JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
DEPARTMENT OF MINERAL RESOURCES
MINISTRY OF INDUSTRY
THE KINGDOM OF THAILAND

THE STUDY ON COAL EXPLORATION AND ASSESSMENT IN THE KINGDOM OF THAILAND

FINAL REPORT
PLATES

MITSUBISHI MATERIALS CORPORATION
MITSUI MINING ENGINEERING CO., LTD.
JAPAN

DEPARTMENT OF MINERAL RESOURCES

COMPANY	EMR
WELL ID	PR 1/38
FIELD	PHRAS BASIN
COUNTRY	STATE THAILAND

LOCATION

N [illegible]
E [illegible]
TOTAL DEPTH: 422 m

OTHER SERVICES

CONTRACTOR:
EQUIPMENT TYPE:
MUD TYPE:
CASING TYPE:

DATE	
RUN NO.	
TYPE LOG	
LOG INTERVAL	
TYPE FLUID IN HOLE	
BHT	
TIME SINCE CIRC.	
TIME ON BOTTOM	
MAX. REC. TEMP.	
EQUIP. LOCATION	
RECORDED BY	
WITNESSED BY	

RUN NO.	BIT	FROM	TO	CASING	WGT.	FROM	TO

CORE EXPLORATION AND ASSESSMENT
OF
THAILAND
PHRAE BASIN

Drill Log well log (PR 1/38)
(Copy of the Original Well Log)
Plate 1

Code	From (m)	To (m)	Thickness (m)	Description
Pfg	[illegible]	[illegible]	[illegible]	brown pink
Pfg	[illegible]	[illegible]	[illegible]	brown pink
Pfg	[illegible]	[illegible]	[illegible]	brown pink
Pfm	[illegible]	[illegible]	[illegible]	
Pfm	[illegible]	[illegible]	[illegible]	light brown
Pfg	[illegible]	[illegible]	[illegible]	reddish brown
Pfm	[illegible]	[illegible]	[illegible]	greenish gray
Fm	[illegible]	[illegible]	[illegible]	homogeneous, greenish gray
Fm	[illegible]	[illegible]	[illegible]	carbonaceous, greenish gray
Fm	351.55	356.55	5.00	homogeneous
Fmp	356.45	361.55	5.10	[illegible]
Fmp	361.55	364.55	3.00	homogeneous
Fmg	[illegible]	[illegible]	[illegible]	
Fm	364.55	369.55	5.00	greenish gray
Fmg	369.55	372.55	3.00	lower part:granule gravel, greenish gray
Fmg	376.65	380.55	[illegible]	brown
Sf	380.55	385.55	5.00	fining upward, lower part:pebble gravel, light blue
Sf	385.55	387.55	2.00	[illegible], light blue
Fmg	387.55	392.55	5.00	calcareous nodule, lower part:[illegible], brown
Fsc	392.55	396.55	4.00	fining upward, lower part:gravel, reddish brown
Sf	396.55	398.55	2.00	calcareous concretion, light blue
Fmg	398.55	[illegible]	[illegible]	lower graded, lower part:gravel, calcareous concretion, reddish brown
Sf	402.55	405.55	3.00	light blue
Sf	407.55	413.55	6.00	mud clast, light blue
Smf	414.55	418.55	4.00	fining upward, mud clast, light blue
Smf	[illegible]	422.55	[illegible]	light blue
Smf	422.55	426.55	4.00	weathered angular pebbles, muddy, poorly sorted
N	426.55	432.55	6.00	
Smf	432.55	435.15	2.60	whitish brown
Smf	436.15	439.55	3.40	small bioturbation, clay clast, whitish brown
Sf	446.05	450.25	4.20	loose, porous, whitish
N	450.25	452.25	2.00	
Smf	452.25	455.55	3.30	clayey, reddish brown
Sf	455.55	458.55	3.00	fining upward, lower part:granule gravel, reddish brown
Cgp	458.55	461.55	3.00	mainly weathered bed rock, brown
[illegible]	461.55	463.55	2.00	fining upward, lower part:granule gravel, brown
Cgp	463.55	470.05	6.50	[illegible] bedding, weathered bed rock fragment, whitish brown
N	470.05	474.15	4.10	
Cgp	474.15	486.15	12.00	partly mud, weathered bed rock, whitish brown
Smf	486.55	489.25	2.70	whitish brown
Cgp	489.95	492.55	2.60	whitish brown
Cgp	492.55	495.95	3.40	weathered bed rock, whitish brown
N	[illegible]	[illegible]	[illegible]	
N	[illegible]	507.05	[illegible]	
Cgp	507.05	517.65	10.60	weathered bed rock, brown/white
Cgp	[illegible]	[illegible]	[illegible]	weathered bed rock, [illegible], brown/white
Fsc	[illegible]	[illegible]	[illegible]	lower part:[illegible] laminae of sandy matrix
Fm	[illegible]	[illegible]	[illegible]	[illegible], gray
Fm	[illegible]	[illegible]	[illegible]	fossil
Fm	[illegible]	[illegible]	4.00	irregular [illegible], gray
[illegible]	[illegible]	[illegible]	2.00	white gray
Fm	546.55	549.55	3.00	fining upward, lower part:lamination, gray
Cgp	549.55	554.55	5.00	weathered bed rock, blue gray
[illegible]	[illegible]	[illegible]	[illegible]	fining upward, lower part:pebble gravel, dark gray
Gm	[illegible]	[illegible]	[illegible]	lower part:pebble gravel, dark gray
Gm	558.55	561.25	[illegible]	lower part:pebble gravel, dark gray
Cgp	561.25	[illegible]	[illegible]	[illegible], weathered bed rock, brown/white
[illegible]	[illegible]	[illegible]	[illegible]	weathered bed rock, brown
Cgp	[illegible]	[illegible]	[illegible]	brown
N	[illegible]	[illegible]	[illegible]	
N	[illegible]	[illegible]	[illegible]	
Cgp	[illegible]	611.00	[illegible]	
Cgp	611.00	[illegible]	[illegible]	dark gray
Gm	[illegible]	[illegible]	[illegible]	pumice [illegible]
Cgm	[illegible]	[illegible]	[illegible]	[illegible]

DEPARTMENT OF MINERAL RESOURCES

COMPANY DMR
WELL ID PH 1/38 (GEOPHYSICAL LOGGING)
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

LOCATION

OTHER SERVICES

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM		ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM			G.L.

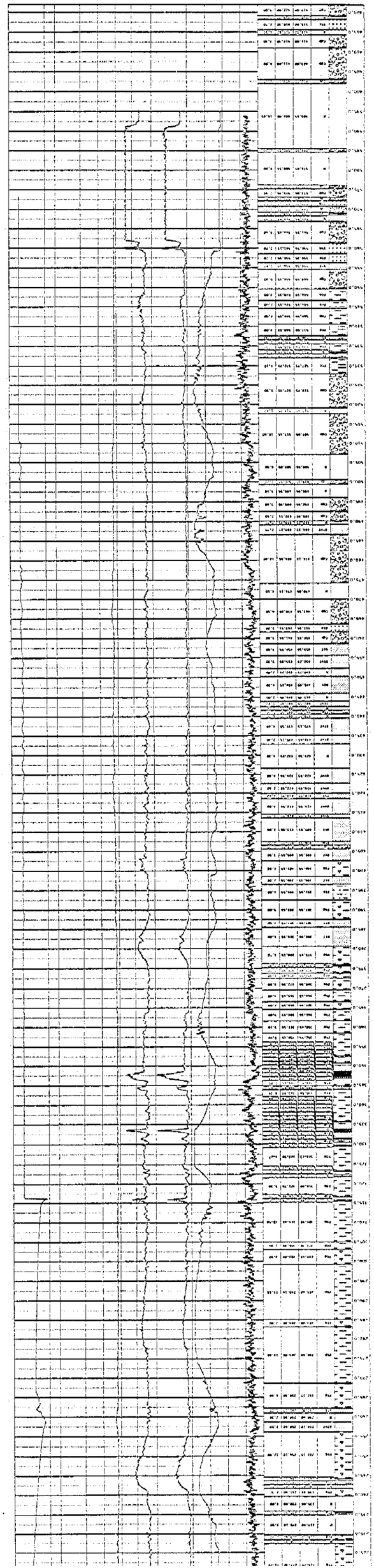
DATE		TYPE FLUID IN HOLE	
RUN NO.		SALINITY	
TYPE LOG		DENSITY	
DEPTH-DRILLER		LEVEL	
DEPTH-LOGGER		MAX. REC. TEMP.	
BTM. LOGGED INTERVAL			
TOP LOGGED INTERVAL			
CASING-DRILLER			
CASING-LOGGER			
RECORDED BY			
WITNESSED BY			

RUN NO.	BIT SIZE	FROM	TO

CASING RECORD			
SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT IN THAILAND PHRAE BASIN

Lithological Log and Geophysical Log (PH1/38) (Deposit of the Geological Data Bank)



DEPARTMENT OF MINERAL RESOURCES

COMPANY EMR
WELL ID PH 2/38
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

WELL DATA FILING NO.

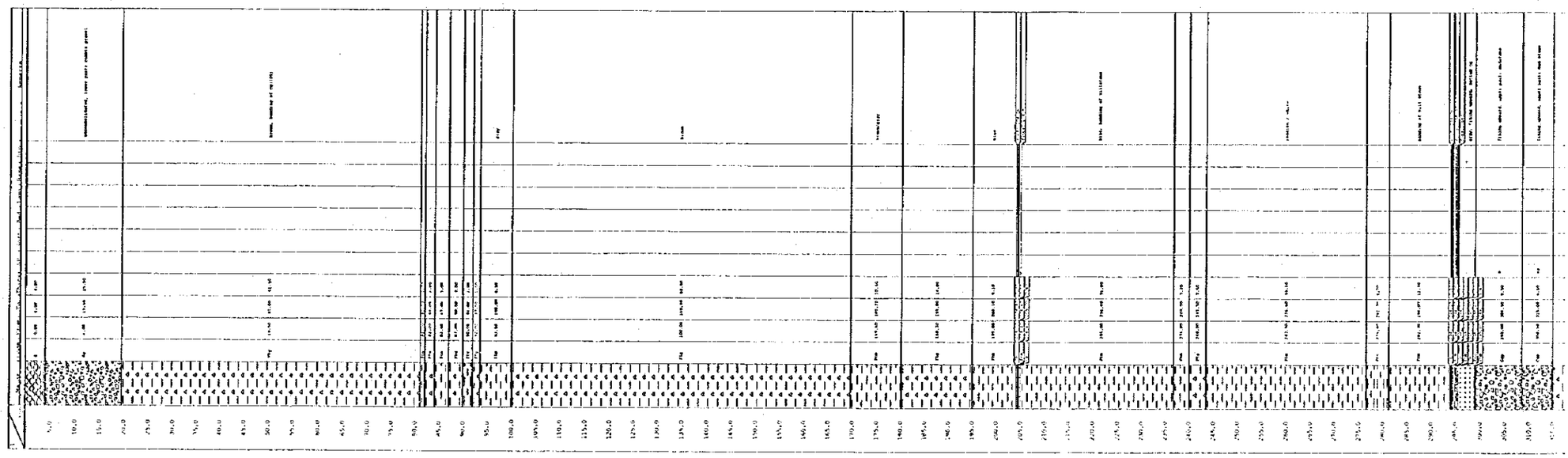
ELEVATION			
KB MEAS. FROM	ABOVE PERM. DATUM	G.L.	
ENGRG MEAS. FROM		D.F.	
DATE	19 JULY 95 - 20 JULY 96	TYPE FLUID IN HOLE	
BIT NO		DENSITY	
TYPE BIT		LEVEL	
DRILLED POWER		MAX. REC. TEMP.	
RUN CSG RD. INTERVAL			
CSG CEMENTED INTERVAL			
CASING WT. AND SIZE			
RECORDED BY			
WITNESSED BY			

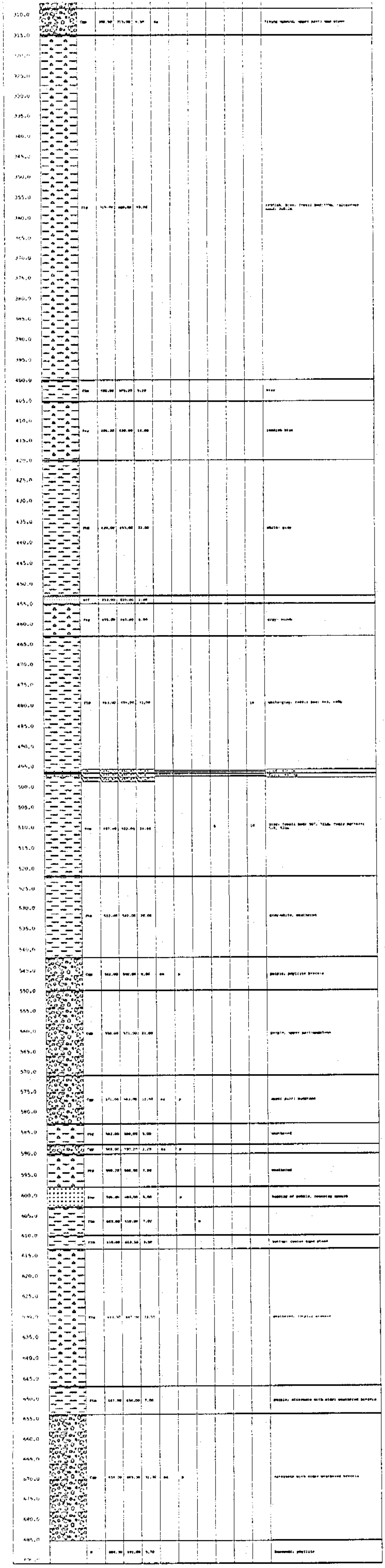
RUN NO.	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT
IN
THAILAND
PHRAE BASIN

Exhibit (graph) Fig PH2/38
(Record of the Geological Database)

Page 1





310.0
315.0
335.0
355.0
400.0
405.0
410.0
415.0
425.0
430.0
435.0
440.0
445.0
450.0
455.0
460.0
465.0
470.0
475.0
480.0
485.0
500.0
505.0
510.0
515.0
520.0
525.0
530.0
535.0
545.0
550.0
555.0
blue
gray-white, weathered
purple, phyllite breccia
weathered

DEPARTMENT OF MINERAL RESOURCES

COMPANY	DMR
WELL ID	PH 2/38 GEOPHYSICAL LOG
FIELD	PHRAE BASIN
COUNTRY	STATE THAILAND

LOCATION

OTHER SERVICES

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM		ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM			G.L.

