

PR-QUINETTE 73(1)A
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1973 Exploration Report On
The Quintette Coal Licences
In Northeastern British Columbia

GEOLOGICAL BRANCH
ASSESSMENT REPORT

00 603

February 1974

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1. SUMMARY

The 1973 exploration work in the Babcock area of the Quintette Coal licenses commenced August 15, 1973. The access road to the Babcock Camp was opened and geological mapping of the Waterfall Creek Syncline to the Southwest of Babcock Mountain was initiated by a four-man team of Japanese geologists. A total of approximately 6,000 acres of ground were mapped in detail at a scale of 1 inch to 200 feet in conjunction with a controlled aerial survey and subsequent preparation of approximately 9,400 acres of 1 inch to 200 foot topographic maps with a 10 foot contour interval. Five caterpillars were used to construct approximately 25 miles of general access and drill site roads with an additional 3,500 feet of coal trenches. Nine diamond drill holes were completed resulting in 9,656 feet of H.Q. drill core. Geophysical logs were run in the drill holes, all core lithology was logged by visual inspection during which time coal seam intersections were sampled and sent for complete washability analysis. The field programme was completed November 15, 1973.

At present the initial feasibility studies as to the potential for hydraulic mining of the area drilled is underway and proposals for ecological studies of the Babcock area are being reviewed.

NORTHWEST TERRITORIES

CANADA

BRITISH COLUMBIA

ALBERTA

SASK.



U. S. A.

- PROPERTIES BEING DEVELOPED
- PROPERTIES IN PRODUCTION

PR-QUINTETTE 73 (2) A

PREPARED BY:
DENISON MINES LIMITED
(COAL DIVISION)



CALGARY ALBERTA

ALCO STANDARD CORPORATION
JOINT VENTURE - QUINTETTE PROJECT

LOCATION MAP

DRAWN BY E. Toth	DATE Dec. '71	SCALE: 1" = 130mi ±
APPROVED BY	DRAWING NO: MISC 71 - 0262 - R02	

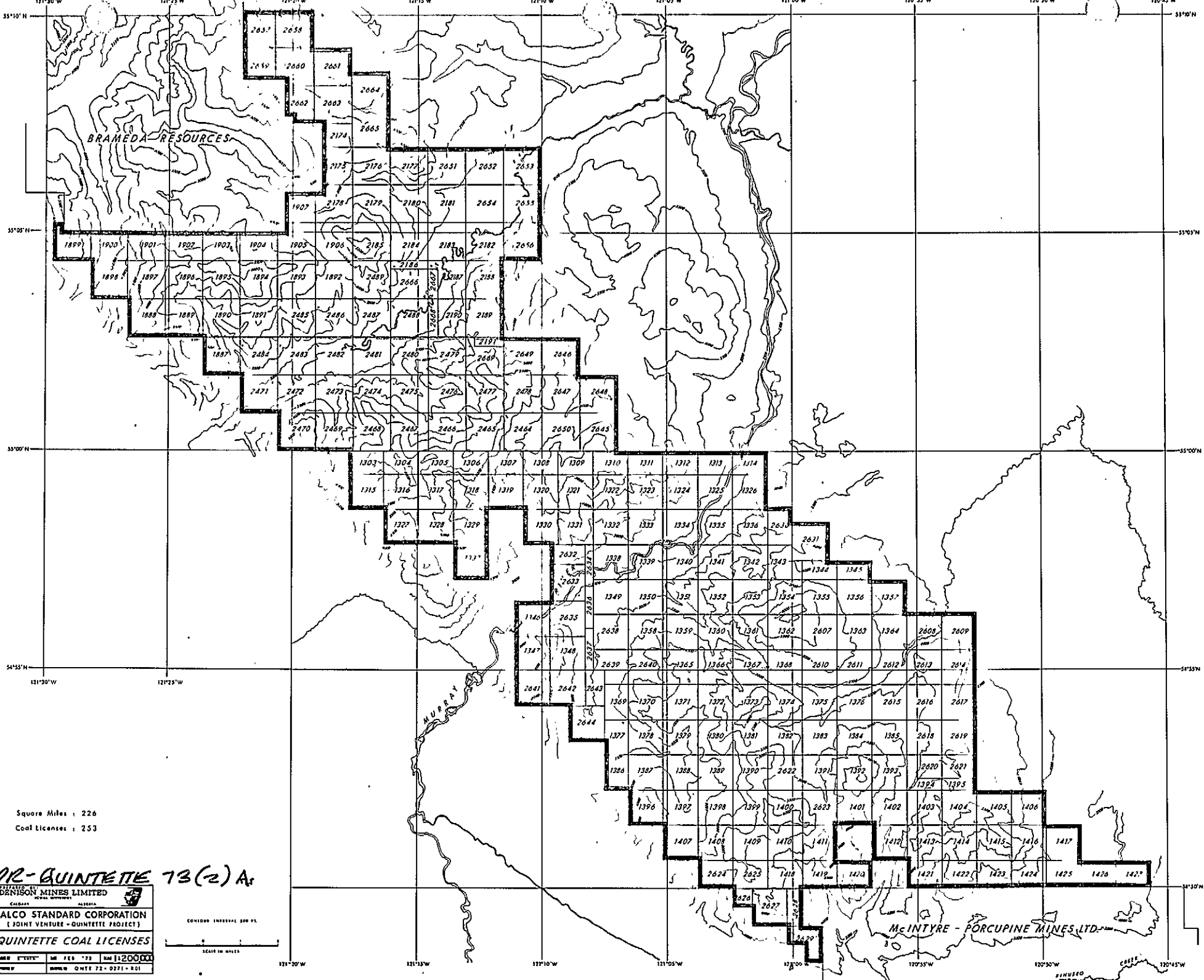
2. INTRODUCTION

The following represents the general sequence of events involved in 1973 Babcock exploration:

August 15, 1973

1. Opening of road re-establishment of Babcock Campsite.
2. Commencement of geological mapping in conjunction with topographic mapping program.
3. Commencement of road access to Murray River.
4. Commencement of drill roads, sites and coal trenches.
5. Commencement of access from Grizzly Valley Road to Murray River.
6. Connection of Babcock Mountain access with Murray River access and establishment of portable drill camp at Murray River location.
7. Completion of drilling at Murray River location and demobilization of camp and drills via Grizzly Valley.
8. Completion of drill core logging and sampling and demobilization from Babcock Campsite.

(November 15, 1973)



Square Miles : 226
 Coal Licenses : 253

PR-QUINETTE 73(2) A₁

DENISON MINES LIMITED
INCORPORATED IN ALBERTA
 CALGARY ALBERTA

ALCO STANDARD CORPORATION
(A JOINT VENTURE - QUINETTE PROJECT)

QUINETTE COAL LICENSES

SCALE IN MILES

DATE OF ISSUE: MAY 28, 1972
 MAP 1:200,000
 DRAWN QMTE 72-0271-801

CONSIDER INTERNAL BOUNDARY

SCALE IN MILES

McINTYRE - PORCUPINE MINES LTD.

3. MAPPING

Topographic:

All topographic mapping during the 1973 field season was completed by Burnett Resource Surveys Ltd. of Calgary. Previous mapping in the Babcock Mountains area consisted of 1" to 400 foot map sheets with a 20 foot contour interval. Geological mapping carried out in 1973 required additional ground control and thus additional ground control points were surveyed and incorporated in subsequent 1973 aerial photography at a scale of 1" = 1000', 1" = 2000' and 1" = 2300'. From the aerial survey new maps were prepared at a scale of 1" to 200' with a 10' contour interval.

The map on the following page gives the index to the 1973 aerial photography and subsequent topographic mapping. Appendix I of this report contains reduced negatives of all 1"=200' map sheets.

Geological:

Detailed geological mapping was undertaken on the structure adjacent to the S.W. flank of Babcock Mountain referred to as the Water Fall Creek Syncline. The mapping was undertaken prior to and during the 1973 drilling and was used to target the 1973 drill holes. See 1973 Babcock Geological Map and also 1973 Exploration work, Babcock project in the folder at the end of this report.

