1819

MAGNETOMETER AND PHOTO-GEOLOGICAL SURVEY

M-277: L. 763 Skylark II
L. 764 Denver
L. 753 Last Chance 4
L.1064 Smilax Fr.
L.1097 Silver King
L.1218 Silver Cloud

M-277: L.1712 Meadow Lark
L.1777 Triumvirate Fr.
L.1849 Hope No. 2
L.1974 Iron Cap
L.3135 Arcadia

Skylark Camp ($49^{o}11\frac{1}{2}8^{o}$ SW)

by H.H. Shear, P. Eng.

Owner: J.M. MacLean Jr.
Work by: Sarco Investments Ltd.
Work Dates:

Line Cutting	:	July 29 - August 9, 1968.
Magnetometer Survey	:	March 21-24, 1969.
Photo-Geological Survey	:	February 17-28, 1969.
Bulldozer Trenching	:	March 21-27, 1969.

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INTRODUCTION

The purpose of this report is to describe a work program carried out on Mineral Lease M-277 and to present and interpret the data. The work consisted of line cutting, a magnetometer survey, a photo-geological survey and bulldozer trenching. None of the old crown grant corners could be found. Control of picket line locations relative to the lease boundary was based on the positions of old shafts and roads, and twin creek, as shown on available maps which also show the position of the old crown grants.

Mineral Lease M-277 is located approximately one mile east of Greenwood, B.C. It is traversed by several old logging roads which branch off the Greenwood-Phoenix Road.

WORK PROGRAM

Locals from Greenwood, B.C. area were employed to do the line cutting. This work was done in the period from July 29th to August 9th, 1968. A 4800' base line was cut from north to south with stations marked every 100' from 0 to 48 S. Crosslines were cut, as shown on the accompanying mag. map, every 400' from 24 S to 48 S with stations marked every 100'. Lines from 0 to 20 S have not been completed. A total of 27,000' or 5.1 miles of lines were cut and marked.

The photo-geologic survey was completed by D.A. Chapman of D.A. Chapman & Associates, Air Photo Analysts, under the supervision of the writer. The photo-geologic survey was completed during the period February 17-28, 1969. The magnetometer survey was done by the writer from March 21-24, 1969. A D 8 cat, with rippers, was rented from Cox Contractors of Greenwood, B.C. The trenching was done from March 21-27, 1969

MAGNETOMETER SURVEY

Magnetometer readings were taken on 241 stations using a Sharps, Sintrex Model, MF-1 fluxgate magnetometer. The survey was made using closed traverses, checking back to base stations usually within 60 minutes or less.

Although there are no distinctive anomalies on that area covered on M-277, the magnetometer results disclose a definite trend striking WNW - ESE across the southern section of the lease. The magnetic low portion of this trend coincides with photo-geologic target 1. This indicates the presence, from 32 S, 6 W to 38 S, 10 E, of a large shattered zone in which some alteration of magnetic minerals has taken place.

A one station high of about 250 gammas is associated with the main Skylark shaft. This is probably due to the presence of pyrrhotite along the Skylark vein. This lies on the edge of Tectonic Target No. 2 as shown on the accompanying map of the photo-geology survey.

The highest reading of the survey occurs off the lease to the west at 28 S, 28 W and may be caused by a tongue of ultrabasics which are known to occur some distance south of this point.

PHOTOGEOLOGY SURVEY

The following is a report submitted to the writer by D.A. Chapman of D.A. Chapman and Associates, Air Photo Analysts. My comments on the photogeologic interpretation follow Mr. Chapman's report.

D.A. CHAPMAN REPORT

PHOTOGEOLOGY STUDY OF MINERAL LEASE M-277

GREENWOOD M.D.

A tectonic survey from aerial photographs covering the Mineral Lease M-277 and the surrounding area has been completed. The maps showing the results of the survey accompany this report.

The principal objective of a Tectonic Analysis of a Fracture Density Survey is to provide starting points for field investigation by exploration teams. The locating of favourable tectonic areas is not sufficient in itself as it cannot assume that mineralization occured in conjunction with structural zones indicated by this method of interpreting aerial photographs.

THEORY OF TECTONIC ANALYSIS OF FRACTURE DENSITY SURVEYS FOR EXPLORATION TARGETS

A natural arch theory is applied to the condition of near equilibrium at the surface of the earth's crust where a boundary condition or standard state exists for all stresses and strains in the earth's elastic body. To accomodate the volumetric changes which are a product

of these stresses and strains, adjustments by plastic flow or rupture is required. The latter is prevalent at or near the surface, and it is these ruptures which are clearly visible in aerial photographs, as fractures.

