

1973 Geological, Geochemical, and Geophysical ASSESSMENT REPORT


TITLE
Deer, Park, and Camel Claims Teer Park $\mathrm{MoS}_{2}$ Property

AUTHORS
DATE

## COMMODITY

LOCATION-Area
-Mining Division

- Coordinates -NTS
H.W. Sellmer and G.M. DePaoli

$$
\text { Apri. } 1974
$$

## Mo

Castlegar, B.C.
Trail Creek $49^{\circ} \mathrm{O} 2^{\prime} \mathrm{N}$ and $118^{\circ} \mathrm{O} 2^{\prime} \mathrm{W}$
82 W

AMAX VANCOUVER

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The Deer Park Property is located at an elevation of 5,000 feet on Upper Shields Creek approximately 18 miles west of Castlegar in Southern British Columbia. The claims are accessible by 17 miles of dirt road from Highway \# $^{2}$.

The property which presently includes 85 claims was optioned from Heinz Veerman and William Botel. It was formerly known as the Midas Group.

Considerable previous work including shafts, adits, surface surveys, and 1,800 feet of diamond drilling, has been carried out on the property. One diamond drill hole (DDH 非7) intersected 50 feet of $0.3 \% \mathrm{MoS}_{2}$.

Coryell monzonites, syenites, and breccias underlie the grid-area. A coarse-grained syenite and fresher-looking, subporphyritic, locally quartz-bearing syenite are separated by a 2,000 foot wide band of aphanitic feldspar porphyry of similar composition. The aphanitic feldspar porphyry and, to a lesser extent the coarse grained syenites are intruded by a dominantly northwest-striking, vertical swarm of syenite porphyry, andesite, and lamprophyre dykes. Minor, more quartz-rich variants are also present.

A breccia zone of nearly the same age as the dyke swarm trends east-west across the intrusive grain. The breccia is highly variable in fragment size, matrix, and fragment composition.

A variable, locally intense quartz vein and/or quartzmagnetite vein stockwork cuts all rock types but appears most intense peripheral to the breccia. Pyrite is locally intense near or within the breccia and forms a weakly developed halo around it.

Fluorite, calcite, secondary biotite (?), hematite, and magnetite are erratically distributed within the breccia and near its peripheries, and within shear zones in syenite porphyry
dykes.
Northwest and north-south striking steeply dipping faults are prominent. The northwest-striking dyke swarm probably occupies a dilational fracture and fault set related to an eastwest oriented major stress axis.

Molybdenite mineralization is found sporadically in a variety of environments in the mapped area. It occurs at the peripheries of the breccia zone and partly within it; in highly fractured, quartz veined medium grained quartz monzonite; and with chlorite-magnetite alteration in shear zones which cut the sub-porphyritic coarse grained syenite.

Prominent $\mathrm{Mo}, \mathrm{Cu}, \mathrm{Ag}, \mathrm{Zn}$, and W soil anomalies coincide mainly with the breccia zones.

A magnetometer survey reveals strong magnetic highs at the peripheries of breccia zones. In addition, the coarsegrained syenite has locally high magnetic susceptibility.

A relatively shallow I.P. anomaly which corresponds to $1-3 \%$ sulphides by volume covers much of the east-central grid area. Several root-like zones extend to greater depths at the edges of breccia zones. One such zone coincides with the 50 feet of $0.3 \% \mathrm{MoS}_{2}$ intersected in DDH $\$ 7$.

RECOMMENDATIONS
A drill program to test the breccia zones with their coincident anomalies is recommended. Six holes should adequately test a strike length of 4,000 feet for the presence of economic molybdenite mineralization.

The survey area should be extended to the east, west, and southwest to fully define breccia zones, and close off geophysical and geochemical anomalies.

A breccia zone of nearly the same age as the dyke swarm, trends east-west across the intrusive grain. The breccia is highly variable in fragment size, matrix, and fragment composition. It locally has syenite porphyry matrix, crushed rock matrix, or none at all. Syenite porphyry dykes form the matrix, are themselves brecciated, and cut the breccia.

A variable, locally intense quartz vein and/or quartzmagnetite vein stockwork cuts all rock types but appears most intense peripheral to the breccia. Pyrite is locally intense near or within the breccia and forms a weakly developed halo around it.

Weak clay-sericite-carbonate alteration is associated with pyritization. Patchy silicification and K-feldspar flooding occur sporadically. Fluorite, calcite, secondary biotite (?), hematite, and magnetite are erratically distributed within the breccia and near its peripheries, and within shear zones in syenite porphyry dykes.

Faults strike northwest, north-south, and east-northeast in the grid area. Northwest and north-south striking steeply dipping faults are prominent. The northwest-striking dyke swarm probably occupies a dilational fracture and fault set related to an east-west oriented major stress axis. Subsequent failure may have given rise to the east-west striking breccia. Fracture intensity is highly variable, but is most intense in aphanitic feldspar porphyry adjacent to the breccia. Fracturing also strikes northwest, north-south, and east-northeast but dips range widely. Northeast-striking fractures with variable dips are also represented.

Molybdenite mineralization is found sporadically in a variety of environments in the mapped area. It occurs at the peripheries of the breccia zone and partly within it; in highly fractured, quartz veined medium grained quartz monzonite; and

Lower Arrow Lake which makes a sharp bend to the east in the vicinity of the Deer Park Property.

Numerous mineral deposits occur in the general area. They includes those of the Rossland Camp ( $\mathrm{Cu}-\mathrm{Au}$ ), the BeaverdellCarmi area ( $\mathrm{Ag}-\mathrm{Pb}-\mathrm{Zn}$ ), and the Phoenix area ( Cu ). Molybdenite properties are relatively scarce but include the Red Mountain Mine to the south; AMAX Mo group to the west, and a property four miles east on Lower Shields Creek.

## Property Geology

Outcrops, although small, are numerous over much of the Deer Park Property. A series of cliffs and bluffs at the north and south sides of the grid give excellent large exposures. A swamp in the central portion of the grid and glacial cover to the northeast obscure over large areas.

All of the grid area has been glaciated. Subdued, rounded and often striated outcrops are prominent in the southwestern grid area. Glacial direction appears to have been northwest-southeast to northsouth. A blanket of boulder till with locally interbedded fluviatile deposits increases in thickness from the central to the northeast part of the grid.

Bedrock is composed of a variety of intrusive rocks which range considerably in grain-size and tecture but are somewhat similar in composition. A coarse grained hornklende-biotite syenite and a slightly fresher-looking, sub-porphyritic, locally quartz-bearing syenite are separated by a northwest-trending 2,000 foot wide band of aphanitic feldspar porphyry of similar composition. The aphanitic feldspar porphyry and, to a lesser extent the coarse grained syenites are intruded by a dominantly northwest striking, vertical swarm of syenite porphyry, andesite, and lamprophyre dykes. Minor, more quartz-rich variants are also present.

