

PR-SUKUNKA-71(3) ~~A-1~~
NATIONAL TRUST CO. LTD. (AS TRUSTEE)

COALITION MINING LIMITED
SUKUNKA COAL PROJECT

GEOLOGY
~~VOLUME 12~~ 00645

WELL LOG DATA
GAMMA RAY NEUTRON LOGS

D.D.H.'S S-17, S-25, S-37, S-41, S-44 in report # 641

D.D.H.'S C-1 to C-5, C-7, C-10 to C-11, C-15 to C-23; C-25 to
C-31, C-34 to C-41

D.D.H.'S CS-1 to CS-7

D.D.H.'S CM-2 AND CM-9

SIDEWALL DENSIOLOG

D.D.H.'S C-2, C-4, C-5, C-7, C-18, C-26

NOTES TO ACCOMPANY WELL LOG DATA

Gamma Ray Neutron Logs were run on 47 of the diamond drill holes, and Sidewall Densilogs were run on 6 of those holes. The well logging was carried out by Roke Oil Enterprises Ltd., of Calgary, Alberta.

The well logging was carried out to assist in the stratigraphic logging of the drill holes, but was not designed specifically to give an accurate thickness of the coal seams. The logs are reproduced here at a scale of 40 feet to 1 inch. The original logs were at a scale of 20 feet to 1 inch.

While an accurate thickness of a coal seam could not be ascertained from the well logs, the presence or absence of a seam could be verified by reference to the logs, particularly where there were problems during the drilling near fault zones. In most of the logs, however, the thickness of a coal seam can be determined with an accuracy of about ± 1 foot, as can be seen by comparing the well logs with the graphic seam sections in Appendix F.

Well logging of the S- Series drill holes was possible where the hole was extended during the 1971 field season, and of a few of the holes which were still open. Most of the C- Series and CS- Series holes were logged.

Comparison of the well logs with the graphic sections of the stratigraphic logs in Appendix F shows excellent correlation between the two types of log and demonstrates the differing geophysical attributes of the rock units above the Chamberlain Seam.

ROKEL

OIL ENTERPRISES LTD. - CALCANY, ALBERTA

FILE NO. _____
 COMPANY. COALITION MINING LIMITED
 WELL. C - 5
 LOCATION. STURDIA PROJECT
 FIELD. JANTICH COLUMBIA

LOG NO. _____
 TYPE. _____
 REF. M
 W. _____

PROVINCIAL DATA (OPTIONAL LEVEL)
 LOG NUMBER. _____
 LOG DATE. _____
 LOG TIME. _____
 LOG PLACE. _____
 LOG BY. _____
 LOG FOR. _____
 LOG NO. _____
 LOG DATE. 10 SEPTEMBER 71
 LOG TIME. 1432
 LOG PLACE. 0
 LOG BY. _____
 LOG FOR. _____

LOG NO. _____
 LOG DATE. _____
 LOG TIME. _____
 LOG PLACE. _____
 LOG BY. _____
 LOG FOR. _____

Checked By: STN
 Wounded By: WALLIS

655

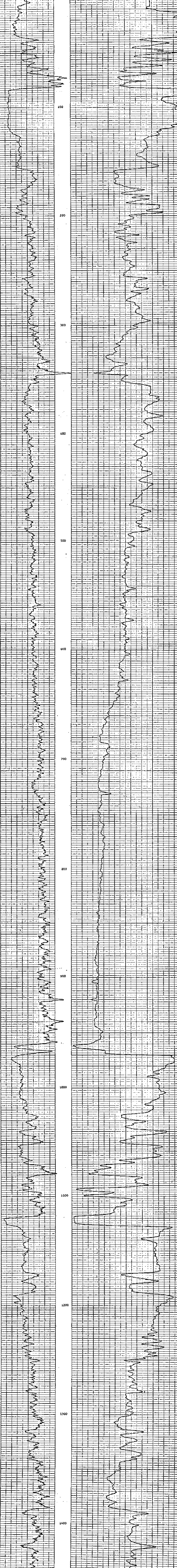
EQUIPMENT DATA

GAMMA RAY			NEUTRON		
RUN NO	DATE	TIME	RUN NO	LOG TYPE	NEUTRON/NEUTRON
TOOL MODEL NO	DIAMETER		TOOL CODEL NO		
DETECTOR MODEL NO	TYPE		DIAPHRAGM		
LENGTH	CEIGER		DETECTOR MODEL NO		PROPORTIONAL
DISTANCE TO N. SOURCE	18 INCH		TYPE		6 INCH
	8.55 FT		LENGTH		MRC-N-S-S-W
			SOURCE MODEL NO		59B
			SOURCE NO		19 INCH
			SPACING		ATTIBE
			TYPE		6.94 X 10 ⁶ N/SEC.
			STRENGTH		

LOGGING DATA

GENERAL			GAMMA RAY			NEUTRON		
RUN NO	DEPTHS FROM TO	SPEED FT/MIN	T C SEC	SENS SETTINGS	ZERO DIV. L OR R	T C SEC	SENS SETTINGS	ZERO DIV. L OR R
1	0 1462	11	4	17	0L	4	25	2L

REMARKS



F.R.

65

ROFF

OIL ENTERPRISES LTD. CALGARY ALBERTA

COMPANY: QUALITON MINING LIMITED
 WELL: C-16
 LOCATION: SENECA PROJECT
 FIELD: BATTEN COLUMBIA

PROBATION DAM: GROUND LEVEL
 14' Measured from (GROUND) LEVEL
 11' Depth Resisted to

DATE: 16 SEPTEMBER 71
 LOG # 1291
 SOURCE: 1221
 DATE: 1272

DRILLING: GAGE
 LOG # 1291
 SOURCE: 1221
 DATE: 1272

OPERATOR: J. JONES
 INSTRUMENT TRUCK NO. 20

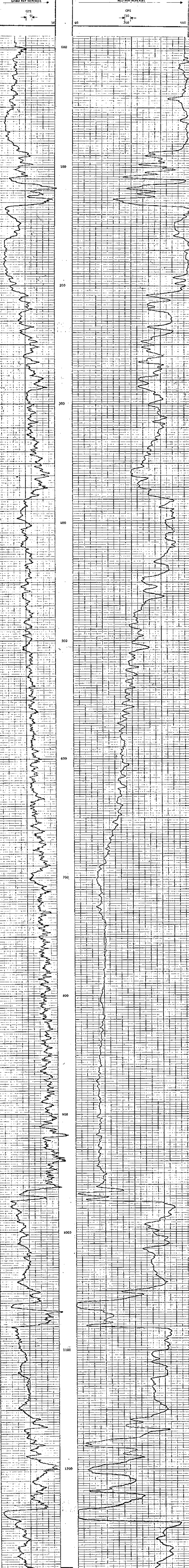
REVISIONS: 5-71

EQUIPMENT DATA		GAMMA RAY		NEUTRON	
RUN NO.	0805	MUN NO.	0805	MUN NO.	0805
FOOL MODEL NO.		LOG TYPE		LOG TYPE	ONE
DIAMETER	1 1/2	FOOL MODEL NO.		FOOL MODEL NO.	NEUTRON/NEUTRON
DETECTOR MODEL NO.		DIAMETER		DIAMETER	1 1/2
TYPE	GEIGER	DETECTOR MODEL NO.		DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE		TYPE	PROPORTIONAL
DISTANCE TO SOURCE	8.55 FT	LENGTH		LENGTH	6 INCH
		SOURCE MODEL NO.		SOURCE MODEL NO.	MPC-N-SS-W
		SERIAL NO.		SERIAL NO.	588
GENERAL		SPACING		SPACING	12 INCH
MOIST TRUCK NO.	20	TYPE		TYPE	AmBe
INSTRUMENT TRUCK NO.		STRENGTH		STRENGTH	0.94 x 10 ⁻³ S/S
TOOL SERIAL NO.	CG12704A65				

LOGGING DATA

GENERAL		GAMMA RAY		NEUTRON	
DEPTH		ZERO		ZERO	
FROM	TO	DIV. L OR R		DIV. L OR R	
0	1291	0L		2L	
SPEED		API H UNITS		API H UNITS	
FT/MIN		PER LOG DIV		PER LOG DIV	
11		5		30	
T.C.		ZERO		ZERO	
4		0L		2L	
SENS		API H UNITS		API H UNITS	
17		PER LOG DIV		PER LOG DIV	
SENS		ZERO		ZERO	
22		0L		2L	

REMARKS:



ROFF

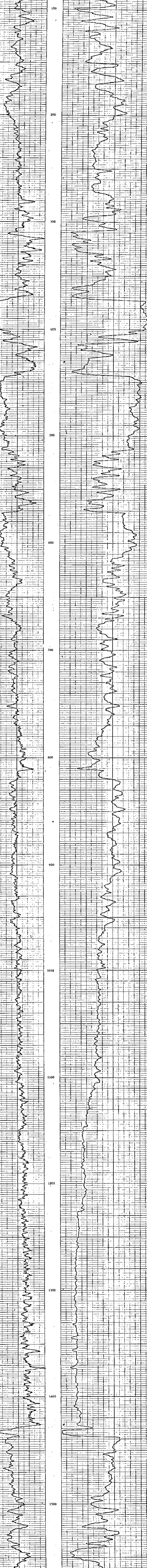
OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	COGAMAR	COALITION MINING LIMITED
WELL	C - 13	
LOCATION	SASKINA PROJECT	
FIELD	BRITISH COLUMBIA	
PROBABLE FORMATION	BRITISH COLUMBIA	
LOGGING DATE	23 SEPTEMBER 71	
LOGGING TIME	1388	
LOGGING DEPTH	0	
LOGGING RATE	1388	
LOGGING NUMBER	1389	
LOGGING UNIT	ONE	
LOGGING TYPE	GEIGER	
LOGGING LENGTH	18 INCH	
LOGGING DISTANCE TO SOURCE	8.33 FT	
LOGGING SERIAL NO.	006770465	
LOGGING UNIT	ONE	
LOGGING TYPE	GEIGER	
LOGGING LENGTH	18 INCH	
LOGGING DISTANCE TO SOURCE	8.33 FT	
LOGGING SERIAL NO.	006770465	

GENERAL		GAMMA RAY		NEUTRON	
RUN NO.	1	SPEED FT/HR	11	SENS SETTINGS	4
DEPTH	0	TO	1568	ZERO DIV L OR R	0
APN UNITS		APN UNITS		APN UNITS	
PER LOG DIV		PER LOG DIV		PER LOG DIV	

GAMMA RAY		NEUTRON	
TOOL MODEL NO.	18	TOOL MODEL NO.	18
DIAMETER	18 INCH	DIAMETER	18 INCH
DETECTOR MODEL NO.	GEIGER	DETECTOR MODEL NO.	GEIGER
TYPE	GEIGER	TYPE	GEIGER
LENGTH	18 INCH	LENGTH	18 INCH
DISTANCE TO SOURCE	8.33 FT	DISTANCE TO SOURCE	8.33 FT

GAMMA RAY		NEUTRON	
APN UNITS		APN UNITS	
PER LOG DIV		PER LOG DIV	



LOGGED BY: [Signature]

ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL C-7 LOCATION SIKEMKA PROJECT

PROVINCE BRITISH COLUMBIA

Payment Order - GROUND LEVEL - Etc. -

Log Measured from - GROUND LEVEL - Ft. Above Perm. Drain

Run No. ONE

Date 11 SEPTEMBER 71

Frost Reading 0

Frost Reading 0

Frost Reading 0

Frost Reading 0

Frost Reading 0

Frost Reading 0

Frost Reading 0

Frost Reading 0

Frost Reading 0

Frost Reading 0

BTS

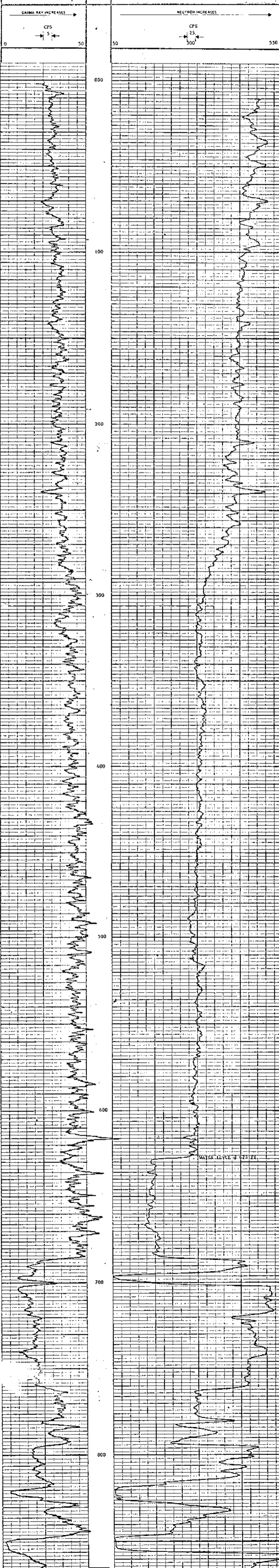
EQUIPMENT DATA

GAMMA RAY			NEUTRON		
RUN NO	ONE		RUN NO	ONE	
LOG MODEL NO			LOG TYPE	NEUTRON/NEUTRON	
DIAMETER	1 1/8		LOG MODEL NO		
DETECTOR MODEL NO			DIAMETER	1 1/8	
TYPE	GEIGER		DETECTOR MODEL NO		
LENGTH	18 INCH		TYPE	PROPORTIONAL	
DISTANCE TO SOURCE	8.55 FT		LENGTH	6 INCH	
GENERAL			SOURCE MODEL NO	MRC-N-SS-W	
HOIST TRUCK NO	20		SERIAL NO	598	
WINDUP TRUCK NO			SPACING	19 INCH	
TOOL SERIAL NO	CCN2704A65		TYPE	Ambi-	
			STRENGTH	6.96 x 10 ⁶ R/S	

LOGGING DATA

GENERAL			GAMMA RAY			NEUTRON					
RUN NO	FROM	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 GR UNITS PER LOG DIV
1	0	873	11	4	17	0	5 CPS	4	0 - 25	2L	25 CPS

REMARKS



07

ROKEL

Oil Services Ltd. Calgary Alberta

FILE NO. _____
 COMPANY: CALVERTON MINING LIMITED
 WELL: C-17
 LOCATION: SIMONA PRODUCE
 REGION: BRITISH COLUMBIA

PROFESSOR JOHN GORDON JENSEN
 4040 University Avenue, UBC
 Vancouver, B.C. V6T 1Z2

DATE: 23 SEPTEMBER 71
 TIME: 2:55 P
 LOG NUMBER: 2179

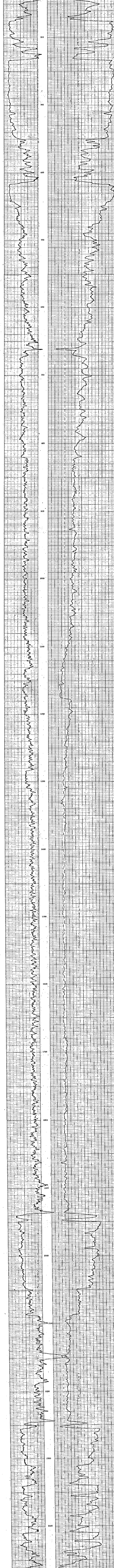
DEPTH: 2179
 LOG NUMBER: 2179
 LOG NUMBER: 2179

LOG NUMBER: 2179
 LOG NUMBER: 2179
 LOG NUMBER: 2179

645

EQUIPMENT DATA		NEUTRON	
RUN NO.	008	LOG NO.	008
MODEL NO.	11	LOG TYPE	NEUTRON/NEUTRON
DIAMETER	16	LOG MODEL NO.	11
DETECTOR MODEL NO.		DETECTOR	
LENGTH	18 INCH	DETECTOR MODEL NO.	
DISTANCE TO N. SOURCE	8.55 FT	TYPE	PROPORTIONAL
GENERAL		LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-55-W
		SERIAL NO.	528
		TYPE	19 INCH
		STRENGTH	6.95 x 10 ⁶ N/S

LOGGING DATA			
GENERAL	GAMMA RAY	NEUTRON	
RUN NO.	0	AP/N UNITS	30 CPS
DEPTH	1295	PER LOG DIV	
START	11		
STOP	17		



ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: COALITION MINING LIMITED

WELL: CR - 9

LOCATION: SUDIRKA PROJECT

PROVINCE: BRITISH COLUMBIA

FIELD:

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

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Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

Log Measured from GROUND LEVEL

645

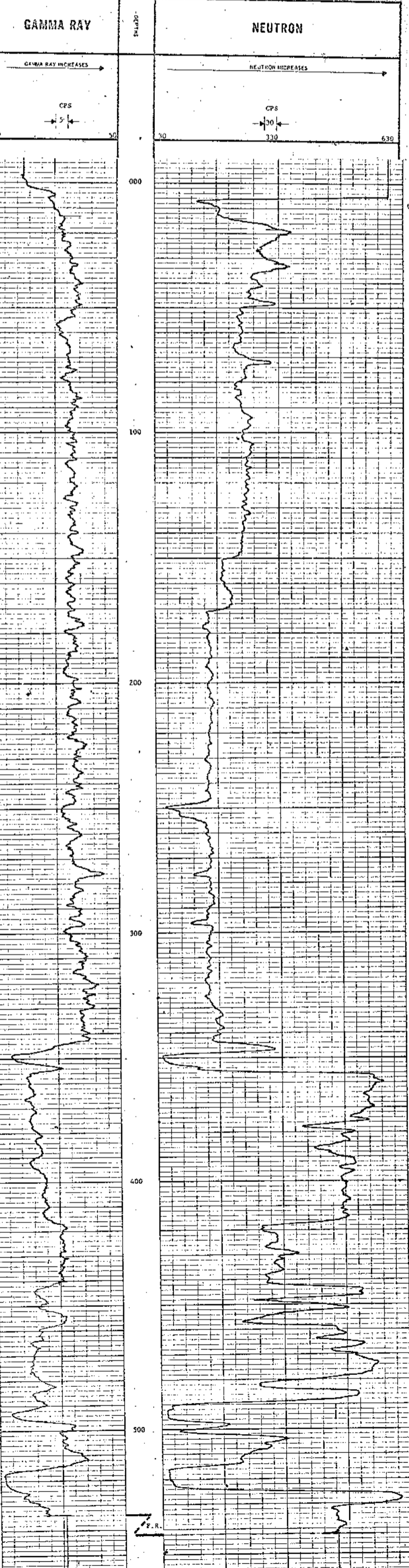
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO	1 1/2
DETECTOR MODEL NO	GEIGER	DETECTOR MODEL NO	PROPORTIONAL
TYPE	18 INCH	TYPE	6 INCH
LENGTH	8.55 FT	LENGTH	MRC-N-SS-W
DISTANCE TO N. SOURCE		SOURCE MODEL NO	598
		SERIAL NO	19 INCH
		SPACING	AmBe
		TYPE	6.94 x 10 ⁶ N/S
		STRENGTH	

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	DEPTHS FROM	TO	SPEED FT/MIN	I.C. SEC	SENS SETTINGS	ZERO DIV L OR R	API GR UNITS PER LOG DIV	I.C. SEC	SENS SETTINGS	ZERO DIV L OR R	API GR UNITS PER LOG DIV
1	0	542	12	5	17	OL	5 CPS	2.5	0 - 23	1L	30 CPS

REMARKS: NOTE: Log is recorded 2 feet low.



ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

724 NO. COMPANY: COMALTON MINING LIMITED
 150 SEC. WELL: CS - 7
 TYPE: LOCATION: SIMONCA PROJECT
 B.C.E. FIELD: BRITISH COLUMBIA

Prepared Date: GOLDEN LEVEL
 Log prepared from: GEOSUD LEVEL
 Well Name: F1, Ashw Park, Dean
 Well Depth: 497
 Well Status: Open

Run No	ONE
Date	18 SEPTEMBER 71
Start Reading	497
End Reading	0
Log Log	497
Depth Reached	498
Core Depth	
Core Depth	
Core Depth	
Fluid Type	WATER
Fluid Level	
Wm. Dam	3 INCH
Counting Time	5 HOURS
Log No	20

645

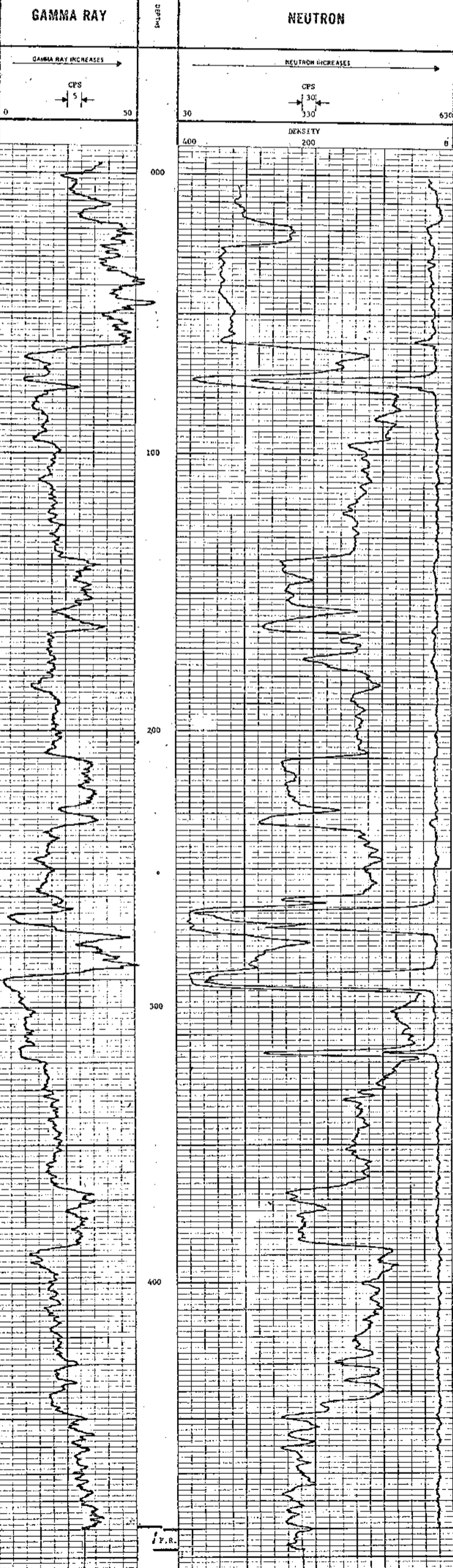
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
Run No	ONE	Run No	ONE
Tool Model No		Log Type	NEUTRON/NEUTRON
Diameter	1 1/2	Tool Model No	
Detector Model No		Diameter	1 1/2
Type	GEIGER	Detector Model No	
Length	10 INCH	Type	PROPORTIONAL
Distance to Source	8.35 FT	Length	6 INCH
		Source Model No	MRC-N-SS-W
		Serial No	598
Host Truck No	20	Spacing	19 INCH
Instrument Truck No		Type	AmBe
Tool Serial No	CCN27U4A65	Strength	6.94 x 10 ⁴ N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
Run No	Depths	Speed	TC	Sens	Zero	API GR	TC	Sens	Zero	API GR	TC
	FROM TO	FT/HR	SEC	SETTINGS	DIV L OR R	PER LOG DIV	SEC	SETTINGS	DIV L OR R	PER LOG DIV	SEC
I	0 497	11	4	17	0L	5 CPS	4	0 - 22	1L	30 CPS	
I	0 490	9	3	0 - 25	0R	20 CPS					

REMARKS: DENSITY - DEMONSTRATION



V.R.

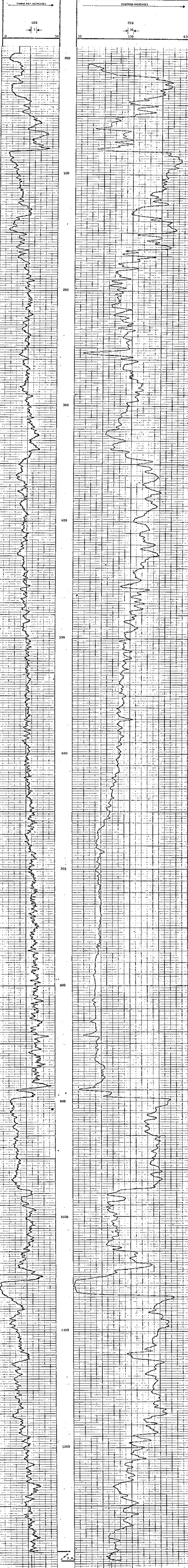
ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

WELL NO. COMPANY COLLIERIES MINING LIMITED
 SEC. WELL C - 19
 LOCATION SIXMORA PROJECT
 FIELD
 PROVINCE BRITISH COLUMBIA
 OPERATOR (SEE REVERSE)
 DATE OF LOG (SEE REVERSE)
 LOG NUMBER (SEE REVERSE)
 LOG TYPE (SEE REVERSE)
 LOG SCALE (SEE REVERSE)
 LOG DATE (SEE REVERSE)

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTH FROM	DEPTH TO	SPEED FT/HR	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API. R. UNITS PER LOG DIV.	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API. N. UNITS PER LOG DIV.
1	0	1297	11	4	17	0L	5 CPS	4	23	1L	30 CPS

REMARKS: LOGGED THRU DRILLROD



645

ROFFE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL NO. C-22

TYPE LOCATION SURINA PROJECT

W. M. FIELD BRITISH COLUMBIA

PROBING EQUIPMENT

Production Date: 11 OCTOBER 71
Log Measured from: 11 OCTOBER 71
Well Depth Measured from: 0 FT.

Run No. 002
Date 11 OCTOBER 71

First Reading 0
Last Reading 1174

Depth Reached 1175
Depth to Water 1175

Open Date
Close Date
Casing Date
Mud Type
Mud Level
Mud Depth

Water
Mud
Mud Depth

Operating Time 6 HOURS
Run No. 120

Recorded By: J. JENSEN
Witnessed By: M. J. WHITE

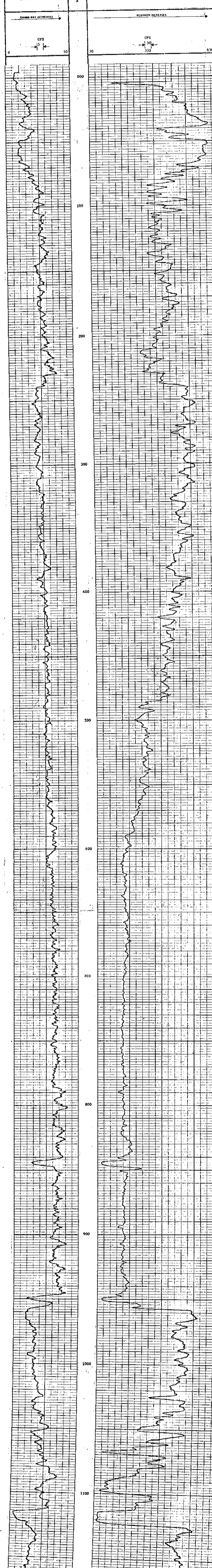
645

EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO.	002			PH NO.	002		
TOOL MODEL NO.				LOG TYPE	NEUTRON/NEUTRON		
DIAMETER	1 1/2			LOG VOLT NO.			
DETECTOR MODEL NO.				DIAPHRAGM	1 1/2		
TYPE	GEIGER			DETECTOR MODEL NO.			
LENGTH	18 INCH			TYPE	PROPORTIONAL		
DISTANCE TO N-TUBE	8.55 FT			LENGTH	6 INCH		
GENERAL				SOURCE MODEL NO.	MRC-N-SS-W		
HOST TRUCK NO.	20			SERIAL NO.	598		
INSTRUMENT TRUCK NO.				SPACING	19 INCH		
TOOL SERIAL NO.	GM2704A65			TYPE	AmBe		
				STRENGTH	6.64 x 10 ⁶ N/S		

LOGGING DATA

GENERAL						GAMMA RAY			NEUTRON				
RUN NO.	DEPTHS	SPEED	T.C.	SENS.	ZERO	API GR	UNITS	T.C.	SENS.	ZERO	API GR		
NO.	FROM	TO	SEC	SETTINGS	DIV	L	OR	SEC	SETTINGS	DIV	L	OR	
1	0	1274	12	5	17	0L		5	CPS	2.5	0.23	1L	30
REMARKS: LOGGED THRU DRILLROD													



C-22

ROKEL

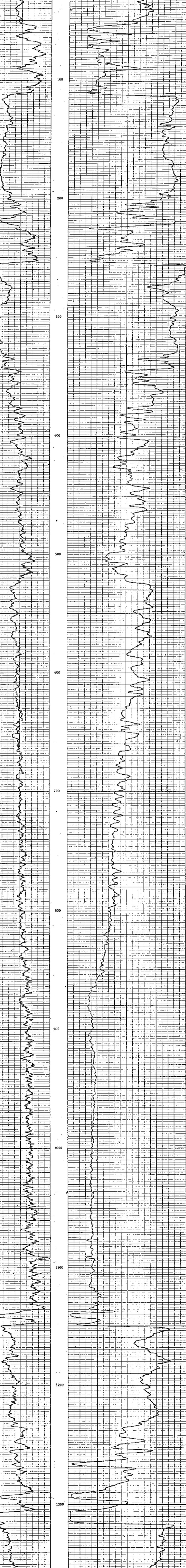
Oil Enterprises Ltd. Calgary, Alberta

FIELD NO. _____ COMPANY _____ COLLATION MINING LIMITED
 WELL NO. C-35 LOCATION SUNDRA PROJECT
 PROVINCE BRITISH COLUMBIA
 DATE 7 OCTOBER 71
 OPERATOR PETROBRAS

GAMMA RAY		NEUTRON	
TOOL MODEL NO.	GM2	TOOL MODEL NO.	NEUTRON/NEUTRON
DIAPHRAGM	1 1/2	DIAPHRAGM	1 1/2
DETECTOR MODEL NO.	CEIGER	DETECTOR MODEL NO.	PROPORTIONAL
TYPE	18 INCH	TYPE	MPC-N-SS-W
LENGTH	8.35 FT	LENGTH	6 INCH
DISTANCE TO N. SOURCE		SOURCE MODEL NO.	598
		SERIAL NO.	19 INCH
		TYPE	AmBe
		STRENGTH	6.94 x 10 ⁶ N/S

LOGGING DATA											
RUN NO.	GENERAL		SPEED FT/HR	T.C. SEC	GAMMA RAY			NEUTRON			
	FROM	TO			SENS. SETTINGS	ZERO DIV. L OR R	API GR UNITS PER LOG DIV	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	APPR. UNITS PER LOG DIV
1	0	1372	11	4	17	0L	5	6	23	1L	30

REMARKS: LOGGED THRU DRILL ROD



Recorded By: PETROBRAS
 Witnessed By: STALLIS

C25

ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

1971 NOV 24 11:30 AM

WELL NO. _____ COMPANY _____
WELL NAME _____ WELL NO. C-22
LOCATION _____
FIELD _____ SERRANA PRODUCE
PROVINCE _____ BRITISH COLUMBIA

LOG NO. _____
LOG TYPE _____
LOG MODEL NO. _____
DIAMETER _____
DETECTOR MODEL NO. _____
TYPE _____
LENGTH _____
SOURCE MODEL NO. _____
SERIAL NO. _____
SPACING _____
FWDY _____
VERTICALITY _____

DATE _____
TIME _____
LOGGERS _____
SUPERVISOR _____
OPERATOR _____
WELL NO. _____
WELL NAME _____
FIELD _____
PROVINCE _____

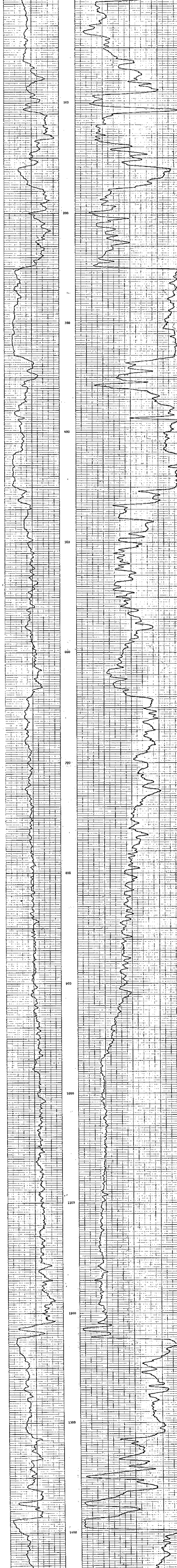
LOG NO. _____
LOG TYPE _____
LOG MODEL NO. _____
DIAMETER _____
DETECTOR MODEL NO. _____
TYPE _____
LENGTH _____
SOURCE MODEL NO. _____
SERIAL NO. _____
SPACING _____
FWDY _____
VERTICALITY _____

LOG NO. _____
LOG TYPE _____
LOG MODEL NO. _____
DIAMETER _____
DETECTOR MODEL NO. _____
TYPE _____
LENGTH _____
SOURCE MODEL NO. _____
SERIAL NO. _____
SPACING _____
FWDY _____
VERTICALITY _____

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
MODEL NO.	ONE	MODEL NO.	ONE
TOOL MODEL NO.		TOOL MODEL NO.	
DIAMETER	1 7/8	DIAMETER	1 7/8
DETECTOR MODEL NO.		DETECTOR MODEL NO.	
TYPE	GEIGER	TYPE	PROPORTIONAL
LENGTH	18 INCHES	LENGTH	8 INCH
DISTANCE TO N SOURCE	8.55 FT	SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		GENERAL	
WELL NO.	20	WELL NO.	20
WELL NAME		WELL NAME	
FIELD		FIELD	
PROVINCE		PROVINCE	
LOG NO.		LOG NO.	
LOG TYPE		LOG TYPE	
LOG MODEL NO.		LOG MODEL NO.	
DIAMETER		DIAMETER	
DETECTOR MODEL NO.		DETECTOR MODEL NO.	
TYPE		TYPE	
LENGTH		LENGTH	
SOURCE MODEL NO.		SOURCE MODEL NO.	
SERIAL NO.		SERIAL NO.	
SPACING		SPACING	
FWDY		FWDY	
VERTICALITY		VERTICALITY	

LOGGING DATA											
RUN NO.	DEPTH		SPEED F/100	T.C. SEC	SENS SETTINGS	GAMMA RAY			NEUTRON		
	FROM	TO				ZERO DIV L OR R	API GR UNITS PER LOG DIV	T.C. SEC	SENS SETTINGS	ZERO DIV L OR R	API N UNITS PER LOG DIV
1	0	1443	12	5	12	0L	5 CPS	2.5	0 - 25	1L	10 CPS

REMARKS: 65° ANGLE



Recorded By: SIM
Witnessed By: WALLIS

645

ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. 150
COMPANY COALITION MINING LIMITED
WELL C-23
LOCATION SENECA PROJECT
FIELD ALBERTA
PRESSURE ALTERS CONTROL

LOGGING DATE 2 OCTOBER 71
LOGGING TIME 10:00
LOGGING LOCATION 20
LOGGING DEPTH 1995
LOGGING LOG NO. 645

GENERAL
RUN NO. 0
DEPTH TO 1995
LOG NO. 20
WELL NO. 20
WELL NAME 645

EQUIPMENT DATA

RUN NO.	002	NEUTRONS	002
LOG NO.	150	NEUTRON/NEUTRON	1
WELL	C-23	PROPORTIONAL	6 INCH
LOCATION	SENECA PROJECT	MARC-N-SS-W	598
FIELD	ALBERTA	SPACING	19 INCH
PRESSURE	ALTERS CONTROL	ArArBe	6.94 x 10 ⁶ N/S

LOGGING DATA

GENERAL	GAMMA RAY	NEUTRONS
RUN NO.	0	0
DEPTH	1995	1995
LOG NO.	20	20
WELL NO.	20	20
WELL NAME	645	645

GAMMA RAY

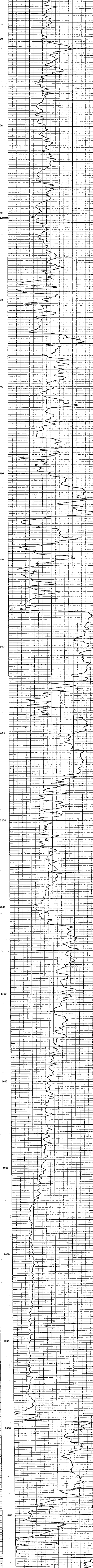
← GAMMA RAY INCREASES →

CPS → 5 ←

NEUTRON

← NEUTRON INCREASES →

CPS → 30 ← 330 ← 630 ←



WELL NO. 20

WELL NAME 645

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. _____
 COMPANY: COALITION PILING LIMITED
 WELL: C - 37
 LOCATION: SERRANA PROJECT
 DEPTH: _____
 REGION: _____

PROBES: BRITISH COLUMBIA
 PRODUCED BY: GEORGE JACZEL
 LOG TYPE: _____
 LOG NUMBER: 13247
 DATE: 30 OCTOBER 71
 RUN NO: 025

TOOL MODEL NO: _____
 DIAMETER: 1 1/2"
 DETECTOR MODEL NO: _____
 TYPE: GEIGER
 LENGTH: 18 INCH
 DISTANCE TO SOURCE: 8.55 FT

HOST TRUCK NO: 20
 INSTRUMENT TRUCK NO: _____
 TOOL SERIAL NO: C82276474
 OPERATOR: _____
 RECORDED BY: SEN
 CHECKED BY: VALES

6445

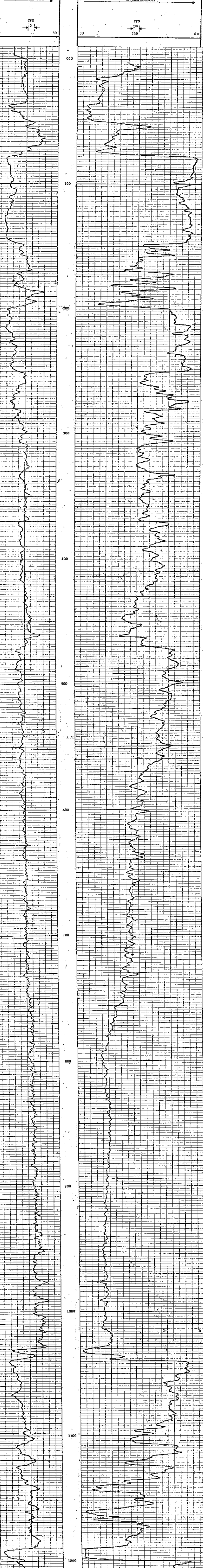
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO	ONE			RUN NO	ONE		
TOOL MODEL NO	_____			LOG TYPE	NEUTRON/NEUTRON		
DIAMETER	1 1/2"			TOOL MODEL NO	_____		
DETECTOR MODEL NO	_____			DIAMETER	1 1/2"		
TYPE	GEIGER			DETECTOR MODEL NO	_____		
LENGTH	18 INCH			TYPE	PROPORTIONAL		
DISTANCE TO SOURCE	8.55 FT			SOURCE MODEL NO	6 INCH		
				LENGTH	MRC-NSS-W		
				SEPAR NO	598		
				SPACING	19 INCH		
				TYPE	AMB#		
				STRENGTH	4.94 x 10 ⁴ N/S		

LOGGING DATA

RUN NO	GENERAL			GAMMA RAY						NEUTRON					
	FROM	TO	SPEED FT/MIN	F C SEC	SEMS SETTINGS	ZERO DIV L OR R	APP GR UNITS PER LOG DIV	F C SEC	SEMS SETTINGS	ZERO DIV L OR R	APP GR UNITS PER LOG DIV				
1	0	1247	12	5	17	DL	2 CPS	2, 5	0 - 23	11	30 CPS				

REMARKS: LOGGED THROUGH DRILL STEEL



037

ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

WELL: C-36
 LOCATION: SINDONA PROJECT
 FIELD: BARTON COLUMBIA

LOG NO: 1501
 DATE: 30 OCTOBER 71
 LOGGING: 1501

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

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LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

LOGGING: 1501
 DEPTH: 1502

645

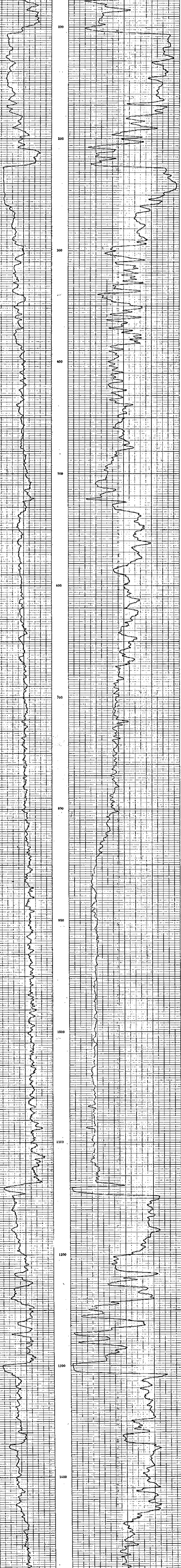
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO	11	LOG TYPE	NEUTRON/NEUTRON
DETECTOR MODEL NO	GEIGER	TOOL MODEL NO	11
TYPE	28 INCH	DETECTOR MODEL NO	PROPORTIONAL
LENGTH	8.33 FT	TYPE	6 INCH
DISTANCE TO SOURCE	GENERAL	SOURCE MODEL NO	MRC-N-SS-W
HOST TRUCK NO	20	SERIAL NO	598
INSTRUMENT TRUCK NO	COM2784-474	SPACING	19 INCH
TOOL SERIAL NO		TYPE	AmBb
		STRENGTH	5.74 x 10 ⁶ N/S

LOGGING DATA

GENERAL		GAMMA RAY		NEUTRON	
SPD	1501	IC	5	IC	2.2
FRM	0	SENS	17	SENS	0-23
TO	1501	APIN UNITS	5 CPS	ZERO	11
FT/HR	12	PER LOG DIV	OL	DIV L OR R	30 CPS

REMARKS: LOGGED THROUGH DRILL STEM



LOGGED THROUGH DRILL STEM

ROKEL

COMPANY: **COMLITOR MINING LIMITED**
 ADDRESS: **11500 130TH ST. CALGARY, ALBERTA**
 PHONE: **(403) 244-5000**
 FAX: **(403) 244-5001**

FILE NO. _____ **COMPANY** **COMLITOR MINING LIMITED**
WELL **C - 35**
LOCATION **SIBYRCA PROJECT**
DATE **29 OCTOBER 71**
TIME **0**
LOG TYPE **NEUTRON**
LOG TYPE **NEUTRON/NEUTRON**
DIAMETER **6 INCH**
DETECTOR MODEL NO. **GEIGER**
TYPE **PROPORTIONAL**
LENGTH **18 INCH**
SOURCE MODEL NO. **598**
TYPE **MRC-N-SS-W**
SPACING **19 INCH**
STRNGTH **AmBn**
APR UNIT PER LOG DIV **6.94 x 10⁸ N/S**
ZERO DIV L OR R **11**
PER LOG DIV **30 CPS**

PROVINC **BRITISH COLUMBIA**
CITY _____ **AREA** _____ **C.T.** _____
DEPT _____ **DIV** _____

DATE **29 OCTOBER 71**
TIME **0**
LOG TYPE **ONE**
LOG TYPE **NEUTRON**

DRILLER **ONE**
DRILLER **ONE**
DRILLER **ONE**

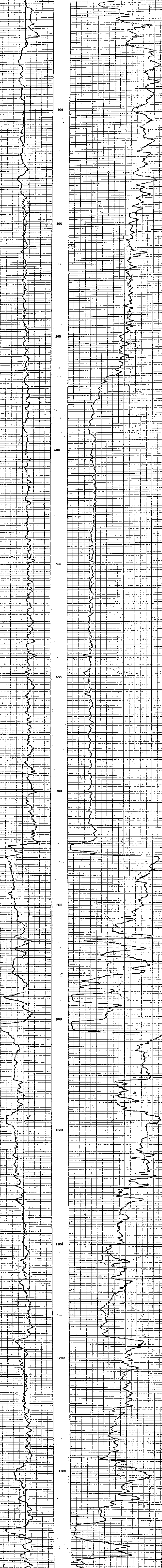
GENERAL
WATER
3 INCH
1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1440

EQUIPMENT DATA

GAMMA RAY			NEUTRON		
RUN NO			RUN NO		
TOOL MODEL NO			LOG TYPE		NEUTRON/NEUTRON
DIAMETER			TOOL MODEL NO		
DETECTOR MODEL NO			DIAMETER		
TYPE			DETECTOR MODEL NO		
LENGTH			TYPE		PROPORTIONAL
DISTANCE TO SOURCE			SOURCE MODEL NO		6 INCH
GENERAL			SERIAL NO		598
WATER			SPACING		19 INCH
3 INCH			STRNGTH		AmBn
1408					6.94 x 10 ⁸ N/S

LOGGING DATA

RUN NO	GENERAL		GAMMA RAY			NEUTRON					
	FROM	TO	SPEED FT/HR	T.C. SEC	SEVS SETTINGS	ZERO DIV L OR R	APR UNIT PER LOG DIV	T.C. SEC	SEVS SETTINGS	ZERO DIV L OR R	APR UNIT PER LOG DIV
1	0	1402	12	5	17	0L	5 CPS	2.5	0 - 23	11	30 CPS



REMARKS: LOGGED THROUGH DRILL STEM

POKEE

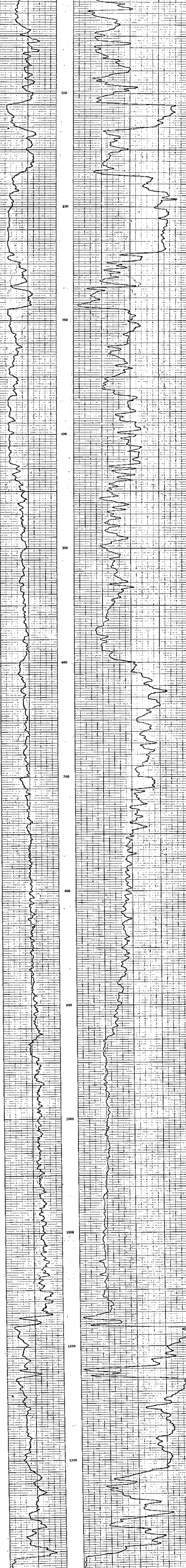
OIL ENTERPRISES LTD. CALGARY, ALBERTA

WELL NO.	C-28
COMPANY	SQUALITON MINING LIMITED
LOCATION	SIMONA PROJECT
PROVINCE	BRITISH COLUMBIA
TOOL MODEL NO.	
DETECTOR MODEL NO.	
TYPE	GEIGER
LENGTH	18 INCH
DISTANCE TO N. SOURCE	8.95 FT
GENERAL	
DRILL TRUCK NO.	ZO
MEASUREMENT TRACK NO.	
TOOL SERIAL NO.	CG2770474

GAMMA RAY				NEUTRON			
TOOL MODEL NO.	DRIVER	TYPE	LENGTH	TOOL MODEL NO.	DRIVER	TYPE	LENGTH
		GEIGER	18 INCH			NEUTRON/NEUTRON	
			8.95 FT			PROPORTIONAL	6 INCH
						MRC-N-SS-W	598
							19 INCH
						AmD0	6.94 x 10 ⁻⁶ NFS

GENERAL				LOGGING DATA				RELATION			
WELL NO.	DEPTH	SPEED	T.C.	SENS.	ZERO	APPROX.	T.C.	SENS.	ZERO	APPROX.	
NO.	FT/IN	FT/HR	SEC	SETTINGS	DIV L OR R	PER LOG DIV	SEC	SETTINGS	DIV L OR R	PER LOG DIV	
1	0	1508	12	5	17	0L	5 CPS	2.5	0-23	1L	30 CPS

REMARKS: LOGGED THROUGH DRELL STD2



645

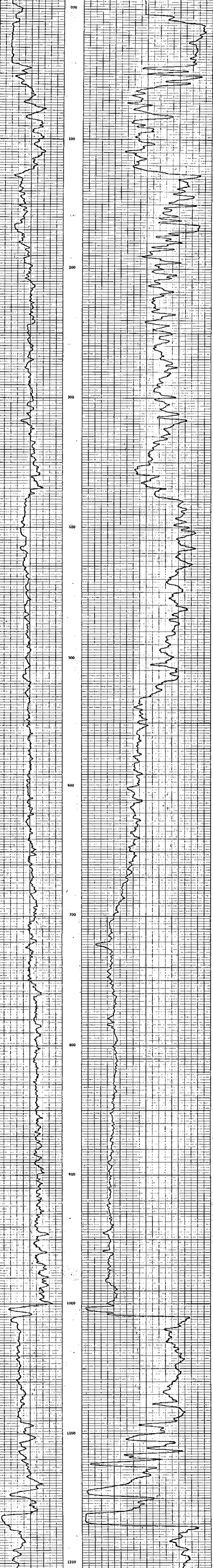
ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO: 50
 COMPANY: COALITION MINING LIMITED
 WELL: C-28
 LOCATION: STRESCA PROJECT
 FIELD: M
 PRODUCE: BRITISH COLUMBIA
 OPERATOR: SERRON, L. J. & SONS LTD.
 DATE: 21 OCTOBER 71
 TIME: 11:18
 LOGGERS: [Blank]
 DEPTH: 1219
 LOG TYPE: [Blank]
 LOG NO: [Blank]

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
FOOL MODEL NO		FOOL MODEL NO	NEUTRON/NEUTRON
DIAMETER	1 1/2	DIAMETER	1 1/2
DETECTOR MODEL NO	GEIGER	DETECTOR MODEL NO	
TYPE		TYPE	PROPORTIONAL
LENGTH	18 INCH	LENGTH	6 INCH
DISTANCE TO H. SOURCE	8.55 FT	SOURCE MODEL NO	MRC-N-SS-W
GENERAL		SERIAL NO	598
HOIST BRUCK NO	20	SPACING	19 INCH
INSTAUMENT BRUCK NO		TYPE	AmBe
FOOL SERIAL NO	CGN27U4A74	STRENGTH	4.94 X 10 ⁶ N/S

LOGGING DATA											
GENERAL			GAMMA RAY				NEUTRON				
RUN NO	DEPTH	SPEED	I.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API GR UNITS PER LOG DIV	I.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API GR UNITS PER LOG DIV	
1	0	1218	12	5	17	OL	5 CPS	2.5	0.23	11	30 CPS



645

WIRELOGGED BY: WALLIS

ROKLE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COLLIETON MINING LIMITED

WELL OR - 2

LOCATION SINKURKA PROJECT

FIELD PROVINCE BRITISH COLUMBIA

PERMANENT DEPTH (GROUND LEVEL) Elev. _____

Log Measured from SURROUND LEVEL. Elev. From. Surf. _____

Well Depth Measured to _____

Run No. 001

Date 2 NOVEMBER 71

First Reading 158

Last Reading 0

Total Logged 158

Depth Reached 158

Depth Drift 151

Casing Code _____

Casing Diameter _____

Fluid Type WATER

Fluid Level _____

Min. Dash 3 INCH

Operating Time 1 1/2 HOURS

Form No. 20

Recorded By STR

Witnessed By HALLIS

645

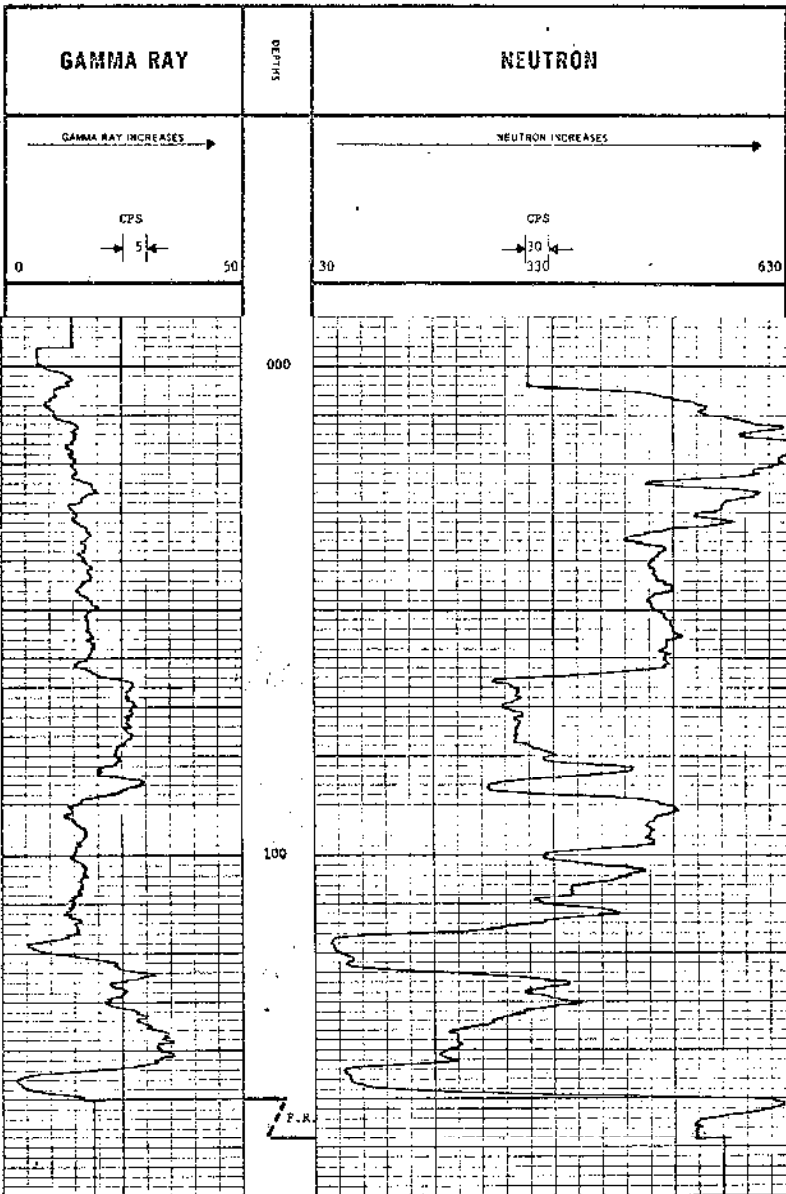
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
Run No.	ONE	Run No.	ONE
FOOL MODEL NO.		FOOL MODEL NO.	NEUTRON/NEUTRON
DIAMETER	1 1/8	DIAMETER	1 1/8
DETECTOR MODEL NO.		DETECTOR MODEL NO.	
TYPE	GEIGER	TYPE	PROPORTIONAL
LENGTH	18 INCH	LENGTH	6 INCH
DISTANCE TO N. SOURCE	8.55 FT	SOURCE MODEL NO.	MRC-N-SS-W
MOIST TRUCK NO.	20	SERIAL NO.	598
INSTRUMENT TRUCK NO.		SPACING	19 INCH
FOOL SERIAL NO.	CG2704A74	TYPE	AmBe
		STRENGTH	6.94 x 10 ⁴ N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	FROM	TO	SPEED FPM	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	APN UNITS PER LOG DIV	F.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	APN UNITS PER LOG DIV
1	0	158	12	5	17	0L	5 CPS	2.5	0 - 23	1L	30 CPS

REMARKS: LOGGED THROUGH DRILL STEM



ROKFE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

COMPANY **COALITION MINING LIMITED**

LOG

WELL **C - 4**

SIC

LOCATION **SURINDGA PROJECT**

TRIP

FIELD

TRIG

PROVINCE **BRITISH COLUMBIA**

W

PROVANT CHRG **GROUND LEVEL**

M

LET MEASURED FROM **GROUND LEVEL**

PHI DATA

DATE **18 SEPTEMBER 71**

TIME

FIRST READING **2:59**

LOG

LAST READING **0**

FOOTAGE LOGGED

DEPTH RECORDED **261**

DEPTH DATA

FLUID TYPE **WATER**

FLUID TYPE

FLUID LEVEL **3 INCH**

MIN. QUANT

OPERATING TIME **1 1/2 HOURS**

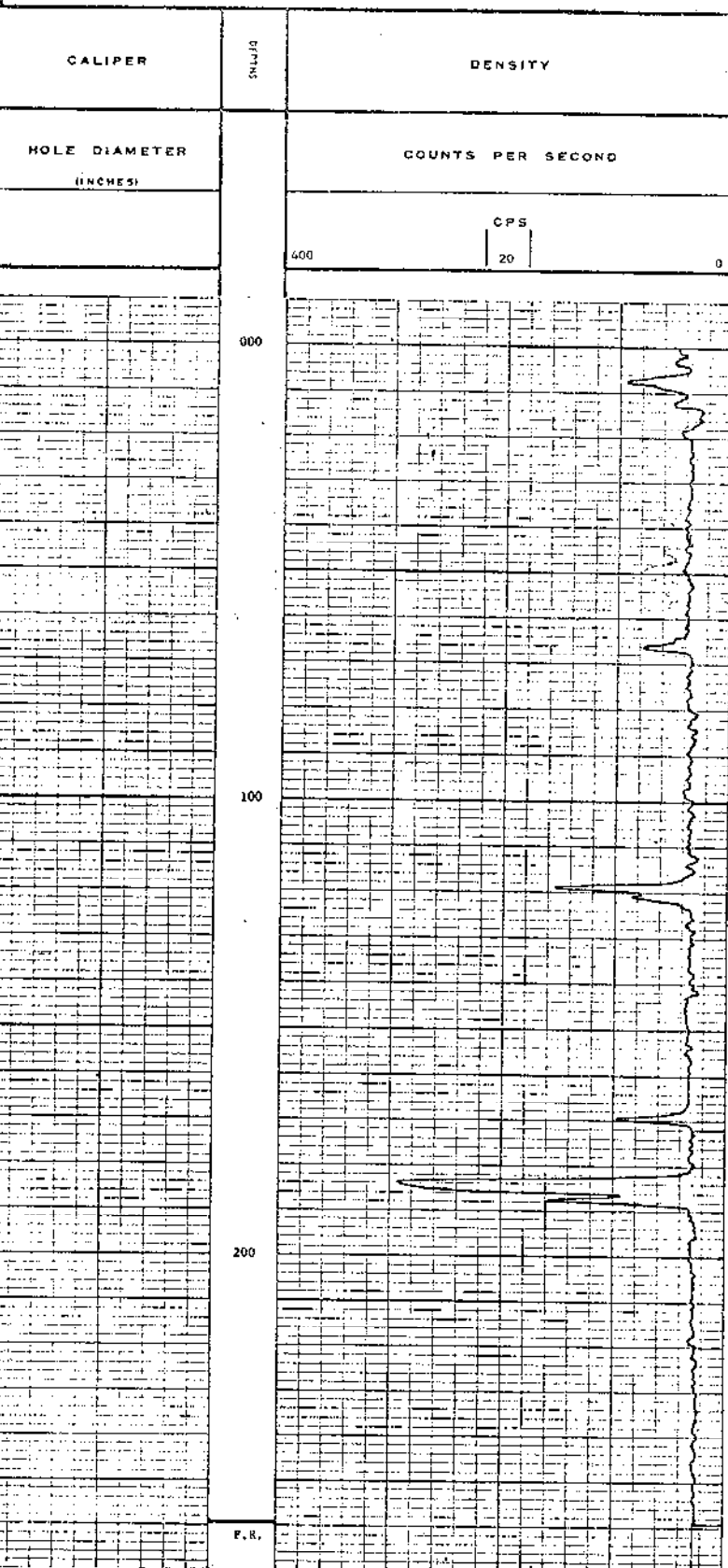
TRUCK NO

RECORDED BY **SJM**

WITNESSED BY

645

REMARKS **DEMONSTRATION**



F. R.

ROKKE

HEAVY METALS

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL C-4

LOCATION SUDSKA PROJECT

FIELD

PROVINCE BRITISH COLUMBIA

Prepared by: GREGG J. SEVEL
 Log received from: GREGG J. SEVEL
 Date: _____
 By: _____
 Title: _____

Scale: _____
 O.F. _____
 C.L. _____

DATE 18 SEPTEMBER 71

TIME 2:30

LOGGED 0

RECORDED 2:38

DRIVER 261

LOGS 2

LOGS 9

LOGS 1

LOGS 3

LOGS 3 INCH

LOGS 1 1/2 HOURS

LOGS 20

LOGS 1 1/2 HOURS

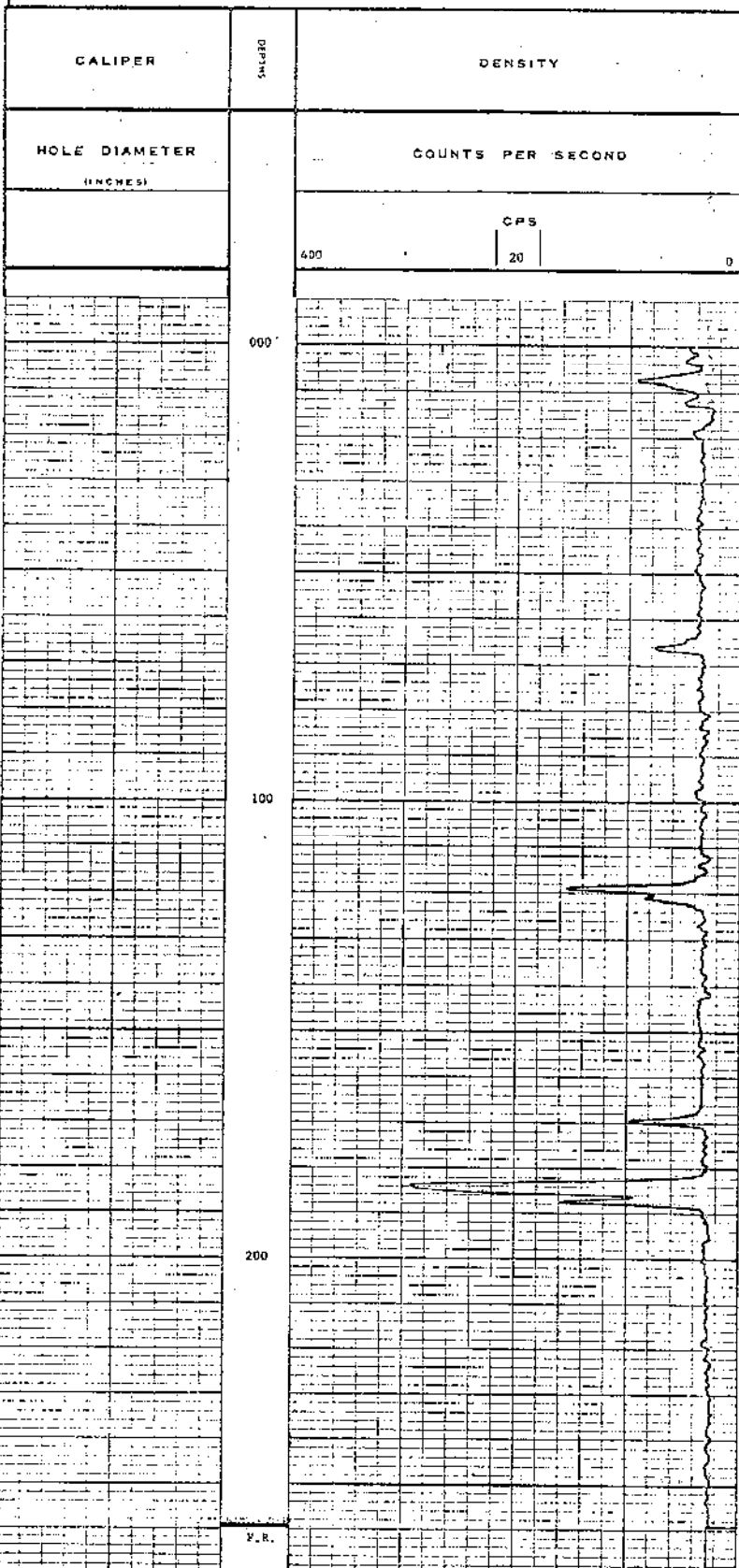
LOGS 20

LOGS 1 1/2 HOURS

LOGS 20

645

REMARKS DEMONSTRATION



V.R.

ROCKE

OIL ENTERPRISES LTD. CALCUTTA, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL C 7

LOCATION SURUKHA TRACT

FIELD _____

PROJECT BRITISH COLUMBIA

Permanent Data: FRANK LABEL No. _____

Log Reference: GROUND LEVEL St. Rock Run Drive

Well Depth: Abandoned ft. _____

Run No. ONE

Date 1 SEP 71

First Reading 00

Last Reading 00

Footage Logged 258

Depth Reported 850

Depth Driven 878

Casing Size _____

Casing Driver _____

Fluid Type WATER

Fluid Level _____

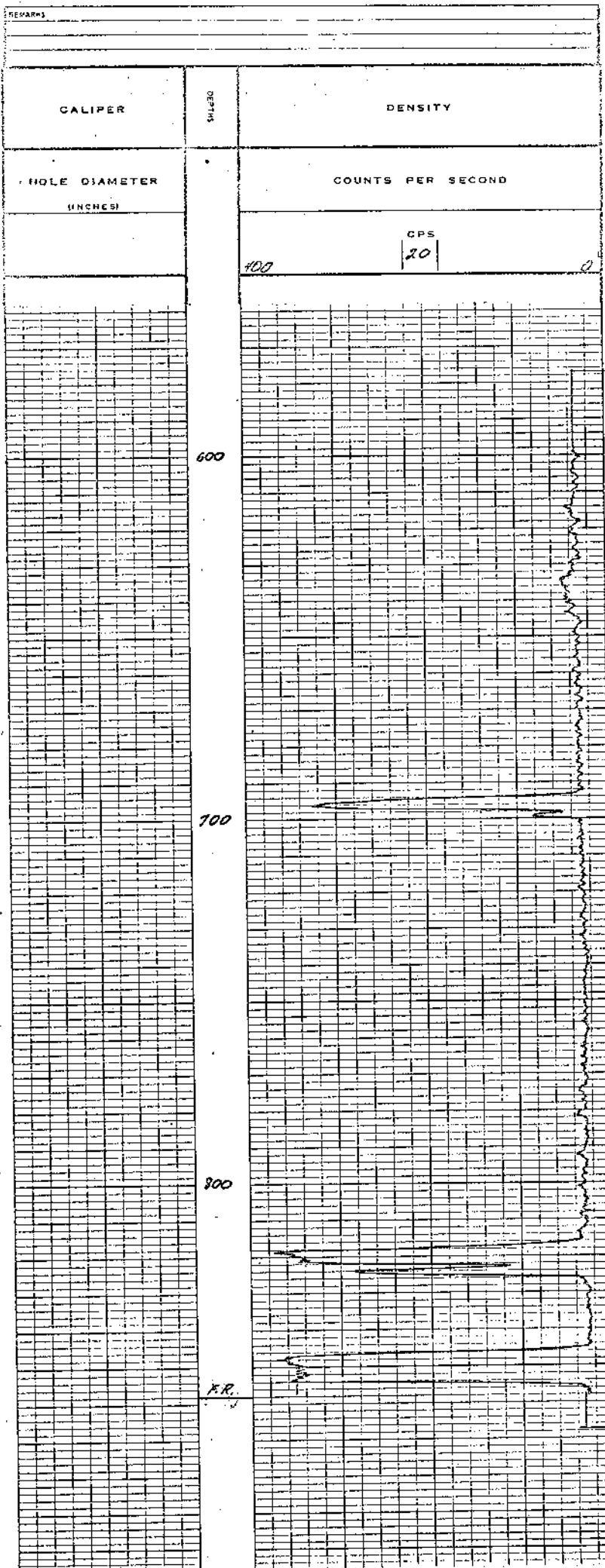
Min. Depth 3 INCHES

Operating Time _____

Log No. 645

Checked by WILLIS

Remarks _____



ROKKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: QUALITON MINING LIMITED

LSD SEC TYP RGE M H FIELD: C-5

LOCATION: SUNBURKA PROJECT

PROVINCE: BRITISH COLUMBIA

Present Date: 17 SEPTEMBER 71
Log Measured from: 8500.0 LEVEL
Well Depth Measured from: FT. Above Pad, Down

Log No: ONE

Date: 17 SEPTEMBER 71

Log Reading: 1143

Log Reading: 800

Log Reading: 252

Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

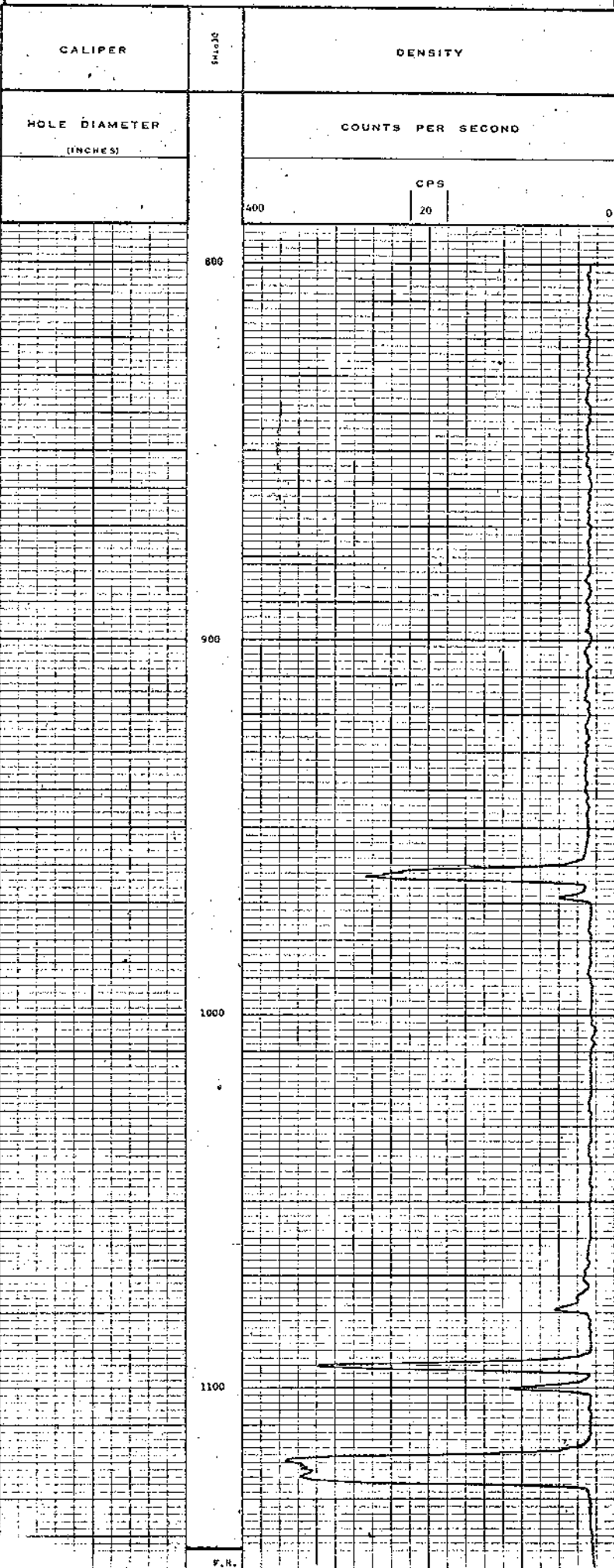
Depth Reading: 1145

Depth Reading: 1145

Depth Reading: 1145

645

REMARKS DEMONSTRATION



CALIPER

HOLE DIAMETER (INCHES)

Operating Time: 3 HOURS

Log No: 20

Recorded By: SMH

Witnessed By: WALLIS

ROKKE

OIL ENTERPRISES LTD. CALGARY ALBERTA

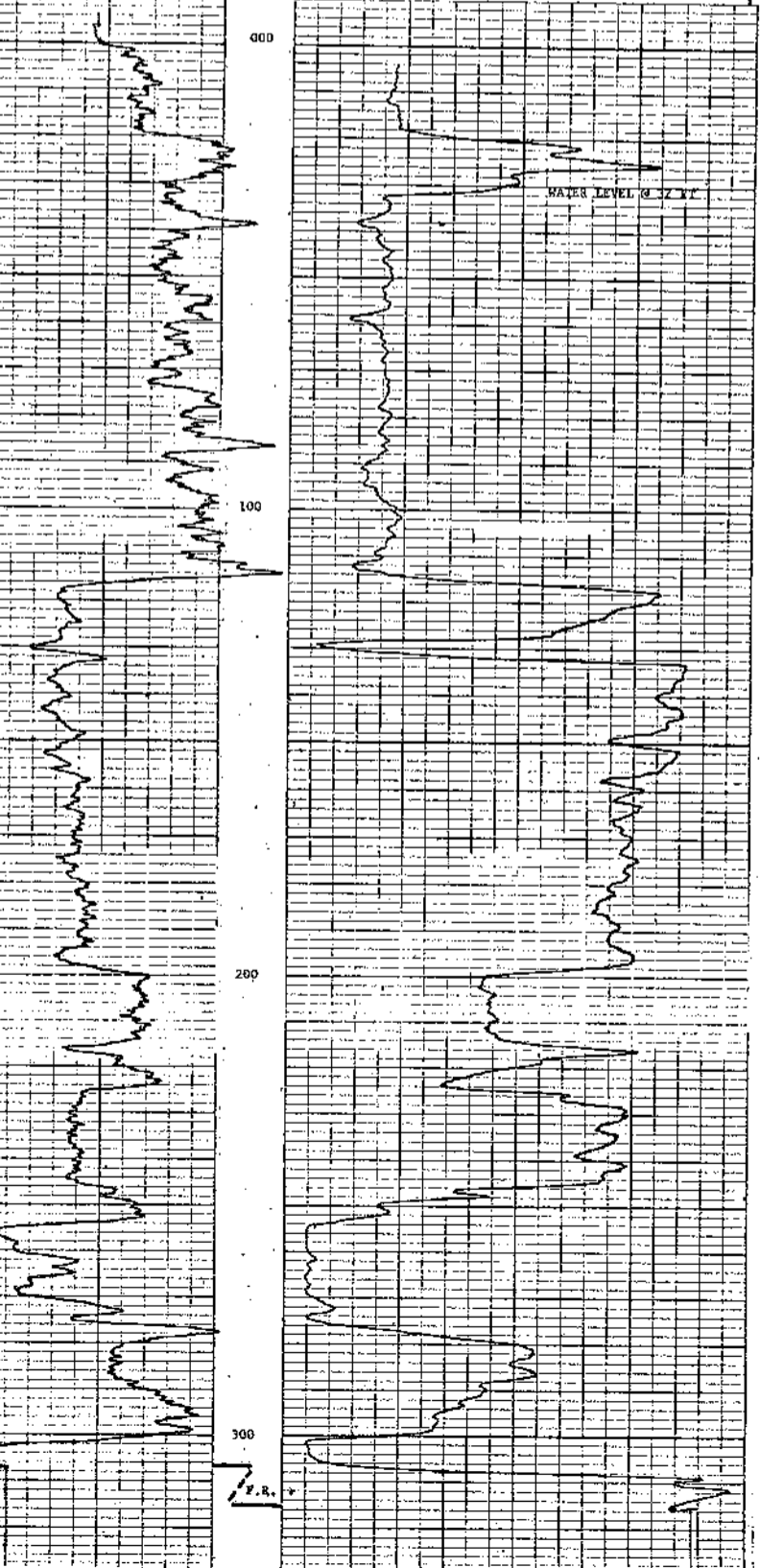
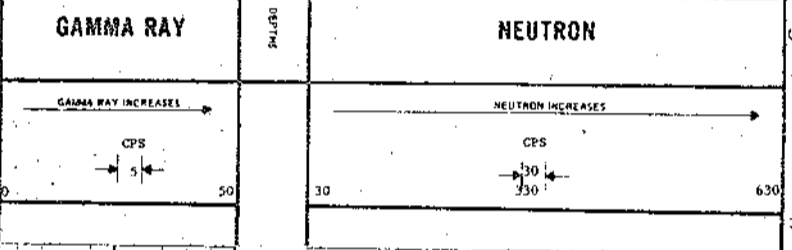
FILE NO.	COALITION MINING LIMITED
COMPANY	CS - 6
WELL	SINDOMA PROJECT
LOCATION	
RANGE	
W	
M	
PROVINCE	BRITISH COLUMBIA
PREVIOUS DEPTH	GROUND LEVEL
LOG REQUIRED FROM (GROUND LEVEL)	
7-1/2" DEPTH MEASURE FROM	
RUN NO.	645
DATE	21 SEPTEMBER 71
FIRST READING	315
LAST READING	315
FOOTAGE LOGGED	0
DEPTH FINISHED	315
DRINK DATE	
CASING DEPTH	
CASING JOISTER	
FLUID TYPE	
LIQUID LEVEL	28
MIN. DEPTH	1 INCH
OPERATING TIME	1.12 HOURS
TRUCK NO.	20
INSTRUMENT TRUCK NO.	
TOOL SERIAL NO.	CGR270465
REPORTED BY	SLR
WITNESSED BY	WALLIS

645

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO.	002	RUN NO.	01E
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 1/2
TYPE	CEIGER	DETECTOR MODEL NO.	
LENGTH	38 INCH	TYPE	PROPORTIONAL
DISTANCE TO N-SOURCE	8.25 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
		SERIAL NO.	598
		SPACING	19 INCH
		TYPE	AmBe
		STRENGTH	6.94 X 10 ⁶ W/S

LOGGING DATA											
GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTH		SPEED	T.C.	SENS.	ZERO	API GR. UNITS	T.C.	SENS.	ZERO	API GR. UNITS
	FROM	TO	FT/MIN	SEC	SETTINGS	DIV L OR R	PER LOG DIV.	SEC	SETTINGS	DIV L OR R	PER LOG DIV.
1	0	315	11	4	17	DL	5 CPS	4	22	LL	30 CPS

REMARKS



ROYCE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

ROYCE OIL SERVICES LTD.

FILE NO. COMPANY: COALITION MINING LIMITED

WELL: C-2 LOCATION: SIKUMRA PROJECT

PROV: BC FIELD: BRITISH COLUMBIA

PROV: BC FIELD: BRITISH COLUMBIA

Reference Datum: GROUND LEVEL
Log Measured from: GROUND LEVEL
Well Depth Measured from: GROUND LEVEL

Run No. 12 SEPTEMBER 71

Reading 566

Logged 566

Checked 567

Water 800

Depth 3 INCH

Operating Time 2 HOURS

645

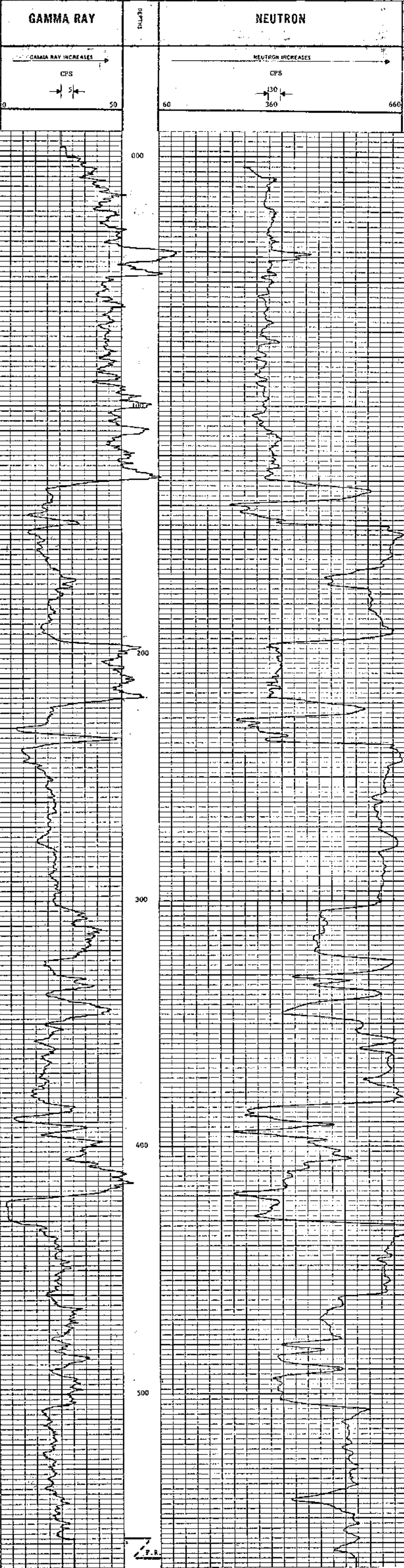
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO	ONE			RUN NO	ONE		
TOOL MODEL NO	11			LOG TYPE	NEUTRON/NEUTRON		
DIAMETER	1 1/2			ODL MODEL NO	11		
DETECTOR MODEL NO	GEIGER			DETECTOR MODEL NO	PROPORTIONAL		
TYPE	18 INCH			LENGTH	6 INCH		
LENGTH	8.55 FT			SOURCE MODEL NO.	MRC-N-SS-W		
DISTANCE TO N SOURCE	GENERAL			SERIAL NO	598		
HOST TRUCK NO	2B			SPACING	19 INCH		
INSTRUMENT TRUCK NO				TYPE	AmBe		
TOOL SERIAL NO	CGN2704A65			STRENGTH	6.94 X 10 ⁶ N/S		

LOGGING DATA

GAMMA RAY				NEUTRON						
RUN NO	DEPTHS	SPEED	T C	SENS	ZERO	API GR UNITS	T C	SENS	ZERO	API GR UNITS
	FROM	TO	SEC	SETTINGS	Div L OR R	PER LOG DIV	SEC	SETTINGS	Div L OR R	PER LOG DIV
1	0	566	11	4	17	5 CPS	4	0 - 23	2L	30 CPS

REMARKS: ANGLE HOLE



ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

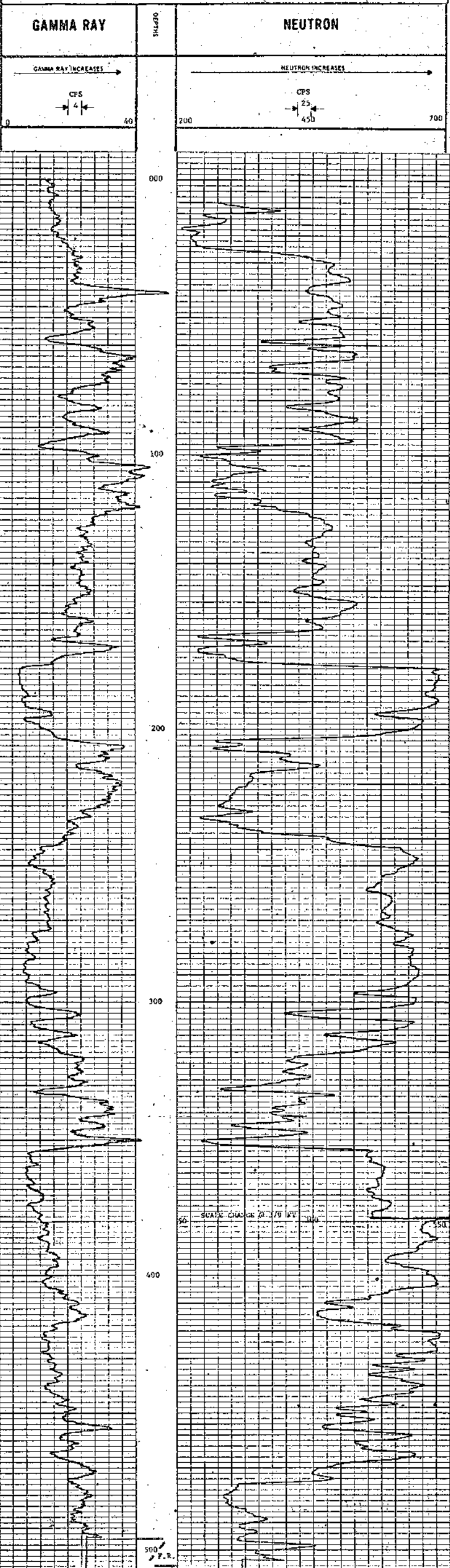
FILE NO. _____ COMPANY: **CANTON MINING LIMITED**
 LSD SEC TYPE: **C-1** WELL: _____ LOCATION: **STANLEY ENERGY**
 REF: _____ FIELD: _____ PROV: **SASKATCHEWAN**
 M: _____ M: _____
 Run No. _____ Date: _____
 First Reading: _____ Last Reading: _____
 Source Logged: _____
 Depth: _____
 Core Depth: _____
 Core Type: _____
 Fluid Type: _____
 Log Level: _____
 Min. Depth: _____
 Operating Time: **2:17. HOURS**
 Truck No. _____
 Recorded By: **SKM** Witnessed By: **MALITS**

645

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO.	016	RUN NO.	016
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 1/2
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	598
HIST TRUCK NO.	20	SPACING	19 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	CQR2705A65	STRENGTH	6.94 x 10 ⁶ N/S

LOGGING DATA											
GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPT.	TD	SPEED	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 GR UNITS PER LOG DIV
1	0	379	11	4	15	OL	4 CPS	4	0 - 25	8L	25
	379	504	11	4	15	OL	4 CPS	4	0 - 25	2L	25

REMARKS



ROKEL

OH ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: COALITION MINING LIMITED

LSD SEC TWP RGE LOCATION: SIMONCA PROJECT

W M FIELD

PROVINCE: BRITISH COLUMBIA

Permeation Date: GROUND LEVEL Ery: K.A.

Lag Required from GROUND LEVEL: Fl. Above Perm. Zone: D.F.

Well Depth, Measured from: G.L.

Run No. ONE

Date: 18 SEPTEMBER 71

First Reading: 566

Last Reading: 0

Footage Logged: 566

Drain Required: 566

Drain Date:

Casing Size:

Casing Order:

Fluid Type: WATER

Fluid Level:

Min. Depth: 3 INCH

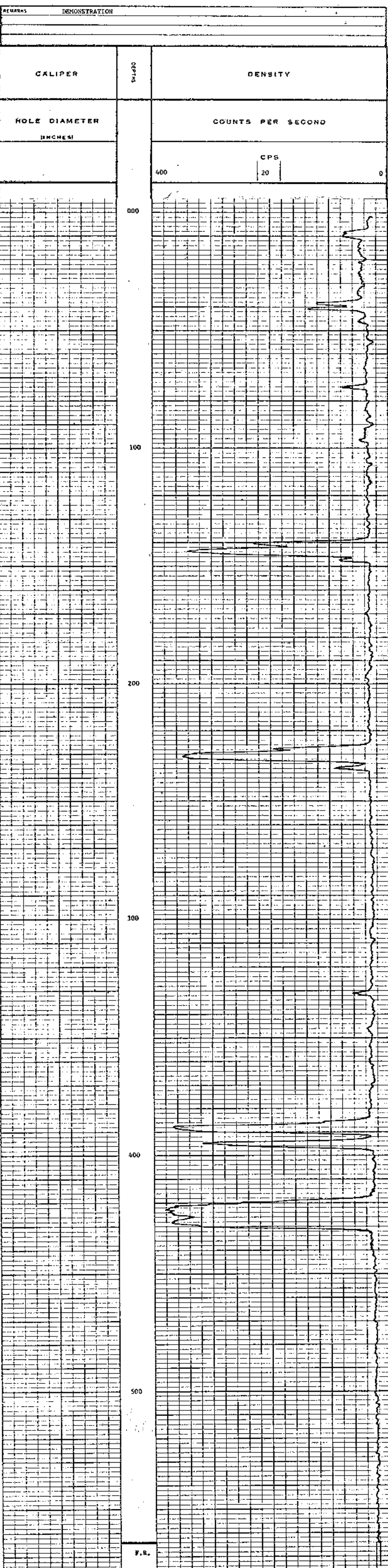
Operating Time: 2 1/2 HOURS

Truck No: 20

Recorded By: STM

Witnessed By: HALLIS

645



ROKKE

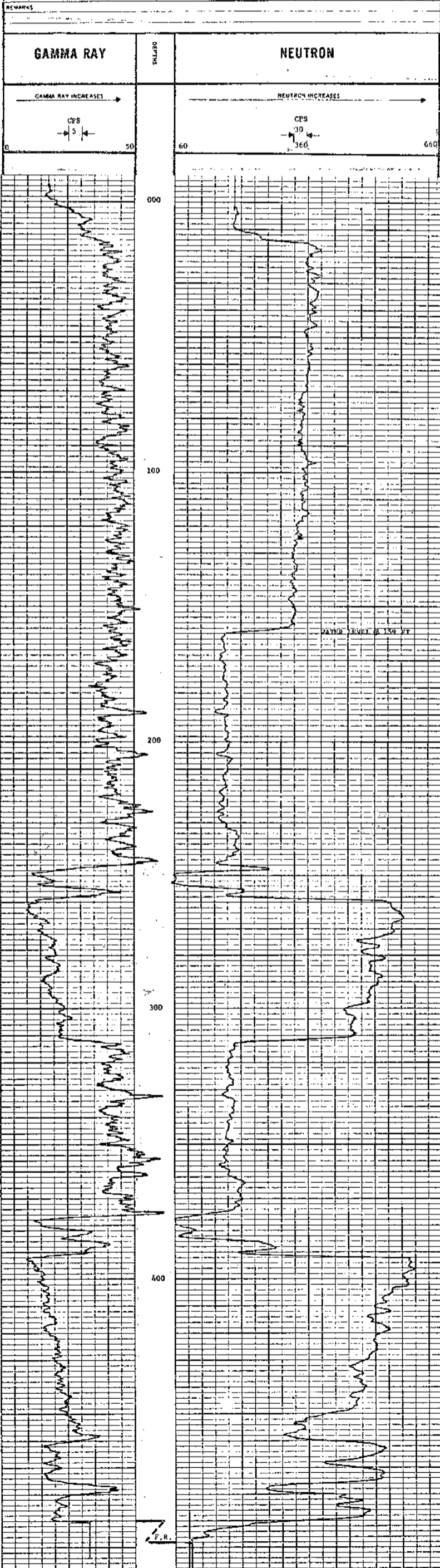
OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	CONTRACTOR	CONALTON HIRING LIMITED
WELL	C - 3	
LOCATION	SERRANA PROJECT	
PROVINCE	BRITISH COLUMBIA	
LOG LEVEL	GOOD LEVEL	
LOG MEASURED FROM	CASANO LEVEL	
DATE	13 SEPTEMBER 71	
LOG NUMBER	498	
LOGGING	0	
DEPTH RANDED	498	
DEPTH DRIER	600	
LOGGING	WATER	
LOGGING	1.9	
LOGGING	3 INCH	
LOGGING	3 HOURS	
LOGGING	20	
LOGGING	WALLIS	

645

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO	1H	TOOL MODEL NO	NEUTRON/NEUTRON
DIAMETER	1 1/4	DIAMETER	1 1/4
DETECTOR MODEL NO.	CEICER	DETECTOR MODEL NO.	
TYPE	18 INCH	TYPE	PROPORTIONAL
LENGTH	8.55 FT	LENGTH	6 INCH
DISTANCE TO N. SOURCE		SOURCE MODEL NO.	MRC-N-SS-W
HOIST TRUCK NO	GENERAL 20	SERIAL NO	598
INSTRUMENT TRUCK NO		SPACING	19 INCH
TOOL SERIAL NO	CGR2704A65	TYPE	AmBe
		STRENGTH	6.94 x 10 ⁶ N/S

LOGGING DATA										
GENERAL			GAMMA RAY				NEUTRON			
RUN NO	DEPTHS	SPEED	T.C.	SENS.	ZERO	API GR	T.C.	SENS.	ZERO	API GR
NO	FROM TO	FT/MIN	SEC	SETTINGS	DIV L OR R	UNITS PER LOG DIV	SEC	SETTINGS	DIV L OR R	UNITS PER LOG DIV
1	0 498	11	4	17	0	5 CPS	4	0 - 23	2L	30 CPS



ROKKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL C-4

LOCATION SINKUKA PROJECT

FIELD

PROVINCE BRITISH COLUMBIA

Equipment Date: GROUND LEVEL Elev.
 Log Measured from: GROUND LEVEL Ft. Above Perm. Ocean
 Well Depth Measured from S.L.

