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1987 Percussion Drilling
Geological Mapping and VLF-EM Geophysics on the Galaxy Property

Kamloops Mining District, B.C., NTS 92I/9W $50^{\circ} 37^{\prime} \mathrm{N}$ Latitude, $120^{\circ} 25^{\prime} \mathrm{W}$ Longitude

- Owner/operator: Abermin Corporation
frn GEOLOGICALBRANCH ASSESSMENTREPORT


Report No. 8~87
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B.W. Girling
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The Galaxy Property comprises 63 units and six Crown Grants. This contiguous claim group is situated eight kilometres southwest of the centre of the City of Kamloops in south-central British Columbia.

The 1987 exploration program included geological mapping and VLF-EM geophysics on the Rocket 8 claim and the percussion drilling of 7 holes on the Evening Star Crown Grant and Rocket 11 mineral claim.

## INTRODUCTION

During the Spring of 1987, Abermin Corporation retained Garrett Geoservices Ltd. of Vancouver to compile all previous geological data on the Galaxy Property. Several unexamined IP target areas were located (Fig 2). From May 1-10, 1987, Abermin Corporation conducted geological mapping and VLF-EM geophysics on the Rocket 8 mineral claim to evaluate a pre-existing I.P. anomaly outlined by this data compilation. Seven percussion holes totalling 367 metres were drilled on the Evening Star Crown Grant and the Rocket 11 mineral claim during the period May 10-16, 1987.

This report is a summary of data collected during this 1987 exploration program and is submitted for assessment purposes.

## LOCATION AND ACCESS

Th Galaxy property is located mainly within the boundary of the City of Kamloops, B.C., approximately eight kilometres southwest of the city centre. The geographical coordinates of the property are $50^{\circ} 37^{\prime} \mathrm{N}$ latitude and $120^{\circ}$ $25^{\prime} \mathrm{N}$ longitude (Figure 1).

Access to the Galaxy Property from Kamloops is possible via the Trans Canada Highway eight kilometres west of Kamloops to the Lac Le Jeune Highway then south for approximately two kilometres to the north end of the property. The old Lac Le Jeune road provides access to the northern Galaxy Lake area. The southern claims are accessed via the Jacko Lake road south of Wallender Lake.


Several dirt roads provide local access to most of the property.

CLAIMS

The Galaxy Property consists of 45 two post claims, 4 Modified Grid claims (totalling 63 units) and six Crown Grants (Figure 2), which are owned by Abermin Corporation of Vancouver, B.C.

| Claim Name | Record No. | Recording Date | Expiry Date |
| :---: | :---: | :---: | :---: |
| Gal | 6970 | April 1, 1987 | 1988 |
| Sugar | 6407 | Oct. 21, 1985 | 1987 |
| GL 1-2 | 991-2 | Aug. 1, 1977 | 1988 |
| Ursus 1-3, 4FR, 5FR | 34206-10 | Sept. 1, 1960 | 1987 |
| Ursus 6, 7FR | 34292-3 | Sept. 19, 1960 | 1987 |
| Shear 6 | 34290 |  | 1987 |
| Shear 1~4, 5FR | 34211-15 | Sept. 1, 1960 | 1988 |
| Venus 1 | 34216 |  | 1988 |
| Venus 2-9 | 34217-24 | " | 1987 |
| Venus 10, 11FR | 34225-26 | " | 1988 |
| Dart 3 | 34227 | " | 1987 |
| Dart 1-2 | 34181-2 | Aug. 8, 1960 | 1987 |
| Rocket 4-16 | 34188-220 | Aug. 30, 1960 | 1987 |
| Key 1FR | 34183 | Aug. "', | 1987 |
| Key 2FR | 34184 | " | 1987 |
| Gal | 6970 | Apr. 1, 1987 | 1988 |
| Evening Star | Lot 1013 | May 31, 1969 | 1988 |
| Golden Star | Lot 845 | May 31, 1969 | 1988 |
| Kentucky | Lot 835 | May 31, 1969 | 1988 |
| Number Seven | Lot 998 | May 31, 1969 | 1988 |
| Ben Hur | Lot 1037 | May 31, 1969 | 1988 |
| Prince of India (Fractional) | Lot 1038 | May 31, 1969 | 1988 |

## TOPOGRAPHY AND VEGETATION

The claims are located at an elevation of approximately 900 metres (A.M.S.L.) and local relief is in the order of 150 metres. The property is typical of the semi-arid Kamloops area; mainly open grass and sagebrush covered hills with local stands of pine, spruce and balsam.

Rock outcrop is in the order of 1 to $5 \%$ of the total area. Near Jacko Lake outcrop is 5 to $10 \%$.

## HISTORY AND PREVIOUS WORK

Exploration activity in the Iron Mask batholith has been high since the late 1800's with the resulting discovery of a number of significant prospects. Besides the underground Iron Mask Mine and the Galaxy zone within this claim group, one of the better deposits is the Ajax situated east of Jacko Lake. However, until the Afton Mine was discovered in 1971, none of the prospects were economically viable. The discovery of Afton rejuvenated exploration activity in the area and resulted in the discovery of numerous additional copper showings.

According to B. Badgley (1961) the first work on the Galaxy Property was recorded in 1899. A shaft was sunk on the Crown Granted Evening Star claim between 1903 and 1908. Galaxy Minerals Ltd. rehabilitated the two-compartment shaft in 1956 and carried out a limited drilling and trenching program.

In 1961 P. Badgley was retained by Galaxy Minerals Ltd. to direct further exploration work on their property. Reconnaissance geochemical and geophysical surveys and diamond drilling resulted in the discovery of the Galaxy zone. Subsequent operators have completed a total of $9,499.7$ metres of diamond drilling in addition to extensive trenching, road building, geological mapping and the extention of the underground workings to a total of 384.7 metres (Amendolagine, 1971).
The latest comprehensive exploration on the Galaxy Property was conducted by Canadian Superior Exploration in 1977. They completed a regional topographic survey, magnetometer survey ( 125.09 line kilometres) and eight percussion drill holes totalling 734.57 metres (Blanchflower, 1977).

## GEOLOGY

## A. Regional Setting

The region of the Iron Mask batholith has been mapped by various members of both the Geological Survey of Canada and B.C. Department of Mines. The most recent regional mapping in the area was done by Dr. K. E. Northcote of the B.C.D.M. in 1974, 1976 and 1977.

The Galaxy Property is centrally situated within the Iron Mask batholith. This Upper Triassic-Jurassic age intrusive complex is elongate in a northwest-southeast direction with an exposed length of 19.3 kilometres and a width of approximately 4 kilometres. It was apparently emplaced in a high level volcanic to subvolcanic environment and is comagmatic and coeval with Nicola volcanic and minor sedimentary rocks which it cannibalizes and intrudes. The Nicola rocks and Iron Mask batholith are unconformably overlain by Tertiary volcanic and sedimentary rocks of the Kamloops Group. Major systems of northwesterly, northerly and northeasterly trending recurring fractures and faults controlled the emplacement of the various units of the Iron Mask batholith. Post-batholith movement on faults around the margin of the batholith resulted in graben structures with off-batholith rocks on the downuthrownuside (Northcote, 1977).

Numerous copper prospects, including the Afton deposit, are located throughout the batholith. Depositional controls for copper-bearing mineralization appear: principally related to major structural systems.

## B. Property Geology

The Galaxy claim group is underlain mainly by genetically-related intrusive rocks of the Iron Mask batholith, (Blanchflower 1978). Dioritic to syenitic rocks of the Iron Mask and Cherry Creek units dominate the geologic setting.