LEGEND

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TERTIARY
    MIOCENE(?)
    1f Basalt, olivine basalt
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    PALEOCENE OR EOCENE
        PHOENIX VOLCANIC GROUP
    10 Andesite, trachyte; minor basalt; locally, interbedded tuff,
    shale, and/or siltstone
    KETTLE RIVER FORMATION: zhyolite and dacite tuff; locally,
        conglomerate, sandstone, and shale; minor rhyolite flows and
        intrusive porphyritic rhyolite
    PALEOCENE(?)
    8 CORYELL INTRUSIONS: syenite; monzonite, shonkinite and
        granite
    

PROTEROZOIC (?)

CHAPTER II - GEOLOGY
General Statement
Because the writer is not familiar with the geology of the region, the discussion under the heading "Regional Geology" is taken from refexences (see List, Page 28).

The grid area was mapped from September 18 to October 8, 1973. Considerable care was taken to map as many outcrops as possible. Some of the outcrops shown in the central-northeastern part of the grid may in fact be glacial boulders. Elsewhere boulder piles probably accurately represent underlying bedrock.

Petrographic descriptions are based on hand specimens collected by the writer, as well as stained slabs, and thin sections collected by the writer and previous workers.

Regional Geology
The vicinity of the Deer Park Property is underlain by coarse grained monzonite or syenite of the Paleocene Coryell Intrusions which intrude Cretaceous and older Valhalla and Nelson Intrusions of mainly granodioritic composition. Rocks mapped on the East Half of the Kettle River Map Sheet (Table I) include older ultrabasic intrusions, Jurassic volcanics of the Rossland Group, Late Paleozoic metamorphic rocks of the Anarchist Group and Mount Roberts Formation, and possibly Proterozoic paragneisses belonging to the Monashee and Grand Forks Groups.

Rhyolite, dacite tuffs, continental sediments, and rhyolite lavas of the Kettle River Formation overlie and may be in part correlative with the Coryell Intrusions. They are overlain in turn by basic volcanics of the Phoenix Group and Miocene olivine basalts.

Prominent north-trending fault and linear zones are displayed on the map sheet, including the Kettle River, Granby River, Burrell Creek, Christina Lake, and the northern part of
submitted the property to AMAX in August of 1973.
Scope of Present Work
A grid using the existing line 70 N as the base line, was cut and picketed. The base line was picketed at hundred foot intervals from 58E to 110 E for a total distance of 5,200 feet. North-south cross lines were established at 200 foot intervals. They extend from 50 N to 90 N for a total length of 4,000 feet.

A detailed geological map was prepared by mapping all outcrops up to 50 feet from either side of the lines. Numerous rock specimens were collected from the various rock types encountered on the property.

Soil samples were collected at 200 foot intervals along the grid. The soils were analyzed for $\mathrm{Mo}, \mathrm{Cu}, \mathrm{Ag}, \mathrm{Zn}$, and W . A magnetometer survey with readings at 100 foot intervals on all lines and an induced polarization survey measuring up to the fifth separation on alternate lines were also carried out. This report details the results of the above work.
and spruce. Lodgepole pine, tamarack, and spruce are common in the upland areas. Drier, south-facing slopes support open jackpine stands with little undexbrush whereas the north-facing ones are thickly forested -- especially where they have been burned over some time ago. Windfalls are abundant in the western part of the grid and in conjunction with thick second growth make travel difficult.

Previous Work
The Deer Park Property includes old workings formerly known as the "Midas Group" which probably date back to the turn of the century. The workings include two adits, some open cuts, and a shaft.

The property was owned by G. Blaney of Vancouver from the $1950^{\circ}$ s to 1970. R.L. Loudon of Southwest Potash made a brief examination of the property in 1964.

During 1968 Scurry-Rainbow optioned and carried out a limited amount of work on the property.

West Coast Mining and Exploration staked the property in 1970. They carried out geological mapping, geochemical sampling, and a magnetometer as well as an EM-16 survey over the present grid area. Their work outlined several geochemical and magnetic anomalies and indicated the presence of several breccia zones to the south of the old workings which had been the site of earlier efforts.

Seven holes, totalling 1,800 feet were drilled within or near breccia zones during 1971. Each of the holes (See Figure 7, in pocket) intersected minor amounts of molybdenite mineralization. Hole 非 y yielded by far the best intersection from 70 to 120 feet for a total of 50 feet averaging $0.22 \%$ Mo 'approximately $0.3 \% \mathrm{MoS}_{2}$ ).

The property reverted to Veerman and Bot $\equiv 1$ when West Coast Mining and Exploration, a syndicate, was disbanded. They

Veerman and Botel received an initial single payment of $\$ 5,000.00$ upon signing the option agreement which calls for additional payments of $\$ 500.00$ per month commencing June 30, 1974 to September 30, 1974. The remainder of the payments are listed in tabular form below.


The payments schedule will be superceded by $10 \%$ net profits when this amount is greater than $\$ 2,000.00$ per month.

Work commitments stipulate only that the mineral claims included in the Agreement must be maintained in a condition equivalent to their present standing by doing and recording work and paying of all rentals and fees. The owners may file excess work at their expense.

## Physiography and Vegetation

The Deer Park Property is located on a gently undulating upland surface at elevations ranging from 4,500 to 5,500 feet at the northern end of the Rossland Mountains - a minor subdivision of the southern Monashee Mountains. Mount Shields, a prominent nearby landmark, rises to an elevation of 5870 feet.

Although regional relief is great, slopes on the grid are mostly moderate to gentle (Figure l).

The region is heavily timbered. Valley floors and slopes support a dense, luxuriant growth of cedar, fir, hemlock,


## CHAPTER I - INTRODUCTION

## Location and Access

 \#3B -- and descends into the valley of Moberley Creek. Eight miles from the highway a road turns off to the west and follows the south side of Shields Creek. A branch to the north leads onto the property. The latter part of the road is rough and locally steep so that 4 -wheel drive may be required in bad weather or when the road is soft or snow-covered.The Canadian Pacific Railroad skirts the south side of Lower Arrow Lake and passes within four miles of the central part of the property.

## Claims

The Deer Park Property at present encompasses a total of 85 claims (Figure 2, after page 2). A complete claim schedule is found in Appendix II. Outlines of four groups into which the claims are assembled are shown in Figure 2.

The Deer, and Park claims, and respective fractions ( 43 claims) form the basis for the original option agreement with the owners, Heinz Veerman and William Botel. The remaining 42 claims, Camel 1-42, were staked by AMAX during September 1973, and are included in the agreement as additional claims.



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
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5197
AMAX EXPLORATION INC.

DEER PARK PROPERTY
TRAIL CREEK MINING dIVISION - BRITISH COLUMBIA
CLAIM MAP
H.W Sellmer

SCALE

with chlorite-magnetite alteration in shear zones which cut the sub-porphyritic coarse grained syenite.

Minor amounts of chalcopyrite, and rarely sphalerite were noted in carbonate-fluorite altered shears usually in close proximity to syenite porphyry.

