

MAR 19950004: FOREMOST

Received date: May 24, 1995

Public release date: May 25, 1996

DISCLAIMER

By accessing and using the Alberta Energy website to download or otherwise obtain a scanned mineral assessment report, you ("User") agree to be bound by the following terms and conditions:

- a) Each scanned mineral assessment report that is downloaded or otherwise obtained from Alberta Energy is provided "AS IS", with no warranties or representations of any kind whatsoever from Her Majesty the Queen in Right of Alberta, as represented by the Minister of Energy ("Minister"), expressed or implied, including, but not limited to, no warranties or other representations from the Minister, regarding the content, accuracy, reliability, use or results from the use of or the integrity, completeness, quality or legibility of each such scanned mineral assessment report;
- b) To the fullest extent permitted by applicable laws, the Minister hereby expressly disclaims, and is released from, liability and responsibility for all warranties and conditions, expressed or implied, in relation to each scanned mineral assessment report shown or displayed on the Alberta Energy website including but not limited to warranties as to the satisfactory quality of or the fitness of the scanned mineral assessment report for a particular purpose and warranties as to the non-infringement or other non-violation of the proprietary rights held by any third party in respect of the scanned mineral assessment report;
- c) To the fullest extent permitted by applicable law, the Minister, and the Minister's employees and agents, exclude and disclaim liability to the User for losses and damages of whatsoever nature and howsoever arising including, without limitation, any direct, indirect, special, consequential, punitive or incidental damages, loss of use, loss of data, loss caused by a virus, loss of income or profit, claims of third parties, even if Alberta Energy have been advised of the possibility of such damages or losses, arising out of or in connection with the use of the Alberta Energy website, including the accessing or downloading of the scanned mineral assessment report and the use for any purpose of the scanned mineral assessment report so downloaded or retrieved.
- d) User agrees to indemnify and hold harmless the Minister, and the Minister's employees and agents against and from any and all third party claims, losses, liabilities, demands, actions or proceedings related to the downloading, distribution, transmissions, storage, redistribution, reproduction or exploitation of each scanned mineral assessment report obtained by the User from Alberta Energy.

19950004

72E/5

19950004

ALBERTA MINERAL AGREEMENT # 093 9393030001

ASSESSMENT WORK REPORT

ON A TOTAL FIELD GROUND MAGNETIC SURVEY

by

N. Ralph Newson, M.Sc., P. Eng., P. Geol., F.G.A.C.

for

SENTINEL RESOURCES LTD

(ROBERT G. CANTIN, RONALD J. STEWART, REGISTERED OWNERS)

Saskatoon, Saskatchewan.

May 24, 1995

SUMMARY

A ground magnetic survey was carried out on Alberta Mineral Agreement # 093 9393030001. The total magnetic field strength was measured on a 150m x 25m grid established over 20 sections of the property.

The property is in an area with geology favorable for the discovery of diamonds. Archean crust is one of the essential elements present. This is overlain by a thick sequence of Phanerozoic sedimentary rocks, which would permit any kimberlitic or lamproitic intrusions to balloon out to form large, shallow deposits as in Saskatchewan. The Phanerozoic rocks have suffered one major deformation, which created the Sweetgrass Arch, and some minor deformations, which have produced anticlinal structures. These structures are believed to provide access for intrusions, and are considered a positive indicator for diamond-bearing rocks. Bentonite beds at several levels in the sequence indicate that some type of volcanism has occurred in the region from time to time.

Till samples taken in the region have been analysed for diamond indicator minerals, and some indicators have been found, including a sample with four indicator minerals down-ice from the property.

This property is almost unique in Alberta in having two diamonds found on it. They were found in Etzikom Coulée, and the work described herein was designed to explore that part of the property up-ice from the diamond discovery site in an attempt to locate the source of the diamonds. Magnetic surveys have been the single most successful method of finding kimberlites in Saskatchewan, and it was deemed appropriate to use that method here.

No magnetic anomaly which might be a source of the diamonds was found. This means either that the source is outside the area surveyed, or that the source rock does not contrast magnetically with the surrounding rocks.

Because of the presence of diamonds on the property, and despite the results of this survey, it is recommended that additional surface till sampling be done to try to locate a possible non-magnetic source of the diamonds.

TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION	1
2.0 THE PROPERTY: OWNERSHIP, LOCATION AND ACCESSIBILITY.....	1
3.0 GEOLOGY AND MINERALIZATION OF THE PROPERTY	
3.1 GEOLOGY	2
3.2 MINERALIZATION	2
4.0 PREVIOUS WORK ON THE PROPERTY	3
5.0 TOTAL FIELD MAGNETIC SURVEY	
5.1 PURPOSE	3
5.2 METHOD	4
5.3 RESULTS	5
6.0 CONCLUSIONS AND RECOMMENDATIONS	6

LIST OF FIGURES

	FOLLOWING PAGE
FIGURE 1. LOCATION MAP	1
FIGURE 2. DETAILED LOCATION MAP	1
FIGURE 3. ANOMALY ON LINE 150S- TOTAL MAGNETIC FIELD PROFILE.	5

LIST OF MAPS

MAP 1. CONTOURED TOTAL MAGNETIC FIELD.....in pocket

LIST OF APPENDICES

APPENDIX A: MAP 1. COST STATEMENT

1.0 INTRODUCTION

This report describes a total field ground magnetic survey carried out on Alberta Mineral Agreement # 093 9393030001, on behalf of Sentinel Resources Ltd., of Vancouver.

