

41P10SW2001

2.18748

TYRRELL

010

REPORT OF WORK

SOIL SAMPLING SURVEY

JUBY PROJECT (1801, 1802)

TYRRELL TOWNSHIP

LARDER LAKE MINING DIVISION

Submitted by:

Mary of Stalker.

M. Stalker

August 14, 1998

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1.0) Summary

A "B" horizon soil geochemical sampling program, an orientation study of these soils over the main showing, and a mapping program along property trails were conducted on the Juby property in Tyrrell township during May 20 to May 27, 1997. A total of 9 rock samples and 78 soil samples, of which 13 were from the orientation study, were collected.

The "B" horizon was quite consistent in amount, colour, and texture throughout the area sampled with a few variations as noted. The orientation study was centered around a portion of the main showing. Three different soil horizons were tested in this area as well as the "B" horizon near and downslope from the showing. The mapping was conducted while locating trails on the property and interesting outcrops were discovered.

Analysis of the samples revealed anomalous values in Au and other elements. The highest soil sample analysis for Au was 47 ppb. The highest values from rock samples were 0.043 g/t Au and 24 ppm Ag from two separate samples.

The geochemical survey was successful in finding areas of anomalous mineralization in soils. Additional field work is required to further delineate and uncover the source of these anomalies. The orientation study indicated that there is a difference between analysis results of different soil layers from the same location. The "B-C" horizon provided an anomaly in Au that the other horizons did not and perhaps would be the best unit to sample. Samples downslope from the main showing did provide anomalous data. The mapping indicated that Timiskaming like sedimentary rocks were present on the property. No high Au values were returned from rock samples.

2.0) Introduction

During September 1996 claims were staked around the existing Juby property by Royal Oak Mines Inc.. From May 20, 1997 to May 27, 1997, Leeanne Beaudin and Mary Stalker carried out a program of examining interesting outcrop along the roads and trails, as well as a soil geochemistry orientation study, and a soil geochemistry survey. This report documents these surveys.

3.0) Property Location and Access

The Juby property is located in Tyrrell and Knight township, Larder Lake Mining Division, west of the town of Gowganda (figure 1). The property consists of a number of claims surrounding the original property CLM 296 (figure 2). An inventory of claims is found in Appendix A. The portion of the property considered in this report is in southern Tyrrell township.



Figure 1: Location Map

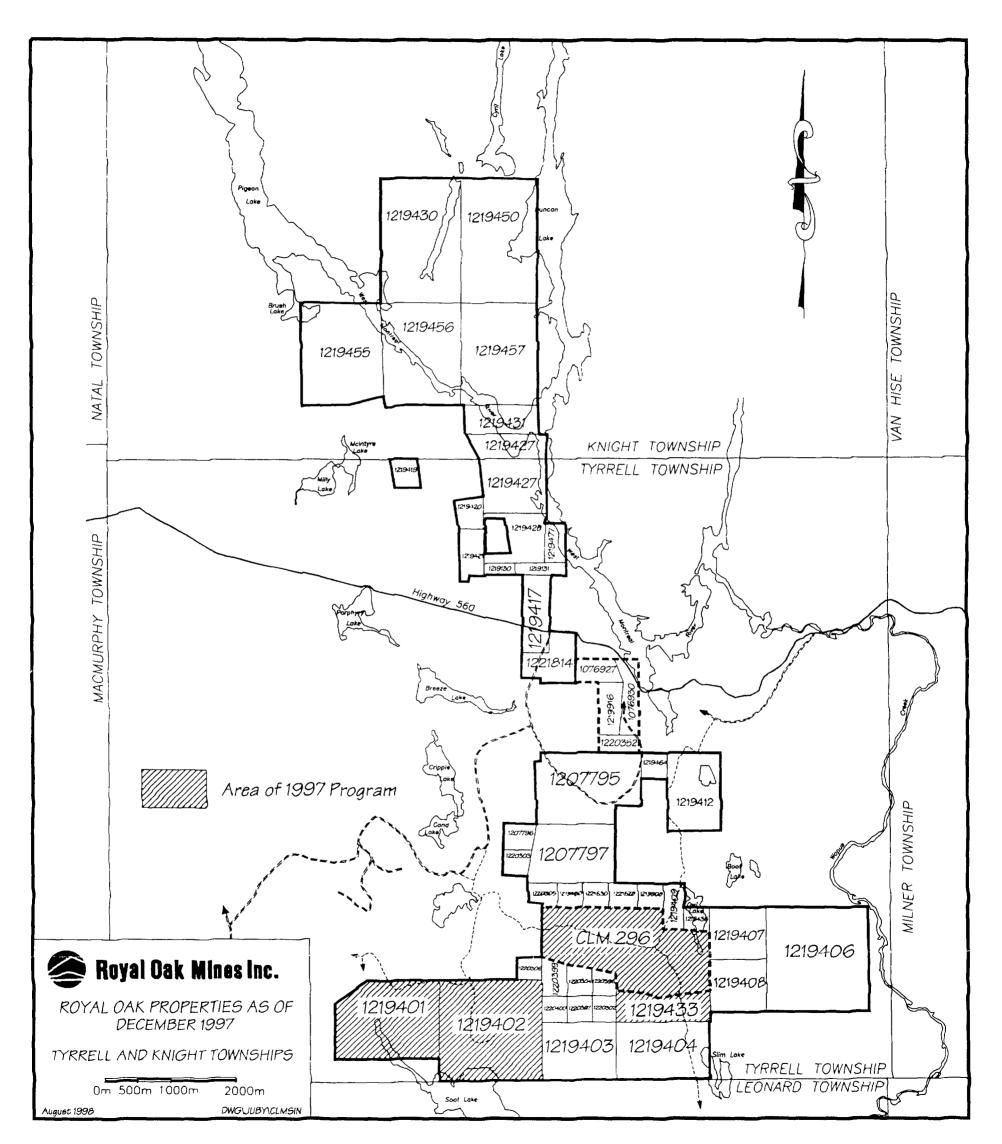


Figure 2: Claim Map

The southeastern claims are reached by following highway 560 approximately 13 miles west of the town of Gowganda, and turning south on the Welsh-Mac road. The claims are about 3 miles south of highway 560. The southwestern portion of the property can be accessed by following the Indian Lake lumber road which starts at highway 560 approximately 2 miles west of the Welsh-Mac road.

4.0) Topography and Vegetation

The majority of the property is comprised of low rolling hills and swamps with scattered outcrop and ridges. Lakes and ponds are common throughout the property.

The most common trees are popular, birch, fir, jack pine, and spruce. The undergrowth is commonly made up of tag alders and scrub maple.

5.0) Regional Geology

The Juby property is underlain by a package of Archean metavolcanic and metasedimentary rocks along with Timiskaming like sedimentary rocks (figure 3). These have been intruded by numerous porphyritic and granitic dikes and sills along with common diabase dikes. The eastern portion of the property is overlain by the Cobalt Group sediments of the Huronian Supergroup and Nipissing mafic intrusive rocks. The grade of metamorphism appears to be lower greenschist. These rocks are overlain with sand, gravel, and till Pleistocene deposits.

6.0) Previous Work

Most of the previous significant exploration of the southern portion of the property, of interest in this report, has been on the Juby claims (CLM 296). In 1937 this property was optioned by Teck-Hughes from the Welsh-Mac company. Teck-Hughes completed 5000' of diamond drilling over the "main zone". In 1939 Hollinger Gold Mines also drilled a number of diamond drillholes on the property. In 1974-1975, Getty Mines Limited acquired the claims and completed geological mapping, soil geochemistry surveys, magnetic and I. P. geophysical surveys, and trenching, sampling, and diamond drilling at the main showing. Pamour Porcupine Mines Limited acquired an option on the property in early 1981. During 1981-1984, the "main zone" was stripped, mapped, and sampled; and geophysical surveys; geochemical surveys; mapping; and diamond drilling were all completed.

