# 1981 OPEN FILE

REPORT ON THE 1981 EXPLORATION DRILLING PROGRAMME CONDUCTED ON COAL LICENCES 162, 4460, 4462, 4463, AND 4727 AS PART OF GROUP 277 SUPP. AND ON COAL LICENCES 4458, 4459 AND 4464 AS PART OF GROUP 311 SUPP. BETWEEN FEBRUARY 15 AND SEPTEMBER 1, 1981

#### GROUP 277 SUPP.

COAL LICENCES: 148, 162, 163, 4460 - 4463, 6043, 6044, 4726, 4727, 6343, 6559, 6561, 6566

#### GROUP 311 SUPP.

COAL LICENCES: 4458, 4459, 4464, 4723 - 4725, 6552 - 6557, 6563 - 6565

#### BOWRON COALFIELD

LAND DISTRICT - CARIBOO N.T.S. GRID - 93H/13 LATITUDE - 53°50'N LONGITUDE - 121°55'W

OWNER/OPERATOR:

NORCO RESOURCES LTD.

#### CONSULTANT/AUTHOR:

I. BOROVIC, P. ENG., GEOLOGIST

(IGNA ENGINEERING & CONSULTING LTD.)

# GEOLOGICAL BRANCH ASSESSMENT REPORT

FIELD WORK: FEB. 15 - SEPT. 1, 1981

REPORT SUBMITTED: MARCH

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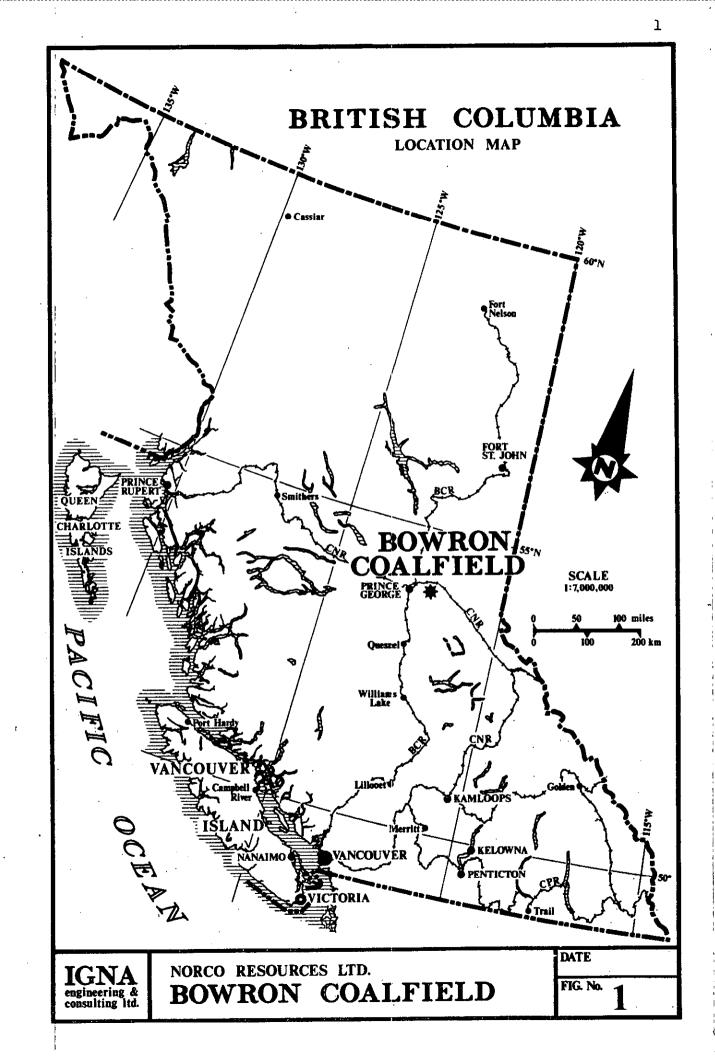
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#### (A) INTRODUCTION

1. Scope

This report describes the exploration and development drilling work done in 1981. It discusses the results of the drilling, the coal analyses from the drill core, and it proposes continuation of the drilling programme.

For more detailed information on the history and general background of the property, the reader is referred to the author's several reports on the earlier exploration programmes. These reports may be found listed in the bibliography at the back.

#### 2. Property

The property consists (for the purpose of this assessment report) of 30 coal licences divided in two groups of 15 licences each, as follows:

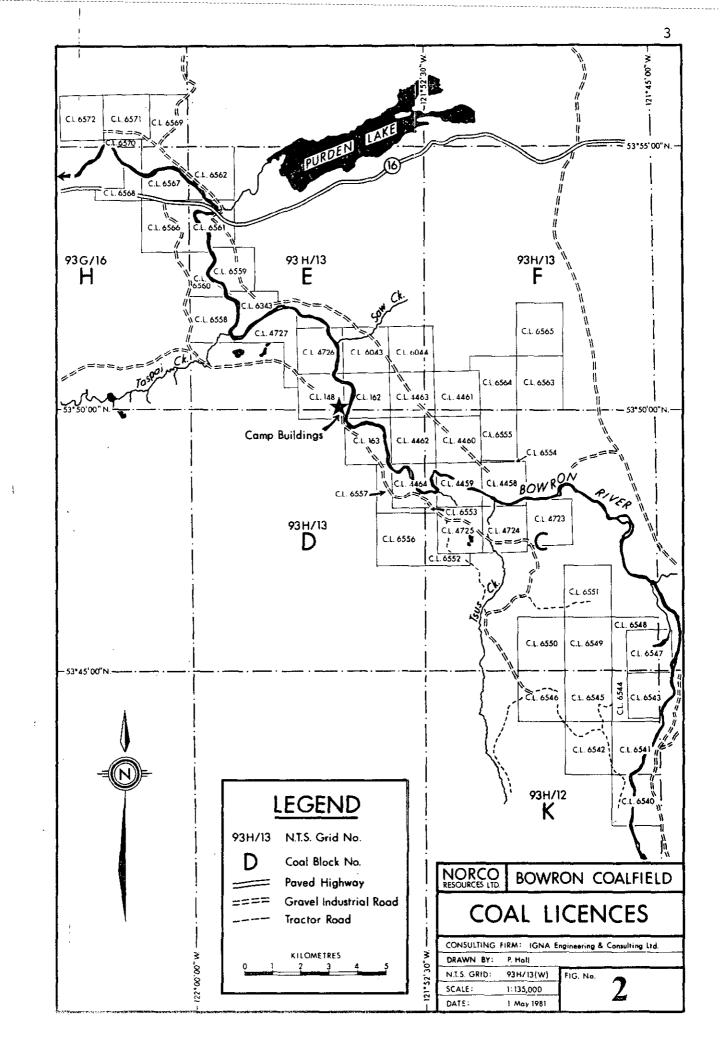
Group # 277: 148, 162, 163, 4460 - 4463, 4726, 4727, 6043, 6044, 6343, 6559, 6561,6566

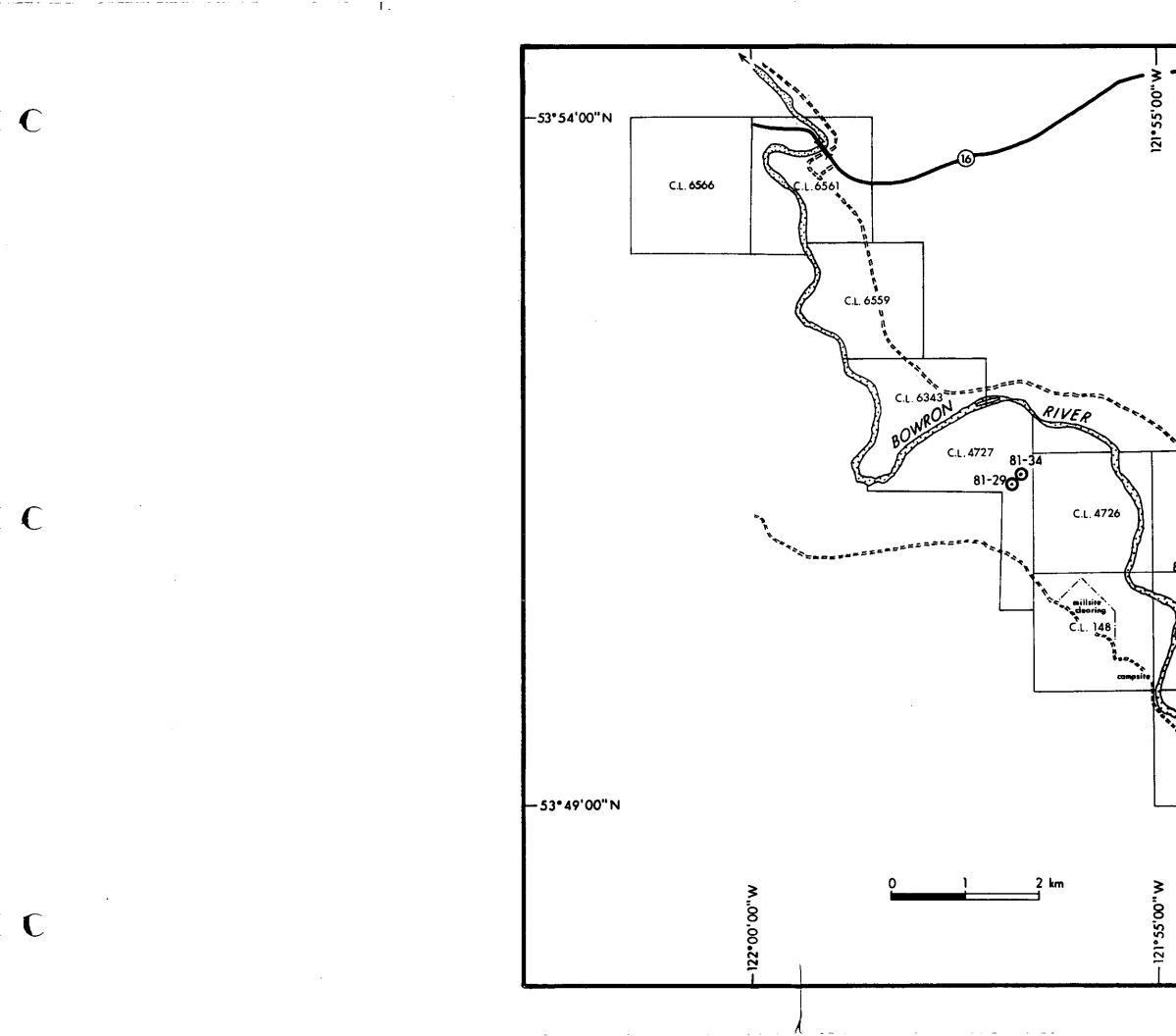
Group # 311: 4458, 4459, 4464, 4723 - 4725, 6552 - 6557, 6563 - 6565

The licences and their locations are shown on Figures No. 2, 3, and 4.

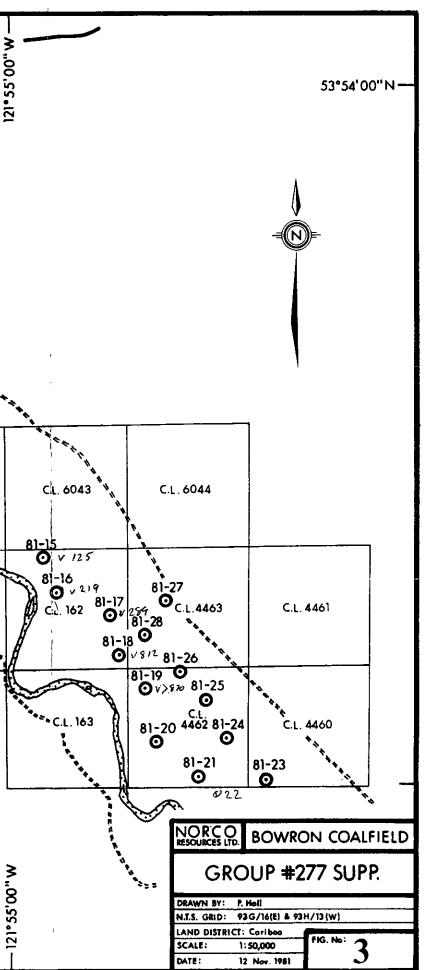
3. Location & Access

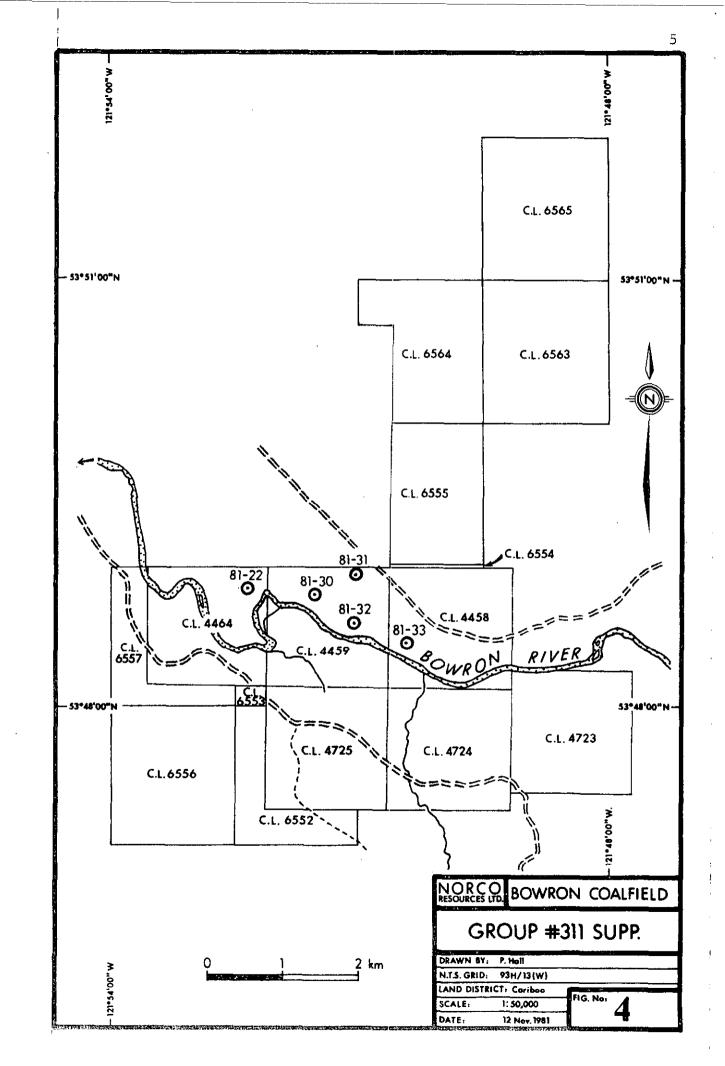
The approximate centre of the property is  $53^{\circ}$  50' Lat.,  $121^{\circ}$  55' Long. It is located 8 km south of Purden Lake





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and 62 km by road east of Prince George. Easy access to the property is provided by a number of excellent logging roads. Highway # 16 passes through the northern end of the property.

