

180-4362-# 8104

NORCEN ENERGY RESOURCES LIMITED

ASSESSMENT REPORT
GEOCHEMICAL AND GEOLOGICAL PROGRAM
GROUP XV (COG 11 - L1)

GOLDEN MINING DIVISION,
BRITISH COLUMBIA

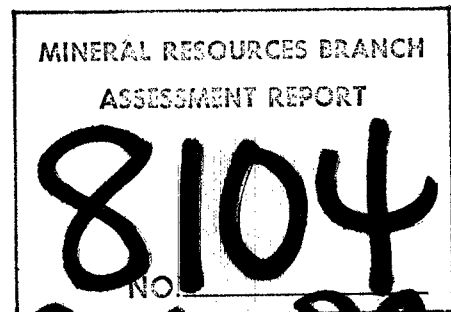
Claims: COG 11 (330)
L1 (338)

Location: 40 km South of Golden, British Columbia

Latitude: 50°54'N

Longitude: 116°52'W

Owner and Operator: Norcen Energy Resources Limited
August 19, 23 and 25, 1979



June 9, 1980

Part 1 of 2
L. Smith P.Geol.

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APPENDIX I

Geochemical Assay Certificates

MAPS

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 XV (COG 11 - L1) on August 19, 23 and 25, 1979. A total of thirty-one (31) 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.

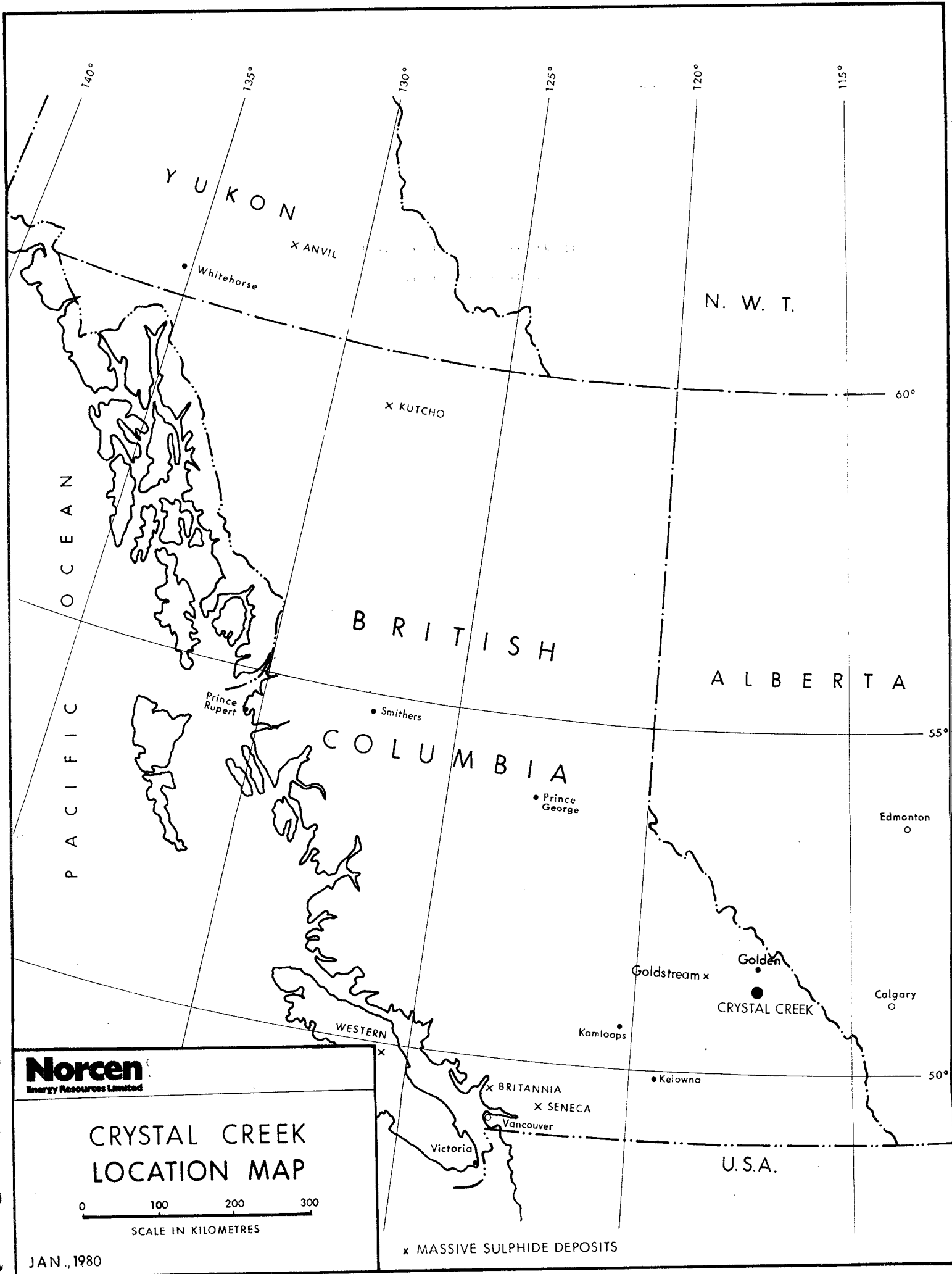
LOCATION AND ACCESS (See Land Holdings Maps, Crystal Creek Project, British Columbia)

The claims are located in the Purcell Mountains approximately 40 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