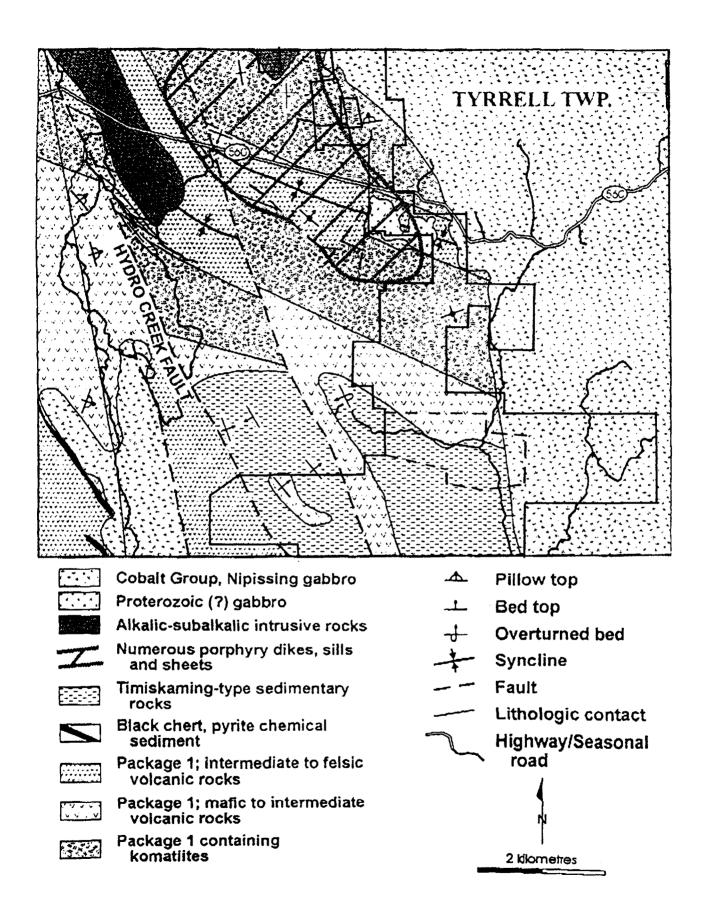


Figure 3: Regional Geology (Johns, 1998)

7.0) 1997 Soil Survey

7.1) Regional Surficial Geology

The area of the program is covered with sand in outwash plain deposits and by till, sand, and gravel in ground moraine areas (Roed, 1979). A large esker runs approximately north south from the middle of Knight township through to the southern edge of Tyrrell township along the eastern sides of the townships.

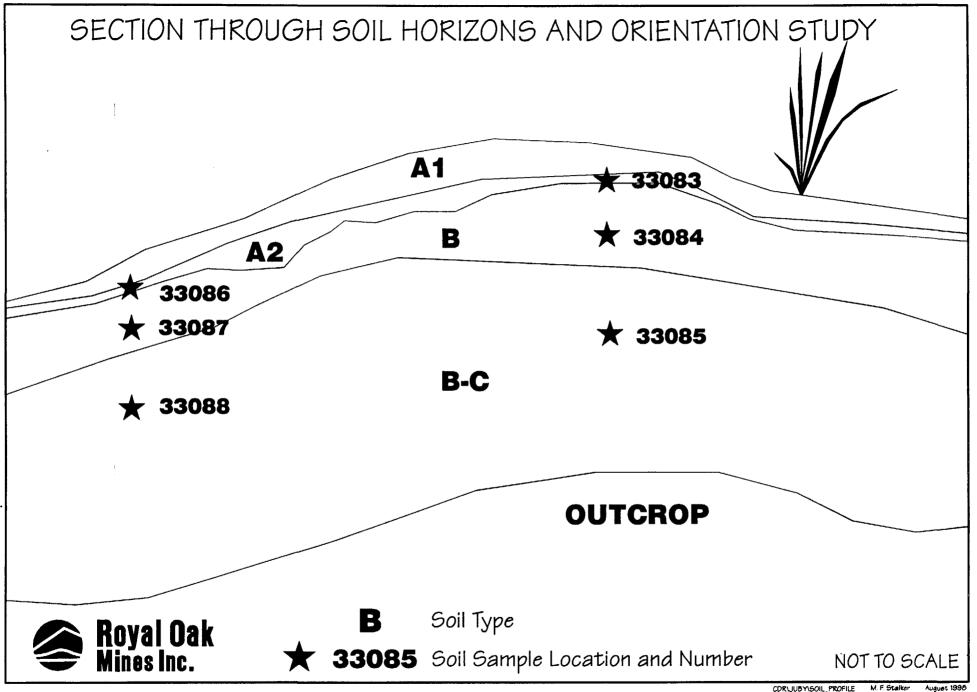
The soil horizon for the area of the soil survey (figure 4) consists of a very thin humus layer ("A1") of generally less than 5 cm overtop of a 2-10 cm thick white silt-sand layer ("A2") which is not always present. Underneath is the orange silt layer ("B") approximately 5 - 30 cm thick which was sampled in the soil survey. A generally thick tan-green-beige silt-sand layer ("B-C") underlies the "B" horizon. It is difficult to estimate its thickness since the unit above it was sampled in the survey and only the top of the unit was observed. However, the few places were the thickness was uncovered it was >50cm and commonly >1m and may have been very thick as often no underlying unit was observed. Where an underlying unit was observed it was generally bedrock and rarely till.

7.2) "B" Horizon Soil Survey

From May 25, 1997 to May 27, 1997, 65 "B" horizon soil samples were collected. The sample locations were at 50m intervals found by compass and hip chain starting at the site of two line posts. A line was followed to the north with sample stations to the east and west paced and compassed from this line. Samples were taken using a grubhoe at depths of 5-60cm. The standard 4"x8" kraft paper sample bag was filled at each station. Most of the samples were easy to take with a thick orange silty horizon. In some instances the soil was wet and sampling was impeded by still frozen soil in a few locations. At the same time all outcrop observed was mapped and sampled were appropriate.

The "B" horizon was quite consistent and was generally composed of orange coloured silt. However, orange-brown, tan, orange-tan, and brown-tan clayey silt was also sampled. In one location, greyish white silt probably the A2 horizon was sampled along with some orange silt. Sample location and information are plotted on Figure 5.

The samples were shipped to Chemex Labs Ltd. in Mississauga. There they were dried and sieved to -80 mesh and 30 g digested using nitric aqua-regia. Au was fire assayed with a neutron activation finish. Thirty-two other elements were analyzed using inductively coupled plasma atomic emission spectrometry. Results of the analysis are found in Appendix B.



