

'80-#355-# 8101

NORCEN ENERGY RESOURCES LIMITED

ASSESSMENT REPORT
GEOCHEMICAL AND GEOLOGICAL PROGRAM
GROUP XII (COG 8 - COG 9)

GOLDEN MINING DIVISION,
BRITISH COLUMBIA

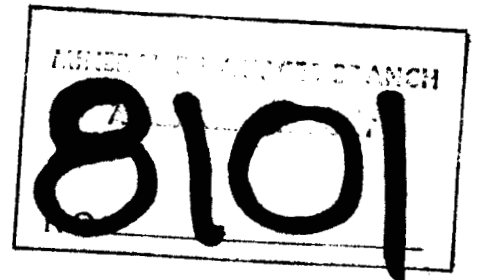
Claims: COG 8 (327)
COG 9 (328)

Location: 42 km South of Golden, British Columbia

Latitude: 50°55'N

Longitude: 116°54'W

Owner and Operator: Norcen Energy Resources Limited
August 21, 23, 1979



June 9, 1980

L. Smith

L. Smith, P.Geol.

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 <u>MAPS</u>	
1.	Land Holdings Map; Crystal Creek Project, British Columbia, (Two Copies).
2.	Regional Geology, Crystal Creek Project, British Columbia.
3.	Regional Soil Geochemical Map, Crystal Creek Project, British Columbia.

SUMMARY

Regional geological mapping and soil geochemical sampling was performed within the boundaries of Group XII (COG 8 - COG 9) on August 21 and 23, 1979. A total of thirty (30) B horizon soil samples were collected and geochemically analysed in parts per million for copper, lead, zinc and silver. All bedrock outcrops noted during the geochemical sampling were geologically mapped and are presented at the same scale as the soil geochemical data.

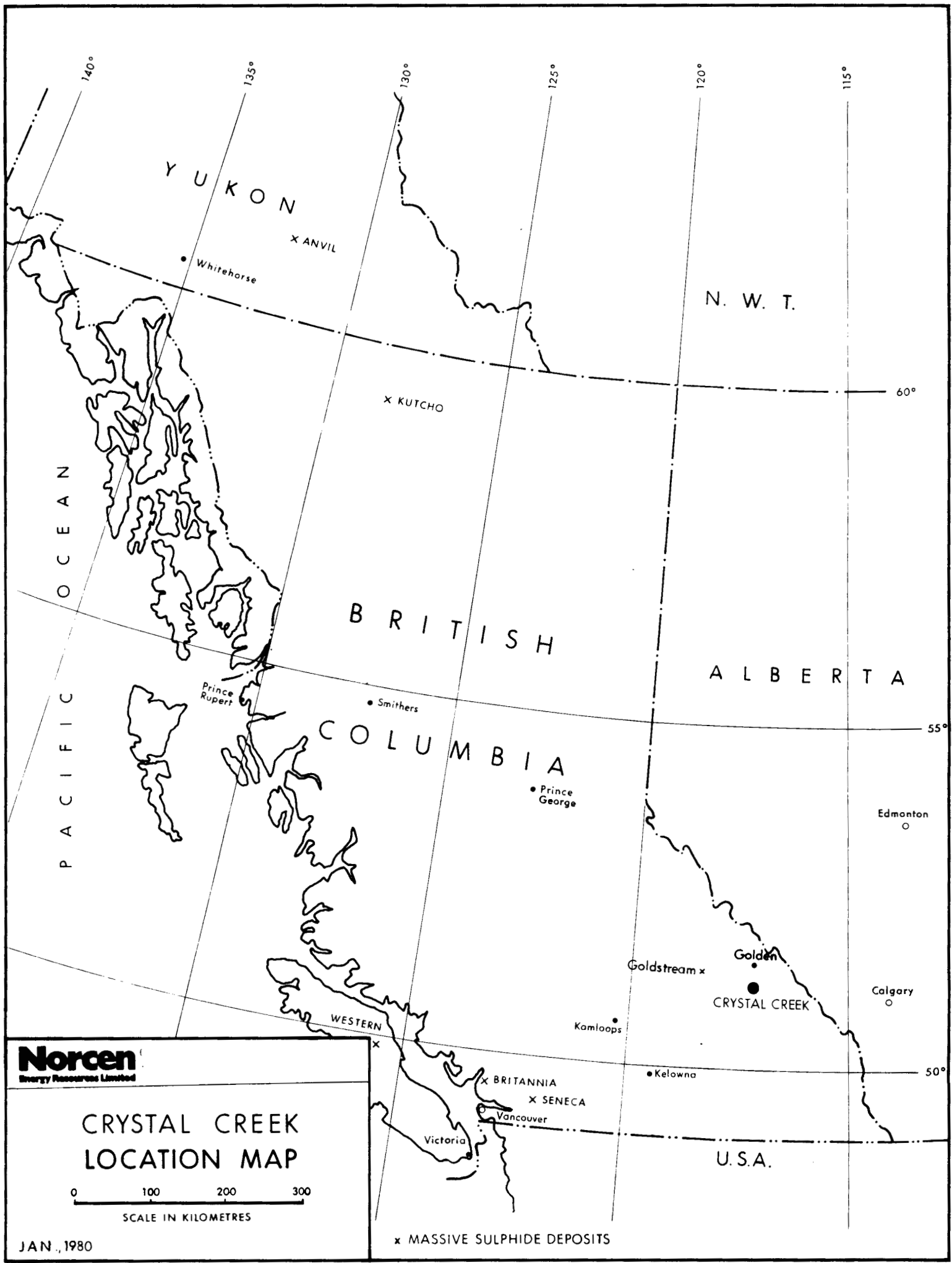
LOCATION AND ACCESS (See Land Holdings Maps, Crystal Creek Project, British Columbia)

The claims are located in the Purcell Mountains approximately 42 kilometres south of Golden, British Columbia. Access is provided by Provincial Highway 95 south from Golden to Parson, followed by 51 kilometres along a gravelled logging road along Vowell Creek.

CLAIM STATUS

The COG 8 and COG 9 claims form part of the Crystal Creek Property. The COG 8 and COG 9 claims have been grouped into Group XII (COG 8 - COG 9).

<u>Claim Name</u>	<u>Record Number</u>	<u>Recorded Date</u>	<u>Unit Dimensions</u>	<u>No. of Units</u>
COG 8	327	June 18, 1979	4S X 3W	12
COG 9	328	June 18, 1979	4N X 5E	20



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Energy Resources Limited


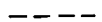



CRYSTAL CREEK LOCATION MAP



JAN., 1980

x MASSIVE SULPHIDE DEPOSITS

L E G E N D

-  PAVED HIGHWAY
-  GRAVEL LOGGING ROAD
-  C. P. RAIL LINE
-  RIVER / CREEK
-  NORCEN LAND HOLDINGS

GOLDEN

Nicholson

Kicking Horse River

1

95

COLUMBIA RIVER

Parson

North Fork

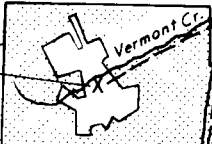
Bobbie Burns Creek

51°00'N

117°00'W

Malachite Cr.

RUTH-VERMONT
MINE SITE



Crystal Cr.

Crystalline Cr.

Conrad Cr.

Malloy Cr.

Wall Creek

Warren

Bobbie Burns Creek South Fork



Norcen
Energy Resources Limited

(COCHRANE OIL & GAS OPTION)
CRYSTAL CREEK PROJECT
BRITISH COLUMBIA
LOCATION MAP

0 5 10 Km.

SCALE 1:250,000

GEOCHEMICAL SOIL SAMPLING

A total of thirty (30) B horizon soil samples were collected within the boundaries of claims COG 8 and COG 9. All samples were sent to Loring Laboratories Limited of 629 Beaverdam Road, N.E., Calgary, Alberta and geochemically analysed in parts per million by atomic absorption.