DATE		TIME LOGGER ON BOTTOM	
RUN NO		RECORDED BY	
TYPE LOG		WITNESSED BY	
DEPTH-DRILLER			
DEPTH-LOGGER			
BTM LOGGED INTERVAL			
TOP LOGGED INTERVAL			
CASING REC TYPE			
BIT REC TYPE			

RUN NO.	BIT REC	BOREHOLE RECORD FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT IN THAILAND PHRAE BASIN

Drill Logs and Geophysical Log PH2/38 (Property of the Geological Survey)

Plate 4.4

DEPARTMENT OF MINERAL RESOURCES

COMPANY EMR
WELL ID PH 9/38
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

LOCATION

CONTRACTOR

CONTRACTOR'S DRILLING NO
CO WELL NO SEC TWP RGE

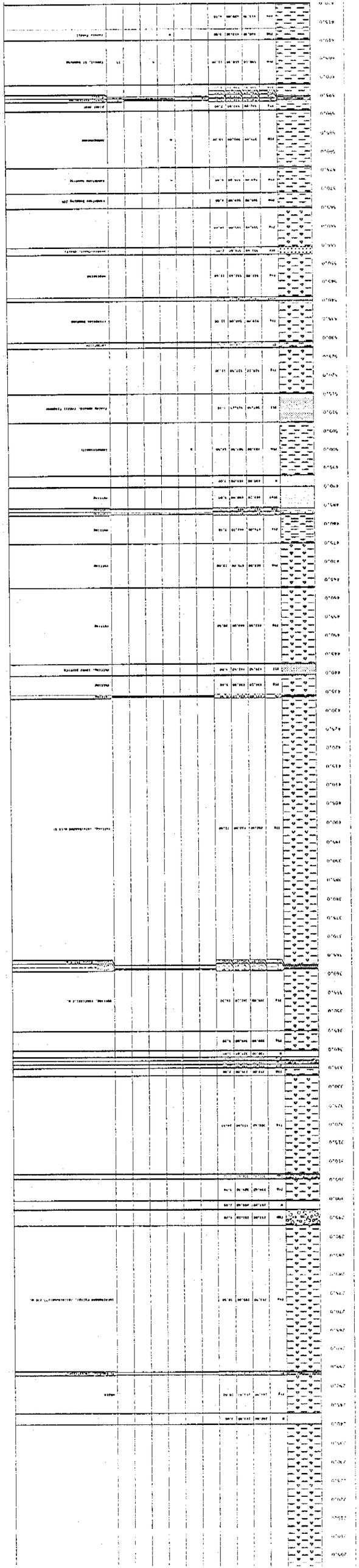
PERMANENT DATUM ELEVATION K.B.
LOG MEAS. FROM ABOVE PERM. DATUM D.F.
DRILLING MEAS. FROM G.L.

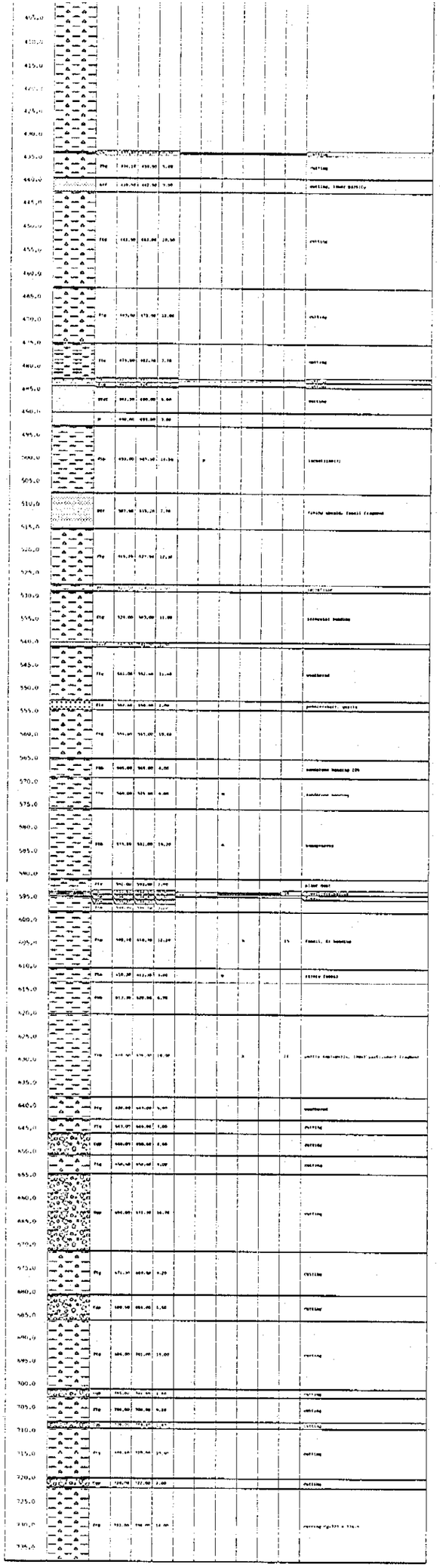
DATE	SECTION + RECORDED	TYPE FLUID IN HOLE
RUN NO		SALINITY
TIME LOG		DENSITY
DEPTH DRILLER		LEVEL
DEPTH LOGGER		MAX. REC. TEMP.
BTM LOGGED INTERVAL		
TOP LOGGED INTERVAL		
CASING-DRILLER		
CASING-LOGGER		
BIT SIZE		
TYPE FLUID		

RUN NO.	SCALE(S)			CASING REC'RD			
	DEPT	FROM	TO	SIZE	WGT	FROM	TO

CORE EXPLORATION AND ASSISTANCE
IN
GUARANTEE
PHRAE BASIN

Lab/Special Log (PHD 38)
(Record of the Geological Division)
Page 1/2





DEPARTMENT OF MINERAL RESOURCES

COMPANY DMR
WELL ID PH 3/38 GEOPHYSICAL LOG
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

LOCATION — OTHER SERVICES

SEC. TWP. RGE.

PERMANENT DATUM — ELEVATION — K.B.
LOG MEAS. FROM — ABOVE PERM. DATUM — D.F.
CASING MEAS. FROM — G.L.

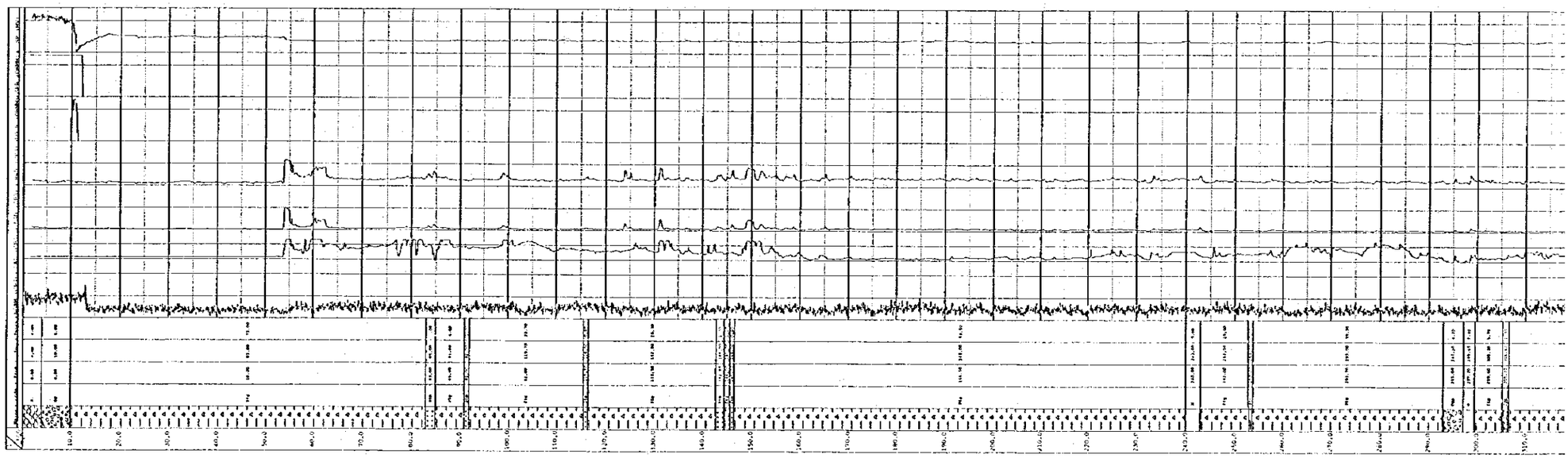
DATE		TYPE FLUID IN HOLE	
RUN NO.		SALINITY	
TYPE LOG		DENSITY	
DEPTH-DRILLER		LEVEL	
DEPTH-LOGGER		MAX. REC. TEMP.	
BOTTOM LOGGED INTERVAL			
TOP LOGGED INTERVAL			
OPERATING REC. TIME			
RECORDED BY			
WITNESSED BY			

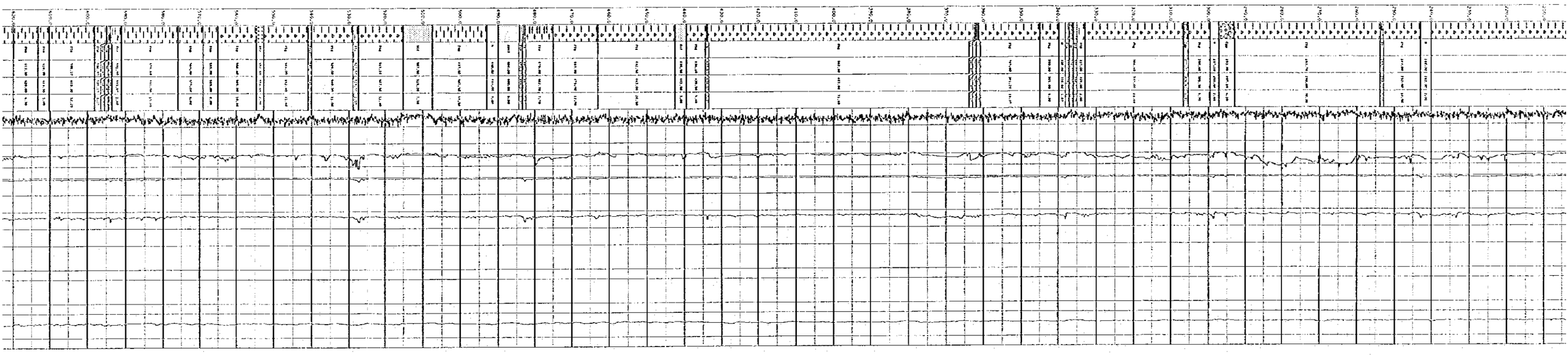
RUN NO.	BIT SCHEDULE AS RUN			CASING RECORD			
	BIT	FROM	TO	SIZE	WGT.	FROM	TO

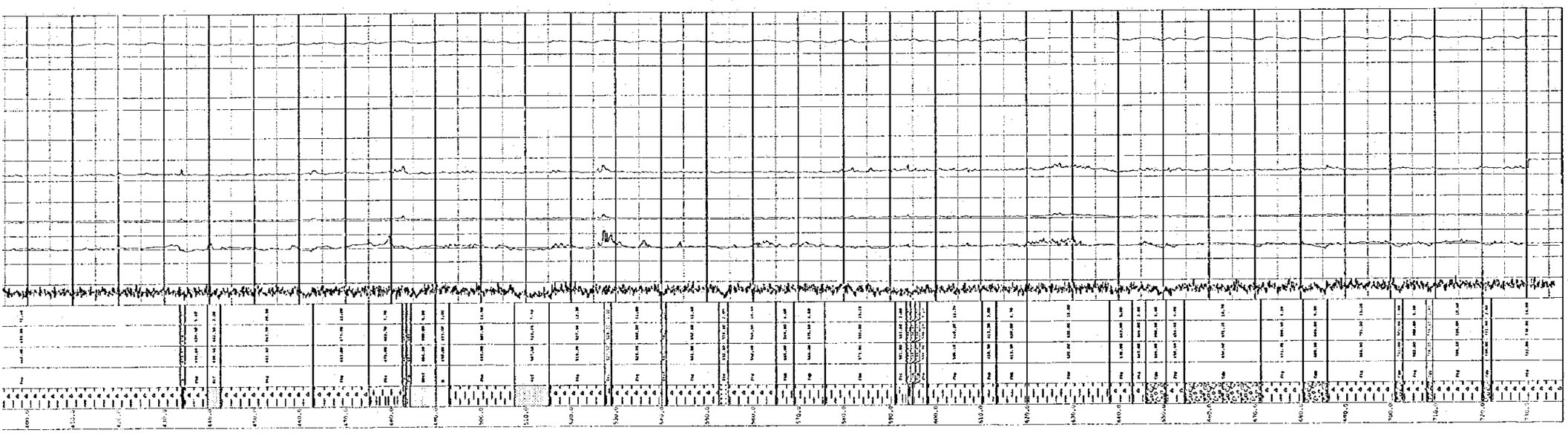
COAL EXPLORATION AND ASSESSMENT
IN
THAILAND
PHRAE BASIN

Detailed geological and Geophysical Logging (1983-86)
(Output of the Geological Data Project)

Plate 16







DEPARTMENT OF MINERAL RESOURCES

COMPANY DMR
WELL ID PK 6/38
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

LOCATION
X: 2,057,437.453
Y: 627,737.863
Z: 152.213
ZONE: 48 (84) KM.
CONVERGENCE: 0.20.0 (PLN) RATIO: 0.9 N
REF: THE: KBE

OTHER SERVICES
CASING(1): 9 5/8 @ 70.00 m
MEASURED ZONE
CAP.: 5.13 m

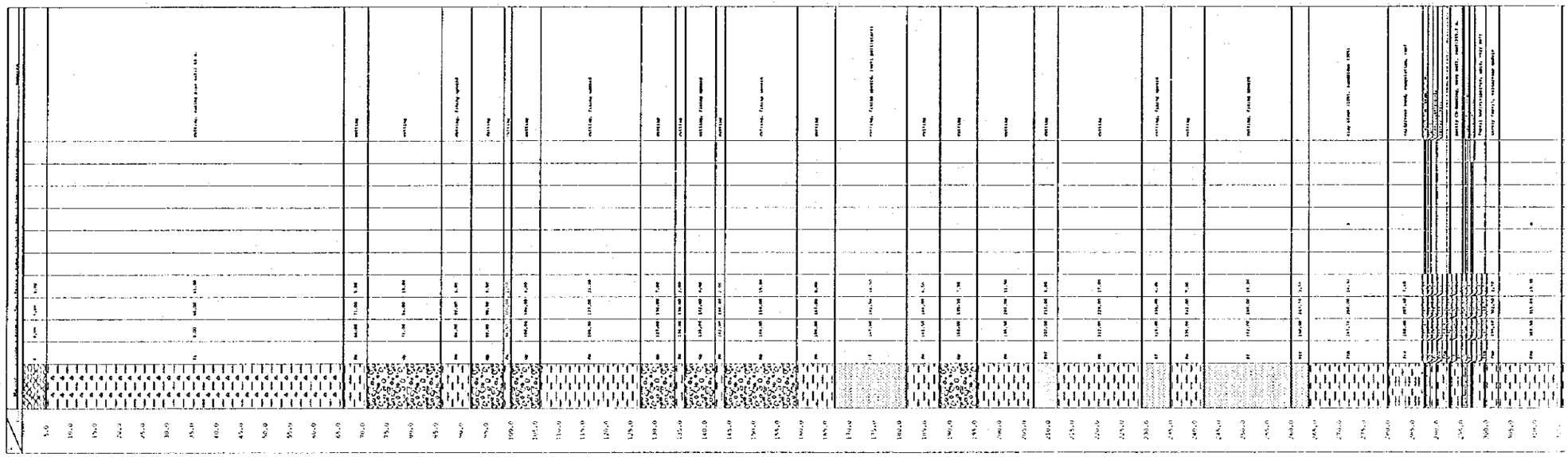
PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM		G.L.

