ASSESSMENT REPORT

1996
DIAMOND DRILLING PROGRAM

on the

RED MOUNTAIN PROJECT
VERMILLION CLAIM GROUP

SKEENA MINING DIVISION
NTS: 103P/13

LOCATED
18 KM EAST OF STEWART
BRITISH COLUMBIA

Latitude: 55° 57' North
Longitude: 129° 42' East

Owner:
ROYAL OAK MINES INC

Operator:
ROYAL OAK MINES INC

Report by

A. W. RANDALL, P.ENG.

DATE: March 1997

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SUMMARY

Exploration has been carried out in the Red Mountain area since the early 1900's. This work has been documented in various reports by the BC Department of Mines, and in assessment reports over the years. During the period 1989 to 1994 Bond Gold and then Lac Minerals Limited carried out extensive exploration on Red Mountain following the discovery of interesting gold values within the massive gossan on the mountain. No work was carried out in 1995 during the transition from Lac Minerals to American Barrick Resources Corporation and the subsequent acquisition of the property by Royal Oak Mines Inc. in late 1995.

In 1996 Royal Oak undertook a major $8.0 million exploration program with the purpose of expanding existing reserves to a target of about 1.4 million ounces gold. The program involved extensive surface and underground drilling totaling 29,695 meters, extension of underground workings by 103 meters, and included some development work studies for underground access and tailings area assessment as well as ongoing environmental studies.

Results of this program although positive from an exploration sense did not achieve the reserve expansion goals that were set. The Marc-AV-JW mineralized zone which was expected to extend northward but infact was actually found to trend toward the northeast and was down dropped significantly across a series of faults. Some of the last holes drilled in the program intersected mineralization that may develop into deposits of a size similar to the Marc-AV-JW zones. Some advances were made in understanding of the deposit geology, geometry and mineralization especially with the utilization of the extensive rock geochemical database. In particular a geochemical signature consisting of Vanadium and Magnesium depletions along with Zinc enrichments reflected the Gold distribution and may be a tool for identifying gold trends where only sparse drilling information is available.

This report covers only diamond drilling work on Kim 14 Claim, part of the Vermillion claim group. A total of 102.63 meters of drilling was done on the Hartley Gulch prospect in the two holes described in this report.

LOCATION & ACCESS

The Red Mountain project claims are located in the Skeena Mining District NTS 103P/104A about 18km by air east of the community of Stewart and near the Southern end of the so called Golden Triangle gold district of Northwest B.C. The Project claims range in elevation from 450meters ASL in the Bitter Creek Valley to 2100 meters at the tops of the various mountain peaks throughout the claims. The property is situated in steep rugged topography and is surrounded on three sides by glaciers, most notably the huge Cambria Icefield.

The project is entirely helicopter supported from the base of Vancouver Island Helicopters in Stewart. An all weather, all season 60 man camp is located in the Goldslide Creek cirque at an elevation of 1462 meters. Road access up Bitter Creek valley from highway 37A has been partially developed for 13 km to the Hartley Gulch-Otter Creek area. This road is not passable due to land-slide activity and environmental restrictions pending remediation of unstable areas.