The adjustments to relieve stresses are observable variations in the jointing pattern of the fractures across the surface of the earth's crust and are related to the differences between planar resistance and shearing stress. By applying the natural arch theory to the visible effect, i.e. fracture incidence, a reasonable calculation of the deformation as a result of the stresses and strains is possible.

The calculated values are plotted and contoured as isogradients. The higher value isogradients outline the Tectonic Anomalies, i.e. the areas of maximum volumetric expansion as a result of shearing (deformation) stresses. The diminishing value of the isogradients represent diminishing planar stress and one could expect a sequence of fissure, brecciation, shearing and drag folding down to a system of hairline fractures enveloping the principal stress axis.

Tectonic anomalies are zones of increased rock permeability relative to the openings and voids of the fracture planes and they indicate the major and more probable structures to host ore deposits if a flow of mineralizers has passed through the area and are therefore excellent geological targets for ground exploration.

GENERAL GEOLOGY

Mineral Lease M-277 is underlain by sedimentary, volcanic and meta-morphic rocks of triassic or Permian age. A contact with the greenwood granodiorite stock abounds along the western area of the lease. Overburden covers the greater portion of the claims.

TECTONIC SURVEY

The claims and their surrounding area were examined in vertical air photographs under a stereoscope. Transparent overlay material was attached to the principal viewing photograph and all fractures, joints and linears observed were annotated to the overlay. This overlay is then placed over a grid system of unit areas and the incidence of fracture can be visually estimated at a rate per unit area thus transforming qualitative date into empirical measurements. Analytical techniques are applied to the data based on stress/strain relationships and the possible significance of the changing incidence rates. A brief generalized statement of the theory is inserted into this report.

The target areas given are selected by an empirical value indicating the maximum observed effect due to the deformation stresses and the manner in which these tectonic forces alter the tensile strains across fracture planes. Thus target areas represent areas of rock preparation by physical shear during the loading stresses

applied by tectonic forces across the areas examined. If mineralization has traversed the area, the more probable structures to host ore would be found in an association with the tectonic anomaly.

OBSERVATIONS

1. 4 target areas are indicated as shown on the accompanying map.

2. Target No. 1 has a maximum coefficient (eg. 1.00) indicating a zone of brecciation and fissure is possible.

3. Target No. 2 is associated with the Skylark showings.

4. Target No. 3 may be a fault contact between beds as it trends parallel with the bedding.

5. Target No. 4 is associated with the granodiorite contact. Thus contact type deposits and mineralization should prevail in this target area. This target is associated to the Last Chance workings.

RECOMMENDATIONS

1. An E-W grid system for geophysical, geochemical and geological ground follow up would cut geology and structural anomalies across strike providing clearer results from these ground survey methods.

2. Where corresponding anomalies from differing surveys agree with a tectonic anomaly then trenching should follow.

3. A percussion drill hole on each of the target areas could be an economical test considering the amount of area under overburden.

Respectfully submitted,

D.A. Chapman.

W. W. Shea

WRITERS COMMENTS

Geology: M-277 is underlain by rocks of the Anarchist Group of Triassic rocks. There are very few out crops on the lease. The rock types at the Skylark Mine are volcanic; andesite and andesite breccia. Geologic trends in the district are roughly north-south. Pyrite content in the rocks surrounding the Skylark vein system is high.

Magnetometer - Photogeology - Showings, Correlation: There is a definite correlation between Photogeology Target No. 1 and a magnetometer low. This indicates that the two methods supplement each other very well in this area. This target area is probably a large fault controlled shatter zone in which magnetic minerals have been altered. It is a potential target for economic mineralization.

It should be noted that the Skylark and Last Chance shafts as well as one other shaft near 22 S on the base line, occur on the edge of the various photogeologic targets. Also a definite magnetic variation occurs over the main Skylark shaft. The edge of the various photogeologic targets are good target zones along which to search for the high grade vein type deposits found to date in the area.

