

COAL ACT

(Section 19 & B.C. Reg. #436/75)

Exploration & Development Work Report Cover Sheet

Property name: Bullmoose Coal Map No. 93P/3 & 4

Location: Sukunka River Area Land District Peace River

Coal Licence No. (s) 3015, 3018, 3021-3024, 3043, 3048

Licensee: Brameda Resources Limited

Operator: Teck Corporation Ltd.

Title of Report: Diamond Drilling - Bullmoose Property by R. S. Verzosa, P.Eng.  
December, 1975

Period covered by Report: July 14 - August 20, 1975

Category of work covered in report

Geological Mapping \_\_\_\_\_

Surveys: Geophysical \_\_\_\_\_

Geochemical \_\_\_\_\_

Other \_\_\_\_\_

Road Construction \_\_\_\_\_

Surface work \_\_\_\_\_

Underground work \_\_\_\_\_

Drilling \_\_\_\_\_ \$68,756.09

Logging \_\_\_\_\_ =

Sampling } \_\_\_\_\_ \$5,180.93

Testing } \_\_\_\_\_

Reclamation \_\_\_\_\_ \$850.00

Other work \_\_\_\_\_

Total costs of work reported \$ \_\_\_\_\_ 74,787.02

Comments:

Value of work approved \$ 74,787.02

Signature: A.R.L. James  
Senior Inspector of Mines

Date Jan 12 / 76

Accepted: [Signature]  
Chief Gold Geologist  
Mineral Resources Branch

Date Jan 14 / 76

CONFIDENTIAL  
OPEN FILE

DIAMOND DRILLING--BULLMOOSE PROPERTY  
(COAL LIC. #3015, 3018, 3021-3024, 3043, 3048)  
SUKUNKA RIVER AREA (93 P 4/E, 93 P 3W)

by

R. S. Verzosa, P.Eng.

for

TECK CORPORATION LIMITED

and

BRAMEDA RESOURCES LIMITED

December, 1975

Vancouver, B.C.

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## INTRODUCTION

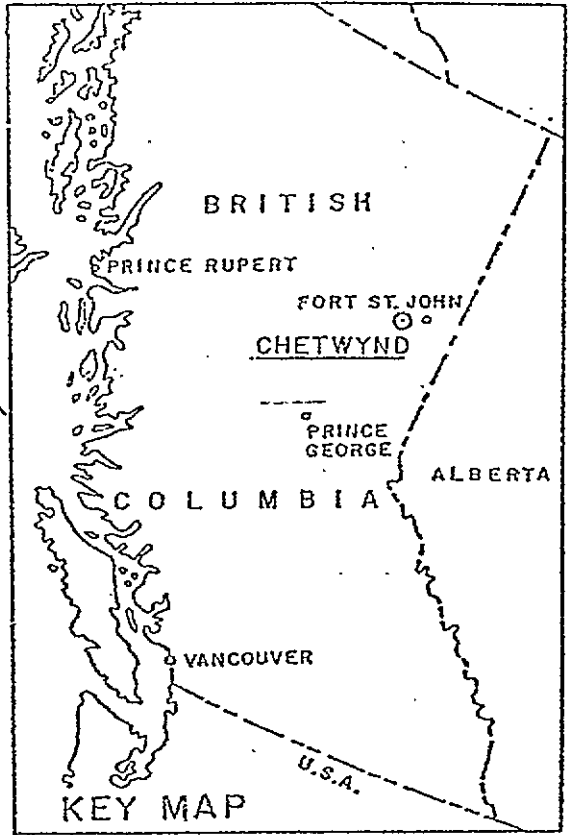
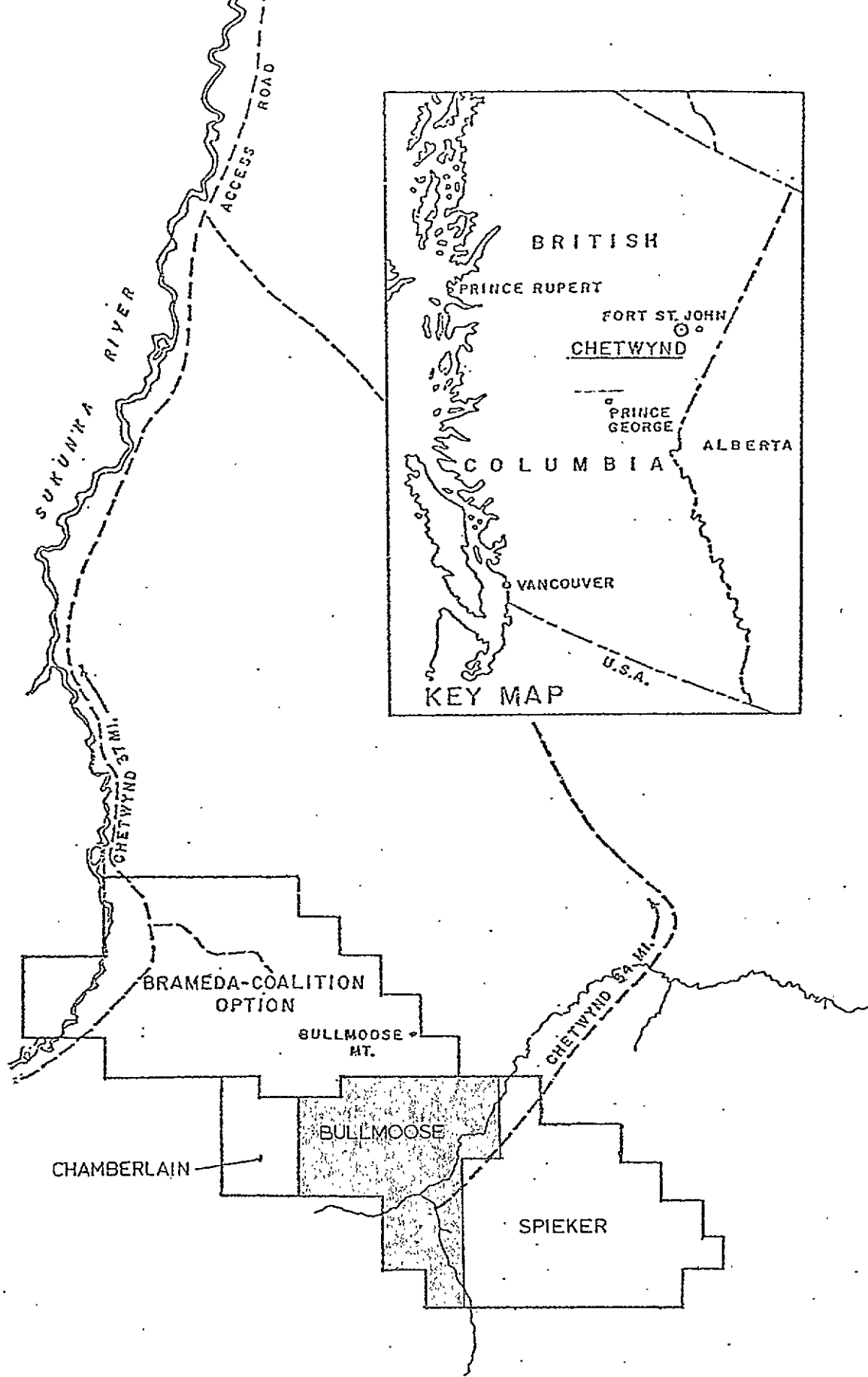
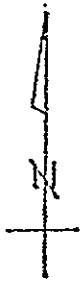
During the period July 14, 1975 to August 20, 1975 a diamond drilling program was carried out by Teck Corporation Ltd. on the Bullmoose coal property (Figure 1) of Brameda Resources Ltd.

