

BP Exploration Canada Ltd.
Coal Division.

B.C. Government Report on
the 1978 Sukunka Explorati-
on Program.

Coal Licence #3014-3023,
3025, 3026, 3028, 3033, 3038
3089-3129, 3554-3557, 3559.

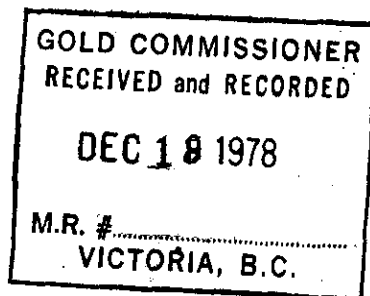
NTS Map Sheet 93 P3, 4, 5
Lat. 55° 11' Long. 121° 31'

December 18, A.R. Bowler

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BP EXPLORATION CANADA LIMITED

COAL DIVISION



B.C. GOVERNMENT REPORT ON THE
1978 SUKUNKA EXPLORATION PROGRAM

Coal Licence Numbers - 3014 - 3023, 3025, 3026, 3028
3033, 3038, 3089 - 3129, 3554
- 3557, 3559.

NTS Map Sheet 93 P3, 4, 5

Lat. 55° 11' Long. 121° 31'

OPEN FILE

December 18, 1978

A. R. Bowler (P. Geol.)

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

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BP Exploration Canada Limited

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STATEMENT OF QUALIFICATIONS

A. R. Bowler (P. Geol., Alberta) graduated in 1969 with a London University External B.Sc. Special Geology Hons (Class 2) degree, obtained at Kingston Polytechnic, Kingston-upon-Thames Surrey, England.

History of Employment

September 1969 - February 1976 - Coal Geologist with the National Coal Board (U.K.) Opencast Executive in Durham.

March 1976 to present - Sukunka Project Geologist with BP Exploration Canada.

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I. INTRODUCTION

The report has been prepared for presentation to the Coal Administrator of the British Columbia Department of Mines and Petroleum Resources, Victoria, and in compliance with the 'Regulations Under the Coal Act - 1974', it describes the exploration program carried out between May and September 1978 on BP Canada's Sukunka Coal Property. The report should be read in conjunction with BP's application for work credit, submitted at the same time, on the 'Application to Extend the Term of a Licence' form.

The work described in the Report is contained in 9 out of the 11 categories of 'acceptable work', mentioned in Part II of Section 8 of the Regulations under the Coal Act 1974.

It should be noted that the drilling carried out in the 1978 Sukunka Exploration Program was restricted to the Phase I mining area, and is therefore much reduced from that outlined in the 'Plan of Operation' or the 'Notice of Work on a Coal Licence', dated March 28, 1978.

At this time of 'extension to licences' not all of the 1978 evaluation work has been completed, and therefore such maps and cross-sections which are still outstanding will be forwarded at a later date.

2. OBJECTIVES

The following objectives were established for the 1978 Sukunka Exploration Program:

- (i) To establish the position of the Upper and Lower Chamberlain seam outcrops on Plate 1, Plate 2c, and Plate 3 (part) from detailed geological mapping supported by outcrop tracing (if permitted) and or trenching, so as to identify possible alternative mine entry points in the general Phase I area.
- (ii) To obtain additional structural and lithological data of the Upper and Lower Chamberlain seams and their associated roof and floor strata, by trenching their already stripped outcrop, situated within Plate 2a, 2b and 3 (part) in the north and Plate 2a around the 'Window' area.
- (iii) To provide additional information on major structures, plus Upper and Lower Chamberlain seam thicknesses, and elevations within the Phase I mine area from approximately 29 to 31 surface boreholes.
- (iv) To provide further information on any major structures that might be encountered along the proposed 'Sukunka Main' exploration drivage from at least 2 surface boreholes.
- (v) To prove the existence or otherwise of coal reserves in the Lower Gething Formation and western coal licences by reconnaissance field mapping.

In addition to the above, reclamation work outstanding from the 1977 field season was also completed.

The Phase I area referred to in the above objectives relates to the area where BP plans, in the initial stage of development, to mine 1 mmt of clean coal per year for 20 years.

3. LOCATION - ACCESS - TOPOGRAPHY

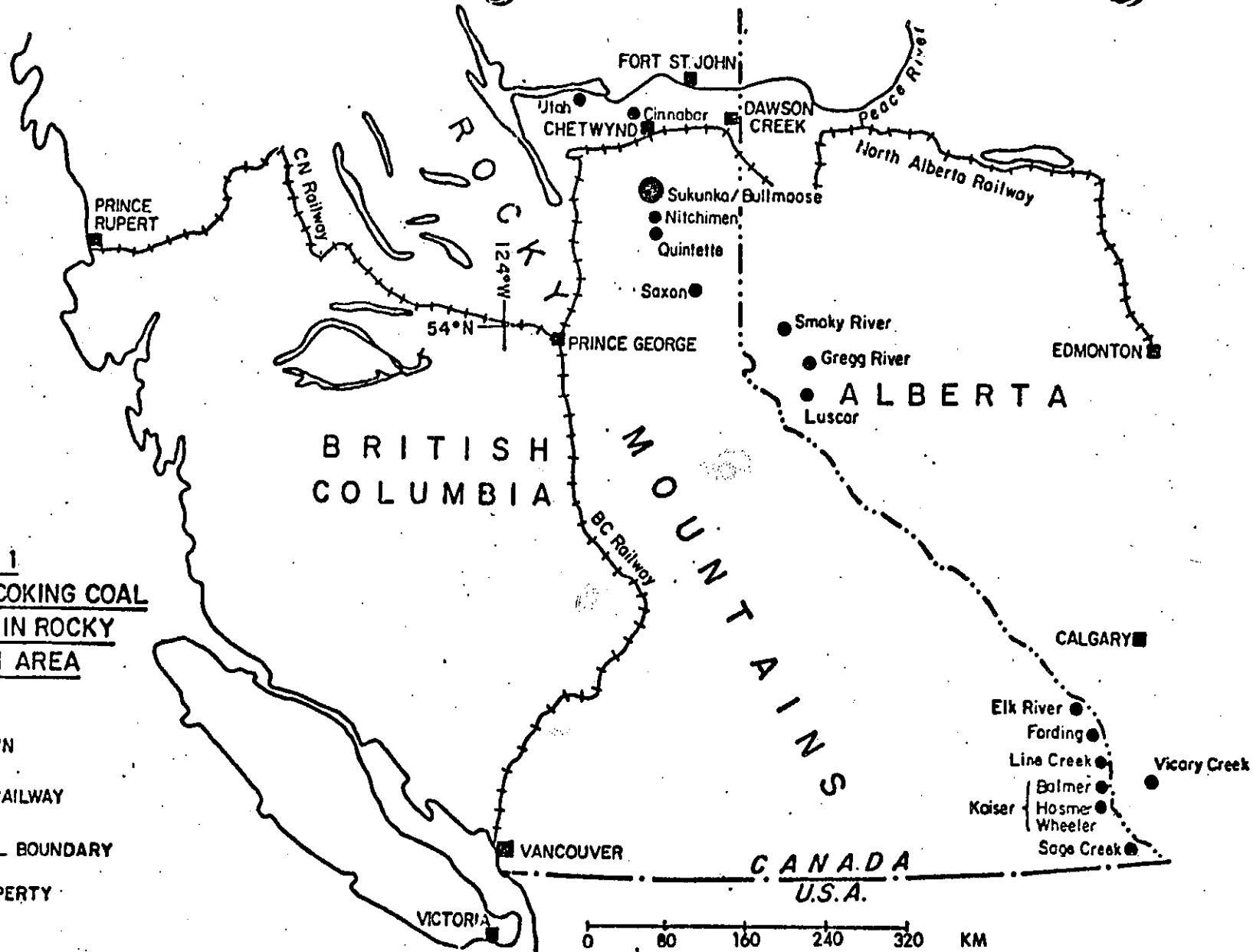
The Sukunka/Bullmoose property occupies an area of some 165 km² and is located approximately 60 km south of the town of Chetwynd in northeastern British Columbia. Fig. 1 shows the location of the property, its relationship to other proposed coal developments and the existing infrastructure of the region. (also see map #1 in rear pocket)

Access to the property from Chetwynd is via the Sukunka Valley Road which is a B.C. provincially maintained gravel road for the first 23 km and a B.C. Forestry road for the remaining 37 km. Alternate access to the southern part of the property (Bullmoose area) is via the Sukunka, Gwillim Lake and Bullmoose Valley Roads, a distance of 95 km from Chetwynd. Within the property there are approximately 320 km of exploration roads, the majority of which have been restored. Figure 2 illustrates the major geographic features of the property.

The Sukunka property is made up of 61 coal licences. Table I below illustrates their ownership and Fig. 3 illustrates their distribution.

