K. FORDING RIVER 71(1)A

FORDING OPERATIONS SUMMARY REPORT (1971)

— COMINCO LTD —

313

ASSESSMENT REPORT

K-FORDING RIVER 79(1)A

00 313

Rec'd from A. Taplin Aug 11/72

OPEN FILE

CONFIDENTIAL

COMINCO LTD.

FORDING OPERATIONS

SUMMARY REPORT OF 1971 EXPLORATION & DEVELOPMENT

I. GENERAL SUMMARY

During 1971 Fording Operations drilled 15 Engineering type holes for seam definition within the mining project area, and another 21 holes to provide seam definition and limited coal quality data for exploration of potential, additional product coal in the northern part of the Greenhills Upper Seam Area.

1971 Engineering Drilling 15 holes, sub total		4149 ft.
1971 Exploration Drilling 21 holes, sub total		7617.5 ft.
	Total	11,766.5 ft.

M & M Drilling Company of Strathmore drilled 16 holes for a total of 7,356.5 feet of seam outline or definitive drilling. Garritty and Baker Drilling Company of Edmonton contracted 20 holes for a total of 4,410 feet. Of the Garritty and Baker holes, 7 in the Upper Greenhills Area were proposed to provide rotary core samples of seams previously marked by the outline drilling.

A limited amount of bulldozer trenching was done in the Greenhills Upper Seam area, to provide data on the surface trace of several seams, as shown on the 1000 scale General Geology Map. Minor trenching was also done in lower Clode Creek for repeat 5 seam.

To provide bulk samples for washability and coking tests, adit 12 (seam F) was re-opened and extended, and new adits 15 (seam G lower) and 16 (seam H lower) were driven. Total adit and sample raise development was 212.5 feet. Bulk samples of oxidized coal were taken from seams exposed on the Clode Pit haul road.

Gamma ray-neutron logging was done for all engineering and exploration holes drilled in 1971.

II. DRILLING SUMMARIES

A. Greenhills Upper Seams

M&M DRILLING

Rotary holes 518 to 536A inclusive were drilled in this area. Hole 529 was abandoned because it was too crooked to allow passage of the core barrel, and was redrilled as 529A. Hole 536A replaced No. 536 which was abandoned when the rods and core barrel became stuck during the rotary coring process. The planned core drilling was not done for all of the specified seams, and the majority of the cored coal sections returned ash analyses indicative of wall rock contamination. The accompanying Summary of Coal Quality for Greenhills Upper Seams shows the average thickness of each seam and the tonnage represented in a proposed pit included in a Preliminary Feasibility Report of August 1971. Prints of sections 487,000N and 488,000N show the seam correlations, structure and tentative pit outlines. Drill logs are included in the Appendix.

B. Greenhills Pit Area

GARRITTY & BAKER

Rotary holes 197,543-546 inclusive were drilled to provide improved seam correlations and structure in the proposed opening cut area of the dragline pit. Seam structural contours were significantly revised to permit more detailed pit planning. Additional fill-in drilling will be done when overburden is stripped from this area.

....2

B. Drill logs are included in the Appendix.

C. Repeat 4 Area

Holes 312 to 320 inclusive were drilled in this area, mainly to provide structural data for pit planning. Hole 312 was abandoned at a depth of 355 feet with twisted-off drill stem. Replacement hole 312A was drilled to 550 feet. Holes 315, 316 were cored through seam 4 and provided good samples. Holes 319, 320 were drilled for repeat 5 seam at greater distance below the thrust fault. Trenching exposed this seam which was shown to be highly sheared and to contain 'horsts' of shattered rock. Mining of this seam was not indicated to be an economic situation. Preliminary structural contours were prepared for Repeat 4 seam, and planning indicated a feasible mining situation which was well advanced by year end.

III. ADITS

Locations of Adits 12,15,16 are shown on the 1000 scale geological map. Copies of Progress Reports 21,22,23 show the details and summaries of the washability tests performed on the bulk samples, as well as the sample locations in the respective seams. The adit work was contracted by Walter Fuchs of Coleman, Alberta under Fording supervision. The 2 man crew used a rented compressor and 'tugger' hoist, with development coal removed by a 36 inch scraper. Other essential equipment such as ventilation fan, vent pipe, auger, air pick, cap lamps, safety lamp, etc. were either purchased by Fording or borrowed from other Cominco mines. The adits were barricaded with chain link fencing on completion of the sampling.

IV. OXIDE COAL BULK SAMPLES

Bulk samples of approximately 100 lbs. per 5 ft. section were taken with an air-pick from exposures along the Clode Pit haul road. Proximate analysis %Sulphur, B.T.U. values and screen analyses were requested for these samples. Results were only partially complete at year end and are not reported in this summary.

A 500 ton test lot of oxide coal was shipped to Trail for trials in the smelter. This sample was screened at -$\frac{1}{4}$" from stockpiled run of mine oxide coal from seams upper 11 and 12. A 'Pioneer' gravel plant was used for the screening. Recovery of $\frac{1}{4}$" x 0 was only about 40% because of the poor facilities. Ash was reduced from 25.8% to 19.8% by the screening.

V. EXPENDITURES

(Source = Fording Job Cost Analysis Sheets)

Engineering Drilling, C971.2110- .2600 incl.

December 31, 1971 Total		$1,053,388
December 31, 1970 Total		1,011,581
	1971 Sub-Total	$ 41,807

Exploration and Development for Additional Product Coal C972.1110-.2600 incl.

December 31, 1971 Total		$485,517
December 31, 1970 Total		363,484
	1971 Sub-Total	$122,033

Total 1971 Exploration & Development Expenditures: $163,840

APPENDIX

Contents

Drill Hole Logs: - revised by gamma ray-neutron logs when necessary
- raw and clean coal proximate analyses included for sampled sections, also indicated recoveries.

General Geological Map, Scale 1 in. = 1000 ft.
1971 Drilling and Development - designated by Legend.

Section Prints - Greenhills Pit & Upper Seams - 487,000N; 488,000N; 489,500N
Repeat 4 Pit (lower Clode) - 495,500N; 495,750N; 496,000N; 496,250N; 496,500N; 496,750N

Adit Sample Testing Progress Reports Nos. 21,22,23.

Summary of Coal Quality for Greenhills Upper Seams.

ACT/mek
February 24, 1972

Submitted by:

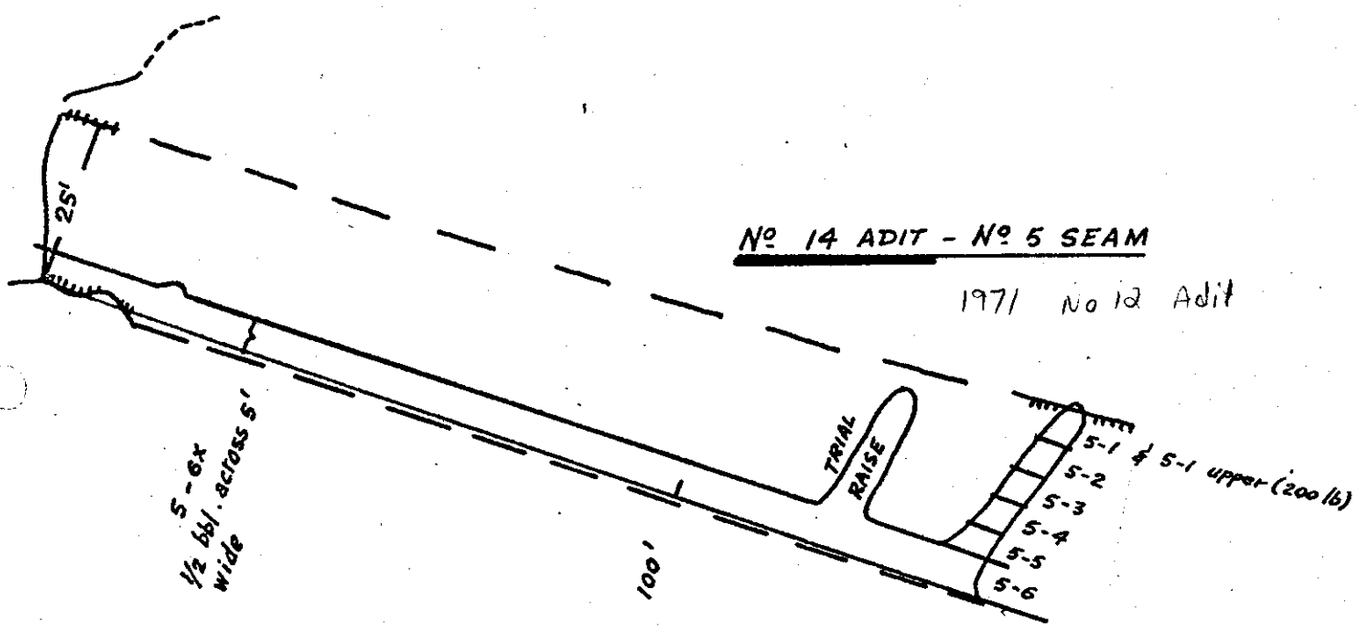
A. C. Taplin
Mine Geologist

copies: RMP
OIJ
HGR
JBD
B.C. Mines Dept.
File

APPENDIX II

Fig. 1

Section and Sample Locations



Scale: 3/4" = 20 feet

6 Sample Intervals, each 5 ft. stratagraphic thickness = 30 ft. total.

4 barrels of coal from each = 24 barrels plus 2 special part barrels.

PROXIMATE ANALYSIS OF SECTIONS

Section	Inherent Moisture %	Ash %	Volatiles %	Fixed Carbon %	Sulphur %	F.S.I. (Cyclone Eng.)
5-1	0.47	21.4	22.4	55.7	0.52	4 -4½
5-2	0.37	5.8	26.0	67.8	0.53	9 -9
5-3	0.47	9.3	24.8	66.4	0.43	4½-5
5-4	0.79	9.6	23.0	66.6	0.38	3½-4
5-5	0.63	10.3	24.6	64.5	0.54	7 -7½
5-6	0.53	15.6	21.8	62.1	0.45	3½-4
5-1 to 5-6 Composite	0.70	15.6	21.2	62.5	0.37	3½-4

312

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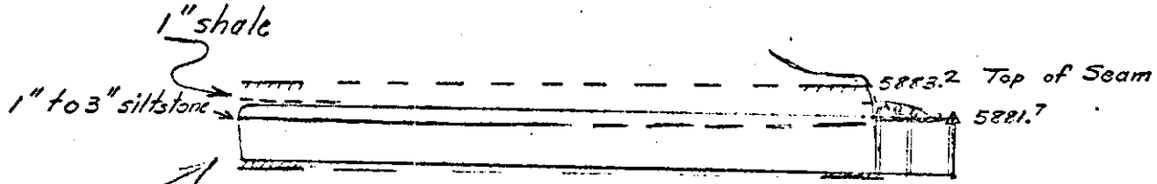

AZIM. 337°
⊥ on strike of seam
Other survey pick-ups May 11/71 & May 25/71
Elev. 5850

ADIT 15
Vertical Section
Scale 1" = 20ft.

BULK SAMPLES

LOT G01 — 12 bbl. from upper 5 ft. of seam
LOT G02 — 12 bbl. from lower 5ft. of seam

} SEAM G LOWER 10' stratigraphic thickness.

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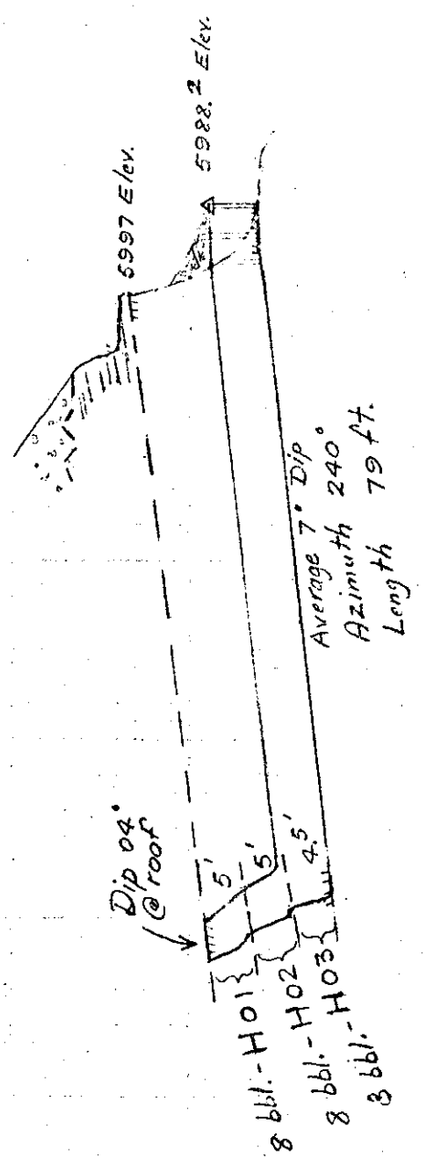
Drawn by: D.C.T. | Traced by: | Scale: 1 in. = 20 ft. | Date: May 26, 1971 | Plate: 2
Revised by | Date | Revised by | Date

BCIL-2187-C
210-0610



ADIT 16 SEAM H LOWER

SAMPLED JUNE 9, 1971

313

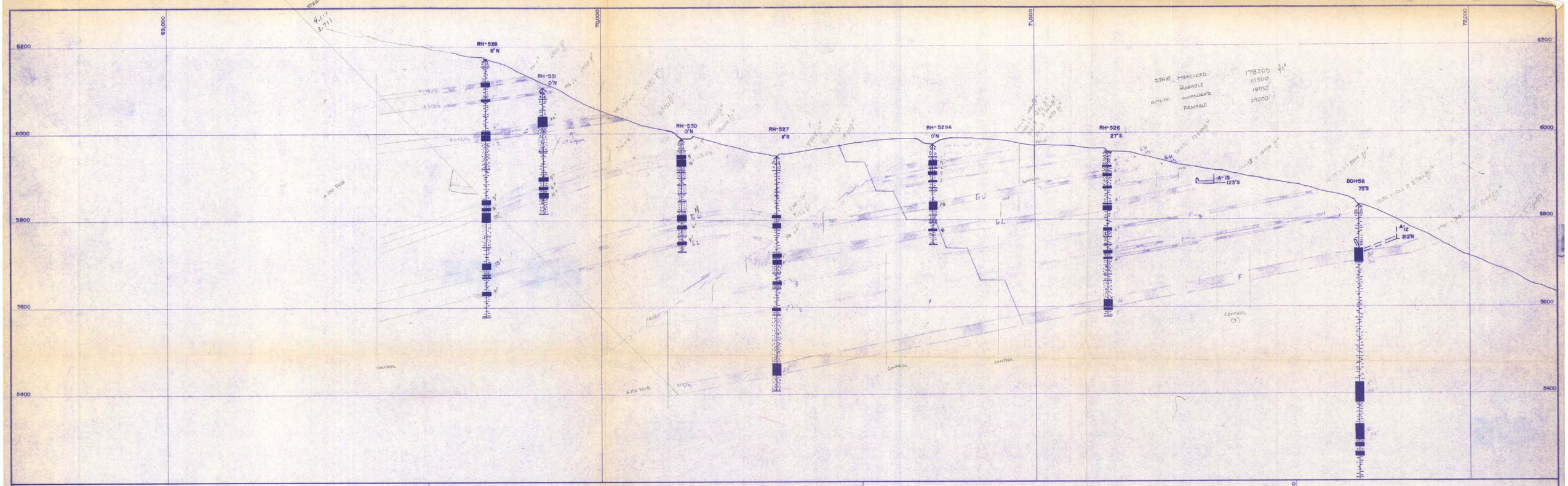
Cominco

Drawn by: ACT		Traced by:		ADIT 16 SECTION		
Revised by	Date	Revised by	Date			
				Scale: 1 in. = 20 ft.	Date: June 11, 1971	Plate: 3

BCIL-2187-C

210-0610

FR 70(2)A



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Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Drawn by RBa 15/2/71

Fording Operations

Cominco

GEOLOGICAL SECTIONS

GREENHILLS = 487,000 N

Scale 1 Inch = 100 Feet

Drawing No. G - S - 1

FR 71(2)A

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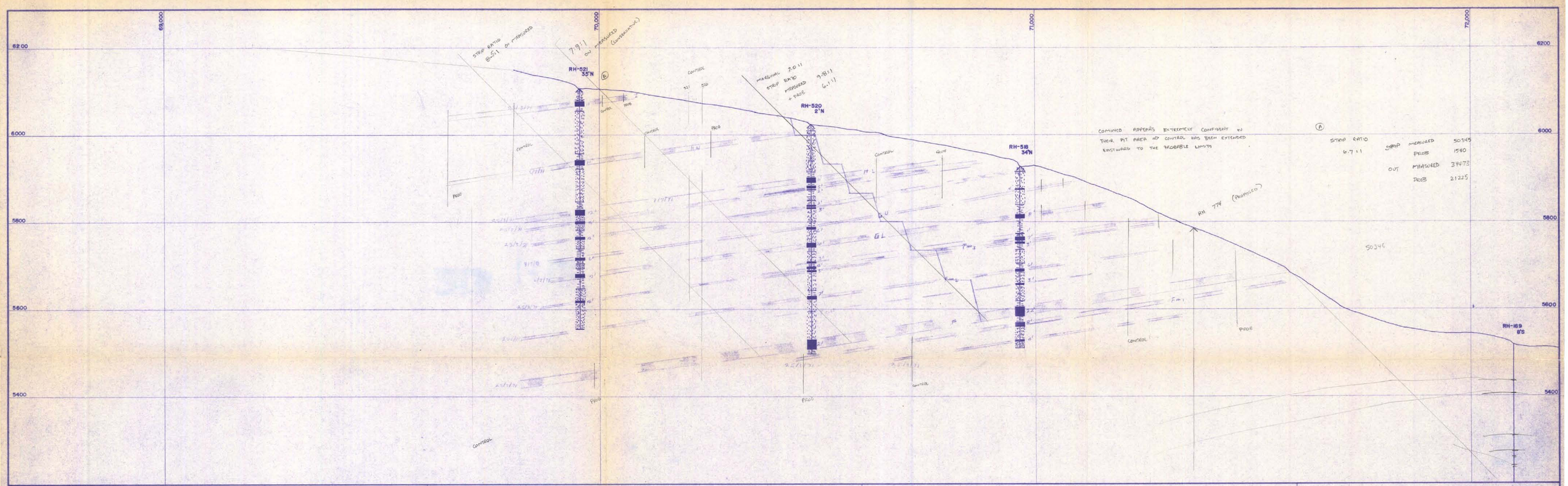
Drawn by RBa 15/3/71	Fording Operations	GEOLOGICAL SECTIONS	Scale 1 Inch = 100 Feet
		GREENHILLS = 488,000 N	Drawing No. G-S-4 FR 71(2)A



313

Revisions			
No.	Made by	Date	Description

Drawn by RSa 15/3/71

Fording Operations

Cominco

GEOLOGICAL SECTIONS

GREENHILLS = 489,500 N

Scale 1 Inch = 100 Feet

Drawing No. G-S-6

FR 71(2)A

Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Drawn by RBa 31/1/72

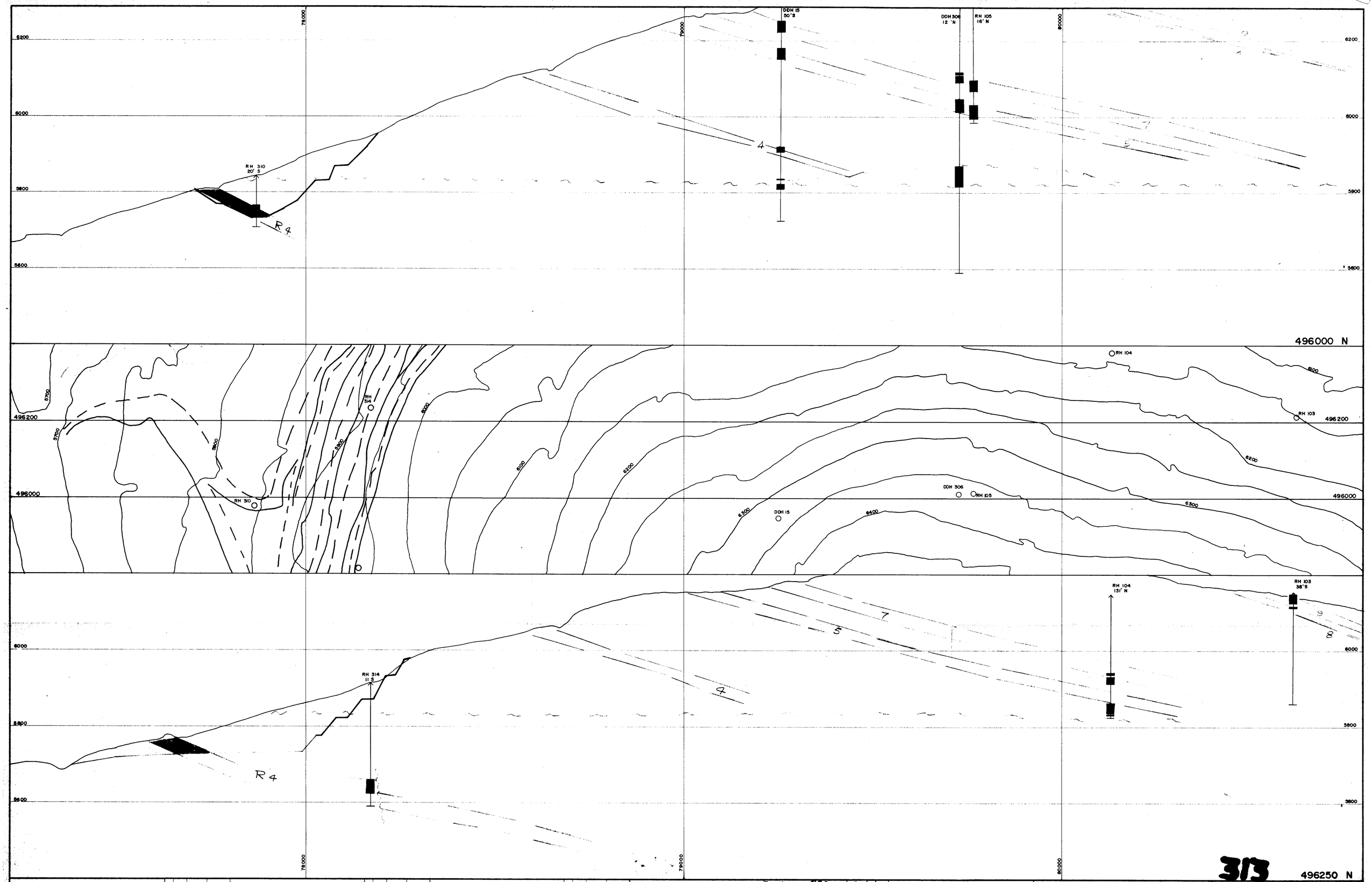
Fording Operations

GEOLOGICAL SECTIONS

REPEAT 4 / LOWER CLODE

Scale 1 Inch = Feet

Drawing No. R4/LC-S-1



Revisions					Drawn by RBO 31/1/72	Fording Operations	GEOLOGICAL SECTIONS	Scale 1 Inch = Feet
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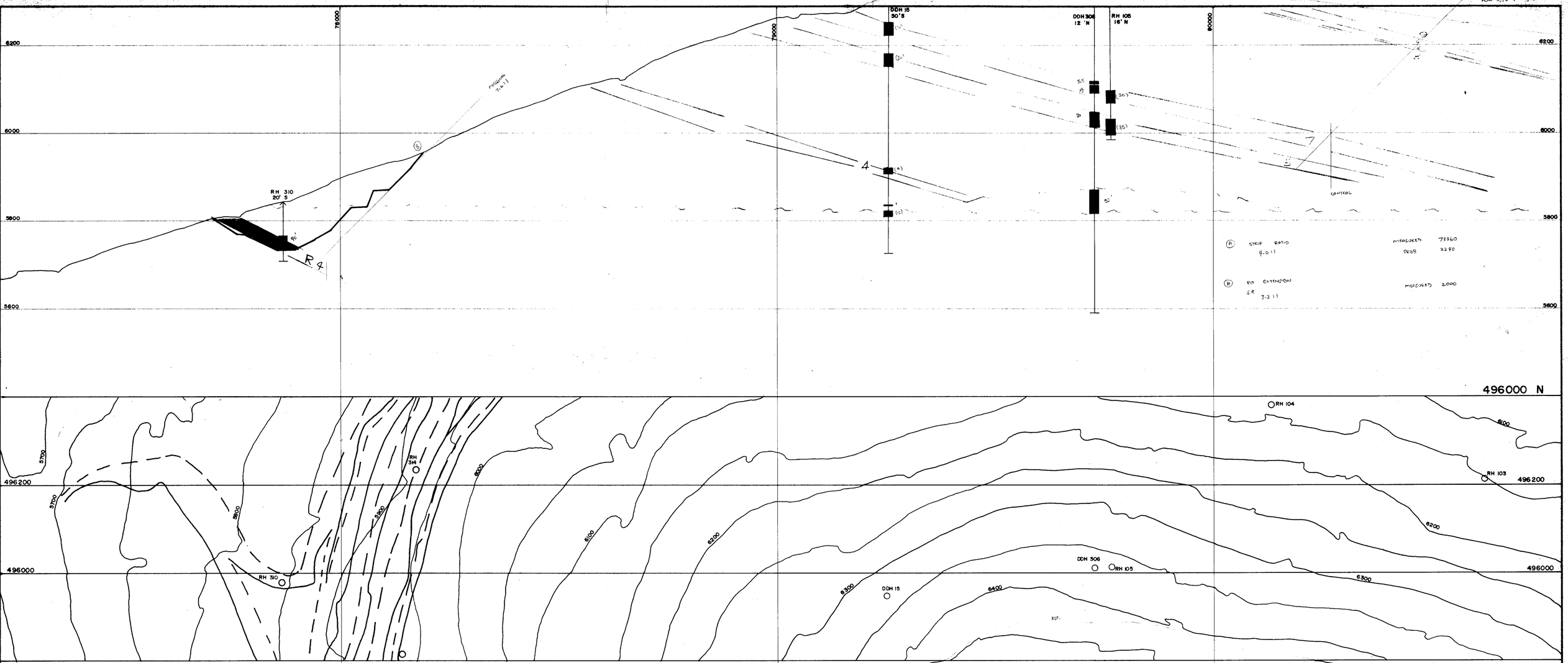
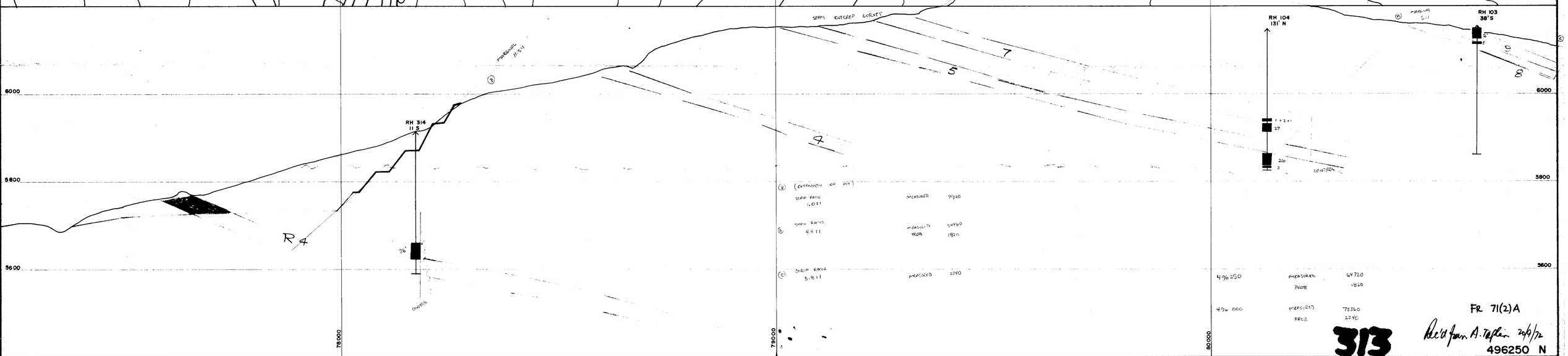




Revisions				
No.	Made by	Date	Description	

Revisions				
No.	Made by	Date	Description	

Revisions				
No.	Made by	Date	Description	

Drawn by RBO 31/1/72

Fording Operations

Commonwealth

GEOLOGICAL SECTIONS

REPEAT 4 /LOWER CLODE

Scale 1 Inch Feet

Drawing No. R4/LC S-2

496750 N
RH 319
18'N
R-5
RH 319
RH 313
DDH 134
RH 311
RH 315
DDH 104
DDH 104
119'S
RH 313
90'N
RH 311
37'S
RH 315
48'S
DDH 134
66'N
R-5
R-4
R-4
7
5
496500 N
Drawn by RBa 31/1/72
Fording Operations
Cominco
GEOLOGICAL SECTIONS
REPEAT 4 / LOWER CLODE
Scale 1 Inch 100 Feet
Drawing No. R4/LC-S-3
313

FR 71(2)A

313

Recd from A. Taplin 20/8/72

495750 N

Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Drawn by RBA 31/1/72

Fording Operations

Cominco

GEOLOGICAL SECTIONS

REPEAT 4 / LOWER CLODE

Scale 1 Inch = Feet

Drawing No. R4/LC S-4

Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Revisions	No.	Made by	Date	Description

Drawn by RBa 31/1/72

Fording Operations

Kaiser Resources

GEOLOGICAL SECTIONS

REPEAT 4 / LOWER CLODE

Scale 1 Inch = Feet

Drawing No. 24/LC 5-5

Eagle Mountain
RH 71-312 to RH 71-313 inc.
Clode Creek
RH 71-314 to RH 71-320
missing : 315 & 317

K-FORDING 71(3)A

GAMMA RAY NEUTRON LOG

CALGARY, ALBERTA

FILE NO.