TRENCHING

Seven days were spent trenching with a D 8 cat with rippers, to extend the Skylark vein to the south. Overburden was very deep,

up to 20 feet, and trenching to bedrock was costly. The vein was uncovered 100' north of 28 S, 10 E, lying in heavily pyritized Anarchist volcanics. A second trench 400' south of this failed to expose the vein but cut similar rock types. Vein material from the first trench assayed 20 oz. per ton silver and wall rock from near the vein assayed 5 oz./ton silver.

Dimensions of the two trenches cut are: 300 x 15 by 20 feet deep and 300 x 15 by 15 feet deep.

CONCLUSIONS

Four exploration target areas were delineated by the Photogeology Study.

The magnetometer data supplements the photogeology data quite well. A small mag. high occurs at the main Skylark shaft which lies on the edge of photogeology target No. 2 as shown on the accompanying map. A mag. low corresponds to photogeology target No. 1, indicating the presence of a large broken and altered area.

Three sets of old workings lie along the edge of photogeologic targets. Trenching on the SW edge of photogeologic target No. 2 uncovered Ag-Pb mineralization, presumably a part of the Skylark vein.

RECOMMENDATIONS

The picket lines should be completed over the northern portion of the lease. A Magnetometer Survey should run over the new lines.

Soil samples should be taken at all stations over the entire lease and assayed for copper and silver. Branch tips from Douglas Fir should be collected along the lines where these trees are growing,

and analysed for arsenic, in as much as arsenic minerals are commonly present in the precious metal veins of the Greenwood area.

A program of bulldozer trenching should be carried out to check old workings and anomalies deliniated.

Respectfully submitted,

H.H. Shear, P. Eng.

CERTIFICATE OF COMPETENCE

I, Henry Herbert Shear, of Vancouver, in the Province of British Columbia, do hereby certify that:

1. I am a consulting geological engineer with offices at #2 - 515 Granville Street, Vancouver 2, B.C.

2. I am a registered Professional Engineer of the Province of British Columbia.

3. I am a graduate of the University of Arizona, Tucson, Arizona, with a B. Sc. in Geological Engineering (1959) and a B. Sc. in Mining Engineering (1960)

4. I have practised my profession continuously since 1960.

5. My duties have commonly included the supervision and interpretation of magnetometer surveys, and the use and interpretation of air photographs to aid mining exploration.

6. All work described in this report was under my direct supervision.

Dated at Vancouver, British Columbia, this 18th day of May AD, 1969.

H.H. Shear, P. Eng.

STATEMENT OF COSTS: Re work Program on Mineral Lease M-277.

Line Cutting (27,000'):

Work performed from July 29 - August 9, 1968.

Workmen: John MacLean Jr., Greenwood, B.C.
Daniel Pasco, Greenwood, B.C.
Conrad Bergeron, Greenwood, B.C.
Bill Markin, New Denver, B.C.

All men worked 10 days @ $25.00/day.
Total wages per man $250.00
Total cost: 10 x 4 x $25.00 = $1000.00

Magnetometer Survey:

Survey run: March 21 - 24, 1969 (4 days)
Operator: H.H. Shear, P. Eng., Vancouver, B.C.
4 days @ $50.00/day = $200.00
Magnetometer rental: 120.00
Total Cost $320.00

Photogeology Survey:

Work performed from Feb. 17 - 28, 1969 (10 days)
(Interpretation and maps)
Analyst: D.A. Chapman, Vancouver, B.C.
10 days @ $50.00/day = $500.00

Bulldozer Trenching:

Work performed from March 21 - 27, 1969 (7days)
by Cox Contractors of Greenwood, B.C. using
D 8 Cat with rippers.
Bill: 7 days x 9 hr./day = 63 hr.
rate $32.00/hr x 63 = $2016.00
hauling = 100.00
$2116.00

Total costs claimed $3936.00

Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 18
day of April, 1969 A.D.

H. H. Shear

A Commissioner for taking Affidavits within British
A Notary Public in and for the Province of British
Gold Mining Recorder

