Initials: Aa

File Name: 37589

Commodity: Ag As Au Cu Mo Pb Zn

Country: USA

State/Province: NEVADA

County: NYE

Project: SMOKY

Date: 1977

Title/Subject: OPERATIONS REPORTS AND RECOMMENDATIONS

Notes:

#_____Oversize Doc(s) _____Assay Data _____Log(s)

Map Scale:_____

T: 012 N 013 N

R: 044E 045E

S:

LETTER REPORT

Smoky Project
Nye County, Nevada
December 1977

The Smoky Project property was brought to the attention of the Company by Mr. John Hajek in 1975. Mr. Hajek had located an anomalously high moly geochem sample in a spring draining into a dry lake area in Smoky Valley. The expectation was that the sample represented drainage through a hidden intrusive in a pediment. IP lines were laid out and run from the bounding Toquima Range to the east over the fanglomerate down to the lake bed. The IP work plus a ground magnetometer survey did not indicate the presence of the hoped for pediment. However, several anomalous zones were indicated in and near the foothill section of the property. Follow-up IP work subsequently delineated six anomalous zones. Two of these anomalies were drilled immediately and the results proved that the IP anomalies were caused by highly-conductive carbonaceous limestones and shales. Of the six original IP anomalies only one exhibited a relatively high resistivity response different from the other five including the two anomalies drilled. Because of the location, in the hills, of this singular anomaly and the lack of more substansive indicators, such as positive geochem results, it was decided to conduct a Z.E.R.O. (Zonge Engineering & Research Organization) Complex Resistivity survey on the anomalous zrea.

Z.E.R.O. Survey

The Z.E.R.O. Survey crew ran a 1/2 spread dipole-dipole survey with an "a" of 500 feet with an "n" separation of 6. This configuration provided a penetration in excess of 1600 feet and since the original depth estimate was in the order of 400-600 feet, the coverage was more than adequate.

The Z.E.R.O. report concludes that the response generated, although anomalous, is caused ~~the~~ by graphite (sic) and pyrite. I would tend to argue against the graphite as there is little to no evidence of high-grade metamorphism in the area but since there is no indication of copper the difference is perhaps academic.

Conclusions

1. The original concept of this NE anomaly being "different" from the others on the Smoky Project was substatniated by the Z.E.R.O. report sentence, "The high resistivities encountered on this survey are a little unusual for the amount of polarization present, . . ." And, "One should inquire as to the possibility of sulfides other than pyrite being associated with the large response observed on this line." In other words Zonge has ruled out chalcopyrite but not other conductive minerals that he cannot discriminate such as molybdenite, gold, silver, etc.

2. The surface in this area is completely devoid of any alteration or mineralization that can be observed. This condition is very similar to the situation at the Continental Mine, New Mexico across the Barringer fault from Hanover Mountain in Shingle Canyon. There also the surface is barren limestone but the anomaly drilled there was found to consist of about 250 feet of high grade magnetite underlain by 100 feet of copper sulfides.

Smoky Project (Cont'd)

3. I cannot conclude that this anomaly has been adequately explained or that the Zonge survey results are completely negative.

4. Unless Management is adamant in terminating this project, I would propose expanding the holdings in this NE anomaly area based on a regular IP survey to delineate the extent of this anomaly to the east. Also, additional claims located to the west to adjoin the original Hajek claims would be beneficial. Finally, one drill hole, to a maximum depth of 600 feet would be necessary to determine the anomaly causative.

Respectfully submitted,

George S. Ryan
Geophysicist
December 7, 1977

M E M O R A N D U M

TO: Gaylon W. Hansen DATED: May 31, 1977

FROM: G. S. Ryan

RE: Utilization of Complex Resistivity Surveys on On-Going Company Projects

Subject to the satisfactory completion of the survey undertaken at the Pinos Altos, New Mexico property, I would like to suggest the use of such work at other project areas. The Pinos Altos survey was designed as a recon survey because of the nature of the terrain and vegetation and the expected pervasive pyrite dissemination. Ordinarily, because of the high cost, a cheaper recon IP survey would be run to identify reasonable target zones for the Complex Resistivity method to test.

This memo is presented to suggest where the CR method could be used advantageously on Company properties where IP anomalies have been located but as yet not drilled or otherwise evaluated.

Bayard Area -

1. The Shingle Canyon Anomaly is located in mineralogically virgin country in that there are no old mines or shafts in the anomalous zone. Geochem survey results were ambiguous in that they showed high concentrations of various minerals considerably displaced from the IP highs. It is presumed that this anomaly has not been drilled because of its location near Kerr McGee property - about 30% of the anomaly is on KM ground. A two-day CR Survey might determine if the causative mineralization is of the economic type or pyritic. If it should prove to be cuperferous, it could affect future planning of the mine operations. There is a possibility, because of the proximity to the Shingle Canyon Zinc Mine and the high geochem results, that the main economic mineral might be sphalerite. The presence of zinc would not be discerned with the CR survey but a zinc deposit would not affect the present mine planning in any case.

A two-day CR survey would cost about $2000 and would help maintain the low profile of activity we have maintained in that area since the anomaly discovery in 1971. A $1000 mob-demob cost could be eliminated if the survey was programmed at this time while the CR crew is located at Silver City completing the Pinos Altos survey.

2. The Powder House Anomaly would require a maximum of one day's work ($1000) because it is known to be a long and narrow feature. The location could easily be ascertained by using very short dipoles. The cause and precise location of this anomaly should be ascertained because of its general location in the mine complex.

