United States Department of the Interior
Bureau of Land Management

Oregon State Office
825 NE Multnomah
Portland, Oregon 97208

GEOLOGY - ENERGY - MINERAL RESOURCE SURVEY NORTHERN MALHEUR RESOURCE AREA

VALE DISTRICT, OREGON

GEOLOGY - ENERGY - MINERAL RESOURCE SURVEY

NORTHERN MALHEUR RESOURCE AREA

VALE DISTRICT , OREGON

Prepared by:

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Prepared for
United States Department of the Interior
Bureau of Land Management
Oregon State Office
825 NE Multnomah, Portland, Oregon 97208

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Note: Plates (maps) are provided in a separate package.

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GEOLOGY-ENERGY-MINERAL RESOURCE SURVEY
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT, OREGON

VOLUME I

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EXECUTIVE SUMMARY

Barringer Resources Inc. has undertaken a Geology-Energy-Mineral (G.E.M.) study of designated areas within the Northern Malheur Resource Area, Vale District, Oregon, for the Bureau of Land Management. The main objective of this study was to identify and assess the mineral potential of areas containing anomalous element concentrations. An integrated geological, geochemical, and geostatistical approach was used.

The two areas under investigation, Areas A and B totaling 285,000 acres, are situated partly within the Basin and Range physiographic province and partly within the Columbia-Snake River physiographic province. The rock types exposed include volcanic, volcaniclastic, and sedimentary assemblages that are Miocene and younger in age together with a small area of pre-Cenozoic rocks present in the northwest corner of Area A. The structural grain of the survey area is defined by north, northwest, and northeast trending faults, presumably related to an extentional tectonic environment which began in the late-Tertiary. At the present time, there are no commercial mineral deposits within the survey area.

In order to assess the mineral potential of Area A and Area B, samples were collected from 582 stream sediment, 105 soil, and 35 rock chip sites and analyses performed for Au, Ag, As, Ba, Be, Hg, Cu, Mn, Mo, Pb, Zn, Sn, and U. Resultant geochemical data were subsequently interpreted using factor analysis, discriminant analysis, and descriptive statistics. Twelve areas within the survey area were shown to possess some degree of mineral potential, principally for precious metals (Table 1, Figures 1 and 2).

It is recommended that additional work be done in the twelve favorable areas to better determine and define each anomaly; in particular, Red Butte Canyon in Area B, where the strength of the anomaly increases and is open to the south. Samples collected in these areas should be analyzed for antimony in addition to the existing element suite. The heavy mineral samples collected at each stream sediment site should also be examined mineralogically and geochemically to provide an additional data base to thoroughly evaluate the area.

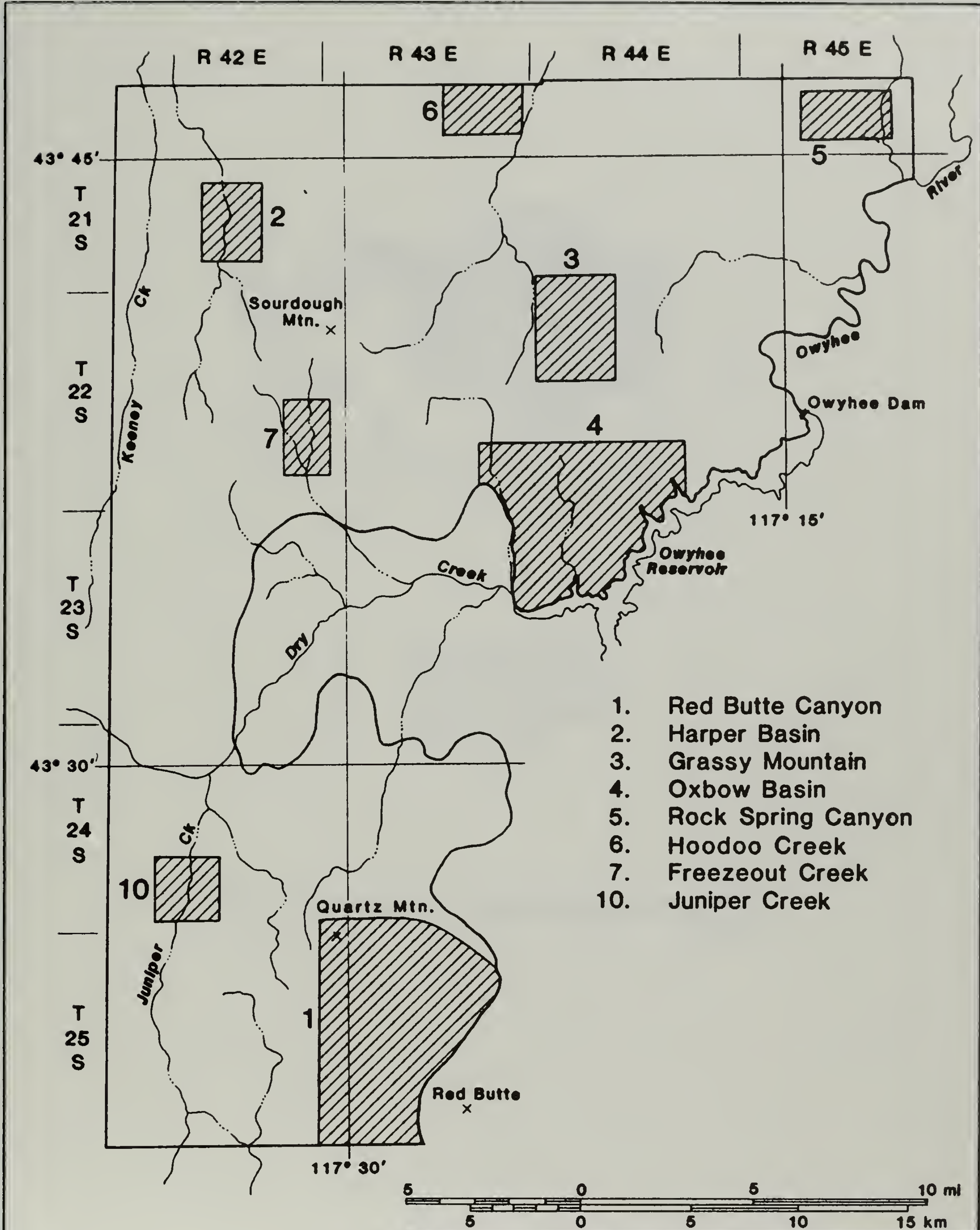
Table 1.

ANOMALOUS AREAS WITHIN THE SURVEY AREA, NORTHERN MALHEUR RESOURCE AREA, OREGON

ANOMALY AREA	SINGLE ELEMENTS (PAGES 35-47)													FACTORS (PAGES 56-62)				DISCRIMINANT ANALYSIS (PAGE 64)
	Au	Ag	As	Ba	Be	Hg	Cu	Mn	Mo	Pb	Zn	Sn	U	1	2	3	4	
1. Red Butte Canyon	X	X	X	X		X				X			X		X	X	X	X
2. Harper Basin	X		X			X									X			
3. Grassy Mountain			X	X		X									X		X	
4. Oxbow Basin			X	X												X		X
5. Rock Spring Canyon	X		X									X			X			
6. Hoodoo Creek							X	X		X	X			X				
7. Freezeout Creek	X																	
8. Steamboat Creek	X																	
9. Castle Rock Spring	X																	
10. Juniper Creek												X						
11. No Name Creek								X										X
12. Lost Creek	X	X	X				X			X	X			X			X	

X - Strong Response

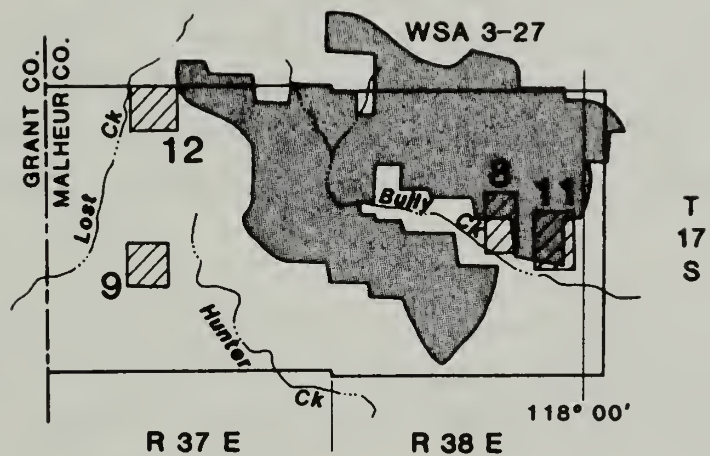
Blank - Poor Response



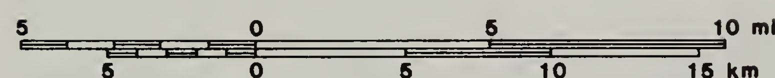
ANOMALOUS AREAS,
AREA B,
N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 1



8. Steamboat Creek
9. Castle Rock Spring
11. No-Name Creek
12. Lost Creek



ANOMALOUS AREAS,
AREA A,
N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 2

INTRODUCTION

Barringer Resources Inc., on behalf of the Oregon State Office of the Bureau of Land Management, has undertaken a geochemical-geostatistical study`of designated areas within the Northern Malheur Resource Area, Malheur County, Oregon (contract YA-551-CT3-440038). The purpose of this study was to assess the mineral resource potential. The work plan consisted of the following seven phases:

Phase I — Collection of 560 stream sediment and heavy mineral samples together with 105 soil samples and 35 rock chip samples. Compilation and review of published geologic information.

Phase II — Geochemical analysis of all samples (except heavy mineral) for 13 elements selected by the Bureau of Land Management.

Phase III — Data Processing which included:

1. Digitizing sample locations and combining with the geochemical analyses.
2. Determination of means, standard deviations, correlation coefficients and standard and normalized values.

Phase IV — Review and determination of possible mineralization types within the survey area.

Phase V — Evaluation of geostatistical analyses including factor analysis and discriminant analysis.

Phase VI — Integration and interpretation of geologic, geochemical, and geostatistical data to assess the mineral potential.

Phase VII — Final report preparation.

The report consists of eight sections: Executive Summary, Introduction, General Geology, Mineral Deposits, Geochemistry, Geostatistics, Mineral Potential, and Conclusions and Recommendations. The maps, geochemical analyses, and geostatistical results have been placed in appendices.

Acknowledgment is made to the COAR, Dr. Durga Rimal and the other personnel of the Bureau of Land Management who provided valuable assistance with land access, proprietary information on specific areas, and general background knowledge of the area. The authors also wish to thank Dr. Mike Cummings, Portland State University, for ideas presented and information provided concerning gold mineralization at Red Butte.

GENERAL GEOLOGY

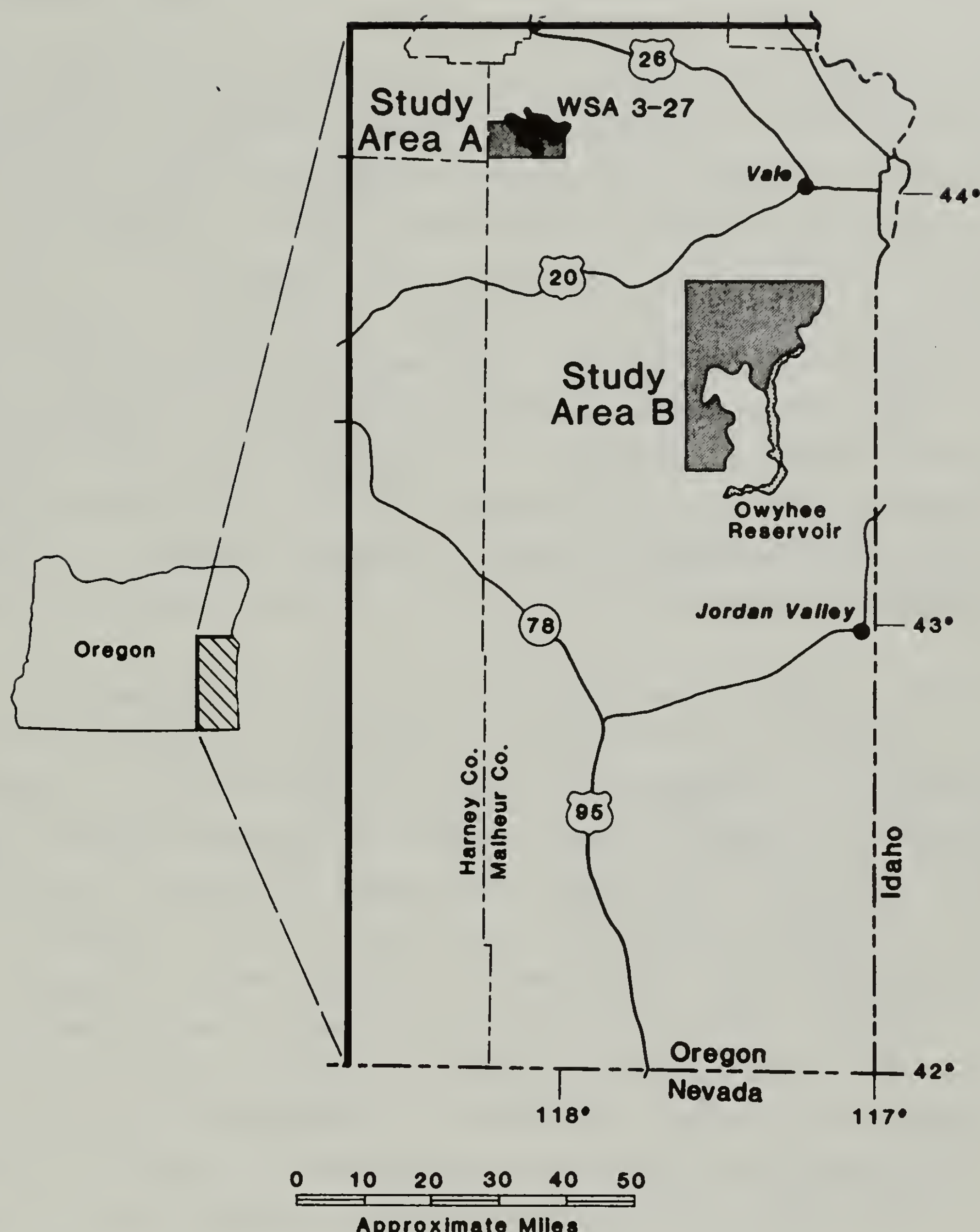
LOCATION

The survey area is wholly contained within the Northern Malheur Resource Area, Malheur County, Oregon situated between 117° 07' 30" and 118° 15' west longitude and 43° 15' and 44° 07' 30" north latitude. Geographically, it is divided into two separate areas, Area A containing approximately 46,000 acres that is thirty miles west of Vale, Oregon and Area B encompassing 239,000 acres, fifteen miles southwest of Vale (Figure 3). The eastern one-half of Area A is covered by WSA no. 3-27, the Beaver Dam Creek Wilderness Study Area, as designated by the Bureau of Land Management. The survey area lies within the Columbia - Snake River Basalt physiographic province and the Basin and Range physiographic province and is bounded to the north by the Northern Cordillera, to the east by the Idaho Batholith, and to the west by the Cascade Range (Hamilton and Myers, 1966).

STRATIGRAPHY

This section of the report is based partly on observations by Barringer Resources' geologists within the framework of geologic mapping by Corcoran and others (1962), Kittleman and others (1965), Kittleman (1967), Kittleman (1973), and on regional studies summarized by Walker (1977).

Except for limited outcrops of pre-Cenozoic rocks in the northwestern corner of Area A all rocks are Miocene and younger in age. These rocks, for the most part, represent a thick assemblage of volcanic, volcaniclastic, and sedimentary units that were deposited in northward plunging basins beginning in Miocene time. To simplify regional geologic interpretations and nomenclature, the geology of the northern and southern regions is discussed under separate headings.



LOCATION
NORTHERN MALHEUR
RESOURCE AREA

BARRINGER RESOURCES

Figure 3

Northern Region (Area A)

The oldest rocks exposed comprise a eugeosynclinal sequence of Jurassic-Triassic siltstone, slate, conglomerate, intercalated mafic volcanics, and chert metamorphosed in places to the green schist facies (Walker, 1977). Exposures of these rocks are restricted to a three square mile area along Lost Creek in the northwest corner of the area. Further to the north in the Blue Mountains, the Paleozoic and Mesozoic section is more complete and areally extensive representing sedimentation along the margin of the Cordilleran geosyncline. Paleozoic and Mesozoic lithostratigraphic units are not recognized elsewhere in either the northern or southern regions but are probably present at depth under the thick Tertiary volcanic and sedimentary column.

Complexly interbedded volcanic and volcaniclastic rocks, often referred to as either the Strawberry Volcanics or "unnamed igneous complex", by different workers, predominate in Area A. Rock types include basaltic breccias, basalt, andesite, scoria, volcaniclastics, rhyolitic lavas, and tuffs, all dated as Miocene or younger. No provision has been made by Walker (1977) to separate these units on a regional basis; hence, all rocks are combined as one map unit (Plate 1). Wood (1976) based on detailed stratigraphic work near Castle Rock, just south of the area, has mapped a 1,700 meter thick stratigraphic column which includes 700 meters of mafic rocks belonging to the unnamed igneous complex, unconformably overlain by 300 meters of Dinner Creek Ash-Flow Tuff, which in turn is unconformably overlain by a 700 meter thick section of rocks assigned to the Strawberry Volcanics. Whether these stratigraphic relationships hold elsewhere across the area is not known. Other locally recognizable lithologies include volcaniclastic rocks of the Juntura Formation, and tuffaceous sediments and tuffs of the Drewsey Formation.

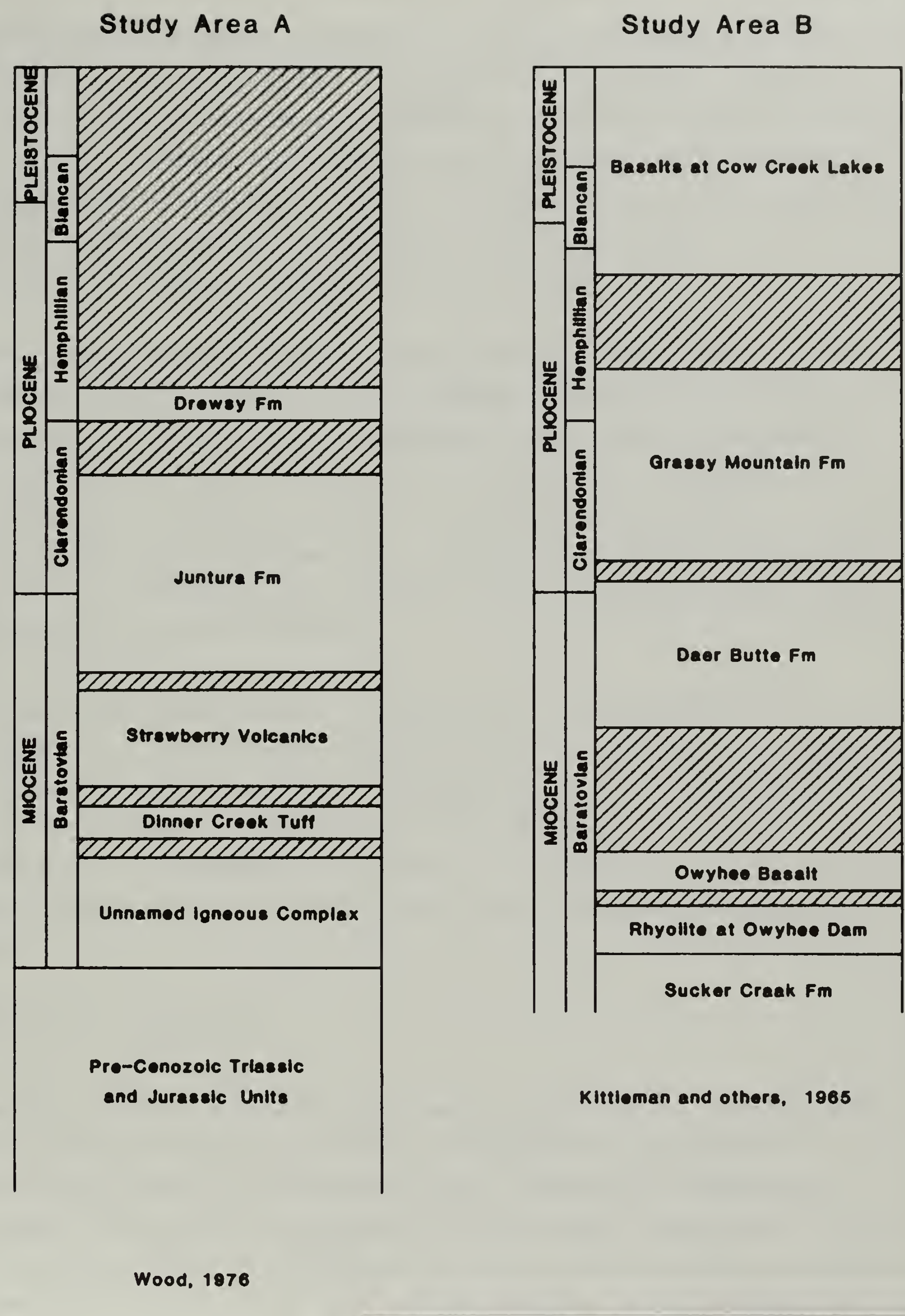
Southern Region (Area B)

The southern study area is somewhat similar in lithologic and stratigraphic character to Area A. Although rock units appear contemporaneous and are petrographically similar, different formation names have been adopted to reflect localized eruptive and depostional processes (Kittleman and others, 1965). See Figure 4 for a comparison of stratigraphic units.

Miocene red to gray porphyritic rhyolite is the oldest rock type present (Plate II). Stratigraphically this rhyolite underlies the Owyhee Basalt on the western side of Owyhee reservoir south of the dam, but on the eastern shoreline of the reservoir the rhyolite is absent suggesting a limited eastward extension.

The Miocene Owyhee Basalt marks the northeastern boundary of Area B. Multiple flows of dark-gray to black, olivine-poor basalt, scoriaceous between flows, characterize this unit which dips to the west at shallow angles under Grassy Mountain. Kittleman and others (1965) give a thickness of nearly 1,300 feet for a section composed of at least 12 distinct flows.

Unconformably overlying the Owyhee Basalt are the volcaniclastic and mafic flows and related intrusive equivalents of the Deer Butte Formation. The basal portion of the Deer Butte Formation is a complexly interbedded sequence of volcanic claystone, siltstone, and sandstone which grades upward into coarse arkosic sandstones and granitic pebble to cobble conglomerates. Intercalated basaltic flows are scattered throughout the section although they are more numerous toward the middle. Deposition of the clastic material appears to be the result of fluviatile and possibly lacustrine processes with the direction of transport to the north (Kittleman and others, 1965). Estimates of thickness given for the Deer Butte Formation range anywhere from 1,000 to 3,000 feet.



STRATIGRAPHIC UNITS
NORTH MALHEUR RESOURCE AREA

BARRINGER RESOURCES

Figure 4

The Littlefield Rhyolite, Miocene in age, represents the largest exposure of silicic volcanism in the area. This rhyolitic complex consists of multiple flows of flow foliated, red to gray, porphyritic rhyolite with an aggregate thickness of approximately 500 feet. Other silicic rocks are present in the form of small rhyolitic plugs, and dikes whose stratigraphic relationships are poorly understood.

Lithologically similar and resting unconformably upon the Deer Butte Formation, is the Pliocene Grassy Mountain Formation, consisting of volcaniclastic sediments and mafic flow rocks. This formation underlies the northern one-half of Area B. Along the canyon walls and north trending valley floors, arkosic sandstone, conglomerate, and volcaniclastic sediments crop out with the plateaus capped by multiple flows of coarse-grained olivine basalt.

In the southwestern corner of the area, volcaniclastic sandstones and olivine-poor basalts of the Pliocene Antelope Flat Basalt form a laterally contiguous unit. Although the Antelope Flat Basalt and basalts of the Grassy Mountain Formation are contemporaneous units, Kittleman and others (1965) argue that each is chemically and petrographically unique.

STRUCTURE AND TECTONICS

Two major tectonic regimes have been operative in the Northern Malheur Resource Area during the Phanerozoic, an earlier Paleozoic and Mesozoic compressional, subduction dominated environment which was followed by extentional tectonics in the late Cenozoic. The pre-Cenozoic interval of tectonism includes sedimentation, thrusting, and accretion that took place along a passive to active continental margin. During the late Cenozoic a shift occurred from a compressional to an extentional regime with the creation of fault-bounded mountain ranges and valleys that are characteristic of the Basin and Range structural province. Elements of both tectonic episodes are recognizable.

Pre-Cenozoic

In the Paleozoic a thick assemblage of eugeosynclinal rocks were deposited in the Cordilleran geosyncline that marked the western North American continental margin. Twice during the Paleozoic, collisions with a postulated magmatic arc system that lay to the west, obducted and transported these oceanic sediments to the east over continental shelf sediments (Speed, 1983). Initially, thrusting took place in the late-Devonian and early-Mississippian Antler Orogeny with the emplacement of the Roberts Mountains allochthon followed by eastward thrusting of the Golconda allochthon in the late-Permian, early-Triassic Sonoma Orogeny. Although readily identifiable in northern Nevada, the complexly faulted and folded allochthonous rocks, if present in the survey area, are covered by a thick blanket of Tertiary volcanic rocks. In eastern Oregon Mesozoic rocks are recognizable in areas where uplift and erosion of the Tertiary Volcanic section has occurred. These Triassic and Jurassic sedimentary and volcanic rocks, according to Burchfiel (1979), represent a magmatic arc terrain that was accreted to the North American craton.

Cenozoic

The survey area lies within and adjacent to the Basin and Range structural province (Lawrence, 1976). Numerous high angle faults cross the area striking northwest to northeast with local displacements considerably less than observed elsewhere in the Basin and Range. This period of normal faulting is in response to extentional tectonism which began in late Tertiary time and is presently ongoing in many areas.

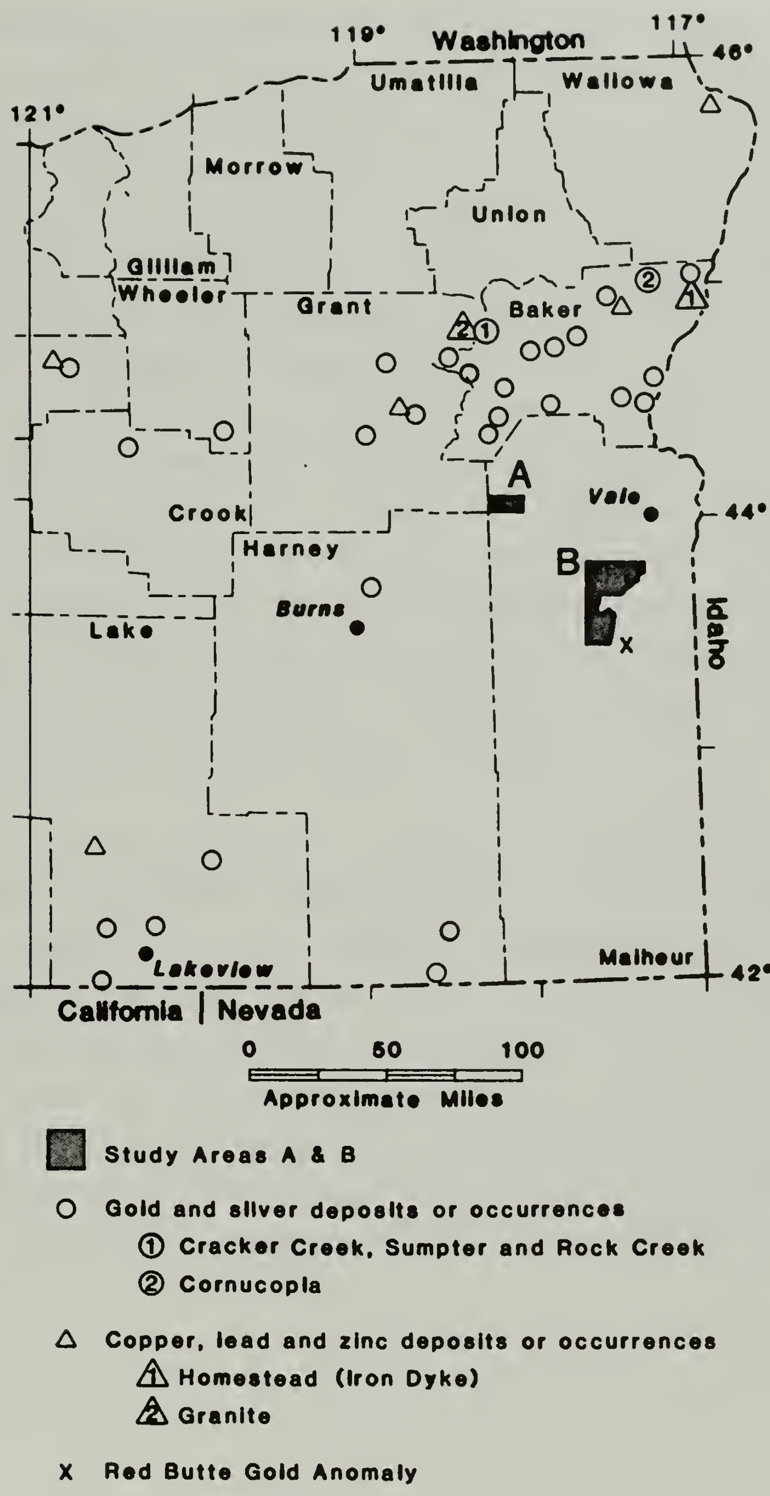
The Northern Malheur Resource Area also straddles the Snake River downwarp (Corcoran and others, 1962), a fault-bounded structural trough that extends across southern Idaho into eastern Oregon, into which thousands of feet of sediments were deposited in a gradually subsiding basin in the late-Tertiary. Sedimentary rocks in the southern study area thicken to the north in response to basin subsidence, sedimentary rocks in the northern study area appear less affected by this structural feature.

MINERAL DEPOSITS

The following section discusses the occurrence of favorable metallic and non-metallic resources on both a regional and local basis. Due to the general homogeneity of geologic processes in southeastern Oregon it is felt that inferences drawn regionally from some of the more important mines and prospects can be applied locally to the area under investigation. The potential for these metallic resources, although briefly discussed in this section, will be described at greater length in a later section of this report. The assessment of industrial minerals, coal, oil and gas, and geothermal is problematic in light of the trace element geochemical techniques employed. Consequently, a detailed review of the literature was undertaken to determine whether or not these commodities represent potentially viable resources.

PRECIOUS AND BASE METAL DEPOSITS

As can be seen in Figure 5, the more productive precious and base metal districts in eastern Oregon are clustered within Baker County and the eastern half of Grant County, roughly 50 to 75 miles north of the survey area. This region, known as the eastern Blue Mountains gold belt, is underlain by an uplifted assemblage of Paleozoic and Mesozoic sedimentary and volcanic rocks that have been intensely folded, faulted, and in some cases highly metamorphosed. Intruding the sedimentary complex are numerous Cretaceous and Tertiary age silicic plugs, dikes, and stocks which appear spatially if not temporarily related to the ore deposits. Mineralization occurs within thick quartz veins and as replacement bodies in both the silicic intrusive rocks and the pre-Cenozoic country rock. In conjunction with the lode deposits, significant gold production has also been recorded from a number of placer deposits. In contrast to the favorable pre-Cenozoic rocks that host the majority of metallic mineral deposits, Tertiary volcanic rocks, which extensively cover eastern Oregon, contain a surprisingly small number of precious or base metal deposits.



PRECIOUS METALS AND BASE METALS
EASTERN OREGON

Weissenborn, 1969
Oregon Geology, 1984

BARRINGER RESOURCES

Figure 5

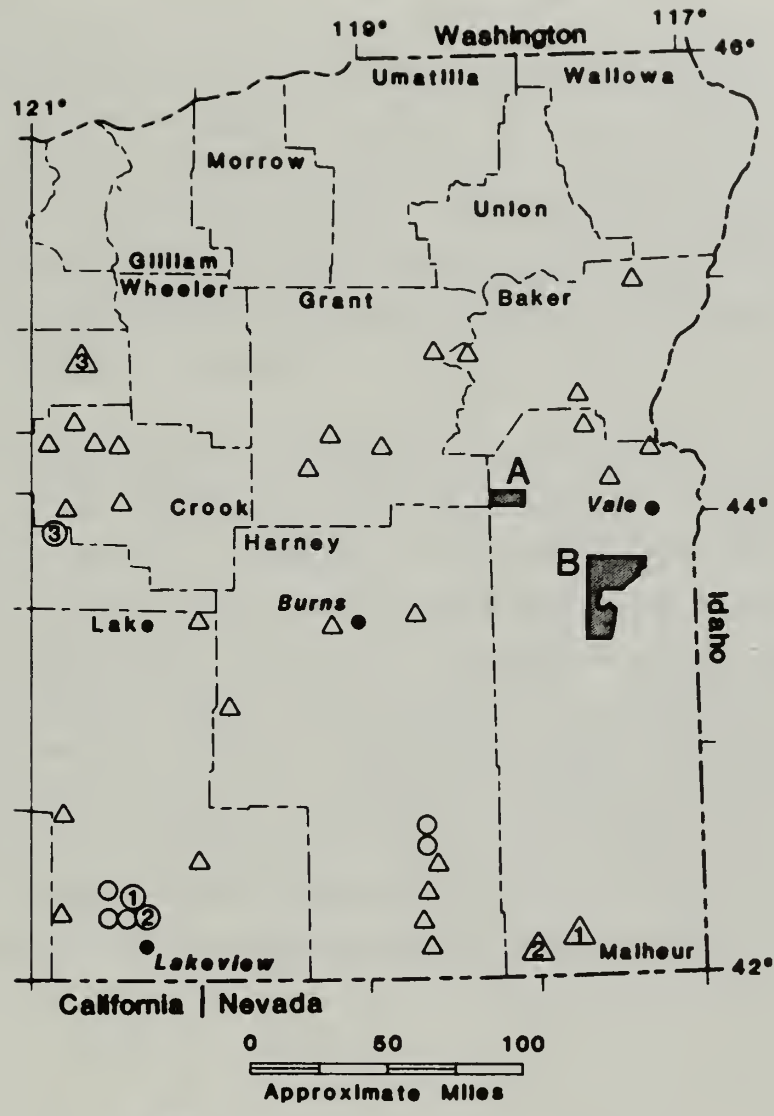
There has been no recorded production of gold, silver, copper, lead, or zinc within the survey area boundaries. Shallow pits and diggings were encountered by Barringer Resources' field geologists during the course of the sampling program, but only occasional staining from secondary copper minerals was observed. Recently, however, private parties have shown an interest in two areas within Area B. The first area north of Dry Creek in T23S, R43E and R44E consists of a block of claims staked in and adjacent to a silicified breccia zone that strikes north to northeast across rocks belonging to the Grassy Mountain Formation. However, a complete understanding of the lithologic and geochemical characteristics of this breccia zone is lacking. A second group of claims covers a breccia zone in clastic rocks of the Deer Butte Formation west and northwest of Quartz Mountain in T25S and T24S, R43E where, again, detailed geologic relationships are not well defined.

Initial geologic and geochemical studies conducted by DOGAMI (Gray and others, 1983) and Portland State University (Dr. Mike Cummings, oral communication, 1984) at Red Butte, which lies adjacent to Area B in T25S, R43E (Figure 5) have outlined areas of favorable gold mineralization along north trending fault and fracture zones in the Deer Butte Formation. The strongest gold mineralization occurs in the upper clastic Mitchell Butte member with associated alteration consisting of pervasive silicification and local exposures of vein adularia, pyrite, and heulandite.

MERCURY AND URANIUM DEPOSITS

In eastern Oregon and northern Nevada mercury and uranium mineralization is closely associated with mid- to late-Tertiary silicic igneous rocks, in particular rhyolitic intrusives and tuffaceous sediments. The distribution of these deposits and occurrences relative to the survey area is shown in Figure 6. Regionally, the Bretz and Opalite mines in southern Malheur County, Oregon were the most productive. Mercury as cinnabar occurs in late-Tertiary tuffaceous moat sediments along a caldera ring fracture zone; this caldera is one of five nested calderas that comprise the McDermitt caldera complex which straddles the Nevada-Oregon border (Rytuba and Glanzman, 1979). The McDermitt deposit which lies within this caldera complex on the Nevada side is currently the largest mercury deposit in the United States. Several mercury occurrences are noted in late-Tertiary volcanic rocks 30 miles north of the survey area (Weissenborn, 1969) but there has been no recorded production.

There is no record of mercury production from the survey area. From a review of regionally important deposits, the depositional environment generally associated with mercury mineralization includes the following: extensive rhyolitic to andesitic volcanism, structural preparation as folding, subsidence, fracturing, brecciation, etc.; and usually tuffaceous host rocks. Area A and B however, are underlain by a thick assemblage of sedimentary rocks, volcaniclastic rocks, and mafic flow rocks deposited in a geologic environment dominated by extentional tectonics and mafic volcanism. Although genetically important, where silicic igneous rocks are present, their distribution is minor.



Study Areas A & B

△ Mercury deposit or occurrence

- ① Bretz
- ② Opalite
- ③ Horse Heaven

○ Uranium deposit or occurrence

- ① Lucky Lass
- ② White King
- ③ Bear Creek

Weissenborn, 1969

BARRINGER RESOURCES

MERCURY AND URANIUM
EASTERN OREGON

Figure 6

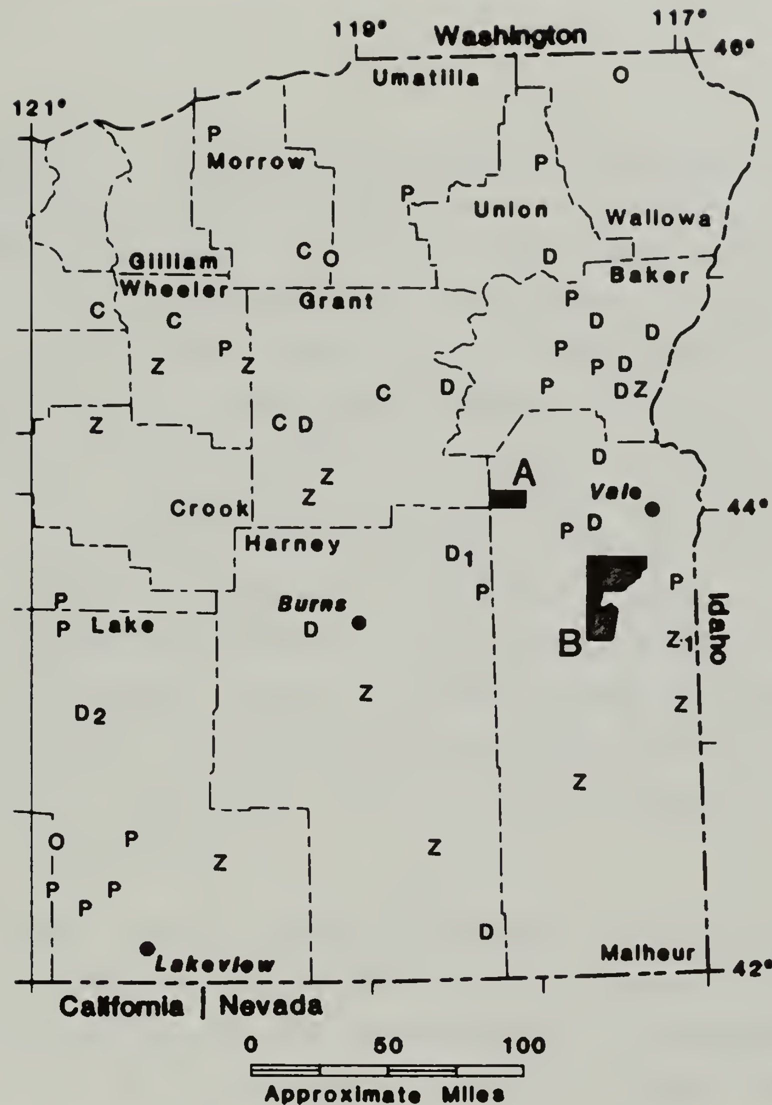
Uranium mineralization, as with mercury, appears to be spatially, if not genetically, related to late-Tertiary rhyolitic intrusives, breccias, and flows. Commercially exploited uranium mines include the Lucky Lass and White King deposits in southern Lake County, Oregon (Figure 6) where mineralization is hosted in silicic breccias and tuffs adjacent to rhyolitic intrusive rocks.

The potential for uranium mineralization in Malheur County was investigated by the Department of Energy as part of the NURE program (Erikson, 1977). Samples of clastic rocks were collected from the Deer Butte and Grassy Mountain Formations, besides others, but due to their low organic content were considered to be poor depositional hosts for sandstone-type uranium mineralization. Also, samples of rhyolitic flows and tuffs collected from numerous localities generally exhibited only background uranium concentrations. Erikson (1977) concludes that areas in and adjacent to silicic eruptive centers provide the best uranium exploration targets.

INDUSTRIAL MINERALS AND COAL

The locations of industrial mineral occurrences together with coal are shown in Figure 7. These commodities include clay, pumice, pumicite, perlite, zeolite, diatomite, and coal. Commodities of local importance, also considered to be potentially favorable in the survey area, are clay, pumice and pumicite, diatomite, and zeolite. Favorable lithologies for these commodities include fragmental volcanic debris, volcaniclastic sediments, tuffaceous sediments, and lacustrine sediments (Weissenborn, 1969). Near Vale, Oregon Eagle-Picher Industries, Inc. has plans to develop a diatomaceous earth deposit together with accompanying processing facilities (Oregon Geology, 1984). In addition, just to the east of Area B in sec. 29, T23S, R46E, Teague Mineral Products of Adrian, Oregon is producing about 180 tons of zeolite (clinoptilolite) a month (Eyde, 1984). Rock types that would be prospective for diatomaceous earth, zeolite, pumice, pumicite, and clay in the survey area are volcaniclastic and lacustrine sediments of the Deer Butte and Grassy Mountain Formations in Area B and equivalent lithologies in Area A.

The commercially extractive coal deposits in Oregon are hosted in Tertiary sediments west of the Cascade Range. Coal occurrences or prospects are not known in the survey area. Carbonaceous sedimentary rocks thought to be conducive to the formation of coal deposits were not observed by Erikson (1977) in his study of uranium favorability in Malheur County and rock samples from both the Deer Butte Formation and the Grassy Mountain Formation were found to be relatively free of organic matter suggesting that geologic conditions necessary for the formation of coal did not exist.



Study Areas A & B

C Clay deposit or occurrence

P Pumice and/or perlite deposit or occurrence

Z Zeolite deposit or occurrence

Z_1 Adrian

D Diatomite deposit or occurrence

D_1 Eagle - Picher

D_2 Christmas Valley

O Coal deposit or occurrence

Weissenborn, 1969

Oregon Geology, 1984

NON-METALIC COMMODITIES
EASTERN OREGON

BARRINGER RESOURCES

Figure 7

OIL AND GAS

The survey area lies on the western limb of the Snake River Basin, a structurally bounded trough located in eastern Oregon and western Idaho that received thousands of feet of volcanic and sedimentary debris beginning in the Miocene. Exploration for oil and gas in the basin began in the early 1900's but met with minimal success, although small quantities of gas produced from exploratory wells have been used by local ranchers (Newton and Corcoran, 1963). There have been approximately 20 wells drilled for oil and gas in Malheur County, all of which are in close proximity to the townsites of Vale and Ontario, Oregon. Each well was collared and subsequently bottomed out in Tertiary rocks with total depths ranging between 500 and 7,000 feet and in all cases, hydrocarbon production was not economic. To date, there have been no wells drilled for oil and gas within the survey area.

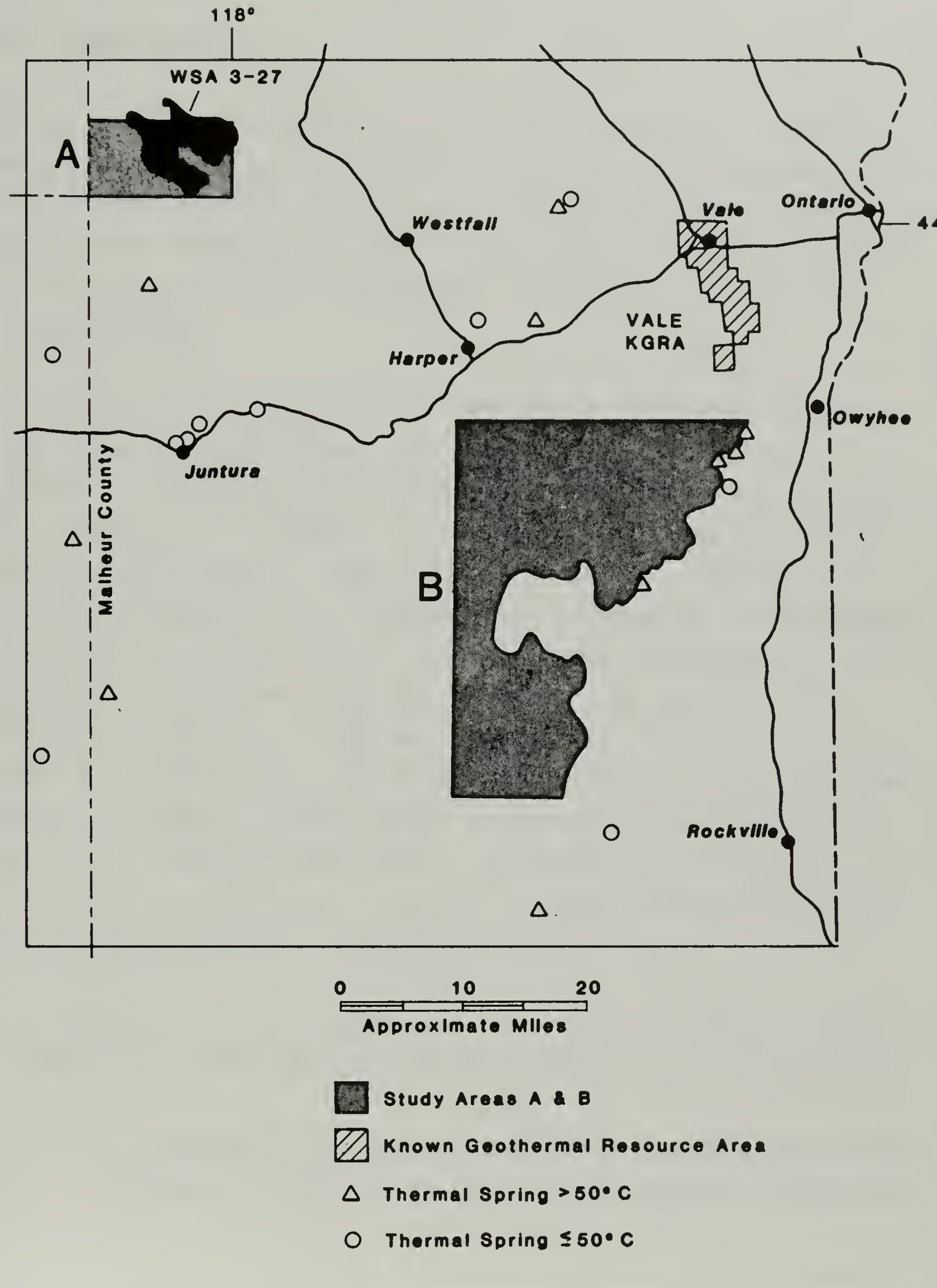
Opinions are divided among a number of workers as to the potential for oil and gas within the region. Deacon and Benson (1970) on a study of the oil and gas potential in eastern Oregon conclude that there is good potential for gas, more so than oil, in the Snake River Basin, but significant accumulations are unlikely due to limited source and reservoir rocks. Fouch (1983) in his assessment of the petroleum potential of wilderness lands in Oregon has assigned the Beaver Dam Creek Wilderness Study Area in Area A and wilderness study areas surrounding Area B a low to very low rating. However, Newton (1982, unpublished report to the Bureau of Land Management) on a study of the oil and gas potential of the Columbia Plateau region, has given the Castle Rock GRA, of which Area A is a part, a fair rating for hydrocarbons. In general, Newton feels that Triassic marine rocks and Cretaceous and Tertiary lacustrine sediments in eastern and southeastern Oregon have good potential for oil and gas production.

