MAR 19970004: STEEN RIVER

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STEEN RIVER PROSPECT

NORTHWESTERN ALBERTA

Metallic and Industrial Mineral Permits

9393030619 to 9393030629 incl.

ASSESSMENT WORK REPORT

SUBMITTED BY:

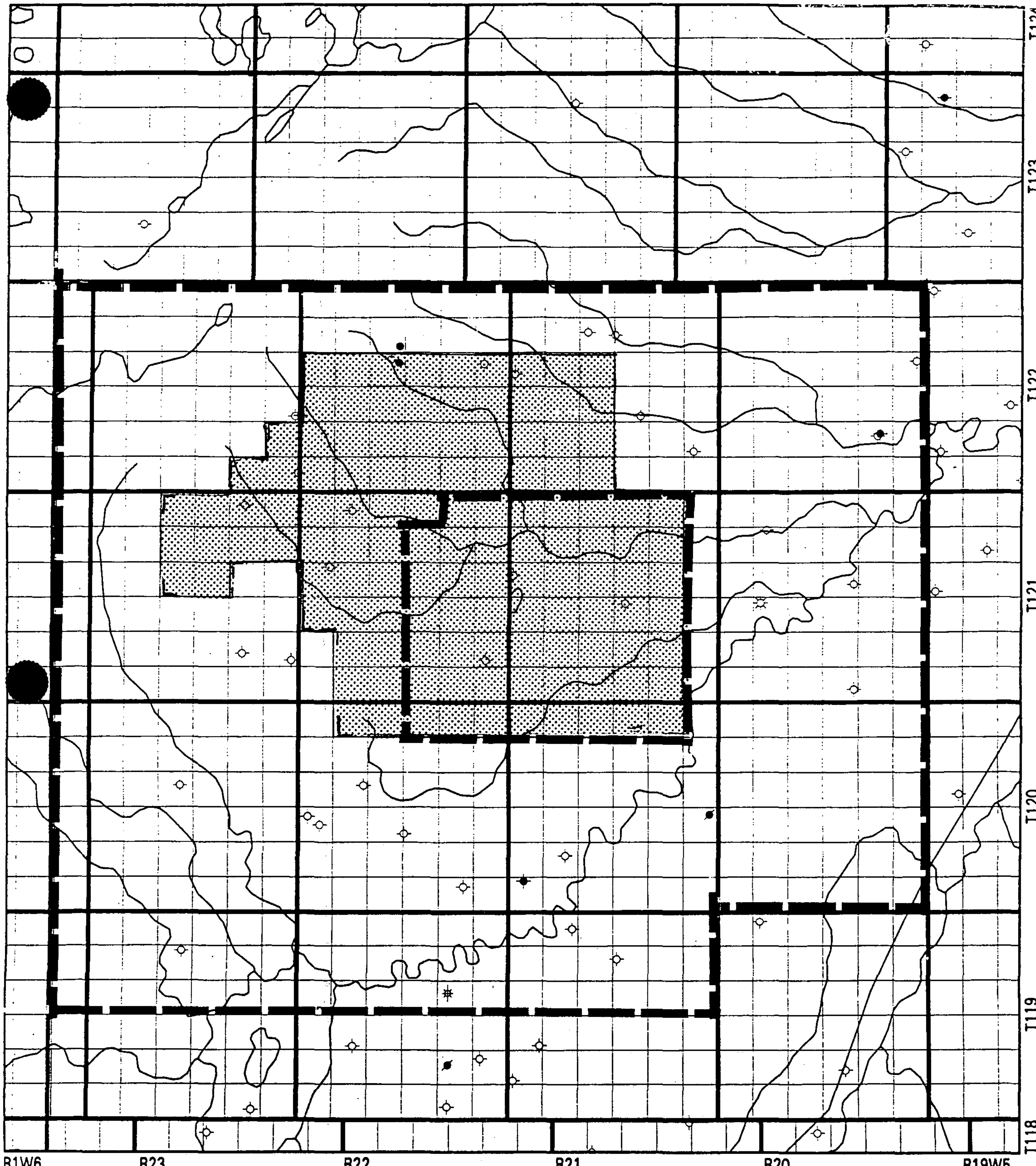
TROYMIN RESOURCES LTD.
#200, 622 - 5 AVENUE S.W.
CALGARY, ALBERTA T2P 0M6

June 1, 1997

TABLE II

PERMIT NO.	TWP.	RGE.W5	ORIGINAL AREA (ha)	AS AMENDED SEPT.7,1995 (ha)	SECTIONS TO BE DROPPED	AREA APPLIED FOR AS AT JUNE 1, 1997 (ha)
9393030619	120	21	9,216	1,280	NIL	1,280
9393030620	120	22	9,216	1,280	32,33	768
9393030623	121	21	9,216	7,680	NIL	7,680
9393030624	121	22	9,216	8,704	4,5,8,9,16-21 incl., 28-34 incl.	4,352
9393030625	121	23	9,216	2,560	21,22,25-28 incl., 33-36 incl.	NIL
9393030627	122	21	9,216	3,072	4-9 incl. 16-21 incl.	NIL
9393030628	122	22	9,216	6,144	1-24 incl.	NIL
9393030629	122	23	9,216	768	1,2,12	NIL
TOTAL			73,728	31,488		14,080

MAP I



Well Symbols	
○ Location	Drilling
• Oil	Gas
Hvy Oil	Oil&Gas
[illegible] Oil	Susp Gas
[illegible] Oil	Abnd Gas
Susp H Oil	Susp Oil&Gas
Abnd H Oil	Abnd Oil&Gas
Susp Undes	D & A
Service	Abnd Service
Injection	Gas Injection

No Well Postings Specified

ORIGINAL PERMITS (1993)

REVISED PERMITS (1995)

REVISED PERMITS (1997)

Scale 1:250000

Kilometers 0 15

Miles 0 9

TROYMIN RESOURCES LTD.

Steen River Area

Author:
Date: JUNE, 1997

Licence Data to: November 4, 1994 / Production Data to: September 30, 1994

STEEN RIVER PROSPECT

NORTHWESTERN ALBERTA

Metallic and Industrial Mineral Permits

9393030619 to 9393030629 incl.

ASSESSMENT WORK REPORT

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CALGARY, ALBERTA T2P 0M6

June 1, 1997

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June 1, 1997

STEEN RIVER PROSPECT

NORTHWESTERN ALBERTA

GEOLOGICAL REPORT

SUBMITTED BY:

TROYMIN RESOURCES LTD.
#200, 622 - 5 AVENUE S.W.
CALGARY, ALBERTA T2P 0M6

June 1, 1997

GEOLOGICAL REPORT

Metallic and Industrial Mineral Permits 9393030619 to 93930629 inclusive, cover the Steen River Impact Feature which is located in the northern portion of the province of Alberta, approximately 100 miles north of High Level, Alberta, along Highway 35 towards Yellowknife. This structure, with a diameter of 25km, is centred at TWP 121 and Range 21-22W5 (or latitude 59° 31'N and longitude 117° 38W). The structure has been explored for hydrocarbons since the 1950's, as summarized in the enclosed Well Exploration Library.

The Steen River Impact occurred approximately 95 ± 7 million years ago, producing a crater 25km in diameter. The central core is 9km in diameter and the crater syncline is 4km wide while the outer raised rim is also 4km wide, as illustrated on the *Figure* 1.

Basement (Precambrian) depths in the Steen River area are typically 1000m below sea level; ground surface elevations range from 350m to 700m above sea level. The deepest basement depth in the crater syncline to be confirmed by drilling was 1477m below sea level. The shallowest drilled basement, located near the centre of the structure, was reached at 167m above sea level.

The outer rim of the crater has been cut by numerous normal faults with a resulting complex pattern of horsts and grabens. The throw across the normal faults is typically a few tens of metres. The rim relief relative to surrounding undisturbed basement, varies from 30m to 80m.

GEOLOGY

The Steen River area is floored by basement of the Hottah Terrane of Lower Proterozoic age. Immediately to the east of the Steen River Impact Feature, the basement is formed by the Great Bear magnetic arc, also of Lower Proterozoic age, but younger than the adjacent Hottah Terrane. These two basement terranes are thought to be in fault contact. These major Terrane boundaries in the immediate vicinity of the Steen River Feature are likely zones of weakness in the crust. Minor movement along these zones of weakness may have occurred as a result of the Steen River Impact.

The impact feature is also adjacent to a major shear feature, the Great Slave fault zone, which lies about 5km to the southeast of the Steen River feature. This fault zone, which strikes 30° NE, has associated mineralization in

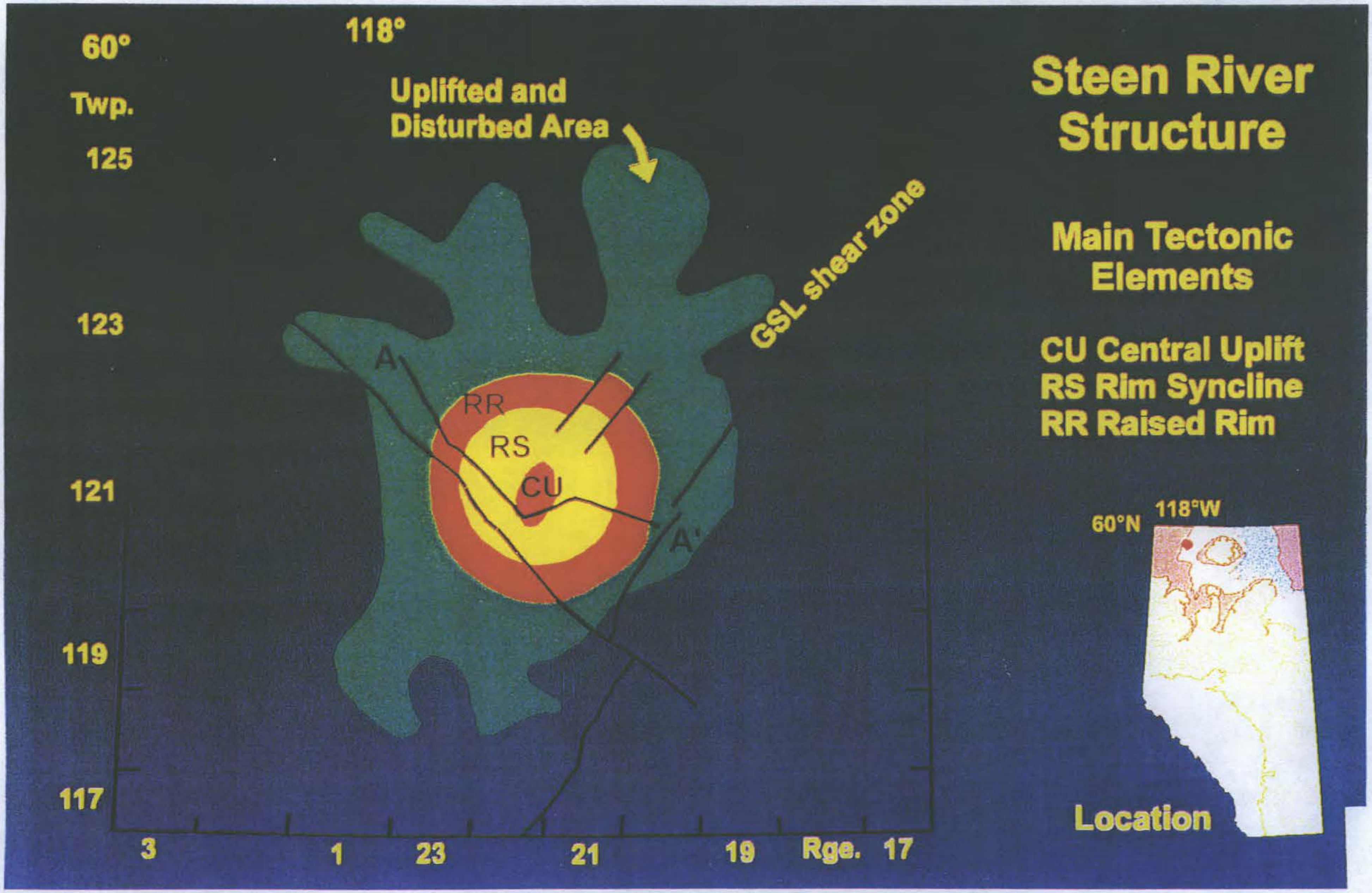

60°
118°
Twp.
125
Uplifted and
Disturbed Area
Steen River
Structure
GSL shear zone
Main Tectonic
Elements
123
A
RR
RS
CU
A'
CU Central Uplift
RS Rim Syncline
RR Raised Rim
121
60°N
118°W
119
117
Location
3
1
23
21
19
Rge. 17

FIGURE 1

the vicinity of Great Slave lake at Pine Point. Lead zinc mineralization was also noted adjacent to the fault zone 20km east of the Steen River Impact Structure in a series of shallow test holes.

Directly above the Precambrian granite basement at Steen River are the Granite Wash sands and the Red Beds of Devonian age, as well as evaporites and carbonates of the Elk Point and Beaverhill Lake Groups. These rocks are overlain by middle and upper Devonian shales and argillaceous carbonates which in some cases are overlain by a calcareous shale of possible Mississippian age. This sedimentary sequence has been truncated by a major unconformity which is overlain by much younger Cretaceous shales.

A simplified version of the stratigraphy across the Steen River structure is illustrated on the cross section in *Figure* 2.

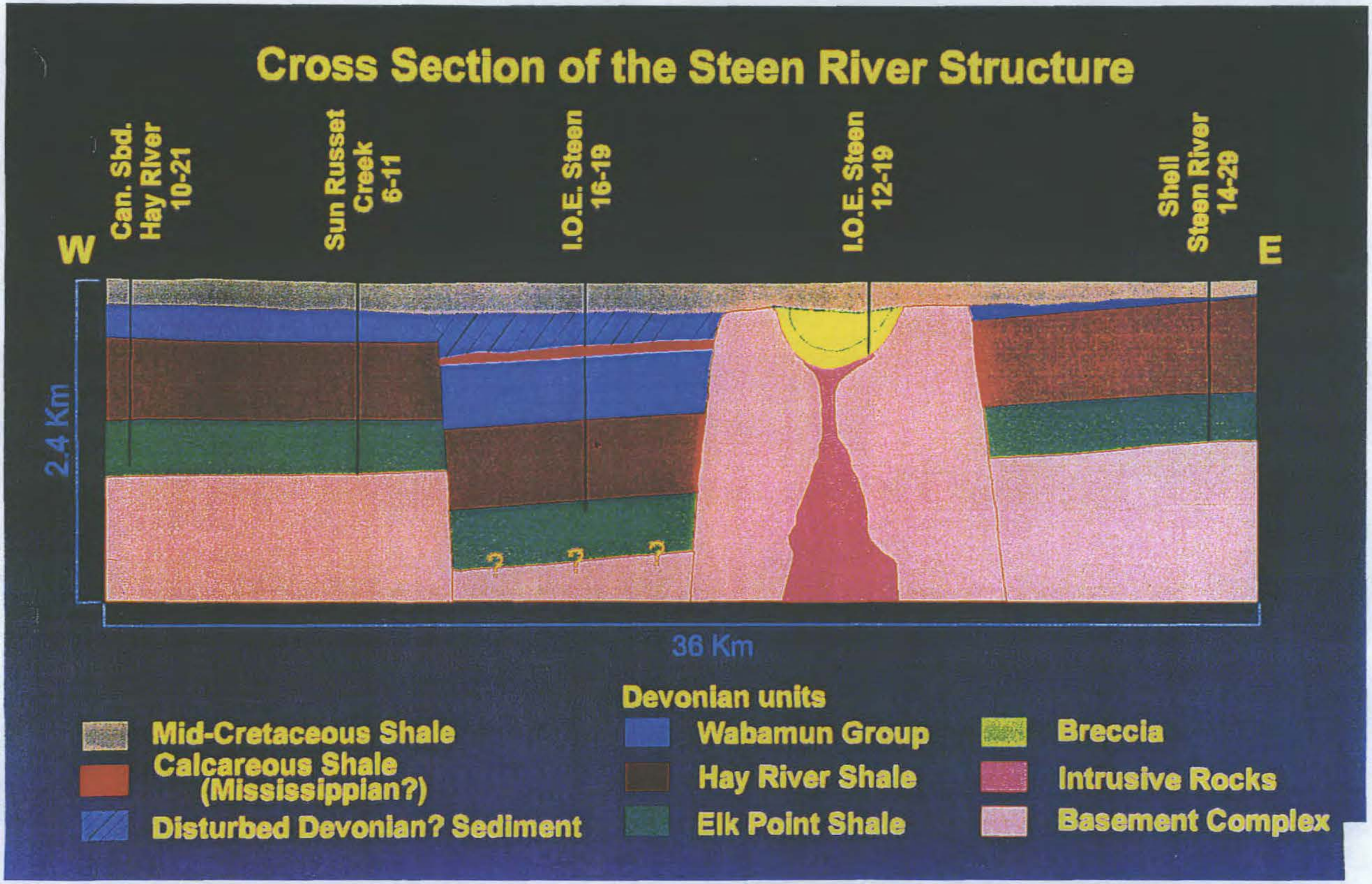

Cross Section of the Steen River Structure
Can. Sbd. Hay River 10-21
Sun Russet Creek 6-11
I.O.E. Steen 16-19
I.O.E. Steen 12-19
Shell Steen River 14-29
W
E
2.4 Km
36 Km
Devonian units
Mid-Cretaceous Shale
Calcareous Shale (Mississippian?)
Disturbed Devonian? Sediment
Wabamun Group
Hay River Shale
Elk Point Shale
Breccia
Intrusive Rocks
Basement Complex

FIGURE 2

WELL EXPLORATION LIBRARY

WELL LOCATION	STATUS	COMPLETED
9-20-120-22 W5	Abandoned	March, 1954
13-17-121-20 W5	Capped Gas	March, 1978
14-15-121-21 W5	Abandoned	March, 1969
12-19-121-21 W5	Abandoned	December, 1963
3-12-121-22 W5	Abandoned	February, 1970
16-19-121-22 W5	Abandoned	March, 1964
7-32-121-22 W5	Abandoned	July, 1968
5-19-122-21 W5	Abandoned	February, 1968
9-1-122-23 W5	Abandoned	August, 1968

License No: 7632

Well Exploration Library™

9-20-120-22W5
From Surface Hole

IMP RUSSET CR 9-20-120-22

Status	ABANDONED	**Spud Date**	Feb 16,1954	**Unique Well ID**	00/09-20-120-22W5/00	**K.B.**	**1169.9ft**
Prov / Field	ALTA / UNDEFINED	**Finish Drill**	Mar 22,1954	**Surface Hole Co-ord**	1979.7ft S 660.8ft W	**Ground Elev.**	1160.1ft
Zone / Pool	---	**Rig Release**	---	**Surf. Hole Lat./Long**	59.43971 / 117.74132	**FTD (Meas'd)**	4426.8ft
		Date on Prod.	---	**Bottom Hole Co-ord**	1979.7ft S 660.8ft W	**Form at T.D.**	PRECAMBRIAN
Class	NEW FIELD WILDCAT	**Conf. Status**	NC	**Bot. Hole Lat./Long**	59.43971 / 117.74132	**True Vertical**	---
Operator	IMPERIAL OIL LIMITED			**Confidential Below**	---	**Plug Back T.D.**	---

DIGITECH TOPS

	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)
	BULLHEAD	535.0	---	634.9
	WABAMUN	601.0	---	568.9
	TROUT RIVER	930.0	---	240.0
	KAKISA	960.0	---	209.9
	REDKNIFE	1111.9	---	58.1
	ISLAND RIVER	1248.0	---	-78.1
	IRETON	1360.0	---	-190.1
	MUSKWA	2754.0	---	-1584.1
	BEAVERHILL LAKE	2819.9	---	-1649.9
t	SLAVE POINT	2987.9	---	-1817.9
c	FT.VERMILLION	3130.0	---	-1960.0
c	WATT MOUNTAIN	3205.1	---	-2035.1
ct	SULPHUR PT MBR	3222.0	---	-2052.1
ct	MUSKEG	3290.0	---	-2120.0
ct	U.KEG RIVER	3830.1	---	-2660.1
	L.KEG RIVER	3980.0	---	-2810.0
	CHINCHAGA	4145.0	---	-2975.1
	GRANITE WASH	4350.1	---	-3180.1
	PRECAMBRIAN	4379.9	---	-3210.0

LOGS

Surface Casing to TD
RADIOACT,ELECTRIC

Interval Specific	Top (ft)	Base (ft)
CALIPER	2799.9	4000.0
MICROLOG	2950.1	4200.1

NOTES

Well No: 184888

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
3200.1	3250.0	WATT MOUNTAIN	---	WATER BASE	---	---	---
3809.1	3858.9	U.KEG RIVER	---	WATER BASE	---	---	---

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft

Rights	**License No** 7632	**Surveyor** ---	**Card Type** Digitech Enhanced	**Replaces**	
CROWN	**License Date** Jan 27,1954	**Contractor** ---	**Version** 0 Jan 29, 1996		

digitech

License No: 7632

9-20-120-22W5
From Surface Hole

IMP RUSSET CR 9-20-120-22

CASINGS

Type	Size (in)	Base (ft)
SURFACE	9.6	549.9

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Mar 25,1954	ABANDONED				

DRILL STEM TESTS

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
2	CBH	SLAVE POINT	2991.1	---	---	()	1930.	30.	--- / ---	---	---		First 0.0
	G 45	Feb 27,1954	3005.9		UA	---	---					0.	Last 0.0
													Max 0.0
3	CBH	SULPHUR PT MBR	3225.1	---	---	()	---						First 0.0
	G 43 64	Mar 03,1954	3250.0		UA	---	---					0.	Last 0.0
													Max 0.0
4	CBH	SULPHUR PT MBR	3230.0	---	---	()	---						First 0.0
	G 43 64	Mar 04,1954	3254.9		UA	---	---					0.	Last 0.0
													Max 0.0
5	CBH	SULPHUR PT MBR	3230.0	3230.0	---	()	1850.	45.	--- / 280	15.	1300.		First 0.0
	D 27 30 37	Mar 04,1954	3254.9		RL	---	1850.					1414.	Last 0.0
													Max 0.0
7	CBH	MUSKEG EVAPS.	3392.1	---	---	()	2000.	120.	--- / ---	---	---		First 0.0
	G 45	Mar 07,1954	3412.1		UA	---	---					0.	Last 0.0
													Max 0.0
8	CBH	MUSKEG EVAPS.	3733.9	---	---	()	2270.	60.	--- / ---	20.	---		First 0.0
	G 45	Mar 12,1954	3753.9		UA	---	---					0.	Last 0.0
													Max 0.0
9	CBH	U.KEG RIVER	3827.1	3827.1	---	()	2300.	60.	325 / ---	20.	---		First 0.0
	C 27 11	Mar 14,1954	3858.9		EX	NO	---					1630.	Last 0.0
													Max 0.0

Test 2 — Blow Description: Faint initial puff. Died immediately.
Recovery: 6.0 ft clean mud

Test 3 — Blow Description: None given, misrun.

