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MASTER

National Uranium Resource Evaluation

VOLUME 2

DRILL-HOLE DATA, DRILL-SITE GEOLOGY, AND GEOCHEMICAL DATA FROM THE STUDY OF PRECAMBRIAN URANIFEROUS CONGLOMERATES OF THE MEDICINE BOW MOUNTAINS AND THE SIERRA MADRE OF SOUTHEASTERN WYOMING

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Laramie, Wyoming
February, 1981

PREPARED FOR U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION OFFICE, COLORADO

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WORK DONE IN COOPERATION WITH THE UNITED STATES
GEOLOGICAL SURVEY AND THE GEOLOGICAL SURVEY OF WYOMING

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Frontispiece. Longyear-44 diamond core drill on SM-1, Ridge no. 2, at the Carrico Ranch, northwestern Sierra Madre; looking southeast towards radioactive beds of the Deep Gulch Conglomerate.

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INTRODUCTION

This volume is presented as a companion to Volume 1: The Geology and Uranium Potential of Precambrian Conglomerates in the Medicine Bow Mountains and Sierra Madre of southeastern Wyoming; and to Volume 3: Uranium Assessment for Precambrian Pebble Conglomerates in Southeastern Wyoming. In Volume 1, we summarized the geologic setting and geologic and geochemical characteristics of uranium-bearing conglomerates in Precambrian metasedimentary rocks of southeastern Wyoming. Volume 3 is a geostatistical resource estimate of U and Th in quartz-pebble conglomerates. This volume contains supporting geochemical data, lithologic logs from 48 drill holes in Precambrian rocks of the Medicine Bow Mountains and Sierra Madre, and drill site geologic maps and cross-sections from most of the holes.

Table 1 summarizes data from holes drilled in Precambrian rocks of southeastern Wyoming. Figure 1 shows the locations of these holes and the generalized geology of the Sierra Madre and Medicine Bow Mountains. Table 2 summarizes Precambrian stratigraphy in both ranges. Twenty-eight holes (19,443.5 feet) were drilled by the Bendix Field Engineering Corporation; Twenty holes (17,380 feet) were drilled by private companies and later made their data available to us; one hole in the Sierra Madre (5,856 feet) was drilled by C & K Petroleum Company; and one hole in the Medicine Bow Mountains (4,570 feet) was drilled by the private sector. We gratefully acknowledge the cooperation of these private companies and their willingness to allow us to use and publish their data. Without data from the private sector in the Onemile Creek area of the Medicine Bow Mountains and the Joe's Park-Deep Gulch areas of the Sierra Madre, this study could not have accurately characterized uranium-bearing conglomerates in southeastern Wyoming.

Surface geochemical data from rock chip samples are from several sources.

The surface sampling program attempted to sample the metasedimentary terranes on about a one-mile grid and to have representative samples of all major Precambrian rock units in the Sierra Madre and Medicine Bow Mountains. Geologic investigations done at the University of Wyoming prior to 1978 provided a great number of samples from the Medicine Bow and Sierra Madre ranges. These investigations included work done during the late 1950's and 1960's by R.S. Houston; during the early 1960's by Jack King; during the mid 1970's by Paul Graff, Karl Karlstrom, Don Gwinner and Ray Lanthier. In connections with these studies, 553 samples had already been analyzed for uranium and thorium by the U.S. Geological Survey. An additional 968 analyses were performed by the Oak Ridge Gaseous Diffusion Plant (ORGP) National Uranium Resource Evaluation (NURE) laboratory and funded by the Department of Energy (DOE) as a part of this study. Of these, 559 are analyses of samples collected during the above cited work at the University of Wyoming and 409 are analyses of surface samples collected during the 1979 and 1980 field seasons to fill in holes in the sampling grid and re-sample radioactive units in key areas. This volume lists geochemical data from these 1521 surface samples. Table 3 lists the elements which the Oak Ridge labs analyzed for, methods of analysis, detection limits, and quality control information for three sets of standards of varying concentrations. U.S. Geological Survey analyses reported slightly different elements; utilized fluorometric analysis techniques for uranium and emission spectrometry techniques for other elements.

In addition to surface rock-chip samples, Resource Associates of Alaska performed detailed stream sediment sampling along selected drainages in the Sierra Madre and have graciously allowed us to use and publish their data (see Table 19 for a summarization of mean values for selected drainages).

OBJECTIVES OF THE DRILLING PROGRAM

The two main objectives of the drilling programs reported here were:

TABLE 1. SUMMARY OF DRILL HOLES FROM PRECAMBRIAN METASEDIMENTARY ROCKS OF SOUTHEASTERN WYOMING

HOLE	DRILLED BY:	DEPTH (FEET)	TARGET	TARGET PENETRATED (?)	MAX. U	MAX. TH
MEDICINE BOW MOUNTAINS						
MB-4	BENDIX	931	BASAL MAGNOLIA FM.	YES	14 ppm	30 ppm
MB-5	BENDIX	1429	BASAL MAGNOLIA FM.	NO	79 ppm	32 ppm
MB-9	BENDIX	*	BASAL MAGNOLIA	NO	-----	-----
MB-9R	BENDIX	744	BASAL MAGNOLIA FM.	YES (?)	77.8 ppm	52 ppm
MB-10	BENDIX	1350	ROCK MOUNTAIN CONGL.	YES	9 ppm	15 ppm
MB-11	BENDIX	1272	BASAL MAGNOLIA FM.	YES	14 ppm	36 ppm
MB-13	BENDIX	571	CONICAL PEAK QTZITE.	YES	12 ppm	14 ppm
MB-14	BENDIX	173	BASAL MAGNOLIA FM.	NO	2.2 ppm	7 ppm
MB-15	BENDIX	929	ROCK MOUNTAIN CONGL.	YES	194 ppm	86 ppm
MB-16	BENDIX	730	BASAL MAGNOLIA FM.	YES	1620 ppm	212 ppm
MB-17A	BENDIX	146	BASAL MAGNOLIA FM.	NO	2.3 ppm	5 ppm
MB-17	BENDIX	*	BASAL MAGNOLIA	NO	-----	-----
EMB-1	PRIVATE SECTOR	821	BASAL MAGNOLIA FM.	YES	217.2 ppm	272 ppm
EMB-2	PRIVATE SECTOR	751	MAGNOLIA FM.	YES	96 ppm	142 ppm
EMB-3	PRIVATE SECTOR	520	MAGNOLIA FM.	NO		
EMB-4	PRIVATE SECTOR	321	MAGNOLIA FM.	NO	29 ppm	400 ppm
EMB-5	PRIVATE SECTOR	516	MAGNOLIA FM.	YES	240 ppm	160 ppm
EMB-6	PRIVATE SECTOR	850	MAGNOLIA FM.	YES	1380 ppm	725 ppm
EMB-7	PRIVATE SECTOR	1004	MAGNOLIA FM.	YES	1020 ppm	985 ppm
EMB-8	PRIVATE SECTOR	647	MAGNOLIA FM.	YES	841.5 ppm	573 ppm
EMB-9	PRIVATE SECTOR	534	MAGNOLIA FM.	YES	550 ppm	1143 ppm
EMB-10	PRIVATE SECTOR	849	MAGNOLIA FM.	YES	461 ppm	88 ppm
EMB-11	PRIVATE SECTOR	906	MAGNOLIA FM.	YES	365 ppm	344 ppm
PL-1	PRIVATE SECTOR	1289	BASAL MAGNOLIA FM.	YES	11 ppm	30 ppm
GH-1	PRIVATE SECTOR	1205	MAGNOLIA FM.	NO	32 ppm	48 ppm
BOWS-1	PRIVATE SECTOR	412	MAGNOLIA FM.	YES	64 ppm	27 ppm
BOWS-2	PRIVATE SECTOR	2100	MAGNOLIA FM.	NO	6.1 ppm	12 ppm
BOWS-3	PRIVATE SECTOR	998	MAGNOLIA FM.	YES	110 ppm	41 ppm
MEDICINE BOW NO. 1	PRIVATE SECTOR	4570	Phanerozoic rocks beneath a Precambrian thrust sheet.	NO		
SIERRA MADRE						
SM-1	BENDIX	633	DEEP GULCH CONGLOMERATE	YES	270 ppm	960 ppm
SM-1A	BENDIX	756	DEEP GULCH CONGLOMERATE	YES	209 ppm	546 ppm
SM-2	BENDIX	497	DEEP GULCH CONGLOMERATE	YES	720 ppm	2600 ppm
SM-2B	BENDIX	240	DEEP GULCH CONGLOMERATE	NO		
SM-2D	BENDIX	1483	DEEP GULCH CONGLOMERATE	YES	65 ppm	190 ppm
SM-3	BENDIX	785	DEEP GULCH CONGLOMERATE	YES	53.4 ppm	280 ppm
SM-4A	BENDIX	573	DEEP GULCH - type CONGLOMERATE	YES	7.1 ppm	00 ppm
SM-4B	BENDIX	597	DEEP GULCH - type CONGLOMERATE	YES	8.2 ppm	22 ppm
SM-5	BENDIX	806	BASAL MAGNOLIA FM.	YES	7 ppm	19 ppm
SM-6	BENDIX	578	BASAL PHANTOM LAKE SUITE UNCONFORMITY	YES	31 ppm	24 ppm
SM-7A	BENDIX	666	BASAL MAGNOLIA (?) and SILVER LAKE PARACONGLOMERATE	YES	4.7 ppm	15 ppm
SM-8	BENDIX	775	LOWER MAGNOLIA	YES	11.9 ppm	57 ppm
SM-9	BENDIX	683.5	SILVER LAKE PARACONGLOMERATE	YES	35 ppm	40 ppm
SM-11	BENDIX	1005	BASAL MAGNOLIA	YES	27 ppm	110 ppm
SM-12	BENDIX	720	BASAL MAGNOLIA and SILVER LAKE PARACONGLOMERATE	YES	17 ppm	100 ppm
SM-13	BENDIX	371	DEEP GULCH CONGLOMERATE	NO	3.3 ppm	13 ppm
JP-1	PRIVATE SECTOR	588	DEEP GULCH CONGLOMERATE	YES	490 ppm	483 ppm
JP-2	PRIVATE SECTOR	949	DEEP GULCH CONGLOMERATE	YES	100 ppm	337 ppm
JP-3	PRIVATE SECTOR	420	DEEP GULCH CONGLOMERATE	YES	89 ppm	220 ppm
JP-4	PRIVATE SECTOR	413	DEEP GULCH CONGLOMERATE	YES	47.4 ppm	653 ppm
HARTT UNIT 1-36	C & K Petroleum	5856	Phanerozoic rocks below a Precambrian thrust sheet.	NO		

*Did not reach bedrock

Figure 1. Generalized geologic map of the Medicine Bow Mountains and Sierra Madre showing locations of drill holes.

TABLE 3. LIST OF ELEMENTS, ANALYTICAL METHODS, DETECTION LIMITS, AND QUALITY CONTROL INFORMATION FOR SAMPLES ANALYZED BY OAK RIDGE GASEOUS DIFFUSION PLANT NATIONAL URANIUM RESOURCE EVALUATION PROJECT LABORATORY, OAK RIDGE, TENNESSEE

ELEMENT	ANALYTICAL METHOD	DETECTION LIMIT (ppm)	STANDARD NO. 1				STANDARD NO. 2				STANDARD NO. 3			
			NO. OF ANALYSES	MEAN (ppm)	STD. DEV. (ppm)	COEF. VAR.	NO. OF ANALYSES	MEAN (ppm)	STD. DEV. (ppm)	COEF. VAR.	NO. OF ANALYSES	MEAN (ppm)	STD. DEV. (ppm)	COEF. VAR.
U-NT	NT	.02	86	C.66	0.061	0.09	100	4.95	0.099	0.02	86	26.53	0.697	0.03
U-FL	FL	.25	71	C.67	0.272	0.41	78	4.19	0.563	0.13	75	27.36	2.868	0.10
Au														
Ag	PS	2												
Al	PS	.05%	73	9700.0	510.0	0.05	78	35100.0	2160.0	0.05	68	47900.0	2760.0	0.06
B	PS	10	74	7.0	3.5	0.49	82	21.0	8.7	0.41	70	65.0	10.4	0.16
Ba	PS	2	75	138.0	14.9	0.11	79	482.0	46.6	0.10	71	319.0	22.6	0.07
Be	PS	1	73	<1.0			78	1.0	0.3	0.23	72	2.0	1.0	0.49
Ca	PS	.05%	75	1100.0	100.0	0.09	79	3100.0	220.0	0.07	71	16700.0	1000.0	0.06
Ce	PS	10	74	20.92	4.407	0.21	79	73.53	8.684	0.12	71	62.04	11.373	0.18
Co	PS	4	75	2.0	2.1	0.49	81	10.0	1.8	0.17	68	32.0	2.1	0.06
Cr	PS	1		15.0	2.2	0.14	79	29.0	3.3	0.11	69	63.0	4.7	0.07
Cu	PS	2	70	2.0	1.0	0.23	78	21.0	1.8	0.08	69	70.0	3.7	0.05
Fe	PS	.05%	74	9600.0	410.0	0.04	80	18100.0	940.0	0.05	67	39800.0	1650.0	0.04
*Hf	PS	15	62	7.23	8.689	1.20	66	8.50	7.470	0.88	66	5.48	3.624	0.66
K	PS	.05%	73	1900.0	190.0	0.10	79	9500.0	980.0	0.10	69	16900.0	1830.0	0.11
*La	PS	2	64	21.56	3.976	0.18	65	84.23	8.301	0.10	67	89.67	5.767	0.06
Li	PS	1	71	5.0	0.7	0.08	79	23.0	1.8	0.08	71	35.0	3.3	0.09
Mg	PS	.05%	73	1100.0	60.0	0.05	79	2200.0	90.0	0.04	69	5600.0	190.0	0.03
Mn	PS	4	74	318.0	12.0	0.04	80	1933.0	79.7	0.04	67	402.0	14.5	0.04
Mo	PS	4	72	2.0	0.2	0.12	81	2.0	0.8	0.36	69	43.0	3.9	0.09
Na	PS	.05%	1	<500.0			79	600.0	170.0	0.10	70	1500.0	180.0	0.12
Nb	PS	4	1	<4.0			79	7.0	2.9	0.38	70	2.0	0.8	0.37
Ni	PS	2	75	7.0	3.8	0.55	81	21.0	4.0	0.19	69	107.0	6.7	0.06
P	PS	5	73	7.0	8.2	0.12	75	2206.0	179.2	0.08	67	1417.0	86.8	0.06
*Pb	PS													
Sc	PS	1	75	1.0	0.5	0.27	80	5.0	0.6	0.10	72	9.0	0.7	0.08
Sr	PS	1	73	19.56	1.269	0.06	77	56.25	2.720	0.05	71	84.54	5.068	0.06
Th	PS	2	74	2.0	1.7	0.72	82	7.0	4.1	0.57	72	7.0	2.9	0.41
Ti	PS	10	75	582.0	56.5	0.10	78	3397.0	312.0	0.09	70	2154.0	152.3	0.07
V	PS	2	71	20.0	1.1	0.05	77	56.0	3.3	0.06	69	162.0	7.3	0.04
V	PS	1	74	4.0	0.4	0.09	79	20.0	1.4	0.07	70	33.0	1.8	0.05
Zn	PS	2	68	13.0	2.0	0.14	76	95.0	7.9	0.08	69	184.0	12.2	0.07
Zr	PS	2	75	30.0	3.2	1.10	77	138.0	9.8	0.07	70	82.0	5.6	0.07

NT - Neutron activation delayed neutron count

FL - Fluorimetric analysis

PS - Plasma source emission spectroscopy

* - available only for sample numbers greater than

1) to evaluate the uranium potential of Precambrian quartz-pebble conglomerates and 2) to help test models for formation of the conglomerates. Whereas detailed outcrop mapping and surface sampling could provide information on the lateral extent of mineralized conglomerates, thickness of mineralized zones, and thorium and gold content, only drilling could provide accurate information on uranium content. Subsurface data were needed because percolation of oxygenated ground waters has leached much of the uranium from outcrops.

Drilling done by industry was aimed at determining ore grades and thicknesses and then evaluating the economic feasibility of mining the conglomerates. As a consequence, industry efforts tended to concentrate on assessing relatively small areas where strongly radioactive conglomerates were known to occur. In the Medicine Bow Mountains, industry drilled nine holes in a one-square mile area near Onemile Creek, two holes near Threemile Creek, and one hole near Arrastre Lake; and Occidental drilled three holes east of Crater Lake. In the northwestern Sierra Madre, industry drilled four holes along a 4 km long conglomerate trend extending from Deep Gulch to Joe's Park.

Drilling done by Bendix had a different emphasis. They were charged by the Department of Energy to estimate the potential uranium resources in Precambrian conglomerates of southeastern Wyoming at grades exceeding 100 ppm U_3O_8 . This estimate is part of the National Uranium Resource Evaluation (NURE) program. Emphasis on even relatively low-grade uranium occurrences required a more careful look at the entire Medicine Bow Mountains and Sierra Madre and necessitated drilling of even mildly radioactive surface rocks. Because data were available from closely spaced industry drilling in some of the most favorable areas, Bendix drilling was designed to test widely spaced, small radioactive anomalies in both ranges as well as areas considered to be especially favorable on geologic grounds. Bendix completed 20 holes which were fairly evenly distributed over the Sierra

Madre and Medicine Bow Mountains, and six holes in a one square mile area near the Carrico Ranch of the northeastern Sierra Madre which was one area of very radioactive conglomerates which industry had not assessed.

A second objective of the Bendix drilling program was to help test existing exploration models and genetic models (See Volume 1) for Precambrian uranium-bearing conglomerates. In terms of an exploration model, there were several concepts which could be tested by drilling. Most fundamental is the concept that uranium-bearing fossil-placer deposits are commonly associated with the basal Proterozoic unconformity or other unconformities of regional extent. Geologic mapping (Figure 1) had defined an anomalously radioactive conglomerate, the Magnolia Formation, which unconformably overlies Archean granitic rocks and Late Archean metasedimentary rocks of the Phantom Lake Metamorphic Suite (Table 2). Twelve of the reconnaissance holes drilled by Bendix were designed to penetrate basal Magnolia beds as well as the presumed Archean-Proterozoic unconformity to test for significant mineralization along the unconformity (Table 1). Radioactive conglomerates were also identified near the base of the Phantom Lake Metamorphic Suite in both the Medicine Bow Mountains (Rock Mountain Conglomerate) and the Sierra Madre (Deep Gulch Conglomerate). In these cases, mineralization appears to be related to Archean unconformities. Twelve Bendix holes were to penetrate these "basal" conglomerate beds in the Phantom Lake Metamorphic Suite or were spotted near the presumed base of the Phantom Lake Suite to test for mineralization along a pre-Phantom Lake Suite unconformity.

Drilling provided useful information on the nature of the proposed unconformities. These data are instrumental in determining if the contacts are angular unconformities or if a regolith had developed prior to deposition of basal conglomerates, or if basal conglomerates are continuous or discontinuous.

Mineralogical characteristics of the conglomerates could also be tested by drilling. Uranium-bearing minerals and pyrite, both of which are common to

this type of mineral deposit, have been leached from surface outcrops. Drilling could provide unleached rock for mineralogical as well as geochemical work.

SUMMARY OF CONCLUSIONS FROM DRILLING

Uranium grades and thicknesses of mineralized zones

Most of the uranium and thorium in quartz-pebble conglomerates of the Medicine Bow Mountains and Sierra Madre occurs in two relatively small areas: the Onemile Creek area of the northeastern Medicine Bow Mountains and the Deep Gulch-Carrico Ranch areas of the northwestern Sierra Madre. Thus, our estimates of uranium and thorium resources come from detailed mapping, sampling, and relatively closely spaced (but still reconnaissance) drilling in these areas combined with widely spaced reconnaissance drilling and sampling over the rest of the two mountain ranges.

In the Onemile Creek area of the Medicine Bow Mountains, radioactive conglomerates of the Magnolia Formation crop out in an overturned and faulted syncline. The most radioactive conglomerates occur as lenses, up to several feet thick, and hundreds of feet in lateral extent, within about a 1000 foot thick section of slightly radioactive pebbly quartzites and quartz-granule conglomerates. Of the 10 holes drilled in this area, 7 intersected conglomerate zones containing more than 100 ppm U. The highest assays found were 1620 ppm U over a two inch thick conglomerate zone in MB-16; 1380 ppm U over about a two foot thick zone in EMB-6; and 1020 ppm. over a four inch thick zone in EMB-7. Other drill holes contained numerous zones, usually less than a foot thick, with values of several hundred ppm U, but these are commonly surrounded by quartzites with background uranium values of 10-30 ppm.

Thorium assays up to 965 ppm over a two inch zone were found in EMB-7 and 725 ppm Th over about one foot were found in EMB-6. But typical maximum thorium values for most of the radioactive conglomerate zones (again, which were usually

less than one foot thick) were on the order of 100-400 ppm.

Total resources in the Onemile Creek area at grades exceeding 100 ppm U_3O_8 and ThO_2 are on the order of 1800 tons U_3O_8 and 1,100 tons ThO_2 (see Volume 3). However, this amount of uranium and thorium mineralization is fairly widely disseminated in numerous thin and discontinuous lenses of radioactive conglomerate so that recovering the U_3O_8 and ThO_2 would be problematical.

Outside of the Onemile Creek area, there are a few scattered areas of Magnolia Formation in the Medicine Bow Mountains which contain sufficient uranium and thorium mineralization to be included in a statistical resource estimate. The Threemile Creek area (EMB-5 and EMB-11) contains one conglomerate sample with 365 ppm U and 100 ppm Th and several other thin quartz-pebble conglomerates containing more than 100 ppm U. These horizons occur within a 400 foot thick section of arkosic paraconglomerate. The upper Rock Creek area (Bows-1 and Bows-3) yielded spot samples of conglomerates containing up to 110 ppm U and 41 ppm Th.

Radioactive conglomerates in the Medicine Bow Mountains also occur in the Rock Mountain Conglomerate of the Phantom Lake Metamorphic Suite. These conglomerates are thick (up to 1200 feet thick) and although they generally contain less than 10 ppm U, 10 ppm Th, one sample from MB-15 yielded 190 ppm U, 86 ppm Th, and one surface sample nearby yielded 270 ppm U, 57 ppm Th. Thus, the Rock Mountain Conglomerate, while generally only slightly radioactive, contains thin zones of radioactive quartz-pebble conglomerate interbedded with arkosic paraconglomerate.

Important radiocative conglomerates in the Sierra Madre occur in the Deep Gulch Conglomerate, which is the basal unit of the Late Archean Phantom Lake Metamorphic Suite. This conglomerate contains appreciable thorium but less uranium than the Magnolia Formation of the Medicine Bow Mountains. The Deep

Gulch Conglomerate crops out in a 7 km long trend from the Carrico Ranch, through Deep Gulch, to the Manning Ranch. The most radioactive conglomerates in the unit crop out within Unit 3, a 30 foot thick zone of interbedded quartz-pebble conglomerates and granular conglomerate horizons (e.g. Manning Ranch, ridge no. 2), most of which are discontinuous lenses several inches thick. However, there is one major conglomerate zone (conglomerate K of the Carrico Ranch area) which is about two feet thick and continuous along strike for about two miles and in a down-dip direction for at least 600 feet.

The uranium content of the Deep Gulch Conglomerate is somewhat less than we had expected. A maximum uranium value of 718 ppm U was encountered in a spot sample of conglomerate K from drill hole SM-2, but from the same hole the maximum value obtained from a channel sample taken over a one foot interval of core was 117.5 ppm U, 333 ppm Th (sample taken at a depth of about 180 feet). Maximum values in the Deep Gulch area and Manning Ranch were lower: about 56 ppm U and 410 ppm Th, and typical values, even for the radioactive conglomerate layers in these areas are on the order of 20-50 ppm U. Statistical analysis of uranium endowment in Unit 3 suggests that there is on the order of 442 tons of U_3O_8 at grades over 100 ppm U_3O_8 in the Deep Gulch Conglomerate of the north-western Sierra Madre (see Volume 3).

Thorium is more abundant than uranium, and is the principal source of surface gamma radiation. A maximum thorium value of 2596 ppm was encountered in conglomerate K in drill hole SM-2 and thorium values of 25-30 ppm Th are common in many conglomerate zones. Analysis of thorium resources at grades over 100 ppm ThO_2 (Volume 3) indicates about 6352 tons of ThO_2 in the Deep Gulch Conglomerate.

The only other area in the Sierra Madre where we have found strongly radioactive conglomerates is near Dexter Peak (SM-4A, SM-4B). These conglomerates are interpreted to be in the upper Jack Creek Quartzite and they contain up to

131 ppm U in one isolated outcrop. Two drill holes in this area intersected mildly radioactive (maximum of 8.2 ppm U and 66 ppm Th) arkosic paraconglomerates but no highly radioactive quartz-pebble conglomerates such as are found in outcrop. Thus it appears that highly radioactive quartz-pebble conglomerates occur as discontinuous lenses in the paraconglomerate in this area.

The Magnolia Formation appears to be present in the Sierra Madre but is thinner and less well developed than in the Medicine Bow Mountains. We have found no highly radioactive zones in the Magnolia Formation of the Sierra Madre.

Surface Leaching of Uranium and Pyrite

Drilling affirmed that surface conglomerates have been severely leached of uranium and pyrite. Pyrite in the matrix of quartz-pebble conglomerates had been nearly completely oxidized to hematite and limonite in outcrop but is present in drill core, in increasing quantity and freshness, below about 50 feet. Minor amounts of oxidation of pyrite has taken place along fractures at much greater depths (500 feet in some Onemile Creek drill holes).

Surface Th/U ratios in the Onemile Creek area of the Medicine Bow Mountains are quite variable but are generally in the range 2-6 while subsurface Th/U values are lower (mean of about 1.2 from the radioactive conglomerates). Similarly, in the Deep Gulch Conglomerate of the Sierra Madre, mean Th/U values from outcrops are often about two times higher than drill core values (6.3 vs. 3.3 in SM-1; 3.9 vs. 3.9 in SM-1A; 6.7 vs. 4.9 in SM-2; 5.9 vs. 2.7 in JP-1; 5.9 vs. 3.7 in JP-2; 7.7 vs. 11.7 in JP-4). A detailed discussion of surface leaching is presented in Volume 3.

Mineralogical Characteristics of the Conglomerate

The two main areas of outcrop of radioactive conglomerate were found to be very different in terms of their uranium and thorium geochemistry and mineralogy. Magnolia Formation conglomerates of the Onemile Creek area are significantly richer in uranium; Deep Gulch conglomerates are richer in thorium. Leaching

studies (Volume 3) showed that, in unleached rock (below about 150 feet) Th/U in the Medicine Bows could be expressed as: $\text{Th/U} = .2 \text{ Th} \cdot 34$ and, in the Sierra Madre as: $\text{Th/U} = 1.79 \text{ Th} \cdot 26$. The exponent is about the same in both expressions but the difference in the multiplier expresses a major difference in mineralogy between the two areas. This difference is reflected in the reserve estimate which found about five times as much uranium, but only twice as much thorium, in the Onemile Creek area than in the Deep Gulch area.

This difference in geochemistry is explained by observed mineralogical differences. The Onemile Creek conglomerates contain thorogummite, uranothorite, and coffinite as the main uranium and thorium minerals; the Deep Gulch Conglomerates contain monazite, huttonite (?), and zircon. We believe that these mineralogical differences reflect the different ages of the conglomerates as well as different source terranes.

Pyrite is present in significant quantities (up to 20-30%) in the matrix of conglomerates in both areas and there is a good correlation between increasing pyrite content of the conglomerates and increasing uranium and thorium mineralization.

Favorability of Unconformities

Drilling showed that the basal Proterozoic Magnolia Formation of the Medicine Bow Mountains is strongly radioactive in the Onemile Creek area, where conglomerates unconformably overlie Late Archean granites, but was not as strongly radioactive farther south, where the Magnolia unconformably overlies folded Phantom Lake Suite rocks. The Magnolia Formation of the Sierra Madre unconformably overlies the Phantom Lake Suite and was not found to be a favorable target for uranium and thorium mineralization. It appears that the basal Proterozoic unconformity is a favorable target for U, Th mineralization only in areas containing favorable (granitic) source rocks.

Archean unconformities were also found to be favorable targets in selected

areas. The unconformity (?) at the base of the Phantom Lake Suite in the northwestern Sierra Madre is overlain by the radioactive Deep Gulch Conglomerate and the Rock Mountain Conglomerate of the northern Medicine Bows also occurs near the base of the Phantom Lake Suite. These units both appear to be related to local unconformities.

DATA FROM DRILLING

This section presents the following information for each drill hole:

1. A title page giving the location and technical data about the hole.
2. A short discussion of the objectives of the drill hole and conclusions from drilling.
3. A summary lithologic log at a scale of one inch = 100 feet which shows major lithologic contacts, a gross gamma log for the hole (either from down-hole logging or hand-held spectrometer logging), and graphical presentation of uranium and thorium assays. An explanation for lithologic symbols used in core logs is given in Figure 2.
4. A site geologic map, usually at a scale of 1:12000, which shows outcrops, surface radiometric measurements, and uranium and thorium values of surface samples from the immediate vicinity of the drill site and a geologic cross-section through the hole.
5. A listing of geochemical data from drill hole samples. Samples are arranged in order of increasing depth in the drill hole. Channel samples are identified by a top and bottom depth in feet, spot samples are identified by a top depth only. Each sample lists analysis for 36 elements; (-) indicates assay is less than detection limit, ND = no data, UL = "leachable" uranium from fluorescence spectroscopy, and UT = uranium assay from neutron activation technique. A lithologic code and formation code are assigned to each sample. Lithology codes are as follows:

AE	alaskite	AMGN	amphibole gneiss
AGC	arkosic granule conglomerate	AN	andesite and meta-andesite
AK	arkose	A0	agglomerate and meta-agglomerate
AM	amphibolite	AP	aplite

APC	arkosic paraconglomerate (Magnaolia type)	FAM	fine-grained amphibolite
AQ	arkosic quartzite	FG	fault gouge
AQC	arkosic quartz-pebble conglomerate	FQ	fine-grained quartzite
AQZ	arkosic quartzite	FQZ	fine-grained quartzite
ASC	amphibole schist	GASC	garnet-amphibole schist
AUGN	augen gneiss	GB	gabbro and metagabbro
AUD	gold ore	GD	granodiorite
B	basalt	GGN	granitic gneiss
BA	basalt	GN	gneiss
BGN	Biotite-plagioclase gneiss	GO	gossan
BQ	biotite quartzite	GR	granite
BR	breccia	GW	graywacke
BS	biotite schist	HF	hornfels
C	conglomerate	HGN	hornblende gneiss
CAM	coarse-grained amphibolite	IF	iron formation
CHO	copper ore	LS	limestone and metalimestone
CQ	coarse-grained quartzite	MB	marble
CQZ	coarse-grained quartzite	MM	migmatite
CS	calc-silicate	MQ	medium-grained quartzite
CSC	chlorite schist	MQZ	medium-grained quartzite
CUO	copper ore	MSC	mica schist
DB	diabase and metadiabase	MY	mylonite
DC	dacite and metadacite	NO	norite
DN	dunite	PAC	paraconglomerate
DO	dolomite and metadolomite	PC	paraconglomerate
DR	diorite		

PBQ	pebbly quartzite	RGR	red and pink granite
PBQZ	pebbly quartzite	RY	rhyolite and meta-rhyolite
PG	pegmatite	S	schist
PHQ	phyllitic quartzite	SC	schist
PHQZ	phyllitic quartzite	SK	skarn
PL	phyllite	SL	slate
PO	prophyry	SO	siltstone and meta-siltstone
PY	pyroxenite	SS	sandstone
Q	quartzite	TF	tuff and meta-tuff
QBC	quartz-boulder conglomerate	ULM	ultramafic rocks
QGC	quartz-granule conglomerate	VL	volcanic and metavolcanic rocks
QZ	quartzite	VQ	vein quartz

Formation codes for geochemical samples are as follows:

AG	Archean granites	HD	Headquarters Formation
AGN	Archean gneisses	HDD	Headquarters Formation- diamictite member
BPQ	Bridger Peak Quartzite	HD	Headquarters Formation- phyllite member
BRQ	Bow River Quartzite	HT	Heart Formation
CD	Continental Divide Metavol- canic Rocks	JCF	Jack Creek metasediments
CL	Campbell Lake Formation	LQ	Lindsey Quartzite
CNQ	Conical Peak Quartzite	LS	Lookout Schist
CPQ	Copperton Quartzite	MC	Magnolia Conglomerate
CQ	Cascade Quartzite	MG	Magnolia Formation
DG	Deep Gulch Formation	MI	Mafic intrusive rocks
FS	French Slate	MP	Medicine Peak Quartzite
GG	Gaps Trondhjemite		

MQ	Magnolia Quartzite	SLU	Silver Lake rocks
MU	Mesozoic rocks undivided	SLV	Silver Lake metavolcanic rocks
NF	Nash Fork Formation	SPF	Singer Peak Formation
PL	Phantom Lake Metamorphic suite undivided	SQ	Sugarloaf Quartzite
PU	Paleozoic rocks undivided	SSZ	Rocks south of Mullen Creek Nash Fork shear zone
RK	Rock Knoll Formation	TBP	Tertiary Brown Park Formation
RMC	Rock Mountain Conglomerate	TG	Towner Greenstone
SF	Slaughterhouse Formation	TU	Tertiary rocks undivided
SLC	Silver Lake Conglomerate	VF	Vagner Formation

6. Abbreviations:	BLM	Bureau of Land Management
	congl.	conglomerate
	Fm	Formation
	gr	grained
	K-spar	K-feldspar
	med	medium
	paracongl.	paraconglomerates
	qtz.	quartz
	qtzite	quartzite
	U.S.F.S.	United States Forest Service

FIGURE 2. EXPLANATION OF LITHOLOGY LOG SYMBOLS

Metabasalt and metavolcanic rocks

Archean gneisses

Archean granites

Schist and phyllite, angle to horizontal indicates angle of bedding or foliation in the core.

Quartz-rich schist, micaceous quartzite, or phyllitic quartzite (more dashes indicate more mica present).

Quartzite, fine- to coarse-grained

Granule conglomerate

Pebble conglomerate

Paraconglomerate

Metagabbro

Metagraywacke

Trough crossbeds indicating stratigraphic tops

Fining upward sets

Minor folding

Highly fractured areas

Shear zone or fault gouge

Limestone

} Combined if gradational

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DRILL HOLE NO. MB-4

AREA: Eastern Medicine Bow Mountains, west of Cooper Hill.

LOCATION: 800 FSL, 2840 FEL, Sec. 33, T. 18 N., R. 78 W.

LATITUDE: 41°29'04"

LONGITUDE: 106°09'52"

COUNTY: Carbon

TOPOGRAPHIC QUAD Morgan

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9703

ANGLE: 60°

BEARING: N 20 E

TOTAL DEPTH: 931'

SPUD DATE: 9/25/79

COMPLETION DATE: 7/21/80

GROSS GAMMA LOGGING:

INSTRUMENT: Mount Sopris #55, 1000-C logger

PROBE T.D.: 930'

DATE: 7/21/80

REMARKS:

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available.

STRATIGRAPHIC UNITS: (Lindsey Quartzite: 0-410) (Magnolia Fm.: 410-791)
(Bow River Quartzite: 791-931)

RADIOACTIVE ZONES: 539'

CORE LOGGERS: Thomas G. Schmidt, Ramsey Bentley, Peter Swift, Craig P. Kapp

DRILL HOLE MB-4

OBJECTIVES:

1. This is the best area to test the thickness and uranium content of the Magnolia Formation on the east limb of the Sand Lake Syncline in the northern Medicine Bow Mountains. Outcrops show anomalously high radioactivity (six times background) and contain up to 13 ppm U, 34 ppm Th.
2. This hole also tests the nature of the Magnolia-Lindsey contact (believed to be gradational) and the possibility of uranium mineralization in the basal Lindsey Quartzite (which has been found on the surface locally).
3. The hole provides information on lithologies in the Phantom Lake Metamorphic Suite in this area.

CONCLUSIONS:

1. The Magnolia Formation was penetrated from 410 to 791 feet, a stratigraphic thickness of 381 feet. Maximum uranium and thorium values occurred at 304 and 873.5 feet with values of 14 ppm U, 30 ppm Th.
2. The contact appears gradational in drill core, with quartzites becoming progressively coarser-grained down-section. The contact was placed at 410 feet because of a marked change toward fewer phyllitic partings here.
3. Phantom Lake Suite rocks are pink, medium-grained, arkosic quartzites.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 4 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 4
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

Gross Gamma CPSx100				PPM Th			PPMU	Samp.	Scale	Description
1	2	3	4	10	10 ²	10 ³	10	10 ²	10 ³	1" = 100ft.
								900	.	900-925': Arkose, granular; subangular; pink color; sugary texture.
									~~~~~	925-931': Amphibolite, metavolcanic; fine-grained.
									T.D. 931'	

FIGURE 3. GEOLOGIC MAP OF DRILL SITE MB-4, COOPER CREEK AREA, MORGAN QUAD., SEC. 33, T.18 N., R.78 W.

EXPLANATION

DRILL HOLE NUMBER MBA

SAMP. NO.	157899	157898	157897	157902	157914	157915	157921	157996	160563	160564
TOP DEPTH	25.00	74.00	124.00	163.00	189.00	221.00	263.00	304.00	350.40	401.00
BOT DEPTH										
FORMATION	LQ	LQ	LQ	LQ	LQ	LQ	LQ	MG	LQ	MG
LITHOLOGY	FQZ	PHQ	CQ	MQZ	CQ	CQ	QZ	AK	CQ	CQ
UL (PPM)	.80	1.78	2.09	2.01	2.76	5.20	2.47	6.32	1.49	1.63
UT (PPM)	1.40	1.20	2.00	1.90	1.80	4.20	1.70	7.14	2.10	2.00
UL/UT	.57	1.48	1.04	1.06	1.53	1.24	1.45	.89	.71	.81
TH (PPM)	10.00	3.00	5.00	2.00	-2.00	11.00	6.00	30.00	-2.00	-2.00
TH/UT	7.15	2.50	2.50	1.05	-1.11	2.62	3.53	4.20	-.95	-1.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	1.88	2.08	4.07	1.45	1.73	2.25	1.86	5.63	2.36	3.38
CA (%)	-.05	-.05	.07	-.05	-.05	-.05	.05	.08	-.05	-.05
FE (%)	.42	.50	1.20	.74	.77	.85	.62	1.14	.42	.65
MG (%)	.22	.17	.33	.23	.24	.30	.28	.66	.07	.40
NA (%)	.29	.68	1.32	.87	1.28	.83	.81	2.08	.66	.86
K (%)	1.02	1.23	1.93	1.91	1.56	2.98	.50	1.50	1.52	1.73
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	187.00	224.00	516.00	307.00	198.00	375.00	72.00	222.00	385.00	428.00
BE (PPM)	1.00	1.00	2.00	2.00	1.00	3.00	2.00	3.00	-1.00	1.00
CE (PPM)	-10.00	11.00	16.00	-10.00	-10.00	-10.00	10.00	15.00	21.00	-10.00
CO (PPM)	4.00	6.00	6.00	7.00	4.00	7.00	4.00	12.00	-4.00	-4.00
CR (PPM)	24.00	17.00	25.00	21.00	22.00	67.00	20.00	106.00	10.00	19.00
CU (PPM)	13.00	14.00	7.00	8.00	7.00	4.00	4.00	3.00	8.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	60.00	-15.00
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	22.00	16.00
LI (PPM)	7.00	3.00	5.00	5.00	5.00	7.00	4.00	10.00	1.00	4.00
MN (PPM)	25.00	21.00	49.00	26.00	21.00	19.00	21.00	48.00	21.00	19.00
NO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	5.00	4.00	-4.00	8.00	5.00	7.00	-4.00	-4.00
NI (PPM)	6.00	7.00	11.00	10.00	8.00	14.00	5.00	33.00	7.00	9.00
P (PPM)	39.00	30.00	74.00	94.00	71.00	45.00	51.00	105.00	41.00	39.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	17.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	3.00	1.00	1.00	2.00	2.00	3.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	5.00	19.00	48.00	14.00	16.00	11.00	10.00	36.00	31.00	27.00
TI (PPM)	391.00	251.00	501.00	527.00	502.00	1249.00	459.00	1275.00	150.00	284.00
V (PPM)	16.00	8.00	28.00	27.00	13.00	45.00	10.00	30.00	6.00	17.00
Y (PPM)	2.00	1.00	2.00	-1.00	-1.00	1.00	2.00	6.00	2.00	1.00
ZN (PPM)	8.00	18.00	11.00	5.00	6.00	9.00	5.00	7.00	4.00	5.00
ZR (PPM)	69.00	32.00	41.00	55.00	45.00	209.00	52.00	223.00	28.00	23.00

DRILL HOLE NUMBER MB4

SAMP. NO.	160561	160565	160566	160567	160568	160569	160604	160605	160606	160607
TOP DEPTH	437.00	470.50	536.00	607.00	644.00	682.00	709.00	720.80	735.00	765.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MG	PBQ	FQ	AQ	FQ	MG	APC	CSC	MG	QGC
UL (PPM)	3.01	3.26	6.78	5.48	2.51	1.23	1.81	1.09	.98	4.03
UT (PPM)	3.20	3.50	6.30	5.00	2.70	1.10	1.90	1.00	1.10	3.50
UL/UT	.94	.93	1.08	1.10	.93	1.12	.95	1.09	.89	1.15
TH (PPM)	4.00	2.00	7.00	12.00	7.00	8.00	5.15	-2.00	2.18	4.77
TH/UT	1.25	.57	1.11	2.40	2.59	7.28	2.71	-2.00	1.98	1.36
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.42	2.72	7.62	3.46	2.40	1.11	1.24	6.85	1.40	1.92
CA (%)	-.05	-.05	.09	-.05	-.05	-.05	.05	6.05	-.05	.13
FE (%)	.48	.29	1.58	.25	.62	.77	.76	8.38	.25	.64
MG (%)	.21	.14	.57	.07	.22	.08	.22	3.91	.08	.17
NA (%)	.70	.37	1.50	1.62	-.05	.06	.08	.92	.12	.17
K (%)	2.58	2.04	3.27	1.71	1.32	.58	.04	63.00	60.00	98.00
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	10.00	-10.00	13.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	623.00	381.00	833.00	324.00	234.00	124.00	81.29	53.50	106.40	167.80
BE (PPM)	1.00	1.00	3.00	-1.00	-1.00	-1.00	-1.00	1.73	-1.00	-1.00
CE (PPM)	10.00	22.00	19.00	48.00	16.00	14.00	-10.00	14.26	-10.00	15.15
CO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	6.94	40.93	-4.00	16.69
CR (PPM)	20.00	9.00	60.00	14.00	29.00	14.00	19.99	181.80	12.27	23.13
CU (PPM)	3.00	5.00	3.00	7.00	4.00	6.00	34.35	28.94	5.94	10.96
HF (PPM)	-15.00	40.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	12.00	30.00	21.00	64.00	19.00	14.00	7.16	-2.00	6.91	18.04
LI (PPM)	4.00	3.00	12.00	1.00	6.00	2.00	2.55	13.85	2.03	2.96
MN (PPM)	17.00	13.00	58.00	9.00	15.00	8.00	48.68	1224.00	15.94	43.94
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	7.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	6.00	-2.00	19.00	8.00	5.00	-2.00	9.63	93.12	6.16	23.55
P (PPM)	26.00	47.00	147.00	59.00	17.00	-5.00	23.24	257.10	7.08	16.67
PB (PPM)	17.00	-10.00	12.00	-10.00	-10.00	10.00	-10.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	4.00	-1.00	2.00	-1.00	-1.00	33.36	-1.00	1.76
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	26.00	34.00	51.00	35.00	6.00	2.00	4.67	81.84	3.10	9.02
TI (PPM)	588.00	137.00	1266.00	149.00	566.00	169.00	211.10	5158.00	206.10	485.30
V (PPM)	14.00	4.00	39.00	-2.00	17.00	5.00	5.85	292.80	3.50	14.90
Y (PPM)	1.00	2.00	3.00	3.00	1.00	1.00	1.45	12.90	-1.00	1.35
ZN (PPM)	6.00	5.00	11.00	6.00	6.00	7.00	7.08	70.91	3.41	14.86
ZR (PPM)	53.00	25.00	77.00	74.00	51.00	19.00	27.69	3.31	16.57	38.38

DRILL HOLE NUMBER MB4

SAMP. NO.	160608	160609	160610	160611	710987	710988	710989
TOP DEPTH	788.50	815.00	831.50	850.00	873.50	909.00	927.00
BOT DEPTH							
FORMATION	MG	BRQ	BRQ	BRQ	BRQ	BRQ	BRQ
LITHOLOGY	PHQ	BA	AQ	BA	APC	AQ	BA
UL (PPM)	2.13	1.07	.60	-.25	13.82	.72	2.20
UT (PPM)	2.00	.80	.90	.10	14.40	1.00	ND
UL/UT	1.06	1.34	.67	-2.53	.96	.72	ND
TH (PPM)	2.00	-2.00	2.84	-2.00	14.00	3.00	2.00
TH/UT	1.00	-2.50	3.16	-20.20	.97	3.00	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.20	5.88	.20	6.75	5.04	1.90	6.47
CA (%)	-.05	5.47	.12	6.81	.06	-.05	5.93
FE (%)	1.30	9.42	.24	7.58	.82	.15	7.77
MG (%)	.44	4.32	.17	4.31	.42	.05	3.48
NA (%)	.39	1.52	1.30	1.22	.66	.48	1.43
K (%)	.76	.30	.21	26.00	1.80	1.15	.48
AG (PPM)	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	-10.00
BA (PPM)	137.00	46.00	43.18	43.06	618.00	356.00	130.00
BE (PPM)	1.00	-1.00	-1.00	1.35	1.00	-1.00	-1.00
CE (PPM)	12.00	22.00	15.87	-10.00	26.00	-10.00	26.00
CO (PPM)	8.00	50.00	-4.00	40.23	20.00	-4.00	41.00
CR (PPM)	35.00	273.00	26.40	346.50	136.00	10.00	179.00
CU (PPM)	58.00	220.00	-2.00	64.54	5.00	3.00	127.00
HF (PPM)	-15.00	48.00	-15.00	-15.00	32.00	-15.00	-15.00
LA (PPM)	7.00	-2.00	17.30	-2.00	24.00	4.00	-2.00
LI (PPM)	5.00	11.00	1.13	10.64	10.00	1.00	17.00
MN (PPM)	38.00	1425.00	30.98	1264.00	21.00	16.00	1402.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	18.00	122.00	5.19	114.80	30.00	2.00	101.00
P (PPM)	73.00	344.00	54.06	206.10	64.00	63.00	276.00
PB (PPM)	-10.00	18.00	-10.00	-10.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	29.00	-1.00	32.51	6.00	-1.00	33.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	13.00	77.00	6.88	77.36	11.00	7.00	142.00
TI (PPM)	378.00	6717.00	147.80	4311.00	1256.00	155.00	4822.00
V (PPM)	11.00	287.00	7.24	261.20	48.00	3.00	269.00
Y (PPM)	1.00	15.00	1.70	11.49	4.00	1.00	13.00
ZN (PPM)	17.00	96.00	3.73	90.27	6.00	6.00	92.00
ZR (PPM)	28.00	4.00	18.50	2.94	175.00	20.00	-2.00

DRILL HOLE NO. MB 5

AREA: Deep Creek, Northeast Medicine Bow Mountains

LOCATION: 2567 FSL, 72 FWL, Sec. 1, T. 17 N., R. 79 W.

LATITUDE: 41° 28' 29"

LONGITUDE: 106° 13' 56"

COUNTY: Carbon

TOPOGRAPHIC QUAD Morgan

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 10065'

ANGLE: 90°

BEARING:

TOTAL DEPTH: 1429'

SPUD DATE: 7/24/79

COMPLETION DATE: 8/24/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 950'

DATE: 8/26/79

REMARKS: Log thru drill pipe, no wire line; below 950 core logged with a McPhar hand-held spectrometer.

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Lindsey Quartzite: 0-621) (Magnolia Fm: 621-1429)

RADIOACTIVE ZONES: None

CORE LOGGERS: John Turner, Bob Spatz, Karl Karlstrom

DRILL HOLE MB-5

OBJECTIVES:

1. This is an area of relatively poor outcrop within a large doubly-plunging syncline in the Magnolia Formation. We anticipated spudding in the Quartzite Member of the Magnolia Formation and drilling into the Conglomerate Member at depth. The hole was spotted near the trough of the syncline so that a vertical hole could penetrate sub-horizontal beds. This hole was to step south from the Bows holes.

CONCLUSIONS:

1. The first 621 feet of the hole was Lindsey Quartzite, then Magnolia Formation (?) was drilled to a depth of 1429 without encountering the Conglomerate Member. This 808 foot thick section of Magnolia contains medium-grained quartzites and chloritic schists similar to most of the 1000 foot thick type-section of the Quartzite Member drilled in GH-1. No radioactive rocks were encountered (maximum 79 ppm U, 32 ppm Th.).
2. The unexpectedly large thickness of Lindsey Quartzite drilled in this hole prompted us to re-locate the axis of the Sand Lake Syncline to pass approximately through this drill hole.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 5 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 5 **SHOWING GEOCHEMICAL SAMPLE LOCATIONS**

FIGURE 4. GEOLOGIC MAP OF DRILL SITES MB-5 AND BOWS-1,2,3, UPPER ROCK CREEK AREA, MORGAN QUAD., SEC. 36, T.18 N., R.79 W., AND SECS. 1,2, T.17 N., R.79 W.

EXPLANATION

FIGURE 5. CROSS-SECTIONS OF THE MAGNOLIA FORMATION IN THE UPPER ROCK CREEK AREA: WITH DRILL SECTIONS FROM BOWS 1, 2, AND 3, AND MB-5.

DRILL HOLE NUMBER MBS

SAMP. NO.	152173	152174	152175	152176	152180	152177	152179	152189	152191	152195
TOP DEPTH	29.00	49.00	88.00	115.00	126.30	143.00	179.50	190.00	213.70	242.00
BOT DEPTH										
FORMATION	LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ
LITHOLOGY	QZ	Q	Q	Q	Q	Q	Q	QZ	AG	QZ
UL (PPM)	-.25	.26	.32	-.25	1.59	3.45	1.79	3.91	1.53	1.16
UT (PPM)	18.90	1.30	ND	.90	1.30	3.20	1.00	3.70	2.10	1.70
UL/UT	-.01	.20	ND	-.28	1.22	1.08	1.79	1.06	.73	.68
TH (PPM)	3.00	4.00	6.00	3.00	3.00	5.00	-2.00	-2.00	8.00	-2.00
TH/UT	.16	3.08	ND	3.34	2.31	1.56	-2.00	-.54	3.81	-1.18
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	.66	2.14	3.16	2.34	2.49	4.83	1.95	5.89	3.77	2.20
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.07	.17	.39	.23	.31	.77	1.42	.94	.44	.78
MG (%)	-.05	-.05	.15	.11	.15	.39	.65	.48	.23	.23
NA (%)	-.05	.09	.09	.05	.05	.47	1.09	.13	.41	-.05
K (%)	.25	.96	1.39	1.09	1.71	2.03	.08	2.86	1.71	1.28
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	15.00
BA (PPM)	18.00	33.00	69.00	64.00	110.00	123.00	21.00	236.00	173.00	166.00
BE (PPM)	-1.00	-1.00	1.00	1.00	1.00	1.00	-1.00	2.00	1.00	1.00
CE (PPM)	11.00	17.00	31.00	19.00	12.00	23.00	12.00	-10.00	22.00	-10.00
CO (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	8.00	22.00	10.00	6.00	7.00
CR (PPM)	10.00	14.00	15.00	8.00	15.00	20.00	10.00	49.00	30.00	2.00
CU (PPM)	2.00	4.00	8.00	3.00	4.00	17.00	6.00	38.00	6.00	7.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	-1.00	1.00	4.00	3.00	8.00	11.00	8.00	15.00	8.00	7.00
MN (PPM)	-4.00	7.00	21.00	7.00	13.00	22.00	45.00	32.00	25.00	32.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	4.00	4.00	-4.00
NI (PPM)	-2.00	-2.00	5.00	2.00	-2.00	13.00	27.00	8.00	6.00	10.00
P (PPM)	11.00	21.00	18.00	-5.00	10.00	17.00	47.00	64.00	23.00	26.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	-1.00	2.00	1.00	1.00	7.00	2.00	5.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	2.00	4.00	8.00	6.00	4.00	15.00	14.00	32.00	9.00	4.00
TI (PPM)	61.00	197.00	289.00	174.00	290.00	449.00	83.00	955.00	543.00	113.00
V (PPM)	6.00	9.00	13.00	6.00	6.00	39.00	20.00	28.00	17.00	3.00
Y (PPM)	16.00	2.00	2.00	1.00	1.00	2.00	1.00	3.00	4.00	2.00
ZN (PPM)	2.00	-2.00	4.00	-2.00	3.00	4.00	5.00	3.00	6.00	5.00
ZR (PPM)	40.00	37.00	58.00	34.00	24.00	54.00	29.00	65.00	88.00	31.00

DRILL HOLE NUMBER MBS

SAMP. NO.	152196	152197	152198	152199	152200	152201	152202	152192	152203	152204
TOP DEPTH	262.00	298.00	373.50	394.00	416.00	435.70	457.50	529.00	553.00	584.00
BOT DEPTH										
FORMATION	LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ
LITHOLOGY	QZ	QZ	QZ	QZ	QZ	QZ	QZ	QZ	QZ	QZ
UL (PPM)	1.35	1.51	1.84	2.25	4.13	1.19	2.70	.98	1.61	1.81
UT (PPM)	1.60	1.10	1.70	2.30	4.50	.80	2.10	1.40	1.10	1.00
UL/UT	.84	1.37	1.08	.98	.92	1.49	1.29	.70	1.46	1.81
TH (PPM)	4.00	-2.00	2.00	6.00	25.00	5.00	15.00	-2.00	7.00	4.00
TH/UT	2.50	-1.82	1.18	2.61	5.56	6.26	7.15	-1.43	6.37	4.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	0.00	NU
AL (%)	4.14	3.77	4.03	5.27	4.70	5.48	5.00	6.50	2.53	3.59
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	1.59	-.05	-.05
FE (%)	.49	.25	.32	.35	.36	.30	.51	5.12	.17	.40
MG (%)	.21	.16	.16	.19	.15	.16	.13	2.27	.09	.18
NA (%)	.33	.17	.05	.08	.06	.07	.06	2.86	.10	.37
K (%)	2.37	2.33	2.37	3.26	2.73	3.09	2.80	.34	1.60	1.70
AG (PPM)	-2.00	-2.00	-2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	13.00	12.00	16.00	13.00	20.00	17.00	-10.00	-10.00	10.00
BA (PPM)	198.00	259.00	274.00	363.00	288.00	349.00	282.00	93.00	211.00	189.00
BE (PPM)	1.00	5.00	3.00	5.00	4.00	3.00	2.00	1.00	1.00	2.00
CE (PPM)	22.00	-10.00	-10.00	14.00	10.00	-10.00	-10.00	70.00	21.00	-10.00
CO (PPM)	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	40.00	-4.00	-4.00
CR (PPM)	17.00	16.00	40.00	78.00	69.00	19.00	53.00	229.00	7.00	23.00
CU (PPM)	5.00	6.00	7.00	4.00	8.00	3.00	23.00	22.00	5.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	NU	NU	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	NU	NU	ND	ND	ND
LI (PPM)	11.00	5.00	5.00	6.00	6.00	4.00	4.00	25.00	4.00	6.00
MIN (PPM)	23.00	15.00	12.00	16.00	17.00	13.00	17.00	956.00	8.00	16.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00
NB (PPM)	4.00	9.00	7.00	10.00	16.00	6.00	6.00	6.00	-4.00	5.00
NI (PPM)	6.00	7.00	5.00	4.00	6.00	4.00	4.00	69.00	3.00	5.00
P (PPM)	17.00	23.00	36.00	30.00	38.00	5.00	26.00	403.00	9.00	9.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	NU	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	1.00	2.00	5.00	4.00	2.00	2.00	19.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	6.00	12.00	11.00	15.00	16.00	16.00	15.00	145.00	13.00	11.00
TI (PPM)	442.00	354.00	757.00	1887.00	1485.00	546.00	858.00	3771.00	192.00	566.00
V (PPM)	9.00	9.00	12.00	35.00	23.00	12.00	21.00	154.00	5.00	7.00
Y (PPM)	2.00	1.00	2.00	3.00	6.00	1.00	2.00	10.00	2.00	2.00
ZN (PPM)	4.00	4.00	6.00	4.00	7.00	4.00	5.00	141.00	4.00	4.00
ZR (PPM)	36.00	35.00	93.00	176.00	250.00	48.00	122.00	47.00	34.00	77.00

DRILL HOLE NUMBER MBS

SAMP. NO.	152205	152206	152207	152208	152209	152210	152220	152469
TOP DEPTH	605.00	626.20	646.00	682.00	698.00	719.20	798.00	930.00
BOT DEPTH								
FORMATION	LQ	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QZ	QZ	QZ	QZ	QZ	QZ	QZ	Q
UL (PPM)	.78	.71	1.61	4.84	.61	16.03	.67	24.96
UT (PPM)	1.00	1.50	1.30	3.40	1.20	10.90	1.50	79.20
UL/UT	.78	.47	1.24	1.42	.51	1.47	.45	.32
TH (PPM)	5.00	6.00	3.00	19.00	4.00	32.00	6.00	14.00
TH/UT	5.00	4.00	2.31	5.59	3.34	2.94	4.00	.18
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.85	4.57	2.53	2.55	3.27	2.53	3.79	10.71
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.08
FE (%)	.61	.38	.33	.27	.35	.46	.52	3.24
MG (%)	.34	.17	.11	.13	.14	.11	.17	1.27
NA (%)	.58	.58	.17	-.05	.05	-.05	.06	.15
K (%)	2.77	2.09	1.17	1.34	1.63	1.22	1.85	4.37
AG (PPM)	-2.00	-2.00	-2.00	10.00	3.00	2.00	-2.00	-2.00
B (PPM)	20.00	14.00	-10.00	10.00	27.00	-10.00	11.00	27.00
BA (PPM)	290.00	229.00	116.00	120.00	129.00	105.00	174.00	418.00
BE (PPM)	4.00	4.00	-1.00	-1.00	1.00	-1.00	2.00	7.00
CE (PPM)	-10.00	13.00	-10.00	20.00	-10.00	23.00	13.00	64.00
CO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	8.00	4.00	53.00
CR (PPM)	26.00	26.00	10.00	17.00	10.00	25.00	20.00	148.00
CU (PPM)	3.00	3.00	9.00	19.00	25.00	30.00	13.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	10.00	5.00	3.00	3.00	3.00	2.00	3.00	20.00
MN (PPM)	21.00	18.00	20.00	37.00	19.00	20.00	21.00	123.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	5.00	-4.00	4.00
NB (PPM)	9.00	7.00	4.00	-4.00	-4.00	4.00	4.00	10.00
NI (PPM)	7.00	4.00	6.00	5.00	18.00	10.00	6.00	217.00
P (PPM)	8.00	16.00	18.00	45.00	38.00	41.00	13.00	327.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	1.00	1.00	1.00	2.00	1.00	25.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	11.00	11.00	8.00	5.00	7.00	5.00	5.00	25.00
TI (PPM)	541.00	766.00	228.00	635.00	485.00	695.00	423.00	1925.00
V (PPM)	10.00	16.00	4.00	9.00	10.00	8.00	12.00	239.00
Y (PPM)	1.00	1.00	2.00	3.00	2.00	6.00	2.00	10.00
ZN (PPM)	6.00	2.00	3.00	5.00	13.00	6.00	6.00	14.00
ZR (PPM)	64.00	59.00	49.00	138.00	61.00	230.00	68.00	110.00

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DRILL HOLE NO. MB-9

AREA: Western Medicine Bow Mountains

LOCATION: 1578.2' FEL, 38.9' FSL, Sec. 14, T16 N, R81 W.

LATITUDE: 41° 20' 46"

LONGITUDE: 106° 27' 40"

COUNTY: Carbon

TOPOGRAPHIC QUAD Phantom Lake

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8979

ANGLE:

TOTAL DEPTH: didn't reach bedrock

BEARING:

SPUD DATE: didn't reach bedrock

COMPLETION DATE: didn't reach bedrock

GROSS GAMMA LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down hole log available

STRATIGRAPHIC UNITS: None

RADIOACTIVE ZONES: None

CORE LOGGERS:

DRILL HOLE MB-9

OBJECTIVES:

1. Drilling was to intersect quartz-pebble conglomerates and arkosic paraconglomerates, that outcrop in this area, and to test subsurface uranium content of these conglomerates.
2. Due to sparse outcrops the stratigraphy and structure in this area were not well understood. We hoped to solve these problems by drilling.

CONCLUSIONS:

1. MB-9 was collared in glacial till and was abandoned before reaching bedrock because of caving problems. Therefore a new site, MB-9R, was selected closer to the radioactive outcrop.

DRILL HOLE NO. MB 9R

AREA: Western Medicine Bow Mountains

LOCATION: 2196' FEL, 50' FNL Sec. 23 T. 16 N., R. 81 W.

LATITUDE: 41° 20' 45"

LONGITUDE: 106° 27' 47"

COUNTY: Carbon

TOPOGRAPHIC QUAD Phantom Lake

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8955'

ANGLE: 65°

BEARING: N 50 W

TOTAL DEPTH: 744'

SPUD DATE: 9/22/79

COMPLETION DATE: 10/19/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 606'

DATE: 10/30/79

REMARKS: Counter off 3' at collar

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-372) (Conical Peak Quartzite: 372-744)

RADIOACTIVE ZONES: 282, 286.

CORE LOGGERS: Pat Gallagher, Ramsey Bentley, Karl Karlstrom

DRILL HOLE MB-9R

OBJECTIVES:

1. Outcrops of quartz-pebble conglomerate and arkosic paraconglomerate in this area are anomalously radioactive (up to 5 times background). Drilling was to test subsurface uranium content of these conglomerates.
2. Stratigraphy in this area was not well understood due to scarcity of outcrops and it was not known whether the conglomerates were part of the conglomerate member of the Magnolia Formation or an arkosic phase of paraconglomerates in the Rock Mountain Conglomerate or Colberg Metavolcanic Rocks of the Phantom Lake Suite. Structure in this area is also poorly understood because of poor outcrop. Drilling was to elucidate stratigraphic and structural problems.

CONCLUSIONS:

1. Conglomeratic units were drilled to a depth of 372 feet. These included complexly interbedded granule conglomerates, quartz-pebble conglomerates, and paraconglomerates with highly stretched clasts. Most of these rocks are non-radioactive. Maximum values of 77.8 ppm U and 52 ppm Th were encountered in this hole. We conclude, based on surface data that strongly radioactive zones are present but are relatively thin and discontinuous. Core from 372 to 744 feet included micaceous quartzite and chlorite-biotite schist which we tentatively identify as Conical Peak Quartzite of the Phantom Lake Metamorphic Suite, but with little solid evidence.
2. Stratigraphy is still not understood. We tentatively identify the conglomerates as Magnolia Formation because of the strong lithologic similarity between these rocks and paraconglomerates from the Arrastre Anticline area and from drill hole Bows 3, which we also consider to be the Conglomerate Member of the Magnolia Formation.
3. Structure is also still a problem. The hole was drilled northwest, perpendicular to some surface orientations of bedding and perpendicular to the contact with the Lincoln Park granitic body (basement ? or sill ?). We hoped to drill across strike. However, we ended up drilling at low angles to foliation. If bedding parallels foliation, this suggests that the granite-metasediment contact cross-cuts the trend of bedding in the metasedimentary rocks suggesting either crosscutting intrusive relationships or large scale faulting, or both. We postulate a major northeast trending fault at the south margin of the granite which was later invaded by a gabbroic sill. By this explanation, the Magnolia (?) conglomerates in MB-9R are younger than the granite and the angular discordance is due to faulting. The alternate interpretation is that the conglomerates are Phantom Lake Suite paraconglomerates and were intruded by the Lincoln Park granite, then by gabbroic rocks.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 9R
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 6. GEOLOGIC MAP OF DRILL SITES MB-9R, MB-9, MB-17 and MB-17A, SOUTH BRUSH CREEK AREA, WESTERN MEDICINE BOW MOUNTAINS, PHANTOM LAKE QUAD., SECS. 14 AND 23, T.16 N., R.81 W.

EXPLANATION

Figure 6. Geologic map of drill sites, MB-9R, MB-9, MB-17 and MB-17A

DRILL HOLE NUMBER MB9R

SAMP. NO.	157909	157871	157900	157901	157916	157917	158263	158264
TOP DEPTH	444.90	495.00	501.00	550.00	600.00	649.20	705.00	740.00
BOT DEPTH								
FORMATION	CNQ	CNQ	CNQ	CNQ	CNQ	CNQ	CNQ	CNQ
LITHOLOGY	PHQZ	QZ	PHQ	QZ	QZ	CSC	QZ	QZ
UL (PPM)	2.06	2.65	1.30	6.11	4.24	1.14	.89	.93
UT (PPM)	1.40	1.70	2.00	4.70	4.98	.70	.90	.80
UL/UT	1.47	1.56	.65	1.30	.85	1.63	.99	1.16
TH (PPM)	5.00	6.00	7.00	23.00	4.00	2.00	-2.00	4.00
TH/UT	3.57	3.53	3.50	4.89	.80	2.86	-2.22	5.01
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.02	3.70	5.60	5.21	2.54	2.99	.74	5.78
CA (%)	-.05	.11	.07	.17	.13	-.05	-.05	.15
FE (%)	1.04	1.21	1.49	1.93	1.50	1.50	.08	.91
MG (%)	.50	.47	.63	.92	.57	1.44	-.05	1.08
NA (%)	.89	1.43	1.02	.77	1.06	.27	.33	3.63
K (%)	2.28	1.26	2.51	2.32	1.69	2.15	1.74	.32
AG (PPM)	-2.00	2.00	3.00	-2.00	-2.00	-2.00	-2.00	3.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	491.00	263.00	636.00	647.00	242.00	133.00	187.00	64.00
BE (PPM)	3.00	3.00	4.00	9.00	3.00	3.00	1.00	1.00
CE (PPM)	28.00	30.00	14.00	32.00	-10.00	-10.00	-10.00	-10.00
CO (PPM)	5.00	8.00	10.00	11.00	11.00	4.00	-4.00	-4.00
CR (PPM)	32.00	32.00	43.00	110.00	61.00	26.00	22.00	17.00
CU (PPM)	4.00	20.00	4.00	23.00	30.00	-2.00	3.00	7.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	16.00	11.00	16.00	19.00	8.00	10.00	1.00	6.00
MN (PPM)	89.00	189.00	160.00	243.00	193.00	26.00	-4.00	43.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	6.00	5.00	5.00	10.00	6.00	4.00	-4.00	-4.00
NI (PPM)	11.00	13.00	17.00	23.00	19.00	41.00	5.00	14.00
P (PPM)	56.00	143.00	98.00	223.00	198.00	22.00	29.00	260.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	6.00	8.00	3.00	3.00	-1.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	45.00	70.00	69.00	60.00	30.00	10.00	4.00	59.00
TI (PPM)	1187.00	1221.00	1753.00	3122.00	1744.00	919.00	424.00	312.00
V (PPM)	32.00	40.00	44.00	67.00	47.00	43.00	11.00	16.00
Y (PPM)	5.00	5.00	5.00	16.00	3.00	-1.00	-1.00	2.00
ZN (PPM)	23.00	24.00	28.00	44.00	26.00	2.00	3.00	8.00
ZR (PPM)	41.00	38.00	64.00	166.00	78.00	39.00	39.00	50.00

DRILL HOLE NUMBER MB9R

SAMP. NO.	157893	157883	157904	157903	157872	157873	157906	157907	157905	157908
TOP DEPTH	61.30	109.00	146.40	175.00	204.20	248.00	306.20	358.80	399.70	399.70
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	CNQ	CNQ
LITHOLOGY	GPC	PAC	CQZ	PL	PAC	CQZ	PAC	CQZ	PHQZ	QZ
UL (PPM)	3.47	9.45	2.92	4.37	104.50	8.72	19.23	2.65	2.58	-.25
UT (PPM)	2.60	7.50	2.50	3.30	77.80	4.90	22.80	3.00	3.00	.60
UL/UT	1.33	1.26	1.17	1.32	1.34	1.78	.84	.88	.86	-.42
TH (PPM)	24.00	19.00	-2.00	3.00	52.00	6.00	13.00	-2.00	5.00	-2.00
TH/UT	9.23	2.53	-.80	.91	.67	1.22	.57	-.67	1.67	-3.34
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.03	7.21	1.79	3.96	4.22	3.49	3.00	2.23	4.05	3.54
CA (%)	.13	.10	-.05	-.05	.08	.06	.08	-.05	.12	-.05
FE (%)	.72	4.01	1.59	5.07	5.45	2.43	2.43	1.21	5.61	.56
MG (%)	.15	.53	.40	.84	.79	.54	.44	.32	.88	.26
NA (%)	1.16	.26	.30	.12	.52	.34	.46	.34	.31	.45
K (%)	3.32	2.94	1.11	1.91	.86	1.09	2.14	3.03	1.46	1.69
AG (PPM)	-2.00	3.00	2.00	-2.00	3.00	-2.00	-2.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	13.00	-10.00	-10.00
BA (PPM)	854.00	696.00	84.00	326.00	237.00	163.00	139.00	57.00	253.00	288.00
BE (PPM)	3.00	10.00	3.00	7.00	4.00	2.00	4.00	5.00	5.00	2.00
CE (PPM)	108.00	48.00	-10.00	-10.00	32.00	14.00	21.00	-10.00	-10.00	-10.00
CO (PPM)	-4.00	34.00	12.00	34.00	58.00	15.00	27.00	8.00	50.00	-4.00
CR (PPM)	6.00	52.00	35.00	102.00	117.00	30.00	106.00	79.00	182.00	20.00
CU (PPM)	3.00	43.00	31.00	26.00	186.00	22.00	166.00	7.00	92.00	-2.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	13.00	8.00	19.00	14.00	10.00	16.00	16.00	17.00	10.00
MN (PPM)	68.00	525.00	99.00	298.00	597.00	141.00	139.00	114.00	307.00	40.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	9.00	14.00	-4.00	9.00	9.00	-4.00	7.00	7.00	6.00	-4.00
NI (PPM)	3.00	31.00	12.00	39.00	50.00	18.00	26.00	21.00	56.00	2.00
P (PPM)	232.00	379.00	175.00	267.00	172.00	259.00	326.00	44.00	786.00	23.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	24.00	2.00	9.00	10.00	4.00	5.00	2.00	7.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	48.00	53.00	7.00	17.00	24.00	17.00	14.00	3.00	20.00	22.00
TI (PPM)	1062.00	8747.00	913.00	4381.00	2355.00	1160.00	2151.00	2813.00	3524.00	599.00
V (PPM)	24.00	207.00	33.00	162.00	92.00	38.00	129.00	89.00	117.00	13.00
Y (PPM)	8.00	18.00	1.00	2.00	20.00	4.00	4.00	1.00	4.00	1.00
ZN (PPM)	13.00	47.00	31.00	64.00	81.00	49.00	42.00	31.00	101.00	14.00
ZR (PPM)	89.00	268.00	45.00	100.00	240.00	43.00	124.00	73.00	114.00	26.00

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DRILL HOLE NO. MB-10

AREA: Northern Medicine Bow Mountains, along Rock Creek

LOCATION: 3760 FEL, 1910 FSL, Sec. 2, T. 18 N., R. 79 W.

LATITUDE: 41°33'34"

LONGITUDE: 106°14'41"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8022

ANGLE: 50°

BEARING: S 45 E

TOTAL DEPTH: 1350'

SPUD DATE: 6/16/80

COMPLETION DATE: 9/8/80

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 852.8

DATE:

REMARKS: Logged to max. cable length (852.8). with water, so no mud sample was taken. Depth offset on 10 cps/div run due to internal alignment of Mt. Sopris unit.

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available.

STRATIGRAPHIC UNITS: (Bow River Quartzite: 0-400) (Rock Mountain Conglomerate: 400-460) (Metagabbro and Metapyroxenite: 460-1348) (Rock Mountain Conglomerate: 1348-1350)

RADIOACTIVE ZONES: None

CORE LOGGERS: Craig P. Kapp, Thomas G. Schmidt

DRILL HOLE MB-10

OBJECTIVES:

1. Two outcrop areas of radioactive conglomerates were encountered on the east slope of Rock Creek, the one lower on the slope containing up to 97 ppm U, 95 ppm Th; the higher one containing up to 270 ppm U, 57 ppm Th. This hole was drilled to test the subsurface uranium content of these beds.
2. Structure in the Rock Mountain area is exceedingly complex and stratigraphic relationships are not well exposed. We had hypothesized that the conglomerates on Rock Mountain were Magnolia Conglomerates in the hinge of a reclined syncline. Drilling was to help elucidate structural and stratigraphic problems.

CONCLUSIONS:

1. This hole drilled quartzites and conglomerates to a depth of 460 feet, then metagabbro and metapyroxenite to 1350 feet. The 460 feet of quartzite was not what we expected (we had mapped metabasalts on the surface near the drill hole and for some distance up the canyon wall) but we now identify the first 400 feet, including scattered, conglomerates, as basal units of the Bow River Quartzite and we identify the quartzites and conglomerates from 400 to 460 feet as Rock Mountain conglomerate and correlate them with the lower radioactive conglomerate outcrops mentioned above because these beds in drill core line up with the outcrops along a dip of 58 degrees, compatible with surface dips and because in both outcrop and subcrop, these quartzite beds are adjacent to a thick mafic intrusive. In subsurface, however, these beds contain only 3.9 ppm U, 9 ppm Th. suggesting that radioactive zones within the Rock Mountain Conglomerate are discontinuous. The radioactive zone mapped higher on the slope was not encountered in drill hole although the last two feet of the hole were quartzites, probably of the Rock Mountain Conglomerate, which line up along a dip of 80 degrees with the radioactive outcrop. Unfortunately, drilling had to be terminated (the rig was underpowered for these depths) so we don't know for sure whether we had re-entered the Rock Mountain Conglomerate or what uranium values are in subsurface here.
2. The intrusive body apparently has an "upper" contact which dips west at about 50 degrees, and a "lower" contact which dips about 80 degrees. These values are consistent with foliations measured adjacent to the two contacts. However, we chose to believe the intrusion would be sill-like and predicted that the "lower" contact could dip parallel to the upper one, and we anticipated intersecting the subsurface extension of the second (and hottest) radioactive beds at 1035 feet, instead of at 1348, where we believe we began to intersect them. Maximum values of 9 ppm U and 15 ppm Th were encountered in this hole.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 10 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 10
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 7. GEOLOGIC MAP OF DRILL SITES MB-10 AND MB-15, ROCK MOUNTAIN AREA, ARLINGTON QUAD., SEC. 2 AND SEC. 11, T.18 N., R.79 W.

EXPLANATION

Figure 7. Geologic map of drill sites MB-10 and MB-15

DRILL HOLE NUMBER MB10

SAMP. NO.	160587	160589	160590	160588	160598	160599	160600	160601	160602	160603
TOP DEPTH	30.00	55.00	80.00	105.00	130.50	155.00	180.00	195.00	205.00	230.00
BOT DEPTH										
FORMATION	BRQ	BRQ	BRQ	BRQ	BRQ	BRQ	BRQ	BRQ	BRQ	BRQ
LITHOLOGY	AM	FQ	FQ	FQ	FQ	FQ	FQ	QFGN	MQ	MQ
UL (PPM)	-2.25	4.49	5.27	.80	1.58	7.37	7.23	7.32	2.65	6.73
UT (PPM)	.10	4.40	4.40	1.00	2.10	6.80	8.10	9.00	3.40	6.60
UL/UT	-2.53	1.02	1.20	.80	.75	1.08	.89	.81	.78	1.02
TH (PPM)	-2.00	15.00	3.00	-2.00	3.53	13.42	9.80	12.56	15.79	13.69
TH/UT	-20.20	3.41	.68	-2.00	1.68	1.97	1.21	1.40	4.65	2.07
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.57	4.38	6.08	5.16	.58	.66	.58	.38	.57	.56
CA (%)	7.06	.59	1.73	1.28	.13	.82	.38	.32	.85	.42
FE (%)	5.62	.54	.44	.36	.38	2.50	1.60	2.60	1.61	1.98
MG (%)	5.73	.22	.18	.12	.15	.76	.53	.79	.51	.77
NA (%)	.71	2.72	4.50	2.16	2.65	2.82	1.78	.18	2.09	2.12
K (%)	.07	.34	.32	2.61	2.57	1.67	1.57	2.48	1.47	1.28
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	38.00	70.00	79.00	1040.00	770.80	506.70	569.90	1232.00	466.10	434.60
BE (PPM)	-1.00	1.00	1.00	1.00	1.19	1.89	1.55	-1.00	1.36	1.45
CE (PPM)	20.00	25.00	65.00	24.00	-10.00	50.43	38.97	70.15	30.34	11.60
CO (PPM)	43.00	11.00	-4.00	-4.00	-4.00	9.45	5.06	6.85	4.70	11.31
CR (PPM)	977.00	46.00	106.00	20.00	35.10	81.21	56.29	82.61	45.95	61.54
CU (PPM)	68.00	4.00	4.00	6.00	11.88	15.20	16.36	2.83	7.89	7.35
HF (PPM)	-15.00	-15.00	-15.00	28.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	-2.00	24.00	71.00	22.00	-2.00	57.22	43.62	80.60	31.54	11.03
LI (PPM)	6.00	6.00	5.00	3.00	5.86	16.53	18.78	17.40	17.40	17.49
MN (PPM)	1119.00	54.00	106.00	117.00	44.90	238.80	94.80	116.20	159.00	127.90
MO (PPM)	-4.00	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	6.38	4.64	-4.00	-4.00	5.63
NI (PPM)	308.00	12.00	5.00	13.00	10.01	30.90	18.40	14.40	25.10	24.50
P (PPM)	116.00	258.00	476.00	165.00	198.70	472.00	332.60	502.10	295.90	385.80
PB (PPM)	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	14.69	-10.00	-10.00	11.70
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	1.00	3.00	2.00	1.92	7.09	3.76	5.61	6.07	5.93
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	79.00	44.00	90.00	136.00	58.13	67.47	43.80	34.45	54.82	29.86
TI (PPM)	1299.00	356.00	917.00	431.00	715.20	2280.00	1333.00	1858.00	1194.00	1865.00
V (PPM)	181.00	25.00	18.00	12.00	17.25	48.00	35.20	46.88	25.69	48.65
Y (PPM)	6.00	5.00	8.00	3.00	2.02	8.78	6.53	9.48	6.99	6.92
ZN (PPM)	68.00	6.00	8.00	5.00	10.74	30.90	28.41	19.73	21.49	21.63
ZR (PPM)	9.00	122.00	174.00	42.00	67.69	153.80	122.80	197.10	101.70	117.10

DRILL HOLE NUMBER MB10

SAMP. NO.	711013	711015	711016	711017	711018	711019	711020	711021	711022	711023
TOP DEPTH	255.00	280.00	305.00	330.00	355.00	380.00	405.00	430.00	455.00	480.00
BOT DEPTH										
FORMATION	BRQ	BRQ	BRQ	BRQ	BRQ	BRQ	RMC	RMC	RMC	MI
LITHOLOGY	MQ	MQ	MQ	MQ	FQ	FQ	FQ	MQ	MQ	CSC
UL (PPM)	2.94	1.27	3.38	1.68	1.76	1.19	3.80	2.02	1.56	-1.25
UT (PPM)	3.90	1.80	3.70	1.80	1.90	1.30	3.90	2.10	1.50	.20
UL/UT	.75	.71	.91	.93	.93	.92	.97	.96	1.04	-1.26
TH (PPM)	8.00	5.00	-2.00	-2.00	6.00	-2.00	7.00	8.00	9.00	5.00
TH/UT	2.05	2.78	-.54	-1.11	3.16	-1.54	1.80	3.81	6.00	25.13
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.86	6.34	5.24	3.89	5.61	5.42	6.73	6.31	5.75	6.68
CA (%)	.21	.56	1.48	-.05	.92	5.07	.69	2.09	1.45	1.00
FE (%)	.97	3.49	1.28	.09	1.69	1.01	1.57	4.49	1.56	10.28
MG (%)	.59	1.48	.54	-.05	.46	.38	.41	1.00	.58	2.09
NA (%)	.10	2.81	1.69	.12	.20	.17	.18	.22	.08	.16
K (%)	1.74	.36	.62	1.41	1.77	1.75	2.10	1.16	2.07	.83
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	11.00	14.00	-10.00	12.00	-10.00
BA (PPM)	476.00	134.00	171.00	183.00	294.00	342.00	445.00	270.00	439.00	413.00
BE (PPM)	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-1.00
CE (PPM)	20.00	38.00	45.00	67.00	17.00	18.00	47.00	31.00	32.00	33.00
CO (PPM)	7.00	11.00	9.00	15.00	4.00	-4.00	5.00	6.00	5.00	54.00
CR (PPM)	44.00	86.00	63.00	42.00	59.00	36.00	51.00	47.00	55.00	115.00
CU (PPM)	2.00	2.00	24.00	2.00	10.00	11.00	27.00	25.00	5.00	166.00
HF (PPM)	-15.00	-15.00	74.00	-15.00	-15.00	-15.00	-15.00	-15.00	24.00	-15.00
LA (PPM)	22.00	41.00	42.00	101.00	16.00	14.00	57.00	29.00	29.00	-2.00
LI (PPM)	21.00	24.00	15.00	1.00	10.00	13.00	13.00	29.00	19.00	30.00
MN (PPM)	48.00	143.00	188.00	6.00	226.00	629.00	164.00	1210.00	349.00	1838.00
MO (PPM)	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	8.00	46.00	22.00	32.00	23.00	18.00	6.00	17.00	19.00	77.00
P (PPM)	410.00	357.00	355.00	47.00	201.00	140.00	209.00	209.00	177.00	360.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	-10.00	25.00	10.00	22.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	8.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	42.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	11.00	52.00	50.00	10.00	23.00	32.00	29.00	34.00	12.00	10.00
TI (PPM)	1184.00	1781.00	1608.00	402.00	849.00	841.00	1465.00	1221.00	1085.00	6144.00
V (PPM)	31.00	75.00	39.00	46.00	39.00	23.00	35.00	39.00	32.00	300.00
Y (PPM)	4.00	4.00	8.00	2.00	2.00	4.00	7.00	6.00	3.00	21.00
ZN (PPM)	9.00	38.00	16.00	3.00	16.00	9.00	18.00	49.00	27.00	81.00
ZR (PPM)	48.00	47.00	68.00	35.00	33.00	36.00	50.00	42.00	36.00	2.00

DRILL HOLE NUMBER MB10

SAMP. NO.	711024	711025	711026	711071	711072	711073	711074	711075	711076	711077
TOP DEPTH	505.00	530.00	555.00	580.00	605.00	630.00	650.00	672.00	690.00	710.00
BOT DEPTH										
FORMATION	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI
LITHOLOGY	CSC	CSC	CSC	CSC	CSC	GB	GB	GB	GB	GB
UL (PPM)	-.25	-.25	-.25	-.25	-.25	-.25	-.25	-.25	-.25	-.25
UT (PPM)	.10	.10	.10	.10	.10	.20	.10	.10	ND	ND
UL/UT	-2.53	-2.53	-2.53	-2.53	-2.53	-1.26	-2.53	-2.53	ND	ND
TH (PPM)	-2.00	3.00	-2.00	15.00	2.00	3.00	-2.00	6.00	-2.00	-2.00
TH/UT	-20.20	30.30	-20.20	151.52	20.20	15.08	-20.20	60.61	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.72	7.74	6.24	4.73	1.55	2.28	4.29	3.70	3.45	3.49
CA (%)	3.93	3.58	3.87	8.06	4.74	4.43	5.00	5.56	5.12	5.03
FE (%)	7.82	9.19	9.25	12.34	9.79	6.22	6.21	5.31	5.47	5.67
MG (%)	1.90	3.01	2.39	2.60	4.66	4.71	4.68	4.72	4.68	4.65
NA (%)	1.38	2.19	1.42	.73	.19	-.05	.85	.50	.47	.43
K (%)	.34	.09	.11	.07	.02	-.02	.21	.07	.04	.05
AG (PPM)	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	176.00	43.00	47.00	33.00	7.00	5.00	84.00	31.00	25.00	26.00
BE (PPM)	-1.00	-1.00	-1.00	1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CE (PPM)	23.00	25.00	35.00	25.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
CO (PPM)	34.00	49.00	41.00	81.00	77.00	61.00	48.00	47.00	51.00	52.00
CR (PPM)	132.00	120.00	108.00	89.00	2049.00	1780.00	1576.00	1258.00	1516.00	1710.00
CU (PPM)	30.00	213.00	74.00	769.00	6.00	3.00	9.00	33.00	31.00	52.00
HF (PPM)	-15.00	-15.00	-15.00	19.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00
LI (PPM)	33.00	29.00	67.00	25.00	10.00	33.00	21.00	3.00	4.00	4.00
MN (PPM)	1009.00	1074.00	1539.00	2839.00	2225.00	1444.00	1026.00	1020.00	1090.00	1125.00
MO (PPM)	-4.00	-4.00	-4.00	10.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	55.00	76.00	68.00	76.00	351.00	441.00	400.00	348.00	400.00	428.00
P (PPM)	570.00	415.00	458.00	382.00	-5.00	-5.00	-5.00	39.00	14.00	30.00
PB (PPM)	10.00	-10.00	13.00	24.00	-10.00	-10.00	-10.00	10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	35.00	33.00	29.00	36.00	29.00	19.00	28.00	17.00	23.00	27.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	92.00	117.00	67.00	47.00	21.00	46.00	97.00	56.00	46.00	45.00
TI (PPM)	7304.00	6786.00	5753.00	4345.00	599.00	218.00	1234.00	1450.00	1219.00	1366.00
V (PPM)	314.00	291.00	267.00	321.00	130.00	145.00	167.00	128.00	128.00	137.00
Y (PPM)	19.00	14.00	20.00	26.00	5.00	1.00	6.00	4.00	3.00	4.00
ZN (PPM)	75.00	108.00	70.00	112.00	79.00	36.00	55.00	51.00	55.00	56.00
ZR (PPM)	3.00	8.00	10.00	6.00	-2.00	10.00	5.00	9.00	5.00	8.00

DRILL HOLE NUMBER MB10

SAMP. NO.	711085	711086	711087	711088	711089	711090	711114	711115	711116	711117
TOP DEPTH	731.00	750.00	770.00	790.00	810.00	830.00	850.00	870.00	890.00	910.00
BOT DEPTH										
FORMATION	MI	MI	MI	MI	MI	MI	MI	PL	PL	PL
LITHOLOGY	CAM	CAM	CAM	CAM	CAM	CAM	CAM	CAM	CAM	CAM
UL (PPM)	-.25	-.25	-.25	-.25	-.25	-.25	-.25	-.25	-.25	-.25
UT (PPM)	.10	.10	.10	.10	.10	.10	.10	.10	.20	ND
UL/UT	-2.53	-2.53	-2.53	-2.53	-2.53	-2.53	-2.53	-2.53	-1.26	ND
TH (PPM)	4.00	5.00	3.00	3.00	5.00	13.00	-2.00	-2.00	-2.00	-2.00
TH/UT	40.40	50.51	30.30	30.30	50.51	131.31	-20.20	-20.20	-10.05	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.60	3.18	2.65	2.94	2.75	2.81	2.18	2.43	2.54	3.47
CA (%)	4.86	4.44	4.20	4.39	4.71	4.65	4.29	5.10	4.49	5.79
FE (%)	7.07	6.22	6.57	5.89	6.69	6.62	6.97	6.56	7.04	6.39
MG (%)	4.68	4.67	4.63	4.63	4.64	4.67	4.65	4.61	4.65	4.64
NA (%)	.42	.45	.38	.41	.40	.38	.41	.41	.43	.37
K (%)	.06	.09	.04	.05	.06	.09	.07	.06	.08	.07
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	64.00	47.00	39.00	31.00	24.00	39.00	57.00	23.00	71.00	30.00
BE (PPM)	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CE (PPM)	10.00	11.00	-10.00	-10.00	-10.00	17.00	-10.00	-10.00	10.00	-10.00
CO (PPM)	68.00	58.00	63.00	55.00	56.00	58.00	68.00	65.00	67.00	51.00
CR (PPM)	1859.00	1662.00	1787.00	1876.00	1856.00	1943.00	1837.00	2114.00	1853.00	1868.00
CU (PPM)	60.00	22.00	55.00	49.00	46.00	58.00	49.00	11.00	67.00	103.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
LI (PPM)	6.00	12.00	4.00	4.00	8.00	9.00	5.00	7.00	5.00	21.00
MN (PPM)	1265.00	1069.00	1172.00	1126.00	1273.00	1344.00	1241.00	1344.00	1317.00	1422.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	608.00	549.00	583.00	484.00	448.00	471.00	647.00	541.00	618.00	465.00
P (PPM)	43.00	13.00	34.00	36.00	52.00	35.00	58.00	26.00	44.00	375.00
PB (PPM)	15.00	-10.00	11.00	-10.00	-10.00	20.00	13.00	10.00	22.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	22.00	20.00	24.00	25.00	27.00	27.00	18.00	22.00	20.00	24.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	88.00	63.00	49.00	46.00	34.00	45.00	63.00	19.00	70.00	48.00
TI (PPM)	1711.00	1056.00	1688.00	1626.00	1744.00	1850.00	1781.00	1775.00	1800.00	1245.00
V (PPM)	142.00	121.00	135.00	136.00	157.00	151.00	139.00	183.00	145.00	132.00
Y (PPM)	5.00	4.00	5.00	4.00	5.00	5.00	5.00	6.00	5.00	5.00
ZN (PPM)	90.00	58.00	67.00	54.00	55.00	57.00	69.00	53.00	71.00	50.00
ZR (PPM)	9.00	6.00	9.00	9.00	11.00	11.00	11.00	12.00	11.00	5.00

DRILL HOLE NUMBER MB10

SAMP. NO.	711118	711119	711120	711122	711123	711124	711125	711126	711186	711187
TOP DEPTH	930.00	950.00	970.00	990.00	1010.00	1030.00	1050.00	1070.00	1090.00	1110.00
BOT DEPTH										
FORMATION	PL	PL	MI	MI	MI	MI	MI	MI	MI	MI
LITHOLOGY	CAM	CAM	CAM	CAM	CSC	CSC	CAM	CAM	GB	GB
UL (PPM)	-2.25	-2.25	-2.25	.28	-2.25	-2.25	-2.25	-2.25	-2.25	-2.25
UT (PPM)	.10	.10	.20	ND	ND	ND	.10	ND	.40	.20
UL/UT	-2.53	-2.53	-1.26	ND	ND	ND	-2.53	ND	-.63	-1.26
TH (PPM)	4.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	5.00	4.00	2.00
TH/UT	40.40	20.20	-10.05	ND	ND	ND	-20.20	ND	10.03	10.05
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.02	5.04	4.01	3.26	6.12	1.95	2.79	3.18	3.47	3.54
CA (%)	5.23	6.34	5.58	6.53	8.68	.26	5.54	4.90	4.51	3.72
FE (%)	5.51	5.55	6.80	6.69	9.70	13.34	6.00	6.18	7.26	7.06
MG (%)	4.67	4.69	4.68	4.65	4.32	6.39	4.64	4.63	6.63	6.63
NA (%)	.51	.67	.57	.45	.44	.16	.40	.41	.53	.46
K (%)	.07	.08	.09	.06	.03	.02	.08	.02	.10	.08
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	70.00	33.00	54.00	41.00	47.00	20.00	42.00	14.00	48.00	46.00
BE (PPM)	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CE (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	14.00
CO (PPM)	53.00	49.00	55.00	62.00	52.00	44.00	55.00	56.00	58.00	59.00
CR (PPM)	1274.00	959.00	1215.00	1970.00	174.00	163.00	2069.00	1766.00	1761.00	1812.00
CJ (PPM)	36.00	30.00	39.00	39.00	190.00	-2.00	6.00	34.00	93.00	92.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	4.00
LI (PPM)	7.00	7.00	5.00	5.00	7.00	11.00	3.00	4.00	5.00	4.00
MM (PPM)	1053.00	1036.00	1314.00	1175.00	1372.00	1152.00	1153.00	1163.00	1317.00	1306.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	392.00	350.00	377.00	562.00	81.00	95.00	624.00	409.00	393.00	413.00
P (PPM)	21.00	39.00	103.00	29.00	10.00	-5.00	-5.00	22.00	104.00	105.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	14.00	28.00	10.00	-10.00	13.00	17.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	14.00	25.00	30.00	26.00	44.00	60.00	29.00	24.00	28.00	29.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	101.00	78.00	63.00	81.00	87.00	13.00	41.00	46.00	65.00	55.00
TI (PPM)	860.00	848.00	2477.00	1845.00	6032.00	7685.00	1840.00	1394.00	1201.00	1940.00
V (PPM)	116.00	139.00	191.00	157.00	397.00	443.00	155.00	137.00	168.00	147.00
Y (PPM)	3.00	4.00	7.00	5.00	7.00	1.00	7.00	4.00	7.00	6.00
ZN (PPM)	54.00	52.00	70.00	53.00	78.00	23.00	65.00	54.00	71.00	64.00
ZR (PPM)	6.00	5.00	13.00	8.00	-2.00	-2.00	9.00	5.00	14.00	16.00

DRILL HOLE NUMBER MB10

SAMP. NO.	711214	711215	711216	711217	711218	711219	711220	711221	711407	711408
TOP DEPTH	1130.00	1150.00	1170.00	1190.00	1210.00	1230.00	1250.00	1270.00	1290.00	1310.00
BOT DEPTH										
FORMATION	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI
LITHOLOGY	GB	GB	GB	GB	GB	FA	FAM	FAM	FAM	FAM
UL (PPM)	-.25	-.25	-.25	.33	-.25	.43	.50	-.25	.85	-.25
UT (PPM)	.27	.17	.55	.50	.27	.30	.62	.50	1.30	.60
UL/UT	-.93	-1.48	-.46	.66	-.93	1.43	.81	-.50	.65	-.42
TH (PPM)	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	8.00	-2.00	3.00	-2.00
TH/UT	-7.43	-11.83	-3.64	4.00	-7.43	-6.69	12.92	-4.00	2.31	-3.34
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.63	5.77	6.90	7.71	7.93	8.75	5.82	8.96	6.72	6.95
CA (%)	4.54	7.62	7.55	5.72	7.35	2.14	3.97	2.55	2.83	.41
FE (%)	8.89	7.31	6.85	12.57	7.27	15.19	12.29	11.49	11.70	9.19
MG (%)	6.67	5.82	4.37	4.29	2.63	4.16	4.25	3.76	3.11	2.97
NA (%)	.40	.92	.98	.60	2.10	1.40	.88	1.60	.37	.14
K (%)	.08	.12	.10	.10	.09	.06	.07	.19	.25	1.19
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	24.00	61.00	53.00	86.00	44.00	24.00	31.00	114.00	83.00	329.00
BE (PPM)	-1.00	-1.00	-1.00	-1.00	1.00	1.00	1.00	1.00	1.00	-1.00
CE (PPM)	-10.00	-10.00	-10.00	-10.00	24.00	13.00	-10.00	30.00	11.00	22.00
CO (PPM)	59.00	40.00	39.00	61.00	28.00	51.00	47.00	45.00	38.00	44.00
CR (PPM)	1924.00	636.00	276.00	166.00	133.00	146.00	107.00	164.00	105.00	129.00
CU (PPM)	8.00	145.00	116.00	221.00	288.00	446.00	138.00	142.00	28.00	107.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	-2.00	-2.00	-2.00	-2.00	4.00	-2.00	-2.00	13.00	-2.00	8.00
LI (PPM)	14.00	14.00	4.00	11.00	15.00	143.00	53.00	57.00	69.00	59.00
MM (PPM)	1570.00	1218.00	1197.00	2089.00	1860.00	1722.00	2012.00	1989.00	2930.00	971.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	391.00	233.00	155.00	150.00	57.00	98.00	86.00	75.00	62.00	88.00
P (PPM)	-5.00	96.00	214.00	220.00	486.00	568.00	1169.00	447.00	307.00	491.00
PB (PPM)	10.00	13.00	18.00	59.00	17.00	25.00	23.00	32.00	23.00	13.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	31.00	26.00	53.00	38.00	61.00	43.00	32.00	32.00	27.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	17.00	101.00	114.00	74.00	115.00	40.00	46.00	114.00	24.00	19.00
TI (PPM)	1017.00	2627.00	3815.00	8112.00	7355.00	8340.00	6460.00	7915.00	5869.00	7253.00
V (PPM)	146.00	200.00	218.00	450.00	262.00	458.00	377.00	258.00	293.00	307.00
Y (PPM)	5.00	7.00	10.00	9.00	34.00	6.00	18.00	18.00	20.00	19.00
ZN (PPM)	78.00	78.00	76.00	148.00	110.00	94.00	76.00	109.00	104.00	45.00
ZR (PPM)	2.00	12.00	23.00	5.00	23.00	20.00	22.00	21.00	12.00	29.00

DRILL HOLE NUMBER NB10

SAMP. NO.	711409	711411
TOP DEPTH	1330.00	1350.00
BOT DEPTH		
FORMATION	MI	MI
LITHOLOGY	FAM	FAM
UL (PPM)	-.25	.44
UT (PPM)	.60	.80
UL/UT	-.42	.33
TH (PPM)	5.00	7.00
TH/UT	8.33	8.76
AU (PPM)	ND	ND
AL (%)	6.96	5.84
CA (%)	6.26	.24
FE (%)	10.80	9.36
MG (%)	3.11	2.89
NA (%)	.65	.07
K (%)	.19	1.14
AG (PPM)	-2.00	-2.00
B (PPM)	-10.00	-10.00
BA (PPM)	22.00	391.00
BE (PPM)	1.00	-1.00
CE (PPM)	17.00	11.00
CO (PPM)	40.00	37.00
CR (PPM)	116.00	132.00
CU (PPM)	25.00	57.00
HF (PPM)	-15.00	-15.00
LA (PPM)	2.00	-2.00
LI (PPM)	33.00	83.00
MN (PPM)	1297.00	472.00
MO (PPM)	-4.00	-4.00
NB (PPM)	-4.00	-4.00
NI (PPM)	75.00	69.00
P (PPM)	410.00	578.00
PB (PPM)	16.00	13.00
PT (PPM)	ND	ND
SC (PPM)	36.00	43.00
SI (PPM)	ND	ND
SN (PPM)	ND	ND
SR (PPM)	30.00	9.00
TI (PPM)	7117.00	8489.00
V (PPM)	309.00	373.00
Y (PPM)	21.00	23.00
ZN (PPM)	115.00	36.00
ZR (PPM)	7.00	34.00

DRILL HOLE NO. MB 11

AREA: Medicine Bow Mountains, North Fork Rock Creek

LOCATION: 1010' FEL, 2860 FSL, Sec. 22, T. 17 N., R. 79 W.

LATITUDE: 41°25'54"

LONGITUDE: 106°15'13"

COUNTY: Carbon

TOPOGRAPHIC QUAD Sand Lake

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 10405

ANGLE: 70°

BEARING: N 65 W

TOTAL DEPTH: 1272'

SPUD DATE: 10/9/79

COMPLETION DATE: 9/8/80

GROSS GAMMA LOGGING:

INSTRUMENT: Mount Sopris 1000-C logger

PROBE T.D.: 852

DATE: 9/9/80

REMARKS: Cable length 852, below this core was logged with hand held McPhar spectrometer (TV-1A).

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-430) (Metagabbro: 430-436) (Magnolia Fm.: 436-680) (Conical Peak Quartzite: 680-870) (Metagabbro: 870-1100) (Conical Peak Quartzite: 1100-1272).

RADIOACTIVE ZONES: None

CORE LOGGERS: Peter Swift, Thomas G. Schmidt, Ramsey Bentley, Pat Gallagher.

DRILL HOLE MB-11

OBJECTIVES:

1. This hole was to test the basal Magnolia Formation near the North Fork of Rock Creek, which contains rocks with surface radioactivity of about six times background; uranium values up to 3.2 ppm U; 13 ppm Th.
2. Bill Miller (personal communication, 1980) reported large radon anomalies in ground waters in this area suggesting strong leaching of sediments; drilling was done to investigate the source of the radon and amounts of surface leaching.
3. This area is within the proposed Snowy Range wilderness area and drilling was designed to help appraise the mineral potential of this area.

CONCLUSIONS:

1. Quartzites and quartz-granule conglomerates of the Magnolia Formation were drilled from 0 to 680 feet. The maximum values were 14 ppm U, 36 ppm Th. No basal conglomerates were encountered. Instead, quartz-granule conglomerates similar to the Quartzite Member of the Magnolia Formation directly overlies fine-grained quartzites (Conical Peak Quartzite) of the Phantom Lake Metamorphic Suite.
2. Radon gases may be generated by low concentrations (several ppm) of uranium in the lower Magnolia Formation but more probably the lower Magnolia Formation in this area, as at the Arrastre Anticline, may contain thin, discontinuous layers of strongly radioactive conglomerates such as we have seen on the surface. These zones could provide a source for the anomalously high radon content of ground waters. Unfortunately, we were not lucky enough to intersect any of these lenses in drill core.
3. All available information suggest that, while discontinuous zones of very radioactive conglomerate might be found in this area, it is unlikely that economic grades or quantities of uranium will be found in the North Fork of Rock Creek area.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB II SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB II
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 8. GEOLOGIC MAP OF DRILL SITE MB-11, NORTH FORK OF ROCK CREEK, SAND LAKE QUAD, SEC. 22, T.17 N., R.79 W.

EXPLANATION

Figure 8. Geologic map of drill site MB-11

DRILL HOLE NUMBER MB11

SAMP. NO.	158268	158269	711055	711056	711057	711058	711060	711061	711062	711063
TOP DEPTH	38.00	100.00	130.00	155.00	180.00	205.00	230.00	255.00	280.00	305.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQZ	CQ	CQ	CQ	CQ	CQ	GPC	MG	MG	MG
UL (PPM)	5.00	1.60	1.89	.98	.65	2.12	2.91	1.45	2.13	2.03
UT (PPM)	4.80	1.00	1.70	1.30	1.00	2.80	3.40	1.60	2.20	2.70
UL/UT	1.04	1.60	1.11	.75	.65	.76	.86	.91	.97	.75
TH (PPM)	10.00	7.00	11.00	-2.00	3.00	-2.00	7.00	7.00	3.00	-2.00
TH/UT	2.08	7.00	6.47	-1.54	3.00	-.71	2.06	4.38	1.36	-.74
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.93	4.16	3.24	2.92	2.89	3.84	3.02	3.82	3.03	7.82
CA (%)	-.05	-.05	.14	.13	-.05	-.05	-.05	-.05	.12	.08
FE (%)	1.06	.75	.49	.48	.49	.62	.56	.71	.41	1.09
MG (%)	.43	.53	.23	.30	.26	.34	.22	.33	.23	.59
NA (%)	.23	.40	.95	1.07	1.02	.69	.85	.68	1.14	1.86
K (%)	1.94	1.67	1.10	.93	.88	1.57	1.09	1.45	.79	2.47
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	15.00
BA (PPM)	292.00	302.00	231.00	176.00	186.00	338.00	228.00	344.00	176.00	564.00
BE (PPM)	4.00	2.00	-1.00	-1.00	-1.00	1.00	-1.00	1.00	-1.00	1.00
CE (PPM)	-10.00	14.00	17.00	26.00	34.00	-10.00	30.00	26.00	21.00	40.00
CO (PPM)	16.00	5.00	5.00	-4.00	-4.00	-4.00	8.00	5.00	-4.00	7.00
CR (PPM)	45.00	40.00	50.00	38.00	26.00	33.00	28.00	48.00	28.00	49.00
CU (PPM)	56.00	6.00	6.00	3.00	3.00	4.00	13.00	5.00	4.00	18.00
HF (PPM)	ND	ND	-15.00	44.00	-15.00	19.00	77.00	-15.00	-15.00	-15.00
LA (PPM)	ND	ND	23.00	28.00	38.00	5.00	36.00	29.00	25.00	49.00
LI (PPM)	7.00	7.00	4.00	4.00	4.00	7.00	5.00	6.00	3.00	12.00
MN (PPM)	51.00	41.00	35.00	38.00	23.00	23.00	18.00	27.00	31.00	44.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	42.00	11.00	18.00	14.00	16.00	3.00	25.00	16.00	8.00	23.00
P (PPM)	84.00	45.00	78.00	64.00	100.00	43.00	58.00	87.00	68.00	143.00
PB (PPM)	ND	ND	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	2.00	1.00	1.00	2.00	2.00	2.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	9.00	12.00	19.00	16.00	14.00	12.00	12.00	13.00	15.00	28.00
TI (PPM)	1129.00	1105.00	651.00	514.00	575.00	760.00	534.00	819.00	421.00	1288.00
V (PPM)	18.00	27.00	12.00	9.00	9.00	15.00	13.00	19.00	10.00	31.00
Y (PPM)	2.00	2.00	2.00	2.00	1.00	1.00	2.00	2.00	1.00	2.00
ZN (PPM)	5.00	12.00	8.00	6.00	10.00	8.00	6.00	5.00	6.00	9.00
ZR (PPM)	77.00	40.00	68.00	49.00	30.00	42.00	48.00	68.00	25.00	52.00

DRILL HOLE NUMBER MB11

SAMP. NO.	711064	711065	711066	711313	711315	711316	711317	711078	711318	711319
TOP DEPTH	330.00	355.00	380.00	386.00	390.00	394.00	399.00	403.00	405.00	409.00
BOT DEPTH				387.00	391.00	395.00	400.00		406.00	410.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MQ	MQ	GGC	GGC	GGC	SS	SS	CQ	CQ	CQ
UL (PPM)	.92	1.69	6.34	1.43	1.25	2.02	1.69	.81	.41	1.13
UT (PPM)	1.40	1.80	6.60	2.50	2.40	2.41	2.20	.90	1.40	1.90
UL/UT	.66	.94	.96	.57	.52	.84	.77	.90	.29	.59
TH (PPM)	3.00	6.00	4.00	7.00	2.00	7.00	7.00	3.00	6.00	7.00
TH/UT	2.14	3.34	.61	2.80	.83	2.91	3.18	3.34	4.29	3.69
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.34	4.32	2.78	4.05	3.91	4.10	2.85	2.95	3.91	3.66
CA (%)	1.87	-.05	.22	.17	.30	.46	.18	.14	.11	.50
FE (%)	4.09	.77	1.67	1.11	.96	.74	.54	.47	.61	.69
MG (%)	3.90	.41	1.77	.68	.64	.43	.16	.26	.31	.33
NA (%)	.44	.77	.36	.64	.66	1.49	1.62	.87	.94	.88
K (%)	1.11	1.54	1.00	1.49	1.45	1.00	.54	.84	1.39	1.24
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	10.00	-10.00	13.00	11.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	247.00	401.00	166.00	254.00	252.00	126.00	69.00	196.00	315.00	308.00
BE (PPM)	-1.00	1.00	-1.00	1.00	1.00	-1.00	-1.00	-1.00	1.00	1.00
CE (PPM)	15.00	11.00	26.00	11.00	-10.00	11.00	11.00	30.00	24.00	21.00
CO (PPM)	35.00	5.00	12.00	22.00	16.00	22.00	19.00	4.00	4.00	-4.00
CR (PPM)	920.00	66.00	36.00	37.00	28.00	20.00	20.00	24.00	33.00	33.00
CU (PPM)	18.00	16.00	21.00	22.00	28.00	22.00	31.00	16.00	25.00	24.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	9.00	12.00	28.00	12.00	5.00	11.00	13.00	34.00	29.00	25.00
LI (PPM)	8.00	7.00	15.00	14.00	13.00	7.00	3.00	4.00	6.00	5.00
MN (PPM)	799.00	33.00	114.00	41.00	58.00	51.00	36.00	40.00	38.00	85.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	159.00	11.00	24.00	30.00	22.00	22.00	18.00	10.00	14.00	14.00
P (PPM)	54.00	26.00	34.00	32.00	25.00	53.00	55.00	74.00	60.00	50.00
PB (PPM)	-10.00	-10.00	-10.00	23.00	-10.00	-10.00	-10.00	-10.00	-10.00	11.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	16.00	2.00	2.00	2.00	2.00	1.00	-1.00	1.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	15.00	13.00	7.00	12.00	12.00	18.00	14.00	12.00	13.00	19.00
TI (PPM)	962.00	969.00	578.00	580.00	502.00	339.00	226.00	443.00	594.00	647.00
V (PPM)	79.00	22.00	14.00	14.00	13.00	5.00	3.00	11.00	15.00	14.00
Y (PPM)	3.00	1.00	2.00	3.00	2.00	3.00	2.00	2.00	2.00	3.00
ZN (PPM)	46.00	9.00	13.00	9.00	11.00	21.00	28.00	6.00	19.00	34.00
ZR (PPM)	20.00	54.00	41.00	49.00	39.00	44.00	38.00	22.00	43.00	38.00

DRILL HOLE NUMBER MB11

SAMP. NO.	711079	711081	711082	711083	711110	711111	711112	711183	711184	711185
TOP DEPTH	420.00	440.00	460.00	480.00	500.00	520.00	540.00	560.00	580.00	600.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	CQ	CQ	CQ	CQ	CQ	CQ	QGC	QGC	QGC
UL (PPM)	-.25	1.68	1.59	1.58	1.20	14.45	1.96	.92	1.76	1.71
UT (PPM)	.60	1.80	2.10	2.10	1.50	14.30	2.40	1.60	1.90	1.70
UL/UT	-.42	.93	.76	.75	.80	1.01	.82	.57	.93	1.01
TH (PPM)	3.00	-2.00	7.00	6.00	2.00	36.00	8.00	4.00	5.00	7.00
TH/UT	5.01	-1.11	3.33	2.86	1.33	2.52	3.33	2.50	2.63	4.12
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.81	3.65	2.76	7.13	3.59	3.99	3.57	3.33	3.86	5.50
CA (%)	.05	.15	.11	.12	.09	-.05	-.05	.07	.06	.06
FE (%)	.57	.51	.39	1.18	.50	.75	.51	.59	.76	.82
MG (%)	.23	.32	.17	.60	.23	.33	.29	.26	.33	.38
NA (%)	1.17	1.17	.56	.19	.56	.44	.49	.66	.51	.66
K (%)	1.16	1.00	1.08	3.10	1.58	1.74	1.46	1.27	1.64	1.98
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	22.00	10.00	13.00	10.00	-10.00	-10.00	15.00
BA (PPM)	284.00	246.00	289.00	809.00	352.00	444.00	378.00	337.00	404.00	575.00
BE (PPM)	-1.00	-1.00	-1.00	1.00	-1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	20.00	22.00	22.00	-10.00	25.00	26.00	35.00	21.00	17.00	17.00
CO (PPM)	8.00	-4.00	4.00	5.00	7.00	8.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	16.00	31.00	35.00	55.00	34.00	118.00	57.00	35.00	34.00	38.00
CJ (PPM)	20.00	23.00	17.00	38.00	21.00	47.00	7.00	8.00	26.00	12.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	22.00	26.00	26.00	6.00	30.00	30.00	42.00	26.00	18.00	18.00
LI (PPM)	5.00	5.00	2.00	10.00	4.00	5.00	4.00	4.00	6.00	6.00
MN (PPM)	53.00	44.00	28.00	70.00	34.00	38.00	37.00	39.00	47.00	57.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	10.00	12.00	9.00	12.00	7.00	28.00	16.00	10.00	9.00	18.00
P (PPM)	47.00	49.00	58.00	37.00	55.00	51.00	48.00	33.00	37.00	43.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	11.00	-10.00	-10.00	28.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	1.00	4.00	1.00	2.00	2.00	1.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	15.00	18.00	14.00	20.00	17.00	18.00	16.00	19.00	13.00	17.00
TI (PPM)	451.00	540.00	569.00	1542.00	646.00	746.00	746.00	542.00	753.00	775.00
V (PPM)	16.00	13.00	10.00	36.00	12.00	16.00	15.00	10.00	15.00	20.00
Y (PPM)	3.00	2.00	2.00	3.00	3.00	6.00	2.00	3.00	2.00	3.00
ZN (PPM)	11.00	9.00	6.00	12.00	7.00	7.00	14.00	7.00	27.00	8.00
ZR (PPM)	29.00	29.00	48.00	54.00	32.00	161.00	38.00	42.00	37.00	48.00

DRILL HOLE NUMBER MB11

SAMP. NO.	711199	711200	711201	711202	711203	711204	711205	711206	711207	711208
TOP DEPTH	620.00	640.00	660.00	680.00	700.00	720.00	740.00	760.00	780.00	800.00
BOT DEPTH										
FORMATION	MG	MG	MG	CNG	CNG	CNG	CNG	CNG	CNG	CNG
LITHOLOGY	GGC	GGC	GGC	CG	MG	MG	MG	FG	FG	MG
UL (PPM)	3.81	2.11	2.58	1.60	2.16	2.11	3.78	.27	2.56	.75
UT (PPM)	3.16	1.89	1.63	1.40	2.42	1.87	3.84	1.05	3.31	2.01
UL/UT	1.21	1.12	1.58	1.14	.89	1.13	.98	.26	.77	.37
TH (PPM)	4.00	3.00	12.00	2.00	8.00	5.00	17.00	2.00	17.00	12.00
TH/UT	1.27	1.59	7.37	1.43	3.31	2.68	4.43	1.91	5.14	5.97
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.10	5.03	3.67	2.70	7.54	3.55	6.20	6.67	6.85	7.23
CA (%)	3.26	.05	.20	.27	.14	.46	.13	.12	.11	.09
FE (%)	.50	.74	.61	.48	1.45	.67	.87	.59	.63	.51
MG (%)	.21	.33	.26	.14	.56	.23	.37	.29	.26	.27
NA (%)	.58	.41	.35	.68	.16	.59	.25	.28	.09	.38
K (%)	.60	2.20	1.61	1.05	3.13	1.32	2.30	2.46	2.60	2.27
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	15.00	10.00	-10.00	21.00	-10.00	24.00	21.00	22.00	20.00
BA (PPM)	149.00	549.00	411.00	253.00	941.00	365.00	601.00	525.00	493.00	597.00
BE (PPM)	-1.00	1.00	-1.00	-1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	31.00	-10.00	14.00	30.00	34.00	19.00	28.00	22.00	73.00	47.00
CO (PPM)	-4.00	5.00	-4.00	-4.00	4.00	4.00	9.00	-4.00	5.00	-4.00
CR (PPM)	13.00	31.00	26.00	16.00	59.00	32.00	78.00	40.00	128.00	135.00
CU (PPM)	49.00	13.00	19.00	24.00	28.00	23.00	22.00	17.00	57.00	9.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	34.00	9.00	17.00	36.00	37.00	22.00	32.00	25.00	79.00	51.00
LI (PPM)	4.00	7.00	5.00	3.00	11.00	5.00	7.00	5.00	5.00	4.00
MN (PPM)	298.00	51.00	61.00	53.00	82.00	81.00	43.00	34.00	32.00	30.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	10.00	9.00	11.00	11.00	16.00	11.00	17.00	12.00	15.00	7.00
P (PPM)	43.00	54.00	61.00	93.00	91.00	81.00	162.00	45.00	156.00	105.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	15.00	-10.00	24.00	-10.00	-10.00	11.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	2.00	1.00	1.00	4.00	1.00	5.00	4.00	6.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	73.00	14.00	20.00	28.00	28.00	35.00	20.00	26.00	17.00	21.00
TI (PPM)	323.00	858.00	621.00	340.00	1749.00	667.00	1739.00	1312.00	2410.00	1972.00
V (PPM)	10.00	19.00	12.00	9.00	34.00	12.00	37.00	29.00	42.00	37.00
Y (PPM)	6.00	3.00	2.00	2.00	2.00	2.00	3.00	1.00	4.00	3.00
ZN (PPM)	5.00	12.00	6.00	4.00	10.00	6.00	8.00	8.00	9.00	8.00
ZR (PPM)	18.00	38.00	34.00	26.00	56.00	40.00	84.00	36.00	161.00	130.00

DRILL HOLE NUMBER MB11

SAMP. NO.	711209	711233	711234	711235	711236	711237	711238	711239	711240	711241
TOP DEPTH	820.00	840.00	860.00	880.00	900.00	920.00	940.00	960.00	980.00	1000.00
BOT DEPTH										
FORMATION	CNG	CNG	CNG	MI	MI	MI	MI	MI	MI	MI
LITHOLOGY	MQ	MQ	MQ	CAM	CAM	AM	AM	CAM	CAM	CAM
UL (PPM)	3.22	2.57	.50	.98	1.45	3.60	2.28	3.23	1.70	1.21
UT (PPM)	4.37	2.40	.90	1.20	1.90	3.80	2.80	3.40	1.90	1.50
UL/UT	.74	1.07	.56	.82	.76	.95	.81	.95	.89	.81
TH (PPM)	18.00	3.00	-2.00	6.00	2.00	6.00	6.00	-2.00	4.00	2.00
TH/UT	4.12	1.25	-2.22	5.00	1.05	1.58	2.14	-.59	2.11	1.33
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.95	1.32	1.69	6.18	6.98	5.52	6.11	6.18	5.98	6.30
CA (%)	.14	.71	.33	3.44	1.70	3.11	3.02	3.59	4.24	4.24
FE (%)	.36	.28	.66	6.04	8.20	5.43	5.79	7.86	5.44	6.81
MG (%)	.21	.13	.17	1.73	1.72	.89	1.17	1.25	1.37	2.53
NA (%)	.17	-.05	.39	1.40	2.07	2.09	2.11	2.02	2.28	1.46
K (%)	1.68	.65	.63	.92	1.89	1.33	1.00	.70	.20	.57
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	45.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	391.00	147.00	207.00	211.00	486.00	386.00	300.00	176.00	54.00	156.00
BE (PPM)	1.00	-1.00	-1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	19.00	12.00	10.00	28.00	30.00	54.00	34.00	27.00	27.00	18.00
CO (PPM)	7.00	-4.00	-4.00	23.00	25.00	19.00	13.00	23.00	12.00	27.00
CR (PPM)	110.00	11.00	25.00	29.00	6.00	9.00	15.00	1.00	13.00	66.00
CU (PPM)	22.00	56.00	40.00	19.00	16.00	34.00	16.00	85.00	35.00	32.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	23.00	14.00	13.00	21.00	14.00	48.00	29.00	7.00	15.00	-2.00
LI (PPM)	4.00	3.00	4.00	15.00	24.00	19.00	16.00	11.00	8.00	13.00
MN (PPM)	31.00	91.00	72.00	602.00	740.00	591.00	585.00	906.00	799.00	960.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	11.00	5.00	6.00	28.00	15.00	8.00	9.00	7.00	12.00	49.00
P (PPM)	44.00	14.00	85.00	287.00	488.00	572.00	443.00	451.00	440.00	293.00
PD (PPM)	10.00	-10.00	-10.00	17.00	13.00	17.00	15.00	12.00	17.00	12.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	1.00	-1.00	17.00	24.00	16.00	19.00	21.00	20.00	21.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	12.00	7.00	8.00	138.00	100.00	103.00	130.00	112.00	125.00	98.00
TI (PPM)	888.00	204.00	303.00	4943.00	8827.00	4959.00	6438.00	8316.00	7156.00	4843.00
V (PPM)	15.00	7.00	7.00	196.00	273.00	103.00	177.00	258.00	266.00	214.00
Y (PPM)	2.00	2.00	2.00	13.00	20.00	30.00	21.00	18.00	18.00	12.00
ZN (PPM)	6.00	4.00	8.00	48.00	64.00	49.00	42.00	61.00	37.00	53.00
ZR (PPM)	177.00	19.00	38.00	62.00	78.00	98.00	95.00	77.00	78.00	52.00

DRILL HOLE NUMBER MB11

SAMP. NO.	711242	711244	711245	711303	711304	711305	711306	711307	711308	711309
TOP DEPTH	1020.00	1040.00	1060.00	1080.00	1100.00	1120.00	1140.00	1160.00	1180.00	1200.00
BOT DEPTH										
FORMATION	MI	MI	MI	MI	MI	CNQ	CNQ	CNQ	CNQ	CNQ
LITHOLOGY	FAM	FAM	FAM	FAM	FAM	FQ	FQ	FQ	FQ	FQ
UL (PPM)	.62	.39	.72	.26	.65	1.77	.26	2.74	1.59	2.26
UT (PPM)	.50	.70	1.10	.30	.40	2.00	.80	3.30	2.10	2.80
UL/UT	1.24	.56	.65	.87	1.63	.88	.32	.83	.76	.81
TH (PPM)	-2.00	7.00	3.00	6.00	-2.00	-2.00	2.00	3.00	-2.00	7.00
TH/UT	-4.00	10.01	2.73	20.07	-5.01	-1.00	2.50	.91	-.95	2.50
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.95	5.02	5.06	6.39	5.20	2.24	1.28	3.32	3.20	5.46
CA (%)	6.69	8.08	7.50	7.63	8.70	.06	.15	.06	-.05	-.05
FE (%)	6.92	6.11	7.26	8.62	7.29	.13	.14	.27	.20	.38
MG (%)	4.90	5.19	4.67	4.36	3.48	.09	.08	.15	.12	.27
NA (%)	1.02	.76	.85	1.25	.88	.39	.30	.23	.20	.42
K (%)	.19	.31	.23	.31	1.00	1.21	.67	1.78	2.04	2.78
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	18.00
BA (PPM)	54.00	92.00	76.00	76.00	167.00	407.00	148.00	473.00	540.00	732.00
BE (PPM)	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.00	-1.00	1.00
CE (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	16.00	10.00	27.00	19.00	28.00
CO (PPM)	39.00	40.00	58.00	43.00	33.00	-4.00	-4.00	4.00	-4.00	-4.00
CR (PPM)	514.00	1078.00	955.00	391.00	279.00	23.00	9.00	47.00	32.00	38.00
CU (PPM)	331.00	54.00	405.00	73.00	90.00	16.00	13.00	45.00	11.00	18.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	20.00	12.00	32.00	22.00	35.00
LI (PPM)	11.00	6.00	6.00	10.00	19.00	2.00	2.00	3.00	2.00	5.00
MN (PPM)	1176.00	1156.00	1239.00	1321.00	1114.00	14.00	26.00	14.00	9.00	15.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	180.00	161.00	348.00	111.00	90.00	7.00	5.00	11.00	11.00	14.00
P (PPM)	127.00	74.00	148.00	288.00	260.00	100.00	58.00	170.00	154.00	125.00
PB (PPM)	-10.00	15.00	-10.00	19.00	16.00	-10.00	12.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	29.00	32.00	32.00	34.00	26.00	-1.00	-1.00	1.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	97.00	92.00	103.00	121.00	58.00	9.00	7.00	16.00	18.00	26.00
TI (PPM)	3660.00	2328.00	3907.00	6821.00	5562.00	299.00	173.00	691.00	566.00	998.00
V (PPM)	228.00	201.00	227.00	321.00	251.00	4.00	2.00	10.00	7.00	13.00
Y (PPM)	7.00	5.00	9.00	14.00	11.00	2.00	1.00	3.00	2.00	3.00
ZN (PPM)	75.00	56.00	68.00	88.00	147.00	19.00	15.00	16.00	22.00	20.00
ZR (PPM)	11.00	8.00	11.00	9.00	7.00	57.00	22.00	120.00	65.00	76.00

DRILL HOLE NUMBER MB11

SAMP. NO.	711310	711311	711312
TOP DEPTH	1220.00	1240.00	1260.00
BOT DEPTH			
FORMATION	CNG	CNG	CNG
LITHOLOGY	FQ	FQ	FQ
UL (PPM)	.50	1.67	2.20
UT (PPM)	1.40	2.40	2.80
UL/UT	.36	.70	.79
TH (PPM)	2.00	3.00	8.00
TH/UT	1.43	1.25	2.86
AU (PPM)	ND	ND	ND
AL (%)	3.29	3.75	3.81
CA (%)	-.05	-.05	-.05
FE (%)	.26	.32	.41
MO (%)	.19	.27	.23
NA (%)	.27	.13	.12
K (%)	2.03	2.38	2.24
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	-10.00	10.00	15.00
BA (PPM)	511.00	691.00	644.00
BE (PPM)	1.00	1.00	1.00
CE (PPM)	16.00	19.00	30.00
CO (PPM)	-4.00	-4.00	-4.00
CR (PPM)	20.00	36.00	45.00
CU (PPM)	9.00	13.00	31.00
HF (PPM)	-15.00	-15.00	-15.00
LA (PPM)	20.00	19.00	34.00
LI (PPM)	4.00	7.00	5.00
MN (PPM)	11.00	12.00	18.00
MO (PPM)	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00
NI (PPM)	7.00	9.00	9.00
P (PPM)	126.00	158.00	161.00
PB (PPM)	-10.00	-10.00	11.00
PT (PPM)	ND	ND	ND
SC (PPM)	1.00	1.00	1.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	19.00	26.00	22.00
TI (PPM)	499.00	750.00	729.00
V (PPM)	7.00	11.00	11.00
Y (PPM)	2.00	3.00	3.00
ZN (PPM)	17.00	17.00	9.00
ZR (PPM)	43.00	105.00	106.00

DRILL HOLE NO. MB 13

AREA: Northern Medicine Bow Mountains, Medicine Bow River

LOCATION: 1660 FSL, 2110 FEL, Sec. 11, T. 17 N., R. 80 W.

LATITUDE: 41° 27' 34"

LONGITUDE: 106° 20' 55"

COUNTY: Carbon

TOPOGRAPHIC QUAD Sand Lake

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9326

ANGLE: 65°

BEARING: N 5 W

TOTAL DEPTH: 571'

SPUD DATE: 8/23/79

COMPLETION DATE: 9/19/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 557'

DATE: 9/21/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 557'

DATE: 9/18/79

REMARKS:

STRATIGRAPHIC UNITS: (Conical Peak Quartzite: 0-571)

RADIOACTIVE ZONES: None

CORE LOGGERS: Dave Inlow, John Turner, Ramsey Bentley, Karl Karlstrom

DRILL HOLE MB-13

OBJECTIVES:

1. Outcrops show mainly marine, non-radioactive quartzites to the south, but also a few mildly radioactive, probably fluvial troughs and channels of coarse sands near the north limit of outcrops. These show 3 times background radioactivity and up to 1 ppm U, 4 ppm Th. The drill hole was to test for more extensive fluvial rocks to the north, i.e. lower in the section as would be expected in a transgressive, fining-upward succession.

CONCLUSIONS:

1. Quartzites encountered from 0 to 93 feet were mainly fine-grained but, as on the surface, they contain some fining-upward sets and small coarser-grained layers with mild radioactivity which may indicate some fluvial sediments. From 93 to 571 feet the hole penetrated fine-grained quartzites and chloritic schists of probable marine origin. No radioactive conglomerates were encountered in this hole.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 13 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 9. GEOLOGIC MAP OF DRILL SITE MB-13 AND MB-14, MEDICINE BOW RIVER AREA, NORTHERN MEDICINE BOW MOUNTAINES, SAND LAKE QUAD, SEC. 11 AND 14, T.17 N., R.80 W.

EXPLANATION

Figure 9. Geologic map of drill site MB-13 and MB-14

DRILL HOLE NUMBER MB13

SAMP. NO.	157191	157192	157193	157194	157206	157202	157349
TOP DEPTH	122.20	146.20	235.00	275.00	380.00	494.50	561.30
BOT DEPTH							
FORMATION	CNQ	CNQ	CNQ	CNQ	CNQ	CNQ	CNQ
LITHOLOGY	FQZ	FQZ	FQZ	FQZ	FQ	FQZ	FQZ
UL (PPM)	10.92	7.53	5.71	5.78	3.65	10.92	5.85
UT (PPM)	8.90	5.20	5.80	5.20	3.50	11.60	4.90
UL/UT	1.23	1.45	.98	1.11	1.04	.94	1.19
TH (PPM)	11.00	6.00	12.00	13.00	9.00	14.00	8.00
TH/UT	1.24	1.15	2.07	2.50	2.57	1.21	1.63
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.67	6.51	6.21	6.35	5.31	5.24	5.25
CA (%)	.96	2.11	.60	.76	.59	1.13	4.25
FE (%)	1.20	1.09	1.58	3.24	1.71	2.21	1.46
MG (%)	.47	.45	.60	.91	.51	.61	.50
NA (%)	1.93	1.84	1.88	1.60	1.91	1.76	1.63
K (%)	3.20	3.04	3.05	2.79	2.67	2.46	2.88
AG (PPM)	-2.00	3.00	-2.00	5.00	6.00	-2.00	3.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	662.00	590.00	806.00	844.00	834.00	641.00	1085.00
BE (PPM)	4.00	4.00	6.00	5.00	5.00	4.00	4.00
CE (PPM)	48.00	39.00	45.00	55.00	46.00	45.00	27.00
CO (PPM)	12.00	10.00	10.00	19.00	10.00	17.00	6.00
CR (PPM)	97.00	74.00	72.00	84.00	51.00	71.00	48.00
CU (PPM)	25.00	27.00	35.00	10.00	14.00	32.00	2.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	20.00	19.00	19.00	29.00	22.00	22.00	13.00
MN (PPM)	203.00	293.00	179.00	322.00	158.00	275.00	567.00
MO (PPM)	-4.00	-4.00	5.00	5.00	4.00	-4.00	-4.00
NB (PPM)	10.00	9.00	14.00	12.00	10.00	11.00	12.00
NI (PPM)	23.00	19.00	25.00	32.00	19.00	25.00	8.00
P (PPM)	534.00	484.00	616.00	477.00	529.00	477.00	445.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PI (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	5.00	10.00	5.00	6.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	140.00	161.00	210.00	230.00	202.00	173.00	148.00
TI (PPM)	1847.00	1624.00	2807.00	2838.00	2162.00	2322.00	2442.00
V (PPM)	37.00	29.00	38.00	84.00	33.00	49.00	36.00
Y (PPM)	11.00	10.00	11.00	15.00	10.00	15.00	13.00
ZN (PPM)	17.00	19.00	28.00	58.00	21.00	33.00	18.00
ZR (PPM)	163.00	107.00	173.00	129.00	117.00	242.00	209.00

DRILL HOLE NO. MB 14

AREA: East of Medicine Bow River, Medicine Bow Mtns.

LOCATION: 1185 FEL, 1400' FNL, Sec. 14, T. 17 N., R. 80 W.

LATITUDE: 41°27'00"

LONGITUDE: 106°20'51"

COUNTY: Carbon

TOPOGRAPHIC QUAD Sand Lake

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9673

ANGLE: 60°

BEARING: N 5 W

TOTAL DEPTH: 173'

SPUD DATE: 9/25/79

COMPLETION DATE: 10/19/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 169'

DATE: 10/26/79

REMARKS:

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No Kut log available

STRATIGRAPHIC UNITS: (Lindsey Quartzite: 0-173')

RADIOACTIVE ZONES: None

CORE LOGGERS: Pat Gallagher

DRILL HOLE MB-14

OBJECTIVES:

1. This hole was to intersect the Magnolia Formation at depth to determine the subsurface uranium content and thickness of the formation. Outcrops show three times background radioactivity and up to 1.8 ppm U; 16 ppm Th.
2. We also wanted to obtain information on pre-Magnolia stratigraphy in this area.

CONCLUSIONS:

1. This hole was only drilled 173 feet before snows shut down the drilling efforts in October of 1979. The hole was still drilling Lindsey Quartzite at its maximum depth so no information on the Magnolia Formation was obtained. The hole was not re-occupied. In 1980 ~~because~~ the scope of the drilling program had diminished (less money was available) and MB-14 was considered lower priority than other holes. We consider this area of the Magnolia Formation to have limited economic potential due to relatively low surface uranium content and a thinned Magnolia section.

NOTE: See Figure 9 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 14 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER MB14

SAMP. NO.	157922	157923	158265
TOP DEPTH	54.50	91.50	154.00
BOT DEPTH			
FORMATION	LQ	LQ	LQ
LITHOLOGY	GOC	CQZ	AQZ
UL (PPM)	1.65	2.48	1.63
UT (PPM)	1.10	2.20	1.40
UL/UT	1.50	1.13	1.16
TH (PPM)	3.00	7.00	7.00
TH/UT	2.73	3.18	5.00
AU (PPM)	ND	ND	ND
AL (%)	3.24	1.09	1.78
CA (%)	-.05	-.05	.37
FE (%)	.53	.48	.47
MG (%)	.18	.14	.14
NA (%)	.41	.19	.58
K (%)	1.76	1.55	.95
AG (PPM)	2.00	2.00	-2.00
B (PPM)	-10.00	10.00	-10.00
BA (PPM)	368.00	148.00	172.00
BE (PPM)	2.00	1.00	1.00
CE (PPM)	10.00	11.00	15.00
CO (PPM)	-4.00	4.00	5.00
CR (PPM)	16.00	43.00	23.00
CU (PPM)	4.00	7.00	11.00
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	5.00	6.00	4.00
MN (PPM)	41.00	23.00	79.00
MO (PPM)	-4.00	-4.00	5.00
NB (PPM)	-4.00	-4.00	-4.00
NI (PPM)	6.00	6.00	7.00
P (PPM)	27.00	35.00	46.00
PD (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	2.00	1.00	1.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	25.00	7.00	30.00
TI (PPM)	424.00	540.00	375.00
V (PPM)	13.00	18.00	7.00
Y (PPM)	3.00	1.00	2.00
ZN (PPM)	6.00	7.00	7.00
ZR (PPM)	58.00	76.00	39.00

DRILL HOLE NO. MB 15

AREA: N. Medicine Bow Mtns., SW of Rock Mountain.

LOCATION: 930 FEL, 700' FNL, Sec. 11, T. 18 N., R. 79 W.

LATITUDE: 41°33'9"

LONGITUDE: 106°14'4"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9410

ANGLE: 60°

BEARING: N 30 E

TOTAL DEPTH: 929'

SPUD DATE: 6/23/80

COMPLETION DATE: Aug. 7, 1980

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris

PROBE T.D.: 840'

DATE:

REMARKS: Analog only. 0-150' logged through casing and drill pipe,
150'-840' logged through drill pipe.

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No Kut log available.

STRATIGRAPHIC UNITS: (Metagabbro: 0-483) (Rock Mountain Conglomerate 483-524)
(Metagabbro: 524-576) (Rock Mountain Conglomerate: 576-750) (Metagabbro: 750-759) (Rock Mountain Conglomerate: 759-929).

RADIOACTIVE ZONES: 523'

CORE LOGGERS: Craig P. Kapp, Thomas G. Schmidt, Peter Swift.

DRILL HOLE MB-15

OBJECTIVES:

1. We wanted to test the subsurface uranium content of a fairly thick succession of quartz-pebble conglomerates and paraconglomerates found near Rock Mountain. These conglomerates are only locally radioactive in outcrop (up to 270 ppm U, 95 ppm Th.) but the lithology appeared right for fossil-placer mineralization.

2. Structure in this area is complex and foliation tends to mask the orientation of bedding. We were testing a structural interpretation which considered the conglomerates to be Magnolia Formation in the hinge of a reclined, west-plunging synclinal remnant. We anticipated drilling generally perpendicular to strike although outcrops show complex variations in strike.

CONCLUSIONS:

1. We drilled much more metagabbro than we had anticipated but finally encountered conglomerate at 483 feet. As on the surface, the lithology seemed right but very little uranium is present (maximum is 190 ppm U; 86 ppm Th.). We quit drilling while still in conglomerate and cannot preclude the possibility that uranium and/or gold placer mineralization within the unit might still be found.

2. The structure in the Rock Mountain area remains enigmatic. However, we now believe that the conglomerates in this area are part of the Phantom Lake Metamorphic Suite and have named the unit the "Rock Mountain Conglomerate." This unit appears to occupy the hinge zone of complexly refolded anticlinorium which helps explain variations in attitude of foliation encountered in drill core.

NOTE: See Figure 7 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 15 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 15
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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DRILL HOLE NUMBER MB15

SAMP. NO.	160559	160560	160591	160592	160593	160594	711107	711108	711109	160595
TOP DEPTH	120.00	239.00	480.00	490.00	498.40	510.00	516.00	518.00	520.00	523.00
BOT DEPTH										
FORMATION	MI	MI	MI	RMC	RMC	RMC	RMC	RMC	RMC	RMC
LITHOLOGY	CAM	CAM	FAM	APC	APC	APC	PAC	PAC	PAC	PAC
UL (PPM)	.51	.54	-.25	-.25	3.15	9.50	12.46	1.66	11.08	185.10
UT (PPM)	.50	.60	.50	2.70	3.10	10.20	15.00	1.90	14.30	194.50
UL/UT	1.02	.90	-.50	-.09	1.02	.93	.83	.87	.77	.95
TH (PPM)	2.00	-2.00	-2.00	12.24	21.00	2.15	11.00	4.00	15.00	86.00
TH/UT	4.00	-3.34	-4.00	4.53	6.78	.21	.73	2.11	1.05	.44
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.28	6.19	.59	.40	6.47	.56	8.77	4.48	6.82	5.12
CA (%)	5.52	5.54	.76	.60	.58	2.72	1.01	.97	1.35	5.58
FE (%)	12.59	9.68	9.71	.68	1.55	.65	.95	.58	.95	1.39
MG (%)	2.08	2.85	5.18	.13	.29	.13	.24	.14	.17	.11
NA (%)	1.70	1.88	.74	.64	.29	1.22	.40	.53	1.09	1.26
K (%)	.49	.26	.19	1.13	2.05	1.23	2.49	1.15	1.63	.46
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	17.00	11.22	22.00	-10.00	12.00	-10.00
BA (PPM)	217.00	179.00	45.24	460.20	837.00	603.90	1348.00	494.00	781.00	377.00
BE (PPM)	1.00	1.00	1.76	-1.00	1.00	2.13	1.00	1.00	1.00	1.00
CE (PPM)	59.00	48.00	-10.00	24.40	45.00	63.25	24.00	21.00	68.00	127.00
CO (PPM)	47.00	39.00	62.89	15.89	40.00	56.34	49.00	17.00	58.00	26.00
CR (PPM)	19.00	71.00	642.10	56.67	399.00	401.10	368.00	127.00	425.00	249.00
CU (PPM)	234.00	161.00	9.42	11.03	55.00	50.30	84.00	90.00	75.00	60.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	54.00	-15.00	-15.00	-15.00	-15.00	108.00
LA (PPM)	-2.00	11.00	-2.00	24.80	30.00	92.26	17.00	18.00	57.00	150.00
LI (PPM)	13.00	18.00	38.18	8.71	13.00	9.08	13.00	10.00	14.00	17.00
MN (PPM)	1521.00	1483.00	1763.00	141.80	498.00	228.00	142.00	155.00	481.00	940.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00
NI (PPM)	58.00	37.00	152.90	28.39	56.00	41.60	39.00	35.00	70.00	90.00
P (PPM)	557.00	500.00	267.20	192.10	702.00	670.20	1426.00	379.00	989.00	456.00
PB (PPM)	16.00	17.00	-10.00	-10.00	32.00	-10.00	18.00	-10.00	16.00	74.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	31.00	30.00	35.50	6.63	21.00	23.46	21.00	10.00	22.00	31.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	334.00	205.00	58.13	30.90	31.00	75.75	31.00	33.00	65.00	230.00
TI (PPM)	8979.00	5597.00	6655.00	1123.00	4013.00	4350.00	8179.00	1678.00	5563.00	3655.00
V (PPM)	779.00	296.00	312.90	52.11	172.00	194.50	250.00	87.00	184.00	215.00
Y (PPM)	21.00	20.00	13.57	6.58	13.00	38.58	36.00	8.00	21.00	55.00
ZN (PPM)	129.00	106.00	115.50	20.87	14.00	12.99	17.00	8.00	12.00	6.00
ZR (PPM)	15.00	17.00	15.27	65.60	87.00	67.82	148.00	53.00	99.00	327.00

DRILL HOLE NUMBER MB15

SAMP. NO.	160596	160597	711027	711028	711029	711030	711031	711032	711033	711034
TOP DEPTH	558.00	572.00	600.00	625.00	650.00	675.00	700.00	725.00	750.00	775.00
BOT DEPTH										
FORMATION	MI	MI	RMC	RMC	RMC	RMC	RMC	RMC	RMC	RMC
LITHOLOGY	BA	BA	APC	PAC	PAC	PAC	PAC	PAC	PAC	PAC
UL (PPM)	.36	1.51	.83	2.90	3.75	1.42	1.28	.28	.69	.83
UT (PPM)	.50	1.20	.80	3.40	3.80	1.50	1.30	.60	1.10	1.40
UL/UT	.72	1.26	1.04	.85	.99	.95	.98	.47	.63	.59
TH (PPM)	2.89	-2.00	-2.00	4.00	4.00	7.00	7.00	-2.00	12.00	6.00
TH/UT	5.78	-1.67	-2.50	1.18	1.05	4.67	5.39	-3.34	10.92	4.29
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	.60	6.78	6.43	3.84	3.45	7.48	5.76	4.19	4.94	6.87
CA (%)	.68	2.96	.07	1.02	2.89	.20	.56	.12	.53	.06
FE (%)	9.95	12.16	.28	.60	.38	.31	.32	.16	.63	.26
MG (%)	3.64	3.86	.09	.17	.11	.09	.11	.06	.13	.06
NA (%)	1.08	.91	.22	.15	.13	.25	.21	.18	.46	.23
K (%)	.08	.04	2.17	1.41	1.14	2.50	1.99	1.50	.98	2.28
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	21.00
B (PPM)	-10.00	-10.00	16.00	-10.00	-10.00	14.00	11.00	-10.00	-10.00	18.00
BA (PPM)	17.55	18.00	955.00	531.00	470.00	1001.00	779.00	553.00	385.00	929.00
BE (PPM)	1.69	-1.00	1.00	-1.00	-1.00	1.00	-1.00	-1.00	1.00	1.00
CE (PPM)	16.46	37.00	33.00	30.00	31.00	40.00	53.00	25.00	33.00	17.00
CO (PPM)	57.67	59.00	7.00	6.00	-4.00	-4.00	-4.00	-4.00	11.00	-4.00
CR (PPM)	97.57	100.00	40.00	90.00	55.00	59.00	51.00	34.00	43.00	54.00
CU (PPM)	160.10	114.00	15.00	45.00	23.00	4.00	10.00	12.00	30.00	9.00
HF (PPM)	-15.00	-15.00	34.00	81.00	-15.00	-15.00	-15.00	-15.00	-15.00	35.00
LA (PPM)	8.77	3.00	72.00	35.00	39.00	54.00	54.00	24.00	52.00	18.00
LI (PPM)	35.06	72.00	7.00	9.00	6.00	7.00	9.00	4.00	29.00	6.00
MN (PPM)	1638.00	1359.00	82.00	233.00	571.00	39.00	89.00	89.00	244.00	24.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	82.16	89.00	13.00	14.00	10.00	14.00	10.00	8.00	11.00	-2.00
P (PPM)	347.80	442.00	248.00	185.00	196.00	329.00	307.00	168.00	238.00	238.00
PB (PPM)	-10.00	38.00	-10.00	-10.00	-10.00	-10.00	13.00	-10.00	40.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	34.40	38.00	3.00	6.00	7.00	6.00	5.00	2.00	4.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	290.30	97.00	33.00	28.00	39.00	42.00	39.00	30.00	97.00	49.00
TI (PPM)	5836.00	6700.00	877.00	740.00	545.00	1022.00	813.00	534.00	476.00	794.00
V (PPM)	298.50	353.00	31.00	52.00	53.00	45.00	78.00	15.00	27.00	32.00
Y (PPM)	17.57	19.00	6.00	8.00	10.00	7.00	10.00	4.00	8.00	7.00
ZN (PPM)	115.80	147.00	7.00	10.00	5.00	9.00	6.00	6.00	9.00	7.00
ZR (PPM)	18.90	31.00	38.00	31.00	30.00	37.00	43.00	33.00	36.00	40.00

DRILL HOLE NUMBER MB15

SAMP. NO.	711035	711036	711037	711038	711084	711105
TOP DEPTH	800.00	825.00	850.00	875.00	900.00	920.00
BOT DEPTH						
FORMATION	RMC	RMC	RMC	RMC	RMC	RMC
LITHOLOGY	PAC	PAC	PAC	PAC	MQ	CQ
UL (PPM)	.66	4.61	1.61	1.61	6.08	2.55
UT (PPM)	1.10	4.70	1.90	2.00	5.90	4.50
UL/UT	.60	.98	.85	.80	1.03	.57
TH (PPM)	2.00	13.00	7.00	3.00	24.00	9.00
TH/UT	1.82	2.77	3.69	1.50	4.07	2.00
AU (PPM)	ND	ND	ND	ND	ND	ND
AL (%)	5.66	5.32	4.66	4.90	6.05	6.50
CA (%)	.08	.68	1.68	1.19	.68	.20
FE (%)	.30	.39	.43	.65	.65	.29
MG (%)	.06	.08	.07	.11	.14	.12
NA (%)	.22	.28	.29	.36	.33	.18
K (%)	1.87	1.65	1.47	1.43	1.63	1.98
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	11.00	12.00	10.00	10.00	14.00	16.00
BA (PPM)	874.00	813.00	729.00	743.00	1261.00	1732.00
BE (PPM)	-1.00	1.00	-1.00	1.00	1.00	-1.00
CE (PPM)	10.00	55.00	34.00	35.00	48.00	46.00
CO (PPM)	-4.00	36.00	-4.00	-4.00	9.00	4.00
CR (PPM)	48.00	46.00	46.00	68.00	98.00	70.00
CU (PPM)	5.00	28.00	18.00	7.00	25.00	3.00
HF (PPM)	-15.00	15.00	-15.00	57.00	-15.00	-15.00
LA (PPM)	5.00	70.00	36.00	46.00	56.00	59.00
LI (PPM)	5.00	10.00	9.00	28.00	10.00	5.00
MN (PPM)	36.00	194.00	556.00	329.00	275.00	75.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	6.00	4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	5.00	-4.00
NI (PPM)	4.00	21.00	-2.00	8.00	50.00	13.00
P (PPM)	263.00	192.00	203.00	204.00	379.00	283.00
PB (PPM)	-10.00	17.00	-10.00	-10.00	27.00	15.00
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	5.00	4.00	10.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	41.00	51.00	60.00	63.00	61.00	46.00
TI (PPM)	777.00	1114.00	821.00	1217.00	2833.00	1010.00
V (PPM)	28.00	35.00	43.00	40.00	76.00	39.00
Y (PPM)	4.00	8.00	5.00	8.00	10.00	7.00
ZN (PPM)	5.00	6.00	7.00	9.00	9.00	10.00
ZR (PPM)	42.00	36.00	27.00	24.00	56.00	52.00

DRILL HOLE NO. MB-16

AREA: Northern Medicine Bow Mountains, Onemile Creek

LOCATION: 2300 FWL, 1450 FNL, Sec. 7, T. 18 N., R. 78 W.

LATITUDE: 41°32'59"

LONGITUDE: 106°12'12"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: Upland Industries

COLLAR ELEV.: 9278

ANGLE: 55°

BEARING: N 90 E

TOTAL DEPTH: 730'

SPUD DATE: 8/13/80

COMPLETION DATE: September 16, 1980

GROSS GAMMA LOGGING:

INSTRUMENT: Mount Sopris #55, 1000-C logger

PROBE T.D.: 705'

DATE: 9/16/80

REMARKS: 0-20 logged through drill rod and casing, 20-705 logged through drill rod. Drill rod size: 2 3/4" OD- 2 3/8" ID

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Phantom Lake Metamorphic Suite: 0-63) (Magnolia Fm. Unit 1: 63-234) (Metagabbro: 234-269) (Magnolia Fm. Unit 2: 269-420) (Metagabbro: 420-448) (Magnolia Fm. Unit 2: 448-491) (Magnolia Fm. Unit 3: 491-667) (Metagabbro 667-730).

RADIOACTIVE ZONES: 75-76, 101, 121, 141, 175-176, 185, 190, 194, 203, 271-272, 335-336, 337-338, 342, 381, 382, 390.

CORE LOGGERS: Thomas G. Schmidt, Craig P. Kapp

DRILL HOLE MB-16

OBJECTIVES:

1. [REDACTED] drill holes EMB-6 and EMB-8 showed that strongly radioactive zones (named units 5a and 5b) were laterally continuous over a north-south distance of about 300 m. MB-16 was to drill similar appearing units (up to 36 ppm U, 330 ppm Th in outcrop) about 600 m farther south, along strike. By comparing EMB-8 and MB-16 drill core we hoped to test the lateral continuity of these radioactive beds.
2. This hole was to provide more subsurface information for the estimate of the total uranium resource in the Onemile Creek area.
3. One big problem in doing a resource estimate is trying to quantitatively deal with the effects of surface leaching of uranium. We planned to sample MB-16 extensively to improve our regression equations which relate leaching to depth below surface.