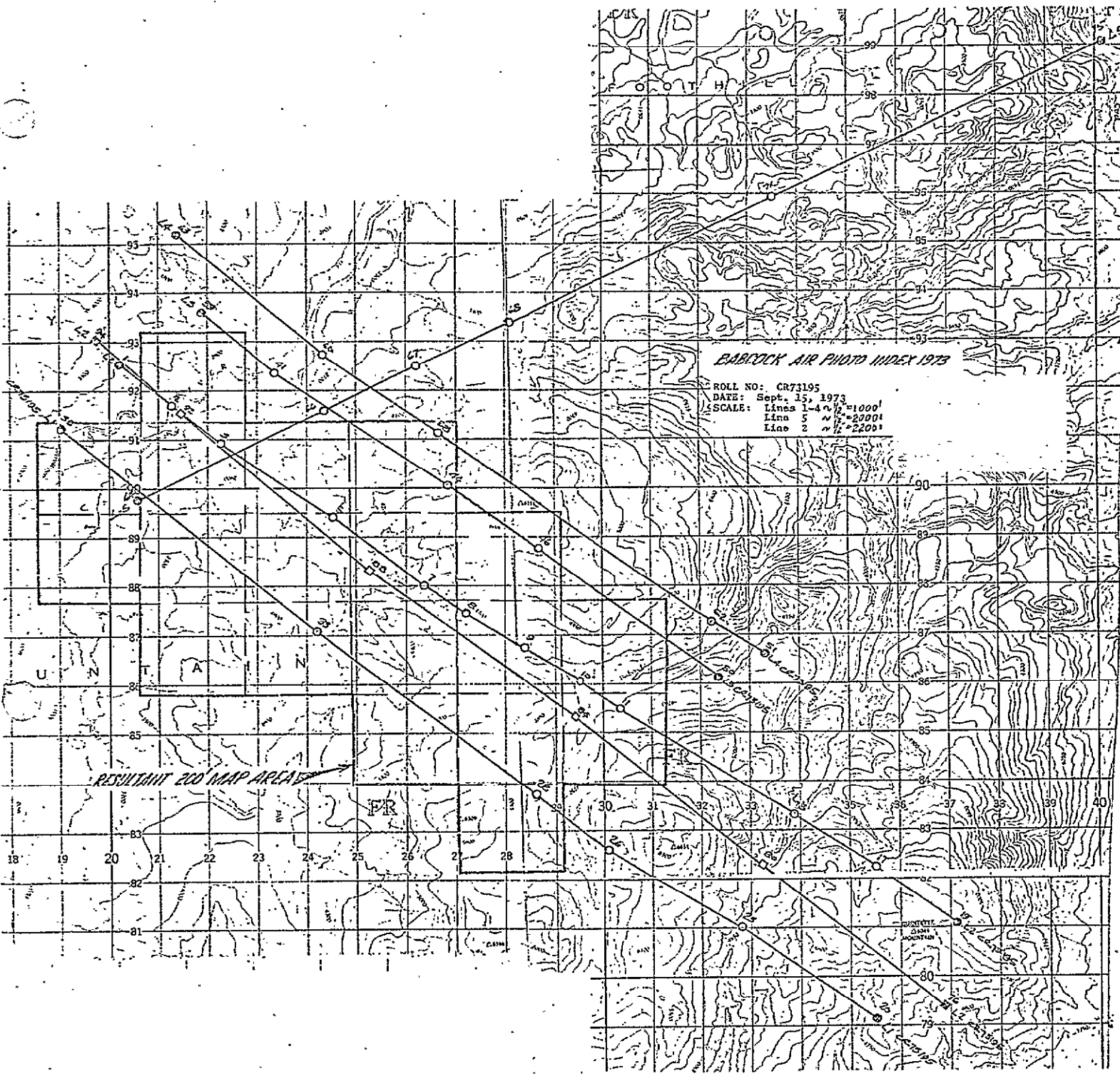
Geological staff on the Babcock project during 1973 field season were as follows:

Mitsui Mining Co. Ltd.

Mr. I. Kakizaki, Project Chief Geologist
 Mr. N. Kaneko, Geologist
 Mr. K. Kinoshita, Geologist
 Mr. K. Furikawa, Geologist

Denison Mines Limited

Mr. A. Johnson, Chief Geologist
 Mr. G. Gormley, P. Geol., Project Mgr.
 Mr. R. Gee, P. Geologist
 Mr. R. Nellis, Geologist



BABCOCK AIR PHOTO INDEX 1973

ROLL NO: CR71195
 DATE: Sept. 15, 1973
 SCALE: Line 5 @ 1:1000
 Line 2 @ 1:2000

RESULTANT 200' MAP AREA

PR-QUINTETTE 73(2)A

DENISON MINES LIMITED
 (COAL DIVISION)

CALGARY ALBERTA

BABCOCK AIR PHOTO INDEX

DRAWN BY: EJT.	DATE: FEB '74	SCALE: ~1"=2000'
APPROVED BY:	DRAWING NO:	

TOKYO BOEKI LTD.

Mr. J. Kurita, Mining Eng.

The bulk of the field mapping was under the excellent supervision of Mr. I. Kakizaki, all geological traverses were surveyed by chain and compass method with detail descriptions of lithology encountered. Both helicopter and 4 wheel driver vehicles supported the field crews. The Denison staff assisted the Japanese field crews when necessary and co-ordinated and supervised the various contractors on the job site. Sampling of coal sections was undertaken jointly by Denison and Mitsui and is fully documented in subsequent chapters.

In addition to geological staff on the property, Mr. D. M. Parkes, Chief Engineer, Denison Mines visited the property at various intervals during which time investigations into roof and floor conditions encountered in the core were undertaken. Mr. Parkes also co-ordinated a visit by senior Mitsui Mining staff during which time an assessment was made as the cut-ability of coal by hydraulic methods.

4. ROAD CONSTRUCTION

Road construction undertaken during the 1973 field season was time consuming and subsequently costly due to the difficult terrain in which the work was undertaken. Road work is outlined on two maps enclosed in the flap at the end of the report i.e. Road & Seismic Line Development (1973) and 1973 Exploration Work - Babcock Project. Approximately 10 miles of access road were constructed between the Murray campsite near the mouth of Waterfall Creek and the Peter Bawden Rig #21 gas well location (i.e. Quasar 93P3 d57D) located at the end of the road which services the developing Grizzley Valley gas field. This work was undertaken by R. Hanson of Chetwynd B.C. with a D-7 & D-8 caterpillar. It is hoped that this route will ultimately link the Quintette and particularly the Babcock coal reserves to Dawson Creek via the Fellers Heights road. Although the road was used for demobilization in November the first 5 miles of this route from the Grizzley valley are impassible during frost free periods due to poor drainage conditions at present.

Additional road work including drill and trench sites were undertaken between the Babcock and Murray Camps by R. D'Aoust Construction Ltd. of Beaverlodge Alta. This work was undertaken with D-8, D-7 and D-6 caterpillars. In general the routes required for access to drill sites were difficult to construct due to rugged relief, swampy conditions and unpenetrable rock. The route from the end of previous development on Babcock Mountain in the vicinity of the old adit camp to the Murray Valley was particularly difficult to maintain grade and required drilling and blasting of approximately 1/4 mile of rock.

In conclusion approximately 25 miles of road were constructed during the 1973 season of which 16 miles have the potential to be upgraded into permanent access routes for future development.

5. TRENCHING

Trenches were cut in a separate area (see Exploration Work Map) by D-7 and D-8 caterpillars. The trenching totaled 3500 feet in length and was carried out where large areas of overburden negated the possibility of adequately locating expected coal horizons. Surrounding surface geological information was used to extrapolate the position of coal seams and the resulting trench. The trenches were kept to a minimal width of 1 caterpillar blade and were cut only to the depth required to remove overburden and obtain a full section of the coal seam. Whenever possible a side slope situation was used to gain exposure along the uphill side of a flat road surface (i.e. trench #3). Approximately 100 pounds of sample from J seam intersected in trench #4 was sent to Edmonton for complete analysis.