3. The Intrusive Anomaly would be a more complex test than the previous two suggested

surveys; however, in lieu of high-cost drilling, a CR survey offers the only viable solution to determining the presence of economic mineralization. A one-half block, 1000 foot dipole-dipole survey should be considered for this area. The survey would take two days ($2000) and could be a major consideration in the future of the Fierro area.

Other Areas

1. The Smoky Project is a perfect case for the utilization of the CR concept. Five of seven anomalous zones are apparently carbonaceous in nature as determined by IP interpretation and the drilling of two of the anomalies. One anomaly has a non-carbonaceous character in the IP response but no surface indications of mineralization. Being on the edge of a caldera the area is characterized by geological turbulence. Since CR can discrimate carbonaceous or graphitic response the method would be especially applicable to the Smoky area. At present the consensus of the Department is to eliminate or farm out this property. Admittedly if the only alternative was to construct the necessary road and drill site and then drill the zone on the basis of the one IP line that crosses it the cost probably could not be justified. A one day survey, besides indicating the character of mineralization, would also indicate the eastern limits of mineralization. Mr. Zonge has indicated that there would be no mobilization charge if the work could be done as a tie-in with other surveys they might have in that part of Nevada. To that end he has agreed to notify me of any such surveys they undertake in Central Nevada this summer.

2. The Mammoth Mine area in Shasta County, California would be amenable to a CR survey on the basis by which the Pinos Altos survey was initiated; however, because of the high cost, estimated to be about $50,000, this area perhaps should be one that is covered with a normal IP survey before the CR work is considered. The reasons for consideration of geophysical surveys of this area, at this time, were put forth in my memo of April 5, 1977. Whether IP or CR should be utilized would require discussions with Management as to costs and ultimate exploration objectives in the area.

The consideration of the capabilities of the CR method must be urged in all future exploration endeavors. This is a new tool with the potential of revolutionizing exploration procedures and getting the very most out of the exploration dollar. As Ussram was one of the first to utilize the IP method in the '40's it is hoped that UVI will be among the first to take advantage of this new method, Complex Resistivity.

GEOLOGY OF SMOKY PROJECT

LOCATION

The Smoky Valley lies at an approximate elevation of 6000 feet. It is bordered to the west by the very steep Toiyabe Range; to the east Smoky Valley is fringed by the Toquima Range. The Smoky Project is located at the contact of the pediment and the base of Toquima Range on the drainage from Mt. Ziggurat.

SURFACE GEOLOGY

Very little can be said about surface geology in the immediate area. Most of the area is covered pediment. Due to the association of the Smoky Project and the Northumberland Canyon Caldera what outcrop is seen is very hard to correlate. The Smoky Project is located in the intracaldera portion of the caldera. The main IP anomaly appears to be centered over a paleozoic sedimentary block which is confined between two major east-west faults. This sedimentary block is about 3/4 mile wide and consists mainly of blackish grey limestones with areas of brown to tan thin bedded sandy shales. As this is part of the collapse within the caldera, no strike and dip on the beds are possible which would be at all valid. To the east but still within this sedimentary block the limestones are much more silicified and have a cherty appearance but the bedding characteristics are still very prominent.

Mt. Ziggurat immediately to the southeast of the area of interest is a rhyolite dome which is considered to be an intrusion. This dome shows little alteration other than normal weathering. This so called intrusion sits directly on the edge of the caldera with the southernmost fault of the paleozoic block passing just north of the intrusion. The rocks directly to the east and west of the intrusion consist of water sorted tuffs and old buried stream channels. Mt. Ziggurat and the surrounding tuffs are approximatley 23 million years old (McKee, 1974) and are of oligocene age.

The only other rock group in the area is a massive sheet of tuffs, classified as the Northumberland Tuffs. They are directly related to the Northumberland Caldera as a product of its formation. They are dated as Oligocene and Miocene.

PREVIOUS WORK

The oldest work in the area is a shaft believed to be put down by the Chinese for gold. The shaft is 150 feet deep and is located in the middle of the wash just west of Mt. Ziggurat. This shaft apparently was to reach bedrock for placer gold similar to Round Mountain.

Later, but date unknown, two shafts were sunk on structures, I refer to as Copper Hill veins, which are in the immediate area of interest. Neither of these shafts were very deep; both being only about 100 feet. One was on a NE-SW fault structure and the other was on a brecciated vein about 3 feet wide and striking N 15° W with a dip of

66° E. This vein shows oxide copper and is the only mineral seen in the area. Due to its close relationship to the fault it is possible that the copper is leakage from a deeper source which it is hoped the IP anomaly represents.

The most recent work was 1967 in a gold - mercury prospect which lies east-southeast of Mt. Ziggurat. This was not examined due to its being out of the area of interest.

CONCLUSIONS AND RECOMMENDATIONS

A geologic map showing the rock outcrop and surface workings, and geochemical maps of Cu , Mo , As , and Hg over the area of interest are available in the Exploration Office for more detail. The geochemical maps of Cu , and Mo , show a close relationship to the IP results, the As , and Hg , however, do not show as much; therefore, it is suggested that further geochemical testing be done on a closer grid pattern to further enhance the target areas.

It is also suggested that several (3 or 4) test holes be drilled to test the main IP anomalies. Any further drilling should be based on the results of these test holes.

Alan Seelos

Alan Seelos
Geologist

Albers, J. P., and Kleinhampl, F. J., 1970, Spatial relations of Mineral Deposits to Tertiary Volcanic Centers in Nevada, in Geological Survey Research 1970: U. S. Geol. Survey Prof. Paper 700-C, p. C1-C10

Kleinhampl, F. J., and Zoiny, J. I., 1967, Preliminary Geological Map of Northern Nye County, Nevada: U. S. Geol. Survey Open-file Map, Scale 1:200,000

McKee, E. H., 1974, Northumberland Caldera and Northumberland Tuff, in Guidebook to the Geology of Four Tertiary Volcanic Centers in Central Nevada: Nevada Bureau of Mines & Geology Report 19, 72p.