The purpose of the work was to look for a magnetic anomaly which might be caused by the bedrock source of two diamonds previously found on the property. Magnetic surveys have proven to be the best method of finding kimberlitic pipes in Saskatchewan, which is the nearest area of similar geology to the property. Because the county rocks are Phanerozoic sedimentary rocks, most compositions of diamond source-rocks would show a magnetic contrast with the surrounding rocks. It is therefore appropriate to carry out a magnetic survey at this stage of exploration. However, in some places, notably in Africa, kimberlites do not show a contrast with sedimentary country rocks, so it is recognized that a magnetic survey may not detect all possible diamond source-rocks.

Field work dates were February 10 to 25, 1995. Data reduction, processing and interpretation was carried out April 15 to 17 inclusive.

2.0 THE PROPERTY: OWNERSHIP, LOCATION AND ACCESSIBILITY

The property consists of the Alberta Mineral Agreement # 093 9393030001 It is in NTS area 72 E 5, near the intersection of 49° 25' north latitude, and 111° 38' west longitude, about 15 km west-southwest of the village of Foremost. The cadastral survey description is as follows:

T4 R12 W4 Sections 6, 7, 18, 19, 30, 31.

T4 R13 W4 Section 36.

T5 R12 W4 Sections 6, 7, 17, 18, 19, 20, 29, 30, 31, 32.

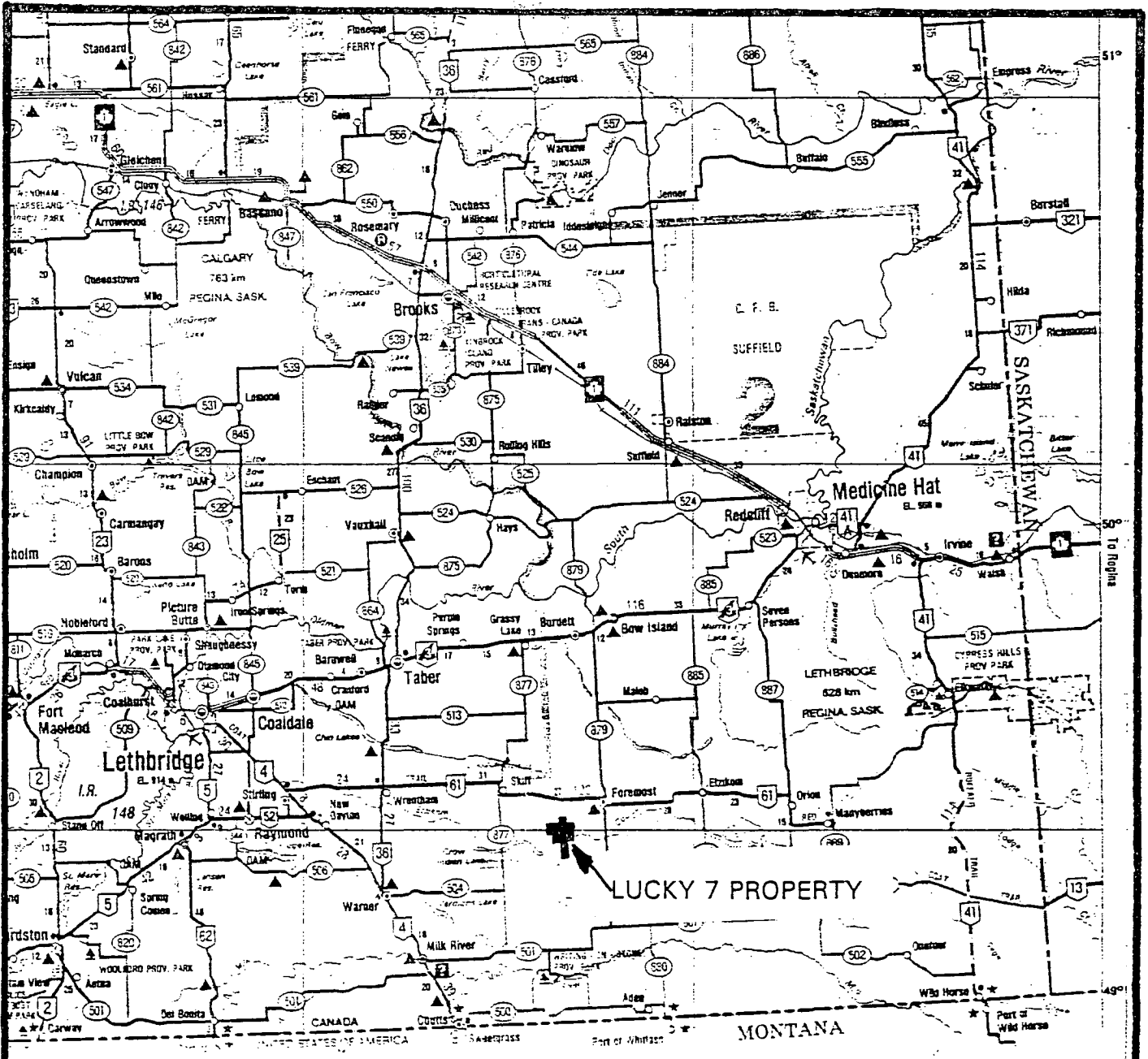
T5 R13 W4 Sections 1, 12, 13, 22, 23, 24, 25, 26, 27, 33, 34, 35, 36.

