NORCEN ENERGY RESOURCES LIMITED

ASSESSMENT REPORT

GEOCHEMICAL PROGRAM

GROUP XIV

GOLDEN MINING DISTRICT

BRITISH COLUMBIA

CLAIMS: S2, S3

LOCATION: 45 km south of Golden, Britsh Columbia

LATITUDE: 50° 53' N

LONGITUDE: 116° 55' W

8294
Part 2
of 2

L. Smith, P.Geol.
A. Slingsby

TABLE OF CONTENTS

LIST OF MAPS

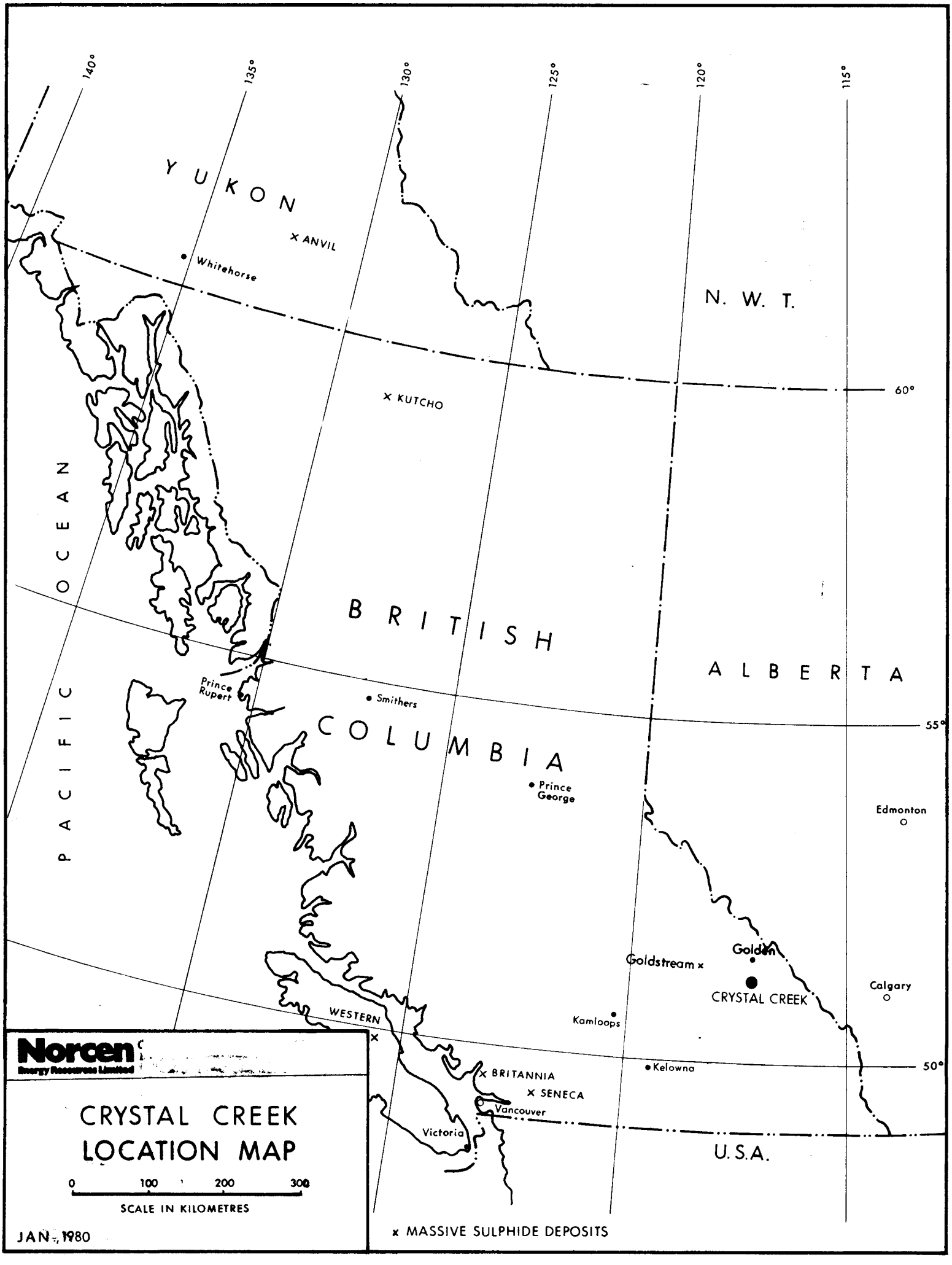
SUMMARY

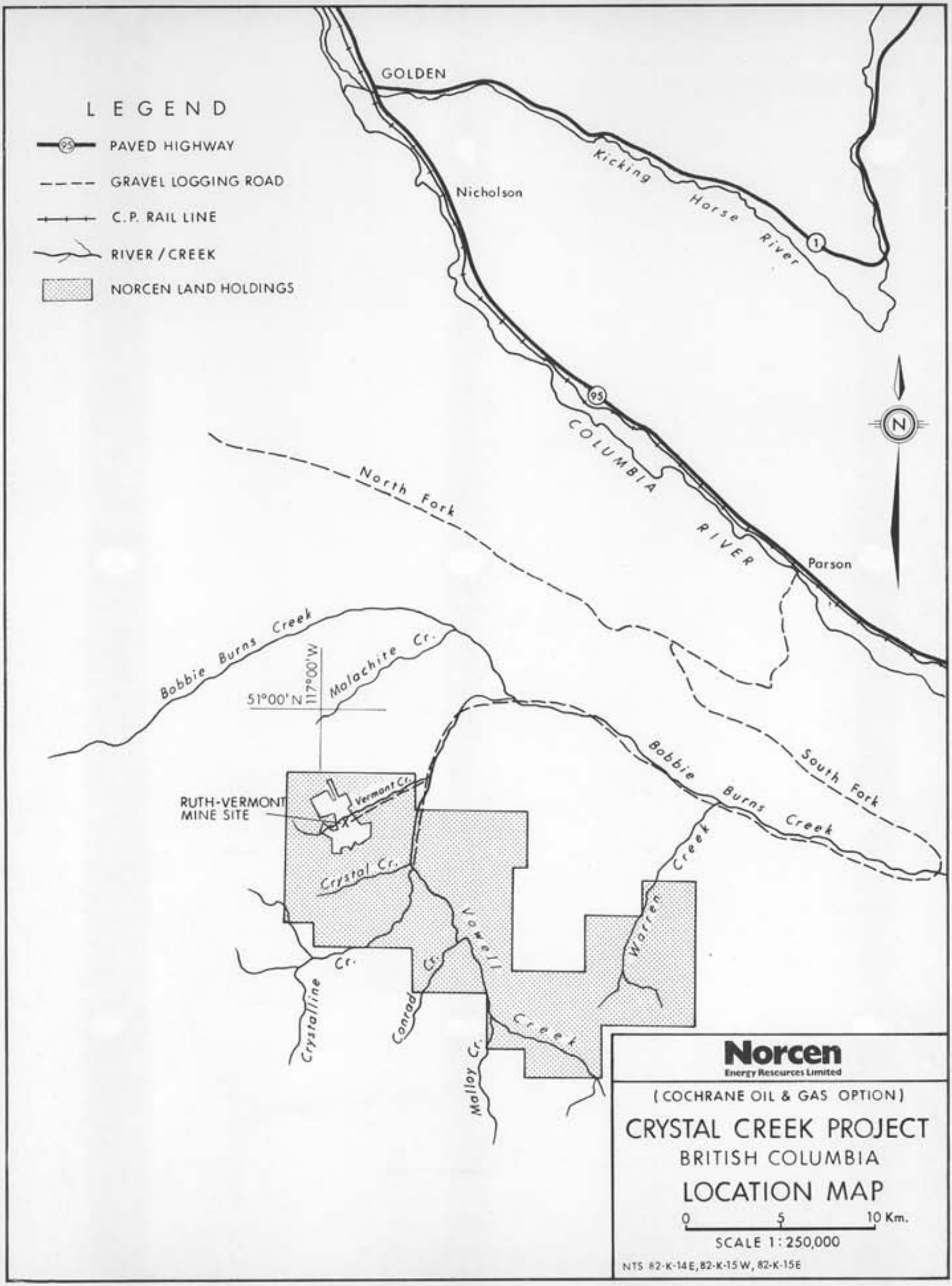
A total of 958 soil samples, 96 stream sediment samples and 26 rock samples were collected during a reconnaissance geochemical survey of the Crystal Creek property. The soil and stream sediments were analyzed for their content of iron, manganese, lead, zinc, copper and silver. Rock samples were analyzed by induction coupled argon plasma spectrometry for nine major oxides and 15 minor and trace elements. Of these samples 43 soil, and 8 rock samples were taken within the boundaries of Group IV. An 1:20,000 orthophoto produced from 1976 Energy, Mines and Resources aerial photograph by North West Survey Corporation International Ltd. of Edmonton, Alberta, was used for control of sampling points. The samples were taken on June 14 and 17, 1980.