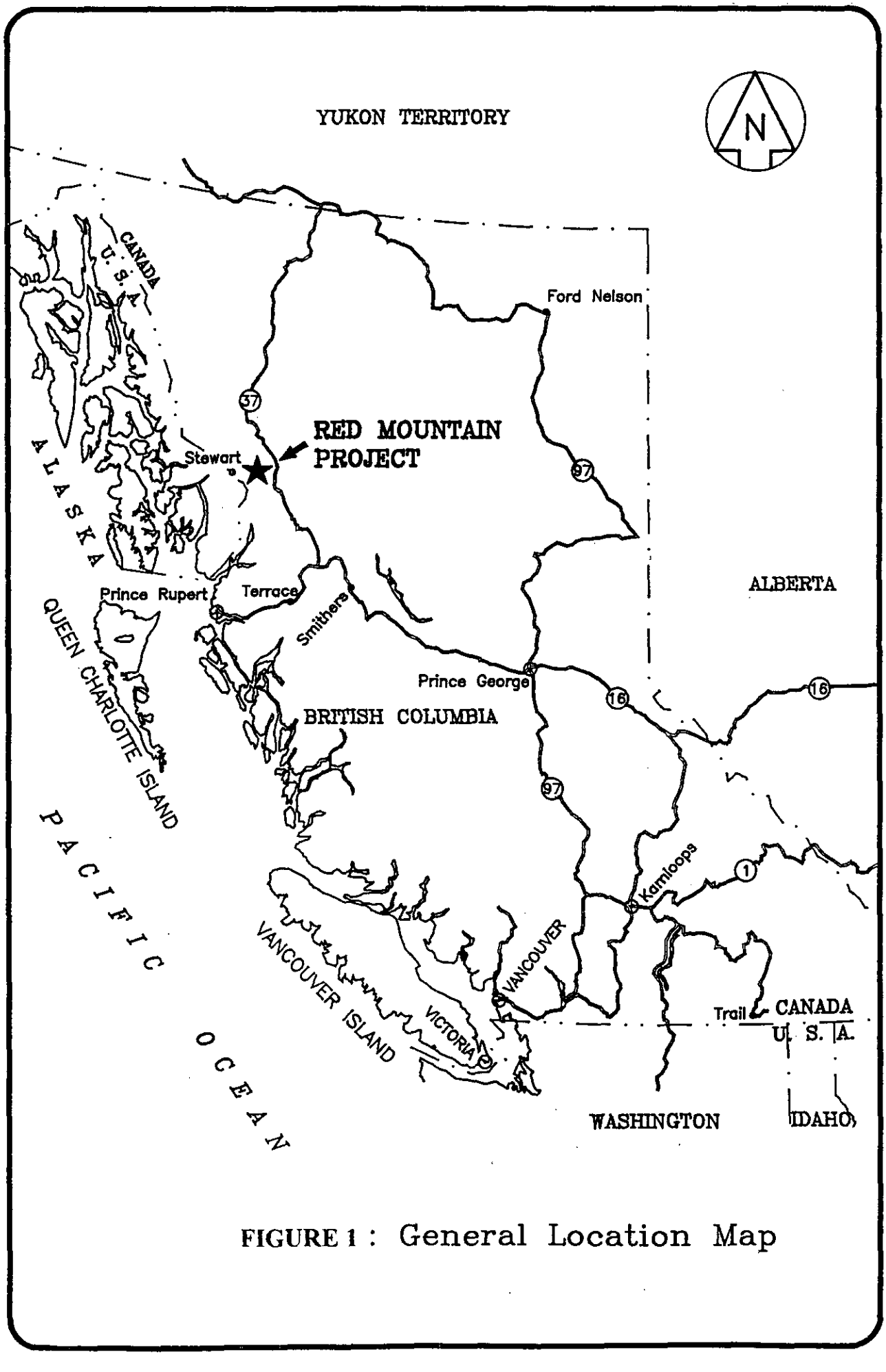


FIGURE 1 : General Location Map

PROPERTY STATUS

The Red Mountain Project includes 160 mineral claims totaling 1479 units. Royal Oak has a 100% interest in all claims on the property. The grouping which is the subject of this report consists of 8 claims consisting of a total 21 units.

EXPENDITURES

Total estimated expenditures on the Red Mountain Project from 1989 to and including 1996 are Cdn $44.4 million. Expenditures in 1996 totaled $8.0 million to the end of December 1996 . Expenditures applicable for assessment work purposes amount to $6.4 million (see Appendix I).

EXPLORATION HISTORY

Exploration in the vicinity of Red Mountain dates back to the early 1900's with discovery of placer gold in Bitter Creek. Over the years 1900 to 1970 work was done on various properties on Roosevelt Creek and Hartley Gulch, north-west of Red Mountain in search of gold. In the 1960's and 1970's copper-molybdenum exploration was carried out in the area around the McAdam stock, south-west of Red Mountain. It was not until the 1980's however that glacier ice had receded enough to expose some of the prospective areas on Red Mountain itself. Exploration on Red Mountain was initiated by Bond Gold in 1989 and carried on by Lac Minerals from 1990 to 1994.

REGIONAL GEOLOGY (Greig et al., 1994)

Red Mountain is located in a belt of Upper Triassic to Middle Jurassic sedimentary, volcanic and plutonic rocks of the Stikinia Terrane. It is near the boundary of the Intermontane and Coast belts along the southwestern margin of the Bowser Basin.

Lower Jurassic to Middle Jurassic marine clastics and Paleozoic to Lower Jurassic oceanic arc volcanic and volcaniclastic rocks of the Hazelton Group crop out in the Red Mountain area. Jurassic and Tertiary aged intrusive rocks have been mapped in the region. The early to middle Jurassic plutons are roughly coeval and cospatial with the Hazelton Group. The Goldslide Intrusive unit appears to be closely associated with gold mineralization at Red Mountain.

Red Mountain occurs within the core of a northwest trending antiform which has been complexly faulted including an interpreted thrust fault following Bitter Creek which has juxtaposed Upper Triassic rocks against the Lower Jurassic rocks which underlie the Red Mountain property.

LOCAL GEOLOGY

Rock Types

Red Mountain is underlain by Middle to Upper Triassic and Early Jurassic sedimentary and volcanic rocks. This volcano-sedimentary package is intruded by early Jurassic plutons, sills and dykes.

