# Geochemical and Geostatistical Evaluation
# Arkansas Canyon Planning Unit
# Freemont and Custer Counties, Colorado

by

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Open-File Report 82-462

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CONTRACT YA-553-CTO-100

# GEOCHEMICAL AND GEOSTATISTICAL EVALUATION

# ARKANSAS CANYON PLANNING UNIT

# FREMONT AND CUSTER COUNTIES, COLORADO

## VOLUME I

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VOLUME I

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*ABSTRACT*

*A mineral assessment of the Arkansas Canyon Planning Unit was undertaken by Barringer Resources Inc., under the terms of contract YA-553-CTO-100 with the Bureau of Land Management, Colorado State Office. The study was based on a geochemical-geostatistical survey in which 700 stream sediment samples were collected and analyzed for 25 elements. Geochemical results were interpreted by statistical processing which included factor, discriminant, multiple regression and characteristic analysis.*

*The major deposit types evaluated were massive sulfide-base metal, sedimentary and magmatic uranium, thorium vein, magmatic segregation, and carbonatite related deposits. Results of the single element data and multivariate geostatistical analysis indicate that limited potential exists for base metal mineralization near the Horseshoe, El Plomo, and Green Mountain Mines. Thirty areas are considered to be anomalous with regard to one or more of the geochemical parameters evaluated during this study. The evaluation of carbonatite related mineralization was restricted due to the lack of geochemical data specific to this environment.*

# CONCLUSIONS

1) Review of the data generated during the study of the Arkansas Canyon Planning Unit defined 30 anomalies classified as follows:

   a. Class I Anomaly - Specific areas or groups of areas warranting follow-up for specific elements. Follow-up would consist of detailed stream sediment or rock geochemistry and reconnaissance geology to define a source or cause of the anomaly.

   b. Class II Anomaly - Specific areas or groups of areas warranting follow-up only if Class I Anomalies proved to be of economic interest.

   c. Class III Anomaly - Specific areas or groups of areas exhibiting anomalous characteristics but warranting follow-up only on a low priority basis.

   Table 1 lists these 30 anomalies and classifies them as noted above. Figure 1 shows the location of the 30 anomalies identified during the survey work.

   Areas containing historical mining activity are associated with the identified Class I anomalies. However, several areas with little or no previous mining activity are listed with the Class II anomalies. It should be noted that the base metal values from this survey are generally lower than the metal values obtained from the Silverton-American Flats Planning Unit which was surveyed using identical methods (Weiland, et al., in press).

2) Four types of geostatistical analyses were used to aid in the interpretation of the available data. These geostatistical methods included: factor, discriminant, characteristic, and multiple regression analysis. Overall

TABLE I

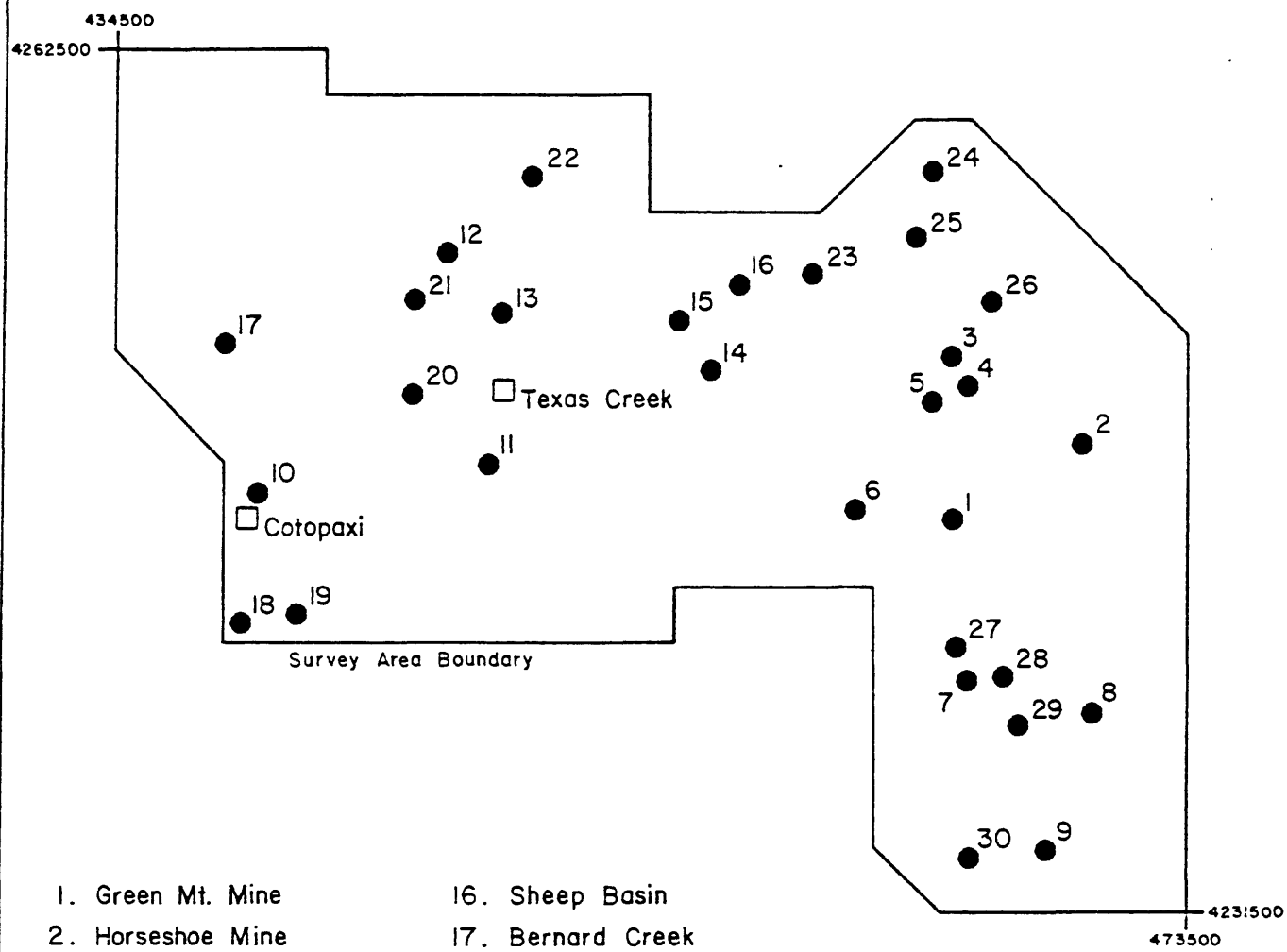
ARKANSAS CANYON PLANNING UNIT

Listing of Geochemically Anomolous Areas

| | Geochemical Parameters | | | | | | | Factor Analysis | Discriminant Analysis | Characteristic Analysis** | | | | | Multiple Regression | Comments* | Anomaly Rank | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area | Pb | Cu | Zn | Mo | As | U | U/Th | Geochemical Factor 5 | Training Area IX | U | C | SU | MS | T | Residuals | | Class I | Class II | Class III |
| Green Mt. Mine | | X | X | | X | | | X | X | | | | | | X | | X | | |
| Horseshoe Mine | X | | X | X | X | | | X | X | | | | | | X | | X | | |
| Copper Gulch | X | | X | | | | | X | X | X | | | | | | | X | | |
| Goat Park | | | | | | | | | | | X | | | | | | X | | |
| Sunset City | | X | | X | | | | | X | | | | | | | | X | | |
| Talbert Gulch | | X | | | | | | | | | | | | | | | | X | |
| West Mill Gulch | | | | | | | | | X | | X | | | | | | | X | |
| Hell Gate Gulch | | X | | | | | | | | | | | | | | | | X | |
| Democrat Creek | | | | X | X | X | | X | | X | | | | | | | | X | |
| Cotopaxi | | | | X | | | | | | | | X | | | | | | X | |
| Back Door Gulch | | | | | | | | | X | | | | X | | | | | X | |
| Texas Creek Gulch | | X | | | | | | | | | | | | | | | | X | |
| BM 6131 | | X | | | | | | | | | | | | | | | | X | |
| Spring | | | | | | | | | X | | | | | | | | | X | |
| Echo | | | | | X | | | X | | | | | | | | | | X | |
| Sheep Basin | | | | | | X | | X | | | | | | | | | | X | |
| Bernard Creek | | X | | | | | | | | | | | | | | | | X | |
| Deadmans Hill | | | | | X | | | | | | | | | | | S | | | X |
| West McCoy Gulch | | X | | | | | | | | | | | | | | S | | | X |
| BM 6910 | | | | X | | | | | | | | | | | | S | | | X |
| Reese Gulch | | | | | | | | | | | X | | | | | | | | X |
| Peak 8254 | | | | | | X | | | | | | | | | | S | | | X |
| McIntyre Hills | | X | | | | | | | | | | | | | | S | | | X |
| Parksdale Siding | | | | | | | | | | X | | X | | X | | | | | X |
| McIntyre Gulch | | | | | | | | | X | | | | | | | | | | X |
| BM 6226 | | | | X | | X | X | | | | | | | | | | | | X |
| Pine Gulch | | | | X | | | | | | | | | | | | S | | | X |
| Peak 7987 | | | | X | | | | | | | | | | | | S | | | X |
| Granite Gulch | | X | | | X | | | | X | | | | | | | | | | X |
| Titusville Gulch | | | | | | | | | | | X | | | | | | | | X |

**U=Uranium model C=Carbonate model SU=Sedimentary model
T=Thorium vein MS=Massive sulfide

*S=Single Sample Anomaly




1. Green Mt. Mine
2. Horseshoe Mine
3. Copper Gulch
4. Goat Park
5. Sunset City
6. Talbert Gulch
7. West Mill Gulch
8. Hell Gate Gulch
9. Democrat Creek
10. Cotopaxi
11. Back Door Gulch
12. Texas Creek Gulch
13. BM 6131
14. Spring
15. Echo
16. Sheep Basin
17. Bernard Creek
18. Deadman's Hill
19. West McCoy Gulch
20. BM 6910
21. Reese Gulch
22. Peak 8254
23. McIntyre Hills
24. Parksdale Siding
25. McIntyre Gulch
26. BM 6226
27. Pine Gulch
28. Peak 7987
29. Granite Gulch
30. Titusville Gulch

N

Approximate Scale
1:265,000

FIG. 1 - INDEX MAP SHOWING LOCATIONS OF AREAS DETERMINED TO BE ANOMALOUS WITHIN THE SURVEY AREA

these methods were useful aids in geological-geochemical interpretation and provided a comprehensive means of assessing the mineral potential of the Arkansas Planning Unit.

R-mode factor analysis provided the basis for distinguishing geochemical environments considering both lithology and mineralization. Discriminant analysis provided regional rock geochemistry information. This method supported geochemical associations and differences seen in other multivariate geostatistics and the single element data. Many of the potentially mineralized areas determined by factor and characteristic analysis were reinforced by this technique. Some of the results obtained from the characteristic analysis were not anticipated based on previous literature references, but this was partly due to the lack of distinctive major element characteristics needed to define conceptual models. The low geochemical relief within this data placed further constraints on the statistical interpretation. Multiple regression analysis based on past mineral exploitation history provided a statistical indication of areas within the Planning Unit most likely to experience future mineral exploration and exploitation.

3) Stream sediment geochemical data evaluated with the geostatistical methods used within this study highlight areas that are anomalous with respect to the total survey area. However, these anomalies require further evaluation employing more detailed geologic, geochemical and geophysical methods. This study only provides an assessment of general mineralized areas for commodities on which geochemical data has been collected.

# INTRODUCTION

Barringer Resources Inc., on behalf of the Colorado State office of the Bureau of Land Management, has undertaken a geochemical-geostatistical study of the Arkansas Canyon Planning Unit in the Northern Wet Mountains of Colorado (Contract #YA-553-CTO-100). The purpose of this study was to assess the area's present mineral potential. The work plan consisted of the following seven phases:

Phase I — Collection of stream sediment samples and compilation of published geologic data.

Phase II — Geochemical analysis of stream sediment samples for 25 elements selected by Bureau of Land Management's personnel.

Phase III — Data processing including:

1) Digitizing sample locations, geology, mine workings and prospects.

2) Determination of means, standard deviations, correlation coefficients, standard normalized values, and grid cell geochemical averages.

3) Completion of contour maps for eight preselected geochemical parameters.

Phase IV — Geological modeling to determine possible mineralization within the study area.

Phase V — Geostatistical analyses using factor, multiple-regression, characteristic, and discriminant techniques.

Phase VI — Integration and interpretation of geochemical data, geostatistical results and geological modeling.

Phase VII — Final report preparation.

The report consists of eight sections: Abstract, Conclusions, Introduction, General Geologic Setting, Geological Modeling, Geochemistry, Geostatistics and Discussion. Maps, geochemical data and geostatistical output have been placed into appendices to maintain data integrity and allow easier access to the data. The raw geochemical data with basic statistics have been presented as a separate U.S. Geological Survey Open-File Report (Weiland and Grauch, in press).

Acknowledgement is made to the individuals and mining companies with active exploration programs within the area for proprietary information to which we were allowed access. This information contributed to the meaningful interpretation of data within the area. Personnel of the Bureau of Land Management aided in this survey by their support, assistance with land access, and general background knowledge of the area.

# GENERAL GEOLOGY

## LOCATION

The center of the study area is about twelve miles southwest of Canon City, Colorado. The area is approximately twenty by twenty-five miles in its longest dimensions, and is almost wholly enclosed by the Royal Gorge and Cotopaxi, Colorado, 15' topographic quadrangles. U.S. Geological Survey preprints of 7½' topographic quadrangles are available for the entire area. Access is provided by U.S. Highway 50 west from Canon City, and by many state, county, and private secondary and gravel roads.

Regionally the area is located near the north end of the Wet Mountains (see Figure 2). The Wet Mountain Valley and Sangre de Cristo Range lie to the southwest. The Thirty-nine Mile Volcanic Field bounds the area on the north, and the Silver Cliff-Rosita Volcanic Field is nearby to the south. Sedimentary rocks of the Canon City Embayment are found near the northeast edge of the study area.

U.S. Geological Survey geologic map coverage for the area is: Taylor, et al., 1975a (Royal Gorge 15' quadrangle); Taylor, et al., 1975b (Cotopaxi 15' quadrangle); Epis, et al., 1979 (Black Mountain 15' quadrangle); Brock and Singewald, 1968 (Mt. Tyndall 7½' quadrangle); and Scott, et al., 1978 (Pueblo $1^{o}$ x $2^{o}$ quadrangle).

## ROCK UNITS

The rock units mapped by Taylor, et al., (1975a, 1975b) represent a wide array of rock types (see Plate II). The 15' quadrangle mapping does a good job of generalizing these rock types into mappable units appropriate to 1:62,500 scale mapping. No attempt is made here to provide a comprehensive description of the individual rock types.

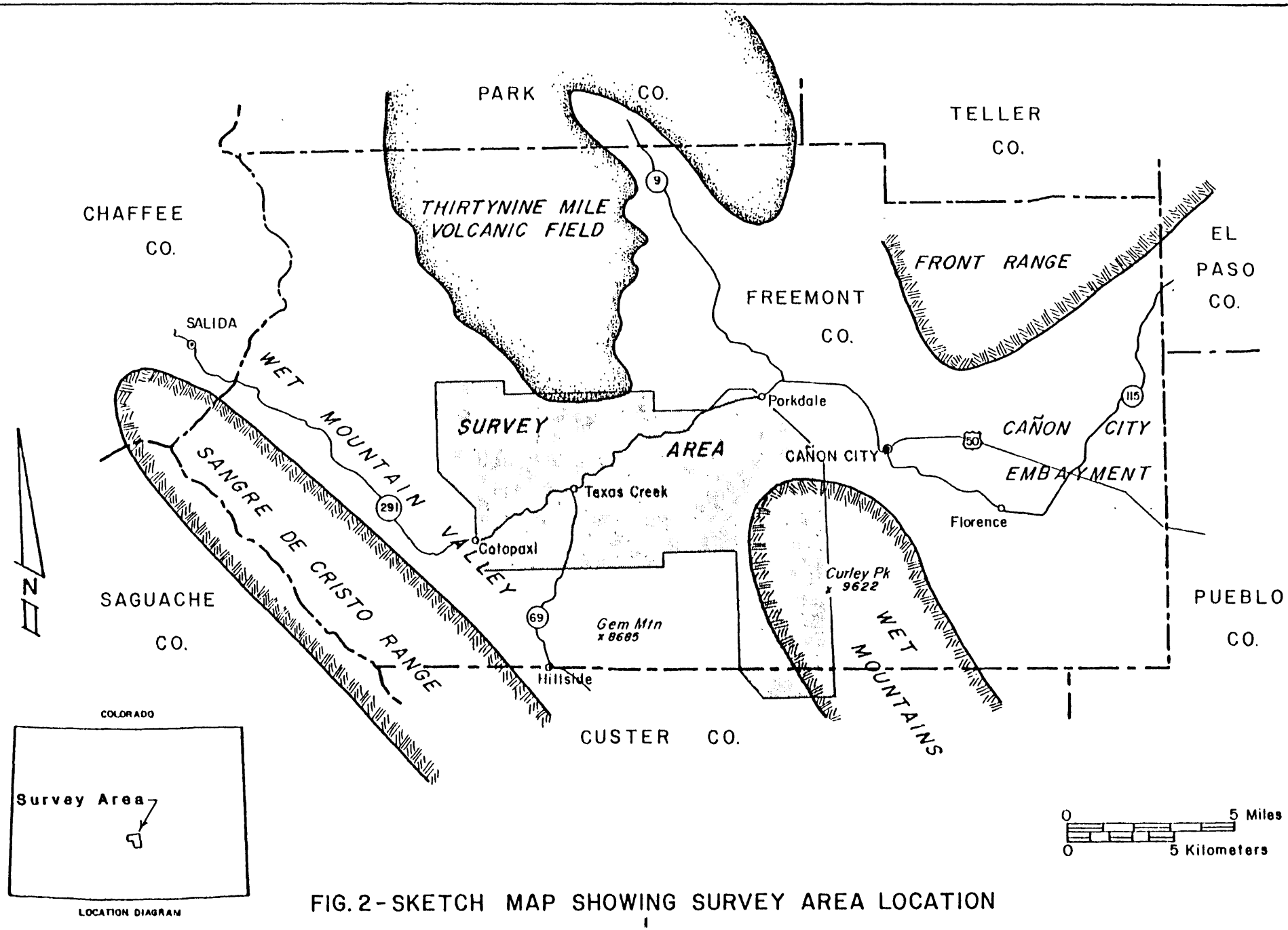



FIG. 2 - SKETCH MAP SHOWING SURVEY AREA LOCATION

Precambrian metamorphic and plutonic rocks underlie most of the study area. The migmatitic gneisses and amphibolite represent interlayered volcanic, volcanoclastic, and sedimentary rocks metamorphosed to amphibolite facies (Taylor, et al., 1975a). Chalcopyrite, pyrite, and pyrrhotite occur in association with this rock type along Grape Creek at the Horseshoe Mine and at the Green Mountain Mine.

The migmatitic gneisses host abundant pegmatites. Brief field observation suggests that: 1) the pegmatites are usually conformable with foliation trends; 2) are usually unzoned consisting principally of quartz and feldspar; 3) often grade into migmatite interlayers; and, 4) are probably of autometamorphic origin.

Granodiorite of Boulder Creek age (Precambrian X; approximately 1.7 b.y.) is also widespread in the field area. This unit is compositionally variable, containing rock types from quartz monzonite to quartz diorite. Foliation developed near the contacts is generally concordant with that of the enclosing gneisses (Taylor, et al., 1975a and 1975b). This suggests that the plutons are syntectonic.

Quartz monzonite of Silver Plume age, (Precambrian Y, approximately 1.4 b.y.) while showing flow structures near the contacts is discordant with the foliation of the intruded gneisses. This suggests a post tectonic emplacement history. These rocks have been quarried for "granite" along Texas Creek within the study area and elsewhere (Taylor, et al., 1975a).

A mafic-ultramafic complex is exposed in the Iron Mountain area. These rocks consist of gabbros, pyroxenites, dunites, and anorthosites. Some of the rocks are layered and show the affects of magmatic crystal settling (Shawe and Parker, 1967). Titaniferous magnetite deposits are associated with this com-

plex at the Iron Mountain Mine (Becker, et al., 1961).

Near McClure Mountain a complex of syenitic rocks intrudes both the gneisses and the Iron Mountain Complex. This unit is composed of hornblende biotite syenite and nepheline syenite (Taylor, et al., 1975a). While cross-cutting relationships indicate that these rocks are younger than the Iron Mountain Complex, they are probably comagmatic (Shawe and Parker, 1967).

A complex consisting of pyroxenite and gabbro with dikes of syenite, lamprophyre, and carbonatite is exposed near Gem Park south of the study area. Parker and Sharp (1970) suggest that this complex, related to the McClure Mountain Complex, hosts a buried carbonatite mass.

The Paleozoic and Mesozoic sedimentary section is represented by small outcrop areas in the northwestern and northeastern parts of the study area. The formations represented are: the Manitou Limestone, the Harding Sandstone, and the Fremont Limestone of Ordovician age. The Ordovician section is about 300 feet thick (Taylor, et al., 1975b). The Pennsylvanian section consists of the Belden and Minturn Formations, and is about 1900 feet thick.

In the Webster Park Graben, the Ralston Creek Formation, Morrison Formation, Purgatoire Formation, Dakota Sandstone, Graneros Shale, Greenhorn Limestone, Carlile Shale, and Niobrara Formation are exposed. These formations represent about 1760 feet of upper Jurassic and Cretaceous section.

The Echo Park Alluvium of Eocene age is found in the Devils Hole area. This unit consists of poorly sorted clastic material ranging from clay to igneous and metamorphic boulders. (Taylor, et al., 1975b). These rocks host uranium deposits north of the study area near Tallahassee Creek (Babcock, 1980).

Rocks of the Thirty-nine Mile Volcanic Field border the study area on the north side. These rocks consist of tuffs, flows, and volcaniclastic material from rhyolite to andesite composition and range in age from Oligocene to Miocene (Taylor, et al., 1975b).

## STRUCTURE

### Faults

The study area is intensely faulted (see Plate II). These faults are high angle normal and reverse in nature and fall into prominent west-northwest and northeast trends. All rock units older than the Tertiary volcanics are faulted. The Echo Park Alluvium is cut by the northeast trending faults, however the volcanics of the Thirty-nine Mile Volcanic Field and the Hillside area are apparently not cut by either set. This would establish the latest faulting in the study area as post-Eocene, but pre-Oligocene.

### Folds

In the southeastern part of the study area, a northeast trending overturned antiform has been mapped in the migmatitic gneisses (Taylor, et al., 1975a). This feature is offset by both the west-northwest and the northeast fault trends. Near Dead Mule Gulch, the fold is intruded by syenite of Cambrian age. Near the McIntyre Hills and at Poverty Gulch, open antiforms trending east-northeast have been mapped (Taylor, et al., 1975a). Two easterly plunging, open antiforms have been mapped near Texas Creek Townsite (Taylor, et al., 1975b). All five of these folds probably result from the same tectonic event.

The Cretaceous rocks exposed in the Webster Park Graben display open and overturned folds. They trend north-northwest, roughly parallel to the long axis of the graben. These folds are offset by a set of northeast trending faults. Their formation is probably related to the graben faulting, and is thereby dated as post-Cretaceous, but pre-Eocene.

### Foliation

Foliation seen in Precambrian rocks trends east and northeast in the eastern part of the map area and northwest in the western area. Dip of foliation is variable from vertical to about $30^{o}$ toward the north, but generally steep.

The Precambrian X granodiorite bodies are well foliated near their contacts. This structure is roughly parallel with the foliation of the host rock gneiss (Taylor et al., 1975a). The Precambrian Y quartz monzonite and Cambrian syenites are more discordant, and do not show as profound foliation. This suggests that the regional metamorphism took place during Precambrian X time.

## GEOLOGIC HISTORY

Most of the rock exposed in the study area is Precambrian in age. The oldest rocks are the migmatitic gneisses (Xgn unit, Plate II). These rocks are interpreted by Taylor, et al., (1975a) as metamorphosed acid to intermediate flows and tuffs interlayered with sedimentary material. Subsequently these rocks were metamorphosed to uppermost amphibolite facies (Taylor, et al., 1975a).

The migmatitic gneisses have been intruded by Precambrian X granodiorite bodies. These rocks have been correlated with rocks of the Boulder Creek event (Taylor, et al., 1975a) which

is dated at 1.75 to 1.69 b.y. (Hutchinson, 1976). Contact relationships of the granodiorites and pegmatites, discussed in the previous section of this report, indicate a syntectonic emplacement history and a Precambrian X timing for the regional metamorphism and pegmatite formation.

The gneisses have been further intruded by quartz monzonite of Silver Plume age (Yqm unit, Plate II). This pluton is dated at 1.45 b.y. by Rb/Sr isochron methods (Taylor, et al., 1975b). These rocks are discordant with respect to the host gneisses.

Folds in the migmatitic gneisses have been truncated by lower Cambrian intrusive rocks. This suggests at least one episode of Precambrian folding.

In the south central part of the study area, the migmatitic gneisses are intruded by a Cambrian ultramafic complex (Cmm unit, Plate II). These rocks, in turn, are intruded by the McClure Mountain Syenite Complex (Cms unit, Plates II) (Taylor, et al., 1975a and 1975b). The two units are considered to be comagmatic by Shawe and Parker (1967).

The Paleozoic sedimentary record is very fragmentary in the study area. The Manitou Limestone, Harding Sandstone, and Fremont Dolomite of Ordovician age are present in the western part of the area. These rocks are separated by an unconformity from the Pennsylvanian Minturn and Belden Formations. Thus, two erosional events are recorded in the area.

Mesozoic sedimentary rocks from the Jurassic Ralston Creek Formation to the Cretaceous Pierre Shale are preserved in the Webster Park Graben. Cross cutting relationships suggest that these rocks were folded and subsequently faulted before lower Oligocene time.

Within the study area, Tertiary rocks of the Echo Park Alluvium (Eocene) and the Thirty-nine Mile Volcanic Field are exposed. The history of these rocks is discussed by Epis and Chapin (1968). The volcanic history of the Rosita Hills-Silver Cliff district immediately to the south is discussed by Siems (1968). These rocks serve to date the major fault trends in the study area as post-Echo Park, pre-volcanic and are probably the result of Laramide orogenic activity.

## POTENTIAL MINERALIZATION TYPES

The geologic environment, published reports, and observations of the sampling crews suggest potential for at least five types of mineral deposits in the study area. These deposit types are volcanogenic massive sulfides, thorium veins, carbonatite-related mineralization, magmatic segregation, and sedimentary and vein type uranium.

### Massive Sulfides

Volcanogenic exhalitive massive sulfide deposits as reviewed by Sangster (1972) and Cameron (1975), occur in acid and intermediate volcanic rocks interbedded with clastic sedimentary rocks. The massive sulfide zone tends to be lens shaped and generally conformable with the sedimentary bedding. The footwall zone is discordant, and funnel shaped with the widest part at the base of the massive zone. The sulfides are generally composed of 50% pyrite and pyrrhotite, with the remaining 50% being a mixture of chalcopyrite, sphalerite, and galena. Traces of other sulfides as well as gold and silver may be locally important.

With increasing metamorphism, the distinctive shape of these deposits will be changed, but the sulfide phases may remain mineralogically stable (Sangster, 1972 and Pedersen, 1980).