Tungsten, in the form of scheelite and wolframite (?) was noted in some of the breccia.

Description of Rock Types
Coarse grained hornblende-biotite syenite - the oldest
rock type on the property is exposed mainly in the southwest corner of the grid. Several pendants and inclusions occur in aphanitic feldspar porphyry at $75 \mathrm{E}-70 \mathrm{~N}, 76 \mathrm{E}-52 \mathrm{~N}, 82 \mathrm{E}-58 \mathrm{~N}$, and elsewhere.

The rock is coarse grained with locally pegmatitic clots. Dark-grey streaks and clots of mafics which are scattered through out chalky-grey feldspar grains impart an indistinct foliation. Interlocking sub- to anhedral K-feldspar grains (80-60\%) (3-6mm.) with interstitial plagioclase (5-20\%) anhedra and exsolution lamellae ( $1-3 \mathrm{~mm}$ ), coarse clusters of ragged brown or green biotite ( $5-10 \%$ ), and subhedral green hornblende laths ( $5-15 \%$ ) comprise the rock. Large crystals of sphene (up to 5 mm .) and subhedral grains of magnetite ( $2-4 \mathrm{~mm}$. rarely up to 2 cm .) with feldspar inclusions are locally important accessories. Pyrite (up to $2 \%$ ) replaces mafics and occurs as fracture fillings in coarse grained syenite inclusions near 75E-70N.

Coarse to medium grained subporphyritic syenite underlies much of the northeastern half of the grid. It is also found as several pendants and inclusions within the aphanitic feldspar porphyry.

Subporphyritic syenite is light to dark pink and fresh in appearance. Large ( $8-12 \mathrm{~mm}$.$) strongly zoned \mathrm{K}$-feldspar
phenocrysts ( $60 \%$ ) with locally albitic rims are set in a sericite groundmass composed of sub- to euhedral K -feldspar (15\%), biotite ( $5 \%$ ), plagioclase ( $10 \%$ ), and quartz ( $10 \%$ ). Quartz content is variable; it may be as high as $10-15 \%$ near the contact with aphanitic feldspar porphyry at the expense of plagioclase and K-feldspar. At some distance from the contact quartz content is less than 5\%. Fine grained magnetite is common in some specimens. Aphanitic feldspar porphyry underlies much of the central part of the property in a 2,000 foot wide northwest trending zone.

The rock ranges in color from light grey-green with a pronounced waxy appearance to fresh pink or buff. It is commonly weakly porphyritic. In the southeastern part of the grid exposures are altered (clay-sericite ?) giving them a banded appearance.

Plagioclase, orthoclase, and rarely quartz phenocrysts are set in a groundmass composed of myrmekitic, aplitic, or fine grained to aphanitic mixtures of K -feldspar, quartz and plagioclase. Quartz content varies widely. In some specimens little quartz is present, others may contain up to $20 \%$ quartz in the groundmass.

Phenocrysts (5-20\%) are commonly anhedral. Plagioclase cores or clusters are mantled by a continuous K -feldspar rim. Elsewhere ragged K -feldspar with relatively rare plagioclase phenocrysts occur.

Magnetite is found as fine grains and dustings in the matrix in variable amounts. Pyrite cubes (up to 3 min.) are locally common in the buff aphanitic porphyry.

Chlorite, biotite, magnetite, hematite, and pyrite are commonly found in numerous hairline fractures which traverse the rock.

Medium grained alaskite occurs as a number of small highly irregular lenses which have sharply gradation contacts with the
surrounding aphanitic feldspar porphyry (Figure 3, in pocket) which is commonly quartz-rich in its vicinity.

The rock is pale pink or cream, granitic textured, and is composed of an interlocking aggregate of feldspar ( $30-50 \%$ ), plagioclase (15-30\%), and quartz (30-35\%). Magnetite and hematite are abundant as irregular patches, fracture fillings, and numerous quartz magnetite veins.

Feldspar-biotite porphyry comprises several large vertical northwest striking dykes in the western and northeastern part of the grid. The rock is light grey and pink in color and is conspicuously porphyritic.

Plagioclase euhedra ( $20 \%$, $3-10 \mathrm{~mm}$.), K -feldspar ( $10 \%$, 3-7mm.), and infrequently quartz eyes ( $5 \%$, 3-5mm.) are prominent phenocrysts. Ragged biotite books (5\%, 2-4mm.) are less conspicuous. They are set in a fine grained to aphanitic K-feldspar-rich groundmass.

Grey and pink syenite porphyry dykes are abundant in the central part of the property. They range from several inches to several tens of feet in width, strike northwest, and are vertical. Infrequent exceptions strike east-northeast or northeast (Figure 3, in pocket).

Conspicuous white to pink euhedral, strongly zoned feldspar phenocrysts or clusters of phenocrysts are set in a medium grey to pink fine grained groundmass. Phenocrysts locally have albitic cores with $K$-feldspar rims which may be continuous about a cluster of cores. Broken phenocrysts and fragments of phenocrysts are abundant resulting in a seriate texture. In several specimens the phenocrysts and matrix are brecciated and reinjected with additional groundmass material.

Seriate, euhedral to broken phenocrysts (2-30 mm.) now largely K -feldspar ( $50 \%$ ) are set in a groundmass composed
mainly of $K-f e l d s p a r$ with lesser amounts of plagioclase, biotite, and quartz in decreasing order of abundance. Magnetite is conspicuously present as numerous grains (1-2 mm.) and fine dusty disseminations. Cavities containing crystals of fluorite, calcite, chlorite, quartz, pyrite, hematite, and chalcopyrite are locally present.

Andesite and lamprophyre dykes are commonly found as apophyses or distant projections of syenite porphyry dykes and are in part closely related. They contain infrequent phenocrysts which closely resemble those of the grey syenite porphyries. The groundmass is commonly darker and more mafic-rich. Locally where biotite phenocrysts are abundant and K-feldspar phenocrysts absent the rocks are lamprophyres. Their distribution and attitudes are similar to grey syenite porphyry dykes. They range in width from an inch or less to several feet.

Breccia occurs as a series of elliptical or irregular east-west striking steeply dipping zones in the central part of the grid. Although the breccia zones are probably discontinuous they underlie an area approximately 1000 feet wide by 4000 feet long which is open to the east. Contacts with enclosing rocks are variable and may be very sharp, dyke-like or may grade through a zone of shattering with little dislocation.

Breccia fragments range in size from very fine ( 1 mm .) fragments which locally comprise the matrix to large unrotated blocks several feet or even tens of feet in diameter surrounded by stringers of finely comminuted rock. Although many of the breccia fragments probably are not distant from their source the presence of chaotic assemblages which do not resemble the adjoining wallrocks and rare graded layers of fine fragments suggest that at least some of the breccia fragments have been transported. The matrix is composed of finely comminuted rock, vuggy
open spaces, and/or grey syenite porphyry which locally is itself brecciated.