313

COMPANY	FORDING COAL LIMITED
WELL	RH 312
LOCATION	EAGLE
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA

LSD
SEC
TWP
RGE
W ___ M

Permanent Datum GROUND LEVEL Elev. ______ K.B. ______
Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F. ______
Well Depths Measured from ______ G.L. ______

Run No.	ONE	TWO	
Date	21 JAN 71	27 JAN 71	
First Reading	456	547	
Last Reading	0	406	
Footage Logged	456	141	
Depth Reached		548	
Depth Driller		550	
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	102		
Min. Diam.	4 1/2	4 1/2	
Operating Time	2 HRS	11 HRS	
Truck No.	10		

Recorded By BANKS | Witnessed By TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE + TWO	RUN NO.	ONE + TWO
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	10 + 30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN 27 U4A 78	STRENGTH	3.00 x 10⁶ N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.

REMARKS STUCK IN HOLE @ 415 470 AND 335 FT
FISHED TWICE WITH RIG.

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →

313

K-Fording 71(3)A

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

313

FILE NO.

LSD
SEC
TWP
RGE
W ___ M

COMPANY: FORDING COAL LIMITED
WELL: RH 312
LOCATION: EAGLE MOUNTAIN
FIELD: FORDING RIVER
PROVINCE: BRITISH COLUMBIA

Permanent Datum: GROUND LEVEL Elev. ___ K.B. ___
Log Measured from: GROUND LEVEL, ___ Ft. Above Perm. Datum D.F. ___
Well Depths Measured from ___ G.L. ___

Run No.	ONE	TWO	
Date	21 JAN 71	27 JAN 71	
First Reading	456	547	
Last Reading	0	0	
Footage Logged	456	141	
Depth Reached		548	
Depth Driller		550	
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	102		
Min. Diam.	4 1/2	4 1/2	
Operating Time	2 HOURS	11 HOURS	
Truck No.	10	30	
Recorded By	BANKS	Witnessed By	TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE & TWO	RUN NO.	ONE & TWO
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO	10 & 30	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4A78	STRENGTH	7.00×10^6 N/S

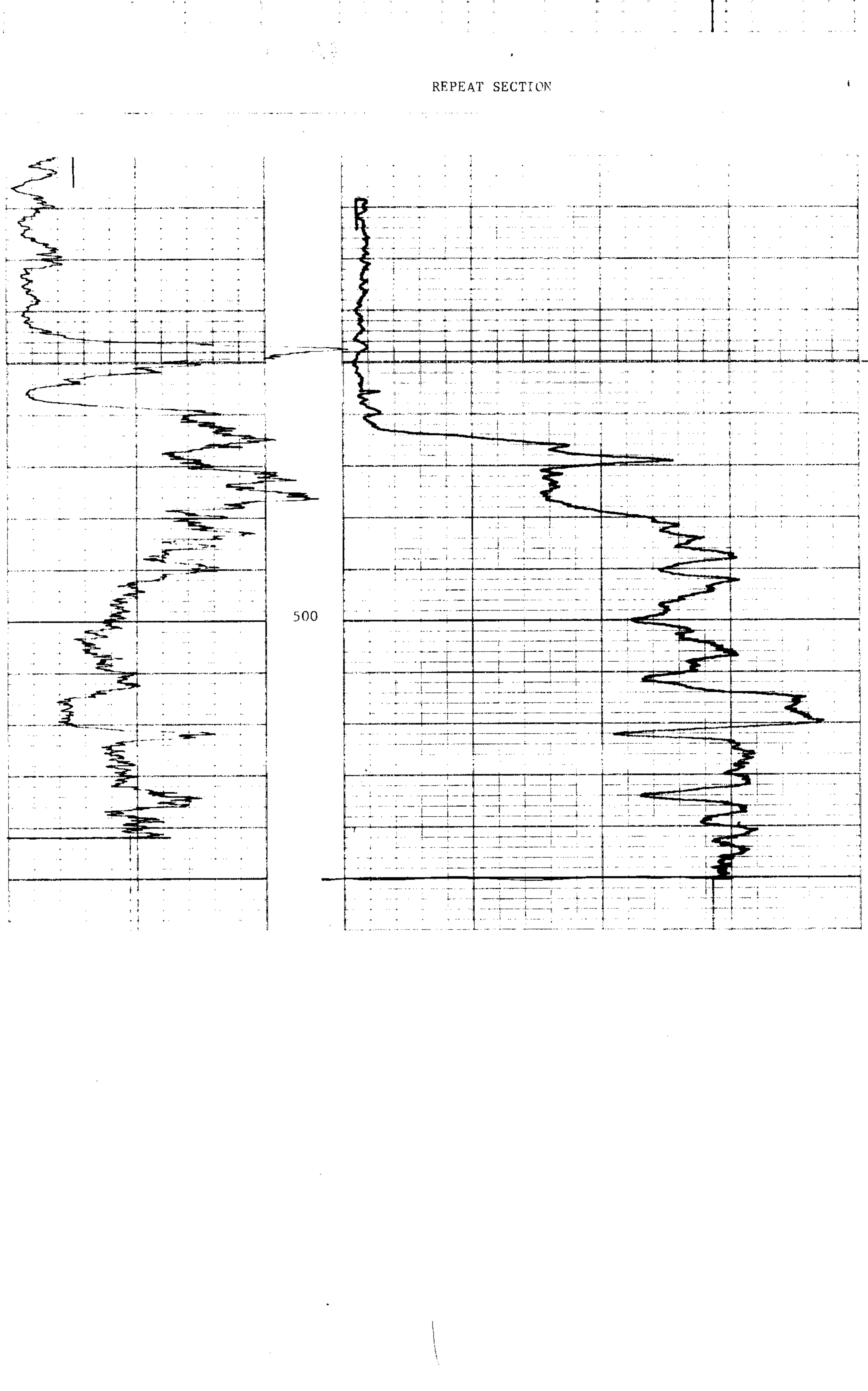
LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.

REMARKS: Stuck in hole @ 415, 470 and 335 Ft.
Fished twice with rig.

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →

REPEAT SECTION



ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. 313

COMPANY FORDING COAL LIMITED

WELL DH 313

LOCATION EAGLE MOUNTAIN

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

LSD SEC TWP RGE W 4 M

Permanent Datum GROUND LEVEL Elev.

Log Measured from GROUND LEVEL Ft. Above Perm. Datum

Well Depths Measured from K.B. D.F. G.L.

Run No.	ONE
Date	30 JAN 71
First Reading	444
Last Reading	0
Footage Logged	444
Depth Reached	445
Depth Driller	430
Casing Driller	42
Casing Rotex	42
Fluid Type	AIR/MIST
Liquid Level	10
Max. Diam.	4 1/2
Min. Diam.	
Operating Time	3 HOURS
Truck No.	30
Recorded By	BRIERLEY
Witnessed By	TAYLOR

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO.	MRC-N-SS-W
HOIST TRUCK NO.	30	SERIAL NO.	606
INSTRUMENT TRUCK NO.		SPACING	19 INCH
TOOL SERIAL NO.	CGN2704A78	TYPE	AmBe
		STRENGTH	7.00×10^4 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
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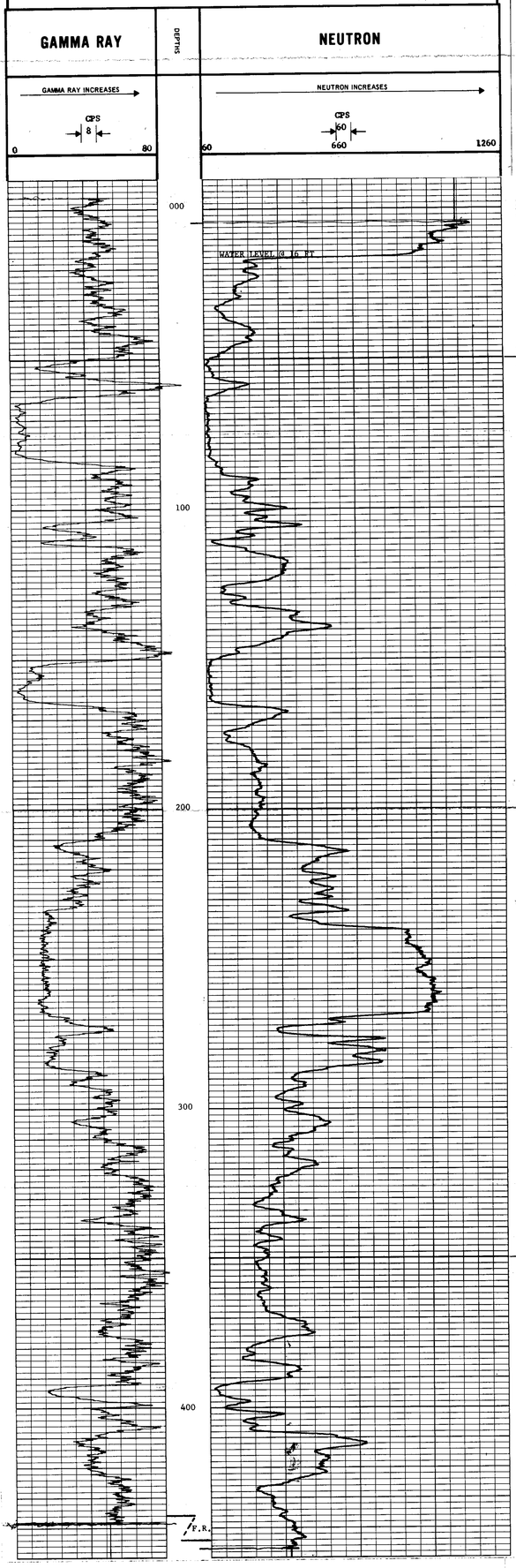
REMARKS



K-Foregns 7/(3)A

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ____ M

COMPANY FORDING COAL LIMITED

WELL RH 314

LOCATION CLODE CREEK

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

313

Permanent Datum GROUND LEVEL, Elev. ____ K.B. ____

Log Measured from GROUND LEVEL, ____ Ft. Above Perm. Datum D.F. ____

Well Depths Measured from ____ G.L. ____

Run No.	ONE		
Date	12 MAR 71		
First Reading	316		
Last Reading	0		
Footage Logged	316		
Depth Reached	322		
Depth Driller	322		
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	97		
Min. Diam.	4 1/2		
Operating Time	2 HOURS		
Truck No.	30		
Recorded By BANKS		**Witnessed By** TAPLIN	

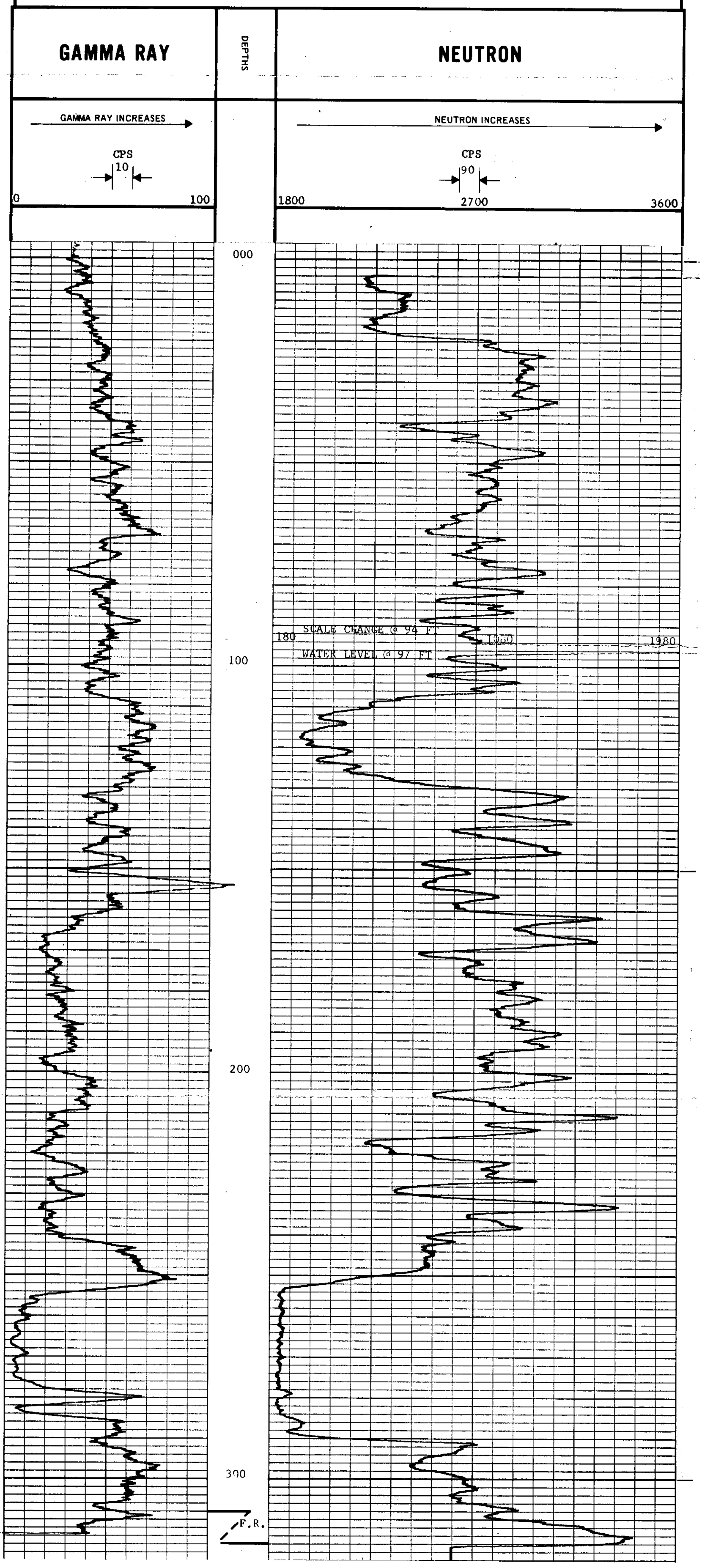
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO.	30	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	94	10	5	100	0L	10 CPS	3	1000	20L	90 CPS
	94	316	10	5	100	0L	10 CPS	3	1000	2L	90 CPS

REMARKS



K-forowg 7/13a

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. 313

LSD
SEC
TWP
RGE
W ___ M

COMPANY FORDING COAL LIMITED
WELL RH 316
LOCATION CLODE CREEK
FIELD FORDING RIVER
PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. K.B.
Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F.
Well Depths Measured from G.L.

Run No.	ONE		
Date	8 APRIL 71		
First Reading	231		
Last Reading	0		
Footage Logged	231		
Depth Reached	232		
Depth Driller	254		
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	142		
Min. Diam.			
Operating Time	2 HOURS		
Truck No.	30		

Recorded By BANKS Witnessed By TAPLIN

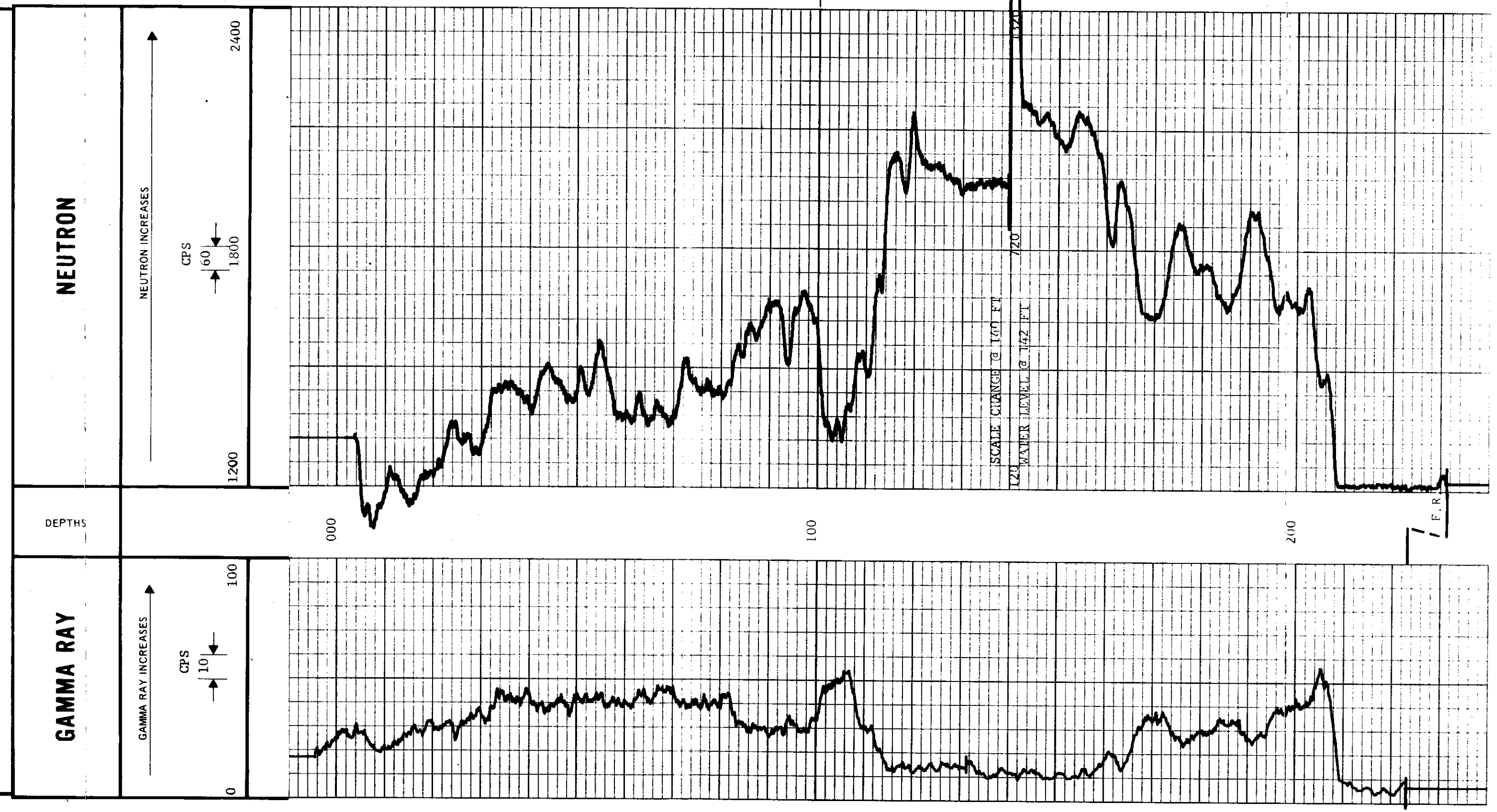
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.	1⅛	LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1⅛	TOOL MODEL NO.	1⅛
DETECTOR MODEL NO.		DIAMETER	1⅛
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	696
		SPACING	19 INCH
HOIST TRUCK NO.	30	TYPE	AmBe
INSTRUMENT TRUCK NO.		STRENGTH	7.00 x 10⁶ N/S
TOOL SERIAL NO.	CGN27U4CB177		

LOGGING DATA

GENERAL				GAMMA RAY					NEUTRON				
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC	SENS SETTINGS	ZERO DIV L OR R	API GR UNITS PER LOG DIV	T.C. SEC	SENS SETTINGS	ZERO DIV L OR R	API IN UNITS PER LOG DIV
1	0	140	10	5	100	0	10 CPS	3	1000	20L	60 CPS
	140	231	10	5	100	0	10 CPS	3	1000	2L	60 CPS

REMARKS



ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ____ M

COMPANY FOOTHILLS GAS LIMITED

WELL RH 3/8

LOCATION CLOSE CREEK

FIELD FOOTHILLS RIDGE

PROVINCE BRITISH COLUMBIA

3/3

Permanent Datum GROUND LEVEL Elev. ____ Ft. Above Perm. Datum
Log Measured from GROUND LEVEL
Well Depths Measured from ____

K.B.
D.F.
G.L.

Run No.	ONE
Date	8 APR 71
First Reading	240
Last Reading	0
Footage Logged	240
Depth Driller	241
Depth Reached	240
Casing Driller	8.50
Casing Rote	
Fluid Type	
Liquid Level	BIR/WATER
Min. Diam.	1.55
Operating Time	1 HR
Truck No?	30
Recorded By	BANKS
Witnessed By	TAYLOR

K-FOOTHILLS 7/1/88

EQUIPMENT DATA

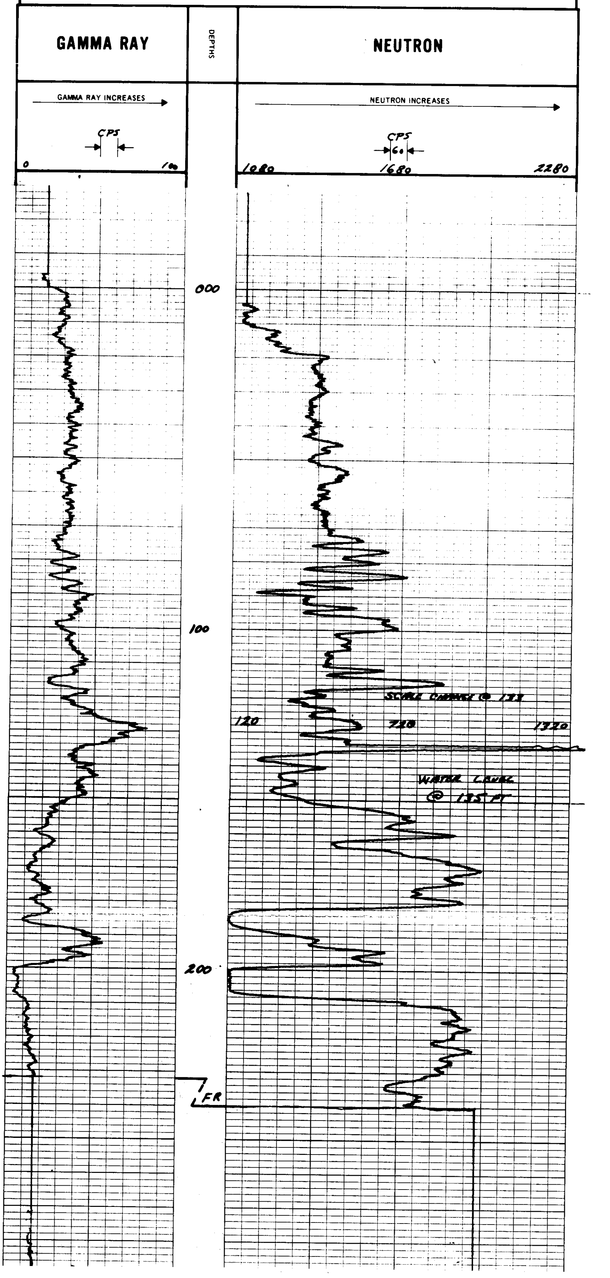
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-SS-W
		SERIAL NO	606
		SPACING	19 INCH
		TYPE	AmBe
		STRENGTH	7.00 x 10⁶ N/S

GENERAL	
HOIST TRUCK NO	30
INSTRUMENT TRUCK NO	
TOOL SERIAL NO	

LOGGING DATA

RUN NO	GENERAL DEPTHS FROM	TO	SPEED FT/MIN	GAMMA RAY T C SEC	SENS SETTINGS	ZERO DIV L OR R	API G R UNITS PER LOG DIV	NEUTRON T C SEC	SENS SETTINGS	ZERO DIV L OR R	API N. UNITS PER LOG DIV
1	0	133	10	5	100	0	10 CPS	3	1000	18L	60 CPS
	133	240	10	5	100	0	10 CPS	3	1000	2L	60 CPS

REMARKS



K-FORDING 71(3)

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ____ M

COMPANY FORDING COAL LIMITED

WELL RH 319 **313**

LOCATION CLODE CREEK

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. ____ K.B. ____
Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F. ____
Well Depths Measured from ____ G.L. ____

Run No.	ONE		
Date	4 AUGUST 71		
First Reading	200		
Last Reading	0		
Footage Logged	200		
Depth Reached	201		
Depth Driller	209		
Casing Roke			
Casing Driller			
Fluid Type	AIR / WATER		
Liquid Level	18'		
Min. Diam.	4 1/2		
Operating Time	1 1/2 HR.		
Truck No.	30		
Recorded By	SIM	Witnessed By	TAPLIN

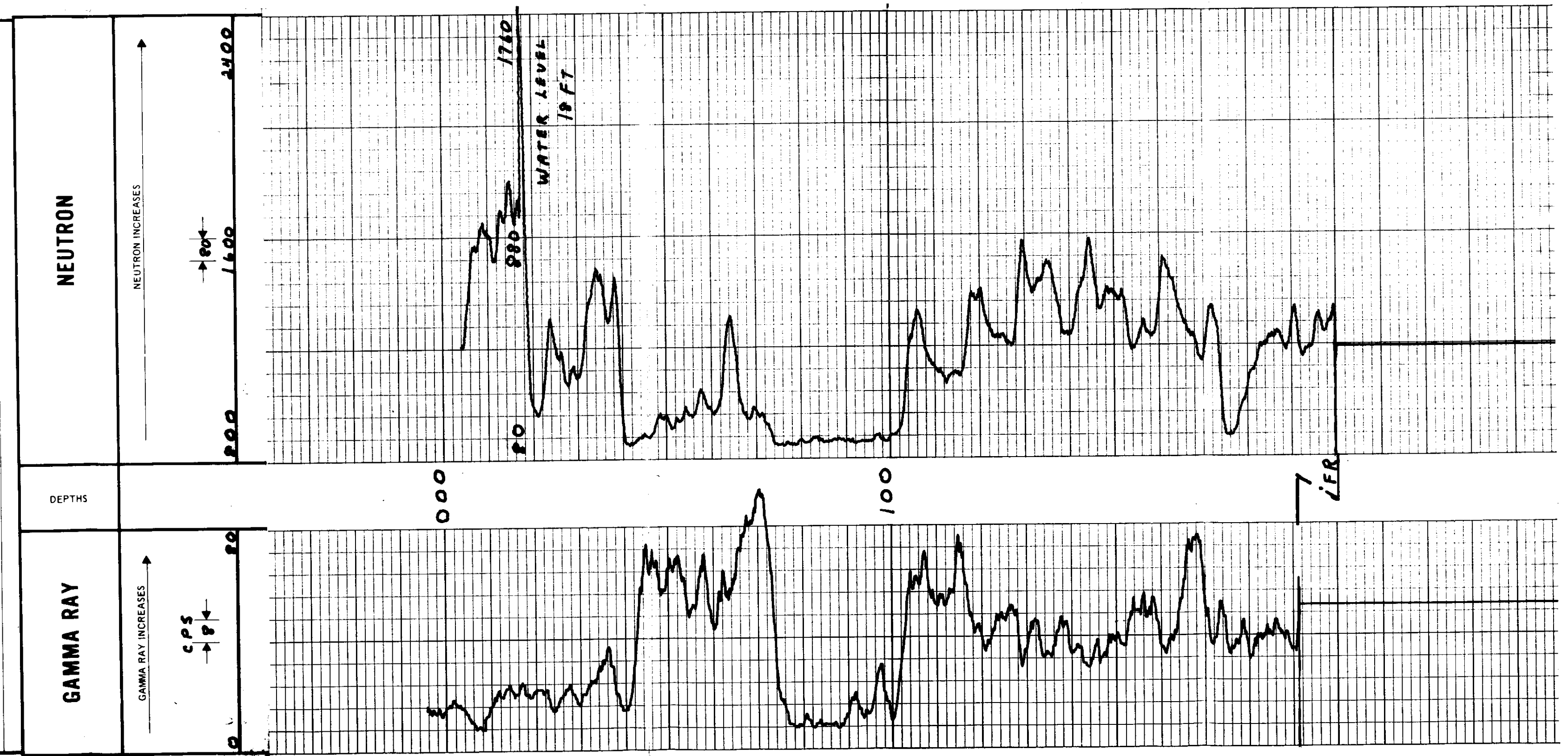
EQUIPMENT DATA

	GAMMA RAY	NEUTRON
RUN NO.	ONE	ONE
LOG TYPE		NEUTRON/NEUTRON
TOOL MODEL NO.		
DIAMETER	1 1/8	1 1/8
DETECTOR MODEL NO		
TYPE	GEIGER	PROPORTIONAL
LENGTH	18 INCH	6 INCH
DISTANCE TO N. SOURCE	8.55 FT	
SOURCE MODEL NO		MRC-N-SS-W
SERIAL NO		606
SPACING	30	19 INCH
TYPE		AmBe
STRENGTH		7.00x10⁶ N/S
HOIST TRUCK NO		
INSTRUMENT TRUCK NO		
TOOL SERIAL NO	C&A7U HC6 177	

LOGGING DATA

RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	GAMMA RAY T C SEC	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV L OR R	GAMMA RAY API G R UNITS PER LOG DIV	NEUTRON T C SEC	NEUTRON SENS SETTINGS	NEUTRON ZERO DIV L OR R	NEUTRON API N UNITS PER LOG DIV
1	0	18	11	5	100	01	8 CPS	3	1000	11 L	80
	18	200	11	5	100	02	8 CPS	3	1000	11 L	80

REMARKS



K-Fording River 71(3)A.

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

FILE NO.

