Misc Rpts

(5)

ICG Sogepet et al Nestiq

Well File

(19 microfiche)

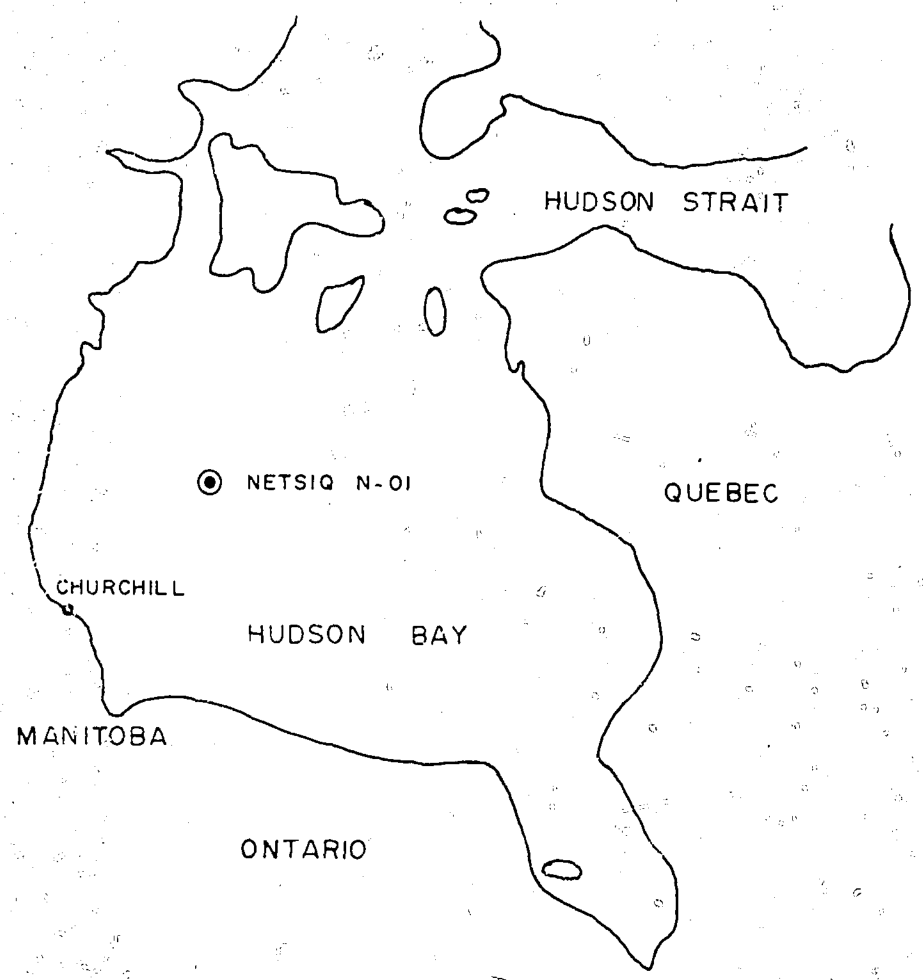
ICG SOGEPET

ET AL

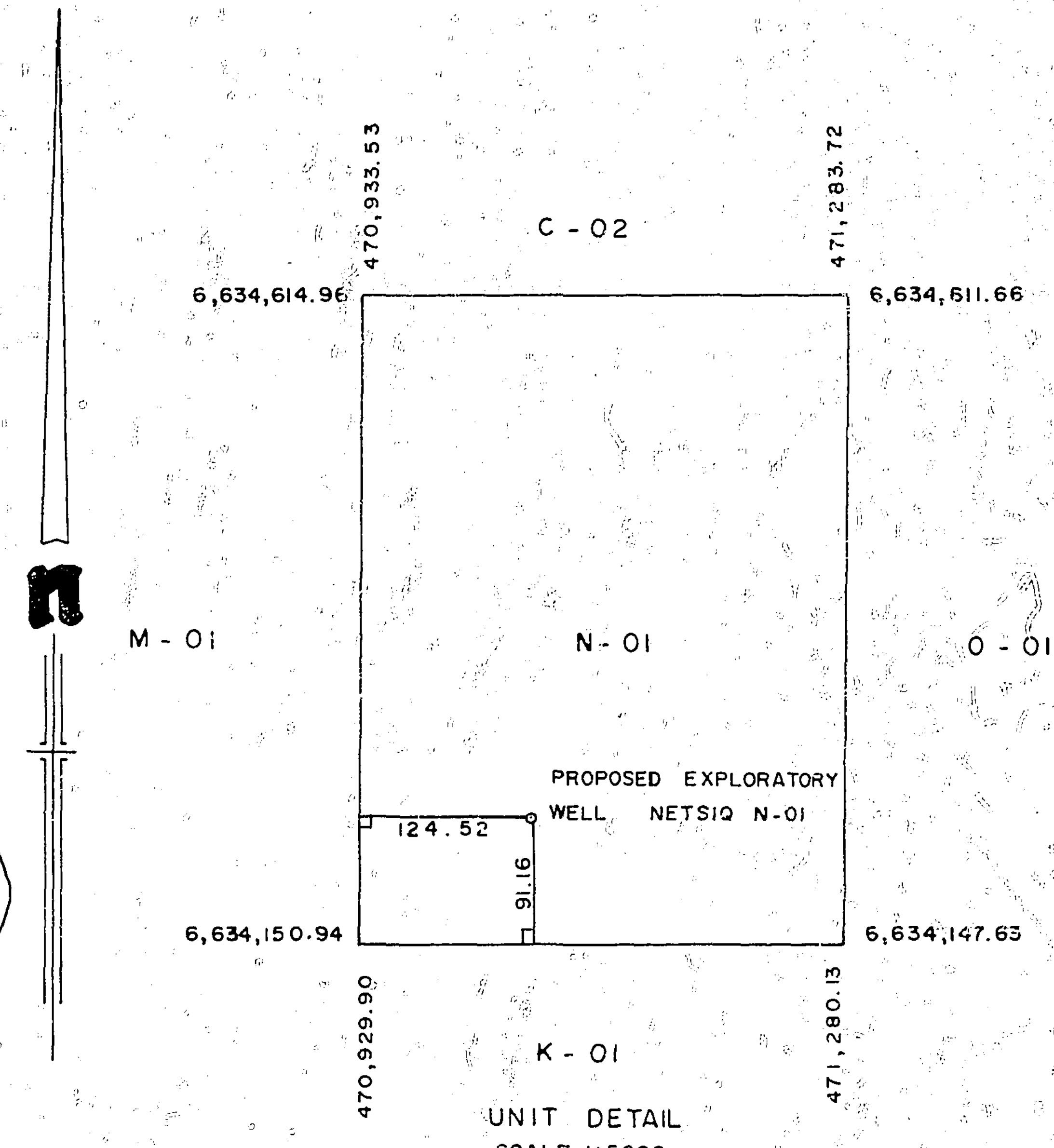
NETSIQ N-01

8710-C55-1-2

Oct 1985



HUDSON BAY
SCALE 1:12,500,000



UNIT DETAIL
SCALE 1:5000

WELL LOCATION CO-ORDINATES 1927 N.A.D.	
59° 50' 48.00" N. 87° 30' 59.50" W.	6 634 240.92 N. 471 055.13 E.

TENTATIVE PLAN OF SURVEY OF PROPOSED EXPLORATORY WELL

ICG SOGEPET et al NETSIQ N-01

IN UNIT N , SECTION 01
GRID AREA 60°00', 87° 30'

HUDSON BAY

CANADA OIL AND GAS LAND REGULATIONS

FOR CANTERRA ENERGY LTD
BY NORTECH SURVEYS (CANADA) INC.

LEGEND

THE GEOGRAPHIC CO-ORDINATES SHOWN ARE REFERRED TO 1927 NORTH AMERICAN DATUM (N. A. D. 27)

THE U.T.M. CO-ORDINATES SHOWN ARE IN ZONE 16, CENTRAL MERIDIAN 87° W.

THE DISTANCES SHOWN ARE U.T.M. WITH A SCALE FACTOR OF 0.9996

THE WATER DEPTH OF THE LOCATION IS 170m

THE POSITIONING WILL BE CONDUCTED USING THE GLOBAL POSITIONING SYSTEM

CONFIRMATION OF POSITION WILL BE DONE BY DOPPLER SATELLITE

CANTERRA ENERGY LTD.

WITNESS

23 May 85
DATE

I, HEREBY CERTIFY THAT THIS TENTATIVE PLAN OF SURVEY WAS MADE UNDER MY PERSONAL SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

C.L.S.

Ron Slade P.Eng.
WITNESS

May 16, 1985
DATE

Canada Oil and Gas Lands Administration
Administration du pétrole et du gaz des terres du Canada

Nova Scotia ☐ West Coast ☐ Exploratory ☒
Newfoundland ☐ Northern ☐ Development ☐
Gulf of St. Lawrence ☐ Hudson Bay ☒ Delineation ☐
Service ☐

AUTHORITY TO DRILL A WELL

APPLICATION

This application is submitted with Section 82 of the Canada Oil and Gas Drilling Regulations. When approved under Section 83 of the Regulations, it is the requisite authority for the commencement of drilling operations.

Well Name in Full: ICG Sogepet et al Netsiq N-01

Operator: Canterra Energy Ltd. — Drilling Program No.:

Contractor: Bawden Western Oceanic Offshore — Permit or Lease No.: Mid Bay EA

Drilling Rig or Unit: Neddrill II — Estimated Well Cost: $ 16 MM

Location-Unit: N — Section: 01 — Grid Area: 60° 00' N 87° 30' W

Coordinates: Lat.: 59° 50' 48.0" N — Long.: 87° 30' 59.5" W

Area: Hudson Bay — Field/Pool:

Elevation-RT/KB: 13 m (ASL) — Seafloor: 211 (BRT)

Approx. Spud Date: September 5, 1985 — Estimated Days on Location: 35

Anticipated Total Depth: 1370 m — Target Horizon(s): Silurian, Ordovician

EVALUATION PROGRAM

Ten-metre sample intervals:

Five-metre sample intervals: 420 m to total Depth

Canned sample intervals: Jars every 10 m 420 m to TD

Conventional cores at: 1-9 m at top of Silurian; 2 others possible in Silurian & Ordovician

Logs and Tests: Log run #1, 725 m: DIL, LSA, GR, Cal, HRD, CST, RFT
Run #2, 1370 m: DIL, DLL, GR, Cal, Sonic, CNL-FDC, HRD, CST, RFT, Velocity
Tests through casing if required.

CASING AND CEMENTING PROGRAM

O.D. mm	Weight: kg/m	Grade:	Setting Depth Below Seafloor: m	Cementing Program (Volumes): m^3
762	680/461	API5LB	50	48
508	198	X56	200	44
340	107	SOO95	515	35
245	70	SOO95	1150	28

B.O.P. Equipment: 16 3/4" 10 KSI CIW BOP Stack composed of (top to bottom)
1 - 5 ksi Hydril annular preventer, 2 - CIW double "U" ram preventers c/w
1 - blind/shear, 1 - 3 1/2" pipe, 1 - 2 7/8" - 5" variable bore, 1 - 5" pipe.

Other Information: Possible abnormal pressure in the Severn River at +/- 850 m.
A saturated $CaCl_2$ is expected as formation fluid. Equivalent mud weight could be up to 1800 kg/m^3

Signed: [signature] — Title: Frontier Drilling Manager

Date: 15 May 85 — Company: Canterra Energy Ltd.

APPROVAL

An approved copy of this notice is to be posted at each wellsite

APPROVED
APPROUVÉ
AUG 13 1985
COGLA - APGTC

Signed: [signature]
Engineering Branch

Date: August 13, 1985

File: 8710-C55-1-2

Department of Energy, Mines and Resources — Department of Indian Affairs and Northern Development

Ministère de l'Énergie, des Mines et des Ressources — Ministère des Affaires indiennes et du Nord Canadien

Canada

8710-C55-1-2 O.

Canterra Energy Ltd.

ICG SO
et
NETSI
FINAL WEL

JANUA

2

8710-C55-1-2 OH

Canterra Energy Ltd.

ICG SOGEPET et al NETSIQ N-01 FINAL WELL HISTORY

JANUARY 1986

ICG SOGEPET ET AL NETSIQ N-01

FINAL WELL SUMMARY

CANADA OIL AND GAS LANDS
ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU
GAZ DES TERRES DU CANADA

JAN 29 1986

ENGINEERING BRANCH
GÉNIE

JANUARY 1986

TABLE OF CONTENTS

WELL HISTORY REPORT
ICG SOGEPET ET AL NETSIQ N-01

TABLE OF CONTENTS

1. INTRODUCTION

ICG SOGEPET ET AL NETSIQ N-01

1.0 INTRODUCTION:

1.1 SUMMARY:

ICG Sogepet et al Netsiq N-01 was drilled in the Hudson Bay at at 59° 50' 48.06" N Latitude and 87° 30' 59.92" W Longitude. The water depth at this location is 199.3 m.

Canterra Energy Ltd. operated the well for the ICG group, which consists of the following:

Participants:

ICG Resources Ltd.
Onexco Oil and Gas Limited
Canterra Energy Ltd.
Exploration Soquip
Trillium Exploration Corporation
The Consumer's Gas Company

Non-Participants

Petro-Canada Resources
Northcor Energy Ltd.
Parks Resources Ltd.

The Contractor was Bawden-Western Oceanic Offshore Ltd., a Canadian Company which chartered the Neddrill II Drillship from Neddrill of the Netherlands.

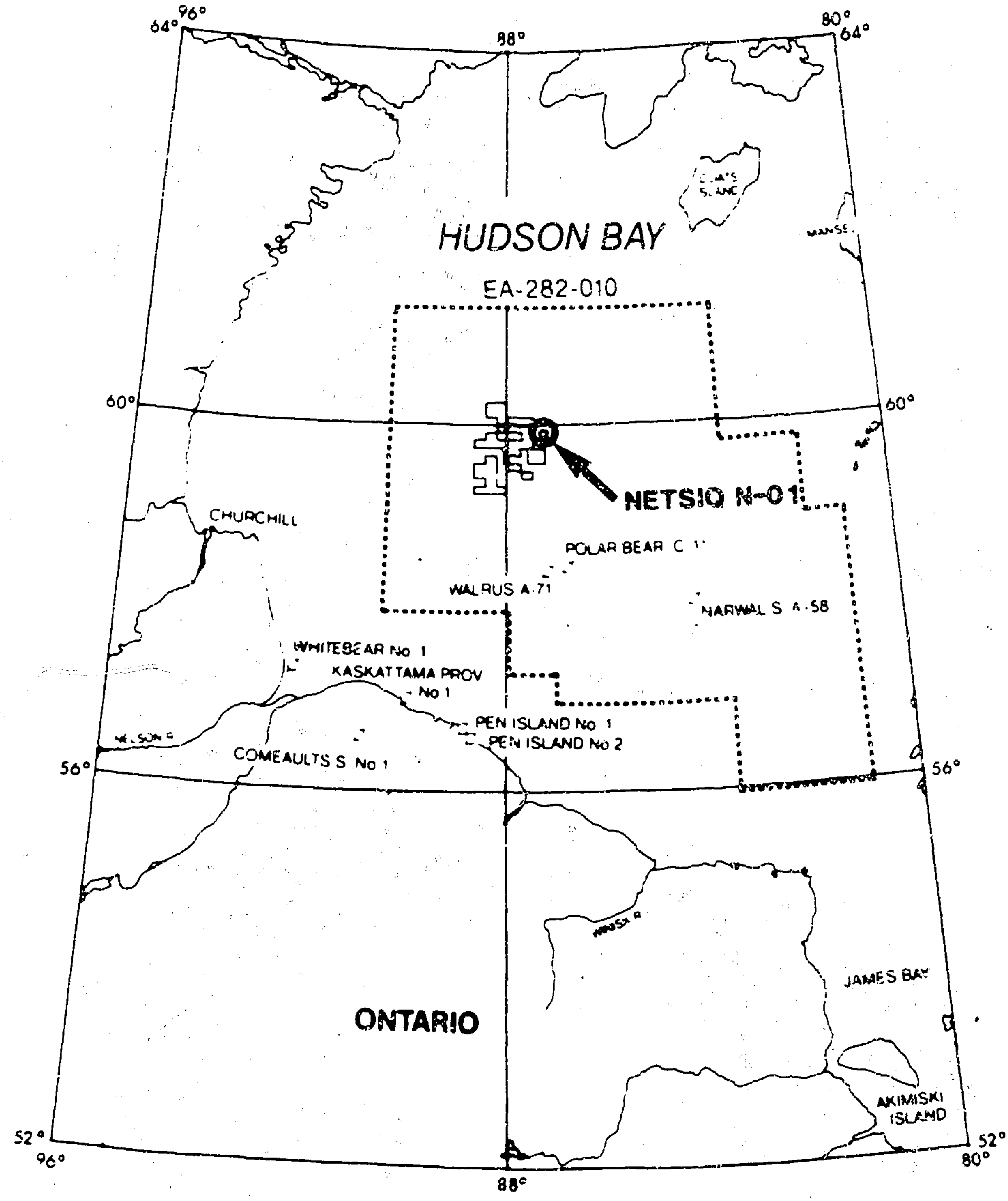
The Netsiq N-01 well was drilled to evaluate the Silurian Ekwan River carbonates. The secondary target was the dolomites of the Ordovician RedHead Rapids Formation.

The Neddrill II departed the Beluga O-23 location on September 15, 1985 at 10:45 hours local time and spudded in at Netsiq N-01 on September 15, 1985 at 22:00 hours. The well reached total depth on October 16, 1985 at 07:30 hours.

There were no significant hydrocarbon indications and no testing was conducted. Minor shallow gas was encountered at 449m and numerous $CaCl_2$ water flows were encountered.

The well was plugged and abandoned and the Neddrill II departed Netsiq N-01 on October 21, 1985 at 03:00 hours.

The Neddrill II arrived in St. John's on October 29, 1985 at 20:30 hours, where it was then offloaded. The rig went off contract on November 1, 1985 at 12:00 hours.



Canterra Energy Ltd.

HUDSON BAY

ICG SOGEPET ET AL NETSIQ N-01 LOCATION MAP

SCALE:	CONTOUR INTERVAL:
PREPARED BY:	DATE: APRIL, 1985
DRAWN BY: C. AULL	FILE: 13 - 19

2. GENERAL DATA

2.0 GENERAL DATA

2.1	WELL NAME AND NUMBER:	ICG SOGEPET ET AL NETSIQ N-01
	GRID AREA:	60° 00' W 87° 30' W
2.2	WELL LOCATION:	59°50' 48.06" N 87°30' 59.92" W
2.3	UNIQUE WELL IDENTIFIER:	MID BAY EA FEDERAL PERMIT 282-010
2.4	OPERATOR:	Canterra Energy Ltd. 555 Fourth Avenue S.W. Calgary, Alberta.
	CONTRACTOR:	Sawden Western Oceanic Offshore Ltd. 600, 300 5th Avenue S.W. Calgary, Alberta.
2.5	DRILLING UNIT:	Neddrill II
	Type:	dynamically positioned and/or moored Drillship
	Class:	Bureau Veritas Class 1 3/3 E-Glace/ Super
	Registry:	The Netherlands, Rotterdam
	Year Built:	1977
	Shipyard:	Mitsubishi Heavy Industries, Japan (converted bulk carrier)
2.6	POSITION KEEPING:	Dynamic Positioning System consisting of 6 thrusters and Delco Electronics station keeping. 8 pt mooring system with 8 - 30,000 lb Flipper Delta anchors and 3" wire rope.

2.7 SUPPORT CRAFT:

Supply Boats:

1. Toanui
Type: Anchor Handling/Supply Vessel
Owner: Seaforth Fednav, Inc.

2. Takapu
Type: Anchor Handling/Supply Vessel
Owner: Seaforth Fednav, Inc,

3. Arctic Shiko
Type: Anchor Handling/Supply Vessel
Owner: Seaforth Fednav, Inc.

4. Seaforth Highlander
Type: Anchor Handling/Supply Vessel
Owner: Seaforth Fednav, Inc.

Helicopters:

Type: 1 - Super Puma (Tiger)
1 - Super Puma (332C)
1 - Bell 214 Super Transporter
IFR Equipped
Owner: Okanagan Helicopters Ltd.

Fixed Wing:

Type: Hawker Siddely HS748 Turbo
Prop
Owner: Bradley Air Services

2.8 Drilling Unit Performance:

See Dobrocky Seatech Report, Appendix 8 of this summary.

2.9 Difficulties and Delays: Lost time was incurred due to the following problems:

1. Shallow Gas at 449 m

Gas bubbles were observed coming from the 30" housing and percolating to surface by the ROV and the external T.V. camera. As a result 3 hours of rig time were lost observing the well. The 340 mm/508 mm casing was committed at 437m, 74m higher than the planned 511m.

2. CaCl2 Water Kick at 463m

40.5 hours were lost in controlling the kick and fighting the subsequent lost circulation with 2 LCM pills, 2 diesel/gel plugs and 2 cement squeezes. For a more detailed report see 3.12, 3.13.

3. BOP/Riser Rotation

Concurrent with the well kick at 463m the ROV reported that the BOP had rotated with the riser as the vessel heading was changed. Initially, 26 hours were lost in pressure testing to ensure the integrity of the 13 3/8" casing. The cause of the rotation was traced to the inability of the riser tensioner ring to rotate with the ship's heading. Rotation was believed to be occurring in the 340mm casing buttress connectors. Partly due to this the 245mm casing was committed early and extra care was taken with the cement job to ensure that cement came to the seabed.

4. Fishing for RTTS Packer

In order to ensure the pressure integrity of the 13 3/8" casing, an RTTS packer was run in order to conduct a pressure test.

In attempting to run the RTTS packer past the 20 - 13 3/8" X/O the connection on top of the RTTS backed off and 2 runs were required to succesfully retrieve the fish. A total time of 22 hours were lost in attempting to run the RTTS past the X/O and in the subsequent fishing operations. See also 3.11.

5. **CaCl2 Water Kick at 477m**

19.5 hours were lost controlling this kick and fighting the subsequent lost circulation with 2 diesel/gel plugs. See also 3.12.

6. **Repairs to Tension Ring.**

A total of 35 hours were lost in pulling the BOP, repairing, cleaning and repacking the tension ring swivel assembly, and re-running the BOP.

7. **CaCl2 Water Kick at 543m**

10.5 hours were required to control this kick. 244mm casing was run at 533 m, after all potential troublesome water zones were thought to have been penetrated. The kick occurred after the leakoff test had been run at 542m and 1 m of additional hole had been drilled.

8. **CaCl2 Water Kick at 589m**

8.0 hours were required to control this influx of 0.95 m^3.

9. **W.O.W.**

A total of 101.5 hours were spent waiting on weather.

3. SUMMARY OF DRILLING

3.0 SUMMARY OF DRILLING OPERATIONS

3.1	ELEVATIONS:	R.T. to S.F.: 212.8 metres R.T. to S.L.: 13.5 metres Water Depth: 199.3 metres
3.2	TOTAL DEPTH: Drilled: Logged:	1040.0 metres 1040.0 metres 1040.0 metres
3.3	DATE AND HOUR SPUDDED:	85-09-15 at 22:00 hrs..
3.4	DATE DRILLING COMPLETED:	85-10-16 at 07:30 hrs.
3.5	RIG RELEASE DATE:	85-10-21 at 03:00 hrs..
3.6	WELL STATUS:	Plugged and abandoned
3.7	HOLE SIZES AND DEPTHS:	1067mm to 265.2 metres 445mm to 448.6 metres 311mm to 541.6 metres 216mm to 1040.0 metres
3.8	CASING AND CEMENTING RECORD:	Reports included in this section. See section 3.21.
3.9	SIDE TRACKED HOLE:	None

3.10 DRILLING FLUID:

Following is a listing of the drilling fluid types in each hole section. A table of mud properties and daily additions is included in this section [see 3.20]

Hole Phase [mm]	Fluid Type
1067	Seawater/Viscous pills
445	Seawater/Viscous pills
311	Salt-saturated Gel polymer
216	Salt-saturated Gel polymer

3.11 FISHING OPERATIONS:

In attempting to run in an RTTS packer it was not possible to get past the 20" to 13 3/8" crossover swedge just below the 16 3/4" wellhead. In attempting to work the packer past this crossover the RTTS backed off on its top connection. [8rd EUE thread]. The first attempt to screw in to the fish was unsuccessful. On the second attempt the ball joint wear bushing was pulled to allow the running of a Wear Bushing Running tool as a "centralizer" and the fish was recovered. This packer run was required to conduct a pressure test on the 13-3/8" casing which was believed to be rotating.

3.12 WELL KICKS:

The following is a tabulated summary and a brief description of the well kicks that were encountered in drilling Natsiq N-01.

No.	Date	Depth	MW Initial	Kill MW	Kick Vol, Type	SIDDP	SICP	Hole Size
	(1985)	(m)	(kg/m3)	(kg/m3)	(m3)	(kPa)	(kPa)	(mm)
1	09-17	448.6	1104	1438	?, gas bubbles	n/a	n/a	311 pilot

Gas bubbles observed by R.O.V. percolating to surface from 30" housing. Ran 13 3/8 casing to 436.8m. No bubbles observed when landing BOP stack.

2	09-20	463.3	1116	1677 1797 initially	43.7+, CaCl2 water (1340 kg/m3)	2,758	1620	311

Kick volume was in excess of annular volume. Killed well with Wait & Weight Method. ICP = 4309 kPa; FCP = 2482 kPa; SPM = 30 using 1797 kg/m3 mud initially but lost circulation. Reduced mud weight to 1677 kg/m3 and attempted to stop lost circulation with LSCM; Diesel/Gel with no success. Squeezed cement at 463.3m.

2a	09-21	463.3	1677	1677	?, CaCl2 water	862	1379	311
2b	09-21	340.1	1677	1677	7.1, CaCl2 water	1241	483	311

2a, 2b occurred upon pulling out of the hole after kick No. 2

No	Date	Depth	MW Initial	Kill MW	Kick Vol, Type	SIDDP	SICP	Hole Size
	(1985)	(m)	(kg/m3)	(kg/m3)	(m3)	(kPa)	(kPa)	(mm)
3	09-27	477	1677	1797	3.7, CaCl2 water	552	758	311

Killed well with 1797 kg/m3 mud. Lost circulation but regained by pumping diesel-gel slurry (10.3 m3). Drilled to 541m and ran 244mm casing.

No	Date	Depth	MW Initial	Kill MW	Kick Vol, Type	SIDDP	SICP	Hole Size
4	10-04	542	1537	1716	0.95, CaCl2 water	2869	1896	216

Drilled out shoe, ran leak-off test and drilled 1m; took kick. Killed well with wait and weight method with 1677 kg/m3 mud initially and then circulated 1716 kg/m3 mud.

No	Date	Depth	MW Initial	Kill MW	Kick Vol, Type	SIDDP	SICP	Hole Size
5	10-05	589	1716	1761	1.0 CaCl2 water	0	1103	216

Circulated out using Drillers Method. Raised Mud Weight to 1761 kg/m3. The cause of this pit gain was due to washing in the mud pit room.

3.13 LOST CIRCULATION:

The following is a tabulated summary of the lost circulation zones encounteres on Netsiq N-01:

No.	Date (1985)	Depth (m)	Mud Wt. (kg/m3)	Mud Lost (m3)	Cause/Action/Result
1	09-20	463	1797 1678	12.2	Kick at 463; raised MW to 1797, subsequently lowered to 1678.
	09-21	463	1678	9.5	LCM Pill 1 - pumped 9.54 m3 20 PPB LCM. Lost 9.54 m3 on attempt to circulate.
	09-21	463	1678	3.5 47.7	LCM Pill 2 - pumped 11.1 m3 30 PPB LCM. Lost 3.49 m3 on attempt to circulate. Diesel/gel plug (gunk): pumped 7.3 m3 down drillstring at 0.48 m3 /m. Simultaneously pumped at 0.16 m3 down annulus. Circulated; lost 47.7 m3. On pooh took a second kick.
	09-22	463	1678	7.5	Pumped 9.22 m3 cement bottom and squeezed in to formation; well static, no flow/losses. No cement to 463m. Re-perform squeeze.
2	09-27	477	1678 1797	5.7	Kick at 477m; raised Mud weight to 1797. Lost circulation. Pumped and squeezed 10.3 m3 of diesel/gel slurry. Regained full returns.

3.13 LOST CIRCULATION (Cont'd)

No.	Date (1985)	Depth (m)	Mud Wt. (kg/m3)	Mud Lost (m3)	Cause/Action/Result
3	09-28	483	1797 1737		Drilled to 483m, lost returns. Monitor losses 0.95 m3/min. Pump 10.3 m3 diesel/gel. Circulate and reduce MW to 1737 kg/m3. Drill ahead.
4	09-30	533	1764		Lost circulation after landing 244mm casing at 533m. Reland casing and circulate - no returns. Cement with partial returns. (7.95 m3)

3.14 FORMATION LEAK OFF TESTS:

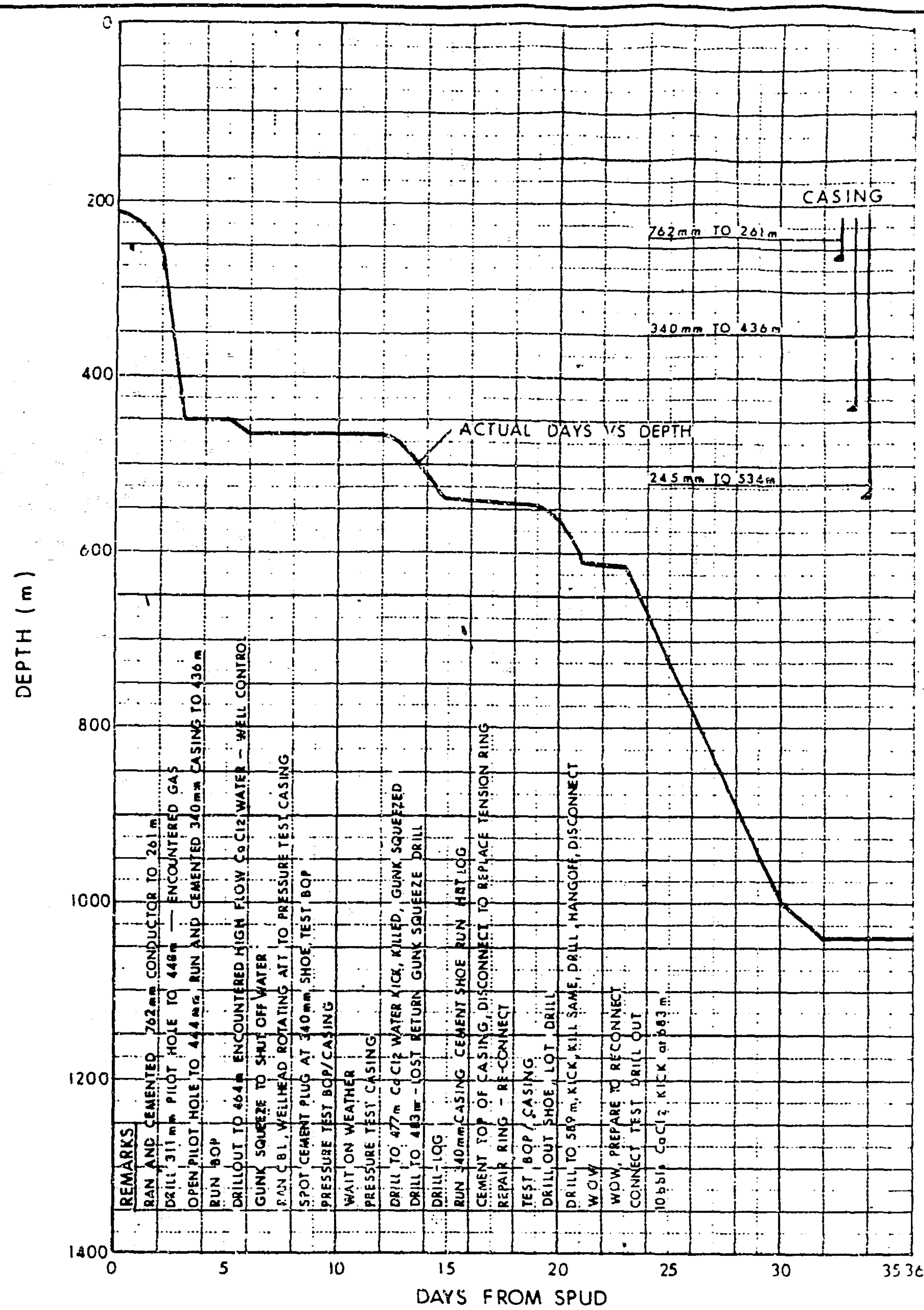
Hole Size (mm)	Casing Size (mm)	Shoe Depth (m)	Mud Weight (kg/m3)	Equivalent Mud Weight (kg/m3)
311	340	436.8	1176	1921
216	244	533.3	1717	2521

3.15 TIME DISTRIBUTION: see section 3.24

3.16 DEVIATION SURVEY: see section 3.22 of this section

3.17 ABANDONMENT PLUGS:

Plug No.	Interval	Felt	Plug Type
1	1040 - 920	No	5.5t "G" + 0.5% Gel + 2.0% CaCl2 (1775 kg/m3)
2	780 - 640	Yes @ 591m / 7 daN	6.5t "G" + 0.5% Gel + 2.0% CaCl2 (1775 kg/m3)
3A	520	Yes, Press. test & tagged	Bridge Plug
3	520 - 475	No	2.8t "G" Neat (1895 kg/m3)
4	320 - 219	No	5.4t "G" Neat (1895 kg/m3)



Canterra

ICG SOGEPET et al NETSIG N-01

DRILLING CURVE

3.19 Mud Summary

Canterra Energy et al Nestiq N-01

WELL SUMMARY

42" Hole Drilled to 855 FT (RHB) 30" Casing Cemented at 855 FT	1 Day	Seawater / Viscous Slugs
12 1/4" Hole Drilled to 1492 FT Opened to 17 1/2" 13 3/8" Casing Cemented at 1433 FT	2 Days	Seawater / Viscous Slugs
12 1/4" Hole Drilled to 1777 FT 9 5/8" Casing Cemented at 1750 FT	13 Days	Salt Saturated System
8 1/2" Hole Drilled to 3412 FT Plugged	17 Days	Salt Saturated System

Canterra Energy et al Nestiq N-01

SUGGESTIONS & RECOMMENDATIONS

42" Hole - 30" Casing

As with Beluga O-23, the only reported problems encountered were gravel and boulders.

We would suggest that a viscous mud be used as slugs with an adequate yield point to keep the hole clean.

17 1/2" Hole - 13 3/8" Casing

This section was piloted with a 12 1/4" bit to a depth of 1492 FT using seawater and viscous slugs with returns to the seafloor.

The well was then opened with a 17 1/2" hole opener, again with viscous slugs and returns going to the seafloor.

No problems were reported throughout this section; therefore, we would recommend it to be drilled in the same manner on any further wells in this area.

12 1/4" Hole - 9 5/8" Casing - 8 1/2" Hole

These intervals were drilled with a salt saturated system.

This system performed well under the adverse condition of a high calcium content after taking $CaCl_2$ water kicks in the 12 1/4" hole and 8 1/2" hole.

The system was weighted up to 15.0 lbs/gal with no additional conditioning. Gel-diesel plugs were used to aid in controlling lost returns in the 12 1/4" hole section.

Other than lost circulation and water flows, no hole problems were reported. Therefore, for both the 12 1/4" and 8 1/2" hole sections, we would suggest the use of the salt saturated system with special planning made for kicks and lost circulation.

Canterra Energy et al Nestig N-01

INTERVAL SUMMARY

42" Hole / 30" Casing

Depth: 0 FT - 855 FT

Mud System: Viscous Slugs

Canterra Energy et al Nestig N-01

42" Hole / 30" Casing

COST ANALYSIS

Section Cost:	$29,352.30
Footage Drilled:	164 FT / 49.9 M
Cost per Foot / Metre:	$178.98 / $588.22
Volume Built BBLS / M :	2734 BBLS / 434 M
Cost per BBL / M :	$10.74 / $67.63
Days on Section:	1
Cost per Day:	$29,352.30
Engineering Cost:	$400.00

Canterra Energy et al Nestig N-01

42" Hole / 30" Casing

MATERIALS SUMMARY

Caustic Soda	8 sxs	@	$ 17.50	/	25 kg sx	=	$ 140.00
Lime	4 sxs	@	8.95	/	50 lb sx	=	35.80
Soda Ash	1 sx	@	24.00	/	40 kg sx	=	24.00
Core Vis	40 sxs	@	100.00	/	50 lb sx	=	4,000.00
SM(R)	45 sxs	@	208.00	/	25 kg sx	=	9,360.00
					TOTAL	=	$13,559.80

Bulk Materials

Barite	57.7	MT	@	$165.00	/ MT	=	$ 9,520.50
Bentonie	24.5	MT	@	256.00	/ MT	=	6,272.00
				TOTAL		=	$15,792.50
				SECTION TOTAL		=	$29,352.30

Canterra Energy et al Nestig N-01

INTERVAL SUMMARY

17 1/2" Hole / 13 3/8" Casing

Depth: 855 FT - 1472 FT

Mud System: Viscous Slugs

Canterra Energy et al Nestig N-01

17 1/2" Hole / 13 3/8" Casing

COST ANALYSIS

Section Cost:	$18,062.54
Footage Drilled:	617 FT / 188 M
Cost per Foot / Metre:	$29.27 / $96.08
Volume Built BBLS / M^3:	2558 BBLS / 406 M^3
Cost per BBL / M^3:	$7.06 / $44.49
Days on Section:	2
Cost per Day:	$9,031.27
Engineering Cost:	$800.00

Canterra Energy et al Nestia N-01

17 1/2" Hole / 13 3/8" Casing

MATERIALS SUMMARY

Caustic Soda	11 sxs	@	$ 17.50	/	25 kg sx	=	$	192.50
DF-Vis	3 sxs	@	320.00	/	25 kg sx	=		960.00
Soda Ash	1 sx	@	24.00	/	40 kg sx	=		24.00
SM(R)	27 sxs	@	208.00	/	25 kg sx	=		5,616.00
Biotrol	1 drum	@	130.04	/	5 gal drum	=		130.04
			TOTAL			=	$	6,922.54

Bulk Materials

Barite	52 MT	@	165.00	/	MT	=	$ 8,580.00
Bentonite	10 MT	@	256.00	/	MT	=	2,560.00
			TOTAL			=	$11,140.00
			SECTION TOTAL			=	$18,062.54

Canterra Energy et al Nestiq N-01

SUMMARY OF EVENTS

42" Hole / 30" Casing

On 16 September 1985, Nestiq N-01 was spudded with a 42" bit. Viscous slugs were circulated with returns to the seafloor.

Drilling continued to a depth of 855 ft (RKB). At this depth, the hole was circulated clean and the bit was pulled.

The 30" casing was run in the hole. Due to a large rock, the casing had to be circulated in the last 40 ft. Other than a larger amount of boulder, no problems were reported.

17 1/2" Hole / 13 3/8" Casing

On 17 September 1985, the 30" shoe was drilled out with a 12 1/4" bit. A 12 1/4" pilot hole was drilled to 1492 ft using seawater and high vis slugs. The well was displaced with a 12.0 lb/gal slug and the 12 1/4" bit was pulled. The hole was opened to 17 1/2" using seawater and high vis sweeps.

On 18 September 1985 the hole was displaced with a 9.2 lb/gal viscous mud, and the 17 1/2" bit was pulled from a depth of 1472 ft. The 13 3/8" casing was run and cemented at a depth of 1433 ft.

No major problems were reported drilling or running and cementing casing in this hole section.

Canterra Energy et al Nestiq N-01

INTERVAL SUMMARY

12 1/4" Hole / 9 5/8" Casing

Depth: 1433 FT - 1777 FT

Mud System: Salt Saturated

Canterra Energy et al Nestiq N-01

12 1/4 " Hole / 9 5/8" Casing

COST ANALYSIS

Section Cost:	$126,101.08
Footage Drilled:	344 FT / 104.8 M
Cost per Foot / Metre:	$366.57 / $1,203.25
Volume Built BBLS / M^3:	2136 BBLS / 339 M^3
Cost per BBL / M^3:	$59.04 / $371.98
Days on Section:	13
Cost per Day:	$9,700.08
Engineering Cost:	$5,200.00

Canterra Energy et al Nestiq N-01

MATERIALS SUMMARY

12 1/4" Hole / 9 5/8" Casing

Caustic Soda	93 sxs	@	$ 17.50	/	25 kg sx	=	$	1,627.50
DF-Vis	31 sxs	@	320.00	/	25 kg sx	=		9,920.00
Techniflo	78 sxs	@	56.00	/	25 kg sx	=		4,368.00
Lime	10 sxs	@	8.95	/	50 lb sx	=		89.50
Salt	2470 sxs	@	7.00	/	40 kg sx	=		17,290.00
Peltex	30 sxs	@	21.30	/	25 kg sx	=		639.00
Soda Ash	6 sxs	@	24.00	/	40 kg sx	=		144.00
Bicarb	24 sxs	@	37.50	/	100 lb sx	=		900.00
Walnut	20 sxs	@	26.60	/	50 lb sx	=		532.00
Biotrol	2 drums	@	130.04	/	5 gal drum	=		260.08
Kwik Seal	50 sxs	@	29.90	/	40 lb sx	=		1,495.00
Defoamer	1 drum	@	784.00	/	200 L drum	=		784.00
			TOTAL			=	$	38,049.08

Bulk Materials

Barite	484 MT	@	$165.00	/	MT	=	$	79,860.00
Bentonite	32 MT	@	256.00	/	MT	=		8,192.00
			TOTAL			=	$	88,052.00
			SECTION TOTAL			=	$	126,101.08

Canterra Energy et al Nestiq N-01

SUMMARY OF EVENTS

12 1/4" Hole - 9 5/8" Casing

While waiting on cement, a salt saturated system was built in the surface pits. The cement and shoe were drilled with seawater and a 12 1/4" bit. The well was displaced to the saturated system and drilling continued.

A leak-off test was done and indicated 16.5 lbs/gal equivalent mud weight. Drilled ahead to 1520 FT and took a $CaCL_2$ water kick. Killed well with 15 lbs/gal mud and lost returns. Mud weight was cut back to 14 lbs/gal and circulation was regained. A gel-diesel plug was mixed and spotted over the loss zone. POH and ran in hole, open end.

Problems were reported with the well head. Bull head 200 bbls of 14.1 lbs/gal mud and dropped cement plug. Cement bond logs were run on 13 3/8" casing. Run cement plug on bottom and run pressure cap. Pressure test cement plug.

Drilled out cement with 14 lbs/gal mud and drilled ahead to 1565 FT when well kicked. Killed well with 15 lbs/gal mud, drilled 5 FT, and lost returns. Spotted a gel-diesel plug, drilled ahead to 1585 FT, and lost returns again. Spotted a gel-diesel plug, lowered the density to 14.6 lbs/gal, and drilled ahead to 1777 FT.

Logged and ran 9 5/8" casing to 1750 FT. Lost 50 percent of returns when cementing. Squeezed cement through 2nd stage. Pulled stack while waiting on cement.

Canterra Energy et al Nestiq N-01

INTERVAL SUMMARY

8 1/2" Hole

Depth Interval: 1777 - 3412 FT

Mud System: Salt Saturated

Canterra Energy et al Nestig N-01

8 1/2" Hole - 7" Liner

COST ANALYSIS

Section Cost:	$91,151.16
Footage Drilled:	1635 FT / 498.3 M
Cost per Foot / Metre:	$55.75 / $182.92
Volume Built BBLS / M^3:	1002 BBLS / 159.3 M^3
Cost per BBL / M^3:	$90.96 / $572.20
Days on Section:	17
Cost per Day:	$5,361.83
Engineering Cost:	$6,800.00

Canterra Energy et al Nestiq N-01

8 1/2" Hole / 7" Liner

MATERIALS SUMMARY

Caustic Soda	51 sxs	@	$ 17.50	/ 25 kg sx	=	$ 892.50
DF-Vis	32 sxs	@	320.00	/ 25 kg sx	=	10,240.00
Techniflo	96 sxs	@	56.00	/ 25 kg sx	=	5,376.00
Lime	4 sxs	@	8.95	/ 50 lb sx	=	35.80
Salt	3564 sxs	@	7.00	/ 40 kg sx	=	24,948.00
Peltex	18 sxs	@	21.30	/ 25 kg sx	=	383.40
Soda Ash	27 sxs	@	24.00	/ 40 kg sx	=	648.00
SAPP	1 sx	@	119.90	/ 40 kg sx	=	119.90
Walnut	10 sxs	@	26.60	/ 50 lb sx	=	266.00
Lignite	61 sxs	@	16.96	/ 25 kg sx	=	1,034.56
				TOTAL	=	$ 43,944.16

Bulk Materials

Barite	283 MT	@	$165.00	/ MT	=	$ 46,695.00
Bentonite	2 MT	@	256.00	/ MT	=	512.00
				TOTAL	=	47,207.00
				TOTAL COST	=	$ 91,151.16

Canterra Energy et al Nestin N-01

SUMMARY OF EVENTS

8 1/2" Hole

On 2 October 1985 the stack and riser were run. The cement and 9 5/8" casing were drilled out on 4 October with a 8 1/2" bit using the salt saturated system, which was left from the 12 1/4" hole section. The density was adjusted to 12.2 lbs/gal.

A leak off of 21.0 lbs/gal was achieved under the shoe.

Drilled ahead to 1784 FT when well kicked. (*See report on kick control.) Killed well and drilled ahead with 14.3 lbs/gal mud to 1932 FT when well started to flow. Killed well and drilled ahead to 2002 FT with a density of 14.7 lbs/gal. Waited on weather.

Tripped back in hole and drilled ahead. Hold condition was good on trips. Waited on weather.

Ran back in hole and drilled to 3412 FT (Total depth). Logged well and ran bridge and cement plugs with no problems reported.

KICK CONTROL REPORT

Depth: 543 M (1782 FT) Date: 4 October 1985

9 5/8" casing set @ 533 M (1750 FT)
12 1/4" rathole 542 M (1777 FT)
F.L.O.T. 21.0 ppg

Drill to 543 M (1782 FT). Mud weight: 12.1 ppg. Take kick. Shut well in.

1. SIDPP = 300 psi. SICP = 275 psi. Pit gain of 6 BBLS. Kill with No. 2 pipe ram. Mud weight @ 15.0 ppg. Wait and weight method. Mud losses of 16 BBLS on returns up kill line.

2. Displace riser to 15.0 ppg. Evaluate well. SIDPP = 0 psi. SICP = 0 psi.

3. Displace riser to 14.3 ppg prior to opening up well to avoid lost circulation.

4. Open well. Circulate at 30 spm. Condition mud to 14.3 ppg. No flow. Full returns.

REMARKS:

1. No trace of gas.

2. Jet nozzles in bit 16 x 18 x 18.

3. Use balance kill to avoid lost circulation.

4. $CaCL_2$ water kick.

Depth: 589 M (1932 FT) Date: 5 October 1985

Flow check well and shut in (mud weight @ 14.3 ppg). SIDPP = 0 psi. SICP = 0 psi. Pit gain of 6 BBLS. Riser bubbling. No change in noted gas readings.

1. Displace riser through choke line. Variable No. 3 ram closed (mud weight 14.4 ppg).

2. Riser still bubbling. Hang off on No. 2 pipe ram. Displace riser to 14.5 ppg. Kill below rams to 14.5 ppg.

3. Open well. Well flowing.

4. Shut well in with No. 2 pipe ram. Displace riser through choke line to 14.7 ppg. Kill below No. 2 pipe ram to 14.7 ppg.

5. Open well. Flow check. Circulate @ 55 spm.

REMARKS:

1. Attempt to balance kill formation by bringing mud weight up in small increments to avoid lost circulation.

2. Bubbling in riser assumed to be CO_2. Slip joint packing also checked for possible air leaks.

CANTERRA ENERGY et al NESTIQ N-01 TOTAL MATERIAL USAGE

PRODUCT	COST/UNIT	INTERVAL 42"	17½"	12¼"	8½"	TOTAL USED	TOTAL COST	C/O OF TOTAL COST
Caustic Soda	17.50/25kg	8	11	93	51	163	$2,852.50	1.03
[illegible]	320.00/25kg		3	31	32	66	21,120.00	7.60
[illegible]	56.00/25Kg			78	96	174	9,744.00	3.51
[illegible]	8.95/50lbs	4		10	4	18	161.10	.06
[illegible]	7.00/40Kg			2470	3564	6034	42,238.00	15.20
[illegible]	21.30/25Kg			30	18	48	1,022.40	.37
Soda Ash	24.00/50Kg	1	1	6	27	35	840.00	.30
[illegible]	100.00/50lbs	40				40	4,000.00	1.44
[illegible]	37.50/100lbs			24		24	900.00	.32
[illegible]	119.90/40Kg				1	1	119.90	.04
[illegible]	208.00/25kg	45	27			72	14,976.00	5.39
[illegible]	50.82/50lbs					-	-	-
[illegible]	26.60/50lbs			20	10	30	798.00	.29
[illegible]	16.96/25kg				61	61	1,034.56	.37
[illegible]	130.04/5gal		1	2		3	390.12	.12
[illegible]	29.90/50lbs			50		50	1,495.00	.54
[illegible]	784.00/200 l			1		1	784.00	.28
TOTAL CHEMICAL COST							$102,475.50	36.88
[illegible]	[illegible]	57.7	52	484	283	876.7	144,655.50	52.06
[illegible]	256.00/M[illegible]	24.5	10	32	2	68.5	17,536.00	6.31
TOTAL BULK COST							162,191.50	58.37
TOTAL MATERIAL COST							264,667.08	95.25
TOTAL ENGINEERING COST $400.00x33 DAYS							13,200.00	4.75
TOTAL WELL COST							277,867.08	

	42"	17½"	12¼"	8½"
[illegible]	$29,352.40	$18,062.54	$126,101.08	$91,151.16
[illegible]	1651/449.9m	617ft/188m	344/104.8m	1635/498.3m
[illegible]	$178.98/588.22	$29.27/96.08	$366.57/120.25	$55.75/182.92
[illegible]	2734/434	2558/406	2136/339	1002/159.3
[illegible]	$10.74/67.64	$7.06/44.49	$59.04/371.98	$90.96/572.20
[illegible]	1	2	13	17
[illegible]	$29,352.40	9,031.27	9,700.08	5,361.83

Technifluids

SUITE 612, 45 ALDERNEY DRIVE
DARTMOUTH, NOVA SCOTIA
B2Y 2N6

(19) Drill to 1777 ft
Dummy Trip
Circulate BTM up
Logg no R.11
(20) Flow water wt 11.2 #gal

WELL NAME AND LOCATION Nestig N-01

OPERATOR Canterra

INTERVAL 0-1777

CONTRACTOR Nabors #2

SPUD DATE 15 Sept 85

MUD ENGINEERS Del Kellsey

MUD SYSTEM Sat / Salt.

DRILLING MUD SUMMARY

DAY NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14
DATE 1985 - Sept	16	17	18	19	20	21	22	23	24	25	26	27	28	29
DEPTH (M FT ✓)	855	1469	1472	1433	1490	1524	1524	1520	1520	1520	1520	1565	1682	1777
FLOWLINE SUCTION TEMP. (C F ✓)	58	64	66	61	68	58	63	59	58	60	62	59	63	71
FUNNEL VISCOSITY (S/L S/Q ✓)	220+	190	195	37	37	44	44	42	45	44	44	43	46	48
DENSITY (KG/M LB/GAL ✓)	9.3	9.2	9.2	9.3	9.8	14	14.1	14.1	14	14	13.9+	15	14.6	14.6
PRESSURE GRADIENT (KPA/M PSI/FT ✓)	.483	.478	.478	.483	.509	.728	.733	.733	.728	.728	.723	.780	.759	.759
PH (STRIP METER)	10.5	9.5	9.0	10.5	10.5	9.0	10	10	10	10	10	10	10	10
RHEOLOGY TEST TEMP. (C F ✓)	70	70	70	70	70	70	70	69	70	70	70	70	75	75
PLASTIC VISCOSITY (MPAS CPS ✓)	o/s	20	21	7	7	20	20	17	26	22	22	24	21	21
YIELD POINT (PA LB/100FT² ✓)	Scale	60	62	8	8	13	9	8	11	8	9	12	9	10
GEL STRENGTHS (PA LB/100FT² ✓)	35/70	10/30	12/43	2/3	2/3	10/30	8/21	6/17	4/8	3/9	3/7	6/16	4/13	5/13
n/k (RPM--/--MPA lb/100FT² ✓)	+	/	/	/	/	/	/	/	/	/	/	/	/	/
API FILTRATE (ML)	N/C	N/C	38	15.5	14.9	38	19	25	17.5	14.2	14.7	35	36.8	17.2
FILTER CAKE (32NDS MM)	Thick		Thick	Thin	Thin	Med	Thin	Med	Med	Thin	Thin	Thick	Thick	Med
HTHP TEST TEMP/TEST PRESS	/	/	/	/	/	/	/	/	/	/	/	/	/	/
HTHP FILTRATE (ML)														
FILTER CAKE (32NDS MM)														
VOLUME FRACTION SAND (% SAND)	0	0	0	0	0	0	0	0	0	0	0	0	TR	TR
VOLUME FRACTION OIL (% OIL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUME FRACTION SOLIDS (% TS)	2½	2½	2½	1½	1½	20	20	20	19½	19½	19½	24	20	20
MBT (KG/M³ LB/BBL ✓)	20	25	25	8.5	8.5	8.5	7.5	7.5	7	7	7	5	5	8.5
HIGH GRAVITY SOLIDS (KG/M³ LB/BBL ✓)	0	0	0	0	0	235	235	235	233	235	235	295	275	275
BENTONITE AS GEL (KG/M³ LB/BBL ✓)	20	25	25	8.5	8.5	8.5	7.5	7.5	7	7	7	5	5	8.5
DRILLED SOLIDS (KG/M³ LB/BBL)	0	0	.0	0	3.5	3	4	4	4	4	4	10	10	10
ALKALINITY (PF/MF)	.3/.5	.4/.6	.3/.4	.5/.7	.2/.3	.6/1	.2/.3	.15/.25	.1/.15	.1/.15	.1/.15	.4/.5	.1/.15	.3/.3
HYDROXYL (MG/L PPM ✓)	68	102	68	101	34	7	34	17	17	17	17	101	17	34
BICARBONATE (MG/L PPM ✓)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CARBONATE (MG/L PPM ✓)	240	120	120	240	120	48	120	120	90	0	0	120	60	120
CALCIUM (MG/L PPM ✓)	1000	1000	800	285	305	8000	10,000	7,400	6,100	7000	9500	13,000	13,000	11,500
MAGNESIUM (PPM MG/L ✓)	0	10	60	120	60	400	280	290	320	180	190	300	390	380
CHLORIDES (PPM MG/L ✓)	85,000	90,000	25,000	75,000	180,000	174,000	174,000	155,000	170,000	190,000	190,000	120,000	168,000	168,000
POTASSIUM (PPM MG/L ✓)														
SS-100 POLYMER (KG/M³ LB/BBL)														
SULPHITE (PPM MG/L)														
LIGNOSULPHONATE (KG/M³ LB/BBL)														

SUMMARY OF ACTIVITY COMMENTS, OBSERVATIONS, PILOT TESTS

(1) Set 20" Casing - 855
(2) Set 13⅜ Casing - 1433
(3) Took water flow 1520 - Kill with 15#gal - Lost Circulation -
(4) Cut mud wt back to 14# - Started flow
(5) Appears Casing Failure (Well Head and Stack Turns with Stack)
(6) Run Diesel / Gel Plug on BTM
(7) Run Cement Plug on BTM
Run Second Cement Plug on BTM
(8) Run Bond Logg
(9) Run + Fish Packer in Well Head.
(10) W.O.W
(11) Test Casing - B.O.P's
(12) Drill with 14# gal
(13) Take Flow (Kick shows 14.9#)
(14) wt to 15
(15) Drill ahead
(16) Lost circ - 1565
(17) Run Diesel / Gel Plug on BTM
(18) Drill out Plug - Drill ahead with 15# mud to 1585 - Lost Returns - Run Diesel / Gel Plug - Drill ahead with 14.6 #gal mud

29

Technifluids

SUITE 612, 45 ALDERNEY DRIVE
DARTMOUTH, NOVA SCOTIA
B2Y 2N6

WELL NAME AND LOCATION Nastig N-01 Hudson Bay

OPERATOR CanTerra INTERVAL 1777' to

CONTRACTOR Neddrill #2 SPUD DATE 15 Sept 85

MUD ENGINEERS Dai Kellsey MUD SYSTEM Sat/Ca++/Salt

DRILLING MUD SUMMARY

DAY NUMBER	15	16	17	18	19	20	21	22	23	24	25	26	27	28
DATE 85 Sept	30	Oct 1	2	3	4	5	6	7	8	9	10	11	12	13
DEPTH (M FT ✓)	1777	1750	1730	1750	1820	2002	2002	2002	2110	2368	2558	2756	2956	3093
FLOWLINE SUCTION TEMP. (C F ✓)	60	56	57	70	54	49	50	69	53	44	42	48	48	48
FUNNEL VISCOSITY (S/L S/Q ✓)	45	39	38	36	44	44	42	41	44	43	44	44	46	47
MUD DENSITY (KG/M LB/GAL ✓)	14.6	13.8	13.8	12.8	14.3	14.7	14.6	14.7	14.7	14.8	14.8	14.7	14.7	14.7
PRESSURE GRADIENT (KPA/M PSI/FT ✓)	.759	.717	.717	.665	.743	.764	.759	.764	.764	.769	.769	.764	.764	.764
PH (STRIP METER)	10.4	11	11	11	11.5	10.9	10.5	10.5	11	11.3	10.5	11	11.5	11.5
RHEOLOGY TEST TEMP. (C F)	70	70	70	70	70	70	70	70	70	70	70	70	70	70
PLASTIC VISCOSITY (MPAS CPS ✓)	21	14	14	12	17	20	19	20	22	22	23	21	23	24
YIELD POINT (PA LB/100FT² ✓)	9	6	6	6	14	8	5	6	6	6	6	8	9	10
GEL STRENGTHS (PA LB/100FT² ✓)	5/10	3/6	4/6	4/7	6/14	3/7	4/10	4/7	4/6	3/5	4/6	5/8	4/6	4/7
n/k (-/--MPA lb/100FT² ✓)	//	/	/	/	/	/	/	/	/	/	/	/	/	/
API FILTRATE (ML)	16.5	22	22.5	17.5	27	18.7	16.2	13.1	12.2	13.8	14.1	13.9	12.2	11.8
FILTER CAKE (32NDS ML)	med	Thin	Thin	Thin	med	med	med	Thin	Thin	Thin	Thin	Thin	Thin	
HTHP TEST TEMP/TEST PRESS	//	/	/	/	/	/	/	/	/	/	/	/	/	/
HTHP FILTRATE (ML)	/													
FILTER CAKE (32NDS ML)														
VOLUME FRACTION SAND (% SAND)	0	TR	0	0	0	TR	TR	TR	TR	TR	TR	TR	TR	TR
VOLUME FRACTION OIL (% OIL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUME FRACTION SOLIDS (% TS)	20	17½	17½	12½	19½	20¾	20	20½	20½	20½	21	20½	20½	20½
IT (KG/M³ LB/BBL ✓)	8.5	7.5	7½	5	5	4	4	5	5	4	4	4	3	3
LOW GRAVITY SOLIDS (KG/M³ LB/BBL ✓)	275	210	230	190	260	275	270	280	278	275	280	280	280	280
BENTONITE AS GEL (KG/M³ LB/BBL ✓)	8.5	7.5	7½	5	5	4	4	5	5	4	4	4	3	3
DRILLED SOLIDS (KG/M³ LB/BBL ✓)	12	11	11	12	10	17	13	13	15	22	17	17	17	15
ALKALINITY (PF/MF)	.2/.3	.35/.4	.35/.4	.4/.5	.4/.5	.2/.3	.2/.3	.15/.2	.2/.3	.15/.2	.1/.15	.2/.3	.2/.3	.2/.3
HYDROXYL (MG/L PPM ✓)	34	102	102	102	102	34	34	34	34	34	17	34	34	34
BICARBONATE (MG/L PPM ✓)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CARBONATE (MG/L PPM ✓)	120	60	60	120	120	120	110	60	120	60	60	120	120	120
CALCIUM (MG/L PPM ✓)	11,200	10,800	10,800	8900	10,100	9200	9100	9200	8250	8450	8900	7800	4600	4700
MAGNESIUM (PPM MG/L ✓)	290	100	100	100	280	120	240	160	200	0	0	100	0	80
CHLORIDES (PPM MG/L ✓)	162,000	150,000	150,000	162,000	150,000	163,000	150,000	158,00	170,000	167,300	161,000	155,000	168,000	170,000
POTASSIUM (PPM MG/L ✓)														
SS 100 POLYMER (KG/M³ LB/BBL)														
SULPHITE (PPM MG/L)														
LIGNOSULPHONATE (KG/M³ LB/BBL)														

SUMMARY OF ACTIVITY COMMENTS, OBSERVATIONS, PILOT TESTS

(1) Logging 12¼ hole
(2) Run 9 5/8 Casing
(3) Losing mud while Cementing
(4) W.O.C
(5) Cement 2nd Stage
(6) Pull Stack
(7) Drill out Cement
(8) Drill ahead with 12.2 #gal
(9) Took Kick @ 14.3 #gal
(10) Drill ahead 14.3 #gal mud
(11) Took Kick 14.7 #gal mud
(12) Drill ahead 14.7 #gal mud
(13) Disconnect
(14) W.O.W.
15 Run Stack
16 Drill - losing mud
(17) Trip
(18) Drill
(19) Trip
(20) Drill
(21) Trip
(22) Drill

Kick 1782 ft 14.3 #gal Grad
Kick 1929 ft 14.7 #gal Grad
LC 1935 ft 14.7 + .3 ECD

Kick Fluid Heavy water plus possible CO_2 gas

Technifluids

SUITE 612, 45 ALDERNEY DRIVE
DARTMOUTH, NOVA SCOTIA
B2Y 2N6

WELL NAME AND LOCATION Nestiq N-01 Hudson Bay
OPERATOR CanTerra INTERVAL 3093-3412
CONTRACTOR Neddrill #2 SPUD DATE 15 Sept 85
MUD ENGINEERS Del Kelley MUD SYSTEM SaT/Salt

DRILLING MUD SUMMARY

DAY NUMBER	29	30	31	32	33	34	35	36						
DATE Oct	14	15	16	17	18	19	20	21						
DEPTH (M FT)	3250	3340	3412	3412	3412	1932								
FLOWLINE SUCTION TEMP. (C F)	45	46	47	49	46	44		L.						
FUNNEL VISCOSITY (S/L S/Q)	47	47	47	48	47	50		e						
MUD DENSITY (KG/M LB/GAL)	14.7	14.7	14.7	14.7	14.7	14.7		a						
PRESSURE GRADIENT (KPA/M PSI/FT)	.764	.764	.764	.764	.764	.764	R	k						
PH (STRIP METER)	10.5	11	11	11	11	10.8	u	o						
RHEOLOGY TEST TEMP. (C F)	70	70	70	70	70	70	N							
PLASTIC VISCOSITY (MPAS CPS)	23	25	24	24	25	25	N	f						
YIELD POINT (PA LB/100FT²)	9	10	10	10	11	10	i	f						
GEL STRENGTHS (PA LB/100FT²)	4/5	4/7	4/6	4/7	5/8	5/7	N	9	/	/	/	/	/	/
n/k (RPM--/--MPA lb/100FT²)	/	/	/	/	/	/	G	s	/	/	/	/	/	/
API FILTRATE (ML)	10.8	11.6	11.9	12.1	13.0	13		T						
FILTER CAKE (32NDS ML)	THIN	THIN	THIN	THIN	THIN	THIN								
HTHP TEST TEMP/TEST PRESS	/	/	/	/	/	/	T	T/	/	/	/	/	/	/
HTHP FILTRATE (ML)							o	o						
FILTER CAKE (32NDS ML)							P							
VOLUME FRACTION SAND (% SAND)	TR	TR	TR	TR	TR	TR		N						
VOLUME FRACTION OIL (% OIL)	0	0	0	0	0	0	P							
VOLUME FRACTION SOLIDS (% TS)	20½	20½	21	21	21	21	l							
MBT (KG/M³ LB/BBL)	4	3	3	3	3	3	u							
HIGH GRAVITY SOLIDS (KG/M³ LB/BBL)	280	280	285	270	272	270	g							
BENTONITE AS GEL (KG/M³ LB/BBL)	4	3	3	3	3	3	s							
DRILLED SOLIDS (KG/M³ LB/BBL)	14	18	18	20	18	20								
ALKALINITY (PF/MF)	.15/.25	.2/.3	.15/.2	.2/.3	.2/.3	.15/.25	/	/	/	/	/	/	/	/
HYDROXYL (MG/L PPM)	17	34	34	34	34	17								
BICARBONATE (MG/L PPM)	0	0	0	0	0	0								
CARBONATE (MG/L PPM)	120	120	60	120	120	120								
CALCIUM (MG/L PPM)	2800	3200	2600	2600	2600	2600								
MAGNESIUM (PPM MG/L)	0	40	40	40	00	40								
CHLORIDES (PPM MG/L)	168,000	159,000	158,000	162,000	156,000	158,000								
POTASSIUM (PPM MG/L)														
SS-100 POLYMER (KG/M³ LB/BBL)														
SULPHITE (PPM MG/L)														
LIGNOSULPHONATE (KG/M³ LB/BBL)														

SUMMARY OF ACTIVITY COMMENTS, OBSERVATIONS, PILOT TEST

(1) Drilling
(2) Trip for bit + weather
(3) Displace Riser
(4) W.O.W
(5) Run in Hole
(6) Drill
(7) Dummy Trip
(8) Pull & Logg
(9) Logging
(10) Cementing P/A
(11) Eval Cement Plug
(12) Circulate past Kick Zone
(13) Set Bridge Plug above Kick Zone

Technifluids

WEEKLY INVENTORY AND VOLUME CONTROL

INTERVAL: 30" / 13 3/8" / 12 1/4"   PAGE: I

WELL NAME: NesTiQ N-01   SPUD DATE: 15 Sept 85   CONTRACTOR: Aleddrill   WEEK ENDING: 22 Sept 85

LOCATION: Hudson Bay   MUD SYSTEM: S.M.R + Gel   ENGINEERS: Del Kellsey   DEPTH: 0 TO 1524

COMMENTS:
(1) 42" Hole - Day one → (14,968 ^{22})
30" Casing Set 855
(2) Set 13 3/8 - 1435 - 18,020 ^{00}

DAY NUMBER	1	2	3	4	5	6	7
DATE 1985 Sept	16	17	18	19	20	21	22
DEPTH	855	1469	1472	1433	1520	1520	1520
STARTING VOLUME	1500	1826	2100	670	2020	1508	1708
VOLUME BUILT	3000	1400		1350	100	180	0
LOST SOLIDS REMOVAL					100		
LOST DUMPED							
LOST SUB SURFACE	2734	1126	1430		216	280	428
TOTAL LOSSES	2734	1126	1430	0	316	280	428
FINAL VOLUME	1826	2100	670	2020	1808	1708	1208

PREVIOUS TOTAL — TOTAL 6030
TOTAL FORWARDED — 6313

PREVIOUS COST: -0-
WEEKLY COST: 99,890
TOTAL COST: 99,890

PRODUCTS	UNIT SIZE	ON HAND	TOTAL USAGE FORWARDED	TOTAL DELIVERIES FORWARDED	DELIVERIES THIS WEEK			TOTAL WELL SITE DELIVERIES	DAILY PRODUCT CONSUMPTION							WEEKLY USAGE	FINAL INVENTORY	TOTAL USAGE
Barite	MT	741		741				741		22			150	85	38	325	416	325
Gel	MT	98		98				98	12	8	2			8	2	32	66	32
Caustic	25Kg	361		361				361	8	80		27	1	2	8	54	307	54
DF-Vis	25Kg	199		199				199			3	13	3		1	20	179	20
FLR 100	25Kg	383		383				383								0	383	
Super Lo	25Kg	150		150				150									150	
Techno Flo	25Kg	174		174				174				25	4		8	33	141	33
Lime	50#	138		138				138	4			4	2			10	128	10
Salt	40Kg	530		530	780			1310				530	780			1310	0	1310
PolTex	25Kg	145		145				145					1			1	144	1
Soda Ash	40Kg	38		38	44			82	1	1		3				5	77	5
Core Vis	50#	40		40				40	40							40	0	40
B.Carb	45Kg	24		24				24									24	
B-Free	60L	25		25				25									25	
D-Detergent	200L	13		13				13									13	
S.A.A.P	40Kg	21		21				21									21	
S.M.R	25Kg	214		214				214	97	81	6					64	150	64
Te Technoflo	50#	200		200				200									200	
Walnut	50#	120		120				120						20		20	100	20
Am B. Sulfate	200L	12		12				12									12	
BioTrol	5gal	16		16				16		1						1	15	1
Mica	25Kg	135		135				135									135	
Sawdust	5k?	100		100				100									100	
Kwik Seal	40#	100		100				100						50		50	50	50
D-Foam	200L	6		6				6									6	
Tabargo aad	200L	15		15				15									15	

Technifluids

WEEKLY INVENTORY AND VOLUME CONTROL

INTERVAL: 1520 – 1777 PAGE: 2

WELL NAME: Nerlig N-01 SPUD DATE: 15 Sept 85 CONTRACTOR: Nabdell #2 WEEK ENDING: 29 Sept 85

LOCATION: Hudson Bay MUD SYSTEM: Sat/Salt ENGINEERS: Del Kelley DEPTH: 1520 TO 1777

COMMENTS:

D-Foamer priced @ 823 per Drum

DAY NUMBER	8	9	10	11	12	13	14			
DATE 85 Sept	23	24	25	26	27	28	29			
DEPTH	1520	1520	1520	1520	1565	1682	1777	PREVIOUS		
STARTING VOLUME	1208	1554	1461	1461	1437	1328	1353	TOTAL	TOTAL	
VOLUME BUILT	346	0	0	0	200	400	70	6030	7046	
LOST SOLIDS REMOVAL								TOTAL		PREVIOUS COST
LOST DUMPED	20			24				FORWARDED		99,890
LOST SUB SURFACE		93			309	365	27			WEEKLY COST
										54,722
TOTAL LOSSES	20	93	0	24	309	365	27	6313	7151	TOTAL COST
FINAL VOLUME	1554	1461	1461	1437	1328	1353	1396			154,612

PRODUCTS	UNIT SIZE	ON HAND	TOTAL USAGE FORWARDED	TOTAL DELIVERIES FORWARDED	DELIVERIES THIS WEEK			TOTAL WELL SITE DELIVERIES	DAILY PRODUCT CONSUMPTION							WEEKLY USAGE	FINAL INVENTORY	TOTAL USAGE
Barite	mT	416	325	741				741	36	30			90	30	12	188	228	513
Bent	mT	66	32	98				98					12	5	5	22	44	54
Caustic	25Kg	307	54	361				361	7	6	4	6	19	7	4	53	254	107
DF-Vis	25Kg	179	0	199				199	1	4		1		7		13	166	13
FLR-100	25Kg	383	0	383				383								0	383	0
Superlo	25Kg	150	0	150				150								0	150	0
Techniflo	25Kg	141	33	174				174	10			1	9	8	13	41	100	74
Lime	50#	128	10	138				138			2		2			4	124	14
Salt	40Kg	0	1310	1310	120	1040		2470					240	760	160	1160	0	2470
PolTex	25Kg	144	1	145				145					10	6	12	28	116	29
Soda Ash	40Kg	77	5	82				82						3		3	74	8
Pure Vis	50#	0	40	40				40								0	0	40
B.Carb	45Kg	24	0	24				24	2				22			24	0	24
B-Free	60L	25	0	25				25								0	25	0
D-Detergent	200L	13	0	13				13								0	13	0
S.A.A.P	40Kg	21	0	21				21								0	21	0
S.M.R	25Kg	150	64	214				214								0	150	64
TeTechniflo	50#	200	0	200				200								0	200	0
Walnut	50#	100	20	120				120								0	100	20
Am. Bi-Sulfite	200L	12	0	12				12								0	12	0
BioTecs	5gal	15	1	16				16		1						1	14	13
Mica	25Kg	135	0	135				135								0	135	0
Sawdust	bag	100	0	100				100								0	100	0
Kwik Seal	40#	50	50	100				100								0	50	50
D-Foamer	200L	6	0	6				6			1					1	5	1
Techniguard	200L	15	0	15				15								0	15	0

Technifluids

WEEKLY INVENTORY AND VOLUME CONTROL

INTERVAL: 1777 – 2002 PAGE: 3

WELL NAME: NasTiq N-01 SPUD DATE: 15 Sept 85 CONTRACTOR: Nadrell #2 WEEK ENDING: 6 Oct 85

LOCATION: Hudson Bay MUD SYSTEM: S.T/salt ENGINEERS: Dal Kellsey DEPTH: 1777 TO 2002

COMMENTS:

Logg 12¼ hole

Run 9⅝ Casing

Drill out with 8½ bit

Take Kick 14.3 gal

Drill ahead

Take Kick 14.6 gal

DAY NUMBER	15	16	17	18	19	20	21			
DATE 85 Sept	30	Oct 1	2	3	4	5	6			
DEPTH	1777	1750	1750	1750	1820	2002	2002	PREVIOUS		
STARTING VOLUME	1352	1170	1178	1178	1722	1780	1748	TOTAL	TOTAL	
VOLUME BUILT		100		544	140	60	40	7046	7930	
LOST SOLIDS REMOVAL					42	20		TOTAL		PREVIOUS COST
LOST DUMPED						10		FORWARDED		154,612
LOST SUB SURFACE	182	92			40	62				WEEKLY COST
		[illegible]	[illegible]				173			39,832
TOTAL LOSSES	182	92	0	0	82	92	173	7151	7772	TOTAL COST
FINAL VOLUME	1170	1178	1178	1722	1780	1748	1615			194,444

PRODUCTS	UNIT SIZE	ON HAND	TOTAL USAGE FORWARDED	TOTAL DELIVERIES FORWARDED	DELIVERIES THIS WEEK			TOTAL WELL SITE DELIVERIES	DAILY PRODUCT CONSUMPTION							WEEKLY USAGE	FINAL INVENTORY	TOTAL USAGE
Barite	mT	228	513	741	100	46		887	19	4			105	30		158	216	671
Gel	mT	44	54	98				98					2			2	42	56
Caustic	25Kg	254	107	361				361		2		8	5	6		21	233	128
DF-Vis	25Kg	166	11	199				199		1		8		3		12	154	25
FIR-100	25Kg	383	0	383				383								0	383	0
Super Lo	25Kg	150	0	150				150								0	150	0
Technoflo	25Kg	100	74	174				174		4		45		12		61	39	135
Lime	50"	124	14	138								2				2	122	16
Salt	40Kg	0	2470	2470	400	620		3490				540	60	90		690	330	3160
Peltex	25Kg	116	29	145				145		1		11	2	4		18	98	45
Soda Ash	40Kg	74	8	82				82				3		2		5	69	13
Code Vis	50°	0	40	40				40									0	40
B. Carb	45Kg	0	24	24				24									0	24
B-Free	60L	25	0	25				25									25	0
D-Defoamer	200L	13	0	13				13									13	0
S.A.A.P	40Kg	21	0	21				21					1			1	20	1
S.M.B	25Kg	150	64	214				214									150	64
Telechnoflo	50"	200	0	200				200									200	200
Walnut	50"	100	20	120				120									100	20
Am. B. Sulfate	200L	[illegible]	0	12				12									12	0
BioIrol	5 gal	[illegible]	2	16				16		1						1	13	3
Mica	25Kg	135	0	135				135									135	0
Sawdust	sxs	100	0	100				100									100	0
Kwik Seal	40"	50	50	100				100									50	50
D-Foamer	200L	5	1	6				6									5	1
Technogard	200L	15	0	15				15									15	0

34

Technifluids

WEEKLY INVENTORY AND VOLUME CONTROL

INTERVAL: 2002 (8½") PAGE: 4

WELL NAME: Nasliq N-01 SPUD DATE: 15 Sept 85 CONTRACTOR: Nabors #2 WEEK ENDING: 13 Oct 85

LOCATION: Hudson Bay MUD SYSTEM: Sat/Salt ENGINEERS: Del Kallsey DEPTH: 2002 TO 3093

COMMENTS:

Lignite Priced as Peltex

DAY NUMBER	22	23	24	25	26	27	28	PREVIOUS TOTAL	TOTAL
DATE	7	8	9	10	11	12	13		
DEPTH	2002	2110	2368	2558	2756	2956	3093		
STARTING VOLUME	1615	1126	1710	1961	1968	1984	2010		
VOLUME BUILT	141	20	270	20	32	44	10	7910	9477
LOST SOLIDS REMOVAL		30	10	13	10	8	7	TOTAL FORWARDED	
LOST DUMPED									
LOST SUB SURFACE		46	10		6				
TOTAL LOSSES	0	76	20	13	16	8	7	7772	7912
FINAL VOLUME	1756	1710	1961	1968	1984	2010	2023		

PREVIOUS COST	WEEKLY COST	TOTAL COST
194,444 -	39,269 -	233,713 -

PRODUCTS	UNIT SIZE	ON HAND	TOTAL USAGE FORWARDED	TOTAL DELIVERIES FORWARDED	DELIVERIES THIS WEEK			TOTAL WELL SITE DELIVERIES	DAILY PRODUCT CONSUMPTION							WEEKLY USAGE	FINAL INVENTORY	TOTAL USAGE
Barite	mT	216	671	887	200			1087	36	15	5	65	9	20	3	143	273	814
Gel	mT	42	56	98				98								0	42	56
Caustic	25 Kg	233	128	361	120			481	2	4	2	1	3	3	3	18	335	146
DF-Vis	25 Kg	154	25	199				199	6		10	2	3			21	133	46
FIR-100	25 Kg	383	0	383				383								0	383	0
Super Lo	25 Kg	150	0	150				150								0	150	0
Techniflo	25 Kg	39	135	174				174	11		17					28	11	163
Lime	50#	122	16	138				138								0	122	16
Salt	40 Kg	310	3160	3490	890			4380	148	252	150			220	90	850	370	4010
Peltex	25 Kg	98	45	145				145	1							1	97	46
Soda Ash	40 Kg	69	13	82	100			182	3		1	2	2	9		17	152	30
Cedar Chips	50#	0	40	40				40								0	0	40
B. Carb	45 Kg	0	24	24	75			99								0	75	24
B. Free	60 L	25	0	25				25								0	25	0
D. Detergent	200 L	13	0	13				13								0	13	0
S.A.P.P.	40 Kg	20	1	21				21								0	20	1
Intechniflo	50#	200	0	200				200								0	200	0
Walnut	50#	100	20	120				120			10					10	90	30
Sod. Bi Sulfate	200 L	12	0	12				12								0	12	0
BarTool	5 gal	13	3	16				16								0	13	3
Mica	25 Kg	135	0	135				135								0	135	0
Sawdust	sks	100	0	100				100								0	100	0
Fine Seal	40#	50	50	100				100								0	50	50
D. Foamer	200 L	5	1	6				6								0	5	1
Techniguard	200 L	15	0	15				15								0	15	0
Sulfite	25 Kg	150	64	214				214								0	150	64
Lignite	25 Kg	0	0	0	40	10		50				2	1	15	2	20	30	20

Technifluids

WEEKLY INVENTORY AND VOLUME CONTROL

INTERVAL: 3093 8½" PAGE: 5

WELL NAME: Nestig N-01 SPUD DATE: 15 Sept 85 CONTRACTOR: Neddrill #2 WEEK ENDING: 20 Oct 85

LOCATION: Hudson Bay MUD SYSTEM: SqT/salt ENGINEERS: Del Kellsey DEPTH: 3093 TO 3412

COMMENTS:

Wrote off 111 salt + 903 sx Churchill
Delivered by weak bulk St. John's

DAY NUMBER	29	30	31	32	33	34	35	PREVIOUS TOTAL	TOTAL	
DATE Oct	14	15	16	17	18	19	20			
DEPTH	3250	3340	3412	3412	3412	1932				
STARTING VOLUME	2023	2027	1968	1930	1862	1860	1649			
VOLUME BUILT	20	0	0	0	0	0		4477	4497	
LOST SOLIDS REMOVAL	16	10	30					TOTAL FORWARDED		PREVIOUS COST 235,713.00
LOST DUMPED		48	54	68		100				
LOST SUB SURFACE			20		2	51				WEEKLY COST 16,914.59
TOTAL LOSSES	16	58	94	68	2	151	1649	7912	4950	TOTAL COST 250,627.00
FINAL VOLUME	2027	1969	1930	1862	1860	1649	-0-			

PRODUCTS	UNIT SIZE	ON HAND	TOTAL USAGE FORWARDED	TOTAL DELIVERIES FORWARDED	DELIVERIES THIS WEEK			TOTAL WELL SITE DELIVERIES	DAILY PRODUCT CONSUMPTION							WEEKLY USAGE	FINAL INVENTORY	TOTAL USAGE
Barite	mT	273	214	1087				1087		5						5	268	819
Gel	mT	42	56	98				98								0	42	56
Caustic	25Kg	335	146	481				481	2	9	3					14	301	160
DF Vis	25Kg	133	46	199				199								0	133	46
FIR-100	25Kg	383	0	383				383								0	383	0
Super Lo	25Kg	150	0	150				150								0	150	0
Technifloc	25Kg	11	163	174				174			11					11	0	174
Lime	50#	122	16	138				138			2					2	120	18
Salt	40Kg	370	4010	4380	480	270	904	6034		90			1944			2034	0	6034
Peltex	25Kg	97	46	145				145								0	97	46
Soda Ash	40Kg	152	30	182				182	3	2						5	147	35
Core Vis	50#	0	40	40				40								0	0	40
Bi Carb	45Kg	75	24	99				99								0	75	24
B-Free	60L	25	0	25				25								0	25	0
D: Detergent	200L	13	0	13				13								0	13	0
S.A.P.P.	40Kg	20	1	21				21								0	20	1
Technaflo	50#	200	0	200				200								0	200	0
Walnut	50#	90	30	120				120								0	90	30
Am Bi Sulfate	200L	12	0	12				12								0	12	0
Biotrol	5gal	13	3	16				16								0	13	3
Mica	25Kg	135	0	135				135								0	135	0
Sawdust	sx	100	0	100				100								0		
Kwik Seal	40#	50	50	100				100								0	50	50
D: Foamer	200L	5	1	6				6								0	5	1
[illegible]	200L	15	0	15				15								0	15	0
S. M. R.	25Kg	150	64	214				214								0	150	64
Lignite	25Kg	30	20	50	100			150	16	16	9					41	87	61

WELL: NETSIQ N-D?   MUD REPORT - SECTION 1

DEPTH	TYPE----------------	DENSITY IN	DENSITY OUT	VISC IN	VISC OUT	AV	PV	YP	GEL 0	GEL 1	WL	HTHP	PF	MF	PH
223.[illegible]															
~~225.2~~	~~SPUD MUD~~	~~1116~~		~~220~~					~~35.0~~	~~70.0~~					~~[illegible]~~
448.6	SPUD MUD	1104		190			20.0	60.0	10.0	30.0	42.0		.40	.50	9.0
448.6	SPUD MUD	1104		195			21.0	62.0	12.0	43.0			3.00	.40	9.0
448.6	SALT SATURATED	1116		37			7.0	8.0	2.0	3.0	15.5		.50	.70	10.5
463.3	WELL CONTROL														
463.3	SALT SATURATED	1681		44			20.0	15.0	10.0	30.0	38.0		.10	.10	9.0
~~463.3~~	~~SATURATED SALT~~	~~1680~~		~~44~~	?			~~20.0~~	~~8.0~~	~~21.0~~	~~19.0~~		~~.20~~	~~.30~~	~~10.0~~
463.3	SATURATED SALT	1692		42			19.0	8.0	6.0	17.0	25.0		.10	.20	10.0
463.3	SATURATED SALT	1680		45			26.0	11.0	4.0	8.0	17.5		.10	.20	10.0
463.3	SATURATED SALT	1680		44			22.0	8.0	3.0	9.0	14.2		.10	.20	10.0
463.3	SATURATED SALT	1669		44			22.0	9.0	3.0	7.0	14.7		.10	.20	10.0
446.5	SATURATED SALT	1801	1717	43			21.0	10.0	4.0	6.0	35.0		.40	.50	10.5
~~513.6~~	~~SATURATED SALT~~	~~1753~~		~~46~~			~~21.0~~	~~9.0~~	~~4.0~~	~~13.0~~	~~36.0~~		~~.10~~	~~.20~~	~~10.[illegible]~~
541.6	SATURATED SALT	1764		48			21.0	10.0	4.0	16.0	17.2		.20	.30	10.5
541.6	SATURATED SALT	1764		45			21.0	9.0	5.0	10.0	16.5		.20	.30	10.5
541.6	SATURATED SALT	1656		39			14.0	6.0	3.0	6.0	22.0		3.00	.40	11.0
541.6	SATURATED SALT	1656		38			14.0	6.0	4.0	6.0	22.5		.30	.40	11.0
541.6	SATURATED SALT	1537		36			12.0	6.0	4.0	7.0	17.5		.40	.50	11.0
~~553.8~~	~~SATURATED SALT~~	~~1716~~	~~1716~~	~~44~~			~~17.0~~	~~14.0~~	~~6.0~~	~~14.0~~	~~27.0~~		~~.40~~	~~.50~~	~~11.5~~
609.8	SATURATED SALT	1764		44			20.0	8.0	3.0	7.0	18.7		.20	.30	11.0
609.9	SATURATED SALT	1764		44			20.0	8.0	3.0	7.0	17.0		.20	.30	11.0
609.9	SATURATED SALT	1764		41			20.0	6.0	4.0	7.0	13.1		.10	.20	10.5
661.4	SATURATED SALT	1764		44			11.0	22.0	4.0	6.0	12.2		.20	.30	11.0
720.5	SATURATED SALT	1764		43			22.0	6.0	3.0	5.0	13.8		.10	.20	11.3
~~779.6~~	~~SATURATED SALT~~	~~1765~~		~~44~~			~~23.0~~	~~6.0~~	~~4.0~~	~~6.0~~	~~14.1~~		~~.10~~	~~.20~~	~~10.[illegible]~~
840.0	SATURATED SALT	1765		44			21.0	8.0	5.0	8.0	14.0		.20	.30	11.0
901.9	SATURATED SALT	1764		46			23.0	9.0	4.0	6.0	12.2		.20	.30	11.5
941.8	SATURATED SALT	1764		47			24.0	10.0	4.0	7.0	11.8		.20	.30	11.5
992.7	SATURATED SALT	1765		47			23.0	9.0	4.0	5.0	10.8		.10	.30	10.5
1018.0	SATURATED SALT	1764		47			25.0	10.0	4.0	7.0	11.6		.20	.30	11.0
~~1039.9~~	~~SATURATED SALT~~	~~1764~~		~~47~~			~~24.0~~	~~10.0~~	~~4.0~~	~~6.0~~	~~11.9~~		~~.20~~	~~.30~~	~~11.0~~
1039.9	SATURATED SALT	1764		49			24.0	10.0	4.0	7.0	12.1		.20	.30	11.0
1039.9	SATURATED SALT	1764		47			25.0	11.0	5.0	8.0	13.0		.20	.30	11.0
519.9															

WELL: *NETSIQ N-01*

MUD REPORT - SECTION 2

DEPTH	MBT	OIL %	SOLID %	SAND %	CHLOR	K+	CA+	VOLUME HOLE	VOLUME SURF	DUMP	STANDBY VOL	KILL DEN
223.7												
285.2			2.5		85000		1000		158.0	158	63	1356
448.6					80000		1000		158.0	158	63	1668
448.6	25.0				75000		700		39.0	158	66	
448.6	8.5		1.5		75000		285		254.0		67	1681
463.3												
463.3	8.5		10.0		174000		8000	48	224.0	44	47	
463.3			10.0		174000		10000	48	100.0	68	54	
463.3	7.5		10.0		155000		7400	48	158.0	3		
463.3	7.0		9.5		140000		6500	17	55.0	14		
463.3	7.0		9.5		140000		7000	17	158.0			
463.3	7.0		9.5		142000		7500	49	111.0	3	51	1861
446.5	5.0		11.0		148000		29000	48	127.0	47	64	1801
513.6	3.0		10.0		170000	12000		49	111.0	58	64	1801
541.6			10.0	8.5	170000		11500	50	111.0	4	63	1800
541.6	8.5		20.0		170000		11200	44	82.0	28	58	1800
541.6	7.5		11.0		150000		10800	12	115.0	14	58	1680
541.6	7.5		11.0		150000		10800	12	115.0		63	1681
541.6	5.0		12.5		170000		8900	12	16.0		47	1681
553.8	5.0		10.0		130000		10100	41	143.0	6	63	1800
609.8	4.0		17.0		162000		9200	46	15.0	14	63	1800
609.9	4.5		17.0		165000		9400	15	19.0		63	1800
609.9	5.0		20.5		160000		9200	15	15.0		63	1800
661.4	5.0		20.5		170000		8700	45		7	63	2004
720.5	4.0		20.5		170000		8600	46	15.0	1	63	1956
779.6	4.0		21.0		161000		8900	47	15.0	2	63	2005
840.0	4.0		20.5		155000		7800	50	158.0	2	63	2005
901.9	3.0		20.5		168000		4600	50		1	63	2004
941.8	3.0		20.5		170000		4700	52		1	63	2004
992.7	4.0		20.5		169000		2800	54		2	63	2005
1018.0	3.0		20.5		159000		3200	55		9	63	2004
1039.9	3.0		21.0		158000		2600	55		3	63	2004
1039.9	3.0		20.0		162000		2600	55		10	63	2004
1039.9	3.0		21.0		156000		2600	47	143.0		63	2004
519.9												

WELL: *NETSIQ N-01* MUD REPORT - SECTION 3

DATE	DEPTH	ADDED PRODUCTS
85/09/16	265.2	GEL 12, CAUSTIC 8, LIME 4, SODA ASH 1, COREVIS 40, SMR 37 VOLUMES BBL: SURFACE 1426, DUMPED 2734
85/09/17	448.6	BAR 52, GEL 8, CAUSTIC 8, SODA ASH 1, SMR 21, BIOTROL 1. (VOLUMES BBL; SURFACE 1700, DUMPED 1126)
85/09/18	448.6	GEL-2, DF VIS-3, SMR-6 (VOLUMES(BBL) - DUMPED: 1430)
85/09/19	448.6	CAUSTIC 27, DF VIS 13, LIME 4, TECHNIFLO 25, SALT 530, SODA ASH 3
85/09/21	463.3	BAR-235, GEL-8, CAUSTIC-3, DF VIS-3, LIME-2, TECHNIFLO-4, SALT-480, PELTEX-1, KWICK SEAL-50, WALNUT=20.
85/09/22	463.3	BARITE 38 MT, GEL 2 MT, CAUSTIC SODA 8, DF VIS 1, TECHNIFLO 4
85/09/23	463.3	VOLUMES BBL; SURFACE SHOULD READ 1100
85/09/24	463.3	BARITE 30 MT, CAUSTIC 6, DF-VIS 4, BIOTROL 1
85/09/25	463.3	CAUSTIC 4, LIME 2, D-FOAM 1 (VOLUMES BBL: SURFACE SHOULD READ 1350
85/09/26	463.3	CAUSTIC SODA 6, DF-VIS 1, TECHNIFLO 1
85/09/28	513.6	BARITE 110MT, GEL 17MT, CAUSTIC 26, DF-VIS 7, LIME 2, TECHNIFLO 15, SALT 760, SODA ASH 3, BICARB 22, PELTEX 16
85/09/29	541.6	BARITE 12 MT, GEL 5 MT, CAUSTIC 4, TECHNIFLO 13, SALT 160, PELTEX 12.
85/09/30	541.6	BARITE 19 MT
85/10/01	541.6	BARITE 4 MT, DF-VIS 1, TECHNIFLO 4, BIOTROL 1, PELTEX 1, CAUSTIC 2
85/10/03	541.6	DF-VIS 8, LIME 2, TECHNIFLO 45, SALT 540, SODA-ASH 3, PELTEX 1: CAUSTIC 8
85/10/04	553.8	BARITE 105 MT, GEL 2 MT, SALT 60, PELTEX 2, CAUSTIC SODA 244, SAAP 1
85/10/05	609.8	BARITE 30MT, DF-VIS 3, TECHNIFLO 12, SALT 90, SODA ASH 2, PELTEX 4, CAUSTIC SODA 6
85/10/06	609.9	NIL
85/10/07	609.9	BARITE 26 MT, DF VIS 6, TECHNIFLO 11, SALT 148, SODA ASH 3, PELTEX 1, CAUSTIC 2.
85/10/08	661.4	BARITE 15 MT, SALT 242, CAUSTIC 4 NOTE: VOLUMES-SURFACE IS 1000
85/10/09	720.5	BARITE 5 MT, DF-VIS 10, TECHNIFLO 17, SALT 150, SODA ASH 1, WALNUT 10, CAUSTIC 2
85/10/10	779.6	BARITE 65MT, DF-VIS 2, SODA ASH 2, CAUSTIC 1 LIGNITE 2
85/10/11	840.0	(SURF. VOL=1050) BARITE 9 MT, DF VIS 3, SODA ASH 2, CAUSTIC 3, LIGNITE 1.
85/10/12	901.9	(SURF VOL=1050) BARITE 20 MT, SALT 220, SODA ASH 9, CAUSTIC 3, LIGNITE 15.
85/10/13	941.8	(SURF VOL=1050) BARITE 3 MT, SALT 90, CAUSTIC 3, LIGNITE 2.
85/10/14	992.7	(SURFACE VOL = 1050) SODA ASH: 3, CAUSTIC: 2, LIGNITE: 16
85/10/15	1018.0	BARITE 5, SALT 90, SODA ASH 2, CAUSTIC 9, LIGNITE 16. SURFACE VOLUME SHOULD READ 1000
85/10/16	1039.9	(SURF VOL=1000) LIME 2, TECHNIFLO 11, CAUSTIC 3, LIGNITE 9.
85/10/17	1039.9	(SURF VOL=1000) DUMP AND CLEAN SAND TRAP

OFFLINE TDC
GEOSERVICES

BIT RECORD
SHEET NO. 1

WELL: NETSIQ N-01

NO.	SQ	TYPE	SIZE	NOZZLES /32''	IN m	OUT m	MTG m	TIME hr:mn	DEV deg	WOB klbs	RPM	FLOW gpm	SPP psi	REV *1000	T	B	G	COST $	$/M STD	MW ppg	REMARKS
1	1	SMITH DSJ	17.5	17/17/18	212.7	265.2	52.50	6:04		2.1	73	1119	1570		3	3	In	10000	1580.	8.6	17.5" BIT + 42" HOLE OPENER.
2	2	SMITH F3	12.25	15/15/15	265.2	448.8	183.6	6:45		16	94	905	3020		3	3	In	15000	338.5	8.6	PILOT HOLE.STOP FOR SHALLOW GAS.
3	3	OSC 3AJ	17.5	20/20/20	265.2	448.8	183.6	5:06		11	95	1167	2460		-	-	--	10000	258.6	8.6	HOLE OPENING.
4	4	HTC J3	12.25	14/14/14	448.8	463.3	14.50	2:10		11.2	71	655	2340		2	2	In	5000	2250	9.8	DRILL TO KICK @ 463.3m.
4RR	5	HTC J3	12.25	18/18/18	463.3	541.5	78.20	21:13		30	89	582	1644		3	3	In	-----	2247	14.5	KICK @ 477m.LOST CIRC.@ 483m.
5	6	SMITH SDGH	8.5	18/18/16	541.5	610.2	68.70	15:37		22	92	350	1110		2	2	In	3400	2121	14.7	KICKS @ 543.2m, 586.8m.
6	7	SMITH SDGH	8.5	16/16/16	610.2	682.2	72.00	15:0		35	110	311	870		3	3	1/8	3400	1270	14.7	SLOW ROP
7	8	HTC J33	8.5	14/14/14	682.2	770.6	88.40	26:12		37.6	85	290	980		2	2	In	5214	1381	14.8	SLOW ROP
6	9	SMITH F4	8.5	13/13/13	770.6	914.7	144.1	53:52		44	80	290	1200		4	6	In	6000	1660	14.7	
9	10	SMITH F3	8.5	13/13/13	914.7	1000.2	85.50	37:41		42	80	290	1200		4	7	In	5214	2073	14.7	
10	11	HTC J44	8.5	13/13/13	1000.2	1040	39.80	14:06		45	75	290	1200		2	3	In	8000	2178	14.7	TD of NETSIQ N-01

CASING & CEMENTING REPORT

SUMMARY

Well: NETSIQ N.01 Rig: NEDDRILL II Date: 85-09-16
Hole Size: 42" Depth: 870' Units: API
Casing Size: 30" Shoe Depth: 855' Top Hgnr or WH: 691
K.B. to Sea Floor: 698' Water Depth: 654'

WELL CONDITION

Hole Problems: Unsuccessful attempt to jet in w/42" H.O. 25' fill at 860' (Boulders in hole) Drilled to 870'; spot 500 bbl HIVIS mud.

Deviation: 0.56 @ 253.2m
Losses Gains:
Mud Type: Hivvis Pills Mud Weight: 8.6 Viscosity: 220
Comments: GRA Bullseye 0.5°

CASING

ITEM/TYPE	CONNECTION	AVG. TORQUE	GRADE	WEIGHT	NO. JOINTS	LENGTH	CUMULATIVE
UNITS				lb/ft		ft	
SHOE JOINTS	ALT2	-	51b	310	1		
INT. JOINTS	ALT 2	-	51b	310	2		
30" HOUSING	ALT2	-	51b	500	1		
					4	164.00	

Wellhead Type: 16 3/4" VETCO SG5: 10K Hangoff Point: -
Hanger Type: - Lock Ring: -
Other Equipment: GRA

Running String: Drillpipe
Running Problems: Circulate and work casing down from 815' to 855'

CEMENTING

SLURRY	COMPOSITION	DENSITY	VOLUME	THEORETICAL TOP
UNITS		PPG	BBL	FEET
SPACER				
LEAD				
TAIL	64t Class "G" + 2% Ca Cl_2	16.3	260	Seafloor

TIMES: Start Mixing: 18:40 Start Displacing: 19:45 Finish Displacing: 19:55
Displacement Fluid: Mud Rate: Volume: 34
Plugs Used: Stinger
Plug Bump: Pressure:
Problems: Floats held OK
T.O.C. drill out at 836'

CASING & CEMENTING REPORT

SUMMARY

Well: NETSIO N.01 Rig: NEDDRILL II Date: 85-09-18
Hole Size: 17.5" Depth: 1472 Units: API
Casing Size: 13 3/8" Shoe Depth: 1433 Top Hgnr or WH: 584
K B to Sea Floor: 798 Water Depth: 654

WELL CONDITION

Hole Problems: Shallow gas encountered at 1472', spotted 150 BBL 12 PPG mud
Wiper trip: Max drag 50,000 LBS, 50' fill.

Deviation: 0.5°
Losses Gains: -
Mud Type: spud mud Mud Weight: 1104 Viscosity: 195
Comments: Pumped 600 BBL HIVIS mud prior to POOH

CASING

ITEM/TYPE	CONNECTION	AVG. TORQUE	GRADE	WEIGHT	NO. JOINTS	LENGTH	CUMULATIVE
UNITS				lb/ft		feet	feet
SHOE JOINT	BUTT	-	C95	72	1		
FLOAT JOINT	BUTT	-	C95	72	1		
13 3/8" CASING	BUTT	-	C95	72	18		
13 3/8"/20" XO	BUTT/ALT2	-	X56	133	1		
16 3/4" WH+Extension	ALT2	-	X56	133	1		
TOTAL					22	749.00	749.00

Wellhead Type: 16 3/4" VETCO, SG%, 10K Hangoff Point: -
Hanger Type: N/A Lock Ring: ?
Other Equipment:

Running String: Drillpipe
Running Problems:

CEMENTING

SLURRY	COMPOSITION	DENSITY	VOLUME	THEORETICAL TOP
UNITS		PPG	BBL	FT
SPACER	Seawater	8.5	150	Seawater
LEAD				
TAIL	56t Class "G" + 2% $CaCl_2$	16.3	250	Seafloor

TIMES: Start Mixing: 21:45 Start Displacing: 22:40 Finish Displacing: 22:55
Displacement Fluid: Mud Rate: 5 Volume: 20 w/Cmt unit
Plugs Used: BJ subsea release top plug/dart
Plug Bump: Yes Pressure:
Problems: Floats held OK. T.O.C. on drill out at 1332'

CASING & CEMENTING REPORT

SUMMARY

Well: NETSIQ N.01 | Rig: NEDDRILL II | Date: 85-09-22
Hole Size: 12 1/4" | Depth: 1520 | Units: ABI
Casing Size: 13 3/8" | Shoe Depth: 1433 | Top Hgnr or WH: 684
K.B. to Sea Floor: 698 | Water Depth: 654

WELL CONDITION

Hole Problems: Loss circulation zone at 1522'. Mud weight 14 PPG
Unable to stop lossess with LCM pills

Deviation:
Losses Gains: Gain 160 BBL (Kick) at 1520; increase MW to 14; Losses 500 BBL +
Mud Type: salt saturated Mud Weight: 14 Viscosity: 44
Comments: Took second kick at 1116' while POOH

CASING

ITEM/TYPE	CONNECTION	AVG. TORQUE	GRADE	WEIGHT	NO. JOINTS	LENGTH	CUMULATIVE
UNITS							
SHOE							

Wellhead Type: | Hangoff Point:
Hanger Type: | Lock Ring:
Other Equipment:

Running String:
Running Problems:

CEMENTING

SLURRY	COMPOSITION	DENSITY	VOLUME	THEORETICAL TOP
UNITS		PPG	BBL	
SPACER				
LEAD				
TAIL	14.5t Class "G"+seawater	16.3	58	

TIMES: Start Mixing: 05:00 Start Displacing: 05:20 Finish Displacing: 05:30
Displacement Fluid: Mud Rate: 4 Volume: 19.5
Plugs Used: N/A OEDP
Plug Bump: N/A Pressure: Squeeze 150 max.
Problems: Squeezed with 14 PPG mud at 1 BPM. Squeezed 25 BBL with rig pumps.
No cement was tagged on RIH to 1520'. W.O.C. time was 27 hours (2 misrunsw/RTTS)
Surface samples set up 10 hours after job.

CASING & CEMENTING REPORT

SUMMARY

Well: NETSIO N.01 Rig: NEDDRILL II Date: 85-09-23
Hole Size: 12 1/4" Depth: 1520 Units: API
Casing Size: 13 3/8" Shoe Depth: 1433 Top Hgnr or WH: 684
K.B. to Sea Floor: 698 Water Depth: 654

WELL CONDITION

Hole Problems: Loss circulation zone at 1522"
Squeeze # 1 unsuccessful

Deviation:
Losses Gains
Mud Type: salt saturated Mud Weight: 14 Viscosity: 44
Comments:

CASING

ITEM/TYPE	CONNECTION	AVG. TORQUE	GRADE	WEIGHT	NO. JOINTS	LENGTH	CUMULATIVE
UNITS							
SHOE							

Wellhead Type: Hangoff Point:
Hanger Type: Lock Ring:
Other Equipment:

Running String:
Running Problems:

CEMENTING

SLURRY	COMPOSITION	DENSITY	VOLUME	THEORETICAL TOP
UNITS				
SPACER				
LEAD				
TAIL	14.5t Class "G" + seawater	16.3	58	

TIMES: Start Mixing: 15.00 Start Displacing: 15:15 Finish Displacing: 15:25
Displacement Fluid: Mud Rate: 4 Volume: 19.5
Plugs Used: N/A OEDP
Plug Bump: N/A Pressure: Squeeze 150 max
Problems: Squeezed with 14 PPL mud at 1 BPM. Squeezed 25 BBLS with rig pumps.
Hesitate squeeze las 5 bbl. Tag cement at 1365'/
Firm cement from 1369-1520'

CASING & CEMENTING REPORT

SUMMARY

Well: NETSIQ N.01 — Rig: NEDDRILL II — Date: 85-09-30
Hole Size: 12 1/4" — Depth: 1777 — Units: API
Casing Size: 9 5/8" — Shoe Depth: 1750 — Top Hgnr or WH: 685.9
K.B. to Sea Floor: 698 — Water Depth: 654

WELL CONDITION

Hole Problems: Kick at 1520'; salt water flow; killed w/15 PPG. Lost circulation
Mixed LCM pills, spotted 58 BBL'S cement and squeeze. Drill to 1565'; took kick.
Kill w/ 15 PPG. Drill to 1777.
Deviation: 1° at 1600'
Losses Gains: See above
Mud Type: salt saturated — Mud Weight: 14.3 — Viscosity: 44
Comments:

CASING

ITEM/TYPE	CONNECTION	AVG. TORQUE	GRADE	WEIGHT	NO. JOINTS	LENGTH	CUMULATIVE
UNITS				lb/ft			
SHOE JOINT	BUTT	-	S0095	47	1		
2 JOINTS CASING	BUTT	-	S0095	47	2		
FLOAT COLLAR	BUTT	-	S0095	47	-		
9 5/8" CASING	BUTT	-	S0095	47	22		
9 5/8" CASING HGR	BUTT	-	-	-	-		
TOTAL					25	1062.50	(est)

Wellhead Type: 16 3/4" VETCO S65, 10K — Hangoff Point: -
Hanger Type: VETCO — Lock Ring: ?
Other Equipment: FO Stage collar 814 - 818'

Running String:
Running Problems:

CEMENTING

SLURRY	COMPOSITION	DENSITY	VOLUME	THEORETICAL TOP
UNITS				
SPACER				
LEAD				(temp log)
(Stage 1)	28t Class "G" + 5% NaCl	16.3	126	803
TAIL	4.5t Class "G" + 2% $CaCl_2$ +.5% D6S	16.5	20	698
(Stage 2)	Stage collar at 814 - 818'			

TIMES: Start Mixing: — Start Displacing: — Finish Displacing:
Displacement Fluid: — Rate: — Volume:
Plugs Used:
Plug Bump: Yes — Pressure: 900
Problems: Lost circulation after landing casing. Partial returns of 50 bbls while cementing. Cement from 810 - 823 on drill out.

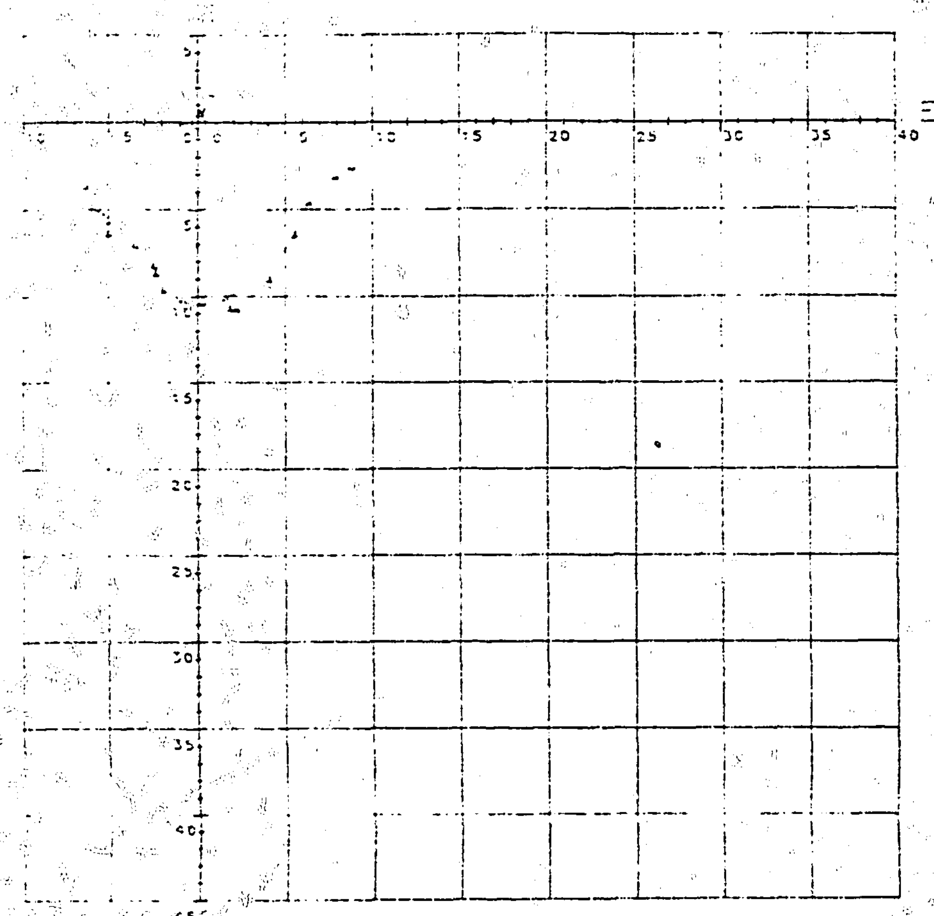
GEARHART INDUSTRIES, INC.
M256.MWDGP.0185.00.CRT

WELL REPORT

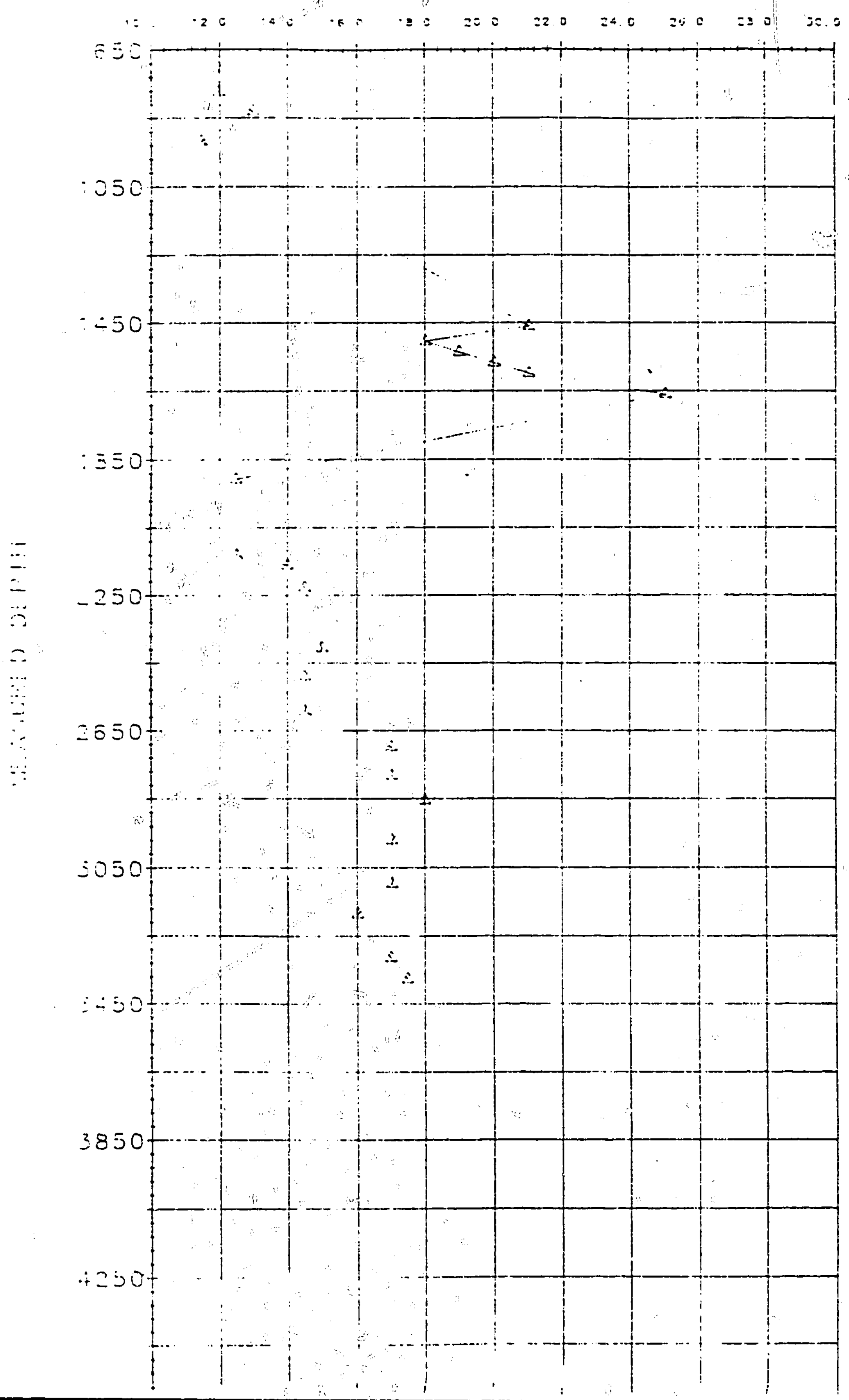
FIELD: NETSIQ WELL NO.: N-01

SURVEY NUMBER	RUN NUMBER	MEASURED DEPTH(F)	INCLINATION DEGREES	AZIMUTH DEG TRUE	TOTAL MAG FLUX	TOOL TEMP DEG C	DATE	TIME
0	0	669.20	.92	64.42			TIE-IN	22: 6
1	1	705.20	1.63	.38	1.166	12.0	9-15-85	23:50
2	1	773.64	.62	92.30	1.173	12.0	9-16-85	1:13
3	1	831.00	.55	178.63	1.173	13.0	9-16-85	5: 7
4	1	918.30	1.28	244.80	1.180	11.5	9-16-85	7:18
5	1	1428.00	.50	216.00			9-18-85	2:31
6	3	1460.62	1.33	166.65	1.290	21.0	9-27-85	13:28
7	3	1505.02	.85	121.15	1.239	18.0	9-28-85	17:55
8	3	1536.55	1.05	113.92	1.237	19.0	9-28-85	19:18
9	3	1568.15	.38	127.42	1.236	20.0	9-28-85	20:45
10	3	1599.76	.95	184.25	1.236	21.0	9-28-85	23:43
11	3	1661.00	.52	158.52	1.236	25.0	9-29-85	5: 4
12	4	1908.00	.53	71.28	1.196	12.5	10- 5-85	18:57
13	5	2131.00	.77	177.77	1.238	12.5	10- 9-85	7:25
[illegible]	5	2161.00	.98	161.22	1.196	14.0	10- 9-85	14:42
15	5	2227.69	.82	147.37	1.196	14.5	10- 9-85	18:31
16	5	2406.00	.38	36.45	1.197	15.0	10-10-85	4:29
17	5	2490.00	1.35	113.77	1.195	14.5	10-10-85	16:30
18	5	2594.00	.85	14.28	1.196	14.5	10-11-85	6:54
19	5	2699.00	.48	161.23	1.194	17.0	10-11-85	19:12
20	5	2783.00	.85	197.58	1.196	17.0	10-12-85	6:48
21	5	2856.00	1.15	49.18	1.195	18.0	10-12-85	21:35
22	5	2971.00	1.37	44.42	1.195	17.0	10-13-85	6:20
23	5	3097.00	1.38	15.25	1.195	17.0	10-14-85	6:45
24	5	3186.00	1.32	33.58	1.193	16.0	10-14-85	19:50
25	6	3314.00	.68	68.95	1.197	17.0	10-16-85	0:45
26	6	3377.00	1.35	56.15	1.197	17.5	10-16-85	8:22

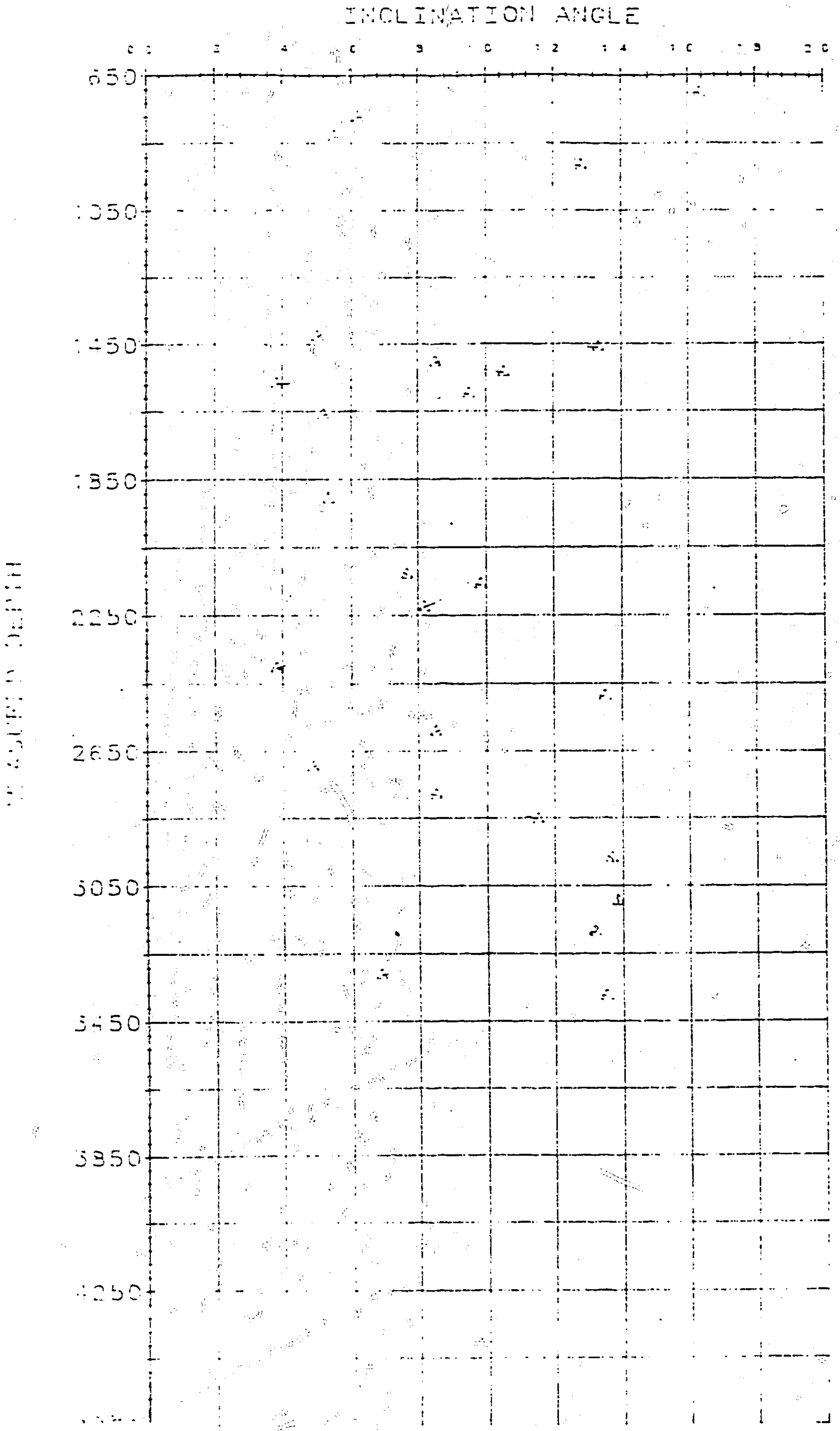
[illegible] ENERGY LTD
[illegible]ETSIO N-01
PLAN VIEW - E& W-VS NO&SO



TEMPERATURE VS MEASURED DEPTH PLOT



INCLINATION VS MEASURED DEPTH PLOT



NETSIQ N01

TIME DISTRIBUTION

MONTH	OPERATION	CODE	DURING MONTH TIME	DURING MONTH %	SINCE START DATE TIME	SINCE START DATE %
9	LOADING UNLOADING	M1				
	MOVING	M2	9.25	2.61	9.25	2.61
	POSITIONING	M3	2.00	.56	2.00	.56
	ANCHOR HANDLING	M4				
	DRILLING	D1	27.00	7.64	27.00	7.64
	HOLE OPEN	D2	8.00	2.26	8.00	2.26
	UNDER REAMING	D3				
	NORMAL CIRCULATION	D4	3.50	.99	3.50	.99
	SURVEY	D5	2.00	.56	2.00	.56
	TRIP	D6	24.50	6.93	24.50	6.93
	REAMING AND RE-DRILLING	D7	22.50	6.36	22.50	6.36
	CASING CEMENT W.O.C.	D8	85.00	24.06	85.00	24.06
	RIG SERVICE	D9	1.00	.28	1.00	.28
	PLUG/ABANDON REMOVAL	D0				
	CIRC. SAMPLES	G1				
	LOGGING	G2	20.00	5.66	20.00	5.66
	CORING	G3				
	PRODUCT TESTING	G4				
	W/L FORM TEST	G5				
	OTHER	G6				
	REPAIRS -OTHER THAN SUB SEA EQUIP	R1				
	SUB SEA EQUIP REPAIRS	R2				
	STICKING FISHING	R3	8.50	2.40	8.50	2.40
	LOST CIRCULATION	R4	40.50	11.46	40.50	11.46
	WELL CONTROL	R5	21.00	5.94	21.00	5.94
	W.O.W.	R6	53.50	15.14	53.50	15.14
	W.O.I.	R7				
	OTHER WAITING	R8				
	UNFORSEEN EVENTS	R9	25.00	7.07	25.00	7.07
	TOTALS		353.25		353.25	

3.24
p. 50

NETSIQ N-01

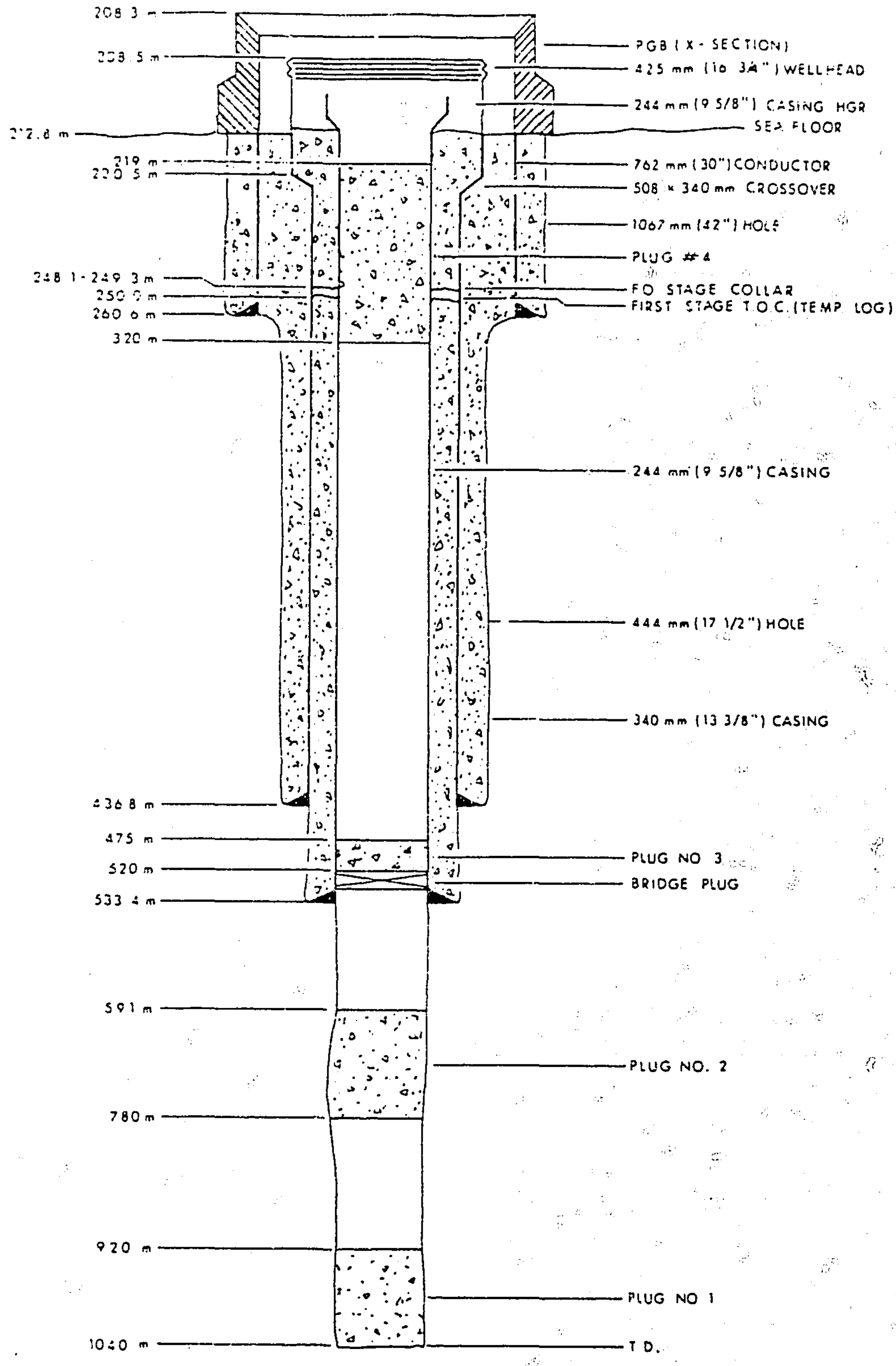
TIME DISTRIBUTION

MONTH	OPERATION	CODE	DURING MONTH TIME	DURING MONTH %	SINCE START DATE TIME	SINCE START DATE %
10	LOADING UNLOADING	M1	51.50	7.13	51.50	4.79
	MOVING	M2	113.50	15.71	122.75	11.42
	POSITIONING	M3			2.00	.18
	ANCHOR HANDLING	M4				
	DRILLING	D1	162.21	22.46	189.21	17.60
	HOLE OPEN	D2			8.00	.74
	UNDER REAMING	D3				
	NORMAL CIRCULATION	D4	3.50	.48	7.00	.65
	SURVEY	D5	11.00	1.52	13.00	1.20
	TRIP	D6	41.00	5.67	65.50	6.09
	REAMING AND RE-DRILLING	D7	5.00	.69	27.50	2.55
	CASING CEMENT W.O.C.	D8	12.00	1.66	110.00	10.23
	RIG SERVICE	D9			1.00	.09
	PLUG/ABANDON REMOVAL	D0	119.50	16.54	119.50	11.12
	CIRC. SAMPLES	G1	1.50	.20	1.50	.13
	LOGGING	G2	52.50	7.26	72.50	6.74
	CORING	G3				
	PRODUCT TESTING	G4				
	W/L FORM TEST	G5				
	OTHER	G6				
	REPAIRS -OTHER THAN SUB SEA EQUIP	R1	.50	.06	.50	.04
	SUB SEA EQUIP REPAIRS	R2	26.50	3.66	37.50	3.49
	STICKING FISHING	R3			8.50	.79
	LOST CIRCULATION	R4			40.50	3.76
	WELL CONTROL	R5	13.50	1.86	34.50	3.21
	W.O.W.	R6	48.00	6.64	101.50	9.44
	W.O.I.	R7				
	OTHER WAITING	R8	15.50	2.14	15.50	1.44
	UNFORSEEN EVENTS	R9	20.00	2.76	45.00	4.18
	TOTALS		722.21		1074.46	

NETSIQ N-01

TIME DISTRIBUTION

MONTH	OPERATION	CODE	DURING MONTH TIME	DURING MONTH %	SINCE START DATE TIME	SINCE START DATE %
11	LOADING UNLOADING	M1			51.50	4.79
	MOVING	M2			122.75	11.42
	POSITIONING	M3			2.00	.18
	ANCHOR HANDLING	M4				
	DRILLING	D1			189.21	17.60
	HOLE OPEN	D2			8.00	.74
	UNDER REAMING	D3				
	NORMAL CIRCULATION	D4			7.00	.65
	SURVEY	D5			13.00	1.20
	TRIP	D6			65.50	6.09
	REAMING AND RE-DRILLING	D7			27.50	2.55
	CASING CEMENT W.O.C.	D8			110.00	10.23
	RIG SERVICE	D9			1.00	.09
	PLUG/ABANDON REMOVAL	D0			119.50	11.12
	CIRC. SAMPLES	G1			1.50	.13
	LOGGING	G2			72.50	6.74
	CORING	G3				
	PRODUCT TESTING	G4				
	W/L FORM TEST	G5				
	OTHER	G6				
	REPAIRS -OTHER THAN SUB SEA EQUIP	R1			.50	.04
	SUB SEA EQUIP REPAIRS	R2			37.50	3.49
	STICKING FISHING	R3			8.50	.79
	LOST CIRCULATION	R4			40.50	3.76
	WELL CONTROL	R5			34.50	3.21
	W.O.W.	R6			101.50	9.44
	W.O.I.	R7				
	OTHER WAITING	R8			15.50	1.44
	UNFORSEEN EVENTS	R?			45.00	4.18
	TOTALS		45.00		1074.46	



Canterra

ICG SOGEPET ET AL NETSIQ N-01

ABANDONMENT SCHEMATIC

4. GEOLOGICAL SUMMARY

1 set returned unused in Canterra's offices

Geochem Jars: 1 set used for geochemical analysis. These will be destroyed in analysis.