Test 4 — Blow Description: None given, misrun.

Test 5 — Blow Description: Good initial puff. Fair steady air blow.
Recovery: 590.0 ft mud cut sulphurous water

Test 7 — Blow Description: Weak intermittent air blow died after 40 minutes. Reset, no blow.
Recovery: 180.0 ft oily sulphurous salt water

Test 8 — Blow Description: Faint steady air blow throughout test.
Recovery: 90.0 ft gas cut oil cut mud

Test 9 — Blow Description: Air blow remaining strong and steady for 45 mintes then decreasing rapidly until valve was closed, air blow died rapidly after tool was shut in and ceased after 3 minutes.
Recovery: 1500.0 ft gas and mud cut water 2100.0 ft gas cut salt water

License No: 7632

9-20-120-22W5

From Surface Hole

IMP RUSSET CR 9-20-120-22

DRILL STEM TESTS

No. Type QC/Comments	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) Perm	Cushion (ft) Damage	IHP FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)	
1 UNK	**WATT MOUNTAIN**	3225.1	---	---	()	---						First	0.0
G 90 74	Mar 22,1954	3230.0		UA	---	---					0.	Last	0.0
Blow Description: None given, misrun.												Max	0.0
6 CBH	**MUSKEG EVAPS.**	3342.8	---	---	()	2000.	75.	--- / ---	15.	---		First	0.0
G 45	Jun 03,1954	3391.1		UA	---	---					0.	Last	0.0
Blow Description: Faint air blow decreasing gradually and died 35 minutes after valve was opened.												Max	0.0
Recovery: 70.0 ft clean mud													

License No: 68454	Well Exploration Library ™	13-17-121-20W5
BEARSPAW ET AL DIZZY 13-17-121-20		From Surface Hole Page 1

Status CAPPED GAS		**Spud Date**	Mar 08,1978	**Unique Well ID**	00/13-17-121-20W5/00	**K.B.**	**1084.0ft**
Prov / Field ALTA / UNDEFINED		**Finish Drill**	Mar 22,1978	**Surface Hole Co-ord**	869.8ft S 1040.0ft E	**Ground Elev.**	1071.9ft
Zone / Pool		**Rig Release**	---	**Surf. Hole Lat./Long**	59.51550 / 117.41560	**FTD (Meas'd)**	4049.9ft
	SLAVE POINT UND	**Date on Prod.**	Mar 01,1979	**Bottom Hole Co-ord**	869.8ft S 1040.0ft E	**Form at T.D.**	PRECAMBRIAN
Class	NEW FIELD WILDCAT IEW	**Conf. Status**	NC	**Bot. Hole Lat./Long**	59.51550 / 117.41560	**True Vertical**	---
Operator	BEARSPAW PETROLEUM L		No Core's	**Confidential Below**	---	**Plug Back T.D.**	---

DIGITECH TOPS

	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)		Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)
	BULLHEAD	880.0	---	204.0	t	MUSKEG	2960.0	---	-1876.0
	WABAMUN	912.0	---	172.0	t	ZAMA MEMBER	3509.8	---	-2425.9
	TROUT RIVER	1140.0	---	-56.0	t	KEG RIVER	3569.9	---	-2485.9
	KAKISA	1168.0	---	-84.0		CHINCHAGA	3779.9	---	-2695.9
	REDKNIFE	1310.0	---	-226.0		GRANITE WASH	3984.0	---	-2900.0
	JEAN MARIE	1350.0	---	-266.0		PRECAMBRIAN	4020.0	---	-2936.0
	ISLAND RIVER	1350.1	---	-266.1					
	IRETON	1379.0	---	-295.0					
	DARK SHALE	2275.9	---	-1191.9					
	MUSKWA	2276.0	---	-1192.0					
	BEAVERHILL LAKE	2404.9	---	-1320.9					
tp	**SLAVE POINT**	**2657.2**	---	**-1573.2**					
	FT.VERMILLION	2786.1	---	-1702.1					
	WATT MOUNTAIN	2872.0	---	-1788.0					
t	SULPHUR PT MBR	2890.1	---	-1806.1					

LOGS

Surface Casing to TD
SONIC.DUAL.IND.POR.LITH

Interval Specific	Top (ft)	Base (ft)

NOTES

Well No: 184896

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft
2692.9	2698.2	JET PERFORATION	Feb 28,1979	2.
2658.1	2678.1	JET PERFORATION	Mar 01,1979	2.

Rights	License No 68454	Surveyor ---	Card Type Digitech Enhanced	Replaces
CROWN	License Date Feb 16,1978	Contractor ---	Version 0 Jan 29, 1996	

digitech

License No: 68454	13-17-121-20W5
BEARSPAW ET AL DIZZY 13-17-121-20	From Surface Hole Page 2

CASINGS

Type	Size (in)	Base (ft)
SURFACE	8.6	622.0
PRODUCTN	5.5	4048.9

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Mar 28,1978	CAPPED GAS				

DRILL STEM TESTS

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
1	DCSBY4P	**ZAMA MEMBER**	3504.9	3537.1	120.0	()	1854.	10.	--- / 850	60.	1480.		First 8.3
	C 26 12	Mar 24,1978	3575.1		AV	NO	1854.	35.	916 / 866	100.	1455.	1521.	Last 9.4
													Max 9.4

Blow Description: Strong air blow on pre flow. Gas to surface in 2 minutes. Gas to surface immediately on final flow. Heavy mud spray in 1 minute. Heavy water spray after 9 minutes. Circulated sour gas out.
Recovery: 50.0 ft oil cut water 3418.0 ft salt water

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
2	DCSBY4P	**SULPHUR PT MBR**	2908.1	2940.9	112.0	(IW)	1505.	10.	--- / 900	60.	1257.		First 0.0
	D 28 11	Mar 25,1978	2948.2		AV	NO	1456.	60.	1228 / 1257	60.	1261.	1269.	Last 0.0
													Max 0.0

Blow Description: Good air blow on pre flow. Strong air blow on final flow, gas to surface in 1 minute, too small to measure.
Recovery: 30.0 ft clean mud 600.0 ft clean mud 2000.0 ft salt water

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
3	DCSBY4P	**SULPHUR PT MBR**	2908.1	2940.9	112.0	()	1513.	5.	893 / 920	60.	1256.		First 0.0
	A	Mar 26,1978	2948.2		HI	NO	1501.	60.	982 / 1256	60.	1257.	1256.	Last 0.0
													Max 0.0

Blow Description: Strong air blow on pre flow, puff of gas in 1 minute, air blow on final flow dying to weak in 10 minutes, gas to surface in 15 minutes. Very weak gas blow after 20 minutes remaining steady to end of flow, too small to measure.
Recovery: 840.0 ft watery mud 1790.0 ft salt water

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
4	DCSBY4P	**SLAVE POINT**	2658.1	2640.1	---	()	1354.	5.	443 / 443	60.	1194.		First 499.8
	C 19 11 99	Mar 26,1978	2674.9		RH	DE	1354.	60.	235 / 273	90.	1199.	1203.	Last 1063.3
													Max 1063.3

Blow Description: Weak air blow on preflow. Strong air blow on final flow, gas to surface in 3 minutes. Heavy water and inhibitor spray to surface after 20 minutes cleaning slightly in 40 minutes.

PRESSURE

Date	Type	Run Depth (ft)	Run D. Press. (psi)	Run D. Temp. (°F)	Shut-In Period (hrs)	Well Datum (ft)	Well Press (psi)
Mar 04,1979	BH STAT GRAD	2580.1	1222.	105.8	---	---	1225.
Mar 13,1979	BH BUILD UP	2573.5	188.	118.4	76.0	---	191.
Mar 13,1979	BH STAT GRAD	2580.1	1216.	118.4	---	---	1218.

DELIVERABILITY

Date	Type	Longest Stable Flow Dur. (hrs)	Flow (Mcf/d)	Press. (psi)	Press. MPP (psi)	AOFP (Mcf/d)
Mar 08,1979	MULTI-PT	72.0	2315.3	1039.	1218.	7009.3

License No: 35644

Well Exploration Library ™

14-15-121-21W5
From Surface Hole

MOBIL SE STEEN 14-15-121-21

Status	ABANDONED	Spud Date	Jan 31,1969	Unique Well ID	00/14-15-121-21W5/00	K.B.	1129.9ft
Prov / Field	ALTA / UNDEFINED	Finish Drill	Mar 22,1969	Surface Hole Co-ord	969.8ft S 1674.9ft E	Ground Elev.	1116.1ft
Zone / Pool	---	Rig Release	---	Surf. Hole Lat./Long	59.51525 / 117.52717	FTD (Meas'd)	4766.1ft
		Date on Prod.	---	Bottom Hole Co-ord	969.8ft S 1674.9ft E	Form at T.D.	PRECAMBRIAN
Class	NEW FIELD WILDCAT	Conf. Status	NC	Bot. Hole Lat./Long	59.51525 / 117.52717	True Vertical	---
Operator	MOBIL OIL CANADA, LTD.			Confidential Below	---	Plug Back T.D.	---

DIGITECH TOPS

	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)
	PEACE RIVER	736.0	---	393.9	WATT MOUNTAIN	3590.0	---	-2460.1
	HARMON	818.0	---	311.9	SULPHUR PT MBR	3602.0	---	-2472.1
	SPIRIT RIVER	868.0	---	261.9	MUSKEG	3610.0	---	-2480.1
	BULLHEAD	1220.0	---	-90.1	KEG RIVER	4270.0	---	-3140.1
	KOTCHO	1250.0	---	-120.1	L.KEG RIVER	4355.0	---	-3225.1
c	TETCHO	1440.0	---	-310.0	CHINCHAGA	4529.9	---	-3399.9
	TROUT RIVER	1659.0	---	-529.1	GRANITE WASH	4636.0	---	-3506.1
	KAKISA	1682.0	---	-552.1	PRECAMBRIAN	4736.0	---	-3606.1
	REDKNIFE	1885.0	---	-755.1				
	ISLAND RIVER	1928.0	---	-798.1				
	IRETON	1980.0	---	-850.1				
	MUSKWA	2875.0	---	-1745.1				
c	BEAVERHILL LAKE	3043.0	---	-1913.1				
ct	SLAVE POINT	3319.9	---	-2190.0				
	FT.VERMILLION	3513.1	---	-2383.2				

LOGS

Surface Casing to TD
IND.ELEC,SONIC,DENSITY,DIPMETER,RADIOACT

Interval Specific	Top (ft)	Base (ft)

NOTES

Well No: 184899

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
1507.9	1527.9	TETCHO	20.01	WATER BASE	13.3	1513.7	0.09
3221.1	3241.1	BEAVERHILL LAKE	17.06	WATER BASE	---	---	---
3355.0	3375.0	SLAVE POINT	19.03	WATER BASE	7.3	3369.1	2.82

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft

Rights	License No 35644	Surveyor ---	Card Type Digitech Enhanced	Replaces
CROWN	License Date Jan 16,1969	Contractor ---	Version 0 Jan 29, 1996	

digitech

License No: 35644

14-15-121-21W5
From Surface Hole

MOBIL SE STEEN 14-15-121-21

CASINGS

Type	Size (in)	Base (ft)
SURFACE	9.6	626.0

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Mar 27,1969	ABANDONED				

DRILL STEM TESTS

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
1	CBH2P	SLAVE POINT	3350.1	3368.1	100.0	()	1736.	10.	--- / 40	60.	61.		First 0.0
	E 39	Mar 10,1969	3375.0		VN	NO	1722.	60.	41 / 50	60.	181.	0.	Last 0.0
													Max 0.0
2	IS	SLAVE POINT	3319.9	3305.1	136.0	()	1691.	5.	--- / 57	60.	1576.		First 0.0
	C 26 19	Mar 25,1969	3450.1		RL	NO	1691.	60.	74 / 147	60.	1370.	1607.	Last 0.0
													Max 0.0

Test 1 — Blow Description: No initial puff on preflow. Very small air blow during final flow, dead in 20 minutes.
Recovery: 2.0 ft clean mud

Test 2 — Blow Description: Weak initial puff. Weak air blow holding steady.
Recovery: 330.0 ft mud cut water

License No: 25264	Well Exploration Library™	12-19-121-21W5
IOE STEEN 12-19-121-21		From Surface Hole Page 1

Status	ABANDONED	Spud Date	Dec 08,1963	Unique Well ID	00/12-19-121-21W5/00	K.B.	1160.1ft
Prov / Field	ALTA / UNDEFINED	Finish Drill	Dec 16,1963	Surface Hole Co-ord	2013.8ft S 549.9ft E	Ground Elev.	1153.9ft
Zone / Pool	---	Rig Release	---	Surf. Hole Lat./Long	59.52680 / 117.61947	FTD (Meas'd)	1694.9ft
		Date on Prod.	---	Bottom Hole Co-ord	2013.8ft S 549.9ft E	Form at T.D.	PRECAMBRIAN
Class	NEW FIELD WILDCAT	Conf. Status	NC	Bot. Hole Lat./Long	59.52680 / 117.61947	True Vertical	
Operator	IMPERIAL OIL LIMITED			Confidential Below	---	Plug Back T.D.	---

DIGITECH TOPS

	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)
c	SPIRIT RIVER	440.0	---	720.1				
ct	PRECAMBRIAN	624.0	---	536.1				

LOGS

Surface Casing to TD
IND.ELEC,SONIC,LATEROLG,DENSITY

Interval Specific	Top (ft)	Base (ft)

NOTES

Well No: 184900

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
1077.1	1094.2	PRECAMBRIAN	17.06	WATER BASE	8.4	1094.0	---
1244.1	1252.0	PRECAMBRIAN	7.87	WATER BASE	---	---	---
1368.1	1382.9	PRECAMBRIAN	12.14	WATER BASE	---	---	---
1483.9	1493.1	PRECAMBRIAN	8.86	WATER BASE	6.4	1492.0	---

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft

Rights						Replaces
CROWN	License No	25264	Surveyor	---	Card Type Digitech Enhanced	
	License Date	Dec 03,1963	Contractor	---	Version 0 Jan 29, 1996	

digitech

License No: 25264		12-19-121-21W5
IOE STEEN 12-19-121-21		From Surface Hole Page 2

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
1501.0	1501.0	PRECAMBRIAN	396.33	WATER BASE	---	---	---
1056.1	1063.0	PRECAMBRIAN	396.33	WATER BASE	---	---	---
1032.2	1044.9	PRECAMBRIAN	396.33	WATER BASE	---	---	---
1017.1	1024.9	PRECAMBRIAN	396.33	WATER BASE	---	---	---
999.0	1008.9	PRECAMBRIAN	396.33	WATER BASE	---	---	---
984.9	991.1	PRECAMBRIAN	396.33	WATER BASE	---	---	---
882.9	977.0	PRECAMBRIAN	396.33	WATER BASE	---	---	---
811.0	836.9	PRECAMBRIAN	396.33	WATER BASE	---	---	---
740.2	746.1	PRECAMBRIAN	396.33	WATER BASE	---	---	---
645.0	655.8	PRECAMBRIAN	396.33	WATER BASE	---	---	---
613.8	629.9	SPIRIT RIVER	396.33	WATER BASE	---	---	---
603.0	607.9	SPIRIT RIVER	396.33	WATER BASE	---	---	---
497.0	598.1	SPIRIT RIVER	396.33	WATER BASE	---	---	---
1669.9	1694.9	PRECAMBRIAN	24.93	WATER BASE	---	---	---
1620.1	1627.0	PRECAMBRIAN	6.89	WATER BASE	---	---	---

CASINGS

Type	Size (in)	Base (ft)
SURFACE	8.6	434.1

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Dec 18,1963	ABANDONED				

DRILL STEM TESTS

No.	Type QC/Comments	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) Perm	Cushion (ft) Damage	IHP FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)	
1	DCSBLOFF	PRECAMBRIAN	1349.1	1355.0	188.0	()	764.	5.	--- / 157	60.	732.		First	0.0
	D 35 13	Dec 14,1963	1396.0		AV	NO	763.	60.	162 / 274	60.	724.	738.	Last	0.0
													Max	0.0

Blow Description: Fair blow throughout test.
Recovery: 390.0 ft clean mud 60.0 ft salt water

License No: 37652

Well Exploration Library™

3-12-121-22W5
From Surface Hole

DOME ET AL STEEN 3-12-121-22

Status	ABANDONED	**Spud Date**	Jan 28,1970	**Unique Well ID**	00/03-12-121-22W5/00	**K.B.**	1151.9ft
Prov / Field	ALTA / UNDEFINED	**Finish Drill**	Feb 16,1970	**Surface Hole Co-ord**	993.1ft N 1654.9ft E	**Ground Elev.**	1141.1ft
Zone / Pool	---	**Rig Release**	---	**Surf. Hole Lat./Long**	59.49153 / 117.64227	**FTD (Meas'd)**	3595.1ft
		Date on Prod.	---	**Bottom Hole Co-ord**	993.1ft N 1654.9ft E	**Form at T.D.**	PRECAMBRIAN
Class	NEW FIELD WILDCAT	**Conf. Status**	NC	**Bot. Hole Lat./Long**	59.49153 / 117.64227	**True Vertical**	
Operator	AMOCO CANADA PETROLE	No DSTs		**Confidential Below**	---	**Plug Back T.D.**	---

DIGITECH TOPS

	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)
	SPIRIT RIVER	970.0	---	181.9
	KOTCHO	1447.0	---	-295.1
	REDKNIFE	1662.0	---	-510.1
	JEAN MARIE	1704.0	---	-552.1
	IRETON	1730.0	---	-578.1
	FAULTED	1737.5	---	-585.6
c	PRECAMBRIAN	1738.0	---	-586.1

LOGS

Surface Casing to TD
DUAL.IND,DENSITY,SONIC

Interval Specific	Top (ft)	Base (ft)

NOTES

Well No: 184901

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
3175.9	3185.0	PRECAMBRIAN	7.87	WATER BASE	---	---	---
3564.0	3571.9	PRECAMBRIAN	5.58	WATER BASE	---	---	---

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft

Rights	**License No** 37652	**Surveyor** ---	**Card Type** Digitech Enhanced	**Replaces**
CROWN	**License Date** Jan 22,1970	**Contractor** ---	**Version** 0 Jan 29, 1996	

digitech

License No: 37652

3-12-121-22W5
From Surface Hole

DOME ET AL STEEN 3-12-121-22

CASINGS

Type	Size (in)	Base (ft)
SURFACE	10.7	662.1

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Feb 19,1970	ABANDONED				

License No: 25742

16-19-121-22W5

From Surface Hole

IOE STEEN 16-19-121-22

DRILL STEM TESTS

No.	Type QC/Comments	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) Perm	Cushion (ft) Damage	IHP FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)	
6	CBH2P	**WATT MOUNTAIN**	5589.9	5619.1	120.0	()	2972.	5.	--- / 86	60.	1009.		First	0.0
	E 38	Mar 28,1964	5663.1		LO	NO	2916.	90.	91 / 105	90.	249.	0.	Last	0.0
	Blow Description: Weak blow throughout test.												Max	0.0
	Recovery: 120.0 ft clean mud													
7	CBH2P	**MUSKEG EVAPS.**	5660.1	5678.1	138.0	()	3107.	5.	--- / 69	60.	2565.		First	0.0
	F 41	Mar 30,1964	5725.1		RL	NO	3003.	90.	83 / 143	90.	2340.	0.	Last	0.0
	Blow Description: Weak blow, dead in 45 minutes.												Max	0.0
	Recovery: 270.0 ft gas cut oil cut mud													

License No: 34126	Well Exploration Library ™	7-32-121-22W5
MOBIL S STEEN 7-32-121-22		From Surface Hole Page 1

Status	ABANDONED	**Spud Date**	May 23,1968	**Unique Well ID**	00/07-32-121-22W5/00	**K.B.**	1390.1ft
Prov / Field	ALTA / UNDEFINED	**Finish Drill**	Jul 01,1968	**Surface Hole Co-ord**	2448.2ft N 2581.7ft W	**Ground Elev.**	1375.0ft
Zone / Pool	---	**Rig Release**	---	**Surf. Hole Lat./Long**	59.55366 / 117.75168	**FTD (Meas'd)**	6333.0ft
		Date on Prod.	---	**Bottom Hole Co-ord**	2448.2ft N 2581.7ft W	**Form at T.D.**	PRECAMBRIAN
Class	NEW FIELD WILDCAT	**Conf. Status**	NC	**Bot. Hole Lat./Long**	59.55366 / 117.75168	**True Vertical**	---
Operator	MOBIL OIL CANADA, LTD.			**Confidential Below**	---	**Plug Back T.D.**	---

DIGITECH TOPS

	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)
c	WABAMUN	980.0	---	410.1
	TROUT RIVER	2948.0	---	-1557.9
c	KAKISA	3020.0	---	-1629.9
	REDKNIFE	3250.0	---	-1859.9
	ISLAND RIVER	3452.1	---	-2062.0
c	IRETON	3569.9	---	-2179.8
	DUVERNAY	5000.0	---	-3609.9
	MUSKWA	5190.0	---	-3799.9
	BEAVERHILL LAKE	5252.0	---	-3861.9
	SLAVE POINT	5482.0	---	-4091.9
	WATT MOUNTAIN	5648.0	---	-4257.9
t	SULPHUR PT MBR	5660.1	---	-4270.0
t	MUSKEG	5706.0	---	-4315.9
t	KEG RIVER	5980.0	---	-4589.9
	CHINCHAGA	6085.0	---	-4694.9
	PRECAMBRIAN	6234.9	---	-4844.8

