	17	2	-10											
5264	73	19	15	-5	0.76	4.57	0.26	0	0.45	0.51	38.00	73	12	162	273	10	-1	-10											
5265	22	-10	27	-5	0.03	1.16	-0.01	0	-0.01	-0.01	26.00	37	-5	69	5	24	4	-10											
5266	32	-10	-5	-5	0.03	0.32	-0.01	-0	0.06	0.09	14.00	9	-5	8	18	16	8	-10											
5267	29	-10	-5	-5	0.07	0.54	0.02	-0	0.07	0.16	6.00	13	-5	12	14	10	6	-10											
5268	110	-10	23	-5	0.15	1.92	0.08	-0	0.13	0.63	7.00	51	7	36	6	7	5	-10											
5269	84	-10	11	10	0.07	1.12	-0.01	-0	-0.01	0.35	-5.00	19	-5	24	5	19	3	-10											
5270	105	-10	-5	-5	0.01	0.23	-0.01	0	0.06	0.05	-5.00	9	-5	7	4	10	3	-10											
5271	92	-10	7	-5	0.03	0.47	0.02	0	0.06	0.16	-5.00	9	-5	10	8	16	9	-10											
5272	48	-10	6	-5	0.02	0.37	0.01	1	0.06	0.14	-5.00	14	-5	11	6	29	7	-10											
5273	105	-10	-5	-5	0.01	0.28	-0.01	0	0.06	0.06	-5.00	6	-5	6	3	-5	1	-10											
5274	74	-10	7	-5	0.05	0.74	-0.01	0	-0.01	0.17	-5.00	12	8	19	6	17	6	-10											
5275	54	-10	-5	-5	0.03	0.43	-0.01	-0	-0.01	0.03	-5.00	8	-5	13	6	13	5	-10											
5276	17	-10	29	-5	0.15	0.47	-0.01	0	-0.01	0.21	6.00	37	16	42	17	18	28	-10											
5277	23	-10	9	-5	0.08	1.25	-0.01	-0	-0.01	0.28	-5.00	21	-5	31	5	14	3	-10											
5278	34	37	9	0	1.73	0.05	0.10	0	0.91	21.00	101.00	12	90	21	57	19	-10												
5279	25	-10	-5	15	0.03	0.54	-0.01	-0	-0.01	0.07	-5.00	8	-5	18	6	13	4	-10											
5280	19	-10	25	12	0.11	0.97	-0.01	0	-0.01	0.19	8.00	37	9	44	14	16	16	-10											
5281	14	-10	-5	-5	0.01	0.23	-0.01	-0	-0.01	-0.01	-5.00	7	-5	7	6	12	3	-10											
5282	20	-10	27	45	0.09	1.29	0.02	0	-0.01	0.46	-5.00	47	12	34	9	14	17	-10											
5283	40	-10	-5	-5	0.03	0.42	-0.01	0	-0.01	0.04	-5.00	13	-5	13	5	12	5	-10											
5284	77	19	30	48	0.35	2.62	0.02	0	0.18	1.05	151.00	46	10	446	5	12	3	-10											
5285	13	-10	20	-5	0.01	0.53	-0.01	-0	-0.01	-0.01	10.00	32	-5	34	4	17	2	-10											
5286	20	-10	32	-5	0.03	1.05	-0.01	-0	-0.01	-0.01	25.00	26	-5	72	4	12	3	-10											
5287	16	-10	12	-5	0.01	0.35	-0.01	0	-0.01	-0.01	7.00	14	-5	23	7	16	4	-10											
5288	53	14	27	25	0.89	2.06	-0.01	0	0.10	0.42	98.00	56	9	118	5	8	5	-10											
5289	59	-10	21	22	0.11	1.56	0.35	1	0.08	0.10	20.00	59	-5	46	4	16	4	-10											
5290	70	30	16	23	0.30	3.14	-0.01	0	0.19	1.46	279.00	49	7	587	3	11	2	-10											
5291	42	13	24	-5	0.42	3.14	0.20	0	0.21	0.70	10.00	51	10	89	1	10	1	-10											
5292	57	12	27	-5	0.46	4.31	0.33	0	0.36	0.71	13.00	63	18	104	2	12	-1	-10											
5293	36	-10	19	-5	0.37	2.45	0.18	0	0.15	0.63	8.00	52	7	79	6	12	-1	-10											
5294	21	27	-5	-5	0.06	1.33	0.03	0	0.05	0.14	-5.00	10	-5	15	705	20	4	-10					20.29						
5295	57	16	33	-5	0.48	4.36	0.52	0	0.35	0.70	12.00	75	20	116	5	9	-1	-10											
5296	58	14	23	-5	0.40	3.72	0.31	0	0.28	0.63	11.00	58	16	95	6	8	1	-10											
5297	39	12	22	-5	0.41	3.22	0.10	0	0.20	0.53	10.00	52	9	88	3	7	2	-10											
5298	35	-10	23	-5	0.39	3.15	0.12	0	0.22	0.49	10.00	56	9	100	2	8	1	-10											