#### (B) 1981 DRILLING PROGRAMME (See Figure 5 in Pocket)

#### 1. Summary

The 1981 drilling programme ran from mid-February until the beginning of June. An Ingersoll-Rand Cyclone TH60 rotary drill and two Longyear 38 diamond drills were used. The rotary drill was used to drill through the overburden to the bedrock and to set casing. It would then be moved to a new site and a diamond drill would continue at the original site and drill whenever possible to the volcanic basement.

The rotary drill completed 18 holes to the bedrock and two additional holes (81-29a and 81-24) were drilled to the volcanic basement. The diamond drill drilled eight of the eighteen cased holes.

All open holes were logged using slim, down hole geophysical instruments measuring gamma-neutron, density, caliper direction and inclination.

2. Drilling Results (Figures No. 6 - 12 & Table No. 1)

Drill Holes 81-15, 81-16, and 81-17, representing three of the four diamond drill holes that penetrated the volcanic basement, were drilled in the northwestern part of the drill grid. (See Map, Figure 5 in pocket.)

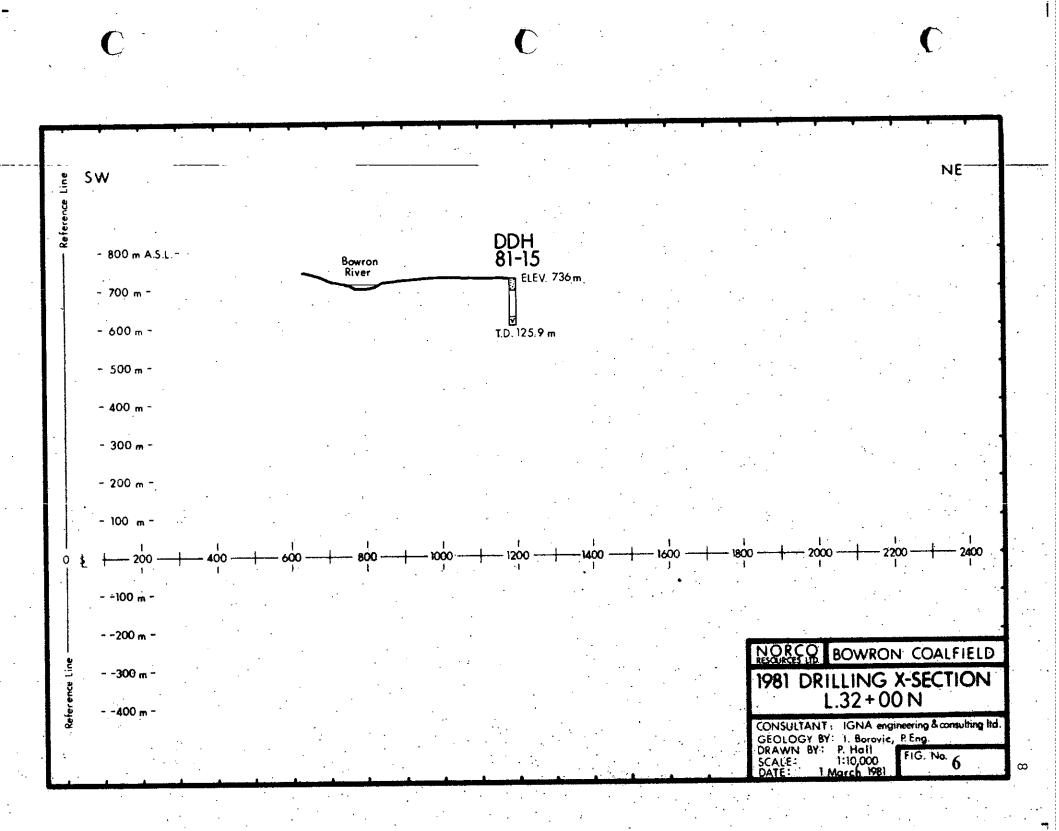
Drill Hole 81-15 penetrated green basal conglomerate overlying the Antler greenstones. This penetration confirmed the narrowing and the constriction of the

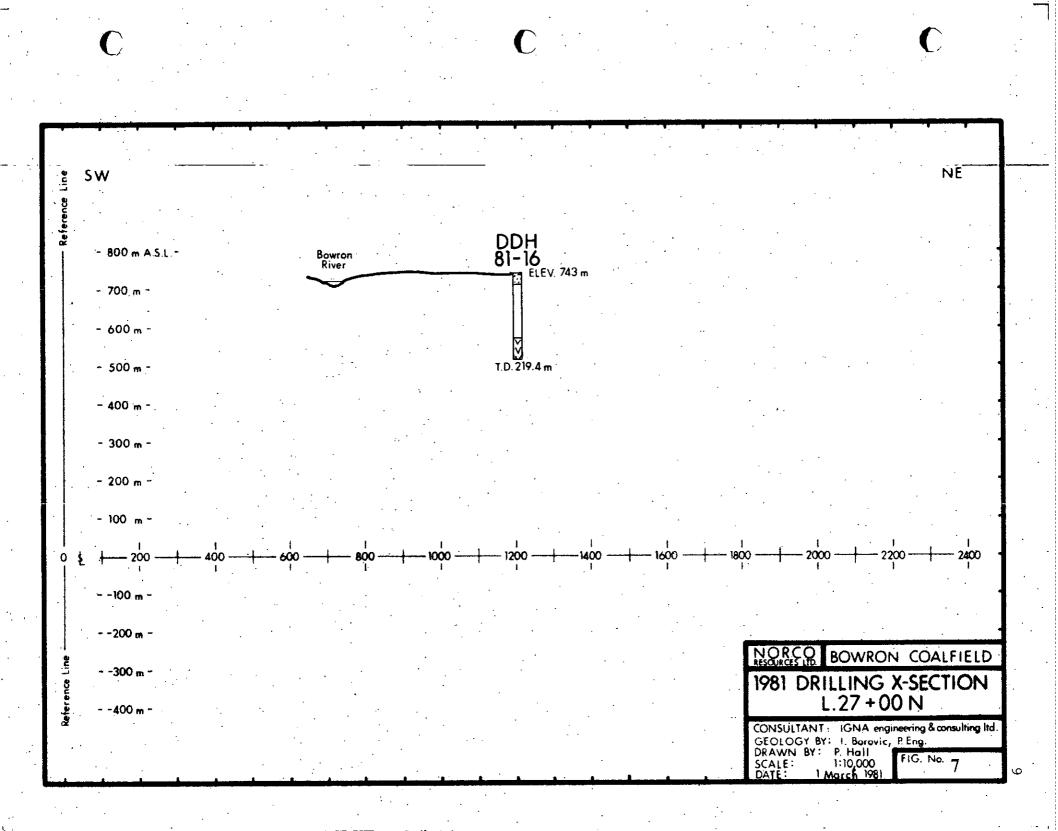
# -- TABLE No. 1: 1981 DRILLING PROGRAMME - BOWRON COALFIELD

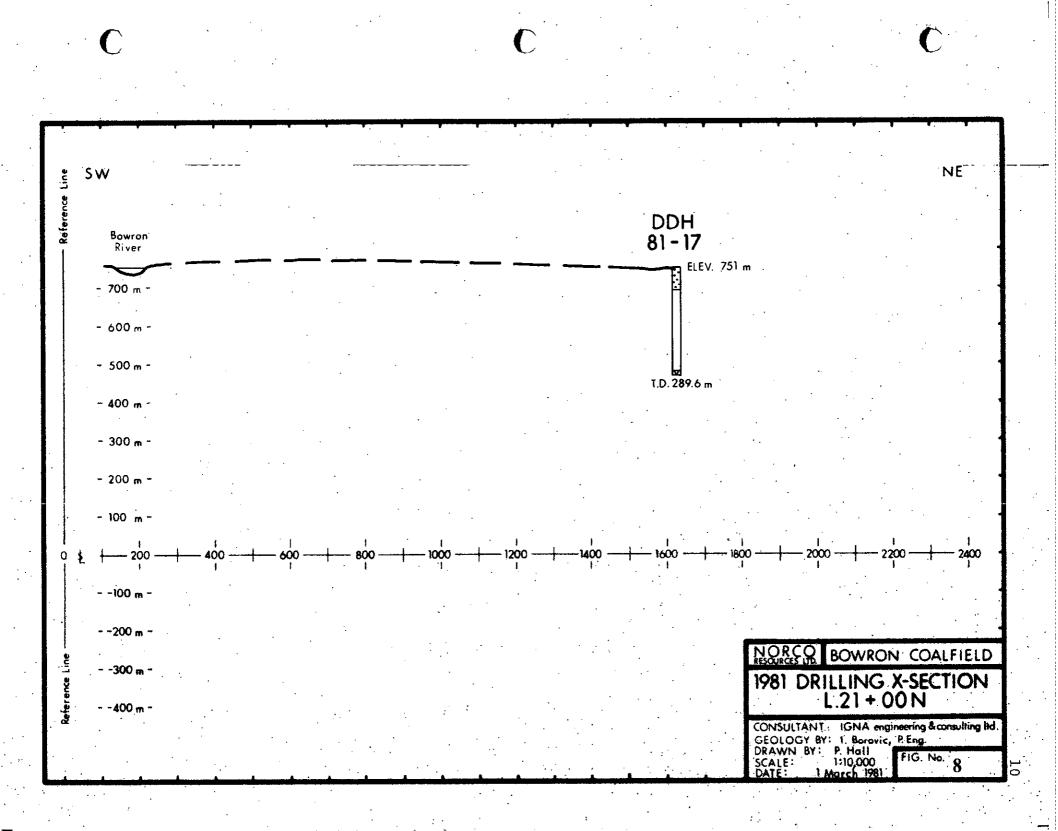
· · · · · · · · · · · · · · · · · · ·			INT	ERIOR	WATER WE	LLS LTD.	- ROTA	RY	E. CAR	ON DIAM	OND DRILL	ING LTD.			
HOLE	LATITUDE	LONGITUDE	ELEV.	0/8	B/R PENE.	CASING	ROTARY TD	START	FINISH	CASING	START	FINISH	WIRELINE DEPTHS	HOLE TD	COAL
81-15	5966460N	571660E	736	33.5	3.0	36.9	37.5	16Feb	16Feb	37.8	19Feb	22Feb	88.4	125.9	Below lower coal seam
81-16	5966000N	571940E	743	28.6	0.4	29.0	29.2	16Feb	16Feb	32.3	23Feb	27Feb	190.2	219.4	Below L.C.S.
81-17	5965760N	572570E	751	51.8	3.1	54.9	54.9	16Feb	16Feb	55.5	27Feb	6Mar	234.7	289.6	Below L.C.S.
81-18	5965150N	572790E	750	47.5	3.0	48.7	48.7	17Feb	17Feb	-	7Mar	28Mar	668.8	-	
						-					5Jun	12Jun	95.4	812.9	773.0-776.4
81-19	5964640N	573090E	754	51.8	3.0	48.7	54.8	17Feb	20Feb	-	30Mar	26Apr	815.4	870.2	Needs deepening
81-20	5964040N	573230E	754	68.6	1.5	70.1	70.1	22Feb	22Feb						
81-21	5963680N	573780E	752	73.2	6.0	79.2	79.2	23Feb	23Feb						
81-22	5963170N	574180E	754	79.2	0	79.2	79.2	21Feb	21Feb	92.9	1Mar	22Apr	1,142.4	1,221.6	1,171.3-1175.9
81-23	5963550N	574820E	754	67.0	6.1	73.1	73.1	20Feb	21Feb	94.5	23Feb	28Feb	118.3	-	
											30Apr	4Jun	580.6	772.0	Needs deepening
81-24	5964080N	574150E	756	45.7	1.5	45.7	47.2	24Feb	24Feb	-	28Apr	27May	652.6	699.8	45.7-47.2
81-25	5964460N	573880E	752	67.0	6.1	73.1	73.1	25Feb	26Feb					<u> </u>	Lees
81-26	5964988N	573625E	752	-	-	48.8	48.8	27Feb	27Feb				4,586.8	5,011.0	
81-27	5965370N	573300E	750	79.2	yes	79.2	79.2	lMar	2Mar						
81-28	5965950N	573050E	752	70.1	yes	70.1	70.1	2Mar	3Mar						
81-29	5967710N	569100E	740	-	+	146.3	146.3	3Mar	8Mar						
81-29A	5967500N	568790E	741	134.1	yes	134.1	256.0	17Mar	23Mar			5		duilled	
81-30	5963115N	575115E	761	45.7	3.1	48.8	48.8	26Mar	26Mar	5 water wells drilled to 12.2 m depths					
81-31	5963430N	575620E	760	29.8	2.6	30.5	32.4	26Mar	26Mar				cent to di 81-17		
81-32	5962770N	575880E	764	33.5	3.1	36.6	36.6	27Mar	27Mar				81-20		
81-33	5962380N	576410E	762	33.5	3.1	36.6	36.6	27Mar	27Mar				81-21 81-25		
81-34	5967874N	569415E	740	87.5	yes	36.6	298.7	31Mar	3Apr				81-25		