FIG. 1
LOCATION OF COKING COAL
PROPERTIES IN ROCKY
MOUNTAIN AREA

- CITY / TOWN
- ++ EXISTING RAILWAY
- PROVINCIAL BOUNDARY
- COAL PROPERTY



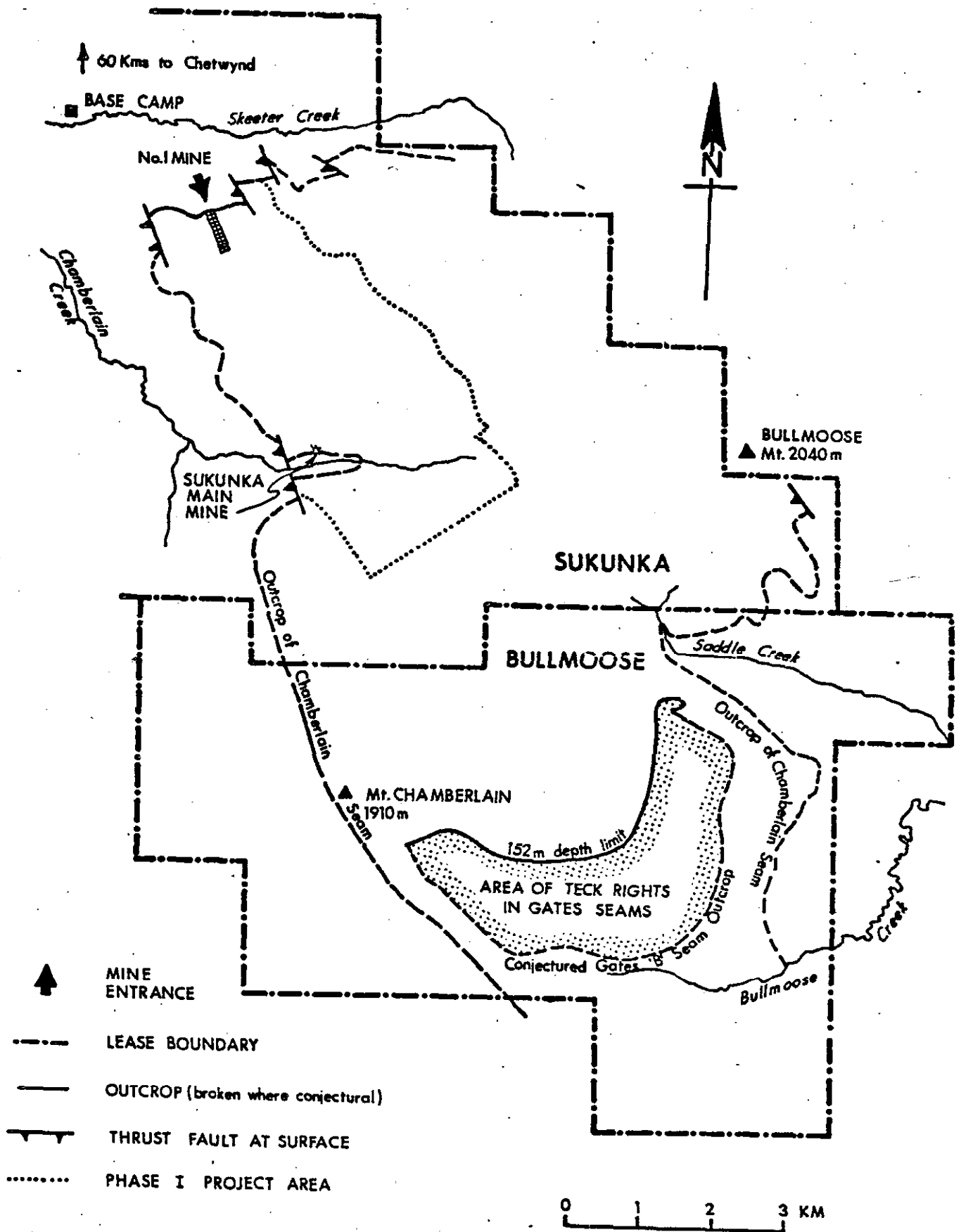


FIG. 2. GEOGRAPHY OF SUKUNKA - BULLMOOSE AREA

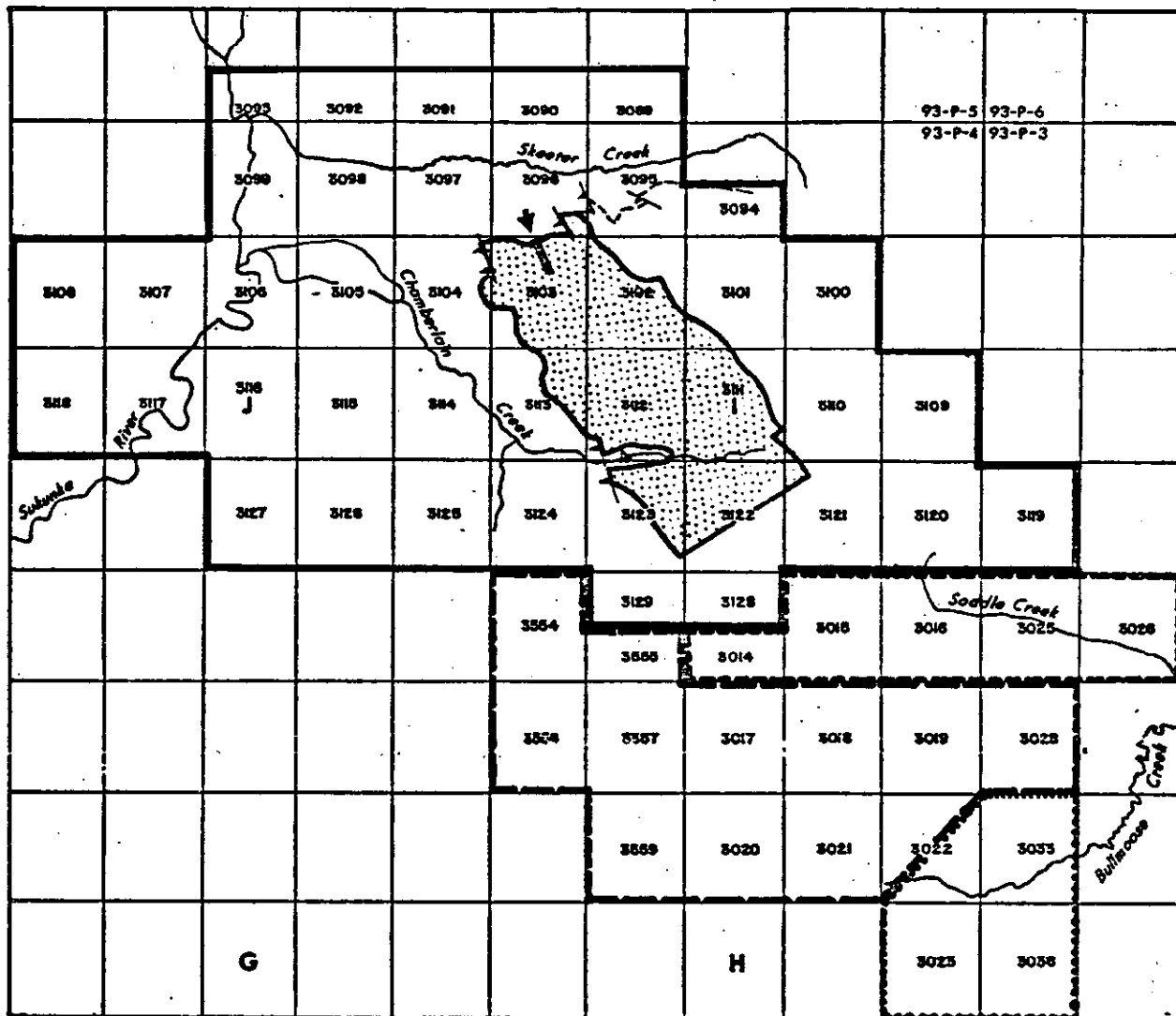
Table I - BP's Sukunka/Bullmoose Licences

Licence Number

3089 - 3129 (41 licences)	Former Sukunka property belonging to Brameda/ Brascan. Now owned BP 87½%, Brascan 12½%.
3554-3557, 3559 (5 lic- ences.	Former Chamberlain property belonging to Teck Corp. Now BP owned 100%.
3014 - 3023 3025 - 3026 3028 - 3033 3038 (15 licences)	Former Bullmoose property belonging to Teck Corporation. Now owned BP 100% but with Teck retaining rights to the Gates series of coals from the surface down to 152.4 m (500 feet) in all but licences 3014 - 3016, 3025 and 3026 and the Bird Seam in licences 3022 SE 3023, 3033 and 3028.

The 1978 Sukunka Exploration program concentrated mainly on the old Sukunka licences, with field mapping taking place on nearly all of licences, and drilling within the Phase I area (See Fig 3). Reclamation work was carried out, however, on both Sukunka and Bullmoose licences.

The Sukunka area is mountainous with deeply cut valleys and elevations mainly between 760 m and 2000 m above sea level. Dense coniferous forest covers nearly all areas below 1350 m.



LICENCE NUMBER

3089-3129
(41 LICENCES)

SUKUNKA PROPERTY
BP 87 1/2 %, BRASCAN 12 1/2 %

3554 - 3557, 3559
(5 LICENCES)

FORMER CHAMBERLAIN PROPERTY NOW PART OF BULLMOOSE
BP 100 %

3014 - 3023
3025 - 3026
3028 - 3033

FORMER BULLMOOSE PROPERTY

3038
(15 LICENCES)

BP 100 % BUT EXCLUDING THE GATES SERIES OF COALS FROM SURFACE DOWN TO 152.4 m (500 ft) IN ALL BUT LICENCES 3014 - 3016, 3025 AND 3026 AND EXCLUDING THE BIRD SEAM IN LICENCES 3022 SE 3023, 3033 AND 3038.



PHASE I PROJECT AREA

FIG. 3

The area experiences a wide temperature range between the warmest and the coldest months with peak precipitation in summer. In general, the summers are short but fairly warm considering the latitude, and the winters are long and cold. The total annual precipitation is in the range of 0.68 m, being split almost evenly between rain and snow. The average winter snowfall is about 2.54 m.

4. Base Plans & Surveying

The new metric topographic maps (1:5000 scale with a 5 m contour interval) constructed by Burnett Resource Surveys from their 1977 aerial survey provided the base maps on which all aspects of the work were recorded. (See Appendix H1-H2 of the Sukunka 1977 Report for copies of the 16 sheets which cover the Sukunka/Bullmoose Property).

The 1978 drill holes and trenches were positioned by BP staff, with the locating and levelling being carried out by a team of 2/3 surveyors from C.N. Stables Associates from Dawson Creek. Approximately 3 weeks were spent on site surveying the 27 new boreholes and 52 trench locations.

Tables II & III which follow contain the U.T.M. coordinates and elevations in metres of the 1978 boreholes and trenches respectively. The locations of all 1978 boreholes, trenches and field observation points are found on the 7 map sheets in Appendix D.

TABLE II

SUKUNKA 1978 DRILLHOLE ELEVATION, AND COORDINATES

BOREHOLE	STATION	ELEVATION IN METRES	U T M COORDINATES	
			North	East
BP51 ✓	A-A	1455.40	6118676.276	589358.854
BP54 ✓	A-B	1312.24	6118355.505	589309.098
D ✓ BP42 ✓	D-D	1410.82	6118353.374	590445.656
BP62 ✓	G-G	1434.01	6118747.092	590263.816
BP67 ✓	H-H	777.53	6121972.72	586013.46
D ✓ LBP65 ✓	M-R	1269.86	6119552.914	588324.534
D ✓ BP60 ✓	A	1128.32	6121476.369	589047.611
D ✓ BP63 ✓	B	1102.18	6121535.640	589339.901
BP43 ✓	C	1186.75	6120987.865	587446.272
BP44 ✓	D	1225.43	6120861.39	587796.327
D ✓ BP53 ✓	E	1231.45	6120860.636	588169.653
D ✓ BP68 ✓	F	1157.30	6121243.0	589314.0
BP49 ✓	G	1402.99	6120426.870	588448.065
BP48 ✓	H	1414.06	6120116.478	588650.027
BP61 ✓	I	1259.56	6120429.075	589101.941
D ✓ BP66 ✓	K	1146.01	6120758.675	589694.610
BP46 ✓	N	1442.90	6119719.618	589007.893
BP59 ✓	O	1261.11	6120077.600	589484.850
BP58 ✓	Q	1256.60	6120543.00	590189.00
BP56 ✓	S	1286.69	6119257.102	588848.696
BP50 ✓	T	1431.55	6119648.308	589473.534
BP57 ✓	U	1253.33	6118986.291	588751.106
D ✓ BP47 ✓	V	1495.49	6119035.937	589947.322
BP45 ✓	W	1468.03	6119487.124	589866.597
BP52 ✓	X	1494.69	6119472.861	590266.720
BP64 ✓	Y	1496.11	6119611.892	590585.776
BP55 ✓	Z	1305.05	6118666.344	589027.250