The main object of the program was to test the Chamberlain seam by deep drilling in an unexplored part of the property. The location of the hole (T-20) in relation to previous drilling is shown in Figure 2. Drilling difficulties worsened upon completion of the hole at 2148 feet to the extent that 1600 feet of drill rods had to be eventually abandoned. This condition prevented the radiation logging of the hole by crews and equipment that were standing by at the time.

## DIAMOND DRILLING

The drilling contract was awarded to Connors Drilling Ltd. of Vancouver. A unitized Longyear S-38 drill rig equipped with wireline and a split inner tube was used. Core size was NQ throughout the length of the hole.

Drilling difficulties as mentioned earlier were largely due to fractured ground. However, core recovery proved to be generally satisfactory, particularly within the coal sections.



• MT. REESOR

TECK CORPORATION LTD.  
BULLMOOSE PROJECT  
PROPERTY LOCATION MAP

Scale: 1 in. = 4 mi. FIG. 1


The hole had to be abandoned after several attempts, that included down-the-hole blasting, failed to free the rods.

GENERAL GEOLOGY

The drill hole (T-20) is located near the axis of a northwesterly broad syncline east of Mt. Chamberlain (Figure 2 and 3). It was collared in the Boulder Creek Member of the Commotion Formation and bottomed a few feet below the floor of the Chamberlain seam (Figure 4). The strata penetrated appeared to be gently dipping, the angles of beds to core axes averaging only 87 degrees.

Coal seams were intersected in the Gates Member and in the Upper Gething sequence. The seams in the Gates Member were found to be either too thin (less than 5 feet) or when sufficiently thick (greater than 5 feet), included large amounts of shale bands and partings. Results of proximate analyses and sink-float tests of samples of two Gates coal seams and the Chamberlain seam are appended in this report. The unusually high ash content of the Chamberlain seam in this hole may largely be due to the presence of at least three shaley bands.

Respectfully submitted,

  
R. S. Versoza, P. Eng.

GEOPHYSICAL ENGINEERING LIMITED

December, 1975  
Vancouver, B. C.

**COMMERCIAL TESTING & ENGINEERING CO.**

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

Please address all correspondence to:  
147 Riverside Dr., North Vancouver, B.C. V7H 1T6Office: Tel. (604) 929-2228  
Roberts Bank Tel. (604) 946-7021

November 3, 1975

TECH CORPORATION LIMITED,  
1199 W. Hastings St.,  
Vancouver, B.C.

Sample Identification:

Report No. 64-11398-  
64-11403

T-20

Sample No. 1 Chamberlain Seam (2129.1-2139.5)

RAW COAL ANALYSISDRY BASIS

|                      |               |
|----------------------|---------------|
| % Ash                | 21.41         |
| % Volatile           | 19.03         |
| % Fixed Carbon       | 59.56         |
|                      | <u>100.00</u> |
| Btu                  | 12110         |
| % Sulfur             | 0.29          |
| Free Swelling Index: | 5             |



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November 3, 1975.

TECH CORPORATION LIMITED,  
1199 W. Hastings St.,  
Vancouver, B.C.

Sample Identification:

Report No. 64-11404-  
64-11409

T-20

Sample No. 2 Upper Gates (920.5-926.5)

## RAW COAL ANALYSIS

### DRY BASIS

|                      |               |
|----------------------|---------------|
| % Ash                | 41.63         |
| % Volatile           | 19.41         |
| % Fixed Carbon       | 38.96         |
|                      | <u>100.00</u> |
| Btu                  | 8651          |
| % Sulfur             | 0.27          |
| Free Swelling Index: | 3-1/2         |

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Roberts Bank Tel. (604) 946-7021

November 3, 1975

TECH CORPORATION LIMITED,  
1199 W. Hastings St.,  
Vancouver, B.C.