LOGS

Surface Casing to TD
IND.ELEC,SONIC,DENSITY,DIPMETER

Interval Specific	Top (ft)	Base (ft)
NEUTRON	5450.1	6333.0
BOREHOLE TELEVIEWER	5470.1	6331.0

NOTES

Well No: 184903

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
1003.0	1036.1	WABAMUN	2.62	WATER BASE	---	---	---
1037.1	1069.9	WABAMUN	18.37	WATER BASE	---	---	---
3123.0	3147.0	KAKISA	23.62	WATER BASE	---	---	---
3570.9	3591.9	IRETON	20.01	WATER BASE	---	---	---

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft

Rights	License No 34126	Surveyor ---	Card Type Digitech Enhanced	Replaces
CROWN	License Date May 17,1968	Contractor ---	Version 0 Jan 29, 1996	

digitech

License No: 34126	7-32-121-22W5
MOBIL S STEEN 7-32-121-22	From Surface Hole Page 2

CASINGS

Type	Size (in)	Base (ft)
SURFACE	9.6	551.8

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Jul 06,1968	ABANDONED				

DRILL STEM TESTS

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
1	UNK	SULPHUR PT MBR	5673.9	---	---	()	---						First 0.0
	G 43 74	Jun 23,1968	5693.9		UA	---	---					0.	Last 0.0
	Blow Description: None given, misrun.												Max 0.0
2	UNK	SULPHUR PT MBR	5673.9	---	---	()	---						First 0.0
	G 43 74	Jun 23,1968	5693.9		UA	---	---					0.	Last 0.0
	Blow Description: None given, misrun.												Max 0.0
3	CBH2P	SULPHUR PT MBR	5669.9	5651.9	125.0	()	2779.	4.	--- / 47	26.	2088.		First 0.0
	F 41	Jun 23,1968	5693.9		LO	NO	2763.	60.	206 / 130	59.	1509.	0.	Last 0.0
	Blow Description: Weak initial puff on preflow. Weak air blow on final flow increasing slightly. Recovery: 120.0 ft gas cut oil cut mud												Max 0.0
4	CBH2P	MUSKEG EVAPS.	5710.0	5692.9	165.0	()	2780.	5.	--- / 40	31.	60.		First 0.0
	E 39	Jun 25,1968	5874.0		VN	NO	2694.	58.	42 / 42	59.	67.	0.	Last 0.0
	Blow Description: Weak air blow on pre-flow, dead after 2 minutes. Tried to reset packers, pipe stuck, open tool again with weak air blow. Weak air blow during final flow, dead after 35 minutes.												Max 0.0
5	DCSBY4P	KEG RIVER	5950.1	5991.1	170.0	()	2977.	7.	--- / 60	28.	1368.		First 0.0
	F 41	Jul 04,1968	6029.9		RL	NO	2977.	60.	53 / 55	57.	1571.	0.	Last 0.0
	Blow Description: Weak air blow on pre-flow. Few bubbles after final flow dying off immediately.												Max 0.0

License No: 33598	Well Exploration Library ™	5-19-122-21W5
ATKINSON IOE STEEN 5-19-122-21		From Surface Hole

Status	ABANDONED	Spud Date	Feb 05,1968	Unique Well ID	00/05-19-122-21W5/00	K.B.	1252.0ft
Prov / Field	ALTA / UNDEFINED	Finish Drill	Feb 25,1968	Surface Hole Co-ord	1930.1ft N 710.0ft E	Ground Elev.	1238.8ft
Zone / Pool	---	Rig Release	---	Surf. Hole Lat./Long	59.61036 / 117.61860	FTD (Meas'd)	4191.9ft
		Date on Prod.	---	Bottom Hole Co-ord	1930.1ft N 710.0ft E	Form at T.D.	PRECAMBRIAN
Class	NEW FIELD WILDCAT	Conf. Status	NC	Bot. Hole Lat./Long	59.61036 / 117.61860	True Vertical	
Operator	APL OIL & GAS LTD.		No Core's	Confidential Below	---	Plug Back T.D.	---

DIGITECH TOPS

	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)
	BULLHEAD	552.0	---	700.0	PRECAMBRIAN	4158.1	---	-2906.2
	WABAMUN	620.1	---	631.9				
	FAULTED	1730.0	---	-478.0				
	FAULTED	1799.9	---	-547.9				
	DUVERNAY	2588.0	---	-1336.0				
	MUSKWA	2640.0	---	-1388.0				
	BEAVERHILL LAKE	2692.0	---	-1440.0				
t	SLAVE POINT	2973.1	---	-1721.1				
	FT.VERMILLION	3150.0	---	-1898.0				
	WATT MOUNTAIN	3167.0	---	-1915.0				
t	SULPHUR PT MBR	3187.0	---	-1935.0				
t	MUSKEG	3230.0	---	-1978.0				
t	KEG RIVER	3730.0	---	-2478.0				
	CHINCHAGA	4016.1	---	-2764.1				
	GRANITE WASH	4126.0	---	-2874.0				

LOGS

Surface Casing to TD
IND.ELEC,SONIC,DIPMETER

Interval Specific	Top (ft)	Base (ft)
NEUTRON	2899.9	4190.0
DENSTY	2899.9	4190.9

NOTES

Well No: 184926

CASINGS

Type	Size (in)	Base (ft)
SURFACE	9.6	458.0

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Mar 01,1968	ABANDONED				

Rights					
CROWN	License No 33598	Surveyor ---	Card Type Digitech Enhanced	Replaces	
	License Date Feb 02,1968	Contractor ---	Version 0 Jan 29, 1996		

digitech

License No: 33598	5-19-122-21W5
ATKINSON IOE STEEN 5-19-122-21	From Surface Hole

DRILL STEM TESTS

No.	Type QC/Comments	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) Perm	Cushion (ft) Damage	IHP FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)	
1	CBH2P	**SLAVE POINT**	3075.1	3125.0	---	()	1491.	5.	--- / ---	30.	---		First	0.0
	E 39	Feb 16,1968	3125.0		VN	NO	1489.	60.	135 / 142	60.	465.	0.	Last	0.0
	Blow Description: Very weak blow on preflow. Very weak air blow decreasing to nil in 10 minutes on final flow.												Max	0.0
	Recovery: 180.0 ft clean mud													
2	CBH2P	**SULPHUR PT MBR**	3190.0	3234.9	95.0	()	1548.	10.	88 / 104	60.	1318.		First	0.0
	C 26 99	Feb 17,1968	3234.9		RL	NO	1535.	60.	129 / 201	60.	1245.	1375.	Last	0.0
	Blow Description: Weak air blow on preflow. Good weak air blow throughout final flow.												Max	0.0
	Recovery: 160.0 ft clean mud 182.0 ft mud cut sulphurous water													
3	CBH2P	**KEG RIVER**	3740.2	3775.9	125.0	()	1906.	10.	118 / 173	60.	1554.		First	0.0
	B 13 11	Feb 22,1968	3779.9		AV	NO	1893.	60.	211 / 1479	60.	1540.	1560.	Last	0.0
	Blow Description: Weak air blow on pre-flow. Closed tool [used as tight hole sub] after 30 minutes of final flow.												Max	0.0
	Recovery: 300.0 ft gas cut mud 100.0 ft gas cut oil cut salt water 600.0 ft gas cut salt water													
4	DCSBLOFF	**MUSKEG EVAPS.**	3279.9	3305.1	95.0	()	1685.	5.	--- / 46	60.	322.		First	0.0
	E 38	Feb 27,1968	3339.9		VN	NO	1685.	60.	99 / 110	60.	181.	0.	Last	0.0
	Blow Description: Weak air blow on preflow. Blow slowly dying off in 60 minutes.												Max	0.0
	Recovery: 180.0 ft clean mud													

License No: 34441	Well Exploration Library ™	9-1-122-23W5
MOBIL W STEEN 9-1-122-23		From Surface Hole Page 1

Status	ABAND UNDESIGNATED	Spud Date	Jul 18,1968	Unique Well ID	00/09-01-122-23W5/00	K.B.	1893.0ft
Prov / Field	ALTA / UNDEFINED	Finish Drill	Aug 23,1968	Surface Hole Co-ord	2381.9ft S 94.2ft W	Ground Elev.	1878.0ft
Zone / Pool	---	Rig Release	---	Surf. Hole Lat./Long	59.56949 / 117.79577	FTD (Meas'd)	5232.9ft
		Date on Prod.	---	Bottom Hole Co-ord	2428.1ft S 251.0ft W	Form at T.D.	PRECAMBRIAN
Class	NEW FIELD WILDCAT	Conf. Status	NC	Bot. Hole Lat./Long	59.56937 / 117.79662	True Vertical	---
Operator	MOBIL OIL CANADA, LTD.			Confidential Below	---	Plug Back T.D.	---

GOVERNMENT TOPS

Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)	Formation	Measured Depth (ft)	True Vertical Depth (ft)	Subsea (ft)

LOGS

Surface Casing to TD
SONIC,IND.ELEC,DENSITY,DIR.SURV

Interval Specific	Top (ft)	Base (ft)
DIPMETER	3589.9	5221.1
PERFORATION RECORD	3700.1	5178.1
NEUTRON	3899.9	5226.1
BOREHOLE TELEVIEWER	3970.1	5228.0

NOTES

Well No: 184934
Deviated Well

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
1998.0	2007.9	KOTCHO	9.84	WATER BASE	---	---	---
4250.0	4255.9	SULPHUR PT MBR	4.92	WATER BASE	8.5	4253.7	2.12
4761.2	4774.9	KEG RIVER	14.11	WATER BASE	5.7	4771.5	0.44
4819.9	4850.1	KEG RIVER	29.86	WATER BASE	8.0	4827.7	122.12

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft
4828.1	4841.9	BULLET PERFORATION	Aug 30,1968	2.
4828.1	4841.9	CEMENT SQUEEZE	Aug 31,1968	---
4788.1	4794.0	BULLET PERFORATION	Sep 01,1968	2.
4788.1	4794.0	ACID SQUEEZE - PRESS USED	Sep 03,1968	---

Rights	License No 34441	Surveyor ---	Card Type Government	Replaces	
CROWN	License Date Jul 12,1968	Contractor ---	Version 0 Jan 29, 1996		

License No: 34441	9-1-122-23W5
MOBIL W STEEN 9-1-122-23	From Surface Hole Page 2

CORES

Top (ft)	Base (ft)	Formation	Amount Recovered (ft)	Fluid	Maximum Porosity (%)	Depth (ft)	Perm. (md)
5227.0	5232.0	PRECAMBRIAN	4.92	WATER BASE	---	---	---
4850.1	4873.0	KEG RIVER	18.04	WATER BASE	9.8	4860.8	26.66

COMPLETIONS

Top (ft)	Base (ft)	Type	Date	Shots per ft
4706.0	4711.0	BULLET PERFORATION	Sep 05,1968	2.
4706.0	4711.0	ACID SQUEEZE - PRESS USED	Sep 06,1968	---
4706.0	4711.0	CEMENT SQUEEZE	Sep 09,1968	---
4706.0	4711.0	CEMENT SQUEEZE	Sep 10,1968	---
4347.1	4675.2	BRIDGE PLUG CAPPED W/CEME	Feb 08,1990	---
682.4	683.1	JET PERFORATION	Feb 09,1990	4.
682.4	683.1	REMEDIAL CASING	Feb 09,1990	---

CASINGS

Type	Size (in)	Base (ft)
SURFACE	9.6	544.9
PRODUCTN	7.0	5232.9

STATUS HISTORY

Date	Status	Date	Status	Date	Status
Jan 07,1969	SUSP UNDESIGNATED				
Feb 08,1990	ABAND UNDESIGNATED				

DRILL STEM TESTS

No.	Type / QC/Comments	Formation / Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) / Perm	Cushion (ft) / Damage	IHP / FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)
5	UNK	KEG RIVER	4779.9	---	---	()	---						First 0.0
	G 44 75	Jul 18,1968	4819.9		UA	---	---					0.	Last 0.0
	Blow Description: None available, misrun.												Max 0.0
6	UNK	KEG RIVER	4779.9	---	---	()	---						First 0.0
	G 44 75	Jul 18,1968	4819.9		UA	---	---					0.	Last 0.0
	Blow Description: None available, misrun.												Max 0.0
8	UNK	KEG RIVER	4820.9	---	---	()	2432.	1.	--- / 174	57.	1755.		First 0.0
	D 30 12 11	Jul 18,1968	4873.0		HI	NO	2421.	60.	135 / 411	61.	1753.	1755.	Last 0.0
	Blow Description: Not available.												Max 0.0
	Recovery: 150.0 ft oil cut mud 180.0 ft watery mud 396.0 ft oil cut muddy salt water												
9	UNK	SLAVE POINT	4080.1	---	---	()	---						First 0.0
	G 75 44	Jul 18,1968	4149.9		UA	---	---					0.	Last 0.0
	Blow Description: None available, misrun.												Max 0.0
1	CBH2P	SULPHUR PT MBR	4230.0	4212.9	120.0	()	2027.	5.	--- / 100	57.	1467.		First 0.0
	C 19 18 13 11	Aug 08,1968	4256.9		AV	NO	2015.	61.	60 / 210	57.	1438.	1470.	Last 0.0
	Blow Description: Fair air blow during preflow. Fair air blow throughout test.												Max 0.0
	Recovery: 110.0 ft salt water cut mud 310.0 ft salt water												

License No: 34441	9-1-122-23W5
MOBIL W STEEN 9-1-122-23	From Surface Hole

DRILL STEM TESTS

No.	Type QC/Comments	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Temp (°F) Perm	Cushion (ft) Damage	IHP FHP (psi)	Valve Open Time (min)	Valve Open Pressure (psi)	Shut-In Time (min)	Shut-In Press. (psi)	P-Max (psi)	Measured Gas (Mcf/day)	
2	CBH2P	**MUSKEG EVAPS.**	4330.1	4313.0	125.0	(29.9 ft W)	2079.	6.	--- / 37	55.	1593.		First	0.0
	E 39	Aug 10,1968	4394.0		LO	NO	2079.	59.	37 / 52	60.	210.	0.	Last	0.0
	Blow Description: Very weak blow on preflow. No blow during final flow.												Max	0.0
	Recovery: 20.0 ft clean mud													
3	CBH2P	**KEG RIVER**	4705.1	4688.0	120.0	()	2280.	6.	--- / 17	58.	800.		First	0.0
	E 39	Aug 14,1968	4761.2		VN	NO	2280.	60.	20 / 27	59.	62.	0.	Last	0.0
	Blow Description: Weak air blow on pre-flow. Very weak blow on final flow dying off in 30 minutes.												Max	0.0
	Recovery: 26.0 ft clean mud													
4	CBH2P	**KEG RIVER**	4779.9	4763.1	120.0	()	2292.	1.	--- / 238	60.	1701.		First	0.0
	B 12	Aug 15,1968	4819.9		RH	NO	2256.	10.	190 / 1487	60.	1684.	1701.	Last	0.0
	Blow Description: Tight hole.												Max	0.0
7	CBH	**KEG RIVER**	4779.9	4762.1	120.0	()	2415.	1.	--- / 151	60.	1726.		First	0.0
	B 13 12 11	Aug 18,1968	4820.9		RH	PO	2415.	60.	105 / 258	63.	1686.	1726.	Last	0.0
	Blow Description: Little puff on pre-flow, died off rapidly. Reset. Good air blow during flow period.												Max	0.0
	Recovery: 456.0 ft gas cut oil cut mud 119.0 ft clean mud													

This well would not print the tops because the directional survey is not available.

Digitech Information Services
TICKET - Standard Report
Wed Jan 31 09:02:51 1996
::::
MOBIL W STEEN 9-1-122-23
[ALBERTA]

1[illegible]9-01-122-23W5/0 100/09-01-122-23W5/0

**** Header ****		**** Elev/Depth ****		* Co-Ordinates *		******** Dates *******	
License:	34441	Ground:	1878ft	Lat:	59.5693700d	FirstReport:	1968-07-12
Class:	NFW	Kb:	1893ft	Lon:	117.796620d	Spudded:	1968-07-18
Status:	A-UND	FinalTot:	5233ft	N/S:	2428ft S	FinDill:	1968-08-23
Oper:	MOBIL OIL C	TrueVert:	ft	E/W:	251ft W	OnProd:	
Faulted:	No	PlugBack:	ft			CurrStatus:	1990-02-08
Dir:		WhipStock:	2462ft			LastUpdate:	1996-01-29

*** Digitech Tops ***

Formations	Depth (ft)	SubSea (ft)	Rank	Formations	Depth (ft)	SubSea (ft)	Rank
BULLHD	1262	631	GRP	DRKSHL	3654	-1761	FRM
PALEOZ	1392	501	ERA	MUSKWA	3654	-1761	FRM
DEVON	1392	501	SYS	BHLK	3780	-1887	GRP
WAB	1392	501	FRM	SLPT	3987	-2094	FRM
KOTCHO	1392	501	FRM	FTVERM	4188	-2295	MBR
TROUTR	2050	-157	FRM	ELKPT	4208	-2315	GRP
WINTRB	2050	-157	GRP	WATTMT	4208	-2315	FRM
KAKISA	2109	-216	FRM	SULPT	4224	-2331	MBR
REDKNF	2270	-377	FRM	MUSKEG	4274	-2381	FRM
JMARIE	2450	-557	FRM	KEGR	4712	-2819	FRM
ISLDR	2450	-557	FRM	CHIN	5001	-3108	FRM
WDBEND	2548	-655	GRP	GRANW	5160	-3267	FRM
FTSIMP	2548	-655	FRM	PRECAM	5210	-3317	ERA
DUVRNY	3575	-1682	FRM				

*** Well Completions ***

Completion	Top (ft)	Base (ft)	Date	Shots	Source
[illegible]ERF	4828	4842	1968-08-30	7.0	
CM[illegible]SQZE	4828	4842	1968-08-31		
BUL.PERF	4788	4794	1968-09-01	7.0	
ACIDSQZE	4788	4794	1968-09-03		
BUL.PERF	4706	4711	1968-09-05	7.0	
ACIDSQZE	4706	4711	1968-09-06		
CMT.SQZE	4706	4711	1968-09-09		
CMT.SQZE	4706	4711	1968-09-10		
BRG.PLUG	4347	4675	1990-02-08		
JETPERF	682	683	1990-02-09	13.0	
REMEDIAL	682	683	1990-02-09		

*** Well Log ***

Log Type	Run	Top (ft)	Base (ft)
IND.ELEC	1	545	5228
SONIC	2	50	5227
RADIOACT	3	3900	5226
DENSITY	4	545	5227
PRFORATE	5	3700	5178
DIR.SURV	6	545	5221
DIPMETER	7	3590	5221
TELEVIEW	8	3970	5228

*** Well Core ***

CoreType	Top (ft)	Base (ft)	Amount (ft)	Fluid	Analy
DIAMOND	1998	2008	10	WATERBAS	NOTANAL
DIAMOND	4250	4256	5	WATERBAS	ANALYSED
DIAMOND	4761	4775	14	WATERBAS	ANALYSED
DIAMOND	4820	4850	30	WATERBAS	ANALYSED
D[illegible]OND	4850	4873	18	WATERBAS	ANALYSED
[illegible]ND	5227	5232	5	WATERBAS	NOTANAL

*** Well Casings ***

Casing Type	Size (in)	Depth (ft)
SURFACE	9.6	545
PRODUCTN	7.0	5233

*** Well Status ***

Status History	Date
SUSP UNDESIGNATED	1969-01-07
ABAND UNDESIGNATED	1990-02-08

************************** Drill Stem Tests **

No.	Type Source	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Cushion Type Length	IHP FHP (PSIG)	Measured Gas (MCF/d)
1	CBH2P	SULPHUR PT MBR	4230	4213		2027	
	CIFE	1968-08-08	4257			2015	

Valve Open: 5.00 MIN @ 100.00349 PSIG Shut-In: 57.00 MIN @ 1466.99832 PSIG
Valve Open: 61.00 MIN @ 60.00210/210.00009 PSIG Shut-In: 57.00 MIN @ 1438.00528 PSIG
Recovery: 110.01 ft SALT WATER CUT MUD
Recovery: 310.01 ft SALT WATER

No.	Type Source	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Cushion Type Length	IHP FHP (PSIG)	Measured Gas (MCF/d)
2	CBH2P	MUSKEG	4330	4313 W		2079	
	CIFE	1968-08-10	4394		9.10	2079	

Valve Open: 6.00 MIN @ 36.99912 PSIG Shut-In: 55.00 MIN @ 1592.99257 PSIG
Valve Open: 59.00 MIN @ 36.99912/51.99602 PSIG Shut-In: 60.00 MIN @ 210.00009 PSIG
Recovery: 20.01 ft CLEAN MUD

No.	Type Source	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Cushion Type Length	IHP FHP (PSIG)	Measured Gas (MCF/d)
3	CBH2P	KEG RIVER	4705	4688		2280	
	CIFE	1968-08-14	4761			2280	

Valve Open: 6.00 MIN @ 16.99842 PSIG Shut-In: 58.00 MIN @ 799.99895 PSIG
Valve Open: 60.00 MIN @ 20.00070/27.00602 PSIG Shut-In: 59.00 MIN @ 62.00362 PSIG
Recovery: 25.98 ft CLEAN MUD

No.	Type Source	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Cushion Type Length	IHP FHP (PSIG)	Measured Gas (MCF/d)
4	CBH2P	KEG RIVER	4780	4763		2292	
	CIFE	1968-08-15	4820			2256	

Valve Open: 1.00 MIN @ 238.00687 PSIG Shut-In: 60.00 MIN @ 1701.00215 PSIG
Valve Open: 10.00 MIN @ 189.99939/1486.99902 PSIG Shut-In: 60.00 MIN @ 1684.00373 PSIG

No.	Type Source	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Cushion Type Length	IHP FHP (PSIG)	Measured Gas (MCF/d)
5	UNK	KEG RIVER	4780				
	CIFE	1968-07-18	4820				
6	UNK	KEG RIVER	4780				
	CIFE	1968-07-18	4820				
7	CBH	KEG RIVER	4780	4762		2415	
	CIFE	1968-08-18	4821			2415	

Valve Open: 1.00 MIN @ 150.99875 PSIG Shut-In: 60.00 MIN @ 1725.99214 PSIG
Valve Open: 60.00 MIN @ 104.99279/257.99306 PSIG Shut-In: 63.00 MIN @ 1686.00525 PSIG
Recovery: 456.00 ft GAS CUT OIL CUT MUD
Recovery: 119.00 ft CLEAN MUD

No.	Type Source	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Cushion Type Length	IHP FHP (PSIG)	Measured Gas (MCF/d)
8	UNK	KEG RIVER	4821			2432	
	CIFE	1968-07-18	4873			2421	

Valve Open: 1.00 MIN @ 174.00173 PSIG Shut-In: 57.00 MIN @ 1754.99968 PSIG
Valve Open: 60.00 MIN @ 135.00109/410.99333 PSIG Shut-In: 61.00 MIN @ 1752.99816 PSIG
Recovery: 150.00 ft OIL CUT MUD
Recovery: 179.99 ft WATERY MUD
Recovery: 396.00 ft OIL CUT MUDDY SALT WATER

*************************** Drill Stem Tests ***************************************

No.	Type Source	Formation Test Date	Interval (ft)	Recorder Depth (ft)	Cushion Type Length	IHP FHP (PSIG)	Measured Gas (MCF/d)
9	UNK CIFE	SLAVE POINT 1968-07-18	4080 4150				

STEEN RIVER PROSPECT

NORTHWESTERN ALBERTA

LITHOGEOCHEMISTRY REPORT

SUBMITTED BY:

TROYMIN RESOURCES LTD.
#200, 622 - 5 AVENUE S.W.
CALGARY, ALBERTA T2P 0M6

June 1, 1997

SUMMARY

The following core samples were taken from 3 oil bore holes from the Steen river area of Alberta.