CLEAN OUT BOREHOLES

D ✓ - BPS-19	S-19	1214.17	6120657.361	5892975.671
D ✓ - BPS-23	S-23	1511.90	6119196.033	5902933.609
⊙ B - BPC-50	C-50	1205.64	6120870.627	5832784.133

TABLE II - CONTINUED

STATION	ELEVATIONS	U T M COORDINATES IN METRES		COMMENTS
		NORTH	EAST	
TR 30	1113.3	6117522.10	589896.05	
TR 31	1121.1	6117527.03	589941.25	
TR 32	1136.4	6117543.66	590035.39	
TR 33	1142.5	6117562.66	590179.70	
TR 34	1135.8	6117601.34	590301.97	
TR 35	1062.34	6117948.09	589096.53	Top of Seam
TR 36	983.45	6118546.8	587922.6	
TR 37	973.14	6118663.8	587808.4	
TR 38	965.37	6118881.1	587727.5	
TR 39	802.436	6121942.05	586137.32	
TR 40	963.71	6118900.70	587714.8	
TR 41	1210.438	6120402.0	587554.0	
TR 42	1108.6	6117661.6	590374.3	
TR 43	1135.10	6121019.01	587324.04	
TR 44	1031.35	6121545.40	589607.10	
TR 45	1051.51	6121638.80	589618.90	
TR 46	1062.71	6121696.90	589680.40	
TR 47	1065.36	6121702.90	589776.80	
TR 48	1075.98	6121726.40	589862.40	
TR 49	1082.59	6121769.10	589959.60	
TR 50	1059.36	6121698.90	588896.90	
TR 51	1059.07	6121764.70	589142.30	
TR 52	1033.01	6121932.0	589364.50	

SUKUNKA 1978 TRENCH ELEVATIONS AND COORDINATES - TABLE III

STATION	ELEVATION	U T M COORDINATES IN METRES		COMMENTS
		NORTH	EAST	
TR 1	1136.85	6121202.47	587625.13	
TR 2	1154.41	6121145.60	587927.41	
TR 3	1182.15	6121143.86	588171.72	
TR 4	1204.10	6121283.90	588611.60	
TR 5	1209.29	6121286.20	588908.10	
TR 6	1195.39	6121309.20	589020.10	
TR 7	1137.66	6121040.80	587341.76	
TR 8	1201.70	6120110.00	587786.00	
TR 9	1215.31	6120279.70	587677.80	
TR10	1197.70	6120226.80	587644.80	
TR11	1213.359	*6120435.30	587547.00	
TR12	1216.194	6120479.00	587539.80	
TR13	1218.703	6120509.00	587529.70	
TR14	1233.170	6120599.60	587577.20	
TR15	1235.810	6120575.10	587595.20	
TR16	1232.835	6120470.00	587634.00	
TR17	1241.82	6120487.20	587659.90	
TR18	1240.24	6120643.50	587809.70	
TR19	868.09	6120347.48	586806.77	
TR20	883.91	6120476.66	586800.80	
TR21	920.83	6120809.50	586844.60	
TR22	854.82	6120419.91	586743.77	
TR23	834.51	6120646.15	586640.45	
TR24	813.15	6120956.84	586467.85	
TR25	920.94	6121759.70	586803.61	
TR26	967.14	6121734.39	586935.63	
TR27	879.48	6121871.29	586439.73	
TR28	903.34	6121779.23	586660.38	
TR29	1088.50	6117498.10	589801.20	

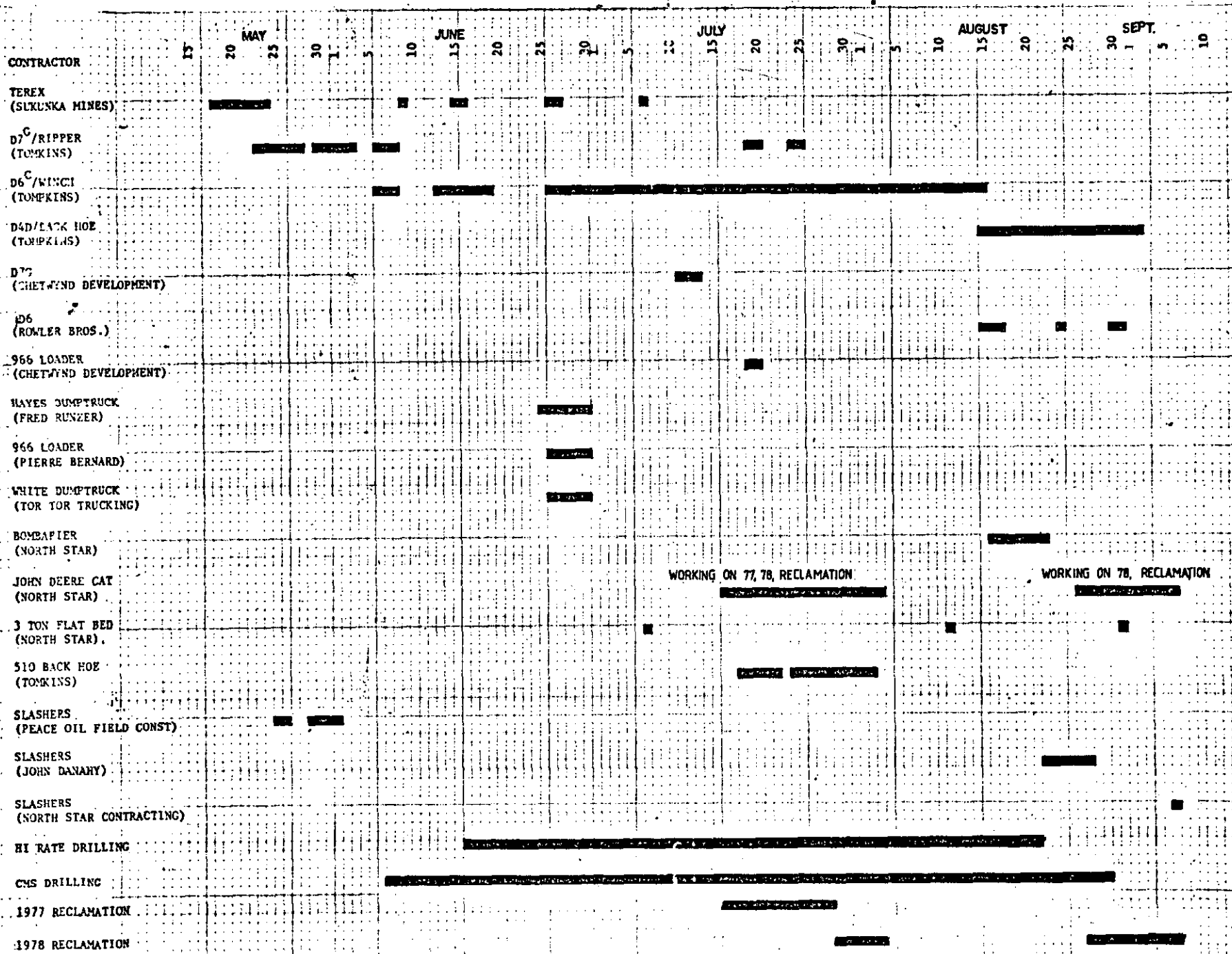
5. Road Construction - Reclamation (Pocket #3 - Maps 4, 5)

Prior to the construction of drill sites and access roads, BP personnel sited all drillhole and road alignments by helicopter and ground traverse. Approximately 3,200 m of new exploration road was constructed for access to drill sites and trench locations, and in addition approximately 13,000 m of existing road was reopened. The slashing and construction of roads and drill sites, which was contracted out was done in accordance with the B.C. Government's "Guidelines for Coal and Mineral Exploration" and was monitored by our in-house environmental planner.

The slashing was contracted to Peace Oilfield Contracting Limited and the heavy plant hire for road construction to Tompkins Contracting Ltd.; both from Fort St. John. Other incidental equipment was hired from Sukunka Mines, Roller Bros., Chetwynd Developments and North Star Fabricators. The work commenced in Mid-May with a crew of 4 slashers and one foreman. The heavy plant which was on site was used not only for road construction and reclamation, but for drill rig moving.

The heavy plant and contractors used and the period of time they were on site are displayed in Figure 4.

The heavy reclamation, such as the pulling in of burms, filling on of drill sumps, and the restoration of roads to their original grade, was carried out by the D6 and D4D 'Cats'. The light reclamation, which consisted of infilling of trenches, scarifying of roads and drillsites, seeding and



WORKING ON 77, 78, RECLAMATION

WORKING ON 78, RECLAMATION

construction of erosion bars, was contracted to North Star Fabricators of Chetwynd. (See Pocket #3 for a copy of the 1978 Reclamation Report.) Not only was all the 1978 surface disturbance restored, but all of the outstanding reclamation from the 1977 program was completed as well. The equipment used for this type of work consisted of a John Deere Cat and a Bombardier with a seeder.

6. Drilling (See Pocket #3 - Map #5)

Thirty boreholes totalling approximately 7,700 m of drilling were put down during the 1978 program. This program had only half the holes, and approximately 25% of the drilling meterage to the one described on the "Notice of Work on a Coal Licence" form submitted prior to the exploration program (see pocket #2).

Twenty of the boreholes were drilled by Hi-rate Drilling Company Ltd., using a truck mounted modified seismic model 16R rotary rig. This rig drilled over 5200 m and was capable of operating with either an air or mud medium using air hammer, rock or button bits. The maximum depth obtained by the rotary rig was 441 m on BP52. The down hole hammer method of drilling using air as a medium, was used as much as possible; and it was a combination of high water make (100 gpm+) and hard faulted ground that restricted its use. On BP64 this method of drilling (6½" air hammer) was used to a depth of 372 m before switching over to a rock bit (5¼") method of drilling.

One attempt was made at coring with the rotary rig. A Christenson conventional core barrel with a diamond bit was used to cut a 2 5/16' diameter core on BP65 between 220 m and 244 m.

Poor core recovery was obtained from the seven 'lifts' attempted. The remaining 10 boreholes which made up the 1978 Sukunka drill program were put down by a skid mounted Boyles 35A diamond drill by Cameron and McCutcheon Drilling Ltd. Seven holes totalling over 1800 m were cored using wireline techniques, producing NQ size core. A mud medium was used along with a 10' triple tubed barrel with split liners. (See Appendix A for geologists logs.) The wireline rig was also used on 3 old boreholes, namely BP C-50 BP S-23, BP S-19 for the purpose of cleaning out, and in the case of the latter two holes, to deepen. A total of approximately 650 m of NQ size cleanout drilling was attempted.