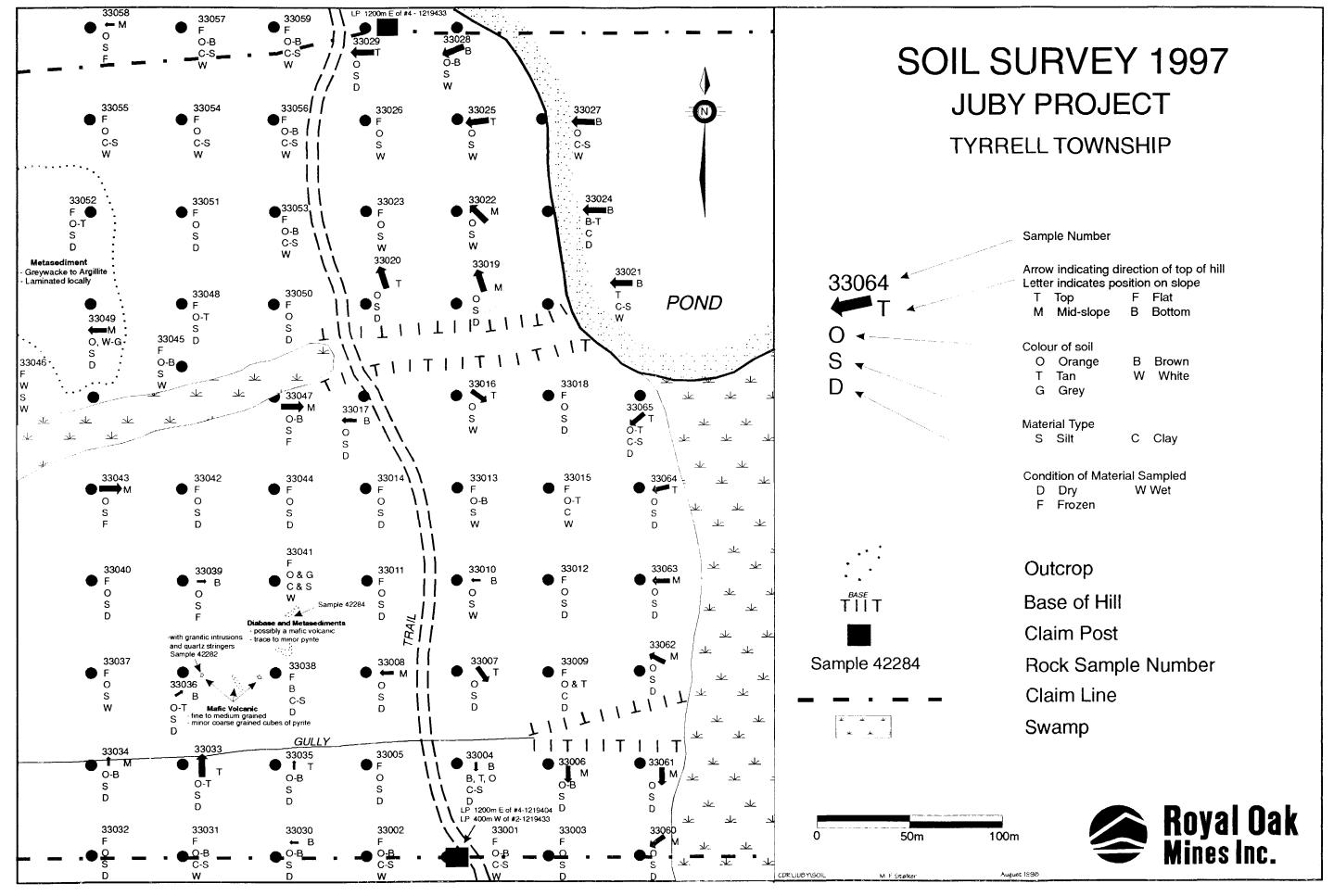


Figure 5: Soil Survey 1997

Threshold values were found for all the elements using the average plus twice the standard deviation (Table 1). While this method only approximates the threshold value in normal populations, it was felt to be suitable for most elements. The Au results of the survey are presented in Figure 6. Two of the samples are greater then the calculated threshold.

7.3) Orientation Soil Survey

An area of CLM 296 called the "main showing" is a region with known Au mineralization. This showing has been stripped and trenched with many grab rock samples taken and a few drillholes drilled beneath the surface exposure. A small study to evaluate soil sampling as a method to detect this type of mineralization was performed on May 26, 1997. Two sections with well exposed soils that appeared to be undisturbed by the trenching were chosen as locations for testing the various soil horizons. Although this area of the showing is not high grade, values are anomalous and the area was one of the few that seemed to be undisturbed. These sections were further stripped of the outer 50 cm of soil in an attempt to get an uncontaminated sample. The "A2, B, and B-C" horizon (figure 4) were sampled at the two locations. Analysis results for the samples are listed in Appendix B.

The A2 horizon (a zone of leaching) had lower concentrations or was below detection for all of the elements analyzed when compared to the other two horizons. The only exception was for the Pb analysis in one of the samples in which it had the same value as the "B-C" horizon. This indicates it would be a poor horizon to sample to show anomalies over this type of mineralization.

The "B" horizon had higher or the same values of Al, Ba, Cr, Fe, P, Pb, Ti, V, Zn then did the "B-C" horizon. The "B-C" horizon had higher or the same results for Au, Ca, Co, Cu, Mg, Mn, Ni, and Sr. Results were remarkably consistent for the two sample sites. These results indicate that depending on the elements used in the soil survey one or the other of these horizons might be more appropriate to use. Since the element Au is probably an important one in finding a gold deposit it is possible that the "B-C" horizon would be a better horizon to use in the search for this style of mineralization. It should be noted that this study compares only two samples sites and most of the results were at quite low concentrations. Perhaps a more thorough study could be undertaken before making a decision on which horizon to use in a large soil sampling program.

The second part of the orientation study was to sample the "B" horizon near and downslope from the known mineralization. Samples of the orange silty "B" horizon were taken south (downslope) of the main showing at distances of approximately 10m, 25m, and 50m in 3 lines about 25m apart. However, due to disturbed soil horizons or possible contaminated areas some samples were not

Table 1: Soil Survey Analysis Data Summary

SOIL SURVEY ANALYSIS DATA SUMMARY

Average Standard Deviation	<u>Au</u> 3 6.2	Ag <0.2 0	Al 1.10 0.52	As <2	Ba 15 9.4	Be <0.5	Bi <2 0	<u>Ca</u> 0.14 0.045	Cd <0.5 0	<u>Co</u> 3 1.7 6	<u>Cr</u> 37 10.4 58
Threshold	15		2.04		34			0.23		0	58
Average	<u>Cu</u> 3	<u>Fe</u> 1.47	<u>Ga</u> <1 0	<u>Hg</u> <1	<u>к</u> 0.02	<u>La</u> <10	<u>Mg</u> 0.26	<u>Mn</u> 107	<u>Mo</u> <1	<u>Na</u> <0.01	<u>Ni</u> 17
Standard Deviation Threshold	3.4 10	0.38 2	0	0	0.014 0.05		0.091 0.44	68.6 243	0	0	7.5 32
	P	Pb	Sb	Sc	Sr	<u>T</u> i	ΤΙ	<u>U</u>	V	w	<u>Zn</u>
Average Standard Deviation	P 286 151.4	<u>Pb</u> 3	Sb <2 0	1 0.5	10 2.6	0.07 0.013	<10 0	<10 0	<u>V</u> 27 5.7	<10 0	Zn 16 6.3
Threshold	589	2 7	U	2	2.0 15	0.013	U	U	38	U	29

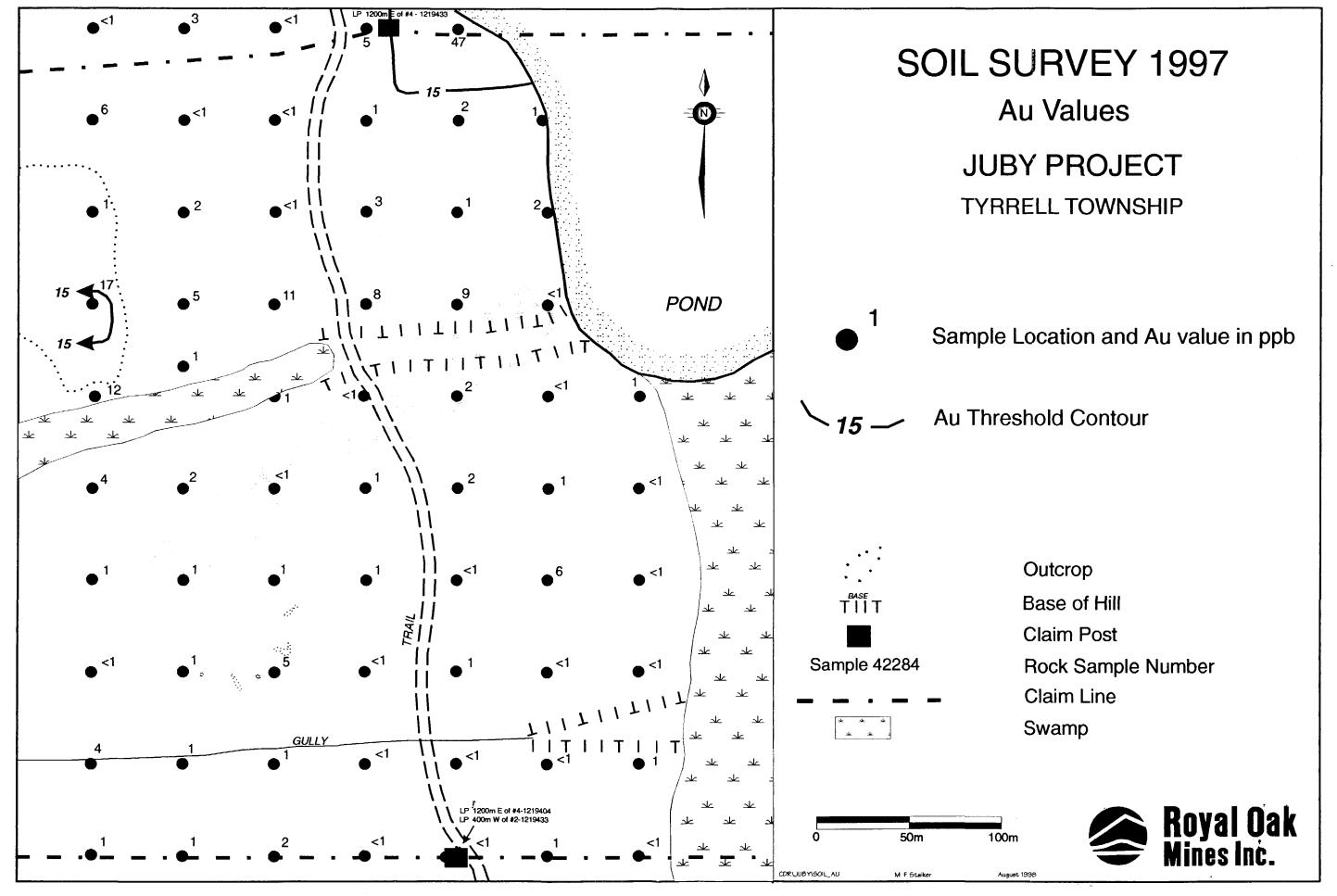


Figure 6: Soil Survey - Au Values

taken or were taken at a different location. Figure 7 is a plan of this sampling with analysis results in Appendix B..