Within the Galaxy zone economically significant copper mineralization is hosted by a fault-bounded roof pendant. Blanchflower (1978) describes this roof pendant as "half-canoe" shaped and is comprised of Nicola Group volcanics and picrite basalts intruded by older Iron Mask and Pothook diorites, which in turn are intruded by late-stage Cherry Creek dykes and sills. Porphyry dykes of post-mineral age are the only other rock type within the roof pendant.

Nicola Group (Unit 1): Volcanic rocks of the Nicola Group flank the batholith southwest of the claim group by Jacko Lake. In addition, they cropout within the roof pendant of the Galaxy zone.

Nicola volcanic rocks consist predominantly of moderate to well-indurated, massive and bedded tuffs and laharic breccias with some interbedded flows and monomictic flow beccias (Northcote, 1976). The volcanics are characteristically green to dark-grey in colour and range compositionally from andesite to basalt.

All Nicola rocks have been pervasively chloritized and epidotized to varying degrees. Near batholithic contacts the intensity of metamorphism, alteration and sulphide mineralization increases rapidly.

Minor Nicola metasediments have been reported by Northcote (1976) outside of the Galaxy property near Sugarloaf Hill.

Picrite: The Picrite unit crops out within the Galaxy zone. Outcrops of picrite have been mapped by Northcote (1976), and Preto (1967) west of Jacko Lake.
Picrite bodies appear to be associated with recurring, northwesterly trending fracture systems such as the Galaxy and Sugarloaf fault structures. Picrite is of basaltic composition with serpentinized olivine. Rocks are typically light to dark green or black and show a wide range of textures and mineralogy. Composition may range from almost monoumineralic serpentinites (lizardite) to biotite-tremolite rocks. In hand specimen relict olivine may be observed. Commonly the rock is an aphanitic intergrowth of tremolite, muscovite and serpentine with accessory magnetite, phlogopite and carbonate.

In composition and age the Picrite unit is most similar to the Nicola Group volcanics. This suggests that the picritic rocks are basic end-members of Nicola-age differentiation and volcanism. Structural emplacement of picrite bodies along recurring northwesterly trending fault structures with subsequent shearing has resulted in these rocks being important hosts of copper-bearing sulphide mineralization at some localities (eg. Iron Mask Mine).

## Intrusive Rocks of the Iron Mask Batholith:

All intrusive units appear to be genetically related. Lithologic subdivisions of the intrusive rocks are based primarily on compositional and textural characteristics.

Iron Mask Intrusives (Unit 2): The Iron Mask unit crops out east and south on the claim group and is well exposed in outcrop from within the Galaxy zone northeast to the Iron Mask mine-and in the area north of Jacko Lake.

Rocks of the Iron Mask unit range from fine to coarse melanocratic and mesocratic diorite, fine to coarse-grained hornblendite, coarsergrained magnetite-rich gabbro, and xenoliths of recrystallized Nicola (Northcote, 1976).

All of the rock varieties contain magnetite which may vary from $3 \%$ to $15 \%$. Conmonly near Cherry Creek contacts these rocks are cut by irregular, criss-crossing, fine to coarse-grained, leucocratic, dioritic dykes (Northcote, 1976).

Saussuritization with superimposed propylitic alteration is widespread, especially near intrusive contacts with younger units and near fault zones. Chloritization and epidotization are most common, with albitization usually restricted to well fractured zones.

Pyrite with minor chalcopyrite fracture-filling mineralization or magnetite veins with minor associated chalcopyrite are the most common metallic assemblages associated with this unit:

Within the Galaxy zone, Iron Mask rocks host copper-bearing sulphide mineralization associated with intensely albitized zones or albite veins coincident with northwesterly and northeasterly fracturing. The Lucky Strike showing 2,500 feet northeast of the Galazy zone and the Homestead showing (Badgley, 1961) have minor and very local shear-infilled chalcopyritempyrite
mineralization. Iron Mask rocks north of Jacko Lake host a number of small chalcopyrite, magnetitempyrite mineralized areas.

Pothook Intrusives: The Pothook unit crops out within the Galaxy zone and west of the extreme northeastern end of the claim group.

Pothook rocks are of dioritic composition, medium to coarsengrained, medium grey in colour, and more uniform in texture and composition than Iron Mask rocks. Genetically this intrusive unit appears to be a gradation from the melange of Iron Mask varieties through Pothook diorite to the Cherry Creek unit showing an increasing degree of differentiation to more potassicurich varieties (Northcote, 1976).

Saussuritization with local superimposed albitization is common. Epidote and/or chlorite may be pervasive or occur as fracture-fillings.

Magnetite veining is most commonly associated with this unit. Within the Galaxy zone outcrops of this unit were notably barren with only very minor and sporadic malachite shear-infillings.

Cherry Creek Intrusives (Unit 3): Cherry Creek rocks underlie the majority of the claim group. Several varieties of the Cherry Creek unit crop out from Lockie Lake west to the Iron Cap area and host copper mineralization within the Galaxy zone.

The Cherry Creek suite of rocks is commonly light grey to orange, weakly porphyritic to porphyritic, fine grained, and range in composition from diorite to syenite (Northcote, 1976). Recognizable varieties include macrodiorite, microdiorite, micromonzonite, and microsyenite. All rocks have a characteristic speckled texture which is recognizable through differences in grain size and composition. Magnetite is a common accessory mineral ranging from $1 \%$ to $10 \%$ of the total composition.

Northcote (1976) observed that the wide variety of Cherry Creek rock types may be the result of the tapping of magma during different stages of differentiation, and emplacement and crystallization under varied pressure -
temperature - volatile content conditions existing in an intermittently venting subvolcanic to volcanic environment.

Saussuritization is widespread. Usually the plagioclase laths are altered to saussurite or albite and sericite, while the mafics have undergone some degree of propylitic alteration. Orthoclase and/or albite flooding with associated calcite and chlorite occur within intensely sheared and altered areas such as those northeast of Nel son Lake and within the Galaxy zone.

Chalcopyrite with associated pyrite mineralization is rare except within the Galaxy zone.
Late-stage, post-mineral, Cherry Creek or possibly Tertiary-age dykes intrude both the Cherry Creek and Iron Mask units. These intrusions are usually plagioclase feldspar porphyries. They are compositionally most similar to the Cherry Creek suite, and occur within recurrent fracture zones or along Cherry Creek/Iron Mask intrusive contacts.

## STRUCTURE

The density of fracturing and faulting on the property is generally weak to moderate. However, intense east-west faulting and fracturing occurs along the Nicola volcanic-Iron Mask Hybrid contact near Jacko Lake. The most commonly encountered fracture orientations are approximately $320^{\circ}$ and $060^{\circ}$. A third, less common set is oriented north-south. Fracture spacing is generally 25 to 75 cm , shrinking to 2 to 3 cm when the rock is highly altered or mineralized. The $320^{\circ}$ and $060^{\circ}$ fracture orientations are more frequently mineralized than the north-south fractures.

The geologic setting of the Galaxy property is dominated by northwesterly and northerly trending recurrent fault systems. These faults, which have been intermittently active since early in the Mesozoic, have controlled the emplacement of old and intermediate age intrusions. The northwesterly trending Galaxy fault structure transects the claim group from south of Lockie Lake through the Galaxy zone to Iron Mask Lake. The Sugarloaf structure, another of these northwesterly fault systems, joins the Ajax and Afton deposits.

Systems of northerly trending fault structures transect the property from Jacko Lake through Lockie Lake and from south of Inks Lake north to Iron Mask Lake. These structures have controlled the eastern and western intrusive contacts between the Cherry Creek and Iron Mask units and/or have displaced these contacts since the intrusion of the Cherry Creek unit.