Previous soil geochemical sampling in the area had shown that anomalous base metal B horizon soil samples reflected close proximity to bedrock base metal mineralization. Based upon the statistical analysis of two hundred and five (205) B horizon soil samples collected in the region over Norcen Energy Resources Limited claim blocks anomalous values are defined by values in excess of: 32 ppm lead, 108 ppm zinc, 0.9 ppm silver, and 38 ppm copper.

Four anomalous samples were collected during the 1979 geochemical sampling from the COG 8 and COG 9 claims. These are:

<u>Sample No.</u>	<u>ppm Pb</u>	<u>ppm Zn</u>	<u>ppm Ag</u>	<u>ppm Cu</u>
MA-17-12	*43	97	0.5	25
MA-21-5	15	*186	0.5	11
MA-21-6	23	*173	0.5	*74
MA-23-6	*45	*120	0.8	*85

* anomalous geochemical values

GEOLOGICAL MAPPING

All bedrock exposures encountered during the geochemical soil sampling program were investigated and geologically mapped. The rock types encountered included phyllites, arkoses, and coarser grained grits of the Horse Thief Creek Series of Proterozoic age. No economic base metal mineralization was located during the regional geological mapping.

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 personally supervised the geochemical soil sampling and geological mapping on Group XII (COG 8 - COG 9).
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 Licence Number 197331.

Laurie J. Smith

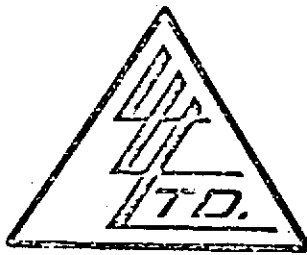
ITEMIZED COST STATEMENT

A.	Geochemical Sampling and Geological Mapping	
	L. Smith, Supervision (August 21, 1979)	
	L. Smith, Report Writing (May 25, 1980)	
	1 day @\$125/day	\$ 125.00
	1 day @\$175/day	175.00
	M. Anderson - Geologist (August 21, 1979)	
	G. Wilson - Geologist (August 23, 1979)	
	2 days @\$90/day	180.00
	R. Kostiuik - Geochemical Sampler (August 21, 1979)	
	D. Desjardins - Geochemical Sampler (August 23, 1979)	
	2 days @\$75/day	150.00
B.	Transport	
	4 Wheel Drive Vehicle Rental	
	\$30.00/day X 2 days	60.00
	Fuel for Vehicle \$5.00/day X 2 days	10.00
C.	Accommodation and Meals	
	5 man days X \$25/day	125.00
D.	Assaying	
	30 Geochemical Assays @\$5/sample	<u>150.00</u>
		\$975.00

APPENDIX I

Geochemical Assay Certificates

To: NORCEN ENERGY RESOURCES LIMITED
 715 - 5th Avenue S.W.
 Calgary, Alberta
 T2P 2X7
 ATTN: L. J. Smith



File No. ...17658...
 Date ...Sept. 4, 1979...
 Samples ...Lake Sediment...

**Certificate of
 ASSAY OF
 LORING LABORATORIES LTD.**

Page 1

SAMPLE No.	PPM Cu	PPM Pb	PPM Zn	PPM Ag
MA-A				
17/10	49	40	69	1.0
17/11	13	20	69	0.6
17/12	25	43	97	0.5

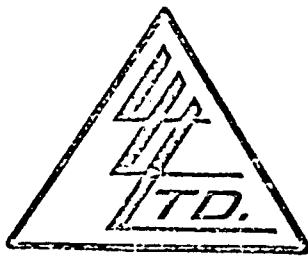
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Objects Retained one month.

Objects Retained one month
 unless specific arrangements
 made in advance.

edmejac
 Licensed Assayer of British Columbia

TO: INCOEN ENERGY RESOURCES LIMITED
 715 - 5th Avenue S.W.
 Calgary, Alberta
 T2P 2X7
 ATTN: L. J. Smith



File No. 17658
 Date Sept. 4, 1979
 Samples Lake Sediment

Certificate of
 ASSAY of
 LORING LABORATORIES LTD.

Page 3

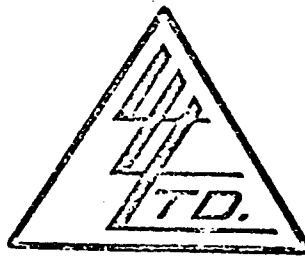
SAMPLE No.	PPM Cu	PPM Pb	PPM Zn	PPM Ag
19/29	18	20	67	0.7

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Objects Retained one month.
 Retained one month
 specific arrangements
 made in advance.

Licensed Assayer of British Columbia

To: NRCEN ENERGY RESOURCES LIMITED
 715 - 5th Avenue S.W.
 Calgary, Alberta
 T2P 2X7
 ATTN: L. J. Smith



File No. 17658
 Date Sept. 4, 1979
 Samples Lake Sediment

Certificate of
 ASSAY of
 LORING LABORATORIES LTD.

Page 4

SAMPLE No.	PPM Cu	PPM Pb	PPM Zn	PPM Ag
MA-A				
20/14	28	21	86	0.7
20/15	21	34	72	0.5
20/16	19	21	68	0.8
20/17	11	17	34	0.5
20/18	14	20	59	0.5
20/19	28	24	63	0.5
20/20	27	28	79	0.7
20/21	17	16	55	0.5
MA-A-21/1	18	17	64	0.6
21/2	27	19	80	0.6
21/3	6	11	58	0.5
21/4	14	16	100	0.4
21/5	11	15	186	0.5
21/6	34	23	173	0.5
21/7	18	17	58	0.8
21/8	23	19	69	0.6

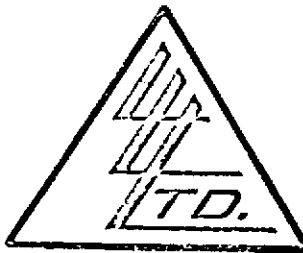
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Results Retained one month.
 Results Retained one month
 unless specific arrangements
 made in advance.

L. J. Smith

To: NORGEN ENERGY RESOURCES LIMITED
 715-5th Avenue S.W., 27th Flr.
 Calgary, Alberta T2P 2X7

File No.17716.....
 DateSeptember 17, 1979
 Samples ...Soil



ATTN: L. Smith

Certificate of
ASSAY
 LORING LABORATORIES LTD.

Page # 3

SAMPLE No.	PPM Cu	PPM Pb	PPM Zn	PPM Ag
GW-A				
22/6	24	17	84	0.0
22/7	9	14	56	0.5
22/8	20	17	60	0.5
GW-A-23/9	15	18	51	0.8
23/10	16	21	60	0.5
23/11	15	16	73	0.5
23/12	14	18	75	0.5
23/13	16	18	55	0.6

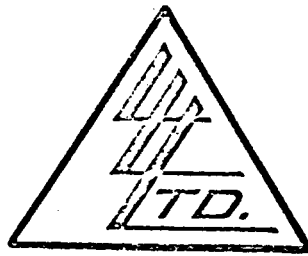
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Specimens Retained one month.
 Specimens Retained one month
 unless specific arrangements
 made in advance.

L. Smith
 LORING LABORATORIES LTD.

To: NORGEN ENERGY RESOURCES LIMITED
 715-5th Avenue S.W., 27th Flr.
 Calgary, Alberta T2P 2X7

File No.17716.....
 DateSeptember 17, 1979.....
 SamplesSoil.....



ATTN: L. Smith

Certificate of
ASSAY of
LORING LABORATORIES LTD.