Soil samples were taken from B horizon where available. Notes as to topograph, vegetation, drainage, soil types, etc. were taken. Stream samples were taken where available. Rock samples were taken where soil was not available or where the rock appeared to have an anomalous metal content. The samples are generally of shale.

LOCATION AND ACCESS

The claims are located in the Purcell Mountains approximately 45 kilometres south of Golden, British Columbia. Access to the property is by paved highway 95 to Parson, British Columbia and hence by 52 kilometres of logging road along Bobby Burns and Vowell Creeks.


140°
135°
130°
125°
120°
115°
YUKON
ANVIL
Whitehorse
N. W. T.
60°
KUTCHO
PACIFIC OCEAN
BRITISH COLUMBIA
ALBERTA
Prince Rupert
Smithers
55°
Prince George
Edmonton
Golden
Goldstream
CRYSTAL CREEK
Calgary
WESTERN
Kamloops
Kelowna
50°
BRITANNIA
SENECA
Vancouver
Victoria
U.S.A.
Norcen
Energy Resources Limited
CRYSTAL CREEK
LOCATION MAP
0 100 200 300
SCALE IN KILOMETRES
JAN., 1980
x MASSIVE SULPHIDE DEPOSITS


LEGEND
PAVED HIGHWAY
GRAVEL LOGGING ROAD
C.P. RAIL LINE
RIVER / CREEK
NORCEN LAND HOLDINGS
GOLDEN
Nicholson
Kicking Horse River
COLUMBIA RIVER
North Fork
Parson
N
Bobbie Burns Creek
Malachite Cr.
51°00' N
117°00' W
South Fork
Bobbie Burns Creek
RUTH-VERMONT MINE SITE
Vermont Cr.
Crystal Cr.
Warren Creek
Vowell Creek
Crystalline Cr.
Conrad Cr.
Malloy Cr.
Norcen
Energy Resources Limited
(COCHRANE OIL & GAS OPTION)
CRYSTAL CREEK PROJECT
BRITISH COLUMBIA
LOCATION MAP
0 5 10 Km.
SCALE 1:250,000
NTS 82-K-14E, 82-K-15W, 82-K-15E

CLAIMS STATUS

The S2 and S3 claims form part of the Crystal Creek property. They have been grouped together to form Group XIV.

Claim Name	Record Number	Recorded Date	# of Units
S2	336	June 18, 1979	18
S3	337	June 18, 1979	18

GEOCHEMICAL SAMPLING

A total of 43 soil samples and 8 rock samples were collected on Group IV. All samples were sent to Barringer Magenta Limited of No. 105 3750 19th Street N.E., Calgary, Alberta. The soil and sediment samples were analyzed for lead, zinc, silver, copper, iron and manganese by atomic absorption. The rock samples were analyzed by induction coupled argon plasma spectrometry for nine oxides; TiO_2, Al_2O_3, MnO, CaO, Na_2O, K_2O, P_2O_5, MgO and Fe_2O_3 and fifteen minor and trace elements.

Statistical analysis of the data for the entire property produced the following means and standard deviations:

Soils

	Mean	Standard Deviation
Ag (ppm)	.319	.25
Cu (ppm)	27.1	24.4
Pb (ppm)	22.4	54.3
Zn (ppm)	65.0	43.4
Mn (ppm)	344	478
Fe (%)	3.41	1.19

Stream Sediments

	Mean	Standard Deviation
Ag (ppm)	.206	.132
Cu (ppm)	33.0	22.8
Pb (ppm)	13.5	8.7
Zn (ppm)	52.0	31.3
Mn (ppm)	372	192
Fe (ppm)	4.14	1.28

Analysis of the soil samples showed the area to be highly enriched in iron, to have a higher zinc content than average and to be low in silver content. One sample (2137) was strongly anomalous in iron, manganese and copper and weakly anomalous in lead and zinc.