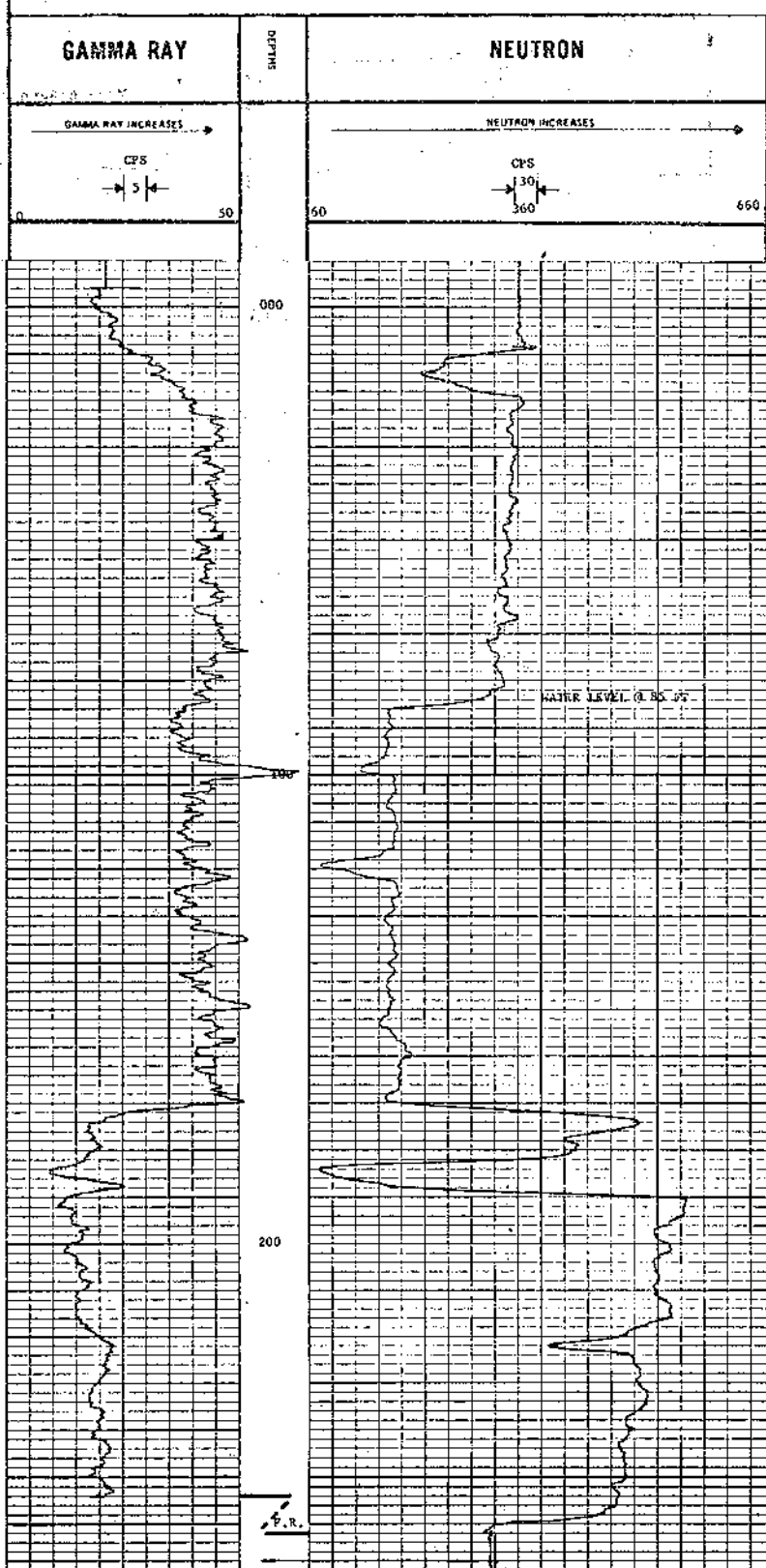
Run No.	ONE
Date	11 SEPTEMBER 71
First Reading	262
Last Reading	0
Footage Logged	262
Depth Rev-Card	263
Depth Drawn	425
Casing Rate	
Casing Depth	
Fluid Type	WATER
Liquid Level	85
Main Gauge	3 INCH
Operating Time	2 HOURS
Truck No.	20
Recorded By	STMS
Witnessed By	WALLEN

615

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	FOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 1/2
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.	598
		SPACING	19 INCH
		TYPE	AmBe
		STRENGTH	6.94 x 10 ⁶ N/SEC
GENERAL			
HIST. TRUCK NO.	20		
INSTRUMENT TRUCK NO.			
FOOL SERIAL NO.	CGN27U465		

LOGGING DATA										
GENERAL					GAMMA RAY			NEUTRON		
RUN NO.	DEPTHS		SPEED	Y.C.	ZERO	APR. C.R. UNITS	T.C.	SENS.	ZERO	APR. N. UNITS
	FROM	TO	FT/MIN	SEC	DIV. L OR R	PER LOG DIV	SEC	SETTINGS	DIV. L OR R	PER LOG DIV
1	0	262	11	4	02	5 CPS	4	0-23	2L	30 CPS

REMARKS



ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

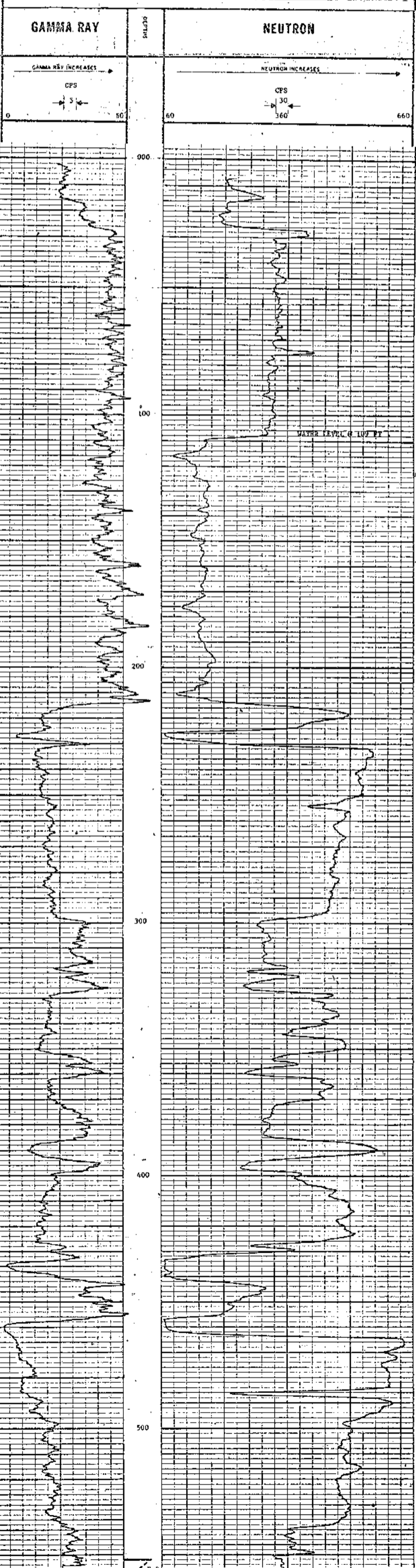
FILE NO.	COMPANY	WELL	LOCATION	FIELD	PROVINCE
LSD	COALITION MINING LIMITED	C - 4 A	SUDOKA PROJECT		BRITISH COLUMBIA
SEC					
TYPE					
ROE					
M					
H					
Permeability	GROUND LEVEL				
Cell Measurement	GROUND LEVEL				
Mt. Depth Measurement					
Run No.	ONE				
Date	11 SEPTEMBER 71				
Last Reading	560				
Last Reading	0				
Source Logged	560				
Depth Reached	561				
Depth Driller	561				
Change Room					
Change Order					
Fluid Type	WATER				
Spud Time	109				
Min. Diam.	3 INCH				
Operating Time	3 HOURS				
Tool No.	20				
Recorded By	SJK				
Witnessed By	WILLIS				

645

EQUIPMENT DATA											
GAMMA RAY						NEUTRON					
RUN NO.	ONE					RUN NO.	ONE				
TOOL MODEL NO.	16					TOOL MODEL NO.	NEUTRON/NEUTRON				
DIAMETER	18 INCH					DIAMETER	18				
DETECTOR MODEL NO.	CEIGER					DETECTOR MODEL NO.	PROPORTIONAL				
TYPE	18 INCH					LENGTH	6 INCH				
LENGTH	8.95 FT					SOURCE MODEL NO.	MRC-N-SS-W				
DISTANCE TO N. SOURCE	GENERAL					SERIAL NO.	598				
HOST TRUCK NO.	20					SPACING	19 INCH				
INSTRUMENT TRUCK NO.						TYPE	AmBe				
TOOL SERIAL NO.	CGN27U4A65					STRENGTH	6.94 X 10 ⁶ N/SEC				

LOGGING DATA											
GENERAL			GAMMA RAY				NEUTRON				
RUN NO.	DEPTHS FROM	TO	SPEED FT/MIN	T.C. SEC	SENS SETTINGS	ZERO DIV L OR R	AP/C/R UNITS PER LOG DIV	T.C. SEC	SENS SETTINGS	ZERO DIV L OR R	AP/N UNITS PER LOG DIV
1	0	560	11	4	17	0	5 CPS	4	D - 23	2L	30 CPS

REMARKS: ANGLE HOLE - 65°



ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

Company File No. 111001-111

FILE NO. COMPANY: COALITION MINING LIMITED
WELL: C-10
LOCATION: SIBIRSKA PROJECT
PROVINCE: BRITISH COLUMBIA

LOG SEC: TWP: RCT: M: FIELD: GROUND LEVEL: ELEV: F. Above Sea, Datum: O.L. No. 8

Run No: ONE
Date: 12 SEPTEMBER 71
Initial Reading: 742
Last Reading: 0
Source Logged: 742
Depth Reached: 743
Depth Driven: 1078

Casing Size: 8 INCH
Casing Outer: 8 INCH
Fluid Type: NEUTER
Liquid Level: 3.25
Min. Depth: 3 INCH

Drilling Time: 2 HOURS
Tool No: 20
Runoff By: SIM
Witnessed By: WATTS

645

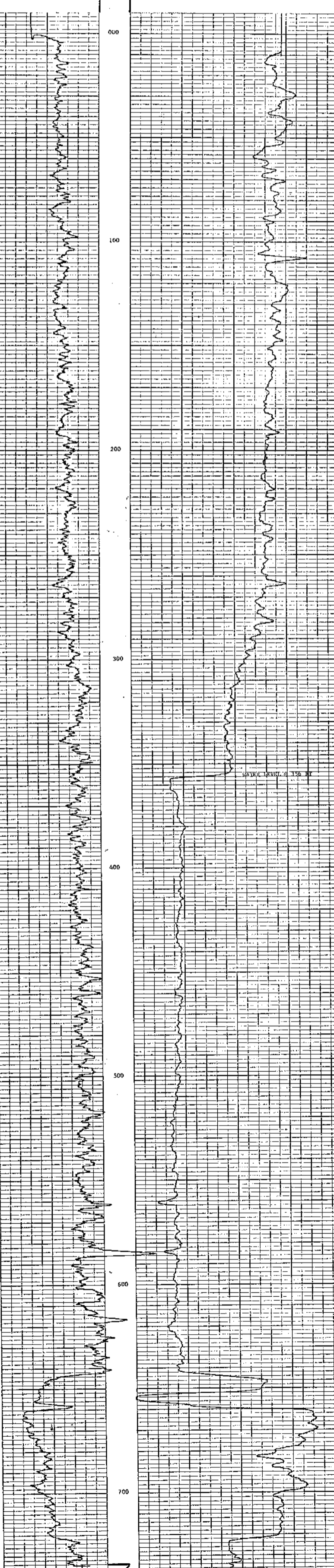
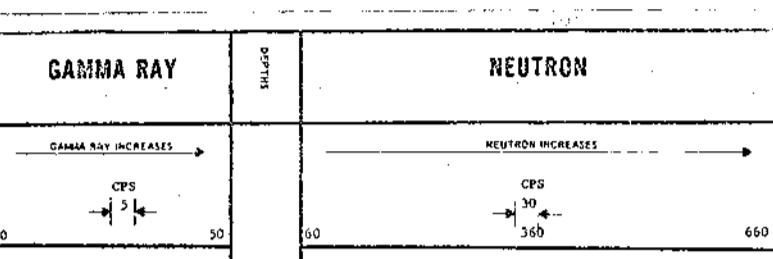
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
Run No	ONE	Run No	ONE	LOG TYPE	NEUTRON/NEUTRON		
Tool Model No		Tool Model No		Tool Diameter	1 1/2		
Detector Model No		Detector Model No		Type	PROPORTIONAL		
Type	GEIGER	Type		Length	6 INCH		
Length	18 INCH	Source Model No		Source Model No	MRC-N-SS-W		
Distance to N. Source	6.55 FT	Serial No		Serial No	598		
Host Truck No	20	Spacing		Spacing	19 INCH		
Instrument Truck No		Type		Type	ArBe		
Tool Serial No	C21270465	Strength		Strength	6.94 X 10 ⁶ N/SEC		

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
Run No	Depths	Speed	T.C.	Sens.	Zero	API GR UNITS	T.C.	Sens.	Zero	API GR UNITS	
	FROM	TO	SEC	SETTINGS	DIV L OR R	PER LOG DIV	SEC	SETTINGS	DIV L OR R	PER LOG DIV	
1	0	742	11	4	L7	5 CPS	4	0 - 23	2L	30 CPS	

REMARKS:



ROKEL

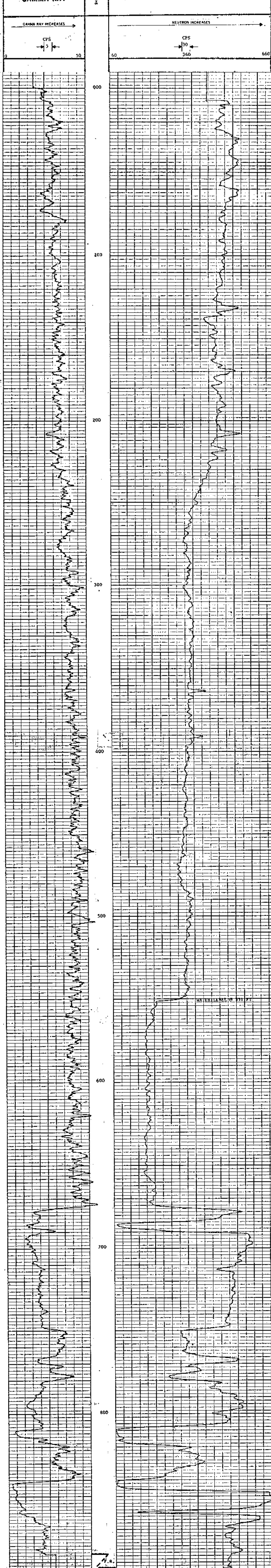
OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO: _____ COMPANY: COALITION-MIXING LIMITED
 WELL: C-11 LOCATION: STRENUKA PROJECT
 PROVISION: BRITISH COLUMBIA
 Run No: _____ Date: 11 SEPTEMBER 71
 Last Reading: _____
 Depth Reaction: 893
 Depth Drive: 898
 Casing Rock: _____
 Casing Drive: _____
 Fluid Type: WATER
 Fluid Level: 551
 Stand Level: _____
 Main Drive: 3 INCH

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	ONE	LOG TYPE	NEUTRON/NEUTRON
TOOL MODEL NO		TOOL MODEL NO	
DIAMETER	1 1/2	DIAMETER	1 1/2
DETECTOR MODEL NO		DETECTOR MODEL NO	
TYPE	GEIGER	TYPE	PROPORTIONAL
LENGTH	18 INCH	LENGTH	6 INCH
DISTANCE TO N SOURCE	8.55 FT	SOURCE MODEL NO	MRC-N-SS-W
		SERIAL NO	598
		SPACING	19 INCH
HOIST TRUCK NO	20	TYPE	AmBe
INSTRUMENT TRUCK NO		STRENGTH	6.94 x 10 ⁶ N/S
TOOL SERIAL NO	CGR27U4A5		

LOGGING DATA													
GAMMA RAY					NEUTRON								
RUN NO	DEPTHS	SPEED	T.C.	SENS.	ZERO	API GR UNITS	T.C.	SENS.	ZERO	API GR UNITS			
NO	FROM	TO	SEC	SETTINGS	DIV L OR R	PER LOG DIV.	SEC	SETTINGS	DIV L OR R	PER LOG DIV.			
1	0	893	11	4	17	0	5	CPS	3	0 - 23	21	30	CPS

REMARKS: _____



6415

Operating Time: 4 HOURS
 Truck No: 20
 Received By: SMZ
 Witnessed By: WALLIS

ROKEL

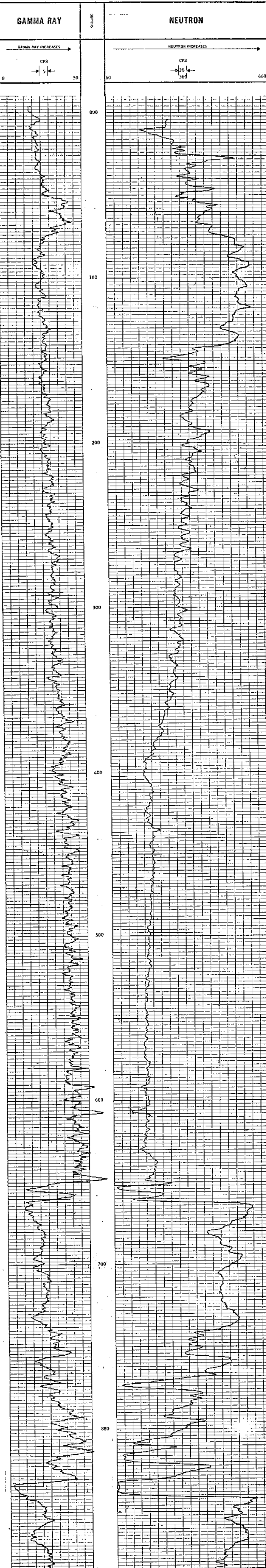
DRI ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	COPY	QUALTRON MINING LIMITED
SEC	WELL	C - 18
DATE	LOCATION	SKINKWA PROJECT
W	M	FIELD
PROVINCE BRITISH COLUMBIA		
PERCENT DIAMETER (GROSS) IS: 1 1/2	DRY	OFF
LOG NUMBER FROM (GROSS) IS: 11	FL. ABOVE PERM. (GROSS) IS:	OFF
WELL DEPTH (MEASURED) IS:		
Run No.	ONE	
Date	11 SEPTEMBER 7	
Log Reading	992	
Last Reading	0	
Foreign Logpad	992	
Open Reading	992	
Chemical		
Casing Drive		
Casing Driller		
Fluid Type	WATER	
Liquid Level		
Min. Depth	3 INCH	
Operating Time	3 HOURS	
Truck No.	20	
Recorder By	STW	Witnessed By
	WATLIS	

645

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 1/2
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	36 INCH	TYPE	PROPORTIONAL
DISTANCE TO N SOURCE	8.55 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-55-W
GENERAL		SERIAL NO	598
HIST TRUCK NO	20	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	C0227U4665	STRENGTH	6.94 x 10 ³ N/S

LOGGING DATA											
GENERAL				GAMMA RAY				NEUTRON			
RUN NO	FROM	TO	SPEED FT/MIN	T.C SEC	SENS SETTINGS	ZERO DIV & DRP	API GR UNITS PER LOG DIV	T.C SEC	SENS SETTINGS	ZERO DIV LOG A	API UNITS PER LOG DIV
1	0	892	11	6	17	0L	5 CPS	6	8 - 22	2L	30 CPS



ROKEL

OH. ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: COALITION MINING LIMITED
WELL: C-20
WELL TYPE: SURVEY PROJECT
LOCATION: SUNDYVA PROJECT
PROVINCE: BRITISH COLUMBIALOGGING DATE: SEPTEMBER 21, 1971
LOG MEASURED FROM: 918
WELL DEPTH MEASURED FROM: 0 LRUN NO. 002
DATE: 19 SEPTEMBER 71
FIRST READING: 918
LAST READING: 0
LOGGERS LOGGED: 918, 919Casing Data
Casing Depth: WATER
Fluid Type: WATER
Liquid Level: 3 INCH
Min. Diam.:Operating Time: 2 1/2 HOURS
Track No.: 20
Recorded By: SCH
Witnessed By: WALLIS

645

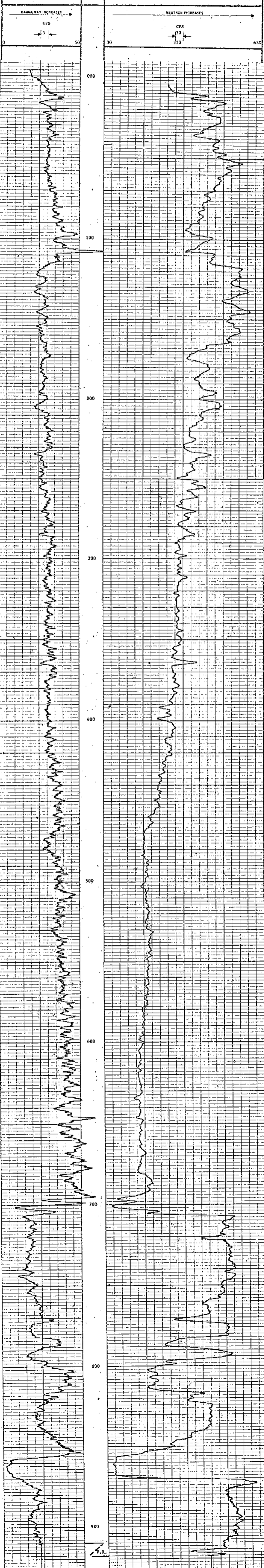
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO.	002	LOG. TYPE	ONE	LOG. TYPE	ONE	LOG. TYPE	NEUTRON/NEUTRON
TOOL MODEL NO.		TOOL MODEL NO.		TOOL MODEL NO.		TOOL MODEL NO.	
DIAPHRAGM	1H	DIAPHRAGM		DIAPHRAGM	1H	DIAPHRAGM	
DETECTOR MODEL NO.		DETECTOR MODEL NO.		DETECTOR MODEL NO.		DETECTOR MODEL NO.	
TYPE	GEIGER	TYPE		TYPE	PROPORTIONAL	TYPE	
LENGTH	18 INCH	LENGTH		LENGTH	6 INCH	LENGTH	
DISTANCE TO N. SOURCE	8.55 FT	SOURCE MODEL NO.		SOURCE MODEL NO.	MPC-N-SS-W	SOURCE MODEL NO.	
GENERAL		SERIAL NO.		SERIAL NO.	528	SERIAL NO.	
TRUCK NO.	20	SPACING		SPACING	12 INCH	SPACING	
INSTRUMENT TRACK NO.		TYPE		TYPE	AmBe	TYPE	
TOOL SERIAL NO.	CGW22U9A65	STRENGTH		STRENGTH	6.9% x 10 ⁶ N/S	STRENGTH	

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTH	SPEED	T.C.	SENS.	ZERO	API GR	T.C.	SENS.	ZERO	API GR	PER LOG DIV.
	FROM	TO	SEC	SETTINGS	DIV L OR R	PER LOG DIV.	SEC	SETTINGS	DIV L OR R	PER LOG DIV.	
1	0	918	11	4	17	01	5	4	0-22	11	30

REMARKS:



ROKKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

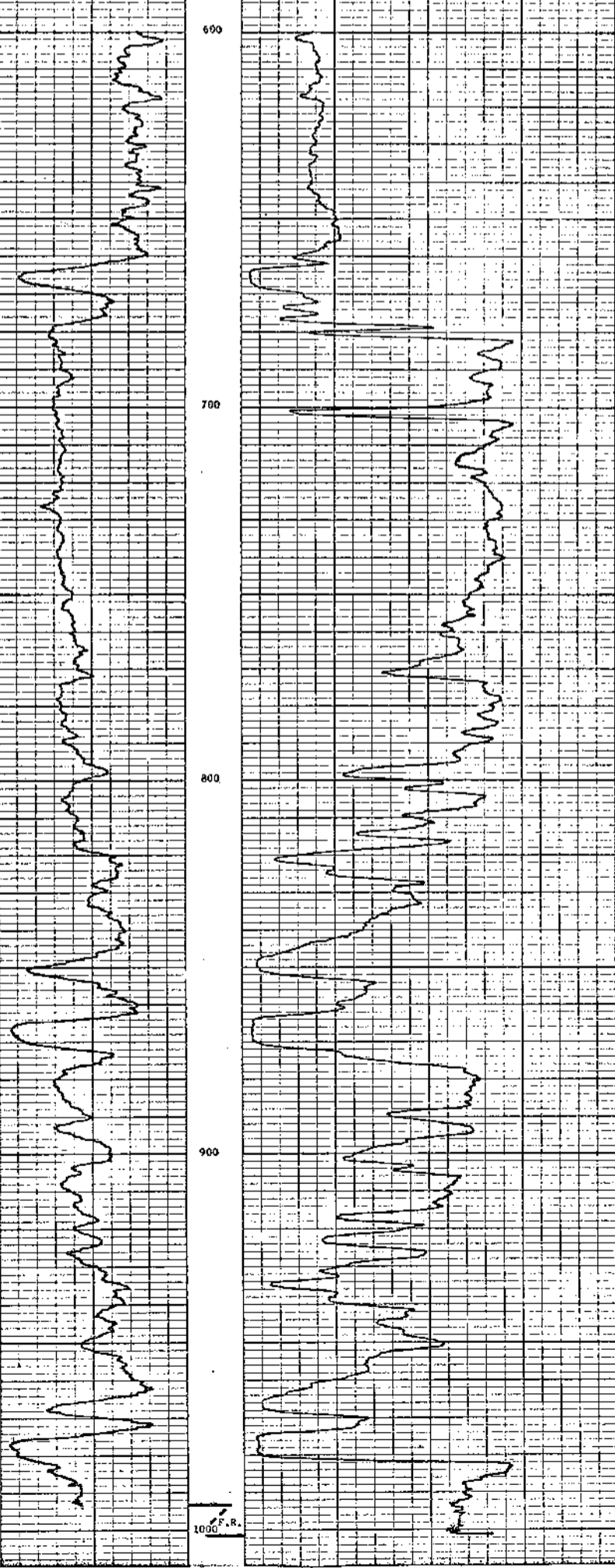
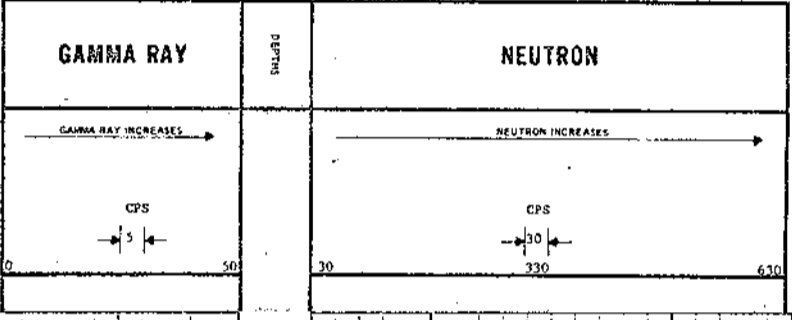
FILE NO	COMPANY	CONDITION	NEUTRON LIMITED
LOG SEC	WELL	C - 26	
TWP	LOCATION		
RGE	FIELD	SIRIUSA PROJECT	
W			
M			
	PROVINC	BRITISH COLUMBIA	
	PERMIT NO.	STANDARD LEASE	
	LOG MEASURED FROM	R.I.G. E.T.C.D.E.	
	WELL DEPTH MEASURED FROM	1.5 FT. ABOVE PUMP DOWN	
Run No	720		
Date	15 OCTOBER 71		
First Reading	1001		
Last Reading	600		
Toolbox Logged	401		
Depth Measured	1002		
Depth Driller			
Casing Rate			
Change Depth			
Fluid Type	WATER		
Liquid Level			
Van Diam	3 INCH		
Operating Time	4 1/2 HOURS		
Truck No	20		
Recorded By	SM	Witnessed By	NALLIS

6415

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	TWO	RUN NO	TWO
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 1/2
TYPE	CEIGER	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	598
		SPACING	12 INCH
		TYPE	AmBe
		STRENGTH	6.94 x 10 ⁶ N/S

LOGGING DATA														
GENERAL					GAMMA RAY					NEUTRON				
RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/WH	T C SEC	SENS SETTINGS	ZERO DIV L OR R	APN GR UNITS PER LOG DIV	T C SEC	SENS SETTINGS	ZERO DIV L OR R	APN UNITS PER LOG DIV			
1	600	1001	12	5	17	0L	5 CPS	2.5	0 - 23	2L	30 CPS			

REMARKS



ROKKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

WELL: C-26

COMPANY: COMALTON MINING LIMITED

LOCATION: SIXKONA PROJECT

FIELD: BRITISH COLUMBIA

PROVINCE: BRITISH COLUMBIA

PERFORMER: GEORGE JEFFREY

LOG MEASURED FROM: 2 FT ABOVE PUMP DOWN

DATE: 13 OCTOBER 71

LOG NO: ONE

LOG DEPTH: 922

LOG DEPTH: 923

LOG DEPTH: 923

LOG DEPTH: 923

LOG DEPTH: 923

LOG DEPTH: 923

LOG DEPTH: 923

LOG DEPTH: 923

LOG DEPTH: 923

LOG DEPTH: 923

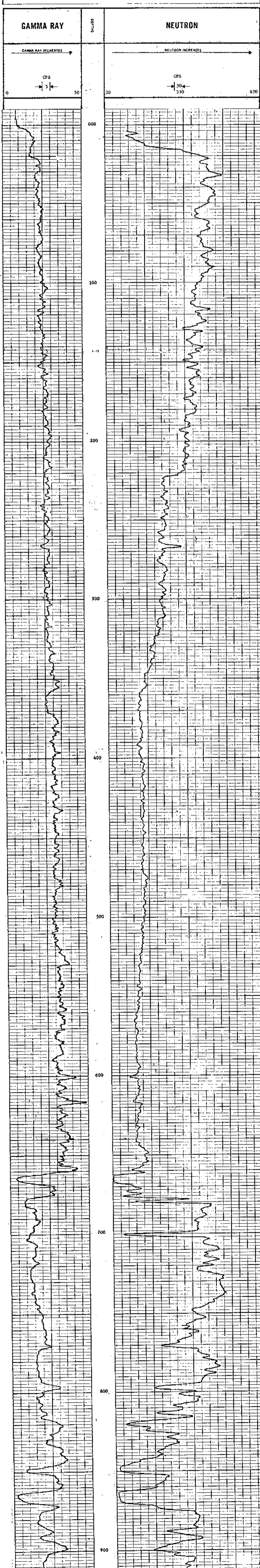
6415

EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO	ONE	RUN NO	ONE	RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		TOOL MODEL NO	ONE	TOOL MODEL NO	ONE	TOOL MODEL NO	ONE
DIAMETER	1 1/2	DIAMETER	1 1/2	DIAMETER	1 1/2	DIAMETER	1 1/2
DETECTOR MODEL NO		DETECTOR MODEL NO		DETECTOR MODEL NO		DETECTOR MODEL NO	
TYPE	GEIGER	TYPE	PROPORTIONAL	TYPE	PROPORTIONAL	TYPE	PROPORTIONAL
LENGTH	18 INCH	LENGTH	6 INCH	LENGTH	6 INCH	LENGTH	6 INCH
DISTANCE TO N SOURCE	8.55 FT	DISTANCE TO N SOURCE		DISTANCE TO N SOURCE		DISTANCE TO N SOURCE	
GENERAL				GENERAL			
HOIST TRUCK NO	20	HOIST TRUCK NO		HOIST TRUCK NO		HOIST TRUCK NO	
INSURANCE TRUCK NO		INSURANCE TRUCK NO		INSURANCE TRUCK NO		INSURANCE TRUCK NO	
TOOL SERIAL NO	CG22785A65	TOOL SERIAL NO		TOOL SERIAL NO		TOOL SERIAL NO	

LOGGING DATA

GAMMA RAY				NEUTRON			
RUN NO	DEPTH	TO	SPEED	T.C	SENS	ZERO	API N UNITS
NO	FT	FT	FT/MIN	SEC	SETTINGS	DIV L OR R	PER LOG DIV
1	0	922	12	5	17	OL	5 CPS
							2.5
							0 - 23
							17
							30 CPS



F.R.

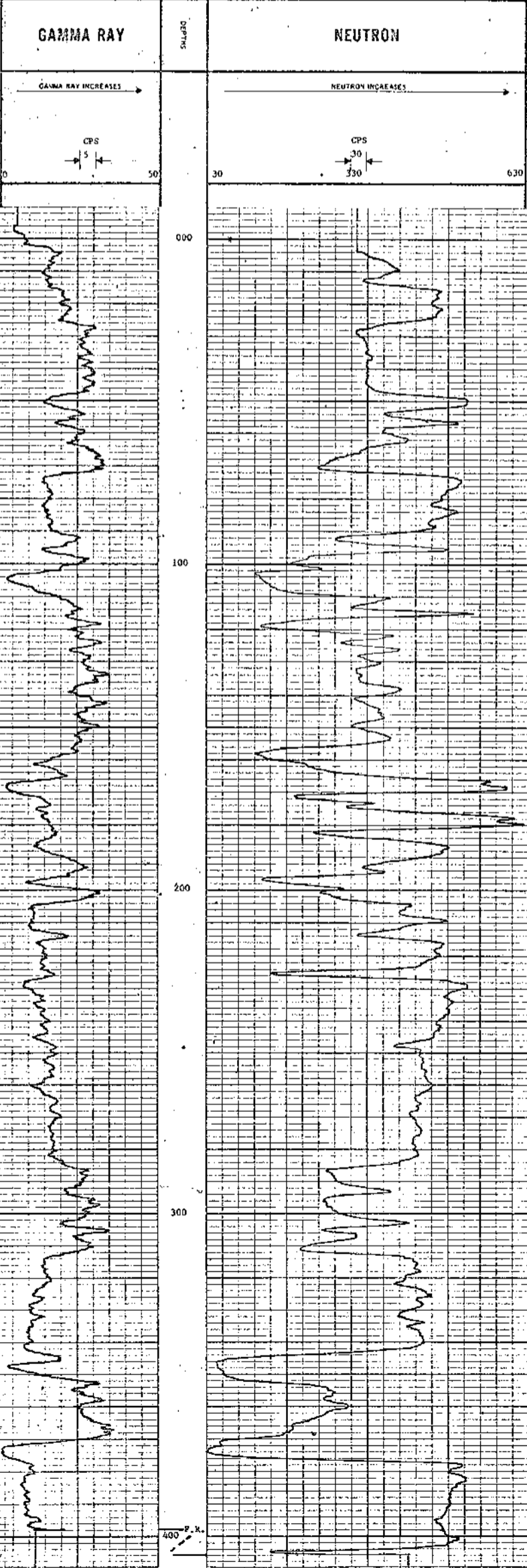
ROKFE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	COMPANY	LOCATION	WELL	DEPTH
	COALITION MINING LIMITED	SISKIYOU PROJECT	C - 30	
SEC	TYPE	AGE	FIELD	PROVINCE
			BRITISH COLUMBIA	
Instrumentation: GEIGER METER, NEUTRON METER, LOGGING UNIT Log Machine: SIG FLUOR, L.S., F.L. ABNEY PEN, DRUM Log Depth: 400 FT.				
Run No.	Date	Time	Operator	Recorder
ONE	5 OCTOBER 71			
Log Reading	406			
Log Reading	0			
Depth Logged	406			
Depth Scaled	408			
Depth Drive				
Change Drive				
Fluid Type	WATER			
Cap of Log	3 INCH			
Min. Diam.				
Operating Time	2 HOURS			
Log No.	20			
Recorded By	PETERSON	Witnessed By	HALLIS	

645

EQUIPMENT DATA										
GAMMA RAY					NEUTRON					
RUN NO.	ONE				RUN NO.	ONE				
FOCAL MODEL NO.	1 1/2				FOCAL MODEL NO.	NEUTRON/NEUTRON				
DIAPHRAGM	1 1/2				DIAPHRAGM	1 1/2				
DETECTOR MODEL NO.	GEIGER				DETECTOR MODEL NO.	PROPORTIONAL				
TYPE	10 INCH				TYPE	MRC-N-SS-W				
LENGTH	8.53 FT				LENGTH	6 INCH				
DISTANCE TO N. SOURCE					SOURCE MODEL NO.	MRC-N-SS-W				
					SERIAL NO.	598				
					SPACING	10 INCH				
					TYPE	AmBe				
					LENGTH	6.94 x 10 ⁶ N/S				
LOGGING DATA										
GENERAL			GAMMA RAY				NEUTRON			
RUN NO.	DEPTH	SPEED	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	APX. GR. UNITS PER LOG DIV.	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	APX. GR. UNITS PER LOG DIV.
1	0	406	11	4	17	DL	4	0.23	11	30 CPS
REMARKS: LOGGED THRU DRILLROD.										



ROKFE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

COMPANY: COMALITION MINING LIMITED

WELL: C-31

LOCATION: SIBURKA PROJECT

PROVINCE: BRITISH COLUMBIA

DATE: 10 OCTOBER 71

LOG TYPE: ONE

TOOL MODEL NO: 538

DIAMETER: 1 1/2

TYPE: GEIGER

LENGTH: 18 INCH

DISTANCE TO N. SOURCE: 8.55 FT

GENERAL: TO 20

MOIST TRUCK NO:

WATER: FULL

MIN. DAM: 3 INCH

OPERATING TIME: 2 HOURS

RECORDED BY: RETENSON

WITNESSED BY: MAULIS

645

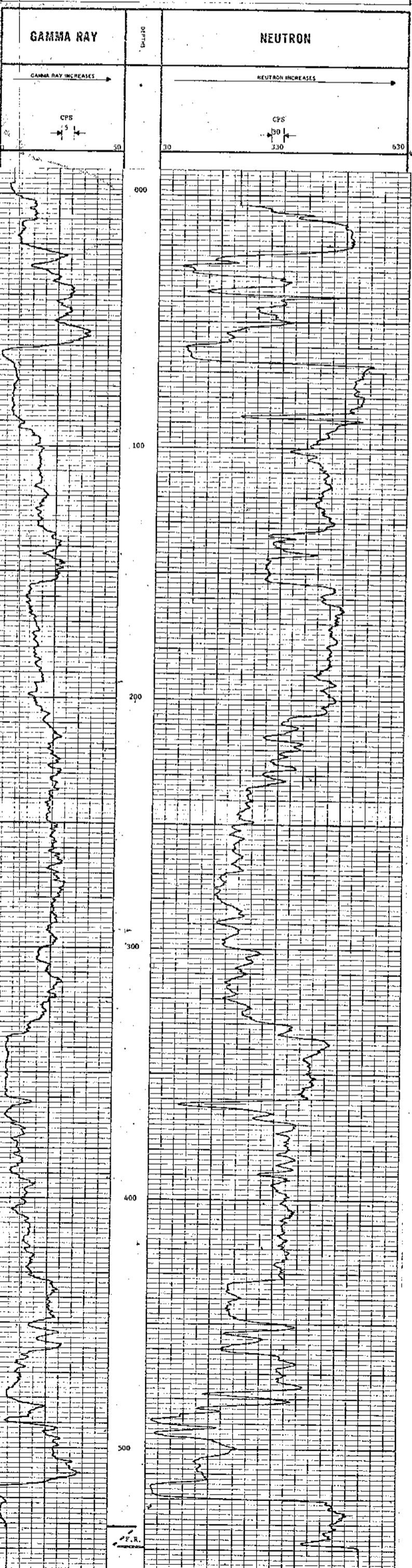
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
TOOL NO.	ONE	REV. NO.	ONE	LOG TYPE	ONE	TOOL MODEL NO.	NEUTRON/NEUTRON
TOOL MODEL NO.	538	TOOL MODEL NO.	538	DIAMETER	1 1/2	DIAMETER	1 1/2
DIAMETER	1 1/2	DIAMETER	1 1/2	DETECTOR MODEL NO.		DETECTOR MODEL NO.	
DETECTOR MODEL NO.	538	DETECTOR MODEL NO.	538	TYPE	GEIGER	TYPE	PROPORTIONAL
TYPE	GEIGER	TYPE	PROPORTIONAL	LENGTH	18 INCH	LENGTH	8 INCH
LENGTH	18 INCH	LENGTH	8 INCH	SOURCE MODEL NO.		SOURCE MODEL NO.	MPC-N-SS-W
DISTANCE TO N. SOURCE	8.55 FT	SOURCE MODEL NO.	MPC-N-SS-W	SEMIAL. NO.		SEMIAL. NO.	598
GENERAL	TO 20	SEMIAL. NO.	598	SPACING		SPACING	19 INCH
MOIST TRUCK NO.		SPACING	19 INCH	TYPE		TYPE	AmBe
WATER	FULL	TYPE	AmBe	STRENGTH		STRENGTH	6.94 x 10 ⁴ N/S
MIN. DAM	3 INCH	STRENGTH	6.94 x 10 ⁴ N/S				
OPERATING TIME	2 HOURS						
RECORDED BY	RETENSON						
WITNESSED BY	MAULIS						

LOGGING DATA

RUN NO.	GENERAL		GAMMA RAY				NEUTRON				
	FROM	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 GR. UNITS PER LOG DIV.
1	0	539	12	5	17	DL	5 CPS	2.5	0.23	1L	30 CPS

REMARKS: LOGGED THRU DRILLROD



ROKKE

DILL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COLLIERY MINING LIMITED

WELL C-34

LOCATION SIMONA PROJECT

FIELD SIMONA PROJECT

PROVINCE BRITISH COLUMBIA

INSTRUMENT MODEL NO. 10000000000000000000

DATE 25 OCTOBER 71

LOGGING LOGGED

DEPTH RECORDED 992

LOGGING LOGGED

LOGGING LOGGED

LOGGING LOGGED

LOGGING LOGGED

LOGGING LOGGED

LOGGING LOGGED

LOGGING LOGGED

LOGGING LOGGED

LOGGING LOGGED

645

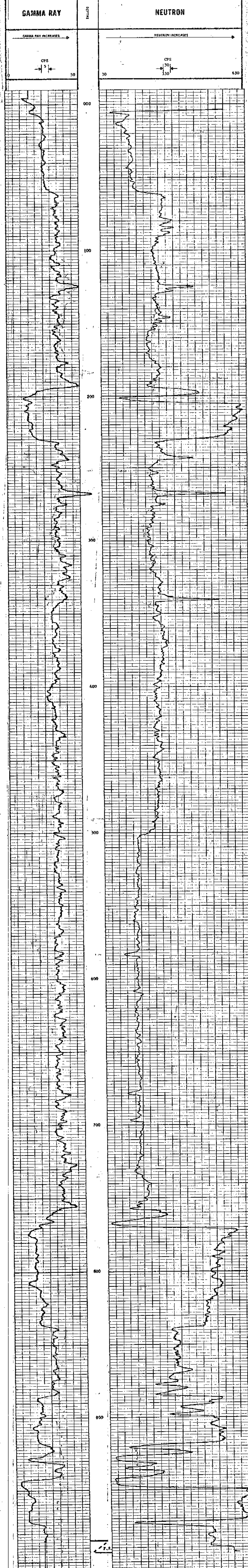
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO	ONE			RUN NO	ONE		
LOG MODEL NO	11			LOG TYPE	NEUTRON/NEUTRON		
DIAMETER	1 1/2			LOG MODEL NO	11		
DETECTOR MODEL NO	GEIGER			DIAMETER	1 1/2		
TYPE	16 INCH			DETECTOR MODEL NO	PROPORTIONAL		
LENGTH	8.33 FT			TYPE	6 INCH		
DISTANCE TO N SOURCE				LENGTH	MRC-N-SS-W		
GENERAL				SOURCE MODEL NO	598		
HOST TRUCK NO	20			SERIAL NO	19 INCH		
INSTRUMENT TRUCK NO				SPACING	AmBe		
TOOL SERIAL NO	CGR27U4A74			TYPE	5.94 x 10 ⁶ N/S		
STRENGTH							

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	FROM	TO	SPEED FT/MIN	T C SEC	SENS SETTINGS	ZERO DIV L OR R	API GR UNITS PER LOG DIV	F C SEC	SENS SETTINGS	ZERO DIV L OR R	API N UNITS PER LOG DIV
1	0	992	12	5	17	OL	5 CPS	2.5	0 - 23	IL	30 CPS

REMARKS LOGGED THROUGH NO DRILL STEEL



ROKFF

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: COLLETON MINING LIMITED

WELL: C-38 LOCATION: SOROKKA PROJECT

PROVINCE: BRITISH COLUMBIA

PROFESSOR: GROUND LEVEL
 Log Measured from (GROUND LEVEL)
 Well Depth Measured from

Run No. ONE
 Date: 30 OCTOBER 71
 First Reading: 552
 Last Reading: 0
 Encoder Logged: 552
 Depth Measured: 553
 Depth Differ: 553
 Casing Date:

Fluid Type: WATER
 Liquid Level: 3 INCH
 Man Dam:

Operating time: 2 1/2 HOURS
 Tube No: 20

645

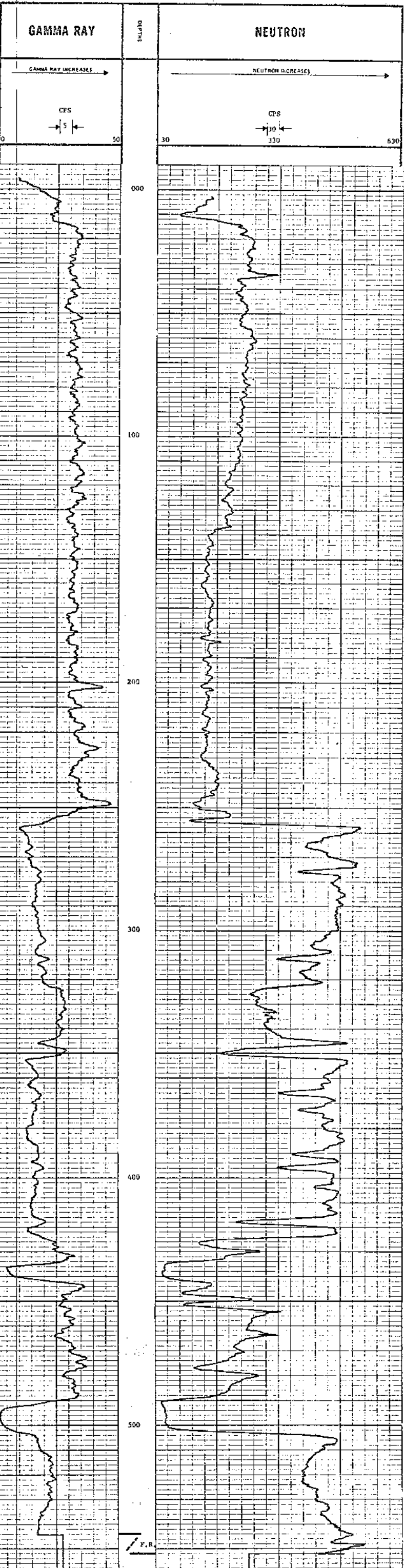
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
Run No.	ONE	Model	ONE
Tool Model No.		Detector	NEUTRON/NEUTRON
Diameter	1 1/8	Tool Model No.	
Detector Model No.		Diameter	1 1/8
Type	GEIGER	Detector Model No.	
Length	38 INCH	Type	PROPORTIONAL
Distance to Source	8.85 FT	Length	6 INCH
		Source Model No.	MRC-N-SS-W
		Serial No.	598
		Type	19 INCH
		Length	AmBe
		Strength	6.98 x 10 ⁵ N/S

LOGGING DATA

Run No.	DEPTH		GAMMA RAY				NEUTRON				
	PROV	FO	SPEED FT/Min	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API M UNITS PER LOG DIV	T.C. SEC	SENS. SETTINGS	ZERO DIV. L OR R	API M UNITS PER LOG DIV
1	0	552	12	5	17	0L	5 CPS	2.5	0-23	1L	30 CPS

REMARKS: LOGGED THROUGH DRILL STEEL



ROKKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

COMPASSION MINING LIMITED

WELL NO. C-39

LOCATION SERRONA PROJECT

FIELD

PROVINCE BRITISH COLUMBIA

PREPARED BY: GORDON LAMONT

DATE: 6 NOVEMBER 1971

LOG TYPE: ONE

LOG SCALE: NEUTRON/NEUTRON

DETECTOR MODEL NO. 1118

TYPE: PROPORTIONAL

LENGTH: 8 INCH

DISTANCE TO N. SOURCE: MRC-N-55-W

SIGNAL NO. 598

SPACING: 19 INCH

TYPE: AmBe

STRENGTH: 6.94×10^4 N/S

OPERATING TIME: 2 HOURS

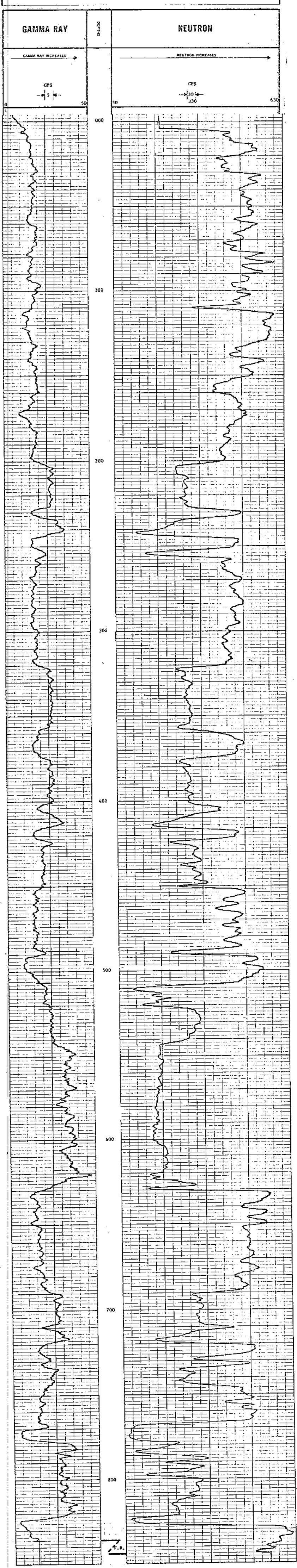
WITNESSED BY: WADSWORTH

645

EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO.	ONE			RUN NO.	ONE		
TOOL MODEL NO.				LOG TYPE	NEUTRON/NEUTRON		
DIAMETER	7 1/8			LOG SCALE	NEUTRON/NEUTRON		
DETECTOR MODEL NO.				DETECTOR MODEL NO.	1118		
TYPE	GEMER			TYPE	PROPORTIONAL		
LENGTH	8 INCH			LENGTH	8 INCH		
DISTANCE TO N. SOURCE	8.55 FT			SOURCE MODEL NO.	MRC-N-55-W		
GENERAL				LOGGING DATA			
TEST TROUGH NO.	20			GAMMA RAY			
SYSTEM UNIT FRONCH NO.				DEPTH	SPEED	T.C.	SENS.
LOG SERIAL NO.	CCR2704A74			NO.	FROM	TO	SEC.
				1	0	844	12 5 17
				ZERO	DIV. L OR R		PER LOG DIV.
							5 CPS
				NEUTRON	ZERO	DIV. L OR R	
							11 30 CPS

REMARKS: 50° ANGLE LOGGED THROUGH DRILL STEEL



ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. _____ COMPANY: COALITION MINING LIMITED
 WEL: C - 40 LOCATION: SURONA PROJECT
 TYPE: _____ FIELD: _____
 PROVINCE: BRITISH COLUMBIA
 Formation: _____ SECTION: _____
 Log Measured from: _____
 Well Depth: _____
 Date: _____
 Log No: _____
 Run No: _____
 Log/Run Logged: _____
 Depth Reached: _____
 Open Driller: _____
 Casing Bore: _____
 Casing Diameter: _____
 Fluid Type: WATER
 Liquid Level: _____
 Min. Depth: _____
 Operating Time: 3 HOURS
 Trip No: 20
 Recorder By: S.M. Wm. Cassed By: S.M.L.L.S.

645

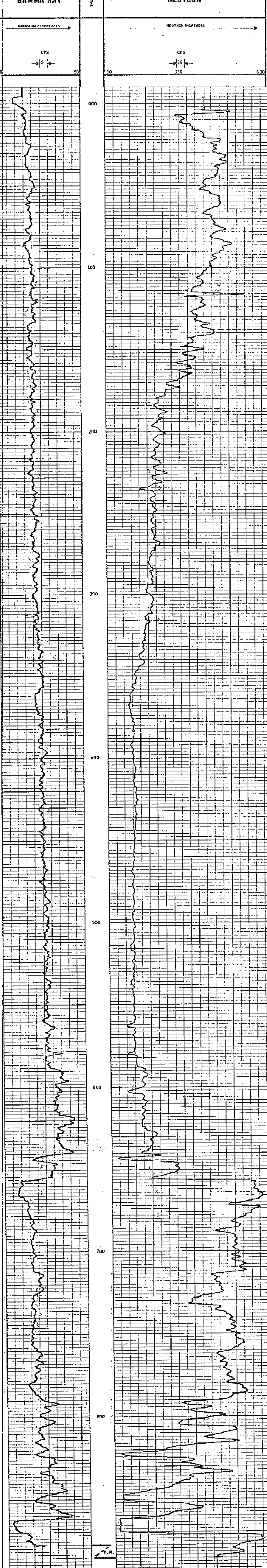
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
Run No	015	Run No	015
LOG NUMBER	118	LOG TYPE	NEUTRON/NEUTRON
DETECTOR MODEL NO		LOG MODEL NO	
TYPE	GEIGER	DIAMETER	1 1/2
LENGTH	18 INCH	DETECTOR MODEL NO	
DISTANCE TO N SOURCE	8.45 FT	TYPE	PROPORTIONAL
		LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-55-W
		SERIAL NO	598
		SPACING	19 INCH
		TYPE	AmBe
		STRENGTH	6.94 x 10 ⁶ N/S

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
Run No	DEPTH	SPEED	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 GR UNITS PER LOG DIV	
1	0	886	12	5	17	OL	5	2.5	0 - 23	1L	30

REMARKS: _____



ROKFE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: COLLETON MINING LIMITED

WELL: C-41

LOCATION: SYDNEY PROJECT

PROVINCE: BRITISH COLUMBIA

FIELD: _____

PERMIT FROM: GEORGE JAYNE

LOG MEASURED FROM: JACOBIN LEVEL

WELL DEPTH MEASURED FROM: _____

DATE: 8 NOVEMBER 71

FIRST READING: 353

LAST READING: 0

TOOLPOLE LOGGED: 353

GRAB SAMPLED: 354

DEPTH ORDER: 357

CASING ORDER: _____

FLUID TYPE: WATER

LIQUID LEVEL: _____

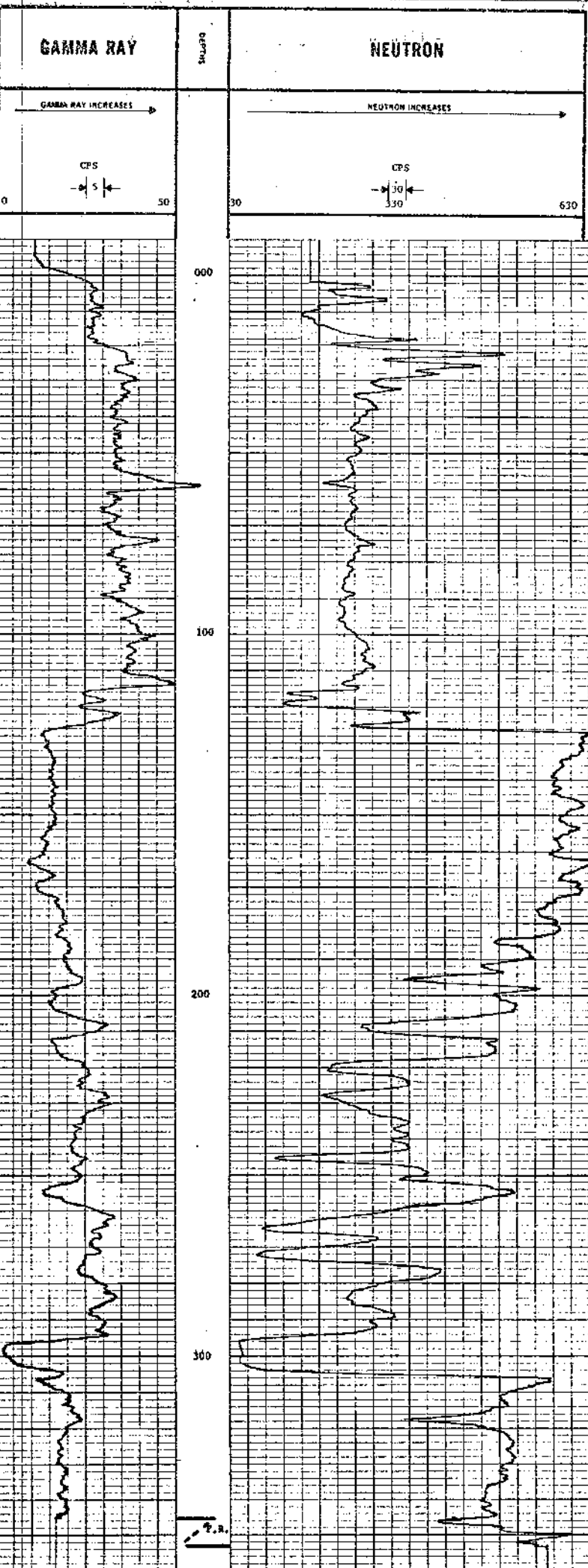
MIN. DIAM: 3 INCH

645

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 1/2
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.33 FT	LENGTH	6 INCH
		SOURCE MODEL NO	MRC-N-SS-W
		SERIAL NO	598
		SPACING	19 INCH
		TYPE	AuBe
		STRENGTH	6.94 x 10 ⁶ N/S
GENERAL			
WHS TOUCH NO	20		
INSTRUMENT TRUCK NO			
TOOL SERIAL NO	CGN22U4A74		

LOGGING DATA											
RUN NO	GENERAL DEPTH		GAMMA RAY				NEUTRON				
	FROM	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 N UNITS PER LOG DIV
1	0		12	5	17	OL	5 CPS	2.5	0 - 23	IL	30 CPS

REMARKS: LOGGED THROUGH DRILL STEM



ROKFE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	COMPANY	COALITION MINING LIMITED
WELL	CS - 1	
LOCATION	SURGICAL PROJECT	
FIELD	BRITISH COLUMBIA	
PROVINCE	BRITISH COLUMBIA	
PERMIT NO.	GROUND LEVEL	
LOG MEASURED FROM	RIG FLOOR	2
WELL DEPTH MEASURED FROM		
DATE	9 OCTOBER 71	
FIRST READING	426	
LAST READING	0	
LOGS LOGGED	426	
DRAIN REPORT	427	
DRAIN DATE	427	
CASING DATE		
CASING DEPTH		
FLUID TYPE	WATER	
LIQUID LEVEL	FULL	
MIN. DIAM.	3 INCH	
OPERATING TIME	2 HOURS	
TRUCK NO.	20	
PREPARED BY	NEZBORN	WITNESSED BY
		SADLIS

645

EQUIPMENT DATA											
GAMMA RAY						NEUTRON					
RUN NO.	ONE					RUN NO.	ONE				
TOOL MODEL NO.						TOOL MODEL NO.	NEUTRON/NEUTRON				
DIAPHRAGM	1 1/2					DIAPHRAGM	1 1/2				
DETECTOR MODEL NO.	GEIGER					DETECTOR MODEL NO.	PROPORTIONAL				
LENGTH	18 INCH					LENGTH	6 INCH				
DISTANCE TO N. SOURCE	8.55 FT					SOURCE MODEL NO.	MRC-N-SS-W				
GENERAL						SERIAL NO.	598				
HOST TRUCK NO.	20					SPACING	19 INCH				
INSTRUMENT TRUCK NO.						TYPE	AmBe				
FOOL SERIAL NO.	CGN27U4A65					STRENGTH	6.94 x 10 ⁶ N/S				
LOGGING DATA											
GAMMA RAY						NEUTRON					
RUN NO.	DEPINS	SPEED	T.C.	SENS.	ZERO	API N UNITS	T.C.	SENS.	ZERO	API N UNITS	
	FROM	TO	SEC	SET FIRMS	DIV L OR R	PER LOG DIV	SEC	SETTINGS	DIV L OR R	PER LOG DIV	
1	0	426	12	5	17	0L	5 CPS	2.5	0.23	1L	30 CPS
REMARKS											



CS1

ROKFI

OIL ENTERPRISES LTD. CALCUTTA, ALGERIA

WELL NO. 01

FILE NO. COMPANY COALITION MINING LIMITED

WELL CS - 2

LOCATION SIRINDYA PROJECT

FIELD

PROVINCE BRITISH COLUMBIA

Primary Data: GROUND LEVEL, ELEV. Ft. Above Fair, Datum

Log Measured from: GROUND LEVEL, ELEV. Ft. Above Fair, Datum

Well Depth Measured from: ELEV. Ft. Above Fair, Datum

Run No	015
Date	8 OCTOBER 71
Well Reading	367
Tool Reading	0
Footage Logged	367
Depth Searched	368
Depth Driller	
Casing Block	
Casing Diameter	
Fluid Type	MATER
Stand Level	FTIAL
Run Depth	3 INCH
Operating Time	2 HOURS
Tool No	20
Recorded By	PETLINSON
Witnessed By	VALTIS

6445

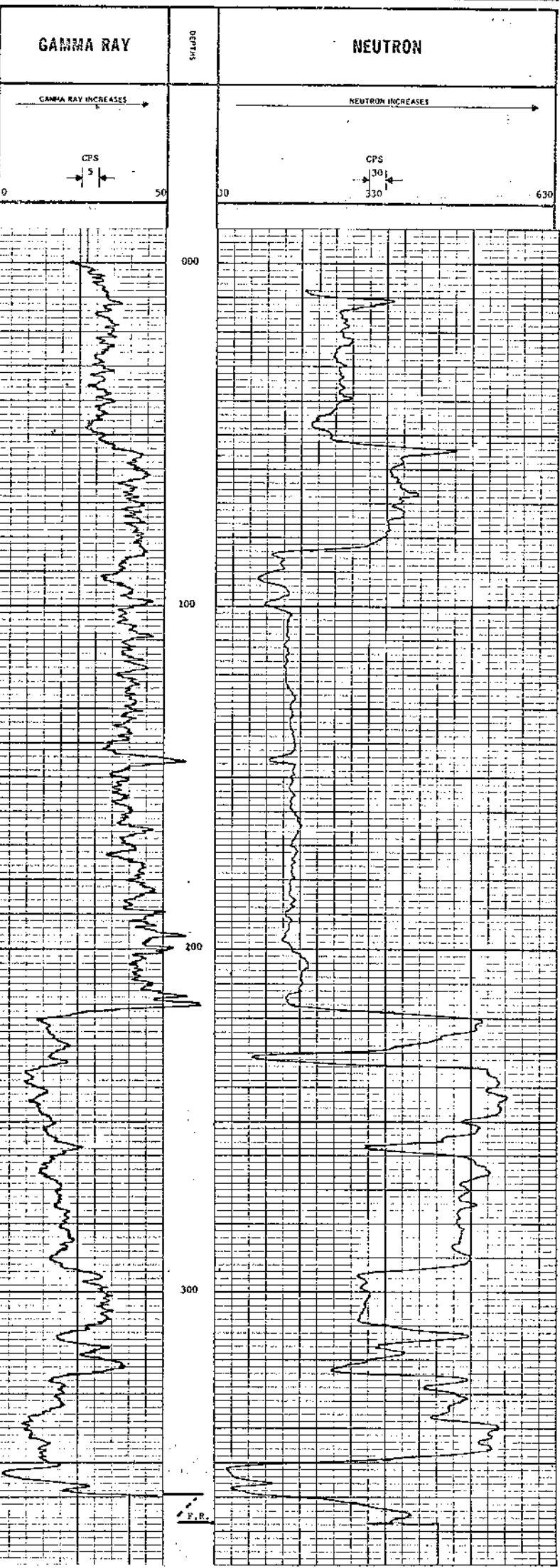
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	015	RUN NO	015
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL AG	
DETECTOR MODEL NO		DIAMETER	1 1/2
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N SOURCE	8.55 FT	LENGTH	8 INCH
		SOURCE MODEL NO	MRC-N-SS-W
		SERIAL NO	598
NOISE TRUCK NO	20	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CS12704A65	STRENGTH	6.94 x 10 ⁶ N/S

LOGGING DATA

GENERAL			GAMMA RAY				NEUTRON				
RUN NO	FROM	TO	SPEED FT/MIN	TC SEC	SENS SETTINGS	ZERO DIV L OR R	APM OR UNITS PER LOG DIV	TC SEC	SENS SETTINGS	ZCPD DIV L OR R	APM OR UNITS PER LOG DIV
1	0	367	11	4	17	0L	5 CPS	4	23	1L	30 CPS

REMARKS



ROKFE

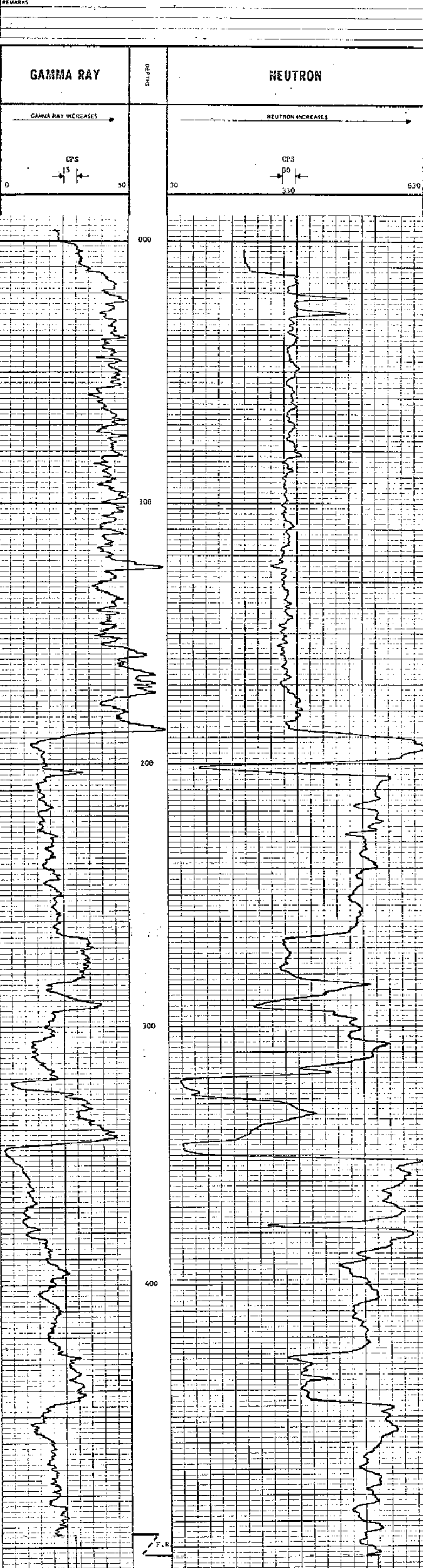
OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO	COMPANY	COULTON MINING LIMITED
LSD SEC	WELL	CS - 3
TYPE	LOCATION	SIXMKA PROJECT
ROE	FIELD	
	PROVINCE	BRITISH COLUMBIA
Permanent datum	GREENSB LEVEL	
Log Measured by	ESCHER LEVEL	
Log Depth	WATER	
Run No	ONE	
Date	30 SEPTEMBER 71	
First Reading	503	
Run Reading	0	
Count Logged	503	
Depth Entered	504	
Depth Driven		
Count Rate		
Change Order		
Liquid Type	WATER	
Stand Level		
Min. Distn.	3 INCH	
Operating Time	2 HOURS	
Height No	20	
Recorded By	STX	Witnessed By
		HALLIS

6415

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
D-AMETER	1 1/2	TOOL MODEL NO	
DETECTOR MODEL NO		DIAMETER	1 1/2
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	598
		SPACING	19 INCH
		TYPE	AmBe
		STRENGTH	6.94 x 10 ⁶ N/S
GENERAL			
TRUCK NO	20		
INSTRUMENT TRUCK NO			
TOOL SERIAL NO	CGN2704A65		

LOGGING DATA											
GAMMA RAY					NEUTRON						
RUN NO	DEPTH		SPEED	T.C.	SENS	ZFRD	APR GR UNITS	T.C.	SENS	ZERO	APR H UNITS
	FROM	TO	FT/MIN	SEC	SETTINGS	DIV L OR R	PER LOG DIV	SEC	SETTINGS	DIV L OR R	PER LOG DIV
1	0	503	11	4	17	0L	5 CPS	4	0 - 22	1L	30 CPS



ROKEL

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: CONDITION MINING LIMITED

WELL: CS - 2

LOCATION: SIMONSA PROJECT

FIELD: _____

PROVINCE: BATISH COMBRIA

Point of Use: GROUND LEVEL

Log Interval: 1000 FT

Run No: _____

Date: 26 SEPTEMBER 71

First Reading: 493

Last Reading: 0

Logging Logbook: 493

Drain Reading: 496

Depth: 500

Casing Size: _____

Casing Material: WATER

Fluid Type: _____

Fluid Level: _____

Min. Depth: 3 INCH

Operating Time: 2 HOURS

Run No: 20

Recorded By: STR

Witnessed By: MATLIS

645

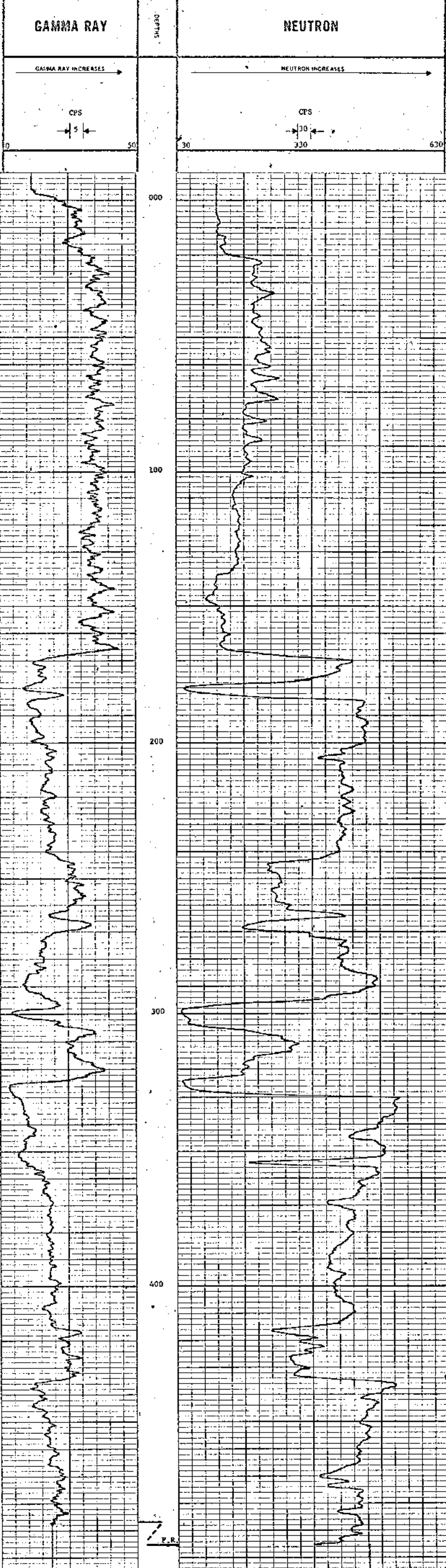
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO	002			RUN NO	002		
TOOL MODEL NO	1 1/2			LOG TYPE	NEUTRON/NEUTRON		
DIAMETER	1 1/2			TOOL MODEL NO	1 1/2		
DETECTOR MODEL NO	GEIGER			DIAMETER	1 1/2		
TYPE	20 INCH			DETECTOR MODEL NO	PROPORTIONAL		
LENGTH	8.55 FT			TYPE	6 INCH		
DISTANCE TO N. SOURCE	20			LENGTH	MRC-N-SS-W		
NO. 17 TRUCK NO	20			SOURCE MODEL NO	598		
INSTRUMENT TRUCK NO	CCN27U4465			SERIAL NO	19 INCH		
TOOL SERIAL NO	CCN27U4465			SPACING	AmBe		
				TYPE	6.94 x 10 ⁴ N/S		
				STRENGTH			

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	FRGM	TD	SPEED FTS/HR	T/C SEC	SENS SETTINGS	ZERO DIV L OR R	API N UNITS PER LOG DIV	T/C SEC	SENS SETTINGS	ZERO DIV L OR R	API N UNITS PER LOG DIV
1	0	495	11	4	17	0L	5 CPS	4	0 - 25	1L	30 CPS

REMARKS: LOGGED THRU HQ DRILL STEM



P.R.

ROKFE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY: COALITION MINING LIMITED

WELL: CS - 5

LOCATION: SIKORNA PROJECT

FIELD: BRITISH COLUMBIA

PROVINCE: BRITISH COLUMBIA

Prepared Date: 22 SEPTEMBER 71

Date: 22 SEPTEMBER 71

Full Reading: 318

Tool Reading: 0

Depth: 318

Depth Reason: 319

Depth: 319

Fluid Type: WATER

Fluid Level: 45

Ann. Date: 3 INCH

Operating Time: 2 HOURS

Recorded By: SIK

645

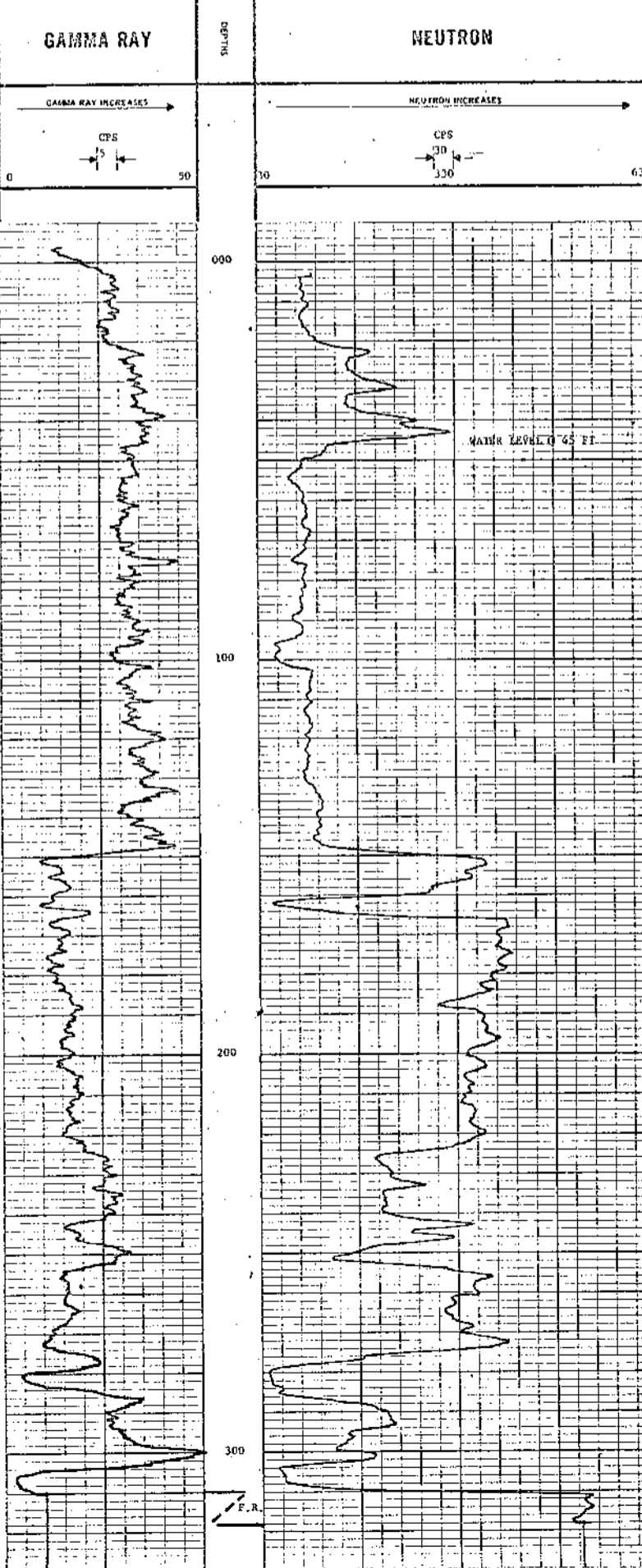
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
FOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 7/8	TOOL FOOT LENO	
DETECTOR MODEL NO		DIAMETER	1 1/2
TYPE	GEIGER	DETECTOR MODEL NO	
LENGTH	19 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT	LENGTH	6 INCH
		MODEL NO	MRC-N-SS-W
		SERIAL NO	398
		SPACING	19 INCH
		TYPE	AmBe
		STRENGTH	6.94 x 10 ⁶ N/S
HO ST TRUCK NO	10 20		
INSTRUMENT TRUCK NO			
FOOL SERIAL NO	CGN2704A65		

LOGGING DATA

RUN NO	GENERAL		GAMMA RAY				NEUTRON				
	FROM	TO	SPEED FT/HR	TO SEC	SENS SETTINGS	ZERO DIV. & DR. A	API GR UNITS PER LOG DIV	FC SEC	SENS SETTINGS	ZERO DIV. & DR. A	API GR UNITS PER LOG DIV
1	0	318	11	4	17	01	5 CPS	4	0 - 22	11	30 CPS

REMARKS: LOGGED THRU N.Q. DRILL STEM



POKE

OIL ENTERPRISES LTD. CALSARY, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL S-44

LOCATION SIKINKA PROJECT

PROVINCE BRITISH COLUMBIA

APPROXIMATE DEPTH GROUND LEVEL

LOG MEASURED FROM GROUND LEVEL

DATE 17 SEPTEMBER 71

LOG NO. 071

LOG READING 0

LOG READING 779

LOG READING 780

LOG READING WATER

LOG READING 3 INCH

LOG READING 2 1/2 HOURS

LOG READING 20

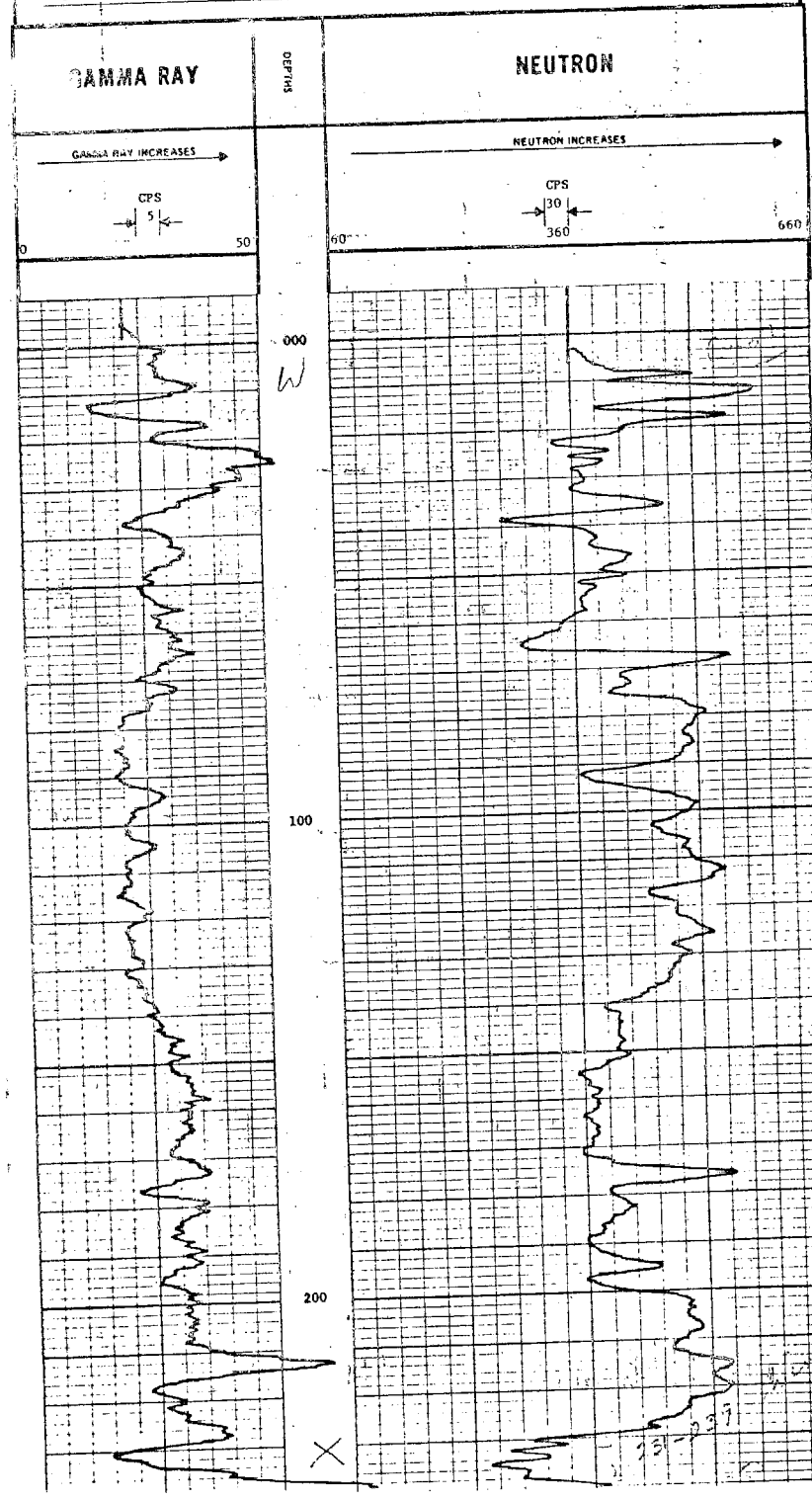
675

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO	ONE	RUN NO	ONE
TOOL MODEL NO		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO	
DETECTOR MODEL NO	GEIGER	DIAMETER	1 1/2
TYPE		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	598
HOIST TRUCK NO	20	SPACING	19 INCH
INSTRUMENT TRUCK NO		TYPE	AmBe
TOOL SERIAL NO	CGN27U4A65	STRENGTH	6.94 x 10 ⁶ N/S

LOGGING DATA

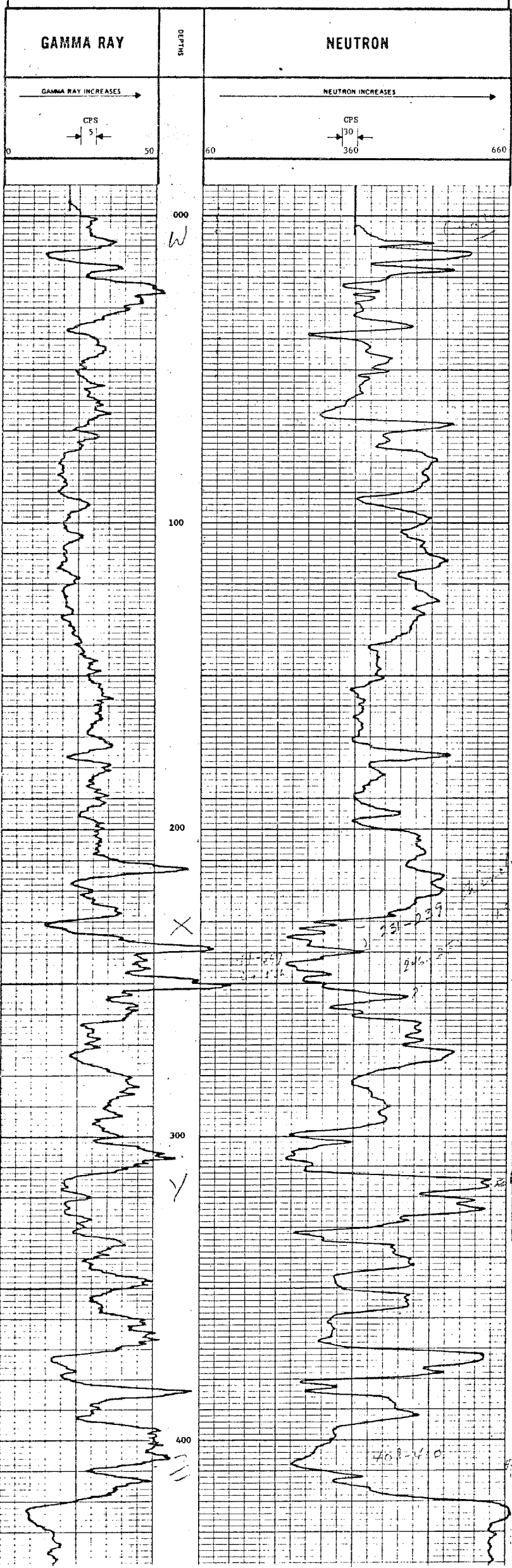
RUN NO	GENERAL		GAMMA RAY				NEUTRON				
	DEPTH FROM	TO	SPEED FT/MIN	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	APL W UNITS PER LOG DIV	T.C. SEC	SENS SETTINGS	ZERO DIV. L OR R	APL W UNITS PER LOG DIV
1	0	779	12	4	17	OL	5 CPS	4	0 - 22	2L	30 CPS

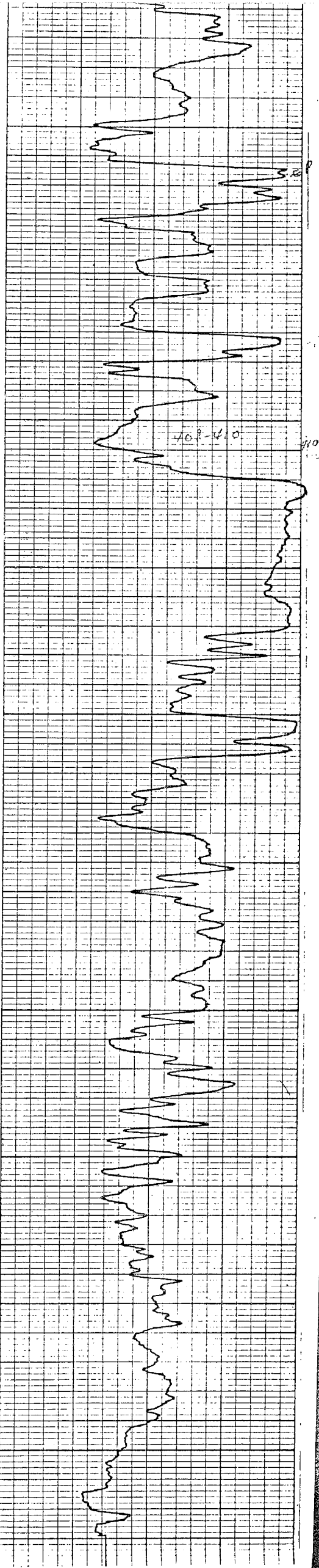
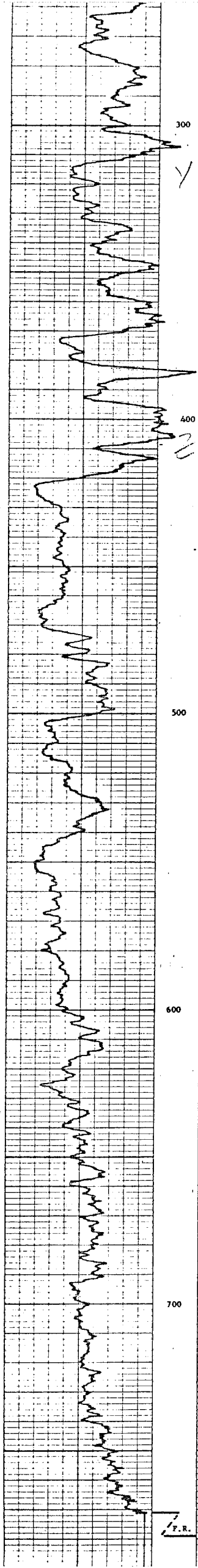


LOGGING DATA

GENERAL		GAMMA RAY					NEUTRON				
RUN NO	DEPTHS		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 N UNITS PER LOG DIV
	FROM	TO									
1	0	779	11	4	17	0L	5 CPS	4	0 - 22	2L	30 CPS

REMARKS





ROKKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL S - 41

LOCATION SURONKA PROJECT

FIELD

PROVINCE BRITISH COLUMBIA

Pre-printed Edition: GROUND LEVEL

City: _____

State: _____

Country: _____

Date: 9 NOVEMBER 71

Time Range: 0

Estimate: 992

Diagram: 993

Case No. _____

Case Name _____

Case Type _____

Case Date _____

Case Time _____

Case Location _____

Case Operator _____

Case Material _____

Case Weight _____

Case Volume _____

Case Length _____

Case Diameter _____

Case Material _____

Case Weight _____

Case Volume _____

Case Length _____

Case Diameter _____

Case Material _____

Case Weight _____

6455

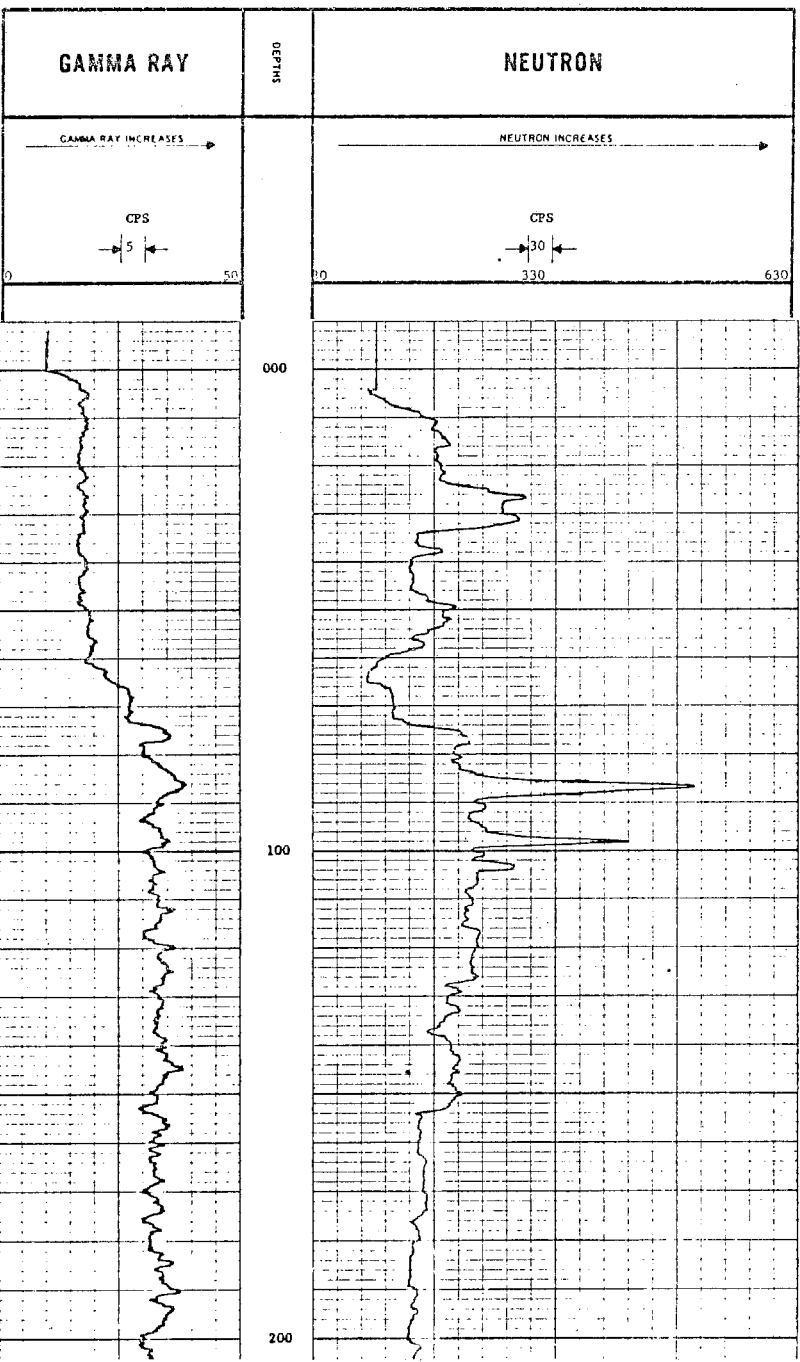
EQUIPMENT DATA

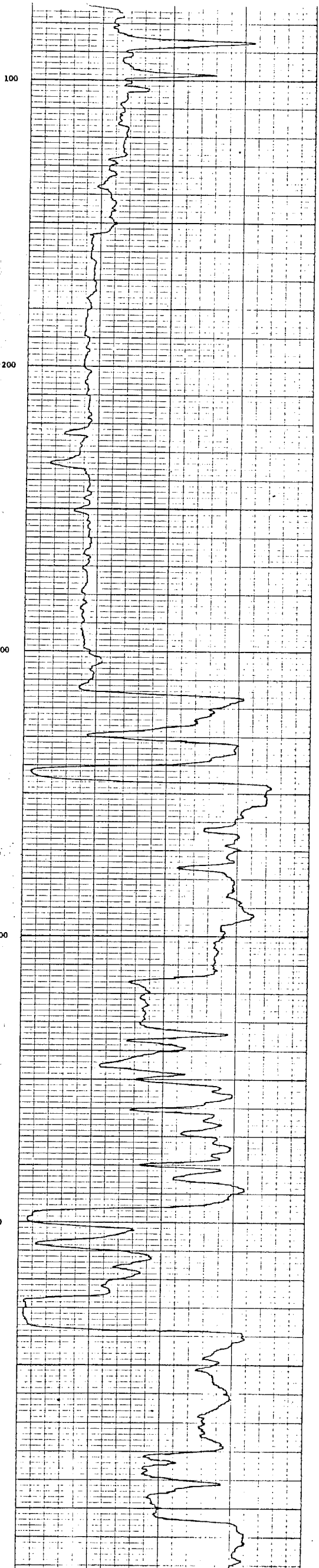
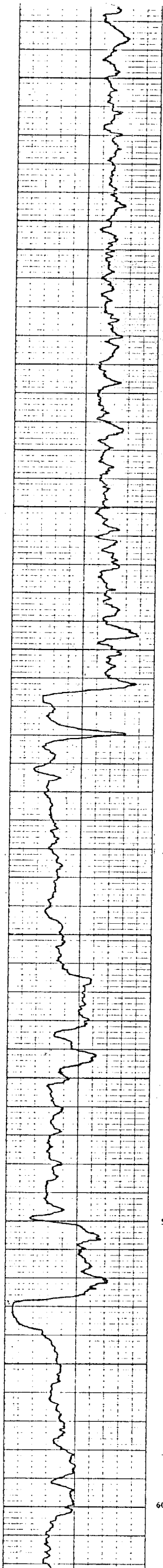
GAMMA RAY		NEUTRON	
Run No.	ONE	Run No.	ONE
Tool Model No.		Tool Model No.	
Diameter	1 1/8	Diameter	1 1/8
Detector Model No.		Detector Model No.	
Type	GEIGER	Type	PROPORTIONAL
Length	18 INCH	Length	6 INCH
Distance to N. Source	8.55 FT	Source Model No.	MRC-N-SS-W
		Serial No.	598
		Spaling	19 INCH
		Type	AmBe
		Strength	5.94 x 10 ⁶ N/S

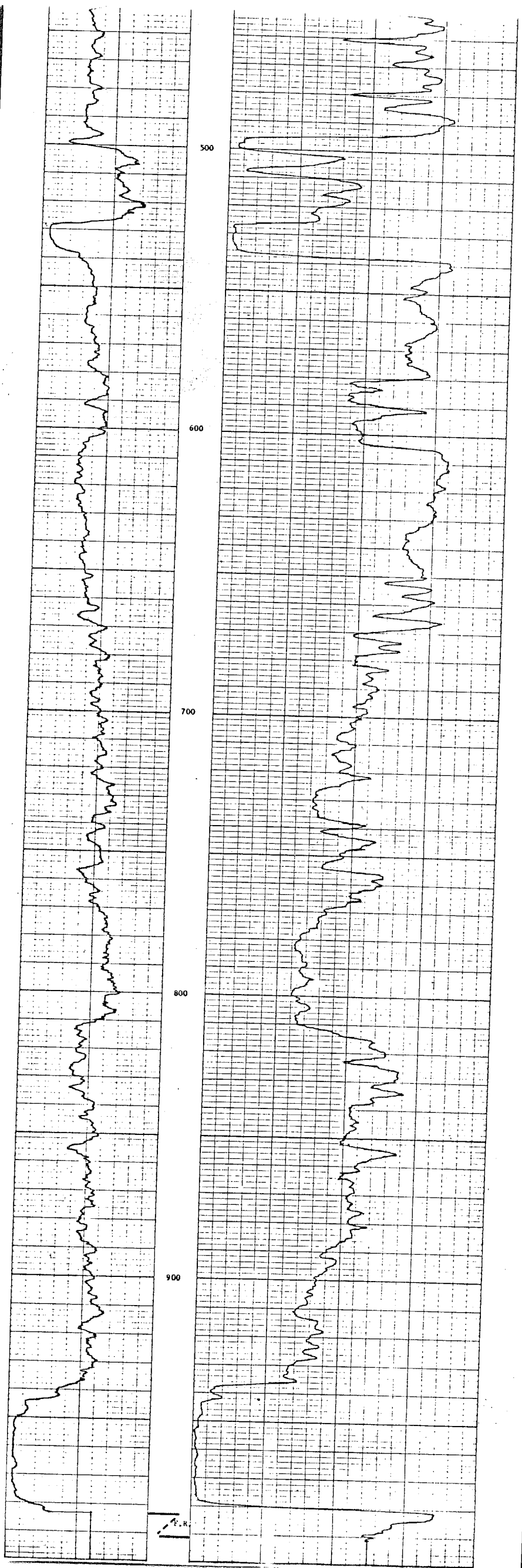
LOGGING DATA

RUN NO.	GENERAL		GAMMA RAY				NEUTRON				
	FROM	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	991	12	5	17	OL	5 CPS	2.5	0 - 23	1L	30 CPS

REMARKS: LOGGED THROUGH DRILL STEM







ROD

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COGNAM COLLITION MINING LIMITED

LSD SEC S - 37

TWP RGE STRONKA PROJECT

W M FIELD ERITISH COLUMBIA

PROVINCE

Permeant Datum: GROUND LEVEL Elev. _____

Leg Measured from: GROUND LEVEL. Fl. Above Perm. Datum _____

Well Depth: Measured from _____

Run No. ONE

Date: 14 SEPTEMBER 71

First Reading: 1386

Last Reading: 0

Sample Logged: 1386

Depth Returned: 1387

Formation: _____

Casing Bone: _____

Casing Outer Diameter: _____

645

Fluid Type: WATER

Fluid Level: 3 INCHES

Min. Datum: _____

Operating Time: 5 HOURS

Run No.: 20

Witnessed By: SMH

Waits: _____

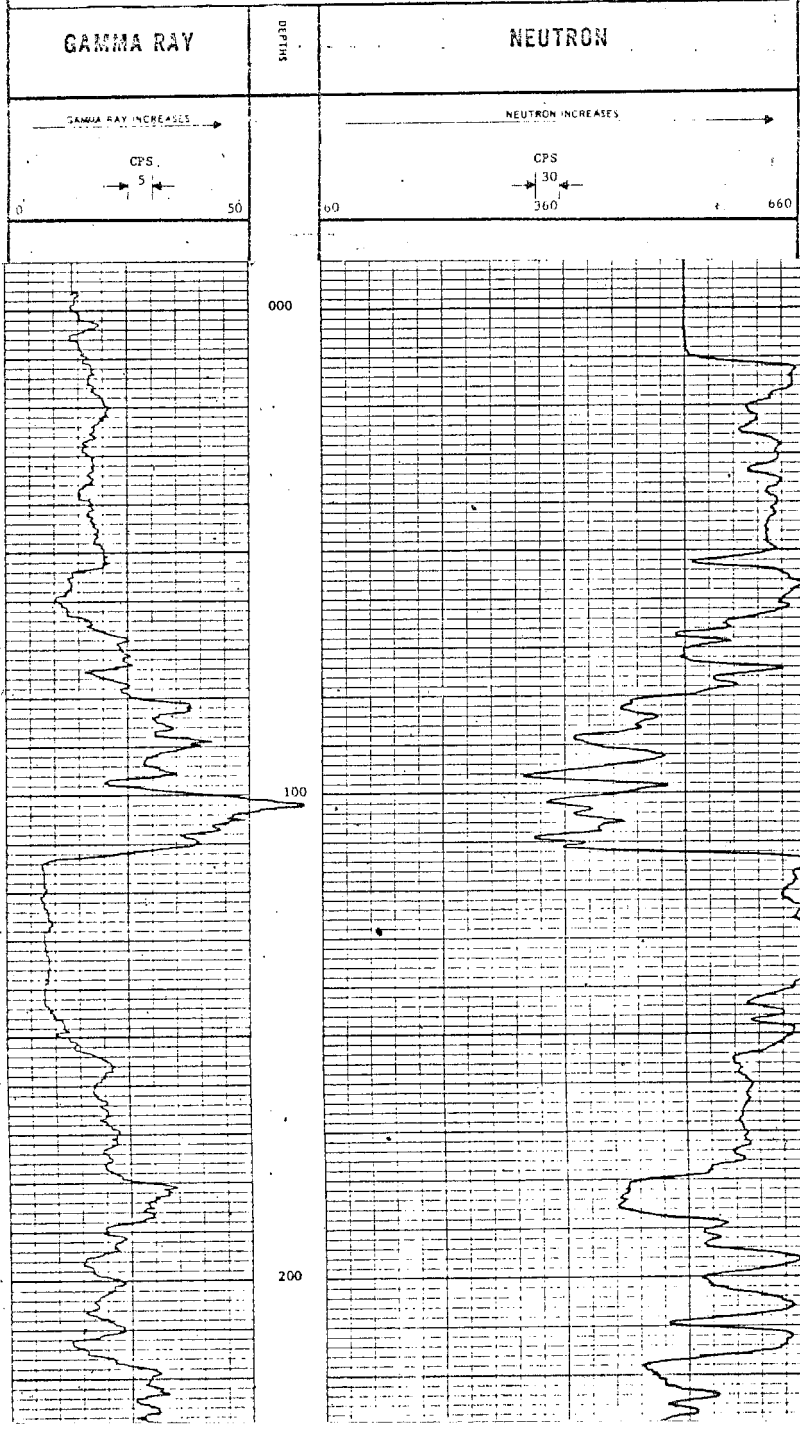
EQUIPMENT DATA

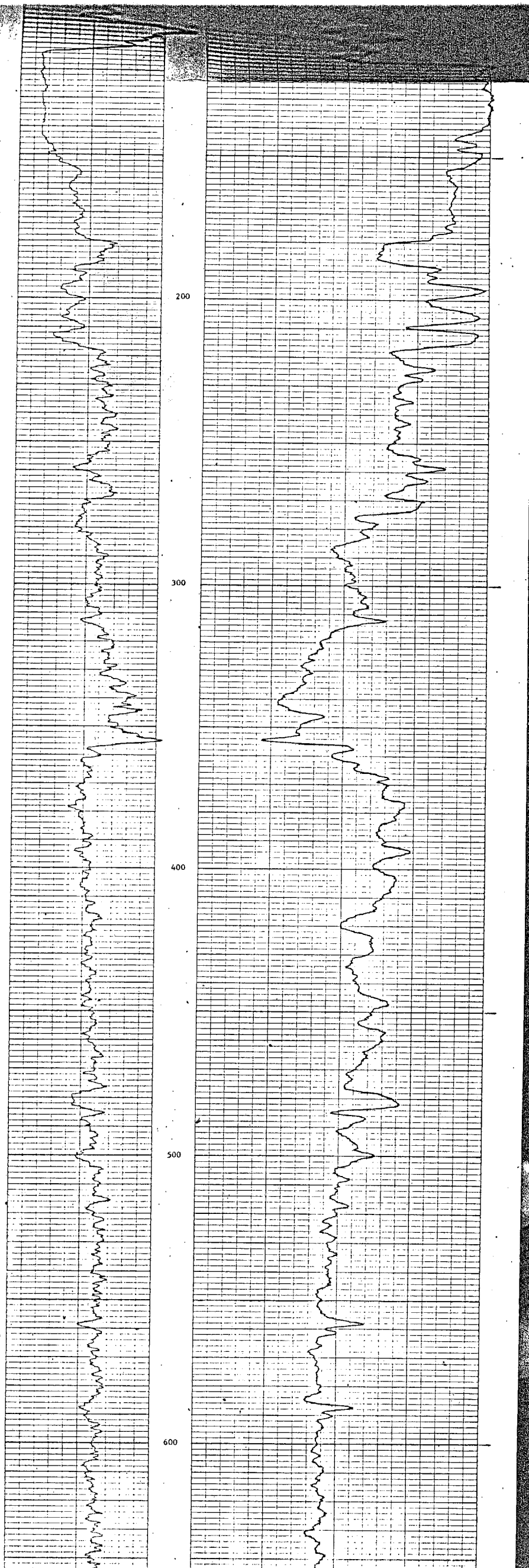
GAMMA RAY		NEUTRON	
Run No.	ONE	Run No.	ONE
Tool Model No.		Tool Type	NEUTRON/NEUTRON
Diameter	1 1/2	Tool Model No.	
Detector Model No.		Diameter	1 1/2
Type	GEIGER	Detector Model No.	
Length	18 INCH	Type	PROPORTIONAL
Distance to Source	8.55 FT	Length	6 INCH
		Source Model No.	MRC-N-55-W
		Serial No.	598
		Spacing	19 INCH
		Type	AmBe
		Strength	0.9 x 10 ⁶ N/S