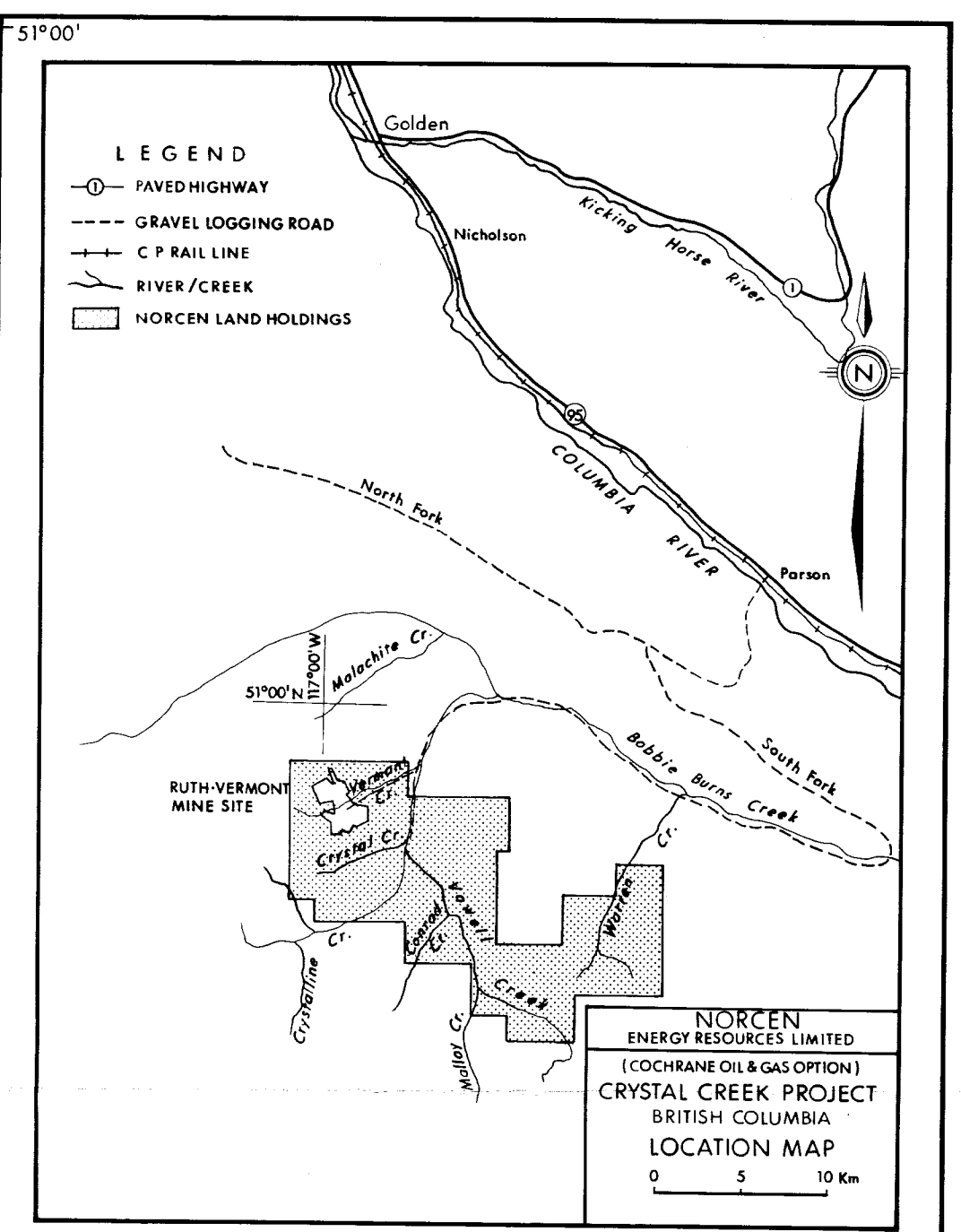
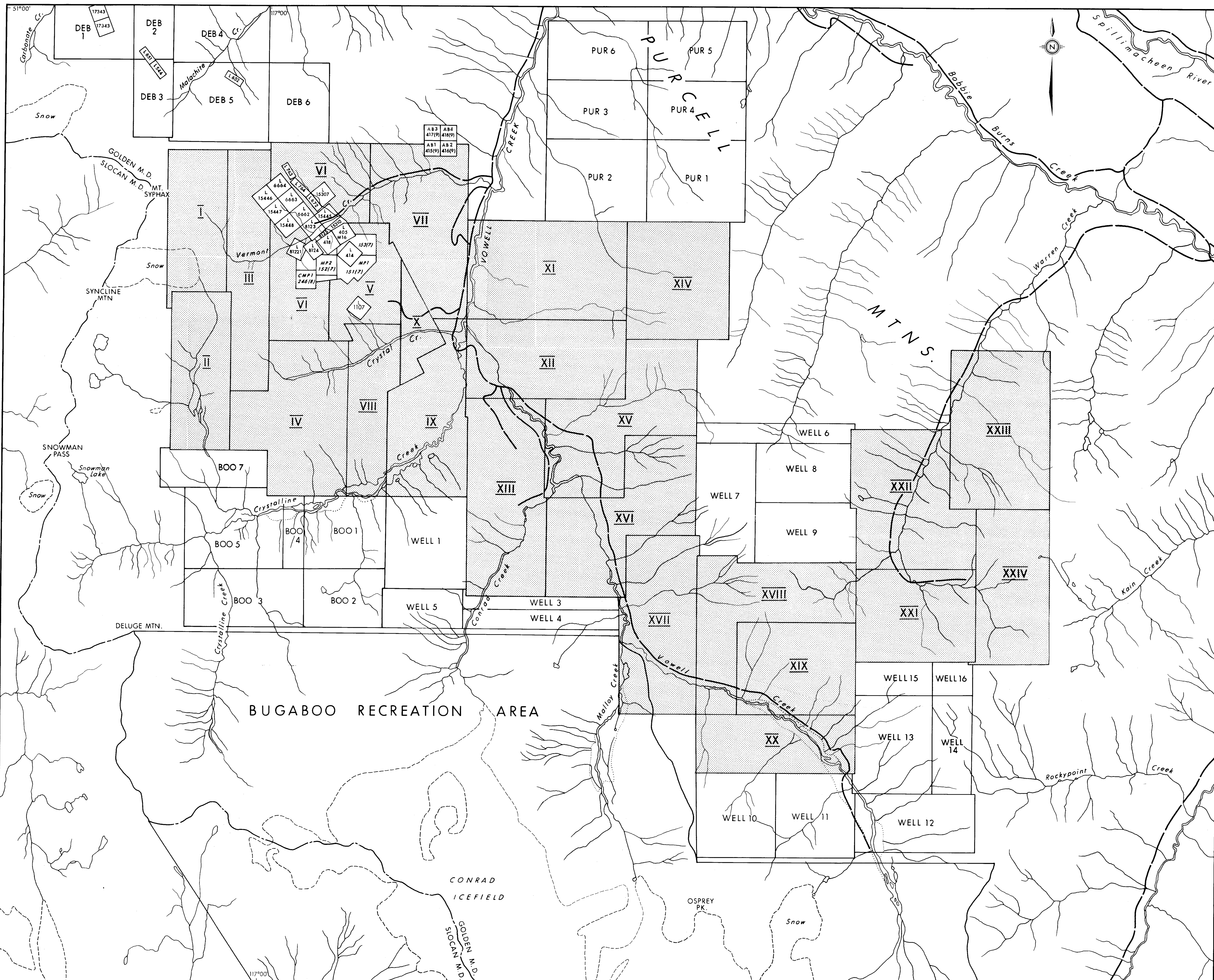
Page # 1

SAMPLE No.	PPM Cu	PPM Pb	PPM Zn	PPM Ag
23/6	85	45	120	0.8

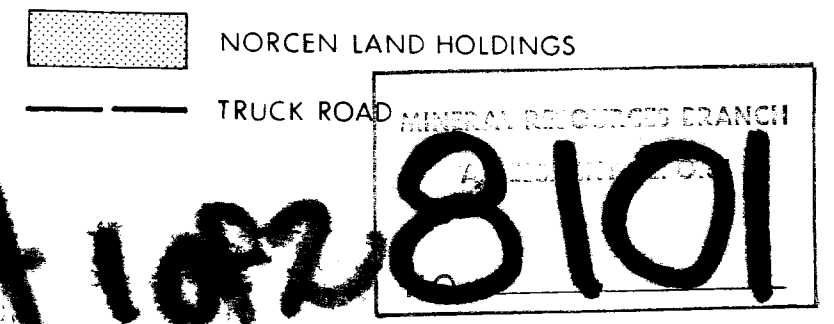
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Refracts Retained one month.
 s Retained one month
 s specific arrangements
 e in advance.