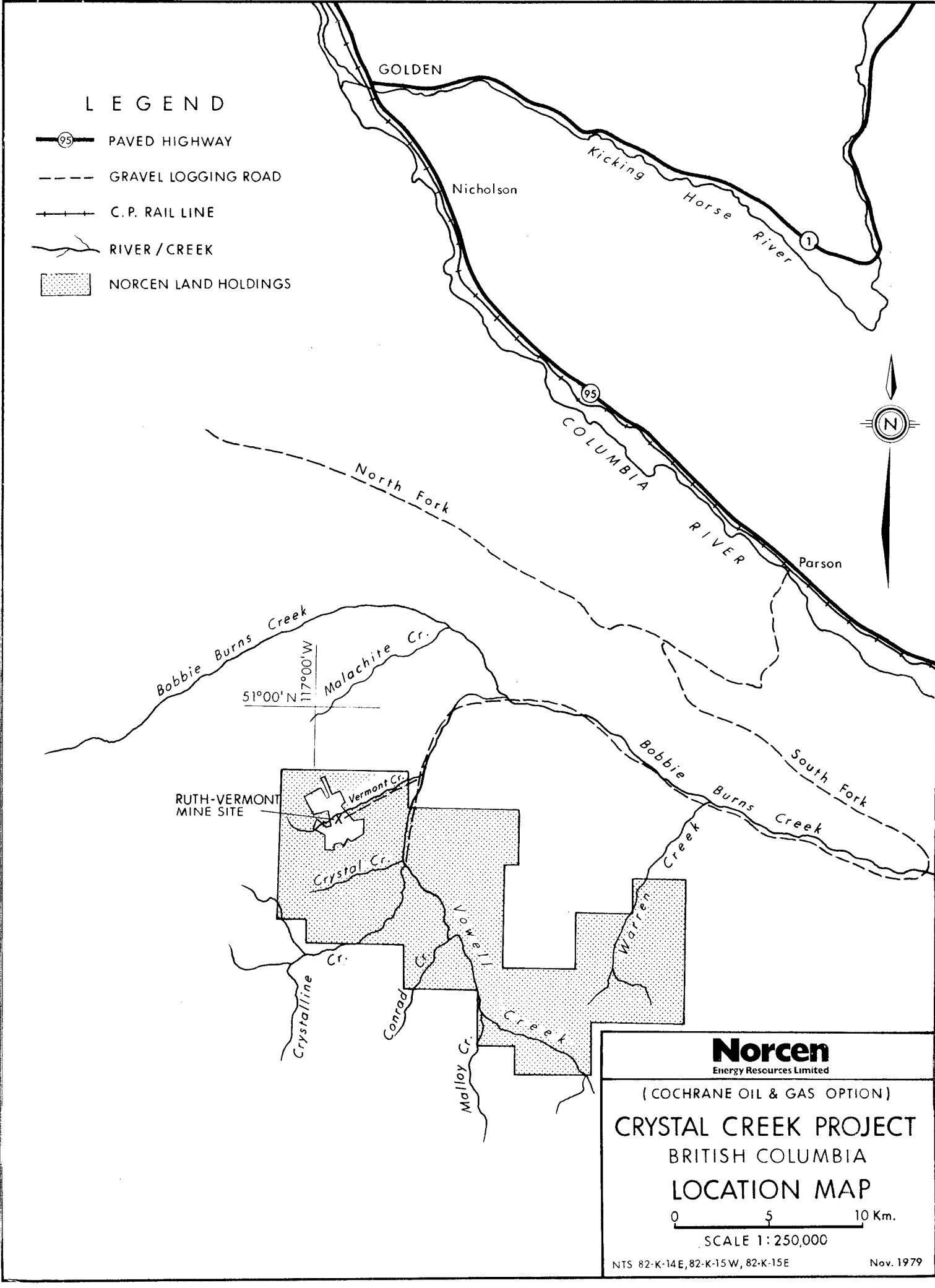
The COG 11 and L1 claims form part of the Crystal Creek Property. The COG 11 and L1 claims have been grouped into Group XV (COG 11 - L1).

| <u>Claim Name</u> | <u>Record Number</u> | <u>Recorded Date</u> | <u>Unit Dimensions</u> | <u>No. of Units</u> |
|-------------------|----------------------|----------------------|------------------------|---------------------|
| COG 11 | 330 | June 18, 1979 | 5S X 4E | 20 |
| L1 | 338 | June 18, 1979 | 4W X 5N | 20 |



LEGEND

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



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

Nov. 1979

GEOCHEMICAL SOIL SAMPLING

A total of thirty-one (31) B horizon soil samples were collected within the boundaries of claims COG 11 and L1. 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 11 and L1 claims. These are:

| <u>Sample No.</u> | <u>ppm Pb</u> | <u>ppm Zn</u> | <u>ppm Ag</u> | <u>ppm Cu</u> |
|-------------------|---------------|---------------|---------------|---------------|
| MA-19-24 | 19 | 76 | 0.7 | *46 |
| MA-23-8 | *64 | 104 | 0.6 | *83 |
| MA-23-9 | *43 | 99 | 0.6 | 23 |
| GW-25-2 | 17 | *110 | 0.6 | 18 |

* 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 XV (COG 11 - L1).
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 23, 1979) | |
| | L. Smith, Report Writing (June 9, 1980) | |
| | 1 day @\$125/day | \$ 125.00 |
| | 1 day @\$175/day | 175.00 |
| | M. Anderson - Geologist (August 19, and 23, 1979) | |
| | G. Wilson - Geologist (August 25, 1979) | |
| | 3 days @\$90/day | 270.00 |
| | R. Kostiuik - Geochemical Sampler (August 19, and 23, 1979) | |
| | D. Desjardins - Geochemical Sampler (August 25, 1979) | |
| | 3 days @\$75/day | 225.00 |
| B. | Transport | |
| | 4 Wheel Drive Vehicle Rental | |
| | \$30.00/day X 3 days | 90.00 |
| | Fuel for Vehicle \$5.00/day 3 4 days | 15.00 |
| C. | Accommodation and Meals | |
| | 7 man days X \$25/day | 175.00 |
| D. | Assaying | |
| | 31 Geochemical Assays @\$5/sample | <u>155.00</u> |
| | | \$1 230.00 |

APPENDIX I

Geochemical Assay Certificates

NORGEN 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 |
|---|-----------|-----------|-----------|-----------|
| YA-A | | | | |
| 19/14 | 13 | 16 | 60 | 0.7 |
| 19/15 | 26 | 16 | 89 | 0.8 |
| 19/16 | 22 | 17 | 83 | 0.9 |
| 19/17 | 26 | 17 | 60 | 0.5 |
| 19/18 | 19 | 17 | 89 | 0.9 |
| 19/19 | 26 | 19 | 93 | 0.8 |
| 19/20 | 20 | 12 | 76 | 0.8 |
| 19/21 | 24 | 20 | 91 | 0.9 |
| 19/22 | 25 | 23 | 100 | 0.7 |
| 19/23 | 28 | 20 | 92 | 0.8 |
| 19/24 | 16 | 19 | 76 | 0.7 |
| 19/25 | 24 | 20 | 71 | 0.7 |
| YA-A | | | | |
| 20/4 | 18 | 18 | 73 | 0.9 |
| 20/5 | 33 | 20 | 73 | 0.9 |
| 20/6 | 27 | 22 | 75 | 0.6 |
| 20/7 | 18 | 29 | 88 | 0.8 |
| <p>I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES</p> | | | | |

Tests Retained one month.
Tests Retained one month
with specific arrangements
made in advance.

A. L. McJannet
Licensed Assayer of British Columbia

TO: ... ENERGY RESOURCES LIMITED
 ... 15-5th Avenue S.W., 27th Flr.
 ... Calgary, Alberta T2P 2X7



File No. ... 17716
 Date ... September 17, 1979
 Samples ... Soil

ATTN: L. Smith

Certificate of
 ASSAY OF
 LORING LABORATORIES LTD.

Page # 3

| SAMPLE No. | PPM Cu | PPM Pb | PPM Zn | PPM Ag |
|------------|-----------|-----------|-----------|-----------|
| GN-1-25/1 | 24 | 21 | 93 | 0.5 |
| 25/2 | 18 | 17 | 110 | 0.6 |
| 25/3 | 19 | 25 | 86 | 0.7 |
| 25/5 | 21 | 19 | 56 | 0.5 |
| 25/6 | 21 | 17 | 57 | 0.5 |

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

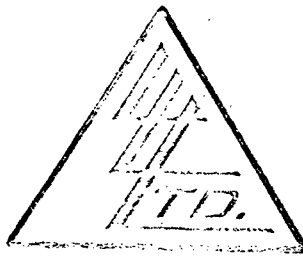
Objects Retained one month.
 is Retained one month
 for specific arrangements
 fee in advance.