T6 R12 W4 Sections 5, 6, 7.

T6 R13 W4 Sections 1, 2, 3, 4.

Ownership is registered in the name of Ronald J. Stewart, and Robert G. Cantin, of Edmonton.

Paved provincial highway 61 passes 2 km north of the north boundary of the property. An all-weather gravelled grid road between ranges 12 and 13 bisects the property in a north-south direction, and a similar road divides townships 5 and 6. These, along with some other minor roads and trails provide good access to all parts of the property. No part of it is more than 2 miles from a road, and most of it is no more than 1 mile from a road. Not all road allowances are open. From the roads, access was by foot in the present work. Access into all of the fields by vehicle is possible in dry weather or winter with permission of the surface rights owners.



SENTINEL RESOURCES LTD

LUCKY 7 DIAMOND PROPERTY

ALBERTA MINERAL AGREEMENT # 093 9393030001

FIG. 1: GENERAL LOCATION MAP

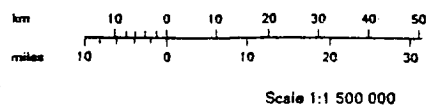
NTS 72 E 5

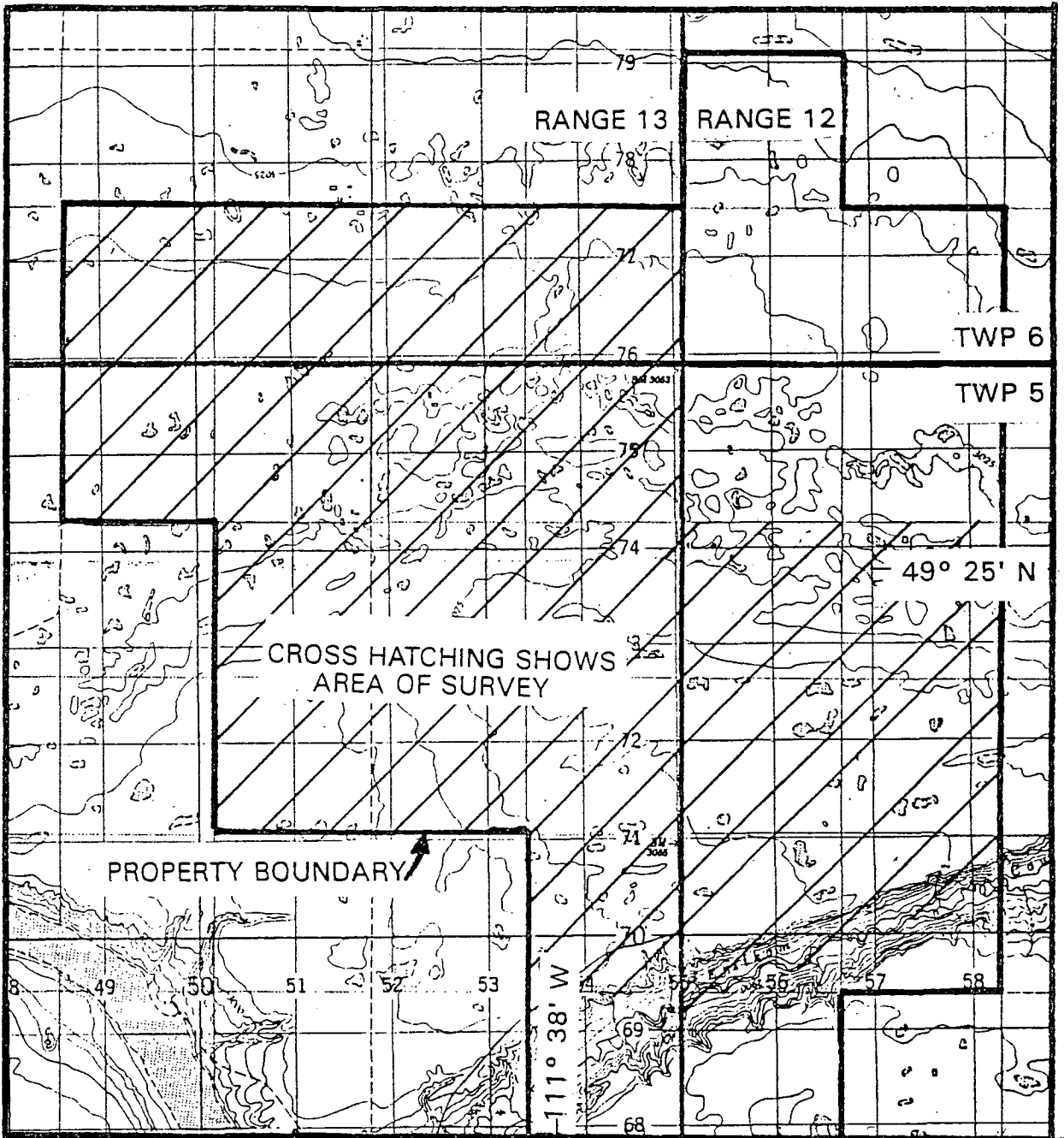
TWP 5, 6: R 12, 13 W4

NEWSON MANAGEMENT & CONSULTING LTD

Scale: SHOWN

Date: MAY 1995





PROPERTY BOUNDARY

CROSS HATCHING SHOWS
AREA OF SURVEY

111° 38' W

49° 25' N

SENTINEL RESOURCES LTD

LUCKY 7 DIAMOND PROPERTY

ALBERTA MINERAL AGREEMENT # 093 9393030001

FIG. 2: DETAILED LOCATION MAP

NTS 72.E 5

TWP 5, 6: R 12, 13 W4

Field work date: February, 1995 by

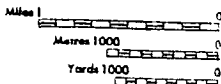
NEWSON MANAGEMENT & CONSULTING LTD

Scale: SHOWN

Date: MAY 1995



Scale



3.0 GEOLOGY AND MINERALIZATION OF THE PROPERTY

3.1 GEOLOGY

The Precambrian basement which underlies the property is of Archean age (Ross et al, 1991), and therefore meets the first criterion for the occurrence of diamond deposits. On top of the basement is a thick sequence of Phanerozoic rocks, including a fairly complete section of the mid Cretaceous sandstones and mudstones which host the kimberlites found in Fort à la Corne, Saskatchewan.

The subcrop is indicated to be Foremost Formation shales, underlain by the White-Speckled shales. The First and Second White-Speckled shales are likely separated here by the Colorado shale. The "White-specs" are a useful marker here as elsewhere in the Phanerozoic at this stratigraphic level, particularly with respect to diamond exploration, since evidence is strong that the period of kimberlitic intrusion in the Phanerozoic basin of Saskatchewan included the time represented by the deposition of the two "White-specs" units and the Colorado shale. Beneath the 2nd White specs is the Fish Scales formation, another useful marker which is fairly easily identified, and which indicates the approximate centre of the time-stratigraphic interval containing the Fort à la Corne kimberlites. Beneath the Fish Scales is a sequence of sandy units, of which the Mannville is the most widespread. Beneath the sandy units are Paleozoic carbonate units.

In the Fort à la Corne area of Saskatchewan, which is the nearest geologically similar area where kimberlitic intrusions have been discovered and adequately described in the literature, the top of the Paleozoic carbonate sequence defines the lower limit of significant development of large kimberlitic bodies (Scott Smith et al, 1994). It is suggested that the reason for this is that the hot kimberlitic magma passed through the dry carbonates uneventfully, but when it hit the water-bearing sands and shales, it vaporized