GEOTHERMAL RESOURCES

Numerous thermal springs are scattered across east-central Oregon, the majority of which are concentrated near Vale (Figure 8) where surface discharge temperatures reach 90°C. Vale is also the site of the Vale KGRA which exhibits twice the worldwide average heat flow and geothermal gradient (Priest and others, 1982). These thermal springs are convective hot water systems in which meteoric water circulates at depth, is heated by an abnormally high geothermal gradient, and returns to the surface along permeable fault and fracture zones.

Several hot springs are located along the Owyhee River in the northeastern corner of Area B (Figure 8). At this location surface discharge temperatures range from 62°C at Mitchell Butte Hot Spring to 79°C at Deer Butte Hot Spring. The combination of existing hot springs, local proximity to the Vale KGRA, anomalously high heat flow, and the high geothermal gradient, combine to make Area B highly favorable for geothermal resources. The Western Snake River Plain as a whole possesses good geothermal potential, particularly for low-temperature resources (Priest, et al., 1982).

At Beulah Reservoir, 6 miles to the south of Area A, a surface discharge temperature of 85°C has been recorded at Beulah Hot Spring. However, Youngquist (1982, unpublished report to the B.L.M.) feels that only the immediate area around the hot spring is favorable for geothermal resources. He considers most of the surrounding area in the Castle Rock GRA, which includes Area A, to be unfavorable due to the lack of any surface geothermal manifestations and in part to the thinning of volcanic cover upon approaching the Blue Mountains Uplift.



THERMAL SPRINGS
N. MALHEUR RESOURCE AREA, OREGON

DOGAMI, 1982

BARRINGER RESOURCES

Figure 8

REVIEW OF NURE DATA

The NURE program was established for the purpose of compiling and assessing geologic information pertaining to uranium resources of the United States. Under this program aerial radiometric and magnetic surveys were flown for the Boise and Canyon City $1^{o} \times 2^{o}$ NTMS quadrangles which cover Area B and Area A respectively.

The radiometric and magnetic data was gathered by helicopters utilizing gamma ray spectrometers and proton precession magnetometers. For the Boise Quadrangle, traverse lines were flown at a spacing of 3 miles in an east-west direction with north-south tie lines at a spacing of 12 miles. The aerial geophysical survey over the Canyon City Quadrangle incorporated traverse lines 3 miles apart in an east-west direction and north-south tie lines at 12 mile spacings. As a result of these surveys equivalent uranium, equivalent thorium, equivalent % K, and their ratios were generated. This data was averaged over a seven second time interval, grouped by rock type, and statistically evaluated. In order for averaged samples to be classified as a uranium anomaly they had to meet the following requirements (GJBX-10 (80)).

1. The averaged uranium sample must be greater than or equal to 1 standard deviation above that samples rock type mean.

2. The averaged sample must have a U/Th ratio greater than or equal to 1 standard deviation above that samples rock type mean.

3. Each U/Th ratio from 2 must have a corresponding thorium value greater than 1 standard deviation below the mean.

A total of 161 uranium anomalies were outlined from the Boise Quadrangle radiometric survey. Approximately one-half of the significant anomalies are located within the Snake River Plain of Idaho, north and west of Boise. Closer to Area B, several groupings can be found in silicic rocks on the north slope of Mahogany Mountain and along the east side of the Owyhee Reservoir.

Within the Canyon City Quadrangle, 14 uranium anomalies have been detected. The majority of these anomalies are located over mafic to felsic rocks of the Tertiary Strawberry Volcanics to the north and west of Area A with several groups associated with the Paleozoic and Mesozoic sequence of rocks scattered throughout the area.

The magnetic data collected during the airborne surveys were corrected for diurnal and regional magnetic effects. This data tended to highlight the northwest trending structural downwarp of the Snake River Plain across western Idaho. In most instances, however, the underlying structure of the entire region is masked by magnetic effects resulting from the thick cover of extrusive volcanic rocks (GJBX-10 (80)).

In conjunction with the geophysical surveys carried out under the U.S. Department of Energy's NURE program, extensive areas of the western U.S. were also covered by stream sediment and hydrogeochemical surveys, including eastern Oregon. Stream sediment samples were collected at a density of 1 sample per 5 square miles. Analytical results for these samples include U, Th, and rare earth elements together with some multi-element analyses. A listing of this geochemical data is available in GJBX report 132 (82) (see Cook and Fay, 1982).

GEOCHEMISTRY

GENERAL PRINCIPLES

Stream sediment geochemistry is one of the principle methods of low-cost reconnaissance exploration where an integrated drainage system has developed (Meyer, et al., 1979). The composition of the stream sediments is a function of the bedrock lithology and soil cover comprising the upstream catchment area. Where mineral deposits are present in the drainage basin, their presence can be detected through systematic sampling and geochemical analysis of the stream sediments. The collection of selected rock chips and soil samples to establish background and threshold geochemical relationships is considered a useful aid in further interpretation of the stream sediment geochemistry. Therefore, this approach was adopted to assess the mineral potential of designated areas within the Northern Malheur Resource Area.

The interpretation of areas contaminated by mining activity compared to areas with no previous activity may present minor complications. In addition, enhancement of metal values may occur due to co-precipitation with iron and manganese hydroxides under certain environmental conditions. In the geostatistical processing, emphasis is placed on ratios and the comparison of individual values with local rather than regional backgrounds which tends to overcome these problems. Possible contamination, co-precipitation, and changes in lithology should be considered carefully when evaluating the single element geochemical maps (Plates A-1 through A-XXIV).

SAMPLING METHODS

Barringer Resources personnel collected a total of 582 stream sediment samples, 35 rock chip samples, and 105 soil samples plus duplicates from the survey area. The stream sediments and a number of the rock chips were taken from the period September 28 to October 17, 1983. Soil samples were collected in April, 1984 by geologist Mike Robinson when areas of interest had been defined and access into these areas was possible. Stream sediment and rock chip sampling was conducted under the direct supervision of Alan Klawitter, geologist. He was assisted in the field by S. Smithart, R. Sossaman, and T. Mathes. Planning and administrative supervision was the responsibility of Dr. Tim Meyer, Project Manager.

Sediment from the active portion of the stream was collected and field sieved to -20 mesh. The active portion is below the annual low water level of the stream or in the case of dry streams, the center of the main channel developed during runoff. Two stream sediment samples were collected at each site, one for the geochemical work reported herein and a larger 5 kg sample to be used for heavy mineral work which is not a part of the present study. Each was tagged with the same identification number. The density of sampling was approximately 1.5 per square mile.

Residual soil samples were also field sieved to -20 mesh with approximately 1000 grams being collected at intervals of 200 feet along predetermined traverse lines. These traverses were positioned across anomalous areas outlined by the stream sediment geochemistry. To complement the sediment and soil collection phases, rock chip samples were collected at various localities with careful note made to incorporate fresh rock chips as opposed to those with weathered surfaces. All sample locations were marked in the field on the appropriate U.S. Geological Survey topographic quadrangle. Final location maps were then compiled for both Area A and Area B at a scale of

1:48000 and include stream sediment, soil and rock chip locations (Plates III and IV). Field notes taken at each site by the geologist and entered on the BLM sample site entry form included the following:

- Sample number
- Sample location
- Sample type (sediment, soil, rock chip)
- Sediment type (size, description, coating)
- Organics (amount, type)
- Rock type of nearby outcrops
- Signs of mineralization, alteration
- General comments (contamination, vegetation, etc.)

Access into the survey area was provided by four-wheel-drive vehicles, by boat, and on foot.

SAMPLE PREPARATION

The stream sediment and soil samples were dried at room temperature for approximately 24 hours. The dried samples were then sieved to -80 mesh with the fine fraction weighed for analyses. Rock chip samples were crushed, pulverized, and weighed for each respective analysis. The larger 5 kg stream sediment sample was panned with an automatic panner to a final weight of 80 grams and the concentrate shipped to the Oregon State Office of the Bureau of Land Management.

ANALYTICAL METHODS

Procedures

Each stream sediment, rock chip, and soil sample was analyzed for the following suite of elements: Au, Ag, As, Ba, Be, Hg, Cu, Mn, Mo, Pb, Zn, Sn, and U.

Samples for gold were analyzed by combined fire assay/atomic absorption techniques which allows for greater sensitivity over conventional atomic absorption spectroscopy. Thirty grams of sample is fluxed, inquarted with palladium, fused, and cupelled. The dore bed is subsequently digested in aqua regia, gold is concentrated in MIBK organic solvent, and analyzed on a dual-beam, background-corrected atomic absorption spectrophotometer.

Silver was analyzed by atomic absorption spectroscopy. Each sample was digested in aqua regia and taken to a moist residue. The residue was then treated with HCI and an acetate buffer and brought to volume. The sample was then aspirated into a dual-beam atomic absorption spectrograph.

Arsenic was determined colorimetrically. One gram of each sample was digested in boiling $HClO_4/HNO_3$ and brought to volume. An aliquot was taken and reduced with diluted KI, $SnCl_2$, and HCl solutions. Granular zinc was then added and the arsine gas driven through a scrubber containing lead acetate into a cuvet containing a pyridine/silver diethyldithiocarbomate solution. The solution is then placed in a Bausch and Lomb Spectronic 21 spectrophotometer and the percent transmittancy recorded at the appropriate wavelength.

A .5 gram sample was fused in a graphite crucible using lithium metaborate as a fluxing agent for the analysis of barium. The resultant bead was poured directly into a bottle containing 10 percent HCl. The sample was then brought to volume and an aliquot spiked with KCl. The analysis was made by atomic absorption spectroscopy.

A .5 gram sample was used in the analysis for beryllium. Each sample was fused with lithium metaborate. The fusion bead is then digested in acid, brought to volume, chelated with hydroxy-8-quinoline, and then analysed using a dual-beam, background-corrected atomic absorption spectrophotometer.

Mercury analysis was determined using a dual-beam, background-corrected atomic absorption spectrophotometer after a cold vapor hydride reduction. One gram of sample was digested in HNO_3/H_2SO_4 acids and taken to volume. It was then placed in a reaction vessel and injected with a solution of sodium borohydride. The resultant mercury vapor gas was then measured in the quartz cell on the atomic absorption unit.

One-half gram was used in the analysis of copper, molybdenum, lead, and zinc. The sample was digested in $HClO_4/HNO_3$ and brought to volume. Analysis was then performed by atomic absorption spectroscopy. Molybdenum was concentrated by solvent extraction prior to AA analysis.

Manganese values were determined by digesting .5 grams of sample in hydrofluoric, perchloric, and nitric acids. Each sample was then brought to volume and analysis was performed with a dual-beam, background-corrected atomic absorption spectrophotometer.

A one gram sample was used in the determination of tin. The sample was sublimed with ammonium iodide, digested in hydrochloric acid, and a solvent extraction was used to concentrate tin for analysis by colorimetric methods.

Uranium values were obtained by fluorimetric methods. One-half gram of sample is digested in nitric and hydrofluoric acids and taken to dryness. The residue was then brought up to volume with nitric acid and the uranium extracted using ethyl acetate. An ethyl acetate aliquot was added to $Na_2 CO_3$ + $K_2 CO_3$ + NaF flux and fused for analysis by fluorimetry.

Quality Control

Quality control was maintained throughout the entire procedure using the following guidelines. Every twentieth sample was a repeat of a previous sample from weighing through analysis. Every group of 40 samples contained one NBS, USGS, Canadian government, or in-house standard and one reagent blank. Standards were checked to ensure that values were within the range reported by the issuing authority for each element. Reagant blanks were analyzed to ensure that no reagant contamination had occurred. Repeat samples were used to monitor analytical subsampling errors and analytical precision. The quality control procedures ensure precision well within ± 15% at the 95% confidence level generally accepted for geochemical analysis.

DATA BASE DEVELOPMENT

Stream sediment sample sites were digitized from the U.S. Geological Survey 7 1/2' topographic maps used in the field and the locations were subsequently combined with the geochemical analyses. From this data base, the mean, standard deviation, minimum, maximum, range, correlation coefficients, frequency distribution histograms, and cumulative probability plots were calculated for each element on both an arithmetic and log transformed basis. The log transformed data more accurately describe the distribution of the sample results and were used in the development of the stream sediment isogeochemical maps. This data is included as Appendix A.

The data created from the above processing were used in the geostatistical analyses. They can be further manipulated to create contour maps, profile plots, or perspective plots.

RESULTS

The stream sediment analyses were plotted as single element maps, but in the case of silver, beryllium, tin, and molybdenum only those values greater than detection limit were plotted. Summary statistics for each of the log transformed elements is presented in Table 2a. Summary statistics for the untransformed data is presented in Table 2b.

The soil and rock chip geochemical results were not statistically processed because the limited number of samples collected prohibited the separation of background from anomalous populations. The soil traverses are presented in Figures 9 through 12 with elements considered anomalous listed beside the corresponding sample number. Threshold values were chosen to highlight specific elements or groups of elements. A complete listing of the stream sediment, soil, and rock chip analytical results can be found in Appendix D.

Table 2a.
Log Transformed Summary Statistics for Stream Sediment Results
(values in ppm unless otherwise noted)

Element	Geometric Mean	Log Standard Deviation	Minimum	Maximum	Anomaly Threshold
Au (ppb)	2	.346	2	57	10
Ag	*	*	*	5	*
As	6	.254	1	78	19
Ba	566	.101	200	2250	900
Be	*	*	*	*	*
Hg (ppb)	1	.333	1	15	4
Cu	27	.206	4	97	70
Mn	640	.161	130	9740	1345
Mo	*	*	*	14	*
Pb	10	.147	3	56	20
Zn	71	.146	19	530	139
Sn	*	*	*	12	*
U	.7	.257	.1	4	2.3

*Due to the non-variability of the data these parameters are statistically invalid and are not used in the study.

Table 2b.
Untransformed Summary Statistics for Stream Sediment Results
(values in ppm unless otherwise noted)

Element	Mean	Standard Deviation	Minimum	Maximum	Anomaly Threshold
Au (ppb)	3	3	2	57	9
Ag	*	*	*	5	*
As	7	5	1	78	17
Ba	578	136	200	2250	850
Be	*	*	*	*	*
Hg (ppb)	1	1	1	15	3
Cu	29	12	4	97	53
Mn	682	239	130	9740	1160
Mo	*	*	*	14	*
Pb	11	3	3	56	17
Zn	75	27	19	530	129
Sn	*	*	*	12	*
U	.8	.4	.1	4	1.6

*Due to the non-variability of the data these parameters are statistically invalid and are not used in the study.

Stream Sediments

Gold (Plates A-1, A-11)

As is the case with gold in stream sediments, gold values were extremely sporadic in the survey area. A natural separation process, due to the greater density of clastic particles of gold, takes place in the stream sediment environment. This separation, often called the nugget effect, ideally requires that large samples be taken to accurately portray gold concentrations. However, since widely spaced stream sediment samples were taken in this survey, single sample anomalies must be considered significant. Moreover, the absence of high gold values does not preclude the possibility of potential gold deposits in an area and it is advisable to pay close attention to the presence or absence of chemically dispersed pathfinder elements such as As, Hg, Ag, Ba, Cu, Ag, and Zn.

The most prominent cluster of elevated gold values occurs in Area B along Red Butte Canyon in T25S, R43E where gold results range between 15 and 28 ppb. This area also lies adjacent to the Red Butte gold anomaly. Notable gold values are scattered elsewhere across Area B, but generally exhibit a lithologic preference whereby higher values are concentrated in the volcaniclastic and sedimentary rocks of the Deer Butte and Grassy Mountain Formations.

Gold in Area A ranges from a detection limit of 2 ppb to a high of 55 ppb. The only apparent generalization is that greater values tend to be found in basaltic and andesitic rocks belonging to the unnamed igneous complex and the Strawberry Volcanics.

Silver (Plate A-XXIII)

All samples were below the detection limit of .1 ppm except for sample 503 in Area B, which contained 4.9 ppm silver. Rock types present at this location include Owyhee Basalt and sedimentary rocks of the Deer Butte Formation which are cut by a north trending normal fault (see Geologic Map, Plate II). Analysis of the heavy mineral sample, at a later date, should help to verify the existence of this anomaly.

Arsenic (Plates A-III, A-IV)

Anomalous arsenic follows gold with the largest grouping of significant values found in the southeast corner of Area B near Red Butte Canyon. At this locality the majority of results are in the 20 to 30 ppm range. Other regions of interest in Area B include Harper Basin, Oxbow Basin, Rock Spring Canyon, and the drainages which cut the Grassy Mountain Formation northwest of Grassy Mountain. Arsenic in Area A shows a clear affinity with the pre-Cenozoic assemblage of rocks, but due to the limited areal extent of these lithologies the samples collected may reflect regional background concentrations and not be indicative of mineralization. The close association of gold with arsenic in numerous ore deposits, in particular bulk tonnage gold deposits in Nevada, is well documented in the literature (for instance, Radtke and others, 1980, and Bonham and Giles, 1983).

Barium (Plates A-V, A-VI)

There are two major barium anomalies, both in Area B. The first anomaly includes a number of samples collected at Oxbow Basin, southeast of Grassy Mountain, where barium reaches 2000 ppm in sedimentary and volcaniclastic rocks of the Deer Butte Formation. Another grouping of anomalous values is present in the southeast corner along Red Butte Canyon. Once again, barium up to 2000 ppm is found in clastic rocks of the Deer Butte Formation. Barite as a hydrothermal mineral is present in a variety of ore deposit types and is stable in many environments.

Beryllium (Plate A-XXIV)

All but five samples for beryllium were below the detection limit of .1 ppm. These samples range in value from .1 to .2 ppm, are located in Area B, and are randomly distributed in varying lithologies.

Mercury (Plates A-VII, A-VIII)

The variability of mercury is extremely low given a detection limit of 1 ppb and a high of 15 ppb. The most significant grouping of mercury is found adjacent to the Red Butte gold anomaly along Red Butte Canyon in the southeastern corner of Area B. Sedimentary and volcaniclastic units of the Deer Butte Formation underlie this region. Low level anomalous concentrations for mercury in Area B are also present within the rocks of the Grassy Mountain Formation in Harper Basin. No mercury values exceed 2 ppb in Area A.

Copper (Plates A-IX, A-X)

Area B contains the largest copper values which are primarily confined to mafic and sedimentary rocks of the Deer Butte Formation near Hoodoo Creek. Several anomalous copper values are randomly distributed across Area A. In either area the copper values are all less than 100 ppm.

Manganese (Plates A-XI, A-XII)

Anomalous manganese is present throughout the survey area with the highest values occurring in mafic rocks of the unnamed igneous complex or Strawberry Volcanics along the eastern half of Area A. Here values range between 1300 and 9700 ppm. The distribution of manganese over Area B cannot be grouped on the basis of lithology or structural features.

Molybdenum (Plates A-XIII, A-XIV)

Molybdenum values are generally less than 5 ppm with a few areas showing weak to moderate enrichment. The largest value, 14 ppm, is found near faulted rocks of the Deer Butte Formation adjacent to Oxbow Basin in Area B. Elevated molybdenum values in Area A appear to be spatially related to the pre-Cenozoic sedimentary rock assemblage.

Lead (Plates A-XV, A-XVI)

Lead geochemical results to 50 ppm are restricted to sedimentary rocks of the Deer Butte and Grassy Mountain Formations along Red Butte Canyon and the combined Oxbow-Sourdough drainage basin system, respectively. These sedimentary units may represent a more porous medium through which hydrothermal fluids were able to migrate. In Area A higher values are found in close association with the pre-Cenozoic rocks.

Zinc (Plates A-XVII, A-XVIII)

The distribution of zinc in Area A is fairly uniform with a range of values between 100 and 150 ppm. However, stream sediments from drainages within the Mesozoic sedimentary section are enriched in zinc with values to 530 ppm. Zinc in Area B, follows copper inasmuch as the Hoodoo Creek area is highlighted for each of the elements. One interesting point to note is the higher regional background levels for zinc in mafic rocks of Area A (100-150 ppm) as opposed to mafic lithologies of Area B (50-100 ppm).

Tin (Plates A-XIX, A-XX)

The majority of samples were below the detection limit of 1 ppm for tin. Several stream sediment values which do exceed the detection limit range between 2 and 14 ppm. Within Area A these samples are distributed in a random fashion across rocks assigned to the unnamed igneous complex and the Strawberry Volcanics. Elevated levels of tin also occur within the Juniper Creek catchment basin and the Rock Spring Canyon area, both in Area B. Dissimilar lithologies are hosts for these two anomalies.

Uranium (Plates A-XXI, A-XXII)

The geochemical results for uranium are generally low, with a high of 4.1 ppm. A small grouping of anomalous values is present in Area B south of Quartz Mountain. This anomaly is adjacent to the gold, arsenic, barium, mercury, and lead anomaly associated with clastic rocks at Red Butte Canyon. Single sample anomalies exist elsewhere within the survey area but appear to be less significant.

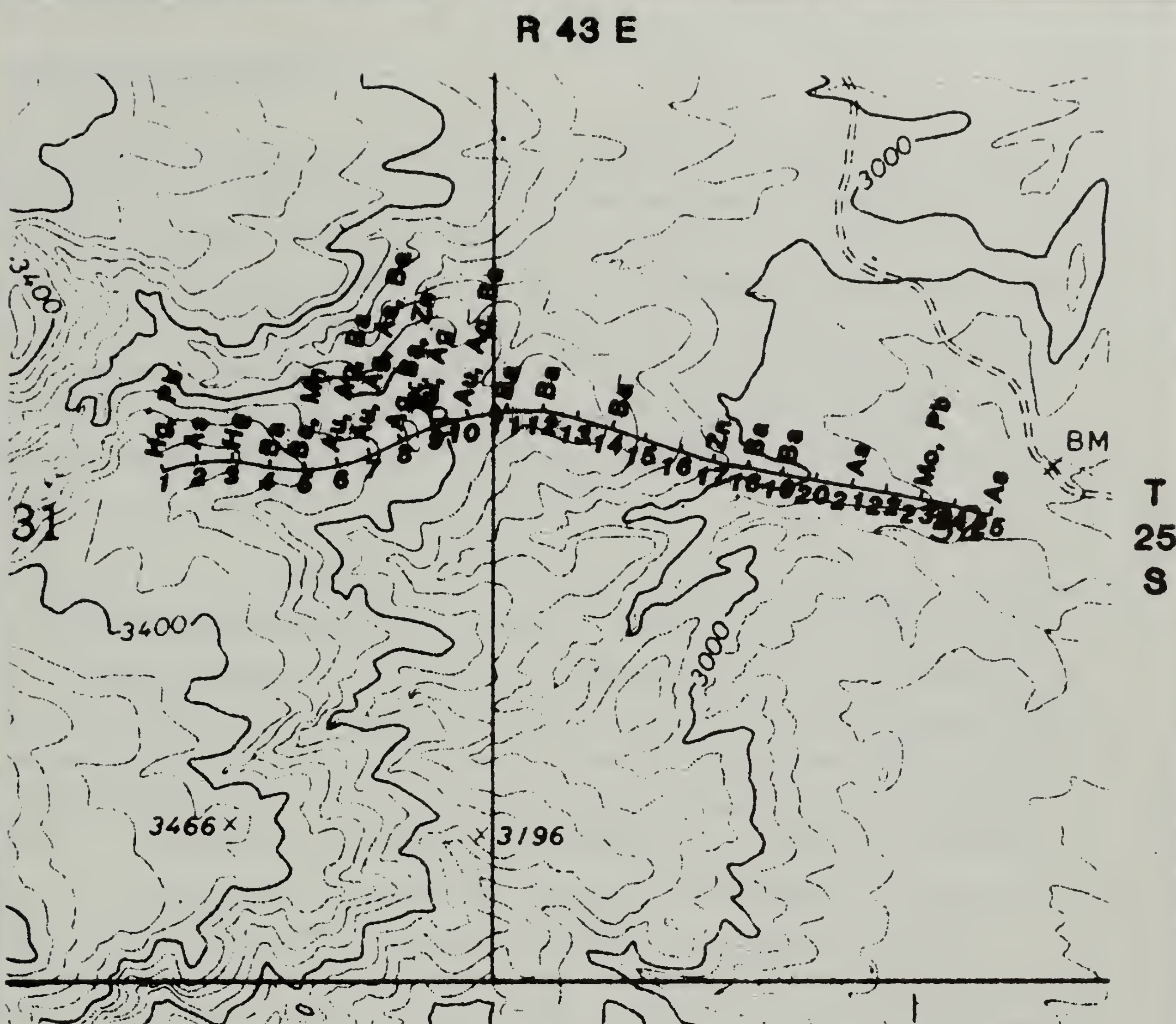
Soil Samples

A total of 105 residual soil samples were collected from four soil traverses, A through D, three in Area B and one in Area A, over areas considered to be anomalous based on the stream sediment geochemistry. The sampling interval was 200 feet in all cases. Results of the geochemical soil analyses can be found in Appendix D.

Traverse A (Figure 9)

Twenty-five samples were taken from an east to west line that crosses sections 31 and 32, T25S, R43E near Red Butte Canyon in Area B. This traverse was chosen on the basis of the strong responses yielded by the stream sediments in gold, arsenic, barium, mercury, and lead and on its similar geology and close proximity to the gold anomaly at Red Butte. The bedrock geology of Traverse A includes an interbedded sequence of limonitic claystone, siltstone and coarse-grained sandstone that is tuffaceous in composition, and contains thin intercalated basalt flows, all belonging to the Miocene Deer Butte Formation.

The geochemical results from Traverse A outline a silver, gold, barium, mercury, and arsenic anomaly from sample A-4 through A-12. Elevated silver values to 6.5 ppm and gold to 340 ppb define the zone of strongest enrichment with arsenic, barium, and mercury forming a broad geochemical halo on either side. Rock chip samples taken in the immediate area were also anomalous in arsenic with concentrations near 100 ppm (see Appendix D). The base metal suite of elements, copper, lead, and zinc, with molybdenum, manganese, beryllium, tin, and uranium were at background levels.



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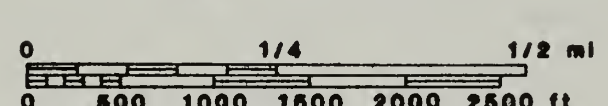
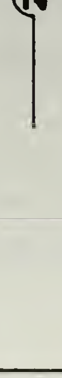




LOCATION OF SOIL TRAVERSE A, AREA B, ANOMALOUS ELEMENTS HIGHLIGHTED, N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 9

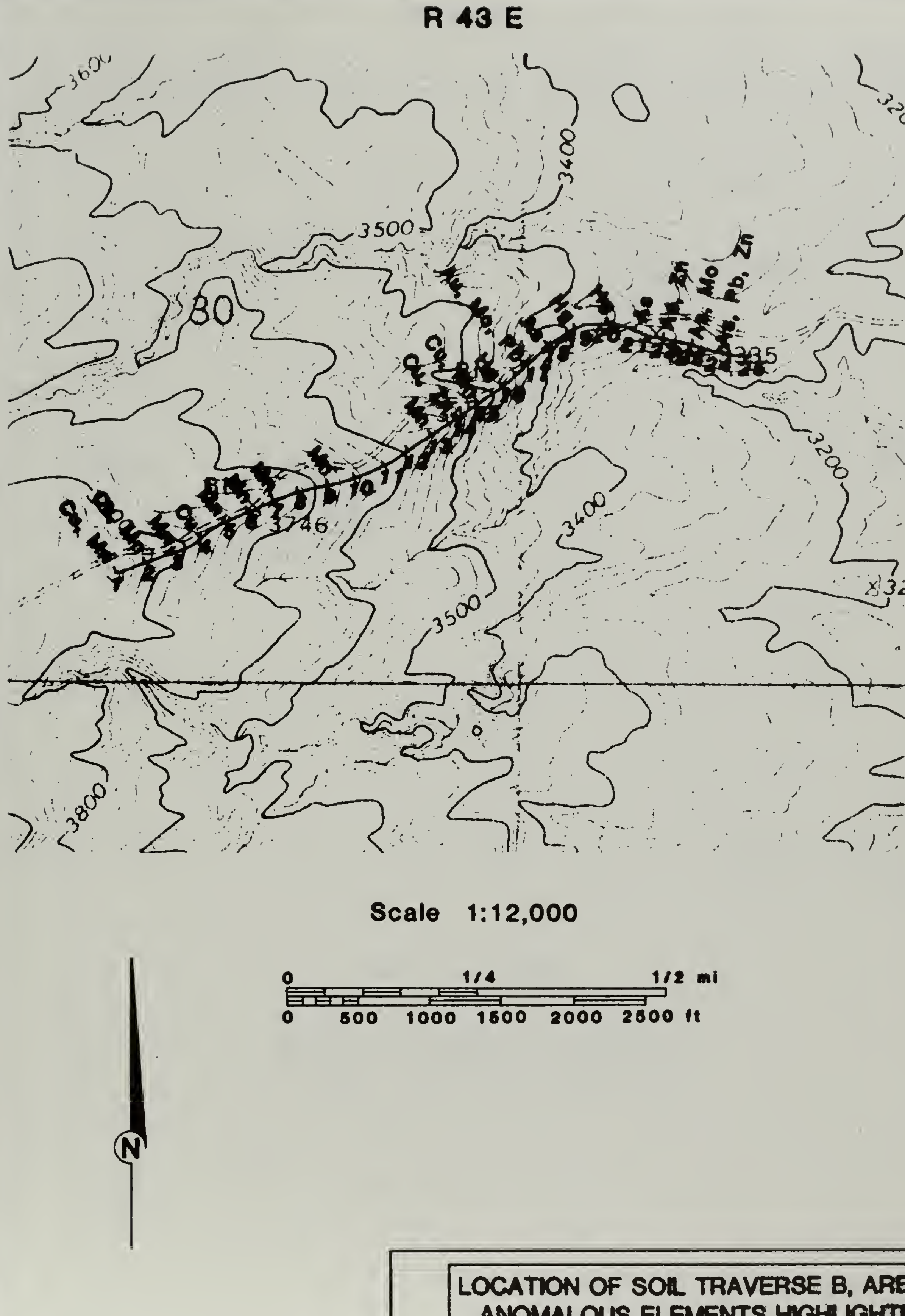
Traverse B (Figure 10)

Traverse B was positioned across the gold, arsenic, barium, mercury, lead, and molybdenum stream sediment anomaly near Red Butte Canyon one mile northwest of Traverse A in section 30, T25S, R43E. Once again, a total of 25 samples were collected. Rock types present here consist of limonitic claystone, tuffaceous cross-bedded sandstone, and intercalated basaltic flows of the Deer Butte Formation that strike southwest to northeast and dip to the northwest. A thick mantling of soil obscures most bedrock features here.

Geochemical relationships along Traverse B are somewhat similar to those encountered in Traverse A, where a good correlation exists between gold, arsenic, barium, and mercury. However, of these elements only arsenic and mercury concentrations are of comparable magnitude; gold and silver on the other hand reach concentrations that barely exceed each respective detection limit. A zonal distribution of elements is readily apparent from the data with samples B-1 through B-15 showing elevated copper and manganese followed by elevated values in gold, arsenic, barium, mercury, and lead in samples B-16 through B-25. Rock chip sample RC-5, a limonitic sandstone taken near sample B-16, yielded 80 ppb gold, 88 ppm arsenic, and 1020 ppm barium which tends to support the above observation. Silver, beryllium, molybdenum, zinc, tin, and uranium cannot be assigned to either interval.

Traverse C (Figure 11)

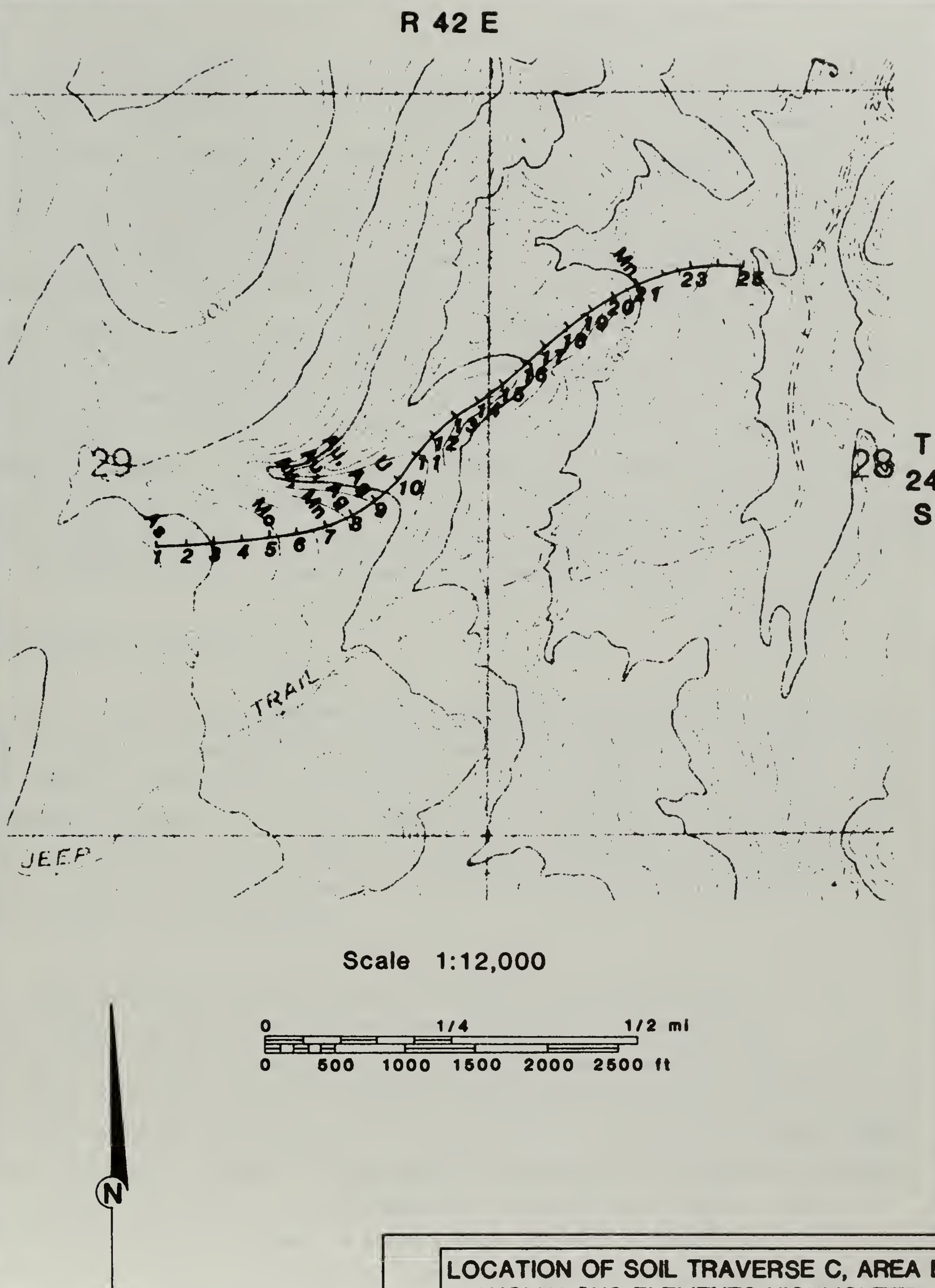
The third traverse in Area B crosses the catchment area containing the greatest stream sediment tin concentrations. From southwest to northeast 25 soil samples were taken in sections 29 and 28, T24S, R42E in hopes of explaining the tin occurrence. Underlying this region is the Antelope Flat Basalt of Pliocene age consisting of interbedded vesicular basalt flow and volcaniclastic sediments.



LOCATION OF SOIL TRAVERSE B, AREA B, ANOMALOUS ELEMENTS HIGHLIGHTED, N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 10



LOCATION OF SOIL TRAVERSE C, AREA B,
ANOMALOUS ELEMENTS HIGHLIGHTED,
N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

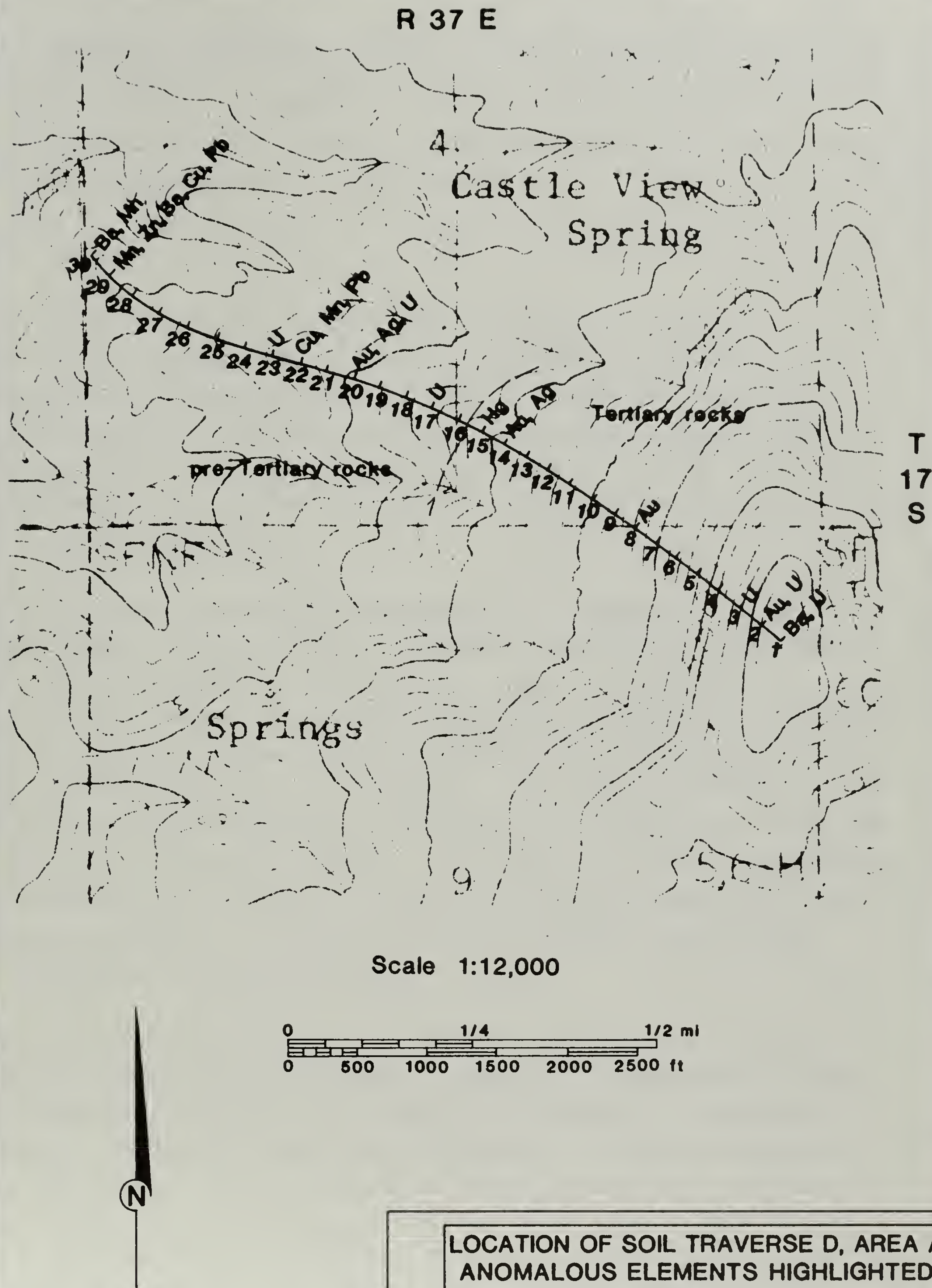
Figure 11

The soil geochemistry did not pinpoint the source of the tin stream sediment anomaly, in fact all soil and rock chip samples were below the detection limit of 2 ppm. One explanation to consider is the nugget effect, a process that generally affects gold, whereby mineral grains are preferentially concentrated in the stream sediment and often times drastically different geochemical values are reached through multiple analysis of the same sample. This process may have selectively concentrated grains of cassiterite in stream sediments near Traverse C giving anomalous sediment tin results that are not seen in the soil, a possiblity that could be confirmed by analysis of the heavy mineral samples. One interesting feature to note, however, is the interval from C-1 to C-9 where gold reaches 56 ppb and silver 3.1 ppm. Also, arsenic and barium exhibit higher values to each side, a similar pattern to that found in Traverse A.

Traverse D (Figure 12)

In Area D, 30 soil samples were collected over an assemblage of Tertiary and pre-Tertiary rocks from sections 4 and 9, T17S, R37E in order to investigate an arsenic, zinc, and copper stream sediment anomaly. This traverse crosses flow-foliated rhyolitic rocks of the Tertiary Dinner Creek Welded Ash-Flow Tuff passing then into a thick interval of pre-Cenozoic dark sandstones, siltstones, and graywacke.

At this location, the soil data reveal a dramatic shift in base-level concentrations of most elements once sampling progressed into the pre-Cenozoic section near sample site D-16. Silver, arsenic, mercury, copper, manganese, molybdenum, lead, and particularly zinc geochemical results are consistently above those found in the previous soil sampling traverses which were confined to Tertiary volcanic and sedimentary rocks exclusively. The elevated values in these elements may reflect a shift in background concentrations for the pre-Cenozoic rocks and not be indicative of mineralization, although sample D-14 ran 199 ppb gold and 2.5 ppm silver with sample D-20 yielding 514 ppb gold and 2.6 ppm silver. Both anomalous samples may be



LOCATION OF SOIL TRAVERSE D, AREA A, ANOMALOUS ELEMENTS HIGHLIGHTED, N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 12

structurally influenced. Sample D-14 was collected near the contact between the pre-Cenozoic rocks and the basal non-welded cooling unit of the Dinner Creek Welded Ash-Flow Tuff. Projection of a north trending high-angle fault into the area crosses Traverse D nèar sample D-20.

Rock Chips

Thirty-five rock chip samples were collected at various locations throughout Area A and Area B with the intent of characterizing mineralized and unmineralized rock types and their geochemical relationships to the stream sediment and residual soil results. A lithologic description of each rock chip sample is provided in Table 3. The geochemical results can be found in Appendix D.

An unaltered rock sample representative of each of the major formations or map units was collected, although varying degrees of limonitic staining, clay content, and the attendant geochemical values of volcanic sandstones belonging to the Deer Butte Formation (RC-5, RC-25, RC-28) may be indicative of localized hydrothermal alteration. Only rock chip RC-11 contained visible sulfides that appear as disseminated blebs of pyrite in a siliceous matrix. This rock was a grab sample from an exposed vein adjacent to a north-trending diabase dike that crosses sections 1, 12, and 13, T23S, R43E and ran 600 ppm arsenic with 16 ppm molybdenum.

Several generalizations can be made concerning the rock chip data and they are as follows: 1) the mafic assemblage of rocks including the Antelope Flat Basalt and basalts of the Grassy Mountain Formation, Deer Butte Formation, and the Strawberry Volcanics tend to be enriched in copper, manganese, and zinc, 2) mafic rocks of the Strawberry Volcanics in Area A show higher zinc and manganese values than do mafic rocks of Area B, and 3) volcaniclastic and sedimentary rocks of the Grassy Mountain Formation, the Deer Butte Formation and the Antelope Flat Basalt are anomalous in gold, arsenic, mercury, and molybdenum with respect to the mafic rocks.

Table 3. Rock Chip Sample Discriptions

Sample No.	Description	Location
1	Volcanic Ash; white, clay rich. Abundant calcite coating fractures (Antelope Flat Basalt).	NW1/4, sec. 28, T24S, R42E
2	Basalt; brown, vesicular, clay minerals filling some vesicles (Antelope Flat Basalt).	NW1/4, sec. 28, T24S, R42E
3	Sandstone; light-brown, tuffaceous, contains quartz and basaltic fragments (Antelope Flat Basalt).	NW1/4, sec. 28, T24S, R42E
4	Jasperoid; brown, appears as weathered fragments in many places. This sample was float (Deer Butte Formation).	SW1/4, sec. 30, T25S, R43E
5	Sandstone; yellow-brown, tuffaceous, limonitic. Cross-bedded in outcrop (Deer Butte Formation).	SE1/4, sec. 30, T25S, R43E
6	Sandstone; yellow-gray, coarse-grained, somewhat limonitic. Contains cherty inter-bedded conglomeratic intervals (Deer Butte Formation).	NE1/4, sec. 31, T25S, R43E
7	Jasperoid; brown, highly fractured with quartz along fracture surfaces. Not found in outcrop (Deer Butte Formation).	NE1/4, sec. 31, T25S, R43E
8	Siltstone; light-brown, silicified, fractured. Minor limonitic staining (Deer Butte Formation).	NE1/4, sec. 31, T25S, R43E
9	Claystone; light-brown, silicified in places (Deer Butte Formation).	SE1/4, sec. 32, T25S, R43E
10	Shale; brown, argillaceous, highly fissile (Deer Butte Formation).	NE1/4, sec. 14, T25S, R43E
11	Vein Material; quartz, pyrite, highly limonitic. Sample taken at shallow prospect pit from vein that parallels basaltic dike.	SW1/4, sec. 1, T23S, R43E
12	Olivine Basalt; black, plagioclase, olivine phenocrysts to serpentine (Strawberry Volcanics?).	NE1/4, sec. 3, T17S, R37E

Table 3. Rock Chip Sample Discriptions (Page 2)

Sample No.	Description	Location
13	Welded Tuff; red-gray, flow layered, pumaceous. Phenocrysts of feldspar in glassy matrix (Dinner Creek Welded Ash-Flow Tuff).	NE1/4, sec. 9, T17S, R37E
14	Non-Welded Tuff: glassy, pumice-rich non-welded cooling unit of the Dinner Creek Welded Ash Flow Tuff. Highly limonitic.	SE1/4, sec. 4, T17S, R37E
15	Sandstone; green to black, medium-grained, micaceous. Part of pre-Cenozoic sedimentary section.	SW1/4, sec. 4, T17S, R37E
16	Basalt; red-orange, highly limonitic (Deer Butte Formation).	SW1/4, sec. 4, T25S, R43E
17	Basalt; dark-gray to black, aphanitic, olivine and calcic plagioclase (Grassy Mountain Formation).	SE1/4, sec. 13, T21S, R44E
18	Jasperoid; red-brown, fine-grained, brecciated and resilicified.	SE1/4, sec. 34, T21S, R42E
19	Basalt; dark-gray to black, fine- to medium-grained, olivine and calcic plagioclase (Deer Butte Formation).	SW1/4, sec. 4, T21S, R45E
20	Basalt; dark-gray, aphanitic, olivine, calcic plagioclase, and epidote (Grassy Mountian Formation).	NW1/4, sec. 12, T21S, R43E
21	Basalt; dark-gray, aphanitic, vesicular, olivine and calcic plagioclase (Grassy Mountain Formation).	SE1/4, sec. 34, T22S, R43E
22	Diabase; brown, diabasic texture, calcic plagioclase, olivine, pyroxene, intrusive.	SE1/4, sec. 12, T23S, R43E
23	Sandstone; yellow-brown, fine- to medium-grained, quartz, clays, some biotite (Deer Butte Formation).	SE1/4, sec. 31, T22S, R44E
24	Sandstone; brown, tuffaceous fine-grained, quartz and volcanic detritus (Deer Butte Formation).	NW1/4, sec. 18, T23S, R44E

Table 3. Rock Chip Sample Discriptions (Page 3)

Sample No.	Description	Location
25	Sandstone; light-brown to purple, fine-grained, quartz and volcanic detritus (Deer Butte Formation).	NW1/4, sec. 29, T22S, R45E
26	Sandstone; gray-red, fine- to medium-grained, highly indurated, iron stained (Deer Butte Formation).	NW1/4, sec. 31, T25S, R43E
27	Sandstone; light-gray, tuffaceous, medium-grained, quartz, clay, volcanic detritus (Deer Butte Formation).	SW1/4, sec. 34, T24S, R42E
28	Sandstone; white-gray, tuffaceous, medium- to coarse-grained, quartz, clay, volcanic detritus (Deer Butte Formation).	NW1/4, sec. 31, T24S, R43E
29	Sandstone; tan-white, arkosic, medium-grained, quartz and feldspar clasts, some mafics (Deer Butte Formation).	SE1/4, sec. 31, T24S, R43E
30	Basalt; dark-gray to black, aphanitic, dense (Grassy Mountain Formation).	SE1/4, sec. 3, T21S, R43E
31	Conglomerate; gray, arkosic, quartz, feldspar, clay, with some mafics (Grassy Mountain Formation).	SW1/4, sec. 7, T22S, R44E
32	Breccia; red-brown, angular clasts of fine-grained sandstone in siliceous matrix.	NE1/4, sec. 16, T23S, R42E
33	Claystone; tan, iron staining is fairly abundant (Deer Butte Formation).	NE1/4, sec. 33, T22S, R44E
34	Rhyolite; gray-pink, flow foliated, glassy, spherulitic (Littlefield Rhyolite).	NE1/4, sec. 6, T24S, R42E
35	Rhyolite; red-gray, flow foliated, chalcedony along foliation surfaces (Littlefield Rhyolite).	SW1/4, sec. 19, T23S, R42E

GEOSTATISTICS

INTRODUCTION

The use of geostatistical analysis has gained increased recognition in the geological sciences as more applications have been developed. Geostatistics has become an effective tool in the interpretation of geological, geochemical, and geophysical data used in mineral and energy exploration. Two statistical techniques were employed to aid in the interpretation of the Northern Malheur Resource Area, Factor Analysis and Discriminant Analysis. It should be noted that the geostatistical analysis does not define a mineral deposit, rather, it indicates where mineralization may logically be expected to occur. Further detailed work is required to address the aspects of any such mineralization.