Licensed Assayer of British Columbia

ROCKEN ENERGY RESOURCES LIMITED

15-5th 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

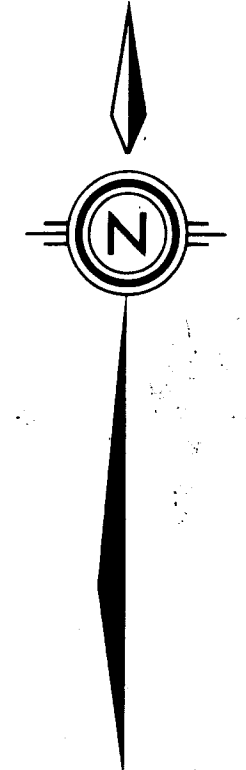
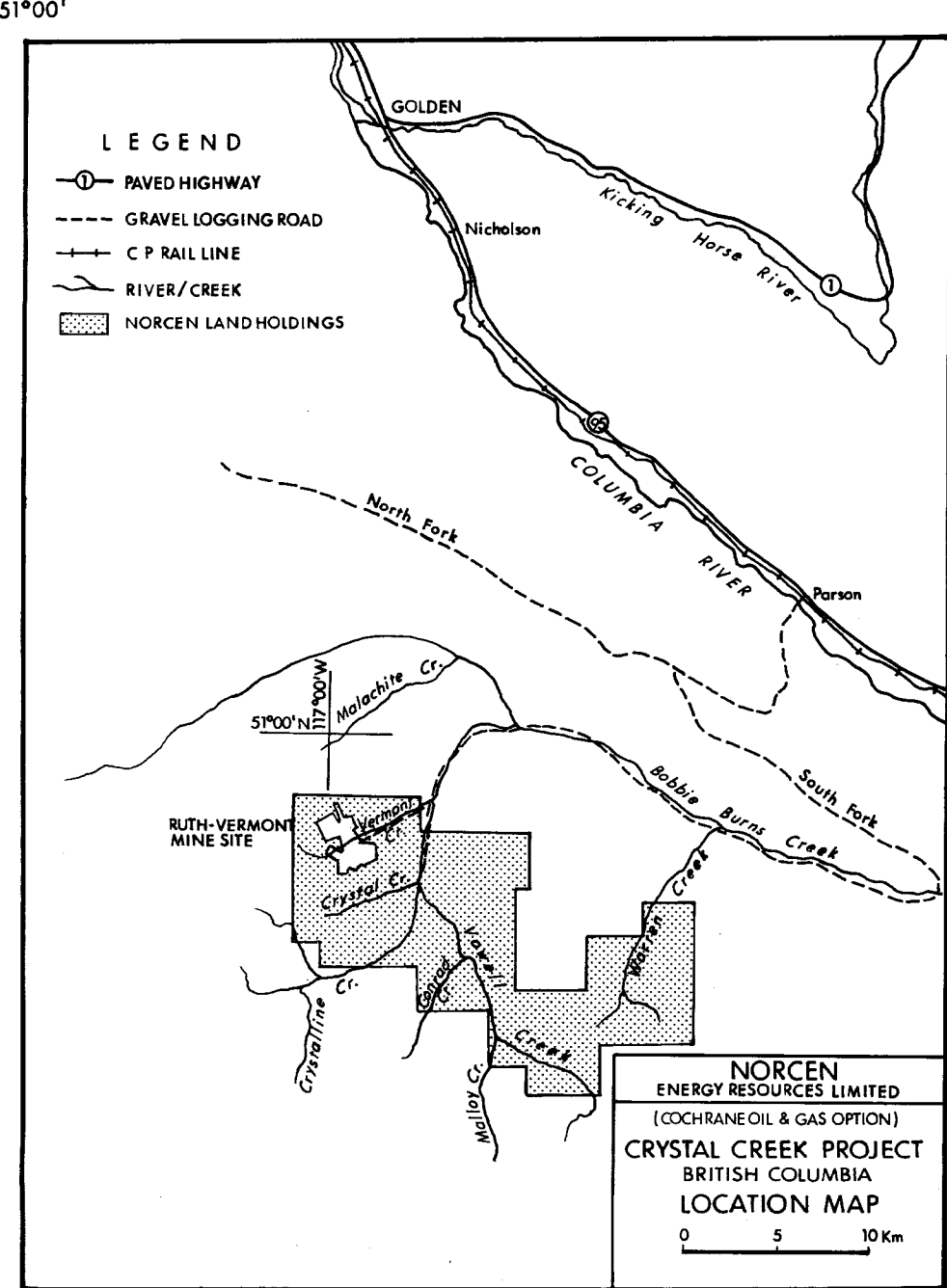
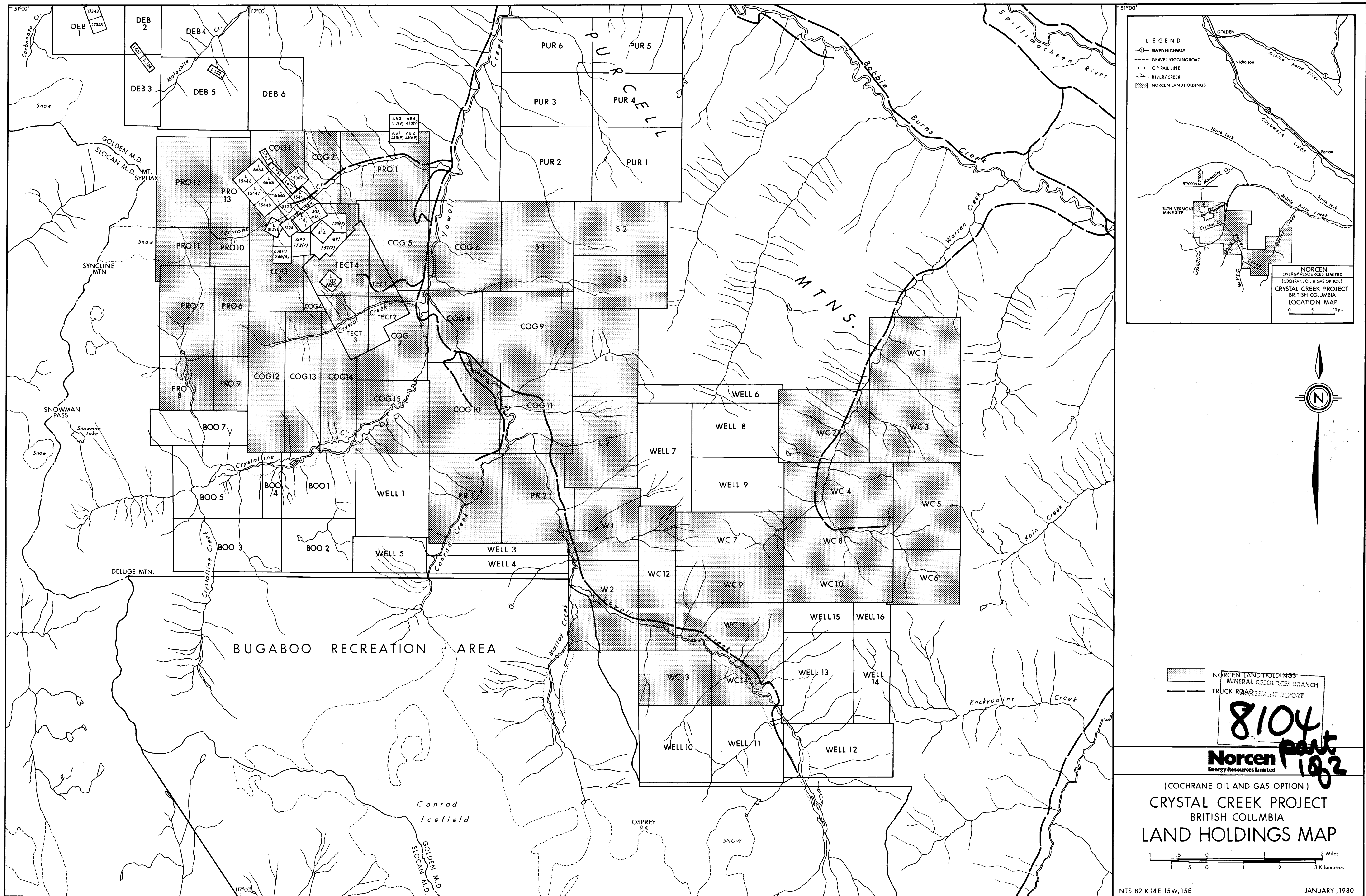
| SAMPLE No. | PPM Cu | PPM Pb | PPM Zn | PPM Ag |
|------------|-----------|-----------|-----------|-----------|
| A-23/1 | 16 | 15 | 22 | 0.9 |
| 23/2 | 18 | 21 | 49 | 0.9 |
| 23/3 | 17 | 22 | 91 | 0.8 |
| 23/4 | 21 | 22 | 84 | 0.6 |
| 23/5 | 19 | 41 | 83 | 0.6 |
| 23/7 | 31 | 25 | 100 | 0.6 |
| 23/8 | 64 | 33 | 104 | 0.6 |
| 23/9 | 43 | 23 | 99 | 0.6 |
| A-25/1 | 10 | 21 | 48 | 0.5 |
| 25/2 | 12 | 17 | 25 | 0.6 |