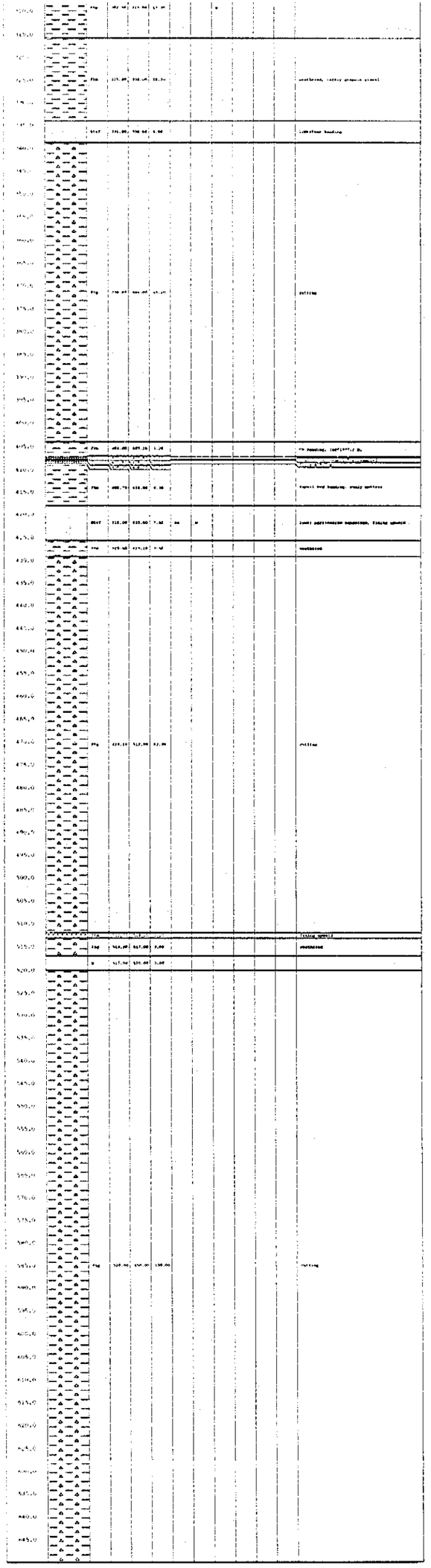
DATE	LOGGING OPERATION NO.	TIME STARTED IN HOLE
R.N. NO.		RECORDED
TYPE LOG		LOGGED
DEPTH-DRILLER		SCALES
DEPTH-LOGGER		MAX. REC. TEMP.
BOTTOM LOGGED INTERVAL		
TOP LOGGED INTERVAL		
CASING SIZE & TYPE		
RECORDED BY		
WITNESSED BY		

BIT NO.	BIT RECORD SIZE	FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO

COST INFORMATION AND GUARANTEE
TO
DMR
PHRAE BASIN

Data acquired by DMR
Processed by DMR Geological Database
Page 1





DEPARTMENT OF MINERAL RESOURCES

COMPANY IMR
WELL ID PR 4/38 GEOPHYSICAL LOG
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

LOCATION

3 WELL
FLD
SEC
RGE
FILING No

SEC TWP R.G.

PERMANENT DATUM ELEVATION K.B.
LOG MEAS. FROM ABOVE PERM. DATUM D.F.
DRILLING MEAS. FROM G.L.

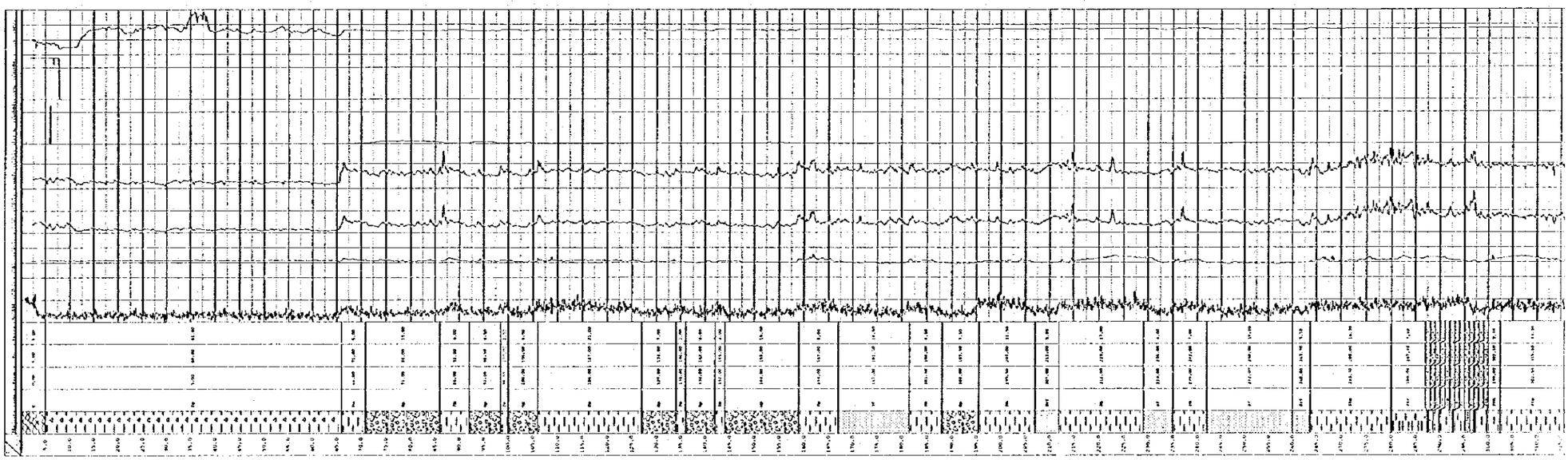
DATE		TYPE FLUID IN HOLE	
RUN NO.		DENSITY	
TYPE LOG		LEVEL	
DEPTH-DRILLER		MAX. REC. TEMP.	
DEPTH-LOGGER			
BTM. LOG INTERVAL			
TOP LOG INTERVAL			
OPEN HOLE REC. TIME			
WITNESSED BY			
RECORDED BY			

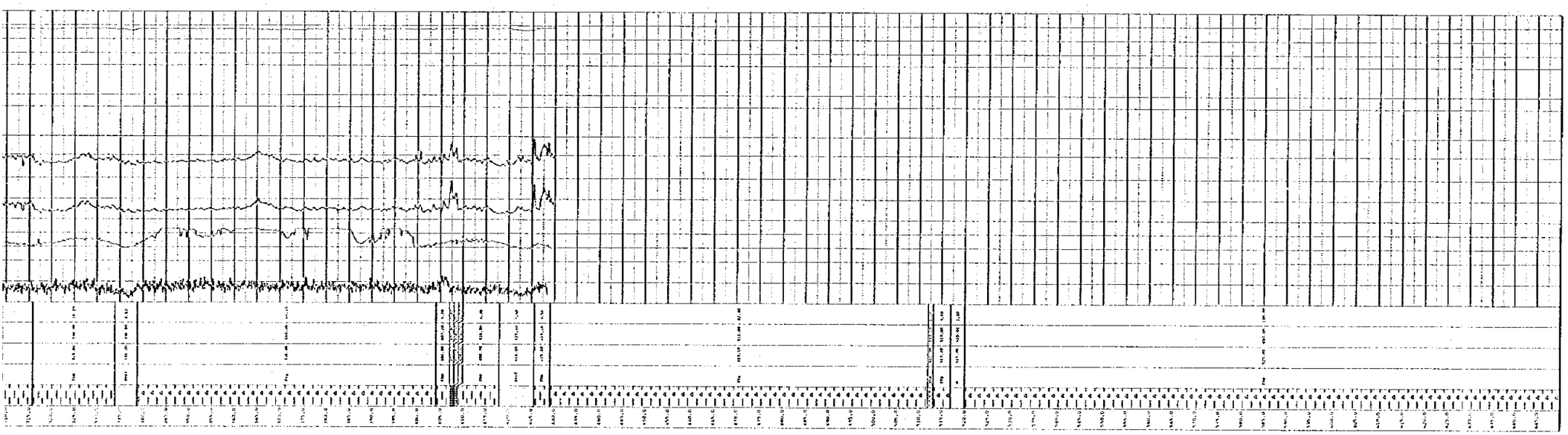
BIT No.	BORE HOLE RECORD			CASING RECORD			
SIZE	FROM	TO		SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT
IN
THAILAND
PHRAE BASIN

Fields quarried by underground methods (up to 1994 AD)
of Mae Mat, Mae Lin, Ngao and Wa Pha areas

Fig. 3.3





DEPARTMENT OF MINERAL RESOURCES

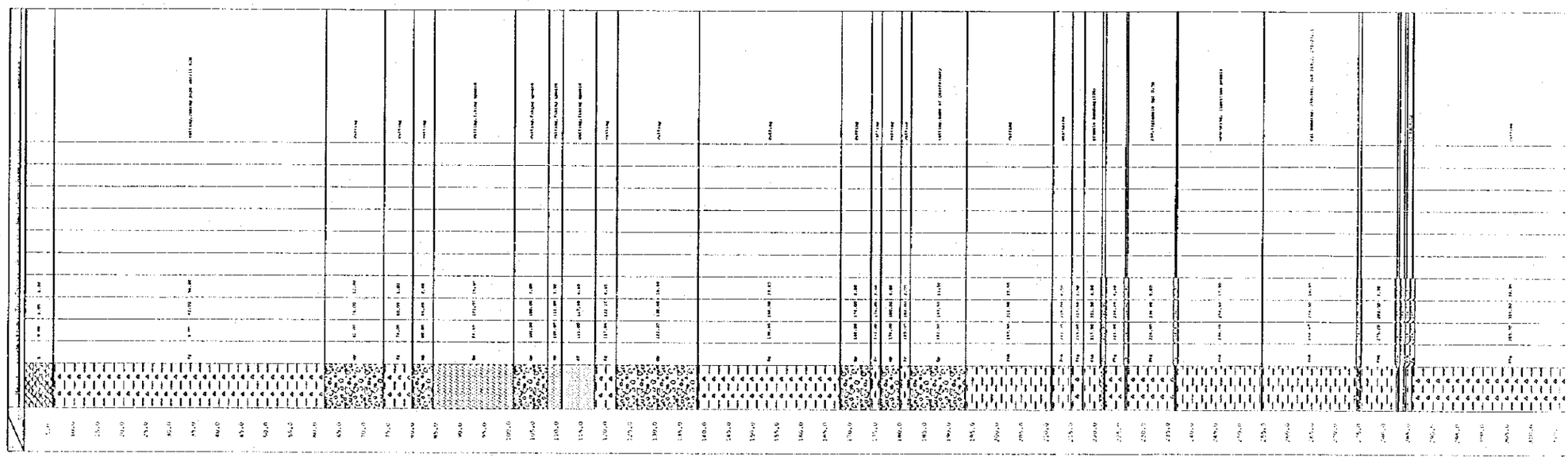
COMPANY ENR
WELL ID PH 5/38
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

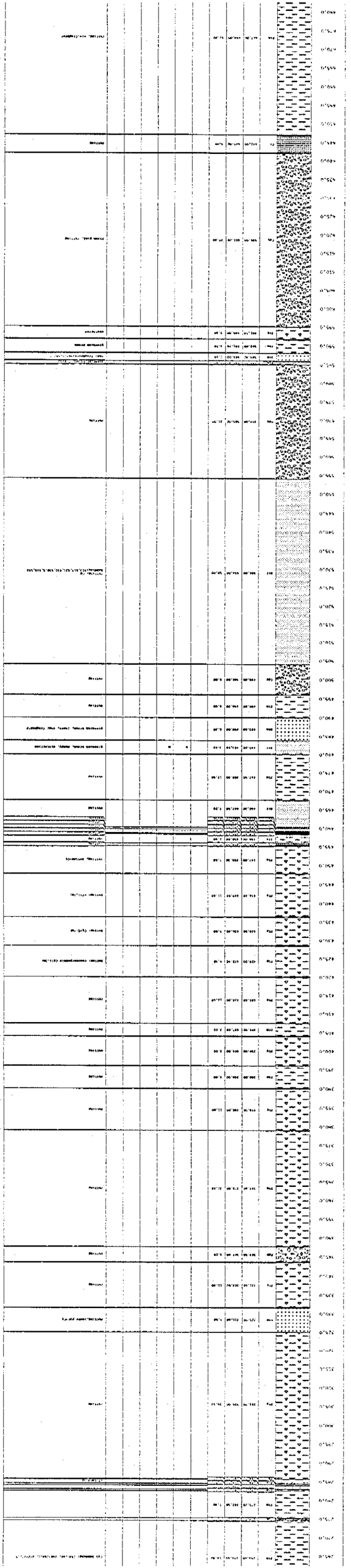
DATE	DRILLING CONTRACTOR	TIME RECORDED ON WELL
RUN NO.		ENGINEER
TYPE RUN		GEOLOGIST
DEPTH DRILLER		SPUDDED
DEPTH LOGGER		COMPLETED
BTM LOGGED INTERVAL		MAX. REC. TEMP.
TOP LOGGED INTERVAL		
DRILLING MEASURED FROM		
OPERATING RIG TIME		
RECORDED BY		
WITNESSED BY		

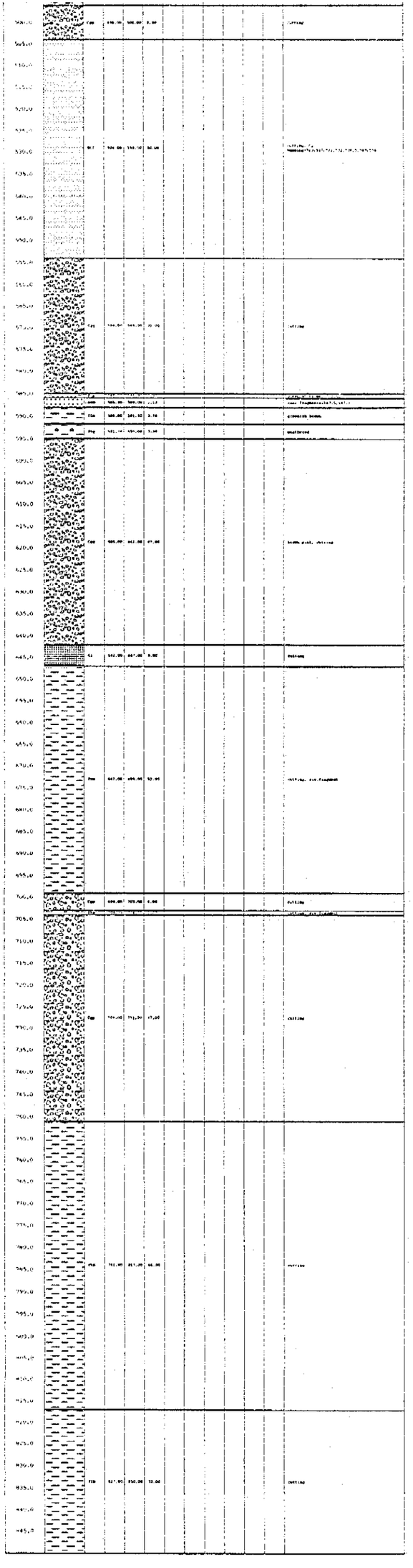
BORE RECORD				CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT IN
THAILAND
PHRAE BASIN

Data Acquired by DMR
(A Department of the Royal Thai Government)
Plate 4.8







DEPARTMENT OF MINERAL RESOURCES

COMPANY DMR
WELL ID PH 5/38 GEOPHYSICAL LOG
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

LOCATION

OTHER SERVICES

CO. WELL FLD CTY FILING No.