FACTOR ANALYSIS

Methods

The following discussion on factor analysis procedures draws heavily from work conducted by Barringer Resources Inc. on a previous Bureau of Land Management stream sediment, mineral assessment survey conducted in northern Nevada (Connors and others, 1982). Due to their non-variability silver, beryllium, and tin were excluded from the data set, and not utilized in the processing.

The interpretation of a large number of geochemical results can be a time consuming task if all the data are to be considered individually. The method of R-mode factor analysis used here allows a large number of geochemical results to be simplified into a smaller number of "factors", each representing a linear combination of the original suite of elements which reflects the original interelement correlation matrix using the method of principal factoring with iteration (Nie et al., 1975).

Each factor is extracted in such a way that the first of these new variables accounts for the greatest part of the overall data variability in terms of the original elements, and succeeding factors account for progressively lesser amounts until a suitable number of element combinations have been established. To completely account for the whole of the variation inherent in the original data set of 582 samples and 10 elements would require as many factors as variables if there was no correlation between the original elements. The greater the interelement correlation, the smaller the number of factors which will be needed to describe the data variability. Careful choice of the number of factors to be extracted allows one to achieve a significant reduction in the number of variables to be mapped while still retaining an adequate description of the data variability.

On the basis of the principal factoring of the geochemical data set, the percentage variation and cumulative percentage variation accounted for by each successive factor up to the maximum possible is shown in Table 4. A solution based on 4 factors which accounts for 58.7 percent of the original data variation was chosen as a suitable model. These factors were extracted using the "oblique rotation" method (Nie et al., 1975). Table 5 shows that the interfactor correlations are all relatively low which implies that each factor is relatively unique. The extent to which one of the original suite of elements is represented in a particular factorial element association is indicated by the "factor loading" (Table 6). A perfect positive or negative correlation between an element and a particular factor would be indicated by a loading of +1 or -1 respectively; loading values close to zero indicate lack of any significant correlation between an element and the factor in question. The extent to which the behavior of an element is accounted for on the basis of all the factors used in the model is indicated by its "communality" value. These are listed for all the elements on the basis of a 4 factor model in Table 7. Communality values close to zero suggest that an element's variability is not well accounted for by the factor model used. This may be attributable to the fact that the element is not significantly correlated with any of the other elements in the data set as a whole. A communality value close to one will reflect an element whose behavior is highly predictable on the basis of the factor model used.

The spatial distribution of the element associations represented by the factors in the model can be mapped by recalculating the sample compositions in terms of the factors. These values are referred to as "factor scores", and will tend to be normally distributed with zero mean and unit standard deviation. Appendix B lists the factor scores for this analysis. Since the signs may be reversed throughout an entire set of scores for a given factor without changing sample relationships, inverse score values are used for convenience in interpretation in some cases (e.g., factor 1, Table 6).

Table 4.

Variation Accounted for by Each of the 10 Factors.

Factor	Percentage of Overall Variance Accounted for by Factor	Cumulative Percentage Variance
1	20.0	20.0
2	15.5	35.5
3	11.8	47.4
4	11.4	58.7
5	9.2	68.0
6	8.6	76.6
7	8.4	85.0
8	6.6	91.6
9	4.7	96.2
10	3.8	100.0

Table 5.

Interfactor Correlations

Factor	1	2	3	4
1	1.000	.151	.046	.037
2	.151	1.000	.013	.156
3	.046	.013	1.000	-.018
4	.037	.156	-.018	1.000

Table 6.

Factor Loadings

Factor	1	2	3	4
Au	.04781	.09512	-.15420	.07508
As	.19530	.84278	.05217	.31576
Ba	.60016	.17525	-.09338	.08138
Hg	.03848	.57492	-.04130	-.06148
Cu	-.91616	.02494	-.05063	-.11000
Mn	-.29231	-.06314	-.07323	.03418
Mo	.00041	.23083	.26599	.32882
Pb	.16945	.05424	-.00927	.26314
Zn	-.39388	-.06953	-.14792	.48190
U	.15267	.07991	.63158	.04902

Table 7.
Communality of Elements, Assume A 4 Factor Model

Variable	Communality
Au	.03814
As	.75139
Ba	.38416
Hg	.35854
Cu	.87723
Mn	.09164
Mo	.21624
Pb	.09501
Zn	.42387
U	.41951

For an in depth discussion on factor analysis the reader is directed to the following articles by Cooley and Lohnes (1962), Meyer, et al., (1979), McCammon (1975), Dawson and Sinclair (1974), Nichol et al., (1969), Joreskog et al., (1976) and Nie et al., (1975).

Results

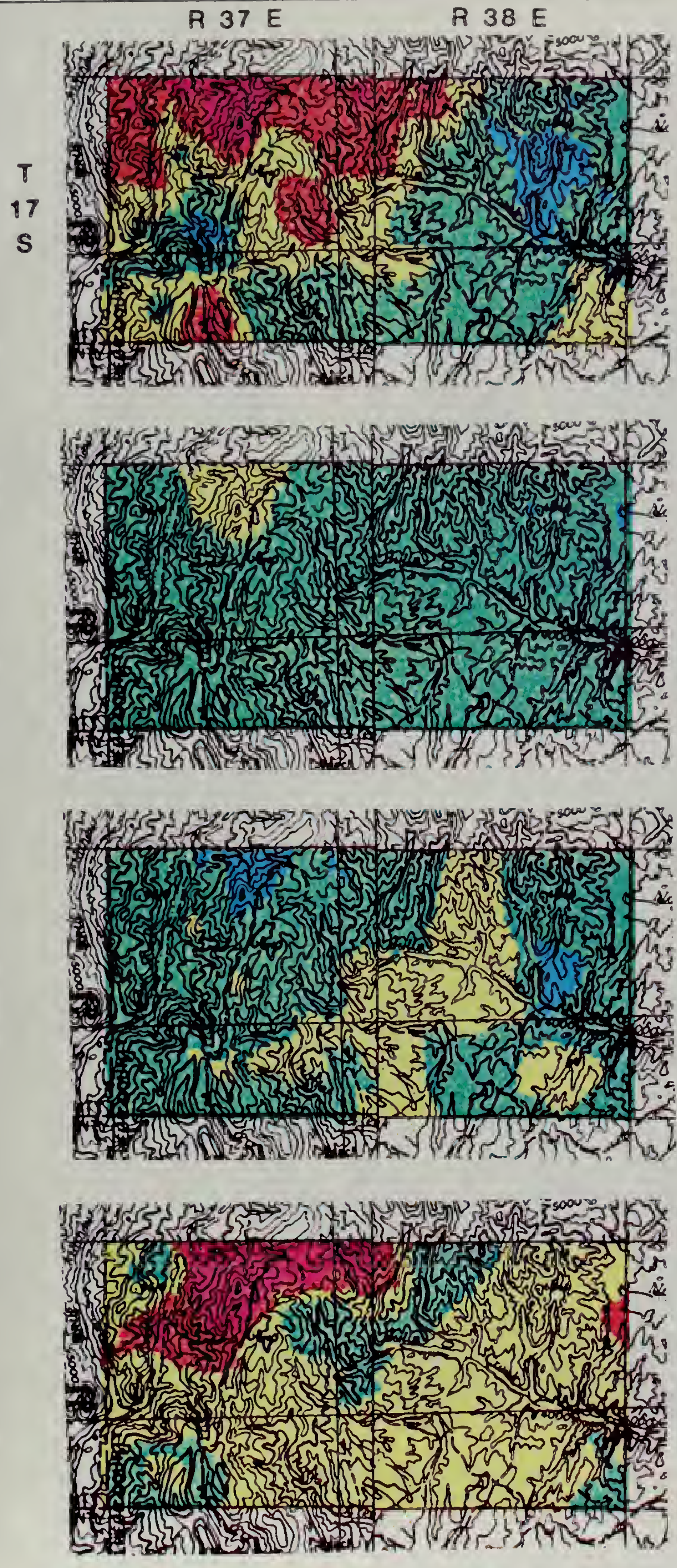
The factor loadings are presented in Table 6. Given the suite of minor and trace elements analyzed, these factors probably reflect some method of chemical concentration whether it be alteration or mineralization as opposed to variations between rock types. Without major element analyses the influence of geochemically distinct lithologies on these factors cannot be determined. The standard normalized factor scores for each factor are presented as color contour maps at a scale of 1:250,000 (Figures 13 through 17). For contouring purposes the sample locations were moved to the center of each drainage basin.

Factor 1 is weighted heavily in copper, zinc, and manganese, an assemblage of elements generally representative of base metal mineralization. However, absorbed copper and zinc on manganese precipitates coating the stream sediments may have also contributed to this factor. Factor 1 is an inverse factor, therefore the higher the negative score the stronger the correlation. Figures 13 and 14 are contour maps of the standard normalized factor scores for each area which highlight the pre-Cenozoic rocks in Area A and rocks of the Grassy Mountain Formation along the northeastern border of Area B. It was established earlier from the soil and rock chip geochemistry that the pre-Cenozoic lithologies display elevated background levels for these elements. This may explain the strong correlation seen in Figure 13.

Arsenic, mercury, and to some extent barium exhibit strong responses in Factor 2. These elements are often used as a guide in the exploration for precious metals where they are enriched many times above background. Red Butte Canyon and Grassy Mountain in Area B show a high degree of correlation with this factor (Figures 13 and 15).

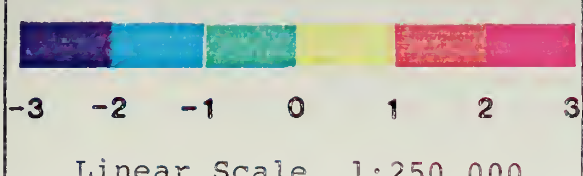
Factor 3 reflects uranium enrichment in the geologic environment which appears to be spatially related to exposures of the Littlefield Rhyolite in Area B (Figures 13 and 16). Uranium together with a number of other lithophile elements is concentrated in the late stage residual liquids of many silicic, rhyolitic systems, generally peralkaline in composition, such as at the McDermitt Caldera complex. Mineralization tends to occur both within receptive country rock and the rhyolitic hosts.

Base metal mineralization is suggested by the elemental association of Factor 4. Zinc and arsenic show a strong response with weak but positive reinforcement by lead. Pre-Cenozoic lithologies of Area A contain the highest positive values, which tend to reflect a shift in background levels that was also emphasized by Factor 1. In Area B the Oxbow Basin comes up strongly with respect to this factor (Figures 13 and 17).



Factor Loadings

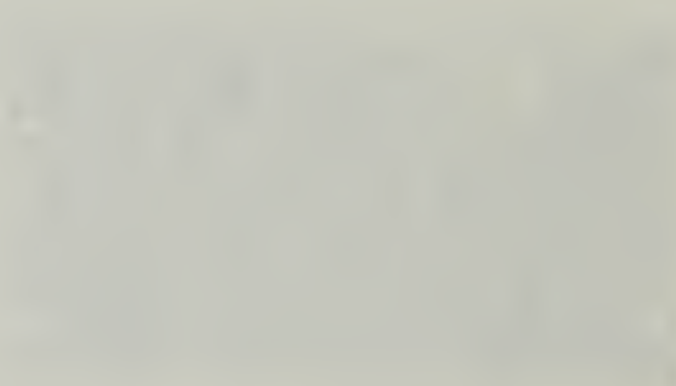
Factor	Element	Loading
Factor 1 (Inverse)	Mn	.29
	Zn	.39
	Cu	.92
Factor 2	Au	.09
	Ba	.17
	Mo	.23
	Hg	.57
	As	.84
Factor 3	Mo	.27
	U	.63
Factor 4	Pb	.26
	As	.32
	Mo	.33
	Zn	.48

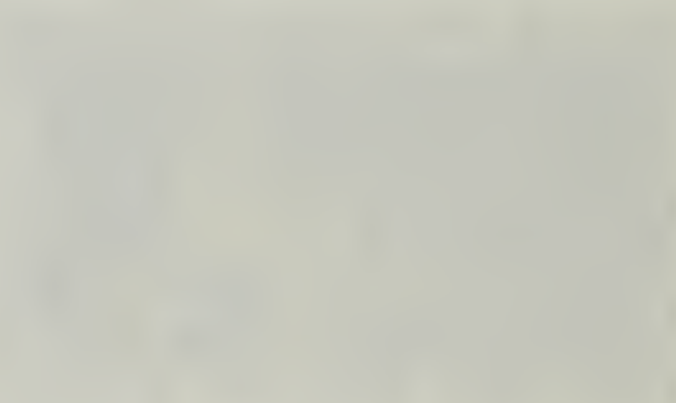


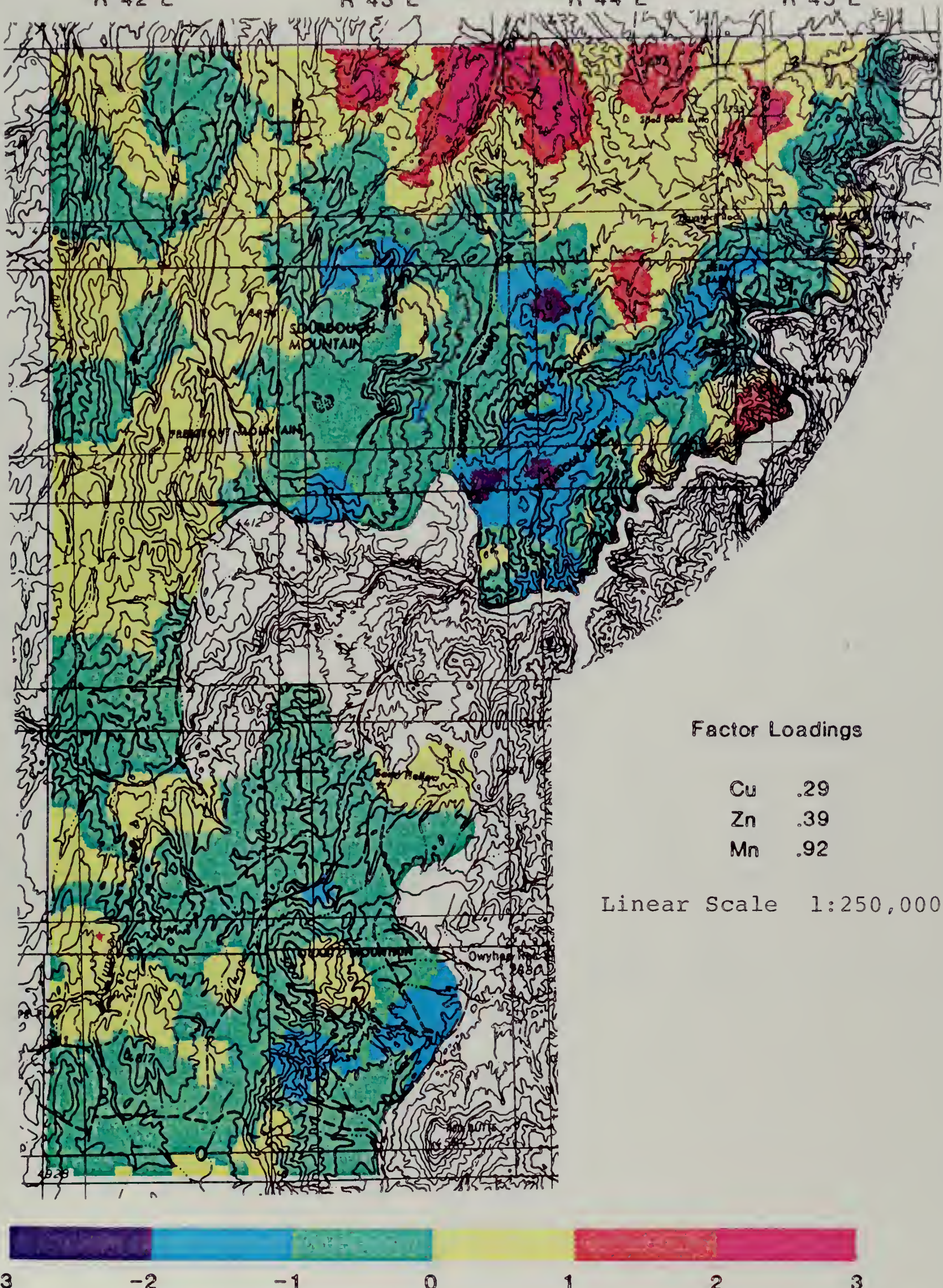
CONTOUR MAP OF FACTOR SCORES FOR EACH FACTOR, AREA A, N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 13



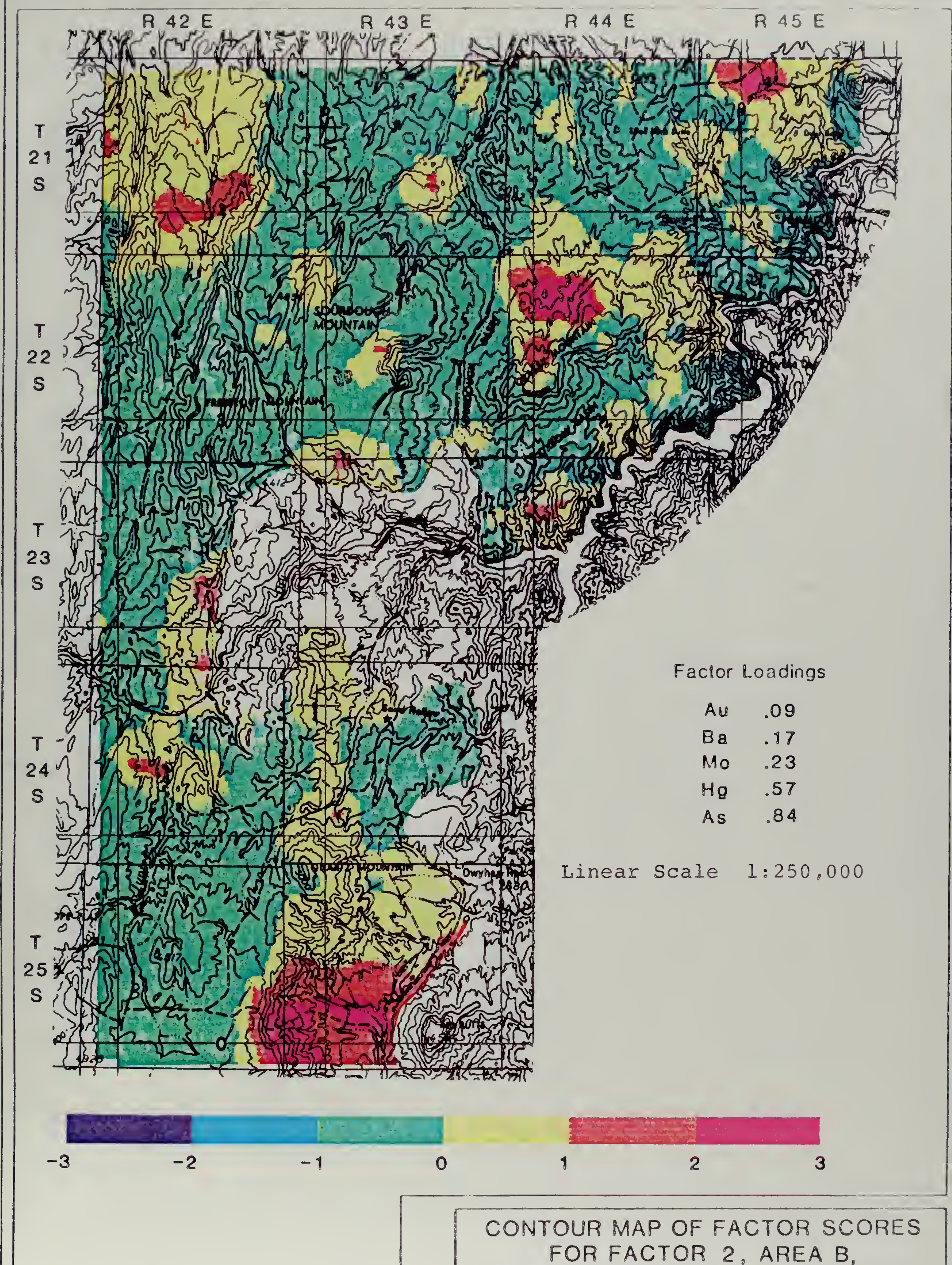




CONTOUR MAP OF FACTOR SCORES FOR FACTOR 1 (INVERSE), AREA B, N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

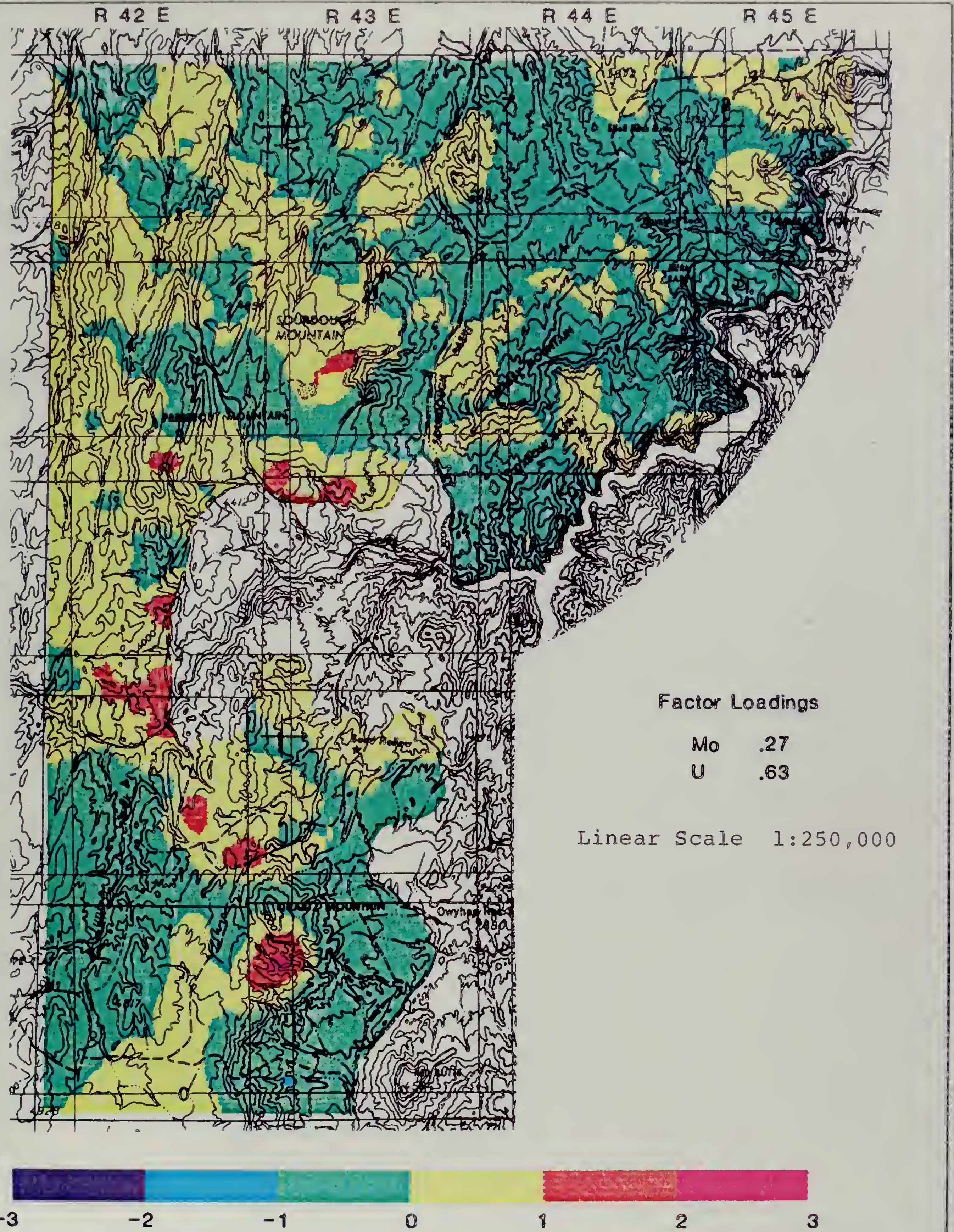
Figure 14



CONTOUR MAP OF FACTOR SCORES FOR FACTOR 2, AREA B, N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

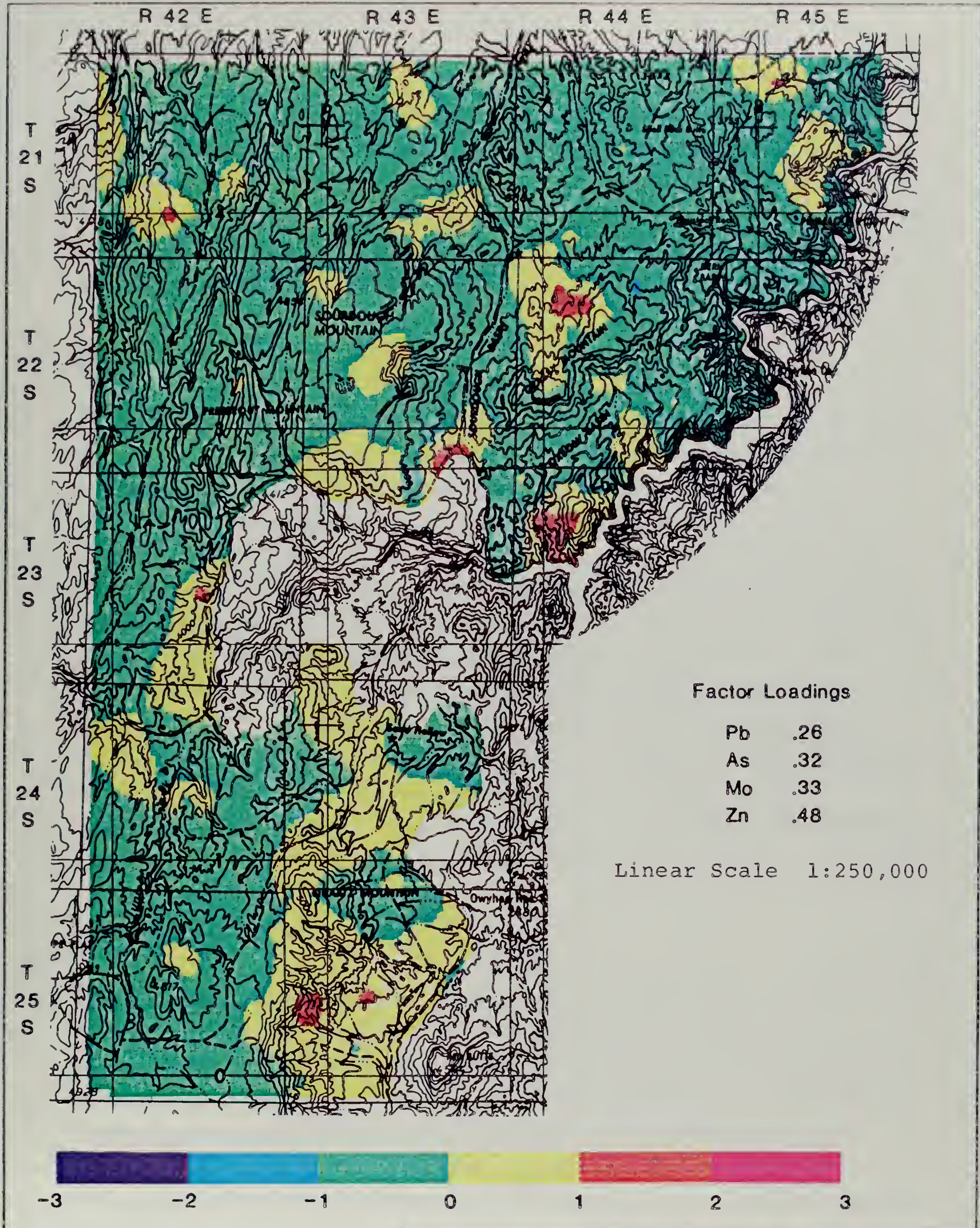
Figure 15



CONTOUR MAP OF FACTOR SCORES
FOR FACTOR 3, AREA B,
N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 16



CONTOUR MAP OF FACTOR SCORES FOR FACTOR 4, AREA B, N. MALHEUR RESOURCE AREA, OREGON

BARRINGER RESOURCES

Figure 17

DISCRIMINANT ANALYSIS

The classification of geological and geochemical data for reconnaissance mapping and mineral exploration can be greatly enhanced by discriminant analysis. This method allows the investigator to use prior geologic, geochemical, or geophysical knowledge of specific areas to aid in the classification of areas with limited information.

Methods

This statistical approach is based on the selection of observed characteristics from a training set that contains information required to classify any new sample or samples of unknown affinity. These training sets may include different rock types, mineralization, hydrothermal alteration, or any other geologic characteristic. The program then sets up decision rules based on the data within each training set from which all samples in the data base are subsequently classified. The exponential form of the polynomial discriminant method of Specht (1967) and Howarth (1973) is used in this analysis. Investigators such as Griffiths (1966), Haynes (1972), Howarth (1971a, 1971b, 1972, 1973), Whitehead and Govett (1974), Castillo-Munoz (1973), and Rose (1972), have helped to develop the many geochemical applications of this statistical technique.

Discriminant Model

Due to the lack of mining districts and associated ore deposits within the survey area it was not possible to construct mineralized training sets. However, the geologic mapping in Area A and Area B is good enough to allow for the creation of lithologically distinct training sets which represent the majority of rock types exposed. A total of nine geologic training areas were designated (G1 through G9). These training areas are described in Table 8. As a result, samples which are not classified on the basis of geologic environments (unknown samples) are considered to be anomalous and possibly the result of mineralization, unique lithology, and/or alteration processes.

Results

All samples within their respective training areas were correctly classified, therefore, each training set was considered unique. A total of 20 samples did not satisfy the geochemical criteria of the nine geologic training areas and were classified unknown. These samples together with the outline of each training area are shown on Plates C-1, C-11. A listing which contains individual sample classifications and their associated probability has also been included in Table C-1, Appendix C.

Two regions in Area B contain groupings of samples classified as unknown. The first area, north of Dry Creek in the Oxbow Basin, is anomalous with repect to barium and was also highlighted by Factor 4 (Zn, As). The second area, Red Butte Canyon which adjoins the Red Butte gold anomaly to the north, exhibits elevated values for gold, arsenic, mercury, barium, and lead and is also targeted by Factor 2 (As, Hg). Volcaniclastic and sedimentary rocks of the Deer Butte Formation underlie each area.

Two adjacent unknown samples are present in sections 24 and 25, T17S, R38E, Area A. The geochemical data does not appear to indicate any peculiarities. This region is mapped as basaltic and andesitic rocks on a regional scale (Walker, 1977), but actually unrecognized or chemically unique lithologies may exist. In any case, the unknown samples should be evaluated individually as there is the potential for untested or possibly undefined types of mineralization.

Table 8. Lithologic Description of Each Training Area

Training Area	Lithology	Number of Samples Used to Classify Training Set	Reference
AREA B			
G1	Antelope Flat Basalt; olivine poor, pyroxene basalt interbedded with volcanic sandstones and conglomerates.	25	Kittleman and others (1965)
G2	Deer Butte Formation (clastic rocks); variegated sequence of volcanic sandstone and shale, arkose, arkosic sandstone, arkosic conglomerate, with granite and chert cobble conglomerate.	8	Kittlemand and others (1965)
G3	Deer Butte Formation (mafic rocks); basalt, coarse-grained, ophitic. Contains approximately 5% olivine.	6	Kittleman and others (1965)
G4	Littlefield Rhyolite; rhyolite, flow foliated with phenocrysts of sanidine, orthoclase, and hypersthene.	8	Kittleman and others (1965)
G5	Grassy Mountain Formation (clastic rocks); pumiceous lapillistone, volcanic sandstone, volcanic conglomerate, arkosic sandstone, and granite cobble conglomerate.	12	Kittleman and others (1965)
G6	Grassy Mountain Formation (mafic rocks); olivine basalt, coarse-grained with interbedded volcaniclastic debris.	13	Kittleman and others (1965)
G7	Owyhee Basalt; basalt, olivine-poor, microporhyritic. Occurs as numerous flows.	9	Kittleman and others (1965)
AREA A			
G8	Pre-Cenozoic Rocks; sedimentary and volcanic rocks, includes graywacke, siltstone, chert, conglomerate, and slate with minor limestone.	5	Walker (1977)
G9	Tertiary Volcanic Rocks; basaltic and andesitic rocks with minor silicic ash-flow tuffs and sedimentary rocks. Rocks belonging to the unnamed igneous complex and the Strawberry Volcanics.	28	Walker (1977)

MINERAL POTENTIAL

The preceding section on mineral deposits outlined metallic and non-metallic commodities that would be expected to occur within the survey area based on a review of regionally important deposit types and their relationship to the geologic environment. Many of the non-metallic resources, however, are not readily assessible by reconnaissance multi-element geochemistry and as a consequence, oil and gas, coal, geothermal and various types of industrial minerals are not addressed in this section. However, a preliminary review of the non-metallic commodities has been made by numerous investigations and unpublished reports filed with the Oregon State Office of the Bureau of Land Management (Newton, 1982; Youngquist, 1982). The following discussion will focus specifically on the potential occurrence of metallic mineral commodities.

This section of the report is an attempt to integrate present geochemical, geostatistical, and geologic data in order to adequately assess the metallic mineral potential of Area A and Area B. With these objectives in mind, the precious metals gold and silver represent commodities with the greatest mineral potential. The survey area exhibits a number of characteristics which make it prospective for precious metals. These characteristics include the following: an extentional structural regime, high heat flow, the presence of active geothermal cells, and permeable host rocks accessible to migrating hydrothermal solutions (for instance, Berger and Eimon, 1982, and Eimon, 1981). Also of note are thick calcite veins in sections 26 and 27, T23S, R44E, originally prospected as a source of optical grade calcite (Lowry, 1943). Calcite veining is a conspicious feature seen in many epithermal vein systems occurring above the zone of precious and base metal deposition (Buchanan, 1981).

As previously discussed, gold mineralization has been recognized at Red Butte, sections 26, 27, 34, 35, T25S, R43E along brecciated fault and fracture zones in the Deer Butte Formation (Gray and others, 1983, Dr. Mike Cummings, Portland State University, oral communication, 1984). Although work by Portland State University is just underway, it appears that Red Butte may represent the vent facies of a mineralized fossil geothermal system. If so, mineralization at Red Butte could be similar in character to several gold deposits of the Republic District, Washington where disseminated gold is hosted in Tertiary lake sediments and is considered by Worthington (1981) to have originated from hot springs solutions. The U.S.G.S. has been and is in the process of investigating similar chemical characteristics, such as trace element geochemistry, fluid temperature, and fluid salinity of precious metal ore deposits and active geothermal systems presently depositing metals, with emphasis on Steamboat Springs, Nevada. Of particular interest is the anomalous trace element signature of gold, silver, arsenic, mercury, and antimony common to both. For a comprehensive review of the subject the reader is directed to articles by White (1981) and White and Heropoulos (1983).

Gold, silver, arsenic, mercury, and barium used as pathfinder elements in the exploration for precious metals (Boyle, 1979) are found in anomalous concentrations from analysis of all sample media collected at Red Butte Canyon. This area also shows the strongest response in Factor 2, a factor dominated by arsenic, mercury, and barium. The Red Butte Canyon anomaly is situated in the southeast corner of Area B, adjacent to Red Butte, and encompasses sections 31, 32, and 33, T24S, R43E and all sections in T25S, R43E that lie within the survey area. The stream sediment, soil, and rock chip data gathered here are of comparable magnitude to the geochemical results obtained at Red Butte as a result of the DOGAMI study (Gray and others, 1983). This, together with the fact that both areas are underlain by volcanic and sedimentary rocks of the Deer Butte Formation, suggests that gold mineralization observed at Red Butte may extend into the Red Butte Canyon anomaly area.

In all, twelve areas were anomalous on the basis of the geochemical analyses and geostatistical techniques applied and are presented in Table 1. Figures 1 and 2 show the generalized outline for each of these anomalies. While it is possible to rank the anomalies and perhaps valuable to do so for some purposes, it should be noted that all twelve areas indicate some demonstrable mineral potential. The mineral potential of each anomaly is discussed below.

Red Butte Canyon (Area B) - Anomalous gold, arsenic, mercury, and barium in the stream sediments with highly elevated values in soil for gold (340 ppb) and silver (6.5 ppm) indicate a potential for precious metals. Red Butte Canyon also exhibits the best response to the precious metal factor, Factor 2 (As, Hg, Ba), and lies adjacent to the Red Butte gold anomaly.

Harper Basin (Area B) - Harper Basin is considered a potential precious metals target based on anomalous stream sediment results in gold, arsenic, and mercury and on the strong correlation with Factor 2. The highest gold value (57 ppb) for the stream sediment survey was recorded here.

Grassy Mountain (Area B) - Stream sediment samples in the Grassy Mountain area were anomalous in arsenic, mercury, and barium. In addition, this area is highlighted by Factor 2 and Factor 4 (Zn, Mo, As). These results indicate a potential for precious metals.

Oxbow Basin (Area B) - The Oxbow Basin anomaly is characterized by elevated stream sediment values for barium, which consistently exceed 1000 ppm, and arsenic. Barium as a hydrothermal mineral is associated with a variety of ore deposit types in volcanic environments. Shallow prospect pits containing sulfides, predominately pyrite, were noted along the western perimeter of the anomaly. The potential for mineralization within the Oxbow Basin anomaly is also supported by results from discriminant analysis with several closely spaced sediment samples being classified as unknown (see Plate C-11).

Rock Spring Canyon (Area B) - The Rock Spring Canyon anomaly is considered favorable for precious metals due to anomalous sediment gold and arsenic results in combination with a strong response for Factor 2.

Hoodoo Creek (Area B) - Hoodoo Creek shows a good correspondence with the base metal suite of elements, copper, lead, and zinc. Factor 1, weighted heavily in manganese, zinc, and copper, also outlines this anomaly. These results could reflect base metal mineralization, although a contribution from mafic rocks may have influenced the geochemical results.

Freezeout Creek (Area B) - Several stream sediment samples enriched with respect to gold are situated within the Freezeout Creek anomaly. This anomaly lacks support from the pathfinder data, but should be considered a potential precious metal target.

Steamboat Creek (Area A) - Within the Steamboat Creek anomaly three contiguous sediment samples yield gold values ranging between 5 ppb and 55 ppb. These gold results are significantly above background for rocks of the unamed igneous complex and the Strawberry Volcanics, which underlie the region (see Plate D-I), and, as a result, there is the potential for precious metals.

Castle Rock Spring (Area A) - The Castle Rock Spring anomaly is similar to the Steamboat Creek anomaly in that each is underlain by mafic rocks of the unamed igneous complex and the Strawberry Volcanics, and both are defined by contiguous stream sediment samples anomalous in gold. Gold values in the Castle Rock Spring anomaly range from 9 ppb to 20 ppb.

Juniper Creek (Area B) - Elevated tin in stream sediments characterizes the Juniper Creek anomaly. Additional soil samples were collected over the area in hopes of explaining the tin anomaly, but all values were non-significant. In any event, additional work is warranted to further evaluate the tin potential.

No Name Creek (Area A) - Two consecutive stream sediment samples in the No Name Creek anomaly were classified unknown by discriminant analysis. Except for manganese, all geochemical results were below threshold levels. These unknown samples may reflect unrecognized rock types, alteration, or mineralization.

Lost Creek (Area A) - Stream sediment and soil samples collected from the Lost Creek anomaly area were enriched in gold, silver, arsenic, copper, lead, and zinc. Gold as high as 514 ppb and silver to 2.6 ppm were recorded from soil samples collected along soil Traverse D. In addition, Factor 1 (Cu, Zn, Mn) and Factor 4 (Zn, Mo, As), which relate various proportions of base metal and base and precious metals, are highlighted. The bedrock geology at Lost Creek consists of a thick sequence of Mesozoic siltstone, sandstone, and graywacke and is quite similar to the geologic environment that hosts important precious metal and base metal deposits in the Blue Mountains.

DISCUSSION AND RECOMMENDATIONS

DISCUSSION

Initially, from a review of the literature, it was felt that important types of mineralization likely to occur in the survey area were gold and silver and to some extent uranium and mercury. As can be seen in Table 1, Figures 1 and 2, six of the anomalous areas which include Red Butte Canyon, Harper Basin, Grassy Mountain, Oxbow Basin, Rock Spring Canyon, and Lost Creek represent areas with considerable precious metals potential. Three others, Steamboat Creek, Castle Rock Spring, and Freezeout Creek, although not classified by the geostatistical processing or highlighted by important elemental combinations, show above background levels for gold in stream sediments. These observations are supported by recent gold exploration activity at Quartz Mountain located within the Red Butte Canyon anomaly in Area B. Recent articles by Erikson (1977) and Rytuba and Glanzman (1979) have outlined favorable geologic characteristics generally associated with uranium and mercury mineralization in eastern and southeastern Oregon. Of these, the presence of silicic eruptive centers is considered most important, as they tend to show a spatial and genetic relationship to ore deposition. This geologic environment, however, is not recognized in the survey area. In addition, the low-level geochemical values in mercury and uranium also suggest limited potential for significant mineralization.

Stream sediments consist of detrital rock material, weathering products, organic debris, and other surficial material transported downslope by stream action and a variety of other mechanical processes. The elements in the stream sediment may have originated from primary and secondary minerals, precipitates from the stream water, and as adsorbed material to Fe and Mn oxides and organic material which in total reflect the geology of the upstream catchment basin (Rose, et al., 1979). These considerations make stream sediment sampling a powerful reconnaissance tool since the expression of even small targets may be wider and easier to locate than mineralized rock. When interpreting individual sample locations, however, allowance for displacement of anomalies must be considered.

As part of the G.E.M. study, rock chip samples from the major lithologic units were collected and analyzed. These data proved extremely useful in geochemically characterizing each rock type and in predicting and assessing the stream sediment and soil response over each environment. The following generalized conclusions can be drawn in view of the rock chip data:

1. Tertiary mafic rocks in Area A and B are enriched in copper, manganese, and zinc in relation to the sedimentary lithologies.

2. Tertiary sedimentary units show elevated gold, arsenic, mercury, and molybdenum when compared to the mafic rocks.

3. Data from the pre-Cenozoic lithologies are inconclusive due to the limited sample population, however, soil results tend to indicate enrichment in gold, arsenic, copper, manganese, molybdenum, lead, and zinc in relation to the mafic units and copper, manganese, molybdenum, lead, and zinc in relation to the sedimentary units.

These geochemical relationships should be kept in mind when reviewing the geochemical data and how it relates to potentially mineralized areas. Ideally, separate data sets should be constructed and statistical indices calculated for the sample results on a rock type by rock type basis. This in effect would alleviate background differences between the lithologic units. Problems arise, however, in volcanic terrane where an accurate lithologic separation is not possible due to the complexly interbedded nature of the rocks. Such a problem would be encountered in the survey area between the mafic and sedimentary sequences.

The stream sediment, soil, and rock chip data complement each other well with areas picked as anomalous by stream sediment geochemistry also enhanced by the residual soil data. Soil Traverses A and B in the Red Butte Canyon area show this relationship nicely. Discrepancies are found, however, in soil Traverse C where a poor correlation exists between soil and stream sediment values for tin. This is best explained by the peculiarities inherent with tin stream sediment geochemistry.

RECOMMENDATIONS

It is recommended that additional work be done in each of the twelve anomalies in order to better determine the extent of the anomaly and to further characterize the type of mineralization present. In particular, more work is warranted at Red Butte Canyon where the anomaly is bounded to the west, north, and to the east, but is open to the south.

In future reconnaissance surveys with the delineation of potential mineralized areas as the main objective, a comprehensive review of mineral deposit types anticipated within the area would be helpful in defining the element suite to be used in the analyses. Given the geologic environment and the precious metal potential of Areas A and B, a number of additional elements may have expanded the interpretation of the data set. These elements include antimony, and possibly thallium, fluorine and tellurium. The use of major element data in the present study would have also been useful, particularly in the separation of lithologic and mineralization types by factor analysis and in conceptual modeling techniques.

It is also recommended that the heavy mineral samples collected at each stream sediment site be examined mineralogically and geochemically to provide additional data to thoroughly evaluate the survey area.

REFEFERENCES

Allais, M., (1957); Methods of Appraising Economic Prospects of Mining Exploration over Large Territories: Management Sci., v. 3, pp. 285-347.

Atwater, T., (1970); Implications of Plate Tectonics for the Cenozoic Tectonics of Western North America: Geol. Soc. Am. Bull., v. 81, pp. 3513-3536.

Baldwin, E. M., (1981); Geology of Oregon: Dubyque, Iowa, Kendall/Hunt Publishing Co., 170 p.

Beaulier, J. D.; (1972); Geologic Formations of Eastern Oregon (east of longitude 121°30'): Oregon Dept. of Geology and Mineral Industries Bull. 73, 80 p.