SAMPLE NUMBER	FOOTAGE	ROCK
3-12-01	3174-3185	granite
3-12-02	3564-3573	granite
12-19-01	1077-1094	tuff
12-19-02	1077-1094	tuff breccia
12-19-03	1368-1382	tuff
12-19-03 redo	1368-1382	tuff
12-19-04	1484-1493	tuff
12-19-05	1620-1627	granite
12-19-06	1670-1695	granite
16-19-777	777	tuff yellow
16-19-779	779	tuff green

Samples 3-12 are Dome the rest are IOE.

1) No correlation with Kimerlite type rock.
2) The Steen River granites plot in the California I-type granites or Himalayan collisional granites.
3) The Dome 3564-3573 sample plot in the range of tonalite-granodiorite-granite-quartz monzonite type of rock , while the other Dome granite and the other granites plot in the quartz syenite-monzonite-granodiorite or monzodiorite-monozonite-granodiorite-syenite series of rocks.
4) All the samples plot in the volcanic arc and collision portion of the tectonic discrimination Nb-Y diagram.
5) All except 2 samples plot in the igneous spectrum of the igneous spectrum diagram. Sample 12-19-01 a tuff breccia and 16-19-779 a tuff plot in the potassium keratophyre section of the diagram.
6) The samples plot in the rhyodacite, dacite, trachyandesite, andesite, subalkaline basalt on the volcanic discrimination diagram.
7) None of the samples correlate well with total crust Archean data nor with lower continental crust data.
8) Sample 12-19-01 is anomalous in Sr (strontium) and slightly in Zn (zinc). All samples are depleted in Au (gold).
9) One sample 16-19-777 which was thought to look like bentonite (ash fall tuff) seem to be a sediment - low in SiO_2 and somewhat high in CaO.

CONCLUSION

There seems to be 2 igneous intrusive rocks and 2 volcanic types. There is no indication of kimberlites.
The depletion of Au and the low amounts of Cu, Ni and Zn mean there is a possibilty of ore if one assumes that the rocks tested are the source rocks and have been depleted by some ore forming event.

Loring Laboratories Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 274-2777 Fax: 275-0541

FILE: 37561
TO: TROYMIN RESOURCES

DATE: 18-Aug-95

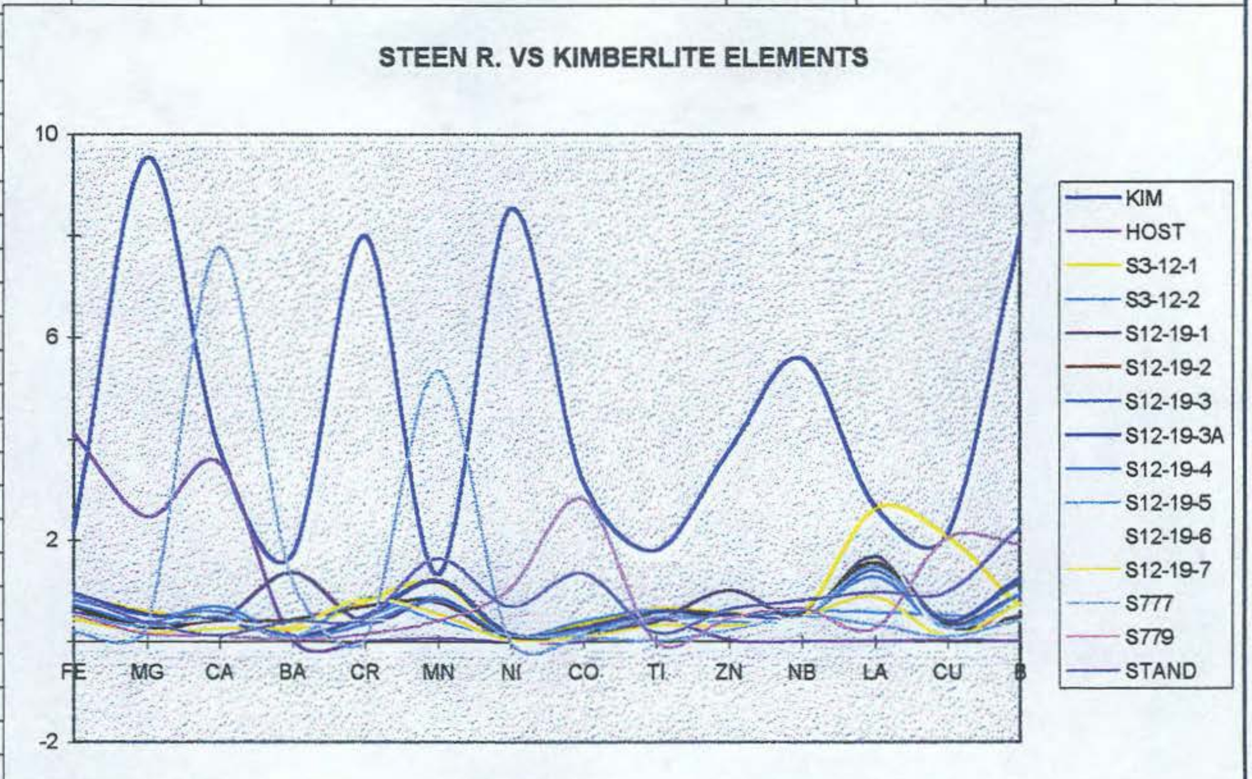
ELEMENT	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sr	Zr	Y	Nb	Sc	LOI	TOTAL
SAMPLES	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
3/12/01	59.24	15.92	7.19	2.88	4.11	3.67	3.23	0.74	0.22	0.14	0.019	1441	23	519	176	23	11	15	2.6	100.3
3/12/02	55.50	16.79	8.28	3.38	5.58	3.59	2.77	0.87	0.22	0.15	0.014	1057	18	414	150	18	12	15	2.9	100.3
12/19/01	62.93	14.31	3.51	1.54	2.49	2.56	5.26	0.37	0.06	0.07	0.006	1757	20	2002	234	26	10	10	6.3	99.98
12/19/02	64.61	14.74	4.58	1.15	2.78	3.49	4.46	0.55	0.11	0.08	0.016	1198	10	536	308	28	11	10	3.3	100.18
12/19/03	57.65	14.68	5.69	2.11	2.44	3.62	5.28	0.48	0.11	0.10	0.013	913	40	336	181	22	10	10	7.6	100
RE 12-19-3	57.70	14.71	5.67	2.11	2.45	3.65	5.21	0.50	0.12	0.11	0.009	917	17	337	177	22	10	10	7.5	99.97
12/19/04	58.73	13.90	4.40	1.59	3.66	3.18	4.21	0.42	0.08	0.07	0.007	518	31	291	162	18	10	10	9.8	100.2
12/19/05	66.07	13.18	3.19	1.24	2.63	3.08	4.26	0.44	0.11	0.04	0.019	574	24	152	172	20	10	10	5.8	100.21
12/19/06	66.40	15.42	2.12	0.58	2.24	3.96	4.50	0.28	0.05	0.03	0.010	1626	20	2278	121	10	10	10	4.0	100.16
12/19/07	69.04	14.55	2.73	0.72	2.24	4.16	3.04	0.28	0.06	0.05	0.021	1487	15	694	114	10	10	10	3.0	100.25
16-19-777	18.50	6.93	1.70	2.08	35.35	0.73	0.21	0.10	0.12	0.55	0.002	782	10	404	53	11	10	10	33.9	100.36
16-19-779	74.03	9.37	3.61	1.37	0.57	0.75	1.27	0.31	0.03	0.03	0.007	1446	111	191	68	12	13	10	7.7	99.34
STANDARD S(	49.05	12.77	7.18	7.52	5.84	2.49	1.89	1.66	2.79	1.38	1.061	2261	85	409	797	24	16	10	5.9	100.09

Loring Laboratories Ltd.
629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 274-2777 Fax: 275-0541

FILE: 37561
TO: TROYMIN RESOURCES

DATE: 18-Aug-95

ELEMENT	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W
SAMPLES	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm
3/12/01	2	118	37	112	0.4	11	8	786	3.78	4	< 5	< 2	34	82	< .2	< 2	< 2	72	1.67	0.085	105	93	1.42	97	0.29	8	2.27	0.14	0.41	< 2
3/12/02	1	29	18	93	< .3	10	9	586	3.41	2	< 5	< 2	5	64	< .2	< 2	< 2	62	2.08	0.085	23	57	1.25	32	0.28	5	2.16	0.08	0.13	< 2
12/19/01	1	20	58	291	0.5	7	3	552	2.30	7	< 5	< 2	15	1784	0.4	< 2	< 2	29	1.50	0.027	87	44	0.91	666	0.17	11	2.30	0.31	0.49	< 2
12/19/02	< 1	17	17	96	< .3	7	3	517	2.92	< 2	< 5	< 2	7	361	< .2	< 2	< 2	37	1.36	0.046	62	83	0.66	192	0.26	6	2.02	0.27	0.73	< 2
12/19/03	< 1	23	19	107	0.3	15	6	816	3.92	2	5	< 2	17	194	< .2	< 2	< 2	51	1.63	0.04	59	59	1.31	48	0.26	14	1.52	0.22	0.21	2
RE 12-19-3	1	22	14	106	< .3	14	6	799	3.85	3	< 5	< 2	16	192	< .2	< 2	2	50	1.59	0.039	57	57	1.28	45	0.26	15	1.50	0.22	0.19	2
12/19/04	< 1	15	15	95	0.3	12	5	528	2.94	2	< 5	< 2	14	179	< .2	< 2	2	44	2.46	0.033	51	41	0.95	37	0.21	11	2.29	0.32	0.20	< 2
12/19/05	2	15	29	75	0.3	12	3	270	2.09	< 2	< 5	< 2	10	56	< .2	< 2	< 2	46	1.76	0.037	58	103	0.72	32	0.22	9	1.89	0.17	0.22	< 2
12/19/06	1	5	15	93	< .3	1	1	218	1.39	4	< 5	< 2	11	1824	< .2	< 2	< 2	15	1.26	0.025	71	51	0.36	132	0.14	8	1.93	0.34	0.36	< 2
12/19/07	1	5	13	61	< .3	3	2	359	1.80	4	< 5	< 2	6	234	< .2	< 2	< 2	16	0.89	0.024	35	101	0.43	132	0.14	9	2.06	0.73	0.50	< 2
16-19-777	4	5	10	44	< .3	2	2	3589	0.72	15	< 5	< 2	20	327	0.2	< 2	2	33	27.60	0.041	13	3	0.73	556	< .01	5	0.72	0.42	0.08	2
16-19-779	16	117	48	88	0.9	98	65	274	2.17	46	6	< 2	8	97	0.3	< 2	< 2	50	0.41	0.014	10	18	0.38	16	< .01	23	1.41	0.45	0.28	< 2
STANDARD C	18	55	36	124	6.5	66	31	1093	3.80	44	19	6	35	48	17.3	18	18	64	0.48	0.09	39	54	0.9	177	0.08	27	1.76	0.06	0.15	11

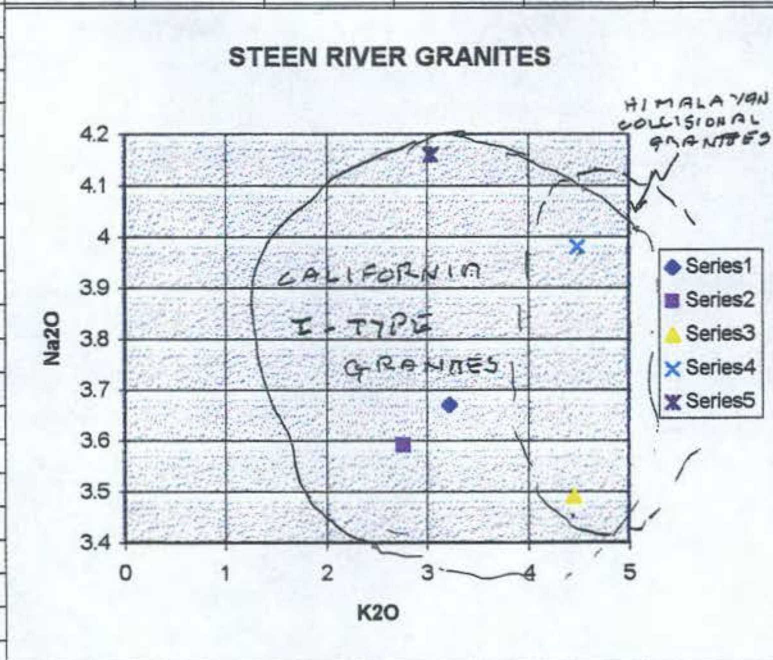


KIM = MEAN KIMBERLITE ELEMENTS NORMALIZED BY HOST ROCK
HOST= GENERAL BACKGROUND ROCKS
S3-12-1=DOME 3-12 GRANITE 3174-3185
S3-12-2=DOME 3-12 GRANITE 3564-3573
S12-19-1=IOE (12-19) 1077-1094 BRECCIA TUFF
S12-19-2=IOE (12-19) 1077-1094 GRANITE
S12-19-3=IOE 912-19) 1368-1382 TUFF
S12-19-3A=IOE (12-19) SAME AS ABOVE
S12-19-4=IOE (12-19)1368-1382 TUFF BRECCIA
S12-19-5=IOE (12-19) 1484-1493 TUFF
S12-19-6=IOE (12-19) 1620-1627 GRANITE ALT
S12-19-7=IOE (12-19) 1670-1695 GRANITE
S777=IOE (16-19) 777 ASH YELLOW
S779=IOE (16-19) 779 TUFF GREEN
STAND= LAB ASSAY STANDARD

TABLE 1

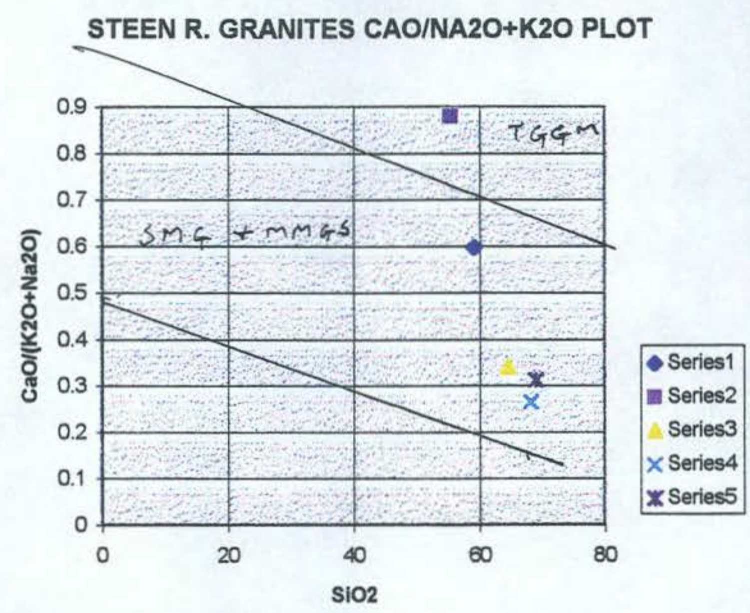
COMPARATIVE GEOCHEMICAL CHARACTERISTICS OF KIMBERLITES AND HOST ROCKS

Element	Elemental Composition - %				Content Ratio 2/5
	Kimberlite			Host Rock	
	Mean Content	Range of Content	Mineral Form	Mean Content	
1	2	3	4	5	6
Fe	9,01	2,35-14,9	Magnetite, Hematite	4,14	2,18
Mg	23,47	7,2-35,5	Ilmenite, olivine serpentine, chlorite	2,46	9,54
Ca	13,56	1,01-46,25	garnet, microilmenite	3,55	3,82
Ba	0,0755	0,0090-1,0	micas, carbonates, barite	0,0450	1,7
Cr	0,096	0,03-0,15	Serpentine, microilmenite, chlorite	0,012	8,0
Mn	0,0885	0,04-0,2	Siderite, perovskite	0,067	1,32
Ni	0,081	0,02-0,12	olivine, ilmenite, pentlandite	0,0095	8,53
Co	0,0073	0,0032-0,011		0,0023	3,17
Ti	0,81	0,2-2,99		0,45	1,8
Zn	0,0755	0,0007-0,119	microilmenite	0,02	3,78
Nb	0,0112	0,0028-0,0353	perovskite	0,002	5,6
Ta	0,00068	0,00012-0,00806	scattered in the kimberlite rock	0,00035	1,94
La	0,0107	0,00067-0,0479	scattered in the kimberlite rock	0,004	2,68
Ce	0,02136	0,00082-0,1158	scattered in the kimberlite rock	0,003	7,12
Cu	0,012	0,0006-0,132	chalcopyrite	0,0057	2,11
B	0,0096	0,0006-0,03	Serpentine	0,0012	8,0
[illegible]	0,217	0,060-0,450	mica, apatite	0,05	4,3
Cl	0,109	0,05-0,33	Halite	0,016	6,8



SERIES 1 = 3-12-1 DOME 3174-3185 GRANITE
SERIES 2 = 3-12-2 DOME 3564-3573 GRANITE
SERIES 3 = 12-19-2 IOE 1077-1094 GRANITE
SERIES 4 = 12-19-6 IOE 1620-1627 GRANITE ALTERED
SERIES 5 = 12-19-7 IOE 1670-1695 GRANITE

Dome ... I-type granite
IOE ...
... 1077-1094 HIMALAYAN ...
IOE 1620-1627



SERIES 1 = 3-12-1 DOME 3174-3185 GRANITE
SERIES 2 = 3-12-2 DOME 3564-3573 GRANITE
SERIES 3 = 12-19-2 IOE 1077-1094 GRANITE
SERIES 4 = 12-19-6 IOE 1620-1627 GRANITE ALTERED
SERIES 5 = 12-19-7 IOE 1670-1695 GRANITE

Series 1, 3, 4, 5 } SMG + MMGS

SMG = qtz syenite - monzonite - granodiorite
MMGS = mon diorite - monzonite - granodiorite - granite.

2 TGGM = Tonalite granodiorite - Syntectonic granite qtz - monzodiorite

Syntectonic tonalite-granodiorite-granite-quartz monzodiorite series (TGGM): Plutons of the TGGM series are typically voluminous batholiths which consist of multiple intrusive phases. These batholithic intrusions are frequently referred to as tonalite-trondhjemite-granodiorite series but are distinct in terms of volume, age, composition, emplacement pressure, source, and metallogenic associations from the synvolcanic TTG series described above. Representative examples of the series are the Lac Abitibi and Round Lake batholiths (Dimroth et al., 1983; Jensen, 1985; Sutcliffe et al., 1990; Feng and Kerrich, 1992; Fig. 1A; Table 1). Synkinematic emplacement is evident from the overall elliptical outcrop patterns of the batholiths and by tectonized borders. The Round Lake batholith is composed of two contrasting phases: a border phase with lithologies changing from a marginal grayish tonalite to granodiorite and granite inward, and a central phase dominated by pink quartz monzodiorite (Fig. 1). The distinct emplacement-pressure distributions, with a low-pressure central phase (~2 kbars) and a higher pressure border phase (~5 kbars), have been related to a ballooning emplacement mechanism (Feng and Kerrich, 1990; Fig. 1A; Table 1).

The Lac Abitibi batholith is poorly exposed. Mapped lithologies include tonalite, granodiorite, and K feldspar megacrystic granodiorite with minor diorite and gabbro (Jensen, 1985; Sutcliffe et al., 1990). The mineral assemblage is similar to that of the border phase of the Round Lake batholith and emplacement pressures were around 3 kbars (Table 1). The age of the TGGM series plutons at ~2690 Ma is only about 10 m.y. younger than that of the synvolcanic plutons (Table 1).