On completion, boreholes were generally cement grouted from the base of the Lower Chamberlain Seam to above the Upper Chamberlain Seam, using standard Portland cement.

7. Geophysical Logging (See Appendix B1 to B4)

All thirty boreholes were geophysically logged. The suite of logs run in each hole is displayed in Table V.

The geophysical logging and the verticality and direction testing were contracted to BPB Instruments (Canada) Ltd., who supplied one engineer, and mobile logging unit with tape accessory. All the geophysical log tapes were sent to BP Coal London for interpretation by computer methods; the results of which are not yet available.

8. Core Handling and Analyses (See Appendix A for Geologist Logs, & Appendix C for Analytical Data)

All core was placed into 4 x .75 m core boxes, and was measured and sampled on site.

TABLE V

SUKUNKA 1978 EXPLORATION PROGRAM

The following geophysical logs were run:

<u>Borehole</u>	<u>General</u>	<u>Detail</u>	<u>Gamma</u>	<u>LSD</u>	<u>BRD</u>	<u>Cal</u>	<u>HRD</u>	<u>Neutron</u>	<u>Sonic</u>	<u>Deviation</u>
BP42	X	X	X	X	X	X		X		
BP43	X	X	X	X	X	X		X	X	
BP44	X	X	X	X	X	X		X	X	
BP45		X	X				X	X		
BP46	X	X	X	X	X	X		X	X	X
BP47	X	X	X	X	X	X		X	X	X
BP48	X	X	X	X	X	X		X	X	X
BP49	X	X	X	X	X	X		X	X	X
BP50	X	X	X	X	X	X		X		X
BP51	X	X	X	X	X	X		X		X
BP52	X	X	X	X	X	X		X		X
BP53	X	X	X	X	X	X		X		
BP54	X	X	X	X	X	X		X		X
BP55	X	X	X	X	X	X		X		X
BP56	X	X	X	X	X	X		X		X
BP57	X	X	X	X	X	X		X		X
BP58	X	X	X	X	X	X		X		X
BP59	X	X	X	X	X	X		X		X
BP60	X	X	X	X	X	X		X		X
BP61	X	X	X	X	X	X		X		X
BP62	X	X	X	X	X	X		X		X
BP63	X	X	X	X	X			X		
BP64	X	X	X	X	X	X		X		X
BP65	X	X	X	X	X	X		X		
BP66	X	X	X	X	X	X		X		X
BP67	X	X	X	X	X	X	X	X		X

TABLE V - Cont'd

GEOPHYSICAL LOGS CONTINUED

<u>Borehole</u>	<u>General</u>	<u>Detail</u>	<u>Gamma</u>	<u>LSD</u>	<u>BRD</u>	<u>Cal</u>	<u>HRD</u>	<u>Neutron</u>	<u>Sonic</u>	<u>Deviation</u>
BP68	X	X	X	X	X			X		
BPS19	X	X	X	X	X	X		X		X
BPC50	X	X	X	X	X	X		X		
BPS23	X	X	X	X	X	X		X		X

Coal core measuring and sampling was restricted to one geologist for consistency, whereas the non-coal logging was carried out by a team of geologists. All measuring and subsectioning was carried out in the heated, fluorescently lit, core shed, adjacent to the camp.

Coal core samples were taken on the basis of the lithological variations within the seam depicted on the geophysical logs and described by the geologists.

The details of the coal samples such as ply thickness and depth are given in the Geologist logs (Appendix A). In addition to coal cores, 26 trenches were sampled (see Appendix D trench descriptions for details).

All coal samples were submitted to Birtley laboratories for testing, whereas all cores not sampled were transported to the government core store at Charlie Lake.

Sampling of the rotary drill holes also took place:

5 m intervals in non-coal bearing formation, and at every 2 m in coal bearing formations. These samples were identified and documented for on-site use only eg. prediction of borehole depths, etc.

9. FIELD SUMMARY (See Appendix D for Field & Trench)
(Descriptions and Location maps)

Field Mapping and Trenching was an important aspect of the 1978 Sukunka Exploration Program: (see objectives (i), (ii) and (V)).

Two field parties commenced work on May 21, plotting geological field data directly onto 1:5000 scale base maps. Party #1 concentrated on the northern part of the property in the vicinity of Skeeter Creek, whereas Party #2 dealt with the Gething Formation over the rest of the Phase I area. A total of 870 rock outcrops were observed along the creeks, cut-lines, roads and traverse lines; all of which were located by BP staff using Brunton compasses and Thommem altimeters.

The 52 trenches which were dug near the end of the field program were located by professional surveyors. These trenches, which uncovered such seams as the Middle Coals of the Lower Gething and the Upper and Lower Chamberlain seam of the Upper Gething, were logged in detail and 26 were sampled. (See Appendix C for Analytical Results).

As a result of this summers field work new 1:5000 and 1:10,000 scale surface geology maps will be produced. This work, which is intricately tied up with the re-interpretation of the borehole data will be submitted in Appendix E at a later date.

10. SERVICING OF PROGRAM

Operations were conducted from the 70 man "Sukunka Mine Camp" situated in the northern part of the property adjacent to the Skeeter Creek and the Sukunka valley road. Three additional office trailers were rented and a core shed purchased from Territorial Leasing.

Catering was contracted to Cal Van Canus. The following were typical of the numbers present at the camp:

<u>Company</u>	<u>Numbers</u>
BP	11 - geologists, technicians summer students
BPB Instruments Ltd.	1 - geophysical logger
Cal Van Canus	3 - caterers
Tompkins Contracting Ltd.	2 - 'cat' drivers
Peace Oilfield Contracting Ltd.	5 - slashers (part time)
North Star Fabricators	2 - reclamation workers (part time)
Hi Rate Drilling Co. Ltd.	7 - drillers and supervisor
Cameron McCutcheon Drilling Ltd.	5 - drillers and supervisor
C.N. Stables	3 - surveyors (part time)
Sukunka Mines	1 - First-Aid man

BP transport was made up of two 4 x 4 3/4 ton trucks, one 4 x 4 Crew Cab and one 2 wheel drive 3/4 ton truck

Highland Helicopters were used by both geological, and surveying field parties.

All fuels used on site, were supplied by Sukunka Mines Ltd.

11. GEOLOGICAL EVALUATION

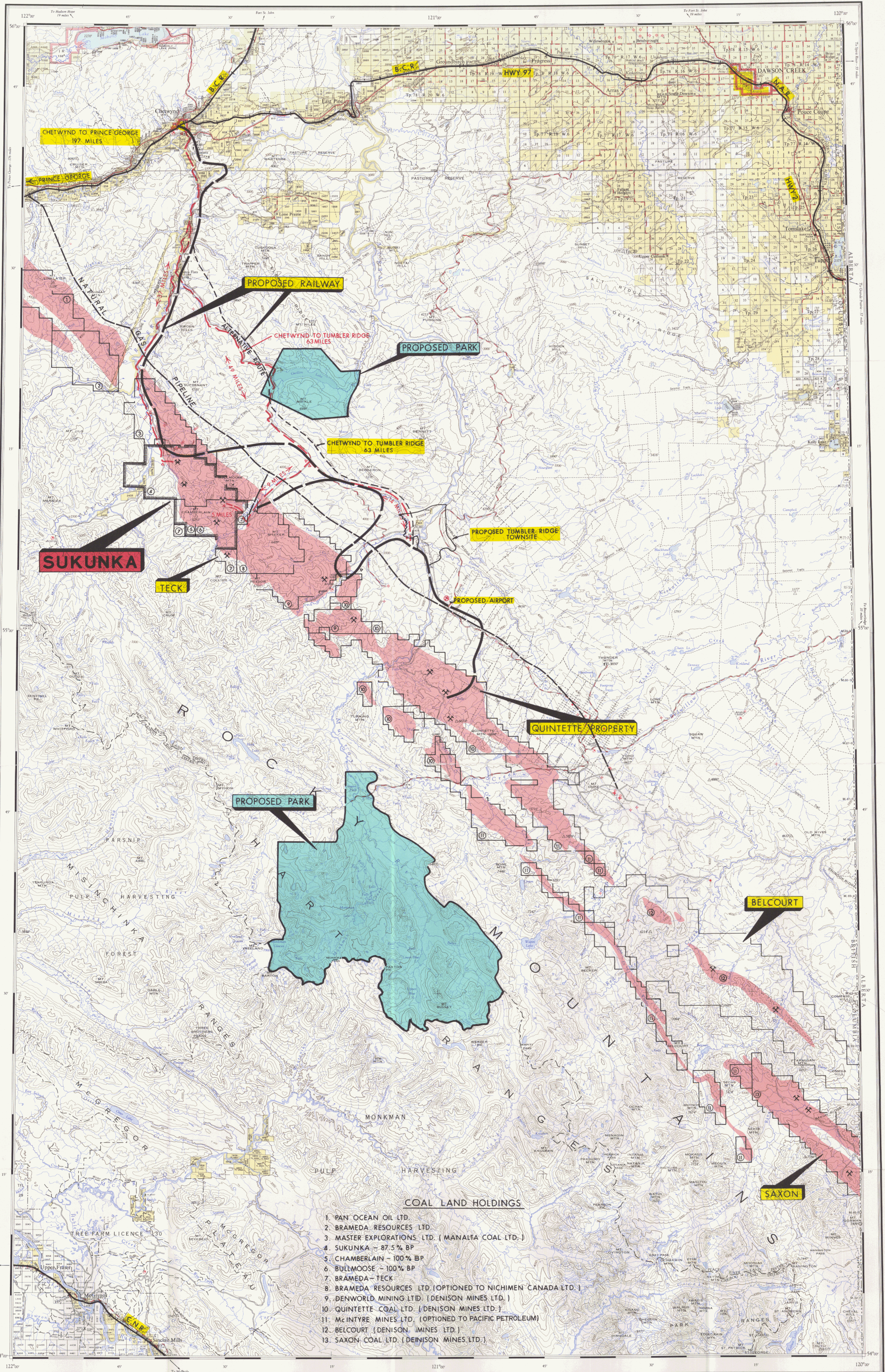
As mentioned in the introduction not all of the 1978 evaluation work has been completed, and therefore at such time as the revised structural interpretation, cross-sections, updated isopach maps and associated geological text, have been printed, a copy of Section 11 and Appendix E will be forwarded for inclusion with this report.

12. FININCIAL STATEMENT

The main contractors used, and the expenditures incurred during the 1978 Sukunka Exploration Program are detailed in Pocket #4 on the "Application to Extend Term of Licence" form (pages 2,3 and 4).