the water, causing a huge explosion which created a large crater which was filled with kimberlitic material. The similarity of the geology in the area of the present property to that of Saskatchewan means that this is one of the target types that should be sought here. Given the considerable depth to the Fish Scales horizon in the area of the property, and the thickness of the mid-Cretaceous section here, a magnetic target occurring anywhere from bedrock surface to a depth of 1000m would be attractive, based on the Saskatchewan model.

Major Phanerozoic structures which underlie or are close to the property include the Sweetgrass Arch, which extends northeasterly into the Sturgeon Lake area of Saskatchewan, where diamonds were discovered by de Beers in 1988. The process of forming an arch causes the rocks to be under tension, and provides easier access to intrusives than if the tensional environment did not exist.

Two smaller Phanerozoic structures underlie or are very close to the property. An anticlinal structure occurs about 15 km east of the property. It trends about N20°W, which, perhaps coincidentally, is suggested as the approximate trend of the Fort à la Corne kimberlites in Saskatchewan, and of the kimberlites in the Lac de Gras area of the Northwest Territories. Another anticlinal structure is centred just west of the property, and underlies at least the western part, or perhaps all of it. The age of these structures is not certain, but they are suggested to be Tertiary, or at least post-Sweetgrass Arch (Dufresne et al, 1994). This would make them younger than the Saskatchewan kimberlites, but possibly contemporaneous with the Lac de Gras pipes. These anticlinal structures may have been directly caused by volcanic activity, or may have provided a permissive environment in which igneous activity, perhaps including kimberlitic intrusion, could occur.

Igneous activity has occurred in the area, as indicated by some thick beds of bentonite beds. Some of these are in the approximately mid-Cretaceous time-stratigraphic interval, which is also the time of intrusion of the Saskatchewan kimberlites. Some others are approximately at the Cretaceous-Tertiary boundary.

The Sweetgrass intrusions have particular significance with respect to diamond exploration. In Alberta, these area said to be wholly or largely minettes, which are related to kimberlite, but are not known to contain commercial diamond deposits. However, one is reminded that lamproites were not believed to be potential sources of commercial diamonds until the Argyle deposit in Australia was found. As well, rocks described as ultrapotassic minettes (M. V. Pyke, 1995, pers. comm.) recently found west of Rankin Inlet, N.W.T., have yielded extremely high concentrations of diamonds. It is well to keep an open mind when investigating a new area such as North America. In addition, kimberlitic and lamproitic diatremes which are age-equivalents to the Sweetgrass intrusives have been found in the Missouri Breaks and Smoky Butte region of central Montana.

The property is covered with Pleistocene glacial drift, probably to a depth of 15 to 30 metres. Unconsolidated Tertiary sand may underlie the Pleistocene sand, and may be difficult to distinguish from it. Glacial direction is from north-northwest to south southeast. Accordingly, the survey emphasized that part of the property north-northwest of the discovery site.