L. M. J. Oae
 Licensed Assayer of British Columbia



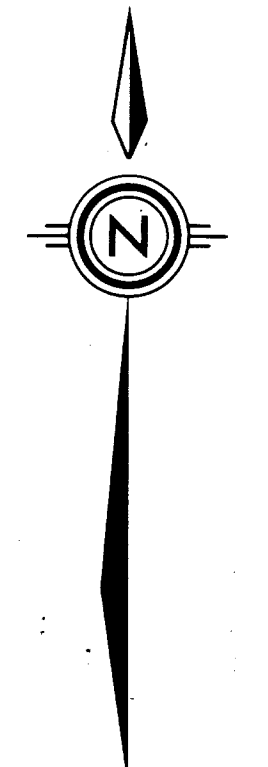
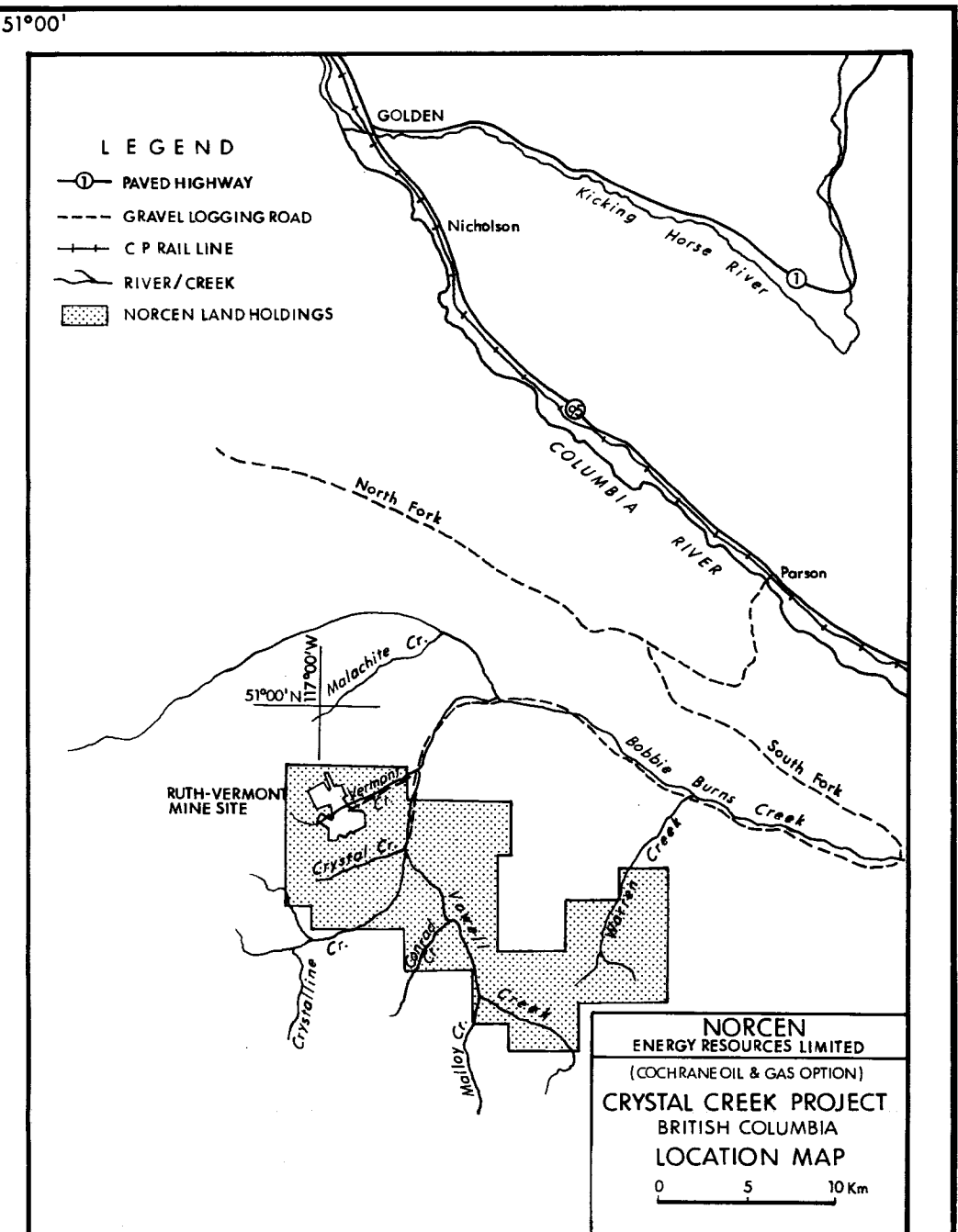
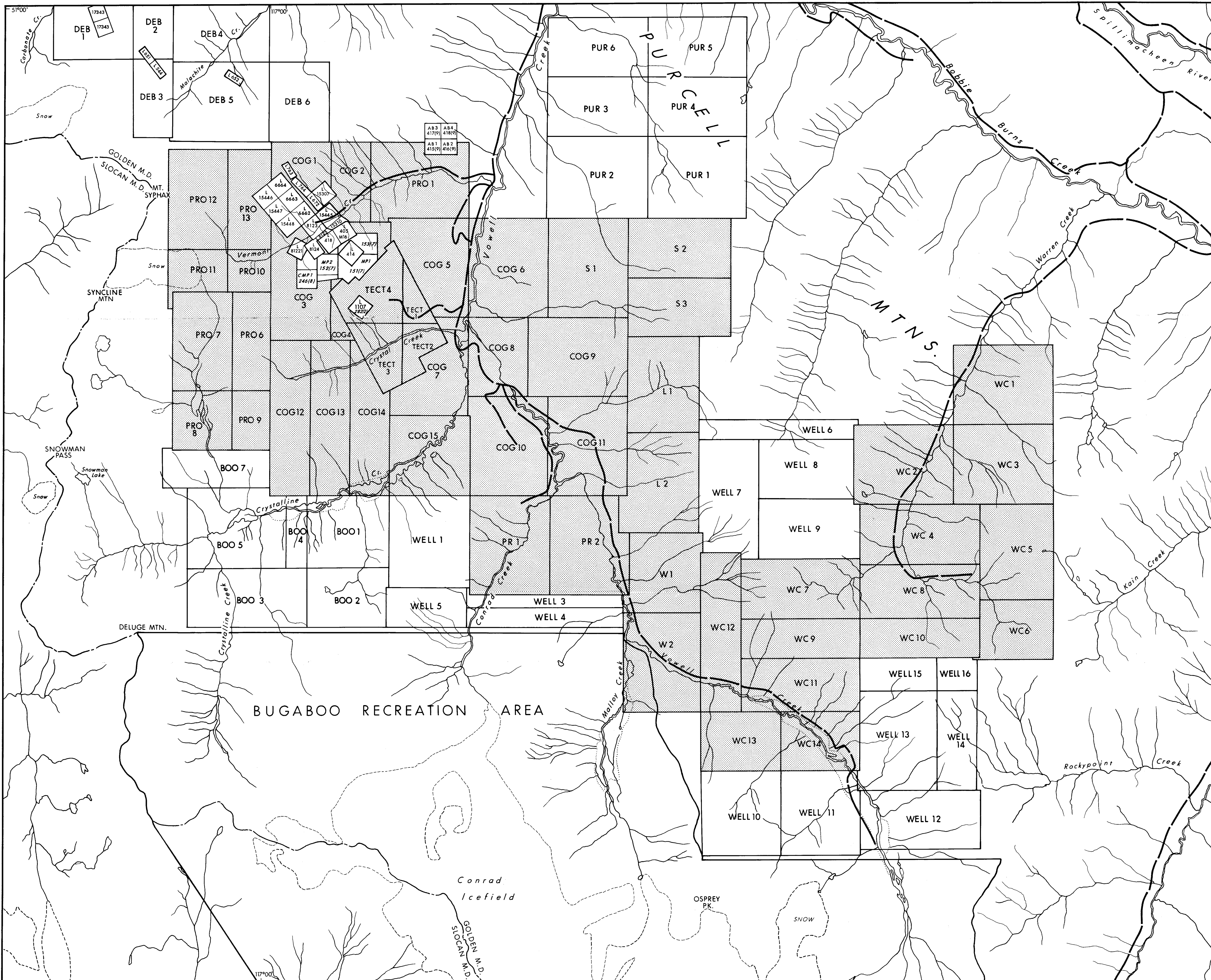
GROUP	Number of units
I	27
II	24
III	37
IV	38
V	38
VI	38
VII	40
VIII	28
IX	36
X	27
XI	40
XII	32
XIII	40
XIV	36
XV	40
XVI	40
XVII	36
XVIII	34
XIX	30
XX	24
XXI	30
XXII	38
XXIII	40
XXIV	32
	<hr/>
	825