Magnetometer Data

Station	Reading	Relative Gamma Value
24 S BL	210	500
24 S 1 E	305	595
24 S 2 E	250	540
24 S 3 E	280	570
24 S 4 E	260	550
24 S 5 E	265	555
24 S 6 E	230	520
24 S 7 E	215	505
24 S 8 E	200	490
24 S 9 E	180	470
24 S 10 E	210	490
24 S 11 E	500	780
24 S 12 E	290	570
24 S 13 E	210	490
24 S 14 E	225	505
24 S 15 E	195	475
24 S 16 E	110	390
24 S 17 E	150	420
28 S 18 E	240	510
28 S 17 E	270	530
28 S 16 E	280	540
28 S 15 E	270	530
28 S 14 E	290	550
28 S 13 E	280	540
28 S 12 E	290	550
28 S 11 E	310	570
28 S 10 E	315	575
28 S 9 E	285	535
28 S 8 E	370	620
28 S 7 E	390	640
28 S 6 E	430	680
28 S 5 E	450	700
28 S 4 E	430	680
28 S 3 E	470	720
28 S 2 E	480	730
28 S 1 E	480	730
28 S BL	420	670
27 S BL	380	630
26 S BL	340	590
25 S BL	310	560
24 S BL	250	500

Magnetometer Data

Station	Reading	Relative Gamma Value
24 S 8L	250	500
24 S 1 W	240	490
24 S 2 W	270	520
24 S 3 W	280	530
24 S 4 W	210	460
24 S 5 W	250	500
24 S 6 W	260	510
24 S 7 W	340	590
24 S 8 W	330	580
24 S 9 W	260	510
24 S 10 W	270	520
24 S 11 W	350	600
24 S 12 W	330	580
24 S 13 W	350	600
24 S 14 W	300	550
24 S 15 W	390	640
24 S 16 W	420	670
24 S 17 W	410	670
24 S 18 W	430	690
24 S 19 W	470	730
24 S 20 W	490	750
24 S 21 W	520	780
24 S 22 W	510	770
24 S 23 W	510	770
24 S 24 W	560	810
24 S 25 W	530	790
24 S 26 W	380	640
24 S 27 W	480	740
24 S 28 W	490	750
24 S 29 W	540	810
24 S 30 W	670	940
24 S 31 W	610	880
24 S 32 W	640	910
24 S 33 W	600	870
24 S 34 W	510	780
24 S 8L	210	500

Magnetometer Data

Station	Reading	Relative Gamma Value
24 S BL	260	500
28 S 1 W	490	730
28 S 2 W	520	760
28 S 3 W	470	710
28 S 4 W	490	730
28 S 5 W	470	710
28 S 6 W	510	750
28 S 7 W	470	710
28 S 8 W	390	630
28 S 9 W	450	690
28 S 10 W	470	710
28 S 11 W	500	740
28 S 12 W	460	700
28 S 13 W	500	740
28 S 14 W	500	740
28 S 15 W	490	730
28 S 16 W	450	690
28 S 17 W	470	710
28 S 18 W	440	680
28 S 19 W	530	770
28 S 20 W	440	680
28 S 21 W	620	860
28 S 22 W	620	860
28 S 23 W	730	970
28 S 24 W	820	1060
28 S 25 W	850	1090
28 S 26 W	810	1050
28 S 27 W	980	1220
28 S 28 W	1550	1790
28 S 29 W	1160	1400
28 S 30 W	770	1010
28 S 31 W	820	1060
28 S 32 W	830	1070
28 S 33 W	1070	1320
28 S 34 W	1000	1250
28 S 35 W	1080	1330
28 S 36 W	880	1130
28 S 37 W	770	1020
24 S BL	250	500

Magnetometer Data

Station	Reading	Relative Gamma Value
32 S BL	490	610
32 S 1 E	510	630
32 S 2 E	540	660
32 S 3 E	640	760
32 S 4 E	650	770
32 S 5 E	630	750
32 S 6 E	670	790
32 S 7 E	700	820
32 S 8 E	690	810
32 S 9 E	630	750
32 S 10 E	650	770
32 S 11 E	650	770
32 S 12 E	610	730
32 S 13 E	620	740
32 S 14 E	590	710
32 S 15 E	600	720
32 S 16 E	590	710
32 S 17 E	560	690
32 S 18 E	570	700
32 S 19 E	570	700
32 S 20 E	530	660
32 S 21 E	420	550
32 S 22 E	430	560
32 S 23 E	450	580
36 S 22 E	440	570
36 S 21 E	460	590
36 S 20 E	600	730
36 S 19 E	720	850
36 S 18 E	740	880
36 S 17 E	670	810
36 S 16 E	650	790
36 S 15 E	610	750
36 S 14 E	580	720
36 S 13 E	660	880
36 S 12 E	480	620
36 S 11 E	450	590
36 S 10 E	400	540
36 S 9 E	330	470
36 S 8 E	230	370
36 S 7 E	300	440
36 S 6 E	300	440
36 S 5 E	410	550
36 S 4 E	440	580
36 S 3 E	400	540
36 S 2 E	470	610
36 S 1 E	470	610
36 S BL	580	710
32 S BL	470	610