Fluorite, carbonate, magnetite, hematite, pyrite, chalcopyrite, molybdenite occasionally to fill cavities or rim fragments.

Both andesite and grey syenite porphyry dykes are locally seen to cut the breccia although fragments of both rock types are common in the breccia.

## Alteration

Hydrothermal alteration consists of weak clay-sericite(3) alteration with local patches of silicification developed over much of the central grid area. Pervasive K-feldspar flooding is irregularly developed within and at the edges of the breccia.

Weak clay-sericite alteration corresponds closely in distribution with that of the aphanitic feldspar porphyry. Rocks affected by this type of alteration usually become waxy or chalky in appearance. Colors vary from cream to grey with locally pronounced banding. The alteration appears most intense at the western edge of the breccia zone and beyond it (Figure 3, in pocket). Small patches of locally intensely clay-sericite-silica altered rocks are found near 90E-50N.

Intense K -feldspar alteration was noted in grey syenite porphyry breccia and in aphanitic feldspar porphyry near the western end of the breccia zone, and in core from West Coast Exploration diamond drill holes. Phenocrysts in both rock types are rimmed with $K$-feldspar and large areas of essentially K feldspar are developed in the groundmass.

Several shear zones containing chlorite, magnetite, and in some instances molybdenite occur on the grid, notably at $63 \mathrm{E}-70 \mathrm{~N}, 76 \mathrm{E}-88 \mathrm{~N}, 73 \mathrm{E}-70 \mathrm{~N}$, and elsewhere.

Quartz veining, quartz-magnetite veining, and magnetitehematite filled fractures are prominently developed within and
near the aphanitic feldspar porphyry. Contours showing vein intensity per foot are shown in Figure 3 (in pocket). The area of abundant magnetite in veins or fractures is also outlined. Several areas of intense veining are outlined. The largest of these appears to wrap around the western end of the breccia zone. A local vein intensity high centered on 69E-81N may indicate breccia at depth. A zone of intense quartz magnetite veining at $76 \mathrm{E}-90 \mathrm{~N}$ is actually a sheeted vein zone in which closely spaced quartz-magnetite veins strike northeast and dip $30^{\circ} \mathrm{N}$. Numerous magnetite-bearing fractures and hairline veinlets occur between the veins.

## Structural Geology

The northwest trend of the aphanitic feldspar porphyry, the syenite porphyry, and andesite dykes as well as the east-west trend of the breccia zones emphasize the importance of structure on the Deer Park Property.

With few exceptions grey syenite porphyry, andesite, and lamprophyre dykes occupy northwest striking vertical dilation fractures. Although most of the larger dykes persist for at least several hundred feet, smaller ones tend to be lensoid and pinch out rapidly at either end. En echelon arrangement of several small dykes is common particularly as projections of larger dykes.

Northeast striking dykes are uncommon as are ones which strike east-west and north-south (Figure 3, in pocket), Several andesite dykes strike east-west in an area of intense quartzmagnetite veining at 69E-81N. The strike of large grey syenite porphyry dykes appears to trend more north than northwest at the southeastern edge of the grid.

The breccia appears to be a series of vertical en echelon lenses which occur in a broad east-west zone. Several tails of the breccia at $74 \mathrm{E}-70 \mathrm{~N}$ appear to trend northwest and northeast.

Although dyke offset is rarely demonstrable faults are numerous in the grid area. They strike mainly northwest with steep dips but north-south, north-east and east-west striking faults are also noted. Left lateral offset is observed on northeast and east-west striking faults at $68 \mathrm{E}-78 \mathrm{~N}$ and $70 \mathrm{E}-54 \mathrm{~N}$, respectively.

Molybdenite mineralization associated with chlorite and magnetite was observed in an east-west striking vertical shear or fault zone at $75 \mathrm{E}-87 \mathrm{~N}$. Chalcopyrite, fluorite, and hematite were noted where northeast striking shear zones traverse grey syenite porphyry dykes at $65 \mathrm{E}-81 \mathrm{~N}, 68 \mathrm{E}-78 \mathrm{~N}, 98 \mathrm{E}-87 \mathrm{~N}$, and elsewhere.

Quartz veins, quartz-magnetite veins, hairline fractures with magnetite and/or quartz coatings are prominent in the aphanitic feldspar porphyry, infrequent in the coarse grained syenite and subporphyritic syenite, and rare in grey syenite porphyry. North-west and north-east striking veins with steep to moderate variable dips are common. North-south/vertical and eastwest/vertical veins are less abundant and are rarely the dominant set.

Vein intensity locally exceeds 10 veins per foot, magnetite or quartz coated fractures may exceed 30 per foot in areas where the rock is thoroughly shattered.

The close temporal and spatial association of the grey syenite porphyry dykes, andesite-lamprophyre dykes, and the breccia suggests that they may be emplaced by the same structural event. The dykes occupy dilation zones developed by stresses which eventually led to rupture and brecciation more or less simultaneous with syenite porphyry intrusion.

Sulphide Mineralization
Molybdenite is the mineral of potential economic interest on the Deer Park Property. Minor amounts of chalcopyrite, sphalerite, scheelite and wolframite(?) are present. Pyrite is locally
abundant. Magnetite and, to a lesser extent, hematite are ubiquitous. Several occurrences of fluorite are also noted. Relatively little mineralization is found on surface. Only three molybdenite occurrences are known on the grid area. Several others are exposed to the north in old workings. Two occurrences of chalcopyrite and three of fluorite have been mapped (Figure 3, in pocket).

Diamond drilling by West Coast Mining and Exploration, encountered only short, sporadically mineralized, intersections carrying less than $0.05 \%$ Mo and up to $0.06 \% \mathrm{WO}_{3}$ in Holes 1 to 6 . Hole 7 contains $0.22 \%$ Mo ( $0.36 \% \mathrm{MoS}_{2}$ ) from 70 to 120 feet ( 50 feet of intersection) with the remainder above and below averaging $0.02-0.03 \%$ Mo to a depth of 265 feet (Figure 7, in pocket). Minor amounts of copper and zinc mineralization with silver values less than an ounce per ton were encountered as well.

Although the drilling to date returned only one encouraging intersection, it indicates that molybdenite mineralization is closely associated with breccia. Pyrite, molybdenite, fluorite, and minor chalcopyrite in vuggy cavities, as linings around breccia fragments, in fractures, and irregular coarse disseminations are closely associated in Hole 7.

The quartz vein and quartz-magnetite vein stockwork does not Enear to contain any molybdenite. At 70 Em . IN one fracture which contains molybdenite, magnetite, and quartz was found. It is the only known exception.

## CHAPTER III - GEOCHEMISTRY

## General Statement

A total of 609 samples comprising 43 rock chips and 566 soils were collected from the Deer Park Property (Figure 4, in pocket). Results of analyses, environmental parameters, etc. are tabulated in Appendix I.

Anomalous areas of this survey correspond closely to those previously outlined (See References).