Norcen
Energy Resources Limited

(COCHRANE OIL AND GAS OPTION)
CRYSTAL CREEK PROJECT
BRITISH COLUMBIA
LAND HOLDINGS MAP



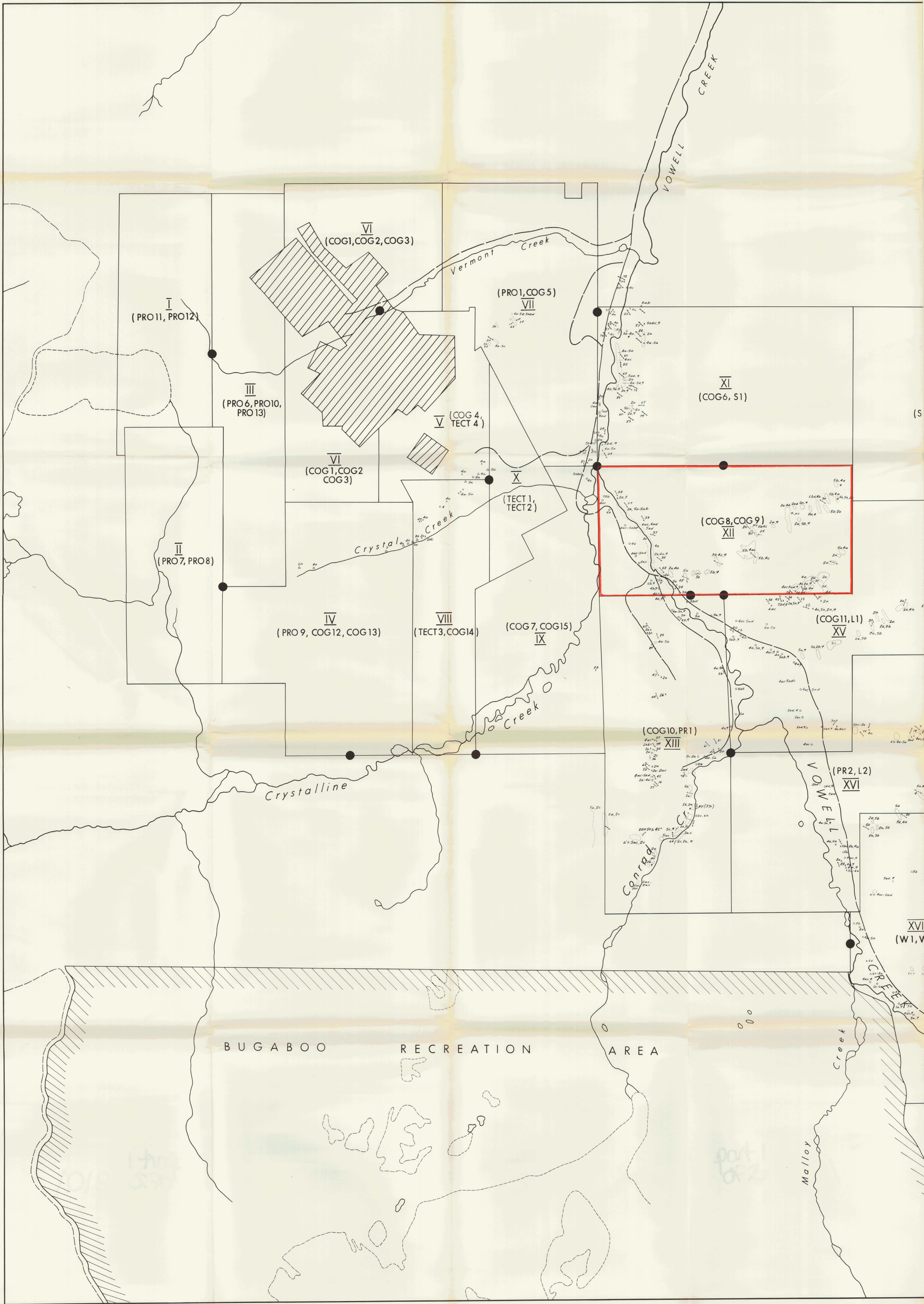


NORCEN LAND HOLDINGS
 TRUCK ROAD

part 1 of 2 **8101**
Norcen
 Energy Resources Limited

(COCHRANE OIL AND GAS OPTION)
CRYSTAL CREEK PROJECT
 BRITISH COLUMBIA
LAND HOLDINGS MAP





I
(PRO11, PRO12)

III
(PRO6, PRO10,
PRO13)

II
(PRO7, PRO8)

IV
(PRO9, COG12, COG13)

VI
(COG1, COG2, COG3)

VI
(COG1, COG2
COG3)

V
(COG4,
TECT4)

VIII
(TECT3, COG14)

(PRO1, COG5)
VII

X
(TECT1,
TECT2)

(COG7, COG15)
IX

XI
(COG6, S1)