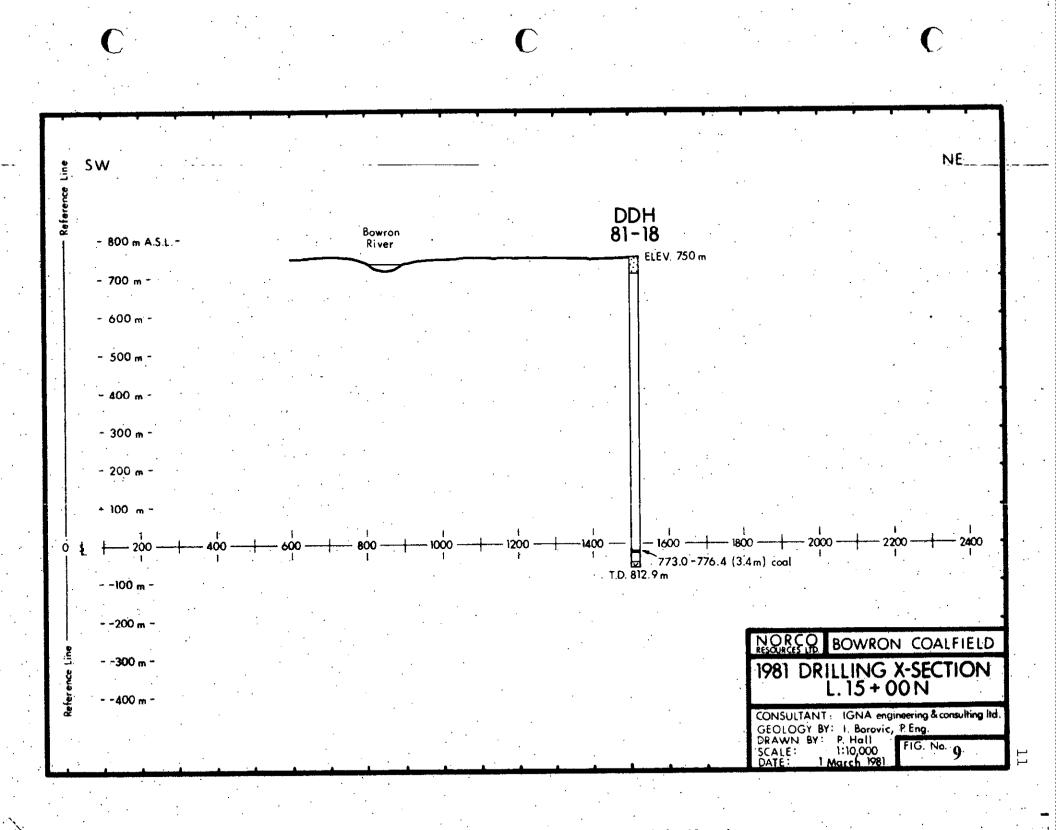
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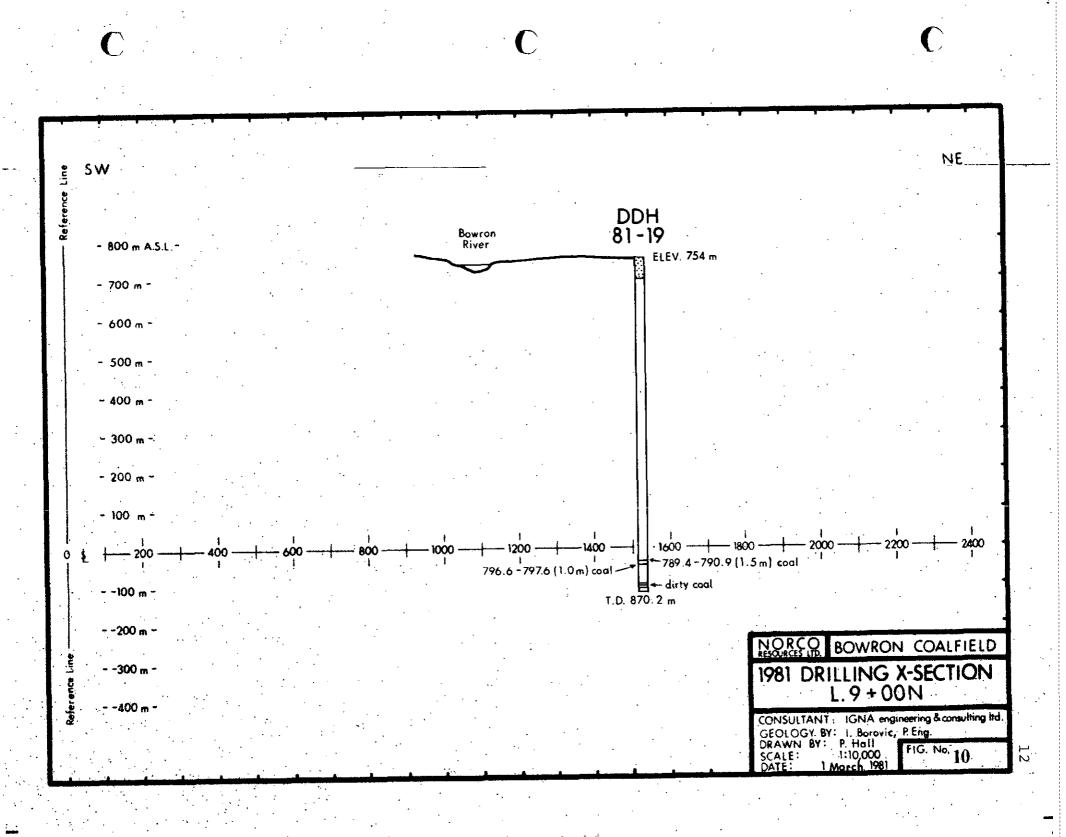
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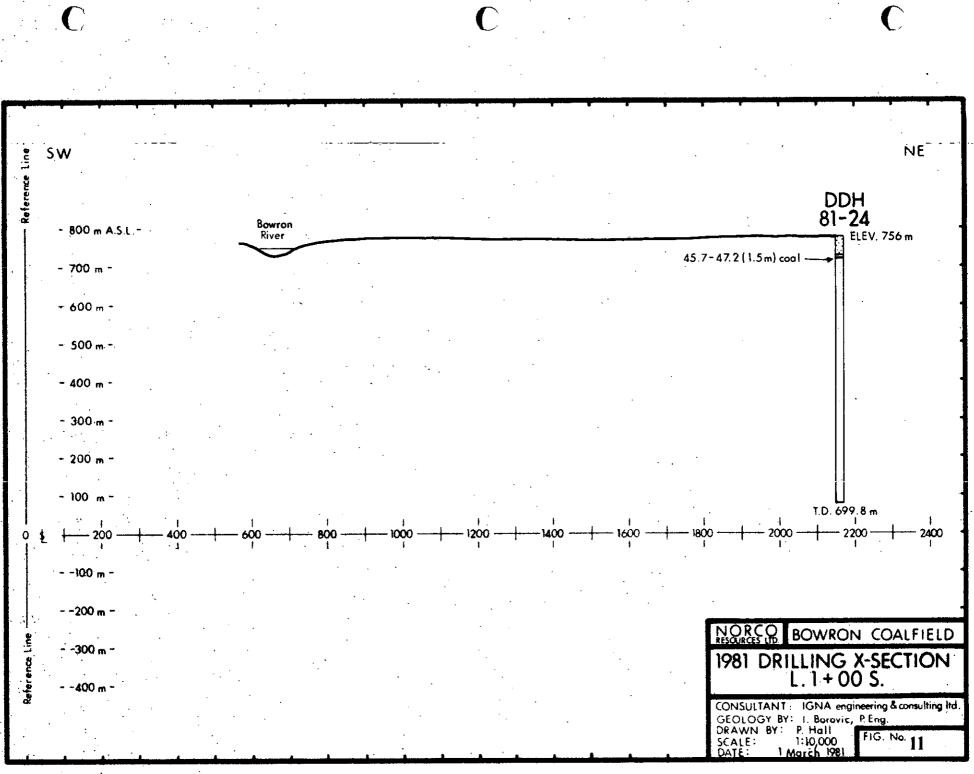


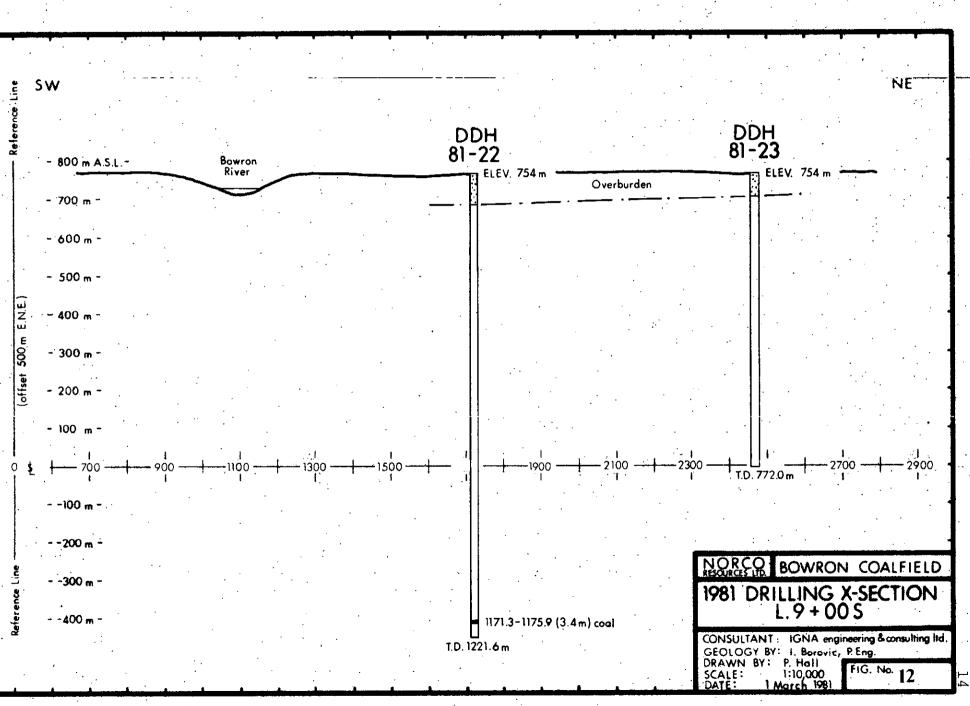












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basin the the northwest.

Drill Hole 81-16 is located 550 m to the southeast of 81-15, along the trend of the basin. It contains a thin succession of conglomerates, sands, black conglomerates and breccias over a 170 m length. The succession observed in 81-16 represents an abrupt change from the sediments found in the drill holes to the west.

Drill Hole 81-17 is located 550 m east-southeast of Hole 81-16. It went through a 280 m depth of tertiary sedimentary rocks. Like Hole 81-16, it penetrated several lenses of black conglomerate and breccia. It also penetrated a thin lense of basal conglomerate above the volcanic basement. No significant coal beds or lenses occur, but the black conglomerate and breccia represent coarse materials usually found below the Lower Coal Seam in previously drilled holes. Drill Hole 81-17 cut a thicker succession of sediments than Hole 81-16. This shows thickening of the tertiary basin to the east between Holes 81-16 and 81-17. The drilling in the northwest end of the basin also indicated a 10° plunge of the basement volcanics to the south.

<u>Drill Hole 81-18</u> is located 600 m further to the southeast of Hole 81-17. It was the last diamond drill hole to penetrate the volcanic basement. Hole 81-18 cut 800 m of sediments as compared to only 280 m in Hole 81-17. The coal of the Lower Coal Seam was penetrated from 773.0 to 776.4 m (3.4 m).

Drill Hole 81-19 is located 600 m further to the southeast from Hole 81-18. It was stopped at 870 m due to badly broken ground. The hole encountered similar

lithological sequence to that of 81-18. It penetrated coal at 789.4 m and intersected 1.5 m and 1 m of clean coal from 789.4 to 790.9 m and from 796.6 to 797.7 m respectively. Deeper in the hole a thick succession of dirty coal (45% ash estimated) was penetrated. The hole will have to be twinned and deepened in order to show Lower Coal Seam existence.

Drill Hole 81-22 represents the deepest hole drilled on the property. Despite a total depth of about 1,225 m, it did not penetrate the volcanic basement. The hole is located approximately 1.8 km southeast of Hole 81-19, along the trend of the basin. Hole 81-22 shows the same lacustrine and black marker sequence that occurs in the area south of the Bowron River camp where most of the 1980 drilling was done. The only significant difference between 81-22 and the 1980 holes is that 81-22 is covered by over 850 m of rapidly alternating coarse and fine grained sediments (typical alluvial fan). Hole 81-22 showed that the fine grained sediments were covered by a coarsening, upwards sequence of conglomerates and sandstones with interbedded siltstones and mudstones, frequently with lenses of carbonaceous material. This series of coarse sediments may have also overlain the fine grained sediments discovered during the 1980 drill programme.

Drill Holes 81-23 and 81-24 were the last diamond drilled holes of the 1981 programme. These holes are located near the road on the eastern part of the property. The rocks cut by Drill Holes 81-23 and 81-24 are weathered, crumbly, poorly consolidated, and very difficult to drill. The sedimentary succession penetrated consists of alternating conglomerates, sandstones, siltstones and mudstones, with occasional coal lenses. Hole 81-24 cut

70 m of black, fine grained carbonaceous sediment which is not found in 81-23, located 600 m to the south of it. The drilling of both holes was terminated before the Lower Coal Seam could have been cut, due to broken ground and swelling clays. Drilling was stopped at approximately 700 m in 81-24 and at 770 m in 81-23. The broken and unconsolidated nature of the rocks in 81-23 and 81-24 may be the result of their proximity to the fault contact possibly (?) forming the eastern boundary of the basin.

Rotary Drill Holes 81-29 and 81-34 are located to the north of the 1977 drill area, on the western side of the Bowron River. These holes encountered the volcanic basement at a depth of 180 m and 190 m and add evidence of the constriction or shallowing of the basin in the northern part of the property.

#### (C) GEOLOGICAL FINDINGS

#### 1. Stratigraphy & Structure

(a) The sediments in the Bowron River Basin can be broadly separated into three distinct facies groups. These are a <u>lacustrine facies</u>, an <u>alluvial fan to plain</u> <u>facies</u>, and a <u>transitional facies</u>, which contains elements of both lacustrine and alluvial facies.

(b) Conglomerates and sandstones were sampled and examined with a petrologic microscope. They were found to contain quartz of various types, argillitic and phyllitic clasts, limestone clasts, and carbonaceous materials. On the basis of composition the most likely source for the Bowron River sediments is the Guyet Formation and Upper Cariboo Group.