ITEMIZED STATEMENT OF EXPENDITURES

A. SALARIES

A. Slingsby - Project Preparation - April 8	$ 125 00
- Supervision - June 15	125 00
P. Callander - Geochemical Sampling - June 14, 17	250 00
R. Laird - Geochemical Sampling - June 14	125 00
R. Pryde - Geochemical Sampling - June 14	90 00
K. Collard - Geochemical Sampling - June 14	90 00
B. Hettinga - Geochemical Sampling - June 14, 17	180 00
G. Robb - Geochemical Sampling - June 14	90 00
R. Wasylyshyn - Geochemical Sampling - June 14	90 00

B. ACCOMMODATION AND MEALS

10 man days x $41/day	410 00

C. TRANSPORTATION

Helicopter - 2.4 hrs. @ $408/hr.	979 20

D. ASSAYING AND ORTHOPHOTO

43 soil @ $6/sample	258 00
8 rock @ $20/sample	160 00
36 unit (photo) x $10/unit	360 00
TOTAL EXPENDITURES	$ 3,332.20

STATEMENT OF QUALIFICATIONS

I, Laurie James Smith, of the City of Calgary in the Province of Alberta, do hereby state:

1. I am a graduate of the University of Calgary with a BSc degree in Geology.

2. I have been involved in all phases of geological exploration in many areas of Canada (British Columbia, Alberta, Saskatchewan, Northwest Territories, Ontario, Quebec, Nova Scotia and New Brunswick) since graduation.

3. I supervised the geochemical soil sampling on Group XIV.

4. I am a member of the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.

5. I am the holder of valid Free Miners License Number 197331.

Laurie J. Smith

APPENDIX I

ASSAY CERTIFICATES

BARRINGER MAGENTA LIMITED
OFFICES & MINERALS
LABORATORY:
3750 - 19th ST., N.E., SUITE 105
CALGARY, ALBERTA T2E 6V2
PHONE: (403) 276-9701
TELEX: 03-827584

BARRINGER MAGENTA

AUTHORITY: ART SLINGSBY

02/SEP/80

WORK ORDER # NORCEN

SAMPLE GROUP #14

NORCEN ENERGY RESOURCES
715-5TH AVE.S.W.
CALGARY, ALBERTA
T2P 2X7

FINAL REPORT

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE:
SOIL

SAMPLE NUMBER	AG PPM	CU PPM	FE %	MN PPM	PB PPM
1195	.1	49.	6.03	325.	70.
2133	ND	24.	4.74	410.	13.
2134	ND	26.	4.59	450.	22.
2135	ND	*P34.	5.42	495.	24.
2136	ND	33.	5.59	295.	24.
2137	ND	175.	5.89	2150.	155.
2139	ND	16.	1.7	80.	18.
2140	ND	46.	5.59	285.	32.
2141	ND	44.	5.13	505.	24.
3326	ND	40.	5.21	325.	29.
3327	ND	55.	4.94	610.	53.
3328	ND	52.	5.14	900.	45.
3329	ND	52.	5.66	815.	38.
3330	ND	42.	4.63	560.	36.
3331	.2	24.	4.61	330.	15.
3332	.2	24.	3.25	720.	20.
3333	.4	14.	4.51	300.	22.
3334	.1	25.	4.56	355.	17.
3335	ND	10.	2.46	90.	7.
3336	ND	20.	3.26	255.	10.
3337	ND	23.	3.72	250.	16.
3338	.2	33.	3.09	285.	18.
3339	ND	21.	3.35	160.	7.
3340	.1	30.	4.32	275.	12.
5100	.1	33.	4.56	205.	18.
5101	.2	81.	7.9	800.	31.
5102	.2	32.	7.22	335.	14.
5103	ND	64.	5.83	255.	20.
5104	.2	30.	2.57	185.	27.
5105	.1	18.	3.3	515.	18.