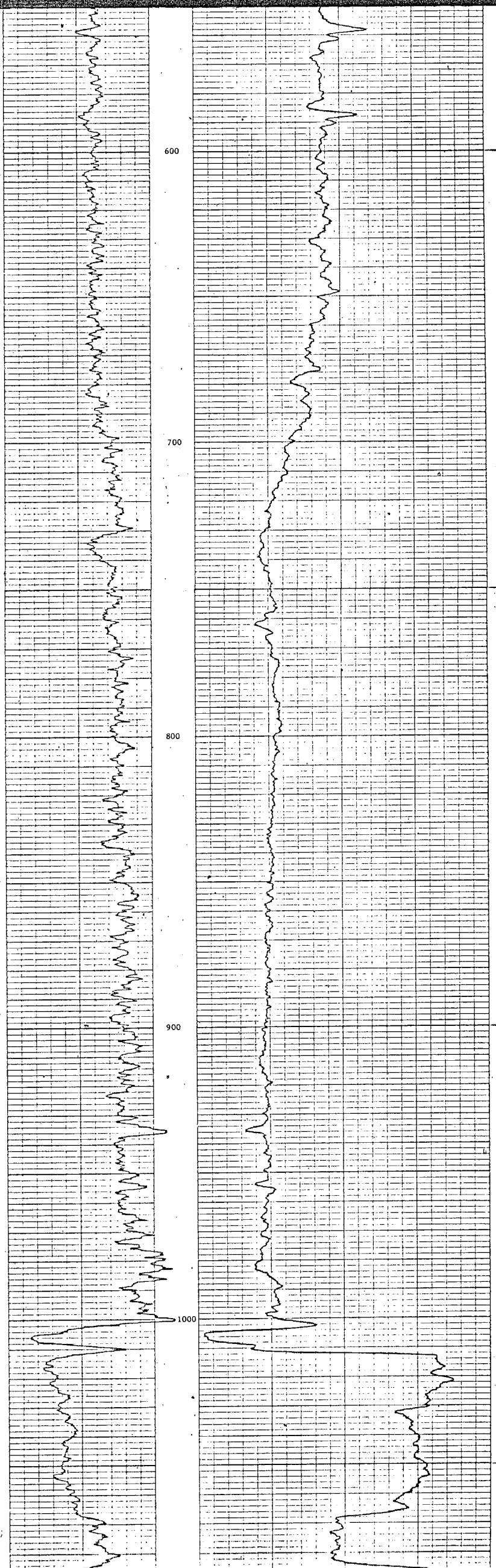
LOGGING DATA

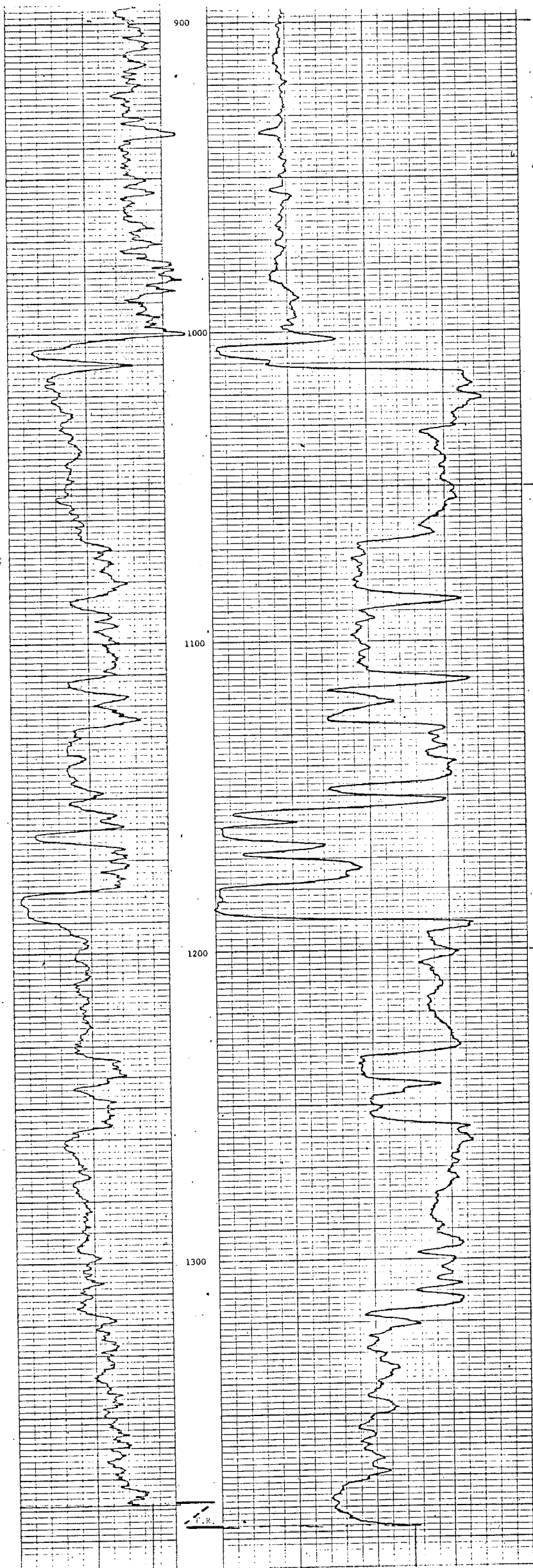
GENERAL				GAMMA RAY				NEUTRON			
Run No.	Depths From	To	Speed FT/Min	T.C. Sec	Sens. Settings	Zero Div. Log R.	API GR Units Per Log Div	T.C. Sec	Sens. Settings	Div. Log R.	API N Units Per Log Div
1	0	1386	11	4	17	0	5 CPS	4	23	2L	30 CPS

REMARKS









ROCKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO. COMPANY COALITION MINING LIMITED

WELL S - 25

LOCATION SIKURKA PROJECT

FIELD BRITISH COLUMBIA

PROVINCE BRITISH COLUMBIA

PERMANENT GAUGE GROUND LEVEL

USER MEASURED FROM GROUND LEVEL

WELL DEPTHS MEASURED FROM

RUN NO ONE

DATE 14 SEPTEMBER 71

START READING 1235

STOP READING 0

FOOTAGE LOGGED 1235

DEPTH REACHED 1236

DEPTH DRIER

CASING ROPE

FLUID TYPE WATER

LIQUID LEVEL 3 INCH

MIN. DRAIN

OPERATING TIME 4 HOURS

TRUCK NO 20

SPS

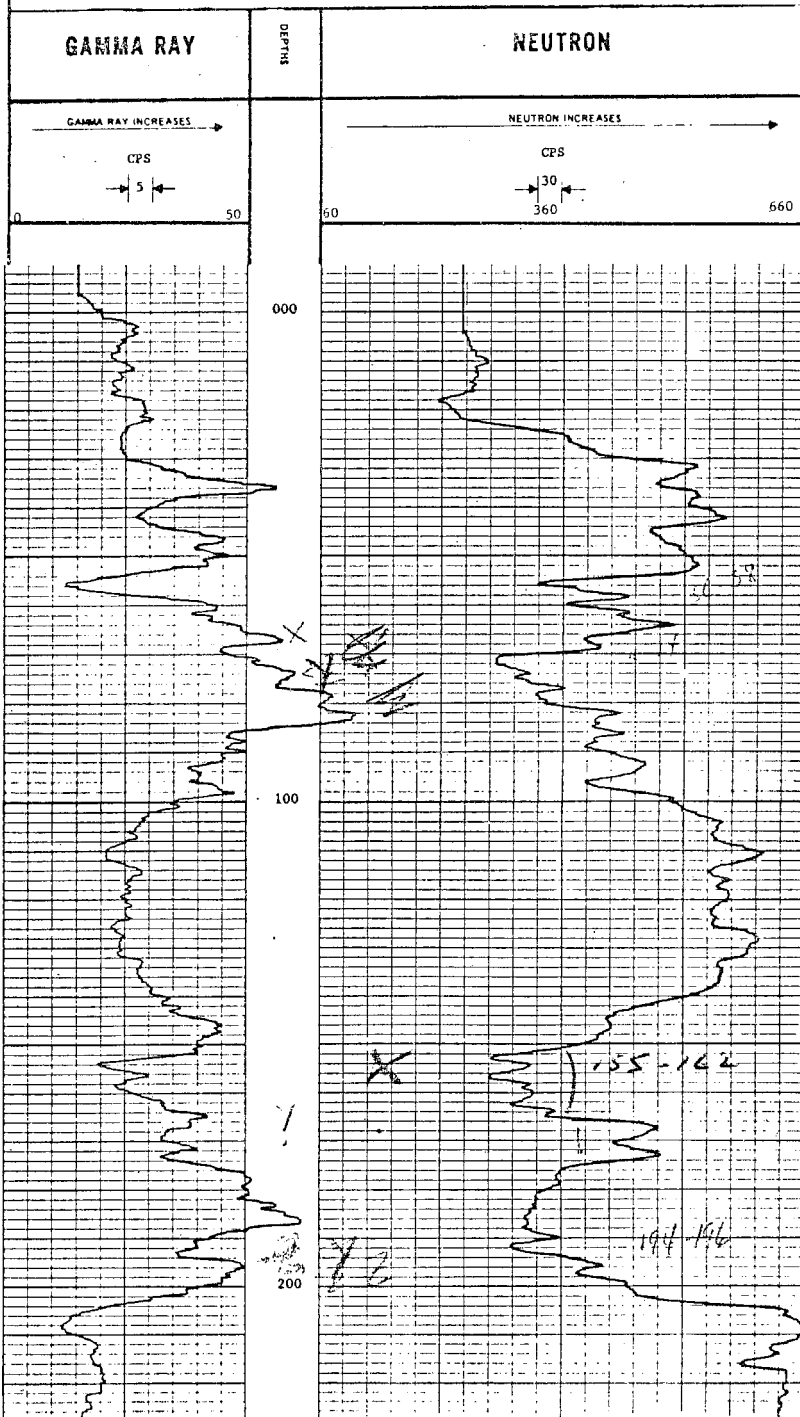
EQUIPMENT DATA

GAMMA RAY				NEUTRON			
RUN NO	ONE			RUN NO	ONE		
TOOL MODEL NO				LOG TYPE	NEUTRON/NEUTRON		
DIAMETER	1 1/2			TOOL MODEL NO			
DETECTOR MODEL NO				DIAMETER	1 1/2		
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	598		
HOIST TRUCK NO	20			SPACING	19 INCH		
INSTRUMENT TRUCK NO				-TYPE	AmBe		
TOOL SERIAL NO	CGN27U4A65			STRENGTH	6.94 X 10 ⁻⁵ N/SEC		

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO	DEPTHS		SPEED	T C	SENS	ZERO	API GR	T C	SENS	ZERO	API N
	FROM	TO	FT/MIN	SEC	SETTINGS	DIV L OR R	UNITS PER LOG DIV	SEC	SETTINGS	DIV L OR R	UNITS PER LOG DIV
1	0	1235	11	4	17	0L	5 CPS	4	0 - 25	2L	30 CPS

REMARKS



194 196

2

200

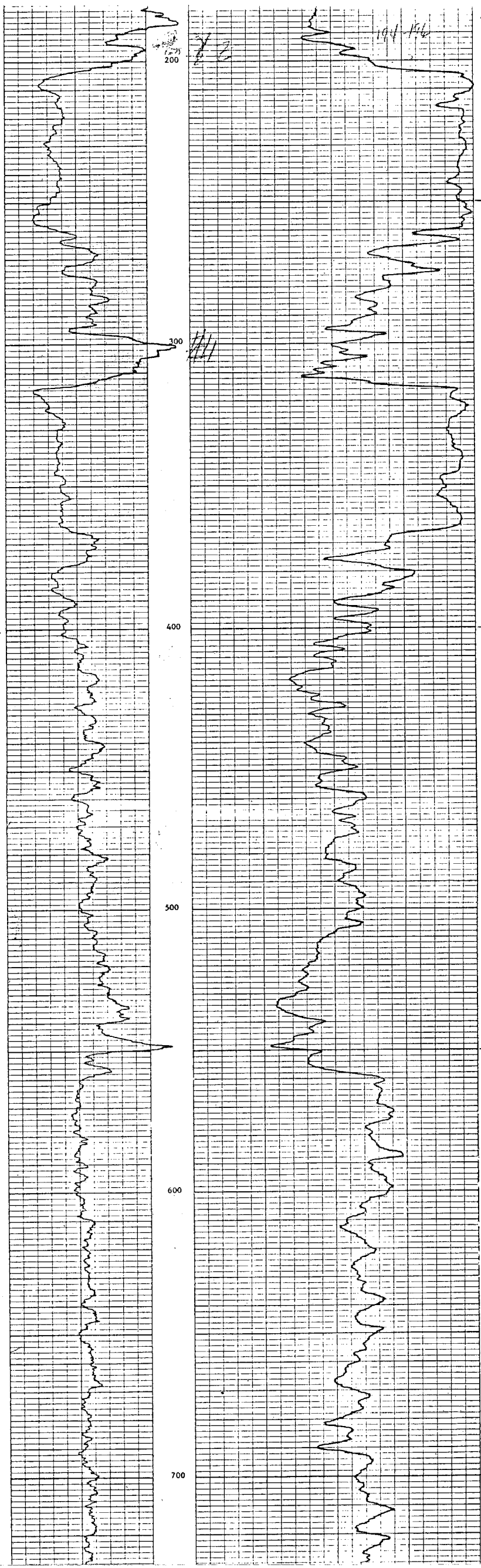
300

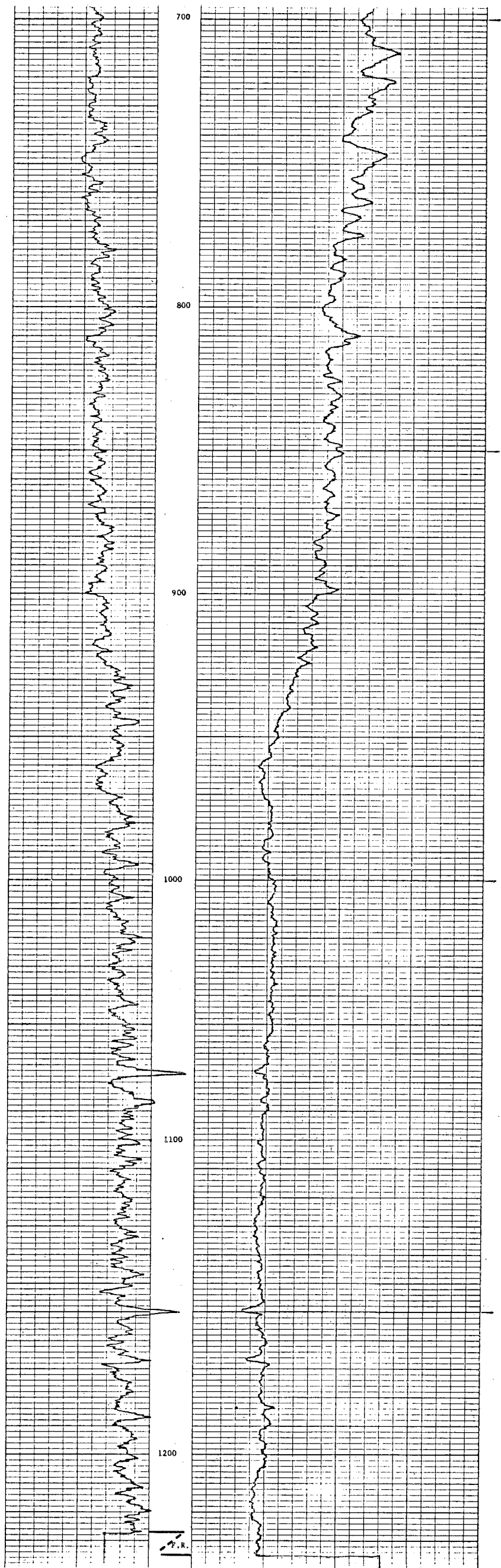
400

500

600

700





PR-SUKUNKA-71(3)A-2

NATIONAL TRUST CO. LTD. (AS TRUSTEE)

COALITION MINING LIMITED
SUKUNKA COAL PROJECT

GEOLOGY
~~VEGETATION~~

00645

APPENDIX F

DRILL HOLE DATA
DIAMOND DRILL HOLES C-1 TO C-8

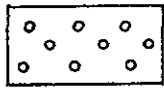
Reference for Graphic
Sections of Drill Hole Data

See reverse side

Prepared by CLIFFORD McELROY & ASSOCIATES PTY. LIMITED

DETAIL OF GETHING FORMATION

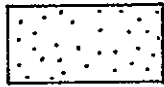
Scale 1" = 50'



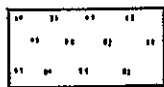
CONGLOMERATE
pebble to granule



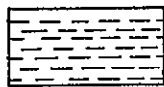
BRECCIA



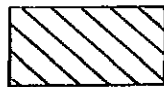
SANDSTONE



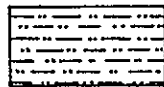
SILTSTONE



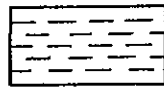
CLAYSTONE



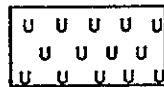
**STONE COALY or
CLAYSTONE
CARBONACEOUS**



MUDSTONE



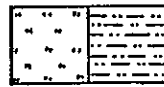
**SHALE, SILTSHALE,
CLAYSHALE**



**SOIL, WEATHERED and
UNCONSOLIDATED
MATERIAL**



INTERBEDDED



LAMINITE



45° **INCLINED STRATA**

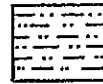


FAULT

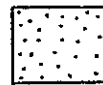
established
probable
possible

TOTAL DRILL HOLE SECTIONS

Scale 1" = 200'



HULLCROSS MEMBER



**COMMOTION
FORMATION**

GATES MEMBER



SUKUNKA MEMBER



**MOOSEBAR
FORMATION**

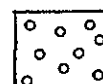


**UPPER GETHING
SEQUENCE**



**GETHING
FORMATION**

**LOWER GETHING
SEQUENCE**



**CADOMIN
FORMATION**

COAL SEAMS

Scale 1" = 2'



COAL BRIGHT or UNDIFFERENTIATED

**COAL MAINLY BRIGHT with MINOR DULL
BANDS**

COAL DULL and BRIGHT

**COAL MAINLY DULL with MINOR BRIGHT
BANDS**

COAL DULL

COAL INTERLAYED with NON-COAL

NON-COAL INTERLAYED with COAL

COAL STONY

STONE COALY

COAL WEATHERED

REFERENCE FOR GRAPHIC SECTIONS

of

DRILL HOLE DATA

PREPARED BY CLIFFORD McELROY & ASSOCIATES PTY LIMITED

COALITION MINING LIMITED

SUKUNKA COAL PROJECT

January 1972

NOTES TO ACCOMPANY APPENDIX F

This appendix includes logs for all drill holes sunk on behalf of Coalition Mining Limited during the 1971 field season and for most of the drill holes completed during the two previous field seasons by Brameda Resources Ltd. The drill hole data are included in the following volumes:

<u>Volume No.</u>	<u>Drill Hole No.*</u>
6	D.D.H.'s C-1 to C-8
7	D.D.H.'s C-9 to C-22
8	D.D.H.'s C-23 to C-35
9	D.D.H.'s C-36 to C-41; CS-1 to CS-7.
10	D.D.H.'s CM-1 to CM-9; RDH R-1 to R-15
11	D.D.H. S-1 to S-50

*D.D.H. - Diamond Drill Hole; R.D.H. Rotary Drill Hole.

Data for the following drill holes are not included;

D.D.H. S-2 and D.D.H. S-29 - the core of these holes was not available for logging as it is stored by the Alberta Study Group of the Canadian Geological Survey in Calgary, Alberta:

D.D.H. S-3 - This hole is outside the area of immediate interest and was collared below the level of the Chamberlain Seam.

R.D.H. R-7 - This hole was abandoned in the overburden.

The data included for each drill hole, drilled on behalf of Coalition Mining Limited, are included in the following order:

Graphic section - Stratigraphic Log of Drill Hole.

Graphic section - Detail of Gething Formation.

Graphic section - Seam sections of Chamberlain and Skeeter Seams.

Analytical Data.

Written Stratigraphic Log.

Written Log of Gething Formation.

Accompanying each of Volume 6 to 11 is a Reference relating to the graphic sections.

Stratigraphic Logs are included for all drill holes, at a scale of 200 feet to 1 inch. The footages quoted in these logs are based on the drillers depth markers and are not corrected for core loss. The footages quoted are considered to be accurate to within 0.5 feet.

Detailed Logs of the Gething Formation for the interval from about 50 feet below to about 50 feet above the Chamberlain/Skeeter Seams have been corrected for core loss and are accurate to 0.01 feet. Observations of the coal and the adjacent strata, recovered in a stationary split inner tube, have enabled corrections for core loss to be applied to that part or parts of the core which were broken, disturbed and obviously not fully recovered during drilling. Graphic logs, at a scale of 50 feet to 1 inch have been constructed for this interval of the Gething Formation.

Graphic Sections of the Chamberlain and Skeeter Seams have been prepared at a scale of 2 feet to 1 inch. These logs and sections give details of the coal and the stone bands within the seams. Some analytical data has been included on the graphic sections.

The S-Series drill holes were completed during the 1969 and 1970 field seasons by Connors Drilling Limited for Brameda Resources Limited. Stratigraphic sections and logs of these drill holes are accompanied by analytical data provided by Brameda Resources Limited.

The R-Series drill holes were completed during the 1971 field season by Big Indian Drilling Ltd, using a reverse circulation method of rotary drilling. A graphic, stratigraphic log of each of these drill holes at a scale of 50 feet to 1 inch is included.

The C, CS and CM-Series diamond drill holes were completed during the 1971 field season by Connors Drilling Limited and Canadian Longyear Limited for Coalition Mining Limited.

In addition, D.D.H.'s S-14, S-17 and S-41 were deepened during the 1971 programme. A complete set of graphic sections, written logs and analytical data is included for these drill holes.

BORE NUMBER

C-1

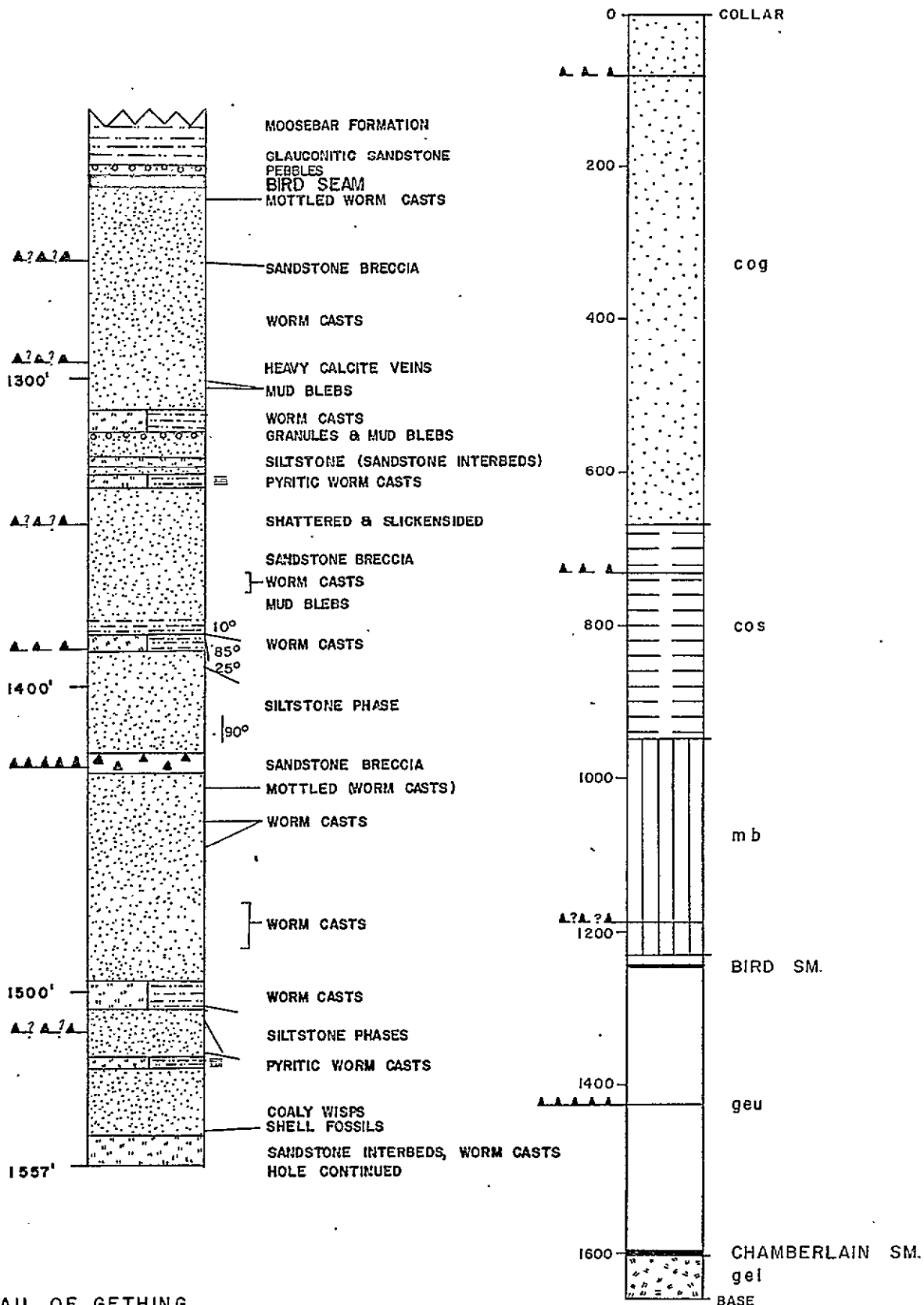
Grid Reference 41481.2 N 89473.7 E
Exploration Grid Reference G/4

Date Commenced 20 July 71 Completed 6 Aug 71

Collar R.L. 5074.5 ft. Standard Datum
Total Depth 1681.5 ft. Electrically Logged Yes/N&A
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain	3451.46	8.04	78%	

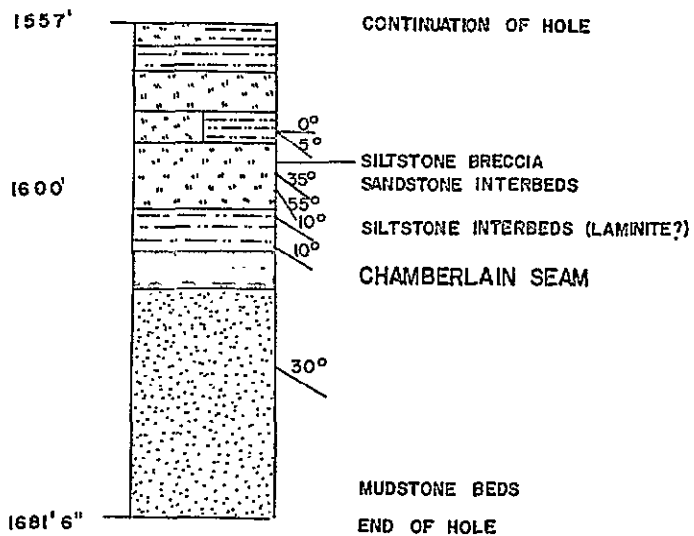


DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-1



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

STRATIGRAPHIC LOGS

for
COALITION MINING LIMITED

DDH C-1

DRAWN BY S.A.

DATE: January '72

PAGE 2 of 2

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
1615.00						
	0.57				5.5	
	0.24					
	3.68	-	5.5	6		
	0.35					
1623.04	3.20					

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-1

DRW BY TR

DATE 24/11/71

SCALE: 1"=2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT:

COALITION MINING
c/o AUSTEN & BUTTA LIMITED
43rd Level, Tower Building
Australia Square,
S Y D N E Y. 2000

REPORT ON:

SUKUNKA 29
CORE NO. C1
CHAMBERLAIN SEAM

REPORT NO.

K71-1555

RECEIVED:

1. 10. 1971

REPORTED:

25. 10. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M Bradley
A.R.A.C.I. Chief Chemist.

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L.H. Sampson

INTRODUCTION:

One (1) coal ply designated CORE NO. C1 CHAMBERLAIN SEAM was received on 1. 10. 1971 from Clifford McElroy & Associates Pty. Ltd.

METHOD:

The coal ply was hand crushed to ¾" top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for each ply after hand crushing to ¾"

TABLE 2 : gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the Floats 1.60 SG fraction of Ply 29 are included in this report.

TABLE 1

WASHABILITY DATA FOR SKR 29, 8.04' (after hand crushing to ¾"

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	1895	50.8	2.6	9	50.8	2.6	9
S1.30 - F1.35 SG	1190	31.9	5.0	3½	82.7	3.5	7
S1.35 - F1.40 SG	211	5.7	9.5	2	88.4	3.9	6½
S1.40 - F1.45 SG	155	4.2	14.0	2	92.6	4.4	6½
S1.45 - F1.50 SG	79	2.1	15.9	1	94.7	4.6	6
S1.50 - F1.55 SG	86	2.3	18.8	1	97.0	5.0	6
S1.55 - F1.60 SG	36	1.0	21.0	1	98.0	5.1	6
S1.60 SG	77	2.0	25.6	1	100.0	5.5	6
-30 Mesh	329	8.1	5.3	8½			

ANALYSIS OF FLOATS 1.60 SG FRACTION

Yield %	98.0
Air Dried Moisture %	0.9
Ash %	5.2
Volatile Matter %	20.3
Fixed Carbon %	73.6
Total Sulphur %	0.21
C.S.NO.	6½
Calorific Value	14940 BTU/LB

TABLE 2

DATA FOR WASHABILITY CURVES - SKR 29

FRACTION	INDIVIDUAL		CUM. FLOATS		CUM. SINKS		±0.10 SG	"D"
	WT.%	ASH%	WT. %	ASH%	WT. %	ASH%		
F1.30 SG	50.8	2.6	50.8	2.6	100.0	5.5	-	25.4
S1.30-F1.35 SG	31.9	5.0	82.7	3.5	49.2	8.6	-	66.8
S1.35-F1.40 SG	5.7	9.5	88.4	3.9	17.3	15.1	43.9	85.6
S1.40-F1.45 SG	4.2	14.0	92.6	4.4	11.6	17.9	14.3	90.5
S1.45-F1.50 SG	2.1	15.9	94.7	4.6	7.4	20.1	9.6	93.7
S1.50-F1.55 SG	2.3	18.8	97.0	5.0	5.3	21.8	-	95.9
S1.55-F1.60 SG	1.0	21.0	98.0	5.1	3.0	24.1	-	97.5
S1.60 SG	2.0	25.6	100.0	5.5	2.0	25.6	-	99.0

SYDNEY

27th October 1971

STRATIGRAPHIC LOG
SUKUNKA D.D.H. - C1

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft.)</i>
fault, probable	No core to 10.0 ft.		
	Overburden.		17.0
	SANDSTONE, silty phases and interbeds, 2 conglomerate bands at base.	GATES MB.	64.5
	<u>COAL</u> .		68.0
	SANDSTONE, pale grey, siltstone and mudstone phases, fractured with slickensides and calcite from 68'-79', more so from 83'-86', conglomerate at base.		100.0
	<u>COAL</u> , 2' clay split 1' from top, below this coal, coal stony and carbonaceous siltstone.		121.0
	SANDSTONE, fine grained, grey, silty interbeds.		153.0
	SANDSTONE, grey, coaly wisps, silty phases.		167.5
	<u>COAL</u> , silty bands.		178.0
	CONGLOMERATE, pebble, sandy phases.		205.0
<u>COAL</u> , stony phases.		210.0	

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SILTSTONE, grey.		218.0
	MUDSTONE, dark grey, coal band of 2' at 235'.		242.0
	SANDSTONE, grey, pebbly bands, worm casts.		298.0
	SANDSTONE, dark grey claystone interbeds, coal bands (1.5' at 332', .5' at 347').		351.0
	CLAYSTONE, carbonaceous.		354.0
	SANDSTONE, grey, medium grained, worm casts, core broken and calcite veins (.5') at 385'. (probably not a fault).		403.0
	SANDSTONE, fine grained, siltstone interbeds.		670.0
Fault, probable.	SILTSTONE, sandy interbeds, mudstone blebs, worm casts, mud band at 588'. Zone of brecciation and slickensides from 729-734.5'.	SUKUNKA MB.	948.0
Fault, possible.	MUDSTONE, dark grey, small zone slickensides at 1188', white clay bands at 1173', 1228' and at base.	MOOSEBAR FM.	1229.0
	SANDSTONE, glauconitic, pebbles throughout.	GETHING FM.	1233.0
	<u>COAL</u> , (including carbonaceous claystone phase).	BIRD SM.	1237'

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
<p>Fault, possible</p> <p>Fault, possible</p>	<p>SANDSTONE, grey, mottled (worm casts), brecciation and slickensides at 1261'. Worm casts from 1267-1295. Heavy calcite veins and fillings from 1286-1306'. Mud blebs at 1300 and 1303'. Mudstone band at 1307½'.</p>		<p>1310.0</p>
	<p>SILTSTONE and MUDSTONE INTERBEDS, worm casts, granules and mud blebs at base.</p>		<p>1318.0</p>
	<p>SANDSTONE, grey, fine grained.</p>		<p>1225.0</p>
	<p>SILTSTONE, sandy interbeds.</p>		<p>1328.0</p>
	<p>SANDSTONE, grey.</p>		<p>1331.0</p>
	<p>LAMINITE, siltstone and mudstone, mudstone at base. Pyritic worm casts.</p>		<p>1335.0</p>
	<p>SANDSTONE, coaly wisps, and zones of carbonaceous claystone interbeds, carbonaceous claystone bands at 1348' and 1353'. Local displacement at 1345'. Claystone band shattered and slickensided at 1348'. Sandstone below with brecciation, vertical bedding, calcite veins and infillings from claystone to 1363'. Worm casts 1363-1367', mud blebs at 1374', mudstone bands at 1378', 1380', 1381'.</p>		<p>1383.0</p>

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth t. Base of Stratum (ft)</i>
Fault, possible	SILTSTONE AND MUDSTONE INTERBEDS, worm casts, dip at top 10°, steepening to 85° at base with calcite filling tension cracks.		1389.0
Fault, established	SANDSTONE, grey fine grained, 25° dip at top, increasing to dips flexing both sides of vertical. Slickensides and calcite in tension cracks. Silty phase 2.5' at 1405'. Zone of brecciation 1422' to 1428'.		1428.0
	SANDSTONE, grey, mottled (worm casts at 1432'). Worm casts at 1444', 1445', 1454' and from 1470'-1485'.		1497.0
	SILTSTONE AND MUDSTONE INTERBEDS, worm casts.		1506.0
Fault, possible	SANDSTONE, mudstone at top. Silty phases, dips steepen from 10° at top to 60° at 1513' with calcite and slickensides and back to 10° dip at base.		1521.0
	LAMINITE, siltstone and mudstone, mudstone at base. Pyritic worm casts.		1525.0
	SANDSTONE, coaly wisps, carbonaceous claystone bands at 1539' and at base. Shell fossils at base.		1547.0
	SILTSTONE, grey, sandy interbeds. Worm casts.		1557.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	LAMINITE, siltstone and mudstone.		1562.0
	MUDSTONE, dark grey.		1569.0
	SILTSTONE, grey.		1579.0
	LAMINITE, siltstone and mudstone, mudstone phases.		1587.0
Fault, possible	SILTSTONE, sandy interbeds. Dip 0-5° at top, steepening abruptly to breccia zone with calcite fillings from 1591.5'-1593.5'. Dip beneath, 35°. Displacement, slickensides and abrupt steepening of dip to 55° at 1600', calcite. Dips return to 30°.		1604.0
	MUDSTONE, silty interbeds, mudstone at base dip 30°.		1615.0
	<u>COAL.</u>	CHAMB. SM.	1623.0
	MUDSTONE, dark grey, listric surfaces.		1623.5
	SANDSTONE, grey, some calcite. Dips 30°, mudstone bands at 1673' and 1676' with a sandstone slump structure.		1681.5
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1212.23		
MUDSTONE, dark grey, frets when dry. Pyrites crystals and modules.	16.46	1228.69	16.46	
CLAY, white, powdery when dry. Contains chips of mudstone.	0.23	1228.92	0.23	
MUDSTONE, as above.	0.46	1229.38	0.46	
MUDSTONE, very light grey, fretted to small pieces.	0.19	1229.57	0.19	
SANDSTONE, dark grey, medium grained, mudstone matrix, pebbles (to 0.04') increasing in number towards base.	1.96	1231.53	1.96	
CONGLOMERATE, grey, pebbles of various lithologies to 0.04' in grey sandy matrix containing glauconite.	0.88	1232.41	0.88	
SANDSTONE, grey, fine grained, grading to granule. conglomerate at base.	0.46	1232.87	0.46	
<u>COAL</u> , dull with bright bands, pyrites.	1.80	1234.67	1.74	) BIRD SEAM)

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright, core broken.	0.81	1235.48	0.78)	
)	
CLAYSTONE, dark brownish grey, carbonaceous.	0.13	1235.61	0.13)	
)	
MUDSTONE, dark grey, siltstone interbeds.	1.20	1236.81	1.20)	BIRD SEAM
)	
<u>COAL</u> , mainly dull with minor bright bands.	0.40	1237.21	0.39)	
)	
bright.	0.10	1237.31	0.10)	
)	
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous near top, with coaly wisps and lenses, worm casts in mid section.	12.55	1249.86	12.50	
SANDSTONE, grey, medium grained, quartz-lithic, current bedded, becoming fine grained with a few silty interbeds towards base.	12.36	1262.22	12.31	
SANDSTONE, as above, but shattered, calcite along fracture planes, some slickensides, fractures have no common angle.	0.75	1262.97	0.75	
SANDSTONE, as above, with occasional irregular calcite veins along cracks.	5.01	1267.98.	4.98	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained quartz-lithic, worm casts, irregular silty masses, in final 1.20' calcite veins with cavities at 50° to core axis, bedding 10° to core axis, slickensides.	18.83	1286.81	18.76	
SANDSTONE, as above, but numerous calcite veins in upper section with no specific trends, while in lower section veins are thicker (one 0.07' and sub-horizontal) and angled to a max of 40° to core axis. Bedding sub-horizontal to sandstone massive.	19.03	1305.84	18.96	
SANDSTONE, grey, fine grained, quartz-lithic, massive.	1.14	1306.98	1.14	
SANDSTONE, grey, fine grained, with interbeds and phases of mudstone, dark grey, pyrites.	1.50	1308.48	1.50	
SANDSTONE, grey, fine grained, quartz-lithic, one irregular silty mass.	1.78	1310.26	1.77	
SILTSTONE AND MUDSTONE INTERBEDS, grey siltstone and dark grey mudstone interbeds, some calcite veins along bedding at 30° to core axis. Some worm casts.	6.48	1316.74	6.45	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium to fine, quartz-lithic, some irregular silty interbeds near top, sub-horizontal calcite veins towards base.	7.53	1324.27	7.50	
SILTSTONE AND MUDSTONE INTERBEDS, dark grey mudstone, light grey siltstone, some slickensides.	3.46	1327.73	3.44	
SANDSTONE, grey, fine grained, quartz-lithic, silty interbeds and phases.	2.92	1330.65	2.91	
LAMINITE, siltstone grey, and mudstone dark grey, laminae from 0.02' to very fine (<1mm), pyrite nodules and layers.	3.47	1334.12	3.45	
CLAYSTONE, black, carbonaceous, frets when dry.	0.60	1334.72	0.60	
SANDSTONE, grey, fine at top but becoming medium grained, fine silty interbeds, minor calcite veins, one sub vertical.	8.29	1343.01	8.25	
SANDSTONE, as above.	2.68	1345.69	2.67	
SANDSTONE, grey, fine grained, with numerous dark grey claystone interbeds and phases in upper and lower sections, bedding horizontal to sub-horizontal.	7.32	1352.01	7.29	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE, abrupt zone of crushing and shearing with mudstone and siltstone forming angles of 35° with core axis, calcite veins, minor ones at right angles to shear direction.	0.22	1353.23	0.22	
MUDSTONE, grey, silty interbeds, sub-horizontal bedding, slump structure, sheared, with slickensides, 40° to core axis, core broken.	1.00	1354.23	1.00	
SANDSTONE, grey, medium to fine grained, quartz-lithic, shear fractures with slickensides 35°-45° to core axis. Calcite veins and irregular masses.	3.49	1357.72	3.47	
SILTSTONE, grey with mudstone interbeds, contorted bedding, calcite veins minor, slickensides, core broken.	1.65	1359.37	1.64	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous, coaly wisps and irregular coaly masses, numerous calcite tracteries and irregular masses. Slickensides and oblique fractures.	2.03	1361.40	2.03	
SANDSTONE, as above, but with slickensides diminishing.	3.17	1364.57	3.15	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, some silty interbeds, worm casts, a few calcite veins near centre along sub-horizontal bedding planes. A phase containing pebbles (0.50') 3.90' from base.	13.94	1378.51	13.88	
SANDSTONE, grey, fine grained, quartz-lithic, with interbeds and phases of mudstone, dark grey. Some calcite veins along sub-horizontal bedding.	8.64	1387.15	8.60	
SANDSTONE, with mudstone interbeds as above, but bedding at top at 40° to core axis, core badly broken by oblique fractures with listric surfaces, calcite veins. At base sandstone and mudstone deformed - puckered against the 25° angle of sandstone below.	3.09	1390.24	3.08	
SANDSTONE, grey, fine grained, quartz-lithic, numerous fine calcite veins, fracture planes with slickensides to 25° from core axis, bedding horizontal.	8.95	1399.19	8.91	
SANDSTONE, as above, with fractures at 35° to core axis with slickensides. Numerous fine calcite veins.	4.47	1403.66	4.45	
SANDSTONE AND MUDSTONE, very fine sandstone and mudstone to base form sub-vertical beds in form of gently				

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
overtuned anticline and syncline structure. This puckering is terminated by sandstone at 30 ^o . approx to core axis.	4.87	1408.53	4.84	
SANDSTONE, grey, fine grained, quartz-lithic, massive calcite veins showing minor displacement. Angle of fracture becomes sub-horizontal with depth, slickensides.	8.63	1417.16	8.59	
SANDSTONE, grey, fine grained, quartz-lithic, massive, some sub-horizontal quartz veins becoming irregular with calcite masses with depth. Towards base fine silty and coaly bands at approx 60 ^o to core axis.	10.14	1427.30	10.10	
SANDSTONE, grey, fine grained, numerous calcite veins (irregular), sandstone brecciated.	1.68	1428.98	1.67	
<u>COAL</u> , bright.	0.03	1429.01	0.03	
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous at top, dappled effect due to worm casts(?). Bedding sub-horizontal.	6.26	1435.27	6.23	
SANDSTONE, grey, fine and medium grained, quartz-lithic, some silty interbeds and calcite veins parallel to				

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
sub-horizontal bedding.	18.19	1453.46	18.12	
SANDSTONE, as above, with worm casts near top and at bottom.	18.47	1471.93	18.40	
SANDSTONE, grey, fine grained, quartz-lithic, numerous worm casts and tracks except near base.	8.70	1480.63	8.66	
SANDSTONE, grey, brecciated, calcite veins, core broken.	0.40	1481.03	0.40	
SANDSTONE, grey, fine grained, quartz-lithic, numerous worm casts and tracks, calcite veins in zone 5.3' from top followed by sandstone free of worm casts.	9.07	1490.10	9.03	
SANDSTONE, grey, fine grained, quartz-lithic, massive, 2 calcite veins, one at 40° the other 15° (in opposed direction) to core axis.	6.69	1496.79	6.66	
SANDSTONE AND MUDSTONE INTERBEDS, very fine grey sandstone and dark grey mudstone interbedded, a few calcite veins. Some core broken, slickensides.	9.00	1505.79	8.96	
SANDSTONE, grey, fine to medium grained, quartz-lithic, some irregular silty masses in parts.	4.27	1510.06	4.25	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE AND MUDSTONE INTERBEDS, fine grey sandstone and dark grey mudstone interbedded. Approx 1.4' from top bedding curves through the vertical and then curves again in a vertical plane at 90° to the previous. Some calcite and slickensides. Calcite band at 60° to core axis 0.30' from base contains chips of mudstone.	4.27	1514.33	4.25	
SANDSTONE, grey, very fine but grading to medium, quartz-lithic, calcite veins mainly at top apparently following bedding planes, angle to core axis to sub-horizontal throughout length.	7.06	1521.39	7.02	
LAMINITE, siltstone, light grey and mudstone, dark grey. Laminae from 1cm to 1mm thick. Lenses and nodules of pyrites. Minor calcite. Bedding returns to horizontal 0.65' down from top.	4.68	1526.07	4.65	
SANDSTONE, grey, fine grained, quartz-lithic, calcite veins, fractures as little as 30° to core axis.	1.49	1527.56	1.49	
SANDSTONE, grey, very fine to fine grained, quartz-lithic, silty interbeds and phases.	12.28	1539.84	12.44	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, with dark grey claystone interbeds from 1.10' above base down to base. Above this are irregular silty masses. Shell fragments at base. Some calcite near top.	5.65	1545.49	5.46	
CLAYSTONE, dark grey, silty lenses, shell fossils and fragments.	0.80	1546.29	0.77	
CLAYSTONE, carbonaceous, coaly lenses.	0.14	1546.43	0.14	
CLAYSTONE, dark grey, tending carbonaceous.	0.43	1546.86	0.42	
SILTSTONE, grey and brownish grey, mudstone (?) matrix, bedding horizontal to sub-horizontal, some minor sedimentary and tectonic dislocation. Sandy interbeds.	10.24	1557.10	9.90	
LAMINITE, siltstone grey and mudstone dark grey.	5.64	1562.74	5.45	
CLAYSTONE, dark grey to black. Black phases carbonaceous - becoming carbonaceous at base. Some fretting. Bedding inclines to 70 ^o to core axis, listric surfaces.	3.44	1566.18	3.33	
<u>COAL</u> , mainly dull, with minor bright bands.	1.89	1568.07	0.30	
CLAYSTONE, carbonaceous.	1.15	1569.22	1.09	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, with mudstone interbeds particularly towards base.	10.13	1579.35	9.62	
CLAYSTONE, black, fretted.	0.34	1579.69	0.32	
LAMINITE, siltstone grey and mudstone dark grey.	0.95	1580.64	0.90	
CLAYSTONE, black.	0.17	1580.81	0.16	
LAMINITE, as above, with black claystone phases.	5.81	1586.62	5.52	
CLAYSTONE, carbonaceous.	0.07	1586.69	0.07	
CLAYSTONE, black, calcite band near base.	0.41	1587.10	0.39	
SILTSTONE, grey, with dark claystone interbeds, laminite (?). Sub-vertical calcite vein. Above 3.59' from top beds horizontal. Below this beds fold through 140°. Below axis of fold beds are dislocated and cracks filled with calcite. Below this core badly broken to 7.30' from top. Below this bedding angle reduced to 65° to core axis at base as claystone proportion increases. Listric surfaces. At 4.1' and 3.7' from base there are distinct dislocations at 70° and 40° to core axis.	19.57	1606.67	18.58	

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, grey, silty interbeds, becoming carbonaceous to base.	8.33	1615.00	7.91	
<u>COAL</u> , mainly dull with minor bright bands, coal broken.	0.57	1615.57	0.35)
dull and bright.	0.24	1615.81	0.15)
mainly dull with minor bright bands, core broken.	3.25	1619.06	2.01)
mainly dull with minor bright bands.)	0.43	1619.49	0.27)
dull and bright.) core broken	0.35	1619.84	0.22)
mainly dull with minor bright bands.)	3.20	1623.04	1.98)
CLAYSTONE, dark grey, carbonaceous, listric surfaces, core broken.	0.63	1623.67	0.58	
SANDSTONE, fine, grey, quartz-lithic, silty and coaly wisps, tending carbonaceous.	1.20	1624.87	1.03	CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-1

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<p>SANDSTONE, grey, medium, becoming fine at base, quartz-lithic, carbonaceous phases. Fractures, some with calcite at angles from 70° (along bedding) to 35° to core axis. Disturbed zone near coaly parting 1.9' from top, and possible displacement along coaly fracture at 18° 3.7' from top. Occasional silty interbeds. Bedding angle 64° to core axis.</p>	21.12	1645.99	18.16	
<p>SANDSTONE, grey, fine to very fine grained, massive - to faint sub-horizontal bedding in parts. One small oblique calcite vein.</p>	17.97	1663.96	16.99	
<p>SANDSTONE, grey, fine grained, quartz-lithic, occasional mudstone bands 12' from top.</p>	17.54	1681.50	17.79	
				<p><u>Base of Hole</u></p>

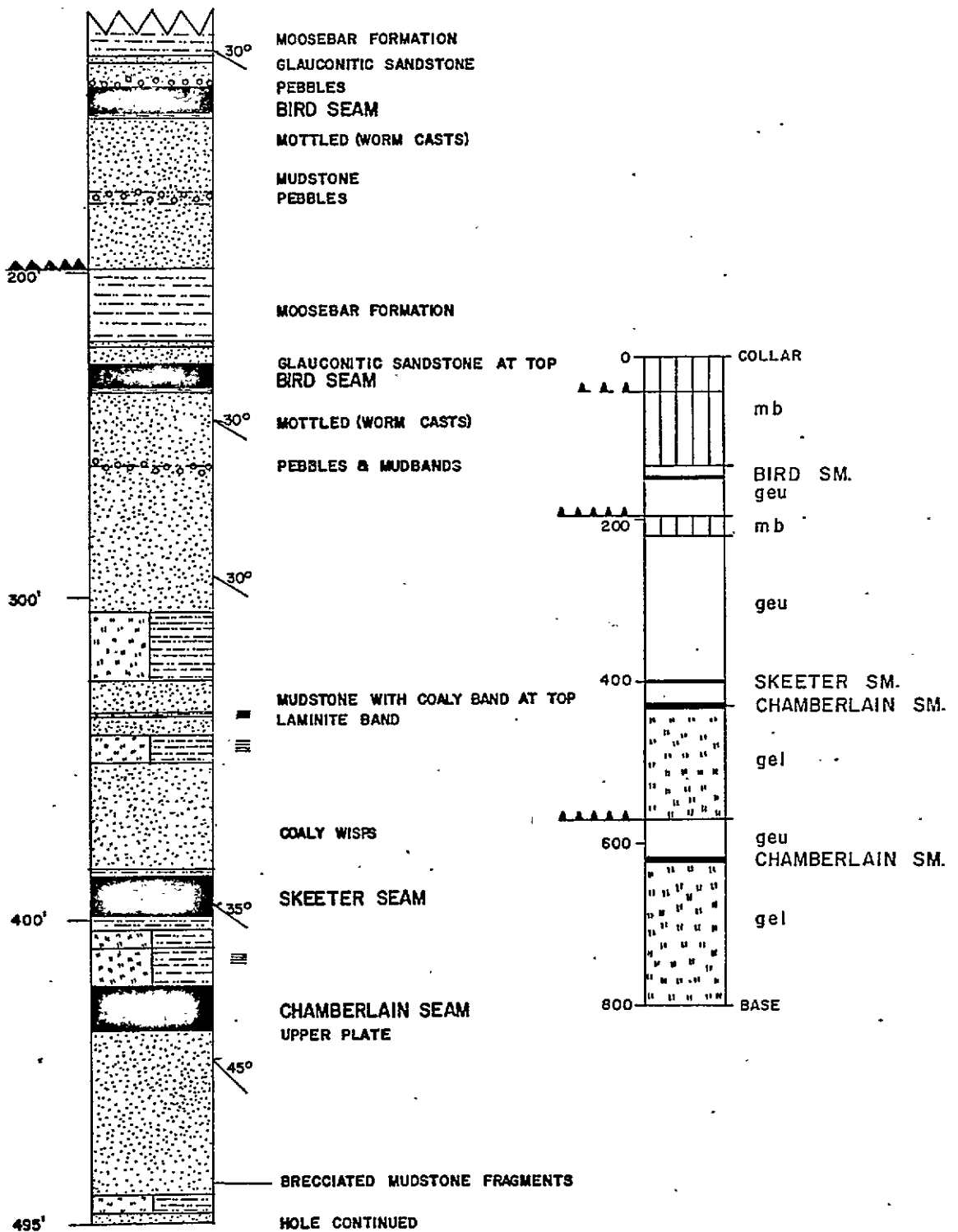
Grid Reference 45822.2 N 79311.8 E
Exploration Grid Reference C+1000'N/1

Date Commenced 20 July 71 Completed 27 Aug 71

Collar R.L. 4280.9 ft. Standard Datum
Total Depth 800 ft. Electrically Logged Yes/~~No~~
Drilled by Connors Drilling Ltd. Angled Hole
For Coalition Mining Limited Tropari Angle 68°
Bearing 067°
Logged by F.H.S. Tebbutt & G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter Upper Plate	3910.9	10.89	59%	
Chamberlain Upper Plate	3878.90	12.01	87%	
Chamberlain Lower Plate	3706.16	11.89	84%	

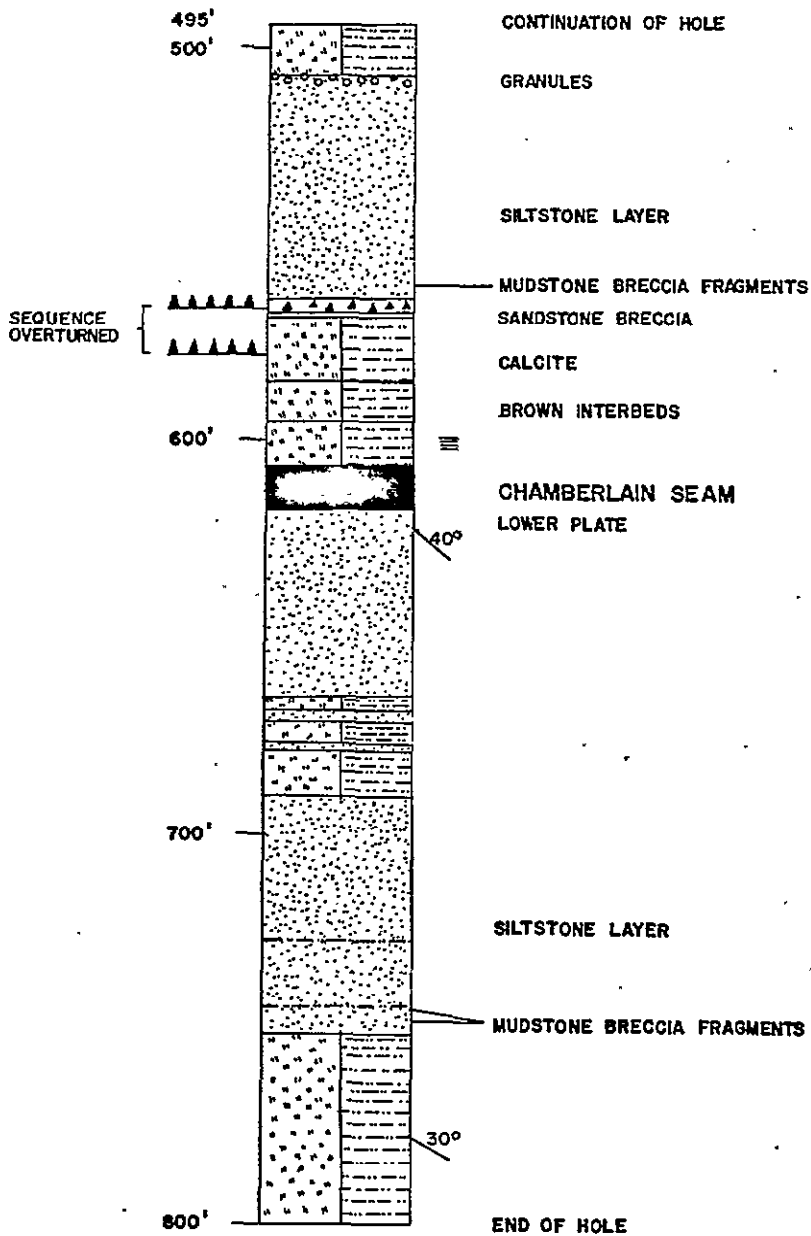


DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-2



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-2

DRAWN BY S.A.

DATE: January '72

PAGE 2 of 2

SKEETER SEAM
UPPER PLATE

ASH %
CUMULATIVE
FROM FLOOR






		WT %	ASH%	C.S.Nº	INCL. BANDS	EXCL. BANDS
388.19						
388.75	0.56	-	18.7	8		
389.44	0.69	-	92.0	0		
	3.63	-	2.4	8		
393.25	0.18					
	3.08	-	94.1	0		
396.33						
	2.75	-	3.9	8½		
399.08						

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for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-2

CHAMBERLAIN SEAM
UPPER PLATE

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
421.60						
		1.16	52.8	1/2		
		0.23	46.0	0		
		10.62	4.4	6 1/2	4.4	
433.61						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS
DDH C-2

for
COALITION MINING LIMITED

DRW BY TR

DATE 22/11/71

SCALE: 1"=2'

PAGE 1 of 1

CHAMBERLAIN SEAM
LOWER PLATE

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
608.04						
608.63		0.59	3.3	12.3	2½	8.1
609.10		0.47	4.7	48.8	0	8.0
					5.9	5.9
		10.83	92.0	5.9	6½	
619.93						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-2

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NOS. 24, 25, 26, 27, 28
CORE NO. C2
SKEETER SEAM
(upper plate)

REPORT NO. K71-1622

DATE RECEIVED: 12. 10. 71

DATE REPORTED: 17. 11. 71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Breckley
Chief Chemist
A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

R. W. Campbell

INTRODUCTION: Four (4) coal samples and one (1) non coal ply designated CORE C2 SKEETER SEAM were received on 12.10.71 from CLIFFORD MCELROY & ASSOCIATES PTY. LTD.

METHODS:

1. The non coal sample no. 27 was weighed, prepared and analysed for ash and true specific gravity.
2. The visibly inferior coal samples nos. 24, 25, 28 were hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

3. The good quality coal samples no. 26 were hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the + 30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample no. 26 and the analyses are given in this report.

COMMENTS: Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. samples weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS: FIGURE 1: gives the graphic log of the core.

TABLES 1 - 4: give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ " .

SHEET THREE ATTACHED:

TABLE 1; WASHABILITY DATA FOR SAMPLE NO. 24 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT.	GM.WT, %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.60 SG	183	90.6	12.9	8½	90.6	12.9	8½
S1.60 SG	19	9.4	74.2	½	100.0	18.7	8
-30 Mesh RC	8	3.8	15.4	9			

TOTAL WEIGHT OF SAMPLE = 210 gms

TRUE S.G.= 1.389

TABLE 2: WASHABILITY DATA FOR SAMPLE NO. 25 (after hand crushing to $-\frac{3}{4}$ ")

F1.60 SG	3	0.4	9.2	5	0.4	9.2	5
S1.60 SG	700	99.6	92.3	0	100.0	92.0	0
-30 Mesh RC	25	3.4	69.3	0			

TOTAL WEIGHT OF SAMPLE = 728 gms

TRUE S.G.=2.547

TABLE 3: WASHABILITY DATA FOR SAMPLE NO. 26 (after hand crushing to $-\frac{3}{4}$ ")

F1.30	1072	86.9	1.5	8	86.9	1.5	8
S1.30 - F1.35	103	8.3	5.3	7½	95.2	1.8	8
S1.35 - F1.40	28	2.3	8.7	5	97.5	2.0	8
S1.40 - F1.45	16	1.3	11.5	3	98.8	2.1	8
S1.45 - F1.50	6	0.5	13.6	1½	99.3	2.2	6
S1.50 - F1.55	2	0.2	16.6	1	99.5	2.2	8
S1.55 - F1.60	2	0.2	21.0	1	99.7	2.2	8
S1.60	5	0.3	43.1	0	100.0	2.4	8
-30 Mesh RC	108	8.0	3.9	8			

TOTAL WEIGHT OF SAMPLE = 1,342 gms

TRUE S.G. = 1.223

SAMPLE NO. 27

RAW COAL

TOTAL WEIGHT OF SAMPLE = 3,974 gms

ASH% = 94.1

TRUE S.G. = 2.581

TABLE 4: WASHABILITY DATA FOR SAMPLE NO. 28 (after hand crushing to $-\frac{3}{4}$ ")

F1.60 SG	56	98.2	2.4	8½	98.2	2.4	8½
S1.60 SG	1	1.8	83.2	0	100.0	3.9	8½
-30 Mesh RC	11	16.2	2.5	8½			

TOTAL WEIGHT OF SAMPLE 68 gms

TRUE S.G. = 1.262

SHEET FOUR ATTACHED:

ANALYSIS OF CUMULATIVE FLOATS 1.60 SG FRACTION OF SAMPLE NO. 26

<u>YIELD %</u>	<u>ADM%</u>	<u>ASH%</u>	<u>V.M.%</u>	<u>F.C.%</u>	<u>S. %</u>	<u>C.S.NO.</u>	<u>CV(BTU/1b)</u>
99.7	1.0	2.2	25.8	71.0	0.42	8	15,040

SYDNEY

17th November, 1971.

K71-1622

COALITION MINING
SUKUNKA C2
(BREKTER SEAM)

	SPL	THICK ²	ASH%	CSN°
	24	0.56	18.7	8
10'	25	0.69	92.0	0
8'	26	3.81	2.4	8
6'				
4'	27	3.08	94.1	0
2'				
	28	2.75	3.9	8½
0'				

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING
c/ - AUSTEN AND BUTTA LIMITED.
43RD FLOOR, TOWER BUILDING
AUSTRALIA SQUARE,
SYDNEY. 2000

REPORT ON: SUKUNKA 21-23
CORE NO. C2
CHAMBERLAIN SEAM (UPPER PLATE)

REPORT NO: K71-1559

RECEIVED: 1.10.1971

REPORTED: 25.10.1971.



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bradley
Chief Chemist.

A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. H. D. Campbell

INTRODUCTION:

Two coal plies and one non ply designated Sukunka 21-23 CORE C2 CHAMBERLAIN SEAM were received on 1.10.1971 from Clifford McElroy and Associates Pty. Ltd.

METHOD:

The coal plies were hand crushed to $\frac{3}{4}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 130-160 specific gravity on 0.05 steps.

The float and sink fraction, raw -30 mesh coal fraction and the non coal ply were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to comensate for core loss.

RESULTS:

FIGURE 1: gives the graphic log of the core

TABLE 1-2: give the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{4}$ "

The washability curves and the analysis of Floats 1.60 SG fraction of ply 23 are included in this report.

TABLE 1WASHABILITY DATA FOR SKR 21 1.16' (after hand crushing to $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	NIL	NIL	NIL	NIL	NIL	NIL	NIL
S1.30- F1.35 SG	NIL	NIL	NIL	NIL	NIL	NIL	NIL
S1.35- F1.40 SG	NIL	NIL	NIL	NIL	NIL	NIL	NIL
S1.40- F1.45 SG	NIL	NIL	NIL	NIL	NIL	NIL	NIL
S1.45- F1.50 SG	NIL	NIL	NIL	NIL	NIL	NIL	NIL
S1.50- F1.55 SG	NIL	NIL	NIL	NIL	NIL	NIL	NIL
S1.55- F1.60 SG	24	3.6	32.7	1	3.6	32.7	1 $\frac{1}{2}$
S1.60 SG	703	96.4	53.5	$\frac{1}{2}$	100.0	52.8	$\frac{1}{2}$
-30 Mesh	28	3.7	42.7	8 $\frac{1}{2}$			
<u>RAW COAL</u>							
SKR 22, 0.23'	211	100.0	46.0	0	100.0	46.0	0

SHEET THREE ATTACHED HERETO

TABLE 2

WASHABILITY DATA FOR SKR 23 10.62' (after hand crushing to $\frac{3}{4}$ ")

FRACTION:	INDIVIDUAL				CUMULATIVE			
	WEIGHT	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.	
Fl.30 SG	3928	71.8	2.6	8	71.8	2.6	8	
Sl.30- Fl.35 SG	1027	18.8	5.1	4 $\frac{1}{2}$	90.6	3.1	7 $\frac{1}{2}$	
Sl.35- Fl.40 SG	193	3.5	9.8	1	94.1	3.4	7	
Sl.40- Fl.45 SG	163	3.0	15.6	1	97.1	3.7	7	
Sl.45- Fl.50 SG	85	1.6	21.9	1	98.7	4.0	7	
Sl.50- Fl.55 SG	20	0.4	22.5	1	99.1	4.1	6 $\frac{1}{2}$	
Sl.55- Fl.60 SG	17	0.3	25.8	1	99.4	4.4	6 $\frac{1}{2}$	
Sl.60 SG	34	0.6	40.0	$\frac{1}{2}$	100.0	4.4	6 $\frac{1}{2}$	
-30 Mesh	550	9.2	38.6	8 $\frac{1}{2}$				

ANALYSIS OF FLOATS 1.60 SG FRACTION OF SKR 23

YIELD %	99.4
AIR DRIED MOISTURE %	1.1
ASH %	4.2
VOLATILE MATTER %	20.6
FIXED CARBON	74.1
TOTAL SULPHUR %	0.22
C.S.NO.	7
CALORIFIC VALUE	15090 BTU/ LB

TABLE 3

DATA FOR WASHABILITY CURVES - SKR 23

FRACTION	INDIVIDUAL				CUM. FLOATS		CUM. SINKS		+0.10 SG	"D"
	WT.%	ASH%	WT. %	ASH%	WT.%	ASH%	WT.%	ASH%		
Fl.30 SG	71.8	2.6	71.8	2.6	100.0	4.4	-	-	35.9	
Sl.30- Fl.35 SG	18.8	5.1	90.6	3.1	28.2	9.0	-	-	81.2	
Sl.35- Fl.40 SG	3.5	9.8	94.1	3.4	9.4	16.7	26.9	26.9	92.4	
Sl.40- Fl.45 SG	3.0	15.6	97.1	3.7	5.9	20.8	8.5	8.5	95.6	
Sl.45- Fl.50 SG	1.6	21.9	98.7	4.0	2.9	26.1	5.3	5.3	97.9	
Sl.50- Fl.55 SG	0.4	22.5	99.1	4.1	1.3	31.3	-	-	98.9	
Sl.55- Fl.60 SG	0.3	25.8	99.4	4.2	0.9	35.3	-	-	99.3	
Sl.60 SG	0.6	40.0	100.0	4.4	0.6	40.0	-	-	99.7	

SYDNEY

28th October, 1971.

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.26	843.11	0.23	) CHAMBERLAIN SEAM) lower split
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top, calcite vein 2.0' from top.	4.35	847.46	4.33	
SANDSTONE, grey, medium grained, becoming finer towards base. Carbonaceous phase (0.35') 2.03' from top, minor calcite veins. Zone (12.0') of worm casts 8.8' from top. Bedding angle 90° to core axis.	19.14	866.60	19.06	
SANDSTONE, grey, fine grained, quartz-lithic.	18.87	885.47	18.79	
SANDSTONE, as above.	1.31	886.78	1.30	
CLAYSTONE, dark grey.	0.20	886.98	0.20	
SANDSTONE, grey, fine grained, quartz-lithic, coaly lenses bounded by fine calcite ? coatings in zone (0.1') 0.95' from top.	2.83	889.81	2.82	
SANDSTONE, grey, very fine grained.	0.31	890.12	0.31	

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APPLICANT:

COALITION MINING
c/o AUSTEN & BUTTA LIMITED
43rd Level, Tower Building
Australia Square,
S Y D N E Y. 2000

REPORT ON:

SUKUNKA 18-20
CORE NO. C2
CHAMBERLAIN SEAM (LOWER PLATE)

REPORT NO.

K71-1558

RECEIVED:

1. 10. 1971

REPORTED:

25. 10. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

A. B. Bradley
A.R.A.C.I. Chief Chemist.

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. H. Campbell

INTRODUCTION:

Two coal plies and one non coal ply designated SUKUNKA 18-20 CORE C2 CHAMBERLAIN SEAM were received on 1. 10. 1971 from Clifford McElroy & Associates Pty. Ltd.

METHOD:

The coal plies were hand crushed to $\frac{3}{4}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions, raw -30 mesh coal fraction and the non coal ply were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-2 : give the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{4}$ "

TABLE 3 : gives the calculated washability data for the Full Seam

TABLE 4 : gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the Floats 1.60 SG fraction of the Full Seam are included in this report.

TABLE 1WASHABILITY DATA FOR SKR 18, 0.59' (after hand crushing to $\frac{3}{4}$ "

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	75	35.9	3.6	5	35.9	3.6	5
S1.30 - F1.35 SG	73	35.1	9.0	1	71.0	6.3	3
S1.35 - F1.40 SG	3	1.5	9.3	1	72.5	6.3	3
S1.40 - F1.45 SG	2	0.8	11.2	1	73.3	6.4	3
S1.45 - F1.50 SG	10	4.6	15.5	1	77.9	6.9	3
S1.50 - F1.55 SG	NIL	NIL	NIL	NIL	77.9	6.9	3
S1.55 - F1.60 SG	19	9.2	24.5	1	87.1	8.8	2½
S1.60 SG	27	12.9	35.8	1	100.0	12.3	2½
-30 Mesh	2	0.8	6.0	6			
RAW COAL							
SKR 19, 0.47'	298	100.0	48.8	0	100.0	48.8	0

SHEET THREE ATTACHED HERETO

TABLE 2

WASHABILITY DATA FOR SKR 20, 10.85' (after hand crushing to - $\frac{3}{8}$ "

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	3136	58.0	3.0	8½	58.0	3.0	8½
S1.30 - F1.35 SG	1302	24.1	5.9	4½	82.1	3.9	7½
S1.35 - F1.40 SG	412	7.6	10.4	2	89.7	4.4	7
S1.40 - F1.45 SG	244	4.5	17.4	1½	94.2	5.0	6½
S1.45 - F1.50 SG	175	3.2	19.3	1	97.4	5.5	6½
S1.50 - F1.55 SG	50	0.9	19.9	1	98.3	5.6	6½
S1.55 - F1.60 SG	39	0.7	20.0	1	99.0	5.7	6½
S1.60 SG	50	1.0	22.4	½	100.0	5.9	6½
-30 Mesh	476	8.1	4.9	8½			

TABLE 3

CALCULATED WASHABILITY DATA FOR THE FULL SEAM

F1.30 SG	54.5	3.0	7	54.5	3.0	7
S1.30 - F1.35 SG	23.3	6.1	4	77.8	3.9	6
S1.35 - F1.40 SG	7.0	10.3	1½	84.8	4.5	6
S1.40 - F1.45 SG	4.2	17.2	1	89.0	5.1	5½
S1.45 - F1.50 SG	3.1	19.1	1	92.1	5.5	5½
S1.50 - F1.55 SG	0.8	19.8	1	92.9	5.7	5½
S1.55 - F1.60 SG	0.9	22.6	1	93.8	5.8	5½
S1.60 SG	6.2	42.8	½	100.0	8.1	5

ANALYSIS OF FLOATS 1.60 SG FRACTION OF FULL SEAM

Yield %	93.8
Air Dried Moisture %	1.8
Ash %	5.7
Volatile Matter %	19.0
Fixed Carbon %	73.5
Total Sulphur %	0.32
C.S.NO.	6
Calorific Value	15020 BTU/LB

TABLE 4

DATA FOR WASHABILITY CURVES - SKR 18-20

<u>FRACTION</u>	<u>INDIVIDUAL</u>		<u>CUM. FLOATS</u>		<u>CUM. SINKS</u>		<u>±0.10 SG</u>	<u>"D"</u>
	<u>WT.%</u>	<u>ASH%</u>	<u>WT. %</u>	<u>ASH%</u>	<u>WT. %</u>	<u>ASH%</u>		
F1.30 SG	54.5	3.0	54.5	3.0	100.0	7.5	-	27.3
S1.30 - F1.35 SG	23.3	6.1	77.8	3.9	45.5	12.9	-	66.2
S1.35 - F1.40 SG	7.0	10.3	84.8	4.5	22.2	20.0	37.6	81.3
S1.40 - F1.45 SG	4.2	17.2	89.0	5.1	15.2	24.4	15.1	86.9
S1.45 - F1.50 SG	3.1	19.1	92.1	5.5	11.0	27.2	9.0	90.6
S1.50 - F1.55 SG	0.8	19.8	92.9	5.7	7.9	30.4	-	92.5
S1.55 - F1.60 SG	0.9	22.6	93.8	5.8	7.1	31.6	-	93.4
S1.60 SG	6.2	32.9	100.0	7.5	6.2	32.9	-	96.9

SYDNEY
28th October 1971

K71-1558

COALITION MINING

SUKUNKA C2 - LOWER
CHAMBERLAIN SEAM

	PLY	THICK ^S	WT%	ASH%	CSN ^m	ASH % cum	
						Incl bands	Excl bands
12'	SKR 18	0.59'	3.3	12.3	2 1/2	8.1	6.1
	19	0.47'	4.7	48.8	0	8.0	5.9
						5.9	5.9
10'							
8'							
6'	SKR 20	10.83'	92.0	5.9	6 1/2		
4'							
2'							
0'							

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-2

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
Fault, possible (40-42 feet)	No core to 15.0 ft. MUDSTONE, bentonite bands. SANDSTONE, glauconitic. SANDSTONE. <u>COAL.</u> MUDSTONE.	MOOSEBAR FM. GETHING FM.	131.0 133.0 141.0 148.0 150.0
Fault, established	SANDSTONE, mottled (worm tracks), 156', mudstone band 172', pebbles 174', mudstone band 175', pebbles 176'. MUDSTONE, bentonitic bands. SANDSTONE, glauconitic. SANDSTONE. <u>COAL.</u> MUDSTONE. SANDSTONE, mottled (worm casts) 247', pebble layer 260', mudstone layer 261', pebble layer 261.5', base of sandstone.	MOOSEBAR FM. GETHING FM. BIRD SEAM	198.0 220.0 222.0 229.0 235.0 237.0 306.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts at base.	GETHING FM.	326.0
	SANDSTONE, mudstone layer 332', laminite band 337'.		343.0
	LAMINITE, siltstone and mudstone.		349.0
	SANDSTONE, coaly wisps - mudstone layer 386'.		387.0
	MUDSTONE.		388.0
	<u>COAL</u> .	SKEETER SM.	399.0
	SILTSTONE, mud phases, bedding indistinct.		404.0
	SANDSTONE AND SILTSTONE INTERBEDDED, mudstone band at base.		410.0
	LAMINITE, siltstone and mudstone layer at base.		422.0
	<u>COAL</u> .	CHAMB. SM.	
	SANDSTONE, carbonaceous at top sedimentary mudstone, breccia band 481.5'.		482.0
	SANDSTONE AND MUDSTONE INTERBEDDED.		483.0
	SANDSTONE.		487.0
	SILTSTONE AND MUDSTONE INTERBEDDED.		491.0
	SANDSTONE.		495.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	SILTSTONE AND MUDSTONE INTERBEDDED, pebbles at base.	GETHING FM.	507.0
	SANDSTONE, silty layer - 545', mudstone breccia layers 561'..		566.0
Fault, established	SANDSTONE, breccia (tectonic).		570.0
	SILTSTONE AND MUDSTONE INTERBEDDED, pebble bands at top - overturned - sandy base.		586.0
Fault, established	SANDSTONE BRECCIA, (tectonic).		587.0
	SILTSTONE WITH MUDSTONE PHASES.		593.0
	SILTSTONE AND MUDSTONE INTERBEDDED, mudstone layer at base.		596.0
	LAMINITE, siltstone and mudstone, mudstone layer at base.		608.0
	<u>COAL.</u>	CHAMB. SM.	620.0
	SANDSTONE, carbonaceous at top.		666.0
	SANDSTONE AND MUDSTONE INTERBEDDED.		669.0
	SANDSTONE.		673.0
	SANDSTONE AND MUDSTONE INTERBEDDED.		677.0
	SANDSTONE.		679.0
	SILTSTONE AND MUDSTONE INTERBEDDED, pebble layer at base.		691.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	<p>SANDSTONE, silty layer 725', mudstone layers 727' and 744', sedimentary mudstone bands 743' and 744'.</p> <p>SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases at top.</p>		<p>752.0</p> <p>800.0</p> <p><u>Base of Hole</u></p>

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		126.48		
MUDSTONE, grey, fretting when dry, two light grey phases near base, rather talc-like.	5.00	131.48	5.00	
SANDSTONE, dark grey, medium grained, mudstone matrix, glauconitic, becomes lighter grey with mudstone masses to base.	2.55	134.03	2.55	
SANDSTONE, grey, medium grained, with coarse phases and occasional pebbles, mudstone irregular masses.	6.89	140.92	6.89	
<u>COAL</u> , mainly dull with minor bright bands, pyrite ,)
core broken.	1.35	142.27	0.78)
dull and bright, core broken.	0.19	142.46	0.11)
mainly dull with minor bright bands, core broken.	0.40	142.86	0.23)
SILTSTONE, grey.	0.51	143.37	0.21)
<u>COAL</u> , mainly dull with minor bright bands.	1.21	144.58	0.70)

BIRD SEAM

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull.	2.82	147.40	1.63)	BIRD SEAM
dull and bright, pyrite .	0.52	147.92	0.30)	
MUDSTONE, dark grey, some silty interbeds and coaly partings. Bedding angle 40° to core axis.	1.11	149.03	1.11)	
<u>COAL</u> , mainly dull with minor bright bands.	0.55	149.58	0.32)	
SANDSTONE, grey, medium grained, quartz-lithic, some silty interbeds, mottled with worm casts and tracks. Bedding angle 50° to core axis.	17.77	167.35	17.28	
SANDSTONE, grey, medium grained, finer and coarser phases, quartz-lithic, silty interbeds.. Bedding angle 50° to core axis. Some fractures at 38° to core axis and opposed to bedding.	4.20	171.55	4.08	
SANDSTONE, grey, fine to medium grained, mudstone interbeds, mudstone and pebble conglomerate phases, core broken in parts. Bedding angle 42° to core axis.	3.90	175.45	3.79	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic. Bedding angle 48° to core axis, fractures and calcite veins 33° to core axis and opposed to bedding direction.	9.72	185.17	9.45	
SANDSTONE, as above, fractures at a wide range of angles. At base 1.65' of core with considerable irregular calcite veining.	12.76	197.93	12.41	
MUDSTONE, dark grey, core badly broken.	5.82	203.75	5.66	
MUDSTONE, dark grey, core broken, fretting when dry.	15.31	219.06	14.89	
CLAYSTONE, brownish grey.	0.26	219.06	0.25	
CLAYSTONE, grey (pale), talc-like, fragmented.	0.08	219.40	0.08	
MUDSTONE, dark grey.	0.36	219.76	0.35	
CLAYSTONE, pale grey, talc-like, fragmented.	0.27	220.03	0.26	
SANDSTONE, black at top, becoming grey after 2', medium grained, quartz-lithic, glauconitic, one sub-vertical calcite vein.	2.97	223.00	2.88	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, as above, further sub-vertical calcite veins.	6.05	229.05	5.88	
<u>COAL</u> , mainly dull with minor bright bands, pyrite .	1.12	230.17	0.45	
SILTSTONE, grey, powdered, This may possibly represent extraneous material included by the drillers.	1.93	232.10	1.93	
<u>COAL</u> , dull, to mainly dull with minor bright bands, core badly broken and pieces mixed:	2.56	234.66	1.03	
MUDSTONE, grey, coaly wisps. Bedding angle begins horizontal, but by 1' depth becomes 58° to core axis.	2.80	237.46	2.61	
SANDSTONE, grey, medium grained, quartz-lithic.	7.40	244.86	6.89	
SANDSTONE, as above, worm casts .1.5' from top, a few oblique calcite veins in top 3'. Some current bedding. Phases of coarser material tending to be brecciated at 11.1', 14.7' from top, and rounded pebbles at 13.5' and 11.5' from top.	19.47	264.33	18.70	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, oblique minor calcite veins at 14° to core axis. Bedding 60° to core axis.	41.27	305.60	41.01	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, irregular; worm casts. Bedding angle 55°, mudstone breccia fragments, sandstone phase (0.13') near base.	19.81	325.41	19.67	
SANDSTONE, brownish grey, fine and medium grained phases, quartz-lithic, some silty interbeds. Irregular coaly masses at base.	7.72	333.13	7.67	
CLAYSTONE, carbonaceous, coaly wisps and one coaly pennyband at base.	0.14	333.27	0.14	
SILTSTONE, darkish grey, sandy interbeds, becoming carbonaceous.	0.30	333.57	0.30	
SANDSTONE, grey (dark at top), medium grained, quartz-lithic, carbonaceous at top.	1.68	335.25	1.67	

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, silty interbeds, worm casts.	2.03	337.28	2.02	
SANDSTONE, brownish grey, fine at top, becoming medium grained, quartz-lithic.	2.50	339.78	2.48	
SANDSTONE, brownish grey, medium grained, becoming fine grained 1.72' from top above which is layer of brecciated siltstone fragments.	2.80	342.58	2.78	
SILTSTONE, grey, interbedded with dark grey mudstone, becoming muddier towards base.	6.21	348.79	6.17	
SANDSTONE, grey, very fine grained, with numerous silty interbeds.	1.50	350.29	1.49	
SANDSTONE, grey, fine grained, quartz-lithic, silty interbeds and lenses, coaly masses in basal 1.3'.	8.43	358.72	8.37	
SANDSTONE, grey, brownish grey in top half, fine and medium grained phases, quartz-lithic, some silty interbeds, coaly wisps and irregular masses mainly towards base, slump structure 4' from top.	19.11	377.83	18.99	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine to medium grained, quartz-lithic, coaly wisps, irregular masses and partings, slickensides along oblique fractures at maximum of 40° to core axis.	7.80	385.63	7.75	
CLAYSTONE, grey.	1.17	386.80	1.16	
SANDSTONE, grey, very fine grained, silty interbeds.	0.22	387.02	0.22	
CLAYSTONE, brownish grey, becoming carbonaceous.	1.17	388.19	1.10	
<u>COAL</u> , mainly dull with minor bright bands.	0.56	388.75	0.41)
SILTSTONE, dark grey, irregular coaly masses.	0.69	389.44	0.69)
<u>COAL</u> , mainly dull with minor bright bands where identification possible, many shear fractures oblique to core axis.	3.63	393.07	2.48	) SKEETER SEAM
bright.	0.18	393.25	0.12	) upper plat
SILTSTONE, grey, a very fine light grey sandstone phase towards base, coaly wisps and irregular masses, calcite veins and minor fracturing and distortion of bedding near base.	3.08	396.33	3.24)

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands, core broken.	2.75	399.08	0.25)	SKEETER SEAM)
SILTSTONE, grey, with mudstone interbeds, bedding at 60° to core axis, some minor slumping, core broken in top 0.25', irregular coaly masses.	4.15	403.23	4.10	upper plat
SANDSTONE, grey, fine grained, silty interbeds.	0.70	403.93	0.69	
SANDSTONE AND MUDSTONE INTERBEDS, sandstone fine, grey with interbeds of siltstone, darker grey, occasional fine sandy phases. Bedding 50° to core axis.	5.23	409.16	2.35	
CLAYSTONE, dark grey.	0.51	409.67	0.50	
SANDSTONE AND MUDSTONE INTERBEDS, as above.	2.91	412.58	2.88	
CLAYSTONE, dark grey.	0.36	412.94	0.36	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded (laminite). Bedding angle 50° approx. to core axis.	3.93	416.87	3.89	
CLAYSTONE, dark grey.	0.35	417.22	0.35	

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, as above.	0.56	417.78	0.55	
CLAYSTONE, dark grey.	0.22	418.00	0.22	
SILTSTONE AND MUDSTONE INTERBEDS, as above.	0.21	418.31	0.21	
SILTSHALE, grey, dark coloured silty or mudstone interbeds. Bedding angle 50° approx. to core axis.	3.39	421.60	3.35	
<u>COAL</u> , mainly bright with minor dull bands, pennyband mudstone 0.13' from top.	1.16	422.76	0.95)
<u>COAL</u> , dull to coal stony.	0.23	422.99	0.19)
mainly bright with minor dull bands, core broken.)
Coal types difficult to determine.				) CHAMBERLAIN SEAM
	10.62	433.61	8.73	) upper plate
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous at top and containing irregular coaly masses. Some coaly partings, some oblique.	5.54	439.15	5.53	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine to medium grained, quartz-lithic, silty interbeds finer towards middle, brecciated mudstone fragments 0.56' from base. Bedding angle 55° to core axis.	43.04	482.19	42.91	
SANDSTONE AND MUDSTONE INTERBEDS, very fine grey sandstone and dark grey mudstone, interbedded; some minor sedimentary structures.	1.96	484.15	1.95	
SANDSTONE, brownish grey, very fine grained, quartz-lithic.	2.30	486.45	2.29	
SANDSTONE AND MUDSTONE INTERBEDS, sandstone, grey, very fine grained and mudstone, dark grey, interbedded, worm casts., Bedding angle 55°, calcite veins at base.	5.00	491.45	4.99	
SANDSTONE, grey, very fine grained, quartz-lithic..	3.04	494.49	3.03	
MUDSTONE, dark grey.	0.14	494.63	0.14	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, as above.	0.72	495.35	0.72	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey, and mudstone dark grey interbedded; mudstone brecciated fragments, worm casts, some medium and coarse grained phases towards base.	12.56	507.91	12.52	
SANDSTONE, grey, medium becoming fine grained, quartz-lithic, minor oblique calcite veins.	7.48	515.39	7.46	
SANDSTONE, grey, fine to very fine grained, quartz-lithic,	19.10	534.49	19.04	
SANDSTONE, as above, mudstone phase 11.20' from top. Bedding angle 54° from core axis.	19.23	553.72	19.17	
SANDSTONE, as above, occasional mudstone fragments, calcite veins towards base parallel to bedding.	12.72	566.44	12.68	
SANDSTONE, as above, but numerous cracks and cavities (irregular) filled with calcite, core broken. Slickensides.	2.04	568.48	2.03	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, a few minor calcite veins.	0.80	569.28	0.80	
CONGLOMERATE, granule, greenish grey, varied lithology in granules, one mudstone band.	0.29	569.57	0.29	
SILTSTONE, brownish grey.	0.17	569.74	0.17	
CONGLOMERATE, greenish grey, granule, calcite-rich zone with mudstone interbeds in bottom 0.07'.	0.43	570.17	0.43	
MUDSTONE, dark grey, siltstone interbeds, complex calcitic veining at top and base, some minor displacement in bedding and veins.	1.26	571.43	1.26	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, numerous calcite veins (irregular). Bedding contorted in part and some oblique displacement - 20° to core axis - 8.0' from top. Base lies along oblique fracture in sandstone (35°). Bedding angle 55°.	9.09	580.52	9.06	
SANDSTONE, brownish grey, very fine grained, numerous fine calcite veins. Bedding angle 0°.	0.85	581.37	0.85	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, numerous irregular calcite veins, some displacement.	2.09	583.46	2.08	
SANDSTONE, brownish grey, very fine grained, some calcite veins.	1.48	584.93	1.48	
SILTSTONE, grey, mudstone interbeds and phases, minor calcite.	0.54	585.48	0.54	
SANDSTONE, grey, fine grained, numerous irregular calcite veins.	0.74	586.22	0.74	
MUDSTONE, dark grey with siltstone and sandstone phases, minor calcite, slickensides.	3.95	590.17	3.95	
MUDSTONE, dark grey.	1.44	591.61	1.44	
SILTSTONE, grey, irregular interbeds of mudstone, one oblique calcite infilling of a fracture containing brecciated fragments, minor displacement, becomes muddier to base.	4.22	595.83	4.21	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
LAMINITE, siltstone light grey and mudstone dark grey. Some calcite veining and slickensides along bedding planes, core broken. Bedding angle 60°.	12.21	608.04	12.19	
<u>COAL</u> , mainly bright with minor dull bands, core broken.	0.59	608.63	0.37)
SHALE, grey to dark grey, becoming carbonaceous, some fine discontinuous wisps of white mineral parallel to bedding, core broken.	0.47	609.10	0.30	) CHAMBERLAIN SEAM) lower plate
<u>COAL</u> , mainly bright with minor dull bands, core broken in part.	10.83	619.93	6.12)
SANDSTONE, grey, fine grained, quartz-lithic, some coaly blebs and wisps, some oblique fractures and a few coaly wisps, carbonaceous at top.	11.63	631.56	11.68	
SANDSTONE, grey, fine grained, quartz-lithic, some current bedding. Bedding angle 66°.	18.88	650.44	18.96	
SANDSTONE, as above, two thin mudstone phases in bottom 1.6'	15.42	665.86	15.49	

SUKUNKA D.D.H. C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE AND MUDSTONE INTERBEDS, sandstone grey, fine grained, and mudstone dark grey interbedded.	3.56	669.42	3.57	
SANDSTONE, grey, very fine grained.	2.79	672.21	2.80	
SANDSTONE AND MUDSTONE INTERBEDDED, sandstone, grey, very fine grained, and mudstone dark grey, rather irregular, sandy phases, worm casts.	16.05	688.26	16.12	
INTERBEDS, as above, with coarse sandstone instead of fine in basal 0.7'.	1.84	690.10	1.85	
SANDSTONE, dark grey at top, becoming light grey, fine grained, Bedding angle 64°.	17.31	707.41	17.38	
SANDSTONE, grey, fine grained, mudstone phase near base.	19.02	726.43	19.10	
SANDSTONE, as above (no mudstone phase), mudstone interbeds (0.42') 2' from base. Occasional bands of brecciated mudstone.	19.07	745.50	19.15	

SUKUNKA D.D.H: C-2

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, massive in top 1', occasional fragments and bands of fragments of brecciated mudstone.	4.74	750.24	4.76	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; worm casts, one calcite vein parallel to bedding (0.03' wide).	1.17	751.41	1.17	
SANDSTONE, grey, fine grained, siltstone and some mudstone phases and interbeds, worm casts, slumping, minor calcite. Bedding angle 70°.	13.10	764.51	13.16	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; fine sandy phases, worm casts and brecciated mudstone fragments, vague and irregular bedding planes.	19.14	783.65	19.21	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; worm casts and brecciated mudstone fragments. Bedding angle 65°.	16.35	800.00	16.42	<u>Base of Hole</u>

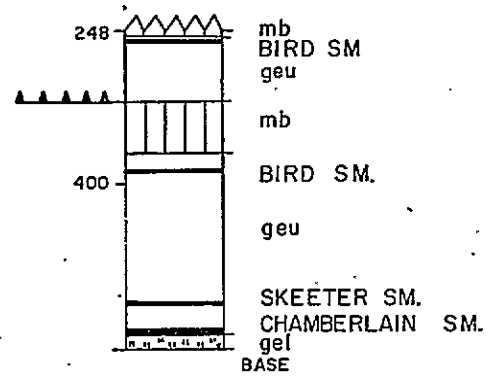
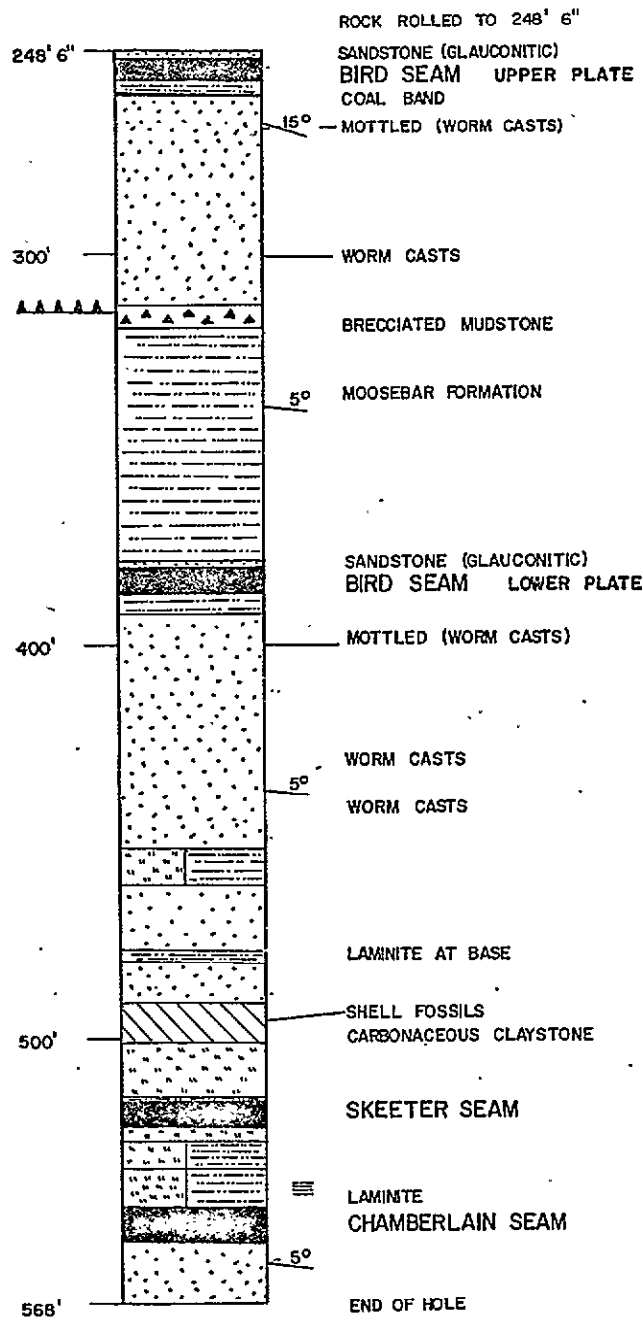
Grid Reference 40601.5 N 83369.9 E
Exploration Grid Reference F+300'N/1+400'E

Date Commenced 30 July 71 Completed 8 Aug 71

Collar R.L. 4138.8 ft. Standard Datum
Total Depth 567.75 ft. Electrically Logged Yes/~~NA~~
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3617.13	5.69	63%	
Chamberlain	3588.08	8.55	79%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-3

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
515.98	2.53	-	23.3	4½		
518.51						
518.80	0.29					
519.46	0.66					
520.47	1.01	-	92.6	0		
521.67	1.20	-	15.8	5		

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-3

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
542.15	0.01 = 0.01					
542.16	0.63	-	64.2	0		
542.17					9.2	
	1.97					
	0.64					
	0.36					
	0.66					
	0.22					
	1.02	100.0	9.2	7		
	0.49					
	1.01					
	0.70					
	0.83					
550.70	0.01 = 0.01					
550.71						
550.72						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-3

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLE NOS. 13, 14, 15, 16, 17
CORE NO. C3
SKEETER SEAM

REPORT NO. K71-1623

DATE RECEIVED: 12. 11. 71

DATE REPORTED: 17. 11. 71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bralley
A.R.A. Chief Chemist

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

[Signature]

INTRODUCTION:

Two (2) coal samples and one (1) non coal ply designated Hole C3 Skeeter Seam were received on 12.10.71 from Clifford McElroy & Associates.