LSD
SEC
TWP
RGE
W ___ M

313

COMPANY FORDING COAL LIMITED
WELL RH 320
LOCATION CIODE CREEK
FIELD FORDING RIVER
PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. ___ K.B. ___
Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F. ___
Well Depths Measured from ___ G.L. ___

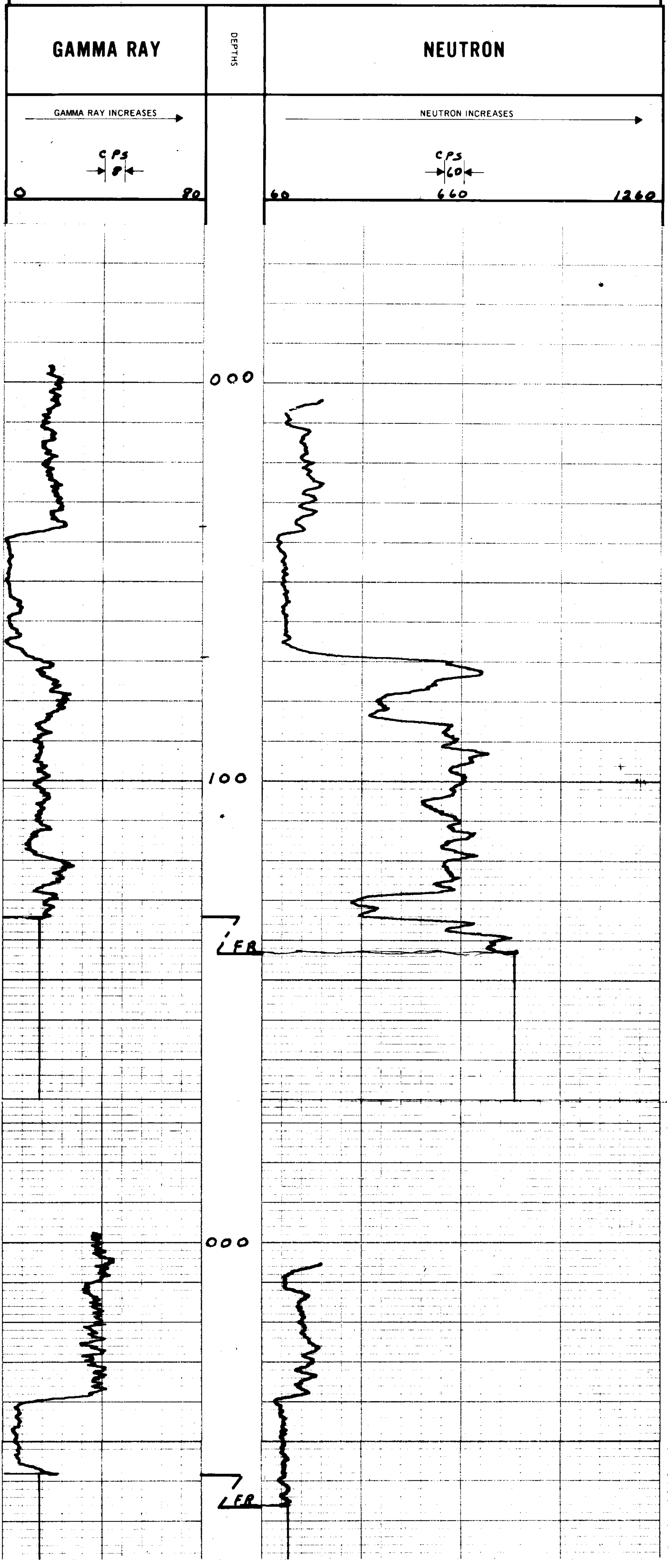
Run No	ONE		
Date	10 AUG 71		
First Reading	143		
Last Reading	0		
Footage Logged	143		
Depth Reached	144		
Depth Driller	147		
Casing Roke			
Casing Driller			
Fluid Type	WATER		
Liquid Level	FULL		
Min Diam.	4 1/4		
Operating Time	1 HR.		
Truck No.	30		
Recorded By	S/M	Witnessed By	TAPLIN

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	17 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN27U4CB 177	STRENGTH	700×10⁶ N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T C SEC	SENS SETTINGS	ZERO DIV L OR R	API G R UNITS PER LOG DIV	T C SEC	SENS SETTINGS	ZERO DIV L OR R	API N UNITS PER LOG DIV
1	0	143	11	5	100	0L	8	3	1000	1L	60
2	0	66	11	5	50	0L	5	3	1000	1L	60

REMARKS



Greenhills
RH 71 - 518 to RH 71 - 536A
missing : 535
RH 71 - 543 to RH 71 - 546

K-FORDING 71(3)A

RAY NEUTRON LOG

.GARY, ALBERTA

FILE NO.	COMPANY FORDING COAL LIMITED
LSD	WELL RH 518 **313**
SEC	
TWP	LOCATION GREENHILLS
RGE	
W ___ M	FIELD FORDING RIVER
	PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. ______ K.B. ______
Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F. ______
Well Depths Measured from ______ G.L. ______

Run No.	ONE		
Date	17 FEB 71		
First Reading	414		
Last Reading	0		
Footage Logged	414		
Depth Reached	415		
Depth Driller	416		
Casing Roke			
Casing Driller			
Fluid Type	AIR / WATER		
Liquid Level	96		
Min. Diam.	4 1/2		
Operating Time	2 HRS		
Truck No.	30		

Recorded By BANKS | Witnessed By TAPLIN

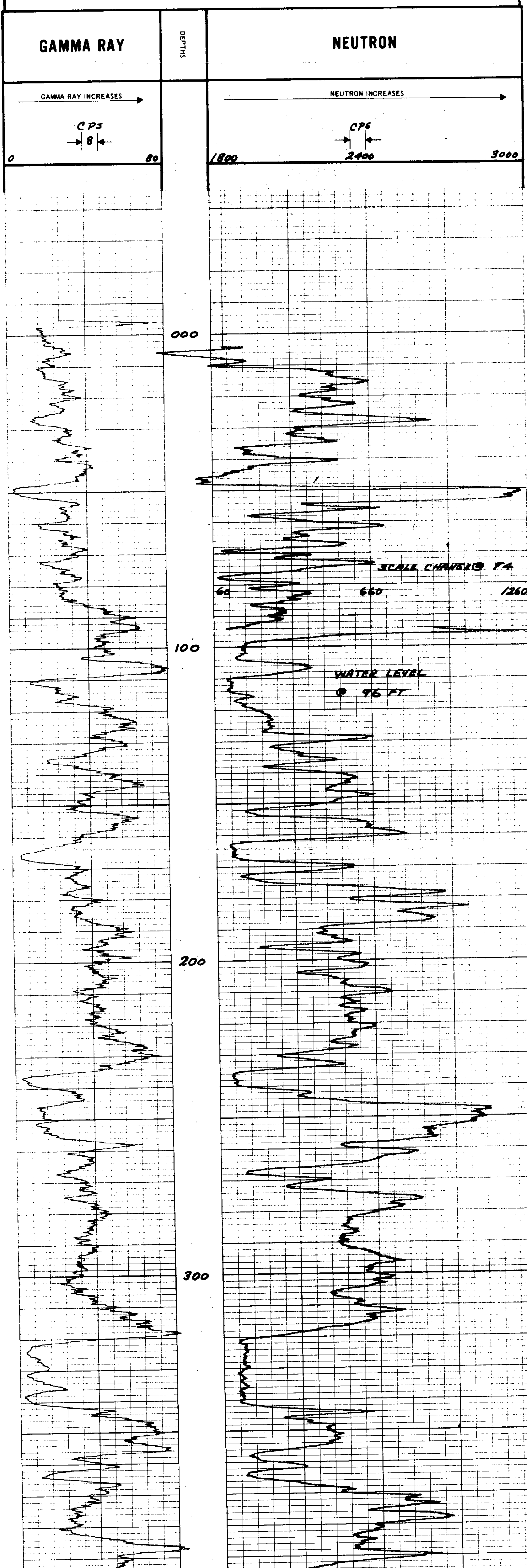
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 3/8	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 3/8
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO	MRC-N-SS-W
		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN 27U4A78	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	API N UNITS PER LOG DIV
1	0	94	10	5	100	0L	8 CPS	3	1000	30L	60 CPS
	94	414	10	5	100	0L	8 CPS	3	1000	1L	60 CPS

REMARKS



K. Fording 71(3)A

ROKE OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

313

FILE NO.	
COMPANY	FORDING COAL LIMITED
WELL	RH 519
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA
LSD / SEC / TWP / RGE / W _ M	
Permanent Datum	GROUND LEVEL
Elev.	
Log Measured from	GROUND LEVEL
Ft. Above Perm. Datum	
Well Depths Measured from	
K.B. / D.F. / G.L.	

Run No.	ONE
Date	18 FEB 71
First Reading	487
Last Reading	0
Footage Logged	487
Depth Reached	488
Depth Driller	
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	13
Min. Diam.	4 1/2
Operating Time	2 HOURS
Truck No.	30
Recorded By	BANKS
Witnessed By	TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1¾	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1¾
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO.	30	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4A78	STRENGTH	7.00×10^6 N/S

LOGGING DATA

RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	GAMMA RAY T.C. SEC.	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV. L OR R	GAMMA RAY API G.R. UNITS PER LOG DIV.	NEUTRON T.C. SEC.	NEUTRON SENS. SETTINGS	NEUTRON ZERO DIV. L OR R	NEUTRON API N. UNITS PER LOG DIV.
1	0	487	10	5	100	0L	8 CPS	3	1000	1L	60 CPS

REMARKS: Hole was originally drilled to approximately 500 feet. Several joints were left in hole after being stuck.

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS 8		CPS 60
0 — 80		60 — 660 — 1260

K - Fording 7(3)?

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	
COMPANY	FORDING COAL LIMITED
WELL	RH 520 — 3/3
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA
LSD / SEC / TWP / RGE / W _ M	

Permanent Datum: GROUND LEVEL Elev. ____ K.B. ____
Log Measured from: GROUND LEVEL ____ Ft. Above Perm. Datum D.F. ____
Well Depths Measured from ____ G.L. ____

Run No.	ONE		
Date	18 FEB 71		
First Reading	523		
Last Reading	0		
Footage Logged	523		
Depth Reached	524		
Depth Driller	526		
Casing Roke			
Casing Driller	60		
Fluid Type	AIR/WATER		
Liquid Level	27		
Min. Diam.	4 1/2		
Operating Time	2 HOURS		
Truck No.	30		
Recorded By	BANKS	Witnessed By	TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{1}{2}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{1}{2}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO.	MRC-N-SS-W
		SERIAL NO.	606
HOIST TRUCK NO.	30	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4A78	STRENGTH	$\times 10^6$ N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	26	10	5	100	0L	8 CPS	3	1000	24L	60 CPS
	26	523	10	5	100	0L	8 CPS	3	1000	1L	60 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS 8		CPS 60
0 — 80		1440 — 2040 — 2640

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. -

COMPANY FORDING COAL LIMITED

WELL RD 521

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

LSD SEC TWP RGE W6 M

313

Permanent Datum GROUND LEVEL
Log Measured from GROUND LEVEL
Drill. Measured from Ft. Above Perm. Datum

Elev.: K.B. D.F. G.L.

Run No.	ONE
Date	2 MARCH 71
Time Reading	543
Time Logged	0
Footage Logged	543
Depth Reached	544
Depth Driller	550
Casing Rdbe	
Casing Driller	
Casing Logged	
Liquid Type	AIR/WATER
Liquid Level	4 1/2
Max. Recorded Temp.	
Min. Datm.	
Operating Time	3 HOURS
Truck No.	10
Recorded By	GUSTAVSON
Witnessed By	TAYLOR

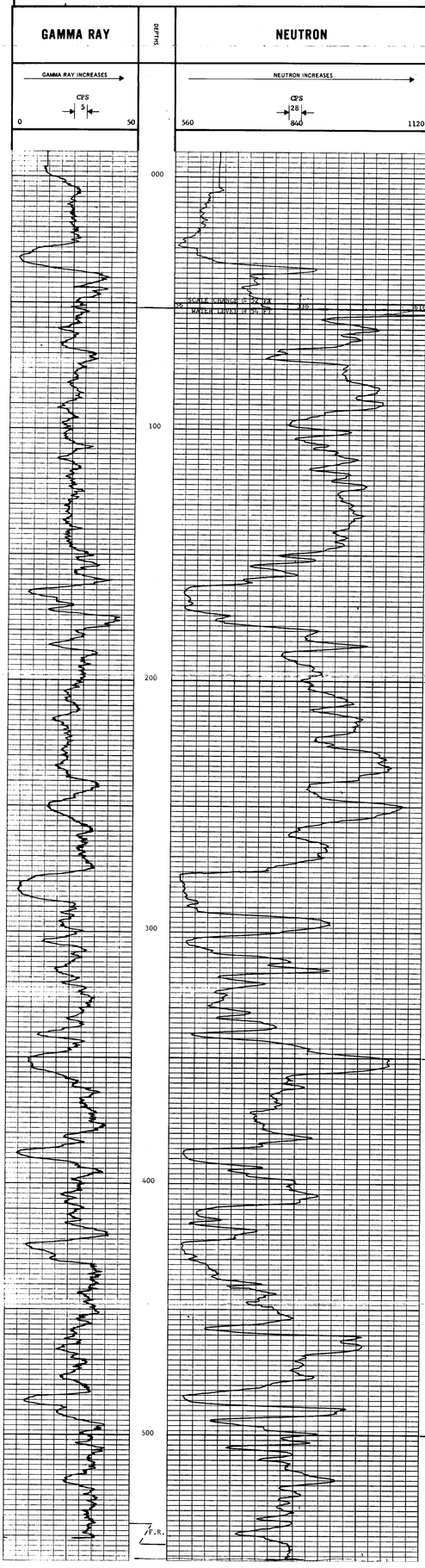
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO.	MRC-N-SS-W
HOIST TRUCK NO.	10	SERIAL NO.	N 256
INSTRUMENT TRUCK NO.		SPACING	19 INCH
TOOL SERIAL NO.	CGN2704CB177	TYPE	AmBe
		STRENGTH	6.94 x 10⁶ N/S

LOGGING DATA

RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	GAMMA RAY T.C. SEC.	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV. L OR R	GAMMA RAY API G.R. UNITS PER LOG DIV.	NEUTRON T.C. SEC.	NEUTRON SENS. SETTINGS	NEUTRON ZERO DIV. L OR R	NEUTRON API N. UNITS PER LOG DIV.
1	0	52	10	4	25	0L	5 CPS	4	4	20L	28 CPS
	52	543	10	4	25	0L	5 CPS	4	4	2L	28 CPS

REMARKS



ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

K- FORDING 71(3)A

313

FILE NO.	
COMPANY	FORDING COAL LIMITED
WELL	RH 522
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA
LSD	
SEC	
TWP	
RGE	
W ___ M	

Permanent Datum GROUND LEVEL Elev. ______ K.B. ______

Log Measured from GROUND LEVEL, ______ Ft. Above Perm. Datum D.F. ______

Well Depths Measured from ______ G.L. ______

Run No.	ONE		
Date	12 MAR 71		
First Reading	558		
Last Reading	0		
Footage Logged	558		
Depth Reached	559		
Depth Driller	560		
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	41		
Min. Diam.	4 1/2		
Operating Time	2 HOURS		
Truck No.	30		

Recorded By SUNDERLAND Witnessed By TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00×10^{6} N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	40	10	5	100	0L	10 CPS	3	1000	20L	80 CPS
	40	558	10	5	100	0L	10 CPS	3	1000	2L	80 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS →|10|←		CPS →|80|←
0 — 100		1600 — 2400 — 3200

K-Forestry 7/(3)A

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ____ M

COMPANY FORDING COAL LIMITED

WELL RH 523

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE **BRITISH COLUMBIA**

313

Permanent Datum GROUND LEVEL Elev. ____ K.B. ____

Log Measured from GROUND LEVEL, ____ Ft. Above Perm. Datum D.F. ____

Well Depths Measured from ____ G.L. ____

Run No.	ONE		
Date	2 MAR 71		
First Reading	296		
Last Reading	0		
Footage Logged	296		
Depth Reached	297		
Depth Driller	300		
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	85		
Min. Diam.	4 1/2		
Operating Time	2 HOURS		
Truck No.	10		
Recorded By	GUSTAVSON	Witnessed By	TAPLIN

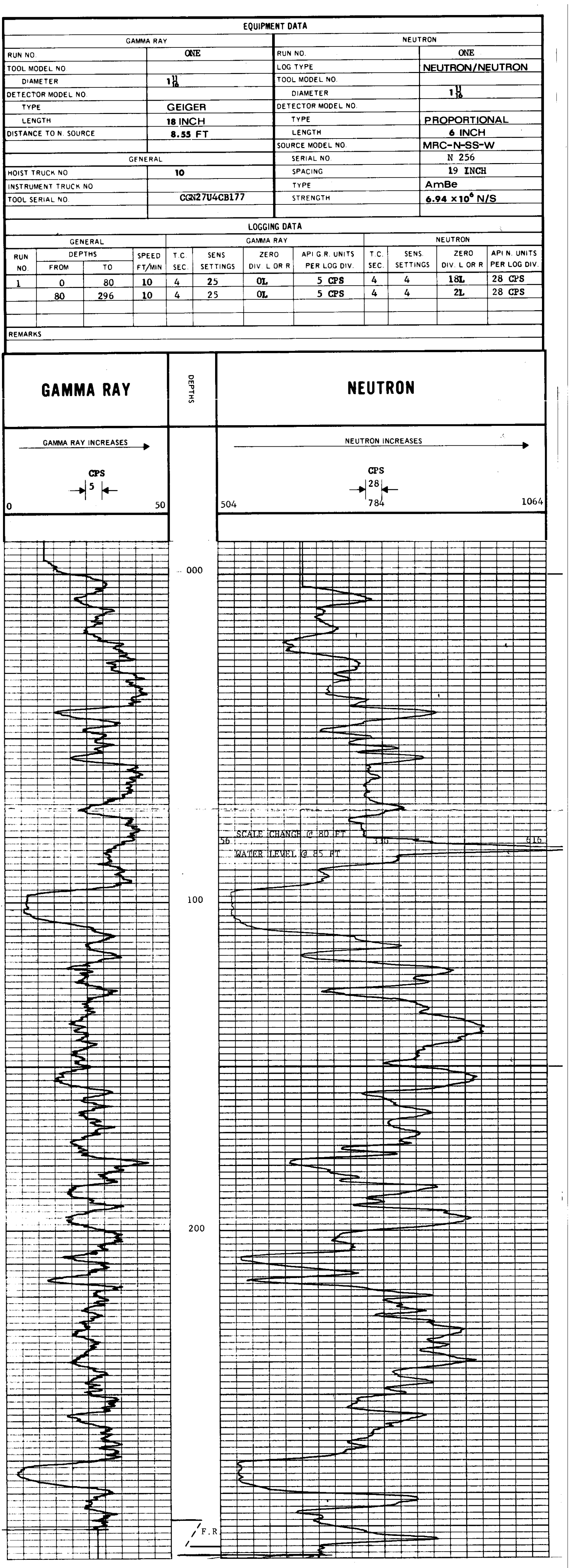
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	N 256
HOIST TRUCK NO	10	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	6.94 x 10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	80	10	4	25	0L	5 CPS	4	4	18L	28 CPS
	80	296	10	4	25	0L	5 CPS	4	4	2L	28 CPS

REMARKS



ROKE

ROKE OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

K-FORDING 71(3)A

FILE NO.	313
LSD	
SEC	
TWP	
RGE	
W_ M	
COMPANY	FORDING COAL LIMITED
WELL	RH 524
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA
Permanent Datum	GROUND LEVEL, Elev.
Log Measured from	GROUND LEVEL, Ft. Above Perm. Datum
Well Depths Measured from	
K.B.	
D.F.	
G.L.	

Run No.	ONE		
Date	8 MARCH 71		
First Reading	556		
Last Reading	0		
Footage Logged	556		
Depth Reached	557		
Depth Driller	570		
Casing Roke			
Casing Driller			
Fluid Type	AIR / WATER		
Liquid Level	102		
Min. Diam.	4½		
Operating Time	3 HRS		
Truck No.'s	10		

Recorded By GUSTAVSON | Witnessed By TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-SS-W
GENERAL		SERIAL NO	N 256
HOIST TRUCK NO	10	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN 27U4CB 177	STRENGTH	$\times 10^6$ N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	100	10	4	25	0L	5 CPS	4	4	18 L	28 CPS
	100	556	10	4	25	0L	5 CPS	4	4	2 L	28 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS →|5|←		CPS →|28|←
0 — 50		504 — 784 — 1064

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ___ M

COMPANY FORDING COAL LIMITED

WELL RH 525

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

313

Permanent Datum GROUND LEVEL — Elev.
Log Measured from GROUND LEVEL — Ft. Above Perm. Datum
Well Depths Measured from GROUND LEVEL

K.B.
D.F.
G.L.

Run No.	ONE
Date	12 MAR 71
First Reading	502
Last Reading	502
Footage Logged	502
Depth Reached	503
Depth Driller	510
Casing Rote	
Casing Driller	
Casing Logged	
Fluid in Hole	
Liquid Level	
Max. Diam.	8½
Min. Diam.	4 1/2
Operating Time	2 HOURS
Truck No.	30

Recorded By SUNDERLAND

Witnessed By TAYLOR

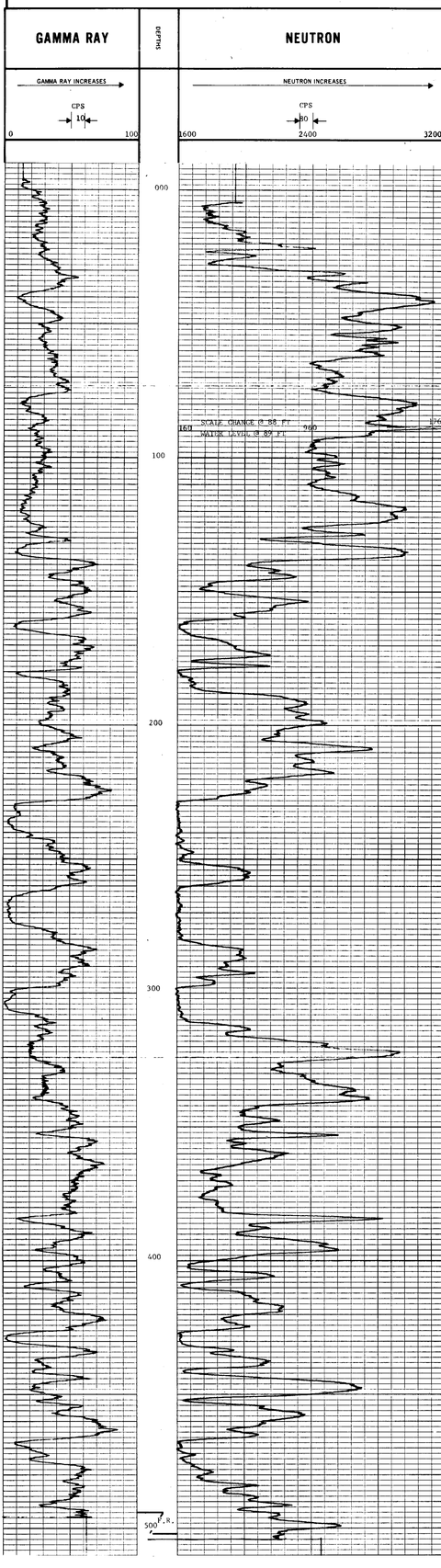
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1¾	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1¾
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO.	30	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CGN2710GB177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/Min	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	88	10	5	100	0L	10 CPS	3	1000	20L	80 CPS
	88	502	10	5	100	0L	10 CPS	3	1000	2L	80 CPS

REMARKS



ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

K - Fording 71(3)A

3/13

FILE NO.	
LSD	
SEC	
TWP	
RGE	
W ___ M	
COMPANY	FORDING COAL LIMITED
WELL	RH 526
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. ___ K.B. ___
Log Measured from GROUND LEVEL ___ Ft. Above Perm. Datum D.F. ___
Well Depths Measured from ___ G.L. ___

Run No.	ONE
Date	11 MAR 71
First Reading	376
Last Reading	0
Footage Logged	376
Depth Reached	377
Depth Driller	380
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	70
Min. Diam.	4 1/2
Operating Time	2 HOURS
Truck No.	30

Recorded By SUNDERLAND Witnessed By TAPLIN

EQUIPMENT DATA

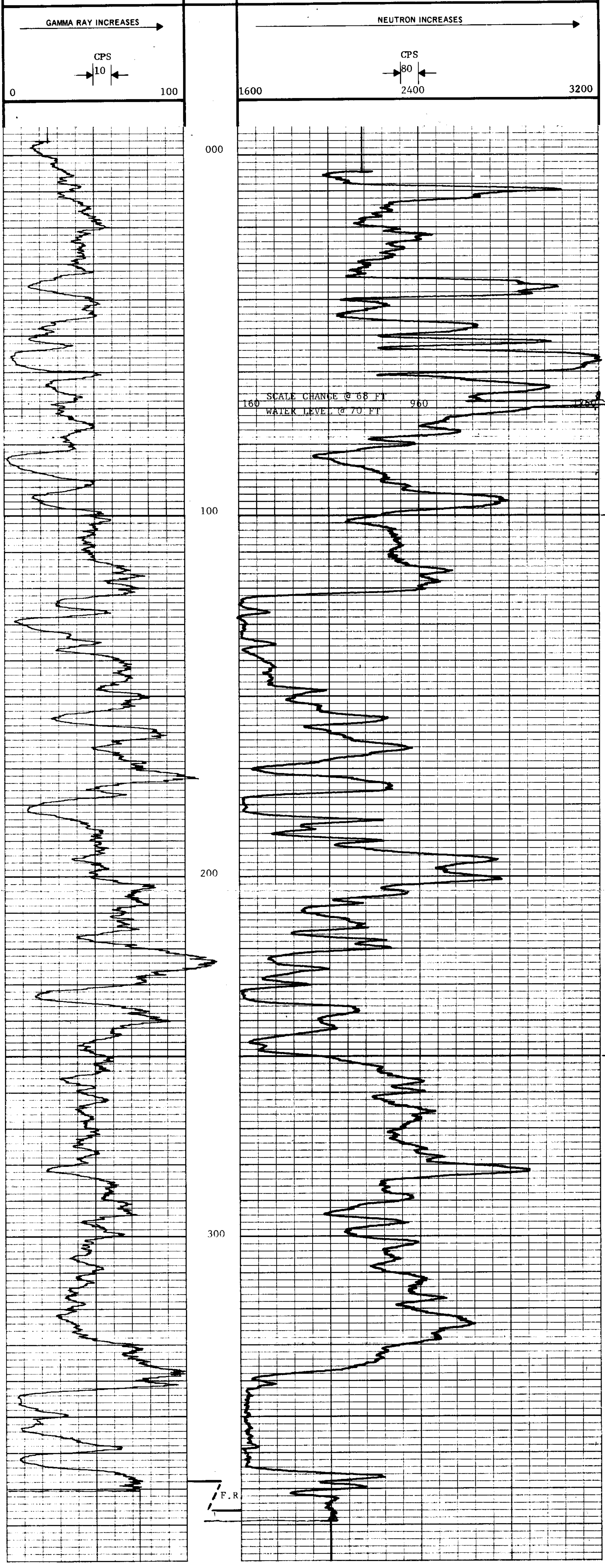
GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	68	10	5	100	0L	10 CPS	3	1000	20L	80 CPS
	68	376	10	5	100	0L	10 CPS	3	1000	2L	80 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON



ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

K-Fording 71(3)A

3/13

FILE NO.	
LSD	
SEC	
TWP	
RGE	
W___M	
COMPANY	FORDING COAL LIMITED
WELL	RH 527
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. ___ K.B. ___
Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F. ___
Well Depths Measured from ___ G.L. ___

Run No.	ONE
Date	12 MAR 71
First Reading	518
Last Reading	0
Footage Logged	518
Depth Reached	519
Depth Driller	540
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	43
Min. Diam.	4 1/2
Operating Time	2 HOURS
Truck No.	30

Recorded By SUNDERLAND | Witnessed By TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	40	10	5	100	0L	10 CPS	3	1000	20L	80 CPS
	40	518	10	5	100	0L	10 CPS	3	1000	2L	80 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS 10		CPS 80
0 — 100		1600 — 2400 — 3200

ROKE OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

K-fording 71(3)A

3/13

FILE NO.

COMPANY	FORDING COAL LIMITED
WELL	RH 528
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA
LSD	
SEC	
TWP	
RGE	
W ___ M	
Permanent Datum	GROUND LEVEL
Elev.	
Log Measured from	GROUND LEVEL
Ft. Above Perm. Datum	
Well Depths Measured from	
K.B.	
D.F.	
G.L.	

Run No.	ONE		
Date	12 MAR 71		
First Reading	580		
Last Reading	0		
Footage Logged	580		
Depth Reached	581		
Depth Driller	590		
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	96		
Min. Diam.	4 1/2		
Operating Time	2 HOURS		
Truck No.	30		

Recorded By BANKS | Witnessed By TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	94	10	5	100	0L	10 CPS	3	1000	20L	80 CPS
	94	580	10	5	100	0L	10 CPS	3	1000	2L	80 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS 10; 0 – 100		CPS 80; 1600 – 2400 – 3200

K-Fording 71(3)A

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

FILE NO.