Sample Identification:

Report No. 64-11410-  
64-11415

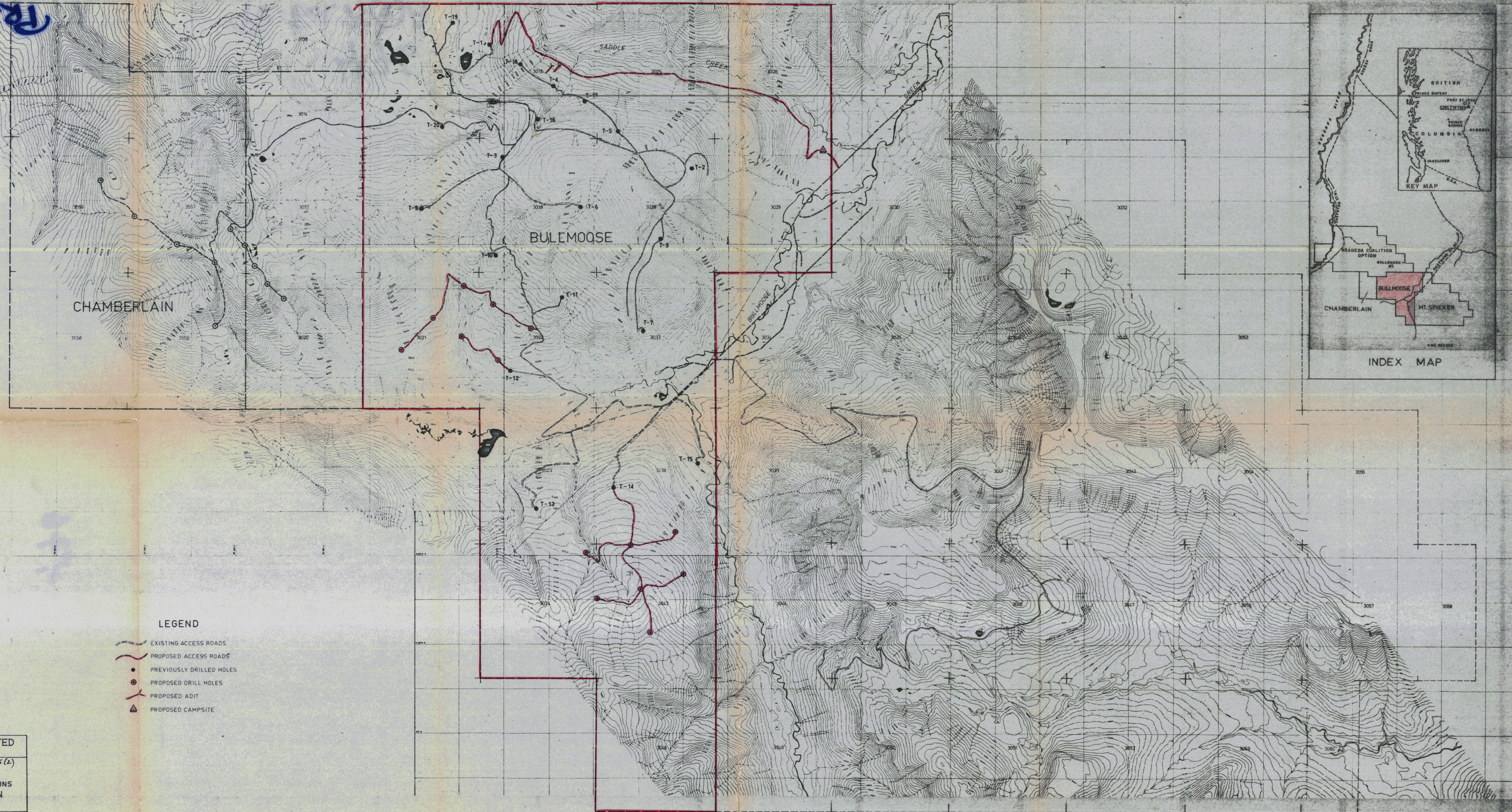
T-20

Sample No. 3      Upper Gates (869-874.3)

RAW COAL ANALYSISDRY BASIS

|                      |              |
|----------------------|--------------|
| % Ash                | 44.44        |
| % Volatile           | 19.83        |
| % Fixed Carbon       | <u>35.73</u> |
|                      | 100.00       |
| Btu                  | 7889         |
| % Sulfur             | 0.25         |
| Free Swelling Index: | 1-1/2        |