1 set retained unused in Canterra's offices.

1 set returned unused in Canterra's offices

Geochem Jars: 1 set used for geochemical analysis. These will be destroyed in analysis.

1 set retained unused in Canterra's offices.

SAMPLE DISTRIBUTION

Resource Geology Division
Resource Management Branch
Department of Energy Mines and Resources
Ottawa, Ontario K1A 0E4

ATTENTION: Mr. D.F. Sherwin

Instructions: Vials (7 dram), unwashed cuttings (bags), unwashed cuttings (geochem jars) (Set 1)

Resource Management and Conservation
Department of Energy, Mines and Resources
Bedford Institute of Oceanography
Box 1006
Dartmouth, Nova Scotia B2Y 4A2

ATTENTION: Mr. G. Karg

Instructions: Vials (7 dram), unwashed cuttings (bags), unwashed cuttings (geochem jars) (Set 2)

The Institute of Sedimentary and Petroleum Geology
Department of Energy, Mines and Resources
3303 - 33 Street N.W.
Calgary, Alberta T2G 2A7

ATTENTION: Mr. W. Banning

Instructions: Vials (3 dram) (Set 3)

Canterra Energy Ltd.
505 - 5 Street S.W.
Mailing Address: P.O. Box 1051
Calgary, Alberta T2P 2K7

ATTENTION: Mr. L.M. Zanussi

Instructions: Vials (3 dram), unwashed cuttings (bags), unwashed cuttings (geochem jars) (Sets 4-6)

ICG Resources Ltd.
2700, 140 - 4 Avenue S.W.
Calgary, Alberta T2P 3S3

ATTENTION: Mr. W. Dean

Instructions: Vials (3 dram), unwashed cuttings (bags) (Set 7)

SAMPLE DISTRIBUTION - Continued

Sogepet Limited
Ste. 1118, 111 Richmond Street West
Toronto, Ontario M5H 2G4

Notify: ATTENTION: Mr. W.F. Atkins

Instructions: Vials (3 dram), unwashed cuttings (bags) to be sent to: Stacs Record Centre Ltd., 3651 - 23 Street N.E., Calgary, Alberta T2E 6T2 (Set 8)

Exploration SOQUIP
Place d'Iberville Deux
1175, rue de Lavigerie
Ste. Foy, Quebec G1V 4P5

ATTENTION: Mr. C. Denis

Instructions: Vials (3 dram), unwashed cuttings (bags) (Set 9)

Canadian Occidental Petroleum Ltd.
1500, 635 - 8 Avenue S.W.
Calgary, Alberta T2P 3Z1

ATTENTION: Ms. L. Olsen

Instructions: Vials (3 dram) (Set 10)

Consumer's Gas Company Ltd.
P.O. Box 650
Scarborough, Ontario.
MIK 5E3

ATTENTION: Mr. Art Wootton

Instructions: Vials (3 dram) (Set 11)

Petro-Canada Resources
40 Research Place N.W.
Calgary, Alberta.

ATTENTION: Mr. R. Bresnahan

Instructions: Vials (3 dram), unwashed cuttings (bags), unwashed cuttings (Geochem jars) (Set 12)

4.2 CORES

No conventional cores were taken.

Sidewall cores were taken on logging run #2 only. On this run, 66 were shot and 61 recovered, the remaining 5 were lost.

The wellsite description of these cores is attached along with a subsequent and independent description done by Canterra's geologists.

The conventional testing for permeability, porosity and residual saturation was done for all samples and is summarized in the following tables.

Thin section petrography was done on all samples and X-ray diffraction and scanning electron microscopy was done on selected samples. The report on the sidewall cores is enclosed with this report.

Further to this, some samples were selected for geochemical and biostratigraphic analysis. Results of this work will be referred to in the appropriate section.

Most cores were tested to destruction, those still remaining will be stored in Canterra's offices. A complete inventory of sidewall core disposal will be filed once all material is returned from contractors.

4.3 LITHOLOGY

A full lithological description is included as prepared by J. Tucker.

SIDEWALL CORE DESCRIPTIONS

Log Run #2: Shot 66, Recovered 61, Lost 5, No Bullets Lost

1040.0	Biotite Schist(?): predominantly ligned flakes black biotite, with clear grains quartz (angular), some chloritization possibly some altered feldspar (white).
1040.0	As above.
1034.0	Granite: very coarse crystalline, clear to white quartz, pink potassium feldspar, some biotite, some chloritization.
1034.0	As above.
1026.0	Granite(?) but with abundant (60%?) black biotite, some pink feldspar, minor quartz, minor chloritization.
1020.5	Biotite Schist(?): excellent alignment of biotite flakes, abundant clear to white quartz and possible feldspar, trace chloritization.
1016.5	Core lost.
1016.5	Core lost.
1013.5	Granite(?) (or Schist?): medium crystalline, with abundant (50%) biotite, abundant clear quartz and probable white feldspar, probable minor chloritization.
1010.0	Granite ("Classic): very coarse crystalline, clear quartz, white and pink feldspar, biotite, trace hornblende, minor chloritization.
1010.0	As above.
1007.0	Quartzite (?): clean, clear to white, shattered quartz with red shaley streaks (predominantly very finely fractured--becoming "mushy").
998.0	Limestone: medium brown, cryptocrystalline, dense, hard, very clean, tight.
984.0	Limestone: buff to light reddish brown (variable), cryptocrystalline, dense, hard, very clean, occasional traces gypsum, tight.
973.5	Dolomite: cream to buff, cryptocrystalline, dense, very clean, no visible porosity.
970.5	Dolomite: medium brown, microcrystalline to slightly sucrosic, dense, very clean, no visible porosity, but probably minor intercrystalline and/or sucrosic, no shows.

928.0 Limestone: buff to light pinkish/brown, cryptocrystalline to microcrystalline, very dolomitic (microcrystals), dense, clean, tight.

918.0 Limestone: buff to light brown, cryptocrystalline, dense, clean, trace dolomitic (microcrystals), tight.

912.0 Limestone/Dolomite: buff to light brown, cryptocrystalline, predominantly inclusions of limestone in dolomite (possible fossil fragments?), very clean, but trace red streaks, no visible porosity.

907.5 Dolomite: cream to buff, cryptocrystalline, dense, hard, clean, no visible porosity.

893.5 Dolomite: bright pink, cryptocrystalline, dense, hard, very clean, no visible porosity.

891.5 Core lost

887.5 Dolomite: white, cryptocrystalline to microcrystalline, dense, hard, very clean, no visible porosity.

872.5 Dolomite: cream, cryptocrystalline, dense (almost chalky), firm, very clean, no visible porosity, trace red shaley streaks.

862.5 Dolomite: pink, cryptocrystalline, dense, hard, very clean, no visible porosity.

854.5 Doloimte: cream, cryptocrystalline, dense, hard, very clean, no visible porosity.

826.0 Core lost.

820.0 Limestone: light to medium brown, cryptocrystalline to microcrystalline, moderately to very dolomitic, clean, tight.

815.0 Limestone: cream, cryptocrystalline, dense, hard, very clean, tight.

793.0 Dolomite: cream, cryptocrystalline to microcrystalline, dense, hard, very clean, no visible porosity.

786.5 Dolmoite, cream, cryptocrystalline, dense, very clean, firm to hard, no visible porosity.

786.5 Dolomite: light brown, cryptocrystalline, dense, hard, very clean, no visible porosity.

766.5 Dolomite: cream to light pink, cryptocrystalline to microcrystalline, hard, very clean, no visible porosity.

766.5 As above.

757.5 Limestone: white to buff, cryptocrystalline (slightly chalky), firm, very clean, tight.

753.5 Dolomite: white to buff, microcrystalline, firm to hard, very clean, probable fair to good intercrystalline porosity, no shows.

750.0 Dolomite: buff to light brown, cryptocrystalline to microcrystalline, firm to hard, very clean, no visible porosity.

743.0 Dolomite: buff to light pink, microcrystalline, firm to hard, very clean, probable poor to fair intercrystalline porosity, no shows.

735.5 Dolomite: light brown, cryptocrystalline to microcrystalline, dense, hard, very clean, no visible porosity, no shows.

730.5 Dolomite: buff to light brown, microcrystalline, firm to hard, very clean, poor to fair intercrystalline porosity?, no shows.

728.5 Dolomite: light pink, microcrystalline, hard, very clean, possible poor to fair intercrystalline porosity?, no shows.

723.5 Dolomite: buff to light brown, microcrystalline to sucrosic, hard, very clean, poor to fair sucrosic porosity?, no shows.

716.5 Dolomite: buff, microcrystalline to sucrosic, hard, very clean, poor to fair sucrosic porosity?, no shows.

713.0 Dolomite: bright pink, microcrystalline to sucrosic, firm, somewhat friable, clean, poor to good sucrosic porosity?, no shows.

707.5 Dolomite: white to cream, microcrystalline (slightly sucrosic), firm to hard, clean, no visible porosity (minor sucrosic?), no shows.

696.5 Dolomite: buff to light brown, cryptocrystalline to microcrystalline, dense, firm to hard, very clean, no visible porosity, no shows.

689.0 Dolomite: pink with abundant reddish, argillaceous streaks, but otherwise clean, cryptocrystalline, dense, soft to firm, no visible porosity.

681.0 Limestone: white to buff, microcrystalline to slightly sucrosic, dense, soft to firm, very clean, tight.

672.0 Limestone: white to buff, microcrystalline to slightly sucrosic, dense, soft to firm, very clean, tight.

665.5 Core lost.

663.5 Dolomite: buff to light brown, microcrystalline to sucrosic, very clean, firm, poor to fair sucrosic porosity, no shows.

631.0 Dolomite: cream to pinkish, microcrystalline to very fine crystalline, friable (mushy to soft), very clean, poor to fair intercrystalline porosity, no shows.

621.5 Silica (quartz): clear to white, slightly dolomitic, very hard, brittle, possibly fractured (inclusions in dolomite?).

611.5 Dolomite: buff to slightly pinkish, microcrystalline to sucrosic, abundant calcareous inclusions, very clean, possible fair to good sucrosic porosity, no shows.

607.5 Dolomite: white to pinkish, cryptocrystalline, very clean, trace poor to fair sucrosic porosity, no shows.

601.5 Dolomite: pink, microcrystalline to slightly sucrosic, very clean, appears dense, no visible porosity (some sucrosic?), no shows.

590.0 Dolomite: white to pinkish, microcrystalline to very fine crystalline, very clean, no visible porosity (but probable good intercrystalline porosity), no shows.

590.0 Dolomite: as above.

579.0 Dolomite: buff to light pink, cryptocrystalline to slightly sucrosic, hard (but core very fractured), very clean, poor sucrosic porosity, no shows.

579.0 Dolomite as above, but cream to buff.

574.5 Dolomite: cream to buff, microcrystalline, dense, hard, very clean, no visible porosity.

569.0 Dolomite: buff to light pink, microcrystalline, dense, hard, very clean, no visible porosity (possibly trace sucrosic), no shows.

565.0 Dolomite: buff to light brown (patchy light brown), very fine crystalline, sucrosic, firm, very clean, poor to good intercrystalline porosity?, no shows.

545.0 Dolomite: cream to buff, microcrystalline to sucrosic, firm, clean, possible poor to fair sucrosic porosity?, no shows.

542.0 Dolomite: buff with minor light brown banding, microcrystalline to sucrosic, hard, clean, no visible porosity (trace sucrosic?), no shows.

542.0 Dolomite: as above.

ICG Sogepet et al Netsiq N-01
Sidewall Core Description

Schlumberger Sample No.	Depth	Description
#65, #66	542.0	Dolomite, tan coloured, very fine-grained mudstone, fine banding (organic material?), no visible porosity, moderately indurated
#64	545.0	Dolomite, as above
#63	565.0	Dolmomite, cream to tan coloured, very fine-grained mudstone, no visible porosity, poorly indurated
#62	569.0	Dolomite, cream to tan, moderately indurated
#61	574.5	Dolomite, as above
#59, #60	579.0	Dolomite, as above, grading to limestone
#57, #58	590.0	Dolomite, cream to pink, very finely crystalline, no visible porosity, moderately indurated
#56	601.5	Dolomite, creamy pink, very finely crystalline, no visible porosity, moderately indurated
#55	607.5	Dolomite, cream to pink, very finely crystalline, no visible porosity, moderately indurated
#54	611.5	Dolomite, grading to limestone, cream to pink
#53	621.5	Dolomite, cream to white, inclusion of chert, white, fractured, no visible porosity
#52	631.0	Dolomite, cream to pink, very finely crystalline, poorly indurated, no visible porosity
#51	663.5	Dolomite, as above
#50	665.5	No sample

Schlumberger Sample No.	Depth	Description
#49	672.0	Limestone, cream to buff, very fine grained lime mudstone, no visible porosity
#48	681.0	Limestone, cream to buff coloured, a lime mudstone, no visible porosity
#47	689.0	Dolomite, buff coloured with reddish streaks through sample, a lime mudstone, no visible porosity, moderately indurated
#46	696.5	Dolomite, grading to limestone, tan coloured, moderately indurated, no visible porosity
#45	707.5	Dolomite grading to limestone, tan coloured, very finely crystalline, moderately indurated, no visible porosity
#44	713.0	Dolomite, pink to red, very finely crystalline, moderately indurated, no visible porosity
#43	716.5	Dolomite, cream to tan coloured, very finely crystalline, moderately indurated, no visible porosity
#42	723.5	Dolomite, as above
#41	728.5	Dolomite, pink to ochre coloured, as above
#40	730.5	Dolomite, cream to tan coloured, very finely crystalline, moderately indurated, no visible porosity
#39	735.5	Dolomite, as above
#38	743.0	Dolomite, cream to pink, very finely crystalline, moderately indurated, no visible porosity
#37	750.0	Dolomite, cream to tan coloured, very finely crystalline, no visible porosity
#36	753.5	Dolomite, cream to tan coloured, very finely crystalline, no visible porosity

Schlumberger Sample No.	Depth	Description
#35	757.5	Limestone, white to cream, very finely crystalline, no visible porosity, moderately indurated
#34, #33	766.5	Dolomite, cream to pink, slightly limey cryptocrystalline, no visible porosity
#31, #32	786.5	Dolomite, tan to brown, cryptocrystalline, no visible porosity, moderately indurated
#30	793.0	Dolomite, cream to tan, very fine crystalline, no visible porosity, moderately indurated
#29	815.0	Limestone, cream, very finely crystalline, no visible porosity
#28	820.0	Limestone, as above
#27	826.0	No sample
#26	854.5	Dolomite, cream to tan coloured, very finely crystalline, no visible porosity
#25	862.5	Dolomite, pink, cryptocrystalline, no visible porosity, moderately indurated
#24	872.5	Dolomite, cream to tan coloured, crypto-crystalline, trace red streaks, no visible porosity
#23	887.5	Dolomite, tan to cream coloured, very finely crystalline, no visible porosity
#22	891.5	No sample
#21	893.5	Dolomite, pink, very finely crystalline, no visible porosity
#20	907.5	Dolomite, cream to pink, cryptocrystalline, no visible porosity
#19	912.0	Limestone, tan to cream coloured, very finely crystalline, no visible porosity

Schlumberger Sample No.	Depth	Description
#18	918.0	Limestone, tan to cream coloured, ochre and pink staining on fracture surfaces, no visible porosity, moderately indurated
#17	928.0	Limestone, as above
#16	970.5	Dolomite, tan to brown, grading to limestone, no visible porosity, poorly indurated
#15	973.5	As above
#14	984.0	Limestone, cream to pink, microcrystalline, no visible porosity, poorly indurated
#13	998.0	Limestone, as above
#12	1007.0	Quartzite, very coarse grained, clear quartz crystals, red and white mush (feldspar?), very slightly calcareous
#11, #10	1010.0	Granite, very coarsely crystalline, quartz, biotite, hornblende, feldspars (white and pink)
# 9	1013.5	Biotite schist, medium to fine grained, biotite, hornblende, chlorite, feldspar
# 8, #7	1016.5	No sample
# 6	1020.5	Biotite schist, as above
# 5	1026.0	Biotite schist, as above
# 4, # 3	1034.0	Granite, as above
# 2, # 1	1040.0	Biotite schist, as above

R.L. McKellar
October 28, 1985

4.3 Lithology

SAMPLE DESCRIPTION

Bit Sample (trip @ 448 m)	Predominantly orange-reddish clay and very sandy (rounded, fine to medium grained, clear to milky quartz), light grey clay, with some black coaly inclusions.
448 - 450	Shale (mud)(45%): orange-reddish, very soft, calcareous, blocky, slightly sandy in part; minor (5%) quartz Sand: clear to slightly milky, in part irregular fragments (fractured?), in part fine to medium, subrounded grains (possibly in shale?), trace rounded granules and pebbles; minor (5%) Limestone: buff to light grey/brown, cryptocrystalline, dense, possibly bioclastic, no visible porosity, minor (5%) Dolomite: light grey, microcrystalline, silty, argillaceous, very hard, no visible porosity; trace clear crystalline Gypsum. Abundant cement cavings (40%).
450 - 455	Shale (45%): reddish as above but increasing amounts of Gypsum: clear, crystalline (in part with shaley inclusions); minor (5%) Limestone stringers as above. Trace quartz Sand as above. Abundant cement cavings (50%).
455 - 463	No sample (circulate out $CaCl_2$ kick--returns bypassed shaker to ocean).
463 (bottoms up)	Shale: reddish, very soft (grading to clay), calcareous, somewhat silty, slightly to very gypsiferous (Fibrous); abundant (50%) cement.
463 - 465	Cement (95%); minor Shale as above (ran cement plug at 463 meters to seal off zone).
465 - 475	Shale (100%) as above, very soft clay, abundant fibrous gypsum as above, trace cement.
475 - 477	No sample (circulate out $CaCl_2$ kick and lose circulation--returns lost to ocean).
477 - 480	Abundant (20%?) quartz Sand grains, clear to milky, fine to coarse, subangular to subrounded, unconsolidated, red shale as above (50%?), with Gypsum, occasional black coaly grains. Cement cavings (20%).
480 - 483.4	No sample (lost circulation--no returns).

483.4 (bottoms up)	Shale (80%), clay, very soft, reddish, very calcareous, somewhat gypsiferous, predominantly slightly silty, locally sandy (10%?), possible lenses or stringers, occasional black, coaly inclusions (medium to coarse as above). 10% cement cavings.
483.4 - 485	Shale (60%) soft clay as above with inclusions of fibrous Gypsum. Decreasing sand to trace. Abundant (40%) cement cavings.
485 - 490	Shale (100%) as above, trace medium to coarse quartz sand as above. Subangular to subrounded, clear to milky, loose, trace cement cavings.
490 - 495	Shale (100%) as above, decreasing silty to minor. Trace sand as above, some Gypsum (but decreasing).
495 - 500	Shale (95%) as above; minor (5%) Dolomite: buff, microcrystalline to very fine crystalline, predominantly clean but trace argillaceous, trace silty.
500 - 505	Dolomite (85%): buff to light brown, very fine to fine crystalline, locally slightly friable, in part fair to good intercrystalline porosity (no shows), in part slightly to very calcareous with minor grading to Limestone (5%). white to buff, chalky to microcrystalline, slightly to very dolomitic, tight. Trace anhydrite inclusions, 10% shale as above.
505 - 510	Dolomite (5%) as above but grading to pink in part, locally increasing calcareous (minor dolomitic Limestone as above); decreasing intercrystalline porosity to occasional poor to fair (increasing dense).
510 - 525	Dolomite (100%) as above but locally becoming dense, cryptocrystalline to microcrystalline (increasing downwards), decreasing calcareous to trace, clean, occasional traces intercrystalline and microvuggy porosity, no shows (except mineral fluorescence), porosity often with fibrous crystalline gypsum lining.
525 - 530	Dolomite (95%) as above, slight increase in pinkish, increasing dense, increasing calcareous in part, with minor grading to Limestone (5%): white to buff, cryptocrystalline to microcrystalline, dolomitic, no visible porosity, occasional crystalline, clear calcite inclusions.

530 - 535	Dolomite (95%) as above, increasingly very fine crystalline, in part slightly to very calcareous (minor grading to limestone, as above), only traces intercrystalline porosity, no shows, trace gypsum.
535 - 541.5	Dolomite (100%): predominantly microcrystalline to very fine crystalline, slight decrease calcareous (trace grading to limestone as above), occasional intercrystalline and microvuggy porosity, predominantly lined with fine crystals (rhombs) dolomite and occasional gypsum, no shows.

9 5/8" casing, landed at 533.4 m

541.5 - 543.2	Bottoms up sample at 543.2 m - took $CaCl_2$ kick) Dolomite: buff to light brown to pinkish, microcrystalline to very fine crystalline (sucrosic) clean, occasionally slightly calcareous, trace red shaley inclusions, occasional poor intercrystalline and microvuggy porosity, no shows.
543.2 - 545	Dolomite: (50%) as above increasing very fine crystalline, occasionally pinkish. Trace porosity as above, no shows; abundant medium to coarse grained sand (50%)--probably from casing shoe. Trace cement.
545 - 550	Dolomite: (70%) as above, increasingly calcareous; grading to Limestone (30%), white to buff, chalky to very fine crystalline, slightly to very dolomitic, very fine crystals, soft to firm (slightly friable in part), clean, local minor intercrystalline and microvuggy porosity.
550 - 555	Dolomite (90%) predominantly light brown (slightly mottled in part), cryptocrystalline (dense) to microcrystalline (occasional very fine crystalline), decreasingly calcareous to trace, clean (trace argillaceous), local porosity as above. Minor Limestone as above (dolomitic), minor clear quartz, fractured?, subangular (from Barite?).
555 - 570	Dolomite: (95%) increasingly buff to pink, predominantly microcrystalline to very fine crystalline (decreasingly cryptocrystalline), in part somewhat calcareous (minor grading to Limestone as above), some possible intercrystalline porosity (trace local excellent).

570 - 575	Dolomite (100%) as above, decreasingly calcareous to trace (trace Limestone as above). Poor to locally good intercrystalline porosity, no shows.
575 - 585	Dolomite (95%) as above, increasingly very fine crystalline (increasingly friable?), occasionally slightly calcareous (but 5% dolomitic Limestone as above), local poor to good intercrystalline porosity, no shows.
585 - 590	(Poor sample - after circulating $CaCl_2$ kick at 589 meters). Dolomite (75%) pink with minor buff to light brown as above, microcrystalline to very fine crystalline, becoming more dense, clean, occasional intercrystalline porosity, no shows. Abundant (20%?) clear to milky, fine to medium grained, subrounded, coarse quartz sand (probably from Barite?), minor Limestone (5%) as above.
590 - 595	Dolomite (90%) as above but decreasing pink, cryptocrystalline to very fine crystalline (becoming more dense), occasional calcareous inclusions (micro). Minor Limestone (5%) white to buff, chalky to microcrystalline, softer, minor sand as above.
595 - 600	Dolomite (60%) pink to light brown, microcrystalline to very fine crystalline, predominantly very calcareous, grading to Limestone, white to buff to pink, cryptocrystalline (chalky) to very fine crystalline, slightly to very dolomitic (crystals), clean, no visible porosity.
600 - 605	Dolomite (80%) buff to light brown, predominantly very fine crystalline (rhombic) with abundant calcareous matrix; grading to Limestone (20%) as above, slightly to very dolomitic, no visible porosity.
605 - 610	Poor sample (from riser). Dolomite (70%) as above, but decreasingly calcareous, occasional traces intercrystalline porosity (no shows); grading to Limestone (10%) as above, tight; abundant clear, crystalline Gypsum (20%) (inclusions in dolomite or possible fracture infilling?).

610 - 620 **Dolomite** (100%) buff to pink, predominantly microcrystalline to very fine crystalline, locally cryptocrystalline, dense, clean, trace gypsum inclusions, occasional trace calcareous, occasional traces intercrystalline and pinpoint porosity, no shows. Trace dolomitic limestone.

620 - 625 Dolomite (100%) as above but occasionally medium crystalline, trace gypsum inclusions, occasional poor to trace good intercrystalline porosity. No limestone.

625 - 630 Dolomite (100%) predominantly buff, in part cryptocrystalline to microcrystalline, dense; in part very fine to medium crystalline with local fair to good intercrystalline and occasional microvuggy porosity, no shows.

630 - 645 Dolomite (100%) as above, but buff to pink, increasingly calcareous (40% slightly to very calcareous); trace grading to Limestone white to buff, chalky to microcrystalline, softer, dolomitic, clean, no visible porosity. Local good intercrystalline porosity in dolomite with trace associated gypsum crystals.

645 - 650 Dolomite (80%) buff, predominantly cryptocrystalline to microcrystalline, dense, now very calcareous, clean; grading to Limestone (20%) as above, tight. Occasional traces intercrystalline and pinpoint porosity in dolomite.

650 - 660 Dolomite (60%) as above, some very fine to fine crystalline, but very calcareous (inclusions and matrix); grading to Limestone (40%) as above, dolomitic (microcrystalline to fine rhombic crystals), no visible porosity. Minor clear gypsum inclusions.

660 - 675 Dolomite (50-60%) buff to light brown, cryptocrystalline (dense) to very fine crystalline, slightly to very calcareous, local fair to good intercrystalline porosity (noncalcareous, very fine crystalline dolomite), grading to Limestone (40-50%) white to buff, cryptocrystalline (chalky) to microcrystalline, predominantly dolomitic, no visible porosity.

675 - 680 Limestone (95%) predominantly buff to light brown, cryptocrystalline, dense, hard, clean, in part slightly dolomitic (micro-crystals), tight, minor dolomite as above.

680 - 685	Limestone (60%) in part dense as above, in part increasingly dolomitic (micro to very fine crystals); grading to Dolomite (40%) cryptocrystalline (dense) to very fine crystalline, slightly to very calcareous, trace red shaley inclusions, occasional traces intercrystalline porosity, no shows; trace gypsum crystals.
685 - 690	Dolomite (60%) buff to light brown, predominantly microcrystalline (sucrosic), clean, very calcareous (tight); grading to Limestone (40%), predominantly very dolomitized (micro-crystals), tight; some cryptocrystalline, dense Limestone, possible traces fossil shadows.
690 - 695	Limestone (70%) white to buff to light brown, cryptocrystalline to microcrystalline, dense, clean, in part slightly to very dolomitic grading to very calcareous Dolomite (30%) as above, no visible porosity.
695 - 705	Dolomite (90-95%) predominantly buff, cryptocrystalline to microcrystalline, dense, clean, trace gypsiferous, very calcareous but decreasingly calcareous, grading to dolomitic Limestone (5-10%) as above, no visible porosity.
705 - 715	Dolomite (90%) as above but predominantly microcrystalline (slightly sucrosic), some very fine crystalline, hard to locally friable, increasingly calcareous; grading to Limestone (10%) as above, slightly to very dolomitic in part. Occasional trace intercrystalline porosity in dolomite.
715 - 720	Limestone (90%) predominantly buff to light brown, cryptocrystalline to microcrystalline, dens+, hard, (minor very soft, chalky), in part dolomitic, trace reddish shaley streaks, minor very calcareous dolomite (10%) as above. No visible porosity.
720 - 730	Dolomite (90%) buff to light brown (trace reddish streaks), predominantly microcrystalline, dense, occasionally slightly calcareous, increasing downwards (inclusions and crystals), no visible porosity. Limestone (10%) as above.
730 - 735	Dolomite (100%) as above but reddish in part, trace gypsiferous, slightly calcareous in part, occasional traces pinpoint porosity, no shows. Trace Limestone as above, tight.

735 - 745	Dolomite (100%) predominantly buff (no reddish), cryptocrystalline to microcrystalline, dense, clean, slightly carlcareous in part, no visible porosity; trace Limestone as above, possible traces fossil shadows, tight.
745 - 750	Dolomite (90%) as above but predominantly moderately to very calcareous, no visible porosity; increasingly grading to Limestone (10%) white to buff, predominantly cryptocrystalline, slightly to very dolomitic, clean, tight.
750 - 755	Dolomite (95%) as above, but in part decreasingly calcareous to trace cryptocrystalline, hard; in part microcrystalline, hard to friable, no visible porosity. Minor Limestone as above, tight.
755 - 760	Dolomite (90%) predominantly light brown, somewhat calcareous, dense, very hard, tight; slightly increasing grading to Limestone (10%) as above.
760 - 765	Dolomite (50%) predominantly buff, increasingly cryptocrystalline, very calcareous, grading to Limestone (50%) cryptocrystalline to microcrystalline, dolomitic in part, no visible porosity.
765 - 770	Dolomite (90%) white to buff, predominantly cryptocrystalline, very dense, hard, locally trace calcareous, tight; Limestone (10%) as above, tight, trace red shaley streaks.
770 - 780	Dolomite (100%) as above; trace Limestone inclusions as above, tight.
780 - 785	Dolomite (5%) as above, predominantly noncalcareous, firm to hard; minor Limestone (5%), white to buff, cryptocrystalline, clean, slightly dolomitic, tight.
785 - 805	Dolomite (100%) buff to trace light brown, cryptocrystalline, dense, firm to hard, clean, occasionally slightly calcareous; grading to trace streaks tight, slightly dolomitic Limestone.
805 - 815	Dolomite (60%) buff to light brown, cryptocrystalline to microcrystalline, dense, clean, predominantly moderately to very calcareous; grading to Limestone (40%), white to buff, cryptocrystalline (slightly chalky in part), slightly to very dolomitic, clean, soft to firm, no visible porosity.

815 - 825	Limestone (80-90%) buff to light brown, cryptocrystalline, (locally slightly chalky), dense, clean, in part dolomitized, grading to Dolomite (10-20%), calcareous, as above, no visible porosity.
825 - 835	Dolomite (80-90%) buff to light brown (some reddish brown), cryptocrystalline, dense, firm to hard, in part noncalcareous, in part slightly to very calcareous, with some grading to Limestone (10-20%), dolomitic as above (inclusions and/or stringers?), no visible porosity).
835 - 840	Dolomite (95%) as above but white to cream to buff, occasional trace calcareous, no visible porosity. Minor Limestone (5%) inclusions as above.
840 - 845	Dolomite (100%) as above, essentially noncalcareous (trace), very clean, tight. Trace Limestone as above.
845 - 860	Dolomite (100%) cream to buff to pink, cryptocrystalline, dense, firm to hard, very clean, occasionally trace calcareous with trace inclusions white, cryptocrystalline, soft to firm limestone. No visible porosity.
860 - 865	Dolomite (60%) as above, but in part increasingly calcareous, with slight gradation to Limestone (40%) white to pink, cryptocrystalline, dense, very clean, occasionally slightly dolomitic, tight. Trace white, soft dolomite.
865 - 870	Dolomite (70%) but cream to pink to light brown, slightly to very calcareous, increasing gradational to Limestone (30%) as above; trace very soft, white (chalky) limestone.
870 - 875	Dolomite (90%) white to cream to pink, predominantly cryptocrystalline, but in part microcrystalline to very fine crystalline, predominantly moderately to very calcareous; very gradational to Limestone (10%) very dolomitic in part (micro-crystals) (5%); in part cryptocrystalline, firm, non-dolomitic (5%). No visible porosity.
875 - 880	Dolomite (5%) in part white to cream to light brown, in part pink to reddish, predominantly cryptocrystalline, minor microcrystalline, decreasing calcareous to minor. Minor white, cryptocrystalline Limestone (5%) as above, slightly chalky in part. No visible porosity.

880 - 885

Limestone (60%) cream/buff/light brown and pink, cryptocrystalline to microcrystalline, dense, firm to hard, slightly to very dolomitic with abundant gradation to Dolomite (40%) as above, but predominantly very calcareous. No visible porosity.

885 - 890

Dolomite (70%) as above, but predominantly buff to light brown (minor white, pink), cryptocrystalline to microcrystalline, slightly to very calcareous; grading to Limestone (30%) as above (decreasing pink), non-dolomitic to very dolomitic. No visible porosity.

890 - 900

Dolomite (90-95%) as above but decreasing reddish to 10%, slightly to locally moderately calcareous; decreasingly grading to Limestone (5-10%) as above, dolomitic in part. No visible porosity.

900 - 905

Dolomite (100%) predominantly cream to buff (5% reddish), cryptocrystalline; decreasingly calcareous to trace. No visible porosity.

905 - 910

Dolomite (5%) as above (no reddish), but in part calcareous, grading to Limestone (15%) white to buff, cryptocrystalline, dense, slightly to very dolomitic (predominantly micro-dolomitic crystals) very clean. No visible porosity.

910 - 920

Limestone (50%) in part white to buff, in part light brown, cryptocrystalline, very clean, firm to hard, dolomitic in part as above, grading to Dolomite (50%) buff to light brown, cryptocrystalline to microcrystalline, predominantly moderately to very calcareous, tight.

920 - 935

Dolomite (80%) buff to light brown (increasingly light brown), cryptocrystalline to microcrystalline, dense, very clean, firm to hard, moderately to very calcareous; grading to Limestone (20%) as above, trace to very dolomitic. No visible porosity.

935 - 940

Limestone (80%) buff to light brown with occasional red to orange streaks; increasingly soft (chalky), in part slightly to moderately dolomitic, no visible porosity. Dolomite (20%), calcareous as above.

940 - 945	Limestone (90%) buff to light brown as above but decreasingly red to trace, soft to firm, in part slightly to very dolomitic (micro-crystals); decreasingly grading to Dolomite (10%) very calcareous. No visible porosity.
945 - 950	Limestone (70%) in part (30%) as above, in part (40%) reddish orange and yellow, cryptocrystalline to microcrystalline, slightly to very dolomitic; grading to calcareous, microcrystalline Dolomite (30%), in part argillaceous (reddish). Occasional traces fossil shadows. No visible porosity.
950 - 955	Limestone (60%) Dolomite (40%): very gradational as above, buff to light brown to reddish orange, occasional yellow, cryptocrystalline to microcrystalline, soft to hard, decreasingly argillaceous to trace.
955 - 965	Limestone (100%) predominantly buff to medium brown, trace to minor red, orange and pink, cryptocrystalline, firm (locally soft) to hard, dense, clean to slightly argillaceous, slightly to moderately dolomitic (trace Dolomite). No visible porosity.
965 - 970	Limestone (100%) as above, in part very soft, chalky, white ("lime mud") with shaley orange streaks.
970 - 975	Dolomite (80%) predominantly light brown, microcrystalline, predominantly noncalcareous, but occasional calcareous inclusions, clean, tight; Limestone (20%), predominantly cryptocrystalline, clean, dolomitic in part, tight. Abundant very soft, white lime mud as above.
975 - 980	Dolomite (70%) buff to light brown, cryptocrystalline to microcrystalline (in part as above), dense, slightly increasing calcareous in part; Limestone (30%) buff to light brown, slightly pinkish, cryptocrystalline, predominantly moderately to very dolomitic (micro-crystals), clean, no visible porosity. Abundant lime mud as above.
980 - 985	Dolomite (50%) as above, occasional pink, slightly to very calcareous, dense; Limestone (50%) as above but cryptocrystalline to microcrystalline, non-dolomitic to very dolomitic (predominantly micro-crystals); 5% very soft lime mud as above.

985 - 990	Limestone (80%) predominantly buff to light brown and orange-brown, cryptocrystalline, firm to hard, occasional dolomitic inclusions, slightly argillaceous, no visible porosity; Dolomite (20%) as above, abundant lime mud as above.
990 - 1006	Limestone (100%) buff to light brown, cryptocrystalline (slightly chalky in part), soft to firm, locally slightly argillaceous, occasional reddish streaks, no visible porosity. Abundant white lime mud as above. Trace dolomite as above.
1006 - 1010	Sand (50%?) fractured clear quartz, occasional pink to rose, angular fragments; trace associated mica (biotite), chlorite. Limestone (50%?) as above, minor with argillaceous reddish streaks (predominantly cavings).
1010 - 1015	Shale (40%) dark grey, very soft (mud), "metallic" (greasy) lustre, very calcareous, abundant associated biotite. Sand (30%) as above (predominantly cavings?); Limestone (30%) as above (probably cavings). Note: see sidewall core descriptions.
1015 - 1021	Granite: predominantly quartz, very coarse, fragments (grains), clear to translucent, angular, abundant mica (predominantly biotite, trace muscovite); 10% pink potassium feldspar. Possible hornblende? (difficult to distinguish from abundant lignite mud additive in sample).
1021 - 1030-35(?)	Abundant black, very micaceous (altered?) "mud", abundant associated biotite flakes (unaltered). 50% quartz fragments as above and occasional clear to pink feldspar. Some limestone cavings (locally abundant). Note: sidewall core Mica Schist.
1030-35 - 1040	Granite: predominantly quartz, clear to translucent, angular fragments, common biotite flakes, 15 to 20% clear to orange feldspar. Possible minor hornblende (difficult to distinguish from abundant lignite mud additive in sample), trace chlorite. Some black micaceous mud as above.

Total depth at 1040 meters.

While drilling at 463 meters with 9.8 ppg mud, the well kicked and flowed at least 275 barrels of $CaCl_2$ water in two minutes. Only a very minor two meter drill break was recorded before the kick, but it seems unlikely that this was due to high pressure porosity because of the high volume and the rapidity of flow of the fluid. It seems that the porous zone was barely opened up before it flowed. The kick was killed with 14.0 ppg mud and drilling was resumed. A bottoms up sample contained only shale as described above. Another $CaCl_2$ kick was recorded from 475 to 477 meters, a 23 barrel gain, and a slower flow. However, a minor gas bubble (indicated by slowly rising casing pressure readings while the well was shut in) was associated with the flow this time. The well was killed this time with 15.0 ppg mud, but which was cut back to 14.5 ppg several meters later when the mud began to flow back into the formation (losing circulation). This time, abundant, loose,, fine to coarse, subangular to subrounded, clear to milky quartz grains were noted in the bottoms up sample, suggesting possibly loosely consolidated, very porous sandstones yielding the $CaCl_2$ flow. Also, a minor gas peak of about 0.2% C1 (trace C2) was recorded at this point (no mud gas being recorded at any other time through the formation). It should be noted that sample recovery was either nonexistent or extremely poor in quality where the kicks were taken and through the lost circulation zones, returns through these zones either being circulated out to the ocean or lost back into the formation.

Schlumberger logs run over this interval suggested a very salty section, possibly very salty shales interbedded with salt-filled sandstones, but with the shales probably also reading the effect of gypsum as well. Also, a few stringers with very high neutron porosity readings, fairly high gamma ray counts (shaley), very low bulk density, very low resistivity readings and showing quite washed out on the caliper occurred through the section. One occurs right at 463 meters where the first kick was taken. Possibly these could be high pressure $CaCl_2$ water-charged muds or shales and could represent the source of the kicks? The salty sandstones also remain a prime candidate as well, however. No sidewall cores were taken or RFT's shot through this section.

Walrus Formation(?) Top @ 501 m

The top of the Walrus Formation was marked by a fairly marked slowdown in penetration rate accompanied by the introduction into samples of dolomites and minor limestones. The whole of the section down to about 650 meters, is essentially dolomitic with occasional gradations to interbeds and bands of limestone. The dolomites are fairly consistent and can generally be described as buff to light brown to occasionally pink in color, microcrystalline to very fine crystalline (sucrosic in part), locally dense, very clean, in part somewhat calcareous, and slight gypsiferous. Intercrystalline porosity occurs throughout the section, ranges from trace to excellent and was marked by fast penetration rates. The occasional limestones tend to be white to buff, cryptocrystalline to microcrystalline, dolomitic and tight and are generally marked by slower drilling.

While drilling at 463 meters with 9.8 ppg mud, the well kicked and flowed at least 275 barrels of $CaCl_2$ water in two minutes. Only a very minor two meter drill break was recorded before the kick, but it seems unlikely that this was due to high pressure porosity because of the high volume and the rapidity of flow of the fluid. It seems that the porous zone was barely opened up before it flowed. The kick was killed with 14.0 ppg mud and drilling was resumed. A bottoms up sample contained only shale as described above. Another $CaCl_2$ kick was recorded from 475 to 477 meters, a 23 barrel gain, and a slower flow. However, a minor gas bubble (indicated by slowly rising casing pressure readings while the well was shut in) was associated with the flow this time. The well was killed this time with 15.0 ppg mud, but which was cut back to 14.5 ppg several meters later when the mud began to flow back into the formation (losing circulation). This time, abundant, loose,, fine to coarse, subangular to subrounded, clear to milky quartz grains were noted in the bottoms up sample, suggesting possibly loosely consolidated, very porous sandstones yielding the $CaCl_2$ flow. Also, a minor gas peak of about 0.2% C1 (trace C2) was recorded at this point (no mud gas being recorded at any other time through the formation). It should be noted that sample recovery was either nonexistent or extremely poor in quality where the kicks were taken and through the lost circulation zones, returns through these zones either being circulated out to the ocean or lost back into the formation.

Schlumberger logs run over this interval suggested a very salty section, possibly very salty shales interbedded with salt-filled sandstones, but with the shales probably also reading the effect of gypsum as well. Also, a few stringers with very high neutron porosity readings, fairly high gamma ray counts (shaley), very low bulk density, very low resistivity readings and showing quite washed out on the caliper occurred through the section. One occurs right at 463 meters where the first kick was taken. Possibly these could be high pressure $CaCl_2$ water-charged muds or shales and could represent the source of the kicks? The salty sandstones also remain a prime candidate as well, however. No sidewall cores were taken or RFT's shot through this section.

Walrus Formation(?) Top @ 501 m

The top of the Walrus Formation was marked by a fairly marked slowdown in penetration rate accompanied by the introduction into samples of dolomites and minor limestones. The whole of the section down to about 650 meters, is essentially dolomitic with occasional gradations to interbeds and bands of limestone. The dolomites are fairly consistent and can generally be described as buff to light brown to occasionally pink in color, microcrystalline to very fine crystalline (sucrosic in part), locally dense, very clean, in part somewhat calcareous, and slight gypsiferous. Intercrystalline porosity occurs throughout the section, ranges from trace to excellent and was marked by fast penetration rates. The occasional limestones tend to be white to buff, cryptocrystalline to microcrystalline, dolomitic and tight and are generally marked by slower drilling.

The upper 50 meters of the section was drilled with 14.7 ppg mud with no incident and 9 5/8 inch casing was set at 533.4 meters. However, when the shoe was drilled out with 12.2 ppg mud, the formation almost immediately kicked again with a $CaCl_2$ water flow at 543 meters. Mud weight was increased to 14.3 ppg to control it (but first increasing weight to 15.0 ppg and losing circulation). The $CaCl_2$ water this time did not seem to contain a gas bubble (as evidenced by a static shut-in casing pressure reading) but a bottoms up gas reading of about 0.2% C1 (trace C2) was recorded. This gas continued as background gas and varied between a trace and 0.18% C1 down to about 586 meters.

At 589 meters, the well flowed again with an eight barrel gain and the mud weight was increased to 14.7 ppg to kill the well. Kick gas was recorded this time at 0.3% C1 (the highest reading of the well), but quickly dropped off to zero, after a few meters of drilling. Only occasional traces of C1 were recorded through the rest of the section with one trip gas reading of 0.16%. Numerous sidewall cores and repeat formation tests were taken through this section and basically confirmed the lithologies and pressures.

Ekwan River? Top @ 648 m

The entire section from approximately 650 meters to the top of the basement at 1007 meters could not be confidently divided into different formations based either on samples or on Schlumberger logs. The whole section can be described generally as an interbedded sequence of dolomites and limestones with some gradation between the two. No salt or anhydrites were noted. The dolomites in this section differ somewhat from those in the overlying Walrus basically in that they tend to be cryptocrystalline to microcrysatlline instead of somewhat coarser, and also tighter, with the exception of those found between 695 to 755 meters and possibly from 970 to 975 meters. Otherwise, like those above, there are buff (or cream) to light brown, to occasionally pink and are very clean. Whereas the intercrystalline porosity in the Walrus was obvious in samples, the dolomite porosity was very inconspicuous, probably mostly sucrosic, and resulting in very low permeabilities. The limestones as well can be described as above and again are tight, as are most of the gradational lithologies between dolomite and limestones. Essentially no mud gases were recorded through the section. Numerous sidewall cores confirmed the lithologies and repeat formation tests generally confirmed the low permeabilities.

Granite Wash Top @ 1007 m

The top of the Granite Wash was picked on a fairly good drilling break and consists of a clean, clear to white quartzite(?), possibly very finely fractured and containing red shaley streaks. No mud gas was recorded.

PreCambrian Top @ 1010 m

The PreCambrian geology in this hole (at least the top 30 meters) is quite confused, and was even more so in samples. It seems to grade (or distinct interbeds) back and forth between good clean "classic" granite and what seems to be biotite schist. In samples the granite occurred as predominantly loose, but obviously fractured (angular) grains of clear to milky quartz, biotite, fresh pink and white feldspars and minor hornblende. Sidewall cores confirmed this lithology as a very coarse grained, fairly fresh (but slightly chloritized) classic granite. Interspersed between these occurrences of granite however, are either very biotitic (60%?) granite with some pink feldspar, minor quartz and minor chloritization which appears very schistose; or what appears to be an actual biotite schist with excellent foliated alignment of the biotite flakes, and often containing abundant clear to white quartz and possible feldspar. In samples, after being milled by the bit and hydrated by the drilling mud, this lithology appeared somewhat different, looking like a black, very micaceous "greasy" (metallic lustre) shale. It is questionable whether there is a gradation between the classic granites, through the black biotitic "granites" to the schists (and back again) or if there exists a more definite differentiation between them. Possible explanations could include some kind of "tectonic mixing or mashing" of a granitic rock resulting in a migmatic type of assemblage; the presence of xenoclasts of schistose type rock within a granitic mass; or some kind of magmatic differentiation during the crystallization process for some reason.

Conclusions

As was noted in the summary of geological prospects at the beginning of the Geological Summary, the main prospect was essentially a porous Ekwan River dolomitic reef development capped by a tight Walrus Limestone. A very marked seismic marker, at about 650 meters was proposed to have marked this event. However, we have seen in this hole that the opposite has occurred. We have a porous "Walrus" dolomite overlying tighter "Ekwan River" limestones and dolomites. Indeed this sharp change from porous dolomite to tight limestone at 650 meters no doubt causes the seismic event.

Stratigraphic correlation of lithologies and formation changes between this hole and offsetting holes was essentially impossible in the field while drilling. The only real formation change that could be deduced in the carbonate section was at 650 meters as noted above. Also conspicuous in the whole dolomite/limestone section was the "cleanness" of the rock (non-shaley or argillaceous) and also total lack of salt or anhydrite, a feature not noted in any of the previous wells drilled in Hudson Bay. The assumptions of the Walrus and Ekwan River Formation names and tops are therefore assumptions only and may not be valid. Also, no formation tops were picked below the Ekwan River until the Granite Wash, because no obvious formation changes could be discerned.

4.4 STRATIGRAPHIC COLUMN

The full table of stratigraphic information cannot be completed at present because the biostratigraphic analysis is still ongoing. The following table shows the information available to date.

Preliminary Tops for Netsiq N-01

When the biostratigraphy report is received, these tops will be upgraded to "final". However, given the extreme change in lithology relative to other wells in Hudson Bay, the tops can really be considered as "best guess" only.

All tops are relative to KB at 13.7 m above MSL.

Formation	Log Top	Subsea	Thickness	Lithology
Water Bottom				
Base Pleistocene	not picked		n/a	
Devonian:				
Midbay Fm	not picked		n/a	Salty shales and salt filled sandstones with clear fibrous gypsum crystals
Walrus	501	487	145	Dolomite with minor limestone.
Silurian:				
Ekwan River	646	632	109	Interbedded dolomites and limestone
Severn River	755	741	69	Predominantly dolomite with minor limestone
Ordovician:				
Red Head Rapids	824	810	154	Interbedded dolomite and limestone
Churchill	978	964	27	Limestone

Formation	Log Top	Subsea	Thickness	Lithology
Cambrian	1005	991	4	Clear white quartzite with red shaley streaks
Precambrian	1009	995	n/a	Interbedded granite and biotite schist
TD	1040	1026		

5. WELL EVALUATION

5.0 WELL EVALUATION

5.1 Downhole Logs Run on Netsiq N-01

Service Company: Schlumberger of Canada Ltd.

Logging Run 1 — 29 September 1985

Depth — 436 - 541 m

Logs Run

Type	Interval	Scale
DLL-MSFL	436 - 541m	1:600/1:240
DDBHCS-GR-CBL	436 - 537m	1:600/1:240
CNL-LDT-GR	436 - 541m	1:600/1:240
Natural GR-Spectroscopy	436 - 533m	1:240
Stratigraphic High Resolution Dipmeter	442 - 541m	1:240
Cyberlook	436 - 535m	1:240
AMS-SPAF	436 - 535m	1:240

Logging Run 2 — 16 - 17 October 1985

Depth — 532 - 1037 m

Logs Run

Type	Interval	Scale
DLL-MSFL	532 - 1034.5m	1:600/1:240
DIL-SFL	532 - 1037m	1:600/1:240
DDBHCS-GR-CBL	532 - 1025m	1:600/1:240
CNL-LDT-GR	532 - 1037m	1:600/1:240
Natural GR Spectroscopy	532 - 1037m	1:240
Stratigraphic High Resolution Dipmeter	532 - 1037m	1:240
Cyberlook	532 - 1035m	1:240
Repeat Formation Tester	Selected Points	
Core Sample Taker	49 Cores at selected points	
WST(VSP)	shots at selected points	

Core sample taker results and an x-ray diffraction analysis of the cores follow in this section. This information should be kept confidential for five years.

5.2 - A computed dipmeter log was filed 14 November 1985.

- A summary of the deviation and drift surveys is included in this section.

- Gas logging and mud logging were performed by Geoservices North America Ltd. Only minor amounts of C1 with occasional traces of C2 were encountered. The complete Hydrocarbon Mud Log is enclosed as an appendix.

5.3 Velocity Survey

Results of the VSP obtained from the Netsiq well are attached, along with the wavelet extracted. This velocity survey will be sent under separate cover.

5.4 Formation Stimulation

No formation stimulation was attempted.

5.5 Formation and Production Testing

A Repeat Formation Tester was run on each of the logging runs on 16th and 17th October 1985 A summary of the intervals tested and the results achieved is attached.

No production testing was performed.

6.0 ENVIRONMENTAL WELL REPORT

Dobrocky Seatech Limited report Appendix B of this report.

7.0 APPENDICES

7.1 No fluids were recovered

7.2 See Petrographic Report from Core Laboratories which is Appendix B of this report

7.3 No testing was done

7.4 See Appendix E of this report.

7.5 Work continuing - will be filed ASAP.

7.6 Work continuing - will be filed ASAP.

7.7 Work continuing - will be filed ASAP.

7.8 not applicable

7.9 in well log section

7.10 in drilling and geology sections

7.11 in geology section

7.12 not applicable

7.13 not applicable

7.14 final well survey as Appendix F of this report.

RKS.

ER . . PE ☐ STANDARD ☐ LARGE AREA
E TYPE ☐ STANDARD ☐ LARGE DIAMETER ☐ LONG
FSET USED ☐ YES ☐ NO

TESTING DATA

FILE NO	DEPTH	GOOD SEAT (√)		PERMEABLE (√)		HYDRO-STATIC PRESSURE	INITIAL SHUT-IN PRESSURE	SAMPLE TAKEN (√)		FINAL SHUT-IN PRESSURE	FORMATION
		YES	NO	YES	NO			YES	NO		
[illegible]	[illegible]	x			x	[illegible]	-		x		
6	[illegible]	x			x	9636	-		x		
7	565.0	x			x	9974	-		x		
8	[illegible]	x		x		9905	9795		x		
9	569.0		x			10036	-		x		
10	568.9	x			x	10036	-		x		
11	575.0	x		x		10146	9933		x		
12	579.0	x		x		10181	10002	x		9864	
13	582.0	x		x		10215	9995		x		
14	590.0	x		x		10360	10050		x		
15	601.5	x		x		10560	10498		x		
16	607.5	x			x	10664	-		x		
17	611.5	x		x		10753	10650		x		
18	622.0	x		x		10939	10657		x		
19	625.0		x			10995	-		x		
20	627.0	x		x		11022	10705		x		
21	631.0	x		x		11091	10739		x		
22	625.2	x		x		10995	10677		x		
25	664.0	x		x		11732	11222		x		
26	665.5	x		x		11732	11236		x		
27	696.5	x			x	12270	-		x		
28	697.0	x			x	12284	-		x		
29	707.5	x			x	12470	-		x		
30	713.0	x		x		12546	12105		x		
31	713.0	x		x		12511	12105		x		
32	723.5	x			x	12704	-		x		
33	728.5	x		x		12822	12215		x		
34	730.5	x		x		12835	12229		x		
35	735.5	x		x		12918	12284	x		[illegible]	
36	743.0	x		x		13042	12498		x		
37	751.0	x		x		13180	12711		x		
38	[illegible]	x		x		13235	[illegible]		x		
39	[illegible]	x			x	13463	-		x		
40	[illegible]	x			x	13932	-		x		
41	[illegible]	x			x	13801	-		x		
42	834.5	x			x	14656	-		x		
[illegible]	[illegible]		x								
[illegible]	[illegible]	x		x		[illegible]	[illegible]		x		
[illegible]	[illegible]						-				
[illegible]	[illegible]	x			x	[illegible]					

RKS.

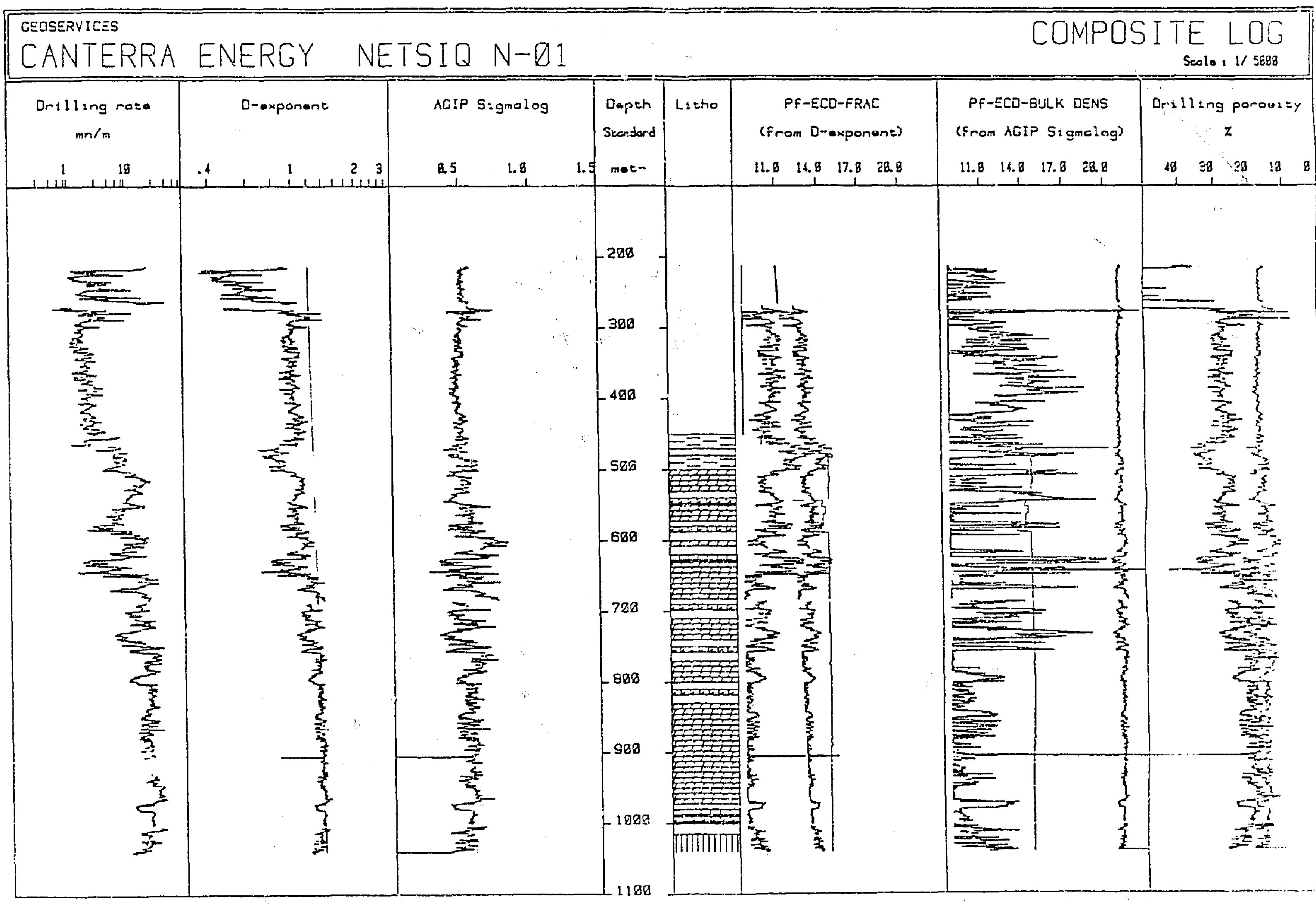
ER TYPE ☐ STANDARD ☐ LARGE AREA
E TYPE ☐ STANDARD ☐ LARGE DIAMETER ☐ LONG
FSET USED ☐ YES ☐ NO

TESTING DATA

FILE NO	DEPTH	GOOD SEAT (√)		PERMEABLE (√)		HYDRO-STATIC PRESSURE	INITIAL SHUT-IN PRESSURE	SAMPLE TAKEN (√)		FINAL SHUT-IN PRESSURE	FORMATION
		YES	NO	YES	NO			YES	NO		
49	[illegible]	x			x	15580	-		x		
50	[illegible]		x			15683	-		x		
51	[illegible]	x			x	15690	-		x		
52	[illegible]	x			x	15759	-		x		
53	[illegible]	x		x		17041	15559		x		
54	[illegible]	x			x	17036	-		x		
55	[illegible]		x			17710	-		x		
56	[illegible]	x			x	17731	-		x		
57	[illegible]	x			x	17822	-		x		
58	[illegible]	x			x	17972	-		x		
59	[illegible]	x		x		15021	14090	x		[illegible]	

6. APPENDIX

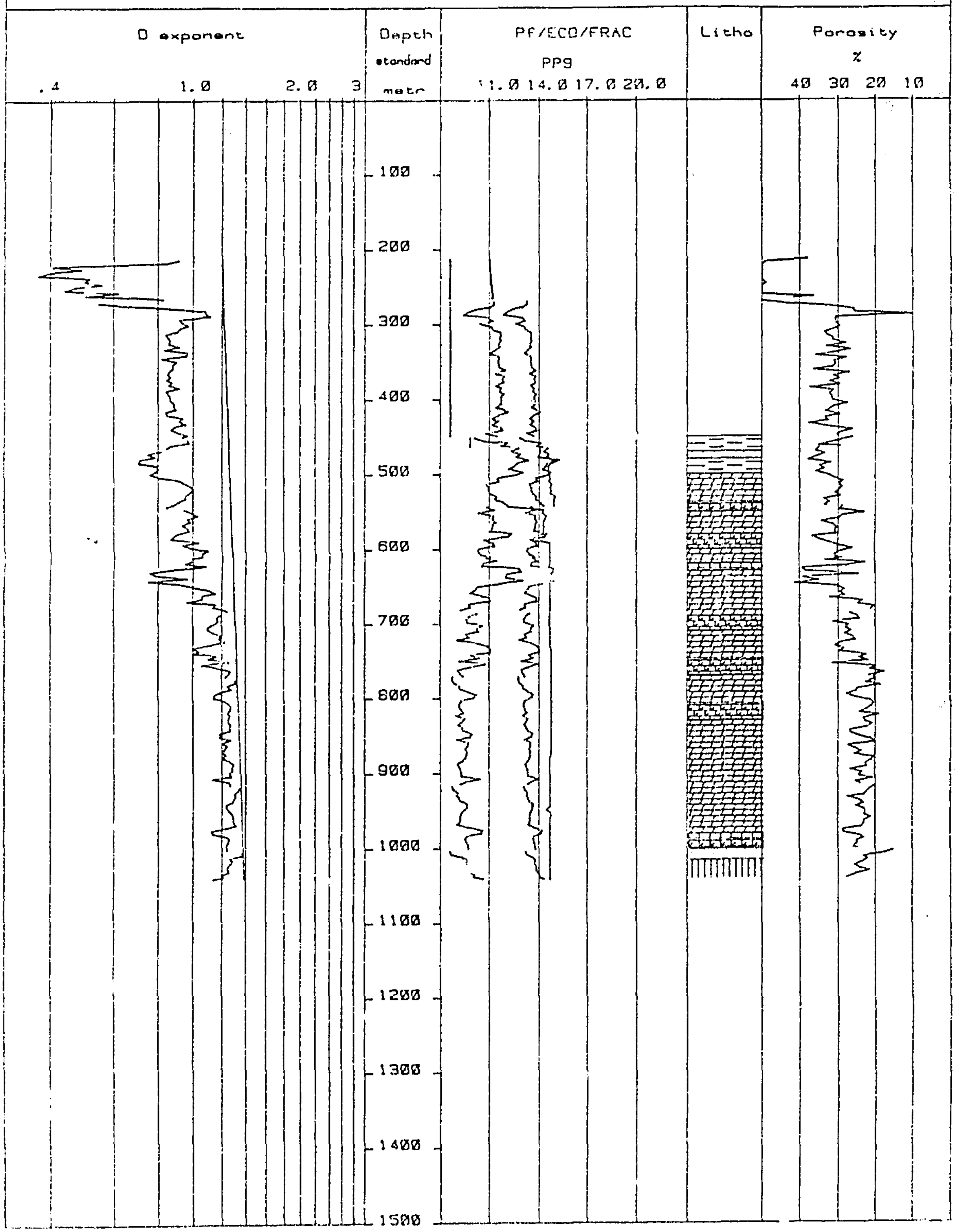
VI APPENDICES


GEOSERVICES
CANTERRA ENERGY NETSIQ N-Ø1
COMPOSITE LOG
Scale : 1/ 5000
Drilling rate
mn/m
1 10
D-exponent
.4 1 2 3
AGIP Sigmalog
0.5 1.0 1.5
Depth
Standard
met-
200
300
400
500
600
700
800
900
1000
1100
Litho
PF-ECD-FRAC
(From D-exponent)
11.0 14.0 17.0 20.0
PF-ECD-BULK DENS
(From AGIP Sigmalog)
11.0 14.0 17.0 20.0
Drilling porosity
%
40 30 20 10 0

CANTERRA ENERGY NETSIQ N-01

GEOSERVICES

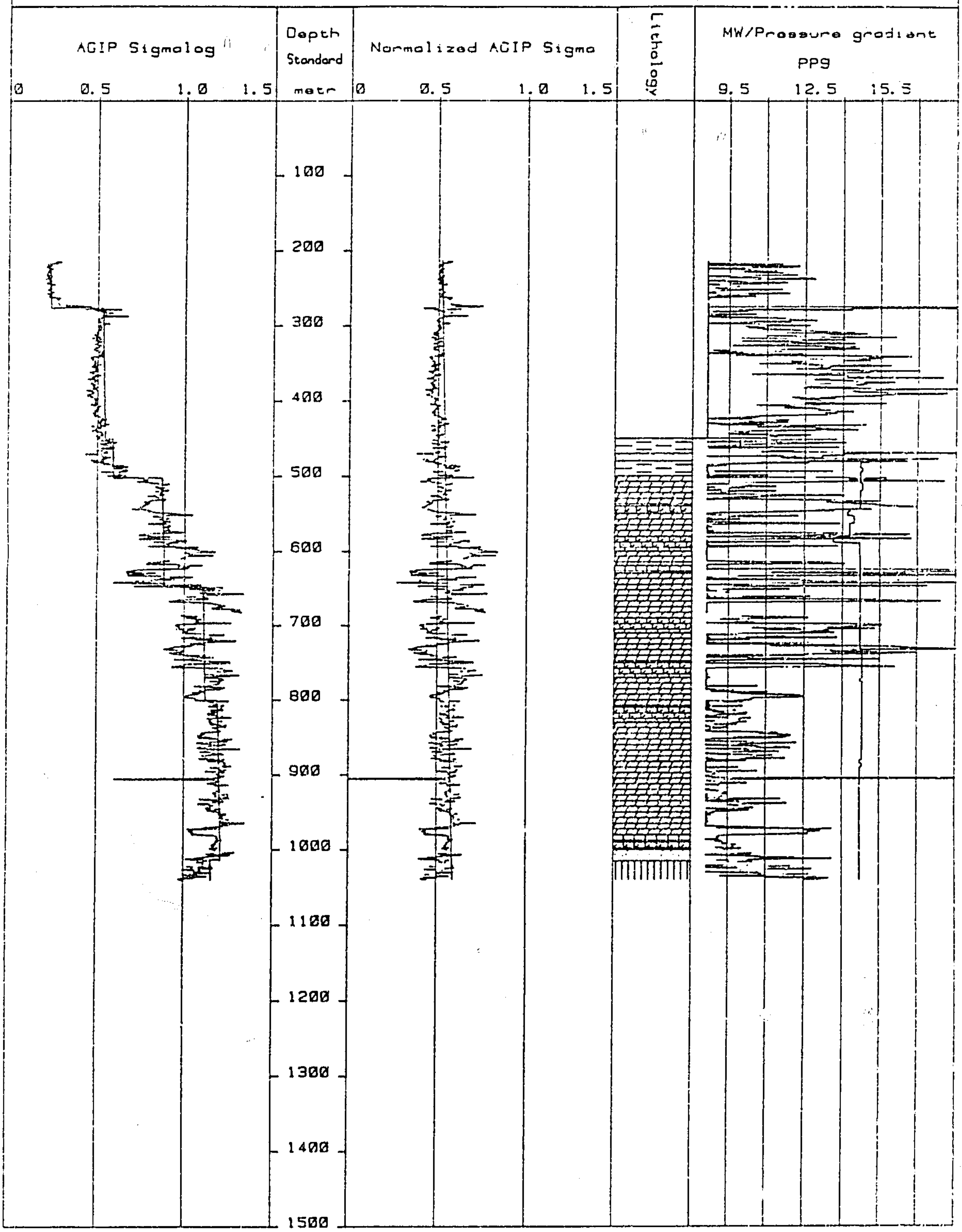
Scale : 1/ 5000



CANTERRA ENERGY NETSIQ N-01

GEOSERVICES

Scale : 1/ 5000

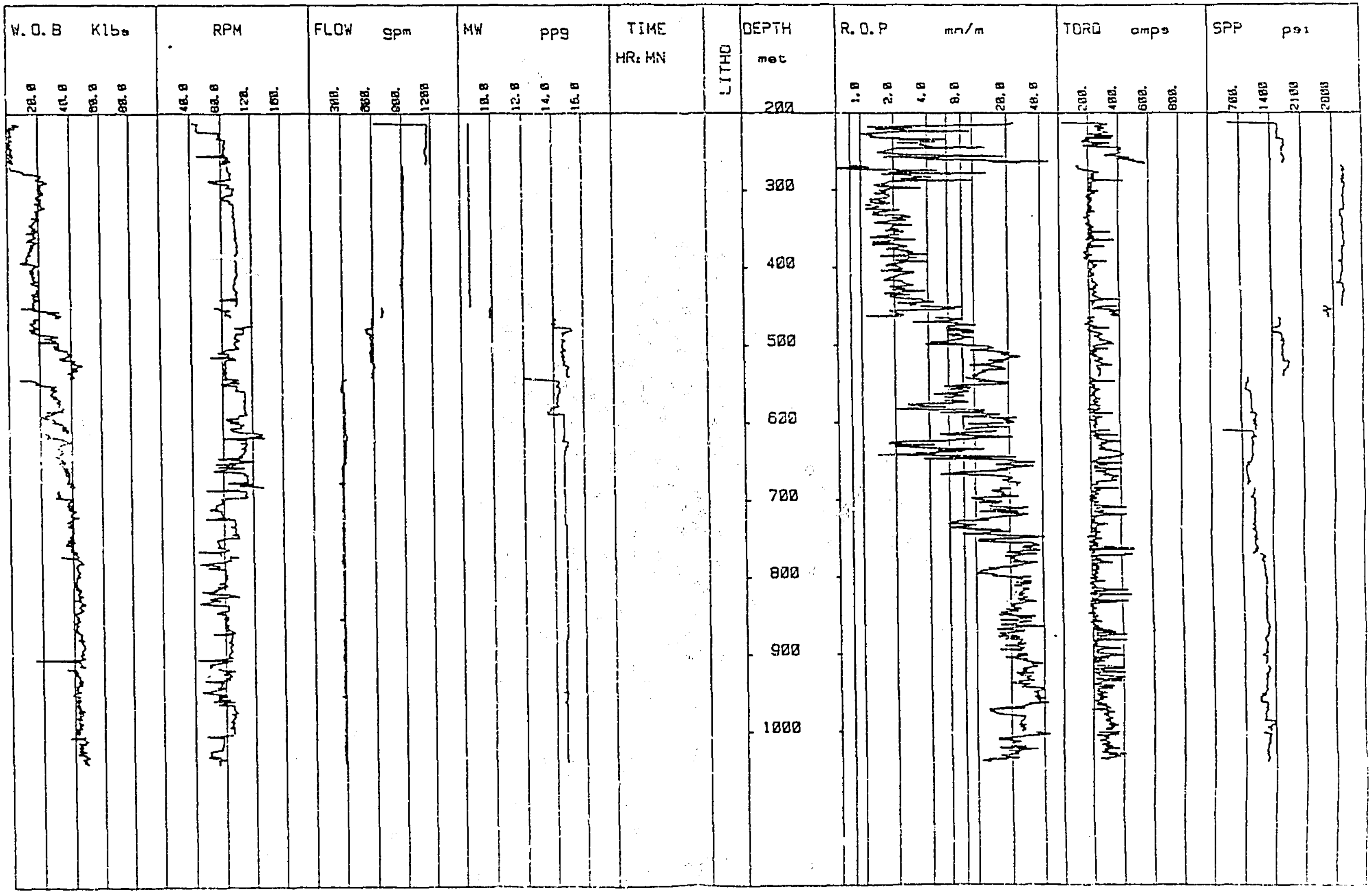


GEOSERVICES ON-LINE TOC

BIT PERFORMANCE VERSUS DEPTH

16/ 10/ 85 NETSIQ N-01

SCALE 1/ 5000



Our Reference No. (2-401/1/2)

September 26, 1985

Cruise 2-401/1/2
Beluga O-23
Netsiq N-01

M.V. ARCTIC SHIKO

Canterra Energy Ltd.
July 16 - August 16, 1985
August 31 - September 18, 1985

by

Dobrocky Seatech Ltd.
P.O. Box 2278, Stn. C
St. John's, NF
A1C 6E6

for

Canterra Energy Ltd.
P.O. Box 1051
Calgary, AB
T2P 2K7

Dobrocky
SEATECH

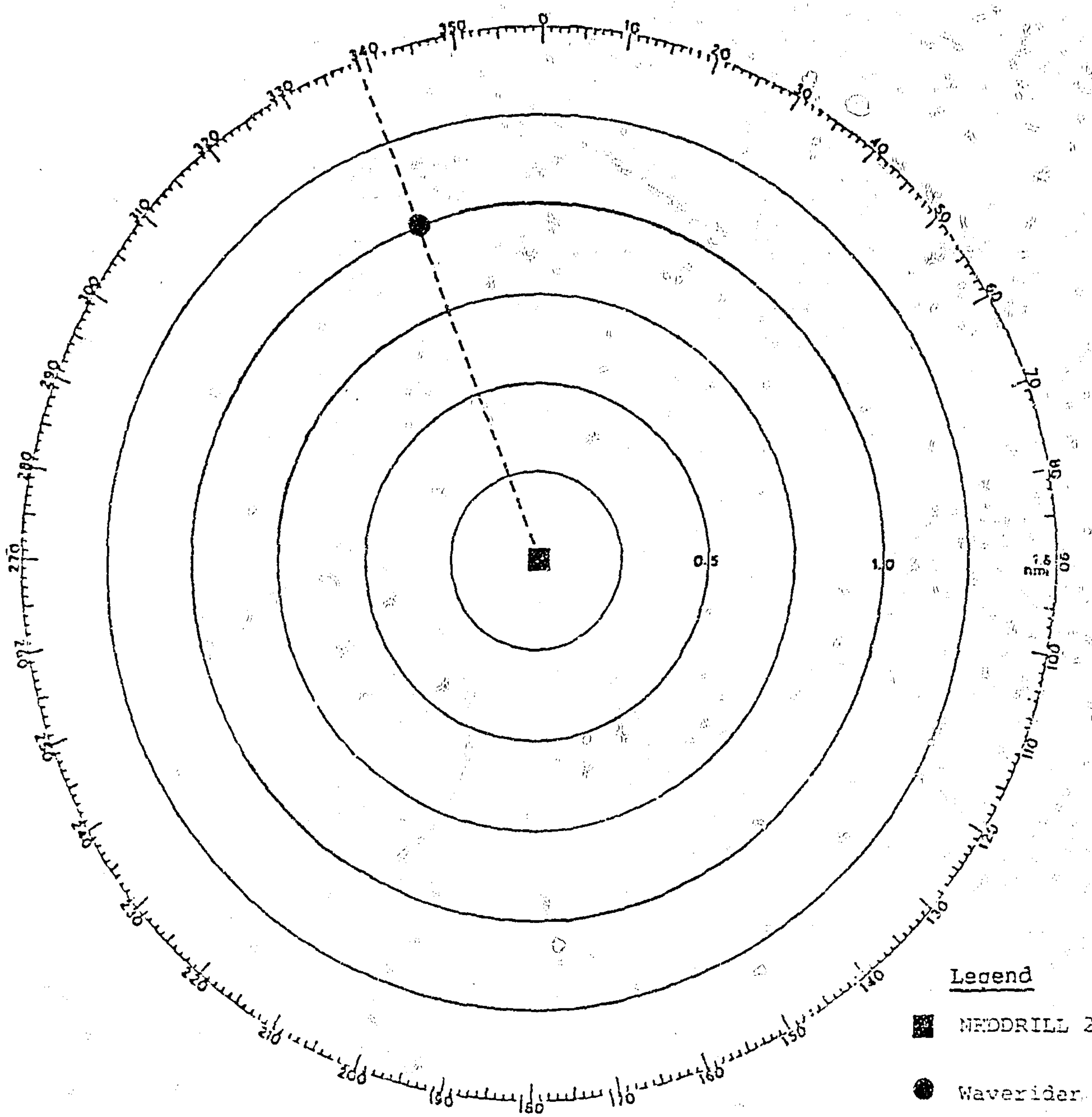
This report describes the technical activities of Dobrocky Seatech Ltd. personnel during the recent oceanographic cruises to Canterra's two Hudson Bay wellsites, Beluga O-23 and Netsiq N-01. Dobrocky Seatech Ltd. is under contract to Canterra to provide instruments and moorings for deployment and retrieval at both wellsites. Included in the report are positional and mooring diagrams along with a timetable of activities.

On July 16, 1985, the M.V. ARCTIC SHIKO departed St. John's enroute to Hudson Bay with Dobrocky Seatech personnel, D. Gates and H. Humphries, on board. Due to pack ice and icebergs encountered, the ARCTIC SHIKO did not arrive at the Beluga wellsite until July 27, 1985. Upon arrival, survey personnel from Nortech Surveys began dropping positioning beacons in preparation for the arrival of the NEDDRILL 2. Dobrocky Seatech personnel on board the ARCTIC SHIKO were placed on standby until they received orders from the Canterra office on where and when to deploy their instruments. During the standby period, pre-deployment checks were performed on all of the instruments; and everything was found to be operating correctly. On August 3, 1985, Dobrocky Seatech personnel received permission from the NEDDRILL 2 to deploy the waverider in the morning.

At 0905, August 4, Dobrocky Seatech personnel deployed waverider buoy, S/N 67974-7, at 1 nmi, 339°T from the NEDDRILL 2. Correct operation of the waverider was confirmed by the weather observer on the NEDDRILL 2 before and after deployment (see Figures 1 and 2 for mooring diagram and positional data). On August 5 at 0825, Dobrocky Seatech personnel received permission from the NEDDRILL 2 to deploy current meters. During the three hour trip to the deployment site, the instrument and mooring lines were put together on the deck. Deployment began at 1250 but the mooring had to be recovered. The top floatation buoy on the near-surface current meter leg remained afloat. The mooring was remeasured and the water depth was checked again with the ship's sounder. The mooring lengths were correct. It was concluded that the subsurface buoys were floating the double wheel anchor. Adding more weight would make recovery very difficult if the

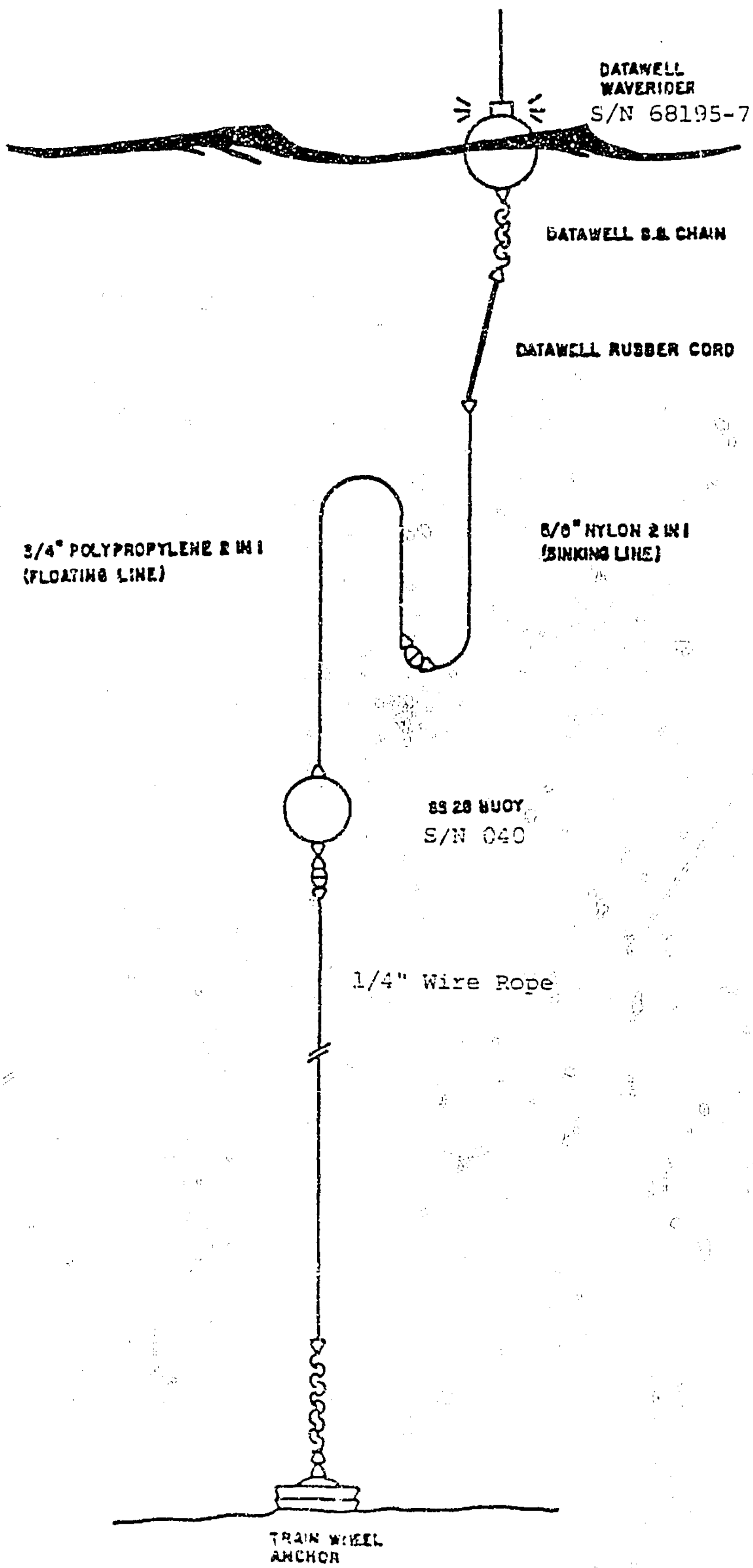
Deployment Date: August 4, 1985
Required Service Date:

Site: Beluga O-23
Drilling Vessel: NEDDRILL 2
Depth: 185m



Mooring Leg	Depth of Top Component (m)	Range from Rig (Nmi)	Bearing from Rig (°T)
Waverider	Surface	1	339°
Neil Brown	17	19	113°
Aanderaa	95.5	19.35	113°
Surface	Surface	19.7	113°
		Current Meters not shown because	of distance.

Figure 1.



LOCATION

Beluga O-23
Netsiq N-01

RIG

NEDDRILL 2

DEPTH AT SITE

Beluga: 185m
Netsiq: 195m

COMMENTS

Figure 2.

LEGEND

Symbol	Meaning
(chain)	1/2" GALV. CHAIN
△	SHACKLE
⊖	SWIVEL
○	RING

Dobrocky SEATECH

WAVERIDER MOORING DESIGN

PREPARED FOR:
Canterra Energy Ltd.

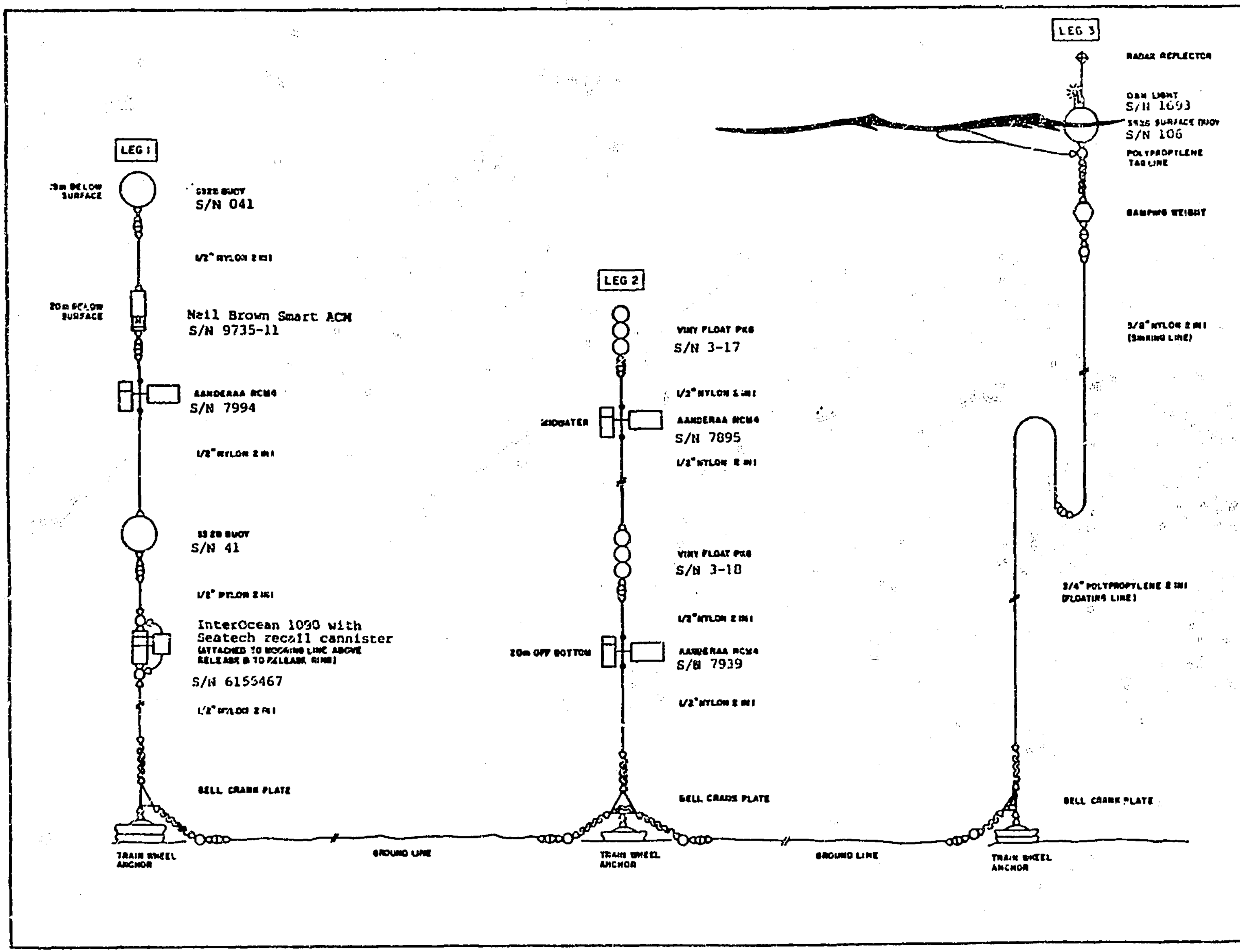
DESIGNED: J.D.	SCALE: NOT TO SCALE
DRAWN: WOOF DESIGN	
CHECKED: J.D.	DATE: [illegible]
APPROVED: B.L.	

acoustic release had to be used, as the line in the recall cannister, being only 1/2" nylon, might break under the extra strain. The problem was rectified by removing the middle SS28B buoy. The mooring was then redeployed with no further problems. The current meters were deployed at position 59° 05.10'N, 87° 59.91'W, 19 nmi, 112°T from the NEDDRILL 2 (see Figures 1 and 3 for positional data and mooring description). This area was one of two sites suggested by Dobrocky Seatech's physical oceanographer as the best for new data acquisitions.

On August 12, 1985, while the ARCTIC SHIKO was in Churchill taking on supplies, the Dobrocky Seatech technicians were contacted by Canterra personnel and Dobrocky Seatech's office in St. John's concerning the installation of a profiling current metering system on board the NEDDRILL 2.

On August 13, a current profiling system and one of Dobrocky Seatech's physical oceanographers arrived in Churchill from St. John's, Newfoundland. Because of foggy conditions at the NEDDRILL 2, there were no helicopter flights until late in the evening of August 14. Upon arrival at the NEDDRILL 2, Dobrocky Seatech personnel immediately began installation of the current profiling system. A few slight problems were encountered with the power pack and cable rigging. Otherwise, installation went as expected and the system was fully operational by the evening of August 15, 1985. On August 15, the two Dobrocky Seatech technicians who had previously been on the ARCTIC SHIKO, were flown back to Churchill for returning flights to St. John's and Halifax. Dobrocky Seatech's physical oceanographer stayed on board the NEDDRILL 2 to continue doing current profiles as per Canterra's request.

On August 26, 1985, J.P. Gregnon of Canterra requested that Dobrocky Seatech provide technicians to relocate the Beluga current meter mooring to the Netsiq wellsite and collect as much current data as possible before the NEDDRILL 2 arrived at that location. At 1535 local time, August 31, 1985, Dobrocky Seatech technicians, W. Williams and H. Humphries, departed St.



LOCATION	Beluga O-23 Netsiq N-01
RIG	NEDDRILL 2
DEPTH AT SITE	Beluga: 105m Netsiq: 195m
COMMENTS	Figure 3.

LEGEND

- 1/2" GALV. CHAIN
- SHACKLE
- SWIVEL
- RING

Dobrocky SEATECH	3 LEG CURRENT MET. MOORING DESIGN
PREPARED FOR. Canterra Energy Ltd.	
DESIGNED J.D.	SCALE. NOT TO SCALE
DRAWN GOOF DESIGN	DATE
CHECKED J.D.	
APPROVED B.L.	

Dobrocky SEATECH

John's airport enroute to the NEDDRILL 2 arriving at 1200 local time on September 2, 1985. The Dobrocky Seatech technicians were immediately transferred to the ARCTIC SHIKO upon arrival. At 2230, the ARCTIC SHIKO was given permission to proceed to the Beluga location. On the morning of September 3, the current meter mooring was recovered with the exception of one Aanderaa current meter, S/N 7940, which was lost when the line was swept into the ship's propellor by the current. The damage to the mooring lines was repaired, and the mooring was redeployed minus the mid-water current meter which was lost. The spare Aanderaa developed a clock failure prior to deployment but was repaired in time for the next deployment.

The current meters at the Netsiq N-01 site were deployed at 59° 50.37'N, 87° 31.06'W with the groundline running 090°T. On September 14, 1985, Dobrocky Seatech technicians were requested by the captain of the NEDDRILL 2 to remove the waverider because the rig was moving on September 16. At 1207 the same day, the waverider buoy was removed from the water with no difficulties. Dobrocky Seatech technician, W. Williams, was then requested to proceed to the Netsiq N-01 site and remove the current meters before the rig moved onto the new location. On the evening of September 15, the current meters at the Netsiq site were recovered using the acoustic release. This alternate method of recovery was required when the surface line parted during the initial recovery attempt earlier in the morning.

At 1800 on September 15, the NEDDRILL 2 arrived at the Netsiq location, a day earlier than expected. The waverider buoy, S/N 68195-7, was deployed on the morning of September 16, as per the request of the NEDDRILL 2. The current meters were redeployed on September 17 including a replacement for the mid-water current meter lost on the first recovery. The first current meter leg was deployed at 1.2 nmi, 355°T with the surface buoy being deployed at 1.9 nmi, 355°T from the NEDDRILL 2. All current meters and waverider positioning was done with the ship's navigation (see Figures 1, 3, and 4 for mooring description and positional data). Upon completion of the current meter deployment, Dobrocky Seatech technicians were transferred to the NEDDRILL 2 for transportation to Churchill to connect with flights to St. John's, Newfoundland.

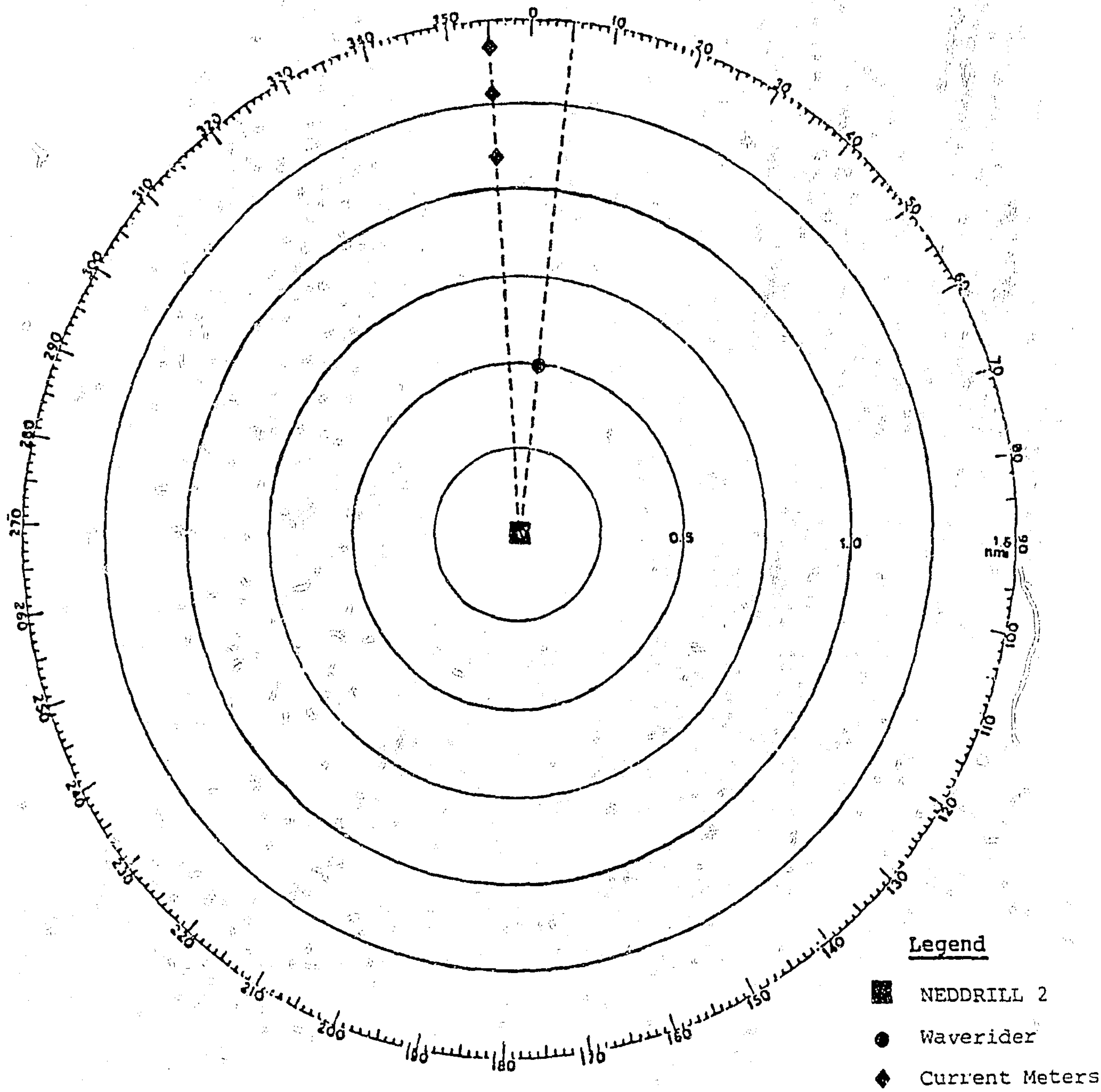
Deployment Date: September 11, 1985

Required Service Date:

Site: Netsiq N-01

Drilling Vessel: NEDDRILL 2

Depth: 195m



Mooring Leg	Depth of Top Component (m)	Range from Rig (Nmi)	Bearing from Rig (°T)
Waverider	Surface	0.5	005°
Neil Brown	7	1.2	355°
Aanderaa	97.5	1.35	355°
Surface	Surface	1.9	355°

Dobrocky SEATECH

Figure 4.

PERSONNEL INVOLVED

Dobrocky Seatech Ltd.	D. Gates	- Senior Technician
	W. Williams	- Senior Technician
	H. Humphries	- Technician
	I. Webster	- Physical Oceanographer
M.V. ARCTIC SHIKO	F. Frietag	- Captain
	N. Larter	- First Mate
	B. Turner	- Chief Engineer
Canterra Energy Limited	R. Carstairs	- NEDDRILL 2
	T. May	- NEDDRILL 2
	J.P. Gregnon	- NEDDRILL 2
	S. Johnston	- Churchill

Dobrocky SEATECH

TIMETABLE OF EVENTS (All Times Central)

July 16, 1985	0615 - ARCTIC SHIKO pulls NEDDRILL 2 from the dock and follows her out of the harbour. 0730 - ARCTIC SHIKO starts on her way to Hudson Bay. 1800 - Ship proceeding slowly due to icebergs in the area.
July 17	Ship making good speed, several icebergs sighted. Winds 20-25 knots southwest, seas 3-5 feet, foggy with sunny periods.
July 18	Continuing at a slower speed, quite a lot of icebergs. Winds 20-25 knots west, seas 3-5 feet, sunny.
July 19	Making good speed, no ice. Winds 10-15 knots west, seas 2-3 feet, cloudy with showers.
July 20	Heading towards Resolution Island. Strong winds 30-35 knots, heavy seas 7-10 feet, slowing down pace.
July 21	Heading up Hudson Strait towards Big Island. Encountered several large icebergs and pack ice. Winds 10-15 knots southeast, seas 2-3 feet, foggy.
July 22	Jogging off at Resolution Island waiting for the NEDDRILL 2 to come up to our position. Loose pack ice, drillship waiting for good visibility. Winds 10-15 knots southeast, seas 2-3 feet, foggy.
July 23	Still jogging off Resolution Island. NEDDRILL 2 waiting for fog to lift before moving to our position.
July 24	ARCTIC SHIKO escorting NEDDRILL 2, TAKAPU, and TOANUI into the Hudson Strait. At day's end, the general position was off the Savage Islands. Loose pack ice, moving slow.

TIMETABLE OF EVENTS (All Times Central)

July 16, 1985	0615 -	ARCTIC SHIKO pulls NEDDRILL 2 from the dock and follows her out of the harbour.
	0730 -	ARCTIC SHIKO starts on her way to Hudson Bay.
	1800 -	Ship proceeding slowly due to icebergs in the area.
July 17		Ship making good speed, several icebergs sighted. Winds 20-25 knots southwest, seas 3-5 feet, foggy with sunny periods.
July 18		Continuing at a slower speed, quite a lot of icebergs. Winds 20-25 knots west, seas 3-5 feet, sunny.
July 19		Making good speed, no ice. Winds 10-15 knots west, seas 2-3 feet, cloudy with showers.
July 20		Heading towards Resolution Island. Strong winds 30-35 knots, heavy seas 7-10 feet, slowing down pace.
July 21		Heading up Hudson Strait towards Big Island. Encountered several large icebergs and pack ice. Winds 10-15 knots southeast, seas 2-3 feet, foggy.
July 22		Jogging off at Resolution Island waiting for the NEDDRILL 2 to come up to our position. Loose pack ice, drillship waiting for good visibility. Winds 10-15 knots southeast, seas 2-3 feet, foggy.
July 23		Still jogging off Resolution Island. NEDDRILL 2 waiting for fog to lift before moving to our position.
July 24		ARCTIC SHIKO escorting NEDDRILL 2, TAKAPU, and TOANUI into the Hudson Strait. At day's end, the general position was off the Savage Islands. Loose pack ice, moving slow.

July 25 — Escorting NEDDRILL 2, TAKAPU, and TOANUI through loose pack ice. At day's end, the general position was off Big Islands and no ice. ARCTIC SHIKO moving at top speed for Beluga to set up the positioning before the arrival of the drillship.

July 26 — Still heading towards Beluga wellsite, no ice. D. Gates (D.G.) and H. Humphries (H.H.) prepare positioning buoys for deployment.

July 27
- 1415 - ARCTIC SHIKO arrives Beluga wellsite. Loose pack ice covering site.
- 1540 - Began deploying positioning beacons.
- 1640 - Finished deploying Nortech beacons. Checked all equipment in containers, positioning buoys, and waverider. Mooring ready for deployment.

July 28
- 0945 - D.G. and H.H. began instrument redeployment checks.
- 1245 - NEDDRILL 2 arrives on location.
- 1400 - All instruments checked and ready for deployment.
- 1800 - ARCTIC SHIKO moving around drillship to break up pack ice.

July 29
- 0800 - ARCTIC SHIKO on standby near NEDDRILL 2.
- 0900 - ARCTIC SHIKO begins sounding around drillship at 1/2 to one mile radius.
- 1250 - ARCTIC SHIKO alongside drillship to pick up anchor buoy and pennets.
- 1400 - ARCTIC SHIKO deploys anchor and buoy.
- 1800 - ARCTIC SHIKO anchored 1/2 mile from NEDDRILL 2.

July 30 — ARCTIC SHIKO on standby duty.

July 31
- 1125 - ARCTIC SHIKO alongside NEDDRILL 2 transferring drillwater.
- 1300 - D.G. goes onto drillship to talk to the drilling superintendent, R. Carstairs (R.C.), about timetable for instrument deployments. R.C. said to hold off for a couple of days until Canterra office decided on a final position.
- 1500 - ARCTIC SHIKO back on standby.
- 2100 - D.G. receives a call from T. May wanting to know about the proposed position of the current meter mooring. He said he would call his office and straighten out the problem.

August 1		ARCTIC SHIKO on standby duty.
August 2	1130 -	D.G. talked to weather observer, S. Rosenthall, on the rig about deployment of the current meters. No word as yet.
August 3	1400 -	D.G. was informed by D. McDonald on the NEDDRILL 2 that the current meters and waverider could be deployed as soon as the TOANUI arrives on location from Churchill.
	1500 -	TOANUI arrives on location and moves alongside the drillship to offload containers.
	1700 -	ARCTIC SHIKO moves alongside drillship to pick up containers and two new personnel.
	1830 -	D.G. receives permission from NEDDRILL 2 to deploy waverider in the morning.
August 4	0800 -	D.G. and H.H. prepare waverider for deployment.
	0830 -	D.G. talks to weather observer on the drillship to confirm operation of buoy.
	0905 -	Buoy into the water, 339° at 1 nmi from NEDDRILL 2. Position: 59° 13.93'N, 88° 34.14'W.
	0935 -	D.G. requests permission to deploy current meter and was told to standby for reply.
	1430 -	Still no word on current meter deployment. ARCTIC SHIKO on standby.
August 5	0825 -	D.G. is informed that the SHIKO was released to deploy current meter at position B.
	0830 -	D.G. and H.H. prepare mooring for deployment.
	1150 -	Deployment site checked for water depth.
	1250 -	Began deployment.
	1320 -	Mooring was recovered again because the top float on the near-surface current meter buoy remained afloat.
	1415 -	Mooring remeasured and water depths rechecked, all correct. One of the three floats were removed to allow the anchor to sink to the bottom.
	1450 -	Began to redeploy current meter mooring.
	1510 -	Stopped deployment to repair bent rotor on RCM-4, S/N 7940.

August 5 (cont'd)	1534 -	Surface buoy into the water 112°T at 19 nmi from the NEDDRILL 2.
	1540 -	Headed back to the NEDDRILL 2.
August 6		On standby at the NEDDRILL 2.
August 7		On standby at the NEDDRILL 2.
August 8		On standby at the NEDDRILL 2.
August 9	0945 -	ARCTIC SHIKO backloading at the NEDDRILL 2.
	1015 -	ARCTIC SHIKO enroute to Churchill.
August 10	0250 -	Alongside the dock in Churchill.
August 11		Alongside the dock in Churchill.
August 12		Alongside the dock in Churchill.
August 13	1815 -	Canterra representative came on board the ARCTIC SHIKO and advised D.G. and H.H. that they would be flying to the NEDDRILL 2 at 1930 to install a current meter profiling system.
	1840 -	Plane arrives for Winnipeg with profiling system and I. Webster (I.W.) on board.
	2020 -	D.G. and I.W. board helicopter for flight to NEDDRILL 2.
	2150 -	Helicopter arrives at NEDDRILL 2. Too foggy to land, returned to Churchill.
	2320 -	Arrived back at Churchill.
	2335 -	D.G. and I.W. stay at the Arctic Inn for the night. H.H. stays on board the ARCTIC SHIKO.
August 14	0425 -	D.G. and I.W. arrive at airport but it is still too foggy to fly.
	1000 -	Airport still fogged in.
	1645 -	D.S., H.H., and I.W. board helicopter for helicopter for flight to NEDDRILL 2.
	1825 -	Arrive at NEDDRILL 2.
	1900 -	Began installing profiling system.
	2000 -	Winch in place ready to be welded. Calling it a day.
August 15	0600 -	Started working on current meter installation.
	2050 -	Installation completed and operating correctly.

August 16	0645	- Began profile no. 1.
	0745	- Finished profile no. 1.
	0900	- D.G. and H.H. informed that they would be flying to Churchill on the next helicopter.
	1100	- Began profile no. 2.
	1135	- Finished profile no. 2.
	1620	- D.G. and H.H. board helicopter for Churchill.
	1740	- Helicopter lands in Churchill.
	1800	- D.G. and H.H. board plane for Winnipeg and connecting flights to Halifax and St. John's.
August 31	1535	- W. Williams (W.W.) and H.H. depart St. John's airport enroute to Winnipeg.
September 1	1055	- W.W. and H.H. depart Winnipeg airport for Churchill.
	1230	- Arrived Churchill. Staying at Arctic Inn over night.
September 2	1030	- Boarded helicopter for NEDDRILL 2.
	1200	- Arrived NEDDRILL 2.
	1500	- Boarded ARCTIC SHIKO.
	2230	- ARCTIC SHIKO given clearance to pull current meters in the morning.
September 3	0800	- On location preparing to retrieve current meters.
	0900	- Surface buoy on board.
	0930	- Lost RCM-4, S/N 7940. The line was swept into the propellor.
	1000	- All gear on deck.
	1010	- Began instrument service and mooring repair.
	1930	- Mooring has been repaired. Will deploy in the morning.
September 4	0700	- W.W. called J. Dempsey (Dobrocky Seatech). It was decided to raise the near-surface current meter from 20m to 10m.
	0800	- Splicing extra section of line.
	0920	- All gear ready for deployment. Will wait for satellite position at 1015 for accurate positioning.
	1035	- Began deployment at 54° 50.37'N, 87° 31.06'W.
	1112	- Surface buoy into the water at 59° 50.37'N, 87° 30.82'W. Groundline running at 090°T.
	1115	- ARCTIC SHIKO enroute to Churchill.

September 5	0730 -	ARCTIC SHIKO arrives Churchill.
September 6		On standby in Churchill.
September 7		On standby in Churchill.
September 8	1040 -	ARCTIC SHIKO departs Churchill for NEDDRILL 2.
	1740 -	ARCTIC SHIKO ordered to standby at 59° 05.2'N, 93° 02.9'W, until advised by Churchill office.
September 9	1000 -	Proceeding to NEDDRILL 2.
	1600 -	On location, standing by the NEDDRILL 2.
September 10	0700 -	Alongside the NEDDRILL 2 offloading fuel.
	1142 -	Proceeding to Netsiq.
September 11	0230 -	Standing by current meter surface buoy.
	1242 -	Nortech deploying positioning pingers.
	1330 -	All pingers into the water.
September 12	0800 -	Standing by the Netsiq site.
	1130 -	Nortech deployed another pinger.
	1200 -	Enroute to Churchill to take on fuel.
September 13	0800 -	ARCTIC SHIKO arrives Churchill.
	2233 -	ARCTIC SHIKO departs Churchill for NEDDRILL 2.
September 14	1117 -	Arrived NEDDRILL 2 location.
	1118 -	Request received from the NEDDRILL 2 captain to retrieve waverider. The rig plans to move on Monday.
	1207 -	Waverider on board the ARCTIC SHIKO.
	1430 -	ARCTIC SHIKO enroute to the Netsiq site to retrieve current meters.
September 15	0805 -	Commenced retrieval of mooring.
	0824 -	Surface line parted. Will wait until fog lifts before using acoustic release.
	1215 -	Interrogated acoustic release. Buoys spotted 200m off starboard bow.
	1322 -	All gear on board.
	1345 -	Repairing broken surface line.
	1800 -	NEDDRILL 2 arrives on location.

September 16	0730 -	ARCTIC SHIKO's crew pulled Nortech marker buoy out of the water.
	0930 -	Rigging waverider mooring for deployment.
	1007 -	Waverider, S/N 68195-7, deployed at 0.5 nmi, 005°T from NEDDRILL 2.
	1050 -	Alongside NEDDRILL 2. Current meter data tapes transferred for shipment to Churchill, then to British Columbia.
September 17	0800 -	SHIKO alongside the NEDDRILL 2 tranferring water and cement.
	1345 -	Departed rig. Began preparing current meter mooring for deployment.
	1500 -	Deploying current meter.
	1545 -	Deployment completed. Surface buoy at 1.2 nmi, 355°T from the NEDDRILL 2.
	2200 -	W.W. and H.H. transfer to the NEDDRILL 2 to catch helicopter to Churchill.
September 18	0300 -	Helicopter arrives at NEDDRILL 2. No room for Dobrocky Seatech technicians. Will have to stay all night.
	1015 -	W.W. and H.H. load helicopter for Churchill and connecting flights to St. John's.

Appendix D

MEASUREMENT WHILE DRILLING
Well Report
for
Canterra Energy
Nelsiq N-01
Neddrill II

TABLE OF CONTENTS

OPERATIONAL SUMMARY

Well Operator	Canterra Energy
Well Contractor	Bawden Western
Rig Name/Number	Neddrill II
Well Name/Number	Netsiq N-01
M.W.D. Services	Directional Survey From 598' to 5412'
Start Date	Sept 15, 1985
Completion Date	Oct 31, 1985
Number of Survey	36 (10 Surveys not stored on tape)
Hole Size	42", 12 1/4" 8 1/2"
M.W.D. Costs (per day)	155,100 3,300.00

M.W.D. EFFICIENCY REPORT

Well Name Netsiq N-01

Well Location Hudson Bay

A) Job Started Sept 15/85 B) Job Completed Oct 17/85

C) Days on Location 47

D) Days below Rotary Table 21

E) Days Operating 17

F) Days Stand-By (charged) 26

G) Stand-By & below Rotary (No charge days) 0

H) M.W.D. Failure 2

I) Non Computalog Gearhart Ltd induced failures 1

J) Downhole Failure Days 4

Overall Operating Efficiency = $\frac{D - J}{D}$ x 100 = 81 %

Overall Tool Efficiency = $\frac{D - (H - I)}{D}$ x 100 = 95 %

ACTIVITY SUMMARY

Sept 15/85	Drilling and Surveying 42'' hole from 698' - 734'
Sept 16/85	Drill 42'' hole to 870' P.O.O.H. to run 30'' casing.
Sept 17/85	Drill 12 1/4'' hole from 870' to 1472. MWD failed at 970'. Drilling stopped due to gas bubbles on surface. Trip out to change to 17 1/2'' bit. Failed MWD not replaced by company man's request.
Sept 18/85	Same tool down, P.O.O.H. to run casing.
Sept 19/85	On Standby.
Sept 20/85	Make up new B.H.A., change out MWD. Drilling and surveying.
Sept 21/85	Condition hole.
Sept 22/85	Cement and pressure test casing. MWD racked back.
Sept 23/85	Fishing and cementing. MWD racked back.
Sept 24/85	Pressure test and waiting on weather. MWD racked back.
Sept 25/85	Waiting on weather. MWD racked back.
Sept 26/85	Waiting on weather. Pressure Test. MWD racked back.
Sept 27/85	Change out Pulser sub. Drill Cement. Drilling and surveying.
Sept 28/85	Drilling and surveying.
Sept 29/85	Drilling and surveying. P.O.O.H. Logging.
Sept 30/85	MWD on standby to run casing.
Oct 01/85	Standby.
Oct 02/85	Standby.

Oct 03/85	9 1/2'' MWD replaced with 6 1/2'' MWD, make up new BHA. Drill cement (1,777 ft).
Oct 04/85	MWD failed while drilling cement.
Oct 05/85	Same tool down, recorded 1 survey.
Oct 06/85	Waiting on Weather.
Oct 07/85	Waiting on Weather.
Oct 08/85	MWD tool string changed out on bit trip. Drilling and surveying.
Oct 09/85	Drilling and surveying. P.O.O.H. to change bit.
Oct 10/85	Drilling and surveying. P.O.O.H. to change bit.
Oct 11/85	Drilling and surveying.
Oct 12/85	Drilling and surveying.
Oct 13/85	Drilling and surveying. P.O.O.H. to change bit.
Oct 14/85	Drilling and surveying.
Oct 15/85	Changed MWD tool string on BIT trip. Drilling and surveying.
Oct 16/85	Drilling and surveying. P.O.O.H. lay out MWD, logging.
Oct 17/85	Rig down MWD.

FAILURE ANALYSIS

Date Failed / Pulled		
Sept 17 Sept 18		Tool String P724, D45, E182/M95, B184 Tubulars PS950-15, EC950-09, EC950-08
	Non Computalog Gearhart Ltd induced failure.	Gas passed through our seals contaminating the pressure compensation system of Pulser P724. This expanded volume of oil "topped out" the pressure compensating piston resulting in a pressure unbalance restricting the valve from opening. The gas produced anerobic bacteria causing shorts to chassis on pulser 17-pin connector. Pulser was under pressure when dis-assembled.
Oct 04 Oct 05		Tool String P624, D45, E182/M95, B184 Tubulars PS650-57, EC650-07, UDDL 298
		Inspection in Pulser lab showed pulser P624 to open valve to 0.050" which is only half the pre-set gap. When dismantled the valve slipper seal was surrounded by foreign materials. Pulser failured during drilling of cementshoe.

COMPUTALOG GEARHART LTD

UNITED DIRECTIONAL SERVICES

SUMMARY SURVEY REPORT

Short Form Summary

of

Directional Surveys

GEARHART INDUSTRIES, INC.
M256.MWDGP.0185.00.CRT

WELL REPORT

FIELD: NETSIQ WELL NO.: N-01

SURVEY NUMBER	RUN NUMBER	MEASURED DEPTH(F)	INCLINATION DEGREES	AZIMUTH DEG TRUE	TOTAL MAG FLUX	TOOL TEMP DEG C	DATE	TIME
0	0	669.20	.92	64.42			TIE-IN	22: 6
1	1	705.20	1.63	.38	1.166	12.0	9-15-85	23:50
2	1	773.64	.62	92.30	1.173	12.0	9-16-85	1:13
3	1	831.00	.55	178.63	1.173	13.0	9-16-85	5: 7
4	1	918.30	1.28	244.80	1.180	11.5	9-16-85	7:18
5	1	1428.00	.50	216.00			9-18-85	2:31
6	3	1460.62	1.33	166.65	1.290	21.0	9-27-85	13:28
7	3	1505.02	.85	121.15	1.239	18.0	9-28-85	17:55
8	3	1536.55	1.05	113.92	1.237	19.0	9-28-85	19:18
9	3	1568.15	.38	127.42	1.236	20.0	9-28-85	20:45
10	3	1599.76	.95	184.25	1.236	21.0	9-28-85	23:43
11	3	1661.00	.52	158.52	1.236	25.0	9-29-85	5: 4
12	4	1908.00	.53	71.28	1.196	12.5	10- 5-85	18:57
13	5	2131.00	.77	177.77	1.238	12.5	10- 9-85	7:25
14	5	2161.00	.98	161.22	1.196	14.0	10- 9-65	14:42
15	5	2227.69	.82	147.37	1.196	14.5	10- 9-85	18:31
16	5	2406.00	.38	36.45	1.197	15.0	10-10-85	4:29
17	5	2490.00	1.35	113.77	1.195	14.5	10-10-85	16:30
18	5	2594.00	.85	14.28	1.196	14.5	10-11-85	6:54
19	5	2699.00	.48	161.23	1.194	17.0	10-11-85	19:12
20	5	2783.00	.85	197.58	1.196	17.0	10-12-85	6:48
21	5	2856.00	1.15	49.18	1.195	18.0	10-12-85	21:35
22	5	2971.00	1.37	44.42	1.195	17.0	10-13-85	6:20
23	5	3097.00	1.38	15.25	1.195	17.0	10-14-85	6:45
24	5	3186.00	1.32	33.58	1.193	16.0	10-14-85	19:50
25	6	3314.00	.68	68.95	1.197	17.0	10-16-85	0:45
26	6	3377.00	1.35	56.15	1.197	17.5	10-16-85	8:22

COMPUTALOG GEARHART LTD

UNITED DIRECTIONAL SERVICES

SURVEY REPORT

Summary of Directional Surveys

GEARHART INDUSTRIES, INC.
M256.MWDGP.0185.00.CRT

WELL REPORT

FIELD: NETSIQ　　　　WELL NO.: N-01

PROPOSED DRIFT DIRECTION　N 0: 0E

SURVEY METHOD　MC

	*********	*********	*********	*********	*********	*********	*********
SURVEY NO.	0	1	2	3	4	5	6
ELEC. NO.	182	182	182	182	182	61	61
MAG. NO.	95	95	95	95	95	24	24
DATE	TIE-IN	9-15-85	9-16-85	9-16-85	9-16-85	9-18-85	9-27-85
TIME	22: 6:23	23:50:32	1:13:36	5: 7:26	7:18: 0	2:31:39	13:28:14
MS. DEPTH	669.20	705.20	773.64	831.00	918.30	1428.00	1460.52
DA OBSV.	0:55	1:38	0:37	0:33	1:17	0:30	1:20
DD OBSV.	N64:25E	N 0:23E	S87:42E	S 1:22E	S64:48W	S36: 0W	S13:21E
TOOL FACE	0L	125R	176R	99L	170L		124R
COORD. NS	0.00N	.64N	1.60N	1.31N	.47N	3.76S	4.25S
COORD. EW	0.00E	.26E	.64E	.96E	.08E	6.39W	6.36W
T.V.D.	669.20	705.19	773.62	830.98	918.27	1427.91	1460.52
SECTION	0.00	.64	1.60	1.31	.47	-3.76	-4.25
DOG LEG	0.00	1.48	1.77	.81	1.18	.88	1.09
DL/100FT	0.00	4.12	2.58	1.41	1.35	.17	3.35
TEMP (C)		12.0	12.0	13.0	11.5		21.0

GEARHART INDUSTRIES, INC.
M256.MWDGP.0185.00.CRT

WELL REPORT

FIELD: NETSIQ WELL NO.: N-01

PROPOSED DRIFT DIRECTION N 0: 0E

SURVEY METHOD MC

	*********	*********	*********	*********	*********	*********	*********
SURVEY NO.	7	8	9	10	11	12	13
ELEC. NO.	61	61	61	61	61	182	61
MAG. NO.	24	24	24	24	24	95	24
DATE	9-28-85	9-28-85	9-28-85	9-28-85	9-29-85	10- 5-85	10- 9-85
TIME	17:55:19	19:18: 6	20:45:42	23:43:42	5: 4:49	18:57: 3	7:25:29
DEPTH	1505.02	1536.55	1568.15	1599.76	1661.00	1908.00	2131.00
DA OBSV.	0:51	1: 3	0:23	0:57	0:31	0:32	0:46
DD OBSV.	S58:51E	S66: 5E	S52:35E	S 4:15W	S21:29E	N71:17E	S 2:14E
TOOL FACE	83R	121R	22R	64L	73L	148R	38L
COORD. NS	4.93S	5.17S	5.35S	5.68S	6.45S	7.12S	8.29S
COORD. EW	5.98W	5.51W	5.16W	5.09W	5.03W	3.52W	2.47W
T.V.D.	1504.91	1536.44	1568.04	1599.65	1660.88	1907.87	2130.86
SECTION	-4.93	-5.17	-5.35	-5.68	-6.45	-7.12	-8.29
DOG LEG	.97	.23	.67	.82	.55	.73	1.06
DL/100FT	2.18	.74	2.14	2.58	.89	.30	.47
TEMP (C)	18.0	19.0	20.0	21.0	25.0	12.5	12.5

GEARHART INDUSTRIES, INC.
M256.MWDGP.0185.00.CRT

WELL REPORT

FIELD: NETSIQ

WELL NO.: N-01

PROPOSED DRIFT DIRECTION N 0: 0E

SURVEY METHOD MC

	*********	*********	*********	*********	*********	*********	*********
SURVEY NO.	14	15	16	17	18	19	20
ELEC. NO.	61	61	61	61	61	61	61
MAG. NO.	24	24	24	24	24	24	24
DATE	10- 9-85	10- 9-85	10-10-85	10-10-85	10-11-85	10-11-85	10-12-85
TIME	14:42:57	18:31:28	4:29:34	16:30:50	6:54:16	19:12:38	6:48:36
[illegible]. DEPTH	2161.00	2227.69	2406.00	2490.00	2594.00	2699.00	2783.00
DA OBSV.	0:59	0:49	0:23	1:21	0:51	0:29	0:51
DD OBSV.	S18:47E	S32:38E	N36:27E	S66:14E	N14:17E	S18:46E	S17:35W
TOOL FACE	4L	50R	135L	57L	153L	117L	117L
COORD. NS	8.74S	9.69S	10.27S	10.44S	10.18S	9.86S	10.80S
COORD. EW	2.38W	1.94W	.88W	.20E	1.52E	1.85E	1.78E
T.V.D.	2160.86	2227.54	2405.85	2489.84	2593.83	2698.82	2782.82
SECTION	-8.74	-9.69	-10.27	-10.44	-10.18	-9.86	-10.80
DOG LEG	.34	.27	1.04	1.33	1.71	1.30	.55
DL/100FT	1.12	.41	.58	1.58	1.65	1.23	.65
TEMP (C)	14.0	14.5	15.0	14.5	14.5	17.0	17.0

GEARHART INDUSTRIES, INC.
M256: MWDGP.0185.00. CRT

WELL REPORT

FIELD: NETSIQ WELL NO.: N-01

PROPOSED DRIFT DIRECTION N 0: 0E

SURVEY METHOD MC

********* ********* ********* ********* ********* ********* *********

SURVEY NO.	21	22	23	24	25	26
ELEC. NO.	61	61	61	61	182	182
MAG. NO.	24	24	24	24	95	95
DATE	10-12-85	10-13-85	10-14-85	10-14-85	10-16-85	10-16-85
TIME	21:35:43	6:20:36	6:45:19	19:50:32	0:45: 0	8:22:44
M.D. DEPTH	2856.00	2971.00	3097.00	3186.00	3314.00	3377.00
DA OBSV.	1: 9	1:22	1:23	1:19	0:41	1:21
DD OBSV.	N49:11E	N44:25E	N15:15E	N33:35E	N68:57E	N56: 9E
TOOL FACE	127L	109L	138L	138L	168R	84L
COORD. NS	10.83S	9.09S	6.54S	4.65S	3.15S	2.60S
COORD. EW	2.18E	4.02E	5.47E	6.32E	7.85E	8.83E
T.V.D.	2855.81	2970.78	3096.75	3185.73	3313.71	3376.70
SECTION	-10.83	-9.09	-6.54	-4.65	-3.15	-2.60
DOG LEG	1.94	.25	.69	.44	.85	.71
DL/100FT	2.66	.22	.55	.49	.67	1.13
TEMP (C)	18.0	17.0	17.0	16.0	17.0	17.5

DIRECTIONAL PLOTS

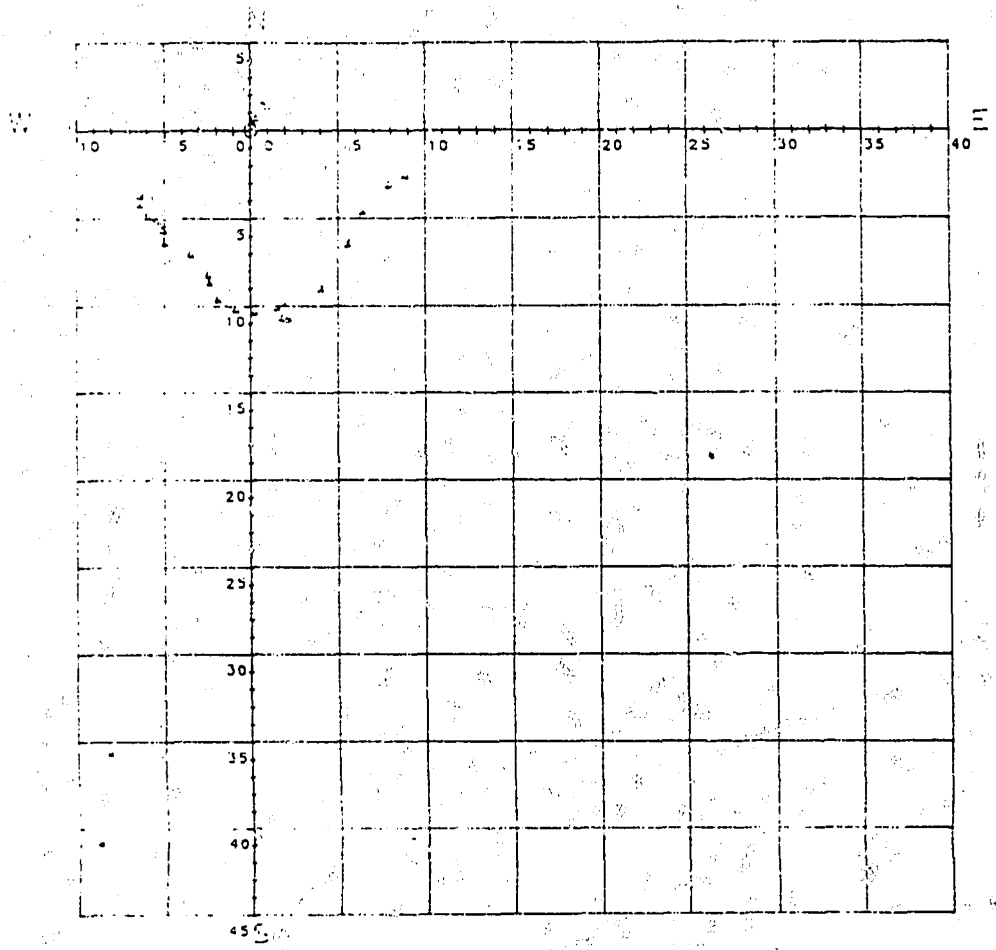
Copy of each of the following plots:

INCLINATION vs DEPTH

PLAN VIEW

TEMPERATURE vs DEPTH (static)

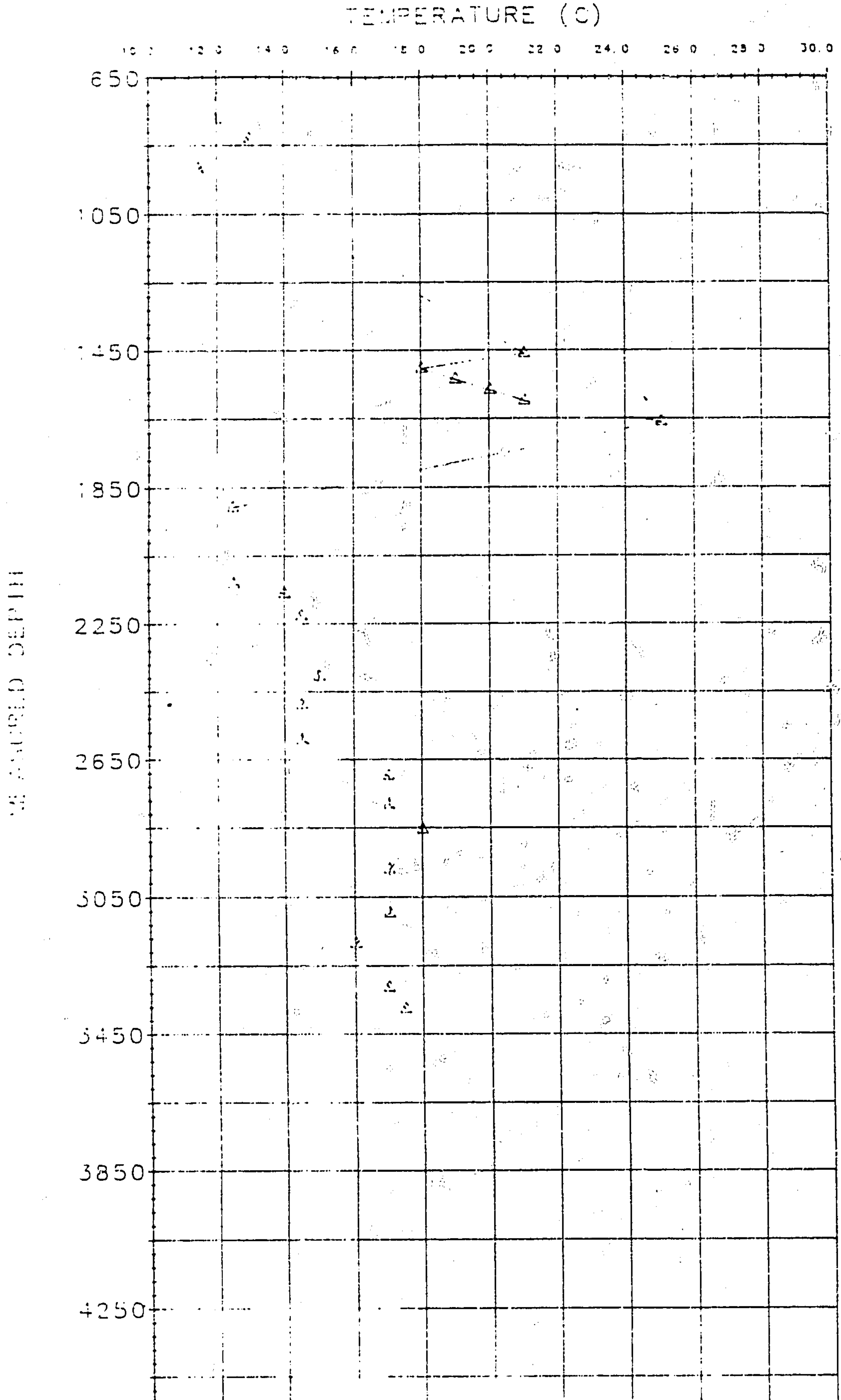
CANTERRA ENERGY LTD.
NETSIQ N-01
PLAN VIEW - E& W VS NO&SO



CANTERRA ENERGY LTD

NETSIQ N-01

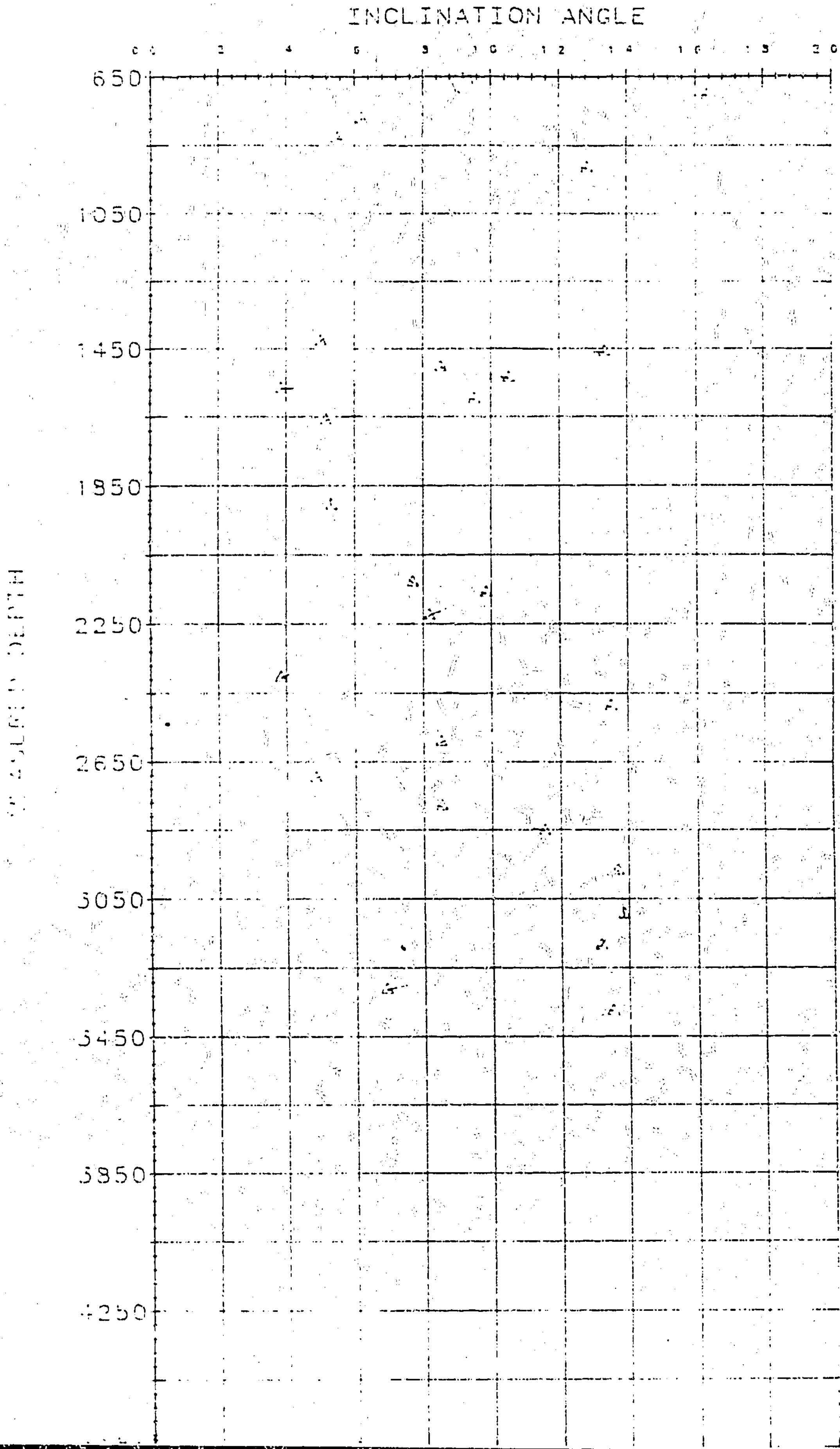
TEMPERATURE VS MEASURED DEPTH PLOT



??NTERRA ENERGY LTD

NETSIC N-01

INCLINATION VS MEASURED DEPTH PLOT



ICG SOGEPET ET AL NETSIQ N-01

Lat. 59°50'48.06"N Long. 87°30'59.92"W

GEOLOGICAL REPORT

8710-C55-1-2

3

CALGARY COPY

OTTAWA COPY

ICG SOGEPET ET AL NETSIQ N-01

Lat. 59°51'N Long. 87°31'W

GEOLOGICAL REPORT

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
NOV 12 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTRÔLE

Dawson-Long & Associates Ltd.