Shawe, D. R., Poole, F. G., and Brobst, D. A., 1967, Bedded Barite in East Northumberland Canyon, Nye County, Nevada: U. S. Geol. Survey Circ. 555, 8 p.

Shawe, D. R., Poole, F. G. & Brobst, D. A., 1967, Newly Discovered Bedded Barite Deposits in East Northumberland Canyon, Nye County, Nevada: Econ. Geology, Vol. 64, No. 3, p. 245-254.

PRELIMINARY REPORT
ON THE
SMOKY PROJECT
NYE COUNTY, NEVADA

LOCATION

The Smoky Project area is located 12 miles east of Highway 8-A approximatley 13 miles north of Round Mountain, Nye County, Nevada. The area is included on two USGS 7 1/2 quad sheets; Jet Spring and Carvers NE, Nevada.

Access is by ten miles of improved dirt road across the alkali flat from Highway 8-A mainly on the road labeled "Moniter Valley via Moores Creek." From the eastern side of the flat the property can be approached by several unimproved dirt roads that are in good condition.

BACKGROUND

The area was brought to the Company's attention by John Hajek, a geochemist, who had noted unusual values of molybdenum ions in springs issuing from the eastern edge of the alkali flat. Mr. Hajek determined the restricted zone of anomalous emissions and presumed that the ions were transported by ground water from the mountainous area three miles easterly through the alluvial or pediment material to where the springs are located. Since the alluvium masked most of the six to seven square miles in question the location of the source by any method was beyond the means of any individual of limited finances. At this point the project was brought to the attention of UV personnel. Since there was no record or indication of any extensive mining or even exploration within the zone indicated by Mr. Hajek's work, the possibility of there being a buried or blind orebody of major proportions was considered worth a minimum expenditure. The Company leased Mr. Hajeks seven claims and spent six days in April 1975 running a recon IP survey to determine the presence, if any, of anomalous subsurface conditions. This survey was augmented by geochem soil samples obtained at the 800 foot interval IP stations along the four lines established.

GEOPHYSICS

Induced Polarization: In general the recon IP survey consisted of 800, 1600, and 2400 foot search depths obtained at 800 foot intervals along each of four lines. These lines were not presurveyed and were oriented at random directions to cover the area of interest in a minimum of time. Contour maps and profiles of the IP results are located in the Exploration office. A discussion of these results follows on an individual line basis with a summation at the conclusion.

Line X - This, the original line was begun east of the sole intrusive (rhyolite) exposed in the immediate project area. For maximum efficiency of operation, this line followed the canyon drainage and then the access road for a total of 6 1/2 miles to the west to the edge of the alkali flat.

The beginning (east end) of this line was characterized by a fairly high but reasonable

background of 10 milliseconds and 80 to 100 ohm feet resistivity. A potential dipole anomaly was noted at station 72 + 00W with a broader based deep anomaly following at station 95 + 00W. These two small anomalies were verified and detailed later by running the line to the east with 400 foot moves and with a 300 foot search depth.

Between stations 120 + 00W and 160 a good looking anomaly was obtained that was characterized by an equal and consistent differential between each of the three depths. This anomaly was interpreted as being a side effect rather than a response from a source below the line.

From station 220 + 00W a gradual chargeability gradient was noted that contined to the end of the line at station 340 + 00W. This anomaly is believed to be caused by coupling effects due to clays, possibly saline water, and at least below 800 feet saturated valley fill material. The following observations lead to this conclusion: 1) The drop in resistivity values commences at the start of the positive chargeability gradient and continues to the end of the line with the greater part of the deep search depth values being below the suspect 75 ohm feet reading. 2) The signal on the receiver became erratic which is a characteristic of such areas. 3) The deep search depth readings tend to oscilate as can be noted on the profiles. 4) The 800 foot resistivity values are higher than the others which might indicate better drainage characteristics and a semi-saturation of the deeper sands and gravels. 5) A pediment edge believed to be located near station 220 + 00W based on the resistivity profiles. 6) Depth tests run at stations 335 + 00W and 272 + 00W were atypical of normal mineralization.

All of the above was taken in consideration in the decision to exclude the rest of the supposed lower pediment area from this survey.

Line Y - This line had been preplanned as a medial line between lines X and Z, the edges of the area of interest, but because of the results of line X it was decided to progress normally to the north to determine the location of the center of the anomaly noted at station 120 + 00W on L-X. The results on this line are extremely favorable in that the values indicate a good continuation of the anomalous trend to the NNE at reasonably higher values. There is a good differential in the values with depth but with closures that would indicate the causative is not displaced laterally.

There is a slight indication that the line was terminated at the pediment edge near station 220 + 00W in that the shallower values appear to be starting to climb and the resistivity values are sharply dropping.

Line Z - The continuation of the anomaly favorably noted on the other two lines is not only seen on the profiles of this line but considerably enhanced. The magnitude of the chargeability values is greater but perhaps of more importance the juxtaposition of the resistivity low and the chargeability highs in the positive bedrock environment is well demonstrated. The high resistivity values to the west is again shown on this line.

The higher chargeability values obtained on this line can be partly explained by the lack of barren cover along this line compared to at least some depth of detrital material known to exist over the anomalous portions of lines X and Y. The oxidation zone

along this line appears to be about 200 feet deep but this depth is probably applicable to the bedrock material on the other two lines also.

Again this line was terminated when the observed values appeared to be about to repeat the pediment edge phenomena observed on lines X and Y.