There are few mineral deposits hosted by and coeval with the TGGM series. A series of shear zone-hosted trondhjemitic stocks occur in the Timmins district, which are compositionally similar to the TGGM series batholiths and comparable in age (2691–2688 Ma; Burrows and Spooner, 1986; Corfu et al., 1989; Marmont and Corfu, 1989). One of these in the McIntyre deposit hosts stockwork Cu, Mo, Au mineralization. The giant quartz Au vein systems at Hollinger-McIntyre, however, postdate a deformation event that sheared the stocks, and overprinted a younger set of albitite dikes (2673 Ma, Burrows and Spooner, 1986, 1989; Wood et al., 1986; Marmont and Corfu, 1989), and accordingly, cannot be related to TGGM series magmatism.

Late tectonic quartz syenite-monzonite-granitic series (SMG): The SMG series plutons range in size from large batholiths (e.g., Watabeag batholith) to small stocks (e.g., Garrison stock, Fig. 1A). The major phases are medium grained, pink quartz syenite, monzonite, and granite (Fig. 1A). There are few studies of the SMG series plutons, except for a few U-Pb zircon ages in the range of 2676 to 2681 Ma (Frarey and Krogh, 1986; Corfu et al., 1989). The SMG series plutons are shallow-level intrusions with emplacement pressures around 1 kbar (Table 1). The rock appearance and the mineral assemblages of the SMG series are similar to those of the central phase of the Round Lake batholith. Mineral deposits within SMG series granitoids are restricted to minor Cu, Pb, Zn, Mo, and Cu,Au vein stockworks.

Post-tectonic alkali feldspar syenite-quartz alkali feldspar syenite series (SS): Post-tectonic SS series plutons mainly crop out along the transtensional portions of the major regional transpressive structures, such as the Larder Lake-Cadillac fault, where fluviatile sediments and trachytes (Timiskaming-type sediments and volcanics) unconformably overlie the deformed greenstone belt lithologies in fault-bounded pull-apart basins (Dimroth et al., 1983; Jensen, 1985;

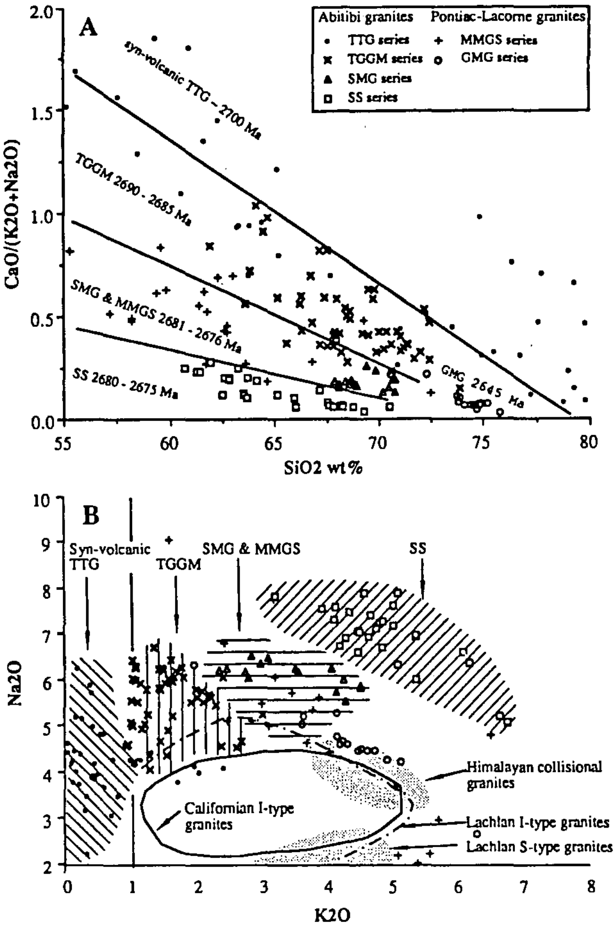
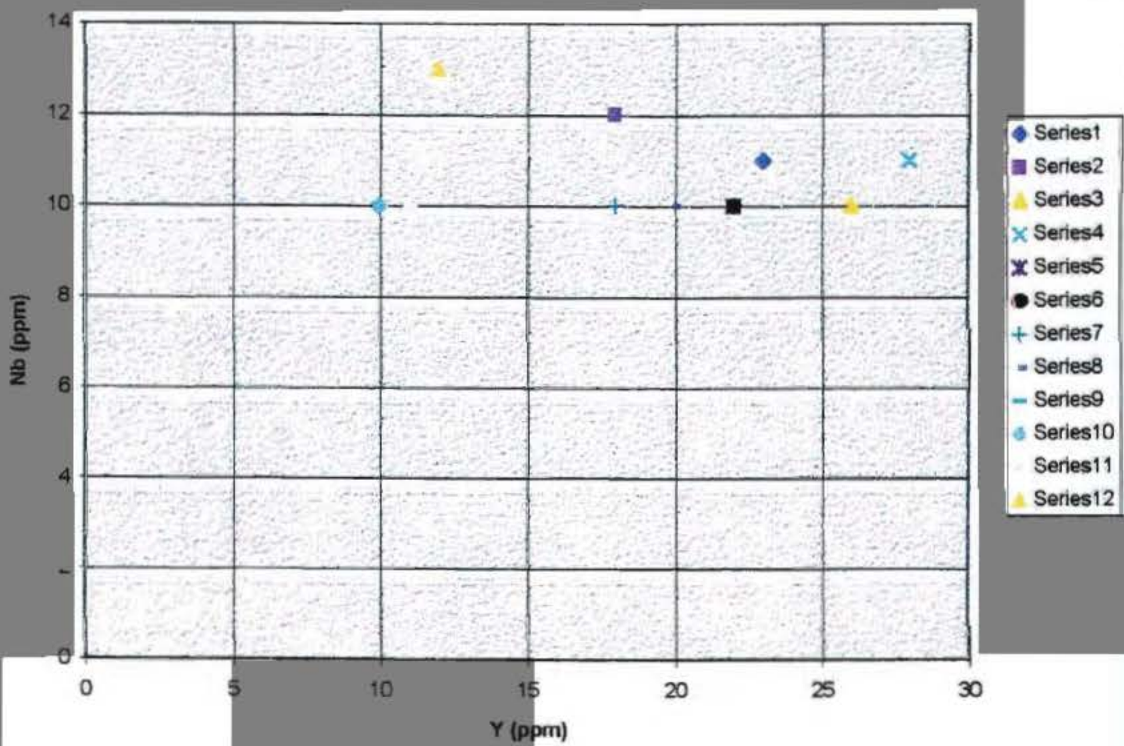


FIG. 2. A. Plot of $CaO/(K_2O + Na_2O)$ vs. SiO_2 content. B. Plot of Na_2O (wt %) vs. K_2O (wt %). The fields for different Phanerozoic granites are from Finger and Steyrer (1990), who constructed them from an extensive data base. Note a secular change in $CaO/(K_2O + Na_2O)$ (A) and K_2O contents (B) from synvolcanic TTG series, through the TGGM, SMG, and MMGS series, to SS granitoid series with decreasing ages.

Nb-Y DISCRIMINATION DIAGRAM



S3/12/1 IS SERIES 1
S3/12/2 IS SERIES 2
S12/19/1 IS SERIES 3
S12/19/2 IS SERIES 4
S12/19/3 IS SERIES 5
S12/19/3A IS SERIES 6
S12/19/4 IS SERIES 7
S12/19/5 IS SERIES 8
S12/19/6 IS SERIES 9
S12/19/7 IS ERIES 10
S16/19/777 IS SERIES 11
S16/19/779 IS SERIES 12

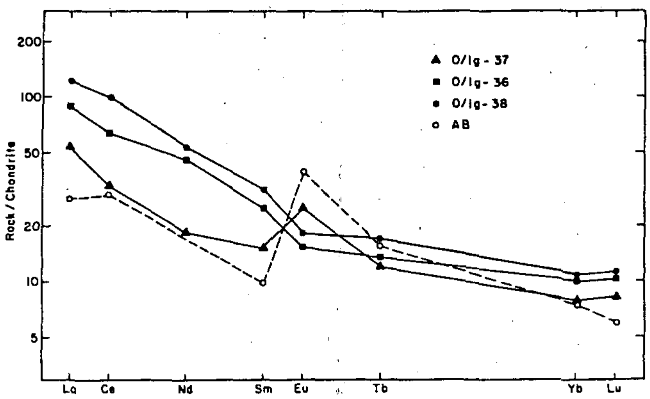


Fig. 18. Chondrite-normalized rare-earth-element patterns for sedimentary rocks of the Nepisiguit Falls Formation in the Big Bald Mountain area. Average Austin Brook ironstone (AB) is plotted for comparison (Graf, 1977).

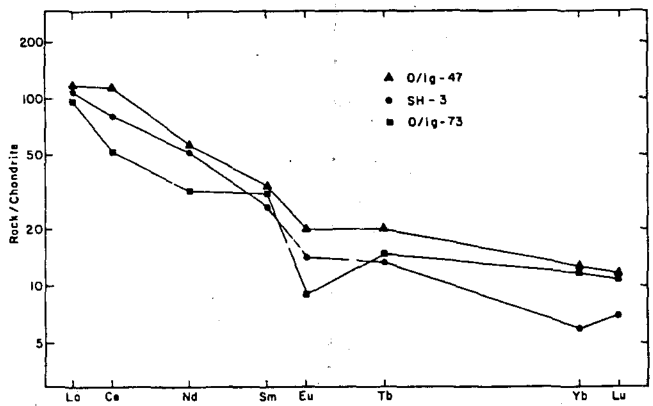


Fig. 19. Chondrite-normalized rare-earth-element patterns for sedimentary rocks of the Boucher Brook Formation and Stony Brook Complex in the Big Bald Mountain area.

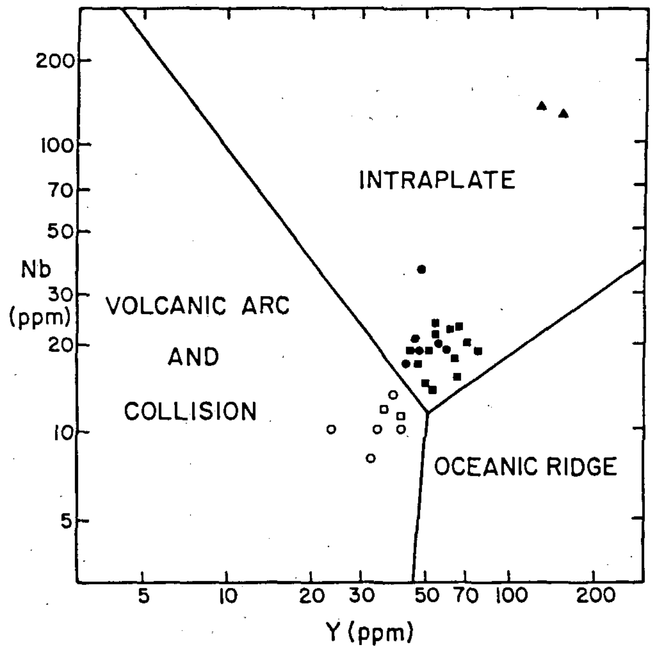


Fig. 20. Nb-Y tectonic discrimination diagram (after Pearce et al., 1984) for felsic volcanic rocks of the Tetagouche Group (see Fig. 9 for symbols).

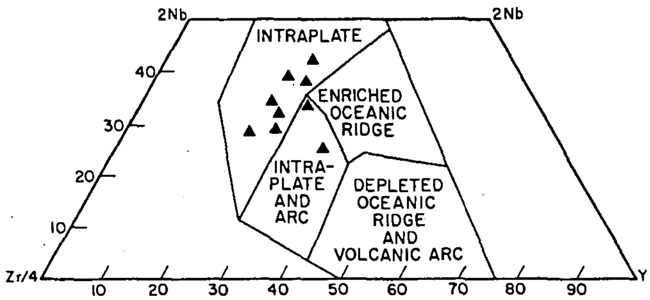


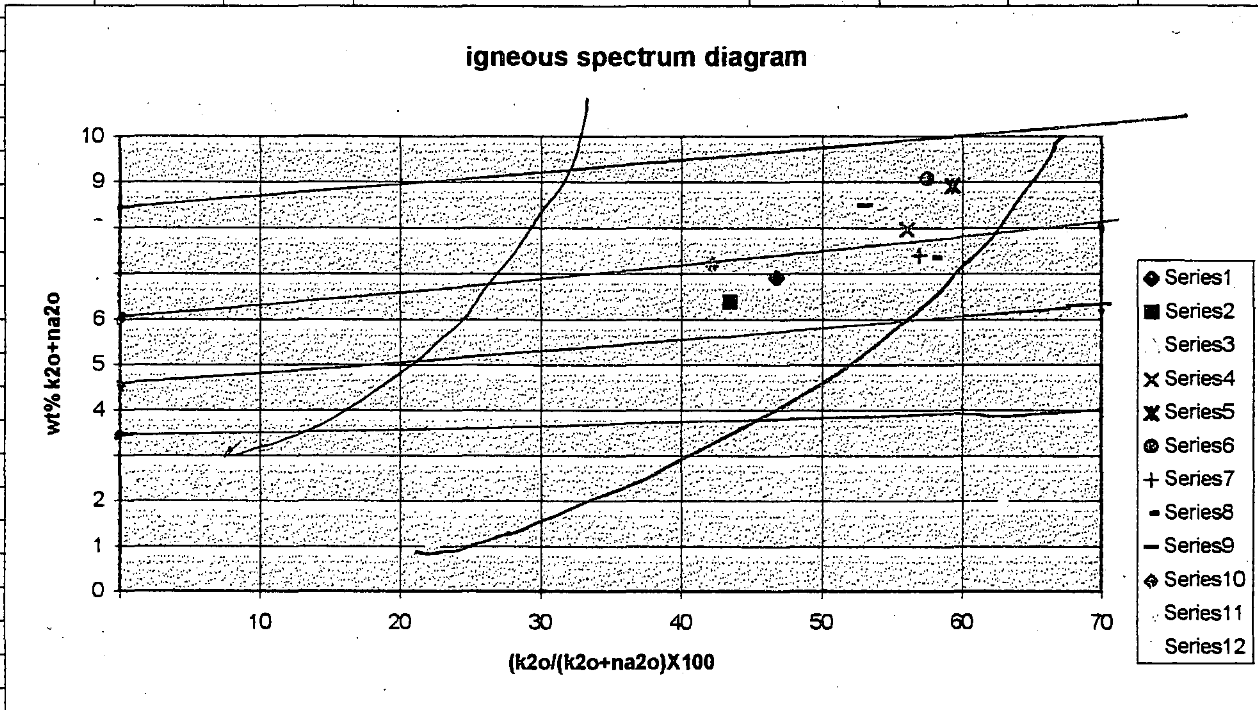
Fig. 21. Nb-Y-Zr tectonic discrimination diagram (after Meschede, 1986) for mafic volcanic rocks of the Boucher Brook Formation.

chemical criteria, the Clearwater Stream Formation and Stony Brook Complex would also have originated under relatively low water fugacities (Figs. 9, 12b and 20).

The K_2O content of the felsic volcanic rocks in the Tetagouche Group is high compared to normal igneous rocks, reflecting a regional-scale potassic metasomatic event that is particularly evident to the south of the Moose Lake shear zone (77% of the Stony Brook samples from the Big Bald Mountain area contain over 6% K_2O compared to 22% of the Flat Landing Brook samples listed by Langton and McCutcheon (1993) from the Bathurst area). The greater degree of potassium enrichment in the Big Bald Mountain area bears no apparent relationship to the silicic-pyritic alteration zone outlined in the vicinity of the Chester deposit (Fig. 6) and, therefore, is not directly related to hydrothermal vent activity.

Pervasive potassic metasomatism in felsic volcanic sequences hosting VMS deposits of the Iberian pyrite belt in Portugal has been attributed to low-temperature interaction of strata with sea water during large-scale fluid convection (Munha et al., 1980). An elevated regional geothermal gradient such as would be expected in an extensional tectonic setting is necessary to convect the large volume of water needed for this metasomatic process to be effective (Galley, 1993; Hollocher et al., 1994). The interpreted ensialic back-arc setting for the Tetagouche Group would satisfy the requirement for enhanced heat flow. The prevalence of potassic metasomatism in the region to the south of the Moose Lake shear zone may be an indication that a major eruptive center with associated high heat flow existed in this part of the Big Bald Mountain area — a speculation supported by the presence of abundant subvolcanic intrusive rocks within the Stony Brook Complex. Although samples of Stony Brook volcanics vary by as much as 6% in K_2O content, they exhibit similar absolute REE abundances (Table 1) indicating that the REEs were largely immobile during the low-temperature, alkali-cation exchange reactions in agreement with the findings of Campbell et al., (1984) and Hollocher et al., (1994).

VMS deposits like those found in the Bathurst mining camp (Fig. 1) are now generally accepted to have formed by precipitation of metalliferous hydrothermal fluids onto the sea floor (Franklin et al., 1981; Lydon, 1984, 1988; Large



DOME 3174-3185 GRANITE	is series1
DOME 3564-3573 GRANITE	is seres 2
IOE 1077-1094 BRECCIA TUFF	is series 3
IOE 1077-1094 GRANITE	is series 4
IOE 1368-1382 TUFF	is series 5
SAME AS ABOVE	is series 6
IOE 1368-1382 TUFF BRECCIA	is series 7
IOE 1484-1493 TUFF	is series 8
IOE 1620-1627 GRANITE ALT	is series 9
IOE 1670-1695 GRANITE	is series 10
IOE WEST 777 ASH YELLOW	is series 11
IOE WEST 779 TUFF GREEN	is series 12

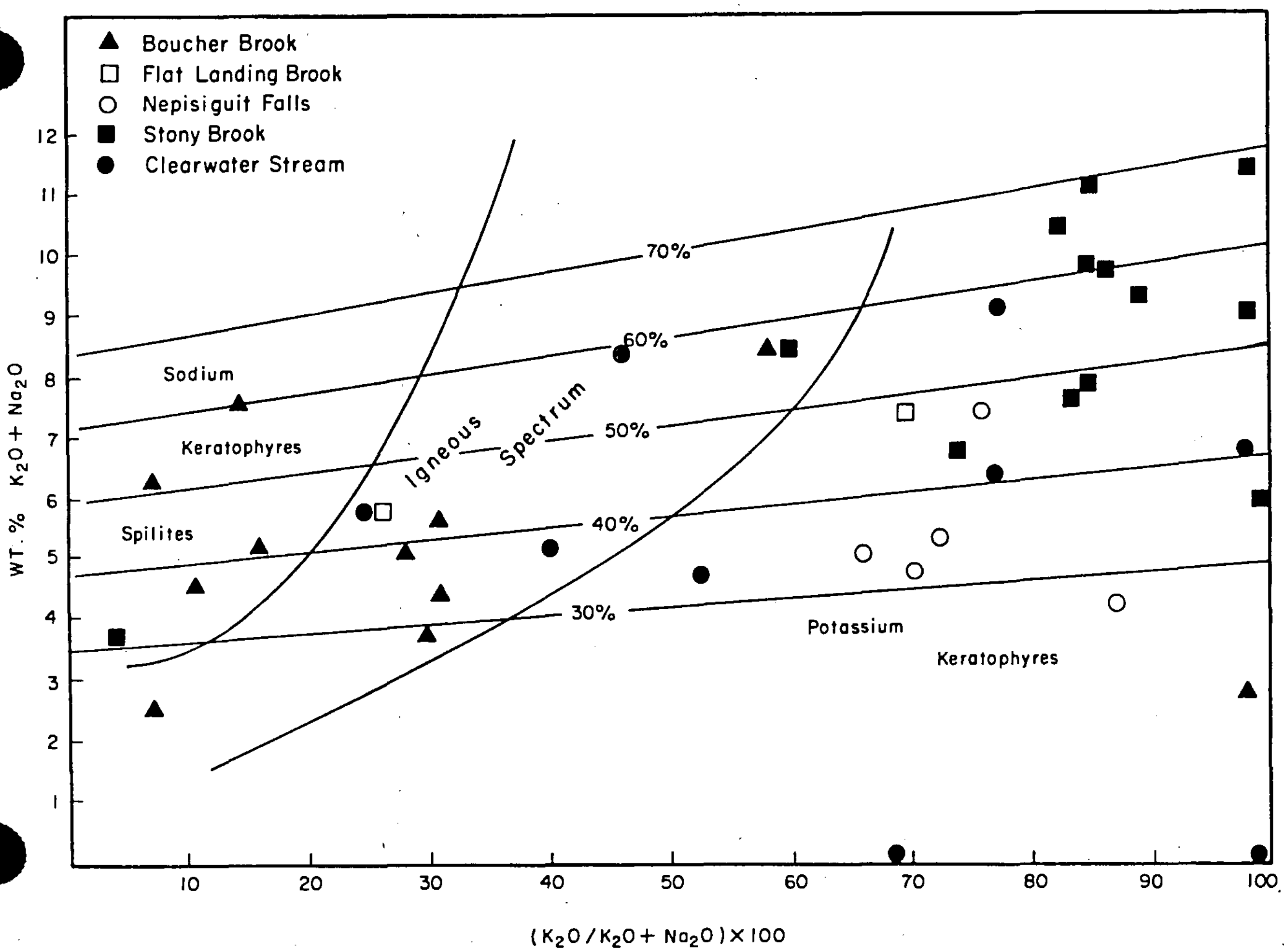
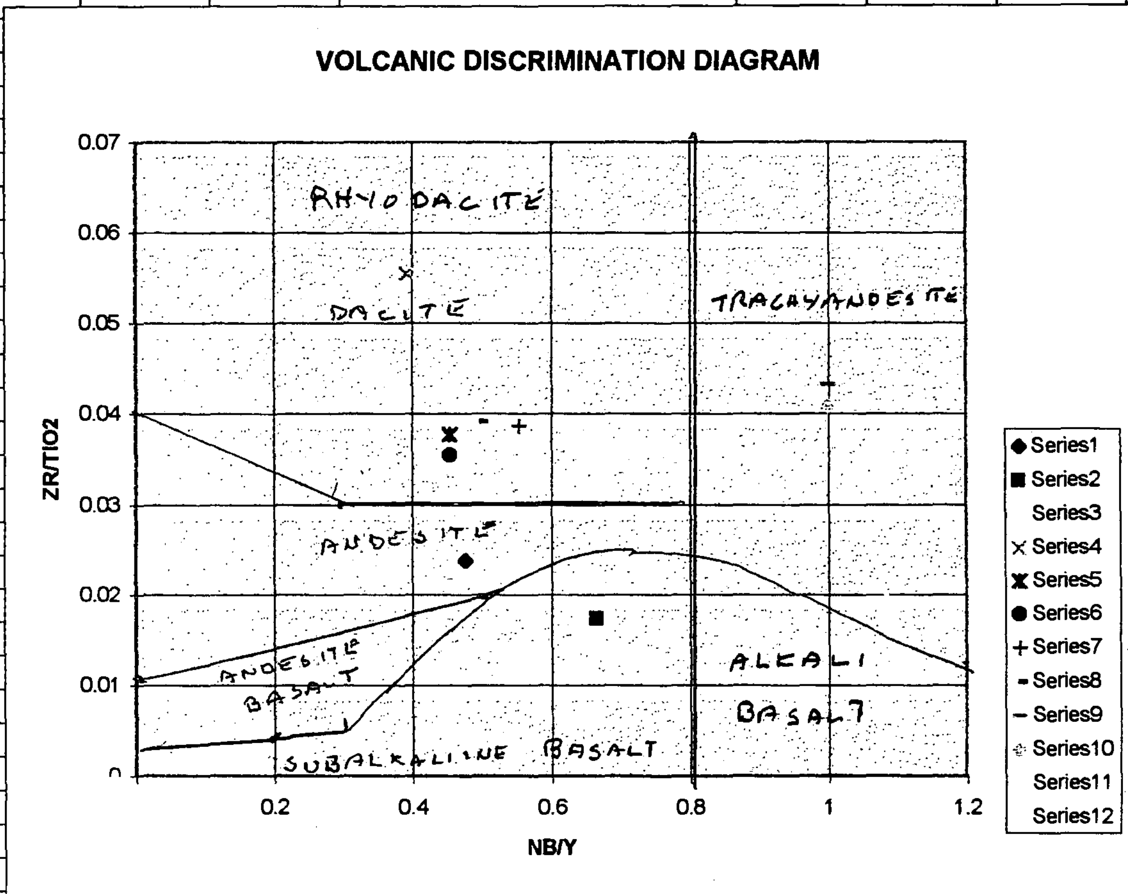