INDEX

Page Number

PERTINENT WELL DATA

Name: ICG Sogepet et al Netsiq N-01 Licence No:

Location: Lat. 59°50'48.06"N Long. 87°30'59.92"W

Operator: Canterra Energy Ltd.

Drilling Contractor: Drillship Nedrill 2

Well Status: Tight Hole

Hole Size: 42" to 265.2 m; 17½" to 448.8 m; 12¼" to 541.5 m; 8½" to T.D.

Surface Casing: 30" landed at 259.2 m

Other Casing: 13 3/8" landed at 436.8 m; 9 5/8" landed at 541.5 m

Spud Date: September 9, 1985 Rig Release:

Elevations: Water Depth: 199.3 m K.B.: 13.4 m

Total Depth: 1040.0 m driller; 1038.0 m logger

Cored Intervals: Sidewall Cores at Selected Intervals

Logs Run:	Type	Interval	Scale
Run #1	DLL-MSFL-GR	541.0 - 436.0 m	1:600/1:240
	CNL-LDT-NGT-GR	541.0 - 436.0 m	1:240
	CNL-GR Only	436.0 - 205 m	1:240
	DDBHC Long Spacing Sonic	541.0 - 436.0 m	1:600/1:240
Run #2	DLL-MSFL-GR	1038.0 - 532.0 m	1:600/1:240
	CNL-LDT-NGT-GR	1038.0 - 532.0 m	1:240
	DISFL	1038.0 - 532.0 m	1:600/1:240
	Long Spacing Sonic	1038.0 - 532.0 m	1;600/1:240
	Stratigraphic Dipmeter	1038.0 - 532.0 m	1:240
	Repeat Formation Tests	Selected Points	
	Core Sample Taker WST	66 cores at selected points	

GEOLOGICAL MARKERS

Water Depth: 199.3 m   K.B.: 13.4 m

Formation	Sample Top	Subsea (Sample)	Log Top	Subsea (Log)
Midbay				
Walrus?	501	- 488	500.5	- 487.1
Ekwan River?	648	- 635	646.5?	- 633.1
Granite Wash	1007	- 994	1005.0	- 991.6
PreCambrian	1010	- 997	1009.0	- 995.6
T.D.	1040	-1027	1038.0	-1024.5

REPEAT FORMATION TESTS

LOG RUN #2

No.	Depth (m)	Initial Hydrostatic (kPa)	Final Hydrostatic (kPa)	Perm.	Seat	Remarks
1	542	9574	9574	No	Yes	Tight
2	545.5	9636	9643	No	Yes	Tight
3	565	9974	9960	No	Yes	Tight
4	561	9905	9898	Yes	Yes	Good Perm.
5	569	10036	10043	?	No	No seat
6	568.9	10036	10029	No	Yes	Tight
7	575	10146	10105	Yes	Yes	Good Perm.
8	579	10181	10160	Yes	Yes	Segregated sample #1
9	582	10215	10215	Yes	Yes	Good test
10	590	10360	10360	Yes	Yes	Good test
11	601.5	10560	10560	No	Yes	Poor Perm.
12	607.5	10664	10657	No	Yes	Tight
13	611.5	10753	10739	No	Yes	Poor Perm.
14	622	10939	10939	Yes	Yes	Good test
15	625	10995			No	No seat
16	627	11022	11022	Yes	Yes	Plugging: good perm.
17	631	11091	11084	Yes	Yes	Plugging: good perm.
18	625.2	10995	10995	Yes	Yes	Plugging: good perm.
19	664	11732	11698	Yes	Yes	Fair perm.
20	665.5	11732	11725	Yes	Yes	Good
21	696.5	12270	12263	No	Yes	Tight
22	697.0	12284	12284	No	Yes	Tight
23	707.5	12470	12470	No	Yes	Tight
24	713	12546	12511	Yes	Yes	Fair perm.

No.	Depth (m)	Initial Hydrostatic (kPa)	Final Hydrostatic (kPa)	Perm.	Seat	Remarks
25	713	12511	12511	Yes	Yes	Fair perm.
26	723.5	12704	12725	No	Yes	Tight
27	728.5	12822	12808	Yes	Yes	Plugging: good perm.
28						
29	730.5	12842	12835	Yes	Yes	Plugging: good perm.
30	735.5	12918	12918	Yes	Yes	Segregated sample #2
31	743	13042	13042	Yes	Yes	Plugging: good perm.
32	751	13180	13173	Yes	Yes	Charged: good perm.
33	753.5	13235	13242	Yes	Yes	Good perm.
34	767	13463	13463	No	Yes	Tight
35	793	13932	13911.5	No	Yes	Tight
36	786.5	13801	13808	No	Yes	Tight
37	834.5	14663	14667	No	Yes	Tight
38	854.5	15021			No	No seat
39	854.2	15014	15007	Yes	Yes	Good perm.
40	861	15118	15138		No	No Seat
41	861.1	15138	15118	No	Yes	Tight
42	887.5	15580	15580	No	Yes	Tight
43	893.6	15690	15697		Yes	Tight
44	893.6	15690	15690	No	Yes	Tight
45	907.5	15759	15745	No	Yes	Tight
46	970.5	17041	17034	?	Yes	Fair perm.
47	973.5	17096	17103	No	Yes	Tight
48	1007	17710	17731	No	No	No seat
49	1007.1	17731	17710	No	Yes	Poor perm.

No.	Depth (m)	Initial Hydrostatic (kPa)	Final Hydrostatic (kPa)	Perm.	Seat	Remarks
50	1013.5	17827	17841	No	Yes	Tight
51	1020.5	17972	17958	No	Yes	Tight
52	854.2	15021	14945	Yes	Yes	Segregated Sample #3

Segretated Sample #1 @ 579 m

- Rec. 10.4 lit (2 3/4 gal) mud filtrate and form. water
  850 psi Resistivity = .0577 @ 17°C
- Rec. 3.8 lit (1 gal) mud filtrate and form. water
  850 psi Resistitivy = 0.563 @ 19°C

Segregated Sample #2 @ 735.5 m

- Rec. 10.4 lit (2 3/4 gal) mud filtrate and form. water
  0 psi Resistivity .0547 @ 18°C
- Rec. 3.8 lit (1 gal) mud filtrate and form. water
  0 psi Resistivity .0596 @ 13°C

Segregated Sample #3 @ 854.2 m

- Rec. 10.4 lit (2 3/4 gal) mud and mud filtrate
  1400 psi Resistivity .0796 @ 20°C
- Rec. 3.8 lit (1 gal) filtrate and form. water
  1400 psi Resistivity .0561 @ 16°C

DAILY DRILLING PROGRESS

September 15

1045 - 1630 hrs: Underway to Netsiq location from Beluga
1630 - 2000 hrs: Position rig over location
2000 - 2030 hrs: Run in hole with bottom hole assembly; tag sea bed at 698' (212.8 m) KB (654' 199.3 m) water depth
2030 - 2200 hrs: Space out drill string; attempt to jet in (unsuccessful-seabed too hard) Respace out to drill
2200 - 2400 hrs: Spud and drill 1067 mm hole 213 to 224 m

September 16

0600 hrs depth: 262 m
0000 - 0500 hrs: Drill and open 1067 mm hole 224 to 262 m
0500 - 0600 hrs: Spot 300 bbls high viscosity mud; pull out of hole to 20' below sea floor
0600 - 0700 hrs: Run in hole to 255 m, drilled fill to T.D.
0700 - 0830 hrs: Circulate, spot 300 bbls high viscosity mud, make wiper trip to sea bed, run in hole, clean 3 m to bottom
0830 - 1000 hrs: Drill 262 - 265 m
1000 - 1230 hrs: Pump 500 bbls high viscosity mud, pull out of hole hand GRA on slings in moonpool
1230 - 1830 hrs: Run 30" casing; make up stinger and landing string, latch into GRA - re-enter hole, circulate and work casing from 248 - 261 m, 30" shoe at 261 m
1850 - 2000 hrs: Cement 30" casing
2000 - 2130 hrs: Release 30" running tool, retrieve bluebird, pull out of hole with landing string and stinger
2130 - 2400 hrs: Wait on cement (lay down 26" bit and 42" hole opener)

September 17

0600 hrs depth: 265 m
0000 - 0300 hrs: Wait on cement
0300 - 0430 hrs: Make up Bit #2, run in hole to 204 m
0430 - 0530 hrs: Re-enter well with external TV camera
0530 - 0700 hrs: Run in hole, tag top of cement at 255 m, wash and ream cement; drill out shoe a t 260.6 m; ream to 265 m
0700 - 1730 hrs: Drill 311 mm pilot hole 265 to 448.7 m
1730 - 2030 hrs: Gas bubbles observed on starboard side of ship; stopped drilling and ran external TV on ROV to observe wellhead. Well flowing, gas percolating to surface (surface appearance - very small bubbles with slight water color change). Spot 150 bbls 12 ppg mud - observe well - still flowing
2030 - 2230 hrs: Drop survey, pull out of hole
2230 - 2400 hrs: Make up 444 mm bit #3, run in hole

September 18

0600 hrs depth: 323 m
0000 - 0300 hrs: Run in hole with Bit #3 (1 hr cut and slip line)
0300 - 1100 hrs: Open 311 mm hole to 444 mm, 255 to 449 m, spot 150 bbls high viscosity mud
1100 - 1200 hrs: Wiper trip, 15 m fill on bottom
1200 - 1230 hrs: Circulate bottoms up, pump 600 bbls high viscosity mud
1230 - 1430 hrs: Pull out of hole
1430 - 2130 hrs: Rig up to and run 13 3/8" casing (with 20" cross-over) shoe at 436.8 m
2130 - 2330 hrs: Cement casing
2330 - 2400 hrs: Release running tool and lay down cement kelly

September 19

0600 hrs depth: 449 m
0000 - 0200 hrs: Pull out of hole with running tool
0200 - 0500 hrs: Rig up to run BOP's and skid BOP's into moonpool
0500 - 0630 hrs: Wait on weather
0630 - 1930 hrs: Run BOP's, position rig and land on wellhead
1930 - 2030 hrs: Install junction boxes on pod reels, latch onto wellhead
2030 - 2230 hrs: Install diverter; lay down BOP running equipment
2230 - 2330 hrs: Make up BOP test tools, run in hole
2330 - 2400 hrs: Test BOP's

September 20

0600 hrs depth: 449 m
0000 - 0430 hrs: Test BOP's
0430 - 0800 hrs: Test kelly cocks, etc. run wear bushings
0800 - 1400 hrs: Run in hole with Bit #4
1400 - 1630 hrs: Tag cement at 406 m, drill out shoe at 436.8 m displace to 9.8 ppg mud
1630 - 1700 hrs: Drill 311 mm hole to 453 m
1700 - 1730 hrs: Perform formation leak off test
1730 - 1800 hrs: Drill to 463.3 m
1800 - 2030 hrs: Took kick - recorded 160 bbls ($CaCl_2$ water) but fluid to surface in 2 min. estimated greater than 275 bbls (annulus volume). Shut in well and observe: SIDPP 400 psi, SICP 235 psi calculated kill mud weight at 15.0 ppg
2030 - 2200 hrs: Killed well with 15.0 ppg mud, circulated riser to 15 ppg mud
2200 - 2400 hrs: Riser level dropped 25 bbls. fill with 15 ppg mud, recalculated kill mud weight at 14 ppg. Displace riser to 14 ppg, open rams - annulus still dropping, fill with 13 bbls 14 ppg mud, 33 bbls 10 ppg mud - well stabilized

September 21

0600 hrs depth: 463 m

0000 - 0400 hrs: Attempt to re-establish circulation with annulus static (unsuccessful) hole standing full but losing to formation when pumping

0400 - 0500 hrs: Pump lost circulation material pill No. 1, rest hole; attempt to circulate 14 ppg mud - 80 bbls pumped; 20 bbls returned

0500 - 0700 hrs: Pump lost circulation pill No. 2: displace riser with 13.5 ppg mud, 70 bbls pumped; lost 22 bbls

0700 - 0900 hrs: Pull 3 stands, circulate, lost 48 bbls - well flowed over diverter

0900 - 1200 hrs: Close well in: SIDPP 125 psi, SICP 200 psi, kill well with 14 ppg mud, displace riser to 13.5 ppg

1200 - 1600 hrs: Pump diesel/gel "gunk" plug with bit at 391 m

1600 - 1930 hrs: Pipe sticking, try to run in hole, took weight at 422 m, work pipe and ciruclate (pumped away 300 bbls)

1930 - 2100 hrs: Pull out of hole at 340 m, took kick (45 bbls) shut well in, kill with driller's method. Circulate 14 ppg mud with choke wide open to maintain circulation

2100 - 2300 hrs: Open well, still flowing; shut in and "bullhead" 200 bbls 14 ppg mud via kill line, open well - still flowing, pull to above BOP's, close shear rams

2300 - 2400 hrs: Pull out of hole (evidence of gunk plug all the way up heavy weight drill pipe indicates possible leak at top of casing). DP computer indicates BOP stack turning with ship - confirmed by observation of goosenecks on slip joint outer barrel

September 22

0600 hrs depth: 463 m

0000 - 0200 hrs: Pull out of hole with shear rams closed; monitor well through kill line: SICP 200 psi, stand back drill collars

0200 - 0300 hrs: Run in hole open ended with drill pipe inside BOP's, displace riser to 14.0 ppg

0300 - 0400 hrs: Pump 140 bbls 14.0 ppg mud down kill line, SICP dropped to 0 psi

0400 - 0500 hrs: Open shear rams - lose returns, fill annulus with trip tank, run in hole to 463 m, pump 10 bbls - no returns

0500 - 0700 hrs: Rig up and spot 58 bbls cement on bottom (11 bbls mud returns while cementing)

0700 - 0730 hrs: Pull out of hole to 305 m, pump 8 bbls mud, losing returns, then start to gain returns

September 22 cont.

0730 - 0800 hrs: Close annular - squeeze 14 bbls 14.0 ppg mud
0800 - 0830 hrs: Open annular - pull out of hole with drill string, well static (no flow, no losses)
0830 - 1030 hrs: Wait on cement, lay down 10" collars
1030 - 1200 hrs: Make up Retrievable test, treat and squeeze packer, run in hole, would not go past 13 3/8" x 20" cross-over swedge
1200 - 1230 hrs: Pull out of hole with RTTS
1230 - 1900 hrs: Rig up Schlumberger, run Cement Bond log, 4-arm Caliper log and Gauge ring, rig down
Results: CBL good bonding except top 2 joints 13 3/8" casing.
Caliper and Gauge Ring: casing okay
1900 - 2030 hrs: Run in hole with RTTS, not able to pass cross-over swedge, RTTS backed off, fish in hole 255' long
2030 - 2130 hrs: Pull out of hole, check box, run in with same
2130 - 2230 hrs: Work on fish, not able to tie in (top of fish at 215 m in 20" casing), pull out of hole
2230 - 2330 hrs: Retrieve ball joint wear bushing
2330 - 2400 hrs: Run in hole with round cross-over sub and centralizing WBRT

September 23

0600 hrs depth: 463 m
0000 - 0300 hrs: Run in hole, try to screw into fish, pull out of hole, lay down fishing assembly
0300 - 0730 hrs: Make up new assembly, run into hole, screw into fish, pull out of hole, recover fish
0730 - 0830 hrs: Run ball joint wear bushing
0830 - 1030 hrs: Make up 311 mm bit and bottom hole assembly, run in hole to 463 m, no cement
1030 - 1330 hrs: Circulate with full returns (14 ppg mud); monitor hole on trip tank prior to trip (½ hr)-static, pull out of hole
1330 - 1500 hrs: Run in hole open ended drill pipe, circulate bottoms up
1500 - 1600 hrs: Mix 58 bbls cement 16.3 ppg; spot in well
1600 - 1700 hrs: Pull out of hole above shear rams; squeeze 25 bbls cement
1700 - 1930 hrs: Wait on cement, clean out BOP's
1930 - 2030 hrs: Pull out of hole and retrieve ball joint wear bushin
2030 - 2130 hrs: Run in hole with 13 3/8" cup tester
2130 - 2200 hrs: Set tester at 244 m, test 205-244 m, 1000 psi, no bleed off
2200 - 2300 hrs: Pull out of hole with cup tester
2300 - 2400 hrs: Wait on cement

September 24	0600 hrs depth:	463 m
	0000 - 0100 hrs:	Pressure test casing and cement to 1700 psi, bled back to 1200 psi in 10 min
	0100 - 0230 hrs:	Run in hole open ended, tag cement at 416 m, break circulation, pull out of hole above shear rams
	0230 - 0300 hrs:	Pressure test casing and cement to 1700 psi, bled back to 1300 psi in 10 min
	0300 - 2400 hrs:	Wait on weather, displace riser to seawater and rig up to disconnect if required
September 25	0600 hrs depth:	463 m
	0000 - 2400 hrs:	Wait on weather (riser displaced with seawater)
September 26	0600 hrs depth:	463 m
	0000 - 0600 hrs:	Wait on weather
	0600 - 0830 hrs:	Rig down spider and diverter running tool, run in hole with wear bushing running tool, displace riser to 14.0 ppg, retrieve wear bushing
	0830 - 1200 hrs:	Make up BOP test string and run in hole
	1200 - 1400 hrs:	Pressure test kill line, shear rams - ok
	1400 - 1530 hrs:	Retrieve test plug
	1530 - 1630 hrs:	Test 13 3/8" casing, shear rams, cement plug - okay
	1630 - 2030 hrs:	Run in test tool, pressure test rams, valves, annular on yellow pod, function test blue pod - okay, pull out with test tool
	2030 - 2200 hrs:	Run in hole with RTTS packer to 219 m and test - okay, pull out of hole
	2200 - 2400 hrs:	Set wellhead wear bushing; run in hole with ball joint wear bushing
September 27	0600 hrs depth:	463 m
	0000 - 0130 hrs:	Run ball joint wear bushing
	0130 - 0500 hrs:	Make up 311 mm bit and bottom hole assembly, run in hole to 400 m
	0500 - 1500 hrs:	Ream cement 400-417 m, firm cement 417-452 m, ream and re-ream cement to 463 m
	1500 - 1800 hrs:	Drill 311 mm hole to 477 m, mud wt 14.0 ppg
	1800 - 2130 hrs:	Took kick - shut well in SIDPP 80 psi, SICPP 110 psi, pit gain 23 bbls, mix and kill well with 15.0 ppg mud, lost returns, open choke, losses 16 bbls, displace riser to 15 ppg open BOP's try to establish circulation, lost 20 bbls
	2130 - 2300 hrs:	Pull up to 453 m and pump and squeeze 65 bbls 11.5 ppg diesel-gel slurry
	2300 - 2330 hrs:	Open well and circulate full returns
	2330 - 2400 hrs:	Condition mud

September 28

0800 hrs depth: 480 m
0000 - 0300 hrs: Condition mud to 15.0 ppg
0300 - 0500 hrs: Ream and clean 436 to 446 m
0500 - 0530 hrs: Circulate bottoms up
0530 - 0700 hrs: Drill to 483 m, lost returns
0700 - 0800 hrs: Pull 4 singles, close rams, reduce mud weight to 14.5 ppg in riser
0800 - 0830 hrs: Open pipe rams and monitor hole, losses 6 bbls/min.
0830 - 1100 hrs: Rig up to and mix and pump 65 bbls diesel-gel gunk squeeze
1100 - 1500 hrs: Circulate at 436 m, reduce mud wt. and build volume at 14.5 ppg
1500 - 1730 hrs: Ream and clean diesel-gel gunk 411-483 m
1730 - 2400 hrs: Drill to 514 m

September 29

0600 hrs depth: 537 m
0000 - 0630 hrs: Drill 311 mm hole to 541 m
0630 - 0800 hrs: Circulate bottoms up (½ hr) wiper trip to casing shoe
0800 - 0900 hrs: Circulate (no fill)
0900 - 1130 hrs: Pull out of hole to log (no drag)
1130 - 1930 hrs: Rig up Schlumberger and run: DLL-MSFL-GR, CNL-LDT-NGT-GR, DDBHC Long Spacing Sonic, rig down loggers
1930 - 2200 hrs: Make up casing hanger
2200 - 2400 hrs: Retrieve ball joint and wellhead wear bushing

September 30

0600 hrs depth: 541.5 m
0000 - 0230 hrs: Make up bottom hole assembly and run in to 541 m
0230 - 0300 hrs: Circulate bottoms up
0300 - 0530 hrs: Pull out of hole with bit
0530 - 1130 hrs: Rig up and run 9 5/8" casing (25 joints); shoe at 533.4 m
1130 - 1200 hrs: Land shoe, lost circulation
1200 - 1300 hrs: Re-land casing, attempt to circulate, no circulation
1300 - 1430 hrs: Mix and pump cement, drop Dart, displace 13 bbls with cementer, shear wiper plug, displace with rig pumps, bump plug, partial returns while cementing 50 bbls cement up annulus of casing
1430 - 1530 hrs: Circulate through kill line, check for cement above wellhead housing, release landing string, circulate and flush BOP stack
1530 - 1630 hrs: Lay down cementing kelly, pull out with running tool
1630 - 2200 hrs: Run Schlumberger collar locator and temperature log
2200 - 2400 hrs: Run in hole, release pack-off, pull out of hole

October 1

0600 hrs depth: 541.5 m
0000 - 0630 hrs: Cement 9 5/8" casing from the top via F.O.
0630 - 0730 hrs: Pull out of hole with cement string
0730 - 1030 hrs: Makeup casing hanger running tool, run in hole with and set pack-off, pressure test, pull out of hole, flush stack kill and choke lines
1030 - 1230 hrs: Run in hole with wash-sub, tag cement at 247 m, displace to seawater, wash BOP stack and function test rams, pull out of hole with wash sub
1230 - 1300 hrs: Flush choke/kill lines, diverter lines, manifold
1300 - 1400 hrs: Rig up to pull BOP stack
1400 - 1600 hrs: Lay down diverter, close slip joint
1600 - 2400 hrs: Disconnect and pull BOP stack and place in BOP slot

October 2

0600 hrs depth: 541.5 m
0000 - 1000 hrs: Disconnect support tension ring, break down, clean, repack, reconnect tension wires, function test BOP's on yellow and blue pods
1000 - 2400 hrs: Skid stack under rotary table, run BOP stack and marine riser (run ROV to check wellhead), position BOP stack over wellhead and reconnect

October 3

0600 hrs depth: 541.5 m
0000 - 0030 hrs: Hook up diverter
0030 - 0900 hrs: Run in with BOP test tool, pressure test BOP stack, choke and kill lines, pull out with test tool
0900 - 1000 hrs: Pressure test surface equipment
1000 - 1800 hrs: Lay down $8\frac{1}{4}$" bottom hole assembly
1800 - 2300 hrs: Pick up and run $6\frac{1}{4}$" bottom hole assembly
2300 - 2330 hrs: Tagged top of cement plug at 246.9 m, drill out 246.9 to 250.8 m
2330 - 2400 hrs: Continue running $6\frac{1}{4}$" bottom hole assembly

October 4

0600 hrs depth: 541.5 m
0000 - 0200 hrs: Make up bottom hole assembly, run in hole
0200 - 0300 hrs: Displace casing and riser to 12.1 ppg mud
0300 - 0330 hrs: Pressure test casing (okay)
0330 - 0830 hrs: Drill float and cement
0830 - 0930 hrs: Take SCR and circulate manifold
0930 - 1000 hrs: Drill out shoe, clean rathole to 541.5 m
1000 - 1030 hrs: Drill 216 mm hole 541.5 to 542 m
1030 - 1200 hrs: Circulate, take formation leak off test (no leak off at equivalent mud weight of 21 ppg)
1200 - 1230 hrs: Drill to 543.2 m, take kick, shut well in, pit gain 6 bbls, SIDPP 300 psi, SICP 275 psi
1230 - 1330 hrs: Monitor well, increase mud wt. to 15 ppg
1330 - 1500 hrs: Kill well (wait and weight method)-lose 16 bbls mud, displace riser to 15 ppg, decrease mud wt. to 14.3 ppg

October 4 cont.	1500 - 1630 hrs:	Displace riser to 14.3 ppg
	1630 - 1800 hrs:	Open well, circulate 14.0 ppg at 30 SPM
	1800 - 2100 hrs:	Build volume at 14.3 ppg, circulate hole
	2100 - 2400 hrs:	Drill 543.2 to 553 m (full returns)
October 5	0600 hrs depth:	589 m
	0000 - 0300 hrs:	Drill 216 mm hole to 578 m
	0300 - 0400 hrs:	Circulate bottoms up
	0400 - 0530 hrs:	Drill to 589 m, well flowing
	0530 - 1300 hrs:	Flow check well and shut in SIDPP 0 psi, SICP 160 psi, pit gain 6 bbls, circulate out (driller's method), variable ram closed, riser bubbling, displace riser, variable ram leaking, mud wt. 14.4 ppg, shut in well. Displace riser to 14.5 ppg, kill well below rams with 14.5 ppg. Open well - still flowing, shut in well and displace riser and hole under rams to 14.7 ppg
	1300 - 1330 hrs:	Open well, check for flow, circulate 15 55 SPM
	1330 - 1930 hrs:	Drill to 610 m, flow check at 590 m and 592 m
	1930 - 2200 hrs:	Pull out of hole due to storm
	2200 - 2300 hrs:	Run in hole open ended, displace riser to sea water, pull out of hole
	2300 - 2400 hrs:	Wait on weather, rig up spider and diverter running tool, disconnect lower marine riser package.
October 6	0600 hrs depth:	610 m
	0000 - 2400 hrs:	Wait on weather
October 7	0600 hrs depth:	610 m
	0000 - 1000 hrs:	Wait on weather
	1000 - 1230 hrs:	Run in hole with drill pipe, pull out with ball joint wear bushing
	1230 - 1400 hrs:	Rig up for landing, LMRP, run TV
	1400 - 1800 hrs:	Land LMRP and latch to BOP stack, change ship heading for pin locator-unable to turn LMRP, pull TV
	1800 - 1900 hrs:	Rig up diverter and jump ROV
	1900 - 2100 hrs:	Make up slip joint torque tool and torque riser, not able to turn LMRP
	2100 - 2230 hrs:	Change to swivel assembly torque tool, run in hole, apply torque to swivel (not able to turn), pull out of hole, unlatch LMRP
	2230 - 2400 hrs:	Rig up for landing LMRP with ROV camera

October 8

0600 hrs depth: 610 m
0000 - 0100 hrs: Position rig and land LMRP, line up pin locator
0100 - 0200 hrs: Run in hole with drill pipe, displace riser to 14.7 ppg
0200 - 0300 hrs: Pressure test failsafe valves on kill/choke lines
0300 - 0330 hrs: Attempt to test connector LMRP annular to pipe rams
0330 - 0400 hrs: Install kelly, circulate bottoms up below BOP stack
0400 - 0530 hrs: Pull out of hole, run in wear bushing running tool, pull out with wear bushing
0530 - 0700 hrs: Run in with test tool, test connector on LMRP/BOP
0700 - 0900 hrs: Run in with and set wear bushing; run in with and set ball joint wear bushing
0900 - 1030 hrs: Pick up and test Computalog mud pulser sub
1030 - 1300 hrs: Run in with Bit #7
1300 - 2400 hrs: Drill to 661 m

October 9

0600 hrs depth: 680 m
0000 - 0630 hrs: Drill to 682 m
0630 - 1030 hrs: Trip for Bit #7
1030 - 1100 hrs: Drill to 683 m - well flowing
1100 - 1230 hrs: Shut in well SICP 0 psi, SIDPP 0 psi, 10 bbl. gain, monitor well, open well, circulate and condition mud at 14.7 ppg
1230 - 2400 hrs: Drill to 720 m

October 10

0600 hrs depth: 748 m
0000 - 1630 hrs: Drill to 770 m
1630 - 2030 hrs: Trip for Bit #8 because of slow penetration rate
2030 - 2400 hrs: Drill to 780 m

October 11

0600 hrs depth: 799 m
0000 - 2400 hrs: Drill to 840 m

October 12

0600 hrs depth: 856 m
0000 - 2400 hrs: Drill to 902 m

October 13

0600 hrs depth: 914 m
0000 - 0600 hrs: Drill to 914 m
0600 - 1100 hrs: Take survey and trip for Bit #9
1100 - 2400 hrs: Drill to 942 m

October 14

0600 hrs depth: 952 m
0000 - 2400 hrs: Drill to 993 m

October 15

0600 hrs depth: 1000 m
0000 - 0330 hrs: Drill to 1000 m
0330 - 0700 hrs: Pull out of hole (bad weather), close shear rams, displace riser to seawater, change and test mud tool
0700 - 1000 hrs: Wait on weather, prepare to disconnect
1000 - 1100 hrs: Make up Bit #11, run in hole to 183 m
1100 - 1200 hrs: Wait on weather
1200 - 1300 hrs: Displace riser to 14.7 ppg mud, check pressure, open well
1300 - 1500 hrs: Run in hole (pick up 2 collars)
1500 - 1530 hrs: Drill to 1001 m - well kicked
1530 - 1600 hrs: Shut well in with hydril: SIDPP 0 psi, SICP 0 psi, open well (kick due to air in drill pipe, not formation)
1600 - 2400 hrs: Drill to 1018 m

October 16

0600 hrs depth: 1033 m
0000 - 0730 hrs: Drill 216 mm hole to 1040 m
0730 - 0830 hrs: Circulate bottoms up, take survey
0830 - 0930 hrs: 10 stand wiper trip
0930 - 1030 hrs: Circulate full circulation
1030 - 1300 hrs: Pull out of hole to log, lay down mud tool
1300 - 1330 hrs: Rig up Schlumberger
1330 - 1730 hrs: Run DLL-MSFL-GR
1730 - 2030 hrs: Run CNL-LDT-NGT-GR
2030 - 2400 hrs: Run DIL-Long Spacing Sonic

October 17

0600 hrs depth: 1040 m
0000 - 0100 hrs: Finish running DIL-Long Spacing Sonic
0100 - 0630 hrs: Run SHDT (tight spot at 640 m)
0630 - 1230 hrs: Run RFT's - tool failure, replace tool and repairs
1230 - 2400 hrs: Run RFT's

October 18

0600 hrs depth: 1040 m
0000 - 0330 hrs: Finish running RFT's
0330 - 0700 hrs: Run Sidewall Cores (CST)
0700 - 1400 hrs: Run WST, 1st run
1400 - 1700 hrs: Run WST, 2nd run
1700 - 1730 hrs: Rig out Schlumberger
1730 - 2400 hrs: Run in hole to run plugs and prepare to abandon hole

October 19

0600 hrs depth: 1040 m
0000 - 2400 hrs: Plug and abandon

SURVEYS

Depth (m)	Deviation (°)	Direction
204	0.9	N64E
215	1.6	N
236	0.6	S88E
253	0.6	S01E
280	1.3	S65W
435	0.5	S36W
445	1.2	S13E
478	1.0	S66E
488	1.0	S04W
506	0.5	S21E
582	0.5	N71E
650	0.8	S02E
659	1.0	S19E
679	0.8	S33E
733	0.4	N36E
759	1.4	S66E
791	0.9	N14E
823	0.5	S19E
848	0.9	S18W
871	1.2	N49E
906	1.4	N44E
944	1.4	N15E
971	1.3	N34E
1010	0.7	N69E
1029	1.3	N66E

BIT RECORD

Bit No: 1
Size: 660 mm
Make: Smith
Type: DSJ
Jets: 3/14
Serial No: ER6715
Depth In: 213 m
Depth Out: 265 m
Hours: 8 1/2
Condition: 3-3-I

Bit No: HO #1
Size: 1067 mm
Make:
Type:
Jets: 3/10, 3/14
Serial No: 4204
Depth In: 213 m
Depth Out: 265 m
Hours: 8 1/2
Condition:

Bit No: 2
Size: 311 mm
Make: H.W.
Type: J3
Jets: 3/15
Serial No: XV129
Depth In: 265 m
Depth Out: 449 m
Hours: 10 1/2
Condition: 3-3-I

Bit No: 3
Size: 444 mm
Make:
Type: OSC3AJ
Jets: 3/20
Serial No: VL074
Depth In: 265 m
Depth Out: 449 m
Hours: 8
Condition:

Bit No: 4
Size: 311 mm
Make: H.W.
Type: J3
Jets: 3/14
Serial No: XV046
Depth In: 449 m
Depth Out: 463 m
Hours: 1
Condition: 1-1-I

Bit No: 5RR
Size: 311 mm
Make: H.W.
Type: J3
Jets: 3/18
Serial No: XV046
Depth In: 400 m (cement) 463 m (formation)
Depth Out: 541.5 m
Hours: 17 1/2
Condition: 3-3-I

BIT RECORD

Bit No: 6
Size: 216 mm
Make: Smith
Type: SDGH
Jets: 1/16, 2/18
Serial No: EV8845
Depth In: 541.5 m
Depth Out: 610 m
Hours: 15 1/2
Condition: 2-2-I

Bit No: 7
Size: 216 mm
Make: Smith
Type: SDGH
Jets: 3/16
Serial No: SX4806
Depth In: 610 m
Depth Out: 682 m
Hours: 11
Condition: 3-3-1/8

Bit No: 8
Size: 216 mm
Make: H.W.
Type: J33
Jets: 3/14
Serial No: 23054
Depth In: 682 m
Depth Out: 770 m
Hours: 29
Condition: 2-2-I

Bit No: 9
Size: 216 mm
Make: Smith
Type: F4
Jets: 3/13
Serial No: AH008
Depth In: 770 m
Depth Out: 914 m
Hours: 57 1/2
Condition: 4-6-I

Bit No: 10
Size: 216 mm
Make: Smith
Type: F3
Jets: 3/13
Serial No: WW815
Depth In: 914 m
Depth Out: 1000 m
Hours: 40 1/2
Condition: 4-7-I

Bit No: 11
Size: 216 mm
Make: H.W.
Type: J44
Jets: 3/13
Serial No: VF799
Depth In: 1000 m
Depth Out: 1040 m
Hours: 16
Condition: 2-2-I

DAILY MUD ADDITIVES

September 16	Gel 12 tonnes, Caustic 8 sx, Lime 4 sx, Soda Ash 1 sx, Corevis 40 sx, SMR 37 sx
September 17	Barite 52 tonnes, Gel 8 tonnes, Caustic 8 sx, Soda Ash 1 sx, SMR 21 sx, Biotrol 1 sx
September 18	Gel 2 tonnes, DF Vis 3 sx, SMR 6 sx
September 19	Caustic 27 sx, DF Vis 13 sx, Lime 4 sx, Techniflo 25 sx, Salt 530 sx
September 20	--
September 21	Barite 235 tonnes, Gel 8 tonnes, Caustic 3 sx, DF Vis 3 sx, Lime 2 sx, Techniflo 4 sx, Salt 780 sx, Peltex 1 sx, Kwikseal 50 sx, Walnut 20 sx
September 22	Barite 38 tonnes, Gel 2 tonnes, Caustic 8 sx, DF Vis 1 sx, Techniflo 4 sx
September 23	--
September 24	Barite 30 tonnes, Caustic 6 sx, DF Vis 4 sx, Biotrol 1 sx
September 25	Caustic 4 sx, Lime 2 sx, D-Foam 1 sx
September 26	Caustic 6 sx, DF Vis 1 sx, Techniflo 1 sx
September 27	--
September 28	Barite 110 tonnes, Gel 17 tonnes, Caustic 26 sx, DF Vis 7 sx, Lime 2 sx, Techniflo 15 sx, Salt 760 sx, Soda Ash 3 sx, Bicarb 22 sx, Peltex 16 sx
September 29	Barite 12 tonnes, Gel 5 tonnes, Caustic 4 sx, Techniflo 13 sx, Salt 160 sx, Peltex 12 sx
September 30	Barite 19 tonnes
October 1	Barite 4 tonnes, DF Vis 1 sx, Techniflo 4 sx, Biotrol 1 sx, Peltex 1 sx, Caustic 1 sx
October 2	--
October 3	DF Vis 8 sx, Lime 2 sx, Techniflo 45 sx, Salt 540 sx, Soda Ash 3 sx, Peltex 11 sx, Caustic 8 sx
October 4	Barite 105 tonnes, Gel 2 tonnes, Salt 60 sx, Peltex 2 sx, Caustic 5 sx, SAAP 1 sx
October 5	Barite 30 tonnes, DF Vis 3 sx, Techniflo 12 sx, Salt 90 sx, Soda Ash 2 sx, Peltex 4 sx, Caustic 6 sx

October 6	--
October 7	Barite 26 tonnes, DF Vis 6 sx, Techniflo 11 sx, Salt 148 sx, Soda Ash 3 sx, Peltex 1 sx, Caustic 2 sx
October 8	Barite 15 tonnes, Salt 242 sx, Caustic 4 sx
October 9	Barite 5 tonnes, DF Vis 10 sx, Techniflo 17 sx, Salt 150 sx, Soda Ash 1 sx, Walnut 10 sx, Caustic 2 sx
October 10	Barite 65 tonnes, DF Vis 2 sx, Soda Ash 2 sx, Caustic 1 sx, Lignite 1 sx
October 11	Barite 9 tonnes, DF Vis 3 sx, Soda Ash 2 sx, Caustic 3 sx, Lignite 1 sx
October 12	Barite 20 tonnes, Salt 220 sx, Soda Ash 9 sx, Caustic 3 sx, Lignite 15 sx
October 13	Barite 3 tonnes, Salt 90 sx, Caustic 3 sx, Lignite 2 sx
October 14	Soda Ash 3 sx, Caustic 2 sx, Lignite 16 sx
October 15	Barite 5 tonnes, Salt 90 sx, Soda Ash 2 sx, Caustic 9 sx, Lignite 16 sx
October 16	Lime 2 sx, Techniflo 11 sx, Caustic 3 sx, Lignite 9 sx
October 17	--
October 18	--

DAWSON - LONG & ASSOCIATES LTD.

LEGEND

SHOWS:

- POOR, SLIGHT, TRACE
- FAIR, MEDIUM
- GOOD, STRONG, HEAVY
- SATURATED, EXCELLENT
- Q QUESTIONABLE
- F FLUORESCENCE

POROSITY TYPES:

AM	ALGAL MAT	IG	INTERGRANULAR
CK	CHALKY	PP	PINPOINT
FR	FRACTURE	SU	SUCROSIC
IC	INTERCRYSTALLINE	VU	VUGGY

COLOURED STRIP LOG:

LITHOLOGY

- SHALE
- CLAYSTONE
- COAL
- CHERT (BEDDED)
- GLACIAL TILL
- CONGLOMERATE
- SILTSTONE
- SANDSTONE
- MARLSTONE
- LIMESTONE
- DOLOMITE
- ANHYDRITE
- GYPSUM
- SALT
- IGNEOUS
- METAMORPHIC

ACCESSORIES

- SILTY
- SANDY
- PEBBLES
- LT. CHERT / DK. CHERT
- ARGILLACEOUS/SHALEY
- MINOR COAL
- CALCAREOUS
- DOLOMITIC
- ANHYDRITIC
- GLAUCONITE
- PLANT FRAGMENTS
- FISH FRAGMENTS
- FISH SCALES

ORGANICS

- CRINOID
- BIOCLASTIC
- AMPHIPORA
- STROMS
- BRACHIOPOD
- PELECYPOD
- OOLITES
- PELLETS

COLOURS:

BF	BUFF	GN	GREEN	SP	SALT & PEPPER
BK	BLACK	GY	GREY	TN	TAN
BL	BLUE	OR	ORANGE	VC	VARICOLOURED
BR	BROWN	PK	PINK	WH	WHITE
CL	CLEAR	PU	PURPLE	YL	YELLOW
CR	CREAM	RD	RED		

DESCRIPTION OF LITHOLOGY:
STANDARD ABBREVIATIONS USED

SIDEWALL CORE DESCRIPTIONS

Log Run #2: Shot 66, Recovered 61, Lost 5, No Bullets Lost

1040.0	Biotite Schist(?): predominantly ligned flakes black biotite, with clear grains quartz (angular), some chloritization possibly some altered feldspar (white).
1040.0	As above.
1034.0	Granite: very coarse crystalline, clear to white quartz, pink potassium feldspar, some biotite, some chloritization.
1034.0	As above.
1026.0	Granite(?): but with abundant (60%?) black biotite, some pink feldspar, minor quartz, minor chloritization.
1020.5	Biotite Schist(?): excellent alignment of biotite flakes, abundant clear to white quartz and possible feldspar, trace chloritization.
1016.5	Core lost.
1016.5	Core lost.
1013.5	Granite(?) (or Schist?): medium crystalline, with abundant (50%) biotite, abundant clear quartz and probable white feldspar, probable minor chloritization.
1010.0	Granite ("Classic): very coarse crystalline, clear quartz, white and pink feldspar, biotite, trace hornblende, minor chloritization.
1010.0	As above.
1007.0	Quartzite (?): clean, clear to white, shattered quartz with red shaley streaks (predominantly very finely fractured--becoming "mushy").
998.0	Limestone: medium brown, cryptocrystalline, dense, hard, very clean, tight.
984.0	Limestone: buff to light reddish brown (variable), cryptocrystalline, dense, hard, very clean, occasional traces gypsum, tight.
973.5	Dolomite: cream to buff, cryptocrystalline, dense, very clean, no visible porosity.
970.5	Dolomite: medium brown, microcrystalline to slightly sucrosic, dense, very clean, no visible porosity, but probably minor intercrystalline and/or sucrosic, no shows.

928.0 Limestone: buff to light pinkish/brown, cryptocrystalline to microcrystalline, very dolomitic (microcrystals), dense, clean, tight.

918.0 Limestone: buff to light brown, cryptocrystalline, dense, clean, trace dolomitic (microcrystals), tight.

912.0 Limestone/Dolomite: buff to light brown, cryptocrystalline, predominantly inclusions of limestone in dolomite (possible fossil fragments?), very clean, but trace red streaks, no visible porosity.

907.5 Dolomite: cream to buff, cryptocrystalline, dense, hard, clean, no visible porosity.

893.5 Dolomite: bright pink, cryptocrystalline, dense, hard, very clean, no visible porosity.

891.5 Core lost

887.5 Dolomite: white, cryptocrystalline to microcrystalline, dense, hard, very clean, no visible porosity.

872.5 Dolomite: cream, cryptocrystalline, dense (almost chalky), firm, very clean, no visible porosity, trace red shaley streaks.

862.5 Dolomite: pink, cryptocrystalline, dense, hard, very clean, no visible porosity.

854.5 Doloimte: cream, cryptocrystalline, dense, hard, very clean, no visible porosity.

826.0 Core lost.

820.0 Limestone: light to medium brown, cryptocrystalline to microcrystalline, moderately to very dolomitic, clean, tight.

815.0 Limestone: cream, cryptocrystalline, dense, hard, very clean, tight.

793.0 Dolomite: cream, cryptocrystalline to microcrystalline, dense, hard, very clean, no visible porosity.

786.5 Dolmoite, cream, cryptocrystalline, dense, very clean, firm to hard, no visible porosity.

786.5 Dolomite: light brown, cryptocrystalline, dense, hard, very clean, no visible porosity.

766.5 Dolomite: cream to light pink, cryptocrystalline to microcrystalline, hard, very clean, no visible porosity.

766.5 As above.

757.5 Limestone: white to buff, cryptocrystalline (slightly chalky), firm, very clean, tight.

753.5 Dolomite: white to buff, microcrystalline, firm to hard, very clean, probable fair to good intercrystalline porosity, no shows.

750.0 Dolomite: buff to light brown, cryptocrystalline to microcrystalline, firm to hard, very clean, no visible porosity.

743.0 Dolomite: buff to light pink, microcrystalline, firm to hard, very clean, probable poor to fair intercrystalline porosity, no shows.

735.5 Dolomite: light brown, cryptocrystalline to microcrystalline, dense, hard, very clean, no visible porosity, no shows.

730.5 Dolomite: buff to light brown, microcrystalline, firm to hard, very clean, poor to fair intercrystalline porosity?, no shows.

728.5 Dolomite: light pink, microcrystalline, hard, very clean, possible poor to fair intercrystalline porosity?, no shows.

723.5 Dolomite: buff to light brown, microcrystalline to sucrosic, hard, very clean, poor to fair sucrosic porosity?, no shows.

716.5 Dolomite: buff, microcrystalline to sucrosic, hard, very clean, poor to fair sucrosic porosity?, no shows.

713.0 Dolomite: bright pink, microcrystalline to sucrosic, firm, somewhat friable, clean, poor to good sucrosic porosity?, no shows.

707.5 Dolomite: white to cream, microcrystalline (slightly sucrosic), firm to hard, clean, no visible porosity (minor sucrosic?), no shows.

696.5 Dolomite: buff to light brown, cryptocrystalline to microcrystalline, dense, firm to hard, very clean, no visible porosity, no shows.

689.0 Dolomite: pink with abundant reddish, argillaceous streaks, but otherwise clean, cryptocrystalline, dense, soft to firm, no visible porosity.

681.0 Limestone: white to buff, microcrystalline to slightly sucrosic, dense, soft to firm, very clean, tight.

672.0 Limestone: white to buff, microcrystalline to slightly sucrosic, dense, soft to firm, very clean, tight.

665.5 Core lost.

663.5 Dolomite: buff to light brown, microcrystalline to sucrosic, very clean, firm, poor to fair sucrosic porosity, no shows.

631.0 Dolomite: cream to pinkish, microcrystalline to very fine crystalline, friable (mushy to soft), very clean, poor to fair intercrystalline porosity, no shows.

621.5 Silica (quartz): clear to white, slightly dolomitic, very hard, brittle, possibly fractured (inclusions in dolomite?).

611.5 Dolomite: buff to slightly pinkish, microcrystalline to sucrosic, abundant calcareous inclusions, very clean, possible fair to good sucrosic porosity, no shows.

607.5 Dolomite: white to pinkish, cryptocrystalline, very clean, trace poor to fair sucrosic porosity, no shows.

601.5 Dolomite: pink, microcrystalline to slightly sucrosic, very clean, appears dense, no visible porosity (some sucrosic?), no shows.

590.0 Dolomite: white to pinkish, microcrystalline to very fine crystalline, very clean, no visible porosity (but probable good intercrystalline porosity), no shows.

590.0 Dolomite: as above.

579.0 Dolomite: buff to light pink, cryptocrystalline to slightly sucrosic, hard (but core very fractured), very clean, poor sucrosic porosity, no shows.

579.0 Dolomite as above, but cream to buff.

574.5 Dolomite: cream to buff, microcrystalline, dense, hard, very clean, no visible porosity.

569.0 Dolomite: buff to light pink, microcrystalline, dense, hard, very clean, no visible porosity (possibly trace sucrosic), no shows.

565.0 Dolomite: buff to light brown (patchy light brown), very fine crystalline, sucrosic, firm, very clean, poor to good intercrystalline porosity?, no shows.

545.0 Dolomite: cream to buff, microcrystalline to sucrosic, firm, clean, possible poor to fair sucrosic porosity?, no shows.

542.0 Dolomite: buff with minor light brown banding, microcrystalline to sucrosic, hard, clean, no visible porosity (trace sucrosic?), no shows.

542.0 Dolomite: as above.

GEOLOGICAL SUMMARY

ICG Sogepet et al Netsiq N-01 was drilled on top of a major discontinuous Paleozoic (Silurian) ridge trending approximately north-northwest through the centre of the Hudson Bay basin. Four previous holes have been drilled in Hudson Bay. These include Aquitaine et al Walrus A-71, drilled also on top of the ridge but further to the south, Aquitaine et al Polar Bear C-11, slightly off the top of the ridge to the east, Aquitaine et al Narwhal South N-58, drilled well to the east of the ridge; and finally, drilled immediately prior to this hole, Trillium Soquip Onexco et al Beluga O-23, in the basinal area to the west of the ridge. Although Beluga is the closest to the Netsiq hole by distance, geologically, the Walrus and Polar Bear holes are the closest offsets, both located on or near the crest of the Paleozoic ridge.

The following is a summary of the geological prospects for this well from the well program.

"The Silurian Ekwan River carbonates are the main target at this location. The secondary target is porosity development in dolomites in to Ordovician Red Head Rapids Formation.

The top of the Silurian was uplifted and exposed at this location during the lower part of the Devonian. The Polar Bear Formation and the shale member of the Walrus Formation all pinch out on the western flank of the ridge and are truncated by the eastern bounding fault. The overlying Walrus limestone is tight and represents a good seal.

The shales in the Ordovician Red Head Rapids Formation could provide source to both the porosity within that formation and via migration up the bounding fault to the Ekwan River reservoir. A second possible source could be from the Polar Bear Formation east of the bounding fault. Again migration via the fault would be required. The depth of burial of these sediments casts some doubt on the maturity of the source beds to produce liquid hydrocarbons. However, the total burial history of Hudson Bay is uncertain, allowing the possibility of the source beds being at maturity depth in the past."

Sampling was begun at a depth of 450 meters in this hole underneath the 13 3/8 inch shoe, which was landed at 436.8 meters.

Midbay Formation

The lithology of the Midbay Formation is quite confused due in part to its apparently somewhat unusual nature and the very poor quality of samples through this section. Recovered sample was essentially a very soft, calcareous, reddish to orange shale (actually a mud grading to a clay), containing traces to abundant clear, fibrous gypsum crystals. It is often somewhat silty and locally very sandy (loose, subangular to subrounded, clear to milky).

While drilling at 463 meters with 9.8 ppg mud, the well kicked and flowed at least 275 barrels of $CaCl_2$ water in two minutes. Only a very minor two meter drill break was recorded before the kick, but it seems unlikely that this was due to high pressure porosity because of the high volume and the rapidity of flow of the fluid. It seems that the porous zone was barely opened up before it flowed. The kick was killed with 14.0 ppg mud and drilling was resumed. A bottoms up sample contained only shale as described above. Another $CaCl_2$ kick was recorded from 475 to 477 meters, a 23 barrel gain, and a slower flow. However, a minor gas bubble (indicated by slowly rising casing pressure readings while the well was shut in) was associated with the flow this time. The well was killed this time with 15.0 ppg mud, but which was cut back to 14.5 ppg several meters later when the mud began to flow back into the formation (losing circulation). This time, abundant, loose,, fine to coarse, subangular to subrounded, clear to milky quartz grains were noted in the bottoms up sample, suggesting possibly loosely consolidated, very porous sandstones yielding the $CaCl_2$ flow. Also, a minor gas peak of about 0.2% C1 (trace C2) was recorded at this point (no mud gas being recorded at any other time through the formation). It should be noted that sample recovery was either nonexistent or extremely poor in quality where the kicks were taken and through the lost circulation zones, returns through these zones either being circulated out to the ocean or lost back into the formation.

Schlumberger logs run over this interval suggested a very salty section, possibly very salty shales interbedded with salt-filled sandstones, but with the shales probably also reading the effect of gypsum as well. Also, a few stringers with very high neutron porosity readings, fairly high gamma ray counts (shaley), very low bulk density, very low resistivity readings and showing quite washed out on the caliper occurred through the section. One occurs right at 463 meters where the first kick was taken. Possibly these could be high pressure $CaCl_2$ water-charged muds or shales and could represent the source of the kicks? The salty sandstones also remain a prime candidate as well, however. No sidewall cores were taken or RFT's shot through this section.

Walrus Formation(?) Top @ 501 m

The top of the Walrus Formation was marked by a fairly marked slowdown in penetration rate accompanied by the introduction into samples of dolomites and minor limestones. The whole of the section down to about 650 meters, is essentially dolomitic with occasional gradations to interbeds and bands of limestone. The dolomites are fairly consistent and can generally be described as buff to light brown to occasionally pink in color, microcrystalline to very fine crystalline (sucrosic in part), locally dense, very clean, in part somewhat calcareous, and slight gypsiferous. Intercrystalline porosity occurs throughout the section, ranges from trace to excellent and was marked by fast penetration rates. The occasional limestones tend to be white to buff, cryptocrystalline to microcrystalline, dolomitic and tight and are generally marked by slower drilling.

The upper 50 meters of the section was drilled with 14.7 ppg mud with no incident and 9 5/8 inch casing was set at 533.4 meters. However, when the shoe was drilled out with 12.2 ppg mud, the formation almost immediately kicked again with a $CaCl_2$ water flow at 543 meters. Mud weight was increased to 14.3 ppg to control it (but first increasing weight to 15.0 ppg and losing circulation). The $CaCl_2$ water this time did not seem to contain a gas bubble (as evidenced by a static shut-in casing pressure reading) but a bottoms up gas reading of about 0.2% C1 (trace C2) was recorded. This gas continued as background gas and varied between a trace and 0.18% C1 down to about 586 meters.

At 589 meters, the well flowed again with an eight barrel gain and the mud weight was increased to 14.7 ppg to kill the well. Kick gas was recorded this time at 0.3% C1 (the highest reading of the well), but quickly dropped off to zero, after a few meters of drilling. Only occasional traces of C1 were recorded through the rest of the section with one trip gas reading of 0.16%. Numerous sidewall cores and repeat formation tests were taken through this section and basically confirmed the lithologies and pressures.

Ekwan River? Top @ 648 m

The entire section from approximately 650 meters to the top of the basement at 1007 meters could not be confidently divided into different formations based either on samples or on Schlumberger logs. The whole section can be described generally as an interbedded sequence of dolomites and limestones with some gradation between the two. No salt or anhydrites were noted. The dolomites in this section differ somewhat from those in the overlying Walrus basically in that they tend to be cryptocrystalline to microcrysatlline instead of somewhat coarser, and also tighter, with the exception of those found between 695 to 755 meters and possibly from 970 to 975 meters. Otherwise, like those above, there are buff (or cream) to light brown, to occasionally pink and are very clean. Whereas the intercrystalline porosity in the Walrus was obvious in samples, the dolomite porosity was very inconspicuous, probably mostly sucrosic, and resulting in very low permeabilities. The limestones as well can be described as above and again are tight, as are most of the gradational lithologies between dolomite and limestones. Essentially no mud gases were recorded through the section. Numerous sidewall cores confirmed the lithologies and repeat formation tests generally confirmed the low permeabilities.

Granite Wash Top @ 1007 m

The top of the Granite Wash was picked on a fairly good drilling break and consists of a clean, clear to white quartzite(?), possibly very finely fractured and containing red shaley streaks. No mud gas was recorded.

PreCambrian Top @ 1010 m

The PreCambrian geology in this hole (at least the top 30 meters) is quite confused, and was even more so in samples. It seems to grade (or distinct interbeds) back and forth between good clean "classic" granite and what seems to be biotite schist. In samples the granite occurred as predominantly loose, but obviously fractured (angular) grains of clear to milky quartz, biotite, fresh pink and white feldspars and minor hornblende. Sidewall cores confirmed this lithology as a very coarse grained, fairly fresh (but slightly chloritized) classic granite. Interspersed between these occurrences of granite however, are either very biotitic (60%?) granite with some pink feldspar, minor quartz and minor chloritization which appears very schistose; or what appears to be an actual biotite schist with excellent foliated alignment of the biotite flakes, and often containing abundant clear to white quartz and possible feldspar. In samples, after being milled by the bit and hydrated by the drilling mud, this lithology appeared somewhat different, looking like a black, very micaceous "greasy" (metallic lustre) shale. It is questionable whether there is a gradation between the classic granites, through the black biotitic "granites" to the schists (and back again) or if there exists a more definite differentiation between them. Possible explanations could include some kind of "tectonic mixing or mashing" of a granitic rock resulting in a migmatic type of assemblage; the presence of xenoclasts of schistose type rock within a granitic mass; or some kind of magmatic differentiation during the crystallization process for some reason.

Conclusions

As was noted in the summary of geological prospects at the beginning of the Geological Summary, the main prospect was essentially a porous Ekwan River dolomitic reef development capped by a tight Walrus Limestone. A very marked seismic marker, at about 650 meters was proposed to have marked this event. However, we have seen in this hole that the opposite has occurred. We have a porous "Walrus" dolomite overlying tighter "Ekwan River" limestones and dolomites. Indeed this sharp change from porous dolomite to tight limestone at 650 meters no doubt causes the seismic event.

Stratigraphic correlation of lithologies and formation changes between this hole and offsetting holes was essentially impossible in the field while drilling. The only real formation change that could be deduced in the carbonate section was at 650 meters as noted above. Also conspicuous in the whole dolomite/limestone section was the "cleanness" of the rock (non-shaley or argillaceous) and also total lack of salt or anhydrite, a feature not noted in any of the previous wells drilled in Hudson Bay. The assumptions of the Walrus and Ekwan River Formation names and tops are therefore assumptions only and may not be valid. Also, no formation tops were picked below the Ekwan River until the Granite Wash, because no obvious formation changes could be discerned.

SAMPLE DESCRIPTION

Bit Sample (trip @ 448 m)	Predominantly orange-reddish clay and very sandy (rounded, fine to medium grained, clear to milky quartz), light grey clay, with some black coaly inclusions.
448 - 450	Shale (mud)(45%): orange-reddish, very soft, calcareous, blocky, slightly sandy in part; minor (5%) quartz Sand: clear to slightly milky, in part irregular fragments (fractured?), in part fine to medium, subrounded grains (possibly in shale?), trace rounded granules and pebbles; minor (5%) Limestone: buff to light grey/brown, cryptocrystalline, dense, possibly bioclastic, no visible porosity, minor (5%) Dolomite: light grey, microcrystalline, silty, argillaceous, very hard, no visible porosity; trace clear crystalline Gypsum. Abundant cement cavings (40%).
450 - 455	Shale (45%): reddish as above but increasing amounts of Gypsum: clear, crystalline (in part with shaley inclusions); minor (5%) Limestone stringers as above. Trace quartz Sand as above. Abundant cement cavings (50%).
455 - 463	No sample (circulate out $CaCl_2$ kick--returns bypassed shaker to ocean).
463 (bottoms up)	Shale: reddish, very soft (grading to clay), calcareous, somewhat silty, slightly to very gypsiferous (Fibrous); abundant (50%) cement.
463 - 465	Cement (95%); minor Shale as above (ran cement plug at 463 meters to seal off zone).
465 - 475	Shale (100%) as above, very soft clay, abundant fibrous gypsum as above, trace cement.
475 - 477	No sample (circulate out $CaCl_2$ kick and lose circulation--returns lost to ocean).
477 - 480	Abundant (20%?) quartz Sand grains, clear to milky, fine to coarse, subangular to subrounded, unconsolidated, red shale as above (50%?), with Gypsum, occasional black coaly grains. Cement cavings (20%).
480 - 483.4	No sample (lost circulation--no returns).

483.4 (bottoms up)	Shale (80%), clay, very soft, reddish, very calcareous, somewhat gypsiferous, predominantly slightly silty, locally sandy (10%?), possible lenses or stringers, occasional black, coaly inclusions (medium to coarse as above). 10% cement cavings.
483.4 - 485	Shale (60%) soft clay as above with inclusions of fibrous Gypsum. Decreasing sand to trace. Abundant (40%) cement cavings.
485 - 490	Shale (100%) as above, trace medium to coarse quartz sand as above. Subangular to subrounded, clear to milky, loose, trace cement cavings.
490 - 495	Shale (100%) as above, decreasing silty to minor. Trace sand as above, some Gypsum (but decreasing).
495 - 500	Shale (95%) as above; minor (5%) Dolomite: buff, microcrystalline to very fine crystalline, predominantly clean but trace argillaceous, trace silty.
500 - 505	Dolomite (85%): buff to light brown, very fine to fine crystalline, locally slightly friable, in part fair to good intercrystalline porosity (no shows), in part slightly to very calcareous with minor grading to Limestone (5%), white to buff, chalky to microcrystalline, slightly to very dolomitic, tight. Trace anhydrite inclusions, 10% shale as above.
505 - 510	Dolomite (5%) as above but grading to pink in part, locally increasing calcareous (minor dolomitic Limestone as above); decreasing intercrystalline porosity to occasional poor to fair (increasing dense).
510 - 525	Dolomite (100%) as above but locally becoming dense, cryptocrystalline to microcrystalline (increasing downwards), decreasing calcareous to trace, clean, occasional traces intercrystalline and microvuggy porosity, no shows (except mineral fluorescence), porosity often with fibrous crystalline gypsum lining.
525 - 530	Dolomite (95%) as above, slight increase in pinkish, increasing dense, increasing calcareous in part, with minor grading to Limestone (5%): white to buff, cryptocrystalline to microcrystalline, dolomitic, no visible porosity, occasional crystalline, clear calcite inclusions.

530 - 535	Dolomite (95%) as above, increasingly very fine crystalline, in part slightly to very calcareous (minor grading to limestone, as above), only traces intercrystalline porosity, no shows, trace gypsum.
535 - 541.5	Dolomite (100%): predominantly microcrystalline to very fine crystalline, slight decrease calcareous (trace grading to limestone as above), occasional intercrystalline and microvuggy porosity, predominantly lined with fine crystals (rhombs) dolomite and occasional gypsum, no shows.

9 5/8" casing, landed at 533.4 m

541.5 - 543.2	Bottoms up sample at 543.2 m - took $CaCl_2$ kick) Dolomite: buff to light brown to pinkish, microcrystalline to very fine crystalline (sucrosic) clean, occasionally slightly calcareous, trace red shaley inclusions, occasional poor intercrystalline and microvuggy porosity, no shows.
543.2 - 545	Dolomite: (50%) as above increasing very fine crystalline, occasionally pinkish. Trace porosity as above, no shows; abundant medium to coarse grained sand (50%)--probably from casing shoe. Trace cement.
545 - 550	Dolomite: (70%) as above, increasingly calcareous; grading to Limestone (30%), white to buff, chalky to very fine crystalline, slightly to very dolomitic, very fine crystals, soft to firm (slightly friable in part), clean, local minor intercrystalline and microvuggy porosity.
550 - 555	Dolomite (90%) predominantly light brown (slightly mottled in part), cryptocrystalline (dense) to microcrystalline (occasional very fine crystalline), decreasingly calcareous to trace, clean (trace argillaceous), local porosity as above. Minor Limestone as above (dolomitic), minor clear quartz, fractured?, subangular (from Barite?).
555 - 570	Dolomite: (95%) increasingly buff to pink, predominantly microcrystalline to very fine crystalline (decreasingly cryptocrystalline), in part somewhat calcareous (minor grading to Limestone as above), some possible intercrystalline porosity (trace local excellent).

570 - 575	Dolomite (100%) as above, decreasingly calcareous to trace (trace Limestone as above). Poor to locally good intercrystalline porosity, no shows.
575 - 585	Dolomite (95%) as above, increasingly very fine crystalline (increasingly friable?), occasionally slightly calcareous (but 5% dolomitic Limestone as above), local poor to good intercrystalline porosity, no shows.
585 - 590	(Poor sample - after circulating $CaCl_2$ kick at 589 meters). Dolomite (75%) pink with minor buff to light brown as above, microcrystalline to very fine crystalline, becoming more dense, clean, occasional intercrystalline porosity, no shows. Abundant (20%?) clear to milky, fine to medium grained, subrounded, coarse quartz sand (probably from Barite?), minor Limestone (5%) as above.
590 - 595	Dolomite (90%) as above but decreasing pink, cryptocrystalline to very fine crystalline (becoming more dense), occasional calcareous inclusions (micro). Minor Limestone (5%) white to buff, chalky to microcrystalline, softer, minor sand as above.
595 - 600	Dolomite (60%) pink to light brown, microcrystalline to very fine crystalline, predominantly very calcareous, grading to Limestone, white to buff to pink, cryptocrystalline (chalky) to very fine crystalline, slightly to very dolomitic (crystals), clean, no visible porosity.
600 - 605	Dolomite (80%) buff to light brown, predominantly very fine crystalline (rhombic) with abundant calcareous matrix, grading to Limestone (20%) as above, slightly to very dolomitic, no visible porosity.
605 - 610	Poor sample (from riser). Dolomite (70%) as above, but decreasingly calcareous, occasional traces intercrystalline porosity (no shows); grading to Limestone (10%) as above, tight; abundant clear, crystalline Gypsum (20%) (inclusions in dolomite or possible fracture infilling?).

610 - 620	Dolomite (100%) buff to pink, predominantly microcrystalline to very fine crystalline, locally cryptocrystalline, dense, clean, trace gypsum inclusions, occasional trace calcareous, occasional traces intercrystalline and pinpoint porosity, no shows. Trace dolomitic limestone.
620 - 625	Dolomite (100%) as above but occasionally medium crystalline, trace gypsum inclusions, occasional poor to trace good intercrystalline porosity. No limestone.
625 - 630	Dolomite (100%) predominantly buff, in part cryptocrystalline to microcrystalline, dense; in part very fine to medium crystalline with local fair to good intercrystalline and occasional microvuggy porosity, no shows.
630 - 645	Dolomite (100%) as above, but buff to pink, increasingly calcareous (40% slightly to very calcareous); trace grading to Limestone white to buff, chalky to microcrystalline, softer, dolomitic, clean, no visible porosity. Local good intercrystalline porosity in dolomite with trace associated gypsum crystals.
645 - 650	Dolomite (80%) buff, predominantly cryptocrystalline to microcrystalline, dense, now very calcareous, clean; grading to Limestone (20%) as above, tight. Occasional traces intercrystalline and pinpoint porosity in dolomite.
650 - 660	Dolomite (60%) as above, some very fine to fine crystalline, but very calcareous (inclusions and matrix); grading to Limestone (40%) as above, dolomitic (microcrystalline to fine rhombic crystals), no visible porosity. Minor clear gypsum inclusions.
660 - 675	Dolomite (50-60%) buff to light brown, cryptocrystalline (dense) to very fine crystalline, slightly to very calcareous, local fair to good intercrystalline porosity (noncalcareous, very fine crystalline dolomite), grading to Limestone (40-50%) white to buff, cryptocrystalline (chalky) to microcrystalline, predominantly dolomitic, no visible porosity.
675 - 680	Limestone (95%) predominantly buff to light brown, cryptocrystalline, dense, hard, clean, in part slightly dolomitic (micro-crystals), tight, minor dolomite as above.

680 - 685 Limestone (60%) in part dense as above, in part increasingly dolomitic (micro to very fine crystals); grading to Dolomite (40%) cryptocrystalline (dense) to very fine crystalline, slightly to very calcareous, trace red shaley inclusions, occasional traces intercrystalline porosity, no shows; trace gypsum crystals.

685 - 690 Dolomite (60%) buff to light brown, predominantly microcrystalline (sucrosic), clean, very calcareous (tight); grading to Limestone (40%), predominantly very dolomitized (micro-crystals), tight; some cryptocrystalline, dense Limestone, possible traces fossil shadows.

690 - 695 Limestone (70%) white to buff to light brown, cryptocrystalline to microcrystalline, dense, clean, in part slightly to very dolomitic grading to very calcareous Dolomite (30%) as above, no visible porosity.

695 - 705 Dolomite (90-95%) predominantly buff, cryptocrystalline to microcrystalline, dense, clean, trace gypsiferous, very calcareous but decreasingly calcareous, grading to dolomitic Limestone (5-10%) as above, no visible porosity.

705 - 715 Dolomite (90%) as above but predominantly microcrystalline (slightly sucrosic), some very fine crystalline, hard to locally friable, increasingly calcareous; grading to Limestone (10%) as above, slightly to very dolomitic in part. Occasional trace intercrystalline porosity in dolomite.

715 - 720 Limestone (90%) predominantly buff to light brown, cryptocrystalline to microcrystalline, dense, hard, (minor very soft, chalky), in part dolomitic, trace reddish shaley streaks, minor very calcareous dolomite (10%) as above. No visible porosity.

720 - 730 Dolomite (90%) buff to light brown (trace reddish streaks), predominantly microcrystalline, dense, occasionally slightly calcareous, increasing downwards (inclusions and crystals), no visible porosity. Limestone (10%) as above.

730 - 735 Dolomite (100%) as above but reddish in part, trace gypsiferous, slightly calcareous in part, occasional traces pinpoint porosity, no shows. Trace Limestone as above, tight.

735 - 745	Dolomite (100%) predominantly buff (no reddish), cryptocrystalline to microcrystalline, dense, clean, slightly carlcareous in part, no visible porosity; trace Limestone as above, possible traces fossil shadows, tight.
745 - 750	Dolomite (90%) as above but predominantly moderately to very calcareous, no visible porosity; increasingly grading to Limestone (10%) white to buff, predominantly cryptocrystalline, slightly to very dolomitic, clean, tight.
750 - 755	Dolomite (95%) as above, but in part decreasingly calcareous to trace cryptocrystalline, hard; in part microcrystalline, hard to friable, no visible porosity. Minor Limestone as above, tight.
755 - 760	Dolomite (90%) predominantly light brown, somewhat calcareous, dense, very hard, tight; slightly increasing grading to Limestone (10%) as above.
760 - 765	Dolomite (50%) predominantly buff, increasingly cryptocrystalline, very calcareous, grading to Limestone (50%) cryptocrystalline to microcrystalline, dolomitic in part, no visible porosity.
765 - 770	Dolomite (90%) white to buff, predominantly cryptocrystalline, very dense, hard, locally trace calcareous, tight; Limestone (10%) as above, tight, trace red shaley streaks.
770 - 780	Dolomite (100%) as above; trace Limestone inclusions as above, tight.
780 - 785	Dolomite (5%) as above, predominantly noncalcareous, firm to hard; minor Limestone (5%), white to buff, cryptocrystalline, clean, slightly dolomitic, tight.
785 - 805	Dolomite (100%) buff to trace light brown, cryptocrystalline, dense, firm to hard, clean, occasionally slightly calcareous; grading to trace streaks tight, slightly dolomitic Limestone.
805 - 815	Dolomite (60%) buff to light brown, cryptocrystalline to microcrystalline, dense, clean, predominantly moderately to very calcareous; grading to Limestone (40%), white to buff, cryptocrystalline (slightly chalky in part), slightly to very dolomitic, clean, soft to firm, no visible porosity.

815 - 825	Limestone (80-90%) buff to light brown, cryptocrystalline, (locally slightly chalky), dense, clean, in part dolomitized, grading to Dolomite (10-20%), calcareous, as above, no visible porosity.
825 - 835	Dolomite (80-90%) buff to light brown (some reddish brown), cryptocrystalline, dense, firm to hard, in part noncalcareous, in part slightly to very calcareous, with some grading to Limestone (10-20%), dolomitic as above (inclusions and/or stringers?), no visible porosity).
835 - 840	Dolomite (95%) as above but white to cream to buff, occasional trace calcareous, no visible porosity. Minor Limestone (5%) inclusions as above.
840 - 845	Dolomite (100%) as above, essentially noncalcareous (trace), very clean, tight. Trace Limestone as above.
845 - 860	Dolomite (100%) cream to buff to pink, cryptocrystalline, dense, firm to hard, very clean, occasionally trace calcareous with trace inclusions white, cryptocrystalline, soft to firm limestone. No visible porosity.
860 - 865	Dolomite (60%) as above, but in part increasingly calcareous, with slight gradation to Limestone (40%) white to pink, cryptocrystalline, dense, very clean, occasionally slightly dolomitic, tight. Trace white, soft dolomite.
865 - 870	Dolomite (70%) but cream to pink to light brown, slightly to very calcareous, increasing gradational to Limestone (30%) as above; trace very soft, white (chalky) limestone.
870 - 875	Dolomite (90%) white to cream to pink, predominantly cryptocrystalline, but in part microcrystalline to very fine crystalline, predominantly moderately to very calcareous; very gradational to Limestone (10%) very dolomitic in part (micro-crystals) (5%); in part cryptocrystalline, firm, non-dolomitic (5%). No visible porosity.
875 - 880	Dolomite (5%) in part white to cream to light brown, in part pink to reddish, predominantly cryptocrystalline, minor microcrystalline, decreasing calcareous to minor. Minor white, cryptocrystalline Limestone (5%) as above, slightly chalky in part. No visible porosity.

880 - 885	Limestone (60%) cream/buff/light brown and pink, cryptocrystalline to microcrystalline, dense, firm to hard, slightly to very dolomitic with abundant gradation to Dolomite (40%) as above, but predominantly very calcareous. No visible porosity.
885 - 890	Dolomite (70%) as above, but predominantly buff to light brown (minor white, pink), cryptocrystalline to microcrystalline, slightly to very calcareous; grading to Limestone (30%) as above (decreasing pink), non-dolomitic to very dolomitic. No visible porosity.
890 - 900	Dolomite (90-95%) as above but decreasing reddish to 10%, slightly to locally moderately calcareous; decreasingly grading to Limestone (5-10%) as above, dolomitic in part. No visible porosity.
900 - 905	Dolomite (100%) predominantly cream to buff (5% reddish), cryptocrystalline; decreasingly calcareous to trace. No visible porosity.
905 - 910	Dolomite (5%) as above (no reddish), but in part calcareous, grading to Limestone (15%) white to buff, cryptocrystalline, dense, slightly to very dolomitic (predominantly micro-dolomitic crystals) very clean. No visible porosity.
910 - 920	Limestone (50%) in part white to buff, in part light brown, cryptocrystalline, very clean, firm to hard, dolomitic in part as above, grading to Dolomite (50%) buff to light brown, cryptocrystalline to microcrystalline, predominantly moderately to very calcareous, tight.
920 - 935	Dolomite (80%) buff to light brown (increasingly light brown), cryptocrystalline to microcrystalline, dense, very clean, firm to hard, moderately to very calcareous; grading to Limestone (20%) as above, trace to very dolomitic. No visible porosity.
935 - 940	Limestone (80%) buff to light brown with occasional red to orange streaks; increasingly soft (chalky), in part slightly to moderately dolomitic, no visible porosity. Dolomite (20%), calcareous as above.

940 - 945	Limestone (90%) buff to light brown as above but decreasingly red to trace, soft to firm, in part slightly to very dolomitic (micro-crystals); decreasingly grading to Dolomite (10%) very calcareous. No visible porosity.
945 - 950	Limestone (70%) in part (30%) as above, in part (40%) reddish orange and yellow, cryptocrystalline to microcrystalline, slightly to very dolomitic; grading to calcareous, microcrystalline Dolomite (30%), in part argillaceous (reddish). Occasional traces fossil shadows. No visible porosity.
950 - 955	Limestone (60%) Dolomite (40%): very gradational as above, buff to light brown to reddish orange, occasional yellow, cryptocrystalline to microcrystalline, soft to hard, decreasingly argillaceous to trace.
955 - 965	Limestone (100%) predominantly buff to medium brown, trace to minor red, orange and pink, cryptocrystalline, firm (locally soft) to hard, dense, clean to slightly argillaceous, slightly to moderately dolomitic (trace Dolomite). No visible porosity.
965 - 970	Limestone (100%) as above, in part very soft, chalky, white ("lime mud") with shaley orange streaks.
970 - 975	Dolomite (80%) predominantly light brown, microcrystalline, predominantly noncalcareous, but occasional calcareous inclusions, clean, tight; Limestone (20%), predominantly cryptocrystalline, clean, dolomitic in part, tight. Abundant very soft, white lime mud as above.
975 - 980	Dolomite (70%) buff to light brown, cryptocrystalline to microcrystalline (in part as above), dense, slightly increasing calcareous in part; Limestone (30%) buff to light brown, slightly pinkish, cryptocrystalline, predominantly moderately to very dolomitic (micro-crystals), clean, no visible porosity. Abundant lime mud as above.
980 - 985	Dolomite (50%) as above, occasional pink, slightly to very calcareous, dense; Limestone (50%) as above but cryptocrystalline to microcrystalline, non-dolomitic to very dolomitic (predominantly micro-crystals); 5% very soft lime mud as above.

985 - 990	Limestone (80%) predominantly buff to light brown and orange-brown, cryptocrystalline, firm to hard, occasional dolomitic inclusions, slightly argillaceous, no visible porosity; Dolomite (20%) as above, abundant lime mud as above.
990 - 1006	Limestone (100%) buff to light brown, cryptocrystalline (slightly chalky in part), soft to firm, locally slightly argillaceous, occasional reddish streaks, no visible porosity. Abundant white lime mud as above. Trace dolomite as above.
1006 - 1010	Sand (50%?) fractured clear quartz, occasional pink to rose, angular fragments; trace associated mica (biotite), chlorite. Limestone (50%?) as above, minor with argillaceous reddish streaks (predominantly cavings).
1010 - 1015	Shale (40%) dark grey, very soft (mud), "metallic" (greasy) lustre, very calcareous, abundant associated biotite. Sand (30%) as above (predominantly cavings?); Limestone (30%) as above (probably cavings). Note: see sidewall core descriptions.
1015 - 1021	Granite: predominantly quartz, very coarse, fragments (grains), clear to translucent, angular, abundant mica (predominantly biotite, trace muscovite); 10% pink potassium feldspar. Possible hornblende? (difficult to distinguish from abundant lignite mud additive in sample).
1021 - 1030-35(?)	Abundant black, very micaceous (altered?) "mud", abundant associated biotite flakes (unaltered). 50% quartz fragments as above and occasional clear to pink feldspar. Some limestone cavings (locally abundant). Note: sidewall core Mica Schist.
1030-35 - 1040	Granite: predominantly quartz, clear to translucent, angular fragments, common biotite flakes, 15 to 20% clear to orange feldspar. Possible minor hornblende (difficult to distinguish from abundant lignite mud additive in sample), trace chlorite. Some black micaceous mud as above.

Total depth at 1040 meters.

DAWSON – LONG & ASSOCIATES LTD.

RESOURCE CONSULTANTS

WELL NAME: ICG SOGEPET et al NETSIQ N-01
LOCATION: Lat. 59°50'48.06"N Long 87°30'59.92"W
ELEVATION: KB. 13.4 m WATER DEPTH: 199.3 m

T.D. FORMATION: PRECAMBRIAN (1040 m)
GEOLOGIST: J. TUCKER, P. Geol.
SPUD DATE: SEPT.15, 1985 2200 Hrs.

FORMATION GAS IN UNITS (1 UNIT = 200 ppm)	DRILLING TIME IN MINS/1 METER	SHOWS	POROSITY TYPE	POROSITY BAR PLOT	INTERVAL/TOPS	COLOURED STRIP LOG	CORES DSTS PERFS	PARTICLE SIZE	LITHOLOGY	DESCRIPTION

30" CASING LANDED AT 259.7 m (42" O.H. TO 265.2 m)
13⅜" CASING LANDED AT 436.8 m (17½" O.H. TO 448.8 m)
9⅝" CASING LANDED AT 533.4 m (12¼" O.H. TO 541.5 m)

13⅜" shoe at 436.8 m

SHALE (V. SOFT MUD), REDDISH, CALC., LOC. SDY; MNR LOOSE QTZ, CLR-SL MILKY, IN PT IRREG. FRAGS (FRAC'S?), IN PT F-MG, S-RDED TO RDED GRNS, TR GRNS (PEBBLES), MNR LMST, BF-LT GY, BN CX, DENSE, POSS BIOCL, TITE; MNR DOL, LT GY, MX, SILTY, ARG, TITE; TR CLR FIB GYPSUM INCLUS. IN SHALE, INCR DOWNWARDS. ABUND. CMT CVGS.

NO SAMPLE - CIRCULATE OUT KICK - RETURNS TO OCEAN (NO RETURNS TO 467m)

SHALE, REDDISH, V. SOFT CLAY a/a, SOMEWHAT SILTY, SL. V. GYP'FEROUS. ABUND. CMT. CVGS. NO VIS. SD. POSS. SALT FILLED SANDST.

SHALE a/a, V. SOFT CLAY, ABUND. FIBROUS GYPSUM a/a

POSS SALT-FILLED SANDST.

SHALE, REDDISH OR, CLAY a/a w/ ABUND. GYPSUM

NOTE: 475-477 m LOST SAMPLE (KICK/LOST CIRC.)

SHALE, RD, V. SOFT CLAY a/a, CALC, OCC BK COALY GRNS., SILTY; SANDST, CG, CALT-FILLED?

NOTE: 480-483.4 m LOST SAMPLE (LOST CIRC.)

SHALE, SOFT CLAY a/a, CALC, w/ INCLUS. FIB GYPSUM, DECR. SD TO TR. (LOC. LENSES?), OCC BK COALY INCLUS. (M-CG a/a)

SHALE a/a, TR. M-CG QTZ SD a/a, S-ANG TO S-RDED, LOOSE, CLR-MILKY (POSS. SALT FILLED SANDST STREAKS?)

SHALE a/a, DECR SILTY TO MNR, TR SDY a/a, SOME GYPSUM (BUT DECR)

SHALE a/a; MNR. DOL., BUFF, MICRO-VF XTALLINE, CLEAN, LOC. SL. FRI, IN PT. SL. ARG., TR. SILTY

DOL., BUFF-LT BN, VF-F XTALLINE, CLEAN, LOC. SL FRI, IN PT. FAIR-GOOD IC ∅, NO SHOWS; IN PT SL-V. CALC, MNR GRDG TO LMST, WH-BF, CHALKY MICROXL, SL-V DOLIC, TITE; TR ANHY INCLUS.

DOL a/a, BUT GRDG TO PK IN PT, LOC. INCR. CALC (MNR DOLIC LMST a/a), DECR. IC ∅ TO OCC POOR-FAIR (INCR. DENSE)

DOL a/a, BUT LOC BCMING DENSE, CRYPTO MICROXL, DECR. CALC TO TR., OCC. IC ∅ a/a, TR FIB GYPSUM (IN ∅)

DOL a/a, INCR DENSE, OCC. POOR-FAIR (LOCAL) IC ∅ a/a, NO SHOWS, PROB POOR PERM

DOL a/a, BF-LT PK, PRED MICRO-VF XTALLINE, IN PT DENSE, CRYPTOXL, CLEAN, LOC. TR. CALC, TR RD SHALY INCLUS, OCC. IC & MICRO-VU ∅ (LOC EXCELL), OFTEN w/ GYP XTAL. LINING, NO SHOWS EX. MIN. FL.

DOL a/a, SL INCR. PKISH, INCR. DENSE, INCR. CALC IN PT., w/ MNR GRDG TO LMST, WH-BF, CRYPTO-MICROXL, DOLIC, NO VIS ∅, OCC XTALLINE CALCITE

DOL a/a, INCR. VF XTALLINE, IN PT SL-V. CALC (MNR GRDG TO LMST a/a), ONLY TRACES IC ∅, NO SHOWS, TR. GYP

DOL, PRED MICRO-VF XTALLINE, SL DECR. CALC (TR GRDG TO LMST a/a), TR GYP, OCC IC ∅ MICRO-VU ∅, PRED LINED w/ F XTALS DOL RHOMBS. ? OCC GYP, NO SHOWS

(25) DOL a/a (INCR. VF XTALLINE), OCC. PKISH, ABUND. M-CG LOOSE SD (PROB. FROM CSG SHOE). TR. CMT. NO SHOWS

DOL a/a, INCR. CALC., GRDG. TO LMST, WH-BF, CHALKY-VF XTALLINE, SL-V. DOLIC., SOFT-FRM (SL. FRI. IN PT), CLEAN; LOC. MNR IC (MICRO-VU ∅ IN DOL., NO SHOWS)

DOL., PRED LT BN (SL. MOTTLED IN PT), CRYPTO-MICROXL (DENSE), OCC. VF XTALLINE, DECR. CALC TO TR., CLEAN (TR. ARG.) LOC. ∅ a/a, (DOLIC); 5-10% CLR, FRACT'D QTZ

DOL., INCR BF-PK, PRED. MICRO-VF XTALLINE (DECR. CRYPTOXL), IN S/A-ANG (FROM BARITE?), PT. SOMEWHAT CALC (MNR GRDG TO LMST a/a), SOME POSS. IC ∅? (TR LOC. EXCELL)

DOL a/a, LOC SL. CALC, IC ∅?; MNR LMST a/a, DOLIC, PRED CHALKY, CLEAN, DOLIC IN PT (VF XTALS), OCC. TR. IC ∅ PP ∅; NO QTZ.

DOL a/a, BF-LT BN, PRED MICRO (SUCROSIC) VF XTALLINE (OCCAS. CRYPTOXL, DENSE) FRM-SL. FRI, IN PT SL. CALC. a/a, SOME POOR IC ∅; MNR. LMST a/a

DOL a/a, DECR. CALC TO TR (TR LMST a/a), IC ∅ POOR TO LOC. GOOD

DOL a/a, INCR VF XTALLINE (INCR. FRI?), TR. LOC. CALC., (BUT MNR. LMST DOLIC a/a), LOC. GOOD IC ∅, NO SHOWS

DOL a/a, OCC. SL. CALC., BUT MNR. DOLIC LMST a/a, LOC. POOR-GOOD IC ∅, NO SHOWS

(20%) DOL, PK (MNR BF-LT BN) MICRO-VF XTALLINE, BCMING MORE DENSE, CLEAN, OCC. POOR IC ∅, NO SHOWS, ABUND. CLR MILKY F-MG, S-RDED, LOOSE QTZ (PROB. FROM BARITE?) (POOR SAMPLE - ABUND. CMT - AFTER CIRC. KICK)

(?) DOL a/a, BUT DECR. PK, CRYPTO-VF XTALLINE, OCC. CALC. INCLUS. (MICRO); MNR LMST, WH-BF, CHALKY-MICROXL, SOFTER; MNR. CD. a/a

DOL, PK-LT BN, MICRO-VF XTALLINE, PRED V. CALC.; GRDG TO LMST, WH-BF-PK, CRYPTOXL (CHALKY)-VF XTALLINE, SL-V DOLIC (XTALS), CLEAN, NO VIS. ∅

DOL., BF-LT BN, PRED VF-F XTALLINE (RHOMBIC) w/ ABUND. CALC. MATRIX; GRDG TO LMST a/a, SL-V. DOLIC., NO VIS. ∅

POOR SAMPLE (FROM RISER) DOL a/a, BUT DECR. CALC., OCC. TR. IC ∅ (NO SHOWS); GRDG TO LMST a/a (TIGHT), ABUND. CLR. XTALLINE GYP (INCLUS. IN DOL? OR POSS. FRACT. INFILLING?)

DOL., BF-PK, MICRO-VF XTALLINE, PRED. DENSE, CLEAN, TRACE GYP INCLUS., OCC. TR. CALC., OCC TR IC ∅ PP ∅, NO SHOWS, TR. LMST DOL'IC.

DOL a/a, LOC. CRYPTOXL, DENSE; OCC. TR. IC ∅ PP ∅ a/a NO VIS. GYP

DOL a/a, PRED. MICRO-F XTALLING (OCC. M-XTAL), LOC. SL. CALC., TR. GYP (INCLUS?) OCC. POOR - TR. GOOD IC ∅ NO LMST

DOL, PRED. BF, IN PT CRYPTO-MICROXL, DENSE; IN PT VF-M XTALLINE, w/ LOC. FAIR-GOOD IC ∅ OCC. MICRO-VU ∅, NO SHOWS

DOL a/a, BUT BF-PK, INCR. CALC (40% SL-V. CALC); TR. GRDG. TO LMST, WH-BF, CHALKY-MICROXL, SOFTER, DOL'IC, CLEAN; NO VIS. ∅

DOL., LOC. SOMEWHAT CALC a/a, LOC. GOOD IC ∅ w/ TR. ASSOC. GYP XTALS.

DOL a/a, BF, SOMEWHAT CALC IN PT, CRYPTOXL, DENSE TO VF XTALLINE, w/ OCC. FAIR-GOOD IC ∅ a/a, NO SHOWS; TR. LMST, WH, V. SOFT, CHALKY, CLEAN

DOL., BF, PRED. CRYPTO-MICROXL, DENSE, NOW V. CALC, CLEAN; GRDG. TO LMST, WH-BF, SL-V. DOL'IZED (MICRO-VF XTALS), CLEAN, NO VIS. ∅; OCC. TR. IC ∅ PP ∅ IN DOL.

DOL a/a, SOME VF-F XTALLINE BUT V. CALC (INCLUS. ∅ MATRIX); GRDG TO LMST a/a, CHALKY-MICROXL, DOL'IC (MICRO-F RHOMBIC XTALS), NO VIS ∅; MNR CLR. XTAL. GYP INCLUS.

DOL a/a, BUT PRED. MICRO-VF XTALLINE, V. CALC; GRDG TO LMST a/a, NO VIS. ∅ MNR. WH, V. SOFT (POWDERY) LMST (FROM BIT?)

DOL a/a, INCR. GRDG TO LMST a/a, SL-V. DOL'IC, NO VIS ∅; SOME V. SOFT, WH LMST a/a

DOL., PRED. SL-V. CALC a/a, (CRYPTO-(DENSE) - VF XTALLINE, LOC. FAIR-GOOD IC ∅ (NON-CALC, VF XTALLINE DOL), NO SHOWS; LMST a/a

DOL a/a, BF-LT BN, CRYPTOXL, DENSE TO VF XTALLINE, PRED. DENSE, V. CALC; GRDG. TO LMST, WH-BF, CRYPTOXL (CHALKY) - MICROXL, PRED. DOL'IC (MICRO-VF XTALS), NO VIS. ∅

LMST, PRED. BF-LT BN, CRYPTOXL, DENSE, HARD, CLEAN, IN PT. SL. DOL'IC (MICRO-XTALS), TIGHT; MNR. CALC. DOL a/a

LMST, PRED. DENSE A.A., IN PT INCR. DOL'IC (MICRO-VF XTALS); GRDG TO DOL, CRYPTO (DENSE)-VF XTALLINE, SL-V. CALC, TR. RD SHALY INCLUS., OCC. TR. IC ∅, NO SHOWS; TR. GYP

DOL., BF-LT BN, PRED. MICROXL (SUCROSIC), CLEAN, V. CALC (TIGHT); GRDG TO LMST, PRED V. DOL'IZED (MICRO XTALS), TIGHT; SOME CRYPTOXL, DENSE LMST, POSS. TR. FOS SHADOWS

LMST, WH-BF-LT BN, CRYPTO-MICROXL, DENSE, CLEAN; IN PT. SL-V. DOL'IC (MICRO-XTALS), TIGHT, SOME CRYPTOXL, DENSE LMST, POSS. TR. FOS SHADOWS

V. CALC DOL a/a, PRED. MICROXL, NO VIS ∅

DOL., PRED. BF, CRYPTO-MICROXL, DENSE, CLEAN, TR. GYP'FEROUS, V. CALC, BUT DECR. GRDG. TO DOL'IC LMST a/a, NO VIS ∅

DOL a/a, BUT DECR. CALC TO TR-MNR.; MNR. LMST, DOL'IC a/a, NO VIS ∅

DOL a/a, BUT PRED. MICROXL (SL. SUCROSIC IN PT), SOME INCR. CALC.; GRDG TO LMST a/a; OCC. TR. IC ∅ IN DOL

DOL a/a, PRED V. CALC (INCR), MICRO-VF XTALLINE, HRD-LOC. FRI; SOME GRDG TO WH-BF, CRYPTOXL, DENSE LMST a/a, SL-V. DOL'IC IN PT, TITE

LMST, PRED. BF-LT BN, CRYPTO-MICROXL, DENSE, HRD (MNR. V. SOFT, CHALKY) IN PT. DOL'IC, TR. REDDISH SHALY STREAKS; MNR. V. CALC DOL NO VIS ∅

DOL, BF-LT BN, PRED. MICROXL, DENSE, OCC. SL. CALC (INCLUS ? XTALS), NO VIS ∅; LMST, WH-BF a/a, TITE

DOL a/a, BUT PRED. LT BN (TR. REDDISH STREAKS), SOME INCR. CALC. NO VIS. ∅

DOL a/a, BUT REDDISH IN PT, CLEAN, TR. GYP'FEROUS, SL. CALC IN PT., OCC. TR. PP ∅ TR LMST a/a

DOL., PRED. BF (NO REDDISH), CRYPTO-MICROXL, DENSE, CLEAN, SL. CALC IN PT (OCC. XTALS (INCLUS.), NO VIS. ∅; TR. LMST a/a, POSS. TR. FOS SHADOWS, TIGHT

DOL a/a

DOL. BF a/a, BUT PRED. M-V. CALC, DENSE, NO VIS ∅; INCR. GRDG TO LMST, WH-BF, PRED. CRYPTOXL, SL-V. DOL'IC, TIGHT

DOL. a/a, BUT DECR CALC TO TR., CRYPTOXL, HRD IN PT.; MICROXL, HRD-FRI IN PT, NO VIS ∅; MNR. LMST a/a, TIGHT

DOL., BF-LT BN, SOMEWHAT CALC, PRED. DENSE, V. HRD, TIGHT; SL. INCR. GRDG TO LMST a/a, CRYPTOXL, CLEAN, PRED. DOL'IC, TIGHT

DOL., PRED. BF, INCR. CRYPTOXL, V. CALC; GRDG. TO LMST, CRYPTO-MICROXL, DOL'IC, IN PT., NO VIS ∅

DOL., WH-BF, PRED. CRYPTOXL, V. DENSE, SL. BRITTLE (?), LOC TR. CALC, TIGHT; LMST a/a, TIGHT; TR. RD SHALY STREAKS

DOL a/a; TR. LMST a/a INCLUS., TIGHT

DOL. BF a/a, V. CONSISTANT, CRYPTOXL, DENSE, OCC. TR. CALC., TIGHT

DOL a/a, PRED. NON-CALC, FRM-HRD., BUT MNR. LMST, WH-BF, CRYPTOXL, CLEAN, SL. DOL'IC, TIGHT

DOL a/a, TR. LMST a/a

DOL a/a, NON-CALC, TIGHT

DOL a/a, BF-SL. LT BN, CRYPTOXL, DENSE, FRM-HRD, CLEAN, OCC. SL. CALC; GRDG TO TR. STREAKS TIGHT, SL. DOL'IC LMST

DOL a/a; TR. LMST a/a

DOL., BF-LT BN, CRYPTO-MICROXL, CLEAN, DENSE, PRED. M-V. CALC; GRDG TO LMST, WH-BF, CRYPTOXL (SL. CHALKY IN PT), SL-V. DOL'IC, CLEAN, SOFT-FRM, NO VIS ∅

DOL a/a, CALC, TIGHT; GRDG TO DOL'IZED LMST a/a, TIGHT

LMST, BF-LT BN, CRYPTOXL (LOC. SL. CHALKY), DENSE, CLEAN, IN PT. DOL'IZED; GRDG. TO DOL, CALC a/a NO VIS ∅

LMST a/a, IN PT DOL'IZED; DECR. GRDG TO DOL, CALC a/a NO VIS ∅

DOL., BF-LT BN (SOME REDDISH/BN), CRYPTOXL, DENSE, FRM-HRD, IN PT. NON-CALC., IN PT SL-V. CALC w/ SOME GRDG TO LMST a/a, DOL'IC, NO VIS. ∅

DOL a/a, CLEAN, OCC. TR. CALC. INCLUS (OR STREAKS?); LMST a/a NO VIS. ∅

DOL a/a, BUT WH-CREAM-BF, OCC. TR. CALC., NO VIS. ∅; MNR. LMST INCLUS. a/a

DOL a/a, ESSENT. NON-CALC (TRACE ONLY), CRYPTOXL, DENSE, FRM-HRD, V. CLEAN, TIGHT TR. LMST a/a

DOL a/a, BUT LOC. PINKISH, LOC. TR. CALC, TIGHT; TR. LMST a/a

DOL a/a, SL. INCR. PINK (~30%); TR. LMST a/a

DOL a/a, BF-CR-PK, CRYPTOXL, DENSE, FRM-HRD, V. CLEAN, OCC. TR. CALC w/

OCC. POOR - TR. GOOD IC Ø   NO LMST

DOL, PRED BF, IN PT CRYPTO-MICROXL, DENSE; IN PT VF-M XTALLINE, W/ LOC. FAIR-GOOD IC & OCC. MICRO-VU Ø. NO SHOWS

DOL a/a, BUT BF-PK, INCR. CALC (40% SL. V. CALC); TR. GRDG. TO LMST, WH-BF, CHALKY-MICROXL, SOFTER, DOL'IC, CLEAN; NO VIS. Ø

DOL, LOC. SOMEWHAT CALC a/a, LOC. GOOD IC Ø W/ TR. ASSOC. GYP XTALS.

DOL a/a, BF, SOMEWHAT CALC IN PT, CRYPTOXL, DENSE TO VF XTALLINE, W/ OCC. FAIR-GOOD IC Ø a/a, NO SHOWS; TR. LMST, WH, V. SOFT, CHALKY, CLEAN

DOL, BF, PRED. CRYPTO-MICROXL, DENSE, NOW V. CALC, CLEAN; GRDG TO LMST, WH-BF, SL. V. DOL'IZED (MICRO-VF XTALS), CLEAN, NO VIS. Ø; OCC. TR. IC (PP Ø IN DOL.

DOL a/a, SOME VF-F XTALLINE BUT V. CALC (INCLUS. IN MATRIX); GRDG TO LMST a/a, CHALKY-MICROXL, DOL'IC (MICRO-F RHOMBIC XTALS.), NO VIS Ø; MNR CLC XTAL. GYP INCLUS.

DOL a/a, BUT PRED MICRO-VF XTALLINE, V. CALC; GRDG TO LMST a/a, NO VIS. Ø MNR. WH, V. SOFT (POWDERY) LMST (FROM BIT?)

DOL a/a, INCR. GRDG TO LMST a/a, SL. V. DOL'IC, NO VIS Ø; SOME V. SOFT, WH LMST a/a

DOL, PRED SL-V. CALC a/a, CRYPTO-(DENSE)-VF XTALLINE, LOC. FAIR-GOOD IC Ø (NON-CALC., VF XTALLINE DOL), NO SHOWS; LMST a/a

DOL a/a, BF-LT BN, CRYPTOXL, DENSE TO VF-XTALLINE, PRED. DENSE, V. CALC; GRDG. TO LMST, WH-BF, CRYPTOXL (CHALKY)-MICROXL, PRED. DOL'IC (MICRO-VF XTALS), NO VIS. Ø

LMST, PRED. BF-LT BN, CRYPTOXL, DENSE, HARD, CLEAN, IN PT. SL. DOL'IC (MICRO-XTALS), TIGHT; MNR. CALC. DOL a/a

LMST, PRED DENSE A.A., IN PT INCR. DOL'IC (MICRO-VF XTALS); GRDG TO DOL, CRYPTO (DENSE)-VF XTALLINE, SL-V CALC, TR. RD SHALY INCLUS., OCC. TR. IC Ø, NO SHOWS, TR. GYP

DOL, BF-LT BN, PRED MICROXL (SUCROSIC), CLEAN, V. CALC (TIGHT); GRDG TO LMST, PRED. V. DOL'IZED (MICRO XTALS), TIGHT; SOME CRYPTOXL, DENSE LMST, POSS. TR FOS SHADOWS

LMST, WH-BF-LT BN, CRYPTO-MICROXL, DENSE, CLEAN, IN PT SL-V. DOL'IC; GRDG TO V. CALC. DOL a/a, PRED. MICROXL, NO VIS Ø

DOL, PRED. BF, CRYPTO-MICROXL, DENSE, CLEAN, TR. GYP'FEROUS, V. CALC, BUT DECR. GRDG. TO DOL'IC LMST a/a, NO VIS Ø

DOL a/a, BUT DECR CALC TO TR-MNR; MNR. LMST, DOL'IC a/a, NO VIS. Ø

DOL a/a, BUT PRED. MICROXL (SL. SUCROSIC IN PT), SOME INCR. CALC.; GRDG TO LMST a/a; OCC. TR IC Ø IN DOL

DOL a/a, PRED V. CALC (INCR), MICRO-VF XTALLINE, HRD-LOC. FRI; SOME GRDG TO WH-BF, CRYPTOXL, DENSE LMST a/a, SL-V. DOL'IC IN PT, TITE

LMST, PRED. BF-LT BN, CRYPTO-MICROXL, DENSE, HRD (MNR. V. SOFT, CHALKY) IN PT. DOL'IC, TR REDDISH SHALY STREAKS; MNR. V. CALC. DOL. NO VIS. Ø

DOL, BF-LT BN, PRED. MICROXL, DENSE, OCC. SL. CALC (INCLUS. Ø XTALS), NO VIS. Ø; LMST, WH-BF a/a, TITE

DOL a/a, BUT PRED. LT BN (TR. REDDISH STREAKS), SOME INCR. CALC.   NO VIS Ø

DOL a/a, BUT REDDISH IN PT, CLEAN, TR GYP'FEROUS, SL. CALC IN PT, OCC. TR PP Ø TR LMST a/a

DOL, PRED. BF (NO REDDISH), CRYPTO-MICROXL, DENSE, CLEAN, SL. CALC IN PT (OCC. XTALS Ø INCLUS.), NO VIS. Ø; TR LMST a/a, POSS. TR FOS SHADOWS, TIGHT

DOL a/a

DOL, BF a/a, BUT PRED. M-V. CALC, DENSE, NO VIS. Ø; INCR. GRDG TO LMST, WH-BF, PRED. CRYPTOXL, SL-V. DOL'IC, TIGHT

DOL, BF a/a, BUT DECR CALC TO TR., CRYPTOXL, HRD IN PT.; MICROXL, HRD-FRI IN PT NO VIS Ø; MNR. LMST a/a, TIGHT

DOL, BF-LT BN, SOMEWHAT CALC, PRED DENSE, V. HRD, TIGHT; SL. INCR. GRDG TO LMST a/a, CRYPTOXL, CLEAN, PRED DOL'IC, TIGHT

DOL, PRED. BF, INCR. CRYPTOXL, V. CALC; GRDG. TO LMST, CRYPTO-MICROXL, DOL'IC IN PT, NO VIS Ø

DOL, WH-BF, PRED. CRYPTOXL, V DENSE, SL. BRITTLE (?), LOC. TR. CALC, TIGHT; LMST a/a, TIGHT; TR RD SHALY STREAKS

DOL a/a; TR LMST a/a INCLUS., TIGHT

DOL, BF a/a, V CONSISTANT, CRYPTOXL, DENSE, OCC. TR. CALC., TIGHT

DOL a/a, PRED. NON-CALC, FRM-HRD, BUT MNR. LMST, WH-BF, CRYPTOXL, CLEAN, SL. DOL'IC, TIGHT

DOL a/a; TR. LMST a/a

DOL a/a, NON-CALC, TIGHT

DOL a/a, BF-SL LT BN, CRYPTOXL, DENSE, FRM-HRD, CLEAN, OCC. SL. CALC; GRDG TO TR. STREAKS TIGHT, SL. DOL'IC LMST

DOL a/a; TR LMST a/a

DOL, BF-LT BN, CRYPTO-MICROXL, CLEAN, DENSE, PRED. M-V. CALC; GRDG TO LMST, WH-BF, CRYPTOXL (SL. CHALKY IN PT), SL-V. DOL'IC, CLEAN, SOFT-FRM, NO VIS. Ø

DOL a/a, CALC, TIGHT; GRDG TO DOL'IZED LMST a/a, TIGHT

LMST, BF-LT BN, CRYPTOXL (LOC. SL CHALKY), DENSE, CLEAN, IN PT. DOL'IZED; GRDG. TO DOL, CALC a/a   NO VIS. Ø

LMST a/a, IN PT DOL'IZED; DECR. GRDG TO DOL, CALC a/a   NO VIS Ø

DOL, BF-LT BN (SOME REDDISH/BN), CRYPTOXL, DENSE, FIRM-HRD, IN PT. NON-CALC., IN PT SL. V. CALC W/ SOME GRDG TO LMST a/a, DOL'IC, NO VIS. Ø

DOL a/a, CLEAN, OCC. TR CALC INCLUS. (OR STAGES?); LMST a/a, NO VIS. Ø

DOL a/a, BUT WH-CREAM-BF, OCC. TR. CALC, NO VIS. Ø; MNR. LMST INCLUS. a/a

DOL a/a, ESSENT. NON-CALC (TRACE ONLY), CRYPTOXL, DENSE, FRM-HRD, V. CLEAN, TIGHT   TR. LMST a/a

DOL a/a, BUT LOC. PINKISH, LOC. TR CALC, TIGHT;   TR. LMST a/a

DOL a/a, SL. INCR. PINK (~30%); TR LMST a/a

DOL a/a, BF-CR-PK, CRYPTOXL, DENSE, FRM-HRD, V. CLEAN, OCC. TR. CALC W/ TR. INCLUS. LMST, WH, TIGHT

DOL a/a, CR-PK, IN PT. INCR. CALC; SL. GRDG. TO LMST, WH-PK, CRYPTOXL, DENSE, V. CLEAN, OCC. SL. DOL'IC, TIGHT; TR. WH, SOFT DOL

DOL a/a, BUT CR-LT BN-PK, CRYPTOXL, DENSE, FRM-HRD, SL-V. CALC; INCR. GRADATIONAL TO LMST.; TR. V. SOFT, WH (CHALKY) LMST

DOL, WH-CR-PK, PRED. CRYPTOXL, BUT IN PT MICRO-VF XTALLINE, PRED. SL-V CALC.; V. GRADATIONAL TO LMST, V. DOL'IC IN PT (MICRO XTALS); 5% CRYPTOXL, FRM

DOL, IN PT WH-CR-LT BN; IN PT PK-REDDISH, PRED. CRYPTOXL, MNR NON-DOL'IC, NO VIS Ø MICROXL, DECR. CALC. TO MNR.; MNR WH, CRYPTOXL LMST a/a, SL. CHALKY IN PT, TITE

LMST, CR/BF/LT BN & PK, CRYPTO-MICROXL, DENSE, FRM-HRD, SL-V DOL'IC, W/ ABUND. GRADATION TO DOL a/a, BUT PRED. V. CALC.   NO VIC Ø

DOL a/a, BUT PRED. BF-LT BN (MNR. WH, PK), CRYPTO-MICROXL, SL-V. CALC., GRDG TO LMST a/a (DECR PK), NON-DOL'IC TO V. DOL'IC   NO VIS. Ø

DOL a/a, BUT LOC. SL TO MOD CALC.; DECR. GRDG TO LMST a/a, DOL'IC, IN PT

DOL a/a, PRED. CR-BF, 10% REDDISH, DECR CALC TO MNR.; MNR. LMST a/a NO VIS. Ø

DOL, PRED. CR-BF (5% REDDISH), CRYPTOXL, DECR. CALC. TO TR.; NO VIS. Ø

DOL a/a (NO REDDISH), BUT IN PT. CALC; GRDG. TO LMST, WH-BF, CRYPTOXL, DENSE, SL-V. DOL'IC (PRED. MICRO DOL'IC XTALS.), V. CLEAN   NO VIS. Ø

LMST, BF-LT BN, CRYPTOXL, DOL'IC IN PT a/a, TIGHT; DOL, CREAM-BF, CRYPTO-MICROXL, PRED. M-V. CALC.   NO VIS. Ø

LMST, IN PT WH-BF, IN PT LT BN, CRYPTOXL, V. CLEAN, FRM-HRD, TIGHT; GRDG. TO DOL, BF-LT BN, CRYPTO-MICROXL, PRED. CALC., TIGHT

DOL, BF-LT BN (INCR. LT BN) CRYPTO-MICROXL, DENSE, V. CLEAN, FRM-HRD, MOD.-V. CALC.; GRDG. TO LMST a/a   NO VIS. Ø

DOL a/a, LOC. DECR CALC TO TR.; LMST a/a, TR. V. DOL'IC (PRED. MICRO DOL XTALS) NO VIS Ø

DOL a/a, MOD-V CALC., FRM-HRD; GRDG TO LMST a/a, DOL'IC;   NO VIS. Ø

LMST, BF-LT BN, W/ OCC. RD-ORNG. STREAKS; INCR. SOFT (CHALKY) (IN PT V. SOFT); IN PT SL-MOD. DOL'IC, NO VIS. Ø; DOL, CALC a/a

LMST, BF-LT BN a/a, BUT DECR. RED TO TR., SOFT-FRM, IN PT. SL-V. DOL'IC, (MICRO. XTALS); DECR. GRDG. TO DOL, V. CALC.   NO VIS. Ø

LMST, IN PT (30%) a/a; IN PT (40%) RDDISH ORNG (YELL., CRYPTO-MICROXL, SL-V. DOL'IC; GRDG TO MICROXL, CALC DOL, IN PT ARG. (RDDISH), OCC. TR. FOS. FRAGS.; NO VIS. Ø

LMST/DOL (V. GRADATIONAL) a/a, BF-LT BN TO RDDISH-ORNG, OCC. YELL, CRYPTO-MICROXL, SOFT-HRD., DECR. ARG. TO TR.

LMST, PRED. BF-MOD. BN, TR. RD. ORNG. (PK, CRYPTOXL, FRM (LOC. SOFT)-HRD, DENSE, CLEAN-SL. ARG., LOC. SL. DOL'IC (TR. DOL), NO VIS. Ø

LMST a/a, MNR. ORNG., PK, RD, LOC. SL-MOD. DOL'IC., SL. ARG. (IN PT), TR. RD SHALY STREAKS, LOC. GYP INCLUS.   NO VIS. Ø

LMST a/a, BF-ORNG-LT BN, IN PT. V. SOFT, CHALKY, WH "LIME MUD" W/ ORNG SHALY STREAKS

DOL, PRED. LT BN, MICROXL, PRED. NON-CALC., BUT OCC. CALC INCLUS., CLEAN; LMST, PRED. CRYPTOXL, CLEAN, DOL'IC IN PT, Ø?; ABUND WH V SOFT LIME MUD a/a

DOL, BF-LT BN, CRYPTO-MICROXL (IN PT a/a), DENSE, SL. INCR CALC IN PT; LMST, BF LT BN, SL. PK-ISH, CRYPTOXL, PRED. M-V DOL'IC (MICRO XTALS) CLEAN, NO VIS Ø; ABUND. LIME MUD a/a

DOL a/a, OCC. PK, SL-V. CALC, DENSE; LMST a/a, CRYPTO-MICROXL, NON-DOL'IC-V. DOL'IC (PRED. MICRO-XTALS); 5% SOFT WH MUD a/a

LMST, PRED. BF-LT BN & ORNG-BN, CRYPTOXL, FRM-HRD, OCC. DOL'IC INCLUS., SL. ARG., NO VIS. Ø; DECR. DOL a/a   ABUND. WH, V. SOFT, LIME MUD a/a

LMST, PRED BF, CRYPTOXL, DENSE, TR. REDDISH STREAKS, SOMEWHAT ARG., NO VIS. Ø   ABUND WH LIME MUD a/a

LMST, BF-LT BN, OCC. REDDISH INCLUS., CHALKY-CRYPTOXL, SOFT-FRM, SL. ARG. IN PT, PRED. NON-DOL'IC

LMST a/a, DENSE, SOFT-HRD.; 10% WH, V. SOFT LIME MUD, W/ OCC. REDDISH STREAKS

50 SD(?), FRACT'D CLR. QTZ, ANG FRAGS., OCC. PK-ROSE, TR. ASSOC. BIOT., CHLOR. LMST a/a; MNR. W/ ARG. REDDISH STREAKS

40 30 SHALE, DK GY, V. SOFT (MUD), "METALLIC LUSTRE", V. CALC., ABUND. ASSOC. BIOT. SD, QTZ, CLR, FRACT.; LMST a/a, PROB. CVGS. (PROB MICA SCHIST OR GRAN)

GRANITE: PRED. QTZ, V. COARSE, CLR-TRANSLUC., ANG., ABUND MICA (PRED. BIOT., TR. MUSC), 10% PK K-FELDSPAR; AMPHIBOLE (HORNBLENDE?)

BIOTITE SCHIST (?): ABUND. BK MICACEOUS MUD a/a W/ ABUND ASSOC. BIOT. FLAKES ALSO PROB GRANITE (50% QTZ FRAGS. & OCC. FELD)

A.A., MNR. CHLORITIZATION

BIOTITE SCHIST & GRANITE a/a

NOTE: SEE SIDEWALL CORE DESCRIPTIONS FOR LITHOLOGIES OF PRE€.

A.A.

T.D. REACHED @ 0730, OCT. 16, 1985

2 of 2

Geoservices N

13, 3300 - 14
Calgary, Albe
(403) 2:
TLX • 0:

Ottawa

8710-C55-1-2

CANTERRA ENERGY Ltd.