476  
 PR-BUL75(2)A



LEGEND

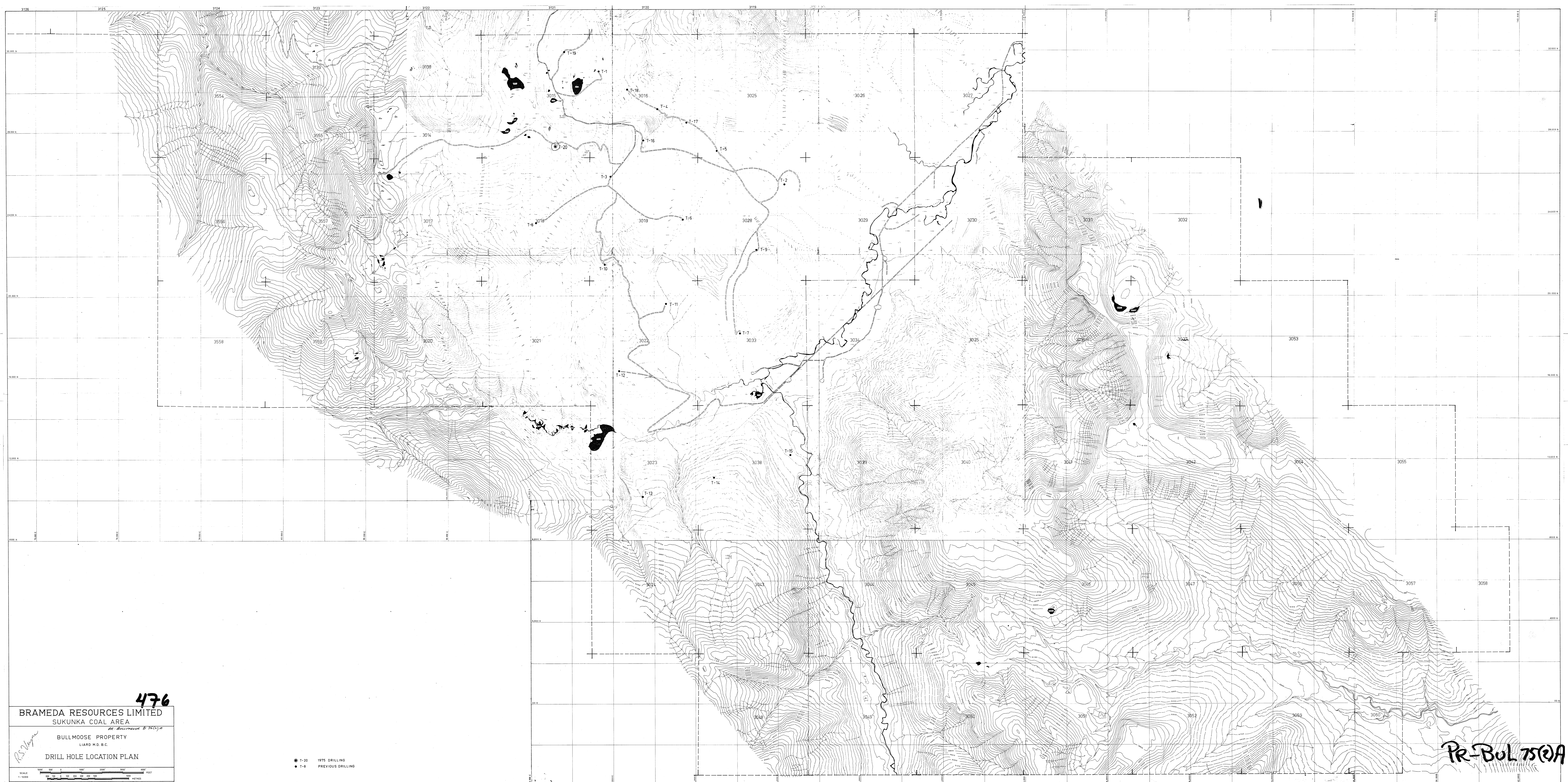
- EXISTING ACCESS ROADS
- PROPOSED ACCESS ROADS
- PREVIOUSLY DRILLED HOLES
- PROPOSED DRILL HOLES
- PROPOSED ADIT
- PROPOSED CAMPSITE

MINING RECORDER  
 RECEIVED and RECORDED  
 DEC 16 1975  
 M.R. #  
 VICTORIA, B. C.

BRAMEDA RESOURCES LIMITED  
 SUKUNKA COAL AREA  
 1976 8-75(2)  
 SUPPLEMENTAL PLAN OF OPERATIONS  
 BULLMOOSE/CHAMBERLAIN  
 PROJECTS

0 2000 4000 6000  
 FEET

DRAWN: PV. DATE: DEC. 75. REVISED: DRAWING NO. FIG.



476

BRAMEDA RESOURCES LIMITED  
SUKUNKA COAL AREA

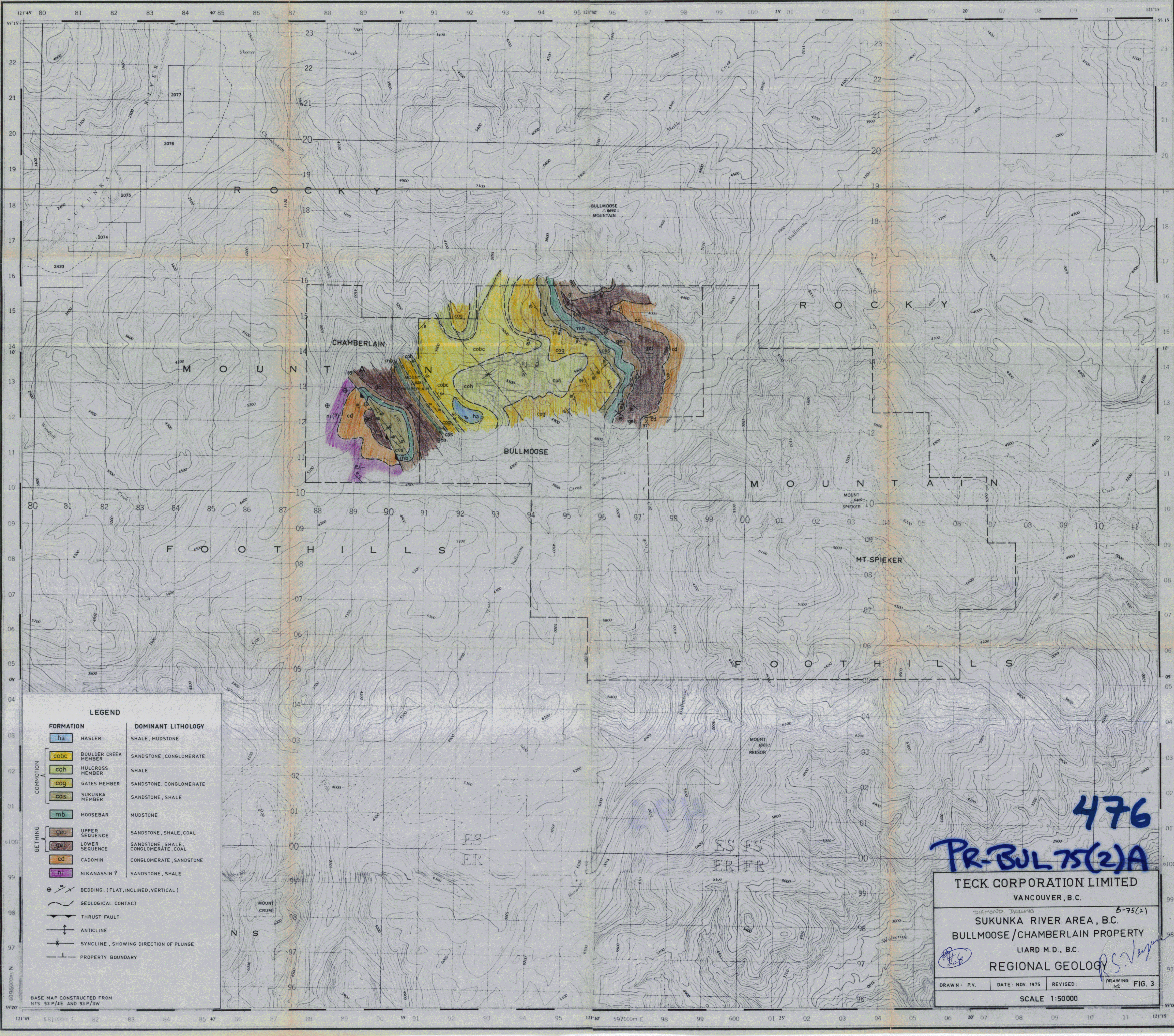
BULLMOOSE PROPERTY  
LIARD M.D. B.C.