Berger, B. R. and Eimon, P.I., (1982); Comparative Models of Epithermal Silver-Gold Deposits: SME-AIME Annual Meeting, Dallas, Tex., February 14-18, 1982, preprint no. 82-13, 25 p.

Blackwell, D. D., Hull, D. A., Bowen, R. G., and Steele, J. L., (1978); Heat Flow of Oregon, 1978: Oregon Dept. of Geology and Mineral Industries Special Paper 4, 42 p.

Bonham, H. F., Jr., and Giles, D. L., (1983); Epithermal Gold/Silver Deposits - The Geothermal Connection: in the Role of Heat in the Development of Energy and Mineral Resources in the Northern Basin and Range Province, Geothermal Resources Council, S. R. no. 13, pp. 257-261.

Botbol, J.M., (1971); An Application of Characteristic Analysis to Mineral Exploration: Decision Making in the Mineral Industry: C.I.M. Spec. v. 12, pp. 92-99.

Botbol, J.M., Sindig-Larsen, R., McCammon, R.B., and Gott, G.B., (1977); Characteristic Analysis of Geochemical Exploration Data: U.S. Geol Survey Open-File Report 77-349, 55 p.

Bowen, R.G., and Blackwell, D.D., (1975); The Cow Hollow Geothermal Anomaly, Maleur County, Oregon: The Ore Bin, v. 37, no. 7, pp. 109-120.

Boyle, R.W., (1974); Elemental Association in Mineral Deposits and Indicator Elements of Interest in Geochemical Prospecting: Geol. Survey of Canada, Paper 74-45, 40 p.

Boyle, R.W., (1979); The Geochemistry of Gold and Its Deposits: Geol. Survey Canada Bull. 280, 584 p.

Bradley, R., (1982); Mining Districts and Mineral Deposits of the Basin and Range Province of Oregon: U.S. Geol. Survey Open-File Report 82-58, 14 p.

Brooks, H.C., (1963); Quicksilver in Oregon: Oregon Dept. of Geology and Mineral Industries Bull. 55, 223 p.

Brooks, H.C., and Ramp, L., (1968); Gold and Silver in Oregon: Dept. of Geology and Mineral Industries Bull. 61, 337 p.

Buchanan, L. J., (1981); Precious Metal Deposits Associated with Volcanic Environments in the Southwest: in Dickinson, W. R., and Payne, W. D., eds., Relation of Tectonics to Ore Deposits in the Southern Cordillera, Az. Geol. Soc. Digest, v. 14, pp. 237-250.

Burchfiel, B.C., (1979); Geologic History of the Central Western United States: in Ridge, J.D., ed., Papers on Mineral Deposits of Western North America: Nv. Bur. Mines and Geol., Rept. 33, pp. 1-12.

Castillo-Munoz, R., (1973); Application of Discriminant and Cluster Analysis to Regional Geochemical Surveys: Ph.D. Thesis (unpublished) Univ. London, 258 p.

Christiansen, R.L. and Lipman, P.W., (1972); Cenozoic Volcanism and Plate Tectonic Evolution of the Western United States, Late Cenozoic: Phil. Trans. R. Soc. Long., A. 271, pp. 249-284.

Connors, R.A., Robinson, M.L., Bukofski, J.F., Meyer, W.T., and Howarth, R.J., (1982); Geochemical and Geostatistical Evaluation, Wilderness Study Areas, Winnemucca District, Northwest Nevada, Nv. Bur. Mines Open File Report.

Cook, J.R., and Fay, W.M., (1982); Data Report, Western U.S., Hydrogeochemical and Stream Sediment Reconnaissance: U.S. DOE Open-File Report GJBX-132 (82).

Cooley, W.W. and Lohnes, P.R., (1962); Multivariate Procedures for the Behavioral Sciences: John Wiley and Sons, New York, 211 p.

Corcoran, R. E., Doak, R. A., Porter, P.W., Pritchett, F. I., and Privrasky, N. C., (1962); Geology of The Mitchell Butte Quadrangle, Oregon: Oregon Dept. of Geology and Mineral Industries Geological Map Series GMS-2.

Cruzat, A.C.E., and Meyer, W.T., (1974); Predicted Base-Metal Resources of Northwest England: Trans Inst Mining & Metal., Sec. B., v. 83, pp. B 131-B 134.

Dawson, K.M., and Sinclair, A.J., (1974); Factor Analysis of Minor Element Data for Pyrites, Endako Molybdenum Mine, British Columbia, Canada: Econ Geol, v. 69, pp. 404-411.

Deacon, R.J., and Benson, G.T., (1971); Oil and Gas Potential of the Eastern Oregon and Washington and Snake River Basin of Western Idaho: in Future Petroleum Provinces of the United States, Their Geology and Potential, v. 1, Am. Assoc. Pet. Geol. Memoir, no. 15, pp. 354-359.

DeGeoffroy, J. and Wignall, T.K., (1970); Statistical Decision in Regional Exploration: Application of Regression and Bayesian Classification Analysis in Southwest Wisconsin Zinc Area: Econ Geol, v. 65, pp. 769-777.

Dickinson, W.R., (1981); Plate Tectonic Evolution of the Southern Cordillera: in Dickinson, W.R., and Payne, W.D., eds., Relation of Tectonics to Ore Deposits in the Southern Cordillera, Az. Geol. Soc. Digest, v. 14, pp. 113-136.

Eaton, G.P., (1979); Regional Geophysics, Cenozoic Tectonics, and Geologic Resources of the Basin and Range Province and Adjoining Regions: R.M.A.G. - W.G.A., Basin and Range Symposium, pp. 11-39.

Eimon, P.I., (1981); Exploration for Epithermal Gold and Silver Deposits, The Epithermal Model: Paper presented at the First Intl. Symp. on Small Mine Economics and Expansion, Taxco Mexico, pp. 1-15.

Erikson, E.H., (1977); Preliminary Study of The Uranium Favorability of Malheur County, Oregon: U.S. DOE Open-File Report, GJEX-91 (77), 16 p.

Erikson, E.H., and Curry, W.E., (1977); Preliminary Study of The Uranium Favorability of Tertiary Rocks, Eastern Klamath, Southern Lake, Harney, and Western Malheur Counties, Southeastern Oregon: U.S. DOE Open-File Report, GJBX-92 (77), 23 p.

Eyde, T. H., (1984); Summary of Zeolite Activity in the United States: Mining Eng., v. 36, no. 5, p. 537.

Fay, N.M., and Cook, J.R., (1982); Gold Analysis by Neutron Activation, From SRL NURE SAMPLE: U.S. DOE Open-File Report GJBX-135 (82).

Ferns, M.L., Ramp, L., Brooks, H.C., and Gray, J.J., (1984); Mineral Industry in Oregon, 1983: Oregon Geology, v. 46, no. 3, pp. 27-32.

Fouch, T. D., (1983); Petroleum Potential of Wilderness Lands, Oregon: U.S. Geol. Survey Misc. Inv. Map 1-1544.

Fuller, R.E., and Waters, A.C., (1929); The Nature and Origin of the Horst and Graben structure of Southern Oregon: Jour. of Geology, v. 37, no.3, pp. 204-238.

geoMetrics, (1979); Aerial Gamma-Ray and Magnetic Survey, Idaho Project, Haily, Idaho Falls, Elk City Quadrangles of Idaho and Montana and Boise Quadrangle of Oregon and Idaho: U.S. DOE Open-File Report GJBX-10 (80), 5 vol.

Gettings, M.E., and Blank, H.R., Jr.,(1974): Structural Interpretation of Aeromagnetic and Gravity Data From Steens Mountain, Oregon (abs.): American Geophysical Union Transactions, V. 55, no. 5, p. 557.

Glanzman, R.K., and Rytuba, J.J., (1979); Zeolite-Clay Mineral Zonation of Volcaniclastic Sediments within the McDermitt Caldera Complex of Nevada and Oregon: U.S. Geol. Survey Open-File Rep., 79-1668, 25 p.

Gray, J. J., Peterson, J. C., Clayton, J., and Baxter, G., (1983); Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon: Oregon Dept. of Geology and Mineral Industries, Open-File Rep. 0-83-2, 106 p.

Greene, R.C., (1976); Volcanic Rocks of the McDermitt Caldera, Nevada-Oregon: U.S. Geol. Survey Open-File Report 76-753, 80 p.

Griffiths, J.C., (1966); Application of Discriminant Functions as a Classification Tool in the Geosciences: Computer Contribution, Kansas Geol Survey, v. 7, pp. 48-52.

Groh, E.A., (1966); Geothermal Energy Potential in Oregon: Oregon Dept. of Geology and Mineral Industries, Ore Bin, v. 28, no. 7, pp. 125-135.

Hamilton, W., and Myers, W.B., (1966); Cenozoic Tectonics of the Western United States: Rev. Gephys., v. 4, pp. 509-549.

Haynes, L., (1972); Empirical Discriminant Classification of Regional Stream Sediment Geochemistry in Devon and Cornwall. Discussion: Trans Inst Mining & Metal., Sec. B, v. 81, pp. 108-109.

High Life Helicopters Inc., and QEB INC., (1981); Airborne Gamma-Ray Spectrometer and Magnetometer Survey of Crescent, Burns, Canyon City, Bend, and Salem Quadrangles, Oregon: U.S. DOE Open-File Report GJBX-240 (81), 2 vol.

Howarth, R.J., (1971a); An Empirical Discriminant Method Applied to Sedimentary Rock Classification from Major Element Geochemistry: Joint Internat. Assn. Math. Geol., v. 3, pp. 51-60.

Howarth, R.J., (1971b); Empirical Discriminant Classification of Regional Stream-Sediment Geochemistry in Devon and East Cornwall: Trans Inst Mining & Metal., Sec. B, v. 80, pp. 142-149.

Howarth, R.J., (1972); Empirical Discriminant Classification of Regional Stream-Sediment Geochemistry in Devon and East Cornwall. Reply to Discussion: Trans. Inst. Mining & Metal., Sec. B, v. 81, pp. 115-119.

Howarth, R.J., (1973); FORTRAN IV Programs for Empirical Discriminant Classification of Spatial Data: Geocom Programs, v. 7, pp. 1-24.

Joreskog, K.G., Klovan, J.E., and Reyment, R.A., (1976); Geological Factor Analysis: Elsevier Publishing Company, New York, 178 p.

Jones, L.I., (1981); Engineering Report on the McDermitt Caldera Drilling Project Humboldt County, Nevada, Harney and Malheur Counties, Oregon: U.S. DOE Open File Rep. GJBX-115(81).

Kittleman, L.R. (1967); Geologic Map of The Owyhee Region, Malheur County, Oregon: Eugene, Oreg., University of Oregon Museum of Natural History Bull. 8.

Kittleman, L.R., (1973); Guide to the Geology of The Owyhee Region of Oregon: Eugene, Oreg., University of Oregon Museum of Natural History Bull, 21, 61 p.

Kittleman, L.R., Green, A.R., Hagood, A.R., Johnson, A.M., McMurray, J.M., Russell, R.G., and Weeden, D.A., (1965); Cenozoic Stratigraphy of the Owyhee Region, Southeastern Oregon: University of Oregon Museum of Natural History Bulletin 8.

Koschman, A.H., and Bergendahl, M.H., (1968); Principal Gold-Producing Districts of the United States: U.S. Geol. Survey Prof. Paper 610, 283 p.

Lachenbruch, A.H., and Sass, J.H., (1978); Models of an Extending Lithosphere and Heat Flow in the Basin and Range Province: Geol. Soc. of Am. Memoir 152, pp. 209-250.

Larson, K., and Couch, R.W., (1979); Preliminary Gravity Maps of the Vale Area, Malheur County, Oregon: Oregon Dept. of Geology and Mineral Industries, Ore Bin, v. 37. no. 8, pp. 138-142.

Lawrence, R. D., (1976); Strike-slip Faulting Terminates the Basin and Range Province in Oregon: Geol. Soc.of Am. Bull. v. 87, no. 6, pp. 846-850.

Leach, D.L., Puchlik, K.P., and Glanzman, R.K., (1980); Geochemical Exploration for Uranium in Playas: Journal of Geochemical Exploration, v. 13, pp. 251-283.

Lovering, T.G., and McCarthy, J.H., Jr., eds., (1978); Conceptual Models in Exploration Geochemistry: Jour. of Geochemical Exploration, v. 9, no. 2/3, pp. 113-276.

Lowry, W. D., (1943); Calcite Occurrences Near the Owyhee Reservoir, Malheur County, Oregon: Oregon Dept. of Geology and Mineral Industries unpublished report, 6 p.

Lowry, W. D., (1968); Geology of the Ironside Mountain Quadrangle, Oregon: Oregon Dept. of Geology and Mineral Industries Open-File Rep. 79 p.

Maloney, N.J., (1962); Tertiary and Quaternary Faulting in Southwestern Harney County, Oregon: Oregon Dept. of Geology and Mineral Industries, Ore Bin, v. 24, no. 2, pp. 21-22.

McCammon, R.B., ed., (1975); Concepts in Geostatistics: Springer-Verlag, New York, 168 p.

McKee, E. H., McLeod, N.S., and Walker, G.W., (1976); Potassium-argon Ages of Late Cenozoic Silicic Rocks of Southeast Oregon: Isochron West, no. 15.

Meyer, W.T., Theobald, P.K., Jr., and Bloom, H., (1979); Stream Sediment Geochemistry; in Hood, P.J., ed., ed; Geophysics and Geochemistry in the Search for Metallic Ores; Geol. Survey of Canada, Econ. Geol. Rept. 31, pp. 411-443.

Muffler, L.J.P.,ed., (1979); Assessment of Geothermal Resources of the United States - 1978: U.S. Geol. Survey Circ. 790, 163 p.

Newton, V. C., Jr., (1982); Geology, Energy, and Mineral Resources Appraisal, BLM Region 1, Columbia Plateau, Oil and Gas: Unpublished report to TERRADATA, 20 p.

Newton, V.C., and Corcoran, R.E., (1963); Petroleum Geology of the Western Snake River Basin: Oregon Dept. of Geology and Mineral Industries Oil and Gas Inv. v. 1.

Nichol, Ian, Garrett, R.G., and Webb, J.S., (1969); The Role of Some Statistical and Mathematical Methods in the Interpretation of Regional Geochemical Data: Econ. Geol., v. 64, pp. 204-220.

Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., and Bent, D.H., (1975); Statistical Package for the Social Sciences, Second Ed.: McGraw-Hill, New York, 675 p.

Oregon Department of Geology and Mineral Industries, (1982); Geothermal Resources of Oregon, 1982: DOGAMI/NOAA (for U.S. DOE), 1 sheet, map scale 1:500,000.

Pilcher, R.C., (1978); Volcanogenic Uranium Occurrences: in Mickle, D.G., and Mathews, G.W., eds. Geologic Characteristics of Environment Favorable for Uranium Deposits: U.S.DOE, Open-file Rept. GJBX-67(78), pp. 185-220.

Priest, G.R., Black, G.L., and Woller, N.M., (1981); Low-temperature Resource Assessment Program, Final Report: Oregon Dept. of Geology and Mineral Industries Open-File Report 0-82-5, 53 p.

Proffett, J.M., (1979); Ore Deposits of the Western United States - A Summary: in Ridge, J.D., ed., Papers on Mineral Deposits of Western North America, Nv. Bur. Mines and Geol. Rept. 33, pp. 13-32.

Radtke, A. S., Rye, R. O., and Dickson, F. W., (1980); Geology and Stable Isotope Studies of the Carlin Gold Deposit, Nevada: Econ. Geol. v. 75, pp. 641-672.

Roberts, R.J., (1972); Evolution of the Cordillera Fold Belt: Geol. Soc. Am. Bull., v. 83, no. 7, pp. 1989-2004.

Rose, A.W., (1972); Statistical Interpretation Techniques in Geochemical Exploration: Trans. AIME-SME, v. 252, pp. 233-239, Discussion, v. 254, pp. 122-123.

Rose, A.W., Hawkes, H.E., and Webb, J.S., (1979); Geochemistry in Mineral Exploration, Academic Press, London, 657 p.

Ross, C.P., (1941); Quicksilver Deposits in the Steens and Pueblo Mountains, Southern Oregon: U.S. Geol. Survey Bulletin 931-J, pp. 227-258.

Rytuba, J.J., (1981); Relation of Calderas to Ore Deposits in the Western United States: in Dickinson, W.R., and Payne, W.D., eds., Relation of Tectonics to Ore Deposits in the Southern Cordillera, Az. Geol. Soc. Digest, v. 14, pp. 227-236.

Rytuba, J.J., Conrad, W.K., and Glanzman, R.K., (1979); Uranium, Thorium, and Mercury Distribution Through the Evolution of the McDermitt Caldera Complex: U.S. Geol. Survey Open-File Report, pp. 79-541.

Rytuba, J.J., and Conrad, W.K., (1981); Petrochemical Characteristics of Volcanic Rocks Associated with Uranium Deposits in the McDermitt Caldera Complex: in Goodel, P.C., and Waters, A.C., eds., Uranium in Volcanic and Volcaniclastic Rocks, AAPG Studies in Geology, no. 13, pp. 63-72.

Rytuba, J.J., and Glanzman, R.K., (1979); Relation of Mercury, Uranium, and Lithium Deposits to the McDermitt Caldera Complex, Nevada-Oregon: Nv. Bur. of Mines and Geol. Rept. 33, pp. 109-118.

Rytuba, J.J., Minor, S.A., and McKee, E.H., (1981); Geology of the Whitehorse Caldera dn Caldera-fill Deposits, Malheur Countyu, Oregon: U.S. Geol. Survey Open-File Report 81-1092, 19 p.

Santini, K.N., and LeBaron, M.R., (1982); Geology of the Rome zeolite Deposit, Malheur County, Oregon: First International SME-AIME Fall Meeting, Honolulu, Hawaii, September 4-9, 1984, 10 p.

Sass, J.H., Lachenbruch, A.H., Monroe, R.J., Greene, G.W., and Moses, T.H., Jr., (1971); Heat Flow in the Western United States: Jour. Geophys. Research, v. 76, no. 26, pp. 6376-6413.

Specht, D.F., (1967); Generation of Polynomial Discriminant Functions for Pattern Recognition: IEEE Trans. Electronic Computers, v. 16., pp. 308-319.

Speed, R.C., (1983); Pre-cenozoic Tectonic Evolution of Northeastern Nevada: in the Role of Heat in the Development of Energy and Mineral Resources in the Northern Basin and Range Province, Geothermal Resources Council, S.R., no. 13, pp. 257-261.

Stewart, J.H., (1978); Basin-range Structure in Western North America: A review, in Smith, R.B., and Eaton, G.P., 1978, Cenozoic tectonics and the regional geophysics of the Western Cordillera: Geol. Soc. of Am. Memoir 152, pp. 1-31.

Stewart, J.H., (1971); Basin and Range Structure: A System of Horsts and Grabens Produced by Deep-Seated Extension: Geol. Soc. Am. Bull., v. 82, pp. 1019-1044.

Thompson, G.A. and Burke, D.B., (1974); Regional Geophysics of the Basin and Range Province: Ann. Rev. of Earth and Planetary Sciences, v. 2, pp. 213-238.

Walker, G.W., (1974); Some Implications of late Cenozoic Volcanism to Geothermal Potential in the High Lava Plains of South-central Oregon: Oregon Dept. of Geology and Mineral Industries, Ore Bin, v. 36, no. 7, pp. 109-119.

Walker, G.W., (1977); Geologic Map of Oregon East of the 121st Meridian: U.S. Geol. Survey Misc. Inv. Series Map I-902.

Waring, G.A., (1965); Thermal Springs of the United States and Other Countries of the World - A Summary: U.S. Geol. Survey Prof. Pap. 492, 383 p.

Weiland, E.F., Connors, R.A., Robinson, M.L., Lindemann, J.W., and Meyer, W.T., (1981); Geochemical and Geostatistical Evaluation, Arkansas Canyon Planning Unit, Fremont and Custer Counties, Colorado: Rept. to the BLM from Barringer Resources Inc., 49 p.

Weiland, E.F., Lindeman, J.W., Connors, R., Meyer, W.T., and Johnson, S. with Introduction by W. Heran, (1981); Geochemical and Geostatistical Evaluation of American Flats - Silverton Planning Units, San Juan Volcanic Province, Colorado: U.S. Geol. Survey Open-File Report 81-599, 254 p.

Weissenborn, A.E., (1969); Mineral and Water Resources of Oregon: Oregon Dept. of Geology and Mineral Industries Bull. 64, 462 p.

White, D.E., (1981); Active Geothermal Systems and Hydrothermal Ore Deposits: in Skinner, B.J., ed., Econ. Geol. Seventy-Fifth Anniversary Vol., pp. 392-423.

White, D.E., and Heropoulos, C., (1983); Active and Fossil Hydrothermal-Convection Systems of the Great Basin: in the Role of Heat in the Development of Energy and Mineral Resources in the Northern Basin and Range Province, Geothermal Resources Council, S.R., no. 13, pp. 41-53.

Whitehead, R.E.S., and Govett, G.J.S., (1974); Exploration Rock Geochemistry-Detection of Trace Element Halos of Heath Steele Mines, (N.B. Canada) by Discriminant Analysis: Jour Geochem Explor, v. 3, no. 4, pp. 371-386.

Williams, H., and Compton, R.R., (1953); Quicksilver Deposits of Steens Mountain and Pueblo Mountains, Southeast Oregon: U.S. Geol. Survey Bull. 995-B, pp. 19-77

Wood, J.D., (1976); The Geology of the Castle Rock Area, Grant, Harney, and Malheur Counties, Oregon: Portland State Univ. Master's Thesis, 123 p.

Worthington, S. E., (1981); Bulk Tonnage Gold Deposits in Volcanic Environments: in Dickinson, W. R., and Payne, W. D., eds., Relation of Tectonics to Ore Deposits in the Southern Cordillera, AZ. Geol. Soc. Digest, v. 14 pp. 263-270.

Yates, R.G., (1942); Quicksilver Deposits of The Opalite District, Malheur County, Oregon and Humboldt County, Nevada: U.S. Geol. Survey Bull. 931-N., pp. 310-348.

Youngquist, W., (1982); Geology, Energy, and Mineral Resources Appraisal, BLM Region 1, Columbia Plateau, Geothermal: Unpublished report to TERRADATA, 65 p.

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GEOLOGY-ENERGY-MINERAL RESOURCE SURVEY
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT, OREGON

VOLUME II

Prepared by:

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APPENDIX A

Descriptive Statistics
Symbol Maps For Stream Sediments

BARRINGER RESOURCES INC.

STANDARD STATISTICAL PACKAGE

BUREAU OF LAND MANAGEMENT
N. MALHEUR RESOURCE AREA
VALE DISTRICT, OREGON

SAMPLE TYPE= STREAM SEDIMENTS

NOTE: ALL DATA LOG(10) TRANSFORMED

VARIABLE	GEOM. MEAN	STD DEV	MIN	MAX	RANGE	NO.SAMPLES WITH RESULTS
AU	.197E+01	.346E+00	.100E+01	.570E+02	.560E+02	577
AS	.598E+01	.254E+00	.100E+01	.780E+02	.770E+02	579
BA	.566E+03	.101E+00	.200E+03	.225E+04	.205E+04	577
HG	.108E+01	.333E+00	.300E+00	.130E+02	.145E+02	577
CU	.271E+02	.206E+00	.400E+01	.970E+02	.930E+02	582
MN	.640E+03	.161E+00	.130E+03	.970E+04	.957E+04	581
MO	.568E+00	.150E+00	.500E+00	.140E+02	.135E+02	568
PB	.104E+02	.147E+00	.300E+01	.560E+02	.530E+02	577
ZN	.710E+02	.146E+00	.190E+02	.530E+03	.511E+03	573
U	.700E+00	.257E+00	.100E+00	.410E+01	.400E+01	582

CORRELATION MATRIX
SAMPLE SIZE = 582

	AU	AS	BA	HG	CU	MN	MO	PB	ZN	U
AU	1.000									
AS	.102	1.000								
BA	.023	.153	1.000							
HG	-.107	.351	-.030	1.000						
CU	-.014	.026	-.683	.140	1.000					
MN	-.062	-.136	-.417	.100	.455	1.000				
MO	.048	.261	.038	.109	-.012	-.009	1.000			
PB	.142	.139	.184	-.170	-.129	-.066	.060	1.000		
ZN	.058	-.091	-.318	-.129	.350	.449	.076	.087	1.000	
U	-.145	.094	.036	.135	-.113	-.104	.011	.083	-.132	1.000

```
                              STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                  FOR:  BUREAU OF LAND MANAGEMENT
   DATA ANALYSIS FOR  AU          SAMPLE TYPE= STREAM SEDIMENTS
   NOTE: ALL DATA LOG(10) TRANSFORMED

FREQUENCY DISTRIBUTION HISTOGRAM  FOR  AU

      CLASS MARK   0    5    10   15   20   25   30   35   40   45   50  PERCENT
...PPB  ...........I----I----I----I----I----I----I----I----I----I----I
              .21  I
              .29  I
              .40  I
              .55  I
              .76  I
             1.04  IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
             1.44  I
             1.97  IIIIIIIIIIIIIIIIIII
             2.71  IIIIIIIIIIII
             3.73  IIIIIIII
             5.13  IIIIIIII
             7.06  IIII
             9.71  III
            13.36  III
            18.37  II
            25.26  II
            34.74  I
            47.78  I
            65.71  I
            90.37  I
                   I----I----I----I----I----I----I----I----I----I----I


LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  AU

   CLASS   CUM. %   .01 .1   1  5  10  25    50  75   90 95 98    99.99
   >PPB              I---I----I--I--I---I----I---I----I-I--I------I
     .25     0.00   I*   .    .  .  .   .    .   .    . .  .      .
     .34     0.00   I*   .    .  .  .   .    .   .    . .  .      .
     .47     0.00   I*   .    .  .  .   .    .   .    . .  .      .
     .65     0.00   I*   .    .  .  .   .    .   .    . .  .      .
     .89     0.00   I*   .    .  .  .   .    .   .    . .  .      .
    1.22    47.49   I.   .    .  .  .   .   *.   .    . .  .      .
    1.68    47.49   I.   .    .  .  .   .   *.   .    . .  .      .
    2.31    64.99   I.   .    .  .  .   .    . * .    . .  .      .
    3.18    75.91   I.   .    .  .  .   .    .   *    . .  .      .
    4.33    83.36   I.   .    .  .  .   .    .   . *  . .  .      .
    6.02    90.29   I.   .    .  .  .   .    .   .   *. .  .      .
    8.28    92.89   I.   .    .  .  .   .    .   .    .*.  .      .
   11.39    94.30   I.   .    .  .  .   .    .   .    . *  .      .
   15.66    97.05   I.   .    .  .  .   .    .   .    . .* .      .
   21.54    98.44   I.   .    .  .  .   .    .   .    . .  .*     .
   29.63    99.31   I.   .    .  .  .   .    .   .    . .  . *    .
   40.74    99.65   I.   .    .  .  .   .    .   .    . .  .   *  .
   56.03    99.83   I.   .    .  .  .   .    .   .    . .  .    * .
   77.06   100.00   I.   .    .  .  .   .    .   .    . .  .      .
  105.98     0.00   I*   .    .  .  .   .    .   .    . .  .      .
   >PPB              I---I----I--I--I---I----I---I----I-I--I------I
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                                   STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                     FOR:  BUREAU OF LAND MANAGEMENT
    DATA ANALYSIS FOR  AS          SAMPLE TYPE= STREAM SEDIMENTS
    NOTE: ALL DAIA LOG(10) TRANSFORMED

 FREQUENCY DISTRIBUTION HISTOGRAM  FOR  AS

       CLASS MARK   0    5    10   15   20   25   30   35    40   45   50  PERCENT
...PPM  ...........I----I----I----I---I----I----I----I----I----I----I
                1.16  II
                1.47  I
                1.86  I
                2.35  I
                2.97  IIIIIIIIIIIIIIIIIIIIII
                3.75  I
                4.73  IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
                5.98  I
                7.56  IIIIIIIIIIIIIII
                9.55  IIIIIIIII
               12.06  IIIII
               15.24  IIII
               19.26  IIIII
               24.33  III
               30.74  II
               38.84  I
               49.07  I
               62.00  I
               78.33  I
               98.97  I
                      I----I----I----I----I----I----I----I----I----I----I


 LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  AS

   CLASS   CUM. %    .01 .1   1  5  10  25   50  75   90 95 98   99.99
  >PPM                I---I----I--I--I---I----I---I----I-I--I-------I
   1.31      .86     I.   .   *.  .  .   .    .   .    . .  .       .
   1.65      .86     I.   .   *.  .  .   .    .   .    . .  .       .
   2.09      .86     I.   .   *.  .  .   .    .   .    . .  .       .
   2.64      .86     I.   .   *.  .  .   .    .   .    . .  .       .
   3.33    21.42     I.   .    .  .  .   *.   .   .    . .  .       .
   4.21    21.42     I.   .    .  .  .   *.   .   .    . .  .       .
   5.32    62.87     I.   .    .  .  .   .    . * .    . .  .       .
   6.72    62.87     I.   .    .  .  .   .    . * .    . .  .       .
   8.49    77.20     I.   .    .  .  .   .    .   .*   . .  .       .
  10.73    85.32     I.   .    .  .  .   .    .   .  * . .  .       .
  13.56    89.64     I.   .    .  .  .   .    .   .   *. .  .       .
  17.13    92.23     I.   .    .  .  .   .    .   .    * .  .       .
  21.64    96.72     I.   .    .  .  .   .    .   .    . .* .       .
  27.35    98.45     I.   .    .  .  .   .    .   .    . .  .*      .
  34.55    99.48     I.   .    .  .  .   .    .   .    . .  .   *   .
  43.65    99.65     I.   .    .  .  .   .    .   .    . .  .    *  .
  55.16    99.83     I.   .    .  .  .   .    .   .    . .  .     * .
  69.67    99.83     I.   .    .  .  .   .    .   .    . .  .     * .
  88.05   100.00     I.   .    .  .  .   .    .   .    . .  .       .
 111.24     0.00     I*   .    .  .  .   .    .   .    . .  .       .
  >PPM                I---I----I--I--I---I----I---I----I-I--I-------I
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                                          STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                              FOR:  BUREAU OF LAND MANAGEMENT
    DATA ANALYSIS FOR  BA            SAMPLE TYPE= STREAM SEDIMENTS
    NOTE: ALL DATA LOG(10) TRANSFORMED

FREQUENCY DISTRIBUTION HISTOGRAM  FOR  BA

      CLASS MARK  0    5    10   15   20   25   30   35    40   45   50  PERCENT
...PPM  ...........I----I----I----I---I----I----I----I----I----I----I
          294.07  II
          322.89  II
          354.51  II
          389.22  III
          427.34  IIIIIII
          469.19  IIIIIIIIIIIIIIIIIIII
          515.13  IIIIIIIIIIIIIIII
          565.57  IIIIIIIIIIIIIIIIIII
          620.96  IIIIIIIIIIIII
          681.77  IIIIIIIII
          748.53  IIIIIIIII
          821.83  IIII
          902.31  IIII
          990.67  II
         1087.68  II
         1194.19  II
         1311.13  I
         1439.52  I
         1580.49  I
         1735.26  II
                  I----I----I----I----I----I----I----I----I----I----I


LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  BA

   CLASS  CUM. %   .01 .1   1  5  10  25   50  75    90 95 98   99.99
  >PPM              I---I----I--I--I---I----I---I----I-I--I------I
  308.15      .87  I.   .   *.  .  .   .    .   .    . .  .      .
  338.33     1.39  I.   .    *  .  .   .    .   .    . .  .      .
  371.46     2.60  I.   .    .* .  .   .    .   .    . .  .      .
  407.84     4.16  I.   .    .  *  .   .    .   .    . .  .      .
  447.77    10.57  I.   .    .  .  *   .    .   .    . .  .      .
  491.62    29.46  I.   .    .  .  .   .*   .   .    . .  .      .
  539.76    44.71  I.   .    .  .  .   .   *.   .    . .  .      .
  592.62    62.39  I.   .    .  .  .   .    . * .    . .  .      .
  650.65    74.52  I.   .    .  .  .   .    .   *    . .  .      .
  714.37    82.67  I.   .    .  .  .   .    .   . *  . .  .      .
  784.32    90.81  I.   .    .  .  .   .    .   .    * .  .      .
  861.13    93.93  I.   .    .  .  .   .    .   .    .*.  .      .
  945.45    96.71  I.   .    .  .  .   .    .   .    . .* .      .
 1038.04    98.09  I.   .    .  .  .   .    .   .    . .  *      .
 1139.69    98.61  I.   .    .  .  .   .    .   .    . .  .*     .
 1251.29    99.13  I.   .    .  .  .   .    .   .    . .  . *    .
 1373.83    99.31  I.   .    .  .  .   .    .   .    . .  . *    .
 1508.36    99.31  I.   .    .  .  .   .    .   .    . .  . *    .
 1656.07    99.48  I.   .    .  .  .   .    .   .    . .  .  *   .
 1818.24     0.00  I*   .    .  .  .   .    .   .    . .  .      .
  >PPM              I---I----I--I--I---I----I---I----I-I--I------I
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                                 STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                    FOR:  BUREAU OF LAND MANAGEMENT
     DATA ANALYSIS FOR  HG          SAMPLE TYPE= STREAM SEDIMENTS
     NOTE: ALL DATA LOG(10) TRANSFORMED

 FREQUENCY DISTRIBUTION HISTOGRAM  FOR  HG

      CLASS MARK   0    5    10   15   20   25   30   35    40   45   50  PERCENT
...PPB  ...........I----I----I----I----I----I----I----I----I----I----I
               .13 I
               .17 I
               .23 I
               .32 I
               .43 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
               .58 I
               .79 I
              1.08 IIIIIIIIIIIIIIIIIIIIIIIIII
              1.46 I
              1.99 IIIIIIIIIIIIIIIIII
              2.70 IIIIIIIII
              3.67 IIII
              4.99 III
              6.78 III
              9.21 I
             12.51 II
             17.00 II
             23.09 I
             31.37 I
             42.63 I
                   I----I----I----I----I----I----I----I----I----I----I


 LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  HG

   CLASS  CUM. %   .01 .1    1  5  10  25   50  75   90 95 98  99.99
  >PPB              I---I----I--I--I---I----I---I----I-I--I-------I
     .15     0.00  I*   .    .  .  .   .    .   .    . .  .       .
     .20     0.00  I*   .    .  .  .   .    .   .    . .  .       .
     .27     0.00  I*   .    .  .  .   .    .   .    . .  .       .
     .37     0.00  I*   .    .  .  .   .    .   .    . .  .       .
     .50    38.82  I.   .    .  .  .   .  * .   .    . .  .       .
     .68    38.82  I.   .    .  .  .   .  * .   .    . .  .       .
     .92    38.82  I.   .    .  .  .   .  * .   .    . .  .       .
    1.26    64.99  I.   .    .  .  .   .    . * .    . .  .       .
    1.71    64.99  I.   .    .  .  .   .    . * .    . .  .       .
    2.32    83.02  I.   .    .  .  .   .    .   . *  . .  .       .
    3.15    91.51  I.   .    .  .  .   .    .   .    * .  .       .
    4.28    94.63  I.   .    .  .  .   .    .   .    . *  .       .
    5.82    96.53  I.   .    .  .  .   .    .   .    . .* .       .
    7.90    98.44  I.   .    .  .  .   .    .   .    . .  .*      .
   10.73    98.79  I.   .    .  .  .   .    .   .    . .  .*      .
   14.53    99.43  I.   .    .  .  .   .    .   .    . .  .   *   .
   19.81   100.00  I.   .    .  .  .   .    .   .    . .  .       .
   26.92   100.00  I.   .    .  .  .   .    .   .    . .  .       .
   36.57   100.00  I.   .    .  .  .   .    .   .    . .  .       .
   49.68     0.00  I*   .    .  .  .   .    .   .    . .  .       .
  >PPB              I---I----I--I--I---I----I---I----I-I--I-------I
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                                   STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                       FOR:  BUREAU OF LAND MANAGEMENT
     DATA ANALYSIS FOR  CU          SAMPLE TYPE= STREAM SEDIMENTS
     NOTE: ALL DATA LOG(10) TRANSFORMED

 FREQUENCY DISTRIBUTION HISTOGRAM  FOR  CU

       CLASS MARK   0    5    10   15   20   25   30   35    40   45   50  PERCENT
...PPM  ............I----I----I----I---I----I----I----I----I----I----I
               7.19 II
               8.69 III
              10.51 IIII
              12.70 IIII
              15.35 IIIII
              18.55 IIIIIIIIII
              22.42 IIIIIIIIIIIII
              27.10 IIIIIIIIIIIIIIIIII
              32.75 IIIIIIIIIIIIIIIIIIIIIIIIII
              39.58 IIIIIIIIIIIIII
              47.84 IIIIIII
              57.82 IIII
              69.89 II
              84.47 II
             102.09 I
             123.40 I
             149.14 I
             180.26 I
             217.87 I
             263.33 I
                    I----I----I----I----I----I----I----I----I----I----I


 LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  CU

   CLASS   CUM. %   .01 .1   1  5  10  25   50  75   90 95 98   99.99
   >PPM              I---I----I--I--I---I----I---I----I-I--I------I
    7.91      1.37  I.   .    *  .  .   .    .   .    . .  .      .
    9.56      3.26  I.   .    . *.  .   .    .   .    . .  .      .
   11.55      5.34  I.   .    .  .* .   .    .   .    . .  .      .
   13.96      9.11  I.   .    .  . *.   .    .   .    . .  .      .
   16.87     13.40  I.   .    .  .  .*  .    .   .    . .  .      .
   20.39     21.99  I.   .    .  .  .   *    .   .    . .  .      .
   24.65     33.85  I.   .    .  .  .   . *  .   .    . .  .      .
   29.79     50.86  I.   .    .  .  .   .    *   .    . .  .      .
   36.01     75.43  I.   .    .  .  .   .    .   *    . .  .      .
   43.52     88.83  I.   .    .  .  .   .    .   .   *. .  .      .
   52.60     95.02  I.   .    .  .  .   .    .   .    . *  .      .
   63.37     97.94  I.   .    .  .  .   .    .   .    . . *.      .
   76.83     99.31  I.   .    .  .  .   .    .   .    . .  .  *   .
   92.87     99.83  I.   .    .  .  .   .    .   .    . .  .     *.
  112.24    100.00  I.   .    .  .  .   .    .   .    . .  .      .
  135.66    100.00  I.   .    .  .  .   .    .   .    . .  .      .
  163.96    100.00  I.   .    .  .  .   .    .   .    . .  .      .
  198.17    100.00  I.   .    .  .  .   .    .   .    . .  .      .
  239.52    100.00  I.   .    .  .  .   .    .   .    . .  .      .
  289.50      0.00  I*   .    .  .  .   .    .   .    . .  .      .
   >PPM              I---I----I--I--I---I----I---I----I-I--I------I
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                              STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC
                                                          FOR:  BUREAU OF LAND MANAGEMENT
   DATA ANALYSIS FOR  MN           SAMPLE TYPE= STREAM SEDIMENTS
   NOTE: ALL DATA LOG(10) TRANSFORMED

FREQUENCY DISTRIBUTION HISTOGRAM  FOR  MN

      CLASS MARK   0    5    10   15   20   25   30   35   40   45   50  PERCENT
...PPM  ...........I----I----I----I----I----I----I----I----I----I----I
           227.39  III
           263.63  II
           305.64  IIII
           354.34  IIIII
           410.81  IIIIII
           476.28  IIIIIIII
           552.18  IIIIIIIIIIIII
           640.17  IIIIIIIIIIIIIIIIIII
           742.19  IIIIIIIIIIIIIIIIIIIIIII
           860.47  IIIIIIIIIIIIIIII
           997.59  IIIIII
          1156.56  IIII
          1340.87  III
          1554.55  II
          1802.28  I
          2089.49  I
          2422.47  I
          2808.52  I
          3256.08  I
          3774.97  I
                   I----I----I----I----I----I----I----I----I----I----I


LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  MN

   CLASS   CUM. %    .01 .1   1  5  10  25   50  75   90 95 98   99.99
   >PPM               I---I----I--I--I---I----I---I----I-I--I-------I
  244.84     1.89    I.   .    .*  .  .   .    .   .    . .  .       .
  283.86     2.93    I.   .    . *.   .   .    .   .    . .  .       .
  329.09     5.51    I.   .    .  .*  .   .    .   .    . .  .       .
  381.54     9.98    I.   .    .  .   *   .    .   .    . .  .       .
  442.34    15.32    I.   .    .  .   .*  .    .   .    . .  .       .
  512.83    21.86    I.   .    .  .   .   *.   .   .    . .  .       .
  594.53    34.25    I.   .    .  .   .   .  * .   .    . .  .       .
  689.30    52.15    I.   .    .  .   .   .    *   .    . .  .       .
  799.14    74.35    I.   .    .  .   .   .    .   *    . .  .       .
  926.49    88.98    I.   .    .  .   .   .    .   .   *. .  .       .
 1074.14    94.15    I.   .    .  .   .   .    .   .    .*.  .       .
 1245.31    97.07    I.   .    .  .   .   .    .   .    . .* .       .
 1443.76    98.30    I.   .    .  .   .   .    .   .    . .  .*      .
 1673.84    99.48    I.   .    .  .   .   .    .   .    . .  .   *   .
 1940.58    99.66    I.   .    .  .   .   .    .   .    . .  .    *  .
 2249.83    99.83    I.   .    .  .   .   .    .   .    . .  .     * .
 2608.36    99.83    I.   .    .  .   .   .    .   .    . .  .     * .
 3024.03    99.83    I.   .    .  .   .   .    .   .    . .  .     * .
 3505.94    99.83    I.   .    .  .   .   .    .   .    . .  .     * .
 4064.64     0.00    I*   .    .  .   .   .    .   .    . .  .       .
  >PPM                I---I----I--I--I---I----I---I----I-I--I-------I
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                                        STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                        FOR:  BUREAU OF LAND MANAGEMENT
    DATA ANALYSIS FOR  MO            SAMPLE TYPE= STREAM SEDIMENTS
    NOTE: ALL DATA LOG(10) TRANSFORMED

 FREQUENCY DISTRIBUTION HISTOGRAM  FOR  MO

      CLASS MARK    0    5    10   15   20   25   30   35    40   45   50  PERCENT
...PPM  ............I----I----I----I----I----I----I----I----I----I----I
              .22   I
              .25   I
              .28   I
              .33   I
              .38   I
              .43   I
              .49   IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
              .57   I
              .65   I
              .75   I
              .86   I
              .99   IIIIIIIIII
             1.14   I
             1.31   I
             1.50   I
             1.72   I
             1.98   IIIIII
             2.27   I
             2.61   I
             3.00   III
                    I----I----I----I----I----I----I----I----I----I----I


 LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  MO

   CLASS   CUM. %    .01 .1   1  5  10  25   50  75    90 95 98  99.99
   >PPM               I---I----I--I--I---I----I---I----I--I--I-------I
     .23      0.00   I*   .    .  .  .   .    .   .    .  .  .       .
     .27      0.00   I*   .    .  .  .   .    .   .    .  .  .       .
     .30      0.00   I*   .    .  .  .   .    .   .    .  .  .       .
     .35      0.00   I*   .    .  .  .   .    .   .    .  .  .       .
     .40      0.00   I*   .    .  .  .   .    .   .    .  .  .       .
     .46      0.00   I*   .    .  .  .   .    .   .    .  .  .       .
     .53     83.98   I.   .    .  .  .   .    .   . *  .  .  .       .
     .61     83.98   I.   .    .  .  .   .    .   . *  .  .  .       .
     .70     83.98   I.   .    .  .  .   .    .   . *  .  .  .       .
     .80     83.98   I.   .    .  .  .   .    .   . *  .  .  .       .
     .92     83.98   I.   .    .  .  .   .    .   . *  .  .  .       .
    1.06     92.61   I.   .    .  .  .   .    .   .    *  .  .       .
    1.22     92.61   I.   .    .  .  .   .    .   .    *  .  .       .
    1.40     92.61   I.   .    .  .  .   .    .   .    *  .  .       .
    1.61     92.61   I.   .    .  .  .   .    .   .    *  .  .       .
    1.85     92.61   I.   .    .  .  .   .    .   .    *  .  .       .
    2.12     97.54   I.   .    .  .  .   .    .   .    .  . *.       .
    2.43     97.54   I.   .    .  .  .   .    .   .    .  . *.       .
    2.80     97.54   I.   .    .  .  .   .    .   .    .  . *.       .
    3.21      0.00   I*   .    .  .  .   .    .   .    .  .  .       .
   >PPM               I---I----I--I--I---I----I---I----I--I--I-------I
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                                      STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                          FOR:  BUREAU OF LAND MANAGEMENT
     DATA ANALYSIS FOR  PB              SAMPLE TYPE= STREAM SEDIMENTS
     NOTE: ALL DATA LOG(10) TRANSFORMED

 FREQUENCY DISTRIBUTION HISTOGRAM  FOR  PB

       CLASS MARK   0    5    10   15   20   25   30   35   40   45   50  PERCENT
...PPM  ............I----I----I----I----I----I----I----I----I----I----I
              4.03  IIII
              4.61  I
              5.28  III
              6.05  IIII
              6.93  IIIIIIII
              7.93  IIIIIIIII
              9.08  IIIIIIIIIIII
             10.40  IIIIIIIIIIIIIIIIIIIIIIIIIII
             11.91  IIIIIIIIIIII
             13.64  IIIIIIIIIIIIIIII
             15.62  IIIIIIII
             17.89  IIIII
             20.48  II
             23.45  II
             26.86  I
             30.76  I
             35.22  I
             40.33  I
             46.19  I
             52.89  I
                    I----I----I----I----I----I----I----I----I----I----I


 LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  PB

    CLASS   CUM. %    .01 .1    1  5  10  25    50  75    90 95 98   99.99
   >PPM               I---I-----I--I--I---I-----I---I-----I--I--I-------I
    4.31      2.60    I.   .    .*  .  .   .     .   .     .  .  .       .
    4.94      2.60    I.   .    .*  .  .   .     .   .     .  .  .       .
    5.65      4.51    I.   .    .  *   .   .     .   .     .  .  .       .
    6.47      7.45    I.   .    .  .  *.   .     .   .     .  .  .       .
    7.41     14.21    I.   .    .  .  .*   .     .   .     .  .  .       .
    8.49     22.53    I.   .    .  .  .    *     .   .     .  .  .       .
    9.72     33.10    I.   .    .  .  .    . *   .   .     .  .  .       .
   11.13     59.79    I.   .    .  .  .    .     .*  .     .  .  .       .
   12.75     70.88    I.   .    .  .  .    .     .   *     .  .  .       .
   14.60     86.66    I.   .    .  .  .    .     .   .   * .  .  .       .
   16.71     93.24    I.   .    .  .  .    .     .   .     .*.  .       .
   19.14     97.05    I.   .    .  .  .    .     .   .     . .* .       .
   21.92     97.92    I.   .    .  .  .    .     .   .     .  . *.       .
   25.10     98.76    I.   .    .  .  .    .     .   .     .  .  .*      .
   28.74     99.13    I.   .    .  .  .    .     .   .     .  .  . *     .
   32.91     99.31    I.   .    .  .  .    .     .   .     .  .  . *     .
   37.69     99.65    I.   .    .  .  .    .     .   .     .  .  .    *  .
   43.16     99.65    I.   .    .  .  .    .     .   .     .  .  .    *  .
   49.43     99.83    I.   .    .  .  .    .     .   .     .  .  .     * .
   56.60      0.00    I*   .    .  .  .    .     .   .     .  .  .       .
   >PPM               I---I-----I--I--I---I-----I---I-----I--I--I-------I
```

```
                                        STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
                                                            FOR:  BUREAU OF LAND MANAGEMENT
    DATA ANALYSIS FOR  ZN           SAMPLE TYPE= STREAM SEDIMENTS
    NOTE: ALL DATA LOG(10) TRANSFORMED

FREQUENCY DISTRIBUTION HISTOGRAM  FOR  ZN

      CLASS MARK   0    5    10   15   20   25   30   35    40   45   50  PERCENT
...PPM  ............I----I----I----I---I----I----I----I----I----I----I
            27.65  II
            31.64  II
            36.20  II
            41.42  III
            47.40  IIIII
            54.24  IIIIIIIIIIIIIIII
            62.07  IIIIIIIIIIIIIIIIIIIII
            71.02  IIIIIIIIIIIIIIIIIIIIII
            81.27  IIIIIIIIIIIIII
            93.00  IIIIII
           106.42  IIIII
           121.78  IIII
           139.35  IIIIII
           159.46  III
           182.46  I
           208.79  I
           238.92  I
           273.40  I
           312.85  II
           357.99  II
                   I----I----I----I----I----I----I----I----I----I----I


LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR  ZN

   CLASS  CUM. %    .01 .1    1  5  10  25   50  75   90 95 98   99.99
  >PPM               I---I-----I--I--I---I----I---I-----I-I--I------I
   29.57     1.22   I.   .    *  .  .   .    .   .     . .  .      .
   33.84     1.72   I.   .    .*  . .   .    .   .     . .  .      .
   38.72     3.14   I.   .    . *.  .   .    .   .     . .  .      .
   44.31     5.24   I.   .    .  *  .   .    .   .     . .  .      .
   50.71     9.25   I.   .    .  . *.   .    .   .     . .  .      .
   58.02    24.61   I.   .    .  .  .   *    .   .     . .  .      .
   66.40    44.15   I.   .    .  .  .   .   *.   .     . .  .      .
   75.98    63.27   I.   .    .  .  .   .    . * .     . .  .      .
   86.94    78.71   I.   .    .  .  .   .    .   .*    . .  .      .
   99.48    83.60   I.   .    .  .  .   .    .   . *   . .  .      .
  113.84    87.43   I.   .    .  .  .   .    .   .  *  . .  .      .
  130.27    90.92   I.   .    .  .  .   .    .   .     * .  .      .
  149.06    96.34   I.   .    .  .  .   .    .   .     . .* .      .
  170.57    97.91   I.   .    .  .  .   .    .   .     . . *.      .
  195.19    98.25   I.   .    .  .  .   .    .   .     . .  *      .
  223.35    98.25   I.   .    .  .  .   .    .   .     . .  *      .
  255.58    98.60   I.   .    .  .  .   .    .   .     . .  .*     .
  292.46    98.78   I.   .    .  .  .   .    .   .     . .  .*     .
  334.66    99.30   I.   .    .  .  .   .    .   .     . .  . *    .
  382.95     0.00   I*   .    .  .  .   .    .   .     . .  .      .
  >PPM               I---I-----I--I--I---I----I---I-----I-I--I------I
```