Method
Soil samples were collected at 200 foot intervals along the base line and all cross lines. Rock chips were taken in conjunction with handspecimens collected during geological mapping. Samples of the major rock types present on the property were collected and analysed for the following:

| $\mathrm{K}_{2} \mathrm{O}$ | Ba |
| :--- | :--- |
| $\mathrm{Na}_{2} \mathrm{O}$ | Sr |
| CaO | Rb |
| $\mathrm{SiO}_{2}$ | Nb |
|  | Ti |
|  | Zr |
|  | Sn |
|  | Ta |

Soil samples were collected from the $B$ horizon with the aid of a mattock and placed into numbered Kraft "wet-strength" sample envelopes. Rock chips were collected over ar area of several inundred square feet of outcrop, taking care that only one rock type was sampled.

The samples were shipped to the AMAX Laboratory in North Burnaby where they were analyzed for Mo, $\mathrm{Cu}, \mathrm{Ag}, \mathrm{Zn}$, and W. Every fourth soil sample was also analyzed for pH .

Analytical and environmental data are recorded on data sheets from which computer data cards were keypunched.

Cumulative frequency plots, mean, and standard deviation were calculated for soils using the computer (Appencix I).
$\mathrm{Mo}, \mathrm{Cu}, \mathrm{Ag}, \mathrm{Zn}$, and W content of soils was contoured by hand using the intervals shown below:

| Element | Contour interval in ppm |
| :---: | :---: |
| Mo | 10-30-50-100 |
| Cu | 20-40-60-100-200-500 |
| Ag | 2-3 |
| Zn | 150-250-500-1000 |
| W | 5-10-20-40 |

These maps are condensed into a single multi-element anomaly map (Figure 4, in pocket) showing areas with anomalous metal concentrations in the concentration intervals noted below:

| Element | Anomalous ppm | + | Highly Anomalous Metal <br> Concentrations ppm |
| :--- | :---: | :---: | :---: | :---: |
|  | $30-100$ | + | $100+$ |
| Mo | $60-200$ | + | $200+$ |
| Ag | $3+$ |  |  |
| Zn | $500-1000$ | + | $1000+$ |
| W | $10-20$ | + | $20+$ |

## Environment

The Deex Park Property lies on a subdued upland surface at an average elevation of 5000 feet. Relief on the grid is moderate except in the northwest corner which includes part of the steep slopes, ending at Lower Arrow Lake and a prominent northeast trending bluff between lines 66E and 90E. Rugged topography with small areas of steep slopes is also encountered at the south edge of the grid between lines 82 E and 96 E .

An alpine southern interior type of climate with hot summers and cold winters prevails in the region. First snow fall usually occurs in early October and snow stays on the ground from mid-October until June. Total snowfall is in the order of 10 to 15 feet. The sumners are hot with temperatures in the $80^{\circ} \mathrm{F}$
range. Rainfall is sparse so that forest fires are a serious hazard in the area during much of the summer.

Vegetation includes open stands of pine with virtually no underbrush on drier south-facing slopes and densely forested north-facing slopes on which cedar, spruce, balsam fir, hemlock, jackpine, and western larch are common species. Much of the area has been periodically bumed over so that little if any primary growth remains. The older burns are forested by thick stands of pine, spruce and fir with abundant windfall. A recent burn in the southeastern part of the grid has left numerous dried and blackened snags in what was once a dense jackpine stand.

The area has been glaciated. Numerous subdued and locally striated roches moutonees typify the exposures found on the southern half of the grid. A thin veneer of glacial debris, fluviatile sand, and intermixed volcanic ash covers the west central grid. Talus aprons are developed at the foot of the bluffs in the northwestern part of the grid. A sandy boulder till derived from dominantly intrusive rock underlies the northeastern part of the grid. It contains numerous extremely large boulders (up to 15 feet in diameter) and is locally interbedded with fluviatile deposits which appear to have their source to the north and west.

Because of the high seasonal variation in moisture content, the soils are well oxidized. Excellent podzolic soils with pronounced $A h, A e$, and $B f$ horizons are developed on rusty fractured bedrock, glacial, or fluvioglacial deposits. Relatively small patches of gleysols and locally peat are developed in the swampy central part of the grid and at the edges of a creek which parallels the base line. Several small ponds which are dry in late summer are found in the northwest corner of the grid. Their bottoms are gleysols or mottled gleysols.

Soils from a number of sites in the western part of the grid area are considered being residual. Although they are close to bedrock, well oxidized, and probably close to parent material, they are strictly speaking not residual but glacial in origin. The metal values contained in them are, however, in all likelihood an accurate reflection of bedrock values.

Soils from talus slopes at the foot of the bluffs in the northwest portion of the grid are immature mixtures of organic debris and finely comminuted rock, and probably reflect metal contents of physically dispersed material from the bluffs.

The above observations suggest that soils reflect variations in metal content of the underlying rocks in the western and southeastern part of the grid. The bedrock expression is masked by a thick till cover over most of the northeastern grid area east of 86 E . An anomaly centered on base line 106 E may be in part transported.

## Discussion of Results

Based on comparisons with 1968 regional reconnaissance data soils collected over the grid contain anomalous concentrations of $\mathrm{Mo}, \mathrm{Cu}, \mathrm{Zn}$, and Ag . No W data is available for comparison. Prominent local anomalies are also noted. They are multi-element and appear to be closely associated with breccia, syenite porphyry dykes, or zones of intense fracturing, quartz veining, and magnetite-quartz veining in or near the aphanitic feldspar porphyry.

The distribution of patterns of $\mathrm{Mo}, \mathrm{Cu}, \mathrm{Ag}, \mathrm{Zn}$, and W are discussed below:

Mo - The Mo content of soils ranges from 1 to 140 ppm. All values below 10 ppm are considered to be local background. Anomalous values greater than 30 ppm are considered significant in that they clearly reflect the breccia zone and, to a lesser degree an area of quartz-magnetite vein stockwork to the northwest of DDH \#7.

An anomaly with a peak value of 60 ppm occurs on lines $64-66 \mathrm{E}$ between $82-84 \mathrm{~N}$. It is underlain by intensely fractured and
quartz-magnetite-veined aphanitic feldspar porphyry and medium grained leuco quartz monzonite intruded by a number of northwest striking, vertical syenite porphyry dykes. A small dyke of breccia is mapped nearby.

Two anomalies with peak values of 70 and 68 ppm Mo , occur to the east at $74 \mathrm{E}-86 \mathrm{~N}$ and $78 \mathrm{E}-78 \mathrm{~N}$, respectively. Their geological setting is similar to the one above. The major rock type is subporphyritic monzonite but the aphanitic feldspar porphyry phase is nearby.

A series of prominent Mo anomalies trend east-west near the base line from 74E to ll0E. The anomaly appears to extend eastward beyond the grid. Peak values include 106,76 , and 140 ppm Mo. The breccia zone coincides closely with these anomalies.