6. DRILLING

Canadian Longyear Ltd. of Vancouver were contracted to perform the 1973 diamond drilling on the Babcock Project. A total of 9 drill holes were completed from which 9656 feet of HQ core was obtained. Two Longyear Model 44, skid mounted drills equipped with wireline drum and triple-tube core barrels were used to carry out this work. All holes were cased from surface to bedrock, mud was mixed with drilling water only when necessary to secure a return flow.

All drill core from the 1973 holes was logged and stored in the steel core shack at the Babcock campsite. Lithologic descriptions of the drill core can be found on the correlation chart enclosed in the back flap of this report. The drill hole locations were surveyed by chain and compass and are plotted on the map entitled "1973 Exploration Work, Babcock Project." In general core recovery was well over 90% for all but coal sections. The recovery in coal sections is documented in the 1973 Babcock Coal Data Summary Sheets which form Appendix II.

7. GEOPHYSICAL DRILL LOGS

Roke Oil Enterprises Ltd. of Calgary were contracted to carry out the geophysical logging of the 1973 drill holes. The equipment was truck mounted, Gamma Ray, Neutron, Density, and Caliper Logs were run in the holes where possible. This work was capably carried out by Mr. Roy Petersen. The logs were generally run according to the following procedure.

1. Combined general Gamma Ray and Neutron plotting at scale of 1" to 20'.
2. Combined general sidewall Density log and Caliper plotting at a scale of 1" to 20'.
3. Detail Gamma Ray and Density logs were then run at a scale of 1" to 4' over sections in which potentially economic coal seams were encountered.
4. When density detail could not be obtained Gamma Ray and Neutron logs were plotted at 1" to 4'.
5. Tropari tests were run by the logger at approximately 500 foot intervals in competent rock units (i.e. sandstones)

All general logs have been combined with lithologic strip logs for their respective holes and are illustrated on the 1973 Babcock correlation chart at a reduced scale of 1"-50'. The detail logs of coal sections have been incorporated on the coal data summary sheets (Appendix II).

The following is a summary of all logs run in the 1973 drill holes:

TABLE 1 - Summary of Geophysical Logs Run in 1973 Babcock Drill Holes

<u>Hole #</u>	<u>General Log 1"-20'</u>				<u>Detail Log 1"-4'</u>			
	<u>Gamma</u>	<u>Neutron</u>	<u>Density</u>	<u>Caliper</u>	<u>Gamma</u>	<u>Neutron</u>	<u>Density</u>	<u>Trop.</u>
7301	x	x	Tight/hole	x	x	x	Tight/hole	1
7302	x	x	x	x	x	x	x	3
7303	x	x	x	x	x	x	x	3
7304	No Logs Obtained As Hole Was Caved							-
7305	x	x	x	Tight/hole	x	x	x	3
7306	x	x	x	Tight/hole	x	x	x	3
7307	x	x	x	Tight/hole	x	x	x	3
7308	x	x	x	Tight/hole	x	x	x	3
7309	x	x	x	x	x	x	Not run	3

x - denotes logs were run

8. SAMPLING AND ANALYSIS

Sections of coal core were wrapped with plastic sheets at the drill site prior to transportation to the core shack. On completion of lithologic logging, the coal core was sampled in various increments depending on its quality. Each increment comprised 100% of the coal over the increment footage. The sample increments were bagged and sent to Cyclone Engineering Sales Ltd. for analysis in Edmonton.

The following four (4) pages list all coal sample increments taken from the 1973 drill core and illustrate by means of a flow sheet the method followed in analysis. For further description of incremental composites prior to analysis refer to Appendix II, 1973 Babcock Coal Data Summary Sheets.

1973 SAMPLING
BABCOCK PROJECT

<u>Hoie No.</u>	<u>Preliminary Seam Designation</u>	<u>Sample Number</u>	<u>Interval (Feet)</u>	<u>Predominant Lithology</u>
7301	D	1905	378.05 - 380.27	Coal A/shale 80/20
7301	D	1906	380.27 - 380.37	Coaly shale
7301	D	1907	380.37 - 384.31	Coal A
7301	D	1908	384.31 - 388.24	Coal A, minor Coal D
7301	D	1909	388.24 - 389.24	Coal A/Coaly shale 50/50
7301	D	1910	389.24 - 391.08	Shale
7301	E	1911	437.10 - 444.10	Coal A, minor Coal B
7301	E	1912	444.10 - 445.10	Shale
7301	E	1913	445.10 - 448.50	Coal A
7301	F	1914	521.60 - 522.35	Coal D
7301	F	1915	522.35 - 529.63	Coal A
7301	F	1916	532.8 - 534.08	Coal A
7301	J	1917	701.50 - 702.60	Coaly shale
7301	J	1918	702.6 - 711.15	Coal A, minor Coal C
7301	J	1919	711.15 - 720.65	Coal A, minor Coal D
7301	J	1920	720.65 - 721.35	Bone coal
7301	J	1921	721.35 - 729.6	Coal A, minor Coal C
7302	D	1922	232.16 - 233.30	Coaly shale
7302	D	1923	233.30 - 240.85	Coal A
7302	D	1924	240.85 - 242.45	Coal A/shale 70/30
7302	F	1925	382.45 - 383.90	Coal C/shale 50/50
7302	F	1926	385.0 - 389.0	Coal A
7302	F	1927	389.0 - 389.1	Coaly shale
7302	F	1928	389.10 - 394.6	Coal A
7302	I	1929	529.5 - 531.5	Shale/Coal A 80/20
7302	I	1930	531.5 - 542.9	Coal A - Coal B
7302	J	1931	561.0 - 562.55	Shale

1973 SAMPLING
 BABCOCK PROJECT

<u>Hole No.</u>	<u>Preliminary Seam Designation</u>	<u>Sample Number</u>	<u>Interval (Feet)</u>	<u>Predominant Lithology</u>
7302	J	1932	562.55 - 571.35	Coal A, minor shale
7302	J	1933	571.35 - 572.25	Bone coal
7302	J	1934	572.25 - 577.00	Coal A
7303	D	1935	1,189.8 - 1,191.5	Coal A
7303	D	1936	1,191.5 - 1,192.35	Coal D
7303	D	1937	1,192.35 - 1,200.15	Coal A
7303	E	1938	1,250.9 - 1,256.6	Coal B
7303	E	1939	1,256.6 - 1,258.1	Shale
7303	E	1940	1,258.1 - 1,261.65	Coal A
7303	F	1941	1,317.7 - 1,318.5	Bone
7303	F	1942	1,318.5 - 1,326.0	Coal A
7303	I	1943	1,441.0 - 1,450.6	Full seam, Coal A
7303	J	1944	1,498.15 - 1,518.20	Full seam, Coal A
7304	D	1945	682.2 - 697.25	Full seam, Coal A
7304	E	1946	772.65 - 779.9	Coal A
7304	E	1947	779.9 - 783.7	Coal A + .8' dirt
7304	F	1948	855.25 - 865.05	Full section
7304	I	1949	1,010.85 - 1,018.00	Full section, Coal A
7304	J	1950	1,027.6 - 1,040.00	Full section
7305	D	1951	393.95 - 403.5	Coal B-A
7305	D	1952	403.5 - 404.5	Shale
7305	D	1953	404.5 - 407.55	Coal B-C
7305	E	1954	451.0 - 457.25	Upper coal
7305	E	1955	457.25 - 458.35	Shale
7305	E	1956	458.35 - 461.45	Lower Coal A
7305	F	1957	487.6 - 495.95	Full section
7305	J	1958	685.0 - 694.8	Upper CB-CC
7305	J	1959	694.8 - 701.70	Lower CA
7306	E	1960	1,447.1 - 1,454.15	Full section
7306	F	1961	1,491.6 - 1,499.9	Full section
7306	J	1962	1,646.95 - 1,663.5	Full section
7306	D	1963	911.0 - 917.0	Full section