CONCLUSIONS:

1. Additional detailed mapping in the MB-16 area, combined with subsurface stratigraphic information suggest that the section drilled in MB-16 does not correlate with that of EMB-6 and EMB-8 but, instead, to the basal Magnolia section drilled in EMB-1. Evidence for this is that overturned basal paraconglomerates appear to stratigraphically overlie (structurally underlie) fine-grained quartzites of the Conical Peak Quartzite (Figure 10). We found crossbedding just north of MB-16 which appears to substantiate that this section is overturned, and we have crossbeds in the EMB-6, 7, and 8 area which suggest upright beds. Unless both sections are isoclinally folded (which remains a possibility) we are compelled to place a left-lateral strike-slip fault between EMB-8 and the MB-16 section (Figure 10). This fault becomes a splay off of the major left-lateral strike-slip fault, seen in cross-section B-B' (Figure 11), which offsets the hinge of the Onemile Creek Syncline some two kilometers.
2. Regardless of how we correlate the MB-16 section to others in the Onemile Creek area, this drill hole provides new information for the resource estimate. Several zones in MB-16 contained conglomerates with greater than 100 ppm U. The most radioactive rocks were encountered at 390 feet and assayed at 1620 ppm U and 110 ppm Th. The next hottest zone was from 398.5-390.3 feet, which assayed 940 ppm U, 79 ppm Th.
3. Leaching effects are discussed in detail in Volume 3 of this report.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 16 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER MB16

SAMP. NO.	711320	711188	711189	711190	711192	711191	711250	711251	711193	711253
TOP DEPTH	0.00	10.00	30.00	50.00	68.50	70.00	74.00	76.00	90.00	101.00
BOT DEPTH					69.00		75.00	77.00		102.00
FORMATION	MG	PL	PL	PL	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	FQ	FQ	FQ	APC	CQ	PAC	PAC	GGC	APC
UL (PPM)	11.37	1.63	2.22	1.13	100.00	9.66	144.60	59.09	11.05	25.06
UT (PPM)	11.90	1.90	2.20	1.30	93.60	8.50	144.10	60.20	12.10	23.50
UL/UT	.96	.86	1.01	.87	1.07	1.14	1.00	.98	.91	1.07
TH (PPM)	21.00	12.00	2.00	3.00	17.00	12.00	23.00	10.00	8.00	8.00
TH/UT	1.76	6.32	.91	2.31	.18	1.41	.16	.17	.66	.34
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.91	5.36	6.27	3.91	9.63	6.19	8.31	6.84	5.97	6.84
CA (%)	.07	-.05	-.05	.21	.17	.06	.18	.27	.05	.49
FE (%)	1.19	.74	.61	1.11	5.19	3.47	5.60	2.93	2.57	4.90
MG (%)	.62	.37	.43	.26	1.34	.74	.90	.64	.76	1.12
NA (%)	1.84	.33	.69	.39	.19	.27	.49	2.15	.58	2.41
K (%)	1.12	2.41	2.32	1.38	2.52	2.00	2.26	1.07	1.89	1.00
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	10.00	13.00	-10.00	14.00	-10.00	11.00	-10.00	-10.00	-10.00
BA (PPM)	148.00	846.00	719.00	338.00	709.00	413.00	588.00	254.00	589.00	134.00
BE (PPM)	1.00	1.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00
CE (PPM)	27.00	35.00	46.00	13.00	65.00	42.00	58.00	22.00	55.00	27.00
CO (PPM)	7.00	-4.00	-4.00	4.00	12.00	24.00	15.00	10.00	26.00	31.00
CR (PPM)	27.00	42.00	46.00	17.00	108.00	45.00	46.00	19.00	75.00	56.00
CU (PPM)	95.00	23.00	20.00	23.00	51.00	83.00	39.00	22.00	60.00	31.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	34.00	41.00	49.00	12.00	77.00	46.00	67.00	23.00	72.00	36.00
LI (PPM)	6.00	8.00	10.00	6.00	13.00	10.00	12.00	7.00	8.00	9.00
MN (PPM)	16.00	21.00	20.00	35.00	276.00	179.00	174.00	102.00	102.00	237.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	31.00	7.00	6.00	12.00	31.00	69.00	33.00	22.00	50.00	56.00
P (PPM)	159.00	70.00	147.00	864.00	749.00	262.00	809.00	276.00	56.00	314.00
PD (PPM)	-10.00	21.00	-10.00	13.00	40.00	18.00	26.00	23.00	17.00	18.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	2.00	4.00	22.00	8.00	15.00	6.00	7.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	17.00	40.00	23.00	22.00	44.00	29.00	45.00	89.00	27.00	147.00
TI (PPM)	823.00	1050.00	1247.00	526.00	5172.00	1785.00	4222.00	933.00	2516.00	2167.00
V (PPM)	20.00	18.00	18.00	43.00	182.00	92.00	144.00	54.00	63.00	100.00
Y (PPM)	3.00	3.00	6.00	4.00	10.00	4.00	7.00	3.00	5.00	14.00
ZN (PPM)	24.00	9.00	9.00	10.00	24.00	44.00	24.00	16.00	15.00	18.00
ZR (PPM)	73.00	100.00	118.00	30.00	212.00	81.00	134.00	51.00	70.00	60.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711252	711255	711254	711222	711256	711257	711258	711259	711223	711260
TOP DEPTH	102.00	103.00	105.00	110.00	121.00	122.00	123.00	124.00	130.00	142.00
BOT DEPTH	103.00	104.00	106.00		122.00	123.00	124.00	125.00		143.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	APC	APC	APC	AQ	APC	APC	APC	APC	GGC	GGC
UL (PPM)	97.43	47.19	20.62	7.07	222.40	72.09	53.82	53.34	14.44	88.24
UT (PPM)	89.00	51.50	22.10	8.20	236.00	76.10	50.80	43.10	11.30	84.30
UL/UT	1.09	.92	.93	.86	.94	.95	1.06	1.24	1.28	1.05
TH (PPM)	10.00	41.00	14.00	20.00	104.00	54.00	84.00	73.00	6.00	212.00
TH/UT	.11	.80	.63	2.44	.44	.71	1.65	1.69	.53	2.51
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.55	6.65	6.37	5.22	5.57	5.92	5.99	5.53	5.46	6.78
CA (%)	.33	.34	.37	.11	-.05	.06	.08	.07	.07	-.05
FE (%)	7.22	6.62	3.04	1.10	2.50	3.02	1.86	2.14	1.16	3.42
MG (%)	1.69	1.40	.64	.50	.52	.46	.53	.45	.57	.50
NA (%)	1.55	1.84	2.09	2.13	.44	.60	.86	.95	1.69	.29
K (%)	1.05	1.50	1.40	.89	1.90	1.95	1.83	1.70	1.52	2.41
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	13.00
BA (PPM)	145.00	167.00	238.00	181.00	495.00	521.00	502.00	435.00	310.00	838.00
BE (PPM)	1.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00
CE (PPM)	29.00	50.00	40.00	36.00	147.00	105.00	57.00	132.00	25.00	226.00
CO (PPM)	40.00	24.00	14.00	4.00	31.00	8.00	-4.00	19.00	5.00	32.00
CR (PPM)	204.00	107.00	43.00	28.00	49.00	53.00	46.00	43.00	49.00	45.00
CU (PPM)	58.00	61.00	18.00	27.00	43.00	66.00	35.00	272.00	30.00	157.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	31.00	58.00	48.00	46.00	196.00	149.00	72.00	171.00	30.00	286.00
LI (PPM)	12.00	10.00	8.00	4.00	10.00	11.00	10.00	9.00	7.00	13.00
MN (PPM)	324.00	241.00	126.00	40.00	29.00	42.00	32.00	36.00	35.00	38.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	8.00
NI (PPM)	66.00	42.00	22.00	12.00	28.00	18.00	8.00	23.00	18.00	29.00
P (PPM)	390.00	331.00	133.00	129.00	225.00	292.00	187.00	189.00	59.00	329.00
PB (PPM)	33.00	34.00	15.00	12.00	68.00	46.00	32.00	21.00	-10.00	122.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	20.00	16.00	7.00	3.00	5.00	7.00	7.00	7.00	6.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	94.00	103.00	104.00	42.00	21.00	37.00	31.00	29.00	32.00	22.00
TI (PPM)	3213.00	3773.00	1521.00	793.00	1646.00	1714.00	1762.00	1499.00	1192.00	1988.00
V (PPM)	173.00	153.00	72.00	24.00	47.00	64.00	65.00	55.00	41.00	57.00
Y (PPM)	11.00	14.00	8.00	5.00	23.00	8.00	9.00	12.00	5.00	19.00
ZN (PPM)	29.00	24.00	14.00	7.00	10.00	9.00	8.00	9.00	8.00	10.00
ZR (PPM)	50.00	93.00	58.00	51.00	140.00	82.00	94.00	81.00	51.00	175.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711225	711226	711262	711263	711264	711266	711265	711267	711268	711227
TOP DEPTH	150.00	170.00	176.00	177.00	180.00	184.00	185.00	186.00	190.00	190.00
BOT DEPTH			177.00		181.00	185.00	186.00	187.00	191.00	
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	PHQ	GGC	MG	MG	CQ	PAC	PAC	PAC	CQ	GGC
UL (PPM)	1.81	33.06	98.79	84.32	71.85	97.31	33.80	32.04	57.26	139.40
UT (PPM)	2.80	35.90	78.70	66.30	62.90	82.10	31.60	28.60	50.20	146.60
UL/UT	.65	.92	1.26	1.27	1.14	1.19	1.07	1.12	1.14	.95
TH (PPM)	-2.00	8.00	46.00	29.00	53.00	57.00	29.00	11.00	24.00	26.00
TH/UT	-.71	.22	.58	.44	.84	.69	.92	.38	.48	.18
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.23	5.18	4.24	4.48	6.09	4.22	4.45	4.95	5.55	5.51
CA (%)	.08	.05	.05	-.05	-.05	-.05	-.05	.05	.07	-.05
FE (%)	.82	3.13	1.15	1.15	1.92	1.97	1.45	1.56	1.70	3.57
MG (%)	.37	.70	.32	.34	.53	.39	.38	.43	.47	.97
NA (%)	1.24	.36	.84	.60	.20	.44	.28	.56	1.16	.41
K (%)	1.08	1.88	1.32	1.60	2.16	1.60	1.63	1.79	1.55	2.18
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	10.00	-10.00	-10.00	11.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	209.00	403.00	299.00	354.00	576.00	343.00	407.00	394.00	362.00	409.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	15.00	440.00	60.00	42.00	133.00	53.00	62.00	33.00	41.00	77.00
CO (PPM)	6.00	18.00	20.00	19.00	25.00	19.00	-4.00	4.00	8.00	13.00
CR (PPM)	30.00	91.00	16.00	19.00	55.00	24.00	33.00	34.00	44.00	34.00
CU (PPM)	24.00	74.00	45.00	42.00	62.00	152.00	10.00	10.00	13.00	21.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	16.00	484.00	77.00	55.00	179.00	68.00	83.00	45.00	52.00	95.00
LI (PPM)	6.00	11.00	7.00	8.00	11.00	8.00	8.00	8.00	7.00	10.00
MM (PPM)	22.00	71.00	17.00	19.00	30.00	23.00	23.00	27.00	33.00	63.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00
NI (PPM)	13.00	34.00	20.00	19.00	34.00	24.00	6.00	9.00	17.00	21.00
P (PPM)	23.00	377.00	71.00	50.00	138.00	118.00	92.00	78.00	111.00	210.00
PB (PPM)	-10.00	184.00	38.00	30.00	49.00	61.00	48.00	11.00	35.00	44.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	8.00	3.00	3.00	10.00	5.00	6.00	5.00	5.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	31.00	22.00	27.00	21.00	18.00	23.00	19.00	19.00	34.00	15.00
TI (PPM)	584.00	1780.00	990.00	1156.00	2123.00	1298.00	1545.00	1405.00	1392.00	2651.00
V (PPM)	32.00	53.00	24.00	28.00	89.00	42.00	51.00	46.00	47.00	65.00
Y (PPM)	2.00	29.00	10.00	7.00	12.00	8.00	6.00	5.00	6.00	16.00
ZN (PPM)	7.00	22.00	9.00	8.00	15.00	13.00	10.00	13.00	15.00	35.00
ZR (PPM)	40.00	72.00	72.00	69.00	118.00	124.00	92.00	102.00	102.00	212.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711269	711271	711272	711273	711274	711228	711275	711229	711230	711231
TOP DEPTH	192.00	206.00	207.00	208.00	209.00	210.00	221.50	230.00	250.00	270.00
BOT DEPTH	193.00	207.00	208.00	209.00	210.00		222.50			
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	CQ	CQ	CQ	CQ	QGC	CQ	MSC	FAM	QGC
UL (PPM)	328.70	121.30	37.27	47.68	22.16	20.12	85.27	15.86	1.77	5.24
UT (PPM)	291.00	99.00	38.50	53.30	24.90	21.10	77.50	16.50	2.60	6.80
UL/UT	1.13	1.23	.97	.89	.89	.95	1.10	.96	.68	.77
TH (PPM)	65.00	30.00	22.00	46.00	22.00	18.00	25.00	8.00	6.00	24.00
TH/UT	.22	.30	.57	.86	.88	.85	.32	.48	2.31	3.53
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.82	5.05	5.04	5.51	5.65	5.25	5.51	9.67	6.64	7.31
CA (%)	.05	-.05	-.05	.05	.06	-.05	.05	-.05	5.98	.28
FE (%)	1.33	1.01	.91	1.39	.91	.80	.89	2.24	7.66	1.11
MG (%)	.46	.34	.35	.39	.36	.37	.33	.80	3.24	.48
NA (%)	.59	.75	.74	.96	1.16	.92	1.44	.17	1.29	1.55
K (%)	1.70	1.81	1.94	1.84	1.76	1.93	1.68	3.37	.35	1.81
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	21.00	-10.00	12.00
BA (PPM)	391.00	451.00	454.00	432.00	418.00	502.00	339.00	759.00	40.00	591.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00
CE (PPM)	37.00	55.00	36.00	87.00	57.00	64.00	76.00	31.00	-10.00	31.00
CO (PPM)	29.00	31.00	26.00	30.00	25.00	22.00	9.00	10.00	33.00	5.00
CR (PPM)	37.00	29.00	16.00	57.00	34.00	21.00	39.00	76.00	147.00	39.00
CU (PPM)	20.00	82.00	66.00	142.00	58.00	55.00	33.00	52.00	82.00	42.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	45.00	74.00	47.00	117.00	78.00	84.00	105.00	31.00	-2.00	39.00
LI (PPM)	8.00	7.00	8.00	8.00	7.00	7.00	7.00	16.00	6.00	11.00
MN (PPM)	32.00	23.00	21.00	24.00	25.00	25.00	30.00	86.00	1141.00	65.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	16.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	4.00	4.00	-4.00	4.00
NI (PPM)	49.00	39.00	43.00	34.00	33.00	21.00	15.00	21.00	63.00	5.00
P (PPM)	172.00	71.00	43.00	80.00	59.00	69.00	85.00	86.00	183.00	182.00
PB (PPM)	102.00	57.00	49.00	51.00	37.00	76.00	19.00	-10.00	25.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	4.00	3.00	5.00	4.00	3.00	4.00	12.00	30.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	23.00	31.00	27.00	36.00	40.00	37.00	32.00	12.00	109.00	53.00
TI (PPM)	1395.00	901.00	1035.00	1404.00	1180.00	1184.00	1022.00	3318.00	6371.00	1127.00
V (PPM)	40.00	29.00	28.00	42.00	32.00	29.00	33.00	117.00	291.00	34.00
Y (PPM)	30.00	16.00	10.00	14.00	10.00	6.00	4.00	8.00	9.00	4.00
ZN (PPM)	17.00	7.00	42.00	8.00	9.00	9.00	13.00	35.00	89.00	16.00
ZR (PPM)	86.00	52.00	84.00	69.00	66.00	63.00	57.00	93.00	14.00	62.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711276	711232	711246	711277	711278	711279	711247	711280	711281	711282
TOP DEPTH	272.00	290.00	310.00	315.00	323.00	326.00	330.00	332.00	333.00	334.00
BOT DEPTH	273.00			316.00	324.00	327.00		333.00	334.00	335.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	PBQ	MSC	MSC	CQ	CQ	PBQ	PAC	PBQ	PBQ	PBQ
UL (PPH)	316.10	13.72	6.85	42.90	84.99	34.27	57.91	38.30	37.51	24.48
UT (PPH)	273.00	14.90	8.00	35.50	70.10	28.90	57.90	38.60	47.10	30.70
UL/UT	1.16	.92	.86	1.21	1.21	1.19	1.00	.99	.80	.80
TH (PPH)	212.00	19.00	7.00	62.00	19.00	19.00	28.00	18.00	10.00	25.00
TH/UT	.78	1.28	.88	1.75	.27	.66	.48	.47	.21	.81
AU (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.62	8.56	6.40	4.84	5.41	5.83	3.97	5.31	6.32	4.81
CA (%)	.08	.11	.06	.06	.05	.09	.08	.09	.11	.08
FE (%)	1.42	2.59	1.64	1.63	1.36	1.14	1.97	1.91	2.09	1.50
MG (%)	.30	1.11	.48	.42	.60	.53	.36	.50	.61	.39
NA (%)	1.75	.24	1.11	.55	.46	.95	.24	.75	.57	.63
K (%)	.91	3.00	2.10	1.73	2.03	1.77	1.56	1.84	2.28	1.74
AG (PPH)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPH)	-10.00	16.00	11.00	-10.00	11.00	-10.00	-10.00	-10.00	11.00	-10.00
BA (PPH)	216.00	517.00	423.00	360.00	394.00	335.00	320.00	389.00	476.00	364.00
BE (PPH)	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPH)	245.00	49.00	22.00	105.00	37.00	35.00	43.00	30.00	38.00	52.00
CO (PPH)	25.00	22.00	-4.00	20.00	9.00	7.00	14.00	15.00	10.00	10.00
CR (PPH)	49.00	99.00	21.00	39.00	25.00	43.00	22.00	31.00	25.00	25.00
CU (PPH)	1792.00	17.00	25.00	113.00	16.00	35.00	104.00	101.00	78.00	51.00
HF (PPH)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPH)	347.00	56.00	28.00	146.00	48.00	44.00	57.00	39.00	50.00	70.00
LI (PPH)	7.00	14.00	10.00	10.00	12.00	11.00	9.00	12.00	15.00	10.00
MN (PPH)	21.00	116.00	29.00	26.00	32.00	28.00	27.00	29.00	34.00	21.00
MO (PPH)	-4.00	-4.00	6.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPH)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPH)	32.00	45.00	8.00	19.00	11.00	14.00	17.00	21.00	17.00	16.00
P (PPH)	239.00	330.00	137.00	173.00	159.00	162.00	184.00	242.00	291.00	165.00
PB (PPH)	92.00	10.00	-10.00	15.00	26.00	35.00	32.00	27.00	22.00	17.00
PT (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPH)	4.00	12.00	3.00	3.00	4.00	4.00	4.00	4.00	6.00	4.00
SI (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPH)	24.00	21.00	31.00	21.00	16.00	28.00	12.00	24.00	23.00	24.00
TI (PPH)	949.00	3030.00	1175.00	1305.00	1258.00	1037.00	1062.00	1131.00	1867.00	972.00
V (PPH)	23.00	109.00	30.00	28.00	31.00	34.00	37.00	36.00	54.00	34.00
Y (PPH)	28.00	7.00	3.00	12.00	6.00	7.00	9.00	8.00	8.00	7.00
ZN (PPH)	34.00	47.00	12.00	10.00	15.00	15.00	10.00	10.00	16.00	8.00
ZR (PPH)	218.00	173.00	72.00	132.00	78.00	53.00	62.00	72.00	107.00	55.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711283	711284	711285	711286	711287	711248	711288	711249	711289	711290
TOP DEPTH	337.00	338.00	339.00	342.00	343.00	350.00	360.00	370.00	372.00	375.00
BOT DEPTH	338.00	339.00	340.00	343.00	344.00		361.00		373.00	376.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	PAC	PAC	PAC	QGC	QGC	CQ	QGC	CQ	CQ	PAC
UL (PPM)	520.10	59.58	23.63	99.15	16.53	3.43	16.78	3.59	53.17	29.10
UT (PPM)	868.00	57.80	24.30	95.90	15.00	4.10	19.30	4.40	58.40	27.60
UL/UT	.60	1.03	.97	1.03	1.10	.84	.87	.82	.91	1.05
TH (PPM)	112.00	31.00	12.00	10.00	10.00	4.00	24.00	5.00	9.00	14.00
TH/UT	.13	.54	.49	.10	.67	.98	1.24	1.14	.15	.51
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	.55	7.17	5.25	3.79	4.49	4.76	5.68	5.71	6.48	3.84
CA (%)	.11	.09	.08	.07	.05	.08	.09	.12	.10	.11
FE (%)	1.31	2.03	1.23	1.00	1.43	1.41	1.23	1.11	1.15	2.11
MG (%)	.36	.59	.39	.26	.34	.48	.37	.47	.47	.33
NA (%)	1.33	.60	.77	.69	.71	.36	.80	1.76	1.07	.83
K (%)	1.83	2.27	1.75	1.53	1.73	1.86	2.01	1.59	1.95	1.31
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	12.60	11.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	-10.00
BA (PPM)	492.30	550.00	398.00	442.00	397.00	387.00	509.00	337.00	457.00	310.00
BE (PPM)	1.36	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	67.71	59.00	22.00	11.00	68.00	-10.00	44.00	16.00	27.00	31.00
CO (PPM)	11.01	13.00	12.00	7.00	4.00	10.00	10.00	12.00	7.00	15.00
CR (PPM)	46.05	41.00	31.00	18.00	15.00	12.00	30.00	40.00	52.00	20.00
CU (PPM)	45.99	58.00	64.00	47.00	34.00	28.00	52.00	11.00	17.00	95.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	88.08	81.00	31.00	15.00	85.00	9.00	58.00	20.00	35.00	41.00
LI (PPM)	8.48	13.00	9.00	5.00	7.00	10.00	7.00	6.00	11.00	7.00
MN (PPM)	48.80	31.00	22.00	17.00	27.00	38.00	29.00	28.00	28.00	49.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	17.37	21.00	14.00	10.00	10.00	10.00	17.00	20.00	16.00	20.00
P (PPM)	189.00	231.00	171.00	108.00	119.00	124.00	187.00	192.00	197.00	101.00
PB (PPM)	311.30	31.00	19.00	46.00	11.00	12.00	22.00	15.00	13.00	28.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.51	5.00	4.00	3.00	2.00	2.00	3.00	4.00	5.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	48.62	27.00	28.00	36.00	27.00	16.00	37.00	47.00	36.00	35.00
TI (PPM)	1213.00	1983.00	981.00	667.00	776.00	995.00	1126.00	1019.00	1395.00	828.00
V (PPM)	31.00	51.00	36.00	23.00	22.00	25.00	30.00	38.00	44.00	26.00
Y (PPM)	22.27	11.00	4.00	6.00	5.00	3.00	5.00	3.00	6.00	5.00
ZN (PPM)	7.18	10.00	7.00	7.00	9.00	11.00	9.00	14.00	13.00	16.00
ZR (PPM)	119.30	89.00	49.00	46.00	65.00	55.00	67.00	55.00	58.00	48.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711291	711292	711293	711294	711295	711296	711400	711297	711298	711299
TOP DEPTH	376.00	377.00	378.00	379.90	381.60	389.50	390.00	410.00	420.00	430.00
BOT DEPTH	377.00	378.00	379.00	380.90	382.00	390.30			420.20	
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	CQ	CQ	CQ	CQ	PBQ	PBQ	PBQ	CQ	FAM
UL (PPM)	32.83	28.93	16.60	117.30	223.90	6864.00	54.90	12.28	59.06	13.11
UT (PPM)	37.60	36.50	16.40	110.30	220.70	940.00	1620.00	9.20	54.70	13.70
UL/UT	.87	.79	1.01	1.06	1.01	7.30	.03	1.33	1.08	.96
TH (PPM)	18.00	12.00	8.00	45.00	40.00	79.25	110.00	8.00	77.00	3.00
TH/UT	.48	.33	.49	.41	.18	.08	.07	.87	1.41	.22
AU (PPM)	ND	ND	ND	NU	ND	ND	ND	ND	ND	ND
AL (%)	4.98	5.11	5.31	5.37	6.23	.45	5.48	7.75	5.32	6.64
CA (%)	.12	.11	.14	.08	.07	.10	.10	.14	.21	6.31
FE (%)	1.36	1.38	1.26	1.54	2.40	6.28	5.44	.99	1.05	8.78
MG (%)	.36	.39	.41	.57	.76	.32	.40	.50	.54	3.62
NA (%)	.89	1.06	1.24	.78	.60	.80	.77	1.55	1.68	1.11
K (%)	1.60	1.65	1.57	1.87	2.22	1.65	1.86	2.02	1.11	.24
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	391.00	382.00	360.00	383.00	487.00	346.80	428.00	521.00	365.00	16.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	-1.00	1.00	1.00	1.00	-1.00
CE (PPM)	30.00	26.00	28.00	66.00	61.00	88.11	124.00	17.00	43.00	-10.00
CO (PPM)	8.00	9.00	8.00	9.00	11.00	30.19	37.00	6.00	13.00	54.00
CR (PPM)	31.00	41.00	39.00	40.00	69.00	36.70	37.00	49.00	30.00	189.00
CU (PPM)	35.00	45.00	30.00	14.00	151.00	26.30	57.00	21.00	58.00	174.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	38.00	33.00	34.00	93.00	84.00	132.50	189.00	22.00	59.00	-2.00
LI (PPM)	9.00	9.00	9.00	11.00	14.00	9.44	12.00	12.00	7.00	9.00
MN (PPM)	33.00	56.00	64.00	35.00	181.00	76.92	42.00	34.00	53.00	1415.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	4.78	7.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	16.00	15.00	15.00	18.00	16.00	28.60	33.00	12.00	17.00	109.00
P (PPM)	149.00	164.00	219.00	267.00	253.00	285.50	247.00	208.00	190.00	281.00
PD (PPM)	29.00	28.00	19.00	57.00	44.00	31.48	58.00	-10.00	24.00	21.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	3.00	4.00	5.00	4.99	7.00	4.00	4.00	31.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	36.00	35.00	41.00	23.00	21.00	24.94	28.00	38.00	46.00	104.00
TI (PPM)	855.00	1088.00	962.00	1305.00	1875.00	1154.00	1487.00	1308.00	1204.00	5882.00
V (PPM)	32.00	34.00	31.00	33.00	45.00	30.03	50.00	36.00	39.00	307.00
Y (PPM)	5.00	4.00	4.00	15.00	11.00	56.08	40.00	4.00	16.00	14.00
ZN (PPM)	11.00	11.00	12.00	16.00	24.00	24.44	24.00	11.00	26.00	88.00
ZR (PPM)	48.00	53.00	45.00	66.00	69.00	58.99	81.00	80.00	83.00	3.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711300	711301	711302	711321	711358	711356	711357	711401	711402	711403
TOP DEPTH	450.00	470.00	490.00	510.00	537.00	550.00	570.00	610.00	630.00	650.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	AQ	CQ	CQ	PBQ	AQ	CQ	CQ	CQ	CQ
UL (PPM)	7.36	11.09	18.29	4.40	16.39	28.33	4.42	7.48	3.39	4.36
UT (PPM)	7.20	11.20	16.00	4.50	20.10	29.50	5.00	6.40	2.70	6.00
UL/UT	1.02	.99	1.14	.98	.82	.96	.88	1.17	1.26	.73
TH (PPM)	20.00	15.00	71.00	19.00	26.00	5.00	4.00	4.00	-2.00	14.00
TH/UT	2.78	1.34	4.44	4.22	1.29	.17	.80	.63	-.74	2.33
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.90	5.85	5.62	5.25	6.57	4.32	4.43	5.69	4.60	5.56
CA (%)	.12	.12	.09	.07	.07	.06	.09	.08	-.05	.09
FE (%)	1.11	.95	1.42	.87	1.45	.90	1.08	.57	.44	.90
MG (%)	.49	.42	.69	.39	.74	.47	.46	.30	.19	.38
NA (%)	1.49	1.69	.90	2.52	2.17	2.73	2.37	2.11	1.44	1.93
K (%)	1.56	1.52	1.67	.99	1.65	.76	.71	1.10	1.72	1.08
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	349.00	315.00	258.00	128.00	242.00	94.00	99.00	218.00	350.00	228.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	31.00	36.00	51.00	22.00	35.00	15.00	22.00	18.00	18.00	-10.00
CO (PPM)	-4.00	-4.00	4.00	-4.00	14.00	5.00	7.00	-4.00	-4.00	-4.00
CR (PPM)	27.00	30.00	46.00	30.00	63.00	27.00	28.00	19.00	10.00	30.00
CU (PPM)	23.00	32.00	41.00	18.00	141.00	14.00	18.00	16.00	18.00	11.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	42.00	46.00	65.00	26.00	43.00	17.00	26.00	25.00	26.00	8.00
LI (PPM)	10.00	9.00	10.00	5.00	11.00	5.00	5.00	5.00	3.00	6.00
MN (PPM)	25.00	17.00	21.00	13.00	22.00	15.00	29.00	13.00	10.00	16.00
MO (PPM)	-4.00	-4.00	-4.00	11.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	6.00	7.00	12.00	9.00	22.00	13.00	16.00	16.00	7.00	13.00
P (PPM)	189.00	212.00	198.00	153.00	231.00	137.00	117.00	140.00	59.00	209.00
PB (PPM)	13.00	12.00	10.00	-10.00	20.00	-10.00	-10.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	4.00	3.00	6.00	2.00	3.00	2.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	31.00	38.00	21.00	19.00	17.00	16.00	23.00	29.00	20.00	22.00
TI (PPM)	1007.00	1081.00	1362.00	681.00	1223.00	687.00	584.00	721.00	343.00	825.00
V (PPM)	30.00	35.00	34.00	28.00	48.00	26.00	24.00	18.00	10.00	26.00
Y (PPM)	4.00	5.00	11.00	3.00	4.00	1.00	2.00	2.00	2.00	2.00
ZN (PPM)	15.00	9.00	10.00	10.00	22.00	17.00	29.00	7.00	9.00	11.00
ZR (PPM)	67.00	62.00	152.00	43.00	62.00	48.00	34.00	53.00	36.00	59.00

DRILL HOLE NUMBER MB16

SAMP. NO.	711404	711405	711406
TOP DEPTH	670.00	690.00	710.00
BOT DEPTH			
FORMATION	MI	MI	MI
LITHOLOGY	FAM	FAM	FAM
UL (PPM)	5.31	1.46	1.27
UT (PPM)	5.80	1.80	1.50
UL/UT	.92	.81	.85
TH (PPM)	9.00	5.00	-2.00
TH/UT	1.55	2.78	-1.33
AU (PPM)	ND	ND	ND
AL (%)	6.27	5.90	6.30
CA (%)	2.29	6.29	6.71
FE (%)	6.34	6.91	6.67
MG (%)	5.28	4.38	4.03
NA (%)	.93	.82	.97
K (%)	.71	.34	.19
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00
BA (PPM)	71.00	74.00	53.00
BE (PPM)	1.00	-1.00	-1.00
CE (PPM)	-10.00	-10.00	-10.00
CO (PPM)	46.00	42.00	40.00
CR (PPM)	1212.00	718.00	366.00
CU (PPM)	60.00	122.00	76.00
HF (PPM)	-15.00	-15.00	-15.00
LA (PPM)	-2.00	-2.00	-2.00
LI (PPM)	16.00	8.00	7.00
MN (PPM)	703.00	1319.00	1156.00
MO (PPM)	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00
NI (PPM)	271.00	195.00	156.00
P (PPM)	126.00	233.00	158.00
PB (PPM)	13.00	10.00	14.00
PT (PPM)	ND	ND	ND
SC (PPM)	32.00	29.00	26.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	69.00	118.00	117.00
TI (PPM)	2680.00	4575.00	3423.00
V (PPM)	207.00	249.00	216.00
Y (PPM)	5.00	10.00	8.00
ZN (PPM)	57.00	73.00	66.00
ZR (PPM)	23.00	22.00	17.00

DRILL HOLE NO. MB-17

AREA: SW Medicine Bow Mountains, South Brush Creek

LOCATION: 1269 FEL, 1390 FSL, Sec. 23, T.16 N., R.81 W.

LATITUDE: 41° 20' 7"

LONGITUDE: 106° 27' 35"

COUNTY: Carbon

TOPOGRAPHIC QUAD Phantom Lake

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8780

ANGLE:

TOTAL DEPTH: didn't reach bedrock

BEARING:

SPUD DATE: didn't reach bedrock

COMPLETION DATE: didn't reach bedrock

GROSS GAMMA LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down hole log available

STRATIGRAPHIC UNITS: None

RADIOACTIVE ZONES: None

CORE LOGGERS: None

DRILL HOLE MB-17

OBJECTIVES:

1. This hole was to intersect coarse conglomerates near a Late Archean Baggot Rocks - type granite source terrane. We were trying to test for a more mature quartz-pebble conglomerate above the paraconglomerates seen in outcrop.

CONCLUSIONS:

1. The hole was caving badly in glacial till and had to be abandoned before it reached bedrock.

DRILL HOLE NO. MB-17A

AREA: SW Medicine Bow Mountains, South Brush Creek

LOCATION: 1630 FEL, 1350 FSL, Sec. 23, T. 16 N., R. 81 W.

LATITUDE: 41°20'07"

LONGITUDE: 106°27'41"

COUNTY: Carbon

TOPOGRAPHIC QUAD Phantom Lake

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8780

ANGLE: 90°

BEARING:

TOTAL DEPTH: 146'

SPUD DATE: Aug. 27, 1980

COMPLETION DATE: September 19, 1980

GROSS GAMMA LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down-hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down-hole log available

STRATIGRAPHIC UNITS: (Metagabbro: 91-146)

RADIOACTIVE ZONES: None

CORE LOGGERS: Thomas G. Schmidt

DRILL HOLE MB-17A

OBJECTIVES:

1. Being still baffled after drilling MB-9R, and being convinced that the presence of coarse conglomerates, probably of the Magnolia Formation, near a late Archean Baggot Rocks - type granite source terrane was an unusually favorable situation in which to find placer uranium mineralization, we were trying to test for the presence of more mature quartz-pebble conglomerates above the paraconglomerates seen in outcrop in this area.

CONCLUSIONS:

1. Numerous difficulties were encountered in trying to get through the 90 or so feet of glacial till which blankets this area. We ended up moving west from the original site and changing from an angle hole to a vertical hole. Even so, the hole was caving badly and was abandoned at 146 feet in metagabbro. We maintain that the South Brush Creek area is one of the more favorable areas in the Medicine Bow Mountains to continue exploration for uranium-bearing conglomerates.

NOTE: See Figure 6 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MB 17A
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

Gross Gamma	PPMTh 10 10 ² 10 ³	PPMU 10 10 ² 10 ³	Sample	Scale 1" = 100ft.	Description
					0-91': No recovery
			100		91-146': METAGABBRO, coarse-grained; scattered Fe stain; foliation at 30-50°.
				T.D. 146'	

DRILL HOLE NUMBER MB17A

SAMP. NO.	711412	711413	711414
TOP DEPTH	91.00	116.00	136.00
BOT DEPTH			
FORMATION	MI	MI	MI
LITHOLOGY	CAM	CAM	CAM
UL (PPM)	-.25	-.25	1.90
UT (PPM)	.70	1.00	2.30
UL/UT	-.36	-.25	.83
TH (PPM)	3.00	4.00	5.00
TH/UT	4.29	4.00	2.17
AU (PPM)	ND	ND	ND
AL (%)	6.68	6.33	6.47
CA (%)	6.50	6.94	1.32
FE (%)	7.54	8.45	8.84
MG (%)	3.60	3.83	3.59
NA (%)	1.37	1.24	.85
K (%)	.21	.14	.22
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00
BA (PPM)	39.00	36.00	42.00
BE (PPM)	-1.00	-1.00	1.00
CE (PPM)	-10.00	-10.00	-10.00
CO (PPM)	39.00	42.00	47.00
CR (PPM)	174.00	187.00	182.00
CU (PPM)	95.00	126.00	198.00
HF (PPM)	-15.00	-15.00	-15.00
LA (PPM)	-2.00	-2.00	-2.00
LI (PPM)	10.00	9.00	21.00
MN (PPM)	1253.00	1343.00	988.00
MO (PPM)	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00
NI (PPM)	100.00	105.00	107.00
P (PPM)	306.00	313.00	403.00
PB (PPM)	-10.00	12.00	79.00
PT (PPM)	ND	ND	ND
SC (PPM)	29.00	31.00	34.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	133.00	113.00	62.00
TI (PPM)	5828.00	6638.00	5812.00
V (PPM)	254.00	284.00	284.00
Y (PPM)	13.00	13.00	8.00
ZN (PPM)	88.00	94.00	94.00
ZR (PPM)	17.00	20.00	19.00

Figure II. Cross sections and drill sections from the Onemile Creek area.

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DRILL HOLE NO. EMB 1

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 2800 FSL, 3925 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 33' 41"

LONGITUDE: 106° 12' 25"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8668

ANGLE: 50°

BEARING: N 75 E

TOTAL DEPTH: 821'

SPUD DATE: unknown

COMPLETION DATE: Summer 1978

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm. Unit 1: 0-126) (Magnolia Fm. Unit 2: 126-413)
(Magnolia Fm. Unit 3: 413-555) (Magnolia Fm. Unit 4: 555-684 and 796-821)
(Metagabbro: 684-796)

RADIOACTIVE ZONES: 105-120, 188, 224, 325, 255, 320, 330, 384-405, 422, 439,
458-460, 469.

CORE LOGGERS: K. E. Karlstrom

DRILL HOLE EMB-1

OBJECTIVES:

1. This overturned limb of the Magnolia Formation contains conglomerates (with up to 41 ppm U, 75 ppm Th) which overlie, probably with unconformity, fine-grained quartzites interpreted by us to be the Conical Peak Quartzite of the Phantom Lake Metamorphic Suite (Figure 10). This basal section of the Magnolia Formation was an obvious first place for geologists to drill to test subsurface U and Th values.
2. This limb is well exposed and uncomplicated structurally. We used this area as a starting point for stratigraphic subdivision of the Magnolia Formation of the Onemile Creek area (Figure 10).

CONCLUSIONS:

1. We received only skeletonized core from a private source so our information is somewhat generalized. Basal conglomerates were encountered between 75 and 126 feet (Figure 11) but were relatively unradioactive (up to 92 ppm U; 41 ppm Th). Thin, cleaner, quartz pebble conglomerate layers stratigraphically higher in the section, near the top of Unit 2 were the hottest rocks encountered, with spot samples containing up to 220 ppm U; 272 ppm Th.
2. Drill core corresponded fairly well with surface mapping indicating average dips of about 50° to depths of about 400 feet. A thick sequence of interbedded phyllites and fine-grained quartzites (Unit 4) was encountered between 555 and 684 feet which was only poorly exposed. The hole bottomed in very fine-grained sericitic quartzite.
3. Subsurface data indicate appreciable surface leaching of uranium. Average Th./U ratios of surface rocks is about 3.2 whereas Th/U in subsurface is about 1.2.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 1 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

NOTE: Log compiled from skeleton core; dashed lines are samples from skeleton and are not exactly located.

DRILL HOLE NUMBER EMB1

SAMP. NO.	711129	711130	711131	711128	711132	157754	711133	711134	157763	711135
TOP DEPTH	0.00	30.00	75.00	95.00	95.00	105.00	105.00	120.00	126.00	127.00
BOT DEPTH	30.00	75.00	95.00		105.00	120.00	120.00	125.00		170.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MQ	MQ	MQ	MQ	CQ	CQZ	MQ	MQ	QPC	MQ
UL (PPM)	.73	12.48	8.15	93.99	55.67	132.00	83.35	75.39	60.76	9.30
UT (PPM)	1.00	11.50	7.60	91.80	54.50	92.30	88.80	86.10	50.90	10.40
UL/UT	.73	1.09	1.07	1.02	1.02	1.43	.94	.88	1.19	.89
TH (PPM)	-2.00	20.00	15.00	20.00	48.00	41.00	46.00	26.00	25.00	14.00
TH/UT	-2.00	1.74	1.97	.22	.88	.44	.52	.30	.49	1.35
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.85	5.19	5.29	4.99	5.30	4.34	5.40	6.76	4.76	6.73
CA (%)	.08	.06	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.09
FE (%)	.61	1.61	1.57	1.25	1.98	1.61	1.99	2.16	3.09	1.92
MG (%)	.24	.42	.37	.35	.41	.36	.42	.58	.46	.63
NA (%)	1.17	.44	.32	.31	.20	.45	.43	.75	.85	.94
K (%)	1.92	1.90	1.89	1.80	1.96	2.12	1.84	2.32	2.15	2.20
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	12.00	13.00	13.00	14.00	-10.00	14.00	11.00	-10.00	14.00
BA (PPM)	640.00	257.00	271.00	256.00	297.00	238.00	311.00	381.00	264.00	447.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	4.00	1.00
CE (PPM)	42.00	41.00	62.00	36.00	57.00	33.00	55.00	58.00	30.00	45.00
CO (PPM)	-4.00	5.00	-4.00	-4.00	-4.00	6.00	5.00	8.00	16.00	12.00
CR (PPM)	18.00	20.00	30.00	13.00	32.00	43.00	47.00	28.00	40.00	53.00
CU (PPM)	8.00	27.00	37.00	19.00	20.00	59.00	45.00	63.00	82.00	29.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	ND	-15.00	-15.00	ND	-15.00
LA (PPM)	52.00	51.00	84.00	48.00	73.00	ND	71.00	72.00	ND	61.00
LI (PPM)	4.00	9.00	9.00	6.00	7.00	8.00	7.00	12.00	12.00	12.00
MN (PPM)	31.00	44.00	42.00	39.00	47.00	41.00	53.00	64.00	66.00	66.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	5.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	7.00	-4.00	-4.00	9.00	-4.00
NI (PPM)	4.00	14.00	10.00	3.00	11.00	6.00	13.00	21.00	22.00	22.00
P (PPM)	225.00	135.00	99.00	108.00	203.00	116.00	151.00	137.00	252.00	334.00
PB (PPM)	15.00	21.00	10.00	20.00	61.00	ND	43.00	13.00	ND	18.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	3.00	4.00	3.00	5.00	5.00	5.00	5.00	7.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	NU	NU	NU	NU	NU	NU	NU
SR (PPM)	61.00	22.00	18.00	22.00	24.00	28.00	31.00	31.00	28.00	28.00
TI (PPM)	600.00	1112.00	1226.00	993.00	1317.00	1377.00	1425.00	1803.00	1505.00	1729.00
V (PPM)	10.00	29.00	34.00	24.00	42.00	38.00	41.00	63.00	48.00	42.00
Y (PPM)	3.00	5.00	4.00	2.00	4.00	3.00	3.00	5.00	7.00	5.00
ZN (PPM)	8.00	14.00	13.00	9.00	16.00	8.00	13.00	17.00	15.00	20.00
ZR (PPM)	35.00	76.00	57.00	55.00	96.00	65.00	58.00	107.00	62.00	62.00

DRILL HOLE NUMBER EMB1

SAMP. NO.	711136	711137	157764	711138	711139	711140	711141	711154	157757	711155
TOP DEPTH	172.00	200.00	213.00	213.00	239.00	270.00	300.00	305.00	315.00	315.00
BOT DEPTH	200.00	211.00	239.00	239.00	270.00	300.00	303.00	315.00	325.00	325.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MQ	MQ	CQZ	MQ	MQ	MQ	MQ	MQ	PBQZ	MQ
UL (PPM)	5.24	4.33	50.57	47.49	6.17	8.54	18.70	36.14	49.06	10.57
UT (PPM)	6.70	4.90	37.40	49.00	6.80	8.20	20.40	35.20	37.10	12.50
UL/UT	.78	.88	1.35	.97	.91	1.04	.92	1.03	1.32	.85
TH (PPM)	10.00	6.00	62.00	68.00	7.00	7.00	30.00	41.00	59.00	14.00
TH/UT	1.49	1.22	1.66	1.39	1.03	.85	1.47	1.16	1.59	1.12
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.48	6.83	4.16	6.03	5.15	5.05	6.63	5.33	3.84	4.93
CA (%)	-.05	.05	-.05	.11	.05	.06	.06	-.05	.06	-.05
FE (%)	1.48	1.10	1.17	1.74	1.15	.76	1.35	1.32	1.60	1.51
MG (%)	.42	.45	.33	.39	.38	.42	.45	.44	.49	.51
NA (%)	.65	.79	.91	.88	.78	1.11	.59	.20	.24	.29
K (%)	2.23	2.53	2.25	2.20	1.93	1.73	2.46	1.98	1.95	1.76
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	16.00	15.00	-10.00	12.00	10.00	-10.00	10.00	10.00	-10.00	10.00
BA (PPM)	503.00	578.00	336.00	441.00	378.00	330.00	462.00	377.00	235.00	301.00
BE (PPM)	1.00	2.00	4.00	3.00	1.00	2.00	2.00	2.00	4.00	2.00
CE (PPM)	30.00	32.00	36.00	64.00	20.00	16.00	48.00	67.00	67.00	41.00
CO (PPM)	-4.00	-4.00	15.00	17.00	7.00	5.00	9.00	7.00	19.00	14.00
CR (PPM)	27.00	26.00	23.00	29.00	37.00	22.00	66.00	51.00	44.00	53.00
CU (PPM)	19.00	21.00	69.00	62.00	27.00	19.00	62.00	72.00	8.00	11.00
HF (PPM)	-15.00	-15.00	ND	-15.00	-15.00	-15.00	-15.00	-15.00	ND	-15.00
LA (PPM)	40.00	44.00	ND	83.00	27.00	16.00	62.00	90.00	ND	59.00
LI (PPM)	8.00	6.00	7.00	9.00	8.00	9.00	9.00	9.00	10.00	9.00
MN (PPM)	50.00	96.00	41.00	41.00	44.00	29.00	100.00	92.00	69.00	76.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	8.00	6.00	-4.00	5.00	4.00	6.00	10.00	-4.00
NI (PPM)	7.00	10.00	16.00	17.00	17.00	12.00	31.00	26.00	21.00	19.00
P (PPM)	147.00	183.00	164.00	196.00	155.00	120.00	203.00	79.00	151.00	131.00
PB (PPM)	16.00	16.00	ND	29.00	13.00	24.00	15.00	27.00	ND	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	3.00	4.00	5.00	3.00	3.00	4.00	4.00	5.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	28.00	33.00	25.00	33.00	26.00	35.00	24.00	10.00	13.00	14.00
TI (PPM)	1308.00	1137.00	1426.00	1424.00	981.00	793.00	1541.00	1309.00	1015.00	1068.00
V (PPM)	48.00	28.00	27.00	30.00	25.00	20.00	36.00	30.00	32.00	32.00
Y (PPM)	2.00	2.00	7.00	11.00	3.00	3.00	4.00	5.00	7.00	2.00
ZN (PPM)	13.00	10.00	22.00	9.00	12.00	7.00	14.00	14.00	5.00	7.00
ZR (PPM)	64.00	55.00	98.00	122.00	79.00	54.00	67.00	84.00	69.00	51.00

DRILL HOLE NUMBER EMB1

SAMP. NO.	711156	711157	711158	711159	711160	711161	711162	157765	711163	711164
TOP DEPTH	325.00	335.00	345.00	355.00	363.00	373.00	383.00	393.00	393.00	403.00
BOT DEPTH	335.00	345.00	355.00	363.00	373.00	383.00	393.00	403.00	403.00	413.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MQ	MQ	MQ	MQ	MQ	MQ	MQ	MQZ	MQ	MQ
UL (PPM)	227.00	29.95	23.20	21.20	13.93	27.79	9.29	217.50	77.46	22.23
UT (PPM)	134.00	30.30	28.90	28.00	16.80	40.70	11.70	217.20	70.90	21.00
UL/UT	1.69	.99	.80	.76	.83	.68	.79	1.00	1.09	1.06
TH (PPM)	79.00	21.00	14.00	33.00	46.00	10.00	16.00	257.00	56.00	49.00
TH/UT	.59	.69	.48	1.10	2.74	.25	1.37	1.18	.79	2.33
NU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.92	5.43	5.11	4.80	5.71	6.11	6.41	3.35	5.05	5.49
CA (%)	.07	.05	.08	.40	.07	.08	.07	-.05	-.05	.07
FE (%)	2.29	1.42	1.44	1.87	1.69	1.66	1.58	1.08	1.37	1.26
MG (%)	.49	.42	.53	1.08	.50	.50	.56	.38	.44	.46
NA (%)	.58	.74	.47	.24	.30	.45	.44	-.05	.09	.24
K (%)	2.14	1.75	1.71	1.67	1.93	2.23	2.14	1.83	1.92	1.90
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	10.00	-10.00	-10.00	-10.00	11.00	11.00	11.00	-10.00	-10.00	11.00
BA (PPM)	332.00	312.00	299.00	256.00	353.00	353.00	389.00	208.00	322.00	377.00
BE (PPM)	3.00	2.00	2.00	2.00	3.00	3.00	3.00	5.00	3.00	3.00
CE (PPM)	81.00	68.00	27.00	38.00	64.00	41.00	43.00	90.00	40.00	52.00
CD (PPM)	24.00	7.00	4.00	13.00	10.00	5.00	5.00	13.00	8.00	7.00
CR (PPM)	96.00	50.00	52.00	74.00	60.00	70.00	100.00	56.00	61.00	67.00
CU (PPM)	98.00	37.00	26.00	3.00	28.00	37.00	19.00	3.00	3.00	37.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	ND	-15.00	-15.00
LA (PPM)	106.00	92.00	34.00	46.00	86.00	54.00	59.00	ND	53.00	71.00
LI (PPM)	10.00	9.00	10.00	11.00	10.00	10.00	11.00	9.00	10.00	9.00
MN (PPM)	63.00	44.00	84.00	335.00	54.00	82.00	80.00	29.00	56.00	68.00
MO (PPM)	-4.00	15.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00
NB (PPM)	7.00	4.00	-4.00	-4.00	4.00	-4.00	-4.00	36.00	7.00	4.00
NI (PPM)	36.00	19.00	17.00	34.00	22.00	18.00	22.00	33.00	16.00	22.00
P (PPM)	178.00	155.00	149.00	170.00	154.00	250.00	172.00	212.00	112.00	158.00
PB (PPM)	58.00	20.00	14.00	29.00	17.00	18.00	19.00	ND	38.00	25.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	4.00	4.00	4.00	4.00	5.00	6.00	4.00	4.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	24.00	26.00	20.00	19.00	16.00	21.00	22.00	7.00	9.00	13.00
TI (PPM)	1394.00	1073.00	1029.00	1031.00	1258.00	1312.00	1413.00	1002.00	993.00	1321.00
V (PPM)	45.00	33.00	32.00	36.00	29.00	43.00	47.00	27.00	26.00	37.00
Y (PPM)	10.00	4.00	3.00	4.00	4.00	3.00	3.00	30.00	7.00	5.00
ZN (PPM)	14.00	6.00	8.00	17.00	9.00	9.00	10.00	23.00	7.00	10.00
ZR (PPM)	112.00	48.00	45.00	74.00	70.00	51.00	65.00	106.00	69.00	73.00

DRILL HOLE NUMBER EMB1

SAMP. NO.	157766	711165	711166	711167	157755	711168	711169	711170	711171	711173
TOP DEPTH	413.00	413.00	432.00	443.00	453.00	453.00	463.00	475.00	485.00	495.00
BOT DEPTH	432.00	432.00	443.00	453.00	463.00	463.00	475.00	485.00	495.00	505.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GQC	MQ	MQ	MQ	GQC	MQ	MQ	MQ	MQ	MQ
UL (PPM)	41.38	60.02	67.51	22.44	146.80	.79	78.70	8.74	36.04	25.15
UT (PPM)	34.80	66.90	75.80	19.70	129.10	88.20	80.00	9.40	40.60	22.50
UL/UT	1.19	.90	.89	1.14	1.14	.01	.98	.93	.89	1.12
TH (PPM)	34.00	68.00	10.00	63.00	272.00	62.00	147.00	8.00	38.00	26.00
TH/UT	.98	1.02	.13	3.20	2.11	.70	1.84	.85	.94	1.16
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.36	5.41	6.10	3.78	3.10	5.60	4.23	4.81	5.22	5.18
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	1.23	1.73	.00	1.07	3.32	2.16	2.33	1.11	1.08	.89
MG (%)	.43	.44	.33	.23	.28	.41	.32	.37	.42	.32
NA (%)	.07	.15	.80	.38	.14	.18	.12	.31	.49	.90
K (%)	2.47	1.98	2.12	1.41	1.63	2.11	1.65	1.84	1.85	1.83
AG (PPM)	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	11.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	312.00	374.00	393.00	296.00	246.00	456.00	320.00	332.00	364.00	347.00
BE (PPM)	6.00	3.00	3.00	2.00	5.00	3.00	2.00	2.00	2.00	2.00
CE (PPM)	28.00	91.00	34.00	57.00	244.00	104.00	179.00	27.00	62.00	67.00
CO (PPM)	14.00	16.00	5.00	6.00	39.00	15.00	28.00	7.00	4.00	17.00
CR (PPM)	65.00	58.00	38.00	37.00	51.00	54.00	50.00	29.00	40.00	32.00
CU (PPM)	7.00	34.00	38.00	47.00	100.00	35.00	68.00	60.00	25.00	35.00
HF (PPM)	ND	-15.00	-15.00	-15.00	ND	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	ND	125.00	48.00	81.00	ND	143.00	242.00	36.00	87.00	88.00
LI (PPM)	11.00	10.00	9.00	6.00	7.00	10.00	9.00	9.00	10.00	9.00
MN (PPM)	42.00	48.00	40.00	37.00	45.00	60.00	36.00	63.00	39.00	29.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	19.00	9.00	5.00	6.00	27.00	8.00	16.00	-4.00	8.00	7.00
NI (PPM)	15.00	35.00	13.00	10.00	40.00	21.00	37.00	19.00	16.00	21.00
P (PPM)	168.00	137.00	56.00	73.00	263.00	117.00	156.00	70.00	76.00	110.00
PB (PPM)	ND	28.00	-10.00	25.00	ND	53.00	67.00	11.00	28.00	29.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	4.00	3.00	2.00	4.00	4.00	4.00	3.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	8.00	10.00	20.00	15.00	13.00	13.00	7.00	11.00	15.00	22.00
TI (PPM)	1676.00	1298.00	996.00	633.00	1252.00	1422.00	1298.00	777.00	1136.00	794.00
V (PPM)	39.00	31.00	26.00	14.00	21.00	32.00	28.00	21.00	25.00	20.00
Y (PPM)	7.00	10.00	6.00	4.00	25.00	11.00	15.00	2.00	5.00	5.00
ZN (PPM)	9.00	21.00	19.00	42.00	8.00	28.00	13.00	10.00	10.00	10.00
ZR (PPM)	113.00	79.00	55.00	59.00	164.00	90.00	105.00	44.00	72.00	51.00

DRILL HOLE NUMBER EMB1

SAMP. NO.	711174	157767	711175	711176	711177	711178	157756	711179	711180	711181
TOP DEPTH	505.00	515.00	515.00	525.00	535.00	545.00	555.00	555.00	636.00	650.00
BOT DEPTH	515.00	525.00	525.00	535.00	545.00	555.00		600.00	645.00	684.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MQ	QGC	MQ	MQ	MQ	MQ	PBQZ	MQ	MQ	MQ
UL (PPM)	15.80	9.51	7.34	22.23	18.34	9.82	23.61	5.04	7.20	4.57
UT (PPM)	13.70	7.90	7.40	24.80	19.90	11.70	20.60	7.50	11.20	5.80
UL/UT	1.15	1.20	.99	.90	.92	.84	1.15	.67	.64	.79
TH (PPM)	29.00	15.00	14.00	20.00	7.00	10.00	19.00	8.00	15.00	15.00
TH/UT	2.12	1.90	1.89	.81	.35	.85	.92	1.07	1.34	2.59
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.32	3.68	4.84	4.84	4.20	4.87	2.73	5.41	6.39	10.38
CA (%)	.05	-.05	-.05	.05	-.05	-.05	-.05	.07	-.05	.18
FE (%)	1.13	.65	.96	1.04	.59	.77	.76	.75	.65	3.10
MG (%)	.28	.28	.36	.31	.21	.26	.20	.44	.36	1.57
NA (%)	.55	.62	.59	.41	.67	.56	.51	.81	1.14	1.59
K (%)	1.59	1.86	1.75	1.78	1.85	2.00	1.84	1.58	1.86	2.33
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	12.00
BA (PPM)	294.00	247.00	304.00	346.00	326.00	369.00	259.00	206.00	246.00	517.00
BE (PPM)	2.00	4.00	2.00	2.00	1.00	2.00	2.00	1.00	2.00	6.00
CE (PPM)	66.00	28.00	31.00	52.00	27.00	22.00	28.00	31.00	47.00	51.00
CO (PPM)	9.00	8.00	7.00	19.00	-4.00	4.00	8.00	12.00	4.00	20.00
CR (PPM)	37.00	27.00	37.00	34.00	21.00	28.00	20.00	63.00	37.00	148.00
CU (PPM)	70.00	24.00	34.00	23.00	26.00	30.00	25.00	25.00	21.00	105.00
HF (PPM)	-15.00	ND	-15.00	-15.00	-15.00	-15.00	ND	-15.00	-15.00	-15.00
LA (PPM)	90.00	ND	39.00	71.00	42.00	30.00	ND	35.00	65.00	55.00
LI (PPM)	8.00	8.00	9.00	8.00	7.00	8.00	5.00	11.00	9.00	11.00
MN (PPM)	30.00	28.00	38.00	29.00	20.00	29.00	23.00	56.00	18.00	83.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00
NB (PPM)	5.00	7.00	4.00	6.00	4.00	5.00	7.00	-4.00	7.00	-4.00
NI (PPM)	16.00	13.00	23.00	22.00	11.00	24.00	13.00	15.00	31.00	90.00
P (PPM)	123.00	40.00	53.00	66.00	49.00	37.00	63.00	50.00	41.00	502.00
PB (PPM)	14.00	ND	14.00	15.00	14.00	-10.00	ND	10.00	15.00	28.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	3.00	3.00	2.00	3.00	2.00	2.00	4.00	20.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	15.00	16.00	15.00	13.00	17.00	15.00	14.00	12.00	9.00	23.00
TI (PPM)	985.00	767.00	803.00	1106.00	556.00	849.00	781.00	825.00	981.00	1813.00
V (PPM)	22.00	17.00	20.00	24.00	16.00	19.00	13.00	15.00	22.00	154.00
Y (PPM)	4.00	3.00	2.00	3.00	3.00	2.00	4.00	3.00	3.00	5.00
ZN (PPM)	12.00	11.00	13.00	13.00	7.00	20.00	7.00	8.00	15.00	11.00
ZR (PPM)	69.00	62.00	48.00	52.00	46.00	55.00	84.00	111.00	59.00	90.00

DRILL HOLE NUMBER EMB1

SAMP. NO.	711182
TOP DEPTH	796.00
BOT DEPTH	821.00
FORMATION	MG
LITHOLOGY	MG
UL (PPM)	1.43
UT (PPM)	ND
UL/UT	ND
TH (PPM)	-2.00
TH/UT	ND
AU (PPM)	ND
AL (%)	2.11
CA (%)	-.05
FE (%)	.53
MG (%)	.42
NA (%)	.14
K (%)	.73
AG (PPM)	-2.00
B (PPM)	-10.00
BA (PPM)	112.00
BE (PPM)	-1.00
CE (PPM)	17.00
CO (PPM)	-4.00
CR (PPM)	18.00
CU (PPM)	11.00
HF (PPM)	-15.00
LA (PPM)	18.00
LI (PPM)	5.00
MN (PPM)	26.00
MO (PPM)	-4.00
NB (PPM)	-4.00
NI (PPM)	13.00
P (PPM)	79.00
PB (PPM)	-10.00
PT (PPM)	ND
SC (PPM)	1.00
SI (PPM)	ND
SN (PPM)	ND
SR (PPM)	3.00
TI (PPM)	370.00
V (PPM)	10.00
Y (PPM)	1.00
ZN (PPM)	7.00
ZR (PPM)	31.00

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DRILL HOLE NO. EMB 2

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 3900 FSL, 910 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 33' 50"

LONGITUDE: 106° 11' 48"

COUNTY: Carbon

TOPOGRAPHIC QUAD: Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8505

ANGLE: 50°

BEARING: N 55 E

TOTAL DEPTH: 751'

SPUD DATE: unknown

COMPLETION DATE: Summer 1977

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm. Unit 5: 0-183) (Magnolia Fm. Unit 4: 183-387)
(Stage Crossing Gneiss: 387-751)

RADIOACTIVE ZONES: 165-178, 205.

CORE LOGGERS: R. S. Houston, K. E. Karlstrom

DRILL HOLE EMB-2

OBJECTIVES:

1. This area appears to be the upright limb of the overturned syncline in the Onemile Creek area (figure 10). Here, coarse and radioactive quartz-pebble conglomerates with up to 100 ppm U, 920 ppm Th, are in contact (we think a fault contact) with hornblende gneisses of the Stage Crossing Gneiss. EMB-2 appears to be a basal section and was a logical second drill-site for [REDACTED] geologists.

CONCLUSIONS:

1. We received only skeletonized core from private sources and geochemical data for this hole is incomplete. This highest U value reported is 105 ppm (Ue rather than Unt) in a quartz-granule conglomerate immediately above a quartz-pebble conglomerate layer. Th is 142 ppm for the same sample.

2. A thick phyllite succession was encountered between 183 and 292 feet which is only poorly exposed in outcrop. We tentatively correlate this phyllite with the one drilled in EMB-1 (Unit 4 of Figure 10 and suggest that this section may not be basal Magnolia, but Units 4 and 5 instead).

NOTE: See Figures 10 and 11 for geologic map and cross-section

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 2 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB2

SAMP. NO.	158435	158433	158434
TOP DEPTH	161.00	223.00	334.00
BOT DEPTH	169.00	230.00	365.00
FORMATION	MG	MG	MG
LITHOLOGY	Q	Q	Q
UL (PPM)	105.30	17.09	20.54
UT (PPM)	96.20	14.60	16.30
UL/UT	1.09	1.17	1.26
TH (PPM)	142.00	17.00	11.00
TH/UT	1.48	1.16	.67
AU (PPM)	ND	ND	ND
AL (%)	6.33	10.89	3.49
CA (%)	.67	.81	.35
FE (%)	5.35	7.10	1.08
MG (%)	.69	4.37	.45
NA (%)	1.24	1.47	.33
K (%)	2.11	3.56	2.12
AG (PPM)	2.00	10.00	-2.00
B (PPM)	-10.00	13.00	-10.00
BA (PPM)	405.00	286.00	344.00
BE (PPM)	2.00	6.00	1.00
CE (PPM)	286.00	117.00	16.00
CO (PPM)	180.00	60.00	5.00
CR (PPM)	45.00	177.00	22.00
CU (PPM)	4318.00	209.00	35.00
HF (PPM)	-15.00	64.00	-15.00
LA (PPM)	409.00	127.00	27.00
LI (PPM)	20.00	44.00	15.00
MN (PPM)	271.00	427.00	233.00
MO (PPM)	4.00	24.00	-4.00
NB (PPM)	23.00	23.00	4.00
NI (PPM)	52.00	93.00	6.00
P (PPM)	262.00	452.00	22.00
PB (PPM)	155.00	32.00	126.00
PT (PPM)	ND	ND	ND
SC (PPM)	5.00	35.00	2.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	58.00	53.00	22.00
TI (PPM)	1010.00	4509.00	518.00
V (PPM)	25.00	256.00	12.00
Y (PPM)	42.00	17.00	6.00
ZN (PPM)	273.00	203.00	236.00
ZR (PPM)	125.00	104.00	39.00

DRILL HOLE NO. EMB 3

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 3850 FSL, 3640 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 33' 51"

LONGITUDE: 106° 12' 24"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8565

ANGLE: 50°

BEARING: S 80°E

TOTAL DEPTH: 520'

SPUD DATE: unknown

COMPLETION DATE: Summer 1977

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Conical Peak Quartzite: 0-343) (Metavolcanics of the Phantom Lake Suite: 343-520)

RADIOACTIVE ZONES: None

CORE LOGGERS: R. S. Houston, Karl Karlstrom, John Turner

DRILL HOLE EMB-3

OBJECTIVES:

1. This hole was spudded within fine-grained quartzites of the Phantom Lake Metamorphic Suite. This area has limited outcrop and we assume this private company was exploring for basal Magnolia conglomerate in subsurface, structurally beneath overturned Phantom Lake Suite quartzites.

CONCLUSIONS:

1. The hole drilled a thick section of fine-grained quartzite, mainly parallel to strike of bedding. No radioactive rocks were encountered.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 3 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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DRILL HOLE NO. EMB 4

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 3540 FSL, 3025 FEL, Sec. 6, T. 18 N., R. 80 W.

LATITUDE: 41° 33' 50"

LONGITUDE: 106° 12' 15"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8580

ANGLE: 55°

BEARING: N 75 E

TOTAL DEPTH: 321'

SPUD DATE: unknown

COMPLETION DATE: Summer 1977

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm. 0-69) (Metagabbro: 69-321)

RADIOACTIVE ZONES: None

CORE LOGGERS: R. S. Houston, K. E. Karlstrom, John P. Turner

DRILL HOLE EMB-4

OBJECTIVES:

1. This hole is on the same overturned limb as EMB-1, but farther north. It was probably intended to intersect outcrops of radioactive conglomerate in the hinge of the Onemile Creek syncline.

CONCLUSIONS:

1. The hole drilled an amphibolitic mafic intrusive body for which there is very little surface expression. This intrusive is shown in Figure 10 as an extension of large mafic to ultramafic body farther south, near EMB 6 and EMB 7.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 4
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB4

SAMP. NO.	157831	157832
TOP DEPTH	33.50	53.30
BOT DEPTH	34.00	54.00
FORMATION	MG	MG
LITHOLOGY	FQ	QPC
UL (PPM)	29.30	3.81
UT (PPM)	ND	ND
UL/UT	ND	ND
TH (PPM)	402.00	35.00
TH/UT	ND	ND
AU (PPM)	NU	NU
AL (%)	5.73	4.69
CA (%)	.03	5.46
FE (%)	6.21	1.64
MG (%)	.42	.57
NA (%)	.06	.09
K (%)	2.84	2.05
AG (PPM)	ND	-2.00
B (PPM)	13.00	-10.00
BA (PPM)	386.00	306.00
BE (PPM)	4.00	2.00
CE (PPM)	436.00	46.00
CO (PPM)	1.00	-4.00
CR (PPM)	112.00	65.00
CU (PPM)	29.00	8.00
HF (PPM)	ND	-15.00
LA (PPM)	ND	81.00
LI (PPM)	9.00	11.00
MN (PPM)	204.00	1346.00
MO (PPM)	12.00	-4.00
NB (PPM)	90.00	8.00
NI (PPM)	5.00	21.00
P (PPM)	598.00	81.00
PR (PPM)	77.00	-10.00
PT (PPM)	ND	ND
SC (PPM)	8.00	6.00
SI (PPM)	ND	ND
SN (PPM)	ND	ND
SR (PPM)	11.00	23.00
TI (PPM)	2322.00	1421.00
V (PPM)	67.00	45.00
Y (PPM)	19.00	15.00
ZN (PPM)	18.00	15.00
ZR (PPM)	197.00	41.00

DRILL HOLE NO. EMB 5

AREA: Threemile Creek, Medicine Bow Mountains

LOCATION: 400 E. & 4250 N. of SW corner Sec. 19, T. 18 N., R. 78 W.

LATITUDE: 40° 31' 20"

LONGITUDE: 106° 12' 38"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9020

ANGLE: 50°

BEARING: S 65 E

TOTAL DEPTH: 516'

SPUD DATE: unknown

COMPLETION DATE: Fall 1977

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 9-516)

RADIOACTIVE ZONES: 494-495

CORE LOGGERS: R. S. Houston, K. E. Karlstrom

DRILL HOLE EMB-5

OBJECTIVES:

1. The hottest conglomerates found in the Magnolia Formation outside the Onemile Creek area crop out in a small lense of quartz-pebble conglomerate on the east side of Threemile Creek. These outcrops contain up to 51 ppm U, 130 ppm Th. EMB-5 was spudded near Threemile Creek and was to drill into these conglomerates at depth to assess uranium and thorium grades.
2. One interesting problem in some areas of the northern Medicine Bow Mountains is where to draw the basal Magnolia Formation contact. In the Threemile Creek area, there appears to be a gradation from amphibole - and biotite - matrix, granite - and quartzite - boulder paraconglomerates of the Colberg Metavolcanic Rocks, to arkosic matrix paraconglomerates mapped as basal Magnolia (?), to quartz-pebble and quartz-granule conglomerates which are definitely Magnolia Formation. This drill hole was spudded in the arkosic matrix paraconglomerate and could give information on the paraconglomerate - quartzite transition.

CONCLUSIONS:

1. Weakly radioactive quartz-pebble conglomerates and paraconglomerates were encountered at 205 feet, after drilling a thick section of quartzite and fault gouge. This is part of the evidence for drawing a fault (probably a system of faults) in Threemile Creek. Interbedded paraconglomerates, quartz-pebble conglomerates, and quartzites continue to 516 feet. The spikes on the gamma log at 450-460 feet line up with the gradational contact mapped on the surface between arkosic paraconglomerate of the Conglomerate Member and cleaner and more radioactive quartz-pebble conglomerates. These quartz-pebble conglomerates contain 239 ppm U and 156 ppm Th at 495 feet. They are shown to be at the top of the Conglomerate Member on the geologic site map but, because the contact is gradational, might also be considered to be the base of the Quartzite Member, or a transition zone.
2. Subsurface uranium values indicate appreciable surface leaching of uranium.
3. The hole was terminated too soon - before it drilled the most radioactive conglomerate seen at the surface.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 5 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 12. GEOLOGIC MAP OF DRILL SITES EMB-5 AND EMB-11, THREEMILE CREEK AREA, NORTHERN MEDICINE BOW MOUNTAINS, ARLINGTON QUAD., SEC. 19, T.18 N., R.78 W.

EXPLANATION

Figure 12. Geologic map of drill sites EMB-5 and EMB-11

DRILL HOLE NUMBER EMB5

SAMP. NO.	157825	157826	157830	157829	157827
TOP DEPTH	309.00	449.00	459.00	494.00	495.50
BOT DEPTH			460.00	494.50	
FORMATION	MG	MG	MG	MG	MG
LITHOLOGY	APC	AO	GPC	AO	AO
UL (PPM)	ND	69.99	84.13	112.10	281.00
UT (PPM)	ND	ND	77.40	82.90	239.10
UL/UT	ND	ND	1.09	1.35	1.18
TH (PPM)	ND	23.00	39.00	41.00	156.00
TH/UT	ND	ND	.50	.49	.65
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	ND	6.23	5.94	6.19	6.15
CA (%)	ND	1.02	.17	.88	.24
FE (%)	ND	5.74	5.28	4.62	4.67
MG (%)	ND	1.15	1.05	.82	.80
NA (%)	ND	1.41	.94	1.14	.42
K (%)	ND	1.60	1.43	1.35	1.87
AG (PPM)	ND	-2.00	-2.00	-2.00	-2.00
B (PPM)	ND	-10.00	-10.00	-10.00	-10.00
BA (PPM)	ND	414.00	429.00	399.00	565.00
BE (PPM)	ND	1.00	1.00	1.00	1.00
CE (PPM)	ND	52.00	33.00	72.00	88.00
CO (PPM)	ND	26.00	28.00	20.00	35.00
CR (PPM)	ND	69.00	88.00	61.00	86.00
CU (PPM)	ND	64.00	37.00	39.00	191.00
HF (PPM)	ND	15.00	-15.00	-15.00	-15.00
LA (PPM)	ND	48.00	51.00	109.00	124.00
LI (PPM)	ND	18.00	9.00	13.00	13.00
MN (PPM)	ND	721.00	353.00	1060.00	522.00
MO (PPM)	ND	7.00	7.00	4.00	6.00
NB (PPM)	ND	-4.00	-4.00	-4.00	-4.00
NI (PPM)	ND	42.00	42.00	34.00	45.00
P (PPM)	ND	607.00	282.00	327.00	501.00
PB (PPM)	ND	30.00	19.00	35.00	80.00
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	ND	12.00	12.00	12.00	11.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	ND	61.00	30.00	49.00	27.00
TI (PPM)	ND	3992.00	2493.00	3017.00	3231.00
V (PPM)	ND	122.00	114.00	97.00	110.00
Y (PPM)	ND	16.00	12.00	20.00	42.00
ZN (PPM)	ND	57.00	35.00	41.00	35.00
ZR (PPM)	ND	88.00	108.00	121.00	291.00

DRILL HOLE NO. EMB 6

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 2460 FSL, 2675 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 33' 37"

LONGITUDE: 106° 12' 09"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8687

ANGLE: 50°

BEARING: N 55° E

TOTAL DEPTH: 850'

SPUD DATE: unknown

COMPLETION DATE: Summer 1977

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm. Unit 5: 0-465) (Magnolia Fm. Unit 4: 465-490)
(Metagabbro: 490-526) (Magnolia Unit 4: 526-665) (Metagabbro: 665-685) (Magnolia
Fm. Unit 4: 685-716) (Metagabbro: 716-850)

RADIOACTIVE ZONES: 95-105; four 3' intervals from 130-163; 230-245; 289-307;
328-331; 340; 385, 389-391.

CORE LOGGERS: R. S. Houston, K. E. Karlstrom, J. Turner.

DRILL HOLE EMB-6

OBJECTIVES:

1. This hole is located on the southeast side of Onemile Creek and was to intersect radioactive conglomerates which are semi-continuous on strike ridges for several thousand feet. Surface U values ranged up to 56 ppm; Th values up to 480 ppm; Th/U ratios averaged about 7.

CONCLUSIONS:

1. This hole intersected the most radioactive quartz-pebble conglomerates yet encountered in southeastern Wyoming. Three major conglomerate zones were drilled: from 121 to 178 feet, from 224 to 253 feet and from 288 to 337 feet. Contacts are gradational with quartz-granule conglomerates and very coarse-grained quartzite and these lithologies also occur within the conglomerate zones. Nevertheless these zones were distinctive enough lithologically and radiometrically that, when combined with data from surface and EMB-7, they were designated 5a (lower one) and 5b (upper two combined) (Figure 10). These conglomerates are considered by us to be part of Unit 5 because EMB-6 penetrated interlayered phyllites and fine-grained graywackes between 465 and 716 feet which we tentatively correlate with Unit 4 drilled in EMB-1 and EMB-2. 5a contains up to 760 ppm U (U_l rather than Unt)* and 730 ppm Th, with average values over these 49 feet of 298 ppm U (mostly U_l) and 271 ppm Th. 5b contains up to 1400 ppm U (no data for corresponding Th value) and 725 ppm Th, with average values over 132 feet of 289 ppm U (mostly Unt); 144 ppm Th.

2. Th/U ratios in outcrop averaged 7, whereas in subsurface the ratio decreased to about .8, indicating appreciable surface leaching of uranium.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

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*Unt = uranium assay from neutron activation technique

U_l = "leachable" uranium, from fluorescence spectroscopy

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 6 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB6

SAMP. NO.	160530	160534	160533	160536	160538	160537	160532	160535	160529	160531
TOP DEPTH	1.00	7.00	10.50	17.00	21.00	28.00	30.70	35.40	41.70	47.80
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	SC	CQ	FQ	MQ	MQ	MQ	CQ	MQ	FQ	FQ
UL (PPM)	2.11	6.60	4.00	2.11	2.38	4.92	4.63	13.95	12.65	26.76
UT (PPM)	2.50	7.50	4.50	2.20	2.80	5.10	4.50	15.30	11.20	28.90
UL/UT	.84	.88	.89	.96	.85	.96	1.03	.91	1.13	.93
TH (PPM)	16.00	46.00	34.00	4.00	14.00	18.00	22.00	38.00	15.00	19.00
TH/UT	6.40	6.13	7.56	1.82	5.00	3.53	4.89	2.48	1.34	.66
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.15	3.90	4.40	5.34	5.54	3.97	4.24	5.17	4.74	4.63
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.65	1.30	.80	.78	.95	.82	1.04	1.55	1.26	1.29
MG (%)	.29	.27	.33	.40	.38	.29	.29	.36	.44	.38
NA (%)	.41	.57	.49	.67	.58	.46	.71	.26	.17	.27
K (%)	1.89	1.76	1.96	2.46	2.53	1.83	1.73	2.48	2.24	2.22
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	-10.00	10.00	10.00	-10.00
BA (PPM)	312.00	333.00	344.00	387.00	466.00	296.00	298.00	419.00	374.00	335.00
BE (PPM)	2.00	2.00	2.00	2.00	3.00	2.00	2.00	3.00	3.00	2.00
CE (PPM)	42.00	52.00	25.00	23.00	38.00	38.00	43.00	29.00	38.00	63.00
CU (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	7.00	13.00
CR (PPM)	27.00	32.00	32.00	23.00	39.00	33.00	29.00	52.00	38.00	45.00
CU (PPM)	8.00	27.00	19.00	23.00	21.00	20.00	39.00	37.00	54.00	54.00
HF (PPM)	-15.00	-15.00	28.00	-15.00	-15.00	-15.00	15.00	-15.00	-15.00	-15.00
LA (PPM)	57.00	67.00	37.00	27.00	37.00	51.00	56.00	39.00	56.00	75.00
LI (PPM)	8.00	7.00	9.00	10.00	9.00	8.00	8.00	9.00	11.00	11.00
MN (PPM)	31.00	41.00	30.00	32.00	37.00	32.00	30.00	55.00	41.00	36.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	8.00	12.00	8.00	-4.00	8.00	6.00	5.00	14.00	6.00	8.00
NI (PPM)	10.00	11.00	10.00	9.00	4.00	4.00	15.00	9.00	6.00	19.00
P (PPM)	22.00	64.00	35.00	8.00	52.00	50.00	56.00	57.00	77.00	72.00
PB (PPM)	-10.00	34.00	15.00	11.00	27.00	11.00	22.00	41.00	28.00	26.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	3.00	3.00	4.00	3.00	3.00	4.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	12.00	18.00	13.00	18.00	20.00	14.00	19.00	14.00	11.00	11.00
TI (PPM)	845.00	840.00	907.00	687.00	1071.00	873.00	750.00	1391.00	889.00	1146.00
V (PPM)	17.00	21.00	21.00	17.00	29.00	21.00	21.00	32.00	28.00	33.00
Y (PPM)	2.00	3.00	4.00	4.00	5.00	5.00	6.00	3.00	6.00	7.00
ZN (PPM)	9.00	10.00	9.00	10.00	15.00	13.00	9.00	22.00	28.00	14.00
ZR (PPM)	53.00	58.00	58.00	42.00	54.00	50.00	80.00	73.00	63.00	59.00

DRILL HOLE NUMBER EMB6

SAMP. NO.	157713	157714	157715	157716	157717	157718	157719	157720	157721	157722
TOP DEPTH	92.80	98.00	107.00	129.00	130.50	130.50	136.80	139.80	143.80	156.00
BOT DEPTH	93.30	99.00	108.00	129.50		131.00	137.50	140.80	144.20	156.80
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	QGC	QGC	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	28.33	39.26	149.20	22.29	55.03	445.40	504.00	952.60	248.20	30.97
UT (PPM)	29.60	48.90	109.60	19.80	52.80	581.30	480.60	247.30	203.60	792.60
UL/UT	.96	.80	1.36	1.13	1.04	.77	1.05	3.85	1.22	.04
TH (PPM)	166.00	38.00	127.00	36.00	7.00	169.00	289.00	320.00	46.00	617.00
TH/UT	5.61	.78	1.16	1.82	.13	.29	.60	1.29	.23	.78
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.74	8.23	10.36	5.21	4.46	4.32	3.53	2.74	5.19	3.39
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	1.21	2.70	2.60	1.76	1.23	3.02	3.22	2.39	1.63	3.52
MG (%)	.32	.83	.91	.41	.41	.32	.30	.25	.45	.36
NA (%)	.05	.12	.45	.11	.08	.17	.07	-.05	.14	.14
K (%)	2.03	4.38	4.45	2.47	2.45	2.21	1.79	1.50	2.67	2.39
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	238.00	538.00	640.00	328.00	313.00	277.00	229.00	172.00	352.00	283.00
BE (PPM)	5.00	13.00	12.00	5.00	5.00	5.00	5.00	5.00	6.00	11.00
CE (PPM)	172.00	-10.00	61.00	39.00	36.00	128.00	84.00	174.00	60.00	466.00
CO (PPM)	10.00	13.00	21.00	11.00	24.00	63.00	68.00	71.00	43.00	72.00
CR (PPM)	70.00	111.00	123.00	50.00	62.00	44.00	70.00	67.00	60.00	58.00
CU (PPM)	168.00	62.00	148.00	149.00	48.00	238.00	94.00	500.00	37.00	56.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	8.00	21.00	22.00	11.00	10.00	9.00	8.00	7.00	11.00	8.00
MN (PPM)	60.00	156.00	141.00	111.00	113.00	98.00	83.00	69.00	120.00	91.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	5.00
NB (PPM)	15.00	50.00	41.00	14.00	8.00	51.00	57.00	48.00	16.00	64.00
NI (PPM)	12.00	11.00	16.00	17.00	27.00	66.00	67.00	63.00	55.00	64.00
P (PPM)	145.00	151.00	182.00	56.00	75.00	130.00	200.00	154.00	74.00	327.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	10.00	11.00	5.00	5.00	4.00	5.00	5.00	5.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	7.00	11.00	22.00	14.00	15.00	18.00	15.00	10.00	21.00	30.00
TI (PPM)	1446.00	3863.00	3088.00	1133.00	1473.00	1229.00	1132.00	1233.00	1494.00	1921.00
V (PPM)	43.00	94.00	80.00	41.00	41.00	28.00	27.00	30.00	40.00	28.00
Y (PPM)	24.00	7.00	56.00	8.00	14.00	29.00	41.00	42.00	12.00	75.00
ZN (PPM)	9.00	24.00	20.00	18.00	11.00	12.00	36.00	9.00	25.00	10.00
ZR (PPM)	174.00	119.00	177.00	81.00	53.00	83.00	212.00	111.00	66.00	226.00

DRILL HOLE NUMBER EMB6

SAMP. NO.	157723	157724	158356	158357	158358	158359	158360	158361	158362	158363
TOP DEPTH	158.10	162.00	224.80	234.00	236.00	238.00	240.00	243.00	245.00	290.20
BOT DEPTH	158.30	162.30	225.50	236.00	238.00	240.00	242.00	245.00	246.00	
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	50.83	274.40	78.71	18.54	172.30	164.90	869.40	152.20	22.54	97.64
UT (PPM)	43.40	219.30	91.90	17.50	124.00	173.00	1380.00	144.00	17.80	120.00
UL/UT	1.17	1.25	.86	1.06	1.39	.95	.63	1.06	1.27	.81
TH (PPM)	54.00	21.00	47.00	11.00	176.00	190.00	ND	198.00	29.00	62.00
TH/UT	1.24	.10	.51	.63	1.02	1.10	-72.46	1.38	1.63	.52
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.09	3.49	4.02	4.99	5.44	4.02	777.00	4.85	5.69	6.05
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	ND	-.05	-.05	-.05
FE (%)	1.37	.75	1.12	1.07	2.06	3.19	ND	2.20	1.46	1.43
MG (%)	.34	.24	.25	.38	.39	.28	ND	.38	.42	.43
NA (%)	.15	.31	.40	.18	.38	.33	ND	.22	.31	.07
K (%)	2.48	1.63	1.94	2.04	2.54	1.63	ND	2.16	2.39	2.63
AG (PPM)	2.00	2.00	-2.00	-2.00	-2.00	-2.00	-29.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	15.00	-10.00	-10.00	ND	-10.00	18.00	-10.00
BA (PPM)	266.00	193.00	250.00	329.00	343.00	253.00	ND	301.00	355.00	394.00
BE (PPM)	6.00	4.00	2.00	3.00	3.00	2.00	ND	3.00	3.00	3.00
CE (PPM)	40.00	53.00	100.00	41.00	136.00	167.00	ND	146.00	44.00	83.00
CO (PPM)	22.00	28.00	13.00	22.00	23.00	47.00	ND	24.00	9.00	11.00
CR (PPM)	58.00	26.00	22.00	38.00	61.00	46.00	ND	51.00	44.00	73.00
CU (PPM)	69.00	35.00	42.00	20.00	42.00	73.00	ND	144.00	41.00	35.00
HF (PPM)	ND	ND	-15.00	-15.00	-15.00	-15.00	ND	-15.00	-15.00	-15.00
LA (PPM)	ND	ND	155.00	76.00	217.00	252.00	ND	212.00	70.00	128.00
LI (PPM)	8.00	6.00	7.00	9.00	10.00	7.00	ND	9.00	10.00	11.00
MN (PPM)	95.00	72.00	65.00	90.00	95.00	76.00	ND	98.00	111.00	137.00
MO (PPM)	-4.00	-4.00	6.00	-4.00	4.00	30.00	ND	-4.00	-4.00	-4.00
NB (PPM)	8.00	10.00	6.00	6.00	15.00	18.00	ND	18.00	5.00	8.00
NI (PPM)	28.00	42.00	25.00	46.00	36.00	49.00	ND	40.00	26.00	25.00
P (PPM)	172.00	48.00	71.00	38.00	130.00	175.00	ND	195.00	137.00	73.00
PB (PPM)	ND	ND	11.00	-10.00	52.00	107.00	ND	86.00	-10.00	21.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	3.00	2.00	3.00	5.00	4.00	ND	4.00	4.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	11.00	18.00	16.00	13.00	18.00	17.00	ND	15.00	17.00	14.00
TI (PPM)	1532.00	670.00	824.00	947.00	1342.00	1011.00	ND	1152.00	1138.00	1653.00
V (PPM)	26.00	17.00	14.00	22.00	28.00	22.00	ND	26.00	30.00	44.00
Y (PPM)	19.00	10.00	8.00	8.00	21.00	23.00	ND	27.00	6.00	11.00
ZN (PPM)	9.00	10.00	17.00	29.00	24.00	22.00	ND	21.00	33.00	21.00
ZR (PPM)	110.00	52.00	99.00	62.00	84.00	131.00	ND	230.00	64.00	85.00

DRILL HOLE NUMBER EMB6

SAMP. NO.	158364	158366	158365	158368	158369	158370	158371	157725	157726
TOP DEPTH	293.50	295.50	298.00	299.00	301.00	303.00	306.00	340.00	387.50
BOT DEPTH	295.50	297.00	299.00	301.00	303.00	305.00	308.00	340.50	388.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	176.90	99.71	467.50	756.60	341.00	380.90	52.46	244.40	64.73
UT (PPM)	221.00	99.00	441.00	909.00	289.00	291.00	46.10	305.30	53.50
UL/UT	.80	1.01	1.06	.83	1.18	1.31	1.14	.80	1.21
TH (PPM)	33.00	231.00	725.00	417.00	409.00	170.00	48.00	156.00	36.00
TH/UT	.15	2.33	1.64	.46	1.42	.58	1.04	.51	.67
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.25	3.63	4.59	4.47	4.18	5.03	6.37	3.21	4.03
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.05	-.05
FE (%)	1.16	1.91	3.73	2.64	3.17	2.39	1.39	2.45	1.07
MG (%)	.31	.24	.30	.39	.30	.35	.48	.35	.26
NA (%)	.07	.11	.16	.08	.11	.13	.23	.08	.41
K (%)	2.08	1.54	1.97	2.11	1.90	2.17	2.72	1.68	2.04
AG (PPM)	-2.00	-2.00	2.00	-2.00	2.00	-2.00	-2.00	-2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	272.00	232.00	291.00	294.00	265.00	325.00	387.00	202.00	304.00
BE (PPM)	2.00	2.00	3.00	3.00	3.00	3.00	4.00	6.00	3.00
CE (PPM)	83.00	151.00	308.00	126.00	334.00	142.00	65.00	104.00	57.00
CO (PPM)	38.00	35.00	55.00	29.00	39.00	24.00	6.00	32.00	14.00
CR (PPM)	32.00	23.00	64.00	170.00	64.00	58.00	43.00	81.00	19.00
CU (PPM)	53.00	44.00	128.00	158.00	45.00	59.00	15.00	44.00	47.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	ND	ND
LA (PPM)	133.00	230.00	451.00	202.00	495.00	221.00	102.00	ND	ND
LI (PPM)	9.00	6.00	9.00	9.00	8.00	9.00	13.00	8.00	8.00
MN (PPM)	100.00	79.00	103.00	112.00	100.00	112.00	139.00	114.00	80.00
MO (PPM)	-4.00	-4.00	4.00	6.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	13.00	39.00	30.00	20.00	27.00	12.00	27.00	19.00
NI (PPM)	50.00	43.00	59.00	53.00	36.00	38.00	10.00	30.00	16.00
P (PPM)	70.00	117.00	238.00	192.00	308.00	197.00	77.00	174.00	50.00
PB (PPM)	67.00	81.00	299.00	571.00	191.00	104.00	-10.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	4.00	3.00	5.00	5.00	4.00	6.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	9.00	15.00	18.00	10.00	12.00	12.00	15.00	9.00	20.00
TI (PPM)	765.00	679.00	1205.00	1191.00	1147.00	1355.00	1065.00	1264.00	760.00
V (PPM)	18.00	13.00	20.00	17.00	24.00	27.00	26.00	33.00	18.00
Y (PPM)	7.00	26.00	60.00	57.00	39.00	26.00	6.00	22.00	7.00
ZN (PPM)	17.00	18.00	22.00	24.00	22.00	25.00	23.00	20.00	27.00
ZR (PPM)	59.00	96.00	231.00	130.00	184.00	88.00	62.00	98.00	55.00

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DRILL HOLE NO. EMB 7

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 2460 FSL, 2675 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 33' 37"

LONGITUDE: 106° 12' 09"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8687

ANGLE: 90°

BEARING: ---

TOTAL DEPTH: 1004'

SPUD DATE: unknown

COMPLETION DATE: Summer 1978

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm. Unit 5: 0-562) (Mettagabbro: 562-620)
(Magnolia Fm. Unit 4: 620-1004)

RADIOACTIVE ZONES: 54-60; 80-90; 103-110; 127; 131; 155; 170; 175, 189-195; 279-284, 290-295; Four 4' intervals between 305-384; 385-411; 449-450; Six 2' zones from 460-490; 495-510, 685-690, 705.

CORE LOGGERS: R. S. Houston, K. E. Karlstrom, John P. Turner.

DRILL HOLE EMB-7

OBJECTIVES:

1. EMB-7 was the first hole drilled by industry during their second (1978) drilling season. They occupied the same drill pad used for EMB-6 and drilled a vertical hole (EMB-6 was an angle hole). They were testing the lateral continuity of the strongly radioactive zones to help determine uranium reserves.

CONCLUSIONS:

1. EMB-7 intersected the same radioactive horizons, 5a and 5b, at the expected depths. (Figure 11). This indicated that conglomerate zones were continuous in a downdip direction for at least 600 feet, as well as being semi-continuous in outcrop for a strike distance of over 2500 feet. 5a yielded values up to 1000 ppm U, 965 ppm Th, and average values of 88 feet of 280 ppm U and 304 ppm Th. 5b yielded values up to 470 ppm U. (U₂) and 430 ppm Th. and average values over 101 feet of 171 ppm U and 231 ppm Th. The highest gold value for this hole (25 others were 0.0) is .24 ppm for a sample (110-110.5 feet) taken in a conglomerate zone stratigraphically above Unit 5b and for which the highest U value is 140 ppm; Th. 450 ppm.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 7 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 7 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB7

SAMP. NO.	160524	160527	160522	160523	160525	160521	160528	160526	152083	157294
TOP DEPTH	12.90	19.05	26.90	28.50	30.50	37.00	41.70	49.00	56.00	58.50
BOT DEPTH									56.30	59.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	FQ	FQ	MQ	FQ	FQ	FQ	FQ	CQ	QZ	GPC
UL (PPM)	4.45	3.67	6.24	1.85	1.47	3.70	3.80	33.24	42.69	34.45
UT (PPM)	5.60	2.90	8.20	2.00	1.70	4.00	4.80	35.70	41.60	35.00
UL/UT	.79	1.27	.76	.92	.86	.92	.79	.93	1.03	.98
TH (PPM)	42.00	17.00	61.00	15.00	4.00	11.32	10.00	268.00	177.00	129.00
TH/UT	7.50	5.86	7.44	7.50	2.35	2.83	2.08	7.51	4.25	3.69
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND
AL (%)	3.62	5.26	4.63	4.63	4.07	.49	4.39	3.93	3.07	3.76
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.75	.71	.78	.60	.42	.73	.61	1.17	1.64	1.38
MG (%)	.24	.34	.40	.24	.18	.35	.33	.32	.27	.33
NA (%)	.37	.84	.31	.92	.75	.67	.45	.16	.42	.17
K (%)	1.74	2.33	2.22	2.05	2.04	2.03	2.25	1.86	1.99	1.78
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	12.08	-10.00	-10.00	-10.00	-10.00
BA (PPM)	304.00	464.00	379.00	446.00	404.00	412.90	405.00	316.00	223.00	222.00
BE (PPM)	2.00	2.00	2.00	2.00	1.00	2.45	2.00	2.00	2.00	4.00
CE (PPM)	63.00	30.00	85.00	37.00	11.00	32.57	34.00	303.00	204.00	140.00
CO (PPM)	4.00	4.00	5.00	-4.00	-4.00	4.32	-4.00	12.00	40.00	31.00
CR (PPM)	27.00	34.00	33.00	17.00	17.00	43.65	30.00	75.00	40.00	51.00
CU (PPM)	34.00	25.00	18.00	11.00	7.00	14.46	17.00	34.00	62.00	98.00
HF (PPM)	50.00	-15.00	-15.00	27.00	35.00	-15.00	-15.00	-15.00	ND	ND
LA (PPM)	79.00	41.00	99.00	46.00	15.00	43.63	40.00	376.00	ND	ND
LI (PPM)	6.00	9.00	10.00	6.00	5.00	7.10	9.00	8.00	6.00	7.00
MN (PPM)	27.00	29.00	32.00	25.00	20.00	55.09	27.00	35.00	33.00	37.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	9.00	7.00	15.00	6.00	-4.00	5.29	5.00	22.00	23.00	19.00
NI (PPM)	6.00	13.00	7.00	7.00	6.00	9.04	7.00	12.00	27.00	23.00
P (PPM)	61.00	59.00	83.00	52.00	6.00	28.66	43.00	264.00	113.00	58.00
PB (PPM)	20.00	-10.00	20.00	22.00	-10.00	-10.00	12.00	57.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	4.00	2.00	2.00	3.50	3.00	4.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	14.00	26.00	16.00	30.00	25.00	22.18	19.00	12.00	20.00	11.00
TI (PPM)	783.00	758.00	953.00	371.00	381.00	1042.00	681.00	1501.00	856.00	1183.00
V (PPM)	21.00	24.00	26.00	16.00	13.00	26.91	22.00	48.00	11.00	23.00
Y (PPM)	5.00	5.00	8.00	2.00	1.00	2.79	4.00	23.00	16.00	12.00
ZN (PPM)	8.00	7.00	8.00	5.00	8.00	8.57	9.00	12.00	6.00	3.00
ZR (PPM)	81.00	74.00	88.00	34.00	27.00	51.02	44.00	177.00	132.00	101.00

DRILL HOLE NUMBER EMB7

SAMP. NO.	157295	152060	157296	157297	157298	152063	157299	152073	157300	152077
TOP DEPTH	64.80	65.00	66.00	68.00	79.00	83.00	89.50	101.50	102.00	105.00
BOT DEPTH	65.00		66.50	68.50	79.30	83.50	89.70		102.30	
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	17.95	23.82	13.60	18.39	32.47	68.37	128.70	75.68	87.96	20.42
UT (PPM)	19.80	24.20	14.40	16.80	24.70	75.20	135.00	104.00	95.00	20.20
UL/UT	.91	.98	.94	1.09	1.31	.91	.95	.73	.93	1.01
TH (PPM)	75.00	155.00	51.00	45.00	83.00	186.00	402.00	233.00	450.00	73.00
TH/UT	3.79	6.41	3.54	2.68	3.36	2.47	2.98	2.24	4.74	3.61
AU (PPM)	ND	0.00	ND	ND	ND	0.00	ND	0.00	ND	0.00
AL (%)	4.73	3.69	3.85	4.96	5.15	3.89	4.28	3.13	3.64	4.01
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.09
FE (%)	1.23	2.40	.66	.96	1.17	2.35	3.65	2.51	3.00	1.22
MG (%)	.48	.42	.42	.37	.45	.37	.36	.30	.36	.36
NA (%)	.12	.16	.08	.37	.07	.08	.20	.15	.05	.24
K (%)	2.23	2.07	1.83	2.31	2.40	2.21	2.32	1.72	2.03	2.31
AG (PPM)	4.00	-2.00	8.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	269.00	268.00	209.00	300.00	266.00	237.00	303.00	235.00	235.00	282.00
BE (PPM)	4.00	3.00	4.00	4.00	5.00	2.00	6.00	2.00	6.00	3.00
CE (PPM)	69.00	89.00	72.00	57.00	67.00	185.00	210.00	129.00	351.00	49.00
CO (PPM)	22.00	41.00	16.00	12.00	17.00	49.00	69.00	61.00	48.00	18.00
CR (PPM)	47.00	38.00	47.00	36.00	50.00	64.00	76.00	55.00	58.00	38.00
CU (PPM)	49.00	80.00	61.00	27.00	32.00	151.00	94.00	132.00	39.00	71.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	9.00	8.00	8.00	9.00	8.00	9.00	6.00	9.00	8.00
MN (PPM)	46.00	41.00	42.00	46.00	59.00	58.00	56.00	45.00	50.00	58.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	11.00	-4.00	80.00	-4.00
NB (PPM)	24.00	32.00	19.00	13.00	18.00	30.00	41.00	28.00	57.00	20.00
NI (PPM)	21.00	33.00	22.00	14.00	12.00	32.00	52.00	41.00	31.00	14.00
P (PPM)	56.00	95.00	25.00	40.00	53.00	137.00	294.00	92.00	324.00	46.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	3.00	3.00	4.00	5.00	7.00	4.00	5.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	9.00	10.00	6.00	16.00	6.00	9.00	12.00	11.00	7.00	13.00
TI (PPM)	1175.00	1093.00	827.00	928.00	1281.00	1528.00	1658.00	1301.00	1420.00	1057.00
V (PPM)	36.00	31.00	26.00	24.00	30.00	41.00	31.00	21.00	22.00	26.00
Y (PPM)	9.00	19.00	7.00	6.00	11.00	25.00	33.00	24.00	39.00	9.00
ZN (PPM)	5.00	10.00	3.00	3.00	5.00	8.00	7.00	63.00	5.00	7.00
ZR (PPM)	46.00	69.00	39.00	54.00	73.00	114.00	193.00	186.00	148.00	56.00

DRILL HOLE NUMBER. EMB7

SAMP. NO.	152071	157301	152079	157302	152080	157303	152076	158420	157304	152066
TOP DEPTH	110.00	112.00	128.00	132.60	154.00	170.30	178.00	188.00	194.60	195.50
BOT DEPTH	110.50	112.30		133.00		170.50		189.00		
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QPC	QPC	QPC	QZ	QPC	QZ	QPC	QPC	QZ
UL (PPM)	91.04	55.67	228.50	44.64	58.37	171.70	30.75	474.10	73.07	153.10
UT (PPM)	97.60	51.80	255.00	42.80	62.30	157.50	30.30	421.00	75.20	153.30
UL/UT	.93	1.07	.90	1.04	.94	1.09	1.01	1.13	.97	1.00
TH (PPM)	313.00	143.00	347.00	114.00	253.00	141.00	106.00	426.00	240.00	56.00
TH/UT	3.21	2.76	1.36	2.66	4.06	.90	3.50	1.01	3.19	.37
AU (PPM)	.24	ND	0.00	ND	ND	ND	ND	ND	ND	0.00
AL (%)	3.59	5.42	5.61	3.90	4.62	4.85	5.25	4.42	5.07	4.44
CA (%)	.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	3.26	1.36	2.24	1.24	2.71	1.87	1.88	3.93	1.75	1.30
MG (%)	.39	.44	.46	.28	.39	.38	.48	.33	.38	.41
NA (%)	-.05	.17	.20	.22	.11	.05	.08	.10	.19	.26
K (%)	2.09	2.53	3.25	1.81	2.72	2.32	3.01	2.09	2.33	3.02
AG (PPM)	-2.00	-2.00	2.00	2.00	-2.00	4.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	212.00	290.00	330.00	202.00	265.00	237.00	336.00	298.00	255.00	296.00
BE (PPM)	3.00	5.00	4.00	4.00	3.00	5.00	4.00	3.00	6.00	3.00
CE (PPM)	235.00	117.00	153.00	142.00	239.00	126.00	102.00	335.00	225.00	69.00
CO (PPM)	62.00	23.00	36.00	28.00	46.00	38.00	26.00	48.00	43.00	34.00
CR (PPM)	72.00	59.00	96.00	36.00	69.00	88.00	88.00	115.00	66.00	59.00
CU (PPM)	596.00	331.00	122.00	129.00	126.00	47.00	49.00	69.00	130.00	35.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	15.00	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	495.00	ND	ND
LI (PPM)	9.00	9.00	11.00	6.00	9.00	8.00	12.00	8.00	8.00	9.00
MN (PPM)	55.00	63.00	97.00	63.00	72.00	76.00	116.00	83.00	100.00	107.00
MO (PPM)	-4.00	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	47.00	32.00	20.00	17.00	31.00	24.00	24.00	59.00	38.00	17.00
NI (PPM)	41.00	16.00	31.00	28.00	31.00	32.00	22.00	51.00	37.00	52.00
P (PPM)	381.00	-5.00	227.00	13.00	154.00	118.00	106.00	238.00	87.00	46.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	188.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	5.00	8.00	3.00	6.00	6.00	7.00	5.00	4.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	11.00	12.00	13.00	12.00	11.00	6.00	8.00	11.00	13.00	15.00
TI (PPM)	1451.00	1586.00	2405.00	1017.00	1578.00	1675.00	1910.00	1273.00	1407.00	1399.00
V (PPM)	50.00	31.00	49.00	20.00	42.00	45.00	46.00	29.00	25.00	28.00
Y (PPM)	58.00	19.00	57.00	12.00	25.00	17.00	13.00	59.00	19.00	7.00
ZN (PPM)	8.00	4.00	23.00	3.00	16.00	8.00	12.00	15.00	6.00	12.00
ZR (PPM)	100.00	83.00	573.00	78.00	132.00	131.00	127.00	120.00	90.00	67.00

DRILL HOLE NUMBER EMB7

SAMP. NO.	152075	157305	152084	152086	157306	152085	152052	157307	157308	157309
TOP DEPTH	279.00	282.80	284.00	291.00	291.60	295.00	309.00	312.00	313.00	314.00
BOT DEPTH					292.30			313.00	313.50	315.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	QZ	GPC	GPC	GPC
UL (PPM)	143.00	280.00	122.90	62.02	184.50	123.10	280.50	178.50	335.40	123.70
UT (PPM)	133.30	299.50	131.50	61.00	194.50	142.10	328.30	183.80	381.20	114.90
UL/UT	1.07	.93	.93	1.02	.95	.87	.85	.97	.88	1.08
TH (PPM)	322.00	232.00	200.00	14.00	300.00	171.00	270.00	142.00	619.00	215.00
TH/UT	2.42	.77	1.52	.23	1.54	1.20	.82	.77	1.62	1.87
AU (PPM)	0.00	ND	0.00	0.00	ND	0.00	ND	ND	ND	ND
AL (%)	5.29	5.32	4.81	5.17	4.41	3.07	4.18	3.42	2.87	4.08
CA (%)	-.05	-.05	-.05	.07	.05	.05	-.05	-.05	.05	-.05
FE (%)	2.16	1.69	2.78	1.25	1.98	2.48	2.02	2.09	4.49	2.21
MG (%)	.41	.39	.38	.50	.35	.27	.31	.28	.24	.31
NA (%)	.24	.07	.18	.11	.06	.12	.36	.20	.09	.19
K (%)	2.97	2.41	2.59	3.43	2.04	1.74	2.21	1.78	1.26	1.82
AG (PPM)	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	4.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	311.00	279.00	282.00	336.00	232.00	183.00	240.00	220.00	148.00	190.00
BE (PPM)	3.00	7.00	3.00	3.00	6.00	2.00	3.00	4.00	4.00	4.00
CE (PPM)	201.00	199.00	165.00	55.00	294.00	317.00	197.00	151.00	719.00	173.00
CO (PPM)	35.00	32.00	39.00	8.00	37.00	38.00	25.00	23.00	92.00	33.00
CR (PPM)	97.00	88.00	61.00	75.00	96.00	50.00	55.00	49.00	64.00	47.00
CU (PPM)	91.00	105.00	156.00	22.00	71.00	71.00	106.00	56.00	92.00	96.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	7.00	8.00	10.00	7.00	6.00	7.00	6.00	5.00	6.00
MN (PPM)	136.00	133.00	126.00	153.00	119.00	90.00	116.00	106.00	94.00	111.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	25.00	-4.00	-4.00	4.00	-4.00	23.00
NR (PPM)	19.00	27.00	19.00	22.00	25.00	24.00	23.00	30.00	55.00	21.00
NI (PPM)	58.00	40.00	50.00	16.00	37.00	30.00	34.00	27.00	56.00	38.00
P (PPM)	248.00	195.00	189.00	169.00	386.00	234.00	175.00	230.00	533.00	155.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	4.00	4.00	7.00	5.00	4.00	5.00	4.00	4.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	16.00	9.00	12.00	13.00	12.00	10.00	17.00	13.00	17.00	11.00
TI (PPM)	1668.00	1673.00	1240.00	1901.00	1729.00	824.00	1238.00	1119.00	1023.00	1031.00
V (PPM)	24.00	28.00	21.00	42.00	30.00	18.00	20.00	19.00	9.00	15.00
Y (PPM)	27.00	29.00	19.00	8.00	34.00	19.00	31.00	20.00	65.00	16.00
ZN (PPM)	20.00	18.00	17.00	17.00	11.00	15.00	15.00	13.00	10.00	10.00
ZR (PPM)	146.00	153.00	119.00	87.00	201.00	65.00	175.00	99.00	208.00	105.00

DRILL HOLE NUMBER ENB7

SAMP. NO.	152055	152050	152056	157313	157310	157311	152058	158421	158422	158423
TOP DEPTH	325.00	326.00	339.50	341.50	345.50	346.00	346.50	349.00	350.90	372.00
BOT DEPTH				342.00	346.00	347.80		350.00		372.30
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QPC	QZ	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	299.90	142.00	335.00	198.70	59.36	172.60	232.00	150.60	47.55	819.40
UT (PPM)	387.10	151.60	309.20	172.70	53.90	142.20	265.10	151.00	34.20	1020.00
UL/UT	.77	.94	1.08	1.15	1.10	1.21	.88	1.00	1.39	.80
TH (PPM)	524.00	260.00	372.00	224.00	23.00	173.00	130.00	321.00	51.00	ND
TH/UT	1.35	1.72	1.20	1.30	.43	1.22	.49	2.13	1.47	-98.04
AU (PPM)	0.00	0.00	0.00	ND	ND	ND	0.00	ND	ND	ND
AL (%)	3.34	2.30	4.18	5.42	3.20	4.18	3.51	4.80	6.41	134.00
CA (%)	-.05	-.05	.05	-.05	-.05	-.05	-.05	.07	-.05	ND
FE (%)	9.96	2.52	2.27	1.95	1.12	1.04	2.03	4.48	1.35	ND
MG (%)	.25	.21	.38	.42	.22	.28	.30	.37	.42	ND
NA (%)	.06	.10	.08	.06	.28	.21	.10	.27	.12	ND
K (%)	1.51	1.30	2.35	2.42	1.64	1.78	1.96	2.03	2.54	ND
AG (PPM)	3.00	2.00	-2.00	4.00	-2.00	2.00	-2.00	-2.00	2.00	3.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND
BA (PPM)	194.00	150.00	291.00	285.00	190.00	198.00	220.00	309.00	430.00	ND
BE (PPM)	2.00	2.00	4.00	6.00	3.00	3.00	3.00	2.00	3.00	ND
CE (PPM)	470.00	223.00	194.00	117.00	49.00	95.00	124.00	279.00	68.00	ND
CO (PPM)	53.00	42.00	29.00	33.00	11.00	16.00	24.00	85.00	4.00	ND
CR (PPM)	95.00	53.00	89.00	90.00	17.00	31.00	33.00	53.00	51.00	ND
CU (PPM)	233.00	168.00	113.00	118.00	37.00	54.00	89.00	56.00	17.00	ND
HF (PPM)	-3.00	ND	ND	ND	ND	ND	ND	-15.00	-15.00	ND
IA (PPM)	535.00	ND	ND	ND	ND	ND	ND	411.00	104.00	ND
LI (PPM)	6.00	5.00	9.00	8.00	5.00	6.00	6.00	9.00	8.00	ND
MM (PPM)	86.00	79.00	141.00	161.00	85.00	102.00	108.00	98.00	147.00	ND
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	ND
NB (PPM)	29.00	27.00	43.00	28.00	14.00	21.00	16.00	19.00	12.00	ND
NI (PPM)	311.00	56.00	42.00	41.00	15.00	26.00	24.00	49.00	10.00	ND
P (PPM)	260.00	168.00	271.00	204.00	101.00	76.00	93.00	371.00	104.00	ND
PB (PPM)	791.00	ND	ND	ND	ND	ND	ND	147.00	-10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	3.00	6.00	6.00	2.00	3.00	3.00	5.00	4.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	8.00	8.00	10.00	9.00	14.00	12.00	9.00	15.00	11.00	ND
TI (PPM)	1172.00	952.00	1666.00	1862.00	560.00	872.00	933.00	1386.00	1562.00	ND
V (PPM)	25.00	12.00	29.00	37.00	13.00	16.00	15.00	31.00	30.00	ND
Y (PPM)	43.00	20.00	39.00	22.00	5.00	18.00	18.00	24.00	7.00	ND
ZN (PPM)	23.00	10.00	16.00	16.00	9.00	7.00	14.00	132.00	19.00	ND
ZR (PPM)	140.00	137.00	257.00	147.00	37.00	63.00	86.00	171.00	148.00	ND

DRILL HOLE NUMBER EMB7

SAMP. NO.	157858	157859	157860	152078	152070	152082	152072	157312	157862	157861
TOP DEPTH	385.00	387.50	392.00	392.70	395.00	401.00	406.00	413.00	448.50	449.00
BOT DEPTH		388.00	392.70	393.00					449.00	449.50
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	QZ	GPC	GPC	GPC
UL (PPM)	139.20	113.40	157.30	229.50	436.00	370.00	722.00	132.60	131.40	641.60
UT (PPM)	145.90	128.10	160.80	221.00	445.90	358.30	690.20	121.90	117.50	494.70
UL/UT	.95	.89	.98	1.04	.98	1.03	1.05	1.09	1.12	1.30
TH (PPM)	187.00	95.00	87.00	365.00	496.00	372.00	965.00	183.00	110.00	340.00
TH/UT	1.23	.74	.54	1.65	1.11	1.04	1.40	1.50	.94	.69
AU (PPM)	ND	ND	ND	0.00	0.00	0.00	ND	ND	ND	ND
AL (%)	5.32	3.78	4.31	4.01	3.45	4.06	3.51	3.87	3.06	4.16
CA (%)	-.05	-.05	-.05	.06	.06	-.05	.05	-.05	-.05	-.05
FE (%)	3.04	2.05	2.19	4.52	5.24	4.90	5.71	1.56	1.71	5.10
MG (%)	.40	.30	.32	.39	.29	.32	.24	.25	.27	.32
NA (%)	.07	.09	.06	.06	.05	.06	.07	.11	-.05	.05
K (%)	2.83	2.01	2.37	2.60	1.93	2.37	1.98	1.67	1.63	2.17
AG (PPM)	-2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	4.00	4.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	311.00	236.00	243.00	259.00	222.00	249.00	226.00	189.00	210.00	260.00
BE (PPM)	8.00	5.00	6.00	3.00	3.00	4.00	5.00	4.00	4.00	7.00
CE (PPM)	49.00	105.00	16.00	361.00	234.00	180.00	634.00	183.00	139.00	138.00
CO (PPM)	52.00	25.00	30.00	75.00	74.00	78.00	92.00	26.00	19.00	83.00
CR (PPM)	110.00	70.00	80.00	93.00	59.00	80.00	55.00	41.00	39.00	76.00
CU (PPM)	42.00	46.00	113.00	101.00	122.00	141.00	111.00	71.00	57.00	106.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	12.00	7.00	9.00	8.00	7.00	8.00	7.00	6.00	8.00	11.00
MN (PPM)	138.00	106.00	119.00	131.00	108.00	122.00	106.00	96.00	77.00	97.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	9.00	-4.00	-4.00
NB (PPM)	46.00	23.00	28.00	28.00	42.00	25.00	52.00	19.00	27.00	61.00
NI (PPM)	47.00	26.00	31.00	55.00	66.00	64.00	63.00	27.00	23.00	64.00
P (PPM)	302.00	170.00	206.00	355.00	261.00	194.00	470.00	130.00	144.00	259.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	6.00	6.00	7.00	5.00	7.00	5.00	3.00	5.00	8.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	9.00	9.00	7.00	9.00	7.00	8.00	9.00	8.00	5.00	7.00
TI (PPM)	1710.00	1446.00	1601.00	1662.00	1531.00	1768.00	1444.00	1218.00	1035.00	1696.00
V (PPM)	44.00	34.00	43.00	30.00	17.00	30.00	-2.00	16.00	28.00	43.00
Y (PPM)	27.00	15.00	12.00	40.00	53.00	43.00	97.00	21.00	14.00	56.00
ZN (PPM)	20.00	18.00	20.00	19.00	17.00	14.00	15.00	3.00	18.00	21.00
ZR (PPM)	152.00	136.00	170.00	204.00	123.00	199.00	227.00	145.00	62.00	107.00

DRILL HOLE NUMBER EMB7

SAMP. NO.	157863	152074	152059	157865	157864	157866	157867	157868	152057	157869
TOP DEPTH	462.50	463.00	469.00	470.00	470.50	476.60	481.50	485.50	497.00	501.40
BOT DEPTH	463.00			470.50	471.00	477.30	482.30	486.50		501.50
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QZ	QZ	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	137.00	99.52	224.80	73.23	142.40	203.00	114.40	144.70	684.00	152.60
UT (PPM)	95.90	138.00	236.00	53.00	98.00	179.60	109.40	136.40	619.70	620.30
UL/UT	1.43	.72	.95	1.38	1.45	1.13	1.05	1.06	1.10	.25
TH (PPM)	200.00	282.00	304.00	53.00	143.00	135.00	134.00	189.00	562.00	202.00
TH/UT	2.09	2.04	1.29	1.00	1.46	.75	1.22	1.39	.91	.33
AU (PPM)	ND	0.00	0.00	ND	ND	ND	ND	ND	0.00	ND
AL (%)	4.08	4.27	3.50	5.03	3.68	4.88	4.17	3.41	2.95	3.50
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	2.59	3.87	4.79	1.42	2.73	2.28	2.06	2.03	4.39	2.37
MG (%)	.29	.35	.30	.36	.26	.32	.24	.31	.29	.25
NA (%)	.06	.06	.07	.10	.05	.09	.19	.07	.07	.07
K (%)	2.14	2.51	2.05	2.68	1.96	2.52	2.23	1.84	1.74	1.83
AG (PPM)	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	3.00	5.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	248.00	262.00	214.00	315.00	222.00	292.00	267.00	231.00	194.00	214.00
BE (PPM)	6.00	3.00	3.00	5.00	5.00	6.00	5.00	6.00	3.00	4.00
CE (PPM)	84.00	215.00	217.00	46.00	138.00	58.00	66.00	207.00	170.00	128.00
CO (PPM)	40.00	60.00	72.00	14.00	40.00	31.00	30.00	26.00	75.00	33.00
CR (PPM)	72.00	67.00	59.00	56.00	80.00	63.00	48.00	55.00	67.00	55.00
CU (PPM)	102.00	71.00	80.00	37.00	100.00	86.00	43.00	78.00	152.00	92.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	9.00	8.00	11.00	9.00	10.00	8.00	8.00	9.00	8.00
MN (PPM)	74.00	84.00	81.00	96.00	73.00	91.00	72.00	83.00	77.00	71.00
MO (PPM)	-4.00	4.00	-4.00	7.00	5.00	5.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	28.00	34.00	30.00	18.00	36.00	37.00	36.00	30.00	71.00	34.00
NI (PPM)	36.00	41.00	53.00	18.00	34.00	30.00	25.00	27.00	55.00	33.00
P (PPM)	174.00	185.00	216.00	92.00	202.00	172.00	148.00	166.00	297.00	178.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	6.00	5.00	5.00	4.00	6.00	4.00	5.00	6.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	5.00	6.00	7.00	8.00	6.00	7.00	12.00	7.00	6.00	6.00
TI (PPM)	1538.00	1706.00	1431.00	1299.00	1109.00	1495.00	1035.00	1345.00	1549.00	1132.00
V (PPM)	31.00	28.00	18.00	34.00	29.00	36.00	21.00	20.00	21.00	21.00
Y (PPM)	27.00	30.00	31.00	7.00	18.00	21.00	19.00	21.00	82.00	24.00
ZN (PPM)	10.00	13.00	15.00	13.00	11.00	6.00	7.00	7.00	14.00	9.00
ZR (PPM)	199.00	160.00	117.00	104.00	83.00	106.00	101.00	125.00	192.00	114.00

DRILL HOLE NUMBER EMB7

SAMP. NO.	152061	157857	152065	152064	152054	158424	152051	152067	152053	152068
TOP DEPTH	505.00	508.40	628.00	684.50	688.50	704.00	767.00	789.00	898.50	920.50
BOT DEPTH		509.40				705.00				
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	QZ	QZ	QZ	GPC	GPC	GM	QZ	CSC
UL (PPM)	368.00	197.20	6.31	168.80	47.06	84.27	25.87	190.70	3.95	5.47
UT (PPM)	366.10	168.80	5.50	494.80	54.30	88.40	36.20	155.80	3.70	5.90
UL/UT	1.01	1.17	1.15	.34	.87	.95	.71	1.22	1.07	.93
TH (PPM)	365.00	4.00	7.00	609.00	127.00	390.00	48.00	314.00	6.00	8.00
TH/UT	1.00	.02	1.27	1.23	2.34	4.41	1.33	2.02	1.62	1.36
AU (PPM)	0.00	ND	ND	0.00	ND	ND	0.00	ND	ND	ND
AL (%)	3.18	4.33	8.25	2.79	3.01	3.64	2.89	2.63	3.96	6.96
CA (%)	-.05	1.00	.09	.13	.05	.12	.11	.13	2.95	.45
FE (%)	3.24	1.21	3.36	5.61	1.87	3.47	3.06	2.71	4.42	2.05
MG (%)	.32	.50	1.23	.30	.28	.28	.35	.35	1.97	2.70
NA (%)	.08	3.05	.44	.55	.45	.92	.14	1.04	.98	1.18
K (%)	1.77	.49	3.00	1.18	1.30	.97	1.50	.84	.58	2.09
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	222.00	236.00	377.00	121.00	111.00	105.00	171.00	159.00	141.00	215.00
BE (PPM)	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	-1.00	1.00
CE (PPM)	309.00	19.00	60.00	541.00	189.00	512.00	64.00	224.00	22.00	76.00
CO (PPM)	53.00	5.00	27.00	124.00	28.00	61.00	53.00	61.00	28.00	15.00
CR (PPM)	49.00	25.00	132.00	41.00	33.00	44.00	27.00	22.00	103.00	153.00
CU (PPM)	144.00	42.00	46.00	138.00	25.00	48.00	87.00	324.00	10.00	8.00
HF (PPM)	ND	ND	ND	ND	ND	-15.00	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	759.00	ND	ND	ND	ND
LI (PPM)	8.00	9.00	15.00	8.00	7.00	13.00	11.00	6.00	14.00	30.00
MN (PPM)	66.00	101.00	212.00	53.00	32.00	15.00	47.00	36.00	744.00	124.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	-4.00	5.00	-4.00
NB (PPM)	45.00	-4.00	13.00	33.00	9.00	41.00	13.00	20.00	6.00	-4.00
NI (PPM)	40.00	10.00	44.00	59.00	18.00	45.00	28.00	48.00	46.00	57.00
P (PPM)	239.00	403.00	313.00	323.00	103.00	351.00	43.00	208.00	310.00	325.00
PB (PPM)	ND	ND	ND	ND	ND	144.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	3.00	18.00	5.00	3.00	6.00	5.00	4.00	22.00	16.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	7.00	269.00	52.00	16.00	8.00	14.00	7.00	16.00	97.00	57.00
TI (PPM)	1467.00	1357.00	3841.00	542.00	500.00	821.00	971.00	625.00	2487.00	915.00
V (PPM)	22.00	36.00	130.00	9.00	10.00	36.00	30.00	7.00	328.00	102.00
Y (PPM)	45.00	3.00	5.00	82.00	15.00	56.00	8.00	32.00	9.00	6.00
ZN (PPM)	8.00	22.00	44.00	23.00	21.00	25.00	30.00	15.00	108.00	66.00
ZR (PPM)	346.00	97.00	93.00	131.00	114.00	205.00	93.00	112.00	35.00	92.00

DRILL HOLE NUMBER EMB7

SAMP. NO.	152062
TOP DEPTH	986.00
BOT DEPTH	
FORMATION	MG
LITHOLOGY	AM
UL (PPM)	1.51
UT (PPM)	2.00
UL/UT	.75
TH (PPM)	3.00
TH/UT	1.50
AU (PPM)	ND
AL (%)	4.72
CA (%)	.52
FE (%)	3.33
MG (%)	1.21
NA (%)	.99
K (%)	1.84
AG (PPM)	-2.00
B (PPM)	-10.00
BA (PPM)	123.00
BE (PPM)	1.00
CE (PPM)	23.00
CO (PPM)	128.00
CR (PPM)	64.00
CU (PPM)	1271.00
HF (PPM)	ND
LA (PPM)	ND
LI (PPM)	15.00
MN (PPM)	102.00
MO (PPM)	-4.00
NR (PPM)	-4.00
NI (PPM)	279.00
P (PPM)	712.00
PB (PPM)	ND
PT (PPM)	ND
SC (PPM)	8.00
SI (PPM)	ND
SN (PPM)	ND
SR (PPM)	51.00
TI (PPM)	1000.00
V (PPM)	56.00
Y (PPM)	4.00
ZN (PPM)	95.00
ZR (PPM)	43.00

DRILL HOLE NO. EMB-8

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 1810 FSL, 2915 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 30' 30"

LONGITUDE: 106° 12' 06"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8810

ANGLE: 50°

BEARING: N 90 E

TOTAL DEPTH: 647'

SPUD DATE: unknown

COMPLETION DATE: Summer, 1978

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole probe available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Metagabbro: 0-60) (Magnolia Unit 5: 60-481) (Metagabbro: 481-647)

RADIOACTIVE ZONES: 90-98, 145, 175, 231, 259, 275, 289, 297, 302, 329-340, 348-356, 370-372, 380, 385-395, 418, 435.

CORE LOGGERS: R. S. Houston, K. E. Karlstrom, John P. Turner

DRILL HOLE EMB-8

OBJECTIVES:

1. This hole is offset south from EMB-6 and EMB-7 parallel to strike of radioactive Units 5a and 5b. It was drilled to test these same units for subsurface uranium content and lateral continuity.

CONCLUSIONS:

1. A very similar stratigraphic sequence was drilled in EMB-8 except that the major conglomerates of Units 5a and 5b are no longer separated by 30 to 40 feet of barren quartz-granule conglomerate and, instead, form essentially one 80 foot thick conglomerate/quartzite zone. Together 5a and 5b yielded maximum values up to 840 ppm U and 570 ppm Th. and average values of 143 U and 241 Th. A gold value of .25 ppm showed in a quartz-pebble conglomerate, also quite pyritic, at 335 feet. 4 gold values were 0.0.

A small metagabbro was drilled between 481 and 557 feet which was not exposed in outcrop.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 8 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB8

SAMP. NO.	157776	152093	152098	157800	157806	157780	157778	157779	152097	157738
TOP DEPTH	75.00	91.00	97.00	97.50	122.50	146.50	174.50	199.80	203.00	225.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQZ	QZ	QPC	CQ	CQZ	CQZ	CQ	CQZ	QZ	CQZ
UL (PPM)	10.27	18.85	34.36	24.22	2.35	18.88	46.86	30.82	97.33	22.72
UT (PPM)	11.20	22.30	47.40	27.50	2.70	16.20	42.10	28.20	69.60	22.20
UL/UT	.92	.85	.72	.88	.87	1.17	1.11	1.09	1.40	1.02
TH (PPM)	93.00	206.00	301.00	272.00	10.00	171.00	92.00	25.00	146.00	12.00
TH/UT	8.30	9.24	6.35	9.89	3.71	10.54	2.19	.89	2.10	.54
AU (PPM)	ND	0.00	0.00	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.45	4.09	4.08	4.50	4.39	2.82	4.52	4.55	4.31	4.47
CA (%)	-.05	-.05	-.05	-.05	-.05	.05	-.05	.06	.13	.06
FE (%)	.73	1.01	1.23	1.59	.58	.30	1.33	1.64	1.93	1.17
MG (%)	.18	.34	.35	.42	.41	.09	.49	.72	.52	.50
NA (%)	.95	.59	.45	.56	1.01	2.16	.37	.77	.48	1.03
K (%)	1.87	2.85	1.77	2.45	1.82	.42	2.33	2.11	2.69	2.08
AG (PPM)	3.00	-2.00	-2.00	2.00	-2.00	2.00	2.00	3.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	14.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	215.00	286.00	159.00	278.00	172.00	36.00	339.00	303.00	291.00	327.00
BE (PPM)	3.00	2.00	2.00	7.00	3.00	1.00	7.00	5.00	3.00	5.00
CE (PPM)	83.00	110.00	185.00	87.00	30.00	20.00	103.00	41.00	174.00	-10.00
CO (PPM)	14.00	14.00	9.00	20.00	-4.00	4.00	10.00	18.00	38.00	36.00
CR (PPM)	42.00	44.00	41.00	77.00	36.00	46.00	65.00	71.00	105.00	56.00
CU (PPM)	32.00	48.00	103.00	86.00	11.00	15.00	63.00	4.00	70.00	10.00
HF (PPM)	ND	ND	-3.00	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	185.00	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	7.00	8.00	9.00	8.00	2.00	11.00	10.00	10.00	8.00
MN (PPM)	21.00	25.00	33.00	35.00	14.00	9.00	30.00	89.00	67.00	91.00
MO (PPM)	-4.00	-4.00	-4.00	5.00	-4.00	5.00	4.00	-4.00	-4.00	6.00
NB (PPM)	9.00	26.00	49.00	33.00	8.00	5.00	16.00	8.00	19.00	8.00
NI (PPM)	22.00	14.00	19.00	17.00	5.00	10.00	12.00	32.00	37.00	90.00
P (PPM)	76.00	125.00	245.00	180.00	43.00	105.00	128.00	221.00	260.00	121.00
PB (PPM)	ND	ND	48.00	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	3.00	6.00	4.00	1.00	6.00	6.00	6.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	16.00	15.00	8.00	13.00	8.00	16.00	21.00	28.00	24.00	33.00
TI (PPM)	785.00	1021.00	1106.00	1603.00	1192.00	380.00	1709.00	1514.00	1740.00	1230.00
V (PPM)	21.00	24.00	33.00	39.00	30.00	10.00	46.00	41.00	28.00	37.00
Y (PPM)	16.00	21.00	30.00	31.00	3.00	16.00	9.00	7.00	19.00	5.00
ZN (PPM)	4.00	6.00	11.00	7.00	15.00	6.00	22.00	54.00	8.00	18.00
ZR (PPM)	218.00	135.00	153.00	550.00	57.00	116.00	110.00	93.00	173.00	61.00

DRILL HOLE NUMBER EMB8

SAMP. NO.	152094	157777	158425	158426	157801	157799	157802	152096	157745	157751
TOP DEPTH	231.00	250.00	258.50	261.00	275.00	280.00	288.60	289.00	295.80	304.00
BOT DEPTH			259.00	262.00	275.30	280.30	288.90			
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QZ	QZ	QPC	QPC	QPC	QPC	QPC	QZ	QZ	QZ
UL (PPM)	97.39	118.50	323.90	39.67	75.61	34.15	257.90	322.00	134.10	136.40
UT (PPM)	88.00	97.00	298.00	47.90	65.20	35.70	258.90	305.30	144.00	107.50
UL/UT	1.11	1.22	1.09	.83	1.16	.96	1.00	1.05	.93	1.27
TH (PPM)	238.00	45.00	389.00	16.00	65.00	30.00	262.00	159.00	198.00	269.00
TH/UT	2.70	.46	1.31	.33	1.00	.84	1.01	.52	1.38	2.50
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.39	3.02	4.27	4.06	3.04	3.67	4.48	4.10	3.73	2.89
CA (%)	.05	-.05	.10	-.05	-.05	-.05	-.05	.19	.05	-.05
FE (%)	2.22	.95	5.06	1.04	1.26	1.30	3.01	1.65	3.61	6.35
MG (%)	.43	.27	.31	.33	.24	.36	.48	.43	.45	.70
NA (%)	.73	.58	.11	.11	.68	.46	.39	.37	.28	.20
K (%)	1.89	1.88	1.97	1.15	1.42	1.82	2.18	2.28	1.98	1.46
AG (PPM)	-2.00	2.00	-2.00	-2.00	5.00	-2.00	4.00	-2.00	-2.00	6.00
B (PPM)	-10.00	-10.00	-10.00	10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	286.00	296.00	294.00	270.00	187.00	249.00	314.00	280.00	258.00	161.00
BE (PPM)	2.00	4.00	3.00	2.00	2.00	4.00	6.00	3.00	6.00	4.00
CE (PPM)	210.00	46.00	441.00	62.00	51.00	52.00	210.00	143.00	138.00	223.00
CO (PPM)	50.00	18.00	81.00	17.00	21.00	26.00	216.00	42.00	94.00	210.00
CR (PPM)	49.00	17.00	97.00	47.00	30.00	58.00	72.00	36.00	86.00	66.00
CU (PPM)	36.00	59.00	83.00	22.00	98.00	55.00	117.00	62.00	142.00	257.00
HF (PPM)	ND	ND	-15.00	-15.00	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	645.00	101.00	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	4.00	7.00	5.00	5.00	6.00	8.00	8.00	8.00	5.00
MN (PPM)	64.00	66.00	98.00	92.00	53.00	83.00	126.00	90.00	97.00	152.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	4.00	7.00
NB (PPM)	18.00	7.00	56.00	8.00	9.00	8.00	26.00	17.00	15.00	18.00
NI (PPM)	51.00	26.00	69.00	22.00	26.00	66.00	90.00	44.00	71.00	135.00
P (PPM)	146.00	49.00	517.00	205.00	66.00	41.00	186.00	111.00	261.00	223.00
PB (PPM)	ND	ND	415.00	10.00	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	2.00	5.00	4.00	2.00	4.00	6.00	5.00	7.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	38.00	21.00	14.00	9.00	18.00	18.00	24.00	21.00	17.00	14.00
TI (PPM)	1126.00	884.00	1606.00	1100.00	606.00	1042.00	1501.00	1033.00	1647.00	1081.00
V (PPM)	17.00	18.00	20.00	25.00	16.00	26.00	35.00	27.00	38.00	18.00
Y (PPM)	25.00	7.00	56.00	6.00	9.00	3.00	35.00	32.00	23.00	26.00
ZN (PPM)	17.00	8.00	19.00	24.00	8.00	13.00	15.00	14.00	10.00	20.00
ZR (PPM)	121.00	89.00	139.00	60.00	41.00	65.00	99.00	74.00	112.00	128.00

DRILL HOLE NUMBER EMB8

SAMP. NO.	157804	157741	152095	157805	157744	157743	152099	157748	157749	157752
TOP DEPTH	329.50	335.00	335.50	336.00	337.30	338.30	338.30	349.00	351.30	356.00
BOT DEPTH	330.00	336.00		337.00	338.30					
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	CQZ
UL (PPM)	197.90	349.40	359.00	203.20	140.80	255.80	237.00	93.06	220.00	138.30
UT (PPM)	111.00	276.70	413.50	217.10	109.10	189.20	250.90	100.50	137.00	116.50
UL/UT	1.78	1.26	.87	.94	1.29	1.35	.94	.93	1.61	1.19
TH (PPM)	138.00	176.00	359.00	212.00	130.00	165.00	573.00	124.00	483.00	275.00
TH/UT	1.24	.64	.87	.98	1.19	.87	2.28	1.23	3.53	2.36
AU (PPM)	ND	ND	.25	ND	ND	ND	0.00	ND	ND	ND
AL (%)	3.71	3.97	2.97	3.70	3.34	3.03	3.63	3.57	3.28	3.47
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	1.62	1.90	2.96	1.72	2.04	2.82	8.14	1.28	2.82	2.04
MG (%)	.24	.29	.24	.30	.26	.28	.33	.37	.30	.40
NA (%)	.44	.19	.17	.13	.17	.31	.05	.45	.16	.06
K (%)	1.85	2.16	1.92	2.01	1.82	2.29	2.33	1.86	1.74	1.89
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	250.00	278.00	190.00	255.00	238.00	299.00	236.00	230.00	220.00	221.00
BE (PPM)	4.00	4.00	2.00	5.00	4.00	6.00	3.00	4.00	6.00	6.00
CE (PPM)	141.00	105.00	194.00	112.00	165.00	167.00	365.00	134.00	462.00	205.00
CO (PPM)	47.00	35.00	70.00	35.00	37.00	41.00	169.00	39.00	75.00	50.00
CR (PPM)	44.00	54.00	37.00	44.00	34.00	28.00	105.00	33.00	66.00	71.00
CU (PPM)	58.00	114.00	93.00	56.00	69.00	73.00	221.00	4.00	131.00	53.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	6.00	5.00	6.00	5.00	5.00	6.00	7.00	6.00	8.00
MN (PPM)	55.00	69.00	56.00	71.00	63.00	63.00	83.00	39.00	46.00	44.00
MO (PPM)	-4.00	-4.00	-4.00	6.00	-4.00	-4.00	9.00	-4.00	-4.00	4.00
NB (PPM)	18.00	28.00	45.00	32.00	28.00	21.00	36.00	23.00	27.00	29.00
NI (PPM)	55.00	33.00	58.00	39.00	29.00	32.00	89.00	31.00	68.00	43.00
P (PPM)	113.00	123.00	156.00	100.00	117.00	201.00	313.00	127.00	285.00	270.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	5.00	4.00	4.00	4.00	4.00	6.00	3.00	5.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	20.00	15.00	11.00	11.00	15.00	23.00	11.00	18.00	13.00	7.00
TI (PPM)	1114.00	1418.00	1200.00	1394.00	1097.00	1108.00	1741.00	932.00	1489.00	1364.00
V (PPM)	21.00	26.00	12.00	23.00	22.00	15.00	17.00	15.00	14.00	18.00
Y (PPM)	17.00	24.00	41.00	31.00	20.00	23.00	45.00	21.00	42.00	34.00
ZN (PPM)	14.00	10.00	13.00	13.00	9.00	7.00	16.00	7.00	9.00	10.00
ZR (PPM)	184.00	117.00	167.00	238.00	130.00	86.00	321.00	98.00	282.00	225.00

DRILL HOLE NUMBER ENBS

SAMP. NO.	157798	157750	158427	158428	158429	158430	158431	157739	152100	157775
TOP DEPTH	356.30	357.80	360.00	369.00	372.00	379.20	386.00	387.00	388.00	389.00
BOT DEPTH			361.00	370.00	373.00	380.20	387.00			389.30
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	CQZ	GPC	GPC	GPC	GPC	GPC	CQZ	GPC	GPC
UL (PPM)	72.10	124.50	26.81	227.00	78.53	150.60	132.10	1048.00	350.50	477.80
UT (PPM)	66.80	97.00	38.40	280.10	89.40	150.00	143.00	841.10	104.80	455.60
UL/UT	1.08	1.28	.70	.81	.88	1.00	.92	1.25	3.34	1.05
TH (PPM)	38.00	118.00	11.00	353.00	152.00	115.00	366.00	344.00	276.00	360.00
TH/UT	.57	1.22	.29	1.26	1.70	.77	2.56	.41	2.63	.79
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND
AL (%)	4.84	3.33	5.20	3.39	3.76	4.13	4.10	3.47	3.79	3.66
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	1.22	1.32	.69	3.27	2.36	2.68	3.53	2.19	2.89	4.14
MG (%)	.50	.28	.37	.37	.47	.47	.44	.34	.36	.36
NA (%)	.15	.53	.55	.11	.08	.06	.08	.17	.21	.15
K (%)	2.60	1.56	2.21	.83	.96	1.81	1.66	1.88	2.22	1.97
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	12.00	3.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	23.00	-10.00	-10.00	-10.00
BA (PPM)	323.00	233.00	371.00	267.00	253.00	253.00	289.00	245.00	271.00	263.00
BE (PPM)	6.00	3.00	2.00	2.00	3.00	2.00	4.00	3.00	3.00	6.00
CE (PPM)	38.00	124.00	37.00	266.00	138.00	81.00	342.00	108.00	161.00	199.00
CO (PPM)	18.00	36.00	9.00	82.00	45.00	47.00	68.00	55.00	62.00	89.00
CR (PPM)	51.00	30.00	32.00	68.00	49.00	63.00	108.00	47.00	83.00	93.00
CU (PPM)	25.00	121.00	69.00	57.00	19.00	51.00	147.00	158.00	197.00	209.00
HF (PPM)	ND	ND	-15.00	-15.00	-15.00	-15.00	41.00	ND	ND	ND
LA (PPM)	ND	ND	66.00	404.00	203.00	125.00	443.00	ND	ND	ND
LI (PPM)	10.00	6.00	7.00	5.00	7.00	9.00	11.00	10.00	9.00	9.00
MN (PPM)	57.00	39.00	41.00	32.00	47.00	49.00	34.00	35.00	40.00	42.00
MO (PPM)	7.00	-4.00	-4.00	-4.00	-4.00	5.00	18.00	-4.00	-4.00	-4.00
NB (PPM)	30.00	27.00	5.00	24.00	10.00	12.00	52.00	83.00	62.00	73.00
NI (PPM)	21.00	42.00	16.00	70.00	36.00	36.00	75.00	67.00	60.00	72.00
P (PPM)	38.00	139.00	30.00	262.00	126.00	51.00	277.00	270.00	213.00	262.00
PB (PPM)	ND	ND	-10.00	63.00	-10.00	39.00	89.00	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	3.00	3.00	4.00	4.00	5.00	8.00	6.00	6.00	8.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	9.00	18.00	17.00	11.00	8.00	6.00	9.00	11.00	12.00	10.00
TI (PPM)	1718.00	1071.00	934.00	1239.00	1167.00	1273.00	1515.00	1314.00	1551.00	1699.00
V (PPM)	33.00	15.00	22.00	25.00	25.00	37.00	46.00	34.00	33.00	45.00
Y (PPM)	8.00	16.00	4.00	29.00	15.00	11.00	40.00	97.00	42.00	55.00
ZN (PPM)	12.00	11.00	9.00	15.00	12.00	11.00	16.00	14.00	11.00	15.00
ZR (PPM)	81.00	88.00	58.00	133.00	106.00	57.00	118.00	137.00	109.00	161.00

DRILL HOLE NUMBER EMB8

SAMP. NO.	157747	152102	157742	157746	157740	152101
TOP DEPTH	395.00	400.00	418.50	436.00	461.00	557.00
BOT DEPTH	395.30					
FORMATION	MG	MG	MG	MG	MG	MI
LITHOLOGY	QPC	QZ	QZ	QZ	QZ	ASC
UL (PPM)	221.40	26.65	298.90	158.80	9.02	8.71
UT (PPM)	225.70	37.00	259.90	141.80	6.20	8.30
UL/UT	.98	.72	1.15	1.12	1.43	1.05
TH (PPM)	207.00	66.00	320.00	354.00	10.00	6.00
TH/UT	1.27	1.78	1.23	2.50	1.61	.72
AU (PPM)	ND	ND	ND	ND	ND	ND
AL (%)	3.26	4.19	3.76	2.93	2.97	4.13
CA (%)	-.05	.07	-.05	-.05	-.05	.31
FE (%)	3.54	1.26	2.80	3.80	.72	8.82
MG (%)	.47	.31	.30	.31	.36	3.27
NA (%)	-.05	.34	.26	.20	.05	.27
K (%)	1.67	1.98	1.92	1.52	1.63	2.47
AG (PPM)	-2.00	-2.00	-2.00	-2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	195.00	306.00	259.00	236.00	205.00	122.00
BE (PPM)	6.00	2.00	5.00	6.00	2.00	1.00
CE (PPM)	139.00	99.00	263.00	389.00	35.00	21.00
CO (PPM)	70.00	17.00	50.00	60.00	29.00	72.00
CR (PPM)	67.00	33.00	54.00	43.00	15.00	110.00
CU (PPM)	11.00	25.00	194.00	96.00	49.00	231.00
HF (PPM)	ND	-3.00	ND	ND	ND	ND
LA (PPM)	ND	108.00	ND	ND	ND	ND
LI (PPM)	9.00	6.00	8.00	7.00	9.00	49.00
MN (PPM)	54.00	44.00	44.00	37.00	26.00	391.00
MO (PPM)	5.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	58.00	20.00	48.00	60.00	7.00	26.00
NI (PPM)	86.00	28.00	46.00	47.00	9.00	68.00
P (PPM)	193.00	66.00	266.00	339.00	44.00	396.00
PB (PPM)	ND	25.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	4.00	5.00	5.00	3.00	16.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	7.00	19.00	16.00	14.00	4.00	21.00
TI (PPM)	1350.00	921.00	1475.00	1249.00	475.00	5186.00
V (PPM)	25.00	23.00	25.00	20.00	14.00	248.00
Y (PPM)	36.00	8.00	38.00	46.00	3.00	9.00
ZN (PPM)	18.00	11.00	12.00	12.00	12.00	115.00
ZR (PPM)	177.00	70.00	192.00	103.00	66.00	54.00

DRILL HOLE NO. EMB 9

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 3420 FSL, 1220 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 30' 46"

LONGITUDE: 106° 11' 50"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8550

ANGLE: 50°

BEARING: N 34 E

TOTAL DEPTH: 534'

SPUD DATE: unknown

COMPLETION DATE: Fall, 1978

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole logs available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Metagabbro: 0-76) (Magnolia Fm. Unit 5: 76-330) (Metagabbro: 330-534)

RADIOACTIVE ZONES: 280-290, 367

CORE LOGGERS: R. S. Houston, K. E. Karlstrom, T. Kratochvil, C. Coolidge.

DRILL HOLE EMB-9

OBJECTIVES:

1. Several radioactive zones (including one major hot zone with up to 100 ppm U, 920 ppm Th.) crop out on the ridge up section (south-west) of drill hole EMB-2. EMB-9 was to penetrate these in the subsurface. When combined with EMB-2, this provides subsurface information from the entire section exposed on this upright limb of the syncline (Figure 10).

CONCLUSIONS:

1. Subsurface data show one major conglomerate zone, from 280 to 303 feet with up to 550 ppm U, 1100 ppm Th., which corresponds well with that mapped on the surface (Figure 11).

Subsurface Th/U ratios in this zone averaged 2 whereas surface ratios averaged 6, again indicating appreciable surface leaching of uranium.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 9
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB9

SAMP. NO.	152104	157771	157773	157772	152103	157770
TOP DEPTH	283.00	284.00	284.50	285.00	285.00	299.00
BOT DEPTH		284.50	285.00	285.30		300.00
FORMATION	MG	MG	MG	MG	MG	MG
LITHOLOGY	QZ	QPC	QPC	AQZ	C	QPC
UL (PPM)	71.12	114.20	931.00	26.41	570.00	17.26
UT (PPM)	63.90	102.80	378.90	21.40	545.00	17.90
UL/UT	1.11	1.11	2.46	1.23	1.05	.96
TH (PPM)	116.00	220.00	909.00	48.00	1143.00	31.00
TH/UT	1.82	2.14	2.40	2.24	2.10	1.73
AU (PPM)	ND	ND	ND	ND	ND	ND
AL (%)	3.62	3.44	2.76	3.47	2.28	2.88
CA (%)	.05	-.05	.07	.07	-.05	.08
FE (%)	.73	1.30	4.34	.68	5.96	5.14
MG (%)	.23	.23	.23	.23	.22	.53
NA (%)	1.04	.76	.37	.87	.19	.79
K (%)	1.77	1.57	1.25	1.41	1.34	.86
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	152.00	162.00	133.00	144.00	101.00	112.00
BE (PPM)	1.00	3.00	5.00	3.00	2.00	2.00
CE (PPM)	114.00	230.00	921.00	88.00	824.00	94.00
CO (PPM)	19.00	25.00	77.00	9.00	116.00	132.00
CR (PPM)	26.00	33.00	65.00	24.00	86.00	83.00
CU (PPM)	16.00	96.00	305.00	41.00	219.00	427.00
HF (PPM)	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND
LI (PPM)	11.00	15.00	13.00	11.00	16.00	7.00
MN (PPM)	15.00	14.00	41.00	25.00	19.00	44.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	27.00	50.00	81.00	22.00	85.00	-4.00
NI (PPM)	12.00	26.00	64.00	9.00	79.00	58.00
P (PPM)	101.00	155.00	633.00	94.00	868.00	371.00
PB (PPM)	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	9.00	3.00	11.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	13.00	13.00	13.00	23.00	8.00	16.00
TI (PPM)	787.00	878.00	1397.00	853.00	1356.00	858.00
V (PPM)	11.00	13.00	13.00	13.00	6.00	45.00
Y (PPM)	16.00	28.00	128.00	10.00	142.00	9.00
ZN (PPM)	25.00	91.00	85.00	125.00	89.00	153.00
ZR (PPM)	153.00	190.00	582.00	133.00	934.00	127.00

DRILL HOLE NO. EMB 10

AREA: Onemile Creek, Medicine Bow Mountains

LOCATION: 2820 FSL, 1095 FEL, Sec. 6, T. 18 N., R. 78 W.

LATITUDE: 41° 33' 42"

LONGITUDE: 106° 11' 49"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8605

ANGLE: 45°

BEARING: N 40 W

TOTAL DEPTH: 849

SPUD DATE: unknown

COMPLETION DATE: Summer 1978

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-106)

PROBE T.D.:

DATE:

REMARKS: No down hole logs available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Metagabbro: 0-638) (Magnolia Fm.: 638-719) (Metagabbro: 719-849)

RADIOACTIVE ZONES: Seven 2' zones from 660-680

CORE LOGGERS: John P. Turner, Dave Inlow

DRILL HOLE EMB-10

OBJECTIVES:

1. One complexity of Onemile Creek structure is a northeast-trending ridge of radioactive conglomerates which is bounded by mafic bodies in the EMB-9 area. These conglomerates contain up to 64 ppm U, 320 ppm Th. on the surface and were obviously worthy of drilling. The drill hole was to give information on subsurface mineralization.
2. In terms of structure, subsurface information was also useful in determining whether this strike ridge is an aberrant fault block (our view) or part of the east limb of a small south-plunging anticline cored by metagabbro.

CONCLUSIONS:

1. This hole drilled 638 feet of metagabbro penetrating an 81 foot thick zone of quartzites and radioactive conglomerates, then back into metagabbro. We did not manage to obtain 23 feet of the core from this radioactive interval but what we got included coarse and very pyritic quartz-pebble conglomerate containing up to 460 ppm U and 88 ppm Th.
2. There are several reasons we consider this strike ridge to be a fault sliver. First, we have found good crossbedding indicating that tops are to the northwest along this strike ridge which make the anticline interpretation impossible. Second, the unit is so thin at subsurface depths of 638 feet that we envision the fault block going to zero thickness at slightly deeper levels and passing into metagabbro. We view this slice to be more or less "floating" in a large metagabbro body.

NOTE: See Figures 10 and 11 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB 10
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB10

SAMP. NO.	157242	157243	157253	152090	157245	152087	157246	152091	157251	157249
TOP DEPTH	659.00	660.00	661.00	662.50	663.00	664.00	664.50	664.50	668.00	669.70
BOT DEPTH			662.00	664.00					668.70	670.10
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	62.93	107.80	64.72	22.81	173.10	110.40	138.60	396.60	61.72	25.81
UT (PPM)	57.20	150.20	58.30	23.70	142.90	129.40	112.70	461.60	64.40	11.80
UL/UT	1.10	.72	1.11	.96	1.21	.85	1.23	.86	.96	2.19
TH (PPM)	20.00	74.00	26.00	34.00	43.00	62.00	30.00	88.00	32.00	17.00
TH/UT	.35	.49	.45	1.43	.30	.48	.27	.19	.50	1.44
AU (PPM)	ND	ND	ND	0.00	ND	0.00	ND	0.00	ND	ND
AL (%)	3.88	3.20	4.52	4.62	5.09	3.52	4.13	5.08	2.15	6.02
CA (%)	-.05	-.05	-.05	.06	-.05	-.05	.08	.05	-.05	.09
FE (%)	1.23	5.89	1.50	.80	3.70	8.73	7.54	11.31	3.16	.67
MG (%)	.19	.23	.31	.18	.22	.23	.18	.22	.19	.32
NA (%)	.49	.32	.59	1.03	.59	.10	.82	.38	.19	.56
K (%)	1.35	1.38	1.90	1.88	2.08	2.20	1.42	1.92	.99	2.28
AG (PPM)	5.00	-2.00	2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	3.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	10.00
BA (PPM)	95.00	113.00	146.00	131.00	176.00	147.00	137.00	176.00	75.00	169.00
BE (PPM)	1.00	1.00	2.00	-1.00	1.00	-1.00	2.00	1.00	2.00	3.00
CE (PPM)	19.00	21.00	21.00	24.00	25.00	29.00	12.00	46.00	18.00	31.00
CO (PPM)	23.00	87.00	18.00	13.00	48.00	131.00	97.00	103.00	45.00	10.00
CR (PPM)	36.00	16.00	25.00	14.00	34.00	41.00	40.00	57.00	19.00	22.00
CU (PPM)	98.00	131.00	102.00	21.00	16.00	210.00	172.00	38.00	202.00	18.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-3.00	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	50.00	ND	ND
LI (PPM)	10.00	13.00	16.00	9.00	12.00	13.00	9.00	15.00	10.00	19.00
MN (PPM)	17.00	26.00	23.00	15.00	24.00	25.00	28.00	16.00	19.00	30.00
MO (PPM)	8.00	40.00	-4.00	45.00	77.00	87.00	19.00	10.00	18.00	37.00
NB (PPM)	-4.00	5.00	4.00	-4.00	4.00	-4.00	4.00	-4.00	-4.00	5.00
NI (PPM)	20.00	53.00	14.00	18.00	41.00	75.00	50.00	68.00	27.00	13.00
P (PPM)	-5.00	82.00	41.00	26.00	62.00	39.00	90.00	38.00	74.00	40.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	173.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	5.00	6.00	5.00	7.00	8.00	8.00	8.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	10.00	9.00	13.00	16.00	12.00	5.00	22.00	11.00	7.00	14.00
TI (PPM)	736.00	876.00	1101.00	784.00	1296.00	1233.00	1021.00	1578.00	613.00	1020.00
V (PPM)	43.00	41.00	53.00	37.00	61.00	46.00	73.00	92.00	25.00	34.00
Y (PPM)	5.00	14.00	5.00	4.00	10.00	9.00	9.00	21.00	6.00	3.00
ZN (PPM)	79.00	67.00	49.00	41.00	46.00	28.00	29.00	32.00	50.00	35.00
ZR (PPM)	35.00	114.00	77.00	58.00	99.00	70.00	65.00	79.00	47.00	67.00

DRILL HOLE NUMBER EMB10

SAMP. NO.	157248	152089	152088	152092	157252	157250	157247
TOP DEPTH	671.00	671.00	673.00	675.00	676.30	677.30	679.70
BOT DEPTH					677.30	677.80	680.70
FORMATION	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QZ	QZ	QZ	QPC	QPC	QPC
UL (PPM)	294.40	336.00	98.44	45.74	153.40	79.41	69.04
UT (PPM)	196.20	267.30	98.10	44.20	147.50	68.70	58.80
UL/UT	1.50	1.26	1.00	1.03	1.04	1.16	1.17
TH (PPM)	54.00	53.00	33.00	25.00	38.00	25.00	34.00
TH/UT	.28	.20	.34	.57	.26	.36	.58
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.18	5.44	5.14	3.12	5.08	3.59	2.94
CA (%)	.07	.09	.19	-.05	-.05	-.05	-.05
FE (%)	6.73	5.03	2.53	1.59	3.60	1.89	2.38
MG (%)	.37	.41	.25	.28	.26	.19	.30
NA (%)	.44	.53	.84	.23	.37	.23	.32
K (%)	2.31	2.53	1.62	1.63	2.32	1.58	1.23
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	216.00	252.00	145.00	90.00	195.00	139.00	115.00
BE (PPM)	1.00	1.00	1.00	-1.00	3.00	1.00	1.00
CE (PPM)	20.00	17.00	38.00	20.00	26.00	19.00	27.00
CO (PPM)	141.00	99.00	35.00	50.00	45.00	24.00	41.00
CR (PPM)	56.00	51.00	41.00	14.00	40.00	22.00	16.00
CU (PPM)	12.00	9.00	37.00	1412.00	66.00	52.00	79.00
HF (PPM)	ND	ND	4.00	ND	ND	ND	ND
LA (PPM)	ND	ND	42.00	ND	ND	ND	ND
LI (PPM)	22.00	23.00	13.00	14.00	13.00	9.00	11.00
MN (PPM)	42.00	40.00	22.00	19.00	25.00	19.00	24.00
MO (PPM)	66.00	37.00	21.00	7.00	5.00	7.00	26.00
NB (PPM)	6.00	12.00	-4.00	-4.00	4.00	-4.00	-4.00
NI (PPM)	43.00	29.00	35.00	21.00	33.00	20.00	25.00
P (PPM)	77.00	23.00	48.00	109.00	165.00	41.00	57.00
PB (PPM)	ND	ND	111.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	9.00	11.00	8.00	4.00	10.00	6.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	14.00	17.00	23.00	6.00	11.00	7.00	10.00
TI (PPM)	1628.00	2075.00	1245.00	716.00	1604.00	961.00	746.00
V (PPM)	85.00	91.00	71.00	28.00	75.00	54.00	29.00
Y (PPM)	14.00	16.00	8.00	4.00	9.00	6.00	7.00
ZN (PPM)	67.00	32.00	56.00	119.00	20.00	27.00	53.00
ZR (PPM)	108.00	105.00	67.00	61.00	99.00	58.00	96.00

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DRILL HOLE NO. EMB 11

AREA: Threemile Creek, Medicine Bow Mountains

LOCATION: 450 E, 4250 N. of SW corner, Sec. 19, T. 18 N., R. 78 W.

LATITUDE: 41° 31' 20"

LONGITUDE: 106° 12' 38"

COUNTY: Carbon

TOPOGRAPHIC QUAD Arlington

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9020

ANGLE: 65°

BEARING: S 28 E

TOTAL DEPTH: 906

SPUD DATE: unknown

COMPLETION DATE: Fall 1979

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-107)

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No Kut log available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-906)

RADIOACTIVE ZONES: 437, 448, 457, 460, 494, 519, 530, 577, 610, 622, 705, 708,
805-808, 839, 842, 846

CORE LOGGERS: John P. Turner

DRILL HOLE EMB-11

OBJECTIVES:

1. EMB-11 was spotted about fifty feet east, up-hill, of EMB-5 and was designed to drill along the same bearing and plunge, but deeper, to intersect the radioactive quartz-pebble conglomerates which crop out immediately above arkosic paraconglomerates in this area. These conglomerates contain up to 51 ppm U and 131 ppm Th. in outcrop and had been the target for EMB-5. But Emb-5 was terminated before it reached its target.

CONCLUSIONS:

1. As in EMB-5, conglomerates were encountered at about 200 feet and these passed gradationally into more radioactive arkosic paraconglomerates at about 430 feet. The interval drilled from 435 to 610 feet contained numerous radioactive conglomerates, with values up to 508 ppm U and 430 ppm Th. Quartz-pebble conglomerates continue to occur deeper in the drill hole, with values up to 365 ppm U and 344 ppm Th. in some relatively thin, conglomerate zones.

2. A chlorite - biotite schist encountered from 733 to 774 feet lines up with an intrusive metagabbro mapped on the surface. These units are probably the same and indicate an average dip of "bedding" of 65 degrees if the mafic body is a sill.

3. Perhaps the most important conclusion from this hole involves the observation that all contacts appear to be gradational: the quartzites encountered first in the hole pass stratigraphically upward (structurally downward) into arkosic paraconglomerate, quartz-pebble conglomerate, then quartz-graunule conglomerate with lenses of radioactive quartz-pebble conglomerate. This appears to strengthen our view that the arkosic paraconglomerate in the Threemile Creek area is basal Magnolia Formation rather than a facies of the Colberg paraconglomerate. We envision alluvial fan deposition which re-transported granite cobbles from the underlying paraconglomerate and deposited these within arkosic section of the basal Magnolia. It is also significant that the most radioactive rocks occur near the top of the Conglomerate Member and within a section which is still predominantly paraconglomerate.

NOTE: See Figure 12 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE EMB II SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER EMB11

SAMP. NO.	158408	158409	158410	158411	158412	158413	158414	158415	158416	158417
TOP DEPTH	195.00	223.70	245.00	262.50	266.00	306.50	330.50	350.00	393.00	437.00
BOT DEPTH			246.00		267.00	307.50				
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	Q	C	QGC	QGC	QPC	CSC	QGC	QPC	CSC	PAC
UL (PPM)	5.48	4.41	6.98	7.48	11.33	10.42	10.38	30.02	5.21	26.40
UT (PPM)	5.20	6.81	7.75	9.06	11.30	12.10	11.20	32.20	6.26	32.90
UL/UT	1.05	.65	.90	.83	1.00	.86	.93	.93	.83	.80
TH (PPM)	17.00	10.00	11.00	6.00	12.00	13.00	16.00	37.00	13.00	16.00
TH/UT	3.27	1.47	1.42	.66	1.06	1.07	1.43	1.15	2.08	.49
AU (PPM)	ND	NU	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.74	5.06	5.38	4.90	5.81	8.38	5.74	6.65	6.17	6.41
CA (%)	.11	.06	.03	.05	.06	.46	.28	.39	.11	.24
FE (%)	1.08	1.08	.99	.88	1.05	5.48	2.79	4.80	5.89	6.23
MG (%)	.35	.38	.42	.34	.40	1.52	.57	.70	1.00	1.20
NA (%)	1.48	.81	1.03	1.30	1.29	.96	1.79	1.66	.80	.23
K (%)	1.65	2.14	2.12	1.75	1.97	2.53	1.54	1.51	1.34	1.27
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	428.00	597.00	572.00	497.00	558.00	821.00	414.00	539.00	484.00	706.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
CE (PPM)	21.00	17.00	42.00	25.00	23.00	35.00	54.00	41.00	40.00	36.00
CO (PPM)	-4.00	6.00	5.00	5.00	7.00	19.00	10.00	38.00	23.00	41.00
CR (PPM)	23.00	15.00	24.00	19.00	18.00	56.00	38.00	89.00	32.00	67.00
CU (PPM)	14.00	36.00	29.00	53.00	48.00	61.00	21.00	207.00	75.00	130.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	31.00	21.00	58.00	24.00	37.00	60.00	84.00	68.00	63.00	63.00
LI (PPM)	8.00	12.00	12.00	12.00	12.00	25.00	14.00	13.00	11.00	11.00
MN (PPM)	99.00	181.00	76.00	66.00	86.00	568.00	226.00	913.00	432.00	627.00
MO (PPM)	-4.00	5.00	7.00	11.00	10.00	-4.00	25.00	-4.00	5.00	6.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	10.00	14.00	20.00	7.00	19.00	46.00	20.00	39.00	44.00	52.00
P (PPM)	182.00	151.00	100.00	77.00	159.00	752.00	305.00	483.00	221.00	553.00
PR (PPM)	-10.00	-10.00	-10.00	15.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	4.00	3.00	4.00	20.00	6.00	13.00	9.00	17.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	NU	NU	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	58.00	36.00	33.00	27.00	26.00	58.00	40.00	53.00	35.00	22.00
TI (PPM)	889.00	677.00	1102.00	717.00	885.00	5233.00	1452.00	2630.00	1963.00	4485.00
V (PPM)	25.00	24.00	32.00	25.00	31.00	181.00	49.00	121.00	92.00	158.00
Y (PPM)	6.00	3.00	6.00	4.00	6.00	18.00	9.00	13.00	7.00	15.00
ZN (PPM)	19.00	17.00	21.00	17.00	28.00	66.00	26.00	43.00	53.00	66.00
ZR (PPM)	48.00	54.00	65.00	57.00	66.00	113.00	58.00	67.00	47.00	108.00

DRILL HOLE NUMBER ENB11

SAMP. NO.	158418	158419	158482	158483	158488	158436	158437	158484	158438	158486
TOP DEPTH	438.00	447.00	457.00	459.00	459.50	495.80	519.00	529.50	532.50	552.50
BOT DEPTH	439.00	447.50	458.00	459.30	459.80	496.50	519.20	530.00	535.50	553.30
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	PAC	PAC	PAC	QZ	GPC	PAC	PAC	QZ	GPC	QZ
UL (PPM)	100.90	382.90	206.60	71.34	108.90	105.70	508.30	230.80	60.44	81.85
UT (PPM)	145.00	312.00	ND	ND	ND	125.00	365.00	ND	58.30	41.40
UL/UT	.70	1.23	ND	ND	ND	.85	1.39	ND	1.04	1.98
TH (PPM)	43.00	149.00	72.00	26.00	45.00	46.00	100.00	80.00	29.00	42.00
TH/UT	.30	.48	ND	ND	ND	.37	.27	ND	.50	1.01
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.54	5.44	6.51	6.20	5.16	7.17	6.70	7.50	4.16	5.94
CA (%)	.27	.19	.64	.35	.89	.28	.27	.27	.09	.14
FE (%)	6.06	5.82	5.43	4.70	5.24	3.47	3.58	3.22	2.98	3.61
Mg (%)	1.04	1.15	1.08	.06	.81	1.00	.51	.60	.48	.57
NA (%)	1.05	.88	1.40	.92	1.37	2.15	1.77	.92	.32	.76
K (%)	1.02	1.38	1.27	2.02	1.13	1.19	1.62	2.45	.93	2.16
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	398.00	400.00	371.00	531.00	317.00	326.00	440.00	627.00	343.00	466.00
BE (PPM)	1.00	1.00	2.00	1.00	1.00	2.00	2.00	2.00	1.00	2.00
CE (PPM)	33.00	57.00	63.00	25.00	32.00	49.00	84.00	55.00	65.00	53.00
CO (PPM)	62.00	41.00	27.00	17.00	31.00	14.00	17.00	13.00	17.00	21.00
CR (PPM)	79.00	67.00	47.00	65.00	67.00	29.00	52.00	33.00	57.00	51.00
CU (PPM)	160.00	65.00	112.00	38.00	81.00	-2.00	82.00	14.00	219.00	55.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	46.00	82.00	92.00	50.00	44.00	76.00	116.00	82.00	99.00	81.00
LI (PPM)	9.00	12.00	13.00	15.00	13.00	10.00	10.00	15.00	6.00	11.00
MN (PPM)	593.00	359.00	687.00	758.00	1495.00	359.00	438.00	486.00	185.00	455.00
MO (PPM)	4.00	5.00	4.00	-4.00	-4.00	10.00	13.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	4.00	-4.00	-4.00
NI (PPM)	56.00	48.00	44.00	39.00	45.00	26.00	31.00	18.00	47.00	24.00
P (PPM)	308.00	356.00	1071.00	298.00	349.00	382.00	267.00	437.00	274.00	294.00
PB (PPM)	23.00	136.00	55.00	12.00	34.00	42.00	158.00	51.00	-10.00	37.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	9.00	10.00	10.00	10.00	12.00	8.00	9.00	12.00	8.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	33.00	31.00	66.00	39.00	46.00	56.00	58.00	37.00	21.00	38.00
TI (PPM)	2634.00	2554.00	1925.00	2707.00	3276.00	1768.00	2057.00	3335.00	938.00	1825.00
V (PPM)	103.00	93.00	92.00	104.00	97.00	74.00	80.00	86.00	72.00	60.00
Y (PPM)	13.00	50.00	23.00	14.00	22.00	14.00	34.00	24.00	13.00	14.00
ZN (PPM)	54.00	58.00	91.00	52.00	47.00	30.00	46.00	53.00	22.00	31.00
ZR (PPM)	116.00	146.00	97.00	79.00	65.00	111.00	140.00	112.00	62.00	98.00

DRILL HOLE NUMBER EMB11

SAMP. NO.	158487	158439	158440	158442	158489	158490	158443	158444	158445	158446
TOP DEPTH	554.80	567.00	577.00	603.50	610.00	621.30	666.50	683.00	703.60	772.50
BOT DEPTH	555.40	567.20	577.50	604.00	610.20	621.60	667.00		704.00	773.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QZ	QPC	PAC	QPC	SS	QPC	QZ	QZ	QPC	QGC
UL (PPM)	88.20	ND	147.90	32.68	444.60	121.50	12.67	31.82	66.30	10.22
UT (PPM)	ND	ND	167.00	34.20	ND	ND	10.90	26.50	61.20	9.17
UL/UT	ND	ND	.89	.96	ND	ND	1.16	1.20	1.08	1.11
TH (PPM)	41.00	ND	40.00	54.00	96.00	49.00	20.00	8.00	74.00	8.00
TH/UT	ND	ND	.24	1.58	ND	ND	1.84	.30	1.21	.87
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.66	ND	6.71	5.77	5.75	5.68	6.29	5.03	5.08	3.87
CA (%)	.17	ND	.38	.16	.26	.15	.10	.08	.11	.08
FE (%)	4.17	ND	5.48	2.48	3.28	2.57	2.04	1.41	1.99	1.15
MG (%)	.59	ND	.87	.54	.72	.69	.57	.57	.52	.52
NA (%)	.59	ND	1.55	1.01	1.10	1.45	1.47	1.40	.65	1.07
K (%)	1.57	ND	2.06	2.08	1.76	1.87	1.96	1.50	1.01	.58
AG (PPM)	-2.00	ND	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	ND	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	365.00	ND	473.00	472.00	445.00	423.00	386.00	239.00	308.00	196.00
BE (PPM)	1.00	ND	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00
CE (PPM)	42.00	ND	54.00	28.00	54.00	45.00	37.00	35.00	133.00	18.00
CO (PPM)	26.00	ND	40.00	7.00	19.00	13.00	7.00	5.00	15.00	5.00
CR (PPM)	66.00	ND	51.00	32.00	52.00	46.00	51.00	28.00	28.00	25.00
CU (PPM)	91.00	ND	70.00	27.00	54.00	34.00	20.00	8.00	-2.00	-2.00
HF (PPM)	-15.00	ND	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	59.00	ND	87.00	48.00	76.00	62.00	53.00	49.00	201.00	30.00
LI (PPM)	9.00	ND	15.00	10.00	11.00	9.00	0.00	7.00	4.00	3.00
MN (PPM)	488.00	ND	1023.00	165.00	437.00	425.00	195.00	78.00	59.00	69.00
MO (PPM)	-4.00	ND	26.00	-4.00	5.00	-4.00	-4.00	-4.00	33.00	-4.00
NB (PPM)	-4.00	ND	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	42.00	ND	49.00	18.00	36.00	23.00	19.00	11.00	15.00	13.00
P (PPM)	536.00	ND	288.00	234.00	282.00	231.00	304.00	191.00	345.00	174.00
PB (PPM)	56.00	ND	63.00	13.00	180.00	42.00	-10.00	32.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	ND	15.00	5.00	7.00	7.00	5.00	4.00	5.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	25.00	ND	55.00	34.00	36.00	33.00	33.00	26.00	33.00	26.00
TI (PPM)	2263.00	ND	3228.00	1253.00	1930.00	2013.00	1815.00	938.00	1029.00	658.00
V (PPM)	50.00	ND	99.00	50.00	60.00	57.00	46.00	30.00	32.00	24.00
Y (PPM)	16.00	ND	27.00	11.00	33.00	16.00	5.00	4.00	20.00	4.00
ZN (PPM)	38.00	ND	55.00	24.00	38.00	31.00	28.00	11.00	13.00	10.00
ZR (PPM)	89.00	ND	94.00	69.00	109.00	90.00	81.00	60.00	108.00	46.00

DRILL HOLE NUMBER EMB11

SAMP. NO.	158447	158491	158492	158493	158448
TOP DEPTH	807.00	838.10	841.90	845.50	865.00
BOT DEPTH		838.50	842.10	845.70	
FORMATION	MG	MG	MG	MG	MG
LITHOLOGY	Q	SS	QPC	QPC	QPC
UL (PPM)	169.30	150.70	168.30	378.90	23.64
UT (PPM)	178.00	ND	ND	ND	23.10
UL/UT	.95	ND	ND	ND	1.02
TH (PPM)	344.00	93.00	282.00	85.00	19.00
TH/UT	1.93	ND	ND	ND	.82
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	5.62	4.92	4.24	5.85	5.04
CA (%)	.14	.10	.14	.13	.07
FE (%)	5.14	2.73	2.44	1.83	1.38
MG (%)	.62	.64	.00	.64	.42
NA (%)	.51	1.28	1.68	.89	.95
K (%)	2.31	1.53	.77	2.28	1.87
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	573.00	367.00	205.00	552.00	501.00
BE (PPM)	2.00	1.00	1.00	1.00	1.00
CE (PPM)	610.00	127.00	370.00	64.00	56.00
CO (PPM)	100.00	29.00	12.00	16.00	4.00
CR (PPM)	91.00	61.00	40.00	57.00	17.00
CU (PPM)	8.00	36.00	17.00	49.00	17.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	905.00	192.00	560.00	94.00	88.00
LI (PPM)	13.00	11.00	7.00	12.00	4.00
MN (PPM)	164.00	104.00	153.00	83.00	74.00
MO (PPM)	4.00	-4.00	-4.00	4.00	-4.00
NB (PPM)	10.00	4.00	-4.00	-4.00	-4.00
NI (PPM)	67.00	31.00	21.00	22.00	12.00
P (PPM)	798.00	331.00	622.00	294.00	231.00
PB (PPM)	76.00	46.00	87.00	131.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	9.00	6.00	5.00	7.00	4.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	38.00	33.00	44.00	31.00	24.00
TI (PPM)	1918.00	1183.00	920.00	1514.00	1214.00
V (PPM)	56.00	42.00	31.00	46.00	30.00
Y (PPM)	45.00	20.00	44.00	30.00	12.00
ZN (PPM)	25.00	11.00	49.00	12.00	10.00
ZR (PPM)	245.00	70.00	205.00	83.00	65.00

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DRILL HOLE NO. PL-1

AREA: Medicine Bow Mountains, east limb of Arrastre Anticline

LOCATION: 1600 FEL, 2800 FSL, Sec. 10, T. 16 N., R. 80 W.

LATITUDE: 41°22'08"

LONGITUDE: 106°22'38"

COUNTY: Carbon

TOPOGRAPHIC QUAD Medicine Bow Peak

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 10530

ANGLE: 50°

BEARING:

TOTAL DEPTH: 1289'

SPUD DATE: unknown

COMPLETION DATE: Summer 1978

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A (176-106)

PROBE T.D.:

DATE:

REMARKS: No down-hole logs available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down-hole logs available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-1232) (Colberg Metavolcanic Rocks: 1232-1289).

RADIOACTIVE ZONES: None

CORE LOGGERS: K. E. Karlstrom, R. S. Houston

DRILL HOLE PL-1

OBJECTIVES:

1. Radioactive conglomerates of the Conglomerate Member of the Magnolia Formation were discovered in the Arrastre Anticline area in 1976 and were reported on by Miller and others (1977). These conglomerates are arkosic paraconglomerates and show surface gamma radiation of up to 22000 cpm (background is about 6000 cpm here) and assays up to 8.4 ppm U and 38 ppm Th. These values are not especially high but Miller and others found that the radon content of dilute ground water in the area is significantly higher than can be accounted for by uranium content of surface rocks and they suggested the presence of appreciable uranium mineralization in subsurface rocks.

CONCLUSIONS:

1. Drill hole PL-1 was spudded and drilled to 599 feet in the Quartzite Member of the Magnolia Formation. Arkosic polymictic paraconglomerates of the Conglomerate Member were drilled from 599 to 1232 feet, where basalts of the Colberg Metavolcanic Rocks of the Phantom Lake Metamorphic Suite were encountered. Stratigraphic contacts in drill core, compared to surface mapping suggest the presence of two normal faults within the drill section. These are represented in drill core by zones of fault gouge and intense oxidation. Conglomerates were only mildly radioactive in subsurface with maximum values of 11 ppm U and 30 ppm Th at 1134 feet. No strongly radioactive, pyritic quartz-pebble conglomerates were encountered. The high radon content of ground waters may result from decay of uranium in low-grade but laterally extensive paraconglomerates, perhaps combined with decay of uranium from isolated and discontinuous lenses of more radioactive quartz-pebble conglomerates.

References cited: Miller, W. R., Houston, R. S., Karlstrom, K. E., Hopkins, D. M., and Ficklin, W. H., 1977, Geological and geochemical investigations of uranium occurrences in the Arrastre Lake area of the Medicine Bow Mountains, Wyoming: U. S. Geological Survey Open-File Report 77-92, 30 p.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE PL 1 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE PL 1 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 13. GEOLOGIC MAP OF DRILL SITE PL-1, ARRASTRE ANTICLINE AREA, MEDICINE BOW PEAK QUAD., SEC. 10, T.16 N., R.80 W.

EXPLANATION

Figure 13. Geologic map of drill site PL-1

DRILL HOLE NUMBER PL1

SAMP. NO.	157820	157819	157816	157822	157815	157814	157808	157817	157824	157811
TOP DEPTH	605.00	609.00	625.50	756.00	765.50	775.50	795.50	834.00	839.00	843.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	APC	APC	APC	APC	APC	APC	APC	APC	APC	APC
UL (PPM)	2.51	1.61	1.59	1.50	4.00	2.16	2.45	2.74	2.91	2.91
UT (PPM)	1.90	1.60	1.20	1.80	1.80	2.70	2.00	2.10	1.80	4.50
UL/UT	1.32	1.01	1.33	.83	2.22	.80	1.22	1.30	1.62	1.62
TH (PPM)	9.00	4.00	4.00	4.00	2.00	7.00	6.00	3.00	4.00	9.00
TH/UT	4.74	2.50	3.34	2.22	1.11	2.59	3.00	1.43	2.22	2.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.68	2.18	4.37	2.87	7.17	3.21	2.95	3.36	4.47	4.20
CA (%)	-.05	-.05	.08	-.05	.22	.07	.08	.06	.09	.10
FE (%)	1.40	1.24	1.21	1.29	2.76	1.41	2.43	1.09	1.91	2.60
MG (%)	.41	.36	.36	.31	.70	.33	.55	.21	.38	.50
NA (%)	-.05	-.05	.11	.07	.59	.06	.05	.08	.10	.10
K (%)	1.10	.88	1.86	1.36	1.17	1.29	.96	1.40	1.77	1.50
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	56.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	123.00	96.00	201.00	106.00	212.00	107.00	88.00	104.00	147.00	123.00
BE (PPM)	1.00	1.00	1.00	2.00	6.00	2.00	1.00	1.00	2.00	2.00
CE (PPM)	25.00	24.00	15.00	12.00	34.00	24.00	16.00	14.00	11.00	38.00
CO (PPM)	10.00	9.00	7.00	8.00	27.00	8.00	14.00	9.00	12.00	15.00
CR (PPM)	47.00	41.00	42.00	38.00	82.00	32.00	139.00	29.00	120.00	50.00
CU (PPM)	45.00	33.00	52.00	41.00	29.00	27.00	13.00	13.00	7.00	9.00
HF (PPM)	ND	ND	-3.00	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	24.00	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	7.00	9.00	7.00	13.00	6.00	10.00	5.00	7.00	10.00
MN (PPM)	76.00	72.00	69.00	61.00	454.00	48.00	78.00	41.00	63.00	67.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00
NB (PPM)	-4.00	-4.00	-4.00	5.00	15.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	16.00	14.00	17.00	12.00	7.00	17.00	25.00	19.00	21.00	32.00
P (PPM)	84.00	47.00	53.00	176.00	350.00	206.00	173.00	161.00	215.00	466.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	3.00	4.00	5.00	4.00	4.00	4.00	9.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	9.00	7.00	11.00	6.00	143.00	8.00	7.00	7.00	9.00	8.00
TI (PPM)	730.00	521.00	719.00	411.00	1701.00	528.00	385.00	406.00	600.00	702.00
V (PPM)	49.00	33.00	33.00	43.00	33.00	32.00	33.00	35.00	76.00	61.00
Y (PPM)	5.00	5.00	2.00	2.00	20.00	4.00	2.00	3.00	3.00	10.00
ZN (PPM)	32.00	16.00	24.00	8.00	42.00	9.00	17.00	3.00	8.00	11.00
ZR (PPM)	59.00	29.00	39.00	45.00	71.00	70.00	42.00	42.00	54.00	97.00

DRILL HOLE NUMBER PL1

SAMP. NO.	157821	157813	157809	157810	157807	157811	157823	157812
TOP DEPTH	849.20	880.00	900.50	926.00	940.30	983.80	1040.00	1134.00
BOT DEPTH								
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	APC	APC	APC	APC	APC	APC	APC	APC
UL (PPM)	3.73	11.20	7.69	13.47	6.23	9.95	3.73	11.21
UT (PPM)	3.70	8.30	4.40	8.70	5.40	10.70	2.40	10.00
UL/UT	1.01	1.35	1.75	1.55	1.15	.93	1.55	1.12
TH (PPM)	6.00	5.00	10.00	12.00	11.00	10.00	10.00	30.00
TH/UT	1.62	.60	2.27	1.38	2.04	.93	4.17	3.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.97	6.98	5.70	3.92	3.65	5.66	4.95	2.94
CA (%)	.11	.23	.05	-.05	.05	.09	.17	-.05
FE (%)	2.29	2.82	1.85	2.54	4.50	3.14	4.24	5.92
MG (%)	.39	.46	.35	.40	.64	.49	.66	.90
NA (%)	.12	.20	.15	.09	.06	.11	.08	-.05
K (%)	1.97	3.08	2.32	1.50	1.14	2.44	1.91	.62
AG (PPM)	-2.00	3.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	159.00	215.00	169.00	119.00	95.00	359.00	271.00	70.00
BE (PPM)	3.00	5.00	3.00	1.00	4.00	6.00	6.00	2.00
CE (PPM)	12.00	-10.00	39.00	16.00	26.00	35.00	12.00	34.00
CO (PPM)	17.00	27.00	18.00	26.00	52.00	26.00	26.00	44.00
CR (PPM)	73.00	76.00	46.00	60.00	54.00	100.00	67.00	78.00
CU (PPM)	10.00	28.00	12.00	25.00	233.00	94.00	31.00	284.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	12.00	8.00	8.00	10.00	13.00	11.00	14.00
MN (PPM)	102.00	79.00	46.00	64.00	122.00	143.00	236.00	221.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00
NB (PPM)	4.00	6.00	4.00	5.00	5.00	7.00	5.00	5.00
NI (PPM)	20.00	61.00	15.00	37.00	85.00	33.00	26.00	58.00
P (PPM)	359.00	1237.00	272.00	145.00	269.00	337.00	705.00	204.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	11.00	18.00	12.00	11.00	9.00	15.00	14.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	10.00	12.00	9.00	7.00	7.00	14.00	9.00	5.00
TI (PPM)	690.00	2720.00	983.00	1375.00	2131.00	2933.00	2741.00	1079.00
V (PPM)	97.00	213.00	114.00	86.00	72.00	133.00	115.00	77.00
Y (PPM)	6.00	9.00	5.00	6.00	6.00	9.00	7.00	7.00
ZN (PPM)	6.00	9.00	8.00	11.00	15.00	12.00	17.00	22.00
ZR (PPM)	69.00	288.00	67.00	104.00	92.00	76.00	89.00	177.00

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DRILL HOLE Medicine Bow No. 1

AREA: Eastern Medicine Bow Mountains

LOCATION: 1010' FEL, 1300' FNL, Sec. 10, T. 17 N., R. 78 W.