DRILL HOLE LOCATION PLAN

- T-20 1975 DRILLING
- T-8 PREVIOUS DRILLING

SCALE 1:12500  
DRAWN: P.V. DATE: NOV 75 REVISED: DATE: JOB NO.: 1000 MAP NO.: FIG. 2

PR-BUL 75(2)A



**LEGEND**

| FORMATION |                      | DOMINANT LITHOLOGY                   |
|-----------|----------------------|--------------------------------------|
| ha        | HASLER               | SHALE, MUDSTONE                      |
| cobc      | BOULDER CREEK MEMBER | SANDSTONE, CONGLOMERATE              |
| coh       | HULCROSS MEMBER      | SHALE                                |
| cog       | GATES MEMBER         | SANDSTONE, CONGLOMERATE              |
| cos       | SUKUNKA MEMBER       | SANDSTONE, SHALE                     |
| mb        | MOOSEBAR             | MUDSTONE                             |
| geu       | UPPER SEQUENCE       | SANDSTONE, SHALE, COAL               |
| gel       | LOWER SEQUENCE       | SANDSTONE, SHALE, CONGLOMERATE, COAL |
| cd        | CADOMIN              | CONGLOMERATE, SANDSTONE              |
| ni        | NIKANASSIN ?         | SANDSTONE, SHALE                     |

|  |                                       |
|--|---------------------------------------|
|  | BEDDING, (FLAT, INCLINED, VERTICAL)   |
|  | GEOLOGICAL CONTACT                    |
|  | THRUST FAULT                          |
|  | ANTICLINE                             |
|  | SYNCLINE, SHOWING DIRECTION OF PLUNGE |
|  | PROPERTY BOUNDARY                     |

BASE MAP CONSTRUCTED FROM NTS 93P/4E AND 93P/3W

**476**  
**PR-BUL 75(2)A**

**TECK CORPORATION LIMITED**  
VANCOUVER, B.C.

DIAMOND DELING 5-75(2)  
SUKUNKA RIVER AREA, B.C.  
BULLMOOSE/CHAMBERLAIN PROPERTY  
LIARD M.D., B.C.

**REGIONAL GEOLOGY**

DRAWN: P.V. DATE: NOV. 1975 REVISED: DRAWING NO. FIG. 3

SCALE 1:50000

TECK CORPORATION LIMITED

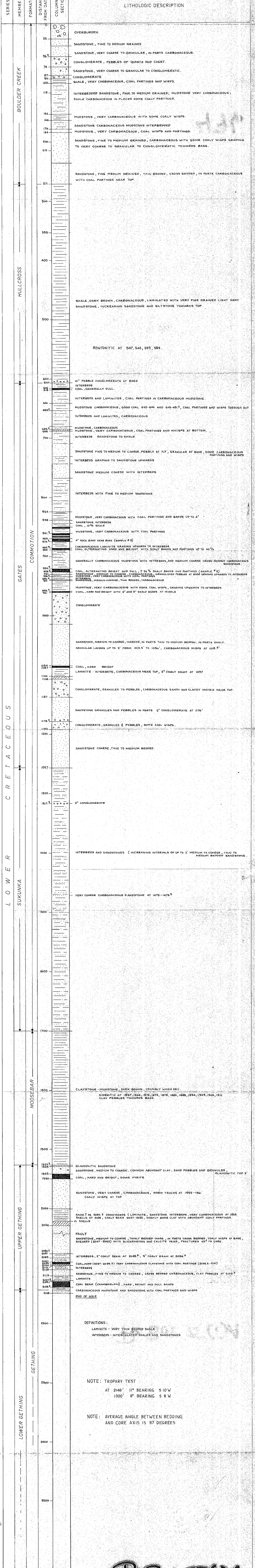
B-75(2)A  
Pr-Bull moose

STRATIGRAPHIC LOG  
OF  
DDH T-20

VERTICAL SCALE: 1"=50'