Fig. 8. Igneous spectrum diagram. Straight lines represent equivalent alkali-feldspar content in weight per cent (after Hughes, 1973).

samples of the Flat Landing Brook Formation from the Big Bald Mountain area (O/1g-22, -56; Fig. 11) overlap with the least differentiated (lowest silica) samples of the Nepisiguit Falls Formation (O/1g-8, -10). However,the gentler slope of the REE distribution patterns for the Flat Landing Brook Formation (avg. La_N/Yb_N = 5.8) serve to distinguish them from the low silica samples of the Nepisiguit Falls Formation (avg. La_N/Yb_N = 8.5). The negative Eu anomalies for samples from the Flat Landing Brook Formation (avg. Eu/Sm = 0.16) and Nepisiguit Falls Formation (avg. Eu/Sm = 0.14) are similar in magnitude. Samples O/1g-22 and -56 are somewhat depleted in HFSE and absolute REE contents (Table 1; Fig. 12b) compared to averaged Flat Landing Brook Formation in the Bathurst area, but are still enriched in these elements compared to averaged Nepisiguit Falls Formation from both areas (Table 1; Fig. 12a).

Samples analyzed from the Clearwater Stream Formation include the highly porphyritic, plagioclase-phyric felsic volcanic rocks characteristic of the least-altered part of the unit (O/1b-15, -25, -37, -41); hydrothermally-altered chloritic schists hosting the sulfide mineralization at the Chester deposit (O/1b-35, -36); and sparsely porphyritic felsic rocks in the hanging wall of the deposit (O/1b-38, -39). Two of the plagioclase-phyric samples low in silica (O/1b-25, -41) plot in or near the igneous spectrum (Fig. 8) suggesting that at least part of the unit was dacitic in composition (Fig. 9). Sample O/1b-37 is unusual in that it contains orthoclase porphyroblasts rather than plagioclase phenocrysts; its high K_2O content may have been derived from the potassium-depleted sulfide-bearing, quartz-chlorite zones. The high SiO_2, MgO, and Fe_2O_3 and low CaO, Na_2O, and K_2O contents of samples O/1b-35 and -36 reflect their simple quartz-chlorite mineralogy. The large negative Eu anomaly (avg. Eu/Sm = 0.08) in these schists (Fig. 13a) can be attributed to chloritization of plagioclase (Lentz and Goodfellow, 1993).

Although higher in absolute REE, the REE distribution patterns of the least-altered, highly porphyritic volcanic rock of the Clearwater Stream Formation (avg. La_N/Yb_N = 6.3; avg. Eu/Sm = 0.15; Fig. 13a) closely parallels that of the Flat Landing Brook Formation of the Big Bald Mountain area (avg. La_N/Yb_N = 5.8; avg. Eu/Sm = 0.16; Fig. 12b). The sparsely porphyritic felsic rocks in the hanging wall of the Chester deposit (O/1b-38, -39) display a flatter REE pattern (avg. La_N/Yb_N = 3.7) and a larger negative Eu anomaly (avg. Eu/Sm = 0.11; Fig. 13b) similar to some samples (O/1b-21, -27B) from the overlying Stony Brook volcanics (see below); the high K_2O content of sample O/1b-39 is also similar to that of the Stony Brook Complex.



DOME 3174-3185 GRANITE	is series1
DOME 3564-3573 GRANITE	is seres 2
IOE 1077-1094 BRECCIA TUFF	is series 3
IOE 1077-1094 GRANITE	is series 4
IOE 1368-1382 TUFF	is series 5
SAME AS ABOVE	is series 6
IOE 1368-1382 TUFF BRECCIA	is series 7
IOE 1484-1493 TUFF	is series 8
IOE 1620-1627 GRANITE ALT	is series 9
IOE 1670-1695 GRANITE	is series 10
IOE WEST 777 ASH YELLOW	is series 11
IOE WEST 779 TUFF GREEN	is series 12

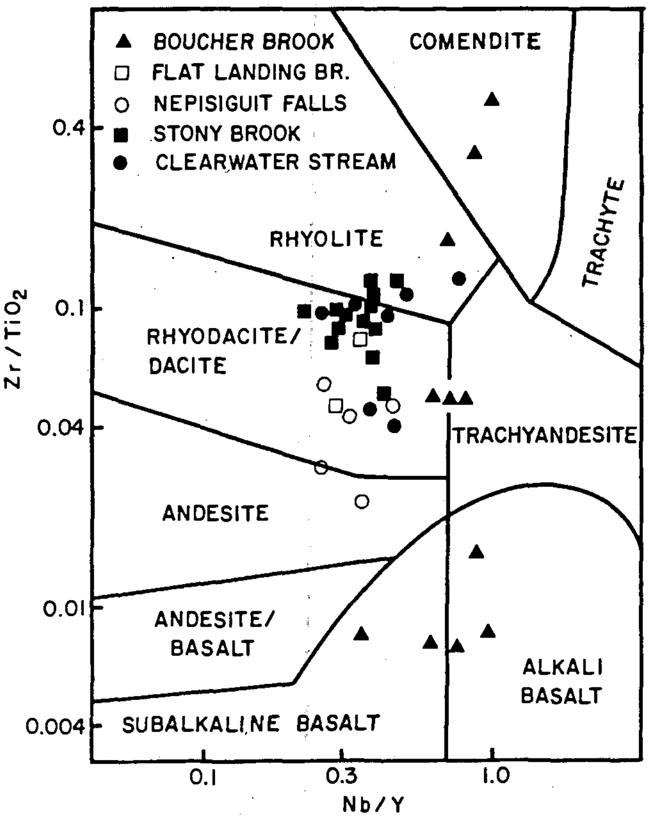


Fig. 9. Volcanic discrimination diagram utilizing Zr/TiO_2 vs Nb/Y (after Winchester and Floyd, 1977).

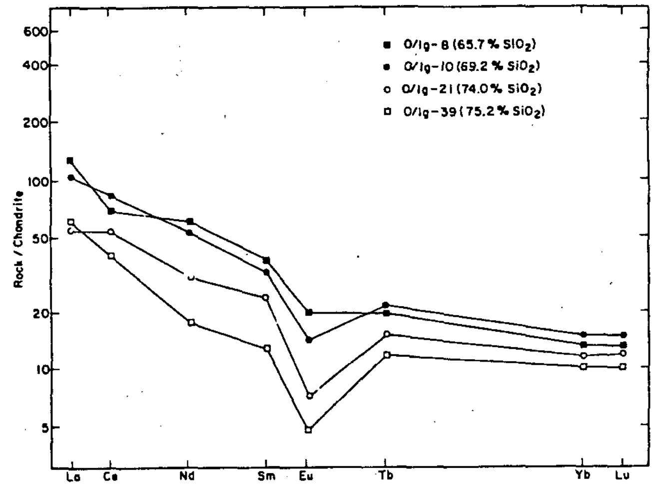


Fig. 10. Chondrite-normalized rare-earth-element patterns for felsic volcanic rocks of the Nepisiguit Falls Formation in the Big Bald Mountain area. (Normalizing values from McLennan, 1989).

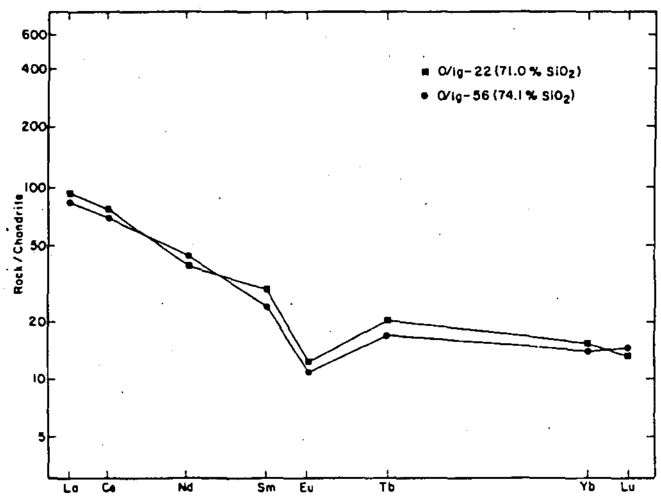
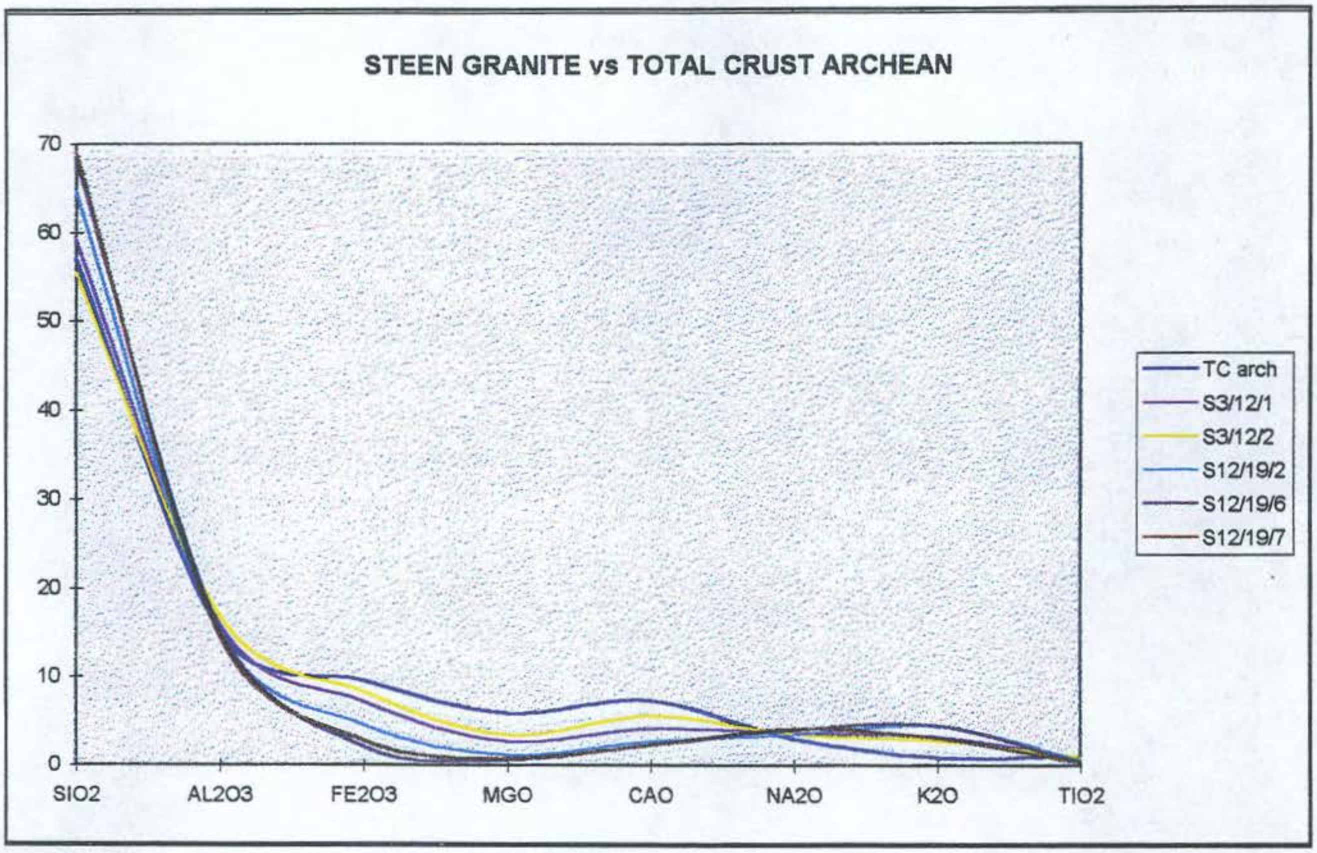


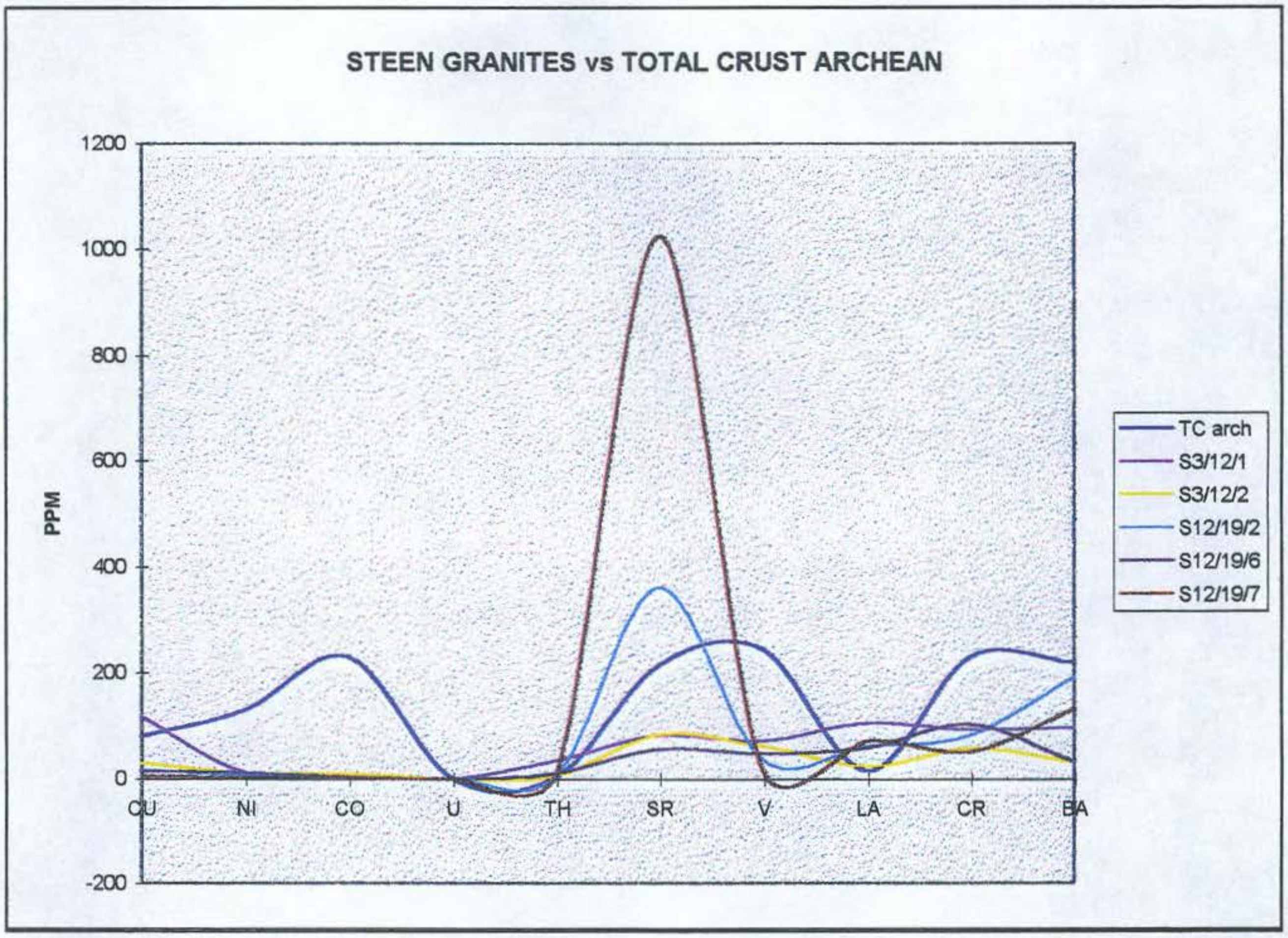
Fig. 11. Chondrite-normalized rare-earth-element patterns for felsic volcanic rocks of the Flat Landing Brook Formation in the Big Bald Mountain area.

Higher alkalis (Fig. 8), higher HFSE contents (Table 3) and Zr/TiO_2 ratios (Fig. 9), higher absolute REE contents, and larger negative Eu anomalies (Figs. 12 and 14) distinguish samples of the Stony Brook Complex from the felsic volcanic rocks of the Nepisiguit Falls and Flat Landing Brook formations to the north of the Moose Lake shear zone (Fig. 2). Although HFSE and REE contents of the Stony Brook Complex in the Big Bald Mountain area and Flat Landing Brook Formation near Bathurst are similar, the K_2O contents (avg. 7.2%) and negative Eu anomalies (avg. Eu/Sm = 0.09) are much greater in the former compared to the latter (Tables 1 and 3; Fig. 12b). Compared to the Clearwater Stream Formation, volcanic rocks of the Stony Brook Complex generally contain higher K_2O (Fig. 8), higher HFSE content and Zr/TiO_2 ratios (Fig. 9), higher absolute REE (Fig. 12), and stronger light to heavy REE fractionation patterns with larger negative Eu anomalies.

The REE contents of individual samples from the Stony Brook volcanics from both inside and outside the silicic-pyritic alteration zone in the vicinity of the Chester deposit (Fig. 6) tend to be rather similar. The La_N/Yb_N values for samples O/1b-16, -17, -22, -26, -32, and -72 (Table 3) range from 6.5 to 7.5 and average 7.0. The REE profiles of two samples from this group (O/1b-16 from inside the silicic-pyritic zone and sample O/1b-72 from outside the zone) have been plotted on Figure 14 as representative examples of least-altered REE patterns for the Stony Brook Complex.

Some significant variations in REE fractionation patterns do occur locally within the Stony Brook Complex. Samples O/1b-24, -29, and -31, collected along the Clearwater Stream within the silicic-pyritic alteration zone, are enriched in base metals (Table 3) and exhibit progressive depletion in light and middle REE as the Chester deposit is approached from the northwest (Fig.14a). Primary igneous heterogeneity within the Stony Brook volcanics could account for some of the differences in fractionation pattern because a few samples collected at a greater distance from the Chester deposit also show relatively low in light to heavy REE enrichment. For example, samples O/1b-21 and -27A, representing a minor Stony Brook lithotype in that they contain a high proportion of plagioclase phenocrysts, have respective La_N/Yb_N values of 2.3 and 4.3 (Fig. 14b) similar to respective values of 3.4, 3.1, and 1.4 for samples O/1b-24, -29, and -31 near Chester (Fig. 14a). Note, however, that samples O/1b-24, -29, and -31 contain greater absolute heavy REE than undepleted sample O/1b-16 suggesting that their light to middle REE depletion is related to hydrothermal alteration (Campbell et al., 1984).