NETSIQ N-01

GEOSERVICES WELL REPORT

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
NOV 12 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

GEOSERVICES
NORTH AMERICA Ltd.
13,3300-14 AVENUE N.E.
CALGARY,
ALBERT,T2A 5K8
Tel : 403-2351660
Telex: 038-22865

GEOSERVICES Inc.
14902 HENRY Rd.
HOUSTON,
TEXAS,77060

Tel: 713-8205908

SUMMARY

I. "GENERALITIES" CHAPTER CONTENTS

Operator : CANTERRA ENERGY Ltd.
Well name : NETSIQ N-01
Country : CANADA
Area : HUDSON BAY

Location
long :87 30' 59.5" W
lat :59 50' 48.0" N

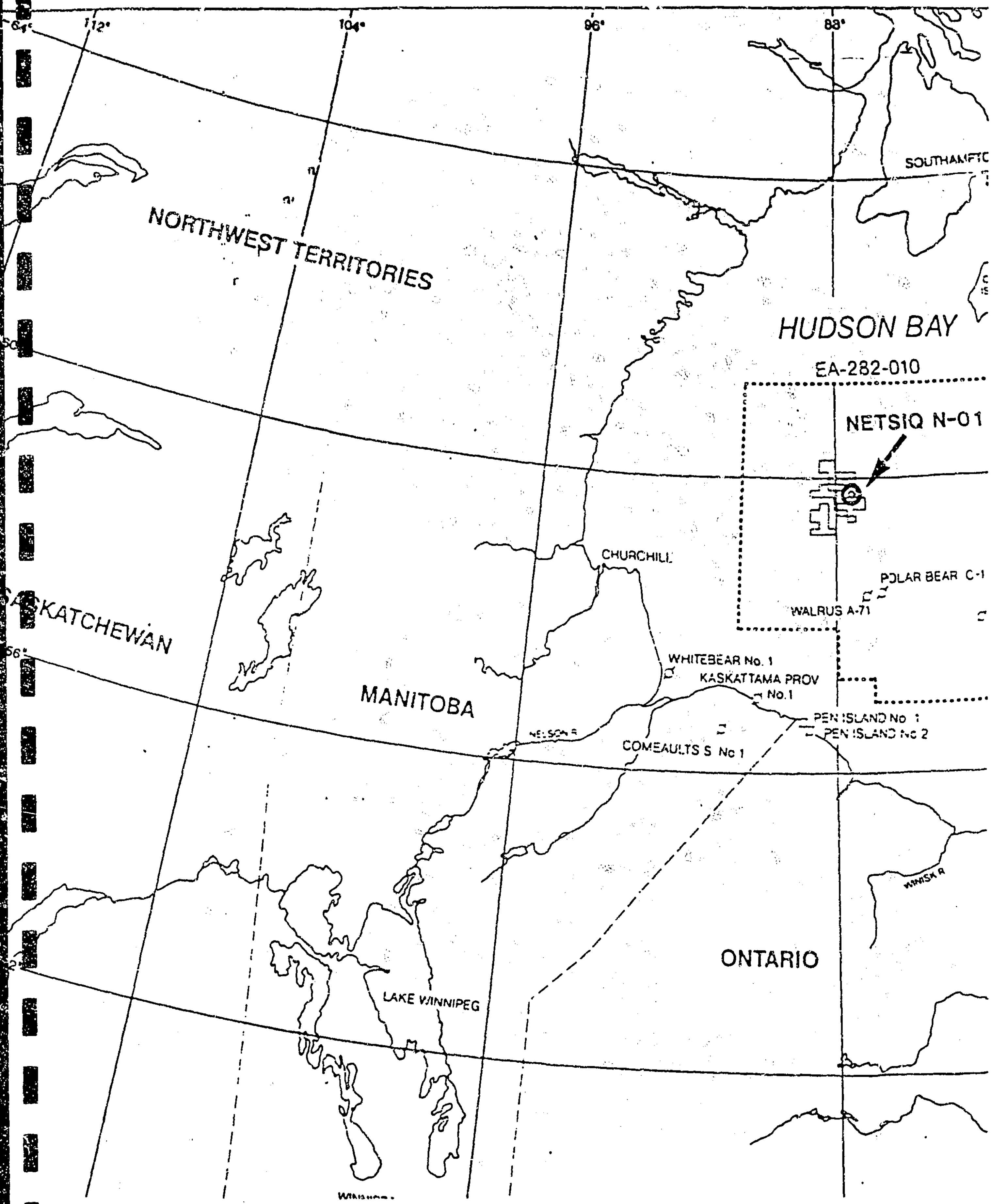
Seismic line : South of 83-44M-16
Shot point : 3100
KB elevation : 13.4 m
Water depth : 199.3 m
Total depth : 1040 m

Spudded on : 15-09-1985
Total depth reached on: 16-10-1985
Total days : 33 (To logging)

Contractors:

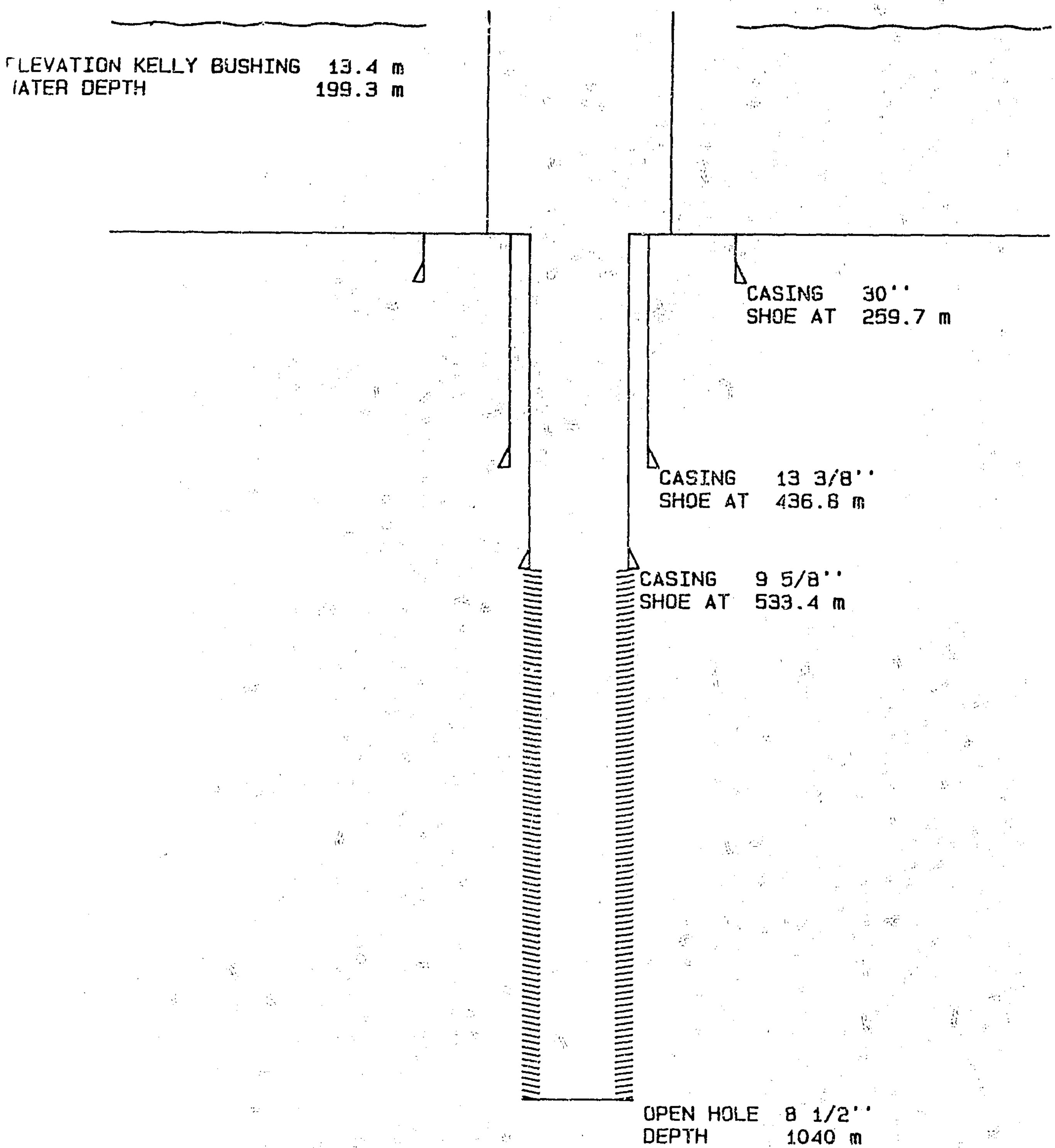
Drilling vessel	: Drillship Neddrill 2
Mud logging	: Geoservices
Mud engineering	: Technifluids
Electrical logging	: Schlumberger
Cementing company	: Dowell Schlumberger
Multishot survey	: Computalog MWD
Diving service	: Hydrospace
Helicopter	: Okanogan Helicopters

Rig name : Neddrill 2
Rig type : DP Drillship



112°
104°
96°
88°
56°
NORTHWEST TERRITORIES
SOUTHAMPTO
HUDSON BAY
EA-282-010
NETSIQ N-01
CHURCHILL
POLAR BEAR C-1
WALRUS A-71
SASKATCHEWAN
WHITEBEAR No. 1
KASKATTAMA PROV No.1
MANITOBA
PEN ISLAND No 1
PEN ISLAND No 2
COMEAULTS S No 1
WINISK R
ONTARIO
LAKE WINNIPEG

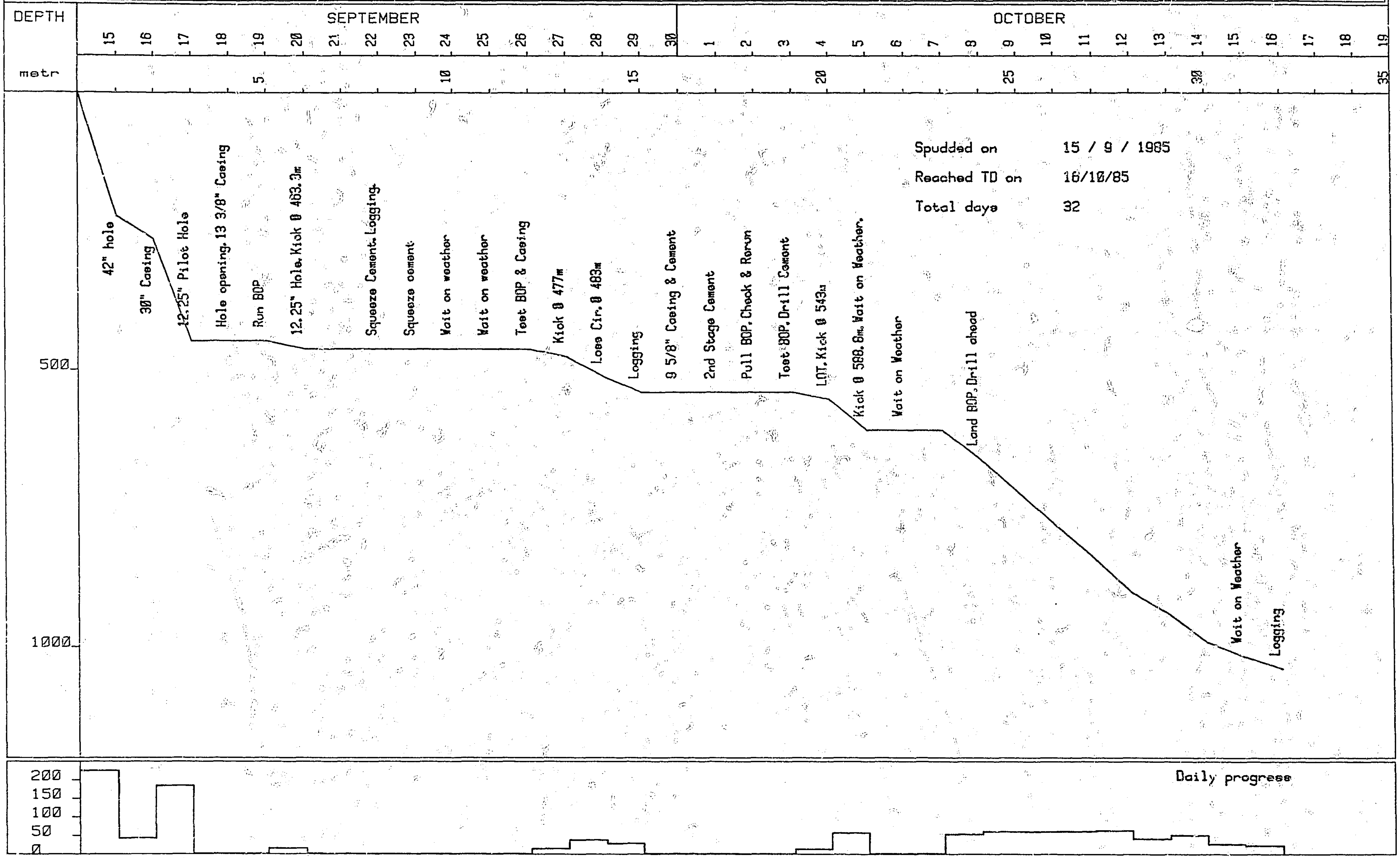
WELL: NETSIQ N-01



GEOSERVICES

CANTERRA ENERGY NETSIQ N-Ø1

DAYS VS DEPTH



WELL DIARY

Day 1: 15th September 1985.
On location at 19.45hrs.RIH w/Bit #1 + 42" hole opener.Tag seabed at 212.7m.Spud well and drill to 223.7m.

Day 2: 16th September 1985.
Drill 42" hole to 265.2m.Spot every connection with 50bbls Hi-Vis mud. Wiper trip to seabed.Pump 300bbls Hi-Vis mud.Drill 7.6m of fill to 262.1m. Make second wiper trip.Drill fill to 265.2m.Pump 500bbls Hi-Vis mud.POOH. Run 4 joints 30" casing on running string.Wash shoe to 260.6m.Mix & pump 260bbls cement.POOH running tool.Wait on cement.

Day 3: 17th September 1985.
Make up Bit #2 (12.25") and BHA.RIH.Tag cement @ 254.8m.Drill shoe and ream down to 265.2m.Drill pilot hole to 448.7m,spotting every 3rd connection with 50bbls Hi-Vis mud.Observe gas bubbles on starboard side of rig.Run ROV and observe bubbles from wellhead.Pump 150bbls 12ppg mud-bubbles still coming.POOH.Make up Bit #3 (17.5") and RIH.

Day 4: 18th September 1985.
Open hole to 17.5" from 254.8m to 448.8m.Wiper trip to seabed,15m fill on RIH.Circ B/U.Pump 600bbls Hi-Vis mud.POOH.Run 20 joints 13 3/8" casing on running tool.Latch into 30" wellhead.Circ 150bbls seawater.Mix & pump 250 bbls cement.Shear wiper plug.Displace with rig pumps.

Day 5: 19th September 1985.
POOH with casing landing string.Wait on weather.Run BOP,testing every 3rd joint of riser.Latch BOP onto wellhead.Make up BOP test tool & RIH.Start BOP function & pressure tests.

Day 6: 20th September 1985.
Function & pressure-test BOP.Run wear bushings.Make up Bit #4 (12.25") and RIH.Tag cement @ 453.2m.Drill cement + shoe to 436.8m.Displace hole to 9.8ppg mud.Take SCR's.Drill 12.25" hole to 453.2m.Circulate.Perform LOT: 16ppg MWEQ.Drill 12.25" hole to 463.3m.Take 160bbl kick.Close well in and kill with 15ppg mud.Open well-losing mud.Close in and observe pressures.

Day 7: 21st September 1985.
Hole losing mud whilst circulating.Displace riser to 13.5ppg.Pump 2xLCM pills.POOH 3 stands.Circulate-losing mud.Well flowed over diverter.Close in.Kill well with 14ppg mud.Pump diesel-gel "gunk" plug and squeeze.Pipe sticking.Work/circulate free-still losing.POOH.Take kick @ 340m.Close in and kill with 14ppg.Losses whilst circulating.Open well-still flowing. Bullhead 200bbls mud via kill line.POOH to above shear rams.Close shear rams.

Day 8: 22nd September 1985.

Continue POOH.RIH OEDP to shear rams.Displace riser to 13.5ppg.Pump 140 bbls 14ppg mud down kill line.Open rams-losing mud.Mix & pump 58bbls cement @ 16.3ppg.POOH to 304m.Displace-still losing.Squeeze cement with 14ppg mud.POOH.Wait on cement.Make up RTTS & RIH-unable to pass 215m.POOH. Run Schlumberger logs:CBL;HDT;Caliper.RIH RTTS.Unable to pass 215m.RTTS backed off on top connection on POOH.RIH with fishing string-no success.

Day 9: 23rd September 1985.

Try again with fishing string-no success.POOH.Centralise fishing string w/14.75" stabilizer & RIH.Successfully screw into RTTS and retrieve it. Make up Bit #4RR and RIH-no cement found.Circulate hole to 14ppg with full returns.POOH.RIH OEDP.Circ B/U.Mix & pump 58bbls cement @ 16.3ppg. Squeeze with 25bbls mud.POOH.Wait on cement.RIH with cup tester,pressure-test casing 244m - 205m @ 1000psi for 15 mins.POOH.Wait on cement.

Day 10: 24th September 1985.

Pressure-test casing to 1700psi-bled back to 900psi in 10 mins.RIH OEDP. Tag cement @ 416m.Break circulation.POOH.Pressure-test casing to 1700psi-bled back to 1300psi in 10 mins.Wait on weather.Displace riser to seawater in case disconnection required.

Day 11: 25th September 1985.

Waiting on weather.

Day 12: 26th September 1985.

Waiting on weather for 6 hours.Run WBRT to shear rams,displace riser to 14ppg mud.RIH BOP test tool.Function and pressure-test BOP.Run wear bushings.

Day 13: 27th September 1985.

RIH Bit#4RR.Drill cement 400m-463.3m.Drill formation 463.3m-477m.Take 23 bbl kick.Close well in,observe pressures.Kill with 15ppg mud.Begin losing to formation.POOH to 453m.Pump 'gunk' plug and squeeze.Condition mud to 15ppg.

Day 14: 28th September 1985.

Ream back to 477m-no losses.Drill to 483m,lose returns.POOH 4 joints,close rams,circ.riser to 14.5ppg.Open rams,still losing.Pump and squeeze 65bbl 'gunk' plug.Circ.hole to 14.5ppg,no losses.Ream to bottom,drill ahead.

Day 15: 29th September 1985.

Drill to 541.5m (~40m hard limestone).Circulate B/U,wiper trip to shoe. POOH.Schlumberger logging: 1)DLL/MSFL/GR/AMS/SPA; 2)AMS/NGT/CNL/LDT 3)BHC/GR/CBL.Retrieve both wear bushings.

Day 16: 30th September 1985.

Wiper trip to TD-no drag,no fill.Run and land 25 joints 9 5/8" casing.Break circ-lose returns.Pump 126bbls 16.3ppg slurry and displace-partial returns. Circulate riser clean.Release running tool.Circulate riser.POOH cementing string.Run Schlumberger CCL/Temperature log.RIH setting tool and release packoff.

Day 17: 1st October 1985.

RIH cementing string for second-stage cementing.Open FO collar and circ.Set packer.Pump 20bbls slurry @ 16.3ppg.Displace.Release packer.Close FO collar. Pull up above FO collar,set packer and test to 1000psi.Release packer.Circ. out cement.POOH cementing string.RIH and test casing/cement to 4000psi. Displace riser to seawater.Rig up and pull BOP.

Day 18: 2nd October 1985.
BOP on surface.Check and clean support ring.Test BOP.Re-run on riser.

Day 19: 3rd October 1985.
Land BOP.Function and pressure-test.Run wear bushings.Lay down 8.25" BHA from derrick.Make up 6.25" drilling BHA and Bit#5 (8.5").RIH and drill cement + FO collar 247m-251m.Continue RIH.

Day 20. 4th October 1985.
RIH and tag cement at 432m.Displace riser to 12.1ppg mud.Test casing to 3000psi.Drill cement,float and shoe.Wash rathole to 541.6m.Drill 8.5" hole to 541.9m.Circulate and take LOT (21ppg MWEQ).Drill to 543m.6 bbl pit gain. Close well in and kill with 15ppg mud.Circ.riser to 14.3ppg.Open well and circulate 14ppg mud.Make up 14.3ppg mud and circulate around.Drill to 554m.

Day 21, 5th October 1985.
Drill 554m - 588.8m.6 bbl pit gain.Close well in and kill with 14.7ppg mud. Drill 588.8m - 610.2m.POOH for approaching bad weather.RIH OEDP and displace riser to seawater.POOH.Unlatch riser.Wait on weather.

Day 22. 6th October 1985.
Wait on weather.

Day 23. 7th October 1985.
Wait on weather.RIH and pull wear bushings.Rig up for landing LMRP.Attempt unsuccessfully to land LMRP.

Day 24. 8th October 1985.
Position and land LMRP.RIH with OEDP and displace riser with 14.7ppg mud. Open well.Circulate B/U.POOH.Run wear bushings.RIH Bit #6.Drill 610.2m - 662m.

Day 25. 9th October 1985.
Drill 662m - 682.2m.POOH for bit change.RIH Bit #7.Drill 682.2m - 683m.10bbl pit gain.Flowcheck.Circulate and condition mud.Drill 683m - 721m.

Day 26. 10th October 1985.
Drill 721m - 770.5m.POOH for bit change.RIH Bit #8.Drill 770.5m - 780m.

Day 27. 11th October 1985.
Drill 780m - 840m.

Day 28. 12th October 1985.
Drill 840m - 902m.

Day 29. 13th October 1985.
Drill 902m - 914.7m.POOH for bit change.RIH Bit #9.Drill 914.7m - 942m.

Day 30. 14th October 1985.
Drill 942m - 992m.

Day 31. 15th October 1985.
Drill 992m - 1000.2m.POOH for approaching bad weather.Displace riser to seawater.Wait on weather.RIH Bit #10.Displace riser to 14.7ppg mud.Drill 1000.2m - 1000.7m.40 bbl pit gain.Close well in and observe (air slug?). Drill 1000.7m - 1018m.

Day 32. 16th October 1985.
Drill 1018m - 1040m.Evidence of basement formation in samples.Circulate B/U.10 stand wiper trip.Circulate further.POOH.R/U for electric logging. Schlumberger logs: 1)DLL/MSFL/Cal; 2)AMS/NGT/CNL/LDT; 3)Dual Induction/ Sonic.

Day 33. 17th October 1985.
Schlumberger logging: 3)Dual Induction/Sonic; 4)SHDT (tight spot at 639.8m); 5)RFT Run#1 (tool malfunction); 6)RFT Run#2.
Geoservices TDC engineers released.

Riser length: 199.3 m internal diameter: 17 5/8"

Drawworks:

Manufacturer	: Ideco
Model	: 3000
Cable diameter	: 1 1/2"

Reeving:

Number of lines: 12

Stand pipe	length: 21.5 m	internal diameter: 5 1/2"
Hose	length: 26.0 m	internal diameter: 4"
Swivel	length: 1.0 m	internal diameter: 3 1/2"
Kelly	length: 16.8 m	internal diameter: 3"

Pumps:

Manufacturer	: Emsco
Model	: FB 1600
Number	: 2
Liners	: 7"
Stroke	: 12"
Displacement	: 6.0 gal
Efficiency	: 96 %

I-5 . GEOSERVICES SURVEY AND EQUIPMENT

GEOSERVICES mudloggers were on site from the 15-09-1985 until the end of the well.The TDC engineers were released on 18-10-85 during the final logging.

2 dry samples were taken every 5 metres from 450 m to TD.

2 wet samples were taken every 5 metres from 450 m to TD.

4 Geochemichal samples were taken every 10 m from 450 m to TD.

H2S sensors were tested every week,they were situated:

- on the rig floor
- on the active pit
- on the shale shakers
- on the Geoservices gas line
- continuous monitoring of flow line returns for sulphide content by the Mud Duck

GEOSERVICES equipment:

Unit: standard TDC	No
Pressurization	1
GZ degasser	3
GD 12	1
DHS 103	1
H2S sensors	4
Mud Duck	1
Chromatograph	1
Mud still VMS	1
Chromatograph	
Densimud: in	1
out	1
Restor 104	2
Resistivimud 102	1
Calorimud 103	1
Recorders:	
C 301	9
C 321	1
IF 5200	1

Parafor RV	1
CP (Hall/Hyd)	1
Pump stroke counter	2
Z unit	1
MFR 101	2
MFR Sensor HP4"	1
Spacer	1
MFR Sensor LP6"	1
Output install. eqipt	1
DFR 101	1
Leak of test recorder	1

TDC equipment:

DATA PROCESS "OFF"		
	Calculator HP 9825	1
	Printer	1
	Plotter	1
DATA PROCESS "ON"		
	Computer 21 MX	1
	Printer	1
	Graphic plotter	1
	Video repeater	4
	Stabil. power supply	1
VIGIGRAPHIC SYSTEM (On site)	Vigigraphic monitor	0
	Video repeater	0
	Hard copy printer	0
GEOTRANS		
	Geotrans	0
	Viggraphic monitor	0
	Video repeater	0
	Hard copy printer	0

GEOSERVICES software:

```
---------------------------------------------------------------------------
+ OFF LINE system:                                                        +
+                                                                         +
+                                                                         +
+   Drill pack cartridge: Hydraulic report                                +
+                         Surge and swab                                  +
+                         Prekick                                         +
+                         Kick                                            +
+                         Deviation: vertical and horizontal sections     +
+                         Deviation: three-dimensional plot               +
+                         Side track                                      +
+                                                                         +
+   Geo pack cartridge  : Data transfer ON LINE/OFFLINE                   +
+                         D-exponent                                      +
+                         Agip sigma log (2 different plots available)    +
+                         Lithology report                                +
+                         Composite log                                   +
+                         Drilling report                                 +
+                         Gas efficiency                                  +
+                         Gas composition diagram                         +
+                         Chromatolog                                     +
+                         Chromato composite                              +
+                         Gas ratio                                       +
+                         Gas evolution diagram                           +
+                         Gas chart                                       +
+                         Hydrocarbon evaluation                          +
+                                                                         +
+   Annexe cartridge    : Casing run                                      +
+                         Cement                                          +
+                         Tests interpretation                            +
+                         Curve fitting,leak off test                     +
+                         Shale density                                   +
+                         Minicost                                        +
+                         Optimisation WOB-ROP                            +
+                         Bit record                                      +
---------------------------------------------------------------------------

---------------------------------------------------------------------------
+ ON LINE system                                                          +
+                                                                         +
+                                                                         +
+   Bit cartridge  : Birep      Overpressure cartridge: DXpri             +
+                    Bicos                              DXplo             +
+                    Biped                              SIpri             +
+                    Bipet                              SIplo             +
+                                                                         +
+   Gas cartridge  : Gasef      Hydraulic cartridge   : Hyrep             +
+                    Gasco                              Mudwt             +
+                    Gason                              Opthy             +
+                    Gasrt                              Surge and swab    +
+                    Gsapl                               in real time     +
+                                                                         +
+   Kick cartridge : Kikdo      Others: Volci (cement)                    +
+                    Kikup              Deviation                         +
+                                       Temperature rerun                 +
---------------------------------------------------------------------------
```

II GEOLOGY

CONTENTS

TECHNICAL DISCUSSION

The Netsiq prospect is located on a major discontinuous Paleozoic ridge trending north-northwest through the centre of Hudson Bay. The Aquitaine et al Polar Bear C-11 and Walrus A-71 wells were drilled on or immediately adjacent to this ridge and are approximately 150 km from the Netsiq location. The well is to be drilled on shot point 1455, line S2-06 of the site survey. This 200m shift south from the originally settled location of shot point 3100, line 83-44M-16 was made to avoid a high amplitude shallow reflector seen on the site survey.

The Silurian Ekwan River carbonates are the main target at this location. The secondary target is porosity development in dolomites in the Orodvician Red Head Rapids Formation.

The top of Silurian was uplifted and exposed at this location during the lower part of the Devonian. The Polar Bear Formation and the shale member of the Walrus Formation all pinch out on the western flank of the ridge and are truncated by the eastern bounding fault. The overlying Walrus limestone is tight and represents a good seal.

The shales in the Ordovician Red Head Rapids Formation could provide source to both the porosity within that formation and via migration up the bounding fault to the Ekwan River reservoir. A second possible source could be from the Polar Bear Formation east of the bounding fault. Again migration via the fault would be required. The depth of burial of these sediments casts some doubt on the maturity of the source beds to produce liquid hydrocarbons. However, the total burial history of Hudson Bay is uncertain, allowing the possibility of the source beds being at maturation depth in the past.

The following four seismic markers can be correlated across the area but only tentatively correlated back to the existing offshore wells. Thus some uncertainty exists over the precise age correlation.

Seismic Marker (S.M.)	Two Way Time (ms)	Depth (m) Below Sea Level	Inferred Age/Horizon
Sea Floor	267	198	Pleistocene
S.M. 1	320	275	Devonian Mid Bay
S.M. 2	510	585	Devonian Walrus Limestone
S.M. 3	596	735	Silurian Ekwan River
S.M. 4	872	1345	Precambrian

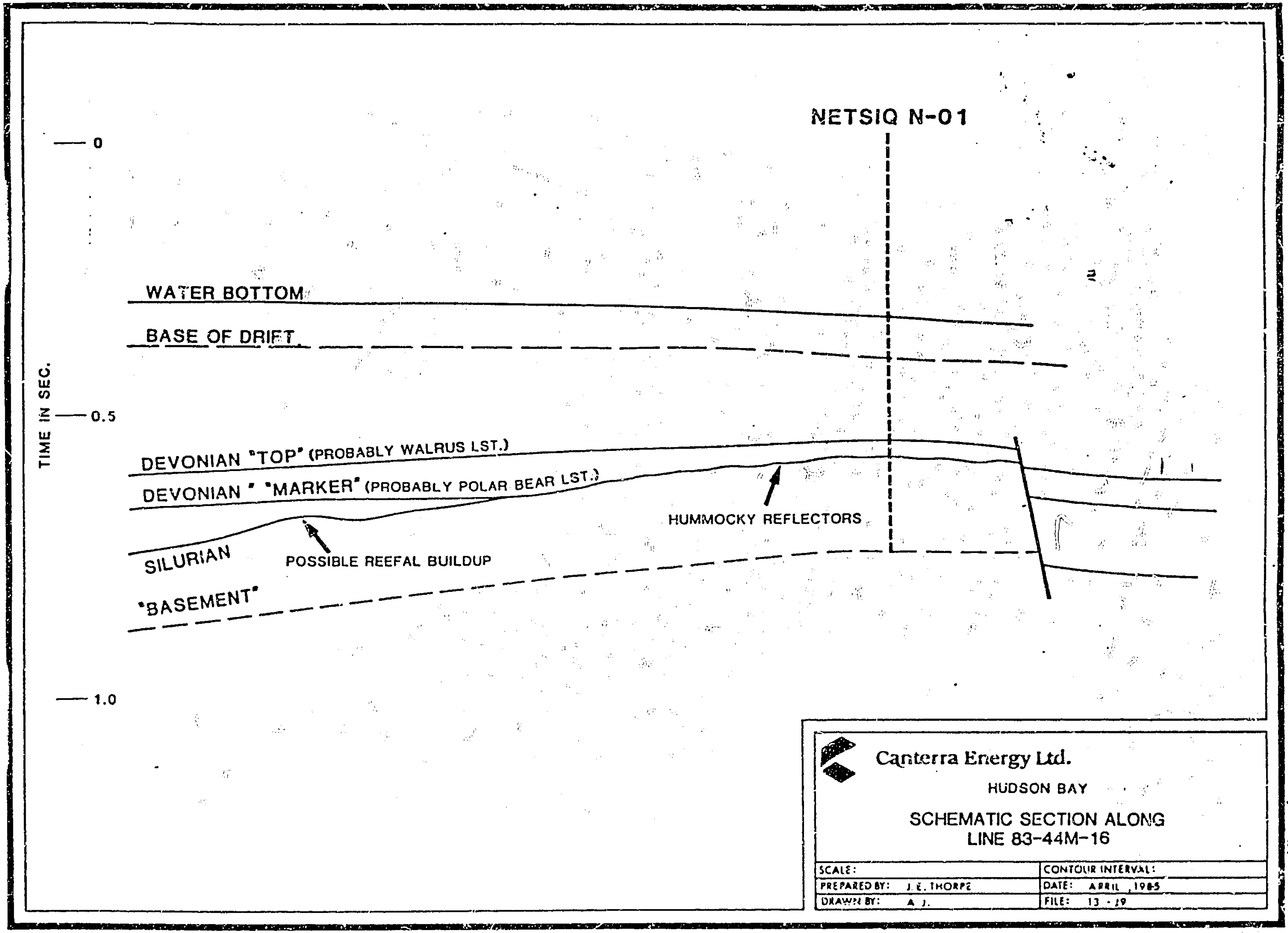
TECHNICAL DISCUSSION - Continued

The structural closure of the Netsiq tilted fault block is over 600 sq km. Thus any estimate of potential reserves is very dependent on the area considered prospective. The range is from 120 MM BBL at 75 sq km to almost 1 BBBL at 600 sq km using a net pay of 20m and a porosity of 9%.

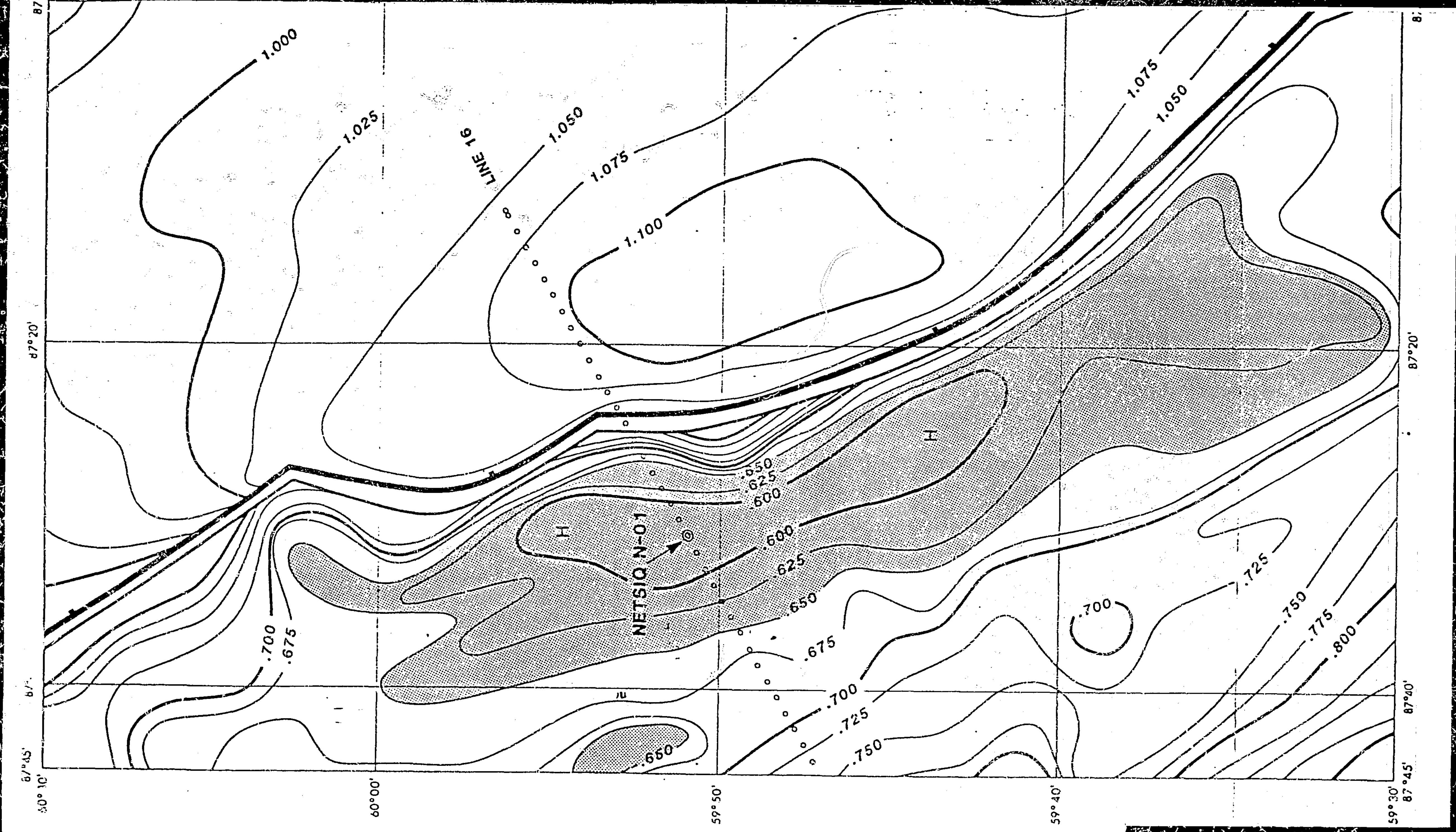
The source potential is considered to be the critical risk.

Since the presence of reservoir is dependent on erosional processes, this too must be considered a significant risk.

For additional information, maps and sections, please refer to COGLA Project No. 8720-J8-2E Report by Roy Cole of ICG Resources Ltd.



NETSIQ N-01
TIME IN SEC.
0
0.5
1.0
WATER BOTTOM
BASE OF DRIFT
DEVONIAN "TOP" (PROBABLY WALRUS LST.)
DEVONIAN " "MARKER" (PROBABLY POLAR BEAR LST.)
HUMMOCKY REFLECTORS
SILURIAN
POSSIBLE REEFAL BUILDUP
"BASEMENT"
Canterra Energy Ltd.
HUDSON BAY
SCHEMATIC SECTION ALONG
LINE 83-44M-16
SCALE:
CONTOUR INTERVAL:
PREPARED BY: J.E. THORPE
DATE: APRIL ,1985
DRAWN BY: A J.
FILE: 13 - 19



1.000
1.025
1.050
1.075
1.100
1.075
1.050
LINE 16
.650
.625
.600
H
H
NETSIQ N-01
.600
.625
.650
.675
.700
.675
.700
.725
.750
.700
.725
.750
.775
.800
.650
87°20'
87°20'
87°40'
87°45'
87°45'
60°10'
60°00'
59°50'
59°40'
59°30'

OVERPRESSURE SUMMARY

DCS THEORY

The basic d'exponent was developed by Jordan and Shirley to detect overpressures in shale formations. This is done by normalising the drilling rate curve by compensating for changes in the drilling parameters, RPM, WOB and bit size. The basic formula has been further developed by Geoservices to account for differential pressure between the wellbore and the formation and to allow for the bit wear with different types of bits, giving the equation:

$$dcs = \frac{\log \dfrac{W * ROP}{60 * RPM}}{\log \dfrac{12 * WOB}{10^6 * B}} * \frac{H}{ECD}$$

dcs = Corrected d-exponent
W = Function giving estimate of bit wear
ROP = Rate of penetration in min/ft
WOB = Weight on bit in lbs
B = Bit diameter in inches
H = Normal hydrostatic gradient in ppg
ECD = Equivalent circulating density in ppg

In normally-compacted shales, a plot of the dcs on semi-log paper against depth will give a straight line with a positive gradient. Any deviations to the left of this trend will be indicative of undercompaction, the distance between the trend line and the dcs value being proportional to the increase in formation pressure.

The main limitation to the use of the d-exponent is that it is developed for use in shale formations; when used in different formations the interpretation should make allowances for the lithology.

SIGMALOG THEORY

The Sigmalog was developed by AGIP for the drilling of carbonate rocks in the Po Valley of Italy, where the results produced by the d-exponent proved too inaccurate.

The use of the Sigmalog is similar to the d-exponent but the method of calculation is different. A plot of the Sigmalog produces a series of normal trends with a positive gradient, the sudden shifts in these trends being caused by changes in lithology or drilling parameters.

Any deviation to the left of these normal trends or any negative gradients are indicative of under-compaction, with the corresponding increase in pore pressure being proportional to the distance of the Sigmalog from the normal trend. To aid in the interpretation of the Sigmalog, the envelopes of the normal trends are shifted to produce a straight line (Normalized Sigmalog). This makes it easier to identify any abnormal deviations.

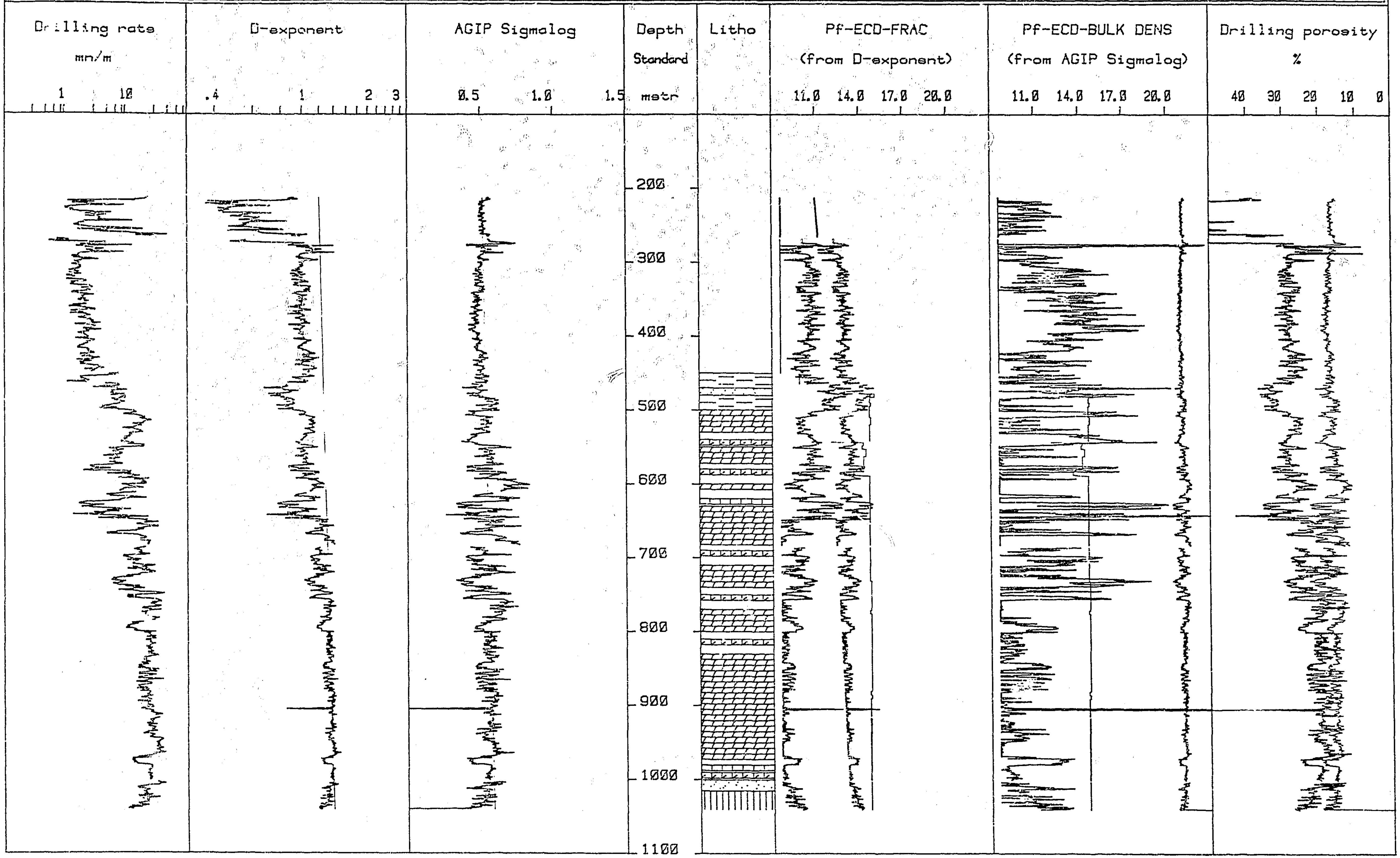
In order to see clearly the development of the trends, it is usual to plot both the d-exponent and the Sigmalog on a small scale of 1/10000 or 1/5000.

GEOSERVICES

CANTERRA ENERGY NETSIQ N-Ø1

COMPOSITE LOG

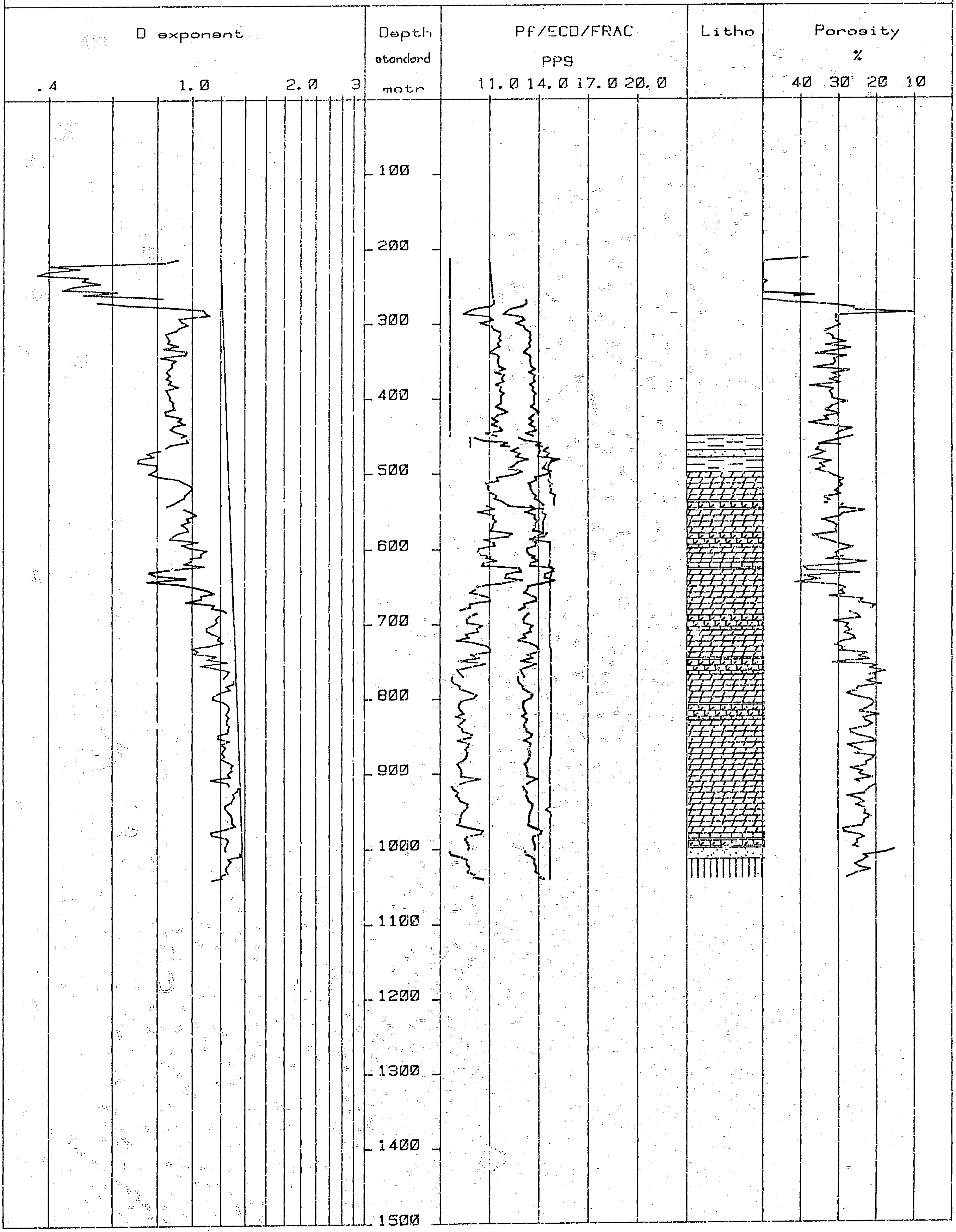
Scale : 1/ 5000



CANTERRA ENERGY NETSIQ N-Ø1

GEOSERVICES

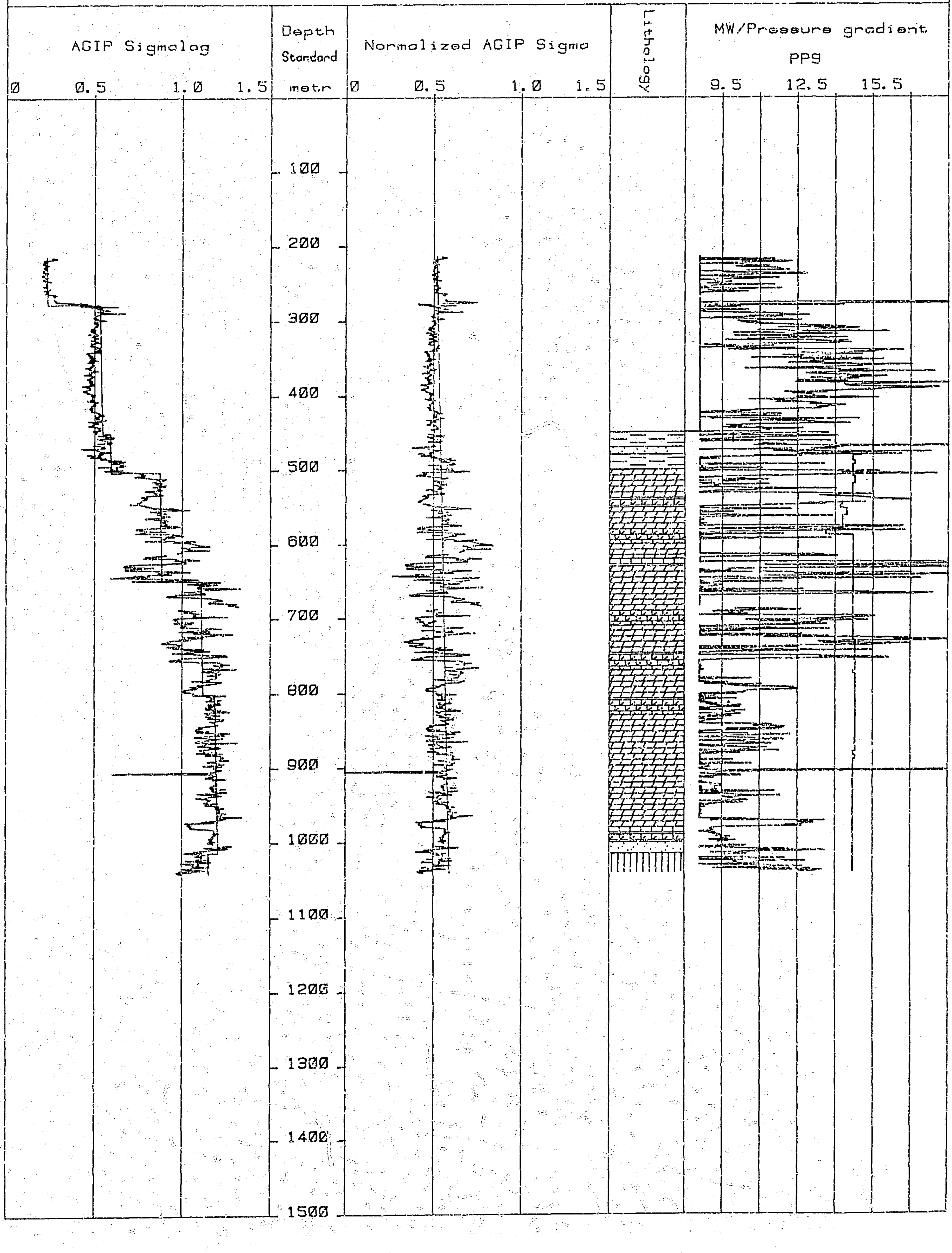
Scale : 1/ 5ØØØ



CA TERRA ENERGY NETSIQ N-01

GEOSERVICES

Scale : 1/ 5000



WELL CONTROL SUMMARY

i) Whilst drilling the 12.25" pilot hole with returns to the seabed,gas bubbles were observed off the starboard side of the ship.Drilling stopped at 448.8m,and with the ROV gas bubbles could be seen coming from the well-head.The well still flowed after displacing the seawater in the hole with 12ppg mud.13 3/8" casing was then run at this point.

ii) The 13 3/8" shoe (436.8m) was drilled out with 9.8ppg mud,and a LOT at 453.2m gave 16ppg MWEQ.

iii) Kick #1 at 463.3m: SIDPP= 400psi;SICP= 235psi;Gain= 160bbls.
Calculated kill mud = 15ppg.
Whilst killing the well with 15ppg mud,some returns were lost to formation, and was eventually stabilized with 14ppg mud.

iv) Kick #2 at 477m: SIDPP= 80psi;SICP= 110psi;Gain= 23bbls.
Calculated kill mud = 15ppg.
Returns were lost whilst controlling the well,and was eventually stabilized with 14.5ppg mud.

v) 9 5/8" casing was set with the shoe at 533.4m.A formation integrity test at 541.9m held 21ppg MWEQ without leaking.Drilling continued with a 12.1ppg mud.

vi) Kick #3 at 543m: After a 6bbl gain,the well was controlled with a 14.3 ppg mud.

vii) Kick #4 at 588.8m: After a 6bbl pit gain,the well was controlled with a 14.7ppg mud.

OVERPRESSURE IN NETSIQ N-01

DISCUSSION

Due to the nature of this well, most of the usual overpressure indicators were not usable. For example:

As there were only traces of hydrocarbons and few connection gases, no conclusions could be drawn from the traces of trip gas.

No major shale beds were encountered to allow the plotting of shale density.

The use of salt-saturated mud whilst drilling prohibited the use of mud resistivity data.

With the predominant lithologies being salt, limestone and dolomite, no indication of overpressures could be drawn from the shape, size and texture of the cuttings.

The cooling effect of the sea around the marine riser effectively damps out any subtle changes in the flowline mud temperatures.

This leaves us with the information derived from D-exponent and Sigmalog, plus the various hole problems (kicks, etc) encountered, as the only real-time indicators of abnormal formation pressures.

The D-exponent plot shows no clear indications of any overpressures, primarily because it is only designed to work in shales, and this well was predominantly carbonate rocks.

From the kicks taken, it is obvious that the formation pressures at these points must be around 14.1 - 14.5ppg, although this is not shown quantitatively by the Sigmalog.

There is no indication of higher pressures from the Sigmalog at either 463.3m or 477m; but the increased ROP's at 543m and 588.8m does cause the Sigmalog to depart to the left of the trend line.

The predicted fracture gradient from the D-exponent is also erroneously low, possibly enhanced by suspect leak-off/intake values at the two casing shoes.

It is interesting to note that the Sigmalog seems to indicate two formation changes/different zones at ~500m and ~650m; the latter being also noted from the cuttings descriptions. See Lithology Summary.

LITHOLOGY SUMMARY

NOTE:
In the following section, all divisions have been made purely on the basis of gross lithological differences. No log-derived formation tops were available at the time of writing.

450m - 501m

This section drilled at between 5 and 10 min/metre, and cuttings consisted primarily of mudstone. This was reddish-brown, very soft, generally calcareous and variably gypsiferous. Minor buff to light-grey/brown limestones and dolomites occurred around 450m. They were somewhat argillaceous and silty, occasionally grading into the mudstone.

Much of the mudstone was silty, especially between 460 and 480m, below which the silt content decreased.

Small quantities of sand were observed at 450m and 480m. This consisted of loose quartz grains, which were clear to slightly milky, fine to medium, subangular to subrounded and irregularly fractured in part.

Hole problems occurred in this section, with kicks at 463.3m and 477m, and some lost circulation. These problems may have been due to the presence of salt-filled sandstones, an idea supported by Schlumberger logs. However, no salt (due to the under-saturated mud) and only sporadic traces of sand were seen.

501m - 1007m

Throughout this section, a sequence of interbedded dolomites and limestones occurred. It was consistently observed that faster drilling corresponded to dolomite, slower drilling with increased limestone.

The appearance of the two lithologies was often similar, especially in the lower, more compact part, and the stain Alizarin Red was used to differentiate between them.

(501m - 648m)

This formation consisted almost entirely of dolomite, and was distinguished on the basis of porosity from the underlying lithology. The ROP throughout this section generally corresponded to porosity.

Initial ROP was 15-20 min/metre through white, light-pink and buff dolomite. This was micro-very fine crystalline, somewhat calcareous with minor grading to limestone, and showed occasional intercrystalline and microvug porosity.

Below 513m, the ROP increased to 5-10 min/metre. Slow sections around 550 and 600m corresponded to minor limestone interbeds.
Two kicks occurred at 543m and 588.8m, possibly associated with these limestone beds.

However, the dominant lithology below 531m was dolomite, this being buff to light-brown, micro-very fine crystalline, sucrosic, wi h well-developed rhombic crystals and poor to good intercrystalline and pin-point porosity. Locally it became cryptocrystalline and dense. Background gas of 0.1-0.2% C1 was seen between 560 and 585m, where sucrosic crystalline dolomite drilled at up to 2 min/metre.

Fast drilling also occurred at 625-630m, giving traces of C1 from locally porous dolomite.

Gypsum was observed throughout this section, usually seen as colourless, transparent, fractured crystals. However, close inspection revealed them as acicular and tabular crystals intergrown with dolomite rhombs, usually in more sucrosic and porous areas.

(648m - 1007m)

At 648m, the ROP became generally slower, and there was a major decrease in porosity. This probably corresponds to Seismic Marker 3 in the geological prognosis, the porosity change giving a density contrast. Limestone was much more abundant than above, and dolomites, although still common, were generally more calcareous.

Initially, the limestone was white to buff, microcrystalline, partially dolomitized, soft to firm, clean, with no visible porosity. It was interbedded with dolomite, and drilled irregularly at 20-30 min/metre. At 667m, a drilling break into buff, crypto-very fine crystalline dolomite occurred, with a trace of C1 detected.

For the next 50m, dolomite and limestone were interbedded, and the ROP fluctuated between 10 and 25 min/metre. The dolomite was buff to light-brown, microcrystalline, sucrosic, clean and calcareous, with no visible porosity, and graded into dolomitic limestone of similar appearance.

Between 721 and 746m, the ROP reached 6 min/metre. Dolomite was developed here; cream to buff, with some characteristic reddish colouration. It was clear, gypsiferous in part, slightly calcareous, but only showed traces of pin-point porosity. Possible fossil shadows were also seen.

Dolomite with limestone interbeds returned between 746 and 788m, drilling at 20-35 min/metre. The dolomite was white to buff to light-brown, mainly cryptocrystalline, dense and tight, but still drilled faster than the similar dolomitic limestone into which it graded. At 788m, the ROP increased to 10-15 min/metre, and pure dolomite was found.

From 801 to 835m limestone dominated, with ROP's averaging around 25 min/metre. It was buff to light-brown, cryptocrystalline and locally chalky, dense, clean and variably dolomitized. Thin dolomite interbeds were developed throughout.

Below 835m, dolomite became dominant, often with a strong rosy colouration; crypto-microcrystalline, moderately hard and brittle, calcareous and occasionally sucrosic, although no porosity was visible. The ROP fluctuated strongly between 16 and 26 min/metre, with the slower drilling parts (as slow as 37 min/metre) being limestone interbeds.

At 907m, the ROP decreased to 34 min/metre, as limestone became more important again. This limestone was light-grey to white, soft to firm, dense and dolomitic. It graded into light-red/brown, hard, somewhat earthy dolomite interbeds, especially at 927m and 940m; and became slightly harder downwards. ROP's were normally between 25 and 40 min/metre throughout this section, which ended with a drilling break at 969m.

From 969m to 979m, a light-brown, microcrystalline, predominantly non-calcareous, clean and tight dolomite was drilled, at an ROP of about 15 min/metre. Carbonates were last seen between 979 and 1007m, where limestone dominated. This drilled at a steady 25 min/metre, and was light-grey to tan with some red mottling, very soft to moderately firm, chalky to crypto-crystalline and clean.

1007m - 1040m

This section is rather problematic. Basal clastics (granite wash with possible minor shales) were expected to overlie a granite basement. However, the situation found here was not so clear cut.

At 1007m, a clear drilling break to 15-19 min/metre was seen, and corresponded to the appearance of sandstone. This consisted of clear quartz, fractured and angular to subangular, poorly sorted, fine to coarse grained. All grains were loose; no cement was seen.

At 1013m, the ROP dropped to 24 min/metre, then increased slightly to 21 min/metre. This appeared to accompany the incoming of a form of shale. This was grey to dark-grey, very soft and unconsolidated, extremely micaceous, silty, and had a kind of metallic-flake lustre.

(648m - 1007m)

At 648m, the ROP became generally slower, and there was a major decrease in porosity. This probably corresponds to Seismic Marker 3 in the geological prognosis, the porosity change giving a density contrast. Limestone was much more abundant than above, and dolomites, although still common, were generally more calcareous.

Initially, the limestone was white to buff, microcrystalline, partially dolomitized, soft to firm, clean, with no visible porosity. It was interbedded with dolomite, and drilled irregularly at 20-30 min/metre. At 667m, a drilling break into buff, crypto-very fine crystalline dolomite occurred, with a trace of C1 detected.

For the next 50m, dolomite and limestone were interbedded, and the ROP fluctuated between 10 and 25 min/metre. The dolomite was buff to light-brown, microcrystalline, sucrosic, clean and calcareous, with no visible porosity; and graded into dolomitic limestone of similar appearance.

Between 721 and 746m, the ROP reached 6 min/metre. Dolomite was developed here; cream to buff, with some characteristic reddish colouration. It was clear, gypsiferous in part, slightly calcareous, but only showed traces of pin-point porosity. Possible fossil shadows were also seen.

Dolomite with limestone interbeds returned between 746 and 788m, drilling at 20-35 min/metre. The dolomite was white to buff to light-brown, mainly cryptocrystalline, dense and tight, but still drilled faster than the similar dolomitic limestone into which it graded. At 788m, the ROP increased to 10-15 min/metre, and pure dolomite was found.

From 801 to 835m limestone dominated, with ROP's averaging around 25 min/metre. It was buff to light-brown, cryptocrystalline and locally chalky, dense, clean and variably dolomitized. Thin dolomite interbeds were developed throughout.

Below 835m, dolomite became dominant, often with a strong rosy colouration; crypto-microcrystalline, moderately hard and brittle, calcareous and occasionally sucrosic, although no porosity was visible. The ROP fluctuated strongly between 16 and 26 min/metre, with the slower drilling parts (as slow as 37 min/metre) being limestone interbeds.

At 907m, the ROP decreased to 34 min/metre, as limestone became more important again. This limestone was light-grey to white, soft to firm, dense and dolomitic. It graded into light-red/brown, hard, somewhat earthy dolomite interbeds, especially at 927m and 940m; and became slightly harder downwards. ROP's were normally between 25 and 40 min/metre throughout this section, which ended with a drilling break at 969m.

From 969m to 979m, a light-brown, microcrystalline, predominantly non-calcareous, clean and tight dolomite was drilled, at an ROP of about 15 min/metre. Carbonates were last seen between 979 and 1007m, where limestone dominated. This drilled at a steady 25 min/metre, and was light-grey to tan with some red mottling, very soft to moderately firm, chalky to crypto-crystalline and clean.

1007m - 1040m

This section is rather problematic. Basal clastics (granite wash with possible minor shales) were expected to overlie a granite basement. However, the situation found here was not so clear cut.

At 1007m, a clear drilling break to 15-19 min/metre was seen, and corresponded to the appearance of sandstone. This consisted of clear quartz, fractured and angular to subangular, poorly sorted, fine to coarse grained. All grains were loose; no ce nt was seen.

At 1013m, the ROP dropped to 24 min/metre, then increased slightly to 21 min/metre. This appeared to accompany the incoming of a form of shale. This was grey to dark-grey, very soft and unconsolidated, extremely micaceous, silty, and had a kind of metallic-flake lustre.

Granite,as opposed to granite-wash sandstone,first appeared at 1019m.The ROP dropped to 26 min/metre,and feldspars and black micas were seen.This granite consisted of clear,transparent,angular quartz;abundant black (biotite) mica,traces of white (muscovite) mica and about 10% pink and white feldspar.Possible traces of hornblende occurred.

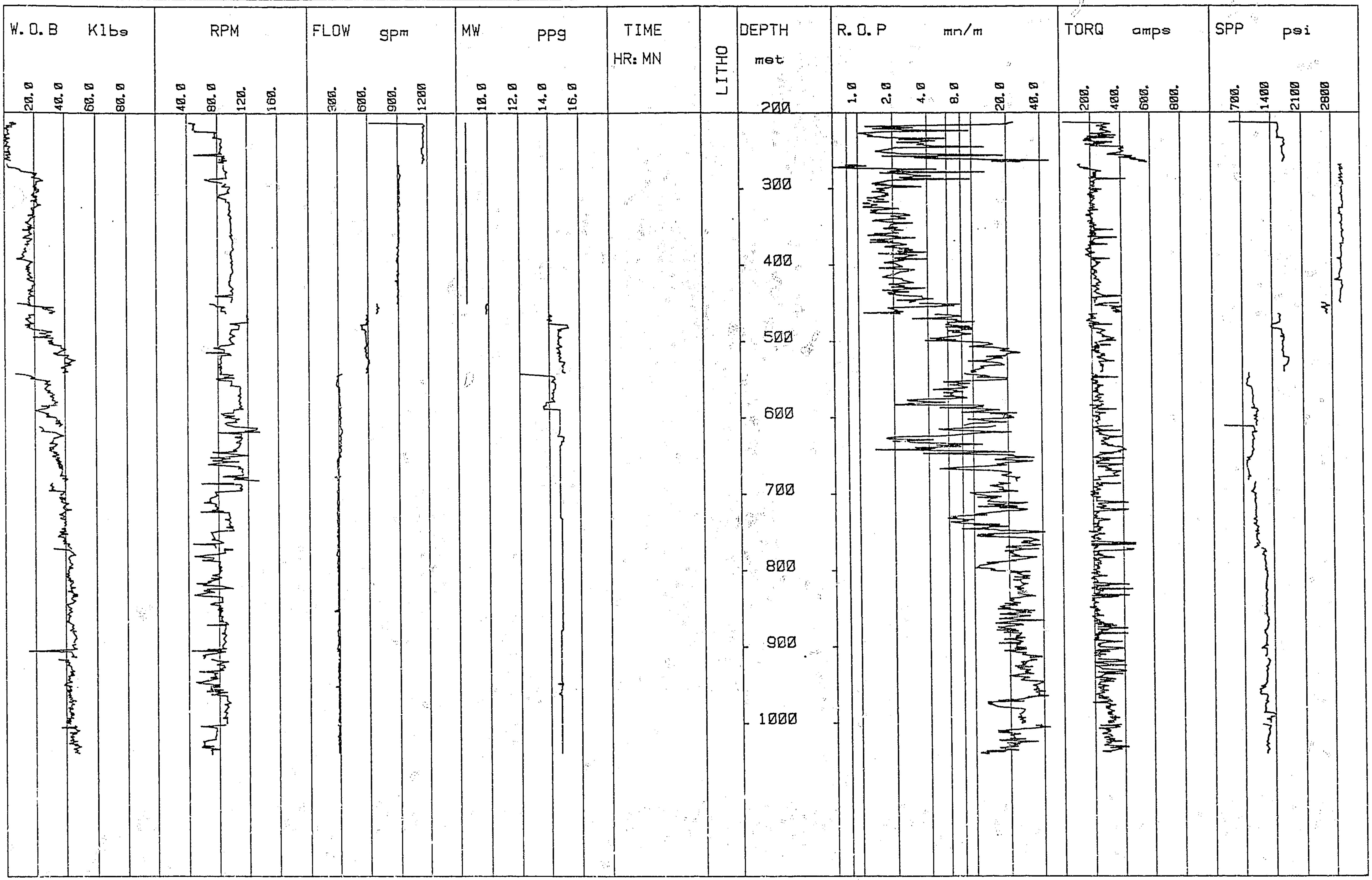
From 1019 to 1035m,granite fragments and the shaley material were found in roughly equal proportions.Schlumberger logs seemed to support this view. At TD (1040m),almost 100% granite was seen.However,it cannot be stated with certainty that basement had been reached.

III DRILLING

CONTENTS

GEOSERVICES ON-LINE TDC BIT PERFORMANCE VERSUS DEPTH

16/ 10/ 85 NETSIQ N-Ø1 SCALE 1/ 5000



OFFLINE TDC
GEOSERVICES

BIT RECORD
SHEET NO. 1

WELL: NETSIQ N-01

NO.	SQ	TYPE	SIZE	NOZZLES /32''	IN m	OUT m	MTG m	TIME hr: mn	DEV deg	WOB klbs	RPM	FLOW gpm	SPP psi	REV *1000	T	B	G	COST $	$/M STD	MW ppg	REMARKS
1	1	SMITH DSJ	17.5	17/17/18	212.7	265.2	52.50	6: 04		2.1	73	1119	1570		3	3	In	10000	1580.	8.6	17.5" BIT + 42" HOLE OPENER.
2	2	SMITH F3	12.25	15/15/15	265.2	448.8	183.6	6: 45		16	94	905	3020		3	3	In	15000	338.5	8.6	PILOT HOLE.STOP FOR SHALLOW GAS.
3	3	OSC 3AJ	17.5	20/20/20	265.2	448.8	183.6	5: 06		11	95	1167	2460		-	-	--	10000	258.6	8.6	HOLE OPENING.
4	4	HTC J3	12.25	14/14/14	448.8	463.3	14.50	2: 10		11.2	71	655	2340		2	2	In	6000	2250	9.8	DRILL TO KICK @ 463.3m.
4RR	5	HTC J3	12.25	18/18/18	463.3	541.5	78.20	21: 13		30	89	582	1644		3	3	In	----	2247	14.5	KICK @ 477m.LOST CIRC.@ 483m.
5	6	SMITH SDGH	8.5	18/18/16	541.5	610.2	68.70	15: 37		22	92	350	1110		2	2	In	3400	2121	14.7	KICKS @ 543.2m, 588.8m.
6	7	SMITH SDGH	8.5	16/16/16	610.2	682.2	72.00	15: 0		35	110	311	870		3	3	1/8	3400	1270	14.7	SLOW ROP
7	8	HTC J33	8.5	14/14/14	682.2	770.6	88.40	26: 12		37.6	85	290	980		2	2	In	5214	1381	14.8	SLOW ROP
8	9	SMITH F4	8.5	13/13/13	770.6	914.7	144.1	53: 52		44	80	290	1200		4	6	In	6000	1660	14.7	
9	10	SMITH F3	8.5	13/13/13	914.7	1000.2	85.50	37: 41		42	80	290	1200		4	7	In	5214	2073	14.7	
10	11	HTC J44	8.5	13/13/13	1000.2	1040	39.80	14: 06		45	75	290	1200		2	3	In	8000	2178	14.7	TD of NETSIQ N-01

GEOSERVICES T.D.C. CANTERRA ENERGY NETSIQ N-01

MUD RECAP WATER BASE

DEPTH feet	TEMP degF	M.W ppg	VIS sec	PV cp	YP	GELS 10 sec	GELS 10 mn	FILTRATE API cc	FILT. CAKE	FILTRATE ANALYSIS Ca ppm	FILTRATE ANALYSIS Cl ppm	SAND %	RETORT ANALYSIS OIL %	RETORT ANALYSIS WATER %	RETORT ANALYSIS SOLS %	pH	pF	Mf	MBT
855	58	9.30	220	0	0	35	70	0.0	0/32	1000	85000	Trc	0	98	3	10.5	0.3	0.5	2[illegible]
1469	64	9.20	190	20	60	10	30	42.0	4/32	1000	80000	Trc	0	98	3	9.5	0.4	0.5	25
1472	66	9.20	195	21	62	12	43	38.0	4/32	700	75000	Trc	0	98	3	9.0	0.3	0.4	25
1490	68	9.90	37	7	8	2	3	15.0	1/32	300	160000	Trc	0	99	2	10.5	0.2	0.3	9
1520	65	15.00	55	22	18	6	26	12.0	2/32	400	170000	Trc	0	87	13	9.5	0.3	0.4	9
1524	58	14.00	45	19	16	8	20	30.0	2/32	4500	172000	Trc	0	90	10	9.0	0.1	0.2	9
1524	63	14.10	44	20	9	8	21	19.0	1/32	10000	174000	Trc	0	90	10	10.0	0.2	0.3	8
1520	58	14.00	45	26	11	4	8	18.0	2/32	6500	140000	Trc	0	91	10	10.0	0.1	0.2	7
1565	59	15.00	43	24	12	6	16	35.0	4/32	12000	120000	Trc	0	89	11	10.0	0.4	0.5	5
1585	58	14.60	47	21	10	4	14	37.0	4/32	12000	170000	Trc	0	80	20	10.0	0.1	0.1	5
1682	63	14.60	46	21	9	12	13	37.0	4/32	12000	168000	Trc	0	80	20	10.0	0.1	0.2	5
1690	71	14.70	47	22	10	4	16	23.0	4/32	12000	168000	Trc	0	79	21	10.0	0.2	0.2	8
1777	71	14.60	48	21	10	5	13	17.0	2/32	14500	168000	Trc	0	79	21	10.5	0.2	0.3	9
1784	52	14.30	46	18	15	8	16	29.0	2/32	9600	160000	Trc	0	81	20	11.6	0.3	0.4	5
1820	54	14.30	44	17	14	6	14	27.0	2/32	10100	150000	Trc	0	81	20	11.5	0.4	0.5	5
1847	52	14.30	44	17	13	5	12	32.0	2/32	8900	150000	Trc	0	81	20	11.4	0.3	0.4	5
1933	50	14.70	46	19	10	4	8	26.0	2/32	9400	160000	Trc	0	80	21	11.0	0.2	0.3	4
2002	49	14.70	44	20	8	3	7	19.0	2/32	9200	162000	Trc	0	80	21	10.9	0.2	0.3	4
2170	53	10.70	44	22	6	4	6	12.0	1/32	8800	170000	Trc	0	80	21	11.0	0.2	0.3	5
2238	41	14.70	41	21	5	4	6	15.0	1/32	8600	168000	Trc	0	80	21	11.0	0.2	0.2	4
2368	43	14.80	43	22	6	3	5	14.0	1/32	8700	168000	Trc	0	80	21	11.3	0.2	0.2	4
2401	42	14.70	45	22	6	3	5	14.0	1/32	8700	165000	Trc	0	80	21	11.0	0.1	0.2	4
2498	43	14.70	44	22	6	3	5	14.0	1/32	8800	160000	Trc	0	80	21	11.0	0.1	0.2	4
2558	42	14.80	44	23	6	4	6	14.0	1/32	8900	161000	Trc	0	79	21	10.5	0.1	0.2	4
2607	43	14.70	45	22	7	4	6	15.0	1/32	8600	161000	Trc	0	80	21	10.5	0.1	0.2	4
2667	46	14.70	44	21	8	5	7	14.0	1/32	7900	158000	Trc	0	80	21	11.0	0.2	0.2	4
2756	48	14.70	44	21	8	5	8	14.0	1/32	7800	155000	Trc	0	80	21	11.0	0.2	0.3	4
2797	47	14.70	45	22	9	5	7	14.0	1/32	6900	159000	Trc	0	80	21	11.0	0.2	0.2	3
28[illegible]	48	14.70	46	22	10	5	6	13.0	1/32	6000	163000	Trc	0	80	21	11.5	0.2	0.3	3
2[illegible]	48	14.70	46	23	23	4	6	12.0	1/32	4600	168000	Trc	0	80	21	11.5	0.2	0.3	3
29[illegible]0	48	14.70	46	22	10	4	6	12.0	1/32	4700	167000	Trc	0	80	21	11.0	0.2	0.2	3
3006	45	14.70	46	23	9	4	6	13.0	1/32	4800	165000	Trc	0	79	21	11.0	0.1	0.2	3
3093	48	14.70	47	24	10	4	7	12.0	1/32	4700	170000	Trc	0	80	21	11.5	0.2	0.3	3
3157	46	14.70	47	24	10	4	6	11.0	1/32	3800	168000	Trc	0	80	21	11.0	0.2	0.3	3
3250	45	14.70	47	21	9	4	5	11.0	1/32	2800	169000	Trc	0	80	21	10.5	0.2	0.3	4
3282	48	14.70	47	24	10	5	7	11.0	1/32	2900	168000	Trc	0	80	21	10.5	0.2	0.3	3
3340	46	14.70	47	25	10	4	7	12.0	1/32	3200	159000	Trc	0	80	21	11.0	0.2	0.3	3

GEOSERVICES

NETSIQ N-01 RAD.OF CURVATURE

DEPTH Stand metr	DRIFT	BEARING	Depth Vertical metr	BOTTOM HOLE COORDINATES NORTH	SOUTH	WEST	EAST	L
203.9	0.92	64.4	203.90	0.00		0.00		1
214.9	1.63	0.4	214.90	0.21			0.13	2
235.8	0.62	92.3	235.79	0.50			0.25	3
253.3	0.55	178.6	253.29	0.37			0.37	4
279.9	1.28	244.8	279.89	0.01			0.15	5
435.2	0.50	216.0	435.17		1.53	1.71		6
445.2	1.33	166.6	445.17		1.68	1.74		7
458.7	0.85	121.2	458.67		1.89	1.59		8
468.3	1.05	113.9	468.27		1.96	1.45		9
478.0	0.38	127.4	477.97		2.03	1.35		10
487.0	0.95	184.3	486.96		2.12	1.30		11
506.0	0.52	158.5	505.96		2.36	1.27		12
581.0	0.53	71.3	580.96		2.65	0.64		13
650.0	0.77	177.8	649.96		3.10		0.00	14
459.0	0.98	161.2	458.98		0.23	0.53		15
679.0	0.82	147.4	678.95		3.34		0.97	16
733.0	0.38	36.5	732.95		3.36		1.53	17
759.0	1.35	113.8	758.94		3.26		1.91	18
791.0	0.85	14.3	790.94		3.18		2.32	19
823.0	0.48	161.2	822.94		3.17		2.69	20
848.0	0.85	197.6	847.94		3.46		2.69	21
870.5	1.15	49.0	870.44		3.47		2.81	22
905.6	1.37	44.0	905.49		2.94		3.37	23
944.0	1.38	15.0	943.88		2.14		3.82	24
971.1	1.32	33.0	971.01		1.55		4.08	25
1010.1	0.68	68.0	1010.00		1.12		4.61	26
1029.3	1.35	56.0	1029.20		0.96		4.91	27

42" PHASE SUMMARY

15th - 16th September 1985
212.7m - 265.2m
Bit #1
Drilling Hours: 6.04
Average ROP: 8.7 m/hr

NETSIQ N-01 was spudded on 15th September 1985, when Bit #1 (26") and a 42" hole-opener was RIH to tag the mud line at 212.7m. An attempt to spud the well by jetting the seabed failed, so it was spudded with conventional rotary drilling.

Drilling with seawater and 50 bbl Hi-Vis pills every connection, the 42" phase reached 265.2m. After displacing 300 bbls Hi-Vis mud to the hole, a check trip was made to the seabed. On returning to bottom, 10.7m of fill was drilled. 600 bbls of Hi-Vis mud was then spotted before POOH to run 30" casing.

Four joints of 30", 310lbs/ft S16 casing were run on drillpipe, finding some fill at 248.4m. The casing was circulated and washed through to 260.6m. It was then cemented with 64 tons Class G cement + 2% $CaCl_2$; yielding a slurry volume of 260bbls @ 16.3ppg. This was displaced with 34bbls seawater.

17.5" PHASE SUMMARY

17th - 18th September 1985
265.2m - 448.8m
Bits # 2,3.
Drilling Hours (12.25"): 6.45
Drilling hours (17.5"): 5.06
Average ROP (12.25"): 28.4 m/hr
Average ROP (17.5"): 36.3 m/hr

Bit #2 (12.25") tagged the top of the cement at 254.8m,and drilled the shoe and new formation to 448.8m,spotting every third connection with 50bbls H-Vis mud.

At this point,gas bubbles were observed on the starboard side of the ship,so drilling was stopped and the TV camera and ROV were run to the seabed.Gas was observed coming from the wellhead so 150bbls of 12ppg mud was displaced into the annulus to try and stop the influx,without success.

The 12.25" bit was then pulled to open the hole to 17.5" for running 13 3/8" casing.Bit #3 (17.5") drilled out the pilot hole to 448.8m with no further problems.After a check trip to the seabed,15.2m of fill was washed and drilled out to 448.8m,where 600 bbls of Hi-Vis mud was pumped before POOH.

Twenty joints of 13 3/8",72lbs/ft C-95 casing was then run on drillpipe, and latched into the 30" wellhead with 30Klbs overpull (using a 20"x13 3/8" swage joint).150 bbls of seawater was pumped,prior to cementing as follows:

1325 sacks Class G + 0.2% CaCl;yielding 250 bbls slurry @ 16.3ppg.
The wiper plug was then sheared by the dart,and the cement displaced using the rig pumps.The running tool was then released and POOH.

12.25" PHASE SUMMARY

19th September - 1st October 1985
448.8m - 541.5m
Bit # 4.
Drilling Hours: 23.38
Average ROP: 3.96 m/hr.

After running the BOP and latching on to the wellhead, a full function and pressure test was performed. The wear bushings were run and Bit #4 (12.25") was made up on a new BHA and RIH.

Top of the cement was tagged at 406m; and this was drilled, along with the float and shoe to 436.8m. The seawater in the hole was then displaced to 9.8ppg mud, and SCR's were taken.

This bit then drilled ahead to 453.2m, when the hole was conditioned for a leak-off test. The LOT gave a MWEQ of 16ppg. Drilling continued to 463.3m, where a kick was taken. The well was closed in, and the shut-in pressures were: SIDP=400psi, SICP=235psi. A 160 bbl gain was seen in the pits. A 15 ppg mud was required to kill the well, and this was pumped using the 'wait and weight' method. The riser was then circulated to 15 ppg mud.

An analysis of the chloride content of the influx liquid indicated that it was probably a calcium chloride flow. When the well was opened, mud was being lost to formation; so it was closed in and the riser topped up with 25 bbls mud. The well was observed using the trip tank, whilst 14ppg mud was being mixed.

With no circulation, the annulus was found to be static, but with circulation 52bbls mud were lost to formation. A 60bbl LCM pill @ 14ppg was pumped, but when circulated the hole still lost 60 bbls.

The riser was then displaced to 13.5ppg mud, and a second LCM pill-70bbls @ 14ppg-was pumped. 28bbls mud were lost to formation when circulated down.

The pipe was POOH to 391m, and upon circulation lost a further 48 bbls. With no warning, the well flowed again, but as the flowline was connected to the trip tank, the back-pressure caused the influx to flow over the diverter and into the sea; so no volume readings were possible.

The well was closed in, giving SIDP=125psi, SICP=200psi. It was killed using 14ppg mud, and the riser was then displaced to 13.5ppg.

With the bit at 391m, a 46bbl diesel-gel 'gunk' plug @ 11.5ppg was pumped, with a 5bbl diesel spacer ahead and behind. Simultaneously, 14ppg mud was displaced down the annulus. This gunk plug was then squeezed with 30bbls 14ppg mud @ 70psi.

At this point, the pipe was found to be stuck, and was eventually worked free and RIH to 422m, pumping away 300bbls mud to formation.

Upon POOH, a 45bbl kick occurred at 340m, so the well was shut in again. Pressures were: SIDP=180psi, SICP=70psi. The influx was killed using the 'drillers' method and 14ppg mud. The losses whilst circulating were 14bbls, with the choke wide open to maintain circulation.

When the well was opened, it was found to be still flowing. 200bbls of 14ppg mud were then bullheaded in via the kill line; but the well still flowed 70bbls to the pits when opened. The pipe was then pulled to above the BOP whilst flowing, and the shear rams were closed.

Upon POOH, there was evidence of the gunk plug all the way up the HWDP, which could indicate a possible leak at the top of the casing. Also, the dynamic positioning computers of the ship indicated that the BOP was rotating with the changing heading of the ship. This was also indicated by observation of the goose-necks on the outer barrel of the slip joint, which were rotating with the ship. When the ROV was run to the wellhead, this rotation was confirmed.

Open-ended drillpipe was then run in to above the shear rams,and the riser displaced to 14ppg mud.140bbls of 14ppg mud were also pumped down the kill line before opening the shear rams.When they were opened,the hole was losing mud to formation.

The pipe was run in to 463.3m (TD),and 10 bbls of 14ppg mud were pumped with no returns.Cementing equipment was then made up,and a 58bbl cement plug @ 16.3ppg was pumped,displaced with 20 bbls mud.The pipe was then POOH to 305m,the annular preventer closed,and the cement was squeezed with 14bbls mud.

The annular preventer was then opened,and the pipe pulled out.Whilst waiting on cement,a Dowell-Schlumberger RTTS packer was made up on drill collars;but when RIH it was unable to pass the 20"x13 3/8" casing swage at 215.2m.Schlumberger then ran the following logs:CBL;HDT;Caliper.

From the CBL,it was found that the top two joints of the 13 3/8" casing below the swage had no cement behind them;and as the top collar was Baker-Locked and the second collar not,it was thought that this coupling was where the BOP was rotating about.

The RTTS was tried again,but still could not pass the swage at 215.2m, although the caliper log indicated that it could.Whilst trying to work the RTTS through the swage,it was accidentally backed-off from the XO above it, and when POOH the RTTS and collars were left in the hole.

The XO and pipe was run in to try to screw into the RTTS,but was not successful.A second attempt using a wear bushing running tool as a centraliser was also unsuccessful;but the third attempt using a 14 3/4" stabiliser as a centraliser enabled the XO to be screwed back on to the RTTS.The RTTS and collars were then POOH.

Bit #4(RR) was then RIH to try to tag cement,but none was found right down to TD.The hole was circulated to 14ppg mud all around before POOH.

Open-ended drillpipe was again RIH to TD,and a 58bbls cement plug @ 16.3ppg was pumped.The pipe was then POOH to above the shear rams,and the cement was squeezed with 25bbls mud,with no pressure readable and no returns.

After POOH and waiting on cement,a 13 3/8" cup tester was run in,and the interval 205.4m - 244m was tested to 1000psi for 15 minutes,and held pressure OK.

The cup tester was then POOH,and the whole well pressure-tested to 1700psi,but it bled back to 900psi in 10 minutes.A round trip was then made to find the top of the cement,which was tagged at 416m.

A further pressure test of the whole well to 1700psi leaked down to 1300psi in 10 minutes,indicating there was still a leak somewhere-possibly at the top of the casing.

The riser was then displaced to seawater in case of disconnection being required during the approaching rough weather.

After waiting on weather for 50 hours,a wear bushing running tool was run in to the top of the shear rams,and the riser was then displaced back to 14ppg mud.The wear bushing was then retrieved,and the BOP test tool was then run in.A full function and pressure test was then performed.

During this BOP test,it was found that the shear rams were leaking, which was previously interpreted as a leak at the top of the casing.It was therefore decided to drill ahead,despite the fact that the BOP was still turning with the ship.

After running the wear bushings,Bit #4 (RR) was made up on the BHA,and run in to tag cement at 400m.This cement was drilled out to the previous kick depth of 463.3m,and new hole was drilled to 477m.

At this point,a 23bbl kick was taken.When closed in,the pressures were: SIDP=80psi,SICP=110psi.A gas peak of 0.2% was recorded with the influx.The well was killed with 15ppg mud,losing 15bbls to formation.When continuing the kill process with the choke open,a further 16bbls were lost.

The riser was also displaced to 15ppg mud,with losses of 37bbls;and further circulation gave losses of 20 bbls.It was thus decided to pump a diesel-gel 'gunk' plug.

The pipe was POOH to 453m,and a 65bbl gunk plug was pumped and squeezed with the annular preventer closed.The well was further circulated to 15ppg mud,with no losses.

Bit #4 (RR) was then reamed back to bottom,and the annular volume circulated.Drilling then continued to 483m,where returns were lost again. Four joints of pipe were then POOH,the rams closed,and the riser circulated to 14.5ppg mud.

When the rams were opened,losses at 6bbls/minute were seen.A 65 bbl gunk plug was then pumped and squeezed,and the hole circulated to 14.5ppg mud with no further losses.

The bit was reamed back to bottom with no problems,and drilling continued from 483m.Hard limestone/dolomite was drilled from 502m to 541.5m,which was considered enough for a good casing seat to seal off the above loss/flow zones.

The hole was circulated clean,and a wiper trip made to the 13 3/8" shoe, before POOH for logging.

Schlumberger then ran the following logs:

1) DLL/MSFL/GR/AMS/SPA
2) AMS/NGT/CNL/LDT
3) BHC/GR/CBL

The 9 5/8" casing hanger and shoe joint were then made up and stood back in the derrick,both wear bushings were retrieved,and a wiper trip was made to TD with no drag and no fill.

Twenty-five joints of 9 5/8",47lbs/ft S-95 casing were then run and landed,the string including an FO collar (full-opening) for possible second-stage cementing.

When circulation was broken,returns were lost,so the casing was re-landed and circulated again with no returns.A total of 93bbls mud were lost to formation.The casing was then cemented with 126 bbls slurry @ 16.3ppg.

The dart was then dropped and displaced with 13 bbls mud,the wiper plug was sheared,and displacement followed with the rig pumps.The plug was bumped with 900 psi,and losses during displacement were 153 bbls.

The riser volume was then displaced via the kill line,with no losses and no cement returns.The running tool was then released and the riser volume circulated via the landing string with no cement returns.The cementing kelly was then laid down,and the running string POOH.

Schlumberger then ran a CCL/Temperature log,which indicated that the top of the cement was about at the level of the FO collar.It was thus decided to cement a second-stage through the FO collar.

The pack-off setting tool was then RIH and the pack-off released.The setting tool was then POOH.

A cementing string was then made up ,incorporating a Hurricane packer and an FO collar operating tool,and RIH.The FO collar was opened,and 20 bbls mud were circulated through it with no losses.The packer was then set just below the FO collar,and 20 bbls slurry @ 16.3ppg were pumped.

This was displaced with 10 bbls mud,the packer released,and the FO collar closed with the tool.The packer was then set above the FO collar,and was tested to 1000psi to ensure it had closed.

The packer was released again,and the excess cement was circulated out with mud.The cementing string was then POOH to 210m,and the wellhead was flushed with mud before POOH completely.

The casing hanger running tool was then RIH to the pack-off,and the casing pressure-tested successfully to 4000psi.

A wash-sub was then RIH to tag the top of the cement at 246.9m,and the riser was displaced to seawater,washing the BOP and wellhead before POOH. The choke,kill and diverter lines were all flushed with seawater ,and preparations were then made to pull the riser and BOP.

8.5" PHASE SUMMARY

2nd - 16th October 1985.
541.5m - 1040m.
Bits #5 - 10.
Drilling Hours: 162.46
Average ROP: 3.07 m/hr.

When the BOP was on surface,the support-ring was dis-assembled,checked, cleaned and re-assembled.The BOP was then tested on both pods before re-running.Riser joints were tested every third joint whilst running in,and the BOP was landed and checked with 50Klbs overpull.A full function and pressure-test of the BOP was then performed.

After the wear bushings were run,Bit #5 (Smith SDGH,8.5") was made up on 6.25" drillcollars,and RIH to the top of the cement at 247m.This cement and the FO collar was drilled out to 251m,and the pipe was run in further to tag the top of the lower cement at 432m.

The riser was then displaced to 12.1ppg mud,and the casing was tested to 3000psi.The cement,float collar and shoe was then drilled to 541.6m.and one foot of new formation was drilled to 541.9m.The mud was then circulated and conditioned,and a leak-off test was performed;giving an equivalent mud weight of 21 ppg.

Drilling then continued to 543m,where a 6 bbl pit gain was observed.The well was closed in,and the shut-in pressures indicated that a mud weight of 15ppg was required.The well was then killed with 15ppg mud using the 'wait and weight' method,and 16bbls of mud were lost during the operation.The riser was then circulated to 14.3ppg mud with the shear rams closed,and then the whole well was circulated with 14ppg mud at 30 spm,whilst building volume and weight to 14.3ppg in the active system.

The well was then circulated to 14.3ppg with no further losses or gains, and drilling continued to 588.8m.At this depth,another 6bbl pit gain was observed,so the well was closed in.The shut-in pressures indicated that a mud weight of 14.7ppg was required;and so the well was stabilized with this weight.Drilling then continued to 610.2m.

At this point,bad weather with high seas was approaching,so it was decided to pull out and wait for the storm to pass.Open-ended drillpipe was run in to above the shear rams,the riser was displaced to seawater,and the Lower Marine Riser Package (LMRP) was disconnected from the BOP stack.

After waiting on weather for 35 hours,both wear bushings were retrieved (to allow the subsea TV camera to pass through),and several attempts were made to land the LMRP on the BOP with the correct alignment.This was eventually done,and open-ended drillpipe was then run in to above the shear rams,and the riser was displaced to 14.7ppg mud.The well was then opened, and B/U was circulated before POOH.

The wear bushings were then re-run,and Bit #6 (Smith SDGH) was RIH.This bit drilled from 610.2m to 682.2m,before it was pulled for low ROP.

Bit #7 (HTC J33) then drilled from 682.2m,but when B/U arrived at surface a 10bbl pit gain was observed.This was thought to be due to an air slug being pumped down the pipe,caused by bad fillup on RIH.The well was circulated until stable,and drilling continued to 770.6m.This bit was then pulled for low ROP.

Because of the hard dolemite being drilled,a harder bit (Bit #8,Smith F4) was run next.This bit drilled to 914.7m in almost 54 hours,until being pulled for low ROP.

Bit #9 (Smith F3) then drilled to 1000.2m in 38 hours,and was pulled because of approaching bad weather.The riser was displaced to seawater,and operations ceased for 8 hours until the sea became calmer;but unlatching the BOP was not necessary.

Bit #10 (HTC J44) was then run in to 182m, the riser displaced to 14.7ppg mud, and drilling continued from 1000.2m. Again on bottoms-up, a 40bbl pit gain was observed, and the well was closed in. This was probably due again to an air slug being pumped down the pipe, caused by bad fillup during RIH. Continued circulation showed the well to be static, and drilling continued to 1040m.

Sand was seen in the sample from 1010m (corresponding to a drilling break), and further samples contained quartz and micaceous shaley material, with some granite cuttings. It was then decided to stop drilling and log the hole, to determine whether basement had been reached.

After circulating B/U, a 10-stand wiper trip was made with no drag and no fill, and Bit #10 was POOH for logging.

Schlumberger then ran the following logs:

1) DLL/MSFL/Cal.
2) AMS/NGT/CNL/LDT.
3) Dual Induction/Sonic
4) SHDT (tight spot at 639.8m)
5) RFT Run 1 -tool malfunction.
6) RFT Run 2.

During these logging runs, the GEOSERVICES TDC engineers were released, leaving the mudloggers on board for any further operations.

HYDROCARBON MUD LOG

Geoservices

WELL CANTERRA ENERGY ICG Sogepet et al Netsig N-01

STATE or PROV. Northwest Territories
LOCATION Lsd ___ Sec ___ Twp ___ Rge ___ W ___
Lat
Long
ELEVATION K.B. 13.4m
DATE SPUDDED 15/09/85
SCALE 1:600
TECHNICIANS

LEGEND

Each horizontal division equal 1 Meter

MUD DATA

W	Weight in lb/Gal
V	Viscosity
WL	Filtrate in cc
FC	Filter Cake
CL	Chloride Cont. in ppm
Rm.	Mud Resistivity in Ω m/m²
Rmf.	Mud Filtrate Resistiv. in Ω m/m²

DRILLING LEGEND

NB	New Bit
RRB	Rerun Bit
DB	Diamond Bit
TB	Turbo Drill
CB	Core Bit
DCB	Diamond Core Bit
DS	Deviation Survey
W/B	Weight on bit
RPM	Rotation (Rev/min)
LC	Lost Circulation
NR	No Returns
TG	Trip Gas

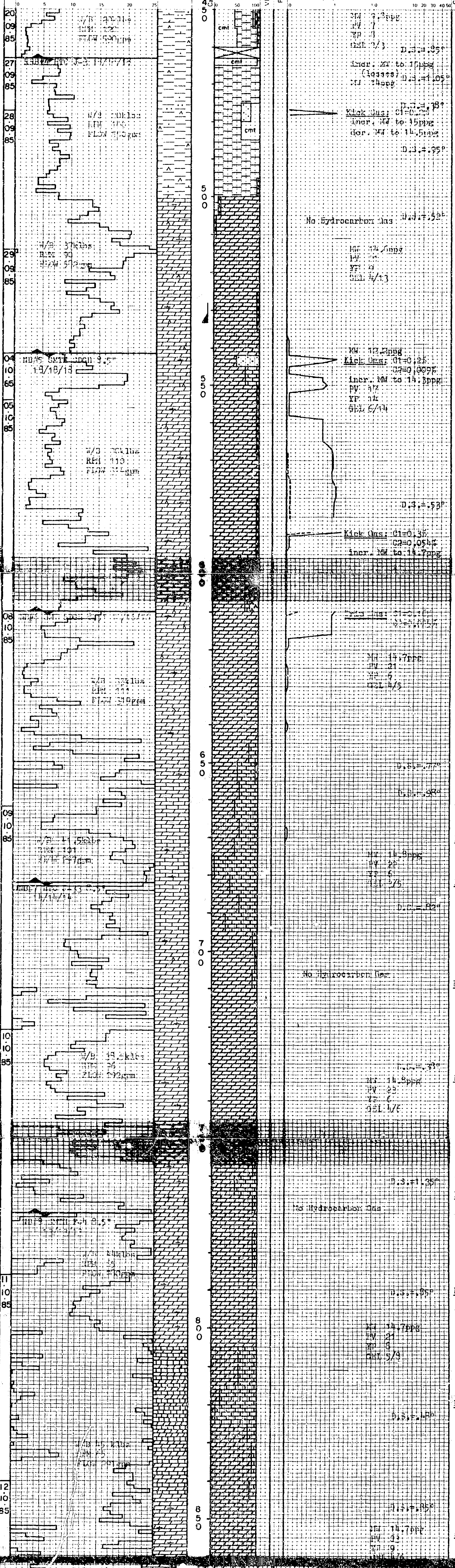
LITHOLOGY LEGEND

Sand, Sandstone; Silt; Quartzite; Conglomerate; Shale, Clay; Silty shale; Limestone; Ool Limestone; Dolomite; Salt; Gypsum; Anhydrite; Coal, Lignite; Chert; Metamorphic rock (Gneiss....); Extrusive rock (Basalt....); Intrusive rock (Granite....)

ENGINEERING LEGEND

C 1 rec. 95% — Core Nº 1 recovery 95%
DST 1 — Drill Steam Test Nº 1
Dry
Water
Oil
Gas

DATE	DRILLING RATE Min/Meter	LOG	DEPTH Meter	LITHOLOGY Cuttings %	VISUAL POROSITY	FLUORESCENCE	HYDROCARBON GAS in mud and cuttings (methane, ethane, propane)	DESCRIPTIONS / ENGINEERING REMARKS



LST: lse qtz, clr-mlky, f-m grns, subrnd-rnd.
MDST: rd-brn, v sft, calc, loc sndy.

CaCl₂ Kick @ 463.3m
160bbl gain.

CaCl₂ Kick (with mnr gas) @ 477.4m. 23bbl gain.
LC 6bbl/min @ 483m

MDST: rd-brn, v sft, swell, occ slty.

DOL: wh-lt pk-buff, sl calc, occ IC & microvug Ø. mnr grdg to LST, wh-buff, crypto-microxln, dolic, no vis Ø.

9 5/8" CSG Shoe set @ 533.4m

Kick @ 543.2m. 6bbl gain.
Abund lse SND from CSG Shoe.
LST: wh-buff, chlky-vf xln, sl-v dolic, sft-frm, sl fri in part, cln, local mnr IC & microvug Ø.
DOL: lt brn, mnr buff-pk, pred micro-v f xln (decr cryptoxl) calc in pt, mnr IC Ø, mnr grdg to LST.

DOL: pk-lt buff, micro-v f xln, bcm more dns, cln, occ poor IC Ø, no shows.

Kick @ 590m. 6bbl gain.
LST: wh-buff-pk, cryptoxln (chlky)-v f xln, sl-v dolic, cln, no vis Ø.

GYP: clr, xln, occurs as dissem xls throughout DOL.

DOL: buff-pk, micro-v f xln, pred dns, cln, tr GYP incl, occ calc, occ tr IC & PP Ø, no shows.

LST: wh-buff, sl-v dolized, micro-v f xln, cln, no vis Ø.

DOL: buff, pred micro-v f xln, v calc, grdg to LMST.

LMST: wh-buff-crm, microxln, pred v dolized.

DOL: buff-lt brn, microxln, suc, sl calc, hd.

DOL: crm-buff, sme lt rd-tn, micro-cryptoxln, v hd, dns, bcming more calc.

LST: crm-bf, sft, dnse, dol

DOL: crm, sme rd-rsy, cryptoxln, rthy, hd-mod hd, sl calc.

LST: bf-lt brn, cryptoxln, dnse, cln, occ dol grdg to dol, no vis pors.

DOL: crm-bf-rsy, sme lt tn, crpxl-micxln, sme suc i/p, mod hd-bri mod calc, no vis pors

DOL: pk-lt buff, micro-v f xln, bcm more dns, cln, occ poor IC Ø, no shows.

Kick @ 5?0m. ?bbl gain.

LMT: wh-buff-pk, cryptoxln (chlky)-v f xln, sl-v dolic, **cln, no vis Ø.**

[illegible]: cln, xl[illegible], occurs [illegible] xls throughout [illegible].

DOL: [illegible]uff-pk, micro-v f xln, pred [illegible], cln, tr [illegible], occ calc, occ tr [illegible] Ø, no shows.

LMT: [illegible]-buff, sl-v dolized, micro-v f xln, cln, no vis Ø.

DOL: [illegible]ff, pred micro-v f xln, v [illegible], grdg to LMST.

LMT: [illegible]-buff-crm, microxln, pred v dolized.

DOL: buff-lt brn, microxln, [illegible], sl calc, [illegible].

DOL: crm-buff, sme lt rd-tn, micro-cryptoxln, v hd, dns, bcmin more calc.

LMT: crm-bf, sft, dnse, dol

DOL: crm, sme rd-rsy, cryptoxln, rthy, hd-mod hd, sl calc.

LMT: bf-lt brn, cryptoxln, dnse, cln, occ dol grdg to dol, no vis pors.

DOL: crm-bf-rsy, sme lt tn, crpxl-micxln, sme suc i/p, mod hd-brit, mod calc, no vis pors

NOTE: Trace C1

NOTE: Trace C1

LMT: [illegible]-wh, sft, dnse, dol grdg to dol.

DOL: crm-buff-rd, sme lt brn, cryptoxln, hd-brit, dnse, occ suc, sl calc.

LMT: lt gy-wh, sft-frm, dnse, dolic, grding to DOL.

DOL: buff-lt brn/rd, mod hd-hd, cryptoxln-microxln, rthy, calc.

LMT: lt [illegible]-buff-lt tn, pred sft, chky, sme mod hd, [illegible] xln, dolic in pt, no vis Ø.

DOL: pred lt brn, microxln, pred non-calc, occ calc incl, cln, tite.

LMT: lt gy-tn, sme mot rd, v sft-mod frm, chky-cryptoxln, **cln.**

SND: clr qtz, occ pk-rs, f-m-c grns, sng-subang, poor srt, lse, no vis cem.

SH: gy-lk gy, v sft, blky, homog, v mica, slty, metal lstr.

GRNT: qtz, clr-transp, ang; abund blk biot; tr wh musc; pk & wh fld; poss tr hornbd.

TD = 1060m.

Ottawa 8710-C55-1-2

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Field	Value
Container Identity	Plastic
Laboratory Number	70489-85-695
Operator	Canterra Energy Ltd.
Page	1 of 6
Location	59° 50' 48.00" NL 87° 30' 59.50" WL
Well or Sample Location Name	ICG Sogepet et al Netsiq N-01
KB Elev. (m)	
GRD Elev. (m)	
Field or Area	Eastcoast Offshore
Pool or Zone	
Sampler	
Test Type & No.	RFT
Test Recovery	
Point of Sample	1 Gallon Chamber
Amt. & Type Cushion	
Mud Resistivity	@ °C
Test Intervals or Perfs. (m)	735.5

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/d

PRESSURES, kPa (gauge): SEPARATOR | RESERVOIR | CONTAINER WHEN SAMPLED | CONTAINER WHEN RECEIVED

TEMPERATURES, °C: SEPARATOR

Date Sampled (Y M D)	Date Received (Y M D)	Date Analysed (Y M D)	Analyst	Remarks
	85 10 22	85 10 23	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	111000	.3648	4828.2
K	1205	.0040	30.8
Ca	6140	.0202	306.4
Mg	373	.0012	30.7
Ba			
Sr			
Fe	NOT DETECTED		

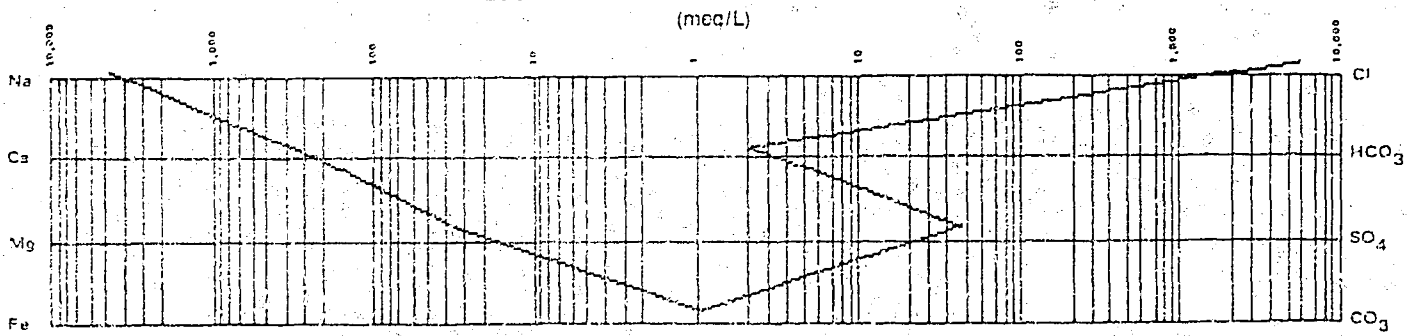
ANIONS

ION	mg/L	mg Fraction	MEQ/L
Cl	183504	.6031	5176.0
Br			
I			
HCO_3	120	.0004	2.0
SO_4	1945	.0064	40.5
CO_3	0	.0000	0.0
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

By Evaporation @ 110°C:	By Evaporation @ 180°C:
At Ignition:	Calculated: 304287
Specific Gravity: 1.1985 @ 15.6°C	Refractive Index: 1.3788 @ 22
pH: 8.3	Resistivity (Ohm-meters): 0.043 @ 25°C

LOGARITHMIC PATTERN OF DISSOLVED IONS (meq/L)



REMARKS: NaCl equiv. 303292

FORM NO. 7021-1

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Container identity: Plastic

Laboratory number: 70489-85-695

Operator: Canterra Energy Ltd.

Page: 2 of 6

Location: 59° 50′ 48.00" NL 87° 30′ 59.50" WL

Well or sample location name: ICG Sogepet et al Netsiq N-01

KB ELEV. (m) GRD. ELEV. (m)

Field or area: Eastcoast Offshore

Pool or zone: Sampler:

Test type & no.: RFT

Test recovery:

Point of sample: 2 3/4 Gallon Chamber

AMT. & TYPE CUSHION | MUD RESISTIVITY @ °C

Test intervals or perfs. (m): 735.5

PUMPING FLOWING GAS LIFT SWAB

WATER m³/d OIL m³/d GAS m³/d

PRESSURES, kPa (gauge): SEPARATOR | RESERVOIR | CONTAINER WHEN SAMPLED @ °C | CONTAINER WHEN RECEIVED @ °C

TEMPERATURES, °C: SEPARATOR

DATE SAMPLED (Y M D)	DATE RECEIVED (Y M D)	DATE ANALYSED (Y M D)	ANALYST	REMARKS
	85 10 22	85 10 23	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	111000	.3688	4828.2
K	1169	.0039	29.9
Ca	5378	.0179	268.4
Mg	100	.0003	8.2
Ba			
Sr			
Fe	NOT DETECTED		

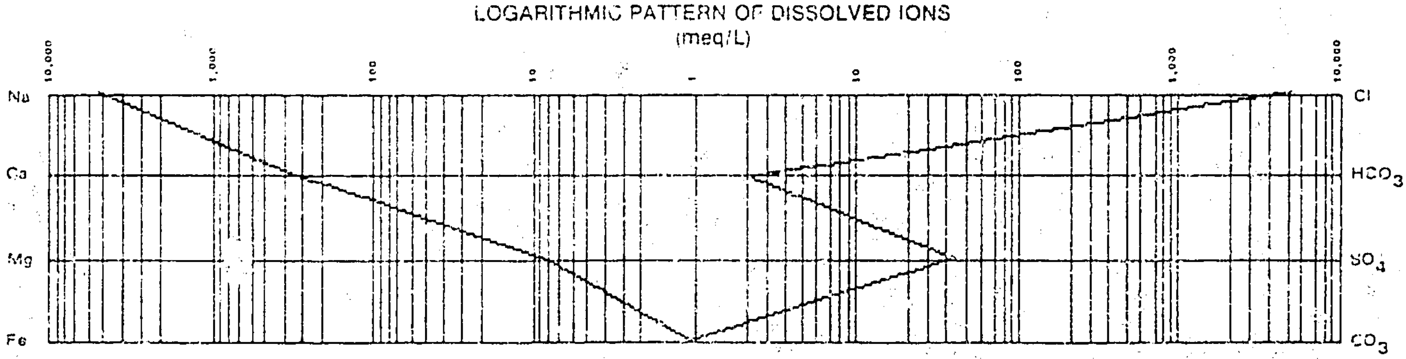
ANIONS

ION	mg/L	mg Fraction	MEQ/L
Cl	181140	.6018	5109.3
Br			
I			
HCO_3	140	.0005	2.3
SO_4	2065	.0069	43.0
CO_3	7	.0000	0.2
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

BY EVAPORATION @ 110°C:	BY EVAPORATION @ 180°C:
AT IGNITION:	CALCULATED: 300998
SPECIFIC GRAVITY: 1.1955 @ 15.6°C	REFRACTIVE INDEX: 1.3784 @ 22
pH: 8.6	RESISTIVITY (OHM/METERS): 0.043 @ 25°C

LOGARITHMIC PATTERN OF DISSOLVED IONS (meq/L)



REMARKS:

NaCl equiv. 299697

FORM NO. 7021-1

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

CONTAINER IDENTITY	Plastic
LABORATORY NUMBER	70489-85-695
PAGE	3 of 6
OPERATOR	Canterra Energy Ltd.
LOCATION	59° 50' 48.00" NL 87° 30' 59.50" WL
WELL OR SAMPLE LOCATION NAME	ICG Sogepet et al Netsiq N-01
KB ELEV. (m)	
GRD ELEV. (m)	
FIELD OR AREA	Eastcoast Offshore
POOL OR ZONE	
SAMPLER	
TEST TYPE & NO.	RFT
TEST RECOVERY	
POINT OF SAMPLE	1 Gallon Chamber
AMT & TYPE CUSHION	
MUD RESISTIVITY	@ °C
TEST INTERVALS OR PERFS. (m)	579

PUMPING ___ FLOWING ___ GAS LIFT ___ SWAB ___

WATER ___ m³/d OIL ___ m³/d GAS ___ m³/d

PRESSURES, kPa (gauge): SEPARATOR ___ RESERVOIR ___ CONTAINER WHEN SAMPLED ___ @ ___ °C CONTAINER WHEN RECEIVED ___ @ ___ °C

TEMPERATURES, °C: SEPARATOR ___

DATE SAMPLED (Y M D)	DATE RECEIVED (Y M D)	DATE ANALYSED (Y M D)	ANALYST	REMARKS
	85 10 22	85 10 23	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	110000	.3636	4784.7
K	1146	.0038	29.3
Ca	6740	.0223	336.3
Mg	61	.0002	5.0
Ba			
Sr			
Fe	NOT DETECTED		

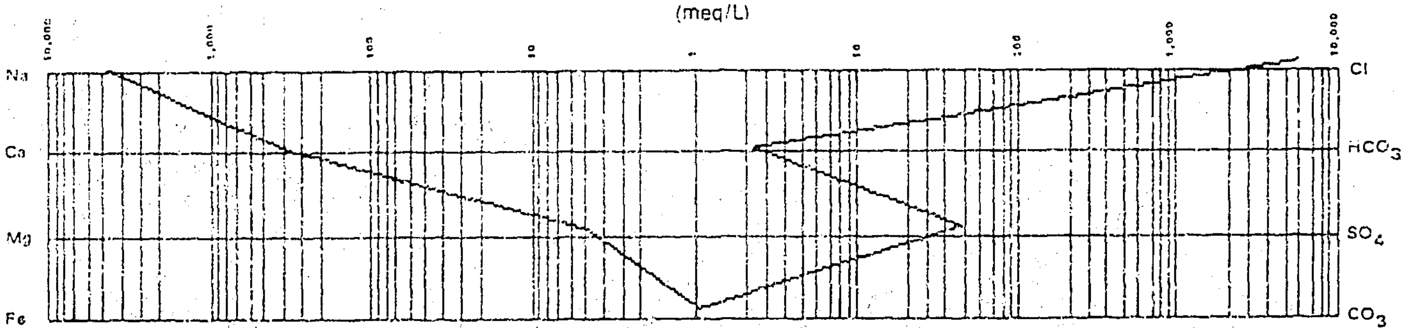
ANIONS

ION	mg/L	mg Fraction	MEQ/L
Cl	182399	.6029	5144.8
Br			
I			
HCO_3	135	.0004	2.2
SO_4	2065	.0068	43.0
CO_3	3	.0000	0.1
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

BY EVAPORATION @ 110°C	
BY EVAPORATION @ 180°C	
AT IGNITION	
CALCULATED	302549
SPECIFIC GRAVITY	1.1990 @ 15.6°C
REFRACTIVE INDEX	1.3796 @ 22
pH	8.4
RESISTIVITY (OHM/METERS)	0.043 @ 25°C

LOGARITHMIC PATTERN OF DISSOLVED IONS (meq/L)



REMARKS: NaCl equiv. 301142

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Container Identity: Plastic
Laboratory Number: 70489-85-695

Operator: Canterra Energy Ltd.
Page: 4 of 6

Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Well or Sample Location Name: ICG Sogepet et al Netsiq N-01
KB Elev. (m):
GRD Elev. (m):

Field or Area: Eastcoast Offshore
Pool or Zone:
Sampler:

Test Type & No: RFT
Test Recovery:

Point of Sample: 2 3/4 Gallon Chamber
Amt. & Type Cushion:
Mud Resistivity: @ °C

Test Intervals or Perfs (m): 579

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/d

PRESSURES, kPa (gauge): Separator | Reservoir | Container when sampled @ °C | Container when received @ °C

TEMPERATURES, °C: Separator

Date Sampled (Y M D):
Date Received (Y M D): 85 10 22
Date Analysed (Y M D): 85 10 23
Analyst: LS
Remarks:

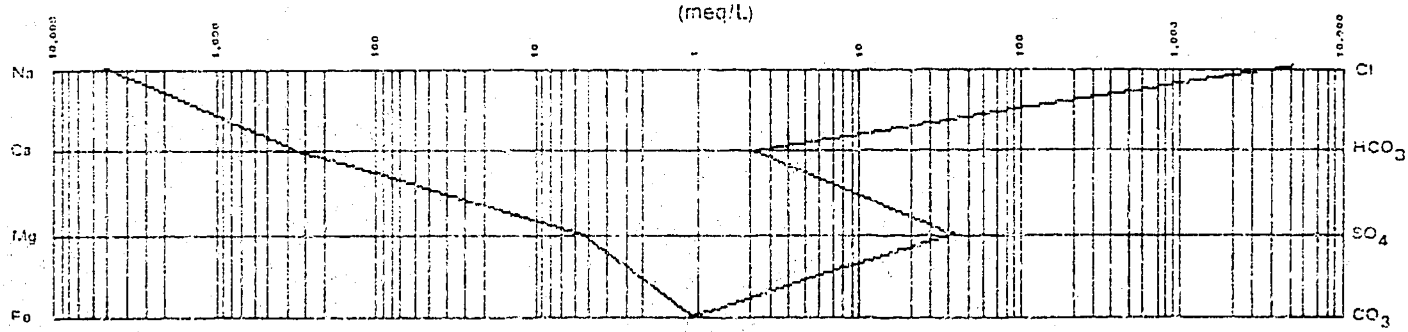
CATIONS ION	mg/L	mg Fraction	MEQ/L	ANIONS ION	mg/L	mg Fraction	MEQ/L
Na	110000	.3687	4784.7	Cl	179474	.6016	5062.3
K	1130	.0038	28.9	Br			
Ca	5551	.0186	277.0	I			
Mg	59	.0002	4.9	HCO_3	147	.0005	2.4
Ba				SO_4	1956	.0066	40.7
Sr				CO_3	7	.0000	0.2
Fe	NOT DETECTED			OH	0	.0000	0.0
				H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

By Evaporation @ 110°C:
By Evaporation @ 180°C:
At Ignition:
Calculated: 298323

Specific Gravity: 1.1950 @ 15.6°C
Refractive Index: 1.3780 @ 22
pH: 8.8
Resistivity (Ohm/Meters): 0.043 @ 25°C

LOGARITHMIC PATTERN OF DISSOLVED IONS (meq/L)



REMARKS:
NaCl equiv. 297021

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Field	Value
Container Identity	Plastic
Laboratory Number	70489-85-695
Operator	Canterra Energy Ltd.
Page	5 of 6
Location	59° 50' 48.00" NL 87° 30' 59.50" WL
Well or Sample Location Name	ICG Sogepet et al Netsiq N-01
KB Elev. (m)	
Grd Elev. (m)	
Field or Area	Eastcoast Offshore
Pool or Zone	
Sampler	
Test Type & No.	RFT
Test Recovery	
Point of Sample	1 Gallon Chamber
Amt. & Type Cushion	
Mud Resistivity	@ °C
Test Intervals or Perfs. (m)	854.2

PUMPING FLOWING GAS LIFT SWAB

WATER m³/d OIL m³/d GAS m³/d

PRESSURES, kPa (gauge): SEPARATOR; RESERVOIR; CONTAINER WHEN SAMPLED @ °C; CONTAINER WHEN RECEIVED @ °C

TEMPERATURES, °C: SEPARATOR

Date Sampled (Y M D)	Date Received (Y M D)	Date Analyzed (Y M D)	Analyst	Remarks
	85 10 22	85 10 23	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	107000	.3517	4654.2
K	1378	.0045	35.2
Ca	9769	.0321	487.5
Mg	520	.0017	42.7
Ba			
Sr			
Fe	NOT DETECTED		

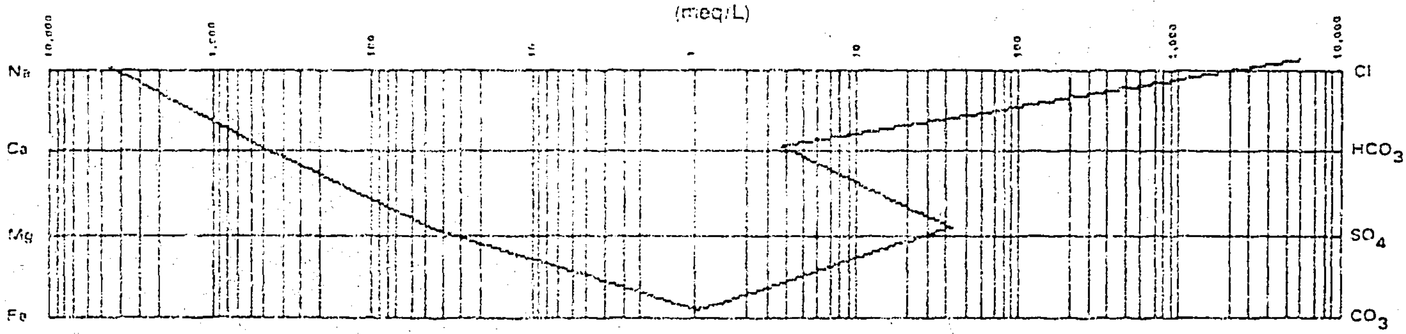
ANIONS

ION	mg/L	mg Fraction	MEQ/L
Cl	183635	.6036	5179.7
Br			
I			
HCO_3	198	.0006	3.2
SO_4	1744	.0057	36.3
CO_3	0	.0000	0.0
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

BY EVAPORATION @ 110°C:	BY EVAPORATION @ 180°C: 304243
AT IGNITION:	CALCULATED:
SPECIFIC GRAVITY: 1.1995 @ 15.6°C	REFRACTIVE INDEX: 1.3795 @ 22
pH: 7.8	RESISTIVITY (OHM/METERS): 0.043 @ 25°C

LOGARITHMIC PATTERN OF DISSOLVED IONS (meq/L)



REMARKS: NaCl equiv. 303258

FORM NO. 7021-1

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Container identity: Plastic

Laboratory number: 70489-85-695

Operator: Canterra Energy Ltd.

Location: 59° 50′ 48.00" NL 87° 30′ 59.50" WL

Well or sample location name: ICG Sogepet et al Netsiq N-01

KB ELEV. (m): GRD ELEV (m):

Field or area: Eastcoast Offshore

Pool or zone:

Sampler:

Test type & no: RFT

Test recovery:

Point of sample: 2 3/4 Gallon Chamber

Amt & type cushion:

Mud resistivity: @ °C

Test intervals or perfs (m): 854.2

PUMPING FLOWING GAS LIFT SWAB

WATER m³/d OIL m³/d GAS m³/d

PRESSURES, kPa (gauge): SEPARATOR RESERVOIR CONTAINER WHEN SAMPLED @ °C CONTAINER WHEN RECEIVED @ °C

TEMPERATURES, °C: SEPARATOR

DATE SAMPLED (Y M D)	DATE RECEIVED (Y M D)	DATE ANALYSED (Y M D)	ANALYST	REMARKS
	85 10 22	85 10 23	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	108000	.3720	4697.7
K	1225	.0042	31.3
Ca	4634	.0160	231.3
Mg	27	.0001	2.2
Ba			
Sr			
Fe	NOT DETECTED		

ANIONS

ION	mg/L	mg Fraction	MEQ/L
Cl	174115	.5997	4911.1
Br			
I			
HCO_3	65	.0002	1.1
SO_4	2135	.0074	44.5
CO_3	113	.0004	3.8
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

BY EVAPORATION @ 110°C:

BY EVAPORATION @ 180°C:

AT IGNITION:

CALCULATED: 290315

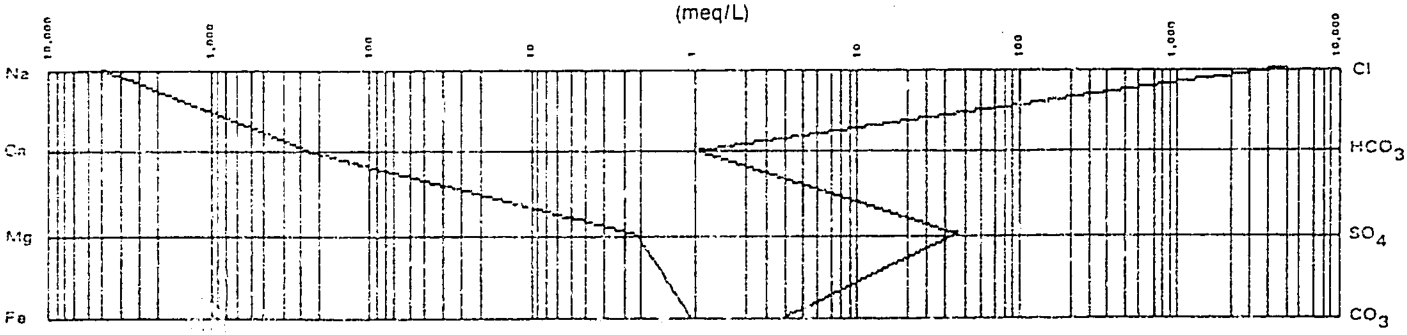
SPECIFIC GRAVITY: 1.1910 @ 15.6°C

REFRACTIVE INDEX: 1.3765 @ 27

pH: 9.8

RESISTIVITY (OHM/METERS): 0.043 @ 25°C

LOGARITHMIC PATTERN OF DISSOLVED IONS (meq/L)



REMARKS:

NaCl equiv. 289024

FORM NO. 7021-1

8710 - C55 - 1-2

CORE LABORATORIES - CANADA LTD.

Petroleum Reservoir Engineering

CALGARY ALBERTA

GAS ANALYSIS

Field	Value
CONTAINER IDENTITY	Plastic
LABORATORY NUMBER	70380-85-1951
OPERATOR	Canterra Energy Ltd.
PAGE	1 of 6
LOCATION	
WELL OR SAMPLE LOCATION NAME	Canterra Netsig N-01
KB ELEV., m	
GRD. ELEV., m	
FIELD OR AREA	
POOL OR ZONE	
SAMPLER	Canterra Energy Ltd.
TEST TYPE & NUMBER	
TEST RECOVERY	
POINT OF SAMPLE	Sample Riser (First Kick)
AMOUNT & TYPE OF CUSHION	
MUD RESISTIVITY	@ °C
TEST INTERVALS OR PERFS., m	463
PUMPING / FLOWING / GAS LIFT / SWAB	
WATER m³/d / OIL m³/d / GAS m³/d	
PRESSURES, kPa (gauge): SEPARATOR / RESERVOIR / CONTAINER WHEN SAMPLED @ °C / CONTAINER WHEN RECEIVED @ °C	
TEMPERATURES, °C: SEPARATOR	
DATE SAMPLED (Y/M/D)	
DATE RECEIVED (Y/M/D)	85 10 17
DATE ANALYZED (Y/M/D)	85 10 17
ANALYST	RH
REMARKS	

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	mL/m³ AIR FREE AS RECEIVED
H_2	0.0000		
He	TRACE		
*N_2+O_2	0.9882		
CO_2	0.0118		
H_2S	0.0000		
C_1	TRACE		
C_2	0.0000		
C_3	0.0000		0.0
iC_4	0.0000		0.0
C_4	0.0000		0.0
iC_5	0.0000		0.0
C_5	0.0000		0.0
C_6	0.0000		0.0
C_7+	0.0000		0.0
TOTAL	1.0000		0.0
		C_5+	0.0

CALCULATED GROSS HEATING VALUE
MJ/m³ @ 15° C & 101.325 kPa (abs.)

MOISTURE FREE	MOISTURE & ACID GAS FREE
0.00	0.00

CALCULATED VAPOUR PRESSURE
kPa (abs.) @ 37.8° C

PENTANES PLUS
0.0

CALCULATED TOTAL SAMPLE PROPERTIES (AIR=1) @ 15° C & 101.325 kPa
MOISTURE FREE AS SAMPLED

DENSITY (kg/m³)	RELATIVE DENSITY	RELATIVE MOLECULAR MASS
1.193	0.974	28.2

CALCULATED PSEUDOCRITICAL PROPERTIES

	AS SAMPLED		ACID GAS FREE	
	pPc kPa (abs.)	pTc K	pPc kPa (abs.)	pTc K
	3446.1	128.4		

REMARKS

*COMPONENT	MOLE FRACTION
N_2	0.8251
O_2	0.1631

Note: The Gross Heating Value has been calculated in accordance to AGA Report #5

FORM NO. 7012-1

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Field	Value
CONTAINER IDENTITY	Plastic
LABORATORY NUMBER	70380-85-1951
OPERATOR	Canterra Energy Ltd.
PAGE	2 of 6
LOCATION	
WELL OR SAMPLE LOCATION NAME	Canterra Netsig N-01
KB ELEV (m)	
GRD ELEV (m)	
FIELD OR AREA	
POOL OR ZONE	
SAMPLER	Canterra Energy Ltd.
TEST TYPE & NO	
TEST RECOVERY	
POINT OF SAMPLE	$CaCl_2$ Water
AMT & TYPE CUSHION	
MUD RESISTIVITY	@ °C
TEST INTERVALS OR PERFS (m)	463

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/d

PRESSURES, kPa (gauge): SEPARATOR | RESERVOIR | CONTAINER WHEN SAMPLED @ °C | CONTAINER WHEN RECEIVED @ °C

TEMPERATURES, °C: SEPARATOR

DATE SAMPLED (Y M D)	DATE RECEIVED (Y M D)	DATE ANALYSED (Y M D)	ANALYST	REMARKS
	85 10 17	85 10 18	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	20000	.0525	869.9
K	5165	.0136	132.1
Ca	99569	.2615	4968.5
Mg	11353	.0298	933.9
Ba			
Sr			
Fe	NOT DETECTED		

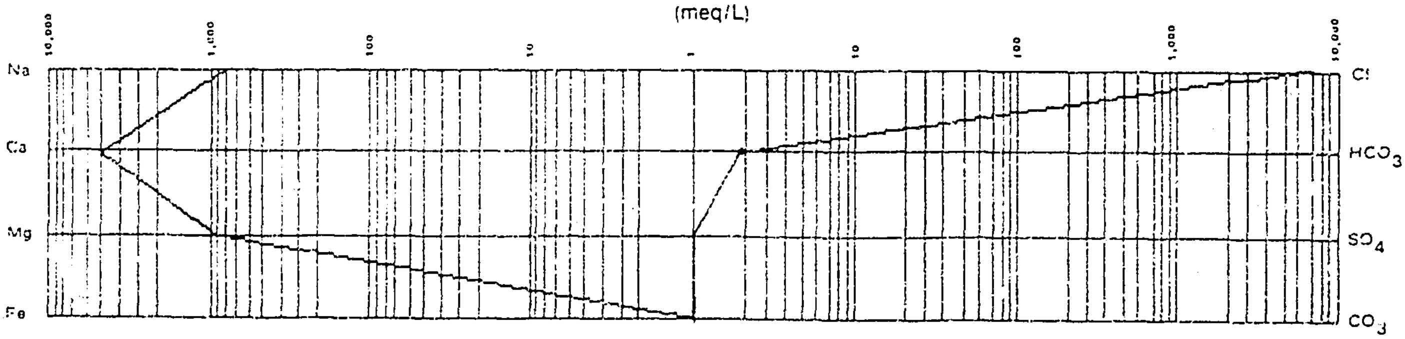
ANIONS

ION	mg/L	mg Fraction	MEQ/L
Cl	244602	.6423	6899.3
Br			
I			
HCO_3	118	.0003	1.9
SO_4	25	.0001	0.5
CO_3	0	.0000	0.0
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

BY EVAPORATION @ 110°C:	BY EVAPORATION @ 180°C:
AT IGNITION:	CALCULATED: 380832
SPECIFIC GRAVITY: 1.3075 @ 15.6°C	REFRACTIVE INDEX: 1.4116 @ 22
pH: 4.9	RESISTIVITY (OHM/METERS): 0.038 @ 25°C

LOGARITHMIC PATTERN (meq/L)



REMARKS:

NaCl equiv. 387107

FORM NO. 7021-1

CORE LABORATORIES - CANADA LTD.
Petroleum Reservoir Engineering
CALGARY ALBERTA

GAS ANALYSIS

CONTAINER IDENTITY: Plastic
LABORATORY NUMBER: 70380-85-1951
OPERATOR: Canterra Energy Ltd.