3.2 MINERALIZATION

No bedrock mineralization, diamonds or otherwise, is known to exist on the property. However, 2 diamonds, both apparently of gem quality, were found on the property in unconsolidated material by prospector Tom Bryant. The work described herein is an attempt to find the source of the diamonds.

4.0 PREVIOUS WORK ON AND NEAR THE PROPERTY

The federal government, as part of its national program, has done aeromagnetic surveys of the area which includes the property. Private companies may have carried out low-level airborne magnetic surveys over the property, but, if so, this information was not available to the writer. Tom Bryant, an Alberta prospector, recovered 2 diamonds from unconsolidated material in Etzikom Coulée, on the present property.

Various government agencies have sampled tills in the province, and have analysed the tills for diamond indicator minerals. A sample taken by the GSC just off the property, but down-ice from the survey grid, yielded two G-1 garnets, and one each chrome diopside and picroilmenite.

5.0 TOTAL FIELD MAGNETIC SURVEY

5.1 PURPOSE

The purpose of the survey discussed herein was to detect the magnetic signatures of any diamond source-rocks which might be present.

5.2 METHOD

The method used in this survey was to measure the strength of the resultant magnetic field at regularly spaced points on a line grid established on the property.

The grid used here had a spacing between lines of 150 metres, with readings taken at 25 metre intervals. Lines were run in an east-west direction because available information indicated that that would be the best direction. Not all of the claim was covered. It was thought best to concentrate on the direction up-ice from the diamond discovery area, and to spend the available money on a more detailed survey of this area, rather than a less-detailed survey of the entire property.

Control for the line grid was by reference to the cadastral survey, as defined by the roads and fence lines. Distance measurements were made with a device known generically by one or other of the common brand names for such devices ("topofil" or "hip chain"). These devices contain a ball of fine string which is wound around a wheel connected to a counter similar to the odometer in a car. The end of the string is tied to a fixed object, and, as the operator walks away, the string pulls out, turning the wheel, which operates the counter.

A "loose" grid was established here, which means that not every station was picketed. In this method the operators pace between stations, and correct their pace at each picket. The pickets are usually 200m apart, but may need to be closer if the terrain is rolling, or may be up to 400m apart in very flat, open country. This method can be used in open, flat country, and saves money without compromising control. Even with relatively inexperienced operators it is unusual to be out by more than one station (25m) in 400m. When there is an error in pacing, the error is noted, and corrected by the plotting software.

Because this property is in farm and ranch country, every picket and every piece of flagging had to be picked up after the survey, and this is included in the cost of the lines. Adding an extra, unforeseen, cost was the fact that the land owners would not permit vehicles, even ATV's, to enter their property without compensation, which means that all of the line work had to be done on foot.

The resultant magnetic field is the vector sum of induced and remanent magnetism, modified by geometrical considerations, i.e. the topographic effect. Induced magnetism depends on the magnetic susceptibility of the rocks present, and the strength of the earth's magnetic field. Remanent magnetism is usually small, and is ignored in mineral exploration surveys. Any contribution by remanent magnetism to the resultant vector is part of the overall magnetic signature of a particular rock unit. Topographic effects result from the fact that the sensor is not always the same distance above the rock. When the operator is standing on bare rock, the sensor is 2 m above the rock (the length of the staff on which the sensor head is mounted). When the reading is being taken on the ice in the middle of a lake, for example, the distance from sensor to bedrock can be very much more than that. Even if the rocks are exactly the same, the reading taken over the lake will be significantly lower.

Short term external magnetic influences can cause considerable variation in readings taken at different times at the same point. Accordingly, it is necessary to take continuous readings at a base station magnetometer which does not move, so that variations in the magnetic readings with time (referred to as diurnal variations) can be removed from the survey results.

The magnetometers used in this survey, both base station and field units, are proton magnetometers, which operate on the principle of nuclear magnetic resonance. This method is very accurate, and is completely free of instrument drift. The main base station magnetometer used was a Scintrex IGS-2/MP-4 unit, reading directly in gammas, but a Scintrex Envimag was substituted as the base station magnetometer for a few days. The readings, and times at which each reading is made, are recorded automatically in the solid state memory of the instrument. The field instruments were a Scintrex MP-3 unit and a second Scintrex Envimag, similar to the base unit insofar as magnetic capabilities are concerned. The IGS-2/MP-4 was also used as a field unit while the Envimag was serving as the base station magnetometer. The base station unit was set to make measurements every 6 seconds. It recorded them, along with the time each reading was made, in its solid state memory.

Diurnal variations were removed from the field measurements by connecting the field and base station units together, and running the built-in correction program. The program looks at each field reading, then looks at the reading taken at the same time by the base station (if necessary, it carries out a straight-line interpolation between the values recorded at the two nearest times before and after the time of the field reading). If the base station reading varies from a reference value, the program removes this variance from the value recorded by the field instrument.

5.3 RESULTS

The results are presented here as a map of contoured total magnetic values (Map 1, in pocket). The maximum magnetic relief is 547 nt, and readings decrease from northeast to southwest. The dominant magnetic feature seen is a magnetic high rising to the northeast, and perhaps peaking just off the property, or on one of the sections not surveyed. This appears to be a basement feature. It is too large and the gradient is too low to be due to a kimberlitic or lamproitic intrusion.