SEC. TWP. RGE.

ELEVATION

PERM. DATUM

K.B.

D.F.

G.L.

LOG MEAS. FROM

RUN NO.

DATE LOG.

DEPTH DRILLER

DEPTH LOGGER

BTM. LOGGED INTERVAL

TOP LOGGED INTERVAL

TYPE FLUID IN HOLE

DENSITY

LEVEL

MAX. REC. TEMP.

ESTIMATED BHT

SOURCE OF SAMPLE

RM @ MEAS. TEMP.

RMF @ MEAS. TEMP.

RMC @ MEAS. TEMP.

SOURCE OF RMF

SOURCE OF RMC

RM @ BHT

TIME SINCE CIRC.

TIME ON BOTTOM

MAX. REC. TEMP.

EQUIP. LOCATION

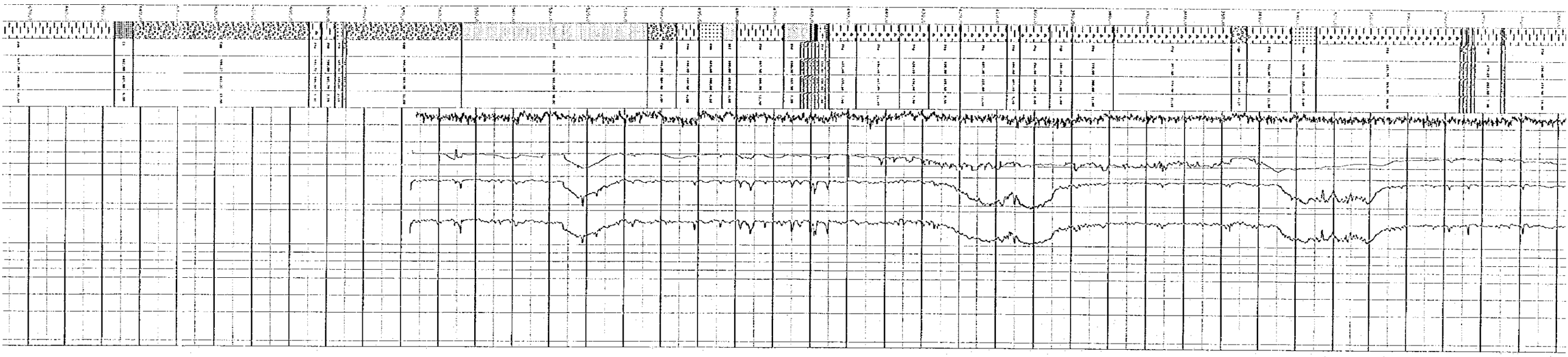
RECORDED BY

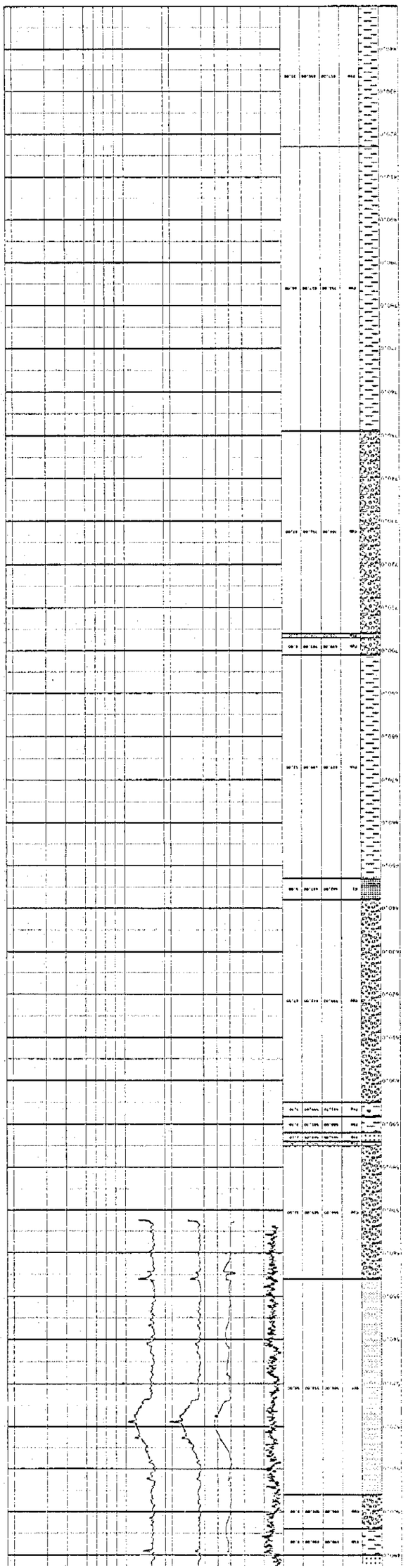
WITNESSED BY

RUN NO.	BOREHOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	WGT.	FROM	TO

COMMENTS AND INTERPRETATION
BY
DMR STAFF
FOR CLIENT

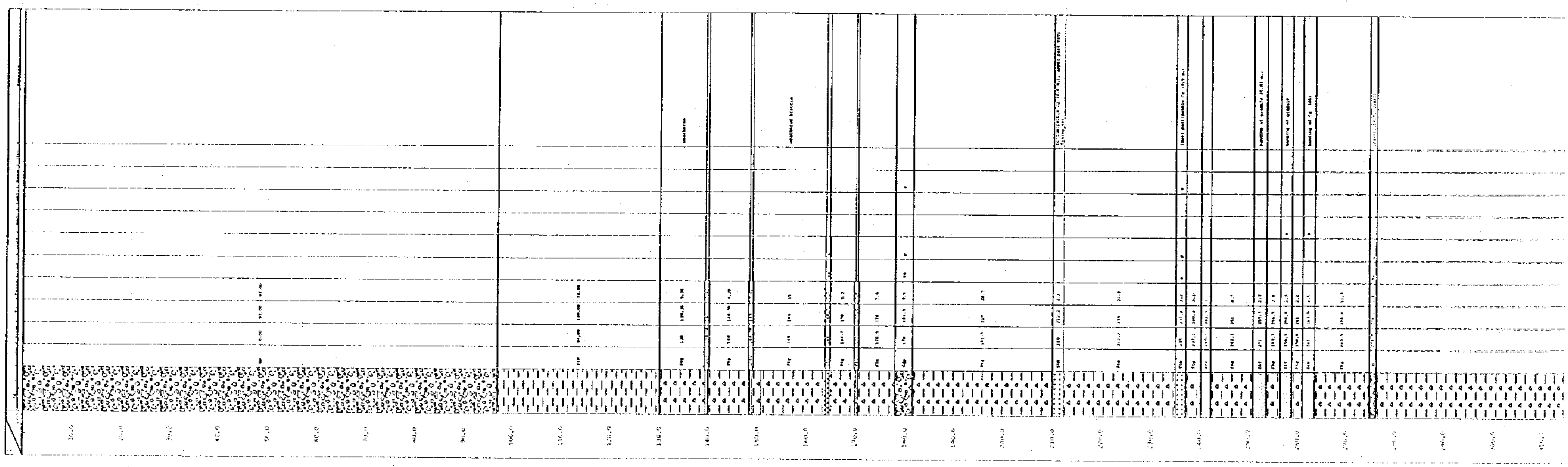
Petrophysical Logging and Geophysical Logging (1985-90)
Division of Geological Engineering
Part 1 (a)





DEPARTMENT OF MINERAL RESORCES

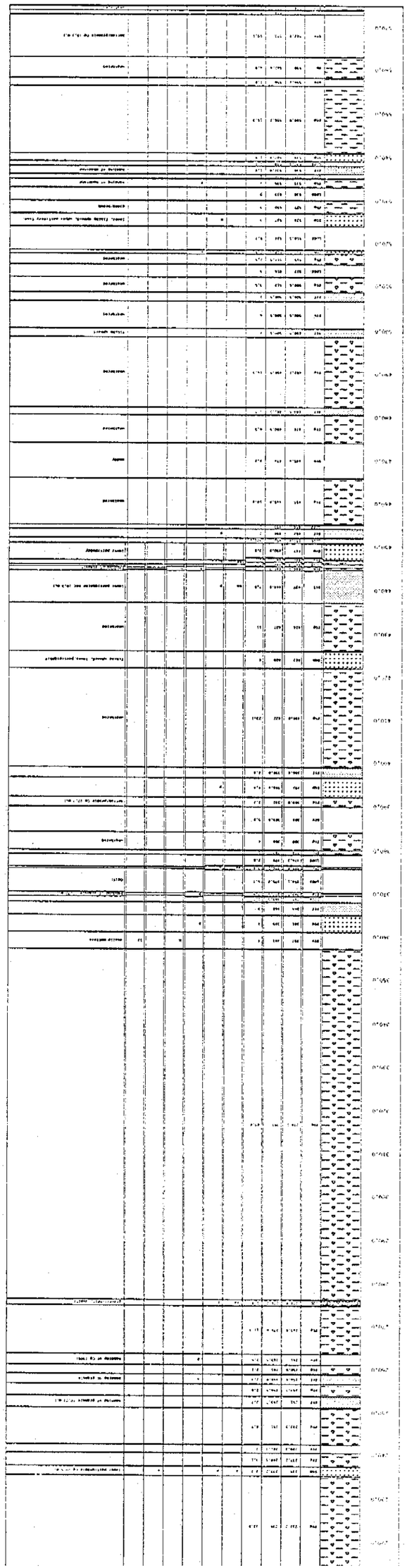
COMPANY DMR
WELL ID PH 1/39
FIELD PHRAE BASIN
COUNTRY STATE THAILAND



COAL EXPLORATION AND ASSESSMENT
IN
THAILAND
PHRAE BASIN

Lithological Log PH 1/39
(Output of the Geological Database)

Fig 4.11



DEPARTMENT OF MINERAL RESOURCES

COMPANY EMR
WELL ID PH 2/39
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

CO WELL FD CTY STR FILING No

LOCATION

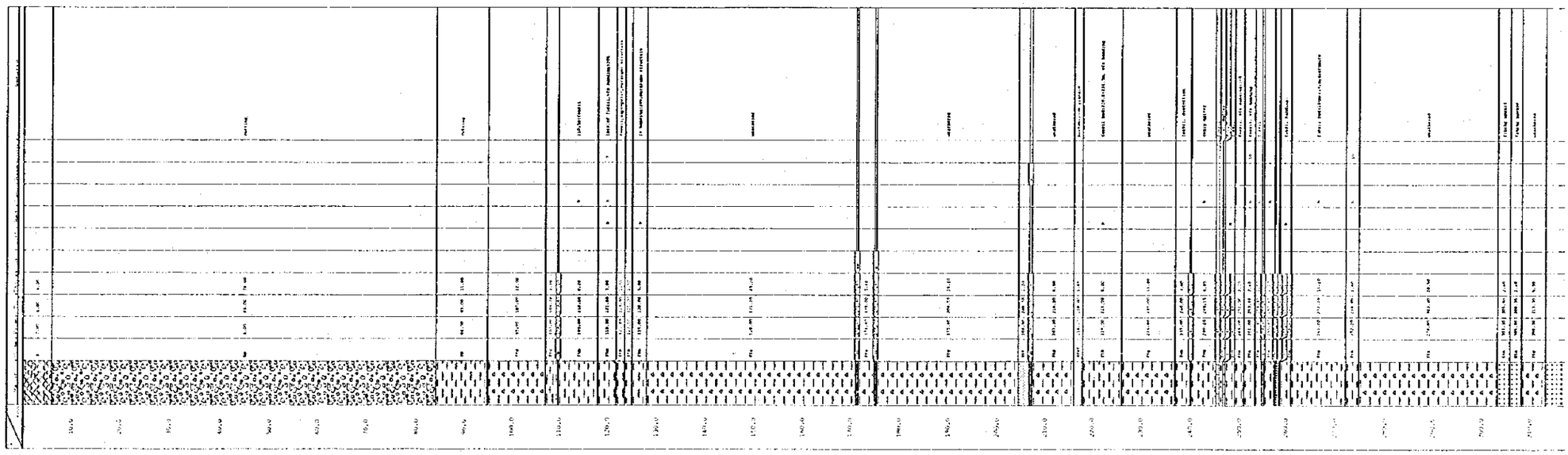
CASE	DRILLING CONTRACTOR	RIG NAME
CASING		TYPE
BASE DRL		DENSITY
FORMATION		LEVEL
TESTED INTERVAL		MAX. REC. TEMP.
PERFORATED INTERVAL		
FORMATION TEST TYPE		
WITNESSED BY		
RECORDED BY		