The regional metamorphic equivalent of the host rocks would include amphibolites, quartzites, and a variety of quartz, muscovite, biotite, and hornblende schists and gneisses. These rock types are common in the migmatitic gneiss. Pyrrhotite and chalcopyrite bearing rock was collected by geochemical sampling crews from the dump of the Horseshoe Mine along Grape Creek within the study area. This dump also contained small amounts of the zinc spinel, gahnite ($ZnAl_2O_4$). Malachite and gahnite were also observed in dump material at the Green Mountain Mine.

### Thorium Bearing Veins

Thorium vein deposits have been studied by Brock and Singewald (1968), Christman et al., (1959), Phair and Fisher (1961), and Singewald and Brock (1956). The majority of the known thorium veins are immediately south of the study area. Thorium bearing veins occur in shattered, limonite stained material along faults in the Precambrian crystalline rocks. The relationship of the veins to overlying volcanic rock is not clear. Most of the thorium minerals are not identifiable in hand specimen, though both thorite and thorogummite have been documented in the literature (Phair and Fisher, 1961). Thorium bearing veins are indicated by limonite staining and identified by radioactivity (Singewald and Brock, 1956). Mineralization shows a slight preference for granite over biotite gneiss. Common gangue minerals are iron oxides, quartz, barite, and carbonate minerals. Extensive feldspathization and local silicification are the common alteration effects.

### Carbonatites

The McClure Mountain Complex, part of which crops out in the south-central part of the area, consists of carbonatite and associated rocks and alteration products (Heinrich, 1966).

Other alkalic intrusive rock bodies have been studied in the northern Wet Mountains (for example, Parker and Hildebrand, 1963, Parker and Sharp, 1970). Carbonatite related deposits may contain thorium, uranium, strontium, titanium, lithium, rare earth metals, and a range of non-metallic industrial minerals. While the areas of alkalic intrusive rocks are restricted within the study area, possible carbonatite deposits cannot be eliminated as known mineral deposits are associated with similar rocks in other localities.

### Uranium

The Tallahassee Creek uranium deposits occur less than 10 miles north of the study area. The uranium mineralization occurs within the Echo Park Alluvium or the Tallahassee Creek Conglomerates. The ore minerals are uraninite and coffinite (Babcock, 1980). The Echo Park Alluvium occurs in the Devils Hole Graben where it probably overlies part of the Mesozoic sedimentary section. In addition to the Tallahassee Creek deposits, uraniferous migmatite and vein type uranium deposits are possible in the Precambrian terraine.

### Magmatic Segregation

The ultramafic complex at Iron Mountain shows magmatic segregation features (Shawe and Parker, 1967). A titaniferous magnetite occurrence exists within the complex (Becker, et al., 1961). Magmatic segregation deposits may contain chromite, ilmenite, apatite, magnetite, and platinum group minerals. While the outcrop area of ultramafic rocks is limited, there is the possibility of this type of deposit within the study area.

# GEOCHEMISTRY

## GENERAL PRINCIPLES

Stream sediment geochemistry is accepted as one of the principle methods of low-cost reconnaissance exploration in areas of adequate relief where an integrated drainage system has developed (Meyer, et al., 1979). The composition of stream sediments is a function of the composition of the rocks, sediments and waters comprising the upstream catchment area. If mineral deposits are present in the drainage basin, their presence can be detected through systematic sampling and analysis of stream sediments. Multi-element analysis enables the geochemist to provide a more meaningful interpretation of stream sediment survey results, therefore this approach was adopted for the mineral assessment of the Arkansas Canyon Planning Unit.

The unbiased interpretation of areas contaminated by present and past mining activities compared to areas with little or no previous activity may present minor complications. In this study, however, these complications were overcome by proper definition of parameters in the geostatistical analysis. It should be noted that the geostatistical analysis does not define a mineral deposit, rather, it indicates statistically meaningful mineralization. Detailed follow-up work would be required to address the "economics" of such mineralization.

## SAMPLING METHODS

Barringer Resources Inc. personnel collected 700 stream sediment samples from the study area. Field work was conducted under the direct supervision of R. Connors, Staff Geologist. Other field staff consisted of M. Robinson, Geologist, J.

Bukofski, Geologic Technician, and D. Noe, Geologic Technician, Project management and administrative supervision was the responsibility of E. F. Weiland, Staff Geochemist.

Sediment from the active portion of the stream was sampled and field sieved to -30 mesh. The active portion of the stream being considered that which is below the yearly lower water levels of the stream or in the case of dry streams, the center of the main channel developed by the runoff. Waterproof paper bags were used for storage and air drying of the samples with sample numbers marked directly on each bag. Sample locations were marked and numbered on U.S. Geological Survey quadrangle topographic sheets in the field. A stream sediment location map was compiled from these field maps at a scale of 1:50,000 (Plate I). Field notes taken at each sampling site by the geologist included:

Sample Number
Stream Type (activity, size, gradient)
Sediment Type (size, description, coatings)
Organics (amount, type)
Lithology and structure of nearby outcrop, if any
General Comments (contamination, vegetation, etc.)

Transportation within the area was provided by four wheel drive vehicles and by walking.

## SAMPLE PREPARATION

Stream sediment samples were dried at room temperature for 24 hours. The dry samples were then sieved to -80 mesh and portions of the fine fraction weighed for the analyses. In all cases a .25 gram subsample was analyzed.

## ANALYTICAL METHODS

All stream sediment samples were analyzed for 25 elements; 22 elements by induction coupled argon plasma emission (ICP) and three by standard analytical methods specific to each element.

### Procedures

The ICP multielement analysis has achieved detection limits, precision, and accuracy similiar to atomic absorption spectroscopy techniques. The 22 elements monitored by the instrument include:

| | | | |
|---|---|---|---|
| Al | Cr | Na | Th |
| Ba | Cu | Ni | Ti |
| Be | Fe | P | V |
| Ca | K | Pb | Zn |
| Cd | Mg | Sr | Zr |
| Co | Mn | | |

Samples were digested using an HF - $HClO_4$ acid leach brought to dryness. The residue was then brought up to volume using .58 normal HCl. Automated samplers aspirated the sample into the argon plasma where the sample was subjected to greater than $2000^{o}$ F heat while analyzing the emission spectra. The emission spectra data was further processed by computer to correct for interferring spectra and calculate the quantity of the various elements and oxides.

Uranium values were obtained by the fluorimetric method. The samples were digested in a $HNO_3$ + $HClO_4$ + HF acid solution and taken to dryness. The residue was then brought up to volume with $HNO_3$ and the uranium extracted using ethyl acetate. An ethyl acetate aliquot was added to a $Na_2CO_3$ + $K_2CO_3$ + NaF flux and fused at $650^{o}$C for 25 minutes. Upon cooling the values were compared to standards by fluorimetry.

Analyses for molybdenum and silver were carried out by atomic absorption spectroscopy. A $HNO_3$ + $HClO_4$ + HF acid digestion was taken to dryness, then the residue brought up to volume with $HNO_3$. The samples were then aspirated into a dual-beam, background-corrected, atomic absorption spectrograph.

## Quality Control

Quality control was maintained throughout the entire procedure using the following guidelines. Every twentieth sample was a repeat (weighing through analysis) of a previous sample. Every 40 samples analyzed contained one NBS, USGS, Canadian Government, or in-house standard and one reagent blank. Standards were checked to ensure that the values attained were within the reported range for that element. Reagent blanks were checked to ensure that no reagent contamination had occurred. Repeats were used to monitor analytical subsampling errors (i.e., the analytical precision). Results of the quality control procedures indicate precision was well within the $\pm$15% at the 95% confidence level generally accepted for geochemical analysis. All analyzed standards gave results well within the range of accepted values reported by the issuing authority.

## DATA PROCESSING

Data processing included digitizing all sample locations, geology, and known mining activity. All geochemical analyses were compiled on a single data base followed by the calculation of standard statistics, normalized values, and grid averages. Using these data, contour plots and perspective graphics were generated.

## METHODOLOGY

Sample sites were digitized from the U.S. Geological Survey 15' topographic maps used in the field. These digitized sites were later combined with the geochemical results for further processing and presentation.

Geology and known mining activity were digitized from the U.S. Geological Survey Royal Gorge 15' quadrangle (Taylor, et al., 1975a) and Cotopaxi 15' quadrangle (Taylor, et al., 1975b). Geologic units were digitized according to one $km^2$ cells with the percentage of each lithology recorded for each cell. Each site shown as having some amount of previous mining activity was recorded and later evaluated as to the degree of activity.

Analytical results from the stream sediment survey were incorporated into the data base and statistical information compiled. Mean, standard deviation, range, minimum, maximum, and correlation matrix were determined. Frequency distribution plots, and cumulative frequency diagrams were then constructed. These statistics are repeated along with the raw geochemical results in U.S. Geological Survey Open-File Report (Weiland and Grauch, in press). From the data base and the statistical information, data sets containing standard normalized values and average geochemical values for grid cells (one $km^2$ areas) were calculated. Contour maps were compiled

from these data sets and the geostatistical processing completed.

## RESULTS OF CONTOUR MAPS

Contour maps for eight elements selected by the Bureau of Land Management were generated. Elements contoured were Ag, Ba, Cu, Pb, Mo, U, U/Th ratio, and Zn (See Appendix A, Plates A-I through A-VIII).

Silver (Plate A-I) values are, generally less than 0.2 ppm throughout the entire survey area. Elevated values do occur in the southeast corner of the planning unit along the Grape Creek drainage. One isolated high value of 1.8 ppm occurs just south of Deadman's Hill near Cotopaxi.

Barium (Plate A-II) is anomalous with respect to the regional distribution in the Precambrian X migmatitic gneiss especially adjacent to or surrounding the McClure Mountain Complex. This increase in barium may be due to barite gangue mineralization present in veins and fracture zones. The granodiorite of Boulder Creek age contains elevated background levels of barium that seem to distinguish at least two phases within this unit.

Copper (Plate A-III) shows a clear affinity with the ultramafic complex at Iron Mountain and the migmatitic gneiss near the Green Mountain Mine. The Green Mountain Mine area is also enriched in lead, zinc and possibly molybdenum. Other areas where copper values are elevated compared with the regional background include Hellgate Gulch, Grape Creek Gulch, Texas Creek Gulch, Bernard Creek, and the area immediately southeast of Cotopaxi. In general, copper does not follow the geochemical trends shown by other base metal elements.

Lead (Plate A-IV) tends to show elevated levels within the Precambrian X migmatitic geisses in the northwest portion of the Wet Mountains. Anomalous lead values occur southwest of the Horseshoe Mine along a possible mineralized zone, and in the gneisses west of Sheep Basin and southeast of the Devils Hole area. Lead and zinc concentrations generally coincide. This is especially true for the Horseshoe Mine and the Green Mountain Mine.

Molybdenum values (Plate A-V) within the area are generally less than 5 ppm with a few areas showing weak to moderate enrichment. The syenite complex at Democrat Creek contains elevated values as does the McClure Gulch area just south of the mafic-ultramafic complex at Iron Mountain. It is interesting to note that the McClure Mountain Syenite Complex and the Democrat Creek syenite show different and distinct geochemical characteristics with respect to molybdenum. Additional areas having elevated molybdenum values include Webster Park Graben, the confluence of Race Path Gulch and the Arkansas River, the Cotapaxi area, and an area just north of the granodiorite intrusive in the northern Wet Mountains.

Uranium (Plate A-VI) tends to be associated with the Silver Plume quartz monzonite and specific localities in the Webster Park sediments. The migmatitic gneisses south of the Arkansas River and southwest of Sheep Basin also contain elevated uranium values.

The Uranium-Thorium Ratio (Plate A-VII) highlights the sedimentary units enriched in uranium within the Webster Park Graben. The ratios are low (less than 0.25) even within these sediments.

Zinc (Plate A-VIII) distribution is similar to lead, with the highest levels occuring within the Green Mountain Mine area. The granodiorite of Boulder Creek age shows high levels of zinc reflecting a similar distribution to that shown by barium.

# GEOSTATISTICS

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 the geological, geochemical, and geophysical data used in mineral and energy exploration. Four different applications have been used to aid in the interpretation of the Arkansas Canyon Planning Unit mineral survey. They include: 1) Factor Analysis; 2) Discriminant Analysis; 3) Multiple Regression Analysis; and 4) Characteristic Analysis.

## FACTOR ANALYSIS

### Methodology

The handling and interpretation of a large number of geochemical results can become a time consuming task if all the data are to be considered individually. Factor analysis is an approach whereby a large number of geochemical results may be simplified into substantially fewer factors (combination and weighting of geochemical results) that contain essentially the same information as the entire data set.

Two types of factor analysis are commonly used. The first, R-mode, determines the interrelationships between the variables i.e. geochemical results. The second analysis type, Q-mode, determines the correlation and interdependency between the samples based on their geochemical composition. R-mode analysis was used in this study. Further discussion of this statistical method is included in Cooley and Lohnes (1962), Meyer, et al., (1979), McCammon (1975), Dawson and Sinclair (1974) and Nichol, et al., (1969), and Joreskog, et al., (1976).

In R-mode analysis, a factor refers to the product derived from the combination of a number of weighted variables, in this case the geochemical results. The computer sequentially determines the factor that accounts for the largest variance within the data set, and factor loadings, the weighting of the variables in that factor, are determined for each geochemical variable. These factor loadings are numbers from -1.0 to + 1.0, with +1.0 representing a perfect correlation between that variable and the factor, and a -1.0 being a perfect inverse correlation. Factor loadings near 0.0 indicate that the variable concerned has no influence on the factor.

Factor scores may be determined for each sample once all the factors and the factor loadings have been calculated. These factor scores indicate the normalized correlation of that sample with the factor. Therefore, a high positive factor score indicates a direct correlation while a high negative score indicates a strong inverse correlation. These factor scores may then be represented graphically in a fashion similar to the original stream sediment geochemistry results, but with each factor showing the variation in a group of geochemically similar elements.

## Results

In this study it was determined that eight factors would essentially contain the same amount of information as the initial 25 elements. Table 2 lists the factor loadings determined for these eight factors. The factor scores for each cell (Table B-1) and plotted factor scores (Plates B-I through B-VI) are included in Appendix B.

Factor One shows a high positive correlation with $Fe_2O_3$, $TiO_2$, V, Co, and MnO. From the distribution of factor scores greater than 1.0 (Plate B-I) and its elemental suite, this

TABLE 2

FACTOR ANALYSIS - STRUCTURE MATRIX
OBLIQUE FACTORS

| FACTOR 1 | | FACTOR 2 | | FACTOR 3 | | FACTOR 4 | | FACTOR 5 | | FACTOR 6 | | FACTOR 7 | | FACTOR 8 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $Fe_2O_3$ | (.95) | Be | (.81) | $Al_2O_3$ | (.82) | $SiO_2$ | (.88) | Sr | (.15) | Sr | (.82) | Ni | (.99) | $K_2O$ | (.49) |
| $TiO_2$ | (.94) | Zr | (.74) | $Na_2O$ | (.74) | Ba | (.76) | $Na_2O$ | (.10) | CaO | (.74) | Cr | (.94) | Pb | (.44) |
| V | (.86) | Th | (.64) | $K_2O$ | (.54) | Pb | (.21) | CaO | (.01) | $P_2O_5$ | (.45) | MgO | (.90) | Th | (.37) |
| Co | (.75) | Zn | (.34) | Be | (.53) | Co | (.14) | U | (.01) | Mo | (.42) | V | (.51) | Ba | (.19) |
| $P_2O_5$ | (.67) | U | (.28) | Ag | (.24) | $Al_2O_3$ | (.12) | $K_2O$ | (-.00) | V | (.28) | Co | (.55) | U | (.12) |
| MnO | (.55) | $Na_2O$ | (.27) | $SiO_2$ | (.16) | Sr | (.11) | Ba | (-.04) | $TiO_2$ | (.23) | $Fe_2O_3$ | (.37) | Cd | (.08) |
| Ni | (.35) | $K_2O$ | (.27) | Zr | (.15) | $P_2O_5$ | (.08) | Cd | (-.06) | Co | (.21) | Cu | (.33) | Zn | (.07) |
| MgO | (.33) | MnO | (.21) | Ba | (.12) | $K_2O$ | (.08) | Be | (-.07) | Ni | (.21) | CaO | (.33) | Be | (.07) |
| Cr | (.32) | Pb | (.14) | Cd | (.09) | Th | (.07) | $Al_2O_3$ | (-.07) | MgO | (.15) | $P_2O_5$ | (.27) | Zr | (.07) |
| Zn | (.25) | Mo | (.11) | Cu | (.05) | $Na_2O$ | (.06) | V | (-.08) | $Fe_2O_3$ | (.11) | Ag | (.25) | $Al_2O_3$ | (.06) |
| CaO | (.21) | $Fe_2O_3$ | (.08) | $P_2O_5$ | (.05) | Mo | (.06) | $P_2O_5$ | (-.08) | Cu | (.10) | $TiO_2$ | (.24) | Mo | (.05) |
| Sr | (.19) | $Al_2O_3$ | (.03) | Zn | (.05) | Be | (.02) | Cr | (-.09) | Ba | (.10) | Sr | (.23) | MgO | (-.01) |
| Th | (.16) | $TiO_2$ | (.02) | Sr | (.04) | $TiO_2$ | (.01) | Zr | (-.09) | Cr | (.09) | $SiO_2$ | (.14) | CaO | (-.05) |
| Mo | (.12) | Ag | (.02) | MgO | (.03) | Zn | (-.02) | MnO | (-.10) | Ag | (.06) | MnO | (.12) | Cu | (-.07) |
| Cu | (.12) | Ba | (.01) | U | (.01) | Ni | (-.02) | $TiO_2$ | (-.12) | Zn | (.06) | Cd | (.08) | Ni | (-.09) |
| Ag | (.09) | Cd | (-.02) | Mo | (-.03) | Cu | (-.02) | Ni | (-.12) | $SiO_2$ | (.02) | Zn | (.03) | MnO | (-.09) |
| $SiO_2$ | (.03) | Co | (-.04) | Cr | (-.05) | Zr | (-.02) | $Fe_2O_3$ | (-.13) | U | (-.00) | Mo | (.03) | Cr | (-.10) |
| Cd | (.03) | $SiO_2$ | (-.05) | Ni | (-.05) | U | (-.03) | Ag | (-.15) | Pb | (-.02) | Ba | (-.08) | V | (-.11) |
| Zr | (.03) | $P_2O_5$ | (-.08) | MnO | (-.08) | MgO | (-.05) | Mo | (-.15) | Cd | (-.04) | $Al_2O_3$ | (-.07) | Co | (-.16) |
| Ba | (-.04) | CaO | (-.19) | Pb | (-.10) | CaO | (-.05) | MgO | (-.17) | MnO | (-.04) | $Na_2O$ | (-.12) | $TiO_2$ | (-.17) |
| Be | (-.09) | V | (-.20) | Th | (-.12) | Cr | (-.07) | $SiO_2$ | (-.17) | $Na_2O$ | (-.04) | Pb | (-.13) | Ag | (-.18) |
| $Na_2O$ | (-.16) | Cu | (-.24) | $TiO_2$ | (-.16) | MnO | (-.10) | Co | (-.19) | Be | (-.07) | Th | (-.17) | $NaO_2$ | (-.19) |
| Pb | (-.16) | Cr | (-.25) | $Fe_2O_3$ | (-.26) | V | (-.11) | Th | (-.21) | Th | (-.09) | Zr | (-.22) | $SiO_2$ | (-.22) |
| $Al_2O_3$ | (-.26) | Ni | (-.28) | CaO | (-.26) | $Fe_2O_3$ | (-.13) | Cu | (-.50) | Zr | (-.10) | Be | (-.26) | $Fe_2O_3$ | (-.28) |
| U | (-.28) | MgO | (-.35) | V | (-.28) | Ag | (-.18) | Pb | (-.51) | $K_2O$ | (-.12) | U | (-.26) | $P_2O_5$ | (-.48) |
| $K_2O$ | (-.47) | Sr | (-.42) | Co | (-.29) | Cd | (-.19) | Zn | (-.96) | $Al_2O_3$ | (-.15) | $K_2O$ | (-.45) | Sr | (-.49) |

factor seems to be associated with amphibolitic trends in the gneisses and the ultramafic intrusives at Iron Mountain. The regional increase in this factor in the southern part of the survey area near the syenite intrusives may be due to the concentration of mafic components through metamorphic remobilization of more felsic constituents within the gneisses.

The high Be, Zr, and Th correlation within Factor Two (Plate B-II) may isolate distinct geochemical phases within the granodiorite of Boulder Creek age. Factor Two also indicates a geochemical difference between the McClure Mountain Syenite Complex and the syenite complex at Democrat Creek. This difference in the geochemical response was also seen to a lesser degree in Factor One and Factor Three.

Factor Three (Plate B-III) has a high positive correlation with $Al_2O_3$, $Na_2O$, $K_2O$, Be, and appears to isolate the monzonite phases of the granodiorite of Boulder Creek age. In addition, the more potassic elements of the migmatitic gneisses are highlighted.

Factor Four is probably related to analytical variance and imparts no meaningful interpretation to the geologic environment. Silica and Ba are the elements having the greatest amount of analytical variance when analyzed by ICP techniques using acid digestion. Factor scores have not been plotted but listed in the Table B-1.

The only factor directly related to mineralization in the area is Factor Five. This is an inverse factor (i.e. high negative loadings as opposed to high positive loadings), therefore factor scores have been plotted so that the higher the negative score the larger the symbol size in Plate B-IV. Factor Five shows a strong correlation with Cu, Pb, and Zn. Principally the Green Mountain Mine and Horseshoe Mine are seen to be

related to this factor. The Copper Gulch and Sheep Basin areas also show a high degree of correlation with Factor Five.

Factor Six (Plate B-V) correlates with high CaO and Sr values. High factor scores are associated with calcite cemented and carbonate units within the sedimentary rocks of the survey area. Calc-silicate zones within the Precambrian gneisses also tend to be emphasized by this factor.

Factor Seven has a positive Ni, Cr, MgO, and Co correlation and a negative K correlation. This factor is similar to Factor One in that it tends to highlight the ultramafics and the amphibolitic sequences within the gneisses as seen on Plate B-VI. The ultramafic components show much higher correlation with this factor than Factor One.

Factor Eight fails to show distinct correlation with geology, geochemistry, and mineralization. Because this factor represents minimal geochemical variance with no definitive areal distribution it was decided to exclude the plotted factor scores from Appendix C.

## DISCRIMINANT ANALYSIS

### Methodology

The classification of geological and geochemical data for reconnaissance mapping and mineral exploration can be greatly enhanced by the use of discriminant analysis. This method has the advantage of allowing the investigator use of *a priori* knowledge of selected areas to aid in the classification of surrounding areas with limited or no information. 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.

The method's approach is based on statistical selection of observed characteristics from a "training set" that contains information required to classify any new sample or sample set of unknown affinity. The exponential form of the polynomial discriminant method of Specht (1967) and further applied by Howarth (1973) has been used here. Areas of specific interest (rock types, mineralization, alteration) are selected to be used as training sets. The program then sets up decision rules from the data within the training set. Upon setting up the decision rules for all training areas, the program systematically classifies each sample in the data base. A listing of the sample classifications and a map showing sample classification distributions are included as Appendix D.

Discriminant Model

Nine training areas were chosen for classification in the discriminant analysis. Eight areas representative of the major rock units exposed within the study area were selected. These lithologic training areas were chosen to be relatively unaltered and typical of the rock unit. A description of the rocks and structures of each training area is included in Table 3.

Only one training area was selected to typify mineralization. This mineral training area is located in the area near the Green Mountain Mine, trends ENE to Grape Creek and includes the Horseshoe and El Plomo Mines. Rock units in this area are Precambrian X migmatitic gneiss and Precambrian X granodiorite. The migmatitic gneiss has been interpreted by Taylor et al., (1975a) as a metamorphosed sequence of intermediate to acid volcanic flow and pyroclastic rocks interlayered with clastic sedimentary rocks. The granodiorite forms concordant, well foliated plutons. Rock types within these units include quartz monzonite, granite, granodiorite, amphibolite, biotite and biotite feldspar schists and gneisses. Pyrite, pyrrhotite,

TABLE 3 - Lithology and Structures of the Training Areas.

| Training | Unit | Lithology | Structures | Reference |
|---|---|---|---|---|
| I | Cretaceous Sedimentary Rocks | Niobrara Formation: shale and calcareous shale. Carlile Shale, Greenhorn Limestone, Graneros Shale: sandy limestone, limestone, calcareous shale, clayey shale. Dakota Sandstone and Purgatoire Formation: yellow-brown cross-bedded sandstone, white, fine to coarse grained sandstone, gray, black, and variegated clay beds. | N and NNW trending open and overturned folds. 3 NNW trending high angle faults, 2 E-W trending branching, high angle faults. | Taylor, et al., 1975a |
| II | Paleozoic Sedimentary Rocks | Minturn and Belden Formations: dark gray, green, and red-brown siltstone, shale, and sandstone, contains dark gray, thin limestone beds. Fremont Dolomite, Harding Sandstone, Manitou Limestone: light gray, locally red stained, sandstone, cherty dolomite. | Bounded on E side by steep branching N-S fault. Steep angle E-W trending faults, N and S of training area. Sediments dip 16°to 23° E | Taylor, et al., 1975b |
| III | Cms | McClure Mountain Complex: light gray, medium grained, hornblende biotite syenite, and nepheline syenite | 1 E-W steep angle fault 1 NW trending steep angle fault. | Taylor, et al., 1975a |
| IV | Emm | Mafic-Ultramafic Complex at Iron Mountain: dark gray to black clinopyroxene-olivine gabbro interlayered with plagioclase-pyroxene or olivine-rich differentiates. | 4 WNW steep angle fault 1 ENE steep angle fault | Taylor, et al., 1975a |
| V | Eqs | Syenite Complex at Democrat Creek: gray fine to medium grained syenite. Minor amounts of amphibole-rich mafic rocks and olivine-clinopyroxene gabbro. | no structures mapped in training area. | Taylor, et al., 1975a |
| VI | Ygm | Quartz Monzonite of Silver Plume Age: light gray to pink-gray, medium grained quartz monzonite. Quarried along Oak Creek and Texas Creek. | 1 NE trending steep angle fault. | Taylor, et al., 1975b |
| VII | Xgd | Granodiorite of Boulder Creek Age: gray to pink-gray, medium to coarse grained granodiorite with some quartz monzonite and quartz diorite. Massive to foliate, generally concordant with enclosing gneisses. | no structures mapped in training area | Taylor, et al., 1975b |
| VIII | Xgn | Migmatitic Gneiss: formed from rhyodacite to intermediate flows and tuffs interbedded with sediments and metamorphosed to upper amphibolite facies. Consists of feldspathic layered gneiss with minor amounts of hornblende, calc-silicate, garnetiferous, and silimanitic gneisses. | 3 WNW trending faults 1 steep angle NE trending, branching fault. Folia trend NE and dip approximately 40°W | Taylor, et al., 1975a |

chalcopyrite, malachite and gahnite were noted in dump material at the Green Mountain and Horseshoe Mines. No detailed examination of these rocks was made. This training area is cut by two steeply dipping faults. The eastern fault trends nearly north, the other trends WNW. Folia generally trend NE and ENE (Taylor, et al., 1975a).