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ga ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm	
5299	36	10	28	-5	0.30	3.43	0.13	0	0.22	0.55	6.00	50	9	69	2	11	1	-10										
5300	89	21	15	-5	0.63	4.70	0.26	0	0.34	0.60	36.00	68	13	139	70	9	2	-10										
5301	47	16	48	19	0.47	4.62	0.18	1	0.29	2.00	76.00	54	23	347	17	33	18	13										
5302	63	20	46	26	0.73	3.74	0.13	0	0.24	0.91	98.00	54	22	354	5	16	8	18										
5303	63	15	53	15	0.65	4.29	0.14	0	0.39	0.81	94.00	54	23	345	5	14	6	12										
5304	82	17	63	30	0.14	8.27	0.24	0	0.39	1.35	104.00	73	15	436	73	15	-1	-5										
5305	51	16	41	76	0.27	4.47	0.28	0	0.24	1.49	86.00	74	14	298	5	7	-10											
5306	20	-10	22	22	0.14	2.80	0.16	0	0.12	1.03	35.00	39	9	107	13	20	-10											
5307	22	-10	32	-5	0.19	2.71	0.19	0	0.13	1.30	44.00	46	13	148	12	21	-10											
5308	65	-10	63	-5	0.19	6.28	0.06	0	0.14	0.43	93.00	71	16	302	-1	-5	-1	-10										
5309	91	25	60	30	0.37	9.44	0.12	0	0.44	1.75	215.00	125	22	725	4	8	4	47										
5310	101	14	77	51	0.28	7.33	0.07	0	0.27	0.73	140.00	61	19	375	-1	-5	-1	-10										
5311	91	30	76	44	0.39	10.00	0.14	0	0.50	1.71	215.00	95	24	819	6	-5	5	46										
5312	50	-10	38	16	0.12	1.22	0.06	0	-0.01	0.36	19.00	41	6	65	8	-5	9	21										
5313	89	-10	56	90	0.22	4.20	0.08	0	0.05	0.47	67.00	74	10	164	1	-5	-1	-10										
5314	42	-10	58	-5	0.30	2.66	0.13	0	0.09	1.04	61.00	89	10	135	7	-5	12	27										
5315	28	-10	46	20	0.24	2.59	0.23	0	0.09	0.57	53.00	59	13	156	7	15	16	-10										
5316	21	-10	30	-5	0.13	2.40	0.24	0	0.14	0.60	15.00	47	14	56	11	25	19	-10										
5317	21	-10	32	10	0.16	2.23	0.21	0	0.16	0.70	31.00	45	13	98	9	-5	11	-10										
5318	133	-10	39	-5	0.12	3.09	0.04	-0	-0.01	0.25	28.00	31	15	175	30	-5	-1	-10										
5319	125	16	15	477	0.24	2.20	0.02	0	0.25	0.37	66.00	18	6	140	13	-5	2	-10										
5320	106	-10	78	-5	0.14	4.28	0.04	-0	0.03	0.26	62.00	56	23	280	17	-5	-1	-10										
5321	104	-10	22	52	0.47	4.26	0.08	0	0.24	0.88	190.00	70	16	609	8	-5	3	36										
5322	82	-10	-5	-5	0.02	0.40	0.03	-0	-0.01	0.08	-5.00	10	-5	12	4	6	3	-10										
5323	40	-10	23	31	0.27	2.76	0.24	0	0.21	1.16	30.00	96	10	111	14	6	11	16										
5324	88	-10	9	6	0.11	1.76	0.14	0	0.38	0.56	6.00	44	-5	42	3	6	1	-10										
5325	35	-10	14	-5	0.28	2.21	0.17	0	0.13	1.96	16.00	48	11	97	22	7	15	144										
5326	34	-10	-5	90	-0.01	0.12	-0.01	0	0.03	0.03	-5.00	6	-5	5	15	-5	2	-10										
5327	64	15	20	5	0.31	3.33	0.24	0	0.21	1.78	51.00	116	12	188	42	6	8	78										
5328	22	-10	-5	-5	-0.01	0.08	-0.01	-0	0.03	0.03	-5.00	1	-5	12	-5	4	4	-10										
5329	66	15	26	-5	0.33	4.47	0.30	0	0.34	1.83	56.00	141	13	201	6	8	6	11										
5330	37	-10	26	-5	0.23	3.45	0.33	0	0.34	1.05	27.00	98	24	126	9	6	14	-10										
5331	50	18	30	29	0.30	1.63	0.17	0	0.15	0.69	40.00	62	20	123	9	10	7	-10										
5332	132	-10	101	-5	0.13	1.58	-0.01	-0	-0.01	0.32	96.00	179	9	221	6	17	2	-10										
5333	216	16	45	-5	0.31	1.57	-0.01	-0	0.18	0.89	151.00	109	7	334	12	19	10	-10										
5334	67	-10	-5	12	0.02	0.33	-0.01	0	-0.01	-0.01	-5.00	15	-5	11	7	14	4	-10										
5335	60	-10	18	-5	0.09	0.73	-0.01	0	-0.01	0.23	9.00	37	-5	33	7	13	5	-10										
5336	92	-10	6	-5	0.03	0.50	-0.01	-0	-0.01	0.07	-5.00	14	-5	18	6	14	5	-10										
5337	62	-10	16	-5	0.11	0.47	-0.01	0	-0.01	0.23	7.00	74	5	42	11	16	6	-10										
5338	103	-10	12	-5	0.04	0.59	-0.01	-0	-0.01	0.12	-5.00	20	-5	17	5	18	5	-10										
5339	70	-10	31	-5	0.28	1.61	0.07	0	0.10	0.76	40.00	56	13	119	16	33	11	-10										
5340			62	-5	0.47	7.17	0.24	0	3.03	3.15	93.00	116	28	382	1	6	-1	-10										
5341	37	-10	-5	-5	0.02	0.29	-0.01	-0	-0.01	-0.01	-5.00	9	-5	7	5	19	4	-10										
5342	28	-10	23	-5	0.18	1.39	0.21	0	0.15	0.63	7.00	59	10	59	10	26	9	-10										
5343	101	-10	73	18	0.11	1.49	-0.01	-0	-0.01	0.25	110.00	87	13	314	5	15	4	-10										
5344	485	22	44	-5	0.29	2.58	-0.01	0	0.24	0.60	171.00	101	14	481	12	11	2	-10										
5345	36	-10	23	-5	0.02	0.90	-0.01	0	0.12	0.06	18.00	27	-5	36	5	-5	1	-10										
5346	36	13	35	14	0.43	2.02	0.02	0	2.27	1.21	88.00	43	16	316	5	15	4	-10										
5347	55	-10	-5	-5	0.02	0.42	-0.01	0	-0.01	0.03	-5.00	18	-5	13	6	22	5	-10										
5348	59	-10	9	8	0.30	1.95	0.30	0	0.23	1.10	23.00	77	9	96	11	36	9	-10										
5349	53	-10	5	-5	0.04	0.51	-0.01	-0	-0.01	0.06	-5.00	14	-5	22	6	16	5	-10										
5350	34	28	33	0	1.42	0.15	0.02	0	0.77	15.00	124.00	13	104	12	15	11	-10											
5351	27	-10	-5	-5	0.01	0.19	-0.01	0	-0.01	-0.01	-5.00	6	-5	8	4	17	6	-10										
5352	28	-10	20	7	0.07	0.82	-0.01	0	-0.01	0.25	-5.00	81	10	34	13	14	21	-10										
5353	14	-10	-5	-5	-0.01	0.14	-0.01	-0	-0.01	-0.01	-5.00	11	-5	-5	4	17	4	-10										
5354	26	10	49	-5	0.10	1.45	0.03	0	-0.01	0.29	-5.00	154	31	48	12	16	20	-10										
5355	41	-10	20	19	0.13	1.61	0.26	0	0.11	0.09	35.00	44	8	144	5	18	6	-10										
5356	32	-10	45	11	0.17	2.29	0.04	0	0.06	0.40	81.00	138	12	191	9	21	10	-10										