*P=QUESTIONABLE PRECISION; *I=INTERFERENCE; IS=INSUFFICIENT SAMPLE
NA=NOT ANALYZED; ND=NOT DETECTED; MS=MISSING SAMPLE; T=TRACE

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FINAL REPORT

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE:
SOIL

SAMPLE NUMBER	AG PPM	CU PPM	FE %	MN PPM	PB PPM
5106	.1	47.	4.48	440.	18.
5107	.3	19.	3.01	430.	11.
5108	.2	11.	4.45	155.	7.
5109	.3	14.	5.2	165.	9.
5110	.2	14.	4.37	575.	15.
5111	.1	14.	6.39	215.	12.
5112	.2	31.	7.04	665.	24.
5113	.3	40.	6.36	550.	33.
5114	.3	52.	7.51	700.	47.
2137B	N D	155.	11.21	7000.	115.

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BARRINGER MAGENTA

AUTHORITY: ART SLINGSBY

02/SEP/80
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WORK ORDER # NORCEN

SAMPLE GROUP #14

NORCEN ENERGY RESOURCES
715-5TH AVE.S.W.
CALGARY,ALBERTA
T2P 2X7

FINAL REPORT

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE:
SOIL

SAMPLE NUMBER	ZN PPM
1195	75.
2133	71.
2134	84.
2135	83.
2136	82.
2137	84.
2139	14.
2140	89.
2141	85.
3326	91.
3327	95.
3328	86.
3329	97.
3330	79.
3331	69.
3332	66.
3333	65.
3334	74.
3335	52.
3336	55.
3337	66.
3338	72.
3339	54.
3340	77.
5100	64.
5101	103.
5102	70.
5103	71.
5104	48.
5105	95.

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FINAL REPORT

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE:
SOIL

SAMPLE NUMBER	ZN PPM
5106	80.
5107	50.
5108	57.
5109	55.
5110	64.
5111	52.
5112	72.
5113	75.
5114	84.
2137B	135.

NORCEN BRL CALGARY 138C-80,173C-80 BARRINGER MAGENTA LTD. PAGE:

WO NO:80-0457 ANALYSIS DATE: 09/07/80 MATRIX: RF FILE:T0-0457

SAMPLE ID	AL2O3 %	FE2O3 %	CAO %	MGO %	TIO2 %	MNO2 %	NA2O %	K2O %	P2O5 %
1196-R	22.8	6.76	.277	2.87	.402	.0821	.771	4.13	.13
2001-R	16.9	7.35	.124	.969	.282	.0243	.315	2.93	.14
2002-R	5.73	5.69	.512	.570	.0590	.116	.623	.932	.03
2003-R	11.3	7.19	1.65	2.10	.243	.229	.068	1.41	.06
2004-R	22.3	16.6	1.45	3.63	.533	.370	1.25	3.23	.11
5001-R	24.8	11.1	.213	3.34	.598	.119	1.06	3.58	.15
5002-R	21.9	9.24	.119	2.81	.571	.0673	.900	4.07	.09
5003-R	25.6	10.3	.043	2.19	.460	.118	1.05	3.17	.13
5004-R	7.89	4.76	1.37	.407	.103	.0471	1.40	.722	.02
1187-R	14.1	5.13	.112	2.97	.385	.0313	1.97	2.14	.05
1189-R	10.6	7.00	.040	2.80	.394	.0522	1.85	1.23	.05
1194-R	13.1	4.79	.078	1.58	.643	.0385	1.19	2.04	.03
2005-R	14.3	13.3	3.29	3.19	.422	.695	.755	1.63	.02
2006-R	15.6	10.7	3.19	3.18	.420	.761	.750	2.33	.06
2007-R	9.16	8.78	20.4	4.52	.166	2.12	.336	2.40	.16
2008-R	26.1	6.31	.169	1.98	.547	.0514	1.24	4.53	<.01
2009-R	24.1	8.77	.061	3.10	.565	.0513	1.12	3.58	.05
2010-R	24.5	12.8	.584	2.46	.313	2.28	1.02	3.83	.20
3001-R	8.61	4.03	.061	1.30	.120	.0574	2.82	.647	.63
3002-R	.625	1.12	.022	.0355	.0034	.0188	<.003	.102	<.01
3003-R	.592	2.82	.665	.0804	.0029	.0150	<.003	.118	.52
3004-R	.866	3.98	.048	.0277	.0033	.0536	<.003	.075	<.01
3005-R	1.95	38.5	.003	.0325	.0232	.0091	.019	.465	<.01
3006-R	4.60	6.28	2.15	1.07	.0545	.124	.185	.903	.07
5005-R	4.71	1.96	.774	.216	.0435	.0813	1.72	.405	.01
5006-R	14.3	8.64	.102	2.02	.016	.142	1.30	3.11	.09
5007-R	6.56	4.65	.470	1.24	.356	.0610	2.69	1.05	.04
5008-R	22.7	8.03	.168	2.38	.423	.105	1.21	3.66	.15