METHODS:

1. The non coal sample, No. 16, was weighed, prepared and analysed for Ash and true specific gravity.

2. The good quality coal samples, nos. 13-15, 17 were hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 S.G. in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for Ash and crucible swelling number and the composite raw coal sample re-constituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample no. 13-15 and the analysis are given in this report.

COMMENTS:

Due to the relatively high core losses on drilling, no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

FIGURE 1: is the graphic log of the core.

TABLES 1 - 2: give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ ".

SHEET THREE ATTACHED:

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 13 + 14 + 15 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30	329	22.5	2.9	7 $\frac{1}{2}$	22.5	2.9	7 $\frac{1}{2}$
S1.30 - F1.35	475	32.5	5.5	7	55.0	4.4	7
S1.35 - F1.40	192	13.1	10.2	2 $\frac{1}{2}$	68.1	5.5	6 $\frac{1}{2}$
S1.40 - F1.45	94	6.4	15.7	1 $\frac{1}{2}$	74.5	6.4	6
S1.45 - F1.50	16	1.1	20.5	1 $\frac{1}{2}$	75.6	6.6	6
S1.50 - F1.55	26	1.8	28.6	1	77.4	7.1	6
S1.55 - F1.60	20	1.4	31.6	1	78.8	7.6	5 $\frac{1}{2}$
S1.60	311	21.2	81.7	0	100.0	23.3	4 $\frac{1}{2}$
-30 Mesh RC	91	5.9	12.7	7 $\frac{1}{2}$			

TOTAL WEIGHT OF SAMPLE = 1,554 gms

TRUE S.G. = 1.520

SAMPLE NO. 16

TOTAL WEIGHT OF SAMPLE = 962 gms

ASH% = 92.6

TRUE S.G. = 2.516

TABLE 2: WASHABILITY DATA FOR SAMPLE NO. 17 (after hand crushing to $-\frac{3}{4}$ ")

F1.30	127	28.9	3.3	8 $\frac{1}{2}$	28.9	3.3	8 $\frac{1}{2}$
S1.30 - F1.35	107	24.4	6.7	7 $\frac{1}{2}$	53.3	4.9	8
S1.35 - F1.40	96	21.9	11.7	1 $\frac{1}{2}$	75.2	6.8	6
S1.40 - F1.45	26	5.9	15.5	1 $\frac{1}{2}$	81.1	7.5	6
S1.45 - F1.50	7	1.6	21.4	1 $\frac{1}{2}$	82.7	7.7	6
S1.50 - F1.55	10	2.3	28.4	1	85.0	8.3	5 $\frac{1}{2}$
S1.55 - F1.60	4	0.9	33.3	1	85.9	8.6	5 $\frac{1}{2}$
S1.60	62	14.1	59.5	$\frac{1}{2}$	100.0	15.8	5
-30 Mesh RC	50	10.2	11.7	8			

TOTAL WEIGHT OF SAMPLE = 489 gms

TRUE S.G. = 1.481

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION OF SAMPLE (13 - 15)

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	CV(BTU/lb)
78.8	1.0	7.7	22.0	69.3	0.59	6	14,510

SYDNEY

17th November, 1971.

K71-1623

COALITION MINING

SUMUNKA G3
(SKEETER BEAM)

	SPLE	THICK ^s	ASH%	CSN ^s
6'				
4'	{ 13 14 15	3.48	22.3	4 1/2
2'	16	1.01	92.6	0
0	17	1.20	15.8	5

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

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Scottish House,
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Certification

This is to Certify

APPLICANT:

COALITION MINING,
C/o AUSTEN & BUTTA LIMITED,
43rd Level, Tower Building,
Australia Square,
SYDNEY. 2000

SUBJECT:

SUKUNKA D.D.H. 3
CHAMBERLIAN SEAM

REPORT NO.

K71 - 1384

DATE RECEIVED:

6. 9. 71

DATE REPORTED:

16. 9. 71



N.S.W. Reg. No. 554
QLD. Reg. No. 637

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Australia. The tests reported herein have
been performed in accordance with its
terms of registration.

M Bradley
Chief Chemist.
A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

D. J. Donald

INTRODUCTION:

One (1) coal ply and one (1) non-coal ply designated SUKUNKA DDH 3 were received on 6.9.71 from Clifford McElroy & Associates.

METHOD:

The non-coal ply was hand crushed through $\frac{3}{4}$ "¹¹, sized at 30 mesh BSS and the + 30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity.

The float and sink fractions and raw -30 mesh material were weighed, prepared and analysed as detailed in this report. A composite sample was prepared and its specific gravity determined.

The coal ply was hand crushed to $\frac{3}{4}$ "¹¹, top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.20 SG to 1.60 SG in 0.05 steps.

The float and sink fractions and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report. The weights were adjusted where necessary to compensate for core loss.

RESULTS:

Figure 1: gives the graphic log of the core.

Tables 1 & 2: give the sizing, washability and analytical data for each ply after hand crushing to $-\frac{3}{4}$ "¹¹.

Table 3: gives the washability data necessary for the construction of the washability curves.

The curves and the analysis of the floats 1.60 SG fraction of Ply 2 are included in this report.

SHEET THREE ATTACHED:

TABLE 1: WASHABILITY DATA FOR PLY NO. 1 (after crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.(calc)
F1.60 SG	9	17.6	23.2	2	17.6	23.2	2
S1.60 SG	42	82.4	72.9	0	100.0	64.2	0
-30 Mesh RC	5	20.3	32.9	2			

SPECIFIC GRAVITY OF PLY 1 = 1.96

TABLE 2: WASHABILITY DATA FOR PLY NO. 2 (after crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.(calc)
F1.20 SG	NIL	NIL	--	--	--	--	--
S1.20 - F1.25	NIL	NIL	--	--	--	--	--
S1.25 - F1.30	2092	47.1	2.0	9	47.1	2.0	9
S1.30 - F1.35	1378	31.1	5.1	7	78.2	3.2	8
S1.35 - F1.40	280	6.3	8.8	3	84.5	3.6	8
S1.40 - F1.45	97	2.2	15.7	1 $\frac{1}{2}$	86.7	4.0	8
S1.45 - F1.50	44	1.0	18.4	1 $\frac{1}{2}$	87.7	4.1	7 $\frac{1}{2}$
S1.50 - F1.55	8	0.2	21.0	1	87.9	4.2	7 $\frac{1}{2}$
S1.55 - F1.60	64	1.4	28.5	1 $\frac{1}{2}$	89.3	4.5	7 $\frac{1}{2}$
S1.60	474	10.7	47.7	0	100.0	9.2	7
-30 Mesh RC	29	0.6	5.0	9			

SPECIFIC GRAVITY OF PLY 2 = 1.36

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF PLY NO. 2

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	P. %	CV(BTU/1b)
89.3	1.5	4.5	21.9	72.1	0.45	8	0.030	15,000

SYDNEY

17th September, 1971.

SHEET FOUR ATTACHED:

TABLE 3: DATA NECESSARY FOR CONSTRUCTION OF WASHABILITY CURVES

FRACTION	INDIVIDUAL WT. % ASH%	CUM. FLOATS		CUM. SINKS		±0.10 SG, 'D'	
		WT. %	ASH%	WT.%	ASH%	WT.%	ASH%
F1.20	NIL --	NIL	--	--	--	--	--
S1.20 - F1.25	NIL --	NIL	--	--	--	--	--
S1.25 - F1.30	47.1 2.0	47.1	2.0	100.0	9.2	--	23.6
S1.30 - F1.35	31.1 5.1	78.2	3.2	52.9	15.5	--	62.7
S1.35 - F1.40	6.3 8.8	84.5	3.6	21.8	30.4	40.6	81.4
S1.40 - F1.45	2.2 15.7	86.7	4.0	15.5	39.2	9.7	85.6
S1.45 - F1.50	1.0 18.4	87.7	4.1	13.3	43.1	4.8	87.2
S1.50 - F1.55	0.2 21.0	87.9	4.2	12.3	45.1	--	87.8
S1.55 - F1.60	1.4 28.5	89.3	4.5	12.1	45.5	--	88.6
S1.60	10.7 47.7	100.0	9.2	10.7	47.7	--	94.7

SYDNEY
17th September, 1971.

K71-1384

COALITION MINING

SUKUNKA DDH 3

	PLY	THICK ^s	WT%	ASH%	CON ^o	ASH ^o cum
8	1	0.65	-	64.2	0	9.2
6						
4	2	7.92	100.0	9.2	7	
2						
0						

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
Fault, established	<u>COAL.</u>	GETHING FM.	325.0
	SANDSTONE, coaly wisps, mudstone 2 feet from base.	SKEETER SM.	340.5
	MUDSTONE.		341.0
	<u>COAL.</u>	SKEETER SM.	354.0
	SILTSTONE, mudstone phases.		360.0
	SILTSTONE AND MUDSTONE INTERBEDDED.		364.5
	LAMINITE, siltstone and mudstone, mudstone at base.		374.0
	<u>COAL.</u>	CHAMB. SM.	380.5
	SANDSTONE, carbonaceous.		383.0
	<u>COAL.</u>		383.5
	SANDSTONE.		406.5
	<u>COAL.</u>		407.0
	SANDSTONE, mottled (worm casts) - 414'.		426.0
			<u>Base of Hole</u>

STRATIGRAPHIC LOG
SUKUNKA D.D.H. - C3

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	Rock rolled to 248.5 ft.		
	SANDSTONE, glauconitic.	MOOSEBAR FM.	249.5
	<u>COAL.</u>	GETHING FM.	255.0
	MUDSTONE, dark grey.	BIRD SEAM	259.0
	SANDSTONE, grey, medium grained, finer to base. Coal band at top, mottled (worm casts) at 265', worm casts at 300'.		312.0
Fault, established	MUDSTONE, dark grey, brecciated.		318.0
	MUDSTONE, dark grey.	MOOSEBAR FM.	379.0
	SANDSTONE, dark grey, glauconitic.		380.0
	<u>COAL.</u>	GETHING FM.	386.0
	MUDSTONE, dark grey.		391.0
	SANDSTONE, grey, medium grained, becoming finer to base, mottled (worm casts) at 399', worm casts at 428' and 443'.		452.0
	SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey.		461.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	SANDSTONE, grey, medium grained, silty wisps.		477.0
	SANDSTONE, grey, medium grained, silty wisps and interbeds.		495.0
	CLAYSTONE, carbonaceous, shell fossils at top.		501.0
	SILTSTONE, grey, sandy interbeds, disturbed bedding, mudstone band at base.		516.0
	<u>COAL.</u>	SKEETER SM.	522.0
	SILTSTONE, grey, sandy phases.		526.0
	SILTSTONE AND MUDSTONE INTERBEDS.		533.0
	LAMINITE, siltstone and mudstone grey.		543.0
	<u>COAL.</u>	CHAMB. SM.	551.0
	SANDSTONE, grey, medium grained quartz lithic.		568.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
No core, tri-cone roller bit to 248.50 ft..		248.50		
SANDSTONE, grey, fine to medium grained, lithic, glauconitic, one siltstone interbed, a few pebbles to 0.04' in size.	0.89	249.39	0.89	
<u>COAL</u> , dull and bright.	0.09	249.48	0.08	
<u>COAL</u> and SILTSTONE INTERBEDDED, lenses and irregular masses of siltstone in coal.	0.21	249.69	0.18	
<u>COAL</u> , mainly dull with minor bright bands, nodules of pyrite.	2.45	252.14	2.11	
MUDSTONE, grey, becoming carbonaceous to base.	0.65	252.79	0.56	
<u>COAL</u> , mainly dull with minor bright bands, pyrite.	0.58	253.37	0.50	
dull and bright.	0.93	254.30	0.80	
mainly dull with minor bright bands.	0.70	255.00	0.60	
CLAYSTONE, dark grey, one carbonaceous band (0.03') and irregular coaly masses.	0.46	255.46	0.46	

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, grey, fine siltstone interbeds.	2.95	258.41	2.93	
<u>COAL</u> , mainly dull with minor bright bands, pyritic nodules near top and bottom.	0.39	258.80	0.39	
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top, irregular coaly masses near top, worm casts near base.	7.45	266.25	7.39	
SANDSTONE, grey, medium to fine grained, quartz-lithic, worm casts (?) in upper 3', some current bedding, some siltstone interbeds.	18.98	285.23	18.83	
SANDSTONE, grey, fine grained, quartz-lithic, a few siltstone interbeds and worm casts.	19.07	304.30	18.93	
SANDSTONE, grey, fine grained, quartz-lithic; at top, bedding and splitting, with slickensides at approx 90° to core axis; towards base, calcite veins become more numerous and less restricted to bedding and fracture planes, fractures at 55° to core axis near base.	8.70	313.00	8.63	
CLAYSTONE, grey, core badly broken, extensive slickensides, fracture planes from 15° to 50° to core axis, some calcite.	7.59	320.59	7.37	

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, minor siltstone interbeds and pyrite, one claystone horizon 0.07' thick, 6.25' from base.	19.06	339.65	18.50	MOOSEBAR FORMATION
MUDSTONE, as above, but with no clay, one siltstone band (0.04') 2.05' from base.	19.24	358.89	18.68	
MUDSTONE, as above, no siltstone bands, nodules, crystals and wisps of pyrite more abundant.	18.65	377.54	18.11	
SILTSTONE, grey, worm casts in upper part, talc-like partings at base.	0.41	377.95	0.40	
MUDSTONE, grey, becoming talc-like towards base.	0.70	378.65	0.68	
CLAY, white, friable when dry, contains fragments of talc-like mudstone.	0.26	378.91	0.25	
SILTSTONE, grey, glauconitic.	0.69	379.60	0.67	
<u>COAL</u> , mainly bright with minor dull bands.	3.37	382.97	2.73	
CLAYSTONE, dark grey, becoming carbonaceous. Some fine discontinuous calcite veins following the direction of oblique fractures.	1.38	384.38	1.12	

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright, fragmented.	0.25	384.60	0.20	
CLAYSTONE, as above.	0.52	385.12	0.42	
<u>COAL</u> , mainly bright with minor dull bands.	1.40	386.52	1.13	
MUDSTONE, grey, fine siltstone interbeds, becoming siltshale at base.	5.29	391.81	5.29	
<u>COAL</u> , bright.	0.08	391.89	0.08	
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous at top, three pennybands coal in top 0.07'.	4.56	396.45	4.56	
SANDSTONE, grey, fine grained, quartz-lithic, a few siltstone interbeds, current bedding.	18.86	415.31	18.85	
SANDSTONE, as above. Some worm casts in lower quarter.	18.74	434.05	18.73	
SANDSTONE, as above, with worm casts in mid-section, a few siltstone interbeds towards base.	17.93	431.98	17.92	

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, banded with stony siltstone interbeds. Some contemporary dislocation of sandstone between siltstone bands.	0.33	452.31	0.33	
SANDSTONE, grey, very fine grained, quartz-lithic, numerous siltstone interbeds with load casts, worm casts and other irregular sedimentary structures. Bedding angle 87° to core axis.	8.95	461.26	8.94	
SANDSTONE, grey, fine grained; quartz-lithic, becoming medium grained in bottom 1.4' and containing coaly wisps and irregular masses, occasional irregular siltstone masses.	7.02	468.28	6.97	
SILTSTONE, grey, with mudstone interbeds.	0.50	468.78	0.40	
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps.	7.92	476.70	6.39	
MUDSTONE, dark grey, some fine siltstone interbeds in mid-section.	3.54	480.24	3.20	
SANDSTONE, grey, fine grained, quartz-lithic, siltstone interbeds, coaly wisps. Bedding angle 85° to core axis.	11.52	491.76	9.13	

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, dark grey, with fine grey sandstone interbeds and phases. Bedding angle 88° to core axis.	3.69	495.45	3.55	
CLAYSTONE, dark grey, carbonaceous, coaly bands and lenses, one siltstone band followed by a band of irregular calcitic masses 0.15' from top.	4.89	500.34	4.70	
<u>COAL</u> , mainly dull with minor bright bands.	0.19	500.53	0.18	
CLAYSTONE, dark grey, carbonaceous.	0.27	500.80	0.26	
SANDSTONE, grey, very fine to medium grained, numerous siltstone interbeds and phases of irregular shape, current bedding.	7.59	508.39	7.30	
SANDSTONE, grey, fine to very fine grained, quartz-lithic, siltstone interbeds. Bedding angle 86° to core axis.	4.64	513.03	4.46	
SILTSTONE, grey, fine sandstone and darker grey siltstone interbeds becoming less numerous towards base.	2.85	515.88	2.74	
CLAYSTONE, grey-brown, carbonaceous.	0.10	515.98	0.10	

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright with dull bands, core broken.	2.53	518.51	1.96)
MUDSTONE, grey, some fine siltstone interbeds and coaly wisps, slickensides towards top.	0.29	518.80	0.22)
<u>COAL</u> , mainly bright with minor dull bands.	0.66	519.46	0.51)
MUDSTONE, grey, calcite veins at base.	1.01	520.47	0.78)
<u>COAL</u> , mainly bright with minor dull bands, core broken, pennyband shale 0.37' from base.	1.20	521.67	0.93)
CLAYSTONE, dark grey, coaly pennyband at base.	0.27	521.94	0.27)
MUDSTONE, grey, irregular siltstone interbeds.	1.37	523.31	1.31)
SANDSTONE, grey, fine grained, quartz-lithic, numerous siltstone interbeds.	2.23	525.54	2.14)
SILTSTONE, grey, numerous mudstone interbeds, irregular minor sedimentary structures.	2.83	528.37	2.71)
SILTSTONE, grey, composed of brownish grey siltstone with fine interbeds of dark grey mudstone)

SKEETER SEAM

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
(laminae). Bedding angle 85° to core axis.	5.73	534.10	5.49)
CALCITE, white, opaque. An oblique band.	0.03	534.13	0.03)
SILTSTONE, as above. Serpentinised partings above and below marker block for about 1.00', immediately above marker block, best developed and oblique to bedding.	8.02	542.15	7.67)
<u>COAL</u> , dull.	0.01	542.16	0.01)
SILTSTONE, grey, composed of closely spaced fine lenses.	0.01	542.17	0.01)
<u>COAL</u> , dull.	0.63	542.80	0.63)
mainly dull with minor bright bands.	1.97	544.77	1.97)
dull and bright.	0.64	545.41	0.64)
dull.	0.36	545.77	0.36)
dull and bright.	0.66	546.43	0.66)
mainly bright with minor dull bands.	0.22	546.65	0.22)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-3

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	1.02	547.67	1.02)
dull and bright.	0.49	548.16	0.49)
mainly dull with minor bright bands.	1.01	549.17	1.01)
mainly bright with minor dull bands.	0.70	549.87	0.70	) CHAMBERLAI SEAM
bright, core badly broken.	0.83	550.70	0.83)
<u>SILTSTONE</u> , dark grey.	0.01	550.71	0.01)
<u>COAL</u> , bright.	0.01	550.72	0.01)
<u>SANDSTONE</u> , grey, medium grained, quartz-lithic, carbonaceous at top. Bedding angle 85° to core axis.	13.26	563.98	13.26	
<u>SANDSTONE</u> , as above, Some cross bedding. Bedding angle approximately 80° to core axis.	3.75	567.73	3.75	
				<u>Base of Hole</u>

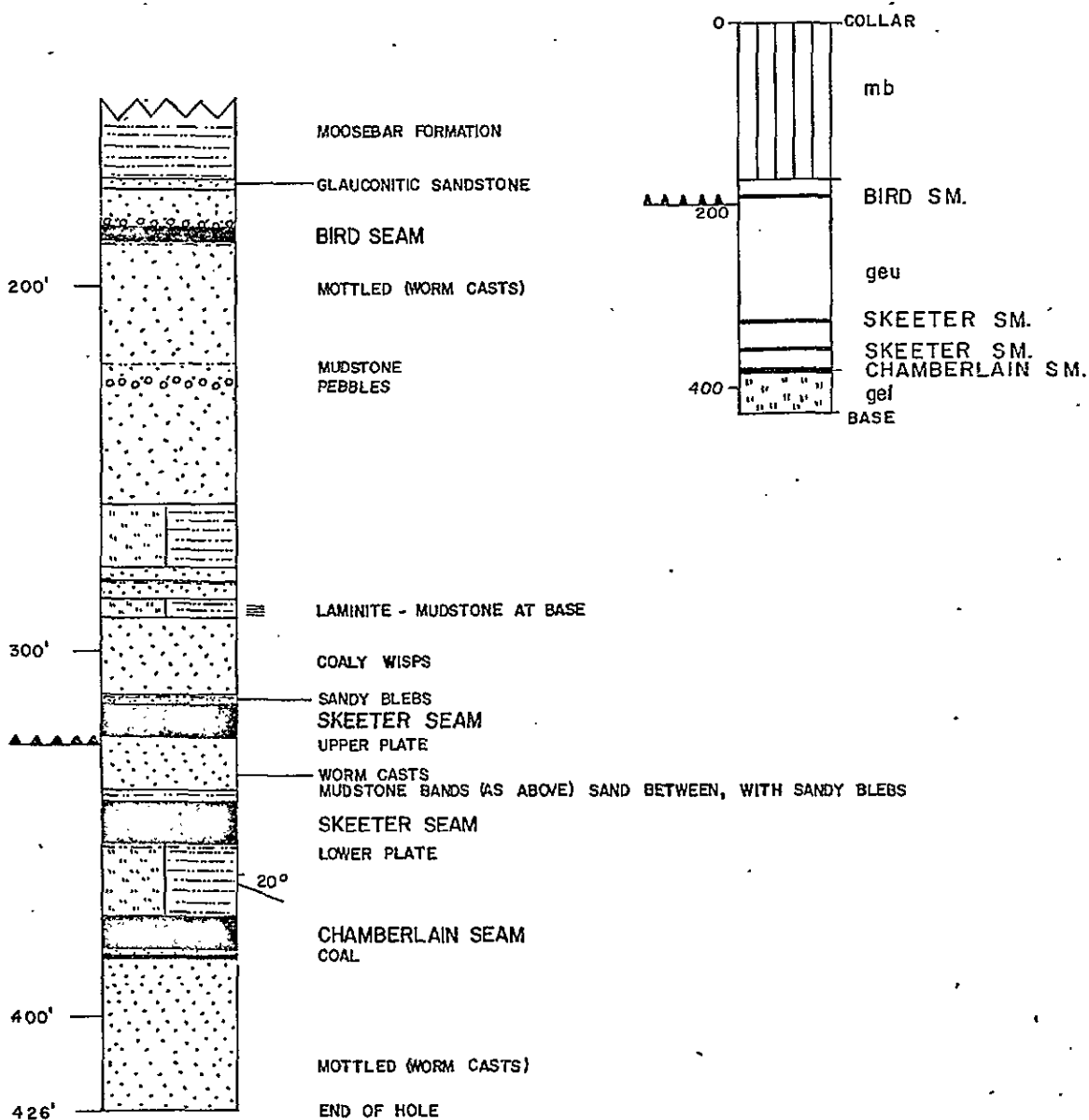
Grid Reference 49053.3 N 80665.9 E
Exploration Grid Reference B+1000'N/2+1000'E

Date Commenced 31 July 71 Completed 2 Aug 71

Collar R.L. 4158.3 ft. Standard Datum
Total Depth 426 ft. Electrically Logged Yes/~~NA~~
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt & G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter Upper Plate	3833.01	7.71	29%	Faulted
Skeeter Lower Plate	3804.74	11.90	59%	
Chamberlain Lower Plate	3777.80	6.61	88%	



DETAIL OF GETHING
FORMATION
SCALE 1" to 50'

SCALE : 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-4

DRAWN BY S.A.

DATE January '72

PAGE 1 of 1

SKEETER. SEAM
UPPER PLATE

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
315.52						
315.95	0.43					
316.43	0.48					
316.74	0.31	-	77.3	1		
316.98	0.24					
317.34	0.36					
317.58	0.24					
	7.71	-	4.5	7½		
325.29						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-4

DRW BY TR

DATE 24/11/71

SCALE: 1"=2'

PAGE 1 of 1

SKEETER SEAM
LOWER PLATE

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
340.66 340.84 340.89 340.97 341.54	0.18 = 0.05 = 0.08	-	79.2	½	
	0.57				12.0
	10.35				
351.89 352.19	0.30	-	92.1	0	
	1.37				
353.56					

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for
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SEAM SECTIONS
DDH C-4

DRW BY TR

DATE 23/11/71

SCALE: 1"=2'

PAGE 1 of 1

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
373.89	0.40	-	73.0	0		
	1.44				7.2	
	0.49					
	0.81					
	0.84	100.0	7.2	6		
	0.60					
	0.37					
	0.62					
	0.26					
	0.26					
	0.44					
	0.04 = 0.04					
380.42						
380.46						
380.50						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-4

DRW BY TR

DATE 22/11/71

SCALE: 1" = 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NOS. 1, 2, 3
CORE NO. C4
SKEETER ~~(UPPER)~~ SEAM (UPPER PLATE)

REPORT NO. K71-1635

DATE RECEIVED: 12. 10. 1971

DATE REPORTED: 17. 11. 1971



This Laboratory is Registered by the National Association of Testing Authorities Australia. The tests reported herein have been performed in accordance with the terms of registration.

M. Bradley
A.R.A.C.I. Chief Chemist

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

INTRODUCTION:

Two (2) coal plies designated CORE NO. C4 SKEETER (UPPER) SEAM were received on 12. 10. 1971 from Clifford McElroy & Associates.

METHODS:

1. The visibly inferior coal sample No. 1 + 2 was hand crushed to $-\frac{3}{8}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

2. The good quality coal sample No. 3 was hand crushed to $-\frac{3}{8}$ " sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 specific gravity fraction was prepared for sample No. 3 and the analysis is also given in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the reconstruction of washability tables and graphs.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-2 : give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{8}$ "

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. (1+2) (after hand crushing to $-\frac{3}{8}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	129	11.2	14.2	8	11.2	14.2	8
S1.60 SG	1025	88.8	85.3	0	100.0	77.3	1
-30 Mesh RC	42	3.5	46.7	4			
Total Weight of Sample = 1196 grams							
True Specific Gravity = 2.151							

TABLE 2

WASHABILITY DATA FOR SAMPLE NO. 3 (after hand crushing to - $\frac{1}{8}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	742	54.6	2.0	9	54.6	2.0	9
S1.30 - F1.35 SG	411	30.2	4.3	7	84.8	2.8	8½
S1.35 - F1.40 SG	83	6.1	8.4	2½	90.9	3.2	8
S1.40 - F1.45 SG	56	4.1	13.4	1	95.0	3.6	7½
S1.45 - F1.50 SG	23	1.7	14.2	1	96.7	3.8	7½
S1.50 - F1.55 SG	18	1.3	17.6	1	98.0	4.0	7½
S1.55 - F1.60 SG	13	1.0	18.8	1	99.0	4.2	7½
S1.60 SG	14	1.0	40.4	½	100.0	4.5	7½
-30 Mesh RC	119	8.0	3.7	9			

Total Weight of Sample = 1.479 grams

True Specific Gravity = 1.338

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION
OF SAMPLE NO. 3

Yield %	99.0
Air Dried Moisture %	1.0
Ash %	4.3
Volatile Matter %	23.8
Fixed Carbon %	70.9
Total Sulphur %	0.35
C.S.NO.	8
Calorific Value	14490 BTU/LB

SYDNEY

17th November 1971

K71-1688

COALITION MINING

SUKUNKA CO.

(SHEETER UPPER BEAM)

	SPLE	THICK ^S	ASH [%]	CSN [%]
10'				
8'	11 12	206	77.3	1
6'				
4'	3	7.71	45	74
2'				
0				

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT:

COALITION MINING

SUBJECT:

SUKUNKA SAMPLES 4, 5, 6 and 7
CORE NO. C4
SKEETER SEAM (LOWER PLATE)

REPORT NO.

K71-1624

DATE RECEIVED:

12. 10. 71

DATE REPORTED:

18. 11. 71



This Laboratory is Registered by the
National Association of Testing Authorities,
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bradley

Chief Chemist.

A.R.A.C.I.

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. H. Davenport

INTRODUCTION: Four (4) ply samples designated CORE NO. C4 - SKEETER SEAM LOWER - were received on 12.10.71 from CLIFFORD MCELROY & ASSOCIATES PTY. LTD.

METHOD: Sample No. 6, a non coal ply, was weighed, prepared and analysed for ash and true specific gravity.

Sample No. 4, a coal/shale band, was hand crushed to $-\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity. The float and sink fractions and raw -30 mesh material were weighed, prepared and analysed as detailed in this report. A composite raw ply sample was prepared and the true specific gravity determined.

Samples 5 and 7 were combined for washability testing due to the small amount of coal present in sample 7 which was insufficient for full washability testing. As sample no. 6 was a stone band which could readily be removed by washing the quality of product obtained on washing the combined sample 5 & 7 would be indicative of the product obtained on washing the full seam i.e. samples 5, 6 and 7.

The combined sample was hand crushed, through $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh fraction washed in organic liquids from 1.30 S.G. to 1.60 S.G. in 0.05 steps. The float and sink fractions and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report.

A composite floats 1.60 S.G. fraction was prepared for the combined sample and analysed as detailed in this report.

A composite raw coal sample was reconstituted and the true specific gravity of the sample determined.

COMMENTS: Due to the high core losses experienced no adjustment has been made to the sample weights and further calculations and graphical data has been omitted.

RESULTS: FIGURE 1: is the graphic log of the core.
TABLES 1 & 2: give the sizing, washability and analytical data for the coal plies after hand crushing to $-\frac{3}{4}$ " .

SHEET THREE ATTACHED:

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 4 (after hand crushing to - $\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.60 SG	81	11.4	7.6	9	11.4	7.6	9
S1.60 SG	631	88.6	88.4	0	100.0	79.2	$\frac{1}{2}$
-30 Mesh RC	39	5.2	42.6	7			

TOTAL WEIGHT OF SAMPLE = 751 gms

TRUE S.G. = 2.174

TABLE 2: WASHABILITY DATA FOR SAMPLE (5+7) (after hand crushing to - $\frac{3}{4}$ ")

F1.30	1935	46.7	2.4	8	46.7	2.4	8
S1.30 - F1.35	1108	26.7	5.7	6 $\frac{1}{2}$	73.4	3.6	7 $\frac{1}{2}$
S1.35 - F1.40	329	7.9	10.4	3	81.3	4.3	7
S1.40 - F1.45	170	4.1	15.4	1 $\frac{1}{2}$	85.4	4.8	7
S1.45 - F1.50	106	2.6	18.7	1 $\frac{1}{2}$	88.0	5.2	6 $\frac{1}{2}$
S1.50 - F1.55	55	1.3	19.7	1	89.3	5.4	6 $\frac{1}{2}$
S1.55 - F1.60	39	0.9	26.3	1	90.2	5.6	6 $\frac{1}{2}$
S1.60	401	9.8	70.6	0	100.0	12.0	6
-30 Mesh RC	476	10.3	6.2	8 $\frac{1}{2}$			

TOTAL WEIGHT OF SAMPLE = 4,619 gms

TRUE S.G. = 1.399

SAMPLE 6

RAW COAL

TOTAL WEIGHT OF SAMPLE = 376 gms

ASH% = 92.1

TRUE S.G. = 2.522

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION OF PLIES 5 + 7

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	CV(BTU/lb)
90.2	1.0	5.5	22.8	70.7	0.40	6 $\frac{1}{2}$	14,470

SYDNEY

18th November, 1971.

K71-1624

COALITION MINING
SUKUNKA CM
(BETTER LOWER SEAM)

	SPLE	THICK ²	AD ¹⁰⁰	CSN ⁰
12'	4	0.88'	79.2	1/2
0				
8'				
6	{ 7	11.72	112.0	6
6				
4				
10'				
0				
MISTAKE	6	0.80'	92.1	0

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT:

COALITION MINING,
C/O AUSTEN & BUTTA LIMITED,
43rd LEVEL, TOWER BUILDING,
AUSTRALIA SQUARE,
SYDNEY. 2000

SUBJECT:

SUKUNKA D.D.H. 4
CHAMBERLAIN SEAM

REPORT NO.

K71 - 1385

DATE RECEIVED:

6. 9. 71

DATE REPORTED:

16. 9. 71



N.S.W. Reg. No. 554
QLD. Reg. No. 637

This Laboratory is Registered by the
National Association of Testing Authorities,
Australia. The tests reported herein have
been performed in accordance with its
terms of registration.

M. Bradley
Chief Gemist.
A.R.A.C.I.

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

[Signature]

INTRODUCTION:

One coal ply and one non-coal ply designated SUKUNKA DDH 4 were received on 6.9.71 from Clifford McElroy & Associates.

METHOD:

The non-coal ply was hand crushed through $\frac{3}{4}$ " sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity.

The float and sink fractions and raw -30 mesh material were weighed, prepared and analysed as detailed in this report. A composite sample was prepared and its specific gravity determined.

The coal ply was hand crushed to $\frac{3}{4}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.20 SG to 1.60 SG in 0.05 steps.

The float and sink fractions and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report. The weights were adjusted where necessary to compensate for core loss.

RESULTS:

FIGURE 1: gives the graphic log of the core.

TABLES 1 & 2: give the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{4}$ ".

TABLE 3: gives the washability data necessary for the construction of the washability curves.

The curves and the analysis of the floats 1.60 SG fraction of Ply 2 are included in this report.

SHEET THREE ATTACHED:

STRATIGRAPHIC LOG
SUKUNKA D.D.H. - C4

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 18.0 ft.		
	MUDSTONE, some bentonitic? layers.	MOOSEBAR FM.	171.0
	SANDSTONE, glauconitic.	GETHING FM.	173.0
	SANDSTONE, pebbles at base.		185.0
	<u>COAL.</u>	BIRD SEAM	187.5
	MUDSTONE.		188.0
	SANDSTONE, mottled (worm casts) 198'. mudstone layer 223'. pebble layer 224'.		260.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts in lower half.		278.5
	SANDSTONE, granular at top.		281.0
	LAMINITE, siltstone and mudstone		283.0
	SANDSTONE.		286.0
	LAMINITE, siltstone and mudstone.		291.0
	SANDSTONE, coaly wisps, mudstone 1 foot from base.		315.0
	MUDSTONE.		315.5

K71-1385

COALITION MINING

SUKUNKA DRH 4

	PLY	THICK ^s	WT%	ASH%	CSN°	ASH% cum
6'	1	0.40'	-	73.0	0	7.2-
4'	2	6.21'	100.0	7.2	6	
2'						
0						

TABLE 1: WASHABILITY DATA FOR PLY NO. 1 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO. (calc)
F1.60 SG	5	10.6	21.1	0	10.6	21.1	0
S1.60 SG	42	89.4	79.1	0	100.0	73.0	0

SPECIFIC GRAVITY OF PLY 1 = 1.98

TABLE 2: WASHABILITY DATA FOR PLY NO. 2 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO. (calc)
F1.20SG	NIL	--	--	--	--	--	--
S1.20 - F1.25	NIL	--	--	--	--	--	--
S1.25 - F1.30	1656	48.7	1.5	9	48.7	1.5	9
S1.30 - F1.35	1216	35.8	3.2	4	84.5	2.2	7
S1.35 - F1.40	127	3.7	6.8	2	88.2	2.4	7
S1.40 - F1.45	44	1.3	9.1	1 $\frac{1}{2}$	89.5	2.5	6 $\frac{1}{2}$
S1.45 - F1.50	20	0.6	13.4	1	90.1	2.6	6 $\frac{1}{2}$
S1.50 - F1.55	4	0.1	19.7	$\frac{1}{2}$	90.2	2.6	6 $\frac{1}{2}$
S1.55 - F1.60	1	0.1	27.5	$\frac{1}{2}$	90.3	2.6	6 $\frac{1}{2}$
S1.60 SG	331	9.7	49.9	08	100.0	7.2	6
-30 Mesh RC	334	8.9	3.5	8 $\frac{1}{2}$			

SPECIFIC GRAVITY OF PLY 2 = 1.33

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF PLY NO. 2

YIELD%	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	P. %	CV(BTU/lb)
90.3	1.3	2.7	21.6	74.4	0.40	8	0.014	15,060

SHEET FOUR ATTACHED:

TABLE 3: DATA NECESSARY FOR CONSTRUCTION OF WASHABILITY CURVES

FRACTION	INDIVIDUAL		CUM. FLOATS		CUM. SINKS		+0.10 SG	'D'
	WT. %	ASH%	WT. %	ASH%	WT. %	ASH%		
F1.20 SG	NIL	--	NIL	--	--	--	--	--
S1.20 - F1.25	NIL	--	NIL	--	--	--	--	--
S1.25 - F1.30	48.7	1.5	48.9	1.5	100.0	7.2	--	24.4
S1.30 - F1.35	35.8	3.2	84.5	2.2	51.3	12.6	--	66.6
S1.35 - F1.40	3.7	6.8	88.2	2.4	15.5	34.4	41.4	86.4
S1.40 - F1.45	1.3	9.1	89.5	2.5	11.8	43.1	5.7	88.9
S1.45 - F1.50	0.6	13.4	90.1	2.6	10.5	47.3	2.1	89.8
S1.50 - F1.55	0.1	19.7	90.2	2.6	9.9	49.4	--	90.2
S1.55 - F1.60	0.1	27.5	90.3	2.6	9.8	49.7	--	90.3
S1.60 SG	9.7	49.9	100.0	7.2	9.7	49.9	--	95.2

SYDNEY

17th September, 1971.

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		165.50		
MUDSTONE, dark grey.	5.50	171.00	5.32	
MUDSTONE, pale greenish grey, core broken.	0.11	171.11	0.10	
MUDSTONE, dark grey.	0.16	171.27	0.15	
SANDSTONE, dark grey, becoming light grey after approximately 2', quartz-lithic, glauconitic, pebbles in basal section.	13.69	184.96	12.63	
<u>COAL</u> , mainly dull with minor bright bands, pyrite.	3.19	188.15	1.21	
SILTSTONE, carbonaceous.	0.21	188.36	0.08	
<u>COAL</u> , mainly dull with minor bright bands.	0.55	188.91	0.21	
CLAYSTONE, dark grey, pyrite nodules.	0.84	189.75	0.84	
SANDSTONE, grey, medium grained, quartz-lithic, minor calcite veins, mottled (worm tracks and casts) in lower section.	15.99	205.74	16.02	

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey and brownish grey, medium grained, quartz-lithic, siltstone and mudstone interbeds (fine) and two mudstone phases near base. Bedding angle sub-horizontal. A few fractures (no displacement) at 29° to core axis.	18.46	224.20	18.50	
SANDSTONE, grey, fine grained, quartz-lithic. Bedding angle sub-horizontal.	37.09	261.29	37.16	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone, dark grey, worm casts.	16.99	278.28	17.02	
SANDSTONE, grey, medium to coarse grained, quartz-lithic, siltstone interbeds.	0.68	278.96	0.68	
SANDSTONE, grey, fine grained, quartz-lithic.	1.75	280.71	1.75	
MUDSTONE, dark grey.	0.48	281.19	0.48	
SILTSTONE, grey, with fine sandstone and mudstone interbeds, exhibits graded bedding.	1.58	282.77	1.58	

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous, coaly wisps and irregular fragments, some minor cross-bedding.	3.02	285.79	3.03	
SILTSHALE, grey to dark grey, fine shale interbeds, zone of cross-bedding and primary sedimentary deformation from 0.8' to 1.00' from top.	4.60	290.39	4.61	
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous, occasional siltstone interbeds - some quite irregular in shape, some coaly wisps and partings.	9.65	300.04	9.67	
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous, some siltstone interbeds, numerous coaly wisps, partings and irregular masses, two oblique fractures but no faulting implied.	12.26	312.13	12.28	
SILTSHALE, dark grey, clay matrix, some irregular siltstone lenses bearing pyrite.	0.80	313.10	0.80	
SANDSTONE, grey, fine grained in top 0.8', then becoming medium grained, quartz-lithic, carbonaceous, fine dark grey siltstone interbeds and some irregular masses, coaly wisps and short flaky masses, grading to siltstone				

SUKUNKA D.D.H. C-4

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Footage Recovered (ft)	Remarks
carbonaceous in bottom 0.15'.	1.76	314.86	1.76	
SILTSTONE, dark grey, carbonaceous, sandstone interbeds, mildly oblique fracture with slickensides 0.30' from base.	0.66	315.52	0.66)
<u>COAL</u> , bright.	0.43	315.95	0.17)
SILTSTONE, dark grey, pyrite.	0.48	316.43	0.48)
<u>COAL</u> , bright (?).	0.31	316.74	0.12)
SILTSTONE, dark grey.	0.24	316.98	0.24)
<u>COAL</u> , dull and bright.	0.36	317.34	0.14	) SKEETER SEAM
SILTSTONE, dark grey, fine coaly lenses and one coaly pennyband at centre.	0.24	317.58	0.24	) upper plate
<u>COAL</u> , mainly dull with minor bright band(?), badly broken and rather sheared.	3.69	321.27	1.45)
type difficult to determine - breaks along glossy shears, possibly dull with minor bright bands.	4.02	325.29	1.58)

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous, coaly wisps, partings and irregular masses, some cross-bedding, calcite in thin veins conformable and across the bedding, zone (1.60') 3.60' below top with oblique set of apparently undisplaced fractures filled with calcite.	12.02	337.31	11.59	
SILTSTONE, dark grey, irregular fine sandstone masses with minor pyrite, core broken in part.	0.79	338.10	0.78	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous, numerous siltstone interbeds and irregular masses. Coaly wisps and blebs.	1.81	339.91	1.81	
CLAYSTONE, dark brownish grey, becoming carbonaceous, siltstone interbeds.	0.75	340.66	0.75	
<u>COAL</u> , dull and bright, one pennyband near centre.	0.18	340.84	0.14)
SILTSTONE, grey, carbonaceous, coaly wisps.	0.05	340.89	0.04	) SKEETER SEAM
<u>COAL</u> , bright.	0.08	340.97	0.06	) lower plate

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, carbonaceous, coaly wisps and blebs.	0.57	341.54	0.57)
<u>COAL</u> , type difficult to determine due to shearing along glossy surfaces. Probably bright with minor dull bands. Core broken.	1.06	342.60	0.84)
<u>COAL</u> , as above. Tendency to break along two directions at right angles, both directions oblique to bedding. Core broken, shale band (0.05') 0.43' from base.	9.29	351.89	7.33	) SKEETER SEAM) lower plate
SILTSTONE, grey, clay matrix.	0.30	352.19	0.30)
<u>COAL</u> , sheared, probably bright with minor dull bands. Tendency to break along two directions at right angles, both directions oblique to bedding.	1.37	353.56	1.08)
SILTSTONE, grey, clay matrix, numerous fine grained sandstone interbeds, coaly wisps, oblique shear with slickensides 0.70' below marker block.	4.61	358.17	4.36	
CALCITE, white, opaque, some siltstone flakes.	0.02	358.19	0.02	
SILTSTONE, as above, but with irregular calcitic veins.	0.06	358.25	0.06	

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CALCITE, white opaque, flakes of siltstone.	0.02	358.27	0.02	
SILTSTONE, grey, clay matrix, numerous sandstone interbeds, occasional thin calcite veins generally not conformable to bedding, oblique fractures with slickensides near top, some cross-bedding.	5.26	363.53	4.97	
SILTSTONE, grey, interbeds of mudstone, several fine calcite veins. Core broken in part.	1.12	364.65	1.06	
MUDSTONE, dark grey, siltstone interbeds, splits readily along a plane at some 10° to plane of bedding.	9.24	373.89	8.73	
<u>COAL</u> , dull.	0.40	374.29	0.40)
mainly dull with minor bright bands.	1.44	375.73	1.24)
dull and bright.	0.49	376.22	0.29)
mainly dull with minor bright bands.	0.81	377.03	0.71)
dull and bright.	0.84	377.87	0.74)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	0.60	378.47	0.50)
bright, core fragmented.	0.37	378.84	0.27)
dull and bright.	0.62	379.46	0.62)
bright, core fragmented in part.	0.26	379.72	0.26)
dull and bright.	0.26	379.98	0.26)
mainly dull with minor bright bands, core partly fragmented.	0.44	380.42	0.34)
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous.	0.04	380.46	0.04)
<u>COAL</u> , bright(?), powdered.	0.04	380.50	0.04)
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous, calcite veins near top oblique, sandstone massive.	2.37	382.87	2.37)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-4

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous, some calcite veins, mostly very fine but two up to 0.02' wide and oblique to bedding, some cross bedding, coaly wisps and blebs, 5.40' from top rock deformed by two sets of opposing oblique fractures, no apparent displacement. Bedding angle 54° to core axis.	18.59	401.46	18.63	
SANDSTONE, medium grained, quartz-lithic, a few siltstone interbeds, one carbonaceous claystone band (0.03') 2.85' from top.	4.16	405.62	4.17	
<u>COAL</u> , mainly dull with minor bright bands.	0.30	405.92	0.30	
SANDSTONE, as above, becoming carbonaceous at top. Minor calcite veins. Bedding sub-horizontal.	18.25	424.17	18.29	
MUDSTONE, grey, sandstone phases with coaly pennybands.	0.45	424.62	0.45	
SANDSTONE, grey, fine grained, quartz-lithic.	1.38	426.00	1.38	
				<u>Base of Hole</u>

BORE NUMBERC-4A

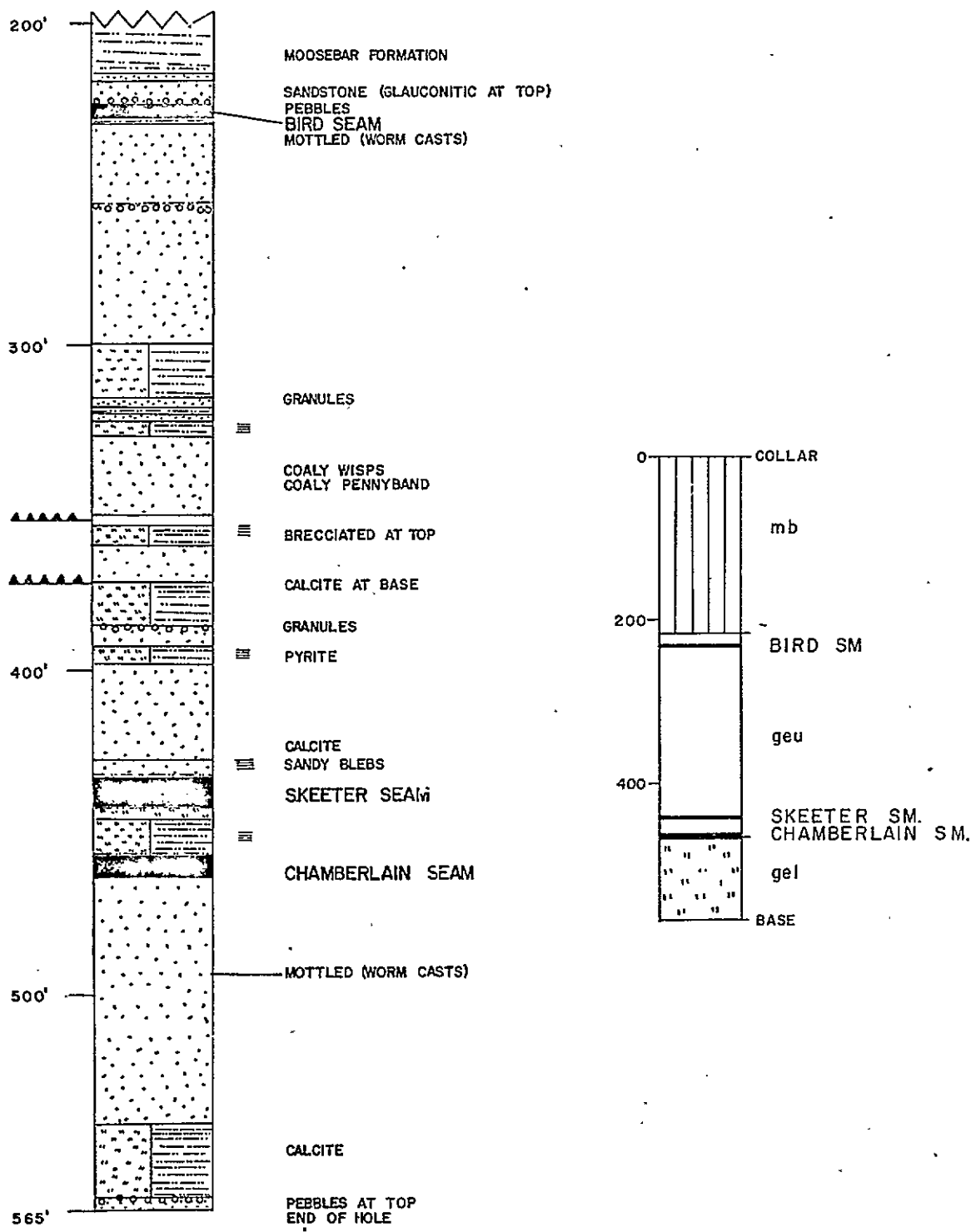
Grid Reference 49054.2 N 80667.4 E
Exploration Grid Reference B+1000'N/2+1000'E

Date Commenced 3 Aug 71 Completed 12 Aug 71

Collar R.L. 4158.8 ft. Standard Datum
Total Depth 565 ft. Electrically Logged Yes/~~NO~~
Drilled by Connors Drilling Ltd. Angled Hole
For Coalition Mining Limited Tropari Angle 61°
Bearing 067°
Logged by F.H.S.Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3772.8	8.17	72%	
Chamberlain	3752.41	6.69	93%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C - 4A

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
434.11	5.39					
439.50 440.07	0.57	-	94.6	0		
	2.21					
442.28						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-4A

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
457.97	0.29	-	45.6	3		
	0.50				7.2	
	0.30					
	0.72					
	0.25					
	0.08-0.17					
	0.52					
	0.40	100.0	7.2	6½		
	0.85					
	2.10					
464.66	0.51					

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-4 A

DRW BY TR

DATE 24/11/71

SCALE: 1"=2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SKUNKA SAMPLES NO. 8, 9, 10
CORE NO. C4A
SKEETER SEAM

REPORT NO. K71-1625

DATE RECEIVED: 12. 10. 1971

DATE REPORTED: 18. 11. 1971



This Laboratory is Registered by the
National Association of Testing Authorities,
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

P.H. Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

R. H. Dore

INTRODUCTION:

Three (3) ply samples designated CORE NO. C4A SKEETER SEAM were received on 12. 10. 1971 from Clifford McElroy & Associates.

METHODS:

Sample No. 9, a non coal ply, was weighed, prepared and analysed for Ash and True Specific Gravity.

Samples No. 8 and 10 were combined due to the high core loss obtained on Ply 10 (40%) which meant that insufficient material remained for washability testing on Sample 10 alone. Ply 9 was a shale band which could easily be removed by washing, therefore the quality of product obtained on washing 8 and 10 together would be indicative of the washed product obtained from a commercial plant.

The combined sample was hand crushed through $-\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh fraction washed in organic liquids from 1.30 S.G. to 1.60 S.G. in 0.05 steps. The float and sink fractions and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report.

A cumulative floats 1.60 S.G. fraction was prepared for Sample No. 8 and 10 and analysed as detailed. A composite raw coal sample was prepared and the true S.G. of the combined sample determined.

COMMENTS:

Due to the high core losses experienced no adjustment has been made to the sample weights and further calculations and graphical data has been omitted.

RESULTS:

FIGURE 1 : is the graphical log of the core

TABLES 1 & 2 : give the sizing, washability and analytical data for the combined samples 8 and 10 after hand crushing to $-\frac{3}{4}$ "

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. (8 and 10) (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	1472	47.9	1.9	8½	47.9	1.9	8½
S1.30 - F1.35 SG	1109	36.1	5.2	7	84.0	3.3	8
S1.35 - F1.40 SG	302	9.8	9.8	2½	93.0	4.0	7½
S1.40 - F1.45 SG	82	2.7	13.6	1	96.5	4.3	7
S1.45 - F1.50 SG	38	1.2	20.3	1	97.7	4.5	7
S1.50 - F1.55 SG	16	0.5	20.7	1	98.2	4.5	7
S1.55 - F1.60 SG	7	0.2	30.8	1	98.4	4.6	7
S1.60 SG	46	1.6	57.4	½	100.0	5.4	7
-30 Mesh	293	8.7	5.4	8½			

Total Weight of Sample = 3365 grams
True Specific Gravity = 1.277

SAMPLE NO. 9

RAW COAL Total Weight of Sample = 620 grams
 Ash % = 94.6
 True Specific Gravity = 2.532

ANALYSIS OF CUMULATIVE FLOATS 1.60 SG FRACTION
OF SAMPLES 8 + 10

Yield %	98.4
Air Dried Moisture %	1.0
Ash %	4.7
Volatile Matter %	22.4
Fixed Carbon %	71.9
Total Sulphur %	0.38
C.S.NO.	7½
Calorific Value	14680 BTU/LB

SYDNEY
22nd November 1971

K71-1625

COALITION MINING

SURUNKA GWA

(SNEETER SEAM)

	SPL. THICK'	ASH%	CSN ^o	
8'				
6'				
4'	{ 8' 10'	7.60'	5.46	7
2'				
0	9	0.57'	94.6	0

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING,
C/OAUSTEN & BUTTA LIMITED,
43RD LEVEL, TOWER BUILDING,
AUSTRALIA SQUARE,
SYDNEY. 2000

SUBJECT: SUKUNKA D.D.H. 4A
CHAMBERLAIN SEAM

REPORT NO. K71 - 1386

DATE RECEIVED: 6.9.71

DATE REPORTED: 16.9.71



N.S.W. Reg. No. 554
QLD. Reg. No. 637

This Laboratory is Registered by the
National Association of Testing Authorities,
Australia. The tests reported herein have
been performed in accordance with its
terms of registration.

M Bradley
Chief Chemist

A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

[Signature]

INTRODUCTION:

One coal ply and one non-coal ply designated SUKUNKA D.D.H. 4A were received on 6.9.71 from Clifford Mc Elroy & Associates.

METHOD:

The non-coal ply was hand crushed through $\frac{3}{4}$ "¹¹, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity.

The float and sink fractions and raw -30 mesh material were weighed, prepared and analysed as detailed in this report. A composite sample was prepared and its specific gravity determined.

The coal ply was hand crushed to $\frac{3}{4}$ "¹¹ top size, sized at 30 mesh BSS and the +30 BSS fraction washed in organic liquids from 1.20 SG to 1.60 SG in 0.05 steps.

The float and sink fractions and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report. The weights were adjusted where necessary to compensate for core loss.

RESULTS:

Figure 1 gives the graphic log of the core.

Tables 1 & 2 give the sizing, washability and analytical data for each ply after hand crushing to $-\frac{3}{4}$ "¹¹.

Table 3 gives the washability data necessary for the construction of the washability curves.

The curves and the analysis of the floats 1.60 SG fraction of Ply 2 are included in this report.

SHEET THREE ATTACHED:

TABLE 1: WASHABILITY DATA FOR PLY NO. 1 (after crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO. (calc)
F1.60 SG	17	19.1	21.0	$\frac{1}{2}$	19.1	21.0	$\frac{1}{2}$
S1.60 SG	72	80.9	51.4	0	100.0	45.6	$\frac{1}{2}$
-30 Mesh RC	7	7.3	47.2	0			

SPECIFIC GRAVITY OF PLY 1 = 1.78

TABLE 2: WASHABILITY DATA FOR PLY NO. 2 (after crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO. (calc)
F1.20 NIL	--	--	--	--	--	--	--
S1.20 - F1.25 NIL	--	--	--	--	--	--	--
S1.25 - F1.30 1788	49.0	1.7	9		49.0	1.7	9
S1.30 - F1.35 1359	37.2	4.0	$4\frac{1}{2}$		86.2	2.7	7
S1.35 - F1.40 121	3.3	8.6	$3\frac{1}{2}$		89.5	2.9	7
S1.40 - F1.45 46	1.3	9.6	3		90.8	3.0	7
S1.45 - F1.50 21	0.6	13.6	3		91.4	3.1	7
S1.50 - F1.55 5	0.1	18.4	$2\frac{1}{2}$		91.5	3.1	7
S1.55 - F1.60 2	0.1	26.8	1		91.6	3.1	7
S1.60 SG	308	8.4	51.4	0	100.0	7.2	$6\frac{1}{2}$
-30 Mesh RC	307	7.8	3.8	9			

SPECIFIC GRAVITY OF PLY 2 = 1.33

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF PLY NO. 2

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	CS.NO.	P. %	CV(BTU/lb)
91.6	1.1	3.2	21.4	74.3	0.35	$7\frac{1}{2}$	0.070	15,210

SHEET FOUR ATTACHED:

TABLE 3: DATA NECESSARY FOR CONSTRUCTION OF WASHABILITY CURVES

<u>FRACTION</u>	<u>INDIVIDUAL</u>		<u>CUM. FLOATS</u>		<u>CUM. SINKS</u>		<u>± 0.10 SG</u>	<u>'D'</u>
	<u>WT. %</u>	<u>ASH%</u>	<u>WT. %</u>	<u>ASH%</u>	<u>WT. %</u>	<u>ASH%</u>		
F1.20 SG	NIL	--	NIL	--	--	--	--	--
S1.20 - F1.25 SG	NIL	--	NIL	--	--	--	--	--
S1.25 - F1.30 SG	49.0	1.7	49.0	1.7	100.0	7.2	--	24.5
S1.30 - F1.35 SG	37.2	4.0	86.2	2.7	51.0	12.4	--	67.6
S1.35 - F1.40 SG	3.3	8.6	89.5	2.9	13.8	35.2	42.4	87.9
S1.40 - F1.45 SG	1.3	9.6	90.8	3.0	10.5	43.5	5.3	90.2
S1.45 - F1.50 SG	0.6	13.6	91.4	3.1	9.2	48.3	2.1	91.1
S1.50 - F1.55 SG	0.1	18.4	91.5	3.1	8.6	50.7	--	91.5
S1.55 - F1.60 SG	0.1	26.8	91.6	3.1	8.5	51.1	--	91.6
S1.60 SG	8.4	51.4	100.0	7.2	8.4	51.4	--	95.8

SYDNEY

17th September, 1971

K71-1326

COALITION MINING

SUKUNKA BDH 4A

	PLY	THICK ³	WT ^o	ASH ^o	CSN ^o	ASH ^o Cum
6'	1	0.29	-	45.6	1/2	7.2
4'	2	6.40	100.0	7.2	6 1/2	
2'						
0						

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C4A

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft.)</i>
	No core to 24.0 ft.		
	MUDSTONE, dark grey.	MOOSEBAR FM.	215.0
	SANDSTONE, dark grey, medium grained, glauconitic.	GETHING FM.	217.0
	SANDSTONE, grey, medium grained quartz-lithic, silty wisps, pebbles at base.		227.0
	<u>COAL.</u>	BIRD SEAM	230.0
	MUDSTONE, dark grey.		231.5
	SANDSTONE, grey, medium grained becoming finer to base, mudstone bands at 255' and 256', pebble band at 257', mottled (worm casts) at 237'.		300.0
	SILTSTONE and MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey, worm casts.		319.0
	SANDSTONE, grey, medium grained, quartz-lithic, granules at top, mudstone at centre.		323.0
	LAMINITE, siltstone and mudstone, disturbed bedding at centre, pyrites, mudstone at base.		329.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)	
	SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps, coal band (0.15') at 346.5'.	GETHING FM.	354.0	
	LAMINITE, siltstone and mudstone, brecciated in top 1.5', with calcite veining.		357.0	
	SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps.		374.0	
	SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey.		387.0	
	SANDSTONE, grey, medium grained, quartz lithic, granules at top.		394.0	
	LAMINITE, siltstone and mudstone, mudstone band at base.		399.0	
	SANDSTONE, grey, medium grained, quartz lithic, coaly wisps, laminite band at 428', sandy blebs at 430' mudstone bands at base.		434.0	
	<u>COAL.</u>		SKEETER SM.	442.0
	MUDSTONE, dark grey.			444.0
	SILTSTONE, grey.			445.0
	SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey. Some disturbed bedding.	449.0		
	LAMINITE, siltstone and mudstone grey.	458.0		

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	<u>COAL.</u>	CHAMB. SM.	464.5
	SANDSTONE, grey, medium grained, quartz lithic, mottled (worm casts) at 492'.		550.0
	SILTSTONE and MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, calcitic veining at 550'.		562.0
	SANDSTONE, grey, medium grained, quartz lithic, granules and pebbles at top.		565.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		196.76		
MUDSTONE, dark grey.	17.74	214.50	17.74	
SANDSTONE, darkish grey, medium to fine grained, lithic, glauconitic, becomes mid-grey after 2', siltstone and coaly wisps and irregular masses, very coarse phase 4.5' from top.	11.47	225.97	11.47	
<u>COAL</u> , mainly dull with minor bright bands,	1.73	227.70	0.46)
dull and bright.	1.91	229.61	0.51)
mainly dull with minor bright bands.	0.56	230.17	0.15)
CLAYSTONE, grey, coaly partings.	1.39	231.56	1.38	
<u>COAL</u> , dull and bright.	0.07	231.63	0.07	
SANDSTONE, grey, medium grained, quartz-lithic.	4.98	236.61	4.96	
SANDSTONE, grey, fine to medium grained, quartz-lithic, mottled (worm tracks and casts) at top.	18.45	255.06	18.36	BIRD SEAM

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, grey, sandstone interbeds.	0.41	255.47	0.41	
SANDSTONE, as above, a few pebbles.	0.47	255.94	0.47	
SANDSTONE, grey, fine grained, quartz-lithic, very coarse phase (0.98') 0.37' from top.	19.01	274.95	18.92	
SANDSTONE, grey, fine grained, quartz-lithic. Bedding angle 50° to core axis.	24.53	299.48	24.41	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; mudstone irregular and mudstone breccia in siltstone. Bedding angle 48° to core axis.	19.01	318.49	18.92	
SANDSTONE, grey, medium to fine grained, siltstone interbeds and current bedding near top.	1.48	319.97	1.47	
MUDSTONE, grey, nodules of pyrite.	1.36	321.33	1.35	
SANDSTONE, grey, medium grained, some siltstone interbeds, coaly wisps.	1.43	322.76	1.42	

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey with mudstone laminae, pyrite nodules.	4.04	326.80	4.02	
MUDSTONE, grey.	1.32	328.12	1.31	
SANDSTONE, grey, medium grained, quartz-lithic, some siltstone interbeds, coaly wisps and irregular masses and partings, one carbonaceous phase.	22.06	350.18	21.95	
SANDSTONE, as above, one calcite band near base. Bedding angle 74° to core axis.	2.83	353.01	2.82	
LAMINITE, siltstone grey and mudstone dark grey, some fine sandy and mudstone phases. Near top some minor distortion and calcitic veining. Bedding angle 70° to core axis.	8.91	361.92	8.87	
SANDSTONE, grey; medium grained, quartz-lithic, siltstone interbeds and coaly wisps, one subvertical and some minor interbedded calcite veins.	10.68	372.60	10.62	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey. Mudstone irregular and some brecciated mudstone in the siltstone. Badly broken near top. Bedding angle 59° to core axis.	14.19	386.79	14.11	

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, becoming carbonaceous, siltstone phases. Calcite band.	0.52	387.31	0.52	
SANDSTONE, as above, but fine grained towards top and bottom. Minor calcite veins.	6.90	394.21	6.87	
LAMINITE, siltstone and mudstone, siltstone grey and mudstone dark grey. Bedding angle 66° to core axis.	4.59	398.80	4.57	
SANDSTONE, grey, medium to fine grained, quartz-lithic, siltstone wisps, interbeds and phases, some coaly wisps and partings.	7.25	406.05	7.21	
SANDSTONE, as above, minor calcite veins.	18.60	424.65	18.49	
SANDSTONE, grey, fine grading to medium at base, quartz-lithic, carbonaceous, coaly wisps and irregular masses. Some oblique fractures filled with calcite.	3.75	428.40	3.73	
CLAYSTONE, dark grey, siltstone interbeds.	0.83	429.23	0.83	

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous, cross-bedded, siltstone interbeds and one siltstone slump structure (0.21') 0.48' from base, blebs of sandstone in siltstone interbeds and lighter sandstone blebs in remaining sandstone.	2.64	431.87	2.63	
CLAYSTONE, dark grey, siltstone and sandstone interbeds. Band coal bright (0.11') 0.85' from top.	1.38	433.25	1.37	
SANDSTONE, grey, very fine grained, carbonaceous.	0.54	433.79	0.54	
CLAYSTONE, dark grey.	0.32	434.11	0.32	
<u>COAL</u> , bright, joints oblique to bedding plane.	5.39	439.50	5.09)
MUDSTONE, grey.	0.57	440.07	0.51)
<u>COAL</u> , bright, oblique fractures, core broken.	2.21	442.28	1.36)
CLAYSTONE, dark grey, irregular coaly masses, fine calcite veins.	0.62	442.90	0.59)
MUDSTONE, grey, siltstone interbeds.	0.42	443.32	0.40)

SKEETER SEAM

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, black, carbonaceous.	0.23	443.55	0.22	
SILTSTONE, dark grey.	0.98	444.53	0.93	
SANDSTONE, grey, fine grained, quartz-lithic, fine siltstone interbeds.	0.72	445.25	0.68	
SILTSTONE, grey, very fine sandstone and lighter coloured siltstone interbeds, cross-bedding in parts, slump structures, a few small calcite veins.	12.72	457.97	12.02	
<u>COAL</u> , dull.	0.29	458.26	0.29)
mainly dull with minor bright bands.	0.50	458.76	0.50)
dull and bright.	0.30	459.06	0.30)
mainly dull with minor bright bands.	0.72	459.78	0.72)
bright.	0.25	460.03	0.25)
mainly dull with minor bright bands.	0.17	460.20	0.17)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright.	0.08	460.28	0.08)
mainly dull with minor bright bands.	0.52	460.80	0.52)
dull and bright.	0.40	461.20	0.40)
mainly dull with minor bright bands.	0.85	462.05	0.85)
dull and bright.	2.10	464.15	2.10)
mainly dull with minor bright bands.	0.51	464.66	0.51)
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous, irregular coaly masses, occasional slickensides and calcite veins.	17.29	481.95	17.15)
SANDSTONE, grey, medium grained, quartz-lithic, becoming carbonaceous, coaly and siltstone wisps and partings, some siltstone interbeds, mottled worm casts. Bedding angle 67° to core axis.	18.84	500.79	18.69)
SANDSTONE, grey, medium to fine grained, quartz-lithic, some heavy calcite 5.2' from top, but no apparent tectonic disturbance. Minor calcite veins. A few siltstone interbeds.	18.86	519.65	18.70)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-4A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic.	20.73	540.38	20.55	
SANDSTONE AND MUDSTONE INTERBEDS, sandstone, grey, fine grained and mudstone dark grey, interbeds, sandstone and mudstone phases. Worm tracks and casts, calcite vein with brecciated mudstone fragments in mudstone band at 550' by marker blocks.	17.58	557.96	17.44	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded.	2.76	560.72	2.74	
SANDSTONE, grey, coarse quartz-lithic, several bands of pebbles of varied lithology.	0.54	561.26	0.54	
SANDSTONE, grey, fine grained, quartz-lithic.	3.74	565.00	3.71	<u>Base of Hole</u>

BORE NUMBERC-5

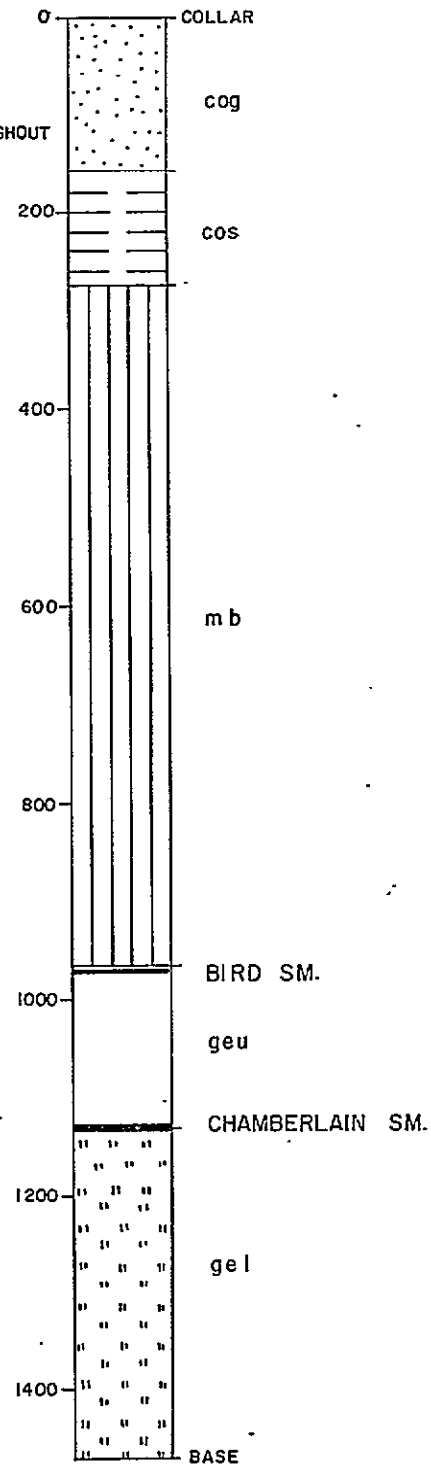
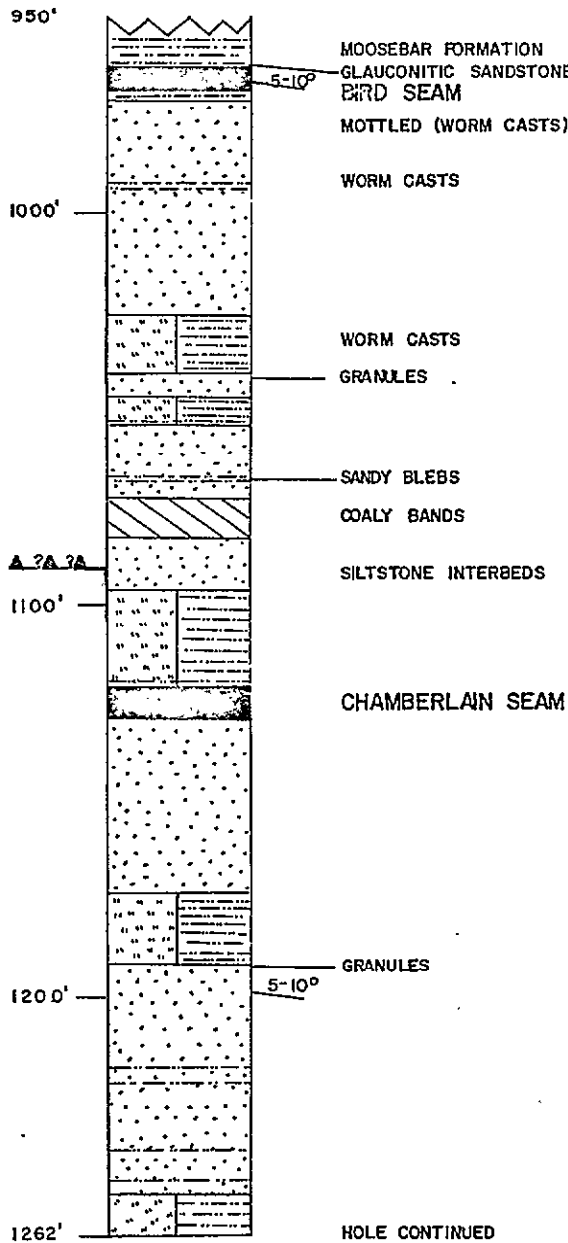
Grid Reference 43093.3 N 84733.2 E
Exploration Grid Reference E/2+1000'E

Date Commenced 7 Aug 71 Completed 16 Aug 71

Collar R.L. 4834.4 ft. Standard Datum
Total Depth 1468 ft. Electrically Logged Yes/~~XX~~
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt & G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain	3705.65	7.76	91%	

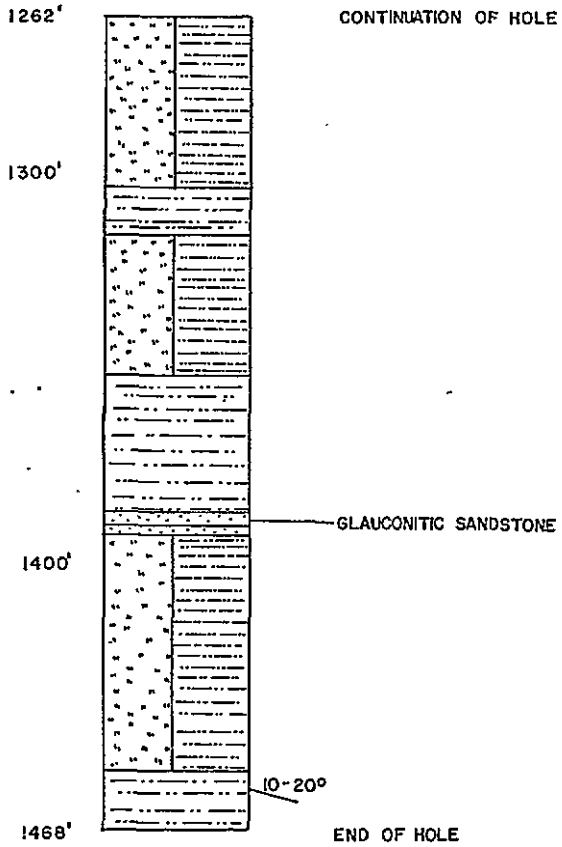


DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-5



DETAIL OF GETHING
FORMATION

SCALE 1" to 50'

SCALE : 1" to 200'

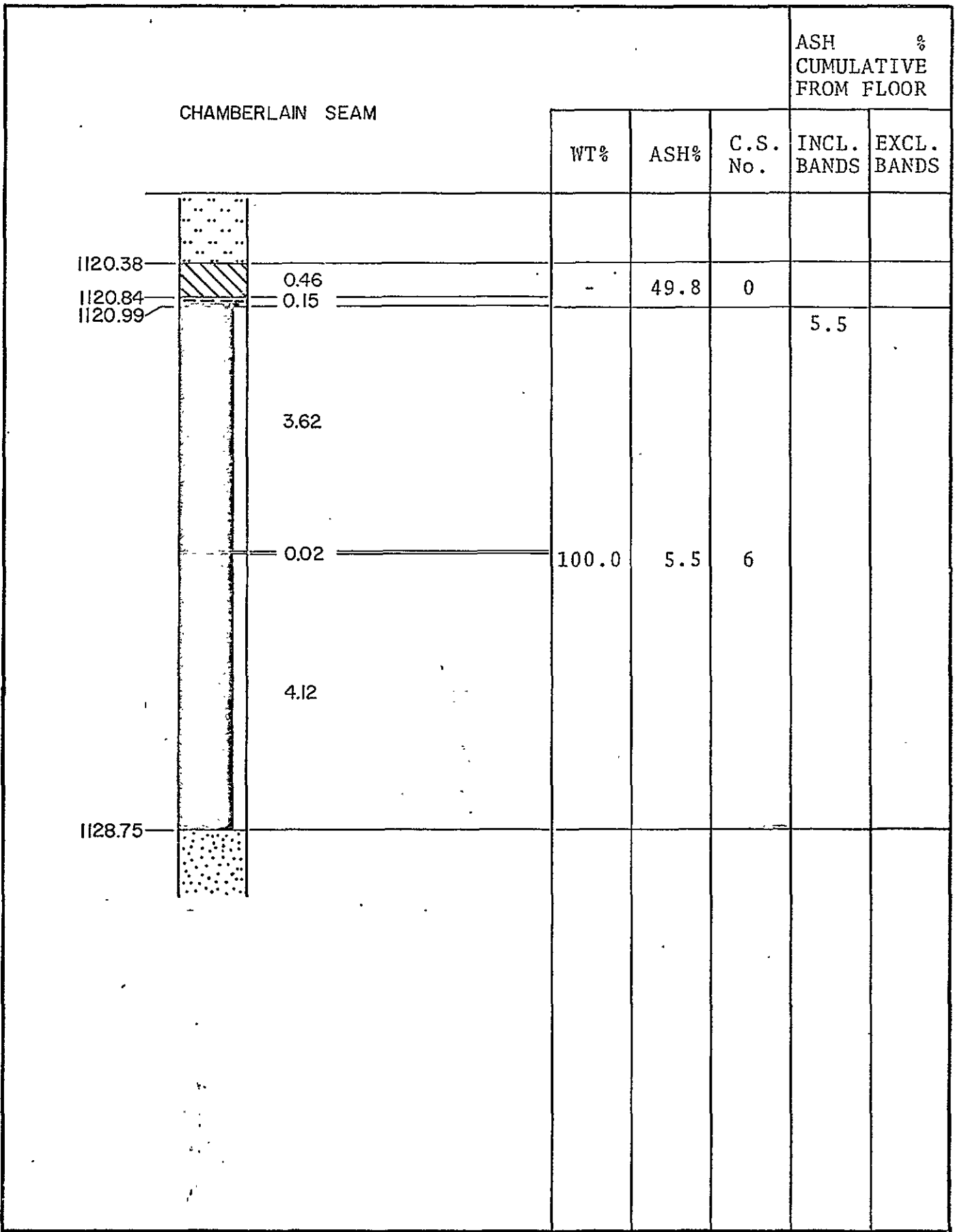
Prepared by :
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STRATIGRAPHIC LOGS
DDH C-5

DRAWN BY S.A.

DATE: January '72

PAGE 2 of 2



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 DRW BY TR

SEAM SECTIONS
 DDH C-5

DATE 24/11/71

SCALE: 1" = 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING
c/o AUSTEN AND BUTTA LIMITED
43RD. LEVEL, TOWER BUILDING
AUSTRALIA SQUARE,
SYDNEY. 2000

REPORT ON: SUKUNKA 11 and 12
CORE NO. C5
CHAMBERLAIN SEAM

REPORT NO: K71-1560

RECEIVED: 1.10.1971

REPORTED: 25.10.1971.



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bradley
Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. W. Damp

INTRODUCTION:

One (1) coal ply and one (1) non coal ply designated CORE C5 CHAMBERLAIN SEAM were received on 1.10.1971 from Clifford McElroy and Associates Pty. Ltd.

METHOD:

The coal ply was hand crushed to $\frac{3}{4}$ " , top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions, the raw -30 mesh coal fraction and the non coal ply were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{4}$ "

TABLE 2 : gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the Floats 1.60 SG fraction of Ply 12 are included in this report.

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>			
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	
RAW COAL								
SKR 11, 0.61'	506	100.0	49.8	0	100.0	49.8	0	
<u>TABLE 1</u>	<u>WASHABILITY DATA FOR SKR 12, 7.76' (after hand crushing to $\frac{3}{4}$")</u>							
.F1.30 SG	2000	47.8	2.2	8 $\frac{1}{2}$	47.8	2.2	8 $\frac{1}{2}$	
S1.30- F1.35 SG	1377	32.9	4.7	4 $\frac{1}{2}$	80.7	3.2	7	
S1.35- F1.40 SG	396	9.5	8.6	2 $\frac{1}{2}$	90.2	3.8	6 $\frac{1}{2}$	
S1.40- F1.45 SG	203	4.8	14.1	1	95.0	4.3	6	
S1.45- F1.50 SG	68	1.6	17.9	1	96.6	4.5	6	
S1.50- F1.55 SG	27	0.6	18.6	1	97.2	4.6	6	
S1.55- F1.60 SG	44	1.1	22.7	1	98.3	4.8	6	
S1.60 SG	72	1.7	46.5	1 $\frac{1}{2}$	100.0	5.5	6	
-30 Mesh	314	7.0	4.3	8 $\frac{1}{2}$				

SHEET THREE ATTACHED HERETO

ANALYSIS OF FLOATS 1.60 SG FRACTION

YIELD %	98.3
AIR DRIED MOISTURE %	0.9
ASH %	4.9
VOLATILE MATTER %	22.2
FIXED CARBON %	72.0
TOTAL SULPHUR %	0.35
C.S. NO.	7
CALORIFIC VALUE	14700 BTU/LB

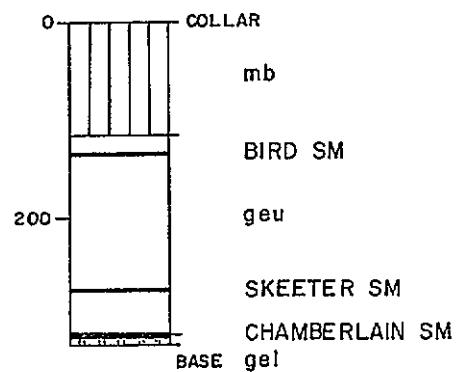
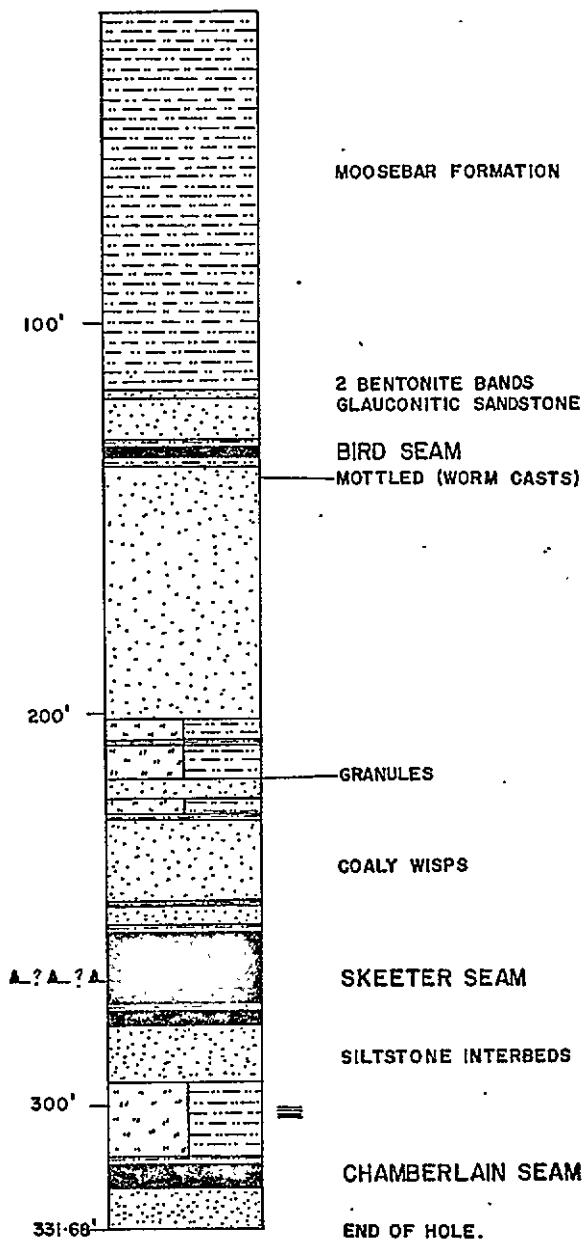
TABLE 2

DATA FOR WASHABILITY CURVE - SKR 12

<u>FRACTION</u>	<u>INDIVIDUAL</u>		<u>CUM. FLOATS</u>		<u>CUM. SINKS</u>		<u>±0.10 SG</u>	<u>"D"</u>
	<u>WT.%</u>	<u>ASH%</u>	<u>WT. %</u>	<u>ASH%</u>	<u>WT.%</u>	<u>ASH%</u>		
F1.30 SG	47.8	2.2	47.8	2.2	100.0	5.5	-	23.9
S1.30- F1.35 SG	32.9	4.7	80.7	3.2	52.2	8.6	-	44.3
S1.35- F1.40 SG	9.5	8.6	90.2	3.8	19.3	15.2	48.8	85.5
S1.40- F1.45 SG	4.8	14.1	95.0	4.3	9.8	21.6	16.5	92.6
S1.45- F1.50 SG	1.6	17.9	96.6	4.5	5.0	28.8	8.1	95.8
S1.50- F1.55 SG	0.6	18.6	97.2	4.6	3.4	33.9	-	96.9
S1.55- F1.60 SG	1.1	22.7	98.3	4.8	2.8	37.2	-	97.8
S1.60 SG	1.7	46.5	100.0	5.5	1.7	46.5	-	99.1

SYDNEY

26th October, 1971



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH CS-6

STRATIGRAPHIC LOG
SUKUNKA D.D.H. - C5

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft.)</i>
	No core to 12.0 ft.		
	SANDSTONE.	GATES MB.	38.0
	SANDSTONE,- mudstone interbeds.		78.0
	<u>CARBONACEOUS</u> SHALE, coaly bands.		83.0
	CONGLOMERATE.		124.0
	SANDSTONE.		159.0
	SILTSTONE AND MUDSTONE INTERBEDDED, sandstone phases.		273.0
	SILTSTONE, SANDSTONE AND MUDSTONE INTERBEDDED, worm casts.	SUKUNKA MB.	324.0
	MUDSTONE.		356.0
	SILTSTONE, MUDSTONE AND SANDSTONE INTERBEDDED, worm casts.		653.0
	MUDSTONE, ash beds, at base.	MOOSEBAR FM.	964.0
	SANDSTONE, glauconitic, pebbles throughout.	GETHING FM.	966.0
	<u>COAL</u> .	BIRD SEAM	968.0
	MUDSTONE.		972.0
	SANDSTONE, coarse at top fine in lower half, (mottled) worm casts		

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	978', worm casts 997', mudstone bands 993'.		1026.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts, granules at base.		1041.0
	SANDSTONE.		1046.0
	LAMINITE, siltstone and mudstone, mudstone at base.		1054.0
	SANDSTONE, coaly wisps mudstone 1068-1070', sandy blebs 1071'.		1073.0
	CLAYSTONE, carbonaceous, coaly bands.		1083.0
	SANDSTONE, silty interbeds.		1097.0
	LAMINITE, siltstone and mudstone, mudstone at base.		1121.0
	<u>COAL</u> .	CHAMB. SM.	1129.0
	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases at top, granules at base.		1192.0
	SANDSTONE, mudstone bands at base.		1252.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts.		1305.0
	MUDSTONE.		1317.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts.		1352.0
	MUDSTONE.		1388.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, glauconitic.		1391.0
	SANDSTONE.		1394.0
	SILTSTONE AND MUDSTONE INTERBEDDED.		1454.0
	MUDSTONE.		1468.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-5

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1053.31		
CLAYSTONE, carbonaceous, one calcite vein.	0.16	1053.47	0.15	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps and small carbonaceous phases, a few calcite veins parallel to bedding, worm casts 4.4' and 9.5' from top. Bedding angle 85°-90° to core axis. Bedding planes occasionally show slickensides.	15.33	1068.80	14.16	
CLAYSTONE, carbonaceous, sandstone interbeds and phases.	2.64	1071.44	2.44	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, sandy blebs.	1.26	1072.70	1.17	
CLAYSTONE, carbonaceous, a few siltstone and sandstone interbeds.	2.55	1075.25	2.36	
SILTSTONE, carbonaceous.	3.59	1078.84	3.32	
CLAYSTONE, carbonaceous, a few coaly bands, minor calcite.	1.17	1080.01	1.08	

SUKUNKA D.D.H. C-5

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, carbonaceous.	0.97	1080.98	0.90	
CLAYSTONE, carbonaceous, a few coaly bands; some listric surfaces.	2.06	1083.04	1.90	
SILTSTONE, carbonaceous at top, becoming grey 0.65' from top and brownish grey 1.15' from top.	1.59	1084.63	1.47	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps and carbonaceous phases, sandy blebs, a thick calcite vein at base (0.02').	0.44	1085.07	0.41	
SILTSTONE, grey, mudstone interbeds.	0.66	1085.73	0.61	
SANDSTONE, grey, very fine grained to fine grained, siltstone interbeds and phases, calcite veins 2.15' and 2.25' from top, and a zone of numerous fine calcite veins 2.85' from top. Bedding angle 85° from core axis.	5.92	1091.65	5.47	
SANDSTONE, grey, medium grained, quartz-lithic.	0.56	1092.21	0.52	
SANDSTONE, grey, medium grained, quartz-lithic.	1.27	1093.48	1.17	

SUKUNKA D.D.H. C-5

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey.	0.21	1093.69	0.19	
CALCITE, thick vein with siltstone banding.	0.06	1093.75	0.06	
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps, and irregular calcite veins.	1.44	1095.19	1.33	
MUDSTONE, grey, one calcite vein and becoming carbonaceous in places.	1.26	1096.45	1.16	
SILTSTONE, grey, mudstone interbeds and phases, worm casts.	4.27	1100.72	3.95	
CLAYSTONE, carbonaceous, some coaly bands and listric surfaces.	0.79	1101.51	0.73	
SILTSTONE, grey to dark grey, becoming carbonaceous, mudstone interbeds and phases.	1.43	1102.94	1.32	
SANDSTONE, grey, fine grained, siltstone interbeds becoming more numerous towards base.	3.41	1106.35	3.15	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded.	4.25	1110.60	3.93	

SUKUNKA D.D.H. G-5

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
LAMINITE, siltstone and mudstone interbedded. Bedding angle 82° to core axis.	1.53	1112.13	1.41	
SILTSHALE, grey and brownish laminae, some coaly partings (one oblique), and some slickensides, some calcitic impregnation at base.	8.25	1120.38	7.62	
<u>COAL</u> , dull to coal stony.	0.46	1120.84	0.36)
CLAYSTONE, dark grey, siltstone interbeds and lenses - some containing pyrite.	0.15	1120.99	0.12	) CHAMBERLAIN SEAM
<u>COAL</u> , mainly bright with minor dull bands, a few minor calcite veins, band (0.02') coal stony 3.62' from top.	7.76	1128.75	6.13)
SANDSTONE, grey, fine to medium grained, quartz-lithic, carbonaceous.	4.25	1133.00	4.25	
SANDSTONE, as above, becoming very fine grained 6.5' from top, and fine grained 8.6' from top. Bedding angle 80° to core axis.	18.74	1151.74	18.74	) <u>Base of Hole</u>

Grid Reference 50281.5 N 80926.4 E

Exploration Grid Reference A/3

Date Commenced 11 Aug 71

Completed 16 Aug 71

Collar R.L. 4059.5 ft.

Standard Datum

Total Depth 876 ft.

Electrically Logged ~~XXX~~/No

Drilled by Connors Drilling Ltd.

Angled Hole

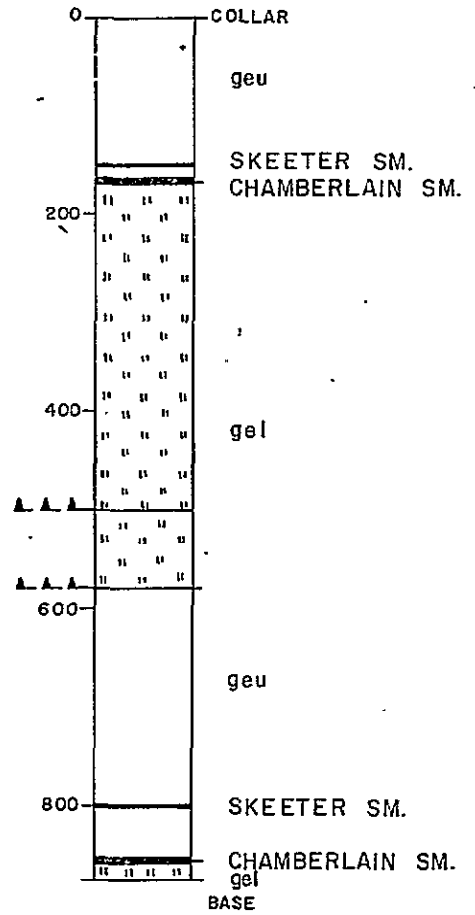
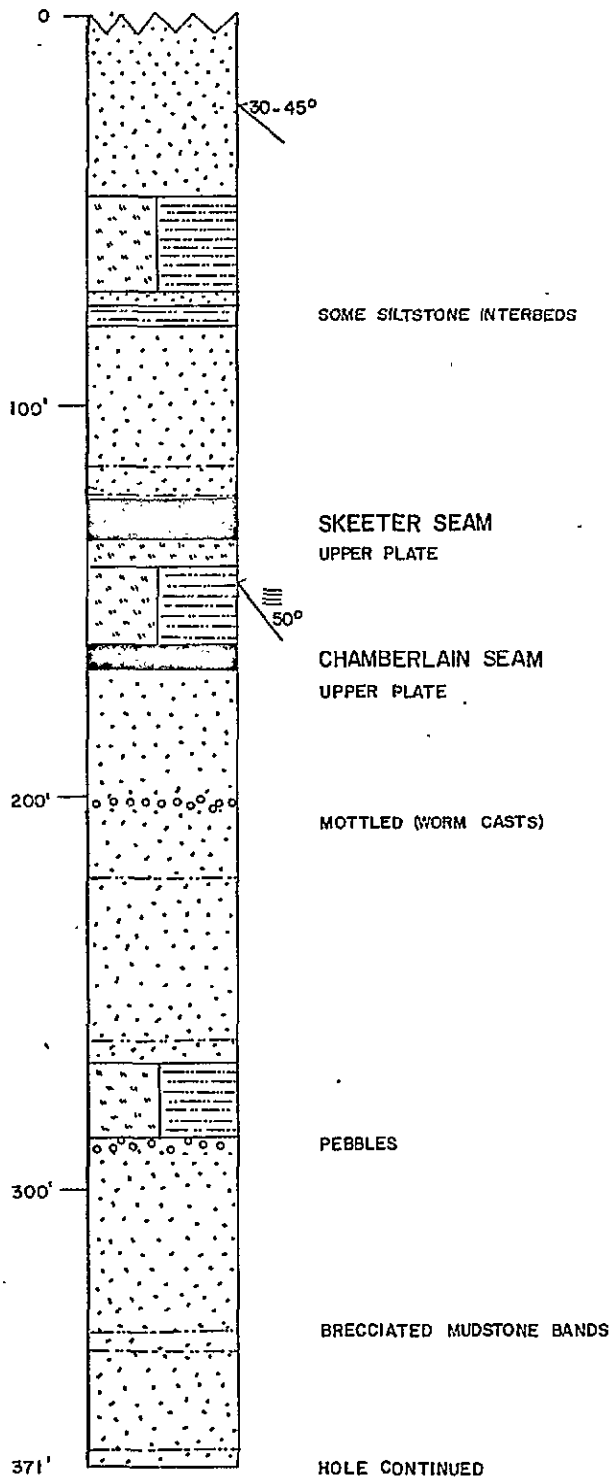
For Coalition Mining Limited

Tropari Angle 53°
Bearing 067°

Logged by F.H.S.Tebbutt

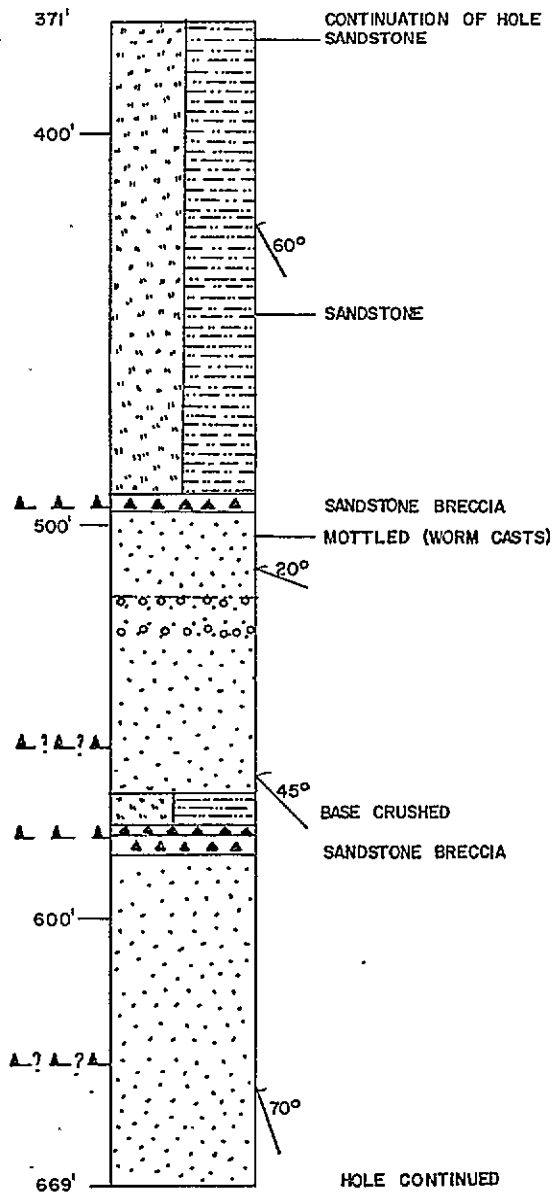
COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter Upper Plate	3937.8	12.08	37%	
Chamberlain Upper Plate	3925.89	5.56	82%	
Skeeter Fault FA/ Upper Plate	3433.5	8.12	27%	} Faulted (see Stratigraphic Section)
Skeeter Fault FA/ Lower Plate	3424.5	15.53	19%	
Chamberlain Fault FA/ Lower Plate	3373.87	10.46	75%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

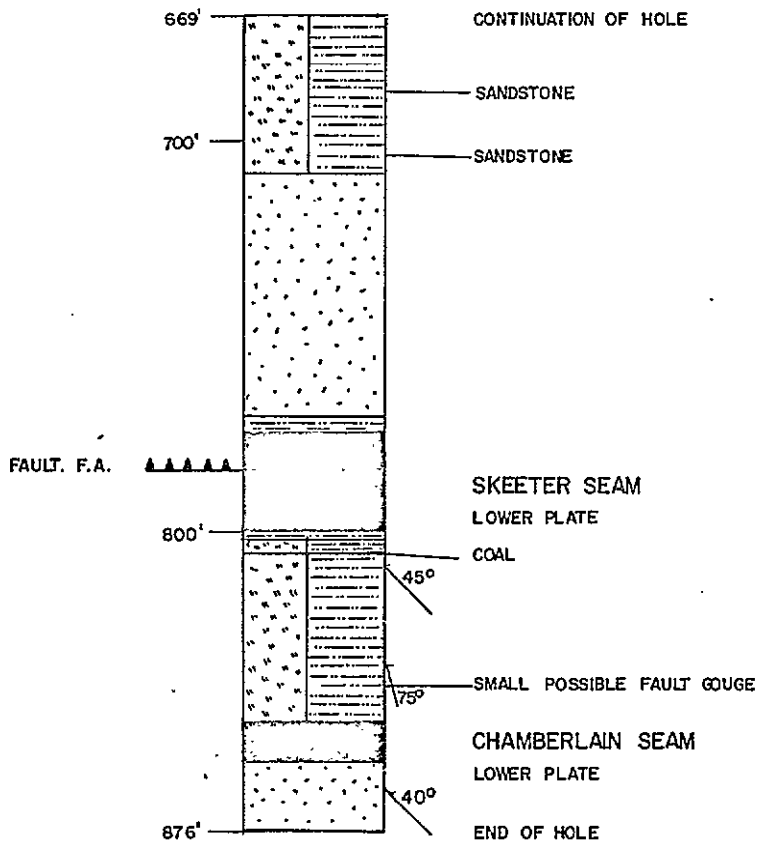


DETAIL OF GETHING FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-6



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

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STRATIGRAPHIC LOGS
DDH C-6

DRAWN BY S.A.