Magnetometer Data

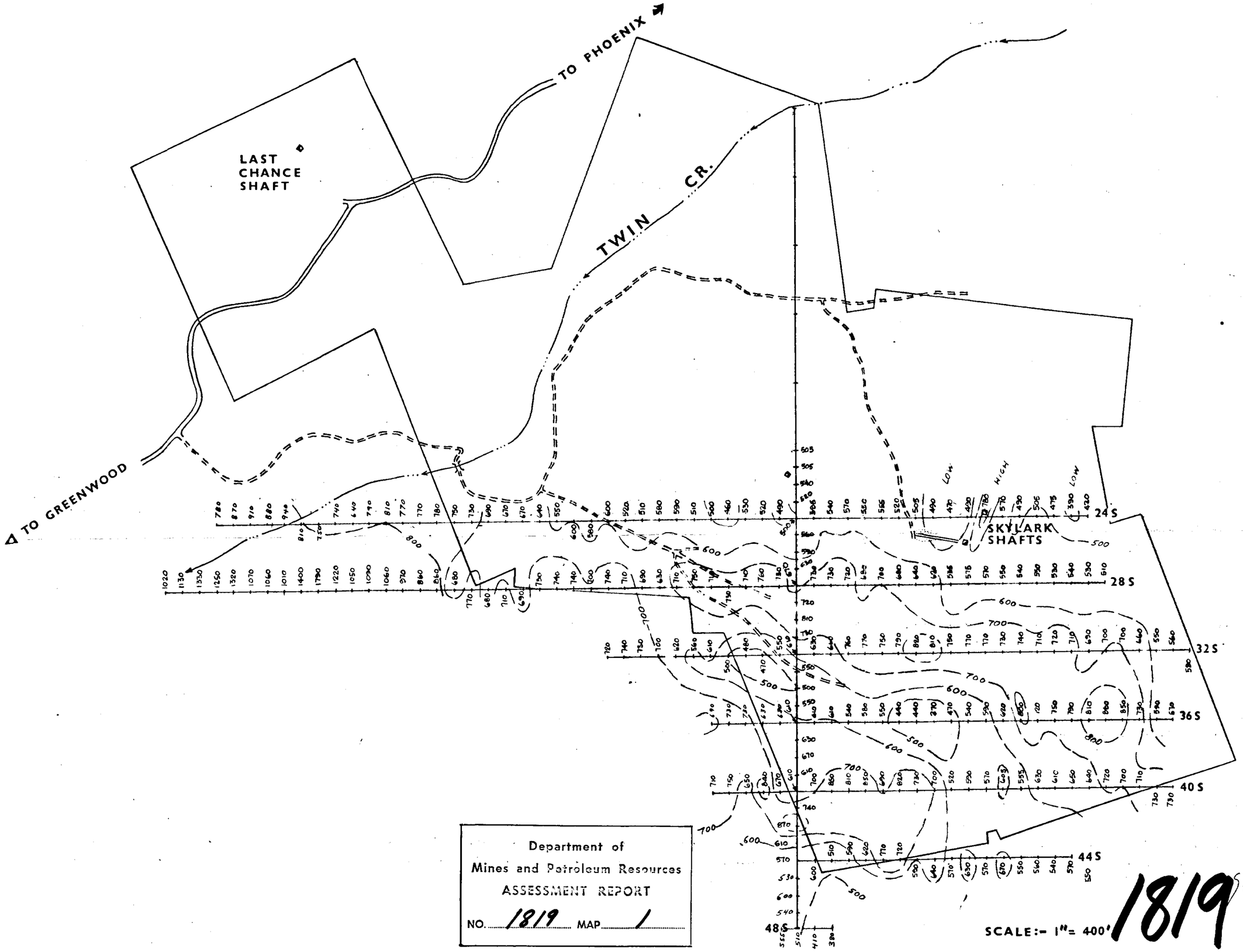
Station	Reading	Relative Gamma Value
32 S 8L	470	610
32 S 1 W	410	550
32 S 2 W	330	470
32 S 3 W	330	480
32 S 4 W	350	500
32 S 5 W	450	610
32 S 6 W	400	560
32 S 7 W	460	620
32 S 8 W	530	700
32 S 9 W	560	730
32 S 10 W	570	740
32 S 11 W	550	720
36 S 5 W	490	690
36 S 4 W	530	730
36 S 3 W	560	770
36 S 2 W	420	630
36 S 1 W	420	630
32 S 8L	390	610