(COG8, COG9)
XII

(COG10, PR1)
XIII

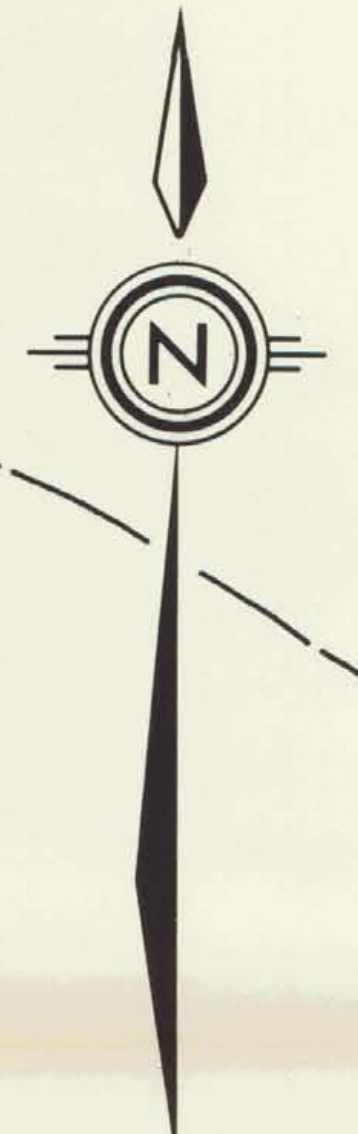
(COG11, L1)
XV

(PR2, L2)
XVI

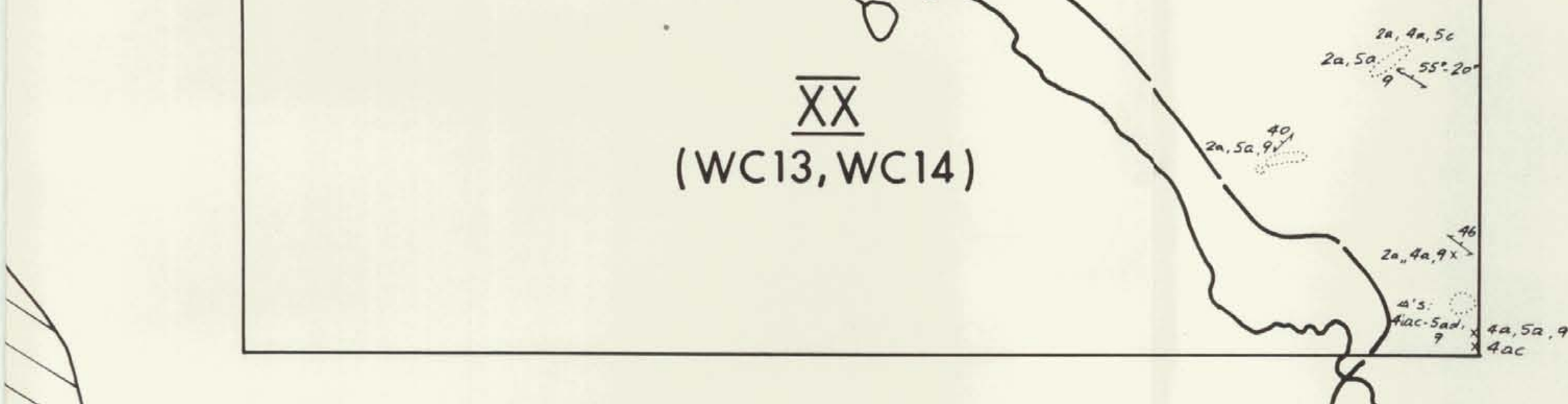
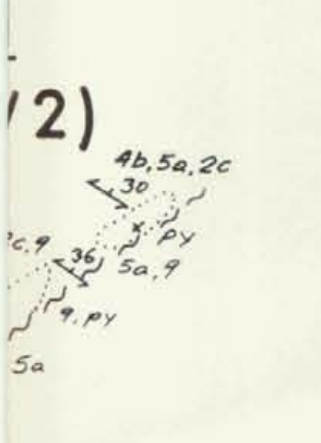
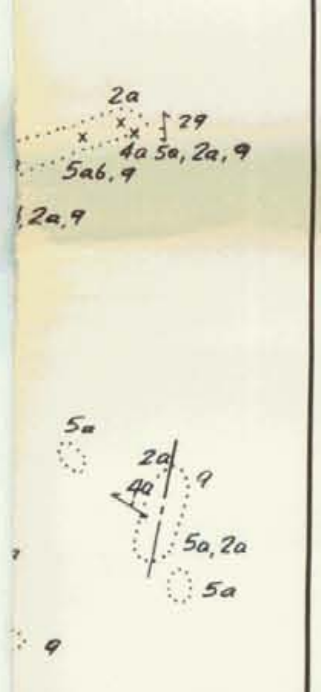
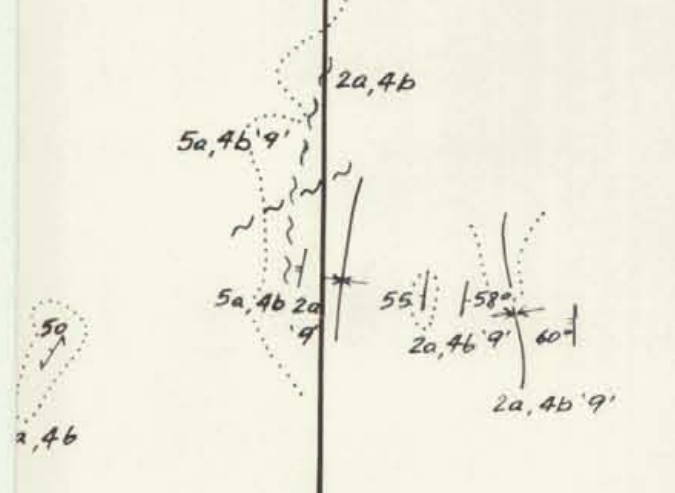
XVII
(W1, W2)

BUGABOO RECREATION AREA

part
of 2

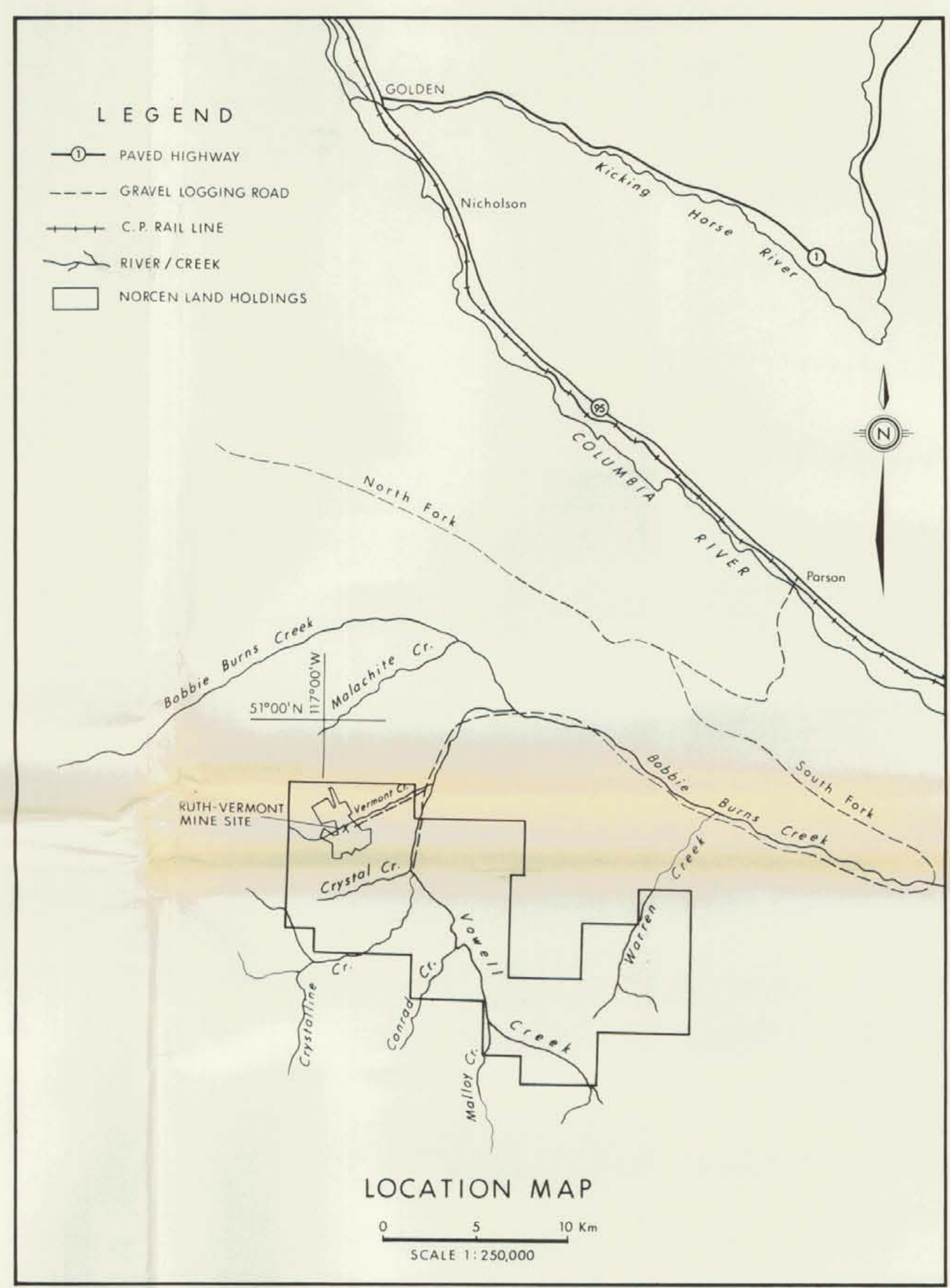


XIV
2, S3)