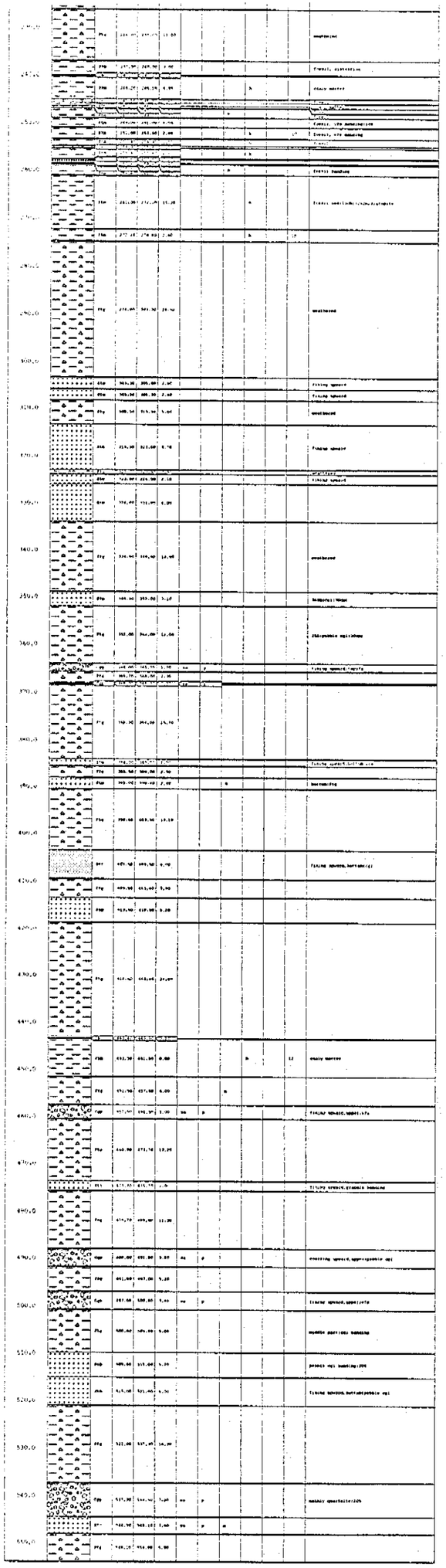
BOX	PACKER RECORD			CASING RECORD			
NO.	SIZE	FROM	TO	SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT
IN
THAILAND
PHRAE BASIN

Field Report Log (FRL) No.
(Subject to the Field Report Database)

Rev. 8.12





DEPARTMENT OF MINERAL RESOURCES

COMPANY Department of Mineral Resources
WELL ID PN 2/39 GEOPHYSICAL LOG
FIELD Phrae Basin
COUNTRY STATE THAILAND

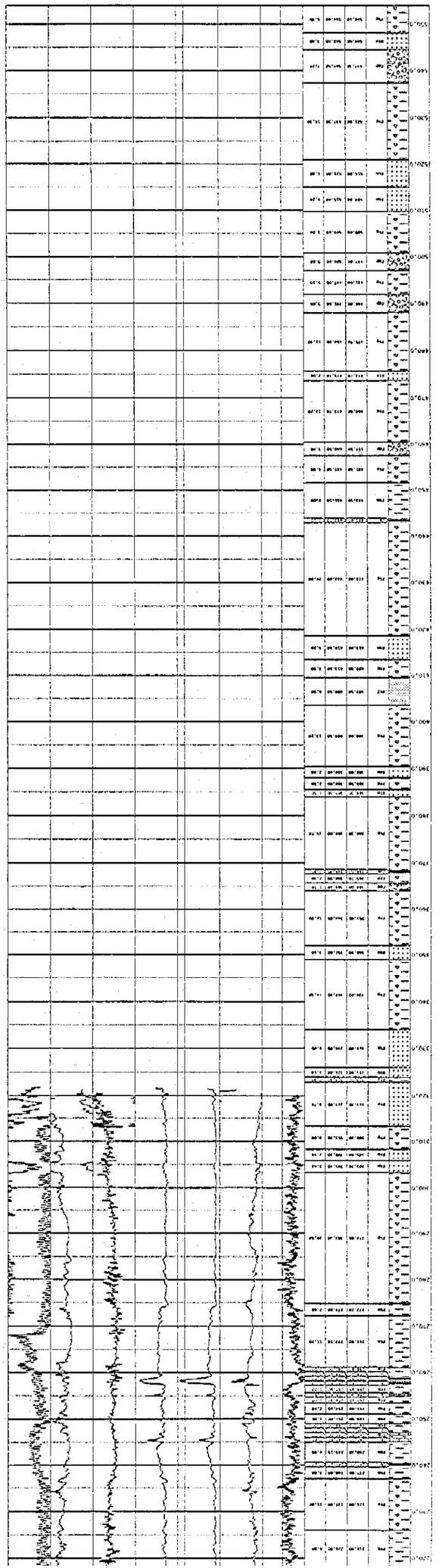
LOCATION

OTHER SERVICES

PERMANENT DATUM	ELEVATION		K.B.
LOG MEAS. FROM	ABOVE PERM. DATUM		D.F.
DRILLING MEAS. FROM			G.L.
DATE		TYPE FLUID IN HOLE	
RUN NO.		DENSITY	
TYPE LOG		VISCOSITY	
DEPTH-DRILLER		LEVEL	
DEPTH-LOGGER		MAX. REC. TEMP.	
BTM. LOGGED INTERVAL			
TOP LOGGED INTERVAL			
OPERATING REC. TIME			
RECORDED BY			
WITNESSED BY			

RUN NO.	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO

DMR EXPLORATION G.D. ASSESSMENT
G
1B of 3 A.D.
THAI SE BASIN
Fully digitized log and the physical log (PHR 39)
is located in the digitized folder
Page 11



DEPARTMENT OF MINERAL RESOURCES

COMPANY	DMR
WELL ID	PH 3/39
FIELD	PHRAE BASIN
COUNTRY	STATE THAILAND

LOCATION

N: 2,053,154.441
E: 629,307.353
Elev: 157.157
TOTAL DEPTH: 650 m

DRILL CONTRACTOR

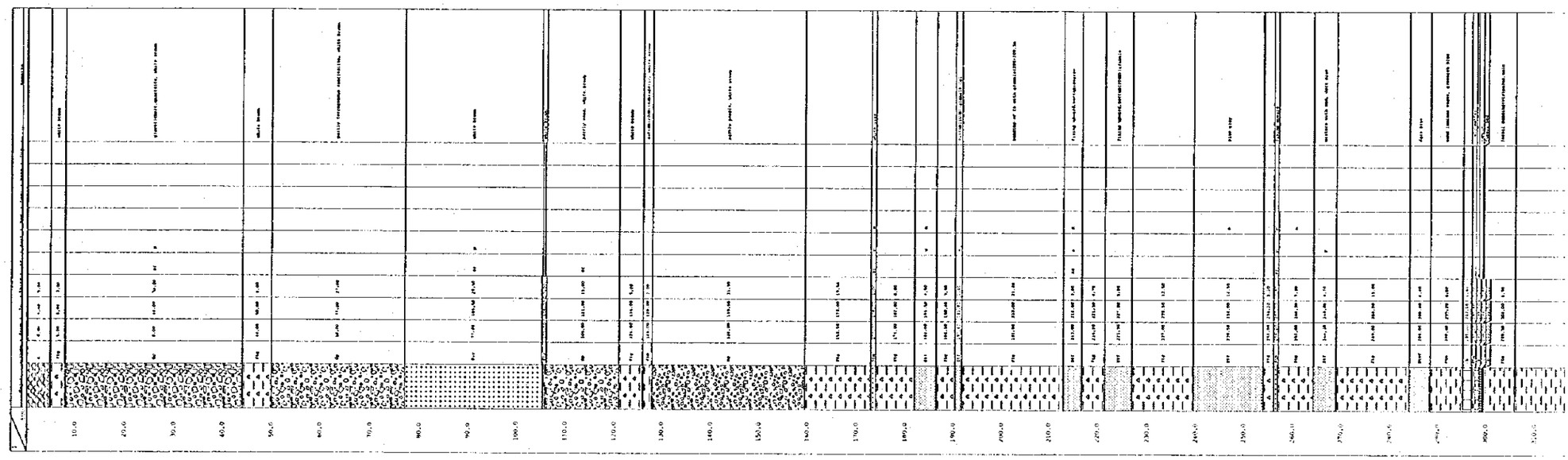
CONTRACTOR: DMR
MACHINE: LONG YEAR 4*4
CABLE: 650 m

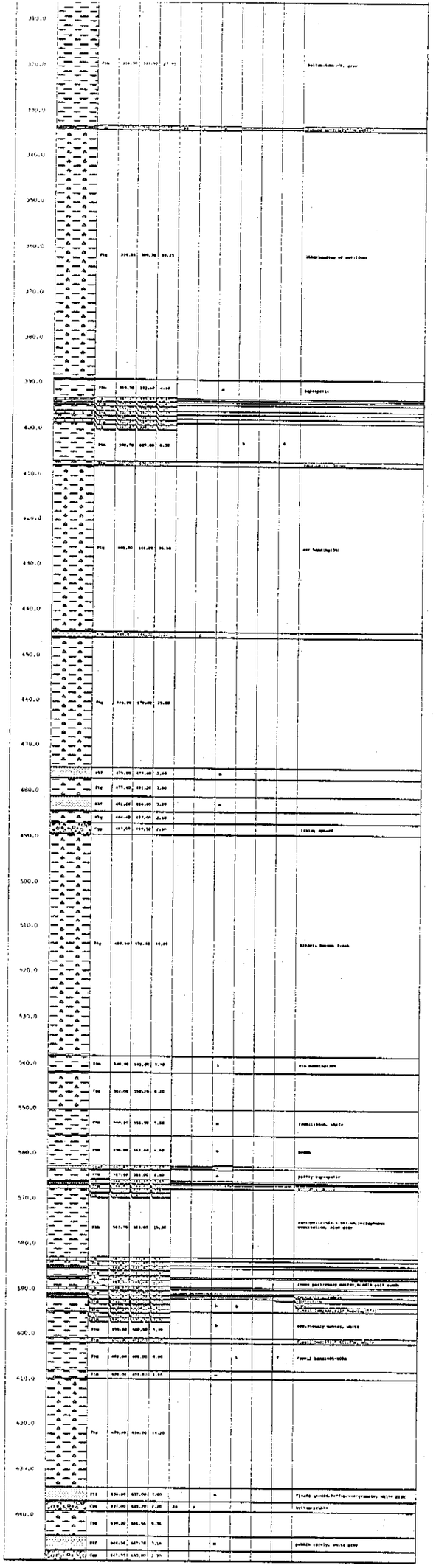
SEC TWP RGE

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM		ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM			G.L.
DATE	04/03/26 + 25/03/26	TYPE FLUID IN HOLE	
RUN NO.		SALINITY	
TIME LOG		DENSITY	
TIME ON BOTTOM		LEVEL	
ELEVATION K.B.		MAX. REC. TEMP.	
RUN LOGGED INTERVAL			
TOP LOGGED INTERVAL			
CASING REC TEMP.			
RECORDED BY			
WITNESSED BY			

RUN	CASING RECORD				CASING RECORD			
NO.	SIZE	FROM	TO		SIZE	FROM	TO	

TYPE EQUIPMENT AND LOCATION	
RM	
RMF	
RM @ BHT	
Time Circulated	
Time Logger on Bottom	
Max Rec Temp	
Equipment Location	
Recorded By	
Witnessed By	





DEPARTMENT OF MINERAL RESOURCES

COMPANY	DMR
WELL ID	PH 3/39 GEOPHYSICAL LOG
FIELD	PHRAE BASIN
COUNTRY	STATE THAILAND

LOCATION: OTHER SERVICES

CO. WELL FLD CTY STR PTUSHO NO

SEC TWP RGE

PERMANENT DATUM ELEVATION K.B.

LOG MEAS. FROM ABOVE PERM. DATUM D.F.

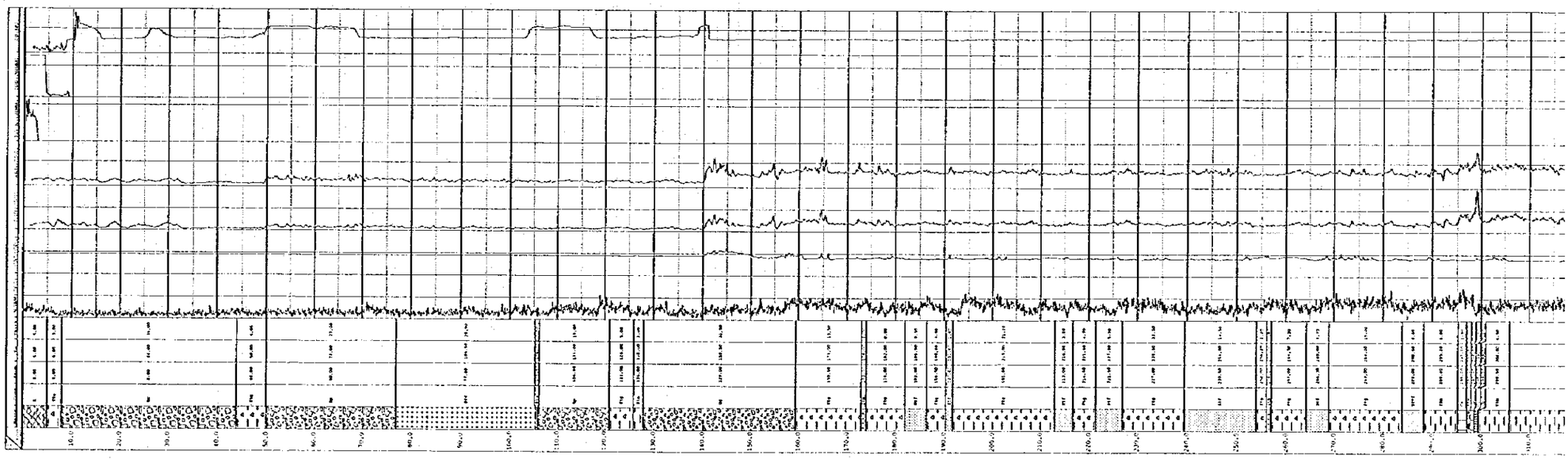
CASING MEAS. FROM G.L.