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

Retained one month.

Retained one month
if no arrangements
are made.

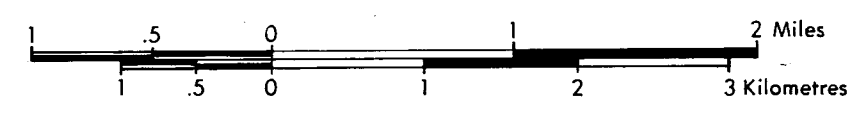
ad m. Isaac
Licensed Assayer of British Columbia

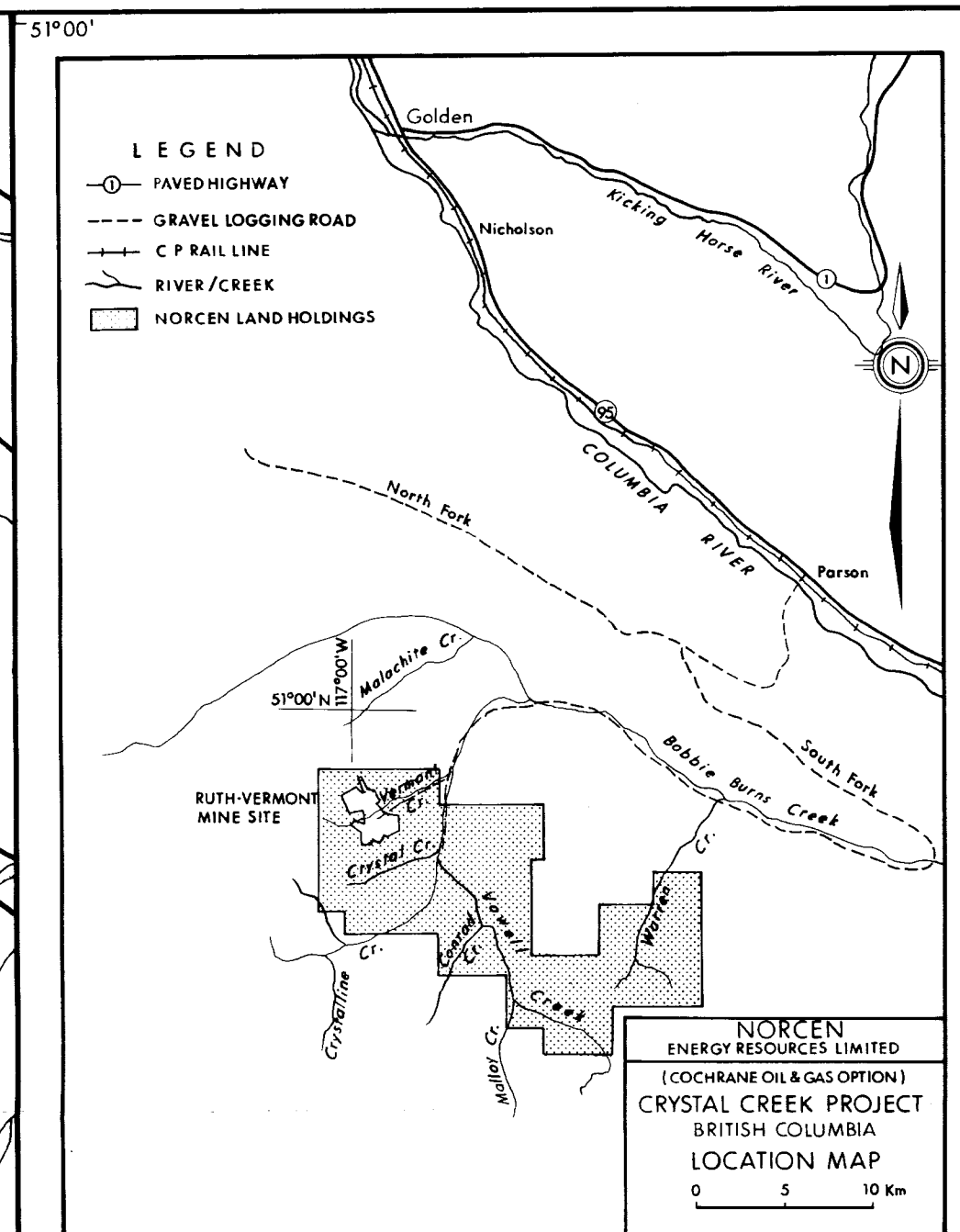
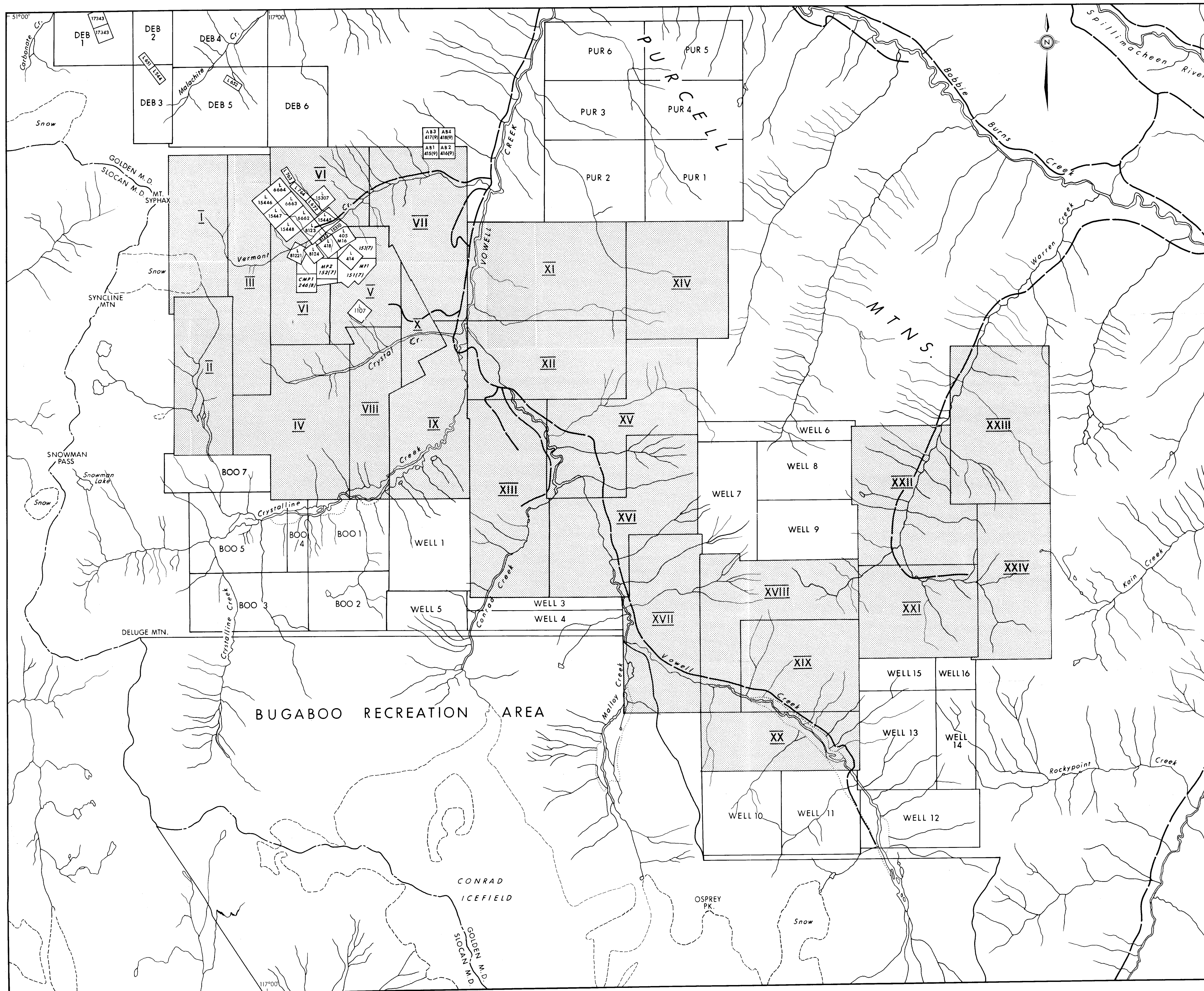