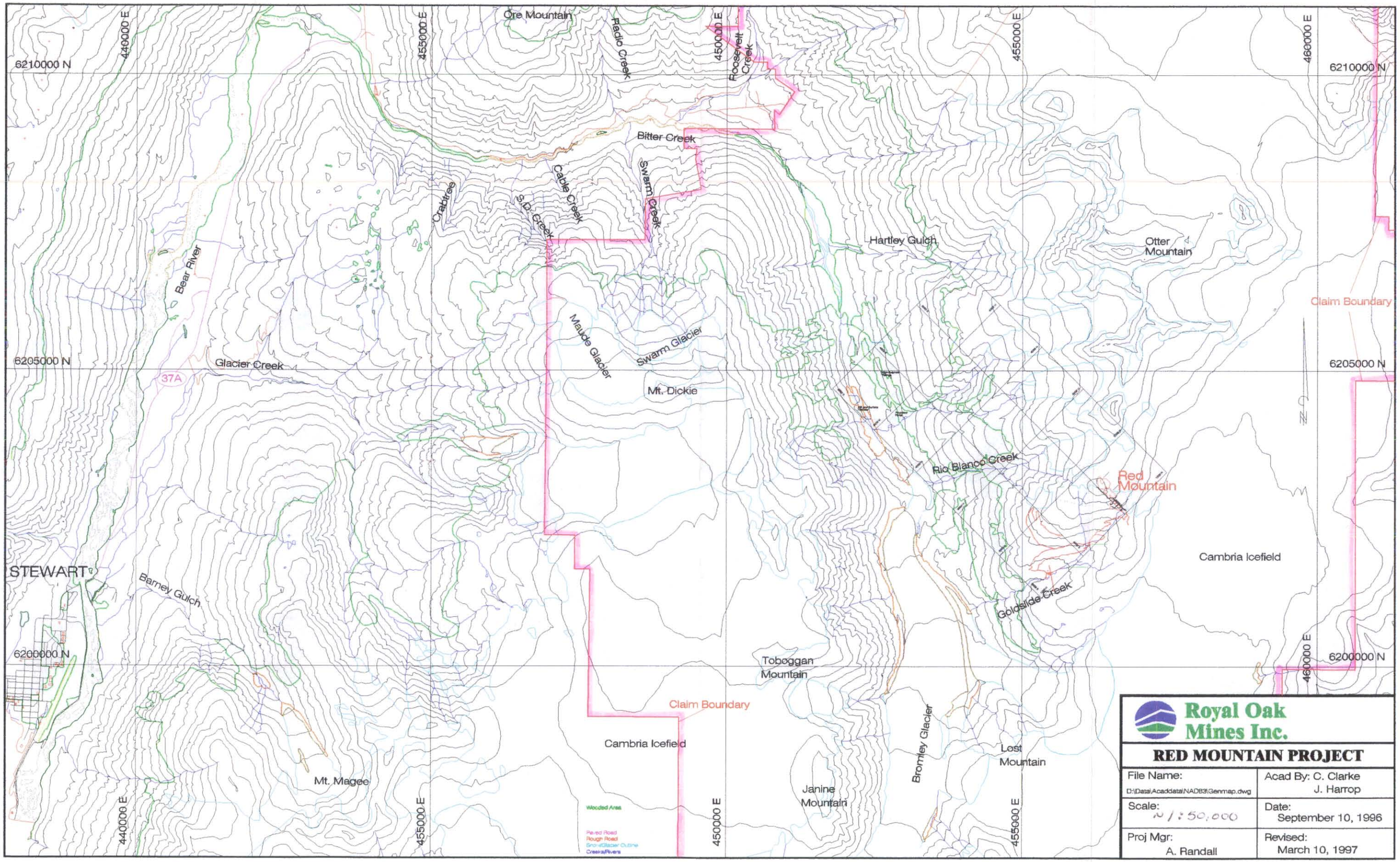

6210000 N
440000 E
455000 E
Ore Mountain
Radio Creek
450000 E
Roosevelt Creek
460000 E
Bitter Creek
Cable Creek
Swarm Creek
S.D. Creek
Crabtree
Bear River
Hartley Gulch
Otter Mountain
Claim Boundary
6205000 N
Maude Glacier
Swarm Glacier
Glacier Creek
37A
Mt. Dickie
Rio Blanco Creek
Red Mountain
Cambria Icefield
STEWART
Barney Gulch
Goldslide Creek
6200000 N
Toboggan Mountain
Bromley Glacier
Lost Mountain
Janine Mountain
Mt. Magee
Wooded Area
Paved Road
Rough Road
Snow/Glacier Outline
Creeks/Rivers
Royal Oak Mines Inc.
RED MOUNTAIN PROJECT
File Name: D:\Data\Acaddata\NAD83\Genmap.dwg
Acad By: C. Clarke, J. Harrop
Scale: N/A 1:50,000
Date: September 10, 1996
Proj Mgr: A. Randall
Revised: March 10, 1997

FIG 2

The bedded rocks are mostly mudstones, wackes, and ash tuffs (designated variably VT, MT, FT) with local areas of conglomerate. They are somewhat carbonaceous which gives them their typical black color. Bedding thickness is generally only a few centimeters while stratigraphic packages, where they can be identified, vary from less than a meter to hundreds of meters in thickness. Attitudes of these sedimentary units suggests a northwest strike with variable dips due to folding. Breccias are common within the intrusives and volcano-sediment units.

The intrusives underlying Red Mountain have been segregated into two phases, Goldslide (FHx) and Hillside. They both have dioritic compositions. There is some suggestion that portions of these intrusives may be of sub-volcanic origin. The core of these intrusive units has been designated FHp and is the normal footwall or stop rock for diamond drill holes. It is a distinctive porphyritic version of the FHx unit.

Contact relationships between intrusives and sediments are highly variable ranging from very sharp to invisible. In places alteration has changed or destroyed rock compositions so that original textures of sedimentary, volcanic and intrusive character are indistinguishable from one another. Intrusive-volcano-sediment contacts may also be brecciated.

Alteration

Alteration is strong and widespread throughout the property. All pre-Tertiary rocks have been hydrothermally altered. The sediments and intrusives display similar alteration assemblages. Alteration minerals observed include Quartz, K-feldspar, tourmaline, sericite, chlorite, pyrite. The name Red Mountain was coined because of the extensive rusty oxidation anomaly covering 12 to 15 square kilometers which attracted explorers to the area. Alteration mineral assemblages have been developed by Rhys et al (1995), Thompson (1994) and Swanson (1994) for the regional setting and mineralized zones.

Ore/Mineralized Zone Alteration

Sericite-pyrite-carbonate-quartz alteration is intimately associated with the gold enriched mineralized zones. In particular the ore zones are typically bleached due to extensive sericite development. Even where mineralized zones are situated in black sediments they are often bleached to grey or white. Sericite alteration replaces most primary rock compositions and generally overprints previous alteration assemblages (Prefontaine 1995). Pyrite is well developed in and around ore zones however extensive pyrite alteration may also be developed in areas of low- or sub- ore-grade mineralization.

Structure

The rocks of the Red Mountain area are structurally contorted by the regional fold system noted earlier as well as significant local cross-faulting perpendicular to the trend of the Marc-AV-JW ore zones which has apparently segmented these main ore lenses. The northerly extension of the ore zones, in the area explored during the 1996 program, was found to be extensively disrupted by a series of closely spaced faults which have down-dropped the ore zones with an apparent north-easterly shift.

MINERALIZATION

As noted earlier Red Mountain is characterized by an extensive gossan associated with widespread pyrite and pyrrhotite mineralization. Precious metal mineralization (gold-silver-telluride) occur within the intrusive, sedimentary and volcanic rocks underlying Red Mountain with no obvious geometric or symmetric relation to the large gossan. Gold mineralization is typically associated with sulphide-carbonate-quartz stockworks within areas of wider spread quartz-sericite-pyrite alteration. In the 1996 drilling it was noted that the best gold values occurred where the coarsest (chunky) pyrite was found.

Precious metal mineralization is distributed across all rock types in a highly irregular pipelike to tabular plume forming two relatively distinct trends which occasionally intersect along the strike of the system. The most prominent of these trends is the Marc-AV-JW zone which consists of two and possibly three individual bodies separated by post ore cross faults. The 141 zone or West Zone as it is now designated forms a similar although lower grade and less well-defined mineralized trend.

Ore minerals include native gold, electrum, gold-silver telurides, and silver bearing sulphosalts. Other minerals associated with the precious metals include pyrite, pyrrhotite, sphalerite, chalcopyrite, and minor galena. It is estimated that 95% of the precious metal minerals occur as inclusions in and along internal cracks of pyrite (Prefontaine, 1995).