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
5357	111	-10	6	17	0.05	0.57	-0.01	0	-0.01	0.13	-5.00	13	-5	18	7	17	6	-10									
5358	153	-10	9	-5	0.05	0.70	0.02	-0	0.08	0.22	-5.00	16	-5	10	8	-5	3	-10									
5359	67	-10	-5	-5	0.03	0.36	-0.01	0	-0.01	0.02	-5.00	10	-5	17	6	18	4	-10									
5360	30	-10	23	-5	0.14	1.77	0.06	0	0.03	0.39	14.00	38	9	75	15	17	11	-10									
5361	99	23	59	10	0.38	4.29	-0.01	0	0.23	0.97	73.00	51	19	380	4	13	1	-10									
5362	92	20	54	36	0.38	4.39	0.04	0	0.19	0.90	75.00	44	20	328	7	18	4	-10									
5363	93	12	15	-5	0.39	2.15	-0.01	0	-0.01	-0.01	68.00	9	10	277	5	15	4	-10									
5364	117	-10	104	-5	0.46	10.00	0.12	0	0.82	2.62	107.00	82	32	411	6	-5	2	-10									
5365	33	-10	-5	8	-0.01	0.21	-0.01	0	-0.01	-0.01	-5.00	5	-5	7	14	17	5	-10									
5366	60	-10																									
5367	58	-10	20	6	0.36	1.80	0.08	0	0.03	0.40	59.00	30	14	189	5	21	4	-10									
5368	48	-10	7	-5	0.09	1.18	0.01	0	-0.01	0.39	-5.00	26	-5	29	5	21	4	-10									
5369	35	14	25	14	0.43	2.94	0.15	0	0.06	0.84	31.00	85	12	108	6	11	5	-10									
5370	33	-10	63	-5	0.07	1.40	-0.01	0	-0.01	0.11	53.00	80	7	167	4	18	3	-10									
5371	86	19	93	21	0.52	6.18	-0.01	0	0.27	0.61	288.00	159	26	681	8	19	3	-10									
5372	52	15	42	-5	0.15	1.64	-0.01	0	-0.01	0.05	100.00	47	12	410	5	17	5	-10									
5373	60	27	40	23	0.87	3.21	0.18	1	0.08	0.29	134.00	59	15	251	12	42	12	-10									
5374	56	10	28	-5	0.14	1.41	-0.01	-0	-0.01	0.03	132.00	32	9	428	5	14	4	-10									
5375	85	-10	-5	-5	0.02	0.38	-0.01	-0	-0.01	-0.01	-5.00	10	-5	15	6	18	5	-10									
5376	40	23	17	15	0.29	4.23	0.27	0	0.13	0.89	27.00	191	12	89	7	14	6	-10									
5377	25	-10	6	19	0.05	0.70	-0.01	-0	-0.01	0.18	7.00	13	-5	25	7	20	4	-10									
5378	25	-10	5	-5	0.04	0.80	-0.01	-0	-0.01	0.15	-5.00	13	-5	18	6	17	5	-10									
5379	28	-10	-5	-5	0.04	0.58	-0.01	-0	-0.01	0.08	-5.00	15	-5	17	8	20	6	-10									
5380	79	23	26	30	0.74	2.40	0.10	0	0.17	0.69	45.00	163	18	203	39	20	17	-10									
5381	28	-10	12	17	0.11	1.27	-0.01	0	-0.01	0.39	8.00	87	6	39	7	15	7	-10									
5382	44	-10	27	16	0.56	2.25	0.08	0	0.13	0.63	35.00	128	14	147	20	19	11	-10									
5383	26	-10	10	-5	0.09	1.12	-0.01	0	-0.01	0.29	-5.00	56	-5	32	6	15	3	-10									
5384	51	11	24	5	0.54	2.73	0.12	0	0.12	0.73	51.00	150	11	142	9	16	8	-10									
5385	24	-10	27	-5	0.11	1.46	-0.01	0	-0.01	0.33	-5.00	70	11	34	10	17	16	-10									
5386	19	-10	-5	-5	0.02	0.23	-0.01	0	-0.01	-0.01	-5.00	6	-5	11	5	17	7	-10									
5387	20	-10	22	-5	0.16	1.07	-0.01	0	-0.01	0.41	-5.00	43	8	56	10	20	15	-10									
5388	28	-10	10	-5	0.08	1.02	0.05	0	-0.01	0.19	6.00	68	-5	36	6	19	6	-10									
5389	16	-10	25	-5	0.10	1.34	0.02	0	-0.01	0.26	-5.00	44	10	42	12	19	20	-10									
5390	21	12	28	-5	0.09	1.77	0.10	0	-0.01	0.42	-5.00	59	15	31	12	17	18	-10									
5391	68	-10	14	6	0.09	1.35	-0.01	-0	-0.01	0.37	-5.00	46	-5	30	6	12	7	-10									
5392	36	-10	8																								
5393	49	-10	5																								
5394	85	-10	10																								
5395	95	-10	16																								
5396	38	-10	18																								
5397	95	-10	23																								
5398	112	-10	6																								
5399	99	-10	13																								
5400	117	-10	-5																								
5401	40	-10	21	-5	0.30	3.51	0.15	0	0.24	0.59	7.00	40	9	76	3	10	1	-10									
5402	85	23	11	-5	0.60	4.51	0.23	0	0.33	0.54	32.00	62	9	135	55	9	-1	-10									
5403	42	-10	14	-5	0.27	3.02	0.10	0	0.20	0.58	7.00	30	6	68	1	12	2	-10									
5404	62	19	13	-5	0.58	4.04	0.20	0	0.26	0.39	28.00	56	10	137	743	34	4	-10									
5405	41	-10	14	-5	0.32	3.27	0.12	0	0.24	0.59	7.00	33	7	77	-1	7	-1	-10									
5406	68	21	16	-5	0.67	4.27	0.23	0	0.29	0.63	32.00	60	12	153	178	29	4	-10									
5407	50	11	13	-5	0.22	2.39	0.09	0	0.14	0.41	-5.00	26	-5	53	4	10	2	-10									
5408	76	21	11	-5	0.57	4.42	0.23	0	0.38	0.70	34.00	56	12	142	11	18	4	-10									
5409	46	-10	16	-5	0.29	2.98	0.13	0	0.21	0.42	7.00	32	7	72	1	6	2	-10									
5410	81	13	10	-5	0.71	4.09	0.23	0	0.32	0.60	33.00	56	11	145	-1	8	-1	-10									
5411	38	12	16	-5	0.31	2.54	0.09	0	0.15	0.52	8.00	35	7	71	6	10	1	-10									
5412	50	15	14	-5	0.71	3.41	0.22	0	0.31	0.65	30.00	60	12	163	3	5	-1	-10									
5413	31	10	21	-5	0.37	2.97	0.09	0	0.19	0.51	9.00	46	8	101	-1	11	-1	-10									
5414	42	-10	16	-5	0.31	3.14	0.09	0	0.22	0.79	8.00	40	9	78	2	12	1	-10									