DATE: January '72

PAGE 3 of 3

SKEETER SEAM
UPPER PLATE

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
122.44						
123.20	0.76	-	78.0	0		
123.67	0.47					8.5
	4.98					
	0.38					
	0.85					
130.13	0.25	-	94.6	0		
	0.42					
	2.61					
	1.36					
134.52						

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SEAM SECTIONS
DDH C-6

DRW BY TR


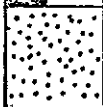
DATE 25/11/71

SCALE: 1"=2'

PAGE 1 of 1

CHAMBERLAIN SEAM
UPPER PLATE

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
161.74					2.5	
	0.68					
	0.09					
	1.02					
	0.49					
	1.34	-	2.5	6		
	0.70					
	0.20					
	0.18					
	0.85					
167.30						

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SEAM SECTIONS
DDH C-6

DRW BY TR

DATE 25/11/71

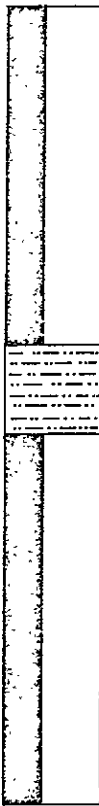
SCALE: 1"=2'

PAGE 1 of 1

SKEETER SEAM
UPPER PLATE/FAULT FA

ASH %
CUMULATIVE
FROM FLOOR

775.00



3.43

-

9.3

8

0.90

-

86.4

0

3.79

-

6.1

7

783.12

Continued

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DRAWN BY pm DATE Jan '72



SEAM SECTIONS
DDH C-6

SCALE: 1' to 2'

PAGE 1 of 3

SKEETER SEAM
LOWER PLATE/FAULT FA

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. No	INCL. BANDS	EXCL. BANDS
Continuation						
783.12		2.36	-	90.7	0	
785.48		15.53	-	3.8	8	
796.00	Continued					

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for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-6

SCALE: 1' to 2'

PAGE 2 of 3

SKEETER SEAM
LOWER PLATE/FAULT FA

ASH %
CUMULATIVE
FROM FLOOR

Continuation
796.00

801.01

4.36

NOT

ANALYSED

806.46

1.09

NOT

ANALYSED

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SEAM SECTIONS
DDH C-6

DATE Jan '72

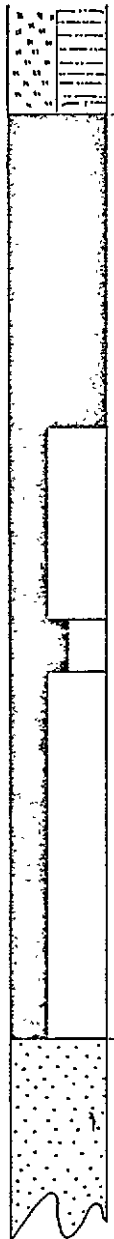
SCALE: 1" to 2'

PAGE 3 of 3

CHAMBERLAIN SEAM
LOWER PLATE/FAULT FA

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
849.09				10.5	
9.45	-	10.5	6		
858.54					



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SEAM SECTIONS
DDH C-6

SCALE: 1' to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NO. 30, 31, 32 and 33
CORE NO. C6
SKEETER SEAM (UPPER PLATE)

REPORT NO. K71-1626

DATE RECEIVED: 12. 10. 1971

DATE REPORTED: 11. 11. 1971



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been performed in accordance with the
terms of registration.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

M. Bradley
A.R.A.C.I. Chief Chemist.

E. W. ...

INTRODUCTION:

Four (4) coal ply samples designated CORE NO. C6 SKEETER SEAM (UPPER) were received on 12. 10. 1971 from Clifford McElroy & Associates

METHOD:

Sample No. 32 was a non coal ply which was weighed, prepared and analysed for Ash and True Specific Gravity.

Sample No. 30 was a coal/shale band which was weighed, hand crushed to $-\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity. The float and sink fractions and raw -30 mesh material were weighed, prepared and analysed as detailed in this report. A composite raw ply sample was prepared and the true specific gravity determined.

The good quality coal plies i.e. No. 31 and 33 were combined in this case as the stone band separating them was so small (0.25") and easily removed by washing. The combined sample was hand crushed, through $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh fraction washed in organic liquids from 1.30 S.G. to 1.60 S.G. in 0.05 steps. The float and sink fractions and the raw -30 mesh coal fractions were weighed, prepared and analysed as detailed in this report.

A composite floats 1.60 S.G. fraction of samples No. 31 and 33 was prepared for the combined sample and analysed as detailed in this report. A reconstituted raw coal sample was prepared and the true specific gravity of the samples determined.

COMMENTS:

Due to the high core losses experienced on drilling no allowance has been made for these losses i.e. sample weights have not been adjusted. These losses also preclude further calculations and construction of washability tables and graphs.

RESULTS:

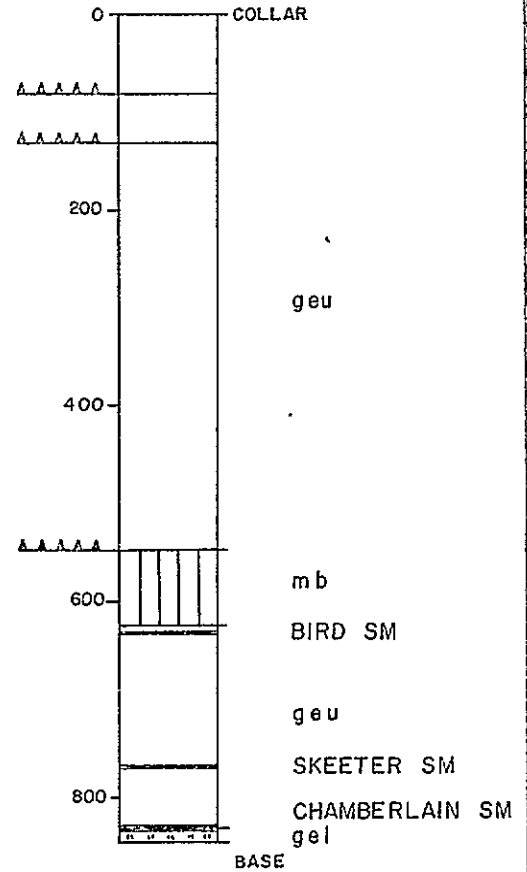
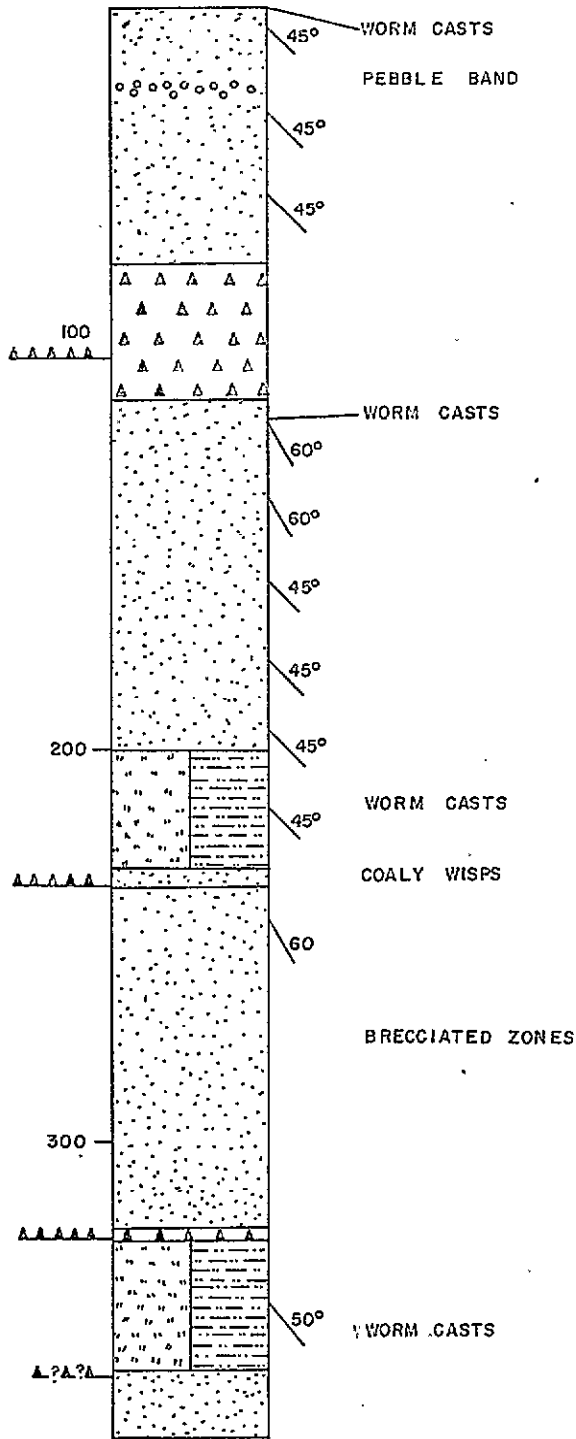
FIGURE 1 : is the graphic log of the core

TABLES 1 & 2 : give the sizing, washability and analytical data for each coal ply after hand crushing to $-\frac{3}{4}$ " .

TABLE 1WASHABILITY DATA FOR SAMPLE NO. 30 (after hand crushing to $-\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
Fl.60 SG	41	7.6	25.1	8	7.6	25.1	8
Sl.60 SG	501	92.4	82.3	0	100.0	78.0	0
-30 Mesh RC	24	4.2	55.6	2			

Total Weight of Sample = 566 grams
True Specific Gravity = 2.127



DETAIL OF GETHING
 FORMATION
 SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
 CLIFFORD McELROY & ASSOCIATES PTY. LTD.
 for
 COALITION MINING LIMITED

STRATIGRAPHIC LOGS
 D.D.H. C-39

K71-1626

COALITION MINING

SUKUNKA CB

(BKEETER UPPER SEAM)

	SPLS	THICK ^s	ASH%	GSN°
12'	30	123	78.0	0
10'				
8'				
6'	{ 31 33	1060	85	7
4'				
2'				
0	32	0.25	94.6	0

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

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APPLICANT:

COALITION MINING
c/o AUSTEN AND BUTTA LIMITED
43RD LEVEL, TOWER BUILDING
AUSTRALIA SQUARE,
SYDNEY. 2000

REPORT ON:

SUKUNKA 34
CORE NO.C6
CHAMBERLAIN SEAM (UPPER PLATE)

REPORT NO:

K71-1561

RECEIVED:

1.10.1971

REPORTED:

25.10.1971



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terms of registration.

M. Bradley
Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

D. W. [Signature]

INTRODUCTION:

One (1) coal ply designated CORE C6 CHAMBERLAIN SEAM(UPPER) was received on 1.10.1971 from Clifford McElroy and Associates Pty. Ltd.

The coal ply was hand crushed to $\frac{3}{4}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity on 0,05 steps.

The float and sink fractions and the raw -30 mesh coal fractions were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

TABLE 1 :gives the sizing, washability and analytical data for each coal ply after hand crushing to $-\frac{3}{4}$ ".

TABLE 2 :gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the Floats 1.60 SG fraction of Ply 34 are included in this report.

TABLE 1

WASHABILITY DATA FOR SKR 34, 5.56' (after hand crushing to $-\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>			
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	
F1.30 SG	1722	65.6	1.5	8	65.6	1.5	8	
S1.30- F1.35 SG	809	30.8	3.3	2	96.4	2.1	6	
S1.35-F1.40 SG	52	2.0	8.9	1	98.4	2.2	6	
S1.40- F1.45 SG	23	0.9	9.6	1	99.3	2.3	6	
S1.45- F1.50 SG	7	0.3	13.2	1	99.6	2.3	6	
S1.50- F1.55 SG	5	0.2	17.0	1	99.8	2.3	6	
S1.55- F1.60 SG	3	0.1	19.3	1	99.9	2.4	6	
S1.60 SG	5	0.1	33.2	$\frac{1}{2}$	100.0	2.4	6	
-30 Mesh	257	8.9	3.2	$8\frac{1}{2}$				

SHEET THREE ATTACHED HERETO

ANALYSIS OF FLOATS 1.60 SG FRACTION

Yield %	99.9
Air Dried Moisture %	0.9
Ash %	2.4
Volatile Matter %	22.3
Fixed Carbon %	74.4
Total Sulphur %	0.38
C.S.No.	6 $\frac{1}{2}$
Calorific Value	15330 BTU/LB

TABLE 2DATA FOR WASHABILITY CURVES - SKR 34

<u>FRACTION</u>	<u>WT.%</u>	<u>ASH%</u>	<u>WT. %</u>	<u>ASH%</u>	<u>WT.%</u>	<u>ASH%</u>	<u>±0.10 SG</u>	<u>"D"</u>
Fl.30 SG	65.6	1.5	65.6	1.5	100.0	2.4	-	32.8
S1.30- Fl.35 SG	30.8	3.3	96.4	2.1	34.4	4.1	-	81.0
S1.35- Fl.40 SG	2.0	8.9	98.4	2.2	3.6	10.8	34.0	97.4
S1.40- Fl.45 SG	0.9	9.6	99.3	2.3	1.6	13.3	3.4	98.9
S1.45- Fl.50 SG	0.3	13.2	99.6	2.3	0.7	18.0	1.5	99.5
S1.50- Fl.55 SG	0.2	17.0	99.8	2.3	0.4	21.6	-	99.7
S1.55- Fl.60 SG	0.1	19.3	99.9	2.4	0.2	26.3	-	99.8
S1.60 SG	0.1	33.2	100.0	2.4	0.1	33.2	-	99.9

SYDNEY

27th October, 1971

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

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CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLES NO. 35, 36, 37, 38, 39
CORE NO. C6
SKEETER ~~(LOWER)~~ SEAM (UPPER AND LOWER PLATE) FAULT F.A.

REPORT NO. K71- 1627

DATE RECEIVED: 12. 10. 71

DATE REPORTED: 23. 11. 71



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terms of registration.

M. Baileys
Chief Chemist.
A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

R. Deane

INTRODUCTION:

Four (4) coal samples and one (1) non coal sample designated CORE C6 SKEETER (LOWER) SEAM were received on 12.10.71 from CLIFFORD MCELROY & ASSOCIATES.

METHODS:

1. The non coal sample No.38 was weighed, prepared and analysed for ash and true specific gravity.

2. The visibly inferior coal samples Nos. 35, 36, were hand crushed to $-\frac{3}{4}$ "¹¹, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 S.G.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for ash and crucible swelling number and the composite raw coal sample reconstituted and the true s.g. of the sample determined.

3. The good quality coal samples Nos. 37,39 were hand crushed to $-\frac{3}{4}$ "¹¹, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 S.G. in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for ash and crucible swelling number, and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample no. 39 and the analysis are given in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

FIGURE 1: gives the graphic log of the core.

TABLES 1 - 4: give the sizing, washability and analytical data for each coal sample after hand crushing to $-\frac{3}{4}$ "¹¹.

SHEET THREE ATTACHED:

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 35 (after hand crushing to - $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL ANALYSIS</u>				<u>CUMULATIVE ANALYSIS</u>		
	<u>WT.</u>	<u>GM.WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60	178	96.2	7.3	8 $\frac{1}{2}$	96.2	7.3	8 $\frac{1}{2}$
S1.60	7	3.8	60.6	0	100.0	9.3	8
-30 Mesh RC	12	6.1	6.1	8 $\frac{1}{2}$			

TOTAL WEIGHT SAMPLE = 197 gms

TRUE S.G. = 1.350

TABLE 2: WASHABILITY DATA FOR SAMPLE NO. 36 (after hand crushing to - $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>WT.</u>	<u>GM.WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60	1	0.1	17.2	6	0.1	17.2	6
S1.60	1148	99.9	86.5	0	100.0	86.4	0
-30 Mesh RC	53	4.4	77.6	1			

TOTAL WEIGHT SAMPLE = 1,202 gms

TRUE S.G. = 2.260

TABLE 3: WASHABILITY DATA FOR SAMPLE NO. 37 (after hand crushing to - $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>WT.</u>	<u>GM.WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30	230	49.6	2.1	9	49.6	2.1	9
S1.30 - F1.35	137	29.5	4.6	7 $\frac{1}{2}$	79.1	3.0	8 $\frac{1}{2}$
S1.35 - F1.40	20	4.3	8.3	4 $\frac{1}{2}$	83.4	3.3	8
S1.40 - F1.45	23	5.0	12.12	2 $\frac{1}{2}$	88.4	3.8	8
S1.45 - F1.50	32	6.9	14.3	1	95.3	4.6	7 $\frac{1}{2}$
S1.50 - F1.55	8	1.7	16.4	1	97.0	4.8	7 $\frac{1}{2}$
S1.55 - F1.60	3	0.6	18.4	$\frac{1}{2}$	97.6	4.9	7 $\frac{1}{2}$
S1.60	11	2.4	55.1	0	100.0	6.1	7
-30 Mesh RC	60	11.5	3.7	9			

TOTAL WEIGHT SAMPLE = 524 gms

TRUE S.G. = 1.333

SAMPLE NO. 38

RAW COAL TOTAL WEIGHT OF SAMPLE = 2,844 gms

ASH% = 90.7 %

TRUE S.G. = 2.500

TABLE 4: WASHABILITY DATA FOR SAMPLE NO. 39 (after hand crushing to - $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>WT.</u>	<u>GM.WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30	985	65.4	1.9	9	65.4	1.9	9
S1.30 - F1.35	347	23.1	4.9	7 $\frac{1}{2}$	88.5	2.7	8 $\frac{1}{2}$
S1.35 - F1.40	94	6.2	9.2	7 $\frac{1}{2}$	94.7	3.1	8 $\frac{1}{2}$
S1.40 - F1.45	52	3.5	12.7	6	98.2	3.5	8 $\frac{1}{2}$
S1.45 - F1.50	12	0.8	14.4	1 $\frac{1}{2}$	99.0	3.5	8 $\frac{1}{2}$
S1.50 - F1.55	5	0.3	17.0	1	99.3	3.6	8 $\frac{1}{2}$
S1.55 - F1.60	3	0.2	20.3	$\frac{1}{2}$	99.5	3.6	8
S1.60	7	0.5	50.2	0	100.0	3.8	8
-30 Mesh RC	341	18.5	3.1	9			

TOTAL WEIGHT SAMPLE = 1,846 gms

TRUE S.G. = 1.262

SYDNEY

23rd November, 1971.

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 39

<u>YIELD %</u>	<u>ADM%</u>	<u>ASH%</u>	<u>V.M.%</u>	<u>F.C.%</u>	<u>S. %</u>	<u>G.S.</u>	<u>NO.CV(BTU/lb)</u>
99.5	1.0	3.7	22.7	72.6	0.48	8	14,750

SYDNEY

23rd November, 1971.

	SPLR	THICK	ASH%	CSNO
24'				
24'	35	3.45	9.31	8
22'	36	0.90	86.4	0
20'	37	3.79	6.1	7
18'				
16'	38	2.36	90.7	0
14'				

14'

12'

10'

8'

6'

4'

2'

0

39

1553

3-8

8

1571-1627
COALITION MINING
SUKUNKA C6
(BREKETER LOWER
SLAM)

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

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APPLICANT: COALITION MINING
c/o AUSTEN AND BUTTA LIMITED
43RD LEVEL, TOWER BUILDING
AUSTRALIA SQUARE,
S Y D N E Y. 2000

REPORT ON: SUKUNKA 47
CORE NO.C6
CHAMBERLAIN SEAM (LOWER PLATE) FAULT F.A.

REPORT NO: K71-1562

RECEIVED: 1.10.1971

REPORTED: 25.10.1971



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terms of registration.

A. M. Bradley
Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

A. H. [Signature]

INTRODUCTION:

One (1) coal ply designated CORE C6 CHAMBERLAIN SEAM (LOWER) was received on 1.10.1971 from Clifford McElroy and Associates Pty. Ltd.

METHOD:

The coal ply was hand crushed to $\frac{3}{4}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and the raw -30 mesh coal fractions were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{4}$ ".

TABLE 2 : gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the floats 1.60 SG fraction of Ply 47 are included in this report.

TABLE 1

WASHABILITY DATA FOR SKR 47, 9.45' (after hand crushing to $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>			
	<u>WEIGHT</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	
F1.30 SG	2043	56.0	1.7	8	56.6	1.7	8	
S1.30- F1.35 SG	773	21.2	3.4	1 $\frac{1}{2}$	77.2	2.2	6	
S1.35- F1.40 SG	107	2.9	8.4	1	80.1	2.4	6	
S1.40- F1.45 SG	36	1.0	11.5	1	81.1	2.5	6	
S1.45- F1.50 SG	16	0.4	16.0	1	81.5	2.6	6	
S1.50- F1.55 SG	22	0.6	18.0	1	82.1	2.7	6	
S1.55- #1.60 SG	38	1.1	22.9	1	83.2	3.0	6	
S1.60 SG	611	16.8	51.1	0	100.0	11.0	5	
-30 mesh	1043	22.2	8.2	8 $\frac{1}{2}$				

ANALYSIS OF FLOATS 1.60 SG FRACTION

Yield %	83.2%
Air Dried Moisture %	0.7
Ash %	3.0
Volatile Matter %	20.0
Fixed Carbon %	76.3
Total Sulphur %	0.49
C.S.NO.	6
Calorific Value	15380 BTU/LB

TABLE 2DATA FOR WASHABILITY CURVES - SKR 47

<u>FRACTION</u>	<u>INDIVIDUAL</u>		<u>CUM. FLOATS</u>		<u>CUM. SINKS</u>		<u>±0.10 SG</u>	<u>"D"</u>
	<u>WT.%</u>	<u>ASH%</u>	<u>WT.%</u>	<u>ASH%</u>	<u>WT.%</u>	<u>ASH%</u>		
F1.30 SG	56.0	1.7	56.0	1.7	100.0	11.0	-	28.0
S1.30- F1.35 SG	21.2	3.4	77.2	2.2	44.0	22.9	-	66.6
S1.35- F1.40 SG	2.9	8.4	80.1	2.4	22.8	41.1	25.5	78.7
S1.40- F1.45 SG	1.0	11.5	81.1	2.5	19.9	45.8	4.9	80.6
S1.45- F1.50 SG	0.4	16.0	81.5	2.6	18.9	47.7	3.1	81.3
S1.50- F1.55 SG	0.6	18.0	82.1	2.7	18.5	48.3	-	81.8
S1.55- F1.60 SG	1.1	22.9	83.2	3.0	17.9	49.4	-	82.7
S1.60 SG	16.8	51.1	100.0	11.0	16.8	51.1	-	91.6

SYDNEY

26th October, 1971

STRATIGRAPHIC LOG
SUKUNKA D.D.H. - C6

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 9.0 ft.	GETHING FM.	
	SANDSTONE, grey, medium grained, quartz lithic, brown weathered bands.		47.0
	INTERBEDS, siltstone grey and mudstone dark grey, worm casts.		71.0
	SANDSTONE, grey, medium grained, quartz-lithic, mudstone interbeds		75.0
	MUDSTONE, dark grey.		80.0
	SANDSTONE, grey, medium grained, some vertical calcite, mudstone band at 116' and at base.		124.0
	<u>COAL.</u>	SKEETER SM.	134.0
	SILTSTONE, grey, sandy phases, some disturbed bedding.		141.0
	LAMINITE, siltstone & mudstone, grey & mudstone dark grey, general colour darkish grey.		162.0
	<u>COAL.</u>	CHAMB. SM.	167.0
	SANDSTONE, grey, medium grained becoming finer to base, pebble band 201', mottled (worm casts).		

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	206', mudstone bands 220' and 260'.		268.0
	INTERBEDS, siltstone and sandstone grey, and mudstone dark grey interbedded.		287.0
	SANDSTONE, grey, fine to medium grained, quartz-lithic, band of pebbles at top. Mudstone bands at 337', 341', 366' and 371'. mudstone bleb bands at 334', 349', 350', 364', 366', 367'.		371.0
	INTERBEDS, siltstone grey and mudstone dark grey. Worm casts Sandstone bands at 374', 438'. Heavy calcite veins at 455'.		491.0
Fault, probable	SANDSTONE, grey, medium grained, brecciated and calcite veined.		497.0
Fault, possible	SANDSTONE, grey, medium grained, quartz-lithic. Mottled (worm casts) at 503', mudstone band at 519' underlain by pebbles, pebble band at 528'. Some calcite veining, especially at 558'.		568.0
Fault, probable	INTERBEDS, siltstone grey and mudstone dark grey. Base brecciated.		579.0
	SANDSTONE, grey, medium grained, brecciated, with calcite veining.		584.0
Fault, possible	SANDSTONE, grey, medium grained, finer at base, fault gauge at 632'. Calcite veining, "vertical" beds.		669.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	INTERBEDS, siltstone grey and mudstone dark grey. Sandstone bands at 689' and 701', mudstone band (4') at base.		708.0
	SANDSTONE, grey medium grained, quartz-lithic.		771.0
	MUDSTONE, dark grey.		775.0
	<u>COAL</u> ,	SKEETER SM.	799.0
	MUDSTONE, dark grey.		800.0
	INTERBEDS, siltstone grey and mudstone dark grey. Small possible fault gauge at 838', coal band at 806'.		849.0
	<u>COAL</u> ,	CHAMB. SM.	858.0
	SANDSTONE, grey, medium grained.		876.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, dark grey, some siltstone interbeds towards base. Bedding angle 50° to core axis.	0.79	116.41	0.80	
SANDSTONE, grey, medium grained, lithic, irregular siltstone masses, some coaly wisps, a sub-vertical calcite vein.	1.36	117.77	1.37	
SANDSTONE, grey, fine grained, lithic, siltstone interbeds, worm casts.	3.33	121.10	3.35	
CLAYSTONE, dark grey, becoming carbonaceous to base.	1.34	122.44	1.35	
<u>COAL</u> , mainly dull with minor bright bands.	0.76	123.20	0.08)
)
MUDSTONE, dark grey, carbonaceous, becoming stone coaly at base.	0.47	123.67	0.47)
)
<u>COAL</u> , mainly dull with minor bright bands, core broken, pyrite and chalcopryrite. Bedding angle 50° to core axis.	4.98	128.65	2.63	) SKEETER SEAM upper plat
)
dull and bright, pyrite, core broken.	0.38	129.03	0.20)
)
mainly dull with minor bright bands, pyrite and chalcopryrite. Core broken.	0.85	129.88	0.45)

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		9.0		
SANDSTONE, grey with brownish banding, fine grained, quartz(?) - lithic. Core angle 45° throughout. A fracture at 75° to core axis 21.82' from top.	37.03	46.62	37.17	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey, mudstone dark grey, interbedded; worm casts and irregular sedimentary structures, some fractures. Bedding angle 45° to 50° to core axis.	23.19	69.81	23.28	
SANDSTONE, grey, medium grained, lithic, siltstone interbeds, phases and irregular masses, coaly wisps.	4.93	74.74	4.95	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and predominant mudstone dark grey, interbedded; pyrite nodules towards base.	5.14	79.88	5.16	
SANDSTONE, grey, medium grained, lithic, irregular siltstone masses, some coaly wisps, and sub-vertical calcite veins (no displacement) towards base; core broken. Bedding angle 50° to core axis throughout. Some calcite veins at 0° to core axis.	35.74	115.62	35.85	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, dark grey, becoming carbonaceous.	0.25	130.13	0.25)
<u>COAL</u> , dull and bright, core broken, pyrite.	0.42	130.55	0.22)
mainly dull with minor bright bands, pyrite, core broken.	0.91	131.46	0.48)
mainly dull with minor bright bands, core broken, pyrites.	1.70	133.16	0.90)
predominantly dull, badly broken, pyrite.	1.36	134.52	0.72)
CLAYSTONE, dark grey, carbonaceous.	0.69	135.21	0.70)
CLAYSTONE, grey, coaly wisps.	1.45	136.66	1.46)
SILTSTONE, grey, sandstone and mudstone interbeds and phases.	4.00	140.66	4.03)
SILTSTONE AND CLAYSTONE INTERBEDDED, grey siltstone and dark grey claystone, interbedded; some sandstone phases near top, becoming predominantly claystone towards base, slumping near top. Bedding angle 50° to core axis.	20.84	161.50	18.82)

SKEETER SEAM
upper plate

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, grey, siltstone phases.	0.24	161.74	0.24	
<u>COAL</u> , mainly dull with minor bright bands.	0.68	162.42	0.67)
bright.	0.09	162.51	0.09)
mainly dull with minor bright bands. Bedding angle 64° to core axis.	1.02	163.53	1.02)
dull.	0.49	164.02	0.49)
mainly dull with minor bright bands.	1.34	165.36	1.33)
dull and bright.	0.44	165.80	0.44)
mainly bright with minor dull bands.	0.26	166.06	0.26)
mainly dull with minor bright bands.	0.20	166.26	0.20)
dull and bright.	0.18	166.44	0.18)
mainly dull with minor bright bands.	0.86	167.30	0.85)

CHAMBERLAIN
SEAM
upper plate

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top and with coaly masses. Some fine siltstone interbeds.	12.57	179.87	12.52	
SANDSTONE, grey, quartz-lithic, medium grained, some siltstone interbeds, sub-vertical calcite vein. Bedding angle 50° to core axis, calcite vein 80° to core axis.	18.87	198.74	18.80	
SANDSTONE, as above, with some coaly wisps, a carbonaceous band (0.10') 1.75' from top, above which band pebble conglomerate (0.13') mottled (worm casts) near 206'. Bedding angle 50° to core axis.	19.32	218.06	19.24	
SANDSTONE, grey, medium grained, becoming fine grained to base, some siltstone and coaly wisps and interbeds, pyrite filled fracture. Bedding angle 45° to core axis. Fracture 28° to core axis, opposed to bedding.	19.29	237.35	19.21	
SANDSTONE, fine as above, siltstone interbeds. Bedding angle 48° to core axis.	22.71	260.06	22.62	
MUDSTONE, dark grey.	1.55	261.61	1.54	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, coaly lens near top, mudstone interbeds and phases.	6.11	267.72	6.09	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone and mudstone dark grey (younging upwards). Bedding angle 51° to core axis.	8.23	275.95	8.20	
SILTSTONE AND MUDSTONE INTERBEDDED, as above, coaly parting 3.60' from top.	10.86	286.81	10.82	
CONGLOMERATE, grey, granule, fine calcite vein, one siltstone band.	0.62	287.43	0.62	
SANDSTONE, grey, fine grained, quartz-lithic. Bedding angle 42°-50° to core axis, fractures 37° to core axis, opposed to bedding.	26.96	314.39	26.85	
SANDSTONE, as above, some calcite veins. Bedding angle 47° to core axis, fractures 28° to core axis, calcite veins 25° to core axis.	18.97	333.36	18.89	
SANDSTONE, as above, mudstone phases with coaly partings, 3.2' from top.	7.05	340.41	7.02	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, coaly wisps, siltstone interbeds.	0.77	341.18	0.77	
SANDSTONE, as above, siltstone interbeds near top, occasional mudstone breccia bands. Bedding angle 50° to core axis.	10.18	351.36	9.12	
SANDSTONE, as above, mudstone breccia bands and mudstone phases. Bedding angle 50° to core axis.	19.77	371.13	18.05	
SANDSTONE AND CLAYSTONE INTERBEDDED, sandstone grey, very fine grained and mudstone dark grey, (younging upwards).	4.37	375.50	4.35	
SANDSTONE AND CLAYSTONE INTERBEDDED, as above. Sandstone grey, very fine grained and mudstone dark grey, interbedded. Bedding angle 50° to core axis.	33.12	408.62	32.93	
SANDSTONE AND CLAYSTONE INTERBEDDED, as above, grainsize becoming finer, mudstone predominant, sandstone becomes siltstone, two calcite veins with slickensiding. Bedding angle 50° to core axis, fractures (no calcite) 50° to core axis, opposed to bedding.	19.10	427.72	19.00	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE AND CLAYSTONE INTERBEDDED, as above, bedding angle 45° to core axis, no fractures.	19.27	446.99	19.16	
SANDSTONE AND CLAYSTONE INTERBEDDED, as above. Bedding angle 46° to core axis. Calcite fractures parallel to bedding at slump structure, calcitic fractures also vertical, some shearing of mudstone.	18.65	465.64	18.55	
SANDSTONE AND CLAYSTONE INTERBEDDED, as above, calcite veins parallel to bedding, beds slumped. Bedding angle (unslumped) 28° to core axis. Fracture angle 18° to core axis.	27.24	492.88	28.39	
SANDSTONE, grey, medium grained, quartz-lithic, angular blocks in calcite matrix together with mudstone fragments. Bedding highly disturbed and randomly oriented. Core shattered.	3.82	496.70	4.39	
SANDSTONE, grey, medium grained quartz-lithic, massive, core fractured near top, no calcite. Bedding angle 67° to core axis.	25.32	522.02	25.41	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, as above, Bedding angle 75° to core axis. Pebble band 13.0 ft from base. Calcite veins 15° to core axis.	18.94	540.96	19.01	
SANDSTONE, as above, bedding highly disturbed at 558', calcite filled fractures for 1'. Bedding angle 64° to core axis. Calcite planes 19° to core axis.	27.66	568.62	14.97	
MUDSTONE AND SILTSTONE INTERBEDDED, siltstone grey and mudstone dark grey, core broken towards base, calcite veins present. Bedding angle 40° to core axis. Fractures (some) parallel to bedding and calcite filled.	10.33	578.95	10.37	
SANDSTONE, grey, fine grained, quartz-lithic, brecciated. Bedding disorientated.	5.37	584.32	5.39	
SANDSTONE, as above. Bedding intact. Bedding angle steeply dipping - vertical to 50° to core axis. Calcite veins 50° to core axis. 6' fault zone.	14.06	598.38	14.11	
SANDSTONE, as above. Bedding angle 17° to core axis at top, 35° to core axis in middle and at base, Some calcite veins parallel to bedding and oblique 20° to core axis.	34.39	632.77	34.51	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, soft with calcite veined sandstone fragments, fault gouge (?).	0.42	633.19	0.42	
SANDSTONE, as above, core broken, calcite veins throughout.	2.15	635.34	2.16	
SANDSTONE, as above, core intact. Bedding angle 42° to core axis. Calcite veins 19° rotated normal to bedding. Lower 3' of core is fault. Below 0.58', bedding variable from vertical near centre and base to 50° to core axis at top. Calcite veins in upper half plus several planes 21° & 50° to core axis, opposed to bedding.	33.18	668.52	33.30	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey, (younging upwards). Numerous soft sediment structures. Bedding angle 42° to core axis. Calcite veins 13° to core axis, opposed to bedding.	31.89	700.41	32.01	
SANDSTONE, grey, medium grained, quartz-lithic.	1.44	701.85	1.45	
INTERBEDS, as above, becoming fine grained at base.	5.44	707.29	5.46	
CLAYSTONE, carbonaceous, dark brown, listric surfaces at centre.	1.59	708.88	1.60	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps and laminations throughout.	1.68	710.56	1.69	
SANDSTONE, as above, coaly layer 4.76' from top. Bedding angle 60° to core axis in top third, 50° to core axis in centre and 60° to core axis in bottom third. Bedding disturbed and calcite veining 9.41' from top.	56.34	766.90	52.66	
SANDSTONE, grey, medium grained and becoming fine towards base, quartz-lithic, siltstone and coaly wisps, partings and irregular masses.	4.84	771.74	4.47	
CLAYSTONE, dark brownish grey, carbonaceous, bedding angle steepens and returns to normal from top to bottom of section. Calcitic and coaly wisps. Listric surfaces.	3.26	775.00	3.01	
<u>COAL</u> , mainly dull with minor bright bands, core very broken.	3.43	778.43	0.55)
MUDSTONE, grey, coaly partings.	0.90	779.33	0.90	) SKEETER SEAM
<u>COAL</u> , mainly dull with minor bright bands, core badly broken.	3.79	783.12	1.30	) upper plate fraction of Fault F.A.

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, calcite veins (thin) at 30° to core axis. Bedding angle 50° to core axis in the opposed direction.	0.99	784.11	0.99	) ) ) SKEETER SEAM
CLAYSTONE, dark grey, with mudstone phases, coaly wisps, listric surfaces.	1.37	745.48	1.37	) ) lower plate Skeeter Roof
<u>COAL</u> , mainly dull with minor bright bands overall, core fragmented.	5.50	790.98	1.87))
core fragmented, listric surfaces, friable where coal type recognisable dull and minor bright bands.	3.85	794.83	1.31))
core fragmented, listric surfaces, where identifiable - mainly dull with minor bright bands.	6.18	801.01	2.10	) ) SKEETER SEAM
MUDSTONE, grey, fine siltstone interbeds.	4.36	805.37	4.36	) ) lower plate Fault F.A.
<u>COAL</u> , mainly dull with minor bright bands.	0.38	805.75	0.13))
MUDSTONE, grey, calcite vein.	0.21	805.96	0.07))

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, mainly dull with minor bright bands.	0.26	806.22	0.09	) SKEETER SEAM
stony.	0.24	806.46	0.08	) lower plat Fault F.A.
CLAYSTONE, dark grey, siltstone interbeds and phases. Core very broken 2' from top, listric surfaces.	6.91	813.37	6.69	
SILTSTONE, grey, mudstone interbeds, slump structure.	3.51	816.88	3.40	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey, calcite veins towards centre along bedding planes. Bedding angle 55° to core axis.	18.62	835.50	18.02	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey, some calcite veins at top. Bedding angle at top 65° to core axis steepening to 20°, 3.6' from top, and 0° at 3.9' from top. Junction of angled bedding with that below not continuous, core broken at a mudstone phase which runs from 3.05' to 6.15' from top with indistinct boundaries; thick calcite veining at 5.12' from top and core broken from 3.6' to 5.12' from top.	13.59	849.09	13.15	

SUKUNKA D.D.H. C-6

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, coal types indeterminate, core breaks into flakes with listric surfaces.	3.22	852.31	2.44)
COAL, core badly broken and sheared. Sub-divisions broad.)
mainly dull with minor bright bands.	1.94	854.25	1.47	) CHAMBERLAIN SEAM
dull and bright.	0.53	854.78	0.40	) lower platform Fault F.A.
mainly dull with minor bright bands.	3.76	858.54	2.84)
SANDSTONE, grey, medium grained, quartz-lithic, coaly partings between 0.2' and 0.4' from top.	11.87	870.41	11.66	
SANDSTONE, as above, some current bedding. Bedding angle 48° to core axis.	5.59	876.00	5.49	
				<u>Base of Hole</u>

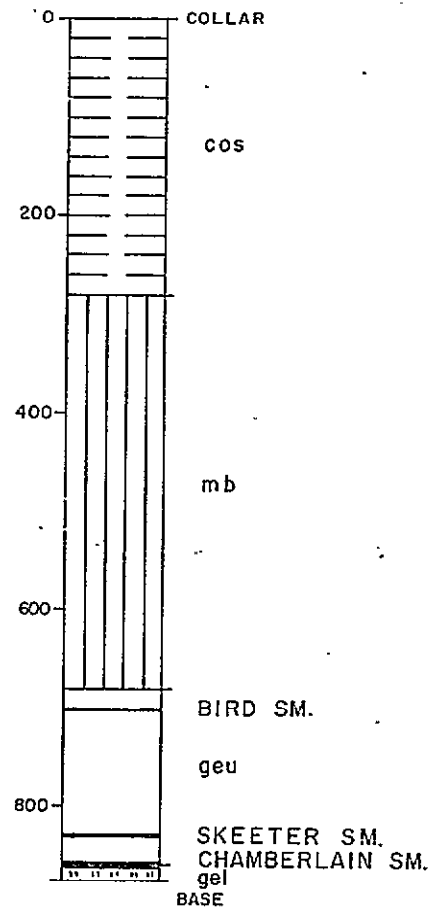
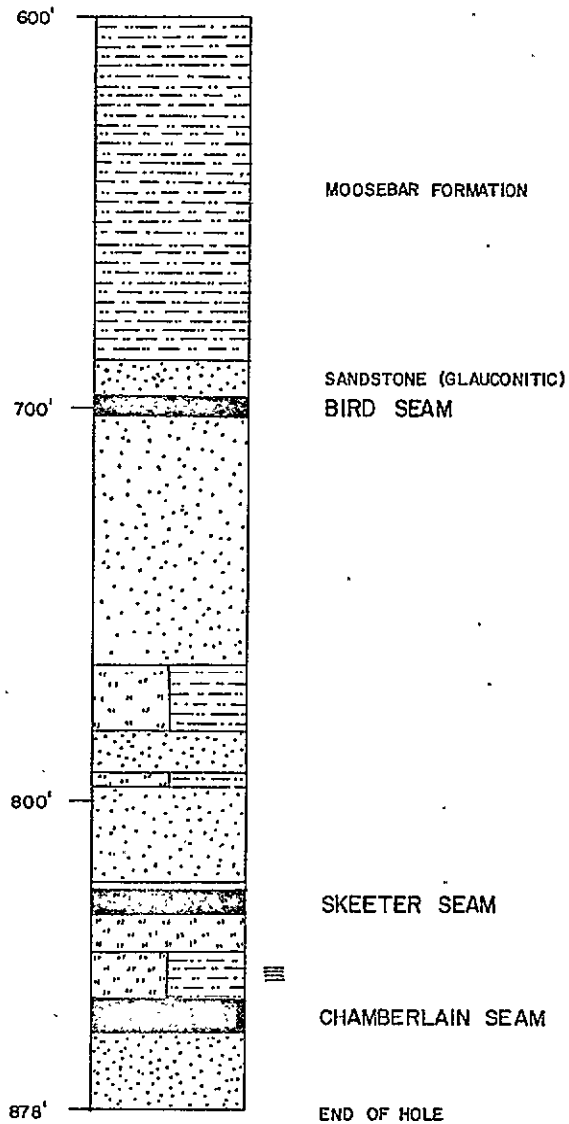
Grid Reference 46737.6 N 80942.3 E
Exploration Grid Reference C+1000'N/1

Date Commenced 14 Aug 71 Completed 19 Aug 71

Collar R.L. 4622.4 ft. Standard Datum
Total Depth 878 ft. Electrically Logged Yes/NA
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
SKEETER	3792.91	9.64	61%	
Chamberlain	3763.52	8.67	88%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-7

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

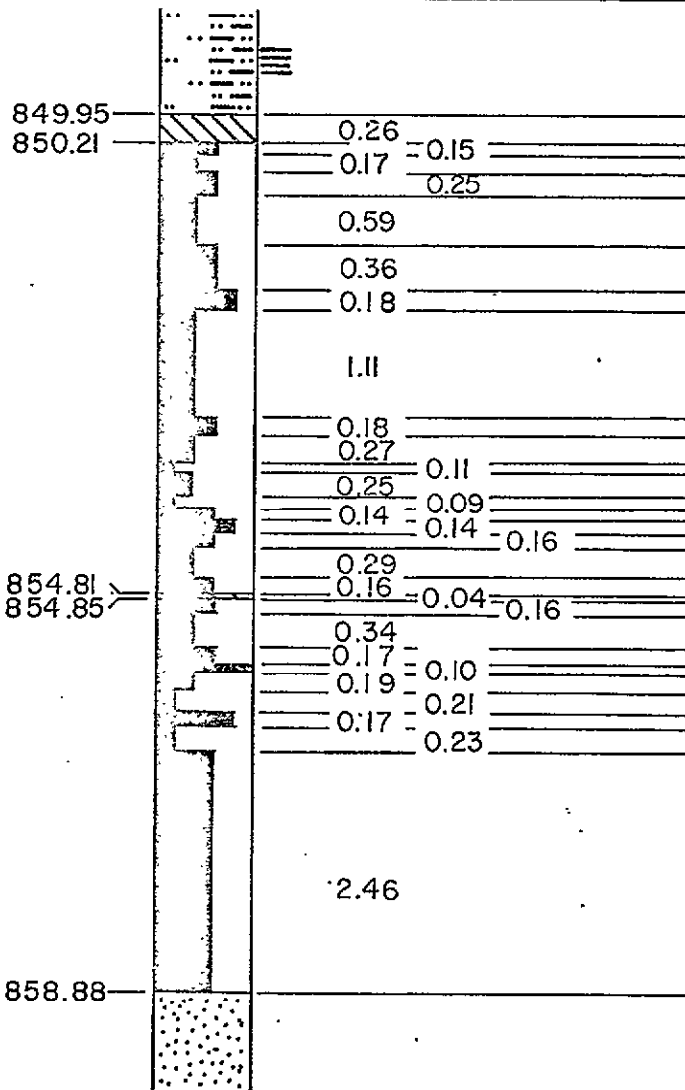
		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
819.85	0.18					
820.14	0.11					
820.72	0.58	-	68.4	0		
	0.20					
	0.83					
	0.08 = 0.06 = 0.06 = 0.25					
	0.08					
	0.43					
	0.12 = 0.08					
	0.37					
	0.55	-	5.3	6½		
	0.38					
	0.37					
	0.18					
	0.40					
	0.06 = 0.12					
	0.26 = 0.09					
	0.15					
	0.52					
	0.20					
	1.03					
827.59	1.01	-	86.6	0		
828.60	0.03 = 0.03 = 0.11					
828.63						
828.66	0.72					
829.49						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-7

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR



WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
-	49.4	0		
			3.9	
-	3.9	7		

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
DDH C-7

DRW BY TR

DATE 26/11/71

SCALE: 1"=2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLES NO. 128/129, 130, 130A/131
CORE NO. C7
SKEETER SEAM

REPORT NO. K71-1744

RECEIVED: 4. 11. 1971

REPORTED: 26. 11. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

A. Bradley
A.R.A.C.I. Chief Chemist

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. J. Cooper

INTRODUCTION:

One coal sample and two non coal samples designated CORE NO. C7 SKEETER SEAM were received on 4. 11. 1971 from Clifford McElroy & Associates.

METHODS:

1. The non coal samples were weighed, prepared and analysed for Ash and true specific gravity.
2. The good quality coal sample No. 130 was hand crushed to $\frac{3}{8}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity in 0.05 steps.

The float and sink fraction and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for Sample No. 130 and the analysis is given in this report.

NOTE:

Sample weights have not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for the coal sample after hand crushing to $\frac{3}{8}$ " top size.

SAMPLE NO. 128/129

RAW COAL

Total Weight of Sample = 692 grams
 Ash % = 68.4
 True Specific Gravity = 2.041

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 130 (after hand crushing to $\frac{3}{8}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	1045	45.9	2.4	8½	45.9	2.4	8½
S1.30 - F1.35 SG	910	39.9	5.8	6	85.8	4.0	7½
S1.35 - F1.40 SG	165	7.2	10.1	2	93.0	4.5	7
S1.40 - F1.45 SG	125	5.5	14.6	1½	98.5	5.0	6½
S1.45 - F1.50 SG	22	1.0	15.4	1	99.5	5.1	6½
S1.50 - F1.55 SG	6	0.2	18.2	1	99.7	5.2	6½
S1.55 - F1.60 SG	1	0.1	20.8	1	99.8	5.2	6½
S1.60 SG	5	0.2	60.0	0	100.0	5.3	6½
-30 Mesh	130	5.4	2.5	8			

Total Weight of Sample = 2409 grams
 True Specific Gravity = 1.289

SAMPLE NO. 130A + 131

RAW COAL	Total Weight of Sample	=	1046	grams
	Ash %	=	86.6	
	True Specific Gravity	=	2.410	

ANALYSIS OF FLOATS 1.60 SG FRACTION OF
SAMPLE NO. 130

Yield %	99.8
Air Dried Moisture %	0.6
Ash %	5.2
Volatile Matter %	21.7
Fixed Carbon %	72.5
Total Sulphur %	0.40
C.S.NO.	7½
Calorific Value	14520 BTU/LB

SYDNEY
30th November 1971

K71-1704

COALITION MINING

SUKUNKA C9 -

SKEETER SEAM

	SPL	THICK	ACH%	CSLP
8'	{ 128 129	0.87'	624	0
6'				
4'	130	6.87'	53	62
2'				
0	{ 130A 131	1.18'	866	0

Telegrams and Cables:
"Visar", Sydney

Telephone: 241 1105

C A R G O SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLES NO. 132, 133
CORE NO. C7
CHAMBERLAIN SEAM

REPORT NO. K71-1745

RECEIVED: 4. 11. 1971

REPORTED: 26. 11. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bralley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

E. H. Campbell

INTRODUCTION:

One coal sample and one non coal sample designated CORE NO. C7 CHAMBERLAIN SEAM were received on 4. 11. 1971 from Clifford McElroy & Associates.

METHODS:

1. The non coal sample No. 132 was weighed, prepared and analysed for Ash and true specific gravity.
2. The good quality coal sample No. 133 was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for Sample No. 133 and the analysis is given in this report.

NOTE:

Ply weights have not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for the coal sample after hand crushing to $\frac{3}{4}$ " top size.

SAMPLE NO. 132

RAW COAL	Total Weight of Sample =	170 grams
	Ash % =	49.4
	True Specific Gravity =	1.786

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 133 (after hand crushing to $\frac{3}{4}$ ")

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	2625	60.1	1.9	8½	60.1	1.9	8½
S1.30 - F1.35 SG	1274	29.2	3.9	5	89.3	2.6	7½
S1.35 - F1.40 SG	255	5.8	9.2	2	95.1	3.0	7
S1.40 - F1.45 SG	68	1.6	15.1	1½	96.7	3.2	7
S1.45 - F1.50 SG	50	1.1	20.1	1	97.8	3.4	7
S1.50 - F1.55 SG	47	1.1	22.3	1	98.9	3.6	7
S1.55 - F1.60 SG	6	0.1	28.4	1	99.0	3.6	7
S1.60 SG	42	1.0	35.7	½	100.0	3.9	7
-30 Mesh	335	7.1	2.6	8½			

Total Weight of Sample = 4702 grams
 True Specific Gravity = 1.264

ANALYSIS OF FLOATS 1.60 SG FRACTION OF SAMPLE NO. 133

Yield %	99.0
Air Dried Moisture %	0.6
Ash %	3.6
Volatile Matter %	22.0
Fixed Carbon %	73.8
Total Sulphur %	0.29
C.S.NO.	8
Calorific Value	14700 BTU/LB

SYDNEY
30th November 1971

1371-1745

COALITION MINING

SUKUNDA C70

EMANCIPATORY SERIES

SPL	THICK ^S	ASIF ^S	CSMP
132	0.25	14.4	0
133	8.67	3.9	7

8

6

4

2

0

STRATIGRAPHIC LOG
SUKUNKA D.D.H. - C7

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 6.0 ft.		
	SILTSTONE, grey and mid-grey, mudstone fragments.	SUKUNKA MB.	280.0
	MUDSTONE, dark grey, 0.4' clay band at 618'. Sideritic concretions one at 633' fractured with brecciated fragments and filled with sandy? particles.	MOOSEBAR FM.	688.0
	SANDSTONE, dark grey, becoming light grey, glauconitic, some pebbles at base.	GETHING FM.	698.0
	<u>COAL.</u>	BIRD SEAM	702.0
	SANDSTONE, grey, medium grained, pebble band at 723', mudstone band at 725.5'. Worm casts at 710'. Becomes finer to base.		765.0
	SILTSTONE and MUDSTONE INTERBEDS.		782.0
	SANDSTONE, grey, medium grained, becoming finer to base, mudstone and siltstone phases.		793.0
	SILTSTONE and MUDSTONE INTERBEDS, darkish grey, more mudstone towards base.		796.5

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, grey, medium grained.		820.5
	MUDSTONE, dark grey.	822.0	
	<u>COAL</u> , 0.75' siltstone band 4.1' from top.	SKEETER SM.	829.5
	SILTSTONE, grey, grading to sandstone medium grained.		838.0
	LAMINITE, siltstone and mudstone.		850.0
	<u>COAL</u> , 0.23' coal stony at top.	CHAMB. SM.	859.0
	SANDSTONE, grey, medium grained.		878.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		750.00		
SANDSTONE, grey, fine grained, quartz-lithic, occasional mudstone blebs with concentrated band (0.12') at 0.50' from base.	16.67	766.67	14.28	
SILTSTONE AND MUDSTONE INTERBEDS, grey siltstone and dark grey mudstone, interbedded; some fine grey sandstone interbeds and phases, worm casts, sandy and mudstone blebs.	15.13	781.80	15.10	
SANDSTONE, grey, medium grained, quartz-lithic, irregular mudstone masses in top 0.3', becoming finer and dark grey (carbonaceous) (0.45') band 0.4' from base.	2.90	784.70	2.95	
CLAYSTONE, carbonaceous.	0.11	784.81	0.11	
MUDSTONE, dark grey, carbonaceous, siltstone and sandstone (carbonaceous) phases and irregular coaly masses at top.	1.33	786.14	1.35	
SANDSTONE, grey, medium grained, quartz-lithic, siltstone interbeds and phases.	2.09	788.23	2.12	

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, siltstone interbeds and phases, coaly wisps, bedding disturbed (sedimentary) in parts.	2.52	790.75	2.56	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone brownish grey, and mudstone grey, interbedded. Mudstone fraction increases towards base and rock becomes darker. Bedding angle 90° to core axis.	4.52	795.27	4.59	
MUDSTONE, black, becoming carbonaceous.	0.91	796.18	0.92	
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps and narrow carbonaceous and siltstone phases.	10.90	807.08	11.09	
SANDSTONE, grey, fine grained, quartz-lithic, siltstone interbeds, coaly wisps.	9.96	817.04	10.12	
MUDSTONE, black, becoming carbonaceous.	0.93	817.97	0.95	
SANDSTONE, grey, very fine grained, siltstone interbeds. Bedding angle 90° to core axis.	1.06	819.03	1.08	

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, black, becoming carbonaceous, sandstone interbeds towards base.	0.82	819.85	0.83	
<u>COAL</u> , dull with bright bands.	0.18	820.03	0.12)
dull and bright.	0.11	820.14	0.07)
SILTSTONE, grey, becoming carbonaceous, carbonaceous at base, three pennybands coal.	0.58	820.72	0.58)
<u>COAL</u> , bright.	0.20	820.92	0.13)
dull and bright.	0.83	821.75	0.54)
bright.	0.08	821.83	0.05	) SKEETER SEAM
dull.	0.06	821.89	0.04)
bright.	0.06	821.95	0.04)
dull and bright.	0.25	822.20	0.16)
bright.	0.08	822.28	0.05)

SKEETER SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	0.43	822.71	0.28)
dull and bright.	0.12	822.83	0.08)
bright.	0.08	822.91	0.05)
dull and bright.	0.37	823.28	0.24)
dull.	0.55	823.83	0.36)
mainly dull with minor bright bands.	0.38	824.21	0.25)
dull.	0.37	824.58	0.24)
dull and bright.	0.18	824.76	0.12)
dull.	0.40	825.16	0.26)
dull and bright.	0.06	825.22	0.04)
dull.	0.12	825.34	0.08)
mainly dull with minor bright bands.	0.26	825.60	0.17)

SKEETER SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright and dull.	0.09	825.69	0.06)
mainly dull with minor bright bands.	0.15	825.84	0.10)
dull and bright.	0.52	826.36	0.34)
mainly dull with minor bright bands.	0.20	826.56	0.13)
dull and bright, last 0.07' being difficult to determine due to shearing.	1.03	827.59	0.67)
MUDSTONE, grey.	1.01	828.60	0.66)
<u>COAL</u> , dull (?).	0.03	828.63	0.02)
SILTSTONE, grey.	0.03	828.66	0.02)
<u>COAL</u> , dull.	0.11	828.77	0.07)
<u>COAL</u> , core badly broken, most fragments dull with bright bands.	0.72	829.49	0.47)

SKEETER SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, fine calcite (?) veins interbedded.	0.51	830.00	2.44	
SANDSTONE AND SILTSTONE INTERBEDDED, sandstone, grey, fine grained, interbedded with siltstone medium grey and mudstone dark grey, sandstone phases, current bedded.	6.81	836.81	6.15	
LAMINITE, siltstone grey and mudstone dark grey, interbedded. Bedding angle 90° to core axis.	13.14	849.95	9.80	
<u>COAL</u> , stony.	0.26	850.21	0.24)))))))))) CHAMBERLAIN SEAM
mainly dull with minor bright bands.	0.08	850.29	0.08	
bright.	0.07	850.36	0.07	
mainly dull with minor bright bands.	0.17	850.53	0.16	
bright.	0.02	850.55	0.02	
dull.	0.03	850.58	0.03	
bright.	0.11	850.69	0.11	

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright and dull.	0.09	850.78	0.09)
mainly dull with minor bright bands.	0.34	851.12	0.32)
dull and bright.	0.03	851.15	0.03)
dull.	0.07	851.22	0.07)
mainly dull with minor bright bands.	0.07	851.29	0.07)
dull.	0.08	851.37	0.08)
mainly dull with minor bright bands, fracture plane at 64° to core axis.	0.07	851.44	0.07	) CHAMBERLAIN SEAM
bright.	0.06	851.50	0.06)
mainly dull with minor bright bands.	0.23	851.73	0.22)
bright.	0.07	851.80	0.07)
mainly dull with minor bright bands.	0.02	851.82	0.02)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright.	0.09	851.91	0.09)
mainly dull with minor bright bands.	0.53	852.44	0.50)
bright.	0.03	852.47	0.03)
mainly dull with minor bright bands.	0.31	852.78	0.29)
bright and dull.	0.07	852.85	0.07)
mainly dull with minor bright bands.	0.13	852.98	0.13)
bright.	0.04	853.02	0.04	) CHAMBERLAI SEAM
dull and bright.	0.18	853.20	0.17)
mainly dull with minor bright bands.	0.12	853.32	0.12)
dull and bright.	0.09	853.41	0.09)
mainly dull with minor bright bands.	0.06	853.47	0.06)
dull.	0.11	853.58	0.11)

CHAMBERLAI SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.19	853.77	0.18)
dull.	0.06	853.83	0.06)
mainly dull with minor bright bands.	0.05	853.88	0.05)
dull.	0.04	853.92	0.04)
bright.	0.05	853.97	0.05)
dull and bright.	0.09	854.06	0.09)
bright.	0.05	854.11	0.05)
mainly dull with minor bright bands.	0.03	854.14	0.03)
bright.	0.06	854.20	0.06)
dull and bright.	0.16	854.36	0.15)
mainly bright with minor dull bands.	0.18	854.54	0.17)
dull.	0.04	854.58	0.04)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright.	0.03	854.61	0.03)
)
dull.	0.04	854.65	0.04)
)
dull and bright.	0.10	854.75	0.10)
)
mainly bright with minor dull bands.	0.06	854.81	0.06)
)
stony.	0.04	854.85	0.04)
)
dull and bright.	0.16	855.01	0.15)
)
mainly dull with minor bright bands.	0.34	855.35	0.32)
)
mainly bright with minor dull bands.	0.10	855.45	0.10)
)
mainly dull with minor bright bands.	0.07	855.52	0.07)
)
bright.	0.10	855.62	0.10)
)
mainly dull with minor bright bands.	0.19	855.81	0.18)
)
dull.	0.21	856.02	0.20)
)

CHAMBERLAI SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , bright.	0.05	856.07	0.05)
dull and bright.	0.12	856.19	0.12)
dull.	0.23	856.42	0.22)
bright.	0.03	856.45	0.03)
dull.	0.01	856.46	0.01)
bright.	0.04	856.50	0.04)
dull and bright.	0.15	856.65	0.14)
bright.	0.08	856.73	0.08)
dull and bright.	0.34	857.07	0.32)
mainly dull with minor bright bands.	0.12	857.19	0.12)
bright.	0.11	857.30	0.11)
dull and bright.	0.23	857.53	0.22)

CHAMBERLAI
SEAM

SUKUNKA D.D.H. C-7

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, mainly dull with minor bright bands.	0.16	857.69	0.15)
dull and bright but coal types not clearly distinguishable at all points (sheared).	0.43	858.12	0.40)
mainly dull with minor bright bands, but coal type not clearly distinguishable at all points (sheared).	0.17	858.29	0.16	) CHAMBERLAIN SEAM
dull and bright, but coal type not clearly distinguishable at all points (sheared).	0.40	858.69	0.38)
bright.	0.04	858.73	0.04)
mainly dull with minor bright bands, core broken.	0.15	858.88	0.14)
SANDSTONE, grey, medium grained, quartz-lithic, becoming carbonaceous, a few coaly wisps and partings.	8.39	867.27	8.39	
SANDSTONE, grey, medium grained becoming fine grained with depth, quartz-lithic. Some coaly wisps in upper section and a few mudstone interbeds, one mudstone band (0.32') 3.65' from top. Bedding angle 90° to core axis.	10.67	877.94	10.67	Base of Hole

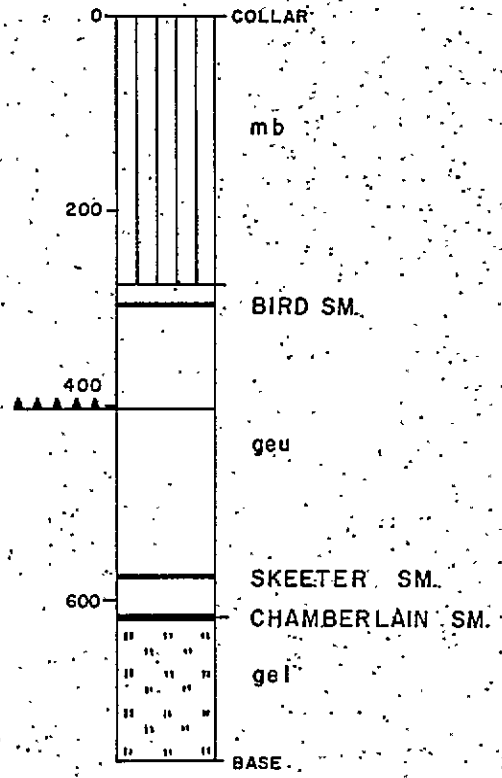
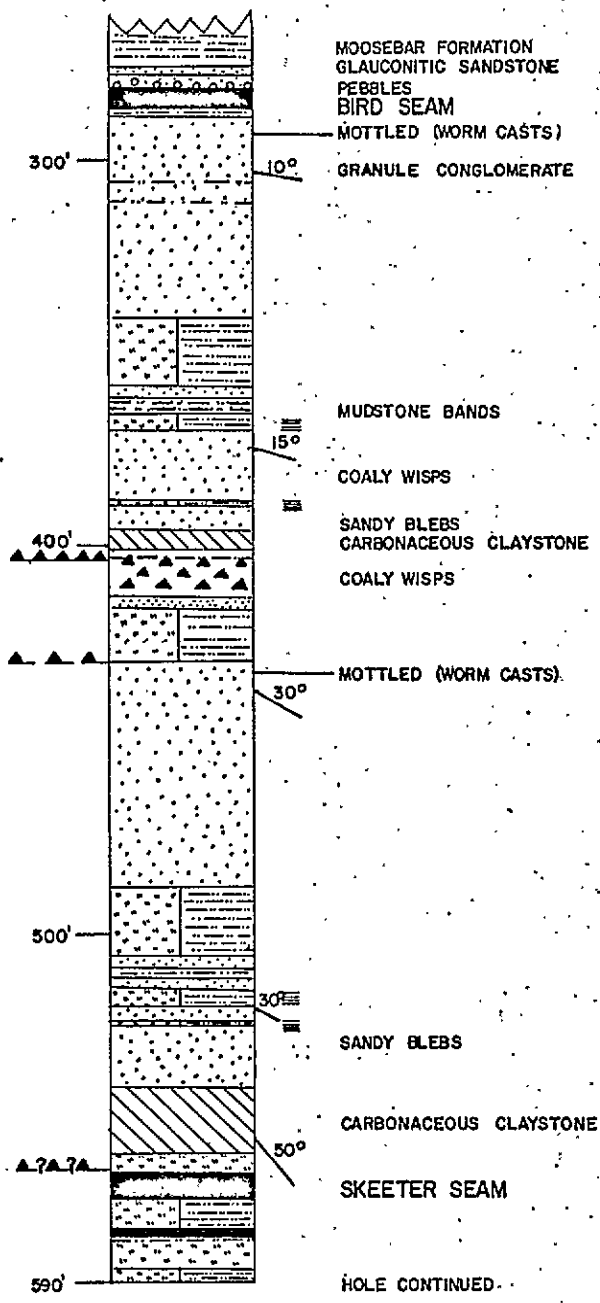
Grid Reference 46134.0 N 85226.4 E
Exploration Grid Reference D/3+1000'E

Date Commenced 19 Aug 71 Completed 23 Aug 71

Collar R.L. 4148.5 ft. Standard Datum
Total Depth 762 ft. Electrically Logged ~~Yes~~/No
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3580.64	6.32	42%	
Chamberlain	3533.5	8.49	83%	
"4th Seam"	3499.06	3.82	46%	

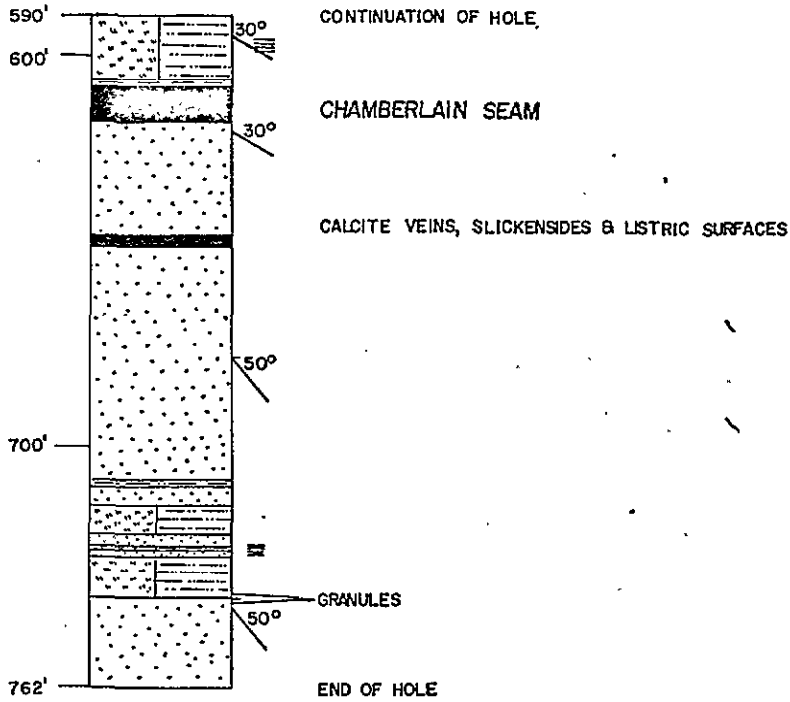


DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-8



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

STRATIGRAPHIC LOGS

for
COALITION MINING LIMITED

DDH C-8

DRAWN BY S.A.

DATE: January '72

PAGE 2 of 2

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C.S. No.	INCL. BANDS	EXCL. BANDS
561.54	4.03	-	5.5	5	5.5	
	0.18					
	2.11					
567.86	7.64					
575.50						

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SEAM SECTIONS
DDH C-8

CHAMBERLAIN SEAM				ASH % CUMULATIVE FROM FLOOR	
	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
606.50				4.7	
611.00	-	4.7	7		
614.99					

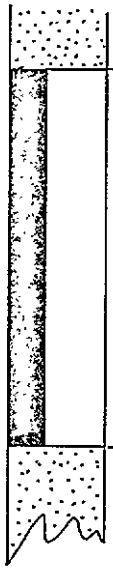
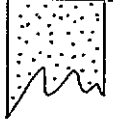


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 for
 COALITION MINING LIMITED
 DRAWN BY pm DATE Jan '72

SEAM SECTIONS
 DDH C-8

SCALE: 1' to 2'

PAGE 1 of 1

			ASH % CUMULATIVE FROM FLOOR				
SEAM 4			WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
645.62		3.82	-	4.6	8	4.6	
649.44							

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SEAM SECTIONS
 DDH C-8

SCALE: 1" to 2'

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLE NO. 40
CORE NO. C8
SKEETER SEAM

REPORT NO. K71-1628

RECEIVED: 12. 10. 1971

REPORTED: 11. 11. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

A. Bradley
A.R.A.C.I. Chief Chemist.

[Signature]

INTRODUCTION:

One (1) coal sample designated CORE NO. C8 SKEETER SEAM was received on 12. 10. 1971 from Clifford McElroy & Associates.

METHOD:

The good quality coal sample No. 40 was hand crushed to $\frac{3}{8}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 specific gravity fraction was prepared for Sample No. 40 and the analysis are given also in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses and sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for the sample after hand crushing to $\frac{3}{8}$ " .

TABLE 1WASHABILITY DATA FOR SAMPLE NO. 40 (after hand crushing to $\frac{3}{8}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	399	25.9	2.4	9	25.9	2.4	9
S1.30 - F1.35 SG	841	54.5	3.4	4½	80.4	3.1	6
S1.35 - F1.40 SG	148	9.6	8.9	2½	90.0	3.7	5½
S1.40 - F1.45 SG	76	4.9	14.2	1	94.9	4.2	5½
S1.45 - F1.50 SG	32	2.1	16.6	1	97.0	4.5	5½
S1.50 - F1.55 SG	9	0.6	21.6	1	97.6	4.6	5
S1.55 - F1.60 SG	7	0.5	27.4	½	98.1	4.7	5
S1.60 SG	30	1.9	44.2	0	100.0	5.5	5
-30 Mesh	179	10.4	5.4	9			

Total Weight of Sample = 1721 grams

True Specific Gravity = 1.339

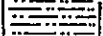


ANALYSIS OF CUMULATIVE FLOATS 1.60 SG FRACTION FOR SAMPLE NO. 40

Yield %	98.1
Air Dried Moisture %	1.0
Ash %	4.7
Volatile Matter %	20.7
Fixed Carbon %	73.6
Total Sulphur %	0.47
C.S.NO.	5½
Calorific Value	14760 BTU/LB

SYDNEY : 22nd November 1971

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
357.76		-	52.2	1		
					4.0	
		-	4.0	6½		
363.18						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan. '72

SEAM SECTIONS
DDH CS-3

SCALE: 1" to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT:

COALITION MINING
c/o AUSTEN & BUTTA LIMITED
43rd Level, Tower Building
Australia Square,
S Y D N E Y: 2000

REPORT ON:

SUKUNKA 41
CORE NO. C8
CHAMBERLAIN SEAM ~~(UPPER)~~

REPORT NO.

K71-1563

RECEIVED:

1. 10. 1971

REPORTED:

25. 10. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

M. Brailey
A.R.A.C.I.

Chief Chemist.

INTRODUCTION:

One (1) coal ply designated CORE NO. C8 CHAMBERLAIN SEAM (UPPER) was received on 1. 10. 1971 from Clifford McElroy & Associates Pty. Ltd.

METHOD:

The coal ply was hand crushed to $\frac{3}{8}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fraction and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{8}$ ".

TABLE 2 : gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the Floats 1.60 SG fraction of Ply 41 are included in this report.

TABLE 1WASHABILITY DATA FOR SKR 41, 8.49' (after hand crushing to $\frac{3}{8}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	2280	56.3	2.6	8½	56.3	2.6	8½
S1.30 - F1.35 SG	1240	30.6	4.4	6½	86.9	3.2	8
S1.35 - F1.40 SG	217	5.4	8.5	1	92.3	3.5	7½
S1.40 - F1.45 SG	127	3.1	13.6	1	95.4	3.9	7
S1.45 - F1.50 SG	93	2.3	19.2	1	97.7	4.2	7
S1.50 - F1.55 SG	29	0.7	19.5	1	98.4	4.3	7
S1.55 - F1.60 SG	22	0.5	24.3	1	98.9	4.4	7
S1.60 SG	42	1.1	34.5	1	100.0	4.8	7
-30 Mesh	435	9.7	3.6	8½			

ANALYSIS OF FLOATS 1.60 SG FRACTION

Yield %	98.9
Air Dried Moisture %	0.7
Ash %	4.5
Volatile Matter %	21.8
Fixed Carbon %	73.0
Total Sulphur %	0.39
C.S.NO.	7½
Calorific Value	15070 BTU/LB

SHEET THREE ATTACHED HERETO

TABLE 2

DATA FOR WASHABILITY CURVES - SKR 41

FRACTION	INDIVIDUAL		CUM. FLOATS		CUM. SINKS		±0.10 SG	"D"
	WT.%	ASH%	WT. %	ASH%	WT. %	ASH%		
F1.30 SG	56.3	2.6	56.3	2.6	100.0	4.8	-	28.2
S1.30 - F1.35 SG	30.6	4.4	86.9	3.2	43.7	7.6	-	71.6
S1.35 - F1.40 SG	5.4	8.5	92.3	3.5	13.1	15.0	41.4	89.6
S1.40 - F1.45 SG	3.1	13.6	95.4	3.9	7.7	19.5	11.5	93.9
S1.45 - F1.50 SG	2.3	19.2	97.7	4.2	4.6	23.5	6.6	96.6
S1.50 - F1.55 SG	0.7	19.5	98.4	4.3	2.3	27.7	-	98.1
S1.55 - F1.60 SG	0.5	24.3	98.9	4.4	1.6	31.3	-	99.5
S1.60 SG	1.1	34.5	100.0	4.8	1.1	34.5	-	99.5

SYDNEY
27th October 1971

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S Y D N E Y. 2000

REPORT ON:

SUKUNKA 42
CORE NO. C8
~~CHAMBERLAIN SEAM (LOWER)~~ SEAM "4"

REPORT NO.

K71-1564

RECEIVED:

1. 10. 1971

REPORTED:

25. 10. 1971



This Laboratory is Registered by the
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been performed in accordance with the
terms of registration.

M. B. Bradley
A.R.A.C.I. Chief Chemist

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

Bill Campbell

INTRODUCTION:

One (1) coal ply designated CORE C8 CHAMBERLAIN SEAM (LOWER) was received on 1. 10. 1971 from Clifford McElroy & Associates Pty. Ltd.

METHOD:

The coal ply was hand crushed to $\frac{3}{4}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and the raw -30 mesh coal fraction were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for each ply after hand crushing to $-\frac{3}{4}$ "

TABLE 2 : gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the Floats 1.60 SG fraction of Ply 42 are included in this report.

TABLE 1

WASHABILITY DATA FOR SKR 42, 3.00' (after hand crushing to $-\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	775	73.0	2.1	8½	73.0	2.1	8½
S1.30 - F1.35 SG	162	15.2	5.0	7½	88.2	2.6	8½
S1.35 - F1.40 SG	30	2.8	8.3	6½	91.0	2.8	8½
S1.40 - F1.45 SG	25	2.3	13.7	4½	93.3	3.0	8
S1.45 - F1.50 SG	24	2.2	15.7	4½	95.5	3.3	8
S1.50 - F1.55 SG	13	1.2	17.2	1	96.7	3.5	8
S1.55 - F1.60 SG	4	0.4	18.3	1	97.1	3.6	8
S1.60 SG	30	2.9	43.9	½	100.0	4.7	8
-30 Mesh	55	4.9	3.2	8½			

ANALYSIS OF FLOATS 1.60 SG FRACTION

Yield %	97.1
Air Dried Moisture %	0.7
Ash %	3.7
Volatile Matter %	23.4
Fixed Carbon %	72.2
Total Sulphur %	0.40
C.S.NO.	8½
Calorific Value	14970 BTU/LB

SHEET THREE ATTACHED HERETO

TABLE 2

DATA FOR WASHABILITY CURVES - SKR 42

FRACTION	INDIVIDUAL		CUM. FLOATS		CUM. SINKS		±0.10 SG	"D"
	WT.%	ASH%	WT. %	ASH%	WT. %	ASH%		
F1.30 SG	73.0	2.1	73.0	2.1	100.0	4.7	-	36.5
S1.30 - F1.35 SG	15.2	5.0	88.2	2.6	27.0	11.9	-	80.6
S1.35 - F1.40 SG	2.8	8.3	91.0	2.8	11.8	20.7	22.5	89.6
S1.40 - F1.45 SG	2.3	13.7	93.3	3.0	9.0	24.6	8.5	92.2
S1.45 - F1.50 SG	2.2	15.7	95.5	3.3	6.7	28.3	6.1	94.4
S1.50 - F1.55 SG	1.2	17.2	96.7	3.5	4.5	34.5	-	96.1
S1.55 - F1.60 SG	0.4	18.3	97.1	3.6	3.3	40.8	-	96.9
S1.60 SG	2.9	43.9	100.0	4.7	2.9	43.9	-	98.6

SYDNEY

27th October 1971

STRATIGRAPHIC LOG
SUKUNKA D.D.II. - C8

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 22.0 ft.		
	MUDSTONE, dark grey, fault gouge at 218'.	MOOSEBAR FM.	277.0
	SANDSTONE, dark grey, medium grained, glauconitic.	GETHING FM.	279.0
	SANDSTONE, grey medium to coarse grained, pebbles at base.		282.0
	<u>COAL.</u>	BIRD SEAM	288.0
	MUDSTONE, dark grey.		289.0
	SANDSTONE, grey, medium grained becoming finer to base, mottled (worm casts) at 294', mudstone bands at 307' and 310', granules at 309'.		341.0
	SILTSTONE and MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, worm casts.		358.0
	SANDSTONE, grey, medium grained, quartz-lithic, mudstone band at 363'.		367.0
	LAMINITE, siltstone and mudstone grey, mudstone band at base.		371.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, grey, medium grained, quartz lithic, coaly wisps.		373.0
	LAMINITE, siltstone and mudstone, grey.		374.5
	SANDSTONE, grey, medium grained quartz-lithic, coaly wisps.		388.0
	LAMINITE, siltstone and mudstone, mudstone at base.		389.5
	SANDSTONE, grey, medium grained, quartz-lithic, sandy blebs.		396.0
Fault, established	CLAYSTONE, carbonaceous, broken, slickensides, brecciated sandstone bands to base.		402.0
	SANDSTONE, grey, medium grained, quartz-lithic, becoming very fine at base, quartz veins.		417.0
Fault, probable	SILTSTONE and MUDSTONE INTERBEDS, siltstone and mudstone grey, fractured and slickensided to base.		429.0
	SANDSTONE, grey, medium grained becoming finer towards base. Mottled (worm casts) at 435'.		488.0
	SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, worm casts.		505.0
	SANDSTONE, grey, medium grained, quartz-lithic, granules at top,		

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	mudstone band at 509'.		514.0
	LAMINITE, siltstone grey and mudstone brownish grey, mudstone grey at base.		519.0
	SANDSTONE, grey, medium grained, quartz-lithic, laminite bands at 623' and 535'. Sandstone blebs at 537'.		540.0
	CLAYSTONE, carbonaceous.		552.0
Fault, possible	SILTSTONE, grey, some calcite, brecciated sandstone band and slickensides at 555'.		561.0
	<u>COAL</u> , to 568')	SKEETER SM.	576.5
	SILTSTONE AND MUDSTONE INTERBEDS TO 576'.)		
	<u>COAL</u> , to 576.5'.)		
	SILTSTONE, grey, mudstone at top.			586.0
	SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey, and mudstone dark grey.		590.0
	LAMINITE, siltstone and mudstone.		606.5
	<u>COAL</u> .	CHAMB. SM.	615.0
Fault, possible	SANDSTONE, grey, medium grained, quartz-lithic, brecciated at base.		646.0
	<u>COAL</u> .		649.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, grey; medium grained, quartz-lithic, mudstone band at 710'.		715.0
	SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey.		722.0
	SANDSTONE, grey, medium to fine grained, interbed band at 725'.		726.0
	SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey, mudstone dark grey, granule band at 737'.		738.0
	SANDSTONE, grey, medium grained, quartz-lithic, granule band at top.		762.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-8

<i>Geological Description of Strata.</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
No core, soil and unconsolidated material.		22.00		
BOULDER OVERBURDEN, fragments of Gates conglomerate and quartzite with pebbles in a clay matrix, mixture of lithologies.	3.42	25.42	1.85	
MUDSTONE, dark grey, core broken.	1.58	27.00	1.56	
SANDSTONE, and mudstone, dark grey, core broken.	0.68	27.68	0.67	
MUDSTONE, dark grey, massive.	58.86	86.54	58.27	
SILTSTONE, dark grey, micaceous, massive.	7.88	94.42	7.80	
MUDSTONE, dark grey, massive.	0.67	95.09	0.66	
CLAY, white, core broken, angular mudstone fragments, pyritic, possible fault gouge.	0.22	95.31	0.22	
MUDSTONE, dark grey, massive.	58.31	153.62	57.71	
MUDSTONE, grey, pyritic nodules.	12.84	166.46	12.71	
MUDSTONE, as above, pyritic nodules absent.	8.44	174.90	8.35	

SUKUNKA D.D.H. C-8

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, light grey, forms a slump structure, tension fractures and calcite at base.	0.32	175.22	0.32	
MUDSTONE, dark grey, massive, micaceous.	1.94	177.16	1.92	
MUDSTONE, as above, tension fractures with calcite and slickensiding, sheared, mudstone with subvertical jointing, possible fault plane.	0.33	177.49	0.33	
MUDSTONE, as above, several planes with calcite, tension joints.	5.96	183.45	5.90	
MUDSTONE, light grey, massive, possible concretion or isoclinal fold core, core pyritic with calcite filled tension fractures, external surfaces slickensided.	5.88	189.33	5.82	
MUDSTONE, dark grey, micaceous, massive, calcite and tension cracks near base.	2.24	191.57	2.22	

SUKUNKA D.D.H. C-8

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, micaceous, massive.	4.19	195.76	4.14	
CLAY, white, fretted, impure-bentonite (?), fault gouge or sedimentary bed.	0.42	196.18	0.42	
MUDSTONE, light grey, tension fractures and calcite, crushed dark grey mudstone at base.	0.17	196.35	0.17	
MUDSTONE, dark grey, micaceous, massive.	4.63	200.98	4.58	
MUDSTONE, light grey, brecciated dark grey mudstone fragments, calcite and pyrite, structure possibly sedimentary.	0.71	201.69	0.70	
MUDSTONE, dark grey, micaceous, massive.	16.11	217.80	15.95	
CLAY, white, sheared, talc-like, slickensiding at base of overlying mudstone, fault gouge or sedimentary member.	0.96	218.76	0.95	
MUDSTONE, dark grey, micaceous, massive, with light grey siltstone concretions.	30.51	249.27	30.20	
CLAY, white, angular dark grey claystone fragments, pyritic at base.	0.12	249.39	0.12	

SUKUNKA D.D.H. C-8

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, micaceous, massive.	18.79	268.18	18.60	
MUDSTONE, dark grey, micaceous, massive calcite filled fractures and slickensiding towards base.	8.80	276.98	8.71	
CLAY, white, impure bentonitic, probably marker bed, possible fault gouge.	0.25	277.23	0.25	
SANDSTONE, green to dark grey, medium grained, glauconitic, rounded pebble fragments at base, 0.07' pyritic layer below, massive.	4.70	281.93	4.65	) BASE OF MOOSEBAR FORMATION
<u>COAL</u> , mainly dull with minor bright bands, pyritic nodules to 0.04'.	5.92	287.85	3.60	
CLAYSTONE, dark grey, carbonaceous at top, slickensided throughout, core broken.	0.96	288.81	0.96	
SANDSTONE, medium grained, grey at top - becoming light grey, dark coloured fragments in a light matrix, quartz-lithic, rare silty interbeds.	19.11	307.92	19.06	

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, as above. Bedding angle sub-horizontal (5° - 10°) coarse phase near top.	33.59	341.51	33.50	
MUDSTONE AND SILTSTONE INTERBEDDED, dark grey micaceous mudstone with light grey siltstone grading in part fine sandstone, series of narrow overlying graded beds. Bedding upright, load casts at base, sedimentary penetration structures present.	17.62	359.13	17.57	
SANDSTONE, light grey, medium grained, quartz-lithic, massive.	3.00	362.13	2.99	
MUDSTONE, dark grey, silty in centre.	1.06	363.19	1.06	
SANDSTONE, light grey, medium grained, quartz-lithic, massive.	0.86	364.05	0.86	
MUDSTONE AND SILTSTONE INTERBEDS, bedding angle steeper (5° - 15°), dark grey micaceous mudstone with light grey siltstone or fine sandstone interbedded, series of finely graded thin beds.	6.80	370.85	6.78	
MUDSTONE, massive, black.	0.27	371.12	0.27	

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, medium grained, light grey, some dark grey silty phases, coaly wisps towards base.	4.64	375.76	4.63	
MUDSTONE AND SILTSTONE INTERBEDS, dark grey micaceous mudstone with light grey siltstone or fine sandstone, interbedded, finely graded beds.	1.65	377.41	1.65	
SANDSTONE, light grey, medium grained, some dark grey silty phases, coaly wisps towards base.	6.32	383.73	6.30	
SANDSTONE, as above, some irregular coaly masses.	4.35	388.08	4.34	
CLAYSTONE, dark grey to carbonaceous, with fine sandy interbeds, two zones of fine calcite veins 0.08' and 0.60' from base.	1.86	389.94	1.86	
SANDSTONE, as above, some fine silty interbeds, shallow angle of dip (5°). Spots - possible worm tracks.	4.75	394.69	4.74	
CLAYSTONE, carbonaceous, some silty interbeds near top, pyritic, core broken.	2.31	397.00	2.30	
<u>COAL</u> , dull.	1.78	398.78	0.17	

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SHALE, dark grey, becoming carbonaceous, coaly wisps, silty interbeds and lenses containing transverse calcite veins, sheared with slickensides developed at oblique angle.	2.23	401.01	2.22	
SANDSTONE, grey, fine grained, quartz lithic, coaly wisps and irregular masses, numerous irregular calcite veins, silty interbeds becoming carbonaceous and showing slickensides on oblique fractures. Angle of dip at base increased to about 45°.	2.39	403.40	2.38	
SANDSTONE, as above, steep dip continues for 1.12' where it suddenly lessens back to 5° approximately. Numerous irregular calcite veins in steeply dipping section, becoming less numerous until the bottom 0.25' where calcite veining is strong.	9.83	413.23	9.80	
SANDSTONE, grey, fine grained, calcite veins.	2.92	416.15	2.91	
MUDSTONE AND SILTSTONE INTERBEDS, showing steep dips and disturbed bedding. Oblique fractures, some curved sub-vertical, slickensides calcite veins, structures past depositional - soft sediment oriented on a plane				

SUKUNKA D.D.H. C-8

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
opposed to predominant calcite planes. The two events appear unrelated.	13.01	429.16	12.97	
CLAYSTONE, dark grey, slickensided, core broken, coaly fragments.	0.33	429.49	0.33	
SANDSTONE, medium grained, light grey, quartz-lithic, some calcite fractures at top and 31° to core axis. Bedding 70° to core axis. The two planes are almost at right angles.	11.91	441.40	11.87	
SANDSTONE, light grey, medium grained, quartz-lithic. Bedding 20° to core axis, slickensiding 24° to core axis, few silty interbeds.	46.87	488.27	46.71	
MUDSTONE AND SILTSTONE INTERBEDS, beds not overturned Bedding disturbed locally by small scale slumping, worm casts present.	18.35	506.62	18.28	
SANDSTONE, medium grained, light grey, quartz-lithic.	2.38	509.00	2.37	
CLAYSTONE, dark grey, massive light grey phase in centre.	1.72	510.72	1.71	

SUKUNKA D.D.H. C-8

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, light grey, medium grained, quartz-lithic, coaly wisps towards the base.	0.58	511.30	0.58	
SANDSTONE, fine grained, light grey, quartz-lithic, some silty phases, bedding disturbed by worm casts.	2.65	513.95	2.64	
SHALE AND SILTSTONE INTERBEDS, dark grey shale and light grey siltstone.	4.93	518.88	4.91	
CLAYSTONE, dark grey.	0.42	519.30	0.42	
SANDSTONE, fine to medium grained, light grey quartz-lithic, some silty interbeds.	2.64	521.94	2.63	
LAMINITE, small slump structure at base, light grey sandstone and dark grey mudstone.	1.32	523.26	1.32	
SANDSTONE, medium grained with thin dark grey shaly laminations throughout.	11.90	535.16	11.86	
CLAYSTONE, dark grey with light grey fine grained sandstone interbeds.	1.21	536.37	1.21	

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, light grey, medium grained, quartz-lithic, fracture near top filled with calcite, at 22° to core axis. Bedding 60° to core axis. Worm casts.	4.55	540.92	4.53	
CLAYSTONE, dark grey, coaly lenses and thin coal bands.	11.50	552.42	11.46	
SANDSTONE, fine grained, light grey, quartz-lithic with dark grey shale interbeds throughout.	3.06	555.48	3.05	
SILTSTONE, grey, several other lithologies present, angular fragments, bedding highly disturbed, calcite veins throughout.	0.57	556.05	0.57	
SANDSTONE AND SILTSTONE INTERBEDS, grey, bedding 43° to core axis.	5.49	561.54	5.47	
<u>COAL</u> , too sheared and broken to properly determine type, but recognisable fragments all dull or dull with bright bands.	4.03	565.57	3.16)
dull and bright, core broken.	0.18	565.75	0.14	) SKEETER SEAM
mainly dull with minor bright bands.	2.11	567.86	1.65)

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey. Bedding angle 54 ^o to core axis.	7.64	575.50	7.64)
<u>COAL</u> , very broken, mainly dull with minor bright bands, becoming dull and bright towards base.	1.08	576.58	0.57)
CLAYSTONE, carbonaceous.	0.77	577.35	0.74)
SANDSTONE, grey, fine grained, quart-lithic, siltstone at top, irregular siltstone and mudstone phases and interbeds, slickensides, some calcite.	8.23	585.58	7.87)
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, sandstone phases, some calcite along bedding. Bedding angle 32 ^o to core axis.	7.41	592.99	7.09)
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded. Bedding angle 58 ^o to core axis.	13.51	606.50	12.91)
<u>COAL</u> , core badly broken and sheared. Coal type difficult to determine. Fragments mainly dull or dull with minor bright bands.	4.50	611.00	5.44)

SKEETER SEAM

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-8

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Footage Recovered (ft)	Remarks
<u>COAL</u> , dull.	3.99	614.99	3.78	) CHAMBERLAIN SEAM
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top, some coaly wisps and minor calcite veining. Bedding angle 62° to core axis.	10.07	625.06	9.93)
SANDSTONE, grey, fine to medium grained, quartz-lithic, silty interbeds. Minor calcite veining, but zone of irregular calcite concentration 0.70' from base, no apparent displacement. Bedding angle 67° to core axis.	18.93	643.99	18.65	
SANDSTONE, as above, with abundant irregular calcite masses and band of sandstone breccia in coal (0.05') at base.	1.63	645.62	1.61	
<u>COAL</u> , mainly dull with minor bright bands, listric surfaces, sheared.	3.82	649.44	2.80	) SEAM 4
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top, silty interbeds and minor calcite veining. Bedding angle 40° to core axis.	14.19	663.63	13.97	
SANDSTONE, grey, medium to fine grained, quartz-lithic,				

INTRODUCTION:

One (1) Coal Sample designated CORE NO. C27 SKEETER SEAM was received on 17. 11. 1971 from Clifford McElroy & Associates.

METHOD:

The Coal Sample No. 167 was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions, raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for Sample No. 167 and the analysis are given in this report.

NOTE:

The sample weight has not been adjusted to compensate for core loss.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for the sample after hand crushing to $\frac{3}{4}$ " top size.

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 167 (after hand crushing to $\frac{3}{4}$ ")

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	753	38.0	1.7	8	38.0	1.7	8
S1.30 - F1.35 SG	759	38.3	4.4	5	76.3	3.1	6½
S1.35 - F1.40 SG	351	17.7	9.4	1	94.0	4.3	5½
S1.40 - F1.45 SG	67	3.4	14.7	1	97.4	4.6	5½
S1.45 - F1.50 SG	19	1.0	16.7	1	98.4	4.7	5
S1.50 - F1.55 SG	6	0.3	27.2	1	98.7	4.8	5
S1.55 - F1.60 SG	3	0.2	31.3	1	98.9	4.9	5
S1.60 SG	23	1.1	51.1	1	100.0	5.4	5
-30 Mesh RC	167	7.8	5.1	8			

Total Weight of Sample = 2148 grams
True Specific Gravity = 1.309
Thickness = 4.18'

ANALYSIS OF F1.60 SG FRACTION OF SAMPLE NO. 167

Yield %	98.9
Air Dried Moisture %	1.0
Ash %	4.9
Volatile Matter %	19.7
Fixed Carbon %	74.4
Total Sulphur %	0.45
C.S.NO.	5½
Calorific Value	14410 BTU/LB
Phosphorus %	0.044

SYDNEY

31st December 1971

(EXTRA
PAGES)

BORE NUMBER

C-4

Grid Reference 49053.3 N 80665.9 E
Exploration Grid Reference B+1000'N/2+1000'E

Date Commenced 31 July 71 Completed 2 Aug 71

Collar R.L. 4158.3 ft. Standard Datum
Total Depth 426 ft. Electrically Logged Yes/~~NO~~
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt & G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter Upper Plate	3833.01	7.71	29%	Faulted
Skeeter Lower Plate	3804.74	12.90	59%	
Chamberlain Lower Plate	3777.80	6.61	88%	

BORE NUMBER

C-4A

Grid Reference 49054.2 N 80667.4 E
Exploration Grid Reference B+1000'N/2+1000'E

Date Commenced 3 Aug 71 Completed 12 Aug 71

Collar R.L. 4158.8 ft. Standard Datum
Total Depth 565 ft. Electrically Logged Yes/XX
Drilled by Connors Drilling Ltd. Angled Hole
For Coalition Mining Limited Tropari Angle 61°
Bearing 067°
Logged by F.H.S.Tebbütt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3772.8	7.76	72%	Thickness corrected for dip of 18°
Chamberlain	3752.41	6.16	93%	Thickness corrected for dip of 23°

Grid Reference 43093.3 N 84733.2 E
Exploration Grid Reference E/2+1000'E

Date Commenced 7 Aug 71 Completed 16 Aug 71

Collar R.L. 4834.4 ft. Standard Datum
Total Depth 1468 ft. Electrically Logged Yes/~~No~~

Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S.Tebbutt & G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain	3705.65	7.76	91%	

Skeeter - Possibility of occurrence between 1091.65 and 110.72'
See Detailed Log.