COMPANY	FORDING COAL LIMITED
WELL	RH 529A
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA

313

LSD
SEC
TWP
RGE
W ___ M

Permanent Datum GROUND LEVEL Elev. 5976.7
Log Measured from GROUND LEVEL ___ Ft. Above Perm. Datum
Well Depths Measured from ___
K.B. ___
D.F. ___
G.L. ___

Run No.	ONE		
Date	8 APRIL 71		
First Reading	207		
Last Reading	0		
Footage Logged	207		
Depth Reached	208		
Depth Driller	230		
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	77		
Min. Diam.			
Operating Time	1 HOUR		
Truck No.	30		
Recorded By	BANKS	Witnessed By	TAPLIN

EQUIPMENT DATA

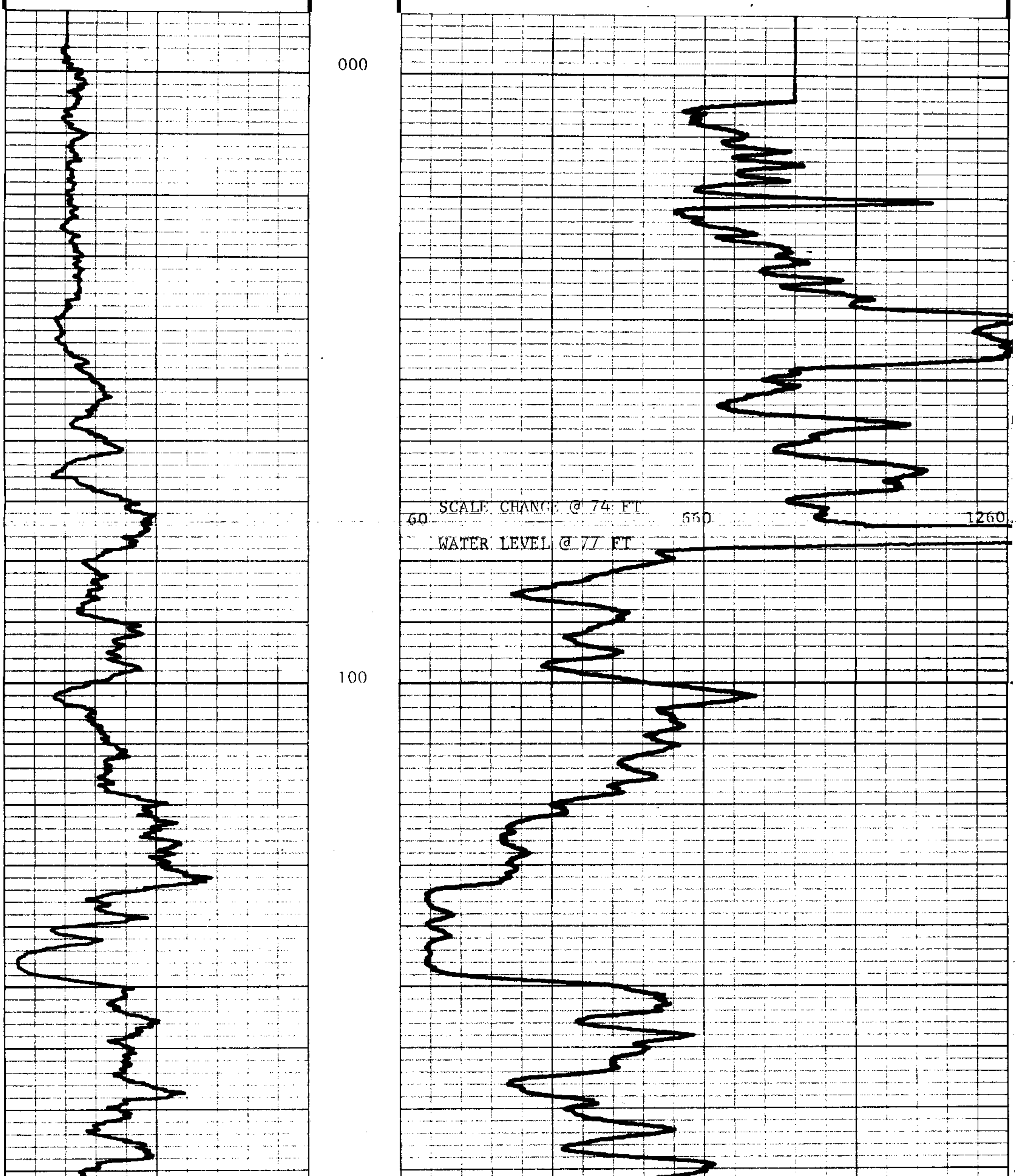
GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	74	10	5	100	0	10 CPS	3	1000	12L	60 CPS
	74	207	10	5	100	0	10 CPS	3	1000	1L	60 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES → CPS 10 (0–100)		NEUTRON INCREASES → CPS 60 (720 – 1320 – 1920)



K-Foreste 21639

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ____ M

COMPANY FORDING COAL LIMITED

WELL RH 530

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

313

Permanent Datum GROUND LEVEL Elev. ____

Log Measured from GROUND LEVEL, ____ Ft. Above Perm. Datum

Well Depths Measured from ____

K.B. ____
D.F. ____
G.L. ____

Run No.	ONE									
Date	8 APRIL 71									
First Reading	231									
Last Reading	0									
Footage Logged	231									
Depth Reached	232									
Depth Driller	260									
Casing Roke										
Casing Driller										
Fluid Type	AIR/WATER									
Liquid Level	37									
Min. Diam.										
Operating Time	2 HOURS									
Truck No.	30									
Recorded By	BANKS	Witnessed By	TAPLIN							

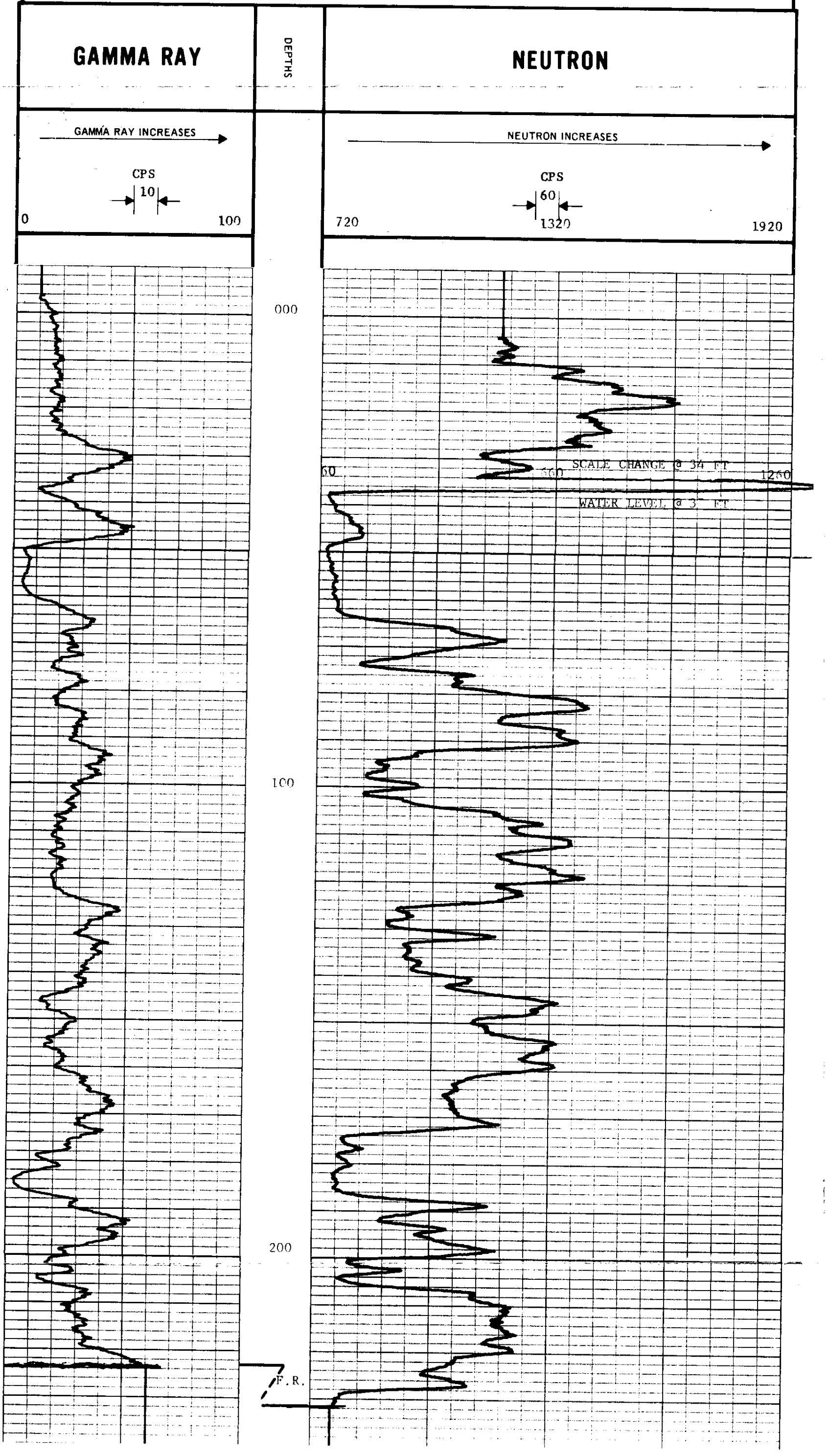
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00 x 10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV L OR R	API G.R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	34	10	5	100	0	10 CPS	3	1000	12L	60 CPS
	34	231	10	5	100	0	10 CPS	3	1000	1L	60 CPS

REMARKS



K - Fording 71(3)A

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. 313

LSD / SEC / TWP / RGE / W _ M	COMPANY: FORDING COAL LIMITED
	WELL: RH 531
	LOCATION: GREENHILLS
	FIELD: FORDING RIVER
	PROVINCE: BRITISH COLUMBIA

Permanent Datum: GROUND LEVEL	Elev.	K.B.
Log Measured from: GROUND LEVEL	Ft. Above Perm. Datum	D.F.
Well Depths Measured from		G.L.

Run No	ONE
Date	22 APRIL 71
First Reading	269
Last Reading	0
Footage Logged	269
Depth Reached	270
Depth Driller	270
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	69
Min. Diam	
Operating Time	1 HR
Truck No	30
Recorded By	BANKS
Witnessed By	TAPLIN

EQUIPMENT DATA

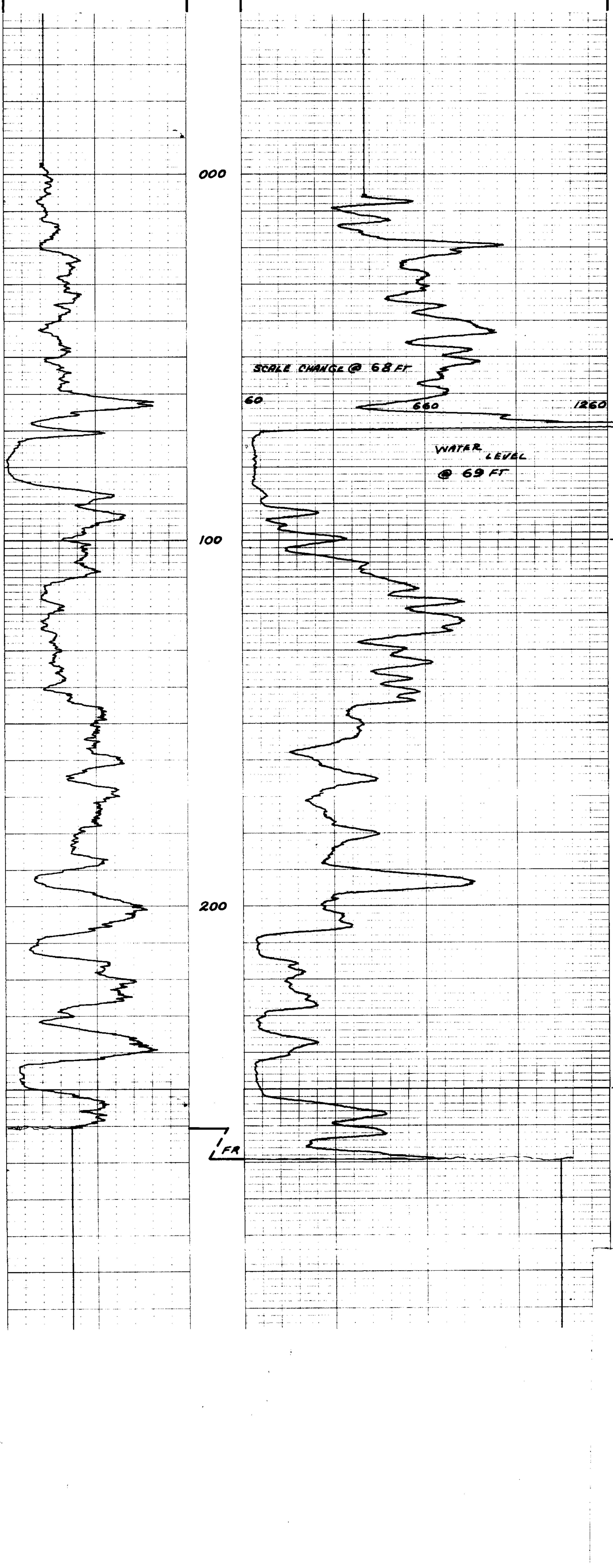
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN27U4CB 177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON				
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV	
1	0	68	11	5	50	0	7 CPS	3	1000	14L	60 CPS	
	68	269	11	5	50	0	7 CPS	3	1000	1L	60 CPS	

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS →7←		CPS →60←
0 — 70		840 — 1440 — 2040



K - FORDING 71(3)A

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	
COMPANY	FORDING COAL LIMITED
WELL	RH 532
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA
LSD / SEC / TWP / RGE / W M	

313

Permanent Datum	GROUND LEVEL	Elev.
Log Measured from	GROUND LEVEL	Ft. Above Perm. Datum
Well Depths Measured from		
K.B.		
D.F.		
G.L.		

Run No.	ONE
Date	22 APRIL 71
First Reading	257
Last Reading	0
Footage Logged	257
Depth Reached	258
Depth Driller	270
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	158
Min. Diam.	
Operating Time	2 HRS
Truck No.	30
Recorded By	BANKS
Witnessed By	TAPLIN

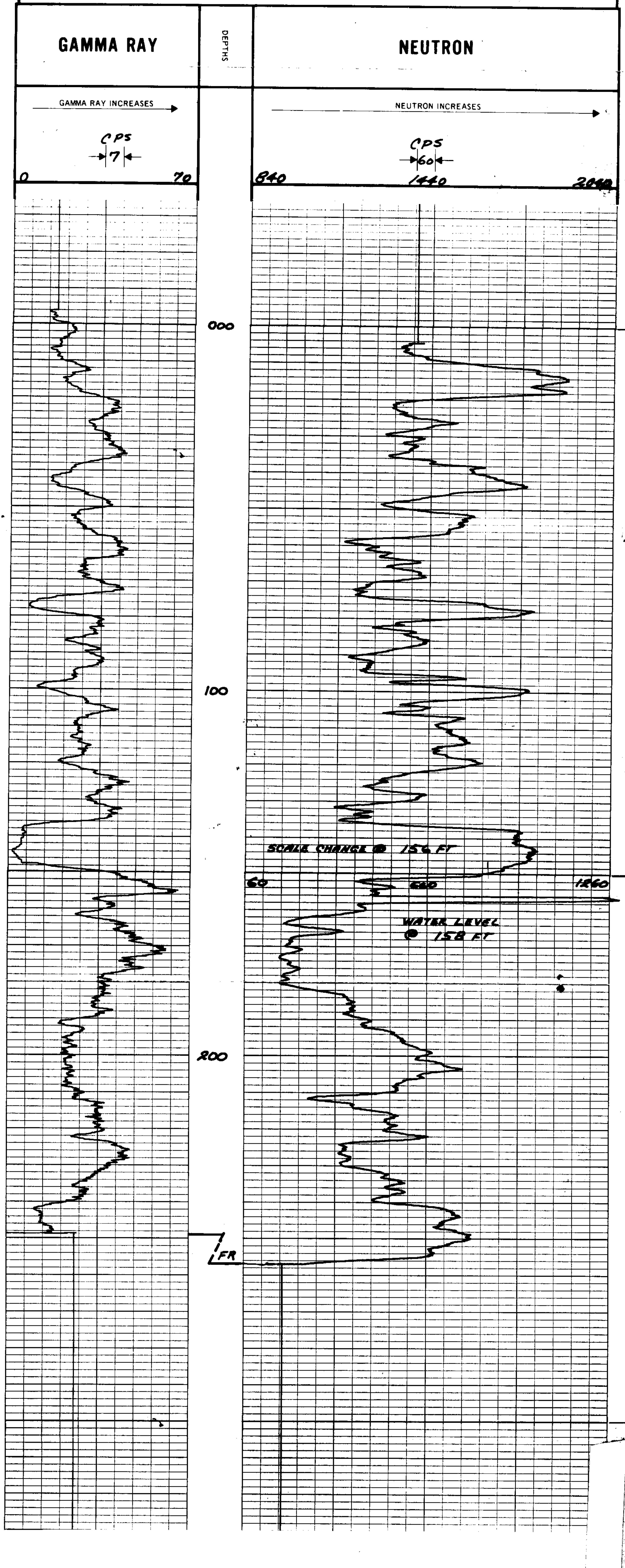
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO	MRC-N-SS-W
HOIST TRUCK NO	30	SERIAL NO	606
INSTRUMENT TRUCK NO		SPACING	19 INCH
TOOL SERIAL NO	CGN 27U4CB 177	TYPE	AmBe
		STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV
1	0	156	11	5	50	0	7 CPS	3	1000	14L	60 CPS
	156	257	11	5	50	0	7 CPS	3	1000	1L	60 CPS

REMARKS



ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

K-FORDING 71(3)

FILE NO.	
COMPANY	FORDING COAL LIMITED
WELL	RH 533
LOCATION	GREENHILLS
LSD / SEC / TWP / RGE / W	M
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA

313

Permanent Datum	GROUND LEVEL	Elev.
Log Measured from	GROUND LEVEL	Ft. Above Perm. Datum
Well Depths Measured from		K.B. / D.F. / G.L.

Run No.	ONE	
Date	22 APRIL 71	
First Reading	178	
Last Reading	0	
Footage Logged	178	
Depth Reached	180	
Depth Driller	180	
Casing Roke		
Casing Driller		
Fluid Type	AIR/WATER	
Liquid Level	85	
Min. Diam.		
Operating Time	1 HR	
Truck No.	30	
Recorded By	BANKS	
Witnessed By	TARLIN	

EQUIPMENT DATA

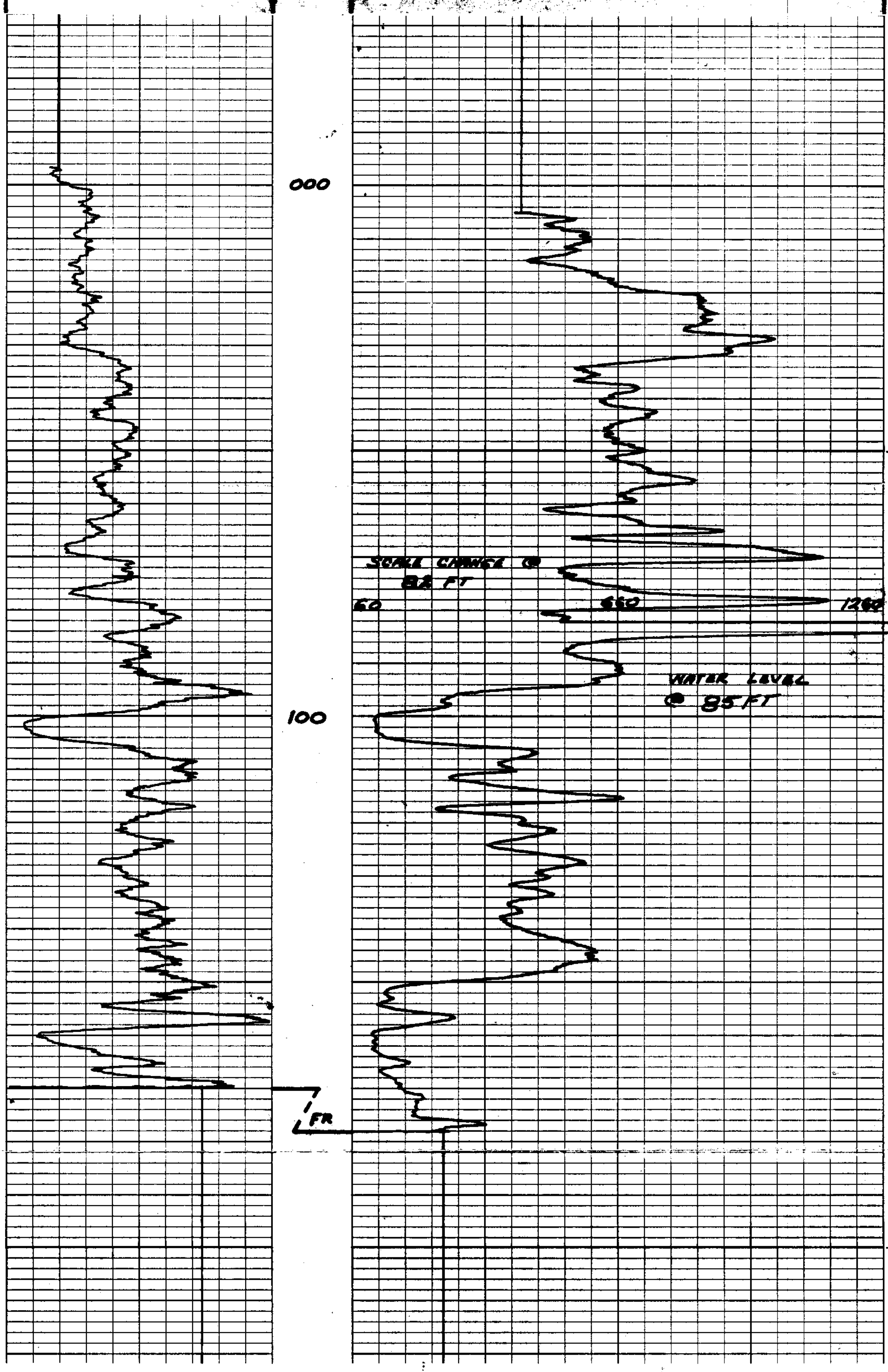
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN 27U4CB 177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C SEC.	SENS SETTINGS	ZERO DIV L OR R	API G.R. UNITS PER LOG DIV	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV
1	0	82	11	5	50	0	7 CPS	3	1000	14 L	60 CPS
	82	178	11	5	50	0	7 CPS	3	1000	14 L	60 CPS

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS 7		CPS 60
0 — 70		800 — 1440 — 2040



K-forcing 71/30

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ___ M

COMPANY FORDING COAL LIMITED

WELL RH 534

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

313

Permanent Datum GROUND LEVEL Elev. ____ K.B. ____

Log Measured from GROUND LEVEL, ____ Ft. Above Perm. Datum D.F. ____

Well Depths Measured from ____ G.L. ____

Run No.	ONE									
Date	22 APRIL 71									
First Reading	228									
Last Reading	0									
Footage Logged	228									
Depth Reached	229									
Depth Driller	230									
Casing Rake										
Casing Driller										
Fluid Type	AIR/WATER									
Liquid Level	131									
Min Diam.										
Operating Time	3 HOURS									
Truck No.	30									
Recorded By	BANKS	Witnessed By	TAPLIN							

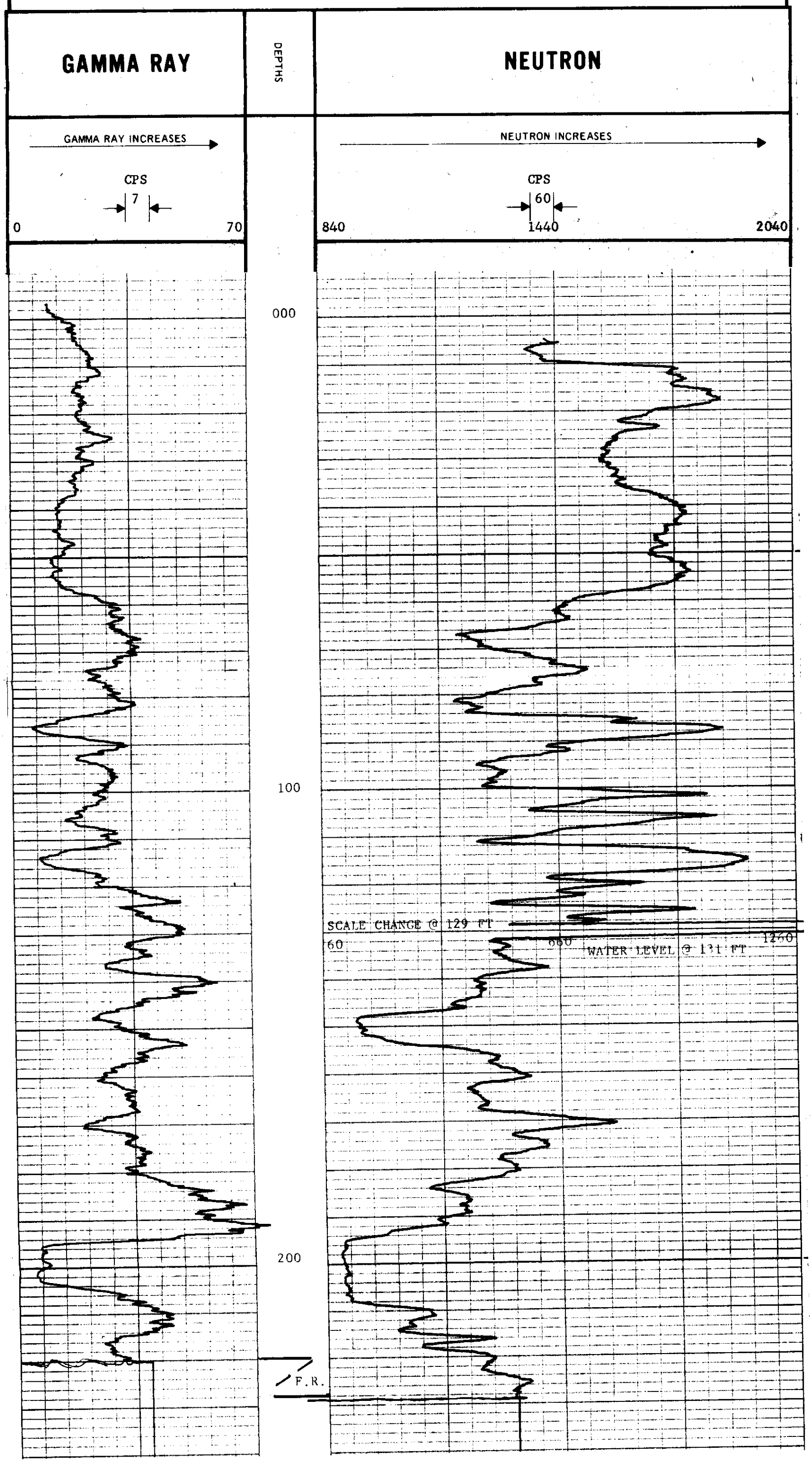
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN27U4CB177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C SEC	SENS SETTINGS	ZERO DIV L OR R	API G R UNITS PER LOG DIV	T.C SEC	SENS. SETTINGS	ZERO DIV L OR R	API N. UNITS PER LOG DIV.
1	0	129	10	5	50	0	7 CPS	3	1000	14L	60 CPS
	129	228	10	5	50	0	7 CPS	3	1000	1L	60 CPS

REMARKS



K-Fording 71(3)A

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

FILE NO	313
LSD	
SEC	
TWP	
RGE	
W__ M	
COMPANY	FORDING COAL LIMITED
WELL	RH 536A
LOCATION	GREENHILLS
FIELD	FORDING RIVER
PROVINCE	BRITISH COLUMBIA
Permanent Datum	GROUND LEVEL
Elev.	
Log Measured from	GROUND LEVEL
Ft. Above Perm. Datum	
Well Depths Measured from	
K.B.	
D.F.	
G.L.	

Run No.	ONE
Date	28 JULY 71
First Reading	217
Last Reading	0
Footage Logged	217
Depth Reached	218
Depth Driller	220
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	25'
Min. Diam.	4 1/2
Operating Time	2 HRS
Truck No.	30
Recorded By	S/M
Witnessed By	TAPLIN

EQUIPMENT DATA

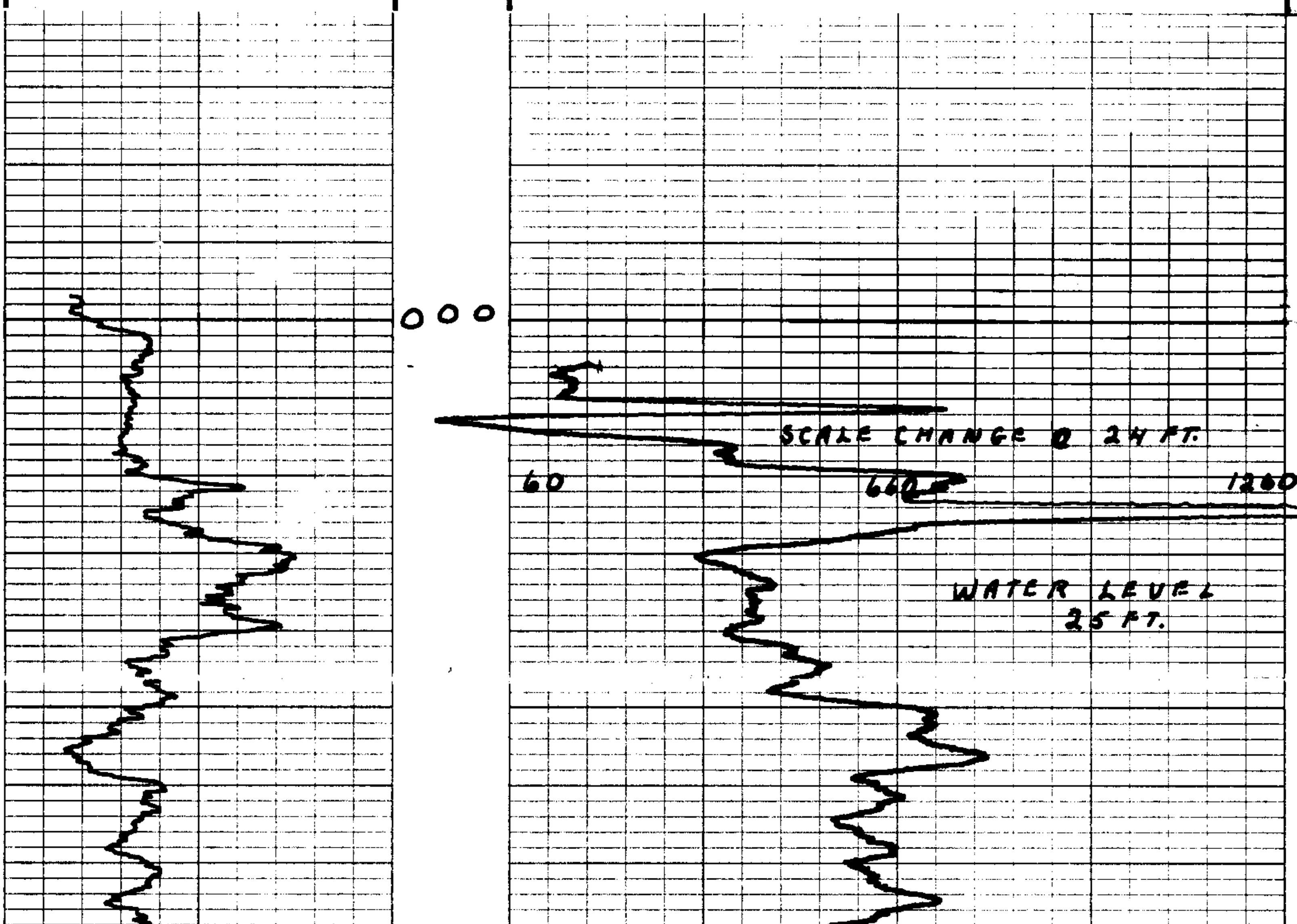
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CENATUHCB 177	STRENGTH	7.00×10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G.R. UNITS PER LOG DIV	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	24	11	5	50	0 L	4 CPS	3	1000	18 L	60
	24	217	11	5	50	0 L	4 CPS	3	1000	1 L	60

REMARKS

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
CPS 4		CPS 60
0 — 40		1080 — 1680 — 2280



K-FORDING 71/3A

ROKE

SIDEWALL DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ___ M

COMPANY FORDING COAL LIMITED

WELL RH 543

LOCATION GREENHILLS 313

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. ____
Log Measured from GROUND LEVEL Ft. Above Perm. Datum
Well Depths Measured from ____

K.B. ____
D.F. ____
G.L. ____

Run No	ONE		
Date	4 AUGUST 71		
First Reading	235		
Last Reading	0		
Footage Logged	235		
Depth Reached	238		
Depth Driller			
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level			
Min. Diam.	4 1/2		
Operating Time	1 HOUR		
Truck No.	30		

Recorded By SIM

Witnessed By TAPLIN

REMARKS

DENSITY — COUNTS PER SECOND — CPS 300 | 3000 — 0 — 6000

DEPTHS — 000 — 100 — 200 — F. R.