Line α - This line was located and run in a manner and direction to most expeditiously determine the north and south edges of the favorable anomaly. To the north this determination was made at the location of a known major E-W structure. Because of time limitations the line was not extended beyond that point as good practice would dictate; however, the broad alluvial valley north of the structure did not appear promising and since the north edge of the valley was bordered by massive tuffs it is doubtful that anything was lost by terminating the line at the structure.

A very interesting break in the anomaly occurred between 93 + 00N and 109 + 00N, depending on the search depth, where lower chargeability values were obtained. This break is too broad to represent a simple fault displacement of a continuous mineralized zone. Therefore, it must be considered as a separate target. This break is also indicated on the resistivity profile as a broad semi-shallow (1600 feet) feature. Surprisingly the rather gross, 800 foot spaced, geochem sampling also showed an anomalously low Cu value at this break.

A south edge of the favorable anomaly was also determined to be at or near Line-X; however, continuing south on this line a new anomaly is encountered at station 25 + 00N and appeared to be improving, particularly at the deeper search depths, at the end of the line. The resistivities associated with this southern anomaly are quite high indicating that the chargeability values are indeed coming from a definite pediment or bedrock source rather than a deepening alluvial fan or valley fill condition.

Contour Maps - The IP contour maps show that the main anomaly is centered in or near to a definite outcrop area considerably elevated above the surrounding pediment or outwash valley. For identification purposes this zone will be referred to as anomaly "A" indicating that it is the primary target albeit not the only one. For original testing purposes any drilling locations should be sited near the lines as located in the field. Since the entire quadrant to the NE has not been run with IP the contour lines shown therein must be considered questionable.

Anomaly "B" must be considered separately from Anomaly "A" and in case of negative results from the testing of "A" this zone should be tested near the IP line with special care taken to locate south of the E-W structure noted before.

Anomaly "C" is a much weaker target than the previous two and harder to pin down on the basis of the present data. The best interpretation that can be made is that it represents a vertical zone of mineralization. Again this could really be two vertical zones neither of which shows enhancement with depth. Rather than normal veins or narrow massive mineralization it appears, because of the indicated width, that this anomaly might represent a vertical fracture system. The surface geology provides no help in that it is generally volcanic tuffs with some incised channels filled with detrital material and valley fill clays and gravels. The rhyolite intrusive, Mr. Ziggurat, is located 1/2 mile due east of this anomaly. East of intrusive 1/2 mile there was a small mercury and gold operation in the 1960's.

If possible it would be best to delay testing this anomaly until additional work could

be done to determine the attitude, strike, and extent of the mineralization laterally. The depth to mineralization on the western part of this anomaly, station 82 + 00W, is believed to be about 240 feet.

Anomaly "D" is apparently the north edge of what appears to be an extensive mineralized zone. Although some mineralization must exist along the present line, as they show up on the results of the 800 foot search depth, the deeper search depth values are so much stronger that there is a good possibility that an apex exists just south of the major drainage wherein station 0 + 00, Line $\propto$ lies. Additional IP work is definitely needed in this area before any other testing is considered.

Anomaly "Z" is so designated because of the extremely remote possibility that it is at all meaningful. Testing of this area should be considered as a last resort or as a means to satisfy any doubts as to IP interpretation. In view of the high Geochem results obtained in the spring areas encompassed by this anomaly such doubts could certainly be considered reasonable.

Depth Tests - Again, due to the time factor, the depth tests were not run with enough stations to detail the curves for exact interpretation; however, where meaningful the interpreted depths to sulfides are shown on the plots of the depth tests which are included on the profile drawings.

Two points of immediate interest are shown by the Z-1 and Z-2 depth tests. The Z-1 depth test was run in the vicinity of the small pits near station 110 + 00W on line Z. The surface material is shown to exhibit a very low 2 - 3 millisecond chargeability and therefore not contributing to the anomalous values noted from the deeper search depths. The top of the main sulfides is interpreted as being at 710 feet in this area. The extreme resistivity break between the 600 and 800 foot probes further substantiates this value.

The Z-2 depth test, located at the peak of the most favorable anomaly, indicates a rapid increase in sulfide values with depth with the theoretical top of the main mass being at 700 feet. The agreement in depth between thsse two tests is certainly believed to be more than coincidental and provides a viable minimum testing depth.

Geochemical Samples - Soil samples were taken at a depth of 6 to 8 inches below the surface at most of the IP stations. The contoured results of the assays are available on maps in the Exploration Department office.

In general the results of this sampling were weak but it is felt that the concentrations as shown are significant and support the main IP anomaly target, Anomaly A. The migration of the Cu and Mo ions to the west would be expected with the imposed drainage conditions. The sediments outcropping in the geochem anomaly near station 160 + 00W on line Y not only appear to be completely barren on the surface but are also indicated to be so at depth by the chargeability values and even more impressively by the resistivity values.

The proximity of the geochem anomalies to the "upslope" IP anomalies certainly can only contribute to the possibility that more than pyrite can be expected as a causative for Anomaly "A".

Because of the shift of the anomalous concentrations at Anomaly "A" it might be expected

that samples taken to the west, or downslope, from Anomaly B might likewise be relatively high; however, the one low value obtained from the sample taken at station 104 + 00N has to be considered meaningful in view of the IP response over the same zone.

Likewise the increase in Cu geochem values, although weak, over the IP Anomaly "D" is either meaningful or an unusual coincidence!

No samples were obtained from the location of IP Anomaly "C".