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm	
5415	78	16	11	-5	0.80	4.05	0.20	0	0.31	0.77	30.00	62	12	173	10	6	-1	-10										
5416	51	11	15	-5	0.27	2.82	0.13	0	0.18	0.52	6.00	32	6	54	1	13	1	-10										
5417	58	12	25	-5	0.44	4.65	0.19	0	0.37	0.85	12.00	51	13	110	4	13	2	-10										
5418	41	12	31	-5	0.44	3.73	0.21	0	0.27	0.64	12.00	55	11	118	2	7	2	-10										
5419	49	-10	20	-5	0.31	3.36	0.15	0	0.23	0.55	8.00	36	11	84	1	10	1	-10										
5420	49	-10	19	-5	0.32	3.73	0.26	0	0.30	0.58	9.00	38	13	86	-1	9	2	-10										
5421	42	-10	10	-5	0.20	2.24	0.20	0	0.14	0.51	-5.00	25	6	43	23	8	1	-10										
5422	50	-10	14	-5	0.19	1.97	0.07	0	0.10	0.45	-5.00	27	-5	45	22	13	1	-10										
5423	48	-10	16	-5	0.22	2.54	0.11	0	0.19	0.59	6.00	36	15	55	11	12	3	-10										
5424	46	-10	22	-5	0.36	3.36	0.14	0	0.26	0.56	11.00	47	10	89	2	13	2	-10										
5425	62	11	-5	-5	0.07	0.81	0.02	-0	0.04	0.17	-5.00	11	-5	10	84	11	2	-10										
5426	72	25	12	-5	0.38	1.40	0.10	0	0.14	1.20	6.00	47	-5	-5	59	13	2	-10										
5427	4	58	-5	-5	0.01	0.16	-0.01	-0	0.03	0.04	-5.00	3	-5	-5	216	9	3	-10										3.48
5428	71	20	7	-5	0.34	1.65	0.09	0	0.11	1.02	6.00	32	-5	16	131	14	4	-10										13.13
5429	91	15	14	-5	0.42	3.18	0.15	0	0.25	1.01	9.00	45	8	67	49	9	2	-10										3.54
5430	69	13	9	-5	0.32	2.21	0.13	0	0.14	0.89	-5.00	31	6	49	98	14	2	-10										1.12
5431	66	13	26	-5	0.51	4.81	0.46	0	0.39	1.18	14.00	64	14	102	5	19	1	-10										1.89
5432	5	19	-5	-5	0.03	0.31	0.01	-0	0.03	0.07	-5.00	4	-5	-5	86	13	1	-10										
5433	14	-10	-5	-5	0.16	0.69	0.02	0	0.16	0.61	11.00	20	-5	39	140	6	1	-10										
5434	19	26	-5	-5	0.09	1.24	0.03	0	0.20	0.45	9.00	13	-5	31	35	-5	-1	-10										2.40
5435	22	-10	-5	-5	0.08	1.21	0.03	0	0.21	0.43	9.00	18	-5	29	10	-5	-1	-10										
5436	14	-10	-5	-5	0.07	0.43	0.01	0	0.21	0.37	12.00	427	-5	25	3	-5	4	-10										
5437	19	13	-5	-5	0.05	0.63	0.01	0	0.15	0.24	8.00	13	-5	19	50	-5	1	-10										
5438	6	29	-5	-5	0.02	0.69	0.01	0	0.43	0.32	14.00	8	-5	26	96	-5	-1	-10										
5439	13	21	-5	-5	0.02	0.44	-0.01	0	0.17	0.14	7.00	21	-5	12	35	8	2	-10										
5440	18	-10	-5	-5	0.09	0.56	0.01	0	0.19	0.30	10.00	243	-5	27	3	-5	2	-10										
5441	30	14	-5	-5	0.05	0.97	0.03	0	0.17	0.36	7.00	112	-5	22	65	10	1	-10										
5442	36	23	-5	-5	0.04	0.79	0.02	0	0.16	0.27	6.00	42	-5	17	124	5	2	-10										
5443	16	-10	-5	32	0.02	0.34	-0.01	0	0.14	0.15	5.00	4	-5	7	100	5	2	-10										