CALIPER — HOLE DIAMETER (INCHES)

K-FORDING 71/3A

ROKE

SIDEWALL DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. 313

LSD
SEC
TWP
RGE
W ____ M

COMPANY FORDING COAL LIMITED

WELL RH 544

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. ____ K.B. ____

Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F. ____

Well Depths Measured from ____ G.L. ____

Run No.	ONE		
Date	4 AUGUST 71		
First Reading	228		
Last Reading	0		
Footage Logged	228		
Depth Reached	231		
Depth Driller			
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level			
Min. Diam.	4 1/2		
Operating Time	1 1/2 HOURS		
Truck No.	30		

Recorded By SIM Witnessed By TAPLIN

REMARKS

DENSITY

COUNTS PER SECOND

CPS 300 | 3000

0

6000

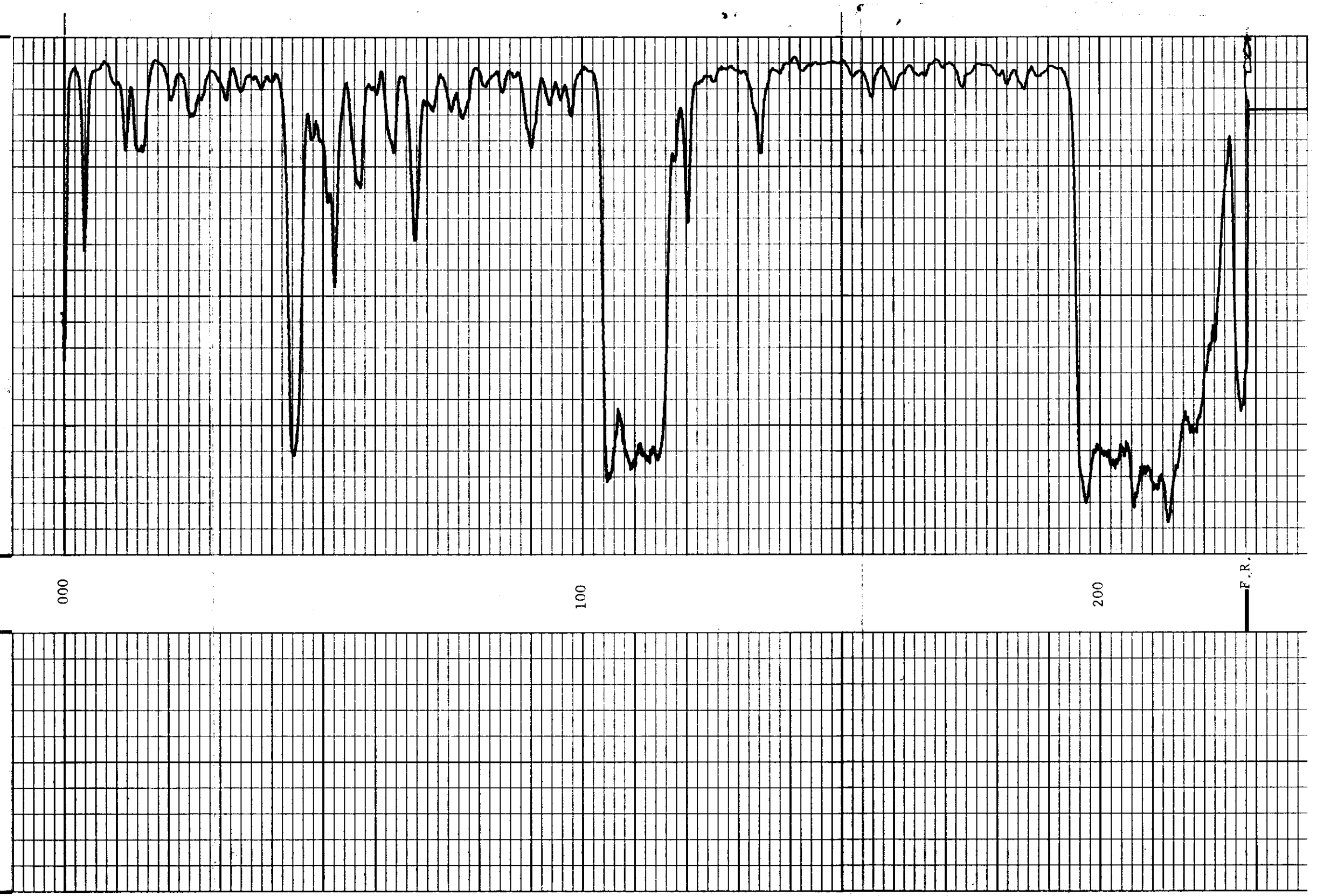
DEPTHS

000 100 200

F.P.R.

CALIPER

HOLE DIAMETER (INCHES)



K-Fording River 71(3)A

ROKE

GAMMA RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.		**COMPANY**	FORDING COAL LIMITED
LSD		**WELL**	RH 545
SEC		**LOCATION**	GREENHILLS
TWP		**FIELD**	FORDING RIVER
RGE		**PROVINCE**	BRITISH COLUMBIA
W ____ M			

313

Permanent Datum GROUND LEVEL Elev. ____ K.B. ____
Log Measured from GROUND LEVEL ____ Ft. Above Perm. Datum D.F. ____
Well Depths Measured from ____ G.L. ____

Run No.	ONE										
Date	5 AUGUST 71										
First Reading	215										
Last Reading	0										
Footage Logged	215										
Depth Reached	216										
Depth Driller	265										
Casing Rote											
Casing Driller											
Fluid Type	WATER										
Liquid Level	10										
Mn. Diam.	4 1/2										
Operating Time	4 HOURS										
Truck No.	30										
Recorded By	SIM	Witnessed By	TAPLIN								

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO.	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00 x 10^6 N/S

LOGGING DATA

RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	GAMMA RAY T.C. SEC.	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV. L OR R	GAMMA RAY API G R UNITS PER LOG DIV.	NEUTRON T.C. SEC.	NEUTRON SENS. SETTINGS	NEUTRON ZERO DIV. L OR R	NEUTRON API N. UNITS PER LOG DIV.
1	0	215	11	5	100	0	5 CPS	3	1000	1L	60 CPS

REMARKS

K-Fording 7/(3)A

ROKE

GAMMA RAY NEUTRON LOG

DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. 313

LSD
SEC
TWP
RGE
W ____ M

COMPANY FORDING COAL LIMITED

WELL RH 546

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. K.B.
Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F.
Well Depths Measured from G.L.

Run No.	ONE		
Date	10 AUGUST 71		
First Reading	321		
Last Reading	0		
Footage Logged	321		
Depth Reached	322		
Depth Driller	325		
Casing Roke			
Casing Driller			
Fluid Type	WATER		
Liquid Level	FULL		
Min. Diam.	4 1/2		
Operating Time	2 1/2 HOURS		
Truck No.	30		

Recorded By SIM Witnessed By TAPLIN

EQUIPMENT DATA

	GAMMA RAY	NEUTRON
RUN NO	ONE	ONE
LOG TYPE		NEUTRON/NEUTRON
TOOL MODEL NO		
DIAMETER	1 11/16	1 11/16
DETECTOR MODEL NO		
TYPE	GEIGER	PROPORTIONAL
LENGTH	18 INCH	6 INCH
DISTANCE TO N. SOURCE	8.55 FT	MRC-N-SS-W
SOURCE MODEL NO		606
SERIAL NO		19 INCH
SPACING		AmBe
TYPE		7.00 x 10⁶ N/S
STRENGTH	CGN27104CB177	

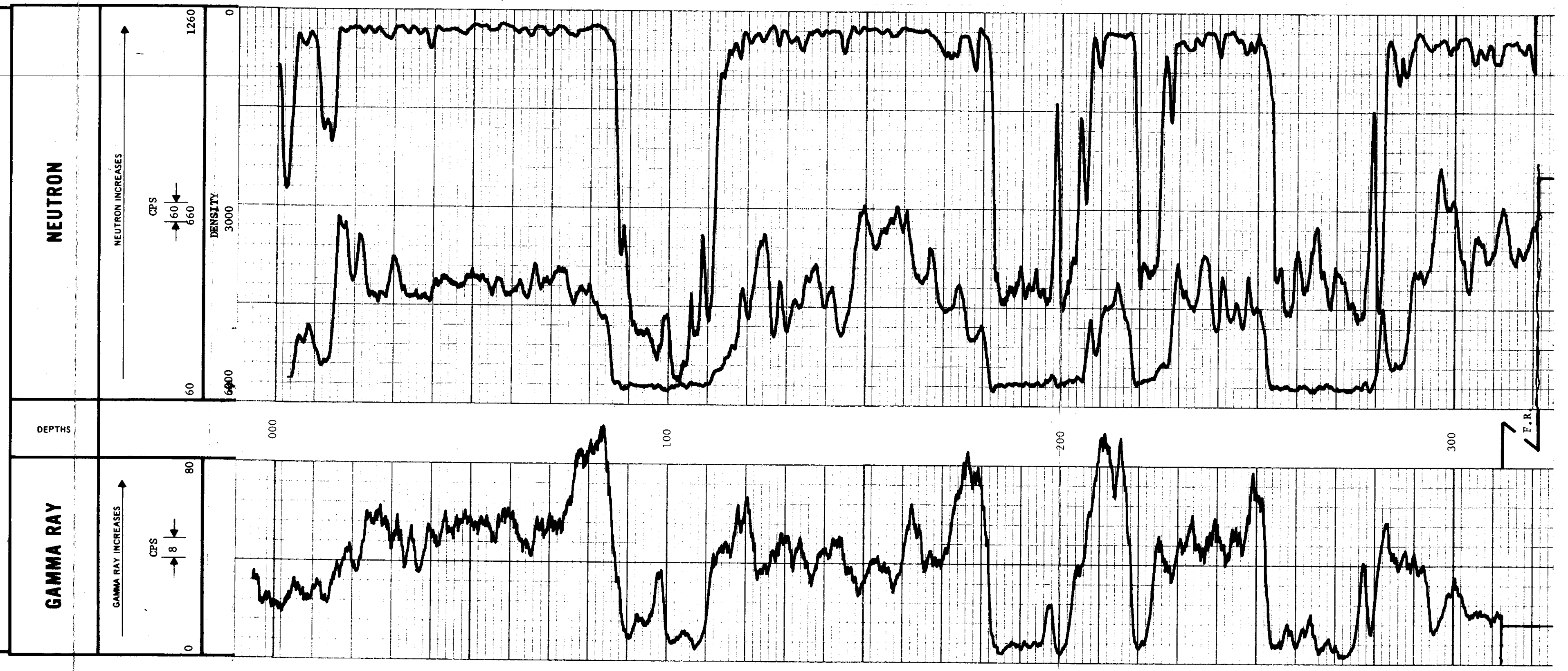
GENERAL

HOIST TRUCK NO 30
INSTRUMENT TRUCK NO
TOOL SERIAL NO

LOGGING DATA

RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T C SEC	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV L OR R	GAMMA RAY API G R UNITS PER LOG DIV	NEUTRON T C SEC	NEUTRON SENS SETTINGS	NEUTRON ZERO DIV L OR R	NEUTRON API N UNITS PER LOG DIV
1	0	321	11	5	100	OL	8 CPS	3	1000	1L	60 CPS

REMARKS



K-Forcing 7/(3)A

ROKE

GAMMA RAY NEUTRON LOG

DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

LSD
SEC
TWP
RGE
W ___ M

COMPANY FORDING COAL LIMITED

WELL RH 546

LOCATION GREENHILLS

FIELD FORDING RIVER

PROVINCE BRITISH COLUMBIA

313

Permanent Datum GROUND LEVEL Elev. ____ K.B. ____

Log Measured from GROUND LEVEL Ft. Above Perm. Datum D.F. ____

Well Depths Measured from ____ G.L. ____

Run No.	ONE		
Date	10 AUGUST 71		
First Reading	321		
Last Reading	0		
Footage Logged	321		
Depth Reached	322		
Depth Driller	325		
Casing Rake			
Casing Driller			
Fluid Type	WATER		
Liquid Level	FULL		
Min. Diam.	4 1/2		
Operating Time	2 1/2 HOURS		
Truck No.	30		
Recorded By	SIM	**Witnessed By**	TAPLIN

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO	606
HOIST TRUCK NO	30	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO.	CGN27U4CB177	STRENGTH	7.00 x 10^6 N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G R. UNITS PER LOG DIV.	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	0	321	11	5	100	0L	8 CPS	3	1000	1L	60 CPS

REMARKS

Diamond Drill Geological Log

Cominco

K-Forcing 7.(3)A

M. & M. Drilling

Objective:

Logged By: Date: March 12, 1971

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard:	Reason:
			Intersections taken from radiation log
0	20	Overburden	20 ft. asing left in hole
20	50	Shale	
50	78	Coal	Seam B
78	105	Shale	
			End of hole March 13, 1971

Core Size $4\frac{1}{2}$"

Hole No. RH197 Page 1

2507—N.D.N.

Diamond Drill Geological Log

K. Frosink 71(3)A

Cominco

Drilled by M. & M. Drilling (January 1971)

Objective:

Sampled:

Logged By: A.J.B. Date: October 7, 1971

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
EL. 6162.7		Eagle Mountain			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
0	40	Overburden (?)	Intersections taken from Gamma-Neutron Log.
40	50	Sandstone	
50	58	Shale and/or mudstone	
58	61	Coal (dirty)	Seam 2(3 ft.)
61	64	Shale and/or mudstone	
64	74	Sandy mudstone grading into a mudstone	
74	80	Coal (moderately clean)	
80	331	Sandstone; the basal sandstone. Water level at 102 ft.	
331	338	Fault plane, characterized by low gamma-neutron reading. Possibly with coal and badly broken material.	
338	368	Sandstone with shaley inter beds	
368	386	Shale and/or mudstone with sandy interval from 376-378	
386	410	Mainly sandstone. 3 shaley units 389-391, 394-396, 400-402.	
410	459	Coal: 410-414 moderately clean, 426-432 moderately clean)	
		414-418 clean 432-444 clean)	
		418-422 moderately clean 444-446 moderately clean) Seam 4 (49 ft.)	
		422-426 clean)	
		Shale 446-450)	
		Coal 450-454 dirty coal)	
		454-455 moderately clean) Seam 4 (49 ft.)	
		455-458 clean)	
		458-459 dirty coal)	

Core Size 4½"

Hole No. RH 312A

Page 1

2507—N.D.N.

Diamond Drill Geological Log

Drilled by M&M Drilling

K - Forcing 71(3)a

Objective:

Sampled:

[redacted]

Logged By:

Date: Oct. 7, 1971

Composites:

40 Scale

Color Plot & Dips | Ore Classes & Aver.

Block: | Sect.: | Place: Eagle Mountain | App. Bear: | App.: Dip.: | Length:

From	To	Discard: Reason:
459	480	Shale and/or mudstone
480	530	Sandstone
530	550	Sandy-mudstone
		End of hole 550

Core Size $4\frac{1}{2}$"

Hole No. 312 A

Page 2

2507—N.D.N.

Diamond Drill Geological Log

Cominco

K- Groink 71(3)A

Drilled by M&M Drilling (Jan. 1971)

Objective:

Sampled:

Logged By: AJB Date: Oct. 8, 1971

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Eagle Mountain		-90°	450'

From	To	Discard:	Reason:
		*Log made from Gamma-Neutron	
0	16	Overburden(?) Water table at 16 ft.	
16	50	Shale and/or mudstone	
50	56	Coal-high ash)	
56	62	Shale and/or mustone) Seam 7	
62	84	Coal-relatively clean)	
84	104	Probably muostone- siltstone combination	
104	107	Carbonaceous fine grained sediments	
107	110	Sandy mudstone-approximately siltstone	
110	112	Coal high ash Seam 5(Upper)	
112	125	Silty mudstone	
125	133	Carbonaceous mudstone	
133	145	Course grained siltstone	
145	150	Mudstone,grading into carbonaceous mudstone when nearing 150' depth.	
150	165	Coal: 150-152-high ash	
		152-157-moderate ash Seam 5 (lower)	
		157-163-low ash	
		163-165-moderate to high ash	
165	172	silty mudstone	
172	210	mudstone or broken material. The thrust fault at approximately 195'	
210	240	siltstone	
240	272	sandstone	
272	276	siltstone or possibly broken ground	

Core Size
4½ inches

Hole No.
R.H. 313

Page 1

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

2507—N.D.N.

Diamond Drill Geological Log

Drilled by M&M Drilling (January 1971)

Cominco

40 Scale

Color Plot & Dips | Ore Classes & Aver.

Objective:

Sampled:

Logged By: AJB Date: October 8, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Eagle Mountain			

From	To	Discard: Reason:
276	288	Carbonaceous siltstone
288	393	Mudstone and siltstone
393	397	Coal - high ash — Upper part of Seam 7
397	408	Mudstone to siltstone
408	426	Siltstone
426	445	Mudstone and/or shale
445	450	?
		Depth of hole = 450'

Core Size

4½ inches

Hole No. R.H. 313

2507—N.D.N.

Diamond Drill Geological Log

Cominco

K- Forcing 71(3)A

M. & M. Drilling

Objective:

Sampled:

Logged By:

Date: March 10, 1971

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Clode Creek			

Reason: Intersections taken from radiation log

From	To	Discard:
0	8	Overburden 20.5 ft. casing left in hole
8	30	Sandstone
30	46	Shale
46	102	Sandstone
102	104	Coal
104	110	Sandstone
110	130	Shale
130	140	Sandstone
140	144	Shale
144	150	Sandstone
150	160	Shale
160	240	Sandstone
240	254	Shale
254	290	Coal Parting 280.0'
290	294	Shale
294	323	Sandstone
		End hole March 12, 1971

Core Size $4\frac{1}{2}$

Hole No. RH314

Page 1

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

2507—N.D.N.

Diamond Drill Geological Log

K- FORDING 71(3)A

Garritty and Baker Drilling

Objective:

Logged By: Date: March 24/71

Sampled:

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Clode Creek			

From	To	Discard:	Reason:
0	5	Overburden	5' casing left in hole
5	125	Sandstone	
125	134.5	Shale	
134.5	169	Coal	Shale parting 162.5 - 163.0 (.5) 164.0 - 165.0 (1.0) shaly coal
169	180	Shale	
		End hole March 25/71	

40 Scale

Color Plot & Dips | Ore Cl[illegible] & Aver.

0

60°

30°

Core Size: 4 3/4

Hole No.: RH 315

Page: 1

2507—N.D.N.

K - FEEDING 71(3)A

DIAMOND DRILL SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET		WIDTH	M	A	VM	FC	FSI	S	REMARKS
134.5	169.0	Raw Coal				34.5	0.9	18.8	20.0	60.3	7,6½,6½	0.44	
		Clean Coal					0.2	8.5	21.8	69.5	7½,7,7	0.50	Recovery 84.9%

Page No. 1 Hole No. 315

Diamond Drill Geological Log

K - FORCING 71(3)A

[redacted] [redacted]

Garitty & Baker

Objective:

Sampled:

Composites:

Logged By:

Date: March 26/71

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Clode Creek			

From	To	Discard:	Reason:
0	27	Overburden	31 ft. casing left in hole
27	170	Sandstone	
170	173	Shale	
173	211	Sandstone	
211	244	Coal	239.0 - 241.0 shale (2.0) 241.0 - 244.0 carb shale (3.0) 5.0 parting
244	246	Carbonaceous shale	
246	254	Sandstone	
			End of hole

40 Scale

Color Plot & Dips

Ore Classes & Aver.

0

Core Size 4 3/4

Hole No. RH316

Page

2507—N.D.N.

K- FORDING 71(3)A

313

DIAMOND DRILL SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET		WIDTH	M	A	VM	FC	FSI	S	REMARKS
211.0	244.0	Raw Coal				33.0	1.1	23.5	19.1	56.3	6½,6½,6	0.47	
		Clean Coal					0.6	11.9	21.5	66.0	6½,6½,6½	0.50	Recovery 68.8%

Page No. 1 Hole No. 316

Diamond Drill Geological Log

K - FORDING 71(3)A

Cominco

Garitty Baker Drilling

Objective:

Logged By: Date: March 29, 1971

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Clode Creek			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard:	Reason:
0	25	Clay and rocks (overburden)	
25	40	Sandstone	
40	205	Sandstone	
205	230	Shale	
230		Coal	lost core barrel
		End hole March 31/71	

Core Size 4 3/4

Hole No. 317

Page 1

2507—N.D.M.

K-Forcing 71(3)A

Diamond Drill Geological Log

Garitty Baker Drilling

Cominco

[redacted]

Objective:

Logged By: Date: April 6/71

Sampled:

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Clode Creek			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
0	5	Overburden	5' Casing left in hole
5	96	Shale and sandstone	
96	98	Coal	
98	185	Shale	
185	189	Coal	Slicken sided powdered shale and coal 14% recovery
189	200	Sandstone	
200	208	Coal	205.5 to 208 Shale 50% recovery
208	250	Shale and sandstone	
		End hole April 7/71	

Core Size $4\frac{1}{2}$"

Hole No. RH318

Page 1

2507—N.D.N.

K - FORGING 71(3)A

Diamond Drill Geological Log

Cominco

Garrity & Baker

Objective:

Sampled: [redacted]

Logged By: R.B. Allan Date: July 30/71

Composites: Not sampled - Single wall pipe

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Clode - Repeat			

Discard: Reason: Intersections taken from Radiation Log

From	To	
0	13	Overburden
13	30	Shale
30	39	Sandy Shale
39	42	Coal
42	62	Shale
62	66	Sandstone
66	74	Shale
74	102	Coal - 2' shale parting at 96-98'
102	118	Shale
118	165	Shaly sandstone
165	175	Shale
175	178	Coal
178	209	Sandstone
		209 End of Hole
		Hole ended July 31/71

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

Core Size

Hole No. RH 319

Page 1

2507—N.D.N.

K-Forcing 71(3)A

Diamond Drill Geological Log

Cominco

Garrity & Baker

Objective:

Sampled:

[redacted]

Logged By: R.B. Allan Date: August 6, 1971

Composites: Not sampled - Single wall pipe

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Clode - Repeat			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
0	23	Overburden	Intersection from radiation log
23	38	Shale 26' Casing	
38	69	Coal	
69	126	Sandstone	
126	134	Carbonaceous Shale	
134	147	Sandstone	
		147 End of Hole	
		August 7 finished hole	

Core Size

Hole No. RH320

Page 1

2507—N.D.N.

K - Forcing 71(3)A

Diamond Drill Geological Log

Cominco

M & M DRILLING LOG

Objective:

Sampled: No. SINGLE WALLED PIPE

Logged By: W.E. Pearson Date: February 10/71

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		GREENHILLS			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
0	10	Overburden	Intersection taken from radiation log
10	41	Sandstone	
41	47	Shale	
47	53	Coal	Seam G upper
53	86	Sandstone, shale interbeds	
86	102	Shale	
102	104	Sandstone	
104	109	Shale	
109	118	Coal	Seam G lower
118	133	Shale	
133	138	Sandstone	
138	146	Shale	
146	152	Sandstone	
152	162	Shale	
162	168	Coal	Minor below G
168	172	Sandstone	
172	176	Coal	Minor below G
176	188	Sandstone	
188	208	Shale	
208	210	Sandstone	
210	234	Siltstone	
234	242	Coal	Minor Seam
242	257	Sandstone	

NOT SAMPLED

-SINGLE WALL PIPE

Core Size 4 ½

Hole No. RH 518

2507—N.O.N.

Diamond Drill Geological Log

Cominco

K - FORDING 71(3)A

40 Scale

Color Plot & Dips | Ore Classes & Aver.

Objective:

Sampled:

[redacted]

Logged By: Date:

Composites:

Block: | Sect.: | Place: | App. Bear: | App.: Dip.: | Length:

From	To	Discard: Reason:
257	259	Shale
259	266	Sandstone
266	269	Coal
269	278.5	Sandstone
278.5	281.5	Shale
281.5	309	Sandstone
309	320	Shale
320	345	Coal Seam F
345	356	Shale
356	360	Coal
360	361.5	Shale
361.5	366	Coal
366	384	Sandstone
384	394	Shale
394	400	Coal
400	416	Sandstone

End of Hole 416.0'

Feb. 12, 1971

Core Size 4 ½

Hole No. RH 518

Page 2 of 2

2507—N.D.N.

K- FORDING 71(3)A

Diamond Drill Geological Log

Cominco

~~M & M DRILLING LOG~~

Objective:

Sampled: [redacted]

Logged By: W.E. Pearson Date: February 11, 1971

Composites:

Block:	Sect.:	Place: GREENHILLS	App. Bear:	App.: Dip.:	Length:

40 Scale — Color Plot & Dips — Ore Classes & Aver.

From	To	Discard:	Reason:
0	14	Overburden	
14	97	Sandstone	
97	107	Shale	
107	122	Coal	Seam H
122	127	Shale	
127	136	Coal	
136	166	Sandstone	
166	176	Shale	
176	179	Coal	
179	182	Shale	
182	184	Coal	
184	200	Sandstone	
200	202.5	Shale	
202.5	208	Sandstone	
208	220	Shale	
220	230	Coal	Upper "G"
230	242	Sandstone	
242	248	Shale	
248	250	Sandstone	
250	252	Shale	
252	255	Coal	
255	261	Shale	
261	262	Sandstone	

NOT SAMPLED

-SINGLE WALL PIPE

Core Size $4\frac{1}{2}$

Hole No. RH 519

Page 1 of 2

2507—N.D.N.

K - FORDING 71(3)A

Diamond Drill Geological Log

Cominco

Objective:	Sampled:	[redacted]	40 Scale
Logged By: Date:	Composites:		Color Plot & Dips / Ore Classes & Aver.

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:

From	To	Discard:	Reason:
262	276	Shale	
276	286	Coal	Lower "G"
286	312	Shale	
312	322	Coal	319 - 320 Sandstone parting
322	326	Shale	
326	329	Sandstone	
329	364	Shale	
364	372	Sandstone	
372	379	Coal	
379	404	Sandstone	
404	406	Shale	
406	407	Coal	
407	410	Shale	
410	412	Siltstone	
412	418	Shale	
418	450	Sandstone	
450	462	Shale	
462	481	Coal F Seam	Seam F
481	600	Shale	481 - 600 not logged due to lost stem

Core Size $4\frac{1}{2}$

Hole Completed 600' February 16, 1971

Hole No. RH 519

Page 2 of 2

2507—N.D.N.

Diamond Drill Geological Log

FORDING OPERATIONS Cominco

K- FORDING 71(3)A

M & M DRILL LOG

Objective:

Sampled:

Logged By: Date: February 15, 1971

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		GREENHILLS			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard:	Reason:
			INTERSECTIONS TAKEN FROM RADIATION LOG
0	12	Overburden	
12	22	Coal Seam 1?	
22	26	Shale	
26	60	Sandy shale	
60	78	Sandstone	
78	80	Shale	
80	99	Sandstone	
99	106	Sandy shale	
106	116	Sandstone	
116	121	Shale	
121	132	Coal Seam H	
132	140	Shale	
140	145	Coal Minor Seam	
145	148	Shale	
148	150	Coal Minor Seam	
150	154	Sandstone	
154	170	Shale	
170	177	Sandstone	
177	184	Shale	
184	186	Coal Minor Seam	
186	200	Sandstone	
200	202	Coal Minor seam	
202	232	Sandstone	

NOT SAMPLED

- SINGLE WALL PIPE

Core Size $4\frac{1}{2}$"

Hole No. R.H. 520

2507—N.D.N.

K-Forcing 71(3)A

Diamond Drill Geological Log

Cominco

Objective:	Sampled:	[redacted]
Logged By: Date:	Composites:	

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
232	234	Shale	
234	240	Coal	Seam Upper #G
240	248	Sandstone	
248	251	Shale	
251	254	Sandstone	
254	256	Shale	
256	262	Sandstone	
262	266	Shale	
266	267	Coal	
267	271	Sandstone	
271	280	Coal	Lower #G
280	288	Shale	
288	291	Sandstone	
291	294	Shale	
294	297	Sandstone	
297	300	Shale	
300	314	Sandstone	
314	317	Coal	Minor seam
317	320	Shale	
320	324	Sandstone	
324	330	Coal	Minor seam
330	334	Sandstone	
334	337	Coal	Minor seam

Core Size 4½"

Hole No. R.H. 520

Page 2 of 3

2507—N.D.N.

Diamond Drill Geological Log

Cominco

K-FOREIGN 71(3)A

Objective:

Logged By: Date:

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard:	Reason:
337	339	Shale	
339	342	Sandstone	
342	345	Shale	
345	346	Sandstone	
346	348	Shale	
348	374	Sandstone	
374	378	Shale	
378	380	Sandstone	
380	384	Shale	
384	386	Sandstone	
386	391	Shale	
391	393	Sandstone	
393	400	Coal	Minor seam
400	404	Sandstone	
404	406	Shale	
406	414	Sandstone	
414	416	Shale	
416	421	Sandstone	
421	425	Coal	Minor seam
425	490	Sandstone	
490	493	Shale	
493	514	Coal	"F" Seam
514	526	Shale and sandstone	

END HOLE FEBRUARY 18, 1971

Core Size $4\frac{1}{2}$"

Hole No R.H. 520

2507—N.D.N.