The results of this survey do show elevated gold values downslope from the known mineralization. One of the samples, at 50m downslope from the mineralization, returned a value of 15 ppb which is the calculated threshold for Au from the soil survey.

8.0) Mapping Along Property Trails

During May 21, 1997 to May 24, 1997, access to various parts of the property by road and trail was investigated. During this trail mapping interesting outcrops were examined and sampled where appropriate. Figure 8 shows the areas inspected with each area given a letter name corresponding to the description below.

Area A is a large outcrop of conglomerate and arenite striking approximately 135-138°. The conglomerate contains mostly metavolcanic clasts but 20% of the clasts are chert, 5% are jasper, and 5% are quartz. Locally there are tightly packed bands of cobbles some >30cm. The prevalent jointing direction is at 220°. There is dextral fault movement of 15 cm at 120° and another 2 cm sinistral fault movement at 088°. Quartz veins and stringers are common. Sample 42283 was taken of a 1" sugary white and minor grey fractured quartz vein with some rust but no sulphides observed. Assay results are listed in appendix C. Glacial striations at 160° were measured at this outcrop.

Area B has numerous outcrops of fine grained laminated metasediments.

Area C has outcrops of mafic or possibly ultramafic metavolcanics.

Area D has a large diabase cutting through possible intermediate and mafic or ultramafic volcanics.

Area E has a pile of rusty rubble from a trenched outcrop as well as rusted rock in place. The unit is nearby a diabase and looks altered with a fine grained cherty look. It is possibly a mafic or intermediate metavolcanic. Locally the rock is brecciated with quartz. The rock contains pyrite, pyrrhotite, and trace arsenopyrite. The mineralization, although hard to measure, may be striking 085°. Three samples were taken at this location. Sample 42276 is a rusty, gossaned brecciated or pseudobrecciated mafic or intermediate metavolcanic that contains 5% fine and coarse grained pyrite. Sample 42277 is a rusty gossaned rock with quartz and pyrite stringers in fractures. Sample 42278 is a rusty, gossaned, brecciated mafic or intermediate metavolcanic with 3% fine and coarse grained pods and stringers of pyrite. Assay results are listed in appendix C.

At area F there is a quartz vein of 10 - 50 cm with carbonate and granitic intrusions

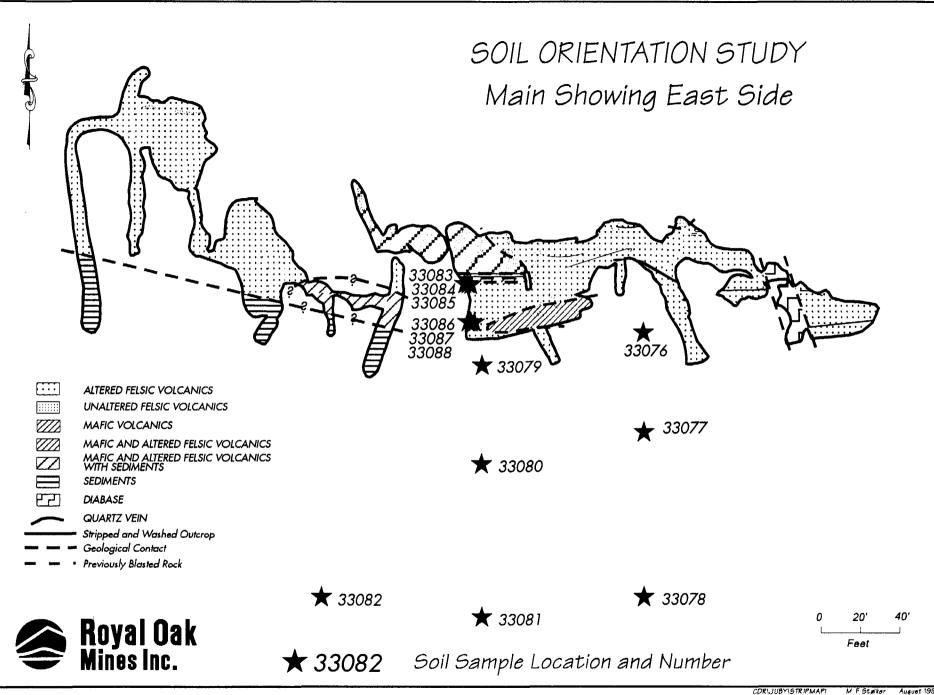


Figure 8: Mapping Along Property Trails

cutting through a number of outcrops of mafic or ultramafic metavolcanics with some diabase. Sample 42279 is approximately 60% milky white quartz in a mafic or ultramafic host rock. Sample 42280 is a mafic metavolcanic with 30% milky white quartz stringer. Sample 42281 is 40% quartz with carbonate from a white and grey irregular quartz vein in mafic metavolcanic. Assay results are listed in appendix C.

The area of the soil survey was also mapped and outcrops can be found on figure 5.

9.0) Conclusions

The geochemical survey has been successful at delineating a number of zones of anomalous mineralization in soil. The survey returned high Au values of 47 ppb and 17 ppb. The result of 47 ppb may have skewed the calculated threshold higher. It may be more realistic to use a lower threshold value for Au. The 47 ppb is from a sample located beside a pond and may have been contaminated by the pond water. However, both of these higher values should be further investigated. The multi-element analysis also returned anomalous values.

The orientation soil survey did pick up the known mineralization with elevated values downslope including a value of 15 ppb of Au and 29 ppb of Au over the mineralization. The study of the various soil horizons indicates that the "A2" horizon should not be used in a soil survey, and that while both the "B" horizon and "B-C" horizon picked up different elements preferentially the "B-C" horizon gave a higher gold value for one sample and should be considered as a sample source for further soil geochemistry work.

10.0) Recommendations

The orientation soil survey indicated that soil geochemistry is a valid method for finding mineralization of the "main showing" type. As shown by the limited data of the orientation study, if Au is considered to be the main indicator of possible deposits the "B-C" horizon may be the best source of samples.

The study uncovered two areas of anomalous Au values. These two areas should be further examined to find the source of the anomalies. However, if a more extensive survey was completed a more accurate threshold value could be calculated which would give a better comparison between background and anomalous Au levels.

The limited amount of outcrop examined showed some interesting features and further mapping is recommended.

References

- Johns, G. W. 1998. Project unit 96-03. Reappraisal of the geology of the Shining Tree area (Tyrrell Township), Districts of Sudbury and Timiskaming; *in* Summary of Field Work and Other Activities 1997, Ontario Geological Survey, Miscellaneous Paper, p.26-29.
- Roed, M. A. 1979. Elk Lake Area (NTS 41P/NE), District of Timiskaming; Ontario Geological Survey, Northern Ontario Engineering Geology Terrain Study 83, 18p. Accompanied by Map 5020, scale 1:100000.

Statement of Qualifications

- I, Mary F. Stalker, of Timmins, Ontario, do hereby certify that:
- 1. I am currently employed as a consultant by Royal Oak Mines Inc..
- I am a graduate of the University of Waterloo with an honours B.Sc. in earth science (1986), and a graduate of McGill University with a M.Sc.A. in mineral exploration (1992).
- I have been employed as a geologist by various exploration, mining, and consulting companies since 1983.
- 4. I am directly responsible for the work outlined in this report and was present on the property when the work was performed.
- I have no direct interest, nor do I have any shares of any company exploring the properties described in this report, nor on any adjacent or surrounding properties.

Dated this 12th day of August, 1997, Timmins, Ontario.