A. R. Bowler

(December 18, 1978)



- COAL LAND HOLDINGS**
1. PAN OCEAN OIL LTD.
 2. BRAMEDA RESOURCES LTD.
 3. MASTER EXPLORATIONS LTD. (MANALTA COAL LTD.)
 4. SUKUNKA - 87.5% BP
 5. CHAMBERLAIN - 100% BP
 6. BULLMOOSE - 100% BP
 7. BRAMEDA-TECK
 8. BRAMEDA RESOURCES LTD. (OPTIONED TO NICHIMEN CANADA LTD.)
 9. DENWORLD MINING LTD. (DENISON MINES LTD.)
 10. QUINTETTE COAL LTD. (DENISON MINES LTD.)
 11. McINTYRE MINES LTD. (OPTIONED TO PACIFIC PETROLEUM)
 12. BELCOURT (DENISON MINES LTD.)
 13. SAXON COAL LTD. (DENISON MINES LTD.)

Map information obtained from Geographic Division, Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Victoria, B.C. 1968-70.

- REFERENCE**
- 1. Contours compiled from B.C. Prov. Govt. topographical surveys mapping, 1956-57.
 - 2. Contours compiled from mapping by Dept. of Mines and Technical Surveys, Ottawa, 1950-54, 1960.
 - 3. Contours compiled from mapping by Dept. of Energy, Mines and Resources, Ottawa, 1963.
 - 4. Culture revised from B.C. Prov. Govt. air photos 1964, and 1968-69.

- REFERENCE**
- Land alienated or owned by appurtenant under the Land Act
 - Surveyed Timber Leases, Licence, or Birth Indian Reserve
 - Government Reserve
 - Land District Boundary
 - Municipality
 - Park
 - Campsite or Picnic Site
 - Forest Service Locality
 - Settlement or Locality
 - Post Office
 - School
 - Hospital
 - Mine
 - Dike
 - Historic Monument
 - Mine Post
 - Interprovincial Boundary and Monument

BP EXPLORATION CANADA LIMITED — COAL DIVISION

BRITISH COLUMBIA
SHEET 931 & 93P

Scale 1:250,000 or approximately 1 Inch to 4 Miles

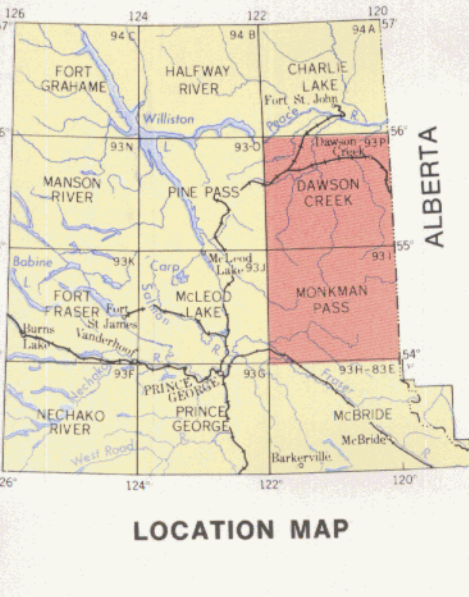
Scale of Kilometres

Magnetic Declination approximately 26°30' East at crown of sheet, 1970.
Decreasing approximately 4'15" annually.

FIRST PRINTING APRIL, 1975
FOURTH PRINTING MARCH, 1978

REVISED MAY 1977
REVISED DEC 1978

- REFERENCE**
- Road: Hard Surface, All Weather
 - Road: Loose Surface, All Weather
 - Road: Loose Surface, Seasonal
 - Road: Four Wheel Drive
 - Road: Single Track
 - Railway: Existing
 - Main Telephone Line
 - Main Electric Power Line
 - Horizontal Control Station
 - Contour Interval 500 feet
 - Elevation in feet above mean sea-level
 - Intermittent Stream
 - Intermittent Lake or Seasonal Inundation
 - Swamp or Marsh
 - Glacier or Icefield
 - Spring
 - Dam
 - Airport or Airstrip
 - Anchor or Seaplane Anchorage
 - Gas Wells



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MAP #1

PR-SUKUNKA 78(2)A.

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DEPARTMENT OF MINES AND PETROLEUM RESOURCES
MINERAL RESOURCES BRANCH
INSPECTION AND ENGINEERING DIVISION

NOTICE OF WORK ON A COAL LICENCE

Pursuant to section 7 of the *Coal Mines Regulation Act* this notice is to be completed by all companies or individuals carrying out exploration work prior to commencement of work, and within one month of cessation of work and one copy is to be sent to each of the following:

Senior Reclamation Inspector, Victoria
District Inspector of Mines
Regional Water Rights Engineer

District Forester or Forest Ranger
Regional Fish and Wildlife Office

PERMIT NO. _____

Do not
film

1. NAME OF PROPERTY: SUKUNKA
Coal Licence Numbers: 3089 - 3129, 3014 - 3023, 3026, 3033, 3038
3554 - 3557, 3559

2. LOCATION: Mining Division 9 Prince George, B.C. NTS Map Sheet (e.g., 82E/9E) 93 P/3, 4, 5
Lat. 55° 11' Long. 121° 31' Locality and Access Sukunka - access from Chetwynd
via the Sukunka Valley Road to mile 37 (Coalition Mine Camp).

3. OWNER: Name BP Exploration Canada Ltd. Free Miner's Cert. No. 166491
Address 335 8th Avenue S.W. City Calgary Prov. Alberta

4. OPERATOR: Name As above Free Miner's Cert. No. As above
Company " " Telephone No. (403) 256-7071
Address _____ City _____ Prov. _____

5. ESTIMATED DURATION OF WORK: From June to September

6. ACTUAL DATE WORK COMPLETED: Day _____ Month _____ 19 _____

7. APPROXIMATE NUMBER OF MEN EMPLOYED: 55

8. EXPLORATION WORK: Proposed Completed (Use metric measure - 1 metre = 3.3 feet.)
Linecutting (distance, width, method) _____
(Requires approval of Forest Service. 'Licence to Cut' or 'Free Use Permit' may be withheld until Reclamation Permit approval.)
Drilling - No. of Sites 61 Total Area 30,500 square metres
Road Construction - Total Length 15,000 metres Approximate Width 4 m top, 6 m cut metres
Underground Exploration 28,000 m (re-opened) (type) _____
Trenching - Number 50 Total Length 300 metres Width 1:00 metres
Test Pitting - Number 2 Total Disturbed Area 1000 square metres
Work by Self OR Name of Contractor _____
(Owner is responsible for ensuring the Contractor complies with pertinent regulations, see section 8, *Coal Mines Regulation Act*.)

9. DATE FOREST SERVICE ADVISED BY OPERATOR: March 30, 1978
Name and Title of Forest Official Chief Forest Ranger - Lorne McQueen
Address Chetwynd, B.C.

NOTE: Pursuant to section 8, subsection 2(a) of the *Coal Mines Regulation Act*, "...where the employment of mechanical equipment is likely to disturb the surface of the land in clearing, stripping, trenching..." the Application for a Reclamation Permit on the reverse side is also to be submitted.

SIGNATURE OF APPLICANT P. J. Kennedy TITLE Senior Landman
PRINT NAME P. J. Kennedy DATE March 28, 1978



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

MINERAL RESOURCES BRANCH

INSPECTION AND ENGINEERING DIVISION

CERTIFICATION FOR A RECLAMATION PERMIT ON A COAL LICENCE

Pursuant to section 8 of the Coal Mines Regulation Act, this form is to be completed when applying for a Reclamation Permit, when renewing same, or when reporting exploration work to be done. When reporting on work which has been done, see instructions at the bottom of the page. For recommended methods of reclamation and environmental control, see booklet entitled, Guidelines for Coal and Mineral Exploration, which is available at the office of the District Inspector of Mines.

PERMIT NO. _____

1. THIS IS: An Initial Application Renewal Report of Proposed Exploration Work

2. PRESENT STATE OF LAND ON WHICH EXPLORATION WILL BE DONE IS: T2 - immature productive woodland, U2 - non-productive woodland, Canada Land Inventory (where possible) L - rock and other unvegetated surfaces (on a non-productive site)

Present Land Use (ranching, timber, etc.) Vacant Crown Land

Type of Vegetation Coniferous Forest - scrub, alpine meadows

Access Roads (present use, condition) Sukunka Valley Road from Chetwynd to Mile 37 logging good condition

Campsites, Old-Workings (location, condition)

NOTE: Items shown above should be indicated on the NTS maps which are required for the following section.

3. PROPOSED SURFACE WORK: (Attach 7 copies of 1:50,000 NTS map with full extent of exploration work noted - Coal Titles Reference Maps) (Use metric measure - 1 metre = 3.3 feet)

Roads: Total length of 15,000 - new road metres Total disturbed area 90,000 square metres

Test Pits: Total No. 28,000 - re-opened Total disturbed area 168,000 square metres

Trenches: Total No. 50 (hand trenches where possible - otherwise backhoe) Total disturbed area 300 square metres

Adits: Total No. Total disturbed area square metres

Drill Sites: Total No. 61 Total disturbed area 30,500 square metres

Other: Intermittent seam tracing Total disturbed area 10,000 square metres

Total Disturbed Area (square metres) 299,800 square metres

Total Disturbed Area (hectares) 29.98 hectares

1 hectare = 10,000 square metres

4. EQUIPMENT TO BE USED (List size, capacity, and number): 10,000

(a) 5 skid or track mounted rigs 30,200

(b) 1 D8 and 1 D6 'cat' 20,000

(c) 1 backhoe 300

5. GOVERNMENT CLEARANCES INITIATED AT REGIONAL/DISTRICT LEVEL:

Forestry 7,000 Fish and Wildlife 100,000 Water Rights 20,000

Name of Official: Lorne McQueen Dave King John Dyke

Title: Chief Forest Ranger Habitat Protection Biologist Regional Engineer

Location: Chetwynd, B.C. Prince George, B.C. Prince George B.C.