LOCATION:
WELL OR SAMPLE LOCATION NAME: Canterra Netsig N-01
KB ELEV. m: GRD ELEV. m:
FIELD OR AREA:
POOL OR ZONE:
SAMPLER: Canterra Energy Ltd.
TEST TYPE & NUMBER:
TEST RECOVERY:
POINT OF SAMPLE: Bottoms Up After Reconditioning B.O.P.
AMOUNT & TYPE OF CUSHION:
MUD RESISTIVITY: @ °C
TEST INTERVALS OR PERFS. m: 610
PUMPING FLOWING GAS LIFT SWAB
WATER m³/d OIL m³/d GAS m³/d

PRESSURES, kPa (gauge): SEPARATOR RESERVOIR CONTAINER WHEN SAMPLED @ °C CONTAINER WHEN RECEIVED @ °C
TEMPERATURES, °C: SEPARATOR

DATE SAMPLED (Y/M/D):
DATE RECEIVED (Y/M/D): 85 10 17
DATE ANALYZED (Y/M/D): 85 10 17
ANALYST: RH
REMARKS:

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	mL/m³ AIR FREE AS RECEIVED
H_2	0.0001		
He	TRACE		
*N_2+O_2	0.9908		
CO_2	0.0082		
H_2S	0.0000		
C_1	0.0009		
C_2	0.0000		
C_3	0.0000		0.0
iC_4	0.0000		0.0
C_4	0.0000		0.0
iC_5	0.0000		0.0
C_5	0.0000		0.0
C_6	0.0000		0.0
C_7+	0.0000		0.0
TOTAL	1.0000		0.0
		C_5+	0.0

CALCULATED GROSS HEATING VALUE
MJ/m³ @ 15° C & 101 325 kPa (abs.)
0.04 MOISTURE FREE
0.03 MOISTURE & ACID GAS FREE

CALCULATED VAPOUR PRESSURE
kPa (abs.) @ 37.8° C
0.0 PENTANES PLUS

CALCULATED TOTAL SAMPLE PROPERTIES (AIR=1) @ 15° C & 101.325 kPa
MOISTURE FREE AS SAMPLED
DENSITY: 1.190 kg/m³
RELATIVE DENSITY: 0.971
RELATIVE MOLECULAR MASS: 28.1

CALCULATED PSEUDOCRITICAL PROPERTIES

	AS SAMPLED		ACID GAS FREE
pPc	3432.7 kPa (abs.)	pPc	kPa (abs.)
pTc	127.8 K	pTc	K

REMARKS

*COMPONENT	MOLE FRACTION
N_2	0.8369
O_2	0.1539

Note: The Gross Heating Value has been calculated in accordance to AGA Report #5

FORM NO 7012-1

CORE LABORATORIES · CANADA LTD.

WATER ANALYSIS

Container identity: Plastic

Laboratory number: 70380-85-1951

Operator: Canterra Energy Ltd.

Location:

Well or sample location name: Canterra Netsig N-01

KB elev. (m):　GRD elev. (m):

Field or area:　Pool or zone:

Sampler: Canterra Energy Ltd.

Test type & no.:　Test recovery:

Point of sample: Mud from Bottoms Up

Amt. & type cushion:　Mud resistivity: @ °C

Test intervals or perfs (m): 610

PUMPING　FLOWING　GAS LIFT　SWAB

WATER m³/d　OIL m³/d　GAS m³/d

PRESSURES, kPa (gauge): SEPARATOR　RESERVOIR　CONTAINER WHEN SAMPLED @ °C　CONTAINER WHEN RECEIVED @ °C

TEMPERATURES, °C: SEPARATOR

Date sampled (Y M D)	Date received (Y M D)	Date analysed (Y M D)	Analyst	Remarks
	85 10 17	85 10 18	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	82000	.3367	3566.8
K	1266	.0052	32.4
Ca	11513	.0473	574.5
Mg	97	.0004	8.0
Ba			
Sr			
Fe	NOT DETECTED		

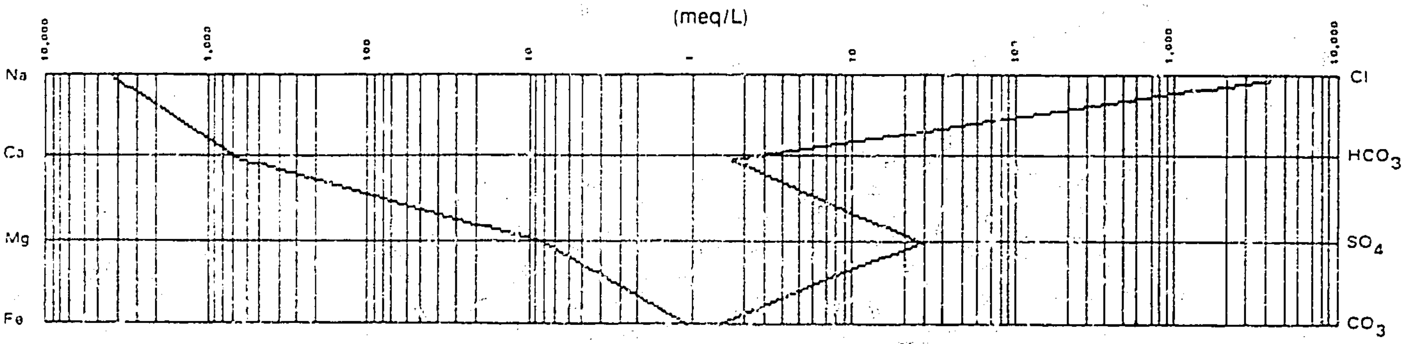
ANIONS

ION	mg/L	mg Fraction	MEQ/L
Cl	147071	.6039	4148.3
Br			
I			
HCO_3	116	.0005	1.9
SO_4	1405	.0058	29.3
CO_3	49	.0002	1.6
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

By evaporation @ 110°C:	By evaporation @ 180°C:
At ignition:	Calculated: 243518
Specific gravity: 1.1650 @ 15.6°C	Refractive index: 1.3722 @ 22
pH: 9.4	Resistivity (ohm/meters): 0.043 @ 25°C

LOGARITHMIC PATTERN (meq/L)



REMARKS:

NaCl equiv. 242264

CORE LABORATORIES · CANADA LTD.
Petroleum Reservoir Engineering
CALGARY ALBERTA

GAS ANALYSIS

Field	Value
CONTAINER IDENTITY	Plastic
LABORATORY NUMBER	70380-85-1951
OPERATOR	Canterra Energy Ltd.
PAGE	5 of 6
LOCATION	
WELL OR SAMPLE LOCATION NAME	Canterra Netsig N-01
KB ELEV. m	
GRD. ELEV. m	
FIELD OR AREA	
POOL OR ZONE	
SAMPLER	Canterra Energy Ltd.
TEST TYPE & NUMBER	
TEST RECOVERY	
POINT OF SAMPLE	Flow Line Mud Sample (Bottoms Up)
AMOUNT & TYPE OF CUSHION	
MUD RESISTIVITY	@ °C
TEST INTERVALS OR PERFS. m	448
PUMPING	
FLOWING	
GAS LIFT	
SWAB	
WATER	m³/d
OIL	m³/d
GAS	m³/d

PRESSURES, kPa (gauge): SEPARATOR | RESERVOIR | CONTAINER WHEN SAMPLED @ °C | CONTAINER WHEN RECEIVED @ °C

TEMPERATURES, °C: SEPARATOR

DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	REMARKS
	85 10 17	85 10 17		

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	mL/m³ AIR FREE AS RECEIVED
H_2	0.0003		
He	TRACE		
$*N_2+O_2$	0.9995		
CO_2	0.0002		
H_2S	0.0000		
C_1	TRACE		
C_2	0.0000		
C_3	0.0000		0.0
iC_4	0.0000		0.0
C_4	0.0000		0.0
iC_5	0.0000		0.0
C_5	0.0000		0.0
C_6	0.0000		0.0
C_7+	0.0000		0.0
TOTAL	1.0000		0.0
		C_5+	0.0

CALCULATED GROSS HEATING VALUE MJ/m³ @ 15° C & 101.325 kPa (abs.)

MOISTURE FREE	MOISTURE & ACID GAS FREE
0.00	0.00

CALCULATED VAPOUR PRESSURE kPa (abs.) @ 37.8° C

PENTANES PLUS
0.0

CALCULATED TOTAL SAMPLE PROPERTIES (AIR=1) @ 15° C & 101.325 kPa

MOISTURE FREE AS SAMPLED

DENSITY	RELATIVE DENSITY	RELATIVE MOLECULAR MASS
1.185 kg/m³	0.967	28.0

CALCULATED PSEUDOCRITICAL PROPERTIES

AS SAMPLED pPc	AS SAMPLED pTc	ACID GAS FREE pPc	ACID GAS FREE pTc
3399.3 kPa (abs.)	126.3 K	kPa (abs.)	K

REMARKS

*COMPONENT	MOLE FRACTION
N_2	0.8376
O_2	0.1619

Note: The Gross Heating Value has been calculated in accordance to AGA Report #5

FORM NO. 7012-1

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Plastic
CONTAINER IDENTITY

70380-85-1951
LABORATORY NUMBER

Canterra Energy Ltd.
OPERATOR

LOCATION

Canterra Netsig N-01
WELL OR SAMPLE LOCATION NAME

KB ELEV (m) GRD ELEV (m)

FIELD OR AREA

POOL OR ZONE

Canterra Energy Ltd.
SAMPLER

TEST TYPE & NO

TEST RECOVERY

Flow Line Mud Sample
POINT OF SAMPLE

AMT & TYPE CUSHION

@ °C
MUD RESISTIVITY

448
TEST INTERVALS OR PERFS (m)

PUMPING FLOWING GAS LIFT SWAB

WATER m³/d OIL m³/d GAS m³/d

SEPARATOR RESERVOIR CONTAINER WHEN SAMPLED @ °C CONTAINER WHEN RECEIVED @ °C — PRESSURES, kPa (gauge)

SEPARATOR — TEMPERATURES, °C

DATE SAMPLED (Y M D)	DATE RECEIVED (Y M D)	DATE ANALYSED (Y M D)	ANALYST	REMARKS
	85 10 17	85 10 18	LS	

CATIONS

ION	mg/L	mg Fraction	MEQ/L
Na	84000	.3859	3653.8
K	589	.0027	15.1
Ca	799	.0037	39.9
Mg	57	.0003	4.7
Ba			
Sr			
Fe	NOT DETECTED		

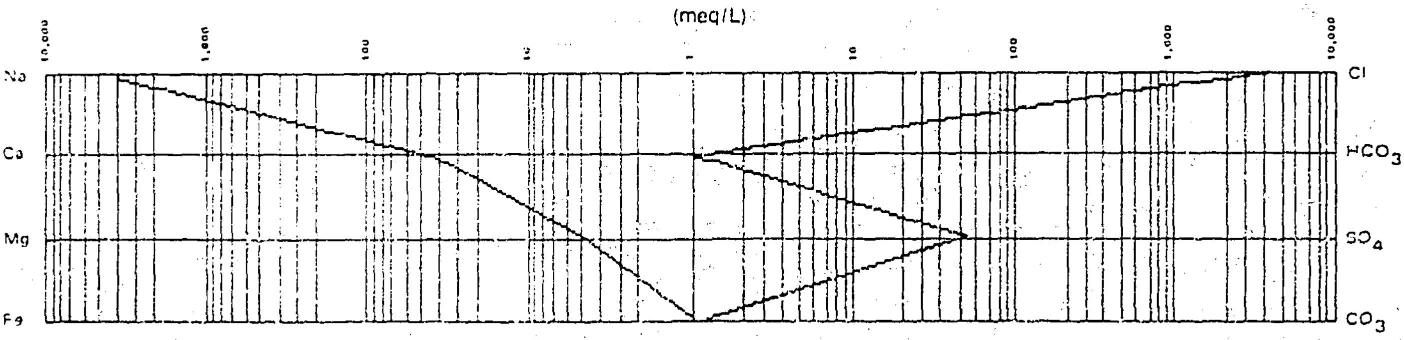
ION	mg/L	mg Fraction	MEQ/L
Cl	129725	.5960	3659.1
Br			
I			
HCO_3	29	.0001	0.5
SO_4	2421	.0111	50.4
CO_3	34	.0002	1.1
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

BY EVAPORATION @ 110°C:
BY EVAPORATION @ 180°C:
AT IGNITION:
CALCULATED: 217655

SPECIFIC GRAVITY: 1.1442 @ 15.6°C
REFRACTIVE INDEX: 1.3646 @ 22
pH: 9.0
RESISTIVITY (OHM/METERS): 0.043 @ 25°C

(meq/L)



REMARKS:

NaCl equiv. 216448

CORE LABORATORIES - CANADA LTD.

WATER ANALYSIS

Field	Value
CONTAINER IDENTITY	Plastic
LABORATORY NUMBER	70380-85-1951
OPERATOR	Canterra Energy Ltd.
PAGE	6 of 6
LOCATION	
WELL OR SAMPLE LOCATION NAME	Canterra Netsig N-01
KB ELEV (m)	
GRD ELEV (m)	
FIELD OR AREA	
POOL OR ZONE	
SAMPLER	Canterra Energy Ltd.
TEST TYPE & NO	
TEST RECOVERY	
POINT OF SAMPLE	Flow Line Mud Sample
AMT & TYPE CUSHION	
MUD RESISTIVITY	@ °C
TEST INTERVALS OR PERFS (m)	448

PUMPING ____ FLOWING ____ GAS LIFT ____ SWAB ____

WATER ____ m³/d OIL ____ m³/d GAS ____ m³/d

PRESSURES, kPa (gauge): SEPARATOR ____ RESERVOIR ____ CONTAINER WHEN SAMPLED ____ @ ____ °C CONTAINER WHEN RECEIVED ____ @ ____ °C

TEMPERATURES, °C: SEPARATOR ____

DATE SAMPLED (Y-M-D)	DATE RECEIVED (Y-M-D)	DATE ANALYSED (Y-M-D)	ANALYST	REMARKS
	85 10 17	85 10 18	LS	

CATIONS

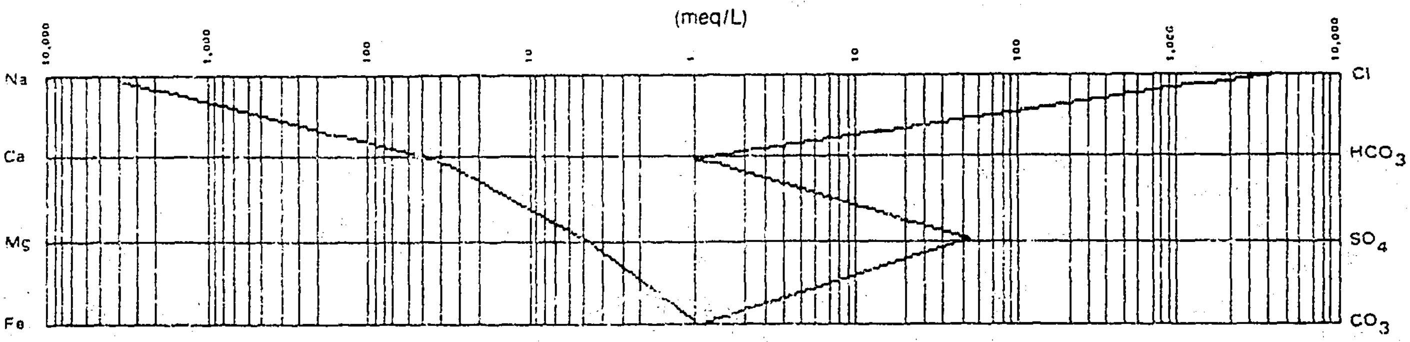
ION	mg/L	mg Fraction	MEQ/L
Na	84000	.3859	3653.8
K	589	.0027	15.1
Ca	799	.0037	39.9
Mg	57	.0003	4.7
Ba			
Sr			
Fe	NOT DETECTED		

ION	mg/L	mg Fraction	MEQ/L
Cl	129725	.5960	3659.1
Br			
I			
HCO_3	29	.0001	0.5
SO_4	2421	.0111	50.4
CO_3	34	.0002	1.1
OH	0	.0000	0.0
H_2S	NOT DETECTED		

TOTAL SOLIDS (mg/L)

BY EVAPORATION @ 110°C:	BY EVAPORATION @ 180°C:
AT IGNITION:	CALCULATED: 217655
SPECIFIC GRAVITY: 1.1442 @ 15.6°C	REFRACTIVE INDEX: 1.3646 @ 22
pH: 9.0	RESISTIVITY (OHM/METERS): 0.043 @ 25°C

LOGARITHMIC ... (meq/L)



REMARKS:

NaCl equiv. 216448

8710-C55-1-2

NOV 08 1985

CORE LABORATORIES — CANADA LTD

PRELIMINARY REPORT

SMALL SAMPLE CORE ANALYSIS

COMPANY Imperial Gas Corporation
WELL ICG Sogepet et al Netsiq N-01
FIELD
LOCATION
ELEVATION

FORMATION
CORING EQUIPMENT Percussion sidewall
CORE DIAMETER (mm)
CORING FLUID Water Base Mud

PAGE 1 of 4
FILE 7017S-85-13382
DATE 85-10-31
ANALYSTS DM

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
NOV 25 1985
ENGINEERING BRANCH
GÉNIE

CLEANING

- Solvent
- Extraction Equipment
- Extraction Time
- Drying Equipment
- Drying Time
- Drying Temperature

ANALYSIS

- [ ] Pore Volume measured by Boyle's Law in a Hassler holder using helium
- [ ] Grain Volume measured by Boyle's Law in a matrix cup using helium
- [x] Porosity determined by summation of fluids (retort)
- [ ] Fluid saturations by retort
- [ ] Water saturation by Dean-Stark
- [ ] Oil saturation by weight difference (Dean-Stark)
- [ ] Permeability measured on mm diameter drilled plugs
- [ ] Permeability measured on 20 mm cubes

REMARKS

1) Altered Core
3) Insufficient Sample
6) Low Recovery

* Permeability values for percussion type sidewall cores determined empirically

DESCRIPTION

cgl = Conglomerate	mic = Micaceous		
ss = Sandstone	ool = Oolitic		
sltst = Siltstone	i = Intergranular		
sh = Shale	sshy = Slightly Shaly (< 20%)		
ls = Limestone	mslty or shy = Moderately Shaly (20-40%)		
dol = Dolomite	vslty = Very Shaly (> 40%)		
gyp = Gypsum	vf = Very Fine		
anhy = Anhydrite	f = Fine		
hal = Halite (Salt)	m = Medium		
fest = Ironstone	c = Coarse		
cht = Chert	grnl = Granule		
pyr = Pyrite (ic)	pbl = Pebble		
sulf = Sulphur	cbl = Cobble		
coal = Coal/Coal Inclusions	bldr = Boulder		
carb = Carbonaceous	vug = Vuggy (ular)		
pyrbit = Pyrobitumen	ppv = Pinpoint Vug		
calc = Calcite (areous)	sv = Small Vug		
lmy = Limy	mv = Medium Vug		
glauc = Glauconite (ic)	lv = Large Vug		
slty = Silty	tr = Trace		
sdy = Sandy	fri = Friable		
lam = Laminae (Laminated)	uncons = Unconsolidated		
sty = Stylolite (ic)	frac = Fracture		
bk = Break	h frac = Horizontal Fracture		
foss = Fossil (iferous)	v frac = Vertical Fracture		

NOV 08 1989

CORE LABORATORIES – CANADA LTD.

ANY [illegible] Corporation
[illegible]
TION

FORMATION
ANALYSTS

PRELIMINARY REPORT

FILE [illegible]
DATE [illegible]

CORE ANALYSIS RESULTS

le ber	Depth-Metres (m)	cm Rec.	Permeability to Air Millidarcys	Porosity	Residual Saturation (Fraction of Pore Volume) Oil	Residual Saturation (Fraction of Pore Volume) Water	Combustable Gas units	API	Prob. Prod.	Visual Examination: Formation Description	Odor	Fluorescence
	542.00	1.50	<1.0	0.140	0.000	0.643	0	–	0	dol ;	no	no
	545.00	0.50	–	–	–	–	0	–	3	dol ;	no	no
	560.00	1.00	<1.0	[illegible]	0.000	0.574	0	.	6	dol ;	no	no
	569.00	1.50	<1.0	0.144	0.000	0.573	0	–	6	dol ;	no	no
	574.50	1.00	<1.0	0.152	0.000	[illegible]	0	–	6	dol	no	no
	579.00	0.75	<1.0	0.134	[illegible]	0.627	0	–	6	dol ;	no	no
	[illegible]	1.50	<1.0	0.133	0.000	0.632	0	–	6	dol ;	no	no
	[illegible].50	1.50	<1.0	0.146	0.000	0.542	0	–	6	dol ;	no	no
	607.50	[illegible]	–	-	-	-	0		1	dol ;	no	no
	[illegible].50	[illegible]	–				0		3	dol ;	no	no
	[illegible].50	[illegible]	–	-	-	-	0	.	1	dol ;	no	no
	[illegible]	[illegible] 50	–	-			0		1	dol	no	no
	[illegible]	0.50	–		-		0		1	dol ;	no	no
	[illegible]	[illegible] 50	-				0	-	1	dol ;	no	no
	[illegible]	[illegible]	<1.0	[illegible]	0.000	[illegible]	0		6	ls ;	no	no
	[illegible]	[illegible]	<1.0	0.152	[illegible]	[illegible]	0	.	6	dol ;	no	no
	[illegible]	[illegible]	<1.0	0.133	0.000	[illegible]	0	-	6	dol ;	no	no
	713.00	[illegible]	–	-	-		0	-	3	dol ;	no	no
	723.50	0.50	-			.	0	-	1	dol ;	no	no
	728.00	1.00	<1.0	0.150	0.000	0.627	0	-	6	dol ;	no	no
	730.50	[illegible]	<1.0	0.130	0.000	0.659	0	-	6	dol ;	no	no

Permeability values for percussion type [illegible] have determined empirically

observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is t the best judgement of Core Laboratories – Canada Ltd., (all errors or omissions excepted); but Core Laboratories – responsibility and make no warranty or representations as to the productivity, proper operation, or profitableness of mineral well or sand in connection with which such report is used or relied upon.

CORE LABORATORIES – CANADA LTD.

NOV 08 1985

ANY Inter-City Gas Corporation
ICG Sympa et al Netsig N-01
TION

FORMATION
ANALYSTS Drc

PAGE 3 of 4
FILE 10175-85-1338C
DATE 85-10-31

PRELIMINARY REPORT

CORE ANALYSIS RESULTS

ile ker	Depth-Metres (m)	cm Rec.	Permeability to Air Millidarcys	Porosity	Residual Saturation (Fraction of Pore Volume) Oil	Residual Saturation (Fraction of Pore Volume) Water	Combustable Gas Units	API	Prob. Prod.	Visual Examination: Formation Description	Odor	Fluorescence
	735.60	0.50	<1.0	0.148	0.000	0.6[illegible]	0	-	6			
	742.00	0.10	—	–	–	–	0	–	1	dol;	no	no
	750.00	1.50	<1.0	0.152	0.000	0.592	0	–	6	dol;	no	no
	753.50	0.75	<1.0	0.152	0.000	0.640	0	–	6	dol;	no	no
	757.50	0.50	-	-	-	—	0	–	1	ls;	no	no
	[illegible]	[illegible]	<1.0	0.161	0.000	[illegible]	0	-	6	dol;	no	no
	786.50	0.50		–	—	–	0	–	1	dol;	no	no
	793.00	0.50	<1.0	0.144	0.000	[illegible]	0	–	6	dol;	no	no
	815.00	0.50			-		0	–		dol;	no	no
	[illegible]	0.75			-		0	–		ls;	no	no
	854.50	0.25	<1.0	0.125	0.000	[illegible]	0	–	6	dol;	no	no
	[illegible]	2.00	<1.0	[illegible]	0.000	[illegible]	0	–	[illegible]	dol;	no	no
	[illegible]	0.25	—	—	—	-	0	–	1	dol;	no	no
	[illegible]	1.00	<1.0	0.125	0.000	[illegible]	0	–	6	dol;	no	no
	[illegible]	0.75	<1.0	0.154	0.000	[illegible]	0	–	6	dol;	no	no
	917.00	0.50	–	—	—	-	0	–	1	ls;	no	no
	[illegible]	0.50	–	-	–	–	0	-	1	ls;	no	no
	970.50	1.00	-	-			0		3	dol;	no	no
	973.50	0.50	–				0	-	1	dol;	no	no
	[illegible]	0.25	-				0	–	3	ls;	no	no
	[illegible]	0.50	-		-	-	0		3	ls;	no	no

Permeability values for percussion type [illegible] determined empirically

...tions and material supplied by the client to whom, and for whose exclusive and confidential use, this report is ...est judgement of Core Laboratories – Canada Ltd., (all errors or omissions excepted), but Core Laboratories – ...sibility and make no warranty or representations as to the productivity, proper operation, or profitableness of ...well or sand in connection with which such report is used or relied upon.

CORE LABORATORIES – CANADA LTD.

NOV 08 1985

[illegible]ANY Inter-City Gas Corporation
[illegible] ICG [illegible] [illegible] [illegible]
[illegible]TION

FORMATION ANALYSTS [illegible]

PRELIMINARY REPORT

PAGE 4 of 4
FILE 7075-85-[illegible]
DATE 85-10-31

CORE ANALYSIS RESULTS

[illegible]le [illegible]er	Depth-Metres (m)	cm Rec.	Permeability to Air Millidarcys **	Porosity	Residual Saturation (Fraction of Pore Volume) Oil	Residual Saturation (Fraction of Pore Volume) Water	Combustible Gas units	API	Prob. Prod.	Visual Examination: Formation Description	Odor	Fluorescence
	[illegible]	[illegible]	2.0	0.155	0.000	0.015	0	–	–	ss wf lmy	no	no
	[illegible]	3.00	–	–	–	–	0	–	–	granite	no	no
	[illegible]	2.00	–	–	–	–	0	–	–	granite	no	no
	[illegible]	2.00	–		–	–	0	–	–	biotite	no	no
	[illegible]	1.00	–				0	–	–	granite	no	no
	[illegible]	[illegible]					0	–	–	granite	no	no
	[illegible]	.50	–	–	–	–	0	–	–	biotite	no	no

** Permeability values for percussion type sidewall cores determined empirically

[illegible]tions and material supplied by the client to whom, and for whose exclusive and confidential use, this report is [illegible]st judgement of Core Laboratories – Canada Ltd., (all errors or omissions excepted), but Core Laboratories – [illegible]ibility and make no warranty or representations as to the productivity, proper operation, or profitableness of [illegible] well or sand in connection with which such report is used or relied upon.

8710-C55-1-2

DAWSON – LONG & ASSOCIATES LTD.

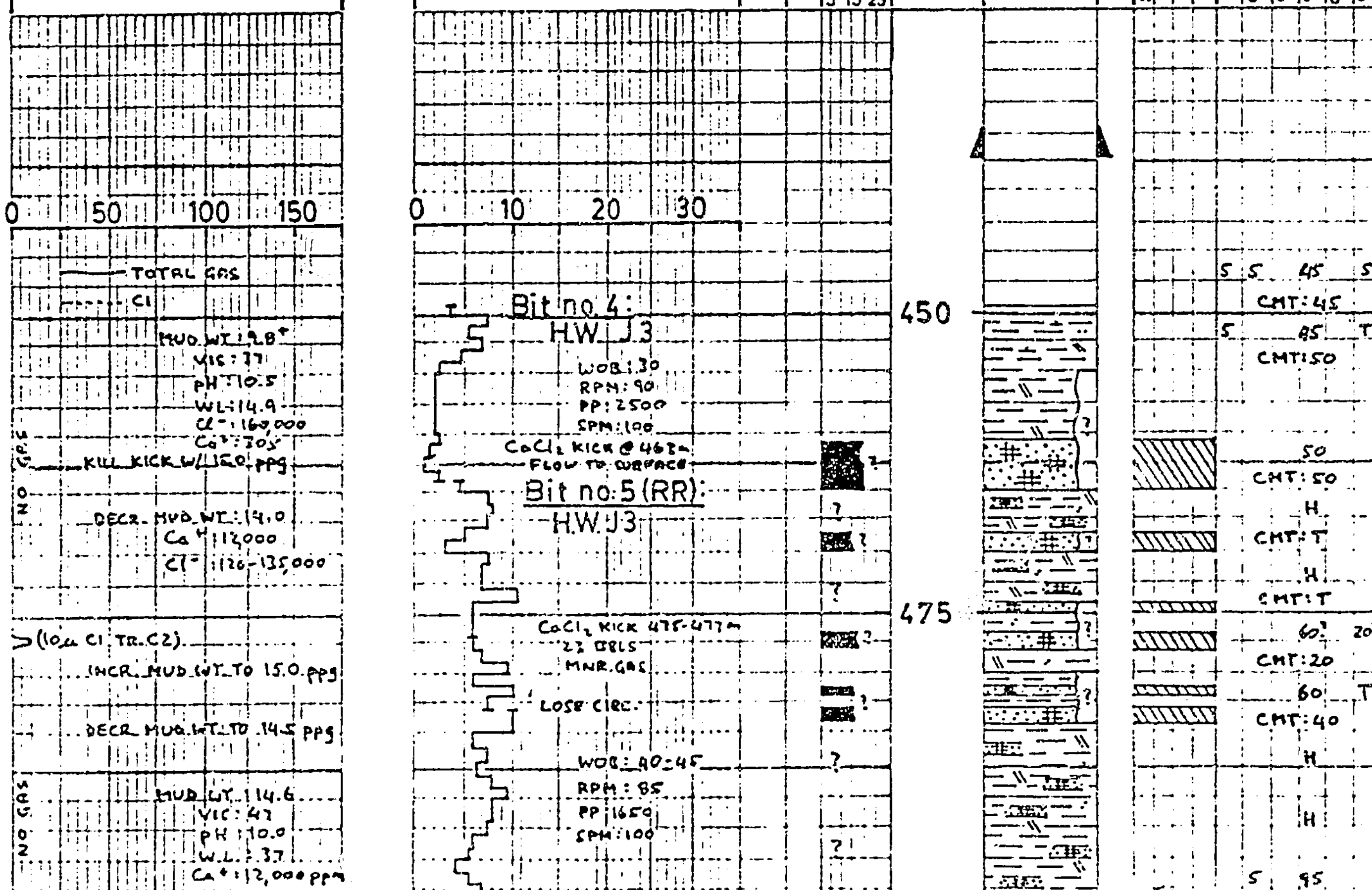
RESOURCE CONSULTANTS

WELL NAME: ICG SOGEPET et al NETSIQ N-01
LOCATION: Lat. 59°50′48.06″N Long. 87°30′59.92″W
ELEVATION: K.B. 13.4 m WATER DEPTH: 199.3 m

T.D. FORMATION:
GEOLOGIST: J. TUCKER
SPUD DATE: SEPT.15, 1985 2200 Hrs.

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
OCT 29 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

FORMATION GAS IN UNITS (1 UNIT = 200 ppm)	DRILLING TIME IN MINS/1 METER	SHOWS	POROSITY TYPE	POROSITY BAR PLOT	INTERVAL/TOPS	COLOURED STRIP LOG	CORES, DSTS, PERFS	PARTICLE SIZE (SILT MICRO, VF-FINE, MEDIUM, COARSE)	LITHOLOGY (% LIMESTONE, % DOLOMITE, % ANHYDRITE, % SHALE, % SILTSTONE, % SANDSTONE)	DESCRIPTION



30″ CASING LANDED AT 259.7 m (42″ O.H. TO 265.2 m)
13 3/8″ CASING LANDED AT 436.8 m (17 1/2″ O.H. TO 448.8 m)
9 5/8″ CASING LANDED AT (12 1/4″ O.H. TO 541.5 m)

SHALE (V. SOFT MUD), RDDISH, CALC, LOC SDY.; MNR LOOSE QTZ, CLR-SL. MILKY, IN PT IRREG FRAGS (FRAC'D ?); IN PT F-MG, S-RDED TO RDED GRNS, TR GRANS & PEBBLES; MNR LMST, BF-LT GY/BN CX, DENCE, POSS. BIOCL, TITE; MNR DOL, LT GY, MX, SILTY, ARG, TITE; TR CLR FIB GYSUM INCLUS. IN SHALE, INCR. DOWNWARDS. ABUND. CMT CVGS.

NO SAMPLE – CIRCULATE OUT KICK – RETURNS TO OCEAN (NO RETURNS TO 463m)

SHALE, RDDISH, V SOFT CLAY a/a, SOMEWHAT SILTY, SL-V. GYP'FEROUS. ABUND. CMT CVGS. NO VIS. SD. POSS. SALT-FILLED SANDST

SHALE a/a, V. SOFT CLAY, ABUND. FIBROUS GYPSUM a/a
POSS. SALT-FILLED SANDST

SHALE, RDDISH-OR, CLAY a/a w/ ABUND. GYPSUM
NOTE: 475-477 m LOST SAMPLE (KICK/LOST CIRC.)

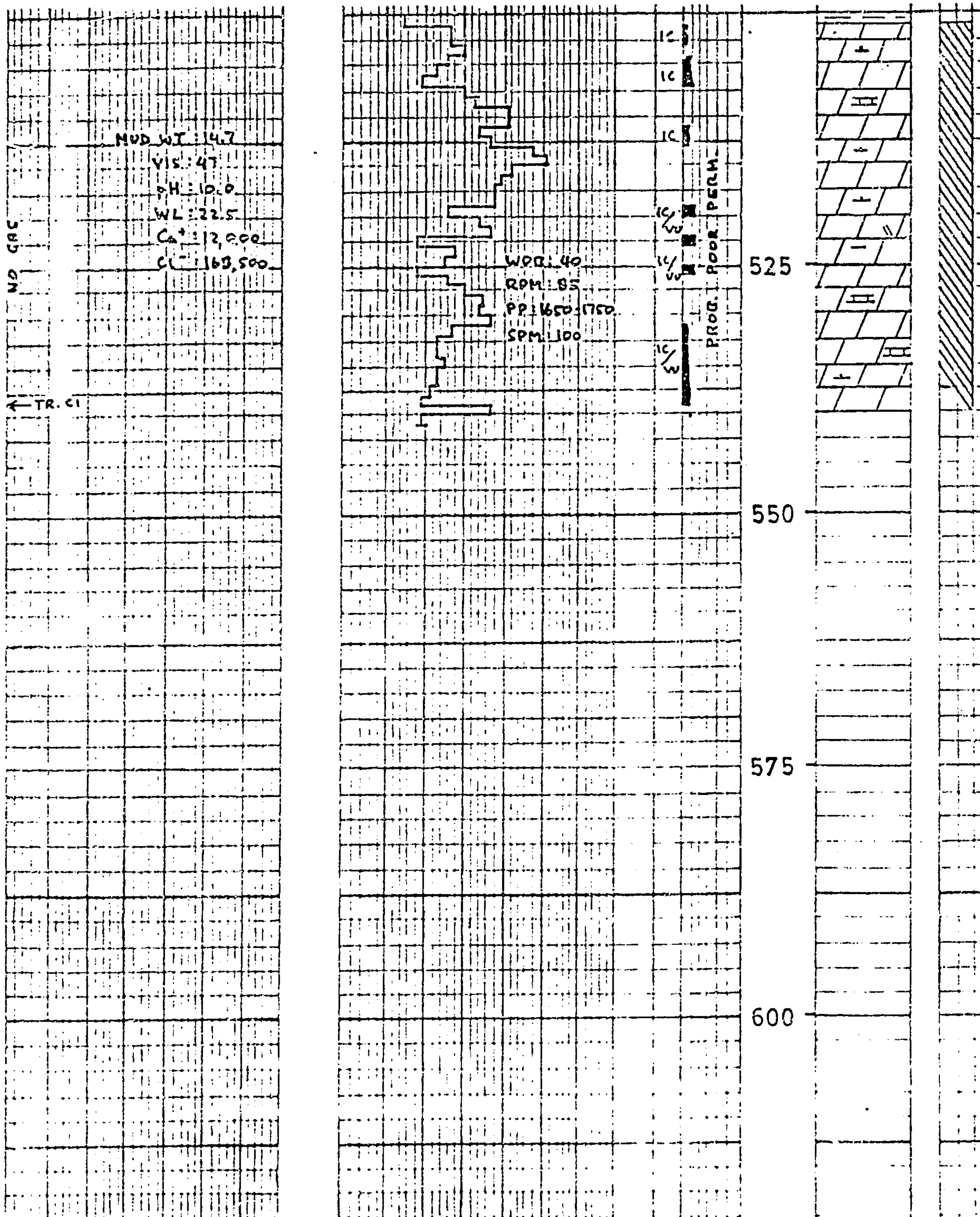
SHALE, RD V. SOFT CLAY a/a, CALC., OCC BK COALY GRNS., SILTY; SANDST-CG, SALT-FILLED?
NOTE: 480-483.4 m LOST SAMPLE (LOST CIRC.)

SHALE, SOFT CLAY a/a, CALC, w/ INCLUS. FIB. GYPSUM; DECR SD TO TR. (LOC LENSES ?), OCC BK COALY INCLUS. (M-CG a/a)

SHALE a/a, TR M-CG QTZ SD a/a, S-ANG TO S-RDED, LOOSE, CLR-MILKY (POSS. SALT-FILLED SANDST STRGRS ?)

SHALE a/a, DECR. SILTY TO MNR.; TR. SDY. a/a; SOME GYPSUM (BUT DECR.)

SHALE a/a; MNR. DOL., BUFF, MICRO-VF XTALLINE, CLEAN, LOC SL. FRI, IN PT. SL.



S 85 T 10 — DOL, BUFF-LT BN, VF-F XTALLINE, CLEAN, LOC. SL. FRI, IN PT FAIR-GOOD IC ϕ, NO SHOWS; IN PT SL-V. CALC, MNR. GRDG TO LMST, WH-BF, CHALKY-MICROXL, SL-V. DOLIC, TITE; TR. ANHY INCLUS.

S 95 — DOL a/a BUT GRDG TO PK IN PT, LOC. INCR. CALC (MNR. DOLIC LMST a/a); DECR. IC ϕ TO OCC. POOR-FAIR (INCR. DENSE)

T H — DOL a/a, BUT LOC. BCMING DENSE, CRYPTO-MICROXL, DECR. CALC TO TR, OCC. IC ϕ a/a TR. FIB. GYPSUM (IN ϕ)

T H — DOL a/a, INCR. DENSE, OCC. POOR-FAIR (LOCAL) IC ϕ a/a, NO SHOWS, PROB. POOR PERM.

T H — DOL a/a, BF-LT PK, PRED. MICRO-VF XTALLINE, IN PT DENSE, CRYPTOXL, CLEAN, LOC. TR. CALC, TR. RD SHALY INCLUS., OCC. IC & MICRO-VU ϕ (LOC. EXCELL), OFTEN w/ GYP XTAL LINING, NO SHOWS EX. MIN. FL.

S 95 — DOL a/a, SL INCR. PKISH, INCR. DENSE, INCR. CALC IN PT, w/ MNR. GRDG TO LMST, WH-BF, CRYPTO-MICROXL, DOLIC, NO VIS. ϕ, OCC. XTALLINE CALCITE

S 95 — DOL a/a, INCR. VF-XTALLINE, IN PT SL-V. CALC (MNR. GRDG TO LMST a/a), ONLY TRACES IC ϕ, NO SHOWS; TR. GYP.

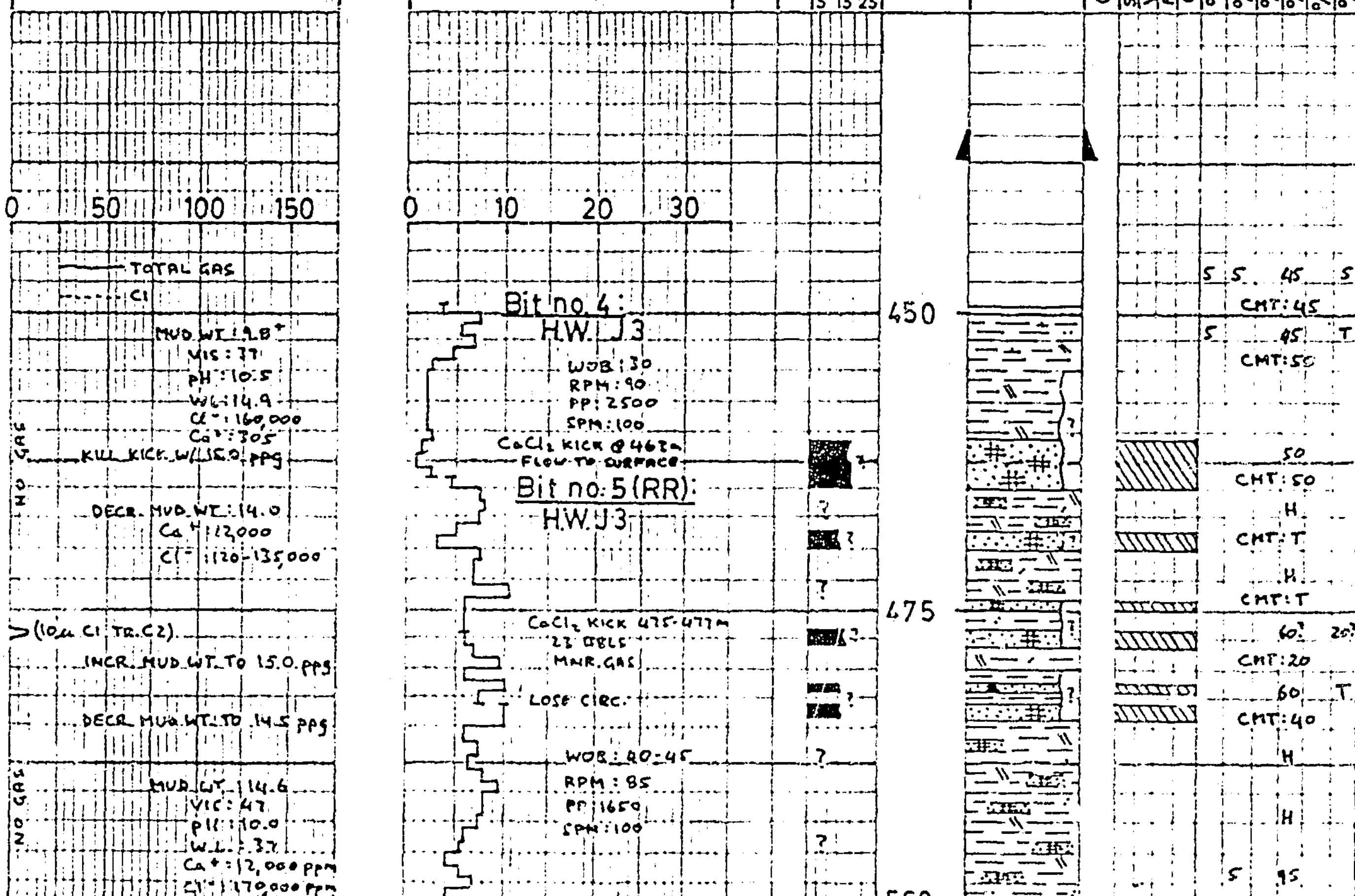
T H — DOL, PRED. MICRO-VF XTALLINE, SL. DECR. CALC (TR. GRDG TO LMST a/a), TR. GYP, OCC. IC & MICRO-VU ϕ, PRED LINED w/ F-XTALS DOL RHOMBS & OCC. GYP, NO SHOWS

DAWSON – LONG & ASSOCIATES LTD.

RESOURCE CONSULTANTS

WELL NAME: ICG SOGEPET et al NETSIQ N-01
T.D. FORMATION:
LOCATION: Lat. 59°50'48.06"N Long. 87°30'59.92" W
GEOLOGIST: J. TUCKER
ELEVATION: K.B. 13.4 m WATER DEPTH: 199.3 m
SPUD DATE: SEPT.15, 1985 2200 Hrs.

FORMATION GAS IN UNITS (1 UNIT = 200 ppm)	DRILLING TIME IN MINS/1 METER	SHOWS	POROSITY TYPE	POROSITY BAR PLOT	INTERVAL/TOPS	COLOURED STRIP LOG	CORES, DSTS, PERFS	PARTICLE SIZE	LITHOLOGY	DESCRIPTION



30" CASING LANDED AT 259.7 m (42" O.H. TO 265.2 m)
13 3/8" CASING LANDED AT 436.8 m (17 1/2" O.H. TO 448.8 m)
9 5/8" CASING LANDED AT (12 1/4" O.H. TO 541.5 m)

SHALE (V. SOFT MUD), RDDISH, CALC., LOC SDY; MNR LOOSE QTZ, CLR-SL. MILKY, IN PT IRREG. FRAGS (FRAC'D ?); IN PT F-MG, S-RDED TO RDED GRNS, TR GRANS & PEBBLES; MNR LMST, BF-LT GY/BN CX, DENSE, POSS. BIOCL, TITE; MNR DOL, LT GY, MX, SILTY, ARG, TITE; TR. CLR FIB GYPSUM INCLUS. IN SHALE, INCR. DOWNWARDS. ABUND. CMT CVGS.

NO SAMPLE – CIRCULATE OUT KICK – RETURNS TO OCEAN (NO RETURNS TO 463m)

SHALE, RDDISH, V. SOFT CLAY a/a, SOMEWHAT SILTY, SL-V. GYP'FEROUS. ABUND. CMT CVGS. NO VIS. SD. POSS. SALT-FILLED SANDST

SHALE a/a, V. SOFT CLAY, ABUND. FIBROUS GYPSUM a/a
POSS. SALT-FILLED SANDST

SHALE, RDDISH-OR, CLAY a/a w/ ABUND. GYPSUM
NOTE: 475-477 m LOST SAMPLE (KICK/LOST CIRC.)

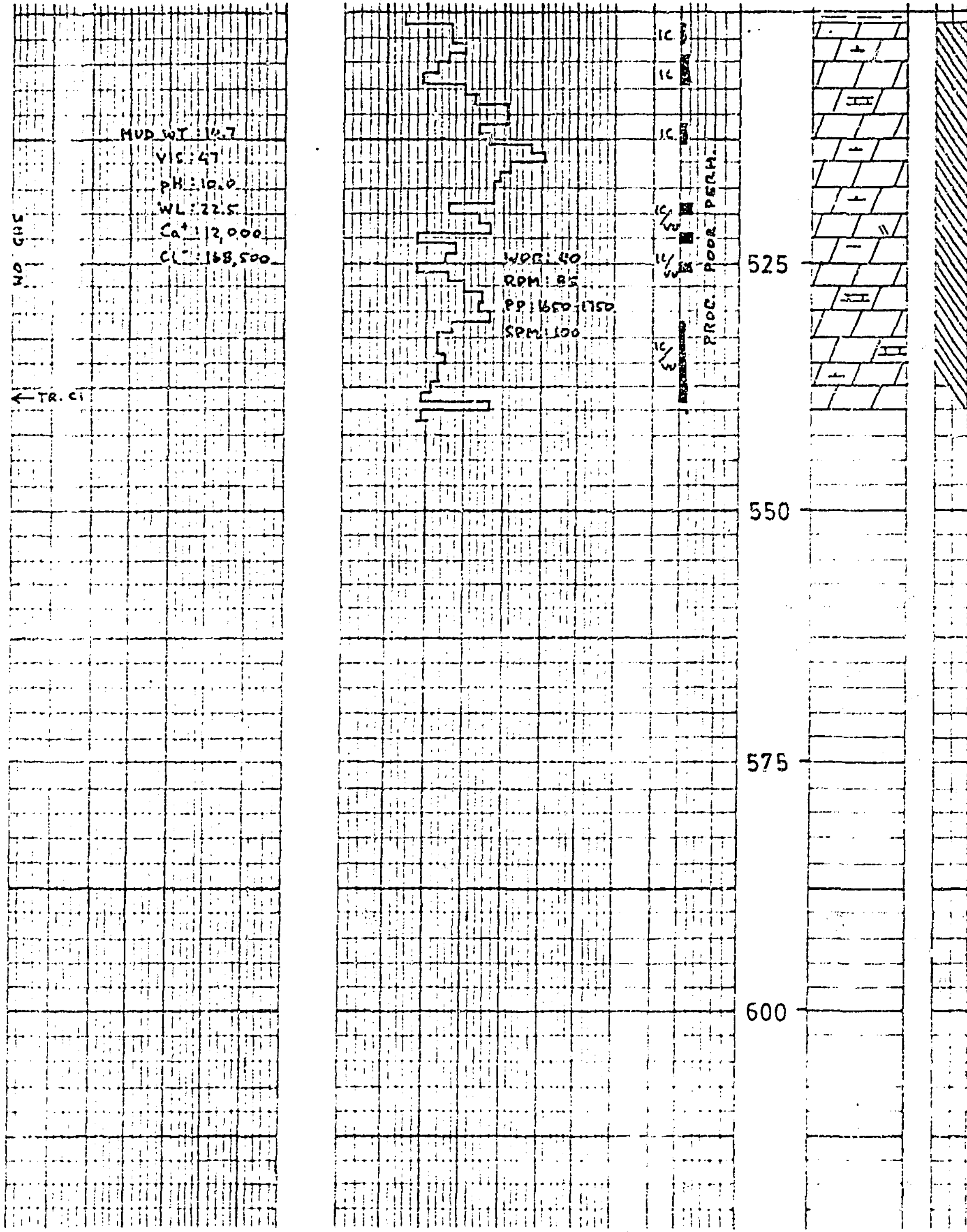
SHALE, RD V. SOFT CLAY a/a, CALC., OCC BK COALY GRNS., SILTY; SANDST-CG, SALT-FILLED?
NOTE: 480-483.4 m LOST SAMPLE (LOST CIRC.)

SHALE, SOFT CLAY a/a, CALC, w/ INCLUS. FIB. GYPSUM; DECR. SD TO TR. (LOC. LENSES ?), OCC BK COALY INCLUS. (M-CG a/a)

SHALE a/a, TR. M-CG QTZ SD a/a, S-ANG TO S-RDED, LOOSE, CLR-MILKY (POSS. SALT-FILLED SANDST STRGRS ?)

SHALE a/a, DECR. SILTY TO MNR.; TR. SDY. a/a; SOME GYPSUM (BUT DECR.)

SHALE a/a; MNR. DOL, BUFF, MICRO-VF XTALLINE, CLEAN, LOC SL. FRI, IN PT SL. ARG. TR. SILTY



S 85 T 10 — DOL, BUFF-LT BN, VF-F XTALLINE, CLEAN, LOC. SL. FRI, IN PT FAIR-GOOD IC ø NO SHOWS; IN PT SL-V. CALC, MNR. GRDG TO LMST, WH-BF, CHALKY-MICROXL, SL-V. DOLIC TITE; TR. ANHY

S 95 — DOL a/a BUT GRDG TO PK IN PT, LOC. INCR. CALC (MNR. DOLIC LMST a/a); DECR. IC ø TO OCC. POOR-FAIR (INCR. DENSE)

T H — DOL a/a, BUT LOC. BCMING DENSE, CRYPTO-MICROXL, DECR. CALC TO TR., OCC. IC ø a/a TR. FIB. GYPSUM (IN ø)

T H — DOL a/a, INCR. DENSE, OCC. POOR-FAIR (LOCAL) IC ø a/a, NO SHOWS, PROB. POOR PERM.

T H — DOL a/a, BF-LT PK, PRED. MICRO-VF XTALLINE, IN PT DENSE, CRYPTOXL, CLEAN, LOC. TR. CALC, TR RD SHALY INCLUS, OCC. IC & MICRO-VU ø (LOC. EXCELL), OFTEN w/ GYP XTAL LINING NO SHOWS EX. MIN. FL.

S 95 — DOL a/a, SL INCR. PKISH, INCR. DENSE, INCR. CALC IN PT. w/ MNR. GRDG TO LMST, WH-BF, CRYPTO-MICROXL, DOLIC, NO VIS. ø, OCC XTALLINE CALCITE

S 95 — DOL a/a, INCR. VF-XTALLINE, IN PT SL-V. CALC (MNR. GRDG TO LMST a/a), ONLY TRACES IC ø, NO SHOWS; TR. GYP.

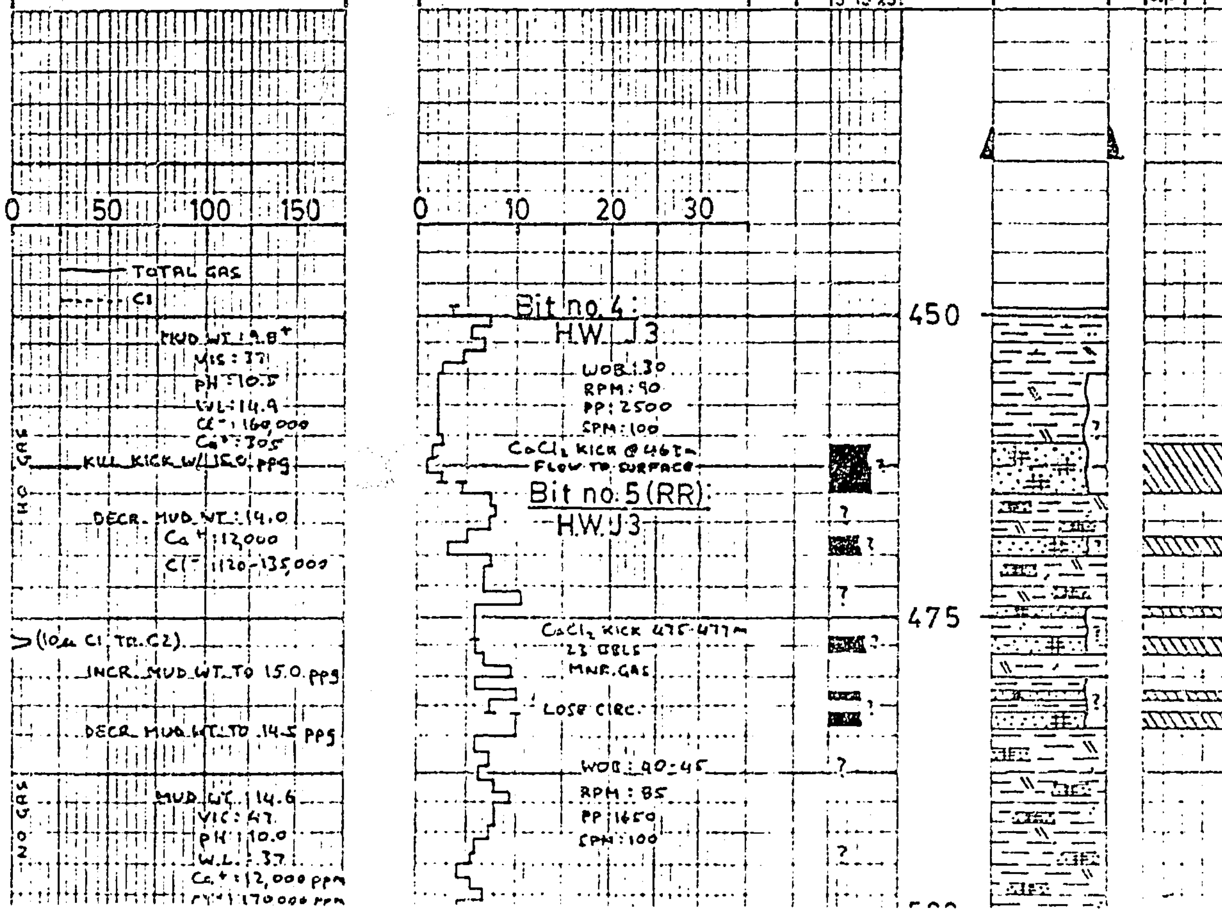
T H — DOL, PRED. MICRO-VF XTALLINE, SL. DECR. CALC (TR. GRDG TO LMST a/a) TR. GYP, OCC. IC & MICRO-VU ø, PRED LINED w/ F-XTALS DOL RHOMBS. & OCC. GYP, NO SHOWS

DAWSON - LONG & ASSOCIATES LTD.

RESOURCE CONSULTANTS

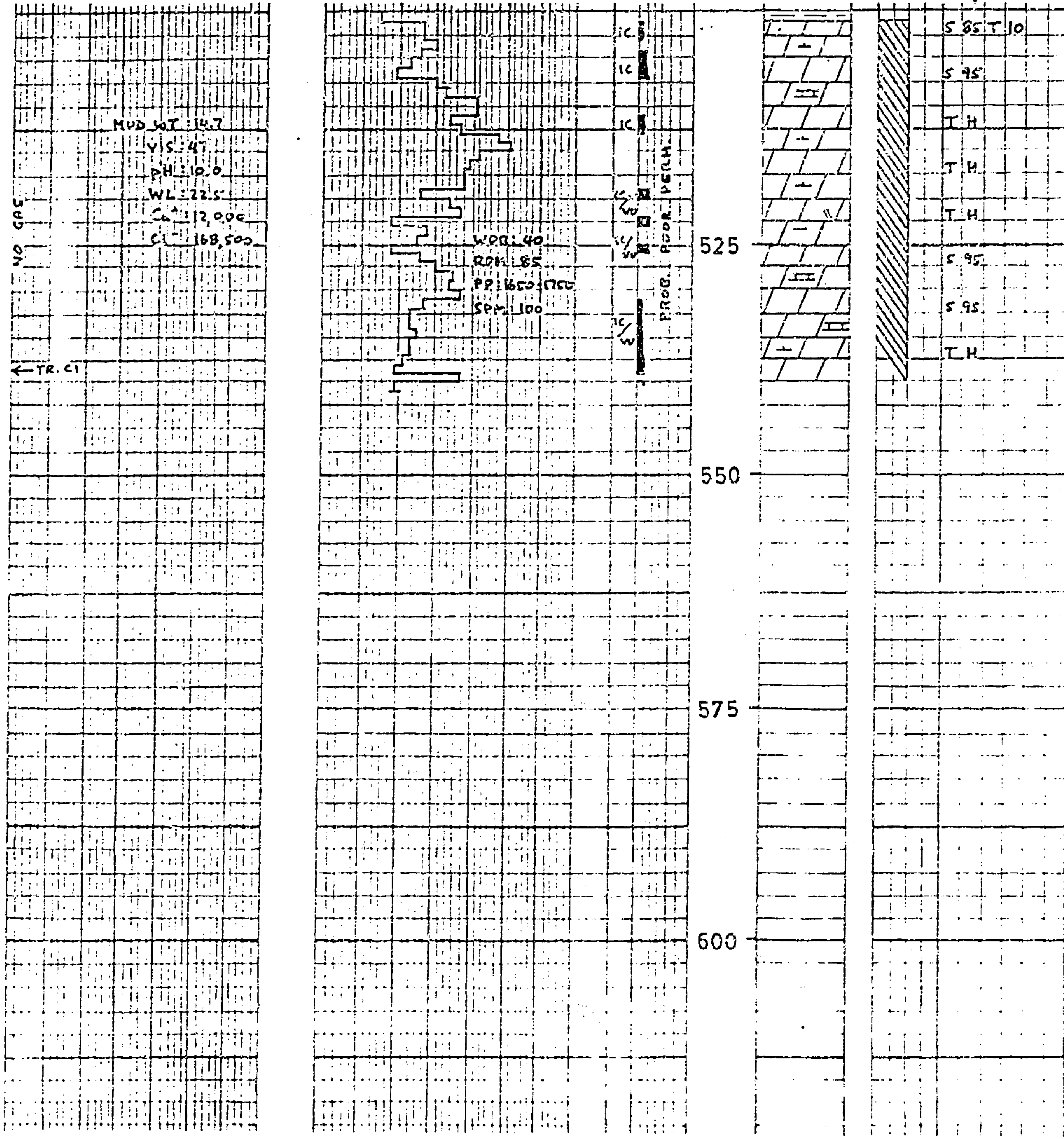
WELL NAME: ICG SOGEPET et al NETSIQ N-01
T.D. FORMATION:
LOCATION: Lat. 59°50'48.06"N Long. 87°30'59.92" W
GEOLOGIST: J. TUCKER
ELEVATION: K.B. 13.4 m WATER DEPTH: 199.3 m
SPUD DATE: SEPT.15, 1985 2200 Hrs.

FORMATION GAS IN UNITS (1 UNIT = 200 ppm) | DRILLING TIME IN MINS/1 METER | SHOWS | POROSITY TYPE | POROSITY BAR PLOT | INTERVAL/TOPS | COLOURED STRIP LOG | CORES, DSTS, PERFS | PARTICLE SIZE (SILT, MICRO / VF-FINE / MEDIUM / COARSE) | LITHOLOGY (% LIMESTONE / % DOLOMITE / % ANHYDRITE / % SHALE / % SILTSTONE / % SANDSTONE) | DESCRIPTION



30" CASING LANDED AT 259.7 m (42" O.H. TO 265.2 m)
13 3/8" CASING LANDED AT 436.8 m (17 1/2" O.H. TO 448.8 m)
9 5/8" CASING LANDED AT (12 1/4" O.H. TO 541.5 m)

Lithology	Description
5 5 45 5 / CMT: 45	SHALE (V. SOFT MUD), RDDISH, CALC., LOC SDY.; MNR. LOOSE QTZ, CLR-SL. MILKY, IN PT IRREG. FRAGS (FRAC'D ?); IN PT F-MG, S-RDED TO RDED GRNS, TR GRANS & PEBBLES; MNR LMST, BF-LT GY/BN
5 45 T / CMT: 50	CX, DENSE, POSS. BIOCL, TITE; MNR DOL, LT GY, MX, SILTY, ARG, TITE; TR. CLR FIB. GYPSUM INCLUS. IN SHALE, INCR. DOWNWARDS. ABUND. CMT CVGS.
	NO SAMPLE - CIRCULATE OUT KICK - RETURNS TO OCEAN (NO RETURNS TO 463m)
50 / CMT: 50	SHALE, RDDISH V. SOFT CLAY a/a, SOMEWHAT SILTY, SL-V. GYP'FEROUS. ABUND. CMT. CVGS. NO VIS SD POSS. SALT-FILLED SANDST
H / CMT: T	SHALE a/a, V. SOFT CLAY, ABUND. FIBROUS GYPSUM a/a POSS. SALT-FILLED SANDST
H / CMT: T	SHALE, RDDISH-OR, CLAY a/a w/ ABUND. GYPSUM NOTE: 475-477 m LOST SAMPLE (KICK/LOST CIRC.)
60? 20? / CMT: 20	SHALE, RD V. SOFT CLAY a/a, CALC., OCC BK COALY GRNS., SILTY; SANDST - CG, SALT-FILLED? NOTE: 480-483.4 m LOST SAMPLE (LOST CIRC.)
60 T / CMT: 40	SHALE, SOFT CLAY a/a, CALC, w/ INCLUS. FIB GYPSUM; DECR. SD TO TR. (LOC. LENSES ?), OCC BK COALY INCLUS. (M-CG a/a)
H	SHALE a/a, TR. M-CG QTZ SD a/a, S-ANG TO S-RDED, LOOSE, CLR-MILKY (POSS. SALT-FILLED SANDST STRGRS ?)
H	SHALE a/a, DECR. SILTY TO MNR.; TR. SDY. a/a; SOME GYPSUM (BUT DECR.)
5 95	SHALE a/a; MNR. DOL, BUFF, MICRO-VF XTALLINE, CLEAN, LOC. SL. FRI, IN PT. SL.



S 85 T 10 — DOL, BUFF-LT BN, VF-F XTALLINE, CLEAN, LOC. SL. FRI, IN PT FAIR-GOOD IC ∅, NO SHOWS; IN PT SL-V. CALC, MNR. GRDG TO LMST, WH-BF, CHALKY-MICROXL, SL-V. DOLIC, TITE; TR. ANHY INCLUS.

S 95 — DOL a/a BUT GRDG TO PK IN PT, LOC. INCR. CALC (MNR. DOLIC LMST a/a); DECR. IC ∅ TO OCC. POOR-FAIR (INCR. DENSE)

T H — DOL a/a, BUT LOC. BCMING DENSE, CRYPTO-MICROXL, DECR. CALC TO TR., OCC. IC ∅ a/a TR. FIB. GYPSUM (IN ∅)

T H — DOL a/a, INCR. DENSE, OCC. POOR-FAIR (LOCAL) IC ∅ a/a, NO SHOWS, PROB. POOR PERM.

T H — DOL a/a, BF-LT PK, PRED. MICRO-VF XTALLINE, IN PT DENSE, CRYPTOXL, CLEAN, LOC. TR. CALC, TR. RD SHALY INCLUS, OCC. IC & MICRO-VU ∅ (LOC. EXCELL), OFTEN w/ GYP XTAL LINING, NO SHOWS EX. MIN. FL.

S 95 — DOL a/a, SL INCR. PKISH, INCR. DENSE, INCR. CALC IN PT., w/ MNR. GRDG TO LMST, WH-BF, CRYPTO-MICROXL, DOLIC, NO VIS. ∅, OCC XTALLINE CALCITE

S 95 — DOL a/a, INCR. VF-XTALLINE, IN PT SL-V. CALC (MNR. GRDG TO LMST a/a), ONLY TRACES IC ∅, NO SHOWS; TR. GYP.

T H — DOL, PRED. MICRO-VF XTALLINE, SL. DECR. CALC (TR. GRDG TO LMST a/a), TR. GYP, OCC. IC & MICRO-VU ∅, PRED LINED w/ F-XTALS DOL RHOMBS & OCC. GYP., NO SHOWS

8710-C55-1-2

SCHLUMBERGER

STRATIGRAPHIC

HIGH-RESOLUTION

DIPMETER

OTTAWA COPY

CANADA OIL AND GAS LANDS
ADMINISTRATION
NOV 25 1985
ENGINEERING BRANCH

COMPANY CANTERRA ENERGY LTD.

WELL ICG SOGEPET ET AL NETSIO N-01

FIELD 60.50'48"N.

COUNTRY 67.30'59.5"W.

RUN ONE

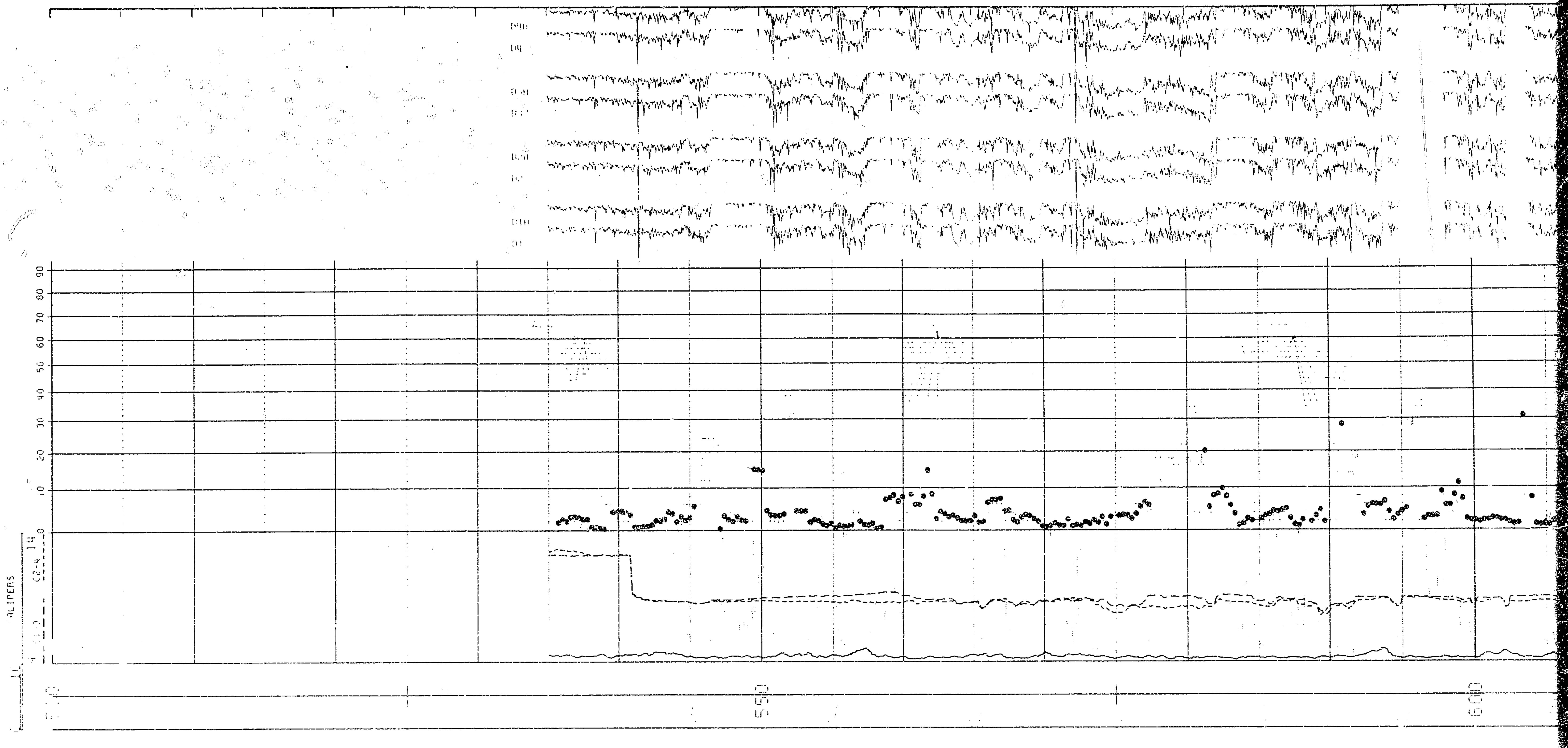
DATE LOGGED [illegible]

MAGNETIC DECLINATION: -7° WEST

ZONE FROM 634.0 M TO 535.0 M

SCALE = 1/240

DIP ANGLE AND DIRECTION



ZONE FROM 627.0 M TO 641.0 M
SCALE = 1/240
N
E
S
W
DIP ANGLE AND DIRECTION
G R
0
150
RESISTIVITY INCREASES
CALIPERS
4
C1-3
C2-4
14
DEPTH
BOREHOLE DRIFT
0
10
650
700
750
800

ZONE FROM 1037.0 M TO 800.0 M
SCALE = 1/240
N
E
S
W
DIP ANGLE AND DIRECTION
DEPTH
BOREHOLE DRIFT
G R
0
150
RESISTIVITY INCREASES
CALIPERS
4
14
800
850
900

COMPANY CANTERRA ENERGY LTD.

WELL ICG SOGEPET ET AL NETSIQ N-01

FIELD HUDSON BAY PROVINCE MANITOBA

Schlumberger

8710-C55-1-2

Schlumberger

NATURAL GAMMA-RAY SPECTROSCOPY LOG

CSU Field Log

COMPANY:	CANTERRA ENERGY LTD.
WELL:	ICG SOGEPET ET AL NETSIQ [illegible]-01
FIELD:	HUDSON BAY
PROV. :	MANITOBA
NATION:	CANADA
LOCATION:	
LATITUDE:	59 50' 48.06"N
LONGITUDE:	87 30' 59.92"W

OTHER SERVICES-
DLL- MSFL
DDBHC

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
OCT 29 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM: 0.0 M
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

PROGRAM TAPE NO: 28.15
SERVICE ORDER NO: 217808

DATE: 29 SEP 85
RUN NO: 1

OTTAWA COPY

DEPTH-DRILLER:	541.0 M		
DEPTH-LOGGER:	541.0 M		
BTM. LOG INTERVAL:	533.0 M		
TOP LOG INTERVAL:	436.0 M		
CASING-DRILLER:	437.0 M	0.0 M	0.0 M
CASING-LOGGER:	436.0 M	0.0 M	0.0 M
CASING:	339.7 MM		
WEIGHT:	107.100 KG/M	0.0 KG/M	0.0 KG/M
BIT SIZE:	311.2 MM		

TYPE FLUID IN HOLE:	NACL SATURATED GEL POLYMER
DENSITY:	14.60 LB/G
VISCOSITY:	46.0 S
PH:	10.0
FLUID LOSS:	37.0 C3
SOURCE OF SAMPLE:	CIRC.
RM:	.097 OHMM AT 11.0 DEGC
RMF:	.059 OHMM AT 11.0 DEGC
RMC:	.222 OHMM AT 11.0 DEGC
SOURCE RMF/RMC:	PRESS /PRESS
RM AT BHT:	.072 OHMM AT 22.0 DEGC
RMF AT BHT:	.044 OHMM AT 22.0 DEGC
RMC AT BHT:	.166 OHMM AT 22.0 DEGC
TIME CIRC. STOPPED:	08:30 / 29
TIME LOGGER ON BTM.:	
MAX. REC. TEMP:	22.0 DEGC
LOGGING UNIT NO:	922
LOGGING UNIT LOC:	ST. JOHN'S
RECORDED BY:	MACNEILL
WITNESSED BY:	L ZANUSSI

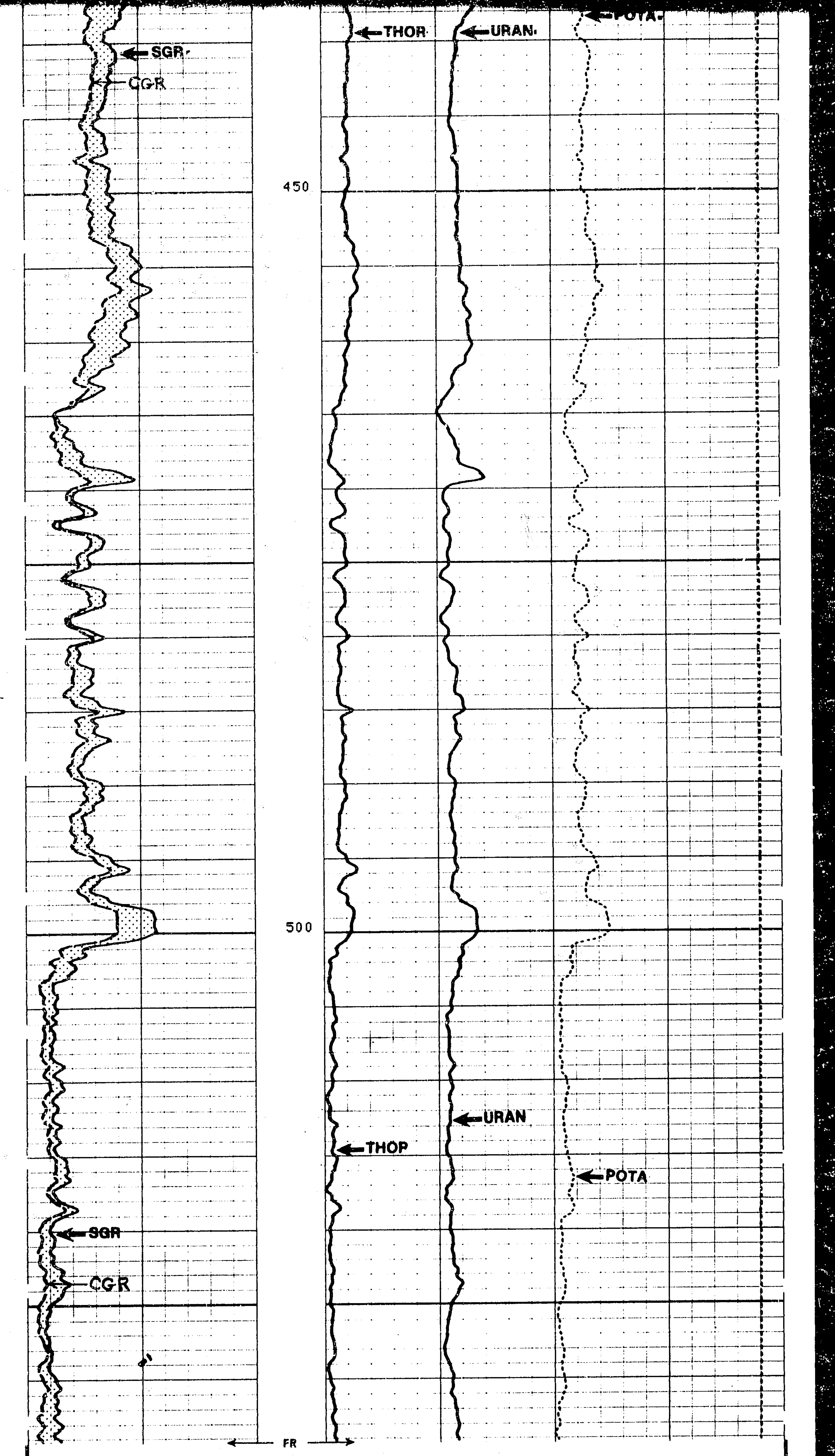
REMARKS:

EQUIPMENT NUMBERS-

NGH-A 1903 NGC-C 1915 NGH-C 731 NGD-B 752

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

CP 28.15 FILE 3 01-OCT-85 14:18
DATA ACQUIRED 01-OCT-85 14:10



CP 28.15 FILE 3 01-OCT-85 14:08
DATA ACQUIRED 29-SEP-85 02:58

CGR (GAPI) 0.0 — 100.00	THOR(PPM) 0.0 — 40.000	TENS(N) 44482. — 0.0
SGR (GAPI) 0.0 — 100.00	URAN(PPM) -10.00 — 30.000	POTA 0.0 — .10000

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77 METER	MRES	12.77 METER
APUW	9.78 METER	APLW	9.78 METER
PPLW	9.78 METER	NGPE	9.78 METER
SNGT	-.27 METER	PPUW	9.78 METER
TPUW	9.78 METER	TPLW	9.78 METER
W2NG	9.78 METER	W1NG	9.78 METER
W4NG	9.78 METER	W3NG	9.78 METER
FCNL	6.35 METER	W5NG	9.78 METER
SCNL	-.27 METER	NCNL	6.35 METER
LL	.78 METER	LITH	.78 METER
LU	.78 METER	LS	.78 METER
SS2	.63 METER	SS1	.63 METER
DTCS	.63 METER	DTCL	.78 METER
DTPS	.63 METER	DTPL	.78 METER
LULC	.78 METER	LLLC	.78 METER
LUUC	.78 METER	LLUC	.78 METER
SULC	.63 METER	SLLC	.63 METER
SUUC	.63 METER	SLUC	.63 METER
TENS	-.27 METER	CALI	.81 METER
NRAT	6.35 METER	SGR	9.78 METER

PARAMETERS

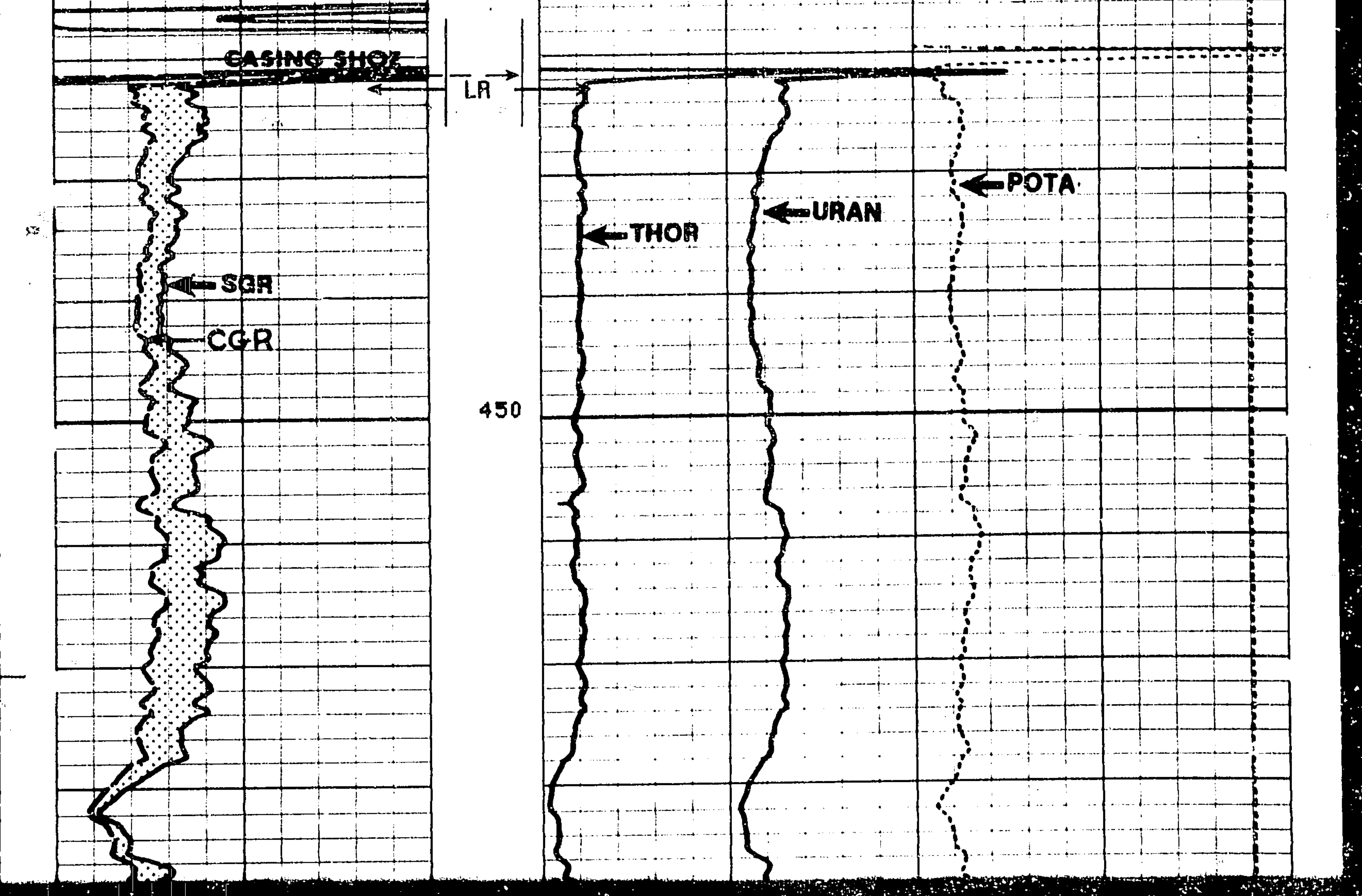
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BHT	22.0000	DEGC	TD	3048.00	M
PMUD	0.0	%	SHT	0.0	DEGC
NFD	KALM		CBAR	.878470	
HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	
PP	RECO		DO	0.0	M

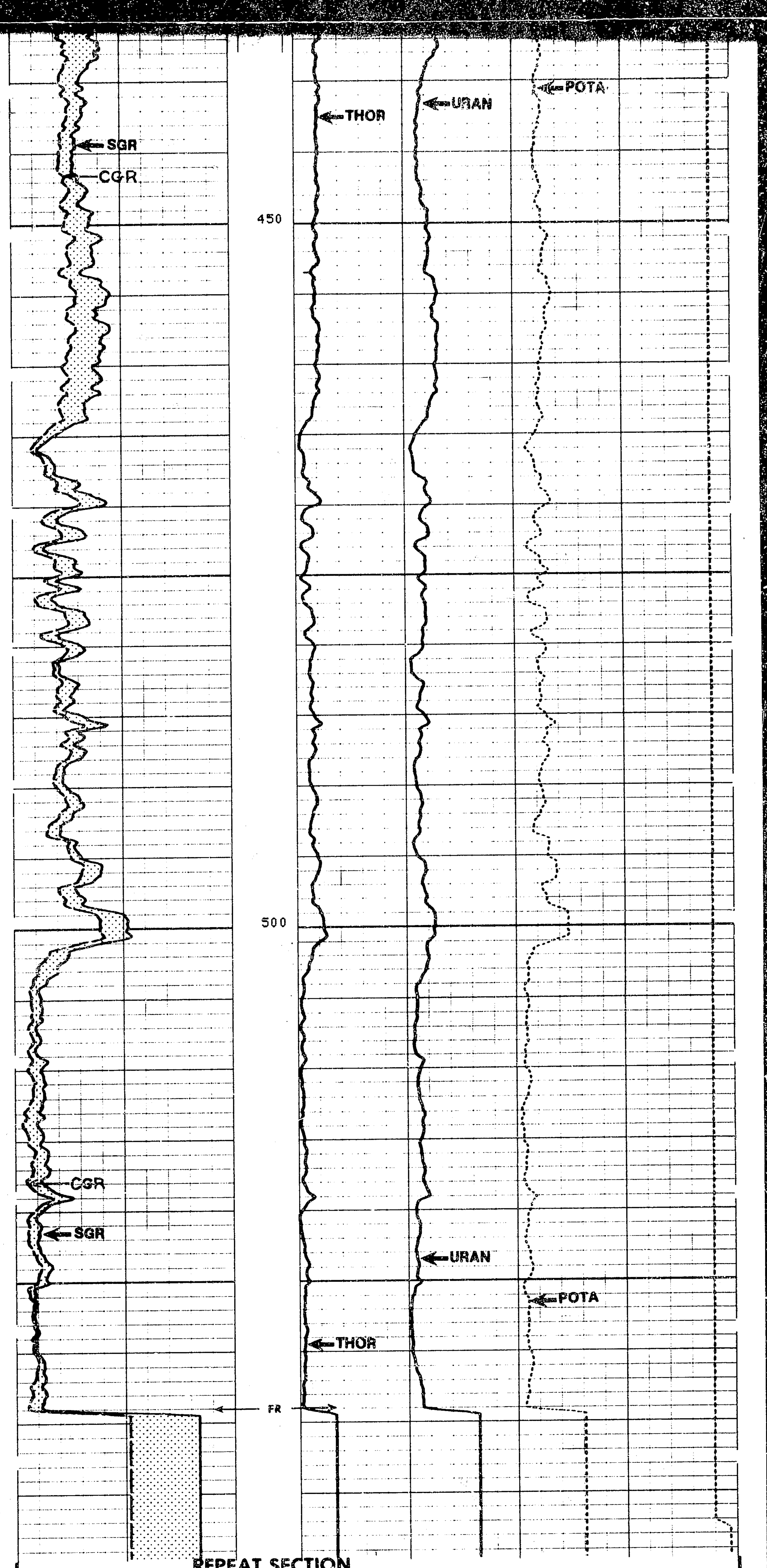
TAPE NOT MADE

CGR (GAPI) 0.0 — 100.00	THOR(PPM) 0.0 — 40.000	TENS(N) 44482. — 0.0
SGR (GAPI) 0.0 — 100.00	URAN(PPM) -10.30 — 30.000	POTA 0.0 — .10000

CP 28.15 FILE 2 01-OCT-85 14:06
DATA ACQUIRED 01-OCT-85 14:06

REPEAT SECTION





REPEAT SECTION

CP 28.15 FILE 2 01-OCT-85 14:04
DATA ACQUIRED 29-SEP-85 02:38

CGR (GAPI) 0.0 — 100.00		THOR(PPM) 0.0 — 40.000	TENS(N) 44482. — 0.0
SGR (GAPI) 0.0 — 100.00		URAN(PPM) -10.00 — 30.000	POTA 0.0 — .10000

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APUW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BHT	22.0000	DEGC	TD	3048.00	M
PMUD	0.0	%	SHT	0.0	DEGC
NFD	KALM		CBAR	.878470	
HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	
PP	RECO		DO	0.0	M

TAPE NOT MADE

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV. : MANITOBA
NATION: CANADA
LOCATION:

LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM: 0.0 M
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

DATE: 29 SEP 85
RUN NO: 1

OTHER SERVICES-
DLL- MSFL
DDBHC

PROGRAM TAPE NO: 28.15
SERVICE ORDER NO: 217808

DEPTH-DRILLER: 541.0 M
DEPTH-LOGGER: 541.0 M
BTM. LOG INTERVAL: 533.0 M
TOP LOG INTERVAL: 436.0 M

CASING-DRILLER: 437.0 M 0.0 M 0.0 M
CASING-LOGGER: 436.0 M 0.0 M 0.0 M
CASING: 339.7 MM
WEIGHT: 107.100 KG/M 0.0 KG/M 0.0 KG/M
BIT SIZE: 311.2 MM

REPEAT SECTION

CP 28.15 FILE 2 01-OCT-85 14:04
DATA ACQUIRED 29-SEP-85 02:38

CGR (GAPI) 0.0 100.00
SGR (GAPI) 0.0 100.00
THOR(PPM) 0.0 40.000
URAN(PPM) -10.00 30.000
TENS(N) 44492. 0.0
POTA 0.0 .10000

SENSOR MEASURE POINT TO TOOL ZERO

MTEM 12.77 METER MRES 12.77 METER
APUW 9.78 METER APLW 9.78 METER
PPLW 9.78 METER NGPE 9.78 METER
SNGT -.27 METER PPUW 9.78 METER
TPUW 9.78 METER TPLW 9.78 METER
W2NG 9.78 METER W1NG 9.78 METER
W4NG 9.78 METER W3NG 9.78 METER
FCNL 6.35 METER W5NG 9.78 METER
SCNL -.27 METER NCNL 6.35 METER
LL .78 METER LITH .78 METER
LU .78 METER LS .78 METER
SS2 .63 METER SS1 .63 METER
DTCS .63 METER DTCL .78 METER
DTPS .63 METER DTPL .78 METER
LULC .78 METER LLLC .78 METER
LUUC .78 METER LLUC .78 METER
SULC .63 METER SLLC .63 METER
SUUC .63 METER SLUC .63 METER
TENS -.27 METER CALI .81 METER
NRAT 6.35 METER SGR 9.78 METER

PARAMETERS

NAME VALUE UNIT NAME VALUE UNIT
BHT 22.0000 DEGC TD 3048.00 M
PMUD 0.0 % SHT 0.0 DEGC
NFD KALM CBAR .878470
HC CALI PSNR 2.20000
FD 1000.00 K/M3 MATR LIME
WMUD 1750.00 K/M3 MDEN 2710.00 K/M3
DHC BS BFM LIQU
BS 311.200 MM BHS OPEN
PP RECO DO 0.0 M

TAPE NOT MADE

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV. : MANITOBA
NATION: CANADA
LOCATION:

LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM: 0.0 M
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

DATE: 29 SEP 85
RUN NO: 1

OTHER SERVICES-
DLL- MSFL
DDBHC

PROGRAM TAPE NO: 28.15
SERVICE ORDER NO: 217808

DEPTH-DRILLER: 541.0 M
DEPTH-LOGGER: 541.0 M
BTM. LOG INTERVAL: 533.0 M
TOP LOG INTERVAL: 436.0 M

CASING-DRILLER: 437.0 M 0.0 M 0.0 M
CASING-LOGGER: 436.0 M 0.0 M 0.0 M
CASING: 339.7 MM
WEIGHT: 107.100 KG/M 0.0 KG/M 0.0 KG/M
BIT SIZE: 311.2 MM

Schlumberger

NATURAL GAMMA-RAY SPECTROSCOPY LOG

CSU Field Log

8710-C55-1

Schlumberger

NATURAL GAMMA SPECTROSCOPY LOG

CSU Field Log

COMPANY:	CANTERRA ENERGY LTD.
WELL:	ICG SOGEPET ET AL NETSIQ N-01
FIELD:	HUDSON BAY
PROV. :	MANITOBA
NATION:	CANADA
LOCATION:	
LATITUDE:	59 50' 48.06"N
LONGITUDE:	87 30' 59.92"W

Canada Oil & Gas Lands Administration NOV 4 1985 St. John's, Nfld.

PERMANENT DATUM: M.S.L. ELEVATIONS-
ELEV. OF PERM. DATUM: 0.0 M KB: 13.7 M
LOG MEASURED FROM: K.B. DF: 13.3 M
13.7 M ABOVE PERM. DATUM GL: -199.3 M
DRLG. MEASURED FROM: KELLY BUSHING

OTHER SERVICES-
DLL-MSFL
DISFL-DDBHC
CNL-LDT
SHDT
RFT
CST / VSP

PROGRAM TAPE NO: 28.15
SERVICE ORDER NO: 129389

OTTAWA COPY

DATE: 16 OCT 85
RUN NO: 2

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
NOV 5 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTRÔLE

DEPTH-DRILLER:	1040.0 M	
DEPTH-LOGGER:	1038.0 M	
BTM. LOG INTERVAL:	1037.0 M	
TOP LOG INTERVAL:	532.0 M	
CASING-DRILLER:	437.7 M	
CASING-LOGGER:	436.0 M	
CASING:	339.7 MM	244.5
WEIGHT:	107.100 KG/M	70.1000 KG/M
BIT SIZE:	311.2 MM	216MM

TYPE FLUID IN HOLE:	NACL SATURATED GEL POLYMER
DENSITY:	1761. K/M3
VISCOSITY:	48.0 S
PH:	10.5
FLUID LOSS:	11.1 C3
SOURCE OF SAMPLE:	CIRC.
RM:	.091 OHMM AT 18.0 DEGC
RMF:	.058 OHMM AT 18.0 DEGC
RMC:	.223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC:	PRESS /PRESS
RM AT BHT:	.099 OHMM AT 15.0 DEGC
RMF AT BHT:	.063 OHMM AT 15.0 DEGC
RMC AT BHT:	.216 OHMM AT 15.0 DEGC
TIME CIRC. STOPPED:	10:20/16
TIME LOGGER ON BTM.:	18:45/16
MAX. REC. TEMP:	15.0 DEGC
LOGGING UNIT NO:	922
LOGGING UNIT LOC:	ST. JOHN'S
RECORDED BY:	A. MACNEILL
WITNESSED BY:	L. ZANUSSI

REMARKS:

TOOL WAS ECCENTRALIZED.
DRILLING STOPPED AT 7:20/16
TENSION ON CABLE NOT AVAILABLE AFTER REPEAT PASS.
BOTTOM 40 METERS LOGGED AT 900 FT/HR.

EQUIPMENT NUMBERS-

NSC-E 998	DRS-C 5786	PDH-L 3955	PGD-G 3976
TCC-A 185	AMM-A 813	CNT-HA 386	NGC-C 1915
NGD-B 752	TCM-AB 538		

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

CGR (GAPI)		THOR(PPM)	POTA
0.0 — 100.00		0.0 — 40.000	0.0 — .10000
SGR (GAPI)		URAN(PPM)	
0.0 — 100.00		-10.00 — 30.000	

CP 28.15 FILE 4 20-OCT-85 00:41
DATA ACQUIRED 16-OCT-85 19:46


750
800
850
900

CP 28.15

FILE 4 20-OCT-85 00:35
DATA ACQUIRED 16-OCT-85 18:42

CGR (GAPI)		THOR(PPM)		POTA	
0.0	100.00	0.0	40.000	0.0	.10000
SGR (GAPI)				URAN(PPM)	
0.0	100.00	-10.00			30.000

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APLW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.2	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	3048.00	M
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFO	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFM	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	

CP 23.15 FILE 4 20-OCT-85 00:35
DATA ACQUIRED 16-OCT-85 18:42

CGR (GAPI)		THOR(PPM)		POTA	
0.0	100.00	0.0	40.000	0.0	.10000
SGR (GAPI)		URAN(PPM)			
0.0	100.00	-10.00			30.000

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APLW	9.78	METER	HPLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

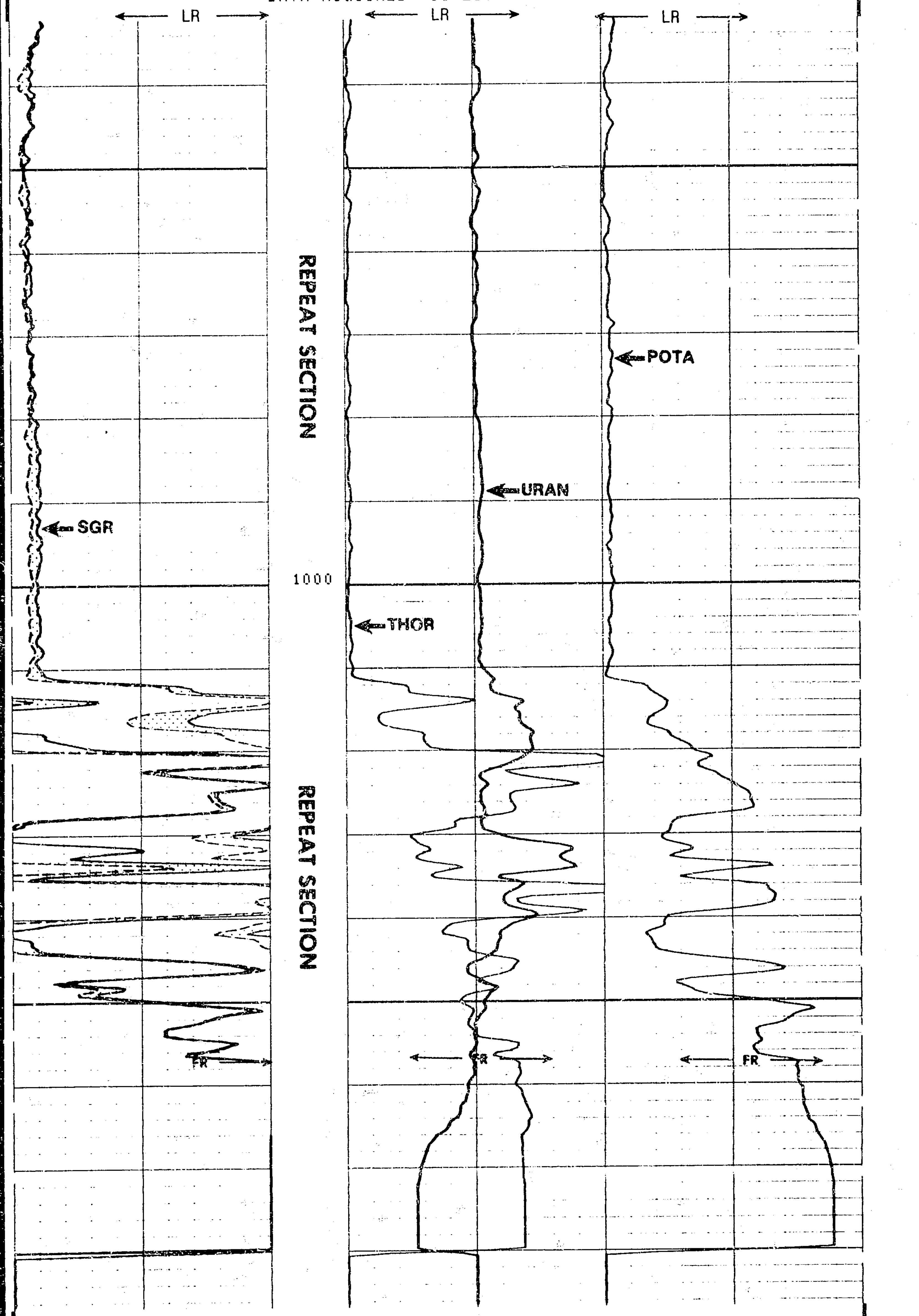
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	3048.00	M
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFO	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFM	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
DO	0.0	M	BS	216.000	MM
PP	NORM				

TAPE NOT MADE

CGR (GAPI)		THOR(PPM)		POTA	
0.0	100.00	0.0	40.000	0.0	.10000
SGR (GAPI)		URAN(PPM)			
0.0	100.00	-10.00			30.000

CP 28.15 FILE 3 20-OCT-85 00:34
DATA ACQUIRED 16-OCT-85 18:39



CP 28.15 FILE 3 20-OCT-85 00:33
DATA ACQUIRED 16-OCT-85 18:23

CGR (GAPI)		THOR(PPM)		POTA	
0.0	100.00	0.0	40.000	0.0	.10000
SGR (GAPI)		URAN(PPM)			
0.0	100.00	-10.00			30.000

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APLW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	3048.00	M
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFO	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFN	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
DO	0.0	M	BS	216.000	MM
PP	NORM				

TAPE NOT MADE

PRES SUMM :

PRES	OUTP	STAT	CHAN	TRAC	CODI	DEST	MODE	FILT	LEDG	REDG
19	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
18	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
17	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
16	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
[illegible]	DUMM	DISA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

```
NAME  VALUE        UNIT                  NAME  VALUE       UNIT

SHT   26.6666      DEGC                  TD    3048.00     M
CBAR  1.00000                            PMUD  0.0         %
PSNR  2.25980                            NFD   KALM
MATR  LIME                               HC    CALI
MDEN  2710.00      K/M3                  FD    1000.00     K/M3
BFM   LIQU                               WMUD  1750.00     K/M3
BHS   OPEN                               DHC   BS
DD    0.0          M                     BS    216.000     MM
PP    NORM

                          TAPE NOT MADE
```

```
  PRES SUMM :
PRES  OUTP STAT  CHAN TRAC CODI DEST MODE FILT    LEDG      REDG

19    DUMM DISA 15    T1    LLIN NEIT NB   .500 0.0        1.00000
18    DUMM DISA 15    T1    LLIN NEIT NB   .500 0.0        1.00000
17    DUMM DISA 15    T1    LLIN NEIT NB   .500 0.0        1.00000
16    DUMM DISA 15    T1    LLIN NEIT NB   .500 0.0        1.00000
15    DUMM DISA 15    T1    LLIN NEIT NB   .500 0.0        1.00000
14    DUMM DISA 14    T1    LLIN NEIT NB   .500 0.0        1.00000
13    DUMM DISA 13    T1    LLIN NEIT NB   .500 0.0        1.00000
12    DUMM DISA 12    T1    LLIN NEIT NB   .500 0.0        1.00000
11    DUMM DISA 11    T1    LLIN NEIT NB   .500 0.0        1.00000
10    DUMM DISA 10    T1    LLIN NEIT NB   .500 0.0        1.00000
9     DUMM DISA 9     T1    LLIN NEIT NB   .500 0.0        1.00000
8     DUMM DISA 8     T1    LLIN NEIT NB   .500 0.0        1.00000
7     DUMM DISA 7     T1    LLIN NEIT NB   .500 0.0        1.00000
CGR   CGR  ALLO 6     T1    LDAS 1    SHIF .500 0.0        100.000
TENS  TENS DISA 5     T3    LSPD 1    SHIF .500 50000.0 0.0
VBAR  VBAR DISA 4     T23   LSPD 1    NB   .500 .500000    1.50000
SGR   SGR  ALLO 3     T1    LLIN 1    SHIF .500 0.0        100.000
POTA  POTA ALLO 2     T3    LLIN 1    NB   .500 0.0        .100000
URAN  URAN ALLO 1     T23   HLIN 1    NB   .500 -10.000    30.0000
THOR  THOR ALLO 0     T2    LLIN 1    NB   .500 0.0        40.0000

   CP 28.15              FILE    4        20-OCT-85 00:44
                         DATA ACQUIRED    16-OCT-85 19:46
```

```
  CONS SUMM :
CONS  STAT PUNI TUNI VALU

TSEL                   FIEL
PINQ  ALLO             *
AUMS  ALLO             *
EML                    32767
EMC                    ALL
AOF   DISA             1
TODI       S    S      15.0000 S
TOPE                   ATTE
TGRD                   BOTH
TENV                   CHEC
DAY                    16
MONT                   10
YEAR                   85
PF                     SHOR
MMDU                   METE
ORDU                   METE
KPDU                   METE
TD         M    M      3048.00 M
BHT        DEGC DEGC   82.2221 DEGC
SHT        DEGC DEGC   26.6666 DEGC
TCMC                   NORM
TBR        KHZ  KHZ    100
TINT  ALLO S    S      10.0000 S
LCL   ALLO M    M      6000.00 M
LCT                    746P
TFR   ALLO             AUTO
TERI  ALLO S    S      10 S
PMUD       %    %      0.0 %
CBAR  DISA             1.00000
CGSH                   100.000
CGMI                   0.0
SGSH                   100.000
SGMI                   0.0
KSHA                   .0200000
KMIN                   0.0
USHA                   3.00000
UMIN                   0.0
TSHA                   12.0000
TMIN                   0.0
NGJN                   1735
NGDN                   752
NGCN                   1915
NFD                    KALM
NCT                    GSRU
NST                    NGDB
PCSL       KEV  KEV    -73 KEV
MSL   DISA             CLOS
PSNR                   2.25980
CNCM                   SHOP
HC                     CALI
MATR                   LIME
FD         K/M3 K/M3   1000.00 K/M3
MDEN       K/M3 K/M3   2710.00 K/M3
WMUD       K/M3 K/M3   1750.00 K/M3
BFM                    LIQU
DHC                    BS
LLSN                   7245
PGDN                   3976
PDHN                   3955
NSCN                   998
DRSN                   5786
LCM                    WATE
PSHV  DISA V    V      1000.00 V
PLHV  DISA V    V      1000.00 V
MLSS  ALLO             CLOS
MLLS  ALLO             CLOS
SSHC  DISA             *
LSHC  DISA             *
FPHI                   PHIX
FEXP                   2.00000
FNUM                   1.00000
SD         M    M      2496.92 M
CSIZ       MM   MM     0.0 MM
BHS                    OPEN
RW         OHMM OHMM   1.00000 OHMM
BS         MM   MM     216.000 MM
WSD   ALLO             *
NCDP                   0
MBSI                   300
DD2        M    M      0.0 M
DD         M    M      0.0 M
SPLI  DISA             0
PM                     SING
DIRE                   AUTO
CMDT                   IDW
MARK  DISA             *
TREF       N    N      4448.22 N
E          LB-1 LB-1   7.43000E-7  LB-1
PDS        M    M      0.0 M
CGM                    NORM
PP                     NORM
SPEE       F/HR F/HR   6000 F/HR
PANN                   ALL
ODES                   NEIT
LD                     FILM
CSD                    FILM
LSN                    0
DMD                    UP
UCDN  ALLO             *
CDS                    ALL
EDS                    PROP
DIFF       M    M      .304800 M

   CP 28.15              FILE    4        20-OCT-85 00:43
                         DATA ACQUIRED    16-OCT-85 19:46
```

```
  OUTP SUMM :
OUTP  STAT PUNI TUNI PROT

HTEN  ALLO N    N
MTEM  ALLO DEGC DEGC
MRES  ALLO OHMM OHMM
AMC9  ALLO
AMC8  ALLO
AMC7  ALLO
AMC6  ALLO
AMC5  ALLO
AMC4  ALLO
AMC3  ALLO
AMC2  ALLO
AMC1  ALLO
AMC0  ALLO
TEMP  DISA DEGC DEGC
AVOL  DISA V    V    PROP
EPV   DISA VDC  VDC  PROP
ACUR  DISA MA   MA   PROP
MCUR  DISA MA   MA   PROP
MVOL  DISA V    V    PROP
EVOL  DISA V    V    PROP
CCSW  ALLO           PROP
HV    ALLO V    V    PROP
VBAR  DISA           PROP
VSDI  DISA
VSCG  DISA
VSSG  DISA
VSPC  DISA
VSUC  DISA
VSTC  DISA
UPRA  DISA
TURA  DISA
TPRA  DISA
CGR   ALLO GAPI GAPI
SGR   ALLO GAPI GAPI
POTA  ALLO
URAN  ALLO PPM  PPM
THOR  ALLO PPM  PPM
W1NG  ALLO CPS  CPS
W2NG  ALLO CPS  CPS
W3NG  ALLO CPS  CPS
W4NG  ALLO CPS  CPS
W5NG  ALLO CPS  CPS
CHVS  ALLO V    V    PROP
DHVF  ALLO V    V    PROP
APLW  ALLO CPS  CPS  PROP
[illegible]
```

ACUR	DISA	MA	MA	PROP
MCUR	DISA	MA	MA	PROP
MVOL	DISA	V	V	PROP
EVOL	DISA	V	V	PROP
CCSW	ALLO			PROP
HV	ALLO	V	V	PROP
VBAR	DISA			PROP
VSDI	DISA			
VSCG	DISA			
VSSG	DISA			
VSPC	DISA			
VSUC	DISA			
VSTC	DISA			
UPRA	DISA			
TURA	DISA			
TPRA	DISA			
CGR	ALLO	GAPI	GAPI	
SGR	ALLO	GAPI	GAPI	
PUTA	ALLO			
URAN	ALLO	PPM	PPM	
THOR	ALLO	PPM	PPM	
W1NG	ALLO	CPS	CPS	
W2NG	ALLO	CPS	CPS	
W3NG	ALLO	CPS	CPS	
W4NG	ALLO	CPS	CPS	
W5NG	ALLO	CPS	CPS	
CHVS	ALLO	V	V	PROP
DHVF	ALLO	V	V	PROP
APLW	ALLO	CPS	CPS	PROP
APUW	ALLO	CPS	CPS	PROP
PPLW	ALLO	CPS	CPS	PROP
PPUW	ALLO	CPS	CPS	PROP
TPLW	ALLO	CPS	CPS	PROP
TPUW	ALLO	CPS	CPS	PROP
SNGT	ALLO			PROP
NGPE	ALLO			PROP
RSGR	ALLO	GAPI	GAPI	AUX
RW1N	ALLO	CPS	CPS	AUX
RW2N	ALLO	CPS	CPS	AUX
RW3N	ALLO	CPS	CPS	AUX
RW4N	ALLO	CPS	CPS	AUX
RW5N	ALLO	CPS	CPS	AUX
NDPD	DISA			
PHIX	DISA			
QS	DISA			
RHGX	ALLO	K/M3	K/M3	
RO	DISA	OHMM	OHMM	
RWA	DISA	OHMM	OHMM	
SCNL	ALLO			AUX
NPHI	ALLO			
NRAT	ALLO			
NCNL	ALLO	CPS	CPS	
FCNL	ALLO	CPS	CPS	
RNRA	ALLO			AUX
DPHI	DISA			
DRHO	ALLO	K/M3	K/M3	
RHOB	ALLO	K/M3	K/M3	
QSS	ALLO			
QLS	ALLO			
QRSS	ALLO			
QRLS	ALLO			
LURH	ALLO	K/M3	K/M3	
LSRH	ALLO	K/M3	K/M3	
S1RH	ALLO	K/M3	K/M3	
PEF	ALLO			
SLDT	ALLO			PROP
RSS2	ALLO	CPS	CPS	AUX
RSS1	ALLO	CPS	CPS	AUX
RLIT	ALLO	CPS	CPS	AUX
RLS	ALLO	CPS	CPS	AUX
RLU	ALLO	CPS	CPS	AUX
RLL	ALLO	CPS	CPS	AUX
FFLS	ALLO			AUX
FFSS	ALLO			AUX
SSHV	ALLO	V	V	AUX
LSHV	ALLO	V	V	AUX
PARI	ALLO			PROP
SS2	ALLO	CPS	CPS	
SS1	ALLO	CPS	CPS	
LITH	ALLO	CPS	CPS	
LS	ALLO	CPS	CPS	
LU	ALLO	CPS	CPS	
LL	ALLO	CPS	CPS	
RDPS	ALLO	CPS	CPS	PROP
RTCS	ALLO	CPS	CPS	PROP
RDPL	ALLO	CPS	CPS	PROP
RDCL	ALLO	CPS	CPS	PROP
RSUU	ALLO	CPS	CPS	PROP
RSLU	ALLO	CPS	CPS	PROP
RSUL	ALLO	CPS	CPS	PROP
RSLL	ALLO	CPS	CPS	PROP
RLUU	ALLO	CPS	CPS	PROP
RLLU	ALLO	CPS	CPS	PROP
RLUL	ALLO	CPS	CPS	PROP
RLLL	ALLO	CPS	CPS	PROP
LHVD	ALLO	V	V	PROP
SHVD	ALLO	V	V	PROP
IHV	DISA	F3	F3	
DCAL	DISA	MM	MM	
CALI	ALLO	MM	MM	
RCAL	ALLO	MM	MM	AUX
BS	DISA	MM	MM	
DMAR	DISA	M	M	AUX
MARK	ALLO	M	M	
DUM2				
DUMM				
ZERO				
CS	ALLO	F/HR	F/HR	
TENS	ALLO	N	N	
ETIM	ALLO	S	S	
TIME	ALLO	MS	MS	
TOD	ALLO	S	S	
DIFF	ALLO	M	M	AUX
TDEP	DISA	M	M	AUX

CP 28.15 FILE 4 20-OCT-85 00:42
DATA ACQUIRED 16-OCT-85 19:46

INPU SUMM :

INPU	STAT	PUNI	TUNI	MPOI	CNUM	ZREF	PREF	GAIN	OFFS	DCON
MRES	ALLO	OHMM	OHMM	70						
MTEM	ALLO	DEGC	DEGC	70						
EPV		VDC	VDC	0	4					
ACUR		MA	MA	0	4					
MCUR		MA	MA	0	2					
CTEM	ALLO	DEGC	DEGC	0						0
HV	ALLO	V	V	0						
CCSW	ALLO			0						
EVOL		VDC	VDC	0	5					
AVOL		V	V	0	0					
MVOL		V	V	0	3					
APLW	ALLO	CPS	CPS	88						
APUW	ALLO	CPS	CPS	88						
NGPE	ALLO			88						
PPLW	ALLO	CPS	CPS	88						
PPUW	ALLO	CPS	CPS	88						
SNGT	ALLO			88						
TPLW	ALLO	CPS	CPS	88						
TPUW	ALLO	CPS	CPS	88						
W1NG	ALLO	CPS	CPS	88		0.0	489.0			
W2NG	ALLO	CPS	CPS	88		0.0	284.0			
W3NG	ALLO	CPS	CPS	88		0.0	44.00			
W4NG	ALLO	CPS	CPS	88		0.0	24.00			
W5NG	ALLO	CPS	CPS	88		0.0	45.00			
FCNL	ALLO	CPS	CPS	40	1					
NCNL	ALLO	CPS	CPS	40	2					
SCNL	ALLO			34						
LITH	ALLO	CPS	CPS	31						1
LL	ALLO	CPS	CPS	31						1
LS	ALLO	CPS	CPS	31						1
LU	ALLO	CPS	CPS	31						1
PARI	ALLO			25						
SLDT	ALLO			25						
SS1	ALLO	CPS	CPS	25						1
SS2	ALLO	CPS	CPS	25						1
DTCL	ALLO	CPS	CPS	31						
DTCS	ALLO	CPS	CPS	25						
DTPL	ALLO	CPS	CPS	31						
DTPS	ALLO	CPS	CPS	25						
LLLC	ALLO	CPS	CPS	31						
LULC	ALLO	CPS	CPS	31						
LLUC	ALLO	CPS	CPS	31						
LUUC	ALLO	CPS	CPS	31						
SLLC	ALLO	CPS	CPS	25						
SULC	ALLO	CPS	CPS	25						
SLUC	ALLO	CPS	CPS	25						
SUUC	ALLO	CPS	CPS	25						
CALI	ALLO	MM	MM	32	0	203.1	304.6	.906195	49.4513	
TENS	ALLO	N	N	0	20					
SGR	ALLO	GAPI	GAPI	88			162.0	1.03576		1
NRAT	ALLO			40			2.158	.955042		1

CP 28.15 FILE 4 20-OCT-85 00:42
DATA ACQUIRED 16-OCT-85 19:46

TOOL SUMM :

TOOL	STAT	LENG	WEIG
AMS	ALLO	92	130
TCCA	ALLO	36	57
NGTC	ALLO	100	165
CNTH	ALLO	87	155
LDTD	ALLO	210	311
TEMP	ALLO	0	0
DTT	ALLO	0	0

CP 28.15 FILE 4 20-OCT-85 00:42
DATA ACQUIRED 16-OCT-85 19:46

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

OTHER SERVICES-
DLL-MSFL
DISFL-DDBHC
CNL-LDT
SHDT
RFT
CST / VSP

MTEM	ALLO	DEGC	DEGC	70						
EPV		VDC	VDC	0	4					
ACUR		MA	MA	0	4					
MCUR		MA	MA	0	2					
CTEM	ALLO	DEGC	DEGC	0						0
HV	ALLO	V	V	0						
CCSW	ALLO			0						
EVOL		VDC	VDC	0	5					
AVOL		V	V	0	0					
NVOL		V	V	0	3					
APLW	ALLO	CPS	CPS	88						
APUW	ALLO	CPS	CPS	88						
NGPE	ALLO			88						
PPLW	ALLO	CPS	CPS	88						
PPUW	ALLO	CPS	CPS	88						
SNGT	ALLO			88						
TPLW	ALLO	CPS	CPS	88						
TPUW	ALLO	CPS	CPS	88						
W1NG	ALLO	CPS	CPS	88		0.0	489.0			
W2NG	ALLO	CPS	CPS	88		0.0	284.0			
W3NG	ALLO	CPS	CPS	88		0.0	44.00			
W4NG	ALLO	CPS	CPS	88		0.0	24.00			
W5NG	ALLO	CPS	CPS	88		0.0	45.00			
FCNL	ALLO	CPS	CPS	40	1					
NCNL	ALLO	CPS	CPS	40	2					
SCNL	ALLO			34						
LITH	ALLO	CPS	CPS	31						1
LL	ALLO	CPS	CPS	31						1
LS	ALLO	CPS	CPS	31						1
LU	ALLO	CPS	CPS	31						1
PARI	ALLO			25						
SLDT	ALLO			25						
SS1	ALLO	CPS	CPS	25						1
SS2	ALLO	CPS	CPS	25						1
DTCL	ALLO	CPS	CPS	31						
DTCS	ALLO	CPS	CPS	25						
DTPL	ALLO	CPS	CPS	31						
DTPS	ALLO	CPS	CPS	25						
LLLC	ALLO	CPS	CPS	31						
LULC	ALLO	CPS	CPS	31						
LLUC	ALLO	CPS	CPS	31						
LUUC	ALLO	CPS	CPS	31						
SLLC	ALLO	CPS	CPS	25						
SULC	ALLO	CPS	CPS	25						
SLUC	ALLO	CPS	CPS	25						
SUUC	ALLO	CPS	CPS	25						
CALI	ALLO	MM	MM	32	0	203.1	304.6	.906195	49.4513	
TENS	ALLO	N	N	0	20					
SGR	ALLO	GAPI	GAPI	88			162.0	1.03576		1
NRAT	ALLO			40			2.158	.955042		1

CP 28.15 FILE 4 20-OCT-85 00:42
DATA ACQUIRED 16-OCT-85 19:46

TOOL SUMM :

TOOL	STAT	LENG	WEIG
AMS	ALLO	92	130
TCCA	ALLO	36	57
NGTC	ALLO	100	165
CNTH	ALLO	87	155
LDTD	ALLO	210	311
TEMP	ALLO	0	0
DTT	ALLO	0	0

CP 28.15 FILE 4 20-OCT-85 00:42
DATA ACQUIRED 16-OCT-85 19:46

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM: 0.0 M
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

DATE: 16 OCT 85
RUN NO: 2

OTHER SERVICES-
DLL-MSFL
DISFL-DDBHC
CNL-LDT
SHDT
RFT
CST / VSP

PROGRAM
TAPE NO:
28.15
SERVICE
ORDER NO:
129389

DEPTH-DRILLER: 1040.0 M
DEPTH-LOGGER: 1038.0 M
BTM. LOG INTERVAL: 1037.0 M
TOP LOG INTERVAL: 532.0 M

CASING-DRILLER:	437.7 M	533.4 M	0.0 M
CASING-LOGGER:	436.0 M	532.0 M	0.0 M
CASING:	339.7 MM	244.5	
WEIGHT:	107.100 KG/M	70.1000 KG/M	0.0 KG/M
BIT SIZE:	311.2 MM	216MM	

Schlumberger

NATURAL GAMMA SPECTROSCOPY LOG

CSU Field Log

8710-C55-1-2

Schlumberger

CEMENT BOND LOG

CSU Field Log

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

OTTAWA COPY

SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L. ELEVATIONS-
ELEV. OF PERM. DATUM: KB: 13.7 M
LOG MEASURED FROM: K.B. DF: 13.3 M
13.7 M ABOVE PERM. DATUM GL: -199.3 M
DRLG. MEASURED FROM: KELLY BUSHING

DATE: 22 SEP 85
RUN NO: 1

DEPTH-DRILLER: 341.0 M
DEPTH-LOGGER: 356.0 M
BTM. LOG INTERVAL: 352.0 M
TOP LOG INTERVAL: 200.0 M

CASING-DRILLER: 437 M
CASING-LOGGER:
CASING: 339.7 MM
WEIGHT: 107.1 KG/M
BIT SIZE: 311.2 MM

OTHER SERVICES-
CVL

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:

TYPE FLUID IN HOLE: NACL SATURATED GEL POLYMER
DENSITY:
VISCOSITY:
PH:
FLUID LOSS:
SOURCE OF SAMPLE: CIRC.
RM: AT 0.0 DEGC
RMF: AT 0.0 DEGC
RMC: AT 0.0 DEGC
SOURCE RMF/RMC: PRESS /PRESS
RM AT BHT: AT 0.0 DEGC
RMF AT BHT: AT 0.0 DEGC
RMC AT BHT: AT 0.0 DEGC

TIME CIRC. STOPPED:
TIME LOGGER ON BTM.:

MAX. REC. TEMP: 0.0 DEGC

LOGGING UNIT NO: 922
LOGGING UNIT LOC: ST. JOHN'S
RECORDED BY: BEBB
WITNESSED BY: R. CARSTAIRS

REMARKS:

TOOL STRING CENTRALIZED WITH 3 CME-Z'S

EQUIPMENT NUMBERS-

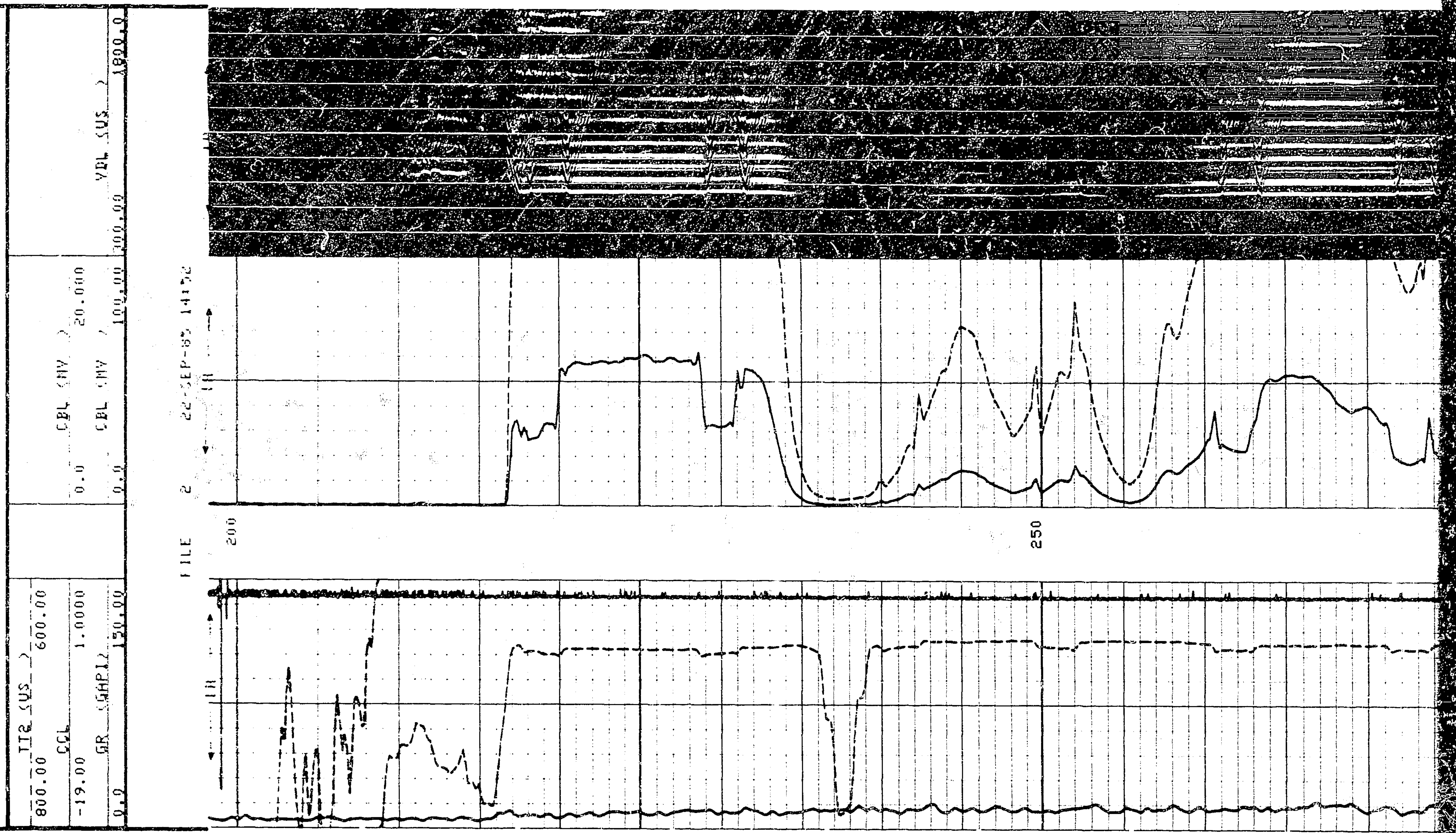
WDM-AA 76	SLM-DA 1297	NSM 3727	SLC-FA 1286
SLS-SC 455	SGC-JC 1695	CAL-RA 1376	