The dominant northwesterly and northerly trending fracture systems are reflected in outcrop throughout the claim group as barren fractures, or more commonly as albite, epidote, chlorite, and/or orthoclase-infilled fractures. Albite, orthoclase, and/or epidote fracture-filling are usually associated with northwesterly trending fractures while northerly trending fractures are commonly infilled with epidote and/or chlorite.

A third set of northeasterly trending fractures has been noted while mapping. In outcrop this system is commonly reflected as barren tensional fractures subordinant to both the northwesterly and northerly trending sets. Regionally this fracture system has been responsible for controlling the emplacement of the Pothook unit while within the Galaxy zone this fracture system, in conjunction with the other two major structural systems, appears to have localized the copper-bearing sulphide mineralization.

## ALTERATION

Alteration on the property is highly variable with Nicola and Cherry Creek rocks only weakly altered. The Iron Mask Hybrid unit which comprised the bulk of the exposures on the Rocket Claims is generally moderately to strongly altered. Alteration includes saussuritization, albite and/or K-feldspar, epidote and quartz-carbonate veining.

The intensity of alteration and the alteration pattern appear to a degree to be related to the composition of the original host rock type. All Nicola rocks have been epidotized and chloritized to varying degrees and most of the batholithic rocks show some degree of saussuritization which locally may be very intense. Some potassic feldspathization is evident locally in most rock units but is most abundant in Cherry Creek rocks where the relatively high potassic content is the result of magmatic differentiation.

Within the Galaxy zone intense potassic feldspathization with associated sulphide mineralization has occurred. In areas of intense shearing orthoclase floods the host-rock resulting in orthoclase $\pm$ albite $\pm$ epidote veins with albitized and/or propylized envelopes. Chalcopyrite and pyrite are commonly associated with the vein material or disseminated within the vein envelope. Minor molybdenite mineralization is dominantly associated with orthoclase flooding.

## MINERALIZATION

Mineralization on the property comprises several types: Nicola rocks south of the Jacko Lake access road are cut by quartz*carbonate veins containing chalcopyrite and tetrahedrite. Iron Mask Hybrid rocks are veined with albite, epidote, quartz + carbonate, with local concentrations of chalcopyrite and magnetite. Numerous old mineralized pits and trenches were found on the Rocket Claims.

Mineralization is generally localized in zones of intense fracturing, alteration and veining with the best host rock or the property being the Iron Mask Hybrid unit.

Within the Galaxy zone sulphide mineralization consists primarily of pyrite and chalcopyrite. In addition, significant gold values appear to be associated with the copper mineralization. Surface exposures commonly contain varying amounts of malachite, azurite, hematite and limonite. Sulphide mineralization is primarily structurally-controlled occupying hair-line to one inch wide fractures. Copper mineralization is also associated with intense potassic feldspathization as blebs within the vein material or as fine-grained disseminations in vein envelopes. Marginal and economically significant copper-bearing sulphide mineralization appears localized within the roof pendant at the loci of northwesterly and northeasterly trending fracturing. The Nicola volcanic, Picrite and Iron Mask units appear to be the most favoured hosts while the surrounding and underlying Cherry Creek monzodiorites and syenites are essentially barren.
The introduction of intense potassic feldspathization and copper-bearing sulphide mineralization appears to be simultaneous with and/or immediately
postadates the youngest intrusions of the Cherry Creek unit. Subsequently the Galaxy and its subsidiary fault structures were reactivated, displacing the mineralized zone.

## ECONOMIC GEOLOGY

To date the most economically significant copper-bearing sulphide mineralization within the claim group appears restricted to the fault-bounded roof pendant of the Galaxy zone. This intensely fractured, sheared and lithologically complex area resembles a "half canoe" shape orientated southeast-northwest. All available drill data indicate this zone has a strike length of 3,000 feet and maximum widths of 500 to 600 feet.

The roof pendant and associated copper mineralization are fault bounded on the southwest by the vertical or steep southwesterlyadipping Galaxy fault structure. Southwest of this structure monzonites and syenites of the Cherry Creek unit are locally well albitized but barren. Cherry Creek syenites lying to the north and northeast of the roof pendant are also barren.

1987 WORK PROGRAM
The objectives of the 1987 Exploration Program were:

1) to evaluate several previously identified but untested geophysical (I.P.) and geochemical anomalies located on the Rocket Claims.
2) to evaluate precious metal values (gold, silver) associated with the Galaxy zone copper mineralization.

A program comprising geological mapping, prospecting, VLF-EM geophysics and percussion drilling was undertaken. Precious metals were analysed in surface rock samples and percussion drill hole samples.

## Geological Mapping:

Geological mapping and prospecting were conducted on the Rocket 8 grid area and the adjoining area to the east on the Rocket 4 to 6 claims, and is presented in Plate I.

The area is underlain predominantly by the Iron Mask Hybrid unit comprising fine grained diorite and coarser grained gabbro with some areas containing abundant hornblendite (pyroxenite) and occasional volcanic zenoliths. These rocks are commonly saussuritized and often contain albite-epidote $\pm$ chlorite $\pm$ calcite veining especially in areas which are highly fractured.

In the area around 01d Homestead Lk. (L1+00-6N on Figure 3) on the Rocket 8 claim Iron Mask Hybrid rocks contain abundant magnetite and minor pyrite especially near the contact with younger Cherry Creek intrusives.

The contact between Iron Mask and Cherry Creek units is comprised of strongly sheared and veined intrusive with most of the mafic component being strongly leached and altered, resulting in a pale, bleached whitish intrusive. This alteration extends about 20 metres before fresher Cherry Creek syenite can be identified. Occasional angular fragments of mafic rock can be found within a hundred metres of the contact zone in younger Cherry Creek units. The contact area also appears to be the locus for late stage feldspar porphyry dyke emplacement. Cherry Creek intrusive rocks found to the north of the contact zone are light grey to orangish, weakly porphyritic, fine grained syenite.

Further east on the Rocket 4 M.C., Iron Mask Hybrid intrusive in close proximity to the Cherry Creek syenite contact is intruded by late stage feldspar porphyry dykes having a northeast trend. Adjacent to one of the dykes is a zone of fracturing, alteration and veining which contains minor pyrite, chalcopyrite and magnetite. The mineralization is exposed in several old pits and hand trenches. Several rock samples were taken for analysis.

To the south on the Rocket 11 M.C., coarse grained magnetite rich (5-18\%) gabbro is exposed on a large knoll northwest of Jacko Lake. Northeast and southwest trending fractures and veins containing albite-epidote $\pm$ calcite $\pm$ pyrite and chalcopyrite are exposed in the old trench. This would appear to be coincident with a previously identified IP and geochem anomaly.

## Geophysics:

A small grid was located by topofil and compass on the Rocket 8 M.C. which is in part coincident with a previously identified IP and geochem anomaly. Grid lines are 625 metres long and have 75 metre line separations with 25 metre station intervals. A total of 2.5 km of line was located. (Figure 3)

A Geonics VLF-EM 16 survey was completed on the Rocket 8 grid to aid in evaluating the previously identified geophysical anomaly. Readings were taken every 12.5 metres. All four lines were surveyed using Jim Ck. Washington (NLK-24.8 KHz) while the three easterly lines were al so surveyed with Annapolis N.D. (NAA-21.4 KHz). Poor coupling with the NW trending structures resulted from an inadequate line orientation with respect to the transmitting station NLK and as a result little useful VLF data was obtained from this direction.