STANDARD STATISTICAL PACKAGE....BARRINGER RESOURCES INC.
FOR: BUREAU OF LAND MANAGEMENT

DATA ANALYSIS FOR U   SAMPLE TYPE= STREAM SEDIMENTS
NOTE: ALL DATA LOG(10) TRANSFORMED

FREQUENCY DISTRIBUTION HISTOGRAM FOR U

```
      CLASS MARK   0    5    10   15   20   25   30   35   40   45   50  PERCENT
...PPM  ...........I----I----I----I----I----I----I----I----I----I----I
              .13  II
              .17  I
              .21  IIIII
              .27  IIIIIIII
              .34  I
              .44  IIIIIIIIIII
              .55  IIIIIIIIIIIIIIIIIIIIIII
              .70  IIIIIIIIIIIIII
              .89  IIIIIIIIIIIIIIIIIIII
             1.12  IIIIIIIII
             1.42  IIIIIIIIIIIII
             1.80  IIIII
             2.29  II
             2.90  II
             3.67  II
             4.65  I
             5.89  I
             7.46  I
             9.45  I
            11.97  I
                   I----I----I----I----I----I----I----I----I----I----I
```

LOG PROBABILITY PLOT OF CUMULATIVE FREQUENCY DISTRIBUTION FOR U

```
   CLASS   CUM. %    .01 .1   1  5  10  25   50  75   90 95 98  99.99
  >PPM                I---I----I--I--I---I----I---I----I-I--I------I
    .15      .32     I.   .  *  .  .  .   .    .   .    . .  .       .
    .19      .52     I.   .  *  .  .  .   .    .   .    . .  .       .
    .24     4.64     I.   .     .  *  .   .    .   .    . .  .       .
    .31    11.34     I.   .     .  .  *   .    .   .    . .  .       .
    .39    11.34     I.   .     .  .  *   .    .   .    . .  .       .
    .49    21.48     I.   .     .  .  .   *.   .   .    . .  .       .
    .62    43.30     I.   .     .  .  .   .    *.  .    . .  .       .
    .79    55.84     I.   .     .  .  .   .    .*  .    . .  .       .
   1.00    74.05     I.   .     .  .  .   .    .   *    . .  .       .
   1.27    81.96     I.   .     .  .  .   .    .   . *  . .  .       .
   1.60    93.30     I.   .     .  .  .   .    .   .    .*.  .       .
   2.03    97.25     I.   .     .  .  .   .    .   .    . . *.       .
   2.57    98.28     I.   .     .  .  .   .    .   .    . .  *       .
   3.26    99.48     I.   .     .  .  .   .    .   .    . .  .  *    .
   4.13   100.00     I.   .     .  .  .   .    .   .    . .  .       .
   5.23   100.00     I.   .     .  .  .   .    .   .    . .  .       .
   6.63   100.00     I.   .     .  .  .   .    .   .    . .  .       .
   8.40   100.00     I.   .     .  .  .   .    .   .    . .  .       .
  10.64   100.00     I.   .     .  .  .   .    .   .    . .  .       .
  13.48     0.00     I*   .     .  .  .   .    .   .    . .  .       .
  >PPM                I---I----I--I--I---I----I---I----I-I--I------I
```

CONTRACT YA-551-CT3-440038

GEOLOGY-ENERGY-MINERAL RESOURCE SURVEY
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT, OREGON

VOLUME III

Prepared by:

M. L. Robinson
W. T. Meyer
J. S. Lovell
A. L. Klawitter

Barringer Resources Inc.
1626 Cole Boulevard
Golden, Colorado 80401

APPENDIX A
(Continued)

Symbol Maps For Stream Sediments

CONTRACT YA-551-CT3-440038

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NORTHERN MALHEUR RESOURCE AREA
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APPENDIX B

Factor Analysis

Table B-I

SAMPLE NUMBER	UTM EAST	UTM NORTH	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
1	463287.	4846653.	-4.385	-0.438	-0.630	0.167
2	462319.	4808958.	-0.651	0.333	-0.500	-0.225
3	461693.	4807764.	-0.455	0.043	-0.080	-0.532
4	462426.	4807007.	-0.840	-0.252	-0.469	-0.753
5	478876.	4842848.	-1.651	0.836	-0.631	-0.312
6	476881.	4843061.	-0.523	-0.458	-0.280	-0.612
7	477405.	4842828.	-0.743	0.405	-0.168	-0.403
8	478823.	4841813.	-1.646	0.184	-0.616	-0.376
9	476947.	4840786.	-1.243	-0.242	-0.317	-0.733
10	477671.	4841257.	-0.706	-0.548	-0.320	-0.675
11	478029.	4841376.	-0.755	-0.202	0.202	-0.616
12	479636.	4839573.	-0.622	0.397	-0.396	-0.360
13	479616.	4840531.	-0.834	0.006	-0.197	-0.112
14	478912.	4839089.	-0.872	0.670	0.625	-0.869
15	479525.	4838981.	1.233	-0.467	-0.367	-0.691
16	480432.	4838962.	0.689	0.544	-0.879	-0.380
17	480888.	4838663.	0.299	-0.043	-0.353	-0.337
18	481623.	4837848.	-0.622	-0.175	0.063	-0.657
19	476984.	4836729.	0.973	1.331	-0.735	-0.041
20	477791.	4836854.	1.377	0.508	0.955	-0.341
21	478003.	4836629.	1.017	0.365	-0.362	-0.473
22	478268.	4836994.	0.891	0.041	-0.638	-0.856
23	477591.	4832530.	-0.711	-0.021	-0.153	-0.927
24	476999.	4833813.	1.785	0.474	-0.261	-0.344
25	477502.	4834099.	0.780	-0.292	-0.559	-1.036
26	479293.	4833238.	-1.249	-0.271	-0.723	-0.871
27	478869.	4834013.	-0.290	0.074	-0.441	-0.942
28	478912.	4834120.	1.609	0.618	0.431	-0.340
29	478806.	4834682.	-0.805	0.012	-0.433	-0.903
30	478999.	4835560.	1.276	0.650	-0.334	-0.441
31	481086.	4835776.	-0.243	0.058	-0.326	-0.665
32	480672.	4836390.	0.641	-0.071	-0.615	-0.540
33	473264.	4846721.	-0.945	-0.022	-0.270	-0.647
34	471491.	4846590.	-0.507	0.398	-0.530	-0.490
35	471814.	4846856.	-0.547	-0.053	-0.159	-0.627
36	470634.	4847251.	-2.628	0.559	-0.570	-0.606
37	471659.	4845447.	-0.646	-0.084	-0.111	-0.559
38	470918.	4845989.	-3.542	-0.214	-0.807	-0.304
39	471355.	4840528.	-0.818	0.532	-0.453	-0.579
40	471464.	4839966.	0.258	1.089	0.139	0.416
41	471716.	4840120.	-0.076	0.563	-0.202	-0.446
42	471883.	4839233.	0.184	0.521	-0.016	-0.247
43	472211.	4838162.	-0.007	0.542	0.543	-0.275
44	473111.	4838974.	-1.148	0.557	-0.473	-0.604
45	474149.	4838899.	-1.508	0.363	-0.227	-0.820
46	475209.	4838189.	-2.069	0.576	0.717	-1.077
47	476317.	4838562.	-0.767	0.557	-0.228	-0.599
48	477115.	4839133.	-0.597	0.105	-0.537	-0.769
49	450641.	4847248.	0.573	0.221	0.058	-0.348
50	452089.	4846991.	-0.319	1.063	-0.579	-0.124
51	451163.	4845668.	-0.771	0.505	-0.270	-0.560
52	452493.	4845472.	0.420	1.277	0.339	-0.138
53	453245.	4845453.	0.249	1.168	0.329	-0.350
54	453010.	4844424.	-0.539	0.749	0.463	-0.396
55	454787.	4847140.	-0.223	0.137	-0.150	-0.802

56	454152.	4843133.	-0.693	0.156	-0.178	-0.703
57	453370.	4843916.	-0.494	0.107	-0.522	-0.582
58	451759.	4843913.	-0.003	0.572	-0.145	-0.696
59	454192.	4841412.	-0.207	1.082	0.397	-0.410
60	453639.	4841574.	0.298	1.885	0.056	0.423
61	454577.	4841870.	-0.315	2.489	-0.363	0.006
62	454444.	4841606.	0.239	0.736	-1.030	-0.278
63	454550.	4841327.	0.810	0.475	0.386	-0.329
64	457679.	4845289.	-0.580	0.025	0.640	-0.600
65	457277.	4846615.	-0.430	-0.092	-0.316	-0.610
66	455825.	4845559.	0.283	0.180	0.575	-0.045
67	454421.	4844636.	0.055	0.177	-0.020	-0.169
68	454587.	4844384.	0.594	0.073	0.072	-0.119
69	454562.	4844033.	-0.165	0.179	-0.058	-0.056
70	455573.	4842478.	0.677	1.896	0.186	0.481
71	455877.	4841542.	-0.907	0.869	-0.296	-0.257
72	456641.	4842685.	-0.807	0.286	-0.105	-0.482
73	453288.	4841089.	0.125	2.977	0.790	2.096
74	455276.	4840563.	-0.991	0.073	1.248	-0.632
75	454175.	4840271.	0.149	0.254	0.128	-0.709
76	454270.	4840286.	-0.329	0.232	-0.174	-0.440
77	454045.	4839030.	0.031	0.018	0.649	-0.701
78	453961.	4838540.	0.361	-0.476	0.424	-0.538
79	454978.	4837886.	-1.010	-0.297	0.773	-0.479
80	453509.	4836658.	0.384	-0.341	0.062	-0.490
81	452973.	4836426.	0.064	-0.363	-0.021	-0.579
82	453053.	4836097.	0.232	-0.364	-0.335	-0.654
83	449544.	4844600.	-0.155	0.855	0.355	-0.048
84	449507.	4844180.	-0.028	1.748	0.212	0.884
85	450090.	4832085.	-0.219	-0.132	-0.340	-0.293
86	450247.	4833055.	0.801	-0.355	0.840	-0.185
87	449969.	4834321.	0.493	-0.619	1.151	-0.402
88	449992.	4834788.	-0.089	-0.238	0.471	-0.422
89	449954.	4835063.	-0.617	-0.325	-0.231	-0.614
90	449812.	4835736.	-0.672	-0.431	-0.050	-0.642
91	449681.	4836581.	-0.461	-0.370	1.115	-0.444
92	451658.	4837626.	-0.418	-0.451	0.199	-0.680
93	450132.	4838383.	-0.086	0.336	0.181	-0.229
94	450025.	4838600.	-0.269	-0.231	-0.117	-0.409
95	451696.	4838887.	-0.709	-0.533	0.632	-0.411
96	450564.	4839811.	-0.528	0.770	0.732	-0.102
97	450657.	4839979.	-0.294	1.007	0.487	0.280
98	450678.	4840748.	0.770	-0.488	0.809	-0.392
99	450633.	4841482.	-0.086	0.145	0.034	-0.196
100	475922.	4845413.	-0.605	-0.187	-0.078	-0.389
101	475955.	4845539.	-2.119	0.324	0.939	-0.521
102	476564.	4846294.	-2.225	-0.157	-0.144	-0.957
103	477287.	4846979.	-0.896	-0.301	-0.248	-0.530
104	477645.	4845151.	0.179	0.113	0.048	-0.185
105	479971.	4845084.	-0.139	-0.376	0.088	-0.357
106	480196.	4844963.	-0.362	-0.246	-0.699	-0.371
107	480409.	4845443.	-4.456	0.043	-0.103	-1.530
108	481895.	4846086.	-1.436	0.217	-0.153	-0.561
109	482720.	4846160.	0.027	4.605	1.181	2.024
110	482722.	4846050.	0.105	0.322	0.242	-0.373
111	482799.	4845270.	0.560	1.306	0.364	0.533
112	482706.	4845317.	-0.332	0.371	-0.204	-0.220
113	483515.	4846273.	-1.263	0.779	-0.177	-0.413

114	483427.	4846201.	-0.646	0.797	0.727	-0.387
115	483711.	4845877.	-0.233	0.348	-0.091	-0.184
116	484529.	4846830.	-0.007	0.179	-0.319	-0.229
117	485470.	4844261.	0.726	0.056	-0.182	-0.051
118	485532.	4844521.	-0.515	0.357	1.588	-0.130
119	485890.	4844800.	0.991	-0.168	0.809	-0.371
120	466828.	4842903.	-0.179	0.204	0.751	-0.002
121	465614.	4843917.	-0.587	0.028	0.094	-0.501
122	467394.	4843609.	-0.649	-0.452	0.641	-0.382
123	467775.	4844268.	-0.621	-0.455	-0.003	-0.497
124	469026.	4844958.	-0.862	-0.211	0.017	-0.437
125	468193.	4845170.	-0.751	-0.443	0.446	-0.519
126	467681.	4847177.	-2.931	0.333	-0.413	-0.407
127	468456.	4846050.	-0.656	-0.188	0.166	-0.597
128	465405.	4842866.	-1.286	1.669	0.078	-0.195
129	464631.	4842385.	-1.456	0.919	1.705	0.191
130	467187.	4839988.	0.563	-0.225	0.460	-0.391
131	461982.	4847038.	-0.320	-0.209	0.041	-0.369
132	463446.	4845939.	-0.002	-0.038	0.131	-0.166
133	464203.	4846851.	-0.271	-0.187	0.502	-0.657
134	461709.	4843215.	0.095	-0.266	-0.147	-0.473
135	461288.	4841530.	-0.003	-0.571	0.163	-0.278
136	461099.	4841610.	-0.001	-0.585	0.137	-0.300
137	461005.	4841678.	-0.095	-0.363	0.022	-0.343
138	461889.	4840095.	0.191	0.039	0.634	-0.292
139	460588.	4839632.	0.079	1.404	0.930	0.417
140	467148.	4837045.	-0.173	-0.604	0.761	-0.462
141	468046.	4835842.	0.529	-0.381	0.462	-0.305
142	467741.	4834810.	0.575	-0.360	0.471	-0.266
143	467641.	4834657.	0.604	0.076	0.571	-0.112
144	467492.	4833776.	0.266	-0.253	0.899	-0.389
145	462703.	4836683.	0.097	-0.495	0.458	-0.477
146	462735.	4835011.	-0.196	2.096	1.677	1.605
147	462654.	4835046.	0.155	-0.263	1.143	-0.164
148	462636.	4835149.	0.506	-0.505	0.514	-0.374
149	462989.	4835552.	-0.056	-0.456	-0.002	-0.555
150	466019.	4834473.	-0.382	-0.233	0.187	-0.125
151	465018.	4837579.	-0.451	-0.262	-0.140	-0.171
152	463785.	4835568.	-0.272	-0.586	0.622	-0.432
153	460351.	4835563.	-0.328	-0.233	0.481	-0.432
154	458200.	4842595.	0.154	-0.249	0.055	-0.531
155	458117.	4841207.	-0.212	-0.208	1.610	-0.425
156	458189.	4841124.	-0.087	-0.251	0.485	-0.430
157	459496.	4841280.	-0.311	-0.281	0.109	-0.406
158	457721.	4836573.	-0.697	-0.161	-0.148	-0.536
159	458695.	4836251.	-0.240	-0.216	0.595	-0.513
160	457275.	4835549.	-0.289	0.343	0.513	-0.187
161	457721.	4829889.	-0.122	-0.359	0.231	-0.480
162	457894.	4829643.	-0.451	-0.342	1.061	-0.554
163	456549.	4829450.	-0.399	-0.346	0.799	-0.479
164	457562.	4828619.	0.473	-0.417	0.273	-0.241
165	456753.	4827878.	-0.987	-0.277	-0.042	-0.524
166	458049.	4828191.	0.035	-0.047	-0.026	-0.154
167	462796.	4826699.	1.186	0.745	2.567	0.730
168	464292.	4826615.	0.268	0.157	0.082	0.080
169	464690.	4827086.	0.579	-0.503	-0.134	-0.450
170	464711.	4828429.	0.330	0.184	-0.194	-0.117
171	467002.	4827722.	0.384	0.746	6.507	2.877

172	467460.	4825226.	1.788	-0.613	0.222	-0.612
173	468094.	4827474.	1.913	-0.266	-0.371	-0.588
174	469631.	4829844.	1.520	0.088	0.528	-0.148
175	469502.	4829720.	1.533	-0.167	0.183	-0.180
176	454551.	4821963.	1.338	2.668	2.822	1.931
177	454299.	4821507.	-0.652	0.225	0.859	-0.041
178	454337.	4820868.	-0.283	0.930	0.275	0.241
179	454384.	4820084.	0.879	0.203	-0.153	0.009
180	454324.	4819273.	0.631	0.803	0.265	0.549
181	454369.	4818890.	0.706	0.559	1.086	0.156
182	454464.	4817857.	0.903	2.111	3.433	0.996
183	453388.	4815809.	-0.304	0.016	0.737	-0.122
184	454419.	4817528.	0.082	-0.044	0.098	-0.240
185	455173.	4815551.	-0.398	0.167	0.783	-0.213
186	455189.	4815348.	-0.322	-0.215	0.265	-0.530
187	456738.	4815031.	0.273	0.323	0.081	-0.055
188	452361.	4819996.	-0.158	-0.050	1.776	-0.302
189	455675.	4814393.	0.073	-0.490	0.152	-0.526
190	456466.	4813700.	-0.048	-0.350	0.141	-0.351
191	455243.	4813537.	0.705	-0.336	2.279	-0.259
192	454810.	4811656.	0.141	-0.472	0.917	-0.583
193	457793.	4812231.	0.532	-0.429	1.147	-0.112
194	457806.	4812427.	0.689	-0.498	-0.044	-0.476
195	458341.	4812665.	0.483	-0.483	0.597	-0.420
196	462070.	4817898.	0.259	0.173	0.974	-0.013
197	462223.	4817892.	-0.626	0.436	0.272	0.205
198	464968.	4815390.	-0.602	-0.233	0.064	-0.591
199	465244.	4815027.	0.171	-0.296	0.156	0.093
200	473406.	4845082.	-1.070	-0.015	-0.166	-0.613
201	470491.	4843737.	-0.924	-0.225	-0.882	-0.099
202	472093.	4843774.	-0.365	-0.084	-0.267	0.193
203	472704.	4843628.	-1.060	-0.439	-0.662	0.275
204	472258.	4842345.	-0.790	-0.362	-0.522	-0.326
205	472641.	4841565.	-0.309	-0.257	-0.559	-0.532
206	473604.	4841696.	-0.567	-0.365	-0.500	-0.397
207	474107.	4840885.	-1.306	-0.291	0.150	-0.340
208	474424.	4841215.	-0.731	-0.394	0.032	0.117
209	475022.	4842089.	-1.320	-0.400	-0.630	-0.131
210	470518.	4834234.	1.272	3.026	-0.451	0.366
211	471648.	4835092.	-0.523	-0.330	-0.510	-0.357
212	471619.	4834958.	-0.781	-0.300	-0.391	-0.424
213	470764.	4836570.	0.455	1.393	-0.084	0.403
214	469875.	4836800.	2.668	3.796	0.573	1.352
215	471212.	4837232.	2.656	9.831	-0.629	2.283
216	474433.	4833173.	1.581	0.603	-0.131	0.076
217	474517.	4833029.	1.026	-0.337	-0.229	-0.237
218	474071.	4835807.	-0.902	-0.284	-0.361	-0.519
219	459721.	4844489.	0.205	-0.659	-0.427	-0.576
220	458024.	4837663.	-0.144	-0.336	-0.216	-0.547
221	459421.	4837990.	-0.324	-0.559	-0.360	-0.590
222	458139.	4839109.	-0.138	-0.431	-0.244	-0.302
223	457642.	4839052.	-0.385	-0.400	-0.458	-0.380
224	458459.	4831176.	-0.138	-0.319	-0.563	-0.197
225	457992.	4832202.	-0.110	-0.638	-0.316	-0.559
226	458053.	4832412.	0.405	0.303	-1.287	0.132
227	458109.	4832077.	-0.031	-0.368	-0.495	-0.333
228	457173.	4831259.	-0.568	-0.092	-0.745	0.615
229	456295.	4833159.	-0.866	0.091	-0.510	-0.387

230	455394.	4833599.	-1.044	-0.129	-0.516	-0.689
231	455670.	4835850.	-0.068	-0.221	-0.511	-0.546
232	455518.	4831596.	-0.493	0.140	-0.285	-0.150
233	455358.	4830981.	-0.200	-0.247	-0.425	-0.381
234	460999.	4830976.	0.072	-0.441	-0.019	-0.301
235	461676.	4826968.	1.661	1.790	0.574	1.183
236	460845.	4828281.	0.468	0.438	1.806	0.140
237	460921.	4828252.	0.811	0.071	0.080	0.268
238	467097.	4827690.	2.391	0.541	-0.576	-0.060
239	467538.	4825139.	-1.554	0.338	-0.304	-0.313
240	467983.	4827408.	1.919	-0.305	-0.336	-0.310
241	468485.	4827570.	1.445	-0.362	-1.051	0.437
242	469521.	4826073.	1.973	-0.329	-0.274	-0.346
243	469511.	4825982.	1.158	0.801	-0.809	0.672
244	469541.	4828153.	1.963	-0.218	-0.372	-0.196
245	453111.	4814582.	-0.851	0.265	-0.052	-0.098
246	453299.	4814691.	-0.457	-0.249	-0.581	-0.427
247	453326.	4814100.	0.542	1.156	0.143	0.461
248	451293.	4813101.	-0.499	-0.238	-0.336	-0.130
249	451506.	4813303.	-0.314	0.009	-0.531	0.167
250	451419.	4814630.	-0.140	0.091	-0.449	0.529
251	451497.	4814786.	0.475	2.850	-1.076	0.173
252	451576.	4815735.	0.014	0.390	-0.431	-0.113
253	449273.	4819655.	-0.102	0.652	-0.313	-0.532
254	449198.	4818539.	0.215	-0.274	-0.231	-0.301
255	458210.	4802026.	0.234	0.779	-0.604	0.420
256	459330.	4802095.	1.068	2.050	-0.332	1.626
257	458657.	4801162.	0.678	3.924	-0.724	0.779
258	460465.	4800885.	1.081	2.534	-0.836	1.142
259	460978.	4800442.	-0.012	0.896	-1.029	0.419
260	461741.	4799416.	0.978	1.350	-0.703	0.652
261	462558.	4799360.	0.722	1.532	-1.040	0.801
262	462630.	4800041.	0.319	3.097	-0.612	-0.352
263	463263.	4801940.	0.458	1.329	-0.153	0.642
264	463024.	4802099.	0.929	1.368	-0.452	1.378
265	460356.	4805603.	0.911	0.829	2.078	0.452
266	460141.	4806045.	0.022	0.248	0.375	0.379
267	460846.	4805647.	0.093	0.181	3.010	0.439
268	462272.	4805764.	-0.191	1.374	-0.021	0.503
269	467453.	4823655.	-0.220	-0.440	-0.498	-0.200
270	469305.	4824020.	1.785	-0.014	-0.712	-0.243
271	470159.	4824944.	0.443	2.689	0.626	3.479
272	469839.	4825358.	0.867	0.238	-0.743	0.378
273	472836.	4826078.	0.103	0.566	-0.537	1.068
274	472637.	4826012.	-0.002	1.144	-0.343	0.677
275	471200.	4824151.	1.559	-0.397	-0.107	-0.160
276	473304.	4827082.	0.807	-0.362	-0.800	-0.288
277	473023.	4828256.	-0.951	-0.320	-0.141	-0.538
278	472853.	4827641.	-0.786	-0.533	-0.753	-0.485
279	474740.	4828823.	-1.024	-0.230	-0.311	-0.563
280	476594.	4829805.	0.597	-0.646	-0.191	-0.257
281	477838.	4829682.	-0.966	-0.504	1.220	-0.296
282	479597.	4830988.	-1.370	-0.441	0.049	-0.122
283	479563.	4830909.	-1.305	-0.467	0.019	-0.271
284	405442.	4876870.	-3.028	-0.153	-0.083	-0.272
285	404561.	4881923.	0.746	-0.611	0.328	1.007
286	403479.	4882058.	0.670	-0.546	0.421	1.335
287	403404.	4883077.	-2.565	0.016	-0.656	3.119

288	404050.	4883344.	-0.356	-0.381	-0.587	1.830
289	404528.	4885020.	-3.147	0.980	-1.080	5.797
290	404416.	4885581.	-2.781	0.917	-1.380	5.281
291	403377.	4880945.	1.084	-0.726	-0.289	0.726
292	403089.	4879851.	-0.309	-0.544	0.137	-0.215
293	402356.	4881663.	-0.783	-0.315	-0.632	0.233
294	402032.	4881130.	0.418	-0.477	-0.073	0.473
295	401233.	4885704.	-2.206	-0.184	-0.458	-0.499
296	401143.	4884478.	-1.241	-0.274	-0.560	-0.201
297	401835.	4878828.	0.163	-0.444	-0.469	0.258
298	401702.	4877786.	-0.059	-0.405	-0.441	-0.073
299	405171.	4879891.	-0.674	-0.283	0.211	0.312
300	448407.	4804479.	0.118	-0.568	-0.023	-0.106
301	450648.	4806550.	-1.130	-0.269	-0.133	-0.375
302	451049.	4805924.	-0.141	-0.340	-0.132	-0.094
303	449407.	4806658.	0.176	-0.540	0.002	-0.112
304	458364.	4800440.	0.082	2.860	-0.562	-0.666
305	459357.	4800420.	-2.239	3.629	-0.240	0.878
306	460367.	4802245.	0.970	1.041	-0.077	0.741
307	460287.	4802198.	1.107	1.218	0.192	1.218
308	462342.	4801285.	0.616	1.599	-0.156	0.824
309	462261.	4801193.	1.046	2.545	-0.392	0.572
310	460989.	4803096.	1.074	0.907	-0.483	0.500
311	459408.	4804174.	0.850	0.374	2.018	0.607
312	459172.	4803727.	1.006	1.265	-0.251	0.389
313	463920.	4809245.	0.521	-0.026	-0.534	-0.215
314	464767.	4808416.	0.893	0.456	-0.144	0.362
315	465803.	4807969.	0.190	-0.096	-0.473	-0.181
316	466483.	4806639.	0.482	0.269	-0.864	-0.022
317	465913.	4804815.	2.107	1.288	-0.962	0.368
318	465110.	4803689.	1.943	2.547	-1.395	-0.298
319	464450.	4804105.	0.996	0.166	-0.207	0.263
320	463425.	4803753.	1.002	0.681	-0.479	0.599
321	463298.	4803866.	0.368	0.568	-0.007	0.143
322	463413.	4802815.	1.212	1.059	-0.149	0.783
323	459793.	4799925.	0.817	2.797	-0.969	-0.015
324	463526.	4805894.	0.125	0.371	-0.363	-0.112
325	460609.	4811654.	1.439	1.683	0.427	0.578
326	459773.	4811119.	0.648	0.589	1.822	0.349
327	461545.	4810931.	0.514	0.473	-0.206	0.237
328	460746.	4810116.	0.502	0.262	0.050	0.198
329	457564.	4809230.	0.023	-0.010	-0.520	0.152
330	457617.	4808329.	-0.054	-0.475	0.238	-0.002
331	454281.	4805659.	-0.112	-0.334	-0.404	-0.190
332	410321.	4878816.	0.772	-0.571	-0.132	0.474
333	414884.	4876583.	0.699	-0.746	-0.357	0.347
334	414024.	4879030.	-0.223	-0.737	0.422	0.566
335	413633.	4878241.	0.333	-0.823	-0.471	0.887
336	413520.	4877765.	0.321	-0.737	-0.131	0.920
337	413037.	4877125.	0.409	-0.770	0.230	0.491
338	412129.	4876716.	0.704	-0.511	0.667	0.463
339	416666.	4879133.	0.840	-0.759	0.426	0.537
340	417578.	4877263.	0.190	-0.758	-0.049	0.359
341	418482.	4878360.	0.818	-0.828	0.372	0.753
342	418668.	4878430.	-0.793	-0.620	-0.056	-0.373
343	419201.	4879392.	-1.278	-0.448	-0.073	-0.347
344	419510.	4881627.	0.987	-0.812	-0.608	0.722
345	419211.	4881347.	0.874	-0.636	-0.514	0.979

346	418313.	4879850.	0.852	-0.866	-0.536	0.688
347	418125.	4879926.	1.009	-0.839	-0.785	0.812
348	417275.	4880356.	0.977	-0.558	-1.860	0.857
349	416093.	4879893.	0.882	-0.764	-0.852	0.631
350	418250.	4884029.	0.913	-0.894	-0.745	0.929
351	418253.	4885032.	0.994	-0.885	-0.939	0.806
352	416908.	4883278.	0.950	-0.809	-0.909	0.461
353	416351.	4885198.	0.324	-0.723	-0.749	0.036
354	416327.	4884742.	1.045	-1.070	-0.833	0.333
400	461875.	4816027.	0.381	0.128	0.192	0.184
401	461591.	4815816.	0.537	0.174	-0.365	0.266
402	461488.	4815531.	0.470	-0.164	-0.232	0.211
403	461260.	4814849.	0.461	0.226	0.235	-0.096
404	461166.	4813767.	0.667	0.169	0.483	0.014
405	460943.	4812429.	0.862	0.453	-0.235	0.297
406	465601.	4814958.	0.257	-0.791	-0.142	-0.093
407	463799.	4814122.	-0.092	-0.609	-0.033	0.474
408	464552.	4813668.	0.215	-0.650	-0.248	0.530
409	462905.	4812906.	0.203	-0.635	-0.051	0.369
410	459918.	4812416.	0.212	-0.098	0.056	-0.069
411	452607.	4812129.	-0.313	0.244	-0.354	-0.032
412	452277.	4811321.	0.390	-0.491	-0.278	-0.358
413	451991.	4810765.	0.206	-0.453	-0.354	-0.322
414	452382.	4811033.	0.498	-0.103	-0.182	-0.093
415	453794.	4809974.	0.562	-0.461	-0.705	0.014
416	456425.	4808094.	-0.309	-0.388	0.063	-0.264
417	456011.	4807465.	-0.206	-0.428	1.222	-0.311
418	456086.	4807368.	-0.144	-0.403	-0.276	0.149
419	456456.	4806820.	-0.119	-0.072	-0.535	0.079
420	404730.	4880764.	1.212	-0.803	-0.986	0.468
421	406591.	4881637.	-0.973	-0.436	-0.530	0.542
422	405961.	4882738.	-0.636	-0.614	-0.018	0.089
423	406608.	4885966.	-1.769	-0.121	-0.972	3.442
424	409347.	4884249.	-1.377	-0.488	-0.417	-0.378
425	408988.	4884945.	-2.001	-0.321	-0.963	2.561
426	409417.	4883761.	-0.434	-0.629	-0.634	-0.258
427	408549.	4881881.	-1.384	-0.323	-0.073	-0.314
428	409522.	4880396.	-2.112	-0.608	-1.135	0.899
429	406823.	4879515.	-0.396	-0.767	-0.587	0.466
430	450763.	4802481.	0.002	-0.480	-0.176	-0.070
431	450796.	4802836.	-0.043	-0.425	-0.346	-0.018
432	450997.	4803431.	0.068	-0.720	-0.430	-0.304
433	452396.	4804832.	-0.382	-0.576	-0.597	0.777
434	452319.	4804715.	0.041	-0.431	-0.570	-0.190
435	451611.	4807662.	-0.139	-0.449	-0.347	-0.235
436	453246.	4806875.	-0.373	-0.629	-0.197	-0.398
437	452606.	4808186.	-0.370	-0.402	-0.398	-0.133
438	453742.	4808766.	0.415	-0.680	-0.388	-0.154
439	456596.	4810446.	-0.084	-0.485	-0.393	-0.305
440	455982.	4808779.	-0.230	-0.425	-0.294	-0.239
441	458002.	4810263.	-0.011	-0.129	-0.424	0.107
442	458082.	4810254.	0.402	0.804	-0.438	0.405
446	409918.	4882066.	-1.531	-0.598	-0.285	-0.110
447	408286.	4884260.	0.026	-0.970	-0.128	-0.118
448	409961.	4885663.	-1.621	-0.103	-0.993	2.355
449	410927.	4885234.	-2.596	-0.573	-0.921	2.103
450	411037.	4884719.	-1.395	-0.286	-0.892	1.827
451	412568.	4885418.	-0.901	-0.952	-0.595	0.048

452	411722.	4884307.	-1.212	-0.593	-0.491	-0.075
460	420035.	4882022.	0.884	-0.897	-0.818	1.059
461	420733.	4883551.	0.778	-0.927	-0.153	1.689
462	420790.	4884170.	0.870	-1.019	-0.079	0.970
463	419638.	4885873.	0.804	-0.844	-0.321	0.760
473	406763.	4879801.	-0.303	-0.752	-0.294	0.474
475	409327.	4877283.	0.749	-0.606	-0.628	0.867
476	408014.	4878711.	0.310	-0.573	-0.348	0.749
477	408198.	4879336.	0.629	-0.584	0.988	0.728
478	408455.	4880098.	-0.120	-0.525	-0.158	0.755
479	407925.	4878193.	-0.721	-0.918	0.504	0.181
479	420437.	4880111.	1.084	-0.848	-0.339	0.791
480	420268.	4879461.	0.950	-0.827	-0.481	0.791
481	420302.	4879145.	-0.270	-0.636	-0.211	-0.187
500	482054.	4841572.	0.768	-0.733	0.066	0.347
501	480718.	4841369.	-0.606	-0.326	0.692	-0.326
502	480239.	4841397.	-0.404	-0.067	0.566	-0.187
503	483727.	4841981.	-0.323	-0.405	-0.333	-0.204
504	483628.	4841860.	1.345	1.305	-0.434	0.824
505	483467.	4841537.	-0.152	-0.094	-0.260	0.170
506	483394.	4841605.	0.414	-0.124	1.044	0.275
507	484378.	4839305.	-0.327	0.061	-0.635	-0.188
508	465093.	4847236.	0.339	-0.125	0.701	0.080
509	465223.	4847196.	-0.546	-0.339	-0.315	-0.225
510	465625.	4847235.	-0.699	-0.408	-0.344	-0.088
511	464903.	4845802.	0.267	-0.977	-0.291	1.686
512	465355.	4845802.	-0.656	-0.243	-0.605	-0.328
513	466040.	4845741.	-2.010	-0.241	-0.462	-0.389
514	466188.	4845024.	-2.283	-0.260	-0.221	-0.320
515	466069.	4845268.	-2.457	-0.178	-0.272	-0.700
516	466355.	4846073.	-2.774	-0.177	-0.005	-0.513
517	466580.	4846891.	-3.232	0.267	-0.446	-0.837
518	468551.	4846816.	-2.648	-0.540	-0.348	-0.198
519	468084.	4842057.	0.406	-0.699	-0.283	0.103
520	466510.	4840946.	0.606	-0.098	0.006	0.193
521	466912.	4840390.	0.609	-0.054	-0.184	-0.010
522	467028.	4840630.	-0.188	-0.575	-0.132	-0.244
523	467503.	4840067.	0.098	-0.421	-0.306	-0.040
524	468006.	4839511.	-0.159	-0.388	-0.415	-0.138
525	468233.	4838841.	0.436	-0.499	-0.435	0.401
526	468149.	4837619.	0.587	-0.409	-0.384	-0.213
527	468776.	4838298.	1.878	1.670	-0.357	0.524
528	469748.	4838697.	0.196	-0.428	-0.169	-0.046
529	466490.	4838638.	-0.060	-0.328	-0.561	-0.166
530	465305.	4839043.	1.123	0.148	0.362	0.128
531	465212.	4838865.	0.624	-0.369	0.518	-0.192
532	464575.	4839935.	1.245	-0.458	-0.134	-0.176
533	463837.	4840125.	0.691	-0.536	0.376	0.429
534	463882.	4840176.	0.868	-0.426	-0.312	-0.139
535	464016.	4840186.	0.250	-0.450	-0.171	-0.207
536	460439.	4846176.	-0.772	-0.576	-0.475	-0.551
537	460003.	4844540.	-0.191	-0.385	-0.411	-0.329
538	462289.	4845731.	-0.655	-0.339	-0.471	-0.520
539	462019.	4844097.	-0.217	-0.401	-0.591	-0.347
540	462966.	4843382.	0.333	-0.640	-0.542	-0.189
541	463399.	4841627.	0.445	-0.420	-0.142	0.066
542	463787.	4838853.	0.864	-0.398	-0.064	-0.098
543	461153.	4838413.	0.930	0.177	0.995	0.279

544	462109.	4839697.	1.293	-0.104	-0.223	-0.113
545	465932.	4837985.	-0.370	-0.038	-0.347	-0.014
546	468319.	4837011.	0.795	-0.434	-0.538	-0.290
547	469199.	4835139.	1.195	1.422	-0.325	0.499
548	467192.	4835039.	0.429	-0.060	-0.269	-0.032
549	467547.	4834734.	0.021	-0.077	-0.382	0.113
550	468496.	4833477.	0.234	-0.100	-0.087	0.012
551	463532.	4832825.	0.254	-0.638	-0.471	-0.338
552	466594.	4832792.	0.453	-0.664	-0.157	-0.445
553	465931.	4832834.	1.054	-0.672	-0.498	-0.289
554	466493.	4832133.	0.188	-0.455	-0.320	-0.068
555	464268.	4831090.	0.454	-0.421	-0.268	-0.146
556	464608.	4830533.	0.960	-0.467	-0.507	-0.068
557	466239.	4830940.	1.087	-0.732	-0.623	-0.094
558	466382.	4830754.	0.366	-0.750	-0.523	0.334
559	466183.	4830323.	0.407	-0.440	-0.113	-0.149
560	466273.	4829551.	0.586	0.571	1.591	0.471
561	465704.	4829515.	0.689	-0.438	-0.358	-0.202
562	465661.	4829407.	0.596	-0.505	0.655	0.160
563	467716.	4830388.	0.831	-0.528	-0.180	-0.708
564	454315.	4828137.	-0.661	-0.392	2.179	-0.223
565	454270.	4828094.	-0.538	-0.422	0.191	-0.199
566	453654.	4826270.	-0.315	-0.084	0.457	0.142
567	453185.	4825279.	-0.381	-0.394	0.033	-0.274
568	453051.	4825273.	-0.200	-0.656	0.079	-0.416
569	450390.	4829190.	-0.325	0.028	0.058	-0.051
570	449869.	4829946.	-0.276	-0.346	0.912	-0.129
571	449610.	4828808.	-0.336	-0.397	0.561	-0.387
572	449668.	4826630.	-0.554	-0.387	0.765	-0.341
573	455615.	4826219.	-0.928	-0.371	0.751	-0.311
574	452155.	4823717.	-0.458	-0.647	0.311	-0.385
575	452580.	4822028.	-0.164	-0.453	0.000	-0.254
576	454382.	4823043.	-0.297	-0.496	-0.071	0.170
577	454288.	4823342.	-0.081	-0.464	-0.235	-0.189
578	453804.	4824620.	-0.385	-0.392	0.027	-0.293
579	454219.	4823867.	-1.027	-0.333	-0.161	-0.403
580	454196.	4823651.	-0.552	-0.418	-0.109	-0.297
581	472648.	4830026.	1.344	-0.431	-0.160	-0.252
582	472384.	4832657.	1.003	-0.458	-0.139	-0.132
583	473074.	4832233.	0.843	-0.515	-0.090	0.224
584	473144.	4832270.	0.205	-0.449	-0.124	-0.022
585	473381.	4831660.	1.353	0.165	0.537	0.086
586	473392.	4830674.	1.494	-0.083	0.759	0.092
587	472955.	4830641.	1.002	-0.453	-0.256	-0.150
588	473422.	4829462.	0.032	1.627	0.764	0.927
589	473297.	4829020.	1.384	-0.044	1.183	0.009
590	451512.	4817670.	0.759	-0.532	2.048	0.096
591	452194.	4816479.	0.409	0.123	0.231	0.172
592	449652.	4817227.	0.909	-0.540	0.364	-0.044
593	449882.	4816982.	1.006	-0.571	0.007	-0.335
594	449703.	4816254.	0.619	-0.549	0.298	0.200
595	450619.	4816028.	-1.015	-0.325	-0.150	-0.313
596	449369.	4813576.	-0.146	-0.388	-0.126	-0.307
597	449292.	4806545.	0.058	-0.176	-0.061	-0.454
598	449009.	4805118.	-0.111	-0.367	-0.014	-0.384
599	448854.	4805074.	0.101	-0.363	-0.235	-0.319
600	450829.	4841696.	0.056	0.810	0.483	0.730
601	453294.	4835246.	0.108	-0.441	-0.316	-0.119

602	452992.	4835222.	0.040	-0.429	-0.225	-0.366
603	452926.	4834295.	-0.208	-0.659	0.197	-0.358
604	453298.	4832724.	-0.163	-0.424	0.592	-0.385
605	451807.	4829972.	-0.126	-0.259	0.144	-0.375
606	451223.	4828940.	-0.041	-0.388	0.087	-0.277
607	451345.	4828069.	-0.306	-0.172	-0.084	-0.325
608	451262.	4826387.	-0.231	-0.369	0.208	-0.322
609	449740.	4825481.	-0.068	-0.348	0.063	-0.372
610	450861.	4824034.	-0.405	-0.589	0.287	-0.367
611	450090.	4823059.	-0.090	-0.419	0.311	-0.164
612	449851.	4822549.	-0.244	-0.428	0.287	-0.040
613	449821.	4822219.	-0.118	0.005	0.626	-0.071
614	450111.	4821172.	-0.010	-0.361	0.070	-0.361
615	449936.	4820678.	0.277	-0.474	0.539	-0.192
616	450707.	4820204.	1.115	-0.764	-0.031	-0.486
617	470211.	4828173.	2.047	-0.552	-0.275	-0.676
618	470360.	4828120.	1.968	-0.502	-0.398	-0.481
619	470877.	4827899.	1.366	0.478	-0.140	0.490
620	471600.	4829082.	1.387	-0.341	0.483	-0.150
621	472756.	4829711.	1.651	-0.383	-0.443	-0.120
622	473169.	4829839.	1.610	-0.411	-0.438	-0.029
623	475491.	4830909.	0.905	0.757	-0.073	0.324
624	475428.	4831135.	1.375	-0.357	-0.494	-0.193
625	411313.	4877369.	0.555	-0.438	-0.311	0.353
626	410522.	4880242.	-1.209	-0.528	-0.091	-0.199
627	411373.	4878291.	0.086	-0.561	0.533	0.978
628	411869.	4879675.	-0.876	-0.369	0.544	0.200
629	414033.	4880401.	-0.237	-0.747	-0.118	0.686
630	414161.	4880990.	0.108	-0.585	0.745	0.718
631	411459.	4883484.	-0.991	-0.716	-0.426	0.292
632	411501.	4882186.	-1.716	-0.489	-0.101	-0.434
633	411216.	4881585.	-0.284	-0.626	1.051	-0.055
634	412363.	4882276.	-0.661	-0.736	-0.049	0.198
635	413284.	4881989.	0.406	-0.559	0.813	1.005
636	413427.	4882011.	0.287	-0.536	0.244	0.713
637	414788.	4881667.	0.482	-0.817	0.883	0.823
638	415398.	4882578.	1.040	-0.796	-0.068	0.647
639	415119.	4881804.	0.251	-0.723	0.641	-0.042
640	452372.	4810040.	0.536	-0.387	-0.098	-0.516
641	451758.	4809173.	-1.560	-0.228	-0.212	-0.682
642	451847.	4808976.	-0.121	-0.378	0.144	-0.451
643	451649.	4808893.	-0.577	-0.335	0.094	-0.397
644	451809.	4808666.	0.024	-0.384	-0.338	-0.378
645	453556.	4809380.	0.083	-0.404	-0.048	-0.213
646	454364.	4809939.	0.551	-0.428	-0.075	-0.175
647	452628.	4801404.	0.056	-0.390	-0.105	-0.152
648	452266.	4801372.	0.011	-0.616	0.055	-0.388
649	452412.	4799532.	0.030	-0.376	0.664	-0.182
650	454002.	4799219.	-0.386	-0.011	0.864	0.117
651	455444.	4798995.	0.198	-0.389	0.242	-0.234
652	452996.	4800594.	0.109	-0.377	0.753	-0.331
653	454523.	4801683.	0.241	-0.042	0.158	-0.123
654	455887.	4801812.	-0.220	-0.404	0.054	-0.116
655	455402.	4803211.	-0.256	-0.373	1.173	-0.221
656	456411.	4803785.	0.163	-0.385	0.202	-0.363
657	455166.	4804787.	0.141	-0.379	0.175	-0.359
658	455239.	4804995.	0.244	-0.378	0.941	-0.295
659	414876.	4884620.	0.885	-0.382	0.674	0.120