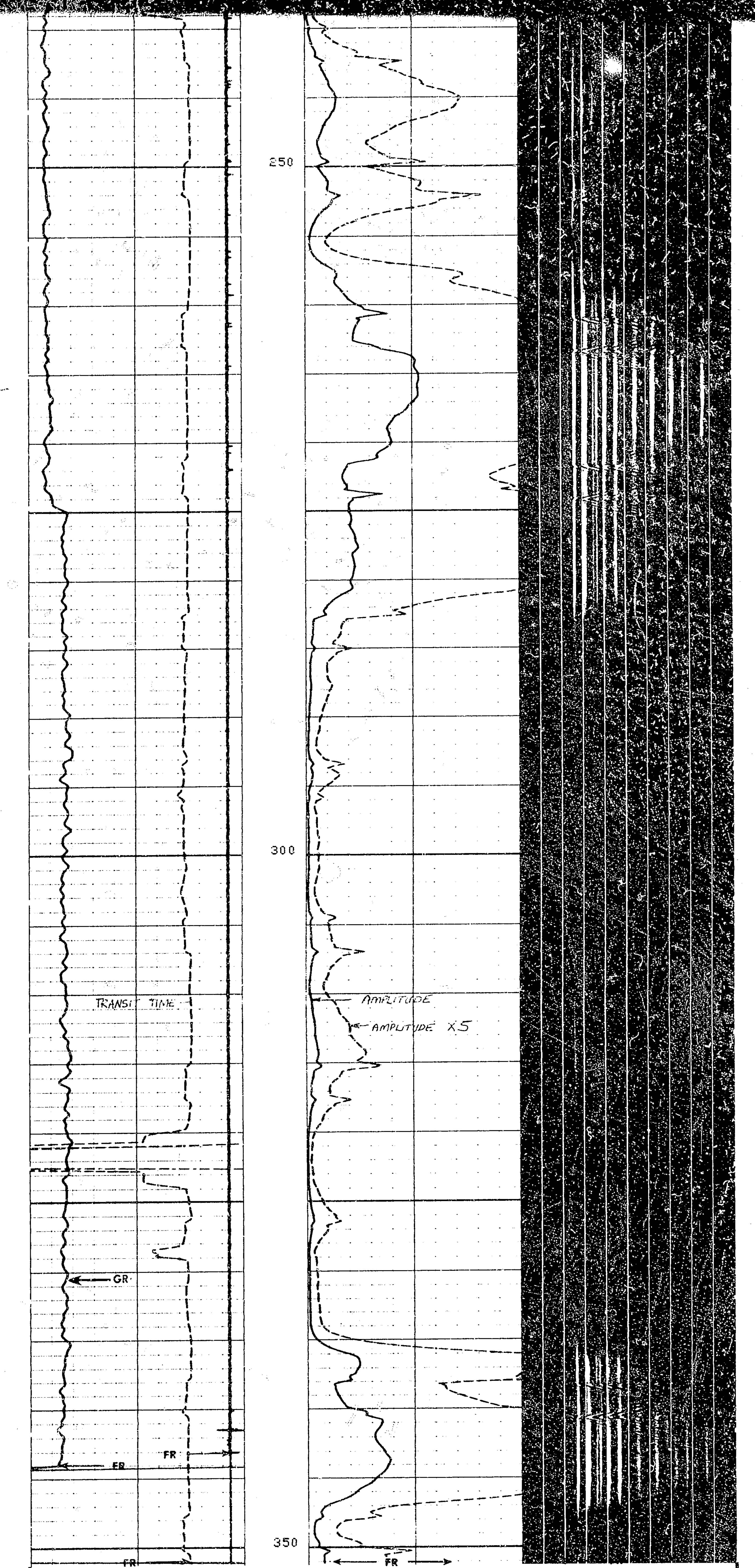
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

FILE 4 22-SEP-85 15:00
DATA ACQUIRED 00- -00 00:00

AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

FILE 4 22-SEP-85 14:57
DATA ACQUIRED 00- -00 00:00





FILE 2 22-SEP-85 14:35

TT2 (US) 800.00 600.00	CBL (MV) 0.0 20.000	
CCL -19.00 1.0000	CBL (MV) 0.0 100.00	VDL (US) 300.00 1800.0
GR (GAPI) 0.0 150.00		

SENSOR MEASURE POINT TO TOOL ZERO

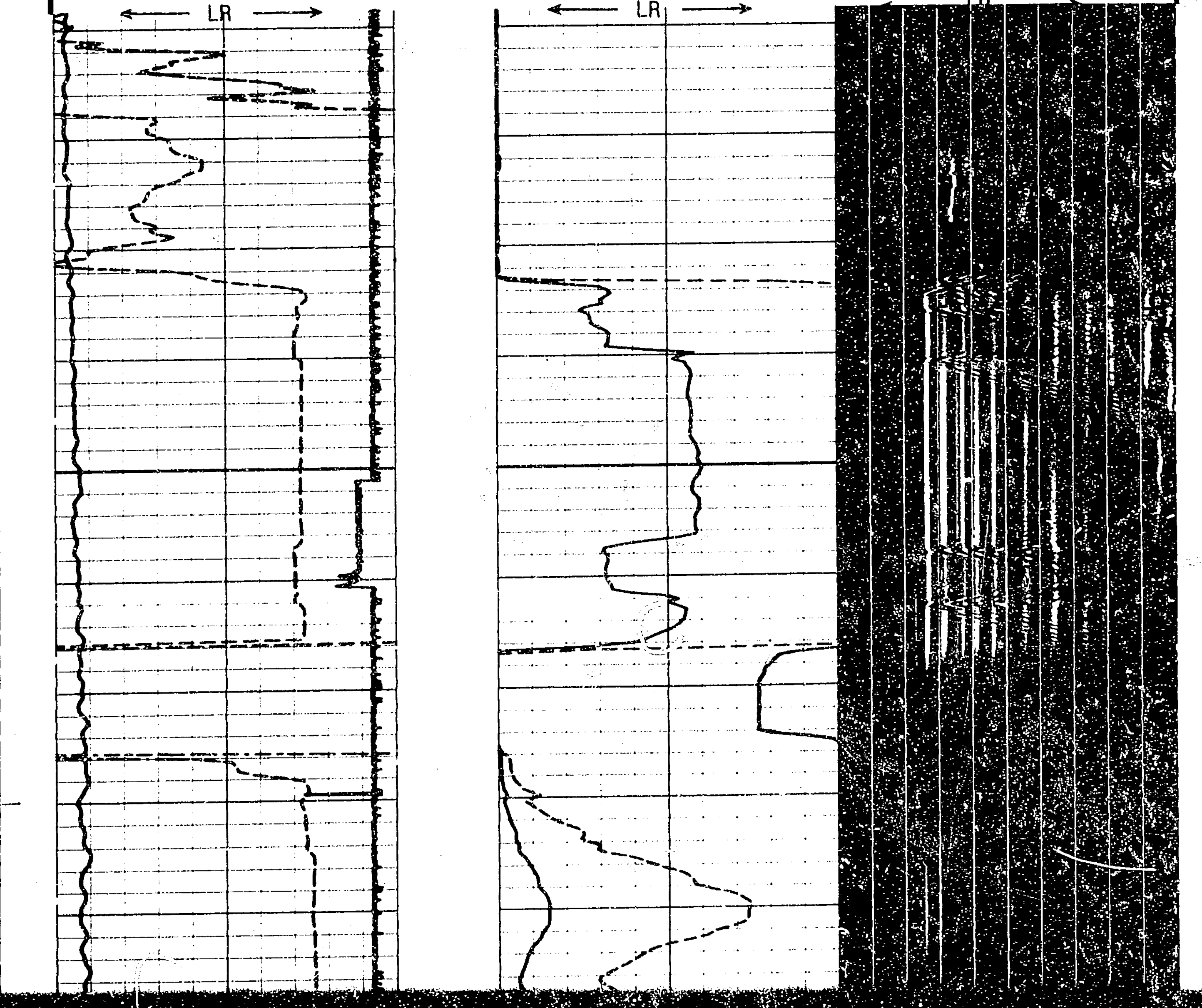
CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER
TT1	3.4	METER	TT2	3.4	METER
GR	9.8	METER	SRAT	3.4	METER
CCL	10.9	METER	TENS	3.4	METER
NOIS	3.4	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CSTR	3000.00	PSIA	CWEI	107.100	KG/M
WSV1	WF1		DWS	16	
DSIN	4	US	DDEL	300	US
CDTS	100.000		DWCO	375	
DTF	189.000	US/F	DTM	56.0000	US/F
BHS	CASE		CSIZ	339.700	MM
BS	311.200	MM			

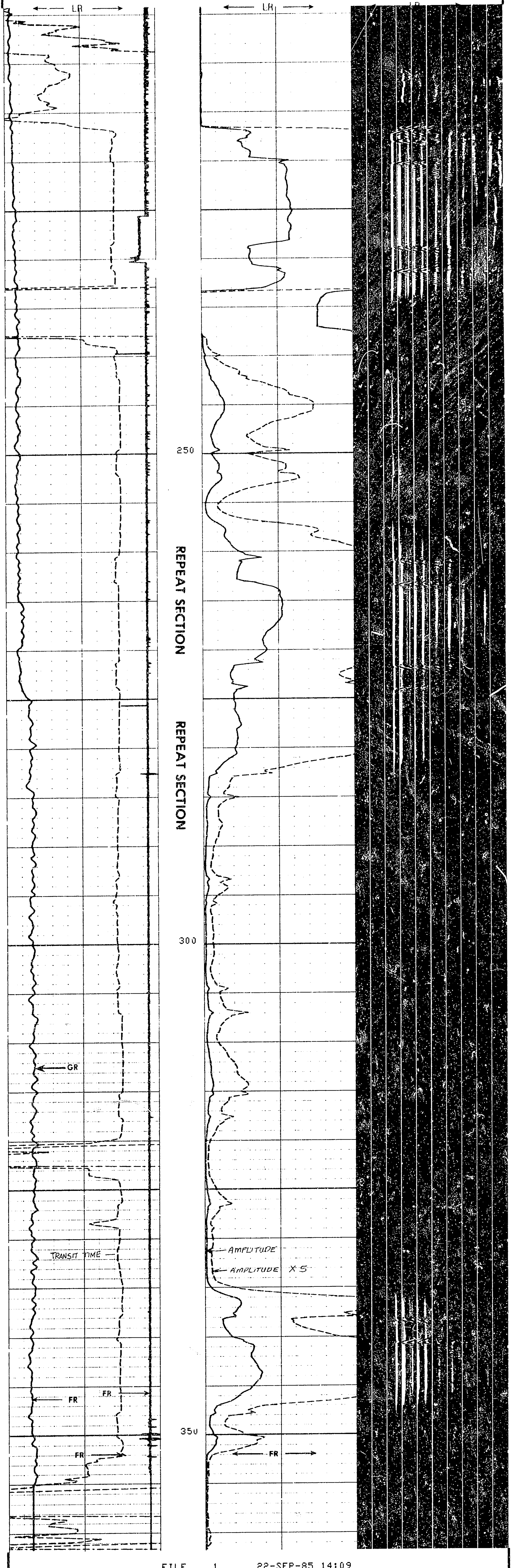
TT2 (US) 800.00 600.00	CBL (MV) 0.0 20.000	
CCL -19.00 1.0000	CBL (MV) 0.0 100.00	VDL (US) 300.00 1800.0
GR (GAPI) 0.0 150.00		

FILE 1 22-SEP-85 14:24



TT2 (US)	CCL	GR (GAPI)	CBL (MV)	CBL (MV)	VDL (US)
800.00 – 600.00	-19.00 – 1.0000	0.0 – 150.00	0.0 – 20.000	0.0 – 100.00	300.00 – 1800.0

FILE 1 22-SEP-85 14:24



FILE 1 22-SEP-85 14:09

TT2 (US)	CCL	GR (GAPI)	CBL (MV)	CBL (MV)	VDL (US)
800.00 – 600.00	-19.00 – 1.0000	0.0 – 150.00	0.0 – 20.000	0.0 – 100.00	300.00 – 1800.0

SENSOR MEASURE POINT TO TOOL ZERO

CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER
TT1	3.4	METER	TT2	3.4	METER
GR	9.8	METER	SRAT	3.4	METER
CCL	10.9	METER	TENS	3.4	METER
NDIS	3.4	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CSTR	3000.00	PSIA	CWEI	107.100	KG/M
WSV1	WF1		DWS	16	
DSIN	4	US	DDEL	300	US
CDTS	100.000		DWCO	375	
DTF	189.000	US/F	DTM	56.0000	US/F
BHS	CASE		CSIZ	339.700	MM
BS	311.200	MM			

SENSOR MEASURE POINT TO TOOL ZERO

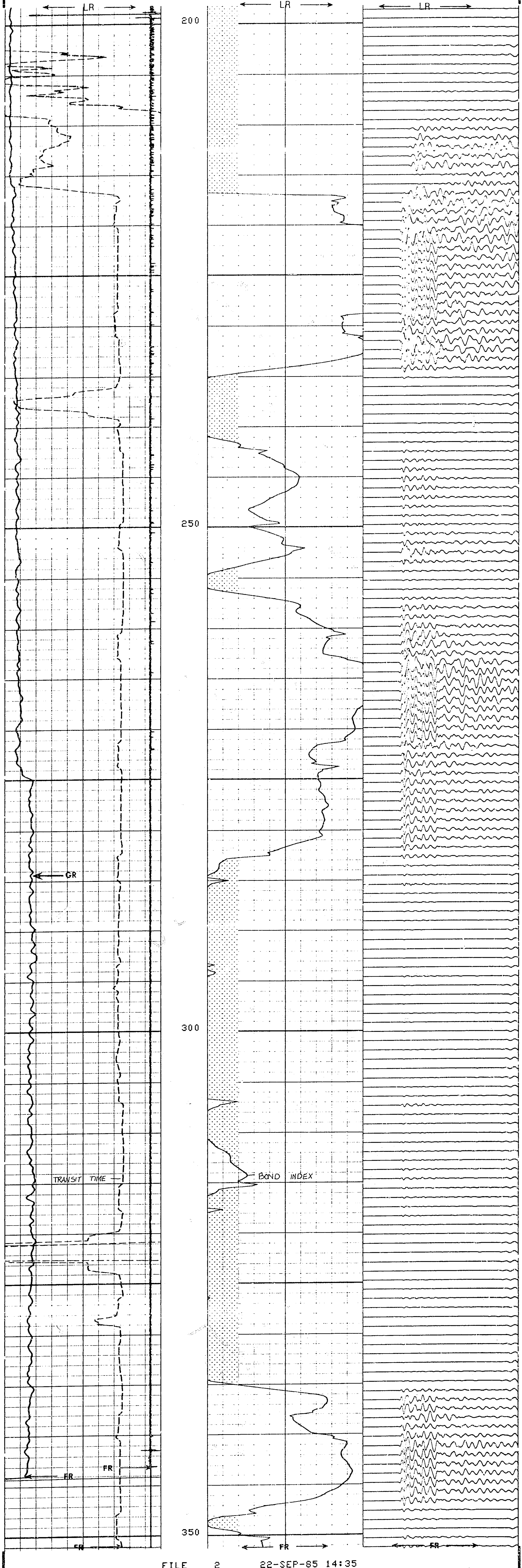
CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER
TT1	3.4	METER	TT2	3.4	METER
GR	9.8	METER	SRAT	3.4	METER
CCL	10.9	METER	TENS	3.4	METER
NDIS	3.4	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CSTR	3000.00	PSIA	CWEI	107.100	KG/M
WSV1	WF1		DWS	16	
DSIN	4	US	DDEL	300	US
CDTS	100.000		DWCO	375	
DTF	189.000	US/F	DTM	56.0000	US/F
BHS	CASE		CSIZ	339.700	MM
BS	311.200	MM			

TT2 (US) 800.00 – 600.00; CCL -19.00 – 1.0000; GR (GAPI) 0.0 – 150.00	BI 1.0000 – 0.0	WF (US) 300.00 – 1800.0

FILE 2 22-SEP-85 14:52

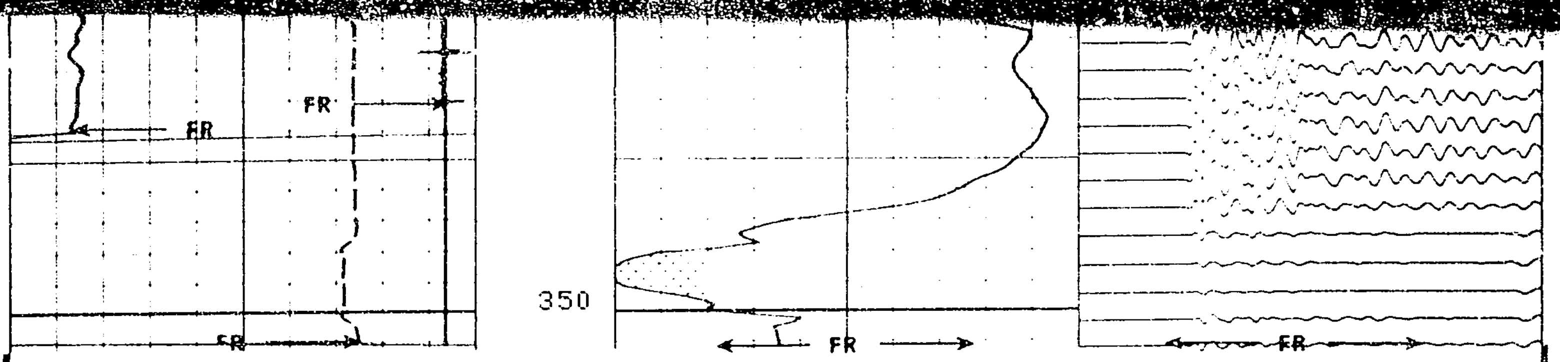


FILE 2 22-SEP-85 14:35

TT2 (US) 800.00 – 600.00; CCL -19.00 – 1.0000; GR (GAPI) 0.0 – 150.00	BI 1.0000 – 0.0	WF (US) 300.00 – 1800.0

SENSOR MEASURE POINT TO TOOL ZERO

CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER



FILE 2 22-SEP-85 14:35

TT2 (US) 800.00 600.00 CCL -19.00 1.0000 GR (GAPI) 0.0 150.00	BI 1.0000 0.0	WF (US) 300.00 1800.0

SENSOR MEASURE POINT TO TOOL ZERO

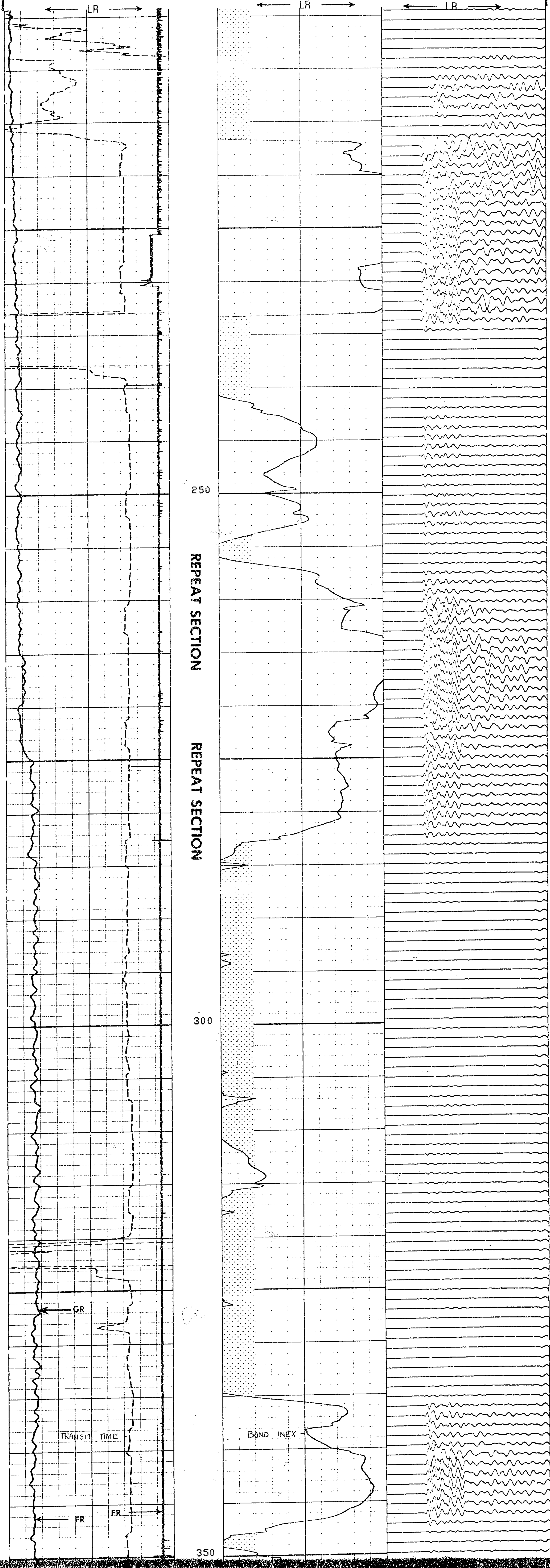
CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER
TT1	3.4	METER	TT2	3.4	METER
GR	9.8	METER	SPAT	3.4	METER
CCL	10.9	METER	TENS	3.4	METER
NOIS	3.4	METER			

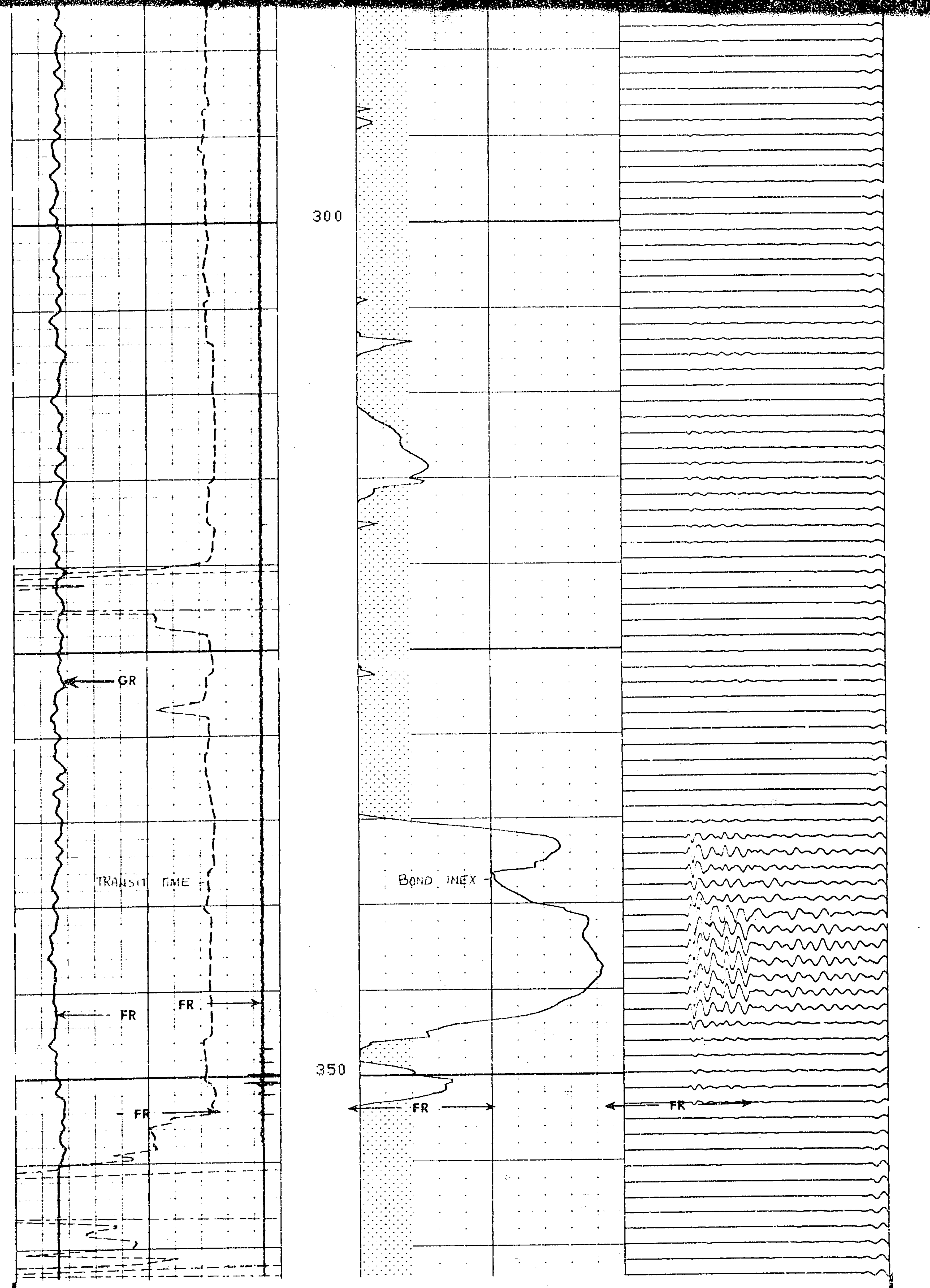
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CSTR	3000.00	PSIA	CWEI	107.100	KG/M
WSV1	WF1		DWS	16	
DSIN	4	US	DDEL	300	US
CDTS	100.000		DWCO	375	
DTF	189.000	US/F	DTM	56.0000	US/F
BHS	CASE		CSIZ	339.700	MM
BS	311.200	MM			

TT2 (US) 800.00 600.00 CCL -19.00 1.0000 GR (GAPI) 0.0 150.00	BI 1.0000 0.0	WF (US) 300.00 1800.0

FILE 1 22-SEP-85 14:24





FILE 1 22-SEP-85 14:09

TT2 (US)	BI	WF (US)
800.00 600.00		
CCL -19.00 1.0000		
GR (GAPI) 0.0 150.00	1.0000 0.0	300.00 1800.0

SENSOR MEASURE POINT TO TOOL ZERO

CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER
TT1	3.4	METER	TT2	3.4	METER
GR	9.8	METER	SRAT	3.4	METER
CCL	10.9	METER	TENS	3.4	METER
NOIS	3.4	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CSTR	3000.00	PSIA	CWEI	107.100	KG/M
WSV1	WF1		DWS	16	
DSIN	4	US	DDEL	300	US
CDTS	100.000		DWCD	375	
DTF	189.000	US/F	DTM	56.0000	US/F
BHS	CASE		CSIZ	339.700	MM
BS	311.200	MM			

TOOL SUMM :

TOOL	STAT	LENG	WEIG
NSM	ALLO	0	0
DTT	ALLO	0	0
CSUD	ALLO	0	0
SLTL	ALLO	339	385
SGTE	ALLO	60	125
CALR	ALLO	42	30

FILE 4 22-SEP-85 15:01
DATA ACQUIRED 00- -00 00:00

INPU SUMM :

INPU	STAT	PUNI	TUNI	MPOI	CNUM	ZREF	PREF	GAIN	OFFS	DCON
NOIS	ALLO	MV	MV	135	14					
CCL	ALLO			33	21			40.0000		
TENS	ALLO	N	N	135	20					
GR	ALLO	GAPI	GAPI	49	0		165.0	1.00000		1
SRAT	ALLO			135				1.00000	0.0	
TT1	ALLO	US	US	135	4					
TT2	ALLO	US	US	135	4					
TT3	ALLO	US	US	135	4					
TT4	ALLO	US	US	135	4					
CBL	ALLO	MV	MV	135	13					
AMPL	ALLO	MV	MV	135	12					

FILE 4 22-SEP-85 15:01
DATA ACQUIRED 00- -00 00:00

OUTP SUMM :

OUTP	STAT	PUNI	TUNI
TDEP		M	M
DIFF	ALLO	M	M
TOD	ALLO	S	S
TIME	ALLO	MS	MS
ETIM	ALLO	S	S
TENS	ALLO	N	N
CS	ALLO	F/HR	F/HR
ZERO			
DUMM			
DUM2			
MARK	ALLO	M	M
DMAR	DISA	M	M
GDBD	DISA	MV	MV
VDL		US	US
WF		US	US
BS	DISA	MM	MM
RGR	ALLO	GAPI	GAPI
GR	ALLO	GAPI	GAPI
DT	ALLO	US/F	US/F
SPHI	DISA		
ITT	DISA	S	S
TT1	ALLO	US	US
TT2	ALLO	US	US
TT3	ALLO	US	US
TT4	ALLO	US	US
AMPL	ALLO	MV	MV
CBL	ALLO	MV	MV
SRAT	ALLO		
NOIS	DISA	MV	MV
WF1D	DISA	M	M
WF2D	ALLO	M	M
WF1N	DISA		
WF2N	ALLO		
VDL1	DISA		
WF1	DISA		
WF2	ALLO		
WF3D	DISA	M	M
WF4D	DISA	M	M
WF3N	DISA		
WF4N	DISA		
WF3	DISA		
WF4	DISA		
RCCL	ALLO		
CCL	ALLO		
BILI	DISA		
BI	DISA		
SATT	DISA	DB/F	DB/F

FILE 4 22-SEP-85 15:02
DATA ACQUIRED 00- -00 00:00

CONS SUMM :

CONS	STAT	PUNI	TUNI	VALU
DIFF		M	M	.304800 M
EDS				PROP
CDS				ALL

```
WF3D  DISA M     M
WF4D  DISA M     M
WF3N  DISA
WF4N  DISA
WF3   DISA
WF4   DISA
RCCL  ALLO
CCL   ALLO
BILI  DISA
BI    DISA
SATT  DISA DB/F DB/F
```

```
                  FILE    4       22-SEP-85 15:02
                  DATA ACQUIRED  00-    -00 00:00
```

```
  CONS SUMM :
CONS  STAT PUNI TUNI VALU

DIFF       M    M    .304800 M
EDS                  PROP
CDS                  ALL
UCON  ALLO           *
DMD                  UP
LSN                  0
CSD                  FILM
LD                   FILM
PANN                 ALL
SPEE       F/HR F/HR 6000 F/HR
PP                   NORM
CGM                  NORM
POS        M    M    0.0 M
E          LB-1 LB-1 7.43000E-7  LB-1
TREF       N    N    4448.22 N
MARK  DISA           *
CMDT                 IDW
DIRE                 AUTO
PM                   SING
SPLI  DISA           *
DO         M    M    0.0 M
DO2        M    M    0.0 M
BS         MM   MM   311.200 MM
RW         OHMM OHMM 1.00000 OHMM
BHS                  CASE
CSIZ       MM   MM   339.700 MM
IHVD                 NEIT
SD         M    M    2496.92 M
FNUM                 1.00000
FEXP                 2.00000
FPHI                 PHIX
SIMU  DISA           *
ITTD                 NEIT
DTF        US/F US/F 189.000 US/F
DTM        US/F US/F 56.0000 US/F
CDTS                 100.000
DWCO  ALLO           375
DSIN  ALLO US   US   4 US
DDEL  ALLO US   US   300 US
VWF   ALLO           BHC
DWF                  MAN
WSV1  ALLO           WF1
DWS   ALLO           16
CSTR       PSIA PSIA 3000.00 PSIA
CWEI       KG/M KG/M 107.100 KG/M
ZID                  NEIT
BILI                 .800000
MCI        M    M    6.60638 M
MSA        MV   MV   2.68485 MV
KPDU                 METE
ORDU                 METE
MMDU                 METE
PF                   SHOR
YEAR                 85
MONT                 9
DAY                  22
```

```
                  FILE    4       22-SEP-85 15:02
                  DATA ACQUIRED  00-    -00 00:00
```

```
  SONI SUMM :
SONI  STAT PUNI TUNI VALU

ITTD                 NEIT
MODE                 BHC
RATE       HZ   HZ   15 HZ
DG                   /20
DG1W                 /20
DG2W                 /20
DG3W                 /20
DG4W                 /20
AGC   ALLO           *
GAIN                 2.00000
MGAI                 16.0000
DETE                 E1
NC    DISA           *
SGAD  DISA           *
NMSG       US   US   642 US
FMSG       US   US   437 US
SGW        US   US   80 US
FD    DISA           *
CBLG       US   US   35 US
AMPL                 2
CBL                  2
WFM                  2
VDLD                 1
WFD                  2
WFS        F    F    3 F
SS                   SLOW
TC                   1
TOD   ALLO           *
DTT   DISA           *
LMOD                 DT
```

```
                  FILE    4       22-SEP-85 15:02
                  DATA ACQUIRED  00-    -00 00:00
```

```
  PRES SUMM :
PRES  OUTP STAT CHAN  TRAC CODI DEST MODE FILT LEDG     REDG

GR    GR   ALLO 0     T1   LLIN BOTH SHIF .500 0.0      150.000
CCL   CCL  ALLO 1     T1   LLIN BOTH NB   0.0  -19.000  1.00000
TT2   TT2  ALLO 2     T1   LDAS BOTH SHIF .500 800.000  600.000
CBL   CBL  ALLO 3     T2   LLIN 1    NB   .500 0.0      100.000
ACBL  CBL  ALLO 4     T2   LDAS 1    NB   .500 0.0      20.0000
VDL   VDL  ALLO 5     T3   LLIN 1    NB   .500 300.000  1800.00
6     DUMM DISA 6     T1   LLIN NEIT NB   .500 0.0      1.00000
7     DUMM DISA 7     T1   LLIN NEIT NB   .500 0.0      1.00000
BI    BI   ALLO 8     T2   LLIN 2    NB   .500 1.00000  0.0
BILI  BILI ALLO 9     T2   LLIN NEIT NB   .500 1.00000  0.0
WF    WF   ALLO 10    T3   LLIN 2    NB   .500 300.000  1800.00
11    DUMM DISA 11    T1   LLIN NEIT NB   .500 0.0      1.00000
12    DUMM DISA 12    T1   LLIN NEIT NB   .500 0.0      1.00000
13    DUMM DISA 13    T1   LLIN NEIT NB   .500 0.0      1.00000
14    DUMM DISA 14    T1   LLIN NEIT NB   .500 0.0      1.00000
15    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
16    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
17    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
18    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
19    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
```

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

OTHER SERVICES-
CVL

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:

DATE: 22 SEP 85
RUN NO: 1

DEPTH-DRILLER: 341.0 M
DEPTH-LOGGER: 356.0 M
BTM. LOG INTERVAL: 352.0 M
TOP LOG INTERVAL: 300.0 M

CASING-DRILLER: 437 M
CASING-LOGGER:
CASING: 339.7 MM
WEIGHT: 107.1 KG/M
BIT SIZE: 311.2 MM

Schlumberger

CEMENT BOND LOG

CSU Field Log

8710-C55-1-2

CORE SAMPLING RESULTS

CSU Field Log

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV. : MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP:
LATITUDE: 59 50' 48.0" N
LONGITUDE: 87 30' 59.5" W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.1 M
GL: -199.3 M

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DDBHC-DIL
SHDT
RFT
WST

PROGRAM
TAPE NO: 26.2
SERVICE
ORDER NO: 129389

Canada Oil & Gas Lands Administration
NOV 4 1985
St. John's Nfld.

OTTAWA COPY
CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PETROLE ET DU GAZ DES TERRES DU CANADA
NOV 5 1985
ENGINEERING AND CONTROL BRANCH
... ET DU CONTROLE

DATE: 17 OCT 85
RUN NO: 1

DEPTH-DRILLER: 1040.0 M
DEPTH-LOGGER: 1038.0 M
BTM. LOG INTERVAL: 1040.0 M
TOP LOG INTERVAL: 542.0 M

CASING-DRILLER: 437 M
CASING-LOGGER: 436 M
CASING: 339.7 MM 244.5
WEIGHT: 107.1 KG/M 70.10 KG/M
BIT SIZE: 311.2 MM 216 MM

TYPE FLUID IN HOLE: NACL SATURATED GEL POLYMER
DENSITY: 1761 K/M3
VISCOSITY: 48.0 S
PH: 10.5
FLUID LOSS: 11.1 C3
SOURCE OF SAMPLE: CIRC.
RM: .091 OHMM AT 18.0 DEGC
RMF: .058 OHMM AT 18.0 DEGC
RMC: .223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC: PRESS /PRESS
RM AT BHT: .099 OHMM AT 15.0 DEGC
RMF AT BHT: .063 OHMM AT 15.0 DEGC
RMC AT BHT: .216 OHMM AT 15.0 DEGC

TIME CIRC. STOPPED: 10:20 / 16
TIME LOGGER ON BTM.: 04:00 / 18

MAX. REC. TEMP: 15.0 DEGC

LOGGING UNIT NO: 922
LOGGING UNIT LOC: ST. JOHN'S
RECORDED BY: BEBB
WITNESSED BY: L ZANUSSI

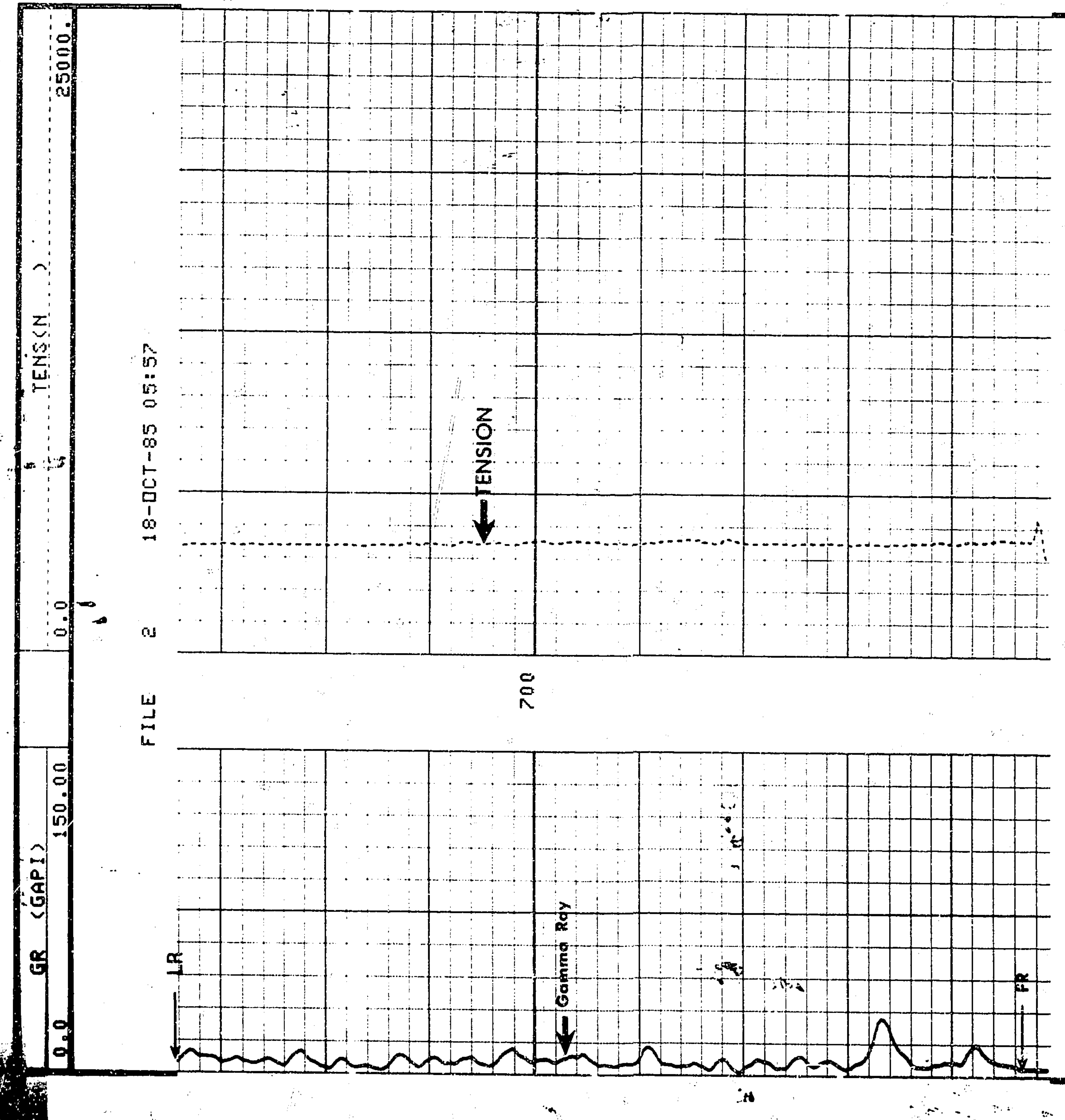
REMARKS:

GUNS POSITIONED WITH GUN GAMMA TOOL

EQUIPMENT NUMBERS-

SHM-CA 1136 CST-U 1355 CST-V 2381 CST-V 1655
GPC-A 570

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

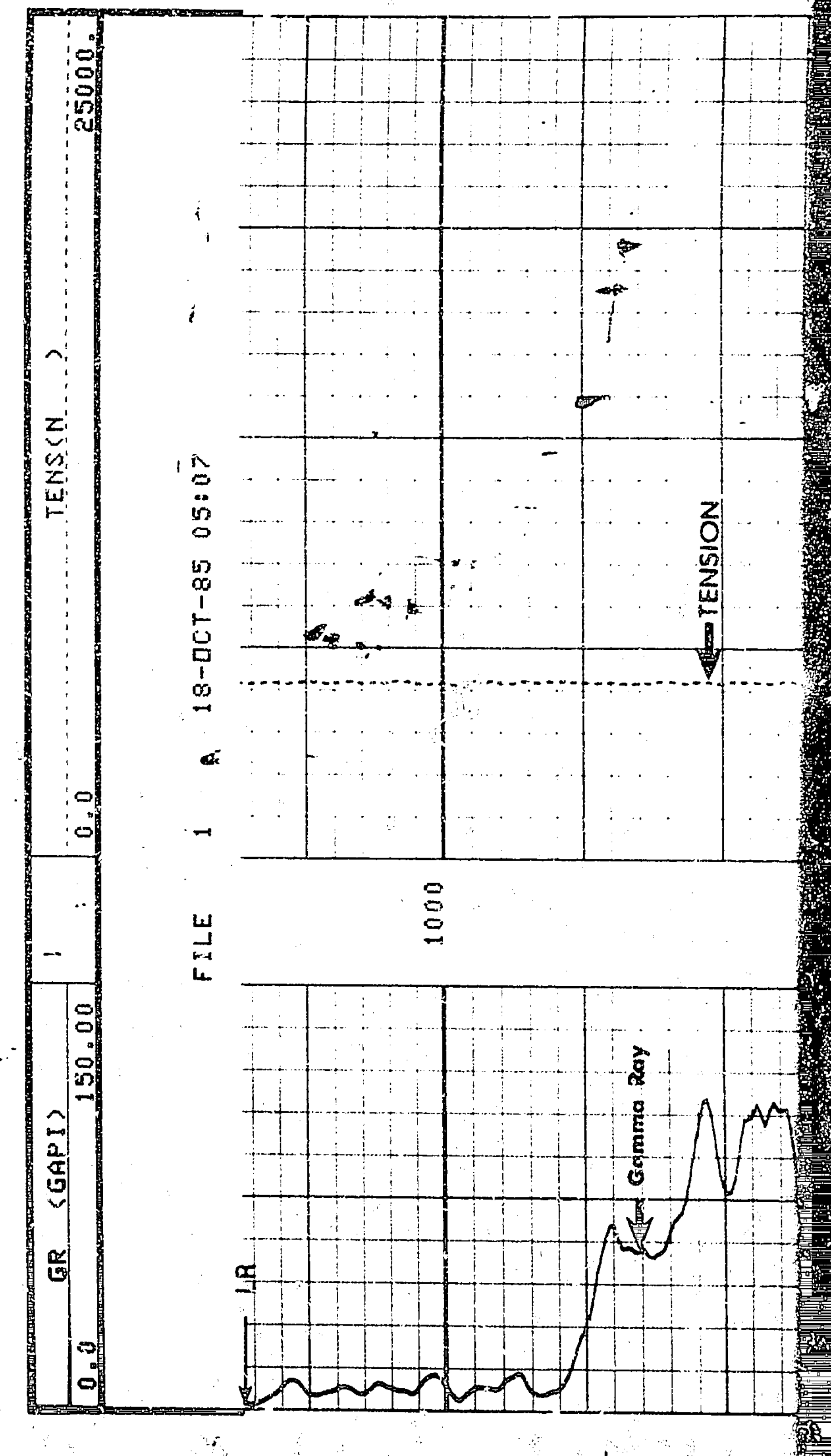


SENSOR MEASURE POINT TO TOOL ZERO

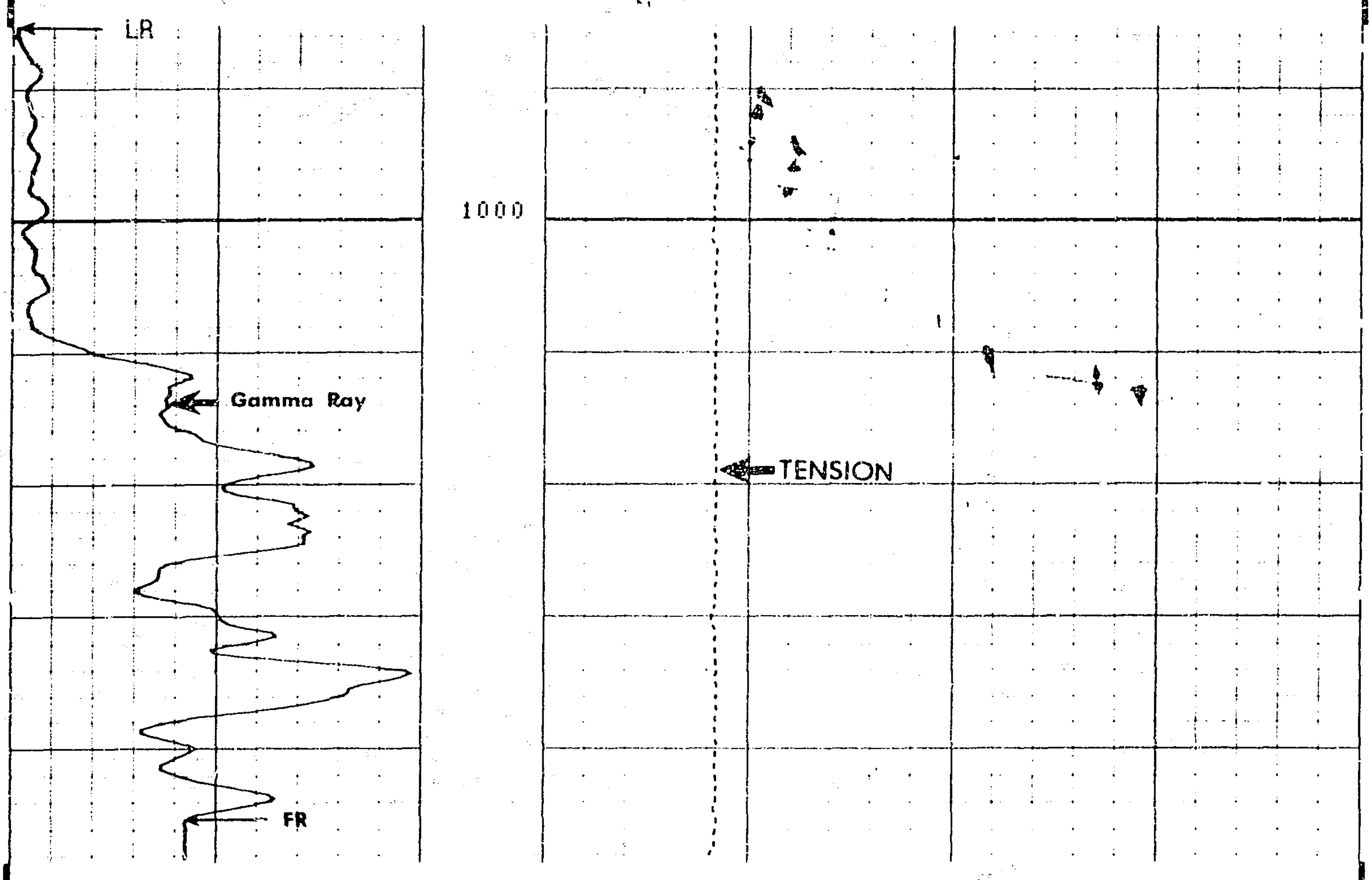
TENS 5.8 METER GR 7.3 METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	



FILE 1 18-OCT-85 05:07



FILE 1 18-OCT-85 05:03

GR (GAPI)		TENS(N)	
0.0	150.00	0.0	25000.

SENSOR MEASURE POINT TO TOOL ZERO

TENS 5.8 METER GR 7.3 METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	

SHOT SUMMARY LISTING PERFORMED 19-OCT-85 15:44

SHOT	STATUS	DEPTH	TENSION
1	FIRED	1039.9	1627.
2	FIRED	1039.9	1786.
3	FIRED	1034.0	260.5
4	FIRED	1034.0	1013.
5	FIRED	1025.9	1077.
6	FIRED	1020.4	1188.
7	EMPTY	1016.3	117.5
8	EMPTY	1016.5	149.2
9	FIRED	1013.5	1020.
10	FIRED	1010.0	589.0
11	FIRED	1010.0	170.8
12	FIRED	1006.9	302.5
13	FIRED	998.0	233.5
14	FIRED	983.9	79.06
15	FIRED	973.4	139.2
16	FIRED	970.5	452.7
17	FIRED	928.0	121.2
18	FIRED	917.9	64.56
19	FIRED	911.9	60.53
20	FIRED	907.5	99.93
21	FIRED	893.4	119.4
22	FIRED	891.4	116.7
23	FIRED	887.4	42.84
24	FIRED	872.4	63.09
25	FIRED	862.5	96.56
26	FIRED	854.5	90.43
27	EMPTY	826.0	187.8
28	FIRED	820.0	342.5
29	FIRED	814.9	68.68
30	FIRED	792.9	215.8
31	FIRED	786.5	114.6
32	FIRED	786.5	130.7
33	FIRED	766.4	106.5
34	FIRED	766.4	84.25
35	FIRED	757.4	102.5
36	FIRED	753.5	82.68
37	FIRED	749.9	88.31
38	FIRED	743.0	93.62
39	FIRED	735.4	186.3
40	FIRED	730.5	133.0
41	FIRED	728.5	141.1
42	FIRED	723.4	145.0
43	FIRED	716.5	62.75
44	FIRED	713.0	55.37
45	FIRED	707.3	57.28
46	FIRED	696.5	62.59
47	FIRED	689.0	50.00
48	FIRED	681.0	34.75
49	FIRED	672.0	73.81
50	EMPTY	665.5	76.00
51	FIRED	663.3	68.87
52	FIRED	631.0	62.87
53	FIRED	621.5	76.18
54	FIRED	611.5	89.93
55	FIRED	607.4	40.84
56	FIRED	601.5	49.06
57	FIRED	590.0	65.87
58	FIRED	590.0	64.56
59	FIRED	579.0	87.37
60	FIRED	579.0	125.0
61	FIRED	574.4	26.89
62	FIRED	568.9	59.34
63	FIRED	564.9	36.90
64	FIRED	545.0	45.87
65	FIRED	541.9	26.43
66	FIRED	541.9	136.6

DEPTH UNITS : METE BIT SIZE : 216.000 MM

RING TYPE : SMAL BULLET TYPE : DHOL

POWDER LOAD : 10.75 G POWDER TYPE : AHT

FILE 0 18-OCT-85 15:21

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP: RGE:
LATITUDE: 59 50' 48.0" N
LONGITUDE: 87 30' 59.5" W

PERMANENT DATUM: M.S.L. ELEVATIONS-
ELEV. OF PERM. DATUM: KB: 13.7 M
LOG MEASURED FROM: K.B. DF: 13.1 M
13.7 M ABOVE PERM. DATUM GL: -199.3 M
DRLG. MEASURED FROM: KELLY BUSHING

DATE: 17 OCT 85
RUN NO: 1

DEPTH-DRILLER: 1040.0 M
DEPTH-LOGGER: 1038.0 M
BTM. LOG INTERVAL: 1040.0 M
TOP LOG INTERVAL: 542.0 M

CASING-DRILLER: 437 M 533 M
CASING-LOGGER: 436 M 532 M
CASING: 339.7 MM 244.5
WEIGHT: 107.1 KG/M 70.10 KG/M
BIT SIZE: 311.2 MM 216 MM

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DDBHC-DIL
SHDT
RFT
WST

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:
129389

CORE SAMPLING RESULTS

CSU Field Log

8710-C55-1-2
Schlumberger

4 ARM CALIPER LOG

CSU Field Log

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV. : MANITOBA
NATION: CANADA
LOCATION:

LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM: 0.0 M
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
OCT 16 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

DATE: 22 SEP 85
RUN NO: 1

OTTAWA COPY

DEPTH-DRILLER: 341.0 M
DEPTH-LOGGER: 356.0 M
BTM. LOG INTERVAL: 250.0 M
TOP LOG INTERVAL: 185.0 M

CASING-DRILLER: 437.7 M
CASING-LOGGER: 0.0 M
CASING: 339.7 MM
WEIGHT: 107.100 KG/M
BIT SIZE: 311.2 MM

OTHER SERVICES-
CBL-VDL

PROGRAM
TAPE NO:
28.15
SERVICE
ORDER NO:

TYPE FLUID IN HOLE:	NACL SATURATED GEL POLYMER
DENSITY:	0.0 LB/G
VISCOSITY:	0.0 S
PH:	0.0
FLUID LOSS:	0.0 C3
SOURCE OF SAMPLE:	CIRC.
RM:	0.0 OHMM AT 0.0 DEGC
RMF:	0.0 OHMM AT 0.0 DEGC
RMC:	0.0 OHMM AT 0.0 DEGC
SOURCE RMF/RMC:	PRESS /PRESS
RM AT BHT:	0.0 OHMM AT 0.0 DEGC
RMF AT BHT:	0.0 OHMM AT 0.0 DEGC
RMC AT BHT:	0.0 OHMM AT 0.0 DEGC
TIME CIRC. STOPPED:	
TIME LOGGER ON BTM.:	
MAX. REC. TEMP:	0.0 DEGC
LOGGING UNIT NO:	922
LOGGING UNIT LOC:	ST. JOHN'S
RECORDED BY:	BEBB
WITNESSED BY:	R. CARSTAIRS

REMARKS:

LOG RUN TO INVESTIGATE POSSIBLE OBSTRUCTION
IN SWEDGE BETWEEN 13 3/8 CASING & WELL HEAD
NO RESTRICTIUM WAS FOUND.

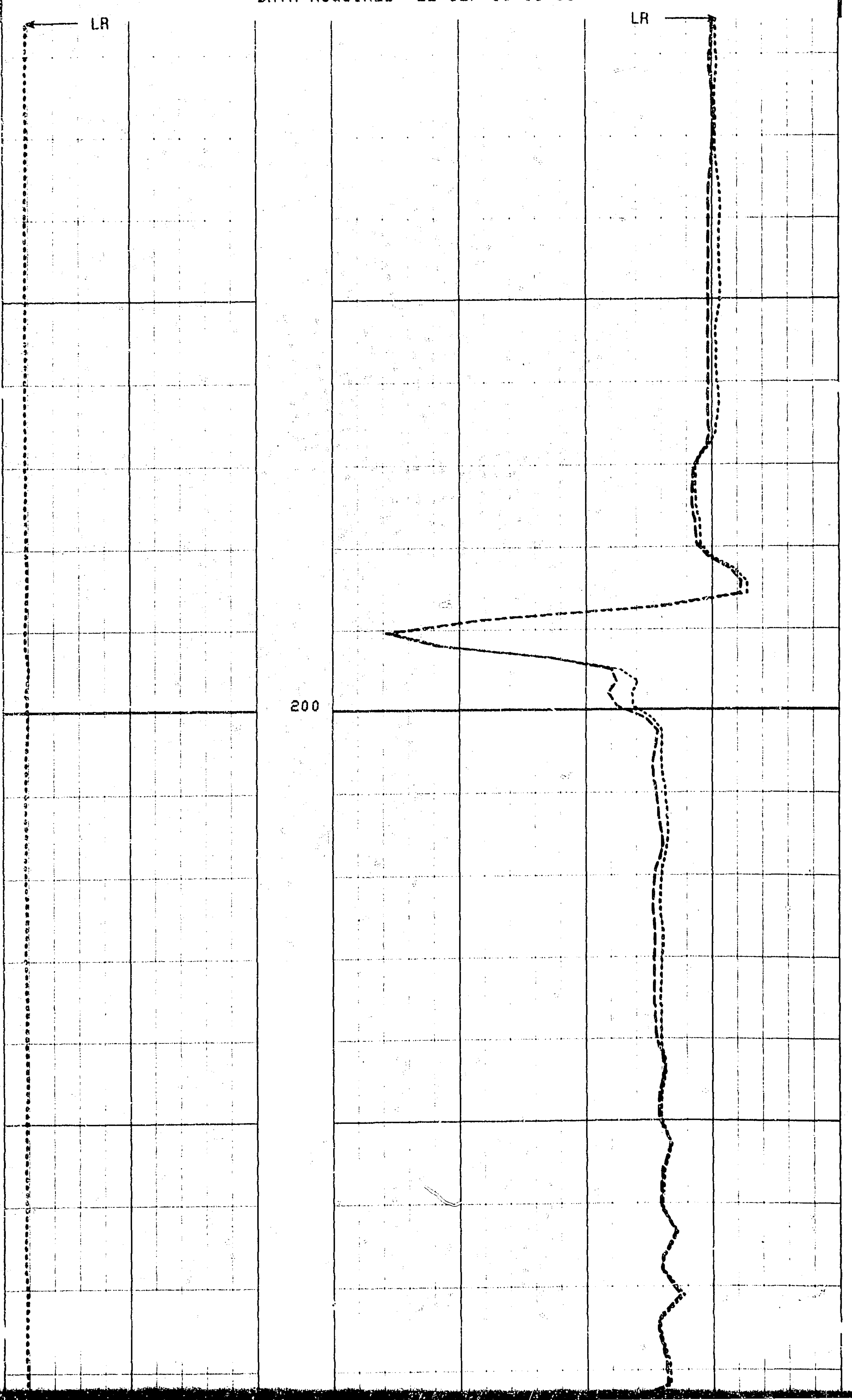
EQUIPMENT NUMBERS-

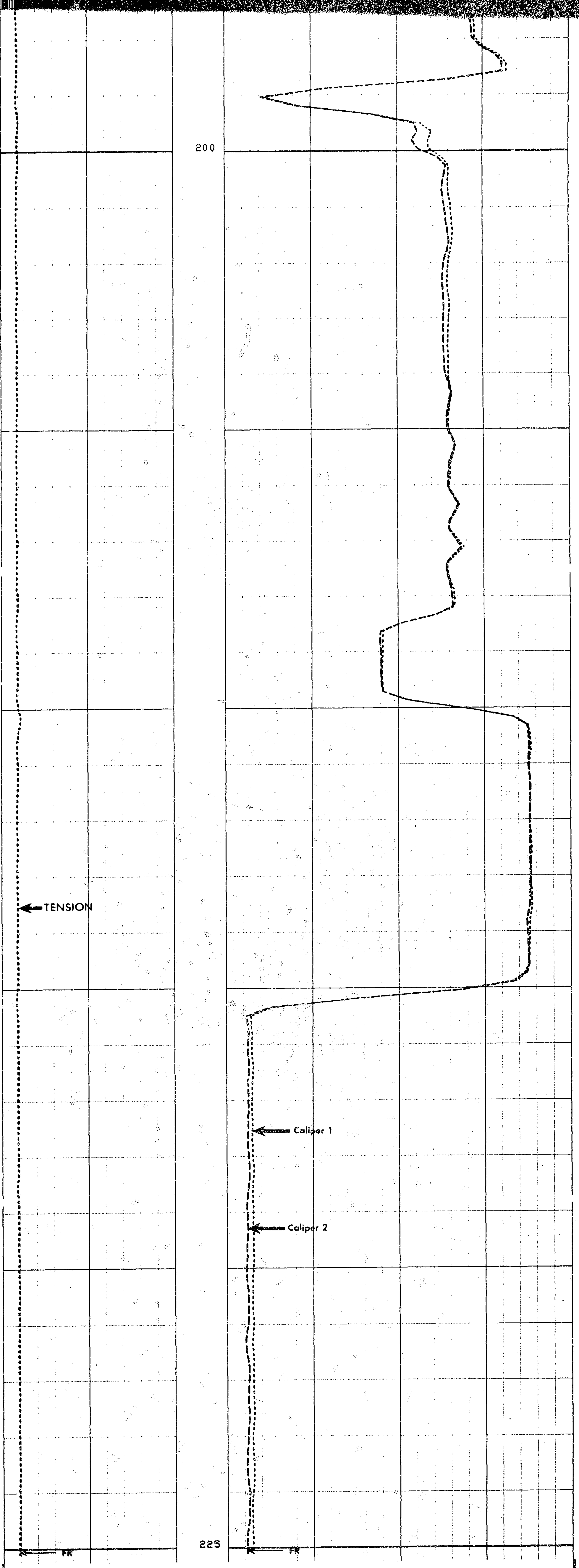
TCM-AB 538 TCC-A 553 SHDC-A 1709 SHDI-BB 1721
SHDS-B 992

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

TENS(N) 0.0 25000.
C2 (MM) 300.00 500.00
C1 (MM) 300.00 500.00

CP 28.15 FILE 4 22-SEP-85 17:25
DATA ACQUIRED 22-SEP-85 16:51





CP 28.15 FILE 4 22-SEP-85 17:24
DATA ACQUIRED 22-SEP-85 16:48

0.0 TENS(N) 25000.	300.00 C2 (MM) 500.00
	300.00 C1 (MM) 500.00

SENSOR MEASURE POINT TO TOOL ZERO

TENS	.38 METER	SHDW	.38 METER
C1	.38 METER	ADCR	.38 METER
DCHV	.38 METER	C2	.38 METER
EV	.38 METER	EI	.38 METER
FY	.38 METER	FX	.38 METER
PP	.38 METER	FZ	.38 METER
RAD2	.38 METER	RAD1	.38 METER
RAD4	.38 METER	RAD3	.38 METER
ATEM	.38 METER	ADCZ	.38 METER
VPR	.38 METER	VMR	.38 METER
AY	.38 METER	AX	.38 METER
AZ	.38 METER		

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
XOFF	0		SOFF	-25.4000	MM
XMOD	AUTO		XGAI	0	
VREF	-5.00000	VDC	FCDD	1.	
MDEC	-7.00000	DEG	SHDI	BB	
BS	311.200	MM	BHS	OPEN	
PP	NORM		DO	0.0	M

TAPE NOT MADE

CEMENT VOLUME = 3.22468 M3
HOLE VOLUME = 3.22468 M3
FROM 224.94 TO 198.88 METE

HAZI AND RB CURVES DISALLOWED WHEN DEV LESS THAN 0.5 DEG.
STAND-OFF = -1 MEANS NO KNUCKLE JOINT

0.0 TENS(N) 25000.	300.00 C2 (MM) 500.00
	300.00 C1 (MM) 500.00

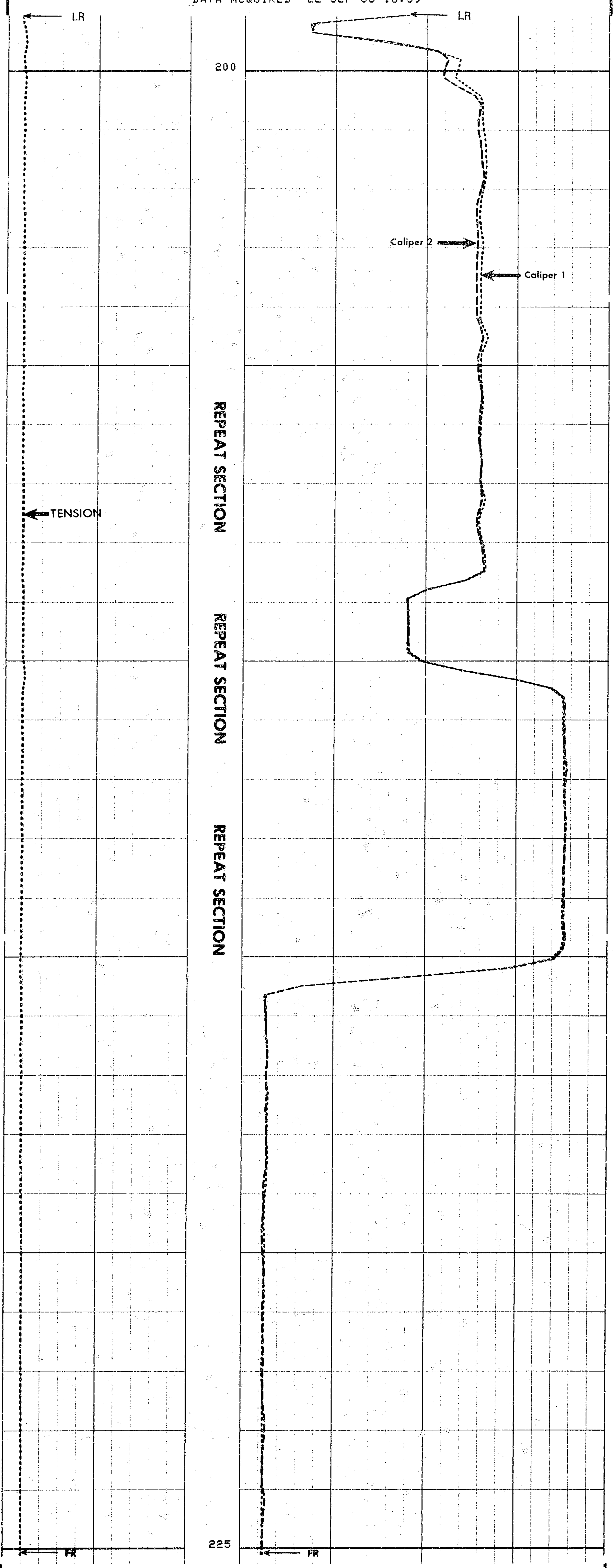
CP 28.15 FILE 3 22-SEP-85 17:22
DATA ACQUIRED 22-SEP-85 16:39

CEMENT VOLUME = 3.22468 M3
HOLE VOLUME = 3.22468 M3
FROM 224.94 TO 198.88 METE

HAZI AND RB CURVES DISALLOWED WHEN DEV LESS THAN 0.5 DEG.
STAND-OFF = -1 MEANS NO KNUCKLE JOINT

TENS(N) 0.0 ... 25000.		C2 (MM) 300.00 ... 500.00
		C1 (MM) 300.00 ... 500.00

CP 28.15 FILE 3 22-SEP-85 17:22
DATA ACQUIRED 22-SEP-85 16:39



CP 28.15 FILE 3 22-SEP-85 17:21
DATA ACQUIRED 22-SEP-85 16:37

TENS(N) 0.0 ... 25000.		C2 (MM) 300.00 ... 500.00
		C1 (MM) 300.00 ... 500.00

SENSOR MEASURE POINT TO TOOL ZERO

TENS	.38 METER	SHDW	.38 METER
C1	.38 METER	ADCR	.38 METER
DCHV	.38 METER	C2	.38 METER
EV	.38 METER	EI	.38 METER
FY	.38 METER	FX	.38 METER
PP	.38 METER	FZ	.38 METER
RAD2	.38 METER	RAD1	.38 METER
RAD4	.38 METER	RAD3	.38 METER
ATEM	.38 METER	ADCZ	.38 METER
VPR	.38 METER	VMR	.38 METER
AY	.38 METER	AX	.38 METER
AZ	.38 METER		

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
XOFF	0		SOFF	-25.4000	MM
XMOD	AUTO		XGAI	0	
VREF	-5.00000	VDC	FCDD	1.	
MDEC	-7.00000	DEG	SHDI	BB	
BS	311.200	MM	BHS	OPEN	
PP	NORM		DO	0.0	M

TAPE NOT MADE

CEMENT VOLUME = 6.38413 M3
HOLE VOLUME = 6.38413 M3
FROM 250.54 TO 191.41 METE

PP	.38 METER	FZ	.38 METER
RAD2	.38 METER	RAD1	.38 METER
RAD4	.38 METER	RAD3	.38 METER
ATEM	.38 METER	ADCZ	.38 METER
VPR	.38 METER	VMR	.38 METER
AY	.38 METER	AX	.38 METER
AZ	.38 METER		

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
XOFF	0		SOFF	-25.4000	MM
XMOD	AUTO		XGAI	0	
VREF	-5.00000	VDC	FCDD	1.	
MDEC	-7.00000	DEG	SHDI	BB	
BS	311.200	MM	BHS	OPEN	
PP	NORM		DO	0.0	M

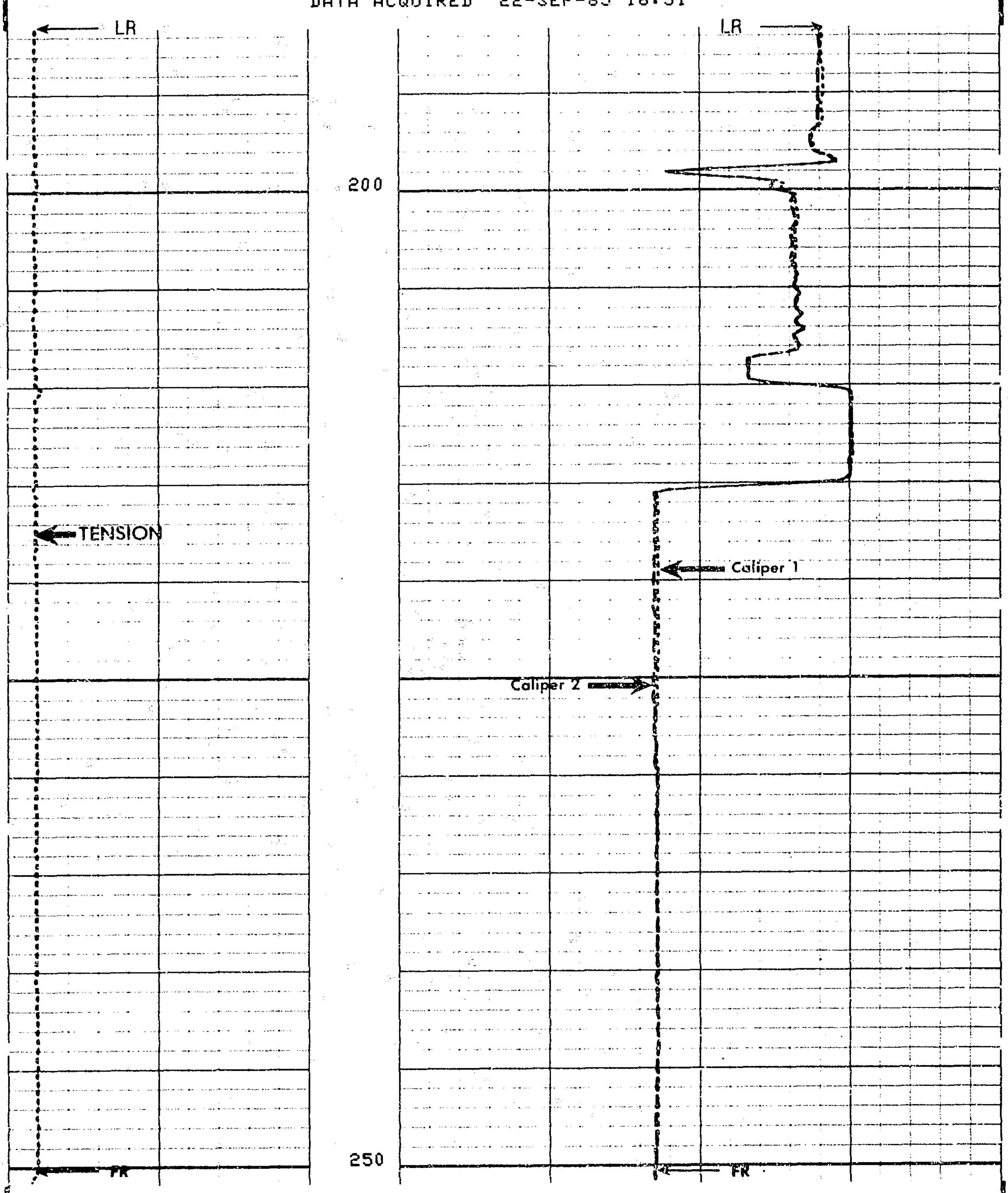
TAPE NOT MADE

CEMENT VOLUME = 6.38413 M3
HOLE VOLUME = 6.38413 M3
FROM 250.54 TO 191.41 METE

HAZI AND RB CURVES DISALLOWED WHEN DEV LESS THAN 0.5 DEG.
STAND-OFF = -1 MEANS NO KNUCKLE JOINT

TENS(N) 0.0 25000.
C2 (MM) 100.00 600.00
C1 (MM) 100.00 600.00

CP 28.15 FILE 4 22-SEP-85 17:12
DATA ACQUIRED 22-SEP-85 16:51



CP 28.15 FILE 4 22-SEP-85 17:10
DATA ACQUIRED 22-SEP-85 16:44

C2 (MM) 100.00 600.00
TENS(N) 0.0 25000.
C1 (MM) 100.00 600.00

SENSOR MEASURE POINT TO TOOL ZERO

TENS	.38 METER	SHDW	.38 METER
C1	.38 METER	ADCR	.38 METER
DCHV	.38 METER	C2	.38 METER
EV	.38 METER	EI	.38 METER
FY	.38 METER	FX	.38 METER
PP	.38 METER	FZ	.38 METER
RAD2	.38 METER	RAD1	.38 METER
RAD4	.38 METER	RAD3	.38 METER
ATEM	.38 METER	ADCZ	.38 METER
VPR	.38 METER	VMR	.38 METER
AY	.38 METER	AX	.38 METER
AZ	.38 METER		

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
XOFF	0		SOFF	-25.4000	MM
XMOD	AUTO		XGAI	0	
VREF	-5.00000	VDC	FCDD	1.	
MDEC	-7.00000	DEG	SHDI	BB	
BS	311.200	MM	BHS	OPEN	
PP	NORM		DO	0.0	M

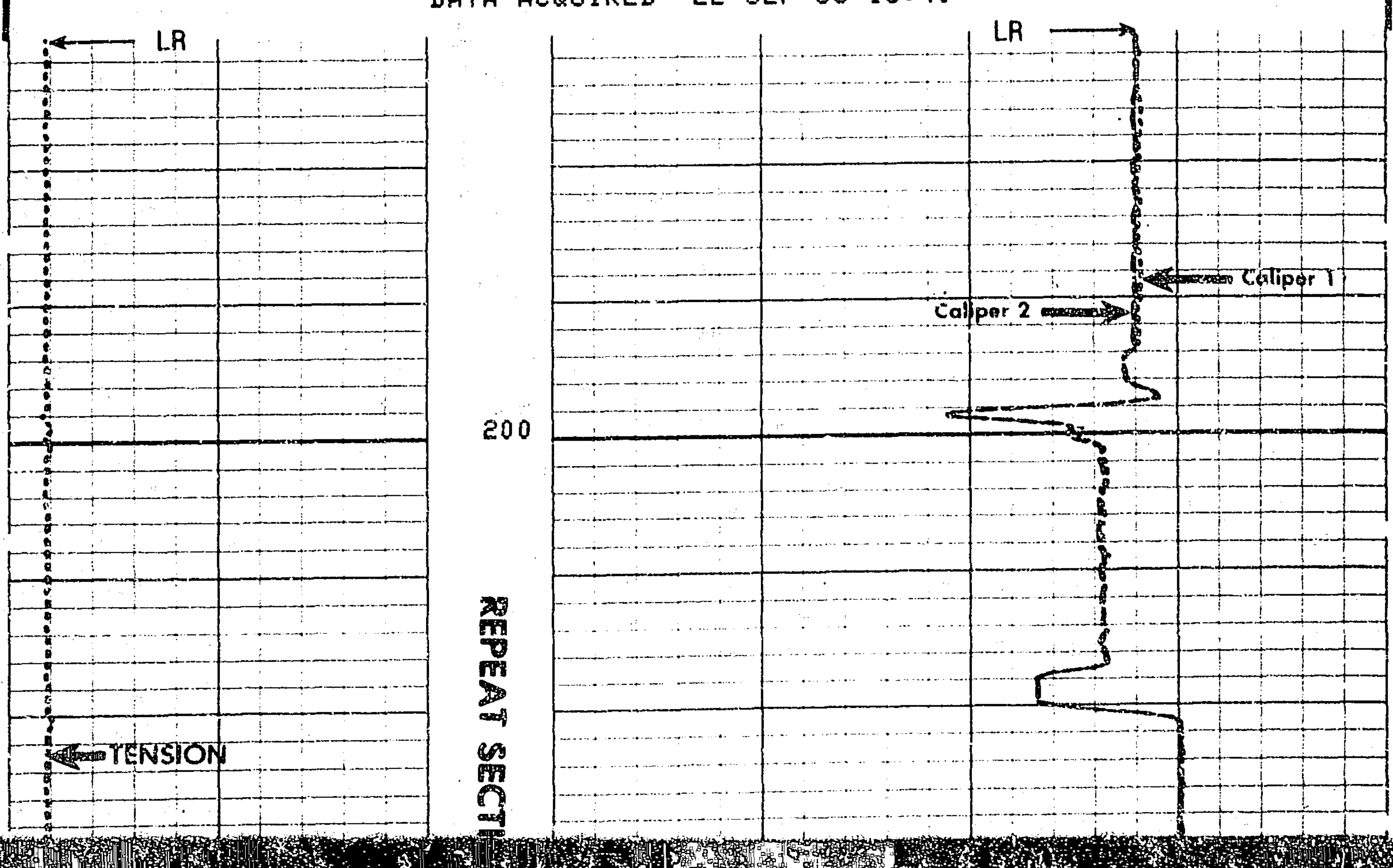
TAPE NOT MADE

CEMENT VOLUME = 5.79207 M3
HOLE VOLUME = 5.79207 M3
FROM 229.66 TO 185.01 METE

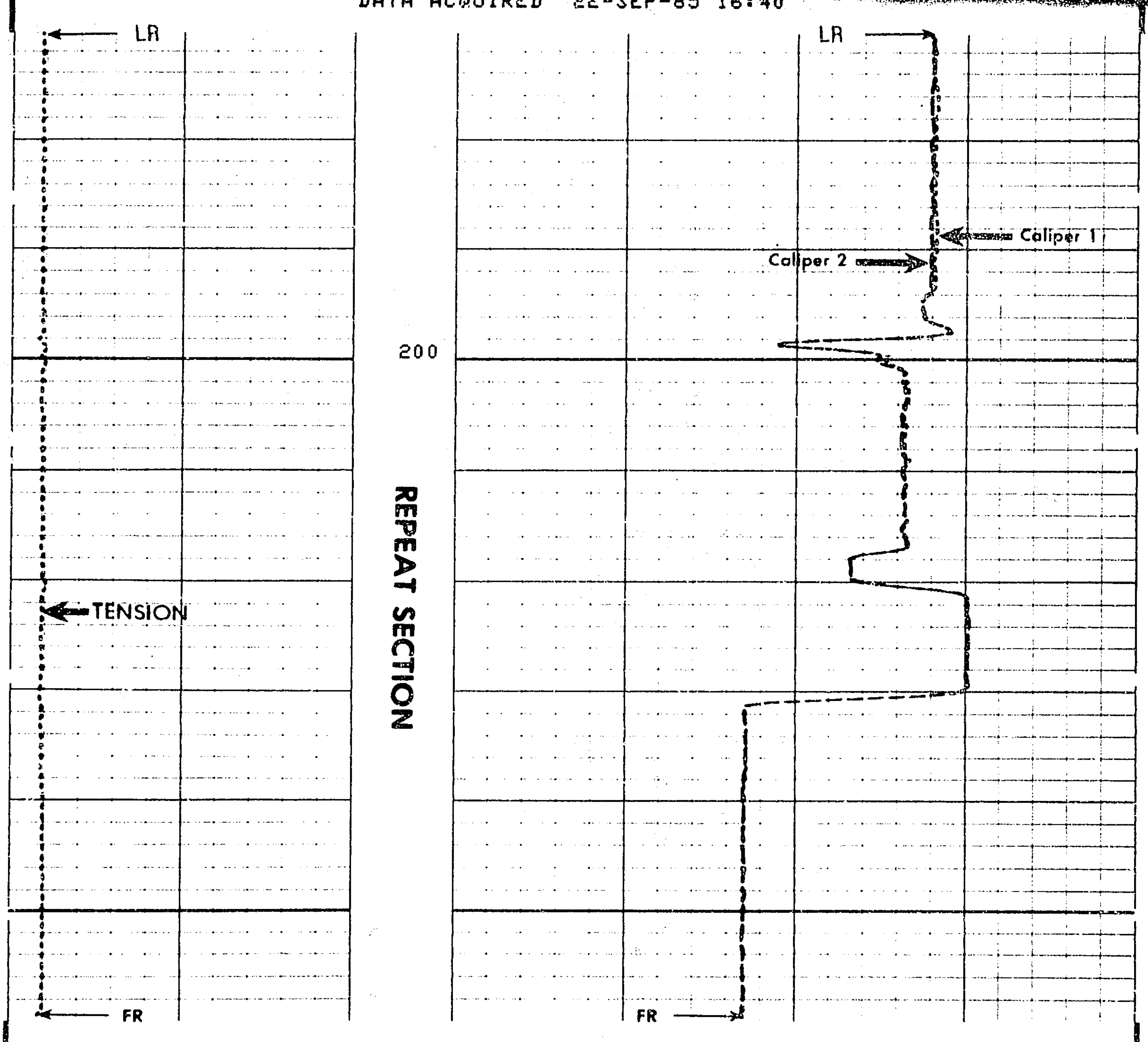
HAZI AND RB CURVES DISALLOWED WHEN DEV LESS THAN 0.5 DEG.
STAND-OFF = -1 MEANS NO KNUCKLE JOINT

TENS(N) 0.0 25000.
C2 (MM) 100.00 600.00
C1 (MM) 100.00 600.00

CP 28.15 FILE 3 22-SEP-85 17:09
DATA ACQUIRED 22-SEP-85 16:40



DATA ACQUIRED 22-SEP-85 16:40



CP 28.15 FILE 3 22-SEP-85 17:08
DATA ACQUIRED 22-SEP-85 16:35

TENS(N)		C2 (MM) 100.00 — 600.00
0.0	25000.	C1 (MM) 100.00 — 600.00

SENSOR MEASURE POINT TO TOOL ZERO

TENS	.38 METER	SHDW	.38 METER
C1	.38 METER	ADCR	.38 METER
DCHV	.38 METER	C2	.38 METER
EV	.38 METER	EI	.38 METER
FY	.38 METER	FX	.38 METER
PP	.38 METER	FZ	.38 METER
RAD2	.38 METER	RAD1	.38 METER
RAD4	.38 METER	RAD3	.38 METER
ATEM	.38 METER	ADCZ	.38 METER
VPR	.38 METER	VMR	.38 METER
AY	.38 METER	AX	.38 METER
AZ	.38 METER		

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
XOFF	0		SOFF	-25.4000	MM
XMOD	AUTO		XGAI	0	
VREF	-5.00000	VDC	FCDD	1.	
MDEC	-7.00000	DEG	SHDI	BB	
BS	311.200	MM	BHS	OPEN	
PP	NORM		DD	0.0	M

TAPE NOT MADE

PRES SUMM :

PRES	OUTP	STAT	CHAN	TRAC	CODI	DEST	MODE	FILT	LEDG	REDG
19	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
18	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
17	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
16	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
15	DUMM	DISA	15	T1	LLIN	NEIT	NB	.500	0.0	1.00000
14	DUMM	DISA	14	T1	LLIN	NEIT	NB	.500	0.0	1.00000
13	DUMM	DISA	13	T1	LLIN	NEIT	NB	.500	0.0	1.00000
12	DUMM	DISA	12	T1	LLIN	NEIT	NB	.500	0.0	1.00000
11	DUMM	DISA	11	T1	LLIN	NEIT	NB	.500	0.0	1.00000
10	DUMM	DISA	10	T1	LLIN	NEIT	NB	.500	0.0	1.00000
9	DUMM	DISA	9	T1	LLIN	NEIT	NB	.500	0.0	1.00000
8	DUMM	DISA	8	T1	LLIN	NEIT	NB	.500	0.0	1.00000
7	DUMM	DISA	7	T1	LLIN	NEIT	NB	.500	0.0	1.00000
6	DUMM	DISA	6	T1	LLIN	NEIT	NB	.500	0.0	1.00000
5	DUMM	DISA	5	T1	LLIN	NEIT	NB	.500	0.0	1.00000
4	DUMM	DISA	4	T1	LLIN	NEIT	NB	.500	0.0	1.00000
3	DUMM	DISA	3	T1	LLIN	NEIT	NB	.500	0.0	1.00000
TENS	TENS	ALLO	2	T1	LSPD 1		SHIF	.500	0.0	25000.0
C2	C2	ALLO	1	T23	LDAS 1		NB	.500	300.000	500.000
C1	C1	ALLO	0	T23	LSPD 1		NB	.500	300.000	500.000

CP 28.15 FILE 5 22-SEP-85 17:29
DATA ACQUIRED 22-SEP-85 16:51

CONS SUMM :

CONS	STAT	PUNI	TUNI	VALU
TSEL				FIEL
PINQ	ALLO			*
AUMS	ALLO			*
EML				32767
EMC				ALL
AOF	DISA			1
TODI		S	S	15.0000 S
TOPE				ATTE
TGRO				BOTH
TENV				CHEC
DAY				22
MONT				9
YEAR				85
PF				SHOR
MMDU				METE
ORDU				METE
KPDU				METE
FCD	ALLO	MM	MM	0.0 MM
TD	ALLO	M	M	9987.69 M
CD	ALLO	M	M	0.0 M
TCMC				NORM
TBR		KHZ	KHZ	100
TINT	ALLO	S	S	10.0000 S
LCL	ALLO	M	M	6000.00 M
LCT				746P
TFR	ALLO			AUTO
TERI	ALLO	S	S	10 S
ACCM				0
ACCY				0
ART		DEGC	DEGC	134.000 DEGC
ACCN				0
ACCT				0
SOFF		MM	MM	-25.4000 MM
XOFF				0
XGAI				0
XMOD				AUTO
FCDD				1.
VREF		VDC	VDC	-5.00000 VDC
SHDI				BB
SHDS				B
MINC		DEG	DEG	82.0000 DEG
MDEC		DEG	DEG	-7.00000 DEG
MFIN		OER	OER	.600000 OER
FPHI				PHIX
FEXP				2.00000
FNUM				1.00000
SD		M	M	2496.92 M
CSIZ		MM	MM	0.0 MM
BHS				OPEN
RW		OHMM	OHMM	1.00000 OHMM
BS		MM	MM	311.200 MM
WSD	ALLO			*
NCOP				0
MBSI				300
DO2		M	M	0.0 M
DO		M	M	0.0 M
SPLI	DISA			0
PM				SING
VHOL	ALLO	M3	M3	4.40129 M3
VCEM	ALLO	M3	M3	4.40129 M3
DIRE				AUTO
CMDT				IDW
MARK	DISA			*
TREF		N	N	4448.22 N
E		LB-1	LB-1	7.43000E-7 LB-1
POS		M	M	0.0 M
CGM				NORM
PP				NORM
SPEE		F/HR	F/HR	3000 F/HR
PANN				ALL
ODES				NEIT
LD				FILM
CSD				FILM
LSM				0
OMD				UP
UCON				*
CDS				ALL
EDS				PROP
DIFF		M	M	.304800 M

CP 28.15 FILE 5 22-SEP-85 17:28
DATA ACQUIRED 22-SEP-85 16:51

DD		M	M	0.0 M
SPLI	DISA			0
PM				SING
VHOL	ALLO	M3	M3	4.40129 M3
VCEM	ALLO	M3	M3	4.40129 M3
DIRE				AUTO
CMDT				IDW
MARK	DISA			*
TREF		N	N	4448.22 N
E		LB-1	LB-1	7.43000E-7 LB-1
POS		M	M	0.0 M
CGM				NORM
PP				NORM
SPEE		F/HR	F/HR	3000 F/HR
PANN				ALL
ODES				NEIT
LD				FILM
CSD				FILM
LSN				0
OMD				UP
UCON				*
CDS				ALL
EDS				PROP
DIFF		M	M	.304800 M

CP 28.15 FILE 5 22-SEP-85 17:28
DATA ACQUIRED 22-SEP-85 16:51

OUTP SUMM :

OUTP	STAT	PUNI	TUNI	PROT
BS	DISA	MM	MM	
ICV	DISA	M3	M3	
IHV	DISA	M3	M3	
ABS	DISA	M2	M2	
AFCD	DISA	M2	M2	
AREA	DISA	M2	M2	
AVOL	DISA	V	V	PROP
EPV	DISA	VDC	VDC	PROP
ACUR	DISA	MA	MA	PROP
MCUR	DISA	MA	MA	PROP
MVOL	DISA	V	V	PROP
EVOL	DISA	V	V	PROP
CCSW	ALLO			PROP
HV	ALLO	V	V	PROP
RSHD	ALLO			
RFTI				
DB4A	ALLO			
DB4	ALLO			
DB3A	ALLO			
DB3	ALLO			
SB2	ALLO			
DB2A	ALLO			
DB2	ALLO			
DB1A	ALLO			
DB1	ALLO			
SB1	ALLO			
SDEV	ALLO	DEG	DEG	
PP	ALLO			
RC2	ALLO	MM	MM	
RC1	ALLO	MM	MM	
C2	ALLO	MM	MM	
C1	ALLO	MM	MM	
RAD4	DISA	MM	MM	
RAD3	DISA	MM	MM	
RRA4	DISA	MM	MM	
RRA3	DISA	MM	MM	
ZB	ALLO			
SHDW	ALLO			
ANOR		M/S2	M/S2	
FNOR		OER	OER	
P1AZ	ALLO	DEG	DEG	
HAZI	ALLO	DEG	DEG	
RB	ALLO	DEG	DEG	
DEVI	ALLO	DEG	DEG	
RAD2	DISA	MM	MM	
RAD1	DISA	MM	MM	
ACTE		DEGC	DEGC	
VMR		VDC	VDC	
VPR		VDC	VDC	
EI	ALLO	AMPS	AMPS	
EV	ALLO	VOLT	VOLT	
RRA2	DISA	MM	MM	
RRA1	DISA	MM	MM	
ADCZ		VDC	VDC	
ADCR		VDC	VDC	
DCHV		VDC	VDC	
AZ		M/S2	M/S2	
AY		M/S2	M/S2	
AX		M/S2	M/S2	
FZ	ALLO	OER	OER	
FY	ALLO	OER	OER	
FX	ALLO	OER	OER	
DMAR	DISA	M	M	AUX
MARK	ALLO	M	M	
DUM2				
DUMM				
ZERO				
CS	ALLO	F/HR	F/HR	
TENS	ALLO	N	N	
ETIM	ALLO	S	S	
TIME	ALLO	MS	MS	
TOD	ALLO	S	S	
DIFF	ALLO	M	M	AUX
TDEP	DISA	M	M	AUX

CP 28.15 FILE 5 22-SEP-85 17:28
DATA ACQUIRED 22-SEP-85 16:51

INPU SUMM :

INPU	STAT	PUNI	TUNI	MPOI	CNUM	ZREF	PREF	GAIN	OFFS	DCON
EPV		VDC	VDC	0	4					
ACUR		MA	MA	0	4					
MCUR		MA	MA	0	2					
CTEM	ALLO	DEGC	DEGC	0						0
HV	ALLO	V	V	0						
CCSW	ALLO			0						
EVOL		VDC	VDC	0	5					
AVOL		V	V	0	0					
MVOL		V	V	0	3					
SHDW	ALLO			15						
TENS	ALLO	N	N	0	20					
ADCR	ALLO	V	V	15						
C1	ALLO	MM	IN	15		203.1	304.2	.905058	26.9440	
C2	ALLO	MM	IN	15		203.1	304.2	.913979	25.6581	
DCHV	ALLO	V	V	15						
EI	ALLO	AMPS	AMPS	15						
EV	ALLO	V	V	15						
FX	ALLO	OER	OER	15						
FY	ALLO	OER	OER	15						
FZ	ALLO	OER	OER	15						
PP	ALLO			15						
RAD1	DISA	MM	IN	15		101.3	202.7	1.00000	0.0	
RAD2	DISA	MM	IN	15		202.7	101.3	1.00000	0.0	
RAD3	DISA	MM	IN	15		101.3	202.7	1.00000	0.0	
RAD4	DISA	MM	IN	15		202.7	101.3	1.00000	0.0	
ADCZ	ALLO	V	V	15						
ATEM	ALLO	DEGC	DEGC	15						
VMR	ALLO	V	V	15						
VPR	ALLO	V	V	15						
AX	ALLO	M/S2	M/S2	15						
AY	ALLO	M/S2	M/S2	15						
AZ	ALLO	M/S2	M/S2	15						

CP 28.15 FILE 5 22-SEP-85 17:27
DATA ACQUIRED 22-SEP-85 16:51

TOOL SUMM :

TOOL	STAT	LENG	WEIG
TCCA	ALLO	36	57
SHDT	ALLO	248	400
DTT	ALLO	0	0

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM: 0.0 M
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

DATE: 22 SEP 85
RUN NO: 1

OTHER SERVICES-
CBL-VDL

PROGRAM
TAPE NO:
28.15
SERVICE
ORDER NO:

DEPTH-DRILLER: 341.0 M
DEPTH-LOGGER: 356.0 M
BTM. LOG INTERVAL: 250.0 M
TOP LOG INTERVAL: 185.0 M

CASING-DRILLER: 437.7 M
CASING-LOGGER: 0.0 M
CASING: 339.7 MM
WEIGHT: 107.100 KG/M
BIT SIZE: 311.2 MM

Schlumberger

4 ARM CALIPER LOG

EPV	DISA	VDC	VDC	PROP
ACUR	DISA	MA	MA	PROP
MCUR	DISA	MA	MA	PROP
MVOL	DISA	V	V	PROP
EVOL	DISA	V	V	PROP
CCSW	ALLO			PROP
HV	ALLO	V	V	PROP
RSHD	ALLO			
RFTI				
DB4A	ALLO			
DB4	ALLO			
DB3A	ALLO			
DB3	ALLO			
SB2	ALLO			
DB2A	ALLO			
DB2	ALLO			
DB1A	ALLO			
DB1	ALLO			
SB1	ALLO			
SDEV	ALLO	DEG	DEG	
PP	ALLO			
RC2	ALLO	MM	MM	
RC1	ALLO	MM	MM	
C2	ALLO	MM	MM	
C1	ALLO	MM	MM	
RAD4	DISA	MM	MM	
RAD3	DISA	MM	MM	
RRA4	DISA	MM	MM	
RRA3	DISA	MM	MM	
ZB	ALLO			
SHDW	ALLO			
ANOR		M/S2	M/S2	
FNOR		OER	OER	
P1AZ	ALLO	DEG	DEG	
HAZI	ALLO	DEG	DEG	
RB	ALLO	DEG	DEG	
DEVI	ALLO	DEG	DEG	
RAD2	DISA	MM	MM	
RAD1	DISA	MM	MM	
ACTE		DEGC	DEGC	
VMR		VDC	VDC	
VPR		VDC	VDC	
EI	ALLO	AMPS	AMPS	
EV	ALLO	VOLT	VOLT	
RRA2	DISA	MM	MM	
RRA1	DISA	MM	MM	
ADCZ		VDC	VDC	
ADCR		VDC	VDC	
DCHV		VDC	VDC	
AZ		M/S2	M/S2	
AY		M/S2	M/S2	
AX		M/S2	M/S2	
FZ	ALLO	OER	OER	
FY	ALLO	OER	OER	
FX	ALLO	OER	OER	
DMAR	DISA	M	M	AUX
MARK	ALLO	M	M	
DUM2				
DUMM				
ZERO				
CS	ALLO	F/HR	F/HR	
TENS	ALLO	N	N	
ETIM	ALLO	S	S	
TIME	ALLO	MS	MS	
TOD	ALLO	S	S	
DIFF	ALLO	M	M	AUX
TDEP	DISA	M	M	AUX

CP 28.15 FILE 5 22-SEP-85 17:28
DATA ACQUIRED 22-SEP-85 16:51

INPU SUMM :

INPU	STAT	PUNI	TUNI	MPOI	CNUM	ZREF	PREF	GAIN	OFFS	DCON
EPV		VDC	VDC	0	4					
ACUR		MA	MA	0	4					
MCUR		MA	MA	0	2					
CTEM	ALLO	DEGC	DEGC	0						0
HV	ALLO	V	V	0						
CCSW	ALLO			0						
EVOL		VDC	VDC	0	5					
AVOL		V	V	0	0					
MVOL		V	V	0	3					
SHDW	ALLO			15						
TENS	ALLO	N	N	0	20					
ADCR	ALLO	V	V	15						
C1	ALLO	MM	IN	15		203.1	304.2	.905058	26.9440	
C2	ALLO	MM	IN	15		203.1	304.2	.913979	25.6581	
DCHV	ALLO	V	V	15						
EI	ALLO	AMPS	AMPS	15						
EV	ALLO	V	V	15						
FX	ALLO	OER	OER	15						
FY	ALLO	OER	OER	15						
FZ	ALLO	OER	OER	15						
PP	ALLO			15						
RAD1	DISA	MM	IN	15		101.3	202.7	1.00000	0.0	
RAD2	DISA	MM	IN	15		202.7	101.3	1.00000	0.0	
RAD3	DISA	MM	IN	15		101.3	202.7	1.00000	0.0	
RAD4	DISA	MM	IN	15		202.7	101.3	1.00000	0.0	
ADCZ	ALLO	V	V	15						
ATEM	ALLO	DEGC	DEGC	15						
VMR	ALLO	V	V	15						
VPR	ALLO	V	V	15						
AX	ALLO	M/S2	M/S2	15						
AY	ALLO	M/S2	M/S2	15						
AZ	ALLO	M/S2	M/S2	15						

CP 28.15 FILE 5 22-SEP-85 17:27
DATA ACQUIRED 22-SEP-85 16:51

TOOL SUMM :

TOOL	STAT	LENG	WEIG
TCCA	ALLO	36	57
SHDT	ALLO	248	400
DTT	ALLO	0	0

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM: 0.0 M
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

DATE: 22 SEP 85
RUN NO: 1

OTHER SERVICES-
CBL-VDL

PROGRAM
TAPE NO:
28.15
SERVICE
ORDER NO:

DEPTH-DRILLER: 341.0 M
DEPTH-LOGGER: 356.0 M
BTM. LOG INTERVAL: 250.0 M
TOP LOG INTERVAL: 185.0 M

CASING-DRILLER: 437.7 M
CASING-LOGGER: 0.0 M
CASING: 339.7 MM
WEIGHT: 107.100 KG/M
BIT SIZE: 311.2 MM

Schlumberger

4 ARM CALIPER LOG

8710-C55-1-2

Schlumberger

AUXILIARY MEASUREMENT LOG

CSU Field Log

COMPANY:	CANTERRA ENERGY LTD.
WELL:	ICG SOGEPET ET AL NETSIQ Y-01
FIELD:	HUDSON BAY
PROV. :	MANITOBA
NATION:	CANADA
LOCATION:	
LATITUDE:	59 50' 48.06"N
LONGITUDE:	87 30' 59.92"W

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
OCT 31 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

OTHER SERVICES-

PERMANENT DATUM: M.S.L. ELEVATIONS-
ELEV. OF PERM. DATUM: 0.0 M KB: 13.7 M
LOG MEASURED FROM: K.B. DF: 13.3 M
13.7 M ABOVE PERM. DATUM GL: -199.3 M
DRLG. MEASURED FROM: KELLY BUSHING

PROGRAM TAPE NO: 28.15
SERVICE ORDER NO:

DATE: 29 SEP 85
RUN NO: 1

OTTAWA COPY

DEPTH-DRILLER:	541.0 M		
DEPTH-LOGGER:	541.0 M		
BTM. LOG INTERVAL:	540.0 M		
TOP LOG INTERVAL:	205.0 M		
CASING-DRILLER:	437.0 M	0.0 M	0.0 M
CASING-LOGGER:	436.0 M	0.0 M	0.0 M
CASING:	339.7 MM		
WEIGHT:	107.100 KG/M	0.0 KG/M	0.0 KG/M
BIT SIZE:	311.2 MM		

TYPE FLUID IN HOLE:	NACL SATURATED GEL POLYMER
DENSITY:	1749. K/M3
VISCOSITY:	46.0 S
PH:	10.0
FLUID LOSS:	37.0 C3
SOURCE OF SAMPLE:	CIRC.
RM:	.097 OHMM AT 11.0 DEGC
RMF:	.059 OHMM AT 11.0 DEGC
RMC:	.222 OHMM AT 11.0 DEGC
SOURCE RMF/RMC:	PRESS /PRESS
RM AT BHT:	.072 OHMM AT 22.0 DEGC
RMF AT BHT:	.044 OHMM AT 22.0 DEGC
RMC AT BHT:	.166 OHMM AT 22.0 DEGC
TIME CIRC. STOPPED:	08:30/29
TIME LOGGER ON BTM.:	15:00/29
MAX. REC. TEMP:	22.0 DEGC
LOGGING UNIT NO:	922
LOGGING UNIT LOC:	ST. JOHN'S
RECORDED BY:	A. MACNEILL
WITNESSED BY:	L. ZANUSSI

REMARKS:

PASS #1 (THE SHORT PASS) WAS LOGGED APPROX. 2 HOURS BEFORE THE SECOND PASS (THE LONG ONE).
THE TEMPERATURE AT TD WAS ABOUT 2 DEGC COOLER ON THE SECOND PASS.

EQUIPMENT NUMBERS-

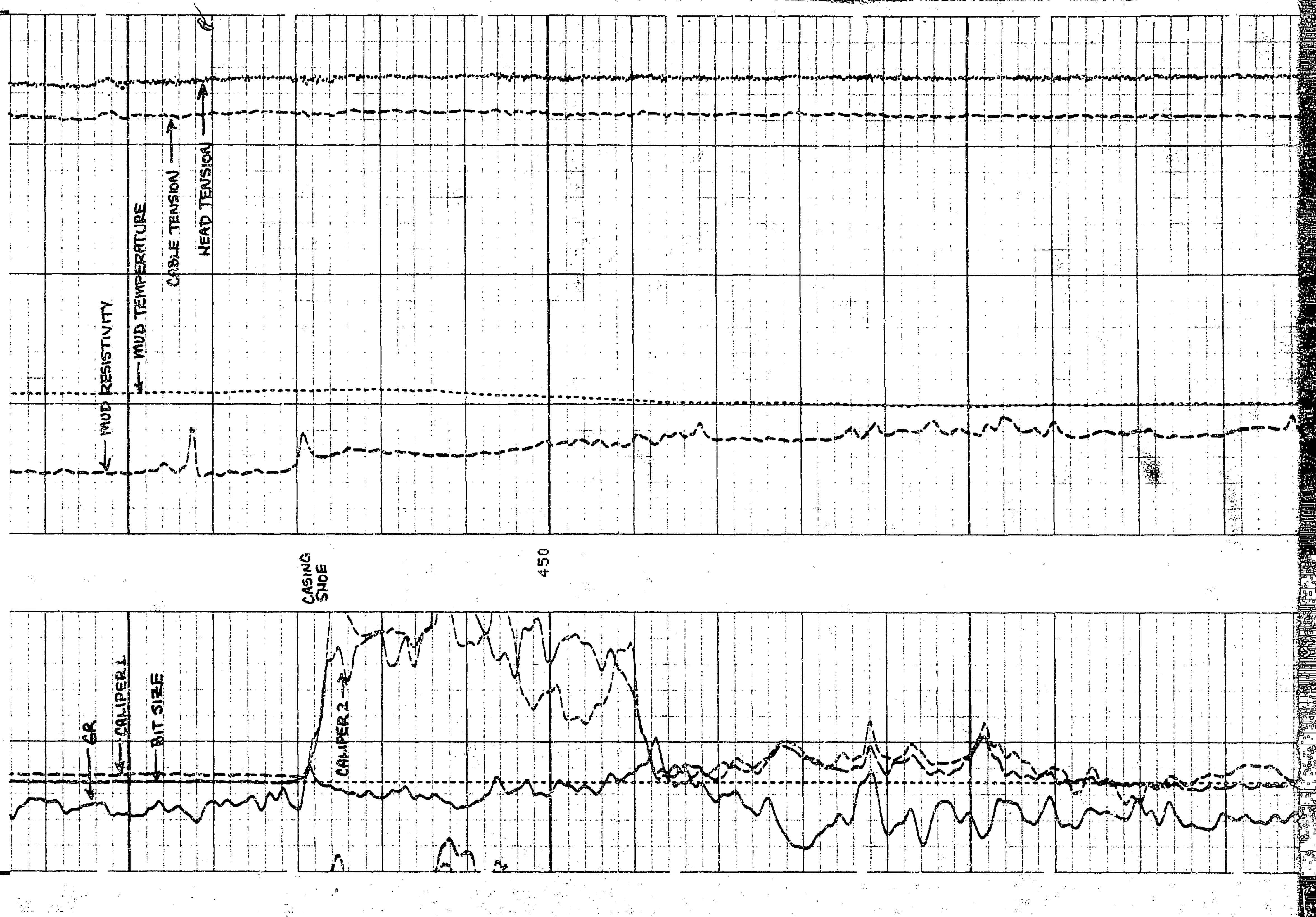
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

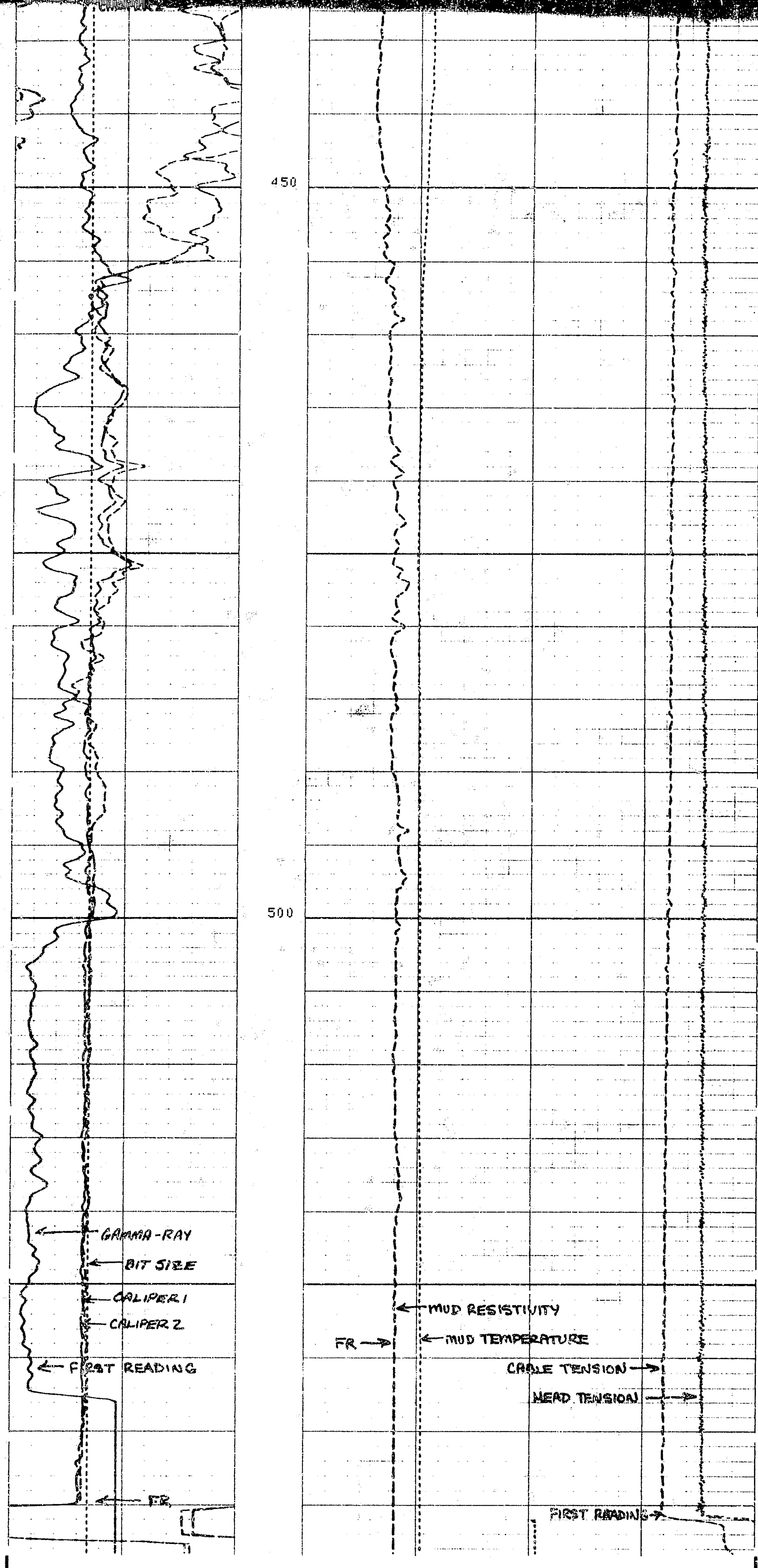
CP 28.15 FILE 3 15-OCT-85 17:35
DATA ACQUIRED 29-SEP-85 03:36

BS (MM) 225.00 – 475.00
CALI (MM) 225.00 – 475.00
CALS (MM) 225.00 – 475.00
GR (GAPI) 0.0 – 100.00
MTEM (DEGC) 10.000 – 30.000
MRES (OHMM) .10000 – .20000
TENS (N) 10000. – 0.0
HTEN (N) 10000. – 0.0

PASS # 1 STARTED AT 10:52 SEPT 29 1985

CP 28.15 FILE 7 15-OCT-85 17:08
DATA ACQUIRED 29-SEP-85 11:05





CP 28.15 FILE 7 15-OCT-85 17:06
DATA ACQUIRED 29-SEP-85 10:52

BS (MM) 225.00 … 475.00			
CAL1(MM) 225.00 … 475.00			
CALS(MM) 225.00 … 475.00		MTEM(DEGC) 10.000 … 30.000	TENS(N) 10000. … 0.0
GR (GAPI) 0.0 … 100.00		MRES(OHMM) .10000 … .20000	HTEN(N) 10000. … 0.0

SENSOR MEASURE POINT TO TOOL ZERO

SPAR	12.57 METER	SP	12.57 METER
MTEM	14.96 METER	MRES	14.96 METER
DV1	4.54 METER	CAL1	.86 METER
SV0	4.54 METER	SI0	4.54 METER
DV0	4.54 METER	DI0	4.54 METER
CALS	.94 METER	DLCS	.28 METER
STSG	.28 METER	GR	10.77 METER
I1	.40 METER	TENS	.28 METER
CMSF	.33 METER		

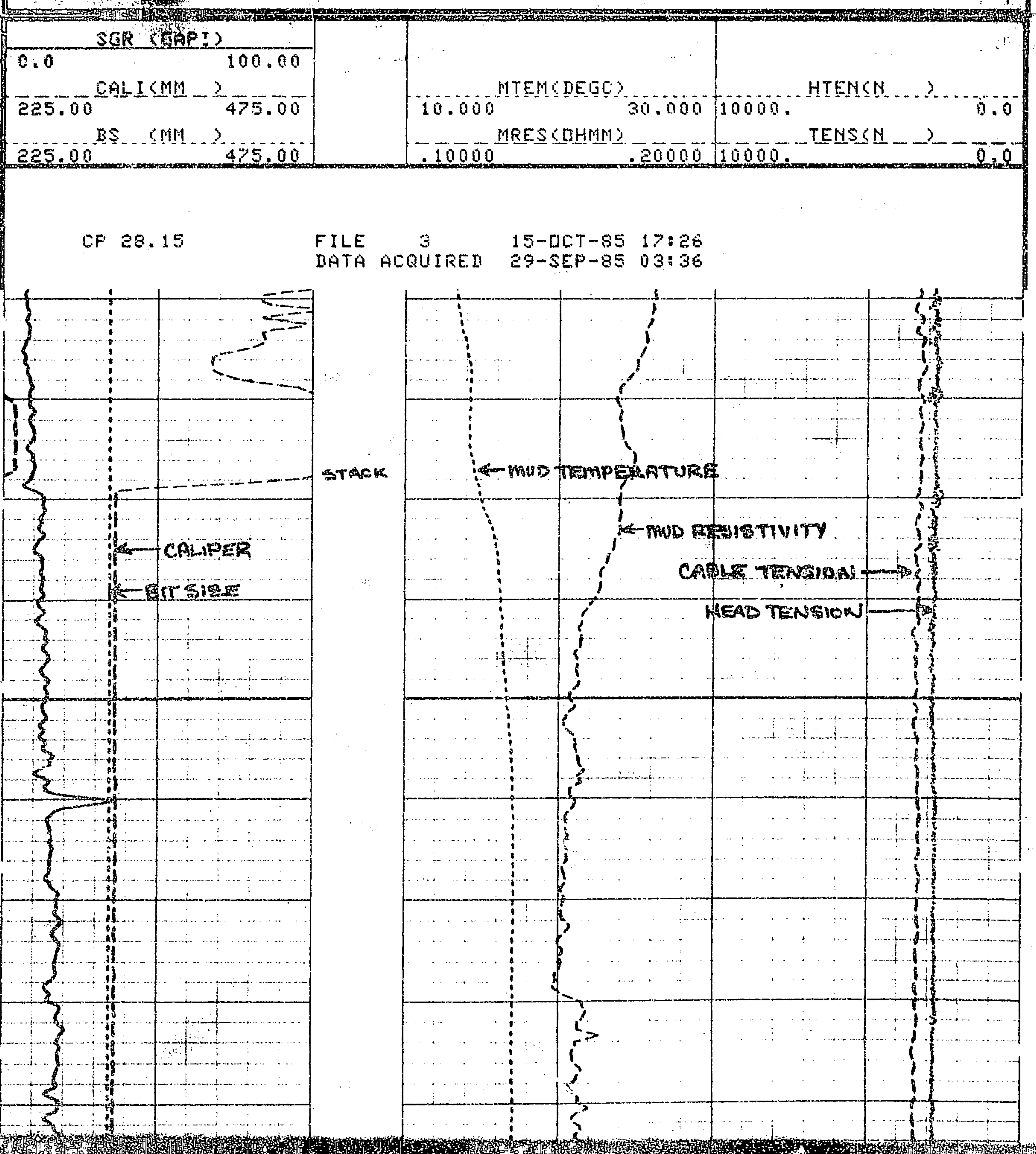
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SPRF	550.000	NW	DPRF	550.000	NW
DTIK	2		STIK	2	
CREF	AUTO		DMR	CONS	
RMUD	.0970000	OHMM	SPT	STAN	
SHT	80.0000	DEGF	TD	3048.00	M
BS	311.000	MM	BHS	OPEN	
PP	NORM		DO	0.0	M

TAPE NOT MADE

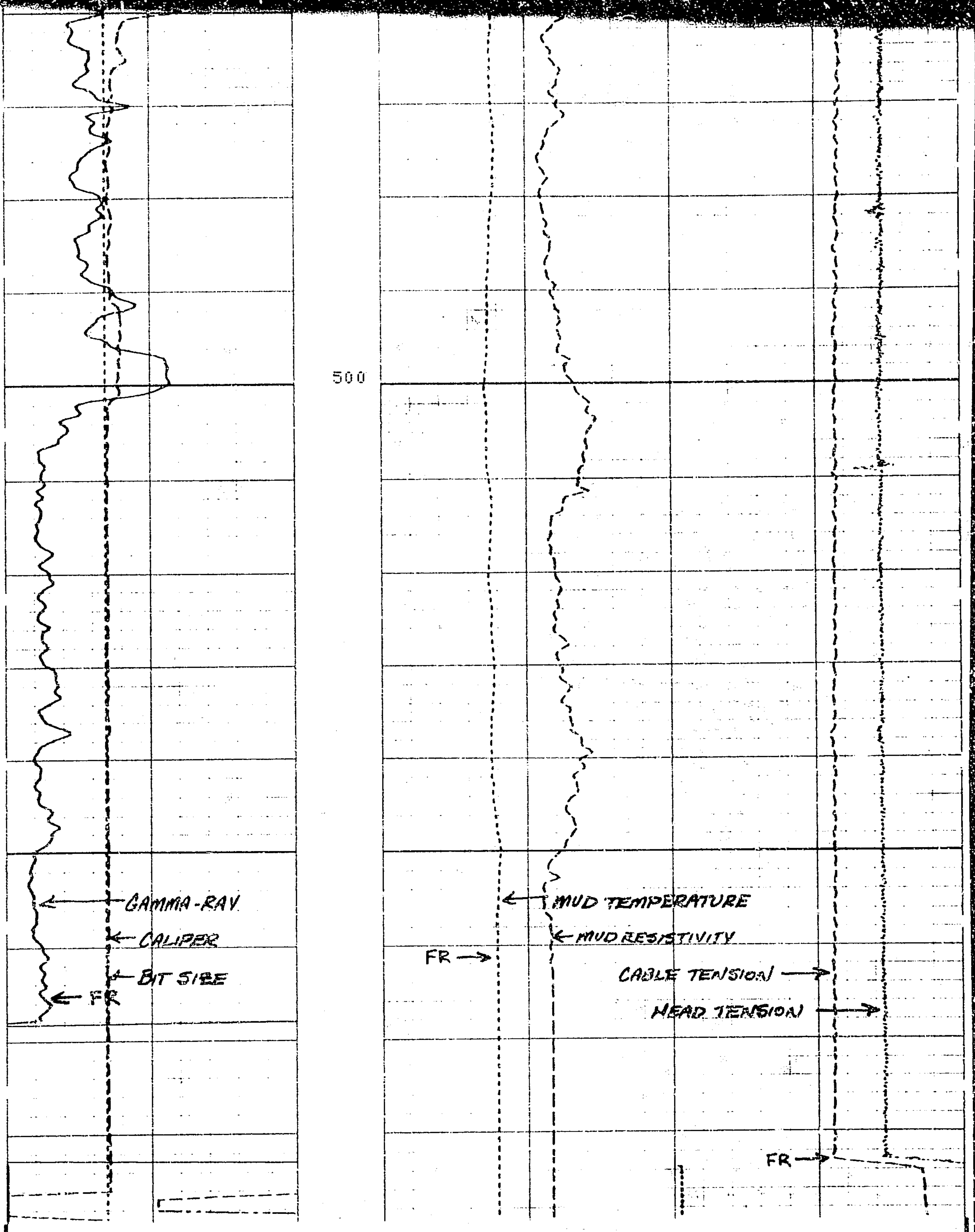
SGR (GAPI) 0.0 … 100.00			
CALI(MM) 225.00 … 475.00		MTEM(DEGC) 10.000 … 30.000	HTEN(N) 10000. … 0.0
BS (MM) 225.00 … 475.00		MRES(OHMM) .10000 … .20000	TENS(N) 10000. … 0.0

CP 28.15 FILE 3 15-OCT-85 17:26
DATA ACQUIRED 29-SEP-85 03:36



TAPE NOT MADE
SGR (GAPI) 0.0 100.00
CALI(MM) 225.00 475.00
BS (MM) 225.00 475.00
MTEM(DEGC) 10.000 30.000
MRES(OHMM) .10000 .20000
HTEN(N) 10000. 0.0
TENS(N) 10000. 0.0
CP 28.15
FILE 3
DATA ACQUIRED 15-OCT-85 17:26 29-SEP-85 03:36
STACK
MUD TEMPERATURE
MUD RESISTIVITY
CABLE TENSION
HEAD TENSION
CALIPER
BIT SIZE
250
300
350


350
400
CASING SHOE
450
500
MUD TEMPERATURE
MUD RESISTIVITY
CABLE TENSION
HEAD TENSION
FR
FR
GAMMA RAY
CALIPER
BIT SIZE
FR



CP 28.15 FILE 3 15-OCT-85 17:22
DATA ACQUIRED 29-SEP-85 02:53

SGR (GAPI)		MTEM(DEGC)		HTEN(N)	
0.0	100.00	10.000	30.000	10000.	0.0
CALI(MM)		MRES(OHMM)		TENS(N)	
225.00	475.00	.10000	.20000	10000.	0.0
BS (MM)					
225.00	475.00				

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77 METER	MRES	12.77 METER
APWW	9.78 METER	APLW	9.78 METER
PPLW	9.78 METER	NGPE	9.78 METER
SNGT	-.27 METER	PPUW	9.78 METER
TPUW	9.78 METER	TPLW	9.78 METER
W2NG	9.78 METER	W1NG	9.78 METER
W4NG	9.78 METER	W3NG	9.78 METER
LITH	.78 METER	W5NG	9.78 METER
LS	.78 METER	LL	.78 METER
SS1	.63 METER	LU	.78 METER
DTCL	.78 METER	SS2	.63 METER
DTPL	.78 METER	DTCS	.63 METER
LLLC	.78 METER	DTPS	.63 METER
LLUC	.78 METER	LULC	.78 METER
SLLC	.63 METER	LUUC	.78 METER
SLUC	.63 METER	SULC	.63 METER
CALI	.81 METER	SUUC	.63 METER
NCNL	6.35 METER	FCNL	6.35 METER
TENS	-.27 METER	SCNL	-.27 METER
NRAT	6.35 METER	SGR	9.78 METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CBAR	1.00000		PMUD	0.0	%
FD	1000.00	K/M3	NFD	KALM	
BFM	LIQU		MDEN	2710.00	K/M3
WMUD	1750.00	K/M3	DHC	BS	
BHT	22.0000	DEGC	TD	3048.00	M
HC	CALI		SHT	0.0	DEGC
PSNR	2.20000		MATR	LIME	
BS	311.200	MM	BHS	OPEN	
PP	NORM		DO	0.0	M

TAPE NOT MADE

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L. ELEVATIONS-
ELEV. OF PERM. DATUM: 0.0 M KB: 13.7 M
LOG MEASURED FROM: K.B. DF: 13.3 M
13.7 M ABOVE PERM. DATUM GL: -199.3 M
DRLG. MEASURED FROM: KELLY BUSHING

DATE: 29 SEP 85
RUN NO: 1

OTHER SERVICES-

PROGRAM
TAPE NO:
28.15
SERVICE
ORDER NO:

DEPTH-DRILLER: 541.0 M
DEPTH-LOGGER: 541.0 M
BTM. LOG INTERVAL: 540.0 M
TOP LOG INTERVAL: 205.0 M

CASING-DRILLER: 437.0 M 0.0 M 0.0 M
CASING-LOGGER: 436.0 M 0.0 M 0.0 M
CASING: 339.7 MM
WEIGHT: 107.100 KG/M 0.0 KG/M 0.0 KG/M
BIT SIZE: 311.2 MM

Schlumberger

AUXILIARY MEASUREMENT LOG

CSU Field Log

8710-C55-1-2 OFF

Schlumberger

DUAL LATEROLOG
MICRO-SFL

SCHLUMBERGER OF CANADA Calgary, Alberta

COMPANY	CANTERRA ENERGY LTD.
WELL	ICG SOGEPET ET AL NETSIQ N-01
FIELD	HUDSON BAY
PROVINCE	MANITOBA

OTTAWA COPY

LOCATION: 59° 50' 48.36" NORTH LATITUDE; 92° 30' 59.92" WEST LONGITUDE

LSD | SEC. | TWP | RANGE

Other Services: BHCS

Permanent Datum: MSL ; Elev.: 0.0 m — Elev.: K.B. 13.7 m, D.F. 13.3 m, G.L. -199.3 m

Log Measured From KB 13.7 m Above Perm. Datum

Drilling Measured From KB

Date	29 SEP 85	16 OCT 85		
Run No.	One	Two		
Depth—Driller	541.0 m	1040.0 m		
Depth—Logger (Schl.)	541.0 m	1038.6 m		
Btm. Log Interval	536.6 m	1034.5 m		
Top Log Interval	436.0 m	532.0 m		
Casing—Driller	339.7 @ 437	244.5 @ 533.4	@	@
Casing—Logger	436.0	532.0		
Bit Size	311.2 mm	216.0 mm	mm	mm
Type Fluid in Hole	SEE BELOW	SEE BELOW		
Dens (kg/m³) / Visc.	1749 / 46.0	1761 / 46.0		
pH / Fluid Loss (cm³)	10.0 / 37.0	10.5 / 11.1		
Source of Sample	CIRCULATION	CIRCULATION		
Rm @ Meas. Temp.	0.097 @ 11.0 °C	0.091 @ 18.0 °C	@ °C	@ °C
Rmf @ Meas. Temp.	0.059 @ 11.0 °C	0.058 @ 18.0 °C	@ °C	@ °C
Rmc @ Meas. Temp.	0.222 @ 11.0 °C	0.223 @ 14.0 °C	@ °C	@ °C
Source: Rmf / Rmc	PRESS / PRESS	PRESS / PRESS		
Rm @ BHT	0.072 @ 22.0 °C	0.096 @ 16.0 °C	@ °C	@ °C
Time: Circulation Stopped	08:30/29	10:20/16		
Time: Tool Last on Bottom	13:30	15:30/16		
Max. Rec. Temp.	22.0 °C	16.0 °C	°C	°C
Unit / District	922 / ST. JOHN'S	922 / ST. JOHN'S		
Recorded By	MACNEILL	MACNEILL		
Witnessed By	ZANUSSI	ZANUSSI		

CANADA OIL AND GAS LANDS ADMINISTRATION
JAN 16 1990
ENGINEERING BRANCH

REMARKS:

PROGRAM TAPE NO: 28.15 — SERVICE ORDER NO: 129387 — CASING WEIGHT: 107.1 kg

RUN 2 — PROGRAM TAPE NO: 28.15 — SERVICE ORDER NO: 129389 — CASING WEIGHT: 70.10 kg/

Run 1
```
TYPE FLUID IN HOLE:     NACL SATURATED GEL POLYMER
DENSITY:                1749. K/M3
VISCOSITY:              46.0 S
PH:                     10.0
FLUID LOSS:             37.0 C3
SOURCE OF SAMPLE:       CIRC.
RM:                       .097 OHMM AT 11.0 DEGC
RMF:                      .059 OHMM AT 11.0 DEGC
RMC:                      .222 OHMM AT 11.0 DEGC
SOURCE RMF/RMC:         PRESS /PRESS
RM AT BHT:                .072 OHMM AT 22.0 DEGC
RMF AT BHT:               .044 OHMM AT 22.0 DEGC
RMC AT BHT:               .166 OHMM AT 22.0 DEGC

TIME CIRC. STOPPED:     08:30 / 29
TIME LOGGER ON BTM.:    13:30

MAX. REC. TEMP:          22.0 DEGC

LOGGING UNIT NO:         922
LOGGING UNIT LOC:       ST. JOHN'S
RECORDED BY:            MACNEILL
WITNESSED BY:           L. ZANUSSI
```

REMARKS: Run 1

DLL - MSFL WAS CENTRALIZED
LOG WAS RUN AT 1800 FT/HR.