SAMPLE ID	Mo PPM	Cu PPM	Ag PPM	Ni PPM	Co PPM	Mn PPM	Fe %	As PPM
1106-S	2.8	<1	345	31	14.3	<5	68	<5
2001-S	1.2	<1	2230	80	27.3	35	26	<5
2002-S	.7	<1	1890	57	27.7	30	48	<5
2003-S	.8	<1	1140	86	68.1	<5	57	<5
2008-S	2.1	<1	322	86	45.5	15	95	<5
5001-S	2.8	<1	178	30	35.7	<5	78	<5
5002-S	2.8	<1	814	25	30.1	500	71	<5
5003-S	2.8	<1	541	29	35.9	<5	73	<5
5004-S	.7	1	1040	26	23.2	<5	36	<5
1107-S	1.5	<1	1120	28	7.1	<5	53	<5
1109-S	.8	<1	1700	36	23.1	15	60	<5
1110-S	1.5	<1	1130	29	9.1	<5	81	<5
2005-S	1.2	<1	502	38	47.6	10	88	<5
2006-S	1.6	<1	576	53	82.8	20	77	<5
2007-S	.9	10	80.9	17	5.1	70	32	<5
2008-S	5.5	<1	369	<1	8.1	10	80	<5
2009-S	2.5	<1	134	18	25.1	<5	58	<5
2010-S	2.9	<1	82.7	67	57.9	5	118	<5
3001-S	.8	<1	1129	23	9.5	25	37	<5
3002-S	.1	36	1480	23	833	41000	13	862
3003-S	.1	892	897	17	2000	10000	15	893
3004-S	.2	83	8560	68	9560	17200	87	265
3005-S	.8	<1	1100	152	94.5	1450	152	12
3006-S	.1	<1	1250	25	57.6	430	39	<5
5005-S	.2	<1	1530	20	8.9	165	17	<5
5006-S	2.1	<1	455	31	25.8	40	68	<5
5007-S	.6	<1	1240	31	2.9	75	39	<5
5008-S	2.5	<1	224	22	32.2	115	58	<5

SAMPLE ID	Sr PPM	Th PPM	Zr PPM	V PPM	Zn PPM	Mo PPM
1146-S	58.5	23	80	100	93	<30
2001-S	41.8	20	56	124	27	40
2002-S	28.4	16	15	99.7	28	30
2003-S	88.9	18	89	105	72	40
2004-S	125	28	94	116	116	30
5001-S	110	22	97	118	112	<30
5002-S	45.5	19	119	120	114	<30
5003-S	115	25	98	113	102	<30
5004-S	88.2	12	22	75.9	55	<30
1187-S	67.8	8	85	104	59	<30
1189-S	34.5	9	55	114	52	<30
1194-S	45.5	28	82	154	36	<30
2005-S	83.0	13	46	111	152	<30
2006-S	121	15	90	106	87	<30
2007-S	270	11	57	45.3	91	<30
2008-S	149	18	94	122	77	<30
2009-S	118	18	95	119	95	<30
2010-S	137	15	81	100	184	30
3001-S	56.7	9	25	75.5	54	<30
3002-S	17.8	<6	<5	72.9	5090	<30
3003-S	64.0	<6	<5	36.3	56800	<30
3004-S	6.2	<6	<5	265	3990	<30
3005-S	15.8	<6	10	48.2	217	<30
3006-S	47.5	<6	10	77.9	86	<30
5005-S	19.2	<6	14	64.1	33	<30
5006-S	30.9	17	75	106	47	<30
5007-S	59.2	12	21	99.9	55	<30
5008-S	139	17	91	97.6	115	<30