LATITUDE: 41°27'49"

LONGITUDE: 106°9'21"

COUNTY: Carbon

TOPOGRAPHIC QUAD Morgan

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9265

ANGLE: 90°

BEARING:

TOTAL DEPTH: 4570'

SPUD DATE: unknown

COMPLETION DATE: 2/6/80

GROSS GAMMA LOGGING:

INSTRUMENT: unknown

PROBE T.D.: 4578

DATE: 2/6/80

REMARKS: Tool String-Run 2, DITD-PGTK-CNTA-SGTE

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Vagner Fm.: 0-3890) (Cascade Quartzite: 3890-4570).

RADIOACTIVE ZONES: None

LOGGER: Peter Swift

DRILL HOLE MEDICINE BOW NO. 1

OBJECTIVES:

1. This hole was drilled by industry to try to find oil and gas in Paleozoic and Mesozoic reservoir rocks beneath the Arlington-Corner Mountain thrust. This thrust fault bounds the east side of the Medicine Bow Mountain uplift and bring Precambrian rocks against overturned Paleozoic rocks (Casper Formation) in the north and against overturned Mesozoic rocks as young as the upper Cretaceous Lewis Shale in the south. The apparent dip of the thrust is about 15 degrees on the south side of Corner Mountain and about 50 degrees near Threemile Creek (as indicated by the trace of the fault across rugged topography). Paleozoic and Mesozoic sandstones produce oil just 10 km to the east, in the Quealy Dome Oilfield and industry hoped to intersect these same reservoirs in folds underneath the Laramide thrust fault. Industry did a seismic survey across the fault the year before and apparently had some indication of favorable structures in this area.

CONCLUSIONS:

1. The hole spudded in Quaternary sediments which include alluvium, colluvium, glacial deposits, and reworked Tertiary conglomerates. No cuttings were obtained from the first 400 feet. From 400 to 970 feet, the hole drilled metagabbro; from 970 to 3890 feet, the hole drilled mica schist, amphibolite, diamictite (recognized by cuttings of pink granite, from the cobbles in the diamictite) and carbonate, all of which we interpret to be part of the Vagner Formation by analogy to similar lithologies on Cooper Hill. From 3890 to 4570 feet, the hole drilled micaceous quartzite which could be either more Vagner Formation or Cascade Quartzite. The hole was terminated at 4570 feet without penetrating the thrust. However, our interpretation of the position of the trace of the fault, and an assumed dip of 45 degrees, suggest that the fault would have been intersected if drilling had continued about another 700 feet. If our position for the trace of the fault is approximately correct, this hole proves that the Arlington-Corner Mountain thrust in this area dips more than 40 degrees.

2. No strongly radioactive Precambrian rocks were encountered in this drill hole. Gross gamma readings of 100 - 150 cps are about normal background for many of the metasedimentary units.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE MED. BOW NO.1 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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DRILL HOLE NO. Bows 1

AREA: Northern Medicine Bow Mountains, between Deep Creek and Rock Creek

LOCATION: 1500' FSL, 5000' FEL, Sec. 36, T. 18 N., R. 79 W.

LATITUDE: 41°29'08"

LONGITUDE: 106°13'17"

COUNTY: Carbon

TOPOGRAPHIC QUAD Morgan

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9890

ANGLE: 90°

BEARING:

TOTAL DEPTH: 412'

SPUD DATE: unknown

COMPLETION DATE: Summer, 1978

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with McPhar hand held TV-1A

PROBE T.D.:

DATE:

REMARKS: No downhole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down hole log available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-412)

RADIOACTIVE ZONES: None

CORE LOGGERS: R. S. Houston, K. E. Karlstrom

DRILL SITE BOWS-1

OBJECTIVES:

1. The Conglomerate Member of the Magnolia Formation extends semi-continuously from the Onemile Creek area in the northern Medicine Bow Mountains south into the areas of industry's holes Bows-1, 2, and 3. Conglomerates in the Bows-1 area are arkosic paraconglomerates which show gamma readings up to 12000 cpm (background is about 5000 cpm) and up to 20 ppm U, 190 ppm Th. Industry was trying to intersect these conglomerates in the subsurface to get information on uranium grades in unleached conglomerates.

CONCLUSIONS:

1. Medium- to coarse-grained quartzites of the Quartzite Member of the Magnolia Formation were drilled from 0-213 feet. Arkosic paraconglomerates of the Conglomerate Member of the Magnolia Formation were drilled from 213 to 410 feet, where the hole was terminated. Maximum values in core were 64 ppm U at 246 feet and 27 ppm Th at 221 feet. These rocks are very similar lithologically to those drilled in EMB-5, EMB-11, and PL-1. As in these other areas, highly radioactive quartz-pebble conglomerates seem to occur only in discontinuous lenses within a thick zone of mildly radioactive arkosic paraconglomerate.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE BOWS I SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER BWS1

SAMP. NO.	160495	160507	160496	160502	160506	160509	160499	160500	160497	160508
TOP DEPTH	50.00	100.00	150.00	200.00	211.00	221.00	245.80	247.00	260.00	268.00
BOT DEPTH					212.00	222.00	246.80	248.70	260.80	
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	CQ	MQ	MQ	SC	PC	PC	PC	PC	PPC
UL (PPM)	.78	1.76	.39	.92	3.19	16.95	64.75	8.03	2.49	13.20
UT (PPM)	1.00	1.90	.60	.90	3.10	16.00	63.70	7.70	2.90	16.10
UL/UT	.78	.93	.65	1.02	1.03	1.06	1.02	1.04	.86	.82
TH (PPM)	8.00	8.00	10.00	-2.00	8.00	27.00	7.00	15.00	5.00	2.00
TH/UT	8.00	4.21	16.69	-2.22	2.58	1.69	.11	1.95	1.72	-.12
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.61	3.65	2.82	3.07	10.71	10.20	10.37	6.13	6.59	5.13
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.09	-.05	.10
FE (%)	.76	.81	.87	.32	1.99	2.19	9.34	8.74	8.42	20.85
MG (%)	.24	.28	.22	.07	.33	.30	.56	.46	.46	.73
NA (%)	.14	.11	.11	.12	.35	.34	.23	.13	.11	.06
K (%)	1.83	1.40	1.08	1.29	3.55	3.36	2.84	1.57	1.63	.42
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	13.00	-10.00	-10.00	10.00	24.00	26.00	13.00	10.00	-10.00	-10.00
BA (PPM)	163.00	143.00	90.00	116.00	380.00	337.00	281.00	146.00	182.00	46.00
BE (PPM)	1.00	1.00	-1.00	1.00	2.00	2.00	2.00	1.00	1.00	-1.00
CE (PPM)	18.00	22.00	10.00	15.00	43.00	29.00	33.00	44.00	53.00	29.00
CO (PPM)	4.00	4.00	-4.00	-4.00	19.00	19.00	40.00	37.00	37.00	76.00
CR (PPM)	19.00	26.00	10.00	12.00	160.00	217.00	95.00	47.00	52.00	21.00
CU (PPM)	11.00	11.00	20.00	5.00	29.00	46.00	21.00	64.00	11.00	152.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	28.00	46.00	-15.00	-15.00	16.00	-15.00
LA (PPM)	15.00	29.00	12.00	14.00	38.00	17.00	4.00	38.00	47.00	12.00
LI (PPM)	5.00	6.00	7.00	2.00	11.00	15.00	24.00	17.00	16.00	20.00
MN (PPM)	19.00	36.00	13.00	8.00	188.00	196.00	309.00	236.00	312.00	2940.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	13.00	12.00	-2.00	6.00	33.00	30.00	54.00	48.00	82.00	79.00
P (PPM)	38.00	93.00	37.00	78.00	124.00	158.00	107.00	120.00	81.00	99.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	21.00	22.00	16.00	18.00	26.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	1.00	2.00	10.00	21.00	17.00	11.00	13.00	12.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	6.00	7.00	6.00	8.00	23.00	27.00	16.00	10.00	8.00	2.00
TI (PPM)	450.00	469.00	201.00	266.00	3089.00	5913.00	7962.00	4147.00	3509.00	2972.00
V (PPM)	22.00	19.00	10.00	9.00	107.00	239.00	212.00	126.00	155.00	125.00
Y (PPM)	1.00	2.00	1.00	1.00	6.00	5.00	4.00	5.00	4.00	4.00
ZN (PPM)	8.00	7.00	6.00	4.00	13.00	10.00	26.00	24.00	23.00	42.00
ZR (PPM)	21.00	36.00	23.00	23.00	142.00	209.00	160.00	121.00	79.00	80.00

DRILL HOLE NUMBER BWS1

SAMP. NO.	160503	160501	160504	160498	160505
TOP DEPTH	275.00	291.00	302.00	350.00	402.00
BOT DEPTH					
FORMATION	MG	MG	MG	MG	MG
LITHOLOGY	PC	PC	PC	PC	PC
UL (PPM)	5.40	18.74	3.69	2.43	6.74
UT (PPM)	5.50	20.10	3.60	3.00	8.40
UL/UT	.98	.93	1.03	.81	.80
TH (PPM)	-2.00	8.00	6.00	19.00	10.00
TH/UT	-.36	.40	1.67	6.33	1.19
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	5.47	7.89	7.87	5.00	6.92
CA (%)	-.05	.10	.13	1.01	.22
FE (%)	6.48	7.77	3.74	5.43	6.24
MG (%)	.54	.55	.33	.84	1.64
NA (%)	.10	.13	.17	.31	.17
K (%)	1.52	2.58	2.97	1.46	1.70
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	10.00	16.00	-10.00	10.00
BA (PPM)	235.00	662.00	1004.00	538.00	546.00
BE (PPM)	1.00	2.00	2.00	1.00	1.00
CE (PPM)	39.00	52.00	39.00	35.00	40.00
CO (PPM)	31.00	45.00	15.00	24.00	32.00
CR (PPM)	60.00	142.00	168.00	45.00	165.00
CU (PPM)	39.00	79.00	37.00	47.00	27.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	38.00	33.00	34.00	24.00	31.00
LI (PPM)	12.00	20.00	19.00	16.00	28.00
MN (PPM)	381.00	1766.00	588.00	638.00	412.00
MO (PPM)	-4.00	-4.00	9.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	61.00	100.00	29.00	57.00	48.00
P (PPM)	114.00	360.00	637.00	325.00	370.00
PB (PPM)	25.00	18.00	13.00	-10.00	19.00
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	10.00	25.00	14.00	10.00	17.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	8.00	12.00	18.00	22.00	22.00
TI (PPM)	2309.00	5337.00	3942.00	1955.00	2679.00
V (PPM)	104.00	224.00	143.00	113.00	166.00
Y (PPM)	3.00	8.00	5.00	6.00	5.00
ZN (PPM)	23.00	24.00	16.00	24.00	39.00
ZR (PPM)	68.00	99.00	91.00	64.00	78.00

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DRILL HOLE NO. Bows 2

AREA: Northern Medicine Bow Mountains, between Deep Creek and Rock Creek

LOCATION: 2000' FSL, 2680' FEL, Sec. 36, T. 18 N., R. 79 W.

LATITUDE: 41°29'50"

LONGITUDE: 106°13'17"

COUNTY: Carbon

TOPOGRAPHIC QUAD Morgan

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9875

ANGLE: 90°

BEARING:

TOTAL DEPTH: 2100'

SPUD DATE: unknown

COMPLETION DATE: Summer, 1978

GROSS GAMMA LOGGING:

INSTRUMENT: unknown

PROBE T.D.: unknown

DATE:

REMARKS: Information received by verbal communication, location of peaks known, scale unknown

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down hole log available.

STRATIGRAPHIC UNITS: (Lindsey Quartzite: 0-1056) (Metagabbro: 1056-1790)
(Lindsey Quartzite: 1790-2100).

RADIOACTIVE ZONES: None

CORE LOGGERS: R. S. Houston, K. E. Karlstrom

DRILL HOLE BOWS-2

OBJECTIVES:

1. Bows-2 was spudded in the Lindsey Quartzite, well up-section from the Magnolia contact. The hole was to penetrate the Conglomerate Member of the Magnolia Formation at great depths, to test subsurface uranium values. Outcrops are exceedingly poor in the area down-section from this drill hole so the hole provides useful stratigraphic information.

CONCLUSIONS:

1. Fine- to medium-grained, trough crossbedded quartzites of the Lindsey Quartzite were drilled from 0 to 622 feet. Quartzites from 622 to 1056 feet are also fine-grained but these contain biotite porphyroblasts similar to those found in the Quartzite Member of the Magnolia Formation in GH-1. These quartzites were originally logged as Lindsey Quartzite (see core log) but map relations suggest they may be upper Magnolia Formation instead (see map and cross-section). From 1056 to 1790 Bows-2 penetrated a mafic intrusive body for which there is little surface expression. Below the intrusive, the hole drilled more fine-grained biotitic and chloritic quartzites. Surprisingly, there were no conglomerates intersected in this hole. This suggests that surface dips may be steeper in this area or that the paraconglomerate seen in the Bows-1 area to the south and the Bows-3 area to the north is thinner in this area.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE BOWS 2 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

Gross Gamma Scale Unknown	PPMTh 10 10 ² 10 ³	PPMU 10 10 ² 10 ³	Scale 1" = 100ft.	Description
				0-20': Core weathered and fractured.
				20-68': Qtzite, fine-to med.-grained with occasional pebbles of fine-grained qtzite, possible small scale troughs at 20°.
				68-143': Qtzite, fine- and med.-grained with some trough crossbeds, bedding at low angle, probable pyrite, leached, moderately oxidized.
				143-173': Qtzite, fine- and med.-grained, with 2 mm wide phyllitic layers, planar bedding, small scale ripples.
				173-310': Qtzite, fine-grained, small scale (1 cm) trough crossbedding, tops up, hematite and limonite staining concentrated in troughs.
				310-383': Qtzite, med.-grained, fining upward sets grade from coarse sand to phyllitic layers, possible trough crossbeds, oxidized.
				383-438': Qtzite, fine- to med.-grained with phyllitic layers, some planar features at 60°-65°.
				438-520': Qtzite, fine-grained, some oxidized zones, may have been pyritic.
				520-622': Qtzite, fine-grained, layering at 35°, some pyrite zones at 615°.
				622-660': Heavily fractured, at 658' heavily gouged, highly altered.
				660-694': Qtzite, fine-grained, with local trough crossbeds med.-scale (5 mm).
				694-713': Qtzite, very fine-grained with chlorite metacrysts which become much more abundant at 711°.
				713-774': Qtzite, very fine-grained, and chlorite schist interbedded; a subvertical contact between fine- and med.-grained qtzite at 769°.
				774-860': Qtzite, very fine- to fine-grained with chlorite megacrysts, at 841' speckled layer of chlorite at 50°.

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE BOWS 2 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE BOWS 2 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER BWS2

SAMP. NO.	160519	160518	160516	160510	160517	160520	160513	160515	152107	152106
TOP DEPTH	81.00	219.50	279.50	324.00	351.90	431.50	488.50	968.50	1281.00	1325.00
BOT DEPTH		220.50	280.50			432.50	489.50			
FORMATION	LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ	MI	MI
LITHOLOGY	MQ	FQ	FQ	MQ	MQ	MQ	FQ	FQ	AM	AM
UL (PPM)	.57	.84	.79	.86	2.44	1.01	.75	.71	.62	1.41
UT (PPM)	1.00	.70	1.20	1.10	3.20	1.20	.60	1.00	1.00	1.10
UL/UT	.57	1.20	.66	.78	.76	.84	1.25	.71	.62	1.28
TH (PPM)	6.00	-2.00	6.00	6.00	7.00	4.00	6.00	11.00	-2.00	2.00
TH/UT	6.00	-2.86	5.00	5.46	2.19	3.34	10.02	11.00	-2.00	1.82
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	1.14	1.63	1.69	1.88	4.40	3.00	3.86	4.55	5.58	4.07
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	.59	.06	7.96	10.30
FE (%)	.52	.11	.50	.55	1.03	.74	1.48	1.24	5.32	4.91
MG (%)	.12	.05	.10	.12	.34	.29	1.11	.28	3.11	3.49
NA (%)	.30	1.13	.43	.53	.37	.23	1.04	1.21	1.09	.76
K (%)	.21	.18	.60	.70	1.91	1.88	1.44	1.96	.27	.10
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	12.00	11.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	66.00	39.00	95.00	111.00	367.00	292.00	296.00	359.00	44.00	14.00
BE (PPM)	-1.00	-1.00	-1.00	-1.00	1.00	1.00	1.00	1.00	-1.00	-1.00
CE (PPM)	14.00	-10.00	12.00	18.00	18.00	23.00	27.00	22.00	13.00	14.00
CO (PPM)	11.00	-4.00	10.00	8.00	6.00	-4.00	-4.00	4.00	37.00	36.00
CR (PPM)	21.00	8.00	22.00	22.00	94.00	58.00	31.00	19.00	384.00	304.00
CU (PPM)	20.00	7.00	13.00	10.00	18.00	7.00	4.00	7.00	53.00	69.00
HF (PPM)	-15.00	25.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	ND	ND
LA (PPM)	18.00	5.00	16.00	20.00	25.00	24.00	25.00	23.00	ND	ND
LI (PPM)	2.00	1.00	3.00	3.00	8.00	8.00	15.00	6.00	22.00	30.00
MN (PPM)	26.00	7.00	28.00	17.00	25.00	21.00	65.00	55.00	867.00	1122.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	7.00	11.00	11.00	5.00	16.00	15.00	9.00	3.00	91.00	86.00
P (PPM)	62.00	33.00	24.00	34.00	55.00	46.00	203.00	74.00	146.00	113.00
PB (PPM)	-10.00	10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	1.00	1.00	3.00	3.00	2.00	2.00	32.00	28.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	8.00	10.00	7.00	9.00	11.00	11.00	73.00	19.00	98.00	74.00
TI (PPM)	131.00	83.00	235.00	280.00	1210.00	1138.00	799.00	392.00	1470.00	560.00
V (PPM)	9.00	3.00	12.00	12.00	31.00	29.00	12.00	24.00	166.00	149.00
Y (PPM)	2.00	1.00	1.00	1.00	4.00	3.00	4.00	2.00	6.00	3.00
ZN (PPM)	18.00	5.00	7.00	7.00	10.00	7.00	14.00	7.00	50.00	56.00
ZR (PPM)	29.00	22.00	37.00	55.00	161.00	95.00	66.00	49.00	14.00	15.00

DRILL HOLE NUMBER BWS2

SAMP. NO.	152105	152108	152109	160514	160512
TOP DEPTH	1370.50	1505.00	1760.00	1921.50	2095.50
BOT DEPTH				1922.50	2096.50
FORMATION	MI	MI	MI	LQ	LQ
LITHOLOGY	AM	AM	AM	FQ	FQ
UL (PPM)	.92	5.52	1.82	2.44	1.31
UT (PPM)	.40	6.10	2.20	3.70	1.50
UL/UT	2.30	.90	.83	.66	.87
TH (PPM)	-2.00	4.00	12.00	10.00	-2.00
TH/UT	-5.01	.66	5.46	2.70	-1.33
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	5.95	.60	6.12	3.77	4.12
CA (%)	8.46	22.63	5.70	.60	.64
FE (%)	6.06	6.29	8.23	1.45	1.19
MG (%)	4.61	.59	3.60	1.12	.46
NA (%)	1.14	.07	1.52	.98	.61
K (%)	.18	.20	.37	1.37	1.62
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	10.00
BA (PPM)	43.00	71.00	70.00	293.00	631.00
BE (PPM)	-1.00	-1.00	-1.00	1.00	1.00
CE (PPM)	14.00	13.00	-10.00	27.00	36.00
CO (PPM)	54.00	38.00	43.00	4.00	-4.00
CR (PPM)	547.00	75.00	131.00	32.00	28.00
CU (PPM)	102.00	7.00	86.00	4.00	53.00
HF (PPM)	ND	ND	-3.00	-15.00	-15.00
LA (PPM)	ND	ND	8.00	33.00	46.00
LI (PPM)	7.00	2.00	15.00	15.00	18.00
MN (PPM)	1316.00	2785.00	1230.00	66.00	115.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	7.00	41.00	-4.00	-4.00	4.00
NI (PPM)	111.00	46.00	97.00	5.00	7.00
P (PPM)	129.00	116.00	323.00	226.00	216.00
PB (PPM)	ND	ND	8.00	16.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	39.00	15.00	28.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	121.00	29.00	97.00	73.00	23.00
TI (PPM)	3106.00	130.00	7192.00	806.00	705.00
V (PPM)	192.00	61.00	269.00	14.00	14.00
Y (PPM)	10.00	7.00	15.00	4.00	4.00
ZN (PPM)	66.00	38.00	95.00	14.00	10.00
ZR (PPM)	27.00	10.00	11.00	66.00	53.00

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DRILL HOLE NO. Bows 3

AREA: Northen Medicine Bow Mountains, between Deep Creek and Rock Creek.

LOCATION: 400 FSL, 2420 FEL, Sec. 25, T. 18 N., R. 79 W.

LATITUDE: 41° 29' 50"

LONGITUDE: 106° 13' 14"

COUNTY: Carbon

TOPOGRAPHIC QUAD Morgan

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9470

ANGLE: 90°

BEARING:

TOTAL DEPTH: 998'

SPUD DATE: unknown

COMPLETION DATE: Summer 1978

GROSS GAMMA LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: Information attained by verbal communication, location of peaks known, scale unknown.

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-355) (Metagabbro: 355-376) (Magnolia Fm.: 376-998)

RADIOACTIVE ZONES: 542'

CORE LOGGERS: R. S. Houston, K. E. Karlstrom

DRILL HOLE BOWS-3

OBJECTIVES:

1. Bows-3 was spudded in mildly radioactive quartz-granule conglomerate of the Quartzite Member of the Magnolia Formation (up to 12000 cpm and 2.8 ppm U, 14 ppm Th). It was drilled to penetrate underlying rocks of the Conglomerate Member.

CONCLUSIONS:

1. The hole was in fine- to coarse-grained quartzites of the Quartzite Member from 0 to 587 feet and in arkosic paraconglomerates of the Conglomerate Member from 587 to 998 feet. The hole was drilled vertically in beds dipping about 65° so bedding and foliation were at acute angles to the drill hole. As a consequence, Bows-3 did not penetrate as much stratigraphic section as an angle hole would have and the hole was terminated while still in the Conglomerate Member of the Magnolia Formation.

2. Maximum values of 110 ppm U, 41 ppm Th were encountered in a spot sample at 542 feet. An adjacent 3.5 foot interval (543 to 546.5 feet) of pyritic quartzite averaged 14.4 ppm U. Higher in the hole, Occidental reported an average value of 30 ppm U between 442 and 444 feet and 23 ppm from 516 to 519. It is interesting to note that the most radioactive rocks occur in the basal parts of the Quartzite Member and that underlying arkosic paraconglomerates are not as strongly radioactive (up to 12 ppm U from 587-598). This is reminiscent of EMB-11, where strongly radioactive quartz-pebble conglomerates occur directly above weakly radioactive arkosic paraconglomerates but below granular quartzites of the Quartzite Member.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE BOWS 3 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE BOWS 3
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

[illegible]

DRILL HOLE NUMBER BWS3

SAMP. NO.	160494	160489	160490	160492	152110	160493	160491
TOP DEPTH	214.00	251.00	331.00	393.00	542.00	683.00	720.00
BOT DEPTH							
FORMATION	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MQ	FQ	FQ	C	QZ	PC	PC
UL (PPM)	2.58	.59	.29	20.66	124.40	2.36	3.24
UT (PPM)	3.20	1.70	.90	20.70	112.40	2.90	5.10
UL/UT	.81	.35	.32	1.00	1.11	.81	.64
TH (PPM)	13.00	4.00	11.00	29.00	41.00	7.00	9.00
TH/UT	4.06	2.35	12.24	1.40	.36	2.41	1.77
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.56	4.45	4.32	3.27	5.47	7.16	6.74
CA (%)	.06	.08	.30	.09	.09	.13	.57
FE (%)	6.25	2.08	.97	2.08	1.47	6.61	3.18
MG (%)	4.71	1.69	.86	1.71	.69	4.66	2.54
NA (%)	1.53	2.64	1.60	1.49	.79	2.09	4.26
K (%)	.07	.05	1.14	.06	1.99	.04	.37
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	12.00	10.00	271.00	20.00	273.00	9.00	48.00
BE (PPM)	1.00	-1.00	1.00	-1.00	1.00	-1.00	1.00
CE (PPM)	14.00	-10.00	-10.00	-10.00	57.00	17.00	-10.00
CO (PPM)	7.00	-4.00	-4.00	-4.00	5.00	8.00	4.00
CR (PPM)	126.00	53.00	40.00	48.00	46.00	196.00	182.00
CU (PPM)	4.00	2.00	2.00	4.00	49.00	3.00	3.00
HF (PPM)	-15.00	-15.00	-15.00	77.00	-3.00	-15.00	47.00
LA (PPM)	-2.00	-2.00	-2.00	2.00	66.00	-2.00	-2.00
LI (PPM)	35.00	8.00	6.00	11.00	10.00	29.00	13.00
MN (PPM)	171.00	70.00	85.00	70.00	39.00	165.00	155.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	7.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	118.00	42.00	17.00	26.00	21.00	80.00	50.00
P (PPM)	67.00	139.00	100.00	323.00	154.00	552.00	306.00
PB (PPM)	15.00	10.00	-10.00	42.00	12.00	11.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	16.00	5.00	6.00	5.00	5.00	15.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	8.00	11.00	22.00	9.00	16.00	9.00	19.00
TI (PPM)	495.00	148.00	432.00	366.00	1029.00	390.00	571.00
V (PPM)	174.00	57.00	49.00	59.00	40.00	200.00	100.00
Y (PPM)	5.00	2.00	1.00	6.00	11.00	4.00	4.00
ZN (PPM)	26.00	11.00	6.00	13.00	9.00	20.00	13.00
ZR (PPM)	112.00	74.00	39.00	91.00	76.00	131.00	184.00

DRILL HOLE NO. GH-1

AREA: Medicine Bow Mountains, NW of Arrastre Anticline

LOCATION: 450' FWL, 3250' FSL, Sec. 3, T. 16 N., R. 80 W.

LATITUDE: 41°23'03"

LONGITUDE: 106°22'38"

COUNTY: Carbon.

TOPOGRAPHIC QUAD Turpin Reservoir

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 10230

ANGLE: 90°

BEARING:

TOTAL DEPTH: 1205'

SPUD DATE: unknown

COMPLETION DATE: Summer, 1978

GROSS GAMMA LOGGING:

INSTRUMENT: McPhar TV-1A (176-106)

PROBE T.D.:

DATE:

REMARKS: No down-hole logs available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No down-hole logs available

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-1205')

RADIOACTIVE ZONES: None

CORE LOGGERS: R. S. Houston, K. E. Karlstrom, John Turner

DRILL HOLE GH-1

OBJECTIVES:

1. GH-1 was drilled by industry on the northwest limb of the Arrastre Anticline to try to intersect radioactive rocks of the Magnolia Formation, comparable to those which crop out on the southeast limb.

CONCLUSIONS:

1. The hole was spudded in the upper part of the Quartzite Member of the Magnolia Formation and drilled vertically. The hole encountered thick, trough crossbedded medium- to coarse-grained quartzites, similar to those seen in outcrop, with many fining-upward sets. In addition, the hole contains fine-grained chloritic and biotitic quartzite with porphyroblasts of biotite. These rocks have not been observed in outcrop. At a depth of 1205 feet, the hole was still in the Quartzite Member of the Magnolia Formation. Radioactivity was uniformly low, with maximum values of 32 ppm U, 48 ppm Th at 660 feet.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE GH I SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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FIGURE 14. GEOLOGIC MAP OF DRILL SITE GH1, MEDICINE BOW MOUNTAINS, TURPIN RESERVOIR QUAD, SEC. 3, T.16 N., R.80 W. CARBON COUNTY WYOMING.

EXPLANATION

Figure 14. Geologic map of drill site GH-1

DRILL HOLE NUMBER GH1

SAMP. NO.	157844	157845	157846	157835	157847	157848	157834	157849	157850	157851
TOP DEPTH	80.00	110.00	158.00	180.00	180.00	210.00	240.00	270.00	300.00	360.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	MQ	MQ	MQ	MQ	MQ	MQ	MQ	Q	MQ	SS
UL (PPM)	8.17	1.26	2.45	1.46	6.26	1.26	2.13	11.00	2.20	1.82
UT (PPM)	ND	ND	ND	ND	ND	1.40	ND	ND	1.90	ND
UL/UI	ND	ND	ND	ND	ND	.90	ND	ND	1.16	ND
TH (PPM)	18.00	6.00	7.00	4.00	30.00	6.00	8.00	15.00	14.00	20.00
TH/UI	ND	ND	ND	ND	ND	4.29	ND	ND	7.37	ND
AU (PPM)	ND	ND	NU	ND	ND	ND	ND	ND	ND	NT
AL (%)	3.30	3.78	11.40	3.49	7.27	3.02	1.99	10.57	4.72	8.40
CA (%)	-.05	-.05	.24	.13	.14	.06	.06	.33	.15	.18
FE (%)	.48	.49	.19	.94	1.06	.50	.69	2.60	1.55	.98
MG (%)	.33	.38	.27	.87	.51	.25	.60	2.41	1.72	1.06
NA (%)	.13	.16	5.62	1.19	2.26	1.12	1.05	4.52	2.29	4.68
K (%)	1.34	1.71	.06	.59	.06	-.02	.02	.20	.06	.05
AG (PPM)	-2.00	-2.00	-2.00	ND	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	401.00	253.00	21.00	78.00	16.00	17.00	9.00	22.00	11.00	7.00
BE (PPM)	1.00	1.00	-1.00	ND	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CE (PPM)	40.00	17.00	-10.00	7.00	-10.00	-10.00	-10.00	51.00	-10.00	-10.00
CO (PPM)	4.00	-4.00	4.00	5.00	19.00	5.00	4.00	9.00	5.00	5.00
CR (PPM)	43.00	24.00	35.00	24.00	164.00	54.00	77.00	190.00	93.00	60.00
CU (PPM)	10.00	7.00	15.00	2.00	6.00	3.00	4.00	11.00	11.00	4.00
HF (PPM)	-15.00	-15.00	-15.00	ND	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	62.00	23.00	4.00	NU	7.00	3.00	5.00	58.00	4.00	7.00
LI (PPM)	13.00	14.00	15.00	10.00	12.00	8.00	6.00	29.00	13.00	10.00
MN (PPM)	12.00	14.00	24.00	62.00	47.00	26.00	50.00	153.00	93.00	82.00
MO (PPM)	-4.00	-4.00	-4.00	2.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	ND	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	6.00	11.00	20.00	29.00	37.00	15.00	20.00	67.00	38.00	23.00
P (PPM)	49.00	22.00	36.00	242.00	41.00	9.00	126.00	55.00	217.00	23.00
PB (PPM)	-10.00	-10.00	-10.00	-11.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
QC (PPM)	2.00	2.00	1.00	3.00	1.00	1.00	-1.00	11.00	2.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	NU
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	NU	ND	ND
SR (PPM)	9.00	9.00	17.00	14.00	10.00	4.00	4.00	24.00	11.00	21.00
TI (PPM)	630.00	541.00	88.00	274.00	94.00	53.00	53.00	149.00	121.00	71.00
V (PPM)	13.00	20.00	5.00	22.00	16.00	6.00	9.00	31.00	20.00	13.00
Y (PPM)	5.00	2.00	2.00	2.00	4.00	1.00	2.00	5.00	3.00	3.00
ZN (PPM)	8.00	5.00	5.00	6.00	13.00	5.00	9.00	23.00	9.00	6.00
ZR (PPM)	74.00	36.00	81.00	32.00	363.00	43.00	127.00	169.00	157.00	92.00

DRILL HOLE NUMBER GH1

SAMP. NO.	157852	157839	157836	157853	157855	157856	158344	157838	157837	157843
TOP DEPTH	390.00	420.00	450.00	510.00	540.00	570.00	600.00	630.00	660.00	690.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	SS	SS	SS	AGC	AGC	AGC	AG	AGC	AGC	AGC
UL (PPM)	1.28	1.36	1.61	6.97	.99	1.17	1.51	3.17	31.60	1.82
UT (PPM)	ND	ND	ND	ND	ND	ND	1.29	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	1.17	ND	ND	ND
TH (PPM)	4.00	6.00	-2.00	10.00	2.00	5.00	ND	9.00	48.00	6.00
TH/UT	ND	ND	ND	ND	ND	ND	-77578.74	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.92	2.91	3.15	5.63	2.90	3.42	5.80	5.99	8.10	6.61
CA (%)	.06	.05	-.05	-.05	.06	.05	.04	.04	.05	.02
FE (%)	.80	.44	.38	1.07	.49	.69	1.04	1.29	1.23	.95
MG (%)	.66	.31	.21	.79	.39	.44	.67	.86	.90	.78
NA (%)	.91	1.01	.73	.94	.35	.46	.34	.33	.24	.10
K (%)	.37	.78	1.10	1.93	.73	1.48	2.84	2.68	3.57	3.03
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	ND	ND	ND	-2.00	ND
B (PPM)	-10.00	-10.00	-10.00	10.00	-10.00	10.00	12.00	14.00	11.00	20.00
BA (PPM)	71.00	94.00	113.00	292.00	187.00	250.00	617.00	649.00	839.00	544.00
BE (PPM)	-1.00	-1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
CE (PPM)	21.00	12.00	19.00	21.00	23.00	18.00	24.00	33.00	12.00	23.00
CO (PPM)	5.00	4.00	-4.00	5.00	-4.00	3.00	3.00	9.00	4.00	1.00
CR (PPM)	35.00	37.00	27.00	90.00	28.00	40.00	40.00	58.00	42.00	37.00
CJ (PPM)	3.00	-2.00	2.00	3.00	2.00	3.00	16.00	40.00	17.00	2.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	ND	ND	ND	-15.00	ND
LA (PPM)	28.00	20.00	29.00	27.00	32.00	ND	ND	ND	22.00	ND
LI (PPM)	4.00	3.00	4.00	10.00	4.00	9.00	14.00	14.00	17.00	12.00
MN (PPM)	25.00	29.00	11.00	28.00	23.00	26.00	29.00	38.00	47.00	26.00
MO (PPM)	6.00	-4.00	-4.00	-4.00	-4.00	1.00	2.00	1.00	-4.00	ND
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	ND	ND	1.00	-4.00	2.00
NI (PPM)	16.00	11.00	7.00	21.00	13.00	10.00	21.00	26.00	12.00	14.00
P (PPM)	91.00	77.00	119.00	51.00	181.00	92.00	95.00	121.00	60.00	62.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-11.00	-19.00	-19.00	-10.00	-26.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	2.00	5.00	2.00	2.00	4.00	5.00	5.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	12.00	14.00	12.00	22.00	11.00	10.00	13.00	13.00	18.00	14.00
TI (PPM)	245.00	367.00	400.00	957.00	487.00	683.00	1206.00	1522.00	1505.00	1250.00
V (PPM)	17.00	16.00	17.00	36.00	17.00	13.00	31.00	47.00	39.00	30.00
Y (PPM)	2.00	2.00	2.00	4.00	2.00	2.00	2.00	3.00	8.00	2.00
ZN (PPM)	7.00	4.00	4.00	6.00	3.00	4.00	7.00	8.00	10.00	5.00
ZR (PPM)	35.00	42.00	49.00	87.00	48.00	55.00	48.00	69.00	64.00	48.00

DRILL HOLE NUMBER GH1

SAMP. NO.	158345	157840	157842	158346	158347	158348	157833	158349	158350	158351
TOP DEPTH	721.00	750.00	780.00	810.00	840.00	870.00	900.00	930.00	960.00	1000.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	AQ	AGC	AGC	AQ	AQ	AQ	AGC	FQ	FQ	FQ
UL (PPM)	1.21	1.12	2.07	14.11	1.85	1.77	2.26	2.26	2.01	4.46
UT (PPM)	1.56	1.20	ND	12.30	1.73	1.18	ND	2.50	2.10	4.87
UL/UT	.78	.93	ND	1.15	1.07	1.50	ND	.90	.96	.92
TH (PPM)	9.00	-2.00	5.00	18.00	8.00	4.00	8.00	9.00	4.00	4.00
TH/UT	5.77	-1.67	ND	1.46	4.63	3.39	ND	3.60	1.91	.82
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.68	3.55	4.20	8.01	5.89	4.03	3.17	6.13	6.43	4.12
CA (%)	.20	.05	.05	.06	.04	.05	-.05	.07	.11	.11
FE (%)	3.85	.49	.58	1.11	1.01	.52	.71	.82	.67	.53
MG (%)	4.04	.43	.53	.85	.88	.40	.56	.56	.43	.29
NA (%)	.39	1.02	1.02	.96	1.69	1.82	1.71	1.41	.93	1.33
K (%)	.37	1.02	1.41	3.11	1.89	1.01	.57	2.11	2.35	1.34
AG (PPM)	-2.00	-2.00	1.00	1.00	1.00	ND	-2.00	ND	-2.00	ND
B (PPM)	-10.00	11.00	9.00	22.00	12.00	1.00	-10.00	10.00	17.00	4.00
BA (PPM)	36.00	123.00	119.00	287.00	214.00	125.00	85.00	368.00	518.00	255.00
BE (PPM)	-1.00	1.00	1.00	2.00	1.00	1.00	-1.00	1.00	1.00	1.00
CE (PPM)	10.00	13.00	25.00	39.00	19.00	18.00	13.00	10.00	26.00	18.00
CO (PPM)	11.00	-4.00	2.00	1.00	1.00	2.00	7.00	2.00	-4.00	3.00
CR (PPM)	56.00	26.00	26.00	96.00	51.00	18.00	31.00	56.00	31.00	19.00
CU (PPM)	5.00	10.00	5.00	5.00	2.00	2.00	-2.00	8.00	9.00	5.00
HF (PPM)	-15.00	-15.00	ND	ND	ND	ND	-15.00	ND	-15.00	ND
LA (PPM)	11.00	23.00	ND	ND	ND	ND	21.00	ND	34.00	ND
LI (PPM)	26.00	3.00	5.00	9.00	7.00	5.00	5.00	10.00	6.00	4.00
MN (PPM)	202.00	13.00	24.00	21.00	29.00	15.00	30.00	29.00	33.00	28.00
MO (PPM)	-4.00	-4.00	1.00	2.00	1.00	ND	-4.00	ND	-4.00	1.00
NB (PPM)	-4.00	-4.00	ND	ND	ND	ND	-4.00	1.00	-4.00	ND
NI (PPM)	76.00	10.00	11.00	14.00	15.00	12.00	12.00	10.00	8.00	13.00
P (PPM)	-5.00	92.00	103.00	76.00	47.00	76.00	109.00	132.00	53.00	67.00
PB (PPM)	-10.00	-10.00	-12.00	-16.00	-20.00	-18.00	-10.00	-21.00	-10.00	-12.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	2.00	2.00	6.00	4.00	1.00	1.00	4.00	4.00	2.00
ST (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	12.00	12.00	13.00	22.00	20.00	19.00	17.00	26.00	26.00	18.00
TI (PPM)	442.00	417.00	509.00	1218.00	657.00	360.00	281.00	1181.00	1007.00	513.00
V (PPM)	35.00	13.00	14.00	45.00	31.00	12.00	11.00	31.00	23.00	12.00
Y (PPM)	5.00	2.00	2.00	6.00	3.00	2.00	3.00	4.00	3.00	2.00
ZN (PPM)	24.00	4.00	4.00	5.00	6.00	4.00	6.00	6.00	7.00	6.00
ZR (PPM)	92.00	38.00	49.00	126.00	109.00	38.00	69.00	106.00	42.00	33.00

DRILL HOLE NUMBER GH1

SAMP. NO.	158352	157841	158353	158354	158355
TOP DEPTH	1030.00	1060.00	1123.00	1170.00	1205.00
BOT DEPTH					
FORMATION	MG	MG	MG	MG	MG
LITHOLOGY	FQ	FQ	PL	Q	Q
UL (PPM)	6.11	1.28	.96	4.28	3.18
UT (PPM)	6.15	ND	.83	3.44	1.88
UL/UT	.99	ND	1.16	1.24	1.69
TH (PPM)	22.00	1.00	6.00	10.00	2.00
TH/UT	3.58	ND	7.24	2.91	1.06
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	6.31	2.76	2.86	5.41	4.31
CA (%)	.11	.05	.08	.16	.36
FE (%)	1.35	.48	.92	1.34	.59
MG (%)	.64	.50	1.13	.55	.27
NA (%)	.93	1.45	.76	1.03	.62
K (%)	2.28	.52	.63	2.11	1.70
AG (PPM)	1.00	ND	-2.00	-2.00	-2.00
B (PPM)	10.00	1.00	-10.00	19.00	-10.00
BA (PPM)	444.00	59.00	108.00	397.00	272.00
BE (PPM)	1.00	ND	1.00	1.00	1.00
CE (PPM)	33.00	7.00	17.00	27.00	-10.00
CO (PPM)	8.00	ND	-4.00	10.00	4.00
CR (PPM)	86.00	8.00	9.00	41.00	16.00
CU (PPM)	14.00	2.00	2.00	4.00	19.00
HF (PPM)	ND	ND	-15.00	-15.00	-15.00
LA (PPM)	ND	ND	20.00	36.00	13.00
LI (PPM)	11.00	4.00	9.00	11.00	5.00
MN (PPM)	43.00	21.00	35.00	69.00	57.00
MO (PPM)	2.00	1.00	-4.00	-4.00	-4.00
NB (PPM)	2.00	ND	-4.00	-4.00	-4.00
NI (PPM)	21.00	7.00	7.00	22.00	12.00
P (PPM)	82.00	22.00	31.00	132.00	37.00
PB (PPM)	-16.00	-10.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	4.00	2.00	2.00	5.00	2.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	21.00	12.00	10.00	22.00	18.00
TI (PPM)	1248.00	186.00	297.00	1476.00	488.00
V (PPM)	28.00	17.00	21.00	40.00	19.00
Y (PPM)	7.00	1.00	1.00	5.00	3.00
ZN (PPM)	8.00	5.00	8.00	12.00	6.00
ZR (PPM)	217.00	22.00	23.00	72.00	35.00

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DRILL HOLE NO. SM-1

AREA: Carrico Ranch, Sierra Madre

LOCATION: 950 FWL, 581 FNL, sec. 7, T. 15 N., R. 87 W.

LATITUDE: 41°17'34"

LONGITUDE: 107°13'45"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM

COLLAR ELEV.: 7910

ANGLE: 90°

BEARING:

TOTAL DEPTH: 633

SPUD DATE: 8/15/79

COMPLETION DATE: 9-18-79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 626

DATE: 9/11/79

REMARKS: 196' (2') - 0.0202

KUT LOGGING:

INSTRUMENT: Scintrex Down-Hole GAD-6

PROBE T.D.: 628

DATE: 9/11/79

REMARKS:

STRATIGRAPHIC UNITS: (Deep Gulch Conglomerate Unit 1: 0-40) (Deep Gulch Conglomerate Unit 2: 40-160) (Deep Gulch Conglomerate Unit 3: 160-200) (Jack Creek Quartzite Unit 4: 200-257, 325-537) (Jack Creek Quartzite Unit 4P: 257-325) (Jack Creek Quartzite Unit 5: 537-633)

RADIOACTIVE ZONES: 65, 109, 142, 169-170, 175-180, 185-191.

CORE LOGGERS: Anthony Kratochvil

DRILL HOLE SM-1

OBJECTIVES:

1. Ridge 2 at Carrico Ranch contains the coarsest (congl K) and some of the most radioactive (I,J,K,) conglomerates of the Deep Gulch Conglomerate (up to 20 ppm U, 250 ppm Th, 0.2 ppm Au). This hole was to penetrate these coarse radioactive conglomerates at depth to give us unleached uranium grades.
2. Stratigraphic information from drill core was to be compared to surface stratigraphy, as known from detailed plan-table mapping (Figure 16) to gain information on lithofacies variation and structural complexities. In particular we were interested in detecting possible isoclinal folding in these units.

CONCLUSIONS:

1. We did not hit conglomerates in subsurface as coarse as those on the surface (maximum pebble size was 28 vs 37 mm); maximum uranium content of Unit 3 was 270ppm (with up to 960 ppm Th.; <.02 ppm gold was detected). Comparison of surface Th/U ratios in hot conglomerates (mean 9.4) with subsurface ratios in correlative units (mean 3.3) indicates appreciable surface leaching of uranium. Drill core was locally oxidized at depths of up to 240 feet.
2. Surface stratigraphy matched very well with the subsurface stratigraphy. Unit 3 was encountered at 160 feet, indicating that bedding dipped uniformly at about 45° to a depth of at least 250 feet (Figure 17). Also shown in Figure 17 is the lithofacies variation in Unit 4, where a massive subarkose (4) pinches out between the surface outcrop and the drill hole. Conglomerates I, J, and K appear to be continuous with depth as there is very good correlation between surface conglomerates and those encountered in the drill core. No isoclinal folding was detected in this hole; the conglomerates appear to be part of a much larger scale isoclinal fold.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 1 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 16. PLANE-TABLE MAP SHOWING MAJOR CONGLOMERATE HORIZONS, RIDGE 2, CARRICO RANCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from massive gabbro and diabase to foliated amphibolite.

INTRUSIVE CONTACT

UNIT 5: Phyllite, black, with boudinaged quartz veins. Contains lenses of pink, medium-grained arkose (5a).

UNIT 4: Arkose and subarkose, pink, medium-grained; planar-crossbedded, massive, well-sorted. Intertongues with poorly-sorted muscovitic subarkose (4m) and thin lenses of black phyllite (4p).

UNIT 3: Subarkose, light pink, very coarse-grained to granular; plane-bedded. Includes 15 to 75 cm thick beds of hematite-stained, pyritic, radioactive quartz-pebble conglomerate. Individual conglomerate beds are labeled G through L; J and K are strongly radioactive.

UNIT 2: Arkose to subarkose, muscovitic, light gray, coarse-grained to granular; abundant small-scale trough crossbeds, slightly pyritic. Includes thin beds of quartz-granule (qg), quartz-pebble (qp) and arkosic (agcl) conglomerates. Mildly radioactive conglomerates are labeled C through F, C is the most radioactive.

UNIT 1: Arkose, light gray, medium- to coarse-grained; poorly-sorted. Interbedded with muscovitic arkose (1m). Includes thin quartz-pebble (qp) and arkose (agcl) conglomerates. Slightly radioactive conglomerates are labeled A and B.

— — — — — Lithologic contact, dashed where uncertain

— — — — — Outcrop boundary, dashed where uncertain

..... Conglomerate horizon

U
D — — — — — Fault, showing relative displacement, dashed where approximately located

44X Strike and dip of overturned bedding

SM-1
⊙ Vertical 626 ft (191m) Drill hole with plunge angle and total depth.

42A Strike and dip of foliation

76g Strike and dip of faults and quartz veins

8 Bearing and plunge of minor fold axis

Λ Fining-upward sequences

Planar crossbeds

Trough crossbeds

8 Sample transects

Figure 17. Cross Section of Ridge 2, Carrico Ranch, Northwest Sierra Madre, Wyoming.

DRILL HOLE NUMBER SMI

SAMP. NO.	158332	158324	711450	158325	158326	158328	158329	158330	711436	157240
TOP DEPTH	28.00	42.30	56.00	56.30	70.50	109.00	120.00	143.00	150.10	164.00
BOT DEPTH										165.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	QZ	QPC	QPC	QZ	QZ	QZ	QGC	QPC	QPC
UL (PPM)	3.03	3.67	47.71	24.92	2.31	16.47	7.40	27.08	50.30	2.94
UT (PPM)	3.70	3.70	49.60	27.20	2.10	14.90	5.60	28.70	51.40	2.60
UL/UT	.82	.99	.96	.92	1.10	1.11	1.32	.94	.98	1.13
TH (PPM)	20.00	41.00	649.00	247.00	6.00	119.00	24.00	131.00	538.00	4.00
TH/UT	5.41	11.08	13.08	9.08	2.86	7.99	4.29	4.56	10.47	1.54
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00
AL (%)	4.82	4.49	9.18	3.87	4.84	4.55	5.30	4.07	4.53	4.51
CA (%)	.10	.08	.05	-.05	.09	.05	.05	.07	-.05	-.05
FE (%)	.60	.80	3.62	2.57	1.12	1.06	.56	.66	2.16	.30
MG (%)	.41	.52	.83	.34	.66	.57	.35	.27	.21	.17
NA (%)	2.11	1.60	.99	.56	1.02	.71	.86	.96	.10	.27
K (%)	1.03	1.16	3.15	1.44	1.49	1.93	2.53	1.38	2.60	3.22
AG (PPM)	-2.00	-2.00	2.00	-2.00	4.00	-2.00	-2.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	15.00	-10.00	-10.00	-10.00	-10.00	-10.00	13.00	11.00
BA (PPM)	428.00	385.00	1225.00	391.00	631.00	522.00	756.00	318.00	978.00	941.00
BE (PPM)	2.00	3.00	2.00	2.00	5.00	4.00	3.00	3.00	1.00	3.00
CE (PPM)	32.00	29.00	53.00	90.00	64.00	61.00	44.00	52.00	98.00	29.00
CO (PPM)	13.00	18.00	52.00	65.00	11.00	32.00	4.00	18.00	37.00	-4.00
CR (PPM)	53.00	53.00	454.00	122.00	53.00	64.00	43.00	39.00	37.00	23.00
CU (PPM)	33.00	46.00	18.00	7.00	10.00	81.00	21.00	85.00	172.00	6.00
HF (PPM)	ND	ND	-15.00	ND	ND	ND	ND	ND	-15.00	ND
LA (PPM)	ND	ND	52.00	ND	ND	ND	ND	ND	119.00	ND
LI (PPM)	8.00	12.00	27.00	10.00	12.00	14.00	11.00	6.00	8.00	5.00
MN (PPM)	30.00	31.00	34.00	21.00	24.00	27.00	19.00	26.00	26.00	12.00
MO (PPM)	-4.00	-4.00	6.00	8.00	-4.00	-4.00	-4.00	12.00	6.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	4.00	4.00	5.00	9.00	5.00
NI (PPM)	14.00	30.00	52.00	31.00	27.00	24.00	10.00	16.00	58.00	7.00
P (PPM)	121.00	100.00	242.00	152.00	193.00	115.00	119.00	63.00	202.00	56.00
PB (PPM)	ND	ND	35.00	ND	ND	ND	ND	ND	28.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	4.00	10.00	4.00	7.00	4.00	3.00	3.00	2.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	100.00	71.00	51.00	24.00	56.00	42.00	71.00	67.00	51.00	77.00
TI (PPM)	1143.00	1080.00	3585.00	1401.00	1889.00	1800.00	1522.00	1097.00	1334.00	1284.00
V (PPM)	23.00	28.00	98.00	34.00	53.00	30.00	28.00	23.00	23.00	20.00
Y (PPM)	3.00	5.00	39.00	20.00	4.00	9.00	3.00	10.00	21.00	1.00
ZN (PPM)	4.00	5.00	16.00	6.00	7.00	5.00	3.00	7.00	8.00	-2.00
ZR (PPM)	119.00	45.00	450.00	353.00	38.00	89.00	29.00	113.00	655.00	20.00

DRILL HOLE NUMBER SM1

SAMP. NO.	157241	157203	157204	157205	157314	157315	157316	157317	157318	157319
TOP DEPTH	165.00	166.00	167.00	168.00	169.00	170.00	171.00	172.00	173.00	174.00
BOT DEPTH	166.00	167.00	168.00	169.00	170.00	171.00	172.00	173.00	174.00	175.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	6.24	6.08	5.23	8.61	2.33	5.22	3.53	3.02	4.08	5.10
UT (PPM)	5.70	7.00	5.20	10.40	3.50	4.60	3.80	2.50	6.10	6.80
UL/UT	1.09	.87	1.01	.83	.67	1.13	.93	1.21	.67	.75
TH (PPM)	9.00	25.00	12.00	32.00	5.00	8.00	7.00	3.00	10.00	22.00
TH/UT	1.58	3.57	2.31	3.08	1.43	1.74	1.84	1.20	1.64	3.24
AU (PPM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AL (%)	5.01	4.09	4.19	3.72	7.51	6.12	4.21	5.25	6.37	5.93
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.14	-.05
FE (%)	.38	.37	.30	.45	.29	.26	.31	.31	.36	.40
MG (%)	.20	.16	.15	.17	.26	.20	.15	.18	.19	.17
NA (%)	.27	.19	.23	.16	.25	.19	.17	.27	.24	.19
K (%)	3.44	2.95	3.26	2.60	3.92	3.31	2.88	3.46	3.50	3.26
AG (PPM)	-2.00	2.00	-2.00	-2.00	2.00	5.00	-2.00	-2.00	5.00	-2.00
B (PPM)	14.00	-10.00	-10.00	-10.00	15.00	12.00	10.00	14.00	13.00	13.00
BA (PPM)	966.00	791.00	842.00	717.00	886.00	739.00	745.00	875.00	799.00	704.00
BE (PPM)	2.00	2.00	2.00	3.00	3.00	2.00	2.00	3.00	2.00	2.00
CE (PPM)	42.00	27.00	29.00	40.00	34.00	29.00	33.00	40.00	36.00	34.00
CO (PPM)	4.00	7.00	4.00	10.00	6.00	6.00	6.00	5.00	12.00	10.00
CR (PPM)	30.00	22.00	21.00	26.00	41.00	45.00	33.00	35.00	41.00	46.00
CU (PPM)	24.00	43.00	26.00	73.00	17.00	24.00	24.00	15.00	23.00	46.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	5.00	6.00	5.00	9.00	7.00	6.00	7.00	6.00	6.00
MN (PPM)	14.00	11.00	10.00	11.00	15.00	13.00	10.00	11.00	19.00	11.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	4.00	6.00	4.00	6.00	6.00	-4.00	-4.00	-4.00	-4.00	5.00
NI (PPM)	9.00	11.00	10.00	18.00	13.00	12.00	16.00	14.00	16.00	12.00
P (PPM)	70.00	44.00	39.00	152.00	158.00	153.00	84.00	56.00	204.00	38.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	73.00	63.00	66.00	55.00	61.00	52.00	51.00	62.00	58.00	49.00
TI (PPM)	1569.00	921.00	811.00	1177.00	1678.00	1399.00	1195.00	1454.00	1308.00	1314.00
V (PPM)	29.00	19.00	16.00	19.00	30.00	26.00	22.00	29.00	29.00	25.00
Y (PPM)	3.00	3.00	2.00	4.00	2.00	2.00	2.00	2.00	3.00	3.00
ZN (PPM)	6.00	3.00	3.00	6.00	7.00	5.00	2.00	2.00	4.00	4.00
ZR (PPM)	68.00	44.00	47.00	52.00	22.00	30.00	34.00	29.00	43.00	69.00

DRILL HOLE NUMBER SM1

SAMP. NO.	157320	158466	711439	157321	157322	157323	158468	157324	157325	157326
TOP DEPTH	175.00	175.60	175.70	176.00	177.00	178.00	178.50	179.00	180.00	181.00
BOT DEPTH	176.00	175.80		177.00	178.00	179.00	178.80	180.00	181.00	182.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	8.66	15.56	11.53	6.67	16.65	24.79	45.70	12.16	5.27	4.03
UT (PPM)	8.40	14.30	10.60	5.40	13.50	30.00	55.00	14.50	4.60	4.40
UL/UT	1.03	1.09	1.09	1.24	1.23	.83	.83	.84	1.15	.92
TH (PPM)	22.00	78.00	64.00	13.00	31.00	66.00	206.00	31.00	6.00	10.00
TH/UT	2.62	5.45	6.04	2.41	2.30	2.20	3.75	2.14	1.30	2.27
AU (PPM)	0.00	ND	ND	0.00	0.00	0.00	-2.20	0.00	0.00	0.00
AL (%)	4.80	5.56	9.51	5.67	4.34	4.02	3.89	3.99	5.28	6.22
CA (%)	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
FE (%)	.47	.75	1.12	.25	.22	.74	1.53	.27	.23	.33
MG (%)	.17	.21	.41	.17	.12	.14	.16	.14	.19	.22
NA (%)	.24	.16	.16	.27	.40	.34	.31	.46	.31	.24
K (%)	3.32	2.82	3.74	3.22	2.68	2.76	2.36	2.78	3.67	4.09
AG (PPM)	3.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	13.00	23.00	32.00	11.00	-10.00	10.00	25.00	-10.00	14.00	19.00
BA (PPM)	791.00	772.00	1000.00	590.00	428.00	479.00	428.00	513.00	793.00	850.00
BE (PPM)	3.00	1.00	2.00	2.00	1.00	3.00	1.00	1.00	3.00	4.00
CE (PPM)	36.00	73.00	119.00	38.00	27.00	32.00	75.00	47.00	17.00	33.00
CO (PPM)	7.00	13.00	21.00	6.00	7.00	14.00	29.00	5.00	-4.00	4.00
CR (PPM)	30.00	46.00	99.00	34.00	18.00	22.00	25.00	19.00	25.00	39.00
CU (PPM)	17.00	17.00	146.00	63.00	49.00	154.00	146.00	124.00	40.00	26.00
HF (PPM)	ND	-15.00	-15.00	ND	ND	ND	-15.00	ND	ND	ND
LA (PPM)	ND	85.00	134.00	ND	ND	ND	86.00	ND	ND	ND
LI (PPM)	6.00	6.00	11.00	6.00	4.00	5.00	5.00	5.00	6.00	7.00
MN (PPM)	11.00	10.00	24.00	10.00	14.00	10.00	8.00	9.00	11.00	13.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	4.00	5.00	10.00	9.00	6.00	4.00	5.00
NI (PPM)	10.00	19.00	21.00	7.00	6.00	14.00	28.00	10.00	6.00	10.00
P (PPM)	74.00	101.00	158.00	19.00	49.00	73.00	103.00	47.00	75.00	70.00
PB (PPM)	ND	-10.00	33.00	ND	ND	ND	30.00	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	6.00	2.00	1.00	3.00	2.00	2.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	59.00	46.00	46.00	51.00	49.00	48.00	40.00	54.00	57.00	55.00
TI (PPM)	1438.00	1788.00	3562.00	1170.00	662.00	933.00	1123.00	884.00	1144.00	1762.00
V (PPM)	27.00	30.00	58.00	22.00	10.00	17.00	16.00	14.00	24.00	36.00
Y (PPM)	3.00	6.00	6.00	2.00	4.00	10.00	25.00	5.00	2.00	4.00
ZN (PPM)	5.00	4.00	10.00	5.00	3.00	3.00	5.00	4.00	2.00	2.00
ZR (PPM)	70.00	151.00	154.00	59.00	76.00	116.00	325.00	78.00	33.00	70.00

DRILL HOLE NUMBER SM1

SAMP. NO.	157327	157328	157330	152445	158057	158467	158058	158059	158060	158061
TOP DEPTH	182.00	183.00	184.00	185.00	186.00	186.50	187.00	188.00	189.00	190.00
BOT DEPTH	183.00	184.00	185.00	186.00	187.00	186.70	188.00	189.00	190.00	191.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	3.72	5.41	1.16	4.66	26.63	24.74	19.31	17.77	15.90	46.10
UT (PPM)	4.70	3.60	2.00	3.50	25.00	26.40	18.30	16.20	11.10	37.00
UL/UT	.79	1.50	.58	1.33	1.07	.94	1.06	1.10	1.43	1.25
TH (PPM)	8.00	15.00	4.00	13.00	97.00	234.00	53.00	35.00	29.00	79.00
TH/UT	1.70	4.17	2.00	3.71	3.88	8.86	2.90	2.16	2.61	2.14
AU (PPM)	0.00	0.00	0.00	0.00	ND	-20	ND	ND	ND	ND
AL (%)	4.84	4.95	6.64	4.92	2.82	3.91	3.89	3.55	3.47	2.28
CA (%)	-.05	-.05	-.05	-.05	-.05	.05	.07	-.05	-.05	.05
FE (%)	.12	.10	.17	.24	1.00	1.81	.75	.42	.33	.79
MG (%)	.13	.12	.19	.18	.13	.19	.19	.18	.20	.13
NA (%)	.46	.59	.19	.19	.40	.40	.33	.50	.77	.50
K (%)	2.92	2.97	3.97	3.29	1.93	2.26	2.89	2.45	2.73	1.54
AG (PPM)	3.00	2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	14.00	13.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	478.00	427.00	763.00	781.00	303.00	371.00	552.00	423.00	350.00	208.00
BE (PPM)	1.00	1.00	2.00	3.00	5.00	1.00	7.00	6.00	4.00	3.00
CE (PPM)	17.00	25.00	17.00	27.00	56.00	93.00	43.00	42.00	46.00	34.00
CI (PPM)	-4.00	-4.00	-4.00	-4.00	18.00	30.00	6.00	7.00	-4.00	16.00
CR (PPM)	19.00	21.00	31.00	22.00	25.00	38.00	28.00	21.00	21.00	13.00
CU (PPM)	21.00	31.00	5.00	5.00	110.00	59.00	18.00	53.00	74.00	150.00
HF (PPM)	ND	ND	ND	ND	ND	-15.00	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	122.00	ND	ND	ND	ND
LI (PPM)	4.00	4.00	5.00	5.00	5.00	7.00	6.00	6.00	6.00	3.00
MN (PPM)	8.00	8.00	11.00	11.00	14.00	13.00	24.00	10.00	12.00	17.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	12.00	5.00	9.00	6.00	-4.00	-4.00
NB (PPM)	4.00	5.00	5.00	5.00	5.00	-4.00	6.00	5.00	5.00	8.00
NI (PPM)	6.00	3.00	6.00	4.00	17.00	31.00	15.00	11.00	8.00	18.00
P (PPM)	177.00	37.00	51.00	71.00	9.00	202.00	149.00	52.00	76.00	-5.00
PB (PPM)	ND	ND	ND	ND	ND	12.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	2.00	3.00	2.00	2.00	3.00	2.00	2.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	47.00	46.00	53.00	56.00	48.00	48.00	56.00	53.00	52.00	38.00
TI (PPM)	626.00	642.00	1075.00	1209.00	872.00	1333.00	1165.00	1027.00	1037.00	483.00
V (PPM)	10.00	12.00	21.00	23.00	15.00	25.00	22.00	14.00	12.00	8.00
Y (PPM)	2.00	3.00	2.00	3.00	10.00	20.00	8.00	3.00	4.00	9.00
ZN (PPM)	4.00	3.00	2.00	2.00	5.00	6.00	3.00	5.00	-2.00	6.00
ZR (PPM)	27.00	39.00	20.00	43.00	127.00	269.00	135.00	67.00	71.00	71.00

DRILL HOLE NUMBER SMI

SAMP. NO.	711461	158062	158469	158063	711437	158064	158065	158334	158335	158333
TOP DEPTH	190.70	191.00	191.30	192.00	192.80	193.00	194.00	207.00	222.50	232.00
BOT DEPTH		192.00	191.65	193.00		194.00	196.00			
FORMATION	DG	DG	DG	DG	DG	DG	DG	JCF	JCF	JCF
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GGC	GGC	AQZ	GGC	GGC
UL (PPM)	51.99	107.30	173.10	6.51	30.64	2.99	2.76	6.53	1.96	4.17
UT (PPM)	56.50	92.40	269.00	6.90	30.20	3.40	2.90	6.70	1.80	4.20
UL/UT	.92	1.16	.64	.94	1.01	.88	.95	.97	1.09	.99
TH (PPM)	167.00	297.00	960.00	33.00	203.00	8.00	10.00	41.00	7.00	30.00
TH/UT	2.96	3.21	3.57	4.78	6.72	2.35	3.45	6.12	3.89	7.14
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.03	3.50	4.99	2.22	4.89	3.56	1.92	3.02	3.91	4.10
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.05	.15	-.05
FE (%)	1.92	1.44	3.60	.45	1.93	.21	.20	.29	.48	.55
MG (%)	.23	.23	.31	.13	.23	.18	.16	.20	.38	.44
NA (%)	.55	.49	.20	.75	.82	1.04	.60	.90	1.30	.45
K (%)	1.89	2.88	2.83	1.68	1.92	2.54	2.71	.92	1.07	2.68
AG (PPM)	-2.00	6.00	8.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	10.00	-10.00	11.00	-10.00	-10.00	-10.00
BA (PPM)	404.00	455.00	564.00	217.00	320.00	332.00	339.00	93.00	258.00	856.00
BE (PPM)	1.00	5.00	2.00	3.00	1.00	3.00	3.00	1.00	2.00	2.00
CE (PPM)	70.00	41.00	133.00	27.00	78.00	16.00	11.00	15.00	13.00	20.00
CO (PPM)	39.00	29.00	87.00	10.00	62.00	-4.00	-4.00	5.00	7.00	8.00
CR (PPM)	30.00	34.00	66.00	18.00	33.00	19.00	24.00	12.00	14.00	33.00
CU (PPM)	49.00	36.00	74.00	35.00	205.00	4.00	8.00	24.00	43.00	42.00
HF (PPM)	-15.00	ND	-15.00	ND	-15.00	ND	ND	ND	ND	ND
LA (PPM)	83.00	ND	167.00	ND	92.00	ND	ND	ND	ND	ND
LI (PPM)	7.00	7.00	12.00	4.00	7.00	5.00	5.00	7.00	7.00	9.00
MN (PPM)	14.00	15.00	14.00	8.00	14.00	14.00	8.00	11.00	51.00	51.00
MO (PPM)	-4.00	16.00	7.00	-4.00	6.00	-4.00	-4.00	4.00	-4.00	-4.00
NB (PPM)	16.00	8.00	8.00	-4.00	6.00	4.00	4.00	5.00	6.00	5.00
NI (PPM)	33.00	23.00	73.00	9.00	39.00	3.00	4.00	5.00	14.00	18.00
P (PPM)	111.00	112.00	263.00	60.00	115.00	39.00	40.00	38.00	8.00	11.00
PB (PPM)	61.00	ND	78.00	ND	23.00	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	5.00	5.00	1.00	2.00	2.00	2.00	1.00	2.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	43.00	47.00	44.00	32.00	48.00	47.00	16.00	15.00	73.00	49.00
TI (PPM)	1104.00	1349.00	1783.00	756.00	1293.00	863.00	971.00	576.00	467.00	1078.00
V (PPM)	20.00	17.00	30.00	9.00	24.00	12.00	12.00	11.00	14.00	30.00
Y (PPM)	16.00	24.00	77.00	4.00	19.00	3.00	2.00	4.00	2.00	5.00
ZN (PPM)	8.00	-2.00	10.00	-2.00	8.00	2.00	-2.00	-2.00	2.00	10.00
ZR (PPM)	165.00	486.00	1371.00	65.00	240.00	25.00	39.00	77.00	27.00	71.00

DRILL HOLE NUMBER SM1

SAMP. NO.	158336	158337	158339	158338	158331	158341	158342	158340	152361	152
TOP DEPTH	239.00	263.00	307.00	323.00	345.00	352.50	373.50	387.00	411.50	417
BOT DEPTH										
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	
LITHOLOGY	PHQZ	PHQZ	BQ	BSC	AQZ	FQZ	FQZ	FQZ	QPC	
UL (PPM)	20.46	8.06	3.55	7.29	10.73	3.49	9.24	5.59	15.34	1
UT (PPM)	13.90	8.10	3.60	6.50	11.70	2.40	10.50	5.10	14.20	1
UL/UT	1.47	1.00	.99	1.12	.92	1.45	.88	1.10	1.08	
TH (PPM)	11.00	15.00	5.00	12.00	24.00	-2.00	49.00	19.00	20.00	5
TH/UT	.79	1.85	1.39	1.85	2.05	-.83	4.67	3.73	1.41	3
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
AL (%)	8.04	9.39	6.82	8.67	5.10	3.22	6.01	7.38	2.11	3
CA (%)	.12	.38	.24	.22	.09	.05	.26	.30	.23	
FE (%)	3.30	3.22	1.83	3.20	.83	.30	3.01	2.26	1.38	1
MG (%)	1.63	2.05	1.10	1.87	.54	.23	1.23	1.28	.28	
NA (%)	1.49	1.34	2.65	1.33	1.93	1.19	.68	1.19	.97	2
K (%)	3.26	3.61	1.72	3.43	1.34	1.58	2.99	3.05	.82	
AG (PPM)	2.00	2.00	-2.00	3.00	-2.00	2.00	-2.00	-2.00	-2.00	2
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10
BA (PPM)	872.00	1066.00	536.00	1365.00	461.00	382.00	898.00	752.00	367.00	159
BE (PPM)	5.00	8.00	3.00	6.00	3.00	1.00	9.00	4.00	1.00	1
CE (PPM)	48.00	29.00	19.00	22.00	35.00	10.00	71.00	22.00	35.00	23
CO (PPM)	19.00	20.00	12.00	17.00	19.00	-4.00	33.00	18.00	39.00	10
CR (PPM)	130.00	184.00	76.00	142.00	41.00	17.00	272.00	110.00	46.00	21
CU (PPM)	15.00	18.00	2.00	47.00	97.00	11.00	90.00	15.00	137.00	13
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
LI (PPM)	22.00	28.00	15.00	30.00	10.00	4.00	20.00	24.00	6.00	6
MN (PPM)	273.00	337.00	157.00	300.00	24.00	25.00	164.00	205.00	54.00	69
MO (PPM)	-4.00	4.00	-4.00	6.00	-4.00	-4.00	6.00	-4.00	-4.00	-4
NB (PPM)	8.00	13.00	4.00	11.00	4.00	-4.00	13.00	7.00	5.00	-4
NI (PPM)	51.00	53.00	32.00	52.00	26.00	11.00	52.00	21.00	23.00	11
P (PPM)	441.00	499.00	125.00	329.00	151.00	45.00	711.00	218.00	87.00	105
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
SC (PPM)	9.00	14.00	4.00	12.00	3.00	1.00	13.00	6.00	3.00	3
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	
SR (PPM)	80.00	113.00	175.00	119.00	78.00	73.00	49.00	90.00	85.00	131
TI (PPM)	2936.00	4451.00	1669.00	3661.00	1272.00	373.00	4773.00	2332.00	972.00	506
V (PPM)	83.00	116.00	50.00	106.00	28.00	8.00	91.00	60.00	13.00	16
Y (PPM)	8.00	13.00	2.00	8.00	3.00	1.00	24.00	7.00	10.00	3
ZN (PPM)	33.00	38.00	16.00	31.00	-2.00	3.00	26.00	16.00	11.00	14
ZR (PPM)	71.00	83.00	29.00	66.00	39.00	11.00	264.00	61.00	33.00	20

DRILL HOLE NUMBER SH1

SAMP. NO.	152365	152363	152366	152364	152367	152314	152369	152370	152371	152372
TOP DEPTH	425.20	441.00	444.00	465.00	491.00	513.00	529.00	539.90	564.00	592.00
BOT DEPTH	430.00		444.80			514.00				
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	NQ	APC	FQ	APC	APC	Q	APC	MSC	BGN	NQ
UL (PPM)	14.95	1.09	15.95	3.66	5.30	11.77	2.71	4.19	1.28	.41
UT (PPM)	13.60	2.50	18.30	4.50	4.90	11.20	2.70	3.70	.30	.60
UL/UT	1.10	.44	.87	.81	1.08	1.05	1.00	1.13	4.28	.68
TH (PPM)	36.00	6.00	56.00	10.00	5.00	30.00	4.00	10.00	-2.00	2.00
TH/UT	2.65	2.40	3.06	2.22	1.02	2.68	1.48	2.70	-6.69	3.34
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.15	2.94	2.42	2.83	6.77	2.06	5.02	7.03	5.34	5.09
CA (%)	.06	.12	.07	.06	.20	.16	-.05	.52	5.39	4.15
FE (%)	1.36	.13	1.41	.46	2.05	2.15	.31	2.89	5.80	8.08
MG (%)	.25	.09	.45	.23	1.22	.25	.30	1.89	3.16	3.07
NA (%)	.80	.69	1.24	1.16	3.41	1.44	1.88	3.28	1.56	1.63
K (%)	1.98	2.16	.80	1.66	1.29	.15	1.40	.49	.25	.74
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	5.00	-2.00	8.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	519.00	305.00	136.00	396.00	216.00	26.00	196.00	137.00	51.00	180.00
BE (PPM)	2.00	-1.00	1.00	1.00	4.00	1.00	1.00	5.00	7.00	5.00
CE (PPM)	23.00	18.00	41.00	31.00	25.00	24.00	18.00	31.00	-10.00	-10.00
CO (PPM)	25.00	4.00	20.00	-4.00	12.00	67.00	5.00	24.00	50.00	62.00
CR (PPM)	92.00	24.00	93.00	32.00	104.00	63.00	24.00	162.00	381.00	172.00
CU (PPM)	68.00	40.00	172.00	5.00	25.00	1033.00	14.00	21.00	69.00	245.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	2.00	8.00	4.00	13.00	3.00	14.00	21.00	6.00	15.00
MM (PPM)	36.00	19.00	51.00	32.00	77.00	30.00	20.00	173.00	987.00	1499.00
MO (PPM)	-4.00	-4.00	7.00	-4.00	-4.00	6.00	-4.00	5.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	4.00	9.00	11.00	10.00
NI (PPM)	26.00	9.00	37.00	6.00	35.00	51.00	14.00	54.00	95.00	82.00
P (PPM)	76.00	20.00	52.00	60.00	191.00	-5.00	41.00	443.00	196.00	291.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	1.00	2.00	1.00	6.00	2.00	2.00	9.00	27.00	29.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	61.00	41.00	63.00	73.00	118.00	28.00	43.00	82.00	161.00	101.00
TI (PPM)	748.00	234.00	1099.00	457.00	1402.00	116.00	554.00	1663.00	3588.00	6937.00
V (PPM)	14.00	3.00	19.00	9.00	55.00	9.00	17.00	87.00	234.00	300.00
Y (PPM)	8.00	3.00	8.00	3.00	3.00	4.00	1.00	6.00	10.00	16.00
ZN (PPM)	9.00	7.00	8.00	9.00	11.00	7.00	8.00	24.00	77.00	98.00
ZR (PPM)	159.00	18.00	142.00	35.00	42.00	47.00	17.00	61.00	17.00	27.00

DRILL HOLE NUMBER SM1

SAMP. NO.	152373
TOP DEPTH	614.80
BOT DEPTH	
FORMATION	JCF
LITHOLOGY	AGC
UL (PPM)	1.38
UT (PPM)	1.50
UL/UT	.92
TH (PPM)	2.00
TH/UT	1.33
AU (PPM)	ND
AL (%)	6.79
CA (%)	4.37
FE (%)	6.61
MG (%)	1.90
NA (%)	1.61
K (%)	.82
AG (PPM)	-2.00
B (PPM)	-10.00
BA (PPM)	220.00
BE (PPM)	8.00
CE (PPM)	25.00
CO (PPM)	61.00
CR (PPM)	9.00
CU (PPM)	259.00
HF (PPM)	ND
LA (PPM)	ND
LI (PPM)	10.00
MN (PPM)	1389.00
MO (PPM)	-4.00
NB (PPM)	11.00
NI (PPM)	40.00
P (PPM)	332.00
PB (PPM)	ND
PT (PPM)	ND
SC (PPM)	27.00
SI (PPM)	ND
SN (PPM)	ND
SR (PPM)	163.00
TI (PPM)	6623.00
V (PPM)	268.00
Y (PPM)	19.00
ZN (PPM)	104.00
ZR (PPM)	57.00

DRILL HOLE NO. SM1A

AREA: Carrico Ranch, Sierra Madre Mountains

LOCATION: 494 FWL, 245 FNL, Sec. 7, T. 15 N. R. 87 W.

LATITUDE: 41° 17' 37"

LONGITUDE: 107° 13' 51"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM

COLLAR ELEV.: 8045

ANGLE: 47°

BEARING: S 55 E

TOTAL DEPTH: 756'

SPUD DATE: 9/6/79

COMPLETION DATE: 10/19/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 765'

DATE: 10/28/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 744'

DATE: 10/28/79

REMARKS: Manual depth counter malfunctioning

STRATIGRAPHIC UNITS: (Biotite Plagioclase Gneiss and Metagabbro: 0-310) (Deep Gulch Conglomerate Unit 1: 310-455) (Deep Gulch Conglomerate Unit 2: 455-530) (Deep Gulch Conglomerate Unit 3: 530-560) (Jack Creek Quartzite Unit 4: 560-610, 680-756) (Jack Creek Quartzite Unit 4p: 610-680)

RADIOACTIVE ZONES: 421-423, 426-428, 461, 499, 529-531, 538-540.5, 543-545, 603, 700.

CORE LOGGERS: Anthony Kratochvil, Carolyn Coolidge, Pat Gallagher

DRILL HOLE SM-1A

OBJECTIVES:

1. After drilling SM-1, we were interested in intersecting the same hot conglomerates of Unit 3, but at greater depth, to further test uranium content, to see how the degree of leaching varied with depth, and to observe any changes in structure.
2. The basal contact between the Deep Gulch Conglomerate and "basement" biotite-plagioclase gneiss is obscured on the surface by mafic intrusions (Figure 17). We hoped to gain information about this contact by drilling.
3. This drill hole was also designed to give us a complete stratigraphic section of the Deep Gulch Conglomerate on Ridge 2.

CONCLUSIONS:

1. Unit 3 conglomerates were intersected at 530 feet in SM-1A indicating that the uniform dip of 45° in these beds persists to depths of at least 370 feet (Figure 17). Maximum grades (U = 209 ppm; Th = 550 ppm; <0.20 ppm gold was detected) were not appreciably different from SM-1 and the degree of leaching of uranium had not changed considerably (Th./U ratios of 3.9 were similar). This was consistent with data elsewhere in the northwestern Sierra Madre which show that below depths of about 150 feet, no appreciable uranium has been leached. There was no decrease of pebble size in conglomerates I, J, and K from that in SM-1.
2. Quartzites of Unit 1 of the Deep Gulch Conglomerate were encountered at 310 feet, after drilling a section of interleaved biotite-plagioclase gneiss and mafic intrusive rock (Figure 17). Apparently mafic intrusives are sills which were complexly intruded on every scale. Unfortunately, the lower contact of the Deep Gulch Conglomerate in SM-1A is with an intrusive body, not with "basement" gneiss. No regolith was seen in the drilled gneiss.
3. Stratigraphic information compiled from SM-1 and SM-1A is shown in the cross-section of ridge No. 1, Carrico Ranch.

NOTE: See figures 16 and 17 for plane-table map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 1A SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER SM1A

SAMP. NO.	158281	152374	152375	158284	158282	158283	158285	158286	158287	158288
TOP DEPTH	12.20	35.00	62.00	76.00	89.00	133.00	251.00	286.00	292.00	305.00
BOT DEPTH										
FORMATION	AGN	MI	MI	AGN	AG	MI	MI	AGN	AGN	DG
LITHOLOGY	GN	MSC	MSC	SC	GR	DB	DB	GN	GN	QGC
UL (PPM)	1.03	3.11	1.81	3.53	1.17	.84	-.25	2.65	4.50	5.19
UT (PPM)	1.40	2.00	2.10	4.00	1.60	.70	.20	2.40	3.80	3.70
UL/UT	.74	1.55	.86	.88	.73	1.20	-1.26	1.10	1.18	1.40
TH (PPM)	11.00	4.00	10.00	24.00	9.00	-2.00	-2.00	8.00	20.00	15.00
TII/UT	7.06	2.00	4.76	6.00	5.63	-2.86	-10.05	3.33	5.26	4.06
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NL (%)	4.23	6.24	7.07	-5.16	5.12	5.45	5.16	5.32	5.40	5.46
CA (%)	.85	.80	.29	.23	.11	4.98	5.74	2.48	.38	2.14
FE (%)	4.68	4.74	3.66	1.85	.25	6.32	9.64	6.34	4.32	3.48
MG (%)	2.33	2.70	1.83	.97	.07	3.07	3.04	2.94	1.87	1.57
NA (%)	1.16	2.46	2.85	.56	1.28	1.21	.99	1.45	1.73	2.33
K (%)	1.72	2.13	1.17	3.84	4.37	.43	.25	1.48	1.92	1.49
AG (PPM)	3.00	2.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	13.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	804.00	1141.00	251.00	1137.00	1422.00	137.00	53.00	424.00	1073.00	365.00
BE (PPM)	13.00	5.00	5.00	12.00	1.00	7.00	8.00	5.00	4.00	5.00
CE (PPM)	20.00	38.00	28.00	11.00	30.00	-10.00	-10.00	26.00	62.00	150.00
CO (PPM)	26.00	25.00	14.00	14.00	5.00	47.00	68.00	45.00	28.00	27.00
CR (PPM)	107.00	91.00	123.00	110.00	22.00	164.00	149.00	266.00	68.00	64.00
CU (PPM)	16.00	91.00	4.00	41.00	7.00	80.00	160.00	91.00	8.00	17.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	25.00	33.00	28.00	21.00	1.00	11.00	9.00	24.00	22.00	20.00
MN (PPM)	446.00	385.00	134.00	114.00	24.00	1143.00	1717.00	752.00	230.00	414.00
MO (PPM)	4.00	-4.00	-4.00	5.00	-4.00	-4.00	-4.00	9.00	-4.00	11.00
NB (PPM)	-4.00	5.00	9.00	5.00	-4.00	6.00	-4.00	10.00	10.00	7.00
NI (PPM)	44.00	24.00	27.00	33.00	6.00	82.00	108.00	76.00	24.00	41.00
P (PPM)	618.00	1122.00	835.00	477.00	69.00	283.00	452.00	435.00	532.00	445.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	11.00	14.00	10.00	10.00	2.00	24.00	38.00	21.00	10.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	197.00	265.00	113.00	41.00	52.00	179.00	114.00	136.00	97.00	219.00
TI (PPM)	4023.00	3570.00	1577.00	3683.00	681.00	4501.00	7390.00	3903.00	2439.00	2453.00
V (PPM)	96.00	148.00	104.00	111.00	22.00	189.00	321.00	180.00	77.00	90.00
Y (PPM)	6.00	11.00	9.00	8.00	4.00	11.00	19.00	10.00	7.00	17.00
ZN (PPM)	34.00	59.00	8.00	14.00	2.00	69.00	91.00	61.00	31.00	23.00
ZR (PPM)	60.00	59.00	45.00	206.00	34.00	25.00	30.00	49.00	54.00	62.00

DRILL HOLE NUMBER SM1A

SAMP. NO.	158289	158290	158291	158292	158031	158293	158032	711451	158294	158085
TOP DEPTH	314.20	325.60	354.30	374.50	385.00	406.00	422.50	426.00	429.00	450.50
BOT DEPTH					385.50		422.60			
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	CQZ	QGC	CQZ	QGC	CQZ	QGC	QPC	QGC	CQZ
UL (PPM)	3.06	2.33	10.55	8.27	14.17	11.16	67.30	13.25	6.02	1.64
UT (PPM)	2.20	1.60	10.70	8.20	25.20	10.00	63.50	209.00	6.40	2.20
UL/UT	1.39	1.46	.99	1.01	.56	1.12	1.06	.06	.94	.75
TH (PPM)	31.00	10.00	47.00	91.00	84.00	59.00	402.00	395.00	25.00	12.00
TH/UT	14.10	6.25	4.39	11.10	3.33	5.90	6.33	1.89	3.91	5.46
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.00	3.74	3.80	4.57	3.60	4.43	3.44	4.97	5.29	3.80
CA (%)	.16	.07	.08	.07	.06	.11	.07	.08	.07	.10
FE (%)	1.18	1.08	1.81	2.19	2.31	1.62	2.91	5.17	.91	1.37
MG (%)	.91	.62	.57	1.08	1.08	.55	.79	.41	.47	.35
NA (%)	1.84	1.68	1.03	1.23	.64	1.14	.50	.53	1.14	.83
K (%)	1.08	1.05	1.36	1.65	1.86	2.02	2.26	2.50	2.73	2.45
AG (PPM)	-2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	208.00	150.00	538.00	524.00	475.00	917.00	673.00	989.00	911.00	1007.00
BE (PPM)	2.00	2.00	3.00	3.00	3.00	4.00	7.00	1.00	3.00	2.00
CE (PPM)	14.00	21.00	27.00	49.00	28.00	45.00	63.00	221.00	51.00	30.00
CO (PPM)	13.00	25.00	25.00	46.00	50.00	20.00	48.00	87.00	8.00	9.00
CR (PPM)	37.00	38.00	55.00	84.00	74.00	77.00	96.00	47.00	38.00	30.00
CU (PPM)	20.00	76.00	85.00	2.00	88.00	44.00	168.00	31.00	23.00	21.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-15.00	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	231.00	ND	ND
LI (PPM)	9.00	8.00	10.00	19.00	14.00	12.00	18.00	17.00	11.00	6.00
MN (PPM)	68.00	27.00	40.00	76.00	105.00	76.00	76.00	37.00	53.00	71.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	10.00	17.00	-4.00	-4.00
NB (PPM)	4.00	-4.00	5.00	4.00	4.00	5.00	5.00	18.00	4.00	5.00
NI (PPM)	30.00	30.00	29.00	33.00	57.00	27.00	54.00	56.00	19.00	19.00
P (PPM)	339.00	145.00	177.00	200.00	148.00	178.00	271.00	201.00	98.00	102.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	146.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	4.00	5.00	5.00	4.00	6.00	6.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	75.00	39.00	76.00	60.00	38.00	116.00	74.00	86.00	144.00	152.00
TI (PPM)	1147.00	852.00	1989.00	1776.00	2306.00	2388.00	2205.00	1936.00	1700.00	1328.00
V (PPM)	34.00	31.00	32.00	41.00	40.00	32.00	32.00	37.00	25.00	23.00
Y (PPM)	7.00	2.00	10.00	10.00	11.00	8.00	42.00	68.00	4.00	6.00
ZN (PPM)	8.00	4.00	5.00	5.00	15.00	14.00	6.00	13.00	3.00	10.00
ZR (PPM)	112.00	26.00	53.00	155.00	158.00	161.00	345.00	326.00	63.00	41.00

DRILL HOLE NUMBER SM1A

SAMP. NO.	158033	158081	158295	158080	158034	158082	158376	158449	158377	158450
TOP DEPTH	465.30	471.20	485.00	497.40	510.30	520.00	532.00	533.00	533.00	533.40
BOT DEPTH		471.50		497.70	510.40		533.00	533.10	534.00	533.80
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GGC	GGC	CQZ	QPC	CQZ	QPG	QPC	QPC	QPC	QPC
UL (PPM)	8.18	35.44	35.90	14.67	1.91	24.08	12.95	23.13	39.91	68.70
UT (PPM)	6.20	33.50	35.30	12.70	1.60	21.60	12.70	24.40	43.40	69.00
UL/UT	1.32	1.06	1.02	1.16	1.19	1.11	1.02	.95	.92	1.00
TH (PPM)	29.00	228.00	26.00	132.00	6.00	102.00	90.00	91.00	182.00	317.00
TH/UT	4.60	6.01	.74	10.39	3.75	4.72	7.09	3.73	4.19	4.59
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.75	4.48	6.17	3.62	4.35	3.64	4.06	3.96	3.75	3.43
CA (%)	.06	.10	.07	.06	.06	-.05	-.05	-.05	-.05	-.05
FE (%)	1.25	1.86	.83	.69	.62	.77	.56	.95	.95	1.59
MG (%)	.45	.46	.51	.22	.31	.14	.12	.14	.12	.12
NA (%)	.40	.68	.67	1.08	.92	.12	.14	.11	.12	.10
K (%)	2.76	2.00	2.71	1.92	3.12	2.33	3.04	2.45	2.61	2.36
AG (PPM)	8.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	782.00	533.00	762.00	639.00	955.00	700.00	626.00	706.00	525.00	697.00
BE (PPM)	8.00	3.00	4.00	3.00	6.00	2.00	2.00	1.00	1.00	1.00
CE (PPM)	59.00	23.00	31.00	54.00	24.00	37.00	28.00	66.00	43.00	74.00
CO (PPM)	10.00	54.00	11.00	9.00	-4.00	40.00	14.00	18.00	29.00	36.00
CR (PPM)	63.00	68.00	72.00	38.00	36.00	14.00	16.00	26.00	21.00	24.00
CU (PPM)	19.00	210.00	33.00	55.00	5.00	160.00	59.00	41.00	49.00	74.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-15.00	ND	-15.00
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	78.00	ND	91.00
LI (PPM)	14.00	13.00	12.00	6.00	8.00	4.00	4.00	5.00	4.00	4.00
MN (PPM)	41.00	44.00	42.00	23.00	25.00	28.00	10.00	9.00	11.00	9.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	4.00	4.00	-4.00	4.00	7.00	-4.00
NB (PPM)	5.00	-4.00	6.00	8.00	4.00	5.00	7.00	4.00	10.00	12.00
NI (PPM)	20.00	38.00	19.00	13.00	8.00	26.00	13.00	23.00	22.00	34.00
P (PPM)	139.00	71.00	146.00	80.00	70.00	-5.00	48.00	115.00	71.00	214.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	11.00	ND	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	3.00	4.00	3.00	4.00	2.00	2.00	3.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	73.00	79.00	91.00	106.00	151.00	72.00	59.00	52.00	48.00	55.00
TI (PPM)	2645.00	1593.00	2273.00	1129.00	1752.00	770.00	912.00	1136.00	985.00	1057.00
V (PPM)	29.00	23.00	34.00	19.00	25.00	11.00	11.00	21.00	14.00	24.00
Y (PPM)	8.00	28.00	8.00	12.00	2.00	8.00	7.00	9.00	16.00	43.00
ZN (PPM)	-2.00	5.00	5.00	-2.00	5.00	3.00	2.00	3.00	-2.00	5.00
ZR (PPM)	67.00	116.00	46.00	172.00	24.00	87.00	125.00	120.00	151.00	281.00

DRILL HOLE NUMBER SMIA

SAMP. NO.	711454	158378	158379	158452	158380	711440	158451	711453	711455	158453
TOP DEPTH	533.60	534.00	536.00	537.10	538.00	541.00	543.10	544.00	544.60	544.80
BOT DEPTH		536.00	538.00	537.20	540.00		543.30			545.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GGC	GGC	GPC	GGC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	27.50	9.33	3.38	31.94	5.98	32.03	116.80	20.80	21.20	54.44
UT (PPM)	25.70	6.50	2.40	28.10	6.70	31.70	121.60	68.50	19.80	72.90
UL/UT	1.07	1.44	1.41	1.14	.89	1.01	.96	.30	1.07	.75
TH (PPM)	113.00	10.00	12.00	79.00	8.00	146.00	546.00	358.00	120.00	382.00
TH/UT	4.40	1.54	5.00	2.81	1.19	4.61	4.49	5.23	6.06	5.24
AU (PPM)	ND	ND	ND	ND	ND	ND	-.20	ND	ND	-.20
AL (%)	4.76	3.52	5.01	3.34	5.60	3.77	1.98	3.02	5.15	2.81
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.05	-.05	-.05
FE (%)	1.31	.26	.18	.40	.22	2.58	2.56	3.65	1.58	2.76
MG (%)	.16	.16	.15	.18	.18	.13	.08	.12	.25	.12
NA (%)	.15	.16	.17	.06	.19	.08	.07	.06	.13	.06
K (%)	2.78	3.57	3.36	1.21	3.55	2.23	1.37	1.80	2.60	2.06
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	2.00	-2.00
B (PPM)	15.00	13.00	-10.00	17.00	11.00	12.00	-10.00	10.00	17.00	26.00
BA (PPM)	799.00	794.00	808.00	490.00	838.00	536.00	394.00	531.00	836.00	455.00
BE (PPM)	1.00	4.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	64.00	21.00	25.00	33.00	25.00	65.00	44.00	114.00	80.00	121.00
CO (PPM)	24.00	-4.00	-4.00	7.00	-4.00	51.00	54.00	83.00	31.00	77.00
CR (PPM)	33.00	19.00	15.00	19.00	19.00	29.00	24.00	42.00	41.00	33.00
CU (PPM)	81.00	18.00	22.00	92.00	16.00	38.00	97.00	128.00	58.00	113.00
HF (PPM)	-15.00	ND	ND	-15.00	ND	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	74.00	ND	ND	43.00	ND	81.00	50.00	143.00	94.00	167.00
LI (PPM)	6.00	4.00	4.00	3.00	4.00	4.00	4.00	5.00	7.00	5.00
MN (PPM)	17.00	11.00	14.00	11.00	14.00	11.00	14.00	13.00	18.00	7.00
MO (PPM)	5.00	-4.00	-4.00	-4.00	-4.00	14.00	-4.00	14.00	13.00	-4.00
NB (PPM)	5.00	-4.00	5.00	-4.00	7.00	8.00	13.00	16.00	8.00	14.00
NI (PPM)	28.00	3.00	6.00	16.00	6.00	44.00	51.00	52.00	33.00	45.00
P (PPM)	128.00	55.00	98.00	116.00	38.00	126.00	173.00	236.00	162.00	248.00
PB (PPM)	28.00	ND	ND	-10.00	ND	24.00	42.00	35.00	22.00	28.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	2.00	1.00	2.00	2.00	2.00	4.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	59.00	67.00	71.00	32.00	75.00	37.00	27.00	37.00	50.00	36.00
TI (PPM)	1418.00	1089.00	746.00	1143.00	960.00	1127.00	782.00	1146.00	1676.00	1003.00
V (PPM)	23.00	14.00	14.00	15.00	18.00	18.00	20.00	25.00	30.00	27.00
Y (PPM)	14.00	3.00	2.00	11.00	2.00	13.00	65.00	45.00	12.00	49.00
ZN (PPM)	6.00	3.00	3.00	8.00	8.00	7.00	9.00	19.00	22.00	20.00
ZR (PPM)	252.00	35.00	29.00	212.00	21.00	207.00	693.00	363.00	178.00	446.00

DRILL HOLE NUMBER SM1A

SAMP. NO.	158456	158454	158455	158457	158458	158459	158067	158083	158068	158070
TOP DEPTH	545.50	546.50	547.60	548.90	551.80	563.70	578.50	586.80	602.00	634.50
BOT DEPTH	545.70	546.70	547.80	549.20	552.00	563.90				
FORMATION	DG	DG	DG	DG	DG	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	QGC	QGC	QGC	QGC	FQZ
UL (PPM)	10.18	9.69	70.48	10.18	11.14	10.77	4.58	10.01	11.96	8.56
UT (PPM)	10.90	14.20	63.20	9.54	10.40	14.10	4.20	8.20	13.90	5.90
UL/UT	.93	.68	1.12	1.07	1.07	.76	1.09	1.22	.86	1.45
TH (PPM)	44.00	70.00	318.00	60.00	27.00	27.00	6.00	17.00	141.00	11.00
TH/UT	4.04	4.93	5.03	6.29	2.60	1.92	1.43	2.07	10.14	1.86
AU (PPM)	ND	ND	-.20	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.09	5.10	4.95	3.70	3.55	4.26	2.96	1.85	6.33	5.39
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.07	.07	.19
FE (%)	.36	.47	2.13	.39	.40	.38	.40	1.05	2.00	3.58
MG (%)	.13	.19	.23	.10	.11	.17	.27	.39	.81	1.43
NA (%)	.18	.20	.15	.15	.12	.21	.12	.39	.29	1.24
K (%)	3.23	3.64	2.77	2.79	2.58	3.20	3.21	1.28	3.35	3.07
AG (PPM)	-2.00	-2.00	2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00
B (PPM)	17.00	21.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	843.00	984.00	744.00	800.00	858.00	1035.00	891.00	403.00	1019.00	651.00
BE (PPM)	-1.00	1.00	1.00	1.00	-1.00	1.00	3.00	4.00	6.00	11.00
CE (PPM)	75.00	55.00	64.00	71.00	46.00	11.00	11.00	10.00	51.00	17.00
CO (PPM)	11.00	9.00	59.00	8.00	10.00	5.00	-4.00	36.00	47.00	23.00
CR (PPM)	14.00	27.00	42.00	19.00	13.00	14.00	20.00	36.00	81.00	139.00
CU (PPM)	40.00	20.00	110.00	36.00	25.00	10.00	4.00	109.00	252.00	22.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	ND	ND	ND	ND
LA (PPM)	95.00	70.00	00.00	02.00	57.00	20.00	ND	ND	ND	ND
LI (PPM)	4.00	7.00	8.00	3.00	4.00	7.00	10.00	8.00	23.00	22.00
MN (PPM)	7.00	9.00	9.00	7.00	9.00	9.00	20.00	48.00	85.00	253.00
MO (PPM)	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	-4.00	13.00	31.00	-4.00
NB (PPM)	-4.00	7.00	12.00	6.00	-4.00	-4.00	6.00	-4.00	16.00	8.00
NI (PPM)	30.00	14.00	59.00	16.00	16.00	11.00	5.00	22.00	40.00	55.00
P (PPM)	93.00	106.00	188.00	97.00	97.00	52.00	34.00	149.00	-5.00	444.00
PB (PPM)	26.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	4.00	2.00	1.00	2.00	2.00	3.00	10.00	9.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	60.00	70.00	43.00	51.00	53.00	57.00	42.00	27.00	42.00	96.00
TI (PPM)	708.00	1101.00	1644.00	715.00	630.00	655.00	799.00	1216.00	2965.00	3774.00
V (PPM)	10.00	20.00	34.00	15.00	10.00	15.00	11.00	19.00	70.00	96.00
Y (PPM)	4.00	9.00	35.00	9.00	4.00	3.00	1.00	3.00	18.00	7.00
ZN (PPM)	3.00	4.00	6.00	3.00	3.00	3.00	5.00	2.00	10.00	38.00
ZR (PPM)	80.00	138.00	377.00	116.00	70.00	65.00	20.00	64.00	306.00	90.00

DRILL HOLE NUMBER SM1A

SAMP. NO.	158071	158072	158084	158073	158375
TOP DEPTH	666.00	702.00	704.00	727.50	756.00
BOT DEPTH					
FORMATION	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	FQZ	AQZ	FQZ	CQZ	CQZ
UL (PPM)	4.62	5.27	6.79	6.83	4.00
UT (PPM)	4.80	4.20	5.10	7.50	2.90
UL/UT	.96	1.25	1.33	.91	1.38
TH (PPM)	11.00	19.00	9.00	9.00	2.00
TH/UT	2.29	4.52	1.77	1.20	.69
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	5.50	2.38	7.61	3.33	-.05
CA (%)	.67	.13	.19	.08	-.05
FE (%)	2.05	1.64	2.22	1.26	-.05
MG (%)	.93	.37	1.33	.59	-.05
NA (%)	2.78	1.02	1.97	1.54	-.05
K (%)	1.36	.83	2.31	1.38	-.02
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	507.00	192.00	644.00	417.00	-2.00
BE (PPM)	5.00	2.00	5.00	2.00	-1.00
CE (PPM)	24.00	22.00	20.00	19.00	-10.00
CO (PPM)	10.00	24.00	19.00	7.00	-4.00
CR (PPM)	104.00	52.00	96.00	40.00	8.00
CU (PPM)	3.00	165.00	23.00	14.00	-2.00
HF (PPM)	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND
LI (PPM)	15.00	7.00	22.00	8.00	-1.00
MN (PPM)	197.00	55.00	195.00	57.00	-4.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	23.00	-4.00	9.00	7.00	-4.00
NI (PPM)	33.00	19.00	38.00	17.00	-2.00
P (PPM)	275.00	118.00	262.00	106.00	-5.00
PB (PPM)	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	6.00	3.00	8.00	2.00	-1.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	207.00	77.00	144.00	93.00	-1.00
TI (PPM)	2565.00	803.00	2520.00	900.00	-10.00
V (PPM)	58.00	17.00	71.00	21.00	-2.00
Y (PPM)	8.00	7.00	8.00	3.00	-1.00
ZN (PPM)	20.00	8.00	22.00	8.00	-2.00
ZR (PPM)	100.00	44.00	63.00	40.00	-2.00

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DRILL HOLE NO. SM-2

AREA: Carrico Ranch, Sierra Madre

LOCATION: 2990 FNL, 1830 FEL, Sec. 12, T. 15 N., R. 88 W.

LATITUDE: 41°17'07"

LONGITUDE: 107°14'23"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM

COLLAR ELEV.: 7695

ANGLE: 80°

BEARING: N 20 W

TOTAL DEPTH: 497'

SPUD DATE: 8-10-79

COMPLETION DATE: 8-25-79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 395

DATE: 8/28-79

REMARKS: 164-181' (17') = 0/0247

KUT LOGGING:

INSTRUMENT: Scintrex Down Hole GAD-6

PROBE T.D.: 396

DATE: 8-28-79

REMARKS:

STRATIGRAPHIC UNITS: (Metagabbro: 0-55) (Jack Creek Quartzite: 55-143)
(Deep Gulch Conglomerate Unit 3: 143-190) (Deep Gulch Conglomerate Unit
2: 190-470) (Metagabbro: 470-497).

RADIOACTIVE ZONES: 165-190, 276, 289, 291, 301, 408.5

CORE LOGGERS: Anthony Kratochvil

DRILL HOLE SM-2

OBJECTIVES:

1. Ridge 1 at Carrico Ranch contains the most radioactive (up to 72 ppm U, 1100 ppm Th, .27 ppm Au) and thickest conglomerates found so far in the Sierra Madre. SM-2 was drilled to intersect these conglomerates at depth to give information on thorium/uranium ratios and content, the degree of surface leaching, and lithofacies variation.
2. The structural setting at Ridge 1 is quite complex; units 1 and 2 of the Deep Gulch Conglomerate are overturned and dip northwest, as does the Deep Gulch Conglomerate, throughout the northwest Sierra Madre; units 3 and 4 are upright and dip southeast (Figure 19). We hoped that drilling would help us explain the complex structure.

CONCLUSIONS:

1. Conglomerates of unit 3 were encountered between 140 and 180 feet (Figure 19). Three main conglomerate horizons were drilled and these were interpreted to be the subsurface equivalents of horizons I, J, and K, mapped on the surface. Numerous smaller conglomerate horizons were drilled in this interval, but none proved to be very highly radioactive and hence, were not correlatable with horizons at the surface. Maximum content was 720 ppm U, 2600 ppm Th, 0.22 ppm Au in drill hole as compared to maximum values of 72 ppm U, 1100 ppm Th, 0.27 ppm Au (in conglomerate K) in outcrops on Ridge 1. Mean Th/U ratios of about 4.9 in drill core compared to about 9.1 in outcrop indicate surface leaching of uranium. However, there are several indications that conglomerates in core were still leached and oxidized to depths greater than 200 feet: Th/U ratios of 4.9 in SM-2 conglomerates at 150-180 feet are still somewhat higher than Th/U ratios found elsewhere in subcrop; also, oxidized pyrite was found locally down to about 200 feet.

Pebble size in conglomerates I, J, and K was the same in drill core as outcrop. However, the lithology of unit 2 was somewhat different. Alternating muscovitic subarkose and biotitic, schistose subarkose were encountered stratigraphically below unit 3 (Figure 19), instead of the thick granular arkose to subarkose found in outcrop to the north. This difference in unit 2 probably reflects a different area of deposition on the fan for the exotic "floating block" and outcrops on the surface.

2. Drilling indicated that bedding dips southeast at about 60° to depths of at least 500 feet (Figure 19). We found no indication of isoclinal folding on scales less than that of the drill hole. Mafic rock, probably of intrusive origin was encountered at the bottom of the hole as well as at the top, suggesting that this anomalous south-dipping block is a fault block essentially "floating" in gabbroic intrusive rock. This is an unfortunate interpretation. It suggests that these very hot conglomerates may not be traceable over large distances.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 2 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 18. PLANE-TABLE MAP SHOWING MAJOR CONGLOMERATE HORIZONS, RIDGE 1, CARRICO RANCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from massive gabbro and diabase to foliated amphibolite.

INTRUSIVE CONTACT

UNIT 4: Arkose to subarkose, pink, medium- to coarse-grained; planar-crossbedded, massive, well-sorted. Underlain by massive, pink, well-sorted, medium-grained arkose (4a).

UNIT 3: Subarkose, light pink, very coarse-grained to granular; plane-bedded. Includes 15 to 75 cm thick beds of hematite-stained, pyritic, radioactive, quartz-pebble conglomerate. Overlain by plane-bedded coarse-grained to granular subarkose. Individual conglomerate beds are labeled G through L. I, J and K are strongly radioactive.

UNIT 2: Arkose to subarkose, muscovitic, light gray, coarse-grained to granular; abundant small-scale trough crossbeds, slightly pyritic. Includes thin beds of quartz-pebble (qp) and arkosic (acgl) conglomerates. Interbedded with light gray very muscovitic coarse-grained subarkose (2m). Mildly radioactive conglomerates are labeled E and F.

UNIT 1: Arkose to subarkose, muscovitic, light gray, coarse-grained to pebbly; poorly sorted, scattered K-feldspar pebbles. Includes thin beds of quartz-granule (qg), quartz-pebble (qp) and arkosic (acgl) conglomerates. Interbedded with very muscovitic, light gray coarse-grained arkose (1m). Slightly radioactive conglomerates are labeled A through D. C is a moderately radioactive K-feldspar and quartz-pebble conglomerate.

UNCONFORMITY

BIOTITE QUARTZ PLAGIOCLASE GNEISS: medium grained.

Lithologic contact, dashed where uncertain

Outcrop boundary

Conglomerate horizon

Conglomerate horizon projected to map surface.

Strike and dip of bedding; overturned

Strike and dip of foliation

Inferred fault with relative movement

Fining; coarsening upward sequences

Planar crossbeds

Trough crossbeds

Sample transects

Drill hole with bearing, plunge, total depth, and lithologic contacts projected to map surface.

Figure 18. Plane-Table Map Showing the Major Conglomerate Horizons, Ridge 1, Carrico Ranch, Northwest Sierra Madre, Wyoming.

DRILL HOLE NUMBER SM2

SAMP. NO.	152381	152383	152382	152384	152386	152385	152388	152387	152389	152390
TOP DEPTH	49.00	63.00	64.70	70.50	92.00	94.00	108.00	109.00	110.00	111.00
BOT DEPTH				71.00	93.00		109.00	110.00	111.00	112.00
FORMATION	MI	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	DB	FQ	MOZ	MQ	PHQ	AQ	MQ	CQ	MQ	PHQ
UL (PPM)	4.05	5.60	1.22	2.42	2.69	.49	4.31	3.30	1.36	1.47
UT (PPM)	3.40	5.20	1.40	1.20	2.50	.60	2.90	2.20	2.20	1.80
UL/UT	1.19	1.08	.87	2.02	1.08	.82	1.49	1.50	.62	.82
TH (PPM)	2.00	6.00	10.00	3.00	7.00	3.00	25.00	12.00	17.00	14.00
TH/UT	.59	1.15	7.15	2.50	2.80	5.01	8.62	5.46	7.73	7.78
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.86	7.07	4.50	5.81	5.73	1.47	4.89	5.16	3.47	2.67
CA (%)	1.96	1.04	-.05	-.05	-.05	-.05	-.05	.05	-.05	-.05
FE (%)	2.87	6.37	.54	.39	1.16	.08	.63	.73	.34	.32
MG (%)	1.78	2.72	.25	.29	.65	-.05	.38	.46	.17	.15
NA (%)	1.20	.53	.46	.21	.08	.12	.07	.10	.08	.08
K (%)	1.19	.70	3.36	3.73	3.44	1.98	3.54	3.64	2.45	2.36
AG (PPM)	2.00	2.00	2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00
B (PPM)	20.00	-10.00	-10.00	-10.00	11.00	-10.00	11.00	-10.00	-10.00	-10.00
BA (PPM)	383.00	277.00	1314.00	1230.00	726.00	598.00	1169.00	1067.00	694.00	782.00
BE (PPM)	6.00	8.00	2.00	2.00	4.00	-1.00	2.00	4.00	1.00	1.00
CE (PPM)	27.00	14.00	14.00	11.00	20.00	-10.00	43.00	28.00	19.00	25.00
CO (PPM)	33.00	56.00	-4.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	159.00	1766.00	24.00	40.00	69.00	7.00	52.00	99.00	31.00	23.00
CU (PPM)	70.00	136.00	9.00	11.00	55.00	6.00	9.00	13.00	15.00	9.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	26.00	19.00	11.00	11.00	19.00	1.00	14.00	15.00	6.00	6.00
MN (PPM)	996.00	723.00	50.00	62.00	74.00	10.00	30.00	48.00	31.00	22.00
MO (PPM)	-4.00	7.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	4.00	4.00	4.00	7.00	-4.00	4.00	4.00	-4.00	4.00
NI (PPM)	107.00	205.00	7.00	10.00	15.00	2.00	5.00	12.00	4.00	5.00
P (PPM)	263.00	466.00	21.00	8.00	48.00	13.00	48.00	44.00	28.00	37.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	14.00	12.00	3.00	2.00	7.00	-1.00	5.00	4.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	176.00	168.00	85.00	63.00	13.00	40.00	58.00	59.00	44.00	48.00
TI (PPM)	2819.00	3767.00	776.00	957.00	1812.00	57.00	1518.00	1385.00	473.00	451.00
V (PPM)	126.00	253.00	20.00	21.00	77.00	2.00	37.00	34.00	14.00	10.00
Y (PPM)	9.00	8.00	2.00	1.00	3.00	1.00	3.00	3.00	2.00	2.00
ZN (PPM)	67.00	95.00	7.00	5.00	13.00	7.00	14.00	21.00	7.00	6.00
ZR (PPM)	39.00	89.00	39.00	26.00	51.00	13.00	133.00	86.00	53.00	61.00

DRILL HOLE NUMBER SM2

SAMP. NO.	152391	152392	152393	152394	152395	152396	152397	152398	152399	152401
TOP DEPTH	112.00	113.00	114.00	120.00	121.00	123.00	126.00	129.00	130.50	136.50
BOT DEPTH	113.00	114.00	115.00	121.00	122.00			130.00	131.00	138.00
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	Q	Q	MQ	GPC	QGC	CQ	CQ	PMQ	CQ	QGC
UL (PPM)	3.51	3.20	2.35	5.97	3.08	1.85	3.92	2.40	4.14	5.54
UT (PPM)	3.10	4.30	1.80	6.40	3.10	1.60	2.90	2.10	4.50	6.00
UL/UT	1.13	.74	1.31	.93	.99	1.16	1.35	1.14	.92	.92
TH (PPM)	11.00	25.00	5.00	64.00	32.00	14.00	3.00	3.00	26.00	12.00
TH/UT	3.55	5.82	2.78	10.00	10.33	8.76	1.03	1.43	5.78	2.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.82	5.75	3.19	3.53	4.29	3.83	2.45	8.48	3.82	4.67
CA (%)	-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	.07
FE (%)	.55	.48	.33	.58	.50	.34	.24	1.51	.66	.54
MG (%)	.33	.38	.21	.17	.27	.24	.10	.94	.38	.30
NA (%)	.08	.09	.06	.07	.08	.08	.53	.12	.20	.90
K (%)	3.23	3.97	2.76	2.77	3.37	3.15	1.84	4.54	2.89	1.85
AG (PPM)	-2.00	2.00	-2.00	2.00	-2.00	2.00	4.00	2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	12.00	-10.00	11.00	-10.00	-10.00	11.00	-10.00	11.00
BA (PPM)	824.00	981.00	568.00	716.00	1076.00	1132.00	612.00	1265.00	879.00	659.00
BE (PPM)	2.00	5.00	2.00	3.00	3.00	3.00	1.00	7.00	2.00	3.00
CE (PPM)	22.00	42.00	-10.00	19.00	26.00	15.00	-10.00	19.00	32.00	33.00
CO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	13.00	7.00	4.00
CR (PPM)	37.00	59.00	28.00	28.00	32.00	26.00	11.00	111.00	38.00	31.00
CU (PPM)	13.00	9.00	14.00	23.00	13.00	4.00	24.00	53.00	46.00	404.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	11.00	18.00	10.00	9.00	11.00	10.00	5.00	50.00	12.00	8.00
MN (PPM)	45.00	24.00	19.00	46.00	54.00	57.00	11.00	65.00	34.00	21.00
MO (PPM)	-4.00	-4.00	4.00	5.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00
NB (PPM)	6.00	11.00	5.00	5.00	5.00	4.00	-4.00	6.00	6.00	7.00
NI (PPM)	6.00	2.00	6.00	4.00	5.00	6.00	5.00	26.00	12.00	6.00
P (PPM)	57.00	48.00	33.00	55.00	42.00	21.00	22.00	124.00	66.00	61.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	2.00	2.00	3.00	3.00	1.00	8.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	42.00	47.00	21.00	43.00	60.00	58.00	62.00	24.00	48.00	82.00
TI (PPM)	1035.00	1381.00	638.00	578.00	1112.00	873.00	237.00	2361.00	1147.00	1194.00
V (PPM)	26.00	34.00	18.00	20.00	23.00	22.00	6.00	74.00	33.00	23.00
Y (PPM)	3.00	4.00	1.00	5.00	3.00	2.00	1.00	3.00	6.00	3.00
ZN (PPM)	7.00	8.00	9.00	3.00	9.00	8.00	9.00	19.00	14.00	5.00
ZR (PPM)	83.00	92.00	45.00	166.00	88.00	56.00	17.00	37.00	99.00	42.00

DRILL HOLE NUMBER SM2

SAMP. NO.	152400	152404	152402	152403	157233	152455	157235	157232	157331	157332
TOP DEPTH	140.50	147.00	148.00	149.30	150.00	151.00	152.00	153.00	154.00	155.00
BOT DEPTH		148.00	149.30	150.00	151.00	152.00	153.00	154.00	155.00	156.00
FORMATION	JCF	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	CQ	QGC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	1.75	13.81	11.03	3.04	12.40	7.06	2.16	1.80	6.45	3.94
UT (PPM)	1.70	12.30	9.00	7.90	10.40	4.80	2.70	1.60	5.80	2.90
UL/UT	1.03	1.12	1.23	.38	1.19	1.47	.80	1.13	1.11	1.36
TH (PPM)	7.00	47.00	51.00	40.00	62.00	22.00	16.00	10.00	7.00	8.00
TH/UT	4.12	3.82	5.67	5.06	5.96	4.58	5.93	6.25	1.21	2.76
AU (PPM)	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00	0.00
AL (%)	3.94	1.27	3.05	4.40	4.39	3.59	3.55	3.56	4.53	5.07
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.22	.46	.71	.35	.74	.27	.20	.21	.18	.16
MG (%)	.20	.11	.14	.11	.23	.17	.16	.13	.16	.17
NA (%)	.21	.18	.12	.28	.07	.20	.15	.24	.13	.20
K (%)	3.12	2.79	2.66	3.55	3.05	2.86	3.02	3.18	3.35	3.74
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00	3.00
B (PPM)	11.00	-10.00	-10.00	-10.00	11.00	-10.00	13.00	-10.00	-10.00	-10.00
BA (PPM)	989.00	725.00	849.00	859.00	931.00	909.00	937.00	1069.00	873.00	931.00
BE (PPM)	3.00	2.00	2.00	1.00	3.00	1.00	2.00	1.00	1.00	1.00
CE (PPM)	19.00	20.00	37.00	25.00	92.00	32.00	40.00	18.00	20.00	28.00
CO (PPM)	-4.00	5.00	13.00	8.00	9.00	-4.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	22.00	15.00	21.00	17.00	43.00	17.00	16.00	14.00	23.00	22.00
CU (PPM)	8.00	18.00	84.00	47.00	203.00	23.00	5.00	4.00	6.00	5.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	4.00	5.00	4.00	10.00	6.00	6.00	5.00	6.00	7.00
MN (PPM)	16.00	49.00	14.00	15.00	17.00	12.00	10.00	10.00	11.00	11.00
MO (PPM)	-4.00	-4.00	5.00	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	-4.00	8.00	6.00	4.00	6.00	6.00	-4.00	-4.00	-4.00
NI (PPM)	4.00	8.00	11.00	10.00	10.00	6.00	5.00	5.00	7.00	4.00
P (PPM)	27.00	125.00	52.00	29.00	100.00	45.00	54.00	37.00	84.00	44.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	1.00	2.00	2.00	3.00	2.00	2.00	1.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	38.00	30.00	40.00	51.00	75.00	63.00	60.00	62.00	76.00	49.00
TI (PPM)	729.00	410.00	657.00	450.00	1390.00	584.00	683.00	469.00	491.00	543.00
V (PPM)	15.00	14.00	14.00	11.00	26.00	14.00	12.00	10.00	11.00	12.00
Y (PPM)	2.00	2.00	5.00	3.00	6.00	2.00	3.00	2.00	2.00	2.00
ZN (PPM)	7.00	11.00	7.00	7.00	3.00	5.00	4.00	2.00	8.00	5.00
ZR (PPM)	32.00	119.00	89.00	55.00	157.00	46.00	54.00	34.00	26.00	22.00

DRILL HOLE NUMBER SM2

SAMP. NO.	157333	157334	157335	152458	152456	711471	157237	152452	157239	711468
TOP DEPTH	156.00	157.00	158.00	159.00	160.00	160.20	161.00	162.00	163.00	163.40
BOT DEPTH	157.00	158.00	159.00	160.00	161.00		162.00	163.00	164.00	
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	3.12	2.51	9.62	11.10	9.28	43.59	4.03	21.92	62.16	36.32
UT (PPM)	3.00	2.10	8.70	14.70	6.40	43.50	5.10	22.50	57.70	38.30
UL/UT	1.04	1.20	1.11	.76	1.45	1.00	.79	.97	1.08	.95
TH (PPM)	7.00	6.00	30.00	151.00	23.00	126.00	19.00	65.00	151.00	120.00
TH/UT	2.33	2.86	3.45	10.27	3.59	2.90	3.73	2.89	2.62	3.13
AU (PPM)	0.00	0.00	ND	0.00	0.00	ND	0.00	0.00	0.00	ND
AL (%)	4.86	4.77	4.34	3.12	4.06	4.18	4.01	3.76	4.05	5.41
CA (%)	-.05	-.05	-.05	-.05	-.05	.06	-.05	-.05	-.05	-.05
FE (%)	.33	.20	.33	.78	.37	1.35	.35	.80	1.16	1.40
MG (%)	.22	.17	.14	.12	.16	.19	.17	.16	.13	.26
NA (%)	.16	.20	.71	.18	.20	.20	.19	.22	.22	.19
K (%)	3.79	3.28	3.15	2.64	3.08	2.34	2.98	2.73	2.63	3.03
AG (PPM)	2.00	-2.00	-2.00	-2.00	4.00	-2.00	-2.00	5.00	3.00	-2.00
B (PPM)	11.00	10.00	-10.00	-10.00	-10.00	12.00	10.00	-10.00	-10.00	15.00
BA (PPM)	1131.00	785.00	1018.00	793.00	897.00	954.00	812.00	763.00	652.00	1014.00
BE (PPM)	1.00	1.00	1.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00
CE (PPM)	24.00	18.00	48.00	40.00	43.00	97.00	37.00	107.00	97.00	123.00
CO (PPM)	-4.00	-4.00	-4.00	14.00	-4.00	36.00	4.00	25.00	52.00	34.00
CR (PPM)	26.00	26.00	21.00	19.00	26.00	38.00	32.00	40.00	37.00	62.00
CU (PPM)	6.00	10.00	77.00	118.00	128.00	196.00	58.00	101.00	227.00	205.00
HF (PPM)	ND	ND	ND	ND	ND	-15.00	ND	ND	ND	-15.00
LA (PPM)	ND	ND	ND	ND	ND	121.00	ND	ND	ND	148.00
LI (PPM)	9.00	7.00	5.00	5.00	8.00	6.00	8.00	7.00	6.00	11.00
MN (PPM)	24.00	13.00	12.00	18.00	12.00	18.00	11.00	11.00	12.00	20.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	7.00	6.00
NB (PPM)	-4.00	5.00	-4.00	10.00	-4.00	-4.00	4.00	4.00	8.00	-4.00
NI (PPM)	4.00	5.00	5.00	18.00	5.00	28.00	8.00	16.00	33.00	26.00
P (PPM)	80.00	39.00	70.00	66.00	68.00	140.00	72.00	101.00	-5.00	176.00
PB (PPM)	ND	ND	ND	ND	ND	23.00	ND	ND	ND	35.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	2.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	77.00	46.00	111.00	51.00	82.00	81.00	76.00	74.00	74.00	93.00
TI (PPM)	1002.00	774.00	666.00	624.00	991.00	1207.00	1078.00	1189.00	828.00	1871.00
V (PPM)	22.00	18.00	16.00	14.00	18.00	24.00	23.00	27.00	17.00	36.00
Y (PPM)	2.00	1.00	3.00	7.00	3.00	11.00	3.00	9.00	14.00	13.00
ZN (PPM)	6.00	4.00	8.00	8.00	7.00	6.00	3.00	3.00	8.00	9.00
ZR (PPM)	32.00	19.00	52.00	196.00	66.00	239.00	64.00	138.00	262.00	269.00

DRILL HOLE NUMBER SM2

SAMP. NO.	152459	711466	152453	711465	158460	711467	152450	711470	152446	711473
TOP DEPTH	164.00	164.50	165.00	165.30	165.50	165.70	166.00	166.40	167.00	167.00
BOT DEPTH	165.00		166.00		165.70		167.00		168.00	
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	91.10	61.21	327.80	261.20	422.10	89.22	100.50	24.59	27.09	38.97
UT (PPM)	106.70	244.00	268.80	61.10	71.30	718.00	97.90	124.00	28.00	40.60
UL/UT	.85	.25	1.22	4.28	5.92	.12	1.03	.20	.97	.96
TH (PPM)	156.00	526.00	13.00	689.00	2596.00	2252.00	394.00	465.00	261.00	530.00
TH/UT	1.46	2.16	.05	11.28	36.41	3.14	4.02	3.75	9.32	13.05
AU (PPM)	0.00	ND	0.00	ND	ND	ND	0.00	ND	0.00	ND
AL (%)	2.66	3.53	5.65	3.07	3.05	3.10	2.25	2.96	1.83	1.53
CA (%)	-.05	-.05	.96	-.05	.08	.06	-.05	-.05	-.05	-.05
FE (%)	1.17	3.75	3.85	5.15	11.32	11.48	2.89	3.97	4.46	12.72
MG (%)	.09	.16	.69	.15	.15	.16	.09	.13	.06	.07
NA (%)	.23	.13	.51	.09	.09	.07	.08	.09	.07	.13
K (%)	2.08	1.96	2.22	1.68	1.95	1.70	1.63	1.73	1.54	.94
AG (PPM)	-2.00	3.00	-2.00	2.00	7.00	9.00	-2.00	2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	23.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	644.00	701.00	729.00	560.00	641.00	557.00	470.00	663.00	463.00	328.00
BE (PPM)	2.00	3.00	2.00	3.00	4.00	4.00	3.00	2.00	2.00	1.00
CE (PPM)	55.00	99.00	74.00	120.00	185.00	128.00	72.00	95.00	102.00	130.00
CO (PPM)	31.00	84.00	8.00	92.00	221.00	210.00	63.00	67.00	87.00	190.00
CR (PPM)	20.00	55.00	51.00	52.00	60.00	77.00	29.00	39.00	21.00	25.00
CU (PPM)	160.00	198.00	16.00	133.00	238.00	266.00	177.00	150.00	179.00	460.00
HF (PPM)	ND	-15.00	-3.00	-15.00	-15.00	-15.00	ND	-15.00	ND	-15.00
LA (PPM)	ND	116.00	90.00	153.00	222.00	137.00	ND	120.00	ND	157.00
LI (PPM)	4.00	7.00	33.00	7.00	15.00	14.00	5.00	6.00	3.00	3.00
MN (PPM)	10.00	18.00	534.00	18.00	11.00	30.00	17.00	16.00	17.00	18.00
MO (PPM)	-4.00	13.00	-4.00	42.00	11.00	51.00	8.00	9.00	6.00	7.00
NB (PPM)	9.00	17.00	7.00	23.00	62.00	78.00	27.00	18.00	19.00	16.00
NI (PPM)	22.00	56.00	20.00	64.00	131.00	129.00	38.00	50.00	49.00	115.00
P (PPM)	64.00	179.00	1745.00	208.00	612.00	420.00	124.00	145.00	152.00	184.00
PB (PPM)	ND	214.00	55.00	197.00	621.00	435.00	ND	160.00	ND	56.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	8.00	4.00	10.00	7.00	4.00	2.00	2.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	56.00	55.00	155.00	40.00	83.00	52.00	41.00	47.00	37.00	42.00
TI (PPM)	448.00	1283.00	2688.00	1230.00	1972.00	2168.00	766.00	895.00	409.00	497.00
V (PPM)	12.00	27.00	62.00	24.00	25.00	30.00	22.00	20.00	58.00	27.00
Y (PPM)	15.00	35.00	20.00	35.00	122.00	111.00	25.00	26.00	15.00	17.00
ZN (PPM)	3.00	11.00	67.00	12.00	16.00	21.00	4.00	9.00	-2.00	18.00
ZR (PPM)	233.00	766.00	42.00	626.00	1841.00	2133.00	516.00	472.00	220.00	274.00

DRILL HOLE NUMBER SM2

SAMP. NO.	711462	152451	711469	152447	711474	152460	711456	157238	711457	157236
TOP DEPTH	167.70	168.00	168.80	169.00	169.70	170.00	170.50	171.00	171.20	172.00
BOT DEPTH		169.00		170.00		171.00		172.00		173.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	37.57	18.16	10.81	33.95	46.24	16.13	40.90	22.67	19.52	13.79
UT (PPM)	37.20	17.90	116.10	38.50	45.90	21.70	37.20	23.20	19.10	17.10
UL/UT	1.01	1.01	.09	.88	1.01	.74	1.10	.98	1.02	.81
TH (PPM)	444.00	100.00	253.00	436.00	324.00	128.00	322.00	160.00	140.00	52.00
TH/UT	11.94	5.59	2.18	11.32	7.06	5.90	8.66	6.90	7.33	3.04
AU (PPM)	ND	0.00	ND	0.00	ND	.10	ND	0.00	ND	0.00
AL (%)	1.43	2.21	2.80	1.20	2.77	1.82	1.99	1.77	1.73	1.91
CA (%)	-.05	-.05	-.05	-.05	.05	.05	.05	-.05	-.05	-.05
FE (%)	13.49	2.09	4.70	9.19	9.12	2.75	7.73	2.16	3.89	.65
MG (%)	.06	.05	.08	-.05	.14	.07	.08	.06	.07	.07
NA (%)	.08	.27	.18	.11	.08	.43	.39	.26	.20	.48
K (%)	.91	1.87	1.86	.89	1.77	1.06	.91	1.03	.87	1.00
AG (PPM)	-2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	13.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	308.00	545.00	635.00	265.00	646.00	273.00	259.00	233.00	298.00	253.00
BE (PPM)	1.00	1.00	2.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00
CE (PPM)	104.00	58.00	130.00	95.00	172.00	72.00	133.00	76.00	73.00	40.00
CO (PPM)	201.00	41.00	71.00	188.00	101.00	78.00	121.00	41.00	60.00	17.00
CR (PPM)	28.00	15.00	25.00	20.00	40.00	16.00	25.00	12.00	18.00	9.00
CU (PPM)	204.00	100.00	124.00	249.00	376.00	2197.00	415.00	51.00	56.00	14.00
HF (PPM)	-15.00	ND	-15.00	ND	-15.00	ND	-15.00	ND	-15.00	ND
LA (PPM)	125.00	ND	167.00	ND	223.00	ND	164.00	ND	85.00	ND
LI (PPM)	3.00	2.00	4.00	2.00	5.00	3.00	3.00	3.00	2.00	3.00
MN (PPM)	16.00	13.00	21.00	17.00	38.00	20.00	23.00	9.00	12.00	7.00
MO (PPM)	15.00	4.00	6.00	-4.00	10.00	5.00	15.00	-4.00	12.00	9.00
NB (PPM)	20.00	9.00	15.00	36.00	19.00	18.00	8.00	14.00	7.00	8.00
NI (PPM)	126.00	23.00	50.00	104.00	76.00	47.00	77.00	26.00	42.00	10.00
P (PPM)	149.00	89.00	182.00	209.00	216.00	-5.00	149.00	81.00	71.00	61.00
PB (PPM)	63.00	ND	108.00	ND	102.00	ND	40.00	ND	36.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	30.00	55.00	57.00	34.00	42.00	64.00	57.00	33.00	30.00	44.00
TI (PPM)	562.00	278.00	637.00	394.00	807.00	324.00	510.00	379.00	399.00	293.00
V (PPM)	22.00	28.00	44.00	10.00	168.00	23.00	36.00	8.00	13.00	7.00
Y (PPM)	18.00	6.00	16.00	17.00	17.00	7.00	14.00	10.00	7.00	4.00
ZN (PPM)	21.00	3.00	14.00	-2.00	15.00	5.00	23.00	2.00	8.00	2.00
ZR (PPM)	278.00	60.00	164.00	290.00	227.00	89.00	206.00	180.00	131.00	54.00

DRILL HOLE NUMBER SM2

SAMP. NO.	157234	711458	711459	152462	711460	152449	152454	158461	158465	152461
TOP DEPTH	173.00	173.70	173.90	174.00	174.40	175.00	176.00	176.40	176.50	177.00
BOT DEPTH	174.00			175.00		176.00	177.00	176.80	176.80	178.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	44.04	69.27	30.54	196.60	36.56	80.09	127.00	127.00	ND	52.44
UT (PPM)	46.10	72.80	33.70	170.70	135.30	77.90	102.60	133.20	ND	48.90
UL/UT	.96	.95	.91	1.15	.27	1.03	1.24	.95	ND	1.07
TH (PPM)	97.00	160.00	361.00	63.00	137.00	177.00	132.00	479.00	ND	26.00
TH/UT	2.10	2.20	10.71	.37	1.01	2.27	1.29	3.60	ND	.53
AU (PPM)	0.00	ND	ND	.04	ND	0.00	0.00	-.20	ND	0.00
AL (%)	2.73	3.18	2.00	3.38	2.62	2.06	1.75	2.50	ND	3.67
CA (%)	-.05	-.05	.16	-.05	.05	-.05	-.05	.06	ND	-.05
FE (%)	2.04	3.43	7.83	1.38	2.76	2.95	2.19	4.23	ND	.53
MG (%)	.13	.17	.12	.16	.13	.12	.13	.22	ND	.27
NA (%)	.72	.68	.10	.97	.80	.62	.74	.68	ND	1.00
K (%)	1.10	1.12	1.13	1.18	.68	.63	.35	.51	ND	1.36
AG (PPM)	3.00	-2.00	-2.00	4.00	-2.00	3.00	3.00	2.00	ND	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND	-10.00
BA (PPM)	253.00	260.00	351.00	299.00	185.00	133.00	68.00	124.00	ND	201.00
BE (PPM)	1.00	1.00	1.00	3.00	1.00	1.00	-1.00	1.00	ND	3.00
CE (PPM)	68.00	96.00	108.00	41.00	73.00	56.00	58.00	103.00	ND	52.00
CO (PPM)	59.00	101.00	87.00	65.00	155.00	103.00	215.00	332.00	ND	31.00
CR (PPM)	15.00	19.00	38.00	16.00	21.00	18.00	15.00	22.00	ND	20.00
CU (PPM)	62.00	56.00	463.00	517.00	87.00	860.00	3481.00	7052.00	ND	1291.00
HF (PPM)	ND	-15.00	-15.00	ND	-15.00	ND	ND	-15.00	ND	ND
LA (PPM)	ND	115.00	148.00	ND	91.00	ND	ND	106.00	ND	ND
LI (PPM)	6.00	8.00	5.00	8.00	6.00	6.00	4.00	7.00	ND	12.00
MN (PPM)	13.00	12.00	101.00	10.00	11.00	10.00	9.00	7.00	ND	11.00
MO (PPM)	5.00	4.00	7.00	5.00	-4.00	-4.00	-4.00	6.00	ND	-4.00
NB (PPM)	13.00	12.00	27.00	10.00	5.00	9.00	12.00	6.00	ND	5.00
NI (PPM)	24.00	43.00	65.00	32.00	41.00	41.00	33.00	63.00	ND	25.00
P (PPM)	76.00	98.00	225.00	-5.00	83.00	17.00	-5.00	177.00	ND	-5.00
PB (PPM)	ND	29.00	76.00	ND	27.00	ND	ND	68.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	2.00	2.00	1.00	2.00	2.00	2.00	ND	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	46.00	46.00	74.00	42.00	51.00	44.00	51.00	54.00	ND	44.00
TI (PPM)	474.00	591.00	714.00	604.00	499.00	398.00	254.00	426.00	ND	839.00
V (PPM)	23.00	13.00	152.00	13.00	9.00	6.00	5.00	12.00	ND	17.00
Y (PPM)	6.00	10.00	13.00	6.00	11.00	12.00	16.00	37.00	ND	11.00
ZN (PPM)	-2.00	10.00	30.00	5.00	24.00	-2.00	2.00	31.00	ND	6.00
ZR (PPM)	96.00	160.00	265.00	121.00	193.00	223.00	135.00	346.00	ND	75.00

DRILL HOLE NUMBER SM2

SAMP. NO.	152448	158462	152457	158463	158048	158464	158049	158050	152408	158051
TOP DEPTH	178.00	178.70	179.00	179.70	180.00	180.90	181.00	182.00	182.70	184.50
BOT DEPTH	179.00	178.90	180.00	179.90	181.00	181.10	182.00	183.00	183.70	186.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QGC	QPC	QPC	PBQ	QPC
UL (PPM)	93.36	246.50	104.20	244.30	35.95	68.52	14.04	28.47	51.41	10.15
UT (PPM)	101.40	241.40	117.50	264.00	27.40	74.30	15.40	23.30	46.40	8.10
UL/UT	.92	1.02	.89	.93	1.31	.92	.91	1.22	1.11	1.25
TH (PPM)	285.00	1035.00	333.00	734.00	40.00	7.00	14.00	23.00	12.00	41.00
TH/UT	2.81	4.29	2.03	2.78	1.46	.09	.91	.99	.26	5.06
AU (PPM)	.22	-.20	.10	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.33	3.02	1.63	2.10	2.79	4.01	3.25	3.36	5.87	2.04
CA (%)	-.05	.07	-.05	.07	-.05	.05	-.05	-.05	-.05	-.05
FE (%)	1.90	6.15	4.08	4.80	1.26	.49	.97	1.60	2.26	1.95
MG (%)	.21	.43	.19	.90	1.20	.52	.91	1.44	2.05	1.35
NA (%)	1.15	1.83	.71	.53	1.65	2.02	1.44	.91	1.40	.84
K (%)	.53	.51	.33	.43	.73	.86	1.15	.95	2.48	.33
AG (PPM)	3.00	4.00	9.00	4.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	82.00	88.00	59.00	58.00	42.00	109.00	108.00	108.00	258.00	39.00
BE (PPM)	1.00	1.00	-1.00	1.00	2.00	1.00	2.00	3.00	2.00	1.00
CE (PPM)	63.00	114.00	79.00	97.00	53.00	59.00	25.00	17.00	17.00	26.00
CO (PPM)	152.00	776.00	147.00	169.00	31.00	23.00	25.00	28.00	24.00	35.00
CR (PPM)	22.00	38.00	16.00	27.00	29.00	21.00	25.00	24.00	59.00	16.00
CU (PPM)	5359.00	9519.00	6071.00	3965.00	1051.00	168.00	130.00	28.00	19.00	13.00
HF (PPM)	ND	-15.00	ND	-15.00	ND	-15.00	ND	ND	ND	ND
LA (PPM)	ND	136.00	ND	121.00	ND	71.00	ND	ND	ND	ND
LI (PPM)	3.00	7.00	4.00	11.00	8.00	7.00	10.00	15.00	26.00	9.00
MN (PPM)	10.00	11.00	14.00	23.00	28.00	11.00	25.00	42.00	64.00	58.00
MO (PPM)	-4.00	14.00	4.00	8.00	5.00	-4.00	-4.00	-4.00	-4.00	4.00
NB (PPM)	5.00	-4.00	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	55.00	95.00	90.00	276.00	79.00	44.00	27.00	51.00	70.00	38.00
P (PPM)	-5.00	142.00	-5.00	128.00	484.00	98.00	96.00	70.00	66.00	90.00
PB (PPM)	ND	109.00	ND	158.00	ND	58.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	3.00	4.00	4.00	3.00	3.00	4.00	9.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	32.00	41.00	30.00	23.00	25.00	29.00	27.00	18.00	29.00	13.00
TI (PPM)	259.00	244.00	212.00	327.00	540.00	421.00	646.00	633.00	1497.00	326.00
V (PPM)	6.00	12.00	5.00	19.00	18.00	16.00	15.00	22.00	65.00	18.00
Y (PPM)	24.00	64.00	37.00	64.00	10.00	13.00	5.00	7.00	4.00	5.00
ZN (PPM)	4.00	37.00	5.00	34.00	2.00	4.00	2.00	-2.00	9.00	6.00
ZR (PPM)	241.00	759.00	312.00	583.00	97.00	43.00	50.00	88.00	86.00	88.00

DRILL HOLE NUMBER SM2

SAMP. NO.	152412	152410	152409	152411	152413	152414	152415	152417	152416	152418
TOP DEPTH	187.00	192.20	195.50	217.00	226.00	236.00	237.00	240.00	242.00	246.00
BOT DEPTH		193.00			226.50	237.00	238.00	241.00		247.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	MSC	CSC	PHQ	FQ	FQ	FQ	Q	FQ	Q
UL (PPM)	14.91	3.03	14.18	.76	2.98	7.84	3.45	4.29	3.75	5.13
UT (PPM)	10.70	3.60	9.80	.40	2.80	6.20	3.20	4.90	3.40	6.90
UL/UT	1.39	.84	1.45	1.90	1.06	1.26	1.08	.88	1.10	.74
TH (PPM)	43.00	13.00	18.00	-2.00	8.00	25.00	11.00	26.00	4.00	13.00
TH/UT	4.02	3.61	1.84	-5.01	2.86	4.03	3.44	5.31	1.18	1.88
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.26	5.20	2.40	4.26	3.38	5.84	6.44	4.49	3.49	6.19
CA (%)	-.05	-.05	-.05	4.35	.15	.17	.11	.09	.10	.16
FE (%)	1.08	5.02	2.30	8.22	1.11	2.83	1.86	1.93	.79	3.60
MG (%)	.91	4.20	2.22	3.71	.51	1.96	1.36	.83	.26	2.05
NA (%)	1.72	.19	.37	1.30	2.34	3.07	3.22	3.56	2.82	1.89
K (%)	.43	.18	.39	.17	.36	1.49	1.04	.31	.26	1.57
AG (PPM)	-2.00	-2.00	2.00	-2.00	4.00	-2.00	-2.00	5.00	-2.00	5.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	98.00	17.00	58.00	34.00	70.00	284.00	193.00	41.00	52.00	355.00
BE (PPM)	1.00	1.00	1.00	8.00	1.00	3.00	3.00	2.00	-1.00	3.00
CE (PPM)	22.00	-10.00	-10.00	-10.00	28.00	32.00	20.00	22.00	33.00	63.00
CO (PPM)	16.00	65.00	24.00	59.00	23.00	23.00	15.00	51.00	18.00	34.00
CR (PPM)	20.00	59.00	20.00	320.00	42.00	96.00	89.00	67.00	18.00	101.00
CU (PPM)	13.00	8.00	7.00	4.00	55.00	13.00	12.00	4.00	5.00	42.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	38.00	15.00	13.00	6.00	18.00	19.00	7.00	3.00	28.00
MN (PPM)	36.00	231.00	75.00	1270.00	84.00	149.00	90.00	65.00	61.00	165.00
MO (PPM)	5.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	5.00
NB (PPM)	-4.00	4.00	-4.00	4.00	-4.00	5.00	5.00	-4.00	-4.00	-4.00
NI (PPM)	34.00	273.00	86.00	114.00	17.00	51.00	37.00	41.00	16.00	66.00
P (PPM)	40.00	195.00	59.00	220.00	134.00	215.00	131.00	62.00	55.00	371.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	7.00	5.00	34.00	4.00	9.00	6.00	6.00	2.00	11.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	25.00	4.00	6.00	94.00	55.00	77.00	63.00	49.00	36.00	71.00
TI (PPM)	186.00	425.00	505.00	5456.00	582.00	1795.00	816.00	448.00	138.00	1399.00
V (PPM)	15.00	110.00	35.00	294.00	30.00	76.00	49.00	43.00	10.00	90.00
Y (PPM)	5.00	3.00	3.00	14.00	5.00	8.00	4.00	4.00	3.00	6.00
ZN (PPM)	7.00	29.00	12.00	68.00	19.00	27.00	21.00	10.00	13.00	21.00
ZR (PPM)	115.00	113.00	95.00	34.00	53.00	180.00	89.00	173.00	43.00	91.00

DRILL HOLE NUMBER SM2

SAMP. NO.	152419	152420	152421	152422	152424	152423	152425	152430	152429	152428
TOP DEPTH	247.00	248.00	259.00	260.00	266.50	269.00	275.00	280.00	280.80	281.00
BOT DEPTH	248.00	249.00	260.00	261.00	267.50		276.00	280.80	281.70	282.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	Q	Q	FQ	FQ	PHQ	AQ	PBQ	FQ	FQ	FQ
UL (PPM)	7.39	7.08	9.65	2.87	6.74	1.69	14.31	10.99	8.39	7.44
UT (PPM)	6.80	5.60	3.80	3.30	6.90	2.00	13.40	7.70	11.90	7.40
UL/UT	1.09	1.26	2.54	.87	.98	.84	1.07	1.43	.71	1.01
TH (PPM)	9.00	20.00	14.00	12.00	15.00	3.00	128.00	26.00	24.00	21.00
TH/UT	1.32	3.57	3.69	3.64	2.17	1.50	9.55	3.38	2.02	2.84
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.59	6.58	5.50	5.55	6.30	2.61	6.51	5.46	6.26	5.79
CA (%)	.12	.13	.18	.16	.16	.07	.18	.16	.18	.16
FE (%)	3.24	2.06	3.10	1.79	3.56	.29	4.06	4.05	4.67	4.17
MG (%)	1.82	1.37	1.02	.59	1.28	.16	1.47	1.11	1.32	1.38
NA (%)	1.04	3.33	2.28	2.75	1.04	2.19	1.08	.60	.84	1.05
K (%)	2.50	1.03	2.08	1.35	2.94	.29	2.55	2.98	2.65	2.68
AG (PPM)	5.00	-2.00	-2.00	2.00	-2.00	2.00	2.00	-2.00	3.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	426.00	160.00	835.00	395.00	1154.00	38.00	723.00	1083.00	1192.00	900.00
BE (PPM)	4.00	3.00	3.00	3.00	9.00	1.00	5.00	7.00	5.00	6.00
CE (PPM)	56.00	45.00	35.00	24.00	54.00	14.00	44.00	27.00	46.00	56.00
CO (PPM)	33.00	33.00	82.00	26.00	31.00	7.00	59.00	36.00	44.00	29.00
CR (PPM)	123.00	100.00	80.00	63.00	104.00	22.00	109.00	121.00	102.00	90.00
CU (PPM)	29.00	18.00	256.00	178.00	92.00	24.00	279.00	80.00	67.00	45.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	39.00	22.00	16.00	12.00	32.00	3.00	33.00	45.00	36.00	40.00
MN (PPM)	133.00	89.00	129.00	150.00	206.00	21.00	509.00	438.00	362.00	268.00
MO (PPM)	4.00	5.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	5.00
NB (PPM)	-4.00	5.00	8.00	5.00	12.00	-4.00	10.00	13.00	15.00	10.00
NI (PPM)	51.00	36.00	64.00	31.00	37.00	11.00	64.00	41.00	50.00	44.00
P (PPM)	440.00	111.00	105.00	-5.00	252.00	17.00	-5.00	319.00	313.00	339.00
PR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	11.00	8.00	7.00	3.00	13.00	1.00	9.00	13.00	14.00	8.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	53.00	88.00	114.00	100.00	66.00	32.00	64.00	45.00	74.00	74.00
TI (PPM)	1732.00	887.00	2666.00	1448.00	3311.00	327.00	2968.00	3946.00	4023.00	3331.00
V (PPM)	95.00	58.00	65.00	44.00	83.00	7.00	68.00	105.00	108.00	66.00
Y (PPM)	5.00	5.00	4.00	2.00	8.00	1.00	20.00	9.00	11.00	9.00
ZN (PPM)	9.00	14.00	19.00	13.00	30.00	8.00	51.00	81.00	86.00	85.00
ZR (PPM)	53.00	86.00	92.00	54.00	72.00	21.00	304.00	100.00	84.00	141.00

DRILL HOLE NUMBER SM2

SAMP. NO.	152427	152426	152432	152431	157207	157208	157210	157211	157212	157213
TOP DEPTH	281.70	282.50	288.00	289.00	291.00	296.00	301.00	320.00	323.00	324.50
BOT DEPTH	282.50	283.50	289.00	290.00	292.00		301.50			325.50
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	FQ	FQ	PHQ	PHQ	FQZ	AQZ	CQZ	AGC	AQZ	AQZ
UL (PPM)	5.33	22.20	9.71	10.26	11.59	3.05	13.32	4.27	2.42	2.58
UT (PPM)	8.50	19.50	15.30	11.90	13.00	3.00	17.20	3.70	2.60	3.30
UL/UT	.63	1.14	.63	.86	.89	1.02	.77	1.15	.93	.78
TH (PPM)	18.00	35.00	110.00	115.00	30.00	11.00	120.00	23.00	11.00	5.00
TH/UT	2.12	1.79	7.19	9.66	2.31	3.67	6.98	6.22	4.23	1.52
AU (PPM)	ND	ND	ND	ND	ND	ND	0.00	ND	ND	ND
AL (%)	6.09	7.09	6.11	6.04	5.65	5.50	5.98	2.87	1.92	1.60
CA (%)	.17	.40	.13	.16	.25	.16	.07	.06	-.05	-.05
FE (%)	3.02	5.47	3.29	3.78	3.88	1.71	2.14	.34	.21	.38
MG (%)	.94	1.13	1.02	.89	.86	.44	.62	.10	.06	.08
NA (%)	1.97	2.06	1.15	.88	1.91	2.68	.15	1.07	.14	.58
K (%)	2.37	2.67	2.80	2.87	2.36	1.28	2.56	1.27	1.52	.51
AG (PPM)	2.00	-2.00	2.00	4.00	3.00	4.00	5.00	8.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	804.00	744.00	1193.00	1088.00	827.00	569.00	1428.00	332.00	524.00	327.00
BE (PPM)	4.00	8.00	11.00	7.00	6.00	3.00	4.00	1.00	-1.00	-1.00
CE (PPM)	40.00	53.00	69.00	67.00	28.00	26.00	28.00	29.00	-10.00	-10.00
CO (PPM)	25.00	77.00	33.00	35.00	68.00	19.00	101.00	19.00	15.00	7.00
CR (PPM)	75.00	116.00	127.00	136.00	69.00	51.00	123.00	22.00	10.00	6.00
CU (PPM)	56.00	93.00	141.00	132.00	157.00	56.00	819.00	17.00	75.00	85.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	31.00	47.00	32.00	36.00	27.00	13.00	26.00	3.00	2.00	2.00
MN (PPM)	267.00	1340.00	147.00	262.00	639.00	124.00	89.00	54.00	8.00	19.00
MO (PPM)	-4.00	5.00	11.00	4.00	-4.00	-4.00	24.00	-4.00	-4.00	-4.00
NB (PPM)	8.00	14.00	12.00	11.00	9.00	5.00	6.00	5.00	-4.00	-4.00
NI (PPM)	35.00	61.00	36.00	45.00	42.00	15.00	112.00	9.00	9.00	7.00
P (PPM)	218.00	217.00	237.00	245.00	326.00	86.00	-5.00	28.00	-5.00	124.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	9.00	10.00	11.00	12.00	9.00	4.00	7.00	1.00	-1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	110.00	117.00	77.00	56.00	91.00	125.00	17.00	35.00	15.00	19.00
TI (PPM)	2363.00	2727.00	4084.00	4059.00	2605.00	1465.00	2688.00	309.00	174.00	197.00
V (PPM)	64.00	80.00	71.00	84.00	73.00	40.00	53.00	12.00	4.00	4.00
Y (PPM)	8.00	18.00	17.00	20.00	8.00	3.00	14.00	5.00	1.00	1.00
ZN (PPM)	63.00	179.00	32.00	55.00	134.00	27.00	13.00	10.00	3.00	11.00
ZR (PPM)	127.00	111.00	372.00	298.00	94.00	46.00	345.00	102.00	21.00	22.00

DRILL HOLE NUMBER SM2

SAMP. NO.	157215	157216	157217	157218	157219	157221	157220	157222	157224	157223
TOP DEPTH	333.00	347.00	357.00	360.00	367.00	371.00	375.00	378.00	384.00	388.00
BOT DEPTH	334.00	348.00	358.00	360.50				380.00		
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	AQZ	AQZ	AQZ	AQZ	AQZ	CQZ	CQZ	AQZ	AQZ	AQZ
UL (PPM)	1.86	1.32	5.12	1.27	2.74	1.30	1.16	1.66	- .25	3.93
UT (PPM)	2.30	.80	1.20	.60	1.90	.80	1.00	1.30	.80	2.60
UL/UT	.81	1.65	4.27	2.12	1.44	1.63	1.16	1.28	- .31	1.51
TH (PPM)	5.00	2.00	4.00	6.00	11.00	3.00	4.00	13.00	-2.00	7.00
TH/UT	2.17	2.50	3.34	10.02	5.79	3.75	4.00	10.01	-2.50	2.69
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	1.48	1.77	2.44	3.43	9.07	1.54	1.66	2.31	1.44	- 3.37
CA (%)	-.05	-.05	.05	.17	.05	.13	.07	-.05	.07	.13
FE (%)	.13	.11	.28	.21	.82	.19	.24	.96	.10	1.08
MG (%)	.05	.05	.14	.12	.68	.08	.11	-.05	.06	.31
NA (%)	.12	.14	.21	1.12	.58	.46	.47	-.05	.45	.60
K (%)	1.28	1.52	2.67	.87	3.82	.45	.59	.38	.41	1.43
AG (PPM)	2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	13.00	-10.00	-10.00	16.00	-10.00	-10.00
BA (PPM)	372.00	470.00	844.00	386.00	1568.00	267.00	316.00	67.00	172.00	819.00
BE (PPM)	-1.00	-1.00	1.00	-1.00	3.00	1.00	1.00	-1.00	-1.00	-1.00
CE (PPM)	11.00	-10.00	-10.00	11.00	19.00	-10.00	15.00	41.00	-10.00	14.00
CO (PPM)	-4.00	-4.00	-4.00	-4.00	9.00	-4.00	4.00	-4.00	-4.00	14.00
CR (PPM)	9.00	11.00	13.00	12.00	45.00	7.00	8.00	7.00	7.00	18.00
CU (PPM)	14.00	9.00	8.00	7.00	92.00	6.00	4.00	2.00	5.00	66.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-3.00	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	53.00	ND	ND
LI (PPM)	2.00	2.00	5.00	5.00	35.00	2.00	3.00	196.00	1.00	11.00
MN (PPM)	20.00	11.00	27.00	26.00	63.00	17.00	19.00	30.00	14.00	156.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	5.00	5.00	5.00	5.00	8.00	4.00	6.00	3.00	5.00	11.00
P (PPM)	10.00	13.00	37.00	12.00	-5.00	21.00	41.00	62.00	28.00	30.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	-1.00	-1.00	1.00	1.00	4.00	1.00	1.00	1.00	-1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	14.00	20.00	29.00	73.00	36.00	36.00	37.00	58.00	19.00	44.00
TI (PPM)	110.00	103.00	301.00	216.00	1191.00	151.00	194.00	249.00	100.00	534.00
V (PPM)	4.00	3.00	7.00	6.00	40.00	6.00	5.00	19.00	3.00	27.00
Y (PPM)	1.00	1.00	1.00	1.00	3.00	1.00	1.00	2.00	1.00	4.00
ZN (PPM)	17.00	-2.00	7.00	9.00	11.00	12.00	5.00	8.00	6.00	25.00
ZR (PPM)	14.00	12.00	18.00	17.00	33.00	14.00	15.00	22.00	8.00	36.00

DRILL HOLE NUMBER SM2

SAMP. NO.	157225	157226	157227	157228	157229	157230	157231
TOP DEPTH	395.00	405.50	409.00	421.00	446.00	471.00	496.00
BOT DEPTH		406.00					
FORMATION	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	PHQZ	HQZ	QGC	PHQZ	PHQZ	PHQZ	PHQZ
UL (PPM)	3.79	.42	3.85	1.43	3.32	.52	6.85
UT (PPM)	2.10	.80	5.00	1.20	2.30	1.40	7.00
UL/UT	1.81	.52	.77	1.19	1.44	.37	.98
TH (PPM)	9.00	4.00	75.00	4.00	9.00	3.00	-2.00
TH/UT	4.29	5.01	15.00	3.34	3.91	2.14	-.29
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.85	3.20	4.51	6.97	7.81	8.42	5.53
CA (%)	.14	.40	.11	.13	.32	.38	3.08
FE (%)	1.15	.47	2.76	2.97	3.33	4.14	6.48
MG (%)	.53	.17	1.07	1.14	1.67	4.35	2.16
NA (%)	2.70	1.05	1.55	1.93	1.85	1.89	1.70
K (%)	1.77	1.01	1.72	2.79	3.05	1.24	.22
AG (PPM)	-2.00	-2.00	4.00	-2.00	-2.00	-2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	730.00	575.00	534.00	1117.00	1067.00	163.00	93.00
BE (PPM)	3.00	1.00	3.00	4.00	7.00	4.00	3.00
CE (PPM)	33.00	22.00	49.00	-10.00	13.00	17.00	-10.00
CO (PPM)	9.00	7.00	21.00	15.00	15.00	42.00	54.00
CR (PPM)	53.00	19.00	73.00	87.00	159.00	268.00	14.00
CU (PPM)	59.00	30.00	189.00	12.00	22.00	6.00	93.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	13.00	7.00	15.00	18.00	19.00	41.00	18.00
MN (PPM)	100.00	39.00	156.00	143.00	207.00	287.00	916.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00
NB (PPM)	5.00	-4.00	12.00	7.00	19.00	-4.00	5.00
NI (PPM)	14.00	7.00	31.00	23.00	35.00	171.00	59.00
P (PPM)	17.00	36.00	99.00	104.00	410.00	313.00	296.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	2.00	7.00	8.00	9.00	24.00	23.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	158.00	42.00	88.00	95.00	135.00	54.00	79.00
TI (PPM)	1368.00	723.00	2364.00	2333.00	3611.00	2469.00	3742.00
V (PPM)	36.00	17.00	66.00	78.00	98.00	240.00	200.00
Y (PPM)	4.00	2.00	10.00	3.00	5.00	7.00	7.00
ZN (PPM)	21.00	8.00	37.00	23.00	35.00	41.00	55.00
ZR (PPM)	51.00	25.00	266.00	78.00	61.00	55.00	50.00

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DRILL HOLE NO. SM2B

AREA: Carrico Ranch, W. Sierra Madre

LOCATION: 3250 FEL, 2030 FSL, Sec. 12, T. 15 N., R. 88 W.

LATITUDE: 41°17'04"

LONGITUDE: 107°14'42"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM

COLLAR ELEV.: 7625

ANGLE: 90°

BEARING:

TOTAL DEPTH: 240

SPUD DATE: 10/6/79

COMPLETION DATE: 10/26/79

GROSS GAMMA LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No downhole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No downhole log available

STRATIGRAPHIC UNITS: (Browns Park FM: 0-35') ('Basement' Gneiss: 35'-245')

RADIOACTIVE ZONES: None

LOGGER: Peter Swift

DRILL HOLE SM-2B

OBJECTIVES:

1. The Deep Gulch Conglomerate crops out over about a 12 km long (7.5 mile) trend in the northwest Sierra Madre and appears to get progressively more radioactive toward the southwest, where outcrops become concealed by Tertiary cover. We felt that any estimation of uranium resources in the Sierra Madre would be incomplete without some information on what happens to the Deep Gulch Conglomerate southwest of Ridge 1, Carrico Ranch. We hoped to intersect the Deep Gulch Conglomerate or at least intersect rocks above or below the Deep Gulch Conglomerate which would tell us which direction (north or south) we would have to move to hit Unit 3 in the subsurface.

2. The thickness of Tertiary cover in the area is a problem we hoped solve by drilling. Tertiary deposits in present valleys suggest a rugged pre-Tertiary topography which might have been similar to the present topography of ridges and valleys. Knowing the shape of pre-Tertiary topography is important in predicting where to try to intersect dipping conglomerate beds in the subsurface (rule of V's).

CONCLUSIONS:

1. SM-2B was drilled to a depth of 240 feet in the last stages of the 1979 drilling program, before being shut down by winter snows. We erroneously interpreted these cuttings to be from Tertiary conglomerates. After we cored SM-2D we re-interpreted the cuttings to be Tertiary conglomerates to approximately 35 feet, then biotite-plagioclase gneiss to the bottom of the hole.

NOTE: See Figure 20 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM2B
SHOWING GEOCHEMICAL SAMPLE LOCATIONS

Gross Gamma	PPMTh 10 ¹⁰ 10 ²⁰ 10 ³⁰	PPMU 10 ¹⁰ 10 ²⁰ 10 ³⁰	Samp.	Scale 1" = 100ft.	Description
					0-35': Tertiary conglomerate (BROWNS PARK FM?); qtz and gneiss gravel in sandy matrix.
					35-245': Biotite-plagioclase gneiss, coarse-grained; qtz. veins and veinlets common; occasional K-feldspar; scattered pyrite; some very qtz.-rich (50%).
			"BASEMENT" GNEISS	100	
				200	
				 T.D. 240'	

FIGURE 20. GEOLOGIC MAP OF DRILL SITE SM-2B and SM-2D,
CARRICO RANCH AREA, DIVIDE PEAK QUAD., Sec. 12,
T.15 N., R.88 W.

EXPLANATION

SM-2B

SCALE

0 1000 2000 ft.

Figure 20. Geologic map of drill site SM-2B and SM-2D

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DRILL HOLE NO. SM2D

AREA: Carrico Ranch, W. Sierra Madre

LOCATION: 3450' FEL, 2450 FSL, Sec. 12, T. 15 N., R. 88 W.

LATITUDE: 41°17'08"

LONGITUDE: 107°14'45"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM

COLLAR ELEV.: 7608

ANGLE: 90°

BEARING: ---

TOTAL DEPTH: 1483'

SPUD DATE: June 16, 1980

COMPLETION DATE: 8/19/80

GROSS GAMMA LOGGING:

INSTRUMENT: Compu-log V3L7

PROBE T.D.: 1483

DATE: 8/19/80

REMARKS:

KUT LOGGING:

INSTRUMENT: Compu-log V2.5L6

PROBE T.D.: 1482

DATE: 8/19/80

REMARKS:

STRATIGRAPHIC UNITS: (Browns Park Fm.?: 0-57') ('Basement' Gneiss: 57'-533')
(Deep Gulch Conglomerate: 533'-609') (Metagabbro: 609'-633') (Deep Gulch Conglom-
erate: 633.5'-685') (Metagabbro: 685'-707') (Deep Gulch Conglomerate: 707'-735.6')
(Deep Gulch Conglomerate Unit 1: 735.6-766', 779-820) (Metagabbro: 766-779')
(Deep Gulch Conglomerate Unit 2: 820'-887.6') (Metagabbro: 887.6-1008.5') (Deep
Gulch Conglomerate Unit 2: 1008.5'-1111.5') (Metagabbro: 1111.5'-1135.5') (Jack
Creek Quartzite Unit 5: 1135.5-1379) (Jack Creek Quartzite Unit 5p: 1379-1483).

RADIOACTIVE ZONES

600-604, 651-655, 667, 669, 710, 720, 721-722, 750, 760, 780, 820-830, 888, 1066,
1385, 1401, 1442.

CORE LOGGERS: Peter Swift, Thomas G. Schmidt

DRILL HOLE SM-2D

OBJECTIVES:

1. Our erroneous interpretation that SM-2B was still in Tertiary conglomerates at 240 feet suggested that Unit 3, if projected at a strike of N60E (taken from Ridge 1), would either be missed entirely in SM-2B or would be intersected at too shallow a depth to hit unleached conglomerates. For the 1980 drilling program we proposed a hole 500 feet to the north-northwest which we felt would be more certain of hitting Unit 3 at depths more than 100 feet below the pre-Tertiary surface (Figure 20).

CONCLUSIONS:

1. This hole was rotary drilled to a depth of 370 feet and was producing cuttings of mafic schist, gneiss and quartz which we still (erroneously) interpreted to be from Tertiary conglomerates. Coring at this point showed we were actually in biotite-plagioclase gneiss "basement" and re-examination of the cuttings suggested that we had been for some time perhaps since 60 feet, where we lost the last definitive trace of sandstone.

2. Gneiss was then drilled to a depth of 533 feet, when biotitic quartzite, similar to that in JP-1 and outcrops in Deep Gulch, was drilled to 736 feet. At this depth we intercepted the overturned Unit 1 of the Deep Gulch Conglomerate and at about 820 feet we entered Unit 2. Unit 2 was drilled to a depth of 888 feet where the hole passed into biotite-rich quartzites interpreted to be Unit 5. The hole was terminated at 1483 feet, still in a biotitic quartz schist, which we interpreted as Unit 5p similar to that found on Ridge 2, Carrico Ranch. Maximum values of 65.34 ppm U, and 490 ppm Th. were encountered in this hole. All stratigraphic information available to us suggested that Unit 3 should have been encountered at approximately 1140 feet, if the section were uninterrupted by faulting and mafic intrusions. We conclude that the fault separating the upright and overturned sections on Ridge 1 has major right-lateral strike-slip movement across it and Unit 3 is displaced as shown in Figure 20.

NOTE: See Figure 20 for geologic map and cross-section.

**GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM2D
SHOWING GEOCHEMICAL SAMPLE LOCATIONS**

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM2D SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER SM2D

SAMP. NO.	160570	160572	160571	160573	160574	160575	160576	160577	160578	160579
TOP DEPTH	408.00	425.00	506.40	545.00	570.00	595.00	605.00	620.00	645.00	654.00
BOT DEPTH							606.00			655.00
FORMATION	AGN	AGN	AGN	DG	DG	DG	DG	MI	DG	DG
LITHOLOGY	BGN	BGN	BGN	MQ	MQ	MQ	CQ	AM	CQ	CQ
UL (PPM)	1.70	.44	.85	.59	1.36	1.17	16.47	-.25	1.81	16.59
UT (PPM)	1.90	1.00	1.10	.60	1.50	1.70	16.40	.10	2.40	16.80
UL/UT	.89	.44	.77	.98	.91	.69	1.00	-2.53	.75	.99
TH (PPM)	10.00	24.00	4.00	5.00	12.00	17.00	139.00	5.00	21.00	150.00
TH/UT	5.27	24.00	3.64	8.35	8.00	10.01	8.48	50.51	8.75	8.93
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.76	7.49	6.99	6.98	7.75	6.85	4.06	5.94	4.56	4.44
CA (%)	1.36	.89	1.16	.23	.48	.12	.13	6.96	.18	.12
FE (%)	5.78	1.51	4.03	1.44	2.48	1.67	1.59	7.22	1.73	1.30
MG (%)	2.96	.71	2.15	.76	.94	.82	.46	3.76	.50	.51
NA (%)	1.49	3.34	2.35	1.88	1.76	.43	.83	.83	1.13	1.04
K (%)	2.39	1.60	1.88	2.18	2.98	2.90	1.84	.31	1.81	1.70
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	11.00	-10.00	12.00	16.00	19.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1637.00	1715.00	1472.00	1003.00	1225.00	1304.00	1037.00	59.00	968.00	886.00
BE (PPM)	2.00	2.00	2.00	2.00	2.00	1.00	1.00	-1.00	1.00	1.00
CE (PPM)	80.00	58.00	83.00	45.00	86.00	65.00	44.00	23.00	54.00	48.00
CO (PPM)	22.00	4.00	14.00	7.00	10.00	6.00	48.00	38.00	10.00	12.00
CR (PPM)	260.00	29.00	99.00	66.00	101.00	92.00	68.00	288.00	54.00	72.00
CU (PPM)	20.00	7.00	27.00	7.00	31.00	16.00	90.00	139.00	26.00	61.00
HF (PPM)	-15.00	-15.00	41.00	-15.00	-15.00	-15.00	78.00	45.00	18.00	17.00
LA (PPM)	75.00	71.00	86.00	50.00	81.00	66.00	53.00	-2.00	51.00	48.00
LI (PPM)	56.00	18.00	35.00	20.00	25.00	27.00	14.00	7.00	12.00	12.00
MN (PPM)	449.00	90.00	383.00	94.00	153.00	87.00	64.00	1196.00	59.00	50.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	35.00	-2.00	23.00	22.00	25.00	19.00	23.00	101.00	13.00	23.00
P (PPM)	1901.00	363.00	934.00	106.00	200.00	268.00	199.00	276.00	204.00	164.00
PR (PPM)	13.00	10.00	23.00	-10.00	-10.00	22.00	39.00	17.00	17.00	26.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	13.00	4.00	9.00	6.00	9.00	6.00	3.00	29.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	359.00	386.00	347.00	146.00	199.00	77.00	95.00	119.00	144.00	137.00
TI (PPM)	3963.00	942.00	3117.00	1794.00	3319.00	2799.00	1510.00	5312.00	1639.00	1747.00
V (PPM)	144.00	34.00	96.00	47.00	73.00	64.00	30.00	247.00	47.00	27.00
Y (PPM)	10.00	5.00	8.00	4.00	10.00	11.00	19.00	12.00	8.00	18.00
ZN (PPM)	55.00	12.00	44.00	18.00	28.00	20.00	12.00	74.00	47.00	16.00
ZR (PPM)	51.00	43.00	60.00	23.00	95.00	60.00	103.00	5.00	48.00	155.00

DRILL HOLE NUMBER SM20

SAMP. NO.	160580	160581	160582	160583	160585	160584	160586	160612	710986	710990
TOP DEPTH	666.70	670.00	695.00	720.00	723.80	724.50	745.00	770.00	795.00	820.00
BOT DEPTH	667.10				424.50	725.50				
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	MQ	MQ	CQ	CQ	CQ	MQ	FAM	APC	APC
UL (PPM)	14.47	21.41	.38	3.85	28.84	25.17	7.77	1.71	7.95	1.55
UT (PPM)	12.50	27.50	.60	4.00	33.40	22.40	8.30	1.80	7.50	2.00
UL/UT	1.16	.78	.63	.96	.86	1.12	.94	.95	1.06	.77
TH (PPM)	197.00	39.00	-2.00	23.00	326.00	184.00	30.00	-2.00	4.00	-2.00
TH/UT	15.76	1.42	-3.34	5.75	9.76	8.21	3.61	-1.11	.53	-1.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.46	5.11	5.28	5.16	3.97	4.71	4.76	5.34	6.16	7.32
CA (%)	.12	.14	5.93	.11	.13	.13	.10	5.92	.09	.36
FE (%)	1.31	1.36	7.04	1.17	1.40	1.28	1.17	8.38	.81	1.67
MG (%)	.43	.48	4.71	.52	.43	.50	.48	2.62	.50	1.33
NA (%)	1.29	.97	.98	.50	.81	1.10	.74	.06	1.93	4.08
K (%)	1.98	2.35	.61	2.79	1.86	2.16	2.16	1.93	1.79	.25
AG (PPM)	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	10.00	12.00	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	-10.00	12.00
BA (PPM)	1008.00	1318.00	122.00	1343.00	876.00	1047.00	1003.00	443.30	517.00	63.00
BE (PPM)	1.00	1.00	-1.00	1.00	1.00	1.00	1.00	3.23	1.00	1.00
CE (PPM)	56.00	57.00	27.00	65.00	69.00	47.00	70.00	22.50	32.00	20.00
CO (PPM)	22.00	8.00	45.00	8.00	21.00	14.00	15.00	43.49	11.00	9.00
CR (PPM)	97.00	69.00	734.00	82.00	93.00	75.00	88.00	49.76	43.00	62.00
CU (PPM)	45.00	31.00	19.00	25.00	130.00	70.00	38.00	47.33	10.00	3.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	55.00	-15.00	33.00	-15.00
LA (PPM)	52.00	65.00	-2.00	70.00	73.00	54.00	69.00	9.00	30.00	16.00
LI (PPM)	11.00	15.00	11.00	14.00	11.00	11.00	14.00	26.59	16.00	9.00
MN (PPM)	46.00	59.00	1222.00	40.00	41.00	46.00	42.00	1075.00	26.00	98.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	28.00	18.00	172.00	29.00	33.00	19.00	169.00	40.45	15.00	33.00
P (PPM)	148.00	179.00	197.00	277.00	143.00	223.00	223.00	532.20	116.00	147.00
PB (PPM)	38.00	23.00	12.00	15.00	47.00	36.00	18.00	-10.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	26.00	5.00	3.00	3.00	4.00	19.58	4.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	131.00	100.00	108.00	88.00	105.00	132.00	88.00	309.20	67.00	131.00
TI (PPM)	1473.00	1870.00	3671.00	2416.00	1472.00	1693.00	2310.00	9083.00	1481.00	1030.00
V (PPM)	28.00	38.00	207.00	43.00	31.00	28.00	41.00	262.30	36.00	49.00
Y (PPM)	17.00	16.00	9.00	6.00	34.00	25.00	7.00	13.56	2.00	3.00
ZN (PPM)	10.00	16.00	74.00	10.00	11.00	13.00	12.00	94.08	10.00	12.00
ZR (PPM)	185.00	95.00	9.00	92.00	241.00	180.00	110.00	4.37	26.00	46.00

DRILL HOLE NUMBER SM2D

SAMP. NO.	710991	710992	711210	711067	710993	711068	711069	711070	711091	711092
TOP DEPTH	845.00	876.00	885.00	900.00	900.00	925.00	950.00	975.00	1000.00	1020.00
BOT DEPTH										
FORMATION	DG	DG	DG	MI	MI	MI	MI	MI	DG	DG
LITHOLOGY	FAM	AGC	CQ	FAM	FAM	FAM	FAM	FAM	FAM	CSC
UL (PPM)	.69	1.27	65.35	.26	.28	.26	-.25	-.25	-.25	1.27
UT (PPM)	.90	1.60	63.30	.70	.80	.60	.60	.60	.60	2.20
UL/UT	.77	.79	1.03	.37	.35	.43	-.42	-.42	-.42	.58
TH (PPM)	12.00	-2.00	492.00	-2.00	7.00	3.00	2.00	-2.00	-2.00	7.00
TH/UT	13.35	-1.25	7.77	-2.86	8.76	5.01	3.34	-3.34	-3.34	3.18
AI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.03	5.22	4.10	5.24	4.89	5.44	5.59	5.55	5.70	8.84
CA (%)	5.44	.16	-.19	-5.41	5.00	-5.61	-6.22	-6.36	-6.23	.14
FE (%)	7.91	1.08	3.21	7.62	7.49	7.84	7.01	7.47	7.40	4.08
MG (%)	2.65	.41	.48	4.78	5.32	4.72	4.72	4.79	4.75	2.54
NA (%)	1.00	1.31	.57	.76	.66	.78	1.02	.94	.95	1.57
K (%)	1.12	2.18	1.45	.84	.80	.70	.49	.38	.52	1.84
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	13.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	11.00
BA (PPM)	200.00	1342.00	1045.00	221.00	229.00	196.00	109.00	111.00	142.00	736.00
BE (PPM)	1.00	1.00	1.00	-1.00	-1.00	1.00	-1.00	-1.00	-1.00	2.00
CE (PPM)	40.00	27.00	57.00	15.00	20.00	20.00	16.00	13.00	17.00	60.00
CO (PPM)	47.00	-4.00	49.00	51.00	50.00	41.00	44.00	50.00	49.00	16.00
CR (PPM)	57.00	34.00	147.00	867.00	866.00	676.00	710.00	766.00	747.00	154.00
CU (PPM)	38.00	11.00	234.00	125.00	79.00	137.00	37.00	116.00	48.00	4.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	5.00	24.00	39.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	58.00
LI (PPM)	16.00	8.00	12.00	19.00	19.00	17.00	12.00	12.00	13.00	27.00
MN (PPM)	1143.00	50.00	72.00	1198.00	1183.00	1239.00	1186.00	1289.00	1259.00	150.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	49.00	21.00	97.00	195.00	186.00	159.00	161.00	181.00	178.00	62.00
P (PPM)	565.00	142.00	194.00	168.00	151.00	215.00	217.00	207.00	203.00	306.00
PB (PPM)	38.00	-10.00	47.00	-10.00	-10.00	12.00	-10.00	-10.00	10.00	12.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	24.00	3.00	3.00	29.00	28.00	28.00	28.00	29.00	29.00	12.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	273.00	167.00	53.00	62.00	63.00	105.00	122.00	122.00	111.00	78.00
TI (PPM)	8923.00	1565.00	2013.00	3239.00	3253.00	3713.00	3857.00	3152.00	3578.00	1710.00
V (PPM)	277.00	29.00	35.00	207.00	205.00	209.00	210.00	213.00	210.00	103.00
Y (PPM)	15.00	2.00	45.00	9.00	8.00	10.00	10.00	10.00	10.00	4.00
ZN (PPM)	75.00	10.00	13.00	84.00	79.00	74.00	72.00	84.00	80.00	37.00
ZR (PPM)	16.00	27.00	423.00	12.00	15.00	15.00	14.00	24.00	16.00	97.00

DRILL HOLE NUMBER SM2D

SAMP. NO.	711093	711094	711095	711096	711211	711097	711098	711099	711100	711101
TOP DEPTH	1040.00	1060.00	1067.00	1080.00	1092.00	1100.00	1120.00	1133.00	1140.00	1160.00
BOT DEPTH										
FORMATION	DG	DG	DG	DG	DG	DG	MI	MI	JCF	JCF
LITHOLOGY	CQ	MSC	PHQ	NQ	CQ	CQ	FAM	VQ	PHQ	PHQ
UL (PPM)	3.97	17.91	54.63	3.69	8.79	2.48	-.25	-.25	3.78	7.80
UT (PPM)	3.70	19.00	57.20	4.50	11.00	2.20	.40	ND	4.20	7.70
UL/UT	1.07	.94	.96	.82	.80	1.13	-.63	ND	.90	1.01
TH (PPM)	4.00	14.00	85.00	9.00	27.00	6.00	-2.00	3.00	4.00	11.00
TH/UT	1.08	.74	1.49	2.00	2.45	2.73	-5.01	ND	.95	1.43
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.30	9.35	7.59	1.93	7.98	2.46	6.82	2.71	6.35	7.69
CA (%)	.36	.53	.57	.39	.32	.43	6.74	2.51	.23	.51
FE (%)	1.38	3.22	3.37	1.00	3.40	.60	9.08	12.69	2.85	4.70
MG (%)	.54	1.52	1.76	.19	1.44	.32	3.69	.67	1.22	2.06
NA (%)	.98	.66	.70	.47	2.04	1.22	1.19	.79	2.63	2.22
K (%)	.58	3.27	2.85	.99	2.19	.31	.25	.13	1.26	1.85
AG (PPM)	-2.00	-2.00	2.00	-2.00	2.00	-2.00	-2.00	4.00	-2.00	-2.00
B (PPM)	-10.00	16.00	15.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	102.00	1295.00	908.00	534.00	965.00	131.00	39.00	69.00	441.00	793.00
BE (PPM)	1.00	3.00	2.00	-1.00	2.00	-1.00	-1.00	-1.00	1.00	2.00
CE (PPM)	31.00	63.00	115.00	21.00	79.00	27.00	23.00	-10.00	31.00	80.00
CO (PPM)	9.00	14.00	33.00	11.00	20.00	5.00	44.00	485.00	13.00	20.00
CR (PPM)	31.00	209.00	334.00	32.00	171.00	39.00	181.00	29.00	109.00	168.00
CU (PPM)	53.00	34.00	183.00	42.00	55.00	228.00	198.00	19509.00	52.00	62.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	34.00	58.00	123.00	18.00	88.00	30.00	-2.00	-2.00	26.00	99.00
LI (PPM)	7.00	41.00	35.00	5.00	25.00	4.00	13.00	5.00	17.00	28.00
MN (PPM)	113.00	107.00	163.00	51.00	127.00	45.00	1390.00	253.00	96.00	304.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	21.00	55.00	81.00	26.00	55.00	15.00	114.00	2304.00	43.00	69.00
P (PPM)	85.00	511.00	982.00	60.00	538.00	81.00	343.00	-5.00	252.00	408.00
PB (PPM)	10.00	25.00	29.00	13.00	23.00	24.00	17.00	-10.00	-10.00	17.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	15.00	13.00	2.00	10.00	2.00	33.00	4.00	6.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	74.00	37.00	44.00	75.00	118.00	80.00	128.00	340.00	99.00	156.00
TI (PPM)	593.00	4119.00	4093.00	627.00	3436.00	500.00	6328.00	322.00	2467.00	3271.00
V (PPM)	21.00	125.00	104.00	9.00	79.00	12.00	311.00	40.00	67.00	92.00
Y (PPM)	5.00	8.00	22.00	8.00	15.00	5.00	15.00	2.00	4.00	7.00
ZN (PPM)	16.00	65.00	31.00	7.00	19.00	14.00	104.00	324.00	15.00	45.00
ZR (PPM)	15.00	117.00	497.00	22.00	199.00	31.00	6.00	-2.00	87.00	117.00

DRILL HOLE NUMBER SM2D

SAMP. NO.	711102	711212	711103	711104	711142	711113	711143	711144	711145	711146
TOP DEPTH	1180.00	1185.00	1200.00	1220.00	1233.00	1245.00	1260.00	1279.00	1280.00	1300.00
BOT DEPTH										
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	FQ	FQ	PHQ	PHQ	QGC	CQ	FQ	FQ	CQ	FQ
UL (PPM)	5.38	2.11	3.23	6.63	3.44	3.71	4.53	87.09	.99	4.76
UT (PPM)	5.10	2.58	3.70	7.70	5.10	4.40	5.70	2.60	2.40	4.60
UL/UT	1.05	.82	.87	.86	.67	.84	.79	33.51	.41	1.03
TH (PPM)	12.00	-2.00	7.00	16.00	10.00	11.00	15.00	293.20	35.00	8.00
TH/UT	2.35	-.78	1.89	2.08	1.96	2.50	2.63	112.81	14.59	1.74
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.90	2.07	7.92	7.31	.21	7.82	7.26	11.30	4.87	8.18
CA (%)	.01	.53	.39	.29	.14	.62	.32	.33	.51	.26
FE (%)	3.49	2.10	4.31	6.11	10.11	3.86	3.37	4.64	.86	3.48
MG (%)	1.46	.89	1.83	2.65	1.15	1.93	1.45	2.13	.21	1.50
NA (%)	2.60	.45	2.99	1.35	.50	1.75	1.93	.19	2.04	2.19
K (%)	1.63	.60	1.71	2.04	.66	2.15	2.16	3.68	1.48	2.34
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	8.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	35.53	-10.00	10.00
BA (PPM)	460.00	147.00	668.00	675.00	128.40	931.00	795.00	3250.00	900.00	902.00
BE (PPM)	1.00	-1.00	1.00	2.00	-1.00	2.00	2.00	6.32	1.00	2.00
CE (PPM)	37.00	21.00	48.00	63.00	34.15	51.00	52.00	69.61	43.00	63.00
CO (PPM)	15.00	8.00	16.00	18.00	193.70	18.00	15.00	21.02	26.00	12.00
CR (PPM)	136.00	19.00	155.00	159.00	57.40	177.00	139.00	1005.00	38.00	133.00
CU (PPM)	4.00	62.00	30.00	29.00	672.40	24.00	45.00	22.53	44.00	15.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	41.36	52.00	-15.00
LA (PPM)	34.00	31.00	50.00	76.00	42.80	51.00	53.00	69.72	29.00	71.00
LI (PPM)	26.00	15.00	31.00	42.00	15.30	29.00	30.00	60.00	6.00	25.00
MN (PPM)	302.00	346.00	465.00	361.00	206.50	304.00	159.00	265.80	73.00	206.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	101.50	-4.00	-4.00	12.80	14.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	8.96	16.00	-4.00
NI (PPM)	40.00	11.00	56.00	67.00	181.00	80.00	48.00	47.70	21.00	50.00
P (PPM)	449.00	51.00	244.00	273.00	95.96	492.00	384.00	973.20	72.00	281.00
PB (PPM)	-10.00	-10.00	13.00	12.00	35.30	12.00	11.00	29.95	25.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	3.00	8.00	10.00	5.07	12.00	9.00	35.95	5.00	8.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	120.00	56.00	175.00	112.00	31.36	134.00	83.00	35.47	138.00	146.00
TI (PPM)	3252.00	363.00	2905.00	3412.00	1084.00	3404.00	2796.00	10047.00	415.00	2993.00
V (PPM)	74.00	16.00	90.00	89.00	32.06	109.00	80.00	199.50	18.00	86.00
Y (PPM)	6.00	17.00	6.00	6.00	4.12	7.00	6.00	80.47	4.00	7.00
ZN (PPM)	37.00	27.00	52.00	65.00	40.31	40.00	26.00	17.30	9.00	31.00
ZR (PPM)	132.00	13.00	69.00	136.00	34.08	72.00	124.00	2925.00	12.00	62.00

DRILL HOLE NUMBER SM2D

SAMP. NO:	711147	711148	711149	711150	711152	711153	711194	711195	711196	711198
TOP DEPTH	1320.00	1340.00	1360.00	1380.00	1403.00	1420.00	1440.00	1443.00	1460.00	1480.00
BOT DEPTH										
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	CQ	CQ	CQ	FQ	PHQ	MQ	FQ	PHQ	QGC	FQ
UL (PPM)	1.45	.50	1.85	3.55	43.08	1.33	7.03	50.56	3.59	10.23
UT (PPM)	2.30	1.30	2.50	5.60	48.60	1.60	8.63	48.10	3.05	9.75
UL/UT	.63	.38	.74	.63	.89	.83	.81	1.05	1.18	1.05
TH (PPM)	37.00	2.00	3.00	9.00	192.00	-2.00	14.00	188.00	6.00	25.00
TH/UT	16.09	1.54	1.20	1.61	3.95	-1.25	1.62	3.91	1.97	2.56
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.87	3.97	2.81	7.43	4.92	5.84	8.57	7.76	3.13	6.23
CA (%)	.39	.19	.10	.21	.43	.15	.18	.52	.10	.27
FE (%)	1.83	1.17	1.23	2.91	5.53	.55	4.18	5.31	.69	3.22
MG (%)	.48	.52	.54	1.23	1.32	.23	1.72	2.12	.15	1.46
NA (%)	1.34	1.66	.97	2.46	1.01	3.47	2.62	1.13	2.16	2.14
K (%)	.49	1.14	.85	1.93	1.49	.46	2.39	2.39	.27	1.73
AG (PPM)	7.00	-2.00	-2.00	-2.00	5.00	-2.00	-2.00	5.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	12.00	-10.00	-10.00
BA (PPM)	90.00	507.00	378.00	887.00	964.00	163.00	962.00	1069.00	91.00	578.00
BE (PPM)	1.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00	-1.00	1.00
CE (PPM)	55.00	23.00	26.00	40.00	93.00	11.00	39.00	80.00	36.00	61.00
CO (PPM)	22.00	-4.00	5.00	11.00	95.00	-4.00	13.00	65.00	8.00	7.00
CR (PPM)	24.00	34.00	30.00	131.00	507.00	37.00	144.00	655.00	14.00	181.00
CU (PPM)	182.00	11.00	25.00	21.00	78.00	20.00	65.00	66.00	132.00	58.00
HF (PPM)	43.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	53.00	27.00	37.00	41.00	103.00	15.00	43.00	75.00	50.00	65.00
LI (PPM)	9.00	9.00	7.00	18.00	15.00	3.00	20.00	22.00	2.00	13.00
MN (PPM)	83.00	71.00	70.00	141.00	105.00	26.00	128.00	156.00	22.00	124.00
MO (PPM)	15.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	-4.00
NB (PPM)	15.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	44.00	17.00	25.00	30.00	81.00	5.00	56.00	72.00	14.00	42.00
P (PPM)	92.00	53.00	76.00	478.00	664.00	74.00	382.00	1852.00	108.00	842.00
PB (PPM)	18.00	-10.00	10.00	-10.00	58.00	-10.00	11.00	46.00	-10.00	16.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	2.00	5.00	6.00	2.00	9.00	22.00	1.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	93.00	75.00	68.00	139.00	63.00	131.00	128.00	90.00	73.00	110.00
TI (PPM)	424.00	842.00	639.00	2734.00	4676.00	625.00	3220.00	5924.00	294.00	2920.00
V (PPM)	23.00	25.00	20.00	66.00	68.00	13.00	81.00	140.00	7.00	62.00
Y (PPM)	10.00	3.00	2.00	9.00	58.00	2.00	6.00	70.00	3.00	8.00
ZN (PPM)	13.00	9.00	10.00	16.00	16.00	5.00	20.00	19.00	32.00	20.00
ZR (PPM)	19.00	22.00	15.00	112.00	1047.00	17.00	134.00	1012.00	17.00	168.00

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DRILL HOLE NO. SM-3

AREA: Carrico Ranch, Sierra Madre Mountains

LOCATION: 1937 FNL, 1695 FEL, Sec. 12, T. 15 N., R. 88 W

LATITUDE: 41° 17' 17"

LONGITUDE: 107° 14' 18"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM

COLLAR ELEV.: 7748'

ANGLE: 60°

BEARING: S 15 E

TOTAL DEPTH: 785'

SPUD DATE: 9/4/79

COMPLETION DATE: 10/8/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 779'

DATE: 10/8/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 422'

DATE: 10/9/79

REMARKS:

STRATIGRAPHIC UNITS: (Deep Gulch Conglomerate Unit 1: 0-118) (Deep Gulch Conglomerate Unit 2: 118-360) (Metagabbro: 360-785)

RADIOACTIVE ZONES: 8 one foot zones from 75-95; 155, 255, 262, 278, 285-287; 7 one foot zones from 328-334.

CORE LOGGERS: Anthony Kratochvil

DRILL HOLE SM-3

OBJECTIVES:

1. SM-3 was drilled to test whether radioactive conglomerates of Unit 3 might be encountered in the subsurface, even though they appear to be removed by faulting on the surface (Figure 18). By analogy to Ridge 2 at Carrico Ranch, as elsewhere in the northwestern Sierra Madre, we expected to find Unit 3 stratigraphically above (and structurally below) outcropping Unit 2 subarkoses.
2. As in drill hole SM-2, we hoped that subsurface information would elucidate the structural problems.

CONCLUSIONS:

1. Units 1 and 2 were encountered as expected by surface dips of about 50 degrees. 108 feet of Unit 1 and 252 feet of Unit 2 were drilled before going into mafic intrusive rock, which continued with one minor 20 foot thick xenolith of subarkose (possible Unit 2) at a depth of 666 feet in the hole. A small 7 foot zone of thin fractured and leached conglomerates was drilled at 226 feet, we decided that these conglomerates were not Unit 3 and that it still lay stratigraphically above this zone. Unit 3 was never encountered in SM-3 (Figure 19).
2. We postulate a fault, separating sections drilled in SM-2 and SM-3, which was invaded by gabbroic magma. The sense of movement of the fault shown in Figure 19 indicates that the section drilled by SM-2 was down-dropped from an area which may have been slightly closer to the source area than the section drilled by SM-3. Faulting and emplacement of the gabbroic body appear to have caused rotation of the section drilled by SM-2 to its present up-right attitude. Maximum values of 53.4 ppm U and 280 ppm Th, were encountered in this hole.

NOTE: See Figures 18 and 19 for plane-table map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 3 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER SM3

SAMP. NO.	157960	152376	157961	157962	157963	152377	152380	158477	157964	157965
TOP DEPTH	10.30	10.50	13.00	22.00	32.20	35.50	36.00	41.00	44.00	49.00
BOT DEPTH	13.00		15.00	23.00	34.00		37.00	41.30	45.00	50.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	CQZ	GPC	GPC	CQ	CQ	GPC	QGC	QGC	APC	GPC
UL (PPM)	.60	1.22	1.05	1.88	1.29	1.04	3.82	1.87	.96	1.36
UT (PPM)	.80	.80	1.80	2.20	1.80	1.20	4.80	1.57	1.50	1.80
UL/UT	.75	1.53	.58	.85	.72	.87	.80	1.19	.64	.76
TH (PPM)	5.00	8.00	14.00	2.00	7.00	5.00	36.00	-2.00	8.00	8.00
TH/UT	6.26	10.01	7.78	-.91	3.89	4.17	7.50	-1.27	5.33	4.45
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.38	4.80	4.66	-.05	3.88	5.75	4.66	4.92	3.38	4.43
CA (%)	.11	.09	.09	-.05	.07	.09	.08	.08	.07	.07
FE (%)	1.05	.84	1.14	-.05	1.30	.86	1.28	.85	.91	.94
MG (%)	.40	.35	.40	-.05	.46	.47	.47	.35	.35	.42
NA (%)	1.65	1.82	1.31	-.05	.81	1.68	1.29	1.52	1.68	1.72
K (%)	2.30	2.29	2.83	-.02	2.58	2.56	2.69	2.32	2.18	2.31
AG (PPM)	2.00	2.00	4.00	2.00	2.00	2.00	3.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1072.00	953.00	1248.00	-2.00	1001.00	748.00	1149.00	1284.00	791.00	944.00
BE (PPM)	8.00	3.00	10.00	-1.00	4.00	2.00	4.00	-1.00	4.00	5.00
CE (PPM)	23.00	27.00	28.00	-10.00	43.00	11.00	48.00	16.00	24.00	-10.00
CO (PPM)	6.00	5.00	10.00	-4.00	7.00	8.00	10.00	5.00	5.00	11.00
CR (PPM)	32.00	38.00	45.00	9.00	49.00	38.00	59.00	23.00	33.00	25.00
CU (PPM)	16.00	9.00	28.00	-2.00	6.00	8.00	21.00	26.00	29.00	14.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-15.00	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	27.00	ND	ND
LI (PPM)	8.00	9.00	10.00	-1.00	10.00	11.00	12.00	7.00	5.00	8.00
MN (PPM)	39.00	30.00	51.00	-4.00	40.00	35.00	40.00	23.00	32.00	27.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	7.00	4.00	5.00	-4.00	4.00	4.00	4.00	-4.00	-4.00	4.00
NI (PPM)	14.00	11.00	18.00	-2.00	16.00	19.00	21.00	16.00	11.00	19.00
P (PPM)	135.00	84.00	134.00	-5.00	139.00	173.00	163.00	124.00	107.00	137.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	-10.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	3.00	3.00	-1.00	6.00	2.00	4.00	3.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	179.00	175.00	155.00	-1.00	105.00	127.00	136.00	147.00	149.00	144.00
TI (PPM)	1406.00	1460.00	1605.00	-10.00	2215.00	1352.00	1821.00	856.00	1139.00	896.00
V (PPM)	32.00	29.00	39.00	-2.00	45.00	25.00	42.00	22.00	15.00	20.00
Y (PPM)	2.00	3.00	4.00	-1.00	5.00	3.00	7.00	2.00	2.00	2.00
ZN (PPM)	14.00	16.00	8.00	-2.00	7.00	10.00	13.00	7.00	4.00	4.00
ZR (PPM)	31.00	39.00	43.00	-2.00	55.00	29.00	117.00	22.00	44.00	39.00

DRILL HOLE NUMBER SM3

SAMP. NO.	152378	157966	157967	157969	157968	157970	157971	157973	152379	157972
TOP DEPTH	60.00	60.40	62.30	67.00	71.00	75.30	78.00	84.00	86.00	91.30
BOT DEPTH		60.70	62.70	68.00	72.00	75.70	79.00	85.00		92.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	APC	AQZ	QZ	AQZ	QZ	QZ	QZ	QGC	PHQ	PBQZ
UL (PPM)	3.23	3.14	2.00	2.35	8.91	5.05	3.28	15.16	3.11	8.74
UT (PPM)	1.60	7.00	2.70	2.00	7.20	21.00	12.20	17.70	3.50	11.10
UL/UT	2.02	.45	.74	1.17	1.24	.24	.27	.86	.89	.79
TH (PPM)	10.00	60.00	18.00	18.00	71.00	281.00	137.00	158.00	31.00	102.00
TH/UT	6.25	8.57	6.67	9.00	9.86	13.38	11.23	8.93	8.86	9.19
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.67	3.87	4.54	3.52	3.67	3.97	4.75	3.95	5.80	3.45
CA (%)	.08	.10	.10	.07	.08	.07	.06	.10	.08	.05
FE (%)	1.07	1.73	1.67	1.20	1.49	2.06	2.22	2.43	.67	1.40
MG (%)	.43	.62	.58	.41	.58	.49	.61	.47	.35	.35
NA (%)	1.62	1.02	1.53	.95	1.05	.79	.74	.46	1.08	.62
K (%)	2.03	1.99	2.09	2.21	2.06	2.14	2.74	2.46	2.80	2.83
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	7.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	788.00	638.00	691.00	903.00	691.00	642.00	752.00	728.00	735.00	1273.00
BE (PPM)	1.00	13.00	12.00	3.00	11.00	13.00	16.00	15.00	2.00	6.00
CE (PPM)	13.00	19.00	32.00	31.00	28.00	27.00	47.00	30.00	32.00	40.00
CO (PPM)	9.00	12.00	15.00	12.00	13.00	26.00	18.00	41.00	10.00	6.00
CR (PPM)	37.00	91.00	56.00	43.00	68.00	134.00	148.00	126.00	63.00	57.00
CU (PPM)	15.00	28.00	21.00	14.00	31.00	110.00	130.00	167.00	37.00	57.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	13.00	12.00	8.00	12.00	16.00	21.00	20.00	19.00	12.00
MN (PPM)	35.00	53.00	50.00	35.00	41.00	35.00	49.00	88.00	22.00	23.00
MO (PPM)	-4.00	7.00	5.00	-4.00	10.00	16.00	17.00	11.00	-4.00	5.00
NB (PPM)	4.00	4.00	6.00	-4.00	4.00	4.00	6.00	5.00	4.00	-4.00
NI (PPM)	13.00	18.00	20.00	15.00	20.00	24.00	17.00	53.00	24.00	13.00
P (PPM)	100.00	244.00	265.00	101.00	195.00	130.00	105.00	224.00	192.00	110.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	4.00	4.00	4.00	5.00	7.00	6.00	4.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	129.00	93.00	132.00	128.00	111.00	81.00	72.00	60.00	96.00	131.00
TI (PPM)	1051.00	2301.00	1987.00	1655.00	1822.00	2112.00	2705.00	2370.00	1478.00	1778.00
V (PPM)	28.00	37.00	35.00	31.00	31.00	72.00	60.00	158.00	46.00	32.00
Y (PPM)	3.00	8.00	5.00	4.00	8.00	21.00	12.00	25.00	6.00	11.00
ZN (PPM)	7.00	5.00	3.00	3.00	8.00	19.00	28.00	61.00	64.00	13.00
ZR (PPM)	40.00	129.00	56.00	79.00	147.00	267.00	277.00	150.00	44.00	142.00

DRILL HOLE NUMBER SM3

SAMP. NO.	158052	158053	158054	158055	152405	157974	157975	152406	157976	157977
TOP DEPTH	92.00	93.30	94.00	94.70	110.50	121.00	133.50	136.00	141.00	146.50
BOT DEPTH	93.30	94.00	94.70	95.80		122.00	134.00		142.00	147.50
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	MG	QZ	QGC	MG	AGC	AQZ
UL (PPM)	8.61	3.98	6.73	20.82	1.99	1.87	3.53	2.62	9.86	2.96
UT (PPM)	6.40	2.60	5.30	15.00	1.70	2.20	4.10	2.20	9.00	3.50
UL/UT	1.35	1.53	1.27	1.39	1.17	.85	.86	1.19	1.10	.85
TH (PPM)	13.00	8.00	20.00	139.00	5.00	20.00	52.00	14.00	123.00	31.00
TH/UT	2.03	3.08	3.77	9.27	2.94	9.10	12.69	6.37	13.67	8.86
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.96	3.40	4.80	3.78	6.18	4.29	4.62	4.41	3.12	3.20
CA (%)	.05	.05	.09	.05	.10	.08	.09	-.05	.05	.06
FE (%)	1.27	.55	.62	.71	1.50	1.21	1.43	.78	1.29	.81
MG (%)	.45	.22	.34	.15	.60	.46	.56	.42	.40	.27
NA (%)	.76	.91	.74	.78	1.56	1.00	1.17	.78	.40	1.06
K (%)	3.18	2.89	3.72	3.15	3.03	2.46	2.33	2.76	2.42	1.75
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1135.00	1118.00	1415.00	1050.00	850.00	905.00	715.00	532.00	702.00	635.00
BE (PPM)	13.00	3.00	11.00	5.00	4.00	10.00	12.00	3.00	7.00	7.00
CE (PPM)	49.00	43.00	58.00	35.00	37.00	49.00	44.00	30.00	51.00	28.00
CO (PPM)	5.00	-4.00	4.00	7.00	7.00	6.00	9.00	9.00	12.00	10.00
CR (PPM)	70.00	22.00	33.00	22.00	71.00	47.00	71.00	80.00	58.00	34.00
CU (PPM)	44.00	9.00	14.00	30.00	28.00	18.00	52.00	49.00	74.00	39.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	22.00	8.00	16.00	7.00	14.00	10.00	18.00	20.00	14.00	9.00
MN (PPM)	26.00	14.00	23.00	31.00	58.00	42.00	52.00	29.00	29.00	20.00
MO (PPM)	-4.00	-4.00	4.00	6.00	-4.00	8.00	4.00	-4.00	-4.00	6.00
NB (PPM)	-4.00	-4.00	13.00	11.00	6.00	6.00	5.00	6.00	5.00	-4.00
NI (PPM)	14.00	5.00	9.00	11.00	18.00	11.00	20.00	16.00	12.00	10.00
P (PPM)	73.00	53.00	86.00	92.00	198.00	172.00	154.00	87.00	180.00	117.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	2.00	6.00	3.00	5.00	4.00	5.00	3.00	4.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	105.00	136.00	132.00	116.00	152.00	120.00	103.00	31.00	55.00	74.00
TI (PPM)	2303.00	991.00	1554.00	674.00	1431.00	1642.00	2072.00	2002.00	1976.00	1096.00
V (PPM)	59.00	16.00	39.00	31.00	46.00	33.00	35.00	40.00	34.00	22.00
Y (PPM)	10.00	4.00	9.00	13.00	4.00	5.00	7.00	2.00	10.00	4.00
ZN (PPM)	15.00	4.00	11.00	11.00	24.00	17.00	9.00	11.00	8.00	13.00
ZR (PPM)	76.00	28.00	52.00	75.00	26.00	40.00	81.00	36.00	56.00	39.00

DRILL HOLE NUMBER SM3

SAMP. NO.	157978	157979	157980	152407	157981	157982	157983	157984	158470	157342
TOP DEPTH	152.50	154.00	160.00	160.50	168.00	169.00	172.30	178.00	185.10	186.00
BOT DEPTH	153.50		161.00		169.00	170.00	173.30	179.00	185.40	
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	CQZ	AQZ	CQZ	MQ	AQZ	AQZ	QGC	QGC	QGC	CQZ
UL (PPM)	2.36	15.16	11.30	3.40	3.08	6.59	8.21	4.10	2.22	3.45
UT (PPM)	3.40	29.30	8.60	3.10	2.30	6.80	9.50	4.80	3.40	2.90
UL/UT	.69	.52	1.31	1.10	1.34	.97	.86	.85	.65	1.19
TH (PPM)	19.00	215.00	48.00	21.00	22.00	25.00	68.00	30.00	23.00	24.00
TH/UT	5.59	7.34	5.58	6.78	9.57	3.68	7.16	6.25	6.77	8.28
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.57	3.60	3.90	3.88	4.88	4.02	3.57	4.91	4.42	3.39
CA (%)	.05	.10	.07	.05	.05	.06	.06	.08	.10	.08
FE (%)	.75	1.42	.67	.73	.78	.65	.73	1.17	.52	.45
MG (%)	.26	.31	.27	.33	.40	.32	.34	.71	.30	.28
NA (%)	1.11	.79	1.56	.86	1.47	1.56	1.74	1.74	2.81	2.03
K (%)	2.00	1.93	1.89	2.31	2.13	1.52	1.15	2.23	.79	.50
AG (PPM)	-2.00	-2.00	-2.00	-2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	602.00	546.00	527.00	787.00	441.00	292.00	133.00	233.00	129.00	95.00
BE (PPM)	8.00	9.00	8.00	3.00	11.00	8.00	6.00	6.00	1.00	1.00
CE (PPM)	25.00	69.00	18.00	47.00	19.00	28.00	21.00	26.00	44.00	30.00
CO (PPM)	5.00	34.00	5.00	9.00	6.00	5.00	7.00	14.00	8.00	9.00
CR (PPM)	41.00	82.00	56.00	40.00	65.00	43.00	54.00	68.00	44.00	31.00
CU (PPM)	20.00	113.00	41.00	28.00	20.00	21.00	12.00	22.00	10.00	9.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	-15.00	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	52.00	ND
LI (PPM)	12.00	14.00	11.00	13.00	19.00	14.00	10.00	16.00	7.00	4.00
MN (PPM)	29.00	129.00	19.00	19.00	19.00	19.00	23.00	34.00	15.00	20.00
MO (PPM)	-4.00	7.00	-4.00	-4.00	-4.00	6.00	4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	5.00	5.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	8.00	31.00	9.00	18.00	6.00	11.00	10.00	20.00	11.00	14.00
P (PPM)	106.00	146.00	101.00	125.00	103.00	107.00	167.00	162.00	190.00	94.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	-10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	4.00	3.00	3.00	4.00	3.00	3.00	6.00	3.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	63.00	55.00	71.00	58.00	36.00	38.00	32.00	45.00	37.00	32.00
TI (PPM)	1223.00	1552.00	1293.00	1313.00	1855.00	1304.00	1069.00	1663.00	402.00	279.00
V (PPM)	18.00	36.00	23.00	27.00	34.00	24.00	21.00	50.00	20.00	18.00
Y (PPM)	3.00	17.00	5.00	4.00	3.00	3.00	5.00	5.00	3.00	4.00
ZN (PPM)	6.00	29.00	6.00	14.00	14.00	11.00	3.00	11.00	5.00	8.00
ZR (PPM)	39.00	174.00	68.00	53.00	45.00	47.00	73.00	76.00	52.00	46.00

DRILL HOLE NUMBER SM3

SAMP. NO.	157985	152357	152358	157987	157990	157986	157989	158471	157988	152359
TOP DEPTH	186.00	211.00	234.00	234.80	237.80	245.00	248.00	251.10	254.30	261.00
BOT DEPTH	187.00			235.00	238.00	245.60	248.30	251.30	255.00	
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	CQZ	Q	Q	SC	QGC	QZ	CQZ	QGC	CQZ	CQ
UL (PPM)	1.93	-2.25	1.65	8.45	8.80	7.50	33.38	2.66	20.97	2.64
UT (PPM)	2.20	.60	1.60	10.90	7.60	5.30	35.10	4.64	2.70	3.60
UL/UT	.88	-.42	1.03	.78	1.16	1.42	.95	.57	7.77	.73
TH (PPM)	7.00	2.00	11.00	78.00	67.00	33.00	138.00	30.00	81.00	75.00
TH/UT	3.18	3.34	6.88	7.16	8.82	6.23	3.93	6.47	30.01	20.84
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.42	5.49	7.49	8.54	3.92	3.76	4.55	5.53	2.78	4.61
CA (%)	.00	.13	.23	.28	-.05	.07	.07	.10	.11	.08
FE (%)	.41	.64	2.41	4.59	1.12	1.13	1.35	1.06	.83	1.13
MG (%)	.22	.30	.80	1.60	.38	.38	.52	.46	.31	.47
NA (%)	2.49	2.02	1.62	.22	.72	.70	.85	.92	1.03	.37
K (%)	.57	2.34	2.93	4.56	2.09	2.45	2.56	2.40	1.46	2.58
AG (PPM)	3.00	4.00	2.00	6.00	2.00	3.00	2.00	-2.00	-2.00	3.00
B (PPM)	-10.00	-10.00	-10.00	13.00	-10.00	-10.00	-10.00	-10.00	-10.00	10.00
BA (PPM)	103.00	1150.00	752.00	1151.00	576.00	855.00	744.00	963.00	662.00	1207.00
BE (PPM)	2.00	2.00	9.00	35.00	11.00	10.00	11.00	1.00	4.00	4.00
CE (PPM)	33.00	44.00	25.00	47.00	37.00	29.00	37.00	60.00	36.00	76.00
CO (PPM)	6.00	-4.00	16.00	27.00	9.00	9.00	11.00	5.00	7.00	5.00
CR (PPM)	36.00	28.00	114.00	203.00	48.00	51.00	91.00	72.00	53.00	76.00
CU (PPM)	9.00	10.00	34.00	88.00	48.00	49.00	78.00	39.00	35.00	28.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-15.00	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	76.00	ND	ND
LI (PPM)	5.00	8.00	19.00	41.00	12.00	10.00	13.00	13.00	6.00	12.00
MN (PPM)	15.00	37.00	102.00	211.00	47.00	75.00	84.00	58.00	51.00	63.00
MO (PPM)	5.00	-4.00	-4.00	28.00	13.00	9.00	12.00	-4.00	4.00	6.00
NB (PPM)	-4.00	10.00	13.00	13.00	11.00	6.00	5.00	-4.00	-4.00	9.00
NI (PPM)	7.00	7.00	20.00	74.00	21.00	15.00	21.00	15.00	15.00	9.00
P (PPM)	111.00	77.00	597.00	1259.00	87.00	121.00	78.00	167.00	138.00	129.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	-10.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	4.00	14.00	20.00	4.00	3.00	4.00	4.00	3.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	31.00	126.00	157.00	51.00	54.00	80.00	79.00	89.00	112.00	60.00
TI (PPM)	318.00	1205.00	2704.00	5548.00	1715.00	1574.00	1970.00	2010.00	1409.00	2237.00
V (PPM)	18.00	30.00	94.00	162.00	42.00	37.00	38.00	39.00	16.00	37.00
Y (PPM)	3.00	2.00	6.00	18.00	7.00	5.00	13.00	6.00	9.00	9.00
ZN (PPM)	4.00	11.00	42.00	30.00	23.00	33.00	23.00	15.00	12.00	19.00
ZR (PPM)	35.00	18.00	54.00	415.00	108.00	43.00	164.00	65.00	107.00	133.00

DRILL HOLE NUMBER SM3

SAMP. NO.	158024	158025	158026	158027	158028	152360	157336	158472	158381	158473
TOP DEPTH	265.00	269.50	275.00	280.50	284.50	286.00	311.00	314.70	318.00	318.40
BOT DEPTH								314.90	319.00	318.70
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	CQZ	QGC	CQZ	CQZ	CQ	QPC	QGC	QPC	QPC
UL (PPM)	2.33	13.88	10.14	3.48	7.63	1.34	.79	1.36	15.83	14.38
UT (PPM)	2.30	11.70	9.10	3.40	7.00	13.70	1.10	2.22	16.40	19.40
UL/UT	1.01	1.19	1.11	1.02	1.09	.10	.72	.61	.97	.74
TH (PPM)	46.00	44.00	151.00	63.00	84.00	202.00	3.00	9.00	134.00	200.00
TH/UT	20.01	3.76	16.60	18.53	12.00	14.75	2.73	4.06	8.17	10.31
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.98	4.45	3.41	4.33	2.80	4.58	5.83	6.15	3.73	3.92
CA (%)	.07	.07	.05	-.05	.05	.09	.06	.06	-.05	.05
FE (%)	.65	.67	1.22	.87	.81	.72	.46	.45	.38	.72
MG (%)	.21	.29	.43	.37	.27	.23	.26	.27	.18	.20
NA (%)	.82	.86	.42	.49	.62	1.06	.99	1.38	1.12	1.35
K (%)	1.47	2.74	2.34	2.49	2.17	1.97	2.09	1.95	1.00	1.20
AG (PPM)	5.00	4.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	3.00
B (PPM)	-10.00	-10.00	-10.00	10.00	-10.00	-10.00	-10.00	14.00	-10.00	10.00
BA (PPM)	599.00	922.00	591.00	642.00	755.00	474.00	436.00	383.00	121.00	173.00
BE (PPM)	2.00	9.00	8.00	10.00	4.00	2.00	3.00	1.00	1.00	1.00
CE (PPM)	26.00	49.00	39.00	68.00	35.00	17.00	23.00	40.00	54.00	79.00
CO (PPM)	9.00	5.00	13.00	5.00	12.00	17.00	4.00	-4.00	74.00	42.00
CR (PPM)	39.00	57.00	151.00	94.00	51.00	92.00	38.00	30.00	21.00	23.00
CU (PPM)	41.00	34.00	65.00	26.00	77.00	225.00	20.00	11.00	33.00	29.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-15.00	ND	-15.00
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	51.00	ND	97.00
LI (PPM)	5.00	11.00	12.00	13.00	8.00	9.00	9.00	9.00	7.00	9.00
MN (PPM)	32.00	45.00	48.00	40.00	31.00	35.00	24.00	13.00	11.00	12.00
MO (PPM)	-4.00	7.00	37.00	4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	4.00	-4.00	4.00	-4.00	4.00	5.00	-4.00	7.00	5.00
NI (PPM)	12.00	15.00	20.00	14.00	18.00	26.00	6.00	5.00	49.00	26.00
P (PPM)	129.00	92.00	156.00	133.00	117.00	13.00	50.00	110.00	119.00	171.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	-10.00	ND	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	5.00	4.00	3.00	3.00	3.00	4.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	87.00	104.00	58.00	53.00	77.00	78.00	58.00	37.00	22.00	26.00
TI (PPM)	831.00	1452.00	2549.00	1763.00	1071.00	1123.00	1005.00	1413.00	796.00	920.00
V (PPM)	14.00	24.00	33.00	32.00	23.00	21.00	23.00	27.00	26.00	32.00
Y (PPM)	5.00	5.00	16.00	7.00	5.00	13.00	2.00	3.00	12.00	19.00
ZN (PPM)	3.00	12.00	11.00	8.00	15.00	19.00	5.00	4.00	3.00	7.00
ZR (PPM)	63.00	64.00	305.00	90.00	86.00	161.00	20.00	41.00	151.00	369.00

DRILL HOLE NUMBER SM3

SAMP. NO.	158382	158383	158384	158474	158385	158386	158387	158389	158475	158476
TOP DEPTH	319.00	324.00	325.00	326.00	326.00	327.00	328.00	329.00	329.60	329.80
BOT DEPTH	320.00	325.00	326.00		327.00	328.00	329.00	330.00	329.80	330.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	GPC	GPC	GPC	GPC	QGC	CQ	GPC	GPC	GPC
UL (PPM)	6.49	7.94	9.08	19.95	14.72	3.28	2.46	40.97	40.98	38.74
UT (PPM)	5.30	6.28	6.80	23.20	19.00	2.20	2.70	35.70	45.60	53.70
UL/UT	1.22	1.26	1.34	.86	.77	1.49	.91	1.15	.90	.72
TH (PPM)	15.00	37.00	43.00	256.00	104.00	11.00	12.00	102.00	247.00	170.00
TH/UT	2.83	5.89	6.32	11.03	5.47	5.00	4.45	2.86	5.42	3.17
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.75	4.04	2.48	3.34	3.65	4.48	4.07	3.11	3.25	3.09
CA (%)	-.05	-.05	-.05	.07	-.05	-.05	-.05	-.05	.06	.07
FE (%)	.15	.53	.46	1.50	.74	.27	.27	1.15	2.26	1.22
MG (%)	.20	.30	.22	1.09	.71	.28	.21	.35	.41	.68
NA (%)	1.82	1.13	1.11	1.58	1.38	1.63	1.70	1.18	1.28	1.42
K (%)	1.23	1.14	.45	.64	.72	1.12	.82	.51	.74	.42
AG (PPM)	-2.00	2.00	8.00	2.00	-2.00	3.00	-2.00	-2.00	3.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	109.00	121.00	47.00	70.00	76.00	110.00	90.00	101.00	200.00	115.00
BE (PPM)	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00
CE (PPM)	23.00	46.00	34.00	64.00	48.00	32.00	19.00	29.00	46.00	39.00
CO (PPM)	21.00	34.00	29.00	65.00	65.00	19.00	6.00	70.00	87.00	37.00
CR (PPM)	19.00	21.00	13.00	28.00	24.00	20.00	19.00	17.00	24.00	19.00
CU (PPM)	8.00	12.00	8.00	44.00	28.00	8.00	3.00	26.00	98.00	19.00
IF (PPM)	ND	ND	ND	-15.00	ND	ND	ND	ND	-15.00	-15.00
LA (PPM)	ND	ND	ND	84.00	ND	ND	ND	ND	54.00	49.00
LI (PPM)	8.00	9.00	4.00	13.00	8.00	7.00	5.00	5.00	7.00	8.00
MN (PPM)	9.00	14.00	14.00	42.00	47.00	10.00	9.00	29.00	55.00	52.00
MO (PPM)	-4.00	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	37.00	52.00	-4.00
NB (PPM)	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	10.00	17.00	17.00	42.00	36.00	14.00	7.00	65.00	100.00	46.00
P (PPM)	58.00	87.00	66.00	120.00	79.00	62.00	49.00	71.00	82.00	77.00
PB (PPM)	ND	ND	ND	56.00	ND	ND	ND	ND	48.00	49.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	1.00	4.00	3.00	2.00	2.00	2.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	20.00	17.00	11.00	22.00	18.00	19.00	19.00	17.00	23.00	19.00
TI (PPM)	775.00	659.00	243.00	426.00	452.00	554.00	380.00	238.00	337.00	225.00
V (PPM)	18.00	29.00	12.00	29.00	25.00	22.00	14.00	16.00	25.00	28.00
Y (PPM)	3.00	4.00	4.00	18.00	8.00	2.00	1.00	9.00	18.00	12.00
ZN (PPM)	-2.00	8.00	3.00	23.00	18.00	3.00	-2.00	4.00	9.00	9.00
ZR (PPM)	48.00	47.00	64.00	348.00	131.00	23.00	31.00	152.00	388.00	265.00

DRILL HOLE NUMBER SM3

SAMP. NO.	158390	158391	157337	158030	157910	158343	157911	157912	157913	158056
TOP DEPTH	330.00	333.70	337.00	353.00	660.50	666.60	698.00	745.70	782.70	95.8
BOT DEPTH	333.70	335.00								97.00
FORMATION	DG	DG	DG	DG	MI	DG	MI	MI	MI	DG
LITHOLOGY	QGC	QGC	QPC	MQZ	DB	FQZ	DB	DB	DB	QPC
UL (PPM)	2.79	5.72	2.27	1.14	1.48	6.57	-.25	2.07	.61	15.02
UT (PPM)	2.20	5.80	2.10	.90	1.50	5.33	.20	5.60	.80	11.80
UL/UT	1.27	.99	1.08	1.27	.99	1.23	-1.26	.37	.76	1.27
TH (PPM)	9.00	19.00	15.00	-2.00	-2.00	33.00	-2.00	2.00	-2.00	59.00
TH/UT	4.09	3.28	7.15	-2.22	-1.33	6.19	-10.05	.36	-2.50	5.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.84	4.28	8.52	1.22	4.68	3.71	4.43	4.57	2.72	3.13
CA (%)	-.05	-.05	.10	.05	3.74	.14	5.12	3.87	2.50	.05
FE (%)	1.15	1.93	.73	.09	5.63	.24	9.34	7.83	3.70	.94
MG (%)	1.55	2.47	1.05	.05	2.09	.17	2.50	1.41	1.11	.08
NA (%)	1.60	1.32	5.48	1.02	1.28	1.31	.87	1.30	.68	.92
K (%)	.21	.07	.23	.02	.71	.82	.24	.72	.33	3.18
AG (PPM)	-2.00	-2.00	-2.00	-2.00	6.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	36.00	15.00	40.00	12.00	244.00	645.00	39.00	176.00	58.00	1079.00
BE (PPM)	1.00	-1.00	1.00	1.00	6.00	1.00	9.00	9.00	5.00	2.00
CE (PPM)	11.00	33.00	-10.00	-10.00	-10.00	30.00	-10.00	-10.00	-10.00	46.00
CO (PPM)	17.00	23.00	10.00	-4.00	52.00	14.00	64.00	53.00	36.00	25.00
CR (PPM)	16.00	27.00	40.00	5.00	110.00	27.00	138.00	3.00	157.00	13.00
CU (PPM)	5.00	10.00	8.00	3.00	178.00	21.00	100.00	198.00	57.00	31.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	11.00	17.00	8.00	1.00	13.00	5.00	7.00	12.00	7.00	2.00
MN (PPM)	48.00	81.00	40.00	14.00	1070.00	36.00	1476.00	1139.00	682.00	75.00
MO (PPM)	-4.00	5.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00	12.00	-4.00
NI (PPM)	50.00	86.00	36.00	5.00	108.00	12.00	100.00	33.00	89.00	18.00
P (PPM)	41.00	34.00	235.00	24.00	245.00	53.00	411.00	428.00	196.00	121.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	6.00	2.00	-1.00	21.00	3.00	31.00	27.00	8.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	15.00	13.00	35.00	11.00	139.00	34.00	106.00	122.00	82.00	137.00
TI (PPM)	181.00	136.00	141.00	22.00	4072.00	717.00	7428.00	7058.00	3843.00	267.00
V (PPM)	24.00	36.00	25.00	2.00	222.00	17.00	299.00	262.00	190.00	18.00
Y (PPM)	1.00	4.00	4.00	1.00	9.00	6.00	17.00	22.00	5.00	17.00
ZN (PPM)	8.00	8.00	7.00	3.00	74.00	4.00	74.00	93.00	49.00	12.00
ZR (PPM)	36.00	71.00	64.00	12.00	27.00	122.00	25.00	81.00	24.00	45.00

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DRILL HOLE NO. SM-4A

AREA: Dexter Peak

LOCATION: 1646 FNL, 1085 FWL, Sec. 28, T. 15 N., R. 87 W.

LATITUDE: 41° 14' 45"

LONGITUDE: 107° 11' 20"

COUNTY: Carbon

TOPOGRAPHIC QUAD Singer Peak

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8560'

ANGLE: 60°

BEARING: S 63 E

TOTAL DEPTH: 573'

SPUD DATE: 6/28/79

COMPLETION DATE: 8/25/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 473'

DATE: 8/28/79

REMARKS:

KUT LOGGING:

INSTRUMENT: No KUT log available

PROBE T.D.:

DATE:

REMARKS:

STRATIGRAPHIC UNITS: (Jack Creek Quartzite: 0-537) (Silver Lake Meta-volcanic Rocks: 537-573)

RADIOACTIVE ZONES: None

CORE LOGGERS: Carolyn Coolidge, David Inlow, Thomas Schmidt, John Turner

DRILL HOLE SM-4A

OBJECTIVES:

1. Discovery of radioactive (up to 131 ppm U) and auriferous (10 ppm was reported in one sample analyzed by the USGS) conglomerates on Dexter Peak (Graff and Houston, 1977) was one major contribution to increased interest in exploration of the northwest Sierra Madre. The most favorable outcrops are near the top of Dexter Peak, on land controlled by the private sector. A hole some 2000 feet to the south, approximately on strike with the Dexter Peak conglomerates, was drilled to test stratigraphic continuity and sub-surface uranium, thorium, and gold value of the Dexter Peak conglomerates.

2. Dexter Peak conglomerates are lithologically similar to conglomerates found near Carrico Ranch and Deep Gulch but overlying and underlying units do not correlate well. We hoped to gain stratigraphic information which would be useful in correlating the two sections.

CONCLUSIONS:

1. Results were somewhat disappointing. Slightly radioactive quartzite and paraconglomerate with thin quartz-pebble conglomerate lenses were encountered between 300 and 400 feet. These units contained a maximum of 6.3 ppm U, 13 ppm Th, and are locally pyritic. These rocks are probably laterally equivalent to rocks found on top of Dexter Peak, suggesting that strongly radioactive conglomerates occur as lenses and are not laterally continuous in this area. This hole contained a maximum of 7.1 ppm U and 66 ppm Th.

2. Starting with the paraconglomerate at 150 feet, the succession gets progressively fine-grained down the hole, grading into mica schists. From regional relationships, we interpret this section to be overturned, fining upward succession in the basal Jack Creek Quartzite. This remains tentative; the units may also be upright and coarsening-upwards Magnolia Formation.

References Cited: Graff, P. J., and Houston, R. S., 1977, Radioactive conglomerate in Proterozoic (Precambrian X) meta-sedimentary rocks of Sierra Madre, Wyoming; U.S. Geological Survey Open-File Report 77-830, 7p

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 4A SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 21. GEOLOGIC MAP OF DRILL SITES SM-4A AND SM-4B, BRIDGER PEAK QUAD., SEC. 28, T.15 N., R.87 W., CARBON COUNTY, WYOMING

EXPLANATION

Lithologic symbols

db	diabase
aq	arkosic quartzite
phq	phyllitic quartzite
pac	paraconglomerate
qpc	qtz.-pebble conglomerate
q	quartzite
spl	silver phyllite

SCALE 1:12000

Figure 21. Geologic map of drill sites SM-4A and SM-4B

DRILL HOLE NUMBER SM4A

SAMP. NO.	152032	152033	152034	152035	152036	152037	152038	152039	152040	152041
TOP DEPTH	11.50	14.50	36.50	44.50	87.00	99.50	114.00	133.50	156.50	177.50
BOT DEPTH										
FORMATION	MI	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	DB	GGC	APC	SC	GPC	GGC	GPC	AGC	PAC	C
UL (PPM)	-2.25	2.70	.91	3.19	2.09	.69	.62	.63	.51	.88
UT (PPM)	.30	3.60	.70	3.30	2.00	.60	.60	.80	1.20	1.80
UL/UT	-.84	.75	1.30	.97	1.04	1.15	1.03	.79	.42	.49
TH (PPM)	-2.00	66.00	3.00	62.00	48.00	6.00	3.00	6.00	5.00	5.00
TH/UT	-6.69	18.34	4.29	18.79	24.00	10.02	5.01	7.51	4.17	2.78
AU (PPM)	ND	ND	ND	ND	ND	ND	0.00	ND	ND	ND
AL (%)	6.24	4.77	4.41	2.87	3.57	4.79	4.79	5.58	5.57	5.54
CA (%)	4.10	.18	.20	.12	.09	.10	.09	.14	.19	.45
FE (%)	5.83	1.64	1.24	1.00	.88	1.10	1.06	1.15	2.90	6.74
MG (%)	2.84	.44	.37	.24	.32	.28	.41	.41	.87	1.69
NA (%)	1.60	1.16	1.65	1.13	.80	.84	.57	.72	.50	.89
K (%)	.44	1.99	1.62	.96	1.61	2.12	2.08	2.35	1.92	1.71
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	76.00	557.00	562.00	306.00	456.00	672.00	698.00	662.00	503.00	514.00
BE (PPM)	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	6.00	2.00
CE (PPM)	63.00	58.00	42.00	48.00	69.00	35.00	29.00	29.00	23.00	69.00
CO (PPM)	43.00	14.00	8.00	8.00	7.00	9.00	6.00	6.00	22.00	48.00
CR (PPM)	103.00	48.00	40.00	46.00	28.00	25.00	27.00	37.00	385.00	249.00
CU (PPM)	75.00	68.00	19.00	54.00	36.00	31.00	21.00	25.00	59.00	122.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	11.00	13.00	10.00	8.00	11.00	14.00	13.00	14.00	22.00	29.00
MN (PPM)	983.00	70.00	52.00	34.00	62.00	67.00	85.00	59.00	255.00	488.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	4.00	4.00	9.00	-4.00	-4.00	6.00	4.00	8.00	9.00	5.00
NI (PPM)	73.00	19.00	10.00	24.00	10.00	10.00	7.00	11.00	52.00	121.00
P (PPM)	175.00	349.00	155.00	117.00	132.00	317.00	152.00	175.00	368.00	426.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	25.00	7.00	4.00	4.00	3.00	3.00	3.00	4.00	12.00	17.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	117.00	44.00	90.00	47.00	33.00	42.00	32.00	43.00	37.00	77.00
TI (PPM)	3781.00	1474.00	1183.00	958.00	1421.00	987.00	1259.00	1163.00	2696.00	4028.00
V (PPM)	126.00	49.00	31.00	35.00	30.00	21.00	24.00	31.00	123.00	132.00
Y (PPM)	8.00	8.00	4.00	6.00	7.00	4.00	2.00	3.00	10.00	21.00
ZN (PPM)	50.00	19.00	14.00	10.00	21.00	57.00	8.00	10.00	37.00	61.00
ZR (PPM)	18.00	152.00	25.00	122.00	155.00	32.00	20.00	19.00	27.00	36.00

DRILL HOLE NUMBER SM4A

SAMP. NO.	152042	152043	152044	152463	152464	152465	152466	152467	152468
TOP DEPTH	204.80	232.50	273.50	311.60	366.00	410.00	450.00	497.50	550.00
BOT DEPTH									
FORMATION	JCF	JCF	MI	JCF	JCF	JCF	JCF	JCF	SLU
LITHOLOGY	GPC	PAC	AM	CQZ	MQ	QZ	CQZ	PHQZ	PHQ
UL (PPM)	.88	4.00	2.17	4.02	6.60	5.10	4.94	5.98	7.09
UT (PPM)	1.20	3.20	1.60	5.80	6.30	7.10	5.40	5.50	5.60
UL/UT	.73	1.25	1.36	.69	1.05	.72	.91	1.09	1.27
TH (PPM)	5.00	2.00	-2.00	11.00	13.00	25.00	-2.00	13.00	11.00
TH/UT	4.17	.63	-1.25	1.90	2.06	3.52	-.37	2.36	1.96
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.92	4.29	6.43	2.53	1.40	4.32	2.30	6.84	8.42
CA (%)	1.32	.16	4.74	.47	.24	.22	.20	.26	.14
FE (%)	4.28	2.28	7.04	1.04	3.08	2.24	.88	3.30	4.25
MG (%)	1.25	.66	2.75	.27	.90	.58	.27	1.27	.95
NA (%)	1.38	.15	.93	.91	-.05	.22	1.00	.94	.23
K (%)	.90	1.49	.34	.73	.96	1.91	.54	2.60	3.00
AG (PPM)	-2.00	-2.00	-2.00	4.00	-2.00	12.00	-2.00	3.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	191.00	307.00	46.00	300.00	108.00	575.00	157.00	742.00	548.00
BE (PPM)	1.00	4.00	13.00	1.00	3.00	7.00	2.00	6.00	5.00
CE (PPM)	31.00	-10.00	23.00	26.00	57.00	48.00	-10.00	51.00	45.00
CO (PPM)	30.00	18.00	63.00	8.00	23.00	16.00	11.00	26.00	30.00
CR (PPM)	87.00	85.00	95.00	27.00	43.00	127.00	19.00	117.00	136.00
CU (PPM)	18.00	58.00	49.00	31.00	43.00	26.00	18.00	16.00	26.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	21.00	13.00	18.00	10.00	23.00	20.00	8.00	33.00	18.00
MN (PPM)	494.00	104.00	1578.00	159.00	521.00	419.00	69.00	192.00	264.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	5.00	-4.00	4.00	5.00
NB (PPM)	5.00	8.00	20.00	-4.00	-4.00	9.00	-4.00	8.00	11.00
NI (PPM)	50.00	36.00	38.00	12.00	37.00	18.00	14.00	50.00	54.00
P (PPM)	455.00	760.00	1323.00	87.00	295.00	162.00	49.00	340.00	391.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	6.00	29.00	2.00	2.00	6.00	2.00	9.00	17.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	148.00	13.00	101.00	70.00	7.00	26.00	25.00	45.00	32.00
TI (PPM)	2885.00	1800.00	12272.00	948.00	1369.00	3931.00	432.00	3327.00	1921.00
V (PPM)	80.00	60.00	362.00	16.00	22.00	45.00	13.00	76.00	140.00
Y (PPM)	9.00	3.00	27.00	4.00	6.00	10.00	2.00	8.00	4.00
ZN (PPM)	53.00	30.00	105.00	25.00	75.00	38.00	15.00	50.00	42.00
ZR (PPM)	24.00	26.00	33.00	31.00	7.00	58.00	18.00	58.00	65.00

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DRILL HOLE NO. SM-4B

AREA: Dexter Peak

LOCATION: 2240 FWL, 415 FNL, Sec. 28, T. 15 n., R. 87 W.

LATITUDE: 41° 14' 56"

LONGITUDE: 107° 11' 09"

COUNTY: Carbon

TOPOGRAPHIC QUAD Singer Peak

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8716'

ANGLE: 60°

BEARING: S 60 E

TOTAL DEPTH: 597'

SPUD DATE: 9/3/79

COMPLETION DATE: 9/24/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C

PROBE T.D.: 570'

DATE: 9/25/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 594'

DATE: 9/25/79

REMARKS:

STRATIGRAPHIC UNITS: (Jack Creek Quartzite: 0-541) (Silver Lake Meta-volcanic Rocks: 541-597)

RADIOACTIVE ZONES: None

CORE LOGGERS: Carolyn Coolidge, Ramsey Bentley, Pat Gallagher

DRILL HOLE SM-4B

OBJECTIVES:

1. After somewhat disappointing results from SM-4A, we decided to try again, but farther north. Again, we hoped to intersect radioactive conglomerates like those found on top of Dexter Peak to test for uranium and thorium.
2. It was beginning to appear that strongly radioactive quartz-pebble conglomerates occurred only as discontinuous lenses within a thicker and more continuous paraconglomerate unit. This hole was to help substantiate this hypothesis.

CONCLUSIONS:

1. Very similar rocks were drilled as in SM-4A. Some mildly radioactive and pyritic granule conglomerates and quartzites were drilled between 270 and 370 feet. These contained up to 4.1 ppm U, 10 ppm Th.
2. Correlation of this section with that of SM-4A was based on the presence of paraconglomerate, thin metabasalt at 260 feet, and a mildly radioactive zone from 270 to 370 feet. Again, no strongly radioactive quartz-pebble conglomerates were encountered. This hole contained a maximum of 8.2 ppm U and 22 ppm Th.

NOTE: See Figure 21 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 4B SHOWING GEOCHEMICAL SAMPLE LOCATIONS

DRILL HOLE NUMBER SM48

SAMP. NO.	157195	157196	157197	157198	157199	157200	157201	157348	157347	157343
TOP DEPTH	60.00	147.90	184.00	223.00	241.20	259.60	306.00	332.50	374.50	400.50
BOT DEPTH										
FORMATION	JCF	JCF	JCF	JCF	JCF	MI	JCF	JCF	JCF	JCF
LITHOLOGY	PHQZ	PHQZ	PHQ	PAC	PAC	AM	QGC	QGC	QZ	PHQZ
UL (PPM)	-.25	-.25	4.44	2.19	2.31	-.25	4.38	1.93	3.64	-.25
UT (PPM)	.60	.90	4.00	1.60	2.00	.60	4.10	2.60	3.60	.50
UL/UT	-.42	-.28	1.11	1.37	1.15	-.42	1.07	.74	1.01	-.50
TH (PPM)	6.00	6.00	22.00	5.00	6.00	-2.00	10.00	2.00	10.00	5.00
TH/UT	10.02	6.67	5.50	3.13	3.00	-3.34	2.44	.77	2.78	10.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	7.23	4.15	7.11	4.89	5.26	6.55	3.23	3.08	2.98	1.61
CA (%)	.26	.10	.18	.12	.76	4.82	.10	.06	.17	-.05
FE (%)	1.26	1.07	4.23	6.80	6.12	6.69	.90	.82	3.07	1.10
MG (%)	.84	.45	.60	1.18	1.27	2.60	.23	.22	.37	.12
NA (%)	2.36	.73	.15	.05	.30	.73	.06	.05	.08	-.05
K (%)	2.23	2.12	3.46	2.46	1.55	.34	1.33	1.20	.58	.59
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	629.00	789.00	959.00	354.00	363.00	20.00	238.00	305.00	142.00	128.00
BE (PPM)	3.00	2.00	4.00	2.00	7.00	14.00	1.00	1.00	1.00	1.00
CE (PPM)	10.00	21.00	23.00	-10.00	36.00	22.00	14.00	16.00	29.00	15.00
CO (PPM)	8.00	7.00	26.00	45.00	36.00	62.00	9.00	10.00	20.00	0.00
CR (PPM)	53.00	22.00	113.00	270.00	102.00	90.00	31.00	26.00	24.00	14.00
CU (PPM)	16.00	32.00	63.00	49.00	66.00	52.00	24.00	16.00	37.00	12.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	26.00	14.00	29.00	32.00	23.00	19.00	10.00	10.00	15.00	3.00
MN (PPM)	204.00	50.00	196.00	430.00	956.00	1466.00	148.00	63.00	356.00	61.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	34.00	-4.00	-4.00	-4.00
NB (PPM)	6.00	-4.00	10.00	5.00	6.00	21.00	-4.00	4.00	-4.00	-4.00
NI (PPM)	15.00	13.00	39.00	81.00	65.00	33.00	10.00	11.00	13.00	9.00
P (PPM)	286.00	118.00	858.00	567.00	762.00	1273.00	389.00	67.00	91.00	61.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	2.00	12.00	16.00	16.00	28.00	2.00	1.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	96.00	78.00	26.00	14.00	61.00	55.00	10.00	8.00	8.00	7.00
TI (PPM)	1523.00	856.00	3530.00	2800.00	3799.00	12266.00	708.00	507.00	477.00	301.00
V (PPM)	56.00	24.00	141.00	133.00	123.00	348.00	15.00	14.00	10.00	13.00
Y (PPM)	3.00	2.00	9.00	3.00	16.00	26.00	2.00	1.00	4.00	1.00
ZN (PPM)	27.00	24.00	32.00	59.00	62.00	99.00	7.00	17.00	31.00	12.00
ZR (PPM)	22.00	27.00	130.00	33.00	31.00	35.00	23.00	17.00	23.00	19.00

DRILL HOLE NUMBER SM4B

SAMP. NO.	157338	157339	157340	157341	157344	157345	157346	157870
TOP DEPTH	423.80	459.00	484.00	515.00	533.00	555.20	567.10	597.20
BOT DEPTH								
FORMATION	JCF	JCF	JCF	JCF	JCF	SLV	SLV	SLV
LITHOLOGY	PL	PHQZ	PHQZ	PL	PHQZ	CSC	CSC	PHQZ
UL (PPM)	12.36	.33	3.70	5.48	7.67	3.56	8.55	7.50
UT (PPM)	8.20	1.50	2.90	4.10	6.40	3.10	4.10	5.50
UL/UT	1.51	.22	1.28	1.34	1.20	1.15	2.09	1.36
TH (PPM)	13.00	-2.00	12.00	6.00	15.00	12.00	17.00	14.00
TH/UT	1.59	-1.33	4.14	1.46	2.34	3.87	4.15	2.55
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	14.42	4.46	4.50	4.76	12.16	11.12	8.38	8.43
CA (%)	.29	.51	.41	1.33	.38	.11	.34	.64
FE (%)	3.73	1.26	3.61	1.36	2.49	4.39	5.32	4.17
MG (%)	1.35	.61	1.13	.72	1.50	1.61	1.31	1.15
NA (%)	.43	1.11	.69	1.43	1.04	.48	.65	.82
K (%)	4.40	.68	1.10	.32	3.37	2.36	1.84	1.65
AG (PPM)	-2.00	-2.00	-2.00	-2.00	4.00	-2.00	5.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	843.00	194.00	394.00	112.00	1744.00	848.00	752.00	602.00
BE (PPM)	8.00	2.00	3.00	2.00	5.00	2.00	4.00	9.00
CE (PPM)	17.00	25.00	53.00	34.00	38.00	10.00	40.00	47.00
CO (PPM)	48.00	13.00	31.00	19.00	29.00	36.00	40.00	30.00
CR (PPM)	206.00	37.00	60.00	65.00	281.00	162.00	144.00	175.00
CU (PPM)	328.00	16.00	58.00	113.00	6.00	6.00	85.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	31.00	15.00	22.00	19.00	36.00	33.00	37.00	93.00
MN (PPM)	216.00	154.00	460.00	272.00	408.00	314.00	460.00	373.00
MO (PPM)	8.00	-4.00	5.00	9.00	4.00	6.00	6.00	5.00
NB (PPM)	16.00	-4.00	6.00	4.00	13.00	9.00	7.00	6.00
NI (PPM)	113.00	22.00	46.00	33.00	51.00	70.00	75.00	71.00
P (PPM)	1602.00	63.00	174.00	39.00	592.00	463.00	364.00	507.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	22.00	2.00	5.00	3.00	16.00	18.00	20.00	17.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	53.00	52.00	57.00	124.00	48.00	100.00	143.00	142.00
TI (PPM)	3127.00	665.00	1455.00	1160.00	3556.00	1317.00	1174.00	931.00
V (PPM)	227.00	22.00	43.00	31.00	166.00	154.00	163.00	145.00
Y (PPM)	7.00	5.00	12.00	8.00	10.00	4.00	7.00	10.00
ZN (PPM)	72.00	36.00	65.00	43.00	73.00	99.00	103.00	97.00
ZR (PPM)	76.00	16.00	37.00	30.00	53.00	49.00	38.00	30.00

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DRILL HOLE NO. SM-5

AREA: Deep Creek, Northwest Sierra Madre

LOCATION: 4260 FEL, 560 FNL, Sec. 34, T. 15 N., R. 87 W.

LATITUDE: 41° 14' 02"

LONGITUDE: 107° 10' 16"

COUNTY: Carbon

TOPOGRAPHIC QUAD Singer Peak

SURFACE REGULATOR: U.S.F.S

COLLAR ELEV.: 9380'

ANGLE: 60°

BEARING: N 10. E

TOTAL DEPTH: 806'

SPUD DATE: 7/14/79

COMPLETION DATE: 8/26/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 806'

DATE: 8/29/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 221'

DATE: 9/24/79

REMARKS:

STRATIGRAPHIC UNITS: (Metagabbro: 1-46) (Magnolia Fm.: 46-418) (Bridger Peak Quartzite: 418-806)

RADIOACTIVE ZONES: None

CORE LOGGERS: David Inlow, Carolyn Coolidge, Robert Spatz

DRILL HOLE SM-5

OBJECTIVES

1. SM-5 was one of several areas in the Sierra Madre where Graff (1978) mapped quartz-pebble conglomerates of the Magnolia Formation unconformably overlying older metasedimentary rocks. On the surface, conglomerates contain only 2.9 ppm U and 7 ppm Th but the unconformity is not exposed. We hoped to penetrate more strongly radioactive conglomerates at this basal unconformity and to verify the existence of a profound regional unconformity between the Magnolia Formation and the Phantom Lake Metamorphic Suite.

CONCLUSIONS

1. Neither objective was fulfilled. No strongly radioactive conglomerates were encountered (maximum values were 7 ppm U, 19 ppm Th). Also, the presence of a regional unconformity in this hole is still open to question. We place an unconformity at 418 feet where phyllitic paraconglomerates overly fine-grained phyllitic quartzites because such an interpretation is consistent with our interpretation of regional relationships. However, this interpretation is open to question and the units may be gradational and interfingering, as advocated by Doug Charleton of Resource Associates of Alaska, who control the ground (personal communication, 1980). We don't correlate the SM-5 section with those drilled in SM-4A and SM-4B although it should be noted that both areas contain broadly similar sections with paraconglomerate grading down (structurally) into quartzites then phyllites which are locally garnetiferous.

References cited: Graff, P. J., 1978, Geology of the lower part of the Early Proterozoic Snowy Range Supergroup, Sierra Madre, Wyoming- with chapters on Proterozoic regional tectonics and uraniferous quartz-pebble conglomerates, (Ph. D. thesis): Laramie, Wyoming University of Wyoming 85 p.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 5 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 22. GEOLOGIC MAP OF DRILL SITE SM-5, SINGER PEAK QUADRANGLE,
SEC. 34, T.15 N., R.87 W., CARBON COUNTY, WYOMING

EXPLANATION

LITHOLOGIC SYMBOLS

db- diabase
asc- amphibole schist
bsc- biotite schist
vq- vein quartz
pl- phyllite
phq- phyllitic qtzite
qpc- qtz.- pebble congl.

SCALE 1: 12000

0 1000 2000 ft.

Figure 22. Geologic map of drill site SM-5

DRILL HOLE NUMBER SM5

SAMP. NO.	152348	152219	152221	152211	152214	152229	152230	152231	152232	152234
TOP DEPTH	75.00	119.00	141.00	156.00	180.00	194.00	217.00	236.10	264.00	280.00
BOT DEPTH										
FORMATION	MQ	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	PL	QZ	QPC	PHQ	QZ	FQ	MQ	QPC	QGC	MQ
UL (PPM)	2.31	1.32	.95	6.27	7.67	1.48	.74	2.77	.60	3.20
UT (PPM)	2.10	1.40	.90	4.30	7.00	.80	.50	1.80	1.30	2.60
UL/UT	1.10	.94	1.06	1.46	1.10	1.85	1.48	1.54	.46	1.23
TH (PPM)	10.00	4.00	3.00	19.00	5.00	3.00	2.00	6.00	2.00	5.00
TH/UT	4.76	2.86	3.34	4.42	.71	3.75	4.00	3.34	1.54	1.92
AU (PPM)	ND	NU	.01	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.68	3.82	3.26	7.72	6.12	2.61	1.37	2.86	3.09	2.84
CA (%)	.06	-.05	-.05	.11	.43	.12	.11	.16	.10	.18
FE (%)	4.17	1.25	.76	3.23	3.20	1.03	.46	1.87	1.05	.87
MG (%)	1.45	.14	.13	.33	1.11	.37	.14	.25	.27	.25
NA (%)	.22	.13	.30	.30	1.26	.34	.19	.06	.10	.07
K (%)	2.55	1.65	1.31	3.36	1.83	.66	.50	1.39	1.62	1.55
AG (PPM)	-2.00	2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	19.00	-10.00	-10.00
BA (PPM)	527.00	390.00	272.00	770.00	627.00	132.00	96.00	388.00	554.00	469.00
BE (PPM)	5.00	1.00	-1.00	2.00	4.00	1.00	1.00	1.00	2.00	2.00
CE (PPM)	-10.00	26.00	31.00	73.00	44.00	12.00	-10.00	18.00	-10.00	20.00
CO (PPM)	37.00	5.00	4.00	25.00	18.00	10.00	-4.00	12.00	8.00	9.00
CR (PPM)	124.00	30.00	26.00	138.00	107.00	33.00	13.00	53.00	23.00	29.00
CU (PPM)	186.00	21.00	4.00	93.00	21.00	45.00	4.00	70.00	15.00	19.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	25.00	3.00	3.00	9.00	20.00	7.00	3.00	6.00	12.00	9.00
MN (PPM)	356.00	479.00	53.00	609.00	398.00	70.00	38.00	123.00	55.00	72.00
MO (PPM)	5.00	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	7.00	-4.00	-4.00
NB (PPM)	8.00	4.00	4.00	5.00	15.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	74.00	10.00	8.00	50.00	35.00	17.00	-2.00	43.00	10.00	16.00
P (PPM)	352.00	89.00	113.00	479.00	371.00	47.00	19.00	51.00	84.00	98.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	11.00	3.00	2.00	13.00	10.00	3.00	1.00	3.00	2.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	22.00	15.00	14.00	37.00	92.00	12.00	6.00	9.00	12.00	12.00
TI (PPM)	1337.00	561.00	424.00	1176.00	2101.00	296.00	201.00	644.00	757.00	789.00
V (PPM)	144.00	24.00	16.00	114.00	85.00	27.00	8.00	19.00	17.00	21.00
Y (PPM)	2.00	2.00	2.00	7.00	6.00	1.00	1.00	2.00	1.00	3.00
ZN (PPM)	73.00	13.00	15.00	22.00	63.00	17.00	8.00	33.00	21.00	22.00
ZR (PPM)	63.00	24.00	19.00	110.00	37.00	15.00	14.00	22.00	24.00	21.00

DRILL HOLE NUMBER SMS

SAMP. NO.	152235	152347	152470	152343	152342	152346	152351	152345	152344	152341
TOP DEPTH	299.90	379.00	393.00	422.50	455.00	483.00	495.00	511.30	536.20	573.00
BOT DEPTH	230.20									
FORMATION	MG	MG	MG	BPQ	PBQ	BPQ	SLV	BPQ	BPQ	BPQ
LITHOLOGY	CQ	PHQ	PHQ	PHQ	PHQ	CQ	MQ	BA	BA	BA
UL (PPM)	2.30	2.63	3.26	2.29	1.95	2.02	9.20	1.68	.33	.95
UT (PPM)	1.90	2.90	2.70	1.70	1.60	2.50	4.70	.90	.30	.60
UL/UT	1.21	.91	1.21	1.35	1.22	.81	1.96	1.87	1.10	1.58
TH (PPM)	6.00	6.00	7.00	3.00	3.00	7.00	11.00	2.00	-2.00	-2.00
TH/UT	3.16	2.07	2.59	1.77	1.88	2.80	2.34	2.22	-6.69	-3.34
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.78	4.62	2.41	1.92	4.90	4.86	5.18	5.32	4.65	5.45
CA (%)	.07	.11	.31	.19	.25	.39	.88	4.06	7.14	2.60
FE (%)	.75	2.29	1.07	1.16	1.19	1.26	2.80	8.27	6.25	7.36
MG (%)	.20	.49	.29	.32	.70	.60	1.24	2.58	2.40	2.91
NA (%)	.10	.08	-.05	.08	.92	1.48	1.60	.92	1.44	.06
K (%)	1.76	2.53	1.87	1.57	2.94	2.03	2.32	.80	.43	2.76
AG (PPM)	-2.00	-2.00	-2.00	-2.00	4.00	-2.00	-2.00	3.00	-2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	645.00	837.00	507.00	317.00	1031.00	729.00	787.00	252.00	165.00	510.00
BE (PPM)	1.00	2.00	3.00	2.00	4.00	4.00	6.00	8.00	6.00	7.00
CE (PPM)	18.00	15.00	18.00	11.00	20.00	41.00	56.00	13.00	-10.00	-10.00
CO (PPM)	6.00	20.00	9.00	10.00	6.00	9.00	21.00	56.00	56.00	55.00
CR (PPM)	20.00	36.00	22.00	25.00	38.00	35.00	86.00	17.00	27.00	22.00
CU (PPM)	14.00	38.00	15.00	13.00	10.00	20.00	74.00	114.00	210.00	-2.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	8.00	18.00	10.00	11.00	20.00	15.00	24.00	20.00	30.00	55.00
MN (PPM)	53.00	201.00	100.00	137.00	177.00	186.00	467.00	1404.00	1252.00	1275.00
MO (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00
NB (PPM)	4.00	5.00	4.00	-4.00	4.00	6.00	11.00	9.00	4.00	7.00
NI (PPM)	13.00	40.00	13.00	10.00	17.00	17.00	36.00	33.00	44.00	55.00
P (PPM)	72.00	146.00	91.00	95.00	239.00	186.00	424.00	392.00	290.00	318.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	5.00	2.00	2.00	4.00	4.00	10.00	35.00	34.00	38.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	29.00	23.00	19.00	13.00	94.00	140.00	155.00	186.00	137.00	161.00
TI (PPM)	693.00	1442.00	951.00	849.00	1651.00	1817.00	3334.00	5986.00	4167.00	5008.00
V (PPM)	15.00	49.00	14.00	22.00	41.00	30.00	75.00	283.00	302.00	257.00
Y (PPM)	2.00	3.00	5.00	2.00	4.00	7.00	10.00	17.00	8.00	15.00
ZN (PPM)	28.00	65.00	35.00	22.00	31.00	24.00	70.00	74.00	86.00	95.00
ZR (PPM)	22.00	32.00	18.00	18.00	22.00	39.00	64.00	28.00	17.00	16.00

DRILL HOLE NUMBER SMS

SAMP. NO.	152340	152339	152338	152337	152336	152335	152334	152480	152479	152478
TOP DEPTH	601.20	620.00	633.00	660.00	674.60	680.00	708.00	745.00	755.00	794.00
BOT DEPTH										
FORMATION	BPQ	BPQ	BPQ	BPQ	BPQ	BPQ	BPQ	BPQ	BPQ	SLV
LITHOLOGY	PHQ	PHQ	CQ	PHQ	PHQ	PHQ	PHQ	CSC	PHQ	PHQ
UL (PPM)	7.65	4.19	1.78	4.61	2.01	4.50	1.30	.34	3.26	2.86
UT (PPM)	4.70	2.60	1.70	3.40	1.50	4.50	1.10	.10	2.90	2.40
UL/UT	1.63	1.61	1.05	1.36	1.34	1.00	1.18	3.42	1.12	1.19
TH (PPM)	13.00	5.00	13.00	5.00	5.00	9.00	6.00	-2.00	5.00	8.00
TH/UT	2.77	1.92	7.65	1.47	3.33	2.00	5.46	-20.20	1.72	3.33
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.55	5.38	6.08	4.15	5.73	5.50	6.04	5.53	4.86	5.98
CA (%)	.42	.52	.86	.46	.50	.61	.97	5.22	.49	1.04
FE (%)	1.48	1.36	1.97	2.91	1.90	1.84	3.43	7.12	1.66	5.88
MG (%)	.68	.65	.80	.97	.78	.71	1.17	3.08	.61	1.57
NA (%)	.98	1.50	1.07	1.00	1.74	1.59	2.04	1.11	1.55	2.03
K (%)	2.67	2.13	2.57	2.28	2.03	2.08	1.65	.30	1.55	1.67
AG (PPM)	-2.00	-2.00	3.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	643.00	863.00	1215.00	444.00	725.00	765.00	446.00	30.00	625.00	572.00
BE (PPM)	7.00	4.00	6.00	5.00	4.00	4.00	4.00	9.00	3.00	6.00
CE (PPM)	55.00	35.00	60.00	20.00	34.00	54.00	28.00	-10.00	18.00	34.00
CO (PPM)	10.00	7.00	13.00	23.00	12.00	11.00	18.00	52.00	10.00	34.00
CR (PPM)	86.00	56.00	80.00	80.00	54.00	55.00	77.00	105.00	36.00	96.00
CU (PPM)	14.00	9.00	34.00	25.00	22.00	38.00	18.00	172.00	42.00	40.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	21.00	22.00	30.00	20.00	21.00	21.00	30.00	11.00	14.00	29.00
MM (PPM)	219.00	209.00	217.00	593.00	280.00	274.00	501.00	1303.00	145.00	715.00
MO (PPM)	26.00	4.00	5.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	6.00
NB (PPM)	14.00	6.00	13.00	7.00	7.00	7.00	8.00	4.00	-4.00	8.00
NI (PPM)	23.00	17.00	23.00	37.00	22.00	23.00	29.00	79.00	19.00	48.00
P (PPM)	392.00	246.00	247.00	336.00	214.00	276.00	311.00	337.00	143.00	428.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	6.00	9.00	7.00	5.00	6.00	10.00	31.00	5.00	17.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	66.00	136.00	86.00	82.00	125.00	130.00	251.00	111.00	90.00	180.00
TI (PPM)	3595.00	2101.00	3293.00	2411.00	1925.00	2216.00	3123.00	6936.00	1511.00	4885.00
V (PPM)	70.00	50.00	66.00	73.00	44.00	49.00	84.00	278.00	57.00	168.00
Y (PPM)	11.00	6.00	14.00	7.00	6.00	9.00	9.00	14.00	3.00	15.00
ZN (PPM)	51.00	25.00	31.00	56.00	43.00	37.00	74.00	63.00	29.00	93.00
ZR (PPM)	58.00	33.00	44.00	37.00	33.00	38.00	35.00	18.00	39.00	46.00

DRILL HOLE NO. SM-6

AREA: Northwest Sierra Madre, East Fork Savory Creek

LOCATION: 2131 FEL, 2053 FSL, Sec. 25, T. 15 N., R. 87 W.

LATITUDE: 41° 14' 29"

LONGITUDE: 107° 10' 16"

COUNTY: Carbon

TOPOGRAPHIC QUAD Bridger Peak

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9360'

ANGLE: 60°

BEARING: N 40 E

TOTAL DEPTH: 578'

SPUD DATE: 7/15/79

COMPLETION DATE: 8/13/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 567'

DATE: 8/21/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 567'

DATE: 8/21/79

REMARKS:

STRATIGRAPHIC UNITS: (Jack Creek Quartzite: 0-440) (Continental Divide Meta-volcanics: 440-578).

RADIOACTIVE ZONES: None

CORE LOGGERS: Thomas Schmidt, David Inlow, Bob Spatz

DRILL HOLE SM-6

OBJECTIVES:

1. This hole, near the upper reaches of the East Fork of Savery Creek, is located in an area where coarse quartzites and quartz-pebble conglomerates of the lower Jack Creek Quartzite overlies metavolcanic rocks of the Continental Divide Metavolcanic Rocks with probable unconformity. Surface uranium and thorium values are not especially high (maximum 11 ppm U and 23 ppm Th) but outcrops are sparse and the area was a favorable place to test for mineralization along the inferred basal Phantom Lake Suite unconformity.

CONCLUSIONS:

1. No basal radioactive conglomerate was found. Basal beds of the Jack Creek Quartzite in this area are non-radioactive (maximum 1.7 ppm U, 17 ppm Th) quartzites and mica quartz schists. We still believe, from regional map relationships, that the Jack Creek Quartzite unconformably overlies older gneisses and that this unconformity is a favorable exploration target. However, we couldn't prove the point at SM-6. A maximum of 31 ppm U and 24 ppm Th was encountered at 573 feet.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 6 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 23. GEOLOGIC MAP OF DRILL SITE SM-6, SINGER PEAK QUAD., SEC. 25, T.15 N., R.87 W., CARBON COUNTY, WYOMING

EXPLANATION

Phantom Lake Suite	PU	Phanerozoic rocks undivided		outcrop boundary
	M	Mafic intrusive rocks		lithologic contact, dashed where inferred
	MG	Magnolia Formation		formation contact, dashed where inferred
	SLV SLC	Silver Lake Metavolcanics metavolcanics/paracongl.		strike and dip of bedding
	JC	Jack Creek Quartzite		strike and dip of foliation, bearing and plunge of minor fold axis
Deep Lake Group	ACD	Continental Divide Metavolcanic Rocks		gross-gamma reading over background
				sample transect
				drill hole showing bearing, plunge and total length

Lithology symbols

db	diabase	bsc	biotite schist
phq	phyllitic quartzite	sc	schist
q	quartzite	vl	metavolcanic rocks

SCALE 1:12000

0 1000 2000 ft.

DRILL HOLE NUMBER SM6

SAMP. NO.	152150	152159	152160	152161	152187	152183	152184	152185	152186	152213
TOP DEPTH	10.00	31.80	42.80	59.30	103.10	125.50	145.50	165.50	185.50	262.60
BOT DEPTH										
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	QZ	QZ	QZ	QZ	QZ	QZ	Q	QZ	CSC	BSC
UL (PPM)	.59	1.96	3.03	1.57	.84	.39	1.12	1.44	2.40	1.56
UT (PPM)	.60	1.30	1.70	.60	.60	.60	1.20	1.60	3.30	.90
UL/UT	.98	1.51	1.78	2.62	1.40	.65	.93	.90	.73	1.73
TH (PPM)	2.00	10.00	6.00	-2.00	-2.00	-2.00	13.00	11.00	17.00	-2.00
TH/UT	3.34	7.70	3.53	-3.34	-3.34	-3.34	10.84	6.88	5.15	-2.22
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.49	4.29	3.96	3.64	1.33	1.92	5.07	5.21	4.77	5.01
CA (%)	-.05	1.20	-.05	.08	-.05	.07	.23	2.10	1.48	1.57
FE (%)	.74	.75	1.49	.38	.65	.80	2.07	2.05	3.24	7.70
MG (%)	.21	.23	.13	.12	.21	.23	.61	.49	1.03	2.91
NA (%)	.10	.17	.10	.09	-.05	-.05	.08	.09	-.05	-.05
K (%)	2.93	4.18	4.38	3.07	.81	1.86	3.69	3.87	2.66	3.64
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	931.00	1343.00	1177.00	880.00	297.00	635.00	1282.00	1570.00	673.00	401.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	8.00
CE (PPM)	20.00	51.00	64.00	-10.00	14.00	-10.00	75.00	68.00	68.00	-10.00
CO (PPM)	-4.00	8.00	12.00	-4.00	4.00	6.00	15.00	11.00	19.00	45.00
CR (PPM)	27.00	53.00	36.00	32.00	30.00	26.00	60.00	63.00	83.00	191.00
CU (PPM)	-2.00	11.00	42.00	19.00	2.00	4.00	18.00	9.00	23.00	28.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	14.00	13.00	13.00	7.00	10.00	11.00	26.00	23.00	32.00	66.00
MN (PPM)	18.00	224.00	832.00	261.00	69.00	121.00	523.00	385.00	407.00	782.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00
NB (PPM)	5.00	8.00	-4.00	-4.00	-4.00	-4.00	10.00	8.00	11.00	8.00
NI (PPM)	-2.00	11.00	16.00	15.00	5.00	9.00	23.00	22.00	29.00	67.00
P (PPM)	64.00	353.00	190.00	248.00	17.00	151.00	293.00	364.00	817.00	572.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	4.00	3.00	2.00	4.00	3.00	7.00	7.00	12.00	25.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	39.00	124.00	95.00	48.00	4.00	27.00	79.00	120.00	64.00	45.00
TI (PPM)	968.00	1810.00	610.00	549.00	669.00	885.00	1776.00	2192.00	1877.00	5855.00
V (PPM)	27.00	34.00	16.00	21.00	32.00	22.00	55.00	48.00	106.00	248.00
Y (PPM)	1.00	9.00	9.00	2.00	2.00	3.00	8.00	9.00	9.00	11.00
ZN (PPM)	10.00	6.00	6.00	5.00	7.00	8.00	22.00	12.00	36.00	95.00
ZR (PPM)	21.00	48.00	29.00	13.00	14.00	16.00	47.00	40.00	59.00	15.00

DRILL HOLE NUMBER SM6

SAMP. NO.	152212	152215	152216	152217	152218	152228	152233	152236	152477	152476
TOP DEPTH	278.70	299.50	310.00	320.00	340.00	443.00	458.00	467.50	533.50	564.20
BOT DEPTH										
FORMATION	CD	JCF	JCF	JCF	CD	CD	CD	CD	CD	CD
LITHOLOGY	GASC	CSC	CSC	CSC	BSC	BA	MSC	BSC	BSC	SC
UL (PPM)	.33	7.67	2.62	2.79	2.68	.66	.47	2.79	5.87	2.63
UT (PPM)	1.00	10.40	1.90	2.00	2.10	1.80	.90	2.50	5.60	3.00
UL/UT	.33	.74	1.38	1.39	1.28	.37	.52	1.12	1.05	.88
TH (PPM)	3.00	-2.00	3.00	7.00	9.00	4.00	4.00	4.00	5.00	8.00
TH/UT	3.00	-.19	1.58	3.50	4.29	2.22	4.45	1.60	.89	2.67
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.88	1.98	4.12	4.68	5.66	5.09	4.89	4.71	5.27	4.70
CA (%)	.83	4.68	.42	.37	.15	3.47	.90	4.07	4.07	.42
FE (%)	8.12	1.79	2.89	4.12	2.71	9.76	1.39	7.93	9.40	9.35
MG (%)	2.69	.65	1.17	1.53	1.15	1.80	.54	1.71	2.11	1.88
NA (%)	.36	.06	.11	.09	.07	1.25	.30	1.01	1.00	-.05
K (%)	1.94	1.15	2.97	2.80	3.34	1.14	2.40	2.28	2.36	3.89
AG (PPM)	6.00	-2.00	2.00	-2.00	5.00	2.00	-2.00	-2.00	5.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	609.00	449.00	996.00	737.00	960.00	294.00	1073.00	498.00	934.00	682.00
BE (PPM)	7.00	3.00	1.00	3.00	5.00	14.00	4.00	8.00	15.00	9.00
CE (PPM)	45.00	12.00	34.00	74.00	59.00	24.00	30.00	-10.00	29.00	-10.00
CO (PPM)	38.00	12.00	13.00	20.00	15.00	57.00	6.00	53.00	80.00	60.00
CR (PPM)	113.00	56.00	30.00	45.00	77.00	12.00	61.00	6.00	18.00	92.00
CU (PPM)	9.00	12.00	3.00	10.00	16.00	62.00	18.00	108.00	312.00	164.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	49.00	13.00	29.00	35.00	35.00	28.00	17.00	41.00	43.00	46.00
MN (PPM)	758.00	588.00	302.00	364.00	207.00	1341.00	240.00	1514.00	1544.00	754.00
MO (PPM)	-4.00	5.00	-4.00	4.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	9.00	-4.00	4.00	9.00	8.00	15.00	7.00	10.00	16.00	15.00
NI (PPM)	54.00	23.00	13.00	32.00	39.00	19.00	18.00	23.00	35.00	54.00
P (PPM)	668.00	91.00	242.00	435.00	563.00	731.00	376.00	425.00	1108.00	1018.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	17.00	8.00	3.00	5.00	7.00	32.00	5.00	22.00	25.00	9.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	55.00	61.00	23.00	21.00	28.00	171.00	35.00	229.00	139.00	17.00
TI (PPM)	5426.00	1570.00	1025.00	1715.00	2284.00	10494.00	1785.00	6059.00	12709.00	7542.00
V (PPM)	182.00	63.00	22.00	44.00	57.00	378.00	42.00	285.00	266.00	272.00
Y (PPM)	13.00	6.00	4.00	10.00	9.00	39.00	8.00	25.00	35.00	8.00
ZN (PPM)	78.00	14.00	26.00	38.00	28.00	121.00	27.00	154.00	90.00	161.00
ZR (PPM)	21.00	15.00	25.00	40.00	63.00	45.00	29.00	20.00	62.00	46.00

DRILL HOLE NUMBER SM6

SAMP. NO.	152475
TOP DEPTH	573.00
BOT DEPTH	
FORMATION	CD
LITHOLOGY	CQ
UL (PPM)	33.61
UT (PPM)	31.20
UL/UT	1.08
TH (PPM)	24.00
TH/UT	.77
AU (PPM)	ND
AL (%)	7.33
CA (%)	.88
FE (%)	8.41
MG (%)	2.05
NA (%)	.08
K (%)	3.89
AG (PPM)	2.00
B (PPM)	-10.00
BA (PPM)	1006.00
BE (PPM)	8.00
CE (PPM)	-10.00
CO (PPM)	69.00
CR (PPM)	307.00
CU (PPM)	324.00
HF (PPM)	ND
LA (PPM)	ND
LI (PPM)	55.00
MN (PPM)	648.00
MO (PPM)	-4.00
NB (PPM)	10.00
NI (PPM)	99.00
P (PPM)	1513.00
PB (PPM)	ND
PT (PPM)	ND
SC (PPM)	18.00
SI (PPM)	ND
SN (PPM)	ND
SR (PPM)	28.00
TI (PPM)	4542.00
V (PPM)	172.00
Y (PPM)	17.00
ZN (PPM)	111.00
ZR (PPM)	100.00

DRILL HOLE NO. SM-7A

AREA: Northwest Sierra Madre, Haggarty Creek

LOCATION: 1728 FNL, 1523 FEL, Sec. 8, T. 14 N. R. 86 W.

LATITUDE: 41° 12' 02"

LONGITUDE: 107° 05' 03"

COUNTY: Carbon

TOPOGRAPHIC QUAD: Bridger Peak

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 10570'

ANGLE: 60°

BEARING: N 30 E

TOTAL DEPTH: 666'

SPUD DATE: 8/7/79

COMPLETION DATE: 8/25/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 666'

DATE: 8/27/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 666'

DATE: 9/18/79

REMARKS:

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-234) (Silver Lake Metavolcanics: 234-666)

RADIOACTIVE ZONES: None

CORE LOGGERS: Ramsey Bentley, David Inlow

DRILL HOLE SM-7A

OBJECTIVES:

1. This area near the continental divide contains coarse-grained, muscovite quartzites which resemble the Magnolia Formation, overlying granite boulder paraconglomerates of the Silver Lake Metavolcanic Rocks. We wished to test the "basal" coarse-grained quartzites and possible uranium potential of Silver Lake paraconglomerate unit.

CONCLUSIONS:

1. Coarse-grained quartzites, similar to Magnolia Formation rocks were drilled from 0 to 234 feet where they are in contact with phyllitic quartzites. The contact relationship is not clear. Maximum values in the quartzites were 4.7 ppm U, 15 ppm Th. Silver Lake conglomerates contained maximum values of 1.4 ppm U, 4.3 ppm Th. This substantiates our surface observations that the Silver Lake paraconglomerates are not especially favorable units for uranium or thorium. We are not yet willing to discount the possibility of finding appreciable gold in these rocks or of finding radioactive quartz-pebble conglomerate lenses associated with Silver Lake Paraconglomerate in other areas (see SM-9).

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 7A SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 24. GEOLOGIC MAP OF DRILL SITE SM-7A, BRIDGER PEAK QUAD.,
SEC. 8, T.14 N., R.86 W., CARBON COUNTY, WYOMING

EXPLANATION

	Mafic intrusive rocks		outcrop boundary
	Magnolia Formation		lithologic contact,
	Spring Lake Granodiorite		dashed where inferred
	Silver Lake Metavolcanics; metavolcanics/paracongl.		formation contact, dashed where inferred
	Jack Creek Quartzite		strike and dip of bedding and foliation
	Continental Divide Metavolcanic Rocks		truncated foreset beds

Phantom Lake
Suite

Lithologic symbols

db	diabase
aq	arkosic quartzite
phq	phyllitic quartzite
lpq	limey phyllitic quartzite
vl	metavolcanic rocks
pac	paraconglomerate
gw	metagreywacke
spl	silver phyllite
ggn	granitic gneiss
hgn	hornblende gneiss
gd	granodiorite

$\frac{3400}{1400}$ gross-gamma reading
over background

162345
(12,13) sample number with
(U,Th) assays

drill hole showing
bearing, plunge, and
total length

SCALE 1:12000

0 1000 2000 ft.

DRILL HOLE NUMBER SM7A

SAMP. NO.	152222	152223	152224	152442	152441	152440	152439	152438	152437	152436
TOP DEPTH	22.00	39.00	71.00	134.60	171.00	213.80	276.20	334.50	350.00	391.80
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	SLV	SLV	SLV	SLV
LITHOLOGY	MSC	AQ	AQ	AQZ	AQ	AQZ	MQZ	MSC	MSC	CSC
UL (PPM)	1.51	.98	4.43	1.29	.78	.58	1.01	1.79	.74	1.37
UT (PPM)	.80	1.30	4.70	1.50	1.20	1.20	.40	1.20	.70	.70
UL/UT	1.89	.75	.94	.86	.65	.48	2.53	1.49	1.06	1.96
TH (PPM)	7.00	5.00	15.00	12.00	6.00	5.00	-2.00	-2.00	3.00	3.00
TH/UT	8.76	3.85	3.19	8.00	5.00	4.17	-5.01	-1.67	4.29	4.29
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.14	5.61	4.29	6.07	5.97	2.53	5.27	6.03	5.53	5.59
CA (%)	.18	.14	.33	.45	.25	.21	4.64	1.42	3.52	2.77
FE (%)	1.91	1.90	1.18	2.44	2.89	1.50	7.37	8.04	7.65	8.09
MG (%)	.70	.60	.42	.78	.87	.35	3.45	2.83	1.73	3.08
NA (%)	1.84	1.90	1.79	1.47	1.89	1.56	1.24	1.23	1.02	.70
K (%)	2.11	2.67	2.07	2.91	2.76	1.01	.55	2.64	1.81	2.12
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	4.00	-2.00	-2.00	6.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	628.00	885.00	827.00	970.00	807.00	496.00	255.00	1255.00	1157.00	1101.00
BE (PPM)	4.00	3.00	4.00	4.00	5.00	2.00	6.00	10.00	10.00	10.00
CE (PPM)	27.00	37.00	52.00	29.00	16.00	-10.00	-10.00	-10.00	-10.00	-10.00
CO (PPM)	11.00	9.00	8.00	14.00	15.00	11.00	55.00	49.00	41.00	46.00
CR (PPM)	53.00	53.00	47.00	66.00	69.00	36.00	173.00	86.00	96.00	87.00
CU (PPM)	2.00	31.00	18.00	14.00	37.00	369.00	183.00	110.00	13.00	104.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	19.00	17.00	10.00	22.00	26.00	10.00	18.00	70.00	44.00	50.00
MN (PPM)	286.00	172.00	133.00	329.00	310.00	136.00	1298.00	1831.00	1780.00	2347.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	6.00	-4.00	-4.00	-4.00
NB (PPM)	7.00	6.00	9.00	10.00	7.00	5.00	6.00	10.00	8.00	7.00
NI (PPM)	21.00	18.00	13.00	26.00	30.00	12.00	128.00	43.00	49.00	49.00
P (PPM)	255.00	237.00	182.00	347.00	319.00	72.00	258.00	594.00	597.00	518.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	6.00	4.00	8.00	7.00	4.00	32.00	28.00	25.00	29.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	146.00	126.00	130.00	138.00	118.00	52.00	142.00	78.00	164.00	113.00
TI (PPM)	1760.00	1616.00	2489.00	3041.00	2450.00	1575.00	4386.00	7567.00	6391.00	6574.00
V (PPM)	46.00	44.00	35.00	59.00	77.00	37.00	236.00	254.00	253.00	263.00
Y (PPM)	6.00	4.00	13.00	7.00	4.00	3.00	11.00	23.00	24.00	21.00
ZN (PPM)	33.00	19.00	19.00	45.00	46.00	22.00	165.00	189.00	203.00	210.00
ZR (PPM)	36.00	31.00	89.00	39.00	37.00	32.00	24.00	27.00	32.00	20.00

DRILL HOLE NUMBER SM7A

SAMP. NO.	152472	152435	152434	152433	152290	152471	152473
TOP DEPTH	442.20	479.50	523.20	559.00	580.00	592.00	657.00
BOT DEPTH							
FORMATION	SLV	SLV	SLV	SLV	MG	SLV	MI
LITHOLOGY	PC	PC	CSC	MSC	AQ	CSC	AM
UL (PPM)	2.47	1.92	1.26	1.26	1.42	1.49	-.25
UT (PPM)	2.20	1.40	1.00	.90	.70	.80	.40
UL/UT	1.12	1.37	1.26	1.40	2.03	1.86	-.63
TH (PPM)	9.00	4.00	6.00	7.00	-2.00	4.00	-2.00
TH/UT	4.09	2.86	6.00	7.79	-2.86	5.01	-5.01
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.97	6.12	5.71	4.77	6.26	6.10	5.22
CA (%)	2.06	2.55	3.03	1.60	3.77	1.05	5.84
FE (%)	5.06	5.55	7.11	7.78	6.87	7.80	6.83
MG (%)	2.12	1.80	1.62	1.43	2.18	1.50	2.83
NA (%)	1.93	2.54	1.92	1.39	1.61	1.76	1.25
K (%)	1.66	.70	.67	2.29	.21	1.84	.22
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	820.00	307.00	253.00	1834.00	91.00	2133.00	54.00
BE (PPM)	6.00	7.00	10.00	14.00	13.00	14.00	6.00
CE (PPM)	49.00	13.00	45.00	55.00	-10.00	45.00	-10.00
CO (PPM)	34.00	37.00	56.00	45.00	41.00	41.00	55.00
CR (PPM)	202.00	154.00	22.00	28.00	85.00	8.00	135.00
CU (PPM)	15.00	16.00	304.00	90.00	90.00	56.00	58.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	30.00	20.00	18.00	39.00	18.00	36.00	11.00
MN (PPM)	939.00	1021.00	1208.00	1386.00	1462.00	586.00	1218.00
MO (PPM)	-4.00	9.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	7.00	6.00	9.00	13.00	10.00	23.00	-4.00
NI (PPM)	58.00	69.00	45.00	24.00	35.00	32.00	74.00
P (PPM)	325.00	437.00	781.00	1330.00	688.00	1048.00	221.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	23.00	25.00	19.00	16.00	26.00	10.00	32.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	240.00	282.00	232.00	158.00	165.00	296.00	123.00
TI (PPM)	4249.00	4327.00	7035.00	8895.00	5751.00	9517.00	4230.00
V (PPM)	203.00	187.00	241.00	270.00	268.00	162.00	253.00
Y (PPM)	14.00	16.00	18.00	16.00	23.00	16.00	13.00
ZN (PPM)	75.00	91.00	79.00	215.00	147.00	58.00	66.00
ZR (PPM)	36.00	35.00	59.00	23.00	41.00	27.00	22.00

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DRILL HOLE NO. SM-8

AREA: Bottle Creek, Sierra Madre Mountains

LOCATION: 629 FSL, 794 FEL, Sec. 13, T. 14 N., R. 85 W.

LATITUDE: 41° 10' 36"

LONGITUDE: 106° 53' 47"

COUNTY: Carbon

TOPOGRAPHIC QUAD Red Mountain

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8796'

ANGLE: 70°

BEARING: N 10 W

TOTAL DEPTH: 775'

SPUD DATE: 6/15/79

COMPLETION DATE: 7/28/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 767'

DATE: 7/30/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 767'

DATE: 7/30/79

REMARKS:

STRATIGRAPHIC UNITS: (Metagabbro: 0-75) (Magnolia Fm. 75-631) (Metagabbro: 631-775)

RADIOACTIVE ZONES: None

CORE LOGGERS: David Inlow, John Turner, Tom Schmidt, Bob Spatz

DRILL HOLE SM-8

OBJECTIVES:

1. One of the earliest discoveries of anomalous radioactivity was in the Bottle Creek area. Here, Graff (1978) found an unusual conglomeratic unit with surface radioactivity several times background (and up to 1.9 ppm U, 32 ppm Th) which is interbedded with trough cross-bedded quartzites. He mapped the unit as Mangolia Formation. SM-8 was to test the uranium content of these rocks in the subsurface.

CONCLUSIONS:

1. Radioactive conglomeratic rocks were drilled between 302 and 631 feet, with fairly uniform uranium and thorium contents of about 7.9 ppm and 57 ppm respectively. The unit is not a typical Magnolia conglomerate either petrographically or radiometrically. It contains large subhedral plagioclase grains and quartz grains in a fine-grained matrix and may be an andesitic tuff. The generally uniform radioactivity also suggests that it may be volcanogenic. We still map the unit as Mangolia Formation because of its stratigraphic position below the Cascade Quartzite and above the Bridger Peak Quartzite, but it may instead be a volcanic unit within the upper parts of the Phantom Lake Metamorphic Suite.

References cited: Graff, P. J. 1978, Geology of the lower part of the Early Proterozoic Snowy Range Supergroup, Sierra Madre, Wyoming - with chapters on Proterozoic regional tectonics and uraniferous quartz-pebble conglomerates, (Ph.D. thesis): Laramie, Wyoming University of Wyoming, 85 p.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 8 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 25. GEOLOGIC MAP OF DRILL SITE SM-8, RED MOUNTAIN QUAD., SEC. 13, T.14 N., R.85 W., CARBON COUNTY, WYOMING

EXPLANATION

Lithologic symbols

db	diabase	vl	metavolcanic rocks
dca	diamictite	qpc	qtz.-pebble congl.
gpl	green phyllite	q	quartzite

SCALE 1:12000

0 1000 ft.

Figure 25. Geologic map of drill site SM-8

DRILL HOLE NUMBER SM8

SAMP. NO.	152148	157891	157880	157886	152136	152137	152138	152139	152140	152141
TOP DEPTH	29.30	51.00	53.00	54.00	105.00	124.00	153.00	171.00	183.00	200.00
BOT DEPTH										
FORMATION	MI	SLV	SLV	SLV	MG	MG	MG	MG	MG	MG
LITHOLOGY	B	AM	AM	AM	QZ	AQZ	AM	QZ	QZ	QZ
UL (PPM)	-.25	2.12	6.29	.72	.86	.31	2.03	.72	-.25	-.25
UT (PPM)	.20	4.10	7.90	.60	.80	.80	1.80	1.40	.70	.50
UL/UT	-1.26	.52	.80	1.20	1.08	.39	1.13	.51	-.36	-.50
TH (PPM)	-2.00	-2.00	18.00	-2.00	2.00	4.00	2.00	4.00	-2.00	-2.00
TH/UT	-10.05	-.49	2.28	-3.34	2.50	5.01	1.11	2.86	-2.86	-4.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.11	2.43	7.66	2.17	6.00	4.11	8.20	6.57	2.59	6.39
CA (%)	4.92	-.05	.10	.07	.28	.81	.65	.48	.14	.08
FE (%)	3.64	.36	1.89	.14	2.53	1.47	5.67	1.53	.48	.72
MG (%)	3.42	.11	.50	.06	.81	.47	3.32	.59	.17	.23
NA (%)	.74	.85	.10	1.24	2.05	1.79	.81	.80	1.53	1.81
K (%)	.26	1.36	4.87	.40	2.19	.81	2.35	2.92	.55	2.34
AG (PPM)	4.00	-2.00	8.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	22.00	-10.00	-10.00	-10.00	-10.00	11.00	-10.00	-10.00
BA (PPM)	38.00	478.00	1268.00	133.00	710.00	201.00	376.00	700.00	116.00	500.00
BE (PPM)	3.00	1.00	13.00	-1.00	1.00	1.00	4.00	2.00	-1.00	1.00
CE (PPM)	18.00	10.00	-10.00	-10.00	35.00	31.00	25.00	58.00	-10.00	38.00
CO (PPM)	47.00	-4.00	7.00	-4.00	17.00	9.00	56.00	10.00	4.00	-4.00
CR (PPM)	489.00	19.00	54.00	9.00	76.00	53.00	289.00	141.00	18.00	41.00
CU (PPM)	79.00	13.00	-2.00	6.00	18.00	8.00	10.00	38.00	9.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	4.00	48.00	2.00	12.00	6.00	50.00	8.00	2.00	6.00
MN (PPM)	1134.00	40.00	87.00	22.00	187.00	133.00	1008.00	146.00	44.00	57.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	-4.00	34.00	-4.00	-4.00	4.00	5.00	7.00	-4.00	4.00
NI (PPM)	141.00	9.00	13.00	2.00	31.00	17.00	97.00	37.00	4.00	7.00
P (PPM)	102.00	54.00	671.00	68.00	147.00	103.00	309.00	75.00	19.00	18.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	22.00	1.00	14.00	1.00	9.00	6.00	30.00	15.00	1.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	66.00	58.00	13.00	38.00	95.00	128.00	89.00	50.00	44.00	7.30
TI (PPM)	2680.00	230.00	5385.00	190.00	1111.00	1017.00	3792.00	3200.00	413.00	1180.00
V (PPM)	214.00	12.00	238.00	6.00	66.00	43.00	227.00	82.00	11.00	20.00
Y (PPM)	7.00	1.00	3.00	1.00	4.00	6.00	18.00	6.00	1.00	2.00
ZN (PPM)	61.00	18.00	18.00	11.00	33.00	19.00	130.00	12.00	8.00	8.00
ZR (PPM)	16.00	12.00	189.00	13.00	22.00	28.00	12.00	32.00	13.00	16.00

DRILL HOLE NUMBER SM8

SAMP. NO.	152142	152143	152144	152145	152349	152146	152350	152352	152147	152149
TOP DEPTH	208.50	217.00	226.00	245.00	301.00	307.70	317.80	353.50	383.80	421.50
BOT DEPTH								354.50		
FORMATION	MG	MG	MG	MG	MQ	MG	MQ	MQ	MG	MG
LITHOLOGY	AK	AK	AK	QZ	MQ	GPC	GPC	PAC	QZ	QZ
UL (PPM)	ND	1.34	.38	.49	.41	4.09	4.97	5.75	5.03	2.97
UT (PPM)	ND	.80	.60	.60	.60	4.30	3.80	6.60	4.00	4.60
UL/UT	ND	1.68	.63	.82	.68	.95	1.31	.87	1.26	.65
TH (PPM)	ND	6.00	-2.00	4.00	-2.00	57.00	22.00	38.00	17.00	13.00
TH/UT	ND	7.51	-3.34	6.68	-3.34	13.26	5.79	5.76	4.25	2.83
AU (PPM)	ND	ND	ND	ND	ND	0.00	ND	ND	ND	ND
AL (%)	ND	6.36	3.04	4.45	4.47	7.94	3.32	4.51	5.06	4.45
CA (%)	ND	-.05	.06	-.05	-.05	.12	.10	.44	.13	.28
FE (%)	ND	1.23	.65	.48	.88	2.14	2.33	1.30	2.37	.71
MG (%)	ND	.36	.23	.24	.36	.43	.44	.22	.35	.22
NA (%)	ND	.54	.71	.63	.08	1.17	.88	.93	.17	.34
K (%)	ND	3.35	1.28	2.65	3.14	3.23	2.82	3.47	2.97	2.61
AG (PPM)	ND	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	2.00
B (PPM)	ND	-10.00	-10.00	20.00	29.00	12.00	10.00	-10.00	-10.00	-10.00
BA (PPM)	ND	395.00	169.00	154.00	286.00	618.00	411.00	751.00	469.00	425.00
BE (PPM)	ND	1.00	1.00	3.00	5.00	6.00	7.00	4.00	3.00	5.00
CE (PPM)	ND	38.00	10.00	-10.00	-10.00	249.00	84.00	90.00	61.00	62.00
CO (PPM)	ND	5.00	4.00	6.00	4.00	8.00	10.00	4.00	23.00	8.00
CR (PPM)	ND	119.00	37.00	114.00	65.00	3.00	12.00	3.00	11.00	16.00
CU (PPM)	ND	17.00	10.00	32.00	22.00	15.00	2.00	5.00	220.00	33.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	10.00	4.00	6.00	10.00	12.00	14.00	6.00	12.00	12.00
MN (PPM)	ND	45.00	42.00	45.00	58.00	130.00	160.00	152.00	122.00	65.00
MO (PPM)	ND	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	30.00	-4.00
NB (PPM)	ND	9.00	-4.00	4.00	-4.00	15.00	15.00	10.00	7.00	9.00
NI (PPM)	ND	19.00	9.00	9.00	13.00	9.00	7.00	3.00	12.00	9.00
P (PPM)	ND	29.00	25.00	205.00	35.00	213.00	428.00	176.00	363.00	229.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	7.00	3.00	5.00	4.00	5.00	3.00	2.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	21.00	27.00	8.00	7.00	54.00	15.00	67.00	18.00	12.00
TI (PPM)	ND	2161.00	784.00	1857.00	1628.00	2031.00	2650.00	1036.00	1019.00	1713.00
V (PPM)	ND	50.00	22.00	69.00	56.00	22.00	41.00	10.00	22.00	39.00
Y (PPM)	ND	3.00	1.00	1.00	1.00	20.00	10.00	17.00	10.00	11.00
ZN (PPM)	ND	28.00	21.00	42.00	19.00	54.00	25.00	19.00	195.00	9.00
ZR (PPM)	ND	24.00	19.00	29.00	31.00	147.00	130.00	77.00	45.00	63.00

DRILL HOLE NUMBER SM8

SAMP. NO.	152353	152152	152153	152154	152155	152170	152354	152156	152355	152172
TOP DEPTH	450.00	487.50	497.50	515.80	527.50	573.00	575.00	581.00	606.00	623.00
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QGC	QPC	PAC	QPC	QPC	QPC	QPC	QPC	QPC	QZ
UL (PPM)	8.18	2.99	3.90	6.08	2.48	16.08	2.98	4.98	3.82	3.75
UT (PPM)	6.80	4.10	3.90	7.90	3.30	11.90	4.80	5.20	4.56	4.20
UL/UT	1.20	.73	1.00	.77	.75	1.35	.62	.96	.84	.89
TH (PPM)	31.00	28.00	13.00	29.00	22.00	30.00	30.00	40.00	32.00	22.00
TH/UT	4.56	6.83	3.33	3.67	6.67	3.19	6.25	7.69	7.02	5.24
AU (PPM)	ND	0.00	0.00	0.00	0.00	0.00	ND	0.00	ND	ND
AL (%)	3.93	5.46	5.84	5.86	4.90	4.12	2.94	5.08	5.10	4.91
CA (%)	.76	.18	.35	.22	.35	.14	.09	.11	.10	1.67
FE (%)	2.60	3.59	2.19	2.85	2.73	.86	2.09	1.51	4.58	2.50
MG (%)	.44	.46	.61	.49	.58	.14	.34	.23	.75	.70
NA (%)	1.73	.82	2.15	2.97	1.29	2.12	.80	1.82	.51	1.97
K (%)	1.95	3.24	2.67	3.41	2.53	1.72	2.75	2.96	3.00	1.21
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	3.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	370.00	752.00	440.00	456.00	543.00	439.00	535.00	589.00	591.00	360.00
BE (PPM)	5.00	4.00	5.00	3.00	4.00	2.00	4.00	4.00	7.00	2.00
CE (PPM)	165.00	49.00	61.00	77.00	218.00	207.00	40.00	103.00	32.00	65.00
CO (PPM)	24.00	14.00	14.00	10.00	13.00	4.00	7.00	4.00	19.00	15.00
CR (PPM)	6.00	12.00	27.00	36.00	22.00	6.00	7.00	4.00	15.00	23.00
CU (PPM)	242.00	108.00	198.00	-2.00	113.00	28.00	3.00	-2.00	8.00	2.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	11.00	14.00	12.00	20.00	16.00	5.00	11.00	10.00	19.00	7.00
MN (PPM)	305.00	242.00	348.00	268.00	297.00	62.00	171.00	94.00	243.00	501.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	10.00	12.00	10.00	14.00	14.00	11.00	12.00	9.00	16.00	7.00
NI (PPM)	7.00	7.00	29.00	5.00	10.00	-2.00	4.00	-2.00	5.00	0.00
P (PPM)	166.00	332.00	179.00	171.00	375.00	109.00	130.00	92.00	155.00	202.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	10.00	9.00	4.00	10.00	3.00	3.00	3.00	7.00	8.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	62.00	34.00	41.00	40.00	37.00	52.00	26.00	52.00	30.00	119.00
TI (PPM)	1092.00	2779.00	2636.00	2374.00	3248.00	811.00	1282.00	1110.00	2095.00	1272.00
V (PPM)	18.00	66.00	79.00	35.00	72.00	15.00	28.00	8.00	44.00	50.00
Y (PPM)	25.00	17.00	13.00	19.00	45.00	27.00	7.00	16.00	8.00	8.00
ZN (PPM)	166.00	24.00	29.00	20.00	27.00	20.00	23.00	11.00	61.00	23.00
ZR (PPM)	73.00	108.00	63.00	53.00	92.00	101.00	95.00	94.00	84.00	47.00

DRILL HOLE NUMBER SM8

SAMP. NO.	152171	152178	152188	152193
TOP DEPTH	644.00	697.00	724.00	758.00
BOT DEPTH				
FORMATION	MI	MG	MI	MI
LITHOLOGY	AM	CSC	CSC	CSC
UL (PPM)	-.25	1.72	ND	1.56
UT (PPM)	1.10	1.30	1.20	1.40
UL/UT	-.23	1.32	-83402.00	1.11
TH (PPM)	8.00	2.00	ND	11.00
TH/UT	7.28	1.54	-83402.00	7.86
AU (PPM)	ND	0.00	ND	ND
AL (%)	5.90	7.50	ND	7.82
CA (%)	7.18	3.15	ND	2.47
FE (%)	7.71	6.06	ND	8.92
MG (%)	.51	1.08	ND	2.09
NA (%)	1.45	2.32	ND	3.10
K (%)	.26	.43	ND	1.41
AG (PPM)	-2.00	-2.00	ND	2.00
B (PPM)	-10.00	-10.00	ND	-10.00
BA (PPM)	112.00	157.00	ND	905.00
BE (PPM)	3.00	10.00	ND	19.00
CE (PPM)	103.00	121.00	ND	46.00
CO (PPM)	31.00	56.00	ND	58.00
CR (PPM)	3.00	6.00	ND	42.00
CU (PPM)	75.00	134.00	ND	7.00
HF (PPM)	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND
LI (PPM)	9.00	16.00	ND	30.00
MN (PPM)	950.00	1004.00	ND	1271.00
MO (PPM)	-4.00	-4.00	ND	-4.00
ND (PPM)	12.00	13.00	ND	21.00
NI (PPM)	20.00	18.00	ND	27.00
P (PPM)	796.00	1671.00	ND	1713.00
PB (PPM)	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND
SC (PPM)	20.00	16.00	ND	27.00
SI (PPM)	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND
SR (PPM)	518.00	124.00	ND	165.00
TI (PPM)	8123.00	8621.00	ND	11093.00
V (PPM)	195.00	272.00	ND	344.00
Y (PPM)	19.00	27.00	ND	28.00
ZN (PPM)	57.00	67.00	ND	111.00
ZR (PPM)	57.00	70.00	ND	155.00

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DRILL HOLE NO. SM-9

AREA: Vulcan Mountain, Northern Sierra Madre

LOCATION: 694' FNL, 1201 FEL, Sec. 12, T. 14 N., R. 86 W.

LATITUDE: 41° 12' 13"

LONGITUDE: 107° 00' 26"

COUNTY: Carbon

TOPOGRAPHIC QUAD Bridger Peak

SURFACE REGULATOR: U.S.F.S

COLLAR ELEV.: 10675'

ANGLE: 55°

BEARING: N 10 W

TOTAL DEPTH: 683.5'

SPUD DATE: 7/2/79

COMPLETION DATE: 7/30/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 162'

DATE: 8/24/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 633'

DATE: 8/24/79

REMARKS:

STRATIGRAPHIC UNITS: (Bridger Peak Quartzite: 0-197) (Silver Lake Meta-volcanics: 197-683.5)

RADIOACTIVE ZONES: None

CORE LOGGERS: Bob Spatz, Dave Inlow, Thomas Schmidt, Ramsey Bentley, John Turner

DRILL HOLE SM-9

OBJECTIVES:

1. This hole on Vulcan Mountain was drilled to test subsurface uranium and thorium content of conglomerates, phyllites, and paraconglomerates units found in the saddle of Vulcan Mountain (which contained up to 2.5 ppm U, 29 ppm Th.).

CONCLUSIONS:

1. Pyritic and slightly radioactive quartz-pebble conglomerates were drilled between 163 and 197 feet and between 323 and 345 feet. The upper zone contained up to 35 ppm U, 40 ppm Th; the lower zone contained up to .8 ppm U, 9 ppm Th. These zones are both of geologic interest. The upper one is at the base of the Bridger Peak Quartzite. This is the only known place where basal Bridger Peak beds are radioactive but it suggests that this contact may be a viable exploration target. The lower zone is within the Silver Lake Metavolcanic rocks and indicates that cleaner, quartz-pebble conglomerates are locally associated with the granite-boulder paraconglomerates.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 9 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 26. GEOLOGIC MAP OF DRILL SITE SM-9, BRIDGER PEAK QUAD., SEC. 12, T.14 N., R.86 W., CARBON COUNTY, WYOMING

EXPLANATION

PU	Phanerozoic rocks undivided		outcrop boundary
M	Mafic and ultramafic Intrusive rocks		lithologic contacts, dashed where inferred
ASLG	Spring Lake Granodiorite		formation contacts, dashed where inferred
BP	Bridger Peak Quartzite		fault, dotted where inferred
SLV SLC	Silver Lake Metavolcanics metavolcanics/paracongl.		strike and dip of bedding and foliation
JC	Jack Creek Quartzite		bearing and plunge of lineation
			gross-gamma reading over background
			sample number with (U,Th) assays
			drill hole showing bearing, plunge, and total length

Lithologic symbols

db	diabase
phq	phyllitic quartzite
pac	paraconglomerate
aq	arkosic quartzite
vl	metavolcanic rocks
pl	phyllite
gr	granodiorite
qpc	qtz.-pebble congl.
cq	coarse-grained qtzite.

SCALE

Figure 26. Geologic map of drill site SM-9

DRILL HOLE NUMBER SM9

SAMP. NO.	152121	152122	152123	152124	152125	152126	152127	152128	152129	152130
TOP DEPTH	28.40	54.00	69.00	119.00	163.00	165.50	170.00	201.00	219.50	240.00
BOT DEPTH					164.00					
FORMATION	BPG	BPG	BPG	BPG	BPG	BPG	BPG	SLV	SLV	SLV
LITHOLOGY	QZ	QZ	QZ	QZ	GN	QZ	QZ	PAC	PAC	GN
UL (PPM)	-.25	-.25	ND	-.25	33.50	12.09	1.76	28.07	5.19	3.16
UT (PPM)	.40	.40	ND	.10	34.90	10.20	2.10	17.70	6.80	3.70
UL/UT	-.63	-.63	ND	-2.53	.96	1.19	.84	1.59	.76	.85
TH (PPM)	-2.00	-2.00	ND	6.00	40.00	13.00	5.00	9.00	6.00	10.00
TH/UT	-5.01	-5.01	ND	60.61	1.15	1.27	2.38	.51	.88	2.70
AU (PPM)	ND	ND	ND	ND	0.00	0.00	0.00	ND	ND	ND
AL (%)	2.86	3.92	ND	5.09	1.20	1.41	2.07	7.03	5.23	8.24
CA (%)	.06	.08	ND	6.29	-.05	-.05	-.05	.18	.61	.37
FE (%)	.44	.34	ND	7.92	10.95	7.84	1.88	7.91	7.94	3.56
MG (%)	.21	.07	ND	3.45	.19	.11	.11	1.55	2.06	1.36
NA (%)	1.04	2.56	ND	1.02	-.05	-.05	.06	.35	.99	.93
K (%)	.97	1.31	ND	.61	.58	.64	.96	2.28	1.14	2.93
AG (PPM)	-2.00	-2.00	ND	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	ND	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	303.00	374.00	ND	140.00	73.00	64.00	87.00	340.00	252.00	440.00
BE (PPM)	-1.00	1.00	ND	3.00	-1.00	1.00	-1.00	10.00	1.00	2.00
CE (PPM)	10.00	13.00	ND	-10.00	35.00	32.00	34.00	93.00	60.00	91.00
CO (PPM)	-4.00	-4.00	ND	62.00	258.00	214.00	34.00	68.00	83.00	24.00
CR (PPM)	10.00	14.00	ND	215.00	52.00	40.00	12.00	322.00	159.00	150.00
CU (PPM)	26.00	36.00	ND	37.00	197.00	95.00	15.00	126.00	20.00	39.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	2.00	ND	12.00	6.00	6.00	8.00	26.00	21.00	20.00
MM (PPM)	28.00	15.00	ND	1443.00	44.00	33.00	25.00	948.00	740.00	420.00
MO (PPM)	-4.00	-4.00	ND	-4.00	-4.00	9.00	-4.00	-4.00	6.00	-4.00
NB (PPM)	-4.00	-4.00	ND	5.00	-4.00	-4.00	-4.00	7.00	5.00	14.00
NI (PPM)	7.00	4.00	ND	88.00	51.00	60.00	7.00	149.00	106.00	65.00
P (PPM)	-5.00	49.00	ND	283.00	-5.00	-5.00	58.00	411.00	443.00	401.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
QC (PPM)	1.00	2.00	ND	36.00	5.00	3.00	2.00	35.00	25.00	17.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	34.00	70.00	ND	202.00	3.00	3.00	4.00	28.00	57.00	68.00
TI (PPM)	250.00	186.00	ND	6528.00	767.00	478.00	505.00	5774.00	5150.00	4024.00
V (PPM)	12.00	9.00	ND	258.00	32.00	26.00	17.00	248.00	165.00	137.00
Y (PPM)	1.00	2.00	ND	14.00	7.00	5.00	1.00	21.00	17.00	6.00
ZN (PPM)	12.00	12.00	ND	86.00	62.00	4.00	5.00	108.00	129.00	69.00
ZR (PPM)	14.00	14.00	ND	16.00	47.00	29.00	19.00	50.00	30.00	45.00

DRILL HOLE NUMBER SM9

SAMP. NO.	152131	152132	152133	152134	152135	152166	152168	152165	152167	152169
TOP DEPTH	255.50	289.00	300.50	334.50	357.70	365.50	388.50	412.00	430.00	453.50
BOT DEPTH										
FORMATION	SLV	SLV	SLV	SLV	SLV	SLV	SLV	SLV	SLV	SLV
LITHOLOGY	GM	BA	GM	QZ	QZ	QZ	QZ	HF	HF	HF
UL (PPM)	2.46	-.25	1.80	1.37	1.65	.71	.32	.40	-.25	-.25
UT (PPM)	3.20	.10	2.20	.80	1.90	1.40	.90	1.00	.70	.70
UL/UT	.77	-2.53	.82	1.71	.87	.51	.35	.40	-.36	-.36
TH (PPM)	8.00	5.00	9.00	9.00	5.00	4.00	10.00	5.00	5.00	5.00
TH/UT	2.50	50.51	4.09	11.26	2.63	2.86	11.12	5.00	7.15	7.15
AU (PPM)	ND	ND	ND	0.00	ND	ND	ND	ND	ND	ND
AL (%)	7.67	5.21	8.95	3.94	4.53	5.45	9.18	5.77	5.63	7.31
CA (%)	.29	6.30	.23	.19	1.22	.33	1.04	2.10	1.90	1.01
FE (%)	4.17	6.97	3.60	.69	1.17	1.88	4.24	9.50	7.96	12.88
MG (%)	1.68	3.34	1.56	.18	.50	.50	1.39	2.68	3.12	2.94
NA (%)	.68	.77	.61	2.53	2.83	2.35	.81	2.16	1.64	2.37
K (%)	2.94	.23	3.62	.48	.61	1.58	3.45	.24	.10	1.00
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	371.00	20.00	888.00	221.00	246.00	411.00	689.00	39.00	24.00	523.00
BE (PPM)	1.00	-1.00	1.00	-1.00	1.00	1.00	2.00	2.00	16.00	4.00
CE (PPM)	64.00	16.00	59.00	35.00	44.00	28.00	22.00	21.00	-10.00	42.00
CO (PPM)	37.00	56.00	34.00	5.00	8.00	14.00	24.00	59.00	47.00	64.00
CR (PPM)	156.00	225.00	113.00	22.00	49.00	41.00	125.00	75.00	81.00	91.00
CU (PPM)	100.00	197.00	-2.00	20.00	21.00	45.00	-2.00	182.00	30.00	42.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	24.00	9.00	28.00	4.00	9.00	11.00	24.00	12.00	24.00	28.00
MN (PPM)	423.00	1285.00	240.00	56.00	251.00	113.00	631.00	1519.00	1538.00	1509.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	4.00	-4.00
NB (PPM)	12.00	6.00	12.00	-4.00	4.00	-4.00	7.00	11.00	9.00	12.00
NI (PPM)	68.00	80.00	56.00	9.00	12.00	19.00	43.00	55.00	43.00	66.00
P (PPM)	626.00	209.00	455.00	112.00	247.00	162.00	593.00	656.00	643.00	758.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	16.00	31.00	21.00	2.00	5.00	6.00	16.00	32.00	28.00	42.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	57.00	113.00	69.00	82.00	108.00	83.00	62.00	70.00	53.00	68.00
TI (PPM)	4239.00	5595.00	4392.00	582.00	1274.00	1739.00	3407.00	8875.00	7453.00	10577.00
V (PPM)	133.00	259.00	175.00	13.00	31.00	39.00	135.00	243.00	246.00	307.00
Y (PPM)	7.00	12.00	5.00	2.00	8.00	2.00	7.00	21.00	23.00	20.00
ZN (PPM)	84.00	85.00	63.00	17.00	20.00	46.00	66.00	145.00	150.00	210.00
ZR (PPM)	59.00	14.00	46.00	23.00	30.00	25.00	37.00	42.00	57.00	64.00

DRILL HOLE NUMBER SM9

SAMP. NO.	152181	152182	152194
TOP DEPTH	476.00	501.50	596.00
BOT DEPTH			
FORMATION	SLV	SLV	SLV
LITHOLOGY	AM	C	BSC
UL (PPM)	1.35	2.75	.57
UT (PPM)	.70	ND	.90
UL/UT	1.93	ND	.63
TH (PPM)	-2.00	25.00	7.00
TH/UT	-2.86	NU	7.79
AU (PPM)	ND	ND	0.00
AL (%)	7.51	6.53	5.46
CA (%)	1.74	1.47	1.23
FE (%)	5.93	6.07	9.10
MG (%)	3.03	2.69	2.17
NA (%)	2.20	2.71	2.05
K (%)	.56	.97	1.82
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00
BA (PPM)	243.00	650.00	1503.00
BE (PPM)	7.00	1.00	2.00
CE (PPM)	18.00	94.00	68.00
CO (PPM)	50.00	44.00	74.00
CR (PPM)	95.00	184.00	23.00
CU (PPM)	151.00	7.00	126.00
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	25.00	32.00	32.00
MN (PPM)	1462.00	1184.00	1065.00
MO (PPM)	-4.00	-4.00	-4.00
NB (PPM)	8.00	9.00	13.00
NI (PPM)	47.00	77.00	20.00
P (PPM)	587.00	376.00	1421.00
PB (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	24.00	28.00	22.00
SI (PPM)	ND	ND	NU
SN (PPM)	ND	ND	ND
SR (PPM)	72.00	172.00	164.00
TI (PPM)	6576.00	4917.00	10339.00
V (PPM)	264.00	214.00	236.00
Y (PPM)	22.00	7.00	16.00
ZN (PPM)	165.00	170.00	137.00
ZR (PPM)	49.00	47.00	45.00

DRILL HOLE NO. SM-11

AREA: Douglas Creek, Norhtwest Sierra Madre

LOCATION: 200 FSL, 1537 FEL, Sec. 35, T. 15 N., R. 87 W.

LATITUDE: 41° 13' 18"

LONGITUDE: 107° 08' 31"

COUNTY: Carbon

TOPOGRAPHIC QUAD Singer Peak

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 9310'

ANGLE: 60°

BEARING: N 40 E

TOTAL DEPTH: 1005'

SPUD DATE: 6/18/79

COMPLETION DATE: 7/23/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 1005'

DATE: 7/27/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 1005'

DATE: 7/28/79

REMARKS:

STRATIGRAPHIC UNITS: (Metagabbro: 0-218.5) (Magnolia Formation: 218.5-509).
(Silver Lake Metavolcanics: 509-1005)

RADIOACTIVE ZONES: None

CORE LOGGERS: David Inlow, John Turner, Ramsey Bentley

DRILL HOLE SM-11

OBJECTIVES:

1. Conglomerates and quartzites of the Magnolia Formation were mapped in widely scattered outcrops in this area by Graff (1978) on forested slopes south of the Continental Divide. This hole was to penetrate lower Magnolia rocks to test for possible radioactive conglomerates along the pre-Magnolia unconformity.

CONCLUSIONS:

1. The hole drilled fine- to medium-grained quartzites of the Magnolia Formation from 218.5 to 509 feet. These rocks are locally conglomeratic and contain scattered pyrite but are mildly radioactive (maximum values of 27 ppm U, 110 ppm Th). Paraconglomerate, then volcanic rocks of the Silver Lake Metavolcanic Rocks were encountered from 509 feet to the bottom.

References cited: Graff, P. J. 1978, Geology of the Early Proterozoic Snowy Range Supergroup, Sierra Madre, Wyoming—with chapters on Proterozoic regional tectonics and uraniferous quartz-pebble conglomerates, (Ph. D. Thesis); Laramie, Wyoming University of Wyoming 85p.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM II SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM II SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 27. GEOLOGIC MAP OF DRILL SITE SM-11, SINGER PEAK QUAD., SEC. 35, T.15 N., R.87 W., CARBON COUNTY, WYOMING

EXPLANATION

SCALE 1:12000

0 1000 2000 ft.

Figure 27. Geologic map of drill site SM-11

DRILL HOLE NUMBER SM11

SAMP. NO.	152151	152045	152046	152158	152157	152047	152048	152162	152113	152163
TOP DEPTH	43.50	96.50	184.50	240.50	279.50	287.00	330.00	452.70	466.00	503.90
BOT DEPTH										
FORMATION	MI	MI	MI	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	AM	DB	AM	QZ	QZ	PHQZ	QZ	QZ	QZ	QZ
UL (PPM)	.67	.29	.51	2.36	5.84	2.22	3.44	1.87	19.22	2.56
UT (PPM)	.30	.40	.40	2.40	5.60	1.80	4.20	2.00	27.10	2.90
UL/UT	2.24	.72	1.28	.98	1.04	1.23	.82	.93	.71	.88
TH (PPM)	3.00	8.00	-2.00	3.00	13.00	2.00	19.00	2.00	105.00	9.00
TH/UT	10.03	20.05	-5.01	1.25	2.32	1.11	4.52	1.00	3.87	3.10
AU (PPM)	ND	ND	ND	ND	ND	ND	0.00	ND	ND	ND
AL (%)	5.84	5.06	6.73	5.03	4.06	6.30	5.50	7.31	2.87	4.47
CA (%)	6.12	5.70	5.20	2.47	1.33	2.35	2.02	1.67	.14	.47
FE (%)	6.79	7.58	4.95	3.28	1.45	3.11	5.60	5.95	2.06	1.72
MG (%)	3.49	3.89	3.15	.61	.59	1.71	2.14	3.10	.44	.55
NA (%)	1.22	1.54	1.49	2.05	1.25	1.49	1.52	1.94	.56	1.66
K (%)	.27	.28	.31	1.28	2.38	1.50	2.27	.10	1.14	1.93
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	77.00	68.00	115.00	701.00	1729.00	625.00	859.00	19.00	235.00	758.00
BE (PPM)	-1.00	1.00	5.00	9.00	1.00	5.00	2.00	7.00	-1.00	1.00
CE (PPM)	19.00	-10.00	23.00	48.00	52.00	25.00	78.00	17.00	55.00	32.00
CO (PPM)	58.00	56.00	51.00	16.00	9.00	29.00	36.00	47.00	33.00	17.00
CR (PPM)	47.00	64.00	110.00	36.00	41.00	81.00	104.00	87.00	83.00	32.00
CU (PPM)	157.00	78.00	74.00	54.00	53.00	32.00	196.00	25.00	107.00	102.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	19.00	8.00	11.00	8.00	15.00	30.00	27.00	11.00	10.00
MN (PPM)	1249.00	1451.00	1246.00	608.00	382.00	766.00	829.00	1462.00	81.00	199.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	6.00	9.00	9.00	9.00	12.00	12.00	9.00	4.00	5.00
NI (PPM)	95.00	103.00	78.00	17.00	8.00	29.00	34.00	43.00	22.00	15.00
P (PPM)	179.00	189.00	331.00	741.00	111.00	412.00	488.00	666.00	123.00	222.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	35.00	25.00	12.00	5.00	13.00	16.00	23.00	4.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	161.00	166.00	181.00	333.00	200.00	144.00	91.00	46.00	43.00	153.00
TI (PPM)	3088.00	3627.00	5020.00	5974.00	2339.00	4562.00	5784.00	6170.00	1378.00	1606.00
V (PPM)	173.00	205.00	228.00	144.00	29.00	136.00	137.00	252.00	30.00	27.00
Y (PPM)	8.00	9.00	12.00	16.00	13.00	11.00	17.00	21.00	13.00	6.00
ZN (PPM)	65.00	86.00	89.00	52.00	26.00	60.00	64.00	158.00	36.00	26.00
ZR (PPM)	18.00	21.00	24.00	56.00	68.00	25.00	67.00	44.00	381.00	38.00

DRILL HOLE NUMBER SM11

SAMP. NO.	152114	152115	152117	152118	152119	152120	152164
TOP DEPTH	593.00	729.00	762.00	814.20	862.00	920.00	1004.80
BOT DEPTH							
FORMATION	SLV	SLV	SLV	SLV	SLV	SLV	SLV
LITHOLOGY	AM	GW	GW	AM	AM	AM	AM
UL (PPM)	.39	.33	2.93	-.25	.47	.46	.32
UT (PPM)	.30	1.10	2.30	.10	.70	.70	.90
UL/UT	1.30	.30	1.27	-2.53	.67	.66	.35
TH (PPM)	3.00	2.00	5.00	2.00	2.00	-2.00	5.00
TH/UT	10.03	1.82	2.17	20.20	2.86	-2.86	5.56
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.26	4.05	6.42	3.99	5.86	6.53	6.56
CA (%)	5.15	1.41	.66	4.08	1.21	4.52	4.65
FE (%)	8.22	2.00	4.07	11.12	7.54	6.43	11.09
MG (%)	2.73	.66	1.36	5.19	.95	2.60	2.87
NA (%)	1.50	1.80	.89	.20	.61	1.94	2.49
K (%)	.31	.87	2.39	.07	1.80	.37	.30
AG (PPM)	3.00	-2.00	-2.00	-2.00	-2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	135.00	293.00	760.00	30.00	1093.00	90.00	156.00
BE (PPM)	15.00	1.00	-1.00	-1.00	3.00	10.00	4.00
CE (PPM)	-10.00	45.00	53.00	15.00	121.00	-10.00	47.00
CO (PPM)	55.00	18.00	30.00	96.00	53.00	53.00	54.00
CR (PPM)	96.00	27.00	74.00	1496.00	80.00	18.00	89.00
CU (PPM)	58.00	104.00	49.00	44.00	92.00	131.00	320.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	16.00	11.00	21.00	45.00	29.00	9.00	10.00
MM (PPM)	1561.00	248.00	420.00	1722.00	735.00	1296.00	1729.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	16.00	-4.00	8.00	6.00	11.00	15.00	14.00
NI (PPM)	46.00	32.00	37.00	563.00	40.00	38.00	64.00
P (PPM)	679.00	96.00	462.00	62.00	1029.00	305.00	654.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	37.00	4.00	12.00	32.00	28.00	34.00	43.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	227.00	118.00	96.00	9.00	59.00	163.00	257.00
TI (PPM)	10522.00	1303.00	3488.00	2798.00	6772.00	4792.00	9421.00
V (PPM)	312.00	40.00	108.00	231.00	169.00	264.00	285.00
Y (PPM)	25.00	10.00	12.00	9.00	40.00	15.00	31.00
ZN (PPM)	95.00	36.00	49.00	141.00	52.00	117.00	82.00
ZR (PPM)	30.00	25.00	53.00	23.00	31.00	32.00	75.00

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DRILL HOLE NO. SM-12

AREA: Cow Creek, Sierra Madre

LOCATION: 2373 FN., 658 FEL, Sec. 16, T. 14N., R. 85 W.

LATITUDE: 41° 10' 59"

LONGITUDE: 106° 56' 58"

COUNTY: Carbon

TOPOGRAPHIC QUAD Red Mountain

SURFACE REGULATOR: State of Wyoming

COLLAR ELEV.: 9560'

ANGLE: 60°

BEARING: N 5 W

TOTAL DEPTH: 720'

SPUD DATE: 9/11/79

COMPLETION DATE: 10/10/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 725'

DATE: 10/18/79

REMARKS: Probe reached 5' below drilling T.D.

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 708'

DATE: 10/27/79

REMARKS:

STRATIGRAPHIC UNITS: (Magnolia Fm.: 0-238.8) (Silver Lake Metavolcanics:
238.8-720)

RADIOACTIVE ZONES: None

CORE LOGGERS: Ramsey Bentley, David Inlow

DRILL HOLE SM-12

OBJECTIVES:

1. This is an area where coarse-grained quartzites and conglomerates mapped as Magnolia Formation overlies granite boulder paraconglomerates of the Silver Lake Metavolcanic Rocks. The hole was to test the basal Magnolia Formation and the underlying rocks for uranium mineralization.
2. Several small prospect pits in the areas up-section from the boulder paraconglomerate were anomalously radioactive, (hand held spectrometer), but samples contained only up to 2.7 ppm U, 33 ppm Th.

CONCLUSIONS:

1. The Magnolia Formation in SM-12, as in many localities, is not a readily recognizable unit. We drew the basal Magnolia contact at 238.8 on the basis of a spike in the gamma log and the presence of conglomerate here with up to .6 ppm U and 2 ppm Th. However rocks above and below this "contact" are similar enough to raise doubt about postulating a regional unconformity here. Similarly, the lower parts of the hole contain gradationally related quartzites, mica schists, and micaceous paraconglomerates.
2. Core which probably corresponds to the small prospect pit beds was encountered at 400 feet and contained 1.5 ppm U and 5 ppm Th. This hole contained a maximum of 17 ppm U and 100 ppm Th.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 12 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 28. GEOLOGIC MAP OF DRILL SITE SM-12, RED MOUNTAIN QUAD., SEC. 16, T.14 N., R.85 W., CARBON COUNTY, WYOMING.

EXPLANATION

Figure 28. Geologic map of drill site SM-12

DRILL HOLE NUMBER SM12

SAMP. NO.	157350	152356	157352	157353	157354	157355	157882	157884	157888	157887
TOP DEPTH	50.00	57.00	126.00	156.00	195.00	237.50	267.00	310.00	352.00	406.50
BOT DEPTH										
FORMATION	MG	MG	MG	MG	MG	MG	SLV	SLV	SLV	SLV
LITHOLOGY	CQZ	MQ	MQZ	FQZ	FQZ	CQZ	FQZ	PHQZ	FQZ	FQZ
UL (PPM)	.68	2.59	-.25	2.59	-.25	1.14	1.15	1.40	1.53	1.86
UT (PPM)	.30	3.90	.30	16.80	1.20	.60	.90	.90	1.70	1.50
UL/UT	2.27	.66	-.84	.15	-.21	1.90	1.28	1.56	.90	1.24
TH (PPM)	4.00	30.00	3.00	26.00	101.00	2.00	2.00	4.00	9.00	5.00
TH/UT	13.38	7.69	10.03	1.55	84.24	3.34	2.22	4.45	5.30	3.33
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.64	5.78	3.46	8.15	3.15	3.43	1.67	3.97	6.31	4.30
CA (%)	.08	.05	.14	.75	-.05	.07	.21	.15	.19	.19
FE (%)	.16	.50	.49	2.99	1.46	.68	.78	1.51	3.73	1.80
MG (%)	.06	.11	.20	1.74	.22	.22	.28	.59	1.55	.92
NA (%)	.70	2.35	1.42	2.58	.06	.68	.70	1.35	1.08	1.65
K (%)	1.93	2.53	.95	1.97	1.83	1.31	.31	1.08	2.55	1.17
AG (PPM)	-2.00	9.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	867.00	283.00	379.00	726.00	224.00	391.00	214.00	412.00	519.00	361.00
BE (PPM)	1.00	4.00	2.00	5.00	3.00	2.00	1.00	3.00	8.00	3.00
CE (PPM)	-10.00	19.00	-10.00	33.00	124.00	10.00	10.00	28.00	24.00	18.00
CO (PPM)	-4.00	-4.00	-4.00	18.00	4.00	4.00	9.00	9.00	22.00	14.00
CR (PPM)	9.00	4.00	14.00	130.00	31.00	21.00	17.00	47.00	137.00	50.00
CU (PPM)	5.00	9.00	8.00	90.00	53.00	22.00	68.00	34.00	14.00	23.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	2.00	7.00	5.00	28.00	7.00	9.00	7.00	18.00	45.00	24.00
MN (PPM)	26.00	98.00	41.00	385.00	62.00	44.00	234.00	160.00	378.00	205.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	19.00	-4.00	9.00	29.00	-4.00	-4.00	4.00	12.00	5.00
NI (PPM)	4.00	7.00	3.00	67.00	3.00	10.00	7.00	20.00	90.00	28.00
P (PPM)	27.00	79.00	51.00	442.00	159.00	63.00	63.00	104.00	276.00	118.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	1.00	11.00	4.00	3.00	2.00	5.00	11.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	62.00	110.00	90.00	208.00	13.00	57.00	51.00	113.00	83.00	85.00
TI (PPM)	259.00	293.00	441.00	2848.00	885.00	676.00	515.00	1188.00	4321.00	1257.00
V (PPM)	6.00	4.00	15.00	99.00	19.00	31.00	19.00	41.00	147.00	56.00
Y (PPM)	2.00	11.00	2.00	10.00	10.00	2.00	5.00	4.00	6.00	4.00
ZN (PPM)	34.00	24.00	25.00	145.00	45.00	9.00	13.00	50.00	62.00	51.00
ZR (PPM)	11.00	62.00	13.00	263.00	91.00	25.00	17.00	50.00	56.00	25.00

DRILL HOLE NUMBER SM12

SAMP. NO.	157878	157881	157877	157894	157885	157918	157919
TOP DEPTH	450.00	501.00	552.00	589.00	640.00	667.00	708.00
BOT DEPTH							
FORMATION	SLV	SLV	SLV	SLV	SLV	SLV	SLV
LITHOLOGY	MQZ	PHQZ	FQZ	FQZ	PHQZ	PHQZ	PHQZ
UL (PPM)	.25	1.57	2.02	6.05	11.89	7.28	4.52
UT (PPM)	.50	1.30	1.70	4.50	10.20	6.20	3.80
UL/UT	.50	1.21	1.19	1.34	1.17	1.17	1.19
TH (PPM)	3.00	2.00	3.00	44.00	26.00	20.00	36.00
TH/UT	6.00	1.54	1.77	9.78	2.55	3.23	9.48
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.64	6.00	2.78	5.34	4.54	2.51	3.84
CA (%)	.06	.36	-.05	.05	.11	.06	.14
FE (%)	.31	3.48	1.31	2.06	1.65	1.95	1.74
MG (%)	.16	1.39	.10	.59	.34	.22	.21
NA (%)	1.79	.53	1.12	.89	1.27	1.28	1.11
K (%)	.65	2.71	.77	2.13	3.09	2.28	2.26
AG (PPM)	4.00	2.00	-2.00	-2.00	-2.00	-2.00	5.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	246.00	409.00	78.00	163.00	215.00	116.00	329.00
BE (PPM)	1.00	4.00	2.00	8.00	7.00	7.00	5.00
CE (PPM)	-10.00	-10.00	-10.00	43.00	22.00	17.00	30.00
CO (PPM)	-4.00	24.00	8.00	7.00	8.00	8.00	6.00
CR (PPM)	11.00	160.00	20.00	6.00	10.00	7.00	10.00
CU (PPM)	4.00	28.00	84.00	-2.00	3.00	17.00	13.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	37.00	5.00	12.00	19.00	12.00	5.00
MN (PPM)	78.00	403.00	25.00	133.00	152.00	268.00	167.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	6.00	4.00	21.00	19.00	15.00	16.00
NI (PPM)	3.00	62.00	5.00	4.00	4.00	7.00	6.00
P (PPM)	16.00	369.00	14.00	50.00	95.00	82.00	126.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	10.00	4.00	5.00	4.00	2.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	57.00	35.00	38.00	68.00	26.00	14.00	46.00
TI (PPM)	271.00	1705.00	679.00	1000.00	1249.00	747.00	1665.00
V (PPM)	13.00	147.00	45.00	36.00	41.00	33.00	52.00
Y (PPM)	2.00	2.00	1.00	8.00	19.00	8.00	17.00
ZN (PPM)	11.00	196.00	18.00	31.00	39.00	16.00	20.00
ZR (PPM)	10.00	37.00	16.00	118.00	77.00	79.00	90.00

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DRILL HOLE NO. SM-13

AREA: Northwest Sierra Madre, Joe's Park

LOCATION: 2075 FNL, 1065 FWL, Sec. 25, T. 16 N., R. 87 W.

LATITUDE: 41° 19' 53"

LONGITUDE: 107° 7' 57"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: U.S.F.S.

COLLAR ELEV.: 8466'

ANGLE: 90°

BEARING:

TOTAL DEPTH: 371'

SPUD DATE: 9/5/79

COMPLETION DATE: 10/5/79

GROSS GAMMA LOGGING:

INSTRUMENT: Mt. Sopris 1000-C logger

PROBE T.D.: 365'

DATE: 10/5/79

REMARKS:

KUT LOGGING:

INSTRUMENT: Scintrex down hole GAD-6

PROBE T.D.: 365'

DATE: 10/6/79

REMARKS:

STRATIGRAPHIC UNITS: (Tertiary Browns Park Fm.: 0-210) (Archaen Metasedimentary Rocks and Granitic Gneiss: 210-371)

RADIOACTIVE ZONES: None

CORE LOGGERS: Pat Gallagher Dave Inlow

DRILL HOLE SM-13

OBJECTIVES:

1. The Deep Gulch Conglomerate was mapped as far east as one outcrop near Joes Park. We drilled about 2100 feet east and parallel to strike of the outcrop to test lateral continuity of this conglomerate bed.

CONCLUSIONS:

1. After drilling 210 feet of Tertiary rocks, we encountered chlorite schist, then Archean granitic gneiss. This hole is important in that it suggest that the Jack Creek Quartzite does not extend east into Joes Park. As shown in Plate 5 of Volume 1, we interpret the Jack Creek Quartzite in this area to be tightly folded in the nose of a large-scale, northwest-plunging overturned synform.

2. Granitic gneisses in this core contain up to 3.3 ppm U and 13 ppm Th.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE SM 13 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 29. GEOLOGIC MAP OF DRILL SITE SM-13, DIVIDE PEAK QUAD., SEC. 25, T.16 N., R.87 W., CARBON COUNTY, WYOMING

EXPLANATION

Phantom Lake Suite	PU	Phanerozoic rocks undivided		outcrop boundary
	M	Mafic intrusive rocks		lithologic contact, dashed where inferred
	AG	Archean granitic rocks		formation contact, dashed where inferred
	SLV/SLC	Silver Lake Metavolcanics metavolcanics/paracongl.		strike and dip of bedding and foliation
	JC	Jack Creek Quartzite		drill hole showing bearing, plunge, and total length
	AMS	Archean metasedimentary and metavolcanic rocks		overturned syncline, dotted where inferred
	ADP	Biotite-plagioclase gneiss		

Lithologic symbols

db	diabase
gr	granite
qfgr	quartzofeldspathic gneiss
ggr	granitic gneiss
q	quartzite
qpc	quartz pebble conglomerate

SCALE 1:12000

0 1000 2000 ft.

DRILL HOLE NUMBER SM13

SAMP. NO.	157875	157876	157874	157920
TOP DEPTH	228.30	263.00	294.00	341.00
BOT DEPTH				
FORMATION	TBP	TBP	AGN	AGN
LITHOLOGY	AQZ	CSC	GN	GN
UL (PPM)	2.12	1.26	3.95	4.01
UT (PPM)	1.90	.30	2.10	3.30
UL/UT	1.12	4.21	1.88	1.22
TH (PPM)	6.00	-2.00	13.00	12.00
TH/UT	3.16	-6.69	6.19	3.64
AU (PPM)	ND	ND	ND	ND
AL (%)	5.94	4.25	5.64	5.57
CA (%)	1.25	4.31	.85	2.17
FE (%)	1.44	5.88	1.47	1.27
MG (%)	.72	4.02	.52	.40
NA (%)	3.15	.92	2.89	2.67
K (%)	.53	.40	1.31	1.43
AG (PPM)	7.00	3.00	-2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00
BA (PPM)	327.00	162.00	768.00	651.00
BE (PPM)	4.00	3.00	4.00	5.00
CE (PPM)	37.00	-10.00	42.00	72.00
CO (PPM)	7.00	59.00	7.00	5.00
CR (PPM)	18.00	676.00	26.00	27.00
CU (PPM)	50.00	77.00	34.00	53.00
HF (PPM)	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND
LI (PPM)	11.00	21.00	15.00	17.00
MN (PPM)	145.00	1141.00	192.00	249.00
MO (PPM)	6.00	6.00	-4.00	5.00
NB (PPM)	-4.00	-4.00	6.00	5.00
NI (PPM)	10.00	172.00	6.00	5.00
P (PPM)	435.00	189.00	417.00	436.00
PB (PPM)	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND
SC (PPM)	3.00	26.00	2.00	4.00
SI (PPM)	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND
SR (PPM)	376.00	123.00	198.00	219.00
TI (PPM)	1521.00	1946.00	1475.00	1728.00
V (PPM)	33.00	170.00	34.00	41.00
Y (PPM)	5.00	10.00	5.00	7.00
ZN (PPM)	21.00	71.00	23.00	21.00
ZR (PPM)	89.00	23.00	71.00	89.00

DRILL HOLE NO. JP-1

AREA: Deep Gulch, Sierra Madre

LOCATION: 1950' FEL 1740 FNL Sec. 36, T. 16 N., R. 88 W.

LATITUDE: 41°19'07"

LONGITUDE: 107°14'24"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM(?)

COLLAR ELEV.: 7760

ANGLE: 60°

BEARING: S 22 E

TOTAL DEPTH: 588'

SPUD DATE: Summer 1979

COMPLETION DATE: Summer 1979

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Metagabbro: 0-200) (Jack Creek Quartzite: 200-346)
(Deep Gulch Conglomerate: 346-420) (Jack Creek Quartzite: 420-588).

RADIOACTIVE ZONES: 309, 382, 409, 412, 414, 418, 421, 422, 423, 501.

CORE LOGGERS: Tony Kratochvil

DRILL HOLE JP-1

OBJECTIVES:

1. Radioactive conglomerates of the Deep Gulch Conglomerate, containing up to 205 ppm U, 840 ppm Th, and no detectable gold, crop out on both sides of Deep Gulch. This hole and all other JP holes were drilled by the private sector in order to intersect these conglomerates at depth to test for uranium grade. Outcrops in Deep Gulch show small-scale isoclinal folding in some portions (Figure 30). Conglomerate horizon K is the only recognized major conglomerate and was used as a marker bed to interpret the subsurface structure drilled in JP-1.
2. We were also interested in comparing the stratigraphy in this area and the character of the conglomerates to those of the Carrico Ranch area to help verify our correlation of the Deep Gulch Conglomerate across a major fault in the East Fork of Savory Creek which offsets this unit about 2 km left-laterally.

CONCLUSIONS:

1. Radioactive conglomerate equivalent to the main surface bed was encountered at 400 feet. This conglomerate zone contains up to 490 ppm U, 483 ppm Th, and 2.51 ppm gold. A dip of 50° of the radioactive zone, seen in outcrop evidently continues in the subsurface and indicated by the projection of JP-1 in Figure 31. Thus, folding seen on the surface appears to be small-scale drag folding related to large-scale movements along faults which parallel the axial planes of major isoclinal folds. Several mesoscopic examples of faulted isoclines can be seen in outcrop.
2. Stratigraphy in the area is somewhat different than in our type areas at Carrico Ranch. "Basement" gneisses are separated from the radioactive Deep Gulch Conglomerate by a thick zone of biotitic quartzite and biotite quartz schist which grade up from gneissic "basement" (Figure 30). This biotite quartzite zone and local paraconglomerates seen on the surface are enigmatic. We don't know whether they are more closely related to "basement" or to the Deep Gulch Conglomerate. However, the fact that they are absent in most outcrops suggests that the Deep Gulch Conglomerate was deposited unconformably on the older metasedimentary succession. Unit 2 appears to have been tectonically removed or thinned from both outcrop and drill hole but it is present at normal thickness on the south side of Deep Gulch.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE JP-1 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 30. PLANE-TABLE MAP SHOWING THE MAJOR CONGLOMERATE HORIZONS, DEEP GULCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from massive gabbro and diabase to foliated amphibolite.

INTRUSIVE CONTACT

UNIT 4: Subarkose, light pink, medium- to coarse-grained; massive, planar-crossbedded. Includes a thin lens of para-conglomerate (pgl) with granite and quartz clasts. Intertongues with micaceous, graded-bedded, medium-grained to granular subarkose (4m) and slightly-muscovitic, trough-crossbedded, medium-grained to granular subarkose (4t). Includes thin lenses of black phyllite (4p).

DEEP GULCH CONGLOMERATE

UNIT 3: Subarkose, very light pink, coarse-grained to granular. Includes 3 to 8 cm thick quartz-pebble conglomerates and one 50 cm thick hematite-stained, pyritic, radioactive, quartz-pebble conglomerate labeled K.

UNIT 1: Subarkose, muscovitic, light gray, coarse-grained to granular; graded-bedding. Includes thin K-feldspar-pebble conglomerates; slightly radioactive.

BIOTITIC QUARTZITE: Subarkose and quartzite, biotitic, gray, very coarse-grained to granular; poorly-sorted.

BIOTITE QUARTZ SCHIST: Numerous small boudinaged quartz veins.

PARA-CONGLOMERATE: Granite and quartz clasts in a matrix of biotite, quartz schist.