476

PROJECT: BULLMOOSE LOCATION: SUKUNKA RIVER AREA  
HOLE NO: T-20 CORE SIZE: NQ DATUM: COLLAR  
CO-ORDINATES 27300 N 95240 E DATE STARTED: 22 JULY 1975  
COLLAR ELEVATION: 5950 ft DATE FINISHED: 12 AUGUST 1975  
HOLE ANGLE: VERTICAL TOTAL DEPTH: 2148' LOGGED BY: R.S. VERZOSA



DEFINITIONS:  
LAMINITE - VERY THIN BEDDED SHALE  
INTERBEDS - INTERCALATED SHALES AND SANDSTONES

NOTE: TROPARY TEST  
AT 2148' 11° BEARING S 10 W  
1000' 8° BEARING S 8 W

NOTE: AVERAGE ANGLE BETWEEN BEDDING AND CORE AXIS IS 87 DEGREES

Pr-BOL 75(1)A

**COMMERCIAL TESTING & ENGINEERING CO.**

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Roberts Bank Tel. (604) 946-7021

November 3, 1975

TECH CORPORATION LIMITED,  
1199 W. Hastings St.,  
Vancouver, B.C.

Sample Identification:

Report To 1398-  
64-11-03

T-20

Sample No. 1 Chamberlain Seam (2129.1-2139.5)

**RAW COAL ANALYSIS****DRY BASIS**


|                      |               |
|----------------------|---------------|
| % Ash                | 21.41         |
| % Volatile           | 19.03         |
| % Fixed Carbon       | 59.56         |
|                      | <u>100.00</u> |
| Btu                  | 12110         |
| % Sulfur             | 0.29          |
| Free Swelling Index: | 5             |

**FLOAT & SINK ANALYSIS****SAMPLE CRUSHED TO 5/16" sq. x 0**

| SINK        | SPECIFIC GRAVITY | FLOAT       | % WT. | % ASH | CUMULATIVE RECOVERY (FLOAT) |             | CUMULATIVE REJECT (SINK) |       |
|-------------|------------------|-------------|-------|-------|-----------------------------|-------------|--------------------------|-------|
|             |                  |             |       |       | % WT.                       | % ASH       | % WT.                    | % ASH |
|             |                  | 1.30        | 23.0  | 2.10  | 23.0                        | 2.10        | 100.0                    | 23.20 |
| 1.30        |                  | 1.40        | 42.1  | 5.16  | 65.1                        | 4.08        | 77.0                     | 29.51 |
| 1.40        |                  | 1.50        | 8.1   | 13.99 | 73.2                        | 5.18        | 34.9                     | 58.88 |
| 1.50        |                  | <u>1.60</u> | 3.0   | 21.47 | <u>76.2</u>                 | <u>5.82</u> | 26.8                     | 72.45 |
| <u>1.60</u> |                  | 1.80        | 1.4   | 36.02 | <u>77.6</u>                 | <u>6.36</u> | 23.8                     | 78.87 |
| 1.80        |                  |             | 22.4  | 81.55 | 100.0                       | 23.20       | 22.4                     | 81.55 |

Respectfully Submitted,

COMMERCIAL TESTING &amp; ENGINEERING CO.

  
R.A. Houser,  
District Manager


RAH/se

Job TECH CORP. LIMITED  
 Lab. No. 64-11398-11403  
 Mine T-20 Sample #1  
 Size 5/16" sq. x 0  
 Raw Coal Ash 23.20%  
 Raw Coal Sul. XXXXX

# Commercial Testing & Engineering Co.

CONSULTING FUEL ENGINEERS  
 AND CHEMISTS  
 CHICAGO, ILL.

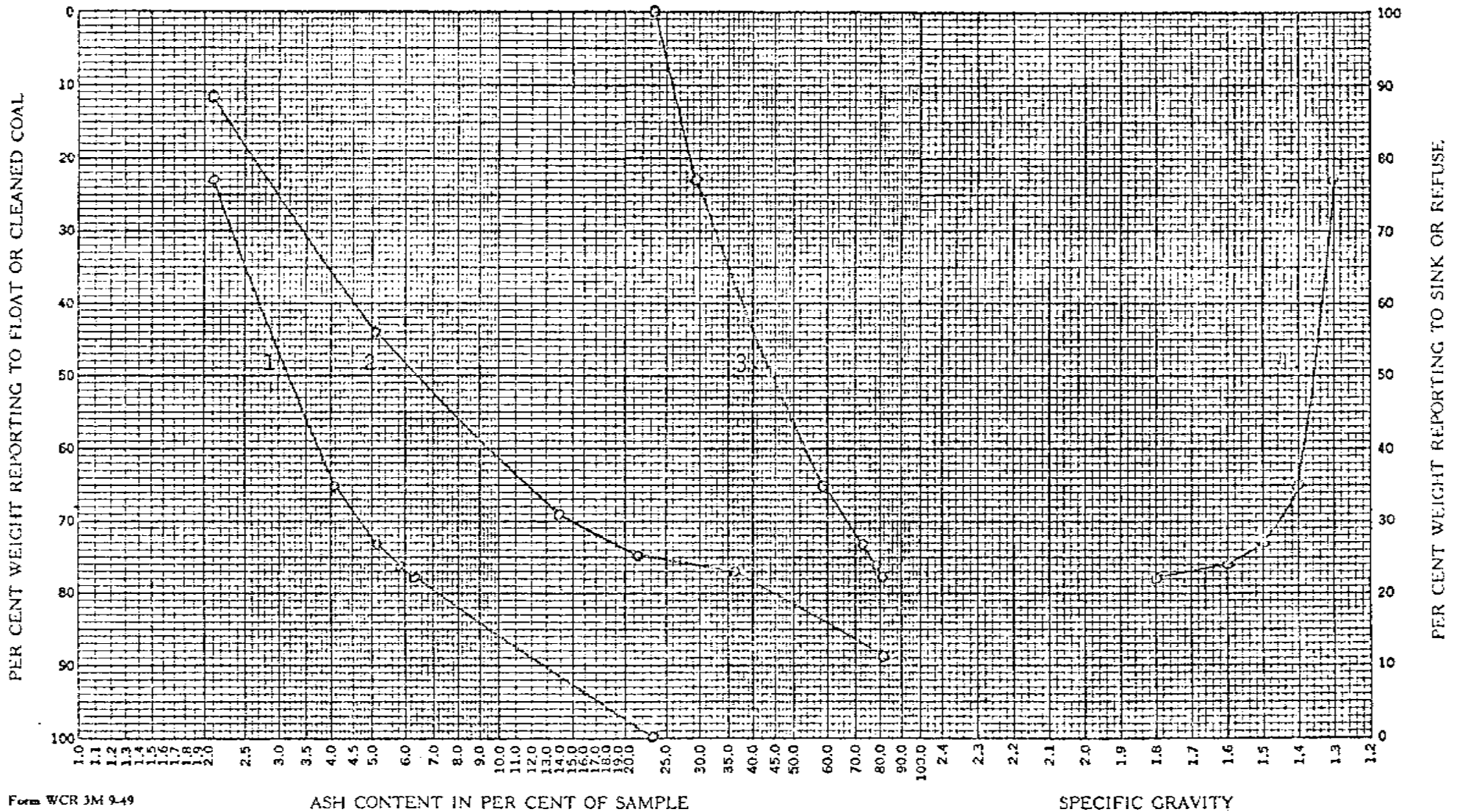
Charleston, W. Va.