CONCLUSIONS

The survey area proved to be rife with exploration targets. All the targets, with the exception of IP Anomaly "Z", are felt to be worthy of further work. Because of the widespread occurrences and the suspect pediment area no ground has been obtained by staking or otherwise, except for the original seven Hajek claims, up to this time.

In addition to the already indicated areas of interest there is an adjoining six square miles that need to be tested by recon methods; however, rather than create undo outside interest in the area by excessive activity, there at this time, it is deemed advisable to coordinate such work with other testing and possibly staking of the already developed prospects.

This preliminary report is designed for in-house use as a guide and justification of further work for the Smoky Project as determined by the recon IP survey. As such no recommendations will be presented herein but will be made separately. Also, a short report of the sparse geological information available will be made separately by Mr. Alan Seelos.

G. S. Ryan
Geophysicist
May 8, 1975

8 May 75

ABSTRACT
IP RECON REPORT
SMOKY PROJECT
NYE COUNTY, NEVADA

Initial interest in the Smoky Project was developed by geochem results obtained by John Hajek from springs at the edge of a presumed pediment area in the Big Smoky Valley, Nevada. The distance between the sample area and recognizable outcrop was three miles with a possible width of two miles.

To determine if a mineralized body existed within the projected area, a recon IP survey was designed to cover a large area in a short time. A contract IP crew was put on the job on April 21 under the supervision of UV personnel on the job. A total of 17 line miles were run with search depths of 800, 1600, and 2400 feet with 800 foot moves. In addition some depth tests and detail work was done. This work was completed in six days.

The IP results indicated that most of the pediment area could be dropped from consideration but four very real anomalies and possible orebody locations were located. This conclusion is based on a study of the resistivity results as well as the chargeability responses.

A gross soil sampling program, using the 800 foot spaced IP stations, was made to see if any coincidence of anomalous geochem concentrations could be associated with the IP anomalies. This program was also successful and augmented the overall results.

What with the incomplete picture of two of the anomalous IP zones and the considerable area of potential mineralization yet to be surveyed, the decision was made to hold up the staking program until a coordinated effort could be made to run additional IP recon and stake a large area, if needed, simultaneously or immediately following a quick drilling program in the most favorable area.

RECOMMENDATIONS FOR THE PRIMARY
DEVELOPMENT OF THE
SMOKY PROJECT

I. For short term protection five claims should be staked in the immediate area of the anticipated test drill sites. These sites are located on the primary IP target, Anomaly "A". The anticipated target depth is between 600 and 800 feet. No site preparation is needed.

II. The drill has been arranged for and will probably be available within ten days. The program for the drill will be on a 24 hour basis and will drill one to three holes in the primary area depending on conditions and results. These test holes should be drilled to a minimum depth of 750 feet.

III. If significant economic mineralization is encountered that particular hole should be completed to the limit of the drills capability. A commercial claim surveying company, already alerted, will be called in and staking commenced as soon as feasible. No further drilling in the "A" area would be started at this time; however, if the staking program is underway before the drill is ready to leave the drill rig would be moved to a brecciated area on Anomaly "Z" at or near station 260 + 00W on line X. Again a claim would be staked and no site preparation would be needed.

IV. Drilling at the Anomaly "Z" site would serve several purposes. 1) Determine the depth and character of the breccia and if it is indeed in place. 2) Establish the existence, or non-existence of the pediment at this point. From the IP results the existence of the pediment, at this point, is questionable. 3) Determine if any mineralization can be recognized. 4) Determine the need of staking 216 additional claims on the pediment area.

V. When the staking commences it is planned to bring in an IP crew, currently working on another contract near Tonopah, to hurriedly do additional recon work to the NE, E, and S to determine the need of claims to be staked in those directions. After this recon work and subject to the IP crews schedule it would prove advantageous to retain their services to commence the detailed survey of, at least, the Anomaly "A" or primary target area.

VI. If the drill at Anomaly "A" successfully completes three holes without encountering any economic type mineralization, the unit will be moved north to Anomaly "B" where one hole is proposed. No site preparation should be required. If the results from this hole prove to be of interest then the procedure outlined above would apply; however, if nothing is found at Anomaly "B" then the unit could be easily moved to Anomaly "C" for a quick test. A 400 foot hole would be adequate to test Anomaly "C".

VII. Anomaly "C" is a localized feature about which nothing but the IP results is known. However, being shallow and with the drilling unit in the area the anomaly could, if necessary, be cheaply tested.

VIII. Unless or until one of the test areas showed some encouragement, the claim

staking crew would not be called into the area. The IP crew, regardless of the results of this proposed drilling, could be effectively utilized to extend line ∝ to the south with recon IP to locate the best location for a test hole on the south mineralized zone. Hopefully, this work could be accomplished before the drill left the area. If the better drill location should prove to be south of the drainage, where the present line ∝ ends, some road work might be required. A hole could be located on the basis of what is now known at station 9 + 00N line ∝ but it would have to be drilled to a depth of 1200 to 1500 feet to be sure of establishing the IP causative.

G. S. Ryan
May 9, 1975

ABSTRACT
IP RECON REPORT
SMOKY PROJECT
NYE COUNTY, NEVADA

Initial interest in the Smoky Project was developed by geochem results obtained by John Hajek from springs at the edge of a presumed pediment area in the Big Smoky Valley, Nevada. The distance between the sample area and recognizable outcrop was three miles with a possible width of two miles.

To determine if a mineralized body existed within the projected area, a recon IP survey was designed to cover a large area in a short time. A contract IP crew was put on the job on April 21 under the supervision of UV personnel on the job. A total of 17 line miles were run with search depths of 800, 1600, and 2400 feet with 800 foot moves. In addition some depth tests and detail work was done. This work was completed in six days.