NORCEN LAND HOLDINGS
 MINERAL RESOURCES BRANCH
 TRUCK ROAD ASSESSMENT REPORT

8104
 Part 182
Norcen
 Energy Resources Limited

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

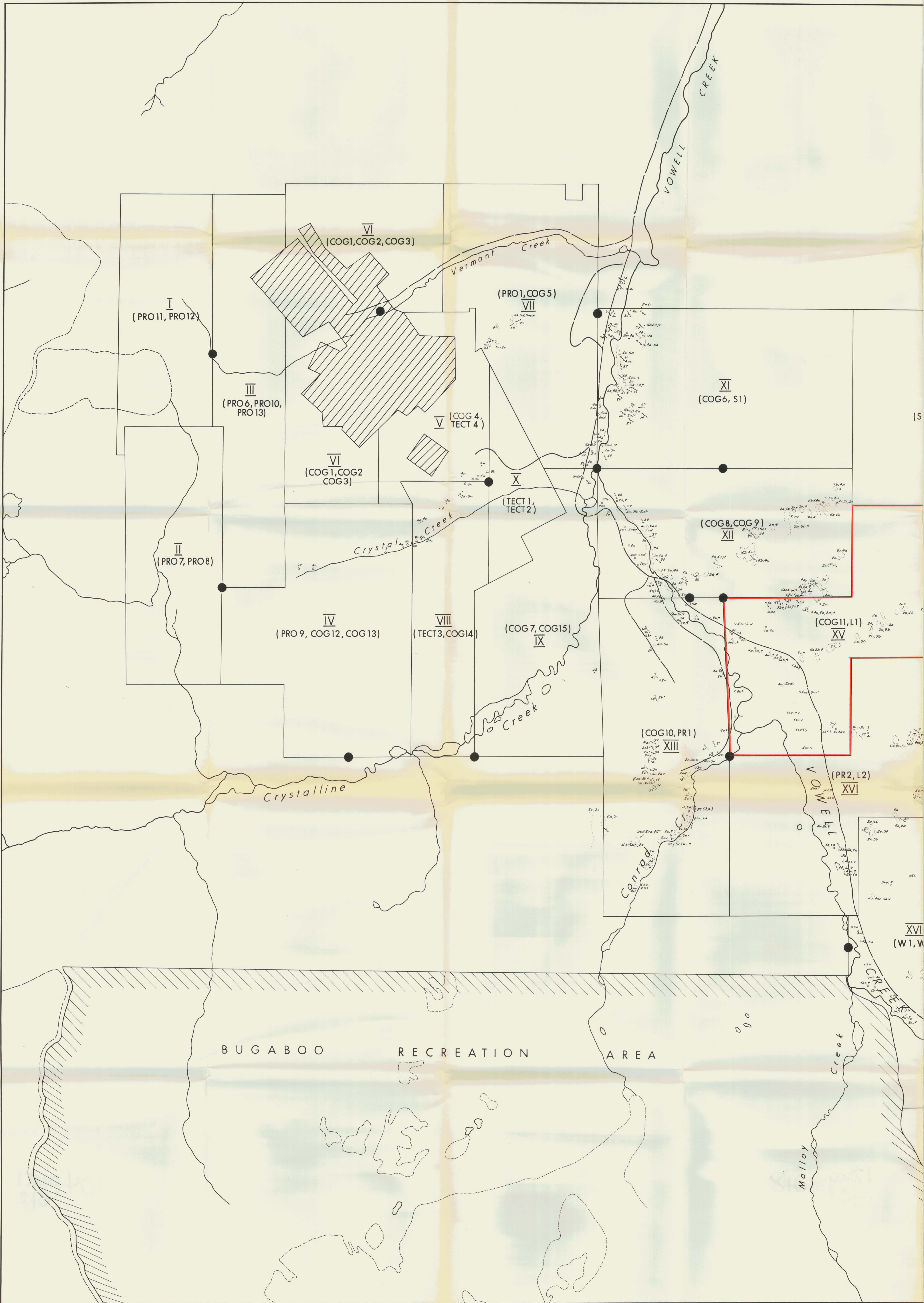




| GROUP | Number of units |
|--------------|-----------------|
| I | 27 |
| II | 24 |
| III | 37 |
| IV | 38 |
| V | 38 |
| VI | 38 |
| VII | 40 |
| VIII | 28 |
| IX | 36 |
| X | 27 |
| XI | 40 |
| XII | 32 |
| XIII | 40 |
| XIV | 36 |
| XV | 40 |
| XVI | 40 |
| XVII | 36 |
| XVIII | 34 |
| XIX | 30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