5444	60	24	-5	-5	0.05	0.91	0.01	0	0.17	0.33	7.00	6	-5	13	47	5	2	-10										
5445	11	208	-5	-5	-0.01	0.42	-0.01	0	0.52	0.23	6.00	1	-5	20	73	-5	1	-10										
5446	49	25	-5	-5	0.03	0.97	0.01	0	0.19	0.30	-5.00	5	-5	15	115	-5	2	-10										
5447	42	20	-5	-5	0.05	1.26	0.03	0	0.26	0.43	-5.00	6	-5	19	29	8	2	-10										
5448	24	27	-5	-5	0.06	1.29	0.03	0	0.34	0.51	6.00	7	-5	23	25	9	2	-10										
5449	37	35	-5	-5	0.04	0.85	0.02	0	0.18	0.31	-5.00	5	-5	17	16	5	1	-10										
5450	33	-10	-5	-5	0.03	0.33	-0.01	-0	0.10	0.21	-5.00	-1	-5	8	19	-5	1	-10										
5451	43	-10	-5	-5	0.03	0.53	-0.01	0	0.12	0.25	8.00	1	-5	12	4	-5	-1	-10										
5452	58	12	-5	19	0.02	0.73	-0.01	0	0.45	0.33	17.00	4	-5	30	2	-5	-1	-10										
5453	44	17	-5	18	-0.01	0.38	-0.01	-0	0.11	0.39	-5.00	-1	-5	7	48	-5	-1	-10										
5454	32	-10	-5	-5	0.07	0.55	0.01	0	0.13	0.43	6.00	2	-5	18	31	-5	-1	-10										
5455	12	-10	-5	20	0.04	0.79	0.01	0	0.21	0.32	8.00	2	-5	16	133	-5	-1	-10										
5456	34	-10	-5	-5	0.23	0.97	0.07	0	0.23	1.16	6.00	9	-5	43	4	-5	-1	-10										
5457	44	-10	-5	-5	-0.01	0.40	-0.01	0	0.13	0.11	23.00	4	-5	7	18	-5	-1	-10										
5458	35	-10	-5	-5	0.02	0.61	0.01	1	0.25	0.21	41.00	8	-5	17	19	-5	-1	-10										
5459	6	26	-5	-5	-0.01	0.15	-0.01	-0	0.03	0.05	-5.00	-1	-5	-5	108	-5	-1	-10										7.15
5460	29	-10	-5	-5	0.07	0.56	0.02	0	0.11	0.39	-5.00	5	-5	16	72	-5	1	-10										
5461	23	-10	-5	-5	0.13	1.09	0.03	0	0.19	0.61	6.00	6	-5	42	16	-5	-1	-10										
5462	11	-10	-5	14	0.26	0.88	0.02	0	0.19	0.67	10.00	43	-5	72	6	-5	-1	-10										
5464	12	16	-5	-5	0.07	0.75	0.02	-0	0.04	0.30	-5.00	9	-5	10	336	-5	-1	-10										
5502	29	-10	13	-5	0.37	2.52	0.10	0	0.24	0.64	8.00	50	6	79	3	8	1	-10										
5503	68	15	10	-5	0.62	4.27	0.21	0	0.39	0.64	30.00	58	10	146	4	8	1	-10										
5504	20	-10	15	-5	0.28	2.26	0.08	0	0.17	0.53	6.00	48	-5	51	2	10	2	-10										
5505	25	-10	20	-5	0.40	2.64	0.10	0	0.20	0.58	9.00	56	8	95	3	15	3	-10										
5506	58	17	18	-5	0.79	3.62	0.20	0	0.35	0.48	28.00	74	13	176	1	6	1	-10										
5507	34	-10	12	-5	0.33	2.95	0.23	0	0.23	0.68	9.00	44	7	74	-1	11	2	-10										
5508	18	21	-5	-5	0.06	0.70	0.03	0	0.05	0.17	-5.00	9	-5	9	492	25	2	-10										
5509	113	17	20	-5	1.03	4.37	0.22	0	0.36	0.65	34.00	74	19	255	2	10	1	-10										
5510	34	-10	12	-5	0.29	2.07	0.10	0	0.14	0.56	6.00	41	5	78	7	17	3	-10										