Mary F. Stalker Consulting Geologist

APPENDIX A

Inventory of Claims

INVENTORY OF CLAIMS

Claim No.	Units	Township
CLM296	23	Tyrrell
1076927	2	Tyrrell
1076930	3	Tyrrell
1207795	11	Tyrrell
1207796	1	Tyrrell
1207797	6	Tyrrell
1219130	1	Tyrrell
1219131	2	Tyrrell
1219401	11	Tyrrell
1219402	16	Tyrrell
1219403	6	Tyrrell
1219404	7	Tyrrell
1219406	16	Tyrrell
1219407	4	Tyrrell
1219408	4	Tyrrell
1219409	2	Tyrrell
1219412	6	Tyrrell
1219417	3	Tyrrell
1219419	1	Tyrrell
1219420	1	Tyrrell
1219421	2	Tyrrell
1219427	8	Tyrrell & Knight
1219428	3	Tyrrell
1219430	15	Knight
1219431	3	Knight
1219433	4	Tyrrell
1219436	1	Tyrrell
1219450	15	Knight
1219455	12	Knight
1219456	12	Knight
1219457	12	Knight
1219460	1	Tyrrell
1219464	1	Tyrrell
1219477	2	Tyrrell
1219908	1	Tyrrell
1219916	2	Tyrrell
1220302	1	Tyrrell
1220303	1	Tyrrell
1220304	2	Tyrrell
1220305	1	Tyrrell
1220306	1	Tyrrell

Claim No.	Units	Township
1220352	2	Tyrrell
1220396	1	Tyrreli
1220397	1	Tyrrell
1220398	1	Tyrrell
1220399	2	Tyrrell
1220400	1	Tyrrell
1221628	1	Tyrrell
1221630	1	Tyrrell
1221814	4	Tyrrell
•		

APPENDIX B

Soil Survey Geochemical Analysis Certificates



Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga Ontario, Canada L4W 2S3 PHONE: 905-624-2806 FAX: 905-624-6163

ROYAL OAK MINES INC. TIMMINS DIVISION P.O. BOX 2010 TIMMINS, ON P4N 7X7

Project: 1801

Comments: Attn: Mary Stalker (mail/fax)

Page M r :1-A
Total Pages :2
Certificate Date: 14-JUN-97
Invoice No. : 19725479
P.O. Number :
Account :JWW

	<u> </u>	<u></u> .								CE	RTIFI	CATE	OF A	NAL	YSIS		49725	479		
SAMPLE	PREP	Au ppb EXT-AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi PPm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu PP m	Fe %	Ga ppm	Hg PPm	K %	La ppm	Mg %	Mn ppm
33001 33002 33003 33004 33005	201 220 201 220 201 220 201 220 201 220	1 (1	< 0.2 < 0.2 < 0.2 < 0.2 < 0.2	1.12 1.38 0.85 0.79 1.08	<pre>< 2 < 10 < 2 < 3 < 3 < 3 < 3 < 4 </pre>	10 10 10 10 30	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	< 2 < 2 < 2 < 2 < 2	0.13 0.14 0.11 0.11 0.18	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	4 3 3 2 4	36 35 31 26 48	3 2 1 6 5	1.15 1.17 1.57 1.13 2.14	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1	0.01 0.01 0.02 0.04 0.05	< 10 < 10 < 10 < 10 < 10	0.32 0.23 0.22 0.16 0.32	80 55 130 95 120
33006 33007 33008 33009 33010	201 220 201 220 201 220 201 220 201 220	1 < 1 < 1	< 0.2 < 0.2 < 0.2 < 0.2 < 0.2	0.72 1.27 1.10 1.86 1.17	<pre></pre>	10 20 10 50	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre>< 2 < 10 < 2 < 3 < 3 < 3 < 3 < 4 </pre>	0.09 0.12 0.11 0.20 0.16	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	1 4 2 7 5	26 35 26 51 40	1 1 7 3	1.60 1.52 1.31 1.94 1.11	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1 < 1	0.03 0.03 0.02 0.08 0.03	< 10 < 10 < 10 10 < 10	0.16 0.23 0.14 0.43 0.38	65 170 60 155 85
33011 33012 33013 33014 33015	201 220 201 220 201 220 201 220 201 220	6 2 1	< 0.2 < 0.2 < 0.2 < 0.2 < 0.2	0.74 1.03 1.22 0.71 0.87	<pre>< 2 < 10 < 2 < 3 < 3 < 3 < 4 < 4 < 5 < 5 < 6 < 7 < 7 </pre>	20 20 10 10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre> < 2 < 3 < 3 < 3 < 4 < 4 </pre>	0.14 0.10 0.10 0.10 0.14	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	4 2 2 4 3	33 34 34 26 34	3 1 1 1 3	1.46 2.01 1.47 1.24 0.98	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1	0.03 0.02 0.01 0.03 0.02	< 10 < 10 < 10 < 10 < 10	0.27 0.19 0.18 0.16 0.29	140 95 50 390 65
33016 33017 33018 33019 33020	201 220 201 220 201 220 201 220 201 220	< 1 < 1 9	< 0.2 < 0.2 < 0.2 < 0.2 < 0.2 < 0.2	1.36 0.80 0.79 1.42 1.06	<pre> < 2 < 2 < 2 < 2 < 2 < 2 </pre>	30 20 10 40 10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre>< 2 < 3 < 3 < 3 < 3 < 4 </pre>	0.19 0.26 0.11 0.24 0.19	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	4 4 2 5 6	38 43 29 53 39	5 2 2 6 3	1.44 1.89 1.65 1.79 1.19	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1 < 1	0.04 0.04 0.03 0.06 0.03	< 10 < 10 < 10 10 < 10	0.29 0.33 0.19 0.44 0.36	100 105 80 125 125
33021 33022 33023 33024 33025	201 220 201 220 201 220 201 220 201 220	1 3 2	< 0.2 < 0.2 < 0.2 < 0.2 < 0.2 < 0.2	0.78 1.13 1.19 1.20 1.05	<pre> < 2 < 3 < 3 < 3 < 4 </pre>	30 20 10 30 10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre> < 2 < 1 < 2 < 2 < 2 < 2 < 2 < 2 < 3 < 3 < 3 < 4 < 4 </pre>	0.31 0.19 0.11 0.22 0.17	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	5 3 4 5 3	38 35 44 46 33	5 4 3 6 2	1.08 1.51 1.83 1.35 1.72	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1 < 1	0.03 0.04 0.04 0.05 0.05	< 10 < 10 < 10 10 < 10	0.39 0.27 0.31 0.44 0.24	125 80 155 155 85
33026 33027 33028 33029 33030	201 220 201 220 201 220 201 220 201 220	1 47 5		0.72 0.90 1.27 0.94 0.80	<pre> < 2 < 3 < 3 < 3 < 4 < 6 < 7 < 7</pre>	10 10 10 20 10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre>< 2 < 3 < 3 < 3 < 4 < 4 </pre>	0.14 0.14 0.14 0.13 0.12	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	3 3 3 3 3	33 29 42 29 25	3 2 4 1 1	1.60 1.42 1.63 1.59 0.90	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1	0.03 0.03 0.04 0.02 0.03	< 10 < 10 < 10 < 10 < 10	0.25 0.24 0.32 0.19 0.17	110 80 95 115 175
33031 33032 33033 33034 33035	201 220 201 220 201 220 201 220 201 220	1 1 4	< 0.2 < 0.2 < 0.2 < 0.2 < 0.2	1.73 0.55 0.63 1.18 0.91	<pre>< 2 < 3 < 3 < 3 < 4 < 6 < 6 </pre>	10 10 20 20 < 10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre>< 2 < 3 < 3 < 3 < 3 < 4 </pre>	0.15 0.10 0.18 0.24 0.12	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	3 4 4 4	43 31 34 51 42	3 3 5 6 2	1.47 1.53 0.97 1.56 2.79	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1	0.03 0.02 0.01 0.02 0.02	< 10 < 10 < 10 < 10 < 10	0.26 0.21 0.34 0.45 0.17	75 195 175 110 55
33036 33037 33038 33039 33040	201 220 201 220 201 220 201 220 201 220	< 1 5 1	< 0.2 < 0.2 < 0.2 < 0.2 < 0.2 < 0.2	0.63 1.00 3.87 1.02 1.26	<pre>< 2 < 2 6 < 2 < 2 < 2</pre>	10 10 40 10	< 0.5 < 0.5 0.5 < 0.5 < 0.5	<pre> < 2 < 3 < 3 < 3 < 4 < 4 < 5 < 5 < 6 < 7 < 7</pre>	0.21 0.14 0.12 0.13 0.10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5	4 4 13 6 4	44 37 74 44 36	8 4 27 5 2	1.11 1.56 1.90 1.21 1.90	< 10 < 10 < 10 < 10 < 10	< 1 < 1 < 1 < 1	0.02 0.01 0.02 0.01 0.01	< 10 < 10 10 < 10 < 10	0.44 0.30 0.24 0.36 0.21	115 105 455 115 240

CERTIFICATION:



Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga Ontario, Canada L4W 2S3 PHONE: 905-624-2806 FAX: 905-624-6163

. o: ROYAL OAK MINES INC. TIMMINS DIVISION P.O. BOX 2010 TIMMINS, ON P4N 7X7

Project: 1801

Comments: Attn: Mary Stalker (mail/fax)