(c) Examination of some of the shales (particularly those which demonstrated swelling properties) showed that they were composed of quartz, chlorite, illite and micas. Despite the swelling or disintegrating nature of these shales on exposure to rain, only one sample contained abundant swelling clay mineralsmectites.

(d) Shales from the lacustrine facies were tested for palynomorph content. The majority of these samples possessed an abundant palynomorph assemblage. The assemblage was examined and found to be correlatable with Mid to Late Paleocene assemblages. The polynomorph assemblage represents a warm-temperate, wet paleoclimate. This is the first documented Paleocene flora described in British Columbia. (R. Linds, 1980/81, Master's Thesis - in progress at U. B. C.)

(e) A predictable stratigraphy is best developed in the lacustrine facies, and most poorly developed in the alluvial fan to plain facies.

(f) Subsurface structure involces no folding except primary depositional mud flow deformations. If there is any faulting there are two possible patterns, one of faults parallel to the trend of the basin, and another set perpendicular to the strike of the basin. The general form of the basin appears to be a faulted (?) asymmetrical syncline.

#### 2. Coal

The continuity of the Lower Coal Seam to the east and south has been demonstrated and coal analyses of coal

samples from the Lower Coal Seam in Hole 81-22 show the same quality as determined in previous works.

The rank of the coal has been determined to be high volatile Bituminous B. Reflectivity analysis of the coal macerals are in general agreement with previous work by J. R. Donaldson (1972). The coal was found to be composed of vitrinite and vitrinite precursors (telinite and collinite) and various exinites of which resinite and cutinite are the most abundant. The reflectivity values for the coal are variable but generally agreed with those obtained earlier by Donaldson. These is no obvious trend of increased reflectivity with depth of burial.

#### 3. Analysis

The results of Birtley Coal & Minerals Testing Laboratory's analysis of coal from Hole 81-22 are reproduced on the following page.

#### CLIENT : NORCO RESOURCES LIMITED

PROJECT: DRILLHOLE CORE 81-22 COMPOSITE OF 13 INTERVALS from 1171.27 to 1183.35

LAB NO.: 8310

HEAD RAW ANALYSIS

MOIST%	ASH%	VOL%	F.C.%	S%	CALC. BASIS
0.9	<u>55.0</u>	<u>22.1</u>	_ <u>22.0</u>	0.67	<u>a.d.b.</u>
	55.5	22.3	22.2	0.68	d.b.

#### SIZE CONSIST: RAW COAL CRUSHED TO - 1 1/2"

SIZE FRACTION	WT%	CUM WT%
1 1/2" x 3/8 "	88.1	88.1
3/8 "x 28M	11.3	99.4
28M x 0	0.6	100.0

			SINK-FI	LOAT ANAL	YSIS,adb	: 11	/2''x0			
	SG FRACTION	WT%	RM%	ASH%	VOL%	F.C.%	S%	C.V. Cal/gm	CUMULA WT%	TIVE ASH%
(	) - 1.40	23.7	1.5	7.9	39.1	51.5	1.07	7245	23.7	7.9
	1.40- 1.50	4.7	1.5	23.9	33.4	41.2	1.13	5842	28.4	10.5
1	1.50- 1.60	5.5	1.2	30.9	31.3	36.6	0.88	5202	33.9	13.8
	1.60- 1.70	5.5	1.2	40.4	26.5	31.9	1.30	4415	39.4	17.6
1	+1.70	60.6	0.6	79.4	-	-	-	-	100.0	55.0

#### ANALYSIS OF COMPOSITE FLOATS @ 1.60 S.G.

ULTIMATE ANALYSIS, adb							
H20%	C%	Н%	N%	S%	ASH%	O(by dif	HGI
1.50	69.16	4.28	1.30	1.02	13.74	9.00	53

ASH FUSION TEMPERATURES(OF)					
ATMOSPHERE	I.D.T.	S.T.	Н.Т.	F.T.	
OXIDIZING	2120	2280	2320	2400	
REDUCING	2040	2140	2220	2340	

Birtley Coal & Minerals Testing (D) COSTS OF 1981 EXPLORATION PROGRAMME (February to September, 1981)

**ON PROPERTY WORK:** 

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ROADS: 1) Access road repairs (Kode Sand & Gravel Ltd.) 2) SURFACE WORK: a) Millsite clearing Logging, slash-burning & levelling. (Lindstrom Construction Ltd.) Billing to November 1981 . . . \$18,689.85 b) Drillhole survey: Wages: (July-August) Surveyor (C. Roberts) . . . . \$4,344.84 Helper (W. Van Kooghnett) . 2,122.84 Equipment rental: (Interior Reproductions Ltd.) Sokkisha transit & accessories \$7,811.06 3) DRILLING: a) Rotary (reverse circulation) (Interior Water Wells Ltd.) 1761.5 m (Feb. 16 - April 3) Billing to date. . . . . . . . \$306,170.27 b) Diamond (E. Caron Diamond Drilling Ltd.) 4586.8 m (Feb. 19 - May 27) Billing to date. . . . . . . . . \$626,152.81 c) Support costs Coreboxes (E.G. Whalley & Sons Ltd.) \$3,380.00 Drilling Mud (Thiessen Equipment Ltd.) . . . \$27.793.13 Diesel drill rig fuel (Gulf Oil). . . . . . . . . . . . . \$49,932.74 \$81,105.87 Drilling total. . . . . \$1,013,428.95 4) LOGGING: Downhole electrologging (Roke Oil Enterprises Ltd.) TOTAL THIS SECTION:-\$1,063,868.93 STATEMENT OF COSTS (Continued)

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A) ON PROPERTY WORK (from previous page) \$1,063,868.93
B) OTHER WORK: 5) Geological Consulting I. Borovic, P.Eng. (IGNA ENGINEERING & CONSULTING LTD.) Billing to date \$24,459.95
6) Camp Costs: Wages: Cook (P. Lefleur) FebJuly \$11,483.38 Helper (M. Lukeniuk) April-June 3,415.00 Caretaker (B. Kary) FebNov
7) Field Staff: Geologist (R. Linds) April-Aug \$12,500.00 Helper (K. Hughes) FebApril <u>2,852.82</u> \$15,352.82
8) Transportation: Truck rental 3/4 ton 4X4 pu (Hallmark Resources Ltd.) March-June @ \$750.00/mo \$3,000.00
TOTAL THIS SECTION: \$111,795.74
C) OFF-PROPERTY COSTS: 9) Testing & Assaying: (Commercial Testing & Engineering Ltd.) Billing to date\$694.00 (Birtley Coal & Minerals Testing) Billing to date576.50 (Golder Associates) Billing to date
10) Airfares (Vancouver-Prince George) \$4,729.15
11) Report Assembly 5 days @ \$250.00/day1,250.00
TOTAL THIS SECTION: \$7,729.65
1981 EXPLORATION TOTAL: \$1,183,394.32

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Exploration costs have been apportioned in the ratio of:

79% to Group 277 Supp. 21% to Group 311 Supp.

These figures represent that proportion of the total amount of drilling, both rotary and diamond, that was conducted within each specific group.

> Group 277 Supp. Diamond: 3444.4 metres Rotary: 1527.9 metres

> Group 311 Supp. Diamond: 1142.4 metres Rotary: 233.6 metres

#### (E) CONCLUSIONS AND RECOMMENDATIONS

The exploration to date has shown that the asymetrical synclinal coal bearing structure contains potential coal resources of more than 67,000,000 tonnes.

The coal is ranked as high volatile, Bituminous "B" thermal coal.

Previous washing tests and recent analyses show that the coal could be washed to lower than 10% ash content. Sulphur, which is contained mainly in the form of framboidal to massive pyrite as indicated in previous analyses, should wash to the acceptable limits of less than 1%.

It is my opinion that Norco's coal deposit has a good potential of beocming a coal producer, especially in view of the fact that additional tonnage is indicated in the central, southeastern and eastern basin area.

I recommend continued drilling to prove already indicated coal resources of more than 67,000,000 tonnes.

The programme should consist of combined rotary and diamond drilling.

Every hole should be logged with electrical logging equipment.

It will be necessary to perform a detailed ground magnetic survey over the whole drilled area in order to determine the existence or nonexistence of the fault structures.

J. Brond

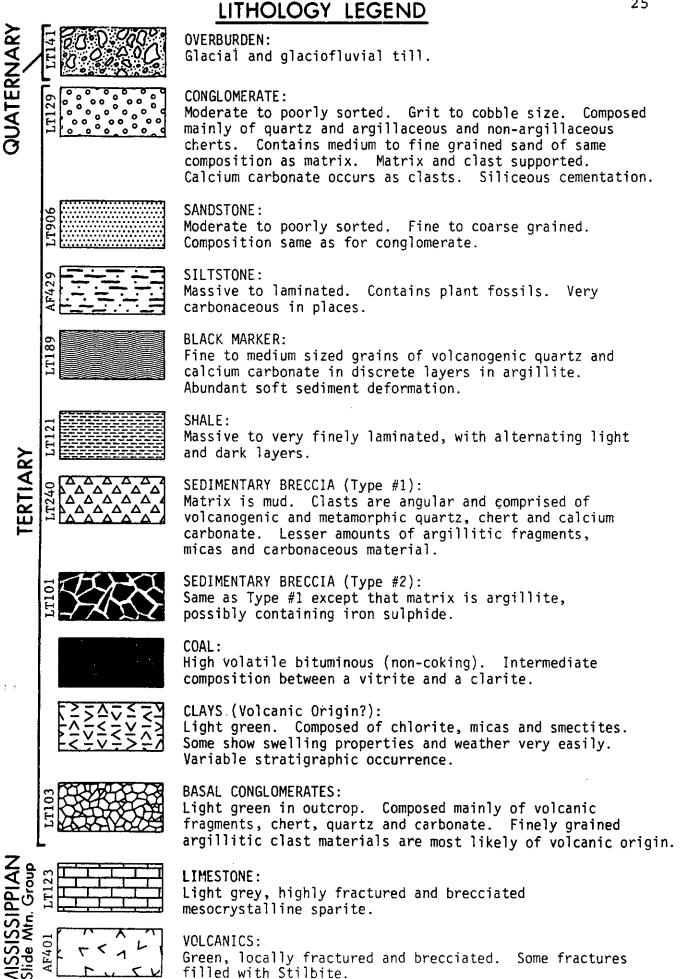


TABLE No. 2

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#### CERTIFICATE

I, I. Borovic, with business address in Vancouver, British Columbia, do hereby certify that:

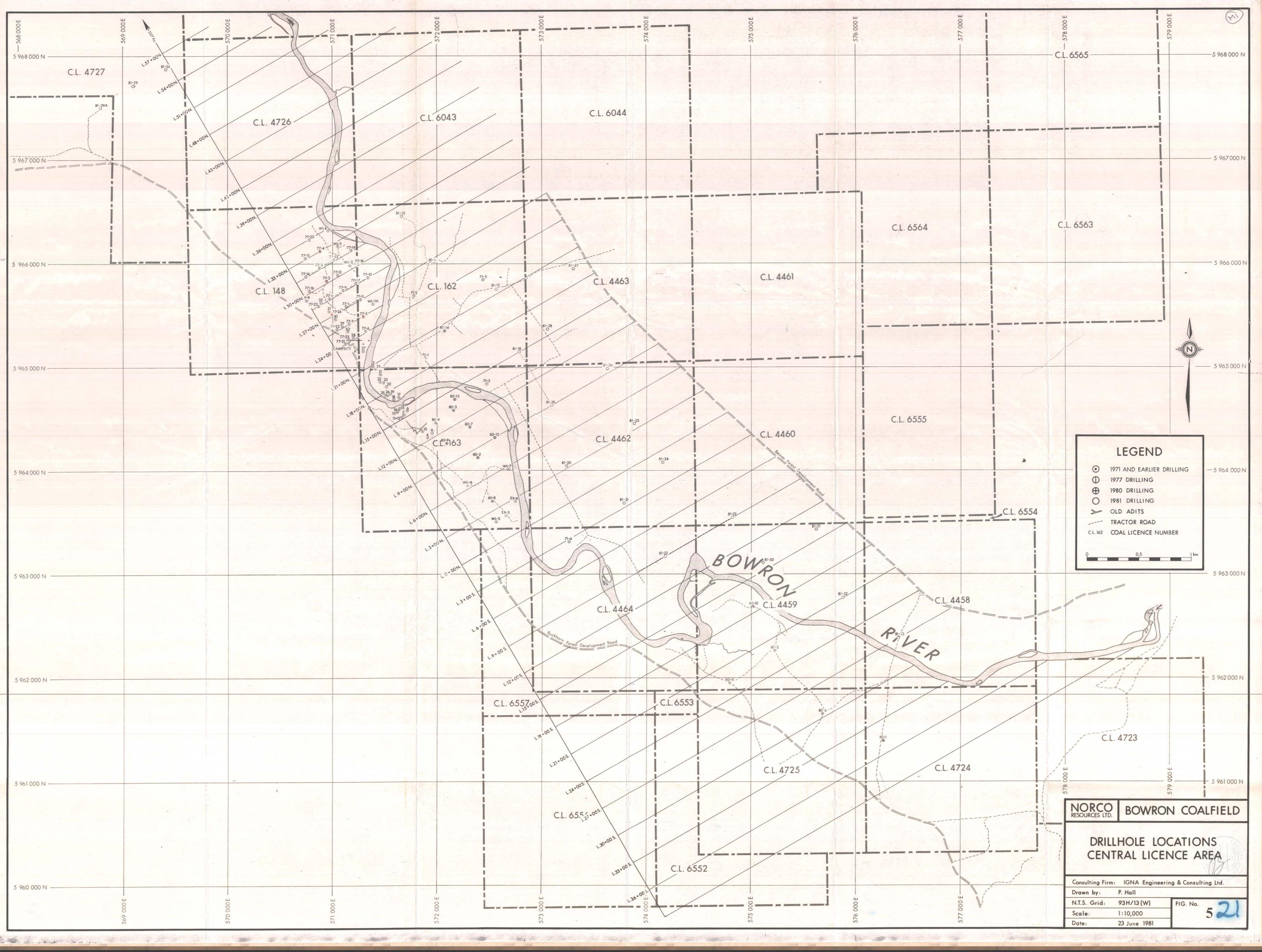
- I have personally supervised the exploration programme carried out in the area of Norco Resources Ltd.'s Bowron River Coalfield Coal Licences, the Cariboo Mining Division, British Columbia.
- The expenditures claimed for the performance of the work are correct.