The IP results indicated that most of the pediment area could be dropped from consideration but four very real anomalies and possible orebody locations were located. This conclusion is based on a study of the resistivity results as well as the chargeability responses.

A gross soil sampling program, using the 800 foot spaced IP stations, was made to see if any coincidence of anomalous geochem concentrations could be associated with the IP anomalies. This program was also successful and augmented the overall results.

What with the incomplete picture of two of the anomalous IP zones and the considerable area of potential mineralization yet to be surveyed, the decision was made to hold up the staking program until a coordinated effort could be made to run additional IP recon and stake a large area, if needed, simultaneously or immediately following a quick drilling program in the most favorable area.

PRELIMINARY REPORT
ON THE
SMOKY PROJECT
NYE COUNTY, NEVADA

LOCATION

The Smoky Project area is located 12 miles east of Highway 8-A approximatley 13 miles north of Round Mountain, Nye County, Nevada. The area is included on two USGS 7 1/2 quad sheets; Jet Spring and Carvers NE, Nevada.

Access is by ten miles of improved dirt road across the alkali flat from Highway 8-A mainly on the road labeled "Moniter Valley via Moores Creek." From the eastern side of the flat the property can be approached by several unimproved dirt roads that are in good condition.

BACKGROUND

The area was brought to the Company's attention by John Hajek, a geochemist, who had noted unusual values of molybdenum ions in springs issuing from the eastern edge of the alkali flat. Mr. Hajek determined the restricted zone of anomalous emissions and presumed that the ions were transported by ground water from the mountainous area three miles easterly through the alluvial or pediment material to where the springs are located. Since the alluvium masked most of the six to seven square miles in question the location of the source by any method was beyond the means of any individual of limited finances. At this point the project was brought to the attention of UV personnel. Since there was no record or indication of any extensive mining or even exploration within the zone indicated by Mr. Hajek's work, the possibility of there being a buried or blind orebody of major proportions was considered worth a minimum expenditure. The Company leased Mr. Hajeks seven claims and spent six days in April 1975 running a recon IP survey to determine the presence, if any, of anomalous subsurface conditions. This survey was augmented by geochem soil samples obtained at the 800 foot interval IP stations along the four lines established.

GEOPHYSICS

Induced Polarization: In general the recon IP survey consisted of 800, 1600, and 2400 foot search depths obtained at 800 foot intervals along each of four lines. These lines were not presurveyed and were oriented at random directions to cover the area of interest in a minimum of time. Contour maps and profiles of the IP results are located in the Exploration office. A discussion of these results follows on an individual line basis with a summation at the conclusion.

Line X - This, the original line was begun east of the sole intrusive (rhyolite) exposed in the immediate project area. For maximum efficiency of operation, this line followed the canyon drainage and then the access road for a total of 6 1/2 miles to the west to the edge of the alkali flat.

The beginning (east end) of this line was characterized by a fairly high but reasonable

background of 10 milliseconds and 80 to 100 ohm feet resistivity. A potential dipole anomaly was noted at station 72 + 00W with a broader based deep anomaly following at station 95 + 00W. These two small anomalies were verified and detailed later by running the line to the east with 400 foot moves and with a 300 foot search depth.

Between stations 120 + 00W and 160 a good looking anomaly was obtained that was characterized by an equal and consistent differential between each of the three depths. This anomaly was interpreted as being a side effect rather than a response from a source below the line.

From station 220 + 00W a gradual chargeability gradient was noted that contined to the end of the line at station 340 + 00W. This anomaly is believed to be caused by coupling effects due to clays, possibly saline water, and at least below 800 feet saturated valley fill material. The following observations lead to this conclusion: 1) The drop in resistivity values commences at the start of the positive chargeability gradient and continues to the end of the line with the greater part of the deep search depth values being below the suspect 75 ohm feet reading. 2) The signal on the receiver became erratic which is a characteristic of such areas. 3) The deep search depth readings tend to oscilate as can be noted on the profiles. 4) The 800 foot resistivity values are higher than the others which might indicate better drainage characteristics and a semi-saturation of the deeper sands and gravels. 5) A pediment edge believed to be located near station 220 + 00W based on the resistivity profiles. 6) Depth tests run at stations 335 + 00W and 272 + 00W were atypical of normal mineralization.

All of the above was taken in consideration in the decision to exclude the rest of the supposed lower pediment area from this survey.

Line Y - This line had been preplanned as a medial line between lines X and Z, the edges of the area of interest, but because of the results of line X it was decided to progress normally to the north to determine the location of the center of the anomaly noted at station 120 + 00W on L-X. The results on this line are extremely favorable in that the values indicate a good continuation of the anomalous trend to the NNE at reasonably higher values. There is a good differential in the values with depth but with closures that would indicate the causative is not displaced laterally.

There is a slight indication that the line was terminated at the pediment edge near station 220 + 00W in that the shallower values appear to be starting to climb and the resistivity values are sharply dropping.

Line Z - The continuation of the anomaly favorably noted on the other two lines is not only seen on the profiles of this line but considerably enhanced. The magnitude of the chargeability values is greater but perhaps of more importance the juxtaposition of the resistivity low and the chargeability highs in the positive bedrock environment is well demonstrated. The high resistivity values to the west is again shown on this line.

The higher chargeability values obtained on this line can be partly explained by the lack of barren cover along this line compared to at least some depth of detrital material known to exist over the anomalous portions of lines X and Y. The oxidation zone

along this line appears to be about 200 feet deep but this depth is probably applicable to the bedrock material on the other two lines also.

Again this line was terminated when the observed values appeared to be about to repeat the pediment edge phenomena observed on lines X and Y.