GEOLOGICAL LEGEND

- 1a ARGILLITE
- 1b LIMY ARGILLITE
- 1c ARKOSIC ARGILLITE
- 2a PHYLLITE, WELL DEVELOPED FOLIATION
- 2b PHYLLITE, INTERMEDIATE FOLIATION
- 2c PHYLLITE, POORLY DEVELOPED FOLIATION
- 2d LIMY PHYLLITE
- 2e ARKOSIC PHYLLITE
- 3 SCHIST
- 4a ARKOSE
- 4b META-ARKOSE (INCLUDES PHYLLITIC ARKOSE)
- 4c LIMY ARKOSE
- 5a MEDIUM-GRAINED GRIT
- 5b COARSE-GRAINED GRIT
- 5c META-GRIT
- 5d LIMY GRIT
- 6a QUARTZ-PEBBLE CONGLOMERATE
- 6b QUARTZ-PEBBLE CONGLOMERATE WITH CHERT
- 6c META-CONGLOMERATE (ELONGATED PEBBLES)
- 7a CARBONATE BRECCIA
- 7b OOLITIC CARBONATE BRECCIA
- 8 QUARTZITE
- 9 QUARTZ VEINS



- LEGEND
- GRAVEL ROADS
 - OUTCROP
 - FLOAT (BOULDER)
 - BEDDING (STRIKE/DIP)
 - FOLIATION (STRIKE/DIP)

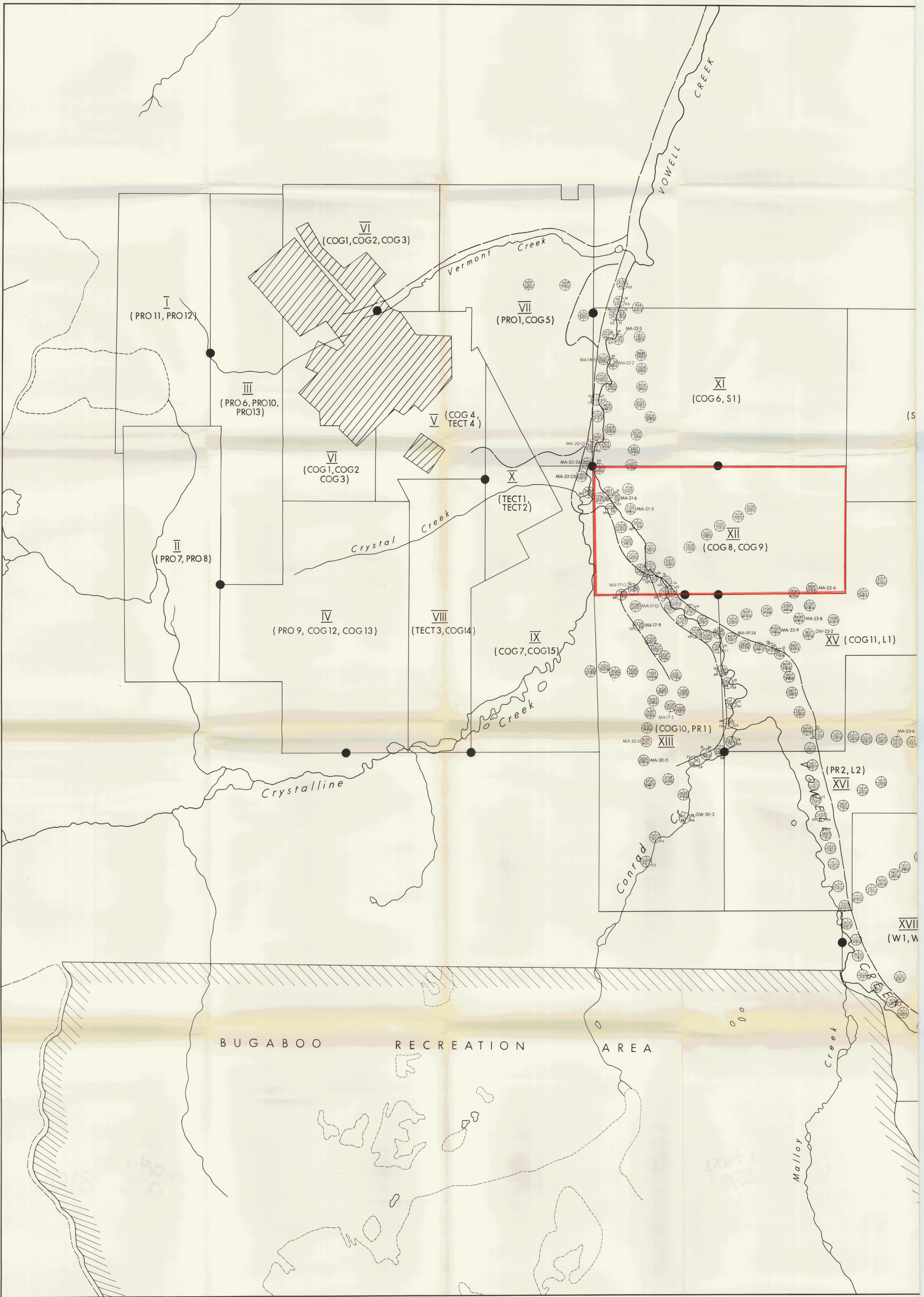
part 1 of 2
8101

Norcen
Energy Resources Limited

(COCHRANE OIL AND GAS OPTION)
CRYSTAL CREEK PROJECT
BRITISH COLUMBIA
REGIONAL GEOLOGY

0 500 1000 1500
METRES

NTS 82K-14E, 15E, 15W MAY, 1980





XIV
2, S3)

XXIII
(WC1, WC3)

(WC2, WC4)
XXII

XXIV
(WC5, WC6)

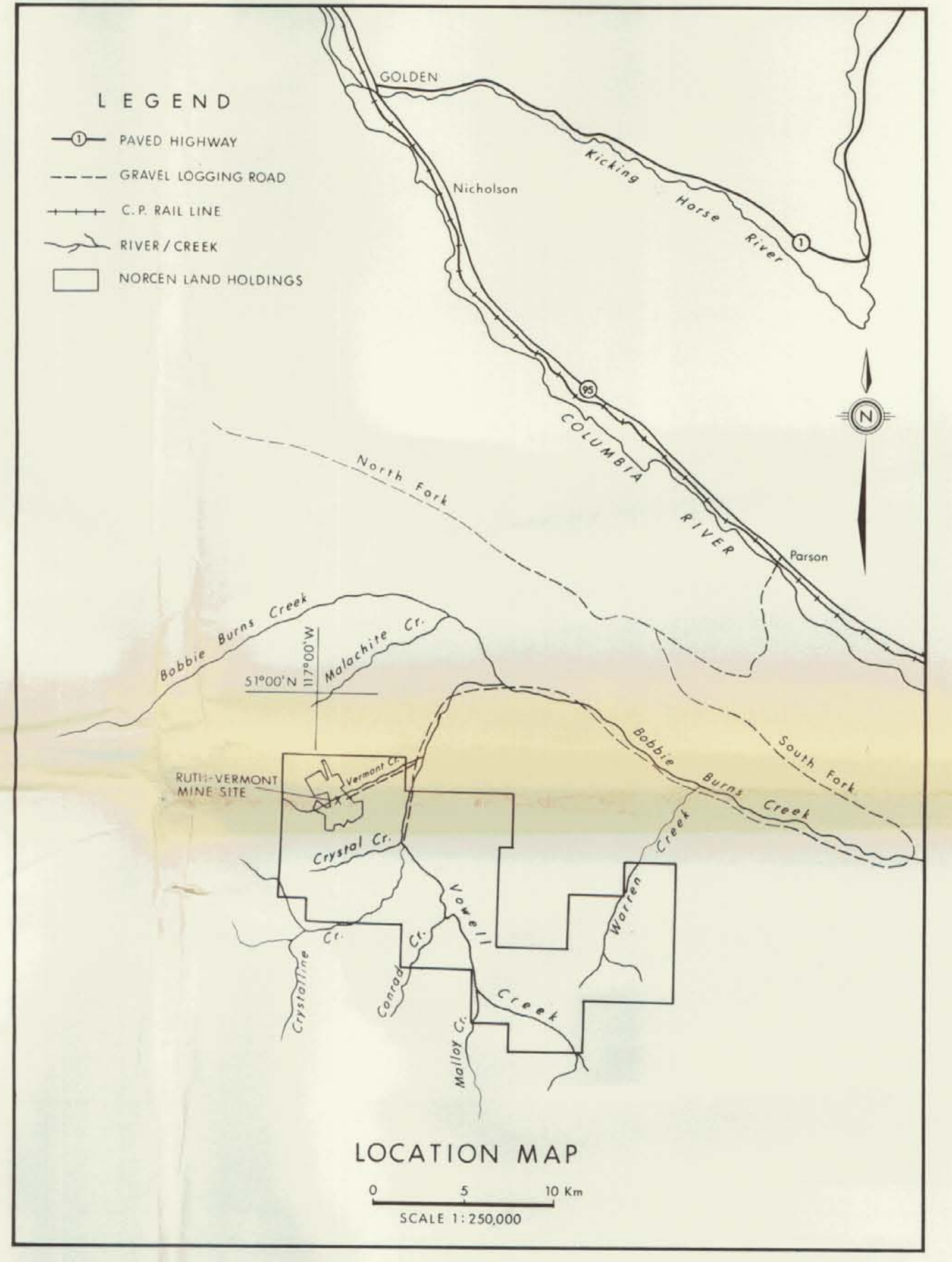
XVIII
(WC7, WC12)