UNCONFORMITY?

BIOTITE QUARTZ PLAGIOCLASE GNEISS: medium-grained.

--- Lithologic contact, dashed where uncertain

— Outcrop boundary

..... Conglomerate horizon

— Overturned anticline — showing direction of dip of limbs.

— Overturned syncline — showing direction of dip of limbs and dip of axial plane.

31 Bearing and plunge of minor fold axis.

58 Strike and dip of overturned bedding.

44 Strike and dip of foliation.

Wavy line Trough crossbeds

[16 Sample transects

○ JP-1 60° Drill hole with bearing, plunge angle, total depth, and lithologic contacts projected to map surface
588 ft (179 m)

Figure 31. Cross-section of Deep Gulch,
Northwest Sierra Madre, Wyoming.

DRILL HOLE NUMBER JP1

SAMP. NO.	158508	158506	158507	158505	158510	158478	158095	158096	158097	158372
TOP DEPTH	219.50	244.20	253.70	276.40	288.70	294.00	302.00	308.20	332.50	353.80
BOT DEPTH	219.70	244.30	253.90	279.60	289.00	294.20		308.40	332.80	354.10
FORMATION	JCF	JCF	JCF	JCF	DG	JCF	JCF	JCF	JCF	DG
LITHOLOGY	QZ	BS	QPC	QZ	QPC	QGC	QGC	QGC	QZ	QZ
UL (PPM)	1.77	3.75	9.63	7.37	2.56	7.97	9.34	20.58	17.38	5.03
UT (PPM)	2.15	2.80	9.48	7.47	2.81	10.20	13.40	29.30	14.70	4.60
UL/UT	.82	1.34	1.02	.99	.91	.78	.70	.70	1.18	1.09
TH (PPM)	-2.00	-2.00	9.00	5.00	3.00	18.00	36.00	129.00	36.00	9.00
TH/UT	-.93	-.71	.95	.67	1.07	1.76	2.69	4.40	2.45	1.96
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	7.57	7.16	4.72	6.52	6.23	6.57	4.31	4.72	4.10	5.43
CA (%)	.86	.71	.32	.09	.09	.09	.08	.13	.14	.15
FE (%)	4.51	5.39	2.77	2.03	1.26	2.43	1.97	2.71	1.48	1.40
MG (%)	2.08	3.17	1.51	.98	.53	.94	.60	.80	.59	.72
NA (%)	3.98	2.12	1.16	.37	.65	.53	.19	.05	.61	1.44
K (%)	.96	2.49	1.52	3.39	2.83	2.65	2.44	2.76	2.23	1.94
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	468.00	1024.00	547.00	1527.00	1663.00	1064.00	645.00	708.00	862.00	544.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	4.00	6.00	4.00	3.00
CE (PPM)	36.00	15.00	45.00	26.00	33.00	48.00	51.00	86.00	36.00	13.00
CO (PPM)	13.00	24.00	22.00	8.00	8.00	10.00	16.00	28.00	15.00	12.00
CR (PPM)	76.00	204.00	69.00	63.00	34.00	63.00	54.00	102.00	47.00	54.00
CU (PPM)	10.00	48.00	195.00	5.00	24.00	22.00	48.00	74.00	51.00	27.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	ND	ND	ND	ND
LA (PPM)	57.00	34.00	55.00	38.00	47.00	62.00	ND	ND	ND	ND
LI (PPM)	19.00	31.00	15.00	19.00	12.00	15.00	12.00	17.00	14.00	10.00
MN (PPM)	380.00	409.00	124.00	71.00	70.00	148.00	97.00	109.00	58.00	92.00
MO (PPM)	-4.00	-4.00	48.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	9.00	4.00
NI (PPM)	39.00	107.00	46.00	24.00	21.00	29.00	24.00	40.00	22.00	17.00
P (PPM)	766.00	900.00	229.00	160.00	188.00	314.00	170.00	261.00	169.00	227.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	9.00	15.00	6.00	7.00	4.00	7.00	6.00	8.00	4.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	198.00	184.00	105.00	69.00	135.00	78.00	42.00	23.00	101.00	106.00
TI (PPM)	2771.00	3461.00	1845.00	2554.00	1476.00	2905.00	2786.00	4214.00	1900.00	1637.00
V (PPM)	93.00	141.00	57.00	70.00	43.00	64.00	47.00	56.00	31.00	33.00
Y (PPM)	7.00	7.00	4.00	3.00	2.00	5.00	5.00	16.00	6.00	3.00
ZN (PPM)	34.00	45.00	16.00	16.00	15.00	33.00	18.00	23.00	16.00	6.00
ZR (PPM)	70.00	51.00	47.00	26.00	25.00	121.00	81.00	225.00	31.00	31.00

DRILL HOLE NUMBER JP1

SAMP. NO.	158111	158373	711441	158503	711443	711442	158511	160480	158512	160481
TOP DEPTH	367.10	381.00	410.00	410.80	412.00	416.50	419.50	421.20	421.70	423.50
BOT DEPTH		381.40		411.20			420.00	421.40	421.90	423.80
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	JCF	DG
LITHOLOGY	GPC	QZ	GPC	GPC	GPC	GPC	QGC	QZ	QZ	GPC
UL (PPM)	26.42	34.62	96.12	477.70	30.45	82.53	37.32	44.42	7.12	96.93
UT (PPM)	18.80	27.10	84.40	494.00	29.80	78.50	35.70	53.00	6.41	92.70
UL/UT	1.41	1.28	1.14	.97	1.02	1.05	1.05	.84	1.11	1.05
TH (PPM)	65.00	97.00	87.00	483.00	91.00	322.00	86.00	69.00	20.00	206.00
TH/IT	3.46	3.58	1.03	.98	3.05	4.10	2.41	1.30	3.12	2.22
AU (PPM)	ND	ND	ND	2.51	ND	ND	ND	ND	ND	ND
AL (%)	4.17	4.42	5.35	3.39	4.38	4.33	5.10	3.58	4.36	4.54
CA (%)	.11	.07	-.05	.05	-.05	-.05	.06	-.05	-.05	-.05
FE (%)	1.09	1.01	1.27	2.18	.75	1.23	.58	.61	.50	.98
MG (%)	.40	.50	.25	.18	.20	.20	.34	.18	.25	.27
NA (%)	.65	.99	.13	.08	.14	.13	.16	.16	.17	.17
K (%)	1.96	1.75	2.93	2.07	2.58	2.97	3.35	2.60	2.70	3.09
AG (PPM)	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00
B (PPM)	-10.00	-10.00	22.00	-10.00	15.00	12.00	11.00	-10.00	-10.00	10.00
BA (PPM)	595.00	445.00	788.00	570.00	790.00	886.00	1006.00	858.00	988.00	965.00
BE (PPM)	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	25.00	43.00	98.00	107.00	45.00	47.00	48.00	36.00	39.00	83.00
CO (PPM)	21.00	14.00	21.00	44.00	14.00	46.00	-4.00	9.00	5.00	21.00
CR (PPM)	56.00	76.00	55.00	53.00	26.00	27.00	36.00	19.00	27.00	33.00
CU (PPM)	38.00	60.00	88.00	218.00	42.00	104.00	13.00	45.00	17.00	55.00
HF (PPM)	ND	ND	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	ND	ND	98.00	107.00	51.00	49.00	66.00	45.00	45.00	94.00
LI (PPM)	11.00	8.00	9.00	7.00	7.00	8.00	15.00	7.00	9.00	12.00
MN (PPM)	36.00	43.00	23.00	16.00	17.00	20.00	24.00	20.00	19.00	20.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	9.00
NB (PPM)	-4.00	4.00	8.00	13.00	8.00	5.00	5.00	4.00	4.00	10.00
NI (PPM)	24.00	20.00	23.00	45.00	15.00	22.00	8.00	10.00	10.00	22.00
P (PPM)	152.00	108.00	194.00	216.00	65.00	135.00	124.00	108.00	68.00	127.00
PB (PPM)	ND	ND	38.00	83.00	30.00	42.00	-10.00	18.00	-10.00	35.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	3.00	3.00	2.00	2.00	4.00	2.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	75.00	74.00	45.00	35.00	45.00	60.00	52.00	50.00	55.00	54.00
TI (PPM)	1395.00	1593.00	1691.00	1328.00	1131.00	913.00	1273.00	684.00	1020.00	1271.00
V (PPM)	24.00	25.00	28.00	21.00	16.00	16.00	31.00	15.00	22.00	23.00
Y (PPM)	6.00	7.00	17.00	72.00	10.00	19.00	14.00	9.00	3.00	21.00
ZN (PPM)	7.00	7.00	8.00	7.00	6.00	8.00	8.00	5.00	6.00	7.00
ZR (PPM)	62.00	108.00	126.00	518.00	174.00	344.00	156.00	108.00	59.00	402.00

DRILL HOLE NUMBER JP1

SAMP. NO.	711444	158374	158479	158274	158276	158277	158278	158504	158279	158275
TOP DEPTH	424.00	444.20	464.10	501.00	518.00	547.00	556.00	558.70	562.00	584.00
BOT DEPTH		444.50	464.30		518.60	551.00				
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	QPC	QZ	QGC	QGC	QZ	FQZ	AGC	QZ	FQZ	QZ
UL (PPM)	6.89	10.98	10.58	25.77	3.62	10.84	5.69	19.04	12.76	6.31
UT (PPM)	107.10	9.80	11.50	26.40	2.60	10.30	7.40	18.20	13.90	7.80
UL/UT	.06	1.12	.92	.98	1.39	1.05	.77	1.05	.92	.81
TH (PPM)	222.00	21.00	8.00	216.00	6.00	10.00	17.00	26.00	18.00	16.00
TH/UT	2.07	2.14	.70	8.18	2.31	.97	2.30	1.43	1.30	2.05
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.88	3.73	5.58	2.31	2.41	6.18	3.51	4.15	4.90	3.81
CA (%)	-.05	.09	.15	.09	.07	.10	.07	.10	-.05	.15
FE (%)	.99	.38	2.16	1.86	.39	3.23	1.25	.75	.88	2.81
MG (%)	.37	.25	.86	.31	.18	1.09	.44	.32	.51	.85
NA (%)	.20	.83	2.41	.30	.86	.99	.45	.62	.60	1.19
K (%)	3.31	1.26	1.46	2.13	1.95	3.07	2.00	2.09	2.52	1.60
AG (PPM)	2.00	-2.00	-2.00	3.00	-2.00	2.00	2.00	-2.00	-2.00	2.00
B (PPM)	16.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1107.00	362.00	503.00	649.00	480.00	959.00	621.00	711.00	624.00	517.00
BE (PPM)	2.00	2.00	1.00	4.00	2.00	6.00	3.00	1.00	3.00	4.00
CE (PPM)	105.00	58.00	28.00	55.00	12.00	25.00	27.00	39.00	27.00	36.00
CO (PPM)	17.00	4.00	7.00	29.00	-4.00	19.00	11.00	11.00	9.00	24.00
CR (PPM)	45.00	31.00	56.00	59.00	15.00	103.00	47.00	40.00	74.00	73.00
CU (PPM)	57.00	16.00	16.00	16.00	16.00	15.00	22.00	35.00	22.00	13.00
HF (PPM)	-15.00	ND	-15.00	ND	ND	ND	ND	-15.00	ND	ND
LA (PPM)	120.00	ND	48.00	ND	ND	ND	ND	49.00	ND	ND
LI (PPM)	15.00	5.00	9.00	8.00	2.00	16.00	8.00	10.00	12.00	9.00
MN (PPM)	29.00	27.00	102.00	38.00	25.00	127.00	41.00	28.00	45.00	107.00
MO (PPM)	5.00	-4.00	-4.00	6.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	13.00	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	-4.00	6.00	7.00
NI (PPM)	21.00	8.00	34.00	26.00	9.00	44.00	25.00	48.00	17.00	37.00
P (PPM)	133.00	74.00	151.00	131.00	50.00	201.00	89.00	98.00	107.00	216.00
PB (PPM)	56.00	ND	-10.00	ND	ND	ND	ND	-10.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	3.00	2.00	3.00	1.00	11.00	5.00	4.00	4.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	57.00	52.00	140.00	43.00	52.00	71.00	50.00	42.00	54.00	119.00
TI (PPM)	1682.00	901.00	1749.00	1231.00	555.00	3182.00	1449.00	1061.00	1646.00	2051.00
V (PPM)	31.00	18.00	28.00	15.00	7.00	89.00	37.00	36.00	32.00	42.00
Y (PPM)	20.00	4.00	4.00	15.00	1.00	5.00	3.00	5.00	4.00	6.00
ZN (PPM)	8.00	-2.00	46.00	3.00	-2.00	19.00	4.00	4.00	7.00	16.00
ZR (PPM)	320.00	94.00	71.00	148.00	17.00	88.00	48.00	59.00	80.00	126.00

DRILL HOLE NUMBER JP1

SAMP. NO.	158280
TOP DEPTH	587.00
BOT DEPTH	
FORMATION	JCF
LITHOLOGY	CQZ
UL (PPM)	.55
UT (PPM)	.90
UL/UT	.61
TH (PPM)	2.00
TH/UT	2.22
AU (PPM)	ND
AL (%)	.32
CA (%)	-.05
FE (%)	.07
MG (%)	-.05
NA (%)	.10
K (%)	.18
AG (PPM)	-2.00
B (PPM)	-10.00
BA (PPM)	65.00
BE (PPM)	1.00
CE (PPM)	-10.00
CO (PPM)	-4.00
CR (PPM)	5.00
CU (PPM)	43.00
HF (PPM)	ND
LA (PPM)	ND
LI (PPM)	-1.00
MN (PPM)	7.00
MO (PPM)	-4.00
NB (PPM)	-4.00
NI (PPM)	-2.00
P (PPM)	16.00
PB (PPM)	ND
PT (PPM)	ND
SC (PPM)	-1.00
SI (PPM)	ND
SN (PPM)	ND
SR (PPM)	6.00
TI (PPM)	34.00
V (PPM)	-2.00
Y (PPM)	1.00
ZN (PPM)	3.00
ZR (PPM)	8.00

DRILL HOLE NO. JP-2

AREA: Deep Gulch, Sierra Madre

LOCATION: 2210 FEL 2140' FNL Sec. 36, T. 16 N., R. 88 W.

LATITUDE: 41°19'03"

LONGITUDE: 107°14'30"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM(?)

COLLAR ELEV.: 7717

ANGLE: 50°

BEARING: S 22 E

TOTAL DEPTH: 949'

SPUD DATE: Summer 1979

COMPLETION DATE: Summer 1979

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A

PROBE T.D.:

DATE:

REMARKS: No down hole log available.

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Metagabbro: 0-138) (Deep Gulch Conglomerate Unit 1: 138-170) (Deep Gulch Conglomerate Unit 2: 170-305) (Deep Gulch Conglomerate Unit 3: 305-340) (Jack Creek Quartzite: 340-867) (Metagabbro: 867-949).

RADIOACTIVE ZONES: 168, 179, 199, 200, 215, 219, 222, 319, 321, 349, 420.

CORE LOGGERS: P. Gallagher

DRILL HOLE JP-2

OBJECTIVES:

1. On the south side of Deep Gulch radioactive conglomerates crop out that are not as folded as those on the north side. JP-2 was to intersect these relatively undeformed conglomerates and the surrounding meta-sediments at depth to provide a better picture of the stratigraphy than JP-1 had. Since the conglomerates would not be as tectonically thinned as in JP-1, we would intersect a much thicker section of conglomerates.
2. The occurrence of the biotite quartzite unit north of JP-2 was an enigma to us in 1979 as this was the only known area where it cropped out at that time. It was hoped that JP-2 would intersect the contact between the Deep Gulch Conglomerate and biotite quartzite and give one more piece of information to help resolve the contact relationship.

CONCLUSIONS

1. A surprisingly undeformed stratigraphic section was drilled in JP-2. Unit 3 was encountered at a shallower depth than expected, this was due to a mafic intrusive which pinched out in the subsurface as shown in the cross-section of this hole. A thin slice of Unit 1 was drilled which did not crop out at the surface. This unit is presumably cut out by the mafic intrusive as Unit 1 is seen on the surface 150m to the south. Paraconglomerate which was seen in outcrop and intersected in the drill hole indicates that the paraconglomerate has a significant down-dip extent of at least 190m.
2. Maximum values in JP-2 were 100 ppm U and 337 ppm Th. compared to 490 ppm U and 483 ppm Th. in JP-1 and 205 ppm U and 840 ppm Th. in outcrop. The Th/U ratios varied from 3.7 in JP-2 to 2.7 in JP-1 and 7.2 in outcrop. These Th/U ratios are similar to those at the Carrico Ranch and indicate that the depth of leaching has not appreciably changed. Drill core was locally oxidized in both JP-1 and JP-2 to depths of 200 feet. The difference in maximum uranium values for JP-1 and 2 may be due to the tectonic thinning and possible mobilization of uranium in conglomerates in JP-1 which concentrated the uranium while thorium was immobile. Although an alternate and just as acceptable explanation is the randomness by which fluvial processes concentrate the heavy mineral assemblage, which may have selectively deposited uranium rich minerals at JP-1. See figures 30 and 31 for geologic map and cross-section.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE JP-2 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE JP-2 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

Gross Gamma (CPM) 10 10 ² 10 ³ 10 ⁴				PPMTh 10 10 ² 10 ³			PPMU 10 10 ² 10 ³			Samp.	Scale 1" = 100ft.	Description
										900		867-932': metagabbro, fine- to medium-grained; chloritic.
												932-949': biotite, chlorite, plagioclase schist, sheared metagabbro.
											T.D. 949'	

DRILL HOLE NUMBER JP2

SAMP. NO.	158103	158102	158101	158100	158098	158099	158107	711446	158494	158495
TOP DEPTH	39.00	87.00	109.00	133.00	140.00	154.00	167.80	177.40	194.80	199.00
BOT DEPTH									195.00	199.40
FORMATION	MI	MI	MI	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	DB	DB	DB	QGC	QGC	QZ	QZ	QPC	QZ	QPC
UL (PPM)	1.24	9.85	1.52	3.98	13.61	.53	27.88	37.95	3.33	50.10
UT (PPM)	1.00	6.60	5.10	3.00	11.80	1.10	28.70	38.10	3.97	49.80
UL/UT	1.24	1.49	.30	1.33	1.15	.48	.97	1.00	.84	1.01
TH (PPM)	-2.00	-2.00	-2.00	12.00	16.00	-2.00	219.00	123.00	5.00	227.00
TH/UT	-2.00	-.30	-.39	4.00	1.36	-1.82	7.63	3.23	1.26	4.56
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.57	5.73	4.54	5.81	4.01	4.20	4.55	7.96	4.35	5.22
CA (%)	4.15	5.88	7.56	.99	.39	5.18	.26	.28	.13	.14
FE (%)	5.54	5.56	8.34	1.80	.79	6.76	2.10	1.88	.45	2.39
MG (%)	2.78	2.59	2.54	1.33	.74	3.37	.68	1.18	.44	1.17
NA (%)	1.55	1.44	.90	2.36	1.65	.08	1.36	1.53	2.97	1.12
K (%)	.30	.61	.44	2.03	2.16	2.24	1.72	2.55	.57	1.93
AG (PPM)	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	11.00	-10.00	-10.00
BA (PPM)	63.00	114.00	65.00	853.00	1465.00	395.00	646.00	1265.00	124.00	763.00
BE (PPM)	14.00	6.00	7.00	13.00	5.00	5.00	7.00	1.00	1.00	2.00
CE (PPM)	-10.00	-10.00	-10.00	33.00	25.00	-10.00	121.00	1000.00	-10.00	65.00
CO (PPM)	47.00	45.00	53.00	10.00	10.00	56.00	79.00	21.00	-4.00	55.00
CR (PPM)	383.00	132.00	37.00	131.00	44.00	462.00	120.00	171.00	31.00	93.00
CU (PPM)	52.00	88.00	24.00	-2.00	24.00	106.00	818.00	106.00	3.00	165.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	-15.00	-15.00	-15.00
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	130.00	8.00	78.00
LI (PPM)	10.00	17.00	13.00	23.00	10.00	20.00	15.00	20.00	4.00	14.00
MN (PPM)	993.00	916.00	1498.00	190.00	100.00	1120.00	75.00	81.00	28.00	67.00
MO (PPM)	-4.00	-4.00	-4.00	7.00	-4.00	-4.00	5.00	-4.00	-4.00	137.00
NB (PPM)	-4.00	13.00	7.00	5.00	4.00	-4.00	10.00	-4.00	-4.00	-4.00
NI (PPM)	107.00	87.00	54.00	43.00	22.00	141.00	41.00	53.00	9.00	48.00
P (PPM)	290.00	264.00	266.00	492.00	172.00	278.00	225.00	245.00	74.00	176.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	35.00	-10.00	25.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND
SC (PPM)	22.00	22.00	29.00	9.00	5.00	28.00	10.00	10.00	2.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND
SR (PPM)	346.00	207.00	118.00	131.00	75.00	233.00	54.00	64.00	66.00	38.00
TI (PPM)	4579.00	4257.00	5913.00	4014.00	1817.00	4129.00	3621.00	4012.00	902.00	3208.00
V (PPM)	154.00	178.00	224.00	121.00	48.00	199.00	61.00	ND	21.00	57.00
Y (PPM)	8.00	12.00	19.00	9.00	5.00	11.00	25.00	110.00	2.00	23.00
ZN (PPM)	36.00	62.00	73.00	22.00	11.00	60.00	11.00	14.00	6.00	23.00
ZR (PPM)	35.00	26.00	30.00	81.00	54.00	22.00	155.00	132.00	49.00	281.00

DRILL HOLE NUMBER JP2

SAMP. NO.	158496	158270	158271	158272	158497	711435	158498	711449	158273	158298
TOP DEPTH	200.50	216.50	230.50	311.30	318.50	319.00	320.80	321.00	346.50	384.80
BOT DEPTH					319.50		321.50			
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	JCF	JCF
LITHOLOGY	QGC	QGC	QGC	QGC	QPC	QPC	QPC	QPC	QGC	QGC
UL (PPM)	19.87	27.95	19.39	24.89	67.80	11.63	40.81	62.65	17.19	2.20
UT (PPM)	25.90	26.40	16.60	29.30	65.10	102.00	38.30	60.80	21.50	2.30
UL/UT	.77	1.06	1.17	.85	1.04	.11	1.07	1.03	.80	.96
TH (PPM)	337.00	145.00	36.00	82.00	109.00	163.00	127.00	231.00	20.00	5.00
TH/UT	13.01	5.49	2.17	2.80	1.67	1.60	3.32	3.80	.93	2.17
AU (PPM)	ND	ND	ND	ND	-2.20	ND	ND	ND	ND	ND
AL (%)	5.81	4.30	3.90	3.30	2.50	4.53	4.54	4.61	2.87	3.22
CA (%)	.28	.24	.11	-.05	-.05	-.05	.05	.08	.14	.06
FE (%)	1.64	1.94	1.13	2.02	2.50	2.56	.97	1.63	1.34	.44
MG (%)	.92	.86	.40	.19	.15	.28	.25	.33	.74	.27
NA (%)	3.01	.74	.79	.14	.05	.10	.12	.10	1.19	1.09
K (%)	1.08	2.00	1.92	2.68	1.56	2.60	3.01	2.96	1.40	1.22
AG (PPM)	2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	6.00	5.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	12.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	366.00	711.00	1198.00	823.00	436.00	656.00	951.00	862.00	335.00	251.00
BE (PPM)	1.00	5.00	2.00	2.00	1.00	1.00	1.00	1.00	6.00	1.00
CE (PPM)	66.00	49.00	39.00	37.00	50.00	81.00	113.00	192.00	20.00	18.00
CO (PPM)	57.00	20.00	13.00	44.00	44.00	47.00	29.00	54.00	11.00	6.00
CR (PPM)	119.00	71.00	36.00	22.00	22.00	36.00	27.00	49.00	40.00	23.00
CU (PPM)	17.00	80.00	31.00	62.00	58.00	162.00	17.00	48.00	405.00	8.00
HF (PPM)	-15.00	ND	ND	ND	-15.00	-15.00	-15.00	-15.00	ND	ND
LA (PPM)	79.00	ND	ND	ND	60.00	92.00	152.00	241.00	ND	ND
LI (PPM)	8.00	17.00	8.00	4.00	5.00	10.00	8.00	9.00	7.00	5.00
MN (PPM)	57.00	78.00	49.00	19.00	17.00	26.00	20.00	30.00	68.00	30.00
MO (PPM)	29.00	-4.00	-4.00	-4.00	4.00	100.00	4.00	-4.00	4.00	-4.00
NR (PPM)	-4.00	11.00	6.00	5.00	9.00	19.00	7.00	7.00	5.00	-4.00
NI (PPM)	36.00	25.00	12.00	31.00	29.00	37.00	15.00	30.00	37.00	12.00
P (PPM)	393.00	244.00	78.00	107.00	93.00	151.00	284.00	216.00	338.00	65.00
PB (PPM)	32.00	ND	ND	ND	62.00	160.00	-10.00	17.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	4.00	4.00	3.00	2.00	3.00	3.00	3.00	6.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	100.00	48.00	118.00	76.00	28.00	38.00	54.00	48.00	53.00	34.00
TI (PPM)	2741.00	3061.00	1710.00	1041.00	695.00	1240.00	886.00	1025.00	1611.00	562.00
V (PPM)	50.00	33.00	25.00	17.00	14.00	26.00	21.00	24.00	33.00	13.00
Y (PPM)	23.00	17.00	6.00	9.00	15.00	24.00	17.00	26.00	4.00	1.00
ZN (PPM)	9.00	8.00	4.00	4.00	6.00	9.00	4.00	7.00	8.00	7.00
ZR (PPM)	454.00	133.00	94.00	137.00	96.00	116.00	193.00	275.00	103.00	18.00

DRILL HOLE NUMBER JP2

SAMP. NO.	711438	158309	158310	158311	158321	158322	158323	158313	158314	158315
TOP DEPTH	408.70	416.50	446.20	478.00	508.00	538.00	567.50	599.00	621.00	655.00
BOT DEPTH										
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	GPC	GGC	CQZ	CQZ	FQZ	FQZ	CQZ	CQZ	GGC	CQZ
UL (PPM)	51.40	12.40	2.37	1.30	2.00	6.70	2.79	12.05	.85	1.35
UT (PPM)	49.10	13.00	1.90	20.50	2.00	5.90	2.40	14.30	1.20	1.40
UL/UT	1.05	.95	1.25	.06	1.00	1.14	1.16	.84	.71	.96
TH (PPM)	63.00	48.00	8.00	7.00	5.00	17.00	4.00	34.00	-2.00	3.00
TH/UT	1.28	3.69	4.21	.34	2.50	2.88	1.67	2.38	-1.67	2.14
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.05	2.12	3.72	4.27	2.37	10.67	2.49	3.91	2.14	3.79
CA (%)	-.05	-.05	-.05	.18	.07	.12	.34	.25	.27	-.05
FE (%)	2.48	.51	.33	1.32	.50	3.38	1.38	1.15	.16	.29
MG (%)	.15	.09	.23	.56	.19	1.88	.63	.51	.08	.23
NA (%)	.14	.65	.43	1.90	.84	.11	.84	.61	.51	.40
K (%)	2.54	1.04	2.32	.83	.62	4.82	.78	1.87	1.35	2.29
AG (PPM)	-2.00	4.00	-2.00	-2.00	-2.00	4.00	-2.00	-2.00	2.00	-2.00
B (PPM)	14.00	-10.00	-10.00	-10.00	-10.00	15.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	722.00	174.00	464.00	151.00	167.00	893.00	119.00	763.00	386.00	561.00
BE (PPM)	1.00	-1.00	1.00	2.00	1.00	10.00	1.00	3.00	1.00	1.00
CE (PPM)	36.00	15.00	17.00	26.00	16.00	67.00	11.00	30.00	13.00	19.00
CO (PPM)	46.00	15.00	4.00	15.00	9.00	35.00	12.00	8.00	-4.00	-4.00
CR (PPM)	26.00	52.00	32.00	40.00	18.00	210.00	39.00	47.00	8.00	29.00
CU (PPM)	78.00	6.00	14.00	62.00	50.00	5.00	19.00	17.00	4.00	17.00
HF (PPM)	-15.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	40.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	2.00	7.00	6.00	4.00	29.00	7.00	9.00	1.00	8.00
MN (PPM)	16.00	11.00	19.00	47.00	24.00	249.00	204.00	68.00	43.00	19.00
MO (PPM)	4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	13.00	-4.00	-4.00	-4.00	-4.00	15.00	-4.00	5.00	-4.00	-4.00
NI (PPM)	29.00	17.00	9.00	22.00	16.00	52.00	20.00	14.00	3.00	11.00
P (PPM)	88.00	32.00	25.00	100.00	28.00	572.00	111.00	159.00	14.00	73.00
PB (PPM)	40.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	1.00	2.00	2.00	1.00	20.00	3.00	5.00	-1.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	48.00	26.00	26.00	116.00	43.00	26.00	68.00	68.00	83.00	42.00
TI (PPM)	947.00	249.00	629.00	775.00	297.00	4823.00	796.00	1656.00	111.00	704.00
V (PPM)	22.00	5.00	15.00	22.00	11.00	177.00	25.00	35.00	2.00	19.00
Y (PPM)	8.00	4.00	1.00	3.00	2.00	14.00	4.00	6.00	1.00	2.00
ZN (PPM)	10.00	5.00	6.00	17.00	-2.00	39.00	11.00	15.00	-2.00	4.00
ZR (PPM)	64.00	48.00	17.00	39.00	21.00	63.00	22.00	47.00	7.00	19.00

DRILL HOLE NUMBER JP2

SAMP. NO.	158316	158317	158319	158320	158307	158308	158312
TOP DEPTH	686.00	711.00	730.50	761.00	780.00	829.00	942.00
BOT DEPTH							
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	QZ	QZ	QZ	QZ	PHQZ	PHQZ	PHQZ
UL (PPM)	3.65	16.21	9.18	2.50	4.11	1.98	5.11
UT (PPM)	3.60	11.80	7.50	2.70	3.20	1.60	5.30
UL/UT	1.01	1.37	1.22	.93	1.28	1.24	.96
TH (PPM)	10.00	4.00	14.00	5.00	-2.00	29.00	14.00
TH/UT	2.78	.34	1.87	1.85	-.63	18.14	2.64
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	7.52	2.46	6.30	2.19	5.32	2.14	5.14
CA (%)	.29	.42	.08	.23	4.65	.09	.91
FE (%)	6.45	.86	.96	.21	4.32	.46	3.15
MG (%)	1.88	.27	.71	.13	2.94	.14	1.93
NA (%)	.64	.85	.64	.09	.99	.55	.71
K (%)	3.01	1.08	2.67	1.65	1.01	1.49	3.74
AG (PPM)	-2.00	5.00	-2.00	3.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	562.00	296.00	774.00	345.00	221.00	386.00	731.00
BE (PPM)	9.00	3.00	4.00	1.00	3.00	1.00	6.00
CE (PPM)	14.00	35.00	12.00	17.00	-10.00	31.00	66.00
CO (PPM)	41.00	7.00	38.00	4.00	38.00	9.00	19.00
CR (PPM)	167.00	30.00	93.00	19.00	257.00	36.00	77.00
CU (PPM)	61.00	31.00	9.00	10.00	17.00	12.00	36.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	20.00	4.00	19.00	5.00	9.00	4.00	34.00
MN (PPM)	389.00	65.00	56.00	28.00	813.00	18.00	514.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00
NB (PPM)	12.00	-4.00	4.00	-4.00	6.00	-4.00	15.00
NI (PPM)	76.00	16.00	30.00	6.00	70.00	11.00	34.00
P (PPM)	431.00	127.00	92.00	32.00	133.00	53.00	342.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	24.00	2.00	5.00	1.00	26.00	1.00	11.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	84.00	67.00	28.00	16.00	101.00	42.00	81.00
TI (PPM)	5824.00	889.00	1923.00	351.00	2415.00	408.00	3160.00
V (PPM)	188.00	15.00	45.00	7.00	138.00	8.00	69.00
Y (PPM)	6.00	4.00	4.00	1.00	7.00	3.00	21.00
ZN (PPM)	58.00	7.00	5.00	5.00	44.00	9.00	23.00
ZR (PPM)	96.00	27.00	75.00	13.00	18.00	43.00	72.00

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DRILL HOLE NO. JP-3

AREA: Deep Gulch, Sierra Madre

LOCATION: 70' FWL 1000' FSL, sec. 30, T. 16 N., R. 87 W.

LATITUDE: 41°19'33"

LONGITUDE: 107°13'59"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM(?)

COLLAR ELEV.: 7910

ANGLE: 45°

BEARING: S 24 E

TOTAL DEPTH: 420'

SPUD DATE: Fall, 1979

COMPLETION DATE: Fall, 1979

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A

PROBE T.D.:

DATE:

REMARKS: No down hole log available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Jack Creek Quartzite: 0-264) (Metagabbro: 264-282)
(Jack Creek Quartzite: 282-371) (Deep Gulch Conglomerate Unit 1: 371-420)

RADIOACTIVE ZONES: 252, 287, 298

CORE LOGGERS: R. Bentley

DRILL HOLE JP-3

OBJECTIVES:

1. Northeast of Deep Gulch, Unit 3 crops out over a limited area which is partially covered by vegetation, the conglomerates in this area are thinner and less radioactive than those at Deep Gulch. Conglomerate K, which we had been using to correlate conglomerate horizons at Carrico Ranch and Deep Gulch, wasn't recognized in this area or at Ridge 1, Manning Ranch. Because there was no outcrop of sediments stratigraphically below Unit 3, JP-3 was to drill through the lower Deep Gulch Conglomerate and intersect Unit 3 below the zone of leaching.

2. The lack of outcrop at the JP-3 drill site made drilling the only possible method of determining structure in the area. Isolated outcrops to the north suggest the possibility of folding or faulting in the area. The proximity of Deep Gulch and the drag folding present there also suggest that folding may be encountered at depth.

CONCLUSIONS:

1. JP-3 drilled through a hornblende schist until 250 feet, this schist is interpreted as either a "basement" metavolcanic or a younger sill or dike. Biotite quartzite was drilled until 371 feet when subarkose, indicative of Unit 1 was drilled. The hole was then terminated at 420 feet when it became apparent that a fault had downdropped metasediments north of the Unit 3 outcrop, as shown in Figure 32. and the hole would have to be drilled to a greater depth to intersect Unit 3.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE JP-3 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 32. CROSS-SECTION OF DRILL HOLE JP-3, DEEP GULCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from massive gabbro and diabase to foliated amphibolite. Includes quartz veins (qv).

INTRUSIVE CONTACT

UNIT 4: Arkose, light pink, medium- to coarse-grained; massive, well-sorted. Inter-tongues with muscovitic arkose (4 m), black phyllite (4 p), and graywacke (4g). Overlain by fine-grained quartzite (4q). Contains occasional crossbeds and thin arkosic conglomerates (acgl).

DEEP GULCH CONGLOMERATE

UNIT 3: Subarkose, light pink, very coarse-grained to granular; plane-bedded. Includes 5 to 45 cm thick beds of hematite-stained, pyritic, radioactive quartz-pebble conglomerate. Individual strongly radioactive conglomerates are labeled J, K and L.

UNIT 2: Arkose to subarkose, muscovitic, light gray, coarse-grained; abundant small-scale trough crossbeds, slightly pyritic, becoming very muscovitic (2m). Contains one thin, slightly-radioactive arkosic conglomerate (acgl).

UNIT 1: Arkose, light gray, medium-grained; poorly-sorted. Interbedded medium-grained quartzarenite (1q) and quartzarenite to subarkose (1qs). Contains thin quartz-pebble (qp) and arkosic (acgl) conglomerates.

UNCONFORMITY

BIOTITE QUARTZ PLAGIOCLASE GNEISS: medium-grained.

——— Lithologic contact, dashed where uncertain

——— Outcrop boundary, dashed where uncertain

..... Conglomerate horizon

← Approximate axis of fold

70° / 71° Strike and dip of bedding; overturned

39° Strike and dip of foliation

Λ Fining upward sequences

Planar crossbeds

Trough crossbeds

|| Sample transects

Figure 32. Cross Section of Drill Hole JP-3, Deep Gulch, Northwest Sierra Madre, Wyoming. See explanations of Deep Gulch and Ridge 3, Carrico Ranch for lithologies. Surface geology from unpublished map of the Northwest Sierra Madre.

DRILL HOLE NUMBER JP3

SAMP. NO.	158074	158075	158076	158078	158086	158089	158480	158087	158502	711448
TOP DEPTH	24.00	75.00	120.00	147.00	214.00	229.00	252.00	253.00	287.00	287.70
BOT DEPTH							252.20		287.70	
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	QZ	SC	CSC	CSC	PHQZ	PHQZ	AGC	PHQZ	GPC	GPC
UL (PPM)	.64	-.25	1.52	-.25	3.65	1.38	12.43	5.16	74.14	90.02
UT (PPM)	.60	.20	.80	.10	3.40	1.40	13.20	7.90	78.10	89.10
UL/UT	1.07	-1.26	1.90	-2.53	1.07	.99	.94	.65	.95	1.01
TH (PPM)	5.00	-2.00	5.00	-2.00	6.00	4.00	83.00	30.00	132.00	216.00
TH/UT	8.35	-10.05	6.26	-20.20	1.77	2.86	6.29	3.80	1.69	2.42
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.18	5.85	4.62	5.14	6.00	5.59	4.98	4.32	4.93	5.30
CA (%)	1.84	5.51	1.52	4.61	.96	.84	.07	.05	-.05	.06
FE (%)	4.03	6.01	3.37	6.91	4.82	3.76	1.26	1.35	1.63	2.50
MG (%)	1.74	3.48	1.87	3.06	3.00	2.18	.40	.44	.28	.33
NA (%)	1.91	1.28	2.13	1.31	2.08	2.05	.69	.45	.23	.28
K (%)	1.22	.46	1.19	.83	1.49	1.14	2.26	3.12	2.99	2.95
AG (PPM)	-2.00	3.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	13.00	-10.00	-10.00	-10.00
BA (PPM)	635.00	162.00	588.00	430.00	701.00	371.00	707.00	881.00	950.00	924.00
BE (PPM)	4.00	5.00	10.00	4.00	7.00	4.00	1.00	3.00	1.00	1.00
CE (PPM)	11.00	-10.00	17.00	-10.00	17.00	33.00	43.00	23.00	53.00	66.00
CO (PPM)	26.00	48.00	18.00	56.00	26.00	22.00	18.00	12.00	43.00	54.00
CR (PPM)	65.00	297.00	59.00	263.00	94.00	78.00	78.00	54.00	34.00	43.00
CU (PPM)	39.00	85.00	69.00	28.00	23.00	15.00	34.00	26.00	71.00	185.00
HF (PPM)	ND	ND	ND	ND	ND	ND	-15.00	ND	-15.00	-15.00
LA (PPM)	ND	ND	ND	ND	ND	ND	53.00	ND	66.00	76.00
LI (PPM)	26.00	18.00	24.00	17.00	40.00	27.00	21.00	17.00	12.00	15.00
MN (PPM)	660.00	1260.00	420.00	1251.00	704.00	414.00	45.00	76.00	27.00	41.00
MO (PPM)	-4.00	6.00	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	4.00	6.00	4.00	-4.00	14.00	5.00	-4.00	-4.00	7.00	15.00
NI (PPM)	50.00	111.00	44.00	149.00	70.00	53.00	21.00	23.00	34.00	37.00
P (PPM)	503.00	215.00	463.00	219.00	696.00	587.00	205.00	130.00	125.00	174.00
PR (PPM)	ND	ND	ND	ND	ND	ND	-10.00	ND	37.00	79.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	29.00	8.00	28.00	10.00	8.00	4.00	4.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	343.00	218.00	367.00	270.00	183.00	215.00	73.00	88.00	67.00	67.00
TI (PPM)	3416.00	2515.00	3063.00	3988.00	3319.00	2881.00	1772.00	1931.00	1354.00	1400.00
V (PPM)	97.00	189.00	63.00	215.00	101.00	85.00	36.00	41.00	25.00	26.00
Y (PPM)	6.00	11.00	8.00	11.00	7.00	7.00	8.00	6.00	16.00	19.00
ZN (PPM)	67.00	76.00	46.00	78.00	80.00	52.00	9.00	15.00	7.00	11.00
ZR (PPM)	45.00	13.00	57.00	15.00	55.00	38.00	80.00	77.00	225.00	216.00

DRILL HOLE NUMBER JP3

SAMP. NO.	158091	158093	158104	158108	158109	158110	158481
TOP DEPTH	298.00	347.00	365.00	385.30	402.00	411.00	419.00
BOT DEPTH							419.30
FORMATION	JCF	JCF	JCF	DG	DG	DG	DG
LITHOLOGY	PHQZ	PBQZ	PBQZ	QPC	PHQZ	PHQZ	QGC
UL (PPM)	8.35	2.44	1.55	7.38	5.26	3.50	5.03
UT (PPM)	6.00	2.80	1.40	9.70	4.20	1.60	5.68
UL/UT	1.39	.87	1.11	.76	1.25	2.19	.89
TH (PPM)	7.00	18.00	7.00	17.00	15.00	3.00	17.00
TH/UT	1.17	6.43	5.00	1.75	3.57	1.88	2.99
AU (PPM)	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.52	2.69	3.13	4.83	5.30	1.00	2.44
CA (%)	.19	-.05	-.05	.08	.11	-.05	1.36
FE (%)	.78	.48	.43	2.12	1.21	.25	.87
MG (%)	.42	.22	.19	.57	.64	.07	.26
NA (%)	.95	.37	.80	.30	.31	.06	.91
K (%)	1.58	1.66	1.88	2.91	3.44	1.49	.89
AG (PPM)	3.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	619.00	465.00	466.00	809.00	685.00	403.00	362.00
BE (PPM)	2.00	1.00	3.00	4.00	8.00	-1.00	-1.00
CE (PPM)	22.00	-10.00	15.00	-10.00	-10.00	-10.00	16.00
CO (PPM)	8.00	4.00	6.00	31.00	-4.00	-4.00	6.00
CR (PPM)	19.00	42.00	29.00	64.00	125.00	7.00	34.00
CU (PPM)	31.00	20.00	53.00	76.00	2.00	21.00	103.00
HF (PPM)	ND	ND	ND	ND	ND	ND	-15.00
LA (PPM)	ND	ND	ND	ND	ND	ND	18.00
LI (PPM)	10.00	8.00	8.00	25.00	31.00	1.00	6.00
MN (PPM)	78.00	19.00	22.00	127.00	55.00	24.00	143.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00
NB (PPM)	4.00	-4.00	4.00	14.00	7.00	-4.00	-4.00
NI (PPM)	13.00	11.00	14.00	25.00	13.00	4.00	14.00
P (PPM)	56.00	74.00	56.00	80.00	44.00	33.00	115.00
PB (PPM)	ND	ND	ND	ND	ND	ND	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	2.00	7.00	11.00	-1.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	66.00	36.00	44.00	29.00	24.00	26.00	85.00
TI (PPM)	731.00	824.00	798.00	2107.00	2922.00	62.00	618.00
V (PPM)	20.00	18.00	13.00	47.00	67.00	-2.00	17.00
Y (PPM)	2.00	2.00	1.00	4.00	4.00	1.00	5.00
ZN (PPM)	27.00	14.00	5.00	10.00	10.00	-2.00	6.00
ZR (PPM)	30.00	65.00	25.00	80.00	134.00	14.00	53.00

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DRILL HOLE NO. JP-4

AREA: Manning Ranch, Sierra Madre

LOCATION: 1640' FEL 1050' FNL Sec. 30, T. 16 N., R. 87 W.

LATITUDE: 41°20'05"

LONGITUDE: 107°13'15"

COUNTY: Carbon

TOPOGRAPHIC QUAD Divide Peak

SURFACE REGULATOR: BLM(?)

COLLAR ELEV.: 7860

ANGLE: 45°

BEARING: S O E

TOTAL DEPTH: 413'

SPUD DATE: Fall, 1979

COMPLETION DATE: Fall, 1979

GROSS GAMMA LOGGING:

INSTRUMENT: Core logged with hand-held McPhar TV-1A

PROBE T.D.:

DATE:

REMARKS: No down hole logs available

KUT LOGGING:

INSTRUMENT:

PROBE T.D.:

DATE:

REMARKS: No KUT log available

STRATIGRAPHIC UNITS: (Tertiary Conglomerate: 0-76) (Deep Gulch Conglomerate Units 1 and 2: 76-283) (Deep Gulch Conglomerate Unit 3: 283-334) (Deep Gulch Conglomerate Unit 3p: 334-380') (Deep Gulch Conglomerate Unit 3: 380-413')

RADIOACTIVE ZONES: 283, 284, 285, 286, 287

CORE LOGGERS: C. Coolidge

DRILL HOLE JP-4

OBJECTIVES

1. Ridge 1, Manning Ranch contains the thickest section of continuous outcrop of Unit 3 at Manning Ranch; also present are a few other very radioactive conglomerates (20 ppm U; 365 ppm Th.) but these are thin (6" or less) compared with those at Ridge 1, Carrico Ranch. JP-4 was to intersect these conglomerates at depth to determine the unleached uranium and thorium values and determine if this thick section of conglomerates is continuous in the subsurface. JP-4 was also to give information on stratigraphy below Unit 3, which is a problem in the Manning Ranch area because Units 1 and 2 are not recognizable as mappable lithofacies in outcrop.
2. After drilling the fault in JP-3, it was of interest to see if JP-4 would intersect a continuation of that fault which would be buried beneath Tertiary sediments north of Ridge 1. Any structures revealed would help explain the occurrence of Jack Creek Quartzite sediments north of Ridge 1 (Figure 33).

CONCLUSIONS:

1. Conglomerates of lower Unit 3 were encountered between 283 feet and 334 feet. Upper Unit 3 conglomerates were intersected between 380 feet and 413 feet (no radioactive conglomerates were detected). This shows that bedding dips uniformly at approximately 40 degrees. As shown in Figure 34 the lower Unit 3 contained a few conglomerates which we felt were correlatable with those on the surface. The maximum values of Unit 3 were 47.7 ppm U, 653 ppm Th compared to outcrop values of 19.6 ppm U, 365 ppm Th. Mean Th/U ratio in outcrop was 13.2 and in drill hole 11.7 suggesting that, in this area Th/U values may not be related to surface leaching but might, instead, indicate a change to more thorium-rich minerals of the conglomerates at depth. No distinction could be made between Units 1 and 2 in drill core, although there is a possibility that Unit 1 sub-crops north of where JP-4 was located and hence was not drilled.
2. The uniform dip of the bedding and correlation of lithologies above Unit 3 in drill core indicate that a fault was not intersected north of the outcrop at Ridge 1. Throughout the northwestern Sierra Madre we find that all our drill holes indicate the metasediments dip to the north-northwest at a fairly constant angle; hence the drill holes reveal little about the general structure of the area other than the fact we are probably on the overturned limb of a large isoclinal fold (Figure 34).

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE JP-4 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

FIGURE 33. PLANE-TABLE MAP SHOWING MAJOR CONGLOMERATE HORIZONS, RIDGE 1, MANNING RANCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from massive gabbro and diabase to foliated amphibolite.

INTRUSIVE CONTACT

UNIT 4: Subarkose, very coarse-grained to granular, slightly muscovitic; with massive subarkose lenses. Also includes: chlorite, biotite, quartz schist (4p) and coarse-grained, poorly-sorted, muscovitic subarkose (4m). Overlain by well-sorted, medium-grained, massive quartzarenite (4q) and well-sorted, medium-grained, massive subarkose (4s).

DEEP GULCH CONGLOMERATE

UNIT 3: Subarkose, granular, micaceous; with hematite-stained pyritic, radioactive quartz-pebble conglomerates, 2-35 cm thick. Also includes layers of very coarse-grained to granular, micaceous subarkose (3m), and biotite, chlorite, quartz schist with boudinaged quartz veins (3p). Conglomerate IN is strongly radioactive.

UNIT 1: (Includes Units 1 and 2 from Carrico Ranch area)
Subarkose, coarse-grained to granular, micaceous; lenses of medium- to coarse-grained, massive subarkose. Interbedded with biotite subarkose, (graywacke) (1g), and muscovitic quartz schist (1m). Contains thin subarkose and quartz-pebble conglomerates (qpc).