1973 SAMPLING

BABCOCK PROJECT

<u>Hole No.</u>	<u>Preliminary Seam Designation</u>	<u>Sample Number</u>	<u>Interval (Feet)</u>	<u>Predominant Lithology</u>
7307	E	1964	1,029.75 - 1,035.85	Full Section, Lower split
7307	F	1965	1,070.4 - 1,073.55	Roof dilution
7307	F	1966	1,073.55 - 1,080.3	Full Seam
7307	J	1967	1,227.25 - 1,232.45	Coal A
7307	J	1968	1,232.45 - 1,233.5	Shale
7307	J	1969	1,233.5 - 1,241.5	Coal A
7307	J	1970	1,241.5 - 1,242.8	Shale
7307	J	1971	1,242.8 - 1,255.4	Coal A
7308	D	1972	272.70 - 280.80	Full Seam
7308	F	1973	363.20 - 370.65	Coal A
7308	F	1974	372.90 - 375.05	Coal A
7308	F	1975	376.55 - 380.00	Coal A
7308	I	1976	467.00 - 476.40	Full Section
7308	J	1977	526.40 - 532.60	Full Section
7309	D	1978	346.40 - 350.55	Upper Coal A
7309	D	1979	350.55 - 351.55	Middle bone and shale
7309	D	1980	351.55 - 355.60	Lower Coal A
7309	F	1981	427.25 - 432.65	Upper Coal A
7309	F	1982	434.30 - 438.00	Lower Coal A
7309	J	1983	609.5 - 615.55	Full section

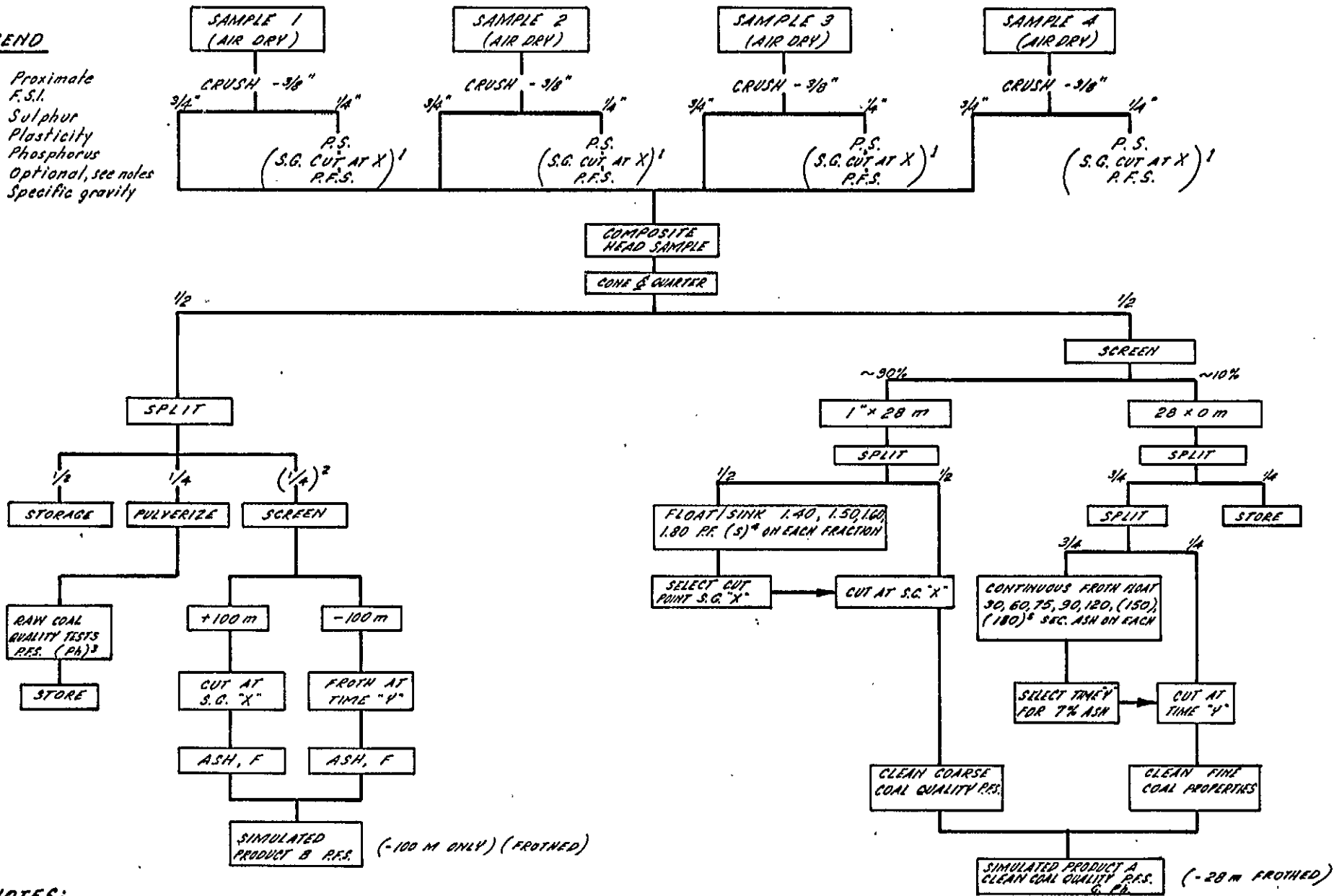
ANALYTICAL FLOW SHEET
BABCOCK PROJECT

COMPOSITING INSTRUCTIONS

30 - 60 lbs. or 13 - 27 kg.

LEGEND

- P Proximate
- F F.S.I.
- S Sulphur
- G Plasticity
- Ph Phosphorus
- () Optional, see notes
- S.G. Specific gravity



NOTES:

1. CONTRIBUTION OF COMPONENT SAMPLES TO COMPOSITE CLEAN COAL TO BE DETERMINED WHEN REQUESTED BY DENISON MINES LIMITED.
2. SIMULATED PRODUCT B TO BE PREPARED ONLY WHEN THERE IS SUFFICIENT SAMPLE FOR A REPRESENTATIVE ANALYSIS.
3. PHOSPHORUS TO BE DONE ON HEAD SAMPLE IF PH. IN CLEAN COAL IS GREATER THAN 0.05.
4. SULPHUR IS TO BE DONE ON SINK / FLOAT FRACTIONS IF SULPHUR IN THE HEAD ANALYSIS IS GREATER THAN 0.70.
5. CONTINUOUS FROTH FLOTATION UP TO 180 SECONDS IS REQUIRED ON INITIAL SAMPLES. THIS MAY BE REVISED LATER IF THE FROTH IS RELEASED QUICKLY.

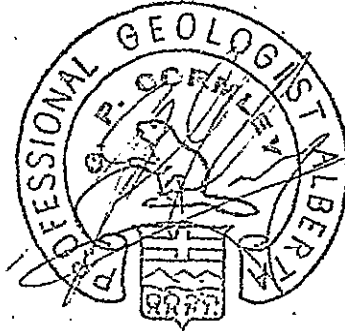
9. FEASIBILITY & OTHER STUDIES

The 1973 exploration was undertaken to begin an evaluation of a steep-limbed syncline referred to as the Waterfall Creek Syncline which is adjacent and continuous to the Southwest of the Babcock Mountain structure. Although further exploration work is planned for the area this summer, initial studies into the feasibility of hydraulic mining in this area are being undertaken.

Proposals for ecological studies on the impact of mining in the Babcock area are being received and reviewed at the present time.

10. BUDGET

The following pages list all cost incurred during 1973 exploration on coal licences owned by Quintette Coal Limited. These costs are further categorized by total expenditure per coal licence. All cost have been extracted from the accounts of Denison Mines Ltd. and represent actual cost involved in exploration.