660	413371.	4884374.	-1.820	-0.453	0.944	-0.616
661	413202.	4883170.	0.113	-0.620	0.028	-0.348
662	413904.	4882745.	0.904	-0.554	0.674	0.677
690	416186.	4880987.	0.845	-0.419	0.594	0.244
691	417212.	4881781.	1.140	-0.875	-0.354	0.746

APPENDIX C

Discriminant Analysis

Table C-I

SAMPLE NUMBER	UTM EAST	UTM NORTH	TRAINING SET	CLASS	PROBABILITY FOR EACH CLASS G1	G2	G3	G4	G5	G6	G7	G8	G9
1	463287.	4846653.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
2	462319.	4808958.	4*	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
3	461693.	4807764.	4*	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
4	462426.	4807007.	4*	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
5	478876.	4842848.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
6	476881.	4843061.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
7	477405.	4842828.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
8	478823.	4841813.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
9	476947.	4840786.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
10	477671.	4841257.	4	G4	.000	.000	.000	.865	.135	.000	.000	.000	.000
11	478029.	4841376.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
12	479636.	4839573.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
13	479616.	4840531.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
14	478912.	4839089.	1	G1	.955	.000	.000	.045	.000	.000	.000	.000	.000
15	479525.	4838981.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
16	480432.	4838962.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
17	480888.	4838663.	3	G3	.000	.000	.920	.000	.000	.000	.000	.000	.080
18	481623.	4837848.	5	G5	.003	.000	.000	.000	.997	.000	.000	.000	.000
19	476984.	4836729.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
20	477791.	4836854.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
21	478003.	4836629.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
22	478268.	4836994.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
23	477591.	4832530.	5	G5	.026	.000	.000	.000	.974	.000	.000	.000	.000
24	476999.	4833813.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
25	477502.	4834099.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
26	479293.	4833238.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
27	478869.	4834013.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
28	478912.	4834120.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
29	478806.	4834682.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
30	478999.	4835560.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
31	481086.	4835776.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
32	480672.	4836390.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
33	473264.	4846721.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
34	471491.	4846590.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
35	471814.	4846856.	1	G1	.859	.000	.000	.000	.140	.000	.001	.000	.000
36	470634.	4847251.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
37	471659.	4845447.	5	G5	.054	.000	.000	.000	.946	.000	.000	.000	.000
38	470918.	4845989.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
39	471355.	4840528.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000

40	471464.	4839966.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
41	471716.	4840120.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
42	471883.	4839233.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
43	472211.	4838162.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
44	473111.	4838974.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
45	474149.	4838899.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
46	475209.	4838189.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
47	476317.	4838562.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
48	477115.	4839133.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
49	450641.	4847248.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
50	452089.	4846991.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
51	451163.	4845668.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
52	452493.	4845472.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
53	453245.	4845453.	7	G7	.067	.000	.000	.000	.000	.000	.933	.000	.000
54	453010.	4844424.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
55	454787.	4847140.	5	G5	.001	.000	.000	.000	.999	.000	.000	.000	.000
56	454152.	4843133.	5	G5	.001	.000	.000	.000	.999	.000	.000	.000	.000
57	453370.	4843916.	5	G5	.000	.000	.000	.000	.667	.000	.333	.000	.000
58	451759.	4843913.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
59	454192.	4841412.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
60	453639.	4841574.	1	G1	.962	.000	.000	.038	.000	.000	.000	.000	.000
61	454577.	4841870.	4	G4	.000	.000	.000	.637	.363	.000	.000	.000	.000
62	454444.	4841606.	2	G2	.000	.999	.000	.001	.000	.000	.000	.000	.000
63	454550.	4841327.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
64	457679.	4845289.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
65	457277.	4846615.	5	G5	.001	.000	.000	.000	.999	.000	.000	.000	.000
66	455825.	4845559.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
67	454421.	4844636.	1	G1	.997	.003	.000	.000	.000	.000	.000	.000	.000
68	454587.	4844384.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
69	454562.	4844033.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
70	455573.	4842478.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
71	455877.	4841542.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
72	456641.	4842685.	5*	G5	.000	.000	.000	.000	.960	.000	.040	.000	.000
73	453288.	4841089.	1	G1	.971	.000	.000	.000	.029	.000	.000	.000	.000
74	455276.	4840563.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
75	454175.	4840271.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
76	454270.	4840286.	4	G4	.000	.000	.000	.999	.001	.000	.000	.000	.000
77	454045.	4839030.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
78	453961.	4838540.	6	G6	.000	.000	.000	.038	.000	.962	.000	.000	.000
79	454978.	4837886.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
80	453509.	4836650.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
81	452973.	4836426.	5	G5	.000	.000	.000	.000	.998	.000	.002	.000	.000

82	453053.	4836097.	2	G2	.000	.970	.000	.000	.000	.000	.030	.000	.000
83	449544.	4844600.	9	G9	.000	.000	.000	.000	.000	.000	.001	.000	.999
84	449507.	4844180.	4	G4	.000	.000	.000	.996	.000	.000	.004	.000	.000
85	450090.	4832085.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
86	450247.	4833055.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
87	449969.	4834321.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
88	449992.	4834788.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
89	449954.	4835063.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
90	449812.	4835736.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
91	449681.	4836581.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
92	451658.	4837626.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
93	450132.	4838383.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
94	450025.	4838600.	1	G1	.998	.000	.000	.000	.002	.000	.000	.000	.000
95	451696.	4838887.	4	G4	.000	.000	.000	.999	.001	.000	.000	.000	.000
96	450564.	4839811.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
97	450657.	4839979.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
98	450678.	4840748.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
99	450633.	4841482.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
100	475922.	4845413.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
101	475955.	4845539.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
102	476564.	4846294.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
103	477287.	4846979.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
104	477645.	4845151.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
105	479971.	4845084.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
106	480196.	4844963.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
107	480409.	4845443.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
108	481895.	4846086.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
109	482720.	4846160.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
110	482722.	4846050.	2	G2	.122	.878	.000	.000	.000	.000	.000	.000	.000
111	482799.	4845270.	4	G4	.000	.000	.000	.931	.000	.000	.069	.000	.000
112	482706.	4845317.	5	G5	.032	.000	.000	.000	.968	.000	.000	.000	.000
113	483515.	4846273.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
114	483427.	4846201.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
115	483711.	4845877.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
116	484529.	4846830.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
117	485470.	4844261.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
118	485532.	4844521.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
119	485890.	4844800.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
120	466828.	4842903.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
121	465614.	4843917.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
122	467394.	4843609.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
123	467775.	4844268.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000

124	469026.	4844958.	7	G7	.003	.000	.000	.000	.000	.000	.997	.000	.000
125	468193.	4845170.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
126	467681.	4847177.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
127	468456.	4846050.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
128	465405.	4842866.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
129	464631.	4842385.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
130	467187.	4839988.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
131	461982.	4847038.	5	G5	.212	.000	.000	.214	.574	.000	.000	.000	.000
132	463446.	4845939.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
133	464203.	4846851.	1	G1	.866	.000	.000	.000	.134	.000	.000	.000	.000
134	461709.	4843215.	5	G5	.306	.000	.000	.000	.528	.167	.000	.000	.000
135	461288.	4841530.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
136	461099.	4841610.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
137	461005.	4841678.	5	G5	.009	.000	.000	.000	.991	.000	.000	.000	.000
138	461889.	4840095.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
139	460588.	4839632.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
140	467148.	4837045.	6*	G6	.042	.000	.000	.000	.000	.958	.000	.000	.000
141	468046.	4835842.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
142	467741.	4834810.	6	G6	.000	.480	.000	.000	.000	.520	.000	.000	.000
143	467641.	4834657.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
144	467492.	4833776.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
145	462703.	4836683.	1	G1	.997	.000	.000	.000	.003	.000	.000	.000	.000
146	462735.	4835011.	1	G1	.999	.000	.000	.000	.001	.000	.000	.000	.000
147	462654.	4835046.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
148	462636.	4835149.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
149	462989.	4835552.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
150	466019.	4834473.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
151	465018.	4837579.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
152	463785.	4835568.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
153	460351.	4835563.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
154	458200.	4842595.	5*	G5	.028	.000	.000	.000	.972	.000	.000	.000	.000
155	458117.	4841207.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
156	458189.	4841124.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
157	459496.	4841280.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
158	457721.	4836573.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
159	458695.	4836251.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
160	457275.	4835549.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
161	457721.	4829889.	4	G4	.003	.000	.000	.997	.000	.000	.000	.000	.000
162	457894.	4829643.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
163	456549.	4829450.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
164	457562.	4828619.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
165	456753.	4827878.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000

166	458049.	4828191.	1	G1	.790	.000	.000	.000	.210	.000	.000	.000	.000
167	462796.	4826699.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
168	464292.	4826615.	7	G7	.000	.000	.000	.235	.000	.000	.765	.000	.000
169	464690.	4827086.	4	G4	.000	.000	.000	.586	.000	.414	.000	.000	.000
170	464711.	4828429.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
171	467002.	4827722.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
172	467460.	4825226.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
173	468094.	4827474.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
174	469631.	4829844.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
175	469502.	4829720.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
176	454551.	4821963.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
177	454299.	4821507.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
178	454337.	4820868.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
179	454384.	4820084.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
180	454324.	4819273.	1	G1	.957	.000	.000	.000	.043	.000	.000	.000	.000
181	454369.	4818890.	6	G6	.000	.000	.000	.001	.000	.999	.000	.000	.000
182	454464.	4817857.	9	G9	.000	.001	.000	.000	.000	.000	.000	.000	.999
183	453388.	4815809.	1	G1	.905	.000	.000	.000	.095	.000	.000	.000	.000
184	454419.	4817528.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
185	455173.	4815551.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
186	455189.	4815348.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
187	456738.	4815031.	4	G4	.000	.000	.000	.928	.000	.000	.072	.000	.000
188	452361.	4819996.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
189	455675.	4814393.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
190	456466.	4813700.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
191	455243.	4813537.	5	G5	.044	.000	.000	.000	.956	.000	.000	.000	.000
192	454810.	4811656.	1	G1	.922	.000	.000	.000	.000	.000	.078	.000	.000
193	457793.	4812231.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
194	457806.	4812427.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
195	458341.	4812665.	4	G4	.000	.000	.000	.941	.000	.000	.059	.000	.000
196	462070.	4817898.	3	G3	.000	.000	.940	.000	.000	.000	.060	.000	.000
197	462223.	4817892.	1	G1	.996	.000	.000	.000	.004	.000	.000	.000	.000
198	464968.	4815390.	3*	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
199	465244.	4815027.	3*	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
200	473406.	4845082.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
201	470491.	4843737.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
202	472093.	4843774.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
203	472704.	4843628.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
204	472258.	4842345.	5	G5	.029	.000	.000	.000	.673	.000	.297	.000	.000
205	472641.	4841565.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
206	473604.	4841696.	1	G1	.999	.000	.000	.000	.000	.000	.001	.000	.000
207	474107.	4840885.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000

208	474424.	4841215.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
209	475022.	4842089.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
210	470518.	4834234.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
211	471648.	4835092.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
212	471619.	4834958.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
213	470764.	4836570.	6	G6	.000	.000	.000	.000	.000	.679	.321	.000	.000
214	469875.	4836800.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
215	471212.	4837232.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
216	474433.	4833173.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
217	474517.	4833029.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
218	474071.	4835807.	5	G5	.117	.000	.000	.000	.883	.000	.000	.000	.000
219	459721.	4844489.	5	G5	.000	.373	.000	.000	.627	.000	.000	.000	.000
220	458024.	4837663.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
221	459421.	4837990.	5*	G5	.112	.000	.000	.000	.888	.000	.000	.000	.000
222	458139.	4839109.	5*	G5	.024	.000	.000	.000	.976	.000	.000	.000	.000
223	457642.	4839052.	5*	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
224	458459.	4831176.	9	G9	.000	.000	.000	.000	.000	.000	.127	.000	.873
225	457992.	4832202.	1	G1	.581	.419	.000	.000	.000	.000	.000	.000	.000
226	458053.	4832412.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
227	458109.	4832077.	2	G2	.065	.553	.000	.000	.382	.000	.000	.000	.000
228	457173.	4831259.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
229	456295.	4833159.	7	G7	.000	.051	.000	.288	.000	.000	.661	.000	.000
230	455394.	4833599.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
231	455670.	4835850.	1	G1	.908	.000	.000	.000	.000	.000	.092	.000	.000
232	455518.	4831596.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
233	455358.	4830981.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
234	460999.	4830976.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
235	461676.	4826968.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
236	460845.	4828281.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
237	460921.	4828252.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
238	467097.	4827690.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
239	467538.	4825139.	1	G1	.982	.000	.018	.000	.000	.000	.000	.000	.000
240	467983.	4827408.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
241	468485.	4827570.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
242	469521.	4826073.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
243	469511.	4825982.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
244	469541.	4828153.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
245	453111.	4814582.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
246	453299.	4814691.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
247	453326.	4814100.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
248	451293.	4813101.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
249	451506.	4813303.	4	G4	.011	.000	.000	.983	.006	.000	.000	.000	.000

250	451419.	4814630.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
251	451497.	4814786.	1	G1	.997	.000	.000	.003	.000	.000	.000	.000	.000
252	451576.	4815735.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
253	449273.	4819655.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
254	449198.	4818539.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
255	458210.	4802026.	4	G4	.000	.000	.000	.999	.000	.001	.000	.000	.000
256	459330.	4802095.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
257	458657.	4801162.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
258	460465.	4800885.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
259	460978.	4800442.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
260	461741.	4799416.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
261	462558.	4799360.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
262	462630.	4800041.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
263	463263.	4801940.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
264	463024.	4802099.	6	G6	.000	.000	.000	.000	.000	.999	.001	.000	.000
265	460356.	4805603.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
266	460141.	4806045.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
267	460846.	4805647.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
268	462272.	4805764.	4*	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
269	467453.	4823655.	1	G1	.990	.000	.000	.000	.000	.010	.000	.000	.000
270	469305.	4824020.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
271	470159.	4824944.	1	G1	.999	.000	.000	.000	.001	.000	.000	.000	.000
272	469839.	4825358.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
273	472836.	4826078.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
274	472637.	4826012.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
275	471200.	4824151.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
276	473304.	4827082.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
277	473023.	4828256.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
278	472853.	4827641.	4	G4	.000	.000	.000	.952	.000	.000	.048	.000	.000
279	474740.	4828823.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
280	476594.	4829805.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
281	477838.	4829682.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
282	479597.	4830988.	7*	G7	.000	.000	.000	.000	.023	.000	.977	.000	.000
283	479563.	4830909.	7*	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
284	405442.	4876870.	5	G5	.005	.000	.000	.000	.995	.000	.000	.000	.000
285	404561.	4881923.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
286	403479.	4882058.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
287	403404.	4883077.	8*	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
288	404050.	4883344.	8*	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
289	404528.	4885020.	8*	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
290	404416.	4885581.	8*	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
291	403377.	4880945.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000

292	403089.	4879851.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
293	402356.	4881663.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
294	402032.	4881130.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
295	401233.	4885704.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
296	401143.	4884478.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
297	401835.	4878828.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
298	401702.	4877786.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
299	405171.	4879891.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
300	448407.	4804479.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
301	450648.	4806550.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
302	451049.	4805924.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
303	449407.	4806658.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
304	458364.	4800440.	4	G4	.000	.000	.000	.908	.000	.000	.092	.000	.000
305	459357.	4800420.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
306	460367.	4802245.	6	G6	.000	.000	.000	.000	.000	.946	.054	.000	.000
307	460287.	4802198.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
308	462342.	4801285.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
309	462261.	4801193.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
310	460989.	4803096.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
311	459408.	4804174.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
312	459172.	4803727.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
313	463920.	4809245.	4*	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
314	464767.	4808416.	4*	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
315	465803.	4807969.	4*	G4	.000	.001	.000	.999	.000	.000	.000	.000	.000
316	466483.	4806639.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
317	465913.	4804815.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
318	465110.	4803689.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
319	464450.	4804105.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
320	463425.	4803753.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
321	463298.	4803866.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
322	463413.	4802815.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
323	459793.	4799925.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
324	463526.	4805894.	4*	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
325	460609.	4811654.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
326	459773.	4811119.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
327	461545.	4810931.	6	G6	.000	.000	.000	.006	.000	.994	.000	.000	.000
328	460746.	4810116.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
329	457564.	4809230.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
330	457617.	4808329.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
331	454281.	4805659.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
332	410321.	4878816.	4	G4	.000	.000	.000	.997	.000	.000	.000	.000	.003
333	414884.	4876583.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000

334	414024.	4879030.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
335	413633.	4878241.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
336	413520.	4877765.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
337	413037.	4877125.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
338	412129.	4876716.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
339	416666.	4879133.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
340	417578.	4877263.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
341	418482.	4878360.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
342	418668.	4878430.	4	G4	.038	.000	.000	.657	.305	.000	.000	.000	.000
343	419201.	4879392.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
344	419510.	4881627.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
345	419211.	4881347.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
346	418313.	4879850.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
347	418125.	4879926.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
348	417275.	4880356.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
349	416093.	4879893.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
350	418250.	4884029.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
351	418253.	4885032.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
352	416908.	4883278.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
353	416351.	4885198.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
354	416327.	4884742.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
400	461875.	4816027.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
401	461591.	4815816.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
402	461488.	4815531.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
403	461260.	4814849.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
404	461166.	4813767.	7	G7	.000	.037	.000	.000	.000	.000	.963	.000	.000
405	460943.	4812429.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
406	465601.	4814958.	3*	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
407	463799.	4814122.	3*	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
408	464552.	4813668.	3*	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
409	462905.	4812906.	3*	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
410	459918.	4812416.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
411	452607.	4812129.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
412	452277.	4811321.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
413	451991.	4810765.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
414	452382.	4811033.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
415	453794.	4809974.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
416	456425.	4808094.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
417	456011.	4807465.	1*	G1	.999	.001	.000	.000	.000	.000	.000	.000	.000
418	456086.	4807368.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
419	456456.	4806820.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
420	404730.	4880764.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000

421	406591.	4881637.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
422	405961.	4882738.	4	G4	.000	.000	.000	.997	.000	.000	.000	.000	.003
423	406608.	4885966.	8*	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
424	409347.	4884249.	2	G2	.000	.929	.000	.000	.000	.000	.000	.000	.071
425	408988.	4884945.	8	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
426	409417.	4883761.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
427	408549.	4881881.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
428	409522.	4880396.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
429	406823.	4879515.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
430	450763.	4802481.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
431	450796.	4802836.	1*	G1	.904	.000	.000	.000	.096	.000	.000	.000	.000
432	450997.	4803431.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
433	452396.	4804832.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
434	452319.	4804715.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
435	451611.	4807662.	1*	G1	.986	.000	.000	.000	.000	.014	.000	.000	.000
436	453246.	4806875.	1*	G1	.893	.000	.000	.000	.000	.107	.000	.000	.000
437	452606.	4808186.	4	G4	.000	.000	.000	.992	.008	.000	.000	.000	.000
438	453742.	4808766.	4	G4	.000	.000	.000	.526	.000	.474	.000	.000	.000
439	456596.	4810446.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
440	455982.	4808779.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
441	458002.	4810263.	4	G4	.018	.000	.000	.690	.292	.000	.000	.000	.000
442	458082.	4810254.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
446	409918.	4882066.	4	G4	.022	.000	.000	.978	.000	.000	.000	.000	.000
447	408286.	4884260.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
448	409961.	4885663.	8	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
449	410927.	4885234.	8	G8	.000	.000	.000	.000	.000	.000	.000	1.000	.000
450	411037.	4884719.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
451	412568.	4885418.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
452	411722.	4884307.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
460	420035.	4882022.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
461	420733.	4883551.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
462	420790.	4884170.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
463	419638.	4885873.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
473	406763.	4879801.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
474	407928.	4878183.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
475	409319.	4877291.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
476	408013.	4878705.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
477	408208.	4879312.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
478	408461.	4880088.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
479	420437.	4880111.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
480	420268.	4879461.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
481	420302.	4879145.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000

500	482054.	4841572.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
501	480718.	4841369.	1	G1	.942	.000	.000	.000	.000	.058	.000	.000	.000
502	480239.	4841397.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
503	483727.	4841981.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
504	483628.	4841860.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
505	483467.	4841537.	2	G2	.000	.734	.000	.266	.000	.000	.000	.000	.000
506	483394.	4841605.	6	G6	.000	.000	.000	.001	.000	.999	.000	.000	.000
507	484378.	4839305.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
508	465093.	4847236.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
509	465223.	4847196.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
510	465625.	4847235.	1	G1	.944	.000	.000	.056	.000	.000	.000	.000	.000
511	464903.	4845802.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
512	465355.	4845802.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
513	466040.	4845741.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
514	466188.	4845024.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
515	466069.	4845268.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
516	466355.	4846073.	7	G7	.000	.000	.000	.000	.105	.000	.895	.000	.000
517	466580.	4846891.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
518	468551.	4846816.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
519	468084.	4842057.	9	G9	.000	.000	.000	.435	.000	.000	.000	.000	.565
520	466510.	4840946.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
521	466912.	4840390.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
522	467028.	4840630.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
523	467503.	4840067.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
524	468006.	4839511.	6	G6	.000	.001	.000	.003	.000	.996	.000	.000	.000
525	468233.	4838841.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
526	468149.	4837619.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
527	468776.	4838298.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
528	469748.	4838697.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
529	466490.	4838638.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
530	465305.	4839043.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
531	465212.	4838865.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
532	464575.	4839935.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
533	463837.	4840125.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
534	463882.	4840176.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
535	464016.	4840186.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
536	460439.	4846176.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
537	460003.	4844540.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
538	462289.	4845731.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
539	462019.	4844097.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
540	462966.	4843382.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
541	463399.	4841627.	7	G7	.000	.000	.000	.000	.000	.006	.994	.000	.000

542	463787.	4838853.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
543	461153.	4838413.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
544	462109.	4839697.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
545	465932.	4837985.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
546	468319.	4837011.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
547	469199.	4835139.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
548	467192.	4835039.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
549	467547.	4834734.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
550	468496.	4833477.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
551	463532.	4832825.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
552	466594.	4832792.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
553	465931.	4832834.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
554	466493.	4832133.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
555	464268.	4831090.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
556	464608.	4830533.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
557	466239.	4830940.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
558	466382.	4830754.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
559	466183.	4830323.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
560	466273.	4829551.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
561	465704.	4829515.	6	G6	.000	.000	.000	.161	.000	.839	.000	.000	.000
562	465661.	4829407.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
563	467716.	4830388.	6*	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
564	454315.	4828137.	1	G1	.960	.040	.000	.000	.000	.000	.000	.000	.000
565	454270.	4828094.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
566	453654.	4826270.	5	G5	.007	.000	.000	.001	.992	.000	.000	.000	.000
567	453185.	4825279.	5	G5	.001	.000	.000	.000	.999	.000	.000	.000	.000
568	453051.	4825273.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
569	450390.	4829190.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
570	449869.	4829946.	1	G1	.951	.000	.000	.000	.049	.000	.000	.000	.000
571	449610.	4828808.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
572	449668.	4826630.	2*	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
573	455615.	4826219.	1	G1	.998	.000	.000	.000	.000	.002	.000	.000	.000
574	452155.	4823717.	1	G1	.999	.000	.000	.000	.001	.000	.000	.000	.000
575	452580.	4822028.	4	G4	.128	.000	.000	.872	.000	.000	.000	.000	.000
576	454382.	4823043.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
577	454288.	4823342.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
578	453804.	4824620.	2	G2	.000	.999	.000	.000	.000	.000	.000	.000	.001
579	454219.	4823867.	5	G5	.000	.000	.000	.000	1.000	.000	.000	.000	.000
580	454196.	4823651.	5	G5	.004	.000	.000	.005	.991	.000	.000	.000	.000
581	472648.	4830026.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
582	472384.	4832657.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
583	473074.	4832233.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000

584	473144.	4832270.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
585	473381.	4831660.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
586	473392.	4830674.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
587	472955.	4830641.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
588	473422.	4829462.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
589	473297.	4829020.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
590	451512.	4817670.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
591	452194.	4816479.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
592	449652.	4817227.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
593	449882.	4816982.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
594	449703.	4816254.	3	G3	.000	.000	1.000	.000	.000	.000	.000	.000	.000
595	450619.	4816028.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
596	449369.	4813576.	1	G1	.989	.000	.000	.000	.011	.000	.000	.000	.000
597	449292.	4806545.	1	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
598	449009.	4805118.	1	G1	.943	.000	.000	.000	.057	.000	.000	.000	.000
599	448854.	4805074.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
600	450829.	4841696.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
601	453294.	4835246.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
602	452992.	4835222.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
603	452926.	4834295.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
604	453298.	4832724.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
605	451807.	4829972.	1	G1	.995	.000	.000	.000	.000	.005	.000	.000	.000
606	451223.	4828940.	2	G2	.000	.648	.000	.352	.000	.000	.000	.000	.000
607	451345.	4828069.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
608	451262.	4826387.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
609	449740.	4825481.	2*	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
610	450861.	4824034.	2*	G2	.000	.999	.000	.001	.000	.000	.000	.000	.000
611	450090.	4823059.	2*	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
612	449851.	4822549.	2*	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
613	449821.	4822219.	2*	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
614	450111.	4821172.	2*	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
615	449936.	4820678.	2*	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
616	450707.	4820204.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
617	470211.	4828173.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
618	470360.	4828120.	10	UNKNOWN	.000	.000	.000	.000	.000	.000	.000	.000	.000
619	470877.	4827899.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
620	471600.	4829082.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
621	472756.	4829711.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
622	473169.	4829839.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
623	475491.	4830909.	6	G6	.000	.000	.000	.000	.000	1.000	.000	.000	.000
624	475428.	4831135.	6	G6	.000	.000	.000	.000	.000	.936	.064	.000	.000
625	411313.	4877369.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000

626	410522.	4880242.	7	G7	.000	.000	.000	.000	.000	.000	1.000	.000	.000
627	411373.	4878291.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
628	411869.	4879675.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
629	414033.	4880401.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
630	414161.	4880990.	4	G4	.000	.000	.000	1.000	.000	.000	.000	.000	.000
631	411459.	4883484.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
632	411501.	4882186.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
633	411216.	4881585.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
634	412363.	4882276.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
635	413284.	4881989.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
636	413427.	4882011.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
637	414788.	4881667.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
638	415398.	4882578.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
639	415119.	4881804.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
640	452372.	4810040.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
641	451758.	4809173.	1	G1	.987	.013	.000	.000	.000	.000	.000	.000	.000
642	451847.	4808976.	9	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
643	451649.	4808893.	4	G4	.000	.007	.000	.993	.000	.000	.000	.000	.000
644	451809.	4808666.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
645	453556.	4809380.	2	G2	.000	1.000	.000	.000	.000	.000	.000	.000	.000
646	454364.	4809939.	6	G6	.000	.040	.000	.000	.000	.960	.000	.000	.000
647	452628.	4801404.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
648	452266.	4801372.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
649	452412.	4799532.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
650	454002.	4799219.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
651	455444.	4798995.	1*	G1	.888	.000	.000	.000	.112	.000	.000	.000	.000
652	452996.	4800594.	1*	G1	.647	.000	.000	.000	.353	.000	.000	.000	.000
653	454523.	4801683.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
654	455887.	4801812.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
655	455402.	4803211.	1*	G1	.991	.000	.000	.000	.000	.009	.000	.000	.000
656	456411.	4803785.	1*	G1	.997	.002	.000	.000	.000	.000	.000	.000	.000
657	455166.	4804787.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
658	455239.	4804995.	1*	G1	1.000	.000	.000	.000	.000	.000	.000	.000	.000
659	414876.	4884620.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
660	413371.	4884374.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
661	413202.	4883170.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
662	413904.	4882745.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000
690	416186.	4880987.	9	G9	.000	.015	.000	.000	.000	.000	.000	.000	.985
691	417212.	4881781.	9*	G9	.000	.000	.000	.000	.000	.000	.000	.000	1.000

APPENDIX D

Geochemical Results

Stream Sediment Data

BARRINGER RESOURCES INC.
OFFICES & MINERALS LABORATORY:
1455 DEMING WAY, SUITE 15
SPARKS, NEVADA 89431
PHONE: (702) 358-1158

BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
1	< 2.0	< 0.1	3.0	300.0	< 0.1	1.0	89.0	1430.0
2	3.0	< 0.1	10.0	630.0	< 0.1	1.0	41.0	870.0
3	< 2.0	< 0.1	8.0	470.0	< 0.1	1.0	37.0	710.0
4	5.0	< 0.1	5.0	460.0	< 0.1	1.0	42.0	690.0
5	2.0	< 0.1	13.0	440.0	< 0.1	2.0	56.0	1120.0
6	3.0	< 0.1	3.0	440.0	< 0.1	2.0	36.0	700.0
7	< 2.0	< 0.1	10.0	460.0	< 0.1	2.0	41.0	1310.0
8	< 2.0	< 0.1	8.0	370.0	< 0.1	2.0	53.0	1120.0
9	< 2.0	< 0.1	5.0	460.0	< 0.1	1.0	48.0	810.0
10	2.0	< 0.1	3.0	440.0	< 0.1	1.0	39.0	690.0
11	2.0	< 0.1	5.0	410.0	< 0.1	2.0	40.0	740.0
12	2.0	< 0.1	10.0	480.0	< 0.1	2.0	40.0	780.0
13	2.0	< 0.1	8.0	440.0	< 0.1	1.0	41.0	970.0
14	< 2.0	< 0.1	8.0	460.0	< 0.1	6.0	44.0	730.0
15	< 2.0	< 0.1	3.0	800.0	< 0.1	2.0	13.0	360.0
16	< 2.0	< 0.1	8.0	690.0	< 0.1	6.0	21.0	740.0
17	< 2.0	< 0.1	5.0	620.0	< 0.1	4.0	25.0	780.0
18	< 2.0	< 0.1	5.0	510.0	< 0.1	2.0	39.0	680.0
19	31.0	< 0.1	15.0	750.0	< 0.1	4.0	20.0	440.0
20	< 2.0	< 0.1	10.0	910.0	< 0.1	3.0	14.0	360.0
21	< 2.0	< 0.1	8.0	810.0	< 0.1	4.0	18.0	360.0
22	< 2.0	< 0.1	5.0	780.0	< 0.1	4.0	19.0	410.0
23	< 2.0	< 0.1	5.0	510.0	< 0.1	3.0	41.0	720.0
24	< 2.0	< 0.1	10.0	940.0	< 0.1	3.0	8.0	290.0
25	< 2.0	< 0.1	3.0	750.0	< 0.1	3.0	20.0	420.0
26	< 2.0	< 0.1	3.0	430.0	< 0.1	3.0	47.0	890.0
27	< 2.0	< 0.1	5.0	570.0	< 0.1	4.0	35.0	670.0
28	< 2.0	< 0.1	10.0	980.0	< 0.1	4.0	11.0	340.0
29	< 2.0	< 0.1	5.0	590.0	< 0.1	3.0	43.0	740.0
30	< 2.0	< 0.1	10.0	970.0	< 0.1	4.0	16.0	390.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
1	< 1.0	4.0	225.0	2.0	.4
2	< 1.0	4.0	84.0	< 2.0	.4
3	< 1.0	3.0	63.0	< 2.0	.6
4	< 1.0	3.0	63.0	< 2.0	.3
5	< 1.0	7.0	84.0	< 2.0	.2
6	< 1.0	8.0	70.0	< 2.0	.5
7	< 1.0	5.0	69.0	< 2.0	.6
8	< 1.0	5.0	102.0	< 2.0	.2
9	< 1.0	5.0	70.0	< 2.0	.4
10	< 1.0	7.0	65.0	< 2.0	.4
11	< 1.0	6.0	72.0	< 2.0	.9
12	< 1.0	6.0	73.0	< 2.0	.4
13	< 1.0	6.0	97.0	< 2.0	.6
14	< 1.0	7.0	69.0	< 2.0	1.4
15	< 1.0	6.0	36.0	< 2.0	.5
16	< 1.0	11.0	68.0	< 2.0	.2
17	< 1.0	11.0	76.0	< 2.0	.6
18	< 1.0	6.0	68.0	< 2.0	.8
19	< 1.0	7.0	47.0	< 2.0	.7
20	< 1.0	7.0	41.0	< 2.0	1.8
21	< 1.0	9.0	48.0	< 2.0	.6
22	< 1.0	5.0	39.0	< 2.0	.3
23	< 1.0	6.0	54.0	< 2.0	.6
24	< 1.0	6.0	36.0	< 2.0	.7
25	< 1.0	3.0	31.0	< 2.0	.3
26	< 1.0	6.0	77.0	< 2.0	.1
27	< 1.0	5.0	54.0	< 2.0	.4
28	< 1.0	8.0	42.0	< 2.0	1.4
29	< 1.0	7.0	57.0	< 2.0	.4
30	< 1.0	7.0	44.0	< 2.0	.7

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BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
31	< 2.0	< 0.1	5.0	640.0	< 0.1	4.0	34.0	850.0
32	5.0	< 0.1	5.0	770.0	< 0.1	3.0	22.0	540.0
33	< 2.0	< 0.1	5.0	570.0	< 0.1	3.0	44.0	830.0
34	2.0	< 0.1	8.0	550.0	< 0.1	4.0	38.0	850.0
35	3.0	< 0.1	5.0	550.0	< 0.1	3.0	38.0	700.0
36	2.0	< 0.1	8.0	470.0	< 0.1	4.0	69.0	1190.0
37	< 2.0	< 0.1	5.0	500.0	< 0.1	3.0	39.0	740.0
38	< 2.0	< 0.1	3.0	320.0	< 0.1	3.0	78.0	1250.0
39	< 2.0	< 0.1	8.0	810.0	< 0.1	4.0	45.0	860.0
40	< 2.0	< 0.1	15.0	860.0	< 0.1	3.0	30.0	870.0
41	< 2.0	< 0.1	10.0	720.0	< 0.1	3.0	34.0	810.0
42	< 2.0	< 0.1	10.0	740.0	< 0.1	3.0	30.0	750.0
43	< 2.0	< 0.1	10.0	730.0	< 0.1	3.0	33.0	700.0
44	< 2.0	< 0.1	10.0	420.0	< 0.1	3.0	48.0	890.0
45	< 2.0	< 0.1	8.0	400.0	< 0.1	3.0	53.0	900.0
46	< 2.0	< 0.1	8.0	430.0	< 0.1	4.0	62.0	1100.0
47	< 2.0	< 0.1	8.0	590.0	< 0.1	5.0	43.0	730.0
48	< 2.0	< 0.1	5.0	650.0	< 0.1	4.0	40.0	700.0
49	< 2.0	< 0.1	8.0	660.0	< 0.1	3.0	23.0	470.0
50	< 2.0	< 0.1	13.0	570.0	< 0.1	5.0	37.0	660.0
51	< 2.0	< 0.1	8.0	470.0	< 0.1	5.0	42.0	710.0
52	< 2.0	< 0.1	15.0	600.0	< 0.1	5.0	27.0	780.0
53	< 2.0	< 0.1	13.0	570.0	< 0.1	6.0	29.0	720.0
54	< 2.0	< 0.1	10.0	260.0	< 0.1	6.0	37.0	1010.0
55	< 2.0	< 0.1	5.0	510.0	< 0.1	5.0	33.0	840.0
56	< 2.0	< 0.1	5.0	500.0	< 0.1	5.0	40.0	720.0
57	< 2.0	< 0.1	5.0	470.0	< 0.1	5.0	36.0	910.0
58	< 2.0	< 0.1	8.0	480.0	< 0.1	6.0	31.0	410.0
59	< 2.0	< 0.1	13.0	500.0	< 0.1	5.0	35.0	1050.0
60	< 2.0	< 0.1	20.0	490.0	< 0.1	5.0	29.0	690.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
31	< 1.0	8.0	68.0	< 2.0	.6
32	< 1.0	9.0	51.0	< 2.0	.4
33	< 1.0	7.0	81.0	< 2.0	.6
34	< 1.0	7.0	79.0	< 2.0	.4
35	< 1.0	7.0	73.0	< 2.0	.7
36	< 1.0	6.0	118.0	< 2.0	.4
37	< 1.0	9.0	76.0	< 2.0	.7
38	< 1.0	4.0	181.0	< 2.0	.2
39	< 1.0	7.0	83.0	< 2.0	.6
40	< 1.0	12.0	96.0	< 2.0	1.2
41	< 1.0	8.0	58.0	< 2.0	.7
42	< 1.0	11.0	62.0	< 2.0	.9
43	< 1.0	11.0	64.0	< 2.0	1.4
44	< 1.0	7.0	68.0	< 2.0	.3
45	< 1.0	7.0	65.0	< 2.0	.5
46	< 1.0	5.0	66.0	< 2.0	1.4
47	< 1.0	11.0	75.0	< 2.0	.7
48	< 1.0	9.0	67.0	< 2.0	.4
49	< 1.0	8.0	61.0	< 2.0	.9
50	< 1.0	11.0	87.0	< 2.0	.4
51	< 1.0	11.0	77.0	< 2.0	.6
52	< 1.0	10.0	61.0	< 2.0	1.2
53	< 1.0	10.0	62.0	< 2.0	1.2
54	< 1.0	13.0	73.0	< 2.0	1.2
55	< 1.0	8.0	61.0	< 2.0	.7
56	< 1.0	10.0	77.0	< 2.0	.7
57	< 1.0	9.0	83.0	< 2.0	.4
58	< 1.0	8.0	65.0	< 2.0	.7
59	< 1.0	8.0	61.0	< 2.0	1.2
60	2.0	9.0	66.0	< 2.0	.6

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BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
61	5.0	< 0.1	23.0	440.0	< 0.1	7.0	40.0	690.0
62	57.0	< 0.1	8.0	560.0	< 0.1	5.0	27.0	550.0
63	< 2.0	< 0.1	10.0	720.0	< 0.1	3.0	21.0	360.0
64	< 2.0	< 0.1	5.0	480.0	< 0.1	4.0	38.0	820.0
65	< 2.0	< 0.1	5.0	510.0	< 0.1	3.0	36.0	720.0
66	< 2.0	< 0.1	8.0	590.0	< 0.1	3.0	26.0	720.0
67	3.0	< 0.1	8.0	470.0	< 0.1	3.0	29.0	590.0
68	< 2.0	< 0.1	8.0	640.0	< 0.1	2.0	22.0	690.0
69	< 2.0	< 0.1	8.0	510.0	< 0.1	3.0	32.0	550.0
70	< 2.0	< 0.1	18.0	530.0	< 0.1	7.0	23.0	630.0
71	< 2.0	< 0.1	13.0	440.0	< 0.1	3.0	45.0	780.0
72	< 2.0	< 0.1	8.0	480.0	< 0.1	3.0	42.0	920.0
73	< 2.0	< 0.1	30.0	520.0	< 0.1	3.0	33.0	760.0
74	< 2.0	< 0.1	5.0	410.0	< 0.1	4.0	44.0	580.0
75	< 2.0	< 0.1	5.0	560.0	< 0.1	6.0	28.0	590.0
76	< 2.0	< 0.1	8.0	460.0	< 0.1	3.0	35.0	710.0
77	< 2.0	< 0.1	5.0	560.0	< 0.1	4.0	30.0	530.0
78	4.0	< 0.1	3.0	580.0	< 0.1	2.0	24.0	530.0
79	< 2.0	< 0.1	3.0	440.0	< 0.1	3.0	43.0	830.0
80	< 2.0	< 0.1	3.0	640.0	< 0.1	3.0	24.0	560.0
81	< 2.0	< 0.1	3.0	560.0	< 0.1	3.0	28.0	900.0
82	< 2.0	< 0.1	3.0	580.0	< 0.1	3.0	26.0	650.0
83	< 2.0	< 0.1	13.0	630.0	< 0.1	3.0	35.0	710.0
84	< 2.0	< 0.1	20.0	620.0	< 0.1	3.0	34.0	860.0
85	2.0	< 0.1	5.0	470.0	< 0.1	3.0	32.0	680.0
86	3.0	< 0.1	3.0	850.0	.1	3.0	19.0	420.0
87	< 2.0	< 0.1	3.0	600.0	.2	1.0	22.0	480.0
88	< 2.0	< 0.1	5.0	540.0	< 0.1	2.0	31.0	600.0
89	< 2.0	< 0.1	3.0	510.0	< 0.1	3.0	38.0	770.0
90	< 2.0	< 0.1	3.0	490.0	< 0.1	2.0	39.0	650.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
61	< 1.0	11.0	70.0	< 2.0	.6
62	< 1.0	9.0	55.0	< 2.0	.8
63	< 1.0	8.0	51.0	< 2.0	1.2
64	< 1.0	11.0	71.0	< 2.0	1.4
65	< 1.0	9.0	67.0	< 2.0	.5
66	< 1.0	13.0	77.0	< 2.0	1.4
67	< 1.0	13.0	71.0	< 2.0	.8
68	< 1.0	12.0	60.0	< 2.0	.9
69	< 1.0	10.0	96.0	< 2.0	.8
70	3.0	13.0	55.0	< 2.0	.6
71	< 1.0	7.0	82.0	< 2.0	.5
72	< 1.0	7.0	78.0	< 2.0	.7
73	6.0	12.0	74.0	< 2.0	.5
74	1.0	8.0	77.0	< 2.0	1.8
75	1.0	9.0	58.0	< 2.0	.9
76	< 1.0	9.0	67.0	< 2.0	.6
77	< 1.0	9.0	57.0	< 2.0	1.4
78	< 1.0	9.0	55.0	< 2.0	1.2
79	1.0	10.0	84.0	< 2.0	1.4
80	1.0	10.0	56.0	< 2.0	.8
81	< 1.0	12.0	56.0	< 2.0	.8
82	< 1.0	10.0	54.0	< 2.0	.5
83	< 1.0	10.0	77.0	< 2.0	1.2
84	3.0	11.0	74.0	< 2.0	.6
85	1.0	12.0	71.0	< 2.0	.4
86	< 1.0	15.0	72.0	< 2.0	1.8
87	< 1.0	9.0	58.0	< 2.0	1.8
88	< 1.0	10.0	66.0	< 2.0	1.2
89	< 1.0	11.0	73.0	< 2.0	.6
90	< 1.0	10.0	68.0	< 2.0	.7

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NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
91	6.0	< 0.1	3.0	580.0	< 0.1	2.0	36.0	740.0
92	< 2.0	< 0.1	3.0	470.0	< 0.1	2.0	35.0	710.0
93	< 2.0	< 0.1	10.0	480.0	< 0.1	2.0	32.0	820.0
94	4.0	< 0.1	5.0	490.0	< 0.1	2.0	33.0	760.0
95	< 2.0	< 0.1	3.0	480.0	< 0.1	1.0	39.0	720.0
96	< 2.0	< 0.1	13.0	490.0	< 0.1	2.0	40.0	650.0
97	< 2.0	< 0.1	15.0	480.0	< 0.1	2.0	36.0	880.0
98	2.0	< 0.1	3.0	720.0	.2	2.0	19.0	250.0
99	< 2.0	< 0.1	8.0	650.0	< 0.1	2.0	32.0	1010.0
100	6.0	< 0.1	5.0	510.0	< 0.1	2.0	38.0	810.0
101	4.0	< 0.1	8.0	490.0	< 0.1	2.0	62.0	1050.0
102	< 2.0	< 0.1	5.0	380.0	< 0.1	1.0	63.0	770.0
103	3.0	< 0.1	5.0	430.0	< 0.1	1.0	42.0	810.0
104	4.0	< 0.1	8.0	590.0	< 0.1	2.0	28.0	610.0
105	2.0	< 0.1	5.0	470.0	< 0.1	1.0	31.0	600.0
106	23.0	< 0.1	5.0	450.0	< 0.1	1.0	34.0	750.0
107	5.0	< 0.1	5.0	270.0	< 0.1	< 1.0	97.0	1060.0
108	4.0	< 0.1	8.0	370.0	< 0.1	2.0	51.0	910.0
109	< 2.0	< 0.1	48.0	370.0	< 0.1	1.0	40.0	870.0
110	2.0	< 0.1	10.0	420.0	< 0.1	2.0	29.0	580.0
111	16.0	< 0.1	18.0	600.0	< 0.1	2.0	25.0	680.0
112	2.0	< 0.1	10.0	520.0	< 0.1	2.0	36.0	710.0
113	< 2.0	< 0.1	13.0	350.0	< 0.1	2.0	50.0	790.0
114	5.0	< 0.1	13.0	450.0	< 0.1	2.0	42.0	690.0
115	3.0	< 0.1	10.0	430.0	< 0.1	2.0	34.0	710.0
116	2.0	< 0.1	8.0	460.0	< 0.1	3.0	30.0	600.0
117	5.0	< 0.1	8.0	600.0	< 0.1	2.0	20.0	380.0
118	3.0	< 0.1	10.0	420.0	< 0.1	2.0	38.0	680.0
119	3.0	< 0.1	5.0	660.0	< 0.1	3.0	16.0	220.0
120	4.0	< 0.1	8.0	520.0	< 0.1	3.0	32.0	860.0

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NORTHERN MALHEUR RESOURCE AREA
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STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
91	1.0	9.0	69.0	< 2.0	1.8
92	< 1.0	9.0	60.0	< 2.0	.9
93	< 1.0	11.0	58.0	< 2.0	.9
94	< 1.0	10.0	68.0	< 2.0	.7
95	1.0	10.0	70.0	< 2.0	1.2
96	1.0	9.0	65.0	< 2.0	1.3
97	2.0	8.0	65.0	< 2.0	.9
98	< 1.0	10.0	61.0	< 2.0	1.6
99	< 1.0	11.0	69.0	< 2.0	.9
100	< 1.0	9.0	79.0	< 2.0	.8
101	< 1.0	7.0	95.0	< 2.0	1.7
102	< 1.0	6.0	71.0	< 2.0	.5
103	< 1.0	6.0	75.0	< 2.0	.5
104	< 1.0	10.0	68.0	< 2.0	.9
105	< 1.0	9.0	67.0	< 2.0	.8
106	< 1.0	8.0	61.0	< 2.0	.4
107	< 1.0	4.0	70.0	< 2.0	.5
108	< 1.0	7.0	76.0	< 2.0	.6
109	< 1.0	7.0	105.0	< 2.0	1.8
110	< 1.0	6.0	55.0	12.0	.9
111	< 1.0	12.0	70.0	< 2.0	1.4
112	< 1.0	10.0	69.0	< 2.0	.6
113	< 1.0	4.0	76.0	< 2.0	.5
114	< 1.0	7.0	55.0	4.0	1.4
115	< 1.0	9.0	71.0	10.0	.7
116	< 1.0	13.0	68.0	< 2.0	.5
117	< 1.0	13.0	61.0	< 2.0	.7
118	< 1.0	11.0	75.0	< 2.0	2.2
119	< 1.0	10.0	56.0	< 2.0	1.6
120	< 1.0	12.0	90.0	< 2.0	1.6