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	978', worm casts 997', mudstone bands 993'		1026.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts, granules at base		1041.0
	SANDSTONE		1046.0
	LAMINITE, siltstone and mudstone, mudstone at base		1054.0
	SANDSTONE, coaly wisps mudstone 1068'-1070'; sandy blebs 1071'		1073.0
	CLAYSTONE, carbonaceous, coaly bands		1083.0
	SANDSTONE, silty interbeds	SEE DETAILED LOG	1097.0
	LAMINITE, siltstone and mudstone, mudstone at base		1121.0
	<u>COAL</u>	CHAMB. SEAM	1129.0
	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases at top, granules at base		1192.0
	SANDSTONE, mudstone bands at base		1252.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts		1305.0
	MUDSTONE		1317.0
	SILTSTONE AND MUDSTONE INTERBEDDEE, worm casts		1352.0
	MUDSTONE		1388.0

SUKUNKA D.D.H. C-5

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, carbonaceous.	0.97	1080.98	0.90	
CLAYSTONE, carbonaceous, a few coaly bands, some listric surfaces.	2.06	1083.04	1.90	
SILTSTONE, carbonaceous at top, becoming grey 0.65' from top and brownish grey 1.15' from top.	1.59	1084.63	1.47	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps and carbonaceous phases, sandy blebs, a thick calcite vein at base (0.02').	0.44	1085.07	0.41	
SILTSTONE, grey, mudstone interbeds.	0.66	1085.73	0.61	
SANDSTONE, grey, very fine grained to fine grained, siltstone interbeds and phases, calcite veins 2.15' and 2.25' from top, and a zone of numerous fine calcite veins 2.85' from top. Bedding angle 85° from core axis.	5.92	1091.65	5.47	
SANDSTONE, grey, medium grained, quartz-lithic.	0.56	1092.21	0.52	) Core between
SANDSTONE, grey, medium grained, quartz-lithic.	1.27	1093.48	1.17	) 1100.72' is
				) probably spurious

SUKUNKA D.D.H. C-5

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey.	0.21	1093.69	0.19	) to conceal
CALCITE, thick vein with siltstone banding.	0.06	1093.75	0.06	) the loss of
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps, and irregular calcite veins.	1.44	1095.19	1.33	) the Skeeter Seam
MUDSTONE, grey, one calcite vein and becoming carbonaceous in places.	1.26	1096.45	1.16	) revealed by
SILTSTONE, grey, mudstone interbeds and phases, worm casts.	4.27	1100.72	3.95	) the Gamma Ray Neutron Log
CLAYSTONE, carbonaceous, some coaly bands and listric surfaces.	0.79	1101.51	0.73)
SILTSTONE, grey to dark grey, becoming carbonaceous, mudstone interbeds and phases.	1.43	1102.94	1.32)
SANDSTONE, grey, fine grained, siltstone interbeds becoming more numerous towards base.	3.41	1106.35	3.15)
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded.	4.25	1110.60	3.93)

Grid Reference 50281.5 N 80926.4 E

Exploration Grid Reference A/3

Date Commenced 11 Aug 71

Completed 16 Aug 71

Collar R.L. 4059.5 ft.

Standard Datum

Total Depth 876 ft.

Electrically Logged XXX/No

Drilled by Connors Drilling Ltd.

Angled Hole

For Coalition Mining Limited

Tropari Angle 53°

Bearing 067°

Logged by F.H.S.Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter Upper Plate	3937.8	12.08	37%	
Chamberlain Upper Plate	3925.89	5.56	82%	
Skeeter Fault FA/ Upper Plate	3433.5	8.12	27%	) Faulted) (see Stratigraphic) Section))
Skeeter Fault FA/ Lower Plate	3424.5	15.53	19%	
Chamberlain Fault FA/ Lower Plate	3373.87	9.45	75%	

PR-SUKUNKA-7K3) A+3
NATIONAL TRUST CO. LTD. (AS TRUSTEE)

COALITION MINING LIMITED
SUKUNKA COAL PROJECT

~~GEOLOGY~~
~~HYDROLOGY~~

006/15

APPENDIX F

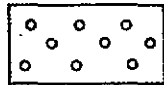
DRILL HOLE DATA
DIAMOND DRILL HOLES C-9 TO C-22

Reference for Graphic
Sections of Drill Hole Data

See reverse side

DETAIL OF GETHING FORMATION

Scale 1" = 50'



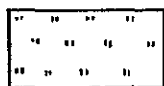
CONGLOMERATE
pebble to granule



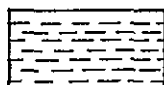
BRECCIA



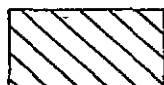
SANDSTONE



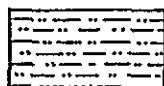
SILTSTONE



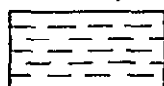
CLAYSTONE



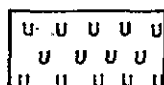
STONE COALY or
CLAYSTONE
CARBONACEOUS



MUDSTONE



SHALE, SILTSHALE,
CLAYSHALE



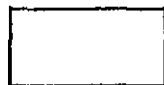
SOIL, WEATHERED and
UNCONSOLIDATED
MATERIAL



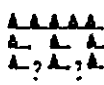
INTERBEDDED



LAMINITE



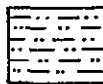
45° INCLINED STRATA



FAULT
established
probable
possible

TOTAL DRILL HOLE SECTIONS

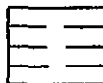
Scale 1" = 200'



HULLCROSS MEMBER



COMMOTION
FORMATION
GATES MEMBER



SUKUNKA MEMBER



MOOSEBAR
FORMATION

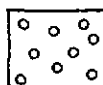


UPPER GETHING
SEQUENCE



GETHING
FORMATION

LOWER GETHING
SEQUENCE



CADOMIN
FORMATION

COAL SEAMS

Scale 1" = 2'



COAL BRIGHT or UNDIFFERENTIATED

COAL MAINLY BRIGHT with MINOR DULL
BANDS

COAL DULL and BRIGHT

COAL MAINLY DULL with MINOR BRIGHT
BANDS

COAL DULL

COAL INTERLAYED with NON-COAL

NON-COAL INTERLAYED with COAL

COAL STONY

STONE COALY

COAL WEATHERED

REFERENCE FOR GRAPHIC SECTIONS

of

DRILL HOLE DATA

PREPARED BY CLIFFORD McELROY & ASSOCIATES PTY LIMITED

COALITION MINING LIMITED

SUKUNKA COAL PROJECT

January 1972

NOTES TO ACCOMPANY APPENDIX F

This appendix includes logs for all drill holes sunk on behalf of Coalition Mining Limited during the 1971 field season and for most of the drill holes completed during the two previous field seasons by Brameda Resources Ltd. The drill hole data are included in the following volumes;

<u>Volume No.</u>	<u>Drill Hole No.*</u>
6	D.D.H.'s C-1 to C-8
7	D.D.H.'s C-9 to C-22
8	D.D.H.'s C-23 to C-35
9	D.D.H.'s C-36 to C-41; CS-1 to CS-7.
10	D.D.H.'s CM-1 to CM-9; RDH R-1 to R-15
11	D.D.H. S-1 to S-50

*D.D.H. - Diamond Drill Hole; R.D.H. Rotary Drill Hole.

Data for the following drill holes are not included;

D.D.H. S-2 and D.D.H. S-29 - the core of these holes was not available for logging as it is stored by the Alberta Study Group of the Canadian Geological Survey in Calgary, Alberta:

D.D.H. S-3 - This hole is outside the area of immediate interest and was collared below the level of the Chamberlain Seam.

R.D.H. R-7 - This hole was abandoned in the overburden.

The data included for each drill hole, drilled on behalf of Coalition Mining Limited, are included in the following order:

Graphic section - Stratigraphic Log of Drill Hole.

Graphic section - Detail of Gething Formation.

Graphic section - Seam sections of Chamberlain and Skeeter Seams.

Analytical Data.

Written Stratigraphic Log.

Written Log of Gething Formation.

Accompanying each of Volume 6 to 11 is a Reference relating to the graphic sections.

Stratigraphic Logs are included for all drill holes, at a scale of 200 feet to 1 inch. The footages quoted in these logs are based on the drillers depth markers and are not corrected for core loss. The footages quoted are considered to be accurate to within 0.5 feet.

Detailed Logs of the Gething Formation for the interval from about 50 feet below to about 50 feet above the Chamberlain/Skeeter Seams have been corrected for core loss and are accurate to 0.01 feet. Observations of the coal and the adjacent strata, recovered in a stationary split inner tube, have enabled corrections for core loss to be applied to that part or parts of the core which were broken, disturbed and obviously not fully recovered during drilling. Graphic logs, at a scale of 50 feet to 1 inch have been constructed for this interval of the Gething Formation.

Graphic Sections of the Chamberlain and Skeeter Seams have been prepared at a scale of 2 feet to 1 inch. These logs and sections give details of the coal and the stone bands within the seams. Some analytical data has been included on the graphic sections.

The S-Series drill holes were completed during the 1969 and 1970 field seasons by Connors Drilling Limited for Brameda Resources Limited. Stratigraphic sections and logs of these drill holes are accompanied by analytical data provided by Brameda Resources Limited.

The R-Series drill holes were completed during the 1971 field season by Big Indian Drilling Ltd, using a reverse circulation method of rotary drilling. A graphic, stratigraphic log of each of these drill holes at a scale of 50 feet to 1 inch is included.

The C, CS and CM-Series diamond drill holes were completed during the 1971 field season by Connors Drilling Limited and Canadian Longyear Limited for Coalition Mining Limited.

In addition, D.D.H.'s S-14, S-17 and S-41 were deepened during the 1971 programme. A complete set of graphic sections, written logs and analytical data is included for these drill holes.

BORE NUMBERC-9 & 9A

Grid Reference 43469.2 N 83264.9 E
Exploration Grid Reference E+1000'N/2

Date Commenced C-9 18 Aug 71 Completed 27 Aug 71
 C-9A 27 Aug 71 30 Aug 71

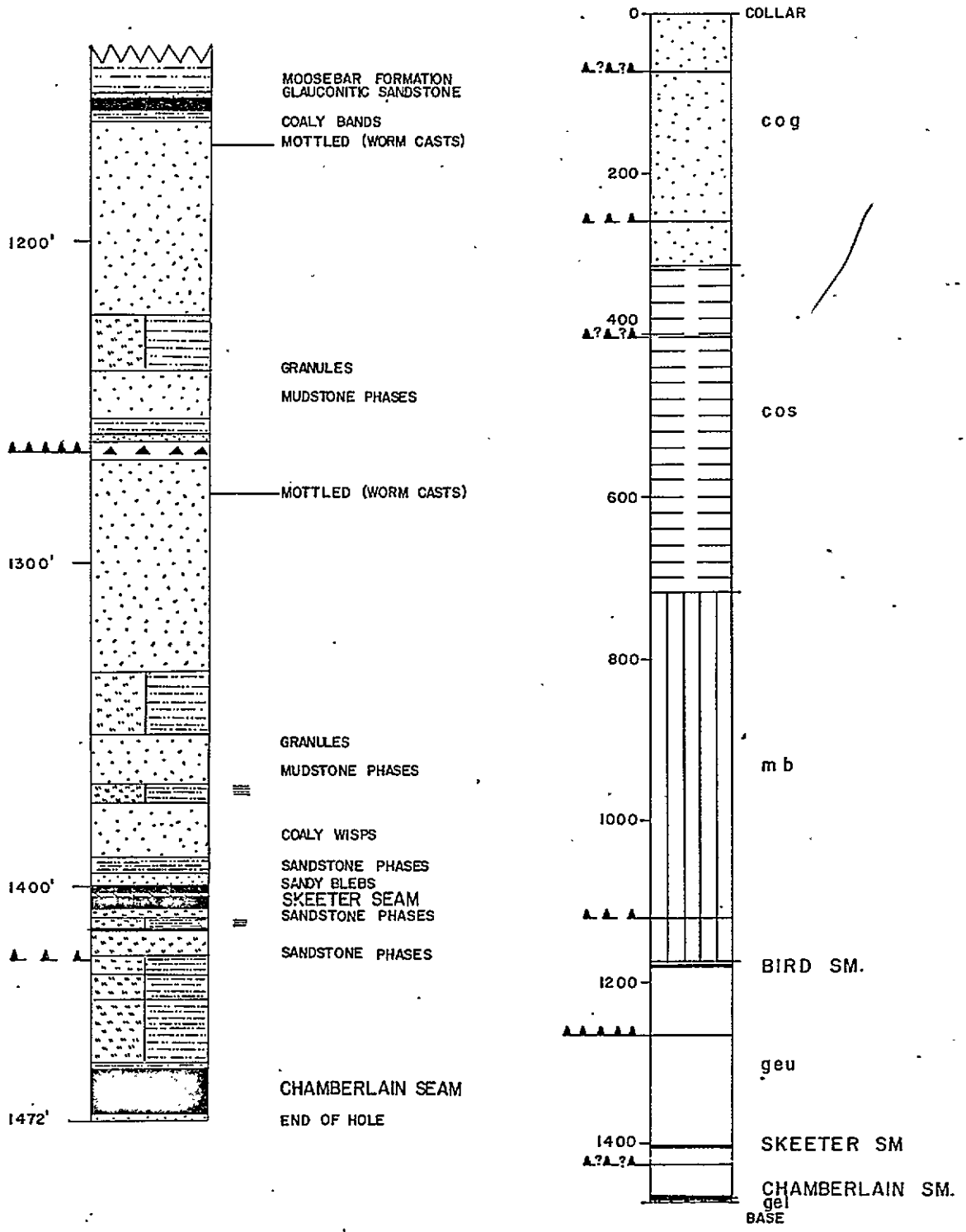
Collar R.L. 4891.7 ft. Standard Datum
Total Depth 1472 ft. Electrically Logged ~~Yes~~/No

Drilled by Connors Drilling Ltd.
For Coalition Mining Limited

Logged by F.H.S.Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3484.7	7.00	59%	) Redrilled as C-9A
Chamberlain	3420.34	14.36	46%	
Skeeter	3484.70	8.05	46%	) Coal friable
Chamberlain	3421.38	13.98	54%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-9

SKEETER SEAM

1400.00

1407.00



			ASH % CUMULATIVE FROM FLOOR		
	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1.95	-	25.2	3½		
1.80	-	87.8	0		
3.25	-	5.9	7		

Prepared by:
 CLIFFORD McELROY & ASSOCIATES PTY. LTD.
 for
 COALITION MINING LIMITED
 DRAWN BY pm DATE Jan '72

SEAM SECTIONS
 DDH C-9

SCALE: 1" to 2'

PAGE 1 of 1

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

1457.00

6.9

14.36

-

6.9

6

1471.36

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CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-9

SCALE: 1"to 2'

PAGE 1 of 1

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

1398.95



1.98

WT%

ASH%

C. S. N^o

INCL.
BANDS

EXCL.
BANDS

-

14.7

6

1.82

-

91.9

0

4.25

-

6.8

6

1407.00

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-9A

SCALE: 1' to 2'

PAGE 1 of 1

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

1456.34



0.65

WT%

ASH%

C. S. N^o

INCL.
BANDS

EXCL.
BANDS

-

48.1

0

6.0

13.33

-

6.0

6

1470.32

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS

for

DDH C-9A

COALITION MINING LIMITED

DRAWN BY pm

DATE Jan '72

SCALE: 1/4" to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

**REPORT ON: SUKUNKA SAMPLES NO. 50, 51, 52
CORE NO. C9
SKEETER SEAM**

REPORT NO. K71-1629

RECEIVED: 12. 10. 1971

REPORTED: 11. 11. 1971



This Laboratory is Registered by the National Association of Testing Authorities Australia. The tests reported herein have been performed in accordance with the terms of registration.

M. B. ...
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

[Signature]

INTRODUCTION:

Three (3) coal samples designated CORE NO. C9 SKEETER SEAM were received on 12. 10. 1971 from Clifford McElroy & Associates.

METHODS:

1. The visibly inferior coal samples No. 50, 51 were hand crushed to $\frac{3}{8}$ ", sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 SG.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

2. The good quality coal Sample No. 52 was hand crushed to $\frac{3}{8}$ ", sized at 30 mesh BSS and the +30 mesh BSS fractions washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions, raw -30 mesh coal fractions were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

The cumulative floats 1.60 specific gravity was prepared for Sample No. 52 and the analysis are also given in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-3 : give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{8}$ "

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 50 (after hand crushing to $\frac{3}{8}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	64	61.0	12.8	5	61.0	12.8	5
S1.60 SG	41	39.0	44.5	1	100.0	25.2	3½
-30 Mesh	6	5.4	10.2	9			

Total Weight of Sample = 111 grams
True Specific Gravity = 1.481

TABLE 2

WASHABILITY DATA FOR SAMPLE NO. 51 (after hand crushing to $-\frac{3}{4}$ "

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.60 SG	19	1.0	15.7	2	1.0	15.7	2
S1.60 SG	1931	99.0	88.7	0	100.0	87.8	0
-30 Mesh	71	3.5	72.2	$\frac{1}{2}$			
Total Weight of Sample = 2021 grams							
True Specific Gravity = 2.424							

TABLE 3

WASHABILITY DATA FOR SAMPLE NO. 52 (after hand crushing to $-\frac{3}{4}$ "

F1.30 SG	404	30.2	2.3	9	30.2	2.3	9
S1.30 - F1.35 SG	627	46.8	4.3	7	77.0	3.5	8
S1.35 - F1.40 SG	132	9.9	8.7	6	86.9	4.1	7 $\frac{1}{2}$
S1.40 - F1.45 SG	68	5.1	11.4	1	92.0	4.5	7
S1.45 - F1.50 SG	62	4.6	17.5	1	96.6	5.1	7
S1.50 - F1.55 SG	24	1.8	18.5	1	98.4	5.4	7
S1.55 - F1.60 SG	11	0.8	25.0	1	99.2	5.5	7
S1.60 SG	11	0.8	45.6	$\frac{1}{2}$	100.0	5.9	7
-30 Mesh	108	7.5	6.7	9			
Total Weight of Sample = 1447 grams							
True Specific Gravity = 1.312							

ANALYSIS OF COMPOSITE FLOATS 1.60 SG FRACTION OF
SAMPLE NO. 52

Yield %	99.2
Air Dried Moisture %	1.0
Ash %	5.6
Volatile Matter %	22.3
Fixed Carbon %	71.1
Total Sulphur %	0.35
C.S.NO.	7
Calorific Value	14870 BTU/LB

SYDNEY

22nd November 1971

KTI-1629
COALITION MINING
SUKUNKA C9
(LOBSTER SEAM)

	SELS	THICK	ASH%	CSMP
6'	50	1.95	25.2	3 1/2
4'	51	1.81	27.2	0
2'	52	3.28	5.9	7

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

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APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLE NO. 53
CORE NO. C9
CHAMBERLAIN SEAM

REPORT NO. K71-1629A

RECEIVED: 12. 10. 1971

REPORTED: 11. 11. 1971



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terms of registration.

M Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

D W ...

INTRODUCTION:

One (1) coal sample designated CORE NO. C9 CHAMBERLAIN SEAM was received on 12. 10. 1971 from Clifford McElroy & Associates.

METHOD:

The good quality coal sample No. 53 was hand crushed to $\frac{3}{8}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 specific gravity fraction was prepared for Sample No. 53 and the analysis are given also in this report.

COMMENT:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for the sample after hand crushing to $\frac{3}{8}$ ".

TABLE 1WASHABILITY DATA FOR SAMPLE NO. 53 (after hand crushing to $\frac{3}{8}$ "

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	1455	37.2	1.9	9	37.2	1.9	9
S1.30 - F1.35 SG	1368	35.0	4.6	7½	72.2	3.2	8½
S1.35 - F1.40 SG	569	14.5	8.5	1	86.7	4.1	7
S1.40 - F1.45 SG	135	3.5	13.1	1	90.2	4.4	7
S1.45 - F1.50 SG	77	2.0	15.5	1	92.2	4.7	7
S1.50 - F1.55 SG	40	1.0	16.7	1	93.2	4.8	6½
S1.55 - F1.60 SG	37	0.9	18.6	1	94.1	4.9	6½
S1.60 SG	231	5.9	38.6	0	100.0	6.9	6
-30 Mesh	454	10.4	5.3	9			

Total Weight of Sample = 4366 grams

True Specific Gravity = 1.361

ANALYSIS OF CUMULATIVE FLOATS 1.60 SG FRACTION OF SAMPLE NO. 53

Yield %	94.1
Air Dried Moisture %	1.0
Ash %	5.0
Volatile Matter %	22.3
Fixed Carbon %	71.7
Total Sulphur %	0.42
C.S.NO.	7
Calorific Value	14840 BTU/LB

SYDNEY : 22nd November 1971

K71-1629A

COALITION MINING

SUKUNKA G9

(CHAMBERLAIN SEAM)

	SPLS	THICK	ASH%	CSN%
14'				
12'				
10'				
8'	53	1436'	6.9	6
6'				
4'				
2'				
0				

Telegrams and Cables:
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APPLICANT: COALITION MINING

**REPORT ON: SUKUNKA SAMPLES NO. 56, 57, 58
CORE NO. C9A
SKEETER SEAM**

REPORT NO. K71-1630

RECEIVED: 12. 10. 1971

REPORTED: 11. 11. 1971



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terms of registration.

M Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. W. Campbell

INTRODUCTION:

Three (3) coal samples designated CORE NO. C9A SKEETER SEAM were received on 12. 10. 1971 from Clifford McElroy & Associates.

METHODS:

1. The visibly inferior coal samples No. 56, 57 were hand crushed to $\frac{3}{8}$ ", sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 S.G. The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.
2. The good quality coal sample No. 58 was hand crushed to $\frac{3}{8}$ ", sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps. The float and sink fractions, raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

The cumulative floats 1.60 specific gravity was prepared for Sample No. 58 and the analysis are also given in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses exclude further calculations and the construction of washability tables and graphs.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-3 : give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{8}$ "

TABLE 1WASHABILITY DATA FOR SAMPLE NO. 56 (after hand crushing to $\frac{3}{8}$ "

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	193	94.6	13.9	6½	94.6	13.9	6½
S1.60 SG	11	5.4	28.1	½	100.0	14.7	6
-30 Mesh	4	1.9	10.6	7			
Total Weight of Sample = 208 grams							
True Specific Gravity = 1.520							

SHEET THREE ATTACHED HERETO

TABLE 2

WASHABILITY DATA FOR SAMPLE NO. 57 (after hand crushing to - $\frac{3}{4}$ "

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	16	0.8	18.0	3½	0.8	18.0	3½
S1.60 SG	2009	99.2	92.5	0	100.0	91.9	0
-30 Mesh	61	2.9	74.7	½			
Total Weight of Sample = 2086 grams							
True Specific Gravity = 2.469							

TABLE 3

WASHABILITY DATA FOR SAMPLE NO. 58 (after hand crushing to - $\frac{3}{4}$ "

F1.30 SG	278	26.7	2.5	9	26.7	2.5	9
S1.30 - F1.35 SG	457	43.9	4.6	7	70.6	3.8	8
S1.35 - F1.40 SG	135	13.0	9.0	4	83.6	4.6	7
S1.40 - F1.45 SG	108	10.4	14.4	1½	94.0	5.7	6½
S1.45 - F1.50 SG	48	4.6	21.8	1½	98.6	6.4	6½
S1.50 - F1.55 SG	5	0.5	33.4	1	99.1	6.6	6½
S1.55 - F1.60 SG	4	0.4	35.6	1	99.5	6.7	6½
S1.60 SG	5	0.5	36.3	1	100.0	6.8	6
-30 Mesh	63	5.7	8.2	8			
Total Weight of Sample = 1103 grams							
True Specific Gravity = 1.352							

ANALYSIS OF CUMULATIVE FLOATS 1.60 SG FRACTION OF
SAMPLE NO. 58

Yield %	99.5
Air Dried Moisture %	1.0
Ash %	6.8
Volatile Matter %	21.2
Fixed Carbon %	71.0
Total Sulphur %	0.46
C.S.NO.	7
Calorific Value	14310 BTU/LB

SYDNEY
25th November 1971

KTI-1630

COALITION MINING

SUKUNKA BQA

(SKITTER SEAM)

	BLK	THICK.	AREA	COAL
8'	45	1 27'	140'	6
4'	57	1 82'	9:9	2
4'	58	4 25'	5 8	6
0				

Telegrams and Cables:
"Visor", Sydney

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APPLICANT: COALITION MINING

**REPORT ON: SUKUNKA SAMPLES NO. 54, 55
CORE NO. C9A
CHAMBERLAIN SEAM**

REPORT NO. K71-1630/A

RECEIVED: 12. 10. 1971

REPORTED: 11. 11. 1971



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terms of registration.

A. Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

R. W. Campbell

INTRODUCTION:

Two (2) coal plies designated CORE NO. C9A CHAMBERLAIN SEAM were received on 12. 10. 1971 from Clifford McElroy & Associates.

METHODS:

1. The visibly inferior coal sample No. 54 was hand crushed to $-\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity. The float and sink fractions, and raw -30 Mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.
2. The good quality coal sample No. 55 was hand crushed to $-\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps. The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 specific gravity fraction was prepared for sample No. 55 and the analysis is also given in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-2 : give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ "

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 54 (after hand crushing to $-\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	3	1.1	34.0	1	1.1	34.0	1
S1.60 SG	278	98.9	48.3	0	100.0	48.1	0
-30 Mesh	7	2.4	43.6	1			
Total Weight of Sample = 288 grams							
True Specific Gravity = 1.794							

SHEET THREE ATTACHED HERETO

TABLE 2

WASHABILITY DATA FOR SAMPLE NO. 55 (after hand crushing to - $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
Fl.30 SG	1297	31.5	2.2	9	31.5	2.2	9
S1.30 - Fl.35 SG	1520	37.0	3.9	8	68.5	3.1	8½
S1.35 - Fl.40 SG	736	17.9	8.4	1½	86.4	4.2	7
S1.40 - Fl.45 SG	260	6.3	13.9	1	92.7	4.9	6½
S1.45 - Fl.50 SG	121	2.9	17.9	1	95.6	5.3	6½
S1.50 - Fl.55 SG	90	2.2	19.6	1	97.8	5.6	6½
S1.55 - Fl.60 SG	34	0.8	20.4	1	98.6	5.7	6½
S1.60 SG	55	1.4	29.2	½	100.0	6.0	6
-30 Mesh	438	9.6	5.8	9			

Total Weight of Sample = 4551 grams

True Specific Gravity = 1.304

ANALYSIS OF CUMULATIVE FLOATS 1.60 SG FRACTION
OF SAMPLE NO. 55

Yield %	98.6
Air Dried Moisture %	1.0
Ash %	5.6
Volatile Matter %	21.9
Fixed Carbon %	71.5
Total Sulphur %	0.38
C.S.NO.	7
Calorific Value	14720 BTU/LB

SYDNEY

25th November 1971

K71-1630A
 COALITION MINING
 SUKUNKA CQA
 (CHAMBERLAIN SEAM)

	SPLE	THICK ^s	ASH% .	CON ^s
14'	54	0.65'	48.1	0
12'				
10'				
8'	55	13.33'	60	6
5'				
4'				
2'				
0				

. STRATIGRAPHIC LOG
SUKUNKA D.D.H. - C9

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft.)</i>
	No core to 12.0 ft.		
Dip 0°	SANDSTONE.	GATES MB.	65.0
60°	SANDSTONE AND MUDSTONE, brecciated.		72.0
	CLAYSTONE, sandy phases, coaly bands.		115.0
30°	CONGLOMERATE.		154.0
Dip = 30° at 180'	SANDSTONE.		201.0
30° at 290'	SANDSTONES, mudstone phases.		
35° at 300'	Brecciated zone 272-286' and		
20° at 400'	257-267'.		318.0
5° at 450'	SILTSTONE, mudstone and sandstone interbedded, worm casts. Fault gouge at 402' (1').	SUKUNKA MB.	718.0
Fault, probable	MUDSTONE, ash beds at base. Breccia zone from 1415-1426'.	MOOSEBAR FM.	1154.0
Dip 0°-5°	SANDSTONE, glauconitic.	GETHING FM.	1156.0
30° at 1150'	<u>COAL.</u>	BIRD SEAM	1159.0
20° at 1260'	MUDSTONE, coaly bands at base.		1163.0
	SANDSTONE, mottled (worm casts at 1170').		1223.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)	
Dip = 30° at 1300'	SILTSTONE AND MUDSTONE INTERBEDDED, granules at base.		1239.0	
	SANDSTONE, mudstone phases.		1255.0	
	MUDSTONE.		1261.0	
	SANDSTONE.		1262.0	
	Fault, established	SANDSTONE AND SILTSTONE, breccia.		1268.0
		SANDSTONE, mottled (worm casts at 1278').		1334.0
		SILTSTONE AND MUDSTONE INTERBEDDED, granules at base.		1353.0
		SANDSTONE, mudstone phases.		1369.0
	Dip = 30° at 1400'	LAMINITE, siltstone and mudstone, mudstone layer at base.		1374.0
		SANDSTONE, coaly wisps.		1392.0
MUDSTONE, sandy phases.			1396.0	
SANDSTONE, mudstone at base, sandy blebs at 1396.5'.			1400.0	
<u>COAL.</u>)			1402.0	
)				
CLAYSTONE, carbonaceous.)		SKEETER SM.	1403.0	
)				
<u>COAL.</u>)	1407.0			
	SILTSTONE, sandy phases.		1409.0	

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
Fault, possible Dip = 30°	LAMINITE, siltstone and mudstone.		1413.0
	<u>COAL.</u>		1413.5
	SILTSTONE, sandy phases.		1422.0
	SILTSTONE AND MUDSTONE INTERBEDDED, some breccia zones.		1427.0
	SILTSTONE AND MUDSTONE INTERBEDDED.		1435.0
	LAMINITE, siltstone and mudstone, mudstone at base.		1457.0
	<u>COAL.</u>	CHAMB. SM.	1471.0
	SANDSTONE.		1472.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-9

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1340.68		
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; sandy interbeds and one sandy phase (1.0') 2.7' from top, worm casts, some dislocation in bottom 0.25' and fine calcite veining.	11.95	1352.63	11.86	
SANDSTONE, grey, medium grained becoming finer towards base, quartz-lithic, mudstone blebs near top, calcite veins more abundant in top 3.5', dipping at various angles, zone of brecciation (0.5') 0.7' from top. Bedding angle 66° to core axis, slickensided fractures at 65° to core axis in a plane at approximately 90° to dip direction.	6.64	1359.27	6.59	
SANDSTONE, grey, fine grained, quartz-lithic, calcite partings at base.	1.57	1360.84	1.56	
MUDSTONE, dark grey.	1.22	1362.06	1.21	

SUKUNKA D.D.H. C-9

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, silty and some muddy interbeds.	6.23	1368.29	6.18	
LAMINITE, siltstone grey and mudstone dark grey, interbedded.	5.19	1373.48	5.15	
CLAYSTONE, dark grey, carbonaceous.	0.74	1374.22	0.73	
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps and thin carbonaceous phases.	3.91	1378.13	3.88	
SANDSTONE, as above, sandy blebs in bottom 0.5'.	19.04	1397.17	18.89	
SANDSTONE, as above, but with sandy blebs in top 0.7'.	1.80	1398.97	1.79	
CLAYSTONE, dark grey, carbonaceous.	1.03	1400.00	1.02	
<u>COAL</u> , dull and bright, 1.33' core loss noted by driller.	1.95	1401.95	0.33)
)
SILTSTONE, darkish grey, carbonaceous at top and bottom.	1.80	1403.75	1.80)
)
<u>COAL</u> , dull.	0.89	1404.64	0.75)
)
				SKEETER SEAM

SUKUNKA D.D.H. C-9

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	0.13	1404.77	0.11)
dull and bright.	0.47	1405.24	0.40)
dull.	1.03	1406.27	0.87	) SKEETER SEAM
core broken, probably mainly dull with minor bright bands.	0.73	1407.00	0.62)
SILTSTONE, dark grey, becoming carbonaceous, a few mudstone laminae towards base.	5.18	1412.18	5.18	
<u>COAL</u> , stony, a few bright bands.	1.26	1413.44	0.30	
CLAYSTONE, carbonaceous.	0.38	1413.82	0.38	
SILTSTONE, grey, sandy phases.	6.79	1420.61	6.76	

SUKUNKA D.D.H. C-9

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey, some fine calcite veining, and one calcite vein 0.5' from top, containing brecciated mudstone fragments, no apparent displacement, slickensides.	3.67	1424.28	3.66	
SILTSTONE, grey, mudstone phases and sandy interbeds, few calcite veins and minor fillings of tension cracks, slickensides.	8.64	1432.92	8.61	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded. Bedding sub - horizontal.	2.13	1435.05	2.12	
SILTSTONE AND MUDSTONE INTERBEDS, as above, some slickensides, core broken 4.3' from top for 1.2'.	12.33	1447.38	12.28	
CLAYSTONE, dark grey.	1.53	1448.91	1.52	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey. Bedding angle 70° to core axis.	4.60	1453.51	4.58	

SUKUNKA D.D.H. C-9

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey with silty interbeds in top 2.4'.	3.49	1457.00	3.48	
<u>COAL</u> , core fragmented, fragments include some coal stony and coal mainly dull or dull with minor bright bands.	2.10	1459.10	0.42)
mainly dull with minor bright bands.	2.10	1461.20	0.42	) CHAMBERLAI SEAM
core sheared and coal type difficult to determine. Most fragments dull or dull with bright bands.	10.16	1471.36	7.92)
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous.	0.64	1472.00	0.64	
REDRILL D.D.H. C-9A REQUIRED.				

SUKUNKA D.D.H. C-9A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Re-drill of D.D.H. C-9. Start coring from 1371'.		1371.00		
MUDSTONE, dark grey.	2.49	1373.49	0.90	
SANDSTONE, grey, medium grained, quartz-lithic, coaly and silty wisps, fine carbonaceous phases and pennybands of coal.	18.02	1391.51	18.02	
SANDSTONE, as above, with carbonaceous claystone phases at 0.7' from top (0.55'), 3.5' from top (0.5') and at base (0.85'), sand blebs from 4.2' to 5.5' from top.	7.44	1398.95	7.44	
<u>COAL</u> , mainly dull with minor bright bands.	1.98	1400.93	0.40)
SILTSTONE, grey, carbonaceous and with coaly masses and wisps in top 0.55', pennyband coal 0.09' from base.	1.82	1402.75	1.82)
<u>COAL</u> , mainly dull with minor bright bands.	0.73	1403.48	0.48)
dull.	0.46	1403.94	0.30	) SKEETER SEAM
mainly dull with minor bright bands.	0.08	1404.02	0.05)

SUKUNKA D.D.H. C-9A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull.	2.55	1406.57	1.67)
dull and bright.	0.43	1407.00	0.28	) SKEETER SEAM
SILTSTONE, grey, mudstone interbeds.	3.43	1410.43	3.22)
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded. Bedding angle 56° to core axis.	1.85	1412.28	1.74	
CLAYSTONE, carbonaceous, coaly wisps.	0.40	1412.68	0.38	
SILTSTONE, grey, sandy interbeds and phases, some coaly wisps, irregular calcite veining mainly below 1.1', brecciated zone 6.6' from top, slickensides. Bedding angle at base 75° to core axis.	17.05	1429.73	16.12	
SILTSTONE, grey, sandy interbeds near top, mudstone interbeds throughout.	2.40	1432.13	2.39	
MUDSTONE, dark grey.	1.28	1433.41	1.27	

SUKUNKA D.D.H. C-9A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, mudstone interbeds.	7.63	1441.04	7.59	
MUDSTONE, dark grey, calcite and breccia zone (0.14') 0.75' from top.	1.20	1442.24	1.19	
MUDSTONE, dark grey, numerous silty interbeds.	2.83	1445.07	2.82	
MUDSTONE, dark grey.	0.68	1445.75	0.68	
MUDSTONE, dark grey, silty interbeds.	2.91	1448.66	2.90	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey, becoming laminite towards base.	7.16	1455.82	7.12	
CLAYSTONE, black.	0.52	1456.34	0.52	
COAL, stony, sandy lenses at top, broken, listric surfaces. mainly dull with minor bright bands.	0.65	1456.99	0.49)
dull and bright.	0.69	1457.68	0.52	) CHAMBERLAIN SEAM
	0.23	1457.91	0.17)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-9A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	0.27	1458.18	0.20)	
dull and bright.	0.60	1458.78	0.45)	
mainly dull with minor bright bands.	1.84	1460.62	0.53)	
dull and bright.	0.29	1460.91	0.22)	
mainly dull with minor bright bands.	0.69	1461.60	0.52)	
dull and bright.	0.15	1461.75	0.11)	
mainly dull with minor bright bands.	0.60	1462.35	0.45)	CHAMBERLAIN SEAM
Determination of the following units is hindered by shearing.)	
mainly dull with minor bright bands.	3.76	1466.11	2.82)	
dull and bright.	0.73	1466.84	0.55)	
mainly dull with minor bright bands.	1.87	1468.71	1.40)	

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-9A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.37	1469.08	0.28)	
mainly dull with minor bright bands.	0.60	1469.68	0.45)	CHAMBERLAIN
dull and bright.	0.64	1470.32	0.48)	SEAM
SANDSTONE, grey, medium grained, quartz-lithic, becoming fine grained towards base, carbonaceous zone (0.05') 5.50' from top, mudstone band (0.03') 1.9' above base. At 3' from top some fractures (some calcite filled) at 15° to core axis, but no slickensides. Bedding angle 70° to core axis.	15.60	1485.92	15.63	
SANDSTONE, grey, fine grained, quartz-lithic,	18.59	1504.51	18.62	
SANDSTONE, as above, bottom 10' with calcite veins at various angles, but most commonly 55° to core axis, mudstone band (0.09') 7.8' from base.	18.39	1522.90	18.41	<u>Base of Hole</u>

BORE NUMBER

C-10

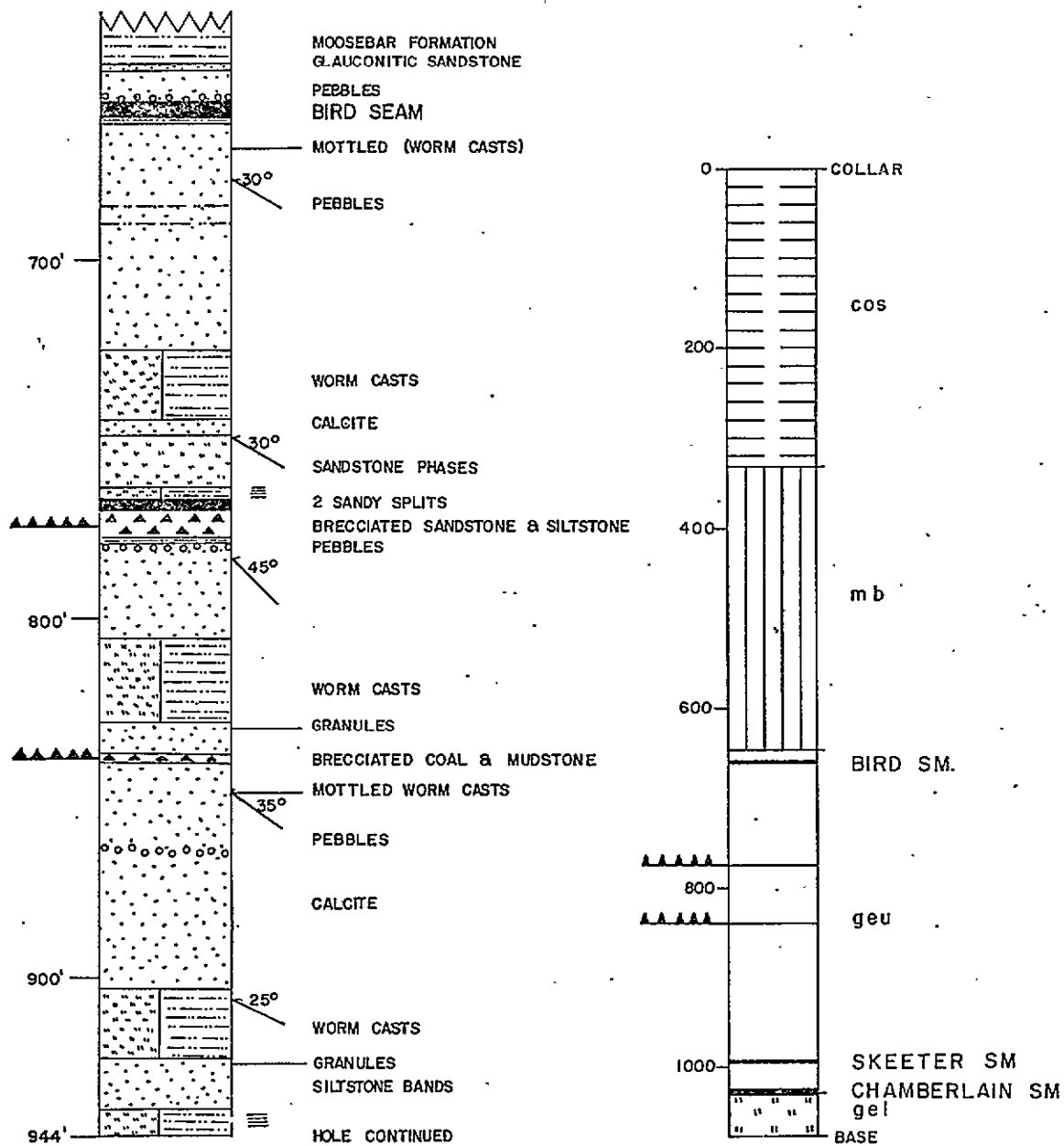
Grid Reference 46209.2 N 80172.8 E
Exploration Grid Reference C+1000'N/E+1000'E

Date Commenced 21 Aug 71 Completed 26 Aug 71

Collar R.L. 4695.3 ft. Standard Datum
Total Depth 1078 ft. Electrically Logged Yes/~~XX~~
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S. Tebbutt & G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3698.67	3.12	54%	
Chamberlain	3667.55	7.58	88%	

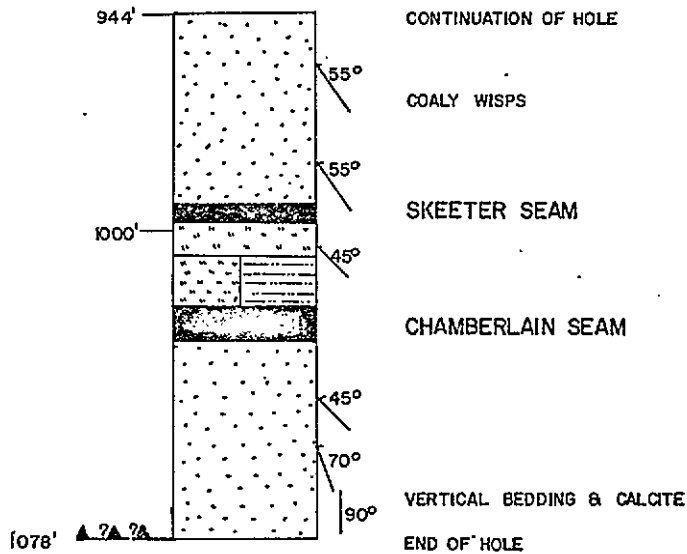


DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-10



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-10

DRAWN BY S.A.

DATE: January '72

PAGE 2 of 2

SKEETER SEAM

993.51

996.63



			ASH % CUMULATIVE FROM FLOOR	
WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
			6.3	
3.12	-	7		

Prepared by:
 CLIFFORD McELROY & ASSOCIATES PTY. LTD.
 for
 COALITION MINING LIMITED
 DRAWN BY pm

SEAM SECTIONS
 DDH C-10

DATE Jan '72

SCALE: 1' to 2'

PAGE 1 of 1

SUKUNKA D.D.H. C-33

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , powdered.	1.34	316.07	0.15	
SILTSTONE, grey, sandstone interbeds. Bedding angle 80° to core axis.	3.98	320.05	4.02	
SANDSTONE, grey, fine grained, quartz-lithic, siltstone interbeds, concentrated in upper 0.5'. 0.5'.	2.10	322.15	2.12	
SANDSTONE, as above, some silty blebs in top 1' and near base, slump structure 2' from top, heavy calcite vein 4.6' from top.	4.88	327.03	4.91	
SILTSTONE, grey, sandstone interbeds at top, mudstone interbeds at base. Bedding angle 84° to core axis.	4.27	331.30	4.26	
<u>COAL</u> , mainly dull with minor bright bands. dull and bright, vertical cleat well developed.	0.40	331.70	0.37	) SKEEETER SEAM
bright.	0.28	331.98	0.26)
	0.13	332.11	0.12)

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLE NO. 68
CORE NO. C10 SKEEETER SEAM

REPORT NO: K71-1631

DATE RECEIVED: 12.10.71

DATE REPORTED: 11.11.71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

A. Broolley
Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. H. [Signature]

INTRODUCTION:

One (1) coal sample designated Core No C10 - SKEETER SEAM - was received on 12.10.71 from Clifford Mc Elroy and Associates.

METHOD:

The good quality coal samples No. 68 was hand crushed to $\frac{3}{4}$ " sized at 30 Mesh BSS and the +30 Mesh BSS fraction washed in organic liquids at 130-160 specific gravity in 0,05 steps.

The float and sink fractions and raw -30 Mesh coal fraction were weighed, prepared and analysed for Ash and crucible swelling number and the composite raw coal sample reconstituted and the SG. of the sample determined.

A cumulative float 1.60 specific gravity fraction was prepared for sample No. 68 and the analysis are given also in this report.

COMMENTS:

Due to the relatively high core losses on drillings no allowance has been made for core losses i.e. sample weight have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

Table 1 : gives the sizing, washability and analytical data for the sample after hand crushing to $\frac{3}{4}$ ".

SHEET THREE ATTACHED

TABLE 1 : WASHABILITY DATA FOR SAMPLE NO. 68 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT.GM.	WT.%	ASH%	C.S.NO.	WT.%	ASH%	C.S.NO.
F1.30	356	35.1	2.8	9	35.1	2.8	9
S1.30-F1.35	428	42.3	4.7	6 $\frac{1}{2}$	77.4	3.8	7 $\frac{1}{2}$
S1.35- F1.40	151	14.9	9.5	4 $\frac{1}{2}$	92.3	4.8	7
S1.40- F1.45	35	3.5	13.8	4 $\frac{1}{2}$	95.8	5.1	7
S1.45- F1.50	15	1.5	16.2	3 $\frac{1}{2}$	97.3	5.3	7
S1.50- F1.55	5	0.5	21.7	2	97.8	5.3	7
S1.55- F1.60	5	0.5	26.4	1	98.3	5.4	7
S1.60	18	1.7	54.6	1 $\frac{1}{2}$	100.0	6.3	7
-30 Mesh	82	7.5	6.4	7 $\frac{1}{2}$			

TOTAL WEIGHT OF SAMPLE = 1095 gms.

TRUE S.G. = 1.330

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION OF SAMPLE NO.68

<u>YIELD%</u>	<u>ADM%</u>	<u>ASH%</u>	<u>V.M.%</u>	<u>F.C.%</u>	<u>T.S.%</u>	<u>C.S.NO.</u>	<u>CV(BTU/lb)</u>
98.3	1.0	5.3	21.8	71.9	0.72	7 $\frac{1}{2}$	14.410

SYDNEY

22nd November, 1971

K711631
COALITION MINING

BULKHEAD C/O
(CORRECTOR BEAM)

SPLE	THICK	ASH%	CSHO
68	3-12	63	7

2

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT:

COALITION MINING
c/o Austen & Butta Limited
43rd Level, Tower Building
Australia Square,
S Y D N E Y. 2000

REPORT ON:

SUKUNKA 48 and 49
CORE NO. C10
CHAMBERLAIN SEAM

REPORT NO.

K71-1565

RECEIVED:

1. 10. 1971

REPORTED:

25. 10. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

A.B. Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

D. H. ...

INTRODUCTION:

One (1) coal ply and one (1) non coal ply designated CORE C10 CHAMBERLAIN SEAM were received on 1. 10. 1971 from Clifford McElroy & Associates Pty. Ltd.

METHOD:

The coal ply was hand crushed to $\frac{3}{4}$ " top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions, the raw -30 mesh coal fraction and the non coal ply were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{4}$ "

TABLE 2 : gives the washability data necessary for the construction of the washability curves

The washability curves and the analysis of the Floats 1.60 SG fraction of Ply 49 are included in this report.

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
RAW COAL SKR 48, 0.17'	164	100.0	52.1	0	100.0	52.1	0
<u>TABLE 1</u>	<u>WASHABILITY DATA FOR SKR 49, 7.41' (after hand crushing to $\frac{3}{4}$")</u>						
F1.30 SG	2227	61.8	2.0	9	61.8	2.0	9
S1.30 - F1.35 SG	807	22.4	4.9	7	84.2	2.8	8½
S1.35 - F1.40 SG	317	8.8	8.4	1½	93.0	3.3	8
S1.40 - F1.45 SG	111	3.1	14.5	1	96.1	3.7	7½
S1.45 - F1.50 SG	82	2.3	22.4	1	98.4	4.1	7½
S1.50 - F1.55 SG	12	0.3	22.6	1	98.7	4.2	7½
S1.55 - F1.60 SG	9	0.3	22.9	1	99.0	4.2	7½
S1.60 SG	35	1.0	30.9	½	100.0	4.5	7½
-30 Mesh	548	13.2	3.7	8½			
<u>ANALYSIS OF FLOATS 1.60 SG FRACTION</u>							
Yield %	99.0						
Air Dried Moisture %	1.1						
Ash %	4.1						
Volatile Matter %	21.9						
Fixed Carbon %	72.9						
Total Sulphur %	0.22						
C.S.NO.	8						
Calorific Value	15140 BTU/LB						

SHEET THREE ATTACHED HERETO

TABLE 2

DATA FOR WASHABILITY CURVES - SKR 49

FRACTION	INDIVIDUAL		CUM. FLOATS		CUM. SINKS		±0.10 SG	"D"
	WT.%	ASH%	WT. %	ASH%	WT. %	ASH%		
F1.30 SG	61.8	2.0	61.8	2.0	100.0	4.5	-	30.9
S1.30 - F1.35 SG	22.4	4.9	84.2	2.8	38.2	8.5	-	73.0
S1.35 - F1.40 SG	8.8	8.4	93.0	3.3	15.8	13.6	36.6	88.6
S1.40 - F1.45 SG	3.1	14.5	96.1	3.7	7.0	20.1	14.5	94.6
S1.45 - F1.50 SG	2.3	22.4	98.4	4.1	3.9	24.6	6.0	97.3
S1.50 - F1.55 SG	0.3	22.6	98.7	4.2	1.6	27.8	-	98.6
S1.55 - F1.60 SG	0.3	22.9	99.0	4.2	1.3	29.1	-	98.9
S1.60 SG	1.0	30.9	100.0	4.5	1.0	30.9	-	99.5

SYDNEY

26th October 1971

K71-1565
COALITION MINING

SUKUNKA C10 - CHAMBERLAIN SEAM

	PLY	THICK ^S	WT%	ASH%	CSNO	REMARKS
8'	SKR ₄	0.17'	-	52.1	0	4.5
6'						
4'	SKR ₄	7.41'	100.0	4.5	7 1/2	
2'						
0						

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-10

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 6.0 ft.		
	SILTSTONE, light and mid grey lenses and interbeds, Mudstone fragments, occasional sandy phases.	SUKUNKA MB.	330.0
	MUDSTONE, dark grey, two pale brownish grey claystone bands, each of approx. 0.3' thickness near base.	MOOSEBAR FM.	645.0
	SANDSTONE, dark greenish grey, medium grained, glauconitic. Pebbles at base.	GETHING FM.	656.5
	<u>COAL.</u>	BIRD SEAM	659.5
	MUDSTONE, dark grey.		661.5
	SANDSTONE, coarse at top becoming fine, mottled (worm casts) at 669', pebbles 684', mudstone bands, 690' and 685'.		725.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts.		744.5
	SANDSTONE, coarse, some calcite.		749.0
	SILTSTONE, sandy interbeds.		764.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
Fault, established	LAMINITE, siltstone and mudstone, mudstone at base.		767.0
	COAL, sandy bands 0.5'.		769.5
	SANDSTONE AND SILTSTONE, breccia.		776.0
	SANDSTONE, mudstone band then pebbles.		805.0
	SILTSTONE AND MUDSTONE INTERBEDS, worm casts.		829.0
	SANDSTONE, grey, medium grained.		837.5
	<u>COAL</u> and MUDSTONE, dark grey, black, fragmented.	BIRD SEAM	839.0
	SANDSTONE, grey, medium grained, calcite veins (heavy in centre). (848') mottled (worm casts). Phase mudstone. (861') pebbles. (863') mudstone interbeds 1/3rd way down.		903.0
	SILTSTONE AND MUDSTONE INTERBEDS, minor calcite veins. worm casts,, granules at base.		922.0
	SANDSTONE, grey, medium grained, (928') siltstone and (931') mudstone band then pebbles at top.		937.0
LAMINITE, siltstone and mudstone becoming mudstone to base.		944.0	

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
Fault possible	SANDSTONE, grey, medium grained, oblique and irregular calcite veins. Coaly wisps.		994.0
	<u>COAL.</u>	SKEETER SM.	996.5
	SILTSTONE, grey, sandstone fine phases.		1006.0
	LAMINITE, siltstone and mudstone, mudstone base.		1020.0
	<u>COAL.</u>	CHAMB. SM.	1027.5
	SANDSTONE, grey, medium grained, calcite veins numerous, curving vertical bedding towards base.		1078.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		724.78		
SANDSTONE, grey, fine grained, quartz-lithic, bedding angle 45° to core axis.	0.25	725.03	0.25	
SANDSTONE AND MUDSTONE INTERBEDS, sandstone grey, very fine grained, and mudstone dark grey, some silty interbeds - all interbedded. Bedding angle 45° to core axis, bedding displaced tectonically in places, fine calcite fillings of tension cracks, slickensides.	1.37	726.40	1.36	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey, and mudstone dark grey, interbedded; mudstone blebs, worm casts, sandy interbeds and phases, slickensides and calcite filled tension cracks in upper 2.8'. Bedding angle towards base 62° to core axis.	17.28	743.68	17.20	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded, calcite veins in bottom 0.15'.	0.96	744.64	0.96	

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium to coarse grained, silty interbeds in top 0.17', mudstone blebs at base.	0.80	745.44	0.80	
SANDSTONE, grey, medium grained, quartz-lithic, fractured, some fractures, calcite filled, some slickensides on calcitic surfaces, core broken in parts.	3.41	748.85	3.39	
SANDSTONE, mid grey to dark grey in parts, coaly wisps, content of carbonaceous claystone in matrix varies from place to place bedding angle 52° to core axis. One calcite vein parallel to bedding.	13.66	762.51	13.59	
SANDSTONE, as above, no calcite veins.	1.54	764.05	1.53	
LAMINITE, siltstone and claystone finely interbedded.	2.32	766.37	2.31	
CLAYSTONE, carbonaceous, core broken, slickensides.	1.14	767.51	1.13	
SANDSTONE, medium grained, black, carbonaceous.	0.39	767.90	0.39	
CLAYSTONE, carbonaceous, core broken, slickensides.	0.25	768.15	0.25	
SANDSTONE, mid-grey, fine grained, carbonaceous.	0.48	768.63	0.48	

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, black, carbonaceous, slickensides.	0.40	769.03	0.40	
SANDSTONE AND SILTSTONE, brecciated, sandstone medium and fine grained phases, siltstone and mudstone brecciated, bedding where shown highly oblique to vertical, slickensides and numerous calcite infillings, carbonaceous phase from 1.6' to 2.5' from top.	6.46	775.49	6.43	
CONGLOMERATE, pebble and granule.	0.06	775.55	0.06	
SANDSTONE, grey, fine grained, quartz-lithic, a few calcite veins, one 0.06' wide 2.6' from top. Bedding angle 60° to core axis.	5.27	780.82	5.24	
SANDSTONE, grey, fine grained, quartz-lithic, minor calcite veining mostly along bedding planes.	19.13	799.95	19.03	
SANDSTONE, as above, calcite veins opposed to bedding (though not directly) at 35° to core axis, bedding angle 55° to core axis.	5.80	805.75	5.77	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded, some sandy interbeds, worm casts, sandstone and mudstone blebs, calcite veins				

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
parallel to bedding and opposed to it along fine tension cracks, no apparent dislocation.	4.18	809.93	4.16	
CLAYSTONE, brownish grey, hard and dense (sideritic?).	0.21	810.14	0.21	
SANDSTONE, brownish grey, very fine grained, silty interbeds.	0.88	811.02	0.88	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, sandy interbeds and phases, one silty phase (0.65') 3.0' from base, worm casts, sandstone and mudstone blebs, minor calcite.	7.20	818.22	7.17	
CLAYSTONE, dark brownish grey.	0.34	818.56	0.34	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, some very fine sandy interbeds. Bedding much disturbed by worm activity. Sandstone and mudstone blebs. Zone (0.4') 7.7' from top with numerous fine calcite-filled tension cracks and some slickensides.	10.27	828.83	10.21	
SANDSTONE, grey, medium to coarse, quartz-lithic, some silty interbeds and calcite veins.	0.75	829.58	0.75	

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, fine calcite veins, some convex to core axis, others opposed to bedding at 35° to core axis. Bedding angle 55° to core axis. Heavy calcite vein (0.5') 4.9' from base containing siltstone chips and slickensides.	8.37	837.95	8.33	
<u>COAL</u> , core broken into small fragments with listric surfaces.	0.84	838.79	0.74	
SANDSTONE AND <u>COAL</u> , brecciated and mixed.	0.30	839.09	0.27	
SANDSTONE, grey, medium grained, quartz-lithic, fractured in top 0.9' with oblique slickensided surface. Pennybands coal at 0.37' and 1.00' from top, mottled appearance due to numerous fine worm casts from 6.15' to 10.50' from top. A few calcite veins parallel to bedding. Bedding angle 65° to core axis.	17.68	856.77	17.69	
SANDSTONE, grey, medium grained, quartz-lithic, silty interbeds from 0.48' to 0.83' from top, mudstone blebs 1.07' from top, granules and some pebbles 2.1' from top, band (0.64') of granules with sandy interbeds and pebble conglomerate at base 3.52' from top. A few pebbles at base.	5.92	862.69	5.92	

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE; grey, sandy and silty interbeds, brecciated, slickensides, core broken.	0.46	863.15	0.46	
SANDSTONE, grey, fine grained, quartz-lithic, calcite veins parallel to bedding, opposed to bedding at 25° to core axis (mainly near top) and also irregular calcitic veining. Slickensides along calcite veins parallel to bedding. Bedding angle 70° to core axis.	12.23	875.38	12.24	
SANDSTONE, grey, fine grained, quartz-lithic, irregular calcite veining (some parallel to bedding) in top 7.6', some slickensides, some evidence of brecciation in 0.3' zone, 3.5' from top. Bedding angle at top 73° to core axis, and at base 75°.	18.79	894.17	18.81	
SANDSTONE, grey, fine grained, quartz-lithic, minor calcite parallel to bedding, mud blebs at base.	9.01	903.18	9.02	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; fine sandy interbeds, siltstone and fine sandstone phases, worm casts, mudstone and sandstone blebs, a few calcite veins and minor dislocation associated with one at 1.1' from top. Bedding angle 70° to core axis.	9.88	913.06	9.89	

SUKUNKA D.D.H. C-10

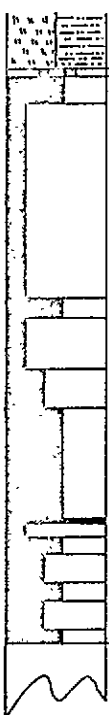
<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, as above, no calcite veins or dislocation.	9.56	922.62	9.57	
MUD, brown, unconsolidated.	0.10	922.72	0.10	
SANDSTONE, grey, fine grained, quartz-lithic, silty interbeds, subverical calcite vein.	0.38	923.10	0.38	
MUDSTONE, grey, broken into fragments.	0.16	923.26	0.16	
SANDSTONE, grey, fine to medium grained, quartz-lithic, silty interbeds.	0.13	923.39	0.13	
SANDSTONE, grey, fine grained, quartz-lithic, minor calcite in top 0.9'.	5.03	928.42	5.03	
SILTSTONE, grey.	0.83	929.25	0.83	
SANDSTONE, grey, fine grained, quartz-lithic, silty interbeds and phases, bedding angle 65° to core axis.	1.81	931.06	1.81	
LAMINITE, siltstone brownish grey and mudstone dark brownish grey, interbedded.	1.09	932.15	1.09	

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, very fine grained, quartz-lithic, silty interbeds.	2.43	934.58	2.43	
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps in lower quarter, an oblique calcite vein and brecciated laminite fragments of sedimentary origin at base.	2.60	937.18	2.60	
LAMINITE, siltstone grey and mudstone dark grey interbedded. Bedding angle 68° to core axis.	5.05	942.23	5.05	
CLAYSTONE, dark grey, slump structures at base and at 0.8' from base, listric surfaces, some calcite, core broken 0.3' from base and at top.	2.03	944.26	2.03	
SANDSTONE, grey, medium grained, quartz-lithic, fine silty interbeds, irregular calcite veins and possible brecciation in zone (1.0') 1.9' from base, slickensides.	6.62	950.88	6.63	
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps and thin carbonaceous phases, some bedding planes slightly slickensided, thin quartz veins opposed				

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
843.58						
843.65		0.07	56.2	0		
		5.81	4.4	7		
849.46						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS

for

DDH C-11

COALITION MINING LIMITED

DRAWN BY pm

DATE Jan '72

SCALE: 1' to 2'

PAGE 1 of 1

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, brownish grey, sandy interbeds and irregular masses in lower half, slickensides. Bedding angle 45° to core axis.	4.40	1006.64	4.39	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; sandy and muddy phases, some worm casts. Bedding angle 50° to core axis.	6.10	1012.74	6.08	
MUDSTONE, brown, some silty interbeds.	0.59	1013.33	0.59	
LAMINITE, siltstone brownish grey and mudstone dark grey. Bedding angle 35° to core axis above a zone of broken core (0.4') and unconsolidated silty mud, some slickensides along bedding planes. Below broken zone bedding angle 45° to core axis.	2.75	1016.08	2.74	
CLAYSTONE, dark grey.	0.36	1016.44	0.36	
LAMINITE, siltstone brownish grey and mudstone dark grey, interbedded. Bedding angle 45° to core axis.	3.20	1019.64	3.19	
MUDSTONE, black, core broken and slickensided.	0.53	1020.17	0.53	

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<p><u>COAL</u>, stony, broken and slickensided.</p> <p>coal types not distinguishable with certainty due to shearing and slickensides.</p>	0.17	1020.34	0.16)))))	
<p>dull.</p>	2.10	1022.44	2.02))	CHAMBERLAIN SEAM
<p>mainly dull with minor bright bands.</p>	0.21	1022.65	0.20))	
<p>dull.</p>	0.68	1023.33	0.66))	
<p>mainly dull with minor bright bands.</p>	0.40	1023.73	0.39))	
<p>dull, bedding? and shearing angle 38° to core axis.</p>	4.02	1027.75	3.87))	
<p>SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous and with coaly wisps in top 1.5', irregular coaly mass 0.15' from top. Bedding angle 55° to core axis. Fine yellowish calcite veins at 52° to core axis opposed to bedding. Silty interbeds (0.25') 1.07' from base.</p>	15.89	1043.64	16.59	

SUKUNKA D.D.H. C-10

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, calcite veins opposed to bedding.	2.34	1045.98	2.44	
SANDSTONE, as above, with brecciated siltstone fragments overlying a siltstone band (0.08'), calcite vein on top of structure, probably sedimentary in origin.	0.16	1046.14	0.17	
SANDSTONE, grey, medium grained becoming finer to base, calcite veins. Bedding angle 42° to core axis. Some slickensides along calcitic planes.	18.10	1064.24	18.91	
SANDSTONE, grey, fine grained, quartz-lithic, calcite veining. Bedding curved in slump structure, overturned in parts at angles from 0° to 40° to core axis. Slickensides along bedding planes. Core broken in part.	13.76	1078.00	14.38	
				<u>BASE OF HOLE</u>

BORE NUMBER

C-11

Grid Reference 48081.3 N . 79786.7 E
Exploration Grid Reference B+1000'N/2

Date Commenced 21 Aug 71 Completed 29 Aug 71

Collar R.L. 4564.0 ft. Standard Datum
Total Depth 898 ft. Electrically Logged Yes/~~XX~~
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S. Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3742.00	10.63	56%	
Chamberlain	3714.54	5.88	52%	

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLE NO. 59-60, 61, 62-63-64, 65
CORE NO. C11 - SKEETER SEAM -

REPORT NO: K71- 1632

DATE RECEIVED: 12.10.71

DATE REPORTED: 22.11.71

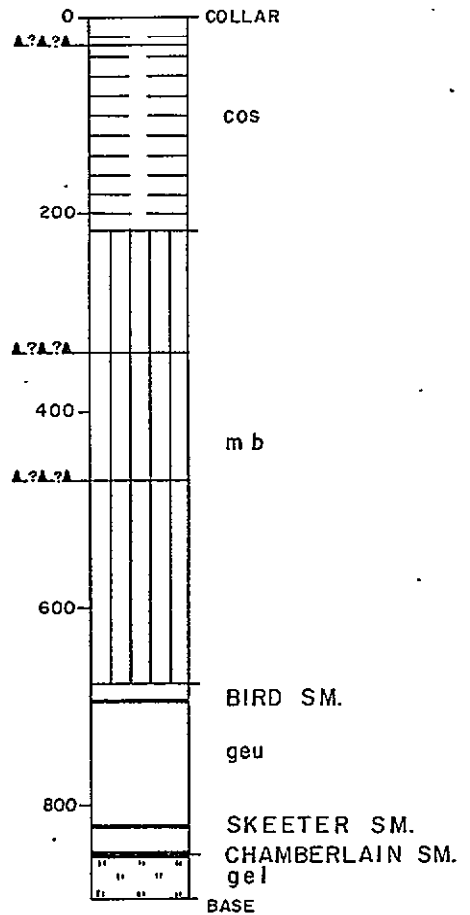
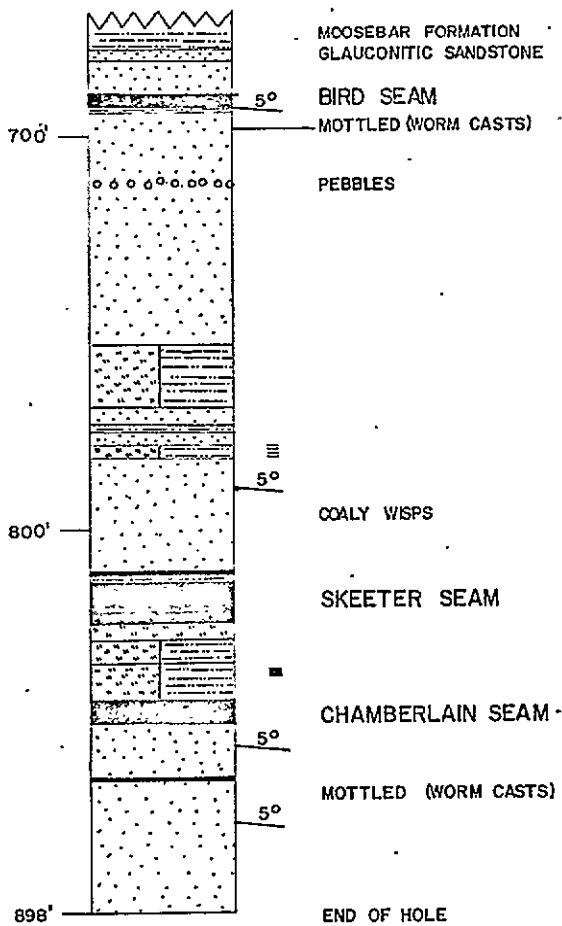


This Laboratory is Registered by the
National Association of Testing Authorities,
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bradley
Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. H. [Signature]



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'




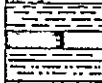


SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-II

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
811.37		-	76.7	2		
812.22		0.85				
		5.85	4.9	6		
818.07		1.01	79.7	0		
819.08		2.92	10.5	6½		
822.00						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-11

SCALE: 1" to 2'

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

843.58
843.65

0.07

56.2 0

5.81

- 4.4 7

849.46



	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
843.58 - 843.65		56.2	0		
843.65 - 849.46	-	4.4	7		

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-11
PAGE 1 of 1

SCALE: 1' to 2'

INTRODUCTION:

Four (4) coal samples designated Core No. C11 - SKEETER SEAM- were received on 12.10.71 from Clifford Mc Elroy and Associates.

METHOD:

1. The visibly inferior coal samples nos. 62-64, 65 were hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity.

The float and sink fraction and raw -30 mesh coal fractions were weighed, prepared and analysed for ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

2. The good quality coal samples nos. 59-60, 61 were hand crushed to $-\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids 1.30-1.60 specific gravity in 0.05 steps.

The float and sink fractions, raw -30 mesh coal fractions were weighed, prepared and analysed for ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative Float 1.60 S.G. fraction was prepared for sample no. 61 and the analysis are also given in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

FIGURE 1: gives the graphic log of the core.

TABLES 1-4: gives the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ ".

SHEET THREE ATTACHED.

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 59+ 60 (after hand crushing to $-\frac{1}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT.GM.	WT.%	ASH%	CS.NO.	WT.%	ASH%	C.S.NO.
F1.30	11	1.5	2.9	8 $\frac{1}{2}$	1.5	2.9	8 $\frac{1}{2}$
S1.30- F1.35	42	5.7	6.6	8	7.2	5.8	8
S1.35- F1.40	30	4.5	11.9	8	11.3	8.0	8
S1.40- F1.45	12	1.6	19.2	7 $\frac{1}{2}$	12.9	9.4	8
S1.45- F1.50	7	1.0	26.2	7 $\frac{1}{2}$	13.9	10.6	8
S1.50- F1.55	7	1.0	32.7	7 $\frac{1}{2}$	14.9	12.1	8
S1.55- F1.60	10	1.4	36.4	6	16.3	13.3	8
S1.60	614	83.7	89.0	0	100.0	76.7	2
-30 Mesh RC	17	2.3	39.2	7			

TOTAL WEIGHT OF SAMPLE = 750 gms.

TRUE S.G. = 2.151

TABLE 2: WASHABILITY DATA FOR SAMPLE NO.61 (after hand crushing to $-\frac{3}{4}$ ")

F1.30	1381	63.2	2.6	8 $\frac{1}{2}$	63.2	2.6	8 $\frac{1}{2}$
S1.30- F1.35	583	26.7	5.0	2	89.9	3.3	6 $\frac{1}{2}$
S1.35- F1.40	100	4.6	8.9	2	94.5	3.6	6 $\frac{1}{2}$
S1.40- F1.45	40	1.8	12.9	1	96.3	3.8	6
S1.45- F1.50	26	1.2	15.7	1	97.5	3.9	6
S1.50- F1.55	17	0.8	19.2	1	98.3	4.0	6
S1.55- F1.60	7	0.3	23.0	1 $\frac{1}{2}$	98.6	4.1	6
S1.60	30	1.4	65.2	0	100.0	4.9	6
-30 Mesh RC	311	12.5	5.4	8			

TOTAL WEIGHT OF SAMPLE = 2,495 gms.

TRUE S.G. = 1.320

TABLE 3: WASHABILITY DATA FOR SAMPLE NO. 62+ 63+ 64 (after hand crushing to $-\frac{3}{4}$ ")

F1.60 SG	63	7.4	8.5	7 $\frac{1}{2}$	7.4	8.5	7 $\frac{1}{2}$
S1.60 SG	783	92.6	85.4	0	100.0	79.7	0
-30 Mesh RC	30	3.4	45.5	2 $\frac{1}{2}$			

TOTAL WEIGHT OF SAMPLE = 876 gms.

TRUE S.G. = 2.222

TABLE 4: WASHABILITY DATA FOR SAMPLE NO.65 (after hand crushing to $-\frac{3}{4}$ ")

F1.60	290	92.9	6.2	9	92.9	6.2	9
S1.60	22	7.1	67.0	1 $\frac{1}{2}$	100.0	10.5	8 $\frac{1}{2}$
-30 Mesh RC	43	12.1	17.1	9			

TOTAL WEIGHT OF SAMPLE = 355 gms.

TRUE S.G. = 1.361

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 61

YIELD%	ADM%	ASH%	V.M.%	F.C.%	S.%	C.S.NO.	CV(BTU/lb)
98.6	1.0	4.0	23.6	71.4	0.43	6 $\frac{1}{2}$	15,000

SYDNEY

22nd November, 1971

K71-1632

COALITION MINING

SUKUNKA C11

(SKEETER SEAM)

	SPLIT	THICK	CONT.	SP. WT.
10	{ 51 60	0.85	767	2
8				
6	61	5.85	21.9	6
4	{ 62 63 64	1.01	797	0
2	65	2.92	105	6 1/2
0				

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NOS. 66, 67
CORE NO. C11
CHAMBERLAIN SEAM

REPORT NO. K71 - 1632/A

DATE RECEIVED: 12. 10. 71

DATE REPORTED: 22. 11. 71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. J. O'Connell

INTRODUCTION:

Two (2) coal plies designated CORE NO. C11 CHAMBERLAIN SEAM were received on 12.10.71 from CLIFFORD McELROY & ASSOCIATES.

METHOD:

1. The visibly inferior coal sample no. 66 was hand crushed to $-\frac{3}{4}$ "¹¹, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 specific gravity.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for ash and crucible swelling number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

2. The good quality coal sample no. 67 was hand crushed to $-\frac{3}{4}$ "¹¹, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for ash and crucible swelling number, and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 specific gravity fraction was prepared for sample no. 67 and the analysis is also given in this report.

COMMENTS:

Due to the relatively high core loss on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude further calculations and the construction of washability tables and graphs.

RESULTS:

FIGURE 1: gives the graphic log of the core.

TABLES 1 - 2: give the sizing, washability and analytical data for each coal sample after hand crushing to $-\frac{3}{4}$ "¹¹.

SHEET THREE ATTACHED:

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 66 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.60	4	7.0	22.5	1 $\frac{1}{2}$	7.0	22.5	1 $\frac{1}{2}$
S1.60	53	93.0	58.7	0	100.0	56.2	0
-30 Mesh RC	1	1.7	41.3	1			

TOTAL WEIGHT OF SAMPLE = 58 gms

TRUE S.G. = 1.961

TABLE 2: WASHABILITY DATA FOR SAMPLE NO. 67 (after hand crushing to $-\frac{3}{4}$ ")

F1.30	970	54.0	52.0	9	54.0	2.0	9
S1.30 - F1.35	613	34.1	4.8	6	88.1	3.1	8
S1.35 - F1.40	112	6.2	9.0	2	94.3	3.5	7 $\frac{1}{2}$
S1.40 - F1.45	31	1.7	11.2	1	96.0	3.6	7 $\frac{1}{2}$
S1.45 - F1.50	23	1.3	14.2	1	97.3	3.8	7 $\frac{1}{2}$
S1.50 - F1.55	15	0.8	16.2	1	98.1	3.9	7
S1.55 - F1.60	7	0.4	20.5	1 $\frac{1}{2}$	98.5	3.9	7
S1.60	25	1.5	39.1	0			
-30 Mesh RC	144	7.4	4.4	9			

TOTAL WEIGHT OF SAMPLE = 1,940 gms

TRUE S.G. = 1.320

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 67

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	CV(BTU/lb)
98.5	1.0	3.8	21.5	73.7	0.38	7 $\frac{1}{2}$	15,030

SYDNEY

23rd November, 1971.

K71-1632A

COALITION MINING

SUKUNKA-GII

(GAMBERLOIN BEAM)

SPLI	THICK ²	ASH ²	CEN ⁰
66	5.07	562	0
67	5.81	474	7

6

4

2

0

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-11

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft.)</i>
Fault, possible	No core to 7.0 ft.		
	SILTSTONE, grey, sandy interbeds, mudstone blebs, brecciated sandstone band (3') with calcite veins at 29'. Mud at 134' and possibly at 170'.	SUKUNKA MB.	219.0
	MUDSTONE, dark grey, slickensides and broken core at 338', 444', 470' 486'.	MOOSEBAR FM.	678.0
	SANDSTONE, dark grey, medium grained, glauconitic.	GETHING FM.	680.0
	SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps.		688.0
	<u>COAL.</u>	BIRD SEAM	692.0
	MUDSTONE, dark grey, 0.3' coal band near base.		693.0
	SANDSTONE, grey, medium grained becoming finer to base, mottled (worm casts) at 698', granules and pebbles at 713'.		751.0
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, worm casts.		769.0	

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, grey, medium grained, quartz-lithic, granules at top, mudstone band at 773'.		778.0
	LAMINITE, siltstone and mudstone, becoming mudstone at base.		782.0
	SANDSTONE, grey, medium grained, quartz-lithic, coaly and silty wisps.		811.5
	<u>COAL</u> , banded.	SKEETER SM.	822.5
	SILTSTONE, grey, mudstone band at 826'.		828.0
	SILTSTONE AND MUDSTONE INTERBEDS.		836.0
	LAMINITE, siltstone and mudstone grey.		843.5
	<u>COAL</u> .	CHAMB. SM.	849.5
	SANDSTONE, grey, medium grained, quartz-lithic, coal band (1') at 863', mottled (worm casts) at 868'.		898.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-11

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		743.55		
SANDSTONE, grey, fine grained, quartz-lithic.	8.71	752.26	8.71	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; worm casts, sandy interbeds. Bedding angle 85°-90° to core axis. Core broken in part.	9.92	762.18	9.92	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey, interbedded; some sandy interbeds, mud blebs and worm casts.	6.74	768.92	6.74	
SANDSTONE, grey, medium to coarse grained, silty interbeds, mudstone phase (0.09') 0.28' from top.	0.89	769.81	0.89	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps and irregular masses in bottom 0.5'.	3.92	773.73	3.92	
MUDSTONE, dark grey, silty phases.	0.61	774.34	0.61	

SUKUNKA D.D.H. C-11

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, quartz-lithic, silty interbeds and phases, a few coaly wisps.	3.47	777.81	3.47	
SANDSTONE, grey, medium grained, quartz-lithic, silty wisps.	0.43	778.24	0.43	
LAMINITE, siltstone grey and mudstone dark grey, laminae at top approximately 0.01' thick and becoming finer and muddier towards base.	2.77	781.01	2.77	
LAMINITE, as above, but becoming coarser in bottom 0.7'.	1.05	782.06	1.05	
CLAYSTONE, carbonaceous.	0.33	782.39	0.33	
SANDSTONE, dark grey, fine grained, quartz-lithic, carbonaceous, coaly wisps.	0.86	783.25	0.86	
CLAYSTONE, carbonaceous.	0.11	783.36	0.11	

SUKUNKA D.D.H. C-11

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium to fine grained, quartz-lithic, thin phases and fine interbeds of claystone carbonaceous, coaly wisps and small irregular masses.	28.01	811.37	28.01	
<u>COAL</u> , dull and bright.	0.04	811.41	0.04)
dull.	0.14	811.55	0.14)
dull and bright.	0.13	811.68	0.13)
CLAYSTONE, carbonaceous.	0.13	811.81	0.13)
MUDSTONE, dark grey.	0.41	812.22	0.41)
<u>COAL</u> , core badly broken, coal fragments mainly dull.	0.26	812.48	0.26)
dull.	0.35	812.83	0.35)
dull and bright.	0.23	813.06	0.23)
mainly dull with minor bright bands.	0.36	813.42	0.36)
dull and bright.	0.45	813.87	0.45)

SKEETER
SEAM

SUKUNKA D.D.H. C-11

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull	0.59	814.46	0.58)))))))))) SKEETER SEAM
mainly dull with minor bright bands.	0.44	814.90	0.44	
dull, core rather sheared and not easy to identify.	0.71	815.61	0.70	
mainly dull and possibly stony in part, core fractured into thin laminae with listric surfaces.	0.37	815.98	0.37	
dull, core broken, rather sheared and difficult to identify with certainty.	0.86	816.84	0.85	
<u>COAL</u> , mainly dull with minor bright bands, core broken.	1.23	818.07	0.80	
CLAYSTONE, carbonaceous, core broken.	0.30	818.37	0.30	
<u>COAL</u> , dull and bright.	0.16	818.53	0.16	
CLAYSTONE, carbonaceous, coaly lenses.	0.14	818.67	0.14	
MUDSTONE, dark grey.	0.18	818.85	0.18	

SUKUNKA D.D.H. C-11

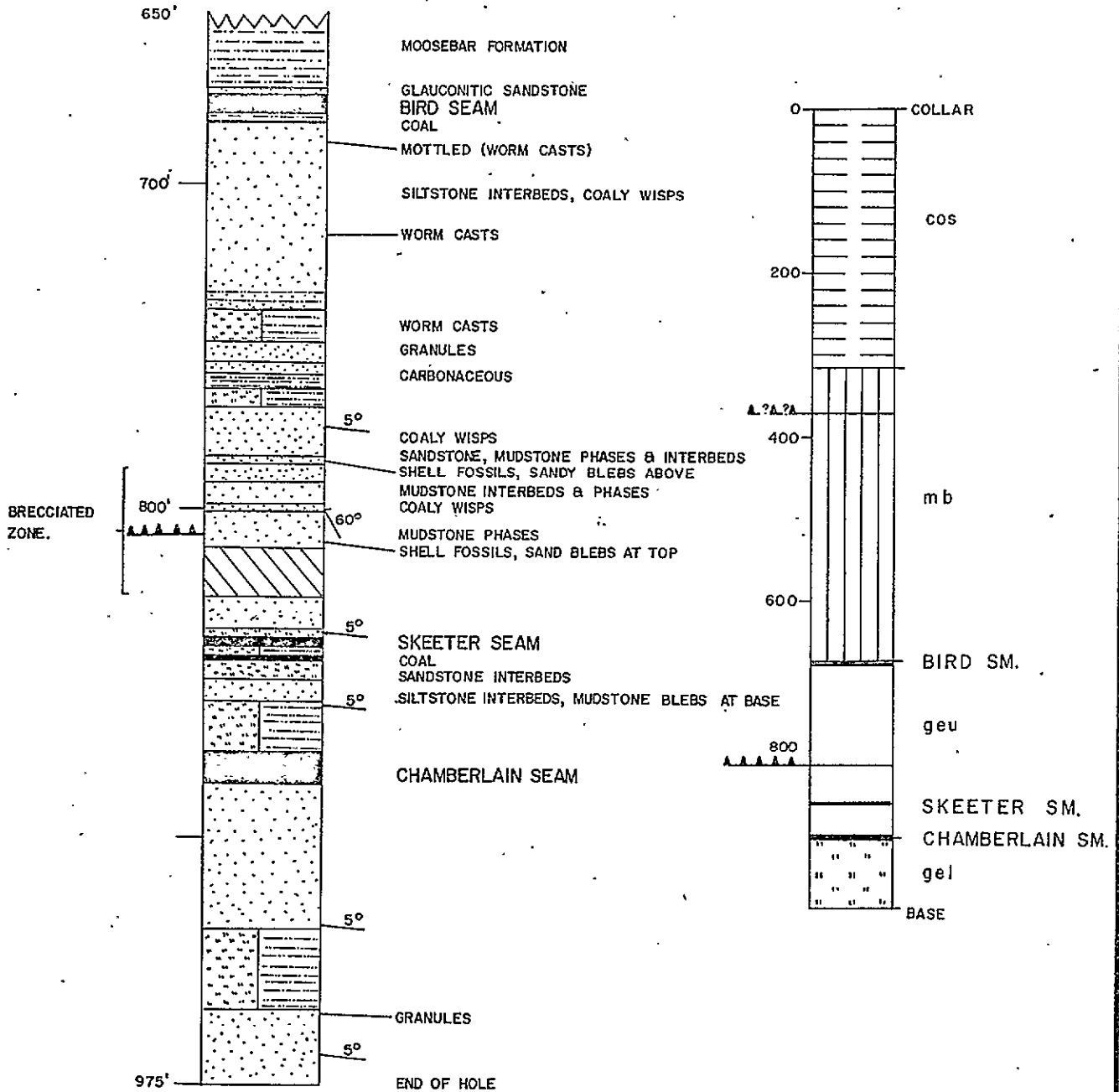
<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained, silty interbeds.	0.23	819.08	0.23)	
<u>COAL</u> , mainly dull with minor bright bands, core broken.	1.28	820.36	0.33)	
mainly dull with minor bright bands, core fragmented	0.39	820.75	0.10)	SKEETER SEAM
core sheared, slickensides, coal type indeterminate)	
but possibly dull with minor bright bands, core broken.	1.25	822.00	0.32)	
SILTSTONE, grey, mudstone interbeds and phases, few fine calcite veins parallel to bedding which is sub-horizontal.	5.61	827.61	5.59	
SANDSTONE, grey, very fine grained, quartz-lithic, silty interbeds and phases, coaly wisps, a few minor calcite veins.	1.83	829.44	1.82	
SANDSTONE AND SILTSTONE, brecciated, calcite fillings.	0.25	829.69	0.25	
SILTSTONE, grey.	1.40	831.09	1.39	

SUKUNKA D.D.H. C-11

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine to very fine grained, silty and muddy interbeds and phases, coaly wisps, current bedded.	4.30	835.39	4.28	
LAMINITE, siltstone grey and mudstone dark grey, interbedded in fine laminae.	0.79	836.18	0.79	
LAMINITE, siltstone grey and mudstone dark grey in fine laminae. Mudstone phases and a 0.4' zone of minor displacement with calcite filled tension cracks at base. Bedding 0-5° to horizontal.	2.97	839.15	2.96	
CLAYSTONE, carbonaceous.	0.23	839.38	0.23	
LAMINITE, siltstone grey and mudstone dark grey with claystone phases particularly towards base. Bedding angle at maximum of 65° to core axis, 2.5' from base, slickensides and some zones of irregular calcite veins.	4.20	843.58	4.18	
<u>COAL</u> , stony.)	0.07	843.65	0.04)
))				
dull and bright.) Core Broken	0.24	843.89	0.14	) CHAMBERLAIN SEAM
))				
dull.)	2.04	845.93	0.93)

SUKUNKA.D.D.H. C-11

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.)	0.22	846.15	0.10)	
)) dull.)	0.52	846.67	0.24)	
)) mainly dull with minor bright bands.)	0.39	847.06	0.35)	
)) dull and bright.)	1.12	848.18	1.02)	
)) bright.)	0.05	848.23	0.05)	
)) dull.)	0.12	848.35	0.12)	CHAMBERLAIN SEAM
)) dull and bright.)	0.21	848.56	0.21)	
)) mainly dull with minor bright bands.)	0.27	848.83	0.27)	
)) dull and bright.)	0.17	849.00	0.17)	
)) mainly dull with minor bright bands.)	0.30	849.30	0.30)	
)) bright and dull.)	0.16	849.46	0.16)	
)))	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

STRATIGRAPHIC LOGS

for
COALITION MINING LIMITED

DDH C-12

SUKUNKA D.D.H. C-11

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, two pennybands of coal in top 0.1'.	5.94	855.40	5.89	
SANDSTONE, grey, medium grained, quartz-lithic, a few coaly wisps. Bedding angle 88° to core axis.	6.92	862.32	6.86	
<u>COAL</u> , mainly dull with minor bright bands.	1.11	863.43	1.10	
SANDSTONE, grey, medium grained becoming finer towards base, coaly wisps and tending carbonaceous in top 1'. Mottled appearance due to small worm casts (2.4') 4' from top.	11.05	874.48	10.94	
SANDSTONE, grey, fine grained, quartz-lithic, sub-vertical calcite vein 1.75' from top, mudstone blebs and sub-horizontal calcite vein 2.60' from top, a zone (1.1') containing mudstone interbeds and two horizontal calcite veins 3.1' from top.	18.66	893.14	18.48	
SANDSTONE, grey, fine grained, quartz-lithic.	4.86	898.00	4.82	<u>BASE OF HOLE</u>

BORE NUMBER

C-12

Grid Reference 41570.1 N 83755.0 E
Exploration Grid Reference F+1000'N/1+1500'E

Date Commenced 25 Aug 71 Completed 30 Aug 71

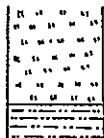


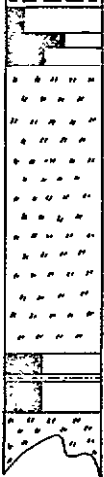
Collar R.L. 4441.1 ft. Standard Datum
Total Depth 975 ft. Electrically Logged ~~Yes~~/No
Drilled by Connors Drilling Ltd.
For Coalition Mining Limited
Logged by F.H.S. Tebbutt & G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3601.75	3.94	77%	
Chamberlain	3561.48	10.04	87%	

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
838.41						
		2.72	67.5	6	13.2	
841.13		1.22	32.5	5½	27.5	
842.35						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS

for
COALITION MINING LIMITED

DDH C-12

DRAWN BY pm

DATE Jan '72

SCALE: 1" to 2'

PAGE 1 of 1

INTRODUCTION:

Two (2) coal samples designated Hole No. C12 SKEETER SEAM were received on 12.10.71 from CLIFFORD McELROY & ASSOCIATES.

METHOD:

1. The good quality coal samples nos. 43 and 44 were hand crushed to $-\frac{3}{4}$ "¹¹, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity.

The float and sink fraction, raw -30 mesh coal fractions were weighed, prepared and analysed for ash and crucible swelling number, and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for the Full Seam and the analysis are also given in this report.

COMMENTS:

Due to the relatively high core losses on drilling no allowance has been made for core losses i.e. sample weights have not been adjusted.

These losses also exclude the construction of washability tables and graphs.

RESULTS:

FIGURE 1: gives the graphic log of the core

TABLES 1 - 2: give the sizing, washability and analytical data for each sample after hand crushing to $-\frac{3}{4}$ "¹¹.

TABLE 3: gives the calculated washability data for samples 43 and 44.

SHEET THREE ATTACHED:

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
872.58		-	43.4	0		
873.20		0.62			9.4	
		100.0	4.4	7		
882.62						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS

for

DDH C-12

COALITION MINING LIMITED

DRAWN BY pm

DATE Jan '72

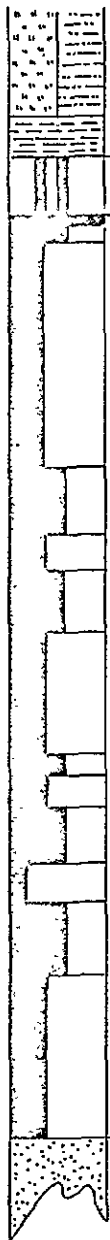
SCALE: 1' to 2'

PAGE 1 of 1

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
872.58	0.62	-	43.4	0		
873.20					9.4	
	9.42	100.0	9.4	7		
882.62						



Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-12

SCALE: 1" to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT:

COALITION MINING

SUBJECT:

SUKUNKA SAMPLE NO. 43, 44
CORE NO. C12
SKEETER SEAM

REPORT NO.

K71-1633

DATE RECEIVED:

12.10.71

DATE REPORTED:

23.11.71



N.S.W. Reg. No. 554
QLD. Reg. No. 637

This Laboratory is Registered by the
National Association of Testing Authorities,
Australia. The tests reported herein have
been performed in accordance with its
terms of registration.

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

Chief Chemist.

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 43 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT. GM.	WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30	355	27.3	2.6	9	27.3	2.6	9
S1.30 - F1.35	722	55.5	4.5	6 $\frac{1}{2}$	82.8	3.9	7 $\frac{1}{2}$
S1.35 - F1.40	105	8.1	9.7	1	90.9	4.4	7
S1.40 - F1.45	73	5.6	12.8	1	96.5	4.9	6 $\frac{1}{2}$
S1.45 - F1.50	8	0.6	16.2	1	97.1	5.0	6 $\frac{1}{2}$
S1.50 - F1.55	3	0.2	19.6	1	97.3	5.0	6 $\frac{1}{2}$
S1.55 - F1.60	2	0.2	26.1	1	97.5	5.0	6 $\frac{1}{2}$
S1.60	34	2.5	56.0	0	100.0	6.3	6
-30 Mesh RC	79	5.7	5.8	8			

TOTAL WEIGHT OF SAMPLE = 1,381 gm

TRUE S.G. = 1.326

TABLE 2: WASHABILITY DATA FOR SAMPLE NO. 44 (after hand crushing to $-\frac{3}{4}$ ")

F1.30	212	35.6	3.0	9	35.6	3.0	9
S1.30 - F1.35	92	15.4	6.7	9	51.0	4.1	9
S1.35 - F1.40	30	5.0	11.3	8	56.0	4.8	9
S1.40 - F1.45	15	2.5	16.9	8	58.5	5.3	9
S1.45 - F1.50	9	1.5	23.0	7 $\frac{1}{2}$	60.0	5.7	9
S1.50 - F1.55	13	2.2	24.5	6 $\frac{1}{2}$	62.2	6.4	9
S1.55 - F1.60	17	2.9	30.4	1	65.1	7.5	8 $\frac{1}{2}$
S1.60	208	34.9	64.9	0	100.0	27.5	5 $\frac{1}{2}$
-30 Mesh RC	69	10.4	20.6	9			

TOTAL WEIGHT OF SAMPLE = 665 gms

TRUE S.G. = 1.565

TABLE 3: CALCULATED WASHABILITY DATA FOR SAMPLES 43 + 44 (3.94%)

F1.30	30.0	2.8	9	30.0	2.8	9
S1.30 - F1.35	42.5	4.8	8	72.5	4.0	8 $\frac{1}{2}$
S1.35 - F1.40	7.1	10.1	4 $\frac{1}{2}$	79.6	4.5	8
S1.40 - F1.45	4.6	13.5	4 $\frac{1}{2}$	84.2	5.0	8
S1.45 - F1.50	0.9	19.7	4	85.1	5.2	8
S1.50 - F1.55	0.9	22.4	3 $\frac{1}{2}$	86.0	5.3	8
S1.55 - F1.60	1.1	29.3	1	87.1	5.6	7 $\frac{1}{2}$
S1.60	12.9	64.4	0	100.0	13.2	6 $\frac{1}{2}$

TOTAL WEIGHT OF SAMPLE = 2,046 gms

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.C. FRACTION OF SAMPLES 43 + 44

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	CV(BTU/lb)
87.1	1.0	5.7	22.4	70.9	0.54	7 $\frac{1}{2}$	14,210

SYDNEY

23rd November, 1971.

K71-1633
COALITION MINING

SUKUNKA C12
(SIBRETER STRIA)

	SPLIE	THICK ^o	WT%	ASH%	CSN ^o	ASH% sum
4						132
2	43	2.72	67.5	63	6	
0	44	1.22	32.5	27.5	5 1/2	215

K71-1566

COALITION MINING

SUKUNKA C.12 - CHAMBERLAIN SEAM

	PLY	THICK'	WT%	ASH%	CSN%	ASH%- Cum
10	SKR45	0.62	-	43.4	0	9.4
8						
6	SKR46	9.42	100.0	9.4	7	
4						
2						
0						

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA 45 and 46
CORE NO. C12
CHAMBERLAIN SEAM

REPORT NO. K71-1566

DATE RECEIVED: 1. 10. 71

DATE REPORTED: 25. 10. 71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bradley
A.R.A.C. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. W. ...

INTRODUCTION:

One (1) coal ply and one (1) non coal ply designated CORE G12 CHAMBERLAIN SEAM were received on 1.10.71 from CLIFFORD MCELROY & ASSOCIATES PTY. LTD.

METHOD:

The coal ply was hand crushed to $\frac{3}{4}$ "¹¹, top size, sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids from 1.30 to 1.60 S.G. in 0.05 steps.

The float and sink fractions, the raw -30 mesh coal fraction and the non coal ply were weighed, prepared and analysed as detailed in this report.

The weights were adjusted where necessary to compensate for core loss.

RESULTS:

FIGURE 1: gives the graphic log of the core.

TABLE 1: gives the sizing, washability and analytical data for each ply after hand crushing to $\frac{3}{4}$ "¹¹.

TABLE 2: gives the washability data necessary for the construction of the washability curves.

The washability curves and the analysis of the Floats 1.60 SG fraction of Ply 46 are included in this report.