EXPLORATION EXPENSES PRIOR TO OCT. 15, 1973

	<u>DIAMOND DRILLING</u>	<u>ROADS</u>	<u>TRENCHING</u>	<u>GEOLOGICAL</u>	<u>TOTAL</u>
Staff Charges	\$ 6,107	\$ 6,821	\$ 634	\$10,854	\$ 24,416*
D-7 Tractors	-	47,263	4,396	-	51,659
D-8 Tractors	-	57,324	5,332	-	62,656
LY44 Drills	88,936	-	-	-	88,936
H-500 Helicopters	-	-	-	38,881	38,881
Trucks	3,415	2,277	212	2,045	7,949
Surveying and Mapping	1,401	-	-	6,058	7,459
Line Cutters	-	-	-	2,798	2,798
Camp Rentals	2,215	2,474	230	1,117	6,036
Board	-	6,459	601	2,560	9,620
Drill Mobilization	8,000	-	-	-	8,000
Cat Mobilization	-	2,363	220	-	2,583
Communications	1,100	1,229	114	555	2,998
Logging - Electronic	5,125	-	-	-	5,125
Grader	-	9,991	929	-	10,920
Analysis	8,995	-	-	-	8,995
Reclamation	-	5,290	492	-	5,782
Travel Expense	2,263	1,393	130	1,126	4,912
Aircraft Charters	-	-	-	2,694	2,694
Drafting and Printing	-	-	-	1,605	1,605
General and Miscellaneous	7,632	8,524	793	3,847	20,796
	<u>\$135,189</u>	<u>\$151,408</u>	<u>\$14,083</u>	<u>\$74,140</u>	<u>\$374,820</u>

* Total Geological & Mine Engineering staff charges are not available as feasibility work is not completed.

EXPLORATION EXPENSES AFTER OCT. 15, 1973

	<u>DIAMOND DRILLING</u>	<u>ROADS</u>	<u>TRENCHING</u>	<u>GEOLOGICAL</u>	<u>TOTAL</u>
Staff Charges	\$ 2,441	\$ 2,734	\$ 196	\$ 4,395	\$ 9,766*
D-7 Tractors	-	4,657	518	-	5,175
D-8 Tractors	-	-	-	-	-
Ly44 Drills	52,459	-	-	-	52,459
H-500 Helicopter	-	-	-	-	-
Trucks	7,012	4,676	435	4,200	16,323
Surveying and Mapping	1,906	-	-	8,246	10,152
Line Cutters	-	-	-	-	-
Camp Rentals	5,189	5,796	539	2,617	14,141
Board	-	9,001	839	3,567	13,407
Drill Mobilization	-	-	-	-	-
Cat Mobilization	-	-	-	-	-
Communications	1,392	1,556	146	702	3,796
Logging	6,360	-	-	-	6,360
Grader	-	-	-	-	-
Analysis	8,784	-	-	-	8,784
Reclamation	-	6,603	614	-	7,217
Travel Expense	4,582	2,291	-	11,788	18,661
Aircraft Charters	-	-	-	-	-
Drafting and Printing	-	-	-	2,072	2,072
General and Miscellaneous	8,272	9,239	859	4,170	22,540
Fuel and Lubricants	6,535	15,684	785	3,137	26,141
	<u>\$104,932</u>	<u>\$62,237</u>	<u>\$4,931</u>	<u>\$44,894</u>	<u>\$216,994</u>

* Total Geological & Mine Engineering staff charges are not available as feasibility work is not completed.

Total 1973 Exploration Expenditure \$591,814.00

BREAKDOWN OF 1973 EXPLORATION
EXPENDITURE PER COAL LICENCE PRIOR TO OCT. 15, 1973

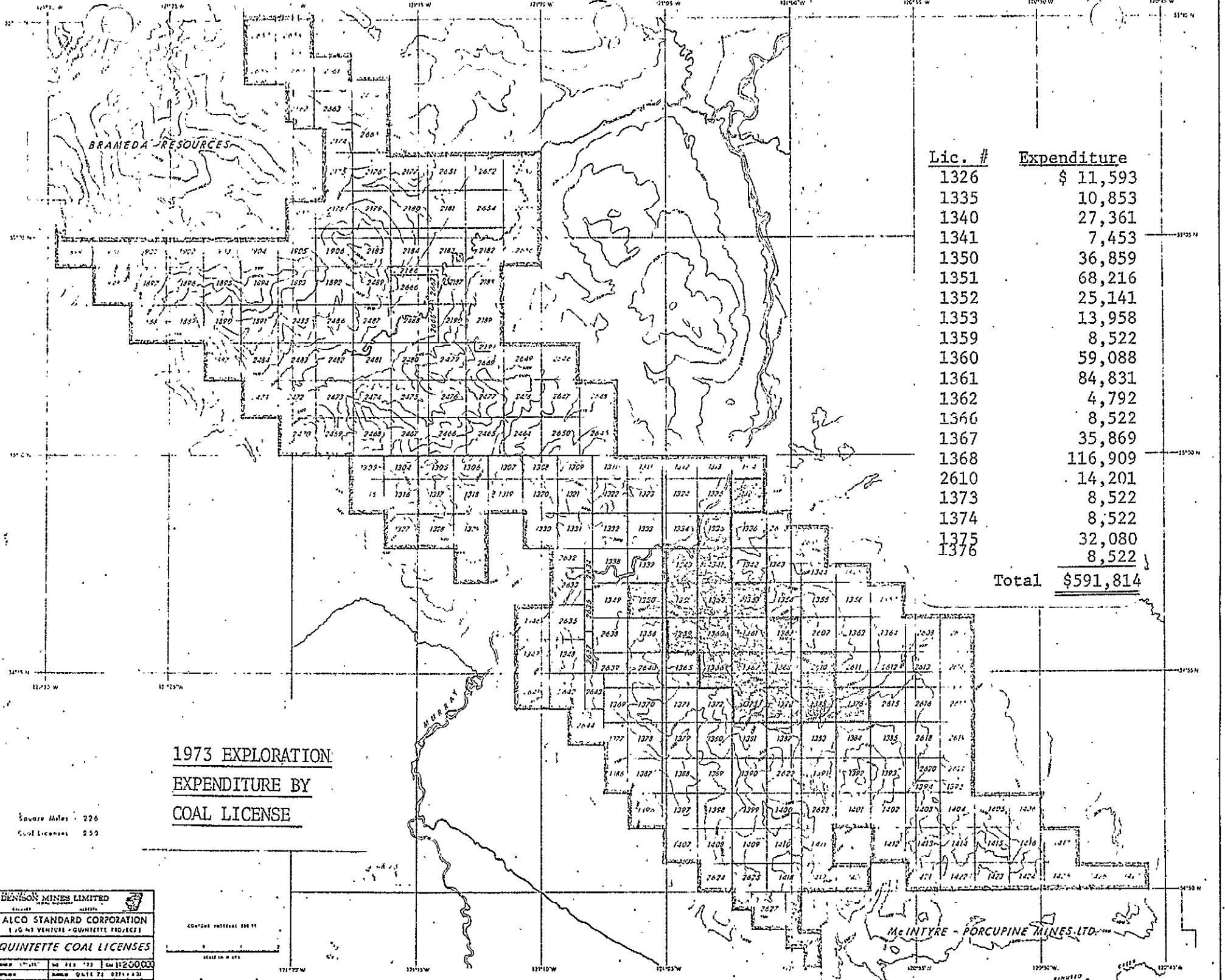
EXPENDITURES

<u>Licence #</u>	<u>Diamond Drilling</u>	<u>Roads</u>	<u>Trenching</u>	<u>Geological</u>	<u>Total</u>
1326	\$ -	\$ 8,132	\$ -	\$ -	\$ 8,132
1335	-	7,392	-	-	7,392
1340	-	10,201	-	5,529	15,730
1341	-	3,992	-	-	3,992
1350	-	-	-	5,529	5,529
1351	-	18,037	2,424	5,529	25,990
1352	-	13,158	-	5,529	18,687
1353	-	10,497	-	-	10,497
1359	-	-	-	5,529	5,529
1360	-	10,201	3,639	5,529	19,369
1361	43,256	6,505	-	5,529	55,292
1362	-	1,331	-	-	1,331
1366	-	-	-	5,529	5,529
1367	17,886	9,461	-	5,529	32,876
1368	90,114	18,273	-	5,529	113,916
2610	-	2,218	-	5,529	7,747
1373	-	-	-	5,529	5,529
1374	-	-	-	5,529	5,529
1375	-	5,470	9,696	5,529	20,695
1376	-	-	-	5,529	5,529
					<u>\$374,820</u>