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
121	20.0	< 0.1	5.0	530.0	< 0.1	3.0	38.0	910.0
122	< 2.0	< 0.1	3.0	520.0	< 0.1	2.0	38.0	870.0
123	2.0	< 0.1	3.0	480.0	< 0.1	2.0	37.0	940.0
124	2.0	< 0.1	5.0	440.0	< 0.1	2.0	41.0	850.0
125	3.0	< 0.1	3.0	450.0	< 0.1	2.0	39.0	830.0
126	4.0	< 0.1	8.0	420.0	< 0.1	2.0	73.0	1130.0
127	2.0	< 0.1	5.0	470.0	< 0.1	2.0	39.0	830.0
128	5.0	< 0.1	20.0	390.0	< 0.1	2.0	53.0	1050.0
129	3.0	< 0.1	13.0	380.0	< 0.1	2.0	52.0	1150.0
130	4.0	< 0.1	5.0	630.0	< 0.1	2.0	22.0	640.0
131	2.0	< 0.1	5.0	490.0	< 0.1	2.0	34.0	680.0
132	2.0	< 0.1	8.0	610.0	< 0.1	< 1.0	31.0	690.0
133	< 2.0	< 0.1	5.0	540.0	< 0.1	2.0	34.0	760.0
134	< 2.0	< 0.1	5.0	500.0	.1	2.0	28.0	620.0
135	< 2.0	< 0.1	3.0	410.0	< 0.1	2.0	27.0	690.0
136	2.0	< 0.1	3.0	530.0	< 0.1	1.0	28.0	1050.0
137	7.0	< 0.1	5.0	440.0	< 0.1	1.0	30.0	730.0
138	6.0	< 0.1	8.0	590.0	< 0.1	1.0	28.0	750.0
139	< 2.0	< 0.1	20.0	550.0	< 0.1	1.0	33.0	790.0
140	< 2.0	< 0.1	3.0	480.0	< 0.1	1.0	31.0	630.0
141	2.0	< 0.1	5.0	610.0	< 0.1	1.0	22.0	630.0
142	9.0	< 0.1	5.0	580.0	< 0.1	1.0	21.0	630.0
143	9.0	< 0.1	8.0	520.0	< 0.1	2.0	21.0	620.0
144	< 2.0	< 0.1	5.0	580.0	< 0.1	2.0	26.0	550.0
145	2.0	< 0.1	3.0	520.0	< 0.1	2.0	27.0	870.0
146	5.0	< 0.1	23.0	520.0	.1	3.0	36.0	640.0
147	4.0	< 0.1	5.0	560.0	< 0.1	2.0	27.0	690.0
148	3.0	< 0.1	3.0	610.0	< 0.1	2.0	22.0	470.0
149	2.0	< 0.1	3.0	570.0	< 0.1	2.0	30.0	800.0
150	2.0	< 0.1	5.0	500.0	< 0.1	2.0	34.0	990.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
121	< 1.0	8.0	70.0	8.0	1.2
122	< 1.0	12.0	82.0	< 2.0	1.4
123	< 1.0	7.0	83.0	< 2.0	.8
124	< 1.0	5.0	92.0	< 2.0	.8
125	< 1.0	7.0	84.0	< 2.0	1.2
126	< 1.0	7.0	124.0	< 2.0	.5
127	< 1.0	8.0	66.0	< 2.0	.9
128	< 1.0	4.0	64.0	< 2.0	.8
129	3.0	7.0	69.0	< 2.0	1.8
130	< 1.0	8.0	58.0	< 2.0	1.3
131	1.0	11.0	62.0	< 2.0	.7
132	< 1.0	11.0	61.0	< 2.0	.9
133	< 1.0	7.0	56.0	< 2.0	1.2
134	< 1.0	10.0	57.0	< 2.0	.6
135	< 1.0	9.0	84.0	< 2.0	.9
136	1.0	11.0	57.0	< 2.0	.8
137	< 1.0	10.0	60.0	< 2.0	.8
138	< 1.0	8.0	53.0	< 2.0	1.4
139	< 1.0	11.0	65.0	< 2.0	1.6
140	< 1.0	9.0	66.0	< 2.0	1.4
141	< 1.0	10.0	54.0	< 2.0	1.2
142	< 1.0	10.0	52.0	< 2.0	1.3
143	< 1.0	11.0	57.0	< 2.0	1.4
144	< 1.0	10.0	61.0	< 2.0	1.6
145	< 1.0	11.0	58.0	< 2.0	1.2
146	4.0	15.0	96.0	< 2.0	1.8
147	< 1.0	14.0	69.0	< 2.0	1.9
148	< 1.0	13.0	57.0	< 2.0	1.3
149	< 1.0	11.0	57.0	< 2.0	.8
150	1.0	13.0	76.0	< 2.0	.9

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
151	< 2.0	< 0.1	5.0	500.0	< 0.1	2.0	35.0	1110.0
152	3.0	< 0.1	3.0	200.0	< 0.1	2.0	30.0	860.0
153	3.0	< 0.1	5.0	460.0	< 0.1	2.0	34.0	740.0
154	2.0	< 0.1	5.0	510.0	< 0.1	2.0	27.0	850.0
155	9.0	< 0.1	5.0	440.0	< 0.1	2.0	32.0	710.0
156	< 2.0	< 0.1	5.0	490.0	< 0.1	2.0	30.0	1180.0
157	< 2.0	< 0.1	5.0	390.0	< 0.1	2.0	33.0	770.0
158	< 2.0	< 0.1	5.0	560.0	< 0.1	2.0	39.0	1760.0
159	< 2.0	< 0.1	5.0	520.0	< 0.1	2.0	33.0	910.0
160	< 2.0	< 0.1	10.0	460.0	< 0.1	2.0	35.0	800.0
161	< 2.0	< 0.1	5.0	480.0	< 0.1	1.0	31.0	700.0
162	< 2.0	< 0.1	5.0	410.0	< 0.1	1.0	36.0	490.0
163	< 2.0	< 0.1	5.0	440.0	< 0.1	1.0	35.0	700.0
164	< 2.0	< 0.1	5.0	550.0	< 0.1	1.0	22.0	660.0
165	< 2.0	< 0.1	5.0	500.0	< 0.1	1.0	44.0	810.0
166	< 2.0	< 0.1	8.0	480.0	< 0.1	1.0	29.0	750.0
167	< 2.0	< 0.1	13.0	720.0	< 0.1	2.0	15.0	360.0
168	< 2.0	< 0.1	8.0	600.0	< 0.1	2.0	26.0	860.0
169	< 2.0	< 0.1	3.0	650.0	< 0.1	2.0	21.0	540.0
170	16.0	< 0.1	3.0	650.0	< 0.1	2.0	26.0	710.0
171	< 2.0	< 0.1	10.0	610.0	< 0.1	1.0	21.0	610.0
172	< 2.0	< 0.1	3.0	840.0	< 0.1	1.0	5.0	240.0
173	< 2.0	< 0.1	5.0	860.0	< 0.1	2.0	4.0	210.0
174	2.0	< 0.1	8.0	850.0	< 0.1	2.0	10.0	360.0
175	4.0	< 0.1	5.0	370.0	< 0.1	2.0	9.0	300.0
176	2.0	< 0.1	28.0	680.0	< 0.1	3.0	16.0	430.0
177	5.0	< 0.1	8.0	460.0	< 0.1	2.0	39.0	810.0
178	< 2.0	< 0.1	15.0	450.0	< 0.1	2.0	36.0	630.0
179	< 2.0	< 0.1	10.0	730.0	< 0.1	1.0	19.0	550.0
180	< 2.0	< 0.1	15.0	340.0	< 0.1	1.0	22.0	760.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
151	< 1.0	15.0	78.0	< 2.0	.7
152	< 1.0	12.0	63.0	< 2.0	1.2
153	< 1.0	12.0	62.0	< 2.0	1.2
154	< 1.0	9.0	50.0	< 2.0	.8
155	< 1.0	9.0	63.0	< 2.0	2.3
156	< 1.0	12.0	53.0	< 2.0	1.2
157	< 1.0	12.0	64.0	< 2.0	.8
158	< 1.0	10.0	59.0	< 2.0	.7
159	< 1.0	10.0	58.0	< 2.0	1.3
160	< 1.0	13.0	61.0	< 2.0	1.2
161	< 1.0	8.0	58.0	< 2.0	.9
162	< 1.0	8.0	60.0	< 2.0	1.6
163	< 1.0	9.0	61.0	< 2.0	1.4
164	< 1.0	9.0	63.0	< 2.0	1.0
165	< 1.0	7.0	77.0	< 2.0	.7
166	< 1.0	9.0	68.0	< 2.0	.7
167	3.0	13.0	50.0	< 2.0	2.7
168	2.0	10.0	58.0	< 2.0	.6
169	< 1.0	10.0	58.0	< 2.0	.7
170	< 1.0	11.0	61.0	< 2.0	.9
171	14.0	7.0	48.0	< 2.0	4.1
172	< 1.0	5.0	26.0	< 2.0	1.0
173	< 1.0	5.0	26.0	< 2.0	.5
174	< 1.0	8.0	51.0	< 2.0	1.4
175	2.0	6.0	35.0	< 2.0	.8
176	5.0	12.0	61.0	< 2.0	2.6
177	2.0	7.0	73.0	< 2.0	1.3
178	1.0	11.0	76.0	< 2.0	.9
179	< 1.0	9.0	60.0	< 2.0	.7
180	2.0	8.0	61.0	< 2.0	.7

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BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
181	< 2.0	< 0.1	13.0	670.0	< 0.1	1.0	22.0	630.0
182	2.0	< 0.1	25.0	550.0	< 0.1	2.0	22.0	480.0
183	< 2.0	< 0.1	8.0	480.0	< 0.1	1.0	34.0	790.0
184	< 2.0	< 0.1	8.0	470.0	< 0.1	1.0	28.0	710.0
185	< 2.0	< 0.1	8.0	530.0	< 0.1	2.0	36.0	900.0
186	< 2.0	< 0.1	5.0	510.0	< 0.1	2.0	34.0	890.0
187	< 2.0	< 0.1	10.0	600.0	< 0.1	2.0	27.0	670.0
188	2.0	< 0.1	8.0	460.0	< 0.1	< 1.0	32.0	780.0
189	< 2.0	< 0.1	3.0	540.0	< 0.1	2.0	28.0	475.0
190	< 2.0	< 0.1	5.0	570.0	< 0.1	1.0	30.0	390.0
191	< 2.0	< 0.1	5.0	470.0	< 0.1	2.0	18.0	810.0
192	< 2.0	< 0.1	3.0	560.0	< 0.1	2.0	27.0	700.0
193	< 2.0	< 0.1	3.0	670.0	< 0.1	2.0	21.0	690.0
194	< 2.0	< 0.1	3.0	670.0	< 0.1	2.0	19.0	840.0
195	< 2.0	< 0.1	3.0	670.0	< 0.1	2.0	22.0	900.0
196	3.0	< 0.1	8.0	560.0	< 0.1	2.0	26.0	760.0
197	5.0	< 0.1	10.0	470.0	< 0.1	2.0	39.0	780.0
198	< 2.0	< 0.1	5.0	580.0	< 0.1	1.0	39.0	790.0
199	< 2.0	< 0.1	5.0	400.0	< 0.1	2.0	24.0	670.0
200	< 2.0	< 0.1	5.0	570.0	< 0.1	3.0	46.0	300.0
201	< 2.0	< 0.1	5.0	550.0	< 0.1	2.0	42.0	970.0
202	< 2.0	< 0.1	8.0	580.0	< 0.1	< 1.0	35.0	750.0
203	< 2.0	< 0.1	5.0	530.0	< 0.1	< 1.0	43.0	890.0
204	< 2.0	< 0.1	5.0	550.0	< 0.1	< 1.0	41.0	750.0
205	< 2.0	< 0.1	5.0	700.0	< 0.1	1.0	36.0	640.0
206	< 2.0	< 0.1	5.0	560.0	< 0.1	< 1.0	38.0	720.0
207	< 2.0	< 0.1	5.0	460.0	< 0.1	1.0	48.0	870.0
208	3.0	< 0.1	5.0	470.0	< 0.1	1.0	38.0	840.0
209	< 2.0	< 0.1	5.0	420.0	< 0.1	< 1.0	47.0	880.0
210	2.0	< 0.1	28.0	740.0	< 0.1	7.0	20.0	490.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
181	< 1.0	8.0	65.0	< 2.0	1.8
182	2.0	9.0	59.0	< 2.0	3.6
183	1.0	7.0	73.0	< 2.0	1.3
184	< 1.0	3.0	75.0	< 2.0	.8
185	1.0	9.0	69.0	< 2.0	1.4
186	< 1.0	8.0	64.0	< 2.0	1.0
187	< 1.0	9.0	73.0	< 2.0	.9
188	< 1.0	4.0	66.0	< 2.0	2.3
189	< 1.0	9.0	65.0	< 2.0	.9
190	< 1.0	9.0	64.0	< 2.0	.9
191	< 1.0	11.0	53.0	< 2.0	2.8
192	< 1.0	8.0	58.0	< 2.0	1.6
193	2.0	8.0	61.0	< 2.0	1.6
194	< 1.0	8.0	55.0	< 2.0	.8
195	< 1.0	9.0	61.0	< 2.0	1.4
196	2.0	6.0	59.0	< 2.0	1.4
197	2.0	9.0	82.0	< 2.0	.8
198	1.0	4.0	61.0	< 2.0	.7
199	2.0	3.0	90.0	< 2.0	.6
200	< 1.0	9.0	82.0	< 2.0	.7
201	< 1.0	11.0	109.0	< 2.0	.1
202	< 1.0	12.0	98.0	< 2.0	.6
203	< 1.0	11.0	134.0	< 2.0	.3
204	< 1.0	8.0	85.0	< 2.0	.3
205	< 1.0	11.0	55.0	< 2.0	.3
206	< 1.0	8.0	74.0	< 2.0	.3
207	< 1.0	9.0	94.0	< 2.0	.9
208	< 1.0	9.0	119.0	< 2.0	.9
209	< 1.0	7.0	114.0	< 2.0	.2
210	< 1.0	11.0	52.0	< 2.0	.6

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STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
211	2.0	< 0.1	5.0	510.0	< 0.1	1.0	37.0	890.0
212	< 2.0	< 0.1	5.0	520.0	< 0.1	1.0	41.0	940.0
213	< 2.0	< 0.1	20.0	620.0	< 0.1	1.0	28.0	680.0
214	< 2.0	< 0.1	38.0	1560.0	< 0.1	2.0	8.0	420.0
215	5.0	< 0.1	78.0	910.0	< 0.1	15.0	17.0	450.0
216	< 2.0	< 0.1	13.0	970.0	< 0.1	1.0	12.0	310.0
217	< 2.0	< 0.1	5.0	890.0	< 0.1	1.0	17.0	370.0
218	< 2.0	< 0.1	5.0	500.0	< 0.1	1.0	43.0	850.0
219	< 2.0	< 0.1	3.0	540.0	< 0.1	< 1.0	26.0	640.0
220	< 2.0	< 0.1	5.0	520.0	< 0.1	1.0	32.0	630.0
221	2.0	< 0.1	3.0	520.0	< 0.1	1.0	34.0	690.0
222	2.0	< 0.1	5.0	490.0	< 0.1	< 1.0	31.0	740.0
223	< 2.0	< 0.1	5.0	510.0	< 0.1	< 1.0	35.0	730.0
224	15.0	< 0.1	5.0	630.0	< 0.1	< 1.0	32.0	750.0
225	< 2.0	< 0.1	3.0	530.0	< 0.1	< 1.0	31.0	560.0
226	36.0	< 0.1	10.0	560.0	< 0.1	< 1.0	25.0	520.0
227	2.0	< 0.1	5.0	530.0	< 0.1	1.0	30.0	660.0
228	5.0	< 0.1	8.0	500.0	< 0.1	1.0	36.0	630.0
229	2.0	< 0.1	8.0	550.0	< 0.1	1.0	44.0	670.0
230	3.0	< 0.1	5.0	510.0	< 0.1	2.0	46.0	440.0
231	< 2.0	< 0.1	5.0	560.0	< 0.1	2.0	31.0	700.0
232	2.0	< 0.1	8.0	550.0	< 0.1	2.0	37.0	1320.0
233	< 2.0	< 0.1	5.0	520.0	< 0.1	2.0	32.0	940.0
234	< 2.0	< 0.1	5.0	520.0	< 0.1	< 1.0	28.0	810.0
235	2.0	< 0.1	23.0	950.0	< 0.1	1.0	13.0	130.0
236	2.0	< 0.1	10.0	690.0	< 0.1	2.0	25.0	690.0
237	3.0	< 0.1	8.0	820.0	< 0.1	1.0	20.0	430.0
238	< 2.0	< 0.1	10.0	1970.0	< 0.1	< 1.0	7.0	220.0
239	3.0	< 0.1	10.0	540.0	< 0.1	< 1.0	55.0	790.0
240	2.0	< 0.1	5.0	1180.0	< 0.1	< 1.0	6.0	290.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
211	< 1.0	13.0	64.0	< 2.0	.3
212	< 1.0	12.0	67.0	< 2.0	.4
213	< 1.0	11.0	58.0	< 2.0	.7
214	< 1.0	11.0	41.0	< 2.0	1.8
215	< 1.0	10.0	56.0	< 2.0	.8
216	< 1.0	10.0	41.0	< 2.0	.8
217	< 1.0	12.0	51.0	< 2.0	.7
218	< 1.0	11.0	65.0	< 2.0	.4
219	< 1.0	8.0	48.0	< 2.0	.3
220	< 1.0	9.0	52.0	< 2.0	.5
221	< 1.0	11.0	54.0	< 2.0	.4
222	< 1.0	11.0	62.0	< 2.0	.5
223	< 1.0	10.0	65.0	< 2.0	.3
224	< 1.0	13.0	61.0	< 2.0	.5
225	< 1.0	11.0	50.0	< 2.0	.4
226	< 1.0	13.0	48.0	< 2.0	.1
227	< 1.0	13.0	57.0	< 2.0	.3
228	< 1.0	11.0	144.0	< 2.0	.3
229	< 1.0	10.0	69.0	< 2.0	.3
230	< 1.0	9.0	70.0	< 2.0	.3
231	< 1.0	10.0	55.0	< 2.0	.3
232	< 1.0	14.0	70.0	< 2.0	.6
233	< 1.0	12.0	64.0	< 2.0	.4
234	< 1.0	11.0	57.0	< 2.0	.7
235	2.0	14.0	57.0	< 2.0	1.2
236	2.0	11.0	49.0	< 2.0	2.2
237	2.0	13.0	53.0	< 2.0	.7
238	1.0	9.0	26.0	< 2.0	.8
239	< 1.0	11.0	76.0	< 2.0	.5
240	1.0	7.0	27.0	< 2.0	.6

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BUREAU OF LAND MANAGEMENT
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VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
241	21.0	< 0.1	5.0	900.0	< 0.1	1.0	8.0	570.0
242	< 2.0	< 0.1	5.0	1130.0	< 0.1	< 1.0	5.0	230.0
243	< 2.0	< 0.1	15.0	980.0	< 0.1	1.0	18.0	470.0
244	4.0	< 0.1	5.0	1290.0	< 0.1	1.0	6.0	270.0
245	< 2.0	< 0.1	10.0	470.0	< 0.1	1.0	43.0	380.0
246	< 2.0	< 0.1	5.0	880.0	< 0.1	< 1.0	39.0	630.0
247	< 2.0	< 0.1	18.0	610.0	< 0.1	1.0	26.0	430.0
248	< 2.0	< 0.1	5.0	490.0	< 0.1	2.0	36.0	790.0
249	8.0	< 0.1	8.0	490.0	< 0.1	1.0	34.0	680.0
250	6.0	< 0.1	10.0	500.0	< 0.1	< 1.0	31.0	510.0
251	24.0	< 0.1	23.0	500.0	< 0.1	10.0	28.0	610.0
252	4.0	< 0.1	10.0	660.0	< 0.1	2.0	32.0	520.0
253	4.0	< 0.1	5.0	510.0	< 0.1	10.0	27.0	1980.0
254	2.0	< 0.1	5.0	550.0	< 0.1	2.0	26.0	850.0
255	4.0	< 0.1	15.0	530.0	< 0.1	1.0	29.0	340.0
256	2.0	< 0.1	25.0	750.0	< 0.1	2.0	20.0	380.0
257	12.0	< 0.1	30.0	640.0	< 0.1	12.0	28.0	580.0
258	5.0	< 0.1	28.0	800.0	< 0.1	3.0	22.0	500.0
259	28.0	< 0.1	13.0	570.0	< 0.1	3.0	31.0	700.0
260	5.0	< 0.1	13.0	760.0	< 0.1	3.0	20.0	550.0
261	23.0	< 0.1	18.0	690.0	< 0.1	4.0	23.0	510.0
262	9.0	< 0.1	20.0	610.0	< 0.1	15.0	31.0	670.0
263	< 2.0	< 0.1	20.0	690.0	< 0.1	< 1.0	28.0	670.0
264	14.0	< 0.1	20.0	720.0	< 0.1	< 1.0	20.0	510.0
265	2.0	< 0.1	15.0	560.0	< 0.1	2.0	19.0	330.0
266	15.0	< 0.1	10.0	580.0	< 0.1	1.0	30.0	550.0
267	2.0	< 0.1	10.0	580.0	< 0.1	1.0	29.0	570.0
268	4.0	< 0.1	20.0	570.0	< 0.1	< 1.0	37.0	660.0
269	2.0	< 0.1	5.0	500.0	< 0.1	< 1.0	32.0	630.0
270	3.0	< 0.1	3.0	1040.0	< 0.1	< 1.0	3.0	230.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
241	< 1.0	8.0	97.0	< 2.0	.4
242	1.0	7.0	23.0	< 2.0	.6
243	< 1.0	19.0	71.0	< 2.0	.3
244	1.0	9.0	35.0	< 2.0	.7
245	< 1.0	11.0	80.0	< 2.0	.7
246	< 1.0	7.0	77.0	< 2.0	.4
247	1.0	11.0	61.0	< 2.0	.8
248	1.0	14.0	79.0	< 2.0	.4
249	1.0	14.0	79.0	< 2.0	.3
250	< 1.0	10.0	118.0	< 2.0	.5
251	< 1.0	13.0	74.0	< 2.0	.4
252	< 1.0	12.0	68.0	< 2.0	.5
253	< 1.0	18.0	78.0	< 2.0	.9
254	< 1.0	13.0	59.0	< 2.0	.6
255	< 1.0	14.0	76.0	< 2.0	.3
256	2.0	22.0	84.0	< 2.0	.4
257	2.0	17.0	78.0	< 2.0	.4
258	< 1.0	18.0	76.0	< 2.0	.3
259	< 1.0	11.0	97.0	< 2.0	.4
260	< 1.0	18.0	73.0	< 2.0	.4
261	< 1.0	20.0	84.0	< 2.0	.4
262	1.0	15.0	74.0	< 2.0	.7
263	< 1.0	13.0	71.0	< 2.0	.7
264	2.0	18.0	76.0	< 2.0	.4
265	< 1.0	14.0	70.0	< 2.0	2.7
266	< 1.0	13.0	92.0	< 2.0	1.4
267	< 1.0	14.0	97.0	< 2.0	3.6
268	< 1.0	10.0	79.0	< 2.0	.8
269	< 1.0	10.0	77.0	< 2.0	.3
270	< 1.0	7.0	33.0	< 2.0	.3

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NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
271	14.0	< 0.1	30.0	520.0	< 0.1	< 1.0	26.0	640.0
272	2.0	< 0.1	10.0	870.0	< 0.1	1.0	20.0	370.0
273	5.0	< 0.1	13.0	620.0	< 0.1	1.0	29.0	610.0
274	2.0	< 0.1	18.0	540.0	< 0.1	1.0	33.0	530.0
275	3.0	< 0.1	5.0	900.0	< 0.1	< 1.0	9.0	300.0
276	5.0	< 0.1	5.0	850.0	< 0.1	< 1.0	20.0	430.0
277	3.0	< 0.1	5.0	500.0	< 0.1	< 1.0	44.0	650.0
278	7.0	< 0.1	3.0	610.0	< 0.1	< 1.0	41.0	680.0
279	7.0	< 0.1	5.0	650.0	< 0.1	< 1.0	46.0	850.0
280	4.0	< 0.1	3.0	720.0	< 0.1	< 1.0	21.0	800.0
281	3.0	< 0.1	3.0	500.0	< 0.1	1.0	43.0	720.0
282	2.0	< 0.1	3.0	480.0	< 0.1	< 1.0	48.0	910.0
283	2.0	< 0.1	3.0	540.0	< 0.1	< 1.0	48.0	870.0
284	5.0	< 0.1	5.0	470.0	< 0.1	< 1.0	74.0	970.0
285	3.0	< 0.1	5.0	700.0	< 0.1	< 1.0	15.0	1080.0
286	2.0	< 0.1	5.0	730.0	< 0.1	< 1.0	16.0	930.0
287	2.0	< 0.1	10.0	450.0	< 0.1	< 1.0	59.0	720.0
288	< 2.0	< 0.1	8.0	490.0	< 0.1	< 1.0	29.0	360.0
289	2.0	< 0.1	20.0	640.0	< 0.1	< 1.0	66.0	900.0
290	6.0	< 0.1	18.0	540.0	< 0.1	2.0	60.0	650.0
291	2.0	< 0.1	3.0	640.0	< 0.1	1.0	10.0	770.0
292	9.0	< 0.1	3.0	510.0	< 0.1	1.0	33.0	430.0
293	5.0	< 0.1	5.0	600.0	< 0.1	1.0	40.0	850.0
294	< 2.0	< 0.1	5.0	720.0	< 0.1	< 1.0	22.0	890.0
295	< 2.0	< 0.1	5.0	410.0	< 0.1	1.0	62.0	740.0
296	5.0	< 0.1	5.0	440.0	< 0.1	1.0	47.0	660.0
297	5.0	< 0.1	5.0	620.0	< 0.1	< 1.0	26.0	620.0
298	3.0	< 0.1	5.0	520.0	< 0.1	1.0	30.0	370.0
299	20.0	< 0.1	5.0	580.0	< 0.1	1.0	38.0	770.0
300	< 2.0	< 0.1	3.0	520.0	< 0.1	1.0	27.0	450.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
271	8.0	23.0	94.0	< 2.0	.2
272	1.0	15.0	71.0	< 2.0	.2
273	2.0	18.0	102.0	< 2.0	.2
274	1.0	14.0	83.0	< 2.0	.4
275	1.0	10.0	36.0	< 2.0	.7
276	< 1.0	11.0	48.0	< 2.0	.2
277	< 1.0	9.0	67.0	< 2.0	.6
278	< 1.0	7.0	80.0	< 2.0	.2
279	< 1.0	8.0	67.0	< 2.0	.6
280	< 1.0	15.0	47.0	< 2.0	.7
281	1.0	13.0	77.0	< 2.0	1.8
282	3.0	6.0	76.0	< 2.0	.3
283	2.0	9.0	75.0	< 2.0	.5
284	1.0	11.0	120.0	< 2.0	.7
285	< 1.0	14.0	144.0	< 2.0	1.4
286	2.0	14.0	147.0	< 2.0	1.2
287	3.0	10.0	350.0	< 2.0	.3
288	< 1.0	9.0	250.0	< 2.0	.6
289	3.0	21.0	530.0	< 2.0	.5
290	3.0	15.0	510.0	< 2.0	.2
291	2.0	12.0	102.0	< 2.0	.4
292	1.0	10.0	77.0	< 2.0	.9
293	1.0	14.0	109.0	< 2.0	.3
294	1.0	12.0	105.0	< 2.0	.8
295	1.0	10.0	91.0	< 2.0	.2
296	1.0	11.0	90.0	< 2.0	.2
297	1.0	11.0	95.0	< 2.0	.4
298	< 1.0	14.0	80.0	< 2.0	.4
299	< 1.0	13.0	117.0	< 2.0	1.4
300	2.0	15.0	48.0	< 2.0	.4

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BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
301	< 2.0	< 0.1	5.0	460.0	< 0.1	1.0	46.0	650.0
302	2.0	< 0.1	5.0	570.0	< 0.1	1.0	31.0	1020.0
303	4.0	< 0.1	3.0	560.0	< 0.1	1.0	26.0	600.0
304	< 2.0	< 0.1	18.0	600.0	< 0.1	15.0	34.0	690.0
305	4.0	< 0.1	25.0	560.0	< 0.1	13.0	68.0	1310.0
306	< 2.0	< 0.1	18.0	740.0	< 0.1	< 1.0	20.0	460.0
307	5.0	< 0.1	20.0	460.0	< 0.1	1.0	16.0	420.0
308	4.0	< 0.1	20.0	750.0	< 0.1	3.0	26.0	480.0
309	< 2.0	< 0.1	25.0	790.0	< 0.1	6.0	22.0	570.0
310	8.0	< 0.1	15.0	780.0	< 0.1	2.0	18.0	390.0
311	4.0	< 0.1	13.0	460.0	< 0.1	< 1.0	18.0	450.0
312	2.0	< 0.1	13.0	900.0	< 0.1	7.0	19.0	540.0
313	3.0	< 0.1	8.0	600.0	< 0.1	1.0	23.0	550.0
314	2.0	< 0.1	13.0	670.0	< 0.1	< 1.0	19.0	590.0
315	3.0	< 0.1	8.0	500.0	< 0.1	< 1.0	27.0	580.0
316	15.0	< 0.1	8.0	610.0	< 0.1	3.0	23.0	600.0
317	< 2.0	< 0.1	15.0	2250.0	< 0.1	1.0	14.0	690.0
318	< 2.0	< 0.1	15.0	2250.0	< 0.1	12.0	17.0	800.0
319	< 2.0	< 0.1	10.0	750.0	< 0.1	1.0	17.0	650.0
320	22.0	< 0.1	13.0	930.0	< 0.1	1.0	19.0	570.0
321	< 2.0	< 0.1	13.0	640.0	< 0.1	1.0	27.0	600.0
322	< 2.0	< 0.1	18.0	850.0	< 0.1	< 1.0	17.0	670.0
323	8.0	< 0.1	20.0	740.0	< 0.1	13.0	24.0	530.0
324	< 2.0	< 0.1	8.0	500.0	< 0.1	5.0	27.0	730.0
325	< 2.0	< 0.1	20.0	810.0	< 0.1	4.0	14.0	530.0
326	< 2.0	< 0.1	13.0	700.0	< 0.1	1.0	23.0	640.0
327	2.0	< 0.1	13.0	590.0	< 0.1	< 1.0	24.0	640.0
328	< 2.0	< 0.1	10.0	590.0	< 0.1	2.0	23.0	620.0
329	10.0	< 0.1	8.0	570.0	< 0.1	1.0	29.0	750.0
330	< 2.0	< 0.1	5.0	520.0	< 0.1	< 1.0	29.0	770.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
301	1.0	10.0	77.0	2.0	.5
302	1.0	14.0	64.0	2.0	.6
303	2.0	12.0	51.0	< 2.0	.5
304	1.0	10.0	77.0	< 2.0	.6
305	3.0	21.0	148.0	< 2.0	.7
306	< 1.0	16.0	70.0	< 2.0	.8
307	1.0	23.0	70.0	< 2.0	.9
308	< 1.0	19.0	87.0	< 2.0	.9
309	< 1.0	14.0	72.0	< 2.0	.7
310	< 1.0	16.0	67.0	< 2.0	.6
311	< 1.0	17.0	70.0	< 2.0	2.6
312	1.0	20.0	86.0	< 2.0	.9
313	< 1.0	8.0	57.0	< 2.0	.3
314	< 1.0	13.0	63.0	< 2.0	.7
315	< 1.0	7.0	65.0	< 2.0	.3
316	1.0	9.0	70.0	< 2.0	.2
317	1.0	12.0	46.0	< 2.0	.7
318	< 1.0	15.0	74.0	< 2.0	.8
319	< 1.0	15.0	63.0	< 2.0	.7
320	< 1.0	16.0	70.0	< 2.0	.9
321	< 1.0	10.0	68.0	< 2.0	.8
322	< 1.0	18.0	62.0	< 2.0	.8
323	< 1.0	18.0	83.0	< 2.0	.5
324	< 1.0	8.0	102.0	< 2.0	.6
325	< 1.0	11.0	75.0	< 2.0	1.4
326	1.0	11.0	65.0	< 2.0	2.4
327	< 1.0	9.0	70.0	< 2.0	.6
328	< 1.0	12.0	82.0	< 2.0	.9
329	< 1.0	10.0	89.0	< 2.0	.5
330	< 1.0	11.0	86.0	< 2.0	1.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
331	< 2.0	< 0.1	5.0	660.0	< 0.1	1.0	31.0	1300.0
332	< 2.0	< 0.1	5.0	640.0	< 0.1	< 1.0	16.0	870.0
333	< 2.0	< 0.1	3.0	640.0	< 0.1	1.0	17.0	610.0
334	< 2.0	< 0.1	3.0	670.0	< 0.1	< 1.0	30.0	990.0
335	< 2.0	< 0.1	3.0	580.0	< 0.1	1.0	20.0	720.0
336	< 2.0	< 0.1	5.0	290.0	< 0.1	< 1.0	19.0	740.0
337	< 2.0	< 0.1	3.0	700.0	< 0.1	< 1.0	21.0	770.0
338	3.0	< 0.1	5.0	730.0	< 0.1	< 1.0	18.0	780.0
339	2.0	< 0.1	3.0	680.0	< 0.1	1.0	14.0	830.0
340	< 2.0	< 0.1	3.0	640.0	< 0.1	< 1.0	24.0	850.0
341	< 2.0	< 0.1	3.0	740.0	< 0.1	< 1.0	14.0	880.0
342	< 2.0	< 0.1	3.0	500.0	< 0.1	< 1.0	40.0	740.0
343	9.0	< 0.1	3.0	590.0	< 0.1	1.0	48.0	730.0
344	2.0	< 0.1	3.0	680.0	< 0.1	1.0	11.0	670.0
345	< 2.0	< 0.1	5.0	700.0	< 0.1	< 1.0	13.0	1120.0
346	< 2.0	< 0.1	3.0	640.0	< 0.1	< 1.0	13.0	880.0
347	2.0	< 0.1	3.0	780.0	< 0.1	< 1.0	11.0	1120.0
348	55.0	< 0.1	3.0	740.0	< 0.1	< 1.0	11.0	1050.0
349	3.0	< 0.1	3.0	710.0	< 0.1	1.0	13.0	1370.0
350	< 2.0	< 0.1	3.0	680.0	< 0.1	< 1.0	11.0	1170.0
351	< 2.0	< 0.1	3.0	680.0	< 0.1	< 1.0	10.0	1150.0
352	5.0	< 0.1	3.0	670.0	< 0.1	< 1.0	12.0	960.0
353	< 2.0	< 0.1	3.0	650.0	< 0.1	< 1.0	23.0	750.0
354	< 2.0	< 0.1	< 2.0	670.0	< 0.1	< 1.0	10.0	1040.0
400	4.0	< 0.1	10.0	580.0	< 0.1	< 1.0	25.0	570.0
401	4.0	< 0.1	10.0	550.0	< 0.1	1.0	22.0	640.0
402	3.0	< 0.1	8.0	530.0	< 0.1	< 1.0	22.0	630.0
403	2.0	< 0.1	10.0	630.0	< 0.1	1.0	25.0	600.0
404	< 2.0	< 0.1	10.0	580.0	< 0.1	1.0	21.0	660.0
405	2.0	< 0.1	13.0	640.0	< 0.1	< 1.0	19.0	560.0

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BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
331	< 1.0	14.0	64.0	2.0	.5
332	< 1.0	13.0	103.0	< 2.0	.8
333	< 1.0	15.0	103.0	< 2.0	.6
334	< 1.0	15.0	136.0	2.0	1.4
335	< 1.0	14.0	159.0	< 2.0	.6
336	< 1.0	16.0	141.0	< 2.0	.7
337	< 1.0	12.0	125.0	2.0	1.2
338	< 1.0	13.0	104.0	< 2.0	1.6
339	< 1.0	11.0	123.0	< 2.0	1.4
340	< 1.0	11.0	120.0	< 2.0	.9
341	< 1.0	10.0	142.0	< 2.0	1.4
342	< 1.0	9.0	85.0	< 2.0	.7
343	< 1.0	10.0	97.0	< 2.0	.9
344	< 1.0	8.0	146.0	2.0	.5
345	< 1.0	14.0	140.0	2.0	.6
346	< 1.0	12.0	130.0	< 2.0	.5
347	< 1.0	12.0	136.0	< 2.0	.4
348	< 1.0	8.0	123.0	2.0	.2
349	< 1.0	17.0	110.0	2.0	.3
350	< 1.0	10.0	152.0	< 2.0	.4
351	< 1.0	8.0	145.0	< 2.0	.2
352	< 1.0	8.0	116.0	< 2.0	.2
353	< 1.0	9.0	96.0	2.0	.2
354	< 1.0	9.0	109.0	< 2.0	.2
400	< 1.0	11.0	74.0	< 2.0	1.0
401	1.0	10.0	73.0	< 2.0	.4
402	< 1.0	10.0	84.0	< 2.0	.6
403	< 1.0	11.0	53.0	< 2.0	1.0
404	< 1.0	10.0	59.0	< 2.0	1.2
405	< 1.0	8.0	71.0	< 2.0	.6

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VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
406	3.0	< 0.1	3.0	370.0	< 0.1	< 1.0	22.0	620.0
407	3.0	< 0.1	5.0	340.0	< 0.1	< 1.0	26.0	770.0
408	4.0	< 0.1	5.0	310.0	< 0.1	< 1.0	21.0	730.0
409	< 2.0	< 0.1	5.0	320.0	< 0.1	< 1.0	22.0	720.0
410	2.0	< 0.1	8.0	540.0	< 0.1	< 1.0	27.0	620.0
411	12.0	< 0.1	10.0	530.0	< 0.1	< 1.0	35.0	1040.0
412	3.0	< 0.1	5.0	420.0	< 0.1	< 1.0	23.0	380.0
413	4.0	< 0.1	5.0	480.0	< 0.1	< 1.0	26.0	470.0
414	3.0	< 0.1	8.0	570.0	< 0.1	< 1.0	23.0	630.0
415	12.0	< 0.1	5.0	550.0	< 0.1	< 1.0	20.0	630.0
416	11.0	< 0.1	5.0	440.0	< 0.1	< 1.0	33.0	700.0
417	2.0	< 0.1	5.0	450.0	< 0.1	< 1.0	32.0	590.0
418	2.0	< 0.1	5.0	470.0	< 0.1	< 1.0	30.0	830.0
419	4.0	< 0.1	8.0	490.0	< 0.1	< 1.0	31.0	770.0
420	13.0	< 0.1	3.0	620.0	< 0.1	< 1.0	8.0	880.0
421	11.0	< 0.1	5.0	510.0	< 0.1	< 1.0	41.0	710.0
422	3.0	< 0.1	3.0	560.0	< 0.1	1.0	37.0	620.0
423	11.0	< 0.1	10.0	440.0	< 0.1	< 1.0	46.0	580.0
424	7.0	< 0.1	3.0	500.0	< 0.1	1.0	49.0	460.0
425	5.0	< 0.1	8.0	440.0	< 0.1	< 1.0	51.0	610.0
426	4.0	< 0.1	3.0	430.0	< 0.1	1.0	34.0	490.0
427	< 2.0	< 0.1	5.0	510.0	< 0.1	< 1.0	50.0	800.0
428	5.0	< 0.1	3.0	560.0	< 0.1	< 1.0	44.0	9700.0
429	< 2.0	< 0.1	3.0	550.0	< 0.1	< 1.0	32.0	680.0
430	3.0	< 0.1	5.0	460.0	< 0.1	< 1.0	28.0	950.0
431	6.0	< 0.1	5.0	490.0	< 0.1	< 1.0	29.0	750.0
432	2.0	< 0.1	3.0	440.0	< 0.1	< 1.0	27.0	540.0
433	< 2.0	< 0.1	5.0	460.0	< 0.1	< 1.0	34.0	930.0
434	8.0	< 0.1	5.0	480.0	< 0.1	< 1.0	28.0	920.0
435	< 2.0	< 0.1	5.0	490.0	< 0.1	< 1.0	31.0	640.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
406	< 1.0	4.0	95.0	< 2.0	.6
407	< 1.0	5.0	140.0	< 2.0	.8
408	< 1.0	5.0	137.0	< 2.0	.6
409	< 1.0	7.0	120.0	4.0	.7
410	< 1.0	11.0	64.0	10.0	.8
411	< 1.0	10.0	65.0	6.0	.6
412	< 1.0	9.0	52.0	10.0	.4
413	< 1.0	9.0	59.0	10.0	.4
414	< 1.0	11.0	55.0	2.0	.6
415	< 1.0	10.0	72.0	10.0	.3
416	< 1.0	9.0	69.0	6.0	.9
417	< 1.0	10.0	65.0	6.0	1.8
418	2.0	13.0	65.0	4.0	.2
419	1.0	11.0	72.0	4.0	.2
420	< 1.0	10.0	101.0	8.0	.2
421	< 1.0	11.0	151.0	4.0	.6
422	< 1.0	12.0	118.0	2.0	.9
423	2.0	12.0	370.0	< 2.0	.4
424	< 1.0	8.0	105.0	< 2.0	.5
425	1.0	12.0	330.0	8.0	.4
426	< 1.0	10.0	88.0	6.0	.2
427	< 1.0	13.0	86.0	6.0	.7
428	< 1.0	11.0	122.0	4.0	.5
429	< 1.0	12.0	142.0	4.0	.4
430	< 1.0	15.0	65.0	6.0	.6
431	1.0	13.0	67.0	< 2.0	.4
432	< 1.0	13.0	61.0	< 2.0	.3
433	< 1.0	47.0	67.0	< 2.0	.3
434	< 1.0	15.0	52.0	< 2.0	.3
435	< 1.0	12.0	67.0	< 2.0	.4

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NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
436	6.0	< 0.1	3.0	480.0	< 0.1	< 1.0	34.0	620.0
437	9.0	< 0.1	5.0	480.0	< 0.1	< 1.0	34.0	720.0
438	2.0	< 0.1	3.0	680.0	< 0.1	< 1.0	23.0	550.0
439	2.0	< 0.1	5.0	370.0	< 0.1	< 1.0	29.0	700.0
440	3.0	< 0.1	5.0	500.0	< 0.1	< 1.0	32.0	780.0
441	3.0	< 0.1	8.0	480.0	< 0.1	< 1.0	29.0	730.0
442	4.0	< 0.1	15.0	670.0	< 0.1	1.0	27.0	660.0
446	3.0	< 0.1	3.0	480.0	< 0.1	< 1.0	50.0	770.0
447	4.0	< 0.1	< 2.0	480.0	< 0.1	< 1.0	26.0	510.0
448	2.0	< 0.1	10.0	490.0	< 0.1	< 1.0	47.0	640.0
449	4.0	< 0.1	5.0	420.0	< 0.1	1.0	60.0	380.0
450	2.0	< 0.1	8.0	490.0	< 0.1	< 1.0	44.0	990.0
451	2.0	< 0.1	< 2.0	440.0	< 0.1	< 1.0	39.0	490.0
452	2.0	< 0.1	3.0	460.0	< 0.1	1.0	45.0	590.0
460	4.0	< 0.1	3.0	670.0	< 0.1	< 1.0	11.0	1270.0
461	< 2.0	< 0.1	3.0	580.0	< 0.1	< 1.0	10.0	1530.0
462	2.0	< 0.1	< 2.0	720.0	< 0.1	< 1.0	12.0	830.0
463	7.0	< 0.1	3.0	620.0	< 0.1	< 1.0	13.0	1030.0
473	< 2.0	< 0.1	3.0	610.0	< 0.1	< 1.0	31.0	600.0
474	2.0	< 0.1	5.0	700.0	< 0.1	< 1.0	15.0	1090.0
475	< 2.0	< 0.1	5.0	660.0	< 0.1	< 1.0	22.0	790.0
476	2.0	< 0.1	5.0	640.0	< 0.1	< 1.0	17.0	990.0
477	< 2.0	< 0.1	5.0	690.0	< 0.1	< 1.0	29.0	700.0
478	< 2.0	< 0.1	< 2.0	600.0	< 0.1	< 1.0	37.0	820.0
479	2.0	< 0.1	3.0	750.0	< 0.1	< 1.0	9.0	1530.0
480	3.0	< 0.1	3.0	760.0	< 0.1	< 1.0	11.0	1660.0
481	8.0	< 0.1	3.0	540.0	< 0.1	< 1.0	32.0	670.0
500	2.0	< 0.1	3.0	780.0	< 0.1	< 1.0	19.0	400.0
501	5.0	< 0.1	5.0	450.0	< 0.1	1.0	38.0	620.0
502	3.0	< 0.1	8.0	420.0	< 0.1	< 1.0	36.0	430.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
436	< 1.0	11.0	66.0	< 2.0	.6
437	< 1.0	12.0	76.0	< 2.0	.5
438	< 1.0	11.0	74.0	< 2.0	.5
439	< 1.0	8.0	67.0	< 2.0	.3
440	< 1.0	9.0	74.0	< 2.0	.5
441	< 1.0	10.0	85.0	< 2.0	.4
442	< 1.0	13.0	73.0	< 2.0	.5
446	< 1.0	9.0	124.0	< 2.0	.6
447	< 1.0	8.0	98.0	< 2.0	.7
448	< 1.0	11.0	310.0	< 2.0	.4
449	< 1.0	13.0	330.0	< 2.0	.5
450	< 1.0	12.0	260.0	< 2.0	.4
451	< 1.0	8.0	136.0	< 2.0	.3
452	< 1.0	8.0	128.0	< 2.0	.4
460	< 1.0	12.0	156.0	< 2.0	.4
461	2.0	12.0	180.0	< 2.0	.7
462	2.0	11.0	135.0	< 2.0	.7
463	< 1.0	10.0	137.0	< 2.0	.8
473	< 1.0	10.0	147.0	< 2.0	.7
474	< 1.0	11.0	141.0	< 2.0	.5
475	< 1.0	10.0	147.0	< 2.0	.7
476	< 1.0	10.0	133.0	< 2.0	1.9
477	< 1.0	12.0	154.0	< 2.0	.9
478	< 1.0	10.0	136.0	< 2.0	1.4
479	< 1.0	10.0	132.0	< 2.0	.8
480	< 1.0	11.0	131.0	< 2.0	.7
481	< 1.0	9.0	86.0	< 2.0	.7
500	< 1.0	31.0	60.0	< 2.0	1.0
501	< 1.0	11.0	73.0	< 2.0	1.4
502	< 1.0	11.0	68.0	< 2.0	1.2