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT.	GM.WT.	%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
RAW COAL SKR-45, 0.62 ¹	477	100.0	43.4	0	100.0	43.4	0

TABLE 1: WASHABILITY DATA FOR SKR - 46, 9.42¹ (after hand crushing to $\frac{3}{4}$ "¹¹)

F1.30	2516	53.6	2.0	9	53.6	2.0	9
S1.30 - F1.35	1632	34.7	4.9	5 $\frac{1}{2}$	88.3	3.1	7 $\frac{1}{2}$
S1.35 - F1.40	339	7.2	8.7	1 $\frac{1}{2}$	95.5	3.6	7
S1.40 - F1.45	93	2.0	11.5	1 $\frac{1}{2}$	97.5	3.7	7
S1.45 - F1.50	34	0.7	20.2	1	98.2	3.8	7
S1.50 - F1.55	30	0.6	22.8	1	98.8	4.0	7
S1.55 - F1.60	21	0.4	29.6	1	99.2	4.1	7
S1.60	33	0.8	49.0	1 $\frac{1}{2}$	100.0	4.4	7
-30 Mesh RC	466	9.0	4.2	8			

ANALYSIS OF FLOATS 1.60 S.G.

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	CV(BTU/1b)
99.2	0.6	4.2	21.9	73.3	0.28	7 $\frac{1}{2}$	15,060

SHEET THREE ATTACHED:

TABLE 2: DATA FOR WASHABILITY CURVE - SKR 46

FRACTION	INDIVIDUAL		CUM. FLOATS		CUM. SINKS		±0.10SG	D ²
	WT. %	ASH%	WT. %	ASH%	WT.%	ASH%		
F1.30	53.6	2.0	53.6	2.0	100.0	4.4	-	26.8
S1.30 - F1.35	34.7	4.9	88.3	3.1	46.4	7.2	-	71.0
S1.35 - F1.40	7.2	8.7	95.5	3.6	11.7	14.1	44.6	91.9
S1.40 - F1.45	2.0	11.5	97.5	3.7	4.5	22.6	10.5	96.5
S1.45 - F1.50	0.7	20.2	98.2	3.8	2.5	31.5	3.7	97.9
S1.50 - F1.55	0.6	22.8	98.8	4.0	1.8	36.0	-	98.5
S1.55 - F1.60	0.4	29.6	99.2	4.1	1.2	42.5	-	99.0
S1.60	0.8	49.0	100.0	4.4	0.8	49.0	-	99.6

SYDNEY

26th October, 1971.

STRATIGRAPHIC LOG
SUKUNKA D.D.II. C-12

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 15.0 ft. SILTSTONE, MUDSTONE AND SANDSTONE	SUKUNKA MB.	318.0
	MUDSTONE, breccia zones at (550') 1' and 370'-375'.	MOOSEBAR FM.	672.0
	SANDSTONE, glauconitic.	GETHING FM.	672.5
	<u>COAL</u> .	BIRD SEAM	678.5
	MUDSTONE.		681.5
	<u>COAL</u> .		682.0
	SANDSTONE, coarse at top, fine towards base (mottled) worm casts - 688' siltstone interbeds with coaly wisps 704'. Worm casts 717'. Mudstone band, 733' and 735'.		738.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts - granular at base.		748.0
	SANDSTONE.		755.0
	SANDSTONE, carbonaceous.		758.0
	MUDSTONE.		763.0
	LAMINITE, siltstone and mudstone.		768.0
	SANDSTONE, coaly wisps.		783.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
Fault; established	SANDSTONE, mudstone interbeds, mudstone at top and base - shelly fossils at base, sand and blebs above shell fossils.		787.0
	SANDSTONE, coaly wisps.		792.0
Fault, probable	SANDSTONE, mudstone interbeds.		798.0
	SANDSTONE, coaly wisps.		799.5
	SANDSTONE, mudstone interbeds, shelly fossils near base, sandy blebs 807'.		811.0
	CLAYSTONE, carbonaceous, sheared and slickensided.		826.5
	SANDSTONE.		836.0
	SILTSTONE, sandy phases, mudstone at base.		838.5
	<u>COAL.</u>)		842.0
	SILTSTONE AND MUDSTONE INTERBEDDED.)		845.0
	<u>COAL.</u>)		846.0
	SILTSTONE, sandy phases.		852.0
	SANDSTONE, silty interbeds, mudstone blebs at base.		859.0
	LAMINITE, siltstone and mudstone, mudstone at base 769'.		874.0
	<u>COAL.</u>	CHAMB. SM.	883.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, coarse at top - fine at base.		928.0
	SILTSTONE AND MUDSTONE INTERBEDDED, granules at base.		952.0
	SANDSTONE.		975.5
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-12

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail -- refer to Stratigraphic Log for particulars.		670.00		
MUDSTONE, grey.	0.97	670.97	0.99	
CLAYSTONE, pale grey, bentonitic(?), soft.	0.29	671.26	0.30	
MUDSTONE, grey.	0.53	671.79	0.54	
CLAYSTONE, pale grey, bentonitic(?), soft, darker in colour in lower 0.05'.	0.56	672.35	0.57	
SANDSTONE, dark greenish grey, glauconitic, some pebbles at base and pyrite .	0.53	672.88	0.54	
<u>COAL</u> , dull.	0.23	673.11	0.23	
mainly dull with minor bright bands.	0.11	673.22	0.11	
dull.	1.09	674.31	1.12	
dull and bright.	0.11	674.42	0.11	

SUKUNKA D.D.H. C-12

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , sheared and fragmented - mostly dull.	1.08	675.50	1.71	
CLAYSTONE, carbonaceous.	0.45	675.95	0.46	
<u>COAL</u> , mainly dull with minor bright bands, pyrite nodule (0.05').	0.75	676.70	0.81)
mainly bright with minor dull bands.	0.54	677.24	0.58)
dull with bright bands.	0.16	677.40	0.17)
bright.	0.13	677.53	0.14)
mainly dull with minor bright bands.	0.39	677.92	0.42)
dull and bright.	0.10	678.02	0.11)
mainly dull with minor bright bands.	0.26	678.28	0.28)
dull and bright.	0.16	678.44	0.17)
CLAYSTONE, grey, a few coaly wisps.	2.95	681.39	2.95)

BIRD SEAM

SUKUNKA D.D.H. C-12

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.16	681.55	0.18	
mainly dull with minor bright bands.	0.22	681.77	0.25	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous at top.	2.62	684.39	2.62	
Refer to Stratigraphic Log for particulars from 684.39' to 797.60'.				
SANDSTONE, grey, fine grained, quartz-lithic, mudstone and coaly irregular masses, brecciated and calcite filled fractures, bedding dislocated in places, elsewhere dipping at various steep angles to 0° to core axis, slickensides.	3.59	801.19	3.47	
CLAYSTONE, black, carbonaceous, fine sandy interbeds and calcite along bedding planes. Bedding 30° to core axis.	0.55	801.74	0.53	
SANDSTONE, grey, fine grained, quartz-lithic, claystone and coaly interbeds and wisps, some dislocated bedding and calcite veining. Bedding angle 30° to core axis, slickensides.	2.33	804.07	2.25	

SUKUNKA D.D.H. C-12

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, black, carbonaceous, fine sandy interbeds, bedding somewhat irregular and suffering minor dislocations, calcite veins.	1.53	805.60	1.48	
SANDSTONE, grey, fine grained, quartz-lithic, coaly and claystone wisps, and interbeds, sandy blebs in lower half. Bedding angle 31° to core axis.	1.79	807.39	1.73	
CLAYSTONE, black, carbonaceous, silty interbeds and irregular masses, shell fossils with thick valves from 1.2' to 3.1' from top, fine shelly fragments at top, silty interbeds increase in bottom 0.4'.	3.87	811.26	3.74	
CLAYSTONE, carbonaceous, to coal stony, coaly wisps and irregular masses in top 0.8', slickensides along fractures or bedding, at 48° to core axis.	4.60	815.86	4.45	
CLAYSTONE, as above, core broken in part, coaly partings and pennybands.	9.17	825.03	8.86	
<u>COAL</u> AND CLAYSTONE, carbonaceous, fragmented and mixed.	0.80	825.83	0.77	

SUKUNKA D.D.H. C-12

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, grey.	0.19	826.02	0.18	
SANDSTONE, grey, medium grained, quartz-lithic, silty phase at top.	5.45	831.47	5.27	
SANDSTONE, as above, but no silty phase.	3.74	835.21	3.61	
SILTSTONE, grey, fine sandy and mudstone interbeds.	2.78	837.99	2.69	
MUDSTONE, dark grey, coaly wisps.	0.42	838.41	0.41	
<u>COAL</u> , mainly dull with minor bright bands.	0.30	838.71	0.27)
dull and bright.	0.10	838.81	0.09)
mainly dull with minor bright bands.	1.13	839.94	1.01)
bright.	0.17	840.11	0.15)
mainly dull with minor bright bands.	0.56	840.67	0.50)
dull and bright.	0.16	840.83	0.14)
				SKEETER SEAM

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	0.20	841.03	0.18)	
dull and bright.	0.10	841.13	0.09)	
CLAYSTONE, carbonaceous.	0.08	841.21	0.07)	
<u>COAL</u> , mainly dull with numerous fine carbonaceous claystone bands with listric surfaces.	0.37	841.58	0.33)	
CLAYSTONE, carbonaceous.	0.10	841.68	0.09)	
<u>COAL</u> , mainly dull, with numerous fine carbonaceous claystone bands with listric surfaces.	0.32	842.00	0.29)	SKEETER SEAM
dull and bright.	0.14	842.14	0.12)	
mainly dull with minor bright bands.	0.21	842.35	0.19)	
SILTSTONE, grey, coaly wisps.	2.92	845.27	2.92)	
<u>COAL</u> , mainly dull with minor bright bands.	0.23	845.50	0.21)	
MUDSTONE, pennyband.	0.01	845.51	0.01)	

SUKUNKA D.D.H. C-12

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, mainly dull with minor bright bands.	0.40	845.91	0.36)	SKEETER SEAM
SILTSTONE, grey, sandy interbeds.	1.30	847.21	1.30)	
SILTSTONE, grey, irregular fine sandstone interbeds, and a few small mudstone blebs.	8.74	855.95	8.77	
CLAYSTONE, dark grey.	0.10	856.05	0.10	
SANDSTONE, grey, fine grained, quartz-lithic.	0.08	856.13	0.08	
CLAYSTONE, dark grey, mixed with fine interbeds of siltstone in top 0.5'.	0.28	856.41	0.28	
SANDSTONE, brownish grey, medium grained, quartz-lithic, mudstone blebs in bottom 1.4'.	2.11	858.52	2.12	
LAMINITE, siltstone, pale brownish grey and mudstone, dark grey, interbedded in fine laminae, some fine sandstone interbeds, slickensides at base. Bedding angle 77° to core axis.	6.88	865.40	6.91	

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1385.89				6.8	
13.61	100.0	6.8	5		

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY S.A. DATE February '72

SEAM SECTIONS
DDH. C-29
PAGE 1 of 2

SCALE: 1" to 2'

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	0.35	876.81	0.35)	
dull and bright, a few small claystone lenses.	0.65	877.46))	
mainly dull with minor bright bands.	0.95	878.41))	
mainly dull with minor bright bands.	0.30	878.71))	
dull and bright.	0.22	878.93))	
mainly dull with minor bright bands.	0.32	879.25))	
dull and bright.	0.28	879.53	) )	CHAMBERLAI SEAM
bright and dull.	0.30	879.83))	
dull.	0.40	880.23))	
dull and bright.	0.73	880.96))	
mainly dull with minor bright bands.	1.66	882.62))	

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous.	0.44	883.06	0.44	
SANDSTONE, grey, medium grained becoming finer towards base, quartz-lithic, coaly wisps near top, core broken in top 0.6'. Bedding angle 80 ^o to core axis.	18.44	901.50	18.44	
SANDSTONE, grey, fine grained, quartz-lithic.	19.17	920.67	19.17	
				<u>BASE OF HOLE</u>

BORE NUMBER C-13

Grid Reference 43499.2N 88474.8E

Exploration Grid Reference F/4

Date Commenced 26th August, 1971 Completed 5th September 1971

Collar R.L. 5281.5 ft Standard Datum

Total Depth 1602 ft Electrically Logged ~~Yes~~/No

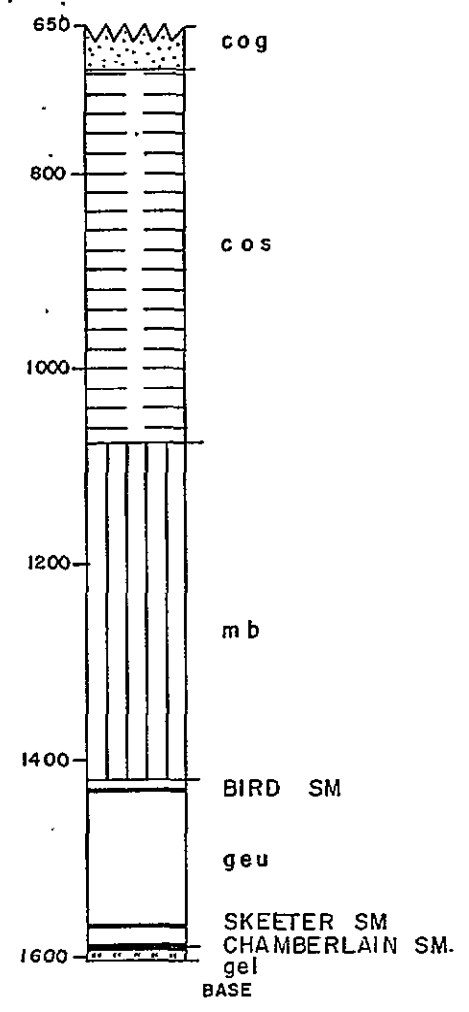
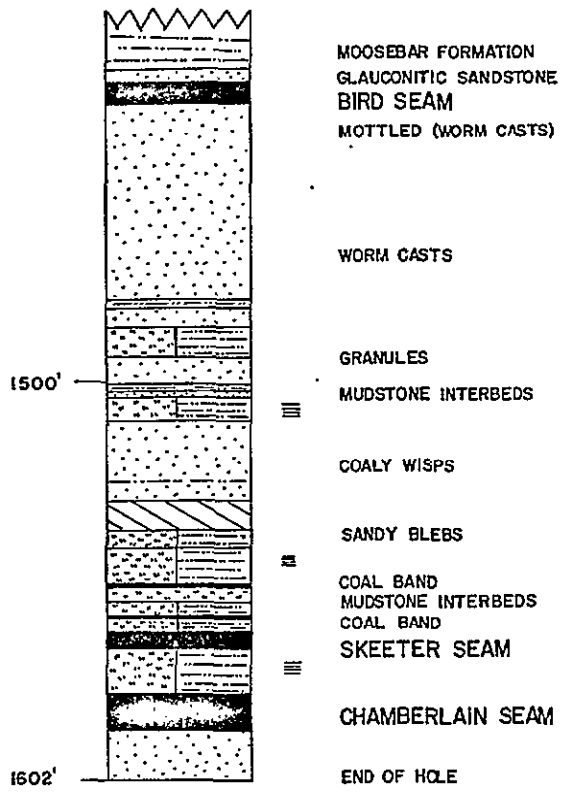
Drilled by Canadian Longyear Ltd

For Coalition Mining Limited

Logged by F. H. S. Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	3715.6	5.69	88%	Includes 3.85' siltstone
Chamberlain	3692.8	8.94	77%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
D.D.H. C-13

SKEETER SEAM

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH %	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1560.18 1560.38					
		0.20			
	3.85				
1564.23					
	1.64	NOT ANALYSED			
1565.87					

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SEAM SECTIONS
DDH C-13

DRAWN BY nm

DATE Jan. '72

SCALE: 1" to 2'

PAGE 1 of 1

				ASH % CUMULATIVE FROM FLOOR				
CHAMBERLAIN SEAM				WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1579.76	0.05	-	80.7	0				
	8.66	-	4.5	6½				
1588.70	0.23	-	64.3	0				



Prepared by:
 CLIFFORD McELROY & ASSOCIATES PTY. LTD.
 for
 COALITION MINING LIMITED
 DRAWN BY pm DATE Jan '72

SEAM SECTIONS
 DDH C-13

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLES NO. 134, 135, 136/137
CORE NO. C13
CHAMBERLAIN SEAM

REPORT NO. K71-1746

RECEIVED: 4. 11. 1971

REPORTED: 26. 11. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

A. Bradley
A.R.A.C.I. Chief Chemist.

[Signature]

INTRODUCTION:

One coal sample and two non coal samples designated CORE NO. C13 CHAMBERLAIN SEAM were received on 4. 11. 1971 from Clifford McElroy & Associates.

METHODS:

1. The non coal samples No. 134 and 136/137 were weighed, prepared and analysed for Ash and true specific gravity.
2. The good quality coal sample No. 135 was hand crushed to $\frac{3}{8}$ ", sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for Sample No. 135 and the analysis is given in this report.

NOTE:

Sample weights have not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for the coal sample after hand crushing to $\frac{3}{8}$ " top size.

SAMPLE NO. 134

RAW COAL

Total Weight of Sample = 62 grams
Ash % = 80.7
True Specific Gravity = 2.326

TABLE 1WASHABILITY DATA FOR SAMPLE NO. 135 (after hand crushing to $\frac{3}{8}$ ")

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	2046	53.3	2.1	8	53.3	2.1	8
S1.30 - F1.35 SG	1225	31.9	4.2	6½	85.2	2.9	7½
S1.35 - F1.40 SG	341	8.9	9.9	1½	94.1	3.5	7
S1.40 - F1.45 SG	180	4.7	14.3	1	98.8	4.1	6½
S1.45 - F1.50 SG	12	0.3	19.6	1	99.1	4.1	6½
S1.50 - F1.55 SG	7	0.2	23.7	1	99.3	4.1	6½
S1.55 - F1.60 SG	2	0.1	28.0	1	99.4	4.2	6½
S1.60 SG	23	0.6	62.8	0	100.0	4.5	6½
-30 Mesh	292	7.1	2.5	8½			

Total Weight of Sample = 4128 grams
True Specific Gravity = 1.275

SAMPLE NO. 136/137

RAW COAL

Total Weight of Sample = 153 grams
Ash % = 64.3
True Specific Gravity = 1.905

ANALYSIS OF FLOATS 1.60 SG FRACTION OF
SAMPLE NO. 135

Yield %	99.4
Air Dried Moisture %	0.5
Ash %	4.2
Volatile Matter %	21.9
Fixed Carbon %	73.4
Total Sulphur %	0.63
C.S.NO.	7½
Calorific Value	14720 BTU/LB

SYDNEY
30th November 1971

K71-1746

COALITION MINING

SUKUNKA C13 -
CHAMBERLAIN SEAM

	SPL	THICK'	ASH%	CSH%
8	134	0.05	80.1	0
6				
4	125	8.66	4.5	6 1/2
2				
0	136 127	0.23	64.3	0

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-13

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft.)</i>
Dip = 5°	No core to 650.0 ft. SANDSTONE, mudstone phases.	GATFS MB.	697.0
	SILTSTONES, MUDSTONES AND SANDSTONES INTERBEDDED, worm casts.	SUKUNKA MB.	1077.0
	MUDSTONE, ash beds at base.	MOOSEBAR FM.	1420.0
	SANDSTONE, glauconitic.	GETHING FM.	1424.0
	<u>COAL.</u>	BIRD SEAM	1429.5
	SANDSTONE, worm cast 1468', mottled (worm casts) 1436', mudstone bands 1681, 1480, 1485'.		1487.0
	SILTSTONE, MUDSTONE INTERBEDDED, worm casts, granules at base.		1493.0
	SANDSTONE.		1501.0
	MUDSTONE.		1502.0
	SANDSTONE, mudstone interbeds.		1504.0
	LAMINITE, siltstone and mudstone, mudstone at base.		1511.0
	SANDSTONE, coaly wisps, mudstone band at 1526'.		1531.0
	CLAYSTONE, carbonaceous.		1538.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases.		1543.0
	LAMINITE, siltstone and mudstone, mudstone at base.		1552.0
	<u>COAL.</u>		1553.0
	SILTSTONE, mudstone interbeds.		1557.0
	SILTSTONE AND MUDSTONE INTERBEDDED, coal band 1561'.		1565.0
	<u>COAL.</u>	SKEETER SM.	1568.0
	LAMINITE, siltstone and mudstone, mudstone as base.		1582.0
	<u>COAL.</u>	CHAMB. SM.	1589.0
	SANDSTONE.		1602.0
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-13

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1512.03		
SANDSTONE, grey, medium to fine grained, quartz-lithic, coaly and silty wisps and pennybands, carbonaceous claystone interbeds in bottom 1', sandy blebs (phase 0.45') 1.9' from top.	13.59	1525.62	13.59	
CLAYSTONE, carbonaceous, sandy interbeds, two pennybands coal. Bedding angle 85 ^o -90 ^o to core axis.	0.61	1526.23	0.57	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, silty interbeds and irregular masses, carbonaceous claystone interbeds in bottom 1.6' containing sandy blebs.	5.09	1531.32	4.76	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous claystone interbeds.	0.33	1531.65	0.31	
CLAYSTONE, carbonaceous, sandy interbed (0.04') 0.97' from top.	1.70	1533.35	1.59	
<u>COAL</u> , mainly dull with minor bright bands.	0.11	1533.46	0.07	

SUKUNKA D.D.H. C-13

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous, silty interbeds.	2.38	1535.84	2.22	
<u>COAL</u> , stony, a few bright bands.	0.43	1536.27	0.27	
SANDSTONE, grey, fine and medium grained, quartz-lithic, silty and muddy interbeds and phases.	6.44	1542.71	6.02	
LAMINITE, siltstone grey, and mudstone dark grey interbedded.	6.35	1549.06	5.93	
CLAYSTONE, carbonaceous.	1.80	1550.86	1.68	
<u>COAL</u> , mainly dull with minor bright bands.	0.85	1551.71	0.54	
<u>COAL</u> , stony, calcite tracteries in bottom 0.2'.	1.18	1552.89	0.75	
SILTSTONE, grey, fine sandy and mudstone interbeds towards base, some worm casts.	5.19	1558.08	4.85	
LAMINITE, siltstone grey and mudstone dark grey.	2.10	1560.18	2.10	
<u>COAL</u> , dull and bright, some calcite.	0.20	1560.38	0.12	) ) SKEETER SEAM

SUKUNKA D.D.H. C-13

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>	
CLAYSTONE, carbonaceous.	0.58	1560.96	0.58)	SKEETER SEAM	
SILTSTONE, grey, mudstone interbeds. Bedding angle 85°-90° to core axis.	3.27	1564.23	3.27)		
COAL, dull, listric surfaces.	1.64	1565.87	1.01)		
SILTSTONE, grey.	0.67	1566.54	0.67		
CLAYSTONE, carbonaceous.	0.35	1566.89	0.32		
SILTSTONE, grey, sandstone and mudstone interbeds, zone of brecciation (0.5') with calcite veining 2.92' from top.	4.99	1571.88	4.58		
SILTSTONE, as above, no brecciation. Bedding angle 85°-90° to core axis.	0.49	1572.37	0.45		
LAMINITE, siltstone grey and mudstone dark grey, mudstone phases.	7.39	1579.76	6.79		
COAL, stony.	0.05	1579.81	0.04)		CHAMBERLAIN SEAM

CHAMBERLAIN SEAM
UPPER PLATE

ASH %
CUMULATIVE
FROM FLOOR

WT%

ASH%

C. S. N^o

INCL.
BANDS

EXCL.
BANDS

59.04



6.80

11.0 ✓

1½

11.0

65.84

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for

SEAM SECTIONS

DDH - C-31

COALITION MINING LIMITED

DRAWN BY pm

DATE Jan '72

SCALE: 1" to 2'

PAGE 1 of 1

SUKUNKA D.D.H. C-13

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.15	1584.68	0.13)	
dull.	0.27	1584.95	0.24)	
bright.	0.10	1585.05	0.09)	
dull.	0.49	1585.54	0.43)	
dull and bright.	0.51	1586.05	0.45)	
bright.	0.16	1586.21	0.14)	
mainly dull with minor bright bands.	0.24	1586.45	0.21)	CHAMBERLAIN
dull and bright.	0.41	1586.86	0.36)	SEAM
mainly dull with minor bright bands.	0.21	1587.07	0.18)	
dull and bright, zone of shearing at 35° to core axis.	0.95	1588.02	0.83)	
mainly dull with minor bright bands.	0.18	1588.20	0.16)	

SUKUNKA D.D.H. C-13

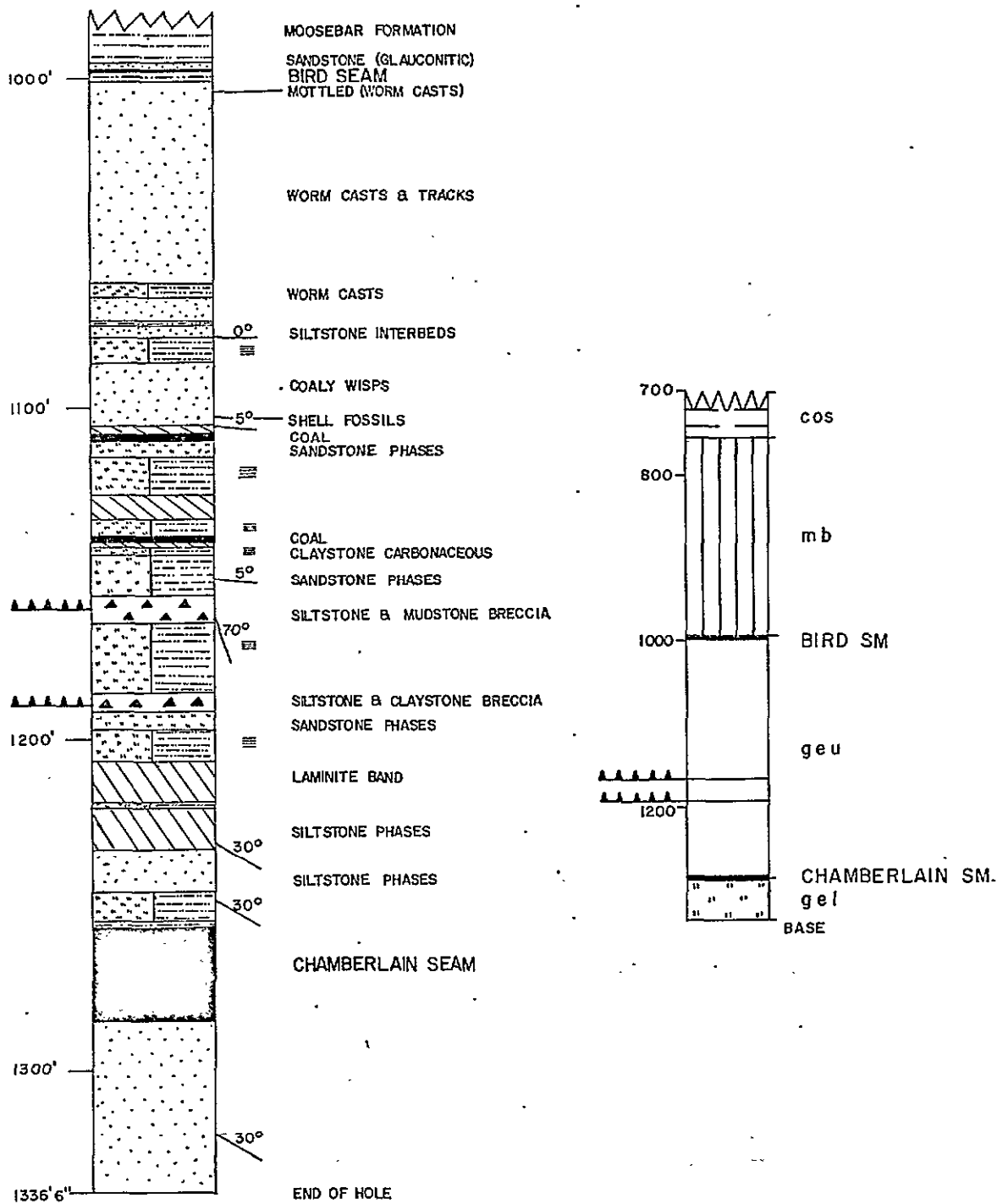
<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.27	1588.47	0.24)	
CLAYSTONE, dark grey, coaly bands.	0.15	1588.62	0.13)	CHAMBERLAIN
<u>COAL</u> , dull and bright.	0.08	1588.70	0.07)	SEAM
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top, one calcite vein 1.2' from top. Bedding angle 86° to core axis.	2.02	1590.72	2.26	
SANDSTONE, as above, a few minor calcite veins and mudstone interbeds.	11.01	1601.73	12.25	<u>BASE OF HOLE</u>

BORE NUMBER C-14

Grid Reference 4140.2N 92028.6 E
Exploration Grid Reference H/5
Date Commenced 27th Aug, 1971 Completed 5th Sept, 1971
Collar R.L. 5058.3 ft Standard Datum
Total Depth 1336.5 ft Electrically Logged ~~Yes~~/No
Drilled by Canadian Longyear Ltd
For Coalition Mining Limited
Logged by F. H. S. Tebbutt and G. R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain	3773.6	29.35	27%	Seam Faulted



DETAIL OF GETHING
 FORMATION
 SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
 CLIFFORD McELROY & ASSOCIATES PTY. LTD.
 for
 COALITION MINING LIMITED

STRATIGRAPHIC LOGS
 DDH C-14

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

			WT%	ASH%	C. S. N°	INCL. BANDS	EXCL. BANDS
1255.40		0.19					
1255.72		0.13				7.0	
		14.68	-	7.0	6		
1270.40	continued						

Prepared by:

CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for

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SEAM SECTIONS

DDH C-14

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DATE Jan '72

SCALE: 1" to 2'

PAGE 1 of 2

			ASH % CUMULATIVE FROM FLOOR				
			WT%	ASH%	C. S. No	INCL. BANDS	EXCL. BANDS
CHAMBERLAIN SEAM continuation							
1270.40	14.35						
1284.75							

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS
DDH C-14

for
COALITION MINING LIMITED

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DATE Jan '72

SCALE: 1" to 2'

PAGE 2 of 2

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NOS. 69, 70, 71
CORE NO. C14
CHAMBERLAIN SEAM

REPORT NO. K71- 1634

DATE RECEIVED: 12. 10. 71

DATE REPORTED: 23. 11. 71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bralley
A.R.A.C.T. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded. Mudstone fraction predominates. Some fine calcite veins. Bedding angle up to 5 ^o to core axis. Slickensides.	3.17	2394.21	3.19	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded, brecciated, calcite infillings, slickensides.	1.47	2395.68	1.48	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey, and mudstone dark grey interbedded. Some calcite veins and worm casts. Slickensides. Bedding angle 70 ^o to core axis. Some dislocation.	6.80	2402.48	6.84	
CLAYSTONE, carbonaceous.	0.38	2402.86	0.38	
SANDSTONE, grey, fine grained, quartz-lithic, siltstone interbeds and phases.	2.75	2405.61	2.77	
SILTSTONE, grey and sandstone and mudstone interbeds.	1.17	2406.78	1.18	
SILTSTONE, as above, almost a laminite, worm casts replaced by pyrite.	4.10	2410.88	4.12	

K71-1634

COALITION MINING

SUKUNKA C14

(CHAMBERLAIN SEAM)

	SPL	THICK	ASH	CSNO
28'	59 10	0.19 0.18	44.7 44.7	5 1/2 0
24'				
20'				
16'	71	29.02	70	6
12'				
8'				
4'				
0				

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-14

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 700.0 ft. SILTSTONE, SANDSTONE, MUDSTONE, undisturbed - worm casts.	SUKUNKA MB.	754.0
	MUDSTONE.	MOOSEBAR FM.	994.5
	SANDSTONE, glauconitic.	GETHING FM.	996.0
	<u>COAL</u> .	BIRD SEAM	996.5
	MUDSTONE, carbonaceous at top.		998.5
	SANDSTONE, coarse at top, fine towards base, mottled (worm casts) 1004'. Worm casts 1015'to base.		1061.0
	SILTSTONE AND MUDSTONE INTERBEDDED, worm casts.		1067.0
	SANDSTONE.		1074.0
	SANDSTONE, silty interbeds, mudstone at top.		1079.0
	LAMINITE, siltstone and mudstone, mudstone at base.		1086.0
	SANDSTONE, coaly wisps, shelly fossils 1102'-1103'.		1105.0
	CLAYSTONE, carbonaceous, shelly fossils at base.		1107.5

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	<u>COAL.</u>		1109.7
	SILTSTONE, sandy phases.		1115.0
	LAMINITE, siltstone and mudstone.		1127.0
	CLAYSTONE, carbonaceous.		1134.5
	LAMINITE, siltstone and mudstone.		1140.0
	<u>COAL.</u>		1141.0
	CLAYSTONE, carbonaceous.		1142.0
	LAMINITE, siltstone and mudstone interbedded, sandy phases.		1145.0
	SILTSTONE AND MUDSTONE, brecciated.		1165.0
	LAMINITE, siltstone and mudstone.		1186.0
	SILTSTONE AND CLAYSTONE, brecciated.		1192.0
	SILTSTONE, sandy phases.		1197.0
	LAMINITE, silty phases.		1206.0
	CLAYSTONE, carbonaceous, laminite bands at 1210.		1220.0
	LAMINITE, siltstone and mudstone.		1221.0
	CLAYSTONE, carbonaceous, silty phases.		1234.0
	SANDSTONE, silty phases.		1247.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	SILTSTONE AND MUDSTONE INTERBEDDED.		1255.0
	MUDSTONE.		1257.0
	<u>COAL.</u>	CHAMB. SM.	1285.0
	SANDSTONE, coarse at top, fine towards base.		1336.5
			<u>Base of Hole</u>

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 69 (after hand crushing to - $\frac{3}{4}$ ")

FRACTION	INDIVIDUAL ANALYSIS				CUMULATIVE ANALYSIS		
	WT.	GM.WT. %	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.60 SG	43	97.7	3.9	5 $\frac{1}{2}$	97.7	3.9	5 $\frac{1}{2}$
S1.60 SG	1	2.3	40.8	0	100.0	4.7	5 $\frac{1}{2}$
-30 Mesh RC	3	6.4	13.7	3			

TOTAL WEIGHT OF SAMPLE = 47 gms

TRUE S.G. = 1.330

TABLE 2: WASHABILITY DATA FOR SAMPLE NO. 70 (after hand crushing to - $\frac{3}{4}$ ")

F1.60 SG	NIL	--	--	--	--	--	--
S1.60 SG	74	100.0	94.7	0	100.0	94.7	0
-30 Mesh RC	1	1.3	47.3	1			

TOTAL WEIGHT OF SAMPLE = 75 gms

TRUE S.G. = 2.581

TABLE 3: WASHABILITY DATA FOR SAMPLE NO. 71 (after hand crushing to - $\frac{3}{4}$ ")

F1.30	2278	44.1	2.9	9	44.1	2.9	9
S1.30 - F1.30	1646	31.8	5.5	6	75.9	4.0	8
S1.35 - F1.40	562	10.9	9.0	1 $\frac{1}{2}$	86.8	4.6	7
S1.40 - F1.45	323	6.2	12.7	1	93.0	5.2	6 $\frac{1}{2}$
S1.45 - F1.50	131	2.5	16.7	1	95.5	5.5	6 $\frac{1}{2}$
S1.50 - F1.55	79	1.5	19.7	1	97.0	5.7	6 $\frac{1}{2}$
S1.55 - F1.60	54	1.0	20.4	1	98.0	5.8	6 $\frac{1}{2}$
S1.60	98	2.0	62.0	0	100.0	7.0	6
-30 Mesh RC	952	15.5	6.3	9			

TOTAL WEIGHT OF SAMPLE = 5,123 gms

TRUE S.G. = 1,353

ANALYSIS OF CUMULATIVE FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 71

YIELD %	ADM%	ASH%	V.M.%	F.C.%	S. %	C.S.NO.	CV(BTU/lb)
98.0	1.0	5.7	20.8	72.5	0.47	6 $\frac{1}{2}$	14,720

SYDNEY

24th November, 1971.

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1109.64		
SANDSTONE, brownish grey, fine grained, quartz-lithic, coaly wisps, silty and claystone interbeds and wisps, some current bedding and other minor sedimentary structures.	5.53	1115.17	5.44	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; becoming laminite in basal 2.9'. Two calcite veins parallel to bedding (85°-90° to core axis) near top.	8.67	1123.84	8.52	
CLAYSTONE, carbonaceous.	4.45	1128.29	4.37	
CLAYSTONE, carbonaceous, as above, some bright bands in phase (0.35') 0.2' from base.	6.02	1134.31	5.92	
LAMINITE, siltstone grey and mudstone dark grey, mudstone phase at top, and 0.04' band mudstone at base.	4.78	1139.09	4.70	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, mainly dull with minor bright bands, but core badly broken in part, and coal type not everywhere distinguishable.	1.58	1140.67	0.86	
CLAYSTONE, dark grey, one coaly pennyband.	0.66	1141.33	0.63	
SILTSTONE, grey, mudstone interbeds and phases, mudstone increases in basal 1.6'.	4.49	1145.82	4.31	
SANDSTONE, grey, very fine grained, quartz-lithic, fine silty interbeds.	1.52	1147.34	1.46	
SANDSTONE, as above, with claystone carbonaceous interbeds from 2.3' from top, to base. Bedding angle 85°-90° to core axis.	6.59	1153.93	6.32	
SILTSTONE, brownish grey, carbonaceous claystone interbeds.	2.01	1155.94	1.93	
CLAYSTONE, carbonaceous.	0.22	1156.16	0.21	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, brownish grey, interbeds of very fine sandstone and claystone, small dislocation of bedding 1.0' from base, calcite vein parallel to bedding and containing brecciated fragments of siltstone 0.92' from base.	2.62	1158.78	2.51	
SILTSTONE, as above, brecciated, fractures filled with calcite.	0.50	1159.28	0.48	
LAMINITE, siltstone brownish grey and mudstone dark grey, interbedded. Bedding angle 85° - 90° to core axis, beds inverted. Becomes carbonaceous to base.	1.16	1160.44	1.11	
CLAYSTONE, carbonaceous, slickensided surfaces 60° to core axis, core broken.	1.04	1161.48	1.00	
MUDSTONE, dark grey, some silty interbeds, calcite veins and irregular masses.	0.87	1162.35	0.83	
LAMINITE, siltstone brownish grey and mudstone dark grey, Bedding angle 70° to core axis, beds inverted. Some slickensides, core broken at base.	1.13	1163.48	1.08	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous, fine calcite fillings of tension cracks, slickensided surfaces 35° to core axis.	0.36	1163.84	0.35	
LAMINITE, siltstone brownish grey, mudstone dark grey, brecciated, calcite filling tension cracks, slickensided surfaces 35° to core axis.	0.70	1164.54	0.67	
CLAYSTONE, carbonaceous, meets unit beneath on listric surface at 15° to core axis.	0.60	1165.14	0.58	
LAMINITE, siltstone grey, mudstone dark grey, interbedded. Bedding angle 15° to core axis with bedding in the inverted position.	0.20	1165.34	0.19	
LAMINITE, siltstone grey and mudstone dark grey. Bedding from 0° to core axis varying to 20° in gentle curves, beds with listric surfaces.	21.60	1186.94	20.50	
LAMINITE, siltstone and mudstone, brecciated with irregular calcite infillings and heavy veining.	0.45	1187.39	0.40	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine grained to very fine grained, highly brecciated and with numerous fine calcite fillings.	0.30	1187.69	0.27	
CLAYSTONE, carbonaceous, core broken, listric surfaces, some coaly bands.	2.38	1190.07	2.11	
SILTSTONE, brownish grey, sandy interbeds, calcite veins sub-vertical, zone (0.85') of more intense calcite veining and some brecciation 1.65' from top.	5.73	1195.80	5.09	
SANDSTONE, brownish grey, fine and medium grained, quartz-lithic, siltstone interbeds and phases, calcite veins along irregular fractures at approximately 15° to core axis. Bedding correct way up. Bedding angle 67° to core axis.	2.82	1198.62	2.69	
CLAYSTONE, brown, quartz vein near base. Bedding angle 67° to core axis.	0.18	1198.80	0.17	
LAMINITE, siltstone and claystone brownish grey. Sub-vertical calcite vein, centre of overfold 4.41' from top, beds at base upside down, immediately about the axis of folding laminite becomes siltstone and claystone phases.	6.46	1205.26	6.16	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
LAMINITE, siltstone and claystone brownish grey, beds upside down. Bedding angle 70° to core axis.	4.89	1210.15	4.66	
CLAYSTONE, carbonaceous.	2.29	1212.44	2.18	
MUDSTONE, brownish grey, silty interbeds, slickensides on some fracture planes and at 80° to core axis.	2.17	1214.61	2.07	
CLAYSTONE, carbonaceous, core broken, slickensides.	8.96	1223.57	8.54	
CLAYSTONE, carbonaceous, core broken in top 1', slickensides throughout.	8.76	1232.33	8.35	
LAMINITE, siltstone grey and mudstone dark grey, interbedded. Bedding angle 75° to core axis. Bedding inverted.	0.83	1233.16	0.79	
CLAYSTONE, dark grey.	0.20	1233.36	0.19	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey, interbedded. Beds inverted.	0.31	1233.67	0.30	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, core broken and sheared, most fragments dull or dull with minor bright bands.	0.54	1234.21	0.33	
CLAYSTONE, carbonaceous.	0.18	1234.39	0.19	
SANDSTONE, brownish grey, fine grained, quartz-lithic, silty interbeds numerous. Bedding correct way up. Bedding angle 75° to core axis.	5.40	1239.79	5.79	
SANDSTONE, brownish grey, medium and fine grained, quartz-lithic, some silty interbeds towards base.	2.53	1242.32	2.71	
SANDSTONE, brownish grey, fine grained, quartz-lithic, grainsize of components becoming finer towards base. carbonaceous phase(0.23') 0.4' from top, some coaly wisps and silty phases.	11.31	1253.63	14.83	
LAMINITE, siltstone grey and mudstone dark grey interbedded, some brecciation 0.55' and 1.5' from top, and minor dislocation, slickensides, core broken at base (0.15').	1.77	1255.40	1.90	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, core shattered, fragments mostly dull with minor bright bands.	0.19	1255.59	0.10)	
CLAYSTONE, carbonaceous.	0.13	1255.72	0.07)	
COAL, core badly broken, most fragments dull or dull with minor bright bands, some slickensides on shear (or bedding?) surfaces, angle of shear planes 47° 2.8' from top, 40° 4.1' from top, 23° from core axis, 8.4' from top.	29.03	1284.75	15.31)	CHAMBERLAIN SEAM
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps and becoming carbonaceous in top 1', calcite vein 0.10' from top.	4.32	1289.07	4.21	
SANDSTONE, grey, medium grained, becoming fine towards base, quartz-lithic, calcite veins mainly opposed to bedding at 42° to core axis. Bedding 73° to core axis.	18.93	1308.00	18.45	
SANDSTONE, grey, fine grained, quartz-lithic, a few calcite veins as above.	19.11	1327.11	18.63	

SUKUNKA D.D.H. C-14

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, as above. Bedding angle 73° to core axis.	9.39	1336.50	9.15	<u>BASE OF HOLE</u>

BORE NUMBER C-15

Grid Reference 44017.9N 92711.7E

Exploration Grid Reference G/6

Date Commenced 15th Aug, 1971 Completed 28th Aug, 1971

Collar R.L. 5681.7 ft Standard Datum

Total Depth 1659.5 ft Electrically Logged Yes/~~NS~~

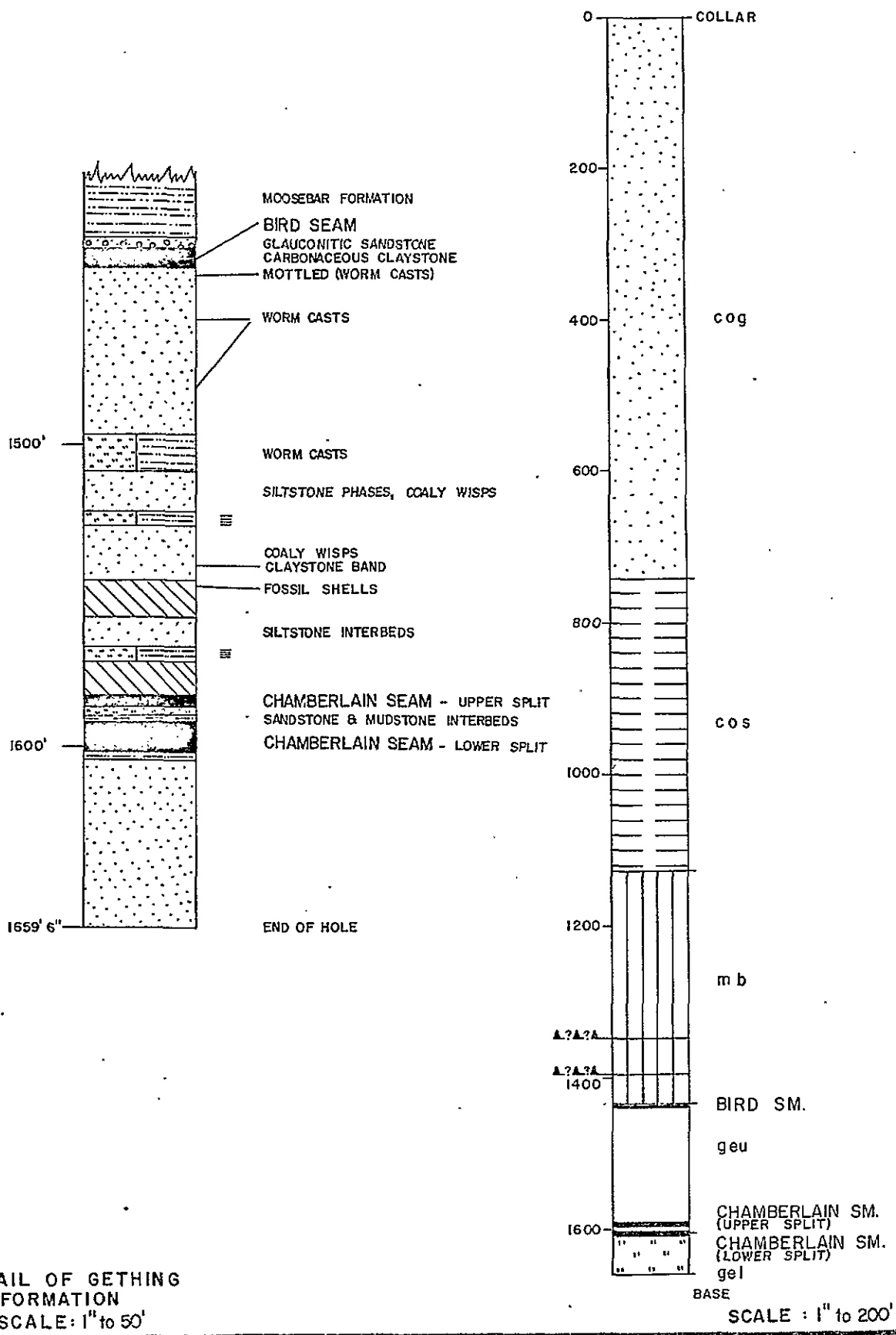
Drilled by Connors Drilling Ltd

For Coalition Mining Limited

Logged by F. H. S. Tebbutt and G. R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlian upper split	4096.0	2.76	63%	
Chamberlain lower split	4080.4	9.47	87%	





DETAIL OF GETHING FORMATION
SCALE: 1" to 50'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-15a

CHAMBERLAIN SEAM
UPPER SPLIT

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1582.91						
		2.76	5.5	4	5.5	
1585.67						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS

for
COALITION MINING LIMITED




DDH C-15A

DRAWN BY pm

DATE Jan '72

SCALE: 1" to 2'

PAGE 1 of 1

				ASH % CUMULATIVE FROM FLOOR		
CHAMBERLAIN SEAM LOWER SPLIT		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1591.86						
		1.22	11.5	6½	5.0	
		8.07	88.5	7	4.9	
1601.15 1601.33		0.18	-	86.0	0	

Prepared by:
 CLIFFORD McELROY & ASSOCIATES PTY. LTD.
 for
 COALITION MINING LIMITED
 DRAWN BY pm DATE Jan '72

SEAM SECTIONS
 DDH C-15A

SCALE: 1" to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES no. 113
CORE NO. C15/15A
~~SKEETER SEAM~~ CHAMBERLAIN SEAM (UPPER SPLIT)

REPORT NO. K71-1747

DATE RECEIVED: 4. 11. 71

DATE REPORTED: 26. 11. 71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

J. Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

D. W. Damp

INTRODUCTION:

One (1) coal sample designated CORE C15/15A SKEETER SEAM was received on 4.11.71 from CLIFFORD MCELROY & ASSOCIATES.

METHODS:

The coal ply sample, no. 113, was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity in 0.05 steps.

The float and sink fractions, raw -30 mesh coal fraction were weighed, prepared and analysed for ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample no. 113 and the analysis is given in this report.

NOTE:

The sample weight has not been adjusted for core loss.

RESULTS:

FIGURE 1: gives the graphic log of the core.

TABLE 1: gives the sizing, washability and analytical data for the sample after hand crushing to $\frac{3}{4}$ " , top size.

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 113 (after hand crushing to $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL ANALYSIS</u>				<u>CUMULATIVE ANALYSIS</u>		
	<u>WT. GM.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30	221	22.2	1.9	8	22.2	1.9	8
S1.30 - F1.35	623	62.5	3.4	3	84.7	3.0	4 $\frac{1}{2}$
S1.35 - F1.40	49	4.9	8.0	3	89.6	3.3	4
S1.40 - F1.45	11	1.1	14.3	1 $\frac{1}{2}$	90.7	3.4	4
S1.45 - F1.50	37	3.7	15.6	1	94.4	3.9	4
S1.50 - F1.55	25	2.5	18.2	1	96.9	4.3	4
S1.55 - F1.60	5	0.5	20.6	1	97.4	4.3	4
S1.60	26	2.6	49.9	0	100.0	5.5	4
-30 Mesh RC	105	9.5	2.0	8			

TOTAL WEIGHT OF SAMPLE = 1,102 gms

TRUE S.G. = 1.295

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 113

<u>YIELD %</u>	<u>ADM%</u>	<u>ASH%</u>	<u>V.M.%</u>	<u>F.C.%</u>	<u>S. %</u>	<u>C.S.NO.</u>	<u>CV(BTU/lb)</u>
97.4	0.6	4.3	19.0	76.1	0.47	4 $\frac{1}{2}$	14,570

SYDNEY

1st December, 1971.

K71-1747

COALITION MINING

SUKUNKA GIS/ISA-

SIGETPA SEAM

	SPL	THICK	ASH%	CSN°
2	113	2.76	5.5	4
0				

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLES NO. 114, 115, 116
CORE NO. C15/15A
CHAMBERLAIN SEAM (LOWER SPLIT)

REPORT NO. K71-1748

RECEIVED: 4. 11. 1971

REPORTED: 26. 11. 1971



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been performed in accordance with the
terms of registration.

M. Breally
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. D. Campbell

INTRODUCTION:

Two coal samples and one non coal sample designated CORE NO. C15/15A CHAMBERLAIN SEAM were received on 4. 11. 1971 from Clifford McElroy & Associates.

METHODS:

1. The non coal sample No. 116 was weighed, prepared and analysed for Ash and true specific gravity.
2. The good quality coal Samples No. 114 and 115 were hand crushed to $-\frac{3}{4}$ " , sized at 30 mesh BSS and the $+30$ mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for the Full Seam i.e. 114-116 inclusive and the analysis is given in this report.

NOTE:

No core losses were experienced on drilling this hole.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-2 : give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ " top size.

TABLE 3 : gives the calculated washability data for the Full Seam i.e. 114-116 inclusive.

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 114 (after hand crushing to $-\frac{3}{4}$ ")

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	185	34.4	2.6	8½	34.4	2.6	8½
S1.30 - F1.35 SG	227	42.2	4.7	7½	76.6	3.8	8
S1.35 - F1.40 SG	97	18.0	8.2	1	94.6	4.6	6½
S1.40 - F1.45 SG	17	3.2	12.7	1	97.8	4.9	6½
S1.45 - F1.50 SG	5	0.9	17.3	1	98.7	5.0	6½
S1.50 - F1.55 SG	3	0.6	22.9	1	99.3	5.1	6½
S1.55 - F1.60 SG	1	0.2	23.6	1	99.5	5.1	6½
S1.60 SG	3	0.5	45.4	0	100.0	5.3	6½
-30 Mesh	46	7.9	3.2	7½			

Total Weight of Sample = 584 grams
True Specific Gravity = 1.291

TABLE 2

WASHABILITY DATA FOR SAMPLE NO. 115 (after hand crushing to -¾")

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	1681	40.4	2.0	8½	40.4	2.0	8½
S1.30 - F1.35 SG	1635	39.3	4.2	7½	79.7	3.1	8
S1.35 - F1.40 SG	502	12.1	8.9	2	91.8	3.9	7
S1.40 - F1.45 SG	182	4.4	13.7	1	96.2	4.3	7
S1.45 - F1.50 SG	98	2.4	15.2	1	98.6	4.6	7
S1.50 - F1.55 SG	17	0.4	20.0	1	99.0	4.6	7
S1.55 - F1.60 SG	18	0.4	26.4	1	99.4	4.7	7
S1.60 SG	23	0.6	37.6	½	100.0	4.9	7
-30 Mesh	334	7.4	2.3	8			
Total Weight of Sample = 4490 grams							
True Specific Gravity = 1.282							

SAMPLE NO. 116

RAW COAL	Total Weight of Sample = 153 grams
	Ash % = 86.0
	True Specific Gravity = 2.381

TABLE 3

CALCULATED WASHABILITY DATA FOR FULL SEAM i.e. SAMPLES 114 + 115

FRACTION	INDIVIDUAL			CUMULATIVE		
	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	39.7	2.1	8½	39.7	2.1	8½
S1.30 - F1.35 SG	39.6	4.3	7½	79.3	3.2	8
S1.35 - F1.40 SG	12.8	8.8	1½	92.1	4.0	7
S1.40 - F1.45 SG	4.3	13.5	1	96.4	4.4	6½
S1.45 - F1.50 SG	2.2	15.5	1	98.6	4.6	6½
S1.50 - F1.55 SG	0.4	21.7	1	99.0	4.7	6½
S1.55 - F1.60 SG	0.4	24.7	1	99.4	4.8	6½
S1.60 SG	0.6	37.6	½	100.0	5.0	6½

ANALYSIS OF FLOATS 1.60 SG FRACTION OF FULL SEAM
i.e. SAMPLES 114 + 115

Yield %	99.4
Air Dried Moisture %	0.9
Ash %	4.8
Volatile Matter %	19.4
Fixed Carbon %	74.9
Total Sulphur %	0.27
C.S.NO.	7½
Calorific Value	14520 BTU/LB

SYDNEY
30th November 1971

K91-1748

COALITION MINING

SUMUNKA C15/ISA -

CHAMBERLAIN SEAM

	SPL	THICK ^S	Wt%	ASH%	CSN°	ASH% sum
						50
	114	122'	11.5	53	6½	
8'						4.9
6'						
	115	8.07'	88.5	4.9	7	
4'						
2'						
0	116	0.18'		86.0	0	

STRATIGRAPHIC LOG
SUKUNKA D.D.II. C-15

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 11.0 ft. SILTSTONE AND MUDSTONE INTERBEDDED, conglomerate at base.	GATES MB.	75.0
	SILTSTONE, mudstone at base.		89.0
	<u>COAL.</u>		92.0
	SANDSTONE, silty interbeds.		101.0
	<u>COAL.</u>		104.5
	SANDSTONE, silty interbeds.		146.0
	MUDSTONE, sandy phases.		164.0
	SANDSTONE.		209.0
	SILTSTONE and MUDSTONE, interbedded.		295.0
	CLAYSTONE, carbonaceous.		302.0
	SILTSTONE, sandy phases.		312.0
	CLAYSTONE, carbonaceous, coaly bands.		332.0
	SILTSTONE, mudstone phases.		363.0
	<u>COAL.</u>		364.5
	SILTSTONE.		371.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	<u>COAL</u> .		376.0
	CONGLOMERATE.		405.0
	SANDSTONE, mudstone phases and pebble bands.		415.0
	CLAYSTONE, coal bands.		
	<u>COAL</u> , gravel at base.		446.0
	SANDSTONE.		521.0
	SANDSTONE, mudstone phases, coaly bands at 551 ' and at base.		573.0
	SANDSTONE.		619.0
	SANDSTONE, mudstone phases.		741.0
	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases at top.	SUKUNKA	1126.0
	MUDSTONE, brecciated at 1346'-1347', 1396'-1397', ash beds at base.	MOOSEBAR	1433.0
	SANDSTONE, Glauconitic.	GETHING	1435.0
	SANDSTONE.		1437.0
	<u>COAL</u> .	BIRD SEAM	1437.5

Redrill

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-15A

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft.)
	No core to 1219.0 ft.		
	MUDSTONE, dark grey, mud zones with mudstone chips at 1335', 1360', 1377', 1410', 1431'. A little slickensides at 1377' mudzone. Zone of crushed mudstone and mud with slickensides (1.0') at 1348'. Bentonite (?) band at 1430'.	MOOSEBAR FM.	1431.0
	SANDSTONE, glauconitic, a few pebbles at base.	GETHING FM.	1435.0
	<u>COAL</u> .		1438.0
	CLAYSTONE, carbonaceous.	BIRD SEAM	1439.0
	<u>COAL</u> .		1441.0
	SANDSTONE, grey, mottled (worm casts) 1445'. Worm casts at 1457', 1459', 1471', 1484'.		1497.0
	SILTSTONE AND MUDSTONE INTERBEDS, sandy phases at top, worm casts.		1508.0
	SANDSTONE, silty phases, coaly wisps.		1522.0
	LAMINITE, siltstone and mudstone.		1526.0
	SANDSTONE, coaly wisps and claystone 1540'.		1545.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	CLAYSTONE, carbonaceous, shell fossils at 1547'.		1556.0
	SANDSTONE, silty interbeds.		1567.0
	LAMINITE, siltstone and mudstone.		1572.0
	CLAYSTONE, carbonaceous, with silty phases.		1583.0
	<u>COAL</u> .	CHAMB SM. upper split	1586.0
	SILTSTONE, sandstone and mudstone interbeds, mudstone at base.		1592.0
	<u>COAL</u> .	CHAMB SM. lower split	1601.0
	MUDSTONE, grey.		1604.0
	SANDSTONE, grey.		1659.5
			<u>BASE OF HOLE</u>

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log C-15 and C-15A for particulars.		1503.00		
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; worm casts and mud blebs, sandy interbeds and phases in bottom 1'.	5.07	1508.07	5.26	
SANDSTONE, grey, medium grained becoming fine grained towards base, silty phases and blebs.	12.85	1520.92	13.33	
MUDSTONE, grey, fine silty interbeds.	3.45	1524.37	3.58	
CLAYSTONE, carbonaceous, brown.	0.71	1525.08	0.74	
SANDSTONE, grey, fine grained with medium grained phases, quartz-lithic, coaly wisps and carbonaceous phases.	14.12	1539.20	14.65	
CLAYSTONE, carbonaceous, sandy interbeds at top.	0.88	1540.08	0.91	
SANDSTONE, grey, fine grained, quartz-lithic.	0.12	1540.20	0.12	

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous.	0.15	1540.35	0.16	
SANDSTONE, grey, fine grained, quartz-lithic.	0.08	1540.43	0.08	
CLAYSTONE, carbonaceous.	0.14	1540.57	0.14	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous phases and coaly wisps. Bedding angle 81° to core axis.	4.36	1544.93	4.52	
CLAYSTONE, carbonaceous, sandy phases, shell fossil zone (0.58') 0.7' from top.	1.59	1546.52	1.65	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous phases and coaly wisps, some shell fragments.	0.65	1547.17	0.67	
CLAYSTONE, dark grey, carbonaceous, coaly bands and lenses.	7.62	1554.79	7.90	
SILTSTONE, grey, bedding irregular, sandy phases.	2.62	1557.41	2.72	

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous.	0.15	1540.35	0.16	
SANDSTONE, grey, fine grained, quartz-lithic.	0.08	1540.43	0.08	
CLAYSTONE, carbonaceous.	0.14	1540.57	0.14	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous phases and coaly wisps. Bedding angle 81° to core axis.	4.36	1544.93	4.52	
CLAYSTONE, carbonaceous, sandy phases, shell fossil zone (0.58') 0.7' from top.	1.59	1546.52	1.65	
SANDSTONE, grey, fine grained, quartz-lithic, carbonaceous phases and coaly wisps, some shell fragments.	0.65	1547.17	0.67	
CLAYSTONE, dark grey, carbonaceous, coaly bands and lenses.	7.62	1554.79	7.90	) SKEETER SEAM EQUIVALENT
SILTSTONE, grey, bedding irregular, sandy phases.	2.62	1557.41	2.72	

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, bedding irregular, sandy phases in top half, becoming claystone phases in lower half.	11.91	1569.32	12.36	
LAMINITE, claystone dark grey and fine siltstone beds, interbedded.	3.81	1573.13	3.95	
CLAYSTONE, dark grey, carbonaceous.	9.78	1582.91	9.97)
<u>COAL</u> , too badly sheared to detect coal types.	2.59	1585.50	2.13	) CHAMBERLAIN SEAM
CLAYSTONE, carbonaceous.	0.17	1585.67	0.17	) upper split
SILTSTONE, grey to dark grey, carbonaceous, with shale carbonaceous interbeds and phases becoming more numerous towards base.	6.19	1591.86	6.19)
<u>COAL</u> , angle of shearing varies between 25°-40° to core axis.)
highly sheared, soft, possibly weathered.	1.22	1593.08	1.22	) CHAMBERLAIN SEAM) lower split

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, bedding irregular, sandy phases in top half, becoming claystone phases in lower half.	11.91	1569.32	12.36	
LAMINITE, claystone dark grey and fine siltstone beds, interbedded.	3.81	1573.13	3.95	
CLAYSTONE, dark grey, carbonaceous.	9.78	1582.91	9.97)
)
)
)
COAL, too badly sheared to detect coal types.	2.59	1585.50	2.13)
)
CLAYSTONE, carbonaceous.	0.17	1585.67	0.17)
)
SILTSTONE, grey to dark grey, carbonaceous, with shale carbonaceous interbeds and phases becoming more numerous towards base.	6.19	1591.86	6.19	
)
COAL, angle of shearing varies between 25°-40° to core axis.)
)
highly sheared, soft, possibly weathered.	1.22	1593.08	1.22)
)

SKBETER SEAM

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.70	1593.78	0.70)	
dull.	0.95	1594.73	0.95)	
dull and bright.	2.39	1597.12	2.39)	
dull.	0.38	1597.50	0.38)	
<u>COAL</u> , not as sheared as above.				
dull and bright.	0.32	1597.82	0.32)	CHAMBERLAIN
mainly dull with minor bright bands.	0.46	1598.28	0.46)	SEAM
dull.	0.35	1598.63	0.35)	lower split
dull and bright.	0.46	1599.09	0.46)	
mainly dull with minor bright bands.	0.32	1599.41	0.32)	
dull and bright.	1.11	1600.52	1.11)	
sheared, probably dull.	0.63	1601.15	0.63)	

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous.	0.07	1601.22	0.07)))))))))) CHAMBERLAIN SEAM lower split
CLAYSTONE, soft and carbonaceous.	0.11	1601.33	0.11	
CLAYSTONE, carbonaceous.	1.77	1603.10	1.77	
<u>COAL</u> , bright.	0.03	1603.13	0.03	
CLAYSTONE, carbonaceous, core broken.	1.45	1604.58	1.45	
SANDSTONE, grey, medium grained, quartz-lithic, core broken along oblique fractures with some calcite but not brecciated in top 1.1'. Bedding angle 70° to core axis.	11.60	1616.18	11.59	
SANDSTONE, grey, fine grained, quartz-lithic. Bedding angle 70° to core axis.	31.02	1647.20	31.00	
CLAYSTONE, dark grey.	0.42	1647.62	0.42	
SANDSTONE, grey, fine grained, quartz-lithic.	6.14	1653.76	6.14	

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.70	1593.78	0.70)
dull.	0.95	1594.73	0.95)
dull and bright.	2.39	1597.12	2.39)
dull.	0.38	1597.50	0.38)
<u>COAL</u> , not as sheared as above.)
dull and bright.	0.32	1597.82	0.32)
mainly dull with minor bright bands.	0.46	1598.28	0.46)
dull.	0.35	1598.63	0.35)
dull and bright.	0.46	1599.09	0.46)
mainly dull with minor bright bands.	0.32	1599.41	0.32)
dull and bright.	1.11	1600.52	1.11)
sheared, probably dull.	0.63	1601.15	0.63)

CHAMBERLAIN
SEAM

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous.	0.07	1601.22	0.07)))))))))) CHAMBERLAIN SEAM
CLAYSTONE, soft and carbonaceous.	0.11	1601.33	0.11	
CLAYSTONE, carbonaceous.	1.77	1603.10	1.77	
<u>COAL</u> , bright.	0.03	1603.13	0.03	
CLAYSTONE, carbonaceous, core broken.	1.45	1604.58	1.45	
SANDSTONE, grey, medium grained, quartz-lithic, core broken along oblique fractures with some calcite but not brecciated in top 1.1'. Bedding angle 70° to core axis.	11.60	1616.18	11.59	
SANDSTONE, grey, fine grained, quartz-lithic, Bedding angle 70° to core axis.	31.02	1647.20	31.00	
CLAYSTONE, dark grey.	0.42	1647.62	0.42	
SANDSTONE, grey, fine grained, quartz-lithic.	6.14	1653.76	6.14	

SUKUNKA D.D.H. C-15A

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, as above. Bedding angle 80° to core axis.	2.06	1655.82	2.06	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, interbedded; worm casts and mud blebs.	1.68	1657.50	1.68	
				<u>BASE OF HOLE</u>

BORE NUMBER C-16

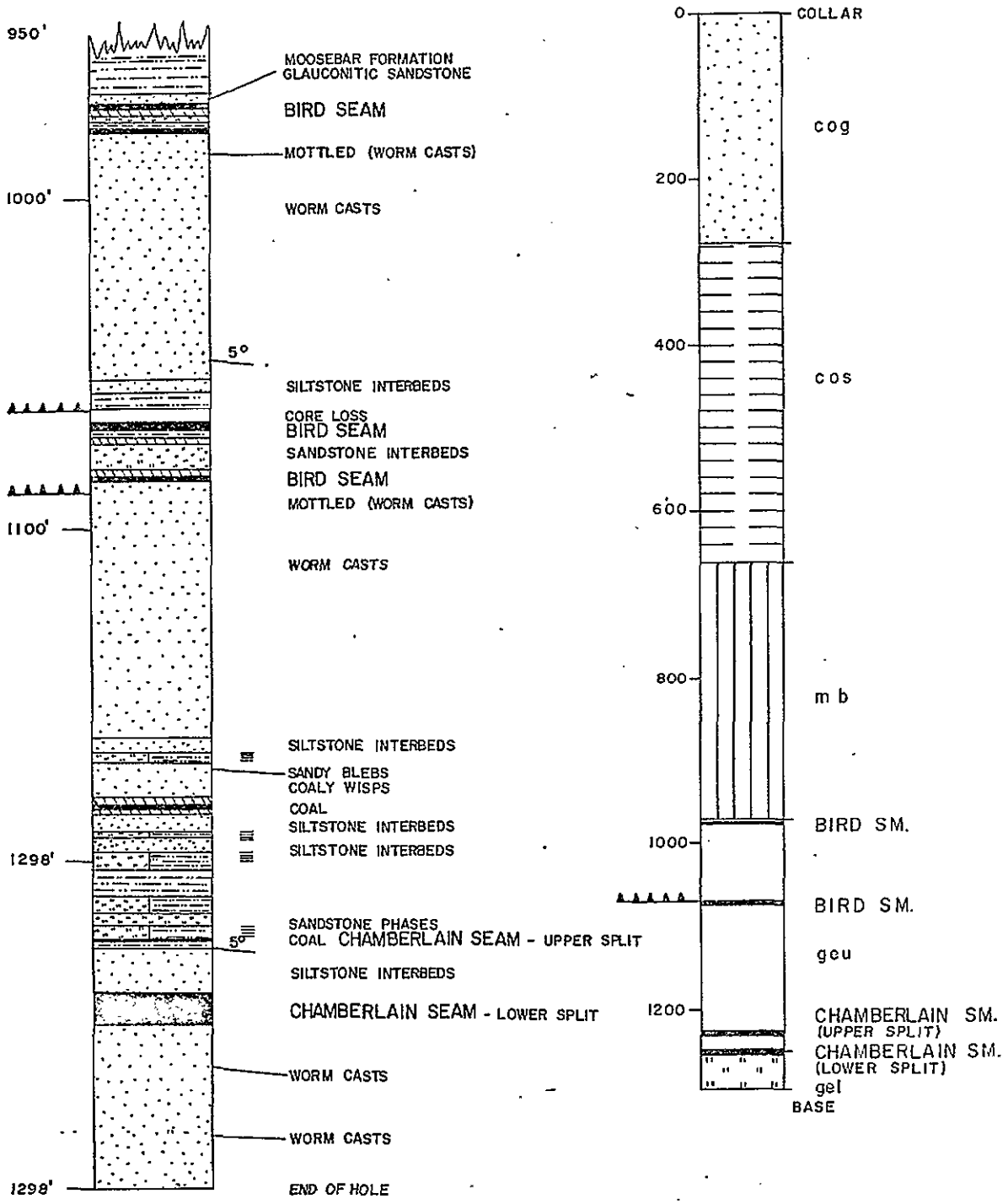
Grid Reference 33723.9N 87789.5E
Exploration Grid Reference J+500'N/1

Date Commenced 29th Aug, 1971 Completed 11th Sept, 1971

Collar R.L. 4861.1 ft Standard Datum
Total Depth 1298.0 ft Electrically Logged Yes/~~No~~
Drilled by Connors Drilling Limited
For Coalition Mining Limited
Logged by F. H. S. Tebbutt and G. R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain lower split	3611.6	10.64	66%	

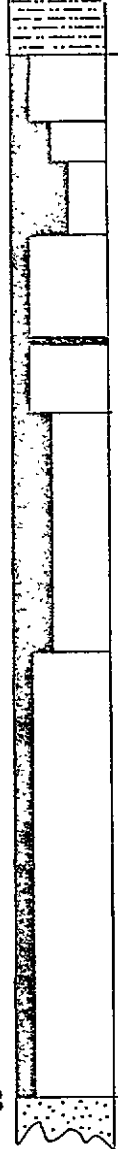


DETAIL OF GETHING
FORMATION
SCALE 1" to 50'

SCALE : 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-16

				ASH % CUMULATIVE FROM FLOOR		
CHAMBERLAIN SEAM LOWER SPLIT		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1238.84					6.1	
		10.64	-	6.1	6½	
1249.48						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS
DDH C-16

for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SCALE: 1" to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

CARGO SUPERINTENDENTS

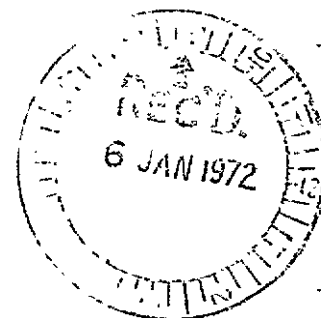
Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Telephone: 241 1105

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify



APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLE NO. 188
CORE NO. C16
CHAMBERLAIN SEAM (LOWER SPLIT)

REPORT NO. K71-1845

RECEIVED: 17. 11. 1971

REPORTED: 31. 12. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

M. Bradley
A.R.A.C.I. Chief Chemist.

INTRODUCTION:

One (1) Coal Sample designated CORE NO. C16 CHAMBERLAIN SEAM was received on 17. 11. 1971 from Clifford McElroy & Associates

METHOD:

The Coal Sample No. 188 was hand crushed to $\frac{3}{4}$ " sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions, raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for Sample No. 188 and the analysis are given in this report.

NOTE:

The sample weight has not been adjusted to compensate for core loss.

RESULTS:

TABLE 1 : gives the sizing, washability and analytical data for the sample after hand crushing to $\frac{3}{4}$ " top size.

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 188 (after hand crushing to $\frac{3}{4}$ ")

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
F1.30 SG	1886	49.2	2.1	9	49.2	2.1	9
S1.30 - F1.35 SG	1222	31.9	5.1	4	81.1	3.3	7
S1.35 - F1.40 SG	363	9.5	9.4	2½	90.6	3.9	6½
S1.40 - F1.45 SG	100	2.6	14.2	1½	93.2	4.2	6½
S1.45 - F1.50 SG	71	1.8	18.8	1	95.0	4.5	6½
S1.50 - F1.55 SG	43	1.1	19.7	1	96.1	4.7	6
S1.55 - F1.60 SG	41	1.1	23.1	1	97.2	4.9	6
S1.60 SG	106	2.8	57.3	1	100.0	6.3	6
-30 Mesh RC	578	13.1	4.5	9			

Total Weight of Sample = 4410 grams

True Specific Gravity = 1.300

Thickness = 10.64'

ANALYSIS OF FLOATS 1.60 SG FRACTION OF SAMPLE NO. 188

Yield %	97.2
Air Dried Moisture %	1.0
Ash %	5.1
Volatile Matter %	21.7
Fixed Carbon %	72.2
Total Sulphur %	0.43
C.S.NO.	6½
Calorific Value	14420 BTU/LB
Phosphorus %	0.032

SYDNEY

31st December 1971

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-16

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
All strata dips at 0-5°.	No core to 15.0 ft.		
	SANDSTONE, pebble bands throughout.	GATES MB.	91.0
	SANDSTONE, mudstone bands, pebbles at base.		113.0
	<u>COAL.</u>		115.0
	SANDSTONE, pebble bands.		118.0
	SANDSTONE, silty bands.		130.0
	CLAYSTONE, coaly bands.		135.0
	CONGLOMERATE.		145.0
	SANDSTONE.		210.0
	SANDSTONE, mudstone bands.	GATES MB.	278.0
	SANDSTONE, SILTSTONE AND MUDSTONE INTERBEDS, worm casts.	SUKUNKA MB	661.0
	MUDSTONE, ash beds at base.	MOOSEBAR FM.	969.0
	SANDSTONE, Glauconitic.	GETHING FM.	971.0
	<u>COAL.</u>	BIRD SEAM	974.0
	CLAYSTONE, carbonaceous.		975.0
SILTSTONE.		976.0	

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	CLAYSTONE, carbonaceous.		979.0
	SANDSTONE, coarser at top, fine toward base, mottled(worm casts) 987', worm casts 997'-1007'.		1055.0
	SILTSTONE, silty interbeds.		1059.0
	MUDSTONE.		1063.8
Fault possible	"MUD SEAM", core lost.		1068.0
	<u>COAL.</u>		1070.5
	MUDSTONE.		1072.0
	CLAYSTONE, carbonaceous.		1074.0
	SILTSTONE, sandy interbeds.		1082.0
	CLAYSTONE, carbonaceous.		1084.0
	<u>COAL.</u>		1084.5
	SANDSTONE, coarser top, finer towards base, mottled (worm casts). 1095' worm casts 1106'-1120'.		1163.0
	SANDSTONE, silty interbeds.		1167.0
	LAMINITE, siltstone and mudstone.		1170.0
	SANDSTONE, coaly wisps, sand blebs 1174'.		1181.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	CLAYSTONE, carbonaceous, shelly fossils at base.		1183.0
	<u>COAL.</u>		1184.0
	CLAYSTONE, carbonaceous, coaly bands.		1186.0
	SANDSTONE, silty interbeds, laminite band 1192'.		1196.0
	LAMINITE, siltstone and mudstone.		1202.0
	MUDSTONE, carbonaceous at base.		1210.0
	SILTSTONE AND MUDSTONE INTERBEDDED.		1215.0
	SILTSTONE, sandy phases.	GETHING FM.	1218.5
	LAMINITE, siltstone and mudstone.		1223.0
	<u>COAL.</u>		1224.0
	MUDSTONE.		1225.0
	SANDSTONE, silty interbeds, mudstone at base.		1239.0
	<u>COAL.</u>	GHAMB. SM.	1248.0
	SANDSTONE, worm casts, 1263' and 1283'.		1298.0
			<u>BASE OF HOLE</u>

SUKUNKA D.D.H. C-16

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1158.27		
SANDSTONE, grey, fine grained, quartz-lithic.	3.34	1161.61	3.32	
SILTSTONE, grey, mudstone interbeds, pyritic worm casts.	2.59	1164.20	2.57	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, silty interbeds.	3.14	1167.34	3.12	
SILTSTONE, grey, mudstone interbeds.	2.79	1170.13	2.77	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, very small worm casts, sands blebs .	7.33	1177.46	7.27	
SANDSTONE, as above, claystone carbonaceous interbeds, these concentrating into bands with sandy interbeds from 2.67' to 3.40' from top, and from 4.07' to base with shelly fossils.	5.32	1182.78	5.28	
<u>COAL</u> , dull with bright bands, partly broken.	0.81	1183.59	0.80	

SUKUNKA D.D.H. C-16

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, dark grey, becoming more brown and carbonaceous towards base.	1.28	1184.87	1.27	
CLAYSTONE, brown with clay soft and earthy, coaly fragments and black earthy material.	1.36	1186.23	1.35	
MUDSTONE, dark grey.	0.97	1187.20	0.96	
SANDSTONE, brownish grey, fine grained, quartz-lithic, silty interbeds and zones, with some disturbances of sedimentary origin in bedding. Bedding angle 84° to core axis.	8.38	1195.58	8.32	
SANDSTONE, brownish grey, fine grained, quartz-lithic, silty interbeds.	2.42	1198.00	2.40	
SILTSTONE, grey, mudstone dark grey, interbeds. Bedding angle 85° to core axis.	3.42	1201.42	3.09	
MUDSTONE, dark grey, silty phases, some carbonaceous phases with coaly wisps.	8.80	1210.22	8.22	

SUKUNKA D.D.H. C-16

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, brownish grey, some mudstone interbeds.	4.75	1214.97	4.87	
SILTSTONE, grey, mudstone interbeds.	2.88	1217.85	2.95	
MUDSTONE, dark grey.	4.98	1222.83	5.10	
Core lost.	1.32	1224.15	0.00)
MUDSTONE, dark grey.	0.34	1224.49	0.34)
SANDSTONE, grey, fine grained, quartz-lithic, numerous silty interbeds and phases. Bedding angle 90° to core axis. Cross bedded.	9.97	1234.28	9.67)
SILTSTONE, grey, mudstone dark grey interbeds.	3.23	1237.51	3.19)
MUDSTONE, dark grey.	1.33	1238.84	1.31)
<u>COAL</u> , dull, sheared at 50° to core axis.	0.30	1239.10	0.27)
)

CHAMBERLAIN
SEAM

Upper Split

CHAMBERLAIN
SEAM

Lower Split

SUKUNKA D.D.H. C-16

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , fragmented into small pieces, signs of shearing and listric surfaces, no fragments identifiable as bright coal, assumed as dull.	0.37	1239.51	0.33)	
mainly dull with minor bright bands, shear planes at 70° to core axis at top, and at 30° to core axis in bottom 0.2'.	0.38	1239.89	0.34)	
dull and bright? shear planes at 25° to core axis make identification difficult.	0.78	1240.67	0.70)	
dull, shear planes at 35° to core axis 0.15' from top.	1.04	1241.71	0.93)	CHAMBERLAIN SEAM Lower Split
bright.	0.09	1241.80	0.08)	
dull.	0.66	1242.46	0.59)	
mainly dull with minor bright bands. At 0.15' from top, fracture plane at 60° to core axis, at 0.5' from top fracture plane at 70° to core axis, at 0.65' from top fracture plane at 40° to core axis, at 1.0' from top shear plane at 20° to core)))))))	

SUKUNKA D.D.H. C-16

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u>				
axis, and at 1.3' from top fracture plane at 60° to core axis.	2.02	1244.48	1.81)
mainly dull with minor bright bands, at top a fracture plane at 45° to core axis, at base two shear planes dipping in planes at 90° to each other; one at 20° and the other at 25° to core axis.	0.47	1244.95	0.42)
dull, fracture planes at 70° and 40° to core axis.	0.72	1245.67	0.65	) CHAMBERLAIN SEAM
shearing and fracture plane surfaces make identification difficult, coal appears mostly dull or dull with bright bands, at 0.3' from top fractures at 70° to core axis, at 1.5' from top fractures in different directions at 30° and 40° to core axis, at 2.2' shear planes at 35° to core axis, at 2.8' fractures at 55° to core axis, at 3.1' fracture at 45° to core axis, from 3.25' to base core split into thin pieces at	3.81	1249.48	3.42	) Lower Split
approximately 90° to core axis with listric surfaces.)

SUKUNKA D.D.H. C-16

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous in top 0.25'. Bedding angle 90° to core axis.	2.92	1252.40	3.20	
SANDSTONE, grey, medium grained becoming finer to base, some brownish and finer horizons, worm casts in zone (0.9') 11.2' from top. Bedding angle 88° to core axis.	18.48	1270.88	18.99	
SANDSTONE, grey, fine grained, quartz-lithic, zone of worm casts (0.75') 6.35' from base.	19.18	1290.06	19.12	
SANDSTONE, as above, some silty interbeds near base.	7.94	1298.00	7.91	
				<u>BASE OF HOLE</u>

BASE OF
HOLE

BORE NUMBER C-17

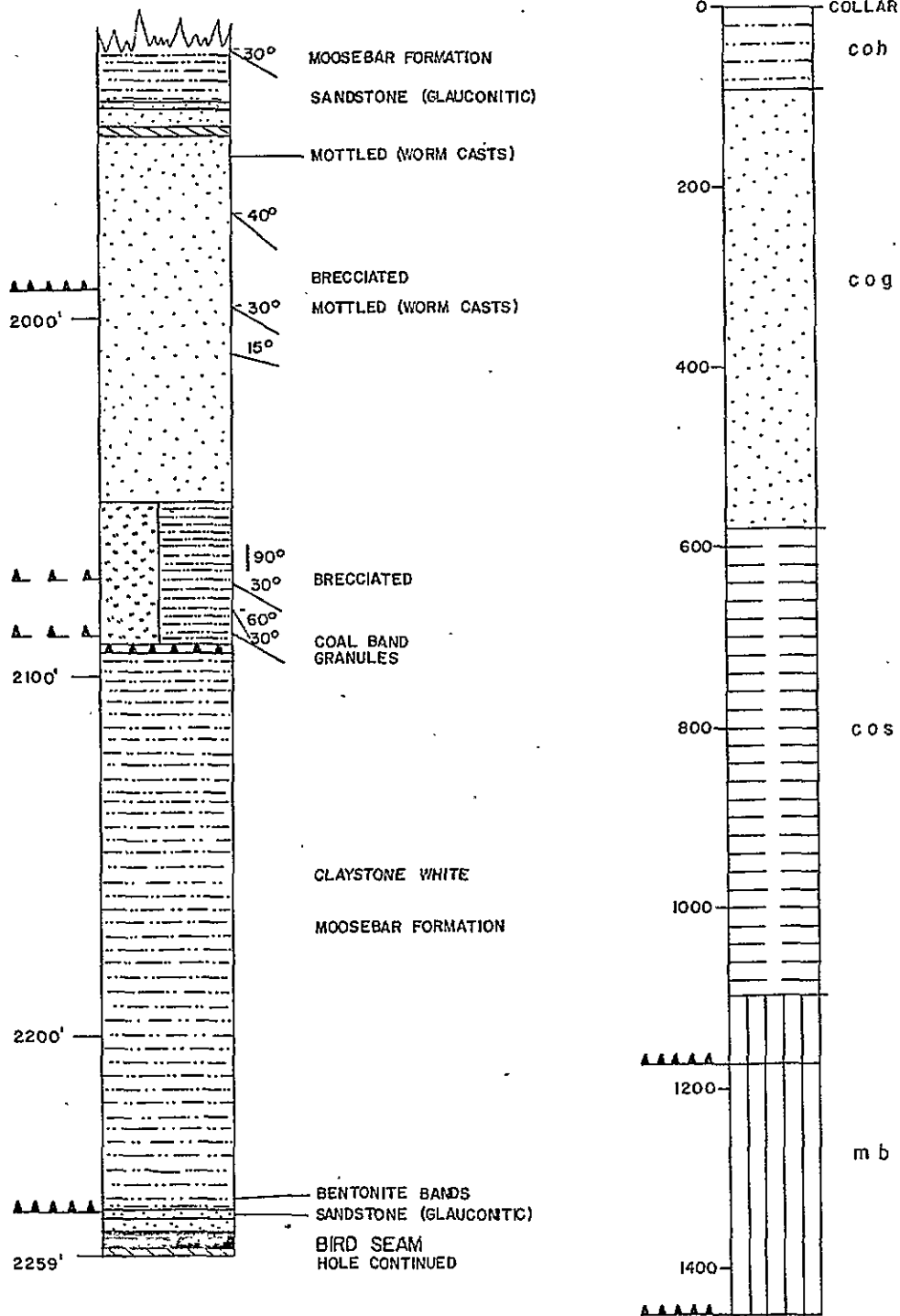
Grid Reference 47261.3N 90422.0E
Exploration Grid Reference E/6

Date Commenced 2nd Sept, 1971 Completed 22nd Sept, 1971

Collar R.L. 5357.0 ft Standard Datum
Total Depth 2506.2 ft Electrically Logged Yes/~~No~~
Drilled by Connors Drilling Ltd
For Coalition Mining Limited
Logged by F. H. S. Tebbutt and G. R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Skeeter	2914.0	0.41	100%	
Chamberlain	2881.3	13.77	49%	Seam Faulted

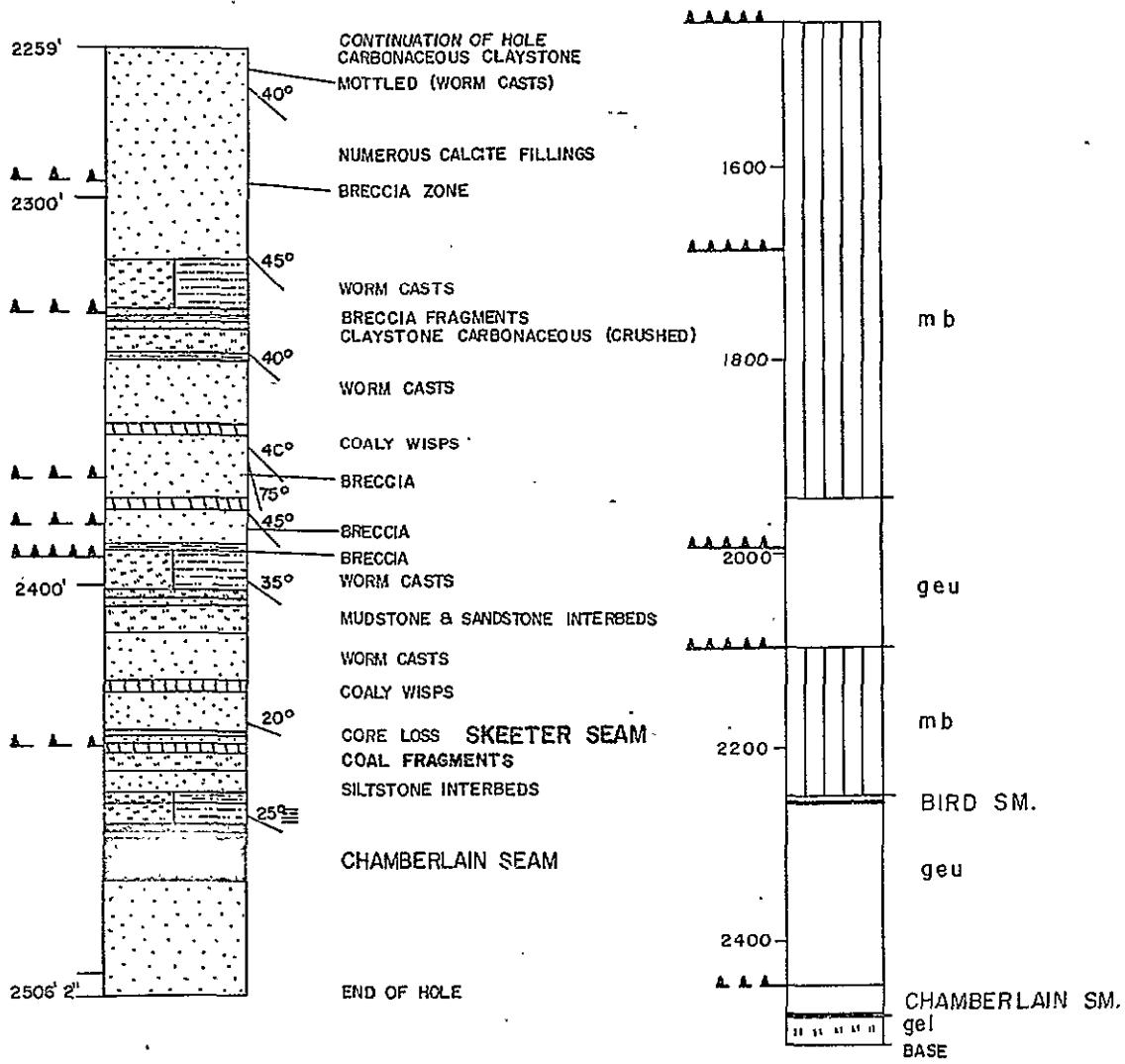


DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-17



DETAIL OF GETHING FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-17

INTRODUCTION:

Two coal samples and two non coal samples designated CORE C30 SKEETER LOWER SEAM were received on 8. 11. 1971 from Clifford McElroy & Associates.

METHODS:

1. The non coal samples No. 141/142, 144 were weighed, prepared and analysed for Ash and True Specific Gravity.
2. The good quality coal samples No. 143 and 145/146 were hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fractions were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true Specific Gravity of each sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for the full seam i.e. 143-146 inclusive and the analysis are given in this report.

NOTE:

Sample weights have been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-2 : give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ " top size.

TABLE 3 : gives the calculated washability data for the Full Seam i.e. 143-146 inclusive.

SAMPLE NO. 141/142




RAW COAL TOTAL WEIGHT OF SAMPLE = 720 grams
ASH % = 88.3
TRUE SPECIFIC GRAVITY = 2.381

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 143 (after hand crushing to $\frac{3}{4}$ "

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
	1068	50.1	2.1	9	50.1	2.1	9
S1.30 - F1.35 SG	530	24.9	5.5	7	75.0	3.2	8½
S1.35 - F1.40 SG	168	7.9	10.2	3½	82.9	3.9	8
S1.40 - F1.45 SG	85	4.0	15.4	1	86.9	4.4	7½
S1.45 - F1.50 SG	80	3.7	20.0	1	90.6	5.1	7½
S1.50 - F1.55 SG	68	3.2	24.6	1	93.8	5.7	7
S1.55 - F1.60 SG	49	2.3	29.3	1	96.1	6.3	7
S1.60 SG	81	3.9	60.0	0	100.0	8.4	7
-30 Mesh	231	9.8	9.8	7½			

Total Gross Weight of Sample = 2360 grams
True Specific Gravity = 1.340

				ASH % CUMULATIVE FROM FLOOR				
CHAMBERLAIN SEAM				WT%	ASH%	C. S. No	INCL. BANDS	EXCL. BANDS
2461.95		1.73	-	65.8	0			
		1.44	-	65.6	0			
2465.12							5.7	
		10.60	-	5.7	6			
2475.72								

Prepared by:

CLIFFORD McELROY & ASSOCIATES PTY. LTD.

for

COALITION MINING LIMITED

DRAWN BY pm

DATE Jan '72

SCALE: 1' to 2'

SEAM SECTIONS

DDH C-17

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLES NO. 73, 74, 75
CORE NO. C17
CHAMBERLAIN SEAM

REPORT NO. K71-1749

RECEIVED: 4. 11. 1971

REPORTED: 26. 11. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

Abbott
A.R.A.C.I. Chief Chemist

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

R. K. D. [Signature]

INTRODUCTION:

One coal sample and two non coal samples designated CORE NO. C17 CHAMBERLAIN SEAM were received on 4. 11. 1971 from Clifford McElroy & Associates.

METHODS:

1. The non coal samples No. 73 and 74 were weighed, prepared and analysed for Ash and true specific gravity.
2. The good quality coal sample No. 75 was hand crushed to $\frac{3}{4}$ ", sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for Sample No. 75 and the analysis is given in this report.

NOTE:

Ply weights have not been adjusted for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for the coal sample after hand crushing to $\frac{3}{4}$ " top size.