Respectfully submitted,

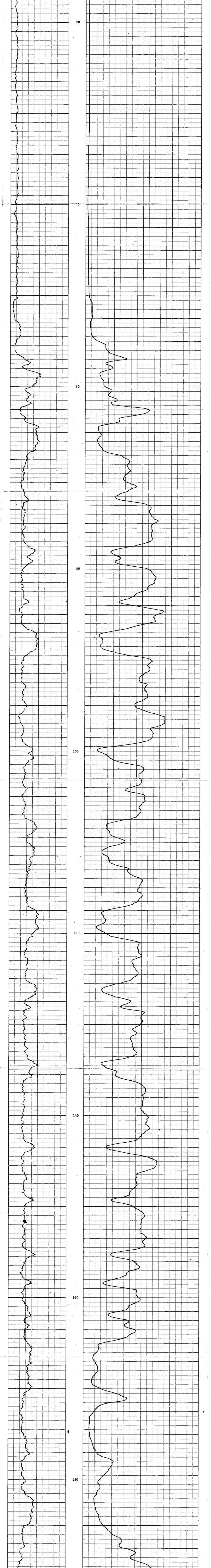
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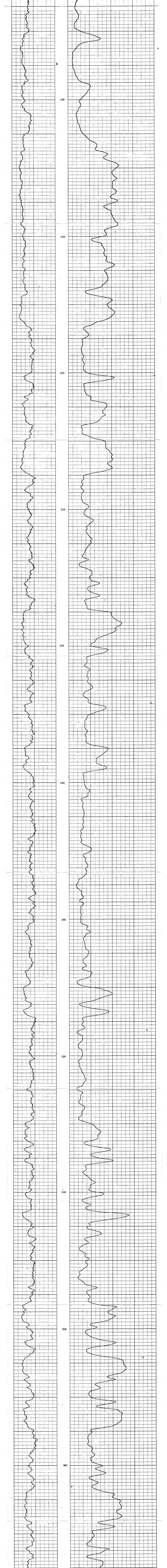
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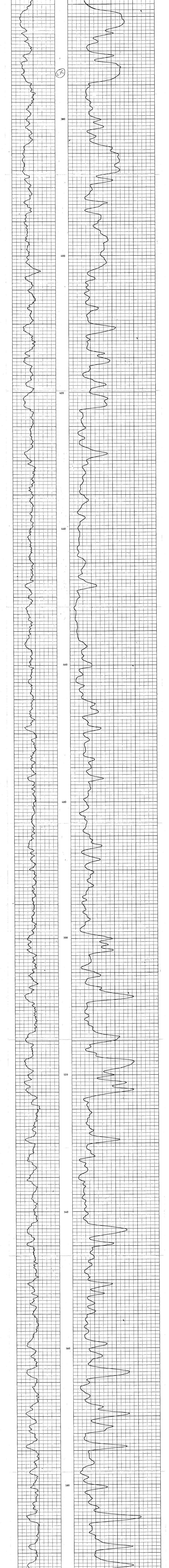
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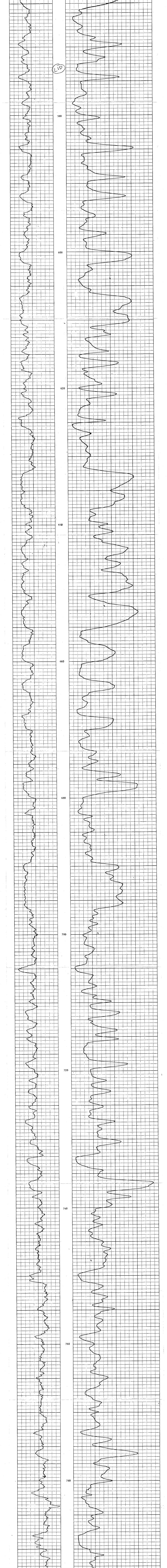


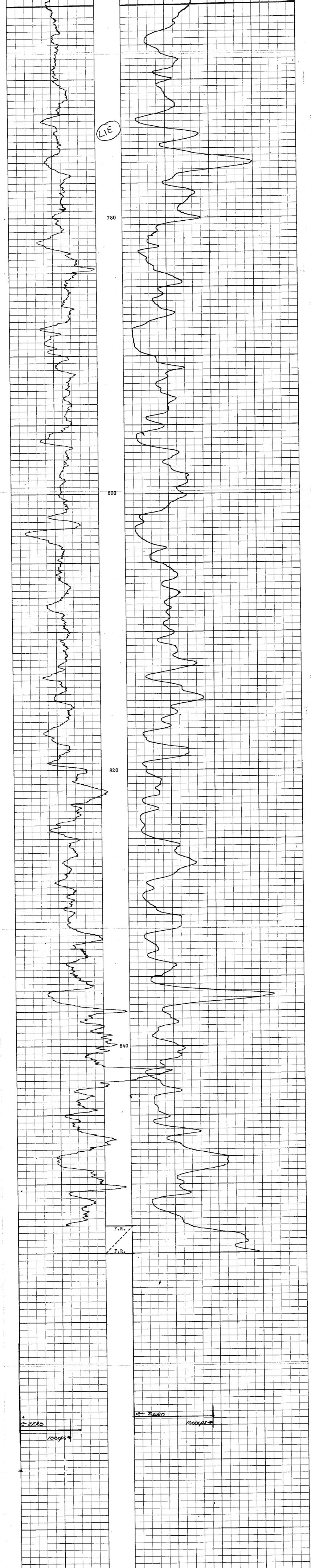
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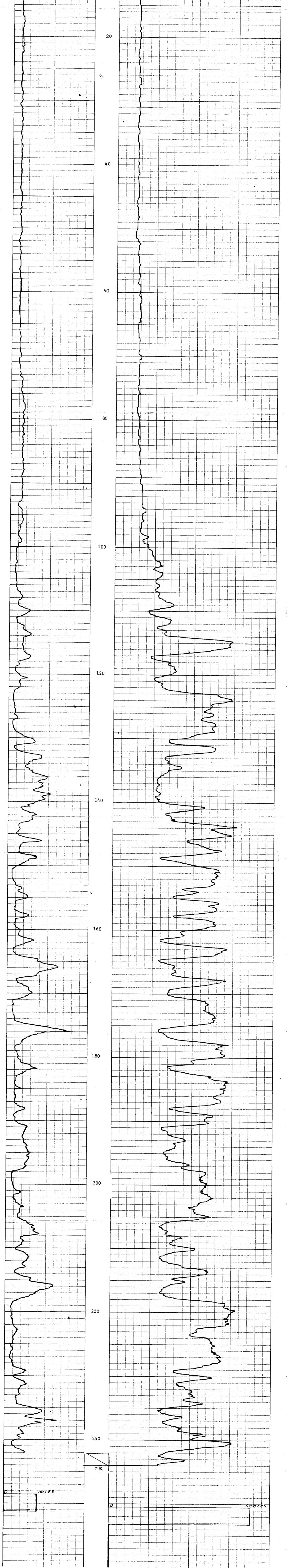
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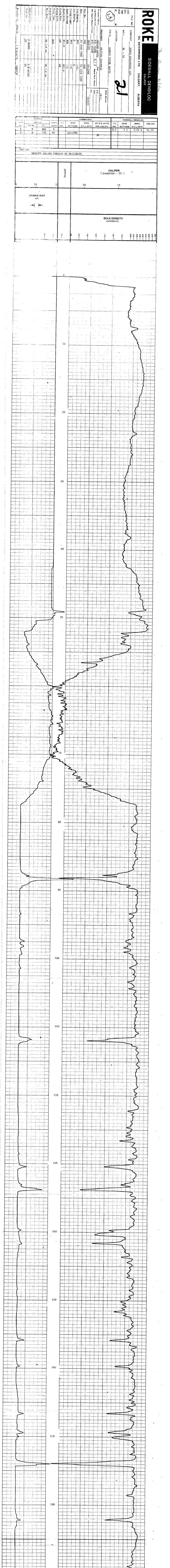
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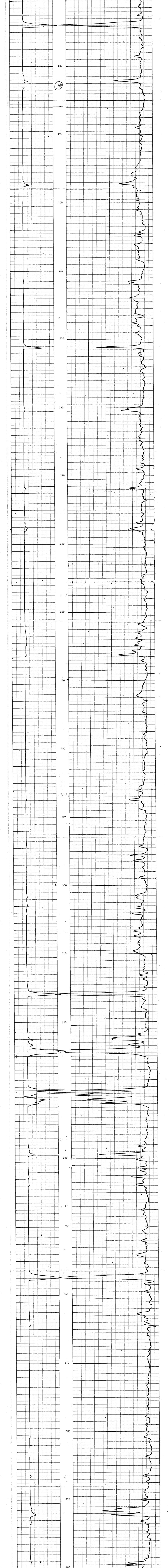
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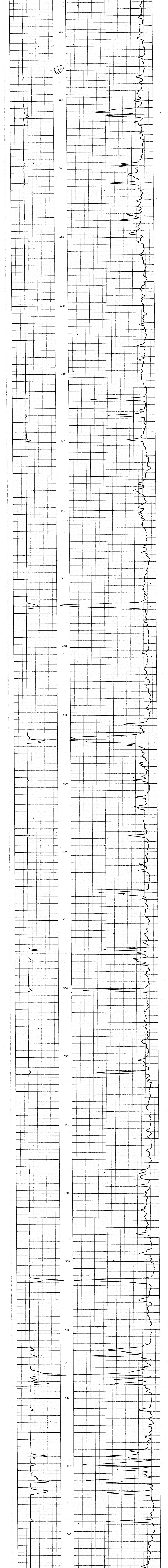
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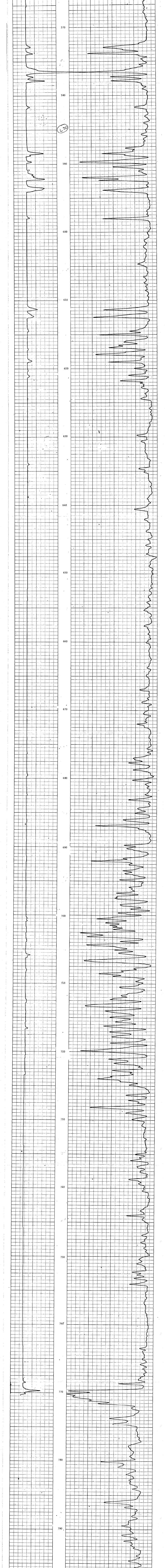
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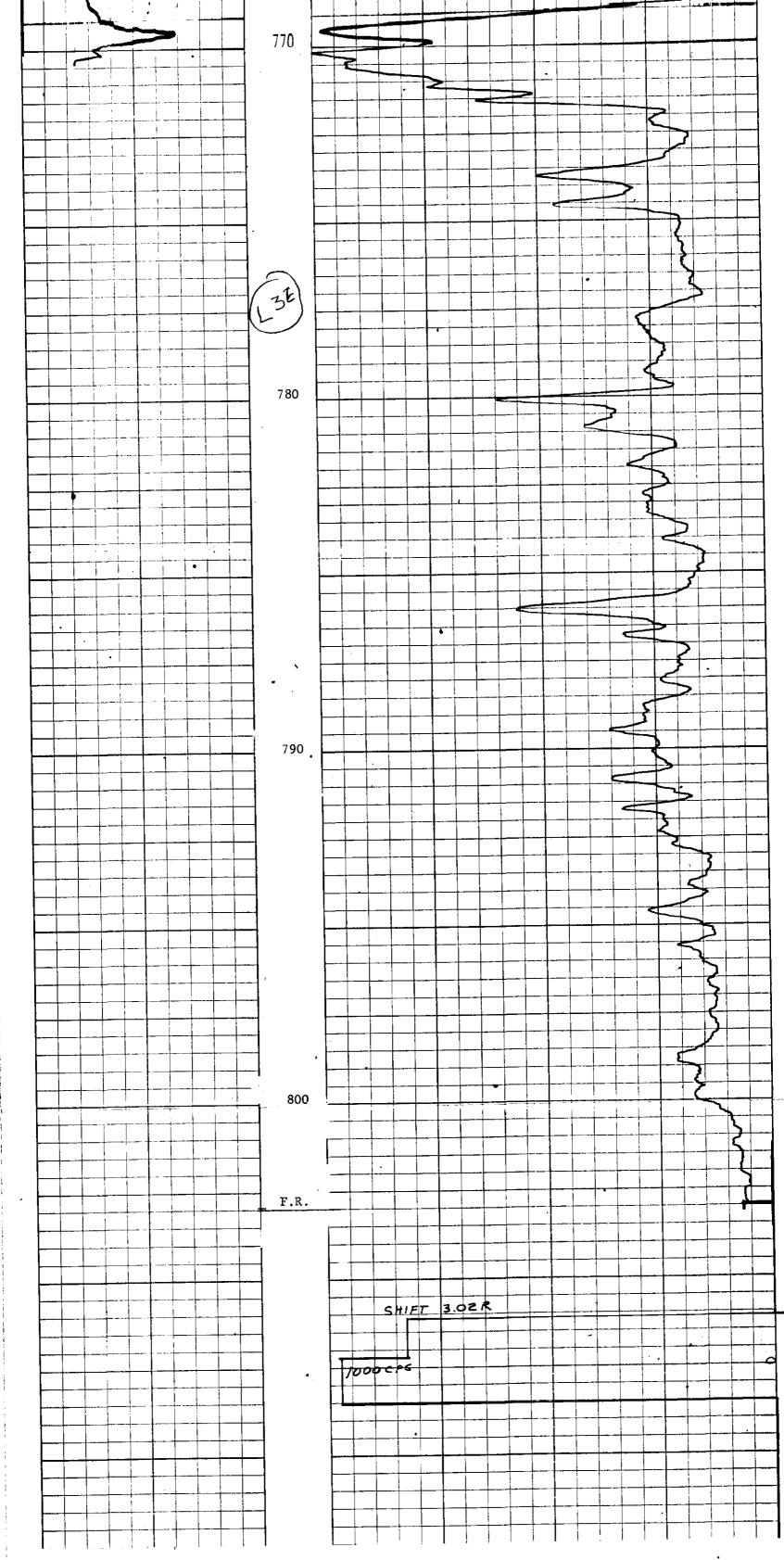