Magnetometer Data

Station	Reading	Relative Gamma Value
40 S BL	370	610
40 S 1 E	460	700
40 S 2 E	610	850
40 S 3 E	570	810
40 S 4 E	610	850
40 S 5 E	450	690
40 S 6 E	580	820
40 S 7 E	490	730
40 S 8 E	460	700
40 S 9 E	280	520
40 S 10 E	350	590
40 S 11 E	330	570
40 S 12 E	365	605
40 S 13 E	315	555
40 S 14 E	390	630
40 S 15 E	370	610
40 S 16 E	410	650
40 S 17 E	400	640
40 S 18 E	480	720
40 S 19 E	460	700
40 S 20 E	470	710
40 S 21 E	490	730
40 S 22 E	490	730
44 S 17 E	310	550
44 S 16 E	330	570
44 S 15 E	300	540
44 S 14 E	320	560
44 S 13 E	310	550
44 S 12 E	430	670
44 S 11 E	330	570
44 S 10 E	390	630
44 S 9 E	330	570
44 S 8 E	400	640
44 S 7 E	350	590
44 S 6 E	480	720
44 S 5 E	530	770
44 S 4 E	380	620
44 S 3 E	350	590
44 S 2 E	270	510
44 S 1 E	360	600
44 S BL	330	570
43 S BL	370	610
42 S BL	630	870
41 S BL	500	740
40 S BL	370	610

Magnetometer Data

Station	Reading	Relative Gamma Value
24 S BL	250	500
23 S BL	270	520
22 S BL	290	540
21 S BL	260	505
20 S BL	260	505
24 S BL	260	500
40 S BL	370	610
45 S BL	290	530
46 S BL	360	600
47 S BL	300	540
48 S BL	270	510
48 S 1 E	170	410
48 S 2 E	140	380
48 S 1 W	315	555
44 S 1 W	470	710
44 S 2 W	330	570
40 S BL	370	610
40 S BL	370	610
40 S 1 W	430	670
40 S 2 W	600	840
40 S 3 W	410	650
40 S 4 W	510	750
40 S 5 W	470	710
40 S BL	370	610
40 S BL	370	610
39 S BL	370	610
38 S BL	430	670
37 S BL	390	630
35 S BL	310	550
34 S BL	260	500
33 S BL	310	550
32 S BL	370	610
40 S BL	370	610
24 S BL	260	500
29 S BL	480	720
30 S BL	570	810
31 S BL	490	730
32 S BL	370	610
24 S BL	260	500



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 1819 MAP 1

1819

SCALE:- 1"= 400'

NOTE:
MAGNETIC CONTOUR INTERVAL : 100 GAMMAS

M-277 : GREENWOOD M.D.

MAP TO ACCOMPANY REPORT OF THE

MAGNETOMETER SURVEY

BY H.H. SHEAR, P. ENG. MARCH 1969

(1)

TO PHOENIX

4

LAST CHANCE SHAFT

TWIN CR.

BASELINE

3

2

CONTACT

FAULT

TO GREENWOOD

INFERRED FAULT TRACES

PROBABLE

24S

SKYLARK SHAFTS

28S

32S

AXIS OF MAGNETIC LOWS

36S

1

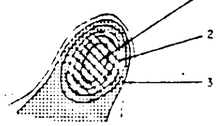
40S

44S

48S

N

DEFORMATION STRESS ANOMALY



1 ZONE OF MAXIMUM PLANAR STRESS

2 CONVERSION ZONE OF TENSION SHEAR STRESS TO MAXIMUM TANGENTIAL STRESS

3 RESULTANT STRESS ENVELOPE (MOHR'S) SYNTECTONIC ZONE OF DECREASING TANGENTIAL STRESS (SHEAR) AND INCREASING PLANAR STRAIN

SCALE:- 1"= 400'

1819

W. H. Shear
Apr. 19, 1969

M-277 : GREENWOOD M.D.

MAP TO ACCOMPANY REPORT OF THE

PHOTOGEOLOGY SURVEY

BY H.H. SHEAR, P. ENG. MARCH 1969

(2)