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STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
503	6.0	4.9	5.0	500.0	< 0.1	< 1.0	34.0	550.0
504	5.0	< 0.1	20.0	690.0	< 0.1	1.0	15.0	360.0
505	4.0	< 0.1	8.0	540.0	< 0.1	< 1.0	32.0	650.0
506	2.0	< 0.1	8.0	630.0	< 0.1	< 1.0	24.0	520.0
507	13.0	< 0.1	8.0	640.0	< 0.1	< 1.0	36.0	750.0
508	2.0	< 0.1	8.0	540.0	< 0.1	< 1.0	25.0	520.0
509	7.0	< 0.1	5.0	600.0	< 0.1	< 1.0	38.0	640.0
510	4.0	< 0.1	5.0	490.0	< 0.1	< 1.0	39.0	600.0
511	4.0	< 0.1	3.0	510.0	< 0.1	< 1.0	22.0	660.0
512	17.0	< 0.1	5.0	640.0	< 0.1	< 1.0	40.0	750.0
513	4.0	< 0.1	5.0	520.0	< 0.1	< 1.0	60.0	790.0
514	2.0	< 0.1	5.0	470.0	< 0.1	< 1.0	63.0	870.0
515	2.0	< 0.1	5.0	500.0	< 0.1	< 1.0	67.0	790.0
516	2.0	< 0.1	5.0	500.0	< 0.1	< 1.0	71.0	920.0
517	< 2.0	< 0.1	8.0	480.0	< 0.1	< 1.0	80.0	890.0
518	< 2.0	< 0.1	3.0	390.0	< 0.1	< 1.0	66.0	940.0
519	2.0	< 0.1	3.0	580.0	< 0.1	1.0	22.0	560.0
520	5.0	< 0.1	8.0	680.0	< 0.1	< 1.0	22.0	500.0
521	3.0	< 0.1	8.0	750.0	< 0.1	< 1.0	23.0	530.0
522	3.0	< 0.1	3.0	760.0	< 0.1	< 1.0	33.0	770.0
523	4.0	< 0.1	5.0	640.0	< 0.1	< 1.0	28.0	730.0
524	7.0	< 0.1	5.0	590.0	< 0.1	< 1.0	32.0	640.0
525	3.0	< 0.1	5.0	670.0	< 0.1	< 1.0	24.0	640.0
526	2.0	< 0.1	5.0	740.0	< 0.1	< 1.0	22.0	720.0
527	< 2.0	< 0.1	23.0	870.0	< 0.1	< 1.0	10.0	320.0
528	2.0	< 0.1	5.0	670.0	< 0.1	< 1.0	27.0	640.0
529	13.0	< 0.1	5.0	670.0	< 0.1	< 1.0	31.0	630.0
530	3.0	< 0.1	10.0	780.0	< 0.1	< 1.0	16.0	380.0
531	8.0	< 0.1	5.0	750.0	< 0.1	< 1.0	22.0	430.0
532	3.0	< 0.1	5.0	750.0	< 0.1	< 1.0	13.0	220.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
503	< 1.0	13.0	70.0	< 2.0	.5
504	< 1.0	19.0	55.0	< 2.0	.5
505	< 1.0	15.0	82.0	< 2.0	.6
506	< 1.0	13.0	85.0	< 2.0	1.8
507	< 1.0	10.0	64.0	< 2.0	.4
508	< 1.0	13.0	69.0	< 2.0	1.4
509	< 1.0	12.0	76.0	< 2.0	.6
510	< 1.0	12.0	92.0	< 2.0	.5
511	< 1.0	56.0	116.0	< 2.0	.8
512	< 1.0	10.0	69.0	< 2.0	.5
513	< 1.0	16.0	86.0	< 2.0	.4
514	< 1.0	12.0	108.0	< 2.0	.6
515	< 1.0	10.0	86.0	< 2.0	.5
516	< 1.0	10.0	108.0	< 2.0	.8
517	< 1.0	8.0	86.0	< 2.0	.3
518	< 1.0	8.0	144.0	< 2.0	.5
519	< 1.0	17.0	83.0	< 2.0	.6
520	< 1.0	16.0	66.0	< 2.0	.9
521	< 1.0	15.0	53.0	< 2.0	.7
522	< 1.0	14.0	71.0	< 2.0	.8
523	< 1.0	13.0	75.0	< 2.0	.6
524	< 1.0	14.0	69.0	< 2.0	.5
525	< 1.0	36.0	48.0	< 2.0	.5
526	< 1.0	13.0	51.0	< 2.0	.5
527	< 1.0	9.0	32.0	< 2.0	.5
528	< 1.0	14.0	72.0	< 2.0	.7
529	< 1.0	11.0	70.0	< 2.0	.5
530	< 1.0	12.0	54.0	< 2.0	1.2
531	< 1.0	13.0	51.0	< 2.0	1.4
532	< 1.0	15.0	38.0	< 2.0	.7

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
533	3.0	< 0.1	5.0	630.0	< 0.1	< 1.0	20.0	320.0
534	5.0	< 0.1	5.0	740.0	< 0.1	< 1.0	18.0	480.0
535	3.0	< 0.1	5.0	550.0	< 0.1	< 1.0	26.0	330.0
536	< 2.0	< 0.1	3.0	550.0	< 0.1	< 1.0	41.0	740.0
537	3.0	< 0.1	5.0	580.0	< 0.1	< 1.0	33.0	500.0
538	4.0	< 0.1	5.0	510.0	< 0.1	< 1.0	40.0	520.0
539	2.0	< 0.1	5.0	540.0	< 0.1	< 1.0	33.0	650.0
540	4.0	< 0.1	3.0	720.0	< 0.1	< 1.0	25.0	580.0
541	4.0	< 0.1	5.0	750.0	< 0.1	< 1.0	24.0	580.0
542	2.0	< 0.1	5.0	730.0	< 0.1	1.0	18.0	380.0
543	3.0	< 0.1	10.0	720.0	< 0.1	1.0	18.0	400.0
544	2.0	< 0.1	8.0	750.0	< 0.1	< 1.0	13.0	290.0
545	< 2.0	< 0.1	8.0	610.0	< 0.1	< 1.0	36.0	940.0
546	< 2.0	< 0.1	5.0	710.0	< 0.1	< 1.0	19.0	560.0
547	< 2.0	< 0.1	20.0	620.0	< 0.1	2.0	17.0	390.0
548	3.0	< 0.1	8.0	690.0	< 0.1	< 1.0	25.0	600.0
549	3.0	< 0.1	8.0	610.0	< 0.1	< 1.0	30.0	880.0
550	3.0	< 0.1	8.0	560.0	< 0.1	< 1.0	27.0	500.0
551	3.0	< 0.1	3.0	670.0	< 0.1	< 1.0	26.0	500.0
552	2.0	< 0.1	3.0	610.0	< 0.1	< 1.0	23.0	440.0
553	2.0	< 0.1	3.0	790.0	< 0.1	< 1.0	15.0	340.0
554	2.0	< 0.1	5.0	590.0	< 0.1	< 1.0	27.0	510.0
555	4.0	< 0.1	5.0	680.0	< 0.1	< 1.0	24.0	300.0
556	3.0	< 0.1	5.0	720.0	< 0.1	< 1.0	16.0	480.0
557	4.0	< 0.1	3.0	690.0	< 0.1	< 1.0	13.0	390.0
558	5.0	< 0.1	3.0	640.0	< 0.1	< 1.0	22.0	560.0
559	2.0	< 0.1	5.0	640.0	< 0.1	< 1.0	24.0	590.0
560	7.0	< 0.1	13.0	690.0	< 0.1	1.0	24.0	410.0
561	3.0	< 0.1	5.0	680.0	< 0.1	< 1.0	20.0	560.0
562	< 2.0	< 0.1	5.0	620.0	< 0.1	< 1.0	21.0	540.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
533	< 1.0	33.0	54.0	< 2.0	1.2
534	< 1.0	14.0	49.0	< 2.0	.6
535	< 1.0	12.0	63.0	< 2.0	.6
536	< 1.0	13.0	60.0	< 2.0	.3
537	< 1.0	12.0	62.0	< 2.0	.4
538	< 1.0	12.0	55.0	< 2.0	.3
539	< 1.0	13.0	57.0	< 2.0	.2
540	< 1.0	15.0	62.0	< 2.0	.4
541	< 1.0	18.0	66.0	< 2.0	.8
542	< 1.0	15.0	56.0	< 2.0	.8
543	< 1.0	13.0	71.0	< 2.0	1.8
544	< 1.0	11.0	41.0	< 2.0	.6
545	< 1.0	15.0	71.0	< 2.0	.5
546	< 1.0	12.0	44.0	< 2.0	.3
547	< 1.0	13.0	54.0	< 2.0	.5
548	< 1.0	13.0	59.0	< 2.0	.6
549	< 1.0	17.0	67.0	< 2.0	.5
550	< 1.0	14.0	64.0	< 2.0	.7
551	< 1.0	11.0	62.0	< 2.0	.4
552	< 1.0	11.0	48.0	< 2.0	.6
553	< 1.0	11.0	51.0	< 2.0	.4
554	< 1.0	17.0	63.0	< 2.0	.5
555	< 1.0	14.0	60.0	< 2.0	.6
556	< 1.0	12.0	59.0	< 2.0	.4
557	< 1.0	11.0	64.0	< 2.0	.3
558	< 1.0	13.0	110.0	< 2.0	.5
559	< 1.0	14.0	58.0	< 2.0	.7
560	< 1.0	15.0	76.0	< 2.0	2.4
561	< 1.0	11.0	55.0	< 2.0	.5
562	< 1.0	23.0	57.0	< 2.0	1.4

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BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
563	2.0	< 0.1	3.0	950.0	< 0.1	< 1.0	21.0	150.0
564	3.0	< 0.1	5.0	440.0	< 0.1	< 1.0	39.0	550.0
565	2.0	< 0.1	5.0	460.0	< 0.1	< 1.0	37.0	560.0
566	3.0	< 0.1	8.0	510.0	< 0.1	< 1.0	35.0	610.0
567	4.0	< 0.1	5.0	510.0	< 0.1	< 1.0	35.0	620.0
568	3.0	< 0.1	3.0	470.0	< 0.1	< 1.0	31.0	970.0
569	< 2.0	< 0.1	8.0	620.0	< 0.1	1.0	35.0	1310.0
570	17.0	< 0.1	5.0	490.0	< 0.1	< 1.0	33.0	750.0
571	< 2.0	< 0.1	5.0	510.0	< 0.1	< 1.0	35.0	290.0
572	< 2.0	< 0.1	5.0	500.0	< 0.1	< 1.0	38.0	410.0
573	< 2.0	< 0.1	5.0	470.0	< 0.1	< 1.0	43.0	610.0
574	< 2.0	< 0.1	3.0	480.0	< 0.1	< 1.0	35.0	870.0
575	< 2.0	< 0.1	5.0	460.0	< 0.1	< 1.0	31.0	670.0
576	< 2.0	< 0.1	5.0	470.0	< 0.1	< 1.0	33.0	680.0
577	< 2.0	< 0.1	5.0	480.0	< 0.1	< 1.0	30.0	580.0
578	6.0	< 0.1	5.0	480.0	< 0.1	< 1.0	35.0	480.0
579	< 2.0	< 0.1	5.0	530.0	< 0.1	< 1.0	45.0	730.0
580	< 2.0	< 0.1	5.0	450.0	< 0.1	< 1.0	37.0	720.0
581	< 2.0	< 0.1	5.0	850.0	< 0.1	< 1.0	12.0	260.0
582	< 2.0	< 0.1	5.0	750.0	< 0.1	< 1.0	16.0	350.0
583	2.0	< 0.1	5.0	690.0	< 0.1	< 1.0	17.0	390.0
584	< 2.0	< 0.1	5.0	640.0	< 0.1	< 1.0	27.0	440.0
585	6.0	< 0.1	10.0	810.0	< 0.1	< 1.0	13.0	290.0
586	< 2.0	< 0.1	8.0	920.0	< 0.1	< 1.0	11.0	260.0
587	< 2.0	< 0.1	5.0	760.0	< 0.1	< 1.0	16.0	380.0
588	< 2.0	< 0.1	23.0	470.0	< 0.1	< 1.0	35.0	350.0
589	2.0	< 0.1	8.0	940.0	< 0.1	< 1.0	13.0	290.0
590	< 2.0	< 0.1	5.0	540.0	< 0.1	< 1.0	18.0	260.0
591	< 2.0	< 0.1	10.0	610.0	< 0.1	< 1.0	25.0	590.0
592	< 2.0	< 0.1	5.0	390.0	< 0.1	1.0	14.0	680.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
563	< 1.0	8.0	32.0	< 2.0	.7
564	< 1.0	14.0	72.0	< 2.0	2.7
565	< 1.0	14.0	74.0	< 2.0	.9
566	< 1.0	21.0	68.0	< 2.0	1.2
567	< 1.0	12.0	68.0	< 2.0	.8
568	< 1.0	12.0	55.0	< 2.0	.8
569	< 1.0	15.0	66.0	< 2.0	.9
570	< 1.0	14.0	63.0	< 2.0	1.8
571	< 1.0	10.0	67.0	< 2.0	1.2
572	< 1.0	11.0	72.0	< 2.0	1.4
573	< 1.0	11.0	81.0	< 2.0	1.4
574	< 1.0	12.0	66.0	< 2.0	1.0
575	< 1.0	10.0	70.0	< 2.0	.7
576	< 1.0	24.0	74.0	< 2.0	.7
577	< 1.0	12.0	70.0	< 2.0	.5
578	< 1.0	11.0	69.0	< 2.0	.8
579	< 1.0	11.0	76.0	< 2.0	.6
580	< 1.0	12.0	70.0	< 2.0	.6
581	< 1.0	10.0	44.0	< 2.0	.7
582	< 1.0	12.0	55.0	< 2.0	.7
583	< 1.0	15.0	80.0	< 2.0	.8
584	< 1.0	16.0	71.0	< 2.0	.7
585	< 1.0	11.0	47.0	< 2.0	1.4
586	< 1.0	13.0	51.0	< 2.0	1.6
587	< 1.0	11.0	56.0	< 2.0	.6
588	< 1.0	27.0	58.0	< 2.0	1.4
589	< 1.0	12.0	48.0	< 2.0	2.0
590	< 1.0	16.0	66.0	< 2.0	2.6
591	< 1.0	13.0	69.0	< 2.0	1.0
592	< 1.0	14.0	54.0	< 2.0	1.0

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NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
593	< 2.0	< 0.1	3.0	600.0	< 0.1	2.0	14.0	630.0
594	< 2.0	< 0.1	5.0	400.0	< 0.1	1.0	18.0	680.0
595	< 2.0	< 0.1	5.0	450.0	< 0.1	1.0	44.0	670.0
596	< 2.0	< 0.1	5.0	470.0	< 0.1	1.0	31.0	740.0
597	< 2.0	< 0.1	5.0	450.0	< 0.1	3.0	28.0	660.0
598	< 2.0	< 0.1	5.0	500.0	< 0.1	1.0	31.0	720.0
599	18.0	< 0.1	5.0	470.0	< 0.1	< 1.0	28.0	390.0
600	2.0	< 0.1	15.0	480.0	< 0.1	1.0	31.0	420.0
601	< 2.0	< 0.1	5.0	600.0	< 0.1	< 1.0	28.0	760.0
602	< 2.0	< 0.1	5.0	530.0	< 0.1	< 1.0	29.0	550.0
603	< 2.0	< 0.1	3.0	520.0	< 0.1	< 1.0	32.0	550.0
604	< 2.0	< 0.1	5.0	470.0	< 0.1	< 1.0	32.0	490.0
605	3.0	< 0.1	5.0	470.0	< 0.1	2.0	31.0	610.0
606	< 2.0	< 0.1	5.0	500.0	< 0.1	1.0	30.0	570.0
607	15.0	< 0.1	5.0	500.0	< 0.1	2.0	34.0	490.0
608	< 2.0	< 0.1	5.0	490.0	< 0.1	1.0	33.0	520.0
609	< 2.0	< 0.1	5.0	560.0	< 0.1	1.0	31.0	650.0
610	< 2.0	< 0.1	3.0	510.0	< 0.1	1.0	35.0	570.0
611	< 2.0	< 0.1	5.0	450.0	< 0.1	1.0	30.0	570.0
612	< 2.0	< 0.1	5.0	440.0	< 0.1	1.0	32.0	580.0
613	8.0	< 0.1	8.0	490.0	< 0.1	1.0	32.0	540.0
614	< 2.0	< 0.1	5.0	550.0	< 0.1	1.0	30.0	520.0
615	< 2.0	< 0.1	5.0	510.0	< 0.1	< 1.0	25.0	550.0
616	< 2.0	< 0.1	3.0	490.0	< 0.1	< 1.0	12.0	420.0
617	< 2.0	< 0.1	3.0	1180.0	< 0.1	< 1.0	4.0	200.0
618	12.0	< 0.1	3.0	1200.0	< 0.1	< 1.0	5.0	240.0
619	< 2.0	< 0.1	13.0	890.0	< 0.1	< 1.0	14.0	360.0
620	2.0	< 0.1	5.0	960.0	< 0.1	1.0	12.0	320.0
621	2.0	< 0.1	5.0	1080.0	< 0.1	< 1.0	9.0	290.0
622	4.0	< 0.1	5.0	1000.0	< 0.1	< 1.0	9.0	280.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
593	< 1.0	13.0	48.0	< 2.0	.8
594	< 1.0	18.0	72.0	< 2.0	1.0
595	< 1.0	12.0	84.0	< 2.0	.6
596	< 1.0	12.0	63.0	< 2.0	.6
597	< 1.0	11.0	63.0	< 2.0	.7
598	< 1.0	12.0	56.0	< 2.0	.7
599	< 1.0	12.0	47.0	< 2.0	.7
600	2.0	18.0	67.0	< 2.0	.9
601	< 1.0	16.0	61.0	< 2.0	.5
602	< 1.0	10.0	58.0	< 2.0	.5
603	< 1.0	13.0	64.0	< 2.0	.9
604	< 1.0	12.0	55.0	< 2.0	1.2
605	< 1.0	12.0	64.0	< 2.0	.9
606	< 1.0	14.0	60.0	< 2.0	.8
607	< 1.0	12.0	68.0	< 2.0	.9
608	< 1.0	14.0	61.0	< 2.0	.9
609	< 1.0	13.0	55.0	< 2.0	.8
610	< 1.0	15.0	66.0	< 2.0	1.0
611	< 1.0	14.0	70.0	< 2.0	1.0
612	< 1.0	16.0	79.0	< 2.0	1.0
613	< 1.0	14.0	64.0	< 2.0	1.4
614	< 1.0	11.0	61.0	< 2.0	.8
615	< 1.0	12.0	61.0	< 2.0	1.2
616	< 1.0	8.0	35.0	< 2.0	.6
617	< 1.0	4.0	19.0	< 2.0	.7
618	< 1.0	7.0	24.0	< 2.0	.8
619	< 1.0	18.0	56.0	< 2.0	.8
620	< 1.0	12.0	50.0	< 2.0	1.4
621	< 1.0	13.0	43.0	< 2.0	.6
622	< 1.0	16.0	42.0	< 2.0	.6

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BARRINGER RESOURCES

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VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
623	2.0	< 0.1	15.0	790.0	< 0.1	< 1.0	21.0	410.0
624	5.0	< 0.1	5.0	930.0	< 0.1	< 1.0	12.0	290.0
625	< 2.0	< 0.1	5.0	760.0	< 0.1	1.0	21.0	580.0
626	< 2.0	< 0.1	3.0	580.0	< 0.1	1.0	46.0	910.0
627	< 2.0	< 0.1	5.0	620.0	< 0.1	< 1.0	25.0	740.0
628	< 2.0	< 0.1	5.0	560.0	< 0.1	1.0	41.0	660.0
629	< 2.0	< 0.1	3.0	570.0	< 0.1	1.0	29.0	770.0
630	< 2.0	< 0.1	5.0	540.0	< 0.1	< 1.0	25.0	690.0
631	< 2.0	< 0.1	3.0	490.0	< 0.1	< 1.0	41.0	500.0
632	< 2.0	< 0.1	3.0	490.0	< 0.1	1.0	54.0	530.0
633	< 2.0	< 0.1	3.0	560.0	< 0.1	1.0	32.0	560.0
634	3.0	< 0.1	3.0	430.0	< 0.1	< 1.0	36.0	460.0
635	< 2.0	< 0.1	5.0	640.0	< 0.1	1.0	20.0	920.0
636	< 2.0	< 0.1	5.0	580.0	< 0.1	1.0	22.0	800.0
637	< 2.0	< 0.1	3.0	570.0	< 0.1	1.0	18.0	750.0
638	< 2.0	< 0.1	3.0	610.0	< 0.1	1.0	10.0	830.0
639	< 2.0	< 0.1	3.0	580.0	< 0.1	< 1.0	24.0	500.0
640	< 2.0	< 0.1	5.0	550.0	< 0.1	1.0	22.0	380.0
641	< 2.0	< 0.1	5.0	450.0	< 0.1	1.0	53.0	600.0
642	< 2.0	< 0.1	5.0	450.0	< 0.1	1.0	31.0	440.0
643	< 2.0	< 0.1	5.0	480.0	< 0.1	1.0	38.0	570.0
644	< 2.0	< 0.1	5.0	500.0	< 0.1	1.0	29.0	520.0
645	< 2.0	< 0.1	5.0	520.0	< 0.1	1.0	28.0	490.0
646	< 2.0	< 0.1	5.0	570.0	< 0.1	1.0	21.0	600.0
647	2.0	< 0.1	5.0	540.0	< 0.1	1.0	23.0	1110.0
648	< 2.0	< 0.1	3.0	520.0	< 0.1	1.0	28.0	1080.0
649	< 2.0	< 0.1	5.0	550.0	< 0.1	1.0	28.0	1510.0
650	3.0	< 0.1	8.0	520.0	< 0.1	1.0	36.0	820.0
651	4.0	< 0.1	5.0	510.0	< 0.1	1.0	26.0	860.0
652	< 2.0	< 0.1	5.0	520.0	< 0.1	1.0	23.0	690.0

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NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
623	< 1.0	12.0	58.0	< 2.0	.8
624	1.0	9.0	40.0	< 2.0	.4
625	< 1.0	14.0	104.0	< 2.0	.7
626	< 1.0	9.0	113.0	< 2.0	.8
627	1.0	14.0	151.0	< 2.0	1.4
628	< 1.0	10.0	131.0	< 2.0	1.4
629	< 1.0	13.0	157.0	< 2.0	.9
630	< 1.0	16.0	132.0	< 2.0	1.6
631	< 1.0	9.0	150.0	< 2.0	.5
632	< 1.0	7.0	113.0	< 2.0	.7
633	< 1.0	8.0	108.0	< 2.0	1.8
634	< 1.0	9.0	132.0	< 2.0	.8
635	< 1.0	16.0	152.0	< 2.0	1.8
636	< 1.0	12.0	141.0	< 2.0	1.2
637	< 1.0	14.0	148.0	< 2.0	1.8
638	1.0	9.0	123.0	< 2.0	.8
639	< 1.0	6.0	99.0	< 2.0	1.4
640	< 1.0	6.0	49.0	< 2.0	.6
641	< 1.0	7.0	79.0	< 2.0	.5
642	< 1.0	8.0	63.0	< 2.0	.8
643	< 1.0	11.0	70.0	< 2.0	.8
644	< 1.0	10.0	61.0	< 2.0	.4
645	< 1.0	12.0	69.0	< 2.0	.7
646	< 1.0	11.0	63.0	< 2.0	.7
647	< 1.0	17.0	55.0	< 2.0	.7
648	< 1.0	13.0	54.0	< 2.0	.8
649	< 1.0	16.0	51.0	< 2.0	1.4
650	< 1.0	22.0	66.0	< 2.0	1.6
651	< 1.0	14.0	53.0	< 2.0	1.0
652	< 1.0	14.0	50.0	< 2.0	1.4

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
653	< 2.0	< 0.1	8.0	530.0	< 0.1	1.0	26.0	1200.0
654	2.0	< 0.1	5.0	460.0	< 0.1	1.0	32.0	740.0
655	< 2.0	< 0.1	5.0	490.0	< 0.1	1.0	33.0	640.0
656	< 2.0	< 0.1	5.0	520.0	< 0.1	1.0	27.0	580.0
657	3.0	< 0.1	5.0	500.0	< 0.1	1.0	27.0	710.0
658	2.0	< 0.1	5.0	540.0	< 0.1	1.0	26.0	720.0
659	< 2.0	< 0.1	5.0	570.0	< 0.1	2.0	14.0	1310.0
660	3.0	< 0.1	3.0	430.0	< 0.1	1.0	56.0	460.0
661	< 2.0	< 0.1	3.0	570.0	< 0.1	1.0	27.0	460.0
662	< 2.0	< 0.1	5.0	640.0	< 0.1	1.0	13.0	940.0
690	< 2.0	< 0.1	5.0	530.0	< 0.1	2.0	15.0	550.0
691	6.0	< 0.1	3.0	610.0	< 0.1	< 1.0	9.0	850.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
STREAM SEDIMENT RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
653	< 1.0	13.0	51.0	< 2.0	.9
654	< 1.0	18.0	65.0	< 2.0	.8
655	< 1.0	14.0	68.0	< 2.0	1.8
656	< 1.0	10.0	58.0	< 2.0	.9
657	< 1.0	10.0	56.0	< 2.0	.9
658	< 1.0	14.0	49.0	< 2.0	1.6
659	< 1.0	11.0	79.0	< 2.0	1.5
660	< 1.0	8.0	95.0	< 2.0	1.6
661	< 1.0	7.0	78.0	< 2.0	.8
662	< 1.0	10.0	127.0	< 2.0	1.6
690	< 1.0	12.0	96.0	< 2.0	1.4
691	< 1.0	19.0	107.0	< 2.0	.7

Soil Data

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
SOIL RESULTS

GEOCHEMICAL DATA LISTING

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
A 1	4.0	0.1	20.0	620.0	0.1	3.0	29.0	700.0
A 2	3.0	< 0.1	38.0	620.0	0.1	2.0	26.0	730.0
A 3	2.0	0.1	13.0	730.0	0.1	3.0	27.0	730.0
A 4	2.0	0.1	13.0	880.0	< 0.1	2.0	25.0	730.0
A 5	8.0	0.9	13.0	2040.0	< 0.1	1.0	24.0	1050.0
A 6	282.0	1.3	10.0	930.0	< 0.1	1.0	15.0	490.0
A 7	27.0	6.5	25.0	830.0	< 0.1	2.0	31.0	650.0
A 8	< 2.0	5.1	18.0	910.0	0.1	2.0	26.0	660.0
A 9	340.0	2.0	10.0	530.0	0.1	2.0	39.0	940.0
A 10	53.0	1.0	13.0	1240.0	< 0.1	1.0	30.0	820.0
A 11	7.0	0.1	20.0	1020.0	< 0.1	2.0	38.0	910.0
A 12	< 2.0	< 0.1	8.0	800.0	< 0.1	2.0	38.0	750.0
A 13	< 2.0	< 0.1	8.0	540.0	< 0.1	1.0	39.0	790.0
A 14	< 2.0	< 0.1	8.0	950.0	< 0.1	1.0	37.0	810.0
A 15	< 2.0	< 0.1	3.0	600.0	< 0.1	1.0	37.0	840.0
A 16	< 2.0	< 0.1	10.0	510.0	< 0.1	1.0	41.0	940.0
A 17	2.0	< 0.1	18.0	630.0	< 0.1	1.0	38.0	820.0
A 18	2.0	< 0.1	13.0	810.0	< 0.1	1.0	21.0	710.0
A 19	< 2.0	< 0.1	15.0	820.0	< 0.1	1.0	21.0	710.0
A 20	3.0	0.1	20.0	710.0	< 0.1	< 1.0	30.0	580.0
A 21	6.0	< 0.1	30.0	680.0	< 0.1	1.0	32.0	600.0
A 22	3.0	0.1	23.0	760.0	< 0.1	1.0	30.0	770.0
A 23	11.0	< 0.1	23.0	690.0	< 0.1	1.0	31.0	610.0
A 24	6.0	0.1	20.0	730.0	< 0.1	1.0	28.0	570.0
A 25	6.0	0.1	33.0	710.0	< 0.1	1.0	30.0	590.0
B 1	4.0	0.1	10.0	520.0	< 0.1	1.0	54.0	1040.0
B 2	< 2.0	< 0.1	8.0	520.0	< 0.1	1.0	52.0	1070.0
B 3	5.0	0.1	8.0	530.0	< 0.1	1.0	45.0	1060.0
B 4	3.0	< 0.1	10.0	500.0	< 0.1	1.0	49.0	950.0
B 5	2.0	< 0.1	5.0	550.0	< 0.1	1.0	39.0	1030.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
SOIL RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
A 1	< 1.0	20.0	81.0	< 2.0	.5
A 2	< 1.0	16.0	74.0	< 2.0	.4
A 3	< 1.0	14.0	62.0	< 2.0	.3
A 4	< 1.0	11.0	44.0	< 2.0	.5
A 5	< 1.0	9.0	48.0	< 2.0	.4
A 6	< 1.0	10.0	33.0	< 2.0	.7
A 7	< 1.0	14.0	77.0	< 2.0	.4
A 8	< 1.0	17.0	91.0	< 2.0	.7
A 9	< 1.0	12.0	76.0	< 2.0	.3
A 10	< 1.0	13.0	59.0	< 2.0	.3
A 11	< 1.0	11.0	81.0	< 2.0	.5
A 12	< 1.0	17.0	87.0	< 2.0	.6
A 13	< 1.0	12.0	85.0	< 2.0	.4
A 14	< 1.0	14.0	87.0	< 2.0	.4
A 15	< 1.0	12.0	80.0	< 2.0	.6
A 16	< 1.0	10.0	84.0	< 2.0	.4
A 17	< 1.0	13.0	90.0	< 2.0	.3
A 18	< 1.0	12.0	49.0	< 2.0	.5
A 19	< 1.0	13.0	49.0	< 2.0	.4
A 20	< 1.0	17.0	77.0	< 2.0	.2
A 21	< 1.0	17.0	83.0	< 2.0	.3
A 22	1.0	16.0	74.0	< 2.0	.3
A 23	2.0	45.0	84.0	< 2.0	.5
A 24	1.0	18.0	78.0	< 2.0	.4
A 25	1.0	17.0	79.0	< 2.0	.3
B 1	< 1.0	9.0	79.0	< 2.0	.4
B 2	< 1.0	10.0	74.0	< 2.0	.3
B 3	1.0	10.0	72.0	< 2.0	.7
B 4	< 1.0	10.0	80.0	< 2.0	.3
B 5	< 1.0	11.0	69.0	< 2.0	.3

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
SOIL RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
B 6	2.0	< 0.1	5.0	480.0	< 0.1	1.0	49.0	1040.0
B 7	2.0	< 0.1	8.0	510.0	< 0.1	1.0	46.0	1050.0
B 8	4.0	< 0.1	8.0	500.0	< 0.1	1.0	45.0	960.0
B 9	< 2.0	< 0.1	8.0	490.0	< 0.1	1.0	45.0	1050.0
B 10	4.0	0.1	13.0	490.0	< 0.1	2.0	42.0	800.0
B 11	8.0	0.1	10.0	670.0	< 0.1	1.0	30.0	790.0
B 12	< 2.0	< 0.1	8.0	490.0	< 0.1	1.0	43.0	850.0
B 13	< 2.0	< 0.1	8.0	460.0	< 0.1	1.0	43.0	990.0
B 14	2.0	0.1	8.0	390.0	< 0.1	1.0	57.0	980.0
B 15	< 2.0	< 0.1	8.0	390.0	< 0.1	1.0	59.0	1010.0
B 16	4.0	0.1	23.0	490.0	< 0.1	3.0	41.0	810.0
B 17	32.0	0.1	23.0	630.0	0.1	2.0	28.0	450.0
B 18	6.0	0.1	28.0	540.0	< 0.1	2.0	35.0	720.0
B 19	4.0	0.1	23.0	510.0	< 0.1	6.0	36.0	670.0
B 20	6.0	< 0.1	23.0	500.0	0.1	3.0	36.0	620.0
B 21	5.0	< 0.1	25.0	560.0	< 0.1	2.0	36.0	710.0
B 22	8.0	< 0.1	35.0	600.0	< 0.1	2.0	37.0	770.0
B 23	6.0	0.1	55.0	730.0	< 0.1	1.0	29.0	620.0
B 24	9.0	0.1	25.0	700.0	0.1	2.0	23.0	430.0
B 25	7.0	0.1	23.0	770.0	0.1	1.0	20.0	310.0
C 1	2.0	0.1	113.0	500.0	< 0.1	1.0	49.0	970.0
C 2	2.0	< 0.1	13.0	450.0	< 0.1	1.0	45.0	870.0
C 3	2.0	0.1	8.0	500.0	< 0.1	1.0	46.0	910.0
C 4	3.0	0.1	3.0	450.0	< 0.1	1.0	42.0	890.0
C 5	3.0	0.1	8.0	490.0	< 0.1	1.0	47.0	950.0
C 6	6.0	0.1	8.0	470.0	< 0.1	1.0	47.0	890.0
C 7	43.0	0.1	10.0	470.0	< 0.1	1.0	39.0	1160.0
C 8	56.0	3.1	5.0	470.0	< 0.1	1.0	43.0	910.0
C 9	14.0	1.5	13.0	490.0	< 0.1	1.0	41.0	980.0
C 10	7.0	0.1	10.0	470.0	< 0.1	1.0	47.0	930.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
SOIL RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
B 6	< 1.0	8.0	85.0	< 2.0	.2
B 7	< 1.0	9.0	77.0	< 2.0	.2
B 8	< 1.0	7.0	75.0	< 2.0	.5
B 9	< 1.0	6.0	82.0	< 2.0	.4
B 10	< 1.0	14.0	86.0	< 2.0	.3
B 11	< 1.0	13.0	66.0	< 2.0	.2
B 12	1.0	11.0	82.0	< 2.0	.3
B 13	< 1.0	8.0	84.0	< 2.0	.3
B 14	< 1.0	13.0	92.0	< 2.0	.5
B 15	< 1.0	7.0	89.0	< 2.0	.3
B 16	1.0	12.0	88.0	< 2.0	.4
B 17	4.0	20.0	87.0	< 2.0	.7
B 18	< 1.0	14.0	85.0	< 2.0	.2
B 19	< 1.0	14.0	85.0	< 2.0	.5
B 20	< 1.0	14.0	87.0	< 2.0	.2
B 21	< 1.0	13.0	88.0	< 2.0	.2
B 22	< 1.0	14.0	91.0	< 2.0	.3
B 23	4.0	16.0	80.0	< 2.0	.5
B 24	< 1.0	21.0	94.0	< 2.0	.3
B 25	< 1.0	18.0	78.0	< 2.0	.6
C 1	< 1.0	10.0	77.0	< 2.0	.4
C 2	< 1.0	10.0	77.0	< 2.0	.2
C 3	< 1.0	11.0	79.0	< 2.0	.2
C 4	1.0	11.0	80.0	< 2.0	.2
C 5	2.0	10.0	82.0	< 2.0	.3
C 6	1.0	11.0	80.0	< 2.0	.2
C 7	1.0	10.0	77.0	< 2.0	.2
C 8	< 1.0	11.0	75.0	< 2.0	.4
C 9	1.0	10.0	74.0	< 2.0	.5
C 10	1.0	11.0	75.0	< 2.0	1.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
SOIL RESULTS

GEOCHEMICAL DATA LISTING

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
C 11	6.0	0.1	8.0	460.0	< 0.1	1.0	45.0	860.0
C 12	6.0	0.1	8.0	460.0	< 0.1	1.0	47.0	920.0
C 13	6.0	0.1	10.0	470.0	< 0.1	1.0	35.0	580.0
C 14	3.0	< 0.1	10.0	480.0	< 0.1	1.0	41.0	830.0
C 15	2.0	0.1	8.0	500.0	< 0.1	1.0	42.0	800.0
C 16	3.0	0.1	20.0	480.0	< 0.1	1.0	47.0	730.0
C 17	4.0	0.1	8.0	540.0	< 0.1	1.0	48.0	920.0
C 18	3.0	0.1	10.0	470.0	< 0.1	1.0	42.0	800.0
C 19	5.0	< 0.1	5.0	500.0	< 0.1	1.0	43.0	770.0
C 20	3.0	< 0.1	8.0	520.0	< 0.1	1.0	37.0	770.0
C 21	3.0	0.1	10.0	500.0	< 0.1	1.0	38.0	1020.0
C 22	2.0	< 0.1	10.0	580.0	< 0.1	1.0	33.0	710.0
C 23	3.0	< 0.1	5.0	520.0	< 0.1	1.0	40.0	790.0
C 24	3.0	< 0.1	8.0	480.0	< 0.1	1.0	42.0	850.0
C 25	3.0	< 0.1	8.0	480.0	< 0.1	1.0	39.0	830.0
D 1	8.0	0.1	13.0	900.0	< 0.1	1.0	35.0	1330.0
D 2	32.0	0.5	8.0	810.0	< 0.1	1.0	32.0	1190.0
D 3	5.0	< 0.1	5.0	760.0	< 0.1	1.0	36.0	910.0
D 4	11.0	0.4	8.0	620.0	< 0.1	1.0	39.0	980.0
D 5	8.0	< 0.1	8.0	620.0	< 0.1	1.0	51.0	1020.0
D 6	2.0	< 0.1	8.0	560.0	< 0.1	2.0	52.0	860.0
D 7	3.0	< 0.1	5.0	660.0	< 0.1	1.0	50.0	850.0
D 8	13.0	0.3	18.0	640.0	< 0.1	2.0	43.0	760.0
D 9	6.0	< 0.1	10.0	560.0	< 0.1	1.0	50.0	700.0
D 10	4.0	< 0.1	8.0	620.0	< 0.1	1.0	55.0	600.0
D 11	10.0	< 0.1	5.0	540.0	< 0.1	1.0	57.0	710.0
D 12	5.0	< 0.1	20.0	590.0	< 0.1	2.0	54.0	910.0
D 13	3.0	< 0.1	5.0	560.0	< 0.1	2.0	56.0	820.0
D 14	199.0	2.5	8.0	590.0	< 0.1	1.0	62.0	860.0
D 15	7.0	< 0.1	10.0	530.0	< 0.1	3.0	33.0	850.0

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
SOIL RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
C 11	1.0	10.0	76.0	< 2.0	.3
C 12	< 1.0	11.0	83.0	< 2.0	< .1
C 13	< 1.0	8.0	59.0	< 2.0	< .1
C 14	< 1.0	9.0	78.0	< 2.0	.3
C 15	1.0	10.0	75.0	< 2.0	.4
C 16	< 1.0	10.0	86.0	< 2.0	.3
C 17	< 1.0	13.0	82.0	< 2.0	.3
C 18	< 1.0	11.0	73.0	< 2.0	.4
C 19	1.0	11.0	75.0	< 2.0	.2
C 20	1.0	9.0	68.0	< 2.0	.9
C 21	1.0	10.0	76.0	< 2.0	.6
C 22	< 1.0	8.0	58.0	< 2.0	.4
C 23	1.0	10.0	67.0	< 2.0	.7
C 24	< 1.0	11.0	76.0	< 2.0	.9
C 25	1.0	10.0	70.0	< 2.0	.5
D 1	2.0	18.0	168.0	< 2.0	1.4
D 2	1.0	14.0	160.0	< 2.0	1.4
D 3	1.0	13.0	155.0	< 2.0	1.0
D 4	1.0	14.0	146.0	< 2.0	.9
D 5	< 1.0	12.0	115.0	< 2.0	.6
D 6	1.0	11.0	123.0	< 2.0	.7
D 7	1.0	10.0	113.0	< 2.0	.9
D 8	< 1.0	10.0	86.0	< 2.0	.6
D 9	1.0	11.0	95.0	< 2.0	.9
D 10	< 1.0	9.0	90.0	< 2.0	.9
D 11	2.0	10.0	113.0	< 2.0	.9
D 12	1.0	12.0	107.0	< 2.0	.8
D 13	1.0	11.0	111.0	< 2.0	.8
D 14	1.0	13.0	108.0	< 2.0	.6
D 15	1.0	13.0	118.0	< 2.0	.8

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
SOIL RESULTS

G E O C H E M I C A L   D A T A   L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
D 16	3.0	0.5	8.0	520.0	< 0.1	1.0	68.0	950.0
D 17	4.0	0.1	13.0	530.0	< 0.1	1.0	59.0	850.0
D 18	6.0	0.1	18.0	530.0	< 0.1	1.0	67.0	720.0
D 19	5.0	0.1	13.0	550.0	< 0.1	1.0	56.0	740.0
D 20	514.0	2.6	8.0	550.0	< 0.1	3.0	58.0	740.0
D 21	3.0	0.2	20.0	880.0	< 0.1	1.0	68.0	1310.0
D 22	6.0	0.2	23.0	730.0	< 0.1	2.0	92.0	1660.0
D 23	7.0	0.2	18.0	640.0	< 0.1	2.0	79.0	1180.0
D 24	5.0	0.2	23.0	890.0	< 0.1	2.0	88.0	1450.0
D 25	3.0	0.3	13.0	590.0	< 0.1	2.0	69.0	790.0
D 26	5.0	0.3	18.0	610.0	< 0.1	1.0	68.0	730.0
D 27	7.0	0.4	23.0	710.0	< 0.1	2.0	89.0	930.0
D 28	8.0	0.3	13.0	890.0	< 0.1	2.0	60.0	960.0
D 29	14.0	0.3	20.0	980.0	< 0.1	2.0	96.0	2250.0
D 30	6.0	0.2	18.0	960.0	< 0.1	2.0	88.0	1770.0

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VALE DISTRICT , OREGON
SOIL RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
D 16	1.0	13.0	122.0	< 2.0	.8
D 17	2.0	12.0	185.0	< 2.0	1.0
D 18	1.0	11.0	152.0	< 2.0	.9
D 19	2.0	12.0	190.0	< 2.0	.8
D 20	2.0	15.0	215.0	< 2.0	1.4
D 21	3.0	25.0	250.0	< 2.0	.8
D 22	4.0	94.0	380.0	< 2.0	.8
D 23	3.0	27.0	290.0	< 2.0	1.0
D 24	4.0	46.0	300.0	< 2.0	.6
D 25	3.0	22.0	330.0	< 2.0	.8
D 26	2.0	17.0	290.0	< 2.0	.8
D 27	5.0	32.0	310.0	< 2.0	.4
D 28	2.0	16.0	189.0	<2.0	.4
D 29	5.0	95.0	360.0	<2.0	.4
D 30	3.0	42.0	290.0	<2.0	.2

Rock Chip Data

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BARRINGER RESOURCES

BUREAU OF LAND MANAGEMENT
NORTHERN MALHEUR RESOURCE AREA
VALE DISTRICT , OREGON
ROCK CHIP RESULTS

GEOCHEMICAL DATA LISTING

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
1	7.0	< 0.1	30.0	60.0	< 0.1	1.0	22.0	64.0
2	4.0	< 0.1	10.0	700.0	< 0.1	1.0	74.0	1270.0
3	12.0	0.1	10.0	540.0	< 0.1	1.0	42.0	850.0
4	5.0	< 0.1	13.0	< 10.0	< 0.1	1.0	72.0	180.0
5	80.0	0.1	88.0	1020.0	< 0.1	6.0	28.0	390.0
6	3.0	< 0.1	95.0	680.0	< 0.1	7.0	24.0	195.0
7	7.0	0.1	15.0	< 10.0	< 0.1	3.0	73.0	200.0
8	4.0	< 0.1	13.0	< 10.0	< 0.1	2.0	64.0	165.0
9	3.0	< 0.1	15.0	450.0	< 0.1	4.0	52.0	250.0
10	2.0	< 0.1	65.0	< 10.0	< 0.1	43.0	35.0	74.0
11	13.0	< 0.1	600.0	700.0	< 0.1	11.0	83.0	290.0
12	3.0	0.1	8.0	660.0	< 0.1	2.0	165.0	1110.0
13	4.0	< 0.1	8.0	1480.0	< 0.1	2.0	31.0	1160.0
14	5.0	< 0.1	8.0	420.0	< 0.1	1.0	104.0	1350.0
15	10.0	0.3	13.0	1010.0	< 0.1	2.0	54.0	900.0
16	2.0	< 0.1	4.0	760.0	< 0.1	< 1.0	101.0	670.0
17	3.0	< 0.1	15.0	410.0	< 0.1	2.0	59.0	830.0
18	2.0	< 0.1	3.0	910.0	< 0.1	1.0	32.0	200.0
19	2.0	< 0.1	3.0	240.0	< 0.1	< 1.0	91.0	1030.0
20	4.0	< 0.1	18.0	590.0	< 0.1	1.0	64.0	310.0
21	2.0	< 0.1	5.0	670.0	< 0.1	1.0	30.0	180.0
22	6.0	< 0.1	5.0	470.0	< 0.1	1.0	59.0	510.0
23	4.0	< 0.1	18.0	820.0	< 0.1	1.0	11.0	89.0
24	3.0	< 0.1	20.0	290.0	< 0.1	3.0	26.0	340.0
25	3.0	< 0.1	58.0	200.0	< 0.1	2.0	16.0	65.0
26	14.0	< 0.1	8.0	20.0	< 0.1	2.0	87.0	270.0
27	2.0	< 0.1	18.0	580.0	< 0.1	1.0	18.0	580.0
28	68.0	0.3	40.0	430.0	< 0.1	5.0	26.0	98.0
29	2.0	< 0.1	5.0	900.0	< 0.1	1.0	16.0	180.0
30	4.0	< 0.1	8.0	380.0	< 0.1	< 1.0	87.0	1120.0

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ROCK CHIP RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
1	1.0	1.0	6.0	< 2.0	1.0
2	3.0	2.0	53.0	< 2.0	< .1
3	< 1.0	6.0	61.0	< 2.0	.2
4	8.0	< 1.0	5.0	< 2.0	.1
5	6.0	5.0	28.0	< 2.0	1.8
6	2.0	13.0	36.0	< 2.0	1.8
7	12.0	< 1.0	2.0	< 2.0	.2
8	11.0	< 1.0	2.0	< 2.0	.2
9	6.0	7.0	34.0	< 2.0	.2
10	6.0	< 1.0	26.0	20.0	3.2
11	16.0	1.0	28.0	< 2.0	.5
12	7.0	3.0	139.0	< 2.0	2.4
13	8.0	18.0	130.0	< 2.0	.7
14	3.0	3.0	47.0	5.0	.5
15	2.0	10.0	49.0	< 2.0	.2
16	1.0	1.0	73.0	< 2.0	.6
17	1.0	5.0	88.0	< 2.0	.2
18	3.0	3.0	15.0	< 2.0	.2
19	3.0	5.0	67.0	< 2.0	.2
20	5.0	3.0	55.0	< 2.0	.6
21	4.0	2.0	22.0	4.0	2.0
22	< 1.0	4.0	65.0	4.0	.5
23	5.0	7.0	21.0	< 2.0	.8
24	4.0	16.0	56.0	< 2.0	.1
25	29.0	2.0	15.0	< 2.0	.4
26	12.0	< 1.0	1.0	< 2.0	.3
27	1.0	5.0	40.0	< 2.0	.7
28	5.0	7.0	4.0	< 2.0	.4
29	2.0	5.0	32.0	< 2.0	1.4
30	2.0	2.0	67.0	< 2.0	.4

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VALE DISTRICT , OREGON
ROCK CHIP RESULTS

G E O C H E M I C A L D A T A L I S T I N G

SAM#	AU PPB	AG PPM	AS PPM	BA PPM	BE PPM	HG PPB	CU PPM	MN PPM
31	5.0	< 0.1	8.0	960.0	< 0.1	12.0	27.0	430.0
32	2.0	< 0.1	8.0	640.0	< 0.1	< 1.0	45.0	240.0
33	3.0	< 0.1	5.0	1810.0	< 0.1	10.0	67.0	800.0
34	2.0	< 0.1	3.0	560.0	0.2	< 1.0	33.0	230.0
35	< 2.0	< 0.1	3.0	270.0	< 0.1	< 1.0	34.0	460.0

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ROCK CHIP RESULTS

GEOCHEMICAL DATA LISTING

SAM#	MO PPM	PB PPM	ZN PPM	SN PPM	U PPM
31	3.0	3.0	25.0	< 2.0	.6
32	6.0	< 1.0	18.0	< 2.0	.3
33	2.0	5.0	46.0	4.0	.5
34	6.0	1.0	17.0	< 2.0	.3
35	6.0	9.0	20.0	< 2.0	.9

* US-GPO 1984-796-800

Form 1279–3
(June 1984)

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