Diamond Drill Geological Log

K - FOREING 71(3)A

Cominco

M. & M. Drilling

Objective:

Logged By: Date: Feb. 19/71

Sampled:

Composites:

[redacted]

40 Scale

Color Plot & Dips | Ore Classes & Aver.

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

From	To	Discard:	Reason:
0	23	Overburden	35.5 ft. casing left in hole Intersections taken from radiation log.
23	27	Shale	
27	38	Coal	Seam # I
38	59	Shale	
59	68	Sandstone	Drillers mention of top portion of I Seam here.
68	80	Shale	
80	84	Sandstone	
84	89	Shale	
89	94	Sandstone	
94	96	Shale	
96	106	Sandstone	
106	110	Shale	
110	114	Sandstone	
114	150	Sandy shale	
150	163	Shale	
163	174	Coal	Seam Upper #H
174	184	Shale	
184	188	Sandstone	
188	214	Shale	
214	239	Sandston	
239	247	Shale	
247	254	Sandstone	
254	276	Shale	

NOT SAMPLED

-SINGLE WALL PIPE

Core Size $4\frac{1}{2}$

Hole No. RH 521

Page 1 of 3

2507—N.D.N.

Diamond Drill Geological Log

K-FORDING 71(3)A

M. & M Drilling

Objective:

Logged By: Date: Feb. 19/71

Sampled: [redacted]

Composites:

Block:	Sect.:	Place: Greenhills	App. Bear:	App.: Dip.:	Length:

	From	To	Discard:	Reason:
13	276	289	Coal	Seam #H
	289	291	Shale	
	291	293	Sandstone	
	293	295	Shale	
	295	299	Sandstone	
	299	302	Shale	
4	302	306	Coal	Minor Seam
	306	314	Shale	
	314	317	Sandstone	
	317	320	Shale	
	320	321	Sandy shale	
	321	339	Shale	
3	339	342.5	Coal	Minor Seam
	342.5	348	Shale	
	348	359	Sandstone	
	359	385	Shale	
6	385	391	Coal	Upper #G
	391	404	Shale	
	404	409	Sandstone	
	409	423	Shale	
4	423	428	Coal	Lower #G
	428	429	Shale	
1	429	430	Coal	Lower #G

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

Core Size 4½

Hole No. RH521

Page 2 of 3

2507—N.D.N.

Diamond Drill Geological Log

Cominco

K-FOREING 7(3)A

M. & M. Drilling

Objective:

Sampled:

[redacted]

Logged By:

Date: Feb. 19/71

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
430	464	Shale	
464	467	Sandstone	
467	484	Shale	
484	488	Coal	Minor Seam
488	493	Sandstone	
493	417	Shale	
417	419	Sandstone	
419	516	Shale	
516	520	Sandstone	
520	551	Sandy Shale	
		End of hole Feb. 24/71	

Core Size

$4\frac{1}{2}$"

Hole No. RH521

Page 3 of 3

2507—N.D.N.

Diamond Drill Geological Log

M. & M. Drilling

Cominco

K - FORCING 71(3)A

Objective:

Sampled:

[redacted]

Logged By: W. E. Pearson Date: Feb. 25, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
			Intersections taken from radiation logs
0	15	Overburden	15 ft. casing left in hole
15	32	Sandstone	
32	38	Shale	
38	51	Sandstone	
51	53	Shale	
53	57	Sandstone	
57	60	Shale	
60	68	Sandstone	
68	74	Shale	
74	76	Sandstone	
76	78	Shale	
1/ 78	89	Coal	
89	102	Shale	
102	140	Sandstone	
140	144	Shale	
144	154	Sandy shale	
154	165	Sandstone	
165	177	Shale	
1 177	184	Coal	
184	186	Shale	
2/186	188	Coal	
188	204	Shale	
204	207		

NOT SAMPLED

- SINGLE WALL PIPE

Core Size $4\frac{1}{2}$

Hole No RH522

Page 1 of 3

2507—N.D.N.

Diamond Drill Geological Log

K-FOROING 71(3)A

M. & M. Drilling

Objective:

Sampled:

[redacted]

Logged By: W. E. Pearson Date: Feb. 25, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard: Reason:
207	210	Shale
210	295	Sandstone
295	311	Shale
13 311	324	Coal
324	335	Shale
5 335	340	Coal
340	342	Shale
K 342	346	Coal
346	360	Shale
360	363	Sandstone
363	365	Shale
3 365	368	Coal
368	390	Sandstone
390	413	Shale
1 413	420	Coal
420	423	Shale
423	425	Sandstone
425	429	Shale
429	430	Sandstone
430	437	Shale
2 437	439	Coal
439	460	Shale
460	469	Coal

Core Size 4½

Hole No. RH522

2507—N.D.N.

Diamond Drill Geological Log

K - FORCING 71(3)A

M. & M. Drilling

Objective:

Logged By: W.E. Pearson Date: Feb 25/71

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard: Reason:
469	492	Shale
492	494	Sandstone
494	500	Shale
500	506	Sandstone
506	521	Shale
521	526	Coal
526	531	Sandstone
531	550	Shale
		End hole March 4, 1971

Core Size $4\frac{1}{2}$"

Hole No. RH522

Diamond Drill Geological Log

K-foregoing 71(3)A

M. & M. Drilling

Objective:

Logged By: Date: Feb. 18, 1971

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

Reason: Intersections taken from radiation log.

27.5 ft. casing left in hole

From	To	Discard:
0	19	Overburden
19	46	Shale
46	56	Sandstone
56	70	Shale
70	74	Sandstone
74	96	Shale
3 96	109	Coal
109	112	Shale
112	114	Sandstone
114	120	Shale
120	178	Sandstone
178	186	Shale
186	190	Sandstone
190	194	Shale
194	200	Sandstone
200	208	Shale
~ 208	210	Coal
2.5 210	214.5	Shale
3 214.5	217	Coal
217	260	Sandstone
260	270.5	Shale
8.5 270.5	279	Coal
279	288	Sandstone

NOT SAMPLED

- SINGLE WALL PIPE

Core Size $4\frac{1}{2}$"

Hole No. RH523

Page 1 of 2

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

2507—N.D.N.

Diamond Drill Geological Log

M. & M. Drilling

Cominco

K-FOOTAGE 71(3)A

Objective:

Logged By: Date: Feb. 18, 1971

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard: Reason:
288	294	Shale
294	296	Sandstone
296	300.5	Shale
300.5	302.5	Coal
302.5	307	Shale
307	312	Coal
312	314	Shale
314	316	Coal
316	326	Shale
326	331	Sandstone
331	350	Shale
		End of hole March 4, 1971

Core Size $4\frac{1}{2}$"

Hole No. RH523

Page 2 of 2

2507—N.D.N.

K - Fording 71(3)A

Diamond Drill Geological Log

Cominco

40 Scale	
Color Plot & Dips	Ore Classes & Aver.

Objective: M& M. Drilling

Sampled:

[redacted]

Logged By:

Date: Feb. 22, 1971

Composites:

Block:	Sect.:	Place: Greenhills	App. Bear:	App.: Dip.:	Length:

	From	To	Discard:	Reason: Inter sections taken from radiation log
	0	25	Overburden	31.5 ft. casing left in hole
	25	31	Sandstone	NOT SAMPLED
	31	55	Shale	-SINGLE WALL PIPE
4	55	59	Coal	
	59	70	Shale	
8	70	78	Coal	
	78	101	Shale	
	101	106	Sandstone	
	106	120	Shale	
13	120	133	Coal	
	133	140	Sandstone	
	140	162	Shale	
	162	182	Sandstone	
	182	192	Shale	
	192	194	Sandstone	
	194	204	Shale	
	204	228	Sandstone	
	228	232	Shale	
2	232	234	Coal	
	234	238	Shale	
3	238	241	Coal	
	241	248	Shale	
	248	256	Sandstone	

Core Size $4\frac{1}{2}$"

Hole No. RH524

Page 1 of 3

2507—N.D.N.

K - FORDING 71(3)A

Diamond Drill Geological Log

M. & M. Drilling

40 Scale

Color Plot & Dips	Ore Classes & Aver.

Objective:

Sampled: [redacted]

Logged By:

Date: Feb. 22, 1971

Composites:

Block:

Sect.:

Place: Greenhills

App. Bear:

App.: Dip.:

Length:

Discard:

Reason:

From	To	
256	263	Shale
263	269	Coal
269	297	Shale
297	301	Coal
301	305	Shale
305	314	Coal
314	334	Shale
334	336	Sandstone
336	355	Shale
355	360	Coal
360	364	Sandstone
364	370	Shale
370	389	Sandstone
389	411	Shale
411	415	Coal
415	418	Shale
418	421	Coal
421	430	Shale
430	500	Sandstone
500	517	Shale
517	542	Coal
542	550	Shale
550	563	Sandstone

Core Size $4\frac{1}{2}''$

Hole No. RH524

Page 2 of 3

2507—N.D.N.

Diamond Drill Geological Log

K-FACING 71(3)A

Cominco

M. & M. Drilling

Objective:

Logged By: Date: Feb. 22, 1971

Sampled:

Composites:

[redacted]

40 Scale

Color Plot & Dips | Ore Classes & Aver.

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

From	To	Discard:	Reason:
563	565	Shale	
565	570	Sandstone	
		End of hole, Feb. 24, 1971	

Core Size $4\frac{1}{2}$"

Hole No. RH524

Diamond Drill Geological Log

K - Forcing 71(3)A

M. & M. Drilling

Cominco

Objective:

Sampled:

[redacted]

Logged By: Date:

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

Discard: Reason: Intersection taken from radiation log

From	To	
0	26	Overburden — 45 ft. casing left in hole
26	38	Shale
38	45	coal?
45	138	Sandstone
138	159.5	Shale
159.5	166.5	Coal
166.5	179	Shale
179	187	Coal
187	218	Sandstone
218	228	Shale
228	251.5	Coal
251.5	259.5	Shale
259.5	281	Coal
281	297.5	Shale
297.5	311	Coal
311	326	Sandstone
326	332	Shale
332	342	Sandstone
342	352	Shale
352	354	Sandstone
354	383	Shale
383	386	Sandstone
386	394	Shale

NOT SAMPLED

- SINGLE WALL PIPE

Core Size $4\frac{1}{2}$"

Hole No. RH525

Page 1 of 2

2507—N.D.N.

K - FORDING 71(3)A

Diamond Drill Geological Log

M. & M. Drilling

Objective:

Logged By: Date: Feb. 24, 1971

Sampled: [redacted]

Composites:

Block:	Sect.:	Place: Greenhills	App. Bear:	App.: Dip.:	Length:

Discard: Reason:

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	
394	398	Sandstone
398	402	Shale
402	404	Coal
404	408	Shale
408	411	Coal
411	416	Shale
416	418	Sandstone
418	426	Shale
426	432	Coal
432	444	Shale
444	450	Sandstone
450	451	Shale
451	453	Coal
453	466	Shale
466	474	Coal
474	498	Shale
498	510	Sandstone

End hole March 3, 1971

Core Size $4\frac{1}{2}$"

Hole No. RH525

2507—N.D.N.

Diamond Drill Geological Log

K. FOROING 71(3)A

M. & M. Drilling

Cominco

Objective:

Sampled:

Logged By:

Date: March 5, 1971

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
			Intersection taken from radiation log
0	7	Overburden	9.5 ft. casing left in hole
7	34	Shale	
34	38	Coal?	
38	53	Shale	
? 53	60	Coal	
60	82	Shale	
5 82	87	Coal	
87	94	Shale	
94	98	Sandstone	
98	122	Shale	
+ 122	126	Coal	
126	127	Shale	
127	138	Coal	
138	154	Shale	
154	158	Sandstone	
158	178	Shale	
178	183.5	Coal	
183.5	194	Shale	
194	202	Sandstone	
202	216	Shale	
216	217	Coal	
217	220	Sandstone	
220	230	Shale	

NOT SAMPLED

-SINGLE WALL PIPE

Core Size

$4\frac{1}{2}$"

Hole No. RH526

Page 1 of 2

2507—N.D.N.

Diamond Drill Geological Log

M. M. Drilling

K- foroing 71(3)A

Objective:

Sampled:

[redacted]

Logged By:

Date: March 5, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard: Reason:
230	236	Coal
236	245	Shale
245	249	Coal
249	256	Shale
256	284	Sandstone
284	300	Shale
300	329	Sandstone
329	342	Shale
342	358	Coal
358	360	Shale
360	365	Coal
365	380	Sandstone
		End of hole March 8, 1971

Core Size $4\frac{1}{2}$"

Hole No. RH526

Page 2 of 2

2507—N.D.N.

K- FEEDING 71(3)A

Diamond Drill Geological Log

Cominco

M. & M. Drilling

Objective:

Sampled: [redacted]

Logged By:

Date: March 8, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

Discard:

Reason: Intersection taken from radiation log

From	To	
0	33	Overburden 41.5 ft. casing left in hole
33	136	Shale
136	142	Coal
142	156	Shale
156	165	Coal
165	176	Shale Coal at 174.0
176	184	Sandstone
184	200	Shale
200	216	Sandstone
216	224	Shale
224	232	Coal
232	239	Shale
239	248	Coal
248	256	Shale
256	257	Coal
257	268	Sandstone
268	284	Shale
284	288	Sandstone
288	293	Coal
293	320	Sandstone
320	336	Shale
336	338	Sandstone
338	350	Shale

NOT SAMPLED

- SINGLE WALL PIPE

40 Scale	
Color Plot & Dips	Ore Classes & Aver.
0	

Core Size: $4\frac{1}{2}$

Hole No. RH527

Page 1 of 2

2507—N.D.N.

Diamond Drill Geological Log

K - FORDING 71(3)A

M. & M. Drilling

Objective:

Logged By: Date: March 8, 1971

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard: Reason:
± 350	355	Coal
355	364	Shale
364	468	Sandstone
468	477	Shale
± 477	504	Coal
504	510	Shale
510	540	Sandstone
		End of hole March 10, 1971

Core Size $4\frac{1}{2}$"

Hole No. RH527

2507—N.D.N.

Diamond Drill Geological Log

K - FOREGOING 71(3)A

Cominco

M. & M. Drilling

Objective:

Logged By:

Date: March 9, 1971

Sampled:

Composites:

[redacted]

40 Scale

Color Plot & Dips | Ore Classes & Aver.

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

Reason: Intersections taken from radiation log

From	To	Discard:
0	18	Overburden — 20.5 ft. casing left in hole
18	52	Shale
52	61	Coal
61	90	Sandstone
90	94	Coal
94	116	Shale
116	122	Sandstone
122	142	Shale
142	146	Sandstone
146	164	Shale
164	170	Coal
170	172	Shale
172	185	Coal
185	202	Shale
202	255	Sandstone
255	290	Shale
290	292	Sandstone
292	308	Shale
308	314	Sandstone
314	322	Shale
322	331	Coal
331	339	Shale
339	344	Coal

NOT SAMPLED

-SINGLE WALL PIPE

Core Size: 4½"

Hole No. RH528

Diamond Drill Geological Log

COMINCO

K-FOREIGN 71(3)A

M. & M. Drilling

Objective:

Logged By: Date: March 9, 1971

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
344	352	Shale	
352	372	Coal	
372	394	Shale	
394	404	Sandstone	
404	406	Shale	
406	428	Sandstone	
428	466	Shale coal 446 and 453	
466	481	Coal Parting at 469	
481	492	Shale	
492	494	Coal	
494	498	Shale	
498	501	Coal	
501	532	Shale	
532	541	Coal	
541	562	Shale	
562	580	Sandstone	
		End of hole March 11, 1971	

Core Size $4\frac{1}{2}$"

Hole No. RH528

Page 2 of 2

2507—N.D.N.

Diamond Drill Geological Log

K-FOREIGN 71(3)A

Garrity & Baker

Objective:

Sampled:

[redacted]

Logged By: WEP Date: March 28, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

From	To	Discard: Reason:
0	20	Overburden
20	100	Sandstone
100	137.8	Shale
δ 137.8	145.4	Coal
145.4	196	Shale
196		Coal
		Hole abandoned - unable to get core barrel down hole.

Core Size

Hole No. 529

Page 1 of 1

2507—N.D.N.

Diamond Drill Geological Log

Cominco

K-Forcing 71(3)A

Garitty & Baker Drilling

Objective:

Sampled: [redacted]

Logged By: Date: April 2/71

Composites:

Block: Sect.: Place: Greenhills App. Bear: App.: Dip.: Length:

40 Scale

Color Plot & Dips | Ore Classes & Aver.

	From	To	Discard:	Reason:
	0	30	Overburden	40 ft. casing left in hole
	30	38	Sandstone	
9	38	47	Coal	Not sampled
	47	56	Shale	
2	56	58	Coal	Not sampled
	58	62	Shale	
1	62	69	Coal	Not sampled
	69	84	Shale	
3	84	87	Coal	Not sampled
	87	100	Shale	
	100	110	Sandstone	
	110	133	Shale	
1	133	150	Coal	Not sampled
	150	164	Sandstone	
	164	172	Shale	
	172	180	Sandstone	
	180	192	Shale	
	192	196	Sandstone	
4	196	204	Coal	202-204 Shale dirty 60% recovery
	204	206.2	Shale	
5	206.2	211	Coal	52% recovery
	211	230	Shale	
			End hole April 13/71	

Core Size 4½

Hole No. RH 529A

Page 1

2507—N.D.N.

K-FOREGOING 71(3)A

DIAMOND DRILL SAMPLING RECORD — G.H. UPPER SEAMS — 313

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET	Core Recov	WIDTH	M	A	VM	FC	FSI	S	REMARKS	Rec.
197.5	204.0	Note: Values for Ash, V.M., F.C., taken from R.H. 501, radiation logs are very similar.	4426		60%		1.0	31.1	21.5	47.1	O.N.A.	0.30	Minor	22.6
		Raw - Coal	Clean Coal —				0.8	13.9	27.7	57.5	8.5	.84		
206.2	211.0	Note: Values for Ash, V.M., and F.C. Raw-	4427		52%		0.9	31.0	21.0	47.3	O.N.A.	0.8	Minor	39.2
211.0	213.0	substituted from R.H. 501, the nearest reliable analysis for these seams. Coal	4428				0.6	32.7	22.2	44.5	O.N.A	0.58	Lower "G"	19.4
		Combination — Clean Coal				1'	0.8	13.1	25.7	60.4		.92		

Minor Part of L.L.

Page No. Hole No. R.H. 529 A

TJ.

Diamond Drill Geological Log

Cominco

K-FOOTING 71(3)A

Garitty & Baker

Objective:

Logged By: Date: April 3/71

Sampled:

Composites:

[redacted]

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Core Losses & Aver.

0

From	To	Discard: Reason:
0	25	Overburden 50' casing left in hole
25	36	Broken shale & sandstone
36	44	Coal Not sampled
44	48	Shale
48	64	Coal 94% recovery of cored part 59-64.5 Seam H" Lower
64	70	Sandstone 64.5-66.0 sampled = mainly shale
70	76	Shale
76	92	Sandstone
92	105	Shale
105	124	Sandstone
124	142	Shale
142	162	Sandstone
162	173	Shale
173	187.5	Coal 100% recovery of cored part 182.2 - 183.4 Upper "E"
187.5	200	Shale
200	206	Coal
206	234.7	Sandstone
234.7	238.7	Coal Lower "E"
238.7	260	Shale
		End of hole April 5/71

Core Size 4½

Hole No. RH530 Page 1

2507—N.D.N.

K-FORCING 71(3)A

DIAMOND DRILL SAMPLING RECORD — G.H. UPPER SEAMS

[redacted]

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET	Core Recov.	WIDTH	M	A	VM	FC	FSI	S	REMARKS	Rec.
59.0	64.5	Assays corrected Correction made for 64.5 - 66.0 to be shale (radiation log info.) V.M. taken from R.H. 510 Raw Coal	4421		94%		0.9	18.4	26.5	54.6	5,5,5	0.49	Seam "H" Lower	50%
64.5	66.2		4422		Corrected for in above values					57.7	7½,7	0.65		
182.2	186.6	Assays corrected Correction made allowing for 187.6 - 188.6	4423		100%		1.0	18.5	24.0	56.0	5½,5½	0.52	Upper "G"	37.4%
186.6	188.4	to be shale (radiation log info.) V.M. taken from R.H. 510 Raw Coal	4424											
234.7	238.7	Shaly Coal Raw Coal	4425		75%		0.7	39.4	–	–	2½	–	Lower "G"	55.6%

Page No.

Hole No. R.H. 530

K - FORDING 71(3)A

Diamond Drill Geological Log

Garitty & Baker

313

Objective:

Logged By:

Date: April 13, 1971

Sampled:

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

From	To	Discard:	Reason:	
0	24	Overburden	20 ft. casing in hole	
24	65	Shale & sandstone		
65	87.5	Coal	64.3-71 Shale & Coal slicken sided crushed and clean	Seam "I"
87.5	110	Shale		
110	144.	Sandstone		
144	179	Shale		
179	196	Sandstone		
196	206	Shale		
206	215	Coal	Not sampled	
215	228	Shale		
228	234.5	Coal	Broken and crushed 50% recovery	Upper "H"
234.5	241.5	Shale very carb.	Ash test only	
241.5	253	Coal 241-249	Crushed shaly coal 39% recovery	Lower "H"
253	270	Shale		
			End of hole April 15/71	

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

Core Size 4½

Hole No. RH531

Page 1

2507—N.D.N.

K-FORGING 71(3)A

[redacted]

DIAMOND DRILL SAMPLING RECORD

G.H. UPPER SEAMS

[redacted]

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET	Core Recov.	WIDTH	M	A	VM	FC	FSI	S	REMARKS	Rec.
64.3	71.0	Note: Values for Ash and V.M. taken from	4431		55%		1.0	14.7	26.8	57.1	5,5	0.44		
74.0	77.5	R.H. 508 due to similarity of "I" seam in radiation logs	4432		100%									
77.5	81.0	Raw Coal	4433		100%								Seam "I"	74.1
81.0	86.0		4434		95%									
86.0	88.0		4435		100%									
230.5	236.5	Note: Assays corrected for Correction allowing for 2.0 shale	4436		50%		0.9	19.0	26.0	53.7	4,4	0.38	Upper "H"	47.5
		has been made to obtain these values (radiation log) Raw Coal												
241.0	249.0	Note: Values for Ash and V.M. taken from	4438		30%		0.9	11.9	27.1	59.9	3,3¼	0.19	Lower "H"	40.6
249.0	256.0	R.H. 508 the nearest reliable source of values. Raw Coal	4439		48%									

Diamond Drill Geological Log

Garrity & Baker

Cominco

313

K-FOREGING 71(3)A

Objective:

Sampled:

Logged By: WEP Date: July 26, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

From	To	Discard: Reason:
0	19	Overburden
19	62.5	Sandstone
		Hole abandoned as program was stopped as it was not considered necessary at this time

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

Core Size

Hole No. 531A

Page 1 of 1

2507—N.D.N.

K-FOREING 71(3)A

Diamond Drill Geological Log

Garritty & Baker

Cominco

Objective:

Logged By:

Date: April 15/71

Sampled:

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard:	Reason:
			Intersections taken from radiation log
0	2	Overburden	20' casing left in hole
2	22	Sandstone	
22	37	Shale	
37	48	Coal? Not sampled	
48	74	Shale and sandstone	
74	80	Coal shaly 95% recovery	Upper "H"
80	84	Carb. shale	
84	95.5	Shale	
95.5	97	Coal not sampled	
97	98	Shale	
98	102.6	Coal Dirty 100% recovery	Upper "H"
102.6	106	Carb. Shale	
106	136	Shale and sandstone	
136	150	Coal broken 89% recovery	Lower "H"
150	260	Shale and sandstone	
260	261	Carb. shale	
261	270	Sandstone	
		End of hole April 17/71	

Core Size 4 3/4

Hole No. RH532

Page

2507—N.D.N.

K-FORGOING 7(3)A

DIAMOND DRILL SAMPLING RECORD — G.H. UPPER SEAMS

313

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET	Core Rec.	WIDTH	M	A	VM	FC	FSI	S	REMARKS	Rec.
75.4	80.6	Note: Assays Corrected allowing for 0.6' shale	4440		95%		0.6	17.3	30.1	51.3	6½	0.69	Upper "H"	65.2%
1		shale (radiatiation log information. Raw Coal			Combined		0.7	20.5	28.1	50.2	6,	0.58		
98	103	Note: Assays Corrected allowing for 1.0' shaly	4441		100%		0.8	23.6	26.0	49.1	6,6	0.47	Upper "H"	63.4%
		material 102'-103' (Radiation log) Raw Coal												
137.5	144.1	Note: Ash value is slightly high but Raw	4442		70%		1.0	17.7	27.5	53.8	7,7	0.44	)	
		sampling appears reliable from footage Coal			95%								) Lower "H"	91.7%
					100%								)	

Page No. Hole No. R.H. 532

Diamond Drill Geological Log

K - FORCING 71(3)A

Cominco

[redacted]

Garritty & Baker Drilling

Objective:

Sampled:

Logged By:

Date: April 19/71

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

Reason: Intersections taken from radiation log

From	To	Discard:	
0	15	Overburden	20' casing left in hole
15	64	Sandstone	
64	65.5	Coal	Not sampled
65.5	67	Shale	
67	71	Coal crushed	100% recovery
71	75	Shale	
75	79	Coal crushed	50% recovery
79	99	Shale	
99	106	Coal Clean, broken	100% recovery
106	153	Shale and sandstone	
153	155.5	Coal broken	100% recovery
155.5	159.0	Shale	
159	168	Coal	Shale 164.5 to 166.0
168	180	Shale	
		End of hole April 20, 1971	

Core Size 4 3/4

Hole No. RH 533

Page 1

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

2507—N.D.N.

K-forcing 7/13A
G.H. Upper Seams

313

DIAMOND DRILL SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET	Core Recov.	WIDTH	M	A	VM	FC	FSI	S	REMARKS
77.0	79.0	Minor Seam Raw Coal	4452		50%		0.9	42.9			4½,5		Minor 50.3%
100.0	105.0	Possible 2' coal not sampled Raw Coal	4453		100%		0.9	7.8			8,8		Upper "G" 99.1%
161.0	163.0	Possible 3' coal not sampled Raw Coal	4455		100%		0.8	30.1			8,7½		Part Lower "G" 71.9%

Page No. Hole No. 533

K-FORDING 71(3A

Diamond Drill Geological Log

Garritty and Baker

Cominco

[redacted]

Objective:

Sampled:

Logged By: Date: April 17/71

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

Reason: Intersections taken from radiation log

From	To	Discard:
0	3	Overburden
3	84	Sandstone
84	89.5	Coal broken minor slicken side 95% recovery minor
89.5	100	Sandstone
105	108	Coal Not sampled
108	112	Shale
112	118	Coal Shaly broken 74% recovery
118	145	Shale
145	152	Coal Some shale broken minor slicken side 100% recovery Upper "H"
152	194	Shale
194	208	Coal Broken 98% recovery Lower "H"
208	209.5	Carb. Shale
209.5	230	Shale

End of hole April 19/71

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

Core Size 4 3/4

Hole No. RH534 Page1

2507—N.D.N.

K - forcing 7/13/A
G.H. Upper Seams

313

DIAMOND DRILL SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	SHORTS FEET	Core Recov	WIDTH	M	A	VM	FC	FSI	S	REMARKS
84	89	Note: Assays Corrected allowing for 89-92.7	4445		95%		0.8	21.9	26.0	50.7	3.3	0.60	Minor 36%
89	92.7	to be shaly (radiation log) Raw Coal	4446		100%								
112	118	Do Not Use, Minor seam and no good com-											
		parisons nearby. Coal											
148	152	Values to Ash and V.M. from R.H. 510 Raw Coal	4448		100%		0.7	40.0	21.0	37.9	3.3	0.41	Upper "H" 21.1
197	201	Note: Assays Corrected allowing for	4449		100%		0.8	22.6	25.0	51.1	7.7	0.47	
201	204	208-209.5 to be shaly Raw	4450		100%								Seam "L.H." 1.6%
204	209.5	(radiation log information) Coal	4451		95%								

Page No. Hole No. G.H. 534

Diamond Drill Geological Log

Cominco

313

K-FOROINK 71(3)A

Garrity & Baker

Objective:

Sampled:

Logged By: WEP Date: April 20, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Greenhills			

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

From	To	Discard: Reason:
0	17	Overburden
17	100	Sandstone
100	125	Shale
		Hole abandoned April 22, core barrel stuck down hole. Unable to get it out.

Core Size

Hole No. 536

Page 1 of 1

2507—N.D.N.

Diamond Drill Geological Log

K-FOOTAGE 71(3)A

Cominco

[redacted]

Garritty Baker

Objective:

Sampled:

Logged By: W.E. Pearson Date: April 20, 1971

Composites:

Block:	Sect.:	Place:	App. Bear:	App.: Dip.:	Length:
		Green Hills			

Reason: Intersections taken from neutron log 20' casing left in hole

From	To	Discard:	
0	17	Overburden	
17	120	Sandstone	
120	125.5	Carb Shale	
125.5	128.5	Coal	Crushed 85% recovery Seam Upper "H" 125.5 - 192.5
128.5	130.0	Shale	
130	133	Coal	Shaly broken 95% recovery
133	140	Shale	
140	142.5	Coal	Shale 141 - 141.5 100% recovery
142.5	170	Sandstone	Shale Bands.
170	183	Shale	
183	194	Coal	Clean Broken 87% recovery Seam Lower "H"
194	220	Shale	
		End Hole April 28, 1971	

40 Scale

Color Plot & Dips | Ore Classes & Aver.

0

Core Size: 4 7/8

Hole No. RH 536A

Page 1 of 1

2507—N.D.N.

FR 71(4)A

FORDING COAL LIMITED

Sullivan Concentrator
Kimberley, B.C.

T.D. SECTION 568
FORDING COAL LIMITED

PROGRESS REPORT NO. 21

ADIT SAMPLE TESTING - 1971

SEAM F - ADIT 12

ABSTRACT:

A bulk sample of clean coal from Seam F - Adit 12 was prepared for coking tests in Ottawa. Sufficient data was collected to determine the washability characteristics of the seam.