Date Notified: March 30, 1978 March 30, 1978 March 30, 1978

6. SIGNATURE OF APPLICANT: [Signature] DATE: 28 March 78

Title: Landman Company: BP Exploration Canada

FOR DEPARTMENT OF MINES USE ONLY

Terms and Conditions other than Guidelines

THIS IS: An Initial Application Renewal Report of Proposed Exploration Work

Bonding Required (Permit is issued on receipt of bonding)

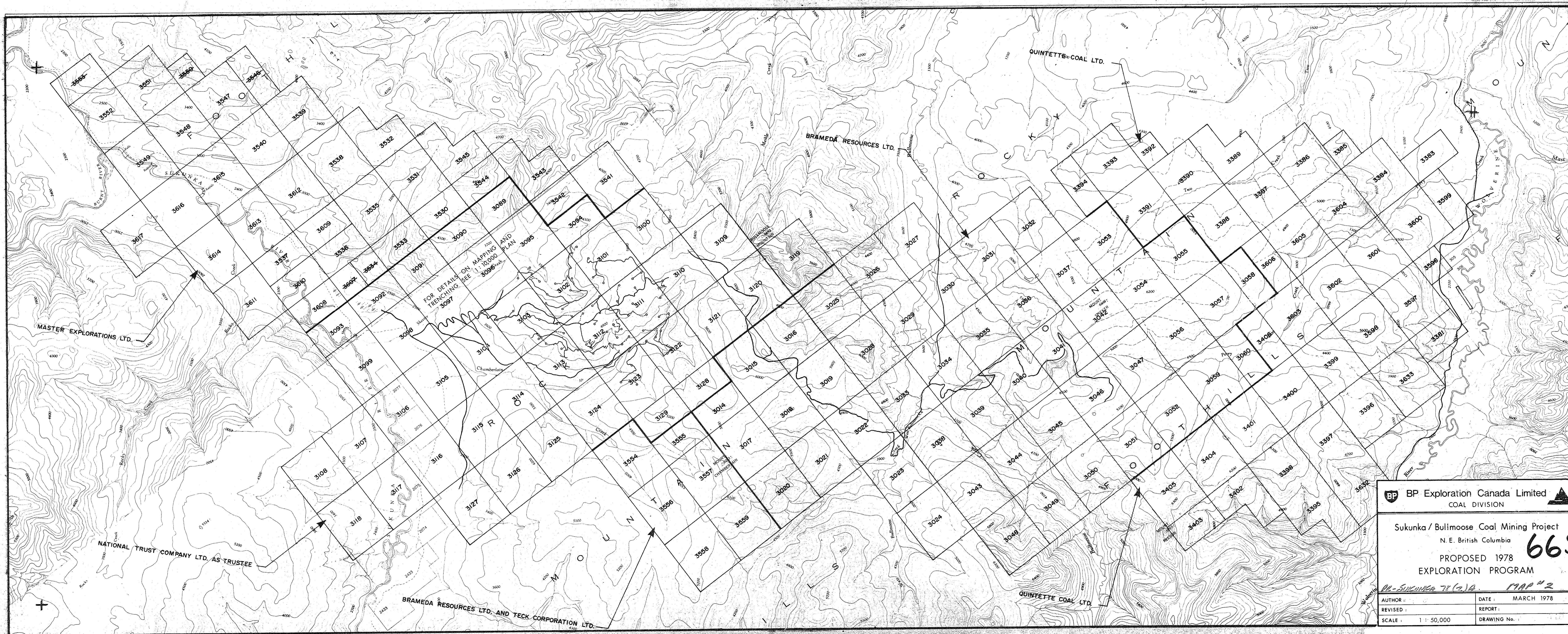
Approved by Advisory Committee Date

Approved by Sr. Reclamation Inspector Date

Date of Minister's Approval Order-In-Council

Date Permit Issued

NOTE: When geotechnical and reclamation work have been completed for the calendar year, a Reclamation Report should be submitted to the Senior Reclamation Inspector in Victoria. For a sample of the format to be used see the Appendix of the booklet entitled, Guidelines for Coal and Mineral Exploration. The Reclamation Report will describe all work done and the details of the reclamation which was achieved. Two 1:50,000 NTS maps are required for the Report.



BP BP Exploration Canada Limited
 COAL DIVISION

Sukunka / Bullmoose Coal Mining Project
 N. E. British Columbia

PROPOSED 1978
 EXPLORATION PROGRAM

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AK-Sukunka 78 (2) 16 MAP #2

AUTHOR :	DATE :
REVISED :	REPORT :
SCALE : 1 : 50,000	DRAWING No. :

- Proposed Borehole Location
- Main Access Road
- Old Exploration Road
- - - Proposed New Road

BP Exploration Canada Limited
COAL DIVISION

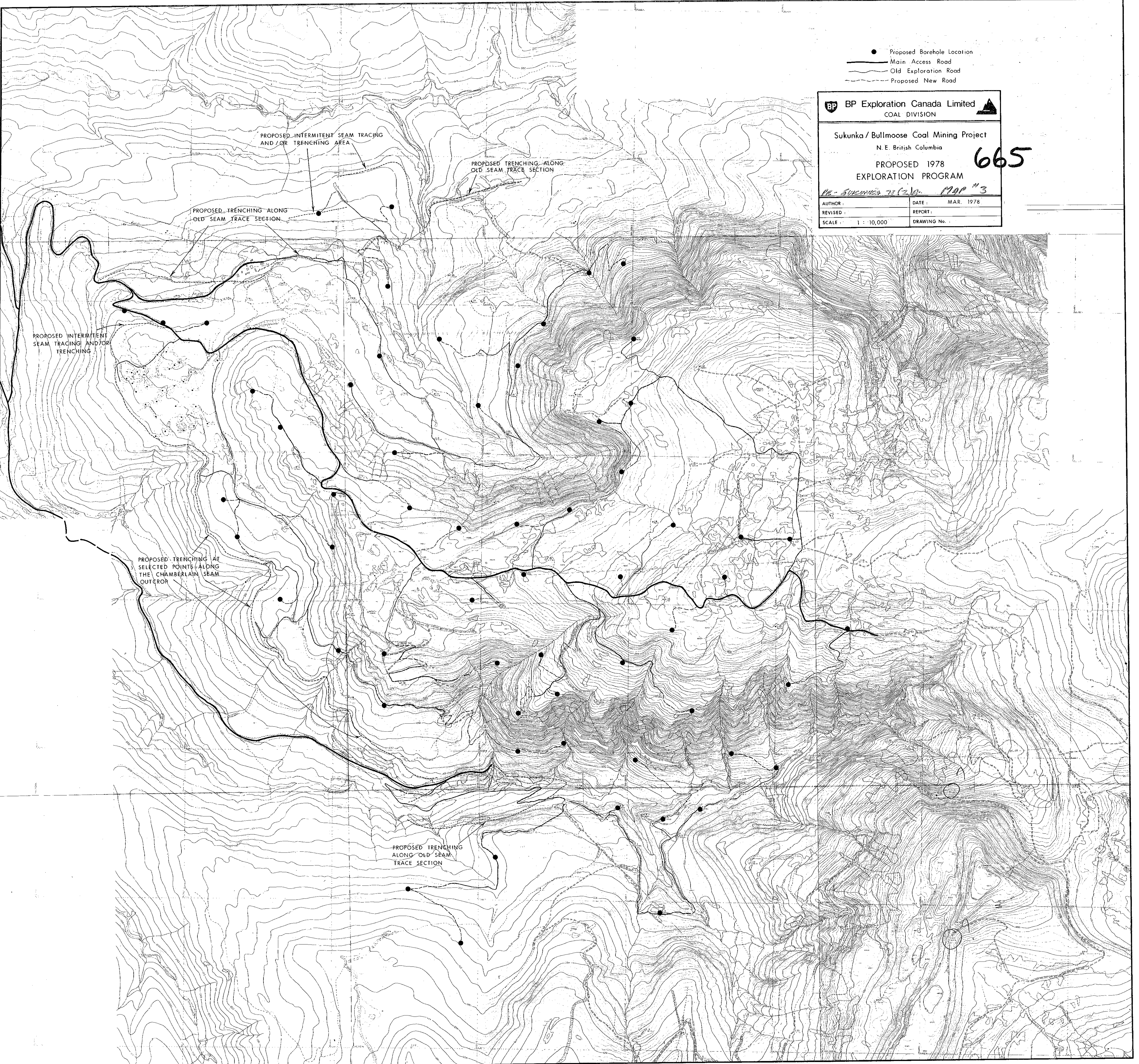
Sukunka / Bullmoose Coal Mining Project
N. E. British Columbia

PROPOSED 1978
EXPLORATION PROGRAM

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1798 #3

AUTHOR :	DATE : MAR. 1978
REVISED :	REPORT :
SCALE : 1 : 10,000	DRAWING No. :



- Boreholes Drilled as per Original Program.
- ⊗ Boreholes Dropped from Original Program.
- △ Additional Boreholes.
- Old Boreholes (logged)
- Main Access Road
- - - Old Exploration Road
- - - Proposed New Road

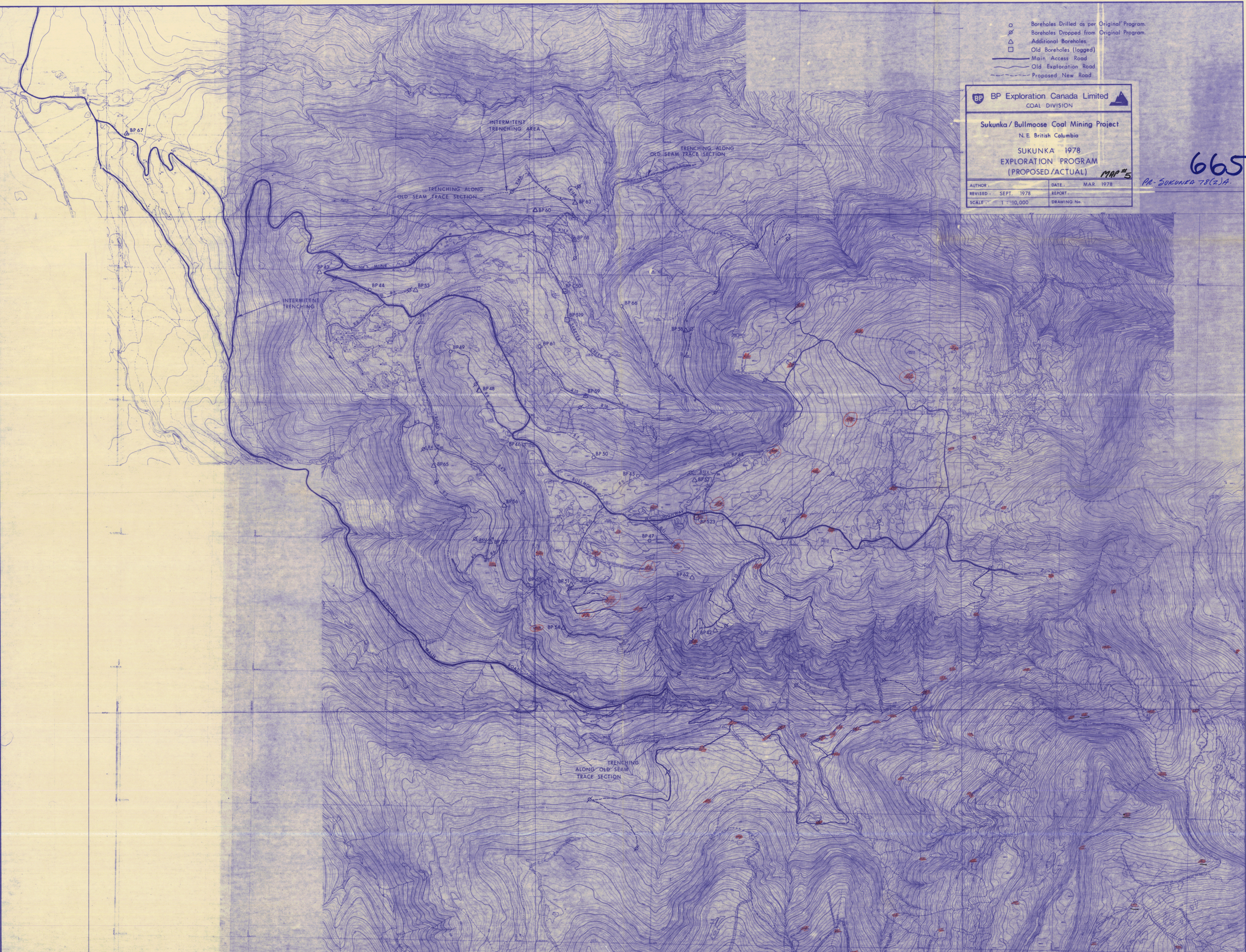
BP BP Exploration Canada Limited
 COAL DIVISION