No obvious magnetic targets were revealed by the survey. A good target at a shallow depth might look something like the response centred at about 3200W, 1600S. However, that response is due to the Kingslake Hutterite colony residences and barns. At increasing depths, the anomaly due to such a source would become larger in area, but lower in amplitude, and the magnetic depressions on the north, south, and east sides would disappear.

Other responses due to cultural sources are at 100E, 1650S and 0E, 6000S (both are sets of farm buildings, with steel grain bins and farm machinery). North of the farm at 0E, 6000S, are two closed contours, one due to an irrigation wheel, and the other due to some grain bins. Other, single-station, cultural anomalies have been eliminated in the final map.

An unexplained anomaly at 1735W, 150S is shown on the map. It is due to high readings at 4 stations, surrounded by a slight depression. Very slight low inflections on the lines to the north and south may indicate the extreme ends of the anomalous response. An examination of the raw profile data (Figure 3) indicates that the response is typical of a highly magnetic source at or very close to the surface. This is almost certainly a cultural anomaly, although the operator could not see any artifact. It may be due to casing in a shut-in oil well. A magnetic low at 450S, 1600W is also almost certainly a cultural anomaly, perhaps part of the same item that causes the one on line 150S. A slight low at 300S, 1675W may represent the connection between the two.

Figure 3.

Anomaly on line 150S

Total magnetic field profile

SCINTREX V1.6 Magnetometer R1.7
Base Field: 58205. * =Uncorrected Data Ser No:866303.
Line: 150.S Grid: 1: Job: 61. Date: 95/02/12 Operator: 2.

x Total Field (Gammas)
Bias: 58225. F = 100. Bias + .4xF .8xF 1.2xF 1.6xF 2xF

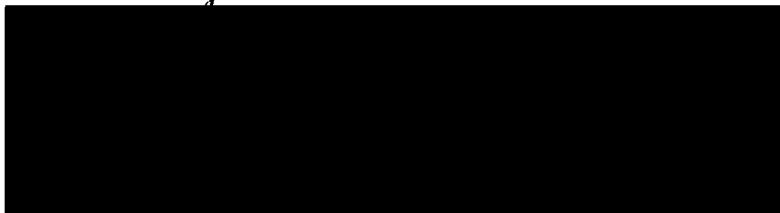
Station	Mag Fld	Info A	.4xF	.8xF	1.2xF	1.6xF	2xF
2100.W	58307.5		.	.x	.	.	.
2075.W	58309.8		.	.x	.	.	.
2050.W	58304.1		.	x	.	.	.
2025.W	58304.6		.	x	.	.	.
2000.W	58309.5		.	.x	.	.	.
1975.W	58306.6		.	x	.	.	.
1950.W	58305.9		.	x	.	.	.
1925.W	58308.3		.	.x	.	.	.
1900.W	58310.5		.	.x	.	.	.
1875.W	58313.9		.	.x	.	.	.
1850.W	58316.6		.	.x	.	.	.
1825.W	58310.8		.	.x	.	.	.
1800.W	58313.2		.	.x	.	.	.
1775.W	58341.1		.	.	.	.	.
1750.W	58373.6		.	.	x.	.	.
1725.W	58419.8		.	.	.	x.	.
1700.W	58348.2		.	.	.	.	.
1675.W	58323.4		.	.	.x	.	.
1650.W	58319.7		.	.	x.	.	.
1625.W	58318.2		.	.	x.	.	.
1600.W	58319.5		.	.	x.	.	.
1575.W	58319.5		.	.	x.	.	.
1550.W	58320.5		.	.	x.	.	.
1525.W	58321.4		.	.	x.	.	.
1500.W	58323.0		.	.	x	.	.
1475.W	58325.1		.	.	x	.	.
1450.W	58330.8		.	.	.x	.	.
1425.W	58330.8		.	.	.x	.	.

A magnetic feature occurs on lines 4050S and 4200S, between about 1600W and 3200W. In that region, each of the contours describes a "Z" curve. This looks like a chainage error, but a detailed examination of the original data failed to find any error. The control is very good there- both lines are very close to an east-west fence, and there are north-south fences at 1600W and 3200W, and a road at 3200W. This type of feature might be caused by working too close to an electric fence, but there were no cattle in the fields at the time of the survey, so this is unlikely. Whatever the cause of this feature, it is not due to a pipe or dyke of kimberlitic rock.

The fact that no magnetic feature likely to be a diamond source-rock was found means either that none exists on the area surveyed, or that one exists, but is not magnetic. Because two diamonds have been found on the property, and because several indicator minerals were found in a till sample down-ice from the most likely source direction of the diamonds, the lack of a magnetic target should not eliminate the property as an exploration target. A detailed till sampling survey should be carried out on and near the property to determine if there is a non-magnetic diamond source-rock present.

6.0 CONCLUSIONS AND RECOMMENDATIONS

1. The total field magnetic survey described herein has outlined a broad magnetic feature caused by a large, deep-seated source.
2. No feature which might be interpreted as being caused by a pipe or dyke or other form of diamond source-rock has been found.
3. Because two diamonds have been found on the property, and because a till sample taken near, and down-ice from, the property contained 4 diamond indicator minerals, it is recommended that a program of detailed till sampling on and near the property be undertaken on the premise that a non-magnetic rock type may be the source of the diamonds and the indicator minerals.