SUMMARY:

= 1.7146 metric tonnes

3780 lbs. of raw coal at 25.2% Ash was treated by sink/float separation and flotation to produce 2513 lbs. of clean coal with the following proximate analysis:

Inherent Moisture	0.7 %
Ash	8.2 %
Volatiles	23.7 %
Fixed Carbon	67.3 %
Sulphur	0.63%
F.S.I.	6, 6, 6½

Clean coal weight % Recovery was 66.5 %

ACKNOWLEDGEMENTS:

A.S. Grant was technician in charge. All assays were reported from the Sullivan Concentrator Assay Lab.

CONFIDENTIAL

Signed: _____

S. J. Bonny,
Development Engineer,
Fording Coal Limited

Approved: _____

M. Malnarich,
Process Superintendent,
Fording Coal Limited

SJBonny/mm
August 20, 1971

Copies:

Trail: MM (2); PJG

Fording: RMP; OIJ; JBD; ACT;

Kimberley: SJB; CL File (5)

313

OBJECT:

1. To prepare a 2500 lb. sample of clean coal, 8.0 - 8.5% Ash, for coking tests in Ottawa.

2. To obtain washability data on Seam F.

DETAILS:

A. Mine Sampling

Adit 12 was extended some 30 ft. along the footwall of Seam F from the 1968 Raise. A new raise was pushed through to the hanging wall; see sketch in the Appendix. Coal was sampled along the raise in 4.5 ft. section.

Section	Footage From	Footage To	No. of Bbls	Dry Wt (Lbs)
FF01	H.W.	2.0	2	N.D.
F01	H.W.	4.5	3	948
F02	4.5	9.0	3	992
F03	9.0	13.5	3	944
F04	13.5	18.0	3	979
Total (Excl. FF01)	H.W.	18.0	12	3863

Coal from each section was air dried and dry screened at 1/2", 1/8" and 28 Mesh. Head samples were cut from each size fraction for raw coal analysis.

Table 1: Raw Coal Analysis - Seam F

Section	Size Fraction	Wt. Lbs.	Wt. %	IM %	ASH %	VCM %	FC %	S %	F.S.I.
F01	-4" + 1/2"	232	24.5	1.0	34.4	18.0	46.6	0.41	6, 6, 5½
	-1/2" + 1/8"	317	33.4	1.1	30.5	18.3	50.1	0.52	1½, 1½, 1½
	-1/8" + 28M	224	23.6	0.9	23.6	20.5	55.0	0.25	4, 3½, 4
	-28M	175	18.5	1.0	15.9	22.7	60.4	0.77	6½, 6½, 6½
	Total	948	100.0	1.0	27.1	19.6	52.3	0.48	—
F02	-4" + 1/2"	312	31.5	0.3	36.3	17.6	45.8	0.44	1½, 1½, 1½
	-1/2" + 1/8"	352	35.5	0.3	21.8	21.5	56.4	0.38	5, 5, 4½
	-1/8" + 28M	208	21.0						
	-28M	120	12.0	0.3	12.3	24.3	63.1	0.58	8, 8, 8
	Total	992	100.0	0.3	25.2	20.6	53.9	0.42	- -
F03	-4" + 1/2"	231	24.5	0.2	43.9	26.7	29.2	0.30	½, ½, ½
	-1/2" + 1/8"	317	33.6	0.4	22.3	21.2	56.1	0.38	4½, 4, 4
	-1/8" + 28M	223	23.6						
	-28M	173	18.3	0.5	11.4	23.2	64.9	0.49	7, 7, 7
	Total	944	100.0	0.4	25.6	22.9	51.1	0.38	- -
F04	-4" + 1/2"	201	20.5	0.4	32.8	17.1	49.7	0.60	1½, 1½, 1½
	-1/2" + 1/8"	330	33.7	0.4	22.3	22.1	55.2	0.41	6½, 6½, 6½
	-1/8" +28M	268	27.4						
	-28M	180	18.4	0.4	14.8	24.2	60.6	0.55	7½, 7½, 7½
	Total	979	100.0	0.4	23.1	21.5	55.0	0.47	- -
Seam F Total		3863	-	0.5	25.2	21.1	53.2	0.44	- -

B. Washing Procedure

The +28 Mesh fractions were cleaned by a sink/float separation in a Carbontetrachloride/Varsol medium. The -28 Mesh fractions were cleaned by flotation with Methyl Isobutyl Carbinol. Specific gravities and Lbs/Ton M.I.B.C. were selected through bench scale tests which are detailed in the Appendix.

C. Washability Data

See Appendix for detailed washabilities of sectional size fractions and calculated totals.

Table 2: Clean Coal Analysis - Seam F

Section	Size Fraction	Wt. Lbs.	Wt. %	IM %	Ash %	VCM %	FC %	S %	F.S.I.
F01	-4" + 1/2"	116	17.5	0.9	6.1	23.4	69.6	0.58	5½, 5, 5½
	-1/2" + 1/8"	224	33.8	1.0	6.3	24.6	68.1	0.66	5, 4½, 4½
	-1/8" +28M	168	25.4	0.9	7.4	24.2	67.5	0.58	4½, 4½, 5
	-28M	154	23.3	0.7	11.5	23.3	64.5	0.74	5½, 5½, 5½
	Total	662	100.0	0.9	7.8	24.0	67.3	0.64	5, 5, 5½
F02	-4" + 1/2"	175	26.8	0.8	8.4	22.2	68.6	0.49	3, 3, 3½
	-1/2" + 1/8"	225	34.5	0.8	9.5	22.9	66.8	0.52	5, 4½, 5
	-1/8" +28M	154	23.6	1.0	7.8	24.4	66.8	0.47	7½, 7½, 7½
	-28M	99	15.1	0.6	7.0	25.6	66.8	0.63	7½, 7½, 7½
	Total	653	100.0	0.8	8.4	23.5	67.3	0.52	6, 6½, 6½
F03	-4" + 1/2"	150	24.2	0.6	7.8	21.9	69.7	0.49	3½, 3½, 3½
	-1/2" + 1/8"	183	29.5	0.5	6.8	22.2	70.5	0.52	4½, 4, 4½
	-1/8" +28M	139	22.4	0.8	5.5	24.3	69.4	0.55	6½, 6½, 6½
	-28M	149	23.9	0.6	8.7	25.1	65.6	0.80	6½, 6½, 7
	Total	621	100.0	0.6	7.2	23.3	68.9	0.59	5, 5, 5
F04	-4" + 1/2"	84	14.6	0.4	8.9	23.7	67.0	0.98	6, 6, 6
	-1/2" +1/8"	175	30.3	0.7	10.2	24.4	64.7	0.82	7½, 8, 8
	-1/8" +28M	193	33.4	0.7	11.2	23.3	64.8	0.82	7, 7, 7
	-28M	125	21.7	0.4	7.3	25.7	66.6	0.52	8½, 8½, 8
	Total	577	100.0	0.6	9.7	24.2	65.5	0.77	8, 7½, 7½
Seam F	Total	2513	-	0.7	8.2	23.7	67.3	0.63	6, 6, 6½

An Ultimate analysis will be performed on the overall Seam F clean coal composite sample.

Table 3: Overall Washability - Seam F

Product	Wt.	Wt.%	Ash %	Ash Dist.%	F.S.I.
Clean Coal	2513	66.5	8.2	21.8	6, 6, 6½
Waste	1267	33.5	58.5	78.2	-
Calc. Raw Coal	3780	100.0	25.1	100.0	-
Assay Raw Coal	3863	-	25.2	-	-

D. Shipment

After clean coal head samples had been cut the float products and flotation concentrates from F01 - F04 were thoroughly mixed and placed in seven 45 gallon drums with clamp-type lids. The -4" + 1/2" clean coal had previously been broken to - 1 1/2". The seven drums were topped off with water (saved from flotation) to minimize oxidation of the coal.

These seven drums from Seam F along with drums from Seams G and H were shipped via C.P. Merchandise Services on July 21, 1971 to:

Mr. J. C. Botham
c/o Department of Energy Mines and Resources
556 Booth Street
Ottawa, Ontario

The coal will be used for coking tests and coal quality evaluation in Ottawa. Procedures are outlined in a letter dated July 23, 1971 from M. Malnarich to J. C. Botham.

SUMMARY AND DISCUSSION

Table 4: Washability Summary - Seam F

Footage From	Footage To	Raw Coal Ash %	Raw Coal F.S.I.	Clean Coal Ash %	Clean Coal F.S.I.	Recovery %
H. W.	4.5	27.1	1½ - 6½	7.8	5,5,5½	69.7
4.5	9.0	25.2	1½ - 8	8.4	6,6½,6½	68.9
9.0	13.5	25.6	½ - 7	7.2	5, 5, 5	67.9
13.5	18.0	23.1	1½ - 7½	9.7	8,7½,7½	59.7
H. W.	18.0	25.2	½ - 8	8.2	6,6,6½	66.5

A. Seam F is quite uniform in crossection. Raw coal ash varied from 23.1 to 27.1% averaging 25.2%. This cleaned to an 8.2% ash at 66.5% weight recovery overall. The lower 4.5 ft. at the footwall gave the highest ash (9.7%) coupled with a low 59.7% recovery. The F.S.I. for this section, however, was very high (7½ - 8 for clean coal).

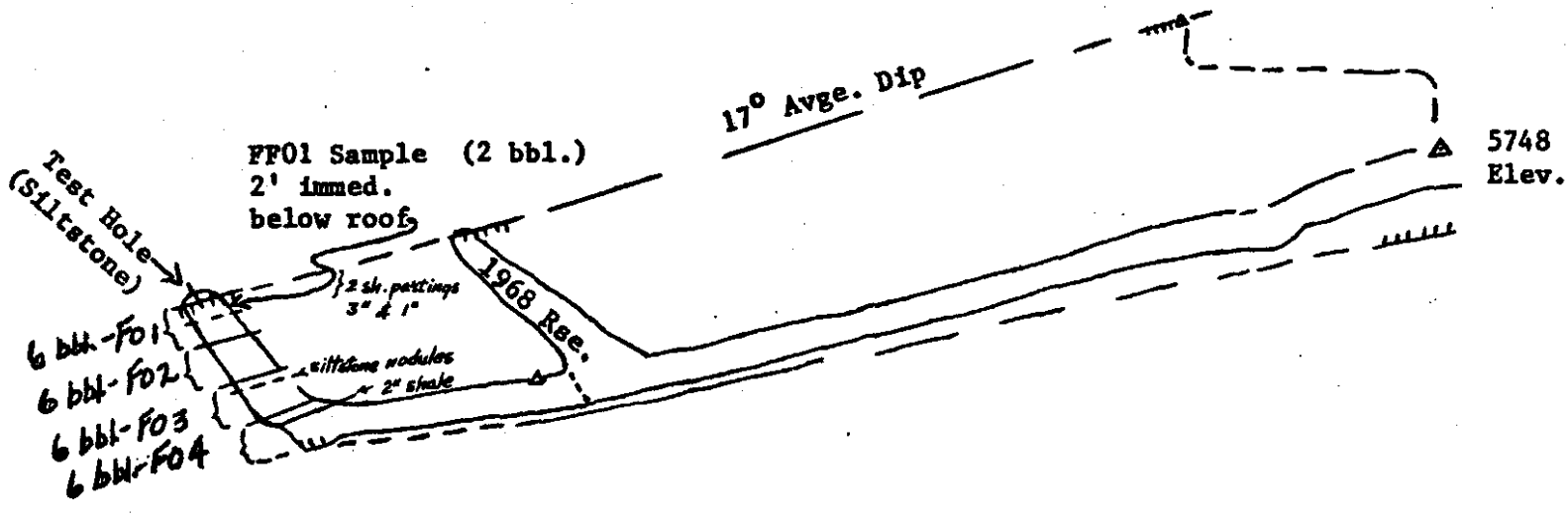
B. The specific gravity of separation ranged from + 1.50 at the hanging wall to 1.40 at the bottom of the seam.

C. % - 28 Mesh in the raw coal was 18%. 0.05 lbs/ton M.I.B.C. was required to float the bulk of the seam. However, fines from the hanging wall region required 0.08 lbs/ton. In all cases the coal floated very rapidly.

D. % Sulphur in the raw coal was 0.44% and in the clean coal 0.63%. The % Sulphur was slightly higher in the two outer sections at the top and bottom of the seam.

APPENDIX

Fig. 1: Sketch of Adit 12 & Raises



Scale 1 in. = 20 ft.

1. Bench Scale Testing to Determine S.G's. & Lbs/Ton

Section	Size Fraction	S.G. Fraction	Wt. Gms.	Wt. %	Ash %	Cum. Float Wt %	Cum. Float Ash %	Cum. Sink Wt %	Cum. Sink Ash %
F01	-4" + ½"	-1.35	1610	45.0	5.8	45.0	5.8	55.0	74.0
		-1.40+1.35	144	4.0	10.9	49.0	6.2	51.0	79.0
		-1.45+1.40	41	1.2	19.6	50.2	6.5	49.8	80.4
		+1.45	1782	49.8	80.4	100.0	43.3	0	-
		Calc Head	3577	100.0	43.3				
		Assay Head	3646	-	34.4		S.G. SELECTED =		1.50
F01	-½" + 1/8"	-1.35	1479	50.3	4.7	50.3	4.7	49.7	51.7
		-1.40+1.35	354	12.0	10.3	62.3	5.8	37.7	64.9
		-1.45+1.40	93	3.2	17.2	65.5	6.3	34.5	69.3
		+1.45	1015	34.5	69.3	100.0	28.1	0	-
		Calc Head	2941	100.0	28.1				
		Assay Head	3000	-	30.5		S.G. SELECTED =		1.50

Section	Size Fraction	S. G. Fraction	Wt. Gms.	Wt. %	Ash %	Cum Float Wt %	Cum Float Ash %	Cum. Sink Wt %	Cum. Sink Ash %
F01	-28M	Conc	2987	83.5	9.7	@ 0.1 Lbs/Ton			
		Tails	590	16.5	41.9				
		Calc.Head	3577	100.0	15.0				
		Assay Head	3600	-	15.6				
F01	-28M	Conc	3354	93.1	12.4	@ 0.15 Lbs/Ton			
		Tails	250	6.9	63.8				
		Calc.Head	3604	100.0	16.0				
		Assay Head	3630	-	15.6				
F01	-28M	Conc	3315	93.0	11.3	@ 0.15 Lbs/Ton			
		Tails	249	7.0	61.7				
		Calc.Head	3564	100.0	14.8				
		Assay Head	3630	-	15.6	Lbs/Ton SELECTED = 0.08			
F02	-4"+½"	-1.35	3361	51.5	7.2	51.5	7.2	48.5	49.9
		-1.40+1.35	572	8.8	12.5	60.3	8.0	39.7	58.2
		-1.45+1.40	245	3.7	19.0	64.0	8.6	36.0	62.2
		+1.45	2353	36.0	62.2	100.0	27.9	0	-
		Calc.Head	6531	100.0	27.9				
		Assay Head	-	-	36.3	S.G. SELECTED = 1.42			
F02	-½"+28M	-1.35	2386	55.4	6.4	55.4	6.4	44.6	43.0
		-1.40+1.35	423	9.8	13.0	65.2	7.4	34.8	51.5
		-1.45+1.40	346	8.0	20.9	73.2	8.9	26.8	60.7
		+1.45	1153	26.8	60.7	100.0	22.7	0	-
		Calc.Head	4308	100.0	22.7				
		Assay Head	-	-	21.8	S.G. SELECTED = 1.43			
F02	-28M	Conc	2700	74.3	6.9	@ 0.05 Lbs/Ton			
		Tails	930	25.7	32.1				
		Calc.Head	3630	100.0	13.4				
		Assay Head	3630	-	12.3				
F02	-28M	Conc	3380	93.2	8.9	@ 0.10 Lbs/Ton			
		Tails	250	6.8	60.5				
		Calc.Head	3630	100.0	12.5				
		Assay Head	3630	-	12.3				
F02	-28M	Conc	3427	94.4	10.7	@ 0.15 Lbs/Ton			
		Tails	203	5.6	62.9				
		Calc.Head	3630	100.0	13.6				
		Assay Head	3630	-	12.3	Lbs/Ton SELECTED = 0.05			
F03	-4"+½"	-1.50	3353	58.3	9.0	58.3	9.0	41.7	67.8
		-1.60+1.50	70	1.2	28.4	59.5	9.4	40.5	69.0
		+1.60	2327	40.5	69.0	100.0	33.5	0	-
		Calc.Head	5750	100.0	33.5				
		Assay Head	-	-	43.9	S.G. SELECTED = 1.40			

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Section	Size Fraction	S.G. Fraction	Wt. Gms.	Wt. %	Ash %	Cum. Float Wt %	Cum. Float Ash %	Cum. Sink Wt %	Cum. Sink Ash %
F03	-½ + 28M	-1.50	2839	76.4	9.0	76.4	9.0	23.6	62.1
		-1.60+1.50	131	3.5	29.3	79.9	9.9	20.1	67.9
		+1.60	744	20.1	67.9	100.0	21.5	0.0	-
		Calc.Head	3714	100.0	21.5				
		Assay Head	-	-	22.3		S.G. SELECTED = 1.40		
F03	-28M	Conc	2600	71.6	7.4	@	0.05 Lbs/Ton		
		Tails	1030	28.4	31.6				
		Calc.Head	3630	100.0	14.3				
		Assay Head	3630	-	11.4				
F03	-28M	Conc	3373	92.9	11.6	@	0.1 Lbs/Ton		
		Tails	257	7.1	58.0				
		Calc.Head	3630	100.0	14.9				
		Assay Head	3630	-	11.4		LBS/TON SELECTED = 0.05		
F04	-4"+½"	-1.50	3337	54.8	10.7	54.8	10.7	45.2	65.8
		-1.60+1.50	384	6.3	31.9	61.1	12.9	38.9	71.3
		+1.60	2368	38.9	71.3	100.0	35.6	0	-
		Calc.Head	6089	100.0	35.6				
		Assay Head	-	-	32.8		S.G. SELECTED = 1.38		
F04	-½"+28M	-1.50	2858	69.8	10.9	69.8	10.9	30.2	61.1
		-1.60+1.50	197	4.8	29.9	74.6	12.1	25.4	67.0
		+1.60	1038	25.4	67.0	100.0	26.0	0	
		Calc.Head	4093	100.0	26.0				
		Assay Head	-	-	22.3		S.G. SELECTED = 1.45		
F04	-28M	Conc	2801	77.2	7.3	@	0.05 Lbs/Ton		
		Tails	829	22.8	34.3				
		Calc.Head	3630	100.0	13.5				
		Assay Head	3630	-	14.8				
F04	-28M	Conc	3295	90.8	10.4	@	0.10 Lbs/Ton		
		Tails	335	9.2	61.2				
		Calc.Head	3630	100.0	15.1				
		Assay Head	3630	-	14.8		LBS/TON SELECTED = 0.05		

2. Sectional Washability Data

Section	Size	Product	Wt.Lbs	Wt.%	Ash %	Ash Dist.%	F S I	S.G./or/Lbs/Ton
F01	-4"+½"	Float	116	49.2	6.1	6.8	5½,5,5½	1.50
		Sink	120	50.8	81.0	93.2	0.N.A.	
		Calc.Feed	236	100.0	44.2	100.0	-	
		Raw Coal	232	-	34.4	-	6,6,5½	
F01	-½"+1/8"	Float	224	70.7	6.3	16.8	5,4½,4½	1.50
		Sink	93	29.3	75.*	83.2	-	
		Calc.Feed	317	100.0	26.4	100.0	-	
		Raw Coal	317	-	30.5	-	1½,1½,1½	
F01	-1/8"+28M	Float	168	75.7	7.4	25.5	4½,4½,5	1.50
		Sink	54	24.3	67.3	74.5	1,1,1	
		Calc.Feed	222	100.0	22.0	100.0	-	
		Raw Coal	224	-	23.6	-	4,3½,4	
F01	-28M	Conc	154	88.0	11.5	62.7	5½,5½,5½	0.08
		Tails	21	12.0	50.1	37.3	1½,1½,1½	
		Calc.Feed	175	100.0	16.1	100.0	-	
		Raw Coal	175	-	15.9	-	6½,6½,6½	
F01	Total	Clean Coal	662	69.7	7.8	19.5	5,5,5½	
		Waste	288	30.3	74.2	80.5	-	
		Calc.Feed	950	100.0	27.9	100.0	-	
		Raw Coal	948	-	27.1	-	-	
F02	-4"+½"	Float	175	58.7	8.4	16.5	3,3½,3	1.42
		Sink	123	41.3	60.4	83.5	½,½,½	
		Calc.Feed	298	100.0	29.9	100.0	-	
		Raw Coal	312	-	36.3	-	1½,1½,1½	
F02	-½"+1/8"	Float	225	68.0	9.5	27.6	5,4½,5	1.43
		Sink	106	32.0	50.3	72.4	1, 1, 1	
		Calc.Feed	331	100.0	23.4	100.0	-	
		Raw Coal	352	-	21.8	-	5,5,4½	
F02	-1/8"+28M	Float	154	77.4	7.8	31.0	7½,7½,7½	1.43
		Sink	45	22.6	59.3	69.0	1, 1, 1	
		Calc.Feed	199	100.0	19.4	100.0	-	
		Raw Coal	208	-	21.8	-	5,5,4½	

Sectional Washability Data (Cont)

Section	Size	Product	Wt.Lbs	Wt. %	Ash %	Ash Dist.%	F S I	S.G. /gr/Lbs/Ton
F02	-28M	Conc	99	82.5	7.0	49.0	7½,7½,7½	0.05
		Tails	21	17.5	34.3	51.0	3, 3, 3	
		Calc.Feed	120	100.0	11.8	100.0	-	
		Raw Coal	120	-	12.3	-	8, 8, 8	
F02	Total	Clean Coal	653	68.9	8.4	25.0	6,6½,6½	
		Waste	295	31.1	55.7	75.0	-	
		Calc.Feed	948	100.0	23.1	100.0	-	
		Raw Coal	978	-	25.2	-	-	
F03	-4"+½"	Float	150	64.1	7.8	21.8	3½,3½,3½	1.40
		Sink	84	35.9	50.1	78.2	O.N.A.	
		Calc.Feed	234	100.0	23.0	100.0	-	
		Raw Coal	231	-	43.9	-	½,½,½	
F03	-½"+1/8"	Float	183	61.6	6.8	18.5	4½,4,4½	1.40
		Sink	114	38.4	48.2	81.5	½,½,½	
		Calc.Feed	297	100.0	22.7	100.0	-	
		Raw Coal	317	-	22.3	-	4½, 4, 4	
F03	-1/8"+28M	Float	139	65.9	5.5	19.8	6½,6½,6½	1.40
		Sink	72	34.1	43.1	80.2	1, 1, 1	
		Calc.Feed	211	100.0	18.3	100.0	-	
		Raw Coal	223	-	22.3	-	4½, 4, 4	
F03	-28M	Conc	149	86.1	8.7	60.8	6½,6½,7	0.05
		Tails	24	13.9	34.8	39.2	2½,2½,2½	
		Calc.Feed	173	100.0	12.3	100.0		
		Raw Coal	173	-	11.4	-	7, 7, 7	
F03	Total	Clean Coal	621	67.9	7.2	24.7	5, 5, 5	
		Waste	294	32.1	46.4	75.3	-	
		Calc.Feed	915	100.0	19.8	100.0	-	
		Raw Coal	944	-	25.6	-	-	
F04	-4"+½"	Float	84	41.8	8.9	10.5	6, 6, 6	1.38
		Sink	117	58.2	54.3	89.5	1, 1, 1	
		Calc.Feed	201	100.0	35.3	100.0	-	
		Raw Coal	201	-	32.8	-	1½,1½,1½	

Sectional Washability Data (Cont)

Section	Size	Product	Wt.Lbs	Wt. %	Ash %	Ash Dist.%	F S I	S.G./or/Lbs/Ton
F04	-½"+1/8"	Float	175	55.2	10.2	16.3	7½, 8, 8	1.45
		Sink	142	44.8	64.7	83.7	½, ½, ½	
		Calc.Feed	317	100.0	34.6	100.0	-	
		Raw Coal	330	-	22.3	-	6½,6½,6½	
F04	-1/8"+28M	Float	193	71.7	11.2	30.5	7, 7, 7	1.45
		Sink	76	28.3	64.7	69.5	½, ½, ½	
		Calc.Feed	269	100.0	26.3	100.0	-	
		Raw Coal	268	-	22.3	-	6½,6½,6½	
F04	-28M	Conc	125	69.4	7.3	29.6	8½,8½,8	0.05
		Tails	55	30.6	39.4	70.4	3, 3, 3	
		Calc.Feed	180	100.0	17.1	100.0	-	
		Raw Coal	180	-	14.8	-	7½,7½,7½	
F04	Total	Clean Coal	577	59.7	9.7	19.8	8, 7½,7½	
		Waste	390	40.3	58.0	80.2	-	
		Calc.Feed	967	100.0	29.2	100.0	-	
		Raw Coal	979	-	23.1	-	-	
Seam F	Total	Clean Coal	2513	66.5	8.24	21.8	6, 6, 6½	
		Waste	1267	33.5	58.5	78.2	-	
		Calc.Feed	3780	100.0	25.1	100.0	-	
		Raw Coal	3863	-	25.2	-	-	

FORDING COAL LIMITED

Sullivan Concentrater
Kimberley, B.C.

T.D. SECTION 568
FORDING COAL LIMITED

PROGRESS REPORT NO. 22

ADIT SAMPLE TESTING 1971
SEAM G LOWER - ADIT 15

ABSTRACT:

A bulk sample of clean coal from Seam G Lower-Adit 15 was prepared for coking tests in Ottawa. Sufficient data was collected to determine the washability characteristics of the seam.

SUMMARY:

4358 lbs = 1.9767 metric tonnes of raw coal at 26.5% ash was treated by sink/float separation and flotation to produce 2269 lbs. of clean coal with the following proximate analysis:

Inherent Moisture	1.1 %
Ash	7.7 %
Volatiles	27.5 %
Fixed Carbon	63.7 %
Sulphur	0.99 %
F.S.I.	8,8,8

Clean coal weight % recovery was 52.1 %

ACKNOWLEDGEMENTS:

A.S. Grant was the technician in charge. All assays were reported from the Sullivan Concentrator Assay Lab.

Signed: S.J. Bonny

S.J. Bonny, Development Engineer,
Fording Coal Limited

Approved: M. Malnarich

M. Malnarich,
Process Superintendent,
Fording Coal Limited.

SJBonny/mm
August 26, 1971

Copies:

Trail: MN (2); PJG

Fording: RMP; OLJ; JBD; ACT

Kimberley: SJB; CL File (5)

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OBJECT:

1. To prepare a 2500 lb. sample of clean coal, 8.0 - 8.5% ash, for coking tests in Ottawa.

2. To obtain washability data on seam G Lower.

DETAILS:

A. Mine Sampling

Seam G Lower was sampled in two 5 ft. Sections from Adit 15. Each sectional sample comprised 12 barrels from which half were forwarded to the Sullivan Concentrator for testing.

Section	Footage From	To	No. of Bbls.	Dry Wt. Lbs.
GO 1	H.W.	5.0	6	2361
GO 2	5.0	10.0	6	2159
TOTAL	H.W.	10.0	12	4520

Coal from each Section was air dried and dry screened at 1/2", 1/8" and 28 Mesh. Head samples were cut from each size fraction for raw coal analysis.

Table 1: Raw Coal Analysis - Seam G Lower

Section	Size Fraction	Wt. Lbs	Wt. %	IM %	Ash %	VCM %	FC %	S %	F.S.I.
G01	-4" + 1/2"	921	39.0	0.8	52.0	15.0	32.2	0.88	$2, 2, 2\frac{1}{2}$
	-1/2" + 1/8"	726	30.7	0.7	20.5	25.2	53.6	0.91	$7\frac{1}{2}, 7\frac{1}{2}, 7$
	-1/8" + 28M	467	19.8	0.7	15.3	25.7	58.3	0.91	$8, 8\frac{1}{2}, 8$
	- 28M	247	10.5	0.8	11.4	26.6	61.2	1.1	$8\frac{1}{2}, 8\frac{1}{2}, 8\frac{1}{2}$
	Total	2361	100.0	0.7	30.8	21.5	47.0	0.92	-
G02	-4" + 1/2"	479	22.2	0.6	24.7	24.1	50.6	0.82	$7\frac{1}{2}, 7\frac{1}{2}, 7\frac{1}{2}$
	-1/2" + 1/8"	730	33.8	0.4	21.6	25.3	52.7	0.91	$7, 7\frac{1}{2}, 7$
	-1/8" +28M	612	28.3	0.7	22.0	24.1	53.2	1.30	$6\frac{1}{2}, 6\frac{1}{2}, 7$
	-28M	338	15.7	0.7	18.6	25.1	55.6	1.32	$7\frac{1}{2}, 7\frac{1}{2}, 7\frac{1}{2}$
	Total	2159	100.0	0.6	21.9	24.7	52.8	1.06	-
Seam G Lower Total		4520	-	0.7	26.5	23.0	49.8	0.99	-

B. Washing Procedure

The +28 Mesh fractions were cleaned by a sink/float separation in a Carbontetrachloride/Varsol medium. The -28 Mesh fractions were cleaned by flotation with Methyl Isobutyl Carbinol. Specific gravities and Lbs/ton M.I.B.C. were selected through bench scale tests which are detailed in the Appendix.

C. Washability Data

See Appendix for detailed washabilities of Sectional size fractions and calculated totals.