- — — — — Lithologic contact, dashed where uncertain
- · — · — Outcrop boundary, dashed where uncertain
- · — · — Outcrop boundary and conglomerate horizon
- Conglomerate horizon
- - - - - Lithologic contacts projected to surface from drill hole data
- 55 ↘ Strike and dip of overturned beds
- ||||| Planar crossbeds
- ~~~~~ Trough crossbeds
- 19 ↙ Sample transects

Figure 34. Cross-Section of Ridge 1,
Manning Ranch, Northwest Sierra
Madre, Wyoming.

DRILL HOLE NUMBER JP4

SAMP. NO.	158088	158090	158092	158094	158106	158105	158296	158266	158297	158299
TOP DEPTH	53.00	83.80	95.00	123.00	138.50	145.00	159.50	185.50	203.00	228.00
BOT DEPTH										
FORMATION	TBP	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	C	PBQZ	CQZ	QPC	QPC	CQZ	QGC	MQZ	MQZ	CQZ
UL (PPM)	11.47	3.00	3.97	1.98	95.59	5.32	.48	1.82	4.12	1.05
UT (PPM)	8.49	3.00	4.30	2.20	41.80	4.70	.90	2.10	5.50	1.10
UL/UT	1.35	1.00	.92	.90	2.29	1.13	.53	.87	.75	.95
TH (PPM)	5.00	18.00	6.00	14.00	173.00	10.00	6.00	12.00	13.00	6.00
TH/UT	.59	6.00	1.40	6.37	4.14	2.13	6.67	5.72	2.36	5.46
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.25	3.44	3.27	3.91	4.20	2.40	3.12	2.92	5.32	3.75
CA (%)	2.99	.07	.08	.12	-.05	-.05	.09	.12	.07	.13
FE (%)	2.76	1.25	.94	1.62	1.16	.39	1.20	1.13	1.18	1.19
MG (%)	1.20	.42	.32	.59	.24	.16	.45	.46	.52	.56
NA (%)	1.00	.82	.47	1.45	.12	.08	1.26	1.24	.37	1.31
K (%)	1.02	2.62	2.36	1.42	3.42	3.07	1.03	1.14	2.72	1.59
AG (PPM)	4.00	-2.00	-2.00	-2.00	2.00	-2.00	6.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	17.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	319.00	905.00	1069.00	397.00	1040.00	876.00	333.00	625.00	709.00	527.00
BE (PPM)	8.00	4.00	2.00	2.00	4.00	2.00	2.00	4.00	4.00	4.00
CE (PPM)	23.00	25.00	27.00	16.00	66.00	27.00	23.00	34.00	17.00	11.00
CO (PPM)	16.00	5.00	4.00	9.00	13.00	-4.00	7.00	6.00	10.00	10.00
CR (PPM)	108.00	42.00	26.00	21.00	39.00	24.00	19.00	29.00	44.00	44.00
CU (PPM)	26.00	23.00	11.00	20.00	61.00	12.00	6.00	60.00	70.00	10.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	16.00	9.00	7.00	9.00	8.00	5.00	7.00	7.00	15.00	10.00
MN (PPM)	443.00	79.00	61.00	69.00	30.00	18.00	71.00	91.00	74.00	67.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	4.00	-4.00	-4.00	-4.00
NR (PPM)	4.00	-4.00	-4.00	5.00	11.00	-4.00	6.00	-4.00	5.00	8.00
NI (PPM)	32.00	8.00	8.00	14.00	23.00	6.00	9.00	12.00	10.00	12.00
P (PPM)	324.00	110.00	94.00	113.00	163.00	65.00	70.00	69.00	166.00	175.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	2.00	2.00	3.00	4.00	2.00	2.00	3.00	5.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	230.00	128.00	108.00	126.00	123.00	83.00	89.00	69.00	45.00	97.00
TI (PPM)	2618.00	1356.00	880.00	1687.00	1493.00	676.00	778.00	1237.00	1908.00	1344.00
V (PPM)	73.00	28.00	20.00	28.00	39.00	14.00	15.00	19.00	39.00	27.00
Y (PPM)	8.00	2.00	3.00	3.00	59.00	3.00	2.00	3.00	5.00	4.00
ZN (PPM)	26.00	17.00	13.00	14.00	30.00	11.00	20.00	18.00	17.00	12.00
ZR (PPM)	37.00	30.00	23.00	29.00	365.00	49.00	24.00	27.00	49.00	22.00

DRILL HOLE NUMBER JP4

SAMP. NO.	158300	158301	711452	158499	711445	158500	158501	158302	158303	158304
TOP DEPTH	254.00	284.00	284.00	288.50	288.90	291.50	293.00	330.00	353.00	375.00
BOT DEPTH										
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	JCF	JCF
LITHOLOGY	CQZ	QGC	QPC	QPC	QPC	AGC	QPC	QPC	QPC	CQZ
UL (PPM)	.58	16.82	66.52	14.67	12.33	60.18	33.84	1.41	2.90	-.25
UT (PPM)	1.40	4.20	23.30	14.00	13.50	47.40	44.80	1.20	2.20	.10
UL/UT	.41	4.01	2.86	1.05	.91	1.27	.76	1.18	1.32	-2.53
TH (PPM)	10.00	117.00	382.00	223.00	393.00	646.00	653.00	5.00	3.00	-2.00
TH/UT	7.15	27.86	16.40	15.93	29.11	13.63	14.58	4.17	1.36	-20.20
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.59	3.69	5.21	4.34	4.49	2.93	2.65	2.67	1.10	5.57
CA (%)	.05	.06	.08	-.05	-.05	.05	-.05	-.05	-.05	5.99
FE (%)	.92	1.37	2.54	1.59	2.42	2.45	3.44	.53	.30	5.60
MG (%)	.47	.41	.42	.20	.24	.12	.12	.16	.05	3.88
NA (%)	.61	.45	.67	.47	.33	.09	.14	.70	.16	1.14
K (%)	2.81	2.00	2.37	2.44	2.29	2.03	1.47	1.98	1.08	.29
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	5.00
B (PPM)	10.00	-10.00	13.00	-10.00	16.00	10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1109.00	568.00	689.00	1011.00	831.00	716.00	472.00	689.00	265.00	59.00
BE (PPM)	4.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00
CE (PPM)	55.00	44.00	44.00	36.00	37.00	39.00	42.00	16.00	10.00	-10.00
CO (PPM)	5.00	29.00	62.00	41.00	48.00	42.00	67.00	4.00	-4.00	42.00
CR (PPM)	48.00	49.00	67.00	27.00	37.00	46.00	55.00	16.00	7.00	326.00
CU (PPM)	12.00	111.00	432.00	118.00	89.00	35.00	51.00	12.00	8.00	8.00
HF (PPM)	ND	ND	-15.00	-15.00	-15.00	-15.00	-15.00	ND	ND	ND
IA (PPM)	ND	ND	42.00	44.00	36.00	37.00	36.00	ND	ND	ND
LI (PPM)	15.00	16.00	20.00	7.00	10.00	4.00	4.00	3.00	1.00	8.00
MM (PPM)	47.00	34.00	38.00	21.00	28.00	29.00	12.00	20.00	15.00	1124.00
MO (PPM)	-4.00	-4.00	6.00	5.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00
NB (PPM)	9.00	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	7.00	33.00	64.00	50.00	34.00	27.00	31.00	8.00	4.00	91.00
P (PPM)	106.00	190.00	248.00	136.00	104.00	140.00	134.00	36.00	27.00	165.00
PB (PPM)	ND	ND	65.00	73.00	74.00	10.00	11.00	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	4.00	3.00	2.00	2.00	1.00	2.00	1.00	-1.00	33.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	102.00	56.00	62.00	83.00	56.00	52.00	31.00	71.00	16.00	124.00
TI (PPM)	1602.00	1840.00	1877.00	1042.00	1344.00	631.00	883.00	258.00	53.00	3221.00
V (PPM)	33.00	32.00	32.00	20.00	23.00	22.00	20.00	7.00	2.00	191.00
Y (PPM)	4.00	9.00	18.00	14.00	23.00	47.00	41.00	1.00	1.00	8.00
ZN (PPM)	15.00	31.00	56.00	25.00	23.00	12.00	12.00	10.00	-2.00	53.00
ZR (PPM)	33.00	91.00	211.00	92.00	169.00	199.00	189.00	16.00	15.00	13.00

DRILL HOLE NUMBER JP4

SAMP. NO.	158305	158306
TOP DEPTH	397.00	412.00
BOT DEPTH		
FORMATION	JCF	JCF
LITHOLOGY	CQZ	QGC
UL (PPM)	17.14	3.25
UT (PPM)	14.30	3.90
UL/UT	1.20	.83
TH (PPM)	22.00	8.00
TH/UT	1.54	2.05
AU (PPM)	ND	ND
AL (%)	1.74	3.04
CA (%)	-.05	-.05
FE (%)	.35	.59
MG (%)	.10	.24
NA (%)	.44	.31
K (%)	1.35	2.37
AG (PPM)	-2.00	2.00
B (PPM)	-10.00	-10.00
BA (PPM)	321.00	618.00
BE (PPM)	1.00	2.00
CE (PPM)	14.00	29.00
CO (PPM)	6.00	6.00
CR (PPM)	23.00	37.00
CU (PPM)	11.00	5.00
HF (PPM)	ND	ND
LA (PPM)	ND	ND
LI (PPM)	2.00	8.00
MN (PPM)	15.00	20.00
MO (PPM)	-4.00	-4.00
NB (PPM)	-4.00	-4.00
NI (PPM)	9.00	8.00
P (PPM)	36.00	47.00
PB (PPM)	ND	ND
PT (PPM)	ND	ND
SC (PPM)	1.00	3.00
SI (PPM)	ND	ND
SN (PPM)	ND	ND
SR (PPM)	32.00	43.00
TI (PPM)	220.00	970.00
V (PPM)	5.00	21.00
Y (PPM)	2.00	2.00
ZN (PPM)	9.00	6.00
ZR (PPM)	27.00	32.00

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DRILL HOLE NO. Hartt Unit 1-36

AREA: Western Sierra Madre, Johnson Ranch

LOCATION: 1980 FNL, 1980 FEL, Sec. 36, T. 15 N., R. 88 W.

LATITUDE: 41°13'48"

LONGITUDE: 107°14'24"

COUNTY: Carbon

TOPOGRAPHIC QUAD Singer Peak

SURFACE REGULATOR: BLM(?)

COLLAR ELEV.: 7696

ANGLE: 90°

BEARING:

TOTAL DEPTH: 5856'

SPUD DATE: Not available

COMPLETION DATE: 7/23/80

GROSS GAMMA LOGGING:

INSTRUMENT: unknown

PROBE T.D.: 5023

DATE:

REMARKS: 6½-6 5/16 steel liner was put inside the 9 5/8-9¼ steel casing from 0-176'.

KUT LOGGING:

INSTRUMENT: unknown

PROBE T.D.: 5021

DATE:

REMARKS: 6½-6 5/16 steel liner was put inside the 9 5/8-9¼ casing from 0-176'.

STRATIGRAPHIC UNITS: (Tertiary Conglomerate: 0-580) (Chugwater Fm.: 580-1200) (Phosphoria Fm.: 1200-1350) (Tensleep-Amsden Fm.: 1350-1525) (Madison Ls.: 1525-1800) (Flathead Sandstone: 1800-2025) (Singer Peak Fm.: 2025-4970) (Proterozoic Metagabbro Intrusion: 4970-5856).

RADIOACTIVE ZONES: None

LOGGER: Peter Swift

DRILL HOLE HARTT UNIT 1-36

OBJECTIVES:

1. This hole was drilled by C and K Petroleum Inc. to test out seismic interpretations that Precambrian rocks in the Western Sierra Madre, which are bounded on the west by a low-angle thrust fault (like the Wind River Thrust). This places Precambrian rocks over Phanerozoic sedimentary rocks. They hoped to find oil and gas in Phanerozoic reservoirs below the thrust.

CONCLUSIONS:

1. Geologic mapping shows that Phanerozoic rocks on the west side of the Sierra Madre dip west at about 40 degrees and appear to form a normal, west limb of the Sierra Madre anticlinal uplift. Drilling substantiated this view. Tertiary rocks were drilled to 580 feet; thinned section of Paleozoic and Mesozoic sedimentary rocks (Cambrian Flat head sandstone through Triassic Chugwater Formation) was drilled between 580 and 2025 feet; from 2025 to 4950 feet, the hole drilled schistose rocks of the Singer Peak Formation of the Deep Lake Group and from 4970 to 5856 feet, the hole drilled intrusive metagabbro. No strongly radioactive Precambrian rocks were encountered.

GEOPHYSICAL AND LITHOLOGIC LOG FOR DRILL HOLE HARTT UNIT I-36 SHOWING GEOCHEMICAL SAMPLE LOCATIONS

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DATA FROM SURFACE SAMPLING

Introduction and Sampling Methodology

Surface sampling was carried out at two levels, designed to fulfill two different objectives of the project. The first objective of surface sampling was to establish a geochemical data base on all major lithologies and formations within the study area. To fulfill this objective, we submitted samples collected more or less randomly from outcrops throughout the study area. Our attempt was to sample on about a one-mile grid, outcrops permitting, and to establish levels of "background" radioactivity in the study area. This facet of the sampling program was also designed to point out changes in uranium and thorium distributions from area to area and from older rocks to younger rocks. This information is extremely important in reconstructing the sources of uranium mineralization and the history of the area as a uranium district. Raw data are tabulated in a later section and sample locations are shown in Plates 1 and 2. These data are then statistically summarized (showing means, ranges, and statistical parameters) for each major formation and for both the Medicine Bow Mountains and Sierra Madre.

The second objective of the surface sampling program was to supplement drill data in our geostatistical estimate of uranium resources in Precambrian conglomerates of southeastern Wyoming. This sampling was undertaken more systematically: first estimating the zone of influence, variance, and nugget effect of radioactivity in the conglomerates from detailed spectrometer traverses; then sampling conglomerates by transects perpendicular to strike of bedding which were spaced more than a zone of influence apart (found to be more than 10 feet) and still close

enough to yield a relative probable error (a measure of accuracy of the reserve estimate) of less than about 20%. (Details of sampling methodology are discussed in Volume 3 of this report.) Sampling along these transects consisted of simulating a channel sample across strongly radioactive zones (and measuring the thickness of those zones) and collecting spot samples of "country rock" at several places along the transect. The geochemical data from transect sampling are presented graphically in Figures 35-57. Also shown on the above figures are thicknesses of radioactive zones and the average grade of uranium (Unt)* and thorium (Th) within these zones.

* Unt = uranium assay from neutron activation technique

Table 4. Statistical summary of geochemical data from Archean granitic rocks from the Sierra Madre and Medicine Bow Mountains.

ELEMENT	NO. SAMPLES ANALYZED		DETECTION LIMIT	DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	BELOW DETECTION LIMIT										MEAN	S. D.	ROBUST	
														MEAN	S. D.
U	33	1	<0.25	<0.25	8.80	2.03	1.35	0.38	2.004	1.028		0.24	0.96	0.20	1.03
U ₂₃₈	27			0.10	6.10	1.97	1.35	0.96	1.646	0.835		0.34	0.91	0.38	0.94
U ₂₃₅ /U ₂₃₈	27			0.21	3.80	1.05	0.93	1.13	0.755	0.719		-0.14	0.63	-0.14	0.75
Th	26	7	<2	<2	45	11	4	<2	9.9	0.8		2.13	0.89	1.76	1.15
Th/u	27			0.37	24.00	4.76	3.10	2.99	4.904	1.030		1.19	0.85	1.20	0.90
Ag	3	24	<2	<2	6	3	<2	<2	2.1	0.6		1.19	0.56		
Al	27			1.55	7.81	5.81	5.75	5.56	1.277	0.220		1.19	0.30	1.75	0.23
B	1	26	<10	<10	11	11	<10	<10	0.0	0.0		1.73	0.0		
Ba	34			20	2244	817	791	320	612.3	0.7		2.40	1.20	6.29	1.27
Be	31	2	<1	<1	5	2	2	1	1.1	0.5		6.24	0.47	0.77	0.52
Ca	33	1	<0.05	<0.05	3.93	1.09	0.83	0.21	0.847	0.777		0.78	0.99	-0.34	1.09
Ce	23	4	<10	<10	111	52	34	25	30.7	0.6		-0.29	0.68	3.48	1.00
Co	21	7	<4	<4	66	15	10	4	13.0	0.9		3.75	0.68	2.26	0.86
Cr	28			3	701	83	35	6	137.2	1.6		2.48	1.37	3.55	1.33
Cu	33	1	<2	<2	56	16	15	15	12.3	0.8		3.57	0.69	2.51	0.86
Fe	34			0.22	7.08	1.87	1.35	0.54	1.620	0.869		2.56	0.92	0.25	0.96
Hf	1	2	<15	<15	41	41	<15	833	0.0	0.0		0.25	0.9		
K	27			0.23	4.37	1.84	1.79	1.62	0.894	0.487		3.71	0.59	0.40	0.62
La	3			71	86	77	73	905	7.8	0.1		0.47	0.10		
Li	27			1	56	17	17	18	11.7	0.7		4.34	0.98	2.56	1.17
Mg	33	1	<0.05	0.03	3.00	0.86	0.49	0.04	0.889	1.034		2.52	1.37	-0.93	1.57
Mn	34			24	1341	364	335	506	292.9	0.8		0.87	1.04	5.51	1.15
Mo	3	25	<4	0	8	4	<4	4	3.8	0.9		5.49	0.40		
Na	27			0.09	3.66	2.45	2.45	3.03	0.837	0.341		1.69	0.71	0.87	0.45
Nb	19	8	<4	<4	17	7	<4	4	3.6	0.5		0.77	0.47		
Ni	31	3	<2	<2	185	23	7	5	34.3	1.5		1.91	1.06	2.35	1.05
P	27			24	1901	546	525	660	407.0	0.7		2.55	0.97	6.01	0.95
Pb	10			10	70	33	30	30	20.6	0.6		5.97	0.61		
Sc	28	1	<1	<1	26	6	4	3	5.7	0.9		3.35	0.92	1.53	0.98
Sr	30			10	709	306	289	291	199.9	0.7		1.42	1.13	5.41	1.33
Ti	34			0	4439	1525	1167	75	1290.8	0.8		6.34	4.42	5.30	4.15
V	29	1	<2	<2	185	57	42	9	48.0	0.8		5.10	0.92	3.64	1.02
Y	32			1	70	10	7	3	14.0	1.3		3.69	0.89	1.87	0.96
Zn	27			2	81	42	44	66	23.7	0.6		1.89	0.94	3.54	0.98
Zr	34			5	216	52	48	51	45.4	0.9		3.47	0.83	3.66	0.95

Table 5. Statistical summary of geochemical data from fine-grained quartzite of the Phantom Lake Metamorphic Suite from the Sierra Madra and Medicine Bow Mountains.

ELEMENT	NO. SAMPLES ANALYZED		DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	BELOW DETECTION LIMIT									MEAN	S. D.	ROBUST	
													MEAN	S. D.
U	276	10	<0.25	0.10	87.09	4.32	2.00	1.38	7.574	1.745	0.35	1.06	0.75	1.17
Unt	239			0.10	48.60	3.83	2.10	0.65	5.415	1.414	0.33	0.98	0.82	1.01
U/TU	239			0.06	33.50	1.14	1.00	1.04	2.129	1.861	-0.35	0.50	-0.03	0.45
Th	249	30	<2	1	395	14	6	1	35.6	2.5	2.35	0.90	1.85	0.97
Th/u	239			0.19	112.77	4.03	2.53	2.43	8.413	2.088	0.94	0.85	0.95	0.84
Ag	58	182	<2	<2	12	3	<2	<2	2.1	0.6	1.14	0.48		
Al	238	1	<0.05	<0.05	12.16	4.36	4.28	3.89	2.116	0.486	1.31	0.65	1.36	0.67
B	40	212	<10	<10	45	15	<10	<10	7.8	0.5	2.58	0.41		
Ba	287	1	<2	<2	3250	540	500	716	379.4	0.7	5.98	0.91	6.03	0.89
Be	250	18	<1	<1	15	2	1	<1	2.2	0.9	0.54	0.71		
Ca	226	59	<0.05	<0.05	20.31	1.24	0.16	<0.05	3.125	2.510	-1.12	1.44	-1.82	2.01
Ce	204	35	<10	<10	93	31	25	25	17.4	0.5	3.32	0.55	3.16	0.73
Co	195	74	<4	1	214	17	7	<4	21.0	1.2	2.47	0.78	1.98	1.14
Cr	281			5	3030	98	44	35	282.0	2.9	3.39	0.95	3.85	0.91
Cu	272	7	<2	<2	15000	84	16	9	910.3	10.8	2.80	1.11	2.72	1.08
Fe	289	1	<0.05	<0.05	8.81	1.71	1.09	0.47	1.784	1.042	0.04	1.05	0.05	1.05
Hf	6	63	<15	<15	74	44	<15	<15	16.7	0.4	3.75	0.35		
K	238	1	<0.02	<0.02	4.82	1.85	1.74	1.54	1.008	0.545	0.41	0.72	0.45	0.75
La	68	1	<2	<2	103	39	34	41	22.3	0.6	3.50	0.62	3.50	0.62
Li	237	2	<1	<1	60	13	10	5	10.0	0.8	2.28	0.84	2.29	0.81
Mg	283	7	<0.05	0.05	5.00	0.68	0.38	0.22	0.775	1.132	-0.08	1.00	-0.93	1.08
Mn	288	2	<4	<4	2072	230	100	22	327.8	1.4	4.66	1.28	4.63	1.32
Mo	37	199	<4	<4	30	7	<4	<4	5.7	0.8	1.84	0.54		
Na	225	14	<0.05	<0.05	4.50	1.01	0.70	<0.05	0.896	0.883	-0.52	1.19	-0.63	1.27
Nb	113	127	<4	<4	23	7	<4	<4	3.5	0.5	1.95	0.41		
Ni	281	6	<2	<2	500	25	15	5	40.5	1.6	2.75	0.95	2.71	0.97
P	235	4	<5	<5	1852	235	160	63	228.4	1.0	5.00	1.03	4.99	1.04
Pb	68	42	<10	<10	100	23	11	<10	17.4	0.7	2.97	0.56		
Sc	262	10	<1	<1	36	6	4	1	6.6	1.1	1.43	0.88	1.36	0.88
Sr	253	1	<1	<1	1000	82	58	44	92.0	1.1	3.95	1.05	3.97	1.06
Ti	269	1	<10	0	10047	1362	841	54	1580.8	1.2	5.38	3.63	6.63	1.81
V	283	2	<2	1	300	46	30	17	51.6	1.1	3.41	0.93	3.40	0.97
Y	264	2	<1	<1	100	8	5	1	11.8	1.4	1.59	0.96	1.55	0.85
Zn	234	5	<2	<2	204	23	14	7	27.5	1.1	2.72	0.93	2.67	1.00
Zr	285	1	<2	<2	2925	95	53	16	206.7	2.2	4.01	0.92	3.98	0.88

Table 6. Summary of geochemical data from quartzites of the Deep Lake Group from the Sierra Madre and Medicine Bow Mountains.

NO. SAMPLES ANALYZED														
EELCN														
MEASURABLE DETECTION DETECTION MINIMUM MAXIMUM														
ELEMENT VALUES LIMIT LIMIT VALUE VALUE MEAN MEDIAN MODE														
STANDARD OF CCEFFICIENT														
DEVIATION VARIATION MEAN S. D. LN TRANSFORMATION														
RUBUST														
MEAN S. D. MEAN S. D.														
U	162	5	<0.25	0.20	25.40	1.99	1.25	0.63	2.919	1.470	0.28	0.82	0.21	0.92
U-NT	100			0.30	18.90	1.71	1.20	0.98	2.104	1.229	0.23	0.72	0.20	0.73
U/TU	99			0.01	8.68	1.15	1.05	0.72	0.983	0.853	-0.07	0.76	-0.02	0.59
TH	116	17	<2	0	42	8	<5	<20	8.2	0.9	1.95	0.72		
		6	<5											
		1	<20											
TH/U	99			0.16	11.67	4.03	3.33	4.97	2.681	0.665	1.13	0.83	1.17	0.91
AG	22	80	<2	0	6	3	<2	<2	1.5	0.5	1.06	0.41		
AL	100			0.22	9.72	3.10	2.46	1.74	1.861	0.601	0.93	0.68	0.96	0.66
AS	1			1.2	1.2	1.2	*****	1.2	0.0	0.0	0.18	0.0		
B	42	85	<10	<10	150	25	<10	<10	30.9	1.2	2.85	0.74		
BA	176			14	1301	256	199	105	226.3	0.9	5.14	0.98	5.17	1.09
BE	112	22	<1	<1	7	1	<1	<1	1.3	0.7	0.47	0.55		
CA	108	52	<0.05	<0.05	20.46	1.63	0.07	<0.05	4.253	2.610	-1.55	1.70	-2.69	3.04
CE	69	31	<10	<10	109	24	14	<10	17.7	0.7	3.03	0.54	2.65	0.81
CO	120	40	<4	<4	70	13	7	6	11.8	0.9	2.30	0.69	1.90	1.03
CR	176			2	1500	65	30	20	125.8	1.9	3.64	0.96	3.62	1.01
CU	155	4	<2	<2	7000	66	10	3	554.5	8.3	2.54	1.17	2.43	1.15
FE	171			0.07	10.00	1.77	1.00	1.53	2.017	1.159	0.03	1.06	0.03	1.08
HF	4	5	<15	<15	60	33	<15	<15	18.4	0.6	3.41	0.51		
K	100			0.03	3.26	1.20	1.11	0.36	0.859	0.714	-0.21	1.06	-0.15	1.09
LA	12	1	<2	<2	51	25	22	25	12.6	0.5	3.11	0.59		
LI	99	1	<1	<1	36	7	5	3	7.3	0.9	1.70	0.86	1.70	0.90
MG	174	3	<0.05	<0.05	7.00	0.69	0.30	0.14	0.976	1.414	-1.00	1.08	-1.05	1.05
MN	176	1	<4	<4	5000	234	70	17	520.6	2.2	4.41	1.37	4.35	1.43
MO	15	92	<4	<4	15	6	<4	<4	3.6	0.6	1.76	0.44		
NA	93	7	<0.05	<0.05	3.69	0.84	0.50	<0.05	0.799	0.955	-0.75	1.20	-0.89	1.37
NB	36	64	<4	<4	16	7	<4	<4	3.2	0.5	1.87	0.43		
NI	172	5	<2	<2	150	23	13	5	26.5	1.1	2.66	0.99	2.59	1.05
P	98	2	<5	<5	565	119	51	37	155.4	1.3	4.16	1.11	4.11	1.22
PB	37	9	<10	<10	200	26	15	<10	33.6	1.3	2.94	0.68		
SC	149	2	<1	<1	50	6	4	<1	6.5	1.1	1.31	1.01	1.30	1.27
SE	0	1	<0.1	<0.1	<0.1		*****	<0.1						
SR	111			2	451	50	16	4	72.7	1.4	3.11	1.29	3.08	1.31
TI	177			0	4103	429	128	15	744.5	1.7	2.71	4.03	2.73	3.19
V	175			3	700	51	29	51	71.1	1.4	3.37	1.07	3.36	1.14
Y	148	3	<1	<1	150	10	4	1	18.6	1.8	1.59	1.17	1.52	1.36
ZN	97	3	<2	<2	261	18	7	3	34.1	1.8	2.25	1.00	2.14	1.11
ZR	177			8	1000	85	63	100	92.1	1.1	4.13	0.78	4.13	0.84

Table 7. Statistical summary of geochemical data from quartzites of the Lower Libby Creek Group from the Sierra Madre and Medicine Bow Mountains.

NO. SAMPLES ANALYZED														
BELOW														
MEASURABLE		DETECTION	MINIMUM	MAXIMUM	COEFFICIENT						LN TRANSFORMATION			
ELEMENT	VALUES	LIMIT	LIMIT	VALUE	VALUE	MEAN	MEDIAN	MODE	STANDARD	OF	MEAN	S. D.	ROBUST	
									DEVIATION	VARIATION			MEAN	S. D.
U	118	4	<0.25	0.10	222.00	6.43	1.20	1.13	28.196	4.383	0.36	1.24	0.20	1.24
J-NT	24			0.20	5.00	1.55	1.10	0.36	1.411	0.913	0.02	0.95	0.03	1.05
U/TU	24			0.25	2.95	0.94	0.84	0.63	0.569	0.607	-0.21	0.55	-0.22	0.58
TH	88	3	<2	1	328	22	10	7	39.7	1.8	2.50	1.02	2.35	1.23
		1	<5											
TH/U	24			1.32	15.63	5.21	4.17	4.96	3.618	0.694	1.47	0.59	1.47	0.70
AG	13	17	<2	0	50	7	<2	<2	12.9	1.6	1.57	0.87		
AL	24			0.21	9.31	3.73	3.33	0.39	2.933	0.786	0.74	1.33	0.78	1.44
B	80	22	<10	<10	200	33	15	<10	34.1	1.0	3.17	0.77		
BA	126			20	1500	241	100	299	281.4	1.2	4.75	1.29	4.72	1.30
BE	71	8	<1	<1	8	2	1	1	1.8	0.7	0.70	0.61	0.53	0.94
CA	75	9	<0.05	0.62	5.00	0.39	0.10	0.07	0.879	2.270	-1.82	1.09	-2.17	1.33
CE	18	6	<10	<10	113	30	13	15	26.6	0.9	3.16	0.70	2.75	1.12
CD	62	11	<4	<4	150	22	10	6	24.4	1.1	2.69	0.88	2.39	1.28
CR	125			5	300	65	30	21	67.3	1.0	3.69	1.00	3.69	1.05
CU	88			2	15000	336	15	9	1915.7	5.7	3.02	1.54	2.88	1.26
FE	129			0.65	15.00	2.51	1.50	0.14	2.971	1.186	0.10	1.47	0.13	1.49
K	24			0.63	3.83	1.23	0.72	0.10	1.236	1.017	-0.55	1.47	-0.50	1.70
LI	40			0	46	6	1	0	9.3	1.5	0.44	2.17	0.46	2.35
MG	111	7	<0.05	0.62	3000.00	54.88	0.50	0.05	295.477	5.384	-0.40	2.77	-1.12	3.95
MN	112			6	2000	172	100	11	258.2	1.5	4.38	1.29	4.37	1.50
MO	15	21	<4	<4	300	55	<4	<4	75.4	1.4	3.27	1.33		
NA	18	6	<0.05	<0.05	3.89	1.34	0.80	<0.05	1.070	0.759	-0.26	1.36	-0.83	2.21
NB	11	13	<4	<4	17	8	<4	<4	4.6	0.6	1.94	0.54		
NI	81	4	<2	<2	150	37	20	4	35.2	0.9	3.15	1.08	3.07	1.21
P	23	1	<5	<5	1505	368	116	18	439.8	1.2	4.91	1.69	4.80	1.89
PB	31			10	70	22	15	10	16.8	0.8	2.88	0.63	2.85	1.05
SC	82	3	<1	<1	50	9	8	14	7.1	0.7	2.02	0.82	2.08	0.77
SR	34			3	556	89	27	6	131.8	1.5	3.31	1.72	3.29	1.90
TI	133			0	4277	236	0	0	777.6	3.3	-0.52	3.37	-0.78	3.62
V	132			0	1000	72	30	19	108.9	1.5	3.65	1.17	3.67	1.06
Y	79			1	2000	59	15	14	233.1	3.9	2.68	1.46	2.63	1.80
ZN	23	1	<2	<2	54	15	12	3	14.3	0.9	2.35	0.96	2.28	1.21
ZR	133			4	1000	140	100	196	154.4	1.2	4.53	0.92	4.54	0.93

Table 8. Statistical summary of geochemical data from mafic intrusive rocks from the Sierra Madre and Medicine Bow Mountains.

ELEMENT	NO. SAMPLES ANALYZED		DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	DETECTION LIMIT									MEAN	S. D.	ROBUST	
													MEAN	S. D.
U	151	78	<0.25	0.10	31.20	1.62	0.43	<0.26	2.942	1.818	-0.06	0.93	-0.61	1.41
U-NT	186			0.0	8.30	0.89	0.40	0.08	1.299	1.457				
U/TU	174			0.07	9.10	1.21	1.05	1.24	1.056	0.906	-0.08	0.76	-0.08	0.62
TH	112	106	<2	<2	129	13	<2	<20	22.3	1.6	1.93	1.05		
TH/U	174	1	<20	0.15	150.00	8.81	4.00	4.79	17.707	2.010	1.37	1.21	1.35	1.26
AG	41	148	<2	0	8	3	<2	<2	1.8	0.5	1.19	0.47		
AL	185			0.34	11.30	5.25	5.53	5.57	1.868	0.356	1.66	0.54	1.62	0.44
AS	1			1.1	1.1	1.1		1.1	0.0	0.0	0.10	0.0		
B	15	163	<10	<10	150	41	<10	<10	40.8	1.0	3.31	0.94		
BA	226			5	1141	150	76	69	206.1	1.3	4.50	1.03	4.49	1.04
BE	128	64	<1	<1	27	4	<1	<1	4.2	0.9	1.18	0.90		
CA	226			0.06	22.63	4.61	5.00	5.06	2.578	0.560	1.24	1.02	1.35	1.06
CE	77	106	<10	<10	103	26	<10	<10	15.3	0.6	3.15	0.51		
CO	223	3	<4	0	465	48	47	50	34.8	0.7	3.74	0.54	0.77	0.55
CR	221			1	3063	541	167	22	726.7	1.3	5.24	1.66	5.31	1.76
CO	225	1	<2	<2	19509	185	62	7	1306.2	7.0	4.03	1.17	4.02	1.17
FE	227			0.20	20.00	6.79	6.63	6.97	3.006	0.443	1.79	0.58	1.64	0.50
HF	2	1	<3	<3	45	32	<15	<15	18.4	0.6	3.36	0.61		
		72	<15											
K	184	1	<0.02	<0.02	3.02	0.43	0.23	0.09	0.533	1.234	-1.44	1.11	-1.45	1.12
LA	17	58	<2	<2	48	14	<2	<2	13.8	1.0	2.23	0.97		
LI	185			1	83	14	10	7	13.2	0.9	2.36	0.77	2.35	0.77
MG	228			0.02	7.00	3.13	3.00	4.71	1.591	0.508	0.91	0.88	1.01	0.86
MN	227			16	3743	1120	1125	999	488.4	0.4	6.68	0.66	6.95	0.69
MO	35	154	<4	<4	20	6	<4	<4	2.9	0.4	1.82	0.34		
NA	182	3	<0.05	<0.05	4.43	1.13	0.95	0.76	0.733	0.648	-0.11	0.74	-0.10	0.65
NB	85	101	<4	<4	104	9	<4	<4	11.9	1.2	2.05	0.58		
NI	226	1	<2	<2	2304	171	91	72	236.7	1.4	4.52	1.17	4.54	1.25
P	177	8	<5	<5	2636	368	266	31	350.5	1.0	5.49	1.02	5.41	1.37
PB	73	26	<10	8	100	30	12	8	17.8	0.9	2.62	0.54		
SC	224			1	71	25	27	29	10.8	0.4	3.13	0.61	3.19	0.56
SE	1			0.8	0.8	0.8		0.8	0.0	0.0	-0.22	0.0		
SR	210			5	988	163	115	98	163.6	1.0	4.70	0.93	4.73	1.02
TI	227			0	12272	3228	2880	145	2846.9	0.9	6.24	3.83	6.56	3.44
V	220			10	779	198	189	147	100.0	0.5	5.14	0.63	5.19	0.61
Y	219			1	70	13	10	19	9.6	0.7	2.32	0.73	2.34	0.71
ZN	186			2	324	73	71	65	34.7	0.5	4.18	0.56	4.22	0.48
ZR	219		2	3	700	39	23	29	58.2	1.5	2.22	0.90	3.18	0.98

Table 9. Statistical summary of geochemical data from rocks south of the Cheyenne Belt from the Sierra Madre and Medicine Bow Mountains.

NO. SAMPLES ANALYZED		LN TRANSFORMATION												
BELOW		ROBUST												
MEASURABLE DETECTION		DETECTION	MINIMUM	MAXIMUM	MEAN	MEDIAN	MODE	STANDARD	COEFFICIENT	OF	MEAN	S. D.	MEAN	S. D.
ELEMENT	VALUES	LIMIT	VALUE	VALUE				DEVIATION	VARIATION	LN				
U	100	7	<0.25	10.95	2.38	1.01	1.63	2.016	0.848		0.58	0.77	0.46	0.98
U-VT	107		0.0	22.60	2.18	1.45	0.85	2.707	1.243					
U/TU	106		0.12	2.43	1.16	1.17	1.18	0.444	0.363		0.06	0.48	0.09	0.48
TH	71	35	<2	29	8	4	<2	6.5	0.3		1.87	0.74		
TH/U	106		0.12	23.00	3.49	2.50	1.05	3.232	0.720		0.90	0.88	0.92	0.90
AG	47	60	<2	9	4	<2	<2	1.8	0.3		1.30	0.44		
AL	107		0.26	8.91	5.70	5.96	6.03	1.516	0.200		1.67	0.48	1.74	0.31
B	3	104	<10	210	80	<10	<10	112.1	1.4		3.61	1.53		
BA	107		13	3551	663	432	36	719.0	1.1		5.93	1.19	5.96	1.23
BE	107		1	17	4	4	3	2.7	0.3		1.43	0.56	1.44	0.54
CA	105	2	<0.05	20.17	2.19	1.18	0.61	2.573	1.173		0.20	1.15	0.18	1.13
CE	82	25	<10	750	49	24	<10	85.5	1.7		3.52	0.73	3.16	1.03
CO	80	27	<4	76	20	10	<4	15.4	0.3		2.72	0.82	2.30	1.18
CR	107		1	514	60	13	6	98.1	1.3		2.97	1.55	2.95	1.57
CU	107		2	425	37	12	5	64.3	1.7		2.76	1.25	2.72	1.34
FE	107		0.21	24.03	2.53	2.14	0.30	3.036	1.338		0.65	0.98	0.67	1.02
K	107		0.04	4.8E	1.58	1.35	2.40	1.062	0.372		0.12	0.99	0.19	0.93
LI	107		1	85	13	9	3	15.1	1.1		2.20	0.95	2.20	1.04
MG	98	9	<0.05	4.6E	1.05	0.52	<0.05	1.006	0.000		-0.52	1.17	-0.68	1.41
MN	107		22	4505	577	370	135	602.0	1.3		5.88	1.05	5.89	1.03
MO	36	71	<4	10	5	<4	<4	1.8	0.3		1.67	0.31		
NA	104	3	<0.05	4.3E	1.94	1.98	2.24	0.803	0.415		0.55	0.51	0.55	0.57
NB	103	4	<4	47	12	10	6	7.8	0.3		2.36	0.57	2.31	0.66
NI	102	5	<2	161	20	8	3	29.0	1.4		2.34	1.14	2.18	1.42
P	106	1	<5	3449	462	329	142	477.7	1.3		5.68	1.04	5.69	1.11
SC	105	2	<1	35	10	6	1	9.3	0.3		1.87	1.08	1.89	1.14
SR	107		8	1101	233	189	135	184.7	0.3		5.08	1.00	5.15	1.06
TI	107		35	6700	2150	1863	294	523.2	0.7		7.28	1.06	7.37	0.97
V	107		2	374	85	40	6	91.4	1.1		3.65	1.43	3.68	1.33
Y	107		1	53	11	10	12	8.0	0.7		2.17	0.76	2.19	0.77
ZN	106	1	<2	165	49	40	20	35.4	0.7		3.58	0.90	3.60	0.90
ZR	107		3	311	65	44	35	57.1	0.3		3.87	0.80	3.87	0.83

Table 10. Statistical summary of geochemical data from the Rock Mountain Conglomerate of the Medicine Bow Mountains.

NO. SAMPLES ANALYZED		BELOW		DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
ELEMENT	VALUES	MEASURABLE LIMIT	DETECTION LIMIT									MEAN	S. D.	MEAN	S. D.
U	23	1	<0.25	<0.25	185.10	11.28	1.66	1.63	38.041	3.373	0.97	1.33	0.78	1.28	
U-NT	24			0.60	194.50	11.80	2.10	1.94	39.112	3.315	1.14	1.22	1.03	1.07	
U/TU	24			0.05	1.04	0.82	0.87	0.98	0.236	0.287	-0.30	0.63	-0.19	0.27	
TH	22	2	<2	<2	86	12	7	7	17.4	1.4	2.10	0.85	1.93	1.00	
TH/U	24			0.21	10.91	3.07	2.03	1.77	2.490	0.811	0.78	0.92	0.81	0.94	
AG	3	21	<2	<2	21	8	<2	<2	11.0	1.3	1.48	1.36			
AL	24			0.40	8.77	5.31	5.65	6.44	1.917	0.361	1.52	0.73	1.60	0.64	
B	16	8	<10	<10	22	13	11	15	3.3	0.2	2.60	0.23			
BA	24			270	1732	742	729	449	347.4	0.5	6.51	0.45	6.51	0.48	
BE	15	8	<1	<1	2	1	<1	<1	0.3	0.3	0.05	0.19			
CA	24			0.05	5.58	1.12	0.68	0.71	1.231	1.094	-0.45	1.22	-0.44	1.40	
CE	24			10	127	40	33	32	23.3	0.6	3.58	0.51	3.58	0.48	
CO	15	8	<4	<4	58	21	6	<4	19.5	0.9	2.68	0.96	1.82	1.71	
CR	24			34	425	124	55	56	132.8	1.1	4.42	0.83	4.39	0.88	
CU	24			3	90	29	23	4	26.3	0.9	2.97	1.01	2.99	1.11	
FE	24			0.16	4.49	0.83	0.60	0.65	0.893	1.071	-0.50	0.76	-0.53	0.68	
HF	8	16	<15	<15	108	51	<15	<15	31.1	0.6	3.76	0.65			
K	24			0.46	2.50	1.64	1.63	1.14	0.516	0.314	0.44	0.38	0.47	0.32	
LA	24			5	150	46	39	29	30.2	0.6	3.65	0.69	3.68	0.60	
LI	24			4	29	12	9	8	7.4	0.6	2.34	0.55	2.34	0.70	
MG	24			0.06	1.00	0.10	0.12	0.11	0.210	1.095	-1.96	0.71	-2.01	0.86	
MN	24			24	1210	297	194	84	292.5	1.0	5.25	1.01	5.26	1.15	
MO	3	21	<4	<4	6	4	<4	<4	1.2	0.2	1.52	0.23			
NA	24			0.08	1.26	0.39	0.25	0.22	0.335	0.855	-1.20	0.70	-1.20	0.82	
NB	2	22	<4	<4	6	5	<4	<4	0.7	0.1	1.70	0.13			
NI	22	2	<2	<2	90	24	14	13	22.9	0.9	2.93	0.84	2.79	1.08	
P	24			168	1426	368	238	198	301.7	0.8	5.71	0.58	5.67	0.59	
PB	11	13	<10	<10	74	26	<10	<10	18.2	0.7	3.10	0.57			
SC	24			2	31	8	5	4	8.1	0.9	1.89	0.75	1.87	0.73	
SR	24			12	230	52	39	30	42.2	0.8	3.78	0.55	3.76	0.43	
TI	24			476	8179	1912	1085	800	1920.4	1.0	7.21	0.78	7.18	0.86	
V	24			15	250	77	43	53	69.2	0.9	4.04	0.76	4.03	0.78	
Y	24			3	55	12	8	7	12.8	1.0	2.20	0.72	2.17	0.90	
ZN	24			5	49	12	9	8	9.6	0.8	2.31	0.57	2.27	0.57	
ZR	24			24	327	62	42	36	62.7	1.0	3.91	0.58	3.86	0.56	

Table 11. Statistical summary of geochemical data from the Magnolia Formation of the Medicine Bow Mountains.

ELEMENT	NO. SAMPLES ANALYZED		DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	DETECTION LIMIT									MEAN	S. D.	ROBUST	
													MEAN	S. D.
U	645	1	<0.25	0.20	6864.00	77.00	18.34	2.23	236.074	3.845	2.89	1.77	2.89	1.78
U-NT	569			0.50	1620.00	74.13	22.10	2.84	153.979	2.077	3.08	1.64	3.08	1.01
U/TU	509			0.01	7.30	1.01	0.97	0.93	0.399	0.395	-0.05	0.41	-0.02	0.24
TH	610	18	<2	1	1143	89	29	<20	145.1	1.6	3.56	1.39		
		3	<5											
		5	<20											
TH/U	567			0.02	17.62	2.49	1.48	0.66	2.772	1.113	0.38	1.09	0.40	1.12
AG	89	499	<2	0	29	3	<2	<29	1.8	0.6				
		1	<29											
AL	582			0.45	777.00	6.36	4.63	4.79	32.483	5.106	1.53	0.44	1.53	0.33
B	137	434	<10	<10	2000	36	<10	<10	205.0	5.6	2.66	0.05		
BA	652			9	1092	321	300	298	169.5	0.5	5.60	0.66	5.65	0.59
BE	600	37	<1	<1	17	2	2	<1	1.8	0.8	0.64	0.63		
CA	327	295	<0.05	0.03	10.00	0.30	0.05	0.03	1.082	3.572	-2.20	0.95		
CE	652	28	<10	<10	3962	02	47	35	210.2	2.0	4.05	0.96	3.93	1.09
CO	505	129	<4	1	216	23	10	<4	26.5	1.1	2.74	0.90	2.32	1.22
CR	652			4	920	61	44	29	74.1	1.2	3.62	0.70	3.80	0.68
CU	638	3	<2	<2	1792	60	36	18	108.8	1.8	3.55	1.04	3.65	1.08
FE	652			0.22	20.85	2.24	1.52	1.47	2.130	0.949	0.51	0.76	0.50	0.77
HF	21	5	<3	<3	77	37	15	15	19.5	0.5	3.61	0.50		
		345	<15											
K	580			0.04	<8.00	2.21	1.83	1.74	5.340	2.420	0.64	0.67	0.57	0.39
LA	362	9	<2	<2	1540	03	58	37	161.0	1.5	4.10	1.00	4.05	1.22
LI	580			1	35	9	9	9	4.1	0.4	2.13	0.44	2.13	0.42
MG	652			0.07	5.00	0.48	0.36	0.33	0.503	1.057	-0.97	0.60	-0.99	0.56
MN	652			8	3264	26	81	28	257.9	2.0	4.21	0.96	4.16	1.00
MO	121	471	<4	<4	87	12	<4	<4	14.9	1.2	2.11	0.77		
NA	567	13	<0.05	<0.05	4.26	0.61	0.45	0.07	0.574	0.935	-0.96	1.05	-0.99	1.09
NB	340	248	<4	<4	757	21	<4	<4	45.4	2.1	2.55	0.92		
NI	641	6	<2	<2	217	25	18	9	22.4	0.9	2.91	0.83	2.90	0.85
P	577	3	<5	<5	14050	223	154	52	6.1.1	2.7	4.95	0.88	4.95	0.83
PB	325	97	<10	0	1000	66	21	<10	124.7	1.9				
SC	628	6	<1	<1	70	6	4	3	5.6	0.9	1.57	0.66	1.55	0.67
SR	587			2	300	24	18	18	28.2	1.1	2.91	0.70	2.89	0.68
TI	652			0	8747	1207	1045	27	997.2	0.8	6.09	2.75	6.41	3.03
V	650	2	<2	<2	700	49	31	29	57.0	1.2	3.55	0.78	3.53	0.83
Y	629	2	<1	<1	150	14	7	1	8.8	1.3	2.10	1.04	2.08	1.11
ZN	681			2	846	22	15	9	41.1	1.8	2.77	0.74	2.75	0.70
ZR	652			3	1000	15	81	66	124.7	1.1	4.48	0.68	4.46	0.61

Table 12. Statistical summary of geochemical data from the Magnolia Formation of the Onemile Creek area of the Medicine Bow Mountains.

ELEMENT	NO. SAMPLES ANALYZED BELOW		DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	ROBUST			
	MEASURABLE VALUES	DETECTION LIMIT									MEAN	S. D.	MEAN	S. D.
U	482			0.35	6864.00	100.14	32.04	3.29	339.240	3.388	3.48	1.51	3.49	1.47
U-NT	446			1.00	1620.00	91.38	35.20	9.64	168.843	1.848	3.55	1.41	3.54	1.36
U/TU	448			0.01	7.30	1.03	0.98	0.96	0.418	0.407	-0.03	0.42	-0.01	0.20
TH	474	4	<2	1	1143	108	45	11	156.4	1.4	3.89	1.30	3.60	1.26
TH/U	446			0.02	17.62	2.50	1.38	0.65	2.877	1.149	0.34	1.12	0.36	1.14
AG	73	393	<2	0	29	3	<2	<29	1.8	0.6				
AL	461		<29	0.45	777.00	6.82	4.76	5.20	36.477	5.346	1.55	0.44	1.54	0.29
B	117	362	<10	<10	2000	29	<10	<10	183.7	6.1	2.57	0.53		
BA	482			10	1092	331	10	297	154.0	0.5	5.08	0.56	5.72	0.48
BE	470	5	<1	<1	17	2	2	<1	1.9	0.8	0.69	0.63	0.67	0.75
CA	226	848	<0.05	0.03	6.31	0.19	<0.05	0.03	0.678	3.491	-2.35	0.78		
CE	450	6	<10	<0	3952	118	57	35	228.4	1.9	4.23	0.93	4.18	0.94
CO	380	57	<4	1	216	20	10	<4	29.0	1.1	2.81	0.94	2.38	1.24
CR	482			5	204	49	43	37	28.5	0.6	3.76	0.54	3.74	0.55
CU	478	3	<2	<2	1792	68	42	19	121.5	1.8	1.73	0.95	3.71	0.93
FE	482			0.30	17.69	2.12	1.55	1.20	1.773	0.835	0.52	0.66	0.51	0.66
HF	7	4	<3	<3	50	28	<15	<15	15.5	0.5	3.32	0.47		
		279	<15											
K	459			0.24	4.45	1.90	1.86	1.83	0.553	0.292	0.59	0.34	0.61	0.31
LA	286	2	<2	<2	1540	120	70	39	161.8	1.3	4.86	0.85	4.32	0.91
LI	458			2	25	9	9	9	3.3	0.4	2.16	0.34	2.16	0.34
MG	482			0.05	3.62	0.42	0.36	0.32	0.298	0.702	-0.99	0.46	-1.00	0.47
MN	482			9	3264	105	55	28	220.2	2.1	4.12	0.87	4.06	0.87
MO	106	360	<4	<4	27	13	<4	<4	15.7	1.2	2.17	0.80		
NA	452	7	<0.05	<0.05	3.05	0.63	0.49	0.07	0.534	0.849	-0.90	1.03	-0.91	1.08
NB	313	152	<4	<4	757	22	6	<4	47.1	2.1	2.60	0.93		
NI	480	1	<2	<2	135	24	17	9	19.9	0.8	2.87	0.83	2.87	0.84
P	457	2	<5	<5	2875	197	157	76	195.9	1.0	4.99	0.77	4.99	0.78
PB	266	17	<10	<10	1000	74	28	15	135.6	1.8	3.66	0.96	3.31	1.22
SC	479			1	31	5	4	4	3.5	0.7	1.55	0.50	1.53	0.46
SR	461			3	269	23	19	11	21.1	0.9	2.95	0.63	2.94	0.63
TI	482			0	6371	1274	1136	1123	772.5	0.6	8.67	1.91	7.03	0.61
V	481	1	<2	<2	307	39	30	29	31.6	0.8	3.48	0.69	3.47	0.61
Y	479			1	142	15	9	2	19.1	1.2	2.27	0.98	2.25	1.01
ZN	460			3	346	24	16	9	45.5	1.9	2.82	0.73	2.79	0.72
ZR	482			3	934	112	83	62	102.7	0.9	4.51	0.60	4.49	0.58

Table 13. Statistical summary of geochemical data from surface samples of the Magnolia Formation of the Onemile Creek area of the Medicine Bow Mountains.

ELEMENT	NO. SAMPLES ANALYZED			DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	DEVIATION	COEFFICIENT OF VARIATION	MEAN	S. D.	ROBUST	
	MEASURABLE VALUES	DETECTION LIMIT	DETECTION LIMIT											MEAN	S. D.
U	143				0.35	160.60	23.20	13.39	7.57	27.748	1.19E	2.57	1.15	2.59	1.12
U ₁	129				1.50	176.70	25.25	14.05	5.84	28.799	1.14E	2.73	1.02	2.72	1.01
U ₂	129				0.08	1.69	0.97	0.94	0.56	0.241	0.24E	-0.07	0.33	-0.05	0.23
Th	143				3	915	99	43	12	140.1	1.4	3.86	1.23	3.85	1.23
Th/U	129				0.21	17.62	4.87	3.65	0.78	3.750	0.77C	1.22	0.95	1.25	0.92
Ag	25	109	<2		0	6	2	<2	<2	1.3	0.5	0.96	0.35		
A	129				1.75	10.41	5.01	4.53	4.48	1.734	0.34E	1.56	0.32	1.55	0.36
B	63	72	<10		<10	2000	44	<10	<10	250.3	5.6	2.64	0.69		
Ba	143				67	1092	367	331	344	184.9	0.5	5.79	0.49	5.80	0.48
Be	143				1	17	2	2	1	1.9	0.9	0.58	0.57	0.54	0.70
Ca	65	72	<0.05		<0.05	0.50	0.00	<0.05	<0.05	0.066	0.76E	-2.59	0.47		
Ce	129				13	3952	159	63	55	380.0	2.4	4.35	1.03	4.30	1.07
Co	72	67	<4		<4	38	8	<4	<4	5.6	0.7	2.01	0.51		
Cr	143				11	179	46	27	29	30.4	0.7	3.60	0.56	3.66	0.56
Cu	142				4	500	49	21	10	68.6	1.4	3.43	0.91	3.42	0.87
Fe	143				0.30	17.69	1.69	1.39	2.03	1.619	0.96C	0.31	0.62	0.32	0.63
Hf	0	90	<15		<15	<15		<15	<15						
K	129				0.50	4.00	1.90	1.79	1.83	0.622	0.32E	0.59	0.37	0.61	0.32
La	90				19	1540	163	86	73	217.0	1.3	4.65	0.88	4.61	0.85
Li	129				3	25	9	9	9	3.9	0.4	2.17	0.38	2.16	0.40
Mg	143				0.05	2.00	0.36	0.31	0.50	0.223	0.62C	-1.15	0.50	-1.16	0.51
Mn	143				14	3264	101	54	49	284.8	2.6	4.10	0.76	4.05	0.71
Mo	25	110	<4		<4	24	9	<4	<4	7.0	0.7	2.07	0.65		
Na	137	2	<0.05		<0.05	1.87	0.65	0.61	0.67	0.453	0.68E	-0.81	1.04	-0.81	1.03
Nb	110	20	<4		<4	757	23	7	<4	75.5	3.2	2.34	0.97	1.91	1.38
Ni	141	1	<2		<2	70	10	8	7	8.9	0.9	2.12	0.62	2.10	0.63
P	129				34	2875	229	168	172	285.6	1.2	5.12	0.74	5.11	0.73
Pb	96	7	<10		<10	1000	91	36	15	163.1	1.8	3.82	1.04	3.61	1.25
Sc	140				2	21	5	4	2	3.4	0.6	1.56	0.51	1.54	0.46
Sr	131				5	131	26	22	12	18.8	0.7	3.09	0.61	3.08	0.58
Ti	143				0	3765	1129	1006	982	731.7	0.6	6.17	2.60	6.51	3.09
V	143				4	182	37	30	28	24.2	0.6	3.46	0.59	3.47	0.59
Y	140				2	137	12	7	2	17.2	1.4	2.05	0.93	2.04	0.95
Zn	129				4	846	31	21	22	75.2	2.4	3.03	0.71	3.00	0.61
Zr	143				32	923	131	86	62	136.4	1.0	4.60	0.67	4.55	0.65

Table 14. Statistical summary of geochemical data from subsurface samples of the Magnolia Formation of the Onemile Creek area of the Medicine Bow Mountains.

NO. SAMPLES ANALYZED														
ELEMENT	MEASURABLE VALUES	BELOW		MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
		DETECTION LIMIT	DETECTION LIMIT								MEAN	S. D.	ROBUST	
													MEAN	S. D.
U	335	0	-	0.73	6864	133.85	58.14	4.78	402.074	3.004	3.88	1.48	3.91	1.47
Unt	319	-	-	1	1620	118.12	53.40	4.88	192.995	1.634	3.89	1.41	3.89	1.42
U/TU	319	-	-	.01	7.30	1.05	1	.96	.463	.447	-.02	.45	0	.20
Th	327	4	< 2	2	1143	112	45	12	161.1	1.4	3.92	1.31	3.88	1.26
Th/U	317	-	-	.02	10.56	1.54	1.04	.51	1.656	1.074	-.01	.98	-0	1.01
Ag	48	284	< 2 [<29]	[-]	29	3	<2	<29	1.9	0.6	-	-	-	-
Al	332	-	-	.45	777	7.53	4.81	5.03	42.968	5.707	1.55	.47	1.54	.25
B	54	280	<10	<10	23	12	<10	<10	2.9	.2	2.48	.21	-	-
Ba	335	-	-	10	838	313	300	301	133.4	.4	5.63	.58	5.68	.49
Be	329	6	<1	<1	13	2	2	<1	1.9	.7	.74	.66	.74	.73
Ca	157	176	<0.05	.03	6.31	.24	<.05	.03	.808	3.344	-2.24	.86	-	-
Ce	324	6	<10	<10	921	102	56	35	121.9	1.2	4.19	.88	4.13	.92
Co	305	30	<4	1	216	30	18	6	30.7	1.	3.00	.91	2.84	1.07
Cr	335	-	-	10	204	50	45	33	27.5	.5	3.78	.52	3.78	.53
Cu	332	3	<2	<2	1792	76	49	35	137.8	1.8	3.86	.93	3.85	.94
Fe	335	-	-	.30	11.31	2.28	1.64	1.25	1.674	.735	.61	.65	.60	.65
Hf	7	4[189]	<3[<15]	<3	50	28	<18	<15	15.5	.5	3.32	.47	-	-
K	330	-	-	.24	4.45	1.89	1.88	1.83	524	.277	.59	.33	.62	.30
La	198	2	<2	<2	905	101	62	44	125	1.2	4.23	.81	4.19	.93
Li	330	-	-	2	25	9.0	9	9	3	.3	2.15	.33	2.16	.30
Mg	335	-	-	.09	3.62	.45	.38	.31	.322	.710	-.91	.45	-.93	.45
Mn	335	-	-	3	1495	104	55	28	184.4	1.8	4.1	.90	4.05	.96
Mo	80	250	<4	<4	8.7	14	<4	<4	17.5	1.2	2.2	.84	-	-
Na	325	5	<0.05	<.05	3.05	.62	.45	.07	.563	.908	-.93	1.03	-.95	1.07
Nb	202	132	<4	<4	90	21	6	<4	18.5	.8	2.7	.87	-	-
Ni	335	-	-	3	135	30	23	21	20.4	.7	3.18	.70	3.20	.70
P	328	2	<5	<5	1071	184	155	76	144.9	.8	4.94	.78	4.95	.74
Pb	166	40	<10	<10	1000	64	22	15	118	1.8	3.56	.94	3.14	1.21
Sc	335	-	-	1	31	5	4	4	3.6	.7	1.54	.50	1.52	.47
Sr	330	-	-	3	269	22	18	10	21.9	1	2.9	.64	2.88	.63
Ti	335	-	-	0	6371	1351	12.04	1015	773	.6	6.99	1.17	7.10	.45
V	334	1	<2	<2	307	40	30	25	34.5	.9	3.49	.59	3.46	.61
Y	335	-	-	1	142	17	10	2	19.3	1.1	2.36	.98	2.35	.99
Zn	331	-	-	3	300	21	14	8	25.5	1.2	2.74	.72	2.71	.70
Zr	335	-	-	3	934	103	81	56	81.2	.8	4.47	.56	4.46	.49

Table 15. Statistical summary of geochemical data from the Deep Gulch Conglomerate of the northwestern Sierra Madre

ELEMENT	NO. SAMPLES ANALYZED		DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	BELOW DETECTION LIMIT									MEAN	S. D.	ROBUST	
													MEAN	S. D.
U	546	6	<0.25	<0.25	477.70	19.01	7.35	2.35	41.812	2.209	2.02	1.30	1.98	1.36
U-NT	539			0.30	718.00	20.53	7.00	1.91	49.953	2.434	2.04	1.32	2.01	1.30
U/TU	537			0.05	7.77	1.05	1.00	0.91	0.553	0.525	-0.04	0.45	-0.02	0.33
TH	539	14	<2	<2	2596	109	39	11	204.5	1.9	3.73	1.43	3.65	1.45
TH/U	537			0.05	57.04	6.99	5.25	3.57	6.401	0.915	1.60	0.88	1.63	0.85
AG	174	369	<2	0	300	4	<2	<2	22.6	4.5	1.12	0.56		
AL	538	1	<0.05	<0.05	9.51	3.97	3.80	3.51	1.480	0.373	1.30	0.41	1.32	0.40
B	149	391	<10	<10	39	13	<10	<10	4.4	0.3	2.59	0.26		
BA	552	1	<2	<2	2000	657	690	712	330.8	0.5	6.26	0.85	6.35	0.86
BE	506	35	<1	<1	35	3	2	<1	3.0	1.0	0.81	0.75	0.71	1.06
CA	244	302	<0.05	<0.05	6.23	0.30	<0.05	<0.05	0.918	3.064	-2.79	0.97		
CE	508	31	<10	<10	221	45	34	25	29.6	0.7	3.63	0.59	3.55	0.72
CO	389	157	<4	<4	776	29	8	4	53.4	1.8	2.77	1.01	2.07	1.39
CR	553			5	747	46	30	19	61.5	1.3	3.52	0.72	3.50	0.71
CU	549	3	<2	<2	9519	124	26	4	659.8	5.3	3.32	1.33	3.25	1.26
FE	551	2	<0.05	<0.05	15.00	1.49	0.96	0.36	1.796	1.205	-0.05	0.93	-0.07	0.93
HF	5	2	<3	<3	78	38	<15	<15	27.8	0.7	3.48	0.72		
		119	<15											
K	538	1	<0.02	<0.02	4.56	2.19	2.36	2.77	0.904	0.413	0.52	0.72	0.71	0.65
LA	124	2	<2	<2	241	80	71	53	47.7	0.6	4.19	0.70	4.21	0.73
LI	534	5	<1	<1	196	9	7	4	10.9	1.1	2.23	0.66	2.00	0.69
MG	544	9	<0.05	<0.05	15.00	0.43	0.20	0.17	0.848	1.955	-1.35	0.87	-1.42	0.90
MN	552	1	<4	<4	1484	57	29	18	160.6	2.4	3.52	0.95	3.46	0.89
MO	203	341	<4	<4	137	8	<4	<4	11.6	1.3	1.33	0.59		
NA	525	14	<0.05	<0.05	5.48	0.67	0.33	0.05	0.738	1.095	-1.01	1.17	-1.07	1.13
NB	324	216	<4	<4	78	8	<4	<4	7.3	0.8	2.00	0.55		
NI	535	18	<2	<2	276	22	11	5	30.0	1.3	2.57	1.01	2.49	1.04
P	524	15	<5	<5	1745	142	107	100	141.5	1.0	4.59	0.72	4.66	0.78
PA	109	31	<10	0	621	52	25	<10	76.3	1.5				
SC	533	13	<1	<1	34	3	3	1	3.8	1.0	1.10	0.64	1.04	0.76
SR	539	1	<1	<1	309	55	56	57	40.2	0.6	4.02	0.60	4.03	0.61
TI	552	1	<10	0	9083	1253	1084	1107	1015.4	0.8	6.70	1.55	6.90	0.89
V	550	3	<2	<2	294	30	22	19	35.1	1.1	3.12	0.73	3.10	0.75
Y	542	6	<1	<1	150	10	5	1	14.4	1.4	1.78	0.98	1.74	1.05
ZN	514	25	<2	<2	179	12	7	5	16.8	1.3	2.15	0.82	2.03	0.90
ZR	552	1	<2	<2	2133	145	89	23	190.2	1.3	4.47	1.00	4.46	0.95

Table 16. Statistical summary of geochemical data from surface samples of the Deep Gulch Conglomerate of the northwestern Sierra Madre.

ELEMENT	NO. SAMPLES ANALYZED		DETECTION LIMIT	DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	BELOW DETECTION LIMIT										MEAN	S. D.	ROBUST	
														MEAN	S. D.
U	199	3	<0.25	<0.25	224.50	10.39	6.65	2.21	17.911	1.725	1.77	1.08	1.76	1.12	
U-NT	203			0.30	205.50	10.19	6.40	1.31	16.556	1.625	1.76	1.07	1.76	0.99	
U/TU	201			0.10	3.56	1.03	0.99	0.91	0.369	0.357	-0.03	0.39	-0.01	0.37	
TH	201	2	<2	<2	839	94	50	10	123.8	1.3	3.81	1.31	3.80	1.37	
TH/U	201			0.80	57.04	9.78	7.38	4.95	7.819	0.799	2.04	0.70	2.04	0.69	
AG	60	143	<2	<2	7	3	<2	<2	1.6	0.5	1.11	0.44			
AL	203			0.29	8.42	3.49	3.32	3.23	1.213	0.348	1.18	0.41	1.20	0.38	
B	78	125	<10	<10	39	13	<10	<10	4.5	0.3	2.58	0.26			
BA	203			16	1572	706	703	642	259.9	0.4	6.43	0.67	6.52	0.42	
BE	190	13	<1	<1	14	2	2	<1	2.2	0.8	0.79	0.67	0.76	0.88	
CA	37	166	<0.05	<0.05	4.00	0.22	<0.05	<0.05	0.665	3.044	-2.47	0.92			
CE	192	11	<10	<10	151	38	30	25	23.2	0.6	3.49	0.55	3.43	0.68	
CO	86	117	<4	<4	62	9	<4	<4	8.3	0.9	2.05	0.56			
CA	203			3	237	31	25	18	22.8	0.7	3.29	0.54	3.27	0.53	
CU	202	1	<2	<2	290	22	<15	7	30.0	1.3	2.67	0.93	2.65	0.94	
FE	202	1	<0.05	<0.05	9.05	0.96	0.68	0.42	0.864	0.902	-0.32	0.74	-0.32	0.72	
HF	1	24	<15	11	15	11	15	11	0.0	0.0	2.71	0.0			
K	203			0.03	4.34	2.44	2.55	2.79	0.765	0.313	0.77	0.70	0.88	0.33	
LA	25			6	116	59	55	101	30.4	0.5	3.92	0.67	3.98	0.59	
LI	199	4	<1	<1	28	6	6	4	3.7	0.5	1.81	0.49	1.79	0.53	
MG	197	6	<0.05	<0.05	2.11	0.20	0.16	0.17	0.175	0.876	-1.76	0.48	-1.80	0.54	
MN	203			4	1484	47	29	22	106.5	2.2	3.51	0.69	3.48	0.61	
MO	81	122	<4	<4	25	7	<4	<4	4.3	0.6	1.83	0.46			
NA	191	12	<0.05	<0.05	4.11	0.33	0.12	0.07	0.511	1.572	-1.75	0.99	-1.91	1.12	
NB	127	76	<4	<4	37	9	5	<4	6.0	0.6	0.54				
NI	186	17	<2	<2	64	6	5	3	6.7	1.0	1.73	0.61	1.62	0.64	
P	203			20	1237	127	100	81	113.2	0.9	4.63	0.64	4.62	0.66	
PB	16	9	<10	0	44	24	12	<10	13.3	0.5					
SC	197	6	<1	<1	30	2	2	1	2.3	0.8	0.88	0.48	0.88	0.45	
SR	203			4	303	59	55	52	36.3	0.6	3.94	0.58	3.96	0.57	
TI	203			27	8964	1108	992	982	738.1	0.7	6.85	0.67	6.90	0.47	
V	202	1	<2	<2	260	20	17	15	19.5	1.0	2.84	0.56	2.85	0.51	
Y	198	5	<1	<1	86	6	4	1	8.1	1.2	1.50	0.86	1.45	0.99	
ZN	196	7	<2	<2	94	9	6	5	10.0	1.1	1.95	0.63	1.88	0.69	
ZR	203			11	918	141	96	36	150.1	1.1	4.47	1.00	4.47	0.96	

Table 17. Statistical summary of geochemical data from subsurface samples of the Deep Gulch Conglomerate of the northwestern Sierra Madre.

ELEMENT	NO. SAMPLES ANALYZED										COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	BELOW		DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION		MEAN	S. D.	ROBUST	
		DETECTION LIMIT	DETECTION LIMIT											MEAN	S. D.
U	347	3	<0.25	<0.25	477.70	23.95	7.95	3.56	50.029	2.085	2.16	1.40	2.12	1.40	
U-NT	338			0.40	718.00	26.77	7.70	2.74	61.141	2.284	2.21	1.43	2.18	1.40	
U/TU	336			0.06	7.77	1.07	1.00	1.0	0.638	0.595	-0.05	0.49	-0.02	0.36	
TH	338	12	<2	<2	2596	118	31	11	239.7	2.0	3.65	1.50	3.57	1.55	
TH/U	336			0.05	36.41	5.32	3.93	2.26	4.647	0.873	1.35	0.87	1.38	0.81	
AG	114	226	<2	0	300	5	<2	<2	27.8	4.8	1.12	0.62			
AL	335	1	<0.05	<0.05	9.51	4.26	4.06	4.05	1.551	0.364	1.38	0.39	1.39	0.42	
B	71	266	<10	<10	32	13	<10	<10	4.3	0.3	2.60	0.27			
BA	349	1	<2	<2	2000	628	646	797	363.1	0.6	6.16	0.93	6.23	0.90	
BE	310	22	<1	<1	35	3	2	<1	3.4	1.1	0.82	0.79			
CA	207	136	<0.05	<0.05	6.23	0.31	0.06	<0.05	0.956	3.046	-2.15	0.97	-2.85	1.22	
CE	316	20	<10	<10	221	49	39	25	32.3	0.7	3.72	0.59	3.64	0.75	
CO	303	40	<4	<4	776	35	14	6	59.2	1.7	2.98	1.01	2.72	1.14	
CR	350			5	747	55	37	20	73.9	1.3	3.66	0.78	3.64	0.72	
CU	347	2	<2	<2	9519	183	38	7	824.3	4.5	3.69	1.39	3.61	1.34	
FE	349	1	<0.05	<0.05	15.00	1.80	1.15	0.26	2.100	1.169	0.0	0.99	0.09	1.91	
HF	4	2	<3	<3	78	45	<15	<15	26.6	0.6	3.67	0.66			
		95	<15												
K	335	1	<0.02	<0.02	4.56	2.04	2.14	2.33	0.948	0.465	0.53	0.72	0.60	0.69	
LA	99	2	<2	<2	241	85	77	60	50.0	0.6	4.25	0.70	4.27	0.76	
LI	335	1	<1	<1	196	11	6	6	13.1	1.1	2.15	0.72	2.16	0.76	
MG	347	3	<0.05	<0.05	15.00	0.57	0.30	0.17	1.030	1.820	-1.12	0.95	-1.16	0.97	
MN	349	1	<4	<4	1340	78	29	10	184.1	2.3	3.53	1.08	3.45	1.04	
MO	122	219	<4	<4	137	10	<4	<4	14.4	1.4	2.00	0.68			
NA	334	2	<0.05	<0.05	5.48	0.87	0.71	0.17	0.773	0.885	-0.58	1.04	-0.57	1.03	
NB	197	140	<4	<4	78	8	<4	<4	8.0	0.9	1.56	0.54			
NI	349	1	<2	<2	276	30	20	5	34.1	1.1	3.52	0.88	3.00	0.92	
P	321	15	<5	<5	1245	152	112	104	156.2	1.0	4.74	0.76	4.60	1.07	
PB	93	22	<10	0	621	57	28	<10	81.5	1.4					
SC	338	7	<1	<1	34	4	3	2	4.4	1.0	1.22	0.68	1.17	0.74	
SR	336	1	<1	<1	309	69	57	53	42.0	0.6	4.26	0.62	4.08	0.64	
TI	345	1	<10	0	5083	1353	1139	639	1137.6	0.8	6.52	1.87	6.90	1.10	
V	348	2	<2	<2	294	37	25	23	40.3	1.1	3.28	0.77	3.26	0.82	
Y	344	1	<1	<1	150	12	7	2	16.7	1.4	1.55	1.01	1.92	1.09	
ZN	318	18	<2	<2	179	15	8	3	19.6	1.3	2.26	0.89	2.14	1.10	
ZR	349	1	<2	<2	2133	147	84	46	210.2	1.4	4.47	1.00	4.45	0.97	

Table 18. Statistical summary of geochemical data from the Magnolia Formation of the Sierra Madre.

ELEMENT	NO. SAMPLES ANALYZED		DETECTION LIMIT	DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION			
	MEASURABLE VALUES	BELOW DETECTION LIMIT										MEAN	S. D.	ROBUST	
														MEAN	S. D.
U	115	3	<0.25	<0.25	64.89	4.79	2.22	0.63	8.719	1.821	0.84	1.12	0.75	1.23	
U-NT	85			0.50	76.90	3.68	1.80	0.61	8.725	2.374	0.66	0.96	0.61	0.86	
U/TU	85			0.18	5.56	1.13	1.02	1.21	0.567	0.589	0.00	0.51	0.02	0.46	
TH	109	8	<2	1	667	46	7	3	111.7	2.4	2.49	1.43	2.16	2.05	
TH/U	85			0.48	13.26	4.41	3.75	3.28	2.386	0.654	1.25	0.74	1.28	0.77	
AG	20	84	<2	0	5	2	<2	<2	1.1	0.4	0.90	0.32			
AL	103			1.37	10.79	4.11	3.87	2.83	1.723	0.419	1.33	0.42	1.33	0.41	
B	20	97	<10	<10	29	13	<10	<10	4.3	0.4	2.52	0.30			
BA	121			19	1729	472	440	490	256.3	0.5	5.99	0.64	6.02	0.60	
BE	110	8	<1	<1	13	2	2	<1	2.3	0.7	0.80	0.66	0.73	0.71	
CA	96	19	<0.05	<0.05	3.77	0.36	0.11	0.07	0.550	1.802	-1.76	1.05	-2.19	1.53	
CE	84	19	<10	<10	249	50	30	<10	45.3	0.9	3.65	0.73	3.38	1.01	
CO	105	12	<4	<4	70	15	9	6	14.5	0.9	2.45	0.78	2.24	1.08	
CR	118			3	300	48	33	7	49.3	1.0	3.43	0.99	3.44	1.08	
CU	118	3	<2	<2	500	55	22	20	81.2	1.5	3.28	1.22	3.22	1.36	
FE	121			0.10	10.00	2.08	1.50	0.74	1.748	0.839	0.42	0.82	0.43	0.82	
K	103			0.10	3.47	1.81	1.65	1.65	0.365	0.478	0.44	0.62	0.49	0.60	
LI	103			2	50	10	9	12	7.3	0.7	2.14	0.62	2.14	0.65	
MG	121			0.05	3.32	0.45	0.30	0.19	0.508	1.132	-1.14	0.76	-1.17	0.79	
MN	121			17	2000	213	124	145	297.3	1.4	4.83	0.97	4.80	1.02	
MO	24	84	<4	<4	30	6	<4	<4	5.4	0.8	1.78	0.49			
NA	101	2	<0.05	<0.05	2.97	0.85	0.57	<0.05	0.725	0.849	-0.71	1.21	-0.72	1.18	
NB	67	36	<4	<4	17	8	5	4	3.5	0.4	2.00	0.44			
NI	113	5	<2	1	150	20	12	9	22.5	1.1	2.60	0.91	2.52	1.07	
P	103			18	1671	220	164	174	220.2	1.0	5.02	0.91	5.03	0.97	
PB	12			10	300	59	20	19	87.3	1.5	3.42	1.09			
SC	118			1	30	5	4	5	5.2	0.9	1.43	0.82	1.41	0.91	
SR	103			6	333	50	34	7	51.0	1.0	3.61	0.93	3.50	0.92	
TI	121			0	8621	1231	841	36	1408.9	1.1	5.66	3.17	5.92	3.36	
V	121			5	272	53	37	19	55.1	1.0	3.57	0.92	3.56	0.93	
Y	116			1	45	8	6	2	8.4	1.0	1.68	1.06	1.68	1.10	
ZN	103			4	195	29	19	19	33.6	1.1	3.02	0.78	2.98	0.78	
ZR	120			9	1000	82	44	25	125.1	1.5	3.87	0.97	3.84	1.03	

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Figure 36. Thickness and U, Th values of radioactive conglomerates from surface transects, T1A, T1B, and T1C, Onemile Creek area, Medicine Bow Mtns.

TRANSECT NUMBER T1A

SAMP. NO.	711322	711323	711324	711325	711326	711327	711328	711329	711330	711331
ELEVATION	9220.00	9230.00	9242.00	9242.00	9243.00	9243.00	9244.00	9226.00	9226.00	9226.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	Q	PAC	PAC	PAC	PAC	Q	PAC	PAC	GPC
UL (PPM)	9.44	42.64	43.32	14.36	28.29	8.85	6.76	12.27	19.83	23.29
UT (PPM)	10.70	61.40	48.50	15.80	32.80	10.40	7.20	13.50	26.20	28.90
UL/UT	.88	.69	.89	.91	.86	.85	.94	.91	.76	.81
TH (PPM)	20.00	13.00	116.00	49.00	191.00	10.00	8.00	30.00	229.00	16.00
TH/UT	1.87	.21	2.39	3.10	5.82	.96	1.11	2.22	8.74	.55
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.38	5.15	5.21	5.34	5.43	4.51	5.49	4.95	5.23	5.17
CA (%)	.05	.05	-.05	-.05	.05	.06	.05	.05	-.05	.05
FE (%)	1.16	.72	1.83	1.49	1.55	.78	.81	.81	1.52	1.37
MG (%)	.34	.29	.37	.34	.33	.25	.32	.30	.33	.33
NA (%)	1.02	.91	.62	.53	.77	1.15	1.12	.85	.93	.98
K (%)	1.64	1.73	1.95	2.07	2.05	1.38	1.73	1.84	1.91	1.75
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	11.00	11.00	11.00	12.00	11.00	-10.00	10.00	10.00	12.00	10.00
BA (PPM)	346.00	341.00	458.00	453.00	494.00	280.00	362.00	421.00	451.00	406.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	50.00	35.00	182.00	73.00	252.00	31.00	19.00	56.00	116.00	51.00
CO (PPM)	-4.00	-4.00	4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	18.00	44.00	28.00	23.00	42.00	14.00	35.00	21.00	44.00	21.00
CU (PPM)	25.00	22.00	54.00	23.00	47.00	21.00	31.00	13.00	30.00	69.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	63.00	49.00	251.00	96.00	327.00	42.00	22.00	77.00	164.00	69.00
LI (PPM)	8.00	8.00	9.00	10.00	10.00	6.00	8.00	8.00	9.00	8.00
MN (PPM)	107.00	24.00	48.00	50.00	89.00	29.00	48.00	40.00	39.00	50.00
MO (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	4.00	4.00	5.00	-4.00	5.00	5.00	6.00	-4.00
NI (PPM)	9.00	5.00	5.00	8.00	7.00	6.00	6.00	5.00	4.00	11.00
P (PPM)	189.00	63.00	304.00	118.00	334.00	79.00	58.00	150.00	261.00	154.00
PB (PPM)	26.00	-10.00	75.00	36.00	81.00	13.00	11.00	23.00	104.00	24.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	5.00	4.00	4.00	4.00	3.00	3.00	4.00	5.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	72.00	31.00	35.00	26.00	48.00	31.00	34.00	36.00	56.00	39.00
TI (PPM)	854.00	1121.00	1424.00	1188.00	1612.00	776.00	978.00	1136.00	1459.00	962.00
V (PPM)	27.00	42.00	29.00	29.00	29.00	21.00	27.00	31.00	40.00	29.00
Y (PPM)	2.00	2.00	14.00	4.00	17.00	4.00	2.00	5.00	9.00	8.00
ZN (PPM)	37.00	28.00	36.00	42.00	45.00	40.00	38.00	37.00	33.00	49.00
ZR (PPM)	62.00	53.00	107.00	69.00	178.00	48.00	61.00	69.00	99.00	60.00

TRANSECT NUMBER T1A

SAMP. NO.	711332	711333
ELEVATION	9226.00	9222.00
FORMATION	MG	MG
LITHOLOGY	Q	QPC
UL (PPM)	7.14	14.51
UT (PPM)	9.40	18.30
UL/UT	.76	.79
TH (PPM)	15.00	34.00
TH/UT	1.60	1.86
AU (PPM)	ND	ND
AL (%)	5.59	5.20
CA (%)	.05	.07
FE (%)	.89	1.05
MG (%)	.32	.35
NA (%)	1.52	.81
K (%)	1.71	1.80
AG (PPM)	-2.00	-2.00
B (PPM)	10.00	10.00
BA (PPM)	350.00	368.00
BE (PPM)	1.00	1.00
CE (PPM)	37.00	56.00
CO (PPM)	-4.00	-4.00
CR (PPM)	32.00	19.00
CU (PPM)	8.00	19.00
HF (PPM)	-15.00	-15.00
LA (PPM)	51.00	78.00
LI (PPM)	6.00	10.00
MN (PPM)	49.00	70.00
MO (PPM)	-4.00	-4.00
NB (PPM)	-4.00	5.00
NI (PPM)	9.00	5.00
P (PPM)	78.00	152.00
PB (PPM)	22.00	55.00
PT (PPM)	ND	ND
SC (PPM)	3.00	4.00
SI (PPM)	ND	ND
SN (PPM)	ND	ND
SR (PPM)	37.00	24.00
TI (PPM)	967.00	1048.00
V (PPM)	26.00	28.00
Y (PPM)	5.00	10.00
ZN (PPM)	29.00	24.00
ZR (PPM)	54.00	66.00

TRANSECT NUMBER T1B

SAMP. NO.	157270	711334	711335	711337	711339	711340	711341	711342	711343	711344
ELEVATION	9190.00	9255.00	9225.00	9225.00	9224.00	9224.00	9224.00	9225.00	9226.00	9226.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	AGC	QGC	AGC	Q	C	PAC	PAC	PAC	C
UL (PPM)	32.92	4.15	21.67	2.96	2.70	6.66	14.07	7.72	28.78	29.34
UT (PPM)	28.00	5.40	26.30	2.90	2.90	12.90	15.40	9.30	28.50	31.70
UL/UT	1.18	.77	.82	1.02	.93	.52	.91	.83	1.01	.93
TH (PPM)	40.00	19.00	212.00	7.00	8.00	18.00	131.00	89.00	43.00	143.00
TH/UT	1.43	3.52	0.06	2.41	2.76	1.40	8.51	9.57	1.51	4.51
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.92	4.38	6.40	5.04	6.84	5.38	4.75	6.89	5.31	5.18
CA (%)	-.05	-.05	-.05	.06	.08	.06	-.05	-.05	-.05	-.05
FE (%)	1.48	.49	3.40	.74	.47	.78	1.47	1.59	1.25	1.53
MG (%)	.26	.28	.57	.39	.38	.38	.34	.48	.43	.32
NA (%)	.65	1.20	.73	1.06	1.73	1.33	.47	.23	.69	.53
K (%)	1.63	1.46	2.37	1.81	2.36	1.76	1.82	2.75	1.82	1.91
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	11.00	-10.00	10.00	-10.00	11.00	17.00	12.00	11.00
BA (PPM)	208.00	231.00	361.00	389.00	479.00	396.00	437.00	608.00	316.00	347.00
BE (PPM)	2.00	2.00	4.00	1.00	2.00	1.00	1.00	2.00	1.00	1.00
CE (PPM)	60.00	39.00	294.00	31.00	28.00	53.00	195.00	123.00	39.00	164.00
CO (PPM)	8.00	-4.00	21.00	-4.00	-4.00	4.00	4.00	-4.00	4.00	10.00
CR (PPM)	21.00	36.00	179.00	18.00	29.00	25.00	25.00	47.00	20.00	34.00
CU (PPM)	86.00	38.00	158.00	16.00	5.00	51.00	34.00	18.00	29.00	88.00
HF (PPM)	ND	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	ND	52.00	407.00	39.00	37.00	65.00	261.00	159.00	52.00	222.00
LI (PPM)	6.00	8.00	18.00	10.00	9.00	9.00	9.00	14.00	9.00	9.00
MN (PPM)	30.00	71.00	128.00	100.00	14.00	53.00	26.00	36.00	58.00	118.00
MO (PPM)	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	5.00	15.00	-4.00	-4.00	-4.00	4.00	6.00	4.00	7.00
NI (PPM)	10.00	7.00	17.00	8.00	8.00	9.00	8.00	9.00	9.00	14.00
P (PPM)	124.00	77.00	353.00	154.00	194.00	128.00	241.00	142.00	138.00	174.00
PB (PPM)	ND	-10.00	59.00	-10.00	-10.00	14.00	48.00	18.00	31.00	31.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	8.00	3.00	3.00	4.00	4.00	7.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	17.00	13.00	13.00	22.00	44.00	29.00	23.00	14.00	23.00	21.00
TI (PPM)	1118.00	688.00	2388.00	922.00	967.00	1046.00	1310.00	2172.00	1310.00	1502.00
V (PPM)	28.00	19.00	54.00	24.00	27.00	36.00	28.00	58.00	27.00	30.00
Y (PPM)	5.00	3.00	18.00	2.00	2.00	14.00	9.00	7.00	6.00	9.00
ZN (PPM)	17.00	21.00	29.00	19.00	11.00	21.00	16.00	17.00	48.00	33.00
ZR (PPM)	98.00	55.00	256.00	53.00	46.00	79.00	98.00	144.00	141.00	125.00

TRANSECT NUMBER T1B

SAMP. NO.	711346	711347	711348	711349	711350	711351	711352	711353	711354	711355
ELEVATION	9227.00	9228.00	9228.00	9228.00	9225.00	9225.00	9221.00	9219.00	9218.00	9210.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	PAC	PAC	PAC	PAC	AG	PAC	PAC	AG	PAC	GPC
UL (PPM)	29.87	4.42	17.30	6.94	3.60	40.01	5.85	2.72	23.24	13.36
UT (PPM)	30.60	5.80	21.50	8.60	4.30	43.30	6.00	3.30	24.30	13.90
UL/UT	.98	.76	.80	.81	.84	.92	.97	.82	.96	.96
TH (PPM)	71.00	5.00	65.00	13.00	3.00	274.00	23.00	17.00	63.00	19.00
TH/UT	2.32	.86	3.02	1.51	.70	6.33	3.83	5.15	2.59	1.37
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.78	6.13	5.30	5.88	6.25	4.90	4.36	5.55	5.34	4.74
CA (%)	-.05	-.05	.07	.05	.07	-.05	.05	.07	.07	-.05
FE (%)	1.33	1.26	1.42	.96	.91	2.57	.95	.98	1.38	1.28
MG (%)	.29	.54	.31	.31	.35	.37	.24	.36	.40	.29
NA (%)	.59	.26	1.18	1.08	1.25	.46	.78	1.05	.95	.87
K (%)	1.72	2.33	1.52	1.85	1.97	1.87	1.49	1.83	1.75	1.76
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	10.00	15.00	10.00	11.00	14.00	12.00	-10.00	11.00	10.00	-10.00
BA (PPM)	485.00	414.00	321.00	381.00	399.00	324.00	288.00	344.00	328.00	298.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	51.00	24.00	79.00	28.00	20.00	206.00	44.00	31.00	78.00	57.00
CO (PPM)	5.00	6.00	7.00	-4.00	-4.00	12.00	-4.00	-4.00	11.00	-4.00
CR (PPM)	11.00	28.00	24.00	21.00	31.00	37.00	19.00	33.00	30.00	29.00
CU (PPM)	69.00	37.00	58.00	20.00	20.00	114.00	21.00	8.00	32.00	30.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	70.00	34.00	110.00	37.00	28.00	272.00	55.00	41.00	102.00	76.00
LI (PPM)	7.00	11.00	7.00	8.00	8.00	9.00	6.00	8.00	7.00	8.00
MN (PPM)	110.00	44.00	49.00	28.00	115.00	59.00	37.00	29.00	34.00	50.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	4.00	4.00	4.00	4.00	-4.00	4.00	4.00	-4.00	4.00	4.00
NI (PPM)	12.00	14.00	15.00	9.00	10.00	26.00	7.00	6.00	11.00	7.00
P (PPM)	135.00	121.00	138.00	74.00	55.00	368.00	81.00	177.00	174.00	104.00
PB (PPM)	39.00	11.00	38.00	-10.00	-10.00	105.00	20.00	12.00	26.00	28.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	6.00	4.00	4.00	3.00	5.00	3.00	4.00	4.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	23.00	16.00	38.00	33.00	36.00	20.00	23.00	28.00	26.00	34.00
TI (PPM)	855.00	1361.00	1119.00	1317.00	1031.00	1492.00	1004.00	1001.00	1251.00	1105.00
V (PPM)	21.00	49.00	37.00	33.00	32.00	37.00	25.00	32.00	31.00	27.00
Y (PPM)	8.00	5.00	6.00	3.00	2.00	16.00	3.00	8.00	9.00	4.00
ZN (PPM)	40.00	40.00	34.00	29.00	32.00	40.00	22.00	10.00	13.00	23.00
ZR (PPM)	71.00	64.00	72.00	63.00	49.00	112.00	99.00	61.00	97.00	59.00

TRANSECT NUMBER T1B

SAMP. NO.	711418	711419	711420	711421	711422	711423
ELEVATION	9225.00	9222.00	9220.00	9210.00	9212.00	9205.00
FORMATION	MG	MG	MG	MG	MG	MG
LITHOLOGY	PAC	PAC	PAC	PAC	PAC	PAC
UL (PPM)	43.93	50.59	47.04	22.14	7.83	7.97
UT (PPM)	50.50	52.60	48.20	22.10	7.90	101.10
UL/UT	.87	.96	.98	1.00	.99	.08
TH (PPM)	93.00	34.00	17.00	34.00	20.00	112.00
TH/UI	1.84	.65	.35	1.54	2.53	1.11
AU (PPM)	ND	ND	ND	ND	ND	ND
AL (%)	8.26	10.41	6.88	9.65	5.69	9.79
CA (%)	.15	.08	.07	.11	-.05	.07
FE (%)	2.45	2.29	2.08	2.94	1.31	2.21
MG (%)	.51	.81	.45	.73	.39	.79
NA (%)	1.55	.52	.67	.66	.44	.35
K (%)	2.53	3.56	2.48	3.41	2.16	3.64
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	14.00	26.00	18.00	24.00	16.00	18.00
BA (PPM)	517.00	693.00	477.00	600.00	419.00	1092.00
BE (PPM)	2.00	3.00	1.00	2.00	1.00	3.00
CE (PPM)	96.00	67.00	50.00	54.00	42.00	46.00
CO (PPM)	6.00	5.00	-4.00	10.00	4.00	-4.00
CR (PPM)	49.00	52.00	54.00	50.00	26.00	74.00
CU (PPM)	58.00	89.00	94.00	69.00	37.00	81.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	132.00	89.00	70.00	73.00	59.00	62.00
LI (PPM)	14.00	19.00	12.00	18.00	7.00	25.00
MN (PPM)	58.00	64.00	50.00	175.00	51.00	51.00
MO (PPM)	-4.00	5.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	6.00	9.00	7.00	7.00	-4.00	10.00
NI (PPM)	14.00	13.00	10.00	21.00	8.00	13.00
P (PPM)	281.00	233.00	156.00	163.00	79.00	209.00
PB (PPM)	73.00	41.00	31.00	14.00	14.00	81.00
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	10.00	9.00	11.00	5.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	53.00	30.00	27.00	29.00	16.00	34.00
TI (PPM)	1857.00	2757.00	2033.00	2719.00	1157.00	2498.00
V (PPM)	56.00	78.00	65.00	97.00	36.00	74.00
Y (PPM)	13.00	12.00	4.00	7.00	4.00	9.00
ZN (PPM)	21.00	30.00	21.00	96.00	12.00	19.00
ZR (PPM)	87.00	105.00	70.00	91.00	68.00	88.00

TRANSECT NUMBER T1C

SAMP. NO.	157266	157268	711424	711425	711426	711427	711428	711429	711430	711431
ELEVATION	9115.00	9190.00	9190.00	9190.00	9193.00	9194.00	9195.00	9195.00	9185.00	9185.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QPC	PAC	PAC	PAC	PAC	PAC	PAC	CQ	PAC
UL (PPM)	73.99	14.31	59.33	39.35	17.74	30.71	31.02	31.53	10.84	9.03
UT (PPM)	55.10	12.60	60.30	43.10	20.50	33.90	35.50	32.60	11.00	9.40
UL/UT	1.34	1.14	.98	.91	.87	.91	.87	.97	.99	.96
TH (PPM)	228.00	46.00	104.00	26.00	59.00	33.00	25.00	28.00	9.00	32.00
TH/UT	4.14	3.65	1.72	.60	2.88	.97	.70	.86	.82	3.40
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.48	6.52	8.55	8.17	7.16	9.56	9.66	5.71	7.62	7.44
CA (%)	.09	-.05	.10	.08	-.05	.05	.06	.10	-.05	.09
FE (%)	1.45	1.58	3.53	2.28	2.33	2.21	2.99	2.00	2.09	1.37
MG (%)	.43	.44	.89	.74	.57	.75	.71	.42	.52	.65
NA (%)	1.02	.77	1.27	.78	.53	.90	.78	.30	.54	1.62
K (%)	1.87	2.83	2.58	2.85	2.74	3.19	3.45	2.44	2.96	2.23
AG (PPM)	6.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	16.00	17.00	17.00	22.00	23.00	15.00	22.00	15.00
BA (PPM)	433.00	347.00	451.00	521.00	520.00	620.00	739.00	453.00	642.00	670.00
BE (PPM)	5.00	4.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	2.00
CE (PPM)	121.00	85.00	94.00	32.00	106.00	53.00	55.00	48.00	14.00	57.00
CO (PPM)	7.00	6.00	15.00	6.00	-4.00	7.00	10.00	6.00	-4.00	4.00
CR (PPM)	35.00	59.00	51.00	73.00	61.00	33.00	53.00	37.00	21.00	26.00
CU (PPM)	45.00	34.00	102.00	58.00	27.00	32.00	81.00	48.00	19.00	43.00
HF (PPM)	ND	ND	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	ND	ND	119.00	43.00	154.00	71.00	78.00	63.00	19.00	74.00
LI (PPM)	10.00	12.00	15.00	16.00	15.00	15.00	16.00	12.00	14.00	10.00
MN (PPM)	89.00	105.00	169.00	130.00	97.00	58.00	194.00	35.00	59.00	46.00
MO (PPM)	-4.00	11.00	17.00	-4.00	7.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	10.00	7.00	7.00	7.00	5.00	5.00	4.00	6.00	-4.00	4.00
NI (PPM)	14.00	6.00	23.00	15.00	4.00	14.00	17.00	21.00	9.00	13.00
P (PPM)	272.00	193.00	323.00	240.00	249.00	207.00	373.00	197.00	56.00	242.00
PB (PPM)	ND	ND	57.00	34.00	51.00	26.00	25.00	26.00	11.00	33.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	8.00	11.00	10.00	10.00	5.00	7.00	7.00	4.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	41.00	20.00	37.00	28.00	29.00	28.00	34.00	19.00	27.00	51.00
TI (PPM)	1498.00	1907.00	2185.00	2075.00	2765.00	2026.00	2102.00	1611.00	1521.00	1531.00
V (PPM)	45.00	70.00	82.00	80.00	85.00	52.00	66.00	53.00	41.00	35.00
Y (PPM)	14.00	5.00	7.00	4.00	6.00	7.00	6.00	6.00	2.00	5.00
ZN (PPM)	8.00	23.00	58.00	35.00	22.00	35.00	39.00	23.00	12.00	10.00
ZR (PPM)	112.00	103.00	86.00	71.00	127.00	112.00	81.00	66.00	66.00	91.00

TRANSECT NUMBER T1C

SAMP. NO.	711432	711433	711434
ELEVATION	9095.00	9095.00	9095.00
FORMATION	MG	MG	MG
LITHOLOGY	PAC	C	CQ
UL (PPM)	59.47	69.04	8.88
UT (PPM)	55.40	176.70	9.60
UL/UT	1.07	.39	.92
TH (PPM)	33.00	371.00	12.00
TH/UT	.60	2.10	1.25
AU (PPM)	ND	ND	ND
AL (%)	9.05	6.12	6.47
CA (%)	.13	.08	.11
FE (%)	2.67	2.54	1.14
MG (%)	.89	.56	.40
NA (%)	1.27	.10	1.56
K (%)	2.72	2.74	1.78
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	15.00	13.00	-10.00
BA (PPM)	919.00	1052.00	608.00
BE (PPM)	2.00	2.00	2.00
CE (PPM)	35.00	457.00	20.00
CO (PPM)	5.00	-4.00	-4.00
CR (PPM)	63.00	98.00	28.00
CU (PPM)	43.00	65.00	17.00
HF (PPM)	-15.00	-15.00	-15.00
LA (PPM)	45.00	657.00	26.00
LI (PPM)	13.00	20.00	7.00
MN (PPM)	68.00	54.00	32.00
MO (PPM)	-4.00	-4.00	-4.00
NB (PPM)	4.00	6.00	-4.00
NI (PPM)	13.00	8.00	8.00
P (PPM)	356.00	662.00	397.00
PB (PPM)	34.00	312.00	13.00
PT (PPM)	ND	ND	ND
SC (PPM)	9.00	8.00	4.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	48.00	53.00	59.00
TI (PPM)	2840.00	2942.00	1182.00
V (PPM)	79.00	52.00	38.00
Y (PPM)	7.00	41.00	3.00
ZN (PPM)	17.00	16.00	14.00
ZR (PPM)	117.00	476.00	61.00

Figure 37. Thickness and U, Th values of radioactive conglomerates from surface transect T2, Onemile Creek area, Medicine Bow Mtns.

TRANSECT NUMBER T: 2

SAMP. NO.	157274	157275	157276	157277	157278	157279	157280	157281	157282	157283
ELEVATION	8527.00	8530.00	8540.00	8560.00	8560.00	8565.00	8580.00	8600.00	8650.00	8640.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	FQZ	QGC	QGC	QPC	CQZ	CQZ	CQZ	CQZ	MQZ	MQZ
UL (PPM)	6.98	7.89	6.01	19.78	7.41	ND	68.40	67.76	15.18	12.69
UT (PPM)	5.60	6.50	4.30	11.70	4.50	ND	41.10	70.50	14.70	14.30
UL/UT	1.25	1.21	1.40	1.69	1.65	ND	1.66	.96	1.03	.89
TH (PPM)	13.00	45.00	32.00	81.00	32.00	ND	75.00	270.00	85.00	19.00
TH/UT	2.32	6.92	7.44	6.92	7.11	ND	1.82	3.83	5.78	1.33
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	8.18	4.11	4.03	3.67	4.47	ND	4.83	3.96	3.99	3.92
CA (%)	.10	-.05	-.05	-.05	-.05	ND	-.05	-.05	.05	-.05
FE (%)	1.50	1.05	1.47	2.65	.90	ND	1.78	2.43	1.90	1.80
MG (%)	.83	.27	.32	.32	.27	ND	.36	.30	.37	.30
NA (%)	.08	.48	.23	.06	.97	ND	.20	.45	.73	.48
K (%)	4.00	2.09	2.17	1.94	1.82	ND	2.39	1.93	1.75	1.77
AG (PPM)	2.00	-2.00	-2.00	2.00	3.00	ND	-2.00	-2.00	2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	ND	-10.00	-10.00	-10.00	-10.00
BA (PPM)	637.00	296.00	337.00	330.00	233.00	ND	361.00	340.00	272.00	271.00
BE (PPM)	14.00	3.00	3.00	5.00	3.00	ND	5.00	4.00	3.00	2.00
CE (PPM)	46.00	41.00	43.00	122.00	14.00	ND	63.00	248.00	37.00	25.00
CO (PPM)	5.00	4.00	10.00	10.00	4.00	ND	8.00	8.00	17.00	7.00
CR (PPM)	116.00	39.00	30.00	132.00	26.00	ND	90.00	46.00	30.00	20.00
CU (PPM)	13.00	10.00	18.00	29.00	12.00	ND	38.00	49.00	75.00	32.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	21.00	7.00	9.00	8.00	7.00	ND	10.00	8.00	9.00	7.00
MN (PPM)	52.00	39.00	56.00	63.00	44.00	ND	48.00	43.00	105.00	92.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	ND	-4.00	24.00	-4.00	4.00
NB (PPM)	11.00	11.00	17.00	36.00	4.00	ND	7.00	20.00	11.00	8.00
NI (PPM)	17.00	6.00	7.00	5.00	4.00	ND	5.00	4.00	11.00	6.00
P (PPM)	457.00	113.00	80.00	150.00	56.00	ND	269.00	395.00	186.00	220.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	21.00	3.00	4.00	6.00	3.00	ND	7.00	4.00	8.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	11.00	15.00	13.00	11.00	31.00	ND	14.00	26.00	27.00	25.00
TI (PPM)	3765.00	951.00	1017.00	1545.00	596.00	ND	1666.00	1475.00	1423.00	945.00
V (PPM)	182.00	23.00	28.00	38.00	21.00	ND	47.00	22.00	59.00	33.00
Y (PPM)	6.00	3.00	2.00	6.00	2.00	ND	6.00	13.00	16.00	3.00
ZN (PPM)	15.00	14.00	8.00	9.00	5.00	ND	9.00	7.00	10.00	9.00
ZR (PPM)	99.00	63.00	54.00	80.00	41.00	ND	152.00	223.00	65.00	96.00

TRANSECT NUMBER T-2

SAMP. NO.	157284	157285	157286	157287	157288	157289
ELEVATION	8640.00	8655.00	8537.00	8630.00	8595.00	8625.00
FORMATION	MG	MG	MG	MG	MG	MG
LITHOLOGY	QGC	QGC	QGC	MQZ	CQZ	CQZ
UL (PPM)	27.24	32.83	3.64	.35	2.69	2.44
UT (PPM)	29.90	22.00	4.60	1.50	2.10	2.50
UL/UT	.91	1.49	.79	.23	1.28	.98
TH (PPM)	63.00	22.00	14.00	8.00	9.00	8.00
TH/UT	2.11	1.00	3.04	5.33	4.29	3.20
AU (PPM)	ND	ND	ND	ND	ND	ND
AL (%)	3.34	4.80	4.65	6.22	5.67	3.79
CA (%)	-.05	.05	-.05	.08	-.05	-.05
FE (%)	1.44	2.19	.86	.57	1.24	.77
MG (%)	.32	.51	.32	.30	.45	.23
NA (%)	.14	.78	.56	1.19	.64	.92
K (%)	1.74	2.19	2.39	2.35	2.61	1.78
AG (PPM)	-2.00	-2.00	-2.00	3.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	265.00	294.00	365.00	369.00	350.00	413.00
BE (PPM)	2.00	4.00	4.00	3.00	4.00	2.00
CE (PPM)	66.00	24.00	21.00	26.00	13.00	33.00
CO (PPM)	4.00	9.00	-4.00	-4.00	-4.00	5.00
CR (PPM)	26.00	24.00	35.00	17.00	38.00	18.00
CU (PPM)	16.00	67.00	5.00	10.00	6.00	12.00
HF (PPM)	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	11.00	8.00	7.00	11.00	4.00
MN (PPM)	100.00	98.00	61.00	54.00	63.00	78.00
MO (PPM)	-4.00	6.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	9.00	12.00	9.00	4.00	7.00	-4.00
NI (PPM)	3.00	13.00	3.00	7.00	6.00	13.00
P (PPM)	167.00	236.00	37.00	205.00	56.00	134.00
PB (PPM)	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	6.00	4.00	2.00	5.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	21.00	36.00	19.00	37.00	22.00	45.00
TI (PPM)	1242.00	1473.00	1124.00	614.00	1259.00	573.00
V (PPM)	32.00	49.00	31.00	19.00	37.00	19.00
Y (PPM)	7.00	3.00	2.00	3.00	1.00	3.00
ZN (PPM)	12.00	17.00	13.00	12.00	7.00	8.00
ZR (PPM)	65.00	63.00	56.00	44.00	47.00	33.00

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Figure 38. Thickness and U,Th values of radioactive conglomerates from surface transects T3 and T4, Onemile Creek area, Medicine Bow Mtns.

TRANSECT NUMBER T 3

SAMP. NO.	711390	711393	711394	711395	711396	711397	711398	711399
ELEVATION	8500.00	8518.00	8524.00	8520.00	8520.00	8528.00	8535.00	8538.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QPC	C	C	C	C	C	C
UL (PPM)	6.70	4.71	160.60	3.67	11.34	8.24	19.50	15.04
UT (PPM)	7.10	5.55	166.60	4.70	13.50	9.60	18.90	14.60
UL/UT	.94	.05	.96	.78	.84	.86	1.03	1.03
TH (PPM)	68.00	52.00	56.00	46.00	131.00	32.00	12.00	42.00
TH/UT	9.58	9.37	.34	9.79	9.70	3.33	.63	2.88
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.71	4.06	6.42	4.31	3.85	4.99	4.49	4.56
CA (%)	-.05	.18	-.05	.06	-.05	.06	.05	.05
FE (%)	2.39	.45	17.69	.74	1.28	1.52	1.17	1.37
MG (%)	.13	.16	.27	.20	.19	.21	.31	.33
NA (%)	.05	.54	.15	1.33	.49	.43	.61	.27
K (%)	1.29	1.30	1.97	1.10	1.38	1.77	1.30	1.70
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	16.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	257.00	361.00	234.00	175.00	166.00	188.00	155.00	181.00
BE (PPM)	1.00	1.00	4.00	1.00	2.00	2.00	2.00	2.00
CE (PPM)	44.00	53.00	149.00	86.00	237.00	54.00	33.00	53.00
CO (PPM)	-4.00	-4.00	38.00	6.00	4.00	-4.00	8.00	12.00
CR (PPM)	32.00	45.00	95.00	32.00	37.00	45.00	19.00	24.00
CU (PPM)	21.00	23.00	368.00	19.00	25.00	46.00	95.00	61.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	87.00	76.00	194.00	115.00	314.00	80.00	39.00	64.00
LI (PPM)	7.00	9.00	9.00	6.00	7.00	9.00	7.00	10.00
MN (PPM)	25.00	20.00	64.00	19.00	17.00	34.00	66.00	62.00
MO (PPM)	4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	33.00	4.00	-4.00	4.00	8.00	-4.00	-4.00	-4.00
NI (PPM)	7.00	6.00	68.00	12.00	8.00	6.00	23.00	25.00
P (PPM)	244.00	61.00	974.00	130.00	176.00	113.00	109.00	112.00
PB (PPM)	112.00	41.00	55.00	13.00	40.00	25.00	15.00	13.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	11.00	3.00	3.00	3.00	3.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	24.00	30.00	24.00	15.00	8.00	12.00	9.00	9.00
TI (PPM)	855.00	746.00	1001.00	594.00	759.00	766.00	651.00	827.00
V (PPM)	17.00	29.00	100.00	22.00	16.00	28.00	27.00	36.00
Y (PPM)	3.00	2.00	15.00	6.00	13.00	7.00	10.00	12.00
ZN (PPM)	27.00	32.00	846.00	22.00	22.00	21.00	32.00	36.00
ZR (PPM)	80.00	52.00	59.00	95.00	154.00	69.00	45.00	49.00

TRANSECT NUMBER T 4

SAMP. NO.	711385	711386	711387	711388	711389
ELEVATION	8595.00	8585.00	8580.00	8570.00	8558.00
FORMATION	MG	MG	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC	GPC	Q
UL (PPM)	7.57	41.03	33.58	49.30	2.14
UT (PPM)	6.70	46.60	370.01	51.60	2.60
UL/UT	1.13	.88	.09	.96	.82
TH (PPM)	25.00	657.00	365.00	422.00	26.00
TH/UT	3.73	14.10	.99	8.18	10.00
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	4.47	2.82	3.31	3.25	4.89
CA (%)	.09	.05	-.05	.05	.05
FE (%)	.84	.67	1.11	1.57	.32
MG (%)	.39	.11	.15	.08	.25
NA (%)	.80	1.42	1.38	1.41	1.14
K (%)	1.36	.40	.68	.57	1.45
AG (PPM)	-2.00	4.00	2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	148.00	1091.00	80.00	193.00	313.00
BE (PPM)	1.00	1.00	1.00	1.00	1.00
CE (PPM)	77.00	825.00	381.00	566.00	41.00
CO (PPM)	6.00	11.00	15.00	-4.00	-4.00
CR (PPM)	66.00	43.00	52.00	40.00	23.00
CU (PPM)	43.00	36.00	108.00	34.00	11.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	92.00	975.00	454.00	685.00	57.00
LI (PPM)	10.00	5.00	5.00	4.00	11.00
MN (PPM)	33.00	3264.00	65.00	16.00	56.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	44.00	7.00	16.00	7.00
NI (PPM)	23.00	11.00	19.00	7.00	8.00
P (PPM)	90.00	711.00	416.00	571.00	46.00
PB (PPM)	11.00	213.00	111.00	102.00	14.00
PT (PPM)	ND	ND	-91911.00	-91919.00	ND
SC (PPM)	6.00	7.00	3.00	4.00	2.00
SI (PPM)	ND	ND	-91911.00	-91919.00	ND
SN (PPM)	ND	ND	-91911.00	-91919.00	ND
SR (PPM)	11.00	36.00	12.00	14.00	11.00
TI (PPM)	620.00	597.00	400.00	496.00	613.00
V (PPM)	60.00	18.00	22.00	12.00	15.00
Y (PPM)	5.00	27.00	28.00	27.00	2.00
ZN (PPM)	29.00	18.00	22.00	18.00	19.00
ZR (PPM)	97.00	482.00	617.00	476.00	84.00

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Figure 39. Thickness and U, Th values of radioactive conglomerates from surface transect T5, Onemile Creek area, Medicine Bow Mtns.

TRANSECT NUMBER T-5

SAMP. NO.	157272	711359	711360	711361	711365	711366	711367	711368	711369	711370
ELEVATION	8690.00	8650.00	8640.00	8618.00	8626.00	8630.00	8632.00	8638.00	8642.00	8645.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	155.40	6.15	86.00	7.99	9.08	1.99	3.40	3.93	12.26	1.33
UT (PPM)	103.90	8.20	78.60	9.40	12.40	2.00	5.00	5.20	14.20	1.90
UL/UT	1.50	.75	1.09	.85	.73	.99	.68	.76	.86	.70
TH (PPM)	214.00	39.00	477.00	70.00	133.00	11.00	58.00	39.00	169.00	12.00
TH/UT	2.06	4.76	6.07	7.45	10.73	5.50	11.60	7.50	11.90	6.32
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.97	5.02	4.28	4.14	3.52	3.33	3.79	4.74	3.90	5.21
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	3.17	1.16	1.31	1.73	1.97	.77	1.35	1.28	1.74	1.03
MG (%)	.20	.38	.34	.28	.23	.27	.25	.29	.28	.34
NA (%)	.31	.05	.19	.07	.05	-.05	.06	.06	.05	.06
K (%)	1.62	2.13	1.83	1.81	1.63	1.42	1.74	1.93	1.62	2.18
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	11.00	-10.00	10.00	-10.00	-10.00	-10.00	11.00	-10.00	10.00
BA (PPM)	199.00	345.00	281.00	284.00	233.00	221.00	293.00	324.00	271.00	315.00
BE (PPM)	6.00	3.00	2.00	2.00	2.00	1.00	2.00	2.00	2.00	2.00
CE (PPM)	781.00	208.00	114.00	125.00	134.00	24.00	82.00	73.00	237.00	35.00
CO (PPM)	7.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	121.00	82.00	55.00	39.00	35.00	13.00	24.00	48.00	78.00	33.00
CU (PPM)	7.00	10.00	41.00	19.00	18.00	10.00	15.00	13.00	70.00	12.00
HF (PPM)	ND	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	ND	294.00	162.00	165.00	176.00	36.00	114.00	95.00	282.00	50.00
LI (PPM)	9.00	10.00	9.00	9.00	8.00	8.00	9.00	9.00	9.00	12.00
MN (PPM)	28.00	141.00	75.00	81.00	53.00	50.00	87.00	85.00	86.00	80.00
MO (PPM)	24.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	227.00	30.00	20.00	17.00	21.00	-4.00	7.00	10.00	10.00	7.00
NI (PPM)	3.00	4.00	9.00	6.00	3.00	6.00	7.00	5.00	12.00	8.00
P (PPM)	550.00	192.00	272.00	146.00	181.00	36.00	82.00	67.00	197.00	34.00
PB (PPM)	ND	76.00	259.00	57.00	87.00	15.00	48.00	18.00	81.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	8.00	6.00	5.00	3.00	3.00	2.00	2.00	3.00	5.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	68.00	11.00	36.00	10.00	8.00	5.00	9.00	7.00	8.00	5.00
TI (PPM)	1489.00	1652.00	1018.00	1004.00	914.00	394.00	597.00	1053.00	1454.00	1004.00
V (PPM)	35.00	46.00	32.00	25.00	20.00	9.00	14.00	24.00	24.00	26.00
Y (PPM)	24.00	8.00	19.00	6.00	7.00	5.00	3.00	3.00	15.00	2.00
ZN (PPM)	19.00	24.00	22.00	22.00	21.00	29.00	25.00	22.00	24.00	26.00
ZR (PPM)	169.00	76.00	96.00	77.00	75.00	32.00	45.00	59.00	205.00	40.00

TRANSECT NUMBER T 5

SAMP. NO.	711371	711372	711373	711374	711375	711376	711377	711378	711379
ELEVATION	8646.00	8650.00	8655.00	8665.00	8652.00	8704.00	8710.00	8708.00	8702.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	GPC	AGC	AGC	AGC	AGC	PAC	GPC	GPC	GPC
UL (PPM)	5.43	13.12	8.42	16.11	5.39	12.13	6.29	45.99	51.03
UT (PPM)	5.70	14.60	8.10	13.90	5.60	11.90	5.60	56.20	57.00
UL/UT	.95	.90	1.04	1.16	.96	1.02	1.12	.82	.90
TH (PPM)	36.00	146.00	47.00	115.00	47.00	119.00	32.00	178.00	24.00
TH/UT	6.32	10.00	5.80	8.27	8.39	10.00	5.72	3.17	.42
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.10	3.84	3.83	3.30	3.96	4.37	3.87	3.71	4.07
CA (%)	-.05	-.05	-.05	.07	-.05	.06	-.05	-.05	-.05
FE (%)	.91	.96	.77	1.40	1.10	1.07	1.27	1.55	1.64
MG (%)	.27	.16	.19	.14	.21	.17	.33	.27	.33
NA (%)	.35	1.03	.80	.98	.69	.51	.07	.06	.14
K (%)	1.58	1.11	1.15	.80	1.31	1.37	1.66	1.57	1.58
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	12.00	13.00	14.00
BA (PPM)	242.00	205.00	186.00	128.00	210.00	197.00	262.00	379.00	492.00
BE (PPM)	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
CE (PPM)	62.00	269.00	67.00	150.00	109.00	202.00	48.00	118.00	33.00
CO (PPM)	-4.00	4.00	5.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00
CR (PPM)	31.00	38.00	19.00	23.00	30.00	39.00	36.00	45.00	137.00
CU (PPM)	41.00	91.00	70.00	36.00	31.00	31.00	61.00	65.00	56.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	80.00	333.00	86.00	195.00	155.00	264.00	58.00	163.00	40.00
LI (PPM)	8.00	5.00	6.00	5.00	6.00	7.00	13.00	9.00	12.00
MN (PPM)	64.00	33.00	58.00	48.00	59.00	26.00	36.00	22.00	31.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	16.00	-4.00
NB (PPM)	7.00	15.00	13.00	12.00	12.00	9.00	10.00	25.00	6.00
NI (PPM)	8.00	9.00	10.00	11.00	8.00	9.00	9.00	7.00	9.00
P (PPM)	85.00	217.00	60.00	117.00	91.00	170.00	85.00	188.00	206.00
PB (PPM)	34.00	41.00	13.00	34.00	31.00	40.00	73.00	230.00	222.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	3.00	2.00	3.00	4.00	4.00	4.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	12.00	18.00	14.00	17.00	13.00	14.00	17.00	12.00	18.00
TI (PPM)	885.00	587.00	397.00	420.00	665.00	628.00	894.00	1008.00	779.00
V (PPM)	21.00	17.00	13.00	14.00	15.00	22.00	26.00	24.00	44.00
Y (PPM)	5.00	14.00	4.00	10.00	4.00	11.00	2.00	8.00	4.00
ZN (PPM)	14.00	19.00	19.00	21.00	22.00	22.00	39.00	39.00	50.00
ZR (PPM)	73.00	65.00	50.00	139.00	47.00	93.00	52.00	114.00	46.00

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TRANSECT NUMBER T 6

SAMP. NO.	711380	711381	711382	711383	711384
ELEVATION	8800.00	8768.00	8760.00	8760.00	8750.00
FORMATION	MG	MG	MG	MG	MG
LITHOLOGY	QPC	Q	C	Q	AGC
UL (PPM)	3.38	3.34	25.67	12.78	13.93
UT (PPM)	4.10	3.60	24.10	11.90	12.50
UL/UT	.82	.93	1.07	1.07	1.11
TH (PPM)	31.00	15.00	88.00	47.00	92.00
TH/UT	7.56	4.17	3.65	3.95	7.36
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	4.14	5.56	3.52	4.44	4.64
CA (%)	.05	-.05	-.05	-.05	-.05
FE (%)	.32	1.06	1.57	1.37	1.20
MG (%)	.18	.39	.27	.35	.30
NA (%)	1.11	.28	.12	.37	.35
K (%)	1.73	2.36	1.70	1.84	1.81
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	10.00
BA (PPM)	360.00	377.00	296.00	306.00	397.00
BE (PPM)	1.00	2.00	2.00	2.00	2.00
CE (PPM)	65.00	34.00	75.00	95.00	113.00
CO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	36.00	45.00	45.00	58.00	42.00
CU (PPM)	27.00	16.00	13.00	39.00	41.00
HF (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00
LA (PPM)	90.00	47.00	107.00	133.00	155.00
LI (PPM)	4.00	8.00	6.00	7.00	10.00
MN (PPM)	23.00	44.00	54.00	40.00	27.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00
ND (PPM)	4.00	4.00	29.00	14.00	16.00
NI (PPM)	17.00	6.00	6.00	8.00	10.00
P (PPM)	62.00	41.00	136.00	124.00	169.00
PB (PPM)	10.00	30.00	123.00	47.00	36.00
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	4.00	4.00	4.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	18.00	13.00	17.00	17.00	14.00
TI (PPM)	418.00	1202.00	1001.00	1221.00	1046.00
V (PPM)	11.00	29.00	30.00	30.00	28.00
Y (PPM)	6.00	2.00	5.00	4.00	7.00
ZN (PPM)	19.00	21.00	21.00	19.00	30.00
ZR (PPM)	106.00	65.00	43.00	102.00	70.00

Figure 4I. Thickness and U, Th values of radioactive conglomerates from surface transect T7, Onemile Creek area, Medicine Bow Mtns.

TRANSECT NUMBER T 7

SAMP. NO.	157269	157271	157273
ELEVATION	8680.00	8660.00	8610.00
FORMATION	MG	MG	MG
LITHOLOGY	GPC	GPC	GPC
UL (PPM)	7.87	47.30	10.63
UT (PPM)	6.40	63.50	6.80
UL/UT	1.23	.74	1.56
TH (PPM)	18.00	315.00	46.00
TH/UT	2.81	4.96	6.77
AU (PPM)	ND	ND	ND
AL (%)	4.11	3.22	3.78
CA (%)	-.05	-.05	-.05
FE (%)	2.73	3.71	5.60
MG (%)	.17	.18	.28
NA (%)	.22	.13	.08
K (%)	1.75	1.40	1.78
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00
BA (PPM)	239.00	120.00	121.00
BE (PPM)	2.00	3.00	2.00
CE (PPM)	26.00	533.00	71.00
CO (PPM)	12.00	15.00	22.00
CR (PPM)	49.00	58.00	33.00
CU (PPM)	44.00	132.00	28.00
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	6.00	8.00	10.00
MN (PPM)	41.00	48.00	44.00
MO (PPM)	7.00	-4.00	23.00
NB (PPM)	4.00	35.00	5.00
NI (PPM)	17.00	12.00	9.00
P (PPM)	143.00	544.00	185.00
PB (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	7.00	6.00	7.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	13.00	11.00	10.00
TI (PPM)	1198.00	820.00	960.00
V (PPM)	70.00	25.00	61.00
Y (PPM)	3.00	38.00	7.00
ZN (PPM)	21.00	16.00	5.00
ZR (PPM)	68.00	350.00	138.00

Figure 42. Thickness and U, Th values of radioactive conglomerates from surface transect T8, Onemile Creek area, Medicine Bow Mtns.

TRANSECT NUMBER T 8

SAMP. NO.	157254	157255	157256	157257	157258	157259	157260	157261	157262	157263
ELEVATION	8510.00	8490.00	8490.00	8500.00	8500.00	8500.00	8500.00	8510.00	8510.00	8510.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QZ	QZ	QZ	QZ	QZ	QPC	QPC	QPC	QPC	QPC
UL (PPM)	11.01	15.22	46.30	11.42	6.77	18.12	136.80	31.42	26.87	3.09
UT (PPM)	11.20	14.30	36.90	10.20	4.50	15.10	101.80	22.50	32.80	3.50
UL/UT	.98	1.06	1.25	1.12	1.50	1.20	1.34	1.40	.82	.88
TH (PPM)	118.00	111.00	650.00	83.00	38.00	240.00	915.00	286.00	172.00	8.00
TH/UT	10.54	7.76	17.62	8.14	8.44	15.90	8.99	12.71	5.24	2.29
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.91	3.84	3.03	2.71	4.48	2.31	2.91	2.44	1.75	4.33
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	.19	-.05	-.05
FE (%)	1.21	1.22	2.52	1.11	.51	1.85	4.08	.47	.33	.39
MG (%)	.22	.26	.25	.18	.18	.11	.16	.13	.09	.24
NA (%)	.06	.05	.22	.07	.10	-.05	.06	1.26	.64	.67
K (%)	1.69	2.09	1.63	1.55	2.62	1.41	1.56	.54	.46	2.04
AG (PPM)	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	14.00	-10.00	-10.00	-10.00	-10.00	13.00
BA (PPM)	217.00	272.00	240.00	186.00	333.00	198.00	323.00	130.00	67.00	217.00
BE (PPM)	4.00	3.00	5.00	2.00	3.00	3.00	17.00	4.00	2.00	3.00
CE (PPM)	131.00	93.00	667.00	121.00	95.00	368.00	3952.00	714.00	378.00	16.00
CO (PPM)	-4.00	4.00	8.00	-4.00	-4.00	7.00	8.00	-4.00	-4.00	-4.00
CR (PPM)	35.00	33.00	64.00	25.00	40.00	42.00	112.00	30.00	30.00	37.00
CU (PPM)	63.00	22.00	40.00	12.00	6.00	53.00	60.00	11.00	13.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	8.00	10.00	7.00	6.00	3.00	9.00	5.00	4.00	9.00
MN (PPM)	53.00	113.00	69.00	29.00	43.00	34.00	66.00	47.00	37.00	19.00
MO (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	27.00	35.00	73.00	50.00	17.00	90.00	757.00	62.00	72.00	10.00
NI (PPM)	-2.00	4.00	4.00	3.00	7.00	9.00	8.00	4.00	4.00	4.00
P (PPM)	144.00	127.00	588.00	160.00	70.00	357.00	2875.00	493.00	264.00	39.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	7.00	3.00	4.00	4.00	14.00	4.00	4.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	12.00	12.00	52.00	12.00	16.00	28.00	131.00	50.00	21.00	11.00
TI (PPM)	821.00	1144.00	1544.00	666.00	1031.00	797.00	3356.00	599.00	627.00	1124.00
V (PPM)	15.00	21.00	9.00	10.00	18.00	9.00	10.00	4.00	14.00	27.00
Y (PPM)	9.00	12.00	31.00	11.00	7.00	16.00	137.00	31.00	29.00	2.00
ZN (PPM)	39.00	84.00	28.00	10.00	10.00	17.00	18.00	7.00	12.00	16.00
ZR (PPM)	63.00	181.00	510.00	74.00	113.00	146.00	923.00	179.00	224.00	55.00

TRANSECT NUMBER T 8

SAMP. NO.	157264	157265
ELEVATION	8520.00	8515.00
FORMATION	MG	MG
LITHOLOGY	QZ	QPC
UL (PPM)	25.24	11.21
UT (PPM)	27.90	13.50
UL/UT	.90	.83
TH (PPM)	231.00	35.00
TH/UT	8.28	2.59
AU (PPM)	ND	ND
AL (%)	3.67	4.04
CA (%)	-.05	-.05
FE (%)	1.13	.37
MG (%)	.20	.26
NA (%)	.29	.97
K (%)	2.13	1.65
AG (PPM)	-2.00	-2.00
B (PPM)	-10.00	-10.00
BA (PPM)	275.00	154.00
BE (PPM)	3.00	4.00
CE (PPM)	101.00	82.00
CO (PPM)	7.00	-4.00
CR (PPM)	52.00	73.00
CU (PPM)	45.00	5.00
HF (PPM)	ND	ND
LA (PPM)	ND	ND
LI (PPM)	10.00	12.00
MN (PPM)	69.00	20.00
MO (PPM)	-4.00	-4.00
NB (PPM)	19.00	10.00
NI (PPM)	4.00	2.00
P (PPM)	154.00	109.00
PB (PPM)	ND	ND
PT (PPM)	ND	ND
SC (PPM)	7.00	8.00
SI (PPM)	ND	ND
SN (PPM)	ND	ND
SR (PPM)	16.00	11.00
TI (PPM)	1240.00	1103.00
V (PPM)	30.00	44.00
Y (PPM)	10.00	7.00
ZN (PPM)	17.00	7.00
ZR (PPM)	269.00	289.00

**THIS PAGE
WAS INTENTIONALLY
LEFT BLANK**

Medicine Bow Mountains---Other surface samples
listed by Oakridge number

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152111	152112	152474	156863	156864	156865	156866	156867	156868	156869
ELEVATION	11005.00	11005.00	8860.00	7738.00	8062.00	7363.00	7642.00	7700.00	7170.00	7475.00
FORMATION	MP	MP	AGN	AGN	MI	AGN	AG	MI	MI	MI
LITHOLOGY	QPC	QPC	AM	QFGN	GB	QFGN	RGR	GB	GB	GB
UL (PPM)	2.09	3.89	1.49	1.36	.59	.91	1.45	.78	1.82	.84
UT (PPM)	1.60	2.20	.60	.30	.20	.90	.50	.20	.20	.20
UL/UT	1.31	1.77	2.49	4.55	2.96	1.01	2.90	3.91	9.14	4.22
TH (PPM)	25.00	42.00	-2.00	-2.00	-2.00	4.00	-2.00	-2.00	5.00	-2.00
TH/UT	15.63	19.10	ND	ND	ND	4.45	ND	ND	25.13	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	.79	1.16	6.58	7.74	4.80	5.99	5.40	6.01	8.14	3.79
CA (%)	.05	.05	4.00	5.17	5.47	2.07	.23	6.21	6.07	-5.59
FE (%)	.49	.13	5.42	6.46	6.59	1.95	.32	6.97	6.90	6.61
MG (%)	-.05	-.05	2.04	1.54	3.37	.58	-.05	2.70	3.61	3.78
NA (%)	-.05	.05	1.83	1.76	.98	2.83	3.06	1.38	1.64	.81
K (%)	.36	.48	.98	1.00	.10	.80	2.19	.22	.22	.07
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	57.00	22.00	179.00	270.00	53.00	377.00	27.00	145.00	150.00	34.00
BE (PPM)	-1.00	2.00	10.00	16.00	5.00	7.00	2.00	7.00	-1.00	5.00
CE (PPM)	113.00	29.00	-10.00	-10.00	-10.00	37.00	-10.00	-10.00	24.00	-10.00
CO (PPM)	-4.00	-4.00	38.00	41.00	60.00	9.00	-4.00	50.00	43.00	66.00
CR (PPM)	69.00	44.00	67.00	22.00	588.00	16.00	3.00	108.00	189.00	753.00
CU (PPM)	19.00	5.00	56.00	38.00	127.00	15.00	4.00	62.00	30.00	112.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	2.00	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	-15.00	ND
LI (PPM)	1.00	1.00	11.00	16.00	5.00	19.00	10.00	5.00	4.00	3.00
MN (PPM)	6.00	12.00	1025.00	927.00	1147.00	283.00	622.00	1293.00	1050.00	1225.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	4.00	-4.00	6.00
NB (PPM)	-4.00	-4.00	11.00	13.00	4.00	7.00	17.00	10.00	-4.00	4.00
NI (PPM)	-2.00	3.00	14.00	30.00	190.00	8.00	-2.00	44.00	84.00	228.00
P (PPM)	139.00	40.00	398.00	599.00	263.00	420.00	165.00	364.00	336.00	223.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	11.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	30.00	20.00	30.00	4.00	-1.00	37.00	19.00	26.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	29.00	12.00	298.00	288.00	98.00	549.00	10.00	191.00	288.00	88.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	176.00	447.00	4269.00	11582.00	3971.00	2304.00	40.00	5559.00	5313.00	3743.00
V (PPM)	11.00	9.00	278.00	269.00	250.00	40.00	-2.00	288.00	144.00	239.00
Y (PPM)	3.00	5.00	14.00	16.00	12.00	7.00	3.00	14.00	9.00	11.00
ZN (PPM)	3.00	4.00	75.00	87.00	69.00	58.00	19.00	74.00	71.00	74.00
ZR (PPM)	156.00	428.00	17.00	35.00	23.00	43.00	11.00	30.00	21.00	23.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156870	156871	156873	156874	156875	156876	156877	156878	156879	156880
ELEVATION	7515.00	8260.00	7997.00	7830.00	8335.00	8720.00	8790.00	7980.00	7875.00	7975.00
FORMATION	AGN	AGN	AGN	AGN	AGN	AGN	MI	AGN	MI	AGN
LITHOLOGY	QFGN	QFGN	QFGN	QFGN	QFGN	QFGN	AM	QFGN	AM	QFGN
UL (PPM)	3.19	2.01	13.00	2.26	1.24	1.97	.67	.51	1.84	1.22
UT (PPM)	1.60	1.70	11.10	1.50	1.10	1.70	.20	.30	.10	1.20
UL/UT	1.99	1.18	1.17	1.51	1.13	1.16	3.36	1.70	18.58	1.02
TH (PPM)	5.00	4.00	-2.00	7.00	20.00	23.00	-2.00	-2.00	-2.00	9.00
TH/UT	3.13	2.35	ND	4.67	18.20	13.54	ND	ND	ND	7.51
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.98	5.29	6.28	5.11	4.91	5.53	1.59	4.73	5.45	5.65
CA (%)	1.32	.47	3.65	.66	.46	.70	2.33	5.33	6.17	.46
FE (%)	1.39	.30	1.97	.60	.62	1.20	5.45	7.55	6.30	.37
MG (%)	.43	-.05	.16	.13	.07	.21	5.29	2.41	2.96	.05
NA (%)	2.82	2.24	3.20	2.74	1.88	1.97	.30	.98	1.06	2.86
K (%)	1.64	2.79	.06	2.29	2.36	3.11	.05	.20	.08	2.33
AG (PPM)	-2.00	-2.00	4.00	-2.00	-2.00	-2.00	-2.00	2.00	3.00	3.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	741.00	509.00	19.00	889.00	5396.00	715.00	30.00	94.00	78.00	1548.00
BE (PPM)	5.00	3.00	5.00	3.00	2.00	4.00	2.00	7.00	6.00	3.00
CE (PPM)	17.00	14.00	26.00	17.00	48.00	79.00	-10.00	-10.00	-10.00	19.00
CO (PPM)	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	66.00	60.00	50.00	-4.00
CR (PPM)	13.00	2.00	16.00	5.00	5.00	7.00	2391.00	89.00	339.00	4.00
CU (PPM)	2.00	8.00	2.00	2.00	11.00	6.00	36.00	170.00	105.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	65.00	3.00	4.00	10.00	3.00	35.00	11.00	4.00	5.00	12.00
MN (PPM)	309.00	149.00	262.00	97.00	110.00	205.00	1187.00	1388.00	1206.00	321.00
MO (PPM)	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	6.00	10.00	8.00	8.00	5.00	13.00	-4.00	6.00	-4.00	9.00
NI (PPM)	7.00	7.00	4.00	4.00	2.00	6.00	457.00	77.00	97.00	3.00
P (PPM)	324.00	60.00	729.00	175.00	88.00	213.00	127.00	495.00	216.00	153.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	4.00	1.00	1.00	3.00	22.00	28.00	34.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	416.00	160.00	675.00	350.00	445.00	87.00	16.00	112.00	98.00	209.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1662.00	222.00	2754.00	748.00	682.00	1378.00	956.00	4771.00	3990.00	316.00
V (PPM)	36.00	-2.00	56.00	12.00	12.00	22.00	159.00	269.00	247.00	4.00
Y (PPM)	3.00	3.00	8.00	2.00	3.00	27.00	5.00	15.00	12.00	5.00
ZN (PPM)	45.00	12.00	2.00	37.00	19.00	41.00	75.00	81.00	73.00	29.00
ZR (PPM)	52.00	44.00	39.00	59.00	58.00	99.00	13.00	36.00	27.00	25.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156881	156882	156883	156884	156885	156886	156887	156888	156889	156890
ELEVATION	8448.00	8500.00	8950.00	8480.00	7497.00	7590.00	8455.00	8780.00	8320.00	7760.00
FORMATION	AGN	AGN	MI	AGN	AGN	AGN	AGN	AGN	AGN	AGN
LITHOLOGY	QFGN	QFGN	AM	QFGN	QFGN	QFGN	QFGN	QFGN	QFGN	QFGN
UL (PPM)	4.14	1.06	-.25	.66	.67	1.81	2.33	1.79	1.16	.85
UT (PPM)	3.50	.60	.10	.60	.80	2.00	1.60	2.20	1.90	.70
UL/UT	1.18	1.77	ND	1.10	.84	.90	1.46	.81	.61	1.21
TH (PPM)	14.00	3.00	-2.00	-2.00	3.00	11.00	11.00	17.00	26.00	2.00
TH/UT	4.00	5.01	ND	ND	3.75	5.50	6.88	7.73	13.69	2.86
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.80	4.53	2.69	4.39	5.35	5.63	4.27	4.72	4.67	5.59
CA (%)	.77	.40	3.58	.72	.75	1.35	.58	.63	.54	1.79
FE (%)	1.17	.51	5.44	.59	.57	1.72	.61	.99	.95	1.09
MG (%)	.22	.09	4.75	.18	.19	.52	.13	.19	.17	.33
NA (%)	2.05	3.42	.57	2.74	2.77	2.44	2.22	1.75	1.87	2.82
K (%)	2.65	1.33	.06	1.22	1.56	1.62	2.18	2.77	3.01	.46
AG (PPM)	-2.00	3.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	661.00	546.00	17.00	729.00	876.00	1666.00	761.00	782.00	678.00	166.00
BE (PPM)	5.00	3.00	3.00	3.00	3.00	4.00	2.00	4.00	3.00	4.00
CE (PPM)	72.00	-10.00	-10.00	-10.00	11.00	57.00	25.00	81.00	43.00	22.00
CO (PPM)	-4.00	-4.00	66.00	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	5.00
CR (PPM)	8.00	7.00	1771.00	9.00	7.00	14.00	4.00	6.00	9.00	12.00
CU (PPM)	3.00	3.00	20.00	4.00	6.00	10.00	3.00	4.00	4.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	21.00	4.00	9.00	5.00	6.00	19.00	8.00	21.00	15.00	13.00
MM (PPM)	197.00	96.00	1112.00	144.00	138.00	227.00	90.00	167.00	119.00	135.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	13.00	5.00	-4.00	5.00	6.00	5.00	7.00	13.00	9.00	4.00
NI (PPM)	2.00	3.00	392.00	5.00	6.00	8.00	2.00	4.00	3.00	5.00
P (PPM)	348.00	127.00	135.00	168.00	226.00	455.00	118.00	222.00	170.00	277.00
PK (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	1.00	20.00	1.00	1.00	3.00	1.00	2.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	117.00	295.00	38.00	438.00	476.00	730.00	186.00	103.00	105.00	436.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1779.00	837.00	1169.00	687.00	633.00	2530.00	808.00	1540.00	1199.00	1706.00
V (PPM)	24.00	11.00	137.00	11.00	10.00	38.00	9.00	18.00	16.00	22.00
Y (PPM)	14.00	2.00	4.00	3.00	4.00	6.00	4.00	14.00	6.00	3.00
ZN (PPM)	32.00	14.00	72.00	40.00	65.00	65.00	24.00	41.00	26.00	34.00
ZR (PPM)	107.00	29.00	12.00	25.00	25.00	89.00	60.00	91.00	64.00	23.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156891	156892	156893	156894	156895	156896	156897	156898	156899	156900
ELEVATION	7360.00	7556.00	8395.00	8160.00	7443.00	7430.00	7600.00	7523.00	7460.00	8070.00
FORMATION	SSZ	MI	MI	MI	MI	AGN	MI	SSZ	MI	SSZ
LITHOLOGY	BR	GB	GB	GB	GB	QFGN	GB	RGR	GB	RGR
UL (PPM)	4.91	1.52	.81	-.25	.81	.91	.31	1.05	-.25	1.69
UT (PPM)	6.10	1.80	.50	.20	1.10	.50	.20	1.80	ND	1.30
UL/UT	.80	.84	1.62	ND	.74	1.82	1.55	.58	ND	1.30
TH (PPM)	8.00	-2.00	2.00	-2.00	-2.00	3.00	-2.00	9.00	-2.00	8.00
TH/UT	1.31	ND	4.00	ND	ND	6.00	ND	5.00	ND	6.16
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.54	5.62	4.96	5.34	5.68	4.63	7.08	5.25	5.08	4.45
CA (%)	-.05	3.53	5.57	5.44	4.04	1.15	5.87	.37	5.25	.77
FE (%)	.53	5.60	8.55	4.43	4.93	1.21	7.57	.44	6.16	.90
MG (%)	.19	2.19	2.59	2.69	2.19	.31	2.45	.05	2.10	.16
NA (%)	1.17	1.77	1.59	1.01	1.87	2.49	1.57	2.03	1.12	1.84
K (%)	1.33	1.27	.26	.19	.65	1.19	.28	3.11	.09	2.47
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	2.00	-2.00	3.00	-2.00
B (PPM)	12.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	54.00	487.00	259.00	75.00	327.00	609.00	204.00	348.00	141.00	1240.00
BE (PPM)	2.00	8.00	12.00	4.00	6.00	3.00	8.00	2.00	8.00	3.00
CE (PPM)	17.00	31.00	-10.00	-10.00	23.00	29.00	-10.00	29.00	-10.00	48.00
CO (PPM)	-4.00	41.00	43.00	38.00	32.00	5.00	46.00	-4.00	38.00	-4.00
CR (PPM)	58.00	143.00	133.00	168.00	81.00	9.00	71.00	4.00	129.00	4.00
CU (PPM)	12.00	54.00	211.00	78.00	40.00	15.00	384.00	4.00	105.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	15.00	4.00	6.00	18.00	22.00	8.00	2.00	4.00	15.00
MN (PPM)	78.00	1277.00	2019.00	1059.00	1135.00	191.00	1000.00	55.00	963.00	236.00
MO (PPM)	7.00	-4.00	4.00	5.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00
NB (PPM)	-4.00	15.00	5.00	-4.00	11.00	6.00	5.00	6.00	-4.00	9.00
NI (PPM)	14.00	71.00	67.00	46.00	44.00	4.00	68.00	3.00	34.00	2.00
P (PPM)	86.00	1056.00	2536.00	211.00	969.00	377.00	792.00	38.00	1310.00	125.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	13.00	17.00	40.00	20.00	20.00	2.00	31.00	1.00	25.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	8.00	292.00	761.00	612.00	406.00	333.00	903.00	96.00	805.00	181.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	733.00	4121.00	7832.00	2068.00	4463.00	1430.00	5521.00	289.00	5631.00	954.00
V (PPM)	222.00	143.00	472.00	145.00	135.00	24.00	373.00	4.00	291.00	11.00
Y (PPM)	9.00	19.00	19.00	3.00	12.00	4.00	7.00	5.00	7.00	5.00
ZN (PPM)	7.00	115.00	138.00	72.00	88.00	51.00	65.00	9.00	71.00	18.00
ZR (PPM)	119.00	35.00	28.00	12.00	32.00	37.00	24.00	54.00	16.00	101.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156901	156902	156903	156904	156905	156906	156907	156908	156909	156910
ELEVATION	7545.00	7400.00	8208.00	7960.00	7755.00	8400.00	7875.00	7878.00	7917.00	8195.00
FORMATION	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	MI	SSZ
LITHOLOGY	RGR	RGR	HGN	FG	HGN	QFGN	QFGN	QFGN	AM	GN
UL (PPM)	1.14	4.05	1.14	.98	.53	2.50	.60	1.28	5.05	.72
UT (PPM)	1.30	4.70	1.20	.70	.40	1.90	.30	1.10	5.30	.50
UL/UT	.88	.86	.95	1.40	1.33	1.32	2.00	1.16	.95	1.44
TH (PPM)	3.00	14.00	10.00	-2.00	-2.00	6.00	-2.00	-2.00	9.00	2.00
TH/UT	2.31	2.98	8.34	ND	ND	3.16	ND	ND	1.70	4.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.90	6.07	4.85	5.22	5.60	6.06	5.48	.88	4.80	5.01
CA (%)	.32	.82	.37	4.15	2.13	.65	2.06	20.17	5.43	.99
FE (%)	.83	.62	.33	5.56	2.22	.99	2.03	.88	3.01	1.12
MG (%)	-.05	.08	-.05	2.20	.84	.21	.65	.74	2.06	.22
NA (%)	1.95	3.00	2.08	1.40	2.41	2.62	2.35	.29	.82	2.71
K (%)	2.97	1.09	2.70	1.10	1.08	2.71	.80	.31	1.54	.73
AG (PPM)	3.00	-2.00	-2.00	4.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1457.00	180.00	36.00	475.00	436.00	1210.00	752.00	128.00	720.00	308.00
BE (PPM)	2.00	5.00	3.00	5.00	5.00	4.00	3.00	1.00	7.00	3.00
CE (PPM)	44.00	18.00	18.00	-10.00	19.00	37.00	-10.00	23.00	43.00	23.00
CO (PPM)	-4.00	-4.00	-4.00	37.00	12.00	-4.00	10.00	4.00	16.00	5.00
CR (PPM)	2.00	3.00	2.00	368.00	44.00	6.00	12.00	24.00	118.00	2.00
CU (PPM)	11.00	15.00	3.00	26.00	2.00	4.00	3.00	38.00	30.00	8.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	3.00	6.00	1.00	10.00	19.00	7.00	17.00	4.00	2.00	5.00
MN (PPM)	121.00	54.00	91.00	1251.00	441.00	116.00	390.00	1423.00	658.00	136.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00
NB (PPM)	5.00	47.00	14.00	10.00	8.00	15.00	5.00	11.00	16.00	5.00
NI (PPM)	3.00	4.00	-2.00	26.00	16.00	4.00	8.00	8.00	35.00	3.00
P (PPM)	47.00	40.00	26.00	657.00	569.00	264.00	363.00	186.00	404.00	306.00
PR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	4.00	1.00	26.00	6.00	2.00	5.00	3.00	14.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	83.00	244.00	17.00	310.00	591.00	267.00	550.00	95.00	169.00	293.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	525.00	463.00	120.00	3887.00	2295.00	1259.00	1803.00	602.00	3324.00	1229.00
V (PPM)	2.00	14.00	6.00	207.00	69.00	16.00	54.00	19.00	106.00	7.00
Y (PPM)	3.00	11.00	8.00	13.00	6.00	6.00	3.00	7.00	16.00	2.00
ZN (PPM)	14.00	6.00	7.00	96.00	44.00	10.00	33.00	40.00	18.00	36.00
ZR (PPM)	70.00	39.00	41.00	48.00	22.00	89.00	20.00	14.00	40.00	77.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156912	156913	156914	156915	156916	156917	156918	156919	156920	156921
ELEVATION	8440.00	8180.00	8260.00	8300.00	7960.00	7885.00	7800.00	8425.00	10355.00	10475.00
FORMATION	AGN	SSZ	SSZ	AGN	HT	AGN	SSZ	SSZ	LQ	PL
LITHOLOGY	QFGN	GN	GN	QFGN	SC	QFGN	GN	GN	QZ	PO
UL (PPM)	1.16	1.21	2.41	.40	.37	.42	-.25	.59	3.28	2.52
UT (PPM)	.60	.80	1.20	.30	.70	.50	.40	.30	1.80	2.10
UL/UT	1.93	1.51	2.01	1.33	.53	.84	ND	1.97	1.82	1.20
TH (PPM)	-2.00	6.00	10.00	9.00	2.00	5.00	-2.00	-2.00	13.00	11.00
TH/UT	ND	7.51	8.34	30.10	2.86	10.00	ND	ND	7.23	5.24
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.67	4.79	5.96	5.98	5.78	1.63	4.80	5.34	3.23	5.43
CA (%)	1.01	.11	.22	1.57	1.09	.07	5.30	1.19	.09	2.32
FE (%)	.77	.32	.29	2.12	.81	.44	6.82	1.16	.63	6.58
MG (%)	.17	.09	-.05	1.08	.21	.16	2.64	.31	.29	1.15
NA (%)	2.75	2.96	3.19	2.67	3.22	.29	.97	2.74	.70	2.47
K (%)	1.33	2.36	2.63	1.05	.99	1.04	.21	.98	1.30	.84
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	5.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	504.00	336.00	345.00	840.00	715.00	261.00	90.00	531.00	178.00	532.00
BE (PPM)	2.00	3.00	3.00	5.00	3.00	2.00	7.00	3.00	2.00	9.00
CE (PPM)	14.00	-10.00	-10.00	52.00	-10.00	-10.00	-10.00	-10.00	13.00	32.00
CO (PPM)	-4.00	-4.00	-4.00	11.00	-4.00	-4.00	50.00	4.00	5.00	43.00
CR (PPM)	4.00	5.00	3.00	64.00	6.00	25.00	43.00	8.00	49.00	2.00
CU (PPM)	15.00	5.00	4.00	6.00	6.00	9.00	113.00	4.00	10.00	90.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	13.00	3.00	2.00	12.00	5.00	4.00	6.00	23.00	14.00	15.00
MN (PPM)	124.00	110.00	161.00	350.00	99.00	27.00	1202.00	259.00	54.00	1083.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	4.00	-4.00	-4.00	7.00
NB (PPM)	5.00	10.00	12.00	6.00	4.00	-4.00	11.00	5.00	-4.00	11.00
NI (PPM)	3.00	3.00	-2.00	28.00	7.00	8.00	72.00	6.00	11.00	20.00
P (PPM)	242.00	149.00	135.00	733.00	200.00	56.00	384.00	287.00	124.00	544.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	2.00	1.00	6.00	1.00	1.00	30.00	2.00	5.00	29.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	295.00	56.00	85.00	495.00	556.00	11.00	132.00	293.00	13.00	117.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	874.00	285.00	221.00	2209.00	909.00	430.00	4831.00	1258.00	720.00	5739.00
V (PPM)	11.00	6.00	6.00	57.00	18.00	15.00	228.00	23.00	49.00	245.00
Y (PPM)	3.00	3.00	4.00	6.00	3.00	1.00	13.00	2.00	3.00	30.00
ZN (PPM)	34.00	11.00	21.00	40.00	14.00	5.00	67.00	49.00	7.00	92.00
ZR (PPM)	51.00	27.00	12.00	38.00	18.00	22.00	44.00	18.00	75.00	129.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156922	156923	156924	156925	156926	156927	156928	156929	156930	156931
ELEVATION	9530.00	9570.00	9580.00	9580.00	9580.00	9580.00	9580.00	9560.00	9800.00	9300.00
FORMATION	MI	PL	PL	PL	PL	PL	PL	PL	RK	PL
LITHOLOGY	AM	QZ	AM	QZ	PL	QZ	QZ	RY	QZ	QZ
UL (PPM)	.87	1.61	.44	1.35	1.68	.35	-.25	.43	4.52	.89
UT (PPM)	.90	1.20	.40	1.00	1.90	.40	.40	.30	5.00	.90
UL/UT	.97	1.34	1.10	1.35	.88	.87	ND	1.43	.90	.99
TH (PPM)	-2.00	2.00	-2.00	3.00	6.00	2.00	-2.00	-2.00	11.00	3.00
TH/UT	ND	1.67	ND	3.00	3.16	5.01	ND	ND	2.20	3.34
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.75	2.47	4.99	5.29	3.14	4.95	1.38	.64	6.89	2.66
CA (%)	5.18	-.05	3.70	.06	.10	4.22	-.05	21.33	.23	-.05
FE (%)	5.86	.45	8.09	.77	.14	8.04	.16	.19	2.43	.43
MG (%)	2.57	.23	2.74	.29	-.05	2.73	.08	.11	1.61	.17
NA (%)	1.22	1.24	1.99	.17	.16	1.91	.05	-.05	.94	.16
K (%)	.34	.85	.26	1.96	1.14	.23	.99	.49	3.53	1.42
AG (PPM)	-2.00	-2.00	5.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	13.00	-10.00	11.00	-10.00	-10.00	-10.00
BA (PPM)	85.00	142.00	39.00	80.00	93.00	88.00	146.00	162.00	394.00	224.00
BE (PPM)	5.00	1.00	6.00	2.00	2.00	11.00	1.00	-1.00	4.00	1.00
CE (PPM)	-10.00	-10.00	-10.00	10.00	40.00	-10.00	-10.00	-10.00	24.00	-10.00
CO (PPM)	51.00	-4.00	53.00	5.00	-4.00	52.00	-4.00	-4.00	19.00	4.00
CR (PPM)	39.00	34.00	93.00	32.00	14.00	51.00	10.00	8.00	291.00	25.00
CU (PPM)	70.00	4.00	31.00	8.00	3.00	46.00	4.00	4.00	4.00	16.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	10.00	3.00	10.00	6.00	3.00	8.00	2.00	4.00	25.00	4.00
MN (PPM)	1102.00	23.00	1188.00	35.00	12.00	1512.00	12.00	106.00	73.00	20.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	8.00	-4.00	6.00	9.00	-4.00
NI (PPM)	84.00	8.00	47.00	10.00	4.00	46.00	2.00	5.00	52.00	11.00
P (PPM)	206.00	29.00	308.00	205.00	251.00	626.00	72.00	26.00	1505.00	69.00
PR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	28.00	2.00	37.00	4.00	6.00	34.00	-1.00	1.00	9.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	175.00	9.00	99.00	7.00	12.00	151.00	6.00	129.00	27.00	15.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3204.00	409.00	4150.00	643.00	480.00	8008.00	332.00	241.00	2899.00	525.00
V (PPM)	212.00	24.00	286.00	36.00	32.00	291.00	4.00	6.00	76.00	15.00
Y (PPM)	10.00	1.00	14.00	2.00	5.00	23.00	1.00	4.00	9.00	1.00
ZN (PPM)	61.00	2.00	65.00	10.00	2.00	89.00	-2.00	6.00	14.00	6.00
ZR (PPM)	38.00	59.00	28.00	34.00	105.00	38.00	21.00	23.00	252.00	24.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156932	156933	156934	156935	156936	156937	156938	156939	156940	156941
ELEVATION	8945.00	10505.00	9010.00	9080.00	9270.00	9285.00	9285.00	9277.00	9400.00	9627.00
FORMATION	PL	CL	MG	AGN	PL	MI	MI	MI	PL	PL
LITHOLOGY	QZ	QZ	PAC	QFGN	QZ	GB	GB	GB	QZ	QZ
UL (PPM)	.71	.65	13.89	.80	.84	1.42	-.25	-.25	1.37	.91
UT (PPM)	.50	.50	12.20	.70	.70	.20	.20	.10	1.10	.80
UL/UT	1.42	1.30	1.14	1.14	1.20	7.13	ND	ND	1.25	1.14
TH (PPM)	-2.00	4.00	10.00	3.00	4.00	-2.00	-2.00	-2.00	6.00	7.00
TH/UT	ND	8.00	.82	4.29	5.72	ND	ND	ND	5.46	8.76
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.04	1.69	4.73	6.28	3.04	6.45	5.18	3.00	2.87	2.27
CA (%)	.05	-.05	-.05	.91	-.05	6.51	6.37	4.87	.05	.05
FE (%)	.35	.25	4.25	1.26	.65	4.56	5.61	4.67	.50	.41
MG (%)	.15	.12	.68	.39	.32	2.91	3.35	5.94	.27	.37
NA (%)	.91	-.05	.11	3.40	.60	1.10	.98	.12	.19	1.14
K (%)	.56	1.12	1.58	1.14	1.54	.18	.19	.02	1.58	.29
AG (PPM)	-2.00	-2.00	-2.00	-2.00	2.00	2.00	6.00	5.00	-2.00	9.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	148.00	187.00	267.00	682.00	408.00	92.00	74.00	5.00	401.00	65.00
BE (PPM)	1.00	1.00	5.00	4.00	1.00	3.00	7.00	1.00	1.00	1.00
CE (PPM)	-10.00	16.00	33.00	32.00	13.00	-10.00	-10.00	12.00	13.00	12.00
CO (PPM)	-4.00	-4.00	21.00	4.00	5.00	41.00	47.00	69.00	-4.00	-4.00
CR (PPM)	16.00	13.00	53.00	10.00	30.00	162.00	184.00	2021.00	23.00	27.00
CU (PPM)	8.00	4.00	30.00	2.00	8.00	81.00	75.00	55.00	13.00	26.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	4.00	15.00	6.00	6.00	6.00	8.00	11.00	7.00	3.00
MN (PPM)	20.00	13.00	228.00	232.00	28.00	935.00	1073.00	1080.00	49.00	42.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	10.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	6.00	-4.00	-4.00	4.00	7.00	5.00	-4.00	-4.00
NI (PPM)	7.00	3.00	21.00	7.00	14.00	103.00	109.00	655.00	9.00	6.00
P (PPM)	55.00	16.00	254.00	286.00	107.00	147.00	223.00	59.00	60.00	32.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	13.00	3.00	2.00	26.00	28.00	11.00	2.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	26.00	4.00	23.00	347.00	28.00	151.00	131.00	5.00	24.00	12.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	260.00	270.00	2873.00	1361.00	655.00	2430.00	3246.00	891.00	554.00	179.00
V (PPM)	10.00	9.00	112.00	27.00	17.00	170.00	186.00	160.00	17.00	9.00
Y (PPM)	1.00	2.00	8.00	4.00	2.00	7.00	8.00	6.00	3.00	3.00
ZN (PPM)	6.00	4.00	68.00	12.00	4.00	44.00	50.00	86.00	6.00	4.00
ZR (PPM)	28.00	26.00	95.00	38.00	38.00	27.00	32.00	23.00	44.00	53.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156942	156943	156944	156945	156946	156947	156948	156949	156950	156951
ELEVATION	9208.00	8090.00	8720.00	8685.00	8573.00	10065.00	9925.00	9970.00	10700.00	10300.00
FORMATION	MI	AG	AGN	AG	AG	FS	SSZ	SQ	NF	FS
LITHOLOGY	AM	GR	GN	GR	RGR	SL	QZ	NM	DO	SL
UL (PPM)	-.25	.44	6.54	.28	1.50	5.27	1.46	1.88	-.25	1.73
UT (PPM)	.10	.40	4.60	.60	.90	5.30	1.80	1.40	.10	2.10
UL/UT	ND	1.10	1.42	.47	1.67	.99	.81	1.34	ND	.82
TH (PPM)	-2.00	3.00	12.00	-2.00	-2.00	17.00	20.00	17.00	-2.00	10.00
TH/UT	ND	7.52	2.61	ND	ND	3.21	11.12	12.15	ND	4.76
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.64	4.13	6.38	7.77	7.81	5.58	5.44	5.35	7.25	5.72
CA (%)	4.49	.79	.11	.21	.66	.11	.25	.86	5.49	.05
FE (%)	7.22	.64	8.39	.63	.49	4.63	.53	1.01	5.65	4.60
MG (%)	3.27	.23	.58	.27	.19	1.08	.14	.44	3.12	.92
NA (%)	1.86	3.05	.11	3.56	3.61	.35	2.55	2.04	1.07	.11
K (%)	.14	1.17	1.31	1.88	2.01	2.43	2.39	2.75	.04	1.88
AG (PPM)	8.00	-2.00	-2.00	6.00	-2.00	7.00	-2.00	-2.00	3.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	26.00
BA (PPM)	18.00	567.00	335.00	558.00	791.00	521.00	762.00	1174.00	10.00	248.00
BE (PPM)	8.00	3.00	8.00	2.00	2.00	5.00	1.00	4.00	5.00	2.00
CE (PPM)	-10.00	16.00	60.00	-10.00	11.00	76.00	27.00	43.00	14.00	43.00
CO (PPM)	61.00	-4.00	49.00	-4.00	-4.00	35.00	-4.00	4.00	42.00	27.00
CR (PPM)	459.00	7.00	50.00	9.00	5.00	69.00	1.00	24.00	223.00	113.00
CU (PPM)	59.00	3.00	20.00	10.00	20.00	137.00	7.00	15.00	84.00	66.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	7.00	12.00	14.00	9.00	38.00	4.00	13.00	20.00	32.00
MN (PPM)	1688.00	86.00	946.00	110.00	126.00	231.00	68.00	167.00	1342.00	230.00
MO (PPM)	6.00	-4.00	5.00	-4.00	-4.00	9.00	-4.00	-4.00	-4.00	5.00
NB (PPM)	-4.00	-4.00	9.00	4.00	-4.00	-4.00	-4.00	7.00	6.00	4.00
NI (PPM)	145.00	5.00	34.00	6.00	7.00	44.00	3.00	11.00	102.00	30.00
P (PPM)	312.00	153.00	573.00	242.00	98.00	463.00	35.00	596.00	237.00	224.00
PR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	32.00	1.00	26.00	2.00	1.00	12.00	1.00	2.00	30.00	14.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	136.00	401.00	11.00	238.00	376.00	68.00	110.00	414.00	171.00	44.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	5711.00	936.00	5314.00	951.00	540.00	1657.00	352.00	1109.00	4395.00	871.00
V (PPM)	271.00	13.00	208.00	16.00	11.00	282.00	4.00	25.00	272.00	95.00
Y (PPM)	14.00	3.00	11.00	2.00	3.00	15.00	2.00	4.00	13.00	6.00
ZN (PPM)	108.00	12.00	15.00	19.00	13.00	105.00	13.00	33.00	97.00	50.00
ZR (PPM)	25.00	35.00	153.00	34.00	30.00	121.00	65.00	51.00	19.00	107.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156952	156953	156954	156955	156956	156957	156958	156959	156960	156961
ELEVATION	10385.00	10450.00	10540.00	10770.00	8730.00	8600.00	9115.00	10630.00	10620.00	10765.00
FORMATION	TG	NF	NF	NF	PL	PL	PL	SQ	LS	HT
LITHOLOGY	QZ	QZ	PL	DO	BA	QZ	C	QZ	QZ	QZ
UL (PPM)	1.24	.57	1.50	.77	2.58	.87	4.70	.25	3.05	.79
UT (PPM)	1.20	.40	1.80	.90	2.40	.90	3.00	.40	2.60	1.40
UL/UT	1.03	1.43	.83	.86	1.08	.97	1.57	.63	1.17	.56
TH (PPM)	-2.00	3.00	8.00	-2.00	11.00	5.00	17.00	2.00	8.00	5.00
TH/UT	ND	7.52	4.45	ND	4.59	5.56	5.67	5.01	3.08	3.57
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.61	.69	5.47	1.58	2.88	6.70	4.45	.30	4.19	4.74
CA (%)	5.51	.06	.11	12.97	-.05	.19	.55	-.05	-.05	.42
FE (%)	5.67	.24	5.05	1.63	1.89	.38	11.51	.11	.67	2.79
MG (%)	2.60	.06	.60	4.90	1.72	.27	1.98	-.05	.22	1.72
NA (%)	.85	-.05	2.15	.06	.05	1.61	-.05	-.05	1.54	2.00
K (%)	.11	.29	1.80	2.01	1.10	3.42	.08	.09	1.28	.72
AG (PPM)	4.00	-2.00	3.00	-2.00	-2.00	-2.00	-2.00	-2.00	9.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	813.00	54.00	708.00	175.00	712.00	818.00	43.00	25.00	88.00	241.00
BE (PPM)	7.00	1.00	3.00	1.00	3.00	3.00	8.00	-1.00	3.00	4.00
CE (PPM)	-10.00	-10.00	23.00	-10.00	42.00	10.00	-10.00	25.00	70.00	24.00
CO (PPM)	40.00	4.00	20.00	9.00	7.00	-4.00	87.00	-4.00	-4.00	19.00
CR (PPM)	199.00	19.00	96.00	21.00	21.00	45.00	82.00	7.00	26.00	65.00
CU (PPM)	32.00	7.00	41.00	5.00	30.00	9.00	22.00	9.00	48.00	40.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	13.00	3.00	51.00	24.00	26.00	12.00	19.00	1.00	12.00	17.00
MN (PPM)	1144.00	35.00	71.00	1020.00	139.00	35.00	1763.00	9.00	53.00	532.00
MO (PPM)	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	4.00	-4.00
NB (PPM)	-4.00	-4.00	4.00	9.00	6.00	5.00	8.00	-4.00	7.00	6.00
NI (PPM)	85.00	8.00	42.00	10.00	6.00	10.00	101.00	5.00	5.00	32.00
P (PPM)	494.00	80.00	365.00	48.00	128.00	383.00	345.00	93.00	101.00	379.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	33.00	1.00	14.00	3.00	4.00	2.00	18.00	-1.00	3.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	138.00	2.00	13.00	110.00	13.00	100.00	7.00	3.00	22.00	67.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	5773.00	178.00	1379.00	191.00	923.00	910.00	3861.00	60.00	1135.00	2075.00
V (PPM)	244.00	10.00	119.00	10.00	24.00	18.00	178.00	2.00	13.00	53.00
Y (PPM)	13.00	1.00	5.00	3.00	16.00	6.00	16.00	1.00	8.00	7.00
ZN (PPM)	59.00	21.00	93.00	19.00	36.00	13.00	105.00	12.00	6.00	54.00
ZR (PPM)	22.00	18.00	138.00	16.00	143.00	58.00	127.00	17.00	121.00	55.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156962	156963	156964	156965	156966	156967	156968	156969	156970	156971
ELEVATION	10720.00	9930.00	10325.00	8640.00	8980.00	9260.00	8735.00	8800.00	8940.00	8360.00
FORMATION	HD	HD	HT	TU	PL	PL	AGN	AGN	AGN	MI
LITHOLOGY	SC	SS	SC	LS	SC	QZ	QFGN	QFGN	QFGN	SC
UL (PPM)	3.70	1.95	3.94	1.24	.50	3.21	1.33	1.41	.55	1.21
UT (PPM)	4.30	1.20	3.90	.90	.60	2.50	1.00	1.50	.60	1.50
UL/UT	.86	1.63	1.01	1.38	.83	1.28	1.33	.94	.92	.01
TH (PPM)	13.00	5.00	19.00	-2.00	7.00	7.00	14.00	16.00	-2.00	11.00
TH/UT	3.02	4.17	4.87	ND	11.69	2.80	14.00	10.67	ND	7.33
AU (PPM)	NU	NU	NU	NU	NU	NU	NU	NU	ND	ND
AL (%)	7.16	3.33	7.89	.75	4.76	5.67	4.76	4.87	6.77	9.19
CA (%)	.24	.16	.11	23.30	.29	3.98	.52	.55	1.09	.15
FE (%)	5.57	.56	5.46	.21	3.84	5.54	.90	.92	.51	3.15
MG (%)	1.27	.09	1.45	.31	1.74	2.14	.14	.17	.16	1.57
NA (%)	1.65	2.12	.47	.20	.64	.93	1.55	1.67	3.87	.49
K (%)	2.32	.17	3.25	.22	1.59	1.17	2.79	2.65	.34	2.56
AG (PPM)	4.00	3.00	6.00	-2.00	-2.00	4.00	2.00	-2.00	10.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	592.00	84.00	415.00	104.00	1153.00	527.00	596.00	713.00	98.00	686.00
BE (PPM)	7.00	1.00	8.00	-1.00	3.00	5.00	3.00	3.00	2.00	4.00
CE (PPM)	23.00	13.00	-10.00	-10.00	21.00	22.00	36.00	51.00	-10.00	42.00
CO (PPM)	38.00	5.00	33.00	-4.00	35.00	45.00	-4.00	-4.00	-4.00	29.00
CR (PPM)	159.00	29.00	165.00	11.00	47.00	122.00	4.00	5.00	6.00	112.00
CU (PPM)	63.00	5.00	8.00	5.00	34.00	102.00	3.00	10.00	3.00	51.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	17.00	3.00	21.00	6.00	29.00	25.00	25.00	21.00	6.00	21.00
MM (PPM)	767.00	187.00	266.00	44.00	746.00	1275.00	153.00	133.00	104.00	408.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	11.00	-4.00	15.00	4.00	4.00	9.00	10.00	10.00	4.00	7.00
NI (PPM)	63.00	11.00	65.00	4.00	26.00	51.00	2.00	-2.00	3.00	48.00
P (PPM)	561.00	66.00	417.00	55.00	99.00	327.00	110.00	124.00	151.00	569.00
PR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	18.00	3.00	19.00	1.00	7.00	22.00	2.00	2.00	1.00	14.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	60.00	129.00	23.00	170.00	72.00	241.00	94.00	97.00	632.00	27.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3773.00	829.00	4277.00	233.00	2253.00	3210.00	1119.00	1284.00	757.00	2177.00
V (PPM)	152.00	24.00	159.00	7.00	93.00	182.00	15.00	17.00	9.00	157.00
Y (PPM)	15.00	5.00	8.00	3.00	6.00	16.00	11.00	14.00	3.00	4.00
ZN (PPM)	38.00	11.00	42.00	5.00	104.00	84.00	23.00	25.00	19.00	70.00
ZR (PPM)	93.00	35.00	115.00	15.00	33.00	27.00	76.00	89.00	22.00	57.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156972	156973	156974	156975	156976	156977	156978	156979	156980	156981
ELEVATION	9825.00	9770.00	10600.00	10870.00	10325.00	10400.00	10460.00	9960.00	9960.00	9960.00
FORMATION	MI	CQ	MG	CQ	PL	MI	MI	PL	PL	PL
LITHOLOGY	GB	QZ	QZ	QZ	QZ	GB	GB	SC	AM	QZ
UL (PPM)	.28	1.17	1.92	.96	3.32	.59	1.10	3.53	-.25	1.75
UT (PPM)	.10	.60	2.00	.60	3.70	.30	.40	1.60	.20	1.60
UL/UT	2.82	1.95	.96	1.60	.90	1.97	2.75	2.21	ND	1.09
TH (PPM)	-2.00	2.00	4.00	4.00	8.00	-2.00	-2.00	3.00	-2.00	4.00
TH/UT	ND	3.34	2.00	6.68	2.16	ND	ND	1.88	ND	2.50
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.06	1.55	3.24	1.88	4.11	5.68	5.95	5.54	7.55	3.35
CA (%)	6.06	.10	-.05	-.05	.12	5.61	6.07	1.22	5.50	-.05
FE (%)	6.78	.23	.67	.24	.51	5.90	6.14	4.00	5.43	.32
MG (%)	2.99	.13	.36	.09	.34	3.02	2.70	1.28	3.21	.08
NA (%)	.97	.33	.45	.16	4.05	1.10	1.29	1.60	1.31	.21
K (%)	.19	1.01	1.71	1.27	.09	.51	.24	1.02	.21	1.14
AG (PPM)	-2.00	-2.00	3.00	-2.00	4.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	29.00	107.00	213.00	341.00	17.00	159.00	102.00	394.00	47.00	247.00
BE (PPM)	12.00	-1.00	2.00	1.00	1.00	7.00	5.00	4.00	5.00	1.00
CE (PPM)	-10.00	12.00	-10.00	14.00	24.00	-10.00	-10.00	33.00	21.00	21.00
CO (PPM)	50.00	-4.00	4.00	-4.00	4.00	42.00	52.00	27.00	52.00	-4.00
CR (PPM)	294.00	15.00	60.00	25.00	84.00	114.00	42.00	154.00	230.00	18.00
CU (PPM)	70.00	4.00	6.00	6.00	4.00	77.00	145.00	46.00	237.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	8.00	2.00	8.00	3.00	2.00	15.00	8.00	47.00	45.00	8.00
MN (PPM)	1224.00	18.00	47.00	16.00	23.00	1052.00	1195.00	465.00	1387.00	16.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	-4.00
NB (PPM)	6.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	5.00	-4.00
NI (PPM)	89.00	5.00	9.00	4.00	5.00	93.00	78.00	53.00	101.00	4.00
P (PPM)	328.00	58.00	64.00	27.00	376.00	240.00	265.00	754.00	80.00	33.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	31.00	1.00	3.00	1.00	2.00	27.00	29.00	9.00	27.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	96.00	28.00	13.00	16.00	58.00	156.00	166.00	103.00	116.00	45.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	5216.00	213.00	819.00	269.00	164.00	2929.00	3563.00	1869.00	4613.00	320.00
V (PPM)	229.00	6.00	21.00	11.00	19.00	178.00	217.00	112.00	258.00	17.00
Y (PPM)	12.00	1.00	2.00	2.00	6.00	9.00	11.00	6.00	13.00	2.00
ZN (PPM)	66.00	4.00	12.00	16.00	3.00	46.00	68.00	57.00	107.00	-2.00
ZR (PPM)	28.00	28.00	57.00	42.00	208.00	33.00	43.00	85.00	23.00	37.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156982	156984	156985	156986	156987	156988	156989	156990	156991	156992
ELEVATION	9960.00	9840.00	9600.00	9420.00	9275.00	9220.00	9600.00	8950.00	8900.00	9480.00
FORMATION	MI	PL	PL	PL	PL	PL	MI	PL	PL	PL
LITHOLOGY	GB	PL	AM	BA	BA	QZ	GB	BA	CSC	QZ
UL (PPM)	-.25	1.79	2.16	.98	.39	2.20	-.25	.30	1.03	.40
UT (PPM)	.30	1.90	1.80	.80	.60	1.90	.10	.20	.80	.50
UL/UT	ND	.94	1.20	1.23	.65	1.16	ND	1.50	1.29	.80
TH (PPM)	-2.00	6.00	5.00	-2.00	4.00	6.00	-2.00	-2.00	4.00	-2.00
TH/UT	ND	3.16	2.78	ND	6.68	3.16	ND	ND	5.01	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.58	5.84	6.95	5.19	4.92	6.39	5.12	5.61	5.36	3.80
CA (%)	6.07	.26	.49	5.39	2.23	.95	6.09	3.87	.23	.12
FE (%)	7.39	7.43	3.83	7.89	4.86	4.37	5.58	6.21	6.32	.42
MG (%)	3.24	1.42	1.44	2.15	1.46	1.76	3.74	2.96	3.07	.25
NA (%)	1.23	.11	2.01	.51	.39	.23	.75	1.01	1.47	.70
K (%)	.16	1.80	1.43	.29	.91	1.81	.10	.12	.33	2.81
AG (PPM)	-2.00	-2.00	-2.00	-2.00	3.00	4.00	4.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	57.00	674.00	507.00	115.00	527.00	594.00	95.00	41.00	149.00	871.00
BE (PPM)	11.00	8.00	3.00	6.00	5.00	5.00	1.00	6.00	2.00	2.00
CE (PPM)	-10.00	-10.00	45.00	-10.00	-10.00	36.00	-10.00	-10.00	-10.00	-10.00
CO (PPM)	49.00	44.00	37.00	58.00	34.00	20.00	59.00	47.00	44.00	-4.00
CR (PPM)	184.00	16.00	161.00	67.00	178.00	182.00	732.00	225.00	733.00	20.00
CU (PPM)	90.00	24.00	114.00	56.00	17.00	28.00	39.00	104.00	59.00	5.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	22.00	10.00	57.00	23.00	45.00	41.00	9.00	16.00	24.00	4.00
MN (PPM)	1431.00	259.00	386.00	1360.00	941.00	557.00	1359.00	1247.00	947.00	47.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	5.00	-4.00	-4.00	-4.00
NB (PPM)	4.00	9.00	-4.00	-4.00	-4.00	7.00	4.00	-4.00	-4.00	-4.00
NI (PPM)	103.00	51.00	88.00	58.00	47.00	76.00	274.00	89.00	133.00	5.00
P (PPM)	311.00	892.00	692.00	410.00	330.00	720.00	115.00	233.00	414.00	127.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	33.00	19.00	14.00	31.00	17.00	14.00	28.00	35.00	27.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	177.00	18.00	149.00	83.00	137.00	138.00	112.00	113.00	95.00	48.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	5053.00	5359.00	790.00	4186.00	3234.00	3656.00	1846.00	4396.00	723.00	660.00
V (PPM)	243.00	223.00	120.00	288.00	138.00	126.00	193.00	266.00	154.00	14.00
Y (PPM)	12.00	15.00	8.00	16.00	7.00	10.00	6.00	13.00	5.00	2.00
ZN (PPM)	73.00	21.00	62.00	96.00	60.00	88.00	100.00	84.00	123.00	11.00
ZR (PPM)	25.00	121.00	97.00	47.00	55.00	89.00	22.00	30.00	32.00	39.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	156993	156994	156995	156996	156997	156998	156999	157000	157001	157002
ELEVATION	10005.00	9410.00	9460.00	10160.00	10130.00	9900.00	9965.00	10000.00	10160.00	9340.00
FORMATION	PL	PL	PL	MI	MI	PL	MI	PL	PL	PL
LITHOLOGY	QZ	BA	QZ	GB	GB	AM	AM	AM	TF	QZ
UL (PPM)	1.18	1.21	1.12	.62	.30	-.25	-.25	-.25	1.29	1.42
UT (PPM)	.90	1.00	.70	.20	.60	.10	.20	.30	1.20	.80
UL/UT	1.31	1.21	1.60	3.11	.50	ND	ND	ND	1.08	1.78
TH (PPM)	7.00	-2.00	3.00	-2.00	4.00	-2.00	-2.00	-2.00	-2.00	3.00
TH/UT	7.79	ND	4.29	ND	6.68	ND	ND	ND	ND	3.75
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.40	4.41	5.78	4.96	1.95	4.04	5.58	4.73	.18	4.77
CA (%)	-.05	-.05	.06	5.82	.05	4.92	7.11	.32	.09	4.55
Fe (%)	.36	.28	.76	9.31	.24	5.46	5.37	2.46	3.65	7.65
MG (%)	.12	.45	.24	2.97	.14	4.86	3.31	.18	.07	2.13
NA (%)	.10	.11	.17	.94	.89	.67	.89	.39	-.05	1.36
K (%)	1.56	2.14	2.53	.16	.42	.11	.11	.59	.02	.65
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	12.00	16.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	242.00	814.00	691.00	31.00	60.00	62.00	72.00	213.00	19.00	324.00
BE (PPM)	1.00	3.00	2.00	8.00	-1.00	4.00	5.00	3.00	-1.00	11.00
CE (PPM)	24.00	-10.00	34.00	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	-10.00
CO (PPM)	-4.00	-4.00	-4.00	64.00	-4.00	62.00	42.00	19.00	31.00	52.00
CR (PPM)	19.00	53.00	42.00	107.00	21.00	1332.00	187.00	97.00	9.00	58.00
CU (PPM)	2.00	3.00	5.00	108.00	4.00	50.00	71.00	52.00	220.00	83.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	9.00	10.00	7.00	3.00	6.00	9.00	28.00	3.00	15.00
MN (PPM)	10.00	35.00	43.00	1739.00	16.00	1185.00	1182.00	250.00	200.00	1305.00
MO (PPM)	-4.00	6.00	-4.00	-4.00	-4.00	-4.00	8.00	-4.00	-4.00	-4.00
NB (PPM)	4.00	5.00	4.00	5.00	-4.00	5.00	4.00	-4.00	-4.00	14.00
NI (PPM)	4.00	2.00	7.00	69.00	7.00	420.00	164.00	18.00	32.00	40.00
P (PPM)	64.00	50.00	46.00	412.00	45.00	195.00	281.00	232.00	506.00	605.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	6.00	4.00	41.00	1.00	27.00	31.00	16.00	3.00	32.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	10.00	14.00	20.00	104.00	7.00	83.00	150.00	83.00	4.00	154.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	508.00	1155.00	1014.00	7074.00	234.00	1859.00	3139.00	1889.00	129.00	7500.00
V (PPM)	17.00	41.00	32.00	320.00	11.00	149.00	206.00	177.00	36.00	260.00
Y (PPM)	2.00	2.00	4.00	19.00	2.00	6.00	8.00	4.00	2.00	20.00
ZN (PPM)	3.00	6.00	6.00	85.00	2.00	68.00	71.00	14.00	14.00	86.00
ZR (PPM)	40.00	71.00	42.00	39.00	26.00	24.00	23.00	33.00	8.00	65.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157003	157004	157005	157006	157007	157008	157009	157010	157011	157012
ELEVATION	9440.00	9720.00	8680.00	9120.00	8310.00	8620.00	9005.00	8280.00	10170.00	10250.00
FORMATION	MG	MI	PL	PL	PL	PL	PL	AG	NF	NF
LITHOLOGY	QZ	GB	BA	BA	BA	AM	QZ	RGR	BR	AM
UL (PPM)	1.04	-.25	.48	3.70	4.04	2.69	1.90	2.16	.38	2.33
UT (PPM)	1.30	.20	.50	1.30	2.70	.40	2.00	2.30	.30	.10
UL/UT	.80	ND	.96	2.85	1.50	6.74	.95	.94	1.27	23.53
TH (PPM)	-2.00	-2.00	5.00	3.00	3.00	-2.00	4.00	15.00	-2.00	-2.00
TH/UT	ND	ND	10.00	2.31	1.11	ND	2.00	6.52	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	NU	NU	ND	ND
AL (%)	1.88	3.13	6.42	7.96	7.23	7.70	2.92	5.59	.11	7.26
CA (%)	.05	5.04	4.07	4.48	4.64	3.95	.09	1.55	9.57	5.08
FE (%)	.59	4.55	5.13	3.93	4.22	6.65	.62	2.38	.39	5.07
MG (%)	.15	3.88	2.30	2.13	2.23	2.31	.21	1.10	4.69	3.35
NA (%)	.65	.53	2.17	2.39	1.16	2.69	.95	2.41	-.05	1.66
K (%)	.73	.09	.18	.30	.60	.10	2.21	1.70	.02	.19
AG (PPM)	3.00	-2.00	-2.00	-2.00	2.00	3.00	2.00	-2.00	-2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	155.00	63.00	87.00	108.00	321.00	30.00	841.00	801.00	89.00	150.00
BE (PPM)	2.00	3.00	8.00	5.00	4.00	7.00	5.00	5.00	-1.00	5.00
CE (PPM)	-10.00	-10.00	-10.00	24.00	38.00	26.00	23.00	63.00	-10.00	-10.00
CO (PPM)	-4.00	53.00	49.00	40.00	43.00	58.00	-4.00	11.00	-4.00	60.00
CR (PPM)	18.00	1138.00	22.00	148.00	139.00	138.00	43.00	35.00	8.00	366.00
CU (PPM)	5.00	79.00	15.00	40.00	24.00	95.00	7.00	15.00	9.00	139.00
HF (PPM)	ND	NU	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	5.00	4.00	4.00	17.00	18.00	5.00	21.00	3.00	20.00
MN (PPM)	31.00	1119.00	1077.00	1073.00	1031.00	1152.00	34.00	477.00	490.00	1094.00
MO (PPM)	-4.00	-4.00	9.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	11.00
NB (PPM)	-4.00	4.00	9.00	7.00	8.00	6.00	5.00	11.00	4.00	4.00
NI (PPM)	7.00	320.00	60.00	53.00	46.00	61.00	10.00	19.00	2.00	116.00
P (PPM)	62.00	287.00	680.00	436.00	407.00	579.00	256.00	656.00	159.00	244.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	22.00	18.00	18.00	18.00	27.00	2.00	6.00	1.00	28.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	15.00	75.00	263.00	113.00	268.00	174.00	57.00	287.00	22.00	78.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	401.00	1811.00	5556.00	3051.00	3116.00	7147.00	817.00	2447.00	59.00	4658.00
V (PPM)	9.00	175.00	209.00	171.00	161.00	347.00	22.00	61.00	8.00	265.00
Y (PPM)	1.00	6.00	12.00	12.00	13.00	24.00	3.00	9.00	2.00	11.00
ZN (PPM)	11.00	74.00	59.00	62.00	61.00	96.00	13.00	58.00	7.00	86.00
ZR (PPM)	33.00	33.00	50.00	46.00	26.00	31.00	96.00	72.00	4.00	19.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157013	157014	157015	157016	157017	157018	157019	157020	157021	157022
ELEVATION	10300.00	9480.00	9520.00	9370.00	9950.00	9215.00	9690.00	9190.00	9710.00	9970.00
FORMATION	LS	CQ	TU	VF	MI	VF	LQ	VF	SSZ	MI
LITHOLOGY	GN	QZ	SO	NB	AM	SC	QZ	C,TF	AUGN	AM
UL (PPM)	1.92	.69	2.41	3.05	-.25	2.81	.83	-.25	1.52	1.23
UT (PPM)	2.10	.40	3.10	2.20	.20	2.00	1.10	.90	2.30	.90
UL/UT	.91	1.73	.78	1.39	ND	1.40	.75	ND	.66	1.37
TH (PPM)	10.00	2.00	7.00	-2.00	-2.00	6.00	10.00	-2.00	18.00	-2.00
TH/UT	4.76	5.01	2.26	ND	ND	3.00	9.10	ND	7.83	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.38	1.54	3.78	2.26	6.43	6.49	3.99	1.95	4.17	3.53
CA (%)	.28	-.05	.08	20.46	5.83	.09	.06	18.91	.30	3.59
FE (%)	2.33	.08	1.21	1.59	4.58	2.38	.36	1.50	.22	6.23
MG (%)	.52	-.05	.29	.49	3.87	2.17	.24	.61	-.05	4.62
NA (%)	.90	.91	.08	.87	.88	.06	.89	.57	1.98	.78
K (%)	3.83	.07	1.53	.33	.10	2.43	1.26	.39	2.96	.19
AG (PPM)	-2.00	-2.00	2.00	5.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	42.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	749.00	25.00	123.00	57.00	17.00	203.00	143.00	125.00	172.00	134.00
BE (PPM)	7.00	-1.00	1.00	2.00	3.00	4.00	2.00	2.00	2.00	3.00
CE (PPM)	58.00	10.00	22.00	46.00	-10.00	17.00	21.00	-10.00	-10.00	-10.00
CO (PPM)	27.00	-4.00	9.00	9.00	31.00	15.00	-4.00	10.00	-4.00	68.00
CR (PPM)	81.00	16.00	29.00	32.00	518.00	88.00	33.00	23.00	4.00	1563.00
CU (PPM)	4.00	4.00	21.00	10.00	36.00	8.00	2.00	23.00	6.00	49.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	17.00	1.00	7.00	12.00	11.00	36.00	4.00	9.00	2.00	23.00
MN (PPM)	39.00	11.00	48.00	830.00	1208.00	135.00	20.00	238.00	46.00	1419.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	-4.00
NB (PPM)	4.00	-4.00	-4.00	12.00	5.00	4.00	-4.00	8.00	8.00	-4.00
NI (PPM)	58.00	3.00	15.00	19.00	81.00	41.00	5.00	18.00	3.00	351.00
P (PPM)	1239.00	24.00	254.00	182.00	140.00	400.00	31.00	225.00	25.00	211.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	2.00	4.00	5.00	27.00	8.00	2.00	6.00	1.00	28.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	46.00	4.00	8.00	141.00	83.00	5.00	12.00	95.00	63.00	58.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2449.00	104.00	451.00	1154.00	2795.00	1297.00	587.00	1132.00	263.00	2771.00
V (PPM)	91.00	7.00	39.00	28.00	196.00	82.00	13.00	45.00	4.00	208.00
Y (PPM)	12.00	1.00	3.00	14.00	7.00	6.00	2.00	6.00	3.00	9.00
ZN (PPM)	14.00	-2.00	9.00	14.00	53.00	12.00	4.00	20.00	9.00	83.00
ZR (PPM)	194.00	23.00	39.00	51.00	14.00	79.00	33.00	29.00	37.00	34.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157023	157024	157025	157026	157027	157028	157029	157030	157031	157032
ELEVATION	9820.00	8130.00	7840.00	8020.00	8335.00	8220.00	10730.00	10720.00	10840.00	7940.00
FORMATION	SSZ	HT	HT	HT	SSZ	SSZ	NF	NF	AG	SSZ
LITHOLOGY	GN	SC	SC	SC	HGN	HGN	PL	DO	RGR	RGR
UL (PPM)	.36	2.31	1.09	1.26	1.79	3.08	-.25	.27	2.26	2.11
UT (PPM)	.30	3.80	1.80	2.00	1.30	1.80	.10	.10	3.10	2.80
UL/UT	1.20	.61	.61	.63	1.38	1.71	ND	2.72	.73	.75
TH (PPM)	-2.00	5.00	13.00	4.00	8.00	6.00	-2.00	-2.00	3.00	5.00
TH/UT	ND	1.32	7.23	2.00	6.16	3.34	ND	ND	.97	1.79
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.62	5.34	9.31	7.65	4.98	4.83	5.20	3.46	5.10	5.51
CA (%)	3.98	.22	.42	.32	.83	.88	5.78	4.96	.32	1.80
FE (%)	6.62	4.03	2.86	1.98	1.58	1.97	7.83	6.55	1.99	1.85
MG (%)	2.83	1.32	2.68	1.17	.28	.18	2.72	4.26	.15	.35
NA (%)	.88	.80	1.32	3.89	2.18	2.17	.52	.87	3.31	2.49
K (%)	.29	2.80	2.26	.45	1.82	1.74	.74	.37	.99	1.32
AG (PPM)	-2.00	-2.00	7.00	-2.00	-2.00	-2.00	4.00	-2.00	3.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	92.00	427.00	822.00	164.00	1117.00	1011.00	86.00	50.00	63.00	464.00
BE (PPM)	5.00	7.00	6.00	8.00	3.00	3.00	9.00	8.00	4.00	14.00
CE (PPM)	-10.00	-10.00	36.00	11.00	55.00	25.00	-10.00	-10.00	-10.00	43.00
CO (PPM)	49.00	31.00	14.00	14.00	4.00	10.00	61.00	67.00	4.00	10.00
CR (PPM)	267.00	131.00	132.00	78.00	5.00	4.00	92.00	1187.00	14.00	8.00
CU (PPM)	185.00	22.00	2.00	11.00	3.00	89.00	100.00	162.00	8.00	94.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	14.00	10.00	10.00	4.00	5.00	23.00	25.00	2.00	5.00
MN (PPM)	1137.00	122.00	261.00	268.00	306.00	799.00	1430.00	1270.00	31.00	730.00
MO (PPM)	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	17.00	4.00	-4.00	14.00	14.00	5.00	9.00	4.00	37.00
NI (PPM)	69.00	57.00	51.00	35.00	3.00	4.00	79.00	331.00	5.00	7.00
P (PPM)	332.00	1163.00	726.00	714.00	160.00	317.00	448.00	422.00	1271.00	375.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	35.00	11.00	15.00	6.00	6.00	5.00	32.00	29.00	12.00	13.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	87.00	36.00	63.00	73.00	106.00	161.00	178.00	49.00	25.00	278.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	4028.00	4135.00	3251.00	1321.00	1124.00	956.00	6744.00	4777.00	2399.00	1670.00
V (PPM)	268.00	120.00	126.00	74.00	6.00	12.00	312.00	224.00	171.00	33.00
Y (PPM)	13.00	3.00	9.00	3.00	9.00	25.00	15.00	10.00	10.00	29.00
ZN (PPM)	78.00	15.00	14.00	18.00	29.00	18.00	160.00	96.00	71.00	37.00
ZR (PPM)	20.00	85.00	49.00	48.00	108.00	73.00	22.00	20.00	216.00	79.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157033	157034	157035	157036	157037	157038	157039	157040	157042	157043
ELEVATION	7960.00	8110.00	8310.00	8120.00	10880.00	7833.00	7928.00	8030.00	8140.00	8045.00
FORMATION	SSZ	SSZ	SSZ	MI	NF	AGN	AGN	MI	AGN	AG
LITHOLOGY	AUGN	AUGN	AUGN	GB	DO	QFGN	AM	AM	QFGN	GN
UL (PPM)	1.35	1.64	1.61	.28	1.31	.99	.70	-.25	1.17	.77
UT (PPM)	.90	1.00	1.60	.20	1.10	.70	.50	.10	1.50	.70
UL/UT	1.50	1.64	1.01	1.40	1.19	1.41	1.40	ND	.78	1.10
TH (PPM)	4.00	5.00	8.00	2.00	-2.00	-2.00	-2.00	-2.00	19.00	20.00
TH/UT	4.45	5.00	5.00	10.05	ND	ND	ND	ND	12.67	28.61
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.69	6.35	4.75	5.81	4.05	6.86	6.01	5.44	6.27	5.70
CA (%)	1.52	1.19	.51	3.88	5.10	3.63	4.65	5.51	.36	.48
FE (%)	2.46	1.83	1.53	8.86	1.27	3.66	6.52	4.63	.50	.64
MG (%)	.33	.35	.08	2.31	2.81	2.75	2.49	3.49	.11	.06
NA (%)	2.05	1.70	1.88	1.57	.09	2.76	1.48	.99	2.41	2.09
K (%)	2.40	2.56	2.46	1.01	3.26	.19	.38	.28	2.87	3.10
AG (PPM)	-2.00	-2.00	3.00	5.00	3.00	-2.00	-2.00	-2.00	-2.00	3.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	3470.00	2615.00	187.00	82.00	118.00	62.00	78.00	43.00	582.00	526.00
BE (PPM)	5.00	4.00	3.00	7.00	2.00	6.00	10.00	5.00	3.00	4.00
CE (PPM)	128.00	221.00	54.00	-10.00	21.00	65.00	-10.00	-10.00	12.00	12.00
CO (PPM)	6.00	6.00	4.00	65.00	9.00	27.00	47.00	44.00	-4.00	-4.00
CR (PPM)	4.00	8.00	7.00	22.00	59.00	195.00	92.00	763.00	7.00	4.00
CU (PPM)	10.00	7.00	8.00	115.00	4.00	9.00	90.00	49.00	5.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	18.00	18.00	2.00	20.00	65.00	16.00	9.00	8.00	4.00	2.00
MN (PPM)	474.00	516.00	196.00	1210.00	301.00	591.00	1403.00	1082.00	57.00	31.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	16.00	16.00	28.00	4.00	5.00	8.00	11.00	7.00	6.00	20.00
NI (PPM)	2.00	-2.00	5.00	55.00	17.00	34.00	44.00	137.00	3.00	2.00
P (PPM)	493.00	505.00	93.00	518.00	580.00	1349.00	435.00	182.00	166.00	75.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	8.00	7.00	2.00	32.00	7.00	21.00	31.00	28.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	369.00	288.00	37.00	100.00	70.00	290.00	89.00	100.00	120.00	95.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2531.00	2445.00	589.00	11027.00	897.00	3662.00	6839.00	3613.00	755.00	549.00
V (PPM)	23.00	20.00	8.00	433.00	50.00	188.00	325.00	220.00	14.00	8.00
Y (PPM)	20.00	20.00	6.00	24.00	6.00	16.00	22.00	8.00	2.00	2.00
ZN (PPM)	53.00	44.00	20.00	121.00	15.00	41.00	111.00	74.00	23.00	8.00
ZR (PPM)	55.00	55.00	108.00	56.00	51.00	30.00	23.00	17.00	42.00	16.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157044	157045	157046	157047	157048	157049	157050	157051	157052	157053
ELEVATION	7998.00	7968.00	7650.00	7760.00	7580.00	7665.00	7768.00	7923.00	7950.00	7550.00
FORMATION	MI	AGN	SSZ	SSZ	SSZ	SSZ	AG	AGN	AGN	AGN
LITHOLOGY	AM	QFGN	QFGN	AM	RGR	HGN	GR	QFGN	HGN	GN
UL (PPM)	1.42	.61	.97	.45	1.42	3.76	.40	2.67	-.25	1.75
UT (PPM)	.90	.40	.60	.60	1.30	2.60	1.20	1.80	.20	1.70
UL/UT	1.58	1.53	1.62	.75	1.09	1.45	.33	1.48	ND	1.03
TH (PPM)	2.00	-2.00	5.00	-2.00	-2.00	2.00	17.00	11.00	-2.00	21.00
TH/UT	2.22	ND	8.35	ND	ND	.77	14.18	6.11	ND	12.36
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.51	7.23	6.55	6.79	7.50	6.27	5.78	6.58	4.75	5.10
CA (%)	4.64	1.41	1.37	5.59	1.33	3.10	.61	1.26	4.56	.48
FE (%)	4.52	1.62	.81	7.12	1.83	2.46	1.01	1.59	8.57	.66
MG (%)	1.66	.62	.17	2.64	.34	1.09	.15	.43	2.15	.10
NA (%)	1.93	3.16	2.85	1.61	2.14	2.25	2.08	2.42	1.30	2.05
K (%)	.34	1.12	.99	.69	2.58	.31	2.64	2.52	.15	2.54
AG (PPM)	4.00	5.00	3.00	4.00	-2.00	8.00	-2.00	-2.00	3.00	6.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	226.00	368.00	387.00	140.00	3245.00	92.00	904.00	1514.00	55.00	430.00
BE (PPM)	11.00	3.00	2.00	7.00	6.00	7.00	3.00	5.00	19.00	3.00
CE (PPM)	10.00	17.00	27.00	-10.00	63.00	28.00	28.00	36.00	-10.00	16.00
CO (PPM)	23.00	8.00	-4.00	38.00	7.00	14.00	-4.00	6.00	56.00	-4.00
CR (PPM)	27.00	13.00	6.00	8.00	4.00	10.00	8.00	8.00	54.00	3.00
CU (PPM)	5.00	5.00	6.00	15.00	31.00	4.00	15.00	6.00	81.00	9.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	23.00	12.00	6.00	9.00	4.00	8.00	23.00	19.00	7.00
MN (PPM)	932.00	270.00	207.00	965.00	314.00	340.00	132.00	200.00	1395.00	85.00
MO (PPM)	10.00	-4.00	5.00	8.00	-4.00	4.00	4.00	7.00	6.00	-4.00
NB (PPM)	104.00	5.00	9.00	24.00	25.00	11.00	12.00	12.00	15.00	9.00
NI (PPM)	9.00	7.00	-2.00	10.00	5.00	13.00	4.00	4.00	53.00	5.00
P (PPM)	790.00	523.00	153.00	753.00	367.00	1382.00	301.00	605.00	584.00	110.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	20.00	3.00	2.00	27.00	6.00	13.00	2.00	3.00	31.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	582.00	406.00	320.00	317.00	374.00	571.00	145.00	460.00	108.00	103.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3579.00	1998.00	665.00	2927.00	2083.00	4582.00	897.00	2041.00	8898.00	693.00
V (PPM)	159.00	46.00	14.00	313.00	30.00	131.00	10.00	34.00	341.00	12.00
Y (PPM)	14.00	3.00	5.00	10.00	18.00	13.00	3.00	4.00	24.00	2.00
ZN (PPM)	60.00	56.00	22.00	47.00	36.00	24.00	32.00	44.00	101.00	86.00
ZR (PPM)	29.00	16.00	26.00	22.00	39.00	30.00	46.00	55.00	27.00	39.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157054	157055	157056	157057	157058	157059	157060	157061	157062	157063
ELEVATION	7640.00	7720.00	7860.00	7800.00	7790.00	8070.00	9480.00	8120.00	10420.00	10350.00
FORMATION	SSZ	SSZ	SSZ	SSZ	SSZ	MI	MI	SSZ	MI	MI
LITHOLOGY	RGR	RGR	HGN	RGR	GR	GB	GB	HGN	GB	AM
UL (PPM)	.37	1.31	4.13	2.56	5.74	-.25	-.25	.93	-.25	-.25
UT (PPM)	1.10	1.50	3.00	2.20	4.90	1.80	.40	.70	.40	.30
UL/UT	.34	.87	1.38	1.16	1.17	ND	ND	1.33	ND	ND
TH (PPM)	5.00	4.00	29.00	3.00	15.00	-2.00	-2.00	-2.00	-2.00	-2.00
TH/UT	4.55	2.67	9.67	1.36	3.06	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.08	6.71	5.47	5.77	6.48	7.86	7.16	6.66	5.65	6.96
CA (%)	.58	.95	1.59	.67	.31	6.35	4.30	4.85	5.92	5.43
FE (%)	1.15	1.59	6.14	1.19	.29	3.81	4.77	4.64	7.17	3.92
MG (%)	.11	.32	.93	.16	.05	3.71	2.39	2.66	2.72	2.83
NA (%)	1.94	2.48	1.82	2.10	1.70	1.05	2.04	2.02	1.17	1.23
K (%)	2.83	2.79	1.46	2.77	4.88	.08	.32	.44	.26	.20
AG (PPM)	3.00	-2.00	4.00	-2.00	-2.00	5.00	-2.00	4.00	-2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	692.00	1099.00	1535.00	1683.00	231.00	85.00	235.00	315.00	97.00	71.00
BE (PPM)	2.00	5.00	17.00	6.00	2.00	2.00	8.00	7.00	7.00	4.00
CE (PPM)	70.00	144.00	750.00	38.00	11.00	-10.00	20.00	12.00	-10.00	-10.00
CO (PPM)	-4.00	4.00	20.00	-4.00	-4.00	48.00	31.00	31.00	56.00	36.00
CR (PPM)	4.00	10.00	7.00	5.00	5.00	238.00	131.00	53.00	48.00	84.00
CU (PPM)	5.00	15.00	15.00	18.00	6.00	24.00	31.00	10.00	125.00	129.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	9.00	29.00	13.00	1.00	2.00	8.00	4.00	7.00	3.00
MN (PPM)	169.00	309.00	705.00	227.00	61.00	624.00	1448.00	1002.00	1276.00	915.00
MO (PPM)	-4.00	-4.00	6.00	4.00	-4.00	6.00	-4.00	6.00	6.00	-4.00
NB (PPM)	7.00	14.00	27.00	14.00	38.00	8.00	12.00	18.00	5.00	8.00
NI (PPM)	3.00	2.00	7.00	8.00	3.00	372.00	39.00	36.00	83.00	85.00
P (PPM)	147.00	420.00	1045.00	247.00	20.00	294.00	1402.00	386.00	304.00	22.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	4.00	21.00	2.00	1.00	5.00	23.00	24.00	32.00	22.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	126.00	232.00	341.00	255.00	138.00	988.00	737.00	399.00	140.00	137.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	890.00	1892.00	6690.00	1180.00	308.00	885.00	5617.00	2597.00	4780.00	2657.00
V (PPM)	9.00	20.00	48.00	11.00	4.00	36.00	199.00	173.00	257.00	166.00
Y (PPM)	7.00	21.00	53.00	11.00	22.00	2.00	13.00	15.00	14.00	7.00
ZN (PPM)	28.00	56.00	101.00	20.00	4.00	33.00	107.00	65.00	79.00	57.00
ZR (PPM)	78.00	57.00	252.00	85.00	17.00	10.00	24.00	22.00	48.00	22.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157064	157065	157066	157067	157069	157070	157071	157072	157073	157074
ELEVATION	10110.00	10140.00	10160.00	9940.00	9960.00	7620.00	7705.00	9555.00	9215.00	8940.00
FORMATION	MI	CL	CR	CR	MI	AG	AGN	SSZ	SSZ	SSZ
LITHOLOGY	GB	BA	QZ	QZ	GB	GR	QFGN	VL	MM	QFGN
UL (PPM)	.76	3.94	.28	.50	.56	-.25	1.71	8.65	3.51	3.00
UT (PPM)	.70	7.40	.40	.60	.40	.50	1.60	8.10	4.20	4.20
UL/UT	1.09	.53	.70	.83	1.40	ND	1.07	1.07	.84	.71
TH (PPM)	-2.00	12.00	2.00	3.00	-2.00	-2.00	8.00	15.00	11.00	7.00
TH/UT	ND	1.62	5.01	5.01	ND	ND	5.00	1.85	2.62	1.67
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	7.51	5.45	1.51	1.66	4.96	6.36	6.90	5.97	5.97	6.40
CA (%)	5.06	.13	-.05	.06	4.35	.83	.94	.95	.89	.18
FE (%)	4.36	1.61	.22	.13	4.55	.51	.77	3.05	2.51	.37
MG (%)	3.49	.65	.10	.15	2.97	.18	.37	.87	.49	.08
NA (%)	1.30	.69	-.05	.39	.87	3.66	3.44	2.27	2.35	2.21
K (%)	.41	2.71	.64	.62	.38	1.59	1.83	2.54	2.19	4.00
AG (PPM)	-2.00	4.00	-2.00	6.00	2.00	-2.00	-2.00	5.00	9.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	241.00	553.00	118.00	90.00	116.00	927.00	1146.00	1545.00	1028.00	269.00
BE (PPM)	5.00	4.00	1.00	1.00	3.00	1.00	4.00	10.00	8.00	2.00
CE (PPM)	-10.00	25.00	-10.00	15.00	-10.00	12.00	36.00	136.00	82.00	16.00
CO (PPM)	40.00	10.00	-4.00	-4.00	40.00	-4.00	-4.00	14.00	11.00	-4.00
CR (PPM)	67.00	69.00	16.00	12.00	301.00	9.00	19.00	35.00	13.00	12.00
CU (PPM)	88.00	23.00	3.00	4.00	44.00	7.00	4.00	28.00	13.00	6.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	16.00	17.00	3.00	3.00	10.00	5.00	58.00	25.00	35.00	10.00
MN (PPM)	1110.00	293.00	27.00	19.00	788.00	114.00	126.00	456.00	494.00	64.00
MO (PPM)	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	-4.00
NB (PPM)	9.00	10.00	-4.00	4.00	4.00	4.00	6.00	22.00	17.00	13.00
NI (PPM)	79.00	23.00	5.00	4.00	166.00	5.00	10.00	24.00	6.00	4.00
P (PPM)	198.00	171.00	25.00	31.00	200.00	142.00	358.00	1083.00	1225.00	503.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	22.00	6.00	1.00	1.00	19.00	1.00	1.00	8.00	7.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	179.00	30.00	6.00	7.00	136.00	510.00	516.00	472.00	158.00	36.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3030.00	1754.00	351.00	278.00	1863.00	692.00	1555.00	4033.00	4696.00	443.00
V (PPM)	154.00	50.00	9.00	3.00	139.00	12.00	21.00	71.00	57.00	7.00
Y (PPM)	8.00	5.00	1.00	2.00	7.00	2.00	5.00	14.00	22.00	7.00
ZN (PPM)	57.00	31.00	5.00	2.00	48.00	31.00	50.00	95.00	78.00	4.00
ZR (PPM)	41.00	72.00	34.00	35.00	26.00	27.00	65.00	294.00	37.00	35.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157075	157076	157077	157078	157079	157080	157081	157082	157083	157085
ELEVATION	9220.00	10535.00	8937.00	9031.00	9132.00	8860.00	8930.00	8975.00	9050.00	9168.00
FORMATION	SSZ	SSZ	SSZ	MI	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ
LITHOLOGY	GN	QZ	C	GB	AM	QZ	HGN	GFCN	BR	HGN
UL (PPM)	8.15	3.14	10.34	1.47	.73	3.44	2.94	2.59	1.64	1.76
UT (PPM)	8.10	2.60	8.70	1.90	.30	2.70	2.70	2.20	1.40	.90
UL/UT	1.01	1.21	1.19	.77	2.44	1.27	1.09	1.18	1.17	1.96
TH (PPM)	-2.00	10.00	9.00	-2.00	-2.00	4.00	5.00	10.00	6.00	-2.00
TH/UT	ND	3.85	1.03	ND	ND	1.48	1.85	4.55	4.29	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	7.36	3.65	4.61	9.06	6.87	5.39	6.63	5.56	2.18	6.14
CA (%)	5.24	.07	.37	3.79	5.83	.95	3.72	.30	.26	6.47
FE (%)	5.08	2.07	1.82	3.47	5.95	1.56	3.79	.69	.46	5.62
MG (%)	3.95	.60	.46	.97	4.65	.11	1.73	.10	.29	2.08
NA (%)	1.35	.37	.77	2.39	.74	2.67	3.07	2.04	.94	1.51
K (%)	.50	2.01	2.95	1.42	.23	1.34	.86	3.16	.15	.31
AG (PPM)	-2.00	2.00	5.00	4.00	-3.00	7.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	150.00	1894.00	709.00	459.00	45.00	1193.00	254.00	1278.00	64.00	188.00
BE (PPM)	3.00	4.00	7.00	7.00	4.00	3.00	7.00	2.00	1.00	9.00
CE (PPM)	-10.00	-10.00	38.00	22.00	-10.00	39.00	39.00	41.00	24.00	-10.00
CO (PPM)	49.00	10.00	8.00	16.00	52.00	4.00	21.00	-4.00	-4.00	39.00
CR (PPM)	302.00	137.00	27.00	31.00	514.00	4.00	65.00	4.00	11.00	294.00
CU (PPM)	120.00	17.00	10.00	7.00	3.00	17.00	9.00	4.00	5.00	6.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	18.00	13.00	58.00	15.00	9.00	5.00	5.00	2.00	85.00	12.00
MN (PPM)	1375.00	95.00	262.00	1003.00	1666.00	276.00	865.00	128.00	120.00	1340.00
MO (PPM)	-4.00	4.00	-4.00	6.00	-4.00	-4.00	7.00	4.00	-4.00	-4.00
NB (PPM)	-4.00	5.00	30.00	8.00	4.00	14.00	9.00	11.00	4.00	14.00
NI (PPM)	130.00	21.00	10.00	10.00	109.00	4.00	18.00	2.00	6.00	19.00
P (PPM)	115.00	151.00	304.00	879.00	440.00	122.00	786.00	83.00	136.00	783.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	26.00	5.00	6.00	13.00	21.00	7.00	21.00	2.00	1.00	30.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	201.00	22.00	106.00	361.00	95.00	219.00	378.00	100.00	53.00	395.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2403.00	1420.00	2856.00	5000.00	2808.00	1154.00	3215.00	461.00	512.00	4095.00
V (PPM)	197.00	46.00	73.00	173.00	198.00	3.00	131.00	5.00	14.00	227.00
Y (PPM)	9.00	4.00	9.00	16.00	8.00	13.00	18.00	7.00	3.00	11.00
ZN (PPM)	67.00	12.00	41.00	85.00	79.00	22.00	126.00	10.00	14.00	52.00
ZR (PPM)	11.00	160.00	91.00	27.00	23.00	180.00	116.00	46.00	31.00	35.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157086	157087	157088	157089	157090	157091	157092	157093	157094	157095
ELEVATION	9380.00	9100.00	9000.00	9050.00	9105.00	8950.00	9110.00	9152.00	9060.00	8840.00
FORMATION	MI	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	MI	SSZ	SSZ
LITHOLOGY	GB	HGN	HGN	HGN	HGN	QFGN	HGN	AM	HGN	HGN
UL (PPM)	.82	4.43	2.20	4.25	2.28	3.08	-.25	-.25	1.35	3.22
UT (PPM)	ND	2.80	2.30	2.50	1.20	1.60	.40	.10	1.30	1.70
UL/UT	ND	1.58	.96	1.70	1.90	1.93	ND	ND	1.04	1.89
TH (PPM)	-2.00	4.00	3.00	3.00	-2.00	7.00	-2.00	-2.00	2.00	2.00
TH/UT	ND	1.43	1.30	1.20	ND	4.38	ND	ND	1.54	1.18
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.28	6.00	6.81	6.38	7.52	6.88	8.05	6.52	7.36	7.21
CA (%)	6.35	.56	1.75	.63	2.06	1.55	5.19	7.37	3.39	3.09
FE (%)	4.09	4.17	2.28	4.24	3.76	3.12	4.21	3.91	4.31	3.35
MG (%)	3.91	1.29	.82	1.36	1.46	.36	2.24	4.05	2.07	1.42
NA (%)	.57	.79	2.35	.93	2.00	2.34	2.23	.59	2.30	1.91
K (%)	.32	2.33	.95	2.44	1.33	2.51	.32	.16	1.33	1.03
AG (PPM)	-2.00	-2.00	4.00	6.00	2.00	-2.00	2.00	-2.00	4.00	8.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	213.00	903.00	699.00	840.00	651.00	2225.00	66.00	57.00	429.00	489.00
BE (PPM)	2.00	11.00	6.00	12.00	9.00	6.00	5.00	5.00	7.00	6.00
CE (PPM)	-10.00	29.00	64.00	20.00	17.00	123.00	20.00	-10.00	22.00	38.00
CO (PPM)	52.00	24.00	8.00	24.00	24.00	10.00	32.00	45.00	29.00	22.00
CR (PPM)	272.00	60.00	6.00	68.00	44.00	5.00	157.00	371.00	123.00	300.00
CU (PPM)	84.00	41.00	6.00	36.00	11.00	7.00	91.00	196.00	43.00	6.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	19.00	62.00	29.00	64.00	75.00	21.00	4.00	7.00	14.00	34.00
MN (PPM)	793.00	1207.00	340.00	1074.00	291.00	561.00	1039.00	782.00	1003.00	705.00
MO (PPM)	5.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	7.00	10.00	5.00
NB (PPM)	5.00	17.00	21.00	18.00	17.00	21.00	9.00	13.00	9.00	10.00
NI (PPM)	129.00	28.00	7.00	32.00	16.00	2.00	38.00	117.00	22.00	25.00
P (PPM)	162.00	603.00	318.00	638.00	687.00	667.00	349.00	45.00	678.00	609.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	27.00	19.00	6.00	17.00	8.00	13.00	24.00	35.00	19.00	14.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	356.00	173.00	329.00	198.00	253.00	272.00	189.00	384.00	241.00	354.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	936.00	4145.00	1652.00	4308.00	4121.00	2173.00	3744.00	2081.00	4587.00	3559.00
V (PPM)	115.00	135.00	21.00	138.00	153.00	16.00	229.00	168.00	213.00	131.00
Y (PPM)	4.00	17.00	10.00	14.00	6.00	35.00	10.00	5.00	14.00	13.00
ZN (PPM)	30.00	156.00	53.00	165.00	101.00	80.00	75.00	39.00	89.00	94.00
ZR (PPM)	9.00	127.00	136.00	128.00	81.00	135.00	16.00	14.00	41.00	47.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157096	157097	157098	157099	157100	157101	157102	157103	157104	157105
ELEVATION	9043.00	9043.00	8980.00	8930.00	8900.00	8953.00	8915.00	8905.00	9045.00	8940.00
FORMATION	SSZ	SSZ	SSZ	MI	SSZ	SSZ	SSZ	SSZ	MI	SSZ
LITHOLOGY	GFCN	HGN	HGN	GB	DR	DR	DR	GN	GB	GN
UL (PPM)	.67	-.25	-.25	-.25	-.25	.86	-.25	1.03	2.21	1.12
UT (PPM)	.80	.20	.30	.50	.10	ND	.10	2.10	1.20	.90
UL/UT	.84	ND	ND	ND	ND	ND	ND	.49	1.84	1.24
TH (PPM)	3.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	4.00	2.00	2.00
TH/UT	3.75	ND	ND	ND	ND	ND	ND	1.91	1.67	2.22
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.75	5.66	7.27	6.93	4.43	7.90	6.76	2.67	7.54	5.64
CA (%)	.62	5.50	5.24	5.34	2.61	4.76	6.74	.55	1.81	1.78
FE (%)	.74	5.80	4.78	4.76	2.01	5.46	3.43	.83	2.14	3.30
MG (%)	-.05	3.07	2.72	2.85	1.71	2.55	2.80	.18	.94	.26
NA (%)	3.26	.79	1.58	1.78	.48	1.79	1.06	.65	3.11	1.57
K (%)	2.12	.34	.30	.43	1.62	.18	.10	1.52	2.11	1.65
AG (PPM)	3.00	3.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1106.00	180.00	78.00	269.00	375.00	141.00	68.00	568.00	847.00	3951.00
BE (PPM)	3.00	6.00	4.00	7.00	2.00	5.00	2.00	2.00	3.00	5.00
CE (PPM)	29.00	-10.00	12.00	17.00	12.00	12.00	-10.00	24.00	25.00	20.00
CO (PPM)	-4.00	46.00	41.00	35.00	22.00	40.00	34.00	6.00	11.00	10.00
CR (PPM)	7.00	284.00	269.00	241.00	137.00	181.00	373.00	13.00	33.00	6.00
CU (PPM)	11.00	37.00	76.00	57.00	61.00	184.00	91.00	5.00	12.00	251.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	13.00	10.00	16.00	8.00	9.00	4.00	12.00	14.00	7.00
MN (PPM)	199.00	1231.00	1042.00	944.00	361.00	1005.00	740.00	144.00	444.00	397.00
MO (PPM)	4.00	-4.00	4.00	-4.00	-4.00	8.00	-4.00	-4.00	6.00	-4.00
NB (PPM)	5.00	9.00	7.00	15.00	4.00	5.00	5.00	5.00	9.00	7.00
NI (PPM)	2.00	73.00	60.00	50.00	42.00	47.00	90.00	7.00	12.00	3.00
P (PPM)	95.00	274.00	167.00	898.00	87.00	-5.00	195.00	118.00	515.00	689.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	-1.00	34.00	29.00	25.00	12.00	24.00	22.00	2.00	6.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	214.00	139.00	189.00	725.00	217.00	533.00	663.00	97.00	469.00	365.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	222.00	2989.00	3297.00	3360.00	808.00	3761.00	933.00	687.00	2547.00	3065.00
V (PPM)	6.00	214.00	218.00	178.00	42.00	367.00	75.00	12.00	86.00	65.00
Y (PPM)	1.00	13.00	12.00	12.00	2.00	4.00	3.00	4.00	6.00	7.00
ZN (PPM)	63.00	75.00	73.00	73.00	21.00	71.00	40.00	20.00	65.00	81.00
ZR (PPM)	42.00	14.00	14.00	27.00	19.00	12.00	9.00	45.00	29.00	116.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157106	157107	157108	157109	157110	157111	157112	157113	157114	157115
ELEVATION	8927.00	8870.00	8787.00	8930.00	9045.00	9040.00	8850.00	9230.00	8770.00	8445.00
FORMATION	SSZ	SSZ	SSZ	SSZ	MI	MI	MI	MI	SSZ	SSZ
LITHOLOGY	DR	QZ	DR	DR	GB	GB	AM	GB	HGN	QFCN
UL (PPM)	1.16	10.99	1.66	1.96	2.16	.31	3.13	.42	2.02	1.11
UT (PPM)	.90	9.40	1.70	1.60	1.60	.80	1.60	.20	1.70	1.00
UL/UT	1.29	1.17	.98	1.23	1.35	.39	1.96	2.11	1.19	1.11
TH (PPM)	-2.00	21.00	6.00	2.00	3.00	-2.00	-2.00	-2.00	-2.00	23.00
TH/UT	ND	2.23	3.53	1.25	1.88	ND	ND	ND	ND	23.00
AU (PPM)	ND	ND	ND	ND	ND	ND	NU	ND	ND	ND
AL (%)	8.26	6.73	4.99	6.49	7.64	8.28	8.09	7.96	8.91	3.25
CA (%)	2.98	.84	2.79	2.63	1.30	2.72	4.59	6.91	4.06	.74
FE (%)	3.25	1.00	3.53	3.90	4.04	2.83	3.70	2.79	2.57	1.22
MG (%)	1.36	.28	1.12	1.55	1.56	1.30	1.21	3.15	.93	.29
NA (%)	2.85	2.88	1.99	2.05	2.12	3.04	.88	.77	2.89	1.40
K (%)	.74	2.24	.72	.82	2.01	1.09	.19	.09	.55	.98
AG (PPM)	-2.00	4.00	3.00	5.00	4.00	5.00	-2.00	-2.00	2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	373.00	1154.00	354.00	465.00	723.00	544.00	86.00	53.00	204.00	217.00
BE (PPM)	5.00	7.00	6.00	8.00	6.00	4.00	6.00	1.00	6.00	2.00
CE (PPM)	33.00	96.00	25.00	-10.00	31.00	25.00	42.00	-10.00	31.00	12.00
CO (PPM)	18.00	5.00	19.00	23.00	24.00	17.00	22.00	33.00	16.00	16.00
CR (PPM)	31.00	13.00	31.00	33.00	179.00	46.00	24.00	778.00	30.00	41.00
CU (PPM)	46.00	27.00	24.00	53.00	73.00	53.00	2.00	35.00	2.00	9.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	10.00	16.00	9.00	13.00	43.00	16.00	5.00	5.00	4.00	5.00
MN (PPM)	801.00	142.00	703.00	825.00	817.00	622.00	535.00	732.00	617.00	165.00
MO (PPM)	-4.00	-4.00	9.00	-4.00	-4.00	-4.00	-4.00	5.00	7.00	-4.00
NB (PPM)	9.00	19.00	9.00	12.00	13.00	6.00	11.00	6.00	12.00	6.00
NI (PPM)	13.00	5.00	15.00	15.00	57.00	13.00	3.00	94.00	11.00	19.00
P (PPM)	852.00	284.00	662.00	788.00	721.00	624.00	1343.00	85.00	909.00	191.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	14.00	3.00	11.00	14.00	14.00	10.00	15.00	23.00	16.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	503.00	294.00	419.00	496.00	279.00	617.00	548.00	338.00	270.00	219.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3331.00	1477.00	3200.00	3413.00	3759.00	3070.00	4516.00	1134.00	3985.00	854.00
V (PPM)	126.00	26.00	116.00	126.00	119.00	112.00	126.00	123.00	113.00	16.00
Y (PPM)	12.00	7.00	8.00	11.00	15.00	8.00	18.00	3.00	18.00	4.00
ZN (PPM)	72.00	37.00	73.00	84.00	110.00	75.00	7.00	42.00	31.00	14.00
ZR (PPM)	21.00	144.00	27.00	30.00	96.00	31.00	69.00	11.00	24.00	43.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157116	157117	157118	157119	157120	157121	157122	157123	157124	157125
ELEVATION	8800.00	8705.00	9590.00	9300.00	10680.00	9130.00	8880.00	9210.00	9510.00	9740.00
FORMATION	SSZ	SSZ	SSZ	SSZ	HD	SSZ	SSZ	SSZ	SSZ	SSZ
LITHOLOGY	QFGN	HGN	HGN	HGN	SC	QFGN	BGN	BGN	PY	GN
UL (PPM)	1.26	.68	3.05	3.89	.69	1.58	2.76	6.71	1.19	1.44
UT (PPM)	1.40	.40	2.50	4.20	.60	1.80	4.70	6.70	1.50	1.80
UL/UT	.90	1.70	1.22	.93	1.15	.88	.59	1.00	.79	.80
TH (PPM)	6.00	4.00	6.00	19.00	4.00	4.00	10.00	22.00	2.00	7.00
TH/UT	4.29	10.03	2.40	4.52	6.68	2.22	2.13	3.28	1.33	3.89
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	7.37	4.08	4.42	4.42	3.07	5.98	7.67	5.46	.50	6.69
CA (%)	1.30	1.74	.50	2.97	1.01	.92	.59	.27	1.57	.57
FE (%)	1.80	2.30	2.45	1.52	2.11	1.39	2.80	1.23	13.49	.78
MG (%)	.29	1.14	.70	.73	1.17	.25	1.02	.58	1.99	.06
NA (%)	1.88	.70	2.14	.97	1.34	2.28	1.88	.96	-.05	2.76
K (%)	3.99	1.70	.95	2.07	.96	1.78	2.96	2.68	.05	3.04
AG (PPM)	-2.00	-2.00	-2.00	-2.00	3.00	3.00	7.00	6.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1998.00	412.00	299.00	710.00	298.00	805.00	471.00	806.00	22.00	887.00
BE (PPM)	4.00	4.00	3.00	3.00	1.00	4.00	5.00	4.00	2.00	3.00
CE (PPM)	78.00	-10.00	31.00	38.00	13.00	30.00	39.00	28.00	-10.00	13.00
CO (PPM)	5.00	16.00	17.00	10.00	15.00	4.00	18.00	6.00	31.00	-4.00
CR (PPM)	9.00	64.00	38.00	59.00	110.00	6.00	101.00	64.00	15.00	4.00
CU (PPM)	6.00	29.00	57.00	27.00	10.00	10.00	12.00	10.00	56.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	8.00	11.00	23.00	5.00	10.00	51.00	18.00	1.00	10.00
MN (PPM)	435.00	387.00	205.00	106.00	188.00	244.00	473.00	84.00	4505.00	57.00
MO (PPM)	-4.00	4.00	-4.00	7.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NR (PPM)	18.00	7.00	6.00	11.00	-4.00	12.00	16.00	10.00	4.00	5.00
NI (PPM)	4.00	13.00	20.00	19.00	37.00	3.00	34.00	13.00	7.00	-2.00
P (PPM)	475.00	168.00	279.00	263.00	116.00	257.00	333.00	177.00	3449.00	105.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	12.00	5.00	6.00	9.00	3.00	11.00	6.00	2.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	191.00	139.00	139.00	151.00	91.00	202.00	113.00	55.00	23.00	177.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1872.00	1610.00	1381.00	1854.00	921.00	1102.00	2961.00	1761.00	127.00	245.00
V (PPM)	25.00	80.00	36.00	39.00	65.00	17.00	80.00	37.00	23.00	6.00
Y (PPM)	21.00	4.00	7.00	9.00	4.00	13.00	6.00	6.00	17.00	2.00
ZN (PPM)	41.00	30.00	32.00	20.00	15.00	28.00	97.00	17.00	96.00	11.00
ZR (PPM)	88.00	20.00	76.00	71.00	22.00	63.00	76.00	117.00	21.00	31.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157126	157127	157128	157129	157130	157131	157133	157134	157135	157136
ELEVATION	9585.00	9490.00	9300.00	9510.00	10060.00	9690.00	8860.00	10255.00	9285.00	9823.00
FORMATION	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	SSZ	MI
LITHOLOGY	SC	AM	GN	BGN	GN	PG	QZ	MY	MY	GB
UL (PPM)	.84	.38	2.29	2.23	2.74	3.53	1.32	2.60	.37	.39
UT (PPM)	.90	1.10	2.90	2.70	2.90	3.20	.90	22.60	.50	.30
UL/UT	.93	.34	.79	.83	.94	1.10	1.47	.12	.74	1.30
TH (PPM)	8.00	2.00	9.00	29.00	20.00	11.00	-2.00	8.00	-2.00	-2.00
TH/UT	8.90	1.82	3.10	10.74	6.90	3.44	ND	.35	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.37	6.69	4.23	2.35	3.89	6.23	.26	6.87	5.87	.34
CA (%)	1.18	4.75	.43	.39	.71	.15	-.05	.42	5.50	4.10
FE (%)	2.44	6.36	1.10	24.03	1.78	.27	.23	1.66	9.20	12.72
MG (%)	.55	2.33	.27	.22	.34	-.05	-.05	.93	.43	.78
NA (%)	2.27	1.51	1.14	.62	1.72	4.10	-.05	4.36	-.05	-.05
K (%)	2.42	.71	2.37	1.59	.94	1.36	.04	.19	.12	.11
AG (PPM)	-2.00	4.00	-2.00	6.00	-2.00	-2.00	-2.00	5.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	20.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1269.00	170.00	315.00	201.00	444.00	45.00	21.00	55.00	39.00	104.00
BE (PPM)	7.00	7.00	3.00	3.00	4.00	5.00	1.00	3.00	6.00	-1.00
CE (PPM)	60.00	20.00	30.00	-10.00	64.00	-10.00	-10.00	45.00	18.00	-10.00
CO (PPM)	11.00	55.00	5.00	76.00	10.00	-4.00	-4.00	18.00	27.00	39.00
CR (PPM)	20.00	37.00	19.00	284.00	14.00	8.00	7.00	102.00	157.00	16.00
CU (PPM)	20.00	41.00	8.00	11.00	56.00	7.00	33.00	17.00	320.00	7.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	25.00	13.00	14.00	14.00	16.00	3.00	1.00	9.00	9.00	2.00
MN (PPM)	379.00	1555.00	188.00	140.00	191.00	301.00	22.00	248.00	313.00	3743.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	4.00	4.00	6.00	-4.00
NB (PPM)	15.00	9.00	13.00	19.00	10.00	24.00	-4.00	7.00	20.00	7.00
NI (PPM)	10.00	34.00	10.00	82.00	20.00	4.00	4.00	31.00	161.00	18.00
P (PPM)	1087.00	620.00	175.00	2319.00	375.00	505.00	26.00	449.00	155.00	192.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	31.00	3.00	13.00	5.00	5.00	1.00	7.00	7.00	14.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	187.00	107.00	51.00	21.00	130.00	19.00	8.00	76.00	669.00	140.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	4247.00	6700.00	1036.00	1263.00	2033.00	39.00	103.00	1877.00	1256.00	62.00
V (PPM)	71.00	313.00	18.00	374.00	31.00	5.00	3.00	72.00	71.00	19.00
Y (PPM)	21.00	26.00	4.00	28.00	13.00	6.00	1.00	8.00	8.00	8.00
ZN (PPM)	76.00	101.00	49.00	-2.00	52.00	5.00	5.00	28.00	10.00	86.00
ZR (PPM)	37.00	47.00	41.00	195.00	90.00	42.00	9.00	76.00	23.00	15.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157137	157138	157139	157140	157141	157142	157143	157144	157145	157146
ELEVATION	9836.00	7980.00	8270.00	8450.00	8430.00	8700.00	9220.00	9540.00	9300.00	9370.00
FORMATION	MI	PL	PL	PL	PL	PL	PL	PL	PL	PL
LITHOLOGY	GB	GR	AMGN	ASC	MSC	GN	MSC	AM	AM	ASC
UL (PPM)	3.50	3.05	-1.25	1.62	18.79	2.33	29.28	2.32	.94	1.21
UT (PPM)	2.70	2.70	.70	.90	23.70	2.00	2.50	2.60	.50	1.00
UL/UT	1.30	1.13	ND	1.80	.79	1.16	11.71	.89	1.88	1.21
TH (PPM)	-2.00	19.00	-2.00	6.00	293.00	7.00	18.00	4.00	2.00	7.00
TH/UT	ND	7.04	ND	6.67	12.36	3.50	7.20	1.54	4.00	7.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	7.26	6.13	6.18	5.41	4.28	6.41	5.05	6.33	5.44	6.24
CA (%)	6.16	.39	5.31	4.21	-.05	2.62	.06	3.83	6.08	.08
FE (%)	4.38	.79	6.39	9.48	1.53	3.72	.78	4.69	6.52	.12
MG (%)	.64	.37	2.38	2.19	.35	1.64	.23	1.97	2.98	-.05
NA (%)	.14	2.82	1.52	1.48	.19	1.21	1.53	1.43	1.23	1.34
K (%)	3.02	1.43	.13	.10	2.45	1.43	1.66	.62	.25	.76
AG (PPM)	3.00	2.00	4.00	7.00	-2.00	-2.00	-2.00	3.00	-2.00	3.00
B (PPM)	38.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1055.00	495.00	31.00	56.00	310.00	279.00	171.00	278.00	105.00	93.00
BE (PPM)	3.00	4.00	11.00	20.00	4.00	9.00	3.00	10.00	6.00	1.00
CE (PPM)	26.00	31.00	11.00	-10.00	163.00	35.00	17.00	25.00	-10.00	33.00
CO (PPM)	34.00	-4.00	59.00	77.00	5.00	23.00	5.00	37.00	48.00	-4.00
CR (PPM)	254.00	8.00	142.00	139.00	46.00	212.00	32.00	147.00	156.00	51.00
CU (PPM)	6.00	7.00	58.00	20.00	50.00	14.00	29.00	64.00	93.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	7.00	18.00	14.00	15.00	27.00	6.00	13.00	8.00	33.00
MN (PPM)	1340.00	117.00	1374.00	997.00	99.00	309.00	28.00	941.00	1185.00	16.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	8.00	-4.00	-4.00	8.00	-4.00
NB (PPM)	8.00	10.00	9.00	13.00	85.00	6.00	5.00	13.00	9.00	-4.00
NI (PPM)	33.00	3.00	77.00	103.00	5.00	93.00	4.00	46.00	85.00	4.00
P (PPM)	650.00	152.00	1018.00	1170.00	210.00	727.00	120.00	398.00	365.00	36.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	20.00	2.00	23.00	38.00	6.00	17.00	3.00	19.00	33.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	84.00	79.00	107.00	66.00	25.00	178.00	32.00	173.00	183.00	76.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1564.00	793.00	9812.00	13741.00	1405.00	5892.00	776.00	2961.00	3575.00	399.00
V (PPM)	170.00	12.00	340.00	490.00	21.00	165.00	27.00	154.00	226.00	37.00
Y (PPM)	9.00	4.00	37.00	53.00	33.00	12.00	3.00	12.00	12.00	2.00
ZN (PPM)	24.00	22.00	94.00	119.00	96.00	15.00	17.00	87.00	76.00	2.00
ZR (PPM)	51.00	77.00	65.00	92.00	241.00	38.00	36.00	22.00	31.00	41.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157147	157148	157149	157150	157151	157152	157153	157154	157156	157157
ELEVATION	8700.00	9450.00	8420.00	8740.00	8600.00	9060.00	9160.00	8940.00	9430.00	9280.00
FORMATION	PL	MI	PL	MG	MG	MI	PL	MI	PL	PL
LITHOLOGY	AM	AM	QZ	BSC	MSC	AM	AM	AM	AM	GN
UL (PPM)	-.25	1.11	.74	5.96	17.67	.62	2.10	-.25	.28	-.25
UT (PPM)	.20	1.10	.70	5.70	12.40	.40	.90	.10	.30	.80
UL/UT	ND	1.01	1.06	1.05	1.43	1.55	2.33	ND	.93	ND
TH (PPM)	-2.00	5.00	2.00	12.00	67.00	-2.00	2.00	-2.00	-2.00	-2.00
TH/UT	ND	4.55	2.86	2.11	5.40	ND	2.22	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.97	4.80	2.83	6.06	3.61	6.60	6.17	4.42	4.91	5.29
CA (%)	4.75	2.82	.05	.19	.08	4.75	2.87	6.44	4.16	5.10
FE (%)	5.76	6.96	.53	.57	.55	4.66	5.72	5.12	7.24	5.47
MG (%)	2.94	1.67	.28	.36	.25	2.91	1.40	3.94	2.54	2.43
NA (%)	1.29	1.55	.07	1.87	.82	1.13	1.75	.83	1.95	1.83
K (%)	.47	.55	1.34	2.21	1.20	.22	1.54	.09	.12	.19
AG (PPM)	-2.00	-2.00	-2.00	3.00	2.00	-2.00	-2.00	-2.00	5.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	387.00	528.00	144.00	373.00	194.00	66.00	1030.00	57.00	67.00	41.00
BE (PPM)	8.00	11.00	1.00	3.00	3.00	6.00	16.00	2.00	6.00	10.00
CE (PPM)	-10.00	-10.00	10.00	47.00	22.00	-10.00	69.00	-10.00	-10.00	-10.00
CO (PPM)	46.00	43.00	4.00	-4.00	-4.00	38.00	37.00	50.00	55.00	43.00
CR (PPM)	282.00	5.00	16.00	160.00	36.00	289.00	37.00	662.00	100.00	6.00
CU (PPM)	115.00	140.00	8.00	23.00	16.00	74.00	39.00	41.00	25.00	75.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	15.00	16.00	8.00	7.00	5.00	10.00	17.00	8.00	9.00	4.00
MN (PPM)	1097.00	1207.00	33.00	48.00	60.00	867.00	741.00	1165.00	1519.00	1224.00
MO (PPM)	-4.00	7.00	-4.00	5.00	-4.00	-4.00	8.00	-4.00	-4.00	-4.00
NB (PPM)	12.00	9.00	-4.00	7.00	15.00	8.00	16.00	6.00	7.00	13.00
NI (PPM)	93.00	20.00	10.00	3.00	5.00	76.00	20.00	232.00	80.00	45.00
P (PPM)	223.00	1047.00	64.00	526.00	108.00	167.00	1367.00	214.00	404.00	358.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	25.00	19.00	2.00	3.00	3.00	27.00	16.00	31.00	28.00	26.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	163.00	307.00	17.00	48.00	22.00	128.00	463.00	99.00	183.00	165.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	4230.00	7442.00	458.00	1782.00	752.00	2156.00	7305.00	1907.00	4441.00	4833.00
V (PPM)	221.00	246.00	12.00	29.00	18.00	189.00	215.00	169.00	219.00	212.00
Y (PPM)	10.00	17.00	2.00	10.00	4.00	9.00	20.00	6.00	12.00	13.00
ZN (PPM)	104.00	99.00	8.00	4.00	8.00	61.00	116.00	83.00	115.00	76.00
ZR (PPM)	28.00	110.00	28.00	219.00	84.00	22.00	98.00	20.00	39.00	29.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157158	157159	157160	157161	157162	157163	157164	157165	157166	157167
ELEVATION	9220.00	8820.00	8930.00	8680.00	8640.00	9450.00	9450.00	9450.00	9437.00	9490.00
FORMATION	PL	MI	MI	MI	MI	SSZ	SSZ	SSZ	SSZ	SSZ
LITHOLOGY	AMGN	AM	AMGN	AM	ASC	DR	HGN	HGN	RGR	GGN
UL (PPM)	-.25	1.38	.70	.72	.73	1.63	1.61	1.14	2.62	4.11
UT (PPM)	.10	1.50	.50	.50	.60	1.30	1.60	1.40	1.90	2.90
UL/UT	ND	.92	1.40	1.44	1.22	1.25	1.01	.81	1.38	1.42
TH (PPM)	-2.00	3.00	-2.00	-2.00	5.00	-2.00	-2.00	2.00	-2.00	12.00
TH/UT	ND	2.00	ND	ND	8.35	ND	ND	1.43	ND	4.14
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.02	6.54	5.50	3.91	4.97	7.02	7.29	4.28	5.23	6.03
CA (%)	6.68	4.55	3.90	4.97	3.55	2.26	5.43	3.16	.62	.57
FE (%)	6.57	4.63	6.65	5.04	11.17	3.39	3.84	3.26	2.75	.60
MG (%)	3.86	2.84	2.55	4.47	1.81	1.16	1.39	1.08	.10	.19
NA (%)	.73	2.51	1.66	1.13	1.66	2.07	1.31	.97	1.80	2.01
K (%)	.23	.44	.67	.28	.34	1.95	1.93	1.03	3.33	3.45
AG (PPM)	-2.00	-2.00	-2.00	6.00	4.00	2.00	-2.00	4.00	-2.00	6.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	44.00	108.00	86.00	37.00	107.00	626.00	1192.00	441.00	1237.00	704.00
BE (PPM)	9.00	8.00	12.00	4.00	15.00	6.00	8.00	5.00	5.00	2.00
CE (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	20.00	27.00	24.00	44.00
CO (PPM)	49.00	36.00	51.00	52.00	60.00	16.00	22.00	17.00	6.00	-4.00
CR (PPM)	360.00	9.00	66.00	1205.00	5.00	15.00	10.00	11.00	1.00	7.00
CU (PPM)	12.00	25.00	166.00	46.00	139.00	68.00	47.00	154.00	14.00	5.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	7.00	9.00	7.00	18.00	20.00	12.00	8.00	16.00	4.00
MM (PPM)	1246.00	1195.00	1236.00	1211.00	1838.00	716.00	1966.00	1412.00	420.00	236.00
MO (PPM)	-4.00	-4.00	-4.00	7.00	-4.00	-4.00	5.00	-4.00	4.00	-4.00
NB (PPM)	9.00	10.00	11.00	7.00	8.00	9.00	8.00	4.00	19.00	11.00
NI (PPM)	82.00	44.00	36.00	199.00	18.00	8.00	11.00	15.00	2.00	3.00
P (PPM)	120.00	648.00	349.00	201.00	892.00	1046.00	1174.00	899.00	146.00	143.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	59.00	22.00	34.00	28.00	40.00	19.00	24.00	18.00	4.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	152.00	116.00	44.00	42.00	72.00	329.00	435.00	166.00	131.00	135.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	5801.00	7021.00	5276.00	1658.00	10344.00	3516.00	3787.00	2462.00	2554.00	735.00
V (PPM)	316.00	243.00	298.00	200.00	331.00	182.00	221.00	170.00	7.00	10.00
Y (PPM)	9.00	16.00	21.00	8.00	39.00	14.00	15.00	8.00	30.00	10.00
ZN (PPM)	67.00	72.00	83.00	92.00	144.00	59.00	129.00	91.00	81.00	14.00
ZR (PPM)	29.00	75.00	29.00	20.00	96.00	52.00	34.00	34.00	311.00	63.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157168	157169	157170	157171	157172	157173	157174	157175	157176	157178
ELEVATION	9622.00	9558.00	9633.00	9683.00	9692.00	9605.00	9680.00	9710.00	9710.00	9665.00
FORMATION	SSZ	SSZ	SSZ	SSZ	MI	SSZ	SSZ	SSZ	MI	MI
LITHOLOGY	DR	ASC	AP	DR	GB	HGN	DR	GGN	GB	PY
UL (PPM)	.32	1.60	1.63	1.06	1.15	4.51	.99	4.25	.40	.45
UT (PPM)	.20	.90	1.20	.90	.40	2.80	1.00	2.20	.20	.10
UL/UT	1.60	1.78	1.36	1.18	2.88	1.61	.99	1.93	2.01	4.54
TH (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	10.00	-2.00	-2.00	-2.00	-2.00
TH/UT	ND	ND	ND	ND	ND	3.57	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.96	6.26	6.13	6.62	5.61	6.03	7.71	7.18	8.68	3.66
CA (%)	4.28	2.29	2.59	4.19	5.52	.14	5.03	3.53	5.31	8.70
FE (%)	6.50	3.88	3.21	3.62	5.46	1.24	3.96	3.26	5.61	6.12
MG (%)	2.69	1.07	1.08	2.34	3.35	.24	1.63	1.69	1.93	4.25
NA (%)	.99	2.31	2.33	1.73	1.26	2.19	2.24	2.66	1.44	.44
K (%)	.79	1.43	1.14	.64	.51	1.65	.65	.50	.30	.16
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	5.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	254.00	880.00	710.00	199.00	281.00	610.00	350.00	102.00	165.00	67.00
BE (PPM)	5.00	7.00	7.00	4.00	6.00	4.00	6.00	5.00	11.00	4.00
CE (PPM)	-10.00	30.00	26.00	16.00	-10.00	68.00	-10.00	44.00	-10.00	-10.00
CO (PPM)	47.00	18.00	11.00	39.00	46.00	4.00	20.00	18.00	36.00	51.00
CR (PPM)	90.00	64.00	23.00	98.00	295.00	6.00	47.00	27.00	4.00	722.00
CU (PPM)	57.00	12.00	6.00	21.00	60.00	12.00	116.00	49.00	31.00	55.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	15.00	38.00	10.00	13.00	36.00	4.00	11.00	17.00	13.00	17.00
HN (PPM)	1373.00	566.00	643.00	1091.00	1198.00	61.00	827.00	684.00	1143.00	1146.00
MO (PPM)	4.00	-4.00	8.00	-4.00	4.00	4.00	-4.00	8.00	-4.00	8.00
NB (PPM)	5.00	13.00	14.00	6.00	9.00	8.00	7.00	6.00	18.00	5.00
NI (PPM)	121.00	21.00	15.00	43.00	106.00	4.00	9.00	15.00	4.00	81.00
P (PPM)	428.00	802.00	536.00	577.00	367.00	240.00	928.00	439.00	1026.00	328.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	23.00	8.00	12.00	16.00	31.00	5.00	16.00	12.00	24.00	71.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	255.00	1101.00	402.00	346.00	409.00	98.00	611.00	511.00	499.00	259.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3389.00	3890.00	3625.00	2951.00	2613.00	1267.00	3131.00	2397.00	5346.00	3083.00
V (PPM)	193.00	119.00	82.00	203.00	174.00	16.00	165.00	116.00	322.00	293.00
Y (PPM)	11.00	10.00	21.00	7.00	9.00	10.00	12.00	10.00	6.00	6.00
ZN (PPM)	98.00	86.00	35.00	70.00	69.00	15.00	36.00	58.00	85.00	66.00
ZR (PPM)	23.00	71.00	126.00	25.00	29.00	206.00	38.00	72.00	15.00	18.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157180	157181	157182	157183	157184	157185	157186	157187	157188	157189
ELEVATION	9705.00	9640.00	8160.00	8245.00	8010.00	8245.00	8860.00	9320.00	8330.00	8320.00
FORMATION	MI	SSZ	MI	MI	SSZ	MI	SSZ	PL	AG	AG
LITHOLOGY	GB	PG	HGN	GB	QFGN	GB	GN	AM	GR	GR
UL (PPM)	.70	1.58	1.47	-.25	.67	1.04	2.37	-.25	ND	ND
UT (PPM)	1.00	.90	1.00	.10	1.30	ND	1.80	.30	ND	ND
UL/UT	.70	1.76	1.47	ND	.52	ND	1.32	ND	ND	ND
TH (PPM)	-2.00	3.00	-2.00	-2.00	6.00	-2.00	2.00	-2.00	ND	ND
TH/UT	ND	3.34	ND	ND	4.62	ND	1.11	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.64	5.74	5.36	8.33	6.35	11.30	6.03	6.73	ND	ND
CA (%)	4.54	.18	5.25	8.64	.59	8.10	2.63	4.19	ND	ND
FE (%)	5.70	.21	8.53	2.69	1.25	1.85	2.17	5.45	ND	ND
MG (%)	3.43	-.05	2.45	2.54	.17	2.74	1.35	2.61	ND	ND
NA (%)	1.54	3.81	1.58	.54	2.25	.52	.60	2.55	ND	ND
K (%)	.38	.53	.40	.13	2.63	.08	1.11	.19	ND	ND
AG (PPM)	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00	ND	ND
B (PPM)	-10.00	210.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND	ND
BA (PPM)	111.00	13.00	193.00	75.00	1010.00	49.00	238.00	83.00	ND	ND
BE (PPM)	6.00	9.00	11.00	1.00	4.00	1.00	6.00	7.00	ND	ND
CE (PPM)	22.00	-10.00	-10.00	-10.00	50.00	-10.00	39.00	-10.00	ND	ND
CO (PPM)	45.00	-4.00	54.00	28.00	-4.00	25.00	13.00	42.00	ND	ND
CR (PPM)	407.00	7.00	38.00	435.00	6.00	328.00	27.00	119.00	ND	ND
CU (PPM)	6.00	12.00	22.00	94.00	2.00	96.00	425.00	16.00	ND	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	6.00	5.00	4.00	9.00	5.00	25.00	6.00	ND	ND
MN (PPM)	1482.00	144.00	1567.00	552.00	473.00	522.00	1083.00	1408.00	ND	ND
MO (PPM)	-4.00	-4.00	-4.00	-4.00	4.00	8.00	4.00	-4.00	ND	ND
NR (PPM)	8.00	11.00	8.00	6.00	16.00	5.00	15.00	16.00	ND	ND
NI (PPM)	51.00	8.00	26.00	68.00	4.00	67.00	4.00	89.00	ND	ND
P (PPM)	607.00	327.00	823.00	234.00	186.00	-5.00	571.00	344.00	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	24.00	2.00	38.00	20.00	3.00	14.00	10.00	27.00	ND	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	300.00	8.00	241.00	432.00	102.00	398.00	172.00	218.00	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2784.00	49.00	7210.00	1127.00	1243.00	630.00	3519.00	4689.00	ND	ND
V (PPM)	185.00	2.00	312.00	85.00	13.00	64.00	98.00	248.00	ND	ND
Y (PPM)	14.00	2.00	25.00	3.00	14.00	2.00	14.00	14.00	ND	ND
ZN (PPM)	96.00	13.00	103.00	28.00	76.00	43.00	72.00	75.00	ND	ND
ZR (PPM)	46.00	20.00	53.00	9.00	104.00	7.00	71.00	32.00	ND	ND

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157190	157290	157291	157292	157293	157362	157768	157769	157879	157889
ELEVATION	8300.00	9250.00	9300.00	9300.00	9300.00	9060.00	8580.00	8290.00	8515.00	8515.00
FORMATION	AG	MG	MG	MG	MG	SSZ	PL	PL	MG	MG
LITHOLOGY	GR	QPC	QPC	QPC	QPC		QFGN	QFGN	PHQ	QZ
UL (PPM)	ND	5.13	13.42	49.52	24.64	6.74	5.85	4.07	.39	9.29
UT (PPM)	ND	5.20	10.10	51.30	31.70	4.70	ND	ND	1.20	5.70
UL/UT	ND	.99	1.33	.97	.78	1.43	ND	ND	.32	1.63
TH (PPM)	ND	17.00	24.00	35.00	132.00	10.00	26.00	6.00	4.00	17.00
TH/UT	ND	3.27	2.38	.68	4.16	2.13	ND	ND	3.34	2.98
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	4.17	3.73	3.66	4.36	5.92	6.99	7.72	4.97	4.20
CA (%)	NU	.05	-.05	-.05	-.05	.75	.61	2.25	.50	.15
FE (%)	ND	.63	.86	1.32	2.23	1.36	2.75	5.23	3.31	2.60
MG (%)	ND	.25	.25	.31	.39	.46	.84	.45	.50	.31
NA (%)	ND	.90	.66	.76	.60	1.92	3.29	3.77	.93	.16
K (%)	ND	1.70	1.32	1.58	2.08	2.42	1.90	1.42	1.13	1.64
AG (PPM)	ND	2.00	-2.00	-2.00	5.00	-2.00	-2.00	ND	2.00	-2.00
B (PPM)	ND	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-7.00	-10.00	-10.00
BA (PPM)	ND	337.00	213.00	311.00	423.00	889.00	1137.00	718.00	200.00	195.00
BE (PPM)	ND	2.00	2.00	3.00	5.00	4.00	1.00	3.00	3.00	4.00
CE (PPM)	ND	28.00	14.00	13.00	63.00	51.00	55.00	115.00	20.00	26.00
CO (PPM)	ND	-4.00	-4.00	-4.00	7.00	4.00	8.00	4.00	23.00	12.00
CR (PPM)	ND	16.00	21.00	27.00	30.00	8.00	46.00	4.00	27.00	66.00
CU (PPM)	ND	5.00	9.00	14.00	20.00	12.00	35.00	13.00	20.00	27.00
HF (PPM)	ND	ND	ND	ND	ND	ND	74.00	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	-15.00	ND	ND	ND
LI (PPM)	ND	6.00	5.00	7.00	9.00	10.00	11.00	19.00	13.00	8.00
MN (PPM)	ND	66.00	74.00	81.00	95.00	332.00	275.00	972.00	475.00	398.00
MO (PPM)	ND	-4.00	-4.00	-4.00	5.00	4.00	-4.00	1.00	-4.00	-4.00
NB (PPM)	ND	4.00	6.00	5.00	16.00	20.00	-4.00	44.00	-4.00	8.00
NI (PPM)	ND	2.00	3.00	3.00	6.00	5.00	15.00	2.00	33.00	14.00
P (PPM)	ND	186.00	93.00	129.00	226.00	251.00	523.00	979.00	286.00	282.00
PB (PPM)	ND	ND	ND	ND	ND	ND	-10.00	-14.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	3.00	3.00	4.00	6.00	5.00	5.00	11.00	0.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	36.00	19.00	23.00	22.00	144.00	198.00	179.00	85.00	24.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	ND	630.00	718.00	985.00	1629.00	1557.00	1676.00	4648.00	1452.00	2072.00
V (PPM)	ND	22.00	22.00	30.00	41.00	21.00	47.00	7.00	75.00	76.00
Y (PPM)	ND	4.00	3.00	5.00	12.00	19.00	7.00	53.00	9.00	11.00
ZN (PPM)	ND	7.00	5.00	10.00	12.00	40.00	35.00	110.00	46.00	40.00
ZR (PPM)	ND	34.00	59.00	45.00	81.00	120.00	91.00	217.00	34.00	108.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157890	157892	157895	157896	158392	158393	158394	158395	158396	158397
ELEVATION	8520.00	8520.00	8520.00	8520.00	9130.00	7760.00	9295.00	9000.00	8650.00	8650.00
FORMATION	MG	MG	MG	MG	DG	DG	PL	MI	PL	PL
LITHOLOGY	QZ	QZ	QZ	DC	CQZ	QPC	TF	AM	SC	QFGN
UL (PPH)	.41	6.20	1.95	35.93	2.26	16.10	5.80	2.53	6.33	1.30
UT (PPH)	.50	5.70	1.90	38.20	1.91	17.10	5.26	2.96	6.23	1.25
UL/UT	.82	1.09	1.03	.94	1.18	.94	1.10	.85	1.02	1.04
TH (PPH)	5.00	-2.00	2.00	77.00	11.00	142.00	13.00	11.00	4.00	16.00
TH/UT	10.00	ND	1.05	2.02	5.76	8.30	2.47	3.72	.64	12.80
AU (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.27	2.15	4.77	4.41	8.42	2.14	6.36	7.13	8.35	4.12
CA (%)	.18	-.05	.49	-.05	4.00	-.05	.38	4.87	3.04	-.05
FE (%)	1.50	.30	.95	3.67	9.05	.19	6.37	8.67	11.14	.24
MG (%)	.66	.08	.27	.34	2.11	.07	1.37	2.40	3.12	.16
NA (%)	3.28	.07	3.32	.26	4.11	-.05	3.00	2.01	2.49	.69
K (%)	.52	1.77	.93	1.72	.14	1.36	.36	.28	.29	2.65
AG (PPH)	-2.00	-2.00	2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00
B (PPH)	-10.00	35.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPH)	126.00	219.00	340.00	343.00	43.00	464.00	196.00	423.00	255.00	487.00
BE (PPH)	2.00	1.00	2.00	5.00	1.00	1.00	1.00	1.00	1.00	-1.00
CE (PPH)	-10.00	-10.00	13.00	37.00	32.00	81.00	49.00	24.00	-10.00	17.00
CO (PPH)	6.00	-4.00	4.00	14.00	41.00	-4.00	11.00	45.00	49.00	-4.00
CR (PPH)	9.00	4.00	9.00	119.00	46.00	19.00	2.00	21.00	124.00	18.00
CU (PPH)	5.00	4.00	7.00	38.00	78.00	2.00	-2.00	31.00	69.00	7.00
HF (PPH)	ND	ND	ND	ND	59.00	108.00	24.00	43.00	24.00	20.00
LA (PPH)	ND	ND	ND	ND	-15.00	-15.00	-15.00	-15.00	17.00	-15.00
LI (PPH)	7.00	3.00	6.00	10.00	12.00	3.00	18.00	40.00	21.00	5.00
MN (PPH)	87.00	24.00	100.00	225.00	1484.00	5.00	517.00	1356.00	1169.00	9.00
MO (PPH)	-4.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	-4.00	-4.00
NR (PPH)	-4.00	-4.00	-4.00	8.00	-4.00	10.00	4.00	-4.00	-4.00	-4.00
NI (PPH)	14.00	2.00	5.00	9.00	64.00	-2.00	4.00	60.00	124.00	7.00
P (PPH)	291.00	54.00	257.00	350.00	1237.00	101.00	982.00	393.00	528.00	80.00
PB (PPH)	ND	ND	ND	ND	-10.00	41.00	-10.00	-10.00	-10.00	-10.00
PT (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPH)	2.00	-1.00	1.00	11.00	30.00	1.00	7.00	27.00	36.00	2.00
SI (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPH)	98.00	6.00	212.00	30.00	258.00	29.00	90.00	138.00	172.00	26.00
SR (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPH)	431.00	210.00	1132.00	2545.00	8964.00	596.00	4015.00	3761.00	6245.00	738.00
V (PPH)	26.00	4.00	21.00	95.00	260.00	10.00	12.00	217.00	333.00	17.00
Y (PPH)	2.00	-1.00	2.00	15.00	25.00	6.00	19.00	10.00	22.00	2.00
ZN (PPH)	23.00	14.00	20.00	24.00	74.00	3.00	29.00	111.00	71.00	5.00
ZR (PPH)	35.00	26.00	34.00	221.00	138.00	348.00	198.00	44.00	15.00	49.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	158398	158399	158400	158401	158402	158403	158404	158405	158406	158407
ELEVATION	8400.00	9030.00	8990.00	8930.00	9300.00	8830.00	9190.00	8240.00	9172.00	8480.00
FORMATION	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL
LITHOLOGY	FQ	ULM	TF	PAC	VL	QPC	BA	HGN	IF	ER
UL (PPM)	1.70	2.68	2.12	.38	2.82	20.28	2.21	3.95	19.44	.64
UT (PPM)	2.19	1.41	1.29	.61	2.99	18.40	1.94	3.89	21.00	.61
UL/UT	.78	1.90	1.64	.62	.94	1.10	1.14	1.02	.93	1.05
TH (PPM)	3.00	3.00	5.00	3.00	8.00	57.00	9.00	16.00	10.00	3.00
TH/UT	1.37	2.13	3.88	4.93	2.68	3.10	4.64	4.11	.48	4.93
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.36	2.93	6.92	6.57	6.67	3.65	7.18	5.78	.85	1.84
CA (%)	1.10	1.78	-.05	.34	4.04	.05	2.72	3.76	.05	-.05
FE (%)	1.01	8.70	2.92	.98	.50	1.20	8.57	9.42	49.93	.45
MG (%)	.16	4.86	1.08	.17	.09	.11	2.53	1.41	.05	.11
NA (%)	2.43	.19	.12	2.85	5.00	.27	.92	1.41	-.05	-.05
K (%)	1.03	.34	2.41	.77	.04	.96	1.02	.59	.08	.77
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	3.00
B (PPM)	-10.00	-10.00	15.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1536.00	45.00	664.00	98.00	34.00	205.00	376.00	298.00	71.00	304.00
BE (PPM)	1.00	-1.00	1.00	1.00	1.00	-1.00	2.00	2.00	3.00	-1.00
CE (PPM)	32.00	-10.00	-10.00	-10.00	93.00	100.00	19.00	30.00	-10.00	-10.00
CO (PPM)	5.00	107.00	6.00	11.00	-4.00	18.00	37.00	39.00	11.00	-4.00
CR (PPM)	36.00	2695.00	29.00	19.00	3.00	102.00	16.00	-1.00	607.00	25.00
CU (PPM)	9.00	27.00	71.00	12.00	2.00	33.00	55.00	5.00	664.00	20.00
HF (PPM)	42.00	11.00	7.00	8.00	128.00	150.00	33.00	51.00	-2.00	2.00
LA (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LI (PPM)	4.00	8.00	19.00	5.00	3.00	11.00	42.00	17.00	6.00	5.00
MN (PPM)	168.00	1158.00	169.00	97.00	430.00	65.00	927.00	974.00	449.00	12.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	11.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	17.00	1453.00	10.00	29.00	2.00	34.00	52.00	24.00	59.00	4.00
P (PPM)	212.00	137.00	173.00	200.00	824.00	310.00	495.00	610.00	1049.00	20.00
PB (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	109.00	66.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	15.00	3.00	2.00	8.00	4.00	21.00	27.00	16.00	8.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	46.00	30.00	26.00	146.00	146.00	57.00	93.00	149.00	14.00	2.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	462.00	2055.00	719.00	147.00	3790.00	589.00	5567.00	6299.00	191.00	475.00
V (PPM)	26.00	107.00	16.00	7.00	8.00	33.00	179.00	246.00	1412.00	58.00
Y (PPM)	5.00	6.00	2.00	2.00	35.00	13.00	18.00	29.00	8.00	1.00
ZN (PPM)	17.00	84.00	167.00	24.00	5.00	9.00	145.00	125.00	188.00	62.00
ZR (PPM)	115.00	16.00	40.00	38.00	283.00	202.00	30.00	52.00	12.00	31.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159913	159914	159915	159916	159917	159918	159919	159920	159921	159922
ELEVATION	8720.00	8495.00	8410.00	9090.00	9230.00	9235.00	9160.00	8840.00	9470.00	9120.00
FORMATION	MG	MG	MG	PL	PL	PL	PL	MG	MG	VF
LITHOLOGY	C	C	C	AM	GW	VL	GW	C	C	SC
UL (PPM)	2.50	1.80	.50	.90	1.90	.40	.20	.70	3.80	6.30
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	6.80	275.00	178.00	31.00	11.00	11.00	.80	17.00	58.00	29.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	.25	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	ND	2.00	1.00	1.00	.15	.07	ND	5.00
FE (%)	.70	1.50	2.00	10.00	1.50	3.00	1.50	2.00	.70	7.00
MG (%)	.15	.10	.20	3.00	.70	1.00	.50	.50	.20	3.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	2.00	ND	2.00	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	10.00	ND	10.00	ND	ND
BA (PPM)	200.00	200.00	500.00	ND	70.00	70.00	100.00	700.00	300.00	20.00
BE (PPM)	1.00	1.50	1.50	ND	ND	ND	ND	1.50	2.00	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	10.00	30.00	15.00	7.00	20.00	15.00	ND	70.00
CR (PPM)	20.00	70.00	70.00	300.00	70.00	30.00	2000.00	100.00	50.00	150.00
CU (PPM)	15.00	20.00	500.00	70.00	150.00	10.00	30.00	50.00	15.00	150.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	30.00	30.00	50.00	1000.00	300.00	500.00	150.00	300.00	100.00	1500.00
MO (PPM)	ND	5.00	10.00	ND	ND	ND	ND	10.00	ND	ND
NB (PPM)	ND	30.00	20.00	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	5.00	ND	10.00	100.00	30.00	20.00	150.00	20.00	5.00	100.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	70.00	100.00	700.00	10.00	15.00	10.00	ND	70.00	50.00	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	7.00	30.00	5.00	7.00	20.00	15.00	ND	50.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	200.00	100.00	100.00	ND	ND	ND	150.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.20	.20	.70	.20	.30	.30	.30	.20	.70
V (PPM)	30.00	20.00	30.00	200.00	50.00	50.00	100.00	70.00	20.00	200.00
Y (PPM)	30.00	70.00	20.00	30.00	10.00	15.00	ND	30.00	30.00	30.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	500.00	200.00	70.00	200.00	200.00	50.00	200.00	200.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159923	159924	159925	159926	159927	159928	159930	159931	159932	159933
ELEVATION	8435.00	8435.00	9280.00	9390.00	9370.00	9300.00	9440.00	9550.00	9310.00	9660.00
FORMATION	PL	CQ	PL	PL	PL	PL	PL	PL	MI	MG
LITHOLOGY	QZ	QZ	QZ	AN	SC	VL	BR	QZ	AM	C
UL (PPM)	ND	.90	.60	1.90	.40	.60	2.10	.70	1.20	3.10
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	NU	ND	ND
TH (PPM)	ND	4.00	12.00	16.00	18.00	16.00	1.30	2.50	14.00	485.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	.50	.70	3.00	2.00	.05	ND	5.00	.05
FE (%)	ND	.70	1.50	3.00	10.00	3.00	10.00	.70	7.00	3.00
MG (%)	ND	.07	.30	.30	1.00	.70	.05	.20	3.00	.15
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	2.00	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	10.00	ND	ND	ND
BA (PPM)	ND	100.00	1000.00	1000.00	20.00	500.00	70.00	700.00	200.00	500.00
BE (PPM)	ND	ND	1.50	1.00	ND	ND	1.00	2.00	ND	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	10.00	7.00	10.00	50.00	10.00	10.00	ND	70.00	15.00
CR (PPM)	ND	30.00	70.00	30.00	150.00	100.00	ND	30.00	150.00	150.00
CU (PPM)	ND	15.00	10.00	30.00	100.00	10.00	70.00	ND	30.00	150.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	ND	70.00	200.00	500.00	2000.00	700.00	300.00	50.00	1000.00	150.00
MO (PPM)	ND	ND	ND	5.00	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	NU	NU	NU	ND	ND	30.00
NI (PPM)	ND	30.00	30.00	30.00	100.00	30.00	70.00	10.00	100.00	70.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	20.00	50.00	10.00	15.00	30.00	15.00	10.00	10.00	200.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	7.00	15.00	15.00	15.00	ND	ND	30.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	150.00	ND	ND	200.00	ND	ND	300.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	ND	.07	.20	.30	.20	.50	.01	.10	.50	5.00
V (PPM)	ND	20.00	30.00	70.00	70.00	70.00	50.00	15.00	150.00	30.00
Y (PPM)	ND	20.00	20.00	20.00	20.00	30.00	30.00	ND	30.00	150.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	ND	200.00	500.00	200.00	200.00	200.00	ND	200.00	70.00	1000.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159934	159935	159936	159937	159938	159939	159940	159941	159942	159943
ELEVATION	9715.00	9780.00	9710.00	9600.00	9660.00	9720.00	9270.00	9585.00	9100.00	9340.00
FORMATION	MG	CL	MG	PL	PL	PL	CQ	CQ	MI	MG
LITHOLOGY	C	C	BA	BA	C	TF	QZ	QZ	AM	SS
UL (PPM)	1.90	8.90	12.70	6.60	.10	.40	8.50	.70	.50	.50
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	315.00	20.00	34.00	26.00	6.80	37.00	20.00	3.50	16.00	2.50
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	.50	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	ND	2.00	.07	3.00	.05	ND	2.00	10.00
FE (%)	3.00	1.50	.70	7.00	1.00	7.00	1.00	.50	7.00	2.00
MG (%)	.20	.30	.20	.70	.20	1.50	.10	.15	2.00	1.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	ND	ND	ND	ND	ND	ND	ND	15.00	ND
BA (PPM)	500.00	500.00	500.00	1500.00	300.00	200.00	70.00	70.00	100.00	300.00
BE (PPM)	2.00	1.50	2.00	ND	1.00	ND	ND	ND	ND	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	20.00	10.00	5.00	30.00	7.00	20.00	15.00	7.00	50.00	7.00
CR (PPM)	150.00	70.00	30.00	ND	30.00	100.00	70.00	30.00	500.00	150.00
CU (PPM)	150.00	15.00	10.00	150.00	10.00	100.00	15.00	10.00	150.00	7.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	100.00	300.00	70.00	700.00	70.00	1500.00	150.00	150.00	1000.00	300.00
MO (PPM)	7.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
NR (PPM)	30.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	70.00	50.00	10.00	15.00	10.00	30.00	30.00	15.00	100.00	30.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	150.00	100.00	30.00	20.00	10.00	10.00	15.00	10.00	10.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	5.00	ND	30.00	5.00	70.00	ND	ND	50.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	500.00	ND	300.00	ND	ND	ND	300.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.50	.15	.07	.70	.15	.70	.15	.07	.50	.20
V (PPM)	50.00	50.00	15.00	200.00	30.00	200.00	50.00	20.00	200.00	50.00
Y (PPM)	100.00	15.00	20.00	30.00	10.00	50.00	20.00	10.00	20.00	30.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	700.00	100.00	200.00	200.00	300.00	200.00	300.00	150.00	70.00	200.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159944	159945	159946	159947	159948	159949	159950	159951	159952	159953
ELEVATION	9130.00	9470.00	9440.00	9390.00	8840.00	9420.00	9220.00	9630.00	9680.00	9590.00
FORMATION	MG	MG	MG	MG	PL	MG	VF	PL	PL	PL
LITHOLOGY	C	QZ	C	AM	TF	QZ	QZ	QZ	TF	QZ
UL (PPM)	3.00	.70	.20	3.00	2.00	9.10	1.90	8.20	.50	.40
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	NU	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	8.30	13.00	27.00	66.00	23.00	5.50	11.00	67.00	12.00	8.00
TH/UT	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	NT	NT	NT	ND
CA (%)	.07	.07	.07	.05	5.00	.05	ND	.70	3.00	1.00
FE (%)	.70	2.00	1.50	2.00	10.00	1.00	3.00	3.00	7.00	7.00
MG (%)	.15	.50	.50	.50	.20	.20	1.00	1.00	2.00	.70
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	10.00	ND	ND	15.00	10.00	15.00	10.00
BA (PPM)	500.00	500.00	700.00	700.00	150.00	700.00	500.00	700.00	300.00	700.00
BE (PPM)	1.50	1.50	2.00	3.00	ND	2.00	1.50	1.50	ND	1.50
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	10.00	7.00	5.00	7.00	50.00	ND	5.00	20.00	50.00	20.00
CR (PPM)	30.00	30.00	70.00	700.00	150.00	50.00	300.00	500.00	200.00	10.00
CU (PPM)	15.00	20.00	15.00	20.00	150.00	ND	50.00	70.00	100.00	30.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	100.00	200.00	70.00	70.00	1500.00	30.00	300.00	300.00	1000.00	700.00
MO (PPM)	ND	7.00	5.00	5.00	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	20.00	30.00	10.00	30.00	70.00	10.00	30.00	150.00	150.00	20.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	20.00	30.00	30.00	70.00	ND	20.00	30.00	30.00	15.00	15.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	5.00	7.00	20.00	30.00	5.00	20.00	20.00	30.00	15.00
SI (PPM)	NT	ND	ND	ND	ND	ND	ND	NU	ND	ND
SN (PPM)	ND	ND	ND	ND	150.00	ND	ND	200.00	300.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.15	.20	.70	.50	.10	.50	.50	.30	.50
V (PPM)	30.00	50.00	50.00	70.00	200.00	30.00	100.00	100.00	150.00	150.00
Y (PPM)	ND	ND	30.00	70.00	30.00	ND	20.00	50.00	20.00	30.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	70.00	200.00	700.00	50.00	200.00	100.00	300.00	70.00	300.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159954	159955	159956	159957	159958	159959	159960	159961	159962	159963
ELEVATION	9530.00	9480.00	8780.00	9170.00	9340.00	9090.00	8630.00	9720.00	9350.00	9020.00
FORMATION	PL	MG	PL	MG	MG	MG	MG	MG	CQ	MG
LITHOLOGY	BA	QZ	QZ	C	C	QZ	C	QZ	QZ	QZ
UL (PPM)	.30	10.50	8.20	13.90	8.00	1.70	.90	2.10	2.80	13.60
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	12.00	6.30	7.80	16.00	6.00	5.00	6.30	13.00	3.30	4.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	3.00	.10	.15	.50	.05	ND	.10	6.00	ND	.15
FC (%)	7.00	2.00	3.00	5.00	2.00	.30	2.00	.70	2.00	3.00
MG (%)	3.00	.30	.50	1.00	.30	.15	.70	.15	.30	2.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	ND	ND	10.00	ND	ND	10.00	ND	10.00	2000.00
BA (PPM)	100.00	500.00	500.00	500.00	500.00	300.00	200.00	500.00	500.00	200.00
BE (PPM)	ND	1.50	1.50	1.50	1.00	1.00	1.00	2.00	2.00	2.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	50.00	70.00	10.00	20.00	5.00	ND	5.00	10.00	5.00	7.00
CR (PPM)	300.00	5.00	100.00	100.00	50.00	30.00	20.00	20.00	200.00	150.00
CU (PPM)	50.00	20.00	50.00	150.00	10.00	ND	10.00	15.00	50.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1500.00	300.00	200.00	1000.00	300.00	30.00	300.00	70.00	70.00	500.00
MO (PPM)	ND	ND	5.00	ND	ND	ND	5.00	ND	15.00	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	70.00	20.00	30.00	30.00	10.00	ND	10.00	20.00	50.00	70.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	50.00	20.00	30.00	50.00	10.00	15.00	50.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	5.00	10.00	20.00	5.00	ND	10.00	ND	10.00	20.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	300.00	ND	ND	100.00	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.50	.15	.20	.30	.15	.15	.15	.10	.20	.30
V (PPM)	200.00	50.00	70.00	100.00	50.00	20.00	70.00	20.00	50.00	70.00
Y (PPM)	30.00	10.00	20.00	50.00	ND	ND	ND	10.00	ND	30.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	100.00	150.00	200.00	200.00	200.00	100.00	150.00	100.00	300.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159964	159965	159966	159967	159968	159969	159970	159971	159972	159973
ELEVATION	9360.00	9190.00	9040.00	8835.00	9480.00	9430.00	9300.00	8860.00	9100.00	9320.00
FORMATION	VF	VF	MG	PL	MI	MI	MI	MI	PL	PL
LITHOLOGY	QZ	MB	C	GN	GB	GB	NO	TF	QZ	BA
UL (PPM)	1.30	.70	23.70	3.70	.90	.30	.30	.30	2.50	1.80
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	NU	ND	ND	ND	ND
TH (PPM)	13.00	4.00	15.00	11.00	7.00	8.00	3.80	3.80	4.50	11.00
TH/UT	ND	ND	ND	ND	NU	ND	ND	ND	ND	ND
AU (PPM)	ND	.35	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.15	15.00	.15	2.00	2.00	5.00	7.00	5.00	.07	3.00
FE (%)	3.00	1.50	3.00	5.00	7.00	7.00	5.00	7.00	1.00	5.00
MG (%)	.50	.70	.50	1.50	7.00	5.00	5.00	7.00	.20	2.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	10.00	10.00	ND	ND	ND	ND	10.00	ND	ND
BA (PPM)	500.00	500.00	300.00	50.00	70.00	70.00	50.00	20.00	300.00	500.00
BE (PPM)	1.00	ND	1.00	ND	ND	ND	ND	ND	1.00	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	15.00	7.00	7.00	70.00	70.00	70.00	50.00	70.00	1.50	20.00
CR (PPM)	30.00	70.00	100.00	30.00	3000.00	2000.00	2000.00	3000.00	30.00	300.00
CU (PPM)	70.00	10.00	100.00	70.00	50.00	50.00	70.00	10.00	20.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MM (PPM)	300.00	300.00	200.00	1000.00	1000.00	1000.00	1000.00	1000.00	500.00	1000.00
MO (PPM)	7.00	ND	15.00	ND	ND	ND	ND	ND	ND	7.00
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	30.00	30.00	20.00	70.00	700.00	200.00	200.00	300.00	20.00	70.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	20.00	15.00	70.00	15.00	ND	ND	NU	NU	10.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	10.00	10.00	30.00	30.00	30.00	30.00	50.00	5.00	30.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	200.00	ND	150.00	ND	150.00	150.00	ND	ND	150.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.15	.50	.50	.15	.20	.20	.20	.15	.50
V (PPM)	50.00	30.00	70.00	150.00	100.00	150.00	150.00	150.00	30.00	150.00
Y (PPM)	15.00	20.00	30.00	30.00	ND	10.00	10.00	10.00	10.00	30.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	150.00	300.00	200.00	20.00	30.00	30.00	20.00	300.00	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159974	159975	159976	159977	159978	159979	159980	159982	159983	159984
ELEVATION	9710.00	9090.00	9620.00	9490.00	9320.00	9310.00	10070.00	10080.00	9642.00	9030.00
FORMATION	MI	LQ	PL	VF	VF	VF	MG	PL	MG	MI
LITHOLOGY	GB	QZ	GB	QZ	QZ	QZ	QZ	BA	QZ	TF
UL (PPM)	.40	2.80	.40	1.40	ND	25.40	.70	.40	2.70	.40
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	7.00	4.80	18.00	7.00	ND	24.30	5.30	26.00	14.00	17.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	.80	ND	ND	ND	.25	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	5.00	.05	5.00	ND	ND	.07	.70	.70	.10	5.00
FE (%)	5.00	1.50	7.00	1.50	ND	2.00	3.00	7.00	1.50	7.00
MG (%)	2.00	.70	2.00	.20	ND	.30	1.50	2.00	.30	3.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	10.00	ND	10.00	ND	10.00	ND	ND	100.00	ND
BA (PPM)	70.00	700.00	70.00	200.00	ND	300.00	70.00	50.00	500.00	70.00
BE (PPM)	ND	3.00	ND	ND	ND	1.00	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	20.00	5.00	30.00	7.00	ND	15.00	7.00	50.00	7.00	30.00
CR (PPM)	150.00	100.00	200.00	50.00	ND	500.00	20.00	300.00	100.00	150.00
CU (PPM)	70.00	15.00	30.00	20.00	ND	100.00	ND	70.00	10.00	100.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	100.00	1000.00	100.00	ND	150.00	500.00	1500.00	500.00	1500.00
MO (PPM)	ND	5.00	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	100.00	15.00	100.00	30.00	ND	150.00	20.00	100.00	30.00	70.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	15.00	30.00	30.00	200.00	ND	15.00	20.00	20.00	20.00	15.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	7.00	30.00	7.00	ND	10.00	7.00	20.00	5.00	30.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	300.00	ND	300.00	ND	ND	ND	300.00	150.00	ND	200.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.30	.30	.50	.20	ND	.50	.30	.70	.50	.50
V (PPM)	150.00	70.00	200.00	50.00	ND	70.00	30.00	200.00	50.00	200.00
Y (PPM)	20.00	20.00	30.00	ND	ND	150.00	10.00	30.00	30.00	30.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	30.00	300.00	100.00	150.00	ND	1000.00	150.00	70.00	300.00	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159985	159986	159987	159988	159989	159990	159991	159992	159993	159994
ELEVATION	9150.00	9540.00	9070.00	8950.00	8850.00	9010.00	9230.00	9430.00	9370.00	7880.00
FORMATION	PL	MG	MG	PL	PL	MG	MG	MG	MG	AGN
LITHOLOGY	GN	QZ	QZ	QZ	QZ	QZ	QZ	QZ	C	GN
UL (PPM)	1.00	23.70	2.50	8.70	5.60	44.10	4.90	71.30	122.00	1.30
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	NU	ND
TH (PPM)	28.00	630.00	16.00	2.00	6.30	14.00	1.00	1.80	110.00	1.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	2.00	.05	ND	.07	1.00	.07	.10	.07	.05	.50
FE (%)	7.00	1.50	.70	1.50	2.00	2.00	15.00	1.00	2.00	1.50
MG (%)	2.00	.20	.15	.30	.50	.30	.30	.30	.50	.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	.50	ND	ND	.70	ND
B (PPM)	15.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
BA (PPM)	100.00	500.00	300.00	700.00	700.00	700.00	700.00	700.00	500.00	500.00
BE (PPM)	ND	1.50	2.00	1.00	1.50	1.00	1.50	1.50	1.00	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	50.00	15.00	ND	ND	10.00	7.00	5.00	ND	ND	ND
CR (PPM)	500.00	100.00	30.00	70.00	50.00	70.00	70.00	30.00	50.00	ND
CU (PPM)	7.00	150.00	ND	15.00	7.00	20.00	15.00	10.00	20.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	700.00	200.00	300.00	500.00	300.00	300.00	200.00	200.00	300.00
MO (PPM)	ND	ND	ND	30.00	ND	ND	7.00	ND	20.00	ND
NB (PPM)	ND	70.00	ND	ND	ND	ND	ND	ND	ND	20.00
NI (PPM)	150.00	30.00	15.00	10.00	30.00	15.00	15.00	10.00	10.00	7.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	15.00	150.00	30.00	70.00	70.00	100.00	50.00	70.00	500.00	30.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	20.00	5.00	5.00	10.00	15.00	10.00	10.00	7.00	10.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	300.00	ND	ND	ND	300.00	ND	ND	ND	ND	150.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.70	.30	.10	.20	.30	.20	.20	.15	.20	.15
V (PPM)	150.00	50.00	15.00	50.00	70.00	50.00	50.00	30.00	70.00	15.00
Y (PPM)	20.00	100.00	ND	20.00	20.00	30.00	10.00	15.00	70.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	200.00	500.00	70.00	70.00	150.00	150.00	150.00	150.00	200.00	100.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	159995	159996	159997	159998	159999	160000	160002	160003	160004	160005
ELEVATION	8460.00	8360.00	7925.00	7820.00	8710.00	9180.00	9268.00	8760.00	8845.00	8960.00
FORMATION	MI	PL	MI	AGN	PL	MG	MG	PL	PL	PL
LITHOLOGY	ULH	QZ	VL	GB	VL	C	C	MB	VL	QZ
UL (PPM)	.40	22.70	7.40	.90	.40	2.00	12.90	170.00	3.20	.20
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	15.00	5.30	11.00	11.00	84.00	328.00	16.00	13.00	11.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	.10	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	3.00	.10	5.00	5.00	5.00	ND	ND	5.00	2.00	.05
FE (%)	5.00	1.50	5.00	3.00	7.00	1.50	3.00	3.00	5.00	2.00
MG (%)	3.00	.50	3.00	2.00	1.50	.20	.30	1.50	1.50	.20
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	2.00	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	10.00	ND	20.00	30.00
BA (PPM)	50.00	300.00	70.00	200.00	70.00	500.00	500.00	1500.00	300.00	700.00
BE (PPM)	ND	ND	ND	ND	ND	1.50	1.50	ND	ND	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	50.00	7.00	50.00	20.00	50.00	5.00	7.00	20.00	20.00	5.00
CR (PPM)	2000.00	100.00	1000.00	100.00	200.00	70.00	50.00	700.00	300.00	20.00
CU (PPM)	5.00	5.00	50.00	50.00	150.00	15.00	150.00	70.00	15.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	150.00	1000.00	700.00	1000.00	100.00	150.00	700.00	700.00	200.00
MO (PPM)	ND	10.00	ND	ND	ND	ND	5.00	ND	ND	ND
ND (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	500.00	15.00	150.00	30.00	70.00	7.00	10.00	70.00	70.00	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	20.00	ND	10.00	20.00	70.00	1000.00	30.00	15.00	15.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	10.00	50.00	30.00	30.00	7.00	10.00	20.00	30.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	100.00	300.00	300.00	ND	100.00	300.00	200.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.20	.30	.30	.50	.20	.20	.30	.50	.20
V (PPM)	100.00	50.00	150.00	100.00	150.00	50.00	50.00	100.00	100.00	30.00
Y (PPM)	10.00	10.00	15.00	20.00	30.00	20.00	100.00	30.00	20.00	15.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	20.00	500.00	50.00	70.00	100.00	150.00	200.00	200.00	200.00	200.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160006	160007	160008	160009	160010	160011	160012	160013	160014	160015
ELEVATION	9130.00	8550.00	8500.00	8650.00	9310.00	9330.00	9350.00	10800.00	10000.00	10230.00
FORMATION	PL	PL	PL	PL	VF	VF	VF	VF	MI	CQ
LITHOLOGY	QZ	QZ	APC	C	LS	LS	MB	QZ	DB	C
UL (PPM)	1.10	29.00	16.00	32.20	23.70	2.30	2.00	2.09	.64	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	NU	ND	ND
TH (PPM)	14.00	11.00	44.00	42.00	5.80	17.00	5.30	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	NU	ND	ND	ND	ND
AU (PPM)	ND	ND	NU	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.05	.05	.05	.07	7.00	10.00	10.00	.10	7.00	.05
FE (%)	5.00	5.00	3.00	3.00	3.00	3.00	2.00	10.00	10.00	.70
MG (%)	.15	.15	.30	.30	1.00	1.00	1.00	1.00	3.00	.10
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	10.00	ND	ND	ND	ND	ND	50.00	70.00	ND
BA (PPM)	100.00	200.00	500.00	700.00	500.00	1000.00	30.00	150.00	200.00	150.00
BE (PPM)	1.00	1.00	1.50	ND	1.00	1.50	1.00	1.50	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	15.00	20.00	10.00	15.00	7.00	7.00	10.00	20.00	70.00	5.00
CR (PPM)	100.00	150.00	200.00	300.00	100.00	70.00	70.00	200.00	300.00	70.00
CU (PPM)	20.00	50.00	70.00	70.00	5.00	5.00	20.00	70.00	100.00	50.00
HF (PPM)	NU	ND	ND	ND	ND	ND	ND	NT	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	150.00	300.00	150.00	200.00	300.00	1000.00	700.00	150.00	2000.00	30.00
MO (PPM)	ND	ND	ND	5.00	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	70.00	70.00	20.00	70.00	30.00	30.00	30.00	70.00	150.00	10.00
P (PPM)	ND	ND	NU	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	30.00	20.00	30.00	30.00	20.00	30.00	20.00	ND	ND	30.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	15.00	30.00	20.00	15.00	15.00	10.00	15.00	30.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	NU	ND	ND	300.00	ND	ND	ND	100.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.20	.50	.50	.20	.20	.15	.50	1.00	.10
V (PPM)	70.00	70.00	150.00	150.00	70.00	70.00	50.00	300.00	500.00	20.00
Y (PPM)	20.00	30.00	30.00	30.00	30.00	50.00	30.00	15.00	20.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	200.00	200.00	200.00	200.00	200.00	150.00	70.00	20.00	200.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160016	160017	160018	160019	160020	160021	160022	160023	160024	160025
ELEVATION	10090.00	10195.00	10245.00	10400.00	9500.00	10760.00	10780.00	10750.00	9810.00	10850.00
FORMATION	VF	VF	VF	CQ	RK	HDD	HDD	HD	PL	RK
LITHOLOGY	QZ	C	MB	C	C	C	C	PL	BA	PAC
UL (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.98
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	-.02
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	1.50	1.00	10.00	.30	.10	.20	.15	.30	1.00	ND
FE (%)	0.00	7.00	3.00	10.00	2.00	1.50	3.00	5.00	7.00	2.00
MG (%)	2.00	2.00	3.00	3.00	1.00	7.00	2.00	2.00	2.00	.70
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	20.00	15.00	ND	100.00	30.00	20.00	10.00	15.00	50.00	50.00
BA (PPM)	300.00	1000.00	500.00	200.00	300.00	300.00	300.00	500.00	500.00	300.00
BE (PPM)	1.00	2.00	2.00	1.50	2.00	2.00	1.50	2.00	1.00	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	50.00	30.00	30.00	50.00	ND	10.00	20.00	30.00	30.00	ND
CR (PPM)	150.00	200.00	150.00	200.00	70.00	100.00	100.00	300.00	500.00	150.00
CU (PPM)	ND	300.00	7.00	15.00	ND	10.00	5.00	ND	70.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	700.00	500.00	1500.00	300.00	100.00	30.00	300.00	700.00	700.00	150.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	50.00	50.00	50.00	100.00	5.00	15.00	70.00	100.00	100.00	20.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	10.00	ND	10.00	ND	ND	ND	ND	10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	15.00	15.00	15.00	15.00	7.00	10.00	10.00	15.00	20.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	150.00	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.20	.30	.20	.20	.20	.20	.20	.30	.30	.20
V (PPM)	150.00	150.00	150.00	150.00	100.00	150.00	150.00	200.00	200.00	100.00
Y (PPM)	20.00	30.00	30.00	30.00	10.00	30.00	15.00	20.00	15.00	10.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	150.00	200.00	200.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160026	160027	160028	160029	160030	160031	160032	160033	160034	160035
ELEVATION	10950.00	10970.00	10915.00	10760.00	10510.00	10580.00	10810.00	10800.00	10790.00	10840.00
FORMATION	CQ	CQ	CL	VF	VF	VF	RK	RK	RK	HD
LITHOLOGY	C	C	QZ	QZ	C	MB	C	QZ	QZ	DC
UL (PPM)	.62	1.56	.51	1.92	1.32	4.67	1.14	1.57	.71	1.75
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	-5.00	-5.00	ND	ND	ND	ND	-5.00	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	-.02	-.08	ND	ND	ND	ND	-.02	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	.05	.07	1.50	.50	1.00	5.00	1.00	1.00	5.00
FE (%)	.50	1.50	2.00	3.00	10.00	7.00	10.00	5.00	3.00	2.00
MG (%)	.10	.20	.70	2.00	3.00	3.00	3.00	.70	.50	.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	10.00	50.00	150.00	100.00	ND	ND	10.00	ND	ND
BA (PPM)	150.00	300.00	300.00	300.00	200.00	500.00	300.00	300.00	200.00	200.00
BE (PPM)	ND	ND	1.50	1.50	ND	1.50	ND	2.00	1.00	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	5.00	10.00	7.00	7.00	30.00	20.00	20.00	5.00	5.00	ND
CR (PPM)	10.00	150.00	100.00	100.00	150.00	100.00	70.00	50.00	50.00	30.00
CU (PPM)	5.00	50.00	5.00	70.00	ND	70.00	ND	ND	10.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	20.00	70.00	200.00	1000.00	500.00	1000.00	2000.00	70.00	200.00	1000.00
MO (PPM)	ND	ND	ND	ND	15.00	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	15.00	20.00	20.00	70.00	150.00	100.00	100.00	20.00	30.00	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	5.00	5.00	7.00	15.00	10.00	15.00	7.00	5.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	200.00	150.00	ND	ND	200.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.20	.30	.30	.50	.30	.30	.20	.20	.20
V (PPM)	10.00	50.00	70.00	100.00	150.00	100.00	100.00	70.00	50.00	70.00
Y (PPM)	10.00	ND	ND	10.00	20.00	20.00	15.00	ND	10.00	15.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	50.00	300.00	70.00	200.00	200.00	200.00	200.00	70.00	30.00	50.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160036	160037	160038	160039	160040	160041	160042	160043	160044	160045
ELEVATION	10790.00	10450.00	10780.00	10780.00	10925.00	10290.00	10380.00	10560.00	10470.00	10420.00
FORMATION	HD	MI	VF	VF	CL	MG	MC	MQ	MG	MG
LITHOLOGY	QZ	AM	DC	MB	DC	QPC	QPC	QPC	C	C
UL (PPM)	.80	.80	1.83	1.75	3.04	3.21	1.72	3.29	2.86	6.30
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	ND	-5.00	-5.00	-5.00	60.00	70.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	-.02	-.02	-.02	-.02	-.08
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.07	1.50	.10	15.00	.10	ND	.07	.07	ND	ND
FE (%)	2.00	10.00	5.00	10.00	3.00	1.50	10.00	10.00	3.00	10.00
MG (%)	.50	3.00	.70	7.00	.30	.50	.50	.50	.50	.30
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	70.00	ND	100.00	ND	20.00	ND	20.00	50.00	50.00
BA (PPM)	150.00	150.00	150.00	100.00	70.00	200.00	200.00	100.00	200.00	200.00
BE (PPM)	ND	ND	ND	ND	ND	1.50	1.50	1.00	1.00	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	20.00	7.00	5.00	ND	ND	30.00	20.00	20.00	20.00
CR (PPM)	30.00	50.00	50.00	50.00	30.00	30.00	70.00	200.00	500.00	200.00
CU (PPM)	ND	500.00	15.00	ND	100.00	ND	100.00	100.00	30.00	70.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	100.00	1000.00	300.00	5000.00	70.00	100.00	300.00	200.00	70.00	100.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	30.00	50.00	50.00	30.00	15.00	ND	50.00	50.00	30.00	30.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	20.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	30.00	5.00	5.00	ND	7.00	30.00	10.00	ND	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	300.00	ND	ND	ND	ND	ND	100.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.20	.30	.20	.15	.20	.20	1.00	.30	.30	.30
V (PPM)	50.00	500.00	70.00	30.00	30.00	70.00	700.00	150.00	50.00	150.00
Y (PPM)	ND	30.00	10.00	20.00	10.00	ND	20.00	20.00	10.00	10.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	30.00	100.00	50.00	100.00	50.00	200.00	200.00	200.00	200.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160046	160047	160048	160049	160050	160052	160053	160054	160055	160056
ELEVATION	10435.00	10485.00	10490.00	10595.00	10530.00	10105.00	10330.00	10330.00	10430.00	10500.00
FORMATION	MG	MG	MG	MG	MG	PL	MG	MG	MG	MG
LITHOLOGY	C	C	C	C	C	QZ	GPC	C	C	GPC
UL (PPM)	4.33	8.37	7.25	ND	ND	ND	ND	ND	ND	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	40.00	10.00	80.00	ND	ND	ND	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	-.02	-.02	-.02	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.05	ND	ND	ND	.05	.50	.05	.07	ND	ND
FE (%)	10.00	5.00	7.00	7.00	5.00	1.00	1.50	7.00	2.00	1.00
MG (%)	.50	.50	.50	.70	.50	.50	.50	1.00	.30	.20
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	20.00	30.00	15.00	70.00	15.00	20.00	15.00	30.00	10.00	ND
BA (PPM)	100.00	100.00	100.00	100.00	100.00	300.00	200.00	30.00	200.00	100.00
BE (PPM)	1.00	1.50	1.00	ND	1.50	1.00	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	15.00	7.00	20.00	ND	7.00	ND	10.00	20.00	ND	ND
CR (PPM)	200.00	100.00	300.00	150.00	50.00	10.00	700.00	50.00	500.00	20.00
CU (PPM)	100.00	50.00	100.00	20.00	50.00	5.00	70.00	70.00	30.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	200.00	50.00	70.00	70.00	500.00	70.00	300.00	500.00	150.00	70.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	30.00	15.00	30.00	ND	30.00	20.00	20.00	100.00	20.00	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	30.00	30.00	ND	ND	20.00	20.00	ND	20.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	5.00	7.00	7.00	7.00	ND	7.00	7.00	5.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.50	.30	.50	.70	.50	.20	1.00	.20	.30	.15
V (PPM)	200.00	100.00	150.00	100.00	100.00	20.00	30.00	70.00	50.00	15.00
Y (PPM)	15.00	10.00	10.00	10.00	10.00	ND	20.00	10.00	10.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	150.00	70.00	700.00	500.00	100.00	30.00	1000.00	200.00	1000.00	100.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160057	160058	160059	160060	160061	160062	160063	160064	160065	160066
ELEVATION	10190.00	10395.00	10450.00	10410.00	10510.00	9620.00	9835.00	9140.00	8435.00	8480.00
FORMATION	MG	CQ	LQ	CL	VF	PL	PL	PL	AG	PL
LITHOLOGY	QPC	QPC	QPC	QPC	MB	VQ	VQ	C	GR	QZ
UL (PPM)	ND	ND	ND	ND	ND	7.11	10.19	3.25	5.45	.72
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	.07	.05	.07	20.00	.07	ND	ND	.20	.15
FE (%)	.70	2.00	2.00	1.50	3.00	20.00	20.00	7.00	1.00	1.00
MG (%)	.30	.50	.50	.50	1.00	.10	.02	.20	.10	.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	20.00	ND	ND	ND	ND	20.00	100.00	30.00	ND	ND
BA (PPM)	150.00	200.00	200.00	50.00	150.00	100.00	20.00	300.00	300.00	500.00
BE (PPM)	ND	ND	ND	ND	ND	ND	ND	1.00	1.00	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	30.00	ND	5.00	7.00	150.00	30.00	30.00	ND	ND
CR (PPM)	20.00	50.00	50.00	30.00	50.00	300.00	100.00	50.00	ND	10.00
CU (PPM)	7.00	ND	20.00	10.00	20.00	700.00	500.00	200.00	20.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	100.00	1000.00	70.00	150.00	700.00	1000.00	1000.00	100.00	150.00	50.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	30.00	50.00	50.00	15.00	30.00	200.00	100.00	70.00	5.00	5.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	10.00	10.00	10.00	ND	ND	ND	10.00	30.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	7.00	5.00	7.00	7.00	10.00	5.00	10.00	ND	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	200.00	ND	ND	ND	ND	100.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.20	.20	2.00	2.00	.20	.01	.30	.05	.15
V (PPM)	20.00	100.00	50.00	30.00	50.00	300.00	2000.00	2000.00	ND	20.00
Y (PPM)	ND	15.00	ND	20.00	10.00	10.00	ND	70.00	15.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	150.00	100.00	200.00	70.00	10.00	10.00	200.00	50.00	50.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160067	160068	160069	160070	160071	160072	160073	160074	160075	160076
ELEVATION	8370.00	10870.00	11150.00	10940.00	10980.00	10680.00	10440.00	10780.00	10520.00	10820.00
FORMATION	PL	HD	HD	HD	HD	MI	LS	MI	SS	MP
LITHOLOGY	QZ	PL	PL	PL	PL	VQ	SC	GB	QZ	C
UL (PPM)	7.34	2.61	3.66	4.19	3.03	.80	.60	.10	1.00	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	ND	2.00	4.50	79.00	ND	NU
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.30	.20	.15	.10	.10	.30	.05	1.00	.07	.03
FE (%)	.30	10.00	5.00	7.00	10.00	5.00	7.00	10.00	5.00	.30
MG (%)	.50	1.50	1.00	1.50	1.50	.15	1.00	3.00	.10	.03
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	.50	ND	ND	ND	ND
B (PPM)	ND	100.00	100.00	100.00	150.00	30.00	70.00	10.00	70.00	10.00
BA (PPM)	500.00	300.00	500.00	300.00	300.00	300.00	300.00	100.00	150.00	70.00
BE (PPM)	1.50	1.00	1.50	1.50	2.00	1.50	1.50	1.00	1.50	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	7.00	50.00	5.00	20.00	20.00	100.00	15.00	30.00	7.00	ND
CR (PPM)	70.00	200.00	200.00	200.00	200.00	50.00	70.00	50.00	50.00	20.00
CU (PPM)	20.00	20.00	20.00	70.00	100.00	700.00	10.00	150.00	15.00	5.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	NU	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MM (PPM)	200.00	200.00	200.00	300.00	500.00	500.00	200.00	1000.00	300.00	150.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	20.00	150.00	70.00	100.00	100.00	30.00	30.00	50.00	7.00	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	20.00	10.00	10.00	ND	ND	ND	ND	10.00	10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	NU	NU	NU	NU
SC (PPM)	5.00	20.00	10.00	15.00	15.00	10.00	7.00	30.00	5.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	100.00	ND	ND	ND	ND	100.00	7.00	30.00	5.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.30	.70	.50	.50	.50	.15	.15	1.00	.07	.03
V (PPM)	30.00	200.00	150.00	150.00	100.00	150.00	50.00	300.00	70.00	10.00
Y (PPM)	10.00	20.00	15.00	15.00	15.00	20.00	30.00	20.00	10.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	200.00	100.00	500.00	150.00	100.00	150.00	200.00	100.00	30.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160077	160078	160079	160080	160081	160082	160083	160084	160085	160086
ELEVATION	10870.00	10755.00	10800.00	10740.00	10720.00	10555.00	10220.00	10320.00	10445.00	10370.00
FORMATION	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP
LITHOLOGY	C	C	C	C	C	C	QZ	C	C	C
UL (PPM)	ND	.30	.30	.30	.40	.10	.20	.20	.20	.20
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	4.50	8.00	1.00	ND	5.50	ND	5.50	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.05	.03	.07	.07	.20	ND	ND	ND	ND	ND
FF (%)	.30	2.00	1.50	1.00	1.00	.50	.30	.20	.07	ND
MG (%)	ND	.03	.02	ND	ND	.02	.02	ND	ND	ND
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	ND	10.00	ND	ND	20.00	ND	10.00	ND	ND
BA (PPM)	30.00	30.00	50.00	30.00	30.00	20.00	70.00	50.00	20.00	ND
BE (PPM)	ND	ND	ND	ND	ND	ND	1.50	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CR (PPM)	30.00	70.00	100.00	15.00	20.00	ND	30.00	20.00	20.00	15.00
CU (PPM)	5.00	7.00	7.00	7.00	ND	ND	ND	ND	ND	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	100.00	50.00	10.00	100.00	100.00	50.00	10.00	70.00	50.00	10.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	ND	ND	ND	ND	ND	ND	ND	5.00	ND	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	5.00	ND	5.00	5.00	ND	ND	ND	ND	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	5.00	ND	5.00	5.00	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.05	.03	.07	.07	.20	.05	.07	.05	.03	.01
V (PPM)	15.00	15.00	20.00	10.00	10.00	20.00	20.00	20.00	15.00	15.00
Y (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	150.00	150.00	100.00	200.00	200.00	70.00	70.00	50.00	50.00	50.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160087	160088	160089	160090	160091	160092	160093	160094	160095	160096
ELEVATION	10400.00	10370.00	10420.00	10360.00	10540.00	9520.00	10500.00	10540.00	10470.00	9500.00
FORMATION	MP	MP	MP	LS	MI	SQ	SQ	MI	SQ	LS
LITHOLOGY	C	C	C	SC	GB	QZ	QZ	GB	QZ	QZ
UL (PPM)	.30	.20	.30	1.10	.20	.60	22.00	1.10	.20	1.20
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	17.00	129.00	ND	ND	26.00	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	ND	.10	3.00	ND	ND	5.00	.05	.15
FE (%)	.30	.20	.30	5.00	10.00	1.50	.30	10.00	.07	1.50
MG (%)	.07	.05	.07	1.00	2.00	.03	.03	5.00	.03	.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.50
B (PPM)	ND	15.00	10.00	50.00	10.00	ND	20.00	ND	ND	30.00
BA (PPM)	100.00	50.00	70.00	700.00	200.00	70.00	ND	50.00	20.00	1000.00
BE (PPM)	1.50	1.50	1.50	5.00	ND	ND	ND	ND	ND	3.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	ND	10.00	30.00	ND	ND	30.00	ND	5.00
CR (PPM)	15.00	15.00	10.00	50.00	10.00	ND	ND	150.00	ND	70.00
CU (PPM)	ND	ND	ND	ND	70.00	ND	7.00	70.00	ND	100.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	70.00	70.00	15.00	100.00	1000.00	20.00	30.00	1000.00	70.00	100.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	30.00
NB (PPM)	ND	ND	ND	ND	20.00	ND	ND	ND	ND	ND
NI (PPM)	5.00	ND	5.00	30.00	20.00	5.00	ND	70.00	ND	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	15.00	10.00	ND	ND	20.00	ND	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	ND	10.00	20.00	ND	ND	20.00	ND	15.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	100.00	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.02	.10	.05	.30	1.00	.05	.02	.50	.15	.10
V (PPM)	20.00	30.00	30.00	100.00	300.00	10.00	10.00	300.00	ND	100.00
Y (PPM)	ND	ND	50.00	50.00	70.00	ND	ND	20.00	ND	300.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	100.00	50.00	200.00	150.00	10.00	30.00	50.00	70.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160097	160098	160099	160100	160101	160102	160103	160104	160106	160107
ELEVATION	9720.00	9720.00	10700.00	10680.00	10780.00	10680.00	10670.00	10670.00	10860.00	10847.00
FORMATION	MP	MP	MI	MI	MI	MP	MI	SQ	MI	MI
LITHOLOGY	QZ	QZ	GB	GB	GB	C	GB	VQ	VQ	GB
UL (PPM)	1.90	1.80	.20	.30	1.40	1.20	1.00	1.90	2.60	7.30
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	11.50	35.50	41.00	15.50	5.00	113.00	107.00	44.00	80.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	.05	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	5.00	.20	.20	ND	5.00	.15	.30	2.00
FE (%)	1.50	1.50	7.00	5.00	5.00	10.00	10.00	.50	10.00	7.00
MG (%)	ND	ND	2.00	.30	.10	.03	5.00	.07	2.00	2.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	10.00	ND	ND	ND	ND	ND	ND	ND	30.00
BA (PPM)	50.00	20.00	150.00	150.00	150.00	ND	100.00	20.00	200.00	300.00
BE (PPM)	ND	ND	ND	1.00	1.00	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	30.00	15.00	15.00	ND	50.00	ND	15.00	20.00
CR (PPM)	10.00	30.00	70.00	ND	ND	150.00	200.00	ND	15.00	15.00
CU (PPM)	15.00	7.00	10.00	70.00	50.00	15.00	70.00	70.00	70.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	300.00	30.00	1000.00	1000.00	700.00	30.00	1000.00	500.00	2000.00	100.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	5.00	ND	30.00	20.00	15.00	ND	100.00	ND	20.00	20.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	15.00	ND	ND	ND	10.00	ND	10.00	30.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	20.00	15.00	15.00	ND	30.00	ND	ND	20.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	200.00	ND	ND	ND	200.00	ND	ND	200.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.03	.07	.50	.20	.50	.05	.30	.30	.03	.50
V (PPM)	50.00	20.00	100.00	ND	70.00	20.00	200.00	30.00	20.00	150.00
Y (PPM)	ND	ND	20.00	50.00	50.00	ND	20.00	ND	15.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	200.00
ZR (PPM)	70.00	70.00	70.00	200.00	200.00	70.00	30.00	100.00	30.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160108	160109	160110	160111	160112	160113	160114	160115	160116	160118
ELEVATION	10810.00	11210.00	11210.00	11170.00	11090.00	10260.00	10760.00	10765.00	11040.00	11040.00
FORMATION	MI	LS	LS	LS	LS	GG	GG	LS	MP	MP
LITHOLOGY	GB	SC	QZ	QZ	SC	GR	VQ	QZ	C	C
UL (PPM)	2.40	19.60	1.30	222.00	200.00	19.60	1.00	80.00	1.20	1.90
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	44.00	11.00	44.50	11.50	33.00	52.50	56.00	107.00	73.50	49.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	.05	ND	.50	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	2.00	.13	.50	ND	.10	.30	.50	.15	ND	ND
FE (%)	3.00	2.00	15.00	15.00	3.00	.70	5.00	2.00	1.00	.10
MG (%)	.70	.50	.50	.20	.50	.15	.20	.70	.07	.05
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	20.00	ND	10.00	20.00	15.00	ND	50.00	ND	ND
BA (PPM)	50.00	300.00	700.00	50.00	300.00	200.00	50.00	300.00	700.00	30.00
BE (PPM)	ND	3.00	2.00	1.00	2.00	1.00	ND	5.00	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	5.00	10.00	5.00	7.00	50.00	ND	15.00	70.00	ND	ND
CR (PPM)	ND	20.00	20.00	30.00	30.00	20.00	10.00	30.00	15.00	10.00
CU (PPM)	ND	30.00	ND	5.00	100.00	20.00	1500.00	10.00	15.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	200.00	500.00	100.00	150.00	70.00	1500.00	300.00	70.00	50.00
MO (PPM)	ND	30.00	20.00	20.00	70.00	ND	ND	300.00	50.00	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	ND	15.00	ND	10.00	20.00	10.00	30.00	30.00	7.00	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	10.00	15.00	10.00	10.00	30.00	ND	500.00	50.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	15.00	10.00	10.00	10.00	10.00	30.00	30.00	15.00	7.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.70	.20	.10	.15	.20	1.00	.30	.20	.03	.05
V (PPM)	50.00	70.00	70.00	100.00	70.00	300.00	100.00	300.00	70.00	.50
Y (PPM)	50.00	30.00	30.00	30.00	50.00	50.00	1500.00	300.00	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	200.00	150.00	150.00	300.00	150.00	300.00	100.00	100.00	150.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160119	160120	160121	160122	160123	160124	160125	160127	160128	160129
ELEVATION	10880.00	10740.00	10860.00	10820.00	10142.00	9690.00	9530.00	9760.00	8390.00	8395.00
FORMATION	GG	GG	MP	MP	PL	MI	MG	MG	MG	MG
LITHOLOGY	GR	GR	QZ	C	QZ	DN	QZ	C	C	C
UL (PPM)	.40	1.20	.50	7.40	1.00	2.30	11.00	149.00	73.50	128.30
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	49.00	114.00	7.00	328.00	10.00	ND	ND	351.00	1087.00	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	.40	.05	ND	ND	ND	ND	ND	ND	ND	.05
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.05	3.00	ND	ND	ND	ND	ND	ND	ND	ND
FE (%)	.70	7.00	.10	.07	ND	ND	ND	ND	ND	ND
MG (%)	.20	1.50	.03	.02	ND	ND	ND	ND	ND	ND
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	20.00	ND	20.00	10.00	ND	ND	ND	ND	ND	ND
BA (PPM)	50.00	ND	20.00	30.00	ND	ND	ND	ND	ND	ND
BE (PPM)	1.50	ND	1.00	ND	ND	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	20.00	ND	ND	ND	ND	ND	ND	ND	ND
CR (PPM)	50.00	15.00	200.00	200.00	ND	ND	ND	ND	ND	ND
CU (PPM)	15.00	300.00	7.00	10.00	ND	ND	ND	ND	ND	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	50.00	1000.00	20.00	50.00	ND	ND	ND	ND	ND	ND
MO (PPM)	ND	30.00	ND	100.00	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	20.00	7.00	ND	ND	ND	ND	ND	ND	ND	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	30.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	20.00	30.00	5.00	ND	ND	ND	ND	ND	ND	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.50	1.00	.15	.50	ND	ND	ND	ND	ND	ND
V (PPM)	300.00	200.00	30.00	50.00	ND	ND	ND	ND	ND	ND
Y (PPM)	150.00	70.00	ND	10.00	ND	ND	ND	ND	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	300.00	200.00	1000.00	ND	ND	ND	ND	ND	ND

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160130	160131	160133	160134	160136	160137	160139	160142	160143	160146
ELEVATION	9345.00	8570.00	8435.00	8500.00	8280.00	8170.00	9940.00	8440.00	8460.00	8480.00
FORMATION	MI	MI	AG	PL	PL	PL	MI	AG	PL	PL
LITHOLOGY	AM	AM	GN	QZ	QZ	SC	BA	GR	GW	GW
UL (PPM)	.10	.90	.20	4.90	30.00	1.20	.10	.50	.40	1.50
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	30.00	4.30	12.00	8.80	4.50	12.00	6.00	11.00	8.00	13.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	5.00	5.00	1.00	.15	1.50	.07	5.00	.70	3.00	1.00
FE (%)	10.00	7.00	2.00	2.00	1.00	1.00	5.00	.70	2.00	3.00
MG (%)	3.00	3.00	.70	.30	.30	.30	3.00	.10	2.00	1.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	20.00	ND	10.00	ND	ND	10.00	ND
BA (PPM)	30.00	70.00	700.00	500.00	1000.00	700.00	30.00	500.00	150.00	700.00
BE (PPM)	ND	ND	1.50	1.50	1.50	1.00	ND	1.50	1.00	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	70.00	50.00	7.00	7.00	7.00	ND	50.00	ND	7.00	10.00
CR (PPM)	300.00	100.00	50.00	70.00	70.00	15.00	1000.00	ND	150.00	50.00
CU (PPM)	150.00	150.00	100.00	15.00	30.00	ND	30.00	5.00	ND	10.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	1000.00	300.00	70.00	300.00	70.00	1000.00	100.00	1000.00	700.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	7.00	ND	ND	ND	ND	ND
NI (PPM)	100.00	150.00	15.00	30.00	20.00	5.00	200.00	5.00	30.00	30.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	10.00	ND	20.00	20.00	30.00	ND	ND	30.00	ND	30.00
PI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	50.00	30.00	10.00	7.00	5.00	5.00	30.00	ND	20.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	150.00	200.00	300.00	ND	150.00	ND	100.00	100.00	100.00	150.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1.00	.30	.30	.20	.20	.20	.20	.07	.50	.30
V (PPM)	200.00	100.00	70.00	70.00	30.00	50.00	150.00	20.00	70.00	70.00
Y (PPM)	20.00	20.00	15.00	10.00	10.00	20.00	ND	ND	50.00	15.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	100.00	150.00	150.00	150.00	300.00	20.00	70.00	200.00	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160147	160148	160149	160150	160151	160152	160153	160154	160155	160156
ELEVATION	8450.00	8420.00	8300.00	8270.00	8235.00	8500.00	8415.00	8400.00	8578.00	8580.00
FORMATION	PL	PL	PL	AG	AG	PL	PL	AG	PL	PL
LITHOLOGY	GN	QZ	AE	GR	GR	QZ	QZ	GR	BA	BA
UL (PPM)	2.60	2.10	1.00	.30	8.80	1.50	.80	1.00	.60	2.60
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	53.00	16.00	7.80	45.00	19.00	14.00	12.00	5.30	18.00	21.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	3.00	.20	.07	.20	.20	.20	.15	.07	3.00	3.00