Line α - This line was located and run in a manner and direction to most expeditiously determine the north and south edges of the favorable anomaly. To the north this determination was made at the location of a known major E-W structure. Because of time limitations the line was not extended beyond that point as good practice would dictate; however, the broad alluvial valley north of the structure did not appear promising and since the north edge of the valley was bordered by massive tuffs it is doubtful that anything was lost by terminating the line at the structure.

A very interesting break in the anomaly occurred between 93 + 00N and 109 + 00N, depending on the search depth, where lower chargeability values were obtained. This break is too broad to represent a simple fault displacement of a continuous mineralized zone. Therefore, it must be considered as a separate target. This break is also indicated on the resistivity profile as a broad semi-shallow (1600 feet) feature. Surprisingly the rather gross, 800 foot spaced, geochem sampling also showed an anomalously low Cu value at this break.

A south edge of the favorable anomaly was also determined to be at or near Line-X; however, continuing south on this line a new anomaly is encountered at station 25 + 00N and appeared to be improving, particularly at the deeper search depths, at the end of the line. The resistivities associated with this southern anomaly are quite high indicating that the chargeability values are indeed coming from a definite pediment or bedrock source rather than a deepening alluvial fan or valley fill condition.

Contour Maps - The IP contour maps show that the main anomaly is centered in or near to a definite outcrop area considerably elevated above the surrounding pediment or outwash valley. For identification purposes this zone will be referred to as anomaly "A" indicating that it is the primary target albeit not the only one. For original testing purposes any drilling locations should be sited near the lines as located in the field. Since the entire quadrant to the NE has not been run with IP the contour lines shown therein must be considered questionable.

Anomaly "B" must be considered separately from Anomaly "A" and in case of negative results from the testing of "A" this zone should be tested near the IP line with special care taken to locate south of the E-W structure noted before.

Anomaly "C" is a much weaker target than the previous two and harder to pin down on the basis of the present data. The best interpretation that can be made is that it represents a vertical zone of mineralization. Again this could really be two vertical zones neither of which shows enhancement with depth. Rather than normal veins or narrow massive mineralization it appears, because of the indicated width, that this anomaly might represent a vertical fracture system. The surface geology provides no help in that it is generally volcanic tuffs with some incised channels filled with detrital material and valley fill clays and gravels. The rhyolite intrusive, Mr. Ziggurat, is located 1/2 mile due east of this anomaly. East of intrusive 1/2 mile there was a small mercury and gold operation in the 1960's.

If possible it would be best to delay testing this anomaly until additional work could

be done to determine the attitude, strike, and extent of the mineralization laterally. The depth to mineralization on the western part of this anomaly, station 82 + 00W, is believed to be about 240 feet.

Anomaly "D" is apparently the north edge of what appears to be an extensive mineralized zone. Although some mineralization must exist along the present line, as they show up on the results of the 800 foot search depth, the deeper search depth values are so much stronger that there is a good possibility that an apex exists just south of the major drainage wherein station 0 + 00, Line α lies. Additional IP work is definitely needed in this area before any other testing is considered.

Anomaly "Z" is so designated because of the extremely remote possibility that it is at all meaningful. Testing of this area should be considered as a last resort or as a means to satisfy any doubts as to IP interpretation. In view of the high Geochem results obtained in the spring areas encompassed by this anomaly such doubts could certainly be considered reasonable.

Depth Tests - Again, due to the time factor, the depth tests were not run with enough stations to detail the curves for exact interpretation; however, where meaningful the interpreted depths to sulfides are shown on the plots of the depth tests which are included on the profile drawings.

Two points of immediate interest are shown by the Z-1 and Z-2 depth tests. The Z-1 depth test was run in the vicinity of the small pits near station 110 + 00W on line Z. The surface material is shown to exhibit a very low 2 - 3 millisecond chargeability and therefore not contributing to the anomalous values noted from the deeper search depths. The top of the main sulfides is interpreted as being at 710 feet in this area. The extreme resistivity break between the 600 and 800 foot probes further substantiates this value.

The Z-2 depth test, located at the peak of the most favorable anomaly, indicates a rapid increase in sulfide values with depth with the theoretical top of the main mass being at 700 feet. The agreement in depth between thsse two tests is certainly believed to be more than coincidental and provides a viable minimum testing depth.

Geochemical Samples - Soil samples were taken at a depth of 6 to 8 inches below the surface at most of the IP stations. The contoured results of the assays are available on maps in the Exploration Department office.

In general the results of this sampling were weak but it is felt that the concentrations as shown are significant and support the main IP anomaly target, Anomaly A. The migration of the Cu and Mo ions to the west would be expected with the imposed drainage conditions. The sediments outcropping in the geochem anomaly near station 160 + 00W on line Y not only appear to be completely barren on the surface but are also indicated to be so at depth by the chargeability values and even more impressively by the resistivity values.

The proximity of the geochem anomalies to the "upslope" IP anomalies certainly can only contribute to the possibility that more than pyrite can be expected as a causative for Anomaly "A".

Because of the shift of the anomalous concentrations at Anomaly "A" it might be expected

that samples taken to the west, or downslope, from Anomaly B might likewise be relatively high; however, the one low value obtained from the sample taken at station 104 + 00N has to be considered meaningful in view of the IP response over the same zone.

Likewise the increase in Cu geochem values, although weak, over the IP Anomaly "D" is either meaningful or an unusual coincidence!

No samples were obtained from the location of IP Anomaly "C".

CONCLUSIONS

The survey area proved to be rife with exploration targets. All the targets, with the exception of IP Anomaly "Z", are felt to be worthy of further work. Because of the widespread occurrences and the suspect pediment area no ground has been obtained by staking or otherwise, except for the original seven Hajek claims, up to this time.