STEEN GRANITE vs TOTAL CRUST ARCHEAN
70
60
50
40
30
20
10
0
SIO2
AL2O3
FE2O3
MGO
CAO
NA2O
K2O
TIO2
TC arch
S3/12/1
S3/12/2
S12/19/2
S12/19/6
S12/19/7


STEEN GRANITES vs TOTAL CRUST ARCHEAN
PPM
1200
1000
800
600
400
200
0
-200
CU
NI
CO
U
TH
SR
V
LA
CR
BA
TC arch
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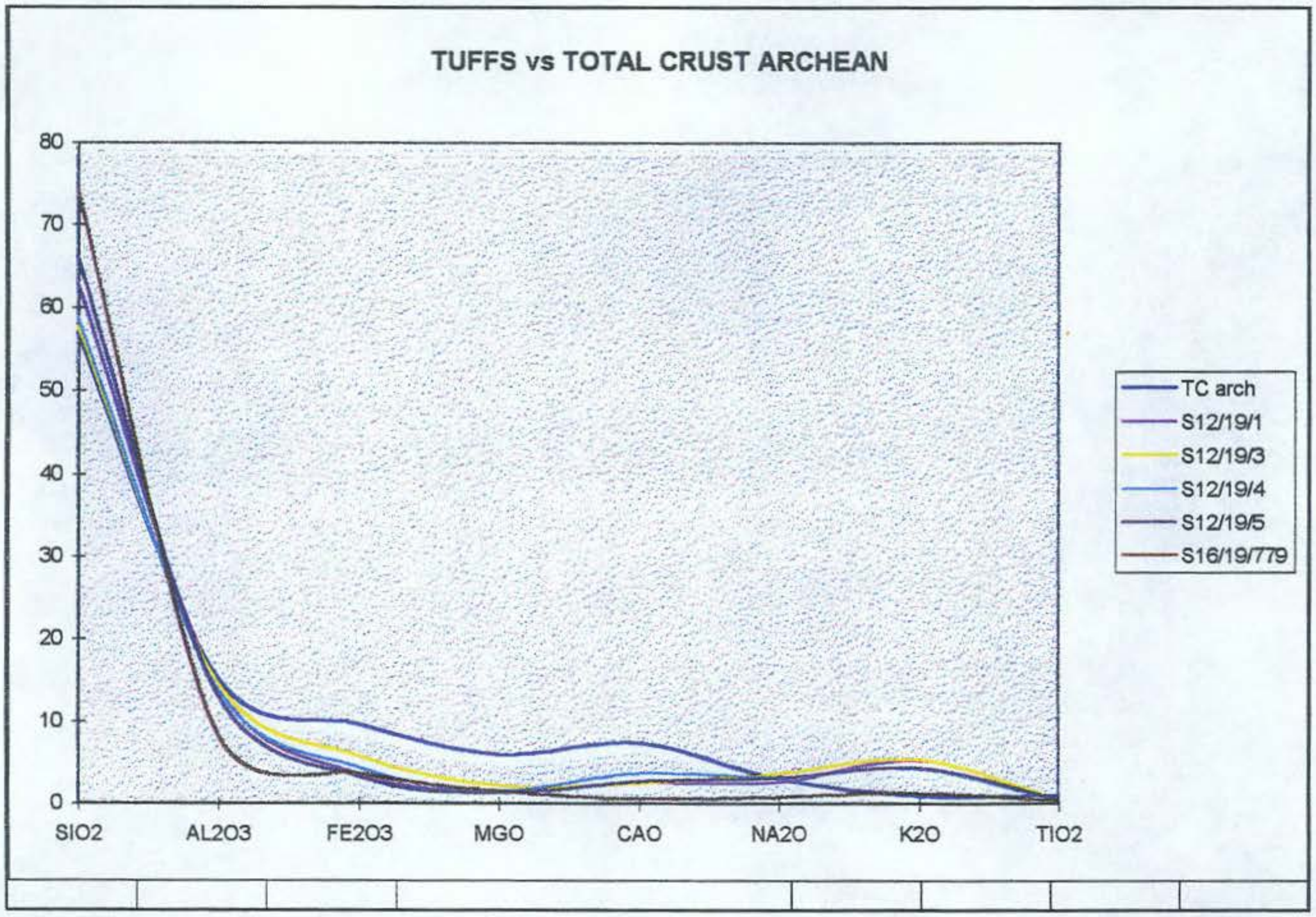
S12/19/6
S12/19/7


TUFFS vs TOTAL CRUST ARCHEAN
80
70
60
50
40
30
20
10
0
SIO2
AL2O3
FE2O3
MGO
CAO
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TC arch
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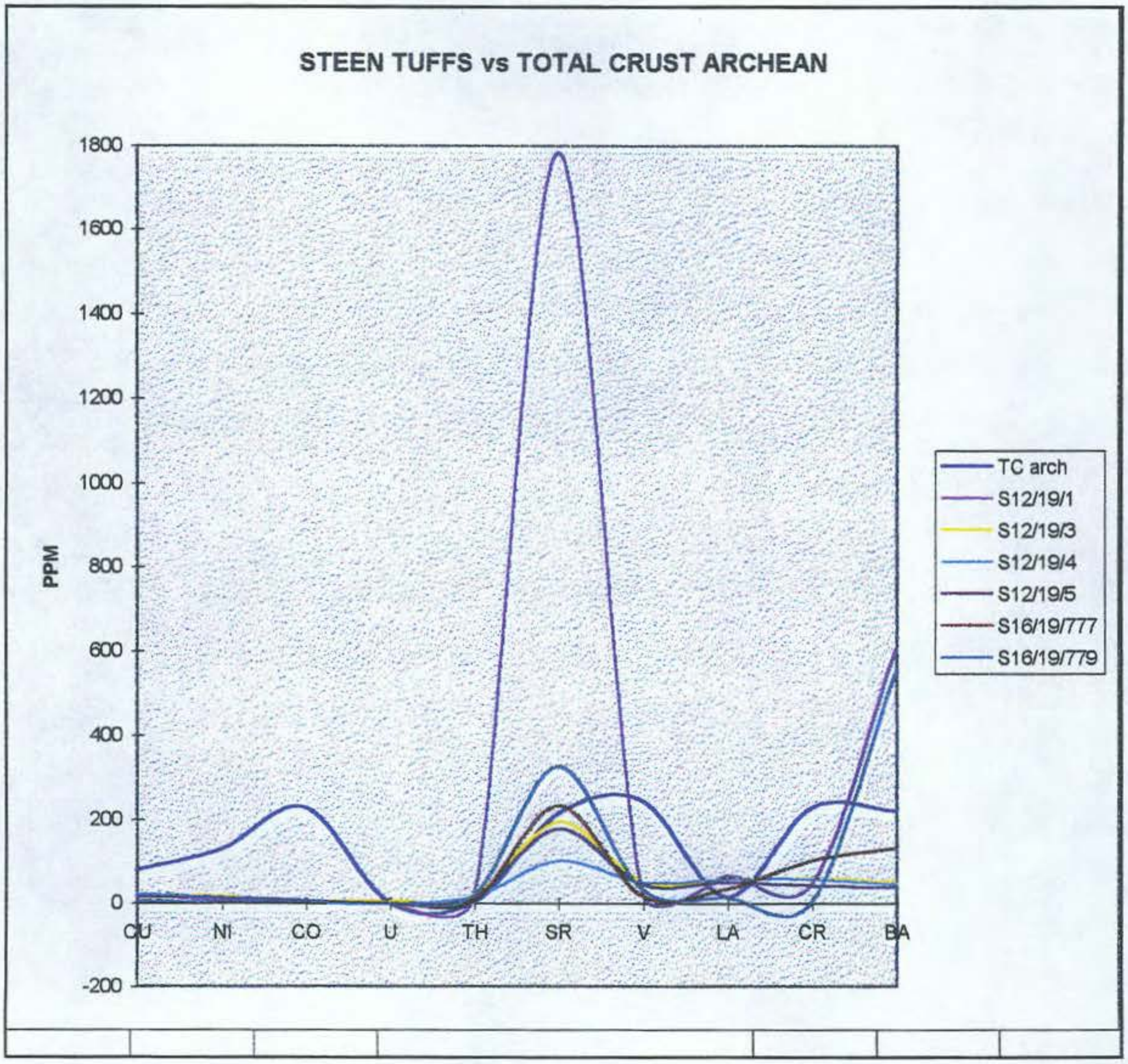
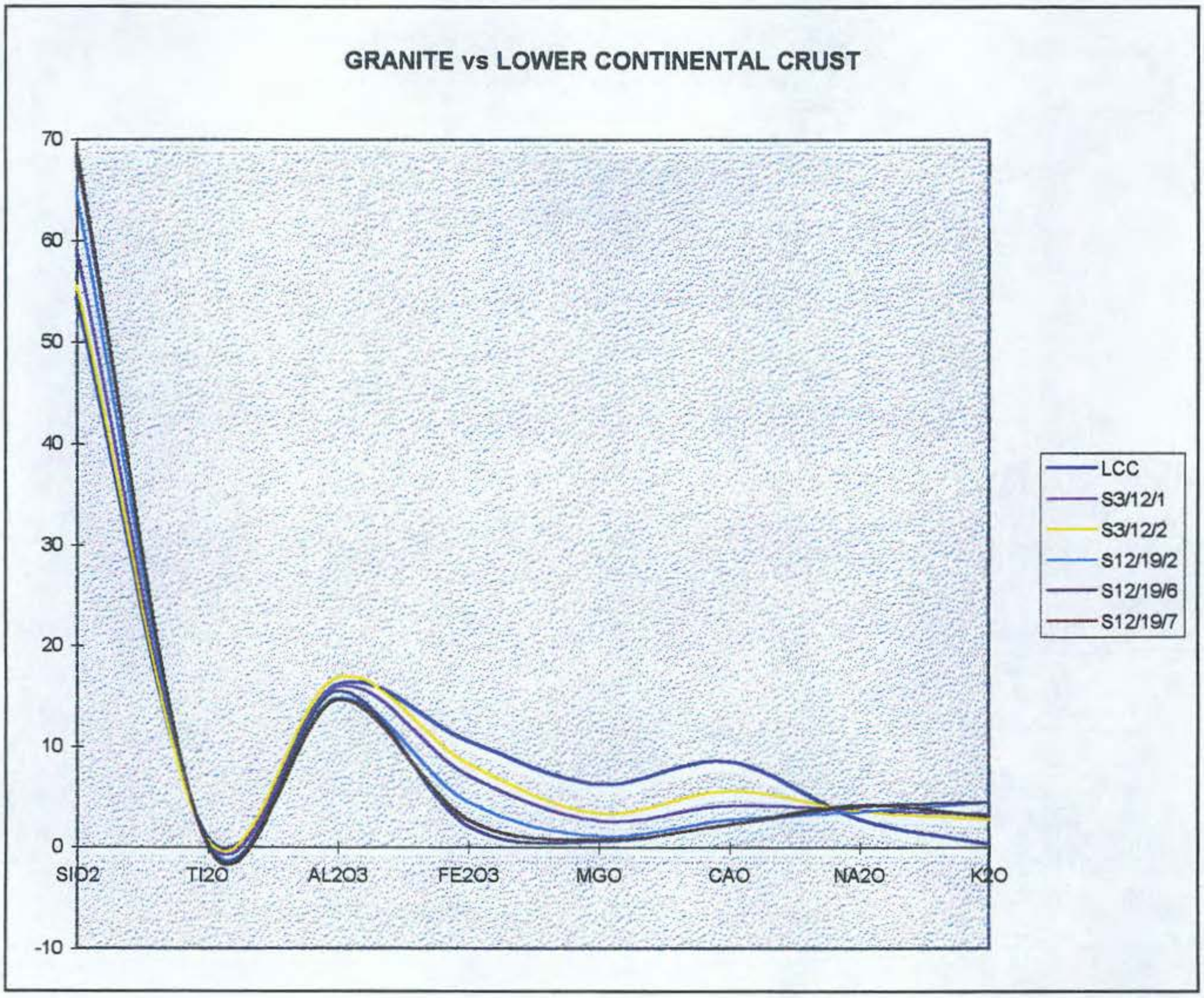
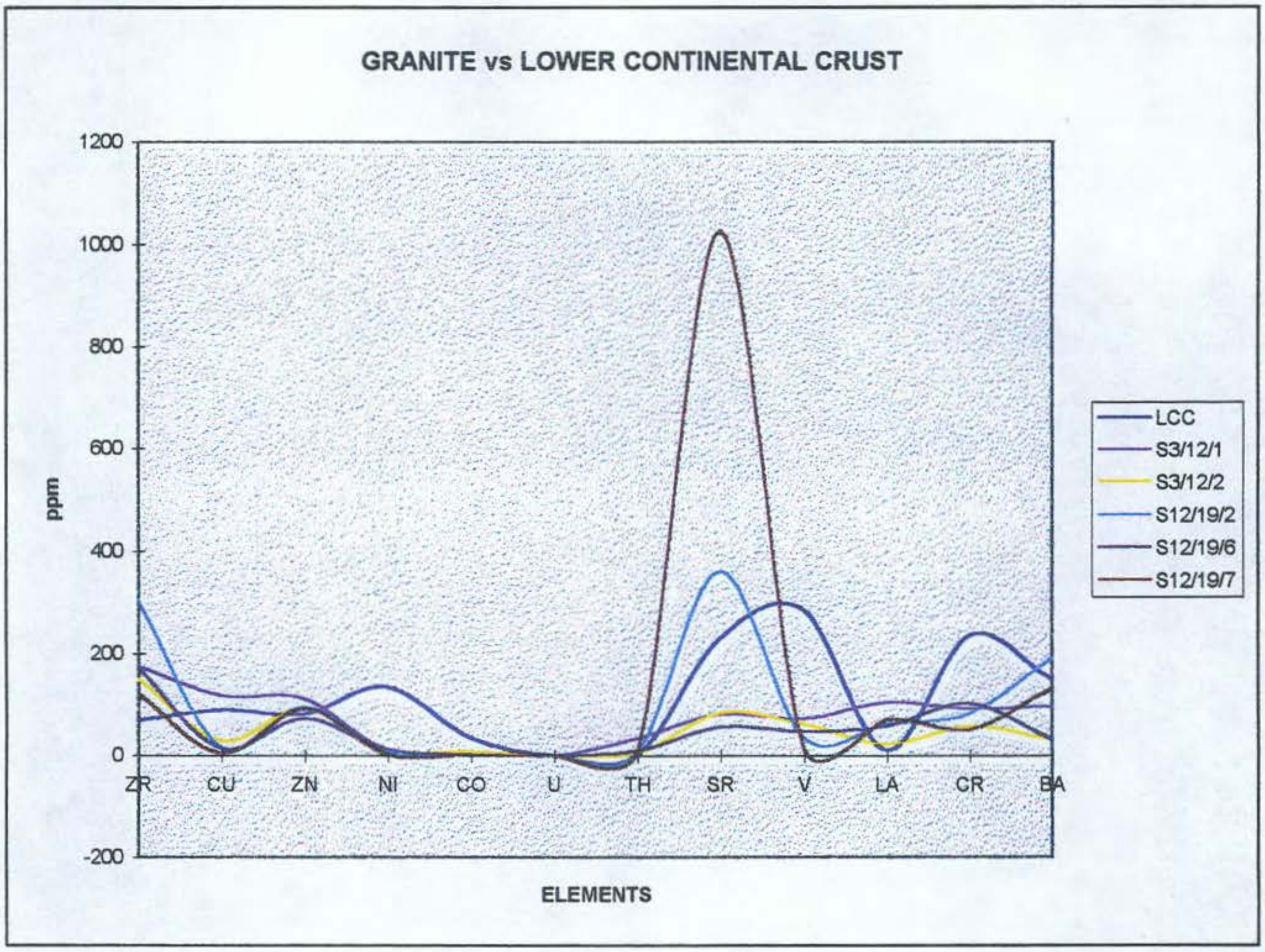
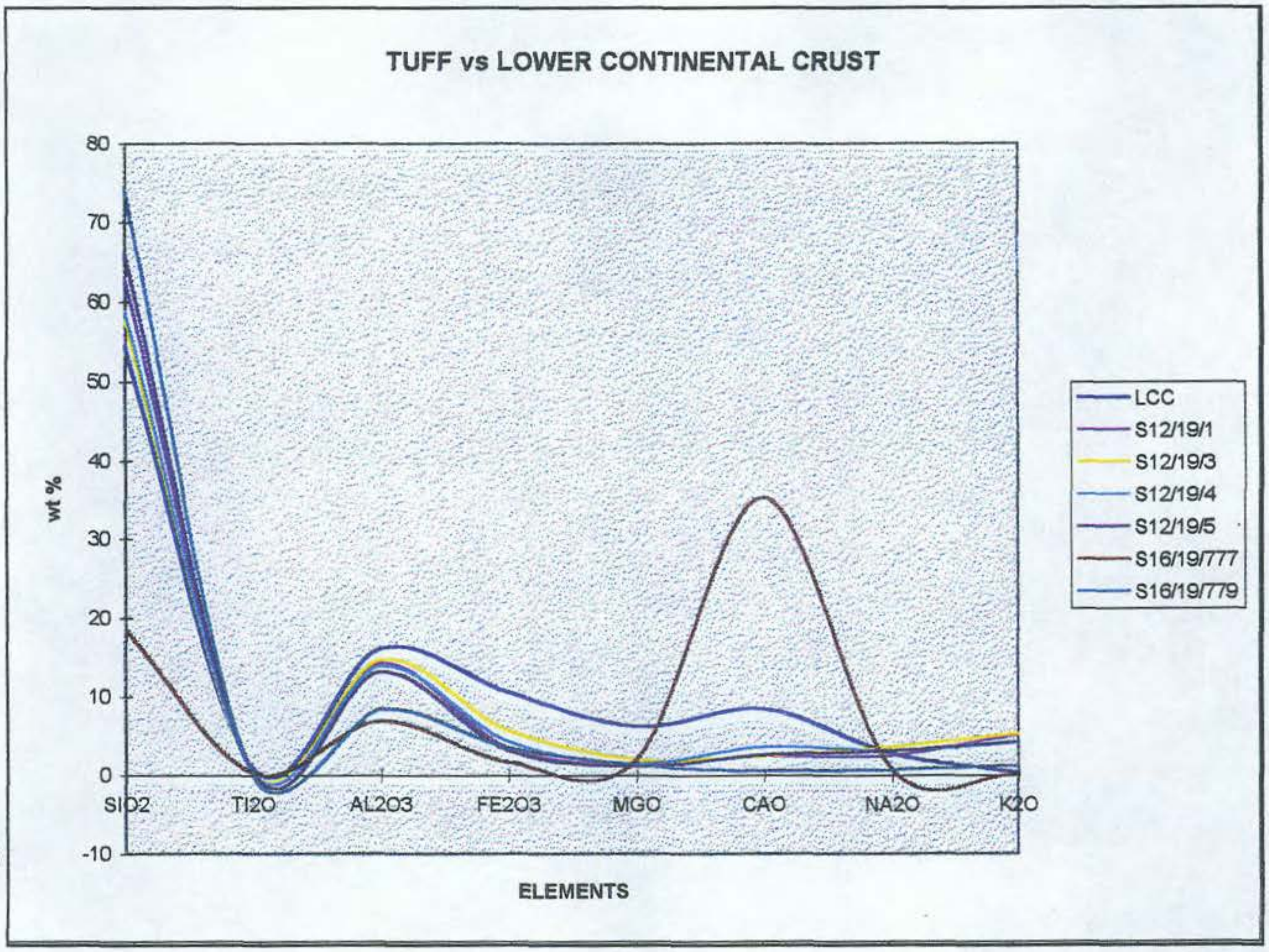
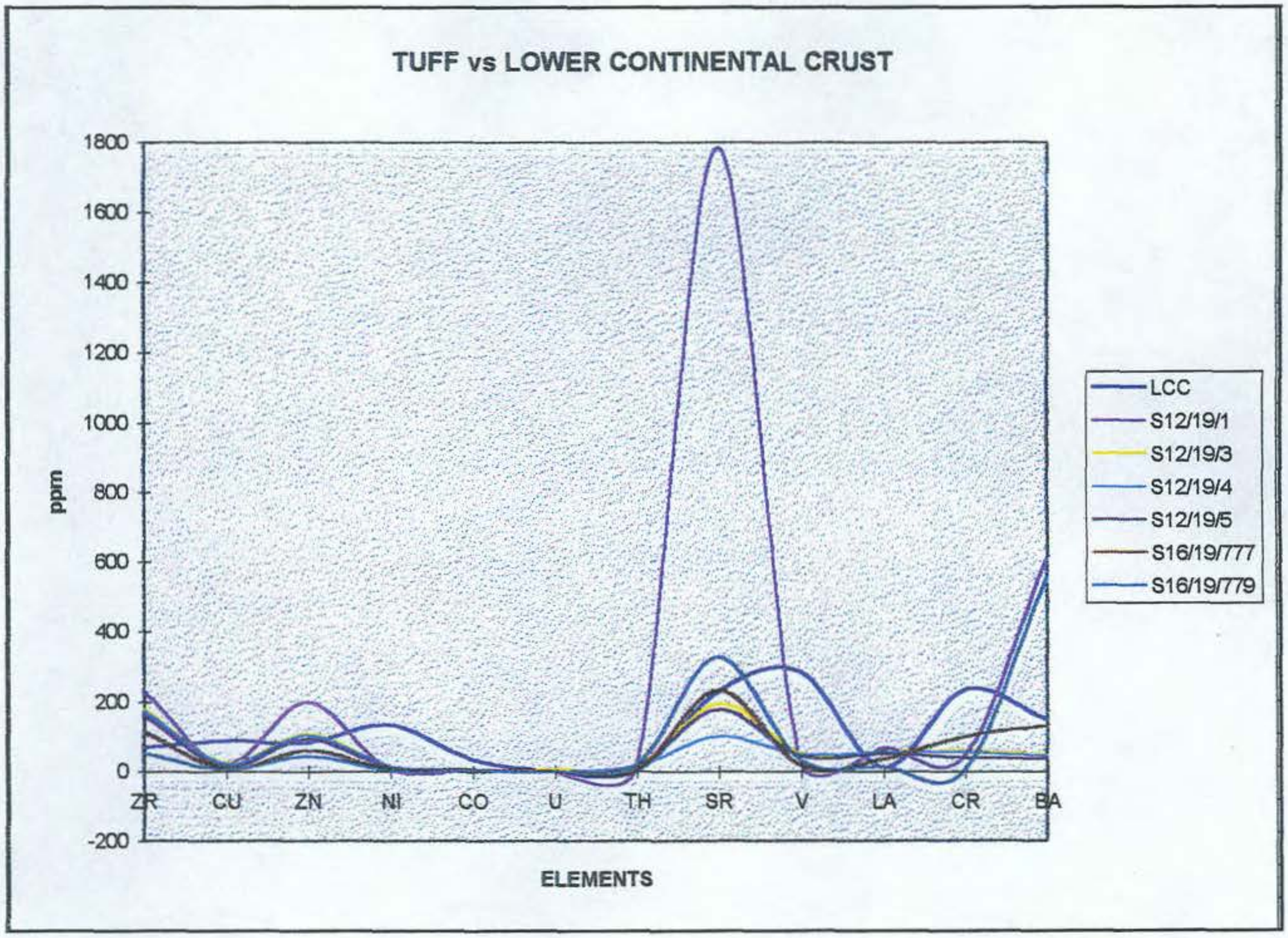
S12/19/5
S16/19/779


STEEN TUFFS vs TOTAL CRUST ARCHEAN
PPM
1800
1600
1400
1200
1000
800
600
400
200
0
-200
CU
NI
CO
U
TH
SR
V
LA
CR
BA
TC arch
S12/19/1
S12/19/3
S12/19/4
S12/19/5
S16/19/777
S16/19/779


GRANITE vs LOWER CONTINENTAL CRUST
70
60
50
40
30
20
10
0
-10
SIO2
TI2O
AL2O3
FE2O3
MGO
CAO
NA2O
K2O
LCC
S3/12/1
S3/12/2
S12/19/2
S12/19/6
S12/19/7


GRANITE vs LOWER CONTINENTAL CRUST
1200
1000
800
600
400
200
0
-200
ppm
ZR
CU
ZN
NI
CO
U
TH
SR
V
LA
CR
BA
ELEMENTS
LCC
S3/12/1
S3/12/2
S12/19/2
S12/19/6
S12/19/7


TUFF vs LOWER CONTINENTAL CRUST
80
70
60
50
40
30
20
10
0
-10
wt %
SIO2
TI2O
AL2O3
FE2O3
MGO
CAO
NA2O
K2O
ELEMENTS
LCC
S12/19/1
S12/19/3
S12/19/4
S12/19/5
S16/19/777
S16/19/779


TUFF vs LOWER CONTINENTAL CRUST
1800
1600
1400
1200
1000
800
600
400
200
0
-200
ppm
ZR
CU
ZN
NI
CO
U
TH
SR
V
LA
CR
BA
ELEMENTS
LCC
S12/19/1
S12/19/3
S12/19/4
S12/19/5
S16/19/777
S16/19/779

STEEN RIVER PROSPECT

NORTHWESTERN ALBERTA

MICRO-GRAVITY SURVEY REPORT

SUBMITTED BY:

TROYMIN RESOURCES LTD.
#200, 622 - 5 AVENUE S.W.
CALGARY, ALBERTA T2P 0M6

June 1, 1997

GRAVITY REPORT

A gravity survey was conducted over the Steen River Impact Feature during the period January through April, 1996. This gravity survey was coordinated by Spectra Exploration Geoscience Corp. of Calgary.