Samples that cannot be classified according to these training areas based on the calculated decision rules are placed into an "unknown" class. This unknown class may represent contamination, unrepresented mineralization, or an unusual lithology. Approximately 5% of the samples were placed into this unknown class.

Results

The results of the discriminant analyses within specific training areas are consistent with that training area in all but one case. Therefore, the training areas selected are geochemically unique. Plates C-I thru C-IX (Appendix C) show the locations of individual training areas and classified samples. A listing containing individual sample classifications and their associated probability has also been included in Table C-1, Appendix C.

The results of the mineralized training area (Plate C-IX) indicate areas with similar geochemistry in the northern Wet Mountains and along a northwest-southeast trend from West Mill Gulch to Hellgate Gulch. Several fault zones in the western portion of the survey area also show strong correlation with this geochemical expression. These areas include: McCoy Gulch, West McCoy Gulch, Back Door Gulch, Texas Creek Gulch and Five Point Gulch. Areas which may be mineralized but do not have a similar geochemistry to this training area have been addressed in the Characteristic Analysis section of this report.

Lithologic Training Area I (Plate C-II) in the Webster Park Graben was limited in exposure and in the number of samples for classification. Therefore, this training area does not aid significantly in the overall interpretation of the survey area.

Results of samples classified as similar to the Paleozoic sediment Training Area (Plate C-III) were meaningful. Samples within this lithology were in general correctly classified. Several of the northeast-southwest fault zones were classified as being geochemically similar to this training area. This geochemical similarity may be due to the concentration of silica or carbonate within these zones.

Statistical classification of Training Area III (Plate C-III) did a poor job of identifying the McClure Mountain Syenite Complex. The ambiguous results relating to this training area may be due to the limited area and number of samples on which to base the discriminant equation. It does indicate, however, a geochemical difference between the McClure Mountain Syenite Complex and the syenite complex at Democrat Creek as previously noted.

Results for classifying the Iron Mountain mafic-ultramafic Training Area (Plate C-IV) were highly significant. Along with properly classifying the mafic-ultramafic rock units it has classified zones of high Mn and Fe along fault zones within the Precambrian gneisses and Silver Plume aged quartz monzonites.

Results from Training Area V (Plate C-V), the Democrat Creek syenite, were satisfactory. Geochemical haloing is seen adjacent to the intrusive complex. As indicated earlier a geochemical similarity exists between this syenite complex and one phase of the granodiorite of Boulder Creek age in the western portion of the survey area.

In classifying the quartz monzonite of Silver Plume age, the analysis of Training Area VI (Plate C-VI) was useful. A geochemical difference is indicated between the northern and the southern intrusive body. The southern intrusive shows samples similar to several other training areas including the syenite at Democrat Creek. This suggests two phases with possibly different degrees of differentiation or contamination by host rocks. An interesting cluster of samples also occurs just east of Iron Mountain in the Precambrian gneisses. This grouping may possibly be due to contact metamorphism of arkosic sediments.

The granodiorite of Boulder Creek age was correctly classified as similar to Training Area VII (Place C-VI). Several areas within the Precambrian gneisses in the northern Wet Mountains were similarly classified.

Results of Training Area VIII (Plate C-VIII) indicates a geochemical difference within the Precambrain gneisses in the Wet Mountain Range and those in the central and north central portion of the survey area. This compositional difference may be due to variation in the original sedimentary environment or possibly the degree of metamorphism within the two areas.

## MULTIPLE REGRESSION ANALYSIS

### Methodology

Various aspects of multiple regression analysis have been used in the past to forecast the mineral potential of exploration areas (Cruzat and Meyer, 1974; Allais, 1957; and DeGeoffrey and Wignall, 1970). Methods that have been developed for the design of forecasting models have been based on the distribution of known mineral wealth, or on more advanced models that include multivariate data incorporating geology and geochemistry.

This latter approach was applied in the development of a model for forecasting the distribution of mineral prospects in the Arkansas Canyon Planning Unit, and thereby highlighting those areas within the Planning Unit most likely to be affected by mining/prospecting activity in the future.

The number of known prospects, workings and mines per square kilometer was used to categorize the past mineral exploration and mining activity in the survey area. The locations of prospects, workings and mines were digitized using U. S. Geological Survey 15' topographic maps of the area and a progressive weighting of 1, 4 or 16 applied, depending on the assigned category. The sum of these values within each cell was then considered to be an index of historical mineral exploitation activity in that cell. Stepwise multiple regression was used to compare this mineral exploitation index (dependent variable) with a series of structural, lithological and geochemical parameters (independent variables). From the regression, a forecasting model was developed to predict the potential for exploration in cells not having a past history of mineral exploitation.

Published geologic information was compiled at the scale of 1:50,000 (Plate II). Based on this information, nine major units were distinguished and numerically coded for inclusion into the geostatistical processing. A one $km^2$ grid was placed over the geologic map and the weighted proportion of each major rock type was assigned to the individual cells. Fracture length and direction to the nearest $45^o$ were calculated for each cell and combined with the geologic information.
The nine geologic units chosen are as follows:

1 Quaternary deposits, Alluvium, Colluvium, etc.
2 Tertiary Alluvium
3 Tertiary volcanic rocks
4 Paleozoic and Mesozoic sedimentary rocks

5 Mafic and Ultramafic intrusive rocks
6 Syenite intrusive rocks
7 Quartz monzonite intrusive rocks
8 Granodiorite and quartz diorite intrusive rocks
9 Migmatitic and gneissic metavolcanic and metasedimentary rocks.

Results

Initially the regressions were calculated using the combined geochemical, lithological, and structural parameters. Geochemical scores from the factor analysis were used instead of the raw geochemical data to decrease the effect of analytical variance on the regression model. Due to the very low percentage of cells containing past mineral activity within the planning unit, the forecasting model developed from the regression was biased toward specific lithologic units. When calculating forecasted mineral indexes, cells containing these lithologic units were determined to have unreasonably high predicted indexes. In view of this bias, the lithological and structural parameters were not included in the regression equation. A regression forecasting model was then developed using only the geochemical factor scores as the independent variables. This final model produced predicted forecasted mineral indexes (Table D-1) that are considered geologically and geochemically meaningful for the area.

The strongest anomaly (Plate D-1) correlates with the zone trending southwest to northeast from the Iron Mountain area to the Temple Canyon Park area. The trend includes the Green Mountain, El Plomo and Horseshoe Mines.

Grape Creek Drainage shows forecasted mineral indexes that are marginally anomalous, particularly in the regions of Hellgate Gulch, East Mill Gulch, East Pierce Gulch, and along Grape Creek from East Pierce Gulch to Temple Canyon Park. The two strongest trends in this area (East Mill Gulch to Chute Gulch

and Hellgate Gulch) have a distinctive northeast-southwest direction.

Another area showing forecasted mineral indexes with a northeast trend starts just southwest of the Sunset City site on Copper Gulch and goes to where Copper Gulch empties into the Webster Park Graben. This trend also extends northward into McIntyre Gulch.

From McIntyre Hills to the southwest, a well developed trend exists. This trend may be structurally controlled, however, further investigation would be required to confirm this.

Areas showing forecasted mineral indexes having only slightly anomalous values would include the Echo Park Graben and Texas Creek Gulch north of Texas Creek.

## CHARACTERISTIC ANALYSIS

### Methodology

Exploration geologists usually make use of conceptual models in their search for mineralization, but as the data become more complex, development of multi-parameter models becomes more and more difficult. Geochemical associations that represent or are characteristic of certain types of mineralization are well known and have been described in the literature (Boyle, 1974).

Barringer Resources' Fortran program CONCEPT was developed on the assumption that the exploration geologist would be presented with analyses of 30 or more elements on a series of samples covering a specified map area. If the geologist has an a priori concept of the type of mineralization to be found in the area, or would like to attempt a speculative search for a particular type of mineralization, the program will request a response

from the operator to enter the characteristic set of elements and ratios indicative of that type of mineralization. The program then searches the entire data set and compares the characteristics of each cell within the map area with the characteristics of the conceptual model. The model is based not only on the presence of the selected elements, but each element is given a weight by the geologist as to its significance in the model. This is achieved by entering probabilities from 0 to 1.0 for each element, representing the likelihood of anomalous occurrence for each element in the zone of mineralization. The CONCEPT program, in a single pass, will examine up to ten different element and five ratios formed from these elements.

Further details on the method of characteristic analysis can be found in Botbol (1971), and Botbol, et al., (1977), and Weiland et al., (in press).

## Development of Characteristic Geochemical Models

The geochemical characteristics for massive sulfide, thorium veins, carbonatite, sedimentary uranium, and uranium mineralization were defined based on deposits found in similiar geologic environments (see Table E-1 thru E-4, Appendix E). These conceptual models were then tested on a one $km^2$ grid of cells covering the survey area. Table 4 shows the characteristics and the weighted probabilities associated with each characteristic for each of the models used.

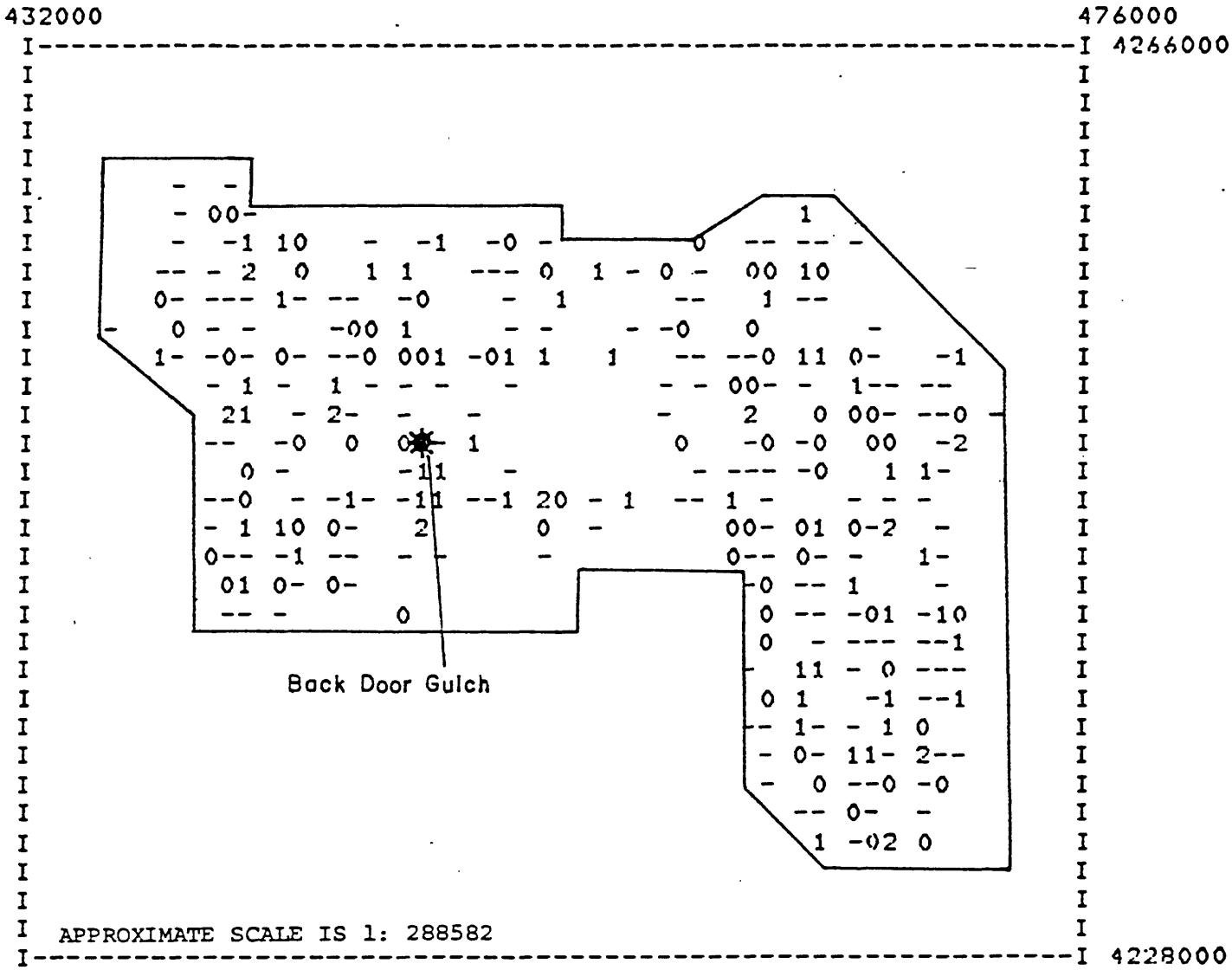
## Results

Massive Sulfide Model: A test of the massive sulfide model shows that the greatest degree of association with the conceptual model was restricted to the area at the confluence of the Back Door Gulch and Texas Creek (shown on Figure 3). There are

TABLE 4

CHARACTERISTIC VARIABLES AND THEIR ASSOCIATED PROBABILITIES
TO DEFINE THE GEOCHEMICAL MODELS FOR
THE CHARACTERISTIC ANALYSIS

| Massive Sulphide | | Thorium Veins | | Carbonatites | | Sedimentary Uranium | | Magmatic/Metamorphic Uranium | |
|---|---|---|---|---|---|---|---|---|---|
| Cu | 1.00 | Th | .90 | P | .90 | U | 1.00 | U | 1.00 |
| Mg/Si | .70 | Al | .50 | Sr | .90 | U/Th | 1.00 | U/Th | 1.00 |
| Pb | .70 | Fe | .50 | Ba | .80 | Cu | .90 | Mn | .60 |
| Zn | .70 | Be | .30 | Ti | .80 | Mn | .80 | Cu | .40 |
| Fe/K | .60 | Ba | .10 | Th | .50 | Mo | .80 | Pb | .30 |
| Fe/Na | .60 | Ca | .10 | | | Ag | .60 | Zn | .30 |
| Mg/K | .60 | Mg | .10 | | | Co | .60 | Th | 0.00 |
| Ba | .50 | Na | .10 | | | Th | 0.00 | | |
| Fe | .50 | Si | .10 | | | | | | |
| Mg | .50 | | | | | | | | |
| K | 0.00 | | | | | | | | |
| Na | 0.00 | | | | | | | | |
| Si | 0.00 | | | | | | | | |




Cell Scored Mean = .48
Cell Scored Standard Deviation = .455

Symbols for cell scores are as follows:

- \- represents cell containing scores below the mean for the model
- 0 represents cell containing scores between 0 and .99 standard deviations
- 1 represents cell containing scores between 1.00 and 1.99 standard deviations
- 2 represents cell containing scores between 2.00 and 2.99 standard deviations
- ✸ represents cell containing scores above 3.00 standard deviations

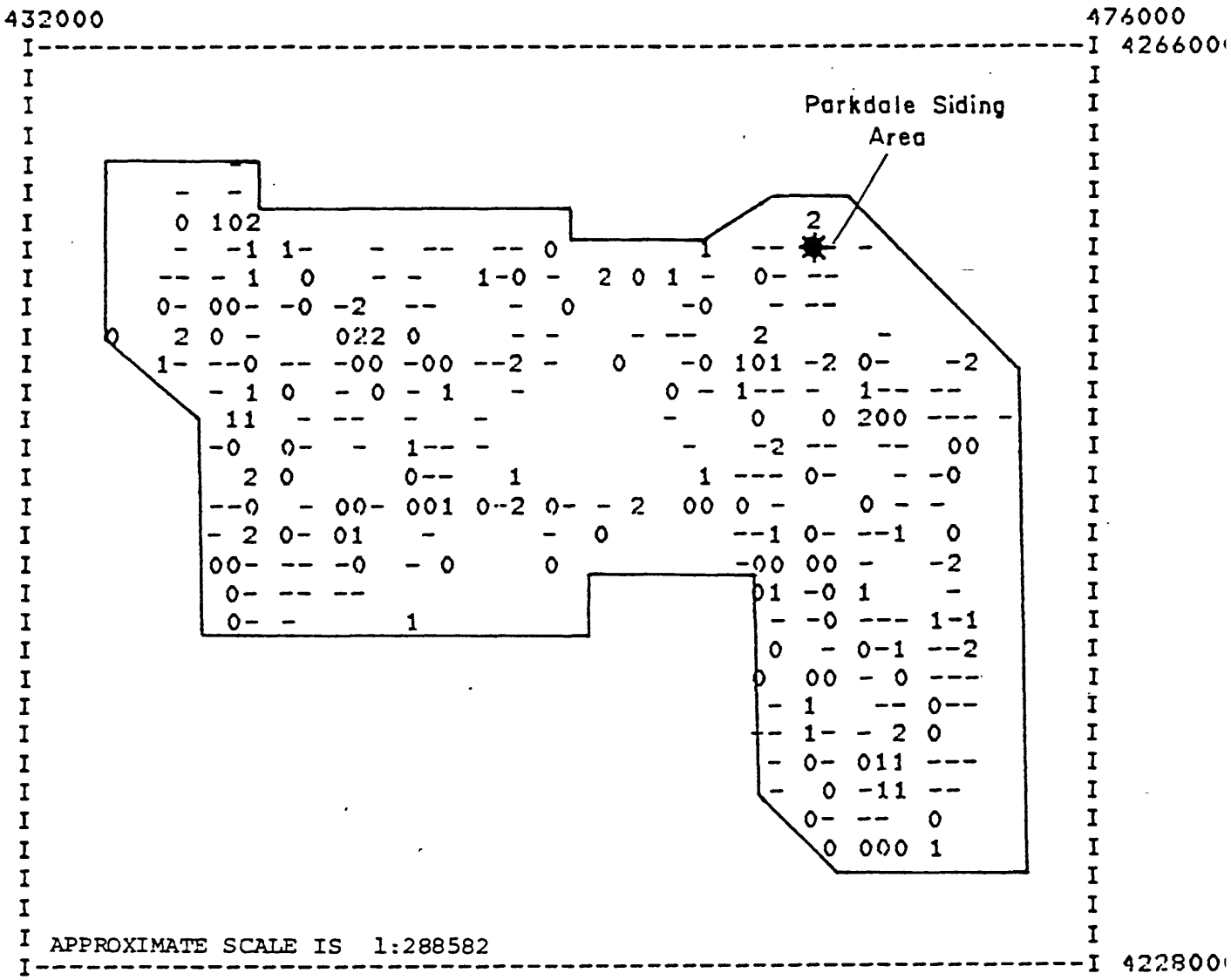
FIGURE 3 SUMMARY MAP FOR CHARACTERISTIC ANALYSIS SHOWING DEGREE OF ASSOCIATION WITH MASSIVE SULFIDE MINERALIZATION.

several areas showing a lesser degree of association with the model including the Horseshoe Mountain Mine. These tend to be located throughout the survey area with no specific trends identified (Plate E-I).

Thorium Vein Model: Results of this conceptual modeling proved to be ambiguous. The area south and west of the Grape Creek Drainage would have been expected to be better represented since this type of deposit occurs further to the south outside the survey area. The one area showing a high degree of association with the conceptual model is interesting in that this same area has strong association with the two uranium conceptual models. This area is located just south of Arkansas River near the Parkdale Siding (see Figure 4 and Plate E-II).

Carbonatite Model: Four areas were determined to have a strong association with the carbonatite conceptual model. These areas are located at: 1) Goat Park Gulch, 2) West Mill Gulch, 3) east of Titusville Gulch, and 4) Reese Gulch as shown in Figure 5. Areas showing both strong and moderate association with the model are confined to distinct areas and generally have groupings containing several anomalous cells (Plate E-III).

Sedimentary Uranium Model: A test of the sedimentary uranium conceptual model shows three areas having a strong association. These areas are: 1) south of the Arkansas River near Parkdale Siding; 2) southeast of Cotopaxi and west of West McCoy Gulch; and 3) an area in the southeast portion of the survey area in the Grape Creek Drainage (see Figure 6 and Plate E-IV). None of these areas are actually sedimentary in nature and only a few cells within the sedimentary environments show positive association with the conceptual model. The sedimentary associations are seen in the Devils Hole Graben and in an area west of Bernard Creek (Plate E-IV).

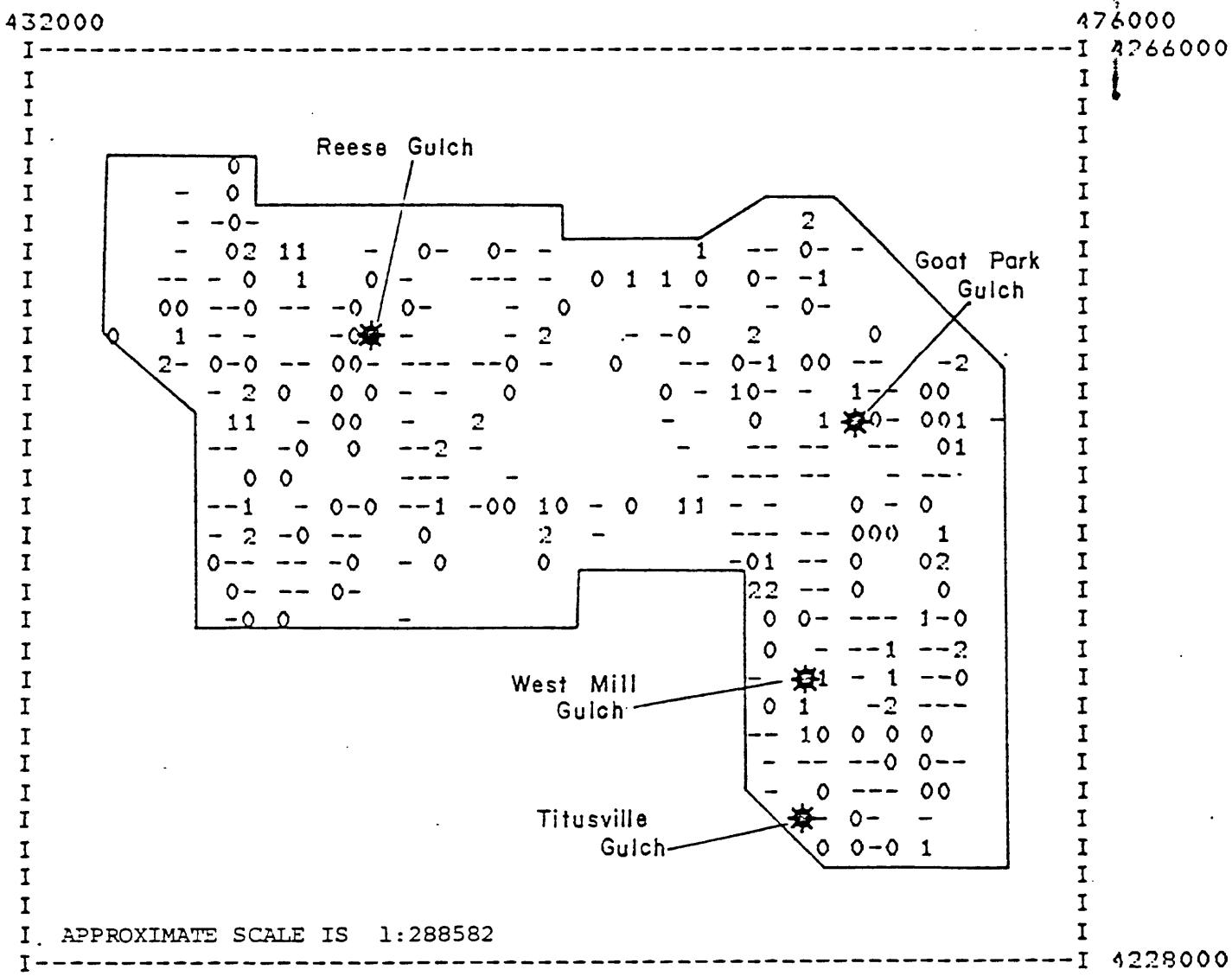



Cell Scored Mean = .48
Cell Scored Standard Deviation = .455

Symbols for cell scores are as follows:

- \- represents cell containing scores below the mean for the model
- 0 represents cell containing scores between 0 and .99 standard deviations
- 1 represents cell containing scores between 1.00 and 1.99 standard deviations
- 2 represents cell containing scores between 2.00 and 2.99 standard deviations
- ✸ represents cell containing scores above 3.00 standard deviations

FIGURE 4 SUMMARY MAP FOR CHARACTERISTIC ANALYSIS SHOWING DEGREE OF ASSOCIATION WITH THORIUM VEIN MINERALIZATION.

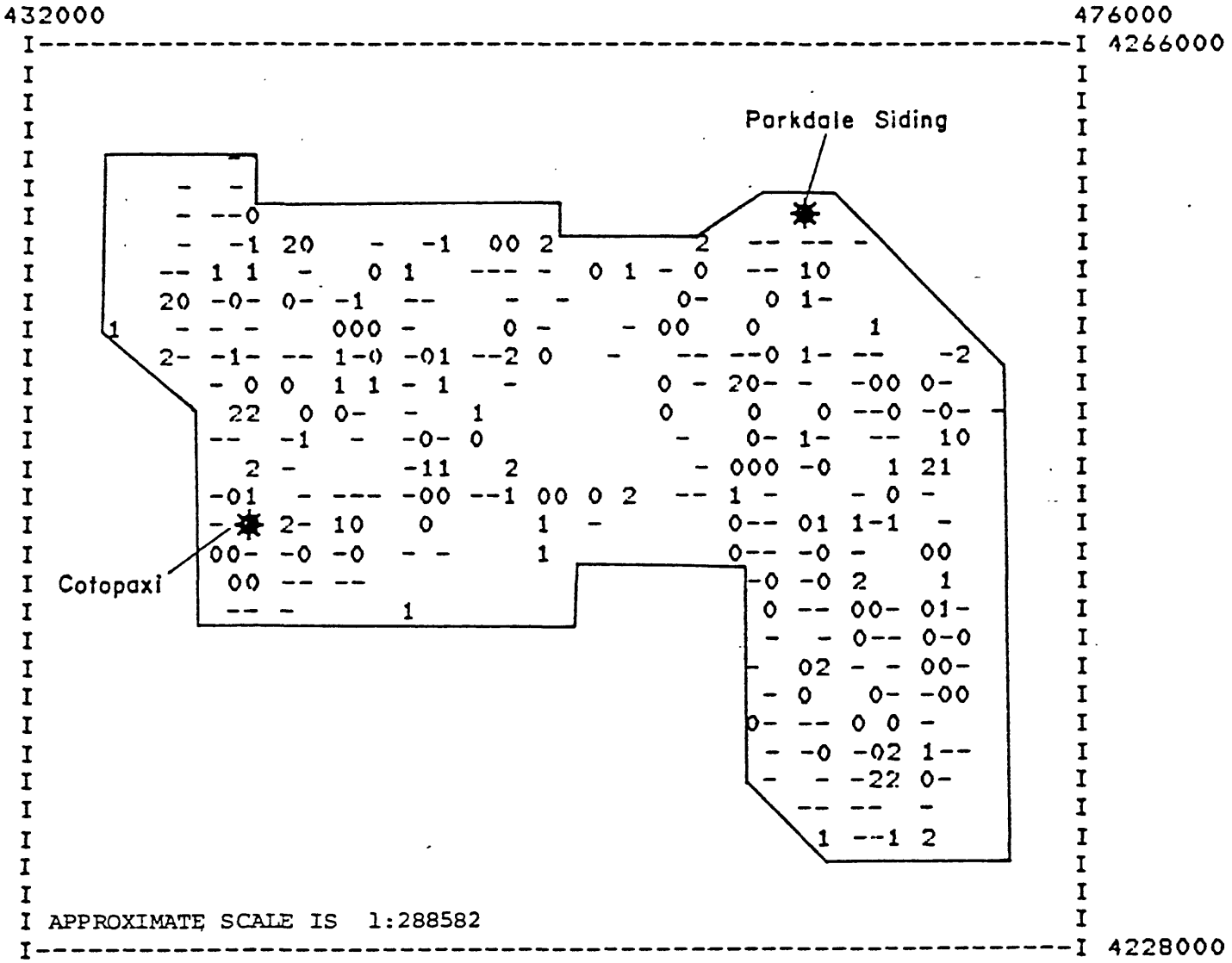



Cell Scored Mean = .48
Cell Scored Standard Deviation = .455

Symbols for cell scores are as follows:

- \- represents cell containing scores below the mean for the model
- 0 represents cell containing scores between 0 and .99 standard deviations
- 1 represents cell containing scores between 1.00 and 1.99 standard deviations
- 2 represents cell containing scores between 2.00 and 2.99 standard deviations
- ✸ represents cell containing scores above 3.00 standard deviations

FIGURE 5 SUMMARY MAP FOR CHARACTERISTIC ANALYSIS SHOWING DEGREE OF ASSOCIATION WITH CARBONATITE MINERALIZATION.