LOST CIRCULATION MATERIAL USED AT 463m, 477m, AND 481 TO 483 m.

Run 1
EQUIPMENT NUMBERS-

```
TCM-AB 538    LCM-A 846    DLC-D 820    DLH-CB 2802
DLS F 895     AH-69 720    SRS-D 747    SRE-F 747
SPA-A 322       -
```

Run 2
```
TYPE FLUID IN HOLE:     NACL SATURATED GEL POLYMER
DENSITY:                1761. K/M3
VISCOSITY:              48.0 S
PH:                     10.5
FLUID LOSS:             11.1 C3
SOURCE OF SAMPLE:       CIRC.
RM:                       .091 OHMM AT 18.0 DEGC
RMF:                      .058 OHMM AT 18.0 DEGC
RMC:                      .223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC:         PRESS /PRESS
RM AT BHT:                .096 OHMM AT 16.0 DEGC
RMF AT BHT:               .061 OHMM AT 16.0 DEGC
RMC AT BHT:               .211 OHMM AT 16.0 DEGC

TIME CIRC. STOPPED:     10:20/16
TIME LOGGER ON BTM.:    15:30/16

MAX. REC. TEMP:          16.0 DEGC

LOGGING UNIT NO:         922
LOGGING UNIT LOC:       ST. JOHN'S
RECORDED BY:            A. MACNEILL
WITNESSED BY:           L. ZANUSSI
```

REMARKS: Run 2

TOOL IS CENTRALIZED.
MAXIMUM RECORDED TEMPERATURE WAS TAKEN FROM THE AMS AT TD,
BHT= 16 DEGC.
DRILLING STOPPED AT 7:20 / 16.

Run 2
EQUIPMENT NUMBERS-

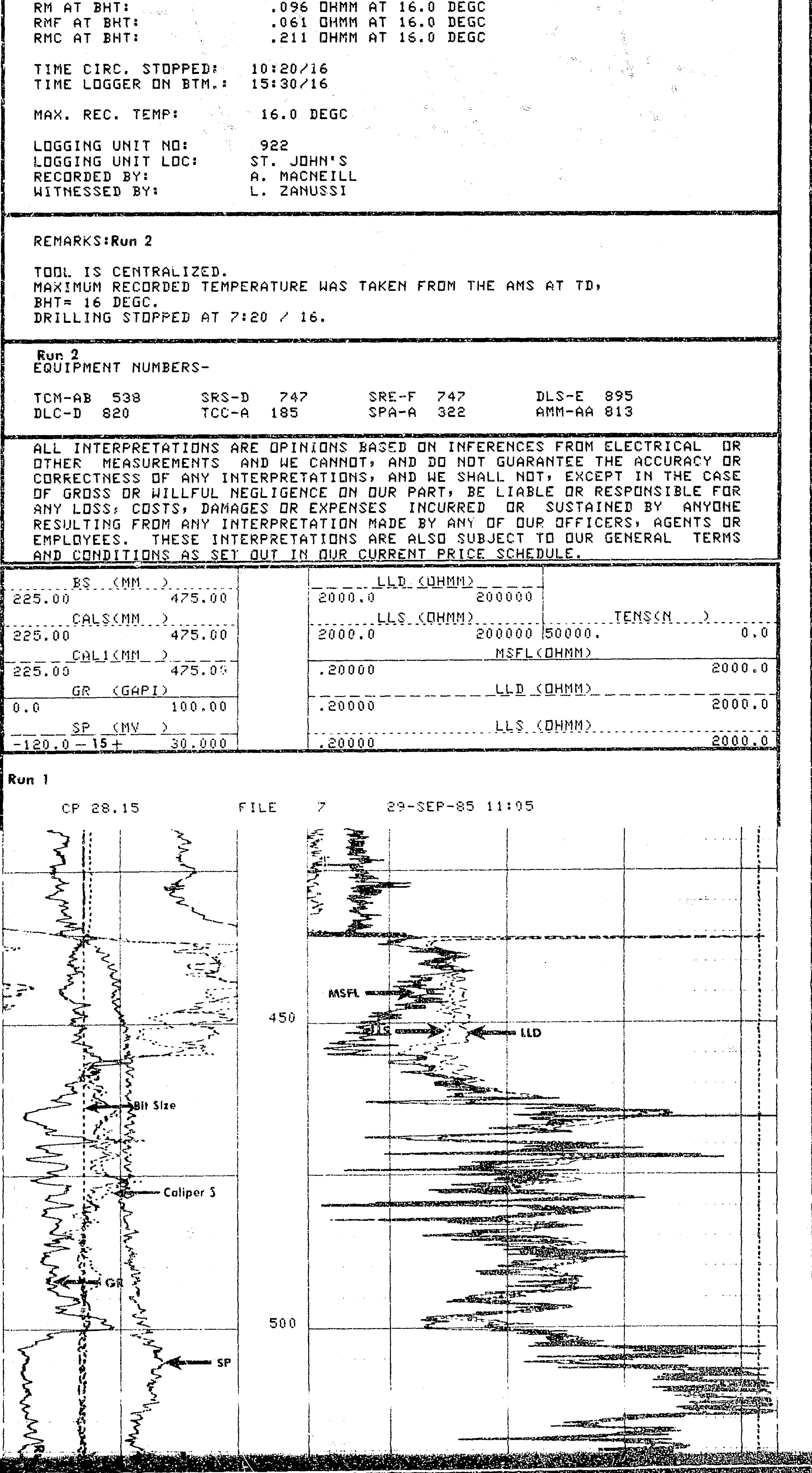
```
TCM-AB  538    SRS-D  747    SRE-F  747    DLS-E  895
DLC-D   820    TCC-A  185    SPA-A  322    AMM-AA 813
```

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

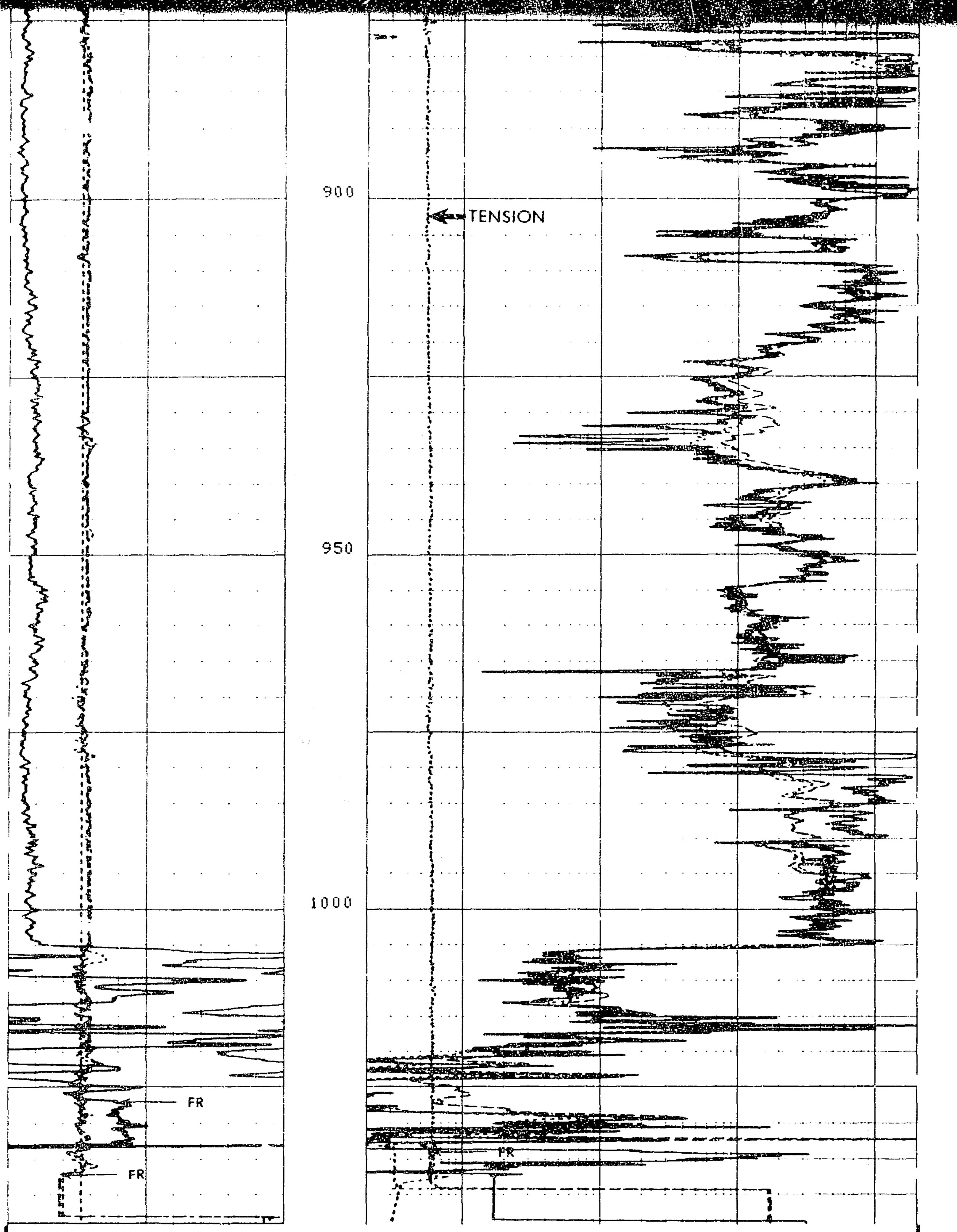
Track 1			Tracks 2–3		
BS (MM)	225.00	475.00	LLD (OHMM)	2000.0	200000
CALS (MM)	225.00	475.00	LLS (OHMM)	2000.0	200000
			TENS (N)	50000.	0.0
CALI (MM)	225.00	475.00	MSFL (OHMM)	.20000	2000.0
GR (GAPI)	0.0	100.00	LLD (OHMM)	.20000	2000.0
SP (MV)	-120.0 — 15 +	30.000	LLS (OHMM)	.20000	2000.0

Run 1

CP 28.15   FILE 7   29-SEP-85 11:05



LLD
LLS
MSFL
Tension
SCALE CHANGE
TENSION
450
500
550
600
650
700
750
800
850
900
Bit Size
Caliper S
SP
GR
Caliper 1
FR GR
Run 1
Run 2



CP 28.15 FILE 102 16-OCT-85 16:44
DATA ACQUIRED 16-OCT-85 15:28

	TENS(N) 0.0 — 25000.
	LLD (OHMM) 2000.0 — 200000
BS (MM) 150.00 — 400.00	LLS (OHMM) 2000.0 — 200000
CALS(MM) 150.00 — 400.00	MSFL(OHMM) .20000 — 2000.0
CAL1(MM) 150.00 — 400.00	LLD (OHMM) .20000 — 2000.0
GR (GAPI) 0.0 — 100.00	LLS (OHMM) .20000 — 2000.0

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

SPAR	12.57	METER	SP	12.57	METER
MTEM	14.96	METER	MRES	14.96	METER
DV1	4.54	METER	CAL1	.86	METER
SV0	4.54	METER	SI0	4.54	METER
DV0	4.54	METER	DI0	4.54	METER
CALS	.94	METER	DLCS	.28	METER
STSG	.28	METER	GR	10.77	METER
I1	.40	METER	TENS	.28	METER
CMSF	.33	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SPRF	550.000	NW	DPRF	550.000	NW
DTIK	2		STIK	2	
CREF	AUTO		OMR	CONS	
RMUD	.0970000	OHMM	SPT	STAN	
SHT	80.0000	DEGF	TD	3048.00	M
BS	311.000	MM	BHS	OPEN	

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

SPAR	12.57	METER	SP	12.57	METER
MTEM	14.96	METER	MRES	14.96	METER
DV1	4.54	METER	CAL1	.86	METER
SV0	4.54	METER	SI0	4.54	METER
DV0	4.54	METER	DI0	4.54	METER
CALS	.94	METER	DLCS	.28	METER
STSG	.28	METER	GR	10.77	METER
I1	.40	METER	TENS	.28	METER
CMSF	.33	METER			

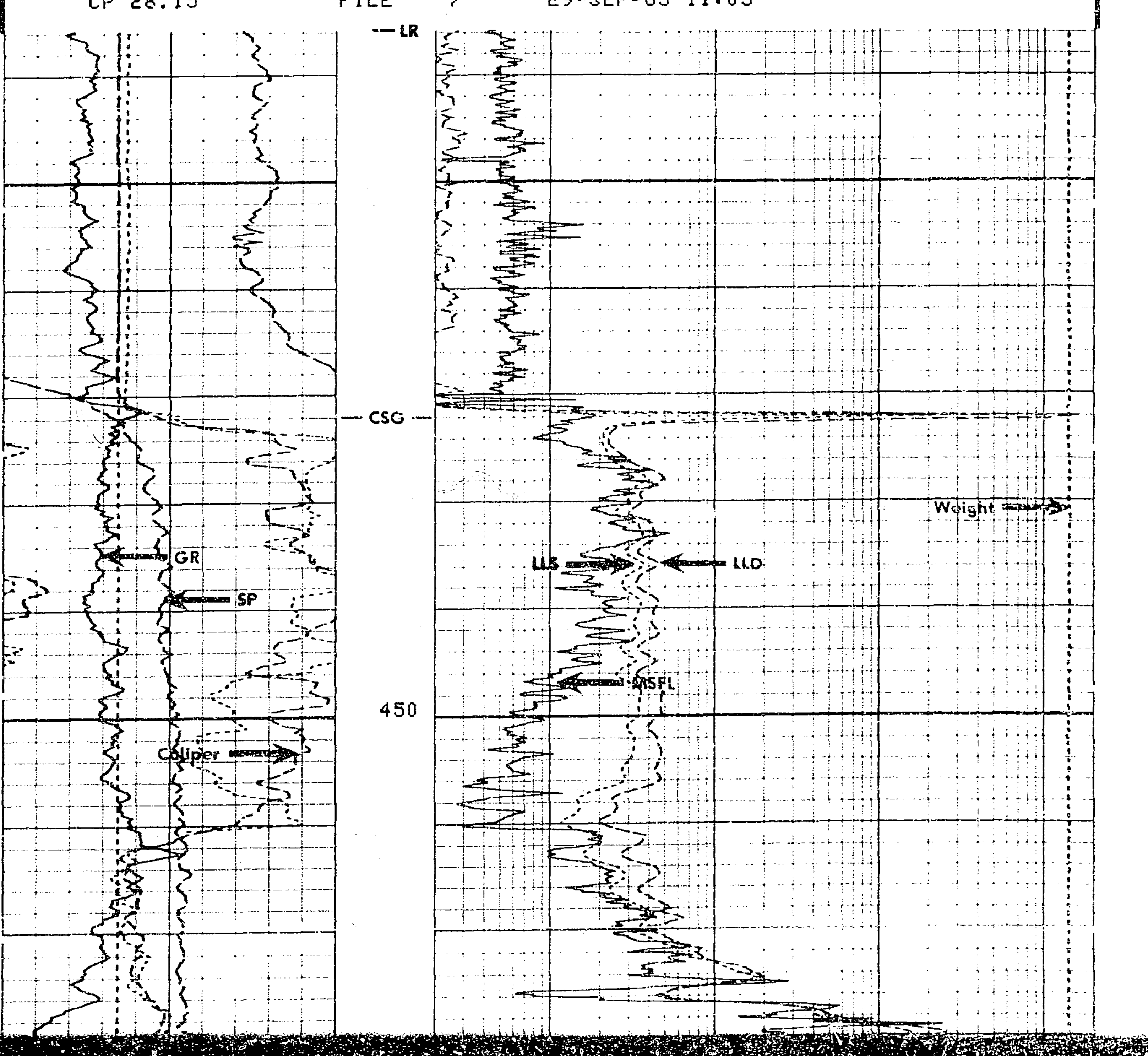
PARAMETERS

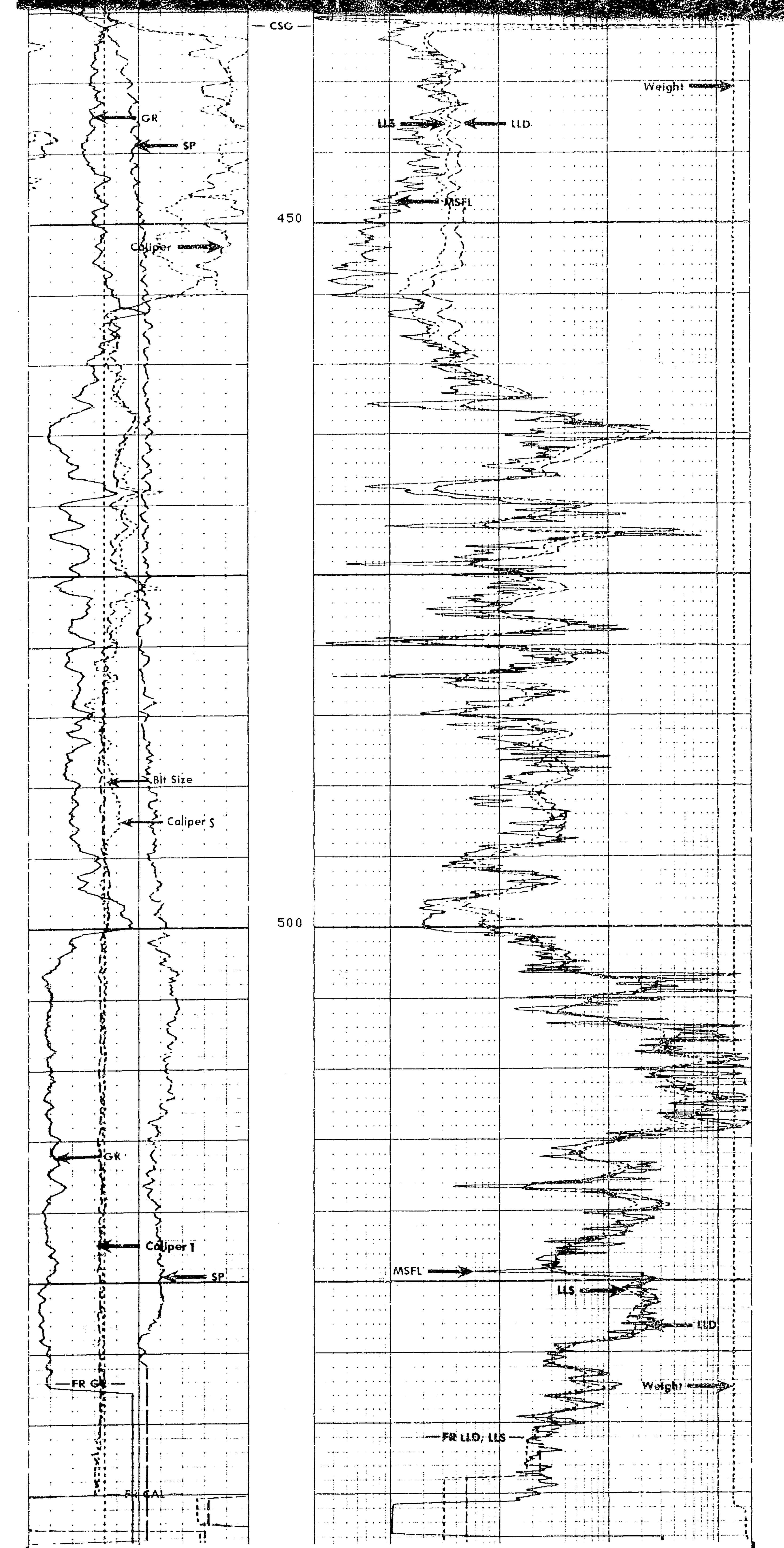
NAME	VALUE	UNIT	NAME	VALUE	UNIT
SPRF	550.000	NW	DPRF	550.000	NW
DTIK	2		STIK	2	
CREF	AUTO		OMR	CONS	
RMUD	.0600000	OHMM	SPT	STAN	
BHT	30.0000	DEGC	TD	1040.00	M
BHS	OPEN		SHT	0.0	DEGC
DO	-1.00000	M	BS	216.000	MM
PP	NORM				

BS (MM) 225.00 — 475.00	LLD (OHMM) 2000.0 — 200000
CALS(MM) 225.00 — 475.00	LLS (OHMM) 2000.0 — 200000 ; TENS(N) 50000. — 0.0
CAL1(MM) 225.00 — 475.00	MSFL(OHMM) .20000 — 2000.0
GR (GAPI) 0.0 — 100.00	LLD (OHMM) .20000 — 2000.0
SP (MV) -120.0 — -15+ — 30.000	LLS (OHMM) .20000 — 2000.0

Run 1

CP 28.15 FILE 7 29-SEP-85 11:05





CP 28.15 FILE 7 29-SEP-85 10:52

BS (MM) 225.00 – 475.00	LLD (OHMM) 2000.0 – 200000
CALS(MM) 225.00 – 475.00	LLS (OHMM) 2000.0 – 200000; TENS(N) 50000. – 0.0
CAL1(MM) 225.00 – 475.00	MSFL(OHMM) .20000 – 2000.0
GR (GAPI) 0.0 – 100.00	LLD (OHMM) .20000 – 2000.0
SP (MV) -120.0 – 15+ – 30.000	LLS (OHMM) .20000 – 2000.0

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

SPAR	12.57	METER	SP	12.57	METER
MTEM	14.96	METER	MRES	14.96	METER
DV1	4.54	METER	CAL1	.86	METER
SV0	4.54	METER	SI0	4.54	METER
DV0	4.54	METER	DI0	4.54	METER
CALS	.94	METER	DLCS	.28	METER
STSG	.28	METER	GR	10.77	METER
I1	.40	METER	TENS	.28	METER
CMSF	.33	METER			

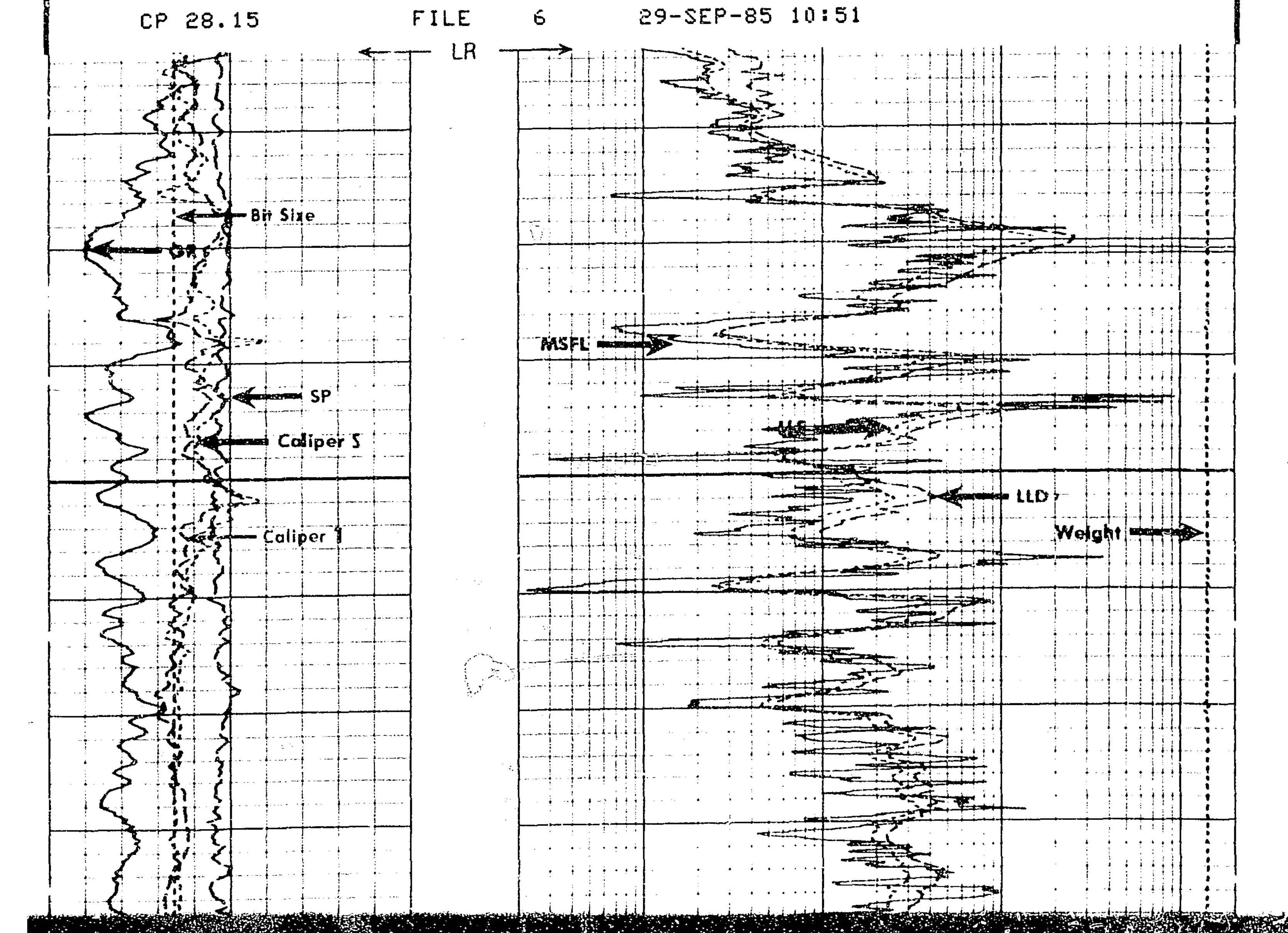
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SPRF	550.000	NW	DPRF	550.000	NW
DTIK	2		STIK	2	
CREF	AUTO		DMR	CONS	
RMUD	.?970000	OHMM	SPT	STAN	
SHT	80.0000	DEGF	TD	3048.00	M
BS	?11.000	MM	BHS	OPEN	

BS (MM) 225.00 – 475.00	LLD (OHMM) 2000.0 – 200000
CALS(MM) 225.00 – 475.0	LLS (OHMM) 2000.0 – 200000; TENS(N) 50000. – 0.0
CAL1(MM) 225.00 – 475.00	MSFL(OHMM) .20000 – 2000.0
GR (GAPI) 0.0 – 100.00	LLD (OHMM) .20000 – 2000.0
SP (MV) -120.0 – 15+ – 30.000	LLS (OHMM) .20000 – 2000.0

REPEAT SECTION **REPEAT SECTION**

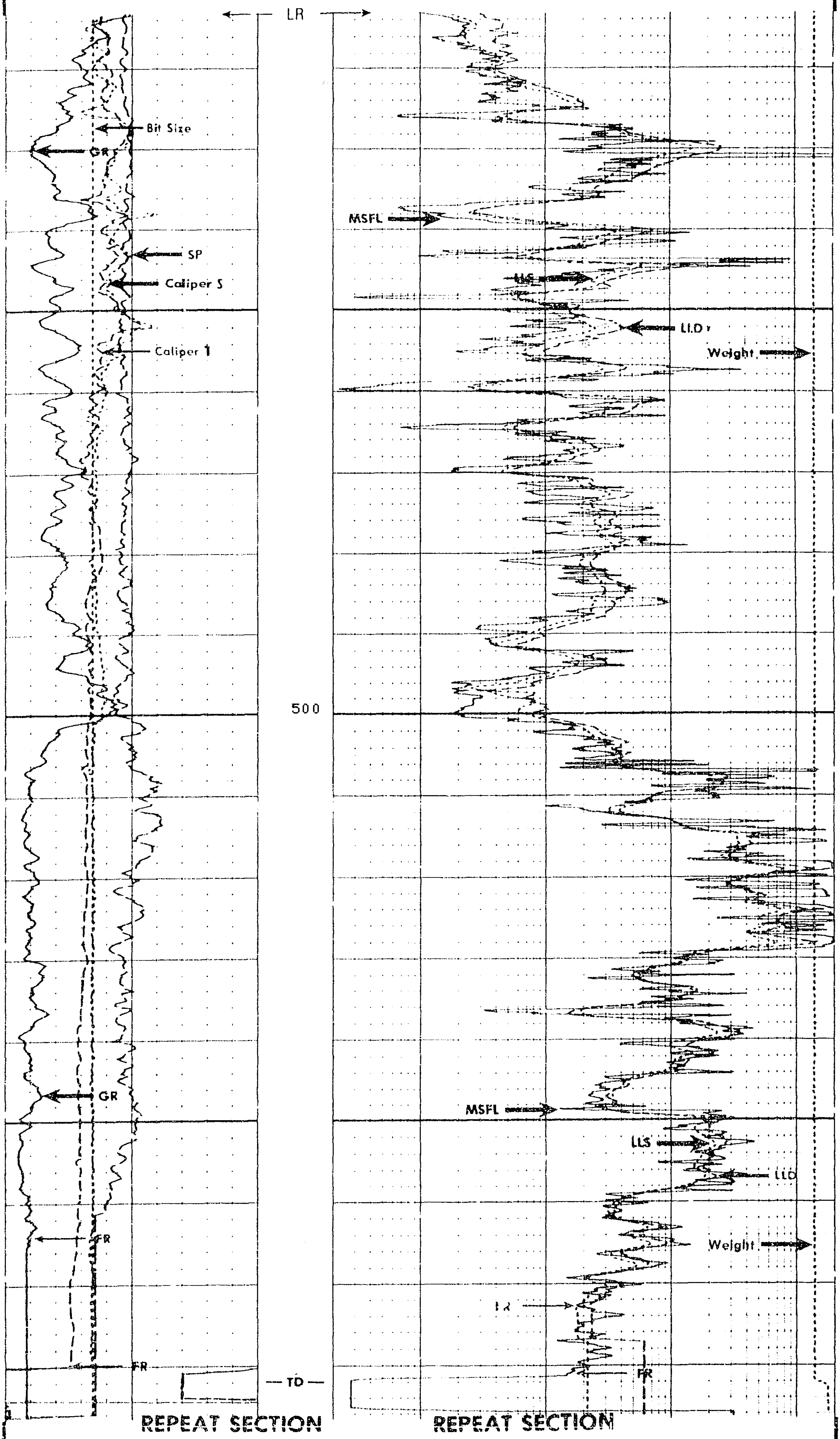
CP 28.15 FILE 6 29-SEP-85 10:51



225.00 CAL1(MM) 475.00		2000.0	200000 50000.
225.00 GR (GAPI) 475.00		.20000 MSFL(OHMM)	2000.0
0.0 SP (MV) 100.00		.20000 LLD (OHMM)	2000.0
-120.0 -15+ 30.000		.20000 LLS (OHMM)	2000.0

REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 6 29-SEP-85 10:51



REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 6 29-SEP-85 10:41

225.00 BS (MM) 475.00	2000.0 LLD (OHMM) 200000		
225.00 CALS(MM) 475.00	2000.0 LLS (OHMM) 200000	50000. TENS(N)	0.0
225.00 CAL1(MM) 475.00	.20000 MSFL(OHMM)		2000.0
0.0 GR (GAPI) 100.00	.20000 LLD (OHMM)		2000.0
-120.0 -15+ SP (MV) 30.000	.20000 LLS (OHMM)		2000.0

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

SPAR	12.57	METER	SP	12.57	METER
MTEM	14.96	METER	MRES	14.96	METER
DV1	4.54	METER	CAL1	.86	METER
SV0	4.54	METER	SI0	4.54	METER
DV0	4.54	METER	DI0	4.54	METER
CALS	.94	METER	DLCS	.28	METER
STSG	.28	METER	GR	10.77	METER
I1	.40	METER	TENS	.28	METER
CMSF	.33	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SPRF	550.000	NW	DPRF	550.000	NW
DTIK	2		STIK	2	
CREF	AUTO		DMR	CONS	
RMUD	.0970000	OHMM	SPT	STAN	
SHT	80.0000	DEGF	TD	3048.00	M
BS	311.000	MM	BHS	OPEN	

Run 2

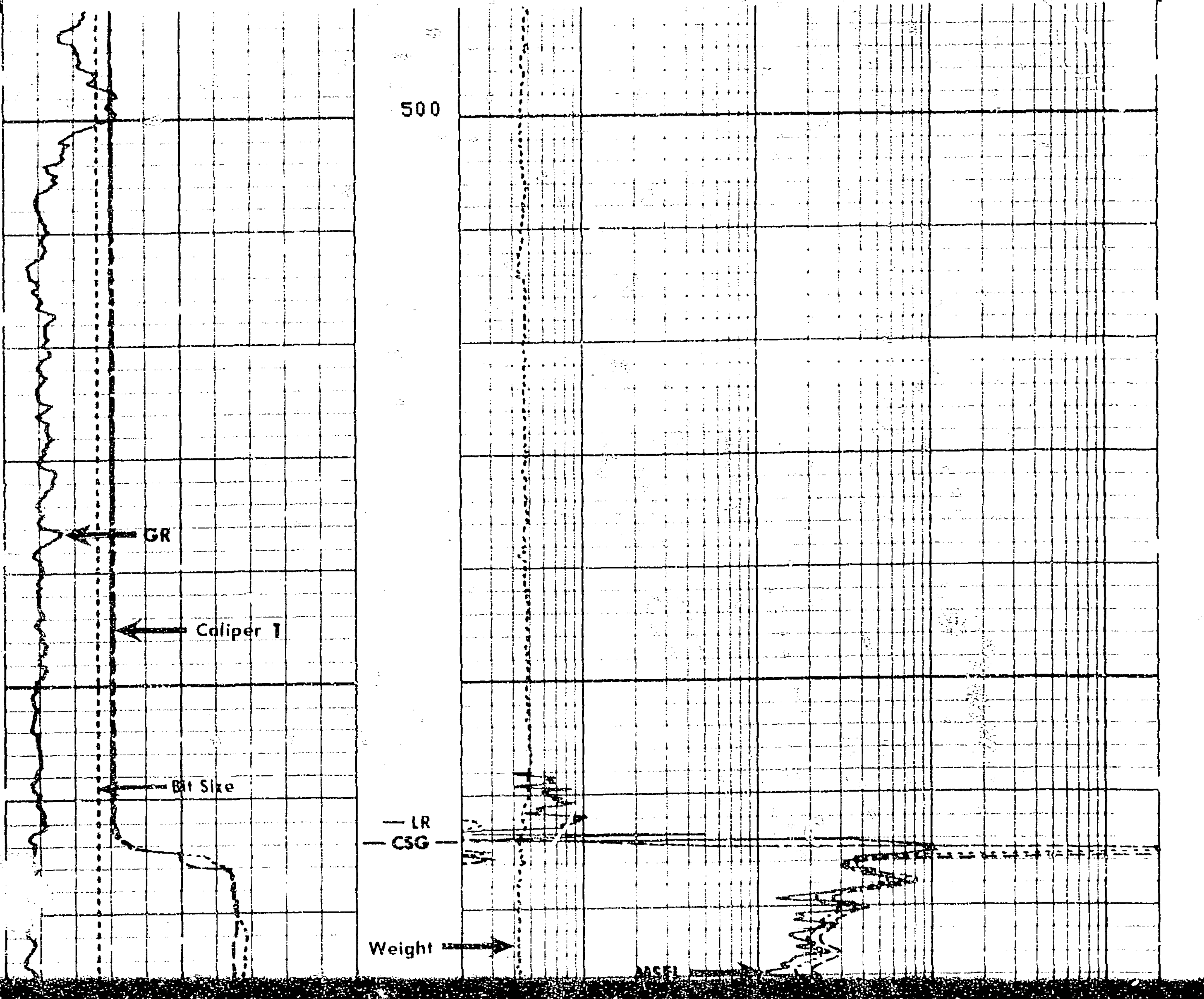
CHANGED PARAMETERS

NAME	VALUE	UNIT	DEPTH (M)	NAME	VALUE	UNIT	DEPTH (M)
SPLI	1		648.7				

150.00 BS (MM) 400.00	
150.00 CALS(MM) 400.00	0.0 TENS(N) 25000.
150.00 CAL1(MM) 400.00	2000.0 LLD (OHMM) 200000
0.0 GR (GAPI) 100.00	2000.0 LLS (OHMM) 200000

Run 2

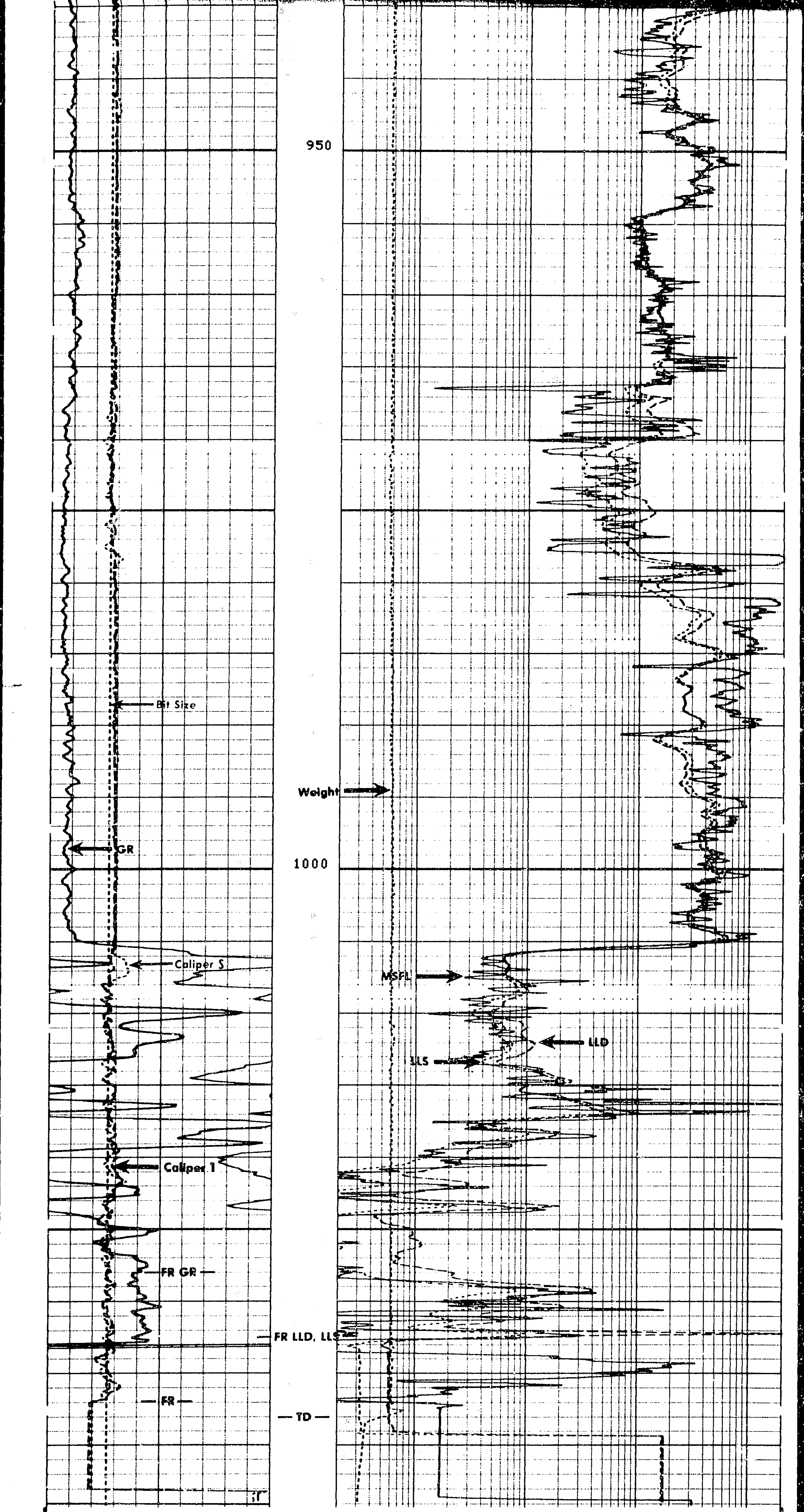
CP 28.15 FILE 102 16-OCT-85 16:53
DATA ACQUIRED 16-OCT-85 16:27



LLS (OHMM)
2000.0
200000
FILE 102
DATA ACQUIRED
16-OCT-85 16:53
16-OCT-85 16:27
LLD
MSFL
LLS
Weight
LR
CSG
500
550
600
650
GR (GAPI)
0.0
100.00
Run 2
CP 28.15
GR
Caliper 1
Bit Size
Caliper S


650
700
750
800


800
850
900
950
Weight
Bit Size



CP 28.15   FILE 102   16-OCT-85 16:44
DATA ACQUIRED 16-OCT-85 15:28

	TENS(N) 0.0 … 25000.
	LLD (OHMM) 2000.0 … 200000
BS (MM) 150.00 … 400.00	LLS (OHMM) 2000.0 … 200000
CALS(MM) 150.00 … 400.00	MSFL(OHMM) .20000 … 2000.0
CAL1(MM) 150.00 … 400.00	LLD (OHMM) .20000 … 2000.0
GR (GAPI) 0.0 … 100.00	LLS (OHMM) .20000 … 2000.0

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

SPAR	12.57	METER	SP	12.57	METER
MTEM	14.96	METER	MRES	14.96	METER
DV1	4.54	METER	CAL1	.86	METER
SVO	4.54	METER	SIO	4.54	METER
DVO	4.54	METER	DIO	4.54	METER
CALS	.94	METER	DLCS	.28	METER
STSG	.28	METER	GR	10.77	METER
I1	.40	METER	TENS	.28	METER
CMSF	.33	METER			

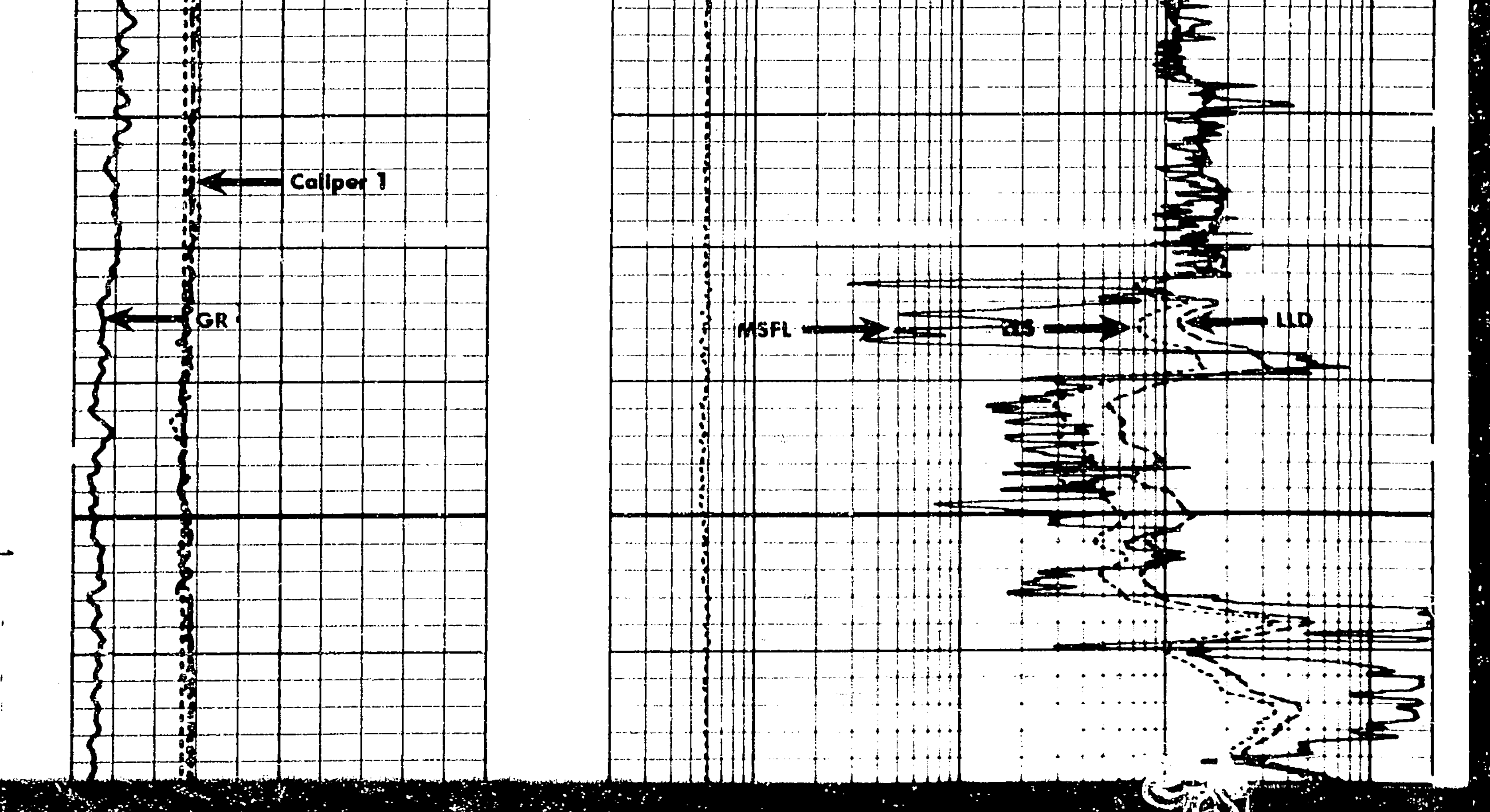
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SPRF	550.000	NW	DPRF	550.000	NW
DTIK	2		STIK	2	
CREF	AUTO		DMR	CONS	
RMUD	.0600000	OHMM	SPT	STAN	
BHT	30.0000	DEGC	TD	1040.00	M
BHS	OPEN		SHT	0.0	DEGC
DO	-1.00000	M	BS	216.000	MM
PP	NORM				

	TENS(N) 0.0 … 25000.
	LLD (OHMM) 2000.0 … 200000
BS (MM) 150.00 … 400.00	LLS (OHMM) 2000.0 … 200000
CALS(MM) 150.00 … 400.00	MSFL(OHMM) .20000 … 2000.0
CAL1(MM) 150.00 … 400.00	LLD (OHMM) .20000 … 2000.0
GR (GAPI) 0.0 … 100.00	LLS (OHMM) .20000 … 2000.0

REPEAT SECTION   **REPEAT SECTION**

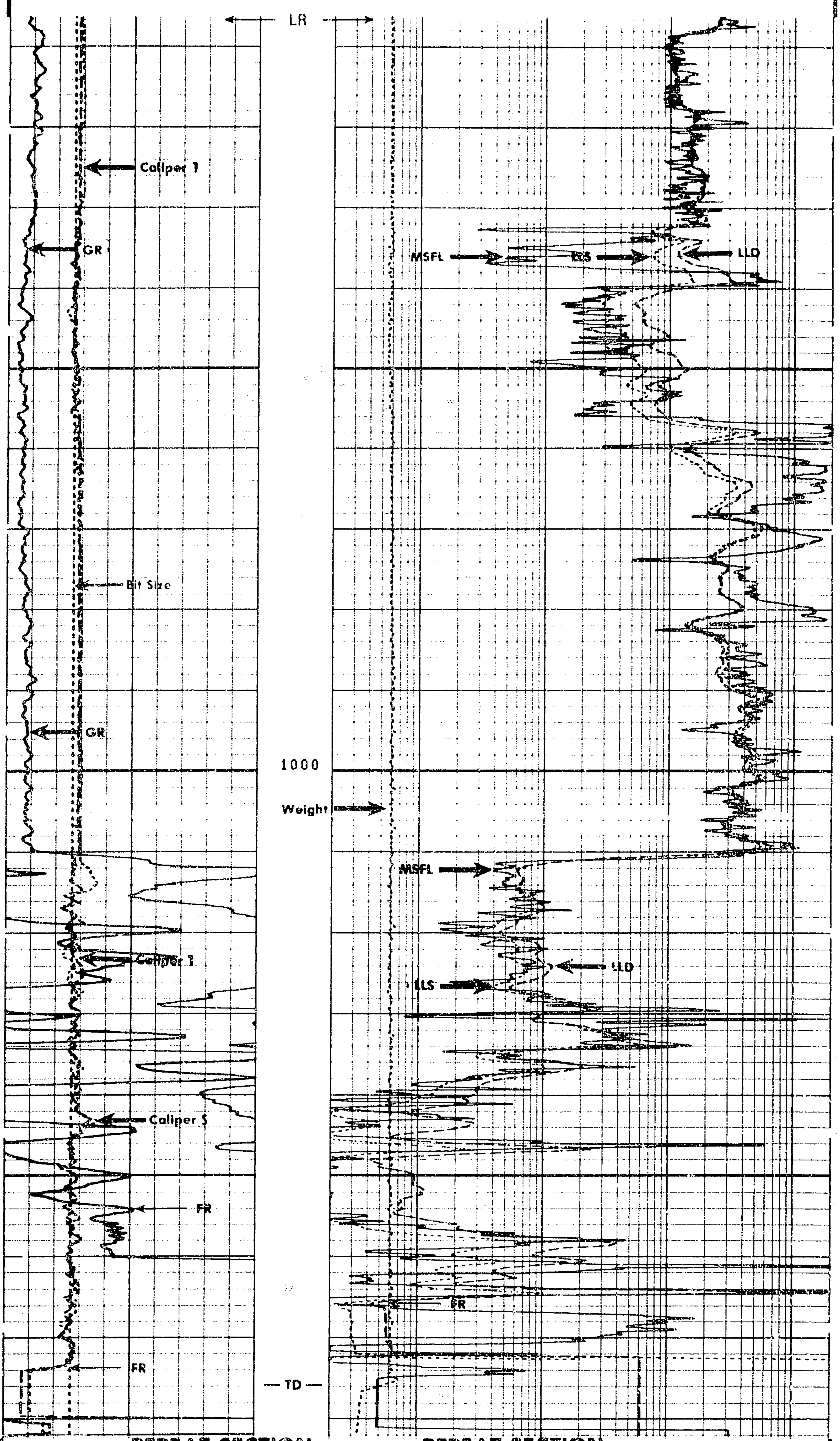
CP 28.15   FILE 101   16-OCT-85 16:43
DATA ACQUIRED 16-OCT-85 15:26



CALS(MM) 150.00 — 400.00	MSFL(OHMM) .20000 — 2000.0
CAL1(MM) 150.00 — 400.00	LLD (OHMM) .20000 — 2000.0
GR (GAPI) 0.0 — 100.00	LLS (OHMM) .20000 — 2000.0

REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 101 16-OCT-85 16:43
DATA ACQUIRED 16-OCT-85 15:26



REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 101 16-OCT-85 16:41
DATA ACQUIRED 16-OCT-85 15:16

	TENS(N) 0.0 — 25000.
	LLD (OHMM) 2000.0 — 200000
BS (MM) 150.00 — 400.00	LLS (OHMM) 2000.0 — 200000
CALS(MM) 150.00 — 400.00	MSFL(OHMM) .20000 — 2000.0
CAL1(MM) 150.00 — 400.00	LLD (OHMM) .20000 — 2000.0
GR (GAPI) 0.0 — 100.00	LLS (OHMM) .20000 — 2000.0

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

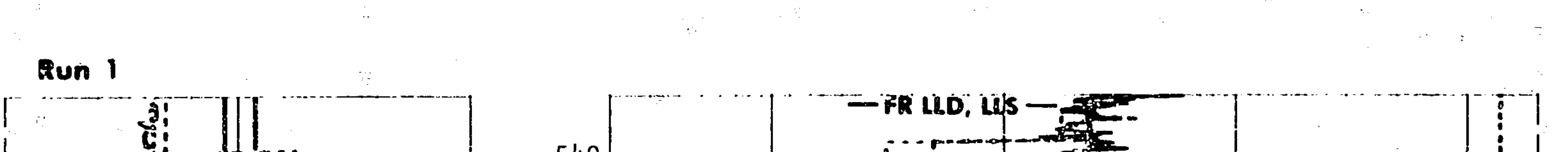
SPAR	12.57	METER	SP	12.57	METER
MTEM	14.96	METER	MRES	14.96	METER
DVI	4.54	METER	CAL1	.86	METER
SVO	4.54	METER	SIO	4.54	METER
DVO	4.54	METER	DIO	4.54	METER
CALS	.94	METER	DLCS	.28	METER
STSG	.28	METER	GR	10.77	METER
I1	.40	METER	TENS	.28	METER
CMSF	.33	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SPRF	550.000	NW	DPRF	550.000	NW
LTIK	2		STIK	2	
CREF	AUTO		DMR	CONS	
RMUD	.0600000	OHMM	SPT	STAN	
BHT	30.0000	DEGC	TD	1040.00	M
BHS	OPEN		SHT	0.0	DEGC
DO	-1.00000	M	BS	216.000	MM
PP	NORM				

OVERLAP

Run 1

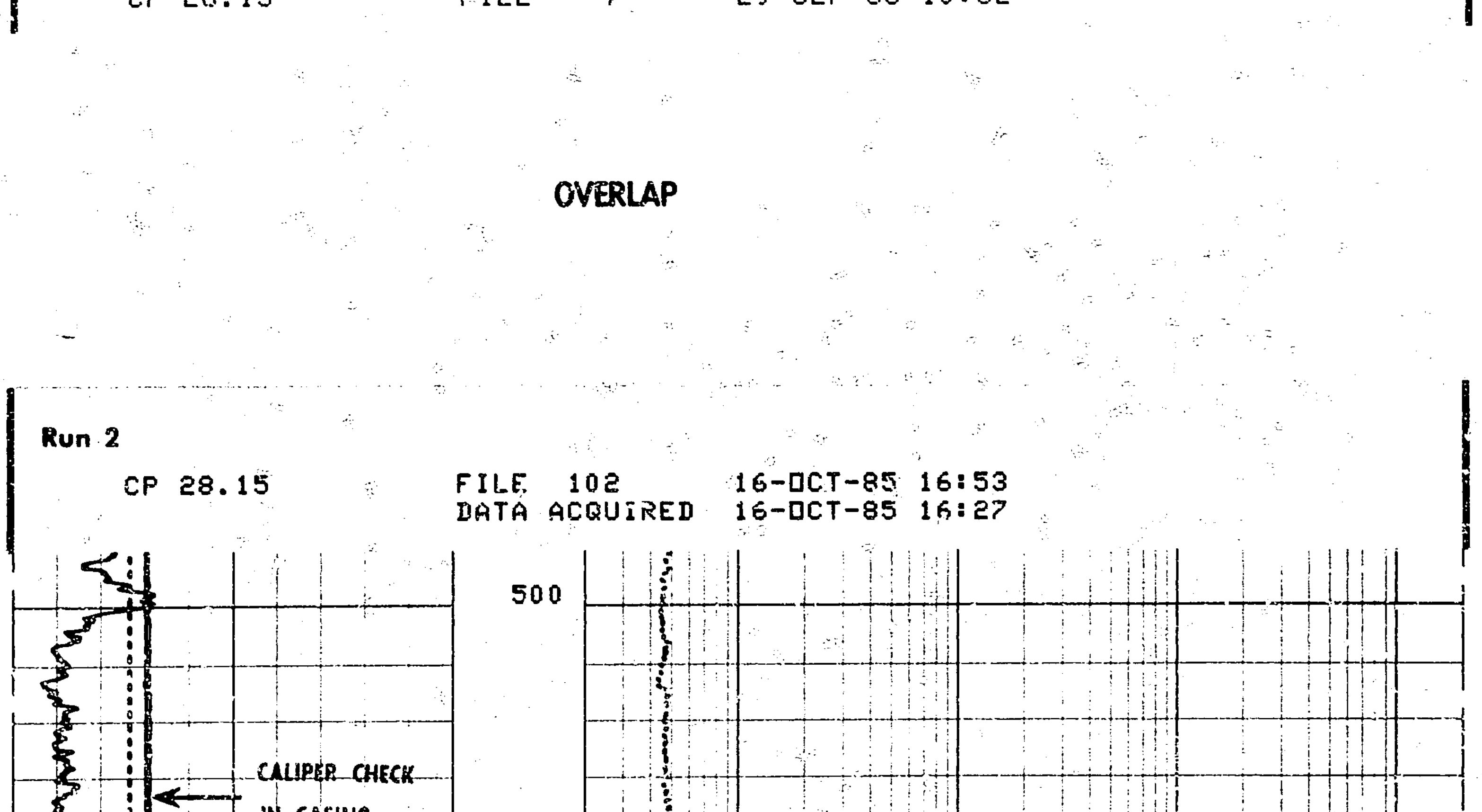


CP 28.15 FILE 7 29-SEP-85 10:52

OVERLAP

Run 2

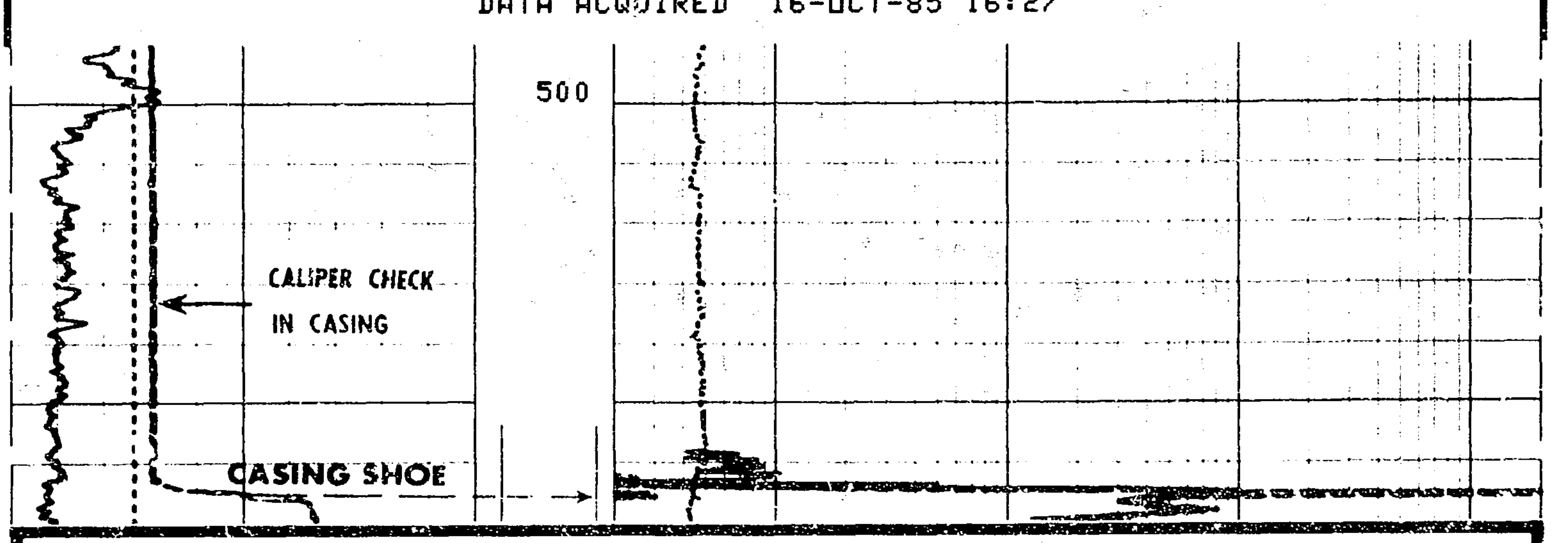
CP 28.15 FILE 102 16-OCT-85 16:53
DATA ACQUIRED 16-OCT-85 16:27



CALIBRATION RECORD

Run 2

CP 28.15 FILE 102 16-OCT-85 16:53
DATA ACQUIRED 16-OCT-85 16:27



CALIBRATION RECORD

X21088

Run 1

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 28-SEP-85 00:15
PROGRAM FILE: RNU (VERSION 28.15 85/01/03)

DSTE ELECTRONICS CALIBRATION SUMMARY

	MEASURED		CALIBRATED		
	ZERO	PLUS	ZERO	PLUS	UNITS
SIO	-.1	342.5	0.0	342.5	UA
SVO	-.0	10.9	0.0	10.8	MV
DIO	-.0	341.5	0.0	342.5	UA
DVO	-.0	11.1	0.0	10.8	MV
CMSF	1.0	499.0	1.0	500.0	MMHO
I1	.2	97.5	.1	100.0	MMHO
DV1	-.0	10.9	0.0	10.8	MV
LLD	32.57		31.61		OHMM
LLS	31.88		31.61		OHMM

DSTE ELECTRONICS CALIBRATION SUMMARY

	MEAS	REF
CALIPER COEFF.	.01732	.01732

DSTE CALIPER CALIBRATION SUMMARY

	MEASURED		CALIBRATED		
	SMALL	LARGE	SMALL	LARGE	UNITS
CAL1	231.5	312.5	203.20	304.8	MM
CALS	233.7	315.3	203.20	304.8	MM

SGTL DETECTOR CALIBRATION SUMMARY

	MEASURED			
	BKGD	JIG	CALIBRATED	UNITS
GR	5	166	165	GAPI

CP 28.15 FILE 0 28-SEP-85 00:15

Run 2

AFTER SURVEY TOOL CHECK SUMMARY

PERFORMED: 16-OCT-85 16:32
PROGRAM FILE: RNU (VERSION 28.15 85/01/03)

DSTE TOOL CHECK

	ZERO		PLUS		
	BEFORE	AFTER	BEFORE	AFTER	UNITS
SIO	0.0	-.0	342.5	342.2	UA
SVO	0.0	.0	10.8	10.8	MV
DIO	0.0	-.0	342.5	342.5	UA
DVO	0.0	.0	10.8	10.8	MV
CMSF	1.0	1.0	500.0	500.0	MMHO
I1	.1	.1	100.0	100.0	MMHO
DV1	0.0	.0	10.8	10.8	MV

	BEFORE	AFTER	UNITS
LLD	31.61	31.59	OHMM
LLS	31.61	31.66	OHMM

CP 28.15 FILE 10 16-OCT-85 16:32

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 16-OCT-85 15:13
PROGRAM FILE: RNU (VERSION 28.15 85/01/03)

DSTE ELECTRONICS CALIBRATION SUMMARY

	MEASURED		CALIBRATED		
	ZERO	PLUS	ZERO	PLUS	UNITS
SIO	-.1	341.5	0.0	342.5	UA
SVO	-.0	10.8	0.0	10.8	MV
DIO	-.0	341.2	0.0	342.5	UA
DVO	-.0	11.0	0.0	10.8	MV
CMSF	1.0	498.2	1.0	500.0	MMHO
I1	.2	97.0	.1	100.0	MMHO
DV1	-.0	10.8	0.0	10.8	MV
LLD	32.50		31.61		OHMM
LLS	31.89		31.61		OHMM

DSTE ELECTRONICS CALIBRATION SUMMARY

	MEAS	REF
CALIPER COEFF.	.01732	0.0

DSTE CALIPER CALIBRATION SUMMARY

	MEASURED		CALIBRATED		
	SMALL	LARGE	SMALL	LARGE	UNITS
CAL1	230.9	311.9	202.45	304.0	MM
CALS	233.1	314.7	202.45	304.0	MM

SGTL DETECTOR CALIBRATION SUMMARY

	MEASURED			
	BKGD	JIG	CALIBRATED	UNITS
GR	5	166	165	GAPI

CP 28.15 FILE 5 16-OCT-85 15:13

COMPANY CANTERRA ENERGY LTD.

WELL ICG SOGEPET ET AL NETSIQ N-01

FIELD HUDSON BAY PROVINCE MANITOBA

Schlumberger

8710-C55-1-2 OTT

Schlumberger

DUAL INDUCTION - S F L

SCHLUMBERGER OF CANADA · Calgary, Alberta

PROVINCE MANITOBA
FIELD HUDSON BAY
WELL ICG SOGEPET ET AL NETSIQ N-01
COMPANY CANTERRA ENERGY LTD.

COMPANY CANTERRA ENERGY LTD.
WELL ICG SOGEPET ET AL NETSIQ N-01
FIELD HUDSON BAY
PROVINCE MANITOBA

OTTAWA COPY

LOCATION: 59° 50' 48.06" NORTH LATITUDE; 87° 30' 59.92" WEST LONGITUDE
LSD | SEC. | TWP | RANGE

Other Services: AMS, CNL-LDT-GR, WST, DLL-MSFL, RFT, DDBHC-GR, CYBI, SHDT, CST, NGT

Permanent Datum: MSL ; Elev.: 0.0 m
Log Measured From KB 13.7 m Above Perm. Datum
Drilling Measured From KB
Elev.: K.B. 13.7; D.F. 13.3; G.L. -199.3

Date	16 OCT 85			
Run No.	One			
Depth—Driller	1040.0 m	m	m	m
Depth—Logger (Schl.)	1038.0 m	m	m	m
Btm. Log Interval	1037.0 m	m	m	m
Top Log Interval	532.0 m	m	m	m
Casing—Driller	244.5mm@ 533 m	@	@	@
Casing—Logger	532.0 m			
Bit Size	216.0 mm	mm	mm	mm
Type Fluid in Hole	SEE BELOW			
Dens (kg/m³) | Visc.	1761 | 48.0			
pH | Fluid Loss (cm³)	10.5 | 11.1			
Source of Sample	CIRCULATION			
Rm @ Meas. Temp.	0.091 @ 18.0 °C	@ °C	@ °C	@ °C
Rmf @ Meas. Temp.	0.058 @ 18.0 °C	@ °C	@ °C	@ °C
Rmc @ Meas Temp	0.223 @ 14.0 °C	@ °C	@ °C	@ °C
Source: Rmf / Rmc	PRESS/PRESS			
Rm @ BHT	0.099 @ 15.0 °C	@ °C	@ °C	@ °C
Time: Circulation Stopped	1020/16			
Time: Tool Last on Bottom	2300/16			
Max. Rec. Temp. #1 #2	15.0 °C - °C	°C	°C	°C
Unit | District	922 | ST.J			
Recorded By	MACNEILL			
Witnessed By	ZANUSSI			

CANADA [illegible] GAS LANDS ADMINISTRATION [illegible] JAN 16 1986 [illegible]

REMARKS: [illegible]
PROGRAM TAPE NO: 26.2
SERVICE ORDER NO: 129389
CASING WEIGHT: 70.10 kg/m

```
TYPE FLUID IN HOLE:    NACL SATURATED GEL POLYMER
DENSITY:               1761 K/M3
VISCOSITY:             48.0 S
PH:                    10.5
FLUID LOSS:            11.1 C3
SOURCE OF SAMPLE:      CIRC.
RM:                     .091 OHMM AT 18.0 DEGC
RMF:                    .058 OHMM AT 18.0 DEGC
RMC:                    .223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC:        PRESS /PRESS
RM AT BHT:              .099 OHMM AT 15.0 DEGC
RMF AT BHT:             .063 OHMM AT 15.0 DEGC
RMC AT BHT:             .216 OHMM AT 15.0 DEGC

TIME CIRC. STOPPED:    10:20/16
TIME LOGGER ON BTM.:   23:00/16

MAX. REC. TEMP:         15.0 DEGC

LOGGING UNIT NO:        922
LOGGING UNIT LOC:      ST. JOHN'S
RECORDED BY:           MACNEILL
WITNESSED BY:          L ZANUSSI
```

REMARKS:

DRILLING STOPPED 07:20 / 16.
38MM STANDOFFS ON DUAL INDUCTION.

EQUIPMENT NUMBERS-

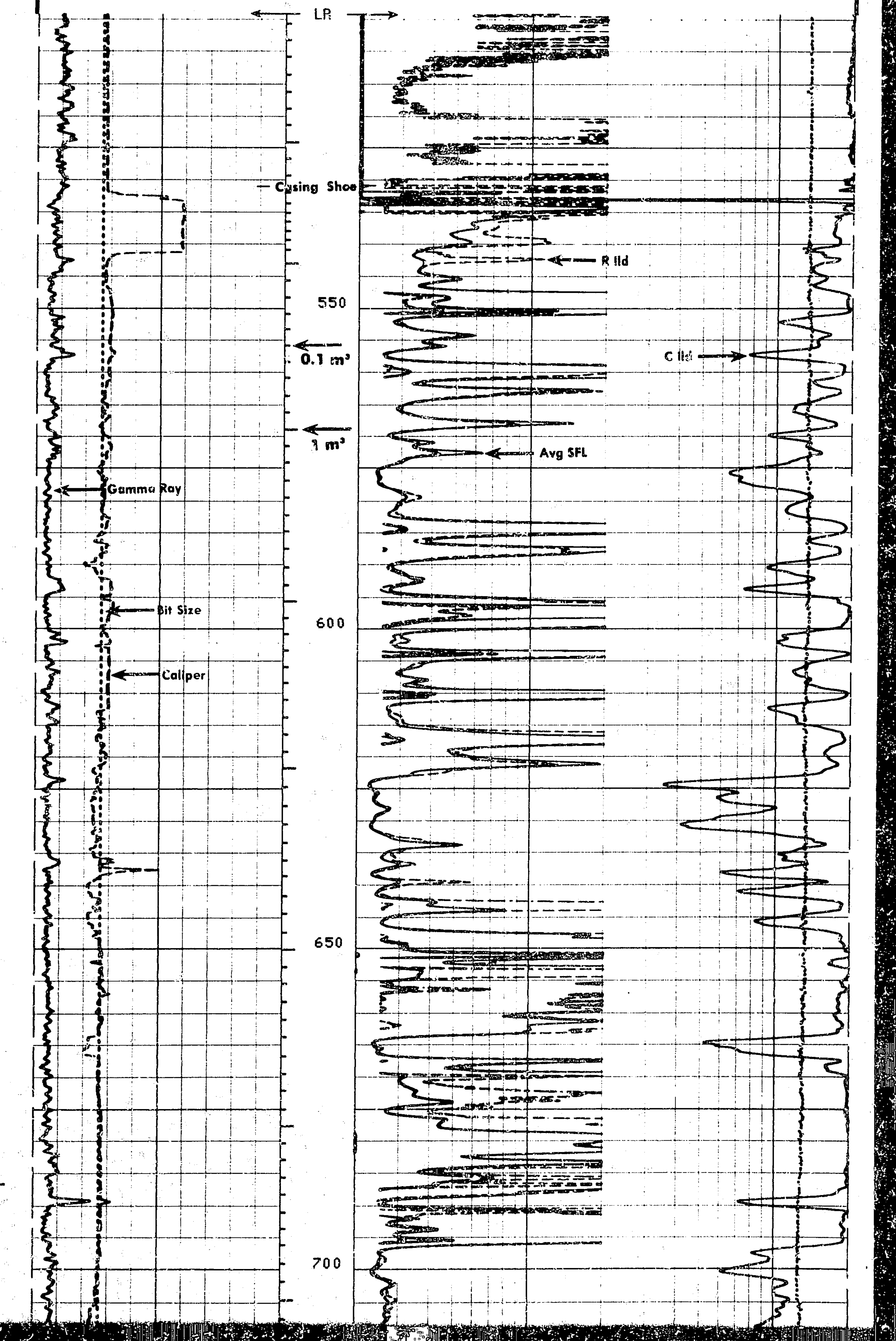
EIM-BD 1497	SLM-DA 1237	NSM 3727	SLS-SC 455
SLC-FA 1286	MCD-DA 311	DIS-EC 1486	DIC-DA 311
SGC-JC 1695			

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

FILE 8 17-OCT-85 00:13
DATA ACQUIRED 00- -00 00:00

BS (MM) 150.00 – 400.00		ILD (OHMM) 0.0 – 50.000	
CALI(MM) 150.00 – 400.00		SFLA(OHMM) 0.0 – 50.000	TENS(N) 25000. – 0.0
GR (GAPI) 0.0 – 100.00		CILD(MMHO) 1000.0 – 0.0	

FILE 5 17-OCT-85 06:16
DATA ACQUIRED 16-OCT-85 23:33



FILE 5 17-OCT-85 06:14
DATA ACQUIRED 16-OCT-85 22:32

BS (MM) 150.00 — 400.00	ILD (OHMM) 0.0 — 50.000	
CALI(MM) 150.00 — 400.00	SFLA(OHMM) 0.0 — 50.000	TENS(N) 25000. — 0.0
GR (GAPI) 0.0 — 100.00	CILD(MMHO) 1000.0 — 0.0	

SENSOR MEASURE POINT TO TOOL ZERO

CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NDIS	10.8	METER	TENS	.7	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	18[illegible]27	US/M
SBR	1.00000	OHMM	DSEC	6.[illegible]0000	MMHO
BHS	OPEN		MSEC	8.[illegible]000	MMHO
DO	0.0	F	BS	21[illegible].000	MM
PP	NORM				

SENSOR MEASURE POINT TO TOOL ZERO

CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NOIS	10.8	METER	TENS	.7	METER

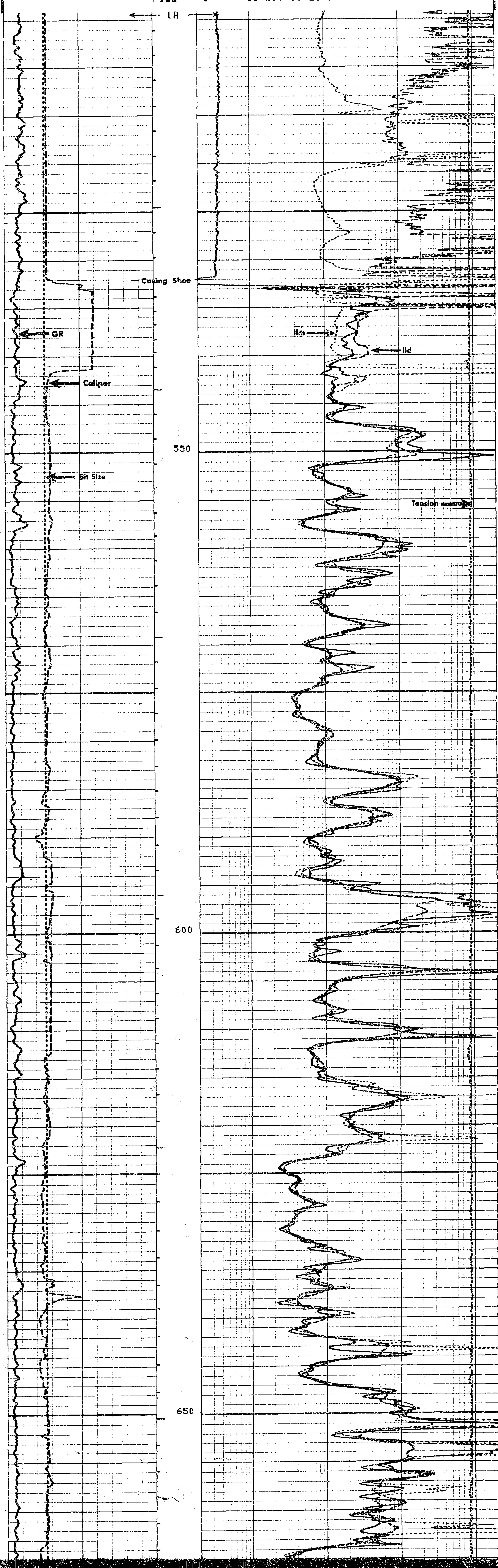
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SBR	1.00000	OHMM	DSEC	6.30000	MMHO
BHS	OPEN		MSEC	8.60000	MMHO
DO	0.0	F	BS	216.000	MM
PP	NORM				

TAPE NOT MADE

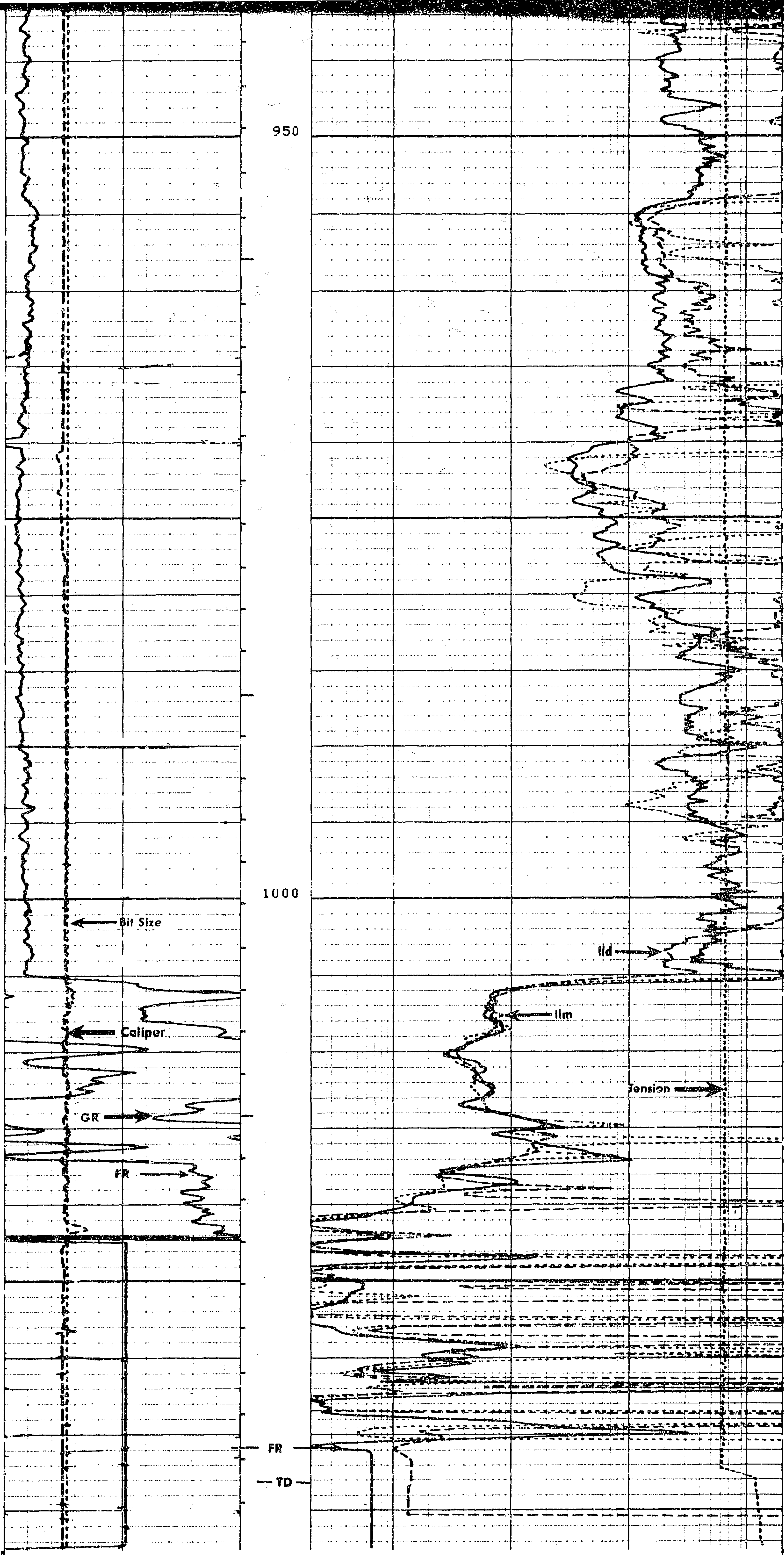
BS (MM)	150.00	400.00
CALI(MM)	150.00	400.00
GR (GAPI)	0.0	100.00
TENS(N)	25000.	0.0
ILD (OHMM)	.20000	2000.0
ILM (OHMM)	.20000	2000.0
SFLU(OHMM)	.20000	2000.0

FILE 5 16-OCT-85 23:33




650
700
750
800


800
850
900
950



FILE 5 16-OCT-85 22:31

BS (MM) 150.00 — 400.00		TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 100.00		ILD (OHMM) .20000 — 2000.0
GR (GAPI) 0.0 — 100.00		ILM (OHMM) .20000 — 2000.0
		SFLU(OHMM) .20000 — 2000.0

SENSOR MEASURE POINT TO TOOL ZERO

CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NDIS	10.8	METER	TENS	.7	METER

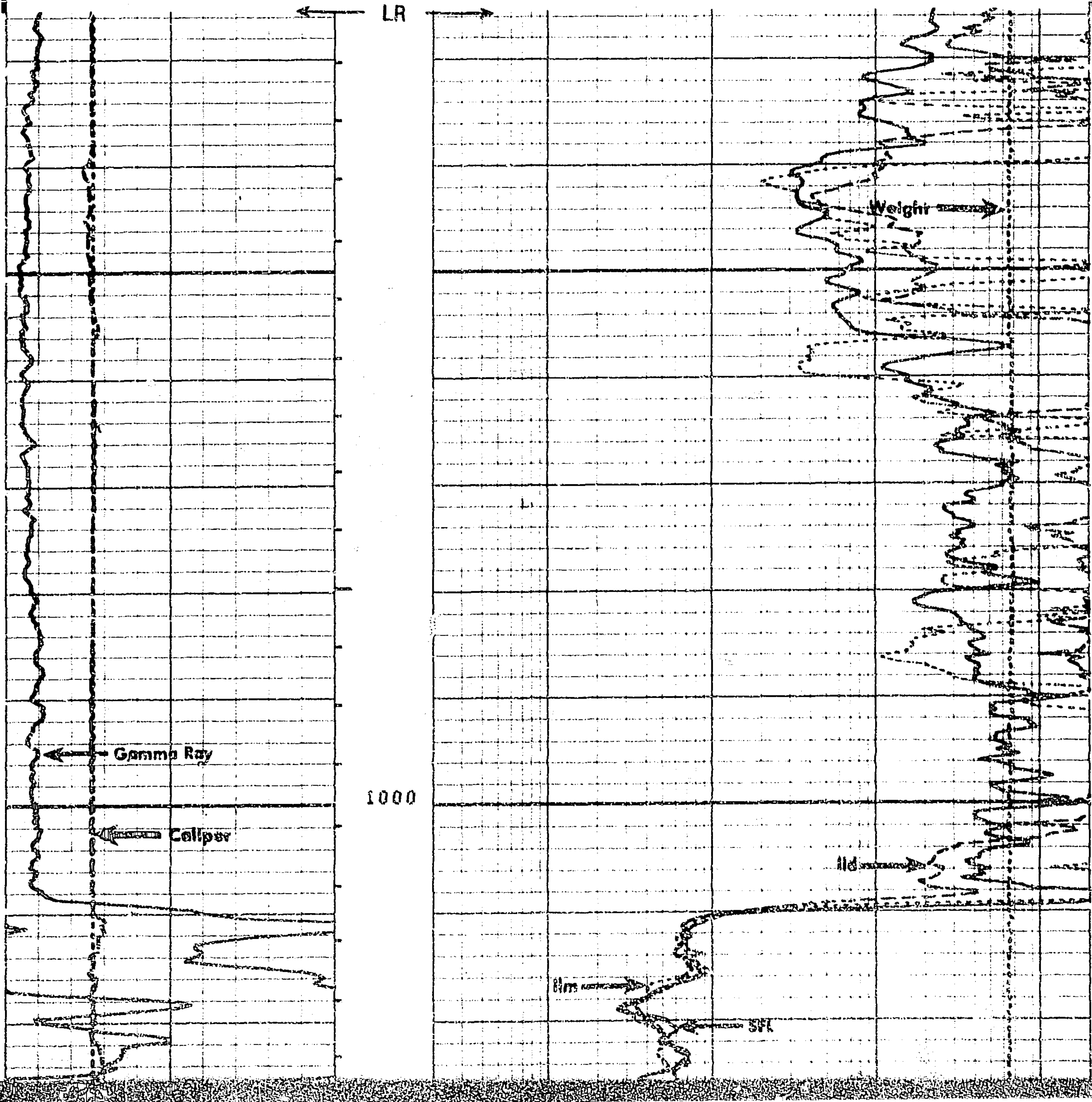
PARAMETERS

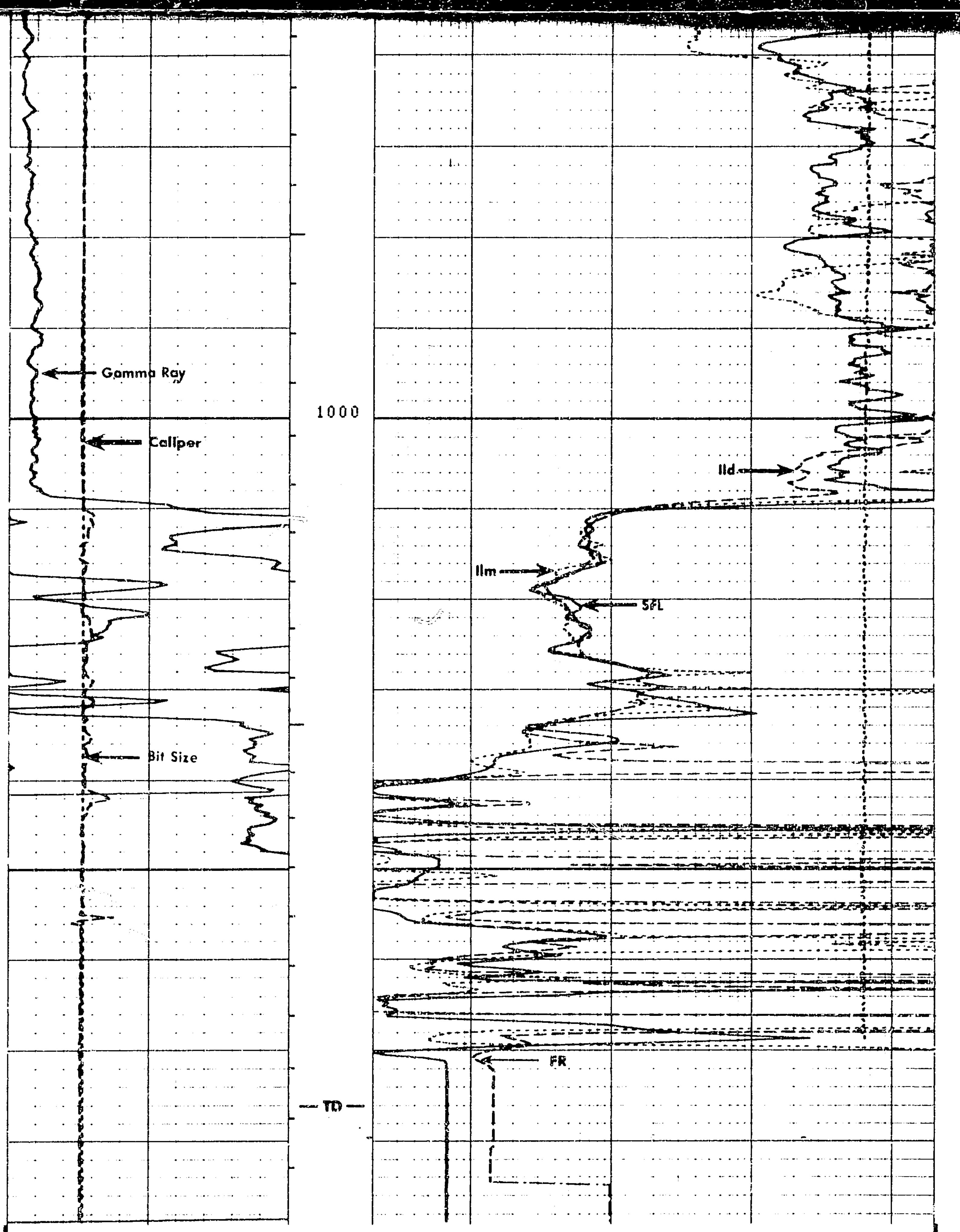
NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SBR	1.00000	OHMM	DSEC	6.30000	MMHO
BHS	OPEN		MSEC	8.60000	MMHO
BS	216.000	MM			

BS (MM) 150.00 — 400.00		TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 400.00		ILD (OHMM) .20000 — 2000.0
GR (GAPI) 0.0 — 100.00		ILM (OHMM) .20000 — 2000.0
		SFLU(OHMM) .20000 — 2000.0

FILE 4 16-OCT-85 22:18 **REPEAT SECTION**

← LR →





FILE 4 16-OCT-85 22:08 **REPEAT SECTION**

BS (MM) 150.00 — 400.00	
CALI(MM) 150.00 — 400.00	ILD (OHMM) .20000 — 2000.0
GR (GAPI) 0.0 — 100.00	ILM (OHMM) .20000 — 2000.0
	SFLU(OHMM) .20000 — 2000.0

SENSOR MEASURE POINT TO TOOL ZERO

CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NOIS	10.8	METER	TENS	.7	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		CPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SBR	1.00000	OHMM	DSEC	6.30000	MMHO
BHS	OPEN		MSEC	9.60000	MMHO
BS	216.000	MM			

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 85/10/16
PROGRAM FILE: DDBHC (VERSION 26.2 83/11/17)

DITD ELECTRONICS CALIBRATION SUMMARY

	MEASURED ZERO	MEASURED PLUS	CALIBRATED ZERO	CALIBRATED PLUS	UNITS
ILD	4.1	563.1	0.0	500.2	MMHO
ILM	4.3	534.5	0.0	504.2	MMHO
SFL	1.4	532.0	0.0	500.0	MMHO

ILD SONDE ERROR CORRECTION : 6.3 MMHO
ILM SONDE ERROR CORRECTION : 8.6 MMHO

SGTE DETECTOR CALIBRATION SUMMARY

	MEASURED BKGD	MEASURED JIG	CALIBRATED	UNITS
GR	3	161	165	GAPI

MCDB CALIPER CALIBRATION SUMMARY

	MEASURED SMALL	MEASURED LARGE	CALIBRATED SMALL	CALIBRATED LARGE	UNITS
CALI	245.2	373.0	202.7	304.1	MM

FILE 0 16-OCT-85 21:57

SHOP SUMMARY

PERFORMED: 85/07/07
PROGRAM FILE: SHOP (VERSION 26.2 83/11/17)

DITD ELECTRONICS CALIBRATION SUMMARY

	TEST LOOP CALIBRATION MEASURED ZERO	MEASURED PLUS	CALIBRATED ZERO	CALIBRATED PLUS	TOOL CHECK CALIBRATED ZERO	PLUS	UNITS
ILD	-4.6	555.8	0.0	500.0	0.0	500.5	MMHO
ILM	-6.8	521.6	0.0	500.0	0.0	504.0	MMHO

ILD SONDE ERROR CORRECTION : 6.3 MMHO
ILM SONDE ERROR CORRECTION : 8.6 MMHO

(IS:1486, IC:311)

AFTER SURVEY TOOL CHECK SUMMARY

PERFORMED: 85/10/16
PROGRAM FILE: DDBHC (VERSION 26.2 83/11/17)

DITD TOOL CHECK

	ZERO BEFORE	ZERO AFTER	PLUS BEFORE	PLUS AFTER	UNITS
ILD	0.0	.0	500.2	497.6	MMHO
ILM	0.0	.0	504.2	500.7	MMHO
SFL	0.0	-.1	500.0	496.2	MMHO

ILD SONDE ERROR CORRECTION : 6.3 MMHO
ILM SONDE ERROR CORRECTION : 8.6 MMHO

FILE 8 17-OCT-85 00:01

8710-C55-1-2 / 84

Schlumberger

DEPTH DERIVED BOREHOLE
COMPENSATED SONIC LOG

SCHLUMBERGER OF CANADA Calgary, Alberta

PROVINCE MANITOBA
FIELD HUDSON BAY
WELL ICG SOGEPET ET AL NETSIQ N-01
COMPANY CANTERRA ENERGY LTD.

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROVINCE: MANITOBA

OTTAWA COP

LOCATION: 59° 50' 48.06" NORTH LATITUDE; 87° 30' 59.92" WEST LONGITUDE
LSD | SEC. | TWP | RANGE

Other Services: RMKS

Permanent Datum: MSL ; Elev.: 0.0m
Log Measured From KB 13.7 m Above Perm. Datum
Drilling Measured From KB

Elev.: K.B. 13.7m
D.F. 13.3m
G.L. -199.3m

Date	29 SEP 85	16 OCT 85
Run No.	One	Two
Depth—Driller	541.0 m	1040.0 m
Depth—Logger (Schl.)	541.0 m	1038.0 m
Btm. Log Interval	537.0 m	1025.0 m
Top Log Interval	436.0 m	532.0 m
Casing—Driller	339.7mm@437 m	244.5mm@533 m
Casing—Logger		532.0 m
Bit Size	311.2 mm	216.0 mm
Type Fluid in Hole	SEE BELOW	SEE BELOW
Dens (kg/m³) / Visc.	1749 / 46.0	1761 / 48.0
pH / Fluid Loss (cm³)	10.0 / 37.0	10.5 / 11.1
Source of Sample	CIRCULATION	CIRCULATION
Rm @ Meas. Temp.	0.097 @ 11.0°C	0.091 @ 18.0°C
Rmf @ Meas. Temp.	0.059 @ 11.0°C	0.058 @ 18.0°C
Rmc @ Meas. Temp.	0.222 @ 11.0°C	0.223 @ 14.0°C
Source: Rmf / Rmc	PRESS/PRESS	PRESS/PRESS
Rm @ BHT	0.072 @ 22.0°C	0.099 @ 15.0°C
Time: Circulation Stopped	0830/29	1020/16
Time: Tool Last on Bottom	1800/29	2300/16
Max. Rec. Temp. #2	22.0 °C	15.0 °C
Unit / District	922 / ST.J	922 / ST.J
Recorded By	MACNEILL	MACNEILL
Witnessed By	ZANUSSI	ZANUSSI

JAN 1986

REMARKS: 04 DEC 85 CAL AK

OTHER SERVICES: DISFL, CNL-LDT-GR, DLL-MSFL, RFT, SHDT, WST, CST, CYBER, NGT, AMS

RUN #1	RUN #2
PROGRAM TAPE NO: 26.2	PROGRAM TAPE NO: 26.2
SERVICE ORDER NO: 129387	SERVICE ORDER NO: 129389
CASING WEIGHT: 107.1 kg/m	CASING WEIGHT: 70.10 kg/m

Run 1
TYPE FLUID IN HOLE: NACL SATURATED GEL POLYMER
DENSITY: 1749 K/M3
VISCOSITY: 46.0 S
PH: 10.0
FLUID LOSS: 37.0 C3
SOURCE OF SAMPLE: CIRC.
RM: .097 AT 11.0 DEGC
RMF: .059 AT 11.0 DEGC
RMC: .222 AT 11.0 DEGC
SOURCE RMF/RMC: PRESS /PRESS
RM AT BHT: .072 AT 22.0 DEGC
RMF AT BHT: .044 AT 22.0 DEGC
RMC AT BHT: .166 AT 22.0 DEGC

TIME CIRC. STOPPED: 08:30 29
TIME LOGGER ON BTM.: 18:00/29

MAX. REC. TEMP: 22.0 DEGC

LOGGING UNIT NO: 922
LOGGING UNIT LOC: ST. JOHN'S
RECORDED BY: MACNEILL
WITNESSED BY: L. ZANUSSI

REMARKS: Run 1

TOOL STRING CENTRALIZED WITH CME-Z'S
WAVEFORMS DIGITIZED.

LOST CIRCULATION MATERIAL USED AT 463m, 477m, AND 481 TO 485 m.

Run 1
EQUIPMENT NUMBERS-

SLM-DA 2083 IEM-BD 1497 NSM 3727 SLC-FA 2011
SLS-SC 455 MCD-DA 311 SGC-JC 1695 WDM-AA 76

Run 2
TYPE FLUID IN HOLE: NACL SATURATED GEL POLYMER
DENSITY: 1761 K/M3
VISCOSITY: 48.0 S
PH: 10.5
FLUID LOSS: 11.1 C3
SOURCE OF SAMPLE: CIRC.
RM: .091 OHMM AT 18.0 DEGC
RMF: .058 OHMM AT 18.0 DEGC
RMC: .223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC: PRESS /PRESS
RM AT BHT: .099 OHMM AT 15.0 DEGC
RMF AT BHT: .063 OHMM AT 15.0 DEGC
RMC AT BHT: .216 OHMM AT 15.0 DEGC

TIME CIRC. STOPPED: 10:20/16
TIME LOGGER ON BTM.: 23:00/16

MAX. REC. TEMP: 15.0 DEGC

LOGGING UNIT NO: 922
LOGGING UNIT LOC: ST. JOHN'S
RECORDED BY: MACNEILL
WITNESSED BY: L ZANUSSI

REMARKS: Run 2

DRILLING STOPPED 07:20 / 16.
LONG SPACING SONIC WAS CENTRALIZED
THE SECTION FROM 632 TO 622 METERS WAS REPEATED TO NO AVAIL.
THE CYCLE SKIPPING COULD NOT BE STOPPED.

Run 2
EQUIPMENT NUMBERS-

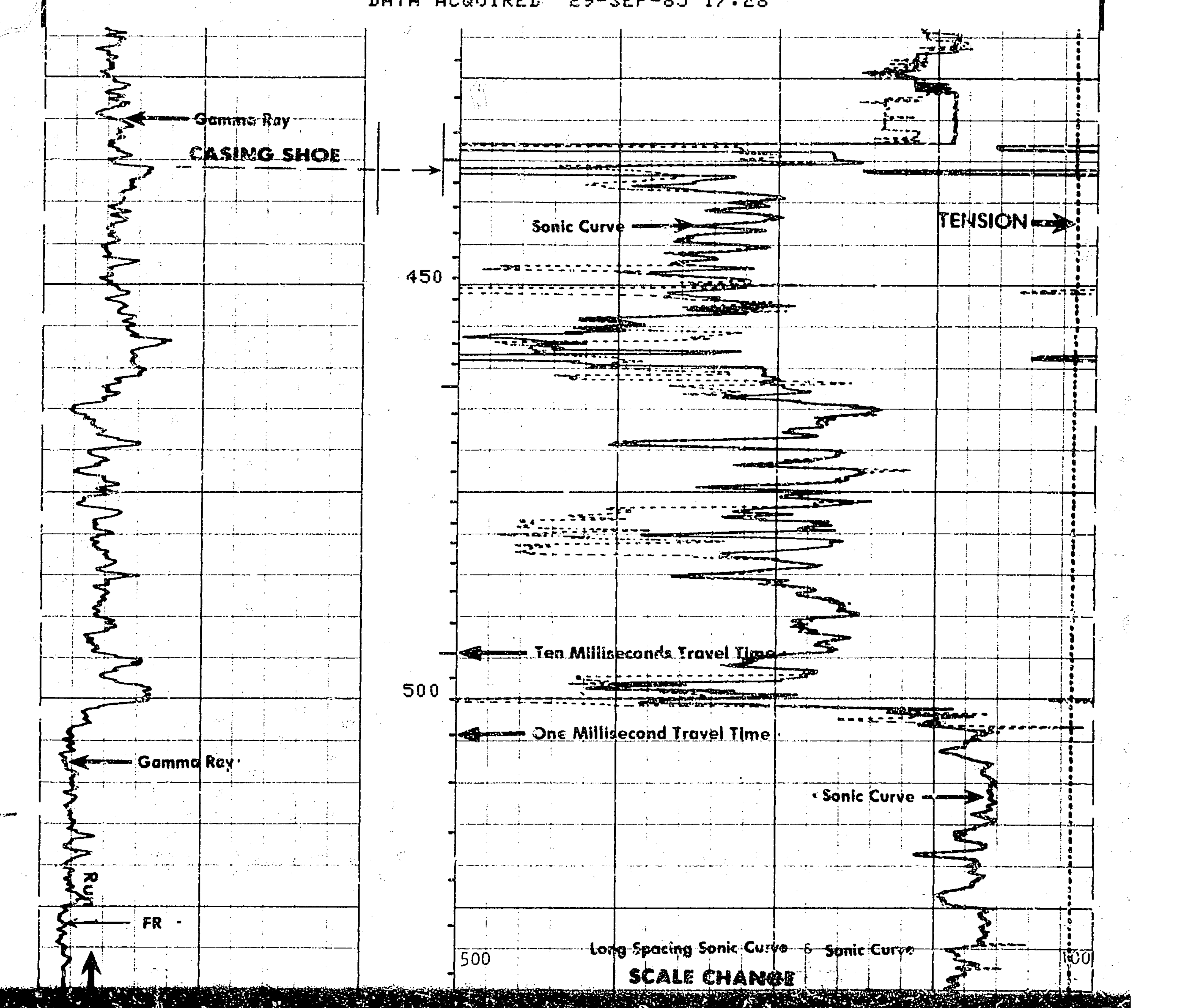
EIM-BD 1497 SLM-DA 1237 NSM 3727 SLS-SC 455
SLC-FA 1286 MCD-DA 311 DIS-EC 1486 DIC-DA 311
SGC-JC 1695

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

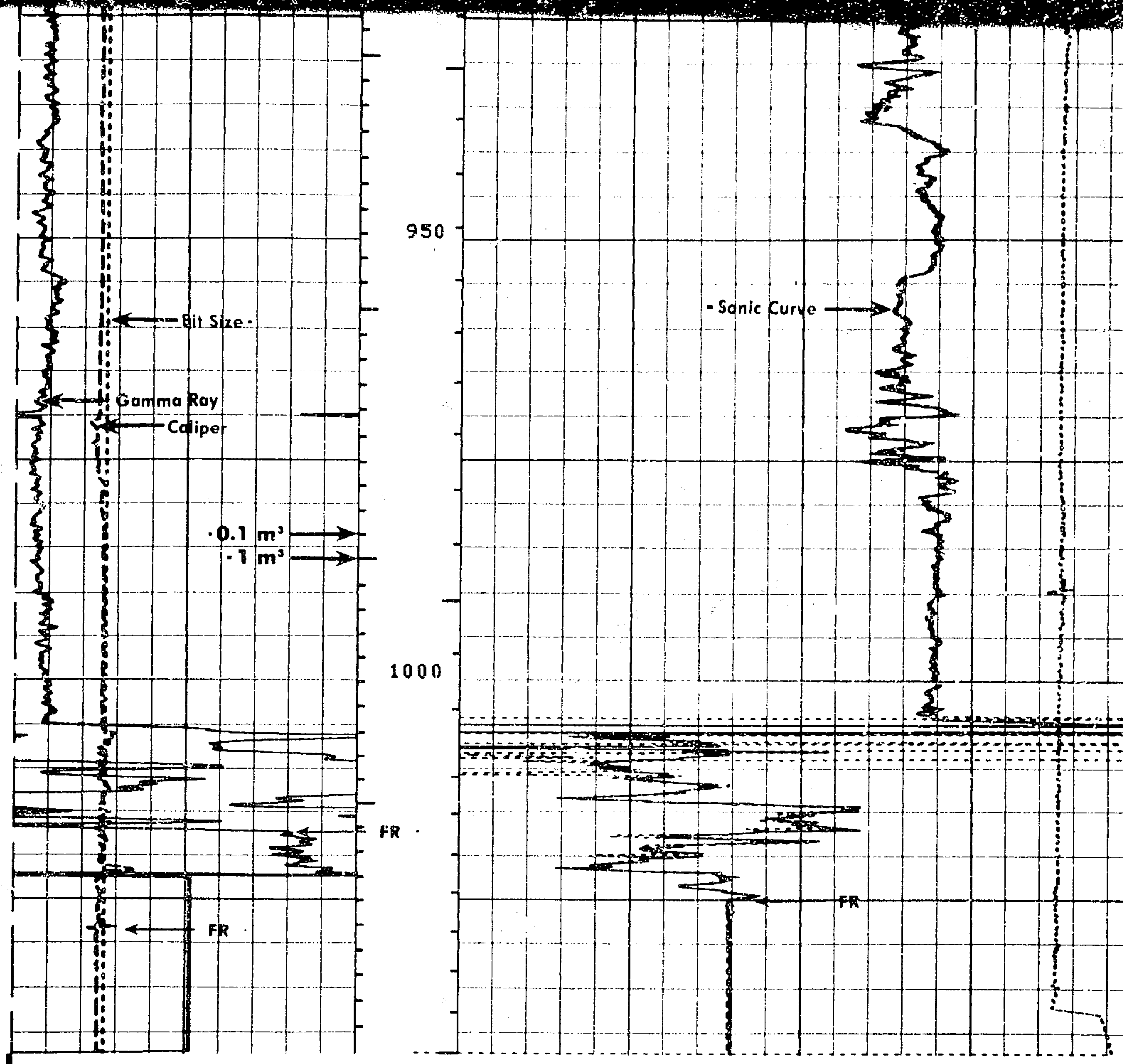
TENS (N) 50000. — 0.0
DTL (US/M) 500.00 — 100.00
GR (GAPI) 0.0 — 100.00
DT (US/M) 500.00 — 100.00

Run 1

FILE 2 29-SEP-85 20:40
DATA ACQUIRED 29-SEP-85 17:28



Ten Milliseconds Travel Time
One Millisecond Travel Time
Sonic Curve
Long Spacing Sonic Curve & Sonic Curve
SCALE CHANGE
Tension
SCALE CHANGE
500
550
600
650
700
750
800
850
900
950
Gamma Ray
Run
FR
Run 2
Caliper
Gamma Ray
One Millisecond Travel Time
Ten Milliseconds Travel Time
Bit Size
Gamma Ray
Caliper



FILE 5 17-OCT-85 06:14
DATA ACQUIRED 16-OCT-85 22:32

BS (MM) 150.00 — 400.00	TENS(N) 25000. — 0.0	
CALI(MM) 150.00 — 400.00	DTL (US/M) 300.00 — 100.00	
GR (GAPI) 0.0 — 100.00	DT (US/M) 300.00 — 100.00	

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

CBL	5.5	METER	AMPL	5.5	METER
TT3	5.5	METER	TT4	5.2	METER
TT1	5.8	METER	TT2	5.5	METER
GR	11.9	METER	SRAT	7.0	METER
TENS	.9	METER	CALI	.9	METER
NOIS	2.0	METER			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
BS	311.200	MM	BHS	OPEN	
PP	NORM		DO	0.0	F

TAPE NOT MADE

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NOIS	10.8	METER	TENS	.7	METER

PARAMETERS

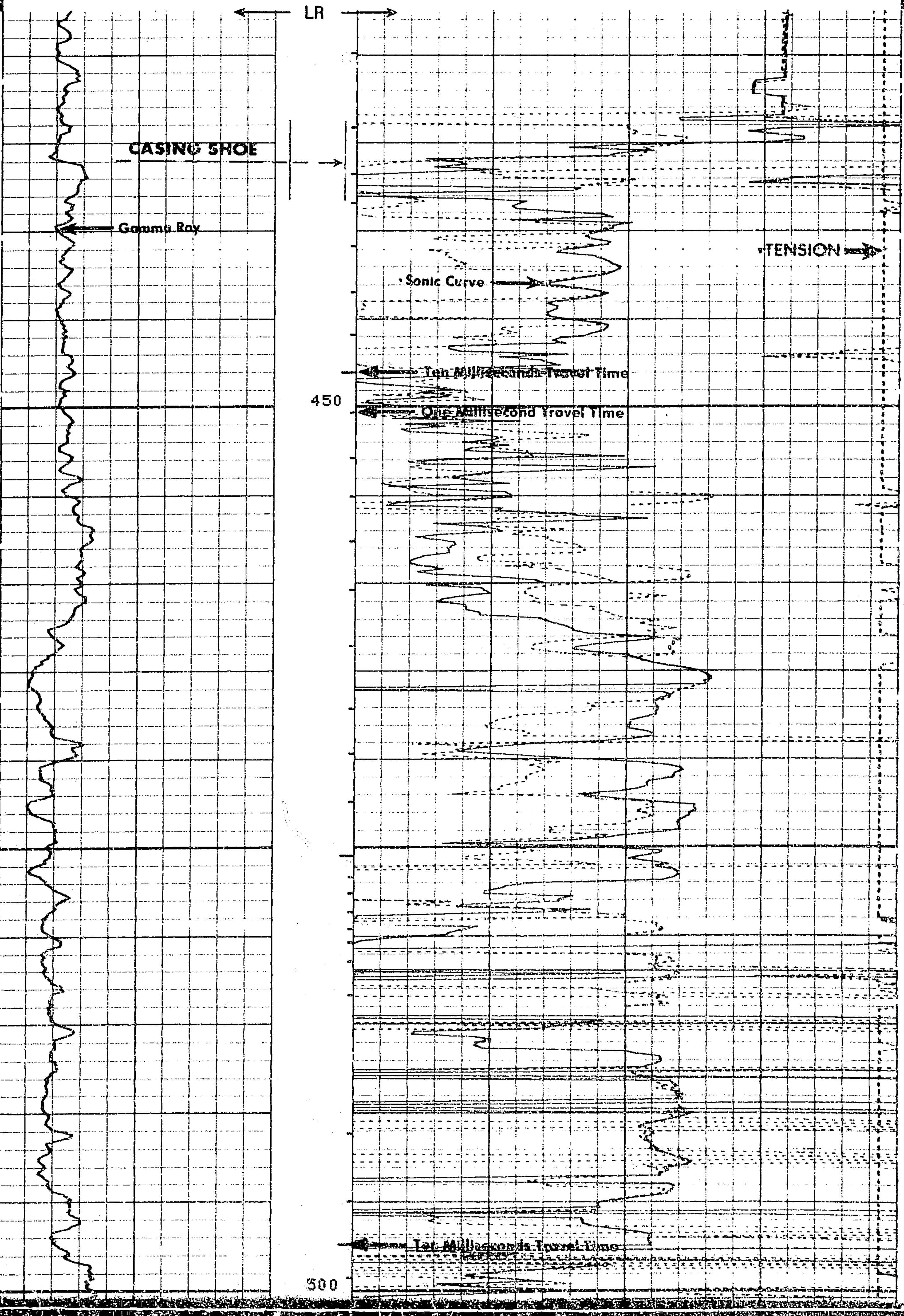
NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SBR	1.00000	OHMM	ESEC	6.30000	MMHO
BHS	OPEN		MSEC	8.60000	MMHO
DO	0.0	F	BS	216.000	MM
PP	NORM				

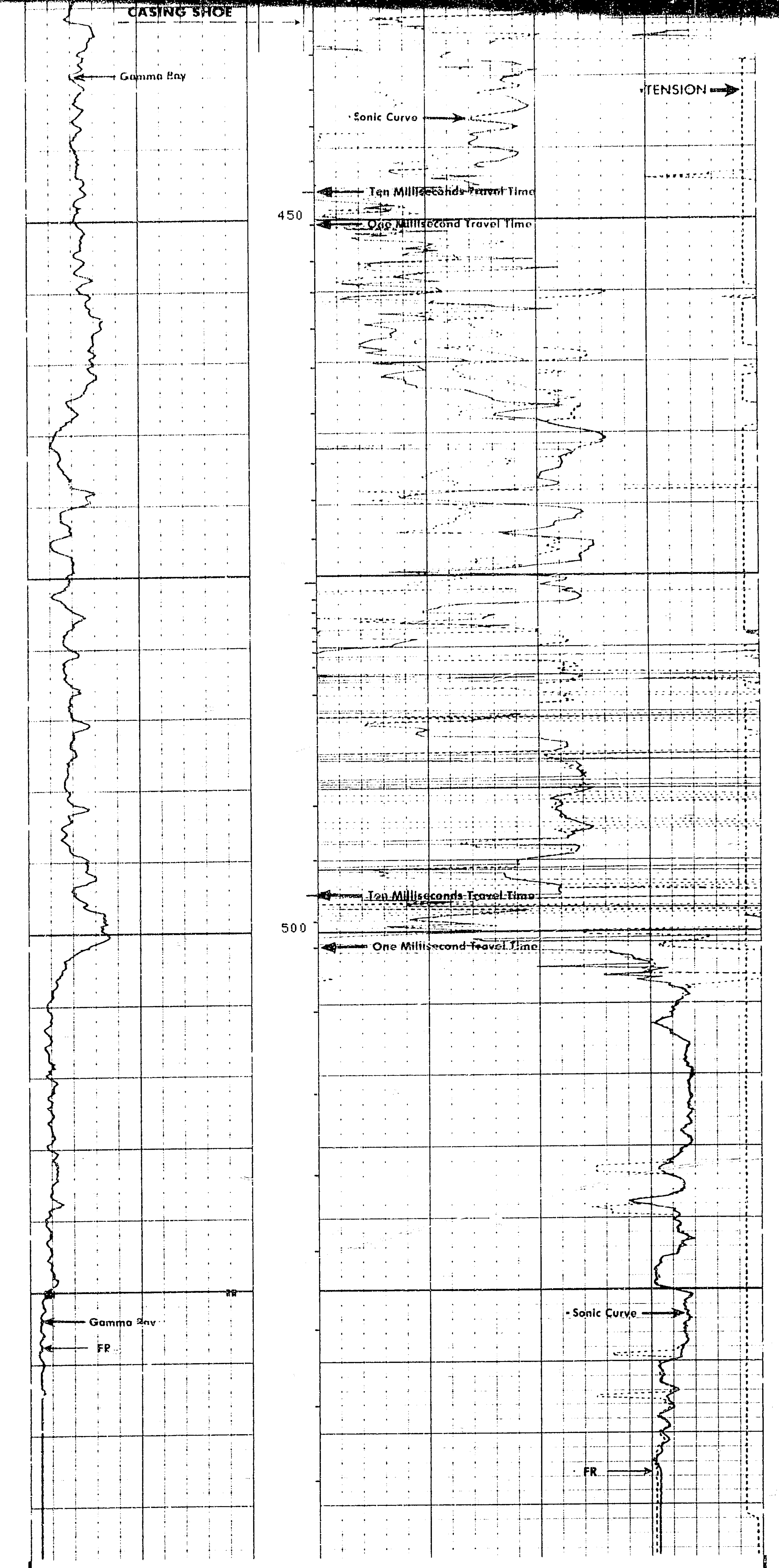
TAPE NOT MADE

	TENS(N) 50000. — 0.0	
	DTL (US/M) 500.00 — 100.00	
GR (GAPI) 0.0 — 100.00	DT (US/M) 500.00 — 100.00	
0.0 GR 100.00	SCALE	
0.0 525 150.00	CHANGES	

REPEAT SECTION FILE 3 WAS RUN WITH A GAIN OF 1/5 AS OPPOSED TO 1/1 FOR FILE 2 (M.PASS)... HENCE THE EXTRA CYCLE SKIPPING. FILE 3 WAS DIGITIZED. **REPEAT SECTION**

Run 1 FILE 3 29-SEP-85 17:46





FILE 3 29-SEP-85 17:33

		TENS(N) 50000. 0.0
		DTL (US/M) 500.00 100.00
GR (GAPI) 0.0 150.00		DT (US/M) 500.00 100.00

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

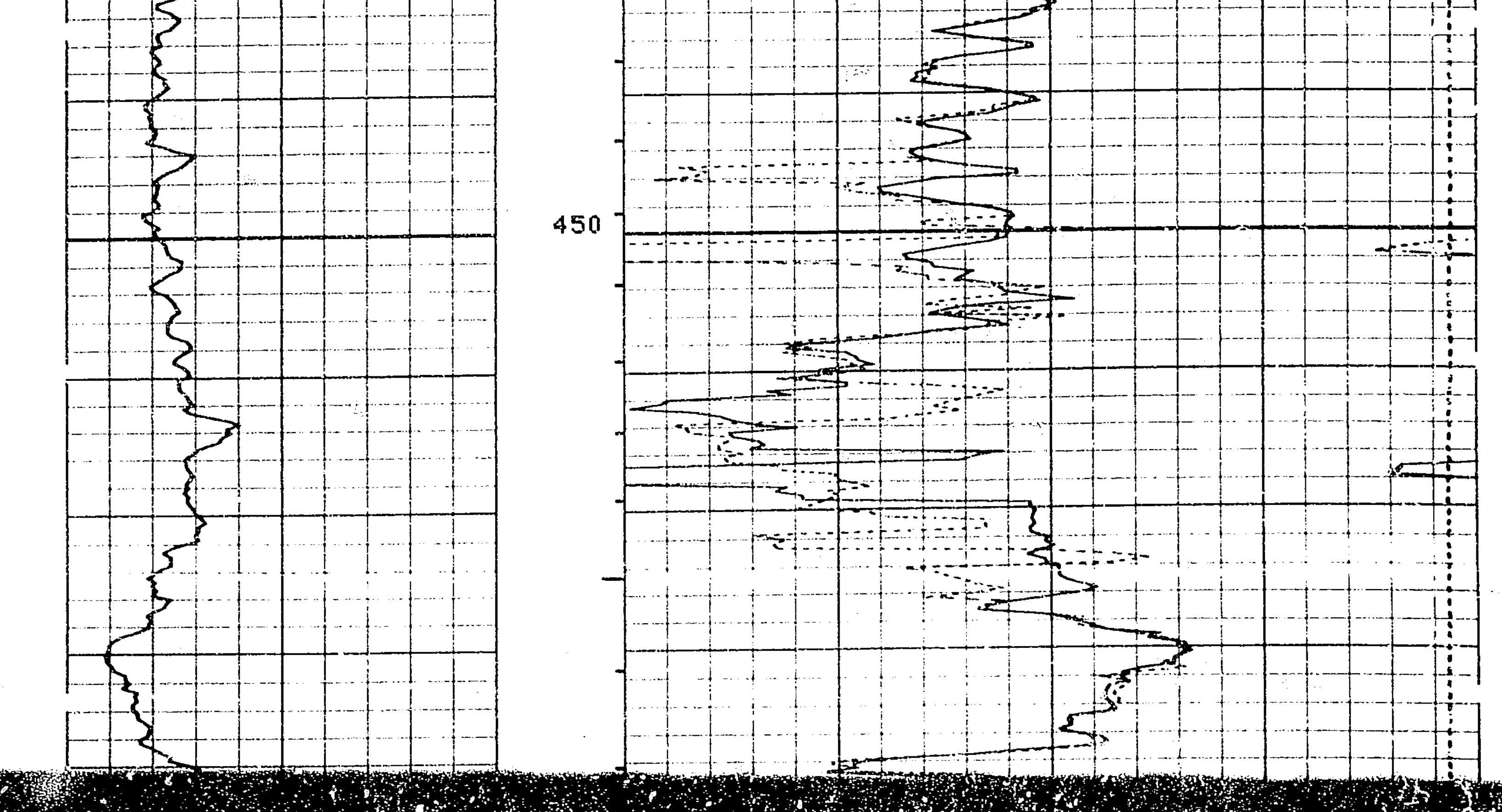
CBL	5.5	METER	AMPL	5.5	METER
TT3	5.5	METER	TT4	5.2	METER
TT1	5.8	METER	TT2	5.5	METER
GR	11.9	METER	SRAT	7.0	METER
TENS	.9	METER	CALI	.9	METER
NDIS	2.0	METER			

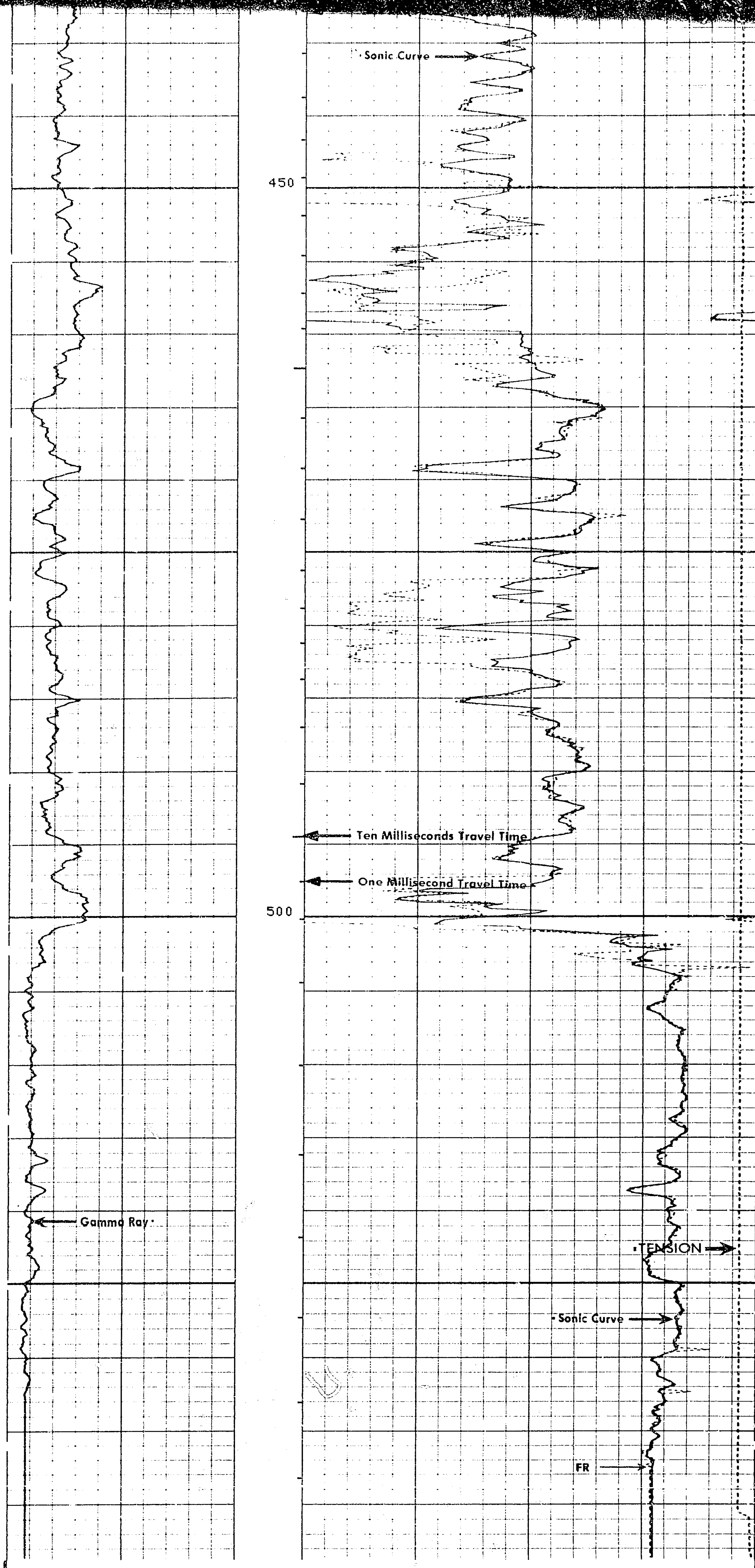
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
BS	311.200	MM	BHS	OPEN	

		TENS(N) 50000. 0.0
		DTL (US/M) 500.00 100.00
GR (GAPI) 0.0 100.00		DT (US/M) 500.00 100.00

FILE 2 29-SEP-85 20:40
DATA ACQUIRED 29-SEP-85 17:28





FILE 2 29-SEP-85 20:39
DATA ACQUIRED 29-SEP-85 17:17

		TENS(N) 50000. 0.0
		DTL (US/M) 500.00 100.00
GR (GAPI) 0.0 100.00		DT (US/M) 500.00 100.00

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

CBL	5.5	METER	AMPL	5.5	METER
TT3	5.5	METER	TT4	5.2	METER
TT1	5.8	METER	TT2	5.5	METER
GR	11.9	METER	SRAT	7.0	METER
TENS	.9	METER	CALI	.9	METER
NOIS	2.0	METER			