Terre Haute, Ind.

## CURVE LEGEND

- 1 Cumulative Coal-Ash
- 2 Coal Characteristic
- 3 Cumulative Refuse-Ash
- 4 Yield-Specific Gravity
- 5 Separation Effected

WASHABILITY CURVES





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November 3, 1975

TECH CORPORATION LIMITED,  
1199 W. Hastings St.,  
Vancouver, B.C.

Sample Identification:

Report No. 64-11404-  
64-11409

T-20

Sample No.2 Upper Gates (920.5-926.5)

RAW COAL ANALYSISDRY BASIS

|                      |               |
|----------------------|---------------|
| % Ash                | 41.63         |
| % Volatile           | 19.41         |
| % Fixed Carbon       | 38.96         |
|                      | <u>100.00</u> |
| Btu                  | 8651          |
| % Sulfur             | 0.27          |
| Free Swelling Index: | 3-1/2         |

FLOAT & SINK ANALYSISSAMPLE CRUSHED TO 5/16" sq. x 0

| SINK | SPECIFIC GRAVITY | FLOAT | % WT. | % ASH | CUMULATIVE RECOVERY (FLOAT) |       | CUMULATIVE REJECT (SINK) |       |
|------|------------------|-------|-------|-------|-----------------------------|-------|--------------------------|-------|
|      |                  |       |       |       | % WT.                       | % ASH | % WT.                    | % ASH |
|      | 1.30             |       | 14.0  | 2.43  | 14.0                        | 2.43  | 100.0                    | 41.31 |
| 1.30 | 1.40             |       | 12.1  | 8.24  | 26.1                        | 5.12  | 86.0                     | 47.64 |
| 1.40 | 1.50             |       | 16.1  | 17.75 | 42.2                        | 9.94  | 73.9                     | 54.09 |
| 1.50 | 1.60             |       | 7.6   | 29.00 | 49.8                        | 12.85 | 57.8                     | 64.21 |
| 1.60 | 1.80             |       | 10.8  | 45.74 | 60.6                        | 18.71 | 50.2                     | 69.54 |
| 1.80 |                  |       | 39.4  | 76.06 | 100.0                       | 41.31 | 39.4                     | 76.06 |

Respectfully Submitted,

COMMERCIAL TESTING &amp; ENGINEERING CO.



R.A. Houser,  
District Manager



RAH/se

Job TECH CORP. LIMITED  
 Lab. No. 64-11404-11409  
 Mine T-20 Sample #2  
 Size 5/16" sq. x 0  
 Raw Coal Ash 41.31%  
 Raw Coal Sul. XXXXX

# Commercial Testing & Engineering Co.

CONSULTING FUEL ENGINEERS  
 AND CHEMISTS  
 CHICAGO, ILL.