An anomaly having a peak value of 62 ppm Mo lies just east of the breccia zone. West Coast DDH 非4, which extends below the southeastern tail of the anomaly at $76 \mathrm{E}-62 \mathrm{~N}$ in an area of little exposure, intersects breccias for most of its length.

Several small areas having soils with greater than 30 ppm Mo occur in areas of complex dyke intrusion at $78 \mathrm{E}-56 \mathrm{~N}, 96 \mathrm{E}-58 \mathrm{~N}$, $104 \mathrm{E}-58 \mathrm{~N}, 108 \mathrm{E}-52 \mathrm{~N}$, and $110 \mathrm{E}-62 \mathrm{~N}$.

Cu - Copper values range from 12 to 1720 ppm . Values lower than 60 ppm are background while values greater than 200 ppm are definitely anomalous.

The 60 ppm contour outlines a series of anomalous areas which correspond closely with the breccia zone. In addition smaller anomalous areas coincide with exposures of grey syenite porphyry dykes between $70 \mathrm{E}-72 \mathrm{~N}$ and $64 \mathrm{E}-84 \mathrm{~N}$. Anomalies at $60 \mathrm{E}-64 \mathrm{~N}, 70 \mathrm{E}-60 \mathrm{~N}$, and elsewhere may reflect the presence of syenite porphyry dykes as well.

Ag - Silver values range from 0.5 ppm to 5.0 prom. Background is less than 1.5 ppm Ag . Anomalies appear to correlate to a limited extent with the breccia but are prominent just beyond the western end
of the breccia from $78 \mathrm{E}-66 \mathrm{~N}$ to $58 \mathrm{E}-68 \mathrm{~N}$. A silver anomaly trends northwest from $70 \mathrm{E}-54 \mathrm{~N}$ to $58 \mathrm{E}-68 \mathrm{~N}$. It is open to the northwest. Zn - Zinc values in soils range widely from 80 ppm to 1940 ppm. A background value of 300 ppm clearly distinguishes the areas underlain by coarse grained monzonite and sub-porphyritic monzonite (less than 300 ppm Zn ) from the aphanitic feldspar porphyry (greater than 300 ppm 2 n ). Breccia and in part grey syenite porphyry appear to correlate well with peak Zn anomalies (greater than 1000 ppm ).

The strongest Zn anomalies occur in an area underlain by breccia centered on $78 \mathrm{E}-68 \mathrm{~N}$; near exposures of grey syenite porphyry dykes at $70 \mathrm{E}-72 \mathrm{~N}, 68 \mathrm{E}-78 \mathrm{~N}, 64 \mathrm{E}-84 \mathrm{~N}$, and $62 \mathrm{E}-64 \mathrm{~N}$; and in an area of sub-porphyritic monzonite intruded by several dykes near a sheeted quartz-magnetite vein zone and a molybdenite occurrence at $80 \mathrm{E}-88 \mathrm{~N}$. $\underline{W}$ - Tungsten values range from 0 to 600 ppm in Deer Park soils. 5 ppm $W$ or less is considered background for the property. The areas of soils having greater than 5 ppm $W$ correspond closely with the contact area between quartz-rich sub-porphyritic monzonite and aphanitic feldspar porphyry. Peak anomalies occur over the breccia. The highest anomaly ( 600 ppm W) occurs at $74 \mathrm{E}-88 \mathrm{~N}$ just west of a sheeted quartz-magnetite vein zone and near a molybdenite occurrence exposed is a small trench.

The coincidence of anomalous concentrations of $\mathrm{Mo}, \mathrm{Cu}, \mathrm{Ag}$, Zn , and W over the breccia zone is the most striking geochemical feature of the property and clearly indicates that the breccia has some control in localizing the distribution of metals. Anomalies also tend to indicate areas of syenite porphyry, and to a lesser extent areas of quartz-magnetite veining indicating that these features may be closely related to mineralization. The discontinuous nature of the anomalous areas probably reflects erratic sulphide distribution within the breccia zone.

Anomalies of probable economic significance include 66E$80 \mathrm{~N},(\mathrm{Cu}, \mathrm{Ag}, \mathrm{Mo}, \mathrm{Zn}) ; 70 \mathrm{E}-70 \mathrm{~N},(\mathrm{Mo}, \mathrm{Ag}, \mathrm{Cu}, \mathrm{Zn}) ; 76 \mathrm{E}-68 \mathrm{~N},(\mathrm{Cu}, \mathrm{W}$,
$\mathrm{Zn}, \mathrm{Mo}, \mathrm{Ag}$ ) ; $90 \mathrm{E}-64 \mathrm{~N}$ (Cu, W, Ag, Mo, Zn ); $96 \mathrm{E}-68 \mathrm{~N},(\mathrm{Cu}, \mathrm{Mo}, \mathrm{W})$; and 108E-70N, (Mo, Cu, W). Of these only the last may be transported although the source is probably nearby to the southwest.

Drill holes are planned to test five of the six anomalies listed above.

## Introduction

During the period October 22 to October 28, 1973 twentyone line miles of ground magnetometer surveying were completed on the Deer Park Molybdenum Property. Measurements were obtained every 100 feet on cut grid lines spaced two hundred feet apart.

The survey was initiated to aid in outlining the distribution of major lithological units on the basis of their magnetic susceptibility and to define important structrual trends.

The magnetism of all rocks is controlled by their content of ferromagnetic material, i.e. substances possessing a relatively high susceptibility and capable of acquiring permanent magnetization. Often intrusions are accompanied by widespread hydrothermal alteration zones in which ferromagnetic minerals, principally magnetite, may be redistributed to the periphery of alteration.

## Instrument and Procedure

The instrument employed was the Model G-816 portable proton magnetometer, manufactured by Geometrics, of 914 Industrial Avenue, Palo Alto, California. The proton free precession magnetometer operates on the principle of nuclear magnetic resonance to produce a measurement of the total magnetic intensity of the earth's field. The instrument includes a console powered by 12 size ' $D$ ' flashlight batteries, a fluid filled sensor, and a connecting signal cable. The sensor is carried in a back pack shoulder halter. In this configuration the total instrument weight is 4.3 kg . (9.5 lbs.). Values are obtained from a digital display readout. Operating temperatures are from $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$.

Station $110+00 \mathrm{E}, 70+00 \mathrm{~N}$ on the baseline was selected as the datum value for the survey. The baseline was surveyed west from this point to station $58+00 \mathrm{E}, 70+00 \mathrm{~N}$ and then resurveyed back to the starting position. Tie in stations were established at each cross line intersection and corrections were made for the
diumal variation of the earth＇s field．The north－south oriented cross lines were then surveyed at 100 foot station intervals and diurnal corrections were calculated by looping to the baseline reference points．

Corrected values are plotted on a scale of $1 "=200$ feet and are presented in Figure 5.