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
5511	66	14	15	-5	0.82	3.72	0.19	0	0.43	0.64	30.00	67	16	201	-1	9	-1	-10									
5512	53	-10	20	-5	0.38	3.47	0.10	0	0.21	0.61	9.00	52	7	90	6	14	2	-10									
5513	35	-10	13	-5	0.27	2.51	0.09	0	0.16	0.55	6.00	36	6	57	3	12	1	-10									
5514	98	16	12	-5	0.75	4.63	0.20	0	0.41	0.75	39.00	60	13	179	-1	11	2	-10									
5515	47	-10	15	-5	0.30	2.39	0.10	0	0.16	0.65	6.00	42	6	72	4	16	2	-10									
5516	96	13	6	-5	0.87	4.24	0.20	0	0.30	0.77	36.00	53	11	189	-1	13	2	-10									
5517	53	11	14	-5	0.36	2.98	0.36	0	0.22	0.87	9.00	47	15	86	-1	397	9	-10									
5518	57	11	17	-5	0.42	3.00	0.29	0	0.31	0.60	10.00	41	7	86	-1	-5	-1	-10									
5519	45	11	12	-5	0.39	3.12	0.11	0	0.24	0.72	9.00	56	7	94	2	-5	-1	-10									
5520	58	11	52	-5	0.39	6.03	0.49	2	0.50	1.24	15.00	72	21	117	-1	-5	-1	-10									
5521	145	24	16	-5	0.69	5.48	0.37	0	0.54	1.04	36.00	74	16	155	1	15	2	-10									
5522	37	-10	12	-5	0.28	2.58	0.64	1	0.24	0.53	6.00	46	14	67	-1	-5	-1	-10									
5523	74	18	20	-5	0.80	4.50	0.21	0	0.32	0.74	35.00	79	16	166	5	14	2	-10									
5524	36	-10	19	-5	0.33	3.19	0.17	0	0.24	0.74	7.00	43	11	68	-1	-5	-1	-10									
5525	108	17	45	25	0.17	3.46	-0.01	0	-0.01	0.04	201.00	34	18	604	5	14	2	-10									
5526	101	21	11	-5	0.65	4.98	0.22	0	0.35	0.90	32.00	69	11	135	16	9	2	-10									
5527	46	-10	11	-5	0.31	2.32	0.09	0	0.16	0.62	5.00	33	-5	80	13	9	-1	-10									
5528	48	-10	14	-5	0.39	2.48	0.13	0	0.18	0.55	8.00	37	7	79	5	9	-1	-10									
5529	105	19	20	-5	0.67	4.71	0.24	0	0.33	0.67	24.00	75	14	132	6	7	2	-10									
5530	53	-10	9	-5	0.33	2.69	0.09	0	0.18	0.68	6.00	35	5	70	2	5	-1	-10									
5531	107	16	17	-5	0.87	4.35	0.22	0	0.32	0.73	32.00	71	15	168	-1	16	2	-10									
5532	59	-10	14	-5	0.39	3.26	0.49	0	0.26	0.89	9.00	47	14	78	-1	11	-1	-10									
5533	70	-10	-5	-5	0.23	1.32	0.04	0	0.21	0.43	-5.00	26	-5	38	45	36	35	-10									
5534	69	12	7	-5	0.50	3.45	0.13	0	0.32	0.88	11.00	45	-5	102	1	6	2	-10									
5535	95	19	21	-5	0.88	4.57	0.20	0	0.31	0.82	31.00	80	17	196	-1	8	2	-10									
5536	90	16	31	-5	0.57	5.81	0.43	0	0.57	1.33	18.00	76	18	133	-1	8	-1	-10									
5537	107	19	11	-5	0.70	5.07	0.22	0	0.32	0.65	30.00	64	12	139	2	24	2	-10									
5538	59	10	7	-5	0.42	3.04	0.14	0	0.26	0.79	9.00	40	-5	87	1	10	2	-10									
5539	84	18	14	-5	0.82	4.57	0.22	0	0.31	0.70	30.00	66	15	157	-1	21	2	-10									