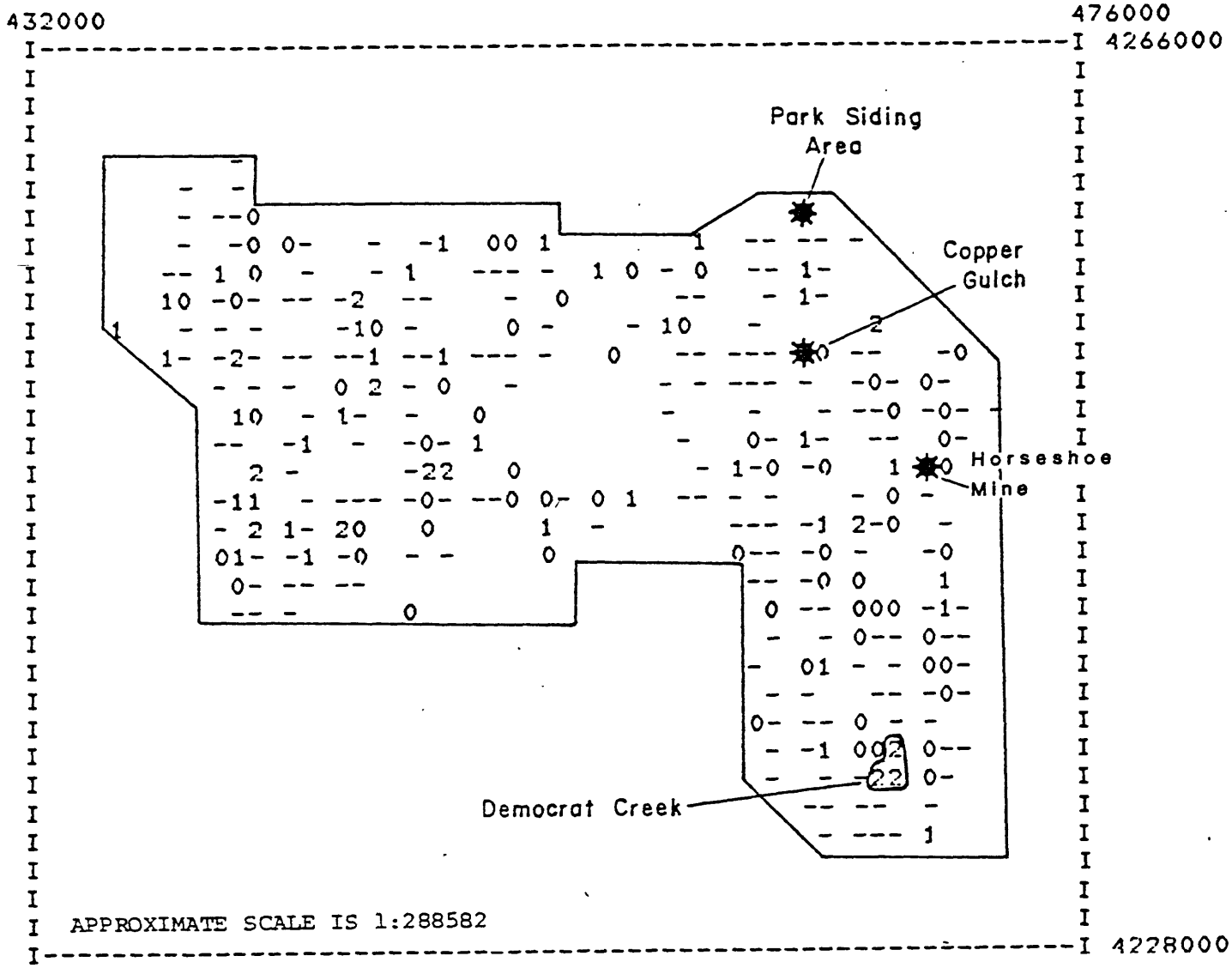

Cell Scored Mean = .48
Cell Scored Standard Deviation = .455

Symbols for cell scores are as follows:

- \- represents cell containing scores below the mean for the model
- 0 represents cell containing scores between 0 and .99 standard deviations
- 1 represents cell containing scores between 1.00 and 1.99 standard deviations
- 2 represents cell containing scores between 2.00 and 2.99 standard deviations
- ✸ represents cell containing scores above 3.00 standard deviations

FIGURE 6 SUMMARY MAP FOR CHARACTERISTIC ANALYSIS SHOWING DEGREE OF ASSOCIATION WITH SEDIMENTARY URANIUM MINERALIZATION.

Uranium Model: Two areas are outlined with this conceptual model. They are 1) the area just south of the Arkansas River at Parkdale siding; and 2) an area in the southeast corner of the Planning Unit. Horseshoe Mine, Copper Gulch, and Democrat Creek show a positive but lesser association with the model (Figure 7, Plate E-V). The fact that the area in the southeast corner of the survey area is associated with both uranium models may be significant.




Cell Scored Mean = .48
Cell Scored Standard Deviation = .455

Symbols for cell scores are as follows:

- \- represents cell containing scores below the mean for the model
- 0 represents cell containing scores between 0 and .99 standard deviations
- 1 represents cell containing scores between 1.00 and 1.99 standard deviations
- 2 represents cell containing scores between 2.00 and 2.99 standard deviations
- ✸ represents cell containing scores above 3.00 standard deviations

FIGURE 7 SUMMARY MAP FOR CHARACTERISTIC ANALYSIS SHOWING DEGREE OF ASSOCIATION WITH URANIUM MINERALIZATION.

## DISCUSSION

1. Due to the nature of stream sediment sampling, geochemical anomalies tend to be displaced downstream from the source and no attempt has been made in this study to project the geochemical values to the center of the drainage basin covered by the sample. The factor, characteristic, and multiple regression analyses were not adversely affected by this displacement as each used grid cell and picture frame averages thereby increasing the size of area influenced by a sample. However, when interpreting individual discriminant analysis results or geochemical values, projection upstream may be required to fully understand the results.

2. The results shown by the geochemical survey and the subsequent geostatistical analysis relate closely to the known regional geology and mineralogy. Due to the low variance within the geochemical data, the geostatistical analyses did not classify samples as clearly in other areas such as the Silverton-American Flats Planning Units (Weiland et al., in press) in southwestern Colorado. For example, the massive sulfide model used in the characteristic analysis did not pick the Green Mountain Mine to Horseshoe Mine areas where the possibility for this type of mineralization seems to exist. This would indicate that the mineralization found in this locality may not be typified by the conceptual model used or that the absolute values of the geochemical data are too low to afford meaningful contrast with the general geochemical background of the area.

3. The complexity of lithologies which have at present been mapped as single units was brought out clearly in several of the geostatistical analyses. Discriminant analysis clearly indicates a geochemical difference between the

Precambrian gneisses of the Wet Mountains south of Sunset City and those north and west of this area (Plates D-VII and D-VIII). The geochemistry may indicate a basic change in protolith stratigraphy from a dominant volcanic or volcaniclastic environment in the southeast to a sedimentary environment in the north central portion of the study area. It should be noted that the stream sediment geochemistry within the Wet Mountains may be influenced by the amphibolite lenses found within this area. Generally the stream sediments consist of a disproportionate amount of the Fe-Mg rich mafic minerals downstream of these lenses due to differential weathering effects of the various rock lithologies. This could bias the results of any geostatistical analysis.

The major geochemical differences between the McClure Mountain Syenite Complex and the syenite complex at Democrat Creek were also highlighted in the stream sediment geochemical data. These differences were seen in most of the statistical analysis as well as several single element maps. At least two separate phases of the granodiorite of Boulder Creek age were indicated by the stream sediment data. Detailed mapping associated with whole rock geochemical data would be required to more fully understand the lithologic nature of these units and to assess their potential as mineralization host and/or source.

4. Results indicate that the areas of potential base metal mineralization are in the Horseshoe Mountain, Green Mountain Mine, and Sunset City region. Lack of any definitive geochemical signature coupled with low level geochemical relief and contrast prevents meaningful characterization of this mineralization. A mineralized trend is indicated between the Green Mountain and Horseshoe

Mines but the complexity of the metamorphic environment has made it difficult to assess with existing data. Detailed geologic mapping within this area would be required to more fully define this potential.

5. Geochemical data indicates only low uranium values within the study area. Conclusive geostatistical interpretation is hampered by lack of uranium data contrast but the characteristic analysis indicates uranium favorability within the Webster Park Graben. Geologically, rocks within the Echo Park Graben may warrant review on a limited basis with regard to uranium potential.

6. The carbonatite model from the characteristic analysis has suffered due to the lack of geochemical results specific to this type of mineralization. Elements that could substantially aid in the definition of potential carbonatite mineralization would include Nb, Ce, and possibly F. Because of this lack of information, areas being classified as conceptually similar to carbonatites may reflect changes in rock lithologies rather than carbonatite mineralization.

7. The present study shows the effectiveness of the geochemical-geological-geostatistical approach to the assessment of mineral potential of large areas. This method allows the incorporation of large amounts of data to be used for more specific interpretations. The various geostatistical analyses effectively allow the investigator to define and model both known and unknown mineralization that can then be assessed within the study area. These programs also allow areas to be specified which would require further work to interpret completely. The statistical packages are most effective when good quality quantitative data is used as opposed to the use of semi-quantitative or qualitative data.

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# GEOCHEMICAL AND GEOSTATISTICAL EVALUATION

# ARKANSAS CANYON PLANNING UNIT

# FREMONT AND CUSTER COUNTIES, COLORADO

## VOLUME II

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April 10, 1981

VOLUME II

LIST OF APPENDICES

TABLE B-1
LISTING OF FACTOR SCORES

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4350004256000 | | .348 | -.295 | .245 | -1.484 | .308 | -.374 | .102 | -1.366 |
| 4350004258000 | | -.487 | -.344 | .447 | -.378 | -.304 | -.301 | -.846 | .189 |
| 4360004254000 | | -.874 | .045 | -.769 | .120 | .883 | -.825 | -1.130 | .459 |
| 4360004255000 | | .035 | .194 | .768 | -.807 | -.050 | -.291 | -.648 | -.369 |
| 4360004260000 | | .873 | 1.254 | .644 | -.351 | -.112 | -.655 | -.997 | -.630 |
| 4370004252000 | | .127 | 1.407 | .655 | -.439 | -.051 | -.320 | -1.029 | .249 |
| 4370004255000 | | .576 | 1.811 | .106 | -.240 | .181 | -.353 | -.980 | -.604 |
| 4370004260000 | | .041 | .780 | 1.070 | .037 | -.419 | -.489 | -1.046 | -.511 |
| 4380004253000 | | -1.347 | -.689 | -1.216 | -.856 | 1.013 | -.992 | -.861 | -.470 |
| 4380004254000 | | .900 | 1.848 | .047 | -.894 | .439 | -.142 | -.795 | -.862 |
| 4380004257000 | | -.753 | -.526 | -.240 | -1.235 | .941 | -.626 | -.884 | -.439 |
| 4390004252000 | | -.327 | .612 | .232 | -.813 | .681 | -.615 | -.771 | -.873 |
| 4390004253000 | | -1.326 | -.315 | -.760 | -.926 | .948 | -.120 | -.846 | -.394 |
| 4390004254000 | | -.234 | -.074 | .965 | .285 | .348 | -.868 | -.881 | -.563 |
| 4390004255000 | | -.689 | -.058 | .595 | .660 | 1.976 | -1.463 | -.903 | .632 |
| 4390004257000 | | -.835 | -.097 | .695 | .070 | 1.281 | -1.491 | -.752 | .619 |
| 4390004258000 | | -.413 | .067 | -.716 | -.155 | 1.781 | -1.416 | -.811 | -.643 |
| 4390004259000 | | -1.157 | -1.028 | .126 | .929 | 2.543 | -2.396 | -.966 | .550 |
| 4390004260000 | | -.020 | .138 | .457 | .236 | 1.192 | -1.289 | -.021 | -.477 |
| 4390004261000 | | -.419 | -.293 | .266 | .398 | 1.381 | -1.758 | -.723 | -.468 |
| 4400004243000 | | -1.263 | .927 | 1.934 | -.331 | .348 | -.626 | -.935 | .063 |
| 4400004244000 | | .144 | .215 | -.644 | -1.212 | .112 | -.543 | .037 | -.106 |
| 4400004245000 | | .728 | .411 | -.908 | -1.444 | .176 | -.628 | .235 | -.171 |
| 4400004246000 | | -.652 | -.310 | .297 | .988 | -.311 | -.928 | -.527 | -1.343 |
| 4400004247000 | | -1.073 | .160 | .571 | 1.177 | -.959 | -.318 | -1.018 | .877 |
| 4400004249000 | | -.642 | .100 | .482 | -.362 | .079 | -1.318 | -.499 | -.383 |
| 4400004251000 | | -.073 | .415 | .523 | .558 | -.398 | -1.025 | -.638 | -.500 |
| 4400004254000 | | -.767 | -.321 | -.035 | -.250 | -1.055 | -1.321 | -.594 | -.308 |
| 4400004255000 | | -.708 | .312 | 1.217 | -.344 | 1.647 | -1.009 | -.919 | -.322 |
| 4400004257000 | | -.426 | -.023 | 1.008 | -.435 | 1.027 | -.805 | -.700 | -.659 |
| 4400004260000 | | -.057 | -.273 | .536 | .384 | .430 | -.475 | -.327 | -1.025 |
| 4400004262000 | | -.328 | -.324 | .280 | .407 | .705 | -.782 | -.528 | -.671 |
| 4410004242000 | | -.835 | -.584 | 1.047 | -1.132 | .594 | -.388 | -.090 | -.686 |
| 4410004245000 | | 1.543 | 1.094 | -1.368 | -1.633 | -1.317 | -.632 | .362 | .030 |
| 4410004247000 | | -.305 | 1.263 | .358 | .057 | -.844 | -.489 | -.134 | -.175 |
| 4410004248000 | | -1.114 | .015 | .860 | 1.065 | .168 | -.534 | -.895 | .728 |
| 4410004250000 | | -.334 | 1.979 | .988 | .247 | -.794 | -.400 | -.313 | .048 |
| 4410004251000 | | 1.026 | 2.959 | .518 | -.796 | -1.865 | -.107 | -.913 | -.976 |
| 4410004252000 | | .139 | .291 | .126 | -.472 | .888 | -1.084 | -.497 | -.955 |
| 4410004253000 | | -.956 | .094 | 1.365 | .010 | .889 | -1.191 | -.874 | -.257 |
| 4410004254000 | | -.857 | .784 | 1.253 | -.186 | 1.398 | -1.234 | -.716 | .151 |
| 4410004255000 | | -.824 | .705 | 1.141 | -.334 | 1.409 | -1.245 | -.994 | -.129 |
| 4410004256000 | | -.301 | -.053 | 1.063 | .231 | .904 | -.654 | -.669 | -.247 |
| 4410004258000 | | .231 | -.431 | .648 | -.864 | .002 | -.202 | .058 | -1.196 |
| 4410004259000 | | -.208 | .356 | 1.487 | -.133 | .885 | -.025 | -.554 | -.522 |
| 4410004260000 | | -.121 | .263 | .982 | -.048 | 1.156 | -.643 | -.539 | -.812 |
| 4410004262000 | | -.369 | -.678 | .481 | .285 | .856 | -.428 | -.165 | -1.367 |
| 4420004243000 | | .009 | -.476 | .108 | -1.147 | .272 | -1.053 | 2.269 | -1.995 |
| 4420004244000 | | -.390 | .035 | -.063 | -.917 | .512 | -.534 | -.251 | -.334 |
| 4420004245000 | | -.902 | -.436 | .893 | -.800 | .608 | -.568 | -.677 | -.340 |
| 4420004246000 | | .698 | .094 | -.819 | -.876 | .665 | -.720 | -.099 | -.509 |

TABLE B-1 CONTINUED

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4420004247000 | | -.514 | .137 | -.245 | -.805 | -.369 | -.388 | -.554 | -.921 |
| 4420004248000 | | -.488 | 2.999 | .652 | 1.394 | -.869 | -.197 | -.821 | .770 |
| 4420004250000 | | -.313 | 1.880 | -.082 | .368 | -1.129 | -.248 | -.898 | .522 |
| 4420004251000 | | .621 | 1.903 | .244 | -.157 | -.909 | -.071 | -.751 | -.730 |
| 4420004252000 | | .492 | 1.374 | .345 | -.246 | -.166 | -.111 | -.575 | -.756 |
| 4420004253000 | | -.118 | .769 | .968 | -.494 | .034 | -.149 | -.501 | -.771 |
| 4420004256000 | | .030 | -.079 | .419 | .788 | .353 | -.865 | -.303 | -1.110 |
| 4420004258000 | | .275 | 1.181 | 1.113 | .095 | .600 | -.541 | -.854 | -.878 |
| 4420004260000 | | -.854 | .748 | 1.596 | .851 | 1.809 | -.558 | -1.097 | .234 |
| 4430004243000 | | -.620 | -.480 | .349 | -1.159 | .136 | -.164 | -.073 | -1.110 |
| 4430004245000 | | -.114 | .552 | -.291 | -.939 | -.637 | -.511 | -.172 | -.050 |
| 4430004246000 | | -.468 | -.225 | .404 | -1.578 | .454 | -.506 | -.172 | -.860 |
| 4430004249000 | | -.452 | 1.705 | .309 | .841 | -1.009 | -.379 | -.787 | 1.075 |
| 4430004253000 | | -.201 | 2.026 | 1.191 | -.786 | -1.145 | -.165 | -.796 | -.379 |
| 4430004255000 | | -.213 | 1.235 | .224 | -.483 | -.543 | -.407 | -.757 | -.361 |
| 4430004257000 | | .124 | .190 | .300 | .814 | -.061 | -.236 | -.636 | -.725 |
| 4430004258000 | | -.011 | .209 | .416 | .483 | .057 | -.349 | -.476 | -1.277 |
| 4440004244000 | | -.554 | -.007 | .041 | -1.192 | .291 | -.494 | -.167 | -.500 |
| 4440004246000 | | -.231 | .443 | -1.465 | -1.138 | .573 | 1.028 | -.061 | -1.215 |
| 4440004247000 | | -1.032 | -.240 | .233 | -.012 | .790 | -.400 | -.461 | .122 |
| 4440004248000 | | -.792 | .175 | -.106 | -.713 | .768 | -.402 | -.260 | .396 |
| 4440004249000 | | .317 | 2.552 | -.958 | -.081 | -.748 | -.534 | -.741 | -.033 |
| 4440004250000 | | -.349 | 2.123 | .392 | .757 | -.457 | -.483 | -.969 | .107 |
| 4440004251000 | | -.250 | 2.043 | .229 | 1.555 | -1.182 | -.250 | -.655 | .491 |
| 4440004252000 | | -.291 | 1.613 | .263 | .008 | -.714 | -.329 | -.528 | .386 |
| 4440004253000 | | -.382 | 1.899 | .382 | .408 | -1.083 | -.136 | -.704 | .895 |
| 4440004254000 | | -.750 | 1.468 | -.030 | .117 | -1.478 | -.522 | -.859 | 1.268 |
| 4440004255000 | | -.324 | 1.762 | .040 | .587 | -.955 | -.370 | -.661 | -.131 |
| 4440004256000 | | -.229 | 2.645 | .050 | .435 | .099 | -.211 | -.962 | .879 |
| 4440004257000 | | -.020 | 3.595 | .701 | .503 | -.369 | -.298 | -.791 | .378 |
| 4440004260000 | | -.818 | -1.111 | -.098 | .449 | .566 | -1.250 | -.831 | -1.596 |
| 4450004243000 | | -1.242 | -.146 | .007 | -1.052 | 1.182 | .131 | -.553 | .364 |
| 4450004244000 | | -.921 | .032 | -.102 | -.618 | -.159 | -.494 | -.002 | .462 |
| 4450004245000 | | -.874 | .187 | -.023 | -.879 | 1.056 | -.429 | -.085 | .040 |
| 4450004249000 | | -.226 | .533 | .173 | .508 | 1.266 | -.493 | -.670 | .783 |
| 4450004260000 | | -1.003 | -.914 | .125 | -.441 | .805 | -1.140 | -.993 | -.223 |
| 4460004244000 | | -1.055 | .141 | .035 | -1.370 | .961 | -.179 | -.297 | .005 |
| 4460004245000 | | -.697 | .486 | -.376 | -.377 | .794 | -.582 | -.626 | .925 |
| 4460004247000 | | -.792 | .513 | -.585 | -.415 | 1.027 | -.440 | -.434 | .430 |
| 4460004248000 | | .685 | .594 | -1.316 | -1.392 | .469 | -.778 | .511 | .132 |
| 4460004249000 | | -1.004 | 1.159 | .583 | .717 | -.703 | .168 | -.488 | 1.434 |
| 4460004250000 | | -.861 | .658 | .382 | -.861 | .000 | -.273 | -.529 | 1.151 |
| 4460004251000 | | -.709 | 2.320 | 1.356 | -1.059 | -.366 | -.042 | -.502 | .973 |
| 4460004252000 | | -.615 | 2.035 | 1.033 | .662 | -.869 | -.005 | -.502 | 1.033 |
| 4460004253000 | | -.771 | 2.577 | 1.181 | .088 | -.233 | .045 | -.565 | .729 |
| 4460004254000 | | -.310 | 2.914 | .873 | .582 | -.546 | -.080 | -.627 | .536 |
| 4460004255000 | | -.575 | 3.658 | 1.595 | 1.078 | .246 | -.444 | -1.077 | .607 |
| 4460004257000 | | -.805 | -.291 | .580 | -.536 | .738 | -.434 | -.637 | -.910 |
| 4460004259000 | | -.767 | -.722 | .161 | -.665 | .883 | -.745 | -.764 | -.653 |
| 4470004243000 | | -.229 | -.399 | .304 | -1.279 | .576 | .228 | -.134 | .040 |
| 4470004248000 | | -.806 | .599 | -.704 | -.457 | .891 | -.515 | -.784 | .982 |
| 4470004250000 | | -.562 | .502 | .400 | .594 | .823 | .038 | -.657 | .156 |
| 4470004252000 | | -1.179 | 2.297 | 2.083 | -.885 | .261 | -.289 | -.777 | 1.122 |

TABLE B-1 CONTINUED

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4470004256000 | | -.227 | -.904 | -.296 | -.508 | -.570 | -.655 | .701 | -1.265 |
| 4480004243000 | | -.934 | -.436 | .476 | -1.020 | 1.197 | -.043 | -.371 | .585 |
| 4480004244000 | | -.874 | .100 | .277 | -.405 | .742 | -.298 | -.260 | .875 |
| 4480004245000 | | -1.243 | .151 | .218 | -.901 | .661 | -.412 | -.570 | 1.020 |
| 4480004246000 | | -1.243 | .237 | .642 | -1.033 | -.059 | -.266 | -.272 | 1.388 |
| 4480004247000 | | -.943 | .461 | -.009 | -1.229 | .035 | -.005 | -.168 | 1.264 |
| 4480004249000 | | .125 | -.031 | -.672 | -1.118 | 1.173 | -.453 | -.368 | .166 |
| 4480004252000 | | -1.005 | -.415 | .377 | -1.202 | .163 | -.784 | -.325 | .322 |
| 4480004253000 | | -.585 | -.614 | .258 | -1.445 | -.368 | -.533 | .108 | -.695 |
| 4480004254000 | | -.326 | -.346 | .383 | -.953 | -.007 | -.548 | .007 | -.701 |
| 4480004256000 | | -.455 | .025 | .036 | .133 | -.097 | -.748 | .250 | .266 |
| 4490004246000 | | .078 | -.217 | -.031 | -.172 | .603 | .210 | .150 | -.363 |
| 4490004247000 | | -.056 | .249 | -.098 | 2.526 | .709 | .386 | -.093 | -.577 |
| 4490004248000 | | -.274 | .846 | -.241 | .273 | -.070 | -.054 | -.262 | .874 |
| 4490004249000 | | -.895 | .160 | -.503 | -.775 | .127 | -.592 | -.324 | .739 |
| 4490004250000 | | -.843 | -.504 | -.126 | .081 | .749 | -.070 | -.012 | .472 |
| 4490004251000 | | -.750 | 1.369 | -.037 | .367 | 2.188 | -.838 | -.733 | 1.123 |
| 4490004252000 | | -.482 | -.684 | .296 | -1.479 | -.583 | -.123 | .251 | -.699 |
| 4490004258000 | | -.891 | -.165 | .586 | .133 | .601 | -.236 | -.752 | -.455 |
| 4490004259000 | | -.756 | -.813 | .410 | -.284 | 1.374 | -.125 | -.939 | .499 |
| 4500004244000 | | -.446 | .315 | -.135 | .286 | 1.942 | -.128 | .282 | -.918 |
| 4500004245000 | | .276 | -.339 | .939 | 1.385 | .878 | 1.221 | -.167 | .142 |
| 4500004247000 | | -.107 | .636 | -.596 | .183 | .687 | -.533 | -.390 | .426 |
| 4500004250000 | | -.178 | .518 | -.614 | -.520 | .597 | .092 | -.266 | -.276 |
| 4500004251000 | | -.488 | 1.237 | -.002 | .533 | 1.275 | -.209 | -.285 | .561 |
| 4500004253000 | | -.384 | -.507 | .159 | -.880 | -.279 | -.334 | -.003 | -.732 |
| 4500004257000 | | -.630 | -.044 | .299 | .465 | .659 | -.628 | -.555 | .428 |
| 4500004259000 | | -.212 | -.700 | -.215 | -.383 | .613 | -.440 | -.478 | .296 |
| 4510004243000 | | -.771 | -.387 | .777 | .559 | 1.287 | .207 | -.567 | .678 |
| 4510004249000 | | -.760 | .071 | -.362 | -.264 | -.620 | -.436 | -.177 | .116 |
| 4510004252000 | | -.544 | .206 | -.097 | -.195 | .344 | -.054 | .351 | -1.320 |
| 4510004253000 | | -.627 | -.117 | -1.139 | .354 | 1.066 | -.736 | -.355 | -.452 |
| 4510004256000 | | -1.052 | .223 | .555 | -1.173 | .863 | -.421 | -.589 | .299 |
| 4510004257000 | | -1.360 | .430 | -.180 | -1.193 | .369 | -.886 | -.877 | .315 |
| 4510004259000 | | .024 | -.792 | .242 | -.811 | -.119 | .647 | -.524 | 1.152 |
| 4510004260000 | | -.919 | -.668 | .157 | -.611 | .806 | .009 | -.812 | 1.085 |
| 4520004243000 | | 1.217 | .443 | -.945 | 1.436 | .712 | -.451 | -.086 | -.059 |
| 4520004246000 | | .314 | -1.028 | .997 | 1.908 | 1.190 | 3.075 | -.475 | 1.539 |
| 4520004247000 | | .392 | -.595 | .724 | 1.509 | .428 | 2.217 | -.032 | .707 |
| 4520004252000 | | -.138 | -.120 | -.460 | .004 | .177 | -.491 | -.151 | -.261 |
| 4520004253000 | | -.068 | -.139 | .008 | -.023 | .762 | -.204 | -.236 | -.391 |
| 4520004256000 | | -1.044 | -.120 | .883 | -1.294 | -.460 | -.204 | -.579 | .275 |
| 4520004257000 | | -.326 | -.784 | .193 | -.196 | .116 | .646 | -.699 | .842 |
| 4520004258000 | | -1.223 | -.700 | .358 | -.552 | 1.204 | .073 | -.980 | 1.183 |
| 4520004259000 | | -1.167 | -.351 | .705 | -.674 | .905 | -.383 | -.851 | 1.009 |
| 4520004260000 | | -.319 | -1.524 | .940 | -.661 | .314 | 2.061 | -.772 | 1.427 |
| 4530004243000 | | -.778 | -.828 | .265 | .210 | .836 | -.258 | -.778 | .326 |
| 4530004245000 | | 3.460 | .029 | -.591 | -1.069 | 1.216 | 1.375 | -.518 | .283 |
| 4530004248000 | | 1.665 | .640 | -1.451 | .739 | .565 | .328 | .261 | 1.022 |
| 4530004249000 | | -.470 | -.457 | -.111 | .948 | 1.002 | .229 | -.488 | .828 |
| 4530004250000 | | .614 | 1.100 | -1.667 | .989 | -.081 | -.263 | -.206 | .851 |
| 4530004251000 | | -.907 | -.406 | -.535 | 1.043 | .113 | -.246 | -.681 | .743 |
| 4530004252000 | | -.107 | -.471 | -.159 | .905 | .452 | -.082 | -.359 | -.905 |