HARTLEY GULCH AREA

The geology of the Hartley Gulch South area is similar to Red Mountain with fine grained sediments (FT and VT) intercalated (intruded) by dykes and sills of intrusive FHx. Prospecting of the area by Lac geologists in 1992 -1994 indicated alteration and mineralization similar to what was found at Red Mountain. A couple of small showings were trenched by Lac and found to contain pyrite stringers with gold values up to 298 ppm Au. The gold was associated with up to 20% pyrite mineralization and minor sphalerite which occurs near a brecciated sediment/intrusive contact (Daubeny, 1994). Prospecting in early 1996 located some additional sulphide mineralization to the northwest of the Lac trenches but with low gold values.

Work at Red Mountain by Lac geologists indicated gold mineralization often occurs below a transition from pyrrhotite-dominated to pyrite-dominated alteration. Interpretation of sulphide distribution at Hartley Gulch suggests this same transition is present and indicated a vector toward the Hartley valley floor down slope of the trenches and mineralization found (Daubeny, 1996).

1996 DIAMOND DRILLING

The purpose of holes R96DH260 and 261 were to drill test the favorable target area down slope of the Hartley Gulch South showings. The topography in this area is steep, 30° to 45° slopes covered with some trees and till.

These two holes were part of a group of 6 attempting to test the mineralized zone and were drilled at a variety of azimuths and dips. Unfortunately extremely poor ground conditions prevented completion of any of the holes to target depth. These holes, as far as they were drilled, intersected geology similar to that found on surface, consisting of predominantly fine tuffaceous sediments (FT, VT)

Total length of drilling in the two holes reported here was 102.63 meters. Drill core size was BDBGM (Hole 260) and NQ (Hole 261). Drill core is stored in the Royal Oak core storage area in Stewart. Drill logs are included in Appendix II. A total of 17 samples were taken from the core recovered. Analyses for Au (fire) and 30 element ICP were made. Results are included with drill logs in Appendix II. No significant gold assays were received and only slightly elevated values in Zn were noted.

Drilling was carried out by Britton Brothers Diamond Drilling of Smithers B.C. from June 15 to 17, 1996 using a BB2500 drill. Because of the poor ground conditions and the fact the holes were abandoned downhole surveys were taken only in hole 260. Collar locations were picked up by survey and tied in to the Red Mountain grid.

Supervision of the diamond drilling and core logging of these drill holes was done by Stephen Roebuck, a seasonal geologist with Royal Oak on the Red Mountain project. Surveying was done by Jay Hallman of Blue Bear Enterprizes, a contract surveyor from Smithers.

RESULTS AND CONCLUSIONS

Results of this drilling are inconclusive as the holes were not completed to target depths. Other holes drilled in the area did intersect some sulphide mineralization but of limited lengths and negligible gold values. Drilling on the Hartley Gulch North area also encountered the same problems in hole completion and poor core recovery. Drilling low down in the Hartley valley in 1982 by Northair encountered a similar fate.

The similarity of geology, alteration and mineralization at Hartley Gulch to the Red Mountain area and the fact it is on the apparent regional northwesterly mineralized trend makes it a favorable prospective area.

It is planned to carry out additional drilling in this area but using a reverse circulation rig or other drilling equipment capable of penetrating the broken ground.

CERTIFICATE OF QUALIFICATIONS

I, Alfred W. Randall of 1470 Sunnypoint Dr., Smithers, B.C., do hereby certify that:

1. I have studied Geological Engineering at the University of British Columbia in Vancouver, B.C., and have received a Bachelor of Applied Science degree in Geological Engineering in 1972.

2. I am a member in good standing of the Association of Professional Engineers and Geologists of B.C.

3. I have continuously practiced my profession in Canada since graduation.

4. I am employed by Royal Oak Mines Inc. from the B.C. Exploration office in Smithers, B.C.

5. The work described in this report was conducted and/or supervised directly by me. The statements in this report are based on office compilation of past and present work done on the Red Mountain and Hartley Gulch properties.

Dated at Smithers this 17th day of March, 1997.

Signed: _____
A. W. Randall

REFERENCES

Daubeny, P. (1994): Summary Report on the Hartley Gulch Prospect, Lac Minerals, 1994, Internal Company Report.

Daubeny, P. (1996): A Review of the Geology of Hartley Gulch, Royal Oak Mines Inc. June 1996, Internal Company Report.

Greig et al, (1994) : Geology of the Cambria Icefield: Regional Setting for the Red Mountain Gold Deposit Northwestern B.C., In Current Research 1994-A, Geological Survey of Canada, , P45-56.

Rhys et al, (1995): Geology and Setting of Red Mountain Gold-Silver Deposits, Northwestern Cordillera of North America., T. Schroeter ed., p811-828.

Roebuck, S.P. (1996): Hartley Gulch Property, 1996 Exploration Program, Royal Oak Mines Inc., Nov 1996, Internal Company Report.

Swanson, C.L., (1994): Red Mountain Lithology and Alteration Findings, Lac Minerals, 1994, Internal Company Report.

Thompson, A., (1994): Summary of Alteration Minerology, Red Mountain Project, Stewart, B.C., Lac Minerals 1994, Internal Company Report.

APPENDIX I

ROYAL OAK MINES INC
RED MOUNTAIN PROJECT
SUMMARY OF EXPENDITURES 1996

(Costs applicable to Claim Assessment work)
(Costs extracted from December 96 cost report)

	Surface	Underground	Total
Salaries	349,268.75	105,221.71	454,490.46
Travel	77,454.48	23,334.16	100,788.64
Postage	2,329.03	701.65	3,030.68
Telephone	3,795.87	1,143.55	4,939.42
Vehicle Leases	11,142.15	3,356.72	14,498.87
Vehicle Expenses	7,228.89	2,177.79	9,406.68
General Office Supplies	10,250.60	3,088.13	13,338.73
Computer Hardware	57,766.37	17,402.86	75,169.23
Computer Software	41,703.14	12,563.61	54,266.75
Freight	12,328.45	3,714.10	16,042.55
Maps, Reports, Copying	2,301.65	693.40	2,995.05
Communications	68,049.81	20,500.88	88,550.69
Helicopter	1,015,349.90	305,887.25	1,321,237.15
Camp Services	553,615.40	166,783.78	720,399.18
Surveying	15,744.70	4,743.30	20,488.00
Aerial Photography	4,630.00		4,630.00
Geological Mapping	2,258.00		2,258.00
Diamond Drilling - Surface	1,265,985.81	381,394.55	1,647,380.36
Diamond Drilling - U/G	270,746.87	81,565.98	352,312.85
Assaying - Core	70,042.37	21,101.17	91,143.54
Assaying - Whole Rock	189.35	57.05	246.40
Assaying - ICP	2,406.97	725.13	3,132.10
General Field Supplies	104,188.29	31,388.06	135,576.35
Underground Development		1,213,041.60	1,213,041.60
Miscellaneous	890.48	268.27	1,158.75
TOTAL EXPENDITURE	$3,949,667.32	$2,400,854.71	$6,350,522.03
DRILL METERAGE	20,746	6,250	26,996
ALL INCLUSIVE COST/METER	$190.38	$384.14	$235.24