FE (%)	10.00	.50	.10	.50	.50	.70	1.00	.50	5.00	5.00
MG (%)	1.50	.03	.10	.05	.03	.20	.30	.05	1.50	1.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BA (PPM)	150.00	50.00	ND	200.00	20.00	1000.00	30.00	1000.00	100.00	100.00
BE (PPM)	ND	1.50	ND	1.00	ND	15.00	ND	3.00	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	50.00	ND	ND	ND	ND	5.00	5.00	ND	20.00	20.00
CR (PPM)	20.00	ND	ND	ND	ND	50.00	50.00	ND	20.00	20.00
CU (PPM)	200.00	10.00	ND	15.00	7.00	15.00	5.00	15.00	100.00	70.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1500.00	500.00	70.00	700.00	700.00	300.00	100.00	70.00	700.00	1000.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	30.00	5.00	5.00	5.00	5.00	15.00	30.00	5.00	50.00	50.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	30.00	20.00	10.00	30.00	70.00	15.00	ND	30.00	30.00	30.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	50.00	ND	ND	ND	5.00	ND	5.00	ND	20.00	30.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	100.00	ND	ND	ND	ND	100.00	ND	ND	500.00	700.00
SK (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.70	.01	.05	.01	.01	.10	.15	.02	.50	.50
V (PPM)	200.00	ND	ND	ND	ND	20.00	30.00	ND	150.00	150.00
Y (PPM)	50.00	20.00	10.00	70.00	50.00	ND	ND	15.00	15.00	20.00
ZN (PPM)	200.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	200.00	70.00	70.00	200.00	50.00	70.00	200.00	70.00	100.00	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160157	160158	160159	160160	160161	160162	160163	160164	160165	160166
ELEVATION	8635.00	10070.00	10085.00	10085.00	9940.00	9650.00	9780.00	9620.00	10005.00	10010.00
FORMATION	PL	MG	MG	PL	MG	MG	MG	LQ	MG	MG
LITHOLOGY	QZ	QZ	QZ	BA	QZ	QZ	QZ	QZ	C	QZ
UL (PPM)	2.60	1.50	2.10	.10	.60	.60	.60	6.30	20.00	4.20
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	14.00	14.00	7.00	36.00	9.00	5.50	5.00	7.50	190.00	8.30
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	.40	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.05	ND	ND	5.00	.05	.15	ND	.10	ND	ND
FE (%)	.70	1.00	1.00	10.00	1.50	1.50	1.00	1.00	3.00	1.50
MG (%)	.15	.20	.50	3.00	3.00	3.00	2.00	1.00	.07	.30
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	30.00	ND	ND	ND	ND	ND
BA (PPM)	200.00	100.00	100.00	50.00	100.00	200.00	100.00	300.00	200.00	70.00
BE (PPM)	1.50	1.00	1.00	ND	1.00	ND	ND	1.50	1.00	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	7.00	7.00	10.00	70.00	7.00	10.00	5.00	15.00	10.00	7.00
CR (PPM)	30.00	100.00	50.00	300.00	70.00	20.00	50.00	20.00	700.00	30.00
CU (PPM)	20.00	ND	ND	150.00	15.00	50.00	5.00	50.00	100.00	10.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	70.00	100.00	100.00	1500.00	150.00	500.00	100.00	200.00	100.00	100.00
MO (PPM)	ND	ND	ND	15.00	ND	ND	ND	ND	5.00	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	10.00	10.00	20.00	150.00	20.00	30.00	20.00	30.00	50.00	20.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	30.00	10.00	ND	ND	15.00	ND	ND	20.00	100.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	5.00	ND	50.00	ND	ND	ND	ND	10.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	150.00	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.10	.10	.70	.20	.07	.07	.03	.30	.10
V (PPM)	30.00	30.00	30.00	200.00	30.00	20.00	30.00	ND	70.00	50.00
Y (PPM)	ND	ND	ND	20.00	ND	10.00	ND	10.00	50.00	10.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	300.00	150.00	100.00	100.00	100.00	150.00	100.00	70.00	1000.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160167	160168	160169	160170	160171	160173	160174	160175	160176	160177
ELEVATION	9810.00	9585.00	9515.00	9325.00	9305.00	11400.00	11040.00	11000.00	11000.00	11000.00
FORMATION	LQ	MG	PL	PL	PL	LS	LS	LS	LS	MI
LITHOLOGY	QZ	QZ	TF	QZ	QZ	SC	QZ	QZ	QZ	AM
UL (PPM)	2.80	2.00	1.20	6.70	6.40	ND	ND	ND	ND	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	6.80	23.00	22.00	5.30	14.30	ND	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	.20	.30	.20	.07	.07	.07	.10	1.50
FE (%)	1.50	1.50	5.00	1.50	2.00	2.00	3.00	1.50	3.00	7.00
MG (%)	.30	.30	.70	.50	.50	.50	.30	.30	.30	2.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	15.00	10.00	10.00	ND	ND	50.00	20.00	20.00	20.00	ND
BA (PPM)	700.00	500.00	1500.00	1000.00	1000.00	500.00	500.00	300.00	100.00	70.00
BE (PPM)	1.00	ND	2.00	1.00	1.00	2.00	ND	2.00	1.00	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	10.00	5.00	ND	7.00	10.00	70.00	70.00	50.00
CR (PPM)	200.00	70.00	ND	200.00	200.00	50.00	30.00	15.00	20.00	200.00
CU (PPM)	ND	7.00	50.00	7.00	10.00	10.00	30.00	70.00	150.00	150.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	100.00	150.00	500.00	200.00	200.00	150.00	150.00	200.00	200.00	1000.00
MO (PPM)	ND	ND	ND	ND	10.00	ND	20.00	70.00	100.00	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	10.00	5.00	7.00	5.00	10.00	20.00	30.00	50.00	100.00	100.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	10.00	20.00	10.00	30.00	30.00	10.00	70.00	50.00	50.00	50.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	5.00	15.00	10.00	10.00	10.00	7.00	7.00	7.00	30.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	150.00	200.00	ND	ND	ND	ND	100.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.20	.15	.70	.50	.30	.30	.20	.20	.30	.30
V (PPM)	70.00	30.00	50.00	50.00	50.00	70.00	150.00	30.00	50.00	150.00
Y (PPM)	15.00	ND	50.00	20.00	20.00	30.00	30.00	50.00	200.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	150.00	200.00	300.00	300.00	300.00	300.00	200.00	200.00	300.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160178	160179	160180	160181	160214	160215	160216	160217	160218	160219
ELEVATION	10920.00	10780.00	10800.00	9350.00	10540.00	10800.00	10570.00	10810.00	11000.00	10820.00
FORMATION	LS	GG	GG	PL	MP	MP	MP	MP	MP	MP
LITHOLOGY	QZ	GR	GN	C	C	C	C	C	C	C
UL (PPM)	ND	ND	ND	ND	.58	1.90	.80	1.10	3.00	.90
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	6.50	10.00	10.00	46.50	103.00	11.50
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.15	.30	.20	.15	ND	ND	ND	ND	ND	ND
FE (%)	1.00	1.50	.20	1.50	.30	ND	1.00	ND	3.00	.50
MG (%)	.20	.05	.07	.30	ND	20.00	ND	50.00	200.00	70.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	2.00	1.50	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	20.00	ND	10.00	ND	ND	ND	ND	ND	30.00	20.00
BA (PPM)	50.00	70.00	50.00	100.00	30.00	30.00	30.00	50.00	70.00	50.00
BE (PPM)	2.00	ND	ND	1.50	ND	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	5.00	5.00	ND	7.00	ND	ND	ND	ND	ND	ND
CR (PPM)	50.00	15.00	20.00	70.00	50.00	70.00	20.00	20.00	300.00	70.00
CU (PPM)	70.00	20.00	5.00	30.00	ND	ND	10.00	70.00	30.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	.02	ND	.02	.03
MN (PPM)	150.00	500.00	50.00	150.00	ND	ND	ND	ND	ND	ND
MO (PPM)	ND	200.00	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	10.00	5.00	ND	30.00	ND	ND	ND	ND	ND	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	50.00	700.00	ND	15.00	ND	ND	ND	ND	10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	7.00	10.00	7.00	ND	ND	ND	ND	5.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	100.00	ND	ND	ND	200.00	300.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.20	1.00	.30	ND	.15	.30	.07	.15	.30	.15
V (PPM)	50.00	150.00	150.00	50.00	20.00	30.00	10.00	15.00	50.00	15.00
Y (PPM)	100.00	200.00	50.00	15.00	ND	ND	ND	ND	20.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	200.00	200.00	200.00	200.00	200.00	150.00	100.00	700.00	1000.00	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160220	160221	160222	160223	160224	160225	160226	160227	160228	160229
ELEVATION	10370.00	10500.00	10660.00	10720.00	10470.00	10755.00	10660.00	10720.00	11000.00	11200.00
FORMATION	HDP	HDP	HDP	HDP	HDP	HDP	LS	LS	MP	MP
LITHOLOGY	VQ	PL	C	VQ	PL	QZ	SC	SC	C	C
UL (PPM)	1.30	1.14	1.50	.80	2.80	2.40	1.30	2.60	1.14	1.30
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	8.00	8.00	5.50	5.50	30.00	13.00	31.00	15.00	6.00	5.50
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	.10	.05	.10	.05	ND	ND	ND	.10	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.05	.50	.07	.07	.10	ND	3.00	ND	ND	ND
FE (%)	.30	1.00	1.50	5.00	7.00	3.00	10.00	2.00	3.00	1.00
MG (%)	200.00	500.00	300.00	500.00	300.00	100.00	3000.00	150.00	70.00	50.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	.70	ND	ND	ND	ND	ND	ND	50.00	ND	ND
B (PPM)	ND	ND	20.00	50.00	100.00	30.00	10.00	100.00	10.00	10.00
BA (PPM)	50.00	30.00	300.00	200.00	700.00	700.00	700.00	100.00	150.00	150.00
BE (PPM)	ND	ND	2.00	1.00	1.50	2.00	ND	2.00	ND	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	10.00	5.00	15.00	50.00	20.00	10.00	50.00	ND	5.00	ND
CR (PPM)	50.00	150.00	30.00	50.00	20.00	10.00	50.00	ND	5.00	ND
CU (PPM)	2000.00	20.00	50.00	70.00	30.00	5.00	200.00	10000.00	70.00	30.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	.05	.50	.70	2.00	3.00	1.00	5.00	.30	.05	.10
MN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	15.00	20.00	50.00	150.00	100.00	50.00	100.00	5.00	15.00	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	20.00	ND	20.00	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	10.00	7.00	7.00	15.00	15.00	30.00	ND	ND	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.30	.15	.20	.30	.30	.50	.15	.07	.10
V (PPM)	50.00	150.00	100.00	70.00	300.00	100.00	500.00	30.00	100.00	20.00
Y (PPM)	70.00	15.00	15.00	10.00	20.00	15.00	20.00	15.00	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	200.00	70.00	100.00	100.00	300.00	70.00	200.00	50.00	70.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160230	160231	160232	160233	160234	160235	160236	160237	160238	160239
ELEVATION	10820.00	10730.00	10755.00	10795.00	10900.00	11030.00	11000.00	11000.00	11000.00	10870.00
FORMATION	MP	HT	HT	CQ	HDP	MP	MP	MP	HT	HT
LITHOLOGY	C	QZ	QZ	QZ	PL	C	C	C	PL	PL
UL (PPM)	.80	2.14	4.14	2.30	5.90	2.50	2.50	2.00	5.30	3.70
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	8.00	20.50	27.50	18.50	18.00	ND	ND	ND	12.00	30.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	.15	.10	.05	1.50	.02	ND	ND	.05	.20
FE (%)	.30	5.00	5.00	3.00	5.00	.10	1.00	.05	7.00	5.00
MG (%)	15.00	200.00	300.00	1.50	1.50	.02	.02	.02	1.50	2.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	50.00	100.00	30.00	50.00	ND	ND	20.00	30.00	20.00
BA (PPM)	20.00	300.00	300.00	200.00	300.00	ND	ND	30.00	300.00	300.00
BE (PPM)	ND	1.50	2.00	2.00	2.00	ND	ND	1.00	1.50	1.50
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	70.00	30.00	15.00	20.00	ND	ND	ND	20.00	20.00
CR (PPM)	ND	20.00	30.00	15.00	150.00	15.00	30.00	15.00	150.00	150.00
CU (PPM)	ND	30.00	5.00	50.00	30.00	ND	ND	ND	20.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	.02	1.00	1.50	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	ND	ND	ND	70.00	500.00	10.00	20.00	70.00	200.00	500.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	ND	70.00	70.00	70.00	70.00	ND	ND	ND	70.00	70.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	10.00	15.00	ND	ND	ND	ND	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	15.00	15.00	20.00	15.00	ND	ND	ND	10.00	15.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.03	.30	.50	.50	.50	.07	.10	.05	.20	.20
V (PPM)	20.00	150.00	200.00	300.00	150.00	15.00	20.00	20.00	100.00	150.00
Y (PPM)	ND	15.00	15.00	20.00	15.00	ND	ND	15.00	15.00	15.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	50.00	100.00	150.00	100.00	150.00	70.00	70.00	70.00	200.00	100.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160240	160241	160242	160243	160245	160246	160247	160248	160249	160250
ELEVATION	11150.00	10890.00	10830.00	11100.00	11430.00	11240.00	11160.00	10995.00	10740.00	10600.00
FORMATION	MP	MP	MP	MP	MP	MP	MP	MP	LS	LS
LITHOLOGY	C	C	C	C	C	C	C	C	SC	SC
UL (PPM)	2.60	2.70	1.60	.70	1.30	.70	.80	.70	5.90	3.60
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	2.50	17.00	17.00	ND	7.00	10.00	7.50	ND	53.00	18.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	ND	ND	ND	ND	ND	ND	.15	.07
FE (%)	.50	3.00	1.50	.15	.50	.30	.07	.15	5.00	1.50
MG (%)	.02	.02	.05	ND	ND	.02	ND	ND	7.00	.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	15.00	ND	ND	ND	10.00	15.00	ND	50.00	50.00
BA (PPM)	30.00	20.00	20.00	50.00	20.00	20.00	30.00	20.00	500.00	700.00
BE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	5.00	3.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	7.00	5.00
CR (PPM)	30.00	150.00	150.00	20.00	50.00	50.00	20.00	30.00	50.00	10.00
CU (PPM)	ND	10.00	15.00	ND	ND	ND	ND	ND	ND	50.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	20.00	30.00	50.00	10.00	20.00	ND	10.00	70.00	100.00	150.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	20.00	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	10.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	10.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	300.00	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.07	.10	.02	.30	.07	.07	.07	.20	.20
V (PPM)	20.00	20.00	15.00	10.00	20.00	20.00	15.00	15.00	70.00	30.00
Y (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	30.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	50.00	200.00	1000.00	30.00	150.00	200.00	50.00	50.00	200.00	200.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160251	160252	160253	160254	160256	160257	160258	160259	160260	160261
ELEVATION	10760.00	10710.00	10700.00	10700.00	10760.00	10940.00	10700.00	10635.00	10660.00	10635.00
FORMATION	LS	HT	SQ	LS	MP	MP	MP	MI	NF	NF
LITHOLOGY	SC	VQ	QZ	SC	C	C	C	DB	CT	VQ
UL (PPM)	2.40	1.50	2.70	3.50	1.10	.70	1.40	.50	1.70	4.70
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	21.00	25.00	12.00	36.00	13.00	9.00	16.00	54.00	15.00	10.00
TH/UT	NU	NU	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	.50
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.20	.20	.10	.10	ND	ND	.05	5.00	.20	10.00
FE (%)	2.00	5.00	3.00	2.00	.15	ND	.15	10.00	2.00	1.00
MG (%)	.70	1.00	.70	.70	.05	ND	.05	2.00	.50	7.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.00
B (PPM)	50.00	50.00	200.00	30.00	15.00	10.00	20.00	10.00	10.00	ND
BA (PPM)	200.00	300.00	1500.00	1000.00	30.00	20.00	50.00	70.00	1000.00	30.00
BE (PPM)	5.00	2.00	2.00	2.00	ND	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	5.00	20.00	7.00	5.00	ND	ND	ND	50.00	5.00	10.00
CR (PPM)	20.00	100.00	30.00	50.00	10.00	50.00	20.00	70.00	100.00	ND
CU (PPM)	ND	15.00	15.00	30.00	10.00	ND	ND	70.00	15.00	20000.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	150.00	200.00	200.00	100.00	30.00	ND	50.00	1000.00	200.00	500.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	15.00	50.00	30.00	15.00	ND	ND	ND	30.00	10.00	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	15.00	15.00	10.00	10.00	ND	ND	ND	30.00	30.00	1500.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	15.00	10.00	10.00	ND	ND	ND	30.00	7.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	200.00	ND	150.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.20	.30	.30	.30	.05	.15	.03	.70	.20	ND
V (PPM)	30.00	100.00	200.00	70.00	20.00	10.00	20.00	200.00	100.00	200.00
Y (PPM)	30.00	20.00	50.00	50.00	ND	ND	ND	30.00	15.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	70.00	200.00	200.00	100.00	150.00	50.00	70.00	70.00	ND

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160262	160263	160264	160265	160266	160267	160268	160269	160270	160271
ELEVATION	10740.00	10740.00	10700.00	10795.00	11000.00	10845.00	10760.00	10780.00	10660.00	11180.00
FORMATION	LS	MI	LS	LS	LS	NF	NF	MI	NF	MP
LITHOLOGY	VQ	DB	SC	SC	SC	VQ	VQ	VQ	DO	C
UL (PPM)	1.30	1.70	1.30	1.60	1.00	.50	.70	.30	.30	.60
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	8.00	37.00	28.00	6.00	29.50	22.00	28.00	48.50	40.50	74.50
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	.70	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.15	.20	.07	ND	.15	.05	.05	10.00	5.00	.05
FE (%)	5.00	20.00	10.00	1.00	5.00	7.00	1.50	1.50	5.00	.50
MG (%)	.70	.50	1.00	.30	.20	2.00	.07	7.00	5.00	.05
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	1.00	5.00	ND	ND	ND	.50	ND	ND	ND
B (PPM)	15.00	ND	10.00	20.00	20.00	ND	ND	ND	20.00	30.00
BA (PPM)	700.00	500.00	700.00	150.00	300.00	300.00	150.00	100.00	500.00	20.00
BE (PPM)	ND	2.00	5.00	3.00	ND	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	150.00	50.00	30.00	7.00	10.00	15.00	5.00	ND	5.00	ND
CR (PPM)	100.00	300.00	200.00	15.00	200.00	30.00	20.00	ND	100.00	50.00
CU (PPM)	200.00	10.00	ND	30.00	20.00	300.00	700.00	15.00	7.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	700.00	200.00	150.00	150.00	100.00	1000.00	200.00	1500.00	700.00	50.00
MO (PPM)	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	20.00	100.00	100.00	10.00	20.00	30.00	15.00	10.00	20.00	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	50.00	30.00	10.00	15.00	ND	ND	ND	ND	10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	15.00	15.00	15.00	7.00	15.00	30.00	5.00	ND	10.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	150.00	100.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.20	.15	.30	.15	.50	.15	.10	ND	.20	.30
V (PPM)	150.00	200.00	200.00	30.00	200.00	200.00	30.00	50.00	100.00	30.00
Y (PPM)	ND	30.00	30.00	30.00	30.00	ND	ND	ND	15.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	20.00	100.00	300.00	150.00	200.00	10.00	10.00	ND	100.00	200.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160272	160273	160274	160275	160276	160277	160278	160279	160280	160281
ELEVATION	11380.00	11340.00	11400.00	9400.00	9325.00	9630.00	9700.00	9320.00	10135.00	9890.00
FORMATION	MP	MP	MP	PL	PL	PL	MG	MG	MG	PL
LITHOLOGY	C	C	C	BA	BA	TF	QZ	C	QZ	TF
UL (PPM)	1.10	.70	1.00	.30	.10	.60	3.30	1.20	.50	.14
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	18.50	45.00	16.00	3.50	25.00	130.00	3.50	ND	11.00	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	ND	3.00	2.00	2.00	ND	ND	ND	3.00
FE (%)	.15	.10	.05	5.00	7.00	5.00	.70	.70	.30	5.00
MG (%)	.05	.05	.02	1.50	2.00	1.50	.20	.30	.10	5.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	1.00	ND	ND	ND	ND
B (PPM)	30.00	15.00	15.00	ND	ND	10.00	20.00	10.00	10.00	ND
BA (PPM)	ND	20.00	ND	50.00	20.00	300.00	150.00	300.00	300.00	ND
BE (PPM)	ND	ND	ND	ND	ND	2.00	1.00	2.00	1.00	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	ND	20.00	20.00	15.00	ND	ND	ND	20.00
CR (PPM)	20.00	70.00	70.00	200.00	300.00	500.00	15.00	15.00	20.00	1000.00
CU (PPM)	ND	ND	ND	30.00	150.00	5.00	ND	5.00	ND	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	10.00	15.00	30.00	1000.00	1000.00	1000.00	20.00	100.00	20.00	1000.00
MO (PPM)	ND	ND	ND	ND	ND	5.00	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	ND	ND	ND	70.00	70.00	200.00	5.00	5.00	ND	300.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	30.00	ND	10.00	10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	ND	ND	30.00	30.00	15.00	5.00	ND	ND	15.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	200.00	150.00	200.00	ND	ND	ND	100.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.07	.07	.07	.30	.30	.50	.15	.07	.15	.20
V (PPM)	30.00	20.00	15.00	200.00	150.00	150.00	30.00	30.00	200.00	100.00
Y (PPM)	ND	ND	ND	15.00	15.00	50.00	10.00	ND	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	50.00	70.00	70.00	30.00	30.00	300.00	150.00	50.00	70.00	50.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160282	160283	160284	160285	160286	160287	160391	160392	160393	160394
ELEVATION	10060.00	10060.00	10240.00	11500.00	9300.00	11500.00	9520.00	9540.00	10130.00	10130.00
FORMATION	PL	MG		MP	MP	MP	PL	PL	CL	CL
LITHOLOGY	TF	C	DN	C	C	C	PL	QZ	DC	DC
UL (PPM)	11.00	.50	.40	.30	.20	28.30	.30	.79	ND	2.35
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	120.00	12.00	ND	ND	ND	46.00	-20.00	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	.10	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.50	.70	3.00	.05	ND	ND	7.00	.10	ND	.07
FE (%)	3.00	3.00	10.00	.10	.07	1.50	15.00	1.00	ND	7.00
MG (%)	1.00	1.50	7.00	.07	.05	.30	5.00	.20	ND	.70
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	ND	ND	20.00	15.00	20.00	ND	10.00	ND	10.00
BA (PPM)	200.00	500.00	ND	20.00	100.00	100.00	20.00	300.00	ND	500.00
BE (PPM)	3.00	1.50	ND	ND	1.50	1.00	ND	1.00	ND	1.50
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	15.00	15.00	50.00	ND	ND	ND	100.00	ND	ND	ND
CR (PPM)	150.00	150.00	2000.00	15.00	20.00	15.00	150.00	10.00	ND	100.00
CU (PPM)	50.00	ND	20.00	5.00	ND	ND	50.00	10.00	ND	10.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	200.00	500.00	700.00	20.00	10.00	15.00	2000.00	70.00	ND	70.00
MO (PPM)	5.00	ND	ND	ND	ND	ND	ND	20.00	ND	5.00
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	100.00	70.00	300.00	5.00	ND	50.00	70.00	5.00	ND	5.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	15.00	10.00	ND	ND	ND	30.00	10.00	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	10.00	20.00	ND	ND	50.00	70.00	ND	ND	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	100.00	150.00	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.30	.30	.15	.07	.07	1.00	.70	.05	ND	.20
V (PPM)	70.00	150.00	150.00	10.00	20.00	1000.00	1000.00	15.00	ND	100.00
Y (PPM)	30.00	15.00	ND	ND	ND	2000.00	30.00	ND	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	200.00	100.00	20.00	50.00	30.00	500.00	100.00	70.00	ND	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160395	160396	160397	160398	160399	160400	160401	160402	160403	160404
ELEVATION	10360.00	10360.00	10090.00	10640.00	10420.00	10110.00	10120.00	10420.00	10120.00	10220.00
FORMATION	CQ	CQ	HD	CQ	CQ	MG	CQ	LQ	LQ	MG
LITHOLOGY	QPC	Q	C	QPC	QPC	QZ	QPC	QPC	QPC	SC
UL (PPM)	.52	ND	1.18	.88	.65	7.68	1.08	2.40	3.20	2.80
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	.20	.03	.07	.03	.07	.07	.10	.70
FE (%)	.70	ND	5.00	1.00	3.00	1.50	.70	.70	1.50	15.00
MG (%)	.30	ND	3.00	.70	2.00	1.00	.50	.20	.15	1.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	ND	15.00	ND	ND	10.00	ND	ND	ND	10.00
BA (PPM)	300.00	ND	300.00	300.00	ND	300.00	100.00	70.00	300.00	200.00
BE (PPM)	ND	ND	1.50	ND	ND	ND	ND	ND	1.00	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	30.00	ND	10.00	7.00	10.00	5.00	10.00	100.00
CR (PPM)	ND	ND	200.00	50.00	70.00	50.00	20.00	70.00	50.00	50.00
CU (PPM)	70.00	ND	70.00	5.00	ND	5.00	7.00	ND	50.00	300.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	70.00	ND	700.00	100.00	150.00	100.00	200.00	30.00	50.00	1000.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	7.00	ND	70.00	7.00	20.00	30.00	15.00	20.00	20.00	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	20.00	5.00	7.00	ND	ND	ND	10.00	70.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	ND	.50	.15	.15	.15	.05	.15	.15	.70
V (PPM)	20.00	ND	150.00	30.00	70.00	50.00	20.00	50.00	70.00	500.00
Y (PPM)	ND	ND	30.00	10.00	ND	ND	10.00	150.00	20.00	50.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	150.00	ND	100.00	100.00	70.00	50.00	70.00	100.00	100.00	150.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160405	160406	160407	160408	160409	160410	160411	160412	160413	160414
ELEVATION	10500.00	9740.00	10110.00	10200.00	10510.00	10525.00	10500.00	10380.00	10685.00	10495.00
FORMATION	MG	PL	MI	MI	PL	MG	PL	MG	MG	CL
LITHOLOGY	C	QZ	VQ	DB	BA	GW	BA	GW	GPC	C
UL (PPM)	7.20	1.40	4.80	1.20	2.80	3.80	1.20	1.20	3.40	5.80
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	-20.00	-20.00	-20.00	-20.00	-20.00	-20.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	10.00	2.00	.20	.20	5.00	.05	ND	.05
FE (%)	1.50	.70	10.00	10.00	15.00	5.00	10.00	2.00	1.00	3.00
MG (%)	.50	.30	.15	5.00	3.00	1.50	2.00	.70	1.00	1.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	20.00	10.00	150.00	50.00	ND	10.00	ND	10.00	10.00	ND
BA (PPM)	100.00	150.00	150.00	300.00	150.00	500.00	300.00	300.00	700.00	700.00
BE (PPM)	1.50	ND	ND	ND	ND	1.00	ND	ND	1.00	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	30.00	ND	70.00	70.00	70.00	20.00	50.00	15.00	ND	7.00
CR (PPM)	70.00	20.00	20.00	200.00	100.00	100.00	15.00	50.00	100.00	70.00
CU (PPM)	50.00	5.00	300.00	100.00	150.00	50.00	100.00	15.00	20.00	30.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	100.00	70.00	200.00	1500.00	1000.00	300.00	1500.00	70.00	70.00	150.00
MO (PPM)	ND	ND	5.00	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	20.00	5.00	100.00	150.00	50.00	50.00	50.00	20.00	7.00	20.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	10.00	30.00	15.00	ND	20.00	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	ND	15.00	30.00	20.00	10.00	20.00	5.00	ND	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	150.00	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.10	.10	.20	.50	.20	.70	.20	.15	.20
V (PPM)	100.00	30.00	100.00	200.00	200.00	150.00	50.00	70.00	30.00	70.00
Y (PPM)	10.00	ND	ND	ND	30.00	10.00	20.00	ND	ND	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	100.00	ND	20.00	100.00	100.00	150.00	70.00	200.00	100.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160415	160416	160417	160418	160419	160420	160422	160423	160424	160425
ELEVATION	10500.00	9990.00	9940.00	10210.00	9480.00	10470.00	10110.00	10215.00	10590.00	10020.00
FORMATION	MI	LQ	CQ	CQ	MI	PL	LQ	CL	CQ	MG
LITHOLOGY	VQ	DB	QZ	QZ	PG	GH	QZ	DC	QPC	QZ
UL (PPM)	31.20	1.02	1.20	.80	3.00	1.40	.42	1.31	.57	.72
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	-20.00	ND	ND	ND	ND	-20.00	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	.10	ND	.05	.20	.20	.05	.05	ND	.05
FE (%)	20.00	10.00	.50	1.00	.20	7.00	.70	3.00	1.00	1.50
MG (%)	.02	7.00	2.00	.05	ND	1.50	.20	1.50	.20	.20
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	20.00	ND	30.00	10.00	10.00
BA (PPM)	30.00	100.00	300.00	200.00	ND	300.00	500.00	500.00	500.00	700.00
BE (PPM)	ND	ND	ND	ND	ND	1.50	ND	2.00	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	30.00	5.00	ND	20.00	10.00	30.00	ND	30.00	20.00	ND
CR (PPM)	ND	150.00	10.00	10.00	ND	150.00	50.00	100.00	70.00	50.00
CU (PPM)	300.00	7.00	ND	20.00	20.00	70.00	7.00	70.00	5.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	200.00	300.00	70.00	1000.00	50.00	200.00	50.00	150.00	30.00	30.00
MO (PPM)	20.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	500.00	150.00	10.00	15.00	5.00	50.00	10.00	70.00	20.00	20.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	10.00	ND	ND	ND	ND	10.00	10.00	10.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	30.00	ND	ND	5.00	20.00	ND	7.00	ND	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.00	.50	.05	.07	.70	.20	.05	.20	.10	.10
V (PPM)	150.00	700.00	ND	20.00	50.00	200.00	10.00	100.00	20.00	20.00
Y (PPM)	ND	ND	ND	ND	10.00	ND	10.00	15.00	10.00	10.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	ND	70.00	100.00	50.00	70.00	100.00	100.00	200.00	70.00	100.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160426	160427	160428	160429	160430	160431	160432	160433	160434	160435
ELEVATION	10060.00	10060.00	9665.00	10300.00	10670.00	10780.00	10730.00	10675.00	10670.00	10325.00
FORMATION	MG	MG	MG	HD	CQ	CQ	CQ	CQ	PS	PS
LITHOLOGY	QZ	QZ	QZ	SC	QZ	GPC	GPC	QZ		
UL (PPM)	.51	1.09	.79	7.23	.57	.50	.52	.57	2.43	3.21
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	-20.00	-20.00	ND	ND	ND	ND	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.10	10.00	.30	.10	.15	.05	.05	ND	3.00	.70
FE (%)	1.50	5.00	5.00	5.00	2.00	1.50	.70	2.00	15.00	15.00
MG (%)	.70	3.00	5.00	.30	1.50	1.00	.50	.30	.70	.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	1.50	ND	7.00	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	2000.00	50.00	20.00	ND	ND	ND	15.00	50.00	50.00
BA (PPM)	300.00	300.00	70.00	150.00	200.00	500.00	100.00	700.00	70.00	70.00
BE (PPM)	1.00	ND	ND	1.00	ND	1.00	ND	1.00	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	7.00	30.00	15.00	15.00	7.00	10.00	5.00	ND	100.00	100.00
CR (PPM)	70.00	300.00	70.00	50.00	50.00	50.00	15.00	150.00	200.00	100.00
CU (PPM)	15.00	100.00	5.00	15000.00	70.00	50.00	7.00	10.00	100.00	100.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	200.00	2000.00	300.00	700.00	500.00	1000.00	100.00	70.00	5000.00	60000.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	7.00	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.00
NI (PPM)	15.00	70.00	50.00	50.00	20.00	20.00	7.00	7.00	30.00	50.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	15.00	30.00	ND	ND	ND	20.00	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	50.00	5.00	15.00	5.00	ND	ND	ND	20.00	20.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	100.00	ND	ND	ND	ND	ND	ND	150.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.70	.15	.15	.15	.10	.02	.15	1.00	1.00
V (PPM)	30.00	500.00	50.00	70.00	30.00	50.00	15.00	30.00	200.00	100.00
Y (PPM)	ND	30.00	ND	500.00	10.00	20.00	10.00	30.00	50.00	15.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	100.00	150.00	70.00	70.00	150.00	100.00	150.00	300.00	170.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160436	160437	160438	160439	160440	160441	160442	160443	160444	160445
ELEVATION	10195.00	10530.00	10715.00	10290.00	9857.00	9950.00	10355.00	10480.00	10560.00	9900.00
FORMATION	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS
LITHOLOGY						C	C	C	C	
UL (PPM)	1.23	.63	1.83	.80	1.14	1.49	1.03	.50	1.03	2.59
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	-20.00	ND	ND	ND	ND	285.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	3.00	5.00	5.00	1.50	.70	2.00	3.00	5.00	3.00	.70
FE (%)	15.00	15.00	10.00	2.00	3.00	10.00	7.00	15.00	10.00	20.00
MG (%)	2.00	2.00	1.50	.70	.50	.70	1.00	1.50	1.00	.30
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	150.00	200.00	200.00	10.00	ND	50.00	70.00	50.00	70.00	200.00
BA (PPM)	50.00	50.00	50.00	20.00	100.00	70.00	70.00	50.00	100.00	70.00
BE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	150.00	100.00	20.00	10.00	7.00	20.00	15.00	20.00	50.00	200.00
CR (PPM)	150.00	100.00	70.00	70.00	90.00	200.00	500.00	100.00	700.00	300.00
CU (PPM)	100.00	100.00	30.00	5.00	10.00	30.00	15.00	50.00	70.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	2000.00	2000.00	2000.00	500.00	500.00	1500.00	1500.00	2000.00	1000.00	1000.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	50.00	50.00	20.00	20.00	20.00	50.00	100.00	100.00	150.00	150.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	10.00	10.00	10.00	ND	ND	ND	ND	ND	10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	30.00	30.00	7.00	7.00	20.00	15.00	30.00	20.00	20.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	100.00	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1.00	1.00	1.00	.70	.50	1.00	1.00	1.00	1.00	1.00
V (PPM)	300.00	300.00	200.00	100.00	70.00	200.00	200.00	300.00	200.00	700.00
Y (PPM)	15.00	15.00	20.00	10.00	ND	70.00	10.00	15.00	50.00	30.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	100.00	1000.00	70.00	50.00	500.00	70.00	50.00	50.00	500.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160446	160447	160448	160449	160450	160451	160452	160453	160539	160540
ELEVATION	9700.00	9790.00	9780.00	9500.00	9475.00	9540.00	9530.00	10180.00	8380.00	8380.00
FORMATION	PS	PS	PS	PS	PS	PS	PS	PS	MG	MG
LITHOLOGY									PAC	CQ
UL (PPM)	2.63	ND	ND	2.37	ND	ND	30.10	5.04	90.87	4.71
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	96.50	4.70
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	.94	1.00
TH (PPM)	ND	ND	ND	ND	ND	ND	427.00	260.20	95.00	8.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	.98	1.70
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	6.46	7.92
CA (%)	3.00	3.00	3.00	1.50	1.00	.30	1.00	2.00	-.05	-.05
FE (%)	15.00	15.00	10.00	10.00	15.00	3.00	10.00	15.00	6.22	.82
MG (%)	1.00	1.00	2.00	3.00	.70	.20	.50	1.00	.31	.16
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	.12	.20
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	1.80	2.75
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	3.00	-2.00
B (PPM)	100.00	150.00	200.00	50.00	150.00	ND	70.00	50.00	-10.00	11.00
BA (PPM)	50.00	50.00	50.00	70.00	50.00	70.00	50.00	70.00	364.00	593.00
BE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	1.00	2.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	75.00	18.00
CO (PPM)	200.00	200.00	70.00	50.00	200.00	10.00	15.00	70.00	4.00	-4.00
CR (PPM)	150.00	150.00	100.00	100.00	150.00	10.00	150.00	50.00	266.00	67.00
CU (PPM)	ND	ND	ND	70.00	100.00	50.00	70.00	100.00	136.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	65.00	7.00
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	-15.00	-15.00
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	11.00	4.00
MN (PPM)	1500.00	1000.00	1000.00	1500.00	1500.00	1000.00	2000.00	5000.00	43.00	11.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	-4.00	-4.00
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	-4.00	-4.00
NI (PPM)	150.00	150.00	150.00	150.00	150.00	5.00	200.00	100.00	8.00	-2.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	699.00	476.00
PB (PPM)	20.00	30.00	ND	ND	10.00	ND	ND	30.00	151.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	30.00	50.00	30.00	15.00	7.00	70.00	50.00	23.00	18.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	100.00	ND	ND	ND	ND	ND	23.00	34.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	150.00	ND	ND
TI (PPM)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2686.00	1530.00
V (PPM)	700.00	700.00	500.00	500.00	700.00	30.00	100.00	100.00	239.00	168.00
Y (PPM)	20.00	15.00	10.00	10.00	300.00	10.00	500.00	30.00	7.00	1.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	20.00	9.00
ZR (PPM)	20.00	50.00	50.00	50.00	300.00	500.00	1000.00	500.00	253.00	56.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160541	160542	160543	160544	160545	160546	160547	160548	160549	160550
ELEVATION	8375.00	8415.00	8425.00	8380.00	8320.00	8320.00	8280.00	8280.00	8285.00	8520.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	CQ	CQ	PAC	PAC	PAC	PAC	PAC	PAC	CQ	CQ
UL (PPM)	14.92	10.80	4.61	4.90	14.11	6.16	9.87	4.05	2.53	1.55
UT (PPM)	15.10	8.60	4.20	5.20	14.30	7.90	12.40	5.00	2.70	1.70
UL/UT	.99	1.26	1.10	.94	.99	.78	.80	.81	.94	.91
TH (PPM)	4.00	16.00	4.00	10.00	23.00	14.00	27.00	13.00	5.00	-2.00
TH/UT	.26	1.86	.95	1.92	1.61	1.77	2.18	2.60	1.85	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.49	4.23	4.84	6.42	6.39	8.04	5.97	5.89	8.07	4.88
CA (%)	.05	-.05	2.81	.10	.15	.17	.10	.07	.18	-.05
FE (%)	4.05	3.85	4.94	.95	3.23	4.30	1.23	1.54	2.51	.77
MG (%)	.19	.68	.87	.31	.87	1.28	.18	.18	.32	.17
NA (%)	.15	.08	.09	.21	.13	.18	.14	.14	.18	.12
K (%)	1.85	1.23	1.41	2.27	2.07	2.41	2.31	2.22	2.70	2.04
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	11.00	13.00	11.00	12.00	11.00	16.00	-10.00
BA (PPM)	381.00	249.00	343.00	580.00	599.00	686.00	523.00	470.00	715.00	594.00
BE (PPM)	1.00	-1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
CE (PPM)	396.00	34.00	31.00	21.00	42.00	23.00	65.00	49.00	28.00	-10.00
CO (PPM)	-4.00	9.00	9.00	10.00	19.00	14.00	12.00	8.00	5.00	-4.00
CR (PPM)	100.00	85.00	151.00	202.00	145.00	269.00	153.00	150.00	71.00	35.00
CU (PPM)	39.00	55.00	53.00	12.00	22.00	21.00	39.00	58.00	12.00	10.00
HF (PPM)	530.00	27.00	20.00	4.00	35.00	13.00	78.00	61.00	31.00	-2.00
LA (PPM)	30.00	-15.00	24.00	68.00	-15.00	-15.00	-15.00	38.00	-15.00	-15.00
LI (PPM)	3.00	10.00	13.00	6.00	19.00	22.00	4.00	8.00	8.00	7.00
MN (PPM)	43.00	57.00	252.00	110.00	169.00	288.00	60.00	56.00	204.00	17.00
MO (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	-2.00	22.00	34.00	19.00	53.00	78.00	31.00	42.00	26.00	12.00
P (PPM)	623.00	146.00	14050.00	538.00	766.00	680.00	525.00	319.00	365.00	188.00
PB (PPM)	-10.00	13.00	11.00	10.00	32.00	16.00	-10.00	21.00	-10.00	-10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	27.00	9.00	11.00	18.00	13.00	17.00	9.00	9.00	6.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	20.00	10.00	23.00	18.00	17.00	20.00	26.00	17.00	25.00	22.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2362.00	972.00	2956.00	891.00	1422.00	1830.00	832.00	1736.00	1492.00	847.00
V (PPM)	211.00	82.00	127.00	122.00	129.00	166.00	84.00	80.00	53.00	41.00
Y (PPM)	11.00	3.00	8.00	4.00	9.00	7.00	6.00	5.00	4.00	2.00
ZN (PPM)	18.00	22.00	11.00	15.00	26.00	38.00	14.00	17.00	18.00	11.00
ZR (PPM)	96.00	61.00	48.00	71.00	91.00	81.00	103.00	48.00	61.00	39.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160551	160552	160553	160554	160555	160556	160557	160558	711039	711040
ELEVATION	8540.00	8540.00	8540.00	8540.00	9240.00	9235.00	9235.00	9120.00	7960.00	8020.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	PL	PL
LITHOLOGY	PAC	PAC	PAC	PAC	PAC	PAC	PAC	PAC	FQ	FQ
UL (PPM)	20.43	40.63	44.81	177.20	9.53	16.00	22.28	4.82	.51	1.21
UT (PPM)	26.10	44.20	49.00	271.00	10.00	18.50	24.50	5.00	1.30	2.00
UL/UT	.78	.92	.91	.65	.95	.86	.91	.96	.39	.60
TH (PPM)	22.00	22.00	76.00	57.00	7.00	15.00	4.00	3.00	-2.00	11.00
TH/UT	.84	.50	1.55	.21	.70	.81	.16	.60	ND	5.50
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.41	6.87	7.45	7.96	6.85	6.98	5.47	3.80	7.31	6.83
CA (%)	.14	.15	.16	.16	-.05	.14	.05	.09	.42	1.69
FE (%)	2.21	1.79	2.58	2.19	3.07	4.40	7.20	2.47	7.07	7.37
MG (%)	.34	.29	.22	.22	.32	.25	.35	.56	1.73	.80
NA (%)	.15	.17	.19	.21	.16	.14	.10	.08	2.18	2.15
K (%)	2.48	2.51	2.49	2.73	2.27	2.12	1.58	1.22	1.28	1.20
AG (PPM)	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	13.00	12.00	10.00	10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	751.00	711.00	707.00	822.00	392.00	423.00	325.00	236.00	157.00	649.00
BE (PPM)	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	60.00	72.00	75.00	75.00	68.00	37.00	29.00	18.00	25.00	21.00
CO (PPM)	11.00	5.00	10.00	6.00	4.00	9.00	17.00	4.00	7.00	8.00
CR (PPM)	228.00	153.00	222.00	273.00	218.00	284.00	224.00	116.00	14.00	24.00
CU (PPM)	39.00	109.00	74.00	148.00	28.00	53.00	74.00	11.00	2.00	29.00
HF (PPM)	72.00	75.00	95.00	83.00	69.00	22.00	24.00	15.00	24.00	14.00
LA (PPM)	-15.00	-15.00	24.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LI (PPM)	13.00	13.00	11.00	12.00	14.00	9.00	15.00	17.00	19.00	45.00
MN (PPM)	75.00	61.00	83.00	121.00	59.00	73.00	82.00	65.00	199.00	376.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
ND (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	5.00
NI (PPM)	33.00	17.00	30.00	32.00	22.00	29.00	75.00	14.00	15.00	10.00
P (PPM)	721.00	688.00	608.00	666.00	240.00	876.00	601.00	655.00	364.00	395.00
PB (PPM)	15.00	39.00	48.00	54.00	-10.00	-10.00	18.00	-10.00	14.00	12.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	12.00	14.00	16.00	17.00	32.00	15.00	7.00	5.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	35.00	40.00	35.00	46.00	20.00	31.00	23.00	115.00	119.00	128.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2275.00	2175.00	3421.00	4538.00	3020.00	3589.00	1419.00	722.00	1410.00	2100.00
V (PPM)	103.00	114.00	144.00	157.00	178.00	223.00	145.00	64.00	50.00	51.00
Y (PPM)	11.00	11.00	18.00	14.00	4.00	5.00	5.00	3.00	3.00	6.00
ZN (PPM)	21.00	15.00	14.00	17.00	13.00	17.00	21.00	15.00	26.00	47.00
ZR (PPM)	96.00	116.00	194.00	151.00	119.00	85.00	52.00	51.00	68.00	81.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	711041	711042	711043	711044	711045	711046	711047	711048	711049	711050
ELEVATION	8495.00	8445.00	9140.00	8620.00	8825.00	8920.00	8900.00	8860.00	8780.00	8220.00
FORMATION	AGN	PL	MG	MG	PL	PL	PL	PL	PL	AGN
LITHOLOGY	GN	CR	GPC	GPC	BA	TF	BSC	APC	BA	GN
UL (PPM)	2.97	.89	89.08	36.55	3.86	.43	2.77	26.30	1.53	4.87
UT (PPM)	3.50	1.20	90.80	35.80	3.70	.50	2.60	21.20	1.70	4.90
UL/UT	.85	.74	.98	1.02	1.04	.86	1.07	1.24	.90	.99
TH (PPM)	11.00	3.00	231.00	538.00	11.00	-2.00	5.00	29.00	11.00	15.00
TH/UT	3.14	2.50	2.54	15.03	2.97	ND	1.92	1.37	6.47	3.06
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.59	4.86	5.97	3.73	5.84	7.03	6.46	3.21	8.84	5.96
CA (%)	1.97	.21	.06	.06	2.37	5.31	.54	-.05	.17	.51
FE (%)	2.11	2.11	1.46	3.38	2.56	9.43	5.12	2.14	4.01	.72
MG (%)	.85	.53	.51	.20	.79	3.50	.40	.16	1.40	.21
NA (%)	2.60	.13	.20	.18	1.62	.46	1.42	.07	.43	3.57
K (%)	1.72	1.51	2.47	1.45	1.62	.46	2.29	1.40	3.64	.65
AG (PPM)	-2.00	-2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	19.00	11.00	11.00	-10.00	-10.00	-10.00	-10.00	28.00	-10.00
BA (PPM)	768.00	341.00	727.00	160.00	869.00	149.00	1650.00	297.00	954.00	581.00
BE (PPM)	1.00	-1.00	2.00	2.00	2.00	1.00	3.00	1.00	2.00	1.00
CE (PPM)	52.00	34.00	388.00	1107.00	68.00	42.00	90.00	40.00	49.00	20.00
CO (PPM)	11.00	7.00	-4.00	9.00	10.00	52.00	4.00	5.00	14.00	4.00
CR (PPM)	37.00	47.00	91.00	66.00	53.00	86.00	5.00	72.00	157.00	5.00
CU (PPM)	12.00	9.00	32.00	94.00	5.00	237.00	4.00	12.00	21.00	48.00
HF (PPM)	59.00	42.00	538.00	1540.00	68.00	-2.00	109.00	54.00	48.00	24.00
LA (PPM)	-15.00	31.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	44.00	30.00
LI (PPM)	20.00	17.00	15.00	11.00	20.00	22.00	21.00	5.00	52.00	5.00
MN (PPM)	337.00	225.00	34.00	48.00	505.00	1315.00	672.00	46.00	227.00	73.00
MO (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	22.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	6.00	78.00	-4.00	-4.00	8.00	-4.00	-4.00	4.00
NI (PPM)	16.00	18.00	2.00	14.00	23.00	75.00	10.00	5.00	53.00	5.00
P (PPM)	759.00	663.00	361.00	867.00	335.00	391.00	876.00	251.00	617.00	174.00
PB (PPM)	15.00	-10.00	131.00	310.00	42.00	12.00	-10.00	35.00	28.00	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	5.00	8.00	10.00	7.00	36.00	7.00	4.00	14.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	229.00	24.00	19.00	19.00	96.00	95.00	198.00	19.00	38.00	42.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2000.00	1514.00	3137.00	778.00	2188.00	5853.00	4254.00	634.00	3366.00	628.00
V (PPM)	51.00	53.00	62.00	46.00	61.00	298.00	9.00	33.00	116.00	14.00
Y (PPM)	7.00	8.00	27.00	52.00	10.00	18.00	21.00	6.00	10.00	6.00
ZN (PPM)	32.00	38.00	10.00	16.00	60.00	104.00	113.00	11.00	61.00	14.00
ZR (PPM)	63.00	46.00	921.00	263.00	77.00	7.00	133.00	66.00	72.00	79.00

MEDICINE BOW NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	711051	711052	711053	711054	711415	711416	711417	711478
ELEVATION	8220.00	8260.00	8270.00	8330.00	8465.00	9170.00	9175.00	41.56
FORMATION	PL	PL	PL	PL	MG	MG	MG	MG
LITHOLOGY	HGN	FQ	FQ	FQ	GPC	APC	APC	GPC
UL (PPM)	-.25	.65	.66	3.56	42.90	18.73	14.66	23.34
UT (PPM)	.60	1.10	.70	3.10	41.40	16.70	16.20	27.70
UL/UT	ND	.59	.94	1.15	1.04	1.12	.90	.84
TH (PPM)	-2.00	4.73	4.00	11.00	344.00	44.00	134.00	253.00
TH/UT	ND	4.30	5.72	3.55	8.31	2.63	8.27	9.13
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.85	5.28	5.83	6.37	5.78	7.91	10.26	3.57
CA (%)	4.97	.39	4.72	.41	.25	.06	-.05	-.05
FE (%)	7.44	1.20	8.81	1.82	2.43	2.02	2.00	1.52
MG (%)	4.14	.38	2.53	.48	.39	.56	.66	.28
NA (%)	2.43	1.78	2.05	2.10	1.07	.82	1.19	.06
K (%)	.16	1.81	.42	2.23	1.73	2.85	3.44	1.85
AG (PPM)	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	17.00	15.00	22.00	-10.00
BA (PPM)	39.00	1148.00	424.00	1296.00	247.00	616.00	642.00	304.00
BE (PPM)	-1.00	1.68	1.00	2.00	2.00	2.00	2.00	1.00
CE (PPM)	18.00	32.30	48.00	62.00	326.00	48.00	107.00	219.00
CO (PPM)	48.00	5.35	42.00	8.00	10.00	-4.00	-4.00	20.00
CR (PPM)	479.00	36.93	99.00	66.00	53.00	71.00	82.00	42.00
CU (PPM)	249.00	15.84	17.00	27.00	177.00	29.00	12.00	485.00
HF (PPM)	-2.00	29.16	23.00	52.00	456.00	62.00	144.00	256.00
LA (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LI (PPM)	15.00	11.53	11.00	22.00	16.00	20.00	21.00	8.00
MN (PPM)	851.00	181.30	1670.00	138.00	168.00	54.00	47.00	28.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	4.87	-4.00	-4.00	68.00	7.00	8.00	52.00
NI (PPM)	116.00	15.39	69.00	21.00	16.00	7.00	11.00	9.00
P (PPM)	124.00	336.50	602.00	643.00	369.00	176.00	174.00	239.00
PB (PPM)	16.00	-10.00	18.00	-10.00	411.00	42.00	38.00	877.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	27.00	3.18	17.00	4.00	7.00	8.00	8.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	118.00	116.10	236.00	137.00	28.00	30.00	33.00	20.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2050.00	1146.00	5753.00	1939.00	1373.00	2167.00	2927.00	899.00
V (PPM)	168.00	27.30	266.00	37.00	48.00	69.00	88.00	17.00
Y (PPM)	8.00	4.45	11.00	12.00	31.00	4.00	9.00	29.00
ZN (PPM)	47.00	21.79	134.00	28.00	182.00	15.00	13.00	102.00
ZR (PPM)	10.00	43.31	37.00	173.00	181.00	91.00	149.00	129.00

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Figure 44. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transects 1, 2 and 3, Carrico Ranch, north-west Sierra Madre. ND = NO DATA AVAILABLE

TRANSECT NUMBER 1

SAMP. NO.	152504	152517	152520	152522	152534	152537	152547	152556
ELEVATION	7745.00	7615.00	7730.00	7720.00	7745.00	7710.00	7740.00	7720.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QBC	QGC	QPC	QPC	QPC	QPC	QGC	QPC
UL (PPM)	1.39	1.80	5.26	14.67	2.05	2.37	1.75	-.25
UT (PPM)	1.00	1.30	4.50	21.20	1.70	2.30	1.10	1.20
UL/UT	1.39	1.38	1.17	.69	1.21	1.03	1.59	-.21
TH (PPM)	5.00	11.00	72.00	524.00	12.00	21.00	6.00	21.00
TH/UT	5.00	8.47	16.00	24.72	7.06	9.13	5.46	17.51
AU (PPM)	ND	ND	0.00	0.00	0.00	0.00	0.00	0.00
AL (%)	4.84	5.44	4.24	3.98	3.88	4.40	5.02	5.01
CA (%)	-.05	-.05	.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.15	.27	.59	1.65	.25	.49	.18	.34
MG (%)	.12	.15	.21	.18	.13	.18	.15	.14
NA (%)	.21	.32	.11	.08	.20	.06	.17	.08
K (%)	3.51	4.34	2.81	2.55	3.30	2.81	3.91	3.13
AG (PPM)	-2.00	-2.00	-2.00	6.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	14.00	-10.00	-10.00	-10.00	14.00	11.00	15.00
BA (PPM)	677.00	1304.00	802.00	775.00	1013.00	704.00	892.00	653.00
BE (PPM)	3.00	2.00	1.00	3.00	-1.00	3.00	2.00	2.00
CE (PPM)	29.00	27.00	35.00	87.00	21.00	54.00	15.00	27.00
CO (PPM)	-4.00	-4.00	-4.00	7.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	17.00	14.00	29.00	35.00	12.00	28.00	29.00	25.00
CU (PPM)	5.00	5.00	17.00	51.00	3.00	12.00	2.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	5.00	9.00	9.00	5.00	9.00	6.00	5.00
MN (PPM)	13.00	67.00	29.00	142.00	51.00	18.00	13.00	142.00
MO (PPM)	-4.00	5.00	-4.00	7.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	5.00	7.00	20.00	-4.00	7.00	5.00	6.00
NI (PPM)	4.00	5.00	-2.00	5.00	2.00	3.00	2.00	3.00
P (PPM)	20.00	34.00	80.00	298.00	40.00	62.00	29.00	58.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	2.00	3.00	6.00	2.00	3.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	41.00	100.00	62.00	77.00	71.00	51.00	57.00	39.00
TI (PPM)	929.00	480.00	1271.00	1573.00	530.00	1576.00	776.00	1281.00
V (PPM)	15.00	14.00	26.00	45.00	10.00	25.00	14.00	26.00
Y (PPM)	2.00	2.00	7.00	24.00	2.00	4.00	2.00	2.00
ZN (PPM)	4.00	3.00	5.00	6.00	4.00	7.00	3.00	8.00
ZR (PPM)	15.00	26.00	129.00	409.00	35.00	51.00	26.00	24.00

TRANSECT NUMBER 2

SAMP. NO.	152519	152524	152526	152527	152536	152539	152545	152551
ELEVATION	7740.00	7740.00	7740.00	7750.00	7710.00	7720.00	7710.00	7720.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	11.98	21.13	2.36	1.73	3.80	1.38	4.19	7.89
UT (PPM)	9.90	25.90	1.80	1.60	2.60	1.30	4.60	10.90
UL/UT	1.21	.82	1.31	1.08	1.46	1.06	.91	.72
TH (PPM)	98.00	455.00	11.00	17.00	17.00	8.00	44.00	248.00
TH/UT	9.90	17.57	6.11	10.63	6.54	6.16	9.57	22.75
AU (PPM)	0.00	0.00	0.00	ND	0.00	ND	0.00	0.00
AL (%)	3.21	3.78	4.52	4.74	4.03	5.90	3.68	3.81
CA (%)	-.05	-.05	-.05	.05	-.05	-.05	-.05	.10
FE (%)	2.27	1.57	.28	.34	.32	.24	.37	.75
MG (%)	.15	.16	.13	.17	.12	.16	.13	.19
NA (%)	.07	.08	.17	.14	.07	.07	.06	.06
K (%)	2.42	2.85	3.58	3.54	2.66	3.07	2.38	2.51
AG (PPM)	-2.00	4.00	5.00	7.00	6.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	13.00	11.00	-10.00	20.00	-10.00	-10.00
BA (PPM)	719.00	758.00	880.00	811.00	624.00	608.00	622.00	732.00
BE (PPM)	3.00	3.00	2.00	2.00	2.00	2.00	1.00	1.00
CE (PPM)	64.00	73.00	33.00	33.00	28.00	39.00	43.00	45.00
CO (PPM)	10.00	11.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	37.00	60.00	18.00	23.00	20.00	28.00	19.00	22.00
CJ (PPM)	46.00	44.00	9.00	13.00	11.00	6.00	3.00	14.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	9.00	6.00	7.00	5.00	6.00	5.00	9.00
MN (PPM)	102.00	90.00	35.00	66.00	21.00	45.00	36.00	28.00
MO (PPM)	7.00	9.00	4.00	4.00	-4.00	4.00	-4.00	-4.00
NB (PPM)	20.00	17.00	7.00	7.00	8.00	6.00	-4.00	11.00
NI (PPM)	6.00	8.00	3.00	4.00	2.00	4.00	-2.00	-2.00
P (PPM)	224.00	345.00	134.00	85.00	47.00	86.00	61.00	145.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	6.00	2.00	2.00	2.00	2.00	2.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	58.00	116.00	77.00	55.00	41.00	74.00	36.00	52.00
TI (PPM)	1127.00	1389.00	725.00	921.00	932.00	1120.00	1073.00	1409.00
V (PPM)	31.00	34.00	15.00	16.00	14.00	22.00	14.00	16.00
Y (PPM)	14.00	20.00	2.00	2.00	3.00	2.00	6.00	12.00
ZN (PPM)	7.00	9.00	7.00	9.00	7.00	5.00	6.00	6.00
ZR (PPM)	385.00	911.00	24.00	26.00	50.00	21.00	120.00	234.00

TRANSECT NUMBER 3

SAMP. NO.	152501	152518	152521	152530	152531	152552	152553	152554	152557
ELEVATION	7750.00	7720.00	7750.00	7715.00	7755.00	7760.00	7730.00	7730.00	7740.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	QGC	QPC	QPC	QGC	QPC
UL (PPM)	20.67	16.42	11.53	10.98	.78	4.62	ND	-.25	1.16
UT (PPM)	19.80	18.00	13.90	17.20	1.40	5.10	ND	1.10	1.60
UL/UT	1.04	.91	.83	.64	.56	.91	ND	-.23	.72
TH (PPM)	215.00	336.00	141.00	119.00	5.00	42.00	ND	5.00	22.00
TH/UT	10.86	18.67	10.14	6.92	3.57	8.24	ND	4.55	13.76
AU (PPM)	0.00	0.00	0.00	0.00	ND	0.00	ND	0.00	0.00
AL (%)	3.22	3.65	2.98	4.29	.90	3.63	ND	4.37	4.68
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	ND	-.05	-.05
FE (%)	1.96	1.30	1.96	.49	.10	.66	ND	.26	.36
MG (%)	.13	.19	.11	.18	.05	.18	ND	.12	.12
NA (%)	.26	.05	.07	.06	.09	.07	ND	.13	.07
K (%)	2.51	2.25	2.39	2.47	2.62	2.53	ND	2.73	2.77
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	ND	-2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	15.00	15.00	-10.00	ND	-10.00	14.00
BA (PPM)	861.00	531.00	643.00	635.00	505.00	620.00	ND	565.00	512.00
BE (PPM)	3.00	1.00	3.00	3.00	1.00	3.00	ND	2.00	2.00
CE (PPM)	11.00	83.00	75.00	49.00	-10.00	31.00	ND	22.00	39.00
CO (PPM)	5.00	8.00	8.00	4.00	-4.00	-4.00	ND	-4.00	-4.00
CR (PPM)	27.00	24.00	26.00	44.00	14.00	23.00	ND	21.00	26.00
CU (PPM)	26.00	19.00	25.00	17.00	6.00	14.00	ND	10.00	8.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	9.00	6.00	7.00	5.00	9.00	ND	5.00	5.00
MN (PPM)	41.00	46.00	56.00	128.00	18.00	73.00	ND	23.00	26.00
MO (PPM)	5.00	-4.00	4.00	4.00	-4.00	-4.00	ND	-4.00	-4.00
NB (PPM)	17.00	19.00	17.00	5.00	4.00	11.00	ND	-4.00	4.00
NI (PPM)	4.00	4.00	6.00	2.00	5.00	5.00	ND	4.00	2.00
P (PPM)	208.00	193.00	199.00	117.00	68.00	99.00	ND	33.00	41.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	5.00	3.00	4.00	-1.00	3.00	ND	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	59.00	32.00	59.00	48.00	13.00	72.00	ND	32.00	27.00
TI (PPM)	997.00	1469.00	813.00	1938.00	502.00	872.00	ND	990.00	1169.00
V (PPM)	22.00	21.00	22.00	31.00	12.00	20.00	ND	15.00	21.00
Y (PPM)	10.00	17.00	8.00	15.00	-1.00	5.00	ND	1.00	2.00
ZN (PPM)	5.00	6.00	6.00	8.00	3.00	4.00	ND	14.00	8.00
ZR (PPM)	402.00	367.00	230.00	342.00	36.00	131.00	ND	16.00	40.00

Figure 45. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transects 4, 5, 6 and 7, Carrico Ranch, northwest Sierra Madre. ND = NO DATA AVAILABLE

TRANSECT NUMBER 4

SAMP. NO.	152533	152540	152541	152542	152543	152544	152546	152549	152555
ELEVATION	7750.00	7760.00	7740.00	7770.00	7770.00	7775.00	7740.00	7745.00	7745.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QGC	QPC	QGC	QPC	QPC	QPC	QPC
UL (PPM)	6.96	7.00	2.66	20.86	.79	26.67	5.74	13.40	22.77
UT (PPM)	6.70	6.30	2.60	23.60	1.60	26.20	4.70	13.60	24.50
UL/UT	1.04	1.11	1.02	.88	.49	1.02	1.22	.99	.93
TH (PPM)	43.00	49.00	26.00	176.00	6.00	110.00	18.00	71.00	205.00
TH/UT	6.42	7.78	10.00	7.46	3.75	4.20	3.83	5.22	8.37
AU (PPM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AL (%)	4.44	3.15	5.16	3.24	6.87	3.58	4.91	4.93	3.55
CA (%)	-.05	-.05	-.05	-.05	-.05	.07	-.05	-.05	-.05
FE (%)	.53	.55	.37	1.33	.43	2.44	.53	.54	.82
MG (%)	.16	.10	.18	.13	.25	.19	.25	.15	.20
NA (%)	.08	.07	.12	.05	.11	.06	.08	.09	.16
K (%)	2.91	2.71	3.39	2.33	4.13	2.74	2.85	2.83	2.01
AG (PPM)	4.00	2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	2.00
B (PPM)	18.00	-10.00	16.00	-10.00	19.00	-10.00	14.00	14.00	-10.00
BA (PPM)	808.00	711.00	1007.00	635.00	898.00	778.00	555.00	572.00	518.00
BE (PPM)	4.00	2.00	1.00	1.00	4.00	1.00	3.00	3.00	1.00
CE (PPM)	25.00	33.00	37.00	84.00	38.00	82.00	44.00	48.00	82.00
CO (PPM)	-4.00	-4.00	-4.00	11.00	-4.00	18.00	5.00	5.00	5.00
CR (PPM)	21.00	16.00	21.00	18.00	48.00	31.00	41.00	35.00	24.00
CU (PPM)	22.00	6.00	14.00	84.00	8.00	44.00	28.00	45.00	33.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	4.00	6.00	6.00	8.00	9.00	8.00	5.00	6.00
MN (PPM)	36.00	34.00	19.00	23.00	28.00	105.00	28.00	17.00	30.00
MO (PPM)	6.00	6.00	-4.00	-4.00	-4.00	-4.00	4.00	4.00	-4.00
NB (PPM)	18.00	8.00	5.00	16.00	9.00	27.00	5.00	4.00	9.00
NI (PPM)	3.00	3.00	2.00	10.00	6.00	12.00	8.00	7.00	3.00
P (PPM)	91.00	130.00	119.00	172.00	78.00	287.00	107.00	89.00	173.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	1.00	3.00	3.00	4.00	4.00	3.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	104.00	57.00	110.00	53.00	90.00	69.00	86.00	75.00	57.00
TI (PPM)	994.00	524.00	1204.00	1089.00	2288.00	1232.00	1546.00	1672.00	1566.00
V (PPM)	20.00	10.00	19.00	16.00	32.00	23.00	27.00	29.00	17.00
Y (PPM)	4.00	5.00	3.00	11.00	2.00	23.00	3.00	7.00	11.00
ZN (PPM)	2.00	7.00	9.00	4.00	7.00	11.00	6.00	4.00	6.00
ZR (PPM)	108.00	91.00	31.00	317.00	22.00	399.00	46.00	222.00	266.00

TRANSECT NUMBER 5

SAMP. NO.	152523	152525	152529	152532	152535	152538	152548	152550
ELEVATION	7755.00	7755.00	7750.00	7745.00	7747.00	7740.00	7765.00	7740.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QGC	QPC	QPC	QGC	QPC
UL (PPM)	2.85	3.19	5.20	2.34	47.27	1.06	1.75	5.27
UT (PPM)	2.20	2.10	5.20	2.10	47.50	1.50	.70	5.20
UL/UT	1.30	1.52	1.00	1.11	1.00	.71	2.50	1.01
TH (PPM)	10.00	12.00	26.00	10.00	297.00	4.00	4.00	25.00
TH/UT	4.55	5.72	5.00	4.76	6.25	2.67	5.72	4.81
AU (PPM)	0.00	0.00	0.00	ND	.27	0.00	0.00	0.00
AL (%)	5.57	5.70	4.56	4.61	3.57	4.57	5.83	5.02
CA (%)	.15	.05	.06	-.05	.05	.06	.08	.05
FE (%)	.53	.46	1.06	.31	2.23	.57	.68	.37
MG (%)	.34	.21	.16	.12	.15	.26	.30	.13
NA (%)	1.94	1.32	1.01	1.64	.56	1.63	2.05	.99
K (%)	2.51	3.46	3.19	2.98	2.69	2.26	2.65	3.76
AG (PPM)	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	763.00	1303.00	1572.00	879.00	1143.00	816.00	987.00	1223.00
BE (PPM)	2.00	1.00	-1.00	1.00	1.00	1.00	2.00	2.00
CE (PPM)	-10.00	32.00	45.00	13.00	151.00	13.00	12.00	20.00
CO (PPM)	7.00	4.00	-4.00	-4.00	20.00	6.00	-4.00	-4.00
CR (PPM)	58.00	34.00	41.00	20.00	37.00	30.00	26.00	18.00
CU (PPM)	16.00	28.00	24.00	10.00	57.00	16.00	15.00	8.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	12.00	8.00	7.00	3.00	8.00	9.00	7.00	8.00
MN (PPM)	22.00	40.00	71.00	18.00	43.00	25.00	35.00	61.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	10.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	6.00	5.00
NI (PPM)	13.00	13.00	8.00	6.00	11.00	20.00	10.00	7.00
P (PPM)	196.00	88.00	111.00	99.00	207.00	112.00	128.00	69.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	3.00	1.00	4.00	2.00	3.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	131.00	102.00	133.00	92.00	81.00	109.00	155.00	98.00
TI (PPM)	1158.00	625.00	895.00	210.00	792.00	902.00	1270.00	741.00
V (PPM)	29.00	23.00	20.00	11.00	41.00	22.00	25.00	21.00
Y (PPM)	1.00	3.00	4.00	3.00	22.00	2.00	1.00	5.00
ZN (PPM)	11.00	4.00	4.00	6.00	23.00	7.00	9.00	10.00
ZR (PPM)	23.00	37.00	74.00	34.00	427.00	24.00	13.00	37.00

TRANSECT NUMBER 6

SAMP. NO.	152493	152495	152500	152502	152506	152515
ELEVATION	7900.00	7900.00	7910.00	7910.00	7910.00	7900.00
FORMATION	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	18.00	4.39	14.07	11.41	10.88	9.71
UT (PPM)	19.60	6.00	11.50	8.70	9.20	7.70
UL/UT	.92	.73	1.22	1.31	1.18	1.26
TH (PPM)	190.00	59.00	51.00	84.00	62.00	83.00
TH/UT	9.69	9.83	4.43	9.66	6.74	10.78
AU (PPM)	0.00	0.00	0.00	0.00	0.00	0.00
AL (%)	3.49	4.29	2.06	3.33	2.94	4.59
CA (%)	-.05	-.05	-.05	-.05	-.05	.07
FE (%)	1.52	1.48	1.05	1.31	1.48	1.04
MG (%)	.13	.16	.10	.14	.12	.30
NA (%)	.24	.33	.08	.10	.43	.82
K (%)	2.83	2.80	1.74	2.61	1.68	2.83
AG (PPM)	2.00	6.00	-2.00	4.00	-2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	698.00	685.00	340.00	700.00	391.00	1080.00
BE (PPM)	2.00	3.00	3.00	3.00	2.00	3.00
CE (PPM)	42.00	31.00	33.00	45.00	25.00	30.00
CO (PPM)	10.00	6.00	-4.00	-4.00	8.00	9.00
CR (PPM)	22.00	49.00	16.00	25.00	25.00	100.00
CU (PPM)	24.00	5.00	10.00	16.00	10.00	17.00
HF (PPM)	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	6.00	4.00	5.00	4.00	11.00
MN (PPM)	35.00	29.00	44.00	31.00	24.00	62.00
MO (PPM)	11.00	-4.00	10.00	4.00	-4.00	-4.00
NB (PPM)	13.00	-4.00	10.00	14.00	4.00	4.00
NI (PPM)	6.00	5.00	3.00	2.00	3.00	15.00
P (PPM)	155.00	158.00	144.00	299.00	164.00	445.00
PB (PPM)	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	3.00	2.00	3.00	2.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	52.00	48.00	27.00	57.00	39.00	74.00
TI (PPM)	930.00	1410.00	623.00	968.00	934.00	1377.00
V (PPM)	18.00	26.00	12.00	17.00	13.00	38.00
Y (PPM)	11.00	5.00	7.00	6.00	6.00	8.00
ZN (PPM)	7.00	6.00	5.00	4.00	4.00	8.00
ZR (PPM)	183.00	213.00	151.00	209.00	138.00	271.00

TRANSECT NUMBER 7

SAMP. NO.	152494	152496	152498	152503	152511	152512
ELEVATION	7900.00	7900.00	7900.00	7910.00	7900.00	7900.00
FORMATION	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPM)	10.64	11.20	ND	1.58	11.28	24.99
UT (PPM)	9.80	6.20	17.00	1.60	10.70	18.50
UL/UT	1.09	1.81	-5882.29	.99	1.05	1.35
TH (PPM)	106.00	245.00	ND	14.00	55.00	190.00
TH/IT	10.82	39.52	-5882.29	8.76	5.14	10.27
AU (PPM)	0.00	0.00	0.00	ND	0.00	0.00
AL (%)	3.05	2.84	ND	4.12	2.59	2.79
CA (%)	-.05	-.05	ND	-.05	.07	-.05
FE (%)	1.19	2.82	ND	.14	.86	1.49
MG (%)	.09	.11	ND	.10	.12	.12
NA (%)	.16	.08	ND	.21	.07	.06
K (%)	2.56	1.93	ND	3.37	2.01	2.12
AG (PPM)	2.00	7.00	ND	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	ND	-10.00	-10.00	-10.00
BA (PPM)	774.00	602.00	ND	711.00	474.00	564.00
BE (PPM)	1.00	3.00	ND	1.00	2.00	2.00
CE (PPM)	56.00	48.00	ND	24.00	42.00	74.00
CO (PPM)	6.00	25.00	ND	-4.00	-4.00	6.00
CR (PPM)	15.00	27.00	ND	14.00	24.00	29.00
CU (PPM)	39.00	60.00	ND	7.00	7.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND
LI (PPM)	3.00	4.00	ND	3.00	4.00	4.00
HN (PPM)	25.00	24.00	ND	23.00	41.00	38.00
MO (PPM)	4.00	6.00	ND	-4.00	10.00	9.00
NB (PPM)	6.00	4.00	ND	6.00	11.00	12.00
NI (PPM)	10.00	17.00	ND	3.00	5.00	5.00
P (PPM)	127.00	230.00	ND	26.00	126.00	234.00
PB (PPM)	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	ND	1.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	58.00	41.00	ND	54.00	36.00	40.00
TI (PPM)	666.00	945.00	ND	659.00	875.00	1028.00
V (PPM)	18.00	34.00	ND	10.00	15.00	17.00
Y (PPM)	6.00	15.00	ND	2.00	6.00	8.00
ZN (PPM)	5.00	6.00	ND	5.00	3.00	7.00
ZR (PPM)	129.00	335.00	ND	24.00	114.00	205.00

Figure 46. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transects 8, 9, 10 and 11, Carrico Ranch, northwest Sierra Madre.

TRANSECT NUMBER 8

SAMP. NO.	152508	152509	152514	152516
ELEVATION	7900.00	7900.00	7900.00	7900.00
FORMATION	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC
UL (PPM)	9.57	3.68	9.16	3.80
UT (PPM)	8.70	3.30	11.80	2.90
UL/UT	1.10	1.12	.78	1.31
TH (PPM)	15.00	14.00	97.00	12.00
TH/UT	1.72	4.24	7.80	4.14
AU (PPM)	0.00	0.00	0.00	ND
AL (%)	1.19	4.27	2.76	5.38
CA (%)	-.05	.78	.09	.06
FE (%)	.87	.33	.46	.31
MG (%)	.05	.12	.06	.16
NA (%)	-.05	1.85	.40	.76
K (%)	.93	.68	2.06	2.32
AG (PPM)	-2.00	-2.00	-2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	13.00
BA (PPM)	231.00	318.00	643.00	569.00
BE (PPM)	1.00	1.00	-1.00	3.00
CE (PPM)	10.00	23.00	51.00	12.00
CD (PPM)	4.00	-4.00	-4.00	-4.00
CR (PPM)	15.00	12.00	14.00	29.00
CU (PPM)	6.00	13.00	28.00	17.00
HF (PPM)	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND
LI (PPM)	2.00	5.00	2.00	4.00
MN (PPM)	24.00	52.00	15.00	47.00
MO (PPM)	9.00	-4.00	-4.00	-4.00
NB (PPM)	15.00	4.00	6.00	6.00
NI (PPM)	2.00	3.00	-2.00	6.00
P (PPM)	77.00	93.00	99.00	74.00
PB (PPM)	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND
SC (PPM)	1.00	2.00	2.00	3.00
SI (PPM)	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND
SR (PPM)	19.00	303.00	53.00	50.00
TI (PPM)	408.00	885.00	695.00	1332.00
V (PPM)	11.00	11.00	11.00	27.00
Y (PPM)	2.00	3.00	6.00	3.00
ZN (PPM)	4.00	10.00	6.00	6.00
ZR (PPM)	66.00	57.00	93.00	26.00

TRANSECT NUMBER 9

SAMP. NO.	152293	152497	152499	152507	152510	152513
ELEVATION	7900.00	8000.00	7895.00	8000.00	7900.00	7900.00
FORMATION	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QGC
UL (PPM)	ND	4.42	14.63	13.79	7.45	2.03
UT (PPM)	ND	5.80	16.00	15.00	7.30	2.30
UL/UT	ND	.76	.91	.92	1.02	.88
TH (PPM)	ND	58.00	108.00	119.00	25.00	32.00
TH/UT	ND	10.00	6.75	7.93	3.43	13.92
AU (PPM)	ND	0.00	0.00	0.00	0.00	ND
AL (%)	ND	3.45	4.32	3.16	2.89	3.68
CA (%)	ND	-.05	-.05	.05	.10	-.05
FE (%)	ND	1.19	1.28	1.74	1.84	.45
MG (%)	ND	.15	.25	.11	.10	.15
NA (%)	ND	.09	.13	.11	.05	.15
K (%)	ND	2.73	3.18	2.44	1.77	2.89
AG (PPM)	ND	2.00	-2.00	5.00	-2.00	-2.00
B (PPM)	ND	-10.00	-10.00	-10.00	12.00	-10.00
BA (PPM)	ND	582.00	781.00	726.00	390.00	774.00
BE (PPM)	ND	2.00	1.00	2.00	1.00	2.00
CE (PPM)	ND	46.00	36.00	32.00	30.00	33.00
CO (PPM)	ND	-4.00	-4.00	7.00	7.00	-4.00
CR (PPM)	ND	26.00	31.00	27.00	12.00	23.00
CU (PPM)	ND	16.00	11.00	13.00	290.00	7.00
HF (PPM)	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	4.00	8.00	4.00	3.00	5.00
MN (PPM)	ND	32.00	42.00	39.00	50.00	21.00
MO (PPM)	ND	5.00	-4.00	4.00	-4.00	4.00
NB (PPM)	ND	13.00	16.00	-4.00	13.00	8.00
NI (PPM)	ND	5.00	-2.00	3.00	-2.00	7.00
P (PPM)	ND	58.00	106.00	171.00	166.00	78.00
PB (PPM)	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	2.00	4.00	2.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	38.00	53.00	66.00	35.00	57.00
TI (PPM)	ND	813.00	1318.00	958.00	530.00	972.00
V (PPM)	ND	14.00	21.00	14.00	15.00	20.00
Y (PPM)	ND	3.00	7.00	7.00	2.00	2.00
ZN (PPM)	ND	10.00	4.00	4.00	32.00	8.00
ZR (PPM)	ND	68.00	212.00	230.00	68.00	43.00

TRANSECT NUMBER 10

SAMP. NO.	152259	152265	152278	152281
ELEVATION	7980.00	7970.00	7990.00	7970.00
FORMATION	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QGC	QPC
UL (PPM)	50.27	9.66	1.07	11.95
UT (PPM)	42.50	8.10	1.30	11.50
UL/UT	1.18	1.19	.82	1.04
TH (PPM)	224.00	50.00	8.00	117.00
TH/UT	5.27	6.17	6.16	10.17
AU (PPM)	0.00	0.00	ND	0.00
AL (%)	2.93	3.11	2.73	2.94
CA (%)	-.05	-.05	-.05	-.05
FE (%)	1.89	1.46	.19	.64
MG (%)	.15	-.05	.07	.10
NA (%)	.05	-.05	.17	.11
K (%)	1.89	2.31	2.53	2.56
AG (PPM)	-2.00	7.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00
BA (PPM)	464.00	1494.00	526.00	663.00
BE (PPM)	1.00	-1.00	1.00	2.00
CE (PPM)	70.00	30.00	21.00	34.00
CO (PPM)	10.00	-4.00	-4.00	8.00
CR (PPM)	30.00	12.00	9.00	18.00
CU (PPM)	33.00	40.00	10.00	23.00
HF (PPM)	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND
LI (PPM)	5.00	-1.00	2.00	3.00
MN (PPM)	23.00	48.00	10.00	33.00
MO (PPM)	7.00	-4.00	-4.00	-4.00
NB (PPM)	19.00	-4.00	-4.00	6.00
NI (PPM)	3.00	12.00	3.00	14.00
P (PPM)	166.00	141.00	60.00	79.00
PB (PPM)	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND
SC (PPM)	4.00	-1.00	1.00	2.00
SI (PPM)	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND
SR (PPM)	35.00	60.00	46.00	50.00
TI (PPM)	1235.00	991.00	344.00	861.00
V (PPM)	17.00	11.00	8.00	19.00
Y (PPM)	17.00	-1.00	2.00	9.00
ZN (PPM)	5.00	42.00	-2.00	4.00
ZR (PPM)	394.00	219.00	18.00	203.00

TRANSECT NUMBER 11

SAMP. NO.	152273	152277	152283
ELEVATION	7985.00	7990.00	7980.00
FORMATION	DG	DG	DG
LITHOLOGY	GPC	GGC	GPC
UL (PPM)	4.55	1.30	31.28
UT (PPM)	3.80	1.20	22.90
UL/UT	1.20	1.08	1.37
TH (PPM)	23.00	9.00	112.00
TH/UT	6.05	7.51	4.89
AU (PPM)	0.00	0.00	0.00
AL (%)	3.97	4.33	3.14
CA (%)	-.05	-.05	-.05
FE (%)	.71	.23	3.30
MG (%)	.14	.12	.09
NA (%)	.12	.20	.09
K (%)	2.78	3.79	2.36
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	-10.00	10.00	-10.00
BA (PPM)	1009.00	952.00	651.00
BE (PPM)	2.00	2.00	1.00
CE (PPM)	26.00	27.00	44.00
CO (PPM)	4.00	-4.00	62.00
CR (PPM)	30.00	13.00	18.00
CU (PPM)	20.00	7.00	147.00
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	4.00	4.00	3.00
MN (PPM)	34.00	18.00	35.00
MO (PPM)	-4.00	-4.00	14.00
NB (PPM)	5.00	4.00	8.00
NI (PPM)	6.00	6.00	24.00
P (PPM)	175.00	59.00	82.00
PB (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	2.00	2.00	2.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	62.00	84.00	57.00
TI (PPM)	1207.00	577.00	674.00
V (PPM)	20.00	11.00	52.00
Y (PPM)	3.00	2.00	9.00
ZN (PPM)	9.00	4.00	-2.00
ZR (PPM)	115.00	25.00	131.00

Figure 47. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transects 12, 13 and 14, Carrico Ranch and Deep Gulch, northwest Sierra Madre. ND = NO DATA AVAILABLE

TRANSECT NUMBER 12

SAMP. NO.	152261	152271	152272	152276	152291
ELEVATION	7980.00	7920.00	7980.00	7980.00	7980.00
FORMATION	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	QGC
UL (PPM)	6.87	9.55	24.91	17.74	1.88
UT (PPM)	6.30	10.00	25.80	19.80	1.30
UL/UT	1.09	.95	.97	.90	1.45
TH (PPM)	31.00	76.00	119.00	51.00	7.00
TH/UT	4.92	7.60	4.61	2.58	5.39
AU (PPM)	0.00	0.00	0.00	0.00	ND
AL (%)	3.45	3.99	3.26	3.22	5.04
CA (%)	-.05	-.05	-.05	-.05	-.05
FE (%)	1.57	1.53	1.84	1.25	.41
MG (%)	.13	.15	.14	.15	.19
NA (%)	.11	.11	.10	.06	.16
K (%)	2.63	2.94	2.68	2.18	3.13
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	16.00
BA (PPM)	824.00	980.00	641.00	480.00	1074.00
BE (PPM)	-1.00	3.00	1.00	1.00	1.00
CE (PPM)	20.00	42.00	48.00	75.00	44.00
CO (PPM)	13.00	4.00	7.00	4.00	-4.00
CR (PPM)	20.00	25.00	22.00	30.00	45.00
CU (PPM)	26.00	31.00	89.00	28.00	8.00
HF (PPM)	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND
LI (PPM)	4.00	5.00	5.00	5.00	5.00
MN (PPM)	19.00	29.00	17.00	34.00	22.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	8.00	13.00	11.00	-4.00
NI (PPM)	8.00	6.00	2.00	2.00	-2.00
P (PPM)	102.00	150.00	126.00	157.00	27.00
PB (PPM)	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	2.00	3.00	3.00	3.00	4.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	74.00	72.00	56.00	37.00	69.00
TI (PPM)	979.00	1212.00	955.00	1198.00	1579.00
V (PPM)	17.00	23.00	16.00	17.00	28.00
Y (PPM)	3.00	6.00	11.00	7.00	2.00
ZN (PPM)	6.00	4.00	6.00	5.00	13.00
ZR (PPM)	123.00	120.00	319.00	233.00	46.00

TRANSECT NUMBER 13

SAMP. NO.	152274	152275	152279	152280	152286	152296	152303
ELEVATION	7900.00	7900.00	7900.00	7900.00	7900.00	7900.00	7900.00
FORMATION	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QGC	QPC	QGC	QPC
UL (PPM)	5.28	15.92	31.47	4.69	18.61	1.18	4.44
UT (PPM)	6.40	17.10	36.30	5.10	20.80	1.50	4.70
UL/UT	.82	.93	.87	.92	.89	.79	.94
TH (PPM)	81.00	106.00	214.00	37.00	160.00	3.00	33.00
TH/UT	12.66	6.20	5.90	7.26	7.69	2.00	7.02
AU (PPM)	ND	0.00	0.00	ND	0.00	ND	ND
AL (%)	3.78	3.07	2.92	2.51	3.47	2.91	3.30
CA (%)	-.05	-.05	-.05	-.05	.06	-.05	-.05
FE (%)	1.00	1.34	.86	.23	2.25	.21	.50
MG (%)	.16	.16	.15	.18	.24	.10	.16
NA (%)	.06	.14	.10	.16	.31	.10	.07
K (%)	1.96	2.62	2.46	3.22	2.38	2.60	2.75
AG (PPM)	-2.00	-2.00	6.00	-2.00	-2.00	2.00	2.00
B (PPM)	39.00	-10.00	-10.00	12.00	-10.00	-10.00	-10.00
BA (PPM)	609.00	739.00	650.00	691.00	892.00	518.00	712.00
BE (PPM)	1.00	1.00	3.00	3.00	1.00	-1.00	2.00
CE (PPM)	71.00	74.00	42.00	20.00	29.00	-10.00	42.00
CO (PPM)	7.00	7.00	4.00	-4.00	23.00	-4.00	-4.00
CR (PPM)	23.00	20.00	20.00	18.00	56.00	14.00	16.00
CU (PPM)	209.00	39.00	33.00	3.00	33.00	7.00	9.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	6.00	6.00	8.00	8.00	3.00	5.00
MN (PPM)	81.00	66.00	34.00	23.00	97.00	22.00	30.00
MO (PPM)	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	15.00	9.00	14.00	4.00	-4.00	-4.00	7.00
NI (PPM)	51.00	4.00	5.00	5.00	7.00	3.00	6.00
P (PPM)	183.00	126.00	114.00	65.00	163.00	41.00	102.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	2.00	2.00	3.00	1.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	43.00	48.00	53.00	35.00	62.00	49.00	53.00
TI (PPM)	924.00	822.00	881.00	715.00	1160.00	343.00	675.00
V (PPM)	23.00	12.00	12.00	15.00	18.00	10.00	20.00
Y (PPM)	8.00	6.00	10.00	1.00	9.00	3.00	4.00
ZN (PPM)	94.00	6.00	13.00	4.00	8.00	3.00	6.00
ZR (PPM)	195.00	131.00	258.00	37.00	452.00	13.00	54.00

TRANSECT NUMBER 14

SAMP. NO.	152263	152264	152282	152288	152289	152297	152299
ELEVATION	7920.00	7920.00	7920.00	7920.00	7920.00	7920.00	7920.00
FORMATION	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	1.91	48.05	7.76	7.35	17.97	7.69	10.54
UT (PPM)	1.50	38.70	8.80	6.80	17.30	8.50	11.30
UL/UT	1.27	1.24	.88	1.08	1.04	.90	.93
TH (PPM)	11.00	198.00	79.00	92.00	101.00	58.00	104.00
TH/UT	7.33	5.12	8.98	13.53	5.84	6.82	9.20
AU (PPM)	ND	ND	0.00	0.00	0.00	0.00	0.00
AL (%)	3.94	3.00	3.60	3.19	1.68	2.15	3.96
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.38	2.77	.70	.68	3.28	.57	.86
MG (%)	.21	.20	.22	.16	.11	.19	.17
NA (%)	.18	.06	.14	.08	-.05	.13	.10
K (%)	3.62	2.04	2.65	2.73	1.31	2.63	2.79
AG (PPM)	7.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	10.00	-10.00	-10.00	-10.00	-10.00	15.00	-10.00
BA (PPM)	956.00	494.00	675.00	746.00	306.00	448.00	701.00
BE (PPM)	1.00	1.00	3.00	2.00	1.00	3.00	1.00
CE (PPM)	18.00	117.00	46.00	39.00	39.00	13.00	59.00
CO (PPM)	-4.00	26.00	8.00	-4.00	11.00	-4.00	9.00
CR (PPM)	19.00	44.00	23.00	19.00	20.00	30.00	31.00
CU (PPM)	4.00	55.00	16.00	10.00	47.00	26.00	24.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	7.00	8.00	5.00	4.00	8.00	5.00
MN (PPM)	27.00	75.00	45.00	63.00	44.00	42.00	43.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	9.00	-4.00	-4.00
NB (PPM)	5.00	30.00	9.00	9.00	24.00	13.00	12.00
NI (PPM)	4.00	13.00	10.00	4.00	4.00	4.00	13.00
P (PPM)	116.00	296.00	121.00	105.00	165.00	91.00	99.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	5.00	3.00	2.00	2.00	2.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	63.00	48.00	52.00	49.00	38.00	20.00	61.00
TI (PPM)	901.00	1237.00	1088.00	1050.00	618.00	1519.00	1309.00
V (PPM)	20.00	70.00	27.00	24.00	9.00	35.00	36.00
Y (PPM)	1.00	19.00	9.00	5.00	4.00	3.00	12.00
ZN (PPM)	5.00	9.00	9.00	4.00	2.00	6.00	7.00
ZR (PPM)	23.00	471.00	184.00	95.00	148.00	189.00	136.00

Figure 48. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transects 15, 16 and 17, Deep Gulch, northwest Sierra Madre.

ND=NO DATA AVAILABLE

TRANSECT NUMBER 15

SAMP. NO.	152298
ELEVATION	8040.00
FORMATION	DG
LITHOLOGY	QGC
UL (PPM)	1.80
UT (PPM)	1.60
UL/UT	1.13
TH (PPM)	16.00
TH/UT	10.01
AU (PPM)	ND
AL (%)	4.16
CA (%)	-.05
FE (%)	.32
MG (%)	.20
NA (%)	.16
K (%)	3.31
AG (PPM)	-2.00
B (PPM)	-10.00
BA (PPM)	793.00
BE (PPM)	1.00
CE (PPM)	19.00
CO (PPM)	-4.00
CR (PPM)	19.00
CU (PPM)	3.00
HF (PPM)	ND
LA (PPM)	ND
LI (PPM)	8.00
MN (PPM)	29.00
MO (PPM)	-4.00
NB (PPM)	7.00
NI (PPM)	-2.00
P (PPM)	73.00
PB (PPM)	ND
PT (PPM)	ND
SC (PPM)	2.00
SI (PPM)	ND
SN (PPM)	ND
SR (PPM)	62.00
TI (PPM)	1105.00
V (PPM)	20.00
Y (PPM)	2.00
ZN (PPM)	5.00
ZR (PPM)	36.00

TRANSECT NUMBER 16

SAMP. NO.	152238	152249	152255	152257	152258	152270	152284	152295
ELEVATION	8010.00	7990.00	8010.00	8005.00	8005.00	8010.00	7990.00	8010.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC
UL (PPH)	6.32	224.50	58.99	18.66	10.11	16.07	23.17	25.19
UT (PPH)	4.60	205.50	55.80	19.10	10.80	16.00	19.50	23.70
UL/UT	1.37	1.09	1.06	.98	.94	1.00	1.19	1.06
TH (PPH)	29.00	839.00	154.00	261.00	61.00	87.00	93.00	191.00
TH/UT	6.31	4.08	2.76	13.67	5.65	5.44	4.77	8.06
AU (PPH)	0.00	.07	0.00	0.00	0.00	.04	0.00	0.00
AL (%)	3.69	4.33	4.32	2.55	2.29	2.01	3.87	3.57
CA (%)	-.05	-.05	-.05	.06	-.05	-.05	-.05	-.05
FE (%)	.52	1.71	1.96	2.19	.66	.92	3.05	.80
MG (%)	.24	.30	.31	.19	.13	.09	.23	.23
NA (%)	.11	.07	.07	.21	.06	-.05	.07	.12
K (%)	2.81	2.54	2.76	1.52	1.92	1.45	2.63	2.81
AG (PPH)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPH)	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPH)	637.00	566.00	636.00	399.00	421.00	265.00	558.00	841.00
BE (PPH)	1.00	6.00	1.00	2.00	1.00	2.00	4.00	1.00
CE (PPH)	33.00	72.00	123.00	52.00	53.00	72.00	74.00	43.00
CO (PPH)	-4.00	9.00	5.00	13.00	-4.00	-4.00	12.00	-4.00
CR (PPH)	18.00	61.00	61.00	237.00	17.00	21.00	39.00	27.00
CU (PPH)	3.00	58.00	24.00	29.00	11.00	15.00	42.00	-2.00
HF (PPH)	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPH)	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPH)	11.00	12.00	11.00	12.00	6.00	4.00	8.00	15.00
MN (PPH)	26.00	68.00	41.00	67.00	30.00	20.00	30.00	29.00
NO (PPH)	-4.00	21.00	6.00	-4.00	-4.00	19.00	9.00	-4.00
NB (PPH)	4.00	37.00	19.00	-4.00	20.00	12.00	27.00	10.00
NI (PPH)	-2.00	3.00	-2.00	8.00	-2.00	-2.00	9.00	-2.00
P (PPH)	34.00	294.00	255.00	242.00	69.00	170.00	285.00	83.00
PB (PPH)	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPH)	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPH)	2.00	9.00	6.00	3.00	2.00	2.00	5.00	3.00
SI (PPH)	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPH)	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPH)	49.00	27.00	47.00	24.00	41.00	21.00	52.00	50.00
TI (PPH)	743.00	2417.00	2066.00	1010.00	607.00	750.00	1529.00	1514.00
V (PPH)	14.00	31.00	37.00	13.00	15.00	10.00	40.00	16.00
Y (PPH)	4.00	86.00	22.00	14.00	6.00	9.00	5.00	19.00
ZN (PPH)	7.00	10.00	9.00	10.00	7.00	5.00	8.00	6.00
ZR (PPH)	50.00	810.00	463.00	220.00	156.00	322.00	117.00	389.00

TRANSECT NUMBER 17

SAMP. NO.	152250	152251	152253
ELEVATION	8000.00	8000.00	7990.00
FORMATION	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC
UL (PPM)	2.09	1.74	ND
UT (PPM)	2.50	.90	23.50
UL/UT	.84	1.93	-4255.28
TH (PPM)	2.00	3.00	ND
TH/UT	.80	3.34	-4255.28
AU (PPM)	0.00	0.00	0.00
AL (%)	1.28	2.66	ND
CA (%)	-.05	-.05	ND
FE (%)	.48	.41	ND
MG (%)	.08	.14	ND
NA (%)	.60	.71	ND
K (%)	1.21	1.47	ND
AG (PPM)	-2.00	-2.00	ND
B (PPM)	-10.00	-10.00	ND
BA (PPM)	234.00	410.00	ND
BE (PPM)	1.00	-1.00	ND
CE (PPM)	-10.00	27.00	ND
CO (PPM)	-4.00	-4.00	ND
CR (PPM)	51.00	23.00	ND
CU (PPM)	7.00	3.00	ND
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	5.00	6.00	ND
MN (PPM)	21.00	15.00	ND
MO (PPM)	-4.00	-4.00	ND
NB (PPM)	-4.00	-4.00	ND
NI (PPM)	4.00	6.00	ND
P (PPM)	45.00	45.00	ND
PB (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	1.00	1.00	ND
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	11.00	35.00	ND
TI (PPM)	486.00	518.00	ND
V (PPM)	14.00	9.00	ND
Y (PPM)	1.00	1.00	ND
ZN (PPM)	6.00	2.00	ND
ZR (PPM)	37.00	26.00	ND

Figure 49. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transects 18, 19, 20, Manning Ranch, northwest Sierra Madre.

TRANSECT NUMBER 18

SAMP. NO.	157924	157925	157926	157927	157929	157930	157931	157932	157933	157934
ELEVATION	7740.00	7465.00	7970.00	7955.00	7970.00	7960.00	7975.00	7970.00	7960.00	7970.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	CQZ	QPC	QGC	QGC	QPC	QPC
UL (PPM)	1.59	.57	12.32	18.94	.25	1.97	7.20	16.00	2.86	2.64
UT (PPM)	2.30	1.10	13.20	19.60	.70	2.70	6.10	10.40	2.50	2.40
UL/UT	.69	.52	.93	.97	.36	.73	1.18	1.54	1.14	1.10
TH (PPM)	14.00	19.00	63.00	365.00	4.00	154.00	30.00	56.00	10.00	11.00
TH/UT	6.09	17.29	4.77	18.62	5.72	57.06	4.92	5.39	4.00	4.59
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.84	4.15	3.20	3.06	2.83	2.49	2.37	3.79	2.26	3.24
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.41	.37	.69	1.60	.40	.68	.54	.69	.33	.37
MG (%)	.20	.17	.25	.37	.16	.12	.12	.19	.11	.15
NA (%)	.11	.19	.28	.26	.35	.12	.10	.13	.19	.18
K (%)	3.07	3.13	3.21	2.40	2.62	2.67	2.80	3.05	3.66	3.50
AG (PPM)	-2.00	2.00	-2.00	3.00	4.00	-2.00	2.00	3.00	-2.00	3.00
B (PPM)	10.00	15.00	12.00	11.00	10.00	-10.00	-10.00	-10.00	13.00	12.00
BA (PPM)	909.00	1006.00	1007.00	594.00	742.00	759.00	691.00	918.00	896.00	943.00
BE (PPM)	2.00	2.00	5.00	7.00	3.00	3.00	3.00	2.00	3.00	3.00
CE (PPM)	20.00	22.00	22.00	42.00	23.00	17.00	29.00	26.00	11.00	22.00
CO (PPM)	-4.00	-4.00	-4.00	14.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	23.00	16.00	34.00	42.00	17.00	14.00	14.00	26.00	16.00	15.00
CU (PPM)	5.00	3.00	14.00	110.00	10.00	13.00	10.00	21.00	5.00	5.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	4.00	8.00	14.00	5.00	4.00	4.00	6.00	4.00	4.00
MN (PPM)	29.00	22.00	24.00	83.00	27.00	16.00	21.00	25.00	23.00	19.00
MO (PPM)	-4.00	-4.00	9.00	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	7.00	4.00	8.00	6.00	13.00	-4.00	4.00	5.00	6.00	-4.00
NI (PPM)	3.00	3.00	3.00	9.00	2.00	2.00	6.00	3.00	4.00	4.00
P (PPM)	51.00	26.00	79.00	238.00	60.00	53.00	79.00	65.00	66.00	67.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	4.00	4.00	2.00	2.00	2.00	3.00	1.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	55.00	68.00	51.00	42.00	59.00	56.00	46.00	66.00	46.00	63.00
TI (PPM)	967.00	982.00	1547.00	2040.00	729.00	727.00	770.00	969.00	690.00	757.00
V (PPM)	19.00	18.00	22.00	26.00	10.00	9.00	7.00	19.00	10.00	8.00
Y (PPM)	4.00	2.00	7.00	10.00	1.00	2.00	4.00	8.00	1.00	1.00
ZN (PPM)	14.00	13.00	9.00	20.00	10.00	9.00	10.00	13.00	7.00	8.00
ZR (PPM)	42.00	56.00	240.00	121.00	20.00	35.00	89.00	180.00	39.00	29.00

TRANSECT NUMBER 18

SAMP. NO.	157935	157936	157937	157955	157957
ELEVATION	7970.00	7960.00	7955.00	7960.00	7976.00
FORMATION	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GGC	GGC	GPC	GPC
UL (PPM)	6.52	2.94	3.77	5.75	5.88
UT (PPM)	7.30	4.30	3.10	7.00	4.80
UL/UT	.89	.68	1.22	.82	1.23
TH (PPM)	170.00	19.00	27.00	216.00	54.00
TH/UT	23.29	4.42	8.71	30.86	11.25
AU (PPM)	ND	ND	ND	ND	ND
AL (%)	2.68	2.92	2.97	2.54	2.45
CA (%)	-.05	-.05	-.05	-.05	-.05
FE (%)	2.03	.38	.68	.93	.40
MG (%)	.19	.13	.26	.13	.12
NA (%)	.28	.12	.19	.10	.08
K (%)	2.35	2.61	2.79	2.61	2.84
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	10.00
BA (PPM)	653.00	776.00	781.00	594.00	839.00
BE (PPM)	5.00	2.00	5.00	4.00	3.00
CE (PPM)	27.00	14.00	31.00	22.00	19.00
CO (PPM)	14.00	-4.00	-4.00	5.00	-4.00
CR (PPM)	58.00	39.00	39.00	33.00	19.00
CU (PPM)	7.00	3.00	13.00	15.00	5.00
HF (PPM)	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND
LI (PPM)	7.00	4.00	9.00	4.00	3.00
MN (PPM)	28.00	20.00	26.00	17.00	28.00
MO (PPM)	5.00	-4.00	5.00	-4.00	6.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	5.00
NI (PPM)	8.00	3.00	7.00	5.00	4.00
P (PPM)	109.00	34.00	93.00	80.00	54.00
PD (PPM)	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	2.00	2.00	2.00
SI (PPM)	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND
SR (PPM)	62.00	53.00	60.00	48.00	80.00
TI (PPM)	1433.00	1117.00	1305.00	1055.00	804.00
V (PPM)	13.00	14.00	22.00	8.00	10.00
Y (PPM)	4.00	2.00	2.00	3.00	4.00
ZN (PPM)	15.00	7.00	22.00	7.00	4.00
ZR (PPM)	122.00	81.00	85.00	111.00	124.00

TRANSECT NUMBER 19

SAMP. NO.	157928	157938	157939	157940	157941	157942	157943	157945	157946	157947
ELEVATION	7970.00	7960.00	7960.00	7960.00	7960.00	7965.00	7990.00	7990.00	7980.00	7990.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	QGC	QGC	QPC	QPC	QPC	QPC	QGC	QPC	QPC
UL (PPM)	2.16	5.51	.67	8.29	5.76	10.13	7.20	2.60	5.38	7.25
UT (PPM)	1.70	6.50	1.40	7.50	5.80	10.50	6.20	3.40	6.50	10.40
UL/UT	1.27	.85	.48	1.11	.99	.96	1.16	.76	.83	.70
TH (PPM)	43.00	235.00	6.00	69.00	32.00	278.00	41.00	16.00	32.00	90.00
TH/UT	25.31	36.15	4.29	9.20	5.52	26.48	6.61	4.71	4.92	8.65
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.65	4.75	4.87	3.04	2.47	1.68	2.80	2.78	3.02	2.99
CA (%)	-.05	-.05	-.05	.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.47	.99	.85	1.07	2.43	1.92	.52	.38	.52	.71
MG (%)	.22	.26	.45	.33	.16	.08	.15	.14	.15	.19
NA (%)	.20	.34	.11	.39	.32	.07	.14	.11	.25	.20
K (%)	3.23	3.29	3.51	2.47	2.23	1.87	3.15	3.23	3.18	2.61
AG (PPM)	2.00	4.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	19.00	15.00	17.00	-10.00	-10.00	-10.00	13.00	-10.00	11.00	-10.00
BA (PPM)	897.00	970.00	1037.00	655.00	635.00	446.00	769.00	817.00	927.00	878.00
BE (PPM)	4.00	10.00	4.00	7.00	4.00	3.00	4.00	2.00	3.00	2.00
CE (PPM)	29.00	19.00	13.00	51.00	28.00	15.00	31.00	28.00	32.00	32.00
CO (PPM)	-4.00	-4.00	-4.00	10.00	21.00	7.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	26.00	50.00	43.00	52.00	53.00	49.00	18.00	13.00	29.00	24.00
CU (PPM)	7.00	12.00	4.00	43.00	11.00	29.00	9.00	7.00	15.00	25.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	11.00	13.00	11.00	5.00	2.00	5.00	4.00	4.00	5.00
MN (PPM)	26.00	31.00	51.00	100.00	27.00	19.00	16.00	16.00	35.00	23.00
MO (PPM)	-4.00	16.00	-4.00	4.00	9.00	5.00	5.00	-4.00	5.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	-4.00	7.00
NI (PPM)	8.00	3.00	8.00	20.00	6.00	7.00	5.00	5.00	7.00	5.00
P (PPM)	59.00	199.00	64.00	179.00	135.00	124.00	48.00	65.00	62.00	93.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	4.00	5.00	3.00	2.00	2.00	2.00	2.00	2.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	66.00	80.00	61.00	47.00	62.00	32.00	55.00	59.00	58.00	57.00
TI (PPM)	1253.00	1721.00	1976.00	1968.00	1177.00	656.00	967.00	604.00	922.00	1168.00
V (PPM)	19.00	22.00	40.00	32.00	14.00	6.00	12.00	8.00	11.00	17.00
Y (PPM)	2.00	5.00	1.00	6.00	4.00	8.00	4.00	3.00	3.00	9.00
ZN (PPM)	18.00	16.00	28.00	37.00	6.00	2.00	8.00	7.00	6.00	8.00
ZR (PPM)	25.00	303.00	37.00	137.00	218.00	166.00	104.00	54.00	97.00	279.00

TRANSECT NUMBER 19

SAMP. NO.	157948	157949	157950
ELEVATION	7985.00	7990.00	7980.00
FORMATION	DG	DG	DG
LITHOLOGY	QPC	QGC	QPC
UL (PPM)	7.19	.71	12.74
UT (PPM)	6.40	1.20	8.70
UL/UT	1.12	.59	1.46
TH (PPM)	31.00	2.00	77.00
TH/UT	4.84	1.67	8.85
AU (PPM)	ND	ND	ND
AL (%)	2.40	2.04	2.82
CA (%)	-.05	-.05	-.05
FE (%)	.37	.31	.79
MG (%)	.13	.09	.14
NA (%)	.07	.74	.10
K (%)	2.34	1.09	3.24
AG (PPM)	-2.00	-2.00	2.00
B (PPM)	11.00	-10.00	10.00
BA (PPM)	726.00	351.00	760.00
BE (PPM)	2.00	1.00	3.00
CE (PPM)	26.00	21.00	31.00
CO (PPM)	-4.00	-4.00	5.00
CR (PPM)	17.00	10.00	18.00
CU (PPM)	5.00	8.00	28.00
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	4.00	2.00	4.00
MN (PPM)	22.00	20.00	20.00
MO (PPM)	4.00	-4.00	4.00
NB (PPM)	5.00	-4.00	6.00
NI (PPM)	3.00	4.00	7.00
P (PPM)	89.00	54.00	81.00
PB (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	2.00	1.00	2.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	45.00	78.00	58.00
TI (PPM)	723.00	326.00	929.00
V (PPM)	8.00	5.00	11.00
Y (PPM)	3.00	1.00	6.00
ZN (PPM)	10.00	4.00	5.00
ZR (PPM)	62.00	21.00	135.00

TRANSECT NUMBER 20

SAMP. NO.	157951	157952	157953	157954	157956	157958	157959
ELEVATION	7980.00	7995.00	7995.00	7990.00	7990.00	7980.00	7990.00
FORMATION	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QGC	QPC	QPC	QGC	QGC	QGC
UL (PPH)	2.23	3.73	7.91	2.84	7.41	2.78	2.85
UT (PPH)	4.20	1.50	6.10	3.10	5.70	2.10	3.70
UL/UT	.53	2.49	1.30	.92	1.30	1.32	.77
TH (PPH)	45.00	14.00	86.00	38.00	69.00	5.00	37.00
TH/UT	10.72	9.33	14.10	12.26	12.11	2.38	10.00
AU (PPH)	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.01	2.19	2.19	2.21	2.50	2.51	3.56
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.52	.39	.48	.46	.45	.32	.59
MG (%)	.13	.12	.14	.10	.18	.13	.23
NA (%)	.08	.16	.08	.06	.07	.05	.11
K (%)	2.96	1.89	2.71	2.26	2.66	2.55	2.96
AG (PPH)	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	2.00
B (PPH)	-10.00	-10.00	-10.00	-10.00	10.00	12.00	-10.00
BA (PPH)	813.00	565.00	702.00	638.00	647.00	656.00	967.00
BE (PPH)	2.00	1.00	2.00	1.00	4.00	3.00	6.00
CE (PPH)	37.00	30.00	21.00	33.00	32.00	20.00	30.00
CO (PPH)	-4.00	-4.00	-4.00	5.00	-4.00	-4.00	-4.00
CR (PPH)	17.00	13.00	13.00	11.00	20.00	16.00	26.00
CU (PPH)	13.00	8.00	19.00	10.00	10.00	6.00	10.00
HF (PPH)	ND	ND	ND	ND	ND	ND	ND
LA (PPH)	ND	ND	ND	ND	ND	ND	ND
LI (PPH)	4.00	4.00	5.00	3.00	6.00	3.00	9.00
MN (PPH)	24.00	21.00	16.00	16.00	18.00	18.00	28.00
MO (PPH)	-4.00	-4.00	4.00	-4.00	7.00	-4.00	-4.00
NB (PPH)	5.00	4.00	4.00	6.00	7.00	-4.00	11.00
NI (PPH)	5.00	6.00	5.00	5.00	6.00	5.00	7.00
P (PPH)	66.00	43.00	58.00	49.00	49.00	32.00	76.00
PB (PPH)	ND	ND	ND	ND	ND	ND	ND
PT (PPH)	ND	ND	ND	ND	ND	ND	ND
SC (PPH)	2.00	1.00	2.00	2.00	2.00	1.00	3.00
SI (PPH)	ND	ND	ND	ND	ND	ND	ND
SN (PPH)	ND	ND	ND	ND	ND	ND	ND
SR (PPH)	55.00	45.00	49.00	44.00	40.00	43.00	66.00
TI (PPH)	914.00	433.00	676.00	518.00	1158.00	819.00	1005.00
V (PPH)	12.00	8.00	10.00	12.00	14.00	6.00	19.00
Y (PPH)	5.00	2.00	6.00	3.00	7.00	1.00	5.00
ZN (PPH)	8.00	9.00	6.00	7.00	7.00	4.00	11.00
ZR (PPH)	111.00	34.00	124.00	58.00	212.00	21.00	116.00

Figure 51. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transects 22B, 23 and 24, Manning Ranch, northwest Sierra Madre.

TRANSECT NUMBER 21A and B

SAMP. NO.	157991	157992	157993	157994	157997	157998	157999	158000	158001	158002
ELEVATION	7910.00	8010.00	8010.00	8010.00	8010.00	8010.00	8010.00	8010.00	8010.00	8010.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	QPC	QPC	QPC	QGC	QPC	QGC	QPC	QPC	QPC
UL (PPM)	5.95	17.61	5.12	9.59	7.17	17.46	10.23	10.16	17.54	8.60
UT (PPM)	9.00	11.80	5.00	9.40	8.60	22.50	7.40	9.10	4.94	7.20
UL/UT	.66	1.49	1.02	1.02	.83	.78	1.38	1.12	3.55	1.19
TH (PPM)	148.00	123.00	123.00	55.00	71.00	161.00	26.00	145.00	154.00	207.00
TH/UT	16.44	10.42	24.60	5.85	8.26	7.16	3.51	15.94	31.18	28.75
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.31	2.26	3.86	3.35	3.64	3.43	4.19	4.58	3.19	3.12
CA (%)	-.05	-.05	.05	-.05	.06	-.05	.07	.15	.05	-.05
FE (%)	1.05	.77	.68	1.13	1.35	1.28	1.20	1.20	1.54	1.02
MG (%)	.22	.13	.25	.35	.52	.26	.47	.44	.40	.20
NA (%)	.21	.30	.28	.32	.53	.10	.78	1.48	1.15	.19
K (%)	3.17	1.46	2.73	2.56	2.83	3.46	2.53	1.39	1.64	2.99
AG (PPM)	-2.00	3.00	-2.00	-2.00	3.00	4.00	-2.00	4.00	-2.00	-2.00
B (PPM)	10.00	-10.00	15.00	10.00	-10.00	10.00	10.00	-10.00	-10.00	14.00
BA (PPM)	1104.00	394.00	888.00	791.00	766.00	911.00	981.00	489.00	479.00	951.00
BE (PPM)	4.00	4.00	9.00	6.00	6.00	5.00	10.00	3.00	5.00	4.00
CE (PPM)	29.00	29.00	11.00	30.00	40.00	43.00	23.00	-10.00	24.00	15.00
CO (PPM)	4.00	5.00	-4.00	-4.00	5.00	6.00	7.00	6.00	-4.00	4.00
CR (PPM)	30.00	88.00	41.00	35.00	68.00	33.00	56.00	42.00	39.00	30.00
CJ (PPM)	31.00	37.00	4.00	32.00	33.00	36.00	39.00	21.00	50.00	7.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	6.00	8.00	13.00	16.00	10.00	14.00	9.00	9.00	7.00
MN (PPM)	97.00	37.00	38.00	54.00	86.00	29.00	116.00	83.00	58.00	26.00
MO (PPM)	-4.00	7.00	5.00	-4.00	4.00	6.00	-4.00	-4.00	-4.00	6.00
NB (PPM)	-4.00	-4.00	-4.00	5.00	-4.00	13.00	4.00	5.00	-4.00	-4.00
NI (PPM)	7.00	7.00	4.00	6.00	11.00	9.00	16.00	10.00	5.00	6.00
P (PPM)	180.00	62.00	123.00	197.00	179.00	169.00	163.00	630.00	203.00	94.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	1.00	3.00	2.00	4.00	4.00	4.00	3.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	78.00	28.00	75.00	55.00	77.00	77.00	104.00	124.00	98.00	78.00
TI (PPM)	1345.00	720.00	1532.00	1827.00	1996.00	1397.00	1556.00	1257.00	1742.00	1294.00
V (PPM)	16.00	9.00	23.00	21.00	29.00	16.00	28.00	26.00	17.00	14.00
Y (PPM)	5.00	8.00	3.00	5.00	6.00	12.00	5.00	6.00	8.00	5.00
ZN (PPM)	7.00	6.00	7.00	10.00	18.00	22.00	25.00	17.00	8.00	5.00
ZR (PPM)	100.00	87.00	86.00	53.00	99.00	220.00	58.00	51.00	123.00	125.00

TRANSECT NUMBER 21A and B

SAMP. NO.	158003	158004	158005
ELEVATION	8010.00	8010.00	8010.00
FORMATION	DG	DG	DG
LITHOLOGY	CQ	CQ	QPC
UL (PPM)	3.56	1.93	10.00
UT (PPM)	2.60	2.30	14.70
UL/UT	1.37	.84	.68
TH (PPM)	8.00	15.00	204.00
TH/UT	3.08	6.52	13.88
AU (PPM)	ND	ND	ND
AL (%)	5.25	2.12	2.49
CA (%)	-.05	.07	-.05
FE (%)	1.17	.64	.99
MG (%)	.53	.15	.15
NA (%)	.55	.37	.12
K (%)	3.06	1.88	1.99
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	16.00	-10.00	10.00
BA (PPM)	874.00	461.00	574.00
BE (PPM)	14.00	2.00	5.00
CE (PPM)	22.00	27.00	17.00
CO (PPM)	4.00	4.00	6.00
CR (PPM)	63.00	23.00	35.00
CU (PPM)	30.00	17.00	33.00
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	19.00	7.00	6.00
MN (PPM)	81.00	26.00	50.00
MO (PPM)	-4.00	5.00	12.00
NB (PPM)	5.00	-4.00	-4.00
NI (PPM)	10.00	4.00	8.00
P (PPM)	80.00	185.00	103.00
PB (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	5.00	1.00	2.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	77.00	43.00	65.00
TI (PPM)	2234.00	515.00	835.00
V (PPM)	38.00	10.00	13.00
Y (PPM)	2.00	2.00	7.00
ZN (PPM)	33.00	4.00	12.00
ZR (PPM)	34.00	23.00	76.00

TRANSECT NUMBER 22A and B

SAMP. NO.	158006	158007	158008	158009	158010	158011	158012	158013	158014	158015
ELEVATION	8010.00	8010.00	8010.00	8010.00	8010.00	8010.00	8012.00	8015.00	8015.00	8010.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	QGC	QPC	QGC	QPC	QGC	QPC	QGC	QGC
UL (PPH)	4.23	8.56	8.12	22.73	5.04	12.04	11.36	14.50	7.50	.69
UT (PPH)	3.50	10.40	12.80	16.30	ND	15.10	11.80	14.80	5.10	1.70
UL/UT	1.21	.82	.63	1.39	ND	.80	.96	.98	1.47	.41
TH (PPH)	15.00	35.00	47.00	199.00	54.00	293.00	15.00	130.00	20.00	14.00
TH/UT	4.29	3.37	3.67	12.21	ND	19.41	1.27	9.32	3.97	8.24
AU (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.44	3.75	4.74	3.84	1.84	4.36	3.44	3.18	2.41	2.96
CA (%)	-.05	-.05	.08	.06	-.05	-.05	.05	.07	-.05	.06
FE (%)	.90	1.67	1.66	1.17	.36	1.40	.93	1.08	.36	.44
MG (%)	.45	.45	.54	.35	.08	.40	.43	.32	.13	.18
NA (%)	.32	.33	.56	1.24	.11	.11	.49	1.03	.16	.82
K (%)	2.80	2.85	2.55	1.58	1.59	3.52	2.57	1.55	2.60	1.47
AG (PPH)	-2.00	2.00	3.00	-2.00	2.00	3.00	2.00	2.00	6.00	-2.00
B (PPH)	15.00	11.00	-10.00	-10.00	-10.00	21.00	12.00	-10.00	-10.00	-10.00
BA (PPH)	826.00	798.00	967.00	544.00	538.00	1244.00	942.00	579.00	748.00	548.00
BE (PPH)	6.00	8.00	4.00	10.00	3.00	8.00	6.00	5.00	2.00	3.00
CE (PPH)	37.00	-10.00	22.00	16.00	10.00	35.00	27.00	12.00	20.00	19.00
CO (PPH)	-4.00	-4.00	4.00	4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
CR (PPH)	40.00	84.00	76.00	47.00	15.00	42.00	46.00	33.00	13.00	19.00
CU (PPH)	12.00	29.00	26.00	35.00	19.00	33.00	10.00	26.00	20.00	8.00
HF (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPH)	14.00	16.00	17.00	10.00	3.00	11.00	13.00	9.00	3.00	5.00
MN (PPH)	58.00	51.00	161.00	74.00	23.00	52.00	84.00	78.00	17.00	27.00
MO (PPH)	5.00	8.00	-4.00	11.00	4.00	5.00	-4.00	4.00	-4.00	-4.00
NB (PPH)	5.00	-4.00	7.00	5.00	-4.00	5.00	4.00	4.00	-4.00	5.00
NI (PPH)	4.00	7.00	8.00	6.00	7.00	7.00	5.00	5.00	5.00	5.00
P (PPH)	84.00	181.00	158.00	144.00	27.00	162.00	98.00	129.00	102.00	58.00
PB (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPH)	4.00	5.00	6.00	4.00	1.00	5.00	4.00	3.00	1.00	2.00
SI (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPH)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPH)	62.00	58.00	81.00	121.00	40.00	84.00	92.00	114.00	66.00	77.00
TI (PPH)	1814.00	2668.00	2780.00	1642.00	448.00	2441.00	1685.00	1631.00	536.00	858.00
V (PPH)	32.00	34.00	46.00	23.00	7.00	30.00	29.00	17.00	7.00	11.00
Y (PPH)	3.00	4.00	8.00	8.00	2.00	9.00	3.00	6.00	2.00	2.00
ZN (PPH)	17.00	6.00	29.00	13.00	7.00	13.00	12.00	9.00	5.00	24.00
ZR (PPH)	37.00	101.00	106.00	90.00	23.00	171.00	44.00	73.00	64.00	38.00

TRANSECT NUMBER 22A and B

SAMP. NO.	158023
ELEVATION	8010.00
FORMATION	DG
LITHOLOGY	GPC
UL (PPM)	2.60
UT (PPM)	2.80
UL/UT	.93
TH (PPM)	87.00
TH/UT	31.08
AU (PPM)	ND
AL (%)	4.26
CA (%)	-.05
FE (%)	.76
MG (%)	.29
NA (%)	.18
K (%)	3.00
AG (PPM)	-2.00
B (PPM)	13.00
BA (PPM)	945.00
BE (PPM)	9.00
CE (PPM)	26.00
CO (PPM)	7.00
CR (PPM)	49.00
CU (PPM)	8.00
HF (PPM)	ND
LA (PPM)	ND
LI (PPM)	8.00
MN (PPM)	39.00
MO (PPM)	4.00
NB (PPM)	-4.00
NI (PPM)	11.00
P (PPM)	89.00
PB (PPM)	ND
PT (PPM)	ND
SC (PPM)	4.00
SI (PPM)	ND
SN (PPM)	ND
SR (PPM)	53.00
TI (PPM)	1470.00
V (PPM)	29.00
Y (PPM)	4.00
ZN (PPM)	5.00
ZR (PPM)	41.00

TRANSECT NUMBER 23

SAMP. NO.	158016	158019	158020
ELEVATION	7960.00	8090.00	8080.00
FORMATION	DG	DG	DG
LITHOLOGY	QGC	QPC	QPC
UL (PPM)	8.44	16.31	10.71
UT (PPM)	7.40	19.30	9.10
UL/UT	1.14	.85	1.18
TH (PPM)	49.00	373.00	194.00
TH/UT	6.49	19.33	21.32
AU (PPM)	ND	ND	ND
AL (%)	2.73	2.48	1.51
CA (%)	-.05	-.05	-.05
FE (%)	.62	1.11	1.44
MO (%)	.21	.14	.09
NA (%)	.17	.14	.11
K (%)	2.08	1.93	1.57
AG (PPM)	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00
BA (PPM)	849.00	623.00	484.00
BE (PPM)	2.00	6.00	2.00
CE (PPM)	55.00	32.00	17.00
CO (PPM)	6.00	7.00	11.00
CR (PPM)	26.00	107.00	39.00
CU (PPM)	12.00	30.00	29.00
HF (PPM)	ND	ND	ND
LA (PPM)	ND	ND	ND
LI (PPM)	8.00	6.00	3.00
HN (PPM)	26.00	35.00	19.00
NO (PPM)	-4.00	21.00	7.00
NB (PPM)	9.00	-4.00	-4.00
NI (PPM)	5.00	8.00	4.00
P (PPM)	102.00	91.00	126.00
PB (PPM)	ND	ND	ND
PT (PPM)	ND	ND	ND
SC (PPM)	2.00	2.00	2.00
SI (PPM)	ND	ND	ND
SN (PPM)	ND	ND	ND
SR (PPM)	64.00	46.00	55.00
TI (PPM)	899.00	994.00	612.00
V (PPM)	13.00	13.00	7.00
Y (PPM)	6.00	15.00	4.00
ZN (PPM)	2.00	8.00	-2.00
ZR (PPM)	131.00	337.00	148.00

TRANSECT NUMBER 24

SAMP. NO.	158017	158018	158021	158022
ELEVATION	8080.00	8055.00	8075.00	8050.00
FORMATION	DG	DG	DG	DG
LITHOLOGY	GPC	GPC	GPC	GPC
UL (PPM)	26.18	2.47	10.98	14.05
UT (PPM)	20.80	2.50	11.90	10.90
UL/UT	1.26	.99	.92	1.29
TH (PPM)	406.00	9.00	61.00	81.00
TH/UT	19.52	3.60	5.13	7.43
AU (PPM)	ND	ND	ND	ND
AL (%)	2.44	3.11	2.91	3.68
CA (%)	-.05	.07	-.05	-.05
FE (%)	.90	.40	1.39	.45
MG (%)	.22	.22	.24	.20
NA (%)	.14	.15	.07	.11
K (%)	2.18	3.37	2.68	2.67
AG (PPM)	-2.00	-2.00	2.00	3.00
B (PPM)	11.00	11.00	13.00	-10.00
BA (PPM)	696.00	1169.00	860.00	863.00
BE (PPM)	4.00	3.00	5.00	2.00
CE (PPM)	14.00	24.00	58.00	40.00
CO (PPM)	4.00	-4.00	-4.00	-4.00
CR (PPM)	55.00	16.00	56.00	13.00
CU (PPM)	13.00	3.00	19.00	13.00
HF (PPM)	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND
LI (PPM)	8.00	9.00	10.00	8.00
MN (PPM)	27.00	32.00	30.00	25.00
MO (PPM)	7.00	5.00	16.00	-4.00
NB (PPM)	-4.00	6.00	-4.00	7.00
NI (PPM)	3.00	-2.00	2.00	3.00
P (PPM)	95.00	278.00	140.00	88.00
PB (PPM)	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND
SC (PPM)	3.00	2.00	3.00	2.00
SI (PPM)	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND
SR (PPM)	44.00	83.00	47.00	56.00
TI (PPM)	1306.00	694.00	1693.00	699.00
V (PPM)	13.00	12.00	15.00	11.00
Y (PPM)	12.00	2.00	8.00	5.00
ZN (PPM)	5.00	5.00	3.00	5.00
ZR (PPM)	221.00	44.00	520.00	105.00

Transect #25

Figure 52. Thickness and U,Th values of Unit 3, Deep Gulch Conglomerate from transect 25, Manning Ranch, northwest Sierra Madre.

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151788	151789	151790	151791	151792	151793	151794	151795	151796	151797
ELEVATION	9120.00	9120.00	9140.00	9020.00	9220.00	9200.00	9280.00	9400.00	9460.00	9480.00
FORMATION	MI	MI	CQ	CQ	CQ	CQ	CQ	CQ	CQ	MG
LITHOLOGY	CS	GO	QZ	CS	QZ	QPC	CS	QPC	QPC	QPC
UL (PPM)	.58	1.13	2.23	.62	-.25	1.04	.86	.49	1.70	3.71
UT (PPM)	.40	.80	.40	.50	.40	1.22	1.50	.60	2.30	4.50
UL/UT	1.45	1.41	5.59	1.24	ND	.85	.57	.82	.74	.82
TH (PPM)	-2.00	-2.00	4.00	3.00	-2.00	7.00	7.00	7.00	7.00	35.00
TH/UT	ND	ND	10.03	6.00	ND	5.74	4.67	11.69	3.04	7.78
AU (PPM)	ND	ND	ND	ND	ND	0.00	ND	0.00	0.00	0.00
AL (%)	4.96	4.43	7.05	1.81	1.09	3.19	7.94	3.41	2.46	4.22
CA (%)	5.54	12.24	4.51	-.05	-.05	.14	.14	.12	.14	.14
FE (%)	6.51	4.89	3.95	.16	.25	1.45	4.85	1.40	.72	.84
MG (%)	2.41	.45	2.06	.07	.07	.60	2.26	1.18	.24	.22
NA (%)	1.27	.17	1.94	.62	.08	-.05	3.69	2.10	.88	.92
K (%)	.11	1.80	.40	.40	1.28	1.63	.91	.06	.65	3.36
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	104.00	957.00	109.00	46.00	199.00	330.00	241.00	23.00	241.00	476.00
BE (PPM)	2.00	2.00	4.00	-1.00	1.00	1.00	2.00	1.00	2.00	2.00
CE (PPM)	-10.00	-10.00	38.00	-10.00	-10.00	32.00	51.00	24.00	35.00	47.00
CO (PPM)	58.00	60.00	37.00	-4.00	-4.00	11.00	35.00	7.00	8.00	4.00
CR (PPM)	347.00	331.00	144.00	24.00	19.00	54.00	223.00	21.00	27.00	3.00
CU (PPM)	5.00	37.00	12.00	14.00	11.00	47.00	-2.00	-2.00	15.00	-2.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	18.00	3.00	6.00	1.00	1.00	7.00	25.00	6.00	2.00	4.00
MN (PPM)	1037.00	1628.00	1075.00	17.00	29.00	69.00	349.00	89.00	51.00	56.00
MO (PPM)	4.00	9.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	13.00	-4.00	-4.00	11.00	-4.00	6.00	-4.00	9.00
NI (PPM)	153.00	146.00	44.00	6.00	6.00	22.00	59.00	12.00	11.00	-2.00
P (PPM)	473.00	53.00	444.00	-5.00	21.00	110.00	155.00	72.00	261.00	76.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	20.00	8.00	17.00	1.00	1.00	5.00	13.00	3.00	3.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	191.00	42.00	127.00	6.00	8.00	8.00	106.00	50.00	29.00	33.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1116.00	744.00	2975.00	225.00	223.00	1600.00	459.00	325.00	437.00	1145.00
V (PPM)	157.00	63.00	155.00	10.00	7.00	51.00	125.00	24.00	23.00	13.00
Y (PPM)	6.00	6.00	12.00	1.00	1.00	3.00	2.00	2.00	7.00	11.00
ZN (PPM)	85.00	16.00	74.00	10.00	4.00	261.00	52.00	16.00	8.00	10.00
ZR (PPM)	28.00	13.00	16.00	14.00	18.00	64.00	52.00	49.00	101.00	63.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151798	151799	151800	151801	151802	151803	151804	151805	151806	151807
ELEVATION	9290.00	9290.00	9290.00	8810.00	8520.00	8520.00	8520.00	8520.00	8520.00	8520.00
FORMATION	MG	MG	JCF	JCF	JCF	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	QPC	QPC	VL	QPC	QPC	QPC	QPC	QPC	QPC	QPC
UL (PPM)	6.34	2.05	2.40	-.25	.28	.65	.33	.58	1.68	.63
UT (PPM)	5.70	3.00	1.90	.10	.10	ND	.10	.80	1.30	.90
UL/UT	1.11	.68	1.26	ND	2.82	ND	3.32	.72	1.29	.70
TH (PPM)	33.00	32.00	32.00	3.00	-2.00	-2.00	-2.00	4.00	5.00	4.00
TH/UT	5.79	10.67	16.85	30.30	ND	ND	ND	5.01	3.85	4.45
AU (PPM)	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AL (%)	4.76	5.28	4.01	.85	.90	.55	.59	3.20	4.61	4.98
CA (%)	.22	.05	.05	.05	.08	.06	.08	.30	.61	.39
FE (%)	1.55	.37	1.66	.36	.83	.40	.36	1.58	6.36	2.65
MG (%)	.21	.08	.39	.19	.53	.19	.25	.87	3.06	2.01
NA (%)	1.26	1.40	.53	.47	.28	.18	.24	1.53	.84	1.82
K (%)	2.86	3.08	2.66	.08	.03	.07	.08	.25	.13	.16
AG (PPM)	-2.00	3.00	2.00	-2.00	2.00	-2.00	-2.00	-2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	486.00	318.00	472.00	30.00	16.00	49.00	31.00	126.00	65.00	68.00
BE (PPM)	3.00	2.00	4.00	-1.00	-1.00	-1.00	-1.00	1.00	8.00	3.00
CE (PPM)	50.00	72.00	60.00	14.00	-10.00	-10.00	-10.00	48.00	59.00	73.00
CO (PPM)	6.00	-4.00	5.00	-4.00	4.00	-4.00	-4.00	10.00	46.00	20.00
CR (PPM)	6.00	6.00	6.00	8.00	12.00	8.00	6.00	29.00	149.00	65.00
CU (PPM)	4.00	7.00	4.00	2.00	4.00	6.00	-2.00	3.00	4.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	3.00	7.00	3.00	5.00	2.00	3.00	13.00	36.00	19.00
MN (PPM)	104.00	27.00	176.00	28.00	90.00	37.00	33.00	160.00	1050.00	519.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	5.00
NB (PPM)	11.00	10.00	8.00	-4.00	-4.00	-4.00	-4.00	-4.00	5.00	8.00
NI (PPM)	2.00	4.00	4.00	-2.00	9.00	4.00	-2.00	14.00	52.00	27.00
P (PPM)	214.00	117.00	127.00	60.00	89.00	171.00	41.00	358.00	733.00	612.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	1.00	3.00	-1.00	1.00	1.00	1.00	4.00	20.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	33.00	25.00	23.00	18.00	15.00	11.00	9.00	81.00	60.00	99.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1515.00	442.00	906.00	127.00	208.00	65.00	107.00	819.00	4213.00	1344.00
V (PPM)	32.00	8.00	17.00	8.00	14.00	6.00	6.00	43.00	156.00	72.00
Y (PPM)	12.00	7.00	7.00	1.00	1.00	1.00	-1.00	3.00	21.00	9.00
ZN (PPM)	16.00	11.00	15.00	14.00	10.00	7.00	7.00	16.00	55.00	36.00
ZR (PPM)	76.00	52.00	99.00	-2.00	4.00	2.00	2.00	14.00	54.00	16.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151808	151809	151810	151811	151812	151813	151814	151815	151816	151817
ELEVATION	9240.00	9460.00	9290.00	9520.00	9460.00	9460.00	9100.00	9095.00	7760.00	9645.00
FORMATION	CQ	CQ	MG	SPF	SF	SF	SF	SF	VF	SLC
LITHOLOGY	QPC	QZ	QPC	QPC	CS	QPC	CS	S	QPC	C
UL (PPM)	1.07	1.17	4.27	.53	1.00	-.25	-.25	1.89	.42	.63
UT (PPM)	1.30	.70	3.90	.70	.80	.10	.20	1.70	1.00	.90
UL/UT	.82	1.67	1.09	.76	1.25	ND	ND	1.11	.42	.70
TH (PPM)	3.00	8.00	31.00	3.00	2.00	-2.00	-2.00	-2.00	4.00	6.00
TH/UT	2.31	11.44	7.95	4.29	2.50	ND	ND	ND	4.00	6.67
AU (PPM)	0.00	ND	0.00	0.00	ND	0.00	ND	ND	0.00	ND
AL (%)	.85	2.06	3.94	2.46	1.31	4.40	.42	2.55	5.41	5.39
CA (%)	-.05	.06	.05	.05	.07	6.89	14.79	-.05	.14	.97
FE (%)	.52	.66	1.65	.72	.44	3.60	1.09	.19	2.44	7.87
MG (%)	.08	.25	.43	.37	.28	2.00	4.95	.33	1.38	1.96
NA (%)	.05	1.12	.48	.95	-.05	1.62	-.05	-.05	1.30	1.27
K (%)	.35	.37	2.62	.33	.56	.12	.21	1.34	2.14	1.03
AG (PPM)	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	5.00	3.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	13.00	-10.00	-10.00	16.00	-10.00	-10.00
BA (PPM)	88.00	251.00	457.00	49.00	175.00	29.00	64.00	863.00	268.00	210.00
BE (PPM)	-1.00	1.00	4.00	-1.00	1.00	5.00	1.00	2.00	4.00	2.00
CE (PPM)	-10.00	-10.00	62.00	20.00	11.00	-10.00	-10.00	15.00	-10.00	18.00
CO (PPM)	5.00	6.00	5.00	6.00	5.00	30.00	5.00	-4.00	17.00	44.00
CR (PPM)	35.00	26.00	8.00	27.00	27.00	122.00	9.00	111.00	94.00	77.00
CU (PPM)	34.00	24.00	7.00	17.00	16.00	90.00	5.00	10.00	14.00	54.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	2.00	3.00	7.00	9.00	6.00	8.00	6.00	24.00	17.00	20.00
MN (PPM)	26.00	116.00	184.00	80.00	26.00	822.00	628.00	11.00	86.00	572.00
ND (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	6.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	7.00	-4.00	4.00	9.00	4.00	-4.00	-4.00	5.00
NI (PPM)	13.00	17.00	3.00	13.00	9.00	67.00	9.00	15.00	44.00	48.00
P (PPM)	45.00	44.00	122.00	106.00	50.00	130.00	276.00	15.00	289.00	476.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	2.00	2.00	2.00	19.00	2.00	5.00	12.00	13.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	4.00	34.00	22.00	13.00	3.00	39.00	132.00	3.00	49.00	40.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	225.00	230.00	943.00	184.00	202.00	3101.00	98.00	478.00	1156.00	2877.00
V (PPM)	12.00	12.00	16.00	17.00	16.00	163.00	6.00	92.00	115.00	86.00
Y (PPM)	2.00	2.00	7.00	2.00	1.00	7.00	2.00	2.00	5.00	7.00
ZN (PPM)	57.00	9.00	16.00	20.00	37.00	59.00	39.00	9.00	9.00	96.00
ZR (PPM)	22.00	57.00	95.00	12.00	19.00	15.00	14.00	38.00	67.00	47.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151818	151819	151820	151821	151822	151823	151824	151825	151826	151827
ELEVATION	9645.00	8260.00	8520.00	8520.00	8520.00	7585.00	8935.00	8980.00	9200.00	9260.00
FORMATION	SLC	MI	SF	SF	SF	PU	AGN	AGN	AGN	AGN
LITHOLOGY	C	CS	MY	CS	CS	SS	AMGN	GGN	AMGN	GGN
UL (PPM)	3.56	4.83	-.25	-.25	.45	-.25	.39	1.35	1.20	.53
UT (PPM)	3.60	4.10	.20	.50	.80	.30	.10	1.30	1.30	.80
UL/UT	.99	1.18	ND	ND	.56	ND	3.93	1.04	.92	.66
TH (PPM)	14.00	20.00	2.00	-2.00	-2.00	-2.00	2.00	4.00	6.00	-2.00
TH/UT	3.89	4.88	10.05	ND	ND	ND	20.20	3.08	4.62	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.74	6.89	.37	.22	1.26	1.36	4.37	5.59	5.71	6.80
CA (%)	2.47	1.45	-.05	7.80	19.04	4.96	6.18	1.84	3.16	1.97
FE (%)	3.16	2.03	.13	.64	2.49	5.24	8.07	2.79	5.89	1.85
MG (%)	1.04	1.01	-.05	3.67	1.64	5.38	3.62	1.02	2.54	1.13
NA (%)	2.33	4.43	-.05	-.05	-.05	.08	.88	2.47	2.18	3.01
K (%)	.91	.54	.16	.12	.02	.07	.19	1.23	1.12	.48
AG (PPM)	2.00	7.00	2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	263.00	99.00	35.00	32.00	21.00	25.00	48.00	547.00	593.00	312.00
BE (PPM)	4.00	2.00	-1.00	-1.00	1.00	2.00	1.00	2.00	2.00	3.00
CE (PPM)	70.00	-10.00	21.00	-10.00	-10.00	-10.00	-10.00	29.00	94.00	25.00
CO (PPM)	30.00	30.00	-4.00	4.00	16.00	91.00	65.00	15.00	37.00	15.00
CR (PPM)	70.00	77.00	8.00	11.00	42.00	1474.00	464.00	20.00	105.00	61.00
CU (PPM)	100.00	221.00	4.00	3.00	41.00	13.00	109.00	14.00	8.00	17.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	18.00	6.00	1.00	2.00	9.00	14.00	7.00	18.00	20.00	12.00
MN (PPM)	874.00	253.00	11.00	444.00	2109.00	881.00	1337.00	423.00	872.00	432.00
MO (PPM)	-4.00	5.00	-4.00	-4.00	7.00	7.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	10.00	-4.00	-4.00	5.00	4.00	-4.00	4.00	10.00	-4.00	6.00
NI (PPM)	24.00	52.00	-2.00	10.00	20.00	961.00	138.00	13.00	54.00	29.00
P (PPM)	373.00	565.00	38.00	90.00	138.00	122.00	260.00	704.00	1457.00	666.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	15.00	7.00	1.00	1.00	10.00	12.00	29.00	4.00	15.00	6.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	104.00	84.00	2.00	28.00	161.00	43.00	115.00	289.00	537.00	311.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3186.00	335.00	70.00	76.00	823.00	929.00	5687.00	3174.00	4541.00	2346.00
V (PPM)	181.00	50.00	7.00	7.00	65.00	70.00	225.00	42.00	143.00	69.00
Y (PPM)	20.00	9.00	1.00	2.00	7.00	5.00	11.00	8.00	16.00	7.00
ZN (PPM)	50.00	26.00	3.00	12.00	28.00	53.00	78.00	73.00	97.00	47.00
ZR (PPM)	29.00	144.00	25.00	5.00	18.00	15.00	14.00	16.00	34.00	8.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151829	151830	151831	151832	151833	151834	151835	151836	151837	151838
ELEVATION	10520.00	10600.00	10600.00	10610.00	10520.00	10620.00	10580.00	10580.00	10280.00	9440.00
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	MI	SLC	MI	CQ
LITHOLOGY	VL	VL	VL	VL	VL	QPC	GB	C	GB	QZ
UL (PPM)	1.03	-2.25	.64	.93	1.90	4.02	.44	3.41	1.34	1.54
UT (PPM)	1.10	.70	.70	1.00	1.50	5.40	.20	3.40	.90	1.40
UL/UT	.94	ND	.91	.93	1.27	.74	2.21	1.00	1.49	1.10
TH (PPM)	2.00	-2.00	2.00	4.00	5.00	7.00	-2.00	7.00	-2.00	4.00
TH/UT	1.82	ND	2.86	4.00	3.33	1.30	ND	2.06	ND	2.86
AU (PPM)	ND	ND	ND	ND	ND	0.00	ND	ND	ND	ND
AL (%)	4.86	3.08	2.88	2.75	6.06	1.12	5.11	5.40	4.94	2.31
CA (%)	2.75	3.63	3.96	3.64	3.85	-0.05	5.68	2.83	2.33	.05
FE (%)	3.53	5.94	6.59	6.39	4.81	1.51	6.38	6.29	3.17	.45
MG (%)	4.39	4.96	5.05	5.00	1.90	.10	2.79	1.34	1.15	.26
NA (%)	1.02	.46	.41	.18	1.52	-0.05	.86	2.30	2.14	.44
K (%)	1.13	.09	.10	.05	.54	.58	.12	.36	1.32	1.22
AG (PPM)	6.00	2.00	-2.00	2.00	6.00	2.00	2.00	-2.00	-2.00	4.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	732.00	110.00	222.00	41.00	148.00	74.00	49.00	177.00	392.00	292.00
BE (PPM)	2.00	2.00	2.00	1.00	4.00	2.00	7.00	3.00	2.00	1.00
CE (PPM)	23.00	15.00	13.00	14.00	20.00	100.00	-10.00	250.00	25.00	13.00
CO (PPM)	52.00	72.00	79.00	78.00	49.00	5.00	48.00	40.00	21.00	-4.00
CR (PPM)	1570.00	2124.00	2184.00	2356.00	13.00	47.00	392.00	104.00	97.00	14.00
CU (PPM)	74.00	12.00	24.00	15.00	23.00	9.00	62.00	4.00	20.00	9.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	37.00	30.00	35.00	16.00	5.00	6.00	7.00	10.00	19.00	4.00
MN (PPM)	842.00	1123.00	1211.00	1017.00	880.00	56.00	1209.00	714.00	807.00	82.00
MO (PPM)	-4.00	-4.00	5.00	5.00	8.00	8.00	-4.00	-4.00	-4.00	4.00
NB (PPM)	6.00	-4.00	-4.00	-4.00	9.00	-4.00	-4.00	9.00	4.00	4.00
NI (PPM)	335.00	614.00	662.00	660.00	37.00	13.00	94.00	33.00	32.00	6.00
P (PPM)	245.00	317.00	305.00	330.00	295.00	130.00	248.00	415.00	319.00	113.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	14.00	18.00	17.00	16.00	18.00	4.00	32.00	33.00	8.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	190.00	58.00	53.00	24.00	129.00	4.00	132.00	142.00	135.00	29.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1889.00	1039.00	1086.00	963.00	3490.00	760.00	4109.00	5143.00	1986.00	259.00
V (PPM)	115.00	127.00	137.00	137.00	200.00	31.00	240.00	171.00	59.00	7.00
Y (PPM)	10.00	12.00	12.00	13.00	14.00	5.00	12.00	24.00	7.00	1.00
ZN (PPM)	67.00	90.00	95.00	91.00	80.00	8.00	68.00	42.00	64.00	9.00
ZR (PPM)	46.00	54.00	57.00	57.00	22.00	62.00	22.00	60.00	20.00	8.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151839	151840	151841	151842	151843	151844	151845	151846	151847	151848
ELEVATION	9040.00	9590.00	9500.00	9860.00	9740.00	8600.00	10000.00	10320.00	10300.00	7680.00
FORMATION	CQ	MG	MI	SLV	SLV	JCF	ANG	AGN	SLV	PU
LITHOLOGY	GPC	GPC	GB	VL	GPC	GPC	ULM	AMGN	VL	SS
UL (PPM)	1.32	1.35	-.25	.86	-.25	3.83	.41	-.25	.36	2.08
UT (PPM)	1.00	.70	.30	.70	ND	3.80	.10	.20	.30	1.60
UL/UT	1.32	1.93	ND	1.23	ND	1.01	4.13	ND	1.20	1.30
TH (PPM)	3.00	3.00	3.00	-2.00	-2.00	35.00	3.00	-2.00	3.00	-2.00
TH/UT	3.00	4.29	10.03	ND	ND	9.21	30.30	ND	10.03	ND
AU (PPM)	0.00	0.00	ND	ND	0.00	0.00	ND	ND	ND	ND
AL (%)	1.50	3.58	5.53	6.62	.07	4.42	2.45	6.32	5.33	2.01
CA (%)	-.05	.07	5.21	3.28	20.52	.06	3.28	4.90	5.31	.07
FE (%)	.97	1.63	8.26	2.80	.46	1.06	6.74	7.27	10.85	1.09
MG (%)	.33	.37	3.13	.70	.16	.19	6.42	2.49	2.40	.12
NA (%)	.06	.99	1.62	3.41	-.05	1.08	.37	1.59	1.27	-.05
K (%)	.70	1.02	.51	.40	-.02	2.80	.18	.29	.27	1.48
AG (PPM)	3.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	7.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	17.00
BA (PPM)	110.00	131.00	227.00	109.00	13.00	604.00	39.00	79.00	126.00	434.00
BE (PPM)	1.00	2.00	3.00	6.00	-1.00	2.00	-1.00	8.00	-1.00	-1.00
CE (PPM)	12.00	-10.00	41.00	13.00	83.00	107.00	14.00	15.00	-10.00	10.00
CO (PPM)	14.00	16.00	47.00	40.00	13.00	5.00	82.00	53.00	52.00	-4.00
CR (PPM)	33.00	33.00	75.00	18.00	7.00	2.00	2127.00	106.00	87.00	10.00
CU (PPM)	4.00	72.00	45.00	251.00	7.00	19.00	44.00	18.00	15.00	2.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	9.00	8.00	11.00	1.00	4.00	12.00	22.00	19.00	10.00
MN (PPM)	66.00	140.00	1582.00	759.00	1354.00	110.00	1371.00	1722.00	2267.00	17.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	8.00	11.00	10.00	10.00	7.00	-4.00	8.00	6.00	-4.00
NI (PPM)	28.00	9.00	46.00	42.00	-2.00	2.00	442.00	26.00	25.00	-2.00
P (PPM)	61.00	51.00	428.00	1136.00	34.00	115.00	96.00	679.00	571.00	98.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	5.00	35.00	10.00	32.00	4.00	31.00	31.00	40.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	6.00	50.00	230.00	54.00	80.00	32.00	36.00	100.00	157.00	49.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	431.00	1149.00	6793.00	5944.00	49.00	1012.00	887.00	7878.00	10173.00	792.00
V (PPM)	29.00	44.00	192.00	159.00	8.00	20.00	126.00	339.00	362.00	15.00
Y (PPM)	3.00	1.00	15.00	12.00	118.00	10.00	6.00	27.00	31.00	2.00
ZN (PPM)	3.00	18.00	85.00	416.00	3.00	30.00	73.00	141.00	167.00	7.00
ZR (PPM)	31.00	25.00	26.00	33.00	6.00	100.00	14.00	22.00	18.00	25.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151849	151850	151851	151852	151853	151854	151855	151856	151857	151858
ELEVATION	7720.00	7740.00	7780.00	10600.00	9380.00	10580.00	9420.00	9040.00	9040.00	9400.00
FORMATION	PU	PU	VF	JCF	SLC	MI	CQ	CQ	CQ	MI
LITHOLOGY	SS	SS	QPC	VL	QZ	GB	QPC	QPC	QPC	GB
UL (PPM)	.28	.53	1.20	.52	1.46	.53	1.71	.97	.98	-.25
UT (PPM)	.10	.70	.90	.20	1.20	.10	2.40	1.00	.90	.10
UL/UT	2.82	.76	1.33	2.61	1.22	5.34	.71	.97	1.09	ND
TH (PPM)	-2.00	3.00	-2.00	-2.00	3.00	6.00	5.00	2.00	4.00	-2.00
TH/UT	ND	4.29	ND	ND	2.50	60.61	2.08	2.00	4.45	ND
AU (PPM)	ND	ND	0.00	ND	ND	ND	0.00	0.00	0.00	ND
AL (%)	1.33	3.74	2.07	3.07	4.20	4.61	1.47	1.04	.77	5.30
CA (%)	2.31	.15	-.05	4.94	.24	8.98	-.05	.13	-.05	4.89
FE (%)	7.82	1.16	.20	6.68	1.59	10.95	.56	.49	1.17	4.12
MG (%)	11.41	.91	.09	4.41	.44	5.98	.13	.17	.66	4.90
NA (%)	.08	1.34	.05	.56	.78	.79	.24	.13	-.05	.74
K (%)	.07	1.92	1.84	.08	1.76	.23	.72	.48	.09	.72
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	5.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	20.00	68.00	560.00	150.00	230.00	113.00	127.00	96.00	21.00	220.00
BE (PPM)	1.00	1.00	-1.00	3.00	1.00	1.00	2.00	-1.00	1.00	1.00
CE (PPM)	-10.00	34.00	-10.00	-10.00	22.00	-10.00	17.00	14.00	-10.00	-10.00
CO (PPM)	162.00	7.00	-4.00	72.00	9.00	85.00	-4.00	5.00	10.00	45.00
CR (PPM)	2354.00	35.00	13.00	1229.00	42.00	430.00	27.00	20.00	21.00	1134.00
CU (PPM)	16.00	-2.00	2.00	34.00	25.00	98.00	6.00	11.00	2.00	44.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	17.00	7.00	7.00	11.00	7.00	7.00	3.00	2.00	5.00	13.00
MN (PPM)	1475.00	54.00	12.00	1265.00	149.00	2213.00	55.00	29.00	102.00	1097.00
MO (PPM)	-4.00	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	6.00	-4.00	-4.00	-4.00	5.00	10.00	-4.00	-4.00	-4.00	5.00
NI (PPM)	1333.00	14.00	2.00	359.00	12.00	143.00	3.00	2.00	14.00	262.00
P (PPM)	70.00	189.00	35.00	216.00	140.00	322.00	93.00	52.00	74.00	117.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	25.00	5.00	1.00	27.00	5.00	47.00	1.00	2.00	3.00	25.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	82.00	41.00	51.00	35.00	45.00	155.00	7.00	8.00	2.00	61.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	909.00	522.00	430.00	1878.00	1718.00	6517.00	468.00	292.00	88.00	1674.00
V (PPM)	79.00	31.00	11.00	180.00	33.00	381.00	8.00	18.00	17.00	165.00
Y (PPM)	2.00	3.00	2.00	9.00	4.00	18.00	2.00	2.00	2.00	6.00
ZN (PPM)	102.00	7.00	6.00	75.00	35.00	120.00	6.00	8.00	8.00	71.00
ZR (PPM)	17.00	29.00	29.00	28.00	37.00	41.00	39.00	26.00	26.00	16.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151859	151860	151861	151862	151863	151864	151865	151866	151867	151868
ELEVATION	9620.00	10480.00	9850.00	9850.00	9115.00	9115.00	9070.00	7690.00	7920.00	8740.00
FORMATION	MG	JCF	SLV	SLV	SLV	SLV	SLV	PU	PU	PU
LITHOLOGY	QPC	QZ	QZ	VL	QZ	QPC	QPC	VL	SS	SS
UL (PPM)	1.19	.61	.50	1.02	1.38	2.45	6.03	1.47	.51	.71
UT (PPM)	1.00	.60	.20	.60	1.30	2.10	5.40	1.00	.20	1.00
UL/UT	1.19	1.02	2.51	1.70	1.06	1.17	1.12	1.47	2.56	.71
TH (PPM)	4.00	4.00	-2.00	4.00	15.00	19.00	41.00	4.00	3.00	4.00
TH/UT	4.00	6.60	ND	6.68	11.55	9.05	7.59	4.00	15.08	4.00
AU (PPM)	0.00	ND	NU	NU	ND	0.00	0.00	ND	ND	ND
AL (%)	4.40	.73	2.25	5.73	4.65	4.28	4.55	3.27	1.02	4.73
CA (%)	.22	.10	2.04	3.73	.09	.06	.12	.16	2.74	.15
FE (%)	1.35	.21	1.89	7.01	1.35	.99	.86	3.83	6.49	2.03
MG (%)	.22	.12	.30	.84	.54	.28	.18	.17	6.63	1.52
NA (%)	.56	.26	1.01	2.44	.82	1.03	1.29	.10	.08	1.69
K (%)	1.85	.19	.35	.41	2.15	2.08	3.06	2.96	.02	1.78
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	441.00	50.00	81.00	150.00	636.00	523.00	293.00	1038.00	19.00	69.00
BE (PPM)	1.00	1.00	1.00	14.00	1.00	3.00	6.00	-1.00	1.00	1.00
CE (PPM)	37.00	-10.00	32.00	25.00	31.00	38.00	61.00	10.00	-10.00	34.00
CO (PPM)	9.00	-4.00	53.00	45.00	6.00	8.00	4.00	8.00	93.00	8.00
CR (PPM)	49.00	14.00	9.00	21.00	30.00	24.00	10.00	33.00	1391.00	51.00
CU (PPM)	9.00	12.00	680.00	5.00	4.00	50.00	4.00	17.00	15.00	11.00
IF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	NU	ND
LI (PPM)	8.00	3.00	2.00	13.00	10.00	12.00	7.00	7.00	16.00	16.00
MN (PPM)	236.00	120.00	776.00	758.00	74.00	179.00	88.00	27.00	1394.00	76.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	5.00	6.00	-4.00
NB (PPM)	4.00	-4.00	-4.00	13.00	9.00	6.00	16.00	-4.00	5.00	-4.00
NI (PPM)	10.00	5.00	19.00	62.00	4.00	10.00	6.00	5.00	887.00	31.00
P (PPM)	179.00	26.00	-5.00	1214.00	49.00	101.00	93.00	182.00	54.00	287.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	1.00	3.00	16.00	6.00	4.00	3.00	2.00	11.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	50.00	5.00	24.00	102.00	96.00	59.00	37.00	107.00	20.00	39.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1036.00	117.00	370.00	9198.00	1828.00	1169.00	721.00	413.00	508.00	486.00
V (PPM)	47.00	7.00	35.00	206.00	51.00	42.00	16.00	23.00	36.00	71.00
Y (PPM)	3.00	2.00	4.00	17.00	4.00	4.00	15.00	3.00	3.00	5.00
ZN (PPM)	12.00	5.00	42.00	42.00	31.00	13.00	17.00	9.00	63.00	13.00
ZR (PPM)	18.00	21.00	9.00	47.00	47.00	44.00	84.00	30.00	9.00	50.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151869	151870	151872	151873	151874	151875	151876	151877	151878	151879
ELEVATION	7780.00	7780.00	7780.00	7780.00	7780.00	7780.00	9070.00	10860.00	9700.00	9615.00
FORMATION	MU	MU	MU	MU	MU	VF	SLV	MI	SLV	JCF
LITHOLOGY	SS	SS	SS	SS	SS	GPC	VL	PG	VL	BGN
UL (PPM)	7.87	1.48	.95	-.25	-.25	.58	2.78	1.39	3.29	5.14
UT (PPM)	6.60	1.60	.20	ND	ND	.80	2.80	1.50	2.60	3.60
UL/UT	1.19	.92	4.77	ND	ND	.72	.99	.93	1.27	1.43
TH (PPM)	9.00	-2.00	-2.00	4.00	-2.00	3.00	36.00	4.00	5.00	12.00
TH/UT	1.36	ND	ND	ND	ND	3.75	12.86	2.67	1.92	3.33
AU (PPM)	ND	ND	ND	ND	ND	0.00	ND	ND	ND	ND
AL (%)	5.05	7.61	2.23	.94	.58	.22	3.61	6.39	5.32	5.81
CA (%)	.40	.22	1.09	.60	.12	11.61	.06	.92	4.24	2.22
FE (%)	1.99	3.72	4.97	5.60	5.03	.17	.52	.41	5.62	3.39
MG (%)	.83	2.65	5.55	6.63	6.85	.08	.09	.32	2.05	1.66
NA (%)	2.43	-.05	.05	.05	-.05	-.05	1.17	4.05	1.88	2.06
K (%)	1.53	4.82	.02	.02	-.02	.10	2.19	.23	.65	2.08
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	5.00	3.00	3.00
B (PPM)	-10.00	17.00	-10.00	84.00	61.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	66.00	44.00	8.00	12.00	11.00	14.00	298.00	92.00	380.00	1326.00
BE (PPM)	2.00	6.00	-1.00	2.00	1.00	-1.00	4.00	3.00	6.00	3.00
CE (PPM)	-10.00	-10.00	32.00	-10.00	-10.00	14.00	42.00	46.00	12.00	61.00
CO (PPM)	24.00	52.00	94.00	107.00	102.00	7.00	-4.00	4.00	40.00	20.00
CR (PPM)	109.00	368.00	2610.00	1470.00	1371.00	9.00	9.00	8.00	126.00	93.00
CU (PPM)	19.00	71.00	-2.00	26.00	3.00	-2.00	6.00	11.00	29.00	21.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	13.00	44.00	23.00	30.00	50.00	3.00	6.00	5.00	11.00	31.00
MN (PPM)	126.00	241.00	629.00	916.00	758.00	183.00	118.00	209.00	1406.00	658.00
MO (PPM)	-4.00	-4.00	-4.00	6.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	4.00	-4.00	4.00	-4.00	-4.00	11.00	5.00	9.00	7.00
NI (PPM)	91.00	197.00	972.00	1477.00	1488.00	19.00	2.00	9.00	49.00	22.00
P (PPM)	1123.00	1019.00	44.00	98.00	82.00	28.00	87.00	396.00	364.00	788.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	6.00	12.00	9.00	9.00	6.00	2.00	3.00	4.00	24.00	12.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	60.00	10.00	9.00	10.00	6.00	27.00	37.00	129.00	190.00	586.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	718.00	5290.00	580.00	688.00	498.00	248.00	799.00	1450.00	3699.00	2995.00
V (PPM)	59.00	345.00	69.00	37.00	32.00	6.00	12.00	28.00	181.00	101.00
Y (PPM)	8.00	5.00	1.00	3.00	2.00	7.00	9.00	7.00	15.00	11.00
ZN (PPM)	13.00	41.00	51.00	56.00	71.00	14.00	15.00	11.00	96.00	57.00
ZR (PPM)	101.00	43.00	7.00	14.00	12.00	12.00	77.00	38.00	21.00	56.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151880	151881	151882	151883	151884	151885	151886	151887	151888	151889
ELEVATION	10520.00	10520.00	10520.00	10540.00	10540.00	10245.00	10195.00	9540.00	9540.00	10580.00
FORMATION	JCF	JCF	JCF	JCF	JCF	AGN	AGN	AGN	AGN	SLC
LITHOLOGY	BSC	QZ	QZ	QZ	BGN	BSC	QZ	CS	VL	QZ
UL (PPM)	4.96	1.12	.75	2.13	2.54	7.29	-.25	1.04	2.78	.98
UT (PPM)	.10	1.20	.90	2.60	2.60	5.90	.10	1.00	2.60	1.20
UL/UT	50.09	.93	.83	.82	.98	1.24	ND	1.04	1.07	.82
TH (PPM)	-2.00	6.00	10.00	7.00	6.00	20.00	-2.00	7.00	3.00	4.00
TH/UT	ND	5.00	11.12	2.69	2.31	3.39	ND	7.00	1.15	3.34
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	4.90	5.45	2.75	4.62	4.34	6.29	5.26	4.25	3.78	4.82
CA (%)	5.75	.17	.24	5.21	7.13	1.81	4.47	3.20	6.55	.10
FE (%)	6.92	2.25	.65	1.99	2.10	3.03	8.26	.93	1.64	.98
MG (%)	3.16	.42	.19	.74	1.21	1.27	2.43	.43	1.23	.36
NA (%)	.97	.94	.57	1.96	.08	2.49	1.62	.17	.73	1.70
K (%)	.34	2.97	2.34	1.47	3.32	2.06	.30	3.74	3.10	2.88
AG (PPM)	2.00	-2.00	-2.00	2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	86.00	814.00	667.00	380.00	904.00	1390.00	187.00	884.00	732.00	1201.00
BE (PPM)	11.00	6.00	4.00	4.00	7.00	7.00	8.00	1.00	5.00	1.00
CE (PPM)	-10.00	27.00	20.00	40.00	45.00	73.00	-10.00	39.00	33.00	11.00
CD (PPM)	54.00	13.00	8.00	14.00	11.00	16.00	54.00	6.00	0.00	6.00
CR (PPM)	216.00	81.00	41.00	92.00	62.00	58.00	83.00	30.00	42.00	23.00
CU (PPM)	88.00	39.00	17.00	39.00	15.00	13.00	108.00	9.00	7.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	24.00	10.00	33.00	4.00	27.00	19.00	2.00	4.00	11.00
MN (PPM)	1260.00	333.00	173.00	794.00	1173.00	527.00	1407.00	326.00	708.00	101.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	4.00	-4.00	-4.00	-4.00	4.00	-4.00
NB (PPM)	4.00	8.00	11.00	10.00	12.00	7.00	4.00	5.00	8.00	4.00
NI (PPM)	93.00	23.00	13.00	32.00	21.00	16.00	46.00	7.00	12.00	8.00
P (PPM)	349.00	352.00	231.00	668.00	375.00	731.00	373.00	223.00	377.00	171.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	28.00	6.00	5.00	7.00	8.00	10.00	37.00	3.00	4.00	4.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	149.00	78.00	49.00	346.00	311.00	529.00	134.00	149.00	153.00	140.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	5321.00	2108.00	1442.00	2515.00	1972.00	2809.00	6022.00	1590.00	1557.00	1114.00
V (PPM)	243.00	51.00	26.00	57.00	40.00	79.00	295.00	16.00	26.00	35.00
Y (PPM)	12.00	5.00	6.00	10.00	15.00	12.00	20.00	5.00	8.00	2.00
ZN (PPM)	61.00	26.00	9.00	39.00	56.00	54.00	97.00	34.00	30.00	14.00
ZR (PPM)	18.00	46.00	53.00	118.00	68.00	48.00	17.00	39.00	69.00	26.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151890	151891	151892	151893	151894	151895	151896	151897	151898	151899
ELEVATION	10580.00	10180.00	10020.00	9635.00	9620.00	10080.00	9780.00	9650.00	9300.00	9470.00
FORMATION	JCF	MI	JCF	AGN	MI	AGN	MI	SLC	JCF	JCF
LITHOLOGY	QZ	GB	QZ	MSC	MSC	BGN	GB	C	PL	QPC
UL (PPM)	.46	-.25	3.71	1.71	.72	5.84	.90	1.72	-.25	.72
UT (PPM)	1.00	.10	2.70	2.10	.90	6.10	.80	1.20	.30	1.30
UL/UT	.46	ND	1.37	.81	.80	.96	1.13	1.43	ND	.55
TH (PPM)	4.00	-2.00	7.00	14.00	3.00	21.00	8.00	2.00	2.00	6.00
TH/UT	4.00	ND	2.59	6.67	3.34	3.44	10.01	1.67	6.69	4.62
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00
AL (%)	4.54	2.16	2.85	6.18	5.09	5.72	5.70	5.60	3.38	4.71
CA (%)	.25	3.09	8.96	1.01	2.75	2.36	5.03	1.88	.20	.31
FE (%)	1.62	5.65	1.56	5.95	7.74	4.03	8.93	5.11	1.50	1.46
MG (%)	.56	5.62	1.01	1.87	2.58	2.45	2.57	2.06	.55	.40
NA (%)	2.42	.17	.05	2.72	1.75	2.08	.84	1.57	.47	1.72
K (%)	1.53	.05	.78	1.84	.24	2.29	.18	.55	1.27	1.27
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	543.00	38.00	246.00	2027.00	83.00	1502.00	98.00	288.00	325.00	623.00
BE (PPM)	4.00	1.00	4.00	2.00	27.00	3.00	2.00	6.00	5.00	6.00
CE (PPM)	33.00	-10.00	35.00	43.00	-10.00	111.00	18.00	13.00	-10.00	27.00
CO (PPM)	9.00	85.00	11.00	42.00	35.00	24.00	52.00	32.00	10.00	7.00
CR (PPM)	48.00	2572.00	50.00	28.00	86.00	141.00	90.00	129.00	30.00	55.00
CU (PPM)	3.00	32.00	5.00	58.00	40.00	51.00	74.00	52.00	13.00	30.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	14.00	6.00	3.00	27.00	19.00	33.00	19.00	23.00	13.00	14.00
MN (PPM)	328.00	972.00	1054.00	653.00	1735.00	775.00	1402.00	964.00	132.00	165.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	5.00	-4.00	7.00	13.00	9.00	8.00	9.00	6.00	13.00	7.00
NI (PPM)	15.00	744.00	23.00	51.00	21.00	27.00	46.00	60.00	16.00	15.00
P (PPM)	301.00	117.00	371.00	304.00	1080.00	815.00	472.00	447.00	124.00	308.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	4.00	20.00	5.00	25.00	40.00	16.00	34.00	19.00	6.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	117.00	16.00	168.00	201.00	114.00	495.00	194.00	235.00	31.00	89.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1841.00	1438.00	1191.00	6044.00	11659.00	3091.00	6511.00	4281.00	799.00	2108.00
V (PPM)	35.00	116.00	22.00	220.00	385.00	103.00	280.00	164.00	31.00	39.00
Y (PPM)	5.00	4.00	10.00	13.00	32.00	14.00	24.00	15.00	6.00	4.00
ZN (PPM)	20.00	79.00	63.00	129.00	135.00	73.00	89.00	92.00	17.00	21.00
ZR (PPM)	44.00	16.00	94.00	42.00	79.00	55.00	21.00	30.00	17.00	50.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151900	151901	151902	151903	151904	151905	151906	151907	151908	151909
ELEVATION	9400.00	10250.00	9930.00	9630.00	9590.00	10280.00	10260.00	10480.00	10570.00	10300.00
FORMATION	JCF	JCF	JCF	MI	MI	MG	MG	JCF	JCF	SLV
LITHOLOGY	QZ	QZ	C	ULM	DB	QPC	QPC	VL	QPC	VL
UL (PPM)	-.25	.58	2.81	-.25	1.04	1.14	.72	.91	1.43	3.58
UT (PPM)	.30	.60	3.60	.10	.60	.60	.70	.60	3.70	3.90
UL/UT	ND	.97	.78	ND	1.73	1.90	1.03	1.52	.39	.92
TH (PPM)	-2.00	3.00	8.00	-2.00	-2.00	2.00	3.00	2.00	17.00	20.00
TH/UT	ND	5.01	2.22	ND	ND	3.34	4.29	ND	4.60	5.13
AU (PPM)	ND	ND	ND	ND	ND	0.00	0.00	ND	0.00	ND
AL (%)	2.18	2.04	3.91	2.50	5.43	1.97	2.86	5.36	3.73	6.16
CA (%)	-.05	.08	.46	2.98	5.17	-.05	.11	5.11	.12	1.95
FE (%)	.17	.42	4.35	3.61	6.48	.32	.73	7.12	.76	4.11
MG (%)	.09	.13	.76	6.91	2.52	.11	.32	1.81	.28	2.06
NA (%)	.09	.05	1.74	.18	1.32	.24	1.62	.52	2.86	2.51
K (%)	1.80	1.79	1.11	.03	.48	1.22	.40	.26	.81	2.08
AG (PPM)	-2.00	-2.00	-2.00	7.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	672.00	417.00	548.00	6.00	152.00	356.00	189.00	66.00	160.00	897.00
BE (PPM)	-1.00	1.00	2.00	2.00	7.00	1.00	1.00	8.00	1.00	3.00
CE (PPM)	-10.00	10.00	28.00	-10.00	-10.00	-10.00	-10.00	-10.00	23.00	107.00
CO (PPM)	-4.00	-4.00	32.00	71.00	52.00	-4.00	6.00	43.00	5.00	26.00
CR (PPM)	12.00	13.00	67.00	3053.00	21.00	9.00	23.00	76.00	48.00	96.00
CU (PPM)	5.00	2.00	92.00	21.00	87.00	14.00	4.00	74.00	11.00	5.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	6.00	20.00	3.00	11.00	3.00	5.00	14.00	6.00	40.00
MIN (PPM)	36.00	40.00	600.00	1052.00	1166.00	22.00	71.00	1306.00	169.00	749.00
MO (PPM)	-4.00	-4.00	4.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	7.00	4.00	5.00	-4.00	-4.00	7.00	5.00	8.00
NI (PPM)	-2.00	2.00	33.00	572.00	76.00	5.00	10.00	37.00	12.00	21.00
P (PPM)	24.00	93.00	366.00	180.00	253.00	32.00	86.00	572.00	242.00	773.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	14.00	16.00	30.00	1.00	1.00	26.00	4.00	12.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	42.00	22.00	53.00	24.00	178.00	20.00	37.00	129.00	95.00	474.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	244.00	528.00	2612.00	1875.00	3689.00	194.00	509.00	6291.00	1390.00	3165.00
V (PPM)	5.00	12.00	97.00	104.00	218.00	5.00	12.00	247.00	28.00	76.00
Y (PPM)	1.00	3.00	8.00	5.00	11.00	1.00	1.00	24.00	3.00	11.00
ZN (PPM)	7.00	4.00	44.00	69.00	68.00	5.00	8.00	78.00	10.00	62.00
ZR (PPM)	8.00	18.00	31.00	13.00	28.00	15.00	28.00	37.00	121.00	58.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151910	151911	151912	151913	151914	151915	151916	151917	151918	151919
ELEVATION	10220.00	10290.00	9326.00	9455.00	9470.00	9980.00	8180.00	9020.00	8930.00	8050.00
FORMATION	SLV	SLV	CPQ	CPQ	CPQ	SPF	CQ	SSZ	SSZ	VF
LITHOLOGY	VL	VL	QZ	QZ	QPC	QPC	QZ	AM	PL	QZ
UL (PPM)	-.25	.29	-.25	.30	-.25	1.16	4.34	4.18	1.38	3.13
UT (PPM)	.20	.40	.30	.30	.50	1.00	.50	2.00	1.00	2.70
UL/UT	ND	.72	ND	1.00	ND	1.16	8.68	2.09	1.38	1.16
TH (PPM)	-2.00	2.00	-2.00	4.00	2.00	5.00	2.00	-2.00	-2.00	10.00
TH/UT	ND	5.01	ND	13.38	4.00	5.00	4.00	ND	ND	3.71
AU (PPM)	ND	ND	ND	ND	0.00	0.00	ND	ND	ND	ND
AL (%)	5.40	6.45	.23	1.33	2.04	1.75	.97	6.26	5.44	5.59
CA (%)	4.66	5.53	-.05	-.05	-.05	.12	.06	4.53	.75	.42
FE (%)	7.66	10.50	.26	.16	.20	.53	.32	5.57	7.57	3.86
MG (%)	1.62	2.87	-.05	-.05	.08	.19	.12	1.84	2.90	1.42
NA (%)	1.70	1.87	-.05	.08	.06	.67	.19	1.46	.90	2.05
K (%)	.26	.45	.08	.54	.79	.27	.37	1.65	.17	1.68
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	113.00	150.00	28.00	26.00	32.00	103.00	68.00	1081.00	50.00	540.00
BE (PPM)	13.00	4.00	-1.00	-1.00	1.00	1.00	-1.00	5.00	7.00	6.00
CE (PPM)	-10.00	45.00	11.00	-10.00	-10.00	-10.00	11.00	16.00	-10.00	32.00
CO (PPM)	45.00	60.00	-4.00	-4.00	-4.00	-4.00	-4.00	25.00	32.00	21.00
CR (PPM)	92.00	71.00	8.00	15.00	21.00	28.00	17.00	161.00	2.00	131.00
CU (PPM)	29.00	50.00	4.00	6.00	2.00	18.00	10.00	41.00	3.00	56.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	17.00	25.00	1.00	1.00	1.00	4.00	4.00	9.00	21.00	22.00
MN (PPM)	1732.00	1520.00	20.00	17.00	11.00	63.00	28.00	1125.00	1813.00	474.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	6.00	11.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	5.00	9.00
NI (PPM)	34.00	27.00	-2.00	3.00	-2.00	7.00	4.00	23.00	3.00	53.00
P (PPM)	632.00	445.00	12.00	12.00	7.00	72.00	32.00	679.00	1527.00	526.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	38.00	42.00	-1.00	1.00	1.00	2.00	1.00	24.00	22.00	13.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	242.00	232.00	3.00	4.00	3.00	28.00	10.00	642.00	89.00	146.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	9196.00	10041.00	68.00	116.00	167.00	472.00	113.00	3293.00	4390.00	3453.00
V (PPM)	327.00	276.00	4.00	6.00	7.00	13.00	8.00	186.00	146.00	122.00
Y (PPM)	32.00	29.00	1.00	1.00	1.00	3.00	2.00	15.00	14.00	9.00
ZN (PPM)	113.00	134.00	2.00	3.00	-2.00	12.00	8.00	72.00	96.00	63.00
ZR (PPM)	28.00	21.00	11.00	16.00	15.00	43.00	18.00	38.00	36.00	59.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151920	151921	151922	151923	151924	151925	151926	151927	151928	151929
ELEVATION	8220.00	8220.00	8220.00	8280.00	8300.00	9135.00	8580.00	8675.00	9080.00	8700.00
FORMATION	VF	VF	VF	SSZ	CPQ	SSZ	CQ	CQ	CQ	VF
LITHOLOGY	GB	DC	DC	RGR	QPC	AMGN	QZ	QPC	QZ	CS
UL (PPM)	2.08	1.61	1.59	1.83	.92	-.25	.47	.83	5.16	2.48
UT (PPM)	2.00	1.30	.80	1.50	1.10	.30	.70	.80	6.00	2.40
UL/UT	1.04	1.24	1.99	1.22	.84	ND	.67	1.04	.86	1.03
TH (PPM)	8.00	3.00	3.00	6.00	3.00	-2.00	2.00	4.00	14.00	9.00
TH/UT	4.00	2.31	3.75	4.00	2.73	ND	2.84	5.01	2.33	3.75
AU (PPM)	ND	ND	ND	ND	0.00	ND	ND	0.00	ND	ND
AL (%)	5.29	4.34	4.52	4.78	4.98	7.64	.76	1.11	3.58	5.28
CA (%)	.17	.14	.15	.25	.33	4.81	-.05	-.05	-.05	2.21
FE (%)	3.29	2.41	2.15	.88	1.51	4.58	.27	.34	2.82	2.51
MG (%)	1.40	1.24	1.04	.10	.42	2.96	.09	.13	.21	2.12
NA (%)	2.18	1.98	1.54	3.38	1.54	1.98	.15	.13	.16	1.99
K (%)	1.47	1.06	1.83	.72	1.39	.77	.35	.60	1.68	2.40
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	2.00	5.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	463.00	311.00	605.00	364.00	800.00	218.00	61.00	100.00	289.00	1301.00
BE (PPM)	6.00	4.00	4.00	3.00	1.00	4.00	1.00	2.00	2.00	2.00
CE (PPM)	-10.00	21.00	-10.00	59.00	30.00	21.00	15.00	-10.00	43.00	27.00
CO (PPM)	19.00	12.00	10.00	-4.00	6.00	42.00	-4.00	5.00	36.00	20.00
CR (PPM)	119.00	85.00	28.00	5.00	28.00	198.00	17.00	24.00	41.00	80.00
CU (PPM)	27.00	4.00	7.00	5.00	15.00	156.00	2.00	11.00	182.00	54.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	14.00	14.00	11.00	2.00	12.00	8.00	2.00	3.00	4.00	22.00
MN (PPM)	265.00	143.00	130.00	81.00	171.00	1133.00	14.00	20.00	39.00	578.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	8.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	8.00	4.00	-4.00	11.00	4.00	6.00	-4.00	-4.00	-4.00	4.00
NI (PPM)	44.00	34.00	23.00	2.00	11.00	39.00	7.00	8.00	16.00	21.00
P (PPM)	541.00	307.00	373.00	70.00	304.00	614.00	38.00	56.00	184.00	361.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	11.00	9.00	8.00	2.00	5.00	26.00	1.00	2.00	7.00	9.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	74.00	32.00	44.00	65.00	189.00	220.00	5.00	5.00	26.00	104.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2957.00	1609.00	1434.00	549.00	1257.00	3646.00	232.00	471.00	324.00	2314.00
V (PPM)	101.00	83.00	110.00	5.00	26.00	236.00	10.00	21.00	59.00	60.00
Y (PPM)	5.00	7.00	4.00	10.00	6.00	10.00	1.00	2.00	4.00	9.00
ZN (PPM)	40.00	15.00	13.00	9.00	31.00	94.00	3.00	4.00	126.00	17.00
ZR (PPM)	61.00	47.00	32.00	76.00	39.00	15.00	20.00	37.00	51.00	50.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151930	151931	151932	151933	151934	151935	151936	151937	151938	151939
ELEVATION	9540.00	8240.00	8160.00	8680.00	8600.00	8595.00	9600.00	9780.00	10146.00	10135.00
FORMATION	CQ	VF	VF	CQ	SPF	SPF	SPF	CQ	SLC	AGN
LITHOLOGY	QZ	QZ	DC	C	QZ	QZ	QZ	QPC	VL	BGN
UL (PPM)	1.94	.36	2.35	1.57	2.82	1.75	.30	1.27	1.92	4.48
UT (PPM)	1.30	.30	2.70	1.30	2.80	1.10	.50	.70	1.40	5.50
UL/UT	1.49	1.20	.87	1.21	1.01	1.59	.60	1.82	1.37	.81
TH (PPM)	2.00	-2.00	8.00	4.00	8.00	7.00	-2.00	-2.00	-2.00	21.00
TH/UT	1.54	ND	2.96	3.08	2.86	6.37	ND	ND	ND	3.82
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND
AL (%)	1.49	1.71	5.15	5.38	5.62	3.18	.47	1.04	3.39	5.95
CA (%)	-.05	-.05	.34	.20	.08	.34	-.05	-.05	8.49	2.05
FE (%)	.35	.21	2.52	3.57	3.82	1.05	.35	.45	4.80	3.97
MG (%)	.14	.14	1.20	1.71	.96	.46	.14	.13	.74	2.32
NA (%)	.33	1.26	2.47	2.79	.93	1.91	.27	.10	1.01	2.00
K (%)	.67	.05	1.11	.65	1.83	.18	.12	.40	.35	2.22
AG (PPM)	-2.00	-2.00	2.00	-2.00	3.00	-2.00	-2.00	-2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	142.00	16.00	429.00	200.00	486.00	130.00	20.00	70.00	63.00	1622.00
BE (PPM)	1.00	-1.00	4.00	4.00	6.00	2.00	-1.00	-1.00	3.00	3.00
CE (PPM)	16.00	-10.00	23.00	80.00	14.00	15.00	-10.00	-10.00	15.00	98.00
CD (PPM)	-4.00	-4.00	15.00	20.00	22.00	7.00	-4.00	7.00	22.00	21.00
CR (PPM)	17.00	33.00	82.00	104.00	170.00	60.00	9.00	23.00	60.00	59.00
CU (PPM)	6.00	3.00	82.00	3.00	28.00	23.00	3.00	2.00	33.00	-2.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	1.00	10.00	11.00	36.00	9.00	2.00	3.00	9.00	25.00
MM (PPM)	24.00	14.00	333.00	192.00	136.00	99.00	15.00	54.00	2009.00	855.00
MO (PPM)	-4.00	-4.00	4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	5.00	-4.00	7.00	5.00	-4.00	-4.00	21.00	10.00
NI (PPM)	6.00	4.00	32.00	49.00	53.00	13.00	4.00	6.00	21.00	26.00
P (PPM)	35.00	32.00	380.00	485.00	360.00	128.00	37.00	35.00	454.00	645.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	9.00	11.00	13.00	3.00	-1.00	1.00	6.00	13.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	11.00	8.00	154.00	84.00	112.00	68.00	4.00	5.00	131.00	533.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	304.00	94.00	2148.00	904.00	1574.00	696.00	63.00	221.00	1489.00	3104.00
V (PPM)	6.00	5.00	75.00	108.00	170.00	30.00	4.00	12.00	48.00	105.00
Y (PPM)	1.00	1.00	9.00	4.00	2.00	4.00	-1.00	1.00	10.00	14.00
ZN (PPM)	5.00	3.00	38.00	17.00	13.00	29.00	22.00	3.00	42.00	81.00
ZR (PPM)	21.00	25.00	57.00	62.00	130.00	42.00	17.00	25.00	21.00	52.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151941	151942	151943	151944	151945	151946	151947	151948	151949	151950
ELEVATION	10640.00	9620.00	10510.00	8680.00	8680.00	8680.00	9035.00	9000.00	8600.00	9875.00
FORMATION	JCF	JCF	AGN	CQ	CQ	CQ	SF	SF	CPQ	JCF
LITHOLOGY	QZ	QZ	BGN	QZ	QZ	QZ	CS	CS	QZ	QZ
UL (PPM)	1.36	.64	6.32	ND	.59	-.25	2.79	.74	-.25	1.93
UT (PPM)	.80	.60	5.80	.50	.50	.50	2.40	.20	.40	1.70
UL/UT	1.70	1.07	1.09	ND	1.18	ND	1.16	3.71	ND	1.14
TH (PPM)	2.00	4.00	14.00	ND	4.00	-2.00	4.00	3.00	2.00	-2.00
TH/UT	2.50	6.68	2.41	ND	8.00	ND	1.67	15.08	5.01	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	5.16	5.82	6.54	ND	2.82	1.31	5.79	5.87	.52	2.03
CA (%)	.25	5.17	.97	ND	.07	.05	3.78	5.21	-.05	8.72
FE (%)	.69	8.66	1.11	ND	.64	.26	2.94	7.70	.56	1.32
MG (%)	.31	2.52	.49	ND	.15	.13	3.44	3.74	.11	1.26
NA (%)	2.23	1.74	1.94	ND	1.72	2.25	.74	1.59	-.05	.08
K (%)	2.43	.31	3.46	ND	.87	.20	.26	.36	.08	.40
AG (PPM)	-2.00	-2.00	-2.00	ND	-2.00	-2.00	-2.00	-2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	ND	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	721.00	74.00	1103.00	ND	250.00	23.00	28.00	141.00	36.00	129.00
BE (PPM)	1.00	4.00	2.00	ND	1.00	1.00	1.00	2.00	-1.00	3.00
CE (PPM)	30.00	41.00	27.00	ND	25.00	20.00	15.00	37.00	-10.00	20.00
CO (PPM)	7.00	46.00	7.00	ND	4.00	4.00	26.00	59.00	-4.00	7.00
CR (PPM)	33.00	79.00	49.00	ND	19.00	22.00	72.00	154.00	15.00	35.00
CU (PPM)	6.00	86.00	9.00	ND	16.00	4.00	32.00	159.00	42.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	6.00	20.00	ND	3.00	2.00	25.00	10.00	46.00	2.00
MN (PPM)	147.00	2072.00	252.00	ND	99.00	14.00	489.00	1483.00	43.00	868.00
MO (PPM)	-4.00	-4.00	-4.00	ND	-4.00	-4.00	6.00	-4.00	-4.00	5.00
NB (PPM)	4.00	10.00	6.00	ND	-4.00	-4.00	6.00	5.00	-4.00	6.00
NI (PPM)	11.00	34.00	10.00	ND	5.00	5.00	36.00	75.00	6.00	13.00
P (PPM)	190.00	588.00	478.00	ND	127.00	96.00	171.00	318.00	-5.00	300.00
PD (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	30.00	4.00	ND	3.00	1.00	8.00	35.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	112.00	124.00	153.00	ND	48.00	24.00	27.00	126.00	5.00	107.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	899.00	7921.00	1367.00	ND	289.00	126.00	450.00	5250.00	96.00	935.00
V (PPM)	24.00	224.00	43.00	ND	16.00	9.00	72.00	230.00	7.00	19.00
Y (PPM)	2.00	27.00	5.00	ND	2.00	1.00	7.00	14.00	1.00	5.00
ZN (PPM)	9.00	175.00	23.00	ND	4.00	3.00	27.00	82.00	6.00	66.00
ZR (PPM)	13.00	39.00	46.00	ND	16.00	26.00	42.00	18.00	4.00	45.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151951	151952	151953	151954	151955	151956	151957	151958	151959	151960
ELEVATION	10040.00	9630.00	9400.00	9250.00	9260.00	9480.00	8600.00	8680.00	8660.00	10040.00
FORMATION	MI	JCF	JCF	JCF	JCF	JCF	CPQ	SF	SSZ	CPQ
LITHOLOGY	GB	CUO	QZ	QZ	QZ	VL	RGR	CS	RGR	QZ
UL (PPM)	.25	.36	2.02	2.66	.88	3.85	-.25	.68	2.93	1.18
UT (PPM)	.10	ND	1.40	1.60	1.50	4.20	.20	.70	3.40	.40
UL/UT	2.53	ND	1.44	1.66	.59	.92	ND	.97	.86	2.95
TH (PPM)	2.00	-2.00	3.00	-2.00	17.00	10.00	-2.00	-2.00	16.00	-2.00
TH/UT	20.20	ND	2.14	ND	11.33	2.38	ND	ND	4.71	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.01	.18	.81	.69	6.22	7.38	.23	.12	5.17	.21
CA (%)	2.82	23.68	.07	10.77	.06	.24	.05	13.77	.19	-.05
FE (%)	7.11	.63	.29	.83	1.22	2.62	.64	1.51	1.48	.19
MG (%)	6.58	-.05	.09	1.23	.72	.95	-.05	4.33	-.05	-.05
NA (%)	.36	-.05	-.05	-.05	.08	1.70	-.05	-.05	2.46	-.05
K (%)	.06	-.02	1.35	.33	4.23	3.76	.09	.06	2.88	.08
AG (PPM)	-2.00	11.00	-2.00	5.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	27.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	58.00	3.00	404.00	72.00	395.00	453.00	27.00	12.00	492.00	26.00
BE (PPM)	-1.00	-1.00	1.00	-1.00	4.00	6.00	-1.00	-1.00	5.00	-1.00
CE (PPM)	-10.00	81.00	-10.00	25.00	86.00	12.00	10.00	-10.00	49.00	12.00
CO (PPM)	86.00	30.00	4.00	-4.00	5.00	16.00	-4.00	5.00	-4.00	-4.00
CR (PPM)	1346.00	6.00	27.00	13.00	12.00	160.00	6.00	7.00	1.00	7.00
CU (PPM)	17.00	5209.00	6.00	76.00	-2.00	42.00	5.00	9.00	4.00	4.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	8.00	1.00	3.00	5.00	36.00	58.00	3.00	2.00	2.00	1.00
MN (PPM)	1382.00	2145.00	27.00	1266.00	62.00	123.00	9.00	450.00	132.00	24.00
MO (PPM)	-4.00	-4.00	-4.00	9.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	8.00	5.00	7.00	14.00	13.00	-4.00	5.00	22.00	-4.00
NI (PPM)	679.00	29.00	8.00	5.00	3.00	57.00	2.00	4.00	2.00	3.00
P (PPM)	97.00	713.00	145.00	411.00	257.00	658.00	20.00	129.00	36.00	19.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	19.00	7.00	1.00	1.00	4.00	7.00	1.00	1.00	-1.00	-1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	21.00	72.00	7.00	62.00	22.00	67.00	3.00	39.00	36.00	3.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2145.00	92.00	827.00	176.00	1620.00	3095.00	75.00	76.00	736.00	65.00
V (PPM)	134.00	4.00	19.00	14.00	14.00	106.00	9.00	2.00	16.00	4.00
Y (PPM)	6.00	56.00	2.00	12.00	6.00	4.00	1.00	3.00	17.00	1.00
ZN (PPM)	59.00	13.00	5.00	204.00	28.00	96.00	4.00	9.00	25.00	3.00
ZR (PPM)	18.00	6.00	25.00	29.00	59.00	73.00	15.00	7.00	105.00	33.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151961	151962	151963	151964	151965	151966	151967	151968	151969	151970
ELEVATION	8955.00	9000.00	9940.00	9195.00	7920.00	7920.00	9285.00	9260.00	9310.00	9420.00
FORMATION	CPQ	SF	SF	SSZ	PU	PU	SF	MI	MG	MG
LITHOLOGY	QZ	CS	GD	GD	SS	SS	CS	PG	QPC	QZ
UL (PPM)	.64	.44	5.51	1.96	.70	.30	-.25	1.71	6.53	.35
UT (PPM)	.40	.20	4.30	2.10	.70	.10	.10	1.40	6.30	.50
UL/UT	1.60	2.21	1.28	.93	1.00	3.02	ND	1.22	1.04	.70
TH (PPM)	2.00	3.00	8.00	2.00	4.00	2.00	4.00	-2.00	3.00	5.00
TH/UT	5.01	15.08	1.86	.95	5.72	20.20	40.40	ND	.48	10.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00
AL (%)	.30	-.05	5.17	5.82	.60	-.05	.05	.34	2.34	3.79
CA (%)	.09	14.45	.85	3.34	.06	23.28	13.02	.06	-.05	.23
FE (%)	2.09	1.15	2.40	5.30	14.94	.09	.13	16.86	1.02	.55
MG (%)	.13	6.51	.43	1.79	.07	4.43	6.33	.23	.20	.25
NA (%)	.13	-.05	2.20	1.46	.16	-.05	.05	-.05	.05	1.68
K (%)	.03	-.02	2.25	1.60	.97	-.02	-.02	.02	.99	1.55
AG (PPM)	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	34.00	6.00	864.00	773.00	335.00	6.00	10.00	28.00	321.00	770.00
BE (PPM)	-1.00	-1.00	5.00	7.00	1.00	-1.00	-1.00	-1.00	1.00	2.00
CE (PPM)	14.00	-10.00	42.00	29.00	174.00	14.00	12.00	-10.00	23.00	10.00
CO (PPM)	12.00	4.00	9.00	32.00	34.00	-4.00	10.00	158.00	-4.00	-4.00
CR (PPM)	23.00	4.00	6.00	64.00	57.00	3.00	2.00	6.00	151.00	24.00
CU (PPM)	35.00	5.00	8.00	62.00	15.00	6.00	16.00	2147.00	22.00	13.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	1.00	2.00	10.00	14.00	10.00	2.00	1.00	1.00	5.00	7.00
MN (PPM)	44.00	941.00	491.00	1119.00	41.00	854.00	2416.00	141.00	38.00	117.00
MO (PPM)	-4.00	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	6.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	15.00	9.00	11.00	-4.00	22.00	4.00	-4.00	5.00
NI (PPM)	14.00	-2.00	3.00	25.00	-2.00	-2.00	-2.00	211.00	-2.00	9.00
P (PPM)	62.00	29.00	472.00	1306.00	1595.00	14.00	69.00	323.00	143.00	127.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	7.00	22.00	2.00	1.00	1.00	2.00	7.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	4.00	51.00	282.00	537.00	257.00	167.00	14.00	15.00	72.00	108.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	142.00	15.00	2320.00	4619.00	622.00	27.00	46.00	46.00	736.00	675.00
V (PPM)	19.00	-2.00	30.00	157.00	45.00	4.00	-2.00	85.00	53.00	16.00
Y (PPM)	1.00	1.00	17.00	16.00	2.00	2.00	1.00	7.00	2.00	2.00
ZN (PPM)	4.00	5.00	50.00	111.00	17.00	15.00	2.00	26.00	10.00	18.00
ZR (PPM)	31.00	4.00	77.00	32.00	34.00	3.00	5.00	16.00	36.00	19.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151971	151972	151974	151975	151976	151977	151978	151979	151980	151981
ELEVATION	8875.00	8900.00	8440.00	8340.00	8140.00	9195.00	9460.00	9210.00	8960.00	8645.00
FORMATION	SPF	MG	SPF	SPF	SPF	VF	MG	MG	SPF	TBP
LITHOLOGY	PL	QZ	QPC	QPC	QPC	QZ	PHQZ	PL	QZ	SS
UL (PPM)	5.37	1.60	-1.37	1.51	.78	.49	.51	4.06	.79	.96
UT (PPM)	4.80	1.80	1.20	1.40	1.10	.40	.50	3.60	.50	.70
UL/UT	1.12	.89	1.14	1.08	.71	1.23	1.02	1.13	1.58	1.37
TH (PPM)	12.00	5.00	7.00	6.00	5.00	4.00	6.00	8.00	2.00	4.00
TH/UT	2.50	2.78	5.84	4.29	4.55	10.03	12.00	2.22	4.00	5.72
AU (PPM)	ND	ND	0.00	0.00	0.00	ND	ND	ND	ND	ND
AL (%)	9.72	2.81	3.30	2.81	.77	1.63	2.99	10.79	1.88	.88
CA (%)	.06	-.05	.26	.18	-.05	.07	-.05	.06	.15	23.56
FE (%)	3.35	3.90	.79	.88	.38	.20	1.76	2.34	.68	.63
MG (%)	1.10	.27	.29	.37	.14	.13	.41	.44	.15	.49
NA (%)	.62	.14	2.03	1.70	.26	1.30	.08	.52	.38	.19
K (%)	2.31	1.41	.19	.17	.56	.03	1.48	2.87	.50	.27
AG (PPM)	5.00	2.00	-2.00	4.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	12.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	600.00	433.00	57.00	86.00	88.00	15.00	244.00	681.00	191.00	146.00
BE (PPM)	7.00	2.00	-1.00	2.00	1.00	-1.00	1.00	4.00	1.00	1.00
CE (PPM)	65.00	-10.00	33.00	23.00	13.00	-10.00	21.00	34.00	-10.00	17.00
CO (PPM)	26.00	34.00	6.00	9.00	-4.00	-4.00	9.00	20.00	5.00	6.00
CR (PPM)	170.00	43.00	37.00	39.00	30.00	30.00	23.00	151.00	13.00	23.00
CU (PPM)	151.00	25.00	15.00	18.00	-2.00	5.00	11.00	32.00	14.00	7.00
HF (PPM)	ND	ND	ND	ND	ND	-2.00	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	31.00	ND	ND	ND	ND
LI (PPM)	36.00	9.00	7.00	9.00	4.00	1.00	6.00	9.00	5.00	8.00
MM (PPM)	193.00	153.00	140.00	119.00	38.00	15.00	140.00	147.00	96.00	127.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	11.00	-4.00	-4.00
NB (PPM)	12.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00	-4.00	6.00
NI (PPM)	59.00	48.00	10.00	17.00	5.00	-2.00	3.00	52.00	9.00	11.00
P (PPM)	211.00	154.00	91.00	93.00	25.00	18.00	116.00	312.00	60.00	53.00
PB (PPM)	ND	ND	ND	ND	ND	-10.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	13.00	4.00	3.00	3.00	1.00	1.00	4.00	12.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	103.00	18.00	78.00	52.00	4.00	6.00	11.00	48.00	14.00	195.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3684.00	800.00	847.00	586.00	456.00	48.00	883.00	992.00	358.00	554.00
V (PPM)	157.00	51.00	28.00	29.00	21.00	5.00	28.00	133.00	9.00	14.00
Y (PPM)	16.00	3.00	4.00	4.00	2.00	1.00	2.00	6.00	1.00	14.00
ZN (PPM)	80.00	20.00	28.00	38.00	5.00	3.00	25.00	17.00	8.00	10.00
ZR (PPM)	90.00	24.00	40.00	37.00	32.00	24.00	14.00	62.00	12.00	17.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151982	151983	151984	151985	151986	151987	151988	151989	151990	151991
ELEVATION	8620.00	8010.00	7900.00	8045.00	8080.00	7975.00	7975.00	7960.00	7810.00	7720.00
FORMATION	MG	JCF	JCF	JCF	MI	JCF	JCF	JCF	JCF	AGN
LITHOLOGY	QZ	QZ	QZ	QZ	DB	MSC	QZ	QZ	MSC	BGN
UL (PPM)	.63	1.24	2.54	1.58	1.05	2.96	-.25	1.38	ND	1.84
UT (PPM)	.70	.90	1.90	1.00	.60	2.80	.10	1.00	2.90	2.00
UL/UT	.90	1.38	1.34	1.58	1.75	1.06	ND	1.38	ND	.92
TH (PPM)	3.00	6.00	11.00	-2.00	3.00	11.00	-2.00	4.00	ND	10.00
TH/UT	4.29	6.67	5.79	ND	5.01	3.93	ND	4.00	ND	5.00
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.12	4.17	3.09	3.38	5.53	7.34	.24	4.32	ND	6.95
CA (%)	.05	1.19	6.87	.08	5.98	1.25	7.67	.33	ND	1.83
FE (%)	1.45	.80	1.14	.18	7.14	7.72	.26	.35	ND	2.35
MG (%)	.32	.51	.80	.11	3.67	.99	.05	.15	ND	1.53
NA (%)	.07	1.06	1.51	.27	1.18	1.91	-.05	.73	ND	3.07
K (%)	1.26	3.38	1.31	2.53	.56	2.19	.14	2.80	ND	1.99
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	ND	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND	-10.00
BA (PPM)	275.00	958.00	285.00	611.00	150.00	1025.00	55.00	612.00	ND	1762.00
BE (PPM)	1.00	1.00	1.00	1.00	2.00	3.00	-1.00	3.00	ND	2.00
CE (PPM)	24.00	36.00	43.00	-10.00	47.00	223.00	29.00	14.00	ND	96.00
CO (PPM)	8.00	-4.00	8.00	-4.00	57.00	49.00	7.00	-4.00	ND	15.00
CR (PPM)	34.00	36.00	45.00	17.00	62.00	4.00	4.00	30.00	ND	176.00
CU (PPM)	23.00	7.00	-2.00	6.00	54.00	-2.00	243.00	2.00	ND	9.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	7.00	12.00	29.00	7.00	10.00	43.00	1.00	7.00	ND	19.00
MN (PPM)	73.00	192.00	595.00	40.00	1357.00	1071.00	706.00	96.00	ND	507.00
MO (PPM)	-4.00	-4.00	10.00	-4.00	-4.00	-4.00	-4.00	-4.00	ND	-4.00
NB (PPM)	-4.00	5.00	6.00	-4.00	6.00	16.00	-4.00	5.00	ND	8.00
NI (PPM)	9.00	9.00	7.00	6.00	86.00	3.00	-2.00	4.00	ND	56.00
P (PPM)	212.00	269.00	226.00	193.00	281.00	866.00	98.00	320.00	ND	609.00
PE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	3.00	1.00	33.00	20.00	3.00	2.00	ND	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	10.00	138.00	324.00	47.00	171.00	155.00	80.00	75.00	ND	709.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	575.00	579.00	910.00	351.00	4216.00	7680.00	59.00	880.00	ND	2351.00
V (PPM)	28.00	14.00	24.00	9.00	179.00	172.00	4.00	15.00	ND	80.00
Y (PPM)	2.00	8.00	6.00	3.00	11.00	29.00	8.00	5.00	ND	7.00
ZN (PPM)	10.00	14.00	32.00	4.00	71.00	78.00	11.00	7.00	ND	66.00
ZR (PPM)	14.00	32.00	43.00	14.00	25.00	43.00	3.00	41.00	ND	50.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	151992	151993	151994	151995	151996	151997	151999	152000	152001	152002
ELEVATION	8660.00	8675.00	9045.00	10125.00	10106.00	10070.00	10220.00	10220.00	10000.00	9680.00
FORMATION	AGN	AGN	AGN	AGN	AGN	AGN	AGN	AGN	AGN	JCF
LITHOLOGY	BGN	BGN	BGN	BGN	BGN	BSC	GB	GB	BGN	QPC
UL (PPM)	.58	4.59	.38	.66	1.42	-.25	1.25	1.05	1.58	2.85
UT (PPM)	2.70	3.80	.10	1.00	1.00	.20	.80	1.00	1.40	2.30
UL/UT	.21	1.21	3.83	.66	1.42	ND	1.56	1.05	1.13	1.24
TH (PPM)	-2.00	22.00	-2.00	3.00	3.00	-2.00	3.00	5.00	2.00	11.00
TH/UT	ND	5.79	ND	3.00	3.00	ND	3.75	5.00	1.43	4.78
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	1.55	5.96	4.78	5.62	4.15	5.73	3.50	4.72	6.13	2.02
CA (%)	-.05	.61	3.93	1.25	.55	3.82	3.05	3.70	1.43	9.34
FE (%)	.22	1.35	7.08	2.14	1.24	6.99	3.24	6.26	1.58	.51
MG (%)	.07	.29	3.00	1.01	.60	3.32	3.95	4.89	.91	.18
NA (%)	.09	2.36	.89	2.67	2.57	1.65	.88	1.63	2.54	.09
K (%)	1.42	3.07	.28	1.28	.77	.30	.47	.87	.86	1.85
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	225.00	904.00	123.00	296.00	173.00	59.00	183.00	353.00	325.00	228.00
BE (PPM)	-1.00	3.00	-1.00	2.00	1.00	1.00	3.00	2.00	3.00	1.00
CE (PPM)	-10.00	58.00	102.00	48.00	45.00	107.00	23.00	55.00	27.00	68.00
CO (PPM)	-4.00	4.00	66.00	15.00	8.00	50.00	58.00	61.00	12.00	5.00
CR (PPM)	11.00	6.00	701.00	46.00	22.00	332.00	1432.00	1120.00	58.00	29.00
CU (PPM)	24.00	19.00	56.00	22.00	20.00	17.00	8.00	35.00	38.00	13.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	1.00	25.00	10.00	19.00	22.00	25.00	19.00	24.00	15.00	21.00
MN (PPM)	25.00	238.00	1341.00	429.00	158.00	1190.00	1032.00	1061.00	335.00	454.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	5.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	10.00	8.00	4.00	-4.00	4.00	5.00	-4.00	4.00	7.00
NI (PPM)	-2.00	2.00	185.00	20.00	6.00	93.00	425.00	319.00	30.00	2.00
P (PPM)	24.00	521.00	193.00	452.00	627.00	239.00	483.00	480.00	917.00	310.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	2.00	26.00	4.00	3.00	36.00	11.00	16.00	4.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	10.00	296.00	125.00	262.00	157.00	72.00	61.00	181.00	243.00	296.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	215.00	1506.00	4439.00	2066.00	1167.00	3762.00	2136.00	2781.00	2394.00	796.00
V (PPM)	8.00	27.00	185.00	35.00	27.00	297.00	131.00	112.00	61.00	10.00
Y (PPM)	1.00	3.00	10.00	4.00	4.00	14.00	10.00	17.00	4.00	10.00
ZN (PPM)	3.00	44.00	49.00	41.00	31.00	77.00	94.00	83.00	53.00	15.00
ZR (PPM)	17.00	70.00	15.00	5.00	17.00	27.00	39.00	62.00	9.00	39.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152003	152004	152005	152006	152007	152008	152009	152010	152011	152012
ELEVATION	9160.00	9160.00	9250.00	8735.00	8590.00	8840.00	8635.00	8450.00	7780.00	8880.00
FORMATION	JCF	JCF	JCF	PL	MG	JCF	JCF	MG	SPF	MG
LITHOLOGY	GPC	GPC	GPC	AJO	PHQZ	PL	DB	GPC	PHQZ	GPC
UL (PPM)	8.27	11.15	2.55	-.25	1.21	3.19	1.00	1.43	2.13	64.89
UT (PPM)	9.40	11.00	2.50	.30	1.40	3.00	.60	1.30	1.50	76.90
UL/UT	.88	1.01	1.02	ND	.86	1.06	1.67	1.10	1.42	.84
TH (PPM)	14.00	23.00	4.00	-2.00	13.00	15.00	3.00	3.00	6.00	377.00
TH/UT	1.49	2.09	1.60	ND	9.29	5.00	5.01	2.31	4.00	4.90
AU (PPM)	0.00	.98	0.00	ND	0.00	0.00	ND	0.00	ND	0.00
AL (%)	.90	2.34	2.42	.67	5.71	7.65	2.41	6.88	4.30	3.17
CA (%)	.17	-.05	-.05	.20	.06	.22	-.05	.30	.10	.11
FE (%)	.85	3.31	.86	.84	1.32	4.74	.47	5.73	.35	3.29
MG (%)	.14	.20	.14	.15	.34	1.13	.14	1.29	.14	.25
NA (%)	-.05	-.05	.07	-.05	.57	.77	.16	.29	1.98	.10
K (%)	.42	1.15	2.07	.22	2.70	1.42	1.92	2.27	2.64	1.65
AG (PPM)	-2.00	-2.00	-2.00	9.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	168.00	293.00	572.00	47.00	980.00	610.00	324.00	656.00	548.00	429.00
BE (PPM)	-1.00	1.00	-1.00	-1.00	1.00	7.00	-1.00	1.00	1.00	1.00
CE (PPM)	12.00	36.00	-10.00	25.00	56.00	13.00	-10.00	144.00	34.00	77.00
CO (PPM)	-4.00	10.00	4.00	5.00	13.00	28.00	4.00	32.00	-4.00	42.00
CR (PPM)	19.00	97.00	25.00	59.00	48.00	143.00	16.00	61.00	50.00	68.00
CU (PPM)	19.00	62.00	14.00	77.00	18.00	20.00	12.00	14.00	19.00	288.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	3.00	9.00	9.00	7.00	21.00	31.00	8.00	23.00	10.00	12.00
MN (PPM)	63.00	52.00	18.00	72.00	184.00	248.00	33.00	475.00	38.00	58.00
MO (PPM)	-4.00	11.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	9.00	8.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	2.00	-2.00	4.00	14.00	8.00	68.00	4.00	58.00	-2.00	44.00
P (PPM)	457.00	291.00	237.00	-5.00	169.00	412.00	22.00	772.00	195.00	327.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	8.00	3.00	4.00	5.00	19.00	1.00	10.00	1.00	7.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	22.00	11.00	36.00	8.00	43.00	128.00	11.00	51.00	47.00	16.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	335.00	1055.00	694.00	256.00	1905.00	2591.00	473.00	1757.00	620.00	839.00
V (PPM)	12.00	60.00	20.00	56.00	31.00	146.00	8.00	140.00	12.00	83.00
Y (PPM)	3.00	3.00	4.00	2.00	4.00	16.00	1.00	8.00	4.00	21.00
ZN (PPM)	7.00	14.00	32.00	595.00	11.00	27.00	8.00	53.00	7.00	21.00
ZR (PPM)	11.00	33.00	17.00	4.00	97.00	78.00	9.00	25.00	30.00	305.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152013	152014	152016	152017	152018	152019	152020	152021	152022	152023
ELEVATION	8435.00	9780.00	7685.00	7700.00	7700.00	7910.00	7890.00	7960.00	7960.00	7850.00
FORMATION	PL	MI	JCF	JCF	JCF	AGN	DG	DG	DG	AG
LITHOLOGY	AMGN	DB	GPC	PHQZ	PHQZ	BGN	GPC	GPC	GPC	GR
UL (PPM)	.79	1.03	2.91	1.73	1.62	2.15	.83	9.30	14.27	3.40
UT (PPM)	.80	.70	2.60	1.60	1.40	2.40	1.30	10.60	8.50	3.00
UL/UT	.99	1.47	1.12	1.08	1.16	.90	.64	.88	1.68	1.13
TH (PPM)	-2.00	5.00	6.00	5.00	2.00	7.00	3.00	97.00	44.00	19.00
TH/UT	ND	7.15	2.31	3.13	1.43	2.92	2.31	9.15	5.18	6.33
AU (PPM)	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	ND
AL (%)	6.14	6.17	5.22	1.60	2.09	6.03	5.42	3.15	4.81	5.57
CA (%)	1.24	1.08	.14	20.31	17.32	.78	.15	-.05	-.05	1.69
FE (%)	3.10	1.12	3.11	.81	.65	3.03	.79	1.64	.47	2.86
MG (%)	.84	.42	.75	.98	1.07	1.90	.47	.14	.18	1.25
NA (%)	2.37	3.05	1.01	.50	1.36	2.58	1.94	.12	.18	2.33
K (%)	1.05	1.18	1.85	.90	.23	2.48	2.51	2.49	3.75	2.13
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	11.00	-2.00	6.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	434.00	1011.00	470.00	551.00	78.00	1082.00	971.00	663.00	790.00	1048.00
BE (PPM)	5.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00
CE (PPM)	17.00	40.00	64.00	46.00	35.00	93.00	17.00	14.00	43.00	69.00
CO (PPM)	13.00	-4.00	22.00	5.00	-4.00	21.00	4.00	4.00	-4.00	16.00
CR (PPM)	26.00	6.00	93.00	24.00	15.00	82.00	46.00	22.00	26.00	69.00
CU (PPM)	12.00	7.00	95.00	21.00	3.00	10.00	12.00	27.00	12.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	24.00	13.00	19.00	3.00	5.00	30.00	9.00	5.00	6.00	18.00
MN (PPM)	529.00	302.00	282.00	955.00	709.00	500.00	33.00	28.00	26.00	526.00
MO (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	7.00	-4.00
NB (PPM)	6.00	-4.00	6.00	9.00	-4.00	8.00	5.00	13.00	11.00	8.00
NI (PPM)	16.00	-2.00	28.00	11.00	5.00	16.00	16.00	4.00	3.00	18.00
P (PPM)	613.00	341.00	231.00	95.00	195.00	586.00	297.00	189.00	158.00	703.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	8.00	2.00	11.00	5.00	5.00	8.00	4.00	3.00	3.00	8.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	180.00	278.00	88.00	64.00	111.00	258.00	117.00	50.00	61.00	451.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	3292.00	1426.00	2201.00	709.00	272.00	2614.00	1641.00	777.00	1036.00	2687.00
V (PPM)	89.00	22.00	59.00	22.00	9.00	77.00	37.00	19.00	19.00	65.00
Y (PPM)	9.00	2.00	11.00	8.00	9.00	8.00	3.00	5.00	3.00	8.00
ZN (PPM)	117.00	20.00	20.00	10.00	3.00	70.00	2.00	4.00	-2.00	61.00
ZR (PPM)	30.00	30.00	56.00	31.00	63.00	30.00	27.00	178.00	116.00	54.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152024	152025	152026	152027	152028	152030	152239	152240	152241	152242
ELEVATION	7580.00	7740.00	7870.00	8080.00	9020.00	9430.00	10585.00	10585.00	10585.00	10585.00
FORMATION	MI	AGN	AGN	JCF	MI	JCF	JCF	JCF	JCF	JCF
LITHOLOGY	DB	BGN	BGN	DO	DB	VL	QPC	AQ	PHQ	PHQ
UL (PPM)	2.88	2.34	1.49	-.25	1.04	1.85	1.12	1.47	1.81	1.78
UT (PPM)	2.60	2.00	1.60	.20	1.00	1.80	.50	1.00	2.50	1.20
UL/UT	1.11	1.17	.93	ND	1.04	1.03	2.24	1.47	.72	1.48
TH (PPM)	16.00	4.00	5.00	-2.00	3.00	-2.00	3.00	3.00	5.00	2.00
TH/UT	6.16	2.00	3.13	ND	3.00	ND	6.00	3.00	2.00	1.67
AU (PPM)	ND	ND	ND	ND	ND	NU	NU	ND	ND	ND
AL (%)	5.80	5.81	5.53	1.10	3.82	5.76	4.07	1.54	3.01	2.51
CA (%)	1.79	2.03	1.53	17.55	.15	4.15	.07	-.03	.03	.06
FE (%)	2.59	2.43	2.18	1.00	.81	8.44	.89	1.19	.71	.62
MG (%)	1.14	1.55	1.50	.26	.20	2.27	.28	.12	.21	.18
NA (%)	2.30	2.69	2.30	.16	2.60	1.74	1.49	-.05	1.05	1.05
K (%)	2.03	1.59	2.11	.37	1.27	.10	1.44	.80	1.22	.77
AG (PPM)	-2.00	2.00	-2.00	-2.00	2.00	-2.00	2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	1057.00	1100.00	2244.00	289.00	348.00	98.00	255.00	91.00	273.00	164.00
BE (PPM)	5.00	5.00	5.00	2.00	2.00	1.00	2.00	-1.00	3.00	1.00
CE (PPM)	55.00	45.00	38.00	37.00	10.00	105.00	19.00	13.00	-10.00	-10.00
CO (PPM)	14.00	16.00	14.00	7.00	-4.00	64.00	5.00	8.00	-4.00	4.00
CR (PPM)	74.00	147.00	130.00	23.00	9.00	23.00	22.00	36.00	21.00	14.00
CU (PPM)	11.00	7.00	5.00	117.00	5.00	111.00	2.00	25.00	2.00	3.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	16.00	16.00	20.00	6.00	12.00	6.00	11.00	8.00	8.00	6.00
MN (PPM)	473.00	496.00	527.00	1003.00	73.00	1424.00	86.00	26.00	51.00	64.00
MO (PPM)	-4.00	-4.00	-4.00	6.00	-4.00	7.00	-4.00	-4.00	5.00	-4.00
NB (PPM)	5.00	4.00	4.00	4.00	-4.00	11.00	4.00	-4.00	4.00	-4.00
NI (PPM)	20.00	58.00	49.00	9.00	8.00	55.00	10.00	11.00	5.00	6.00
P (PPM)	582.00	565.00	529.00	72.00	170.00	443.00	47.00	81.00	70.00	48.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	0.00	8.00	8.00	6.00	1.00	38.00	3.00	4.00	3.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	434.00	655.00	465.00	178.00	69.00	137.00	31.00	4.00	46.00	29.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	2263.00	2235.00	2106.00	766.00	774.00	6164.00	940.00	549.00	893.00	599.00
V (PPM)	67.00	73.00	65.00	44.00	22.00	306.00	22.00	49.00	18.00	12.00
Y (PPM)	7.00	6.00	7.00	21.00	1.00	22.00	2.00	2.00	2.00	1.00
ZN (PPM)	39.00	66.00	67.00	35.00	29.00	108.00	18.00	12.00	7.00	13.00
ZR (PPM)	64.00	49.00	48.00	7.00	22.00	56.00	18.00	13.00	25.00	20.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152243	152244	152245	152246	152247	152248	152285	152287	152304	152305
ELEVATION	10585.00	10585.00	10585.00	10585.00	10585.00	10585.00	-6666.00	-6666.00	8930.00	9150.00
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	DG	DG	MG	MG
LITHOLOGY	VL	AQ	VL	AQ	PHQ	PL	QPC	QPC	QPC	QPC
UL (PPM)	1.07	1.71	.93	1.74	1.25	.66	ND	ND	.70	1.06
UT (PPM)	1.30	1.50	1.00	1.20	.80	.50	ND	ND	.50	.60
UL/UT	.82	1.14	.93	1.45	1.56	1.32	ND	ND	1.40	1.77
TH (PPM)	8.00	4.00	4.00	4.00	4.00	6.00	ND	4.00	5.00	-2.00
TH/UT	6.16	2.67	4.00	3.34	5.01	12.00	ND	ND	10.00	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	0.00	0.00
AL (%)	5.64	1.37	5.81	1.15	2.91	5.93	ND	1.56	2.26	1.65
CA (%)	2.31	-.05	2.63	-.05	-.05	.64	ND	-.05	.05	-.05
FE (%)	7.31	.59	6.87	.42	.38	8.63	ND	.77	.65	1.16
MG (%)	.85	.14	1.31	.09	.16	2.39	ND	-.05	.15	.11
NA (%)	2.59	.05	2.40	-.05	.07	1.70	ND	-.05	.25	.08
K (%)	.20	.69	.75	.58	2.35	1.09	ND	.32	.98	.60
AG (PPM)	3.00	-2.00	-2.00	-2.00	-2.00	-2.00	ND	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND	-10.00	-10.00	-10.00
BA (PPM)	60.00	98.00	482.00	82.00	585.00	1369.00	ND	57.00	313.00	162.00
BE (PPM)	13.00	1.00	10.00	1.00	1.00	10.00	ND	-1.00	1.00	-1.00
CE (PPM)	60.00	46.00	45.00	29.00	-10.00	-10.00	ND	15.00	14.00	-10.00
CO (PPM)	46.00	-4.00	50.00	-4.00	-4.00	51.00	ND	-4.00	4.00	22.00
CR (PPM)	-1.00	80.00	6.00	37.00	31.00	90.00	ND	19.00	16.00	9.00
CU (PPM)	46.00	3.00	96.00	3.00	21.00	50.00	ND	2.00	9.00	48.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	18.00	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	11.00	ND	ND
LI (PPM)	10.00	7.00	10.00	6.00	4.00	32.00	ND	27.00	4.00	3.00
MN (PPM)	756.00	58.00	920.00	16.00	32.00	1083.00	ND	25.00	111.00	36.00
MO (PPM)	-4.00	5.00	-4.00	6.00	-4.00	4.00	ND	-4.00	-4.00	-4.00
NB (PPM)	15.00	-4.00	9.00	-4.00	-4.00	7.00	ND	-4.00	-4.00	-4.00
NI (PPM)	7.00	2.00	41.00	2.00	3.00	47.00	ND	4.00	6.00	16.00
P (PPM)	981.00	64.00	765.00	36.00	110.00	787.00	ND	46.00	99.00	76.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	16.00	4.00	17.00	3.00	1.00	29.00	ND	1.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	100.00	5.00	386.00	4.00	19.00	73.00	ND	22.00	12.00	9.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	7290.00	836.00	7269.00	497.00	517.00	7685.00	ND	220.00	363.00	203.00
V (PPM)	197.00	26.00	231.00	19.00	11.00	295.00	ND	19.00	15.00	14.00
Y (PPM)	21.00	2.00	15.00	2.00	2.00	21.00	ND	1.00	1.00	1.00
ZN (PPM)	90.00	9.00	103.00	4.00	21.00	130.00	ND	7.00	11.00	7.00
ZR (PPM)	76.00	49.00	40.00	21.00	63.00	52.00	ND	11.00	18.00	11.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152306	152307	152308	152309	152310	152311	152312	152313	152316	152317
ELEVATION	9045.00	9120.00	9195.00	9000.00	9300.00	9420.00	9485.00	9435.00	8920.00	8910.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	QPC	Q
UL (PPM)	3.30	.69	2.43	2.47	-.25	1.32	1.81	1.30	43.75	.68
UT (PPM)	1.13	.50	2.00	1.00	.70	1.00	1.80	.80	ND	ND
UL/UT	2.92	1.38	1.21	2.47	ND	1.32	1.01	1.63	ND	ND
TH (PPM)	6.00	5.00	6.00	8.00	4.00	-2.00	14.00	3.00	375.00	13.00
TH/UT	5.31	10.00	3.00	8.00	5.72	ND	7.78	3.75	ND	ND
AU (PPM)	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ND	ND
AL (%)	2.20	1.73	2.77	2.13	1.65	2.80	2.16	3.24	3.50	5.00
CA (%)	.11	.06	-.05	.11	-.05	-.05	-.05	-.05	.06	.23
FE (%)	.41	1.38	1.60	1.22	.73	1.11	1.45	.68	3.54	1.41
MG (%)	.10	.21	.17	.36	.12	.19	.11	.21	.30	.52
NA (%)	.33	.07	.06	.48	.08	.06	.09	.07	.16	1.99
K (%)	.79	.56	1.27	.44	.78	1.36	.86	1.58	1.89	1.75
AG (PPM)	-2.00	-2.00	-2.00	4.00	-2.00	-2.00	-2.00	-2.00	2.00	2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	201.00	140.00	322.00	117.00	165.00	267.00	188.00	343.00	406.00	651.00
BE (PPM)	1.00	1.00	-1.00	2.00	-1.00	-1.00	-1.00	2.00	3.00	4.00
CE (PPM)	-10.00	20.00	18.00	21.00	19.00	-10.00	28.00	10.00	63.00	52.00
CO (PPM)	4.00	7.00	5.00	8.00	4.00	6.00	14.00	5.00	61.00	8.00
CR (PPM)	14.00	8.00	22.00	20.00	16.00	24.00	28.00	28.00	75.00	48.00
CU (PPM)	16.00	18.00	5.00	11.00	23.00	19.00	42.00	29.00	254.00	28.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	7.00	5.00	6.00	3.00	8.00	3.00	7.00	12.00	18.00
MM (PPM)	49.00	87.00	23.00	110.00	55.00	34.00	42.00	28.00	59.00	319.00
MO (PPM)	4.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	4.00	8.00	17.00
NI (PPM)	7.00	10.00	4.00	12.00	6.00	9.00	3.00	9.00	53.00	17.00
P (PPM)	94.00	83.00	173.00	114.00	59.00	53.00	69.00	33.00	431.00	266.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	2.00	2.00	3.00	1.00	2.00	3.00	2.00	7.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	16.00	9.00	13.00	15.00	9.00	9.00	9.00	8.00	19.00	109.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	510.00	217.00	652.00	870.00	300.00	680.00	371.00	699.00	783.00	1398.00
V (PPM)	13.00	8.00	18.00	15.00	16.00	18.00	20.00	22.00	111.00	43.00
Y (PPM)	2.00	2.00	2.00	3.00	1.00	2.00	2.00	2.00	18.00	5.00
ZN (PPM)	13.00	12.00	12.00	14.00	9.00	16.00	11.00	10.00	15.00	33.00
ZR (PPM)	13.00	12.00	21.00	24.00	24.00	31.00	37.00	17.00	296.00	54.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152318	152319	152320	152321	152322	152323	152324	152325	152326	152327
ELEVATION	8900.00	8895.00	8890.00	8875.00	8850.00	8845.00	8840.00	8700.00	8700.00	8740.00
FORMATION	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
LITHOLOGY	Q	QPC	QPC	Q	QPC	Q	Q	QPC	Q	QPC
UL (PPM)	7.90	18.29	21.63	.31	4.59	5.85	.68	2.91	.45	11.70
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	126.00	243.00	377.00	5.00	37.00	56.00	8.00	25.00	15.00	77.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.82	5.25	3.48	3.75	3.70	3.77	4.72	2.53	2.02	2.63
CA (%)	.08	.05	.06	.09	.09	.16	.17	.08	.07	.07
FE (%)	2.50	2.62	4.01	1.32	.63	2.89	1.13	.67	.92	1.58
MG (%)	.25	.33	.20	.23	.26	.50	.31	.19	.15	.23
NA (%)	.44	.16	.50	1.05	.37	.57	1.83	1.04	.12	.63
K (%)	1.84	2.80	1.63	1.51	2.00	1.70	1.64	.86	.99	1.23
AG (PPM)	3.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	503.00	755.00	362.00	367.00	494.00	628.00	608.00	159.00	238.00	456.00
BE (PPM)	3.00	4.00	3.00	2.00	3.00	4.00	4.00	2.00	2.00	3.00
CE (PPM)	63.00	46.00	50.00	19.00	28.00	82.00	37.00	12.00	11.00	30.00
CO (PPM)	22.00	16.00	53.00	6.00	6.00	15.00	7.00	5.00	5.00	11.00
CR (PPM)	56.00	69.00	51.00	17.00	30.00	61.00	38.00	16.00	14.00	22.00
CU (PPM)	87.00	91.00	207.00	34.00	24.00	74.00	20.00	27.00	9.00	47.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	9.00	14.00	8.00	8.00	10.00	12.00	14.00	6.00	5.00	8.00
MIN (PPM)	57.00	155.00	73.00	50.00	98.00	84.00	119.00	86.00	97.00	144.00
MO (PPM)	4.00	6.00	5.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	7.00	7.00	6.00	4.00	4.00	7.00	6.00	-4.00	-4.00	-4.00
NI (PPM)	21.00	27.00	48.00	10.00	9.00	24.00	16.00	10.00	8.00	13.00
P (PPM)	339.00	373.00	314.00	200.00	299.00	571.00	374.00	72.00	174.00	144.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	9.00	5.00	3.00	3.00	6.00	4.00	2.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	33.00	25.00	34.00	76.00	26.00	37.00	107.00	39.00	14.00	43.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	910.00	1177.00	629.00	517.00	844.00	1205.00	1066.00	607.00	432.00	639.00
V (PPM)	66.00	103.00	78.00	39.00	38.00	54.00	42.00	18.00	11.00	38.00
Y (PPM)	11.00	14.00	16.00	3.00	4.00	8.00	3.00	3.00	2.00	5.00
ZN (PPM)	31.00	24.00	33.00	26.00	18.00	27.00	18.00	25.00	7.00	19.00
ZR (PPM)	302.00	117.00	206.00	24.00	68.00	114.00	35.00	64.00	23.00	60.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152328	152329	152330	152331	152332	152333	152481	152482	152483	152484
ELEVATION	8720.00	8800.00	8760.00	8700.00	8690.00	8485.00	9430.00	9420.00	9400.00	9360.00
FORMATION	MG	MG	MG	MG	MG	MG	JCF	JCF	JCF	JCF
LITHOLOGY	Q	QPC	Q	QPC	Q	QPC	PHQZ	PHQZ	PHQZ	PHQZ
UL (PPM)	2.31	10.84	.74	23.95	3.78	13.96	.67	.93	.96	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	.70	.70	.70	ND
UL/UT	ND	ND	ND	ND	ND	ND	.96	1.33	1.37	ND
TH (PPM)	9.00	16.00	4.00	318.00	17.00	149.00	9.00	3.00	2.00	ND
TH/UT	ND	ND	ND	ND	ND	ND	12.88	4.29	2.86	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.20	3.58	4.58	2.57	4.82	4.48	1.29	.94	1.08	ND
CA (%)	-.05	.21	.15	.11	.14	.43	-.05	-.05	-.05	ND
FE (%)	.75	.83	.74	1.88	.93	2.07	.19	.24	.29	ND
MG (%)	.13	.25	.27	.18	.43	.73	-.05	-.05	.06	ND
NA (%)	.08	.87	2.06	1.21	1.09	1.33	-.05	-.05	-.05	ND
K (%)	1.12	1.50	1.47	.87	2.30	1.47	1.34	.99	.63	ND
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	ND
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	ND
BA (PPM)	163.00	405.00	603.00	297.00	761.00	428.00	381.00	279.00	231.00	ND
BE (PPM)	2.00	4.00	3.00	3.00	5.00	6.00	1.00	-1.00	1.00	ND
CE (PPM)	15.00	51.00	29.00	39.00	38.00	59.00	16.00	-10.00	10.00	ND
CO (PPM)	4.00	8.00	5.00	18.00	4.00	20.00	-4.00	-4.00	-4.00	ND
CR (PPM)	19.00	44.00	24.00	48.00	41.00	57.00	21.00	10.00	16.00	ND
CU (PPM)	24.00	42.00	21.00	30.00	21.00	180.00	4.00	-2.00	7.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	4.00	14.00	11.00	7.00	18.00	11.00	3.00	2.00	3.00	ND
MN (PPM)	24.00	117.00	147.00	263.00	146.00	125.00	9.00	68.00	21.00	ND
MO (PPM)	-4.00	-4.00	-4.00	7.00	4.00	12.00	-4.00	-4.00	-4.00	ND
NB (PPM)	-4.00	-4.00	4.00	-4.00	6.00	7.00	-4.00	-4.00	-4.00	ND
NI (PPM)	8.00	12.00	12.00	15.00	9.00	32.00	6.00	-2.00	4.00	ND
P (PPM)	123.00	162.00	222.00	255.00	185.00	330.00	63.00	34.00	51.00	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	4.00	3.00	4.00	5.00	5.00	1.00	1.00	1.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	15.00	66.00	118.00	61.00	74.00	79.00	15.00	13.00	6.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	596.00	1521.00	719.00	721.00	1511.00	1698.00	272.00	128.00	305.00	ND
V (PPM)	19.00	39.00	31.00	46.00	46.00	49.00	9.00	6.00	13.00	ND
Y (PPM)	1.00	4.00	3.00	11.00	4.00	16.00	1.00	1.00	2.00	ND
ZN (PPM)	4.00	7.00	12.00	7.00	11.00	37.00	4.00	5.00	6.00	ND
ZR (PPM)	43.00	51.00	19.00	181.00	26.00	312.00	15.00	7.00	19.00	ND

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	152485	152486	152487	152488	152489	152490	152492	157356	157357	157358
ELEVATION	9320.00	10600.00	10100.00	10480.00	10540.00	10360.00	10200.00	9600.00	9580.00	9555.00
FORMATION	JCF	JCF	JCF	JCF	JCF	JCF	JCF	SLV	MG	SLV
LITHOLOGY	PHQZ	QPC	AQZ	QPC	GN	PHQZ	AQZ	VL	PHQZ	PHQ
UL (PPM)	2.53	5.04	4.73	14.18	1.78	3.08	3.33	.27	3.48	-.25
UT (PPM)	2.50	4.10	5.70	14.60	2.00	2.00	2.80	.40	2.70	.60
UL/UT	1.01	1.23	.83	.97	.89	1.54	1.19	.67	1.29	ND
TH (PPM)	9.00	12.00	4.00	27.00	14.00	9.00	8.00	6.00	33.00	2.00
TH/UT	3.60	2.93	.70	1.85	7.00	4.50	2.86	15.04	12.23	3.34
AU (PPM)	ND	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND
AL (%)	5.53	2.47	5.25	2.18	5.81	4.47	6.17	5.60	3.77	3.88
CA (%)	3.11	-.05	.12	-.05	.98	-.05	.29	3.16	.05	-.05
FE (%)	4.71	2.50	3.18	3.93	0.69	.63	3.75	12.02	.88	.70
MG (%)	2.52	.24	.57	.21	.60	.29	1.43	.96	.13	.16
NA (%)	1.54	-.05	.19	.05	1.11	.22	1.83	.15	1.47	.36
K (%)	1.23	1.38	2.46	1.17	1.28	2.31	1.36	.26	1.88	1.33
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	681.00	151.00	344.00	147.00	356.00	808.00	886.00	200.00	269.00	133.00
BE (PPM)	1.00	3.00	-1.00	2.00	-1.00	3.00	5.00	10.00	3.00	1.00
CE (PPM)	60.00	14.00	30.00	25.00	79.00	28.00	-10.00	-10.00	10.00	21.00
CO (PPM)	33.00	7.00	11.00	9.00	49.00	-4.00	28.00	53.00	-4.00	9.00
CR (PPM)	300.00	40.00	63.00	115.00	-1.00	64.00	152.00	56.00	4.00	20.00
CU (PPM)	52.00	21.00	12.00	43.00	11.00	6.00	57.00	137.00	3.00	25.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	25.00	17.00	19.00	14.00	22.00	25.00	18.00	11.00	5.00	6.00
MN (PPM)	778.00	94.00	238.00	90.00	952.00	41.00	299.00	4946.00	103.00	115.00
MO (PPM)	-4.00	10.00	-4.00	19.00	-4.00	-4.00	4.00	-4.00	-4.00	-4.00
NB (PPM)	8.00	-4.00	5.00	-4.00	15.00	7.00	6.00	8.00	9.00	-4.00
NI (PPM)	102.00	4.00	4.00	5.00	-2.00	4.00	69.00	31.00	-2.00	7.00
P (PPM)	567.00	169.00	237.00	220.00	1209.00	272.00	333.00	499.00	82.00	15.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	15.00	5.00	13.00	5.00	15.00	3.00	10.00	23.00	1.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	258.00	5.00	33.00	11.00	77.00	12.00	104.00	22.00	75.00	26.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	4236.00	918.00	3033.00	951.00	7218.00	1151.00	3000.00	4665.00	553.00	435.00
V (PPM)	97.00	45.00	99.00	47.00	136.00	29.00	145.00	126.00	4.00	25.00
Y (PPM)	19.00	4.00	4.00	5.00	13.00	4.00	5.00	59.00	8.00	2.00
ZN (PPM)	63.00	11.00	29.00	11.00	70.00	8.00	65.00	54.00	29.00	11.00
ZR (PPM)	23.00	27.00	25.00	41.00	35.00	142.00	150.00	73.00	87.00	18.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157539	157360	157361	157728	157729	157730	157731	157733	157734	157735
ELEVATION	9560.00	9560.00	9560.00	9660.00	9570.00	10120.00	10100.00	9980.00	9600.00	9340.00
FORMATION	SLV	SLV	MG	MG	MG	JCF	JCF	MI	JCF	MG
LITHOLOGY	PHQZ	PHQZ	PL	QPC	PHQZ	PHQZ	PHQZ	DB	PL	PL
UL (PPM)	-.25	-.25	3.30	8.90	1.53	1.97	3.97	-.25	2.44	1.85
UT (PPM)	.20	.20	2.10	1.60	1.50	1.90	4.40	.70	1.90	1.90
UL/UT	ND	ND	1.57	5.57	1.02	1.04	.90	ND	1.28	.97
TI (PPM)	5.00	-2.00	6.00	4.00	-2.00	6.00	10.00	3.00	5.00	4.00
TH/UT	25.13	ND	2.86	2.50	ND	3.16	2.27	4.29	2.63	2.11
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.10	1.96	5.96	2.35	2.31	4.18	3.70	1.50	3.78	2.00
CA (%)	.05	-.05	1.45	-.05	.16	-.05	-.05	3.05	2.39	-.05
FE (%)	.14	.10	2.04	.51	.53	.68	.45	6.14	7.36	.45
MG (%)	.06	.06	.51	.17	.18	.30	.18	5.26	2.78	.14
NA (%)	.79	.36	1.90	.14	.21	.09	.12	.28	.14	-.05
K (%)	.94	1.28	.88	1.14	1.16	2.91	3.02	.05	.11	1.07
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	4.00	3.00	2.00	-2.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
BA (PPM)	276.00	540.00	601.00	363.00	414.00	841.00	880.00	19.00	38.00	324.00
BE (PPM)	1.00	-1.00	3.00	1.00	1.00	3.00	2.00	1.00	5.00	1.00
CE (PPM)	17.00	-10.00	33.00	-10.00	-10.00	25.00	27.00	-10.00	31.00	-10.00
CO (PPM)	-4.00	-4.00	18.00	-4.00	-4.00	4.00	-4.00	77.00	80.00	-4.00
CR (PPM)	9.00	5.00	28.00	8.00	18.00	40.00	54.00	2130.00	2226.00	8.00
CU (PPM)	6.00	4.00	10.00	19.00	8.00	10.00	4.00	13.00	9.00	12.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	2.00	3.00	16.00	5.00	5.00	13.00	9.00	16.00	17.00	4.00
MN (PPM)	45.00	19.00	247.00	41.00	58.00	66.00	81.00	1313.00	1453.00	25.00
MO (PPM)	5.00	-4.00	-4.00	-4.00	-4.00	-4.00	4.00	-4.00	6.00	-4.00
NB (PPM)	4.00	-4.00	7.00	-4.00	-4.00	7.00	6.00	-4.00	4.00	-4.00
NT (PPM)	5.00	2.00	19.00	5.00	7.00	7.00	-2.00	454.00	737.00	3.00
P (PPM)	11.00	11.00	342.00	46.00	643.00	172.00	180.00	106.00	519.00	44.00
PD (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	-1.00	9.00	1.00	2.00	2.00	2.00	19.00	18.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	35.00	53.00	129.00	12.00	21.00	32.00	43.00	11.00	45.00	7.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	114.00	92.00	2368.00	237.00	467.00	1074.00	1069.00	749.00	3585.00	247.00
V (PPM)	8.00	3.00	96.00	7.00	12.00	17.00	15.00	157.00	167.00	6.00
Y (PPM)	2.00	1.00	9.00	1.00	5.00	5.00	4.00	5.00	18.00	2.00
ZN (PPM)	11.00	7.00	29.00	7.00	19.00	12.00	8.00	79.00	124.00	6.00
ZR (PPM)	11.00	9.00	36.00	10.00	12.00	88.00	113.00	19.00	18.00	9.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	157736	157737	158035	158036	158037	158038	158039	158040	158041	158042
ELEVATION	9280.00	8300.00	7450.00	8460.00	8460.00	8460.00	8460.00	8460.00	8460.00	8460.00
FORMATION	MG	MG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	PHQZ	QPC	QPC	QPC	QPC	QPC	QPC	QPC	MG	CQ
UL (PPM)	2.21	2.78	10.94	14.34	13.25	11.86	4.80	6.40	1.16	3.94
UT (PPM)	2.10	3.30	11.50	12.50	13.00	9.40	4.30	7.10	.90	3.50
UL/UT	1.05	.84	.95	1.15	1.02	1.26	1.12	.90	1.29	1.13
TH (PPM)	4.00	2.00	39.00	47.00	76.00	82.00	40.00	131.00	-2.00	20.00
TH/UT	1.91	.61	3.39	3.76	5.85	8.72	9.30	18.45	ND	5.71
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	2.29	1.45	1.93	2.73	2.52	2.21	2.35	2.17	2.97	1.65
CA (%)	.10	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.41	.17	.66	1.44	1.17	1.39	.67	1.26	.42	.83
MG (%)	.14	.07	.15	.18	.23	.16	.22	.22	.15	.12
NA (%)	.10	.06	.10	.24	.09	.09	.13	.12	.68	.12
K (%)	1.65	1.18	1.61	2.06	1.60	1.54	1.94	1.67	1.94	1.44
AG (PPM)	5.00	-2.00	-2.00	2.00	-2.00	-2.00	-2.00	-2.00	4.00	-2.00
B (PPM)	-10.00	-10.00	-10.00	10.00	10.00	-10.00	11.00	13.00	-10.00	-10.00
BA (PPM)	689.00	577.00	497.00	808.00	478.00	507.00	623.00	576.00	919.00	865.00
BE (PPM)	1.00	1.00	3.00	5.00	7.00	5.00	4.00	4.00	3.00	2.00
CE (PPM)	13.00	-10.00	-10.00	19.00	82.00	17.00	37.00	31.00	18.00	28.00
CO (PPM)	-4.00	-4.00	-4.00	14.00	8.00	12.00	-4.00	5.00	-4.00	10.00
CR (PPM)	13.00	7.00	39.00	50.00	58.00	47.00	60.00	99.00	13.00	57.00
CU (PPM)	6.00	4.00	3.00	11.00	33.00	26.00	4.00	15.00	4.00	12.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	6.00	2.00	6.00	7.00	10.00	7.00	8.00	8.00	4.00	2.00
MM (PPM)	64.00	17.00	26.00	50.00	139.00	44.00	46.00	171.00	17.00	28.00
MO (PPM)	-4.00	-4.00	-4.00	4.00	7.00	-4.00	4.00	4.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NI (PPM)	5.00	4.00	4.00	11.00	15.00	8.00	5.00	4.00	9.00	9.00
P (PPM)	357.00	21.00	50.00	119.00	127.00	170.00	57.00	126.00	45.00	74.00
PB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	2.00	2.00	2.00	2.00	2.00	3.00	1.00	1.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	36.00	28.00	17.00	26.00	15.00	28.00	23.00	16.00	44.00	17.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	508.00	187.00	821.00	788.00	1197.00	835.00	1253.00	1250.00	529.00	663.00
V (PPM)	11.00	5.00	9.00	31.00	25.00	16.00	15.00	21.00	7.00	12.00
Y (PPM)	3.00	1.00	2.00	3.00	10.00	6.00	3.00	5.00	1.00	2.00
ZN (PPM)	10.00	7.00	2.00	3.00	6.00	3.00	5.00	6.00	4.00	3.00
ZR (PPM)	9.00	12.00	36.00	37.00	85.00	48.00	61.00	102.00	13.00	95.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	158043	158044	158045	158046	158047	158066	160182	160183	160184	160185
ELEVATION	7450.00	7450.00	7920.00	7450.00	7450.00	7855.00	8860.00	7970.00	7980.00	8075.00
FORMATION	DG	DG	DG	DG	DG	DG	MG	CL	CL	VF
LITHOLOGY	QPC	QPC	CQ	QGC	QZ	QGC	C	C	C	C
UL (PPM)	16.04	-.25	.68	.32	2.82	1.32	1.80	.20	.30	.40
UT (PPM)	12.50	.60	.30	.60	2.20	1.00	ND	ND	ND	ND
UL/UT	1.28	ND	2.27	.53	1.20	1.32	ND	ND	ND	ND
TH (PPM)	34.00	17.00	2.00	23.00	9.00	4.00	28.00	6.00	11.00	6.00
TH/UT	2.72	20.03	6.69	38.40	4.09	4.00	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	1.85	1.61	1.71	2.01	4.94	.41	ND	ND	ND	ND
CA (%)	-.05	.09	-.05	-.05	.94	-.05	ND	.15	.20	.20
FE (%)	1.18	.13	-.05	.06	2.02	.59	1.50	1.50	1.50	5.00
MG (%)	.18	-.05	-.05	-.05	1.05	-.05	.20	.30	.30	2.00
NA (%)	.10	1.42	1.48	1.52	2.45	.31	ND	ND	ND	ND
K (%)	1.55	.03	.04	.04	1.94	.03	ND	ND	ND	ND
AG (PPM)	-2.00	6.00	3.00	3.00	2.00	-2.00	ND	ND	ND	ND
B (PPM)	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	10.00	ND	10.00	10.00
BA (PPM)	529.00	17.00	21.00	17.00	759.00	16.00	1000.00	150.00	300.00	700.00
BE (PPM)	3.00	-1.00	-1.00	-1.00	9.00	-1.00	3.00	1.00	1.00	1.50
CE (PPM)	21.00	-10.00	-10.00	-10.00	44.00	-10.00	ND	ND	ND	ND
CO (PPM)	8.00	-4.00	-4.00	-4.00	9.00	-4.00	ND	7.00	7.00	10.00
CR (PPM)	31.00	13.00	13.00	15.00	54.00	8.00	ND	20.00	50.00	100.00
CU (PPM)	21.00	4.00	2.00	2.00	7.00	2.00	15.00	10.00	20.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	5.00	-1.00	1.00	-1.00	28.00	-1.00	ND	ND	ND	ND
MN (PPM)	44.00	44.00	5.00	6.00	282.00	4.00	100.00	200.00	200.00	200.00
MO (PPM)	5.00	-4.00	-4.00	-4.00	4.00	8.00	ND	ND	ND	ND
NB (PPM)	-4.00	-4.00	-4.00	-4.00	5.00	-4.00	ND	ND	ND	ND
NI (PPM)	9.00	3.00	4.00	-2.00	30.00	2.00	ND	15.00	15.00	50.00
P (PPM)	124.00	220.00	43.00	68.00	416.00	46.00	ND	ND	ND	ND
PB (PPM)	ND	ND	ND	ND	ND	ND	20.00	30.00	20.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	2.00	-1.00	-1.00	-1.00	4.00	-1.00	ND	ND	5.00	15.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	18.00	10.00	6.00	7.00	251.00	4.00	ND	ND	ND	100.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	720.00	37.00	27.00	37.00	2622.00	32.00	.10	.10	.15	.70
V (PPM)	20.00	2.00	-2.00	3.00	34.00	2.00	20.00	30.00	50.00	150.00
Y (PPM)	3.00	1.00	-1.00	1.00	4.00	-1.00	20.00	ND	ND	20.00
ZN (PPM)	5.00	-2.00	-2.00	-2.00	32.00	-2.00	ND	ND	ND	ND
ZR (PPM)	43.00	27.00	20.00	34.00	91.00	13.00	150.00	70.00	150.00	150.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160186	160187	160188	160189	160190	160191	160192	160193	160194	160195
ELEVATION	8040.00	8380.00	8440.00	8340.00	8680.00	9635.00	9260.00	9275.00	9540.00	9310.00
FORMATION	VF	CPQ	SPF	SPF	CQ	JCF	JCF	JCF	JCF	MG
LITHOLOGY	C	C	C	C	QZ	QZ	QZ	QZ	QZ	C
UL (PPM)	.30	.70	.60	.80	.40	.20	11.00	4.60	5.00	3.10
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	7.00	5.50	.30	ND	1.50	ND	5.50	27.00	5.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	.70	.40	.30	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	.50	.20	.10	20.00	.30	.50	20.00	ND
FE (%)	.50	.70	1.50	1.50	1.50	2.00	1.00	3.00	.70	.10
MG (%)	.20	.02	.30	.30	.20	.50	.10	.30	.30	.20
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	.50	ND	10.00	ND	ND	ND	ND
B (PPM)	20.00	10.00	ND	ND	ND	15.00	ND	10.00	ND	ND
BA (PPM)	300.00	50.00	70.00	100.00	100.00	ND	100.00	300.00	50.00	300.00
BE (PPM)	1.50	1.50	ND	ND	1.00	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	7.00	10.00	7.00	70.00	ND	7.00	ND	ND
CR (PPM)	15.00	15.00	30.00	50.00	30.00	ND	30.00	70.00	ND	50.00
CU (PPM)	5.00	ND	15.00	20.00	ND	15000.00	20.00	70.00	10.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	50.00	70.00	20.00	150.00	150.00	1000.00	70.00	200.00	1500.00	70.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	15.00	ND	10.00
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	5.00	ND	15.00	15.00	15.00	70.00	ND	15.00	5.00	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	30.00	50.00	ND	100.00	ND	30.00	20.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	5.00	5.00	5.00	5.00	ND	5.00	5.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	100.00	100.00	ND	150.00	ND	ND	1000.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.07	.07	.15	.15	.15	.01	.02	.10	.02	.15
V (PPM)	30.00	30.00	30.00	50.00	30.00	ND	10.00	50.00	50.00	50.00
Y (PPM)	ND	ND	ND	ND	ND	70.00	ND	10.00	30.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	50.00	70.00	70.00	70.00	100.00	ND	10.00	50.00	70.00	100.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160196	160197	160198	160199	160200	160201	160202	160203	160204	160205
ELEVATION	9460.00	8900.00	9495.00	9495.00	9460.00	9210.00	7845.00	10120.00	9160.00	9160.00
FORMATION	MG	SPF	MG	MG	MG	MG	JCF	MI	JCF	JCF
LITHOLOGY	C	PL	C	QZ	C	PL	SC	VQ	C	C
UL (PPM)	.60	2.90	1.30	.40	.40	.80	1.00	.30	16.00	16.00
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	6.00	26.00	1.50	2.00	3.00	14.00	52.00	ND	21.00	30.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	1.50	.25	2.00
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	.15	.70	.07	ND	.07	.15	.30	.10	ND
FE (%)	1.00	7.00	5.00	5.00	.70	5.00	15.00	1.50	7.00	10.00
MG (%)	.30	2.00	.70	.70	.10	.10	.50	.15	1.00	.20
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	.50	ND	ND	ND	ND	2.00	5.00	1.00
B (PPM)	15.00	15.00	15.00	10.00	10.00	15.00	ND	ND	10.00	10.00
BA (PPM)	500.00	1000.00	1000.00	500.00	200.00	1000.00	150.00	70.00	700.00	500.00
BE (PPM)	1.00	3.00	1.00	1.50	1.00	3.00	1.00	ND	1.50	1.50
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	7.00	15.00	50.00	15.00	5.00	20.00	50.00	7.00	7.00	ND
CR (PPM)	30.00	200.00	150.00	70.00	50.00	150.00	200.00	15.00	200.00	100.00
CU (PPM)	20.00	50.00	70.00	30.00	5.00	50.00	150.00	20.00	100.00	200.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	150.00	300.00	500.00	500.00	150.00	200.00	700.00	200.00	150.00	100.00
MO (PPM)	ND	5.00	5.00	ND	ND	ND	ND	ND	30.00	30.00
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	15.00	70.00	70.00	70.00	15.00	50.00	70.00	15.00	15.00	10.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	20.00	20.00	20.00	ND	ND	10.00	20.00	50.00	70.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	20.00	10.00	10.00	5.00	20.00	20.00	ND	15.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	200.00	ND	ND	ND	ND	ND	ND	100.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.50	.30	.20	.10	.30	1.00	.01	.30	.20
V (PPM)	50.00	150.00	100.00	100.00	30.00	200.00	200.00	10.00	100.00	70.00
Y (PPM)	ND	20.00	15.00	15.00	ND	30.00	30.00	ND	15.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	200.00	100.00	70.00	50.00	150.00	300.00	ND	50.00	150.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160206	160207	160208	160209	160210	160211	160212	160213	160288	160289
ELEVATION	9280.00	8735.00	8630.00	8660.00	8770.00	8880.00	8880.00	9550.00	8280.00	8325.00
FORMATION	JCF	AM	MG	MG	MG	MG	MG	MI	JCF	JCF
LITHOLOGY	C	VQ	C	C	C	C	C	GO	QZ	QZ
UL (PPM)	1.80	.30	40.00	.90	9.00	1.00	1.30	.20	.50	.30
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	20.00	ND	24.00	ND	411.00	667.00	542.00	69.50	4.00	15.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	10.00	ND	.10	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.07	7.00	.05	.05	.15	.05	.10	.05	.15	2.00
FE (%)	1.00	5.00	1.00	2.00	5.00	7.00	7.00	20.00	.30	5.00
MG (%)	.20	.70	.20	.20	.30	.30	.50	.10	.10	5.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	20.00	ND	ND	ND	ND	ND	5.00	ND	ND
B (PPM)	10.00	20.00	10.00	10.00	10.00	10.00	10.00	ND	ND	ND
BA (PPM)	700.00	150.00	300.00	500.00	500.00	700.00	700.00	200.00	300.00	30.00
BE (PPM)	1.00	ND	1.50	1.50	2.00	1.50	1.50	1.00	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	5.00	30.00	10.00	10.00	15.00	50.00	70.00	70.00	ND	50.00
CR (PPM)	30.00	300.00	20.00	30.00	100.00	150.00	100.00	200.00	20.00	3000.00
CU (PPM)	5000.00	70.00	30.00	30.00	100.00	300.00	500.00	1000.00	5.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	50.00	700.00	150.00	150.00	150.00	150.00	300.00	200.00	100.00	100.00
MO (PPM)	ND	ND	ND	ND	ND	5.00	7.00	5.00	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	10.00	70.00	10.00	15.00	15.00	70.00	70.00	1500.00	10.00	300.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	50.00	1500.00	ND	ND	100.00	300.00	150.00	100.00	30.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	15.00	ND	5.00	10.00	10.00	10.00	7.00	ND	20.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	200.00	ND	ND	ND	ND	ND	100.00	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.30	.10	.15	.30	.50	.20	.15	.10	.20
V (PPM)	50.00	150.00	30.00	50.00	100.00	200.00	150.00	200.00	20.00	70.00
Y (PPM)	10.00	10.00	ND	10.00	20.00	30.00	20.00	ND	ND	10.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	30.00	100.00	100.00	1000.00	700.00	300.00	70.00	70.00	70.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160290	160291	160292	160293	160294	160295	160296	160297	160298	160299
ELEVATION	8380.00	8340.00	8095.00	8080.00	8135.00	8220.00	8260.00	8320.00	8355.00	8220.00
FORMATION	JCF	JCF	JCF	SLV	SLV	SLV	SLV	SLV	AGN	JCF
LITHOLOGY	TF	QZ	Q	TF	TF	TF	TF	TF	GN	QZ
UL (PPM)	.10	1.10	.50	.30	.30	1.80	.30	.20	.30	.10
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	8.80	5.00	3.30	31.00	15.00	3.50	8.80	13.00	13.00	8.30
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	5.00	.10	ND	3.00	5.00	.70	7.00	3.00	2.00	3.00
FE (%)	10.00	.50	.30	10.00	10.00	2.00	5.00	7.00	7.00	7.00
MG (%)	3.00	.20	.15	2.00	3.00	.70	3.00	2.00	3.00	5.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BA (PPM)	70.00	1000.00	300.00	300.00	70.00	500.00	30.00	100.00	50.00	20.00
BE (PPM)	ND	1.00	1.00	ND	ND	1.00	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	50.00	5.00	ND	50.00	70.00	10.00	30.00	70.00	70.00	70.00
CR (PPM)	200.00	70.00	20.00	200.00	300.00	150.00	500.00	500.00	2000.00	3000.00
CU (PPM)	100.00	7.00	ND	70.00	70.00	15.00	150.00	100.00	10.00	70.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1500.00	50.00	30.00	1500.00	1000.00	300.00	1500.00	2000.00	1000.00	1000.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	100.00	10.00	7.00	100.00	150.00	50.00	100.00	150.00	200.00	500.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	10.00	70.00	10.00	ND	ND	20.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	50.00	ND	ND	50.00	50.00	15.00	30.00	30.00	30.00	30.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	200.00	ND	ND	300.00	150.00	200.00	150.00	150.00	100.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.70	.15	.05	1.00	1.00	.50	.50	.50	.30	.15
V (PPM)	200.00	30.00	15.00	200.00	200.00	70.00	150.00	200.00	150.00	100.00
Y (PPM)	30.00	ND	ND	50.00	30.00	15.00	15.00	20.00	20.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	200.00	70.00	150.00	70.00	100.00	70.00	70.00	100.00	20.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160300	160301	160302	160303	160304	160305	160306	160307	160308	160309
ELEVATION	8260.00	8220.00	8240.00	8270.00	8210.00	7990.00	7925.00	7820.00	7865.00	7915.00
FORMATION	SLV	SLV	MI	JCF	JCF	JCF	JCF	DG	DG	JCF
LITHOLOGY	BA	ASC	AM	QZ	FAM	QZ	QZ	QZ	QZ	QZ
UL (PPM)	.40	.10	.20	.50	.20	.30	1.20	.80	.60	1.60
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	7.80	7.80	9.50	6.50	12.00	4.80	8.00	6.30	9.80	7.30
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	3.00	5.00	5.00	2.00	5.00	.05	.05	ND	ND	.07
FE (%)	7.00	7.00	10.00	3.00	5.00	.07	1.50	.20	.30	3.00
MG (%)	5.00	5.00	5.00	1.00	2.00	.03	.50	.07	.10	1.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	300.00	ND
B (PPM)	ND	ND	ND	ND	ND	ND	10.00	ND	ND	20.00
BA (PPM)	30.00	150.00	300.00	100.00	200.00	700.00	700.00	700.00	700.00	700.00
BE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.00
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	70.00	70.00	70.00	10.00	50.00	ND	7.00	ND	ND	15.00
CR (PPM)	3000.00	3000.00	700.00	70.00	300.00	ND	100.00	20.00	20.00	200.00
CU (PPM)	10.00	70.00	100.00	ND	150.00	ND	10.00	5.00	5.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1500.00	1500.00	1000.00	500.00	1000.00	20.00	150.00	20.00	70.00	150.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	500.00	500.00	150.00	20.00	70.00	5.00	30.00	10.00	10.00	50.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	20.00	ND	ND	10.00	10.00	ND	10.00	30.00	15.00	20.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	50.00	50.00	15.00	30.00	ND	10.00	ND	ND	15.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	150.00	500.00	150.00	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.30	.20	.50	.30	.30	.02	.20	.07	.07	.20
V (PPM)	100.00	150.00	200.00	70.00	150.00	ND	70.00	10.00	15.00	70.00
Y (PPM)	20.00	10.00	20.00	20.00	20.00	ND	ND	ND	15.00	15.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	20.00	70.00	150.00	70.00	50.00	100.00	50.00	50.00	200.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160310	160312	160313	160314	160315	160316	160317	160318	160319	160320
ELEVATION	7930.00	7890.00	7870.00	7845.00	7840.00	8590.00	8455.00	8525.00	8510.00	8610.00
FORMATION	DG	DG	DG	PL	DG	JCF	DG	JCF	JCF	SLV
LITHOLOGY	C	QZ	QZ	AGC	QZ	QZ	QZ	QZ	PL	QZ
UL (PPM)	10.20	3.30	1.90	11.00	2.50	1.80	4.80	1.50	1.00	.50
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	52.00	8.00	19.00	395.00	9.80	ND	4.50	13.00	10.00	5.80
TH/UT	ND	ND	ND	ND	ND	ND	ND	NU	ND	ND
AU (PPM)	ND	ND	NU	ND	ND	ND	.00	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	30.00	ND
CA (%)	ND	NU	.07	.07	.07	.05	ND	.30	.05	3.00
FE (%)	.70	.30	1.50	2.00	.70	.30	1.00	1.50	5.00	7.00
MG (%)	15.00	.20	.70	1.00	.50	.07	.10	1.00	1.00	7.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	1.00	ND	ND	ND	ND	1.00	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BA (PPM)	1000.00	1000.00	700.00	150.00	2000.00	700.00	700.00	50.00	300.00	ND
BE (PPM)	ND	1.00	1.00	ND	ND	ND	ND	ND	1.50	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	7.00	10.00	10.00	10.00	7.00	ND	ND	ND	20.00	70.00
CR (PPM)	30.00	30.00	100.00	200.00	70.00	30.00	70.00	200.00	200.00	3000.00
CU (PPM)	20.00	5.00	70.00	150.00	15.00	7.00	ND	ND	ND	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	NU	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	50.00	30.00	100.00	100.00	70.00	300.00	70.00	300.00	300.00	100.00
MO (PPM)	7.00	ND	ND	7.00	ND	ND	5.00	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NT (PPM)	10.00	5.00	15.00	15.00	20.00	15.00	5.00	30.00	50.00	700.00
P (PPM)	ND	ND	ND	NU	ND	ND	ND	NU	ND	ND
PB (PPM)	70.00	20.00	30.00	50.00	70.00	20.00	70.00	ND	10.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	7.00	7.00	7.00	ND	ND	15.00	20.00	20.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	NU	100.00	ND	ND	NU	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.15	.20	.70	.15	.05	.15	.30	.50	.30
V (PPM)	20.00	20.00	50.00	50.00	50.00	15.00	20.00	50.00	70.00	100.00
Y (PPM)	20.00	15.00	15.00	100.00	10.00	ND	50.00	15.00	15.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	300.00	300.00	300.00	1000.00	300.00	50.00	200.00	200.00	150.00	100.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160321	160322	160323	160324	160325	160326	160327	160328	160329	160330
ELEVATION	8755.00	8620.00	8645.00	8695.00	8050.00	7960.00	8100.00	7860.00	7810.00	8300.00
FORMATION	SLV	SLV	SLV	JCF	AGN	AG	MI	AM	AG	JCF
LITHOLOGY	PL	TF	QZ	QZ	GN	GR	GB	QZ	GR	QZ
AL (PPM)	.70	.40	.70	1.90	1.20	.50	.40	1.80	.90	1.00
JT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	3.80	16.00	1.30	12.00	2.30	16.00	8.80	4.30	2.00	4.30
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	3.00	7.00	.20	.50	.70	.30	1.50	1.50	1.50	.10
FE (%)	1.00	7.00	.70	.50	2.00	.50	5.00	2.00	3.00	2.00
MG (%)	7.00	3.00	.07	.15	.70	.05	3.00	1.50	.70	1.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BA (PPM)	ND	100.00	1000.00	200.00	500.00	100.00	100.00	1000.00	1500.00	ND
BE (PPM)	ND	ND	1.00	1.00	1.50	2.00	ND	1.50	1.50	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	70.00	50.00	ND	ND	10.00	ND	30.00	10.00	10.00	10.00
CR (PPM)	3000.00	3000.00	ND	ND	70.00	ND	3000.00	200.00	150.00	150.00
CU (PPM)	15.00	150.00	ND	7.00	50.00	10.00	100.00	7.00	15.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	1500.00	200.00	150.00	300.00	200.00	700.00	300.00	500.00	70.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	.50	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	700.00	200.00	10.00	7.00	30.00	7.00	200.00	100.00	50.00	50.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	30.00	30.00	20.00	70.00	ND	15.00	30.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	30.00	50.00	ND	ND	5.00	ND	30.00	10.00	10.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	500.00	100.00	300.00	500.00	100.00	ND	500.00	700.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.30	.50	.05	.05	.15	.05	.20	.30	.30	.20
V (PPM)	100.00	150.00	15.00	20.00	70.00	10.00	100.00	70.00	70.00	70.00
Y (PPM)	20.00	20.00	ND	ND	ND	ND	15.00	15.00	20.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	100.00	50.00	70.00	100.00	150.00	70.00	50.00	150.00	100.00	150.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160331	160332	160333	160334	160335	160336	160337	160338	160339	160340
ELEVATION	8195.00	7900.00	7865.00	8045.00	7880.00	8880.00	9075.00	8735.00	8780.00	8780.00
FORMATION	MI	JCF	MI	SLV	DG	AGN	AGN	AGN	AGN	AGN
LITHOLOGY	GB	PL	AM	TF	C	GN	GN	GN	GN	GN
UL (PPM)	.40	1.30	.40	1.20	6.50	1.00	.70	.60	.70	.50
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	12.00	7.80	40.00	4.30	110.00	2.50	.50	1.00	6.30	6.80
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	3.00	1.00	3.00	10.00	.15	3.00	.50	.10	5.00	5.00
FE (%)	7.00	7.00	7.00	1.50	15.00	3.00	1.00	.70	7.00	7.00
MG (%)	3.00	5.00	1.50	.50	.50	15.00	.30	.07	3.00	3.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	10.00	70.00	ND	ND	ND	ND	ND	ND	10.00	10.00
BA (PPM)	150.00	30.00	70.00	500.00	1500.00	500.00	1000.00	1000.00	300.00	100.00
BE (PPM)	ND	ND	ND	1.00	ND	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	70.00	30.00	50.00	5.00	7.00	15.00	5.00	ND	70.00	70.00
CR (PPM)	2000.00	300.00	150.00	30.00	150.00	150.00	10.00	ND	500.00	500.00
CU (PPM)	100.00	15.00	30.00	10.00	20.00	30.00	15.00	7.00	100.00	70.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	300.00	1000.00	700.00	150.00	700.00	300.00	200.00	1000.00	1000.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	200.00	200.00	50.00	15.00	10.00	50.00	10.00	5.00	150.00	150.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	15.00	ND	ND	30.00	50.00	15.00	20.00	20.00	10.00	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	50.00	20.00	50.00	7.00	10.00	20.00	5.00	ND	50.00	50.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	200.00	ND	200.00	300.00	100.00	500.00	500.00	150.00	200.00	200.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.50	.50	1.00	.15	.70	.50	.15	.05	.50	5.00
V (PPM)	200.00	150.00	200.00	30.00	70.00	100.00	50.00	10.00	200.00	150.00
Y (PPM)	20.00	20.00	30.00	20.00	70.00	20.00	ND	ND	20.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	300.00	100.00	100.00	700.00	150.00	100.00	70.00	50.00	30.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160341	160342	160343	160344	160345	160346	160347	160348	160349	160350
ELEVATION	8580.00	8600.00	8310.00	7780.00	7660.00	7900.00	8085.00	7685.00	7725.00	8460.00
FORMATION	AGN	AGN	AGN	AGN	AGN	DG	JCF	JCF	AGN	DG
LITHOLOGY	GN	GN	GN	GN	GN	QZ	QZ	QZ	GN	C
UL (PPM)	.80	.70	.70	1.30	1.60	2.70	1.40	.70	1.20	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	6.50	3.80	14.00	6.00	6.30	36.00	2.00	6.50	6.50	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.20	.20	15.00	.70	.70	.05	15.00	10.00	.10	ND
FE (%)	1.00	.50	.30	3.00	3.00	.50	.10	1.50	1.00	ND
MG (%)	.20	.07	.05	1.50	1.50	.10	.05	1.50	.20	ND
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BA (PPM)	700.00	700.00	200.00	1500.00	2000.00	700.00	30.00	300.00	2000.00	ND
BE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	ND	15.00	15.00	ND	ND	5.00	ND	ND
CR (PPM)	10.00	ND	ND	200.00	200.00	20.00	ND	70.00	50.00	ND
CU (PPM)	7.00	ND	10.00	20.00	7.00	10.00	5.00	ND	10.00	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	150.00	150.00	200.00	500.00	500.00	50.00	1000.00	1000.00	70.00	ND
MO (PPM)	ND	ND	7.00	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	10.00	5.00	7.00	30.00	30.00	7.00	ND	20.00	7.00	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	15.00	10.00	20.00	50.00	50.00	15.00	15.00	10.00	30.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	ND	15.00	15.00	ND	5.00	10.00	7.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	300.00	150.00	ND	300.00	500.00	ND	150.00	ND	200.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.03	.05	.20	.20	.07	.00	.15	.20	ND
V (PPM)	30.00	20.00	10.00	100.00	70.00	20.00	ND	30.00	50.00	ND
Y (PPM)	ND	ND	15.00	15.00	10.00	ND	50.00	20.00	20.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	70.00	30.00	10.00	100.00	70.00	150.00	ND	100.00	150.00	ND

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160351	160352	160353	160354	160355	160356	160357	160358	160359	160360
ELEVATION	8445.00	8445.00	8585.00	7750.00	7755.00	7755.00	8575.00	8640.00	8880.00	8990.00
FORMATION	DG	DG	JCF	MG	MG	MI	MI	MG	JCF	MG
LITHOLOGY	C	C	QZ	QZ	SC	GB	GN	PL	PL	C
UL (PPM)	ND	ND	ND	ND	ND	ND	8.00	1.00	ND	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	ND	ND	86.00	13.00	ND	ND
TH/UT	ND	NU	NU	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	ND	ND	ND	ND	ND	.10	.50	ND	ND
FE (%)	ND	ND	ND	ND	ND	ND	2.00	10.00	ND	ND
MG (%)	ND	ND	ND	ND	ND	ND	.30	1.00	ND	ND
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	ND	10.00	ND	ND
BA (PPM)	ND	ND	ND	ND	ND	ND	1000.00	500.00	ND	ND
BE (PPM)	ND	ND	ND	ND	ND	ND	1.00	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	ND	ND	ND	ND	.50	20.00	ND	ND
CR (PPM)	ND	ND	ND	ND	ND	ND	100.00	300.00	ND	ND
CU (PPM)	ND	ND	ND	ND	ND	ND	100.00	150.00	ND	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	ND	ND	ND	ND	ND	ND	150.00	2000.00	ND	ND
MO (PPM)	ND	ND	ND	ND	ND	ND	5.00	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	ND	ND	ND	ND	ND	ND	30.00	150.00	ND	ND
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PD (PPM)	ND	ND	ND	ND	ND	ND	100.00	10.00	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	ND	ND	ND	ND	7.00	20.00	ND	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	ND	ND	ND	ND	ND	ND	.30	.30	ND	ND
V (PPM)	ND	ND	ND	ND	ND	ND	70.00	100.00	ND	ND
Y (PPM)	ND	ND	ND	ND	ND	ND	30.00	30.00	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	ND	ND	ND	ND	ND	ND	700.00	150.00	ND	ND

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160361	160362	160363	160364	160365	160366	160367	160368	160369	160370
ELEVATION	8995.00	7790.00	8800.00	8860.00	8530.00	7900.00	7900.00	7880.00	7920.00	7920.00
FORMATION	MG	JCF	JCF	JCF	JCF	DG	DG	DG	DG	DG
LITHOLOGY	C	QZ	QZ	QZ	QZ	C	C	C	C	C
UL (PPM)	ND	ND	ND	ND	ND	ND	.80	4.70	2.80	22.00
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	ND	ND	ND	49.00	6.00	638.00	275.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	ND	.20	ND	.07	.07	.07	.05	ND	ND	.05
FE (%)	ND	.50	.05	.15	.50	.50	.70	.50	3.00	2.00
MG (%)	ND	.05	.03	.05	.15	.20	.30	.07	.30	.15
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	.50
B (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	10.00	ND
BA (PPM)	ND	500.00	200.00	200.00	500.00	20.00	70.00	700.00	500.00	100.00
BE (PPM)	ND	1.00	ND	ND	1.00	ND	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	ND	ND	ND	ND	5.00	ND	ND	ND	7.00	7.00
CR (PPM)	ND	ND	ND	ND	70.00	30.00	30.00	10.00	100.00	30.00
CU (PPM)	ND	ND	ND	7.00	7.00	10.00	15.00	10.00	30.00	50.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	ND	150.00	50.00	50.00	70.00	50.00	30.00	70.00	100.00	150.00
MO (PPM)	ND	ND	ND	ND	ND	ND	7.00	7.00	15.00	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	20.00	ND
NI (PPM)	ND	ND	5.00	5.00	20.00	15.00	7.00	5.00	15.00	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	ND	15.00	10.00	30.00	15.00	50.00	70.00	70.00	100.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	ND	ND	ND	ND	ND	ND	5.00	5.00	10.00	5.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	ND	.01	.01	.02	.02	.15	.20	.03	.50	.15
V (PPM)	ND	ND	1.00	10.00	20.00	20.00	30.00	15.00	70.00	30.00
Y (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	150.00	10.00
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	ND	20.00	70.00	70.00	300.00	50.00	70.00	30.00	1000.00	200.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160371	160372	160374	160375	160376	160377	160378	160379	160380	160381
ELEVATION	7860.00	7875.00	7880.00	7830.00	7980.00	8040.00	8635.00	7685.00	7690.00	8040.00
FORMATION	SLV	SLV	SLV	MI	SLV	JCF	MG	JCF	JCF	JCF
LITHOLOGY	SC	SC	SC	DR	SC	LS	C	C	LS	LS
UL (PPM)	5.20	1.50	1.20	1.80	.60	ND	ND	ND	ND	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	21.00	7.80	17.00	24.00	44.00	ND	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.50	.50	3.00	3.00	.10	.15	ND	.50	10.00	10.00
FE (%)	10.00	10.00	7.00	2.00	7.00	2.00	1.50	1.50	1.50	1.50
MG (%)	.30	.50	1.00	.50	1.00	.15	.05	.30	1.50	1.50
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	1.00	ND	ND	ND	ND
B (PPM)	ND	ND	ND	100.00	ND	ND	ND	ND	ND	ND
BA (PPM)	100.00	100.00	100.00	30.00	1000.00	300.00	200.00	100.00	150.00	500.00
BE (PPM)	ND	ND	ND	ND	ND	1.00	ND	1.50	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	50.00	70.00	50.00	15.00	30.00	10.00	20.00	7.00	ND	5.00
CR (PPM)	100.00	70.00	70.00	20.00	20.00	ND	50.00	50.00	50.00	70.00
CJ (PPM)	100.00	150.00	100.00	30.00	150.00	200.00	100.00	20.00	15.00	20.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	1000.00	1000.00	700.00	700.00	1000.00	300.00	70.00	300.00	1000.00	700.00
MO (PPM)	ND	ND	ND	ND	ND	ND	7.00	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	50.00	100.00	70.00	30.00	30.00	7.00	30.00	30.00	10.00	15.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	10.00	10.00	20.00	15.00	10.00	500.00	10.00	30.00	10.00	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	20.00	20.00	30.00	15.00	15.00	7.00	5.00	5.00	7.00	10.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	300.00	200.00	300.00	ND	ND	150.00	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.50	.20	.50	.70	1.00	.30	.15	.15	.07	.15
V (PPM)	150.00	150.00	200.00	70.00	100.00	70.00	50.00	50.00	30.00	30.00
Y (PPM)	20.00	20.00	30.00	20.00	30.00	10.00	10.00	10.00	10.00	20.00
ZN (PPM)	ND	ND	ND	ND	ND	2000.00	ND	ND	ND	ND
ZR (PPM)	200.00	200.00	200.00	200.00	ND	ND	ND	ND	ND	ND

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160382	160383	160384	160385	160386	160387	160388	160389	160390	160454
ELEVATION	7700.00	7560.00	9480.00	8880.00	9300.00	9860.00	8900.00	8605.00	9350.00	9420.00
FORMATION	JCF	PL	JCF	JCF	JCF	JCF	JCF	AGN	AGN	SPF
LITHOLOGY	LS	VL	QZ	SC	QZ	SC	SC	GN	GN	QPC
UL (PPM)	ND	1.30	.70	1.10	.40	2.30	.60	.60	3.70	ND
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	3.30	3.50	7.00	ND	ND	ND	ND	ND	ND
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	15.00	10.00	.15	2.00	ND	2.00	2.00	.50	.70	.15
FE (%)	1.50	2.00	.70	5.00	.20	5.00	5.00	1.00	1.50	3.00
MG (%)	1.50	.30	.20	5.00	.07	7.00	5.00	.30	.50	1.00
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BA (PPM)	500.00	500.00	1000.00	30.00	300.00	ND	ND	500.00	500.00	70.00
BE (PPM)	ND	1.00	1.00	ND	ND	ND	ND	3.00	1.00	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	7.00	7.00	5.00	30.00	ND	50.00	50.00	ND	5.00	10.00
CR (PPM)	70.00	70.00	50.00	2000.00	30.00	3000.00	3000.00	20.00	20.00	50.00
CU (PPM)	15.00	10.00	15.00	15.00	ND	ND	15.00	ND	15.00	15.00
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	500.00	500.00	150.00	1000.00	20.00	1000.00	1000.00	300.00	300.00	300.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	30.00	20.00	10.00	200.00	5.00	500.00	700.00	10.00	10.00	20.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	15.00	20.00	15.00	20.00	20.00	10.00	ND	70.00	30.00	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	10.00	10.00	5.00	30.00	5.00	20.00	20.00	5.00	5.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	300.00	ND	ND	ND	ND	ND	200.00	300.00	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.20	.15	.20	.07	.20	.20	.15	.20	.07
V (PPM)	50.00	50.00	30.00	100.00	50.00	70.00	70.00	20.00	50.00	20.00
Y (PPM)	20.00	20.00	ND	20.00	ND	10.00	15.00	ND	ND	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	150.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160455	160456	160457	160458	160459	160460	160461	160462	160463	160464
ELEVATION	8860.00	8600.00	10580.00	8770.00	8700.00	8050.00	7700.00	8000.00	8680.00	9580.00
FORMATION	MG	MG	SLC	MG	MG	CL	VF	VF	CQ	CQ
LITHOLOGY	QPC	QPC	QPC	QPC	C	QPC	QPC	QPC	QPC	QPC
UL (PPM)	ND	ND	4.34	4.47	3.01	.86	.50	1.24	1.15	1.03
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TH (PPM)	ND	ND	ND	27.60	16.00	27.60	-5.00	32.50	26.00	-5.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AU (PPM)	ND	ND	ND	-.02	-.02	-.02	-.02	-.02	-.02	-.02
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CA (%)	.15	.05	.10	.05	ND	.20	.20	.05	ND	ND
FE (%)	3.00	3.00	2.00	2.00	2.00	5.00	7.00	.50	.70	.30
MG (%)	.70	.50	.70	.30	.30	.70	1.00	.20	.20	.15
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B (PPM)	15.00	ND	10.00	ND	10.00	ND	ND	ND	ND	ND
BA (PPM)	200.00	500.00	1000.00	300.00	300.00	150.00	200.00	70.00	100.00	100.00
BE (PPM)	1.50	2.00	1.00	2.00	2.00	1.00	ND	ND	ND	ND
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CO (PPM)	30.00	5.00	7.00	ND	ND	7.00	5.00	ND	ND	ND
CR (PPM)	50.00	50.00	70.00	ND	ND	30.00	100.00	20.00	30.00	10.00
CU (PPM)	100.00	10.00	20.00	30.00	50.00	20.00	15.00	ND	ND	ND
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MN (PPM)	200.00	300.00	200.00	30.00	50.00	300.00	150.00	70.00	20.00	20.00
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NI (PPM)	20.00	7.00	10.00	1.00	ND	50.00	70.00	5.00	5.00	5.00
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PB (PPM)	ND	15.00	30.00	30.00	20.00	30.00	ND	ND	ND	ND
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	7.00	10.00	5.00	5.00	ND	7.00	10.00	ND	5.00	ND
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.15	.20	.20	.20	.15	.20	.30	.15	.20	.10
V (PPM)	100.00	70.00	50.00	10.00	10.00	50.00	150.00	50.00	70.00	20.00
Y (PPM)	ND	20.00	10.00	10.00	20.00	ND	10.00	ND	10.00	ND
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZR (PPM)	200.00	200.00	500.00	100.00	100.00	50.00	100.00	70.00	70.00	50.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160465	160466	160467	160468	160469	160470	160472	160473	160474	160482
ELEVATION	8480.00	9580.00	9580.00	9580.00	9260.00	9260.00	8165.00	8440.00	7860.00	7760.00
FORMATION	CQ	CQ	CQ	CQ	CQ	CQ	SPF	SPF	DG	DG
LITHOLOGY	QPC	QPC	QPC	QPC	QPC	QPC	QPC	SC	QPC	QPC
UL (PPM)	3.24	1.64	.61	1.19	.50	1.43	.48	1.05	27.50	53.08
UT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	71.90
UL/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	.74
TH (PPM)	24.40	-5.00	29.30	-5.00	24.00	27.60	32.50	42.30	844.00	1129.00
TH/UT	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.70
AU (PPM)	-.02	-.02	-.02	-.02	-.02	-.02	-.02	.10	ND	ND
AL (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.96
CA (%)	.07	.05	ND	ND	.10	.05	.10	.05	ND	.10
FE (%)	3.00	3.00	1.00	1.00	1.50	1.50	1.00	1.50	ND	4.13
MG (%)	.20	.15	.30	.15	.50	.50	.20	.10	ND	.14
NA (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	.05
K (%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.60
AG (PPM)	ND	ND	ND	ND	ND	ND	ND	1.50	ND	-2.00
B (PPM)	ND	ND	ND	ND	ND	ND	ND	15.00	ND	10.27
BA (PPM)	200.00	200.00	100.00	100.00	70.00	30.00	20.00	150.00	ND	537.30
BE (PPM)	ND	ND	ND	ND	ND	ND	ND	1.50	ND	2.17
CE (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	181.10
CO (PPM)	50.00	ND	ND	ND	7.00	15.00	ND	50.00	ND	19.63
CR (PPM)	20.00	10.00	20.00	10.00	10.00	20.00	10.00	1500.00	ND	66.02
CU (PPM)	30.00	7.00	ND	5.00	5.00	5.00	ND	7000.00	ND	87.86
HF (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	208.90
LA (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.05
LI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.97
MN (PPM)	2000.00	3000.00	50.00	50.00	70.00	100.00	70.00	150.00	ND	39.26
MO (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	17.96
NB (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.82
NI (PPM)	50.00	5.00	5.00	5.00	20.00	15.00	5.00	70.00	ND	17.44
P (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	539.10
PB (PPM)	10.00	ND	ND	ND	ND	ND	ND	ND	ND	148.30
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	5.00	5.00	5.00	ND	ND	ND	ND	15.00	ND	13.35
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	40.01
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	.10	.10	.20	.07	.15	.10	.15	.30	ND	1323.00
V (PPM)	50.00	50.00	70.00	15.00	50.00	50.00	15.00	150.00	ND	39.74
Y (PPM)	ND	15.00	ND	10.00	10.00	ND	ND	10.00	ND	31.27
ZN (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	25.16
ZR (PPM)	50.00	50.00	30.00	15.00	30.00	100.00	15.00	80.00	ND	1633.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	160483	160484	160485	160486	160487	160488	710994	710995	710996	710997
ELEVATION	7770.00	7775.00	7768.00	7755.00	7770.00	7755.00	41.29	7760.00	7760.00	7760.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QPC	QPC	APC	APC	APC	QPC	CQ	QPC	CQ	QPC
UL (PPM)	11.44	11.31	18.05	17.64	3.24	4.57	1.99	6.99	1.70	6.65
UT (PPM)	14.90	12.50	20.90	17.40	4.60	7.60	2.20	7.50	2.20	8.00
UL/UT	.77	.90	.86	1.01	.70	.60	.90	.93	.77	.83
TH (PPM)	127.00	132.00	100.00	93.00	49.00	41.00	10.00	97.00	25.00	78.00
TH/UT	8.52	10.56	4.78	5.35	10.65	5.40	4.55	12.93	11.37	9.75
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	3.54	2.05	3.94	3.77	4.55	3.77	6.36	2.77	5.79	3.36
CA (%)	-.05	-.05	-.05	-.05	-.05	.05	-.05	-.05	-.05	-.05
FE (%)	1.97	1.69	2.04	1.79	1.10	.63	.67	.81	.44	.64
MG (%)	.15	.06	.14	.05	.27	.15	.20	.13	.18	.13
NA (%)	.06	-.05	.90	1.15	1.14	1.50	.11	-.05	.11	-.05
K (%)	2.48	1.52	2.87	2.59	2.08	1.18	2.94	1.21	2.48	1.43
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	12.00	-10.00	-10.00	-10.00	-10.00	-10.00	21.00	10.00	22.00	14.00
BA (PPM)	795.00	431.00	1107.00	1117.00	803.00	109.00	1011.00	265.00	724.00	354.00
BE (PPM)	1.00	-1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CE (PPM)	38.00	79.00	106.00	85.00	14.00	27.00	51.00	61.00	46.00	97.00
CO (PPM)	10.00	-4.00	-4.00	-4.00	-4.00	11.00	-4.00	-4.00	-4.00	-4.00
CR (PPM)	24.00	21.00	38.00	27.00	81.00	26.00	29.00	23.00	31.00	20.00
CU (PPM)	98.00	41.00	8.00	19.00	17.00	17.00	8.00	25.00	42.00	15.00
HF (PPM)	41.00	95.00	93.00	83.00	6.00	30.00	60.00	71.00	54.00	116.00
LA (PPM)	16.00	23.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LI (PPM)	7.00	4.00	7.00	3.00	13.00	7.00	7.00	5.00	6.00	5.00
MN (PPM)	11.00	6.00	9.00	14.00	23.00	21.00	26.00	23.00	28.00	26.00
MO (PPM)	11.00	8.00	10.00	8.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
NB (PPM)	12.00	9.00	7.00	11.00	-4.00	-4.00	5.00	4.00	-4.00	4.00
NI (PPM)	8.00	6.00	-2.00	-2.00	3.00	10.00	4.00	13.00	11.00	6.00
P (PPM)	156.00	165.00	250.00	146.00	138.00	101.00	84.00	118.00	84.00	115.00
PR (PPM)	29.00	64.00	46.00	65.00	20.00	-10.00	42.00	12.00	-10.00	25.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	1.00	5.00	2.00	3.00	2.00	2.00	1.00	3.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	57.00	35.00	78.00	103.00	91.00	29.00	59.00	25.00	50.00	24.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	973.00	524.00	713.00	429.00	1633.00	610.00	1166.00	901.00	1502.00	1161.00
V (PPM)	20.00	17.00	33.00	17.00	29.00	25.00	21.00	24.00	27.00	15.00
Y (PPM)	7.00	5.00	9.00	6.00	4.00	4.00	1.00	5.00	2.00	6.00
ZN (PPM)	9.00	8.00	7.00	7.00	6.00	5.00	6.00	9.00	8.00	6.00
ZR (PPM)	185.00	230.00	232.00	110.00	93.00	151.00	23.00	126.00	34.00	168.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	710998	710999	711000	711001	711002	711003	711004	711005	711006	711007
ELEVATION	7760.00	7750.00	7750.00	7750.00	7750.00	7750.00	7750.00	7750.00	7750.00	7750.00
FORMATION	DG	DG	DG	DG	DG	DG	DG	DG	DG	DG
LITHOLOGY	QGC	QPC	QGC	QPC	QPC	QPC	QGC	QPC	CQ	QGC
UL (PPM)	.61	12.91	4.91	33.92	7.46	36.80	2.17	16.90	1.84	5.94
UT (PPM)	1.20	15.20	5.50	43.10	8.20	36.40	1.90	19.90	1.60	6.10
UL/UT	.51	.85	.89	.79	.91	1.01	1.14	.85	1.15	.97
TH (PPM)	-2.00	323.00	65.00	793.90	62.00	465.00	10.00	379.00	15.00	50.00
TH/UT	ND	21.25	11.82	18.42	7.56	12.78	5.27	19.05	9.38	8.20
AU (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AL (%)	6.62	3.27	4.69	.29	4.77	3.14	5.12	3.60	6.46	4.88
CA (%)	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05
FE (%)	.47	2.26	.61	1.48	.45	.57	.45	1.96	.44	.52
MG (%)	.17	.15	.19	.16	.16	.15	.20	.17	.19	.21
NA (%)	.16	.05	.06	.40	.06	-.05	.06	-.05	.24	.06
K (%)	3.19	1.81	2.54	1.62	2.40	1.60	2.42	1.75	3.36	2.43
AG (PPM)	-2.00	-2.00	-2.00	-2.00	-2.00	3.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	15.00	-10.00	12.00	11.72	14.00	-10.00	16.00	12.00	13.00	13.00
BA (PPM)	1119.00	589.00	855.00	523.10	857.00	552.00	755.00	535.00	1413.00	754.00
BE (PPM)	1.00	1.00	1.00	2.06	1.00	1.00	1.00	2.00	1.00	1.00
CE (PPM)	29.00	41.00	48.00	72.93	30.00	58.00	35.00	91.00	80.00	29.00
CO (PPM)	-4.00	7.00	-4.00	5.98	-4.00	-4.00	-4.00	14.00	-4.00	-4.00
CR (PPM)	14.00	12.00	20.00	24.34	33.00	23.00	24.00	25.00	27.00	31.00
CU (PPM)	6.00	50.00	14.00	37.35	8.00	16.00	9.00	48.00	6.00	36.00
HF (PPM)	48.00	57.00	52.00	71.15	31.00	59.00	39.00	100.00	87.00	31.00
LA (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LI (PPM)	6.00	6.00	8.00	7.57	6.00	8.00	8.00	7.00	7.00	9.00
MN (PPM)	22.00	46.00	34.00	47.64	16.00	33.00	18.00	45.00	15.00	38.00
MO (PPM)	-4.00	-4.00	-4.00	7.19	-4.00	-4.00	-4.00	6.00	-4.00	-4.00
NB (PPM)	-4.00	-4.00	6.00	13.16	-4.00	13.00	-4.00	13.00	-4.00	5.00
NI (PPM)	-2.00	7.00	7.00	8.73	13.00	7.00	6.00	10.00	4.00	8.00
P (PPM)	60.00	253.00	82.00	312.20	90.00	198.00	77.00	229.00	106.00	73.00
PB (PPM)	-10.00	-10.00	-10.00	27.86	-10.00	31.00	18.00	13.00	18.00	10.00
PT (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SC (PPM)	1.00	1.00	2.00	5.10	2.00	3.00	2.00	3.00	3.00	2.00
SI (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SN (PPM)	52.00	33.00	48.00	51.57	74.00	37.00	81.00	27.00	114.00	50.00
SR (PPM)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TI (PPM)	1127.00	1041.00	1111.00	1239.00	1022.00	1119.00	1251.00	1326.00	870.00	1378.00
V (PPM)	16.00	29.00	18.00	26.10	18.00	20.00	20.00	32.00	20.00	23.00
Y (PPM)	-1.00	16.00	5.00	40.05	9.00	27.00	2.00	24.00	2.00	9.00
ZN (PPM)	5.00	6.00	5.00	6.38	4.00	5.00	4.00	8.00	6.00	13.00
ZR (PPM)	18.00	340.00	104.00	918.70	188.00	568.00	22.00	468.00	19.00	182.00

SIERRA MADRE NON-TRANSECT SURFACE SAMPLES

SAMP. NO.	711008	711009	711010	711011	711012	711472
ELEVATION	7750.00	7750.00	7750.00	7750.00	7750.00	41.29
FORMATION	DG	DG	DG	DG	DG	DG
LITHOLOGY	GPC	GGC	GPC	CQ	GGC	GPC
UL (PPM)	19.25	2.45	11.23	2.70	.98	4.49
UT (PPM)	20.60	2.70	15.50	2.60	1.50	5.40
UL/UT	.93	.91	.72	1.04	.65	.83
TH (PPM)	374.00	27.00	303.00	52.00	7.00	83.00
TH/UT	18.16	10.00	19.55	20.01	4.67	15.37
AU (PPM)	ND	ND	ND	ND	ND	ND
AL (%)	3.42	4.31	3.28	6.12	4.03	5.82
CA (%)	-.05	-.05	-.05	-.05	-.05	.05
FE (%)	.76	.29	1.40	.48	.28	1.54
MG (%)	.15	.14	.15	.23	.15	.21
NA (%)	-.05	.09	-.05	.08	.06	.08
K (%)	1.79	2.63	1.71	2.94	2.33	2.76
AG (PPM)	2.00	-2.00	-2.00	-2.00	-2.00	-2.00
B (PPM)	10.00	-10.00	10.00	17.00	10.00	28.00
BA (PPM)	529.00	1038.00	554.00	1086.00	840.00	781.00
BE (PPM)	1.00	1.00	1.00	1.00	-1.00	1.00
CE (PPM)	95.00	28.00	93.00	46.00	25.00	74.00
CO (PPM)	-4.00	-4.00	12.00	-4.00	-4.00	5.00
CR (PPM)	25.00	18.00	19.00	33.00	13.00	40.00
CU (PPM)	30.00	20.00	35.00	7.00	3.00	27.00
HF (PPM)	100.00	31.00	100.00	49.00	27.00	92.00
LA (PPM)	-15.00	-15.00	-15.00	-15.00	-15.00	-15.00
LI (PPM)	7.00	6.00	6.00	9.00	6.00	8.00
MN (PPM)	16.00	18.00	35.00	30.00	17.00	49.00
MO (PPM)	5.00	-4.00	5.00	-4.00	-4.00	25.00
NB (PPM)	9.00	6.00	11.00	-4.00	-4.00	7.00
NI (PPM)	7.00	4.00	11.00	5.00	3.00	8.00
P (PPM)	201.00	50.00	189.00	72.00	36.00	158.00
PB (PPM)	44.00	17.00	24.00	-10.00	-10.00	44.00
PT (PPM)	ND	ND	ND	ND	ND	ND
SC (PPM)	3.00	2.00	3.00	3.00	1.00	3.00
SI (PPM)	ND	ND	ND	ND	ND	ND
SN (PPM)	57.00	65.00	34.00	63.00	45.00	74.00
SR (PPM)	ND	ND	ND	ND	ND	ND
TI (PPM)	1132.00	638.00	1072.00	1365.00	497.00	1722.00
V (PPM)	22.00	15.00	28.00	23.00	12.00	35.00
Y (PPM)	19.00	2.00	15.00	5.00	2.00	4.00
ZN (PPM)	6.00	5.00	7.00	6.00	4.00	9.00
ZR (PPM)	414.00	39.00	277.00	77.00	24.00	148.00

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TABLE 19. SUMMARY OF URANIUM IN STREAM SEDIMENTS FROM CENTRAL SIERRA MADRE DRAINAGES:
DATA COURTESY OF RESOURCE ASSOCIATES OF ALASKA, THROUGH DOUG CHARLETON.

Map Location Number ¹	Area	Number of Samples	U reported (in ppm)		Standard Deviation	Lithologies reported from drainage ²
			Mean	Range		
1	Upper Cow Creek	9	2.8	2.0- 3.9	0.72	mg, q, ph, mq
2	Lower Cow Creek	7	3.0	1.9- 3.9	0.71	q, b-p-sch, b-qfgn
3	Teddy Creek	26	3.5	2.1- 4.7	0.75	p-b-sch, q, am, mg
4	Otto Creek	26	3.6	1.2- 8.7	1.69	vq, gn, q
5	Calf Creek					
5a		3	4.3	2.3- 7.0	2.36	vq, Kgn, bsch
5b		13	3.5	2.1- 6.4	1.07	q, mg, h, bsch, Kgn
5c		4	3.5	2.6- 4.1	0.65	kgn, q
5d		9	4.4	2.8- 5.3	0.72	mg, q, qtgn
6	Single Creek	6	3.5	2.1- 5.1	1.07	q, qfgn, mg
7	S. Heather Creek	8	3.1	1.9- 5.0	1.01	mq, h, c-sch, q, n, vq, mg
8	S. Spring Creek	32	3.8	2.2- 5.5	0.84	b-Kgn, bsch, q, mg, n
9	Jack Creek					
9a		14	6.1	5.2- 7.2	0.73	hgs, bsch, q
9b		7	6.7	5.2- 8.7	1.46	bsch, q, vq
9c		9	5.4	4.1- 6.5	0.81	bsch, mg
10	Haggarty Creek					
10a		15	3.8	3.0- 5.1	0.72	q, mg, mv
10b		1	5.9	2.7- 12.2	3.41	q, mg, bsch
11	Big Sandstone Creek					
11a		7	4.0	3.3- 5.2	0.68	Mg, q
11b		11	4.4	3.2- 5.5	0.71	mg, q
11c		10	4.4	3.7- 5.1	0.45	q, vq, bsch
11d		7	3.8	3.4- 4.5	0.34	q, mg, bsch
12	Douglas Creek	19	3.7	2.4- 5.1	0.69	q, mg, bsch
13	Deep Creek					
13a		10	4.2	2.4- 5.7	1.09	mg, q
13b		6	3.7	2.2- 4.2	0.75	mg, q, mq
14	East Fork, Savery Creek					
14a		10	6.1	5.0- 7.5	0.80	q
14b		44	3.0	2.0- 4.8	1.24	nd

¹ See Plate 2 for location.

² Lithologies occur either as bedrock or stream sediment or both.

Symbols used:

q = quartzite	n = norite
mq = micaceous quartzite	h = hornfels
vq = vein quartz	mg = metagabbro
gn = gneiss	mv = metavolcanic
Kgn = K-feldspar augen gneiss	am = amphibolite
qfgn = quartzo-feldspathic gneiss	b- = biotite, as constituent mineral
sch = schist	c- = chlorite, as constituent mineral
bsch = basic schist	p- = plagioclase, as constituent mineral
hgs = hornblende green schist	nd = no data
ph = phyllite	

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TRANSECT MAPS FOR RIDGES 2 and 3, MANNING RANCH AND TRANSECT
MAP AND CROSS-SECTION RIDGE 3 CARRICO RANCH

FIGURE 54. PLANE-TABLE MAP SHOWING THE MAJOR CONGLOMERATE HORIZONS, RIDGE 2, MANNING RANCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from gabbro and diabase to foliated amphibolite. Includes quartz veins (qv).

INTRUSIVE CONTACT

UNIT 4: Subarkose, medium- to coarse-grained, massive; interbedded with medium-grained to granular, muscovitic quartzarenite to subarkose. Overlain by white, medium-grained, well-sorted quartzarenite (4q) and tan, medium-grained, well-sorted subarkose (4s).

UNIT 3: Subarkose, very coarse-grained to granular; with hematite-stained, pyritic, radioactive quartz-pebble conglomerates, 2-50 cm thick, stretched clasts up to 30 cm. Also includes layers of medium- to coarse-grained, very thin-bedded, trough crossbedded subarkose (3s); quartz, biotite veins (3p), and biotite quartzarenite (metagraywacke) (3g).

UNIT 1: (Includes Units 1 and 2 from Carrico Ranch area)
Subarkose, coarse-grained to granular, micaceous; poorly sorted, with many scattered pebbles and a few thin hematite-stained, pyritic, radioactive quartz-pebble conglomerates (qpc). Also contains layers of coarse-grained to granular, moderately-sorted, massive subarkose (1s); and medium- to coarse-grained, biotite quartzarenite (metagraywacke) which cleans laterally (1g).

- — — Lithologic contact, dashed where uncertain
- · · · Outcrop boundary, dashed where uncertain
- · · · · Conglomerate horizon
- · · · · Lithologic contact and conglomerate horizon
- · · · · Outcrop boundary and conglomerate horizon
- 55 ↘ Strike and dip of overturned bedding
- 63 ↘ Strike and dip of foliation
- 38 ↘ 45 ↘ Strike and dip of overturned beds and bearing and plunge of minor fold axis.
- ⌋ Trough crossbeds
- < 21 Sample transects

Figure 54. Plane Table Map Showing the Major Conglomerate Horizons, Ridge 2, Manning Ranch, Northwest Sierra Madre, Wyoming.

FIGURE 55. PLANE-TABLE MAP SHOWING THE MAJOR CONGLOMERATE HORIZONS, RIDGE 3, MANNING RANCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from massive gabbro and diabase to foliated amphibolite.

INTRUSIVE CONTACT

UNIT 4: Subarkose to quartzarenite, coarse-grained to granular, slightly muscovitic; occasional very-thin conglomerates, feldspar content increases upsection. Overlain by interbedded, very coarse-grained to granular, massive subarkose (4s); medium- to coarse-grained, biotite, quartzarenite (metagraywacke) (4g); and medium- to coarse-grained, thin-bedded, muscovitic subarkose (4m).

DEEP GULCH CONGLOMERATE

UNIT 3: Subarkose, coarse- to very coarse-grained, slightly micaceous; contains 2-10 cm thick hematite-stained, pyritic, radioactive quartz-pebble conglomerates.

UNIT 1: (Includes Units 1 and 2 from Carrico Ranch area)
Subarkose, coarse-grained to granular, micaceous; poorly sorted, scattered quartz and K-spar pebbles. Contains several 2-20 cm thick arkose conglomerates (acgl) with quartz and feldspar clasts up to 18 mm long. Includes beds of coarse- to very coarse-grained, massive subarkose (1s). Overlain by granular quartzite (1q).

--- Lithologic contact, dashed where uncertain

--- Outcrop boundary, dashed where uncertain

..... Conglomerate horizon

47° Strike and dip of overturned beds