Page N. ar :1-B Total Pages :2 Certificate Date: 14-JUN-97

Invoice No. P.O. Number : 19725479

Account :Jww

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SAMPLE	PREP CODE	Мо ррш	Na %	Ni ppm	P PPm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W PPm	Zn ppm	
33001 33002 33003 33004 33005	201 220 201 220 201 220 201 220 201 220 201 220	< 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 · < 1 ·	(0.01 (0.01 (0.01 (0.01 (0.01	20 15 14 9 18	250 310 690 210 740	2 2 4 6 6	<pre>< 2 < 10 < 2 < 3 < 3 < 3 < 3 < 4 </pre>	1 1 1 1	8 8 7 9	0.05 0.06 0.06 0.06 0.09	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	20 23 31 22 35	< 10 < 10 < 10 < 10 < 10	10 10 16 16 24	
33006 33007 33008 33009 33010	201 220 201 220 201 220 201 220 201 220 201 220	< 1 < 1 < 1 < 1 <	(0.01 (0.01 (0.01 (0.01 (0.01	8 18 9 28 25	160 250 200 240 290	6 4 4 4 2	<pre>< 2 < 3 < 3 < 3 < 3 < 4 </pre>	1 1 1 3	8 9 10 17 10	0.10 0.08 0.08 0.09 0.06	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	38 29 28 30 21	< 10 < 10 < 10 < 10 < 10	14 22 14 26 12	
33011 33012 33013 33014 33015	201 220 201 220 201 220 201 220 201 220	< 1 < 1 < 1 < 1 <	(0.01 (0.01 (0.01 (0.01 (0.01	15 11 11 10 18	660 210 290 280 200	4 6 4 4 2	<pre>< 2 < 1 < 2 < 3 < 3 < 3 < 3 < 4 </pre>	1 1 1 < 1 1	9 7 7 7 8	0.06 0.08 0.07 0.06 0.07	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	29 34 30 22 20	< 10 < 10 < 10 < 10 < 10	12 12 8 38 12	
33016 33017 33018 33019 33020	201 220 201 220 201 220 201 220 201 220 201 220	< 1 < 1 < 1 < 1 <	(0.01 (0.01 (0.01 (0.01 (0.01	20 18 11 24 26	280 420 260 200 330	2 2 6 4 2	<pre>< 2 < 1</pre>	1 1 1 3 1	12 15 8 17 11	0.07 0.08 0.08 0.11 0.07	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	22 34 34 35 21	< 10 < 10 < 10 < 10 < 10	16 24 12 22 14	
33021 33022 33023 33024 33025	201 220 201 220 201 220 201 220 201 220 201 220	< 1 < 1 < 1 < 1 < 1 < 1 < 1 < 1 < 1 < 1	(0.01 (0.01 (0.01 (0.01 (0.01	21 18 20 24 13	400 300 260 310 380	2 2 2 4	<pre>< 2 < 1 < 2 < 2 < 2 < 2 < 2 < 2 < 3 < 3 < 3 < 4 < 4 </pre>	1 1 1 2	14 11 8 15	0.05 0.07 0.08 0.08 0.08	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	20 24 26 26 30	< 10 < 10 < 10 < 10 < 10	18 20 20 32 20	
33026 33027 33028 33029 33030	201 220 201 220 201 220 201 220 201 220 201 220	< 1 < 1 < 1 < 1 <	(0.01 (0.01 (0.01 (0.01 (0.01	13 12 16 12 11	190 160 290 250 180	4 4 2 6 < 2	<pre>< 2 < 1 < 2 < 2 < 2 < 2 < 2 < 2 < 3 < 3 < 3 < 3 < 4 </pre>	1 1 1 1	11 10 10 8 10	0.09 0.08 0.08 0.08 0.06	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	26 26 27 28 17	< 10 < 10 < 10 < 10 < 10	12 30 26 22 20	
33031 33032 33033 33034 33035	201 220 201 220 201 220 201 220 201 220	< 1 < 1 < 1 < 1 <	(0.01 (0.01 (0.01 (0.01 (0.01	18 11 24 28 10	420 200 310 350 240	4 4 2 2 4	<pre>< 2 < 3 < 3 < 3 < 3 < 3 < 4 </pre>	1 1 1 1	11 8 10 18 10	0.07 0.08 0.06 0.08 0.11	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	26 29 19 27 42	< 10 < 10 < 10 < 10 < 10	14 16 16 16 8	
33036 33037 33038 33039 33040	201 220 201 220 201 220 201 220 201 220	< 1 < 1 < 1 < 1 <	(0.01 (0.01 (0.01 (0.01 (0.01	28 22 53 28 15	300 270 900 340 440	2 4 2 2 2	<pre>< 2 < 1 < 2 < 3 < 3 < 3 < 3 < 4 < 4 </pre>	1 1 3 1	12 9 9 8 7	0.07 0.07 0.04 0.06 0.07	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	22 23 24 22 32	< 10 < 10 < 10 < 10 < 10	12 14 34 12 18	

CERTIFICATION:_



Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga Ontario, Canada L4W 2S3 PHONE: 905-624-2806 FAX: 905-624-6163

J: ROYAL OAK MINES INC. **TIMMINS DIVISION** P.O. BOX 2010 TIMMINS, ON P4N 7X7

Project: 1801

Comments: Attn: Mary Stalker (mail/fax)

Page Nu. 3r :2-A Total Pages :2

Certificate Date: 14-JUN-97 Invoice No. : 19725479 Invoice No.
P.O. Number
Account