APPENDIX II

Drill Logs & Assay Records

Royal Oak Mines Inc.
Red Mountain Project

Hole Number : R96DH260 **Zone : Hartley Gulch**
Purpose :
Comment : Explore Hartley Gulch South Zone

COLLAR DATA

Mine Northing	:	5880.81	Units	:	Meters
Mine Easting	:	5787.92	Core stored	:	Stewart
Mine Elevation	:	1097			
True Azimuth	:	45.00°	Drilling Started	:	15-06-96
Mine Azimuth	:	90.00°	Drilling Completed	:	15-06-96
Initial Dip	:	-46°	Logged By	:	JH
Length	:	60.35 (Meters)	Date logged	:	18-06-96
Core size	:	BDBGM	Date printed	:	11-03-97

Assay Sample Series : 2019 to 2029 = 11 Samples

SURVEY DATA

Location	Azimuth	Dip	Type	Location	Azimuth	Dip	Type
0	253.8	-46	Sperry Sun				
9.14	253.83	-46	"				
60.35	253.83	-46	"				

ROYAL OAK MINES INC.

From	To	Unit Description	Sulphide %	Fracture Fill %	Sample Number	Sample Interval From	Sample Interval To	Sample Interval Width	AU g/t
0.00	6.10	CASING.							
6.10	14.00	**CONTACT BRECCIAS/ VERY FINE TUFF (80%/20%).** CONTACT BRECCIAS : light to medium grey, moderate sericitic Alteration, strong bleached. 80% 1 to 3 mm, subrounded FT fragments some frags up to 5cm. frags contain fine py. frags compose 30-40% of core. **Mineralization :** 1 to 2% fine grained, disseminated pyrite as blebs. **Structure :** bedding at 7.6m at 30° to core axis, planar fabric of fragments. VERY FINE TUFF : dark grey, moderate sericitic alteration. VT beds are inferred from rubble.	1-2% py,	0.5%	02019	7.30	8.70	1.40	trace
			1-2% py,		02020	8.70	10.00	1.30	trace
			1.0% py,		02021	10.00	12.00	2.00	trace
14.00	24.00	**MEDIUM TUFF.** Light grey, moderate sericitic alteration, weak chloritic alteration Confined to frags, strong bleached. 80% subrounded FT fragments, considerably less frags than above unit, about 10% of core; Accessory Minerals: 0.5% quartz-carbonate in veins. **Mineralization :** 1 to 2% fine grained, as cubes, pyrite as blebs and on fractures. **Structure :** fault at 21m at 70° to core axis, alteration decreases symetrically around fault. gouge is extremely bleached.	1.0% py,		02022	14.80	18.50	3.70	trace
			1.0% py,		02023	18.50	19.70	1.20	trace
			1.0% py,		02024	19.70	21.00	1.30	trace
24.00	28.20	**VERY FINE TUFF.** badly broken and much l0st. Dark grey, aphanitic grain size. weak silicified, moderate Sericitic alteration. Accessory Minerals: 0.5% quartz-carbonate in veins. **Mineralization :** 2 to 3% as cubes, disseminated as blebsdisseminated pyrite on fractures and as blebs. **Structure :** foliation at 24.5m at 35° to core axis, bedding at 26.9m at 40° to core axis, shows shearing/foliatn?, bedding at 28m at 30° to core axis, shows shearing/foliatn?, shows	1.0% py,		02025	22.80	24.00	1.20	trace
			1-2% py,		02026	24.00	27.40	3.40	trace

From	To	Unit Description	Sulphide %	Fracture Fill %	Sample Number	Sample Interval From	Sample Interval To	Sample Interval Width	AU g/t
		shearing/foliatn?.							
28.20	33.00	**MEDIUM TUFF.** same as above (14-24) differences noted. Light to medium grey to light to medium green, weak chloritic alteration. **Structure :** bedding at 32.5m at 25° to core axis, planar fabric shown in fragments, vein at 30m, quartz-carb with some chlorite ribbons, prob 25 to 40cm before being broken.							
33.00	42.00	**VERY FINE TUFF.** same as above (24-28.2) differences noted. medium grey. 80% coarse grained, subangular FT fragments, frags are lighter than VT matrix and look like bleached FT either flattened bx or epiclast; Accessory Minerals: trace quartz-carbonate in veins. **Mineralization :** 2 to 3% medium grained, as cubes, -disseminated disseminated pyrite as blebs and on fractures. **Structure :** bedding at 35m at 15° to core axis.	2-3% py,		02027	33.00	36.30	3.30	trace
42.00	48.00	**FINE TUFF.** pos dyke with no contacts to show chill margins. more even texture than other FT/MT beds margins. more even texture than other FT/MT beds. Light to medium grey to light to medium green, <1 mm avg. pheno size, fine grain size. **Mineralization :** trace fine grained, as cubes, disseminated pyrite							
48.00	52.70	**VERY FINE TUFF.** Light to medium grey, patchy sericitic alteration, moderate, patchy Silicified, moderate. Accessory Minerals: 1% quartz-carbonate in veins; 0.5% siderite in veins, or pos tremolite. **Mineralization :** 1 to 2% fine grained, cubic, disseminated pyrite on fractures; trace medium grained, blobs, chalcopyrite on fractures. Fabric or bedding is not clear but shows subparallel with CA in a few place.	1.0% py,		02028	48.50	50.00	1.50	trace

ROYAL OAK MINES INC.