5540	60	-10	6	-5	0.40	2.90	0.71	0	0.28	0.80	10.00	39	8	85	-1	12	-1	-10									
5541	43	-10	11	-5	0.37	3.00	0.12	0	0.22	0.72	9.00	38	5	88	-1	9	1	-10									
5542	37	-10	11	-5	0.42	3.31	0.15	0	0.25	0.80	11.00	48	7	104	-1	9	-1	-10									
5543	94	21	20	-5	0.79	5.54	0.27	0	0.47	1.14	36.00	81	16	172	-1	16	2	-10									
5544	52	10	9	-5	0.48	3.26	0.18	0	0.27	0.86	11.00	42	7	107	-1	6	1	-10									
5545	13	22	-5	-5	0.01	0.16	-0.01	-0	0.02	0.02	-5.00	-1	-5	-5	110	9	-1	-10									
5546	71	10	-5	-5	0.14	3.10	0.06	0	0.20	0.42	5.00	20	-5	37	34	10	1	-10									
5547	71	18	10	-5	0.78	4.19	0.21	0	0.38	0.76	32.00	58	11	148	-1	-5	2	-10									
5548	31	-10	15	-5	0.32	2.75	0.13	0	0.24	0.80	8.00	43	8	83	2	8	-1	-10									
5549	145	25	6	-5	0.72	5.60	0.20	0	0.39	0.88	31.00	71	8	141	4	10	2	-10									
5550	41	-10	19	-5	0.28	2.03	0.10	0	0.14	0.52	6.00	38	7	106	7	17	2	-10									
5551	21	-10	-5	-5	0.10	0.45	0.01	0	0.14	0.30	5.00	184	-5	32	17	-5	-1	-10									
5552	23	11	-5	-5	0.09	0.89	0.02	0	0.14	0.39	-5.00	21	-5	32	29	-5	-1	-10									
5553	8	10	-5	-5	0.02	0.87	0.01	0	0.14	0.36	-5.00	34	6	25	17	-5	-1	-10									
5554	10	14	-5	-5	0.02	0.47	-0.01	0	0.29	0.28	8.00	668	-5	24	17	-5	-1	-10									
5555	37	-10	-5	-5	0.09	1.18	0.03	0	0.18	0.52	-5.00	21	-5	32	53	-5	-1	-10									
5556	37	-10	-5	-5	-0.01	0.25	0.08	0	0.02	0.03	26.00	6	-5	-5	82	-5	-1	-10									
5556	37	18	-5	21	-0.01	0.25	0.09	0	0.02	0.04	13.00	4	-5	-5	23	-5	-1	-10									
5557	26	-10	8	51	0.05	1.04	0.10	1	0.04	0.32	-5.00	17	7	10	8	-5	-1	-10									
5558	49	-10	-5	-5	0.02	0.61	0.09	0	0.03	0.17	-5.00	6	-5	-5	15	-5	-1	-10									
5559	38	14	6	-5	0.08	1.19	0.11	0	0.03	0.38	-5.00	9	-5	13	22	-5	-1	-10									
5560	28	59	-5	-5	0.06	0.76	0.09	-0	0.03	0.27	-5.00	5	-5	8	63	5	9	-10									
5561	56	-10	7	37	0.08	1.47	0.11	0	0.04	0.44	-5.00	12	-5	13	10	-5	-1	-10									
5562	28	37	-5	-5	0.03	0.66	0.09	0	0.03	0.21	8.00	7	-5	5	27	-5	1	-10									
5563	41	-10	-5	25	0.03	0.68	0.09	0	0.03	0.21	-5.00	8	-5	6	32	-5	-1	-10									
5564	38	24	-5	-5	0.01	0.37	0.08	0	0.03	0.08	-5.00	5	-5	-5	26	-5	-1	-10									
5565	25	-10	18	76	0.09	1.44	0.11	0	0.03	0.50	-5.00	31	7	22	101	-5	1	-10					1.88				
5601	16	-10	-5	-5	0.06	0.53	0.08	-0	0.01	0.13	-5.00	19	-5	13	13	-5	-1	-10					5.94				
5602	9	-10	-5	-5	0.04	0.44	0.08	0	0.18	0.12	-5.00	484	6	15	1	-5	-1	-10									