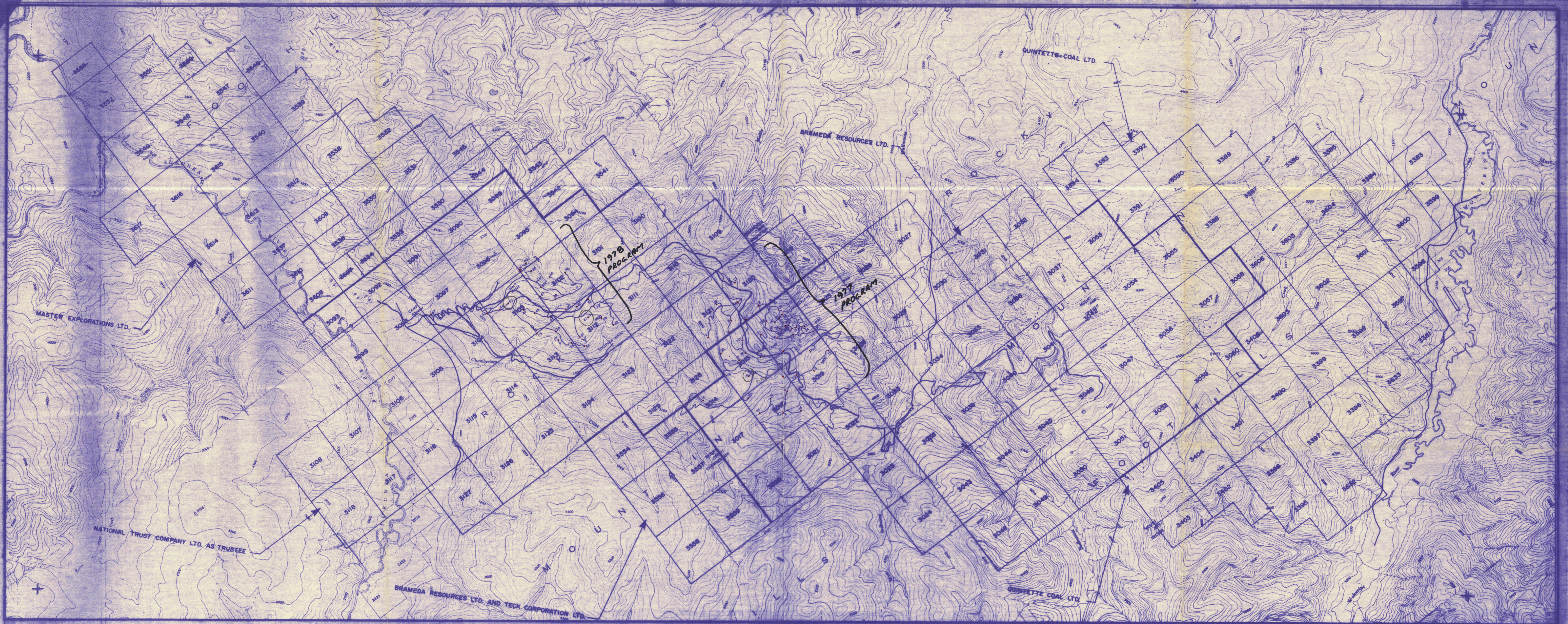
Sukunka/Bullmoose Coal Mining Project
 N.E. British Columbia

SUKUNKA 1978
 EXPLORATION PROGRAM
 (PROPOSED/ACTUAL) *MAP # 5*

AUTHOR:	DATE:	MAR. 1978
REVISED: SEPT. 1978	REPORT:	
SCALE: 1:10,000	DRAWING No.	

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PE-SUKUNKA 78(2)A





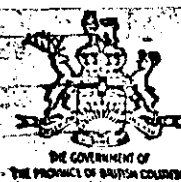
SHEET 3 — BULLMOOSE CR. — HASLER CR.

Scale 1: 50,000

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BP SUKUNKA '77-'78 EXPLORATION PROGRAMS
 MAP # 4
 MINISTRY OF MINES & PETROLEUM RESOURCES, 1977.

Y ADIT
 T TRENCH
 B BORE HOLE
 R ROADWAY (Used by BP)
 POSITION OF M.O.M.P.R. ROADWAY INACCURATE THROUGH PROSPECT



PA - SUKUNKA 78(1)A

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DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, A. R. Bowler (Name) agent for BP Exploration Canada Limited (Name)
340 Rundlefield Road N.E. (Address) 335 - 8th Avenue S.W. (Address)
Calgary, Alberta T1Y 2W4 Calgary, Alberta T2P 1C9

Valid FMC No. 161104

hereby apply to the Minister to extend the term of Coal Licences No(s) 3014-3023 3025 3026
3028 3033 3038 3089-3129 3554-3557 3559
for a further period of one year.

2. I have performed, or caused to be performed, during the period May to
October, 1978, work to the value of at least \$ 700,783.70
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Apportioned Cost. Rows include Geological mapping, Surveys (Geophysical, Geochemical, Other), Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work.

3. I wish to apply \$ of this value of work on Coal Licence(s)

4. I wish to pay cash in lieu of work in the amount of \$ on Coal Licence(s) No(s)

5. I wish to apply \$ of this value of work to claim a refund of cash in lieu of work in
the amount of \$ which was paid to extend the term of Coal Licence(s) No(s)
from
to, 19 Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Sukunka, 1978 Exploration Program
18 December, 1978 (Date) (Signature and position) (Project Geologist)

*Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY
Value of work reported \$
Value of work approved \$
Value of work applied on licences \$
Value of credit remaining \$

Work performed. Yes No

The program of operations detailed hereunder was carried out during the period from May to October, 1978. Total costs are \$ 700,783.70, an average of \$ 17.00 per acre.

GEOLOGICAL MAPPING Yes No Cost \$ 40,974.17

	Area (Acres)	Scale	Time
Reconnaissance	<u>15392</u>	<u>1:5000</u>	<u>3 months</u>
Detail: Surface	<u>15392</u>	<u>1:5000</u>	<u>3 months</u>
Underground			
Other (specify)			

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes No Cost \$ _____

Method _____ Line miles _____

OTHER SURVEYS Yes No Cost \$ 15,503.63

Grid _____ Topographic Other _____

ROAD CONSTRUCTION Yes No Cost \$ 65,883.29

Length: On Licences 21.35 km Access (off licences) _____

SURFACE WORK Yes No Cost \$ 6,455.1

	Length	License Number(s)
Trenching	<u>153 meters</u>	<u>3122 3098 3097 3104 3096 3095 3094</u>
Seam tracing		
Crosscutting		
Other		

UNDERGROUND WORK Yes No Cost \$ _____

Test adits: Number _____ Average length _____ Total footage _____

Other workings: Area _____ Total footage _____

DRILLING Yes No Cost \$ 354,780.29

	Hole Size	Number of Holes	Total Footage
Core: Diamond <input checked="" type="checkbox"/> Wireline <input checked="" type="checkbox"/>	<u>NQ</u>	<u>10</u>	<u>2551.3 m</u>
Rotary: Conventional <input checked="" type="checkbox"/>	<u>6 1/2 to 4 7/8</u>	<u>20</u>	<u>5050.5 m</u>
Reverse circulation <input type="checkbox"/>			
Other			

Contractor _____ Where core stored Charlie Lake core store

LOGGING, SAMPLING, AND TESTING (check) Yes No Cost \$ 77,051.82

Lithology: Drill samples Core samples Bulk samples Trench samples

Logs: Gamma-Neutron Density Other

Testing: Prox. analysis FSI Washability

Carbonization Petrographic Plasticity Other

OTHER WORK (specify details) Travel, camp costs, fuel, truck rental, and communications Cost \$ 103,875.24

REPORTS:

Reclamation work (Permit No. C-117) Detail of work* Reclamation Report dated

September 27/78 (See rear pocket of the 1978 Exploration Report for copy)

Reclamation Cost \$ 36,260.16

OPERATIONS:

Work was supervised by Mr. A. R. Bowler (P. Geol) Position Project Geologist

Is this person a registered or licensed Professional Engineer in British Columbia? Yes No

NOTE—Where the licensee intends to perform, during the extended term of his licence, work not set out in the plan of operations filed under section 15 (2) (c), a supplemental plan of operations is to be attached.

* If reclamation work reported in separate report give details of report identification.