## Results and Discussion

A comparison of geology and magnetic anomalies suggest that two rock types have a high magnetic susceptibility．They are magnetite rich phases of the breccia and some portions of the coarse grained hormblende－biotite syenite．Of four magnetic anomalies（numbers 1，2， 3 and 4 in Figure 5）which correlated with surface breccia exposures，three have been tested by shallow drilling and found to be underlain by breccia．

Hole 非7 intersects 70 feet of $0.3 \% \mathrm{MoS}_{2}$ near the southern margin of anomaly 1 ．Drill holes $⿰ ⿰ 三 丨 ⿰ 丨 三 一 4$ and 护5，非6 which respectively tested anomalies 非2 and 非3 remained entirely within the boundaries of magnetic highs and encountered breccia without significant molybdemum values．These observations suggest that molybdenite may be concentrated at the contact zones of the breccias．Anomaly $⿰ ⿰ 三 丨 ⿰ 丨 三 一 4$ is the largest anomaly attributed to magnetite rich breccia．It has not been drilled．Its elongate shape suggests a west－northwest structural control．This anomaly should be tested because it may be the west extension of anomaly非。

## INDUCED POLARIZATION SURVEY

## Introduction

Geological mapping of the Deer Park Property revealed the presence of abundant pyrite within the breccia units near the adit at $73+00 \mathrm{E}$ and $68+00 \mathrm{~N}$ and also in core from diamond drill
hole 非7. Before AMAX optioned the property, the baseline and several widely spaced, flagged cross lines were surveyed employing AMAX's portable I.P.R.-7 Newnont-type receiver and a battery powered 250 watt Crone transmitter. This preliminary survey revealed the presence of an induced polarization anomaly centered near coordinates $76+00 \mathrm{E}, 70+00 \mathrm{~N}$ and open to the west. (See Deer Park file for contoured first separation chargeabilities.) The effective penetration of this survey was 200 feet and the highest chargeabilities that were obtained ( $50-60$ milliseconds) were interpreted to reflect $3-4 \%$ sulphides by volume. After the property was optioned and a grid was established, a survey to test the depth and extent of the anomaly was carried out by Scintrex Surveys Ltd.

## Scintrex Survey Results

A report describing the survey by M.J. Lewis and P.R. Bailey of Scintrex Ltd. is available in the company files. A summary of their report and some additional observations are given below.

The largest induced polarization anomaly occurs in the western portion of the grid area and is labelled zone "A" on Plate 6 of the Scintrex report. This anomaly has a strike length of 2400 feet and is approximately 1000 feet wide. The pseudosection profile plots indicate a relatively flat-lying polarizable source Einterpreted to reflect $2 \%-4 \%$ total sulphides by volume. The source does not extend below a depth of 300 feet except in three narrow northwest trending zones characterized by high chargeabilities. The surface projection of the north zone lies between coordinates $82+00 \mathrm{E}, 71+50 \mathrm{~N}$ and $78+00 \mathrm{E}, 73+40 \mathrm{~N}$. The central zone exhibits the highest chargeabilities on the property. It occurs between coordinates $78+00 \mathrm{E}, 67+00 \mathrm{~S}$ and $74+00 \mathrm{E}, 68+00 \mathrm{~S}$ and may extend to $70+00 \mathrm{E}, 69+00 \mathrm{~S}$. The third zone $]$ ies at the southwest margin of anomaly " $A$ " between coordinates $70+00 \mathrm{E}$,
$60+50 \mathrm{~S} ; 66+00 \mathrm{E}, 63+00 \mathrm{~S}$ and $62+00 \mathrm{E}, 65+50 \mathrm{~S}$ ．The three zones represent the highest concentration of sulphides on the property and may constitute important target areas if pyrite is associated with molybdenum mineralization as in hole 非7．The northern and central zones have coincident geochemical，magnetic and geological anomalies and will be tested by proposed diamond drill holes 非 1 and 非2 respectively．If either of the above enounter molybdenite the southwestern zone should also be tested．

Three other small induced polarization anomalies are labelled on Plate 6．These appear to be caused by localized concentrations of sulphides having little depth extent．Two of these anomalies should be tested by drilling because they coincide with other favourable exploration guides．Anomaly＂C＂may be the most promising．It is located on the northern boundary of a magnetic anomaly near the nose of a mapped breccia zone and has an associated molybdenum soil anomaly．Anomaly＂D＂，since it occurs adjacent to the highest geochemical anomaly on the property （greater than 100 ppm Mo ）is also of interest．

April， 1974

## LIST OF REFERENCES

0
BOTEL, W.G. - 1971 - Annual Report 1971 Part II Deer Park Property

LEWIS, M.J. et al - 1973 - Report on Induced Polarization Survey Deer Park Project

LITTLE, H.W. - 1957 - Geology of Kettle R. E 1/2 Map 6-1957

LOUDON, J.R. - 1964 - Report on the Midas MoS $_{2}$ Group

VEERMAN, H. - 1970 - Annual Report 1970 Part III Deer Park Property

VEERMAN, H. - 1973 - Geochemical Report on the Deer 27 and Deer 28 Mineral Claims.

## APPENDIX I

geOCHEMICAL DATA LISTING AND CUMULATIVE FREQUENCY PLOTS

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## KEY FOR GEOCHEMICAL DATA LISTING

| 1. SAMPLE TDENTIFICATION <br> a) Last digit of year <br> b) Project, samplet, type <br> c) Sample number |  | 11. SOIL TYPE 34.35 wooded grey soil Nooded brown soil WE GIassiand grey sail GG |
| :---: | :---: | :---: |
| 2. LCCATION 9-21 <br> Two digit zone number Five digit easting six digit northing | Pine sand F <br> coarse sand e <br> Grave G <br> Unsorted U | grassland brown ooil aB Podzol <br> PL <br> Gleyzol <br> Humic gleysol |
| 3. TYPE OF SURVEY 22 <br> Regional Recce (UTM) $R$ <br> Detail Recce (UTM) <br> property, local grid <br> proparty, no grid <br> Sample profile | STREAM VELOCITY 30 <br> STy 1 <br> Stagnant 2 | Sand SD <br> Till TL <br> Talus fines TF |
|  | Moderate 4 <br> Fast 5 <br> Torrential 6 | 12. SOIL HORIZON 36,37 Main characteristics of horizon gampled |
| 4. GEOLOGICAL UNIT 23.24 Alphabetic code |  | LH AH FH AB bF bT bM bg bat bc CG CC |
|  |  | ```13. ELOAT 38,39 (see also remarks) Minerallzation M Alteration A Favourable rock type R Other``` |
| Stream aggrading 5 <br> $\quad$ Soit  <br> Glaciaitili 6 <br> Talus fan 7 <br> Fluviatile zand/gravel 8 <br> Loeas 9 <br> Residual 0 |  | 14. LANOSCAPE 40 <br> Hill top - level <br> gill top - undulating Gentle valley tlope $0-5^{\circ}$ Moderate valley siope $5-10^{\circ}$ Steep valley slope $10^{\circ}$ Dry valley bottom |
| 6. CHANMEL DKMENSIONS 26-28 Width at water leval in feet. OR Soil sample Depth Depth of soil sample in Lachee |  | Damp valley bottom  <br> Swarapy valley bottom $?$ |
|  | Othar - see remarks 9 | 15. REMARKS 41 <br> Refer to supplementary field sheet for remarks on: location of sample $L$ Mineralization Enviromment General Remark: |