BREAKDOWN OF 1973 EXPLORATION
EXPENDITURE PER COAL LICENCE AFTER OCT. 15, 1973

EXPENDITURES

<u>Licence #</u>	<u>Diamond Drilling</u>	<u>Roads</u>	<u>Trenching</u>	<u>Geological</u>	<u>Total</u>
1326	\$ -	\$ 3,461	\$ -	\$ -	\$ 3,461
1335	-	3,461	-	-	3,461
1340	-	8,638	-	2,993	11,631
1341	-	3,461	-	-	3,461
1350	24,134	4,203	-	2,993	31,330
1351	20,987	18,246	-	2,993	42,226
1352	-	3,461	-	2,993	6,454
1353	-	3,461	-	-	3,461
1359	-	-	-	2,993	2,993
1360	36,726	-	-	2,993	39,719
1361	23,085	3,461	-	2,993	29,539
1362	-	3,461	-	-	3,461
1366	-	-	-	2,993	2,993
1367	-	-	-	2,993	2,993
1368	-	-	-	2,993	2,993
2610	-	3,461	-	2,993	6,454
1373	-	-	-	2,993	2,993
1374	-	-	-	2,993	2,993
1375	-	3,461	4,931	2,993	11,385
1376	-	-	-	2,993	2,993
					<u>\$216,994</u>



Lic. #	Expenditure
1326	\$ 11,593
1335	10,853
1340	27,361
1341	7,453
1350	36,859
1351	68,216
1352	25,141
1353	13,958
1359	8,522
1360	59,088
1361	84,831
1362	4,792
1366	8,522
1367	35,869
1368	116,909
2610	14,201
1373	8,522
1374	8,522
1375	32,080
1376	8,522
Total	\$591,814

**1973 EXPLORATION
EXPENDITURE BY
COAL LICENSE**

Square Miles - 226
Coal Licenses - 259

DENISON MINES LIMITED
INCORPORATED IN CANADA

ALCO STANDARD CORPORATION
(A JOINT VENTURE - QUINLETTE PROJECT)

QUINLETTE COAL LICENSES

Scale: 1" = 1000' (approximate)

COASTAL INTERFERE 330 33'

McINTYRE - PORCUPINE MINES LTD.

DENISON MINES LIMITED
COAL DIVISION



EXECUTIVE OFFICE:
4 KING STREET WEST
TORONTO, ONTARIO M5H 1C2
TEL. 416-363-4991
TELEX 02-2205

DIVISION OFFICE:
1500-444 5TH AVENUE S.W.
CALGARY, ALBERTA T2P 2T8
TEL. 403-269-4327

CALGARY, August 22, 1974

3378

Department of Mines & Petroleum Resources
Victoria, B.C.

Attention: Mr. A. R. Corner, Administrator for Coal

Dear Sir:

Enclosed are the 1973 geological exploration maps on our Quintette property which you enquired about in your letter of August 2, 1974. I hope this information is adequate to complete your files.

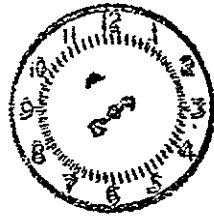
Yours truly,

DENISON MINES LIMITED

G. P. Gormley / gpe

G. P. Gormley
Project Geologist

AUG 26 '74 AM



DEPT. OF MINES
AND PETROLEUM RESOURCES

REFERRED TO	DATE	INITIAL
D.M.		
ADM (G)		
ADM (F)		
C. S.		
C. S.		
FACTS	✓	gjk
ACPR		
G.C.		
ASOTS.		
OSGL		
INSP.		
M. F.		GPG:gjk
CO. S. F.		
ARC	✓	Encl.
FILED CLERK		

G. Bell
These are the maps that were
outstanding from reports received
with L.I. 3254 March 14/74
1973 Beltsville Geology map.
(and file C-L# 1303-1427)

File 27/8

MEMORANDUM

TO Mr. A.R. Corner,
..... Administration Division,
..... Mining Titles.

FROM THE

**DEPARTMENT OF MINES
AND PETROLEUM RESOURCES**

VICTORIA, B.C., March 25, 19 74

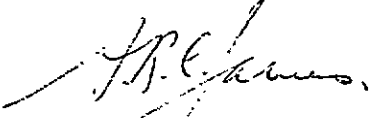
WHEN REPLYING PLEASE REFER
TO FILE NO.

Re: Denison Mines Limited, Coal Division 1973 Exploration Report on
the Quintette coal licenses dated February 1974.

I have examined the attached report submitted by the above-named company under the provisions of the Coal Act. I note that two portions of the report are still to come and will be sent in as soon as they are available.

The report contains a statement of exploration expenses covering the work done in 1973. These expenses appear to be consistent with the amount and type of work stated to have been done. The costs for drilling, trenching, and coal analysis seem to be fairly typical. Road construction at \$14,000 a mile was expensive, but difficult conditions were apparently met with. The geological mapping at \$119,034 seems quite costly, but the mapping was said to be done in considerable detail over a wide area. I think therefore that the statement of expenses could be regarded as acceptable.

Perhaps the reports could be passed on to Mr. Gordon Bell for his examination and filing.

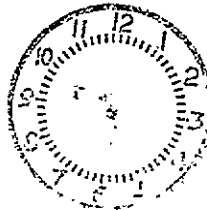

A.R.C. James, P.Eng.,
Senior Inspector of Mines.

ARCJ:sl

encl.

3779

MAR 26 '74 AMT



DEPT. OF MINES
AND PETROLEUM RESOURCES

	✓
	ARC

DENISON MINES LIMITED
COAL DIVISION



EXECUTIVE OFFICE:
 4 KING STREET WEST
 TORONTO, ONTARIO M5H 1C2
 TEL. 416-363-4991
 TELEX 02-2205

DIVISION OFFICE:
 1500-444 5TH AVENUE S.W.
 CALGARY, ALBERTA T2P 2T8
 TEL. 403-269-4327

T2P 2T8

CALGARY, 8th March 1974

Mr. E. J. Bowles
 Chief Gold Commissioner
 Department of Mines and Petroleum Resources
 Parliament Buildings
 Victoria, B.C.

Dear Mr. Bowles,

I have enclosed a report which describes results and capital expenditure from exploration work carried out on coal licences registered by Quintette Coal Limited during 1973. Due to the late date, I have omitted two unfinished parts of this report to expedite your receipt of the bulk of the information. The two missing portions are:

1. 1973 Babcock Geology Map
2. Appendix II - 1973 Babcock Coal Data Summary Sheets

Both of these portions will be sent to you as soon as they are available.

If there are any questions in regard to our work please do not hesitate to contact me.

3254

REVISION	DATE	INITIALS
REV. 1		
C.S.C.	✓	
C.C.		
C.S.C.	✓ 14/13	E
D.M.		
AG		
D.M.		
C.A.		
R. V.		
C.A.		
REV. 2		
REV. 3		
REV. 4		
REV. 5		
REV. 6		
REV. 7		
REV. 8		
REV. 9		
REV. 10		
REV. 11		
REV. 12		
REV. 13		
REV. 14		
REV. 15		
REV. 16		
REV. 17		
REV. 18		
REV. 19		
REV. 20		

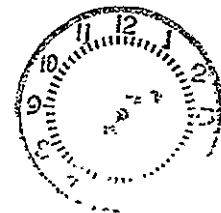
Yours very truly,

DENISON MINES LIMITED

G. P. Gormley
 G. P. Gormley, P. Geol.

GPG/bl
 Encl.