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SAMPLE	PREP CODE	4	u ppb XT-AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cđ ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga pp m	Hg PPm	K %	La ppm	Mg %	Mn ppm
33041	201 2:		1	< 0.2	1.20	⟨ 2	10	< 0.5	⟨ 2	0.11	< 0.5	3	32	5	1.43	< 10	〈 1	0.01	< 10	0.20	85
33042	201 2			< 0.2	1.40	< 2	10	< 0.5	< 2	0.14	< 0.5	4	38	3	1.49	< 10	< 1	0.02	< 10	0.27	90
33043	201 2			< 0.2	1.02	< 2	< 10	(0.5	〈 2	0.13	(0.5	4	44	3	1.52	< 10 < 10	< 1 < 1	0.01 0.02	< 10 < 10	0.34	80
33044 33045	201 2: 201 2:			< 0.2 < 0.2	1.88 1.16	〈 2 〈 2	20 10	< 0.5 < 0.5	< 2 < 2		< 0.5 < 0.5	4	36 40	< 1 3	1.77 0.96	< 10	< 1	0.02	< 10	0.18 0.33	70 70
3046	201 2	20	12	< 0.2	0.53	⟨ 2	20	< 0.5	⟨ 2	0.20	< 0.5	2	21	1	0.59	< 10	〈 1	0.01	< 10	0.25	65
33047	201 2			< 0.2	1.43	< 2	10	< 0.5	< 2	0.13	< 0.5	4	43	3	1.78	< 10	< 1	0.01	< 10	0.27	65
33048	201 2			< 0.2	1.08	< 2	20	< 0.5	< 2	0.16	< 0.5	5	49	4	1.33	< 10	< 1	0.03	< 10	0.42	90
33049 33050	201 22 201 22			< 0.2 < 0.2	0.77 0.89	< 2 < 2	10 10	< 0.5 < 0.5	< 2 < 2	0.06 0.12	< 0.5 < 0.5	< 1 1	22 18	2 1	0.83 1.20	< 10 < 10	< 1 < 1	0.01 0.03	< 10 < 10	0.05 0.10	20 120
33051	201 2	20	2	< 0.2	0.89	⟨ 2	30	< 0.5	〈 2	0.13	< 0.5	3	32	2	1.77	< 10	< 1	0.02	< 10	0.23	95
33052	201 2			< 0.2	3.15	8	10	< 0.5	< 2		< 0.5	2	76	9	2.41	< 10	< 1	0.01	< 10	0.11	40
33053	201 2			< 0.2	0.77	< 2	10	< 0.5	< 2		< 0.5	1	19	1	1.01	< 10	< 1	0.02	< 10	0.11	35
33054 33055	201 22 201 22			< 0.2 < 0.2	1.31 1.86	< 2 < 2	30 10	< 0.5 < 0.5	< 2 < 2	0.17 0.14	< 0.5 < 0.5	4	39 49	3 4	1.97 1.71	< 10 < 10	< 1 < 1	0.03 0.01	< 10 < 10	0.28 0.36	100 85
3056	201 2	20	〈 1	< 0.2	0.94	⟨ 2	10	< 0.5	⟨ 2	0.12	< 0.5	2	29	2	0.96	< 10	< 1	0.02	< 10	0.23	65
33057	201 2			< 0.2	1.03	< 2	< 10	< 0.5	< 2	0.15	< 0.5	2	31	3	1.34	< 10	< 1	0.02	< 10	0.22	65
33058	201 2			< 0.2	0.84	(2	10	< 0.5	< 2		< 0.5	4	31	2	1.18	< 10	< 1	0.02	< 10	0.25	210
33059 33060	201 2		_	< 0.2	1.26	〈 2	10 20	< 0.5 < 0.5	〈 2 〈 2	0.13 0.13	< 0.5	3 2	33	1	1.36	< 10	< 1 < 1	0.02 0.03	< 10 < 10	0.23	60
33060	201 22		<u> </u>	< 0.2	0.65	〈 2				0.13	< 0.5		21	1	0.82	< 10	· · ·		(10	0.17	180
33061	201 2			< 0.2	1.40	< 2	20	< 0.5	< 2	0.16	< 0.5	4	42	3	1.68	< 10	< 1	0.04	< 10	0.31	110
33062	201 2			< 0.2	0.37	< 2	< 10	< 0.5	< 2	0.09	< 0.5	1	22	1	0.83	< 10	< 1	0.01	< 10	0.13	45
33063 33064	201 22 201 22	20		< 0.2 < 0.2	0.58 0.86	〈 2 〈 2	10 < 10	< 0.5 < 0.5	〈 2 〈 2	0.10 0.15	< 0.5 < 0.5	2 4	30 35	1 3	1.35 1.15	< 10 < 10	< 1 < 1	0.03 0.02	< 10 < 10	0.21 0.29	75 75
33065	201 2			₹ 0.2	1.13	₹ 2	30	₹ 0.5	₹ 2		₹ 0.5	5	46	6	1.80	₹ 10	\(\frac{1}{1}\)	0.04	₹ 10	0.38	105
33076	201 22	20	3	< 0.2	0.89	〈 2	10	< 0.5	< 2	0.10	< 0.5	3	37	3	1.57	< 10	〈 1	0.01	< 10	0.17	60
33077	201 22			< 0.2	1.43	< 2	10	< 0.5	< 2	0.11	< 0.5	4	43	3	1.66	< 10	< 1	0.01	< 10	0.23	85
33078	201 22			< 0.2	1.06	< 2	10	< 0.5	< 2	0.14	< 0.5	4	49	4	1.50	< 10	< 1	0.01	< 10	0.33	75
13079 13080	201 22		3 4		0.80 1.46	〈 2 〈 2	10 30	< 0.5 < 0.5	〈 2 〈 2	0.10 0.13	< 0.5 < 0.5	3 3	41 44	5	1.52 1.86	< 10 < 10	< 1 < 1	0.01 0.01	< 10 < 10	0.23 0.20	70 65
			•	< 0.2									44	4				····			
3081	201 22			< 0.2	0.54	< 2	< 10	< 0.5	〈 2	0.09	< 0.5	2	32	3	1.36	< 10	< 1	0.01	< 10	0.16	50
3082 3083	201 22 201 22			< 0.2 < 0.2	0.86 0.29	〈 2 〈 2	20 < 10	< 0.5 < 0.5	〈 2 〈 2	0.10 0.05	< 0.5 < 0.5	4 〈1	43 9	5 〈1	1.60 0.40	< 10 < 10	< 1 < 1	0.01 0.01	< 10 < 10	0.25 0.03	90 25
3084	201 22			⟨ 0.2	1.71	₹ 2		⟨ 0.5	₹ 2		(0.5	6	58	5	2.26	⟨ 10	\ i	0.01	₹ 10	0.32	85
3085	201 22			₹ 0.2	1.09	₹ 2	30	₹ 0.5	₹ 2		₹ 0.5	7	50	6	1.32	₹ 10	ζī	0.01	₹ 10	0.46	105
3086	201 22		_	< 0.2	0.21	⟨ 2	< 10	< 0.5	〈 2	0.03	< 0.5	〈 1	6	〈 1	0.28	< 10	< 1		< 10	0.03	20
3087	201 22			< 0.2	2.05	< 2	20	< 0.5	< 2	0.10	< 0.5	4	48	3	1.96	< 10	< 1	0.01	< 10	0.26	65
33088	201 22	20	29	< 0.2	0.93	< 2	10	< 0.5	< 2	0.16	< 0.5	9	45	5	1.26	< 10	< 1	0.01	< 10	0.43	140
		1																			

1 Carl Brahler CERTIFICATION:



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										CE	RTIF	CATE	OF A	NALY	'SIS	A9725479
SAMPLE	PREP CODE	Mo ppm	Na %	Ni ppm	P PPm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U PPm	V ppm	W ppm	Zn ppm	
33041	201 220		< 0.01	15	270	4	< 2	1	9	0.07	< 10	< 10	28	< 10	12	
33042	201 220		< 0.01	22	300	4	< 2	1	9	0.07	< 10	< 10	27	< 10	18	
33043	201 220		< 0.01	21	180	2	< 2	1	. 8	0.07	< 10	< 10	25	< 10	10	
33044 33045	201 220 201 220		< 0.01 < 0.01	15 25	310 220	4 < 2	< 2 < 2	1 1	10 11	0.08 0.07	< 10 < 10	< 10 < 10	28 17	< 10 < 10	12 12	
3046	201 220	〈 1	< 0.01	12	30	2	⟨ 2	1	14	0.06	< 10	< 10	14	< 10	8	
3047	201 220		< 0.01	21	260	4	< 2	1	9	0.07	< 10	< 10	25	< 10	12	
3048	201 220		< 0.01	29	210	2	< 2	1	11	0.08	< 10	< 10	24	< 10	14	
33049	201 220		< 0.01	4	140	6	< 2	< 1	7	0.06	< 10	< 10	22	< 10	10	
33050	201 220	〈 1	< 0.01	8	250	6	< 2	< 1	9	0.07	< 10	< 10	27	< 10	14	
33051	201 220		< 0.01	14	170	2	< 2	1	12	0.09	< 10	< 10	29	< 10	10	
3052	201 220		< 0.01	10	700	12	< 2	3	6	0.07	< 10	< 10	41	< 10	18	
3053	201 220		< 0.01	5	130	6	< 2	< 1	11	0.07	< 10	< 10	23	< 10	10	
3054	201 220		< 0.01	18	240	2	< 2	1	12	0.08	< 10	< 10	27	< 10	18	
3055	201 220	(1	< 0.01	24	230	〈 2	〈 2	1	9	0.07	< 10	< 10	27	< 10	12	
3056	201 220		< 0.01	13	170	2	< 2	1	9	0.06	< 10	< 10	19	< 10	12	
3057	201 220		< 0.01	13	330	2	< 2	1	10	0.06	< 10	< 10	23	< 10	12	
3058	201 220		< 0.01	18	270	< 2	< 2	1	10	0.06	< 10	< 10	21	< 10	14	
13059	201 220		< 0.01	14	270	2	< 2	1	. 8	0.06	< 10	< 10	21	< 10	12	
3060	201 220	(1	< 0.01	10	130	2	< 2	1	11	0.07	< 10 	< 10	18	< 10	18	
3061	201 220		< 0.01	18	210	4	< 2	1	12	0.09	< 10	< 10	28	< 10	20	
33062	201 220		< 0.01	7	130	< 2	< 2	< 1	7	0.07	< 10	< 10	22	< 10	6	
33063	201 220		< 0.01	12	120	6	< 2	1	7	0.08	< 10	< 10	34	< 10	12	
3306 4 33065	201 220		< 0.01	21 24	290 260	< 2 6	< 2 < 2	1	.7	0.05	< 10	< 10	20	< 10 < 10	16 20	
	201 220	(1	< 0.01	24	260		· · · ·		10	0.08	< 10	< 10	30	\ 10		
3076	201 220		< 0.01	15	410	2	< 2	1	7	0.06	< 10	< 10	29	< 10	20	
3077	201 220		< 0.01	24	490	2	< 2	1	.7	0.06	< 10	< 10	30	< 10	24	
3078	201 220	_	< 0.01	25	160	2	〈 2	1	10	0.08	< 10	< 10	29	< 10	12	
13079 13080	201 220 201 220		< 0.01 < 0.01	19 17	180 260	2 4	〈 2 〈 2	1	9 10	0.08 0.08	< 10 < 10	< 10 < 10	34 32	< 10 < 10	10 12	
									10	U.U8	, 10	· 10				
3081	201 220		< 0.01	12	120	4	< 2	< 1	7	0.07	< 10	< 10	32	< 10	. 8	
3082	201 220		< 0.01	21	190	8	< 2	1	8	0.07	< 10	< 10	32	< 10	16	
3083 3084	201 220 201 220		< 0.01 < 0.01	2 30	40 510	2 4	〈 2 〈 2	< 1	6 9	0.05 0.09	< 10 < 10	< 10	16 41	< 10	2 16	
3085	201 220		< 0.01	38	260	2	\ 2	1 1	11	0.09	< 10	< 10 < 10	24	< 10 < 10	14	
						-						· 10				
3086	201 220		< 0.01	1	60	2	< 2	< 1	4	0.03	< 10	< 10	8	< 10	2	
3087	201 220		< 0.01	21	530	4	< 2	1	7	0.07	< 10	< 10	34	< 10	18	
3088	201 220	(1	< 0.01	34	330	2	< 2	1	9	0.07	< 10	< 10	25	< 10	14	
	1	L														

			1 4	
		,		
OCDITICIO ATIONI.	- " " "	1.0	, 10 M	
CERTIFICATION:		 *		

APPENDIX C

Rock Sample Geochemical Analysis Certificates



SPECTROLAB INC.