APPENDIX. 1990–1991 CMD Sample Analytical Results

Sample no.	Li ppm	Ga ppm	La ppm	Ta ppm	Ti %	Al %	Mg %	Ca %	Na %	K %	Nb ppm	Sr ppm	Y %	Zr ppm	Au ppb	Pt ppb	Pd ppb	Ge ppm	Rh ppb	Os ppb	Ir ppb	Ru ppb	Ag o/t	La ppm	Ce ppm	Pr ppm	Nd ppm
5603	20	-10	-5	126	-0.01	0.26	0.08	1	0.02	0.07	28.00	14	-5	-5	17	7	1	-10									
5604	30	-10	-5	57	0.01	0.32	0.09	0	0.02	0.08	-5.00	58	-5	-5	13	-5	-1	-10									
5605	26	11	13	-5	0.21	1.85	0.13	0	0.03	0.41	-5.00	28	11	43	11	-5	-1	-10									

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Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
4001													
4002													
4003													
4004													
4005													
4006													
4007													
4008													
4009													
4010													
4011													
4012													
4013													
4014													
4015													
4016													
4017													
4018													
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APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
4060													
4061													
4062													
4063													
4064													
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4074													
4075													
4076													
4077													
4078													
4079													
4080	11.9	2.8	<200	2.2	18	4.2	<100	<2	12	1.9		1.1	126
4081													
4082													
4083													
4084													
4085													
4086													
4087													
4088													
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4117													

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
4118													
4119													
4120													
4121													
4122													
4123													
4124													
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4175													



APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
4176													
4177													
4178													
4179													
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4210													
4211													
4212													
4213													
4214													
4216													
4217													
4218													
4219	15.0	3.3	<200	2.5	15	3.7	<100	<2.0	11	1.6	2.59	1.1	150
4220													
4221													
4222													
4223													
4224									1	0.1	3.10	1.5	<1.0
4225									1	<0.10	2.60	1.4	<1.0
4226									1	<0.10	1.60	1.3	<1.0
4241													
5001													
5002													
5003													
5004													
5005													
5006													
5007													

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5008													
5009													
5010													
5011													
5012													
5013													
5014													
5015													
5016													
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APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5066													
5067													
5068													
5069													
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5119													
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5124													

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5125													
5126													
5127													
5128													
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APPENDIX. 1990–1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5183													
5184													
5185													
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5240													

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5241													
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APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5299													
5300													
5301													
5302													
5303													
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APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5357													
5358													
5359													
5360													
5361													
5362													
5363													
5364													
5365													
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5414													

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5415													
5416													
5417													
5418													
5419													
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5460													
5461													
5462													
5464													
5502													
5503													
5504													
5505													
5506													
5507													
5508													
5509													
5510													

APPENDIX. 1990-1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er pp	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5511													
5512													
5513													
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5564													
5565													
5601													
5602													

APPENDIX. 1990–1991 CMD Sample Analytical Results

Sample no.	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm	Sc ppm	Th ppm	U ppm
5603													
5604													
5605													