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$\qquad$ 305
-30
30
30
$-\quad 30$
$-\quad 30$ $\begin{array}{cccccccccccc}\mathrm{N} & \mathrm{T} & \mathrm{T} & 3 & 11 & \mathrm{~T} & 13 & \mathrm{C} & \mathrm{V} & \mathrm{F} & \mathrm{F} & \mathrm{F} \\ 09 & 11 & 15 & 27 & 23 & 25 & 25 & 29 & 39 & 39 & 5 & A\end{array}$

|  | $S$ | $R$ | $R$ | $O H$ | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 4 | $T$ | $S$ | $K$ |  |
| 34 | 35 | 3840 | 41 | 43 | 4 |

 5



NロV.07/73



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 0


| Claim Number | Record Number | Anniversary Date | Rental | Date |
| :---: | :---: | :---: | :---: | :---: |
| Deer 11-16 | 4481-4486 | August 6,1978 | August | 6,1975 |
| Deer 17-20 | 4487-4490 | August 6,1976 | August | 6,1975 |
| Deer 27 | 4515 | August 10,1978 | August | 10,1975 |
| Deer 28 | 4516 | August 10,1977 | August | 10,1975 |
| Deer 29 | 4491 | August 6,1978 | August | 6,1975 |
| Deer 31 | 4492 | August 6,1978 | August | 6,1975 |
| Deer 33 | 4493 | August 6,1978 | August | 6,1975 |
| Deer 34 | 4494 | August 6,1977 | August | 6,1975 |
| Deer 35 | 4495 | August 6,1978 | August | 6,1975 |
| Deer 36 | 4496 | August 6,1978 | August | 6,1975 |
| Deer 37-40 | 4497-4500 | August 6,1976 | August | 6,1975 |
| Deer FR. | 4467 | August 6,1977 | August | 6,1975 |
| Park 6 | 4458 | August 6,1977 | August | 6,1975 |
| Park 7 | 4459 | August 6,1978 | August | 6,1975 |
| Park 8 | 4460 | August 6,1976 | August | 6,1975 |
| Park 9 | 4461 | August 6,1978 | August | 6,1975 |
| Park 10-12 | 4462-4464 | August 6,1976 | August | 6,1975 |
| Park 14-24 | 4468-4478 | August 6,1976 | August | 6,1975 |
| Park FR. | 4465 | August 6,1977 | August | 6,1975 |
| Park 5 FR. | 4466 | August 6,1977 | August | 6,1975 |
| Camel 1-2 | 5148-5149 | March 14,1976 | March | 14,1976 |
| Camel 3-42 | 5197-5236 | Sept. 18,1975 | Sept. | 18,1975 |

Claim Number Group Name

Group Date December 17, 1973
Deer 11-20, 31-33, 35-40
GREEN
Park 7, 9, 11
Deer 27, 29
Came1 11-26, 29-34, 37-42
Deer 28, FR.
Camel 3-10, 27-28, 35-36
Deer 34
YELLOW
Park 6, 8, 10, 12, 14-24,
Park FR., 5 FR
Camel 1-2

## APPENDIX III－STATEMENT OF COSTS

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Period of Work－September 17 －October 8， 1973
Summary of Work－Geological，Geochemical，Geophysical Survey－ 21 line miles

## Personnel

H．W．Sellmer－Geologist－601－535 Thurlow Street，Vancouver，B．C． 20 days＠$\$ 71.00 /$ day $\$ 1,420.00$
G．M．DePaoli－Geophysicist－ 5305 East Georgia St．，Burnaby，B．C． 7 days（ $\$ 54.00 /$ day $\quad 378.00$

Soil Sample Analysis
566 soils 5 elements＠$\$ 2.70 /$ sample
43 rock chip 5 elements 1 1，672．25
Magnetometer Rental
7．days＠\＄15．00／day 105.00
Room \＆Board

$$
27 \text { man days @ \$15.00/day } 405.00
$$

Vehicle

$$
27 \text { days @ \$20.00/day } 540.00
$$

Report Preparation and Drafting $\quad 500.00$

## APPENDIX IV

STATEMENT OF QUALIFICATIONS

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## H. W. Sellmer - STATEMENT OF QUALIFICATIONS

1964 B.Sc. Geology (Honours) University of B.C.
1966 M.Sc. Geology University of B.C.

Amax Exploration, Inc. - May 1, 1966

Staff Geologist - Planned, organized and supervised small property and prospect evaluation programs utilizing geochemical, geophysical and geological techniques. Assessed results and proposed new programs.

1970 - District Geologist -
Supervised all exploration work in a district. Interpreted the results of all exploration techniques in terms of major program objectives. Recommended mineral properties for option and favourable geological areas for prospecting programs. Handled preliminary negotiations for mineral properties, reviewed and prepared exploration contracts. Planned, organized and supervised and reported on all exploration programs in a district.

1974 - Regional Manager-Western Canada-
Overall responsibility for the exploration effort of the Company in Western Canada.

NAME: G.M. DePaoli.
ADDRESS: 5305 East Georgia Street, Burnaby 2, B.C.

## EDUCATION:

Combined Honours Geophysics and Geology B.Sc. U.B.C. 1969. EXPERIENCE:

Junior Geophysical experience Granby Mining, Cominco Ltd.

1970 - 1974 Regional Geophysicist Vancouver, Amax Exploration, Inc.

Member of G.S.C., C.I.M.M., S.E.G., A.G.U., and B.C. Geophysical Society.

Experience in British Columbia, Yukon, Ontario, Quebec and Saskatchewan.

## - AMA

| REFERRED TO | DATE | NULL |
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| DM. |  |  |
| ADM (M) |  |  |
| AD I (P) |  |  |

Mr. E.J. Bowles, Chief Gold Commissioner, Mineral Resources Branched. Dept. of Mines \& Petroleum Resources Victoria, B.C.

## EXPLORATION, INC.



Dear Mr. Bowles:
Re: DEER, CAMEL, PARK Mineral Claims Geological-Geochemical-Geophysical Report \#5197

Enclosed please find two copies of the key for geochemical data as requested in your letter of November 1, 1974, for the above mentioned report.

I trust you will find this key satisfactory for approval of the report.

MGL/b
Yours very truly,
AMA EXPLORATION, INC.

M.G. Laud

NON 7'74 AM
Enclosures
cc: Mining Recorder Rossland, B.C.


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LOOKINGNORTH


LOOKING NORTH WEST


LOOKINGNORTH

L E G E N DAndesite.
Breccia.
Syenite porphyry
Feldspar biotite porphyry.
Feldspar porphyry
$\qquad$
$\qquad$