NORCEN LAND HOLDINGS
MINERAL RESOURCES BRANCH
TRUCKROAD REPORT
8104
Norcen part 102
Energy Resources Limited

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



I
(PRO 11, PRO 12)

III
(PRO 6, PRO 10,
PRO 13)

II
(PRO 7, PRO 8)

IV
(PRO 9, COG 12, COG 13)

VI
(COG 1, COG 2, COG 3)

VI
(COG 1, COG 2,
COG 3)

V
(COG 4,
TECT 4)

VIII
(TECT 3, COG 14)

(PRO 1, COG 5)
VII

X
(TECT 1,
TECT 2)

(COG 7, COG 15)
IX

XI
(COG 6, S1)

(COG 8, COG 9)
XII

(COG 11, L1)
XV

(COG 10, PR 1)
XIII

(PR 2, L2)
XVI

XVI
(W1, W)

BUGABOO RECREATION AREA

VOWELL
CREEK

Vermont
Creek

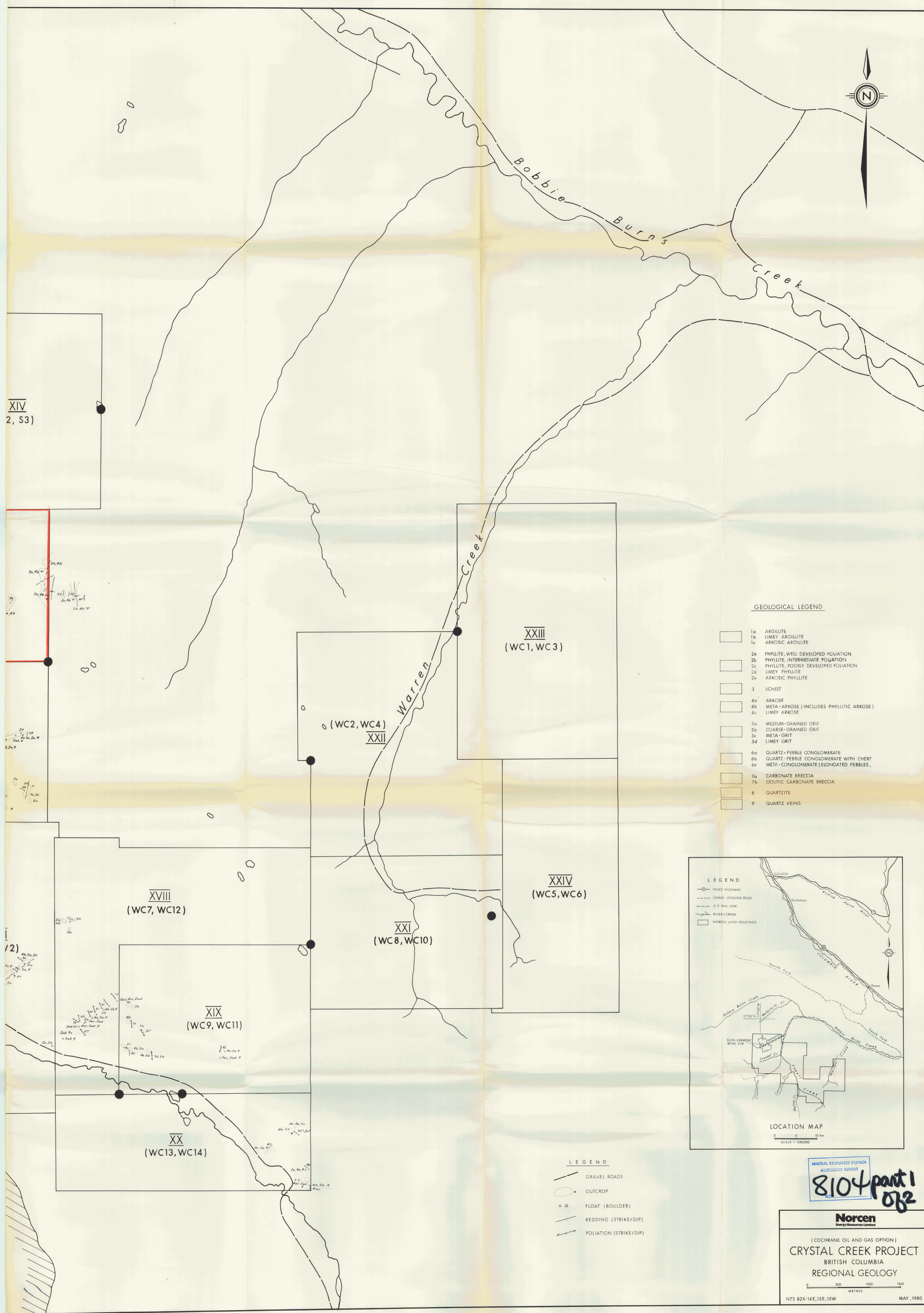
Crystal
Creek

Crystalline
Creek

Conrad
Creek

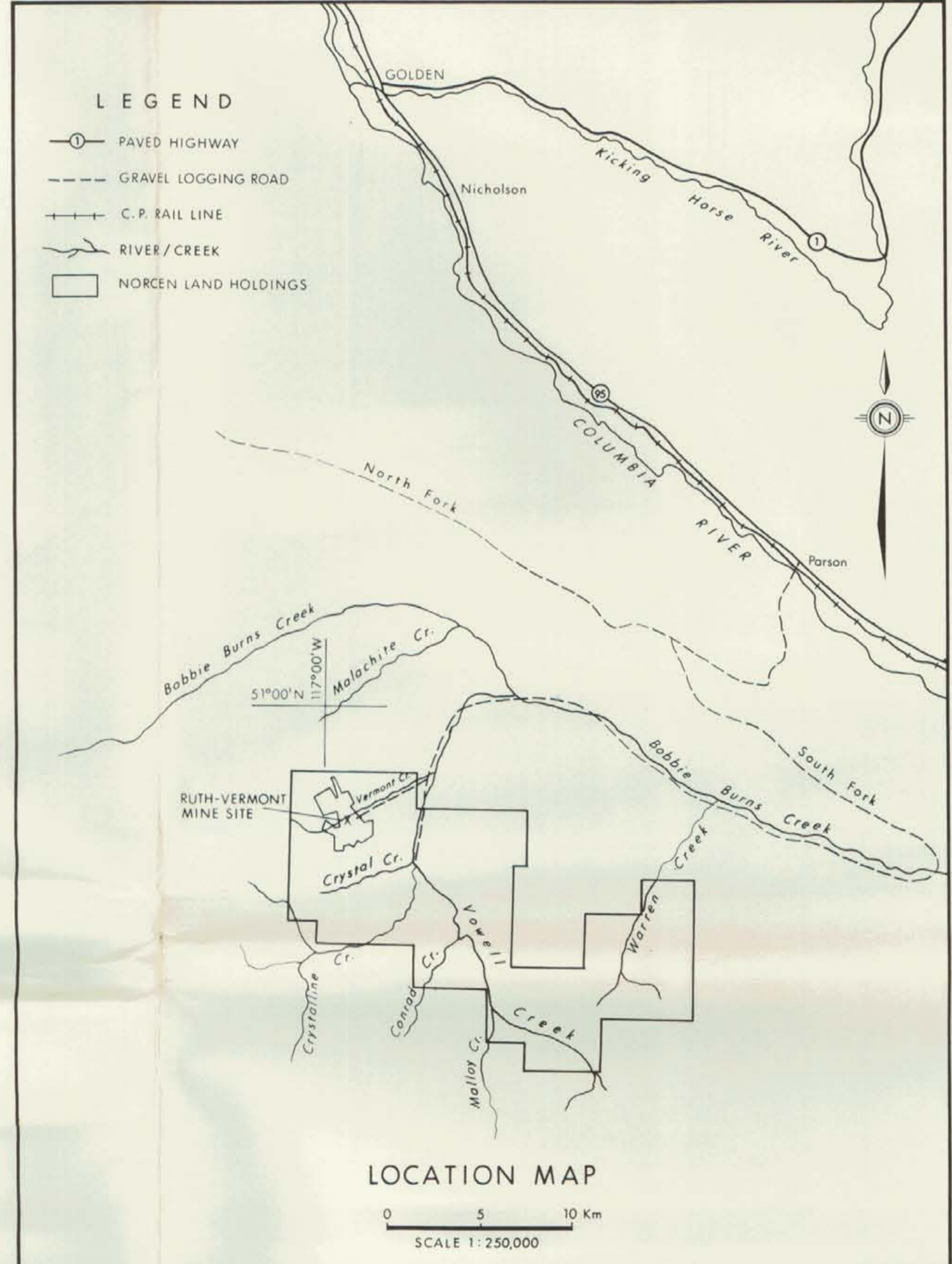
VOWELL
CREEK

Malloy
Creek



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)