MAR 14 74 PM



Report a copy of this report forwarded to Mr. James 15/3/74

Schedule "A" to the Statutory Declaration of Alan A. Johnson relating to the application for rebate of rentals on Coal Licences owned by Quintette Coal Limited.

	<u>DIAMOND DRILLING</u>	<u>ROADS</u>	<u>TRENCHING</u>	<u>GEOLOGICAL</u>	<u>TOTAL</u>
Staff Charges	6,107	6,821	634	10,854	24,416
D-7 Tractors	-	47,263	4,396	-	51,659
D-8 Tractors	-	57,324	5,332	-	62,656
LY44 Drills	88,936	-	-	-	88,936
H-500 Helicopters	-	-	-	38,881	38,881
Trucks	3,415	2,277	212	2,045	7,949
Surveying and Mapping	1,401	-	-	6,058	7,459
Line Cutters	-	-	-	2,798	2,798
Camp Rentals	2,215	2,474	230	1,117	6,036
Board	-	6,459	601	2,560	9,620
Drill Mobilization	8,000	-	-	-	8,000
Cat Mobilization	-	2,363	220	-	2,583
Communications	1,100	1,229	114	555	2,998
Logging - Electronic	5,125	-	-	-	5,125
Grader	-	9,991	929	-	10,920
Analysis	8,995	-	-	-	8,995
Reclamation	-	5,290	492	-	5,782
Travel Expense	2,263	1,393	130	1,126	4,912
Aircraft Charters	-	-	-	2,694	2,694
Drafting and Printing	-	-	-	1,605	1,605
General and Miscellaneous	7,632	8,524	793	3,847	20,796
	<u>\$135,189</u>	<u>\$151,408</u>	<u>\$14,083</u>	<u>\$ 74,140</u>	<u>\$374,820</u>

Roads 21.7 miles,
Cost Per Mile (6,977)

5.7 miles general access
road (\$39,769) prorated

	<u>\$135,189</u>	<u>\$111,639</u>	<u>\$14,083</u>	<u>\$ 74,140</u>
--	------------------	------------------	-----------------	------------------

Percent distribution
of (\$39,769)

	(40.35)	(33.32)	(4.20)	(22.13)
--	---------	---------	---------	---------

Cost of access

	<u>\$ 16,047</u>	<u>\$ 13,251</u>	<u>\$ 1,670</u>	<u>\$ 8,801</u>
--	------------------	------------------	-----------------	-----------------

Total Cost by Function

	<u>\$151,236</u>	<u>\$124,890</u>	<u>\$15,753</u>	<u>\$ 82,941</u>	<u>\$374,820</u>
--	------------------	------------------	-----------------	------------------	------------------

Number of units

	5,962 ft	16.0 mi	2,600 ft	15 lic.
--	----------	---------	----------	---------

Cost per unit

	\$25.37/ft	\$ 7,806/mi	\$6.06/ft	\$ 5,529/lic.
--	------------	-------------	-----------	---------------

603

SUMMARY OF EXPENDITURE

AUGUST 1 TO OCTOBER 15, 1973

GROUP 73-A

<u>LICENCE NUMBER</u>	<u>TYPE OF WORK</u>	<u>UNIT COST/AMOUNT</u>	<u>COST</u>
1326	road, 5,500 ft	1.0417 m. 7,806	8,132
1335	road, 5,000 ft	0.9470 m. 7,806	7,392
1340	road, 6,900 ft geology	1.3068 m. 7,806	10,201 5,529
1350	geology		5,529
1353	road, 7,100 ft	1.3447 m. 7,806	10,497
1362	road, 900 ft	0.1705 m. 7,806	<u>1,331</u> \$48,611

*Work resumed
48,000.00*

SUMMARY OF EXPENDITURE

AUGUST 1 TO OCTOBER 15, 1973

GROUP 73-B

<u>LICENCE NUMBER</u>	<u>TYPE OF WORK</u>	<u>UNIT COST/AMOUNT</u>	<u>COST</u>
1341	road, 2,700 ft	.5114 m. 7,806	3,992
1351	road, 12,200 ft	2.3106 m. 7,806	18,037
	trench 400 ft	6.06	2,424
	geology		5,529
1352	road, 8,900 ft	1.6856 m. 7,806	13,158
	geology		5,529
			<u>48,669</u>

*Works required
\$48,000.00*

SUMMARY OF EXPENDITURE

AUGUST 1 TO OCTOBER 15, 1973

GROUP 73-C

<u>LICENCE NUMBER</u>	<u>TYPE OF WORK</u>	<u>UNIT COST/AMOUNT</u>	<u>COST</u>
1359	geology		5,529
1360	road, 6,900 ft trench 600 ft geology	1.3068 m. 7,806 6.06	10,201 3,639 5,529
1366	geology		5,529
1375	road, 3,700 ft trench 1,600 ft geology	.7008 m. 7,806 6.06	5,470 9,696 5,529 <u>51,119</u>

*Work required

48,000.00*

SUMMARY OF EXPENDITURE

AUGUST 1 TO OCTOBER 15, 1973

GROUP 73-D

<u>LICENCE NUMBER</u>	<u>TYPE OF WORK</u>	<u>UNIT COST/AMOUNT</u>	<u>COST</u>
1367	road 6,400 ft drill 705 ft geology	1.212 m. 7,806 25.37	9,461 17,886 5,529
1373	geology		5,529
1374	geology		5,529
1376	geology		5,529
			<u>5,529</u> \$49,463

*Work required
48,000.00*

SUMMARY OF EXPENDITURE

AUGUST 1 TO OCTOBER 15, 1973

GROUP 73-E

<u>LICENCE NUMBER</u>	<u>TYPE OF WORK</u>	<u>UNIT COST/AMOUNT</u>	<u>COST</u>
1368	road, 12,360	2.3409 m. 7,806	18,273
	drill, 3,552 ft	25.37	90,114
	geology		5,529
			<u>\$113,916</u>

*Work required
\$45,300.00*

SUMMARY OF EXPENDITURE

AUGUST 1 TO OCTOBER 15, 1973

GROUP 73-F

<u>LICENCE NUMBER</u>	<u>TYPE OF WORK</u>	<u>UNIT COST/AMOUNT</u>	<u>COST</u>
1361	road, 4,400 ft	.8333 m. 7,806	6,505
	drill 1,705 ft	25.37	43,256
	geology		<u>5,529</u>
			55,290

*What required
\$45,750.00*

SUMMARY OF EXPENDITURE

AUGUST 1 TO OCTOBER 15, 1973

GROUP 73-G

<u>LICENCE NUMBER</u>	<u>TYPE OF WORK</u>	<u>UNIT COST/AMOUNT</u>	<u>COST</u>
2610	road, 1,500 ft geology	.2841 m. 7,806	2,218 5,529 <u>7,747</u>

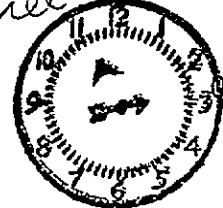
*Work required
\$4,350.00*

DENISON MINES LIMITED
(COAL DIVISION)

EXECUTIVE OFFICE:
4 KING STREET WEST
TORONTO 1, ONTARIO
TEL. 416-363-4991
TELEX 02-2205



OCT 15 '73 AM
rec'd #30,451.50



October 15, 1973

Mr. E.T. Bowles
Chief Gold Commissioner
Department of Mines and Petroleum Resources
Province of British Columbia
Victoria, British Columbia

DEPT. OF MINES
AND PETROLEUM RESOURCES

11031

DIVISION OFFICE: ✓
1660 AQUITAINE TOWER
540 FIFTH AVENUE S.W.
CALGARY, 1, ALBERTA
TEL. 403-269-4327

ACCTS. _____
C.M.B. _____
C.I. _____
C.A. _____
R. T. _____
C.P.E. _____
ARC _____
WK JAMES
FILING CLERK

IR.T 101275

Dear Mr. Bowles:

Enclosed please find our cheque in the amount of \$30,451.50 for the renewal of coal licences numbers 1303 to 1427 inclusive, and 2607 to 2644 inclusive. This amount has been derived in the following manner:

Renewal fees 163 x \$25.00	\$ 4,075.00 ✓
Grouping certificates 7 @ \$1.00	7.00 ✓
91,779 acres at 0.50	45,889.50 ✓
	<u>\$49,971.50 ✓</u>
Less credit for 61 licences (39,040 acres @ 0.50) for which work is applied in lieu of rental; (see accompanying report).	19,520.00
Net due	<u>\$30,451.50</u>

A brief preliminary report on our exploration is enclosed and a much more detailed one, similar to our previous filings will be submitted as soon as possible.