From	To	Unit Description
52.70	57.00	**MEDIUM TUFF.** pos very bleached FHx. Light grey to light green, 1 to 2 mm avg. pheno size, fine grain size. moderate sericitic alteration, patchy chloritic alteration. **Mineralization :** 1 to 2% fine grained, as cubes, disseminated pyrite on fractures. Most of the frags/phenos show no xtal form. more py than other FT/MT .
57.00	60.35	**VERY FINE TUFF.** medium to dark grey. Accessory Minerals: 2 to 3% quartz-carbonate in veins, heavy on cc. **Mineralization :** 2 to 3% fine to medium grained, as cubes, disseminated as blebsdisseminated pyrite in veins and as blebs.

Sulphide %	Fracture Fill %	Sample Number	Sample Interval From	Sample Interval To	Sample Interval Width	AU g/t
1-2% py,		02029	53.50	55.00	1.50	trace

From	To	Rock Type	Sample No	Au Fire	Ag	As	Cu	Mo	Pb	Zn	Mg %	Ni	V	Hole ID
7.3	8.7	CT	2019	-0.03	1.4	20	33	4	256	1564	1.64	9	57	R96DH260
8.7	10.0	CT	2020	-0.03	1.2	20	28	5	30	335	1.89	14	58	R96DH260
10.0	12.0	VT	2021	-0.03	0.2	20	32	2	4	431	1.39	14	33	R96DH260
14.8	18.5	FT	2022	-0.03	0.2	15	13	6	-2	761	1.44	6	45	R96DH260
18.5	19.7	MT	2023	-0.03	0.8	10	10	2	16	3409	0.68	4	9	R96DH260
19.7	21.0	MT	2024	-0.03	0.2	5	4	4	10	1215	0.57	4	9	R96DH260
22.8	24.0	MT	2025	0.22	0.6	660	13	6	20	236	0.64	5	11	R96DH260
24.0	27.4	VT	2026	-0.03	2.0	25	97	7	38	348	1.30	37	42	R96DH260
33.0	36.3	VT	2027	-0.03	2.6	30	133	4	46	186	1.81	31	71	R96DH260
48.5	50.0	VT	2028	0.03	6.4	45	313	7	76	165	1.22	47	48	R96DH260
53.5	55.0	MT	2029	-0.03	0.6	10	15	6	24	48	0.92	6	32	R96DH260

Royal Oak Mines Inc.
Red Mountain Project

Hole Number : **R96DH261** **Zone** : **Hartley Gulch**
Purpose : **Test Hartly Gulch South Zone**
Comment : **Hole abandoned due to bad ground.**

COLLAR DATA

Mine Northing	:	5880.81	Units	:	Meters
Mine Easting	:	5787.92	Core stored	:	Stewart
Mine Elevation	:	1097			
True Azimuth	:	45.00°	Drilling Started	:	17-06-96
Mine Azimuth	:	90.00°	Drilling Completed	:	17-06-96
Initial Dip	:	-43.8°	Logged By	:	JH
Length	:	43.28 (Meters)	Date logged	:	21-06-96
Core size	:	NQ	Date printed	:	11-03-97

Assay Sample Series : 2048 to 2047 = 6 Samples

SURVEY DATA

Location	Azimuth	Dip	Type	Location	Azimuth	Dip	Type
None							

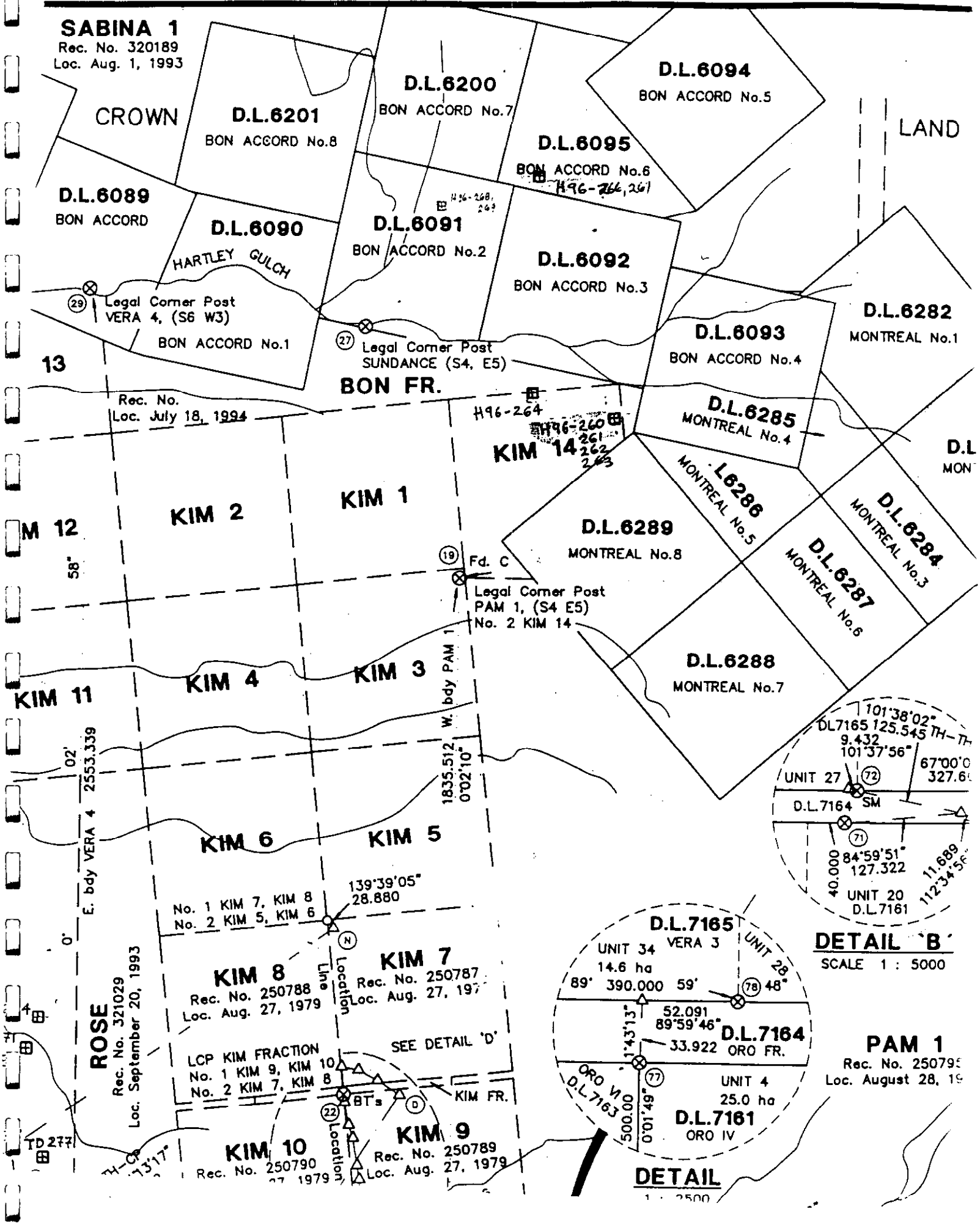
ROYAL OAK MINES INC.