VALUATION OF WORK: COST STATEMENT
(Sec. 27, B.C. Reg. 436/75)

ON-PROPERTY COSTS: For period from May to September, 19 78

1. OPERATOR'S FEES, SALARIES, AND WAGES:

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	12		115	34,058.22
Machine operators and support				
Miners				
Other First Aid	1	36.16/day	115	4,158.00
Total operator's costs				\$ 38,216.22

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
Hi Rate Drilling Co. Ltd.	Rotary drilling	210,859.81
Cameron & McCutcheon Drilling Ltd.	Diamond drilling	142,049.51
Tompkins Contracting Ltd.	Road Work	54,385.38
Peace Oil Field Construction Ltd.	Slashing	4,354.00
C.N. Stables & Associates	Surveying	15,379.99
See attached sheet for further listings	Total contractor and consultant costs	\$ 440,535.72

3. EQUIPMENT AND INSTRUMENTS USED: Owned _____ Rented x

Type	Rented From	Amount
Trailers	Territorial Leasing	5,606.19
Mobile Phones	AGT	5,638.84
Bombardier	North Star Fabricators & Contractors	3,457.50
Northern Metallic Sales	Installations	105.00
Norcom Industries Ltd.	Rental and Installations	529.00
Canadian Marconi Ltd.	Repair	279.01
Total equipment and instrument rentals		\$ 15,615.54

4. FIELD CAMP COSTS:

	Amount	
Food <u>Cal van Canus</u>	19,109.56	
Accommodation <u>Sukunka Mines</u>	16,000	
Fuel <u>Sukunka Mines</u>	15,197.20	
Other <u>Purchase of core shack</u>	3,265.65	
Total field camp costs		\$ 53,572.41

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Coal Analysis	Birtley Engineering	4,908.15
Geophysical logging	BPB	46,331.17
Interpretation Service	BP Coal London	25,000.00
Tor Tor Trucking	Sample Hauling	140.00
Chetwynd Custom Builders		368.60
Totals, samplings, analysis, and testing		\$ 76,747.92

6. SUPPLIES AND MATERIALS COSTS:

	Amount	
Process supplies		
Operating and maintenance supplies	3,237.13	
Office and technical supplies	9,748.14	
Other supplies and materials		
Total, supplies and materials		\$ 12,985.27

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
BP Trucks	Visa Truck Rentals		14,227.96

2, CONTRACTORS AND CONSULTANTS

Name	Service	Contract Amount
Chetwynd Development	Road Work	\$2,978.00
Tor Tor Trucking	Hauling	\$1,785.00
Fred Runzer	Hauling	\$1,837.50
Roller Brothers	Road Work	\$2,765.00
Sukunka Mines	Road Work	\$2,173.53
John Danahy Contracting	Slashing	\$1,968.00

Air support details:

Aircraft Type

Owner

Charter

Helicopter

Highland Helicopter Ltd

6,635.39

Total transportation costs \$ 20,863.35

8. RECLAMATION WORK:

North Star Fabricators and Contractors and supplies \$ 35,884.04

9. TRAVEL EXPENDITURES (operator's costs only):

Number of Personnel

Number of Trips

Amount

12

Total travel expenditures \$ 6,363.23

Total costs \$ 700,783.70

(Secs. 28 and 29, B.C. Reg. 436/75)

OFF-PROPERTY COSTS: Period from _____ to _____, 19____
Amount

- (a) Logistics and field support \$ _____
- (b) Technical and feasibility studies _____
- (c) Preparation of reports _____
- (d) Supplies and services _____
- (e) Mobilization and demobilization of equipment _____
- (f) Travelling expenses _____
(Itemize)

Supporting Cost Statements Attached

Total \$ _____
Amount

Total supporting costs \$ _____

SUMMARY

On-property costs \$ 700,783.70

Off-property costs \$ _____

Total costs \$ 700,783.70

Statement of costs verified by Blair Patrick, Accountant

18 December 1978
(Date)

Blair Patrick
(Signature and position)



PR: SUKUNKA 78(1)A

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DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, A.R. Bowler (Name) agent for BP Exploration Canada Limited (Name)
340 Rundlefield Road, N.E. (Address) 335 - 8th Avenue, S.W. (Address)
Calgary, Alberta T1Y 2V4 Calgary, Alberta T2P 1C9

Valid FMC No. 161104

hereby apply to the Minister to extend the term of Coal Licences No(s) 3014, 3107 3018 3020
3021 3554 3555 3556 3557 3559 (Group 153)
for a further period of one year.

2. I have performed, or caused to be performed, during the period: May to
October, 1978, work to the value of at least \$ 22,928.62
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 2 columns: Licence No(s) and Apportioned Cost. Rows include Geological mapping, Surveys (Geophysical, Geochemical, Other), Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work (specify).

3. I wish to apply \$ 22,928.62 of this value of work on Coal Licence(s)* 3014 3017
3018 3020 3021 3554 3555 3556 3557 3559

4. I wish to pay cash in lieu of work in the amount of \$ -- on Coal Licence(s)
No(s).

5. I wish to apply \$ -- of this value of work to claim a refund of cash in lieu of work in
the amount of \$ -- which was paid to extend the term of Coal Licence(s) No(s).

from
to, 19 Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Sukunka 1978 Exploration Program

18 December 1978 (Date)

(Project Geologist) (Signature and position)

*Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ Value of work applied on licences \$
Value of work approved \$ Value of credit remaining \$



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, A. R. Bowler (Name) agent for BP Exploration Canada Limited (Name)
340 Rundle field Road N.E. (Address) 335 - 8th Ave. S.W. (Address)
Calgary, Alberta T1Y 2W4 Calgary, Alberta T2P 1C9

Valid FMC No. 161104

hereby apply to the Minister to extend the term of Coal Licences No(s) 3100 3110 3111 3112
3113 3122 3123 3128 3129 3016 (Group 154)
for a further period of one year.

2. I have performed, or caused to be performed, during the period May to
October, 19 78, work to the value of at least \$ 295,117,84
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Apportioned Cost. Rows include Geological mapping, Surveys (Geophysical, Geochemical), Other Topo, Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work (specify).

3. I wish to apply \$ 295,117.84 of this value of work on Coal Licence(s)* 3100 3110
3111 3112 3113 3122 3123 3128 3129 3016

4. I wish to pay cash in lieu of work in the amount of \$ -- on Coal Licence(s)
No(s).

5. I wish to apply \$ -- of this value of work to claim a refund of cash in lieu of work in
the amount of \$ -- which was paid to extend the term of Coal Licence(s) No(s).
from
to, 19 Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Sukunka 1978 Exploration Program

18 December 1978 (Date)

(Signature and position) (Project Geologist)

* Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ Value of work applied on licences \$
Value of work approved \$ Value of credit remaining \$



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, A. R. Bowler (Name) agent for BP Exploration Canada Limited (Name)
340 Rundlefield Road, N.E. (Address) 335 - 8th Ave. S.W. (Address)
Calgary, Alberta T1Y 2W4 Calgary, Alberta T2P 1C9

Valid FMC No. 161104

hereby apply to the Minister to extend the term of Coal Licences No(s) 3109 3120 3119 3025
3026 3019 3028 (Group 155)
for a further period of one year.

2. I have performed, or caused to be performed, during the period May to
October, 1978, work to the value of at least \$ 22,928.62
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Apportioned Cost. Rows include Geological mapping, Surveys (Geophysical, Geochemical, Other), Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work.

Camp & Transportation Costs

3. I wish to apply \$ 22,928.62 of this value of work on Coal Licence(s)* 3109 3120
3119 3025 3026 3019 3028

4. I wish to pay cash in lieu of work in the amount of \$ -- on Coal Licence(s)
No(s).

5. I wish to apply \$ -- of this value of work to claim a refund of cash in lieu of work in
the amount of \$ -- which was paid to extend the term of Coal Licence(s) No(s)
from
to, 19 Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Sukunka 1978 Exploration Program

18 December 1978 (Date)

(Signature and position) (Project Geologist)

* Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ Value of work applied on licences \$
Value of work approved \$ Value of credit remaining \$



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, A. R. Bowler (Name) agent for BP Exploration Canada Limited (Name)
340 Rundlefield Road, N.E. (Address) 335 - 8th Ave. S.W. (Address)
Calgary, Alberta T1Y 2W4 Calgary, Alberta, T2P 1C9

Valid FMC No. 161104

hereby apply to the Minister to extend the term of Coal Licences No(s) 3114 3115 3116 3117
3118 3124 3125 3126 3127 3015 (Group 156)
for a further period of one year.

2. I have performed, or caused to be performed, during the period: May to
October, 1978, work to the value of at least \$ 31,480.96
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Apportioned Cost. Rows include Geographical mapping, Surveys (Geophysical, Geochemical, Other), Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work (specify).

3. I wish to apply \$ 31,480.96 of this value of work on Coal Licence(s)* 3114 3115
3116 3117 3118 3124 3125 3126 3127 3015

4. I wish to pay cash in lieu of work in the amount of \$ -- on Coal Licence(s)
No(s).

5. I wish to apply \$ -- of this value of work to claim a refund of cash in lieu of work in
the amount of \$ -- which was paid to extend the term of Coal Licence(s) No(s)
from
to, 19. Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Sukunka 1978 Exploration Program

18 December 1978 (Date) [Signature] (Project Geologist) (Signature and position)

*Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ Value of work applied on licences \$
Value of work approved \$ Value of credit remaining \$



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, A. R. Bowler agent for BP Exploration Canada Limited
(Name) (Name)
340 Rundlefield Road N.E. 335 - 8th Avenue S.W.
(Address) (Address)
Calgary, Alberta T1Y 2W4 Calgary, Alberta T2P 1C9

Valid FMC No. 161104

hereby apply to the Minister to extend the term of Coal Licences No(s) 3089 3090 3091 3092
3094 3095 3096 3101 3102 3103 (Group 157)
for a further period of one year.

2. I have performed, or caused to be performed, during the period May to
October, 1978, work to the value of at least \$ 285,348.02
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Apportioned Cost. Rows include Geographical mapping, Surveys: Geophysical, Geochemical, Other Topographic, Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work (specify).

3. I wish to apply \$ 285,348.02 of this value of work on Coal Licence(s)* 3089, 3090
3091 3092 3094 3095 3096 3101 3102 3103

4. I wish to pay cash in lieu of work in the amount of \$ -- on Coal Licence(s)
No(s).

5. I wish to apply \$ -- of this value of work to claim a refund of cash in lieu of work in
the amount of \$ -- which was paid to extend the term of Coal Licence(s) No(s)
from
to, 19 Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Sukunka Exploration Program (1978)

18 December 1978 (Date) [Signature] (Project Geologist)
(Date) (Signature and position)

*Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ Value of work applied on licences \$
Value of work approved \$ Value of credit remaining \$



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, A. R. Bowler agent for BP Exploration Canada Limited
340 Rundlefield Road N.E. 335 - 8th Avenue S.W.
Calgary, Alberta T1Y 2W4 Calgary, Alberta T2P 1C9

Valid FMC No. 161104

hereby apply to the Minister to extend the term of Coal Licences No(s) 3093 3097 3098 3099
3104 3105 3106 3107 3108 3121 (Group 158)
for a further period of one year.

2. I have performed, or caused to be performed, during the period May to
October, 1978, work to the value of at least \$ 42,979.64
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Apportioned Cost. Rows include Geological mapping, Surveys (Geophysical, Geochemical, Other Topographic), Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work (specify).

3. I wish to apply \$ 42,979.64 of this value of work on Coal Licence(s)* 3093 3097
3098 3099 3104 3105 3106 3107 3108 3121

4. I wish to pay cash in lieu of work in the amount of \$ -- on Coal Licence(s)
No(s).

5. I wish to apply \$ -- of this value of work to claim a refund of cash in lieu of work in
the amount of \$ -- which was paid to extend the term of Coal Licence(s) No(s)
from
to, 19. Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Sukunka 1978 Exploration Program

18 December 1978
(Date)

[Signature] (Project Geologist)
(Signature and position)

*Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ Value of work applied on licences \$
Value of work approved \$ Value of credit remaining \$