In addition to the already indicated areas of interest there is an adjoining six square miles that need to be tested by recon methods; however, rather than create undo outside interest in the area by excessive activity, there at this time, it is deemed advisable to coordinate such work with other testing and possibly staking of the already developed prospects.

This preliminary report is designed for in-house use as a guide and justification of further work for the Smoky Project as determined by the recon IP survey. As such no recommendations will be presented herein but will be made separately. Also, a short report of the sparse geological information available will be made separately by Mr. Alan Seelos.

G. S. Ryan
Geophysicist
May 8, 1975

Smoky

DUP

M E M O R A N D U M

TO: G. W. Hansen

DATED: February 9, 1977

FROM: G. S. Ryan

RE: Additional Work at the Smoky Project, Nevada

The Smoky Project was initiated by an anomalous moly sample obtained from a spring at the edge of the salt pan. Inferring a direction of migration and assuming the presence of a pediment surface to the east a plan of exploration was formulated. The plan consisted mainly of running an Induced Polarization (IP) survey from the mountains, approximately four miles to the east, over the pediment zone to the edge of the salt pan. This survey was run in 1975 and was augmented by a ground magnetic survey and a cursory geochemical (soils) survey. The results indicated that there is little, if any, pediment except very close to the mountains. However, at least five separate and distinct IP anomalies were found. To ascertain the need of claim coverage without the expenditure of large sums, a rotary drill rig in our employ was brought in to test two of the easily accessible anomalies. Only one hole penetrated to the recommended depth to the supposed mineralization. However, both holes encountered carbonaceous shales that were deemed to be the cause of the IP anomaly.

Concurrent with the drilling additional IP work was down and another IP anomaly was located in an area inaccessible to the drill rig without considerable preparatory work. This anomaly was distinctly different from the others, including the two that were drilled. The original anomalies and resistivity values that plotted as a mirror image of the IP values. That is, where the IP values reached a maximum high the resistivity values reached a minimum low. This difference indicates that the new anomaly was caused by rocks and/or minerals of a different character than the causatives of the other anomalies.

A planned sophisticated comprehensive geochemical survey was aborted in 1976 when the starting date for the survey was delayed by management. Instead, a last minute trenching program was initiated that covered the required assessment cost but did little to verify or denigrate the value of the anomaly.

The following options are presently available to us:

1. Drop the claims.
2. Farm out the property.
3. Extend the IP survey to the east (the other directions have been covered).
4. Drill the present anomaly.
5. Conduct the previously proposed geochemical survey.
6. Sit on it.

Discussion:

Number 1 should not be considered because there still exists the unanswered source of the original moly anomaly found in the spring water and the unknown causative of the IP anomaly. This is a cheap play for what could be a major mine.

Number 2 is a solution that is readily available but could leave the Company with half a pie when they could have the whole thing. This solution will still be available if the recommended work for this year is undertaken.

Number 3 would locate and enclose the anomaly but do nothing to increase our knowledge of the causative. The area involved cannot be determined by geological methods because of the fact that the anomaly is located inside the edge of a large collapse caldera and the surface rocks provide no clues as to what the subsurface situation might be.

Number 4 would require a mile long road to be constructed if a large drill rig was to be brought in for deep drilling. However, a smaller track mounted rig could be walked in and used as the present anomaly is indicated as being within 500 feet of the surface. The anomaly is on Forest Service property and all this work would have to be done with their approval. The big problem with drilling is that the anomaly has not, as yet, been adequately located to evaluate the possible presence of halo mineralization or a more significant mineralization center. Since this will probably evolve into a single drill hole program it behooves us to have the best target for its drilling. Numerous instances can be cited where a single drill hole would have missed important discoveries.

Number 5 can be accomplished at a reasonable cost and possibly accomplish many of the above factors. The careful geochemical survey being considered would utilize the topographic features of the area, the orientation and frequency of fractures, any alteration zones that can be recognized, and the various rock types exposed. If anomalous values are found a trend might be established which could be used as a guide to the extent of the mineralization. Minimal disturbance of the surface would be appreciated by the Forest Service.

Number 6 is a difficult solution in that the original claims were staked to cover the high IP anomaly areas and as a consequence are scattered and constitute six separate entities on which assessment work must be independently done. Without readily accessible targets it is difficult to do meaningful assessment work without significant degradation to the surface. However, it is not advisable to give up these claims until work is done on the number 10 claim and that anomalous area proven to be of no value.

Some other considerations include the fact that of twenty some caldera areas in Nevada, thirteen have had producing mines found on the SE edge of the caldera. Claim

number 10 is so situated. V. D. Perry of Anaconda looked at the oxidation color of the Buckskin Mountain anomalous (IP) area and stated there would be no copper found - it is now referred to in Anaconda as the Buckskin Mine, after considerable drilling. Harrison Schmitt likewise passed over the Sierrita Mine area and deferred drilling for many years because he was not impressed with the surface exposure.

In the final analysis it can be said that we have an extremely viable exploration target. Such targets are very rare and should be evaluated completely. The fact that two "convenient" holes have been drilled without encouraging results has to be considered as indicative of what those particular anomalies represented. The anomaly on claim number 10 is entirely different. Exxon drilled 24 different geophysical anomalies in Wisconsin before locating the one that is now rated at 60-million tons of massive sulfide ore. Likewise, Texas Gulf Sulphur drilled more anomalies than Exxon to make their eastern Canada discovery. Those companies, plus others, have expended millions of dollars in exploration work to make a significant "find". We are proposing a geochemical survey that will cost $2500 to evaluate a heretofore unknown area within a mineralized district.