SAMPLE NO. 73

RAW COAL	Total Weight of Sample = 711 grams
	Ash % = 65.8
	True Specific Gravity = 2.020

SAMPLE NO. 74

RAW COAL	Total Weight of Sample = 1407 grams
	Ash % = 65.6
	True Specific Gravity = 2.160

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 75 (after hand crushing to - $\frac{3}{8}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	1112	39.9	2.1	8½	39.9	2.1	8½
S1.30 - F1.35 SG	1008	36.2	3.9	6	76.1	3.0	7½
S1.35 - F1.40 SG	321	11.5	7.7	2	87.6	3.6	6½
S1.40 - F1.45 SG	114	4.1	12.0	1½	91.7	4.0	6½
S1.45 - F1.50 SG	57	2.0	13.5	1	93.7	4.2	6½
S1.50 - F1.55 SG	56	2.0	17.2	1	95.7	4.4	6
S1.55 - F1.60 SG	39	1.4	19.8	1	97.1	4.7	6
S1.60 SG	77	2.9	40.9	½	100.0	5.7	6
-30 Mesh	172	5.8	3.6	8½			

Total Weight of Sample = 2956 grams

True Specific Gravity = 1.295

ANALYSIS OF FLOATS 1.60 SG FRACTION OF SAMPLE NO. 75

Yield %	97.1
Air Dried Moisture %	0.7
Ash %	4.7
Volatile Matter %	20.8
Fixed Carbon %	73.8
Total Sulphur %	0.26
C.S.NO.	7½
Calorific Value	14570 BTU/LB

SYDNEY

30th November 1971

K71-1749

COALITION MINING

SUKUMBA C17

EMBORELWIN STRAT

	SPL	THICK ²	ASH%	CSM°
14'	73	1.73	65.8	0
12'	74	1.46	65.6	0
10'				
8'				
6'	75	10.60	57	6
4'				
2'				
0				

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-17

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft.)</i>
	No core to 22.0 ft.		
	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases.	HULLCROSS MB.	90.0
	SANDSTONE, silty interbeds.	GATES MB.	
	<u>COAL</u> AND CLAYSTONE.		112.0
	MUDSTONE, silty phases.		127.0
	<u>COAL</u> .		128.0
	<u>COAL</u> AND CLAYSTONE BANDS.		137.0
	CLAYSTONE, carbonaceous claystone phases and coal bands.		148.0
	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases.		171.0
	<u>COAL</u> , claystone bands.		177.0
	CONGLOMERATE, sandstone and mudstone phases.		218.0
	MUDSTONE, silty interbeds, some coaly bands.		236.0
	CONGLOMERATE, sandy interbeds.		323.0
	SANDSTONE, some pebble bands.		357.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	MUDSTONE AND SANDSTONE INTERBEDDED.		412.0
	CLAYSTONE, carbonaceous.		419.0
	CONGLOMERATE.		447.0
	SANDSTONE.		479.0
	SANDSTONE, mudstone phases.		580.0
	MUDSTONE, siltstone interbedded, sandy phases.	SUKUNKA MB.	1098.0
Fault, established (many breccia zones)	MUDSTONE, ash beds (bentonitic?) brecciated and sheared, 1158' - 1195'	MOOSEBAR FM.	1941.0
	1440' - 1474'		
	1680' - 1690'		
	1707'		
	SANDSTONE, Glauconitic.	GETHING FM.	1943.0
	SANDSTONE.		1948.0
	CLAYSTONE, carbonaceous, coaly bands. Coarse at top, fine towards base.		1951.0
Fault, established	SANDSTONE, coarse at top, fine towards base, (worm casts) at 1957', brecciated at 1992-1993', mottled (worm casts) 1998'.		2052.0
	SILTSTONE AND MUDSTONE INTERBEDDED, brecciated 2073', worm casts.		2090.0
Fault, established	SANDSTONE, granules, coal band 9' at 2091'.		2092.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	MUDSTONE, brecciated in part.	MOOSEBAR FM.	2152.0
	CLAYSTONE, white.		2154.0
	MUDSTONE, slickensided throughout, bentonite? bands at 2248' and 2249'.		2249.0
	SANDSTONE, glauconitic.	GETHING MB.	2251.0
	SANDSTONE, grey, coal band 3" at base.		2253.0
	MUDSTONE, dark grey.		2256.0
	<u>COAL</u> ,	BIRD SEAM	2257.3
	CLAYSTONE, carbonaceous.		2259.0
Fault, possible	SANDSTONE, grey, medium to fine grained, quartz-lithic. Calcite veins and infillings numerous in zone 2283'-2296'. 0.3' breccia zone at 2296'. Mottled (worm casts 2266').		2316.0
	SILTSTONE -AND MUDSTONE INTERBEDS, worm casts.		2329.0
Fault, possible	SANDSTONE, grey, medium grained, calcite vein with brecciated fragments at 2230'.		2330.5
Fault, possible	CLAYSTONE, carbonaceous, listric surfaces, crushed.		2331.5

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, grey, slickensides.		2334.0
	SILTSTONE, grey, mudstone interbeds, and sandstone interbeds at top, slickensides. Mudstone at base.		2342.0
Fault, possible	SANDSTONE, coaly wisps, worm casts 2346'-2353'. Carbonaceous claystone band (2') at 2360', and 2380' (2'), Breccia zones at 2373' (1.5') and 2387' (.3').		2390.0
Fault, possible	SILTSTONE AND MUDSTONE INTERBEDS, worm casts. Severe brecciation (1') at 2392'. Mudstone at top and bottom.		2404.0
	SILTSTONE, grey, mudstone interbeds, mudstone at base, sandy at top.		2413.0
	SANDSTONE, grey, coaly wisps, worm casts 2416'-2420', carbonaceous claystone band (2') at 2426'. 1' core loss at 2438'.		2441.0
Fault, possible	CLAYSTONE, carbonaceous, sandy interbeds, crushed zone with listric surfaces and some coal at base.		2443.0
	SILTSTONE, grey, mudstone interbeds and phases, mudstone at base.		2448.0
	SANDSTONE, silty interbeds.		2454.0
	SILTSTONE AND MUDSTONE INTERBEDS.		2457.0

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	LAMINITE, siltstone and mudstone, mudstone at base.		2462.0
	<u>COAL</u> , 1' siltstone band 1' below top.	CHAMB. SM.	2475.8
	SANDSTONE, grey, medium, becoming fine to base.		2506.2
			<u>BASE OF HOLE</u>

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		2246.10		
CLAYSTONE, black.	2.13	2248.23	2.13	
CLAYSTONE, pale grey, bentonitic?	0.30	2248.53	0.30	
CLAYSTONE, black.	0.84	2249.37	0.84	
CLAYSTONE, pale grey, bentonitic?	0.05	2249.42	0.05	
CLAYSTONE, black, base of Moosebar formation.	0.02	2249.44	0.02	
SANDSTONE, dark grey, medium grained, glauconitic.	1.94	2251.38	1.95	
SANDSTONE, grey, medium grained, quartz-lithic, somewhat brecciated, calcite infillings, occasional pebbles both rounded and angular.	2.17	2253.55	2.18	
<u>COAL</u> , sheared and stony.	0.40	2253.95	0.40)
CLAYSTONE, black, carbonaceous towards base. Bedding angle 52 ^o to core axis.	2.54	2256.49	2.55	) BIRD SEAM

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull, pyrites, sheared and core broken.	0.50	2256.99	0.50	} BIRD SEAM
CLAYSTONE, carbonaceous.	1.07	2258.06	1.08	
SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps and partings and small carbonaceous phases near top. A few calcite veins.	5.20	2263.26	5.23	
SANDSTONE, grey, medium grained and becoming finer towards the base, quartz-lithic, mottled (worm casts) though indistinct from 0.7' to 3.7' from top. Calcite veins parallel to bedding and oblique at various angles. Bedding angle 52° to core axis.	18.44	2281.70	18.54	
SANDSTONE, grey, fine grained, quartz-lithic, extensive veining and cavity filling by calcite, carbonaceous mudstone band (0.06') 0:29' from top, listric surfaces along some partings at various angles. Bedding angle 55° to core axis.	18.18	2299.88	18.28	
SANDSTONE, grey, fine grained, quartz-lithic, numerous fine calcite veins. Heavy calcite vein with brecciated fragments 0.85' from top. Some slickensides.	14.05	2313.93	14.13	

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded, sandy interbeds, mudstone blebs, a few worm casts. Fine calcite veins and some minor dislocations of bedding. Bedding angle 52° to core axis and bedding planes with listric surfaces.	3.62	2317.55	3.64	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded, some sandy interbeds, mud blebs and worm casts. Fine calcite veins at various angles. Small zones of brecciation - 0.12' at 8.3' from top, and 0.08' at 8.9' from top.	10.48	2328.03	10.54	
SANDSTONE, grey, coarse grained becoming medium grained towards base, quartz-lithic. Calcite veins contrary to bedding at 55° to core axis. Bedding angle 45° to core axis.	0.89	2328.92	0.90	
CALCITE, vein at 55° to core axis containing brecciated sandstone fragments.	0.10	2329.02	0.10	
SANDSTONE, grey, medium grained quartz-lithic, a few calcite veins.	0.48	2329.50	0.48	

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous, sheared and crushed, listric surfaces.	0.76	2330.26	0.76	
CLAYSTONE, black.	0.42	2330.68	0.42	
SANDSTONE, grey, fine to medium grained, some fine veins of calcite, and one (0.01') containing brecciated sandstone fragments 0.40' from top.	1.92	2332.60	1.93	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded, sandstone interbeds and phases. A few calcite veins. Bedding angle 48° to core axis.	2.55	2335.15	2.56	
SILTSTONE, grey, mudstone interbeds and phases, some sandy interbeds towards base.	7.80	2342.95	7.84	
SANDSTONE, grey, fine grained, quartz-lithic, fine calcite veins, worm casts from 3.4' to 5.5' from top.	10.04	2352.99	10.10	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, these being more concentrated at base.	5.09	2358.08	5.12	

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous, core broken at top.	1.77	2359.85	1.78	
SILTSTONE, carbonaceous.	0.61	2360.46	0.61	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps and partings. A few fine calcite veins; sand blebs from 1.5' from base to bottom (these are probably worm casts).	10.35	2370.81	10.41	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, bedding steepens in top 1.3' to 10° to core axis and zone from 0.32' to 1.44' from top brecciated and with calcite fracture fillings. Bedding angle below breccia zone 43° to core axis. Slickensides.	16.66	2387.47	16.75	
CLAYSTONE, carbonaceous, listric surfaces, some fine calcite veins.	1.32	2388.79	1.33	
CLAYSTONE, carbonaceous, slickensides and fine calcite veins.	1.08	2389.87	1.09	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone interbedded, brecciated throughout, cavities filled with calcite.	1.17	2391.04	1.18	

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded. Mudstone fraction predominates. Some fine calcite veins. Bedding angle up to 5° to core axis. Slickensides.	3.17	2394.21	3.19	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded, brecciated, calcite infillings, slickensides.	1.47	2395.68	1.48	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey, and mudstone dark grey interbedded. Some calcite veins and worm casts. Slickensides. Bedding angle 70° to core axis. Some dislocation.	6.80	2402.48	6.84	
CLAYSTONE, carbonaceous.	0.38	2402.86	0.38	
SANDSTONE, grey, fine grained, quartz-lithic, siltstone interbeds and phases.	2.75	2405.61	2.77	
SILTSTONE, grey and sandstone and mudstone interbeds.	1.17	2406.78	1.18	
SILTSTONE, as above, almost a laminite, worm casts replaced by pyrite.	4.10	2410.88	4.12	

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous.	1.48	2412.36	1.49	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, these concentrated towards base. Some calcite veins.	13.69	2426.05	13.78	
SANDSTONE, as above.	0.39	2426.44	0.39	
CLAYSTONE, carbonaceous, sandy interbeds, zone (0.14') 0.82' from top where crushed and exhibiting listric surfaces.	1.44	2427.88	1.45	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps from 2.62' from base to bottom. Sand blebs from 2.35' to 1.03' from base, calcite veins towards base. Driller records 1' loss (corrected to 1.4') within this unit - assumed to be sandstone.	12.71	2440.59	11.31	
CLAYSTONE, carbonaceous, slickensides, sandy interbeds, shell fossils 0.23' from base.	2.01	2442.60	2.01	
<u>COAL</u> , sheared and fragmented.	0.41	2443.01	0.60	) SKEETER SEAM
CLAYSTONE, carbonaceous.	0.57	2443.58	0.56	

SUKUNKA D.D.H. C-17

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, mudstone phases.	1.34	2444.92	1.32	
SILTSTONE, as above.	2.08	2447.00	2.05	
CLAYSTONE, carbonaceous.	1.27	2448.27	1.25	
SANDSTONE, grey, very fine grained, quartz-lithic, silty interbeds and phases, becoming medium grained in bottom 0.9'.	5.63	2453.90	5.55	
LAMINITE, siltstone grey and mudstone dark grey interbedded, mudstone phases, bedding angles 60° from core axis.	6.33	2460.23	6.25	
CLAYSTONE, carbonaceous, silty interbeds near base.	1.72	2461.95	1.70	
<u>COAL</u> , stony to coal dull with stony bands, sheared.	1.73	2463.68	0.93)
)
SILTSTONE, grey, carbonaceous claystone interbeds, extensive calcite filled fractures, slickensides.	1.08	2464.76	0.08)
)
SILTSTONE, carbonaceous.	0.36	2465.12	0.36)
)
<u>COAL</u> , mainly dull, sheared and badly broken.	1.88	2467.00	0.64)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-17

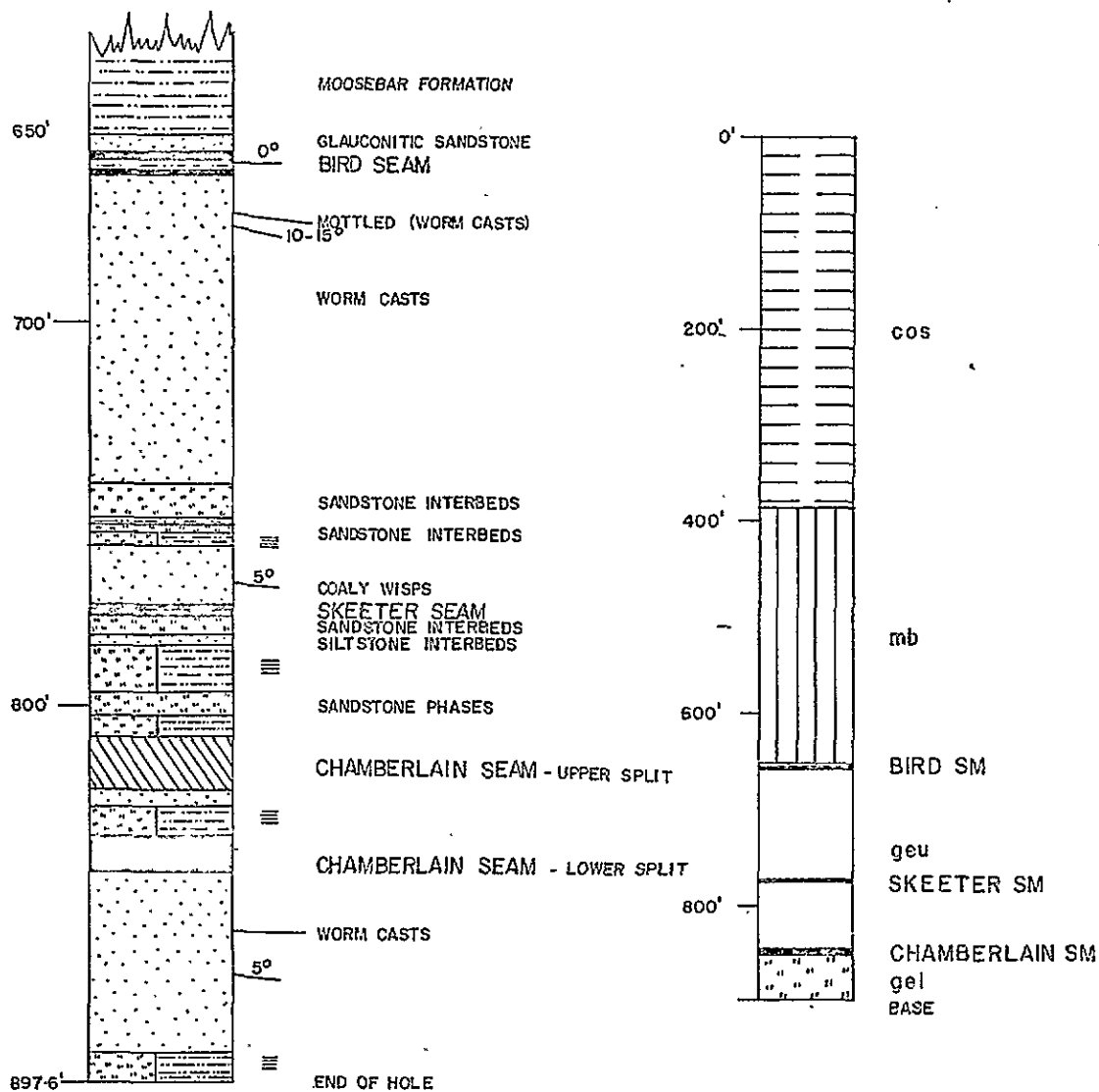
<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<p><u>COAL</u>, dull to mainly dull with minor bright bands, core broken and sheer planes make identification difficult.</p>	8.72	2475.72	5.58	) ) ) CHAMBERLAIN SEAM
<p>SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top (0.7'). Some fine calcite veins. Bedding angle 60° to core axis.</p>	7.40	2483.12	7.28	
<p>SANDSTONE, grey, medium grained, becoming finer towards base, quartz-lithic, a few calcite veins contrary to bedding angle and at 30° to core axis.</p>	18.77	2501.89	18.47	
<p>SANDSTONE, grey, fine grained, quartz-lithic.</p>	4.27	2506.16	4.20	<u>Base of Hole</u>

BORE NUMBER C-18

Grid Reference 34030.8N 90000.9E
Exploration Grid Reference K+1500'N/2E
Date Commenced 1st Sept, 1971 Completed 12th Sept, 1971
Collar R.L. 4570.0 ft Standard Datum
Total Depth 897.6 ft Electrically Logged Yes/~~No~~
Drilled by Connors Drilling Ltd
For Coalition Mining Limited
Logged by F. H. S. Tebbutt and G. R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain upper split	3746.9	5.59	43%	
Chamberlain lower split	3726.9	9.14	64%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-18

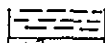
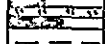

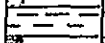

DRAWN BY S.A.

DATE: January '72

PAGE 1 of 1

CHAMBERLAIN SEAM
UPPER SPLIT

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
817.50		1.64	-	44.0	1	
		0.89	-	76.2	0	
		2.39	-	33.1	2	
		0.28	-	88.3	0	
823.09		0.39	-	15.4	3	

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SEAM SECTIONS
DDH C-18

DATE Jan '72

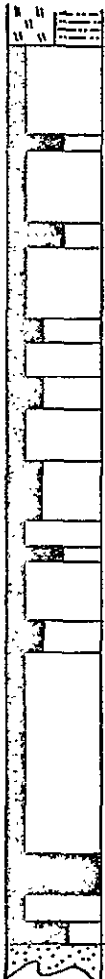
SCALE: 1" to 2'

PAGE 1 of 1

CHAMBERLAIN SEAM
LOWER SPLIT

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
833.97				7.1	
9.14	-	7.1	6½		
843.11					



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DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-18

SCALE: 1" to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241-1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLES NO. 76, 77/78/79, 80, 81, 82
CORE NO. C18
~~SKETTER SEAM~~ CHAMBERLAIN SEAM (UPPER SPLIT)

REPORT NO. K71-1750

RECEIVED: 4. 11. 1971

REPORTED: 26. 11. 1971



This Laboratory is Registered by the National Association of Testing Authorities Australia. The tests reported herein have been performed in accordance with the terms of registration.

M. Bradley
A.R.A.C.I. Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

K. W. Campbell

INTRODUCTION:

Three coal samples and two non coal samples designated CORE NO. C18 SKEETER SEAM were received on 4. 11. 1971 from Clifford McElroy & Associates.

METHODS:

1. The non coal sample No. 77/79, 81 were weighed, prepared and analysed for Ash and true specific gravity.
2. The visibly inferior coal samples No. 76, 80, 82 were hand crushed to $-\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.60 SG.

The float and sink fractions, raw $-\frac{3}{4}$ mesh coal fractions were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

NOTE:

Sample weights have not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLES 1-3 : give the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ "

TABLE 1

WASHABILITY DATA FOR SAMPLE NO. 76 (after hand crushing to $-\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	209	32.7	24.7	1½	32.7	24.7	1½
S1.60 SG	430	67.3	53.4	½	100.0	44.0	1
-30 Mesh	21	3.2	24.8	7			
Total Weight of Sample = 660 grams							
True Specific Gravity = 1.702							

SAMPLE NO. 77/78/79

<u>RAW COAL</u>	Total Weight of Sample = 806 grams
	Ash % = 76.2
	True Specific Gravity = 2.210

TABLE 2WASHABILITY DATA FOR SAMPLE NO. 80 (after hand crushing to $-\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	233	60.7	18.0	2½	60.7	18.0	2½
S1.60 SG	151	39.3	56.3	½	100.0	33.1	2
-30 Mesh	18	4.5	22.0	7½			
Total Weight of Sample = 402 grams							
True Specific Gravity = 1.563							

SAMPLE NO. 81

RAW COAL	Total Weight of Sample = 339 grams
	ASH % = 88.3
	True Specific Gravity = 2.410

TABLE 3WASHABILITY DATA FOR SAMPLE NO. 82 (after hand crushing to $-\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.60 SG	22	84.6	3.0	3½	84.6	3.0	3½
S1.60 SG	4	15.4	83.2	0	100.0	15.4	3
-30 Mesh	1	3.7	5.7	5			
Total Weight of Sample = 27 grams							
True Specific Gravity = 1.455							

SYDNEY

30th November 1971

1371-1750

CONDITION MINUS

SUBURNA CIR-

SKEETED STEAM

SPL	THICK	25% ²	CSN ²
76	1.64	4.40	1
77 78 79	0.89	76.2	0
80	2.39	33.4	2
81	0.28	88.3	0
82	0.39	15.0	3

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

REPORT ON: SUKUNKA SAMPLE NO. 72
CORE NO. C18
CHAMBERLAIN SEAM (LOWER SPLIT)

REPORT NO. K71-1751

RECEIVED: 4. 11. 1971

REPORTED: 26. 11. 1971



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

A.M. Bradley
A.R.A.C.I. Chief Chemist

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

E.H. Campbell

INTRODUCTION:

One coal sample designated CORE C18 CHAMBERLAIN SEAM was received on 4. 11. 1971 from Clifford McElroy & Associates.

METHOD:

The coal ply sample No. 72 was hand crushed to ¾", sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 to 1.60 specific gravity in 0.05 steps.

The float and sink fractions, raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and Crucible Swelling Number and the composite raw coal sample reconstituted and the true specific gravity of the sample determined.

A cumulative Floats 1.60 SG fraction was prepared for sample No. 72 and the analysis is given in this report.

NOTE:

The sample weight has not been adjusted for core loss.

RESULTS:

FIGURE 1 : is the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for the sample after hand crushing to ¾"

TABLE 1

WASHABILITY DATA FOR SAMPLE No. 72 (after hand crushing to ¾")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	1284	36.4	2.3	8	36.4	2.3	8
S1.30 - F1.35 SG	1437	40.8	4.5	7½	77.2	3.5	7½
S1.35 - F1.40 SG	417	11.8	9.2	4	89.0	4.2	7
S1.40 - F1.45 SG	129	3.7	14.9	1½	92.7	4.6	7
S1.45 - F1.50 SG	75	2.1	19.2	1	94.8	5.0	7
S1.50 - F1.55 SG	35	1.0	21.6	1	95.8	5.1	7
S1.55 - F1.60.SG	17	0.5	24.2	1	96.3	5.2	7
S1.60 SG	130	3.7	56.0	½	100.0	7.1	6½
-30 Mesh	251	6.6	5.3	8½			

Total Weight of Sample = 3775 grams

True Specific Gravity = 1.319

ANALYSIS OF FLOATS 1.60 SG FRACTION OF SAMPLE NO. 72

Yield %	96.3
Air Dried Moisture %	0.6
Ash %	5.2
Volatile Matter %	22.2
Fixed Carbon %	72.0
Total Sulphur %	0.39
C.S.NO.	8
Calorific Value	14500 BTU/LB

SYDNEY
30th November 1971

K71-1751
COALITION MINING

BURUNKA C18
CHAMBERLAIN SEAM

	SPL	THICK	ASH%	CONT
8				
6				
4	72	9.14	71	6 $\frac{1}{2}$
2				
0				

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C18

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 350.0 ft. SILTSTONE, MUDSTONE AND SANDSTONE INTERBEDDED, worm casts.	SUKUNKA MB.	386.0
	MUDSTONE, ash beds at base.	MOOSEBAR FM.	652.0
	SANDSTONE, glauconitic.	GETHING FM.	657.0
	<u>COAL.</u>	BIRD SEAM	658.0
	MUDSTONE.		662.0
	<u>COAL.</u>		662.5
	SANDSTONE, coarse at top, fine towards base (mottled) worm casts 672' worm casts 682'-702'		743.5
	SILTSTONE, sandy interbeds.		751.0
	MUDSTONE.		752.0
	SILTSTONE, sandy interbeds.		755.0
	LAMINITE, siltstone and mudstone.		758.0
	SANDSTONE, coaly wisps, mudstone band at 773'.		775.4
	<u>COAL.</u>		776.5
	SANDSTONE, silty interbeds, mudstone bands.		781.5

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	SILTSTONE, sandy interbeds		784.0
	LAMINITE, siltstone and mudstone, mudstone at base.		796.0
	SILTSTONE, sandy phases		803.0
	SILTSTONE AND MUDSTONE INTERBEDDED		808.0
	<u>COAL</u>	) CHAMB.SEAM upper split	819.0
Fault Possible	CLAYSTONE, carbonaceous, coaly bands broken and slickensided 817' - 819'		)	822.0
	<u>COAL</u>	)	823.0
	SANDSTONE, silty interbeds	)	827.0
	LAMINITE, siltstone and mudstone	)	834.0
	<u>COAL</u>	CHAMB.SEAM lower split	843.0
	SANDSTONE, coarse at top, fine towards base, worm cast 858'		890.0
	SILTSTONE AND MUDSTONE INTERBEDDED, granules at base		897.0
			Base of Hole

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
Fault, possible	SILTSTONE, sandy interbeds.		784.0
	LAMINITE, siltstone and mudstone, mudstone at base.		796.0
	SILTSTONE, sandy phases.		803.0
	SILTSTONE AND MUDSTONE INTERBEDDED.		808.0
	CLAYSTONE, carbonaceous, coaly bands broken and slickensided 817'-819'.		822.0
	SANDSTONE, silty interbeds.		827.0
	LAMINITE, siltstone and mudstone.		834.0
	<u>COAL.</u>	CHAMB. SM. lower split	843.0
	SANDSTONE, coarse at top, fine towards base, worm cast 858'.		890.0
	SILTSTONE AND MUDSTONE INTERBEDDED, granules at base.		897.6
			<u>BASE OF HOLE</u>

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log particulars.		752.02		
SILTSTONE, grey, sandstone and mudstone interbeds..Bedding angle 85° to core axis.	6.28	758.30	6.34	
SANDSTONE, grey, medium to fine grained, coaly wisps. Sand blebs 3.46' from base. Mudstone band (0.06') 3.10' from top.	12.29	770.59	12.49	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps and fine carbonaceous bands, sand blebs at top.	2.28	772.87	2.31	
CLAYSTONE, dark grey, tending carbonaceous.	0.79	773.66	0.80	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps and fine carbonaceous phases.	1.68	775.34	1.70	
<u>COAL</u> , dull and bright.	0.33	775.67	0.33	
core broken, fragments mainly dull.	1.81	777.48	0.93	

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, sandstone and mudstone interbeds and phases. Carbonaceous in top 0.17'.	13.22	790.70	12.87	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey, sandstone interbeds, one calcite vein at base. Bedding angle 80° to core axis.	4.17	794.87	4.05	
CLAYSTONE, dark grey, carbonaceous at top, some slickensides.	1.72	796.59	1.67	
SANDSTONE, grey, fine grained, medium grained phases, quartz-lithic, siltstone and mudstone interbeds and phases. Calcite veins mainly 0.31' from base where on vein (0.02') parallel to bedding and another intersects it at 15° to core axis.	5.39	801.98	5.23	
SILTSTONE, grey, mudstone interbeds and phases, becoming more muddy towards the base. A few calcite veins parallel to bedding.	6.23	808.21	6.05	
CLAYSTONE, dark grey, siltstone interbeds and phases, carbonaceous phase (0.15') 1.34' from top.	2.02	810.23	1.96	

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, black, carbonaceous.	1.18	811.41	1.15	
<u>COAL</u> , stony with minor bright bands.	0.68	812.09	0.22	
CLAYSTONE, carbonaceous.	0.38	812.47	0.38	
SILTSTONE, grey, claystone interbeds and phases.	2.09	814.56	2.09	
CLAYSTONE, carbonaceous.	2.94	817.50	2.94	
<u>COAL</u> , core broken, sheared and mixed listric surfaces. Most fragments dull with minor bright bands. Some stony coal.	1.64	819.14	1.31)
SILTSTONE, grey.	0.09	819.23	0.09)
<u>COAL</u> , dull and bright.	0.12	819.35	0.10)
CLAYSTONE, carbonaceous. Not so carbonaceous phase in centre.	0.68	820.03	0.68	) CHAMBERLAIN SEAM
<u>COAL</u> , dull.	1.72	822.31	0.49	) upper split
mainly dull with minor bright bands.	0.67	822.98	0.19)

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous.	0.28	822.70	0.28)
)
COAL, dull.	0.39	823.09	0.11)
)
SANDSTONE, grey, fine grained, quartz-lithic, siltstone and mudstone interbeds, carbonaceous in top 0.2'.	5.78	828.87	5.78	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey interbedded - almost a laminite.	2.08	830.95	2.08	
SILTSTONE AND MUDSTONE INTERBEDDED, as above, some calcite veins in zone (0.2') 1.97' from top.	3.02	833.97	3.02	
COAL, dull.	0.87	834.84	0.76)
)
dull and bright.	0.22	835.06	0.19)
)
dull.	0.72	835.78	0.63)
)
dull and bright.	0.23	836.01	0.20)
)
dull.	0.72	836.73	0.63)
)

CHAMBERLAIN SEAM

upper split

CHAMBERLAIN SEAM

lower split

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands.	0.25	836.98	0.22)
dull.	0.33	837.31	0.29)
mainly dull with minor bright bands.	0.30	837.61	0.26)
dull.	0.47	838.08	0.41)
mainly dull with minor bright bands.	0.65	838.73	0.57)
dull.	0.33	839.06	0.29)
dull and bright.	0.15	839.21	0.13)
dull.	0.60	839.81	0.53)
mainly dull with minor bright bands.	0.31	840.12	0.27)
dull.	2.05	842.17	1.81)
highly sheared with listric surfaces.	0.42	842.59	0.37)
dull.	0.26	842.85	0.23)

CHAMBERLAIN SEAM

lower split

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright.	0.26	843.11	0.23	) CHAMBERLAIN SEAM) lower split
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous at top, calcite vein 2.0' from top.	4.35	847.46	4.33	
SANDSTONE, grey, medium grained, becoming finer towards base. Carbonaceous phase (0.35') 2.03' from top, minor calcite veins. Zone (12.0') of worm casts 8.8' from top. Bedding angle 90° to core axis.	19.14	866.60	19.06	
SANDSTONE, grey, fine grained, quartz-lithic.	18.87	885.47	18.79	
SANDSTONE, as above.	1.31	886.78	1.30	
CLAYSTONE, dark grey.	0.20	886.98	0.20	
SANDSTONE, grey, fine grained, quartz-lithic, coaly lenses bounded by fine calcite ? coatings in zone (0.1') 0.95' from top.	2.83	889.81	2.82	
SANDSTONE, grey, very fine grained.	0.31	890.12	0.31	

SUKUNKA D.D.H. C-18

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded, sandy interbeds.	7.18	897.30	7.15	
SANDSTONE, grey, coarse grained, with finer interbeds, quartz-lithic.	0.20	897.50	0.20	
				<u>Base of Hole</u>

BORE NUMBER C-19

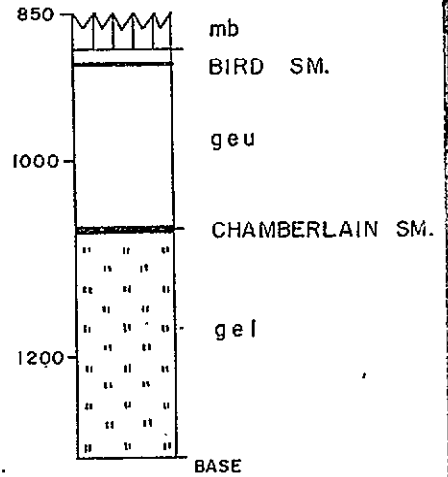
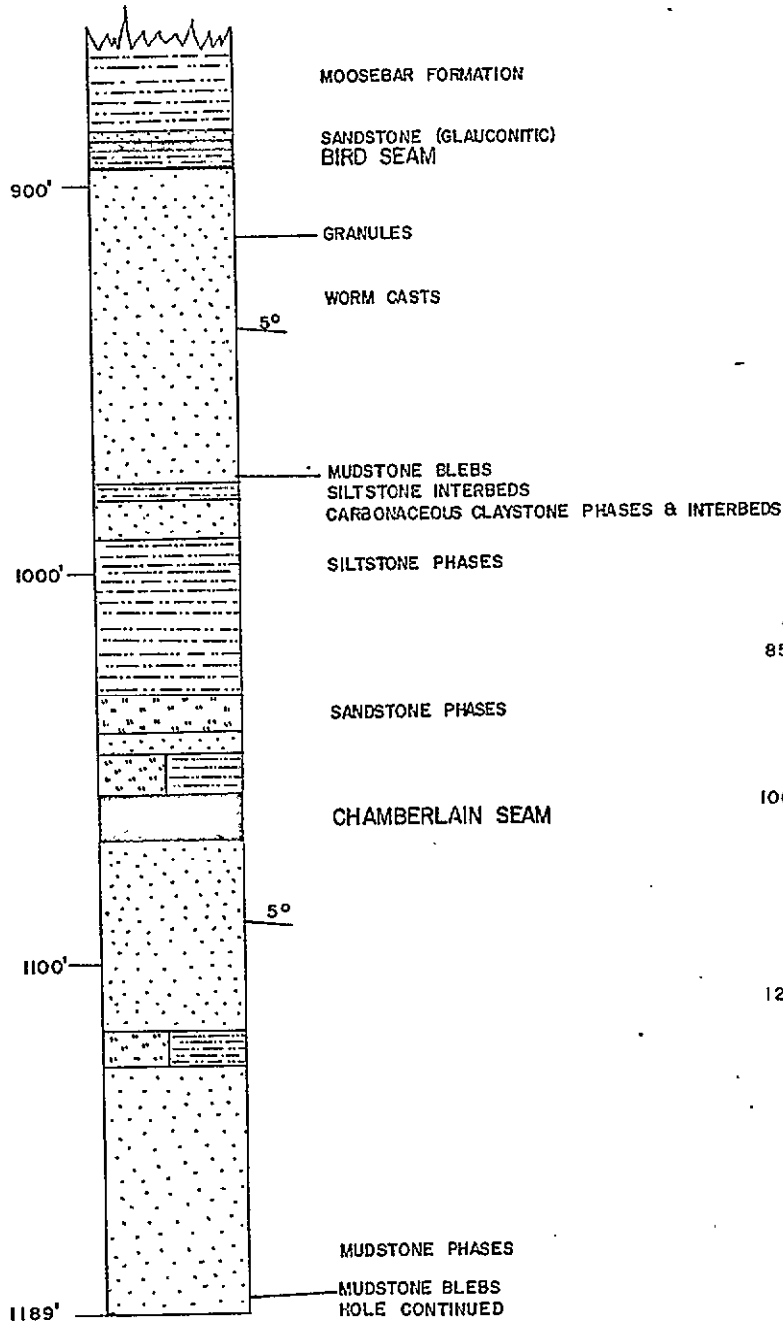
Grid Reference 39010.3N 96305.4E
Exploration Grid Reference J/6

Date Commenced 6th Sept, 1971 Completed 12th Sept, 1971

Collar R.L. 5378.5 ft Standard Datum
Total Depth 1305.5 ft Electrically Logged Yes/~~4~~
Drilled by Canadian Longyear Ltd
For Coalition Mining Limited
Logged by F. H. S. Tebbutt and G. R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain	4310.1	12.98	66%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

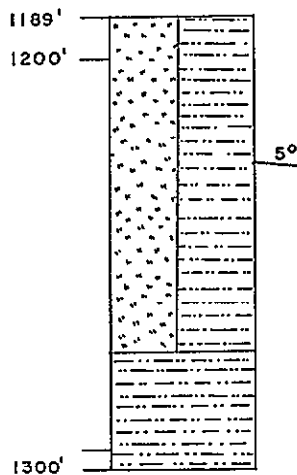
Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-19

DRAWN BY S.A.

DATE: January '72

PAGE 1 of 2



CONTINUATION OF HOLE
SANDSTONE PHASES AT TOP

END OF HOLE

DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-19


DRAWN BY S.A.

DATE: January '72

PAGE 2 of 2

CHAMBERLAIN SEAM

ASH
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1055.38					7.6	
		12.98	-	7.6	4½	
1068.36						

Prepared by:
 CLIFFORD McELROY & ASSOCIATES PTY. LTD.
 for
 COALITION MINING LIMITED
 DRAWN BY pm DATE Jan '72

SEAM SECTIONS
 DDH C-19

SCALE: 1" to 2'

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

C A R G O
SUPERINTENDENTS
CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NO. 150/150A
CORE NO. C19
CHAMBERLAIN SEAM

REPORT NO: K 71-1784

RECEIVED: 8.11.71

REPORTED: 26.11.71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

M. Bralley
Chief Chemist.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. H. Campbell

INTRODUCTION:

One (1) coal sample designated C19 Chamberlain Seam was received on 8.11.71 from Mc Elroy and Associates.

METHODS:

The coal sample No. 150/150A was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample No. 150/150A and the analysis are given in this report.

NOTE:

The sample weight has not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizings, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ " .

SHEET THREE ATTACHED

TABLE 1 : WASHABILITY DATA FOR SAMPLE NO. 150/150A (after hand crushing $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	1270	27.2	2.4	8 $\frac{1}{2}$	27.2	2.4	8 $\frac{1}{2}$
S1.30 - F1.35 SG	1886	40.4	4.4	4 $\frac{1}{2}$	67.6	3.6	6
S1.35 - F1.40 SG	767	16.4	9.0	1	84.0	4.7	5
S1.40 - F1.45 SG	351	7.5	13.7	1	91.5	5.4	5
S1.45 - F1.50 SG	130	2.8	16.0	1	94.3	5.7	5
S1.50 - F1.55 SG	68	1.5	20.8	1	95.8	5.9	5
S1.55 - F1.60 SG	45	1.0	22.4	1	96.8	6.1	4 $\frac{1}{2}$
S1.60 SG	147	3.2	52.8	0	100.0	7.6	4 $\frac{1}{2}$
-30 Mesh	918	16.4	5.7	8			

Total Weight of Sample = 5582 gms.

True Specific Gravity = 1.329

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 150/150A

Yield %	96.8
Air Dried Moisture %	0.7
Ash %	6.2
Volatile Matter %	19.5
Fixed Carbon %	73.6
Total Sulphur %	0.29
Crucible Swelling Number	5 $\frac{1}{2}$
Calorific Value	14,290 BTU/LB

SYDNEY

26th November, 1971

K71-1784

COALITION MINING

SUNUKA 619 -
CHAMBERLAIN SEAM

	SPL	THICK	ASH%	COND
12'				
10'				
8'				
6'	{ 150 150A	12.98	7.6	4 1/2
4'				
2'				
0				

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-19

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	No core to 15.0 ft.		
	SILTSTONE AND MUDSTONE INTERBEDDED, flat bedded.	SUKUNKA MB.	
	MUDSTONE, minor breccia phases, ash beds at base.	MOOSEBAR FM.	887.4
	SANDSTONE, glauconitic.	GETHING FM.	889.0
	<u>COAL</u> .	BIRD SEAM	891.0
	MUDSTONE, coal band at base.		895.0
	SANDSTONE, granules 914.7', worm casts 920'-937', mud blebs at base.		977.0
	MUDSTONE, silty interbeds.		981.0
	SANDSTONE, claystone phases and interbeds.		991.0
	MUDSTONE, silty phases.		1030.0
	SILTSTONE, sandy phases.		1040.0
	SANDSTONE.		1046.0
	LAMINITE, siltstone and mudstone, mudstone at base.		1056.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	COAL, coarse at top, fine at base.	CHAMB. SM.	1067.8
	SANDSTONE, coarse at top, fine at base.		1116.5
	SILTSTONE AND MUDSTONE INTERBEDDED.		1125.5
	SANDSTONE, mudstone phases towards base, 1172'-1189'. Mud blebs 1185.5'.		1189.0
	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases at top.		1275.0
	MUDSTONE.		1305.5
			<u>Base of Hole</u>

SUKUNKA D.D.H. C-19

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		996.56		
SILTSTONE, grey, with grey sandy and dark grey mudstone phases and interbeds. Bedding angle 85-90° to core axis. Some vague cross-bedding or slumping in parts.	19.09	1015.65	19.01	
SILTSTONE, as above, some irregular mudstone masses in sandstone phase 9.59' from base.	15.26	1030.91	15.15	
SANDSTONE, grey, very fine grained, silty interbeds and coarser phases, slump structure 1.2' from top. Bedding angle 82° to core axis. Some current bedding.	4.06	1034.97	4.03	
SANDSTONE, as above, slump structure 1.7' from top.	5.27	1040.24	5.23	
SANDSTONE, grey, fine grained, quartz-lithic, a few silty interbeds, some current bedding.	4.86	1045.10	4.82	
SANDSTONE, grey, medium grained, quartz-lithic, a few coaly wisps.	0.47	1045.57	0.47	

SUKUNKA D.D.H. C-19

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded. A few thin interbeds of very fine sandstone in upper-part. Bedding angle 80° to core axis.	3.91	1049.48	3.91	
SANDSTONE, grey, fine grained, quartz-lithic, some silty interbeds.	0.63	1050.11	0.63	
LAMINITE, siltstone grey and mudstone dark grey interbedded.	2.78	1052.89	2.78	
CLAYSTONE, dark brownish grey, carbonaceous. A few silty interbeds.	1.54	1054.43	1.54	
CLAYSTONE, dark brownish grey, carbonaceous at base, tending carbonaceous at top. A few silty interbeds.	0.95	1055.38	0.95	
<u>COAL</u> , dull, fracture plane 0.15' from top at 40° to core axis. Cleat not well developed.	0.63	1056.01	0.55)
dull and bright.	0.08	1056.09	0.07	) CHAMBERLAIN SEAM
mainly dull with minor bright bands.	0.27	1056.36	0.24)

SUKUNKA D.D.H. C-19

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, dull. At 0.13' from top a fracture plane at 42° to core axis. At 0.39' from top a fracture at 62° to core axis.	0.76	1057.12	0.67)
)
mainly dull with minor bright bands.	0.28	1057.40	0.25)
)
dull and bright.	0.30	1057.70	0.26)
)
mainly dull with minor bright bands.	0.40	1058.10	0.35)
)
dull.	0.36	1058.46	0.32)
)
powdered, very few bright particles, coal probably dull. May have frost wedged since coring.	0.25	1058.71	0.22)
)
dull.	0.16	1058.87	0.14)
)
coal powdered, some flakes with listric surfaces. probably sheared at 90° to core axis and frost-wedged since coring. Coal probably mostly dull.	0.86	1059.73	0.75)
)
mainly dull with minor bright bands.	0.39	1060.12	0.34)

CHAMBERLAI SEAM

SUKUNKA D.D.H. C-19

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , coal powdered, some bright fragments, possibly dull and bright. May have been frost wedged since coring.	0.20	1060.32	0.18)
mainly dull with minor bright bands.	1.11	1061.43	0.97)
dull and bright.	0.19	1061.62	0.17)
mainly dull with minor bright bands, joint plane 54° to core axis.	0.28	1061.90	0.25)
bright and dull.	0.09	1061.99	0.08)
mainly dull with minor bright bands.	0.14	1062.13	0.12	) CHAMBERLAIN SEAM
bright.	0.10	1062.23	0.09)
dull.	0.28	1062.51	0.25)
dull and bright, joint plane 54° to core axis.	0.39	1062.90	0.34)
mainly dull with minor bright bands joint plane. 54° to core axis.	0.34	1063.24	0.30)

SUKUNKA D.D.H. C-19

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull and bright, joint plane at 33° to core axis.	0.17	1063.41	0.15)
)
mainly dull with minor bright bands.	0.22	1063.63	0.19)
)
dull and bright.	0.47	1064.10	0.41)
)
bright.	0.11	1064.21	0.10)
)
mainly dull with minor bright bands.	0.36	1064.57	0.32)
)
dull, no obvious cleat.	0.33	1064.90	0.29)
)
dull and bright.	0.50	1065.40	0.44)
)
dull.	0.33	1065.73	0.29)
)
coal powdered. Some fragments with listric surfaces.)
Bright chips numerous - coal possibly dull and)
bright over much of length, sheared, core may be)
frost wedged after being cored.	2.43	1068.16	2.12)
)
mainly dull with minor bright bands.	0.20	1068.36	0.18)

CHAMBERLAIN SEAM

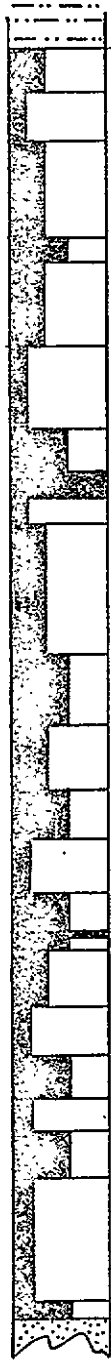
SUKUNKA D.D.H. C-19

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, medium grained, quartz-lithic, irregular coaly masses in top 1.2'.	6.09	1074.45	5.99	
SANDSTONE, grey, fine grained, quartz-lithic, some silty interbeds and current bedding. Bedding angle 83° to core axis.	19.27	1093.72	18.95	
SANDSTONE, as above, bedding angle 86° to core axis.	19.08	1112.80	18.76	
Core not logged in detail below 1112.80', refer to Stratigraphic Log for particulars.				<u>Base of Hole</u>

CHAMBERLAIN SEAM

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
860.49				6.4	
12.98	-	6.4	5½		
873.47					



Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS

for

DDH C-20

COALITION MINING LIMITED

DRAWN BY pm

DATE Jan '72

SCALE: 1"to 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

CO. (A/SIA.) PTY. LTD.

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NO. 140
CORE NO. C20
CHAMBERLAIN SEAM

REPORT NO: K 71-1785

RECEIVED: 8.11.71

REPORTED: 26.11.71



This Laboratory is Registered by the
National Association of Testing Authorities
Australia. The tests reported herein have
been performed in accordance with the
terms of registration.

J. Bradley
Chief Chemist.

A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. W. Campbell

INTRODUCTION:

One (1) coal sample designated Core C20 Chamberlain Seam was received on 8.11.71 from Mc Elroy and Associates.

METHODS:

The coal sample No. 140 was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample No. 140 and the analysis are given in this report.

NOTE:

The sample weight has not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1: gives the graphic log of the core

TABLE 1: gives the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ " top size.

SHEET THREE ATTACHED

K71-1785

COALITION MINING

SUKUNKA C20 -

CHAROGBAIN SEAM

	SPL	THICK ⁵	ASH%	CMP
12				
10				
8				
6	140	12 98	6 4	5/2
4				
2				
0				

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 140 (after hand crushing $\frac{5}{4}$ "

FRACTION	INDIVIDUAL				CUMULATIVE		
	WEIGHT	WT.%	ASH%	C.S.NO.	WT. %	ASH%	C.S.NO.
Fl.30 SG	1896	30.4	2.1	9	30.4	2.1	9
Sl.30 - Fl.35 SG	2752	44.1	4.4	5	74.5	3.5	6 $\frac{1}{2}$
Sl.35 - Fl.40 SG	742	11.9	9.8	2	86.4	4.3	6
Sl.40 - Fl.45 SG	386	6.2	14.5	1 $\frac{1}{2}$	92.6	5.0	6
Sl.45 - Fl.50 SG	260	4.2	19.9	1	96.8	5.7	5 $\frac{1}{2}$
Sl.50 - Fl.55 SG	92	1.5	20.9	1	98.3	5.9	5 $\frac{1}{2}$
Sl.55 - Fl.60 SG	35	0.6	25.0	1	98.9	6.0	5 $\frac{1}{2}$
Sl.60 - S.G.	75	1.1	40.3	0	100.0	6.4	5 $\frac{1}{2}$
-30 Mesh	498	7.4	3.0	8 $\frac{1}{2}$			

Total Weight of Sample = 6736 gms.

True Specific Gravity = 1.324

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 140

Yield %	98.9
Air Dried Moisture %	0.5
Ash %	6.2
Volatile Matter %	20.8
Fixed Carbon %	72.5
Total Sulphur %	0.32
Crucible Swelling Number	7
Calorific Value	14,370 BTU/LB

SYDNEY

26th November, 1971

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-20

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
Fault, possible	SILTSTONE AND MUDSTONE INTERBEDDED, sandy phases, worm casts, collared in Sukunka.	SUKUNKA MB.	
	OPENHOLE TO TOP OF BIRD SEAM.		
	MUDSTONE, ash beds at base (minor) brecciated and slickensided 600'-675'.	MOOSEBAR FM.	703.0
	SANDSTONE, glauconitic.	GETHING FM.	704.0
	<u>COAL.</u>	BIRD SEAM	706.2
	MUDSTONE.		709.0
	SANDSTONE, coarser at top, fine towards base, (mottled) worm casts 713'; worm casts 727-740, mudstone band 724'.		774.0
	SILTSTONE AND MUDSTONE INTERBEDDED. granules at base.		776.0
	SANDSTONE.		785.0
	MUDSTONE, silty interbeds.		790.0
SANDSTONE, coaly wisps.		800.0	
SANDSTONE, carbonaceous and claystone phases and interbeds, mudstone phase at top, shelly fossils at base.		804.7	

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	MUDSTONE, carbonaceous claystone phases, coaly bands.		820.0
	SILTSTONE, sandy phases.		826.0
	SANDSTONE, silty phases.		846.0
	MUDSTONE, silty interbeds.		857.0
	MUDSTONE.		860.5
	<u>COAL</u> ,	CHAMB. SM.	873.2
	SANDSTONE, worm casts at 888'.		899.3
			<u>BASE OF HOLE</u>

SUKUNKA D.D.H. C-20

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		766.74		
SANDSTONE, grey, fine grained, quartz-lithic.	6.37	773.11	6.34	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded, some sandy interbeds, worm casts. Sandy phase (0.43') 0.13' from base.	3.00	766.11	2.98	
SANDSTONE, grey, medium grained becoming fine grained, towards base, quartz-lithic. Top 2.5' silty.	9.08	785.19	9.04	
SANDSTONE, as above, oblique calcite vein.	0.38	785.57	0.38	
CLAYSTONE, dark grey, numerous fine sandy interbeds. Bedding angle 85-90° to core axis.	5.08	790.65	5.06	
CLAYSTONE, black, carbonaceous.	0.42	791.07	0.42	
SANDSTONE, grey, fine to very fine grained, quartz-lithic, silty interbeds and phases, fine brown claystone interbeds.	3.51	794.58	3.49	
SANDSTONE, grey, fine to medium grained, quartz-lithic, coaly wisps, worm casts in zone (1.3') 0.9' from top.	5.05	799.63	5.03	

SUKUNKA D.D.H. C-20

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, grey, fine to very fine grained, quartz-lithic, numerous silty interbeds and phases, numerous silty interbeds and phases, numerous brown claystone interbeds and phases (0.9') 0.65' from top and (0.85') 3.65' from top.	4.75	804.38	4.73	
SANDSTONE, as above, with top 0.15' containing shell fossils.	0.89	805.27	0.89	
CLAYSTONE, dark grey, tending carbonaceous and with carbonaceous phases, some silty interbeds, irregular sandy masses and sandy interbeds in zone (1.45') 6' from top. Some fine calcite veins at 60° to core axis in 1' zone 4' from top.	13.38	818.65	13.31	
SILTSTONE, black, carbonaceous.	0.97	819.62	0.97	
SANDSTONE, grey, fine grained, quartz-lithic.	1.01	820.63	1.01	
SILTSTONE, grey, numerous sandy interbeds. A few worm casts.	2.82	823.45	2.81	
SILTSTONE, grey, numerous sandy interbeds, becoming muddy towards base.	1.25	824.70	1.24	

SUKUNKA DDH C-20

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey.	0.62	825.32	0.62	
SANDSTONE, grey, fine grained, silty interbeds, some current bedding, mud blebs in zone (0.75') 9.8' from top. Bedding angle 85-90° to core axis.	17.20	842.52	17.11	
SANDSTONE, grey, fine grained, quartz-lithic, numerous silty interbeds. A slump structure in top 0.5'. Bedding angle 80° to core axis.	7.88	850.40	7.84	
SILTSTONE, grey, mudstone interbeds, some disturbed bedding (sedimentary) 1' from top.	4.14	854.54	4.12	
LAMINITE, siltstone grey and mudstone dark grey interbedded. Bedding angle 80° to core axis. Minor calcite veins.	2.46	857.00	2.45	
MUDSTONE, dark grey, bedding angle 90° to core axis. Carbonaceous from 0.35' to 0.8' from base.	3.49	860.49	3.47	
<u>COAL</u> , mainly dull with minor bright bands.	0.06	860.55	0.06)
core broken, probably dull with bright bands.	0.43	860.98	0.41	) CHAMBERLAIN SEAM

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , dull, planes of fracture 60° to core axis 0.13' from top and 75° to core axis 0.40' from top.	0.49	861.47	0.47)
core broken into numerous fragments at 90° to core axis. Mainly dull to dull with bright bands.)
No vertical cleats. Fracture plane at 80° to core axis near base.	0.98	862.45	0.94)
dull and bright, fracture at 70° to core axis.	0.23	862.68	0.22)
mainly dull with minor bright bands, fracture plane 80° to core axis at 0.25' from top.	0.85	863.53	0.82	) CHAMBERLAIN SEAM
dull, fractures at 90° to core axis, some very friable. No vertical cleat.	0.89	864.42	0.85)
dull and bright.	0.44	864.86	0.42)
bright.	0.25	865.11	0.24)
dull.	0.25	865.36	0.24)
mainly dull with minor bright bands, fracture planes at 65° to core axis in lower 0.76'.	1.32	866.68	1.27)

SUKUNKA D.D.H. C-20

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, dull and bright, a fracture plane at 15° to core axis.	0.73	867.41	0.70)
mainly dull with minor bright bands.	0.67	868.08	0.64)
dull and bright.	0.50	868.58	0.48)
dull, fracture plane near top at 50° to core axis.	0.56	869.14	0.54)
bright and dull.	0.34	869.48	0.33	) CHAMBERLAIN SEAM
bright.	0.08	869.56	0.08)
dull and bright.	0.13	869.69	0.12)
mainly dull with minor bright bands, core breaks into numerous small pieces at 90° to core axis.	0.59	870.28	0.57)
No vertical cleat.)
dull.	0.47	870.75	0.45)
dull and bright, fracture plane 63° to core axis.	0.45	871.20	0.43)

SUKUNKA D.D.H. C-20

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, dull, fracture plane at 65° to core axis at top.	0.29	871.49	0.28)
)
dull and bright.	0.52	872.01	0.50)
)
dull, fracture planes at 45° to core axis 0.55' from top, at 1.05' from top evidence of shearing at about 5° to core axis. At 0.2' and 0.85' from top small zones (0.1') where core breaks into small pieces at 90° to core axis with no vertical cleat.	1.26	873.27	1.21)
)
dull and bright.	0.13	873.40	0.12)
)
mainly bright with minor dull bands.	0.07	873.47	0.07)
)
SANDSTONE, grey, medium grained becoming finer at base, quartz-lithic, some coaly wisps near top.	6.48	879.95	6.46)
)
SANDSTONE, grey, fine grained, quartz-lithic, a few fine silty and carbonaceous claystone pennybands. Bedding angle 82° to core axis.	19.09	899.04	19.03)
)
SANDSTONE, grey, fine grained, quartz-lithic, bedding angle 83° to core axis. Some current bedding.	20.99	920.03	20.92)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-20

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark brown interbedded. Some sandy interbeds.	0.80	920.83	0.80	
SANDSTONE, grey, fine grained, quartz-lithic.	0.28	921.11	0.28	
MUDSTONE, brown, sandy interbeds.	0.15	921.26	0.15	
SANDSTONE, grey, fine grained, quartz-lithic, mudstone interbed (0.05') 1.56' from top.	2.48	923.74	2.47	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded.	1.26	925.00	1.26	<u>Base of Hole</u>

BORE NUMBER C-20

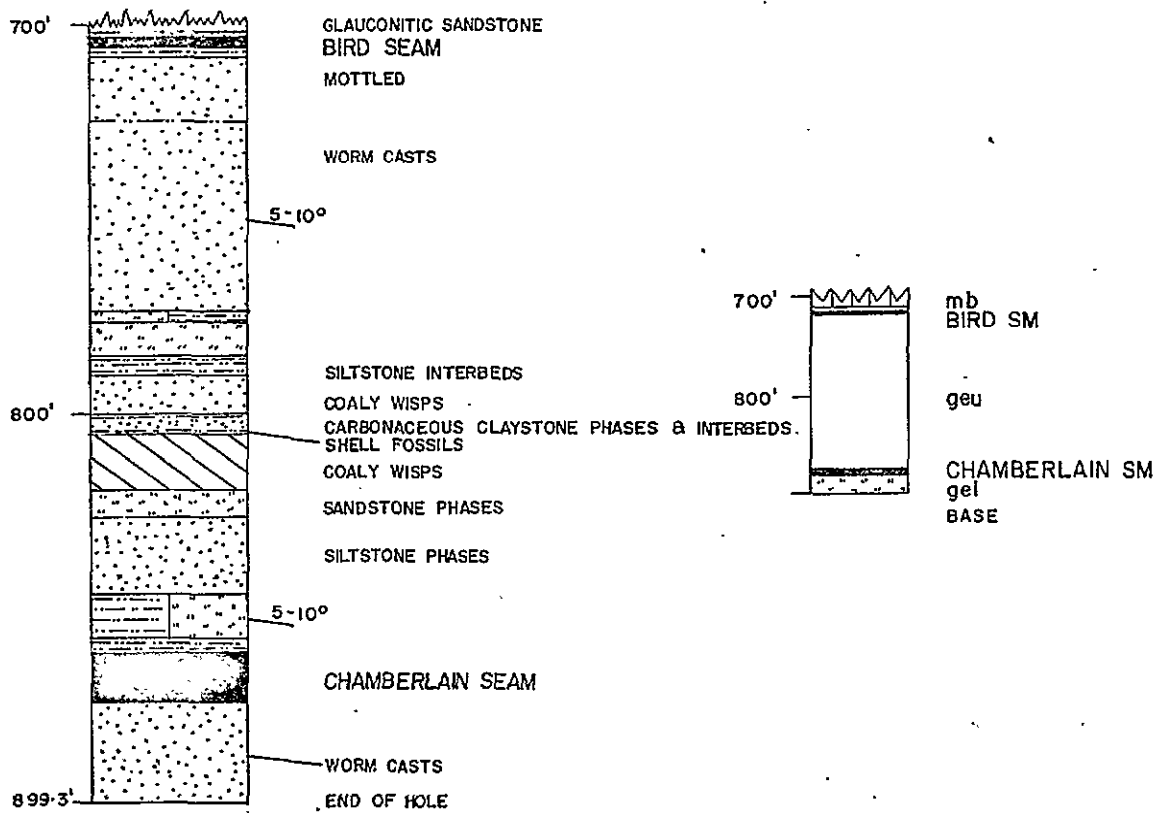
Grid Reference 40600.9N 95207.1E
Exploration Grid Reference I/6

Date Commenced 13th Sept, 1971 Completed 17th Sept, 1971

Collar R.L. 5099.7 ft Standard Datum
Total Depth 899.3 ft Electrically Logged Yes/~~No~~
Drilled by Canadian Longyear Ltd
For Coalition Mining Limited
Logged by F. H. S. Tebbutt and G. R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain	4226.2	12.98	81%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-20

BORE NUMBER C-21

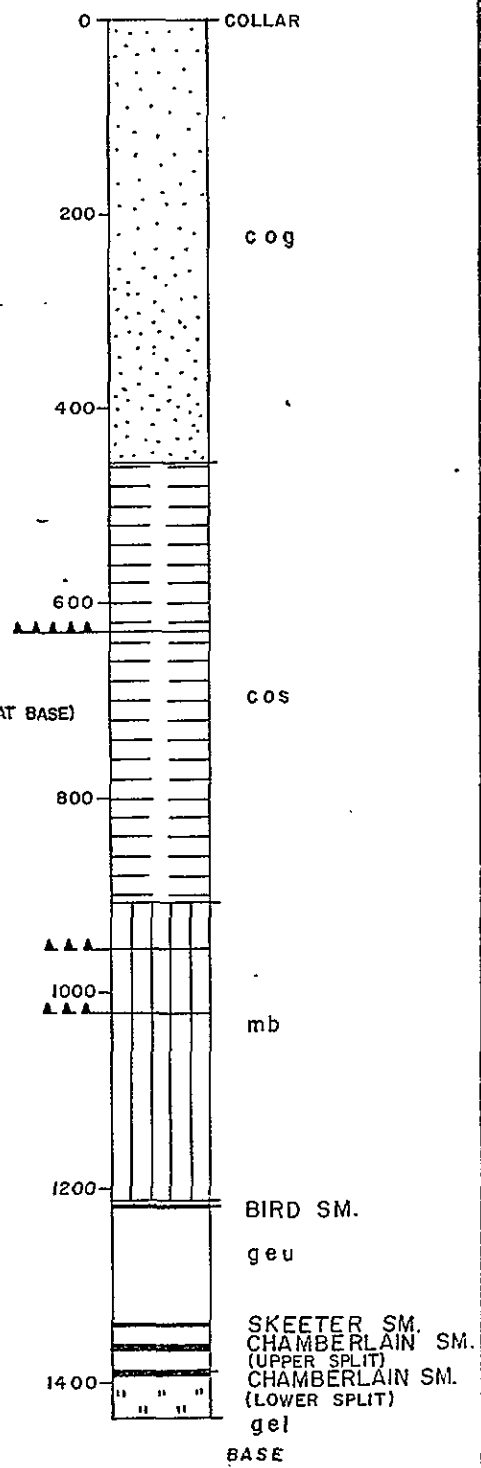
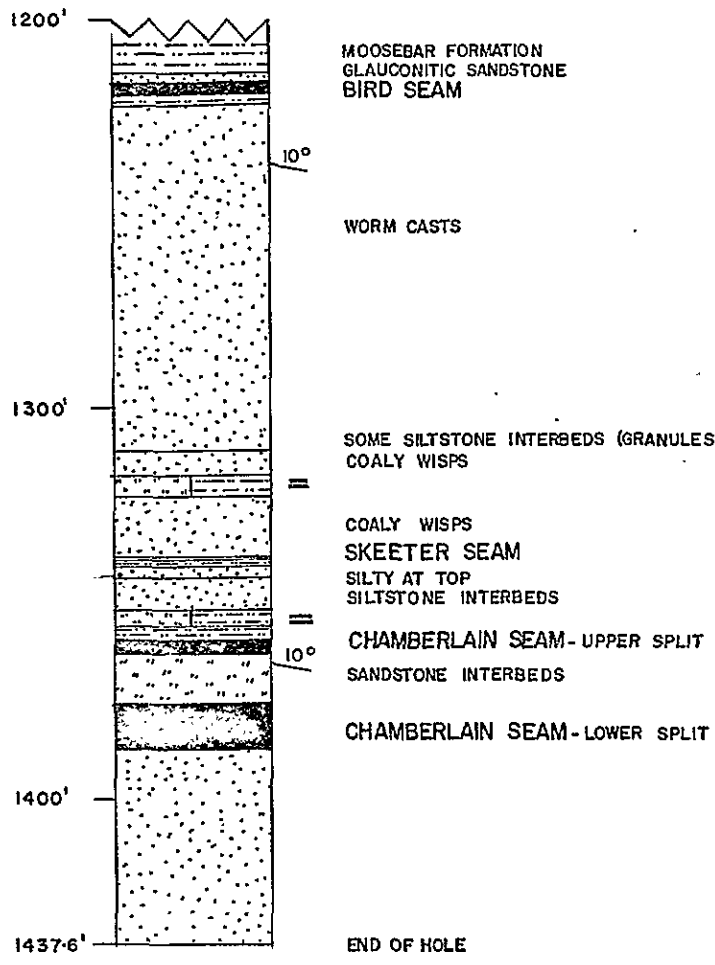
Grid Reference 37866.2N 92869.2E
Exploration Grid Reference J+1000'N/4+1000'E

Date Commenced 25th Sept, 1971 Completed 11th Oct, 1971

Collar R.L. 5301.5 ft Standard Datum
Total Depth 1437.6 ft Electrically Logged Yes/~~No~~
Drilled by Connors Drilling Ltd
For Coalition Mining Limited
Logged by F. H. S. Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain upper split	3937.8	3.79	33%	
Chamberlain lower split	3914.2	10.47	62%	



DETAIL OF GETHING FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-21

CHAMBERLAIN SEAM
UPPER SPLIT

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1359.95				20.4	
1363.74	3.79	20.4	4½		



Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-21

SCALE: 1" to 2'

PAGE 1 of 1

CHAMBERLAIN SEAM
LOWER SPLIT

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH %	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1376.86					13.2	
		10.47	13.2	6		
1387.33						

Prepared by:
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for
COALITION MINING LIMITED
DRAWN BY pm DATE Jan '72

SEAM SECTIONS
DDH C-21

SCALE: 1' to 2'

Telegrams and Cables:
"Visor", Sydney

Telephone: 241-1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NO. 165
CORE NO. C21
~~SKETTER SEAM~~ CHAMBERLAIN SEAM (UPPER SPLIT)

REPORT NO: K 71-1786

RECEIVED: 8.11.71

REPORTED: 26.11.71



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been performed in accordance with the
terms of registration.

A. Bradley
Chief Chemist.
A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

[Signature]

INTRODUCTION:

One (1) coal sample designated Core C21 -Skeeter Seam- was received on 8.11.71 from Clifford Mc Elroy and Associates.

METHOD:

The coal sample No. 165 was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity in 0.05 steps.

The float and sink fractions and raw -30 mesh coal fraction were weighed, prepared and analysed for Ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample No. 165 and the analysis are given in this report.

NOTE:

The sample weight has not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1: gives the graphic log of the core.

TABLE 1: gives the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ " top size.

SHEET THREE ATTACHED

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 165 (after hand crushing $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
Fl.30 SG	319	36.6	2.2	8 $\frac{1}{2}$	36.6	2.2	8 $\frac{1}{2}$
Sl.30- Fl.35 SG	139	16.0	5.8	6	52.6	3.3	7 $\frac{1}{2}$
Sl.35- Fl.40 SG	53	6.1	12.7	2 $\frac{1}{2}$	58.7	4.3	7
Sl.40- Fl.45 SG	34	3.9	14.4	1 $\frac{1}{2}$	62.6	4.9	7
Sl.45- Fl.50 SG	28	3.2	18.8	1	65.8	5.6	6 $\frac{1}{2}$
Sl.50- Fl.55 SG	49	5.6	27.7	1	71.4	7.3	6
Sl.55- Fl.60 SG	21	2.4	31.4	1	73.8	8.1	6
Sl.60 SG	228	26.2	55.0	0	100.0	20.4	4 $\frac{1}{2}$
-30 Mesh	46	5.0 5	3.2	8			

Total Weight of Sample = 917 gms.
 True Specific Gravity = 1.501

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 165

Yield %	73.8
Air Dried Moisture %	0.5
Ash %	8.1
Volatile Matter %	18.8
Fixed Carbon %	72.6
Total Sulphur %	0.37
Crucible Swelling Number	6
Calorific Value	14,080 BTU/LB

SYDNEY
 26th November, 1971

K71-1786

COALITION MINING

SUKUNKA G21-

~~SKEETER SEAM~~

CHAMBERLAIN SEAM (UPPER SPLIT)

SP#	THICK ²	ASH%	DSH ²
165	37'	20 #	4 1/2

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT:

COALITION MINING

SUBJECT:

SUKUNKA SAMPLES NO. 166
CORE NO. C21
CHAMBERLAIN SEAM (LOWER SPLIT)

REPORT NO:

K 71-1787

RECEIVED:

8.11.71

REPORTED:

26th.11.71.



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been performed in accordance with the
terms of registration.

M. Bradley
Chief Chemist.

A.R.A.C.I.

For

CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

R. H. Davenport

INTRODUCTION:

One (1) coal sample designated Core C21 Chamberlain Seam was received on 8.11.71 from Clifford Mc Elroy and Associates.

METHODS:

The coal sample No. 166 was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 1.30 - 1.60 specific gravity 0.05 steps.

The float and sink fractions and raw -30 mesh BSS coal fraction were weighed, prepared and analysed for Ash and crucible swelling number and the composite raw coal sample reconstituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample No. 166 and the analysis are given in this report.

NOTE:

The sample weight has not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 : gives the graphic log of the core

TABLE 1 : gives the sizing, washability and analytical data for each coal sample after hand crushing to $\frac{3}{4}$ " top size.

SHEET THREE ATTACHED

TABLE 1: WASHABILITY DATA FOR SAMPLE NO. 166 (after hand crushing $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT.%</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
Fl.30 SG	1907	47.7	2.2	8 $\frac{1}{2}$	47.7	2.2	8 $\frac{1}{2}$
Sl.30- Fl.35 SG	805	20.1	6.2	7	67.8	3.4	8
Sl.35- Fl.40 SG	471	11.8	10.7	4	79.6	4.5	7 $\frac{1}{2}$
Sl.40- Fl.45 SG	261	6.5	15.9	1 $\frac{1}{2}$	86.1	5.3	7
Sl.45- Fl.50 SG	96	2.4	18.7	1	88.5	5.7	7
Sl.50- Fl.55 SG	58	1.4	19.9	1	89.9	5.9	7
Sl.55- Fl.60 SG	23	0.6	23.8	1	90.5	6.0	7
Sl.60 SG	381	9.5	81.5	0	100.0	13.2	6
-30 Mesh	504	11.2	4.6	9			

Total Weight of Sample = 4506 gms.

True Specific Gravity = 1.418

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF SAMPLE NO.166

Yield %	90.5
Air Dried Moisture %	0.5
Ash %	6.2
Volatile Matter %	20.3
Fixed Carbon %	73.0
Total Sulphur %	0.31
Crucible Swelling Number	8
Calorific Value	14,370 BTU/LB

SYDNEY

29th November, 1971

K71-1787

COALITION MINING

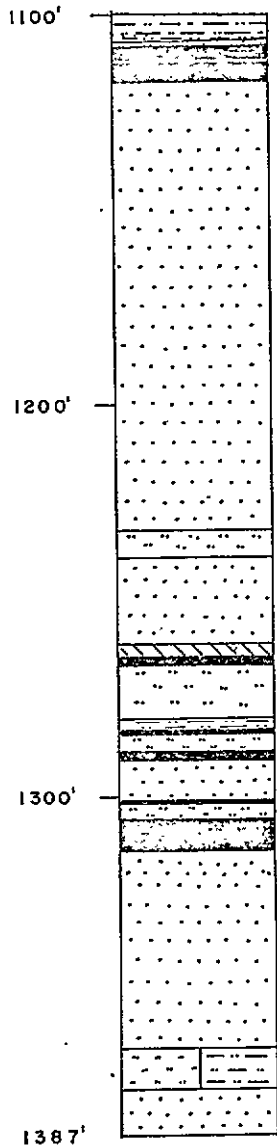
SUKUNKA C21-

CHAMBERLAIN SEAM

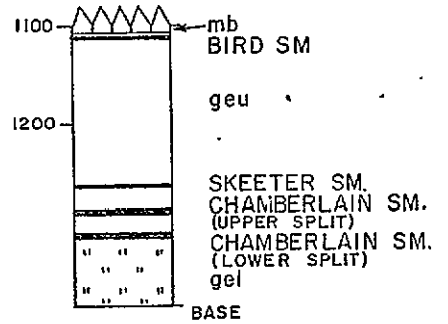
	SPL	THICK	ASH%	CGIP
10				
8				
6	166	10 47	13.2	6
4				
2				
0				

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-21

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
Dips 0-5° throughout	No core to 40.0 ft.	GATES MB.	
	SANDSTONE, grey, fine, some silty interbeds.		51.5
	SILTSTONE, sandy interbeds, mud blebs and worm casts.		59.0
	SANDSTONE, silty interbeds and blebs.		72.0
	CONGLOMERATE, pebble, mudstone at base.		75.0
	SANDSTONE, grey, fine grained, mudstone at base.		77.0
	<u>COAL.</u>		81.0
	SILTSTONE, grey.		84.0
	<u>COAL.</u>		86.0
	SILTSTONE AND MUDSTONE, coaly bands, core broken at 94'.		105.0
	SANDSTONE, silty interbeds.		133.0
	MUDSTONE, dark grey, silty interbeds and phases, broken and oblique surfaces, some mud filled.		158.0
SILTSTONE, grey, some mudstone interbeds.		178.0	



MOOSEBAR FORMATION
GLAUCONITIC SANDSTONE
BIRD SEAM



SILTSTONE PHASES
CARBONACEOUS CLAYSTONE INTERBEDS
COALY & SILTSTONE WISPS
SANDSTONE INTERBEDS, SHELL FOSSILS?
SKEETER SEAM
SANDSTONE INTERBEDS

CHAMBERLAIN SEAM - UPPER SPLIT
SILTSTONE INTERBEDS

CHAMBERLAIN SEAM - LOWER SPLIT

WORM CASTS

END OF HOLE

DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-24

DRAWN BY S.A.

DATE: January '72

PAGE 1 of 1

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	MUDSTONE, dark grey, core broken at 922' (no slickensides). Core with broken and slickensided phases from 950-963' with an 0.5' crush zone at 953' and 961.5'. Broken phases with slickensides from 991-995', and from 1018-1035' with crush zone (1.5') at 2024'. Also from 1147-1151' with crush zone at base. White siltstone band at 1163', clay bands at 1177', 1213' and at base.	MOOSEBAR FM.	1214.0
	SANDSTONE, dark grey, glauconitic.	GETHING FM.	1216.5
	<u>COAL</u> .	BIRD SEAM	1219.5
	MUDSTONE, dark grey.		1223.0
	<u>COAL</u> .		1223.5
	SANDSTONE, grey, medium grained becoming finer, quartz lithic, worm casts 1247'-1261', a few below. A few silty interbeds at 1311' with granules at base.		1312.0
	SANDSTONE, coaly wisps.		1318.0
	LAMINITE, siltstone and mudstone.		1323.0
	SANDSTONE, coaly wisps, carbonaceous mudstone at top, at 1334' and at base.		1339.0
	<u>COAL</u> , mudstone at base.	SKEETER SM.	1340.0

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
	SANDSTONE, silty at top.		1344.0
	SANDSTONE, silty interbeds.		1352.0
	LAMINITE, siltstone and mudstone.		1357.0
	MUDSTONE, dark grey.		1360.0
	<u>COAL.</u>	CHAMB. SM. upper split	1363.5
	SILTSTONE, sandy at top and with sandstone interbeds. Mudstone interbeds towards base.		1376.8
	<u>COAL.</u>	CHAMB. SM. lower split	1387.5
	SANDSTONE, grey, medium grained, becoming fine grained, quartz lithic.		1437.6
			<u>BASE OF HOLE</u>

SUKUNKA D.D.H. C-21

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1279.74		
SANDSTONE, grey, fine grained, quartz-lithic, worm casts 4.1' from top and a silty phase (0.8') 12.5' from top. Bedding angle 85° to core axis.	19.21	1298.95	19.08	
SANDSTONE, as above, no worm casts or silty phases.	11.42	1310.37	11.28	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded. Sandy phase at base.	0.60	1310.97	0.59	
CLAYSTONE, black, carbonaceous.	0.29	1311.26	0.29	
SILTSTONE AND MUDSTONE INTERBEDDED, siltstone grey and mudstone dark grey interbedded. Sandy interbeds. Two coaly lenses in top 0.06'.	0.38	1311.64	0.38	
SANDSTONE, grey, medium grained, quartz-lithic, bedding angle 65-70° to core axis.	0.23	1311.87	0.23	

SUKUNKA D.D.H. C-21

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, grey, numerous sandy interbeds. Sandy phases towards base. In silty section some pyritic worm casts.	7.30	1319.17	7.22	
LAMINITE, siltstone grey and mudstone dark grey interbedded, bedding angle 90° to core axis.	4.12	1323.29	4.07	
SANDSTONE, grey, fine grained, quartz-lithic, coaly and silty wisps and thin carbonaceous phases. Carbonaceous claystone phases concentrated particularly between 1.35' and 2.6' from base. Sandy blebs (worm casts?) 1.4' to 1.7' from top.	13.14	1336.43	12.98	
SANDSTONE, grey, fine grained, quartz-lithic, coaly wisps, interbeds of carbonaceous claystone becoming concentrated in bottom 1.7'. Some worm casts and a few calcitic replacements of small sedimentary features.	2.77	1339.20	2.74	
<u>COAL</u> , dull and bright.	0.18	1339.38	0.10	
stonny with minor bright bands.	0.63	1340.01	0.34	
CLAYSTONE, carbonaceous.	0.15	1340.16	0.15	

SUKUNKA D.D.H. C-21

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
COAL, stony with minor bright bands. Breaks into flakes with listric surfaces at 90° to core axis. No vertical cleat.	0.57	1340.73	0.31	
MUDSTONE, dark grey, tending carbonaceous at top with a few fine coaly bands.	1.82	1342.55	1.82	
SANDSTONE, grey, fine grained quartz-lithic.	2.16	1344.71	2.16	
SANDSTONE, grey, fine grained, quartz-lithic, numerous silty interbeds and phases. Some worm casts and coaly wisps.	5.85	1350.56	5.87	
SILTSTONE, grey, sandy and muddy interbeds. Becoming more muddy towards base.	1.87	1352.43	1.88	
LAMINITE, siltstone grey and mudstone dark grey interbedded. Bedding angle 87° to core axis.	3.23	1355.66	3.24	
LAMINITE, as above, but mudstone predominating.	1.64	1357.30	1.65	
CLAYSTONE, black, carbonaceous.	0.68	1357.98	0.68	

SUKUNKA D.D.H. C-21

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
LAMINITE, carbonaceous claystone and siltstone. carbonaceous interbedded.	1.05	1359.03	1.06	
CLAYSTONE, black, carbonaceous.	0.92	1359.95	0.93	
<u>COAL</u> , mainly dull with minor bright bands, cleat at 10° to core axis in top 0.31'.	2.27	1362.22	1.01)
dull and bright. joint planes at 10° and 62° to core axis.	0.40	1362.62	0.18)
mainly dull with minor bright bands. Joints at 62° to core axis.	1.12	1363.74	0.50	) CHAMBERLAIN SEAM upper split
SANDSTONE, grey, fine grained, quartz-lithic, numerous silty interbeds and phases.	3.66	1367.40	3.66	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded. Some sandy interbeds, becoming more muddy towards the base. Bedding angle 90° to core axis.	8.52	1375.92	8.52	

SUKUNKA D.D.H. C-21

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
MUDSTONE, dark grey.	0.94	1376.86	0.94	
<u>COAL</u> , mainly dull with minor bright bands.	0.10	1376.96	0.10)
dull.	0.31	1377.27	0.31)
mainly dull with minor bright bands, core broken in parts and difficult to identify. Joint planes at)
0.23' from top at 77° to core axis. at)
0.55' " " " 80° " " " , at)
0.80' " " " 73° " " "	0.99	1378.26	0.98)
dull and bright, joint planes at both 50° and 73° to core axis.	0.61	1378.87	0.60	) lower spli
core lost.	2.44	1381.31	0.00)
mainly dull with minor bright bands, joint angle)
50° to core axis at .05' from top, core fragmented)
from 0.65' to 0.75' from top.	0.93	1382.24	0.92)

CHAMBERLAIN SEAM

SUKUNKA D.D.H. C-21

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<p><u>COAL</u> , mainly dull with minor bright bands, core splits along joints at 65° to core axis, no vertical cleat, at 1.25' from top a joint plane dips at 85° to core axis in a direction at approx 90° to other joint planes dipping at 70° to core axis. From 1.25' from top to base core very friable.</p>	0.51	1382.75	0.50)
dull and bright, cleat poorly developed.	0.21	1382.96	0.21)
dull.	0.43	1383.39	0.43)
mainly dull with minor bright bands, joint angle 68° to core axis.	0.46	1383.85	0.45	) CHAMBERLAIN SEAM
dull and bright, joint angle at 35° to core axis.	0.33	1384.18	0.33	) lower split
mainly dull with minor bright bands.	0.29	1384.47	0.29)
dull.	0.27	1384.74	0.27)
dull and bright, 1.5' from top, joint plane at 70° to core axis.	0.43	1385.17	0.43)

SUKUNKA D.D.H. C-21

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<p>COAL, mainly dull with minor bright bands; core rather broken along joint planes at 70° to core axis in top 1.15'. Cleat not well developed. Shearing at 90° to core axis from 0.35'-0.42' from base.</p> <p>bright and dull, bedding angle at .09' from base 77° to core axis.</p>	1.86	1387.03	1.83	) ) ) ) CHAMBERLAIN SEAM) lower split)
<p>SANDSTONE, grey, medium grained, quartz-lithic, coaly wisps in top 2.06'.</p>	10.47	1397.80	10.34	
<p>SANDSTONE, as above, one silty interbed (0.06') 1.7' from top. Bedding angle 76° to core axis.</p>	19.23	1417.03	18.99	
<p>SANDSTONE, grey, fine grained, quartz-lithic, a zone of silty interbeds (0.44') 2.02' from base. Bedding angle 87° to core axis.</p>	19.02	1436.05	18.79	
<p>SANDSTONE, as above, some current bedding, bottom 0.31' with silty interbeds with large pyrite nodule at top.</p>	1.55	1437.60	1.53	
				<u>Base of Hole</u>

BORE NUMBER C-22

Grid Reference 37378.4N 90157.0E

Exploration Grid Reference I/3

Date Commenced 10th Sept, 1971 Completed 18th Sept, 1971

Collar R.L. 4751.8 ft Standard Datum

Total Depth 1175.0 ft Electrically Logged Yes/No

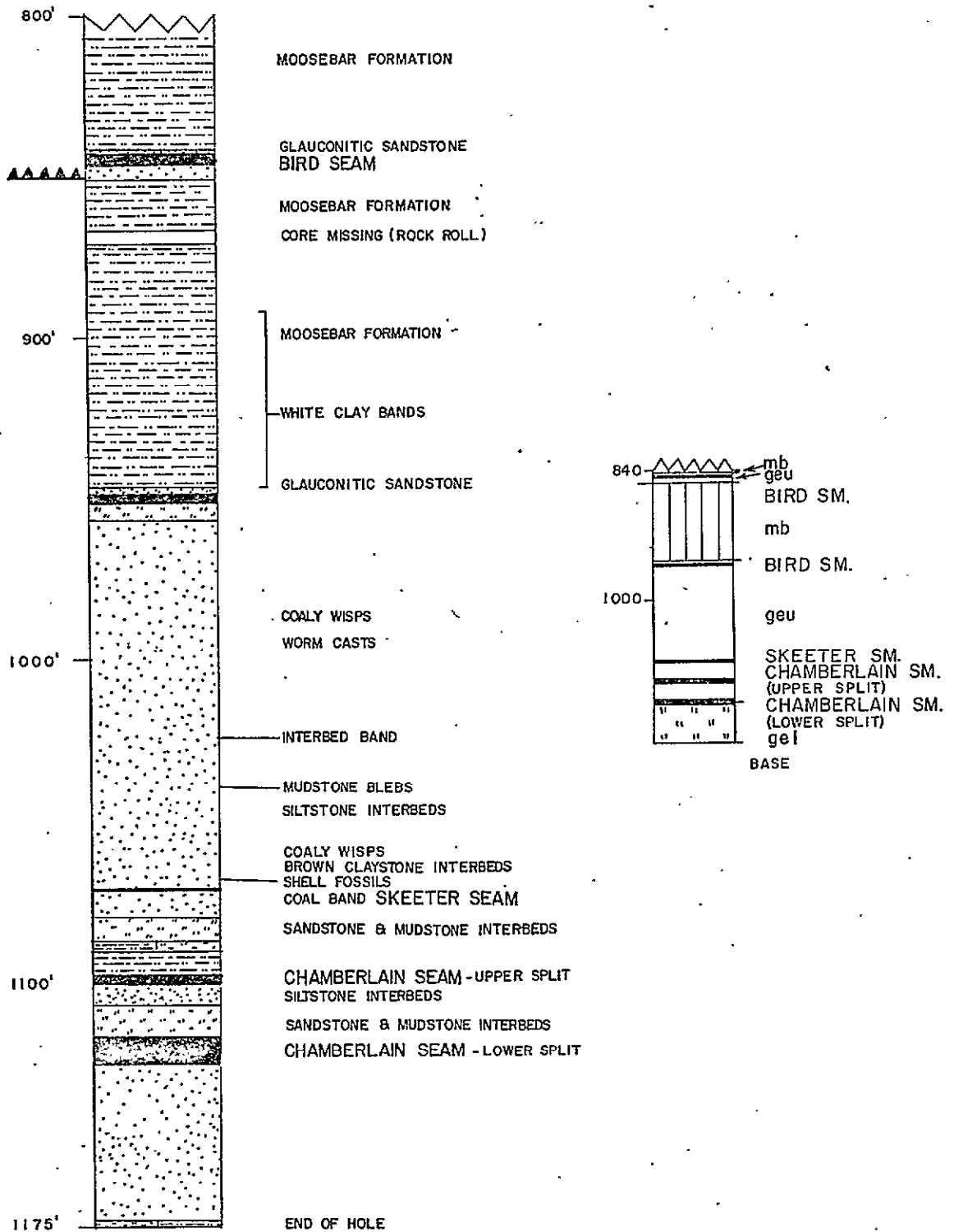
Drilled by Canadian Longyear Ltd

For Coalition Mining Limited

Logged by F. H. S. Tebbutt

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft.)	Recovery	Comment
Chamberlain upper split	3651.7	1.38	100%	
Chamberlain lower split	3627.3	8.63	86%	



DETAIL OF GETHING
FORMATION
SCALE: 1" to 50'

SCALE: 1" to 200'

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH C-22

DRAWN BY S.A.

DATE: January '72

PAGE 1 of 1

CHAMBERLAIN SEAM
UPPER SPLIT

ASH %
CUMULATIVE
FROM FLOOR

		WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1098.73						
1100.11		1.38	NOT	ANALYSED		

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.

SEAM SECTIONS

for

DDH C-22

COALITION MINING LIMITED

DRAWN BY pm

DATE Jan '72

SCALE: 1' to 2'

PAGE 1 of 1

CHAMBERLAIN SEAM
LOWER SPLIT

ASH %
CUMULATIVE
FROM FLOOR

	WT%	ASH%	C. S. N ^o	INCL. BANDS	EXCL. BANDS
1115.83				8.2	
8.63	-	8.2	7		
1124.46					

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED
DRAWN BY pm

SEAM SECTIONS
DDH C-22

DATE Jan '72

SCALE: 1/10 2'

PAGE 1 of 1

Telegrams and Cables:
"Visor", Sydney

Telephone: 241 1105

CARGO SUPERINTENDENTS

CO. (A/SIA.) PTY. LTD.

Scottish House,
19 BRIDGE ST.,
SYDNEY, 2000

Certification

This is to Certify

APPLICANT: COALITION MINING

SUBJECT: SUKUNKA SAMPLES NO. 158
CORE NO. C22
CHAMBERLAIN SEAM (LOWER SPLIT)

REPORT NO: K 71-1788

RECEIVED: 8.11.71

REPORTED: 26.11.71



This Laboratory is Registered by the National Association of Testing Authorities Australia. The tests reported herein have been performed in accordance with the terms of registration.

M. Brantley
Chief Chemist.

A.R.A.C.I.

For
CARGO SUPERINTENDENTS CO. (A/SIA.) PTY. LTD.

L. W. Sample

INTRODUCTION:

One (1) coal sample designated Core C22 Chamberlain Seam were received on 8.11.71 from Clifford Mc Elroy and Associates.

METHODS:

The coal ply sample No. 158 was hand crushed to $\frac{3}{4}$ " , sized at 30 mesh BSS and the +30 mesh BSS fraction washed in organic liquids at 130 - 160 specific gravity in 0.05 steps.

The float and sink fractions raw -30 mesh coal fractions were weighed, prepared and analysed for the Ash and crucible swelling number and the composite raw coal sample re-constituted and the true S.G. of the sample determined.

A cumulative floats 1.60 S.G. fraction was prepared for sample No. 158 and the analysis are given in this report.

NOTE:

The sample weight has not been adjusted to compensate for core loss.

RESULTS:

FIGURE 1 :gives the graphic log of the core.

TABLE 1 :gives the sizing washability and analytical data for the sample after hand crushing to $\frac{3}{4}$ " top size.

SHEET THREE ATTACHED

TABLE 1: WASHABILITY DATA OF SAMPLE NO. 158 (after hand crushing $\frac{3}{4}$ ")

<u>FRACTION</u>	<u>INDIVIDUAL</u>				<u>CUMULATIVE</u>		
	<u>WEIGHT</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>	<u>WT. %</u>	<u>ASH%</u>	<u>C.S.NO.</u>
F1.30 SG	1985	45.7	2.2	9	45.7	2.2	9
S1.30- F1.35 SG	1552	35.8	4.6	7	81.5	3.3	8
S1.35- F1.40 SG	320	7.4	9.8	3	88.9	3.8	8
S1.40- F1.45 SG	114	2.6	16.2	2	91.5	4.2	7 $\frac{1}{2}$
S1.45- F1.50 SG	62	1.4	19.0	1 $\frac{1}{2}$	92.9	4.4	7 $\frac{1}{2}$
S1.50- F1.55 SG	39	0.9	21.8	1	93.8	4.5	7 $\frac{1}{2}$
S1.55- F1.60 SG	47	1.1	25.5	1	94.9	4.8	7 $\frac{1}{2}$
S1.60 SG	221	5.1	71.4	0	100.0	8.2	7
-30 Mesh	477	9.9	4.1	9			

Total Weight of Sample = 4817 gms.

True Specific Gravity = 1.339

ANALYSIS OF FLOATS 1.60 S.G. FRACTION OF SAMPLE NO. 158

Yield %	94.9
Air Dried Moisture %	0.5
Ash %	4.8
Volatile Matter %	21.8
Fixed Carbon %	72.9
Total Sulphur %	0.38
Crucible Swelling Number	8
Calorific Value	14,630 BTU/LB

SYDNEY
26th November, 1971

K71-1738

COALITION MINING

SUKUNKA C22-

CHAMBERLAIN SEAM

	SPL.	THICK ^S	ASH [%]	CSN [%]
8'				
6'				
4'	158	8.63	8.2	7
2'				
0				

STRATIGRAPHIC LOG
SUKUNKA D.D.H. C-22

<i>Structure</i>	<i>Description of Strata</i>	<i>Formation or Member</i>	<i>Depth to Base of Stratum (ft)</i>
Fault, established	No core to 840.0 ft.		
	MUDSTONE, dark grey, white clay bands at 840.5' and at base.	MOOSEBAR FM.	841.0
	SANDSTONE, glauconitic.	GETHING FM	843.0
	<u>COAL.</u>	BIRD SEAM	847.0
	SILTSTONE, grey, top broken and slickensided, core broken (1') at 851'.		851.0
	MUDSTONE, dark grey, triconed at 867' for 4', white clay bands at 894', 908', 946.5' and 947'.	MOOSEBAR FM.	947.0
	SANDSTONE, glauconitic.	GETHING FM	949.0
	<u>COAL.</u>	BIRD SEAM	951.5
	SILTSTONE, grey.		957.0
	SANDSTONE, coaly wisps centred around 976'. Worm casts from 977'-999'. 1' interbeds at 1025', mudstone blebs at 1040'.		1042.0
SANDSTONE, siltstone interbeds.		1052.0	
SANDSTONE, coaly wisps, brown claystone interbeds 1062' - 1069' with shell fossils at 1068' and a			

Structure	Description of Strata	Formation or Member	Depth to Base of Stratum (ft)
	coal band (.5') beneath.		1079.0
	SILTSTONE, sandstone interbeds in top half, mudstone interbeds in bottom half.		1087.0
	LAMINITE, siltstone and mudstone.		1090.0
	MUDSTONE, dark grey.		1098.0
	<u>COAL.</u>	CHAMB. SM. upper split	1100.0
	SANDSTONE, siltstone interbeds, siltstone at top.		1106.0
	SILTSTONE, mudstone and some thin sandstone interbeds.		1116.0
	<u>COAL.</u>	CHAMB. SM. lower split	1125.0
	SANDSTONE.		1174.0
	SILTSTONE AND MUDSTONE INTERBEDS.		1175.0
			<u>BASE OF HOLE</u>

SUKUNKA D.D.H. C-22

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
Core not logged in detail - refer to Stratigraphic Log for particulars.		1036.23		
SANDSTONE, grey, very fine grained to medium grained phases, quartz-lithic. Band (0.37') containing mudstone blebs and bands 3.3' from top.	4.62	1040.85	4.65	
CLAYSTONE, brown, tending carbonaceous, small irregular pyritic nodules.	0.36	1041.21	0.36	
SANDSTONE, brownish grey, fine grained, quartz-lithic, silty interbeds. Bedding angle 83° to core axis.	0.96	1042.17	0.97	
SILTSTONE, grey, sandy phases, coaly wisps.	5.23	1047.40	5.27	
SILTSTONE, grey, with dark grey mudstone and fine sandy interbeds.	3.24	1050.64	3.26	
MUDSTONE, dark grey, some silty interbeds.	1.18	1051.82	1.19	
SANDSTONE, brownish grey, fine grained, quartz-lithic, silty and coaly wisps.	3.45	1055.27	3.47	

SUKUNKA D.D.H. C-22

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SANDSTONE, as above. From 2' from top, fine bands of brown carbonaceous claystone commence becoming concentrated from 8.6' to 9.3' from top and from 10.8' to 11.6' from top, the latter zone bearing shell fossils. Bedding angle 83° to core axis.	12.63	1067.90	12.70	
<u>COAL</u> , dull and bright.	0.87	1068.77	0.31	
CLAYSTONE, carbonaceous.	0.12	1068.89	0.12	
<u>COAL</u> , dull.	0.14	1069.03	0.05	
SANDSTONE, brownish grey, fine to very fine grained with silty phases, interbeds and wisps, quartz-lithic, some coaly wisps.	5.57	1074.60	5.57	
SILTSTONE, brownish grey, interbeds of mudstone dark grey.	1.57	1076.17	1.50	
SANDSTONE, brownish grey, very fine to fine grained, quartz-lithic, silty phases, interbeds and wisps.	3.63	1079.80	3.47	
SILTSTONE, brownish grey, mudstone interbeds and phases. A few fine silty interbeds near top. Developing into a				

SUKUNKA D.D.H. C-22

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
laminite from 5' to 6.1' from top. Bedding angle 82° from core axis.	7.75	1087.55	7.41	
MUDSTONE, black, carbonaceous. A few brownish grey silty phases.	6.84	1094.39	6.54	
CLAYSTONE, carbonaceous, some carbonaceous siltstone phases. Coal stony bands in zone from 0.25' to 1.55' from top.	4.34	1098.73	4.15	
<u>COAL</u> , mainly dull with minor bright bands.	0.17	1098.90	0.17)
CLAYSTONE, carbonaceous, calcite veins.	0.06	1098.96	0.06)
<u>COAL</u> , mainly dull with minor bright bands. Core broken.	0.60	1099.56	0.60)
SANDSTONE, dark grey, fine to very fine grained, carbonaceous.	0.45	1100.01	0.45	) upper split
<u>COAL</u> , dull.	0.10	1100.11	0.10)
SANDSTONE, brownish grey, very fine to fine grained, quartz-lithic, silty phases and interbeds. Bedding angle 80° to core axis.	5.58	1105.69	5.58	

CHAMBERLAIN SEAM

upper split

SUKUNKA D.D.H. C-22

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
SILTSTONE, brownish grey.	1.00	1106.69	1.00	
SILTSTONE, brownish grey, with mudstone dark grey interbeds. Some fine sandy interbeds in upper section.	6.76	1113.45	6.76	
SILTSTONE, as above.	0.51	1113.96	0.51	
CLAYSTONE, black, carbonaceous becoming soft and muddy in bottom 0.35' with calcite veins at base.	0.57	1114.53	0.57	
<u>COAL</u> , substantial loss of core; driller requested to wedge off and redrill.	2.47	1117.00	0.64	) CHAMBERLAIN SEAM) lower split
Redrill after wedging off at 1106.00'.		1106.00		
SILTSTONE, brownish grey, interbeds of mudstone dark grey and some fine sandy interbeds.	1.57	1107.57	1.57	
MUDSTONE, dark grey, brownish grey silty interbeds, soft clay band in bottom 0.08'. Bedding angle 82° to core axis.	8.26	1115.83	8.26	

SUKUNKA D.D.H. C-22

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Footage Recovered (ft)	Remarks
<p><u>COAL</u>, core broken and mixed. Coal types include dull, and dull and bright. Some fragments have two joint planes apposing at 30° and 60° to core axis, others 50° to core axis.</p>	0.95	1116.78	0.89)
<p>mainly dull with minor bright bands 0.35' from top two opposing joint planes at 50° and 65° to core axis, the latter persisting strongly to base, vertical cleat not well developed.</p>	0.71	1117.49	0.66)
<p>dull and bright, joint planes 65° to core axis.</p>	0.39	1117.88	0.36	) CHAMBERLAIN SEAM
<p>mainly dull with minor bright bands.</p>	0.45	1118.33	0.42	) L.S.
<p>dull, joint plane at 40° to core axis and another showing evidence of shearing at 65° to core axis.</p>	0.57	1118.90	0.53)
<p>mainly dull with minor bright bands.</p>	0.19	1119.09	0.18)
<p>dull.</p>	0.51	1119.60	0.48)
<p>dull and bright, joints showing mild shearing in opposing directions at 60° each to core axis.</p>	0.44	1120.04	0.41)

SUKUNKA D.D.H. C-22

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor(ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
<u>COAL</u> , mainly dull with minor bright bands, at 0.35' from top a joint plane at 65° to core axis and near base two opposing joints at 60° and 70° to core axis.	0.88	1120.92	0.82)
dull and bright.	0.39	1121.31	0.36)
mainly dull with minor bright bands.	0.26	1121.57	0.24)
dull and bright, joint direction near top at 60° to core axis.	0.68	1122.25	0.64)
dull, sheared at 65° to core axis.	0.32	1122.57	0.30)
dull and bright, sheared in opposing directions at 65° and 70° to core axis.	0.30	1122.87	0.28	) CHAMBERLAIN SEAM
coal type difficult to determine. Coal sheared to fine laminae at approximately 65°. Vertical cleat absent. Coal probably dull with bright bands.	0.68	1123.55	0.64	) lower split
dull and bright, joint in upper section at 65° to core axis. In bottom 0.2' vertical cleat strongly developed.	0.55	1124.10	0.51)

SUKUNKA D.D.H. C-22

<i>Geological Description of Strata</i>	<i>Estimated Thickness (ft)</i>	<i>Estimated Depth to Stratum Floor (ft)</i>	<i>Footage Recovered (ft)</i>	<i>Remarks</i>
CLAYSTONE, carbonaceous.	0.10	1124.20	0.10	) CHAMBERLAIN SEAM
COAL, dull and bright, vertical cleat well developed.	0.26	1124.46	0.24	) lower split
SANDSTONE, grey, medium grained, quartz-lithic, carbonaceous.	0.27	1124.73	0.28	
SANDSTONE, grey, medium grained, becoming finer towards base, quartz-lithic, tending carbonaceous at top. A few silty interbeds and calcite veins parallel to bedding, and a few mud blebs. Bedding angle 85° to core axis.	18.95	1143.68	18.95	
SANDSTONE, grey, fine grained, quartz-lithic, bedding angle 85° to core axis.	19.18	1162.86	19.18	
SANDSTONE, as above, a dark very fine grained phase with mud blebs from 7.75' to 9.2' from top. Bedding angle 80° to core axis.	11.08	1173.94	11.08	
SILTSTONE AND MUDSTONE INTERBEDS, siltstone grey and mudstone dark grey interbedded. Some sandy interbeds, worm casts and mud blebs.	1.21	1175.15	1.21	<u>Base of Hole</u>