Data is presented in profile form on Plates II, III and the raw data is available in Appendix I. Several cross-overs are present in the area surveyed. Most appear to line up with linear gulleys which transect the grid in a east-west to northwesterly direction.

On the ground they appear to be zones of faulting and fracturing containing veins of albite and epidote. The anomaly at $4+00 \mathrm{~N}$ is coincident with the sheared and altered contact zone between the Iron Mask Hybrid unit and Cherry Creek syenite. The anomaly at $2+00 \mathrm{~N}$ is coincident with a pronounced curvilinear overburden-covered gulley. Outcrop of Iron Mask hybrid gabbro is only slightly altered (saussuritized) and veined (Ab-ep~ch~cal) but the gabbro does contain significant disseminated magnetite (10~15\%), which may account for the IP anomaly outlined by the literature search. No economic sulphides were observed in the grid area.

Geochemi stry:

Fifteen rock grab samples from the Galaxy dump and various other locations and 221 rock samples from the percussion drilling were tagged and shipped to Bondar Clegg \& Co. analytical laboratory in North Vancouver where the samples were analysed for copper, gold and silver. Samples were pulverized to -150 mesh then

subjected to a hot nitric acid digestion prior to an atomic absorption determination for copper and silver. Gold was determined using a combination fire assay and atomic absorption technique.

Three types of mineralization were found on the dump. One is a massive skarn type comprising magnetite and chalcopyrite. The most abundant type comprises veinlets and disseminations of pyrite and chalcopyrite in sheared chloritized mafic volcanics. The third type is quartz-carbonate-sulphide veins containing pyrite and chalcopyrite.

## Percussion Drilling

Between May 11 and 16, 1987 seven percussion holes were drilled totalling 367 metres. Four drill sites were located on the Evening Star shaft area near Galaxy Lake, (Fig 4) to test for precious metals associated with the Galaxy deposit. Three drill sites were located on the Rocket 11 claim north of Jacko Lake, (Fig 5) to test on IP anomaly coincident with surface mineralization exposed in an old trench. Appendix II \& III contain the drill logs and geochemical data pertaining to the percussion drilling.
H.N. Horning Percussion Drilling L.td. of Kamloops was contracted for the drilling. One truck-mounted hammer percussion drill, $21 / 4^{\prime \prime}$ diameter and a compressor capable of wet or dry drilling was used. Drilling water was trucked from Galaxy and Inks Lakes.

One sample was collected from each five-foot run. The cuttings were collected in large plastic bags after they had been $1 / 4$ split at the drill head. After settling and draining, samples were tagged and shipped to Bondar Clegg \& Co. In addition, a tablespoon-size specimen was taken from each sample, which was screened and mounted on a chip board and examined with a binocular microscope.

The four holes drilled on the Galaxy Zone near the Evening Star shaft did not intersect mineralization. However, grab samples of dump material contained suprisingly high precious metal values. (Appendix III)



The three holes drilled north of Jacko Lake on the Rocket 11 claim were geologically encouraging. A three metre section in hole PDH-5 contained magnetite- pyrite-chalcopyrite with some precious metal values. These holes were drilled on the flank of an IP anomaly near an old trench.

CONCLUSIONS \& RECOMMENDATIONS
Precious metals are enriched in some of the copper mineral occurrences such as the Copper Cap L845, and in samples of quartz-carbonate veining at the Evening Star Shaft.

Drilling conducted at the Galaxy Lake area was particularly disappointing considering previous results.

Reconnaissance drilling conducted on the Rocket 11 Mineral Claim near Jacko Lake was encouraging with the discovery of a new area of mineralization.

Geological mapping and VLF-EM geophysics conducted on the Rocket 8 Mineral Claim identified a sheared altered contact between older Iron Mask Hybrid diorite and younger Cherry Creek syenite but failed to identify the cause of an IP and copper geochemical anomaly.

The 1987 exploration program results indicate that additional work is warranted on the Galaxy Property:

In the Galaxy zone diamond drilling should be performed to further evaluate the precious metal content within the existing mineralized zone.

Further south, additional geophysics should be used to locate and evaluate existing and new anomalies. This should be followed by percussion drilling to further evaluate or test geophysical anomalies. Diamond drilling should be used to evaluate percussion drill targets. Systematic sampling of all mineralization for precious metals should be ongoing.

## REFERENCES

Amendolagine, E., 1971
Underground Development and Exploration Program for Nor-West Kim Resources Ltd. (N.P.L.) on the Galaxy Copper Property, Kamloops Area, Kamloops, M.D., B.C.

Badgley, P.C., 1961
Revised Report on Geological Exploration, Property of Galaxy Minerals Ltd., Kamloops Area, B.C.

Blanchflower, J.D., 1978
Topographical, Geophysical and Percussion Drilling Report on the Galaxy Property, Kamloops M.D., Southcentral B.C.

Cann, R.M., and Godwin, C.I., 1983
Genesis of Magmatic Magnetite-Apatite Lodes, Iron Mask Batholith, Southcentral B.C. Geological Fieldwork 1982 - A Sumnary of Field Activities. BCMD. Paper1983-1, p.267-284

Carr, J.M., 1956
Deposits Associated with the Eastern Part of the Iron Mask Batholith near Kamloops, Minister of Mines, B.C. Annual Report 1956, pp. 47-69.

Carr, J.M., 1976
Afton: A Supergene Copper Deposit, CIM, Special Vol. 15, pp. 376~387.
Cockfield, W.E., 1948
Geology and Mineral Deposits of Nicola Map-Area, B.C., Geological Survey of Canada, Mem. 249, p. 164.

Northcote, K.E., 1976
Geology of Northwestern Half of Iron Mask Batholith, BCDM and Pet. Res. Geol. Fieldwork 1976, P. 40-46.

Northcote, K.E., 1977
'Preliminary Map \#26 and accompanying notes Iron Mask Batholith (921/10E, $9 W$ ). B.C. Ministry of Mines and Petroleum Resources.

## References Con't

Preto, V.A., 1967
Geology of Eastern Part of Iron Mask Batholith. Ministry of Mines B.C. Annual Report, 1967, p. 137-147.

Afton, Pothook, B.C. Dept. Mines \& Pet. Res. GEM, 1972 p. 209~220




VLF - EM SURVEY
PROJECT $\qquad$ PAGE $\qquad$
GRID $\qquad$ Rockets

DATE $\qquad$
LINE $\qquad$ $2 E$ OPERATOR $\qquad$ SOURCE STATION SEATLE



VLF - EM SURVEY
PROJECT GALAXY PAGE $\qquad$
PRO
ROCKET 8 DATE $\qquad$ LINE $\qquad$ $2 E$ OPERATOR $\qquad$ WAG
$\qquad$ -

$\qquad$
$\qquad$
$\qquad$
$\qquad$


GRID ROCKET 8 -

LINE $\angle 3 E$
SOURCE STATION SEATTLE

| Station | CHT | PHASE | $\underset{\substack{\text { FRASER } \\ \text { FILTER }}}{ }$ |  | remarks |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| 0+00 | 0 | +11 | $\phi$ | -5 |  |
|  | 0 | +11 |  |  |  |
| $0+26$ | 0 | +11 | $\phi$ |  |  |
|  | 55 | $+8$ | -5 | -13 |  |
| : | 55 | +8 | -13 | -11 |  |
| 0+50 | 85 | +7 | -16 | -2 |  |
| 0+75 | 85 | $+6$ | -15 | + 5 |  |
|  | 75 | 48 |  | $+$ |  |
|  | 45 | $+8$ | -11 | +1 |  |
| $1+00$ | 45 | +7 | -10 | +1 |  |
|  | 65 | $+6$ |  | +4 |  |
| 1+25 | 2N | +2 | -4 | +10 |  |
|  | 25 | 16 |  | -2 |  |
| $1+50$ | 45 | +6 | -8 | -8 |  |
|  |  |  |  | +2 |  |
| $1+75$ |  |  | -4 | +7 |  |
|  | 0 | +7 | -1 | -2 |  |
|  | 15 | +6 | -6 | -9 |  |
| $2+00$ | 35 | +3 | -6 | -4 |  |
|  | 55 | +4 | -10 | +3 |  |
|  | 55 |  | $-10$ | +3 |  |
|  |  |  | - 1 |  |  |