N. Ralph Newson, M.Sc., R.Eng., P.Geol., F.G.A.C.

7.0 REFERENCES AND SELECTED BIBLIOGRAPHY

- Chiarenzelli, J.R., Lewry, J.F., and Landon, M., 1986. Bedrock geology, Istwatakan Lake area: evidence for Hudsonian juxtaposition of Proterozoic and Archean rocks along a ductile detachment surface. IN summary of investigations, 1987, Sask. Geol. Surv. Special report 87-4
- Collerson, K.D., Lewry, J.F., Bickford, M.E., and Van Schmus, W.R., 1989. Crustal evolution of the buried Precambrian of southern Saskatchewan: implications for diamond exploration. IN Modern exploration techniques: proceedings of a symposium held in Regina, Saskatchewan, 20- 21 November, 1989. Sask. Geol. Soc. Special Publication Number 10
- Dufresne, M.B., Olson, R.A., Schmitt, D.R., McKinstry, B., Eccles, D.R., Fentin, M.M., Pawlowicz, J. D., Edwards, W. A. D., and Richardson, R. J. H., 1994. The diamond potential of Alberta: a regional synthesis of the structural and stratigraphic setting, and other preliminary indications of diamond potential. MDA project M93-04-037. Alberta Research Council open file report 1994-10
- Gent, M.R., 1989. Regional Phanerozoic anomalies in Saskatchewan. IN Summary of investigations, 1989, Sask. Geol. Surv., Sask. Energy and mines, Misc. Rpt. 89-4.
- _____. 1992. Diamond exploration in Saskatchewan. Bull. Can. Inst. of Min. and Met. Vol.84, No. 956. January, 1992
- Green, A.G., Stephenson, O.G., Mann, G.D., Kanasewich, E.R., Cumming, G.L., Hajnal, Z., Mair, J.A., and West, G.F., 1980. Cooperative seismic surveys across the Superior-Churchill boundary zone in southern Canada. Canadian Journal of Earth Sciences, Vol. 17, no. 5, pp. 617-632.
- Haggerty, S.E., 1986. Diamond genesis in a multiple-constrained model. Nature, Vol. 320.
- Hoffman, P.F., 1988. United plates of America: the birth of a craton. Annual Review of Earth and Planetary Sciences. Vol. 16, pp.543-604.
- Janse, A.J.A., 1992. Clifford's rule and its application to diamond prospecting in Canada. Talk given at the annual meeting of the Prospectors' and Developers' Association, Toronto, 1992.
- Jennings, C.M.H., 1989. Exploration for diamondiferous kimberlites & lamproites. IN Modern exploration techniques: proceedings of a symposium held in Regina, Saskatchewan, 20- 21 November, 1989. Sask, Geol. Soc. Special Publication Number 10.
- Kirkley, M.B., Gurney, J.J., and Levinson, A.A., 1992. Age, origin and emplacement of diamonds: a review of scientific advances in the last decade. Bull. Can. Inst. of Min. and Met., Vol. 84, No. 956. January, 1992.
- Lehnert-Thiel, K., Loewer, R., Orr, R., and Robertshaw, P., 1992. Talk given at the annual meeting of the Prospectors' and Developers' Association, Toronto, 1992.

- Mitchell, R.H., 1986. Kimberlites, Mineralogy, Geochemistry and Petrology. Plenum Press, New York. 442p.
- Ross , G.M., Parrish, R.R., Villeneuve, M.E., and Bowring, S.A., 1991. Geophysics and geochronology of the crystalline basement of the Alberta Basin, western Canada. Canadian Journal of Earth Sciences, Vol. 28, no. 4, pp.512-522.
- Scott Smith, B. H., Orr, R.G., Robertshaw, R.W., and Avery, R. W., 1994. Geology of the Fort à la Corne kimberlites, Saskatchewan. Paper presented at Vancouver diamond symposium.

APPENDIX A

ALBERTA MINERAL AGREEMENT # 093 0909030001

CERTIFIED STATEMENT OF COSTS

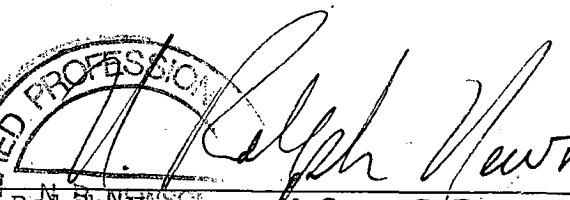
TO ACCOMPANY A REPORT DATED MAY 24, 1995, TITLED "ALBERTA MINERAL AGREEMENT # 093 0909030001, ASSESSMENT WORK REPORT ON A TOTAL FIELD GROUND MAGNETIC SURVEY"

Establishment of lines, clearing of pickets, flagging: 355 km @ \$40/km	\$14200.00
Magnetic survey: 355 km @ \$90	\$31950.00
Total	\$46150.00
GST @ 7%	\$ 3230.50
Total with GST	\$49380.50