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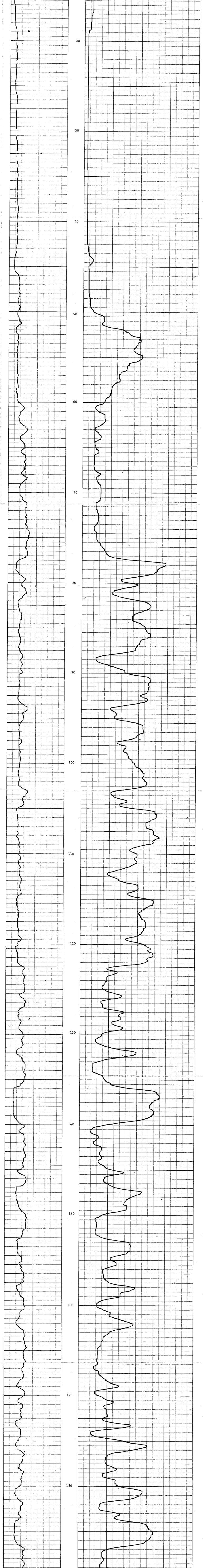
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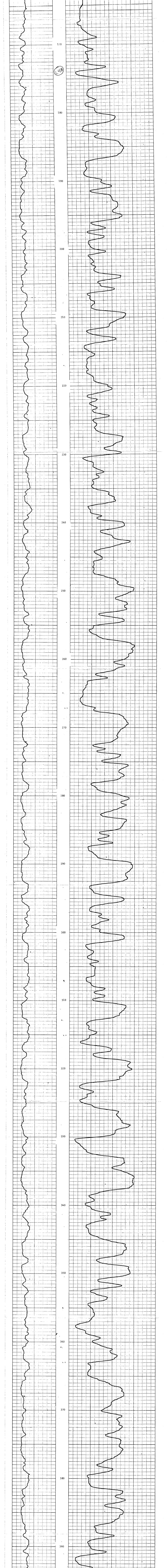
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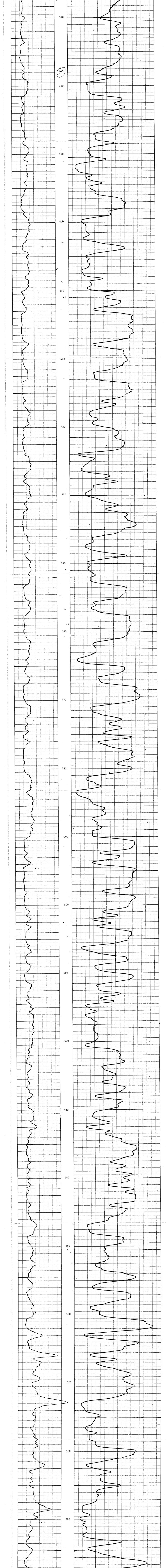
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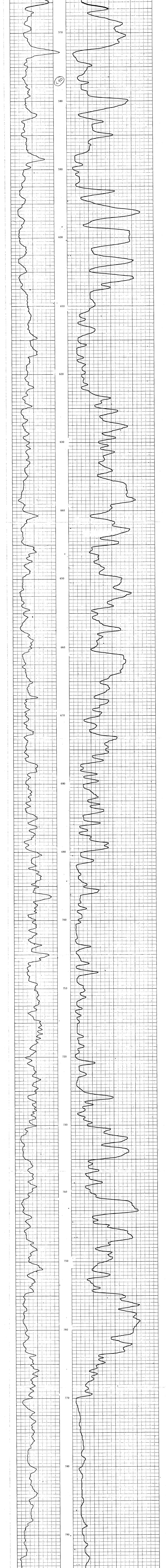
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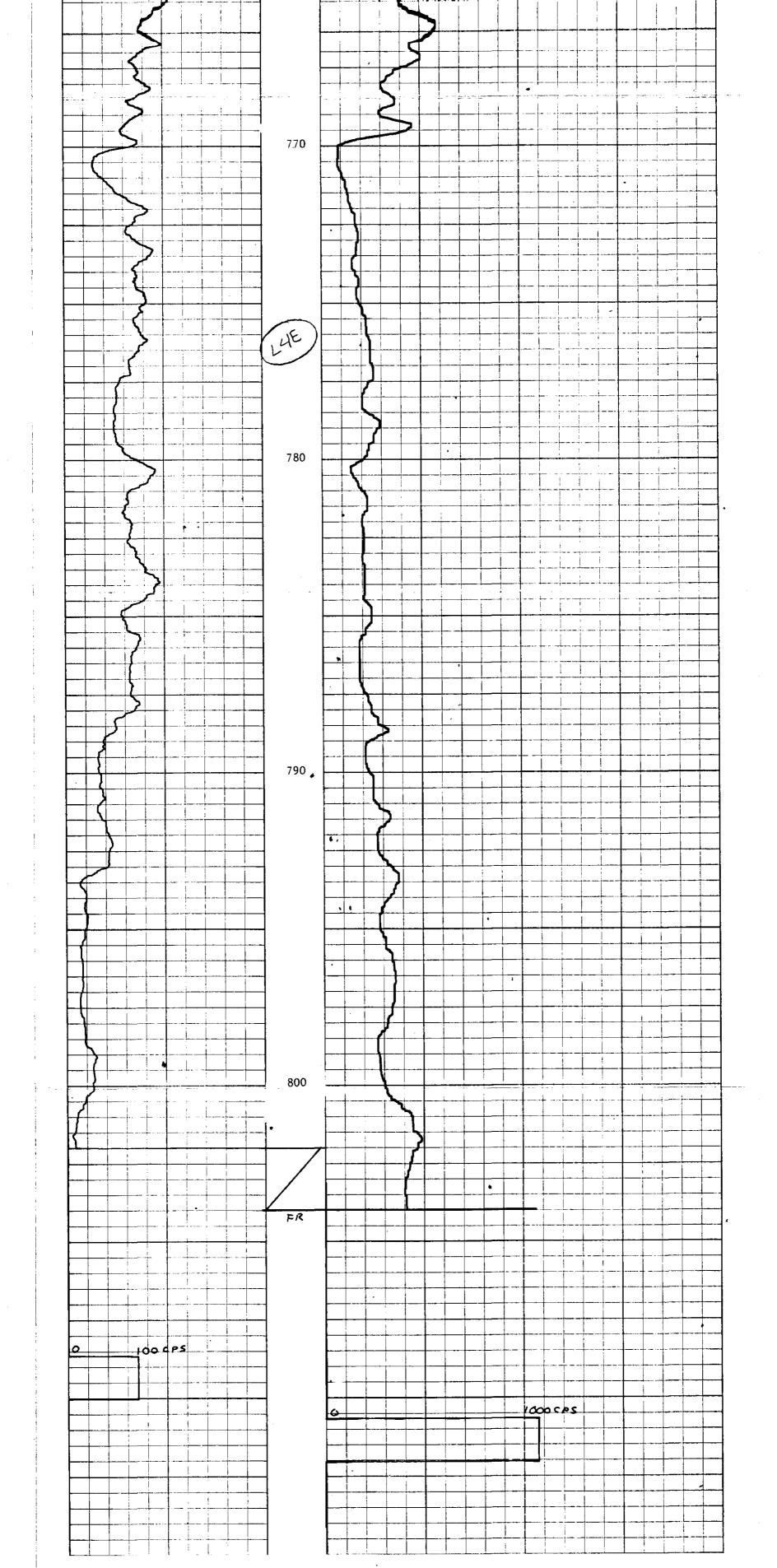
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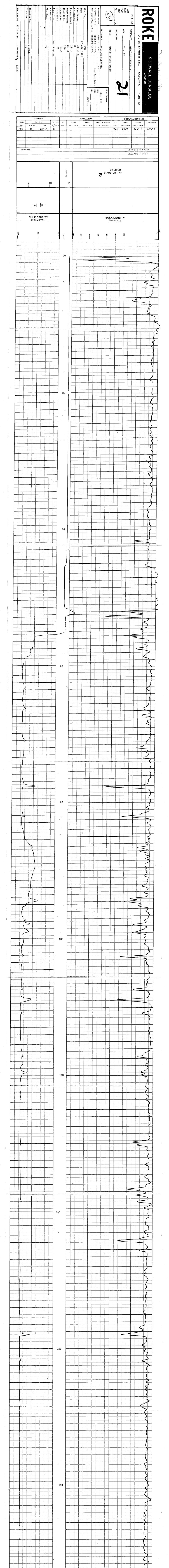


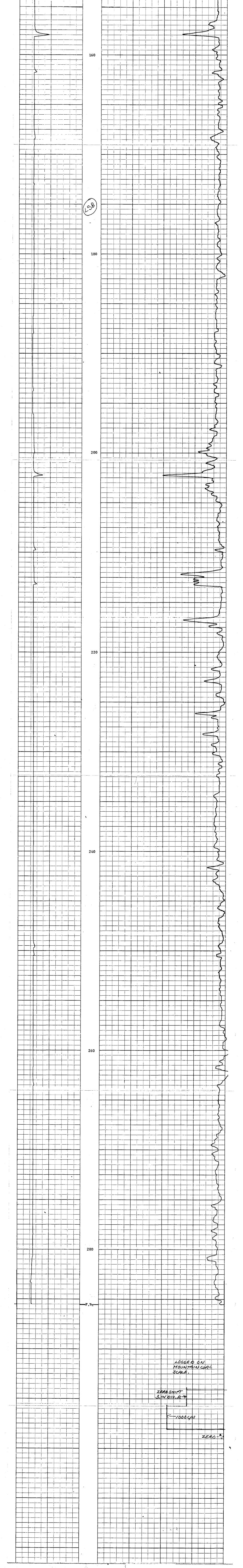


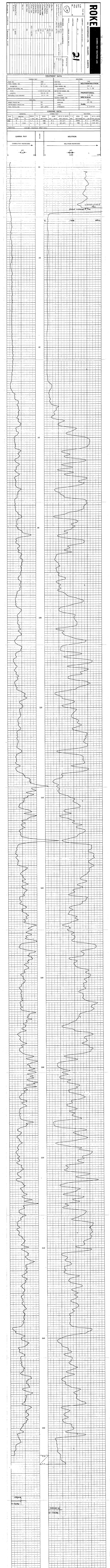






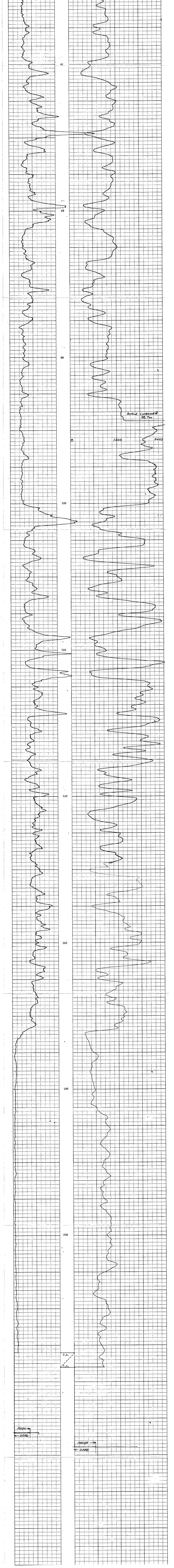




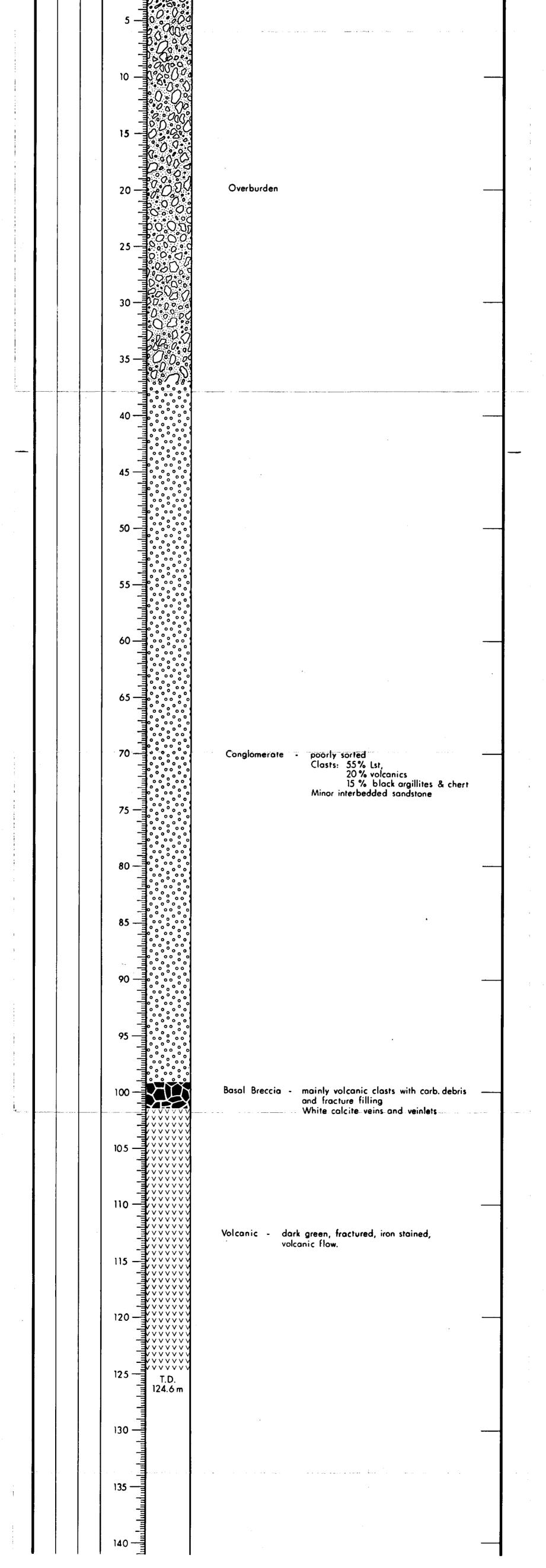


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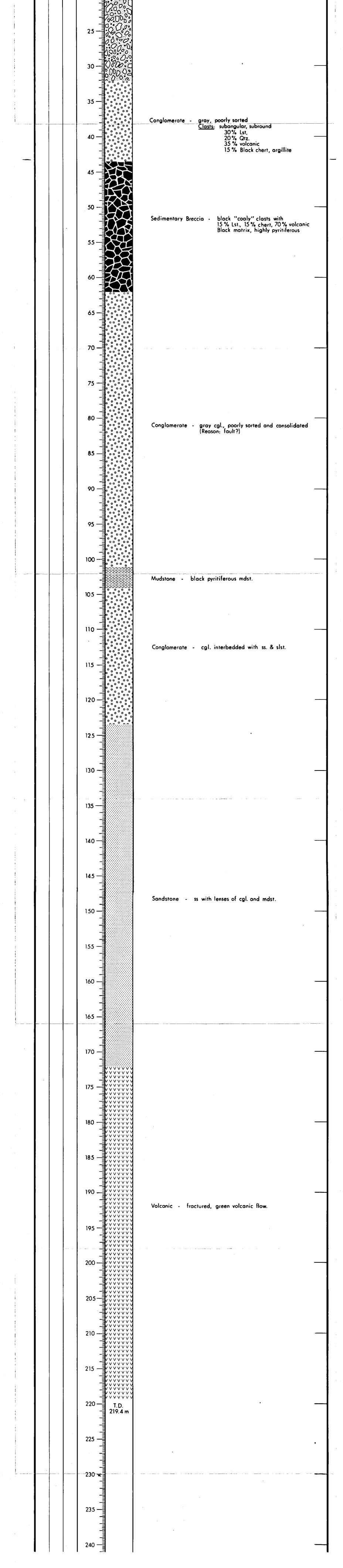