TABLE B-1 CONTINUED

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4530004253000 | | -.937 | -.154 | -.457 | .750 | .513 | -.790 | -.740 | .737 |
| 4530004254000 | | -.931 | -.262 | -.062 | .983 | .458 | -.028 | -.156 | .645 |
| 4530004255000 | | -.711 | -.299 | .257 | -.543 | .288 | -.014 | -.621 | .675 |
| 4530004256000 | | -1.654 | -.370 | -.241 | -.935 | 1.067 | -1.218 | -1.079 | 1.133 |
| 4530004257000 | | -1.141 | .779 | -.428 | -1.426 | -1.593 | -.575 | -.484 | .074 |
| 4530004258000 | | -.884 | -.423 | .212 | -.783 | .451 | -.441 | -.633 | .502 |
| 4530004259000 | | -.473 | -1.172 | .291 | -.657 | .025 | 1.356 | -.709 | 1.447 |
| 4540004244000 | | 1.942 | -.133 | -.992 | -.763 | .540 | .908 | 1.528 | .387 |
| 4540004246000 | | 1.081 | -1.120 | 1.308 | .354 | .783 | 3.866 | -.172 | 1.318 |
| 4540004247000 | | 1.146 | -1.172 | .699 | 1.603 | -.019 | 4.143 | .181 | 1.762 |
| 4540004253000 | | -1.069 | -.236 | -.614 | .620 | -.292 | -.692 | -.657 | 1.143 |
| 4540004255000 | | -1.392 | .443 | -.347 | .591 | -3.720 | -.274 | -.745 | 2.177 |
| 4550004244000 | | 5.199 | .367 | -3.285 | -1.231 | -.861 | .430 | .947 | 1.181 |
| 4550004246000 | | 1.403 | -.734 | -.438 | -.223 | .639 | 2.518 | .068 | .296 |
| 4550004248000 | | 1.343 | -.404 | -.249 | .422 | .916 | 1.881 | -.416 | .512 |
| 4560004246000 | | .126 | -.483 | .545 | .282 | .046 | 1.151 | .040 | .738 |
| 4560004251000 | | -.416 | -.440 | .068 | .599 | .030 | .324 | -.121 | -.285 |
| 4560004253000 | | -1.041 | -.011 | -.146 | .541 | -.445 | -.834 | -.763 | .660 |
| 4560004256000 | | -.761 | .385 | -.359 | .582 | -3.428 | .432 | -.534 | 2.958 |
| 4570004247000 | | 2.299 | -.556 | -.022 | -.778 | -.436 | 1.818 | -.183 | .535 |
| 4570004248000 | | .630 | -.527 | -.192 | -.060 | -.273 | .728 | -.100 | -.110 |
| 4570004250000 | | -.499 | -.512 | -.536 | .090 | -.056 | -.081 | -.422 | -.300 |
| 4570004251000 | | .184 | .004 | -.962 | .502 | .397 | -.503 | -.294 | .441 |
| 4570004252000 | | -.670 | -.147 | -.143 | .878 | -.195 | -.173 | -.420 | .451 |
| 4570004253000 | | -1.053 | -.180 | -.180 | .604 | -1.615 | -.217 | -.551 | 1.776 |
| 4570004254000 | | -1.052 | .106 | -.329 | .315 | -1.144 | -.877 | -.722 | .738 |
| 4570004255000 | | -.797 | .036 | -.599 | .745 | -1.460 | -.217 | -.454 | .450 |
| 4570004256000 | | -.657 | -.185 | -.338 | -.216 | .274 | -.062 | -.594 | .223 |
| 4580004250000 | | -.056 | -.579 | -.434 | -.201 | .262 | -.252 | -.208 | -.241 |
| 4580004251000 | | -.289 | -.564 | .065 | .972 | .129 | .013 | -.323 | .389 |
| 4580004254000 | | -.795 | -.097 | -.086 | .775 | -.945 | -.346 | -.462 | .777 |
| 4580004256000 | | -.515 | -.205 | .515 | .776 | -.255 | -.003 | -.313 | .634 |
| 4590004246000 | | -.036 | -.812 | .728 | -1.025 | .231 | .885 | -.555 | .649 |
| 4590004247000 | | .763 | -.556 | 1.195 | 5.244 | .068 | 1.949 | -.580 | .281 |
| 4590004251000 | | .469 | -.192 | -.079 | -.681 | .207 | -.474 | -.407 | -.373 |
| 4590004253000 | | -.219 | -.190 | -.580 | .696 | .188 | -1.168 | -.432 | .156 |
| 4590004254000 | | -.895 | -.437 | -.015 | .352 | -1.113 | -.598 | -.447 | .545 |
| 4590004256000 | | .676 | .355 | -1.152 | -.840 | .940 | .725 | -.470 | 2.892 |
| 4600004246000 | | .693 | -.331 | .720 | 5.151 | .163 | .877 | -.974 | .494 |
| 4600004247000 | | .063 | -1.329 | .717 | 2.144 | .935 | 1.767 | .250 | -.062 |
| 4600004248000 | | 1.605 | .038 | -.103 | .854 | -.934 | 1.238 | .176 | -.731 |
| 4600004249000 | | -.076 | -.539 | -.084 | .584 | .564 | .139 | -.020 | -.519 |
| 4600004250000 | | -.181 | -.517 | -.388 | .615 | .625 | -.510 | .493 | -2.083 |
| 4600004252000 | | -.884 | -.658 | .098 | 1.017 | .335 | -.801 | -.542 | .682 |
| 4600004254000 | | -.693 | -.621 | -.205 | .938 | .768 | -.615 | -.524 | .714 |
| 4600004255000 | | -.504 | -.328 | .179 | .249 | -2.041 | -.681 | -.625 | -.028 |
| 4600004256000 | | -.641 | -.591 | .318 | .086 | -.044 | -1.058 | -.497 | -.256 |
| 4600004257000 | | -.053 | -.509 | .055 | .432 | -.740 | 1.257 | .541 | .482 |
| 4610004245000 | | -.025 | -1.397 | -1.417 | -1.188 | .234 | .295 | 5.285 | -2.577 |
| 4610004246000 | | 2.009 | -1.576 | -.943 | -.011 | -1.046 | .328 | 4.972 | -2.900 |
| 4610004247000 | | .350 | -1.366 | .071 | 4.110 | -.207 | 1.247 | 1.765 | -2.183 |
| 4610004252000 | | -.051 | -.177 | .133 | .882 | .171 | -.533 | -.127 | .189 |
| 4610004254000 | | -.369 | -.294 | -.046 | 1.067 | .413 | -.476 | -.146 | .202 |

TABLE B-1 CONTINUED

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4610004255000 | | -.766 | -.596 | .409 | -.270 | -.323 | -.790 | -.515 | -.339 |
| 4610004256000 | | -.650 | -.648 | .518 | -.214 | -.019 | -.456 | -.243 | -.400 |
| 4610004257000 | | 1.996 | -.026 | -.833 | .297 | -.363 | -.266 | 1.752 | .718 |
| 4620004236000 | | .121 | -.828 | .167 | .339 | .868 | 1.206 | .370 | -.352 |
| 4620004245000 | | .074 | -1.643 | -.681 | -.080 | .210 | .902 | 3.196 | -1.939 |
| 4620004247000 | | .423 | -1.361 | -.385 | 1.741 | -.405 | 1.432 | 3.031 | -3.493 |
| 4620004248000 | | -.087 | -.312 | .217 | 1.287 | -.786 | .434 | -.319 | .374 |
| 4620004250000 | | -.389 | -.020 | -.269 | .527 | .389 | -.087 | -.425 | -.015 |
| 4620004252000 | | .486 | -.359 | .145 | .953 | -.206 | -.171 | -.058 | -.321 |
| 4620004253000 | | -.167 | -.299 | .071 | .897 | -.587 | -.615 | -.222 | .241 |
| 4620004255000 | | 4.836 | 1.261 | -2.920 | -.964 | 1.500 | -1.624 | -.300 | -1.029 |
| 4620004257000 | | .658 | -.290 | -.391 | .515 | -.423 | -.539 | 6.386 | 2.058 |
| 4630004235000 | | -.421 | -.832 | .322 | -.290 | 1.485 | .346 | -.081 | 1.014 |
| 4630004237000 | | .933 | -.346 | -.428 | -.798 | .755 | -.019 | -.197 | .083 |
| 4630004239000 | | -.168 | -.741 | .681 | .519 | .295 | .456 | .198 | -.356 |
| 4630004240000 | | 4.664 | .457 | -2.088 | -.000 | -.346 | -.085 | .568 | .484 |
| 4630004243000 | | .810 | -.975 | .619 | -.774 | -.032 | 1.416 | .193 | .686 |
| 4630004244000 | | 2.708 | -1.780 | -.643 | .578 | .521 | 2.343 | .218 | -1.603 |
| 4630004245000 | | .392 | -1.409 | -.113 | .346 | .112 | .307 | 1.162 | -1.143 |
| 4630004246000 | | 1.302 | -1.072 | -.469 | -.327 | -.608 | .042 | .799 | -1.810 |
| 4630004248000 | | .207 | -.135 | -.011 | 1.142 | -.418 | -.018 | -.137 | .145 |
| 4630004250000 | | -.935 | .072 | -.579 | .323 | .289 | -.757 | -.541 | .735 |
| 4630004251000 | | .909 | -.017 | -.729 | .244 | -1.372 | -.074 | -.182 | .353 |
| 4630004253000 | | -.405 | -.494 | .233 | .637 | .369 | -.630 | -.469 | .524 |
| 4630004255000 | | -.538 | -.204 | -.102 | .773 | -1.237 | .115 | 3.539 | .073 |
| 4630004256000 | | -.248 | -.405 | .471 | .351 | -.548 | -.090 | .794 | -.210 |
| 4630004257000 | | -.928 | -.561 | .629 | .295 | .073 | .016 | -.333 | .551 |
| 4630004259000 | | -.043 | -.532 | -.117 | -.037 | -.466 | .276 | 1.536 | 1.085 |
| 4640004234000 | | -.461 | -1.048 | 1.261 | .308 | .230 | .344 | .131 | .581 |
| 4640004235000 | | -.086 | -.937 | .411 | -1.209 | 1.168 | .246 | .435 | .761 |
| 4640004237000 | | .094 | -.928 | -.149 | -.422 | .836 | .048 | .575 | .132 |
| 4640004238000 | | 1.101 | -.275 | -.177 | -.058 | .330 | .121 | .158 | -.726 |
| 4640004239000 | | 1.003 | -.327 | .159 | -.693 | .174 | .342 | .134 | -.694 |
| 4640004240000 | | .132 | -.253 | -.053 | 1.609 | .299 | .167 | .548 | -.081 |
| 4640004241000 | | .934 | -.258 | -.285 | .932 | -.430 | .352 | 1.234 | -.875 |
| 4640004244000 | | -.322 | -1.346 | -.860 | -1.037 | .750 | .134 | .345 | -1.601 |
| 4640004245000 | | .230 | -.150 | -.363 | -1.335 | -.707 | .044 | .194 | -.592 |
| 4640004246000 | | -.225 | -.501 | -.410 | -.708 | -.197 | -.183 | -.104 | -.715 |
| 4640004249000 | | .181 | .424 | -1.109 | -.277 | -1.130 | -.076 | -.025 | 1.370 |
| 4640004251000 | | -.216 | -.394 | .022 | .783 | -.046 | -.199 | -.385 | -.554 |
| 4640004252000 | | -.147 | -.551 | -.193 | .629 | -.469 | -.502 | -.060 | .307 |
| 4640004254000 | | 1.340 | -.113 | -.439 | -.012 | -.225 | -.172 | .001 | -1.305 |
| 4640004255000 | | .307 | -.898 | .709 | 1.392 | -.027 | .318 | -.400 | -.981 |
| 4640004256000 | | 1.091 | -.276 | -.205 | .027 | -.136 | -.168 | .476 | -1.456 |
| 4640004259000 | | .494 | -.156 | -.235 | .980 | -.446 | -.078 | -.317 | .934 |
| 4650004233000 | | 1.061 | -.109 | .220 | -1.318 | .268 | 1.292 | .829 | .209 |
| 4650004234000 | | 1.371 | -.688 | -.695 | -.471 | .124 | .097 | 1.099 | -.533 |
| 4650004235000 | | -.728 | -.638 | .728 | .570 | 1.124 | .131 | -.084 | .357 |
| 4650004237000 | | 2.131 | -.150 | -1.192 | -.486 | .489 | -.100 | .558 | .351 |
| 4650004238000 | | 2.461 | -.072 | -.503 | -1.151 | .742 | .063 | .047 | -.853 |
| 4650004240000 | | 2.242 | .087 | -.442 | 1.856 | -.486 | .505 | -.151 | .165 |
| 4650004241000 | | .384 | -.437 | -.372 | -.709 | .434 | -.190 | .633 | .487 |
| 4650004242000 | | -.025 | -.503 | .507 | 1.179 | -.343 | .559 | .889 | -1.181 |

TABLE B-1 CONTINUED

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4650004243000 | | -.259 | -1.139 | .920 | .266 | 1.408 | 1.288 | -.435 | 1.009 |
| 4650004244000 | | .686 | -.701 | .064 | .999 | -.214 | .445 | -.203 | .290 |
| 4650004245000 | | -.032 | -.444 | -.845 | -1.127 | -1.082 | 1.247 | .015 | -.938 |
| 4650004246000 | | 1.463 | .420 | -1.488 | -1.001 | -.450 | -.421 | .160 | -.308 |
| 4650004249000 | | .171 | .046 | -.957 | .604 | .228 | -.523 | -.096 | 1.242 |
| 4650004250000 | | -.100 | -.307 | .224 | .729 | -.122 | -.881 | -.218 | .331 |
| 4650004251000 | | 2.185 | .339 | -1.557 | .674 | -.636 | -1.008 | .020 | 1.203 |
| 4650004252000 | | -.590 | -.513 | .257 | 1.043 | -2.027 | .017 | -.403 | 1.031 |
| 4650004253000 | | .640 | .338 | -.291 | 1.696 | -.544 | -.922 | -.414 | .052 |
| 4650004254000 | | .857 | -.065 | -.102 | -.620 | -.145 | .109 | -.170 | -1.194 |
| 4650004255000 | | -.334 | .179 | -.887 | .219 | -2.196 | .806 | -.472 | -.391 |
| 4650004256000 | | 1.066 | -.076 | -.580 | 1.154 | -.356 | -.329 | -.359 | -1.036 |
| 4650004257000 | | .167 | -.088 | .178 | .847 | -.622 | -.117 | -.313 | .117 |
| 4650004258000 | | .626 | .249 | -.514 | 1.843 | -.153 | -.735 | .031 | .072 |
| 4650004259000 | | 1.626 | .363 | -1.367 | .322 | -.284 | -.252 | -.013 | 1.416 |
| 4660004233000 | | .514 | -.745 | -.090 | 1.355 | -.109 | -.305 | 2.213 | -1.603 |
| 4660004234000 | | -1.049 | -.975 | .407 | .393 | .703 | .182 | 1.076 | .760 |
| 4660004235000 | | .502 | -.787 | -.108 | -.135 | -.094 | .387 | .359 | -.433 |
| 4660004236000 | | -.340 | 1.737 | 1.545 | -.308 | 1.363 | .757 | -.613 | .552 |
| 4660004239000 | | .686 | -.473 | .261 | -.557 | -.605 | -.126 | .123 | -.209 |
| 4660004240000 | | .066 | -1.163 | .491 | .030 | .860 | .282 | -.314 | .541 |
| 4660004241000 | | .525 | -.257 | -.244 | -.589 | -.129 | .168 | .474 | .064 |
| 4660004242000 | | 1.831 | -.043 | -.588 | -.385 | .048 | .712 | .994 | -.418 |
| 4660004243000 | | .474 | -.220 | .416 | -.148 | -.294 | 1.685 | .947 | -.639 |
| 4660004244000 | | -.306 | -.375 | .833 | -.460 | -.841 | .420 | .191 | -.525 |
| 4660004245000 | | 1.322 | .214 | -2.016 | -1.443 | -.499 | 2.334 | .207 | -1.151 |
| 4660004246000 | | -.073 | -1.151 | .694 | -2.009 | -9.379 | .183 | -.017 | -1.387 |
| 4660004247000 | | -.415 | -.328 | -.156 | 2.591 | -1.109 | -.471 | -.391 | -.014 |
| 4660004249000 | | 1.075 | .541 | -1.262 | 1.304 | -.429 | -1.426 | -.007 | 1.727 |
| 4660004250000 | | .362 | .367 | -.546 | 2.027 | -1.007 | -.268 | .021 | 1.788 |
| 4660004251000 | | 2.293 | .725 | -1.477 | .770 | -.533 | -.653 | -.145 | 1.442 |
| 4660004254000 | | -.363 | .845 | -.774 | 1.077 | -4.622 | .072 | -.390 | 2.009 |
| 4660004255000 | | .033 | -.049 | -1.027 | -.217 | -.610 | -.404 | -.242 | -.681 |
| 4660004256000 | | -.166 | -.555 | .306 | 1.413 | -.293 | .681 | .726 | .183 |
| 4660004257000 | | -1.666 | -.693 | -4.716 | -.660 | .331 | -2.240 | -.196 | -.144 |
| 4660004258000 | | -1.063 | -.819 | -3.217 | .035 | 1.846 | -1.045 | -1.090 | .161 |
| 4670004233000 | | .165 | -.859 | .769 | -.139 | -.295 | .026 | 1.848 | -.276 |
| 4670004234000 | | .049 | .441 | 1.338 | -.176 | .358 | .320 | .182 | -.124 |
| 4670004235000 | | -.147 | 3.837 | 1.224 | -.778 | .340 | .603 | .411 | -.203 |
| 4670004236000 | | -.686 | 3.558 | 1.677 | .522 | -.582 | .618 | .481 | -.559 |
| 4670004237000 | | -.247 | .635 | .929 | .352 | .527 | .418 | -.023 | .658 |
| 4670004238000 | | 2.306 | -.303 | .069 | -.398 | .008 | .629 | .077 | -1.293 |
| 4670004239000 | | .763 | -.523 | .344 | -1.250 | -.226 | -.231 | .386 | -.353 |
| 4670004240000 | | -.146 | -1.161 | 1.207 | -.573 | .759 | .870 | .559 | .111 |
| 4670004241000 | | 1.927 | .470 | -1.034 | -.916 | .173 | -.173 | .640 | .356 |
| 4670004242000 | | -.286 | -.450 | .175 | -.794 | -.160 | -.012 | 1.292 | -.758 |
| 4670004243000 | | 2.596 | .080 | -1.566 | -.482 | -.383 | .786 | 2.500 | -.099 |
| 4670004245000 | | -.041 | -.574 | -.137 | -1.292 | -.140 | .600 | .162 | -.530 |
| 4670004246000 | | -.417 | -1.063 | .090 | -1.150 | -2.672 | .123 | .187 | -.545 |
| 4670004247000 | | -.069 | -.702 | .002 | 1.404 | -.390 | -.322 | .073 | -.299 |
| 4670004252000 | | -.567 | .354 | -.234 | 1.689 | -1.029 | .161 | -.286 | 1.849 |
| 4670004253000 | | .005 | -.309 | -1.235 | .428 | -.750 | -.440 | -.074 | -.233 |
| 4670004254000 | | .496 | .029 | -.466 | .888 | -2.168 | -.158 | -.078 | .697 |

TABLE B-1 CONTINUED

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4670004255000 | | -2.365 | .442 | -4.223 | -.124 | .587 | 9.807 | -.965 | -2.453 |
| 4680004232000 | | .866 | -.875 | -.014 | -1.053 | .041 | -.426 | 3.599 | -.967 |
| 4680004233000 | | -.325 | -.925 | .527 | -.036 | -.361 | .454 | 7.142 | .796 |
| 4680004234000 | | .539 | .907 | .802 | -.672 | -.096 | .553 | .956 | .194 |
| 4680004235000 | | .366 | 4.820 | 1.754 | -1.350 | -2.236 | .446 | -.893 | .788 |
| 4680004236000 | | .732 | 3.429 | 1.931 | -1.484 | .401 | 1.439 | -.014 | -.934 |
| 4680004237000 | | .128 | .253 | 1.782 | .708 | .246 | .582 | 1.101 | -.032 |
| 4680004239000 | | .686 | -.354 | 1.021 | -.274 | .131 | .436 | .794 | -.359 |
| 4680004240000 | | .368 | -.741 | .133 | -1.201 | -.110 | -.405 | .517 | .528 |
| 4680004241000 | | .732 | -.373 | .005 | .309 | -.573 | .095 | 1.036 | -.432 |
| 4680004242000 | | -.364 | -.536 | .179 | -.331 | -.628 | -.059 | 1.308 | -.492 |
| 4680004243000 | | -.099 | -.669 | .255 | 1.582 | -.419 | .279 | 1.786 | -.606 |
| 4680004245000 | | 1.109 | .356 | -.738 | .744 | -.036 | .085 | .740 | -.765 |
| 4680004246000 | | 4.560 | .379 | -1.855 | -.006 | -.726 | 1.461 | .968 | -.989 |
| 4680004249000 | | .103 | .273 | -.287 | 1.146 | -.884 | -.134 | .118 | .432 |
| 4680004250000 | | .539 | -.375 | -.212 | 1.051 | -1.109 | .083 | .587 | -.846 |
| 4680004251000 | | .200 | .413 | -.199 | 1.198 | -.520 | -.419 | -.393 | -.123 |
| 4680004252000 | | -1.673 | -.728 | -3.503 | .268 | 1.771 | -1.087 | -.994 | .455 |
| 4680004256000 | | -1.618 | -.672 | -2.015 | .613 | 1.429 | 2.530 | -.966 | .242 |
| 4690004233000 | | .440 | -1.218 | .488 | -.353 | -.210 | .294 | 1.472 | -1.478 |
| 4690004234000 | | .226 | 1.102 | 1.910 | -.393 | 1.093 | .788 | .593 | -.429 |
| 4690004235000 | | .947 | 2.709 | .857 | -.870 | -.568 | .471 | .077 | -.097 |
| 4690004236000 | | -.173 | 2.540 | 2.049 | -.800 | -1.283 | .473 | .444 | -.792 |
| 4690004237000 | | .034 | -.690 | 1.054 | .342 | .153 | .396 | .509 | -.634 |
| 4690004238000 | | .836 | -.374 | 1.310 | -.684 | -.063 | .386 | 1.069 | -1.089 |
| 4690004239000 | | 2.220 | -.014 | .168 | -.748 | .067 | .313 | .766 | -.585 |
| 4690004240000 | | 1.024 | -.403 | .821 | .378 | -.097 | -.116 | .997 | -.427 |
| 4690004241000 | | .514 | .272 | .315 | -1.222 | -.413 | .511 | 1.037 | .288 |
| 4690004242000 | | .155 | -.812 | -.086 | .663 | -.938 | .096 | 2.122 | -1.113 |
| 4690004245000 | | .544 | -.112 | .306 | .906 | -.727 | .811 | 1.343 | -.176 |
| 4690004246000 | | .186 | -.450 | .867 | -1.048 | -.392 | .525 | .279 | .057 |
| 4690004247000 | | -.096 | -.252 | .539 | -1.018 | -.490 | -.046 | .170 | .660 |
| 4690004248000 | | -.101 | -.403 | .103 | -1.618 | -1.963 | .039 | .413 | .108 |
| 4690004250000 | | -1.141 | -1.035 | -1.014 | .961 | 1.266 | -1.509 | -.745 | -.700 |
| 4690004251000 | | -1.136 | -.334 | -1.453 | .881 | .540 | .003 | -.799 | -.330 |
| 4690004256000 | | -1.507 | -.631 | -1.771 | .186 | 1.169 | .539 | -1.158 | .354 |
| 4700004233000 | | 1.093 | -.731 | -.187 | -.556 | -.096 | .530 | 2.078 | -1.235 |
| 4700004234000 | | .778 | -.656 | .390 | -.895 | .176 | .141 | 2.044 | -1.683 |
| 4700004235000 | | .295 | -1.029 | .476 | -1.568 | .335 | -.337 | 4.287 | -2.253 |
| 4700004237000 | | .426 | -.748 | .703 | -.735 | -.287 | .467 | .732 | -1.362 |
| 4700004238000 | | .655 | -.396 | 1.030 | -1.112 | .083 | .044 | .650 | -1.485 |
| 4700004239000 | | .171 | -.559 | .051 | -.524 | -.575 | -.034 | .347 | -.043 |
| 4700004241000 | | .208 | -.442 | .821 | 1.410 | -.252 | .252 | .894 | -.608 |
| 4700004242000 | | .120 | -.897 | .931 | .254 | -1.347 | .297 | 1.159 | .191 |
| 4700004244000 | | -.290 | -1.138 | 1.385 | .076 | -1.117 | .107 | .581 | -.217 |
| 4700004245000 | | .936 | -.547 | .737 | -.711 | -.861 | .428 | 1.034 | -.501 |
| 4700004246000 | | -.144 | .154 | .816 | .823 | -.417 | .056 | .239 | .210 |
| 4700004248000 | | -.496 | -.165 | 1.099 | .000 | -3.404 | -.556 | .503 | .533 |
| 4700004249000 | | -.633 | -.423 | -.189 | -.553 | -2.322 | .026 | .684 | 1.295 |
| 4700004250000 | | -1.608 | .162 | -1.756 | 1.426 | -.706 | 2.423 | -.511 | -.385 |
| 4700004251000 | | -1.764 | -.276 | -2.705 | -.595 | -.536 | 1.729 | -.639 | .465 |
| 4700004255000 | | -1.610 | -.912 | -3.671 | .268 | 1.610 | -1.029 | -1.119 | 1.057 |
| 4700004256000 | | .207 | -.344 | -.563 | .249 | -.074 | .248 | -.078 | .023 |