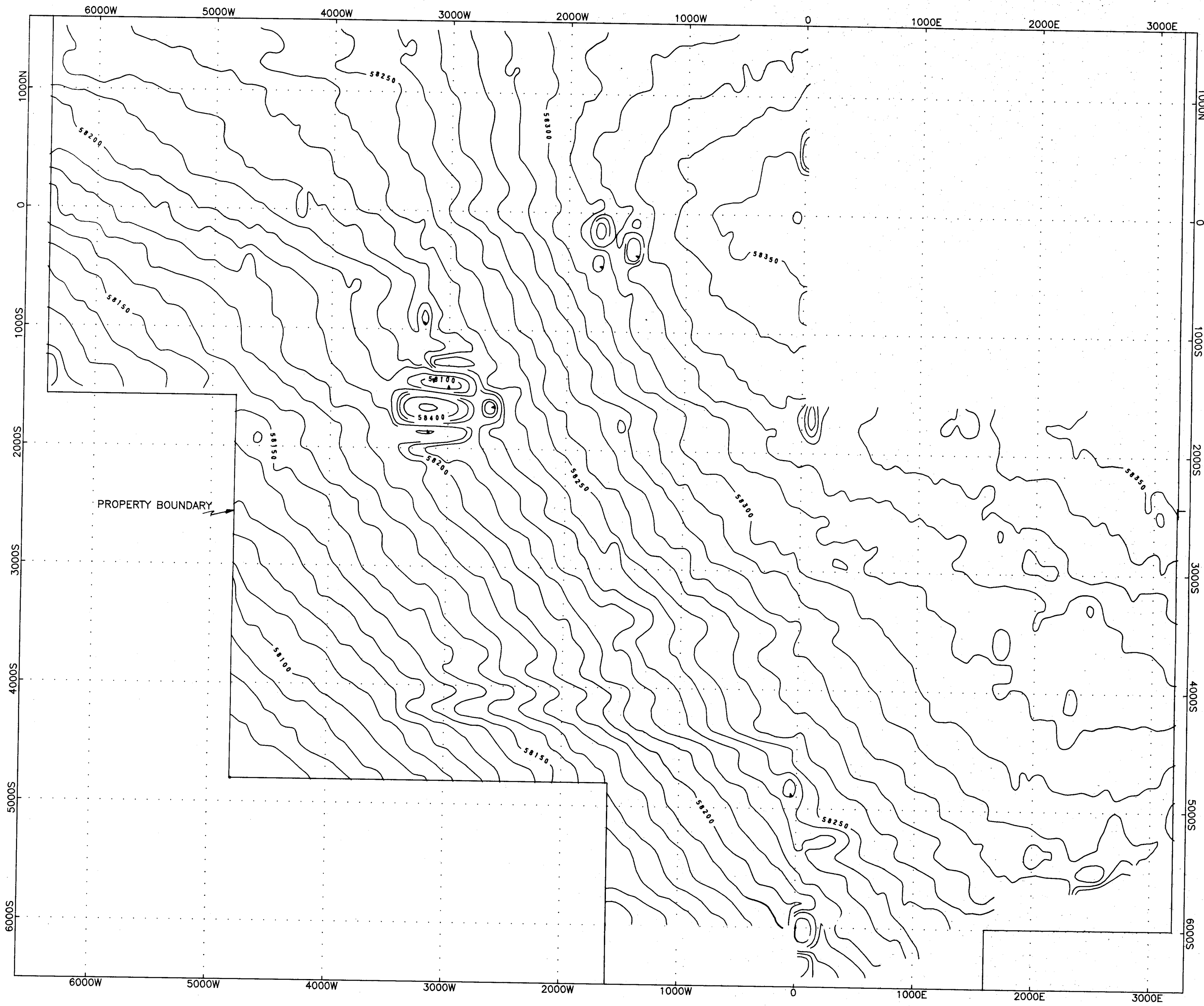
I hereby certify:

1. that I carried out the work described in the above-captioned report, and to which the costs set out herein apply
2. that the work was carried out under a fixed price per kilometre contract
3. that the costs set out herein are the true costs to carry out the work described in the above-captioned report, to which this Certified Statement of Costs is appended.

Dated at Saskatoon, Saskatchewan this 24th day of May, 1995


REGISTERED PROFESSIONAL
LICENSEE
N.W.T.
W. R. NEWSON
GEOLOGICAL ASSOCIATION OF CANADA
FELLOW
Newson, M.Sc., P.Eng., P.Geol., F.G.A.

RANGE 13 | RANGE 12

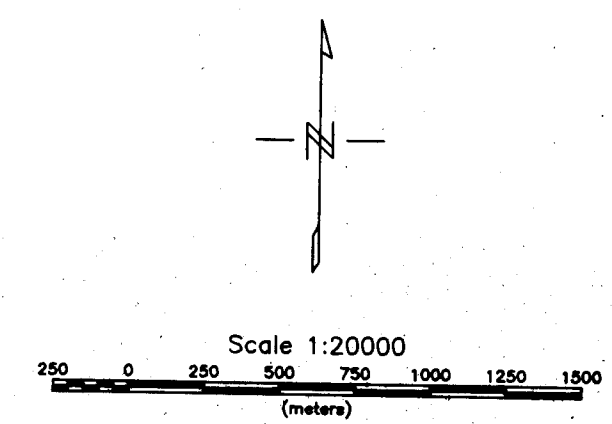


TWP 6

TWP 5

49° 25' N

PROPERTY BOUNDARY



111° 36' W

19950004

SENTINEL RESOURCES LTD
LUCKY 7 PROPERTY, ALBERTA AGREEMENT # 093 9393030001 TOTAL MAGNETIC FIELD
NTS 72 E 5 WEST OF THE FOURTH MERIDIAN FIELD WORK DATE: FEBRUARY, 1995
NEWSON MANAGEMENT & CONSULTING LTD