## VLF - EM SURVEY

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VLF - EM SURVEY
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GRID $\qquad$ DATE $\qquad$
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## VLF - EM SURVEY

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| $0+00$ | 23N | $-19$ | +44 |  |  |
| $1$ | 21 N | -20 | +44 |  |  |
|  | 19N | -19 | +40 | -2 |  |
|  | 23N | $-13$ | +42 | +9 |  |
| 0+50 | 26N | - 9 | +49 | +10 |  |
|  | 28N | -4 | +52 | 0 |  |
| $0+75$ | 21 N | -11 | +49 | -20 |  |
|  | 11 N | -10 | +32 | -35 |  |
| 1400 | 3 N | -10 | +14 | -37 |  |
|  | 2N | -8 | +5 | -16 |  |
| $1+25$ | 45 | -9 | -2 | -21 |  |
|  | 115 | -8 | -16 | -19 |  |
| \% $1+50$ | 85 | - 5 | -20 | -1 |  |
|  | 95 | -5 | -17 | -1 |  |
| $1+75$ | 125 | -4 | -21 | -7 |  |
| $\div \frac{12+00}{1+2}$ | 125 | -4 | -24 | -7 |  |
|  | 25 | +1 | -14 | 12 |  |
|  | 15 | 0 | -3 | +2 |  |
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| abt | abundant | mn | minor |
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| aft | after | ol | olivine |
| alb | albite | orth | orthoclase |
| alt | altered | pred | predominately |
| brwn | brown | py | pyrite |
| cal | calcite | pyrr | pyrrhotite |
| chl | chlorite | pyx | pyroxene |
| cpy | chalcopyrite | rem | remnant |
| dior | diorite | saus | saussuritization |
| dsm | disseminated | sulf | sulfide |
| eff | effect | surf | surface |
| epd | epidote | syn | syenite |
| fld | feldspar | trem | tremolite |
| fn | fine | tour | tourmaline |
| frag | fragment | vn | vein |
| frac | fractured | vy | volcanic |
| grn | green | vymn | very |
| grnd | grained | vyvymn | very very minor |
| hbd | hornblend | qtz | quartz |
| hem | hemitite | wht | white |
| kaol | kaolinite | \& | uphole |
| leuc (luco) leucocratic | hem $4-$ mag | hem from mag |  |
| lim | limonite |  |  |
| mag | magnetite | material | medium |



DDH: PDHO7-002?
Collar Location: Grid:
UTM: $\mathrm{N}: \quad \mathrm{E}: \quad \mathrm{El}: \ldots \quad \mathrm{m}$
Azimuth: $\qquad$ Inclination: Total Depth:

MINERALIZATION LITHOLOGY

Date: Start:
Finish:May 12 Target:

Logged by:_GFID

| $\frac{x}{\bar{x}}$ | INTERVAL |  |  |  |
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|  | 0 | 10 |  |  |
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|  | 25 | 30 |  | ) |
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|  | 35 | 40 |  | 51521 |
|  | 40 | 45 |  | 51522 |
|  | 45 | 50 |  | 51523 |
|  | 50 | 55 |  | 51524 |
|  | 55 | 60 |  | 51525 |
|  | 60 | 65 |  | 51526 |
|  | 65 | 70 |  | 51.527 |
|  | 70 | 75 |  | 51528 |
|  | 15 | 80 |  | 51529 |
|  | 80 | 85 |  | 51530 |
|  | 85 | 90 |  | 51531 |
|  | 90 | 95 |  | 51532. |
|  | 95 | 100 |  | 51533 |
|  | 100 | 105 |  | 51534 |
|  | 105 | 110 |  | 51535 |
|  | 110 | 115 |  | 51536 |
|  | 115 | 120 |  | 51537 |
|  | 120 | 125 |  | 51538 |
|  | 125 | 130 |  | 51534 |
|  | 130 | 135 |  | 51540 |
|  | 135 | 140 |  | 51541 |
|  | 140 | 145 |  | 51542 |
|  | 145 | 150 |  | 51543 |
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PROJECT AMOND DRILL HOLE THOLOGY LOG

| $\left.\begin{array}{\|l\|} \bar{x} \\ \overline{2} \\ \underline{e} \end{array} \right\rvert\,$ | INTERVAL |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | From | To | m |  |
|  | 150 | 155 |  | 51544 |
|  | 155 | 160 |  | 51545 |
|  | 160 | 165 |  | 51546 |
|  | 165 | 170 |  | 51547 |
|  | 170 | 175 |  | 51548 |
|  | 175 | 179 |  | 51549 |
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DDH: $\quad P D H 8 T-00 \bigcirc$
Collar Location: Grid: _002 UTM: N:__E:_E: Inclination: Total Depth: m
Azimuth: $\square$
Azimuth MINERALIZATION Lithology

Date: Start: $\frac{\text { May } 1 /}{\text { Finish: Mlay } 12}$ Page Target: Logged by: GF//


DDH: PDH81-003
Collar Location: Grid:
UTM: $N: \_$E__ El: $\qquad$ m
Azimuth: $\qquad$ Inclination: $\qquad$ Total Depth: $\qquad$ m

Date: Start: Mlay 12 Finish:
Target:
Logged by: THOLOGY LOG

| $\frac{1}{2}$ | INTERVAL |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | From | то | m |  |
|  | 30 | 35 |  | 51550 |
|  | 35 | 40 |  | 51551 |
|  | 40 | 45 |  | 51552 |
|  | 45 | 50 |  | 51553 |
|  | 50 | 55 |  | 51554 |
|  | 55 | 60 |  | 51555 |
|  | 60 | 65 |  | 51556 |
|  | 6.5 | 70 |  | 51557 |
|  | 70 | 7\% |  | 51558 |
|  | 75 | 80 |  | 51559 |
|  | 80 | 8\% |  | 51560 |
|  | 85 | 90 |  | 51561 |
|  | 90 | 95 |  | 51562 |
|  | 45 | 100 |  | 51563 |
|  | 100 | 105 |  | 51564 |
|  | 105 | 110 |  | 51565 |
|  | 110 | 115 |  | 51566. |
|  | 115 | 120 |  | 51567 |
|  | 120 | 125 |  | 51568 |
|  | 125 | 130 |  | 51569 |
|  | 130 | 135 |  | 51570 |
|  | 135 | 140 |  | 51571 |
|  | 140 | 145 |  | 51512 |
|  | 145 | 150 |  | 51573 |
|  | 150 | 155 |  | 51574 |
|  | 155 | 160 |  | 51575 |
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PROJECT AMOND DRILL HOLE THOLOGY LOG