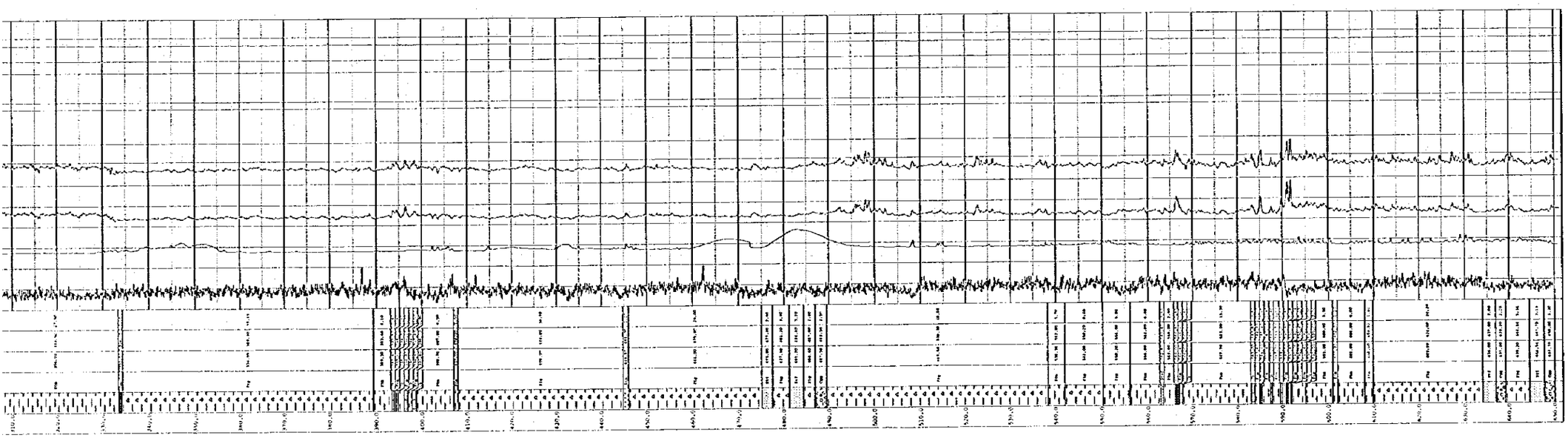
DATE		TYPE FLUID IN HOLE	
RUN NO		DENSITY	
TYPE LOG		VISC.	
DEPTH-DRILLER		PH/FLUID LOSS	
DEPTH-LOGGER		SOURCE OF SAMPLE	
BTM LOGGED INTERVAL		RM @ MEAS. TEMP.	
TOP LOGGED INTERVAL		RMF @ MEAS. TEMP.	
OPERATING REC TIME		RMC @ MEAS. TEMP.	
RECORDED BY		SOURCE RMF RMC	
WITNESSED BY		RM @ BHT	

BIT RUN NO.	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT
D
THAILAND
PHRAE BASIN

Path: E:\geo\all_log_and_map\geophysical_log\PH3-39\
(Output of the Geophysical Data Base)
Plot.cgm





DEPARTMENT OF MINERAL RESOURCES

COMPANY DMR
WELL ID PH 1/49
FIELD PHRAE BASIN
COUNTRY STATE THAILAND

LOCATION

WELL	
FLD	
CTY	
STE	
FILENO No	

OTHER SERVICES

CONTRACTOR: DMR
DRILLING FLUID TYPE
RUN No.
DEPTH DRILLER
DEPTH LOGGER
BTM LOGGED INTERVAL
TOP LOGGED INTERVAL
DRILLING FLUID TYPE
RECORDED BY
WITNESSED BY

CASING RECORD

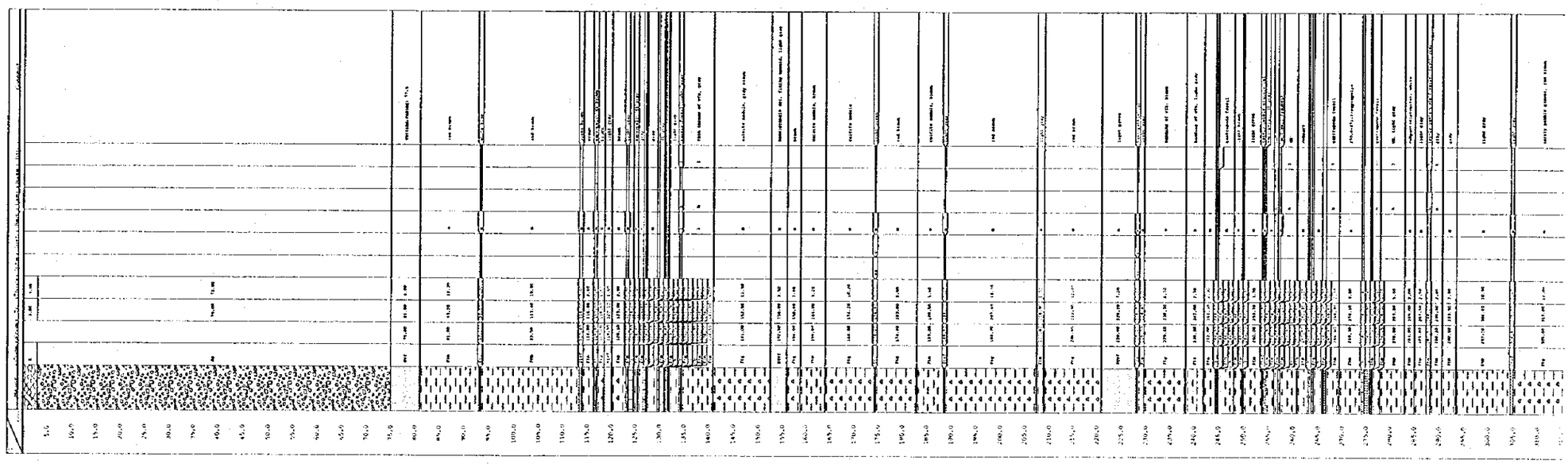
No.	BIT	FROM	TO

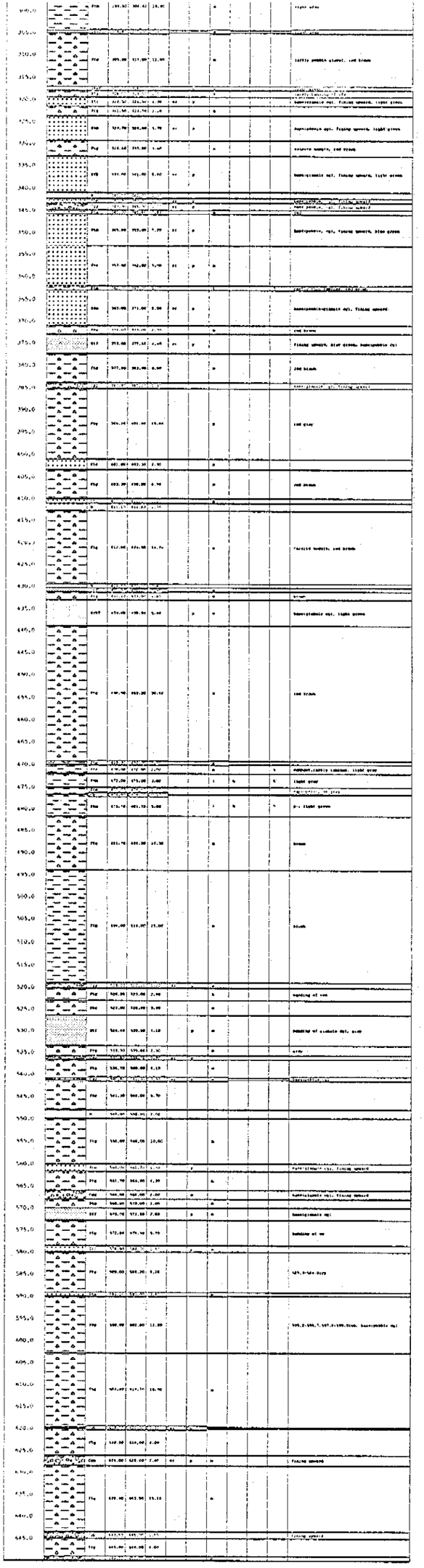
CASING RECORD

SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT IN THAILAND
PHRAE BASIN

Lithological Log (PID 40)
of Area of the Geological Data Sheet
PHA 4 In





DEPARTMENT OF MINERAL RESOURCES

COMPANY IMR
WELL ID PH 1/40 GEOPHYSICAL LOG
FIELD PHRAE BASIN
COUNTRY STATE THAI LAND

WELL DATA
FILING No.

LOCATION — OTHER SERVICES

SEC TWP RGE

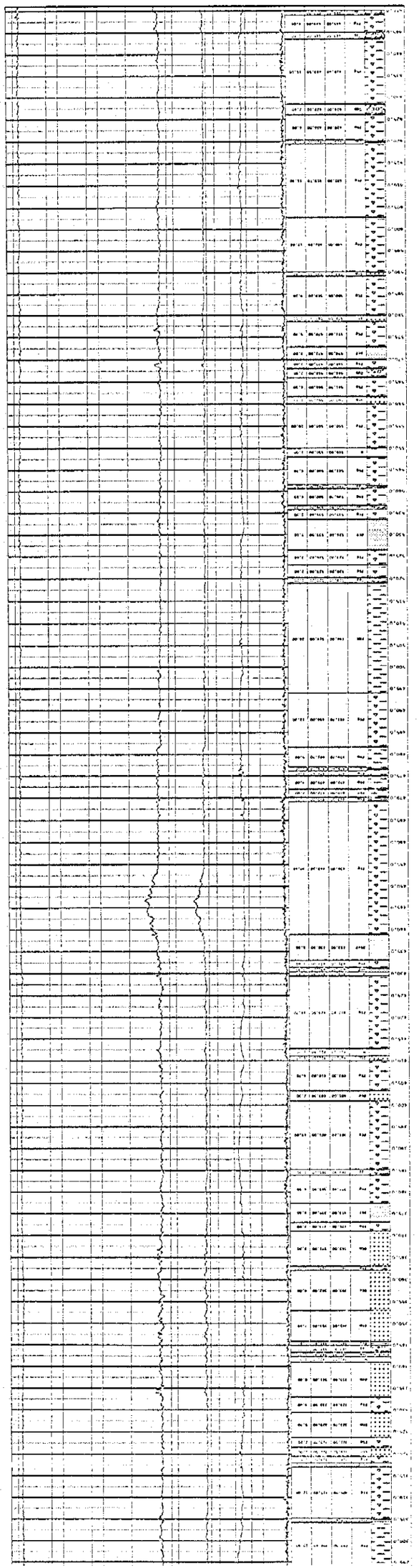
PERMANENT DATUM — ELEVATION — K.B.
LOG MEAS. FROM — ABOVE PERM. DATUM — D.F.
CASING MEAS. FROM — G.L.

DATE		TYPE FLUID IN HOLE	
RUN NO.		DENSITY	
TIME LOG.		VISCOSITY	
DEPTH-DRILLER		FLUID LOSS	
DEPTH-LOGGER		MAX. REC. TEMP.	
BTM. LOGGED INTERVAL			
TOP LOGGED INTERVAL			
TYPE CONVEX HOLE			
RECORDED BY			
WITNESSED BY			

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT IN
THAILAND
PHRAE BASIN

Title Legal Log and Geophysical Log (Title 30)
(Property of the Geological Data Bank)
Policy



DEPARTMENT OF MINERAL RESOURCES

COMPANY CMR
WELL ID PR 2/49
FIELD PHRAE BASIN
COUNTRY STATE THAI LAND

LOCATION
N: [illegible]
E: [illegible]
ELEV: [illegible]
TOTAL DEPTH: [illegible] m

SEC TWP RGE

OTHER SERVICES
CONTRACTOR: CDS
RATHOLE: LONG YEAR A-4
DRILL RIG: #

PERMANENT DATUM ELEVATION
LOG MEAS. FROM ABOVE PERM. DATUM
ESTIMATED MEAS. FROM

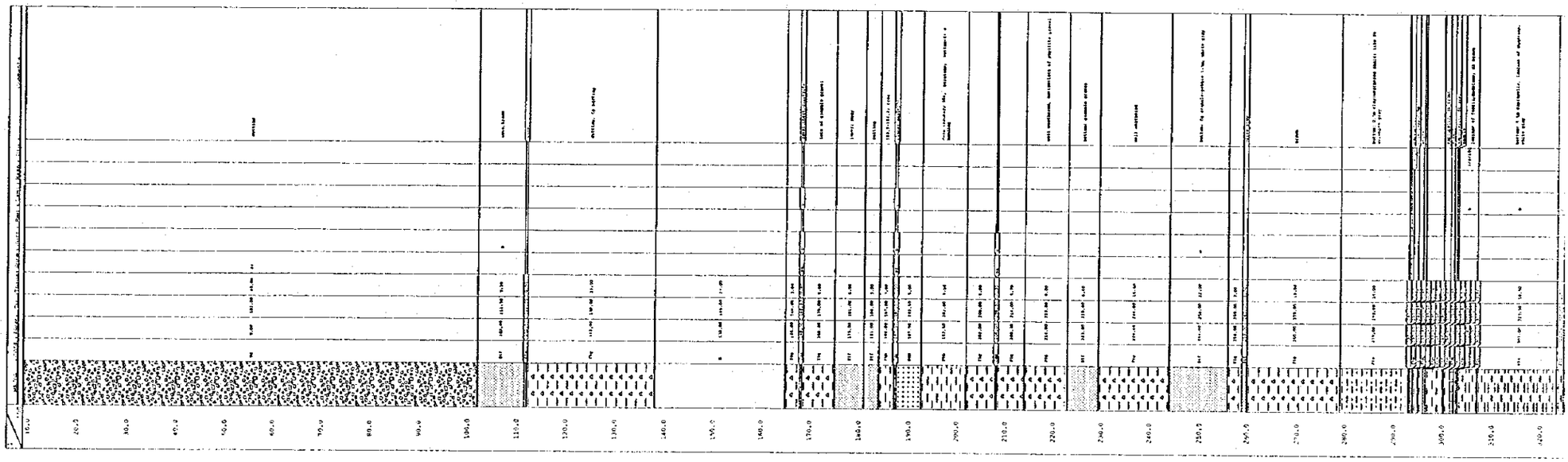
K.B.
D.F.
G.L.

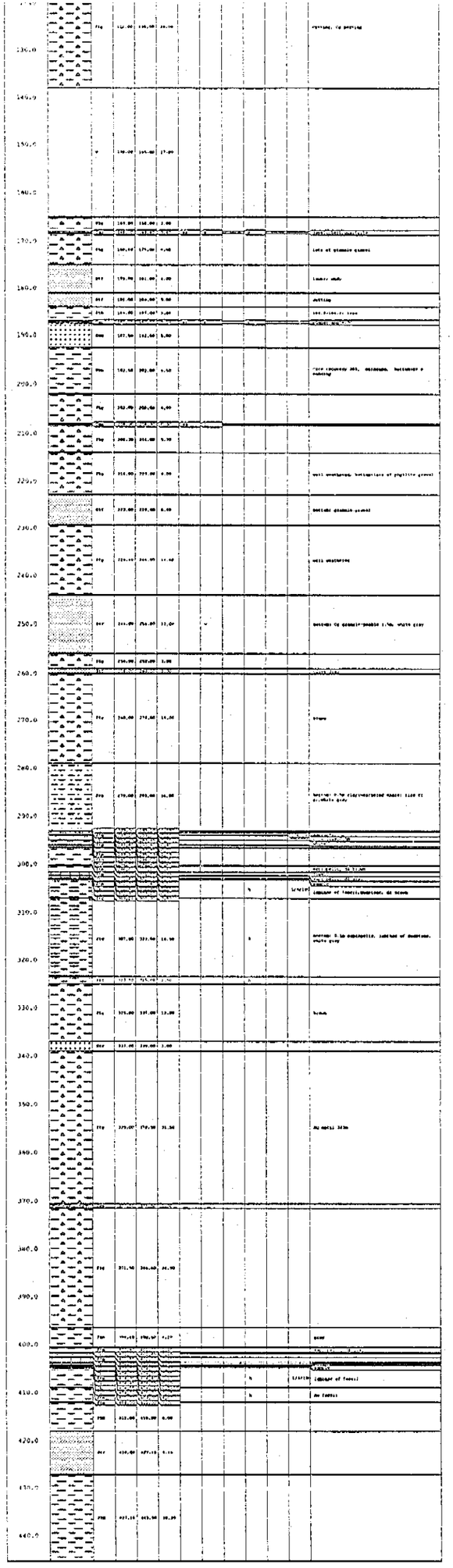
DATE	05/12/96	TYPE FLUID IN HOLE
RUN NO.		SALINITY
TYPE LOG		LEVEL
DEPTH-DRILLER		PPM CL
DEPTH-LOGGER		MAX. REC. TEMP.
BOTTOM LOGGED INTERVAL		
TOP LOGGED INTERVAL		
TYPE FLUID IN HOLE		
DENSITY/VISC		
MEASURED BY		
WITNESSED BY		

BIT No.	BOREHOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT
IN
THAILAND
PHRAE BASIN

[illegible]





DEPARTMENT OF MINERAL RESOURCES

COMPANY	DMR
WELL ID	PH 3A/40
FIELD	PHRAE BASIN
COUNTRY	STATE THAI LAND

LOCATION

N: 2,010,655.836
E: 614,725.431
ESS: 359.917
TOTAL DEPTH: 430.0 m

OTHER SERVICES

CONTRACTOR: DMR
MACHINE: LONG YEAR N-4
CAPA: 800 m

CO / WELL / FLD / CTY / STE / FILING No

SEC TWP RGE

PERMANENT DATUM — ELEVATION — K.B.