TABLE B-1 CONTINUED

| Mercator Coordinates East | North | Factor One | Factor Two | Factor Three | Factor Four | Factor Five | Factor Six | Factor Seven | Factor Eight |
|---|---|---|---|---|---|---|---|---|---|
| 4710004233000 | | .116 | -1.133 | .720 | -.194 | .439 | .191 | .307 | .505 |
| 4710004234000 | | .706 | -.732 | .527 | -.122 | -.002 | .245 | 1.233 | -.742 |
| 4710004236000 | | .793 | -.387 | .015 | -.790 | -.024 | .076 | .432 | -.389 |
| 4710004237000 | | .223 | -.401 | .594 | -.771 | .218 | -.009 | -.037 | -.901 |
| 4710004238000 | | .715 | -.950 | .056 | -.769 | .171 | .899 | 1.242 | -.706 |
| 4710004239000 | | .344 | -.672 | .089 | -1.704 | .120 | .116 | .387 | .029 |
| 4710004240000 | | 3.826 | .553 | -.724 | -1.268 | .343 | -.380 | .008 | .461 |
| 4710004241000 | | -.097 | -.667 | .409 | -.732 | -.031 | .617 | .592 | .814 |
| 4710004242000 | | -.017 | -.162 | .961 | 1.402 | -.381 | .552 | .093 | 1.441 |
| 4710004243000 | | -.385 | -.609 | .907 | 1.197 | -.789 | .192 | .315 | .458 |
| 4710004244000 | | .791 | .335 | .417 | -1.442 | .306 | -.184 | .032 | 1.092 |
| 4710004245000 | | .095 | .222 | .662 | .908 | -.226 | -.023 | .206 | -.641 |
| 4710004249000 | | -.650 | -.538 | .159 | -1.207 | -2.009 | .632 | 1.571 | 1.205 |
| 4710004250000 | | -.621 | -.350 | -.411 | -.730 | -.394 | -.404 | -.414 | .514 |
| 4710004251000 | | -.898 | .191 | -1.955 | -.452 | .951 | 3.455 | -.459 | -1.596 |
| 4710004252000 | | .380 | .526 | -3.826 | -.143 | .547 | .435 | -.702 | 1.094 |
| 4710004253000 | | -1.266 | -.481 | -1.646 | .461 | 1.168 | -.518 | -1.054 | .826 |
| 4720004239000 | | -.098 | -.773 | .609 | .031 | .287 | .408 | .379 | -.351 |
| 4720004240000 | | -.288 | -.609 | .961 | -1.445 | .983 | .956 | .381 | .035 |
| 4720004249000 | | 1.612 | .336 | -1.392 | -.414 | -.621 | -.874 | -.251 | .894 |
| 4720004250000 | | .758 | -.365 | -.037 | -.183 | -.819 | .487 | .177 | .198 |
| 4730004239000 | | 1.074 | -.561 | .250 | -1.605 | .562 | .748 | .497 | .025 |
| 4730004251000 | | -1.257 | -.991 | -1.429 | .558 | -.023 | .001 | -.755 | 1.282 |

CONTRACT YA-553-CTO-100

# GEOCHEMICAL AND GEOSTATISTICAL EVALUATION

# ARKANSAS CANYON PLANNING UNIT

# FREMONT AND CUSTER COUNTIES, COLORADO

## VOLUME III

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VOLUME III

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TABLE C-1

LISTING OF DISCRIMINANT ANALYSIS OUTPUT SHOWING SAMPLE CLASSIFICATION WITH ASSOCIATED PROBABILITY

TOTAL # OF VARIABLES ENTERED = 26

TOTAL # OF TRAINING AREAS = 9

| Training Area | Class | Number of Training Samples |
|---|---|---|
| 1 | G1 | 5 |
| 2 | G2 | 7 |
| 3 | G3 | 4 |
| 4 | G4 | 12 |
| 5 | G5 | 22 |
| 6 | G6 | 11 |
| 7 | G7 | 20 |
| 8 | G8 | 20 |
| 9 | M1 | 19 |

TABLE C-1

LISTING OF DISCRIMINANT ANALYSIS OUTPUT SHOWING SAMPLE CLASSIFICATION WITH ASSOCIATED PROBABILITY

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 469407. | 4241056. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 2 | 469015. | 4241096. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 3 | 468953. | 4240970. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 4 | 469335. | 4240403. | 8* | G8 | .000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 5 | 468943. | 4239632. | 9 | M1 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 |
| 6 | 468643. | 4238898. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 7 | 468104. | 4238876. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 8 | 468174. | 4238964. | 8 | G8 | .000 | .000 | .000 | .000 | .026 | 0.000 | .000 | .974 | .000 |
| 9 | 468901. | 4238643. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 10 | 468987. | 4238155. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 11 | 468863. | 4237880. | 8 | G8 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 12 | 469055. | 4237583. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 13 | 469598. | 4237504. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 14 | 468869. | 4237502. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 |
| 15 | 468303. | 4237376. | 1 | G1 | 1.000 | 0.000 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 |
| 16 | 466695. | 4232747. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 17 | 467095. | 4232783. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 18 | 467243. | 4232807. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 19 | 467751. | 4232852. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | 467807. | 4232639. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 21 | 468001. | 4232314. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 22 | 468279. | 4232172. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 23 | 468855. | 4232645. | 8 | G8 | .000 | .000 | .000 | .000 | .015 | 0.000 | .000 | .985 | .000 |
| 24 | 469751. | 4232786. | 9 | M1 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 25 | 469656. | 4233344. | 5 | G5 | 0.000 | 0.000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 26 | 469920. | 4234020. | 5 | G5 | 0.000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 27 | 469940. | 4234172. | 5 | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 28 | 469330. | 4233904. | 5 | G5 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 29 | 469229. | 4234012. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 30 | 470291. | 4234536. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 |
| 31 | 470556. | 4234372. | 3 | G3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | .000 |
| 32 | 470930. | 4234326. | 5 | G5 | 0.000 | 0.000 | 0.000 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 |
| 33 | 471151. | 4233620. | 5 | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 34 | 471023. | 4233647. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 35 | 470657. | 4233212. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 36 | 471208. | 4232668. | 5 | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 37 | 466687. | 4233340. | 5 | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 38 | 467143. | 4233626. | 5 | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | 467117. | 4234004. | 5* | G5 | .000 | .000 | .000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 40 | 467471. | 4234334. | 5* | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 41 | 467151. | 4234906. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 42 | 467212. | 4235012. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 43 | 468383. | 4234087. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 44 | 468221. | 4234120. | 5* | G5 | 0.000 | 0.000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 45 | 468242. | 4234469. | 5* | G5 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 46 | 468104. | 4234584. | 5* | G5 | .000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 47 | 468568. | 4234790. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 48 | 467791. | 4235508. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 49 | 467791. | 4235644. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 50 | 468799. | 4235340. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 51 | 469326. | 4235400. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 52 | 469415. | 4235432. | 5* | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 53 | 469391. | 4235692. | 5* | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 54 | 469040. | 4236309. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 55 | 469047. | 4236548. | 5 | G5 | .000 | .000 | .000 | .000 | .980 | .000 | .000 | .020 | .000 |
| 56 | 469063. | 4237100. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 57 | 465951. | 4232992. | 9 | M1 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 |
| 58 | 471439. | 4238489. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 59 | 471526. | 4238596. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 60 | 470495. | 4238340. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 61 | 470583. | 4238284. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 62 | 469759. | 4238192. | 5 | G5 | .000 | .000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 63 | 469868. | 4238104. | 3 | G3 | .000 | .000 | .998 | .000 | .000 | .000 | .000 | .012 | .000 |
| 64 | 469488. | 4237028. | 3 | G3 | .000 | 0.000 | .846 | 0.000 | 0.000 | 0.000 | .154 | 0.000 | .000 |
| 65 | 469727. | 4236812. | 5 | G5 | .000 | .000 | .000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 66 | 470015. | 4236658. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 67 | 470227. | 4236600. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | .935 | .065 | .000 |
| 68 | 470631. | 4236274. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .113 | .887 | .000 |
| 69 | 470831. | 4236348. | 8 | G8 | .000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 70 | 471071. | 4236792. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 71 | 471666. | 4250336. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 72 | 471351. | 4250238. | 6 | G6 | .495 | .000 | .000 | .000 | .000 | .505 | .000 | .000 | .000 |
| 73 | 471119. | 4249973. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 74 | 471320. | 4249684. | 9* | M1 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 75 | 471640. | 4249159. | 9* | M1 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 |
| 76 | 471773. | 4249220. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 77 | 470939. | 4249568. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 78 | 470630. | 4249060. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 79 | 470[illegible]5. | 4248958. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 80 | 469[illegible]6. | 4248326. | 9* | M1 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81 | 469258. | 4247396. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 82 | 468979. | 4247431. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 83 | 468503. | 4247592. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 84 | 468901. | 4248052. | 9* | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 85 | 468589. | 4247856. | 9* | M1 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 86 | 469199. | 4246998. | 4 | G4 | .000 | .000 | .000 | .975 | .000 | .000 | .000 | .013 | .012 |
| 87 | 470199. | 4241635. | 8 | G8 | 0.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 88 | 470039. | 4241978. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 89 | 470687. | 4243388. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 90 | 468950. | 4246732. | 3 | G3 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 91 | 468719. | 4246340. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 92 | 468422. | 4245504. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 93 | 468839. | 4245896. | 6 | G6 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 94 | 469002. | 4245960. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 95 | 470959. | 4243501. | 3 | G3 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 96 | 470519. | 4244137. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 97 | 470287. | 4244544. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 98 | 469597. | 4244739. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 99 | 469535. | 4244295. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 100 | 469799. | 4244833. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 101 | 470961. | 4240576. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 102 | 471191. | 4240145. | 9 | M1 | .000 | .113 | .000 | .000 | .000 | .000 | .000 | .000 | .887 |
| 103 | 471431. | 4240168. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 104 | 471971. | 4239840. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | .953 | .000 | .047 | .000 |
| 105 | 471975. | 4239494. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | .998 | .000 | .002 | .000 |
| 106 | 472791. | 4239188. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 107 | 469813. | 4239487. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .103 | .896 |
| 108 | 470415. | 4239336. | 4 | G4 | .000 | .000 | .000 | .906 | .000 | .000 | .000 | .094 | .000 |
| 109 | 470375. | 4239116. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 110 | 471023. | 4238986. | 4 | G4 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 111 | 471774. | 4238696. | 3 | G3 | .000 | 0.000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 112 | 466560. | 4237236. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 113 | 466535. | 4237751. | 4 | G4 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 114 | 466719. | 4236272. | 5* | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 115 | 467414. | 4235964. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 116 | 466879. | 4235560. | 5* | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 117 | 466847. | 4234940. | 5* | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | 0.000 | .000 | .000 |
| 118 | 466589. | 4234672. | 5* | G5 | 0.000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 119 | 466127. | 4234532. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 120 | 466173. | 4235115. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 121 | 466073. | 4236498. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | 465524. | 4235798. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 123 | 465329. | 4234987. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | .661 | .000 | .000 | .339 |
| 124 | 465000. | 4234100. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 125 | 465310. | 4234016. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 126 | 465830. | 4233982. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 127 | 464439. | 4233895. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 128 | 464989. | 4233302. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 129 | 463894. | 4234628. | 5 | G5 | 0.000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 130 | 463847. | 4234920. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 131 | 463439. | 4235138. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 132 | 461878. | 4235743. | 6 | G6 | 0.000 | .000 | .000 | .000 | .000 | .999 | 0.000 | .000 | .001 |
| 133 | 461782. | 4235623. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 134 | 464383. | 4236774. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 135 | 464519. | 4236774. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 136 | 464922. | 4236968. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 137 | 464992. | 4237056. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 138 | 465479. | 4237508. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | .993 | .000 | .007 | .000 |
| 139 | 464976. | 4242788. | 3 | G3 | .000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 140 | 464963. | 4242680. | 3 | G3 | .000 | 0.000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 141 | 466103. | 4242696. | 4 | G4 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | 0.000 | .000 | .000 |
| 142 | 466322. | 4242068. | 8 | G8 | 0.000 | 0.000 | .000 | .000 | .020 | .000 | .000 | .980 | .000 |
| 143 | 466088. | 4242135. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 144 | 465871. | 4242256. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | 0.000 | 0.000 | 1.000 | .000 |
| 145 | 466924. | 4243106. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 |
| 146 | 466695. | 4243176. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | 0.000 | 0.000 | 1.000 | .000 |
| 147 | 466391. | 4243109. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 148 | 466127. | 4243244. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 149 | 465839. | 4243700. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 150 | 465351. | 4244098. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 151 | 465343. | 4243856. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 152 | 464375. | 4243996. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 153 | 463223. | 4243762. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 154 | 463487. | 4244236. | 4 | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | .000 | 0.000 | .000 | .000 |
| 155 | 467576. | 4241796. | 8* | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 156 | 467494. | 4241879. | 8* | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 157 | 467899. | 4242834. | 8* | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 158 | 468493. | 4242501. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 159 | 468375. | 4242438. | 8* | G8 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 160 | 468916. | 4242224. | 8* | G8 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 |
| 161 | 469277. | 4242116. | 8* | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 162 | 469359. | 4242255. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 163 | 469829. | 4242212. | 8* | G8 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 164 | 469931. | 4242244. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 165 | 468399. | 4241144. | 8* | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 166 | 468095. | 4241340. | 8* | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 167 | 467791. | 4240958. | 8* | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 168 | 467727. | 4241052. | 8* | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 169 | 467559. | 4241536. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 170 | 466855. | 4241716. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 171 | 462575. | 4241603. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 |
| 172 | 462175. | 4241764. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | .000 | 0.000 | .000 | .000 |
| 173 | 461727. | 4241982. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | .000 | 0.000 | .000 | .000 |
| 174 | 461470. | 4242028. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | .000 | 0.000 | .000 | .000 |
| 175 | 462750. | 4237450. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 176 | 462978. | 4237455. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 177 | 463587. | 4237502. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 178 | 463898. | 4237568. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 179 | 464197. | 4237580. | 5 | G5 | 0.000 | 0.000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 180 | 464508. | 4237724. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 181 | 464695. | 4237996. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .448 | .000 | 0.000 | .552 | .000 |
| 182 | 464631. | 4238130. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | .831 | 0.000 | 0.000 | .169 | 0.000 |
| 183 | 463813. | 4238147. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 184 | 463651. | 4238592. | 8 | G8 | .000 | .000 | .000 | .002 | .000 | .000 | .000 | .962 | .036 |
| 185 | 462815. | 4239116. | 3 | G3 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 186 | 466173. | 4239356. | 9 | M1 | .000 | .000 | .000 | .006 | .000 | .000 | .000 | .006 | .988 |
| 187 | 467007. | 4238813. | 9 | M1 | .000 | .000 | .000 | .002 | .000 | .000 | .000 | .000 | .998 |
| 188 | 467119. | 4238860. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 189 | 467695. | 4240336. | 8* | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 190 | 466951. | 4240151. | 3 | G3 | .000 | 0.000 | 1.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 191 | 466759. | 4240736. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 192 | 465831. | 4241020. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | .999 | .000 |
| 193 | 465095. | 4240708. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 194 | 465567. | 4240208. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 195 | 463305. | 4245364. | 4* | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 196 | 462862. | 4245635. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | .000 | 0.000 | .000 | .000 |
| 197 | 462946. | 4245780. | 4* | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 198 | 463823. | 4246219. | 8 | G8 | .000 | .000 | 0.000 | .000 | .000 | .019 | .000 | .911 | .070 |
| 199 | 463995. | 4246212. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 200 | 464431. | 4245968. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 201 | 464664. | 4245821. | 4 | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | .000 | 0.000 | 0.000 | .000 |
| 202 | 464950. | 4245952. | 4 | G4 | 0.000 | .000 | 0.000 | .694 | .000 | .000 | .000 | .237 | .069 |
| 203 | 465645. | 4245859. | 9* | M1 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| 204 | 466302. | 4245668. | 9* | M1 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205 | 466872. | 4244876. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 206 | 466981. | 4245211. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 207 | 467310. | 4245004. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 208 | 466335. | 4245176. | 4 | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | .000 | 0.000 | .000 | .000 |
| 209 | 465996. | 4244792. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | 0.000 | 0.000 | 1.000 | .000 |
| 210 | 464657. | 4244591. | 5 | G5 | 0.000 | .000 | 0.000 | .021 | .970 | .000 | 0.000 | .009 | .000 |
| 211 | 464487. | 4244826. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 212 | 464315. | 4244624. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 213 | 462861. | 4243314. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 214 | 463314. | 4242720. | 8 | G8 | 0.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 215 | 461095. | 4245524. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 |
| 216 | 459471. | 4246276. | 3* | G3 | .000 | 0.000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 217 | 459570. | 4246498. | 3* | G3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 218 | 460295. | 4246760. | 3* | G3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 219 | 460543. | 4247158. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 |
| 220 | 459111. | 4247300. | 3* | G3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 221 | 460015. | 4248344. | 8 | G8 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 222 | 460471. | 4248591. | 2 | G2 | .000 | .998 | 0.000 | 0.000 | .002 | 0.000 | .000 | .000 | .000 |
| 223 | 459535. | 4249688. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 224 | 459711. | 4249768. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 225 | 459563. | 4249465. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 226 | 462079. | 4251580. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 227 | 462951. | 4250916. | 8 | G8 | 0.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 228 | 462931. | 4250724. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 229 | 462854. | 4250632. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 230 | 462383. | 4250240. | 2 | G2 | .000 | .866 | 0.000 | 0.000 | .000 | 0.000 | .133 | .001 | .000 |
| 231 | 462533. | 4249980. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 232 | 462399. | 4249840. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 233 | 464159. | 4251448. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 234 | 464274. | 4251540. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 235 | 463877. | 4251944. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 236 | 466887. | 4246638. | 9* | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 237 | 466335. | 4247301. | 9* | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 238 | 466258. | 4247244. | 9* | M1 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| 239 | 466551. | 4246602. | 9* | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 240 | 461743. | 4248140. | 9 | M1 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 241 | 461647. | 4248020. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 242 | 461519. | 4248176. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 243 | 462703. | 4248204. | 8 | G8 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 244 | 463023. | 4248068. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .527 | .000 | .473 |
| 245 | 463063. | 4248119. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 246 | 461671. | 4246680. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 247 | 461631. | 4246758. | 4* | G4 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 248 | 461519. | 4246816. | 4* | G4 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | 0.000 | 0.000 | .000 | .000 |
| 249 | 462902. | 4239440. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 250 | 463471. | 4240248. | 9 | M1 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 251 | 463655. | 4240488. | 9 | M1 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | .006 | 0.000 | .994 |
| 252 | 465174. | 4239836. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 253 | 465211. | 4239680. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 254 | 464983. | 4239656. | 7 | G7 | 0.000 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 255 | 463583. | 4241348. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 256 | 464591. | 4242055. | 9 | M1 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 257 | 465383. | 4258789. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 258 | 464840. | 4258184. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 259 | 465055. | 4258076. | 1 | G1 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 260 | 465359. | 4258060. | 2 | G2 | .000 | .987 | 0.000 | 0.000 | .000 | 0.000 | .013 | .000 | .000 |
| 261 | 464610. | 4256962. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 262 | 464670. | 4256283. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 263 | 464423. | 4256088. | 8 | G8 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 264 | 464479. | 4256005. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 265 | 464126. | 4255424. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 266 | 464727. | 4255192. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 267 | 464879. | 4256220. | 9 | M1 | .000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 268 | 464961. | 4256262. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 269 | 465791. | 4257020. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 | .000 |
| 270 | 466120. | 4258012. | 7 | G7 | .000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 271 | 466207. | 4257979. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 272 | 461375. | 4252244. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 273 | 461604. | 4252503. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 274 | 461632. | 4252966. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 275 | 461996. | 4253452. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 276 | 461103. | 4253524. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 277 | 461015. | 4253819. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 278 | 460671. | 4253916. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 279 | 460469. | 4253668. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 280 | 460215. | 4253924. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 281 | 460079. | 4253615. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 282 | 460199. | 4251972. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 283 | 460255. | 4251788. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | .999 | 0.000 | .001 |
| 284 | 460799. | 4251732. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 285 | 461344. | 4251672. | 8 | G8 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 286 | 461640. | 4251520. | 8 | G8 | .000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 287 | 457199. | 4254520. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 288 | 457032. | 4254559. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 289 | 457055. | 4254128. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 290 | 456687. | 4253716. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 291 | 456463. | 4252965. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 292 | 456751. | 4252164. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .977 | .000 | .023 |
| 293 | 457180. | 4251762. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 294 | 456970. | 4251630. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 295 | 457359. | 4251203. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 296 | 457564. | 4251316. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 297 | 456847. | 4252772. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 298 | 456007. | 4253188. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 299 | 458305. | 4254060. | 7 | G7 | .000 | .248 | 0.000 | 0.000 | .000 | 0.000 | .752 | .000 | .000 |
| 300 | 458197. | 4254024. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .959 | .000 | .041 |
| 301 | 469455. | 4244989. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 302 | 470654. | 4245495. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 303 | 470703. | 4245419. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 304 | 469331. | 4244848. | 3 | G3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 |
| 305 | 469323. | 4245560. | 7 | G7 | .000 | .227 | 0.000 | 0.000 | .000 | 0.000 | .773 | .000 | .000 |
| 306 | 469860. | 4246318. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 307 | 469967. | 4246483. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 308 | 468343. | 4245388. | 8 | G8 | .000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 309 | 468135. | 4245592. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 310 | 467837. | 4245384. | 8 | G8 | .000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 311 | 471351. | 4242447. | 1 | G1 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 312 | 471277. | 4242447. | 7 | G7 | .000 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 313 | 471151. | 4242911. | 7 | G7 | .000 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 314 | 470935. | 4242872. | 7 | G7 | .000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 315 | 470333. | 4240594. | 7 | G7 | .000 | 0.000 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 316 | 470518. | 4251325. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 317 | 470407. | 4250564. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 318 | 470471. | 4250450. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 319 | 469422. | 4250552. | 6 | G6 | .005 | .000 | .000 | .000 | .000 | .995 | .000 | .000 | .000 |
| 320 | 468840. | 4250758. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 321 | 468391. | 4251248. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 322 | 467839. | 4251627. | 1* | G1 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 323 | 467351. | 4251856. | 7 | G7 | .000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 324 | 467471. | 4251743. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 325 | 467915. | 4250940. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 326 | 468119. | 4250826. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 327 | 467095. | 4250231. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | 1.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 328 | 467657. | 4249243. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .896 | .000 | .104 |
| 329 | 467664. | 4249360. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | .995 | 0.000 | .005 |
| 330 | 467868. | 4249524. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 331 | 468440. | 4249631. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | 1.000 |
| 332 | 468509. | 4249548. | 1 | G1 | 1.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 333 | 468470. | 4249408. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .997 | 0.000 | .003 |
| 334 | 468375. | 4249219. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 335 | 469237. | 4251403. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 336 | 466587. | 4253700. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 337 | 467126. | 4252688. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .042 | .000 | .958 |
| 338 | 466974. | 4251664. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 339 | 466625. | 4251647. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .997 | 0.000 | .003 |
| 340 | 466359. | 4251032. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 341 | 466259. | 4250860. | 7 | G7 | 0.000 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 342 | 466215. | 4250114. | 7 | G7 | .000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 343 | 465791. | 4249330. | 8 | G8 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 344 | 465375. | 4248880. | 7 | G7 | .000 | .022 | 0.000 | 0.000 | .000 | 0.000 | .978 | .000 | .000 |
| 346 | 464607. | 4248595. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 347 | 472295. | 4250446. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 348 | 472988. | 4250575. | 7 | G7 | .000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 349 | 465883. | 4250598. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 350 | 465650. | 4250834. | 9 | M1 | 0.000 | .000 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 351 | 465135. | 4250520. | 9 | M1 | .000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 352 | 465118. | 4249975. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 353 | 464831. | 4249919. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 354 | 464743. | 4249501. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 355 | 464167. | 4249333. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 356 | 463543. | 4249036. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 357 | 463627. | 4248867. | 7 | G7 | .011 | .000 | .000 | 0.000 | .000 | .000 | .989 | .000 | .000 |
| 358 | 464631. | 4252489. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 359 | 464954. | 4253216. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 360 | 465086. | 4253102. | 9 | M1 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| 361 | 465703. | 4253580. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | 1.000 |
| 362 | 466588. | 4253872. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .874 | .000 | .126 |
| 363 | 467015. | 4254524. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 364 | 468279. | 4255544. | 1* | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 0.000 |
| 365 | 469119. | 4256002. | 1* | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 366 | 469830. | 4256196. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 367 | 469582. | 4255008. | 9 | M1 | 0.000 | 0.000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| 368 | 470703. | 4252967. | 1* | G1 | 1.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 369 | 471270. | 4252272. | 1* | G1 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 370 | 465181. | 4259396. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 371 | 464623. | 4259396. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 372 | 463644. | 4259012. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .042 | .000 | .958 |
| 373 | 462582. | 4258527. | 5 | G5 | .000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 374 | 460727. | 4257454. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 375 | 460192. | 4256620. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 376 | 460055. | 4256557. | 1 | G1 | 1.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 377 | 458671. | 4256420. | 4 | G4 | 0.000 | .000 | 0.000 | .865 | .135 | .000 | 0.000 | .000 | .000 |
| 378 | 457665. | 4256191. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 379 | 456805. | 4255720. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 380 | 465895. | 4256004. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 381 | 465783. | 4255348. | 1 | G1 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 382 | 465791. | 4255208. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 383 | 462198. | 4256931. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 384 | 463399. | 4257132. | 2 | G2 | .000 | .959 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .041 |
| 385 | 463383. | 4256780. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 386 | 463711. | 4256212. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .007 | 0.000 | 0.000 | .993 | .000 |
| 387 | 463431. | 4256228. | 9 | M1 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 388 | 463335. | 4256100. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 389 | 463271. | 4255288. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 390 | 463055. | 4255060. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 391 | 462565. | 4254665. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 392 | 462470. | 4254779. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | .000 | 0.000 | .000 | .000 |
| 393 | 464628. | 4253852. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | .547 | .027 | .001 | .424 |
| 394 | 464056. | 4253708. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 395 | 463904. | 4253704. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 396 | 463624. | 4253536. | 8 | G8 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .005 | .995 | .000 |
| 397 | 462669. | 4252958. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 398 | 462758. | 4253103. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 399 | 451679. | 4246432. | 3 | G3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 400 | 451955. | 4246463. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 401 | 452333. | 4247064. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 402 | 452079. | 4247344. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 403 | 452695. | 4247956. | 8 | G8 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 404 | 452559. | 4248223. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 405 | 453127. | 4249352. | 2 | G2 | .000 | .992 | 0.000 | 0.000 | .008 | 0.000 | .000 | .000 | .000 |
| 406 | 453023. | 4249666. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 407 | 453231. | 4250172. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 408 | 452998. | 4251244. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 409 | 453151. | 4251816. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 410 | 452747. | 4252002. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 411 | 453439. | 4252852. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 412 | 453535. | 4253272. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 413 | 453271. | 4253540. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 414 | 453408. | 4253908. | 7 | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | .994 | .000 | .006 |
| 415 | 449367. | 4251096. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 416 | 449636. | 4251196. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 417 | 451199. | 4252716. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 418 | 451670. | 4252979. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 419 | 453266. | 4254668. | 3 | G3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | .000 |
| 420 | 454488. | 4255264. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | 1.000 |
| 421 | 455971. | 4256188. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 422 | 449143. | 4249884. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .005 | .000 | .995 |
| 423 | 449486. | 4248387. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 424 | 449127. | 4248028. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | .876 | 0.000 | .124 | .000 | .000 |
| 425 | 449111. | 4247451. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 426 | 449023. | 4246900. | 1 | G1 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 |
| 427 | 449999. | 4244978. | 4 | G4 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 |
| 428 | 448711. | 4245516. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 429 | 448188. | 4244399. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 430 | 451447. | 4242978. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 431 | 452439. | 4243356. | 5 | G5 | 0.000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | .000 |
| 432 | 452990. | 4243451. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 433 | 454391. | 4244140. | 8 | G8 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 434 | 455006. | 4244356. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 |
| 435 | 455610. | 4245750. | 9 | M1 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 436 | 454003. | 4246380. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 437 | 453979. | 4246654. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 438 | 453573. | 4246504. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 439 | 449612. | 4243900. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 440 | 450143. | 4247451. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 441 | 450532. | 4249263. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 442 | 450469. | 4250449. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 443 | 450993. | 4252068. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 444 | 451997. | 4252495. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 445 | 444231. | 4254603. | 7* | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 446 | 444111. | 4255276. | 7* | G7 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 447 | 444270. | 4255427. | 7* | G7 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 448 | 442956. | 4255172. | 7* | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 449 | 442931. | 4255344. | 7* | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 450 | 443907. | 4255860. | 7* | G7 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 451 | 443071. | 4256012. | 7* | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 452 | 443743. | 4256445. | 7* | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 453 | 443671. | 4256676. | 7* | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 454 | 443310. | 4257063. | 7* | G7 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 455 | 442853. | 4257148. | 7* | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 456 | 442423. | 4258356. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 457 | 442525. | 4258404. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 458 | 444399. | 4253504. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 459 | 444273. | 4252795. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 460 | 443815. | 4252240. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 461 | 443916. | 4252334. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 462 | 444438. | 4251588. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 463 | 444109. | 4250817. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 464 | 444271. | 4250651. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 465 | 444023. | 4250488. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 466 | 443902. | 4250076. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 467 | 443619. | 4249392. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 468 | 442487. | 4249740. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 469 | 442375. | 4249676. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 470 | 442518. | 4248864. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 471 | 441807. | 4248268. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 472 | 441359. | 4247827. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 473 | 441235. | 4247466. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 474 | 440455. | 4247407. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 475 | 445863. | 4254447. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 476 | 445903. | 4255056. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 477 | 446071. | 4254300. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 478 | 445956. | 4253128. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 479 | 446231. | 4252828. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 480 | 446215. | 4252356. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 481 | 446423. | 4252020. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 482 | 447271. | 4250416. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 483 | 447159. | 4250323. | 7 | G7 | .000 | .005 | 0.000 | 0.000 | .000 | 0.000 | .995 | .000 | .000 |
| 484 | 445815. | 4249352. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 485 | 445367. | 4249211. | 5 | G5 | .000 | .000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 486 | 449670. | 4258934. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 487 | 449484. | 4258684. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 488 | 449439. | 4258340. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 489 | 449095. | 4257788. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 490 | 448926. | 4257556. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 491 | 448479. | 4255973. | 9 | M1 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 |
| 492 | 4470[illegible]. | 4255666. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 493 | 447606. | 4254316. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 494 | 447800. | 4253802. | 4 | G4 | .000 | .000 | .000 | .988 | .000 | .004 | .000 | .000 | .009 |
| 495 | 446175. | 4256983. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 496 | 444728. | 4259812. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 497 | 444391. | 4260068. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 498 | 446191. | 4258606. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 499 | 446295. | 4258836. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 500 | 446965. | 4256331. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 501 | 456670. | 4255303. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 502 | 458679. | 4251155. | 8 | G8 | .000 | .000 | .000 | .189 | .000 | .000 | .000 | .787 | .024 |
| 503 | 457471. | 4247103. | 6 | G6 | 0.000 | 0.000 | .000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 504 | 457255. | 4247548. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | .000 | .031 | .969 | .000 |
| 505 | 456621. | 4248281. | 8 | G8 | .000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 506 | 458047. | 4250131. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 507 | 457445. | 4250287. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 508 | 456903. | 4250880. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 509 | 456135. | 4251126. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 510 | 455006. | 4247606. | 5 | G5 | .000 | .000 | .000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 |
| 511 | 454941. | 4246184. | 6 | G6 | .000 | 0.000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 512 | 454807. | 4246032. | 1 | G1 | 1.000 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 |
| 513 | 459671. | 4252310. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 514 | 459165. | 4252611. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 515 | 459204. | 4252756. | 1 | G1 | .996 | .004 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 516 | 459120. | 4253448. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 517 | 459223. | 4254279. | 1 | G1 | 1.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 518 | 459543. | 4254759. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 519 | 459511. | 4255196. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 520 | 459751. | 4255576. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 521 | 460204. | 4255516. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 522 | 460703. | 4255494. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 523 | 460759. | 4255532. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 524 | 440590. | 4249817. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 525 | 440911. | 4249752. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 526 | 441712. | 4250836. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 527 | 441541. | 4251955. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 528 | 441039. | 4251603. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 529 | 440407. | 4250947. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 530 | 440533. | 4250984. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 531 | 442446. | 4251607. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 532 | 442407. | 4253064. | 2 | G2 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 533 | 442676. | 4253340. | 2 | G2 | 0.000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | 0.000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 534 | 442183. | 4253290. | 7 | G7 | 0.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | .000 |
| 535 | 441711. | 4252848. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 536 | 441173. | 4252972. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 537 | 441143. | 4253118. | 1 | G1 | 1.000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 538 | 441182. | 4253448. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 539 | 440142. | 4253504. | 9 | M1 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 540 | 440727. | 4253806. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 541 | 440557. | 4253844. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 542 | 441063. | 4254831. | 7* | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 543 | 440735. | 4255008. | 7 | G7 | .000 | .000 | 0.000 | .000 | .000 | .000 | 1.000 | 0.000 | .000 |
| 544 | 439973. | 4254932. | 1 | G1 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 545 | 439917. | 4255040. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 546 | 439813. | 4256767. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 548 | 442293. | 4255794. | 7* | G7 | .000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 549 | 441920. | 4255911. | 7* | G7 | .000 | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 |
| 550 | 441598. | 4256236. | 7* | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 551 | 441367. | 4255952. | 7* | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 552 | 441268. | 4256149. | 7* | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 553 | 441767. | 4257860. | 7* | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 554 | 441359. | 4257830. | 7* | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 555 | 441351. | 4257700. | 7* | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 556 | 441335. | 4258276. | 8 | G8 | .000 | .000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 | .000 |
| 557 | 441039. | 4258212. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 558 | 440838. | 4258512. | 1 | G1 | 1.000 | .000 | .000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 559 | 440767. | 4258797. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 560 | 441023. | 4259646. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | 0.000 |
| 561 | 441591. | 4259516. | 2 | G2 | .000 | .951 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .049 |
| 562 | 440324. | 4259524. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 563 | 440526. | 4260321. | 9 | M1 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 |
| 564 | 440407. | 4261603. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 565 | 440540. | 4261647. | 2 | G2 | .132 | .868 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 566 | 439415. | 4259870. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 567 | 439191. | 4260076. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 568 | 439183. | 4261028. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 569 | 439158. | 4261484. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 570 | 438863. | 4258356. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 571 | 438711. | 4258060. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 572 | 438887. | 4256592. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 573 | 438911. | 4255436. | 2* | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | .000 |
| 574 | 438959. | 4254876. | 2* | G2 | 0.000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | .000 |
| 575 | 439302. | 4253668. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 576 | 438946. | 4260932. | 2* | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 577 | 438855. | 4260032. | 2* | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 578 | 440646. | 4259740. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 579 | 440955. | 4260463. | 2 | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 580 | 438575. | 4259444. | 2* | G2 | .000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 581 | 436632. | 4260299. | 7 | G7 | .000 | .000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | .000 | .000 |
| 582 | 436439. | 4260306. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 583 | 436375. | 4259970. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 584 | 437331. | 4255196. | 2* | G2 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 585 | 435247. | 4258283. | 1 | G1 | .999 | .001 | 0.000 | 0.000 | .000 | 0.000 | .000 | .000 | .000 |
| 586 | 435207. | 4258116. | 7 | G7 | .000 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 |
| 587 | 435103. | 4256151. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 588 | 435571. | 4254835. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 589 | 436319. | 4253840. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 590 | 437526. | 4253868. | 2 | G2 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 591 | 438316. | 4253219. | 1 | G1 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 592 | 437204. | 4252001. | 2 | G2 | 0.000 | 1.000 | 0.000 | 0.000 | .000 | 0.000 | .000 | 0.000 | 0.000 |
| 593 | 439351. | 4252635. | 1 | G1 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 594 | 439335. | 4251752. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 595 | 439711. | 4249104. | 2 | G2 | .000 | .644 | 0.000 | .356 | .000 | .000 | .000 | .000 | .000 |
| 596 | 439535. | 4246427. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 597 | 439840. | 4245981. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 598 | 439798. | 4245264. | 8 | G8 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 599 | 439831. | 4244532. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 0.000 |
| 600 | 440344. | 4244276. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 601 | 440415. | 4243736. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | 1.000 | .000 |
| 602 | 440351. | 4242938. | 2 | G2 | .000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 603 | 441095. | 4242140. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 604 | 442555. | 4242665. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 605 | 442863. | 4243220. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 606 | 443111. | 4243060. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | .999 | .000 | .000 | .001 |
| 607 | 443665. | 4243572. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 608 | 443696. | 4244460. | 9 | M1 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .001 | .999 |
| 609 | 441658. | 4243368. | 8 | G8 | 0.000 | 0.000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 610 | 441852. | 4243957. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 611 | 441711. | 4244876. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 612 | 441375. | 4245240. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 613 | 441884. | 4246083. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | .000 | 0.000 | 0.000 |
| 614 | 442423. | 4244352. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 615 | 442647. | 4245298. | 9 | M1 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 616 | 443147. | 4245688. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 617 | 443320. | 4246309. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 618 | 443774. | 4245848. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | 0.000 | .000 | .000 |
| 619 | 444007. | 4246704. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 620 | 444391. | 4247807. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 621 | 443641. | 4249028. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 622 | 441567. | 4247488. | 2 | G2 | .000 | .999 | 0.000 | .000 | .000 | .001 | .000 | .000 | .000 |
| 623 | 440957. | 4247028. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 624 | 443860. | 4247568. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 625 | 445511. | 4247331. | 2 | G2 | .000 | .940 | .000 | .000 | .000 | .000 | .000 | .000 | .060 |
| 626 | 445679. | 4247641. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | 0.000 | .000 | .000 |
| 627 | 447071. | 4248134. | 2 | G2 | .000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 628 | 447236. | 4248469. | 4 | G4 | .000 | .000 | 0.000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 629 | 447634. | 4249330. | 5 | G5 | .000 | .000 | 0.000 | .000 | .752 | .000 | .000 | .000 | .248 |
| 630 | 448504. | 4249356. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 632 | 446894. | 4247532. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 633 | 447326. | 4247624. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 634 | 448790. | 4249424. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 635 | 448856. | 4249767. | 8 | G8 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | 1.000 | .000 |
| 636 | 448703. | 4248688. | 9 | M1 | .000 | .000 | 0.000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 637 | 445775. | 4245120. | 2 | G2 | .000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 638 | 445653. | 4244950. | 4 | G4 | .000 | .000 | .000 | .998 | .000 | .000 | .000 | .000 | .002 |
| 639 | 445479. | 4245275. | 2 | G2 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 640 | 444647. | 4245360. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | .997 | .003 | 0.000 | .000 | .000 |
| 641 | 444332. | 4245751. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 642 | 444303. | 4244323. | 2 | G2 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 643 | 444587. | 4243833. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 644 | 444839. | 4243932. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 645 | 444907. | 4243252. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 646 | 445119. | 4243271. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 647 | 445543. | 4243776. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 648 | 447575. | 4244951. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 649 | 447508. | 4244152. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 650 | 448071. | 4245516. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | 0.000 | .000 |
| 651 | 447087. | 4256282. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 652 | 447956. | 4253282. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 653 | 447887. | 4251638. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 655 | 449199. | 4252494. | 4 | G4 | .000 | .000 | 0.000 | .990 | .000 | .000 | .000 | .010 | .000 |
| 656 | 452614. | 4255291. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 657 | 452175. | 4255903. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 658 | 452151. | 4256460. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 659 | 451907. | 4256692. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 660 | 451287. | 4256251. | 6* | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 661 | 450775. | 4256438. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 662 | 449855. | 4257243. | 6* | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 663 | 449948. | 4257340. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 664 | 452079. | 4257492. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 665 | 451247. | 4259388. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 666 | 451231. | 4260036. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 667 | 451322. | 4260071. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 668 | 451776. | 4258388. | 6* | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 669 | 452207. | 4258828. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 670 | 452223. | 4260180. | 1 | G1 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 671 | 451957. | 4260012. | 3 | G3 | .000 | 0.000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 672 | 452743. | 4258914. | 3 | G3 | .000 | 0.000 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 673 | 452839. | 4258876. | 3 | G3 | .000 | 0.000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 |
| 674 | 452982. | 4258430. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 675 | 453064. | 4258328. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 676 | 445901. | 4250324. | 5 | G5 | 0.000 | .000 | 0.000 | .000 | 1.000 | .000 | .000 | .000 | .000 |
| 677 | 445687. | 4250756. | 7 | G7 | 0.000 | 0.000 | 0.000 | 0.000 | .000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 678 | 446294. | 4251159. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 679 | 447175. | 4251731. | 5 | G5 | 0.000 | 0.000 | 0.000 | 0.000 | .999 | 0.000 | .001 | 0.000 | 0.000 |
| 680 | 447877. | 4251632. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 681 | 448324. | 4246800. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 682 | 448156. | 4246426. | 4 | G4 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 | .000 | .000 |
| 683 | 448831. | 4246251. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | .719 | 0.000 | .000 | .281 |
| 684 | 448056. | 4243372. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 685 | 447494. | 4242876. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .315 | .000 | .000 | .685 |
| 686 | 437719. | 4256903. | 2* | G2 | .000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 687 | 438903. | 4257245. | 2 | G2 | .000 | .998 | .000 | .000 | .000 | .002 | .000 | .000 | .000 |
| 688 | 439119. | 4255067. | 2 | G2 | .000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 689 | 453447. | 4244928. | 6 | G6 | 0.000 | 0.000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 690 | 453591. | 4245892. | 1 | G1 | 1.000 | 0.000 | .000 | 0.000 | .000 | .000 | 0.000 | .000 | 0.000 |
| 691 | 452855. | 4257727. | 7 | G7 | .005 | .000 | .000 | .000 | .000 | .000 | .995 | .000 | .000 |
| 692 | 452926. | 4257668. | 2 | G2 | .000 | 1.000 | 0.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 693 | 453055. | 4256756. | 9 | M1 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 |
| 694 | 453284. | 4255852. | 1 | G1 | 1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| 695 | 453407. | 4255216. | 7 | G7 | .000 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 |
| 696 | 452744. | 4254692. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 697 | 453023. | 4254952. | 6 | G6 | .000 | .000 | .000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 698 | 448431. | 4252796. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | .997 | 0.000 | .000 | .003 |
| 699 | 448172. | 4253344. | 9 | M1 | 0.000 | .000 | 0.000 | .000 | .000 | .000 | 0.000 | .000 | 1.000 |
| 700 | 447941. | 4253808. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |

TABLE C-1 (CONTINUED)

| Sample Number | Mercator Coordinates Easting | Northing | Training Area | Class | Probability for Each Class G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | M1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 701 | 447767. | 4254200. | 4 | G4 | .000 | .000 | 0.000 | .997 | .000 | .000 | .000 | .000 | .003 |
| 702 | 450023. | 4253199. | 6 | G6 | .000 | .000 | 0.000 | .000 | .000 | 1.000 | .000 | .000 | .000 |
| 703 | 449935. | 4253364. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 704 | 450047. | 4253388. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | .983 | 0.000 | .000 | .017 |
| 705 | 450856. | 4253163. | 6 | G6 | 0.000 | .000 | 0.000 | .000 | .000 | 1.000 | 0.000 | .000 | .000 |
| 0 | 0. | 0. | 10 | UNKNOWN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

TABLE D-1
LIST OF
FORCASTED MINERAL EXPLOITATION INDEX
AND
RESIDUALS

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 435000 | 4262000 | 0.000 | -99.000 | -99.000 |
| 435000 | 4261000 | 0.000 | -99.000 | -99.000 |
| 435000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 435000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 435000 | 4258000 | 0.000 | 2.587 | -2.587 |
| 435000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 435000 | 4256000 | 0.000 | 2.142 | -2.142 |
| 435000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 435000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 436000 | 4262000 | 0.000 | -99.000 | -99.000 |
| 436000 | 4261000 | 0.000 | -99.000 | -99.000 |
| 436000 | 4260000 | 0.000 | .718 | -.718 |
| 436000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 436000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 436000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 436000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 436000 | 4255000 | 0.000 | 1.756 | -1.756 |
| 436000 | 4254000 | 0.000 | -.312 | .312 |
| 436000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4262000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4261000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4260000 | 0.000 | 1.298 | -1.298 |
| 437000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4255000 | 0.000 | -1.112 | 1.112 |
| 437000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 437000 | 4252000 | 0.000 | -.120 | .120 |
| 438000 | 4262000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4261000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4257000 | 0.000 | 1.245 | -1.245 |
| 438000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4254000 | 0.000 | -1.244 | 1.244 |
| 438000 | 4253000 | 0.000 | .877 | -.877 |
| 438000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 438000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 439000 | 4262000 | 0.000 | -99.000 | -99.000 |
| 439000 | 4261000 | 0.000 | .156 | -.156 |
| 439000 | 4260000 | 0.000 | -.442 | .442 |
| 439000 | 4259000 | 0.000 | -.778 | .778 |
| 439000 | 4258000 | 0.000 | -1.087 | 1.087 |
| 439000 | 4257000 | 4.000 | -.060 | 4.060 |
| 439000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 439000 | 4255000 | 0.000 | -1.486 | 1.486 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 439000 | 4254000 | 0.000 | 1.254 | -1.254 |
| 439000 | 4253000 | 0.000 | .001 | -.001 |
| 439000 | 4252000 | 0.000 | -.048 | .048 |
| 439000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 439000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4262000 | 0.000 | .602 | -.602 |
| 440000 | 4261000 | 3.000 | -99.000 | -99.000 |
| 440000 | 4260000 | 0.000 | .890 | -.890 |
| 440000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4257000 | 0.000 | .355 | -.355 |
| 440000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4255000 | 0.000 | -1.052 | 1.052 |
| 440000 | 4254000 | 0.000 | 3.862 | -3.862 |
| 440000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4251000 | 0.000 | 1.510 | -1.510 |
| 440000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4249000 | 0.000 | 1.649 | -1.649 |
| 440000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 440000 | 4247000 | 0.000 | 1.610 | -1.610 |
| 440000 | 4246000 | 0.000 | 1.790 | -1.790 |
| 440000 | 4245000 | 0.000 | 1.269 | -1.269 |
| 440000 | 4244000 | 0.000 | 1.333 | -1.333 |
| 440000 | 4243000 | 0.000 | -.281 | .281 |
| 440000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 441000 | 4262000 | 0.000 | .640 | -.640 |
| 441000 | 4261000 | 0.000 | -99.000 | -99.000 |
| 441000 | 4260000 | 0.000 | -.541 | .541 |
| 441000 | 4259000 | 0.000 | -.527 | .527 |
| 441000 | 4258000 | 0.000 | 2.392 | -2.392 |
| 441000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 441000 | 4256000 | 0.000 | .144 | -.144 |
| 441000 | 4255000 | 0.000 | -1.167 | 1.167 |
| 441000 | 4254000 | 0.000 | -1.467 | 1.467 |
| 441000 | 4253000 | 0.000 | .273 | -.273 |
| 441000 | 4252000 | 9.000 | .294 | 8.706 |
| 441000 | 4251000 | 0.000 | .848 | -.848 |
| 441000 | 4250000 | 0.000 | -.584 | .584 |
| 441000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 441000 | 4248000 | 0.000 | .263 | -.263 |
| 441000 | 4247000 | 0.000 | .548 | -.548 |
| 441000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 441000 | 4245000 | 0.000 | 2.933 | -2.933 |
| 441000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 441000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 441000 | 4242000 | 0.000 | 1.616 | -1.616 |
| 442000 | 4260000 | 0.000 | -2.902 | 2.902 |
| 442000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 442000 | 4258000 | 0.000 | -.860 | .860 |
| 442000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 442000 | 4256000 | 0.000 | .808 | -.808 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | |
|---|---|---|---|---|
| Easting | Northing | Index | Index | Residuals |
| 442000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 442000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 442000 | 4253000 | 0.000 | .399 | -.399 |
| 442000 | 4252000 | 0.000 | -.200 | .200 |
| 442000 | 4251000 | 0.000 | .200 | -.200 |
| 442000 | 4250000 | 0.000 | -.097 | .097 |
| 442000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 442000 | 4248000 | 0.000 | -2.791 | 2.791 |
| 442000 | 4247000 | 0.000 | 1.889 | -1.889 |
| 442000 | 4246000 | 0.000 | .832 | -.832 |
| 442000 | 4245000 | 0.000 | 1.441 | -1.441 |
| 442000 | 4244000 | 0.000 | .788 | -.788 |
| 442000 | 4243000 | 0.000 | 1.691 | -1.691 |
| 442000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4258000 | 0.000 | .665 | -.665 |
| 443000 | 4257000 | 0.000 | .693 | -.693 |
| 443000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4255000 | 0.000 | .646 | -.646 |
| 443000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4253000 | 0.000 | .675 | -.675 |
| 443000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4249000 | 0.000 | -.253 | .253 |
| 443000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4246000 | 0.000 | 1.703 | -1.703 |
| 443000 | 4245000 | 0.000 | 1.861 | -1.861 |
| 443000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 443000 | 4243000 | 0.000 | 1.994 | -1.994 |
| 443000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 444000 | 4260000 | 0.000 | 2.102 | -2.102 |
| 444000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 444000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 444000 | 4257000 | 0.000 | -3.644 | 3.644 |
| 444000 | 4256000 | 0.000 | -3.159 | 3.159 |
| 444000 | 4255000 | 0.000 | -.305 | .305 |
| 444000 | 4254000 | 0.000 | 1.182 | -1.182 |
| 444000 | 4253000 | 0.000 | -.303 | .303 |
| 444000 | 4252000 | 0.000 | -.130 | .130 |
| 444000 | 4251000 | 0.000 | -.970 | .970 |
| 444000 | 4250000 | 0.000 | -1.478 | 1.478 |
| 444000 | 4249000 | 0.000 | -1.207 | 1.207 |
| 444000 | 4248000 | 0.000 | -.241 | .241 |
| 444000 | 4247000 | 0.000 | -.030 | .030 |
| 444000 | 4246000 | 0.000 | -1.104 | 1.104 |
| 444000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 444000 | 4244000 | 0.000 | 1.259 | -1.259 |
| 444000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 444000 | 4242000 | 0.000 | -99.000 | -99.000 |

TABLE D-1 CONTINUED

| Mercator Easting | Coordinates Northing | Inital Mineral Index | Forcasted Mineral Exploration Index | Residuals |
|---|---|---|---|---|
| 445000 | 4260000 | 0.000 | 1.900 | -1.900 |
| 445000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4256000 | 1.000 | -99.000 | -99.000 |
| 445000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4249000 | 0.000 | -1.766 | 1.766 |
| 445000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 445000 | 4245000 | 0.000 | -.675 | .675 |
| 445000 | 4244000 | 0.000 | 1.276 | -1.276 |
| 445000 | 4243000 | 0.000 | -.621 | .621 |
| 445000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 446000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 446000 | 4259000 | 1.000 | 1.405 | -.405 |
| 446000 | 4258000 | 1.000 | -99.000 | -99.000 |
| 446000 | 4257000 | 0.000 | .740 | -.740 |
| 446000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 446000 | 4255000 | 0.000 | -4.909 | 4.909 |
| 446000 | 4254000 | 0.000 | -2.693 | 2.693 |
| 446000 | 4253000 | 0.000 | -2.633 | 2.633 |
| 446000 | 4252000 | 0.000 | -1.123 | 1.123 |
| 446000 | 4251000 | 0.000 | -1.246 | 1.246 |
| 446000 | 4250000 | 0.000 | .419 | -.419 |
| 446000 | 4249000 | 0.000 | -.511 | .511 |
| 446000 | 4248000 | 0.000 | .373 | -.373 |
| 446000 | 4247000 | 0.000 | -1.356 | 1.356 |
| 446000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 446000 | 4245000 | 0.000 | -.722 | .722 |
| 446000 | 4244000 | 0.000 | -.309 | .309 |
| 446000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 446000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4256000 | 1.000 | 3.406 | -2.406 |
| 447000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4252000 | 0.000 | -2.093 | 2.093 |
| 447000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4250000 | 0.000 | -1.517 | 1.517 |
| 447000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4248000 | 0.000 | -1.105 | 1.105 |
| 447000 | 4247000 | 0.000 | -99.000 | -99.000 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 447000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 447000 | 4243000 | 0.000 | 1.172 | -1.172 |
| 447000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4256000 | 0.000 | 1.053 | -1.053 |
| 448000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4254000 | 0.000 | 2.248 | -2.248 |
| 448000 | 4253000 | 0.000 | 3.320 | -3.320 |
| 448000 | 4252000 | 0.000 | 2.181 | -2.181 |
| 448000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4249000 | 0.000 | .052 | -.052 |
| 448000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 448000 | 4247000 | 0.000 | .440 | -.440 |
| 448000 | 4246000 | 0.000 | 1.022 | -1.022 |
| 448000 | 4245000 | 0.000 | .057 | -.057 |
| 448000 | 4244000 | 0.000 | -.301 | .301 |
| 448000 | 4243000 | 0.000 | .061 | -.061 |
| 448000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4259000 | 0.000 | .244 | -.244 |
| 449000 | 4258000 | 0.000 | .230 | -.230 |
| 449000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4252000 | 0.000 | 3.520 | -3.520 |
| 449000 | 4251000 | 0.000 | -4.439 | 4.439 |
| 449000 | 4250000 | 0.000 | -.013 | .013 |
| 449000 | 4249000 | 0.000 | .832 | -.832 |
| 449000 | 4248000 | 0.000 | -.551 | .551 |
| 449000 | 4247000 | 0.000 | -2.437 | 2.437 |
| 449000 | 4246000 | 0.000 | .160 | -.160 |
| 449000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 449000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4259000 | 0.000 | 1.473 | -1.473 |
| 450000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4257000 | 0.000 | -.027 | .027 |
| 450000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4253000 | 0.000 | 2.662 | -2.662 |
| 450000 | 4252000 | 0.000 | -99.000 | -99.000 |