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		NE	LIMESTONE		AN COAL TY COAL
		F			IMENTARY BRECCIA
		-			
	SHALE		VOLCANIC	BAS	AL BRECCIA
		E/CLAYSTONE	PLUTONIC	BLA	CK MARKER
L ES		ပြွ		<u> </u>	
GROUP / SERIES FORMATION	<u>x x</u>	POG			
	TH BE	<u> </u>	D	ESCRIPTION	
N R N	MEMBER DEPTHS	GRAPHIC			
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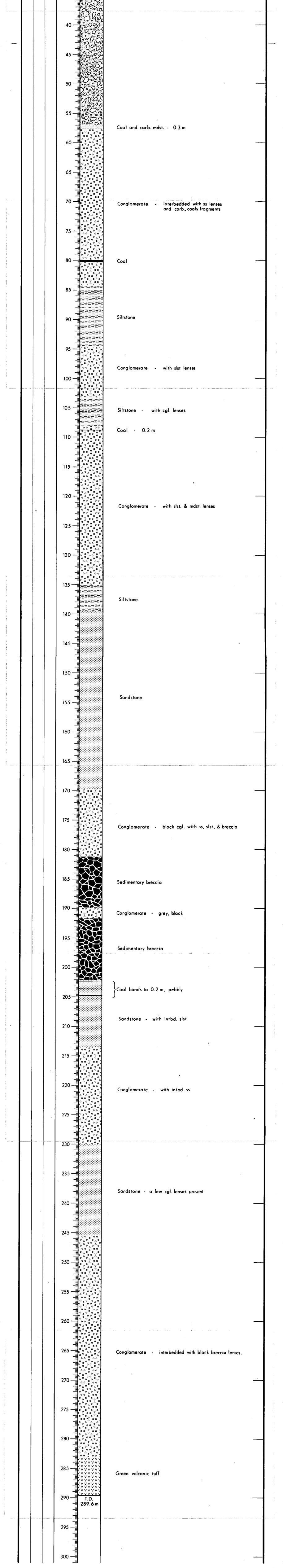


					D-BOWRON ?	31/314
		_		CO RESOUR		
		R	OCK	LOG of N	081-10	<b>0</b>
PR	ROJECI	: <u> </u>	OWRON COA	LFIELD LOCATI	ON: <u>N.T.S. 9</u>	3H/13W
co	O-OR	INATES:	5 966 00	0N5	7 <u>1 940</u> E	
D	ATE C	DLLARED	: 16 Feb. 19	981 DATE CO	MPLETED: 27 F	eb. 1981
EL	LEVATI	ON: (grou	nd)	m; (collar)743	_m; TOTAL DEPTH	:
н	OLE A	NGLE:	<u>-90°</u> AZII		LOG: <u>GRN</u>	
DI	EFLEC	ION SU	₹VEY:		<u> </u>	
			INTERVAL	LOGGED BY	INTERVAL	DATE
⊢			0 - 32.0 .0 - 219.4	R.K. Linds I. Borovic	0 - 219.4	<u>28 - 2 - 81</u> 8 - 1 - 82
-						
EC.			TD Sli	de Mtn. volcanics		
RE	EMAR	S:			······································	······································
				·····		<b>.</b>
		SANDS SILTSTC SHALE MUDSTC				EAN COAL IRTY COAL DIMENTARY BRECCIA ASAL BRECCIA ACK MARKER
GROUP / SERIES	FORMATION	-	GRAPHIC LOG	D	ESCRIPTION	
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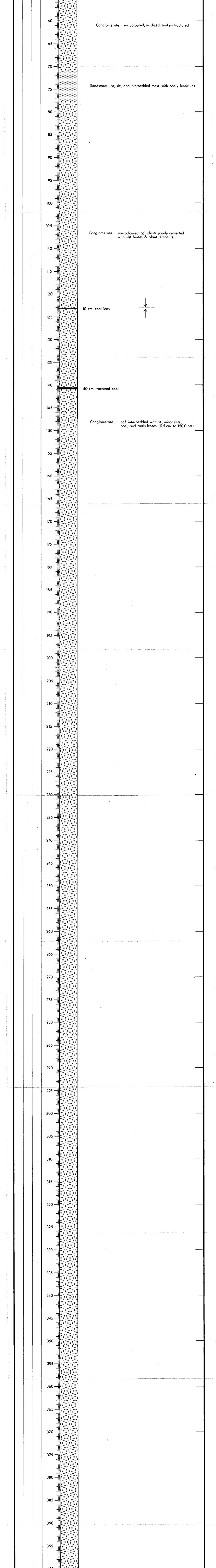
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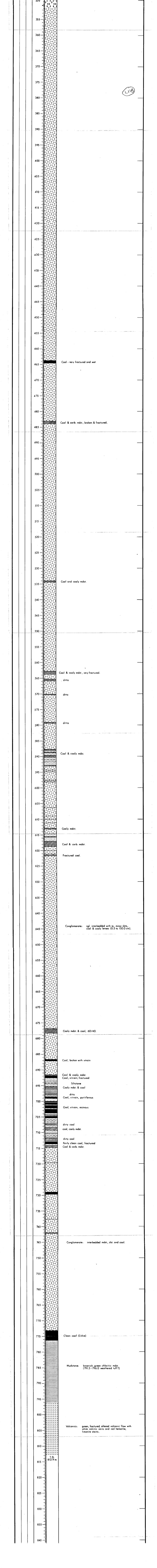


	-			· · · ·	BW-BOWRON SILJA
			(1)	NOR	CO RESOURCES LTD.
	2		RC	ОСК	LOG of No. <u>81-17</u>
	PROJ	ECT:	BOV	WRON COA	LFIELD LOCATION: N.T.S. 93H/13(W)
					0 N 572570 E
					1981         DATE COMPLETED:         6 March 1981           751         280.4
					m; (collar)751m; TOTAL DEPTH:289.6m MUTH:0 CONTROL LOG:GRN, SD
				/EY:	
					LOGGED BY INTERVAL DATE
				- 289.6 m	R.K. Linds 54.9 - 289.6 m 7 March 81
				n Slide A	
			IN AT T.	D. <u>Side w</u>	Aountain Volcanics
					LITHOLOGY LEGEND
			GLACIAL SANDSTO SILTSTON SHALE	NE	Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate         Image: Second conglomerate       Image: Second conglomerate       Image: Second conglomerate
			MUDSTON	E/CLAYSTONI	E PLUTONIC BLACK MARKER
GROUP / SERIES	AATION	MEMBER	DEPTHS	HIC FOG	DESCRIPTION
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			15		
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			25		
			30 — 		Overburden



			Bis	- BowRow 81(3)	А
	(		CO RESOUR		
2	1	ROCK	LOG of N	lo. <u>81 - 18</u>	- D
PROJ	ECT:	BOWRON	COALFIELD LOCAT	ION:	23H/13W
			0N		
			981 DATE CO		
			m; (collar) <u>750</u> MUTH: <u>0</u> CONTROL		
		N SURVEY:			
COR	E SIZE	INTERVAL	LOGGED BY	INTERVAL	DATE
		0 - 48.7 m 48.7 - 812.9 m	I. Borovic R. Linds	0 - 389 m 389 - 717.5 m	10 March 1981 30 March 1981
	·	· · · ·	l. Borovic	717.5 - 812.9 m	13 June 1981
FORM		N AT T.D			
REMA	ARKS:_			<u></u>	
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			LITHOLOGY LEGE	ND	
		GLACIAL DRIFT	CONGLOMERAT	333333333333333333333	TAMORPHIC
				DIR	TY COAL
		HALE	DOLOMITE		DIMENTARY BRECCIA
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RIES	~	rog s	•		
FORMATION	MEMBER		r	DESCRIPTION	
GROUP / SERIES FORMATION	MEN	DEPTH	L		
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			Overburden		
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		45			
		^	Sandstone		
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	DATE	τοιι	ARED:		981	C	DATE CO	OMPLETE	D:26	April 1981	
	HOLE	ANG	LE: <u>-9</u>		AUTH: <u>(</u>	<u>)</u> co	ONTROL	LOG:_	GRN	гн: <u>870</u>	
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			GILTSTONE			DOLOA VOLCA	NIC			SEDIMENTAR BASAL BRECO	
ES		<u></u> ۸	AUDSTONE/			Ριυτοι	NIC			BLACK MAR	<er< th=""></er<>
<b>GROUP / SERIES</b>	FORMATION	MEMBER	DEPTHS	GRAPHIC LOG			(	DESCR	IPTION	1	
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	- And a second										_
1					Muc	lstone w	ith inter	bedded le	enses of co	gl. and ss.	

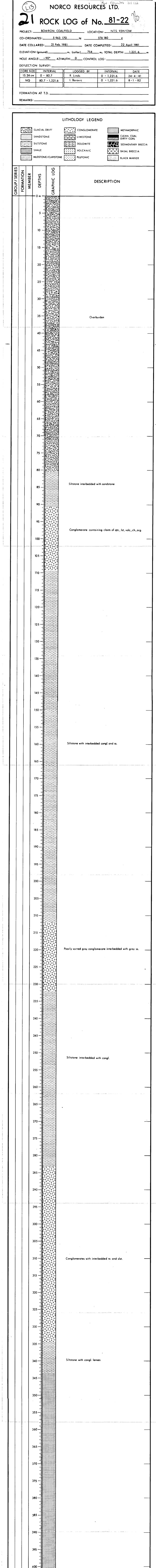
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BN BOWRON SILSIA

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190 · Conglomerate: gray, clast-supported, cgl. with ss. lenses. Mudstone and conglomerate: interbedded mdst., slst, and cgl. 255 · 275 · 295 black, coaly mdst. with coal lenses; -interbedded with cgl. lenses. Mudstone : 305-310 · 20 cm coal, 70° to core. 2% amber. 25 cm coal, graded beds. amber-15 cm 35 cm coal and coaly mdst. 370 · 385 -

				420		
				430		
				435	0.5 m coal and coaly mdst.	
					20 cm ditto 30 cm cool and cooly mdst.	
				450	25 cm coal	
				460		
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•				470		
				480		
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				540		
• • • • • • • • • • • • • • • • • • •				545		
				555		
				560		
				565	70 cm coal and coaly mdst. 80° to core	
•				575		
				580 		·
				590		
· · · ·				595 		
				605		
Munchannan a ta an				610		
				620		
				625	Coal: dirty, very broken core Siltstone, dark gray to black.	
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na				660	Conglomerate interbedded with ss. and slst. with thin coal lenses.	
and the second				670		
				690	Mudstone and Conglomerate: interbedded mdst., slst., and ss., (minor thin coal lenses).	
•						
			- 11 <sup>-</sup> -	705	Coal: vitroin and coaly mdst.	
·····				715	0 0 0	
				720		
Narah Anna ing kanalan ing kanalan kan		ş		735 —		
				745	Mudstone with coal lenses	
				750 — 		
					Coal: mod. to hi ash. core badly broken.	
				765		
	· · -	1				
				780		
		-		785	1.5 m coal: clean, low ash, bright vitrain.	
				795	Cool: low ash, vitrain.	
				800	Coal: low ash, bright.	-
				810		
				815 – 820 – 820 –	Coal: bright vitrain.	
					Hi ash coal and coaly mdst.	
				830	Coal: Iow ash, vitrain	
				840	на, по	
				845	Cool and cooly mdst. Lo ash cool. Cool and cooly mdst., broken core. 	
				855 855		
	4.7.2.2			860	Conglomerate, broken	
		1	1			
		•			Sandstone	
				- T.D. 870.2		
				- T.D. 870.2		
				870	π (FAULT ZONE)	