Table 2: Clean Coal Analysis - Seam G Lower

Section	Size Fraction	Wt. Lbs	Wt. %	IM %	Ash %	VCM %	FC %	S %	F.S.I.
G01	-4" + 1/2"	157	15.5	0.8	9.4	27.0	62.8	1.2	8½,8½,8½
	-½" + 1/8"	326	32.3	0.8	7.3	27.6	64.3	0.99	8½,8½,8½
	-1/8" + 28M	354	35.1	1.2	4.1	28.4	66.3	0.90	8½,8½,8½
	- 28M	173	17.1	1.0	6.8	27.5	64.7	1.0	8½,8½,8½
	Total	1010	100.0	1.0	6.4	27.8	64.8	0.99	8½,8½,8½
G02	-4" + 1/2"	287	22.8	0.9	8.0	26.9	64.2	1.1	8,8,8
	-½" + 1/8"	476	37.8	0.9	8.2	27.3	63.6	0.91	8,8,8
	-1/8" + 28M	372	29.5	1.7	9.7	27.6	61.0	1.0	8,8,8
	- 28M	124	9.9	0.8	9.0	27.1	63.1	1.0	8½,8½,8
	Total	1259	100.0	1.1	8.7	27.3	62.9	0.99	8,8,8
Seam G	Total	2269	-	1.1	7.7	27.5	63.7	0.99	8,8,8

An ultimate analysis will be performed on the overall Seam G clean coam composite sample.

Table 3: Overall Washability - Seam G Lower

Product	Wt.	Wt %	Ash %	Ash Dist %	F.S.I.
Clean Coal	2269	52.1	7.7	12.9	8,8,8
Waste	2089	47.9	56.6	87.1	-
Calc Raw Coal	4358	100.0	31.1	100.0	-
Assay Raw Coal	4520	-	26.5	-	-

D. Shipment

The float products and flotation concentrates from GO 1 and GO 2 were thoroughly mixed and placed wet in seven 45 gallon drums with clamp type lids. The -4" + 1/2" clean coal had previously been broken to - 1 1/2". The drums were topped off with water saved from flotation to minimize oxidation of the coal.

These seven drums from Seam G Lower, along with drums from Seams F and H Lower were shipped via C.P. Merchandise Services on July 21, 1971 to:

Mr. J. C. Botham,
c/o Department of Energy Mines and Resources,
556 Booth Street,
Ottawa, Ontario

The coal will be used for coking tests and coal quality evaluation in Ottawa. Procedures are outlined in a letter dated July 23, 1971 from M. Malnarich to J. C. Botham.

SUMMARY AND DISCUSSION:

Table 4: Washability Summary - Seam G Lower

Footage		Raw Coal		Clean Coal		
From	To	Ash %	F.S.I.	Ash %	F.S.I.	Recovery %
H.W.	5.0	30.8	2-8 1/2	6.4	$8\frac{1}{2}, 8\frac{1}{2}, 8\frac{1}{2}$	42.8
5.0	10.0	21.9	$6\frac{1}{2} - 7\frac{1}{2}$	8.7	8, 8, 8	63.0
H.W.	10.0	26.5	$2 - 8\frac{1}{2}$	7.7	8, 8, 8	52.0

A. Seam G Lower was quite uniform in crossection with one notable exception: The -4" + 1/2" size fraction from the upper five feet assayed 52.0% ash and accounted for 39% by weight of the hanging wall section. Either sample contaimination or severe shale partings are clearly indicated. Otherwise coal from this seam is of good quality at 22% Ash and 6 1/2 - 8 1/2 F.S.I. Overall recovery was 52.1 % at 7.7 % Ash.

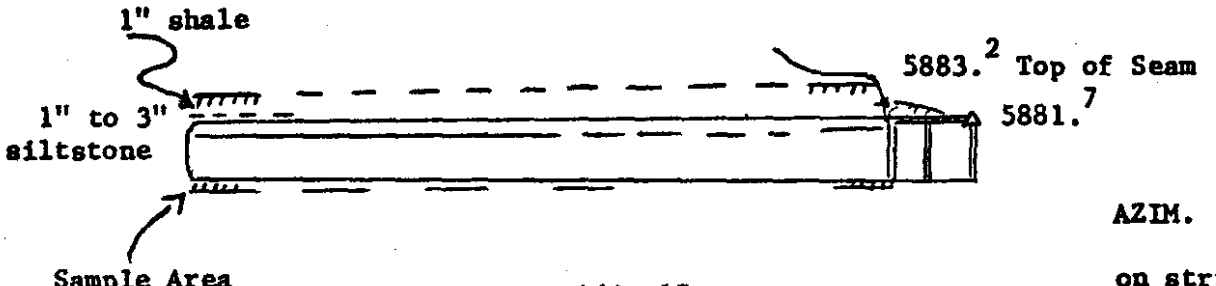
B. The specific gravity of separation was 1.38 for G01 and 1.45 for G02.

C. % - 28 Mesh in the raw coal was only 13%. Flotation was carried out at 0.05 lbs/ton M.I.B.C. Weight recovery in the concentrate was 70% for G0 1 at 6.8 % Ash but only 36.7 % for G0 2 at 9.0 % ash. Oxidation was not evident through F.S.I. Values.

D. % sulphur was high for the entire seam at 0.99 % for both the raw and clean coal.

APPENDIX

Fig. 1 Sketch of Adit 15



Adit 15
Vertical Section
Scale 1" = 20 ft.

1. Bench Scale Testing to Determine S.G.'s & Lbs/ton

Section	Size Fraction	S. G. Fraction	Wt. GMS	Wt. %	Ash %	Cum. Float Wt.%	Cum. Float Ash %	Cum. Sink Wt.%	Cum. Sink Ash %
G01	-½" + 1/8"	-1.35	1970	37.1	6.6	37.1	6.6	62.9	53.7
		-1.40+1.35	399	7.5	18.5	44.6	8.6	55.4	58.2
(Test #1)		-1.45+1.40	213	4.0	22.8	48.6	9.8	51.4	61.2
		-1.50+1.45	157	3.0	28.8	51.6	10.9	48.4	63.2
		-1.55+1.50	113	2.1	33.0	53.7	11.7	46.3	64.6
		+1.55	2455	46.3	64.6	100.0	36.2	0	-
	Calc.Head		5307	100.0	36.2				
	Assay Head		5338	-	-				

Bench Scale Testing (Cont)

Section	Size Fraction	S.G. Fraction	Wt. GMS	Wt. %	Ash %	Cum. Float Wt.%	Cum. Float Ash %	Cum. Sink Wt.%	Cum. Sink Ash %
G01 (Test #2)	-½" + 1/8"	-1.35	1753	41.4	7.2	41.4	7.2	58.6	52.7
		-1.40+1.35	379	8.9	16.9	50.3	8.9	49.7	59.1
		-1.45+1.40	160	3.8	22.7	54.1	9.9	45.9	62.1
		-1.50+1.45	132	3.1	28.5	57.2	10.9	42.8	64.6
		-1.55+1.50	100	2.4	35.0	59.6	11.9	40.4	66.3
		+1.55	1715	40.4	66.3	100.0	33.9	0	-
	Calc. Head		4239	100.0	33.9				
	Assay Head		4279	-	-				
G02 (Test #1)	-½" + 1/8"	-1.35	2688	55.0	5.3	55.0	5.3	45.0	43.0
		-1.40+1.35	438	9.0	16.3	64.0	6.8	36.0	49.7
		-1.45+1.40	193	3.9	20.8	67.9	7.6	32.1	53.2
		-1.50+1.45	155	3.2	26.9	71.1	8.5	28.9	56.1
		-1.55+1.50	103	2.1	32.4	73.2	9.2	26.8	58.0
		+1.55	1311	26.8	58.0	100.0	22.3	0	-
	Calc. Head		4888	100.0	22.3				
	Assay Head		5032	-	-				
G02 (Test #2)	-½" + 1/8"	-1.35	4330	55.9	6.6	55.9	6.6	44.1	42.9
		-1.40+1.35	736	9.5	14.8	65.4	7.8	34.6	50.7
		-1.45+1.40	347	4.5	20.8	69.9	8.6	30.1	55.1
		-1.50+1.45	235	3.0	28.1	72.9	9.4	27.1	58.1
		-1.55+1.50	111	1.4	32.0	74.3	9.9	25.7	59.6
		+1.55	1984	25.7	59.6	100.0	22.6	0	-
	Calc. Head		7743	100.0	22.6				
	Assay Head		7981	-	-				

2. Sectional Washability Data

Section	Size	Product	Wt.Lbs	Wt.%	Ash %	Ash Dist.%	F.S.I.	S.G. or lbs/ton
G01	-4" +½"	Float	157	17.1	9.4	2.5	8½,8½,8½	1.38
		Sink	763	82.9	74.2	97.5	0 N.A.	
		Calc.Feed	920	100.0	63.1	100.0	-	
		Raw Coal	921	-	52.0	-	2,2,2½	
G01	-½"+1/8"	Float	326	45.4	7.3	9.9	8½,8½,8½	1.38
		Sink	392	54.6	55.5	90.1	1, 1, 1	
		Calc.Feed	718	100.0	33.6	100.0	-	
		Raw Coal	726	-	20.5	-	7½,7½,7	
G01	-1/8"+28M	Float	354	74.7	4.1	20.0	8½,8½,8½	1.38
		Sink	120	25.3	48.3	80.0	1, 1, 1	
		Calc.Feed	474	100.0	15.3	100.0	-	
		Raw Coal	467	-	15.3	-	8, 8½,8	

Sectional Washability Data (Cont)

Section	Size	Product	Wt.Lbs	Wt.%	Ash %	Ash Dist.%	F.S.I.	S.G. or lbs/ton
G01	-28M	Conc	173	70.0	6.8	44.4	$8\frac{1}{2},8\frac{1}{2},8\frac{1}{2}$	0.05
		Tails	74	30.0	19.9	55.6	$7\frac{1}{2},8,7\frac{1}{2}$	
		Calc.Feed	247	100.0	10.7	100.0	-	
		Raw Coal	247	-	11.4	-	$8\frac{1}{2},8\frac{1}{2},8\frac{1}{2}$	
G01	Total	Clean Coal	1010	42.8	6.4	7.0	$8\frac{1}{2},8\frac{1}{2},8\frac{1}{2}$	
		Waste	1349	57.2	63.5	93.0	-	
		Calc.Feed	2359	100.0	39.1	100.0	-	
		Raw Coal	2361	-	30.8	-	-	
G02	-4"+1/2"	Float	287	68.2	8.0	22.0	8, 8, 8	1.45
		Sink	134	31.8	60.9	78.0	1, 1, 1	
		Calc.Feed	421	100.0	24.8	100.0	-	
		Raw Coal	479	-	24.7	-	$7\frac{1}{2},7\frac{1}{2},7\frac{1}{2}$	
G02	-1/2"+1/8"	Float	476	72.3	8.2	29.2	8, 8, 8	1.45
		Sink	182	27.7	52.1	70.8	1, 1, 1	
		Calc.Feed	658	100.0	20.3	100.0	-	
		Raw Coal	730	-	21.6	-	$7\frac{1}{2},7,7$	
Go2	-1/8"+28M	Float	372	63.9	9.7	28.9	8, 8, 8	
		Sink	210	36.1	42.2	71.1	1, 1, 1	
		Calc.Feed	582	100.0	21.4	100.0	-	
		Raw Coal	612	-	22.0	-	$6\frac{1}{2},6\frac{1}{2},7$	
G02	-28M	Conc	124	36.7	9.0	15.6	8, 8, 8	0.05
		Tails	214	63.3	28.2	84.4	5, 5, $4\frac{1}{2}$	
		Calc.Feed	338	100.0	21.2	100.0	-	
		Raw Coal	338	-	18.6	-	$7\frac{1}{2},7\frac{1}{2},7\frac{1}{2}$	
G02	Total	Clean Coal	1259	63.0	8.7	25.2	8, 8, 8	
		Waste	740	37.0	44.0	74.8	-	
		Calc.Feed	1999	100.0	21.8	100.0	-	
		Raw Coal	2159	-	21.9	-	-	
Seam G	Total	Clean Coal	2269	52.1	7.7	12.9	8, 8, 8	
		Waste	2089	47.9	56.6	87.1	-	
		Calc.Feed	4358	100.0	31.1	100.0	-	
		Raw Coal	4520	-	26.5	-	-	

FORDING COAL LIMITED

Sullivan Concentrator
Kimberley, B.C.

T.D. SECTION 568
FORDING COAL LIMITED

PROGRESS REPORT NO. 23

ADIT SAMPLE TESTING - 1971
SEAM H LOWER - ADIT 16

ABSTRACT:

A bulk sample of clean coal from Seam H Lower Adit 16 was prepared for coking tests in Ottawa. Sufficient data was collected to determine the washability characteristics of the seam.

SUMMARY: 1,8720 metric tonnes

4127 lbs of raw coal at 18.9% Ash was treated by sink/float separation and flotation to produce 3382 lbs of clean coal with the following proximate analysis:

Inherent Moisture	1.3 %
Ash	8.0 %
Volatiles	29.3 %
Fixed Carbon	61.4 %
Sulphur	0.67%
F. S. I.	8,8,8

The -1/8" raw coal from the top 5' and all raw coal from the middle 5' was of sufficiently low ash that no cleaning was required.

Overall clean coal weight % recovery was 81.9%.

ACKNOWLEDGEMENTS:

A.S. Grant was the technician in charge. All assays were reported from the Sullivan Concentrator Assay Lab.

Signed: S. J. Bonny

S. J. Bonny, Development Engineer
Fording Coal Limited

Approved: M. Malnarich

M. Malnarich,
Process Superintendent
Fording Coal Limited

SJBonny/mm
August 27, 1971

Copies:

Trail: MM (2); PJG

Fording: RMP; OIJ; JBD; ACT

Kimberley: SJB; CL File (5)

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OBJECT:

1. To prepare a 2500 lb. sample of clean coal, 8.0 - 8.5 % ash, for coking tests in Ottawa.

2. To obtain washability data on Seam H Lower.

DETAILS:

A. Mine Sampling

Seam H Lower was sampled in two 5 ft. and one 4.5 ft. sections from Adit 16. Each sectional sample comprised 8 barrels from which half were forwarded to the Sullivan Concentrator for testing.

Section	Footage From	To	No.of Bbls.	Dry Wt. Lbs.
H01	H.W.	5.0	4	1417
H02	5.0	10.0	4	1313
H03	10.0	14.5	4	1566
Total	H.W.	14.5	12	4296

Coal from each section was air dried and dry screened at 1/2", 1/8", and 28 Mesh. Head samples were cut from each size fraction for raw coal analysis.

Table 1: Raw Coal Analysis - Seam H Lower

Section	Size Fraction	Wt. Lbs.	Wt. %	IM %	Ash %	VCM %	FC %	S %	F.S.I.
H01	-4"+1/2"	258	18.2	1.6	10.0	26.8	61.6	0.66	7½,7½,7½
	-½"+1/8"	475	33.5	1.2	13.6	28.2	57.0	0.63	8, 8, 7½
	-1/8"+28M	430	30.4	1.5	8.9	29.9	59.7	0.69	8½,8½,8½
	-28M	254	17.9	1.6	7.0	30.7	60.7	0.99	7½,7½,7½
	Total	1417	100.0	1.4	10.3	28.9	59.4	0.72	-
H02	-4"+1/2"	328	25.0	1.6	8.2	26.9	63.3	0.69	7½,7½,7½
	-½"+1/8"	437	33.3	1.4	7.8	28.5	62.3	0.58	8, 8, 8
	-1/8"+28M	341	26.0	1.0	5.2	29.9	63.9	0.63	8½,8½,8½
	-28M	207	15.7	1.2	3.5	30.0	65.3	0.63	9, 9, 9
	Total	1313	100.0	1.3	6.5	28.7	63.5	0.63	8, 8, 8
H03	-4"+1/2"	162	10.3	0.7	45.1	19.0	35.2	0.63	4,3½,4
	-½"+1/8"	602	38.4	0.7	44.7	20.4	34.2	0.60	3½,3½,3½
	-1/8"+28M	479	30.6	1.5	33.0	23.2	42.3	0.58	6,6,5½
	-28M	323	20.7	1.9	25.3	25.0	47.8	1.00	6½,7,6½
	Total	1566	100.0	1.2	37.2	22.1	39.5	0.68	-
Seam H	Total	4296	-	1.3	18.9	26.4	53.4	0.68	-

B. Washing Procedure

The +28 Mesh fractions were cleaned by a sink/float separation in a Carbontetrachloride/Varsol medium. The -28 Mesh fractions were cleaned by flotation with Methyl Isobutyl Carbinol. Specific gravities and lbs/ton M.I.B.C. were selected through bench scale tests which are detailed in the Appendix.

Certain sectional size fractions were already at 8.5% ash or lower in their raw state and required no cleaning.

C. Washability Data

See Appendix for detailed washabilities of sectional size fractions and calculated totals.

Table 2: Clean Coal Analysis - Seam H Lower

Section		Size Fraction	Wt. Lbs	Wt. %	IM %	Ash %	VCM %	FC %	S %	F.S.I.
H01		-4"+1/2"	216	16.4	1.3	7.9	27.4	63.4	0.66	7½,8,7½
		-½"+1/8"	420	31.8	1.2	8.2	29.6	61.0	0.77	8, 8, 8
	*	-1/8"+28M	430	32.6	1.5	8.9	29.9	59.7	0.69	8½,8½,8½
	*	-28M	254	19.2	1.6	7.0	30.7	60.7	0.99	7½,7½,7½
		Total	1320	100.0	1.4	8.1	29.5	61.0	0.77	8, 8, 8
H02	*	-4"+1/2"	328	25.0	1.6	8.2	26.9	63.3	0.69	7½,7½,7½
	*	-½"+1/8"	437	33.3	1.4	7.8	28.5	62.3	0.58	8, 8, 8
	*	-1/8"+28M	341	26.0	1.0	5.2	29.9	63.9	0.63	8½,8½,8½
	*	-28M	207	15.7	1.2	3.5	30.0	65.3	0.63	9, 9, 9
	*	Total	1313	100.0	1.3	6.5	28.7	63.5	0.63	8, 8, 8
H03		-4"+1/2"	55	7.3	0.7	11.1	31.0	57.2	0.52	8½,8½,8½
		-½"+1/8"	264	35.2	0.7	13.5	28.8	57.0	0.52	8½,8,8½
		-1/8"+28M	219	29.3	1.5	5.1	31.1	62.3	0.55	9, 9, 8½
		-28M	211	28.2	1.6	11.5	29.8	57.1	0.69	8½,8½,8½
		Total	749	100.0	1.2	10.3	29.9	58.6	0.58	8½,8½,8½
Seam H		Total	3382	-	1.3	8.0	29.3	61.4	0.67	8, 8, 8

* Sectional size fractions which required no cleaning

An ultimate analysis will be performed on the overall Seam H clean coal composite sample.

Table 3: Overall Washability - Seam H Lower

Product	Wt.	Wt. %	Ash %	Ash Dist.%	F.S.I.
Clean Coal	3382	81.9	8.0	37.4	8, 8, 8
Waste	745	18.1	60.9	62.6	-
Calc.Raw Coal	4127	100.0	17.5	100.0	-
Assay Raw Coal	4296	-	18.9	-	-

D. Shipment

The float products, flotation concentrates, and on-spec. raw coal from H01-H03 were thoroughly mixed and placed wet in eight 45 gallon drums with clamp type lids. The -4" + 1/2" clean coal had previously been broken to - 1 1/2". The drums were topped off with water, saved from flotation, to minimize oxidation of the coal.

These eight drums from Seam H Lower, along with drums from Seams F and G Lower, were shipped via C.P. Merchandise Services on July 21, 1971 to:

Mr. J. C. Botham,
c/o Department of Energy Mines and Resources,
556 Booth Street,
Ottawa, Ontario

The coal will be used for coking tests and coal quality evaluation in Ottawa. Procedures are outlined in a letter dated July 23, 1971 from M. Malnarich to J.C. Botham.

SUMMARY AND DISCUSSION

Table 4: Washability Summary - Seam H Lower

Footage From	To	Raw Coal Ash %	F.S.I.	Clean Coal Ash %	F.S.I.	Recovery %
H.W.	5.0	10.3	7½-8½	8.1	8, 8, 8	96.5
5.0	10.0	6.5	7½ - 9	6.5	8, 8, 8	100.0
10.0	14.5	37.2	3½ - 7	10.3	8½,8½,8½	51.8
H.W.	14.5	18.9	3½-8½	8.0	8, 8, 8	81.9

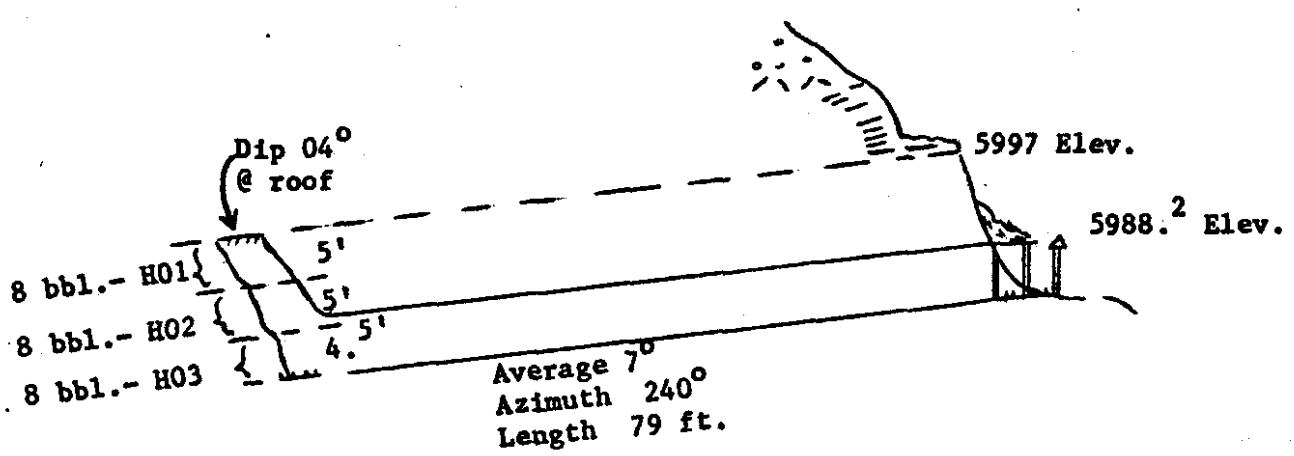
A. The top 10 feet, of Seam H Lower is exceptionally good coal, assaying 10.3% and 6.5% ash for each 5 foot section. Volatiles are high at 28.8%.

The bottom 4.5 feet assays 37.2% ash in the raw state and cleaned to 10.3% ash with a 51.8% recovery.

B. Only the +1/8" fraction of H01 required cleaning and a 1.60 S.G. was used. H02 required no cleaning. H03 was cleaned at 1.43 S.G. Flotation on H03 fines required 0.05 lbs/ton M.I.B.C.

C. % sulphur was 0.68 in the raw coal and 0.58 in the clean coal.

Fig. 1 Sketch of Adit 16



Adit 16 Seam H Lower — 5950 Elevation

Sampled June 9, 1971

1. Bench Scale Testing to Determine S.G.'s & Lbs/Ton

Section	Size Fraction	S.G. Fraction	Wt. Gms	Wt. %	Ash %	Cum. Float Wt.%	Cum. Float Ash %	Cum. Sink Wt.%	Cum. Sink Ash %
H01 (Test #1)	-½"+1/8"	-1.35	2389	74.5	4.3	74.5	4.3	25.5	32.8
		-1.40+1.35	338	10.5	13.0	85.0	5.4	15.0	46.6
		-1.45+1.40	112	3.5	18.2	88.5	5.9	11.5	55.3
		-1.50+1.45	57	1.8	23.1	90.3	6.2	9.7	61.2
		-1.55+1.50	37	1.2	28.2	91.4	6.5	8.6	65.6
		+1.55	275	8.5	65.6	100.0	11.6	0	-
		Calc.Head	3208	100.0	11.6				
		Assay Head	3290	-	-				
H01 (Test #2)	-½"+1/8"	-1.35	2936	75.3	4.7	75.3	4.7	24.7	33.2
		-1.40+1.35	376	9.6	13.5	84.9	5.7	15.1	45.8
		-1.45+1.40	142	3.6	17.9	88.5	6.2	11.5	54.8
		-1.50+1.45	71	1.9	23.5	90.4	6.5	9.6	60.7
		-1.55+1.50	46	1.2	28.6	91.6	6.8	8.4	65.2
		+1.55	328	8.4	65.2	100.0	11.7	0	-
		Calc.Head	3899	100.0	11.7				
		Assay Head	4000	-	-				

Bench Scale Testing (Cont)

Section	Size Fraction	S.G. Fraction	Wt. Gms	Wt. %	Ash %	Cum. Float Wt.%	Cum. Float Ash %	Cum. Sink Wt.%	Cum. Sink Ash %
H02 (Test #1)	-½"+1/8"	-1.35	3428	80.3	4.8	80.3	4.8	19.7	22.2
		-1.40+1.35	460	10.8	13.5	91.1	5.8	8.9	32.7
		-1.45+1.40	159	3.7	17.1	94.8	6.3	5.2	43.8
		-1.50+1.45	55	1.3	22.9	96.1	6.5	3.9	50.6
		-1.55+1.50	31	0.7	26.9	96.8	6.6	3.2	56.0
		+1.55	137	3.2	56.0	100.0	8.2	0	-
		Calc.Head	4270	100.0	8.2				
		Assay Head	4400	-	-				
H02 (Test #2)	-½"+1/8"	-1.35	3519	80.9	5.6	80.9	5.6	19.1	23.2
		-1.40+1.35	455	10.5	14.8	91.4	6.7	8.6	33.4
		-1.45+1.40	147	3.4	16.9	94.8	7.2	5.2	44.0
		-1.50+1.45	68	1.6	23.3	96.3	7.3	3.7	52.8
		-1.55+1.50	27	0.6	27.3	96.9	7.4	3.1	57.9
		+1.55	134	3.0	57.9	100.0	9.0	0	-
		Calc.Head	4350	100.0	9.0				
		Assay Head	4457	-	-				
H03 (Test #1)	-½"+1/8"	-1.35	1543	32.6	5.9	32.6	5.9	67.4	64.7
		-1.40+1.35	174	3.7	15.0	36.3	6.8	63.7	67.6
		-1.45+1.40	108	2.3	22.2	38.6	7.7	61.4	69.3
		-1.50+1.45	82	1.7	26.6	40.3	8.5	59.7	70.5
		-1.55+1.50	100	2.1	32.4	42.4	9.7	57.6	71.9
		+1.55	2723	57.6	71.9	100.0	45.5	0	-
		Calc.Head	4730	100.0	45.5				
		Assay Head	4862	-	-				
H03 (Test #2)	-½"+1/8"	-1.35	1306	33.7	8.1	33.7	8.1	66.3	62.3
		-1.40+1.35	154	4.0	14.6	37.7	8.8	62.3	65.3
		-1.45+1.40	100	2.5	22.2	40.2	9.6	59.8	67.2
		-1.50+1.45	61	1.6	27.8	41.8	10.3	58.2	68.3
		-1.55+1.50	76	2.0	32.5	43.8	11.3	56.2	69.5
		+1.55	2179	56.2	69.5	100.0	44.0	0	-
		Calc.Head	3876	100.0	44.0				
		Assay Head	4151	-	-				

Specific Gravities Selected:

H01	-	1.60
H02	-	No washing reqd.
H03	-	1.42 - 1.43

2. Sectional Washability Data

Section	Size	Product	Wt.Lbs	Wt. %	Ash %	Ash Dist.%	F.S.I.	S.G. or lbs/ton
H01	-4"+½"	Float	216	93.9	7.9	64.0	7½,8,7½	1.60
		Sink	14	6.1	68.5	36.0	½, ½, ½	
		Calc.Feed	230	100.0	11.6	100.0	-	
		Raw Coal	258	-	10.0	-	7½,7½,7½	
H01	-½"+1/8"	Float	420	92.5	8.2	60.4	8, 8, 8	1.60
		Sink	34	7.5	66.3	39.6	½, ½, ½	
		Calc.Feed	454	100.0	12.6	100.0	-	
		Raw Coal	475	-	13.6	-	8, 8, 7½	
H01	Total	Clean Coal	1320	96.5	8.1	76.9	8, 8, 8	
		Waste	48	3.5	66.9	23.1	-	
		Calc.Feed	1368	100.0	10.2	100.0	-	
		Raw Coal	1417	-	10.3	-	-	
H02	Total	Clean Coal	1313	100.0	6.5	100.0	8, 8, 8	
		Waste	0	0	-	0	-	
		Raw Coal	1313	100.0	6.5	100.0	8, 8, 8	
H03	-4"+1/2"	Float	55	34.6	11.1	7.5	8½,8½,8½	1.43
		Sink	104	65.4	72.8	92.5	0 N.A.	
		Calc.Feed	159	100.0	51.5	100.0	-	
		Raw Coal	162	-	45.1	-	4, 3½, 4	
H03	-½"+1/8"	Float	264	47.7	13.5	16.7	8½,8, 8½	1.43
		Sink	289	52.3	61.6	83.3	1, 1, 1	
		Calc.Feed	553	100.0	38.6	100.0	-	
		Raw Coal	602	-	44.7	-	3½,3½,3½	
H03	-1/8"+28M	Float	219	53.3	5.1	8.7	9, 9, 8½	1.42
		Sink	192	46.7	61.3	91.3	½, ½, ½	
		Calc.Feed	411	100.0	31.4	100.0	-	
		Raw Coal	479	-	33.0	-	6, 6, 5½	
H03	-28M	Conc	211	65.3	11.5	32.5	8½,8½,8½	0.05
		Tails	112	34.7	45.0	67.5	3½, 4,3½	
		Calc.Feed	323	100.0	23.1	100.0	-	
		Raw Coal	323	-	25.3	-	6½, 7,6½	

Sectional Washability Data (Cont)

Section	Size	Product	Wt.Lbs	Wt.%	Ash %	Ash Dist.%	F.S.I.	S.G. or Lbs/ton
H03	Total	Clean Coal	749	51.8	10.3	15.5	8½,8½,8½	
		Waste	697	48.2	60.5	84.5	-	
		Calc. Feed	1446	100.0	34.5	100.0	-	
		Raw Coal	1566	-	37.2	-	-	
Seam H	Total	Clean Coal	3382	81.9	8.0	37.4	8, 8, 8	
		Waste	745	18.1	60.9	62.6	-	
		Calc. Feed	4127	100.0	17.5	100.0	-	
		Raw Coal	4296	-	18.9	-	-	