The complete gravity data set is presented on the enclosed colour Bouguer Gravity Map #1 at a scale of 1:100,000. The regional gravity data from the GSC have been used to place the Steen River Impact Feature in the context of the regional gravity field. One of the most obvious conclusions to be drawn from this map is that the gravity field, caused by the crater is small compared to the regional background data.

A regional-residual map was also created to highlight the subtle gravity effect of the crater. A simple median filter was run across the Bouguer data to produce a regional grid. This procedure was performed using a median filter with a radius of 1.5km, to effectively separate crater anomalies from those of the deeper crust. In general, there is a good separation between the deep regional field and the gravity anomalies from the sedimentary sections. The most striking aspect of the residual gravity field is the small amplitude of the anomalies. Many of these anomalies are in the order of one tenth of a mgal, and only a few anomalies exceed one mgal in amplitude. The coloured 1.5km Radius Regional Gravity Field Map #2 is presented at a scale of 1:50,000.

Density logs for several wells were analysed to determine the representative densities for the formations in the Steen River area. This work suggests that for most of the crater, other than the central core, a three layer model is appropriate. The Cretaceous shales form the top layer, with a typical density and thickness of 2.20g/cc and 400m respectively. Below the unconformity, are the Devonian shales, with a typical density and thickness of 2.61g/cc and 800m respectively.

The lower sedimentary section, composed of the carbonates and anhydrites is treated as one layer. The density variations within this layer are small compared to the density variations between adjacent layers in the model. The Red Beds and Granite Wash have virtually the same density as the Precambrian basement, so all these rocks were treated as a single basement unit, with a density of 2.70g/cc.

The Dome et al Steen 12-121-22W5 well is the only well with a density log in the crater core and it identifies a low density volcanic layer with a thickness of about 195m beneath the Cretaceous unconformity. Below the volcanics, the well encountered a Devonian carbonate with a density and thickness of 2.68g/cc and 175m respectively, which is low compared to the dolomite and anhydrite densities found in the deep Devonian carbonate sections off the core of the crater.

Below the Devonian carbonates, the well encountered Precambrian basement. The operators of the well were obviously hoping to break through the Precambrian, because they proceeded to drill 480m into the Precambrian. They also pulled two cores from near the bottom of the hole. The density of the Precambrian increases with depth, from about 2.65g/cc near the top of the Precambrian to about 2.74g/cc near the bottom of the well. The average density of the Precambrian is about 2.69g/cc, which is in very close agreement with the typical density of 2.70g/cc which was selected for the basement model density.

CONCLUSIONS

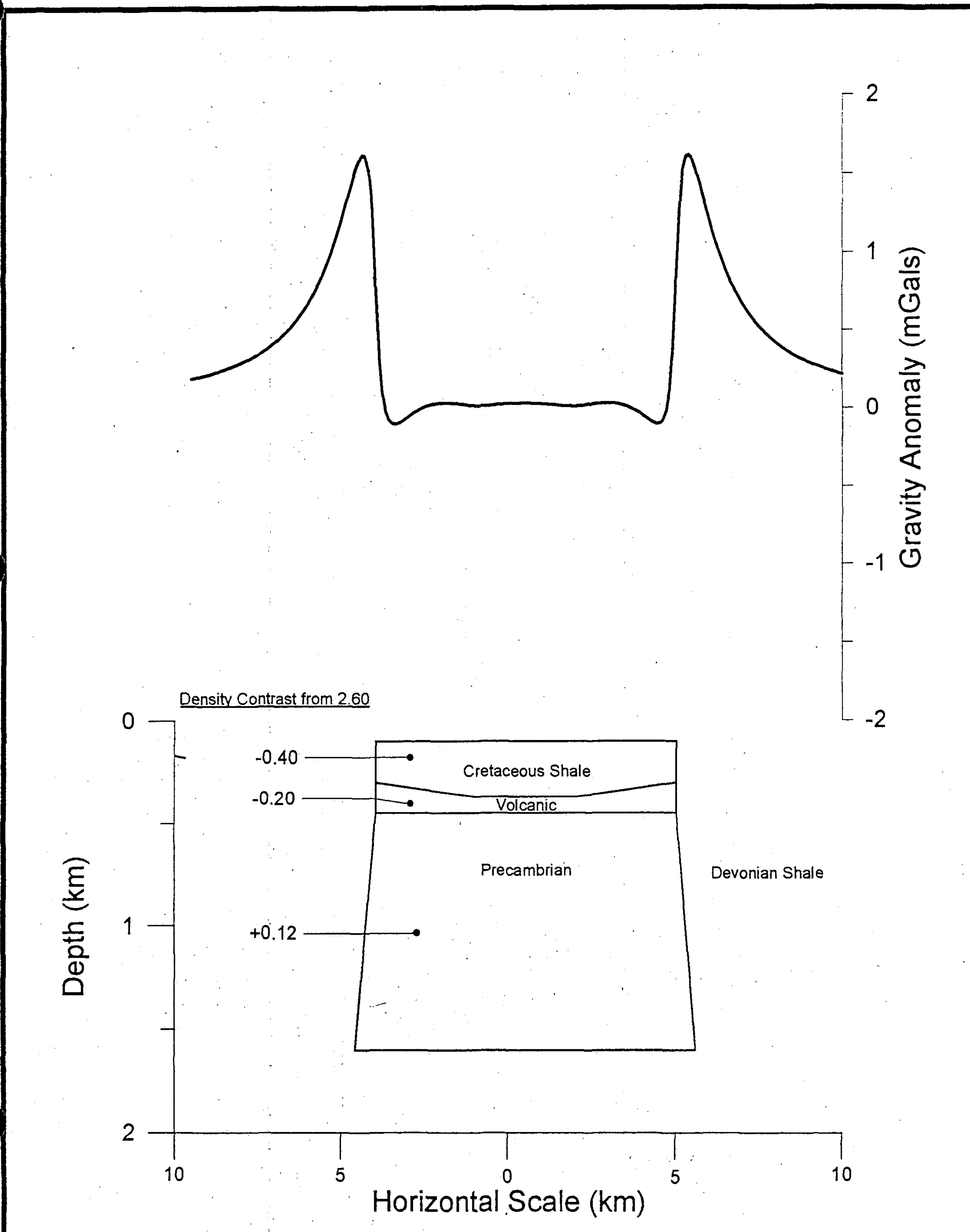
A surprising aspect of the Steen River Impact Crater is the subdued nature of the potential field response over such a violently disturbed feature, as observed on the regional Bouguer Gravity Map. A casual observer would be hard pressed to identify the Steen River Crater on the basis of this map alone as It is unlikely that they would select the subtle Bouguer negative as the location of the crater core. A clue as to the cause of the subtle gravity response is the ring of positive gravity anomalies that mark the edge of the crater core as identified on the 1.5km Residual Gravity Map.

The anomaly pattern described above is a classic gravity problem. This anomaly pattern is caused by the superposition of two gravity anomalies; one broad positive and one sharper negative. The positive anomaly is caused by an excess mass at depth, in this case the Precambrian core of the crater. The resulting positive gravity anomaly is relatively broad because of the depth extent of the core of the impact crater. The negative anomaly is caused by a mass deficit, or low density material over the top of the crater core. The relatively shallow depth of this low density material causes the negative gravity anomaly to be closely related horizontally to the low density material.

When these two anomalies are superimposed, the resulting positive ring anomaly represents the outer flanks of the positive anomaly caused by the core. Directly over the core, the gravity effect of the low density material at the crest of the core is dominant, with the resulting negative residual gravity anomaly. This relationship is illustrated as a simple two dimensional model in *Figure* 3. In this example, densities and dimensions similar to those of the crater core generate anomalies of amplitude, wavelength and offset similar to those observed at Steen River. If it were not offset by the low density of the material on the crest, the core anomaly would be a 5 mgal positive feature. The

FIGURE 3

GRAVITY MODEL STUDY FOR CORE RING ANOMALY

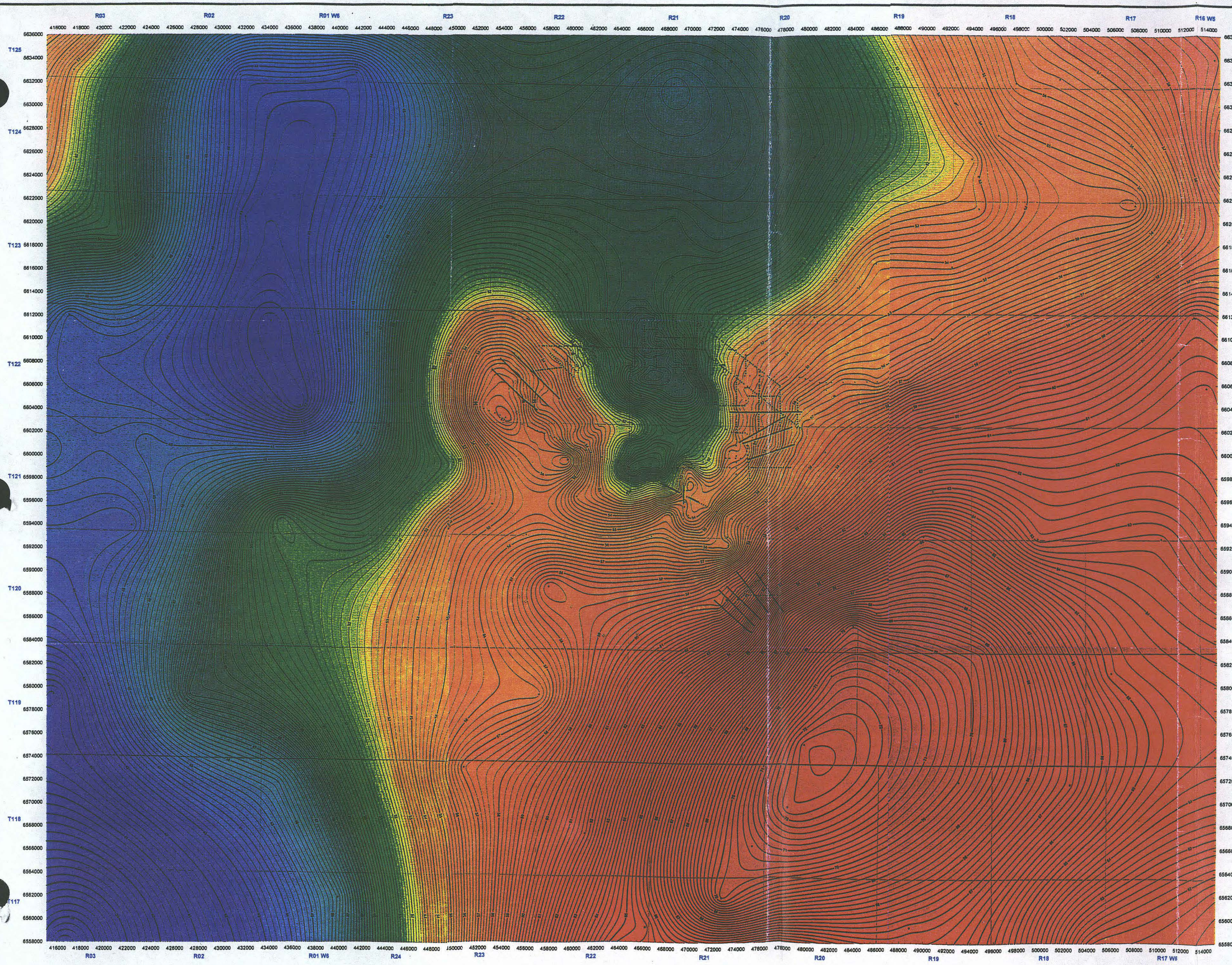


variations in amplitude of the positive ring anomaly around the core is most likely caused by slight variations in the distribution of the shallow low density layers. These shallow variations cause local gravity perturbations, whereas variations in the high density core affect most or all of the positive ring anomaly in the same fashion.

The low density material at the crest must be shallow, and the only possible causes are the volcanic layers on top of the core and the overlying Cretaceous shales. The density study suggests that the volcanic cap has a low density but it can only account for 25% of the observed gravity effect. The volcanic layer has an insufficient density contrast and it is too thin to generate more of the observed gravity anomaly.

A more likely cause for the majority of the low density layer is a depression in the Cretaceous unconformity over the crest of the crater core. This depression could be an erosional feature, or it could be caused by a relative subsidence of the crater core. Another possibility would be density zoning in the volcanic cap, with lower density volcanic material towards the centre of the cap. The single density log from the cap volcanics lends some tenuous evidence that the density structure of the volcanic rocks may be complex, with an apparent low density upper layer and a higher density layer below. A detailed examination of shallow seismic data over the core could help to constrain the low density model from among alternatives.

MAP #1



SPECTRA EXPLORATION GEOSCIENCE CORP.

STEEN RIVER BOUGUER GRAVITY MAP

JUNE 18, 1996
GRID INTERVAL 250 M
CONTOUR INTERVAL 0.2 MGAL
TERRAIN CORRECTIONS TO 5000 M
DENSITY 2.4 G/CC

UTM ZONE 11, NAD 27, CLARKE 1866

LEGEND

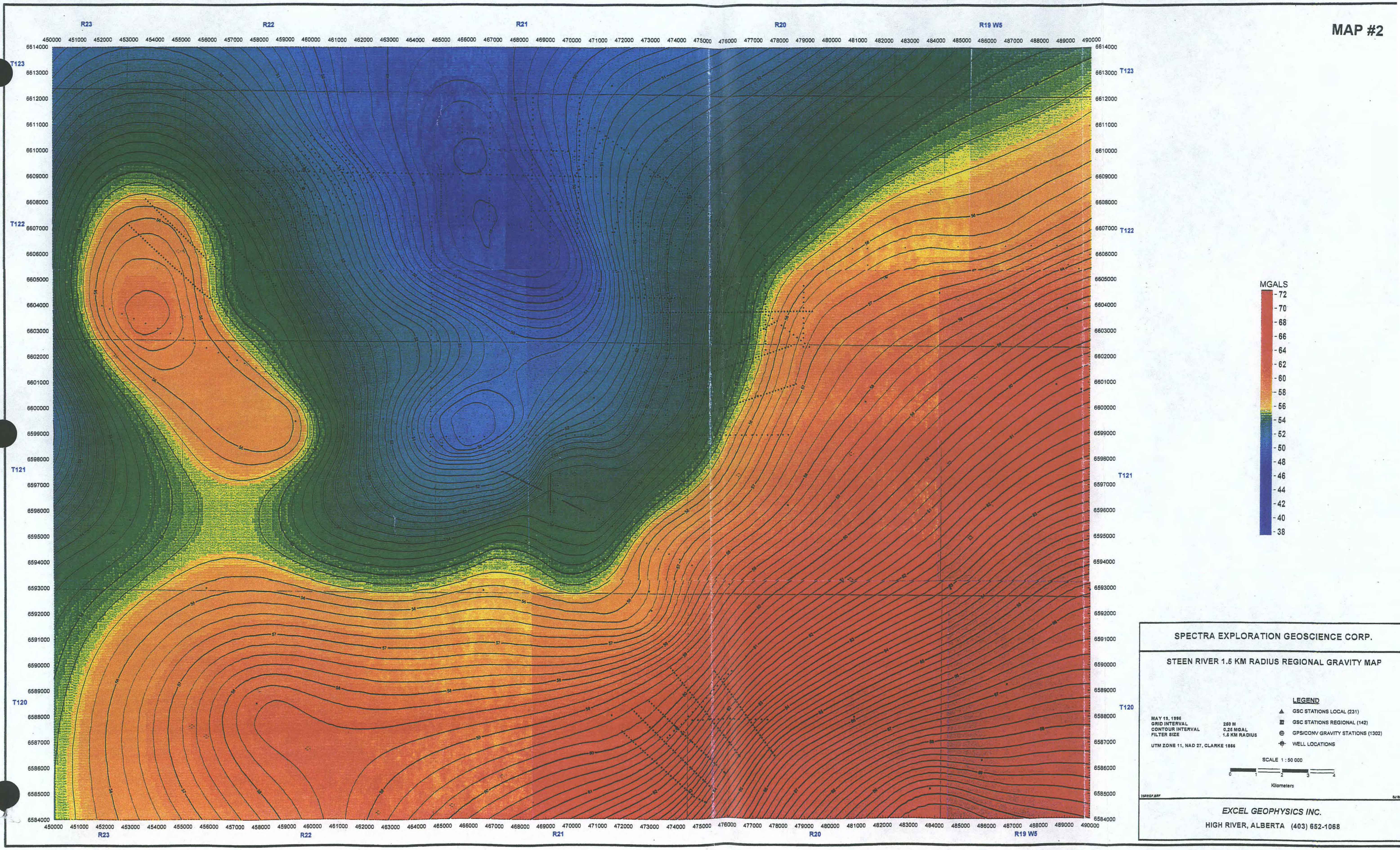
- GSC STATIONS LOCAL (231)
- GSC STATIONS REGIONAL (142)
- GPS/CONV GRAVITY STATIONS (1302)
- WELL LOCATIONS

SCALE 1 : 100 000

0 2 4 6 8
Kilometers

EXCEL GEOPHYSICS INC.

HIGH RIVER, ALBERTA (403) 652-1068


MAP #2
R23
R22
R21
R20
R19 W5
T123
T122
T121
T120
MGALS
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
38
SPECTRA EXPLORATION GEOSCIENCE CORP.
STEEN RIVER 1.5 KM RADIUS REGIONAL GRAVITY MAP
MAY 19, 1996
GRID INTERVAL 250 M
CONTOUR INTERVAL 0.25 MGAL
FILTER SIZE 1.5 KM RADIUS
UTM ZONE 11, NAD 27, CLARKE 1866
LEGEND
GSC STATIONS LOCAL (231)
GSC STATIONS REGIONAL (142)
GPS/CONV GRAVITY STATIONS (1302)
WELL LOCATIONS
SCALE 1 : 50 000
0 1 2 3 4
Kilometers
EXCEL GEOPHYSICS INC.
HIGH RIVER, ALBERTA (403) 652-1068

19970004

TROYMIN RESOURCES LTD.

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Rec'd Jun 11/97

June 6, 1997

Alberta Energy
Petroleum Plaza - North Tower
9945 - 108 St.
Edmonton, AB T5K 2G6

Attention: Mr. Brian Hudson
Manager, Mineral Agreements

Dear Sir:

Re: Assessment Work Report, Metallic and Industrial Minerals Permits 9393030619 to 9393030629 incl.

Please be advised that total expenditures in the amount of $142,519.83 as summarized in Table I have been incurred on the permits and immediately surrounding area, as compared to a total of expenditure of $314,880, which would have been required to maintain all of the permits at their present size of 31,488 hectares. We are therefore surrendering and downsizing a number of permits to a cumulative size of 14,080 hectares to comply with the required expenditure of $10 per hectare during the third and fourth year of the term of the permits pursuant to section 14 of the Metallic and Industrial Mineral Regulations. Details of the revisions and deletions to the permits are presented in Table 2 and Map 1, attached hereto.

Pursuant to section 15 of the Metallic and Industrial Mineral Regulations, enclosed are two (2) copies of the Assessment Work Report including an expenditure summary, as well as summary maps, etc. of the additional geophysical, geological and geochemical work that has been completed on the permits.

We will be pleased to answer questions or provide additional information if required. Thank you very much for your kind cooperation in this matter.

Yours truly,
TROYMIN RESOURCES LTD.

[redacted]

Jack McCleary
President

JM/cs
Attachments: Table I
Table II
Map 1

TABLE 1

TROYMIN RESOURCES

STEEN RIVER PROSPECT

ALBERTA

SUMMARY OF EXPENDITURES

Micro-Gravity Survey and Interpretation	
Spectra Exploration Geoscience Corp.	$126,126.25
Geological/Geochemical Studies, Reports, Etc.	
Logan Geological	270.00
Connemara Resource Ventures Ltd.	12,037.50
Petro-Tech/AB Repro	76.84
International Datashare	487.00
Statcom Ltd.	3,041.00
Loring Laboratories	481.24
TOTAL	**$142,519.83**