| $\frac{x}{x}$ | INTERVAL |  |  |  |
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|  | 0 | 10 |  | 51603 |
|  | 10 | 15 |  | 51604 |
|  | 15 | 20 |  | 51605 |
|  | 20 | 25 |  | 51606 |
|  | 25 | 30 |  | 51607 |
|  | 30 | 35 |  | 51608 |
|  | 35 | 40 |  | 51609 |
|  | 40 | 45 |  | 51610 |
|  | 45 | 50 |  | 51611 |
|  | 50 | 55 |  | 51612 |
|  | 55 | 60 |  | 51613 |
|  | 60 | 65 |  | 51614 |
|  | 65 | 70 |  | 51615 |
|  | 70 | 75 |  | 51616 |
|  | 75 | 80 |  | 51617 |
|  | 80 | 85 |  | 51618 |
|  | 85 | 90 |  | 51619 |
|  | 90 | 95 |  | 51620 |
|  | 95 | 100 |  | 51621. |
|  | 100 | 105 |  | 51622 |
|  | 105 | 110 |  | 51623 |
|  | 110 | 115 |  | 51624 |
|  | 115 | 120 |  | 51625 |
|  | 120 | 125 |  | \$16227 |
|  | 125 | 130 |  | 51628 |
|  | 130 | 135 |  | 51629 |
|  | 135 | 140 |  | 51630 |
|  | 140 | 145 |  | 51631 |
|  | 145 | 150 |  | 51632 |
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Date: Start: May 13
Target: $\qquad$
Logged by: 6Fm

Azimuth:

UTM: $N$ : $\qquad$ E: Total Depth: $\qquad$

MINERALIZATION
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PROJECT

## AMOND DRILL HOLE

 THOLOGY LOG$\overline{\frac{x}{2}}$ INTERVAL


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|  | 150 | 155 |  | 51633 |
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| 160 | 165 |  | 51635 |
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| 165 | 170 | 51636 |
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|  | 170 | 175 |
|  |  | 51637 |

51638
51639
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51642

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DDHE POHE7-005

Collar Location: Grid:
UTM: $\mathrm{N}: \quad \mathrm{E}: \quad \mathrm{El}:$
Azimuth: $\qquad$ Inclination: $\qquad$ Total Depth: m

Date: Start: $\frac{\text { May } 130}{\text { Finish: May } 14}$ Target: Logged by:_GFm

| 175 | 180 |  |
| :---: | :---: | :---: |
| 180 | 185 |  |
| 18538 | 51639 |  |
| 190 | 190 | 51640 |
| 190 | 195 | 51641 |
| 195 | 200 |  |
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| LITHOLOGY | MINERALIZATION and alteration | Structure |
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| same leuc dior slightly less py bit | paler |  |
| some leue dior slightly more epd | less py $\uparrow=$ ryvy mn |  |
| same leuc dior vyvyinn py |  |  |
| same leuc dior py* 190 rymn cpy |  |  |
| same leuc dior less py vymn cpy |  |  |
| same leuc dior lesspy vyvymncpy |  |  |
| some leuc dior less py $(\rightarrow \varnothing)$ |  |  |
| same leuc dior almost no py |  |  |
| same leuc dior bit more py $\uparrow$ |  |  |
| same leuc dior vymn py |  |  |
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| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| INTERVAL |  |  |  | LITHOLOGY |  | mineralization AND ALTERATION |  |  | m ${ }^{\text {a }}$ Text ${ }^{\text {a }}$ |  |  |  |  |
| \% From | To | m | Unit |  |  | STRUCTURE |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | $m n$ |  | ¢ |  |  |
| 8 | 15 |  | 51643 | stronalv | lim dior basic leuc dior mn ean |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | 20 |  | 51644 | stronoly | lim dior same 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | 25 |  | 51645 | some leuc | uco dior $\uparrow$ less limo |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | 30 |  | 51646 | med dar | ck dior mn epd mag 5-10 | no py |  |  |  |  |  |  |  |  |  |  |  |
| 30 | 35 |  | 51647 | dior paler | er $\uparrow$ ( $\sim$ pale side med $m$ ) bit mo | ve mag |  |  |  |  |  |  |  |  |  |  |  |
| 35 | 40 |  | 51648 | same d | ior $\uparrow$ vyvymn py |  |  |  |  |  |  |  |  |  |  |  |  |
| 40 | 45 |  | 51649 | same dio | r $\uparrow$ ( $\approx$ pale side med) vyvymn spy | $m n-v y m n$ py |  |  |  |  |  |  |  |  |  |  |  |
| 45 | 50 |  | 51650 | same dior | or $\uparrow$ less py $=$ vymn |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 | 55 |  | 51651 | same dio | or poy $=2.5 \%$ vyvymn cpy ma | $0=10 \%$ |  |  |  |  |  |  |  |  |  |  |  |
| 55 | 60 |  | 51652 | same dior | or 1 1-290 py vyrymn cpy | $\text { epd } 2-3 \%$ |  |  |  |  |  |  |  |  |  |  |  |
| 60 | 70 | F10fte | 51653 | same dio | or 1 only paler $p y<1 \%$ less len | di chl paler les | $\operatorname{mag}(2)$ | 5\%) vyuy |  |  |  |  |  |  |  |  |  |
| 70 | 75 |  | 51654 | same did | 1or $\uparrow 1 / 2 \%$ py trace cpy $>5 \%$ | $m a g$ mand |  |  |  |  |  |  |  |  |
| 75 | 80 |  | 51655 | same 1 | slightly more mag |  |  |  |  |  |  |  |  |  |
| 80 | 85 |  | 51656 | same d | ior 1 sliahtly less mag |  |  |  |  |  |  |  |  |  |
| 85 | 90 |  | 51657 | pred pal | le grn $\rightarrow$ white dior inn hem $v$ | umn py |  |  |  |  |  |  |  |  |
| 90 | 95 |  | 51658 | nale grn | n dior mn hem mba $5 \%$ hem | $\leftarrow$ mag |  |  |  |  |  |  |  |  |
| 95 | 100 |  | 51659 | same | grndior $\uparrow$ mn hem mag $5 \%$ | no py |  |  |  |  |  |  |  |  |
| 100 | 105 |  | 51660 | same | dior $\uparrow$ vymn py \& cpy hem | $\sim$ mag very li | le ef | 2 |  |  |  |  |  |  |
| 105 | 110 |  | 51661 | 50/50 | white/green dor $p y<\uparrow$ |  |  |  |  |  |  |  |  |  |
| 110 | 115 |  | 51662 | 50/50 | white lareenvanhem -mag le | ss py 1 more mag |  |  |  |  |  |  |  |  |
| 115 | 120 |  | 51663 | more whi | , ite then areendior py epd same 1 |  |  |  |  |  |  |  |  |  |
| 120 | 125 |  | 51664 | slightly | moye green then whitedioyvymn of | $\checkmark$ mag 1090 mure | nem | mag 1 |  |  |  |  |  |  |
| 125 | 130 |  | 51665 | slightly | whitergreen $\rightarrow$ Sol 50 dionvy vy | in py cpy |  |  |  |  |  |  |  |  |
| 130 | 135 |  | 51666 | $\approx 5015$ | 50 whitelgreen divyvymn.py | c, y |  |  |  |  |  |  |  |  |
| 135 | 140 |  | 51667 | White $>$ | Green dior, - | $m n$ nem < mag | vymn |  |  |  |  |  |  |  |
| 140 | 145 |  | 51668 | White > | 7 Greendiormag 5\% atz $3 \%$ | $m n$ hem <ma | g $V / m$ |  |  |  |  |  |  |  |
| 145 | 150 |  | 51669 | Whice | $\geq$ Greendormag 7\% atz $1 \%$ | $m n$ hem $\leqslant$ m | g mn | py |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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PROJECT
IAMOND DRILL HOLE ithology log

| $\left.\begin{array}{\|c\|} \hline \frac{x}{2} \\ \frac{x}{2} \end{array} \right\rvert\,$ | INTERVAL |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | From | To | m | Unit |
|  | 165 | 170 |  | $5 / 711$ |
|  | 170 | 175 |  | 6:72 |
|  | 175 | 180 |  | 5.3 |
|  | 180 | 185 |  | $5 \cdots$ |
|  | 185 | 190 |  | in 5 |
|  | 190 | 195 |  | 5.716 |
|  | 195 | 200 |  | 5 |
|  | 200 | $20{ }^{2}$ |  | 5178 |
|  | 205 | 210 |  | 3:19 |
|  | 210 | 215 |  | 51720 |
|  | 215 | 220 |  | 4,-1 |
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DDH: POHE1-0070
Collar Location: . Grid: UTM: $N$ : Inclination:
$\qquad$ E : $\qquad$ m
Azimuth: $\qquad$
$\qquad$
$\qquad$ Total Depth: $\qquad$ -m MINERALIZATION