From	To	Unit Description
0.00	6.10	CASING.
6.10	43.28	**VERY FINE TUFF/MEDIUM TUFF (60%/40%).** variation in alt may reflect varying composition/grain size. VERY FINE TUFF : dark grey, aphanitic grain size. patchy micro veined, brittle veined. patchy silicified, surrounding u-veining Only. Accessory Minerals: 1 to 2% micro veined, quartz-carbonate in veins; 1% bedded, calcite as bands, a few beds are limey. **Mineralization :** 3 to 5% blobs, pyrite as blebs and on fractures, py content generally increasing with depth. patches up to 5% around u-veins and frags. core is highly fractured with a large proportion being rubble.. MEDIUM TUFF : medium to dark grey to medium grey, fine to medium grain size. pervasive crackled, fractures are dark while the bulk is bleached. possibly du. sericitic alteration, weak to mod, moderate bleached. Accessory Minerals: trace quartz in veins. **Mineralization :** 1 to 2% on fractures disseminated pyrite as blebs and on fractures, pos very fine py as ff. **Structure :** bedding at 17.68m at 25° to core axis, vein at 26.32m at 60° to core axis, bedding at 24.3m at 25° to core axis bedding at 35.97m at 25° to core axis. slightly more competent than the VT, but still very broken.. 27.00 - 32.00 Fault Zone. 32.90 - 33.90 Fault Zone. 33.00 - 43.28 Contact Breccias. 37.00 - 39.00 Fault Zone.

Sulphide %	Fracture Fill %	Sample Number	Sample Interval From	Sample Interval To	Sample Interval Width	AU g/t
3-5% py,trace cp		02048	17.70	23.30	5.60	trace
3-5% py,		02043	23.30	24.50	1.20	trace
3-5% py,		02044	24.50	25.50	1.00	trace
2-3% py,		02045	25.50	26.50	1.00	trace
3-5% py,		02046	29.90	32.90	3.00	trace
1.0% py,		02047	34.40	35.40	1.00	trace

From	To	Rock Type	Sample No	Au Fire	Ag	As	Cu	Mo	Pb	Zn	Mg %	Ni	V	Hole ID
23.3	24.5	VT	2043	0.03	1.4	30	112	10	10	46	0.95	49	41	R96DH261
24.5	25.5	VT	2044	0.06	1.0	15	67	2	4	346	1.13	19	34	R96DH261
25.5	26.5	VT	2045	-0.03	1.4	35	79	6	8	1702	1.25	21	29	R96DH261
29.9	32.9	VT	2046	-0.03	2.4	50	194	8	12	300	0.94	25	46	R96DH261
34.4	35.4	MT	2047	-0.03	0.4	10	49	3	-2	79	1.99	16	63	R96DH261
17.7	23.3	VT	2048	-0.03	1.4	25	75	4	22	204	1.36	26	30	R96DH261

DRILL HOLE LOCATION ON CLAIMS. Fig 3a



M11

6220000N 450000E 455000E 460000E

GLAD 9 GLAD 10 GLAD 8 GLAD 5 CAM 1

6215000N

GLAD 6 ROM 1 RUBY SILVER 3 GLAD 7 SARAH 10 SARAH 7 GLAD 1 GLAD 2 GLAD 3 GLAD 4

ROO 1 ROO 1 RUS-OPIR ROM 2 SARAH 3 SARAH 6 SARAH 9 SARAH 8 VERA 11 VERA 8

6210000N

SARAH 5 SARAH 4 VERMILLION 1 WINDY SARAH FRACTION GOLD VALLEY 7 VERMILLION 2 VERMILLION GP

GOLD SPOT DIXON 2 FR. SARAH 1 VERA 6 VERA 10 VERA 9

SABINA 1 SARAH 11 L6203 L6202 L6089 L6201 L6200 L6094 6095 L6091 L6092 L6090 SABINA 1 JANET 1 JANET 2

KIM 13 BON FR. L6093 L6282 L6285 L6283 KIM 14 L6286 L6284 L6289 L6287 L6288 PAMVERA FRACTION

KIM 12 KIM 2 KIM 1 KIM 11 KIM 4 KIM 3 KIM 6 KIM 5 KIM 8 KIM 7 KIM 10 KIM 9 KIM FR

ANITA FR. LISA 3 LISA 4 WILLOUGHBY 3

DICK 4 DICK 1 LINDY VERA 4 ROSE PAM 1 VERA 5

6205000N

LISA 2 LISA 1

PART OF D.L. 7163 7.33 ha VERA 3 D.L. 7165 123 ha

THERESA L6083 L6084 L6082 L5405 L5401 L5406 L5404 L5400 L5403 L5398 L5407 L5399 L5402

D.L. 7164 11.4 ha ORO FR. DIXIE 1

DICK 3 DICK 2 VERA 7 PART OF D.L. 7163 315 ha ORO VI D.L. 7161 487 ha ORO IV D.L. 7160 444 ha ORO I MICHAELA

SHAWNA D.L. 7162 465 ha HROTHGAR DIXIE 3 DIXIE 2

VERA 2 VERA 1 ORO V

6200000N

DESI 1 DESI 2 DESI 3 RHS 9 RHS 10 RHS 11 RHS 12 ORO II

SANDRA FR. CAMB 1 ORO III

JANINE 4 JANINE 1 REN CAMB 1 STIMPY DIXIE 4

SHARON FR.