LOG MEAS. FROM — ABOVE PERM. DATUM — D.F.

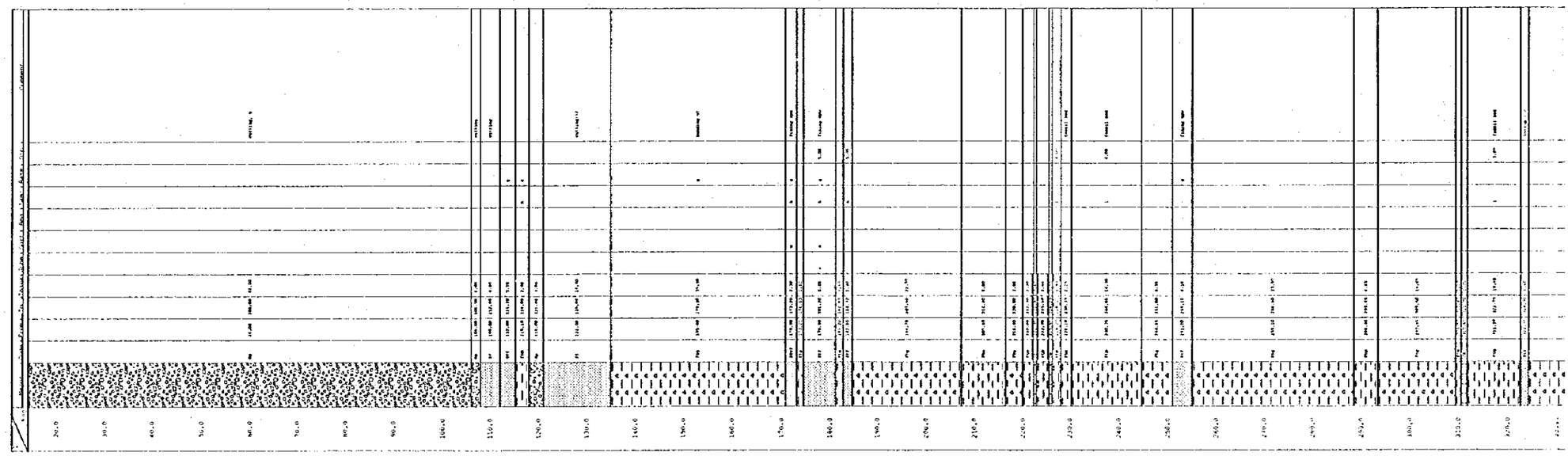
DRILLING MEAS. FROM — G.L.

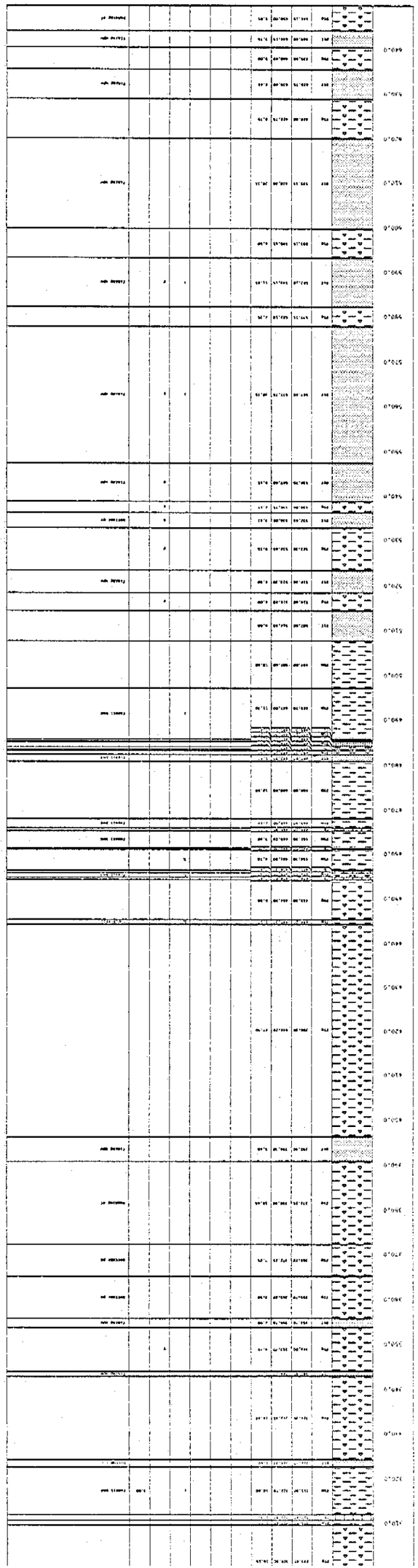
CASE		TYPE FLUID IN HOLE	
RUN NO.		SALINITY	
TYPE LOG		DENSITY	
DEPTH-DRILLER		LEVEL	
DEPTH-LOGGER		MAX. REC. TEMP.	
BTM LOGGED INTERVAL			
TOP LOGGED INTERVAL			
OPERATING RIG TIME			
RECORDED BY			
WITNESSED BY			

RUN NO.	BIT	BOREHOLE RECORD FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT
IN
THAILAND
PHRAE BASIN

Log 1 of 1 Logs (PH3A/40)
(Depth of the first Logged Interval)
Plot 4.19





DEPARTMENT OF MINERAL RESOURCES

COMPANY DMR
WELL ID PH 4/43
FIELD PHRAE BASIN
COUNTRY STATE THAI LAND

CO
WELL
FLD
CTY
STE
FILING NO

ELEVATION
KB 74.953,50 KTG
DF 472,00 P.N.S
RT 504.93
TOTAL DEPTH 597.5 M.

SEC TWP RGE

OTHER SERVICES

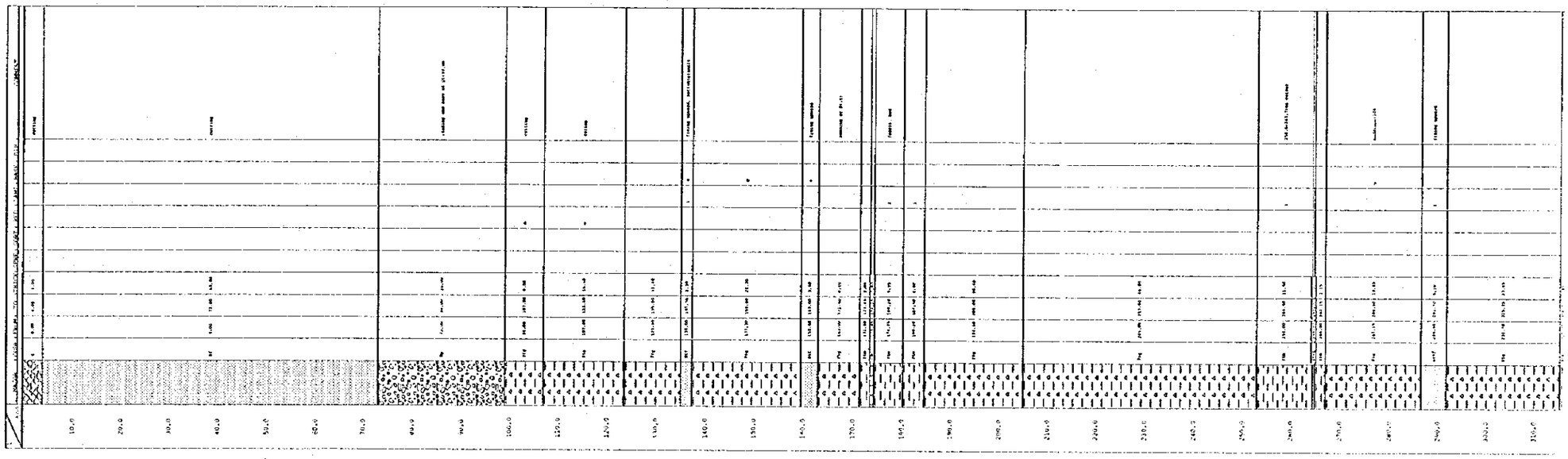
CONTRACTOR DMR
HORIZONTAL LONG YEAR
RIG
MAP'S POS'N

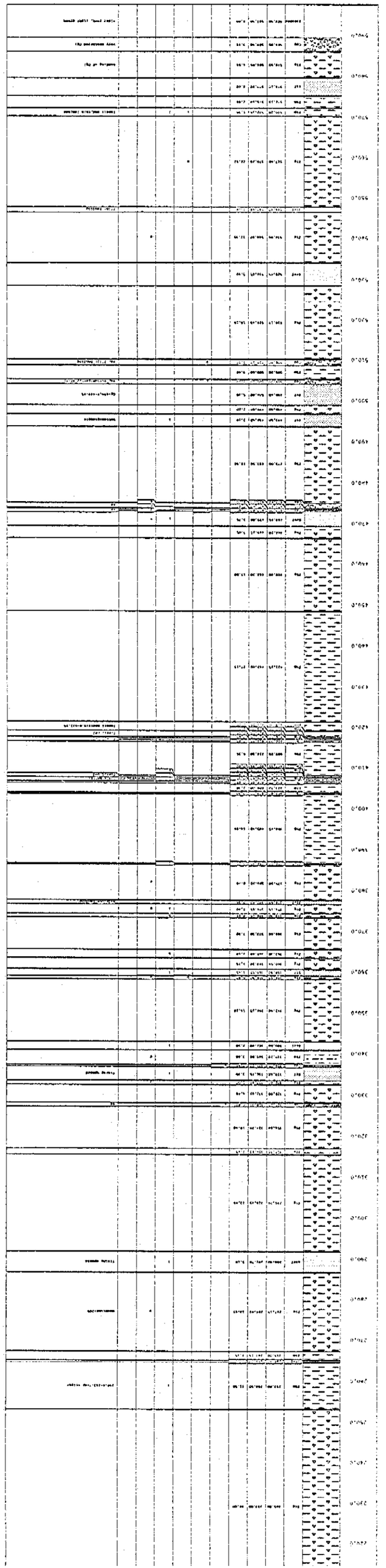
DRILLING STARTED		ELEVATION	P.B.
LOG MEAS. FROM		ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM			G.L.
DATE	CASING	TYPE FLUID IN HOLE	
RUN NO		SALINITY	
TYPE LOG		DENSITY	
DEPTH-DRILLER		LEVEL	
DEPTH-LOGGER		MAX. REC. TEMP.	
BTM LOGGED INTERVAL			
TOP LOGGED INTERVAL			
TIME CIRC. STOPPED			
RECORDED BY			
WITNESSED BY			

RUN NO.	BOREHOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	WGT.	FROM	TO

COAL EXPLORATION AND ASSESSMENT
Pr
BLUEBAND
PHRAE BASIN

Fields Logged by [illegible]
(Name of the Geologist Declared)
Date [illegible]





DEPARTMENT OF MINERAL RESOURCES

COMPANY DMR
WELL ID PH 4/40 GEOPHYSICAL LOG
FIELD PHRAE BASIN
COUNTRY STATE THAI LAND

LOCATION

OTHER SERVICES

SEC TWP RGE

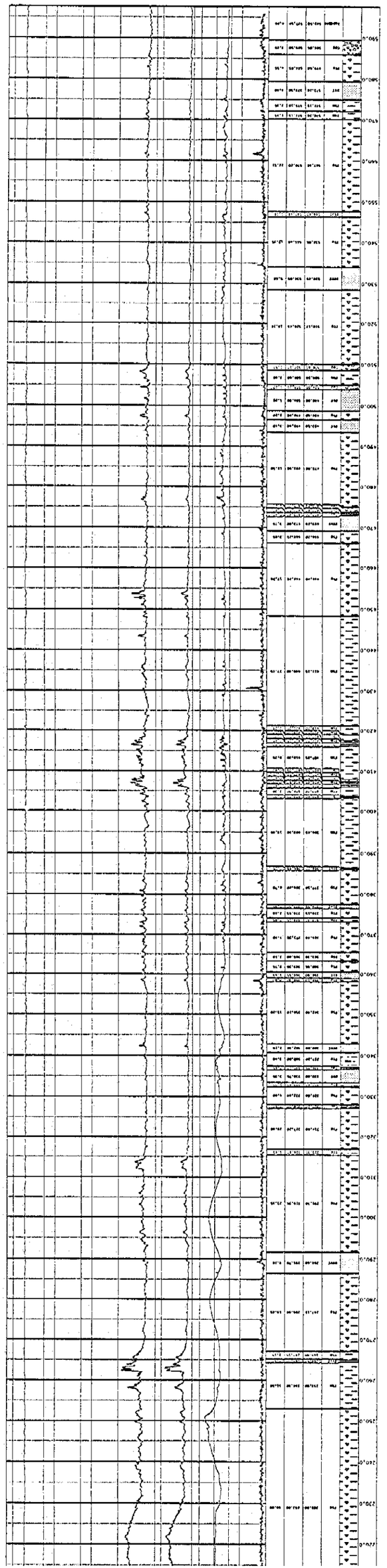
PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM		ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM			G.L.

DATE		TYPE FLUID IN HOLE	
RUN NO		SALINITY	
TYPE LOG		DENSITY	
DEPTH-DRILLER		LEVEL	
DEPTH-LOGGER		MAX. REC. TEMP.	
BTM LOGGED INTERVAL			
TOP LOGGED INTERVAL			
OPERATING RIG TIME			
RECORDED BY			
WITNESSED BY			

RUN NO.	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO

CORE EXAMINATION AND ASSESSMENT
By
DEPARTMENT
PHRAE BASIN

Drilled & logged by geophysical log Mission 104
(Original drilled in 1977 as well No. 4/40)



DEPARTMENT OF MINERAL RESOURCES

COMPANY IMR
WELL ID PH 5/40
FIELD PHRAE BASIN
COUNTRY STATE PHAE LAND

LOCATION
LAT
LONG
LOCAL CENTRAL MERID.
SEC TWP RGE

OTHER SERVICES
CONSULTANT (S) NAME
DRILLING STARTED YEAR
MO DAY
API NO.