TABLE D-1 CONTINUED

| Mercator Easting | Coordinates Northing | Inital Mineral Index | Forcasted Mineral Exploration Index | Residuals |
|---|---|---|---|---|
| 450000 | 4251000 | 0.000 | -3.345 | 3.345 |
| 450000 | 4250000 | 0.000 | -.741 | .741 |
| 450000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4247000 | 0.000 | -1.008 | 1.008 |
| 450000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4245000 | 0.000 | -1.263 | 1.263 |
| 450000 | 4244000 | 0.000 | -3.116 | 3.116 |
| 450000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 450000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4260000 | 0.000 | .839 | -.839 |
| 451000 | 4259000 | 0.000 | 2.536 | -2.536 |
| 451000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4257000 | 0.000 | .568 | -.568 |
| 451000 | 4256000 | 0.000 | -.013 | .013 |
| 451000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4253000 | 0.000 | -.809 | .809 |
| 451000 | 4252000 | 0.000 | -.247 | .247 |
| 451000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4249000 | 0.000 | 1.781 | -1.781 |
| 451000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 451000 | 4243000 | 0.000 | -1.055 | 1.055 |
| 451000 | 4242000 | 1.000 | -99.000 | -99.000 |
| 452000 | 4260000 | 2.000 | 2.036 | -.036 |
| 452000 | 4259000 | 0.000 | .526 | -.526 |
| 452000 | 4258000 | 2.000 | .150 | 1.850 |
| 452000 | 4257000 | 0.000 | 1.680 | -1.680 |
| 452000 | 4256000 | 0.000 | 2.595 | -2.595 |
| 452000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4253000 | 0.000 | .061 | -.061 |
| 452000 | 4252000 | 0.000 | .949 | -.949 |
| 452000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4247000 | 0.000 | -.948 | .948 |
| 452000 | 4246000 | 0.000 | -2.114 | 2.114 |
| 452000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 452000 | 4243000 | 0.000 | -1.143 | 1.143 |
| 452000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 453000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 453000 | 4259000 | 0.000 | 2.172 | -2.172 |
| 453000 | 4258000 | 1.000 | 1.397 | -.397 |
| 453000 | 4257000 | 1.000 | 2.972 | -1.972 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 453000 | 4256000 | 0.000 | .642 | -.642 |
| 453000 | 4255000 | 0.000 | 1.128 | -1.128 |
| 453000 | 4254000 | 0.000 | -.466 | .466 |
| 453000 | 4253000 | 0.000 | .051 | -.051 |
| 453000 | 4252000 | 0.000 | .407 | -.407 |
| 453000 | 4251000 | 0.000 | .503 | -.503 |
| 453000 | 4250000 | 0.000 | -1.148 | 1.148 |
| 453000 | 4249000 | 0.000 | -.848 | .848 |
| 453000 | 4248000 | 0.000 | -1.352 | 1.352 |
| 453000 | 4247000 | 4.000 | -99.000 | -99.000 |
| 453000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 453000 | 4245000 | 0.000 | .304 | -.304 |
| 453000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 453000 | 4243000 | 0.000 | .799 | -.799 |
| 454000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4255000 | 0.000 | 5.374 | -5.374 |
| 454000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4253000 | 0.000 | 1.321 | -1.321 |
| 454000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4247000 | 0.000 | -.440 | .440 |
| 454000 | 4246000 | 0.000 | -.591 | .591 |
| 454000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 454000 | 4244000 | 0.000 | .139 | -.139 |
| 454000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4248000 | 0.000 | -.755 | .755 |
| 455000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4246000 | 0.000 | -.044 | .044 |
| 455000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 455000 | 4244000 | 0.000 | 3.390 | -3.390 |
| 455000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4256000 | 0.000 | 4.744 | -4.744 |
| 456000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4253000 | 0.000 | 1.534 | -1.534 |

TABLE D-1 CONTINUED

| Mercator Easting | Coordinates Northing | Inital Mineral Index | Forcasted Mineral Exploration Index | Residuals |
|---|---|---|---|---|
| 456000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4251000 | 0.000 | .752 | -.752 |
| 456000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 456000 | 4246000 | 0.000 | .728 | -.728 |
| 456000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 457000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 457000 | 4256000 | 0.000 | .698 | -.698 |
| 457000 | 4255000 | 0.000 | 2.433 | -2.433 |
| 457000 | 4254000 | 0.000 | 2.560 | -2.560 |
| 457000 | 4253000 | 0.000 | 3.077 | -3.077 |
| 457000 | 4252000 | 0.000 | .756 | -.756 |
| 457000 | 4251000 | 0.000 | .200 | -.200 |
| 457000 | 4250000 | 0.000 | 1.507 | -1.507 |
| 457000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 457000 | 4248000 | 0.000 | 1.914 | -1.914 |
| 457000 | 4247000 | 0.000 | 2.778 | -2.778 |
| 457000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 457000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4256000 | 0.000 | 1.067 | -1.067 |
| 458000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4254000 | 0.000 | 2.002 | -2.002 |
| 458000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4251000 | 1.000 | .883 | .117 |
| 458000 | 4250000 | 0.000 | 1.540 | -1.540 |
| 458000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 458000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 459000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 459000 | 4256000 | 0.000 | -.957 | .957 |
| 459000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 459000 | 4254000 | 0.000 | 3.166 | -3.166 |
| 459000 | 4253000 | 0.000 | 1.093 | -1.093 |
| 459000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 459000 | 4251000 | 0.000 | 1.885 | -1.885 |
| 459000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 459000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 459000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 459000 | 4247000 | 0.000 | -2.030 | 2.030 |
| 459000 | 4246000 | 0.000 | 2.094 | -2.094 |
| 459000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 460000 | 4257000 | 0.000 | 1.461 | -1.461 |
| 460000 | 4256000 | 0.000 | 2.401 | -2.401 |
| 460000 | 4255000 | 0.000 | 4.886 | -4.886 |
| 460000 | 4254000 | 0.000 | .212 | -.212 |
| 460000 | 4253000 | 0.000 | -99.000 | -99.000 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 460000 | 4252000 | 1.000 | 1.010 | -.010 |
| 460000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 460000 | 4250000 | 0.000 | .263 | -.263 |
| 460000 | 4249000 | 0.000 | .278 | -.278 |
| 460000 | 4248000 | 0.000 | 1.600 | -1.600 |
| 460000 | 4247000 | 0.000 | -.987 | .987 |
| 460000 | 4246000 | 0.000 | -1.759 | 1.759 |
| 460000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 461000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 461000 | 4257000 | 0.000 | 1.489 | -1.489 |
| 461000 | 4256000 | 0.000 | 2.185 | -2.185 |
| 461000 | 4255000 | 0.000 | 2.861 | -2.861 |
| 461000 | 4254000 | 0.000 | .162 | -.162 |
| 461000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 461000 | 4252000 | 0.000 | .698 | -.698 |
| 461000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 461000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 461000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 461000 | 4248000 | 9.000 | -99.000 | -99.000 |
| 461000 | 4247000 | 0.000 | -.548 | .548 |
| 461000 | 4246000 | 0.000 | 3.498 | -3.498 |
| 461000 | 4245000 | 0.000 | .766 | -.766 |
| 462000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4257000 | 0.000 | -.311 | .311 |
| 462000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4255000 | 0.000 | -.066 | .066 |
| 462000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4253000 | 0.000 | 2.087 | -2.087 |
| 462000 | 4252000 | 0.000 | 1.523 | -1.523 |
| 462000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4250000 | 0.000 | -.086 | .086 |
| 462000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4248000 | 1.000 | 1.596 | -.596 |
| 462000 | 4247000 | 0.000 | .537 | -.537 |
| 462000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4245000 | 0.000 | 1.118 | -1.118 |
| 462000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4241000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4240000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4239000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4238000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4237000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4236000 | 0.000 | -.316 | .316 |
| 462000 | 4235000 | 0.000 | -99.000 | -99.000 |
| 462000 | 4234000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4259000 | 0.000 | 1.555 | -1.555 |
| 463000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4257000 | 0.000 | 1.208 | -1.208 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 463000 | 4256000 | 0.000 | 1.845 | -1.845 |
| 463000 | 4255000 | 0.000 | .907 | -.907 |
| 463000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4253000 | 0.000 | 1.058 | -1.058 |
| 463000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4251000 | 0.000 | 3.245 | -3.245 |
| 463000 | 4250000 | 0.000 | .198 | -.198 |
| 463000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4248000 | 0.000 | 1.163 | -1.163 |
| 463000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4246000 | 0.000 | 3.800 | -3.800 |
| 463000 | 4245000 | 0.000 | 2.098 | -2.098 |
| 463000 | 4244000 | 8.000 | 1.879 | 6.121 |
| 463000 | 4243000 | 0.000 | 2.335 | -2.335 |
| 463000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4241000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4240000 | 0.000 | 2.215 | -2.215 |
| 463000 | 4239000 | 0.000 | .884 | -.884 |
| 463000 | 4238000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4237000 | 0.000 | 1.075 | -1.075 |
| 463000 | 4236000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4235000 | 0.000 | -.409 | .409 |
| 463000 | 4234000 | 0.000 | -99.000 | -99.000 |
| 463000 | 4233000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4259000 | 0.000 | 1.513 | -1.513 |
| 464000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4256000 | 0.000 | 1.863 | -1.863 |
| 464000 | 4255000 | 0.000 | 1.657 | -1.657 |
| 464000 | 4254000 | 0.000 | 2.027 | -2.027 |
| 464000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4252000 | 0.000 | 2.254 | -2.254 |
| 464000 | 4251000 | 0.000 | 1.220 | -1.220 |
| 464000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4249000 | 0.000 | 2.014 | -2.014 |
| 464000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4246000 | 0.000 | 2.304 | -2.304 |
| 464000 | 4245000 | 0.000 | 2.918 | -2.918 |
| 464000 | 4244000 | 0.000 | 1.770 | -1.770 |
| 464000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4241000 | 0.000 | 1.018 | -1.018 |
| 464000 | 4240000 | 0.000 | -.498 | .498 |
| 464000 | 4239000 | 0.000 | 1.717 | -1.717 |
| 464000 | 4238000 | 0.000 | 1.112 | -1.112 |
| 464000 | 4237000 | 1.000 | .925 | .075 |
| 464000 | 4236000 | 0.000 | -99.000 | -99.000 |
| 464000 | 4235000 | 0.000 | .851 | -.851 |
| 464000 | 4234000 | 0.000 | 1.622 | -1.622 |
| 464000 | 4233000 | 3.000 | -99.000 | -99.000 |

TABLE D-1 CONTINUED

| Mercator Easting | Coordinates Northing | Inital Mineral Index | Forcasted Mineral Exploration Index | Residuals |
|---|---|---|---|---|
| 464000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 465000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 465000 | 4259000 | 0.000 | 1.131 | -1.131 |
| 465000 | 4258000 | 0.000 | .225 | -.225 |
| 465000 | 4257000 | 0.000 | 1.750 | -1.750 |
| 465000 | 4256000 | 0.000 | 1.548 | -1.548 |
| 465000 | 4255000 | 0.000 | 3.208 | -3.208 |
| 465000 | 4254000 | 0.000 | 1.932 | -1.932 |
| 465000 | 4253000 | 0.000 | 1.147 | -1.147 |
| 465000 | 4252000 | 0.000 | 4.080 | -4.080 |
| 465000 | 4251000 | 0.000 | 2.207 | -2.207 |
| 465000 | 4250000 | 0.000 | 1.700 | -1.700 |
| 465000 | 4249000 | 0.000 | .258 | -.258 |
| 465000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 465000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 465000 | 4246000 | 0.000 | 2.080 | -2.080 |
| 465000 | 4245000 | 0.000 | 2.887 | -2.887 |
| 465000 | 4244000 | 0.000 | 1.741 | -1.741 |
| 465000 | 4243000 | 0.000 | -.426 | .426 |
| 465000 | 4242000 | 0.000 | .839 | -.839 |
| 465000 | 4241000 | 0.000 | 1.204 | -1.204 |
| 465000 | 4240000 | 0.000 | 1.017 | -1.017 |
| 465000 | 4239000 | 0.000 | -99.000 | -99.000 |
| 465000 | 4238000 | 0.000 | 1.461 | -1.461 |
| 465000 | 4237000 | 1.000 | 1.149 | -.149 |
| 465000 | 4236000 | 0.000 | -99.000 | -99.000 |
| 465000 | 4235000 | 0.000 | -.551 | .551 |
| 465000 | 4234000 | 0.000 | 1.963 | -1.963 |
| 465000 | 4233000 | 0.000 | .760 | -.760 |
| 465000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 465000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4260000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4258000 | 0.000 | -.995 | .995 |
| 466000 | 4257000 | 0.000 | 1.436 | -1.436 |
| 466000 | 4256000 | 0.000 | .544 | -.544 |
| 466000 | 4255000 | 0.000 | 2.153 | -2.153 |
| 466000 | 4254000 | 0.000 | 5.919 | -5.919 |
| 466000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4251000 | 0.000 | 1.304 | -1.304 |
| 466000 | 4250000 | 0.000 | .821 | -.821 |
| 466000 | 4249000 | 0.000 | 1.018 | -1.018 |
| 466000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4247000 | 0.000 | 1.735 | -1.735 |
| 466000 | 4246000 | 20.000 | 18.600 | 1.400 |
| 466000 | 4245000 | 0.000 | .758 | -.758 |
| 466000 | 4244000 | 0.000 | 2.717 | -2.717 |
| 466000 | 4243000 | 0.000 | .589 | -.589 |
| 466000 | 4242000 | 0.000 | .939 | -.939 |
| 466000 | 4241000 | 0.000 | 1.679 | -1.679 |
| 466000 | 4240000 | 0.000 | 1.284 | -1.284 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 466000 | 4239000 | 0.000 | 3.256 | -3.256 |
| 466000 | 4238000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4237000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4236000 | 0.000 | -3.802 | 3.802 |
| 466000 | 4235000 | 0.000 | 2.000 | -2.000 |
| 466000 | 4234000 | 0.000 | .015 | -.015 |
| 466000 | 4233000 | 0.000 | .898 | -.898 |
| 466000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 466000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4259000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4256000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4255000 | 0.000 | -8.687 | 8.687 |
| 467000 | 4254000 | 0.000 | 3.916 | -3.916 |
| 467000 | 4253000 | 0.000 | 2.263 | -2.263 |
| 467000 | 4252000 | 0.000 | .558 | -.558 |
| 467000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4247000 | 0.000 | 1.810 | -1.810 |
| 467000 | 4246000 | 0.000 | 7.027 | -7.027 |
| 467000 | 4245000 | 0.000 | 2.212 | -2.212 |
| 467000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4243000 | 0.000 | .988 | -.988 |
| 467000 | 4242000 | 0.000 | 1.677 | -1.677 |
| 467000 | 4241000 | 0.000 | .930 | -.930 |
| 467000 | 4240000 | 0.000 | 1.160 | -1.160 |
| 467000 | 4239000 | 0.000 | 3.178 | -3.178 |
| 467000 | 4238000 | 0.000 | 2.196 | -2.196 |
| 467000 | 4237000 | 0.000 | -1.337 | 1.337 |
| 467000 | 4236000 | 0.000 | -4.420 | 4.420 |
| 467000 | 4235000 | 0.000 | -5.326 | 5.326 |
| 467000 | 4234000 | 0.000 | -.229 | .229 |
| 467000 | 4233000 | 0.000 | 2.204 | -2.204 |
| 467000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 467000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4258000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4256000 | 0.000 | -3.261 | 3.261 |
| 468000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4252000 | 0.000 | -1.519 | 1.519 |
| 468000 | 4251000 | 0.000 | .784 | -.784 |
| 468000 | 4250000 | 0.000 | 2.447 | -2.447 |
| 468000 | 4249000 | 0.000 | 1.141 | -1.141 |
| 468000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4246000 | 0.000 | 1.809 | -1.809 |
| 468000 | 4245000 | 0.000 | -.072 | .072 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 468000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4243000 | 0.000 | .696 | -.696 |
| 468000 | 4242000 | 0.000 | 2.368 | -2.368 |
| 468000 | 4241000 | 0.000 | 2.001 | -2.001 |
| 468000 | 4240000 | 0.000 | 3.108 | -3.108 |
| 468000 | 4239000 | 0.000 | 1.299 | -1.299 |
| 468000 | 4238000 | 0.000 | -99.000 | -99.000 |
| 468000 | 4237000 | 0.000 | -.694 | .694 |
| 468000 | 4236000 | 0.000 | -4.176 | 4.176 |
| 468000 | 4235000 | 0.000 | -1.451 | 1.451 |
| 468000 | 4234000 | 0.000 | -.264 | .264 |
| 468000 | 4233000 | 0.000 | -.282 | .282 |
| 468000 | 4232000 | 0.000 | 2.029 | -2.029 |
| 468000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4257000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4256000 | 0.000 | -1.183 | 1.183 |
| 469000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4251000 | 0.000 | -.593 | .593 |
| 469000 | 4250000 | 0.000 | .333 | -.333 |
| 469000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4248000 | 0.000 | 5.307 | -5.307 |
| 469000 | 4247000 | 0.000 | 2.637 | -2.637 |
| 469000 | 4246000 | 0.000 | 2.602 | -2.602 |
| 469000 | 4245000 | 0.000 | .883 | -.883 |
| 469000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 469000 | 4242000 | 0.000 | 2.324 | -2.324 |
| 469000 | 4241000 | 0.000 | 1.394 | -1.394 |
| 469000 | 4240000 | 0.000 | 1.729 | -1.729 |
| 469000 | 4239000 | 0.000 | 1.789 | -1.789 |
| 469000 | 4238000 | 0.000 | 1.959 | -1.959 |
| 469000 | 4237000 | 0.000 | 1.241 | -1.241 |
| 469000 | 4236000 | 0.000 | -.548 | .548 |
| 469000 | 4235000 | 0.000 | -1.507 | 1.507 |
| 469000 | 4234000 | 0.000 | -2.492 | 2.492 |
| 469000 | 4233000 | 0.000 | 2.796 | -2.796 |
| 469000 | 4232000 | 1.000 | -99.000 | -99.000 |
| 469000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4256000 | 0.000 | 1.157 | -1.157 |
| 470000 | 4255000 | 0.000 | -.998 | .998 |
| 470000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4251000 | 0.000 | .135 | -.135 |
| 470000 | 4250000 | 0.000 | -1.675 | 1.675 |
| 470000 | 4249000 | 0.000 | 4.825 | -4.825 |
| 470000 | 4248000 | 0.000 | 6.626 | -6.626 |
| 470000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4246000 | 0.000 | .752 | -.752 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 470000 | 4245000 | 0.000 | 3.383 | -3.383 |
| 470000 | 4244000 | 0.000 | 4.154 | -4.154 |
| 470000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4242000 | 0.000 | 3.779 | -3.779 |
| 470000 | 4241000 | 0.000 | .831 | -.831 |
| 470000 | 4240000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4239000 | 0.000 | 2.881 | -2.881 |
| 470000 | 4238000 | 0.000 | 2.264 | -2.264 |
| 470000 | 4237000 | 0.000 | 2.657 | -2.657 |
| 470000 | 4236000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4235000 | 0.000 | 1.656 | -1.656 |
| 470000 | 4234000 | 0.000 | 1.689 | -1.689 |
| 470000 | 4233000 | 0.000 | 1.766 | -1.766 |
| 470000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 470000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4255000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4253000 | 0.000 | -.796 | .796 |
| 471000 | 4252000 | 0.000 | -1.457 | 1.457 |
| 471000 | 4251000 | 0.000 | -3.573 | 3.573 |
| 471000 | 4250000 | 0.000 | 2.457 | -2.457 |
| 471000 | 4249000 | 12.000 | 4.225 | 7.775 |
| 471000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4245000 | 0.000 | .452 | -.452 |
| 471000 | 4244000 | 0.000 | 1.277 | -1.277 |
| 471000 | 4243000 | 0.000 | 2.044 | -2.044 |
| 471000 | 4242000 | 1.000 | .623 | .377 |
| 471000 | 4241000 | 1.000 | 1.769 | -.769 |
| 471000 | 4240000 | 0.000 | 2.085 | -2.085 |
| 471000 | 4239000 | 0.000 | 2.647 | -2.647 |
| 471000 | 4238000 | 0.000 | 1.757 | -1.757 |
| 471000 | 4237000 | 0.000 | 1.841 | -1.841 |
| 471000 | 4236000 | 0.000 | 2.099 | -2.099 |
| 471000 | 4235000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4234000 | 0.000 | 1.842 | -1.842 |
| 471000 | 4233000 | 0.000 | 1.933 | -1.933 |
| 471000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 471000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4254000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4251000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4250000 | 0.000 | 3.044 | -3.044 |
| 472000 | 4249000 | 0.000 | 2.642 | -2.642 |
| 472000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4243000 | 0.000 | -99.000 | -99.000 |

TABLE D-1 CONTINUED

| Mercator Coordinates | | Inital Mineral | Forcasted Mineral Exploration | Residuals |
|---|---|---|---|---|
| Easting | Northing | Index | Index | |
| 472000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4241000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4240000 | 0.000 | .398 | -.398 |
| 472000 | 4239000 | 0.000 | 1.217 | -1.217 |
| 472000 | 4238000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4237000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4236000 | 2.000 | -99.000 | -99.000 |
| 472000 | 4235000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4234000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4233000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 472000 | 4231000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4253000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4252000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4251000 | 0.000 | 1.381 | -1.381 |
| 473000 | 4250000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4249000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4248000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4247000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4246000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4245000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4244000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4243000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4242000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4241000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4240000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4239000 | 0.000 | 1.647 | -1.647 |
| 473000 | 4238000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4237000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4236000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4235000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4234000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4233000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4232000 | 0.000 | -99.000 | -99.000 |
| 473000 | 4231000 | 0.000 | -99.000 | -99.000 |

APPENDIX E

TABLE E-1

GEOCHEMICAL CHARACTERISTICS FOR MASSIVE SULFIDE DEPOSITS

| | |
|---|---|
| Lithology: | Basic to acid metavolcanic rocks; epidote amphibolites; biotite, quartz, chlorite schists; biotite quartz gneiss; quartz feldspar geniss. |
| Ore: | Pyrite and pyrrhotite represent 50% of the sulfides, sphalerite, chalcopyrite, and galena in variable proportions make up about 50%. Total sulfides make up 30 to 100% of the rock. Ba, Cd, Au, Ag, Se, Te, and Bi minerals appear in trace quantities. |
| Gangue: | Quartz, calcite |
| Zoning: | May or may not be present. In the massive ore copper increases toward the altered pipe in the footwall and lead and zinc increase away from the altered pipe. The altered pipelike zone in the footwall may contain veinlets and stringers of pyrite and chalcopyrite with traces of sphalerite. |
| Alteration: | Confined to the footwall. When zoned, the center contains pyrite, pyrrhotite, and chalcopyrite in veinlets and disseminated in massive chlorite. This zone grades out to massive sericite. The footwall altered zones enlarge upward to the diameter of the massive zone. |
| References: | Sangster (1972)<br>Cameron (1975)<br>Large and Both (1980)<br>Pedersen (1980) |

TABLE E-2

GEOCHEMICAL CHARACTERISTICS FOR THORIUM VEIN DEPOSITS

| | |
|---|---|
| Lithology: | Occurs in gneiss, migmatite, and granite. Shows a very slight preference for granite over biotite gneiss. |
| Ore: | Thorogummite, thorite. Most thorium minerals are detected only by radioactivity. |
| Gangue: | Red and yellow iron oxides, quartz, barite, carbonate minerals, minor fluorite, and sulfide minerals. |
| Alteration: | Vein material extensively feldspathized, locally silicified. |
| Structure: | Veins, 10 to 50' wide, are shattered rock zones located along faults. The two most common fault directions in the study area are west-northwest, and northeast. Veins cut foliation trends in the metamorphic rocks. |
| References: | Singewald and Brock (1956)<br>Phair and Fisher (1961)<br>Christman, et al. (1959) |

TABLE E-3

GEOCHEMICAL CHARACTERISTICS FOR CARBONATITES

| | |
|---|---|
| Lithology: | Alkaline rocks generally in the form of ring complexes or nested intrusive centers. |
| Ore: | Often complex assemblages of rare earth elements and minerals such as pyrochlore, apatite, copper sulphides, hematite, fluorite, and barite. Niobium, titanium, and zirconium often present. |
| Gangue: | Calcite, siderite and contact metamorphic skarn minerals such as vesuvianite, grossularite, epidote and wollastonite. |
| Alteration: | Fenitization (alkali metasomatism) dominant and characteristic alteration type. |
| Reference: | Heinrich (1966)<br>Verwoerd (1967) |

TABLE E-4

GEOCHEMICAL CHARACTERISTICS FOR URANIUM DEPOSITS

Two potential target types exist within project area:

1. Uranium within the sedimentary environment as typified by the Tallahassee Creek uranium deposits.

2. Uranium within the metamorphic environment as typified by the Schwartzwalder deposit of the Ralston Buttes District of the Colorado Front Range.

Uranium within the Sedimentary Environment

(Tallahassee Creek type deposits)

Lithology: Clastics and volcaniclastic rocks resultant from fluvial and lacustrine depositional environments. Principal host units are the Echo Park Alluvium of Eocene age and the Tallahassee Creek Conglomerate of early Oligocene age.

Mineralization: Ore zones are roughly stratiform, stratabound, bodies resembling the lenticular ore bodies within the Westwater Canyon member of the Morrison Formation within the Grants District. Deposition has occurred along oxidation/reduction contacts with organic material and clay mineralization serving as reducing/fixation agents. Unoxidized mineralization is identified as uraninite and coffinite but the existance of an urano-organic complex cannot be discounted. Oxidized mineralization consists of a wide range of secondary uranium minerals.

Reference: Babcock (1980)

TABLE E-4
(continued)

Uranium within the Metamorphic Environment
(Schwartzwalder-type Deposit)

| | |
|---|---|
| Lithology: | Gneisses and schists of the metamorphic complex of the Colorado Front Range ("Idaho Springs Formation"). Preference for more brittle of these units such as quartz biotite gneiss and/or garnetiferous biotite gneiss implying some element of structural preparation for later uranium concentration/deposition. Deposits may result from metamorphic mobilization/concentration of uranium mineralization in essentially syngenetic relationship with protolith units. |
| Structure: | Deposits localized within structural elements often secondary to principal tectonic features. |
| Ore: | Dominantly monomineralic deposits consisting principally of uraninite (pitchblende) with minor iron, copper, lead, and molybdenum sulphides. Carbon is present. |
| Gangue: | Adularia, quartz, calcite, siderite |
| Zoning: | None apparent either horizontally or vertically. |
| Alteration: | Hematization and feldspathization |
| Reference: | Sheridan et al. (1967) |