Yours very truly,

A.A. Johnson
Chief Geologist

Enclosure
AAJamb

Statutory Declaration

CANADA
Province of Alberta

To Wit:

IN THE MATTER OF THE APPLICATION OF QUINTETTE
COAL LTD. FOR RENTAL REBATE UNDER THE COAL ACT
OF THE PROVINCE OF BRITISH COLUMBIA.

I, ALAN A. JOHNSON
of the City of Calgary,

in the Province of Alberta

do solemnly declare


that :


1. I am the Chief Geologist of DENSION MINES LIMITED., Coal Division
2. QUINTETTE COAL LTD. is a wholly owned subsidiary of Dension Mines Limited.
3. Quintette Coal Ltd. is the owner of Coal Licenses Nos. 1303 to 1427 inclusive and Nos. 2607 to 2644 inclusive and that expenditures on the said Coal Licenses as set forth in Schedule "A" hereto have been made by or on behalf of Quintette Coal Ltd.
4. This Statutory Declaration is made in support of the application for rental rebates under the Coal Act of the Province of British Columbia in regard to the Coal Licenses set forth in Paragraph 3 hereof.

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath, and by virtue of The Canada Evidence Act.

Declared before me
at Calgary, Alberta
this 12th
day of October

A.D. 1973.



 Alan A. Johnson

 A Notary Public

A Commissioner for Oaths in and for the Province of Alberta.

QUINTETTE COAL LIMITED
PRELIMINARY REPORT ON EXPLORATION
1973 PROGRAM
FROM AUGUST 1, 1973 TO OCTOBER 15, 1973

SUBMITTED ON BEHALF OF
QUINTETTE COAL LIMITED BY:

ALAN A. JOHNSON
CHIEF GEOLOGIST
COAL DIVISION
DENISON MINES LIMITED

OCTOBER 16, 1973

INTRODUCTION

This report outlines, very briefly, the work done, in 1973 up to October 15, on the Quintette Coal Limited property which is located, generally between the Murray River and Kinuseo Creek in the Peace River land district of British Columbia. As soon as this phase of the program is completed, a more detailed report summarizing all of the findings will be submitted. This is expected in December. The work done in this phase of the exploration programme will be applied exclusively to licences within the groups 1303 to 1427 inclusive and 2607 to 2644 inclusive.

To date, five holes have been completed this year and two are in progress (hole 7306 at 975 feet, and hole 7307, just being set up). In addition to the drilling, four trenches have been made to expose seams and prepare potential adit sites and 21.7 miles of access road have been constructed including 5.7 miles of general access.

DIAMOND DRILLING

The diamond drilling is being carried out under contract to Canadian Longyear Limited. The following amount of drilling had been completed up to October 15, 1973.

	<u>HOLE NUMBER</u>	<u>DEPTH</u>
BABCOCK	BD-7301	832
	BD-7302	705
	BD-7303	1,545
	BD-7304	1,175
	BD-7305	730
	BD-7306	975
	BD-7307	just set up
	<u>TOTAL</u>	<u>5,962</u>
	Trench #1	600
	Trench #2	400
Trench #3	1,000	
Trench #4	600	
<u>TOTAL</u>	<u>2,600</u>	

R. 987

ACCESS ROADS	Murray River Road	9.0 miles (5.7 miles
	Trench and Drill Roads	12.7 miles general access)
	<u>TOTAL</u>	<u>21.7 miles</u>

In addition to the above mentioned physical work, very accurate survey control has been established on the property and detailed geological mapping (1"=200') of an area encompassing approximately 15 coal licences is in progress. The data for this mapping is still in the field, however, approximately 8 man months have been spent on this aspect of the program to date. The following licences enclose almost all of the area being mapped and the mapping costs are therefore pro-rated evenly over these units.

1340	1366-68 inclusive
1350-52 inclusive	2610
1359-61 inclusive	1373-76 inclusive

GEOPHYSICAL LOGS

Roke Oil Enterprises has been contracted to log each drill hole. To date, all completed holes have been logged except for hole 7304 which had loose caving material which made logging impossible.

ANALYTICAL WORK

Each coal seam is being sent to a commercial laboratory for complete analysis and washability tests. This data will also be included in the final report.

EXPENDITURES

The expenditures for the 1973 program to October 15, 1973 are outlined on the enclosed tabulation. This list has been extracted from the accounting records of Denison Mines Limited, as that company is conducting the exploration on behalf of its joint venture partners for Quintette Coal Limited. In this

cost analysis certain items have been estimated on the basis of field reports received up to October 13, and in all respects, the attached expenditure report may be considered accurate, but perhaps conservative.

The costs of the project have been apportioned appropriately to diamond drilling, roads, trenching, and geological mapping as these functions are easily related to specific licences. The cost of main access construction which is included in the original estimate of total road costs has been further "broken out" and distributed proportionately to the other functions as such work cannot be related to a specific licence.

MAPS AND ATTACHMENTS

The general layout and approximate position of roads and drill sites (accurate with respect to licence boundaries) is shown on Drawing BBCK-72-0270-R03 and each grouping application has a small map attached to assist in verification of the continuity of the groups.



A.A. Johnson
Chief Geologist

AAJamb

MEMORANDUM

Denison - 1973

TO: Mr. A.R. Corner,
Administration Branch,
Mining Titles.

FROM THE

DEPARTMENT OF MINES
AND PETROLEUM RESOURCES

VICTORIA, B.C., October 17, 1973

CONFIDENTIAL

WHEN REPLYING PLEASE REFER
TO FILE NO.

C.L. 1303-1427
2601-2444

Re: Denison Mines Ltd. Coal Licenses 1340, 1350-52, 1359-61, 1366-68, 2610, 1373-76.

In reply to your note of October 16th, I have examined the attached statements and interim report.

In my opinion the expenditures are reasonably consistent with the amount of work reported.

In previous years Denison Mines Ltd. has submitted good reports on the technical and geological results of their work. I would therefore feel we could accept their assurance that a full report of this season's work will be submitted later on about the end of the year. Thus I think the interim report would be sufficient to allow you to proceed with an Order-in-Council to renew the licenses.

I am returning the various documents, and would suggest the interim report be passed on to Mr. Bell.

-11250

A.R. James
A.R.G. James, P.Eng.,
Senior Inspector of Mines.

ARGJ:s1

enclosures.

REFERRED TO	DATE	INITIAL
D. M.		
C.G.C.		
C.C.		
D.C.G.C.		<i>[Signature]</i>
D.C.C.		
ACCTS.		
C.M.B.		
C.I.		
C.A.		
R. T.		
C.P.E.		
<i>HC</i>	19/10	<i>[Signature]</i>
FILING CLERK		

D. M. 13/10
all. 13/10

OCT 18 '73 PM



DEPT. OF MINES
AND PETROLEUM RESOURCES

G. BELL.

PR-QUINTETTE-73(2)A

(BOOK B-2)

APPENDIX I
Reduced Negatives of 1973
Babcock Topographic Maps
1" - 200' with 10' Contours

DO NOT
FILM ANY
OF THIS
FILE PLEASE
Sandy

603

TO ACCOMPANY:

1973 Exploration Report on
THE QUINTETTE COAL LICENSES
IN NORTHEASTERN BRITISH COLUMBIA

February, 1974