Target: $\qquad$
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| REPORT: 427-3075 |  |  |  | PROJECT: GALAXY | PAGE | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SAMPLE | ELEHENT | Cu |  |  |  |  |
| NUHBER | UNITS | PCT | - |  |  |  |
| R2 51726 |  | 0.96 |  |  |  |  |
| R2 51727 |  | 0.18 |  |  |  |  |
| R2 51728 |  | 0.69 |  |  |  |  |
| R2 51729 |  | 0.02 |  | $a$ |  |  |

Certificate

PROJECT: GALAXY
PAGE 1


| R2 51521. | 0.02 |  |  | .' |
| :---: | :---: | :---: | :---: | :---: |
| R2 51522 | 0.02 |  |  |  |
| R2 51523 | 0.01 |  |  |  |
| R2 51524 | <0.01 |  |  |  |
| R2 51525 | 0.01 |  |  |  |
| R2 51526 | 0.01 |  |  |  |
| R2 51527 | $<0.01$ |  |  |  |
| R2 51528 | <0.01 |  |  |  |
| R2 51529 | 0.01 | N |  |  |
| R2 51530 | 0.01 |  |  |  |

 of Analysis

| REPORT: 427-2979 |  |  | PROJECT: GALAXY |  |  | PAGE | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SAIPLE | ELEMENT | Cu | SAMPLE | ELEEENT | Cu |  |  |
| NUHBER | UNITS | PCT | NUHBER | UNITS | PCT |  |  |
| R2 51538 |  | 0.03 | R2 51578 |  | 0.01 |  |  |
| R2 51539 |  | 4.04 | R2 51579 |  | 0.01 |  |  |
| R2 51540 |  | 0.02 | R2 51580 |  | 0.01 |  |  |
| R2 51541 |  | 0.05 | R2 51581 |  | $<0.01$ |  |  |
| R2 51542 |  | 0.04 | R2 51582 |  | 0.01 |  |  |
| R2 51543 |  | 0.03 | R2 51583 |  | <0.01 |  |  |
| R2 51544 |  | 0.04 | R2 51584 |  | <0.01 |  |  |
| R2 51545 |  | 0.02 | R2 51585 |  | 0.01 |  |  |
| R2 51546 |  | 0.02 | R2 51586 |  | 0.02 |  |  |
| R2 51547 |  | 0.02 | R2 51587 |  | 0.01 |  |  |
| -R2 51548 |  | 0.02 |  |  |  |  |  |
| $\triangle$ R2 51549 |  | 0.02 |  |  |  |  |  |
| R2 51550 |  | 0.06 |  |  |  |  |  |
| R2 51551 |  | 0.09 |  |  |  |  |  |
| R2 51552 |  | 0.39 |  |  |  |  |  |
| R2 51553 |  | 0.03 |  |  |  |  |  |
| R2 51554 |  | 0.02 |  |  |  |  |  |
| R2 51555 |  | 0.01 |  |  |  |  |  |
| R2 51556 |  | 0.01 |  |  |  |  |  |
| R2 51557 |  | 0.01 |  |  |  |  |  |
| R2 51558 |  | 0.01 |  |  |  |  |  |
| R2 51559 |  | 0.01 |  |  |  |  |  |
| R2 51560 |  | 0.01 |  |  |  |  |  |
| R2 51561 |  | 0.02 |  |  |  |  |  |
| R2 51562 |  | 0.01 |  |  |  |  |  |
| R2 51563 |  | 0.01 |  |  |  |  |  |
| R2 51564 |  | 0.01 |  |  |  |  |  |
| R2 51565 |  | 0.01 |  |  |  |  |  |
| R2 51566 | * | B. 03 | * |  |  |  |  |
| R2 51567 |  | 0.02 |  |  |  |  |  |
| R2 51568 |  | 0.03 |  |  |  |  |  |
| R2 51569 |  | 0.02 |  |  |  |  |  |
| R2 51570 |  | 0.02 |  |  |  |  |  |
| R2 51571 |  | 0.02 |  |  |  |  |  |
| R2 51572 |  | 0.02 |  |  |  |  |  |
| R2 51573 |  | 0.02 |  |  |  |  |  |
| R2 51574 |  | 0.02 |  |  |  |  |  |
| R2 51575 |  | 0.01 |  |  |  |  |  |
| -R2 51576 |  | 0.01 |  |  |  |  |  |
| R2 51577 |  | 0.01 |  |  |  |  |  |


| REPORT: 127-2969 |  |  |  | Project: Galaty | Page 1 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| SATPLE | ELEHENT | Ag | Au |  |  |
| NUKBER | UNITS | PPK | PP8 |  |  |
| R2 51501 |  | $<0.1$ | 45 |  |  |
| R2 51502 |  | $<0.1$ | 10 |  |  |
| R2 51503 |  | <0.1 | 10 |  |  |
| R2 51504 |  | $<0.1$ | 10 |  |  |
| R2 51505 |  | $<0.1$ | <5 |  |  |
| R2 51506 |  | $<0.1$ | 5 |  |  |
| R2 51507 |  | $<0.1$ | $<5$ |  |  |
| R2 51508 |  | <0.1 | 5 |  |  |
| R2 51509 |  | $<0.1$ | 5 |  |  |
| R2 51510 |  | $<0.1$ | 15 |  |  |
| R2 $51511{ }^{\circ}$ |  | $<0.1$ | <5 |  |  |
| R2 51512 |  | - <0.1 | < 5 |  |  |
| R2 51513 |  | $<0.1$ | 20 |  |  |
| R2 51514 |  | <0.1 | 10 |  |  |
| R2 51515 |  | 0.8 | 140 |  |  |
| 8251516 |  | <0.1 | 10 |  |  |
| R2 51517 |  | <0.1 | 10 |  |  |
| R2 51518: | - | - <0.1 | 5 |  |  |
| $R 251519$ | N- | <0.1 | < |  |  |
| R2 51520 |  | <0.1 | <5 | . |  |
| R2 51521 |  | $<0.1$ | < |  |  |
| R2 51522 |  | $<0.1$ | <5 |  |  |
| R2 51523 |  | <0.1 | 5 |  |  |
| R2 51524 |  | $<0.1$ | <5 |  |  |
| R2 51525 |  | $<0.1$ | <5 |  |  |
| R2 51526 |  | <0.1 | < |  |  |
| R2 51527 |  | <0.1 | <5 |  |  |
| R2 51528 |  | <0.1 | < 5 |  |  |
| R2 51529 |  | <0.1 | <5 |  | * |
| R2 51530 |  | $<0.1$ | < |  |  |
| R2 51531 |  | $<0.1$ | $<5$ | . |  |
| R2 51532 |  | $<0.1$ | 5 |  |  |
| R2 51533 |  | <0.1 | 5 |  |  |
| R2 51534 |  | $<0.1$ | 10 |  |  |
| R2 51535 |  | $<0.1$ | 10 |  |  |
| R2 51536 |  | \ll0.1 | 10 |  |  |
| R2 51.537 |  | <0.1 | 20 |  |  |