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				360			
				365		(3B)	
				370		(LI3B)	
				375			
				385			
				390			
				395			
				400 <b>4</b> 00 <b>4</b> 00			
				405			
				415			
			I	420		Black organic mdst., slst. with lenses of ss and congl. and coal lenticules of 5–10 cm. Mudflow, graded B.D.F.	
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						Conglomerate	
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				545 — 		Mudstone with conglomerate lenses	
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				560		Conglomerate	
- 14 - 14 - 14 - 14 - 14 - 14 - 14 - 14		·		565 — - - - 570 —		•	
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				580		Mudstone with cooly laminae	
				- - 585 —			
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				605-			
				610 -		Mudstone with congl. lenses.	
				615 -			
			•	620 -		c Conglomerate	
				625 - 630 -			
	r			635 -			
				640 -		Mudstone, slst.	
				645 -			
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· · · · · · · · · · · · · · · · · · ·				655 -			
				660 -	unluuluuluuluuluu 	c c Conglomerate with mdst. and slst. lenses	
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				695 -		Mudstone	
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		•.		710 -	ulmulmulmulmulmulmulmulmulmulmulmulmulmu	Conglomerate	
				715 -			
				720 -			
				725 -		Mudstone, mud flow, mud with silt, laminated.	
				730 -			
				735			
<u> </u>	.	<u></u>	-	745 -			
				750 -	۱ <mark>۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱۱</mark>		
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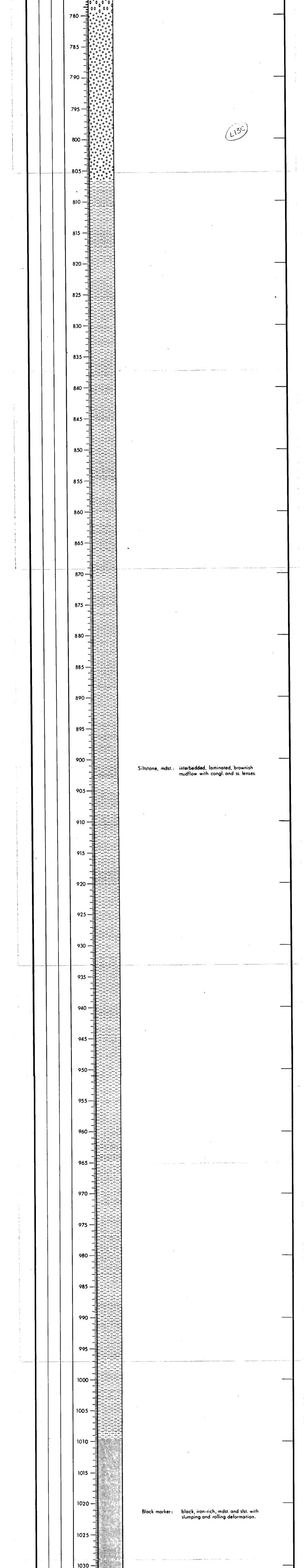
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				•	1075 -				
					1080 -		Mudstone, slst.: laminated mud flow (lake deposit)		
					1085				
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					1160		Conglomerate lens, graded bedding		
					1165				
					1170		Dirty coal, coaly mdst., with lenses of clean coal.	<u>.</u>	
-					1175		Clean coal		
					1180				
•									
					1185				
		~			1190		Conglomerate		-
					1195		Mudstone: laminated carbonaceous mud and silt		
				.	1200		Sedimentary breccia: black angular fragments in a black matrix (also fracture zone)		-
					1205				
					1210				
							Mudstone, congl.: interbedded ms. and congl.		
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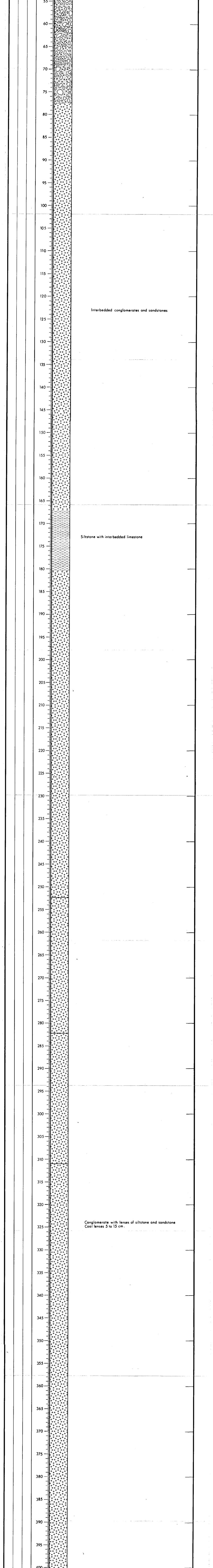
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					ALFIELD				* *	
					N					-
	DATE COLLARED:20 Feb 1981       DATE COMPLETED:4 June 1981         ELEVATION: (ground)m; (collar)754m; TOTAL DEPTH:772m									
					m; (collar)/ MUTH:0CO					
			ZE IN m O-	NTERVAL	LOGGED 8 R. Linds	BY	INTERVAL 0-772		0ATE	
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			SHALE		VOLCAN	IC		BASAL BREC	CIA	
			MUDSTONI	E/CLAYSTONE	PLUTONI	с		BLACK MAR	KER	
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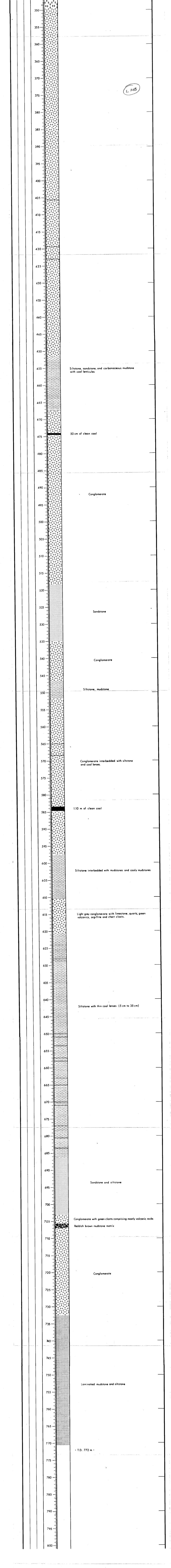
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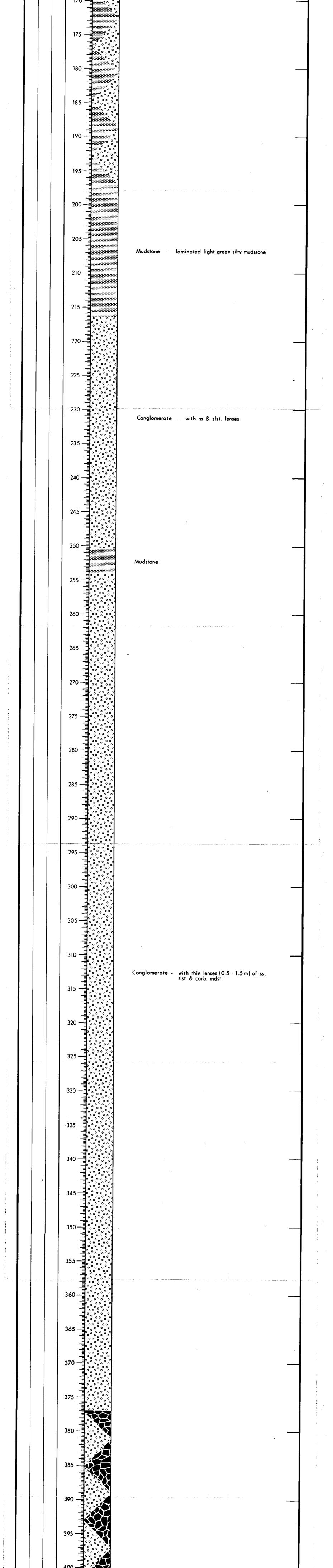
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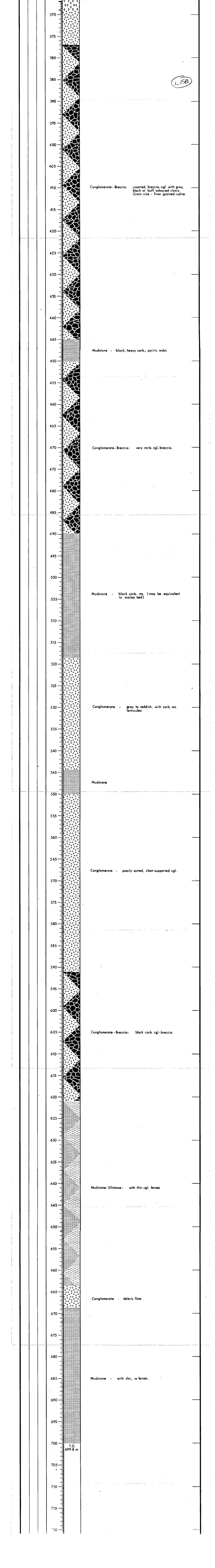




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	PROJECT:       BOWRON COALFIELD       LOCATION:       N.T.S. 93H/13W         CO-ORDINATES:       5 964 080       N       574 150       E         DATE COLLARED:       24 February 1981       DATE COMPLETED:       27 May 1981										
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				SHALE			VOLCANIC			ASAL BRECCIA	
				MUDSTON	E/CLAYSTON		PLUTONIC			LACK MARKER	
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		FCT			LFIELD LOCATION: N.T.S. 93H/13W
					500 N 568 790 E
	DATE	COL		17 Mar	ch 1981 DATE COMPLETED: 23 March 1981
	ELEV	ATION	l: (ground	J)(J	m; (collar) 741m; TOTAL DEPTH: 256.0m
	HOL	E ANG	GLE: <u> </u>	<u>90°</u> AZI	MUTH: 0 CONTROL LOG: GRN
		.40 cm			LOGGED BY         INTERVAL         DATE           R. Linds         0 - 256.0 m         23-3-81
		.32 cm .24 cm	-		I. Borovic 0 - 256.0 m 8 - 1 - 82
	13	.02 cm		<u> </u>	Slide Mountain volcanics
			<b>3</b>		
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					LITHOLOGY LEGEND
	D <sub>a</sub> (	1812	GLACIAL	DRIFT	CONGLOMERATE
			SANDSTO	NE	CLEAN COAL DIRTY COAL
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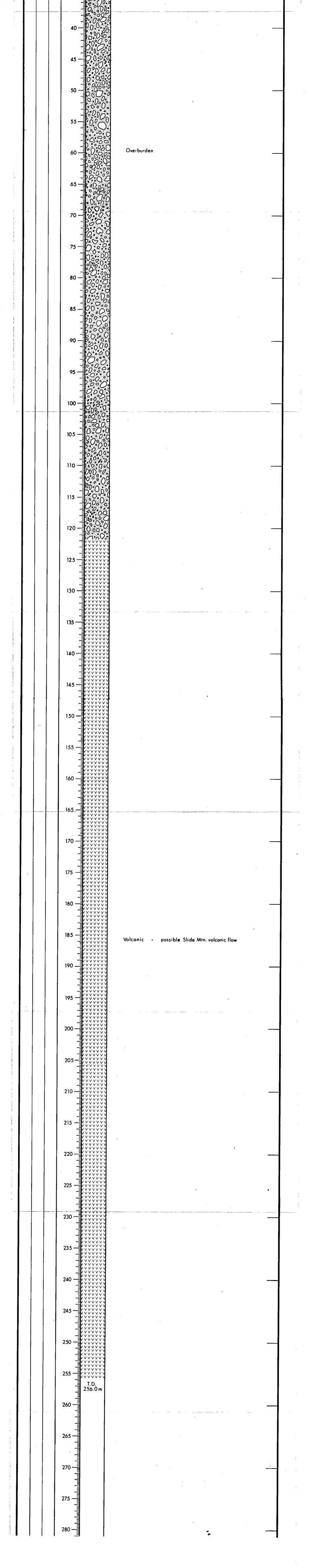
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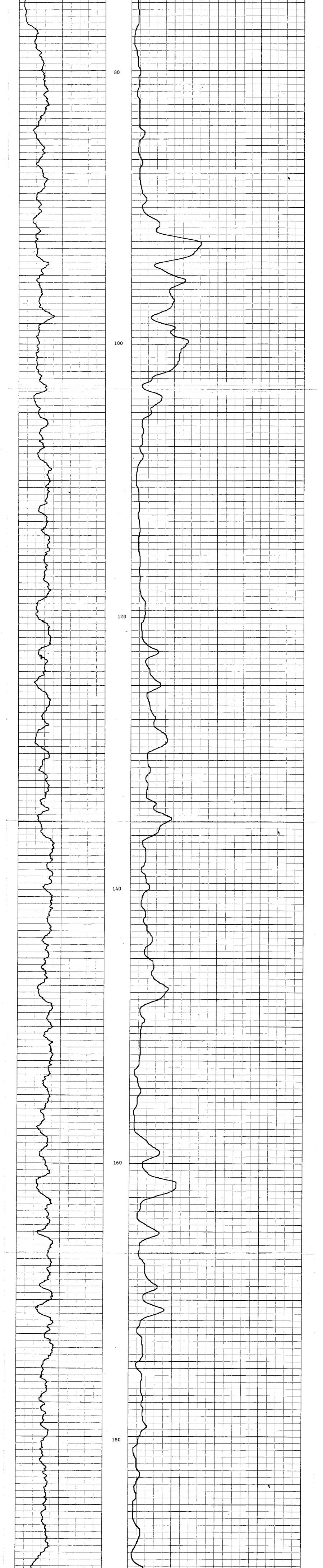
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	Casing Driller     79.25       Fluid Type     MUD / WATER       Liquid Level     0       Min. Diam.     BQ       Rm @       Rm @       Operating Time     7 HOURS       Truck No.     35       Recorded By     STICKLAND     Witnessed By     LINDS	Run. No.     ONE       Date     25 APR 1981       First Reading     1216 M       Last Reading     0       Footage Logged     1216       Depth Reached     1216.4       Depth Driller     1221.65	SEC       WELL       81 - 22         TWP       RGE       LOCATION       Image: Constraint of the services of the service of the services of the service	BADDER DE
	GAMMA F RUN NO. TOOL MODEL NO. DIAMETER DETECTOR MODEL NO. TYPE LENGTH DISTANCE TO N. SOURCE	······································		ONE NEUTRON/NEUTRON 125 A 3.75 CM PROPORTIONAL 15.2 CM MRC-N-SS-W
	GENERA HOIST TRUCK NO. INSTRUMENT TRUCK NO. TOOL SERIAL NO. GENERAL RUN DEPTHS SPEED NO. FRÓM TO M/MIN	35 35 125 A011 LOGGI GAM T.C. SENS ZE		INGS DIV. L OR R PER LOG DIV.
	ONE 0 1216 4.5 REMARKS LOGGED THROU GAMMA RAY	GH BQ DRILL RODS	NEUTRON	
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