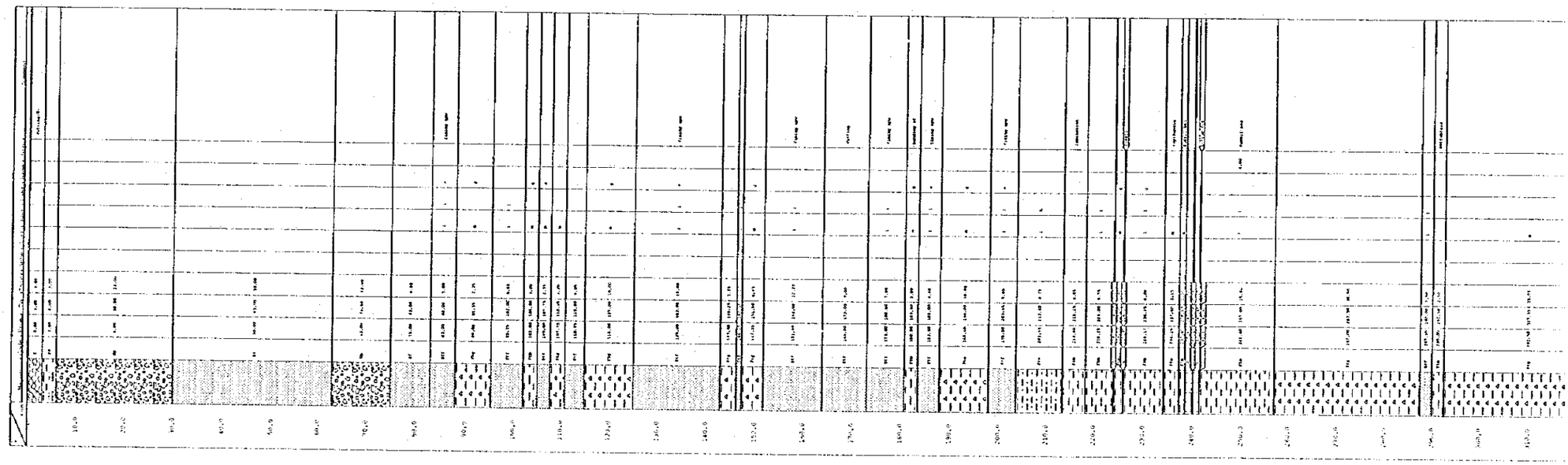
PERMANENT DATUM ELEVATION
LOG MEAS. FROM ABOVE PERM. DATUM
DRILLING MEAS. FROM

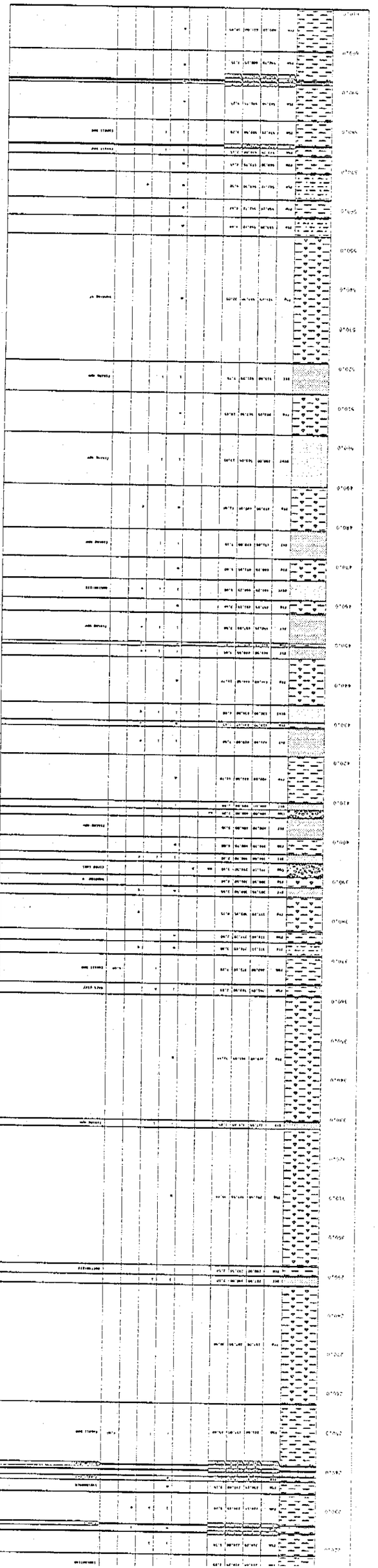
DATE	DESCRIPTION
RUN NO.	
DEPTH DRLR.	
DEPTH LOGGER	
BTM LOGGED INTERVAL	
TOP LOGGED INTERVAL	
TYPE FLUID IN HOLE	
DENSITY	
VISCOSITY	
LEVEL	
MAX REC. TEMP.	
RECORDED BY	
WITNESSED BY	

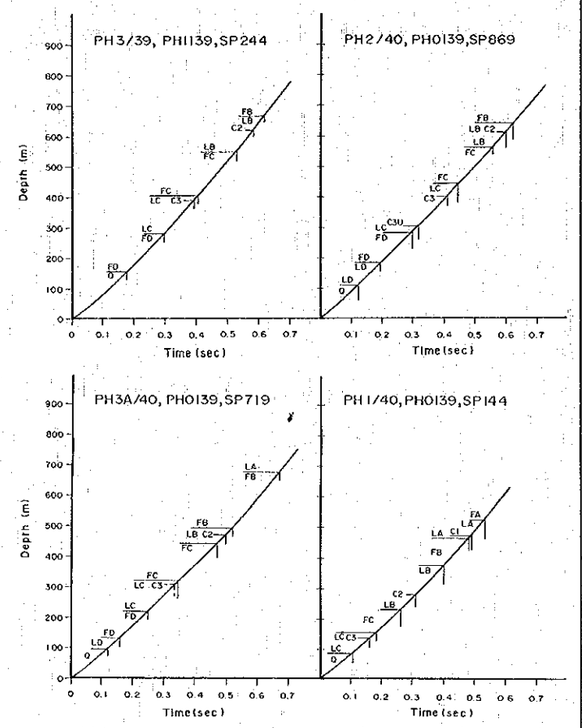
BIT	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO

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

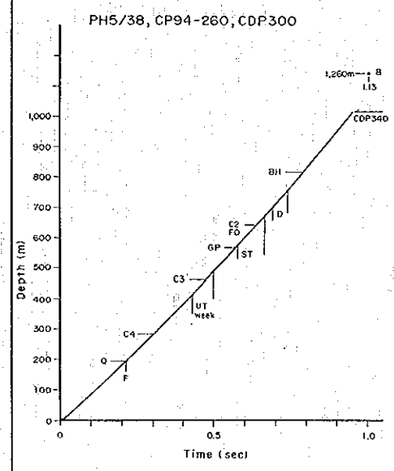
COMPANY
BY
Title of Signatory
Signature of Person Signing
Date

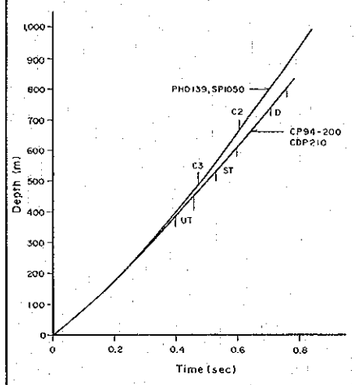




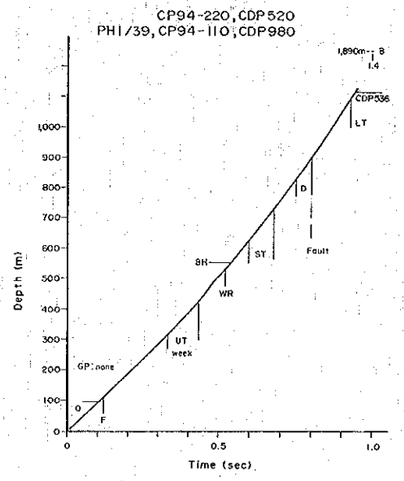


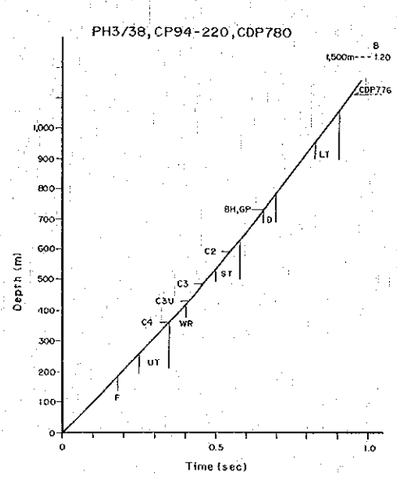
Conversion chart between time(sec)/depth(m) of seismic exploration performed by DMR in 1997. The marker beds identified by borehole are shown above the curve.

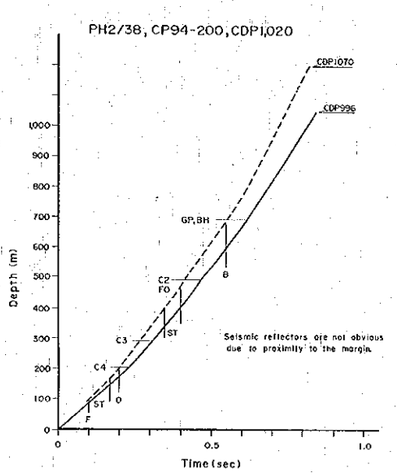


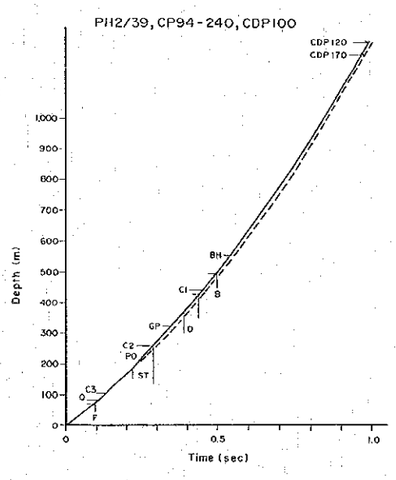


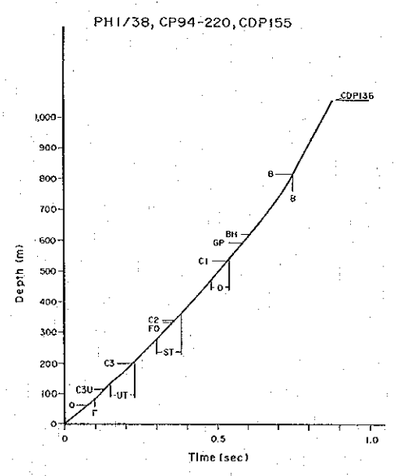
Correlation of the marker reflectors of PH0139, SP1050 and CP94-200, CDP210

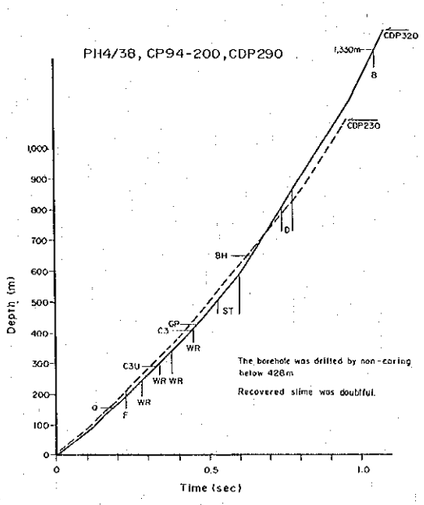












Correlation between the seismic reflectors and the marker beds identified by drilling

Legend

Seismic
- F : first reflector
- UT : upper triple reflectors
- ST : strong triple reflectors
- D : double reflectors
- LT : lower triple reflectors
- WR : week reflector
- B : basement

Borehole
- C1~C4 : lignite bed
- FO : fossil bed
- Q : Quaternary base
- GP : geophysical log depth
- BH : borehole depth

COAL EXPLORATION AND ASSESSMENT IN THAILAND

PHRAE BASIN

Correlation between the Seismic Reflectors and the Marker Beds

Plate 3.1-1

PH 2/39 CP96-240, CDP100 S.L. 148.56m

PH 1/40 PH0139, SP144 PH0639, SP315 S.L. 151.68m

PH 1/38 PH0139, SP459 CP94-200, CDP 160 S.L. 158.81m

PH 3A/40 PH0139, SP710 S.L. 158.82m

PH 2/40 PH0139, SPE

Depth (m)

0
100
200
300
400
500
600
700
800

Formation Environment Seismic

Depth (Gp)

Lithofacies log

Description

Drilling Gp

Legend

Q Quaternary, fluvial
Alternations of G S F
Cobble bed at the bottom

FA FE Tertiary fan lithofacies with thin fluvial
Mainly consists of Fl gt(Upper horizon) and Cg(lower horizon) with intercalated thin Cg or St-s

Fl g consists of mudstone with a small amount of granules
Mudstone is weathered phyllite breccia
Cg of the low or horizon consists of partially weathered phyllite breccia

LA LO Tertiary lacustrine lithofacies including small deltaic-fluvial deposits. Fl g of fan deposits are intercalated lignite, calcareous band, fining upward sequence, laminae, and banding alternations are indicative

C Lignite bed

Seismic reflection

F First reflection the base of Quaternary
UT Upper triple reflector
ST Strong triple reflector
D Double reflector
WR Weak reflector
GP Reading of geophysical log

S.L. 158.82m

PH 2/40 PH0139, SP869 S.L. 154.72m

PH 4/38 CP94-200, CDP 290 S.L. 152.20m

PH 3/39 PH1139, SP240 S.L. 157.16m

PH 4/40 PH0239, SP180 S.L. 164.54m

PH 5/38 CP94-260, CDP 300 S.L. 149.50m

FAULT A

WESTERN BASIN ~ CENTRAL EASTERN BASIN

PH 5/38 CP94-260, CDP:300 S.L. 149.50m

PH 1/39 CP94-220,CDP:520 CP94-110,CDP:980 S.L. 155.70m

PH 5/40 S.L. 169.65m

PH 3/38 CP94-220, CDP:780, S.L. 167.65m

PH 2/38 CP94-200, CDP:1,020 S.L. 195.79m

WESTERN BASIN — CENTRAL ~ EASTERN BASIN

FAULT A

Depth (m)

Q FD LD LC C3U C3 FC C2 LB FB LA FA BASEMENT

LD? LD C3U? C3? C2? LC? LA?

Basement

COAL EXPLORATION AND ASSESSMENT IN THAILAND
PHRAE BASIN

Correlation of the Borehole Logs

Plate 3.1.2