~~~~~ Trough crossbeds

23 Sample transects

Figure 55. Plane Table Map Showing the Major Conglomerate Horizons, Ridge 3, Manning Ranch, Northwest Sierra Madre, Wyoming.

FIGURE 56. PLANE-TABLE MAP SHOWING THE MAJOR CONGLOMERATE HORIZONS, RIDGE 3, CARRICO RANCH

EXPLANATION

MAFIC IGNEOUS ROCKS: Mafic sills and dikes ranging from massive gabbro and diabase to foliated amphibolite. Includes quartz veins (qv).

INTRUSIVE CONTACT

UNIT 4: Arkose, light pink, medium to coarse-grained; massive, well-sorted. Intertongues with muscovitic arkose (4m), Black phyllite (4p), and graywacke (4g). Overlain by fine-grained quartzite (4q). Contains occasional crossbeds and thin arkose conglomerates (acgl).

UNIT 3: Subarkose, light pink, very coarse-grained to granular; plane-bedded. Includes 5 to 45 cm thick beds of hematite-stained, pyritic, radioactive quartz-pebble conglomerate. Individual strongly radioactive conglomerates are labeled J, K and L.

UNIT 2: Arkose to subarkose, muscovitic, light gray, coarse-grained; abundant small-scale through crossbeds, slightly pyritic, becoming very muscovitic (2m). Contains one, thin, slightly-radioactive arkosic conglomerate (acgl).

UNIT 1: Arkose, light gray, medium-grained; poorly-sorted. Interbedded medium-grained quartzarenite (1q) and quartzarenite to subarkose (1qs). Contains thin quartz-pebble (qp) and arkosic (acgl) conglomerates.

UNCONFORMITY

BIOTITE QUARTZ PLAGIOCLASE GNEISS: medium-grained.

— — — — — Lithologic contact, dashed where uncertain

— — — — — Outcrop boundary, dashed where uncertain

..... Conglomerate horizon

← Approximate axis of fold

70°/71° Strike and dip of bedding; overturned

39° Strike and dip of foliation

A

Fining upward sequences

Planar crossbeds

Trough crossbeds

Sample transects

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PLATE I. SAMPLE LOCATION
AND DRILL HOLE LOCATION
MAP FOR THE MEDICINE
BOW MOUNTAINS

EXPLANATION

- I57030 SURFACE SAMPLE ANALYZED BY OAK RIDGE GASEOUS DIFFUSION PLANT, NATIONAL URANIUM RESOURCE EVALUATION PROJECT LABORATORY FOR U, Th, AND 30 OTHER ELEMENTS
- x I60131 SURFACE SAMPLE ANALYZED BY THE U.S. GEOLOGICAL SURVEY FOR U, Th, AND 30 OTHER ELEMENTS
- I59-59
I156964 SURFACE SAMPLE AS ABOVE, BUT WITH THIN SECTION ANALYSIS REPORTED IN TEXT; UPPER NUMBER IS UNIVERSITY OF WYOMING SAMPLE NUMBER
- K78-84 U.W. NUMBER OF THIN SECTION ANALYSIS REPORTED IN TEXT, NO OAK RIDGE GEOCHEMICAL DATA AVAILABLE
- △ SR77-20
△ I60091 SURFACE SAMPLE AS ABOVE, BUT WITH WHOLE ROCK GEOCHEMISTRY REPORTED IN TEXT; UPPER NUMBER IS UNIVERSITY OF WYOMING SAMPLE NUMBER
- △ K261 U.W. NUMBER FOR WHOLE ROCK GEOCHEMICAL ANALYSIS REPORTED IN TEXT; NO OAK RIDGE GEOCHEMICAL DATA AVAILABLE
- MB-5
(3 TS
29 CA) DRILL HOLE WITH 3 THIN SECTION SAMPLES AND 29 CHEMICAL ANALYSES
- T2
(16 CA) SAMPLE TRANSECT IN THE ONEMILE CREEK AREA WITH 7 THIN SECTION SAMPLES AND 16 CHEMICAL ANALYSES

SCALE 1:50000
0 1 2 miles

PLATE 2. SAMPLE LOCATION AND DRILL HOLE LOCATION MAP FOR THE SIERRA MADRE

EXPLANATION

- 152013 SURFACE SAMPLE ANALYZED BY OAK RIDGE GASEOUS DIFFUSION PLANT, NATIONAL URANIUM RESOURCE EVALUATION PROJECT LABORATORY FOR U, Th, AND 30 OTHER ELEMENTS
- ✕ 160321 SURFACE SAMPLE ANALYZED BY THE U.S. GEOLOGICAL SURVEY FOR U, Th, AND 30 OTHER ELEMENTS
- SM-69 SURFACE SAMPLE AS ABOVE, BUT WITH THIN SECTION ANALYSIS REPORTED IN VOLUME I; UPPER NUMBER IS UNIVERSITY OF WYOMING SAMPLE NUMBER
- TS-203 U.W. NUMBER OF THIN SECTION WITH ANALYSIS REPORTED IN VOLUME I; NO OAK RIDGE GEOCHEMICAL DATA AVAILABLE
- △ SM-53 SURFACE SAMPLE AS ABOVE BUT WITH WHOLE-ROCK GEOCHEMISTRY REPORTED IN VOLUME I; UPPER NUMBER IS UNIVERSITY OF WYOMING SAMPLE NUMBER
- △ AGI40 SAMPLE NUMBER FOR WHOLE-ROCK GEOCHEMICAL ANALYSIS REPORTED IN VOLUME I; NO OAK RIDGE GEOCHEMICAL DATA AVAILABLE
- ↖ SM8 (11TS, 34CA) DRILL HOLE SHOWING NUMBER OF THIN SECTION (TS) AND CHEMICAL ANALYSIS (CA) SAMPLES AVAILABLE
- ↖ TR21 (13 SAMPLES) SAMPLE TRANSECT SHOWING NUMBER OF SAMPLES TAKEN
- ⑧ DRAINAGE SAMPLED FOR URANIUM IN STREAM SEDIMENT; DATA PRESENTED IN TABLE 18

SCALE 1:50000

0 2 miles