XXI
(WC8, WC10)

XIX
(WC9, WC11)

XX
(WC13, WC14)

ppm	ppm
Cu	Pb
ppm	ppm
Zn	Ag

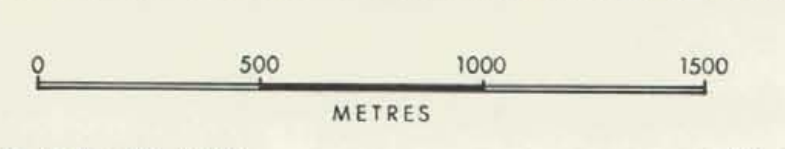


part 1
of 2

8101

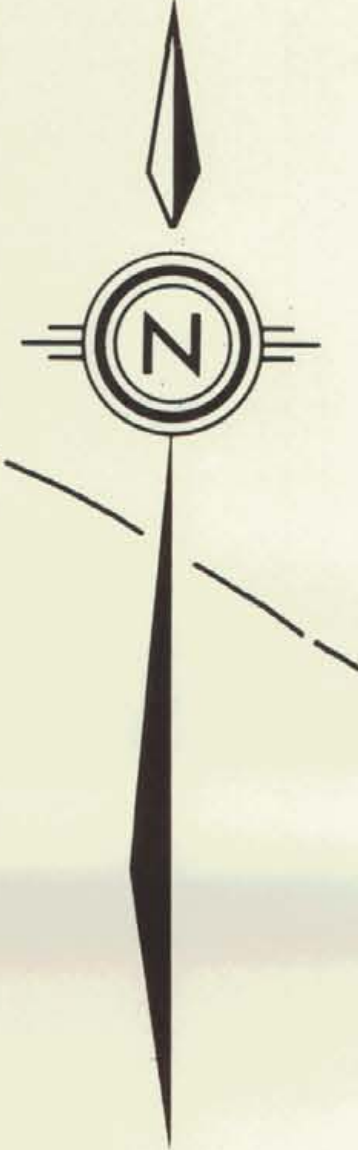
Norcen
Energy Resources Limited

(COCHRANE OIL AND GAS OPTION)
CRYSTAL CREEK PROJECT
BRITISH COLUMBIA
REGIONAL SOIL GEOCHEMICAL MAP



NTS 82K-14E,15E,15W MAY, 1980

GRAVEL ROADS



XIV
2, S3)

XXIII
(WC1, WC3)

(WC2, WC4)
XXII

XXIV
(WC5, WC6)

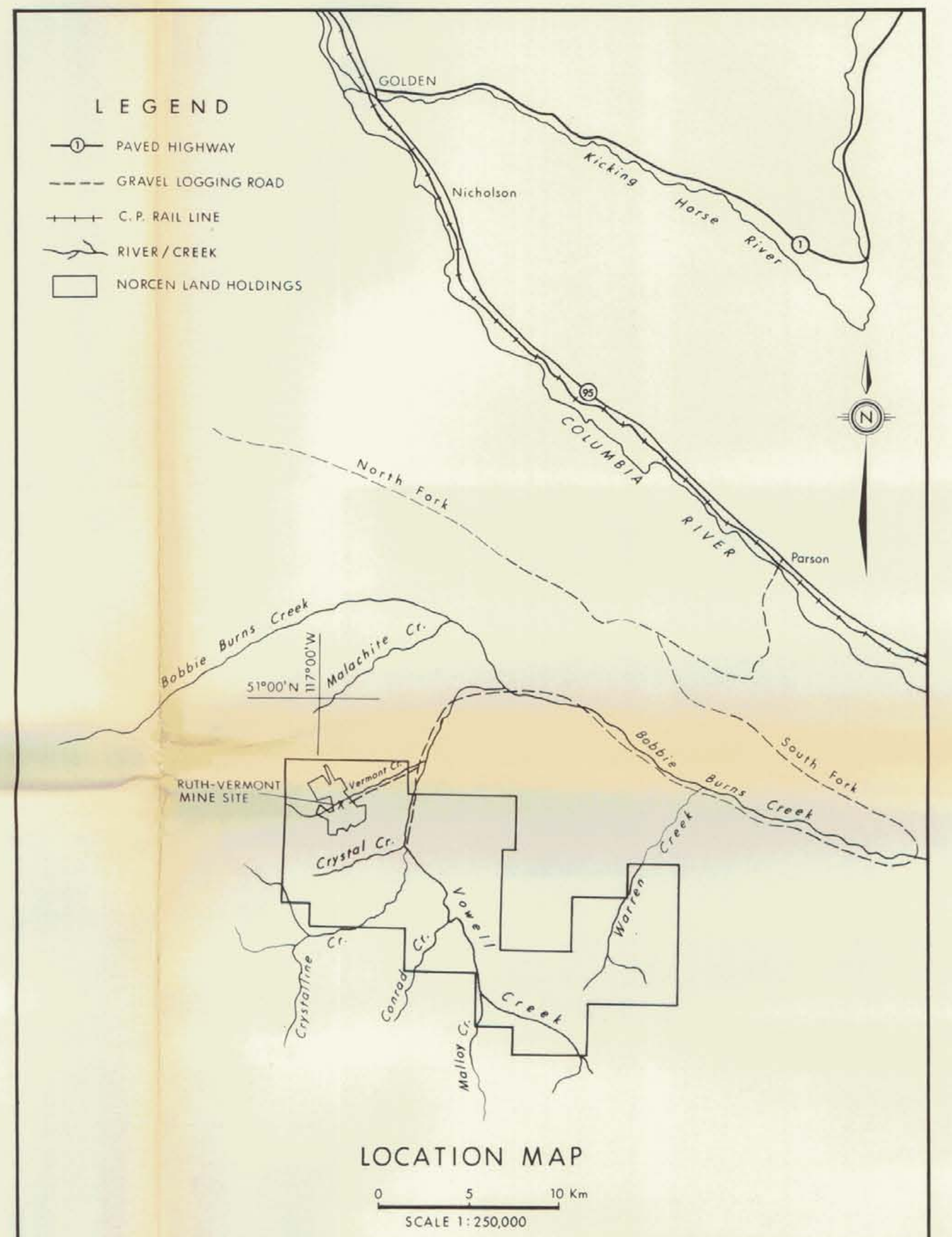
XVIII
(WC7, WC12)

XXI
(WC8, WC10)

XIX
(WC9, WC11)

XX
(WC13, WC14)

ppm	ppm
Cu	Pb
ppm	ppm
Zn	Ag



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8102 part 1 of 2
NO.

Norcen
Energy Resources Limited

(COCHRANE OIL AND GAS OPTION)
CRYSTAL CREEK PROJECT
BRITISH COLUMBIA
REGIONAL SOIL GEOCHEMICAL MAP

0 500 1000 1500
METRES

NTS 82K-14E,15E,15W MAY, 1980

GRAVEL ROADS