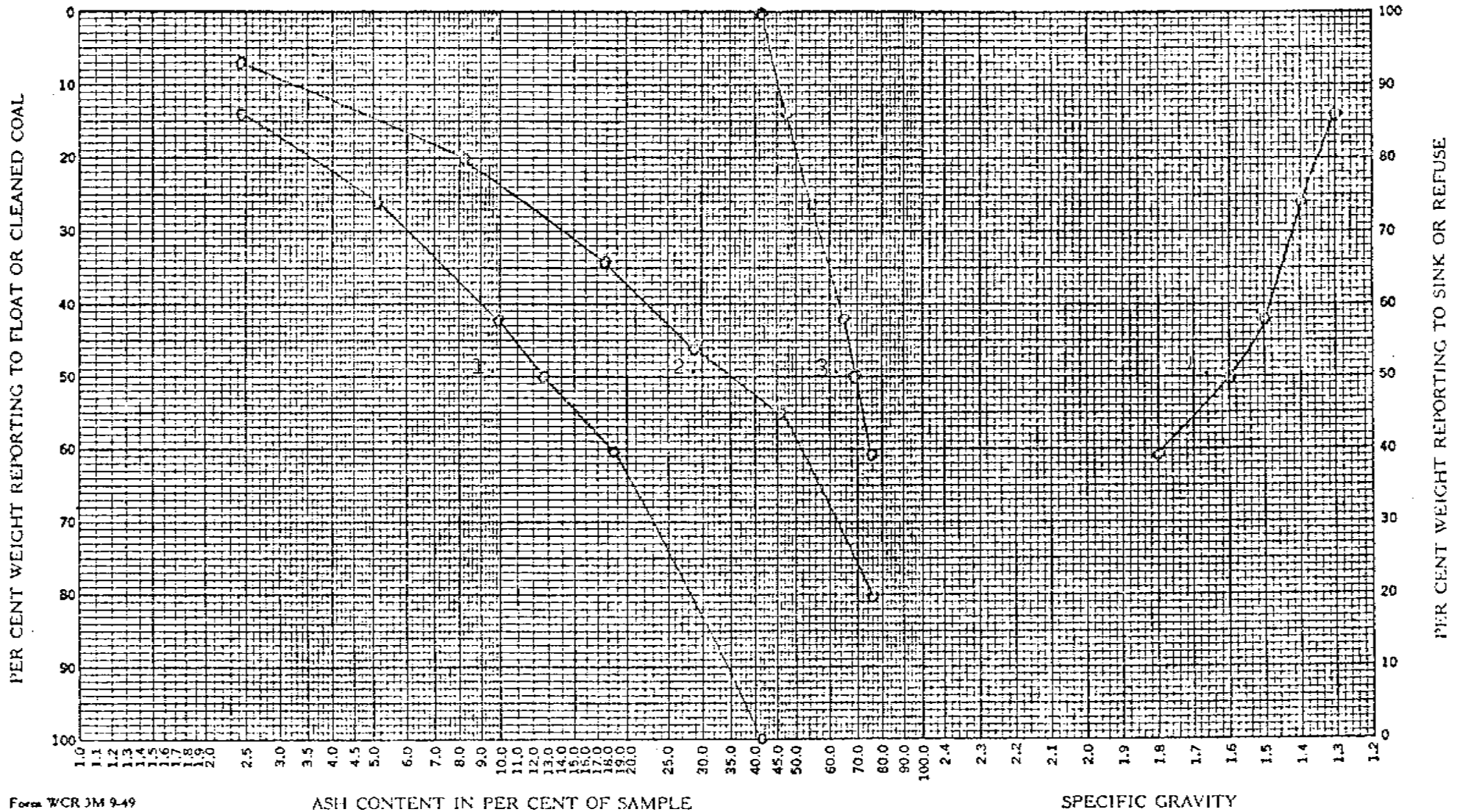
Charleston, W. Va.

Terre Haute, Ind.

## CURVE LEGEND

- 1 Cumulative Coal-Ash
- 2 Coal Characteristic
- 3 Cumulative Refuse-Ash
- 4 Yield-Specific Gravity
- 5 Separation Effected

### WASHABILITY CURVES



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Roberts Bank Tel. (604) 946-7021

November 3, 1975

TECH CORPORATION LIMITED,  
1199 W. Hastings St.,  
Vancouver, B.C.

Sample Identification:

Report No. 64-11410-  
64-11415

T-20

Sample No. 3

Upper Gates (869-874.3)

RAW COAL ANALYSISDRY BASIS

|                      |               |
|----------------------|---------------|
| % Ash                | 44.44         |
| % Volatile           | 19.83         |
| % Fixed Carbon       | 35.73         |
|                      | <u>100.00</u> |
| Btu                  | 7889          |
| % Sulfur             | 0.25          |
| Free Swelling Index: | 1-1/2         |

FLOAT & SINK ANALYSISSAMPLE CRUSHED TO 5/16" sq. x 0

| <u>SPECIFIC GRAVITY</u> |              | <u>CUMULATIVE RECOVERY (FLOAT)</u> |              |              |              | <u>CUMULATIVE REJECT (SINK)</u> |              |
|-------------------------|--------------|------------------------------------|--------------|--------------|--------------|---------------------------------|--------------|
| <u>SINK</u>             | <u>FLOAT</u> | <u>% WT.</u>                       | <u>% ASH</u> | <u>% WT.</u> | <u>% ASH</u> | <u>% WT.</u>                    | <u>% ASH</u> |
|                         | 1.30         | 10.5                               | 3.43         | 10.5         | 3.43         | 100.0                           | 44.82        |
| 1.30                    | 1.40         | 11.7                               | 8.19         | 22.2         | 5.94         | 89.5                            | 49.68        |
| 1.40                    | 1.50         | 11.7                               | 15.05        | 33.9         | 9.08         | 77.8                            | 55.92        |
| 1.50                    | 1.60         | 7.6                                | 26.43        | 41.5         | 12.26        | 66.1                            | 63.15        |
| 1.60                    | 1.80         | 12.6                               | 41.19        | 54.1         | 19.00        | 58.5                            | 67.92        |
| 1.80                    |              | 45.9                               | 75.26        | 100.0        | 44.82        | 45.9                            | 75.26        |

Respectfully Submitted,

COMMERCIAL TESTING &amp; ENGINEERING CO.

R.A. Houser,  
District Manager

RAH/se

Job TECH CORP. LIMITED  
 Lab. No. 64-11410-11415  
 Mine T-20 Sample #3  
 Size 5/16" sq. x 0  
 Raw Coal Ash 44.52%  
 Raw Coal Sul. XXXXX

**Commercial Testing & Engineering Co.**  
 CONSULTING FUEL ENGINEERS  
 AND CHEMISTS  
 CHICAGO, ILL.

Charleston, W. Va.

Terra Haute, Ind.

CURVE LEGEND

- 1 Cumulative Coal-Ash
- 2 Coal Characteristic
- 3 Cumulative Refuse-Ash
- 4 Yield-Specific Gravity
- 5 Separation Effected

WASHABILITY CURVES