780, boul. de l'Université Rouyn-Noranda (Québec) J9X 7A5 Tél.: (819) 797-4653 - Fax: (819) 797-4501

CERT	IFICAT D'ANALYSES	N°:	DATE:	18/06/97	
Client:	ROYAL OAK MINES	IEChantillons:	Core	Projet:	c.c. 5675-1802
Reçu de:	PETER HARVEY	Nombre d'analyses:	9	Date reçu:	10/06/97
Éléments:	Au, Ag	Limite de détection:		Méthode:	
S	Bamples	Au g/t	Au Cks g/t	Ag ppm	
		_	₩, 0		
-	4X42276	0.011		6	
	4X42277	<0.005		3	
	4X42278	0.035		24	
£	AX42279	<0.005		4	
F	4X42280 ·	<0.005		1	
F	4X42281 -	0.010		9	
F	4X42282	0.043		5	
F	4X42283	0.006		6	
- 4	4X422847	0.015	0.006	1	

ANALYSTE: MURO Godbout BSV.



Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use)

W9880.00507

Assessment Files Research Imaging



41P10SW2001

0241 (03/97)

2.18748

TYRRELL

900

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240.

sections 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, this int work and correspond with the mining land holder. Questions about this collection ient and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

- Please type or print in ink. 1. Recorded holder(s) (Attach a list if necessary) Name Client Number Royal Oak Mines Inc. Address Name Client Number Address Telephone Number Fax Number AUG 1 9 1998 **GEOSCIENCE ASSESSMENT** Type of work performed: Check (*) and report on only ONE of the following groups for this declaration. Geotechnical: prospecting, surveys, Physical: drilling stripping, Rehabilitation assays and work under section 18 (regs) trenching and associated assays Work Type Office Use Soil Sampling Commodity Mapping Total \$ Value of 8051 Work Claimed 1997 **Dates Work** 27 05 O5 Month 1997 NTS Reference Performed Global Positioning System Data (if available) Township/Area Mining Division Resident Geologist M or G-Plen Num **District** Please remember to: - obtain a work permit from the Ministry of Natural Resources as required; - provide proper notice to surface rights holders before starting work; - complete and attach a Statement of Costs, form 0212; - provide a map showing contiguous mining lands that are linked for assigning work; - include two copies of your technical report. Person or companies who prepared the technical report (Attach a list if necessary) 3 Name Telephone Number 705 268-0111 Address *(705)* 268-011 Telephone Number Name Address Fax Number Telephone Number Name Fax Number Address 2.1874 Certification by Recorded Holder or Agent , do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true. Signature of Recorded Holder or Agent < Agent's Address Telephone Number Fax Number

Deemed Nourt 198

5. Work to be recorded and distributed. Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must excompany this form.

Contiguous | Co

columi	ves done on other eligible g land, show in this n the location number ted on the claim map.	Units. For other mining land, list hectares.	performed on this claim or other mining land.	applied to this claim.	assigned to other mining claims.	to be distributed at a future date
• g	TB 7827	16 ha	\$26,825	N/A	\$24,000	\$2,825
eĝ.	1234567	12	0	\$24,000	0	0
eð.	1234568	2	\$ 8,892	\$ 4,000	0	\$4,892
1600	298CLM 296 /		9 453		453	
2	1219433	4	\$ A, 206	1600	2606	
3	1219 401	11	1,696		1696	
4	1219 402	16	\$ 1,696		1696	
5	1219460	i		4001		
В	1221630	1		400 /		
7	1221628			400-		
В	1219409	2		800/		
•	1219436	1		400 /		
10	1219407	4		1600 '		
11	1219408	- 4		1600		
12	1220396			400 /		
13	1220399	2		451		
4						
15						
	Column Totals		8051	8051		·

I, Paul R. CAD	, do hereby certify that the above work credits are eligible unde
subsection 7 (1) of the Assessment Work Regulation 6/96	for assignment to contiguous claims or for application to the claim
where the work was done.	•
Signature of Recorded Holder or Agent Authorized in Writing	Date Aug. 17, 1998

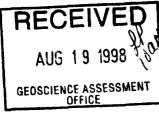
Instructions for cutting back credits that are not approved.

Some of the credits claimed in this declaration may be cut back. Please check (\checkmark) in the boxes below to show how you wish to prioritize the deletion of credits:

- 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- 3. Credits are to be cut back equally over all claims listed in this declaration; or
- 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only				
Received Stamp	•	Deemed Approved Date	Date Notification Sent	
		Date Approved	Total Value of Credit Approved	
0241 (03/97)		Approved for Recording by Minin	g Recorder (Signature)	





Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use) W9880.00507

Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 685.

Work Type	Units of Work Depending on the type of work, list the number of hours/days worked, metres of dritting, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
Labour - 2 people	8 days	\$ 450 / day	3600
Labour - 1 person	6 days	\$ 240 / day	1440
Rock Analysis	9 Samples	* 10.17 /sample	92
Soil Sample Analysis	78 Samples	# 16.78 /sample	1309
Associated Costs (a.g. supplies	s, mobilization and demobilization).		
Supplies		256	
Trans	portation Costs		
Truck - 7736 Km @	232.08		
ATV - 8 days (400.00	632	
Food	and Lodging Costs		
Hotel DEC	CEIVED	A06.36	
Food	0 lv	316.04	722
	`	f Assessment Work	³ 8051
GEOSCIE	NCF ASSESSMENT OFFICE		

Calculations of Filing Discounts:

- 1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
- 2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK

× 0.50 =

Total \$ value of worked claimed.

1 27/2

- Work older than 5 years is not eligible for credit.

- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

E LUCK Y		
•		
hereby certify, that the amounts shown are as accurate as may		
curred while conducting assessment work on the lands indicated on		
Chief by out E Carada (recorded holder, agent, gretate company position with signing authority) I am authorized		
(recorded holder, agent, gostate company position with signing authority)		

Ministry of **Northern Development** and Mines

Ministère du Développement du Nord et des Mines

Geoscience Assessment Office 933 Ramsey Lake Road 6th Floor Sudbury, Ontario P3E 6B5

Telephone: (888) 415-9846 (877) 670-1555

Visit our website at:

www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

Dear Sir or Madam:

September 24, 1998

P.O. Bag 2010 Timmins, Ontario

P4N 7X7

ROYAL OAK MINES INC.

Submission Number: 2.18748

Status

Subject: Transaction Number(s):

W9880.00507 Deemed Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Steve Beneteau by e-mail at benetest@epo.gov.on.ca or by telephone at (705) 670-5855.

Yours sincerely,

ORIGINAL SIGNED BY

Blair Kite

Supervisor, Geoscience Assessment Office

Mining Lands Section

Work Report Assessment Results

Submission Number:

2.18748

Date Correspondence Sent: September 24, 1998

Assessor: Steve Beneteau

Transaction Number

First Claim

Number

Township(s) / Area(s)

Status

Approval Date

W9880.00507

1219433

TYRRELL

Deemed Approval

September 21, 1998

Section:

17 Assays ASSAY

Correspondence to:

Resident Geologist

Kirkland Lake, ON

Recorded Holder(s) and/or Agent(s): Paul Coad

TIMMINS, ONTARIO, CANADA

Assessment Files Library

Sudbury, ON

ROYAL OAK MINES INC.

Timmins, Ontario