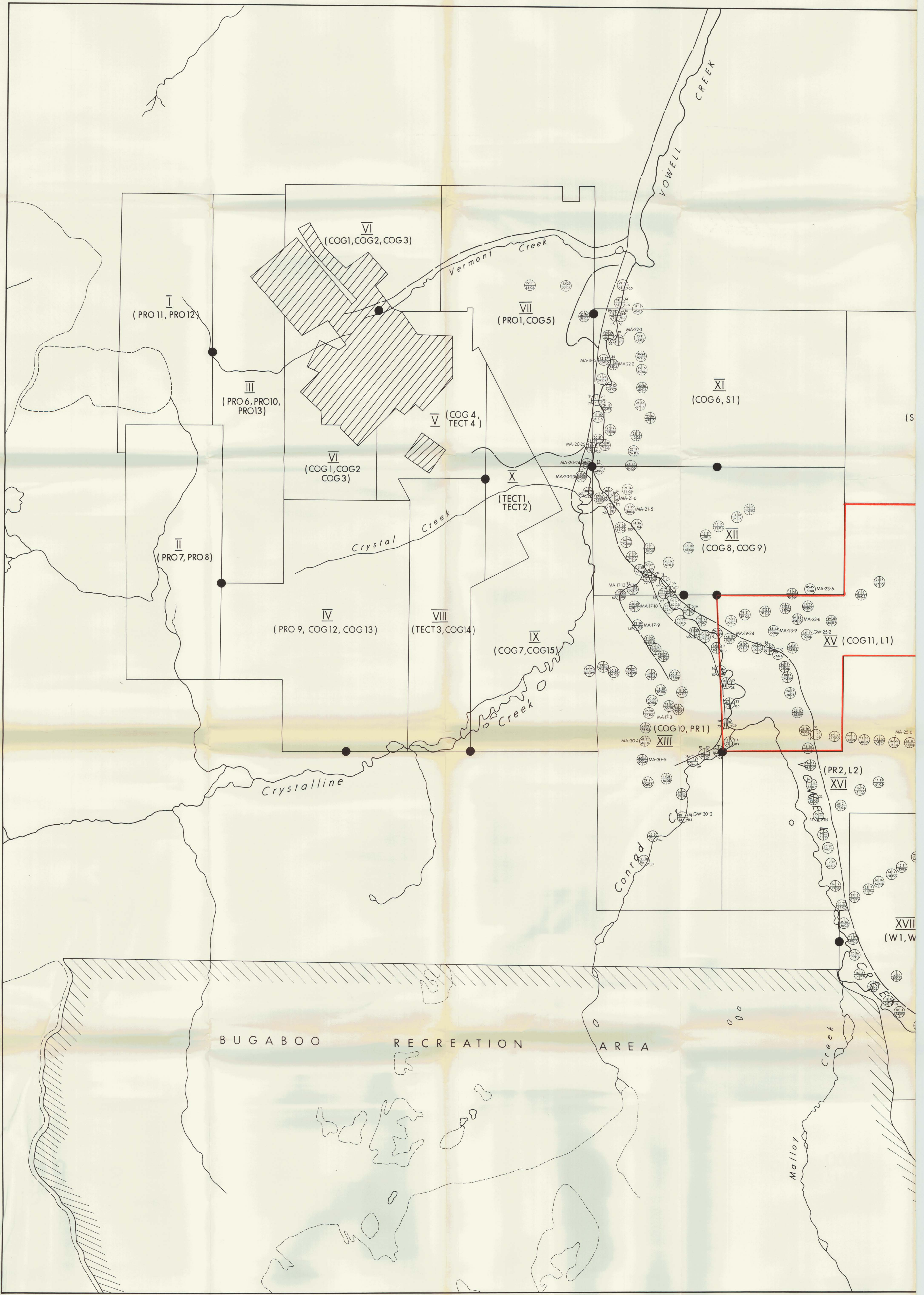
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
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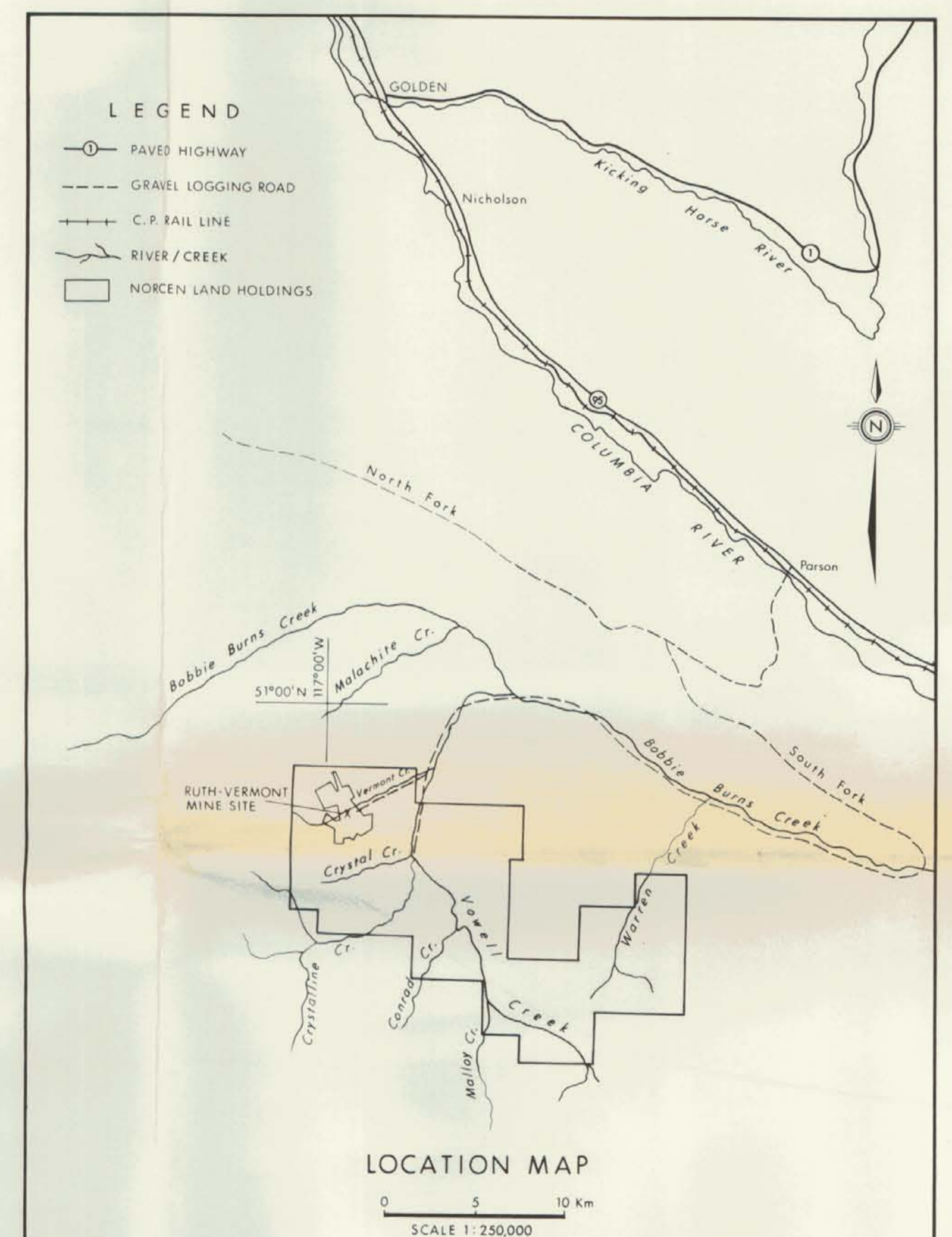
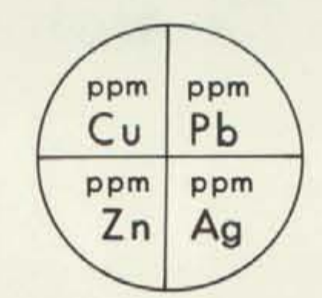
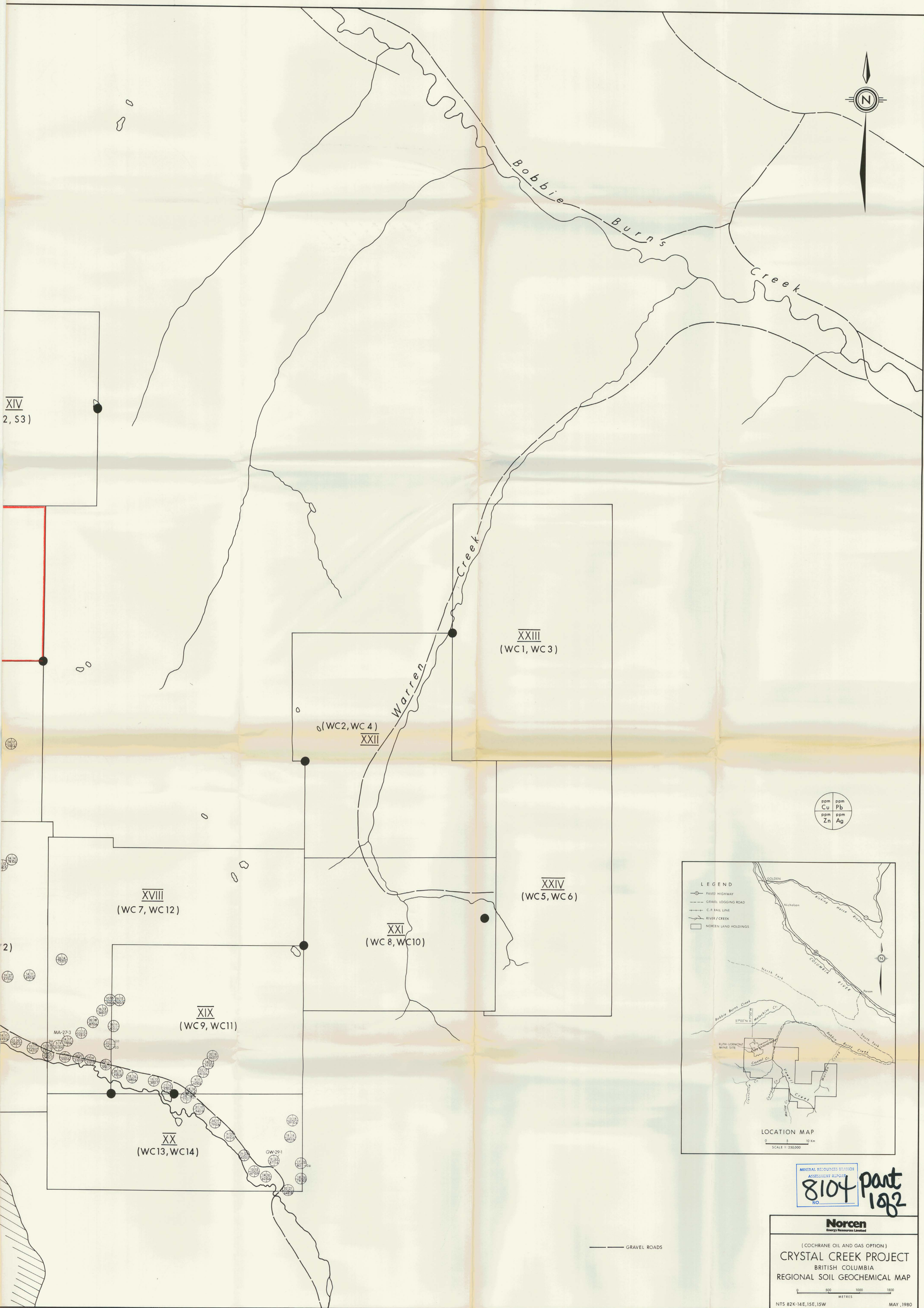
Norcen
Energy Resources Limited

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

0 500 1000 1500
METRES

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





GRAVEL ROADS

MINERAL RESOURCES DIVISION
ASSESSMENT REPORT
8104 part
NO 102

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