LISA 8 LISA 5

JANINE 3 JANINE 2

LISA 7 LISA 6

6195000N

IRENE 1 LISA 13

450000E 455000E

RED MOUNTAIN PROJECT
1996

CLAIM BOUNDARIES

LEGEND

96 Boundary

Legal Claim Boundary DL7160-7165

1:50,000

SCALE B.C.G.S. 103P/104A

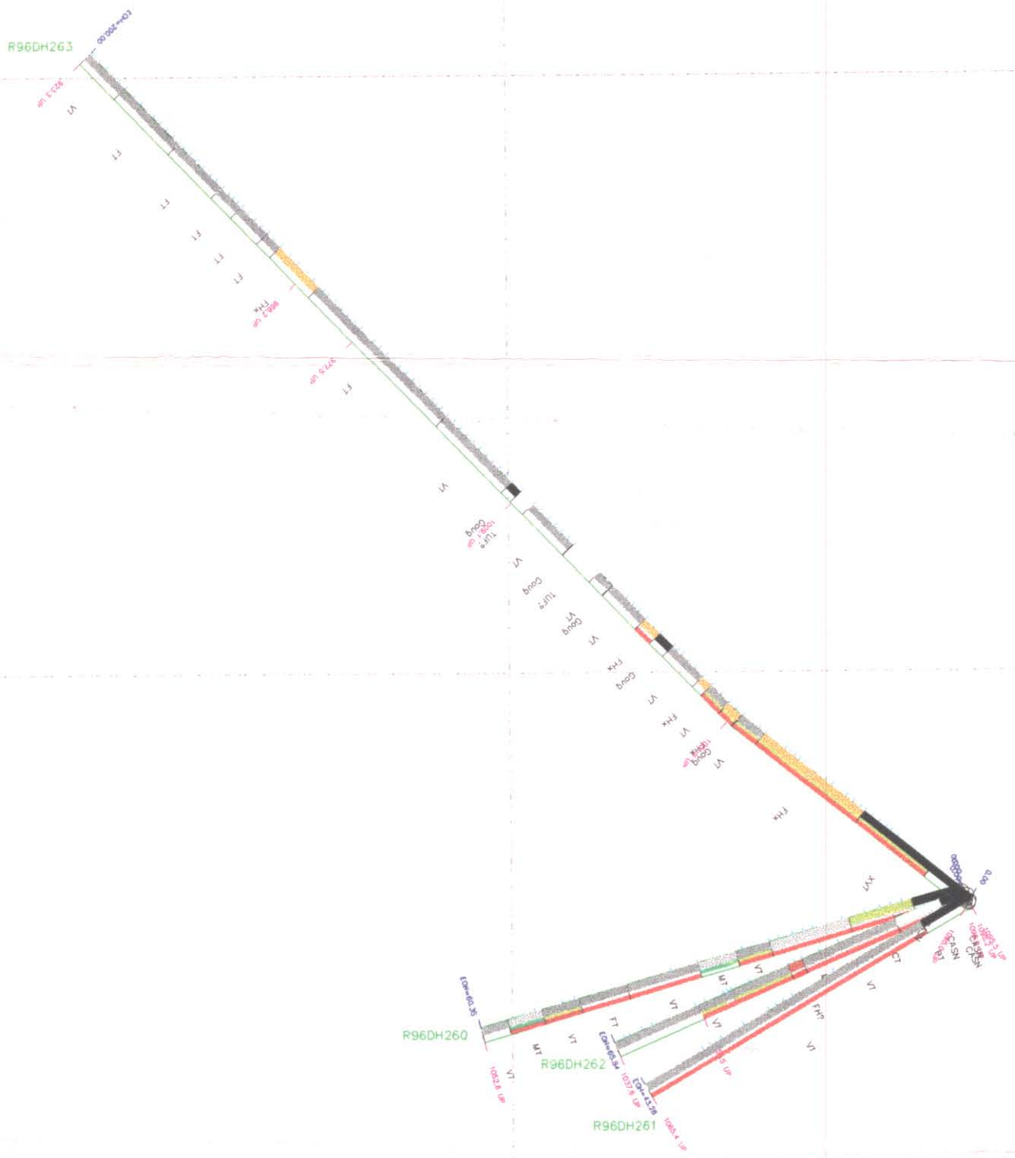
Royal Oak Mines Inc.

FIG 3

1996 boundary drafted by C. Dorre, Nov. 25, 1996
File: S:\Data\Arcdata\Dorre\96_boards.dwg

6000 N

5950 N



12.5 N — 3.23 — Downhole location of Pierce point (in meters)

Distance off section

4.1 N

3.7 S — 35.66

2.85 28.50
3.15 31.50
5.25 105.00

Assay Value
Au Ag
g/t g/t

R96DH227 — Drill Hole Name: R Year DH Number

5900 N

Assay Interval Highlighting

Au in g/t

2.70	0.0	–	Low 1.00 to 3.00 g/t Au
3.30	0.0	–	Medium 3.00 to 5.00 g/t Au
5.50	0.0	–	High > 5.00 g/t Au

Ag in g/t

0.00	27.00	–	Low 10.00 to 30.00 g/t Ag
0.00	33.00	–	Medium 30.00 to 100.00 g/t Ag
0.00	110.00	–	High > 100.00 g/t Ag

NOTE: Composites are normal averaged, uncut length, non recovery weighted for the entire interval over the sampled length

5850 N

5700 E 5750 E 5800 E

Royal Oak Mines Inc.

Work By: various	**Red Mountain Project**
Date Drafted: 28 June 1996	Diamond Drill Plan
Drafted By: CFC	Hartley Gulch South
Date Revised: 3 July 1996	
Revised By: CFC	Created by GEO-LOGIC system
N.T.S. Number: 103P/13	20 0 20 40 60 — SCALE 1 : 500
File Name:	Figure 4