| $R 251563$ | $<0.1$ | $<5$ |
| :--- | ---: | ---: |
| R2 51564 | $<0.1$ | 25 |
| R2 51565 | $<0.1$ | $<5$ |
| R2 51566 | 0.6 | 10 |
| R2 51567 | 0.9 | $<5$ |


| R2 51568 | 0.8 | 5 |
| :---: | :---: | :---: |
| R2 51569 | 0.4 | 10 |
| R2 51570 | 1.0 | 5 |
| R2 51571 | 0.6 | 55 |
| R2 51572 | 0.5 | 20 |
| 'R2 51573 | 0.4 | 25 |
| -R2 51574 | 0.3 | 5 |
| +51575 | 0.4 | 5 |
| - 51576 | 0.2 | 5 |
| R2 51577 | 0.1 | < 5 |


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| SAHPLE <br> NUHBER | ELEMENT UNITS | $\begin{gathered} \mathrm{Cu} \\ \mathrm{PPH} \end{gathered}$ | $\begin{array}{r} \mathrm{Ag} \\ . \mathrm{PPH} \end{array}$ | $\begin{aligned} & \mathrm{Au} \\ & \mathrm{PPB} \end{aligned}$ | SAMPLE <br> NUMBER | ELEKENI UNITS | $\begin{gathered} \mathrm{CU} \\ \mathrm{PPH} \end{gathered}$ | $\begin{gathered} \mathrm{Ag} \\ \mathrm{PPM} \end{gathered}$ | Au PP8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| R2 51621 |  | 39 | <0.1 | <5 | R2 51661 |  | 20 | <0.1 | <5 |
| R2 51622 |  | 35 | <0.1 | < 5 | R2 51662 |  | 12 | $<0.1$ | <5 |
| R2 51623 |  | 29 | 0.1 | <5 | R2 51663 |  | 18 | <0.1 | <5 |
| , R2 51624 |  | 37 | <0.1 | $<5$ |  |  |  |  |  |
| R2 51625 |  | 62 | 0.2 | <5 |  |  |  |  |  |
| R2 51626 |  | 37 | 0.1 | <5 |  |  |  |  |  |
| R2 51627 |  | 48 | 0.1 | <5 |  |  |  |  |  |
| R2 51628 |  | 44 | 0.1 | < 5 |  |  |  |  |  |
| R2 51629 |  | 41 | 0.1 | < 5 |  |  |  |  |  |
| $R 251630$ |  | 58 | $<0.1$ | 15 |  |  |  |  |  |


| R2 51631 | 55 | 0.1 | 25 |
| :--- | ---: | ---: | ---: |
| R2 51632 | 51 | 0.1 | 10 |
| R2 51633 | 54 | 0.1 | 5 |
| R2 51634 | 33 | $<0.1$ | $<5$ |
| R2 51635 | 72 | $<0.1$ | $<5$ |


| $R 251636$ | 60 | 0.2 | $<5$ |
| :--- | ---: | ---: | ---: |
| $R 251637$ | 121 | 0.2 | $<5$ |
| $R 251638$ | 109 | $<0.1$ | $<5$ |
| $R 251639$ | 71 | 0.1 | $<5$ |
| $R 251640$ | 34 | 0.2 | $<5$ |



| R2 51651 | 62 | 0.2 | 75 |
| :---: | :---: | :---: | :---: |
| R2 51652 | 18 | 0.2 | 15 |
| R2 51653 | 42 | 0.2 | 10 |
| R2 51654 | 37 | 0.2 | 10 |
| R2 51655 | 8 | 0.1 | < 5 |
| R2 51656 | 24 | <0.1 | 10 |
| 8251657 | 62 | 0.1 | < |
| R2 51658 | 43 | $<0.1$ | <5 |
| R2 51659 | 17 | <0.1 | $<5$ |
| R2 51660 | 26 | <0.1 | < |

0


| Pif6 R2 51674 | 55 | 0.1 | <5 |  |
| :---: | :---: | :---: | :---: | :---: |
| R2 51675 | 83 | 0.1 | <5 |  |
| R2 51676 | 69 | 0.1 | < |  |
| R2 51677 | 105 | 0.1 | <5 |  |
| R2 51678 | 80 | 0.1 | 5 |  |


| $\begin{aligned} & \text { R2 } 51682 \\ & \text { R2 } 51683 \end{aligned}$ | 16 13 | 0.1 0.1 | <5 |
| :---: | :---: | :---: | :---: |
| R2 51684 | 20 | 0.1 | < 5 |
| R2 51685 | 20 | 0.1 | <5 |
| R2 51686 | 14 | 0.1 | < 5 |
| R2 51687 | 62 | 0.1 | く5 |
| R2 51688 | 9 | 0.1 | < |


| R2 51689 | 12 | 0.1 | $<5$ |
| :--- | :--- | :--- | :--- |
| R2 51690 | 8 | 0.1 | $<5$ |
| R2 51691 | 6 | 0.1 | $<5$ |
| R2 51692 | 20 | 0.1 | $<5$ |


| R2 51694 | 17 | 0.1 | $<5$ |
| :--- | :---: | :---: | :---: |
| R2 51695 | 12 | 0.1 | $<5$ |
| R2 51696 | 11 | 0.1 | $<5$ |
| R2 51697 | 9 | 0.1 | $<5$ |
| R2 51698 | 20 | 0.1 | $<5$ |


| R2 51699 | 13 | 0.1 | $<5$ |
| :--- | ---: | ---: | ---: |
| R2 51700 | 9 | 0.1 | $<5$ |
| R2 51701 | 17 | 0.1 | $<5$ |
| R2 51702 | 46 | 0.1 | $<5$ |
| R2 51703 | 14 | 0.1 | $<5$ |

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PROJECT: GALAXY PAGE 1

| R2 51716 |  | 43 | $<0.1$ | < |
| :---: | :---: | :---: | :---: | :---: |
| R2 51717 | , | 18 | <0.1 | < 5 |
| R2 51718 | P4-7 | 50 | <0.1 | 5 |
| R2 51719 | 1 | 26 | <0.1 | < |
| R2 51720 |  | 11 | <0.1 | < 5 |

R2 51721
13
$<0.1$
<

ABERMIN CORPORATION
GALAXY PROJECT
STATEMENT OF EXPENDITURES
JULY 1987


## STATEMENT OF QUALIFICATIONS

I, Barry W. Smee, of the City of Vancouver, in the Province of British Columbia, hereby certify that:

1) I graduated from the University of Alberta in 1969 with a B.Sc. in Geology, and from the University of New Brunswick in 1982 with a Ph.D. in Geology and have been practicing geology continuously for 17 years.
2) I am registered as a Professional Geologist in the Province of Alberta.
3) I am employed by Abermin Corporation of Vancouver British Columbia, and the work described in this report was performed under my direction.

August 7, 1987


I Gerald F. McArthur of 11135 Monroe Drive, Delta, B.C. do hereby state:

1. I am a graduate in Geology of University of British Columbia (1973).
2. I have been practicing my profession since graduation.
3. I am a Professional Geologist registered in Alberta.
4. I am a member of the CIMM.
5. I am a Fellow of the Geological Association of Canada.

Gerald F. McArthur