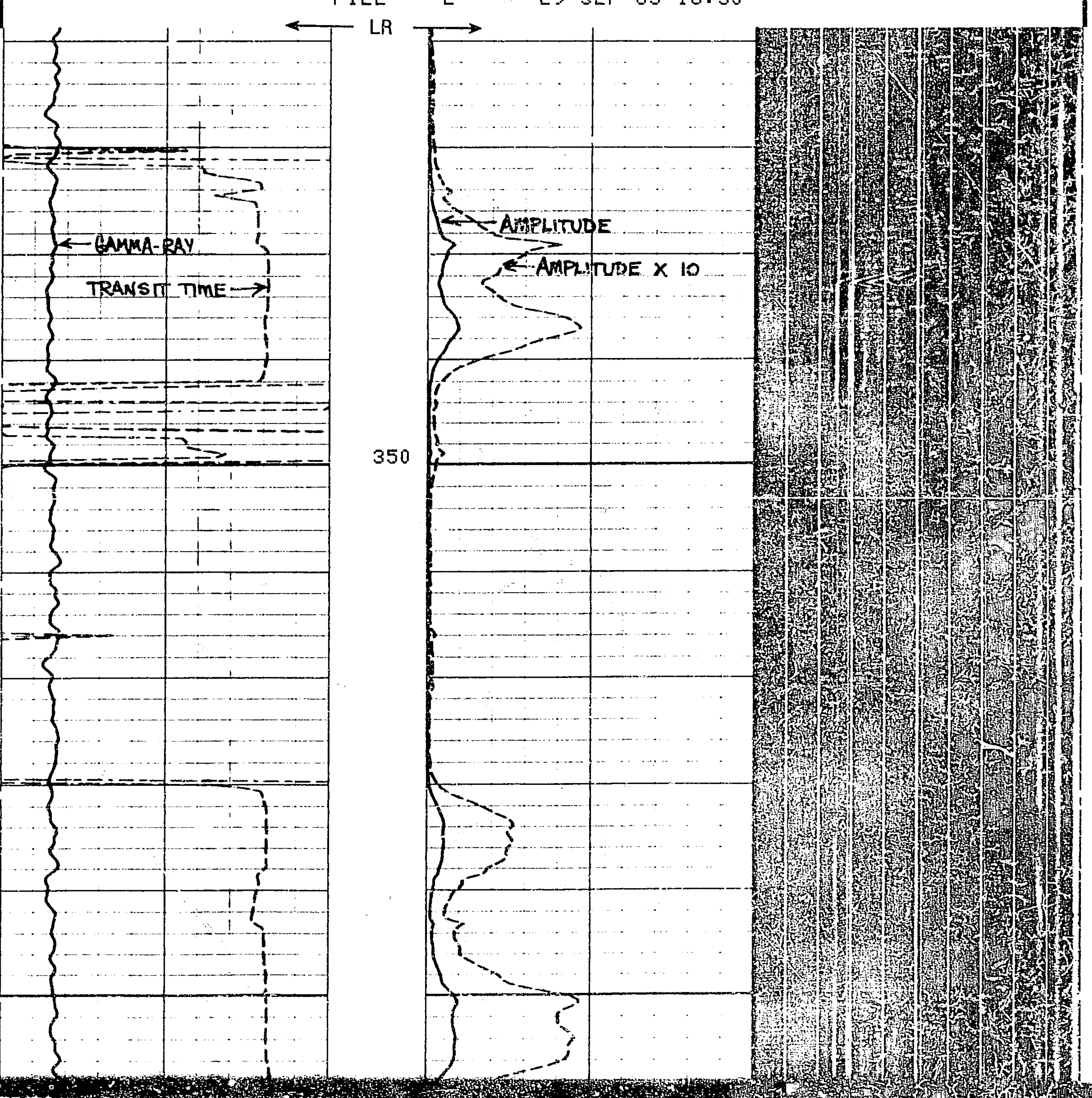
PARAMETERS

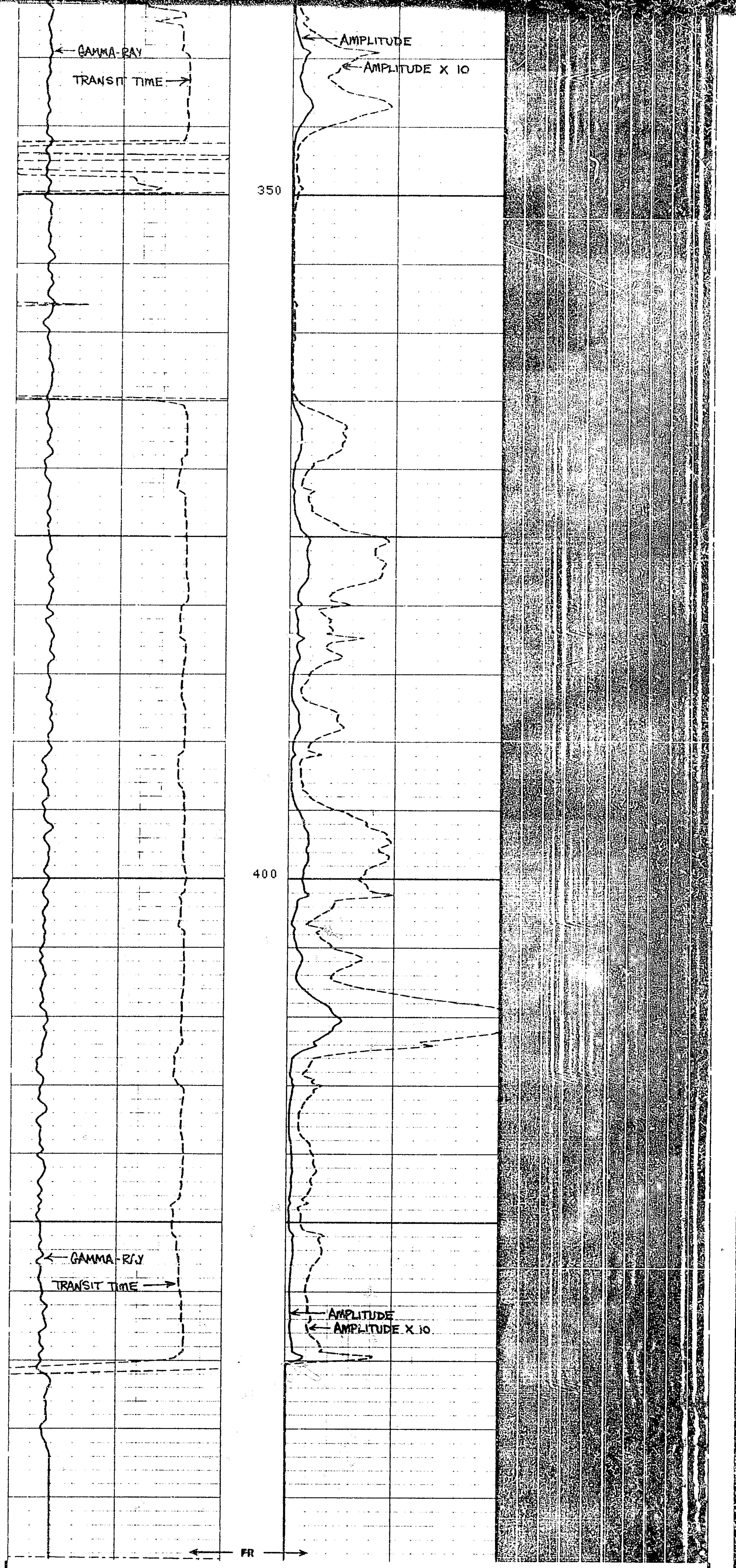
NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
BS	311.200	MM	BHS	OPEN	
PP	NORM		DO	0.0	F

TAPE NOT MADE

TT2 (US) 800.00 600.00	CBL (MV) 0.0 20.000	
GR (GAPI) 0.0 150.00	CBL (MV) 0.0 100.00	VDL1 300.00 1800.0

FILE 2 29-SEP-85 18:30





FILE 2 29-SEP-85 18:17

TT2 (US)		CBL (MV)	
800.00 — 600.00		0.0 — 20.000	
GR (GAPI)		CBL (MV)	VDL1
0.0 — 150.00		0.0 — 100.00	300.00 — 1800.0

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

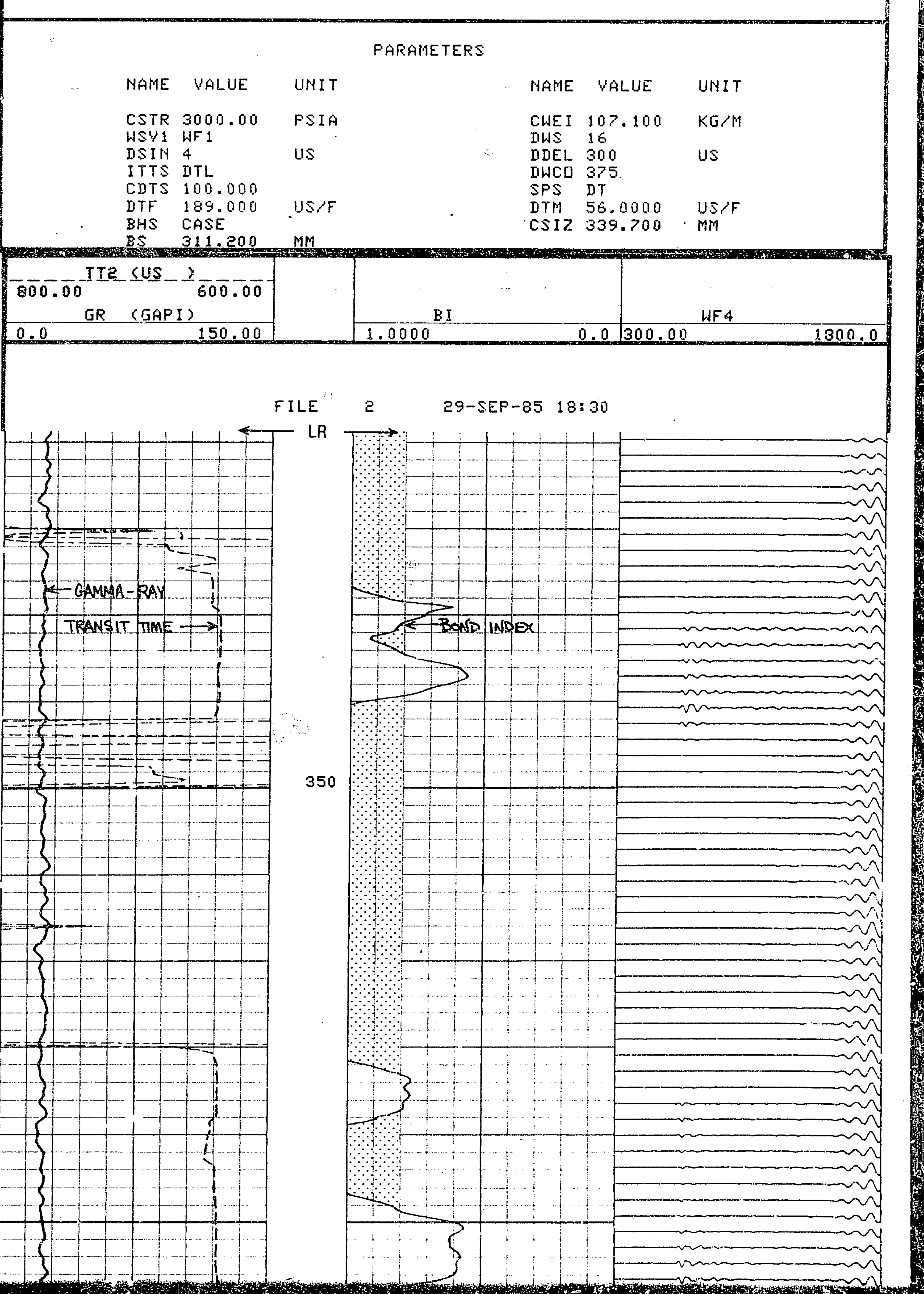
CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER
TT1	3.4	METER	TT2	3.4	METER
GR	9.8	METER	SRAT	3.4	METER
CCL	10.9	METER	TENS	2.0	METER
NOIS	3.4	METER			

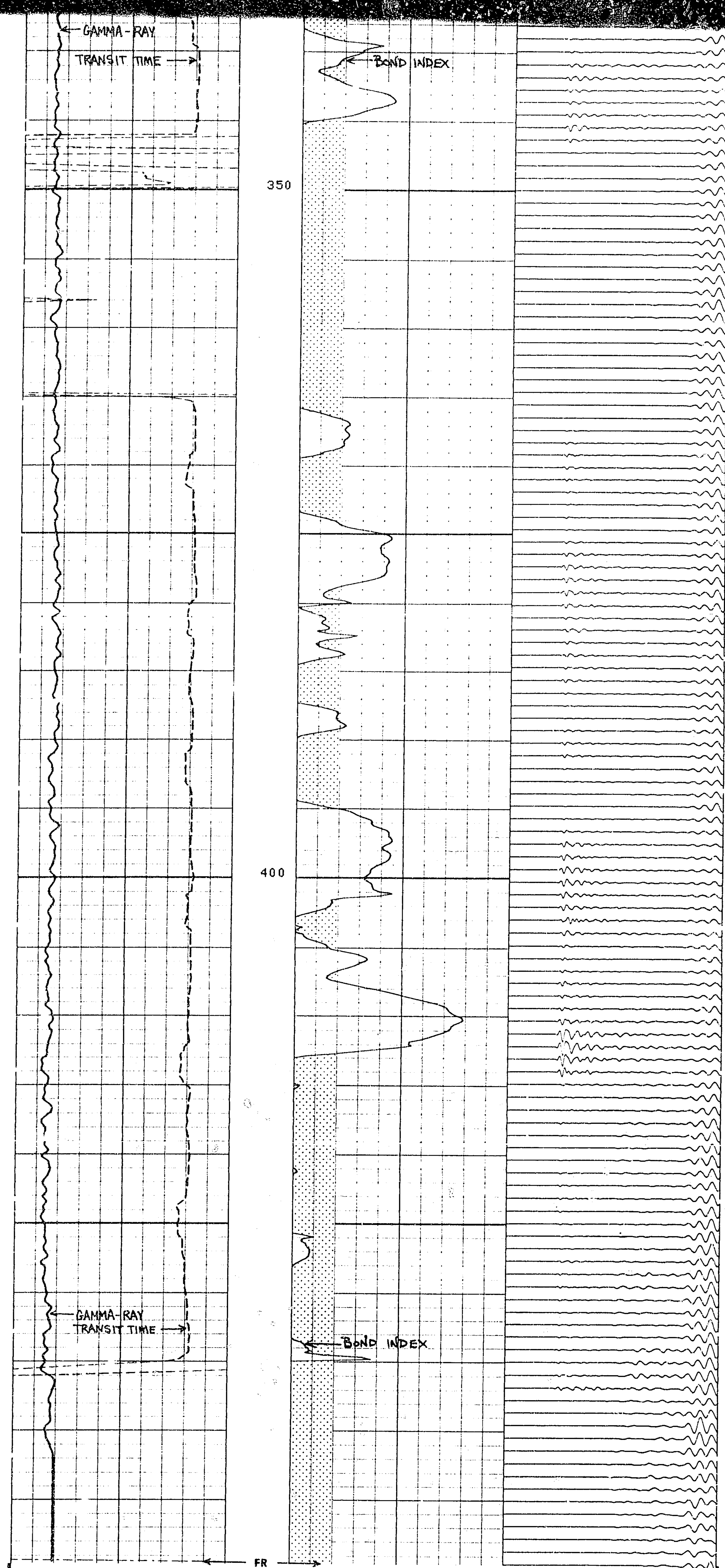
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CSTR	3000.00	PSIA	CWEI	107.100	KG/M
WSV1	WF1		DWS	16	
DSIN	4	US	DDEL	300	US
ITTS	DTL		DWCO	375	
CDTS	100.000		SPS	DT	
DTF	189.000	US/F	DTM	56.0000	US/F
BHS	CASE		CSIZ	339.700	MM
BS	311.200	MM			

TT2 (US)			
800.00 — 600.00			
GR (GAPI)		BI	WF4
0.0 — 150.00		1.0000 — 0.0	300.00 — 1800.0

FILE 2 29-SEP-85 18:30





FILE 2 29-SEP-85 18:17

TT2 (US) 800.00 600.00 / GR (GAPI) 0.0 150.00	BI 1.0000 0.0	WF4 300.00 1800.0

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

CBL	3.4	METER	AMPL	3.4	METER
TT3	3.4	METER	TT4	3.4	METER
TT1	3.4	METER	TT2	3.4	METER
GR	9.8	METER	SRAT	3.4	METER
CCL	10.9	METER	TENS	2.0	METER
NOIS	3.4	METER			

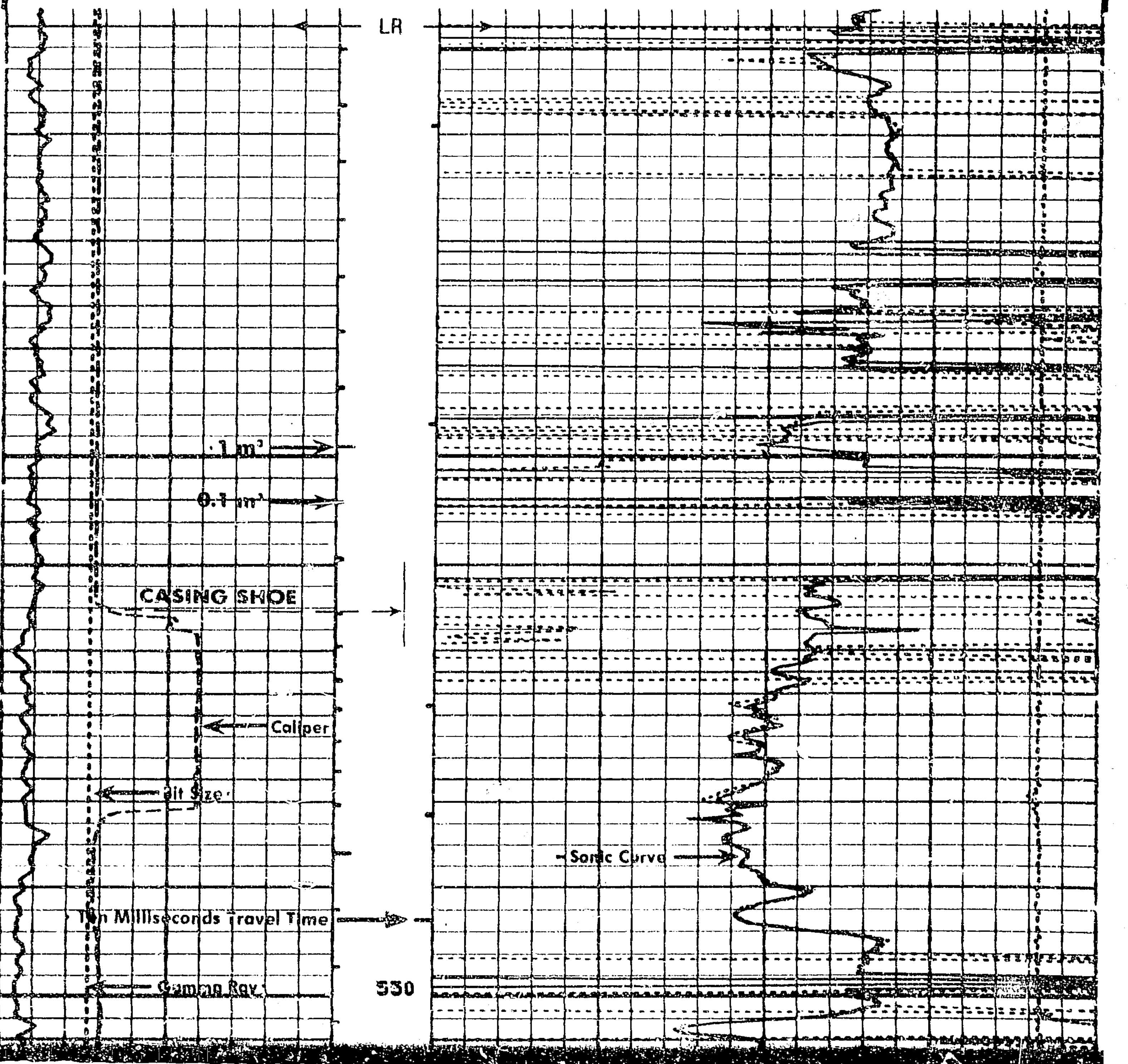
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CSTR	3000.00	PSIA	CWEI	107.100	KG/M
WSV1	WF1		DWS	16	
DSIN	4	US	DDEL	300	US
ITTS	DTL		DWCO	375	
CDTS	100.000		SPS	DT	
DTF	189.000	US/F	DTM	56.0000	US/F
BHS	CASE		CSIZ	339.700	MM
BS	311.200	MM			

BS (MM) 150.00 400.00 / CALI(MM) 150.00 400.00 / GR (GAPI) 0.0 100.00	DTL (US/M) 300.00 100.00 / DT (US/M) 300.00 100.00	TENS(N) 25000. 0.0

Run 2

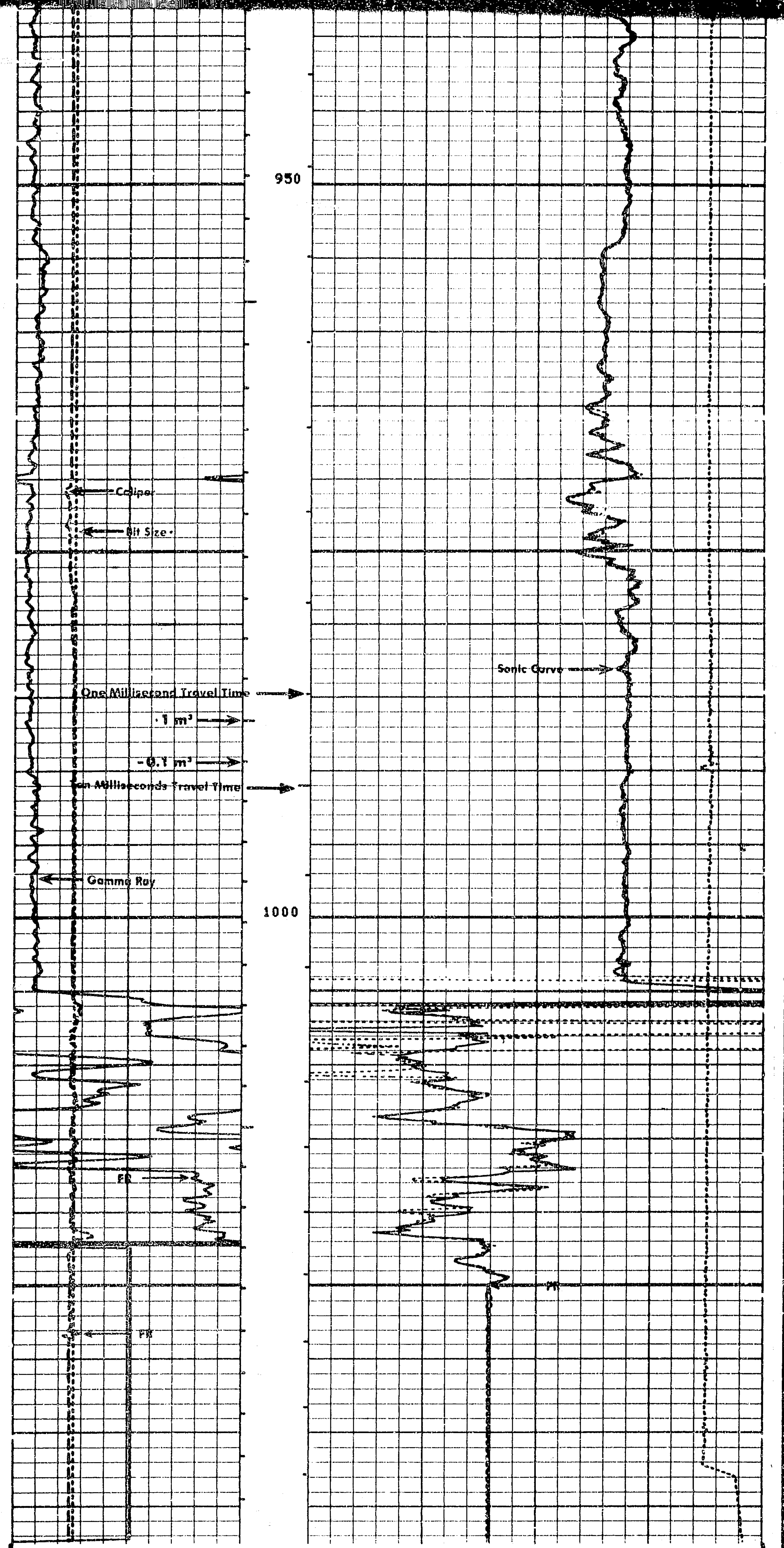
FILE 5 16-OCT-85 23:33



TENS(N)
25000.
0.0
DTL (US/M)
300.00
100.00
DT (US/M)
300.00
100.00
16-OCT-85 23133
5
BS (MM)
CALI(MM)
150.00
400.00
GR (GAPI)
0.0
100.00
Run 2
FILE
LR
550
600
650
Sonic Curve
CASING SHOE
Caliper
Bit Size
1 m³
0.1 m³
Ten Milliseconds Travel Time
Gamma Ray
One Millisecond Travel Time


650
700
750
800


800
850
900
950
Sonic Curve
One Millisecond Travel Time
Caliper
Bit Size



FILE 5 16-OCT-85 22:31

BS (MM) 150.00 — 400.00		TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 400.00	DTL (US/M) 300.00 — 100.00	
GR (GAPI) 0.0 — 100.00	DT (US/M) 300.00 — 100.00	

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NDIS	10.8	METER	TENS	.7	METER

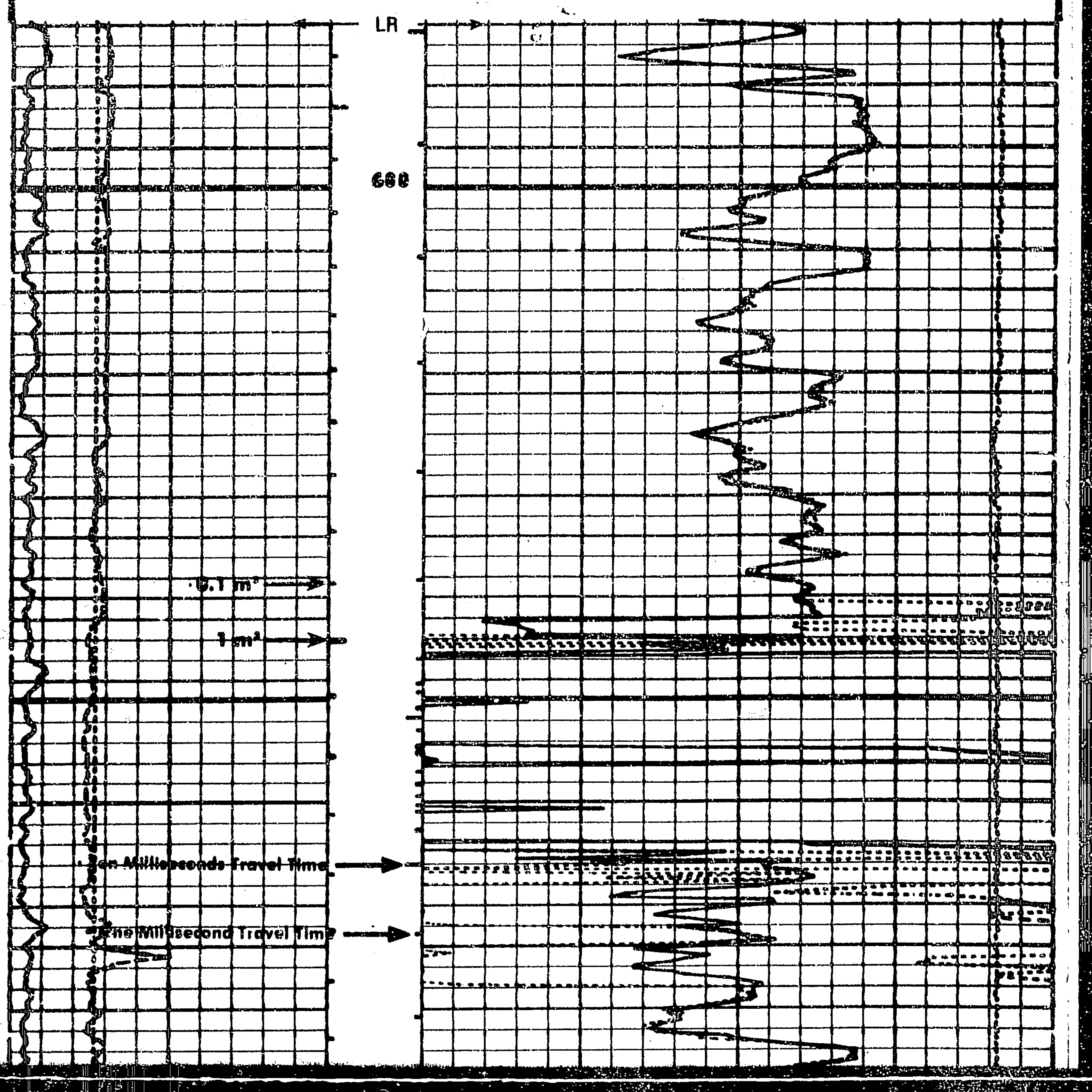
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SDR	1.00000	OHMM	DSEC	6.30000	MMHO
BHS	OPEN		MSEC	8.60000	MMHO
BS	216.000	MM			

BS (MM) 150.00 — 400.00		TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 400.00	DTL (US/M) 300.00 — 100.00	
GR (GAPI) 0.0 — 100.00	DT (US/M) 300.00 — 100.00	

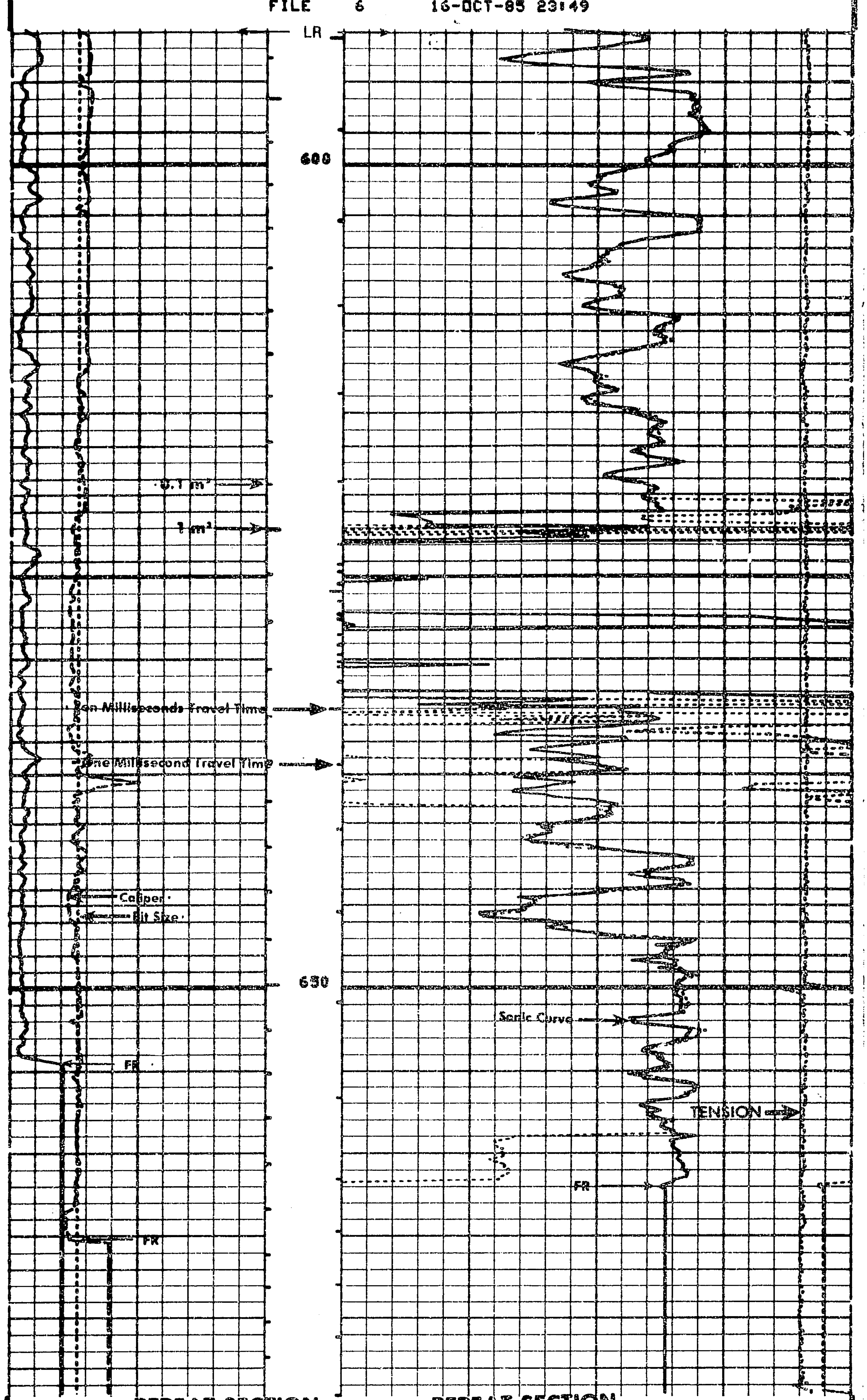
REPEAT SECTION REPEAT SECTION

FILE 6 16-OCT-85 23:49



REPEAT SECTION REPEAT SECTION

FILE 6 16-OCT-85 23:49



REPEAT SECTION REPEAT SECTION

FILE 6 16-OCT-85 23:38

BS (MM) 150.00 — 400.00		TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 400.00		DTL (US/M) 300.00 — 100.00
GR (GAPI) 0.0 — 100.00		DT (US/M) 300.00 — 100.00

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NOIS	10.8	METER	TENS	.7	METER

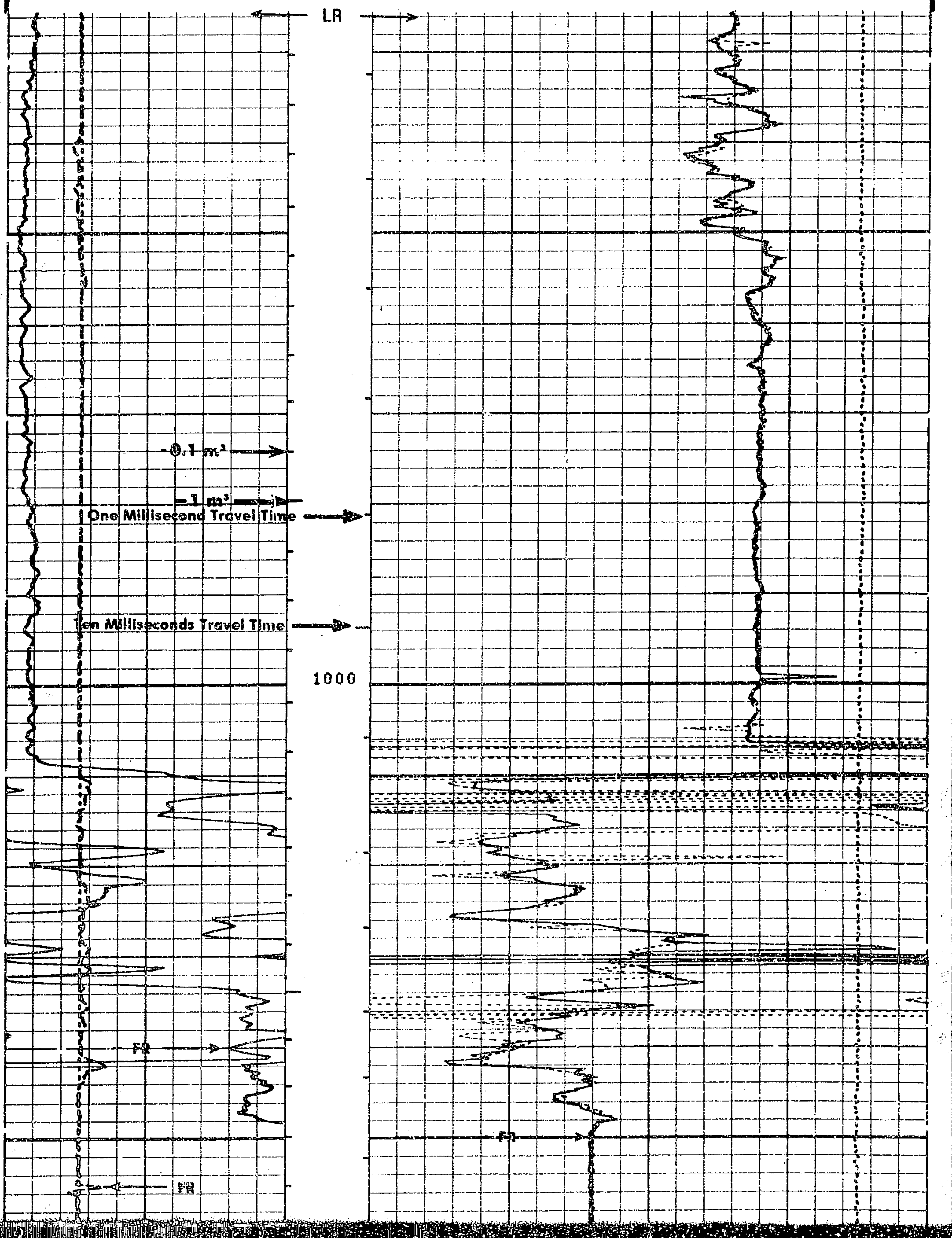
PARAMETERS

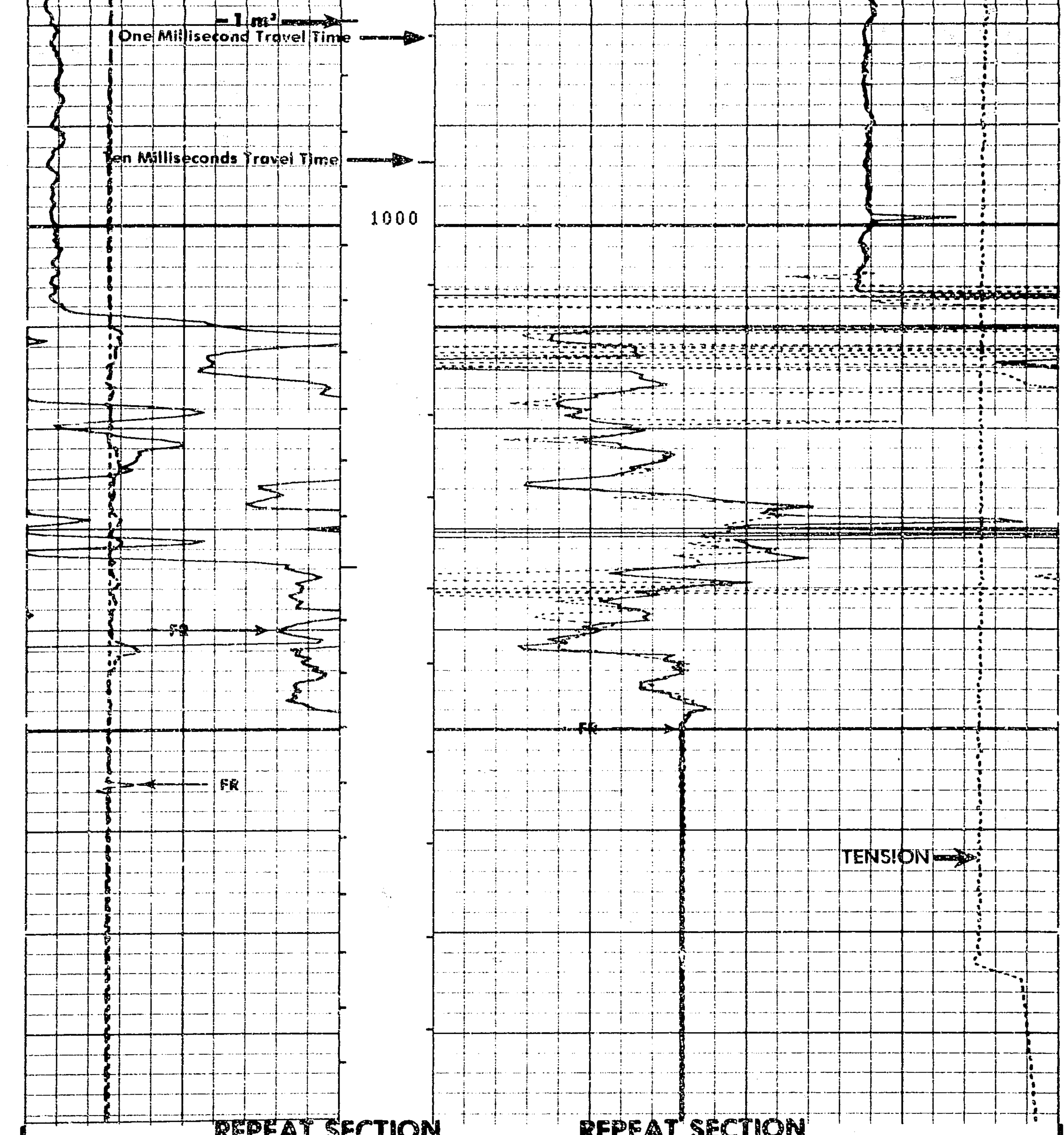
NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCO	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SBR	1.00000	OHMM	DSEC	6.30000	MMHO
BHS	OPEN		MSEC	8.60000	MMHO
BS	216.000	MM			

BS (MM) 150.00 — 400.00		TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 400.00		DTL (US/M) 300.00 — 100.00
GR (GAPI) 0.0 — 100.00		DT (US/M) 300.00 — 100.00

REPEAT SECTION REPEAT SECTION

FILE 4 16-OCT-85 22:18





REPEAT SECTION   REPEAT SECTION

FILE 4   16-OCT-85 22:08

BS (MM) 150.00 — 400.00			TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 400.00		DTL (US/M) 300.00 — 100.00	
GR (GAPI) 0.0 — 100.00		DT (US/M) 300.00 — 100.00	

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

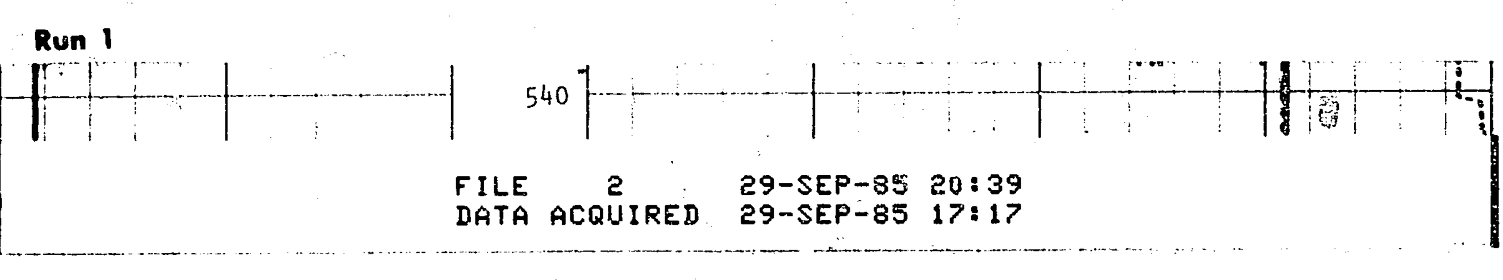
CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NOIS	10.8	METER	TENS	.7	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCD	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SBR	1.00000	OHMM	DSEC	6.30000	MMHO
BHS	OPEN		MSEC	8.60000	MMHO
BS	216.000	MM			

OVERLAP

Run 1

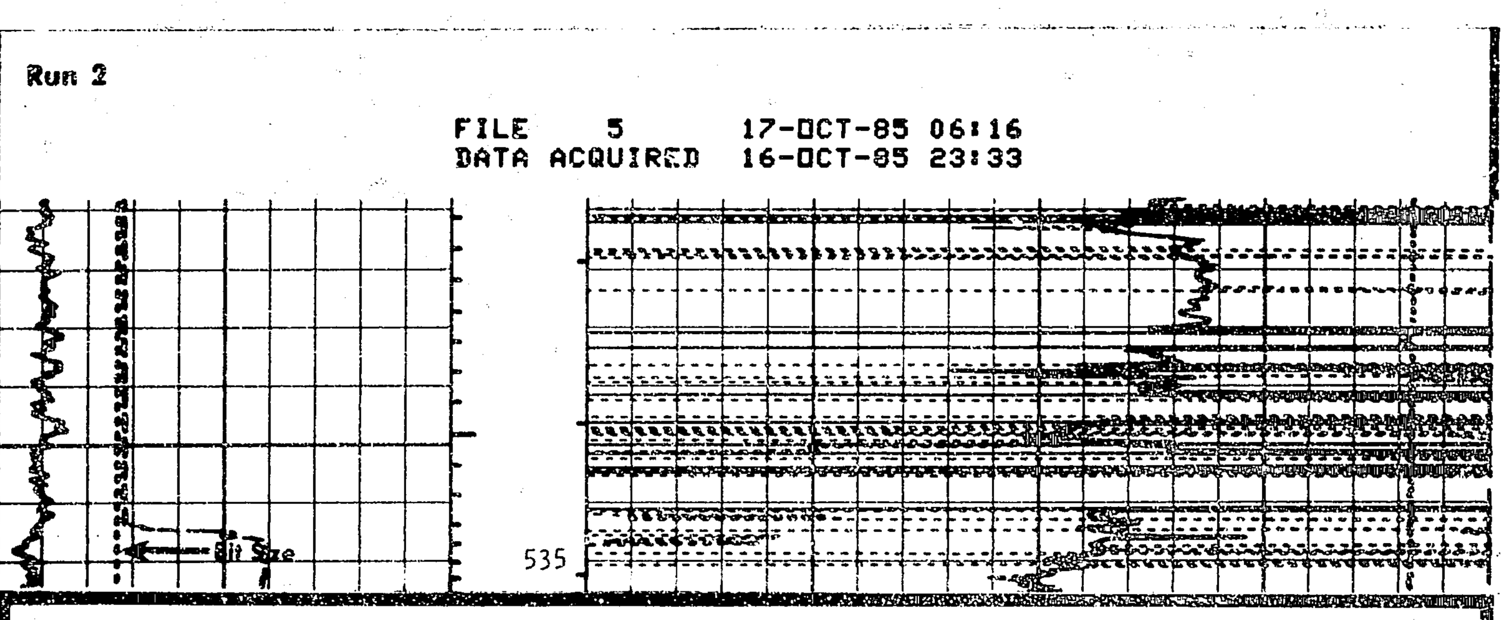


FILE 2   29-SEP-85 20:39
DATA ACQUIRED 29-SEP-85 17:17

OVERLAP

Run 2

FILE 5   17-OCT-85 06:16
DATA ACQUIRED 16-OCT-85 23:33



CALIBRATION RECORD

X2108B

Run 2

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 85/10/16
PROGRAM FILE: DDBHC (VERSION 26.2 83/11/17)

DITD   ELECTRONICS CALIBRATION SUMMARY

	MEASURED ZERO	MEASURED PLUS	CALIBRATED ZERO	CALIBRATED PLUS	UNITS
ILD	4.1	563.1	0.0	500.2	MMHO
ILM	4.3	534.5	0.0	504.2	MMHO
SFL	1.4	532.0	0.0	500.0	MMHO

ILD SONDE ERROR CORRECTION : 6.3 MMHO
ILM SONDE ERROR CORRECTION : 8.6 MMHO

SGTE   DETECTOR CALIBRATION SUMMARY

	MEASURED BKGD	MEASURED JIG	CALIBRATED	UNITS
GR	3	161	165	GAPI

MCDB   CALIPER CALIBRATION SUMMARY

	MEASURED SMALL	MEASURED LARGE	CALIBRATED SMALL	CALIBRATED LARGE	UNITS
CALI	245.2	373.0	202.7	304.1	MM

FILE 0   16-OCT-85 21:57

COMPANY CANTERRA ENERGY LTD.
WELL ICG SOGEPET ET AL NETSIQ N-01
FIELD HUDSON BAY   PROVINCE MANITOBA

Schlumberger

BS (MM) 150.00 — 400.00			TENS(N) 25000. — 0.0
CALI(MM) 150.00 — 400.00		DTL (US/M) 300.00 — 100.00	
GR (GAPI) 0.0 — 100.00		DT (US/M) 300.00 — 100.00	

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

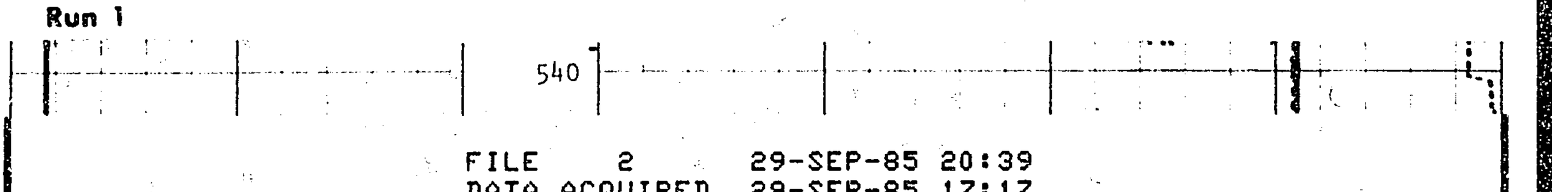
CBL	14.3	METER	AMPL	14.3	METER
TT3	14.3	METER	TT4	13.9	METER
TT1	14.6	METER	TT2	14.3	METER
GR	20.7	METER	SRAT	15.8	METER
ILD	2.8	METER	CALI	9.7	METER
ILM	1.7	METER	SFL	1.9	METER
SPAR	.7	METER	SP	.7	METER
NOIS	10.8	METER	TENS	.7	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WSV1	WF1		DWS	16	
DSIN	5	US	DDEL	200	US
ITTS	DTL		DWCD	512	
CDTS	100.000		SPS	DT	
DTF	620.079	US/M	DTM	183.727	US/M
SBR	1.00000	OHMM	DSEC	6.30000	MMHO
BHS	OPEN		MSEC	8.60000	MMHO
BS	216.000	MM			

OVERLAP

Run 1

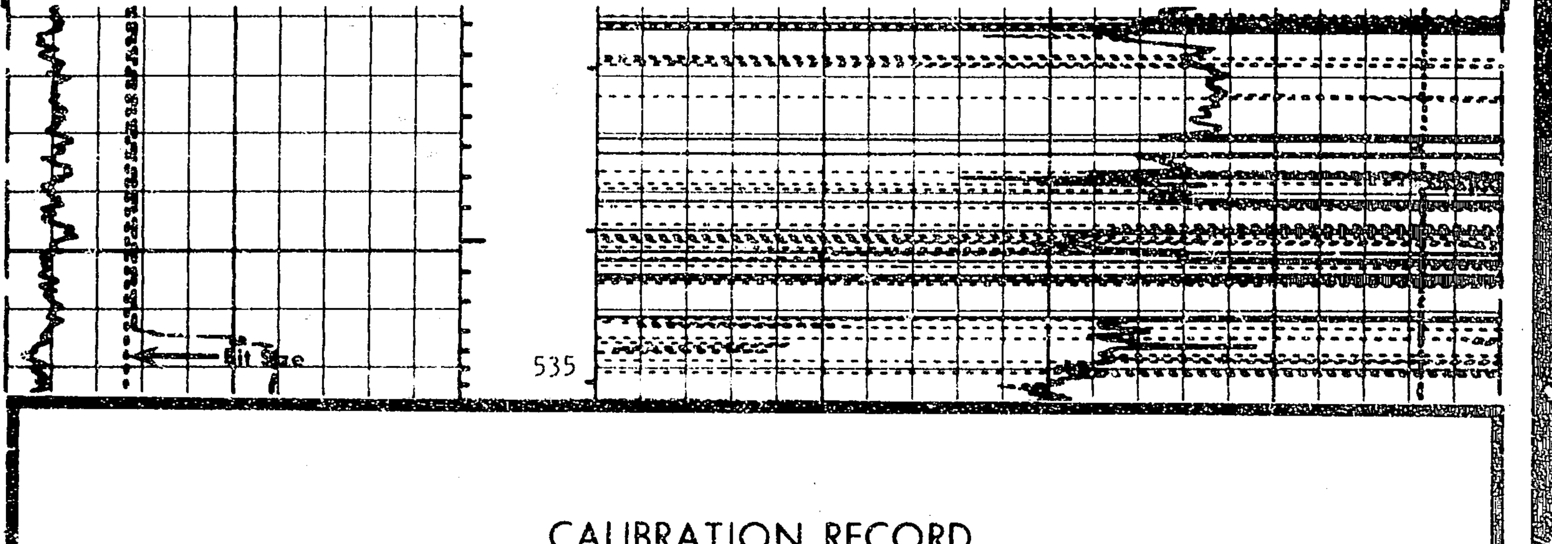


FILE 2   29-SEP-85 20:39
DATA ACQUIRED 29-SEP-85 17:17

OVERLAP

Run 2

FILE 5   17-OCT-85 06:16
DATA ACQUIRED 16-OCT-85 23:33



CALIBRATION RECORD

X2108B

Run 2

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 85/10/16
PROGRAM FILE: DDBHC (VERSION 26.2 83/11/17)

DITD   ELECTRONICS CALIBRATION SUMMARY

	MEASURED ZERO	MEASURED PLUS	CALIBRATED ZERO	CALIBRATED PLUS	UNITS
ILD	4.1	563.1	0.0	500.2	MMHO
ILM	4.3	534.5	0.0	504.2	MMHO
SFL	1.4	532.0	0.0	500.0	MMHO

ILD SONDE ERROR CORRECTION : 6.3 MMHO
ILM SONDE ERROR CORRECTION : 8.6 MMHO

SGTE   DETECTOR CALIBRATION SUMMARY

	MEASURED BKGD	MEASURED JIG	CALIBRATED	UNITS
GR	3	161	165	GAPI

MCDB   CALIPER CALIBRATION SUMMARY

	MEASURED SMALL	MEASURED LARGE	CALIBRATED SMALL	CALIBRATED LARGE	UNITS
CALI	245.2	373.0	202.7	304.1	MM

FILE 0   16-OCT-85 21:57

COMPANY CANTERRA ENERGY LTD.
WELL ICG SOGEPET ET AL NETSIQ N-01
FIELD HUDSON BAY   PROVINCE MANITOBA

Schlumberger

8710-C55-1-2

Schlumberger

SIMULTANEOUS COMPENSATED NEUTRON LITHO DENSITY

PROVINCE	MANITOBA
FIELD	HUDSON BAY
WELL	ICG SOGEPET ET AL NETSIQ N-01
COMPANY	CANTERRA ENERGY LTD.

COMPANY CANTERRA ENERGY LTD.

WELL ICG SOGEPET ET AL NETSIQ N-01

FIELD HUDSON BAY **OTTAWA COPY**

PROVINCE MANITOBA

LOCATION			
59° 50' 48.06" NORTH LATITUDE			
87° 30' 59.92" WEST LONGITUDE			
LSD	SEC.	TWP	RANGE

Other Services: RMKS

Permanent Datum: MSL ; Elev.: 0.0 m

Log Measured From KB 13.7 m Above Perm. Datum

Drilling Measured From KB

Elev.: K.B. 13.7 m; D.F. 13.3 m; G.L. -199.3 m

Date	29 SEP 85	16 OCT 85		
Run No.	One	Two		
Depth—Driller	541.0 m	1040.0 m	m	m
Depth—Logger (Schl.)	541.0 m	1038.0 m	m	m
Btm. Log Interval	541.0 m	1037.0 m	m	m
Top Log Interval	436.0 m	532.0 m	m	m
Casing—Driller	339.7mm@437 m	244.5mm@533.4m	@ m	@ m
Casing—Logger	436.0 m	532.0 m	m	m
Bit Size	311.2 mm	216.0 mm	mm	mm
Type Fluid in Hole	SEE BELOW	SEE BELOW		
Dens (kg/m³) | Visc.	1749 | 46.0	1761 | 48.0		
pH | Fluid Loss (cm³)	10.0 | 37.0	10.5 | 11.1		
Source of Sample	CIRCULATION	CIRCULATION		
Rm @ Meas. Temp.	0.097 @ 11.0 °C	0.091 @ 18.0 °C	@ °C	@ °C
Rmf @ Meas. Temp.	0.059 @ 11.0 °C	0.058 @ 18.0 °C	@ °C	@ °C
Rmc @ Meas. Temp.	0.222 @ 11.0 °C	0.223 @ 14.0 °C	@ °C	@ °C
Source: Rmf / Rmc	PRESS | PRESS	PRESS | PRESS		
Rm @ BHT	0.072 @ 22.0 °C	0.099 @ 15.0 °C	@ °C	@ °C
TIME: Circulation Stopped	0830/29	1020/16		
TIME: Tool Last on Bottom	1500/29	1845/16		
Max. Rec. Temp. #1 | #2	22.0 °C | - °C	15.0 °C | - °C	°C | °C	°C | °C
Unit | District	922 | ST.J	922 | ST.J		
Recorded By	MACNEILL	MACNEILL		
Witnessed By	ZANUSSI	ZANUSSI		

CANADA OIL AND GAS LANDS ADMINISTRATION / ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA — JAN 16 1986 — ENGINEERING BRANCH / GÉNIE

REMARKS: 04 DEC 85 CAL AK

OTHER SERVICES: DISFL, DLL-MSFL, DDBHC-GR, RFT, SHDT, WST, CST, CYBER, NGT, AMS

RUN #1	RUN #2
PROGRAM TAPE NO: 28.15	PROGRAM TAPE NO: 28.15
SERVICE ORDER NO: 129387	SERVICE ORDER NO: 129389
CASING WEIGHT: 107.1 kg/m	CASING WEIGHT: 70.10 kg/m

Run 1

TYPE FLUID IN HOLE: NACL SATURATED GEL POLYMER
DENSITY: 1749. K/M3
VISCOSITY: 46.0 S
PH: 10.0
FLUID LOSS: 37.0 C3
SOURCE OF SAMPLE: CIRC.
RM: .097 OHMM AT 11.0 DEGC
RMF: .059 OHMM AT 11.0 DEGC
RMC: .222 OHMM AT 11.0 DEGC
SOURCE RMF/RMC: PRESS /PRESS
RM AT BHT: .072 OHMM AT 22.0 DEGC
RMF AT BHT: .044 OHMM AT 22.0 DEGC
RMC AT BHT: .166 OHMM AT 22.0 DEGC

TIME CIRC. STOPPED: 08:30 / 29
TIME LOGGER ON BTM.: 15:00/29

MAX. REC. TEMP: 22.0 DEGC

LOGGING UNIT NO: 922
LOGGING UNIT LOC: ST. JOHN'S
RECORDED BY: MACNEILL
WITNESSED BY: L. ZANUSSI

REMARKS: **Run 1**

LOST CIRCULATION MATERIAL USED AT 463m, 477m, AND 481 TO 483m

CNL WAS RUN WITH A BOWSPRING.
LOG WAS RUN AT 1800 FT/HR.
LIMESTONE MATRIX.

Run 1

EQUIPMENT NUMBERS-

NSC-E 998	DRS-C 5786	PDH-L 3955	PGD-G 3976
TCC-A 553	AMM-A 813	CNT-HA 386	NGC-C 1915
NGD-B 752	TCM-AB 538		

Run 2

TYPE FLUID IN HOLE: NACL SATURATED GEL POLYMER
DENSITY: 1761. K/M3
VISCOSITY: 48.0 S
PH: 10.5
FLUID LOSS: 11.1 C3
SOURCE OF SAMPLE: CIRC.
RM: .091 OHMM AT 18.0 DEGC
RMF: .058 OHMM AT 18.0 DEGC
RMC: .223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC: PRESS /PRESS
RM AT BHT: .099 OHMM AT 15.0 DEGC
RMF AT BHT: .063 OHMM AT 15.0 DEGC
RMC AT BHT: .216 OHMM AT 15.0 DEGC

TIME CIRC. STOPPED: 10:20/16
TIME LOGGER ON BTM.: 18:45/16

MAX. REC. TEMP: 15.0 DEGC

LOGGING UNIT NO: 922
LOGGING UNIT LOC: ST. JOHN'S
RECORDED BY: A. MACNEILL
WITNESSED BY: L. ZANUSSI

REMARKS: **Run 2**

TOOL WAS ECCENTRALIZED.
DRILLING STOPPED AT 7:20/16
TENSION ON CABLE NOT AVAILABLE AFTER REPEAT PASS.
BOTTOM 40 METERS LOGGED AT 900 FT/HR.
TENSION DEVICE NOT RECORDED ON MAIN PASS DUE TO SOFTWARE PROBLEM.

Run 2

EQUIPMENT NUMBERS-

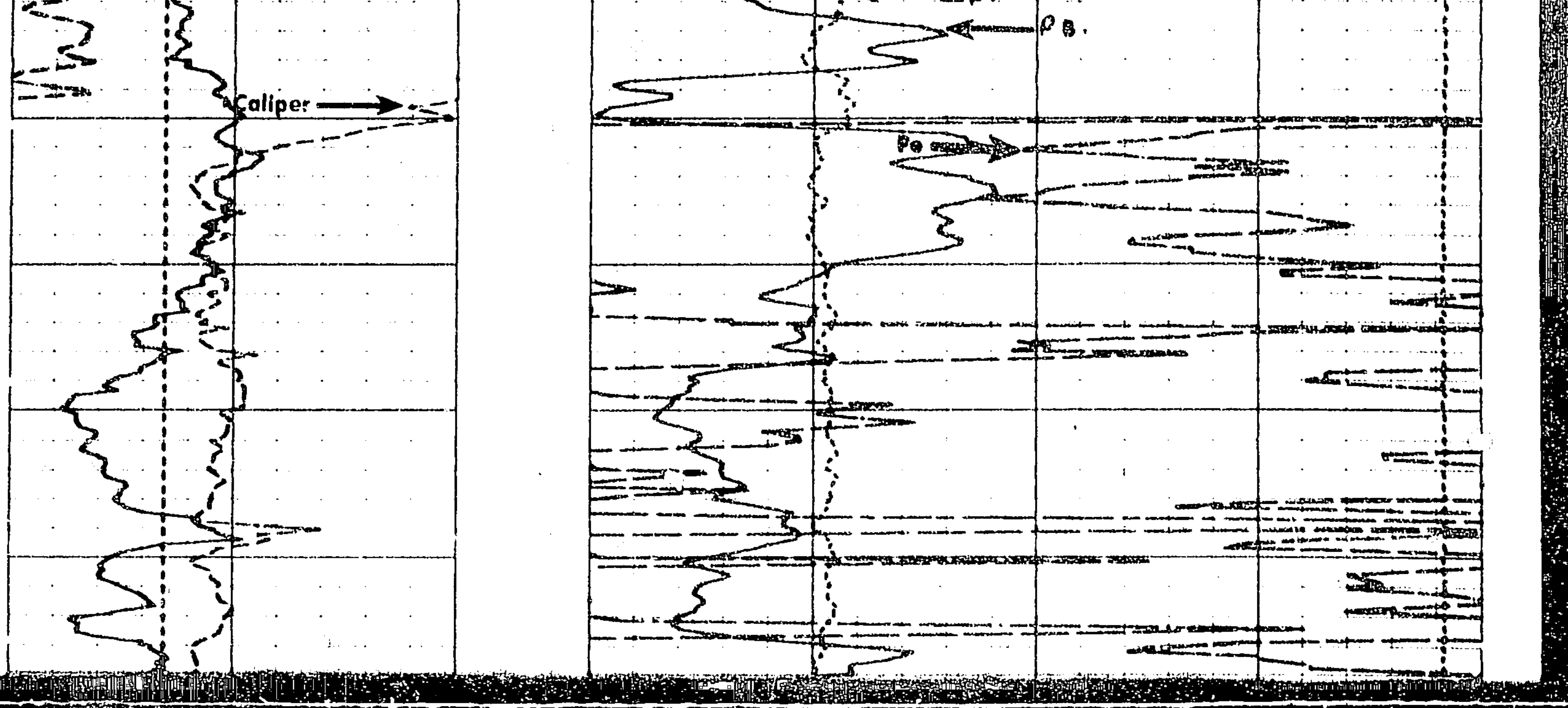
NSC-E 998	DRS-C 5786	PDH-L 3955	PGD-G 3976
TCC-A 185	AMM-A 813	CNT-HA 386	NGC-C 1915
NGD-B 752	TCM-AB 538		

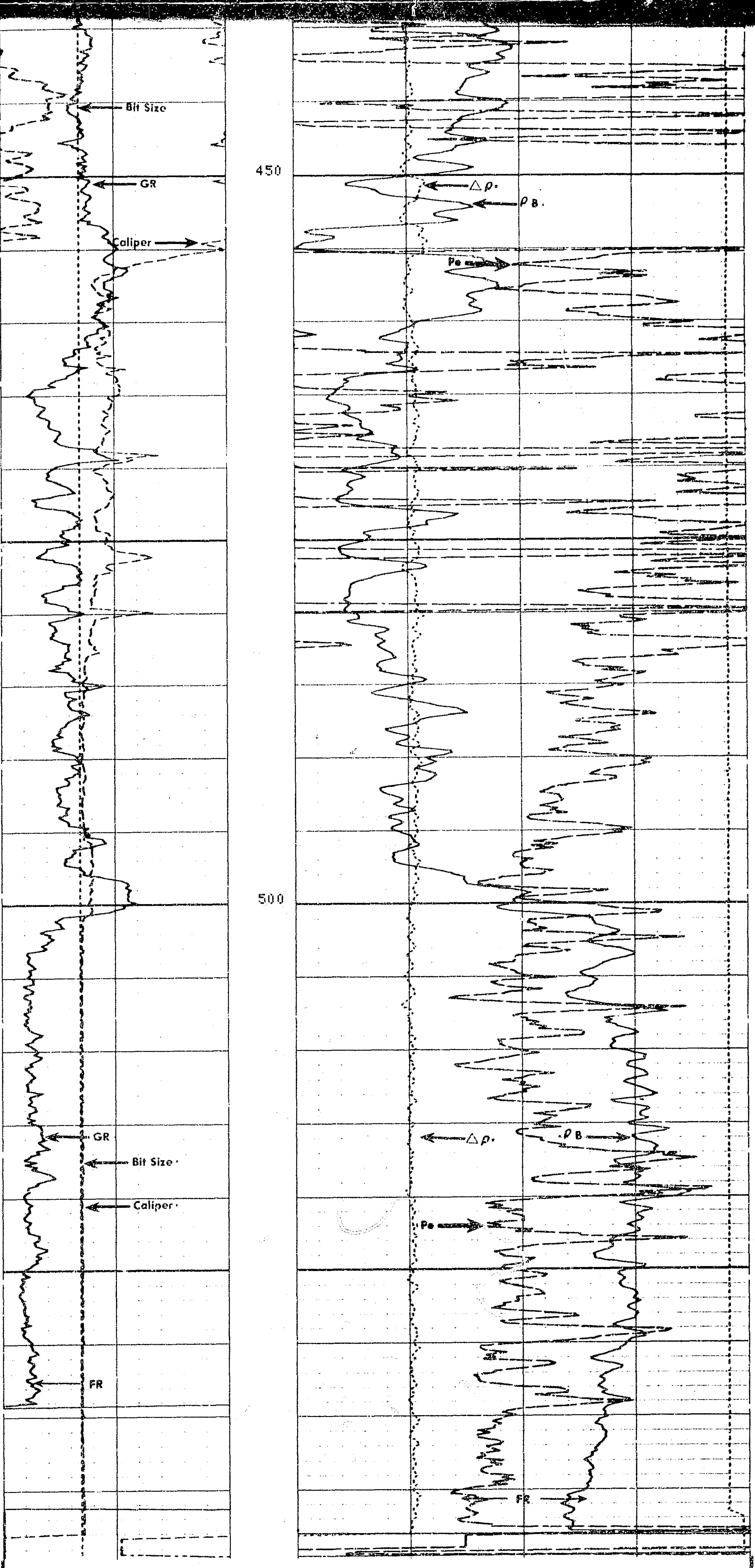
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

SGR (GAPI) 0.0 — 100.00	TENS(N) 50000. — 0.0
BS (MM) 225.00 — 475.00	
CALI(MM) 225.00 — 475.00	

Run 1

CP 28.15 FILE. 3 29-SEP-85 03:36





CP 28.15 FILE 3 29-SEP-85 02:54

SGR (GAPI)		DRHO(K/M3)	TENS(N)
0.0	100.00	250.00 -250.0	50000. 0.0
BS (MM)		PEF	
225.00	475.00	1.0000	11.000
CALI(MM)		RHOB(K/M3)	
225.00	475.00	2000.0	3000.0

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

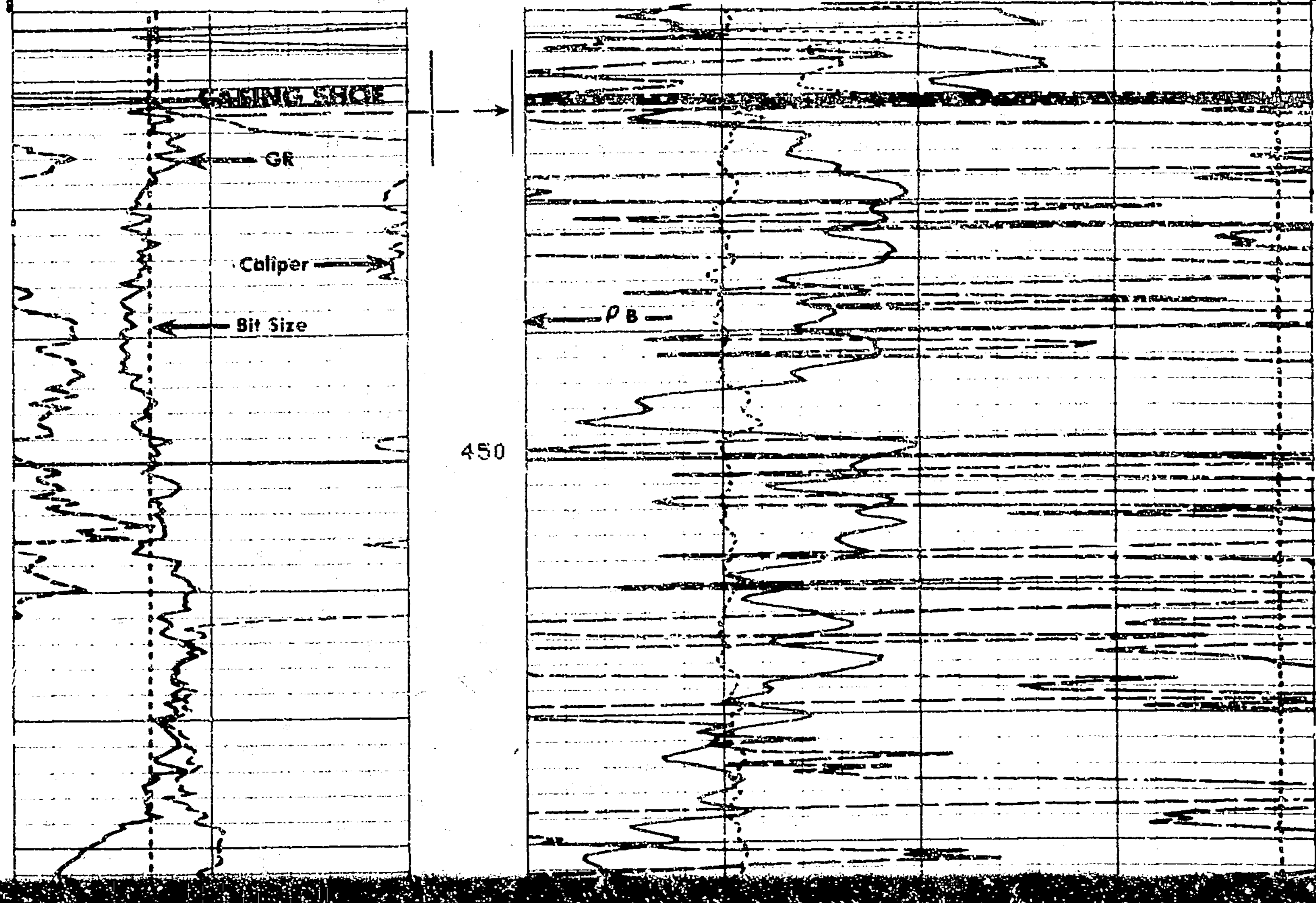
MTEM	12.77 METER	MRES	12.77 METER
APUW	9.78 METER	APLW	9.78 METER
PPLW	9.78 METER	NGPE	9.78 METER
SNGT	-.27 METER	PPUW	9.78 METER
TPUW	9.78 METER	TPLW	9.78 METER
W2NG	9.78 METER	W1NG	9.78 METER
W4NG	9.78 METER	W3NG	9.78 METER
FCNL	6.35 METER	W5NG	9.73 METER
SCNL	-.27 METER	NCNL	6.35 METER
LL	.78 METER	LITH	.78 METER
LU	.78 METER	LS	.78 METER
SS2	.63 METER	SS1	.63 METER
DTCS	.63 METER	DTCL	.78 METER
DTPS	.63 METER	DTPL	.78 METER
LULC	.78 METER	LLLC	.78 METER
LUUC	.78 METER	LLUC	.78 METER
SULC	.63 METER	SLLC	.63 METER
SUUC	.63 METER	SLUC	.63 METER
TENS	-.27 METER	CALI	.81 METER
NRAT	6.35 METER	SGR	9.78 METER

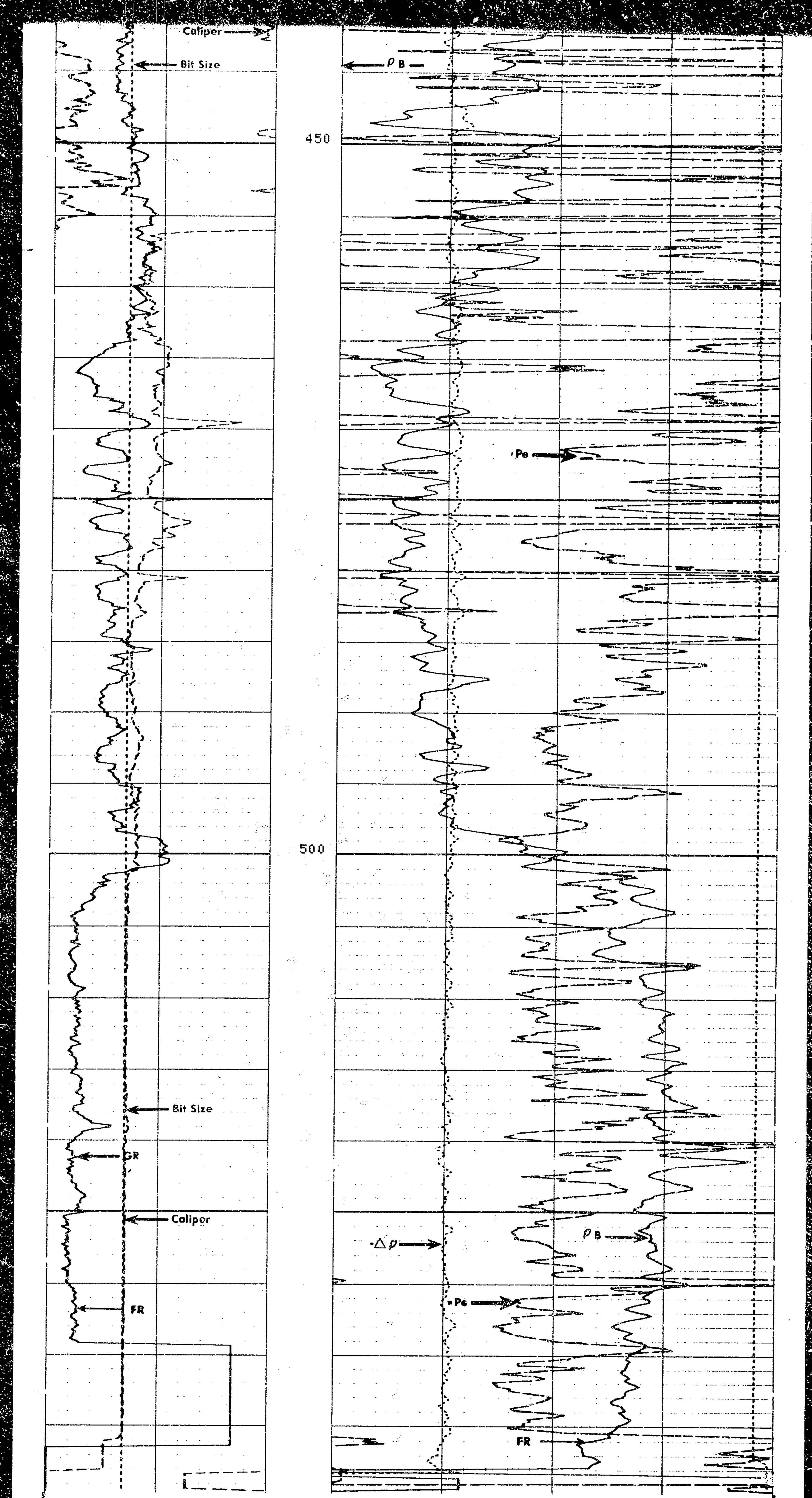
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BHT	22.0000	DEGC	TD	3048.00	M
PMUD	0.0	%	SHT	0.0	DEGC
NFO	KALM		CBAR	1.00000	
HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	

SGR (GAPI)		DRHO(K/M3)	TENS(N)
0.0	100.00	250.00 -250.0	50000. 0.0
BS (MM)		PEF	
225.00	475.00	1.0000	11.000
CALI(MM)		RHOB(K/M3)	
225.00	475.00	2000.0	3000.0

CP 28.15 FILE 2 29-SEP-85 02:52





CP 28.15 FILE 2 29-SEP-85 02:39

SGR (GAPI)		DRHO(K/M3)		TENS(N)	
0.0	100.00	250.00	-250.0	50000.	0.0
BS (MM)		PEF			
225.00	475.00	1.0000			11.000
CALI(MM)		RHOB(K/M3)			
225.00	475.00	2000.0			3000.0

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APUW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BHT	22.0000	DEGC	TD	3048.00	M
PMUD	0.0	%	SHT	0.0	DEGC
NFD	KALM		CBAR	1.00000	
HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	

SGR (GAPI)		DRHO(K/M3)		
0.0	150.00	250.00	-250.0	
BS (MM)		PEF		
150.00	400.00	1.0000		11.000
CALI(MM)		RHOB(K/M3)		
150.00	400.00	2000.0		3000.0

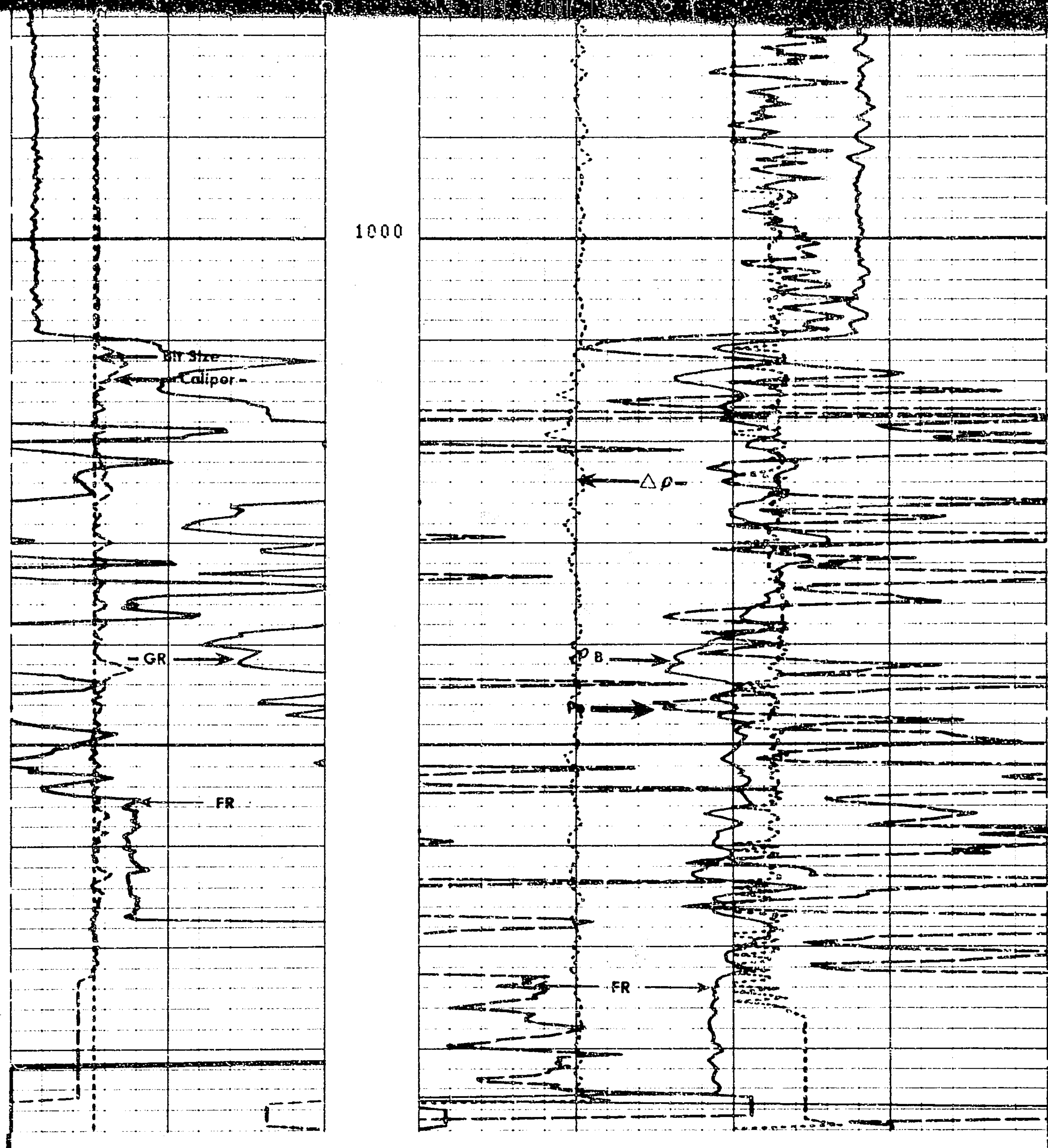
SCALE CHANGES			
	50000.	TENS	0.0
	25000.	923	0.0

Run 2

CP 28.15 FILE 4 16-OCT-85 19:47


700
750
800
850

850
900
950
1000
Δρ
FR
GR
FR



CP 28.15 FILE 4 16-OCT-85 18:42

SGR (GAPI)		DRHO(K/M3)	TENS(N)
0.0	150.00	250.00 -250.0	25000. 0.0
BS (MM)		PEF	
150.00	400.00	1.0000	11.000
CALI(MM)		RHOB(K/M3)	
150.00	400.00	2000.0	3000.0

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APLW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

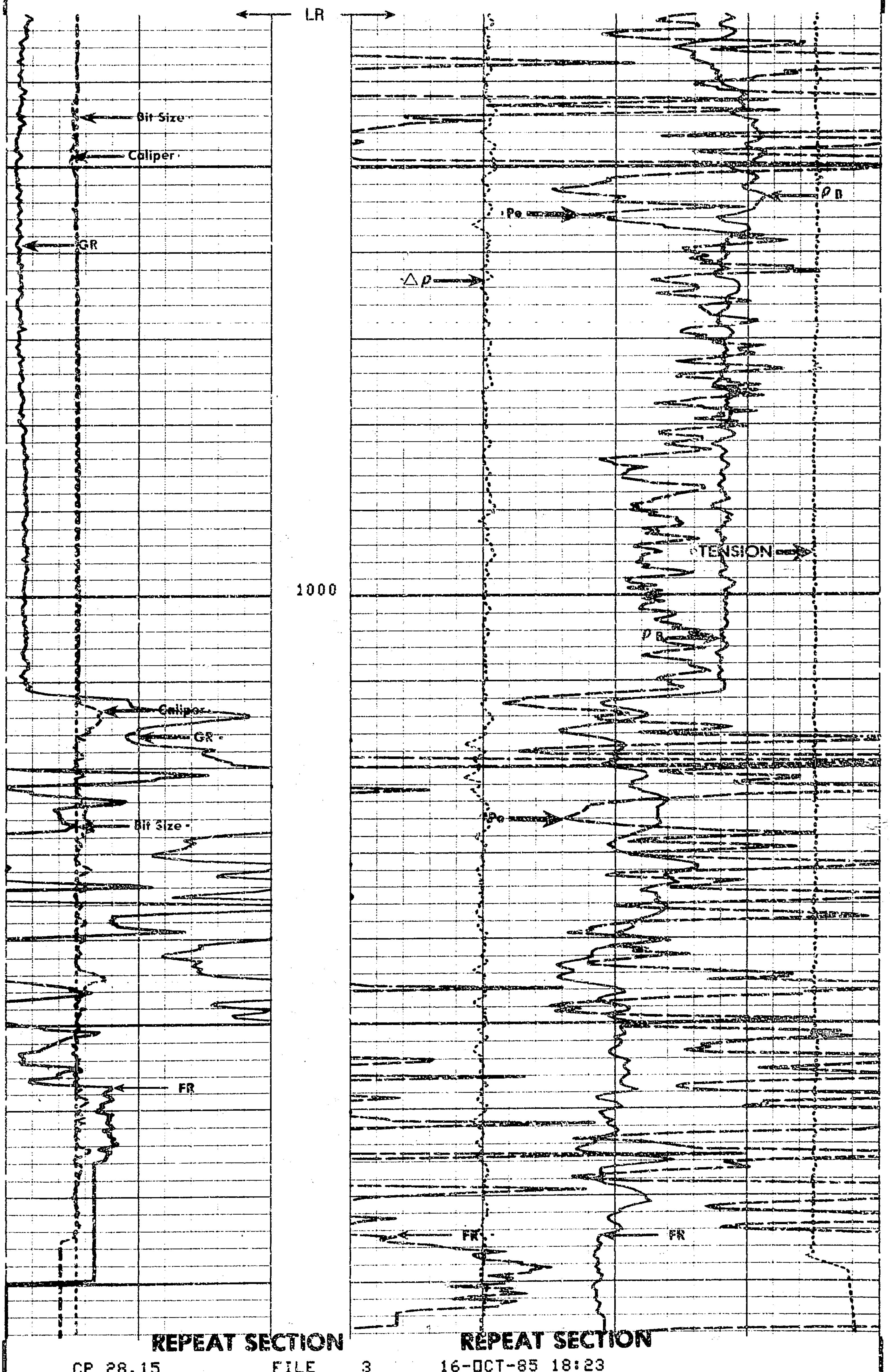
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	3048.00	M
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFO	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFM	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
BS	216.000	MM			

SGR (GAPI)		DRHO(K/M3)	TENS(N)
0.0	150.00	250.00 -250.0	25000. 0.0
BS (MM)		PEF	
150.00	400.00	1.0000	11.000
CALI(MM)		RHOB(K/M3)	
150.00	400.00	2000.0	3000.0

REPEAT SECTION **REPEAT SECTION**

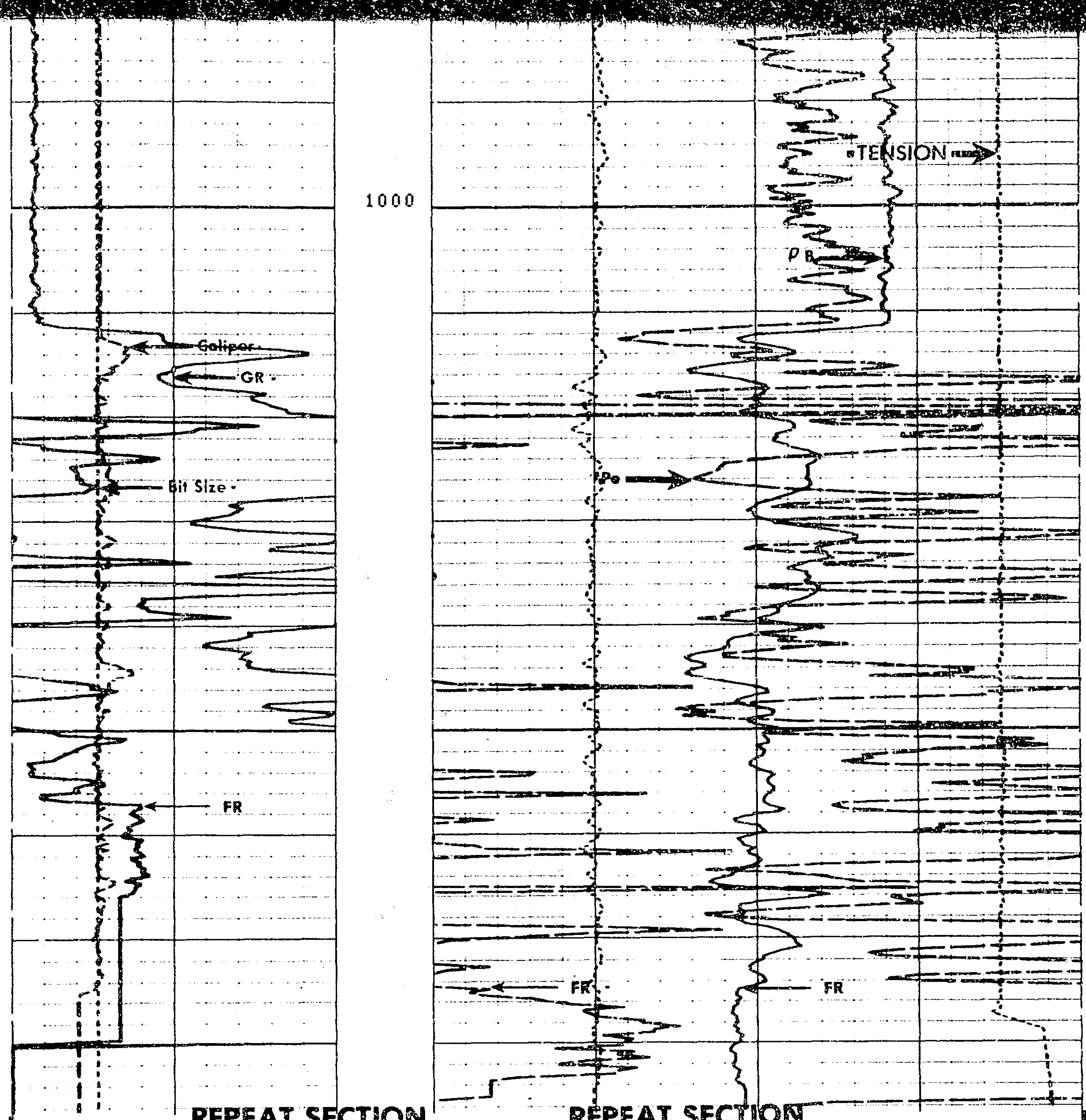
CP 28.15 FILE 3 16-OCT-85 18:39



REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 3 16-OCT-85 18:23

SGR (GAPI)		DRHO(K/M3)	TENS(N)
0.0	150.00	250.00 -250.0	25000. 0.0



REPEAT SECTION   REPEAT SECTION

CP 28.15   FILE 3   16-OCT-85 18:23

SGR (GAPI)		DRHO(K/M3)	TENS(N)
0.0	150.00	250.00 -250.0	25000. 0.0
BS (MM)		PEF	
150.00	400.00	1.0000	11.000
CALI(MM)		RHOB(K/M3)	
150.00	400.00	2000.0	3000.0

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APUW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	3048.00	M
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFD	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFM	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
BS	216.000	MM			

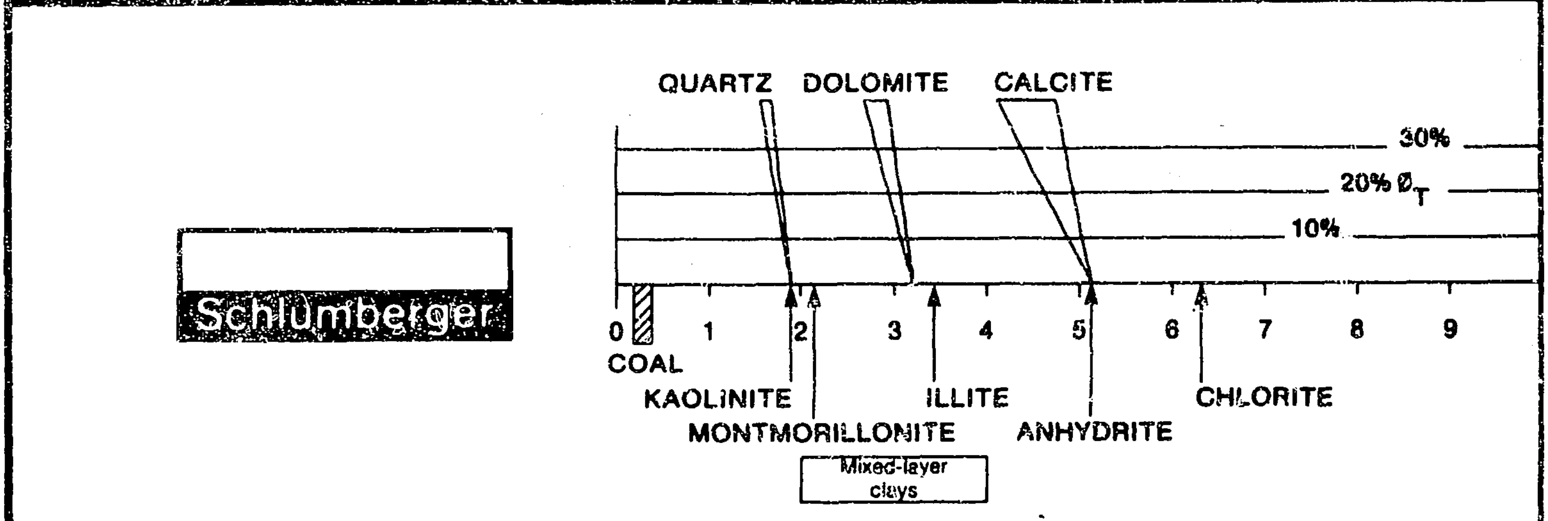


PHOTO ELECTRIC INTERPRETATION CHART

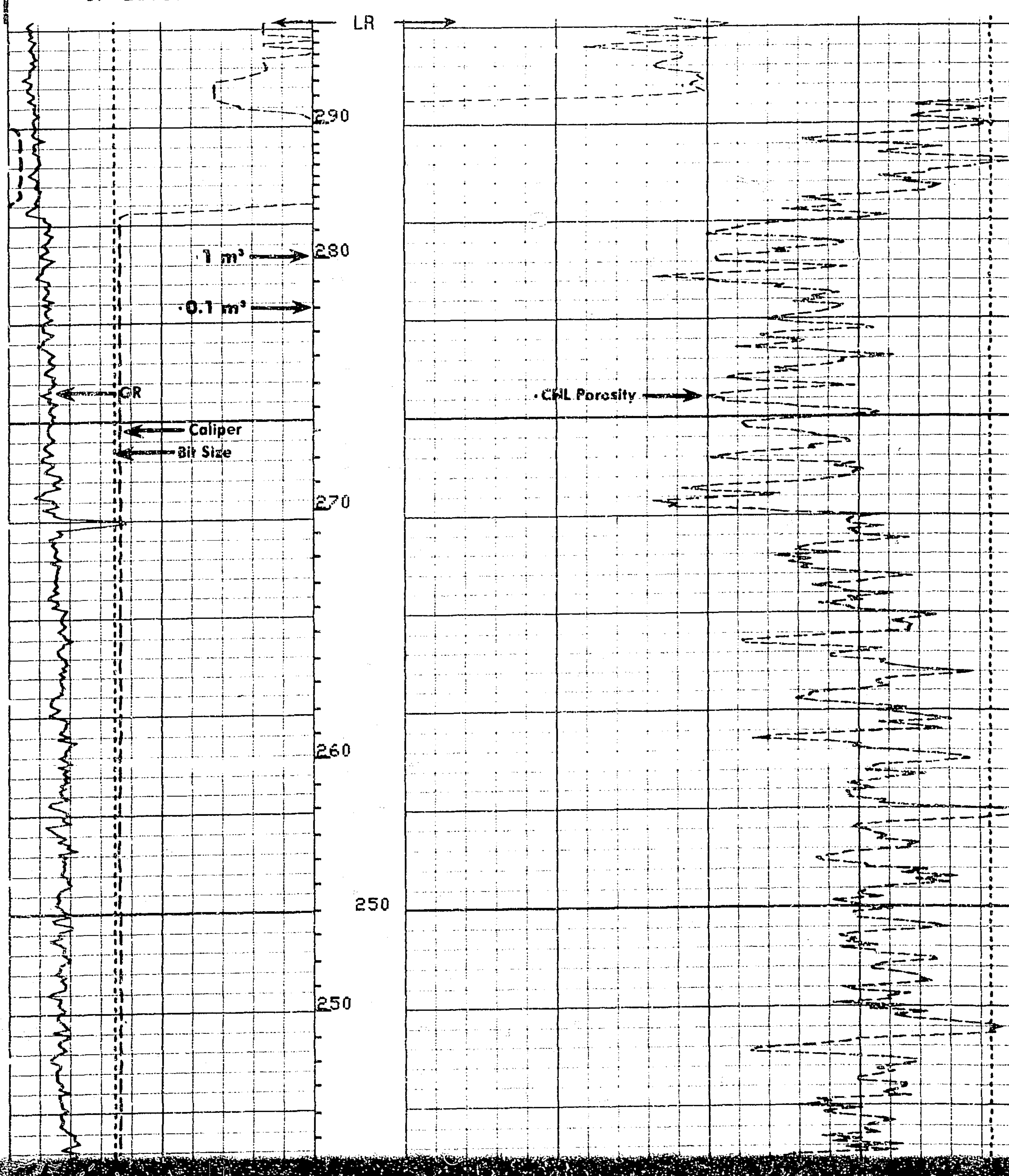
Run 1

EVENT MARK SUMMARY:

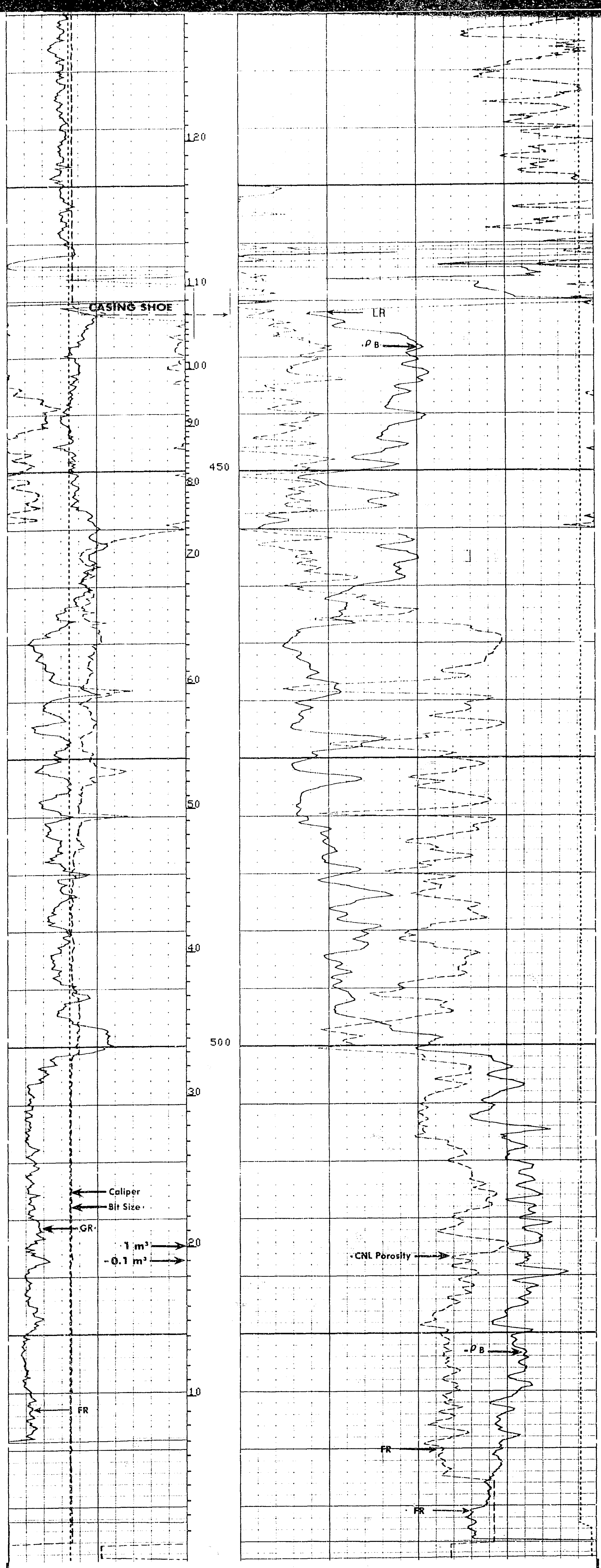
OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
IHV	.100000 M3	LEFT EDGE

SGR (GAPI)			
0.0	100.00		TENS(N)
BS (MM)			
225.00	475.00		50000. 0.0
CALI(MM)		NPHI	
225.00	475.00	.45000	-.1500

CP 28.15   FILE 3   29-SEP-85 03:36




250
300
350
400
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110



CP 28.15 FILE 3 29-SEP-85 02:54

SGR (GAPI) 0.0 — 100.00		TENS(N) 50000. — 0.0
BS (MM) 225.00 — 475.00		RHOB(K/M3) 1950.0 — 2950.0
CALI(MM) 225.00 — 475.00		NPHI .45000 — -.1500

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APUW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.79	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BHT	22.0000	DEGC	TD	3048.00	M
PMUD	0.0	%	SHT	0.0	DEGC
NFO	KALM		CBAR	1.00000	
HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	

EVENT MARK SUMMARY:

OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
IHV	.100000 M3	LEFT EDGE

SGR (GAPI) 0.0 — 100.00		TENS(N) 50000. — 0.0
BS (MM) 225.00 — 475.00		RHOB(K/M3) 1950.0 — 2950.0
CALI(MM) 225.00 — 475.00		NPHI .45000 — -.1500

HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	

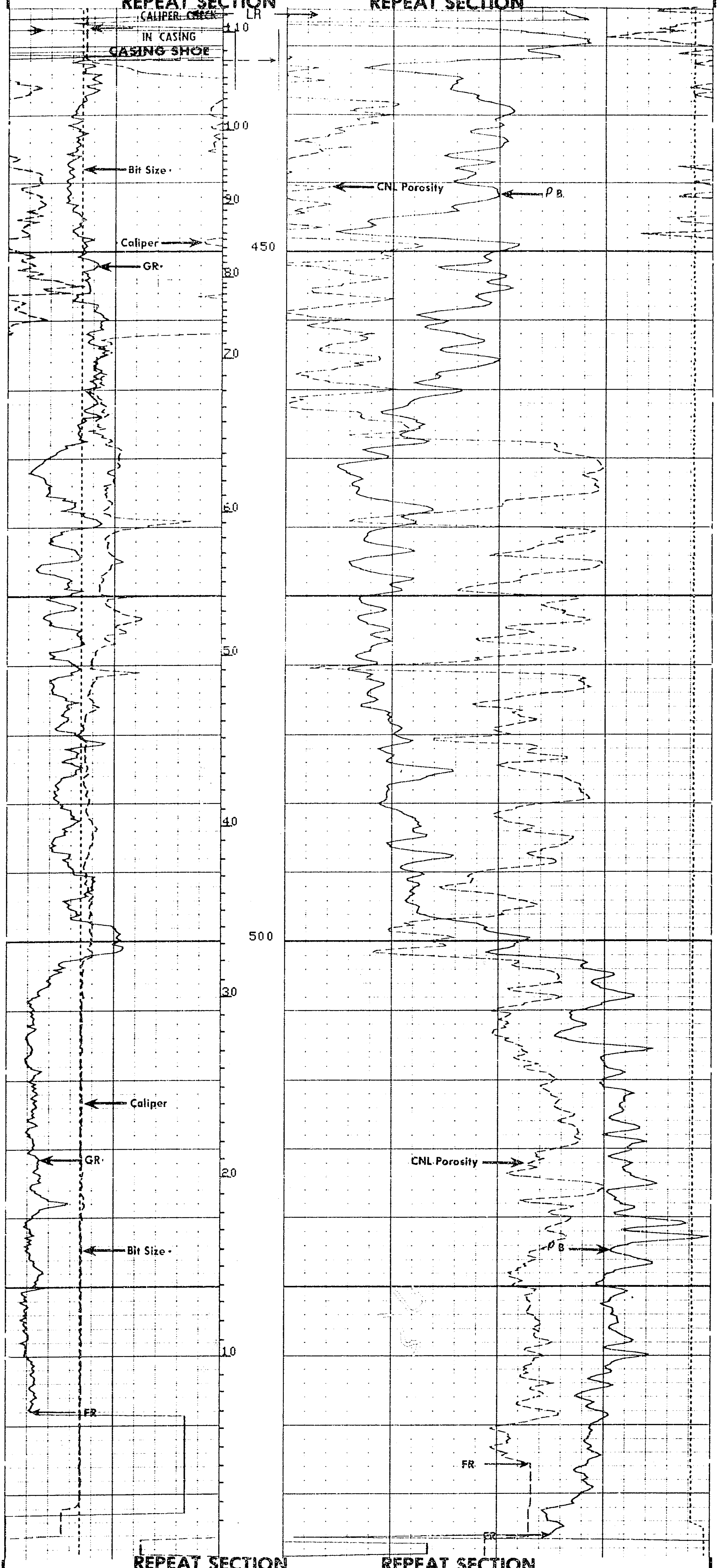
EVENT MARK SUMMARY:

OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
IHV	.100000 M3	LEFT EDGE

SGR (GAPI) 0.0 — 100.00		TENS(N) 50000. — 0.0
BS (MM) 225.00 — 475.00		RHOB(K/M3) 1950.0 — 2950.0
CALI(MM) 225.00 — 475.00		NPHI .45000 — -.1500

CP 28.15 FILE 2 29-SEP-85 02:52

REPEAT SECTION REPEAT SECTION



REPEAT SECTION REPEAT SECTION

CP 28.15 FILE 2 29-SEP-85 02:39

SGR (GAPI) 0.0 — 100.00		TENS(N) 50000. — 0.0
BS (MM) 225.00 — 475.00		RHOB(K/M3) 1950.0 — 2950.0
CALI(MM) 225.00 — 475.00		NPHI .45000 — -.1500

Run 1

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APUW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BHT	22.0000	DEGC	TD	3048.00	M
PMUD	0.0	%	SHT	0.0	DEGC
NFO	KALM		CBAR	1.00000	
HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	

SGR (GAPI) 0.0 — 150.00		
BS (MM) 150.00 — 400.00		RHOB(K/M3) 1950.0 — 2950.0
CALI(MM) 150.00 — 400.00		NPHI .45000 — -.1500
	SCALE CHANGES	TENS 50000. 0.0 / 25000. 923 0.0

Run 2

LIMESTONE MATRIX

SUUC	.63 METER	SLUC	.63 METER
TENS	-.27 METER	CALI	.81 METER
NRAT	6.35 METER	SGR	9.78 METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BHT	22.0000	DEGC	TD	3048.00	M
PMUD	0.0	%	SHT	0.0	DEGC
NFD	KALM		CBAR	1.00000	
HC	CALI		PSNR	2.20000	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1750.00	K/M3	MDEN	2710.00	K/M3
DHC	BS		BFM	LIQU	
BS	311.200	MM	BHS	OPEN	

SGR (GAPI) 0.0 — 150.00

BS (MM) 150.00 — 400.00

CALI (MM) 150.00 — 400.00

RHOB (K/M3) 1950.0 — 2950.0

NPHI .45000 — -.1500

SCALE CHANGES

TENS 50000. — 0.0

25000. — 923 — 0.0

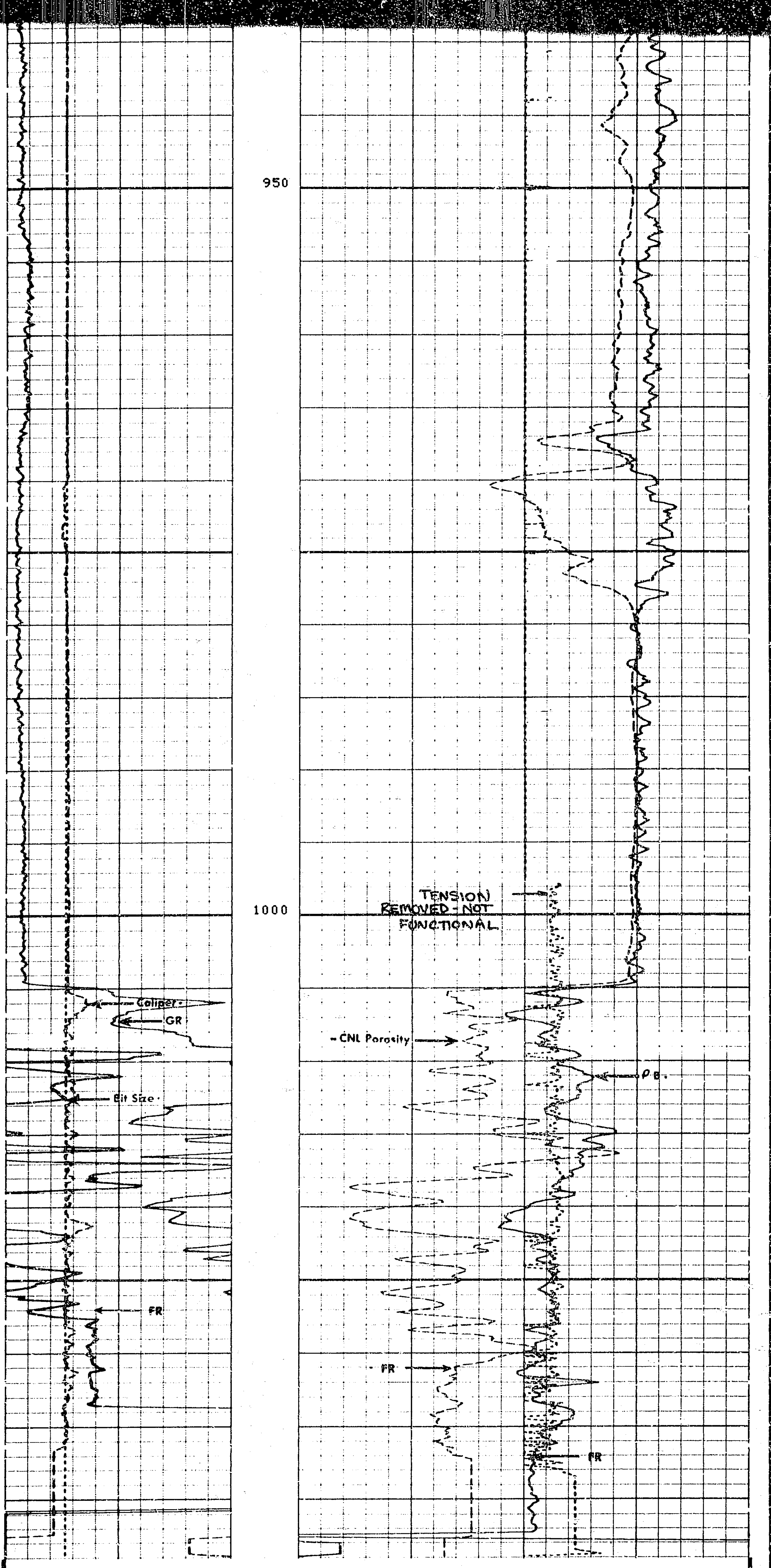
Run 2

LIMESTONE MATRIX

CP 28.15 FILE 4 16-OCT-85 19:47


650
700
750
800


800
850
900
950



CP 28.15 FILE 4 16-OCT-85 18:42

SGR (GAPI)		RHOB(K/M3) / NPHI / TENS(N)	
0.0	150.00	25000. (TENS)	0.0
BS (MM)		RHOB(K/M3)	
150.00	400.00	1950.0	2950.0
CALI(MM)		NPHI	
150.00	400.00	.45000	-.1500

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APUW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.78	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

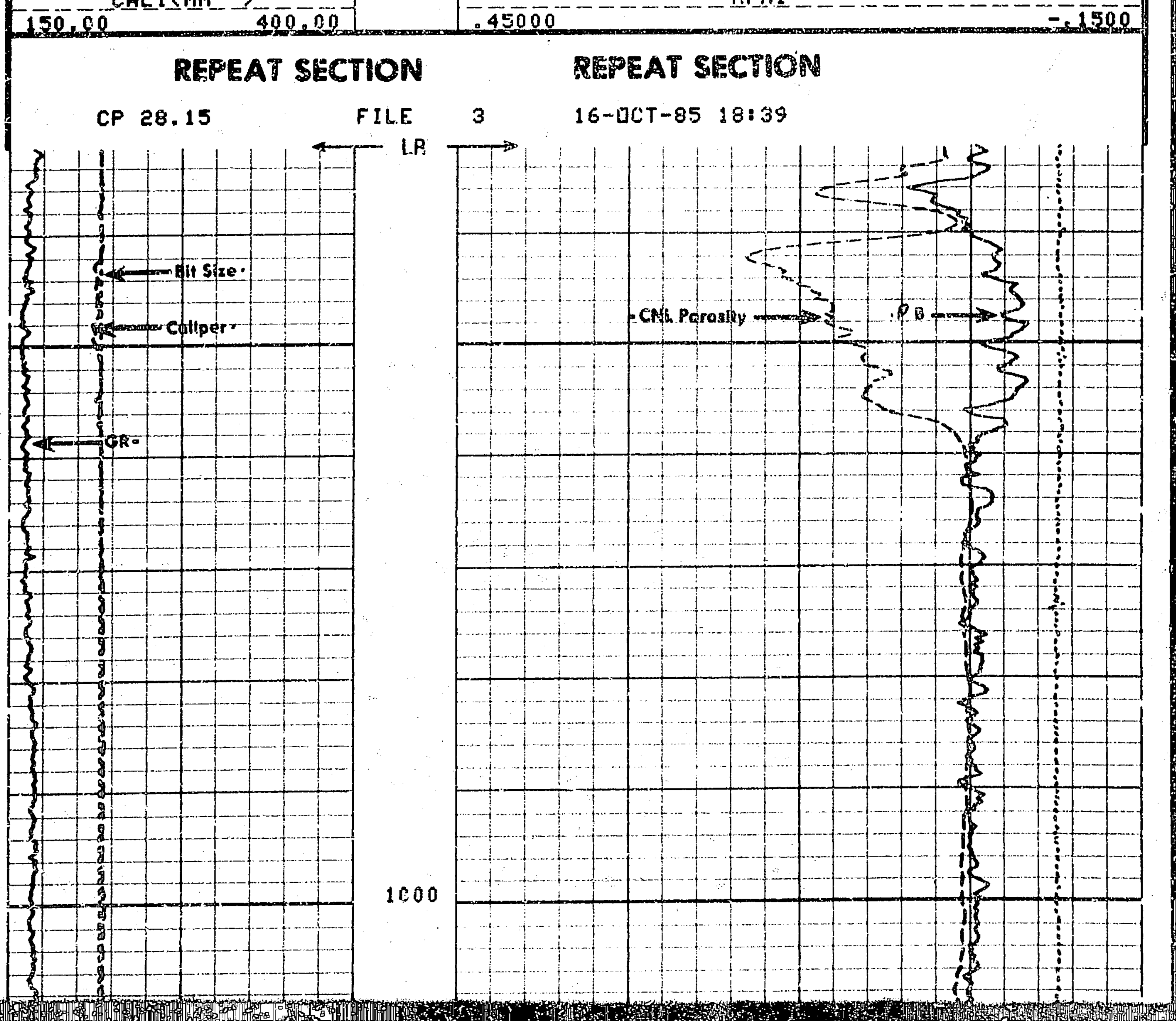
NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	3048.00	M
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFD	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFM	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
BS	216.000	MM			

SGR (GAPI)		RHOB(K/M3) / NPHI / TENS(N)	
0.0	150.00	25000. (TENS)	0.0
BS (MM)		RHOB(K/M3)	
150.00	400.00	1950.0	2950.0
CALI(MM)		NPHI	
150.00	400.00	.45000	-.1500

REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 3 16-OCT-85 18:39

← LR →

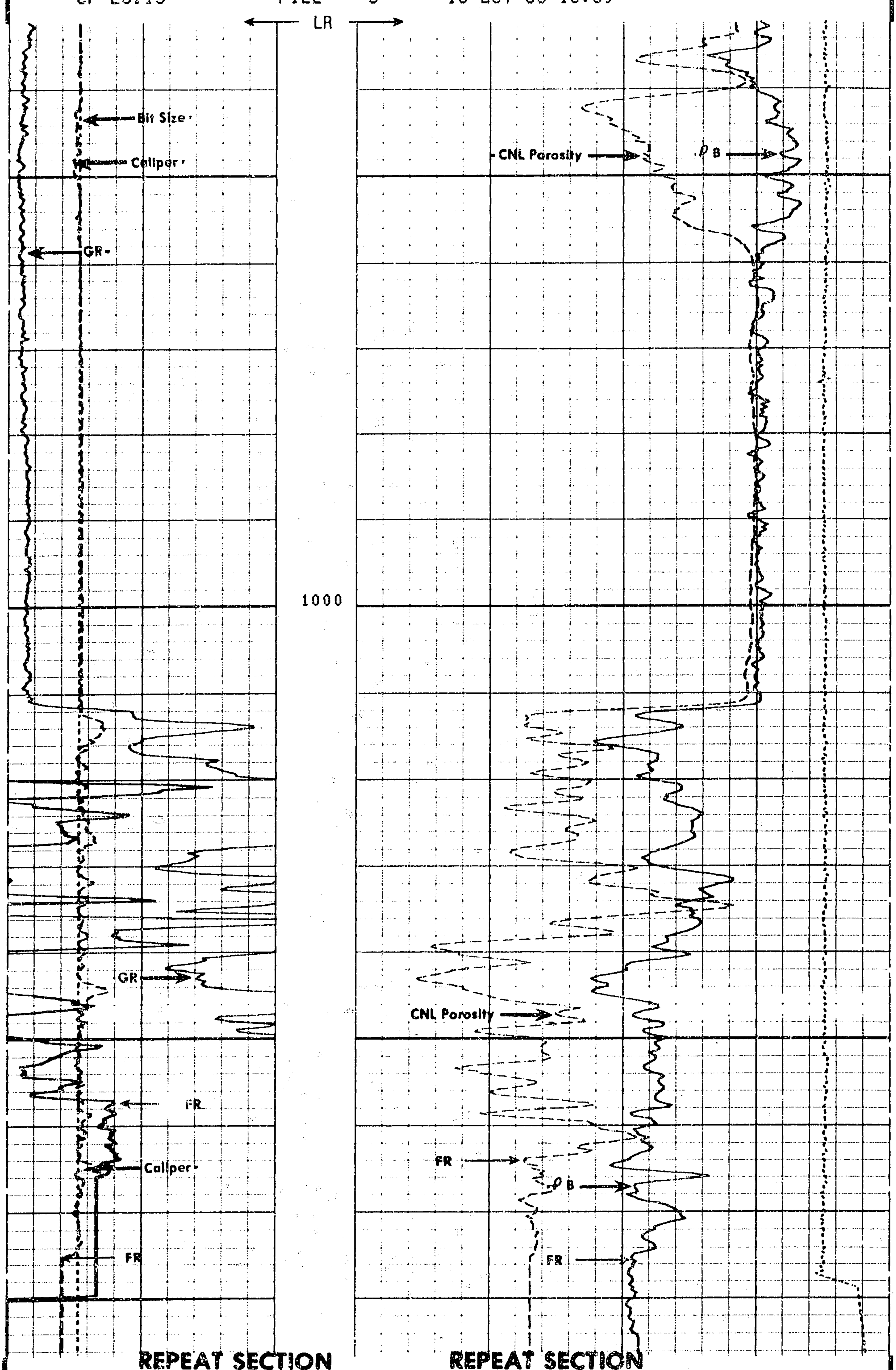


NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	[illegible]	
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFO	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFM	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
BS	216.000	MM			

SGR (GAPI) 0.0 – 150.00		TENS(N) 25000. – 0.0	
BS (MM) 150.00 – 400.00		RHOB(K/M3) 1950.0 – 2950.0	
CALI(MM) 150.00 – 400.00		NPHI .45000 – -.1500	

REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 3 16-OCT-85 18:39



REPEAT SECTION **REPEAT SECTION**

CP 28.15 FILE 3 16-OCT-85 18:23

SGR (GAPI) 0.0 – 150.00		TENS(N) 25000. – 0.0	
BS (MM) 150.00 – 400.00		RHOB(K/M3) 1950.0 – 2950.0	
CALI(MM) 150.00 – 400.00		NPHI .45000 – -.1500	

Run 2

SENSOR MEASURE POINT TO TOOL ZERO

MTEM	12.77	METER	MRES	12.77	METER
APUW	9.78	METER	APLW	9.78	METER
PPLW	9.78	METER	NGPE	9.78	METER
SNGT	-.27	METER	PPUW	9.78	METER
TPUW	9.78	METER	TPLW	9.78	METER
W2NG	9.78	METER	W1NG	9.78	METER
W4NG	9.78	METER	W3NG	9.78	METER
FCNL	6.35	METER	W5NG	9.78	METER
SCNL	-.27	METER	NCNL	6.35	METER
LL	.78	METER	LITH	.79	METER
LU	.78	METER	LS	.78	METER
SS2	.63	METER	SS1	.63	METER
DTCS	.63	METER	DTCL	.78	METER
DTPS	.63	METER	DTPL	.78	METER
LULC	.78	METER	LLLC	.78	METER
LUUC	.78	METER	LLUC	.78	METER
SULC	.63	METER	SLLC	.63	METER
SUUC	.63	METER	SLUC	.63	METER
TENS	-.27	METER	CALI	.81	METER
NRAT	6.35	METER	SGR	9.78	METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	26.6666	DEGC	TD	3048.00	M
CBAR	1.00000		PMUD	0.0	%
PSNR	2.25980		NFO	KALM	
MATR	LIME		HC	CALI	
MDEN	2710.00	K/M3	FD	1000.00	K/M3
BFM	LIQU		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
BS	216.000	MM			

Run 1

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 29-SEP-85 07:24
PROGRAM FILE: LEP (VERSION 28.15 85/01/03)

NGTC

DETECTOR CALIBRATION SUMMARY

NGT CARTRIDGE NUMBER	:	1915
NGT DETECTOR NUMBER	:	752
NGT JIG NUMBER	:	1735
NGT SONDE TYPE	:	NGDB
NGT CALIBRATOR TYPE	:	GSRU

	MEASURED BKGD	JIG	CALIBRATED	UNITS
SGR	10	166	162	GAPI

MEASURED BEFORE SURVEY

	BKG	JIG	UNITS
W1NG	30.8	512.0	CPS
W2NG	17.0	286.5	CPS
W3NG	5.6	47.3	CPS
W4NG	1.7	23.5	CPS
W5NG	1.7	41.5	CPS

LDTD

DETECTOR CALIBRATION SUMMARY

DRS SONDE NUMBER	:	5786
NUCLEAR SERVICE CARTRIDGE NUMBER	:	998
POWERED DETECTOR HOUSING NUMBER	:	3955
POWERED GAMMA-GAMMA DETECTOR NUMBER	:	3976
LDT LOGGING SOURCE NUMBER	:	7245
LDT CALIBRATION MODE	:	WATE
MUD DENSITY	:	1246.19 K/M3

M E A S U R E D

	BKGD	AL+FE	AL	UNITS
LL	19.1	90.5	102.8	CPS
LU	73.2	139.5	158.5	CPS
LS	55.8	160.2	182.0	CPS
LITH	5.3	34.0	52.7	CPS
SS1	16.5	171.6	197.7	CPS
SS2	11.2	262.0	292.0	CPS

CNTH

DETECTOR CALIBRATION SUMMARY

	TANK INPUT	TANK CALIBRATED	JIG MEASURED	JIG CALIBRATED
NRAT	2.20000	2.158	2.126	2.086

LDTD

CALIPER CALIBRATION SUMMARY

```
LDTD                    DETECTOR CALIBRATION SUMMARY

        DRS SONDE NUMBER                          :    5786
        NUCLEAR SERVICE CARTRIDGE NUMBER          :    998
        POWERED DETECTOR HOUSING NUMBER           :    3955
        POWERED GAMMA-GAMMA DETECTOR NUMBER       :    3976
        LDT LOGGING SOURCE NUMBER                 :    7245
        LDT CALIBRATION MODE                      :    WATE
        MUD DENSITY                               :    1246.19    K/M3

           M E A S U R E D
         BKGD   AL+FE    AL    UNITS
   LL    19.1    90.5  102.8    CPS
   LU    73.2   139.5  158.5    CPS
   LS    55.8   160.2  182.0    CPS
 LITH     5.3    34.0   52.7    CPS
  SS1    16.5   171.6  197.7    CPS
  SS2    11.2   262.0  292.0    CPS

CNTH                    DETECTOR CALIBRATION SUMMARY

              TANK                              JIG
         INPUT  CALIBRATED              MEASURED    CALIBRATED
 NRAT    2.20000  2.158                   2.126       2.086

LDTD                    CALIPER CALIBRATION SUMMARY

           MEASURED                         CALIBRATED
         SMALL    LARGE                  SMALL      LARGE        UNITS
 CALI    169.5    281.5                  203.11     304.6        MM

  CP 28.15            FILE     0       29-SEP-85 07:24

                        SHOP SUMMARY

 PERFORMED:      85/09/20
 PROGRAM FILE: CCSHOP (VERSION     26.2     83/11/17)

LDTD                    DETECTOR CALIBRATION SUMMARY

        DRS SONDE NUMBER                          :    5786
        NUCLEAR SERVICE CARTRIDGE NUMBER          :    998
        POWERED DETECTOR HOUSING NUMBER           :    3955
        POWERED GAMMA-GAMMA DETECTOR NUMBER       :    3976
        LDT LOGGING SOURCE NUMBER                 :    7245
        LDT CALIBRATION MODE                      :    WATE
        MUD DENSITY                               :    8.00000

         MASTER  CALIBRATED
         BKGD   AL+FE    AL    UNITS
   LL    19.3    90.6  102.9    CPS
   LU    73.7   139.5  158.5    CPS
   LS    56.2   160.3  182.1    CPS
 LITH     5.4    34.1   52.8    CPS
  SS1    16.4   171.7  197.8    CPI
  SS2    11.2   262.2  292.2    CP:

                    AFTER SURVEY TOOL CHECK SUMMARY

 PERFORMED:      29-SEP-85 04:14
 PROGRAM FILE: LEP      (VERSION     28.15    85/01/03)

NGTC                            TOOL   CHECK

        NGT CARTRIDGE NUMBER      :        1915
        NGT DETECTOR  NUMBER      :        752
        NGT JIG       NUMBER      :        1735
        NGT SONDE TYPE            :        NGDB
        NGT CALIBRATOR TYPE       :        GSRU

              BEFORE       AFTER       UNITS
  SGR          162          163        GAPI
           MEASURED AFTER SURVEY
            BKG       JIG       UNITS
 W1NG      21.3      508.2       CPS
 W2NG      13.2      284.0       CPS
 W3NG       4.0       45.4       CPS
 W4NG        .9       23.1       CPS
 W5NG        .9       41.1       CPS

LDTD                            TOOL   CHECK

        DRS SONDE NUMBER                          :    5786
        NUCLEAR SERVICE CARTRIDGE NUMBER          :    998
        POWERED DETECTOR HOUSING NUMBER           :    3955
        POWERED GAMMA-GAMMA DETECTOR NUMBER       :    3976
        LDT LOGGING SOURCE NUMBER                 :    7245
        LDT CALIBRATION MODE                      :    WATE
        MUD DENSITY                               :    1750.00    K/M3

            BACKGROUND MEASURED
            BEFORE          AFTER          UNITS
   LL       19.18           19.10           CPS
   LU       73.25           73.68           CPS
   LS       55.84           55.96           CPS
 LITH        5.398           5.44           CPS
  SS1       16.51           16.39           CPS
  SS2       11.26           11.23           CPS

CNTH                            TOOL   CHECK

                        JIG
              BEFORE        AFTER
 NRAT         2.086         2.270

 POROSITY CHANGE  (LIME):    .027

  CP 28.15            FILE     5       29-SEP-85 04:13

Run 2               BEFORE SURVEY CALIBRATION SUMMARY

 PERFORMED:      16-OCT-85 17:51
 PROGRAM FILE: LEP      (VERSION     28.15    85/01/03)

NGTC                    DETECTOR CALIBRATION SUMMARY

        NGT CARTRIDGE NUMBER      :        1915
        NGT DETECTOR  NUMBER      :        752
        NGT JIG       NUMBER      :        1735
        NGT SONDE TYPE            :        NGDB
        NGT CALIBRATOR TYPE       :        GSRU

           MEASURED
         BKGD     JIG          CALIBRATED              UNITS
  SGR     10      166             162                  GAPI
           MEASURED BEFORE SURVEY
            BKG       JIG       UNITS
 W1NG      30.8      512.0       CPS
 W2NG      17.0      286.5       CPS
 W3NG       5.6       47.3       CPS
 W4NG       1.7       23.5       CPS
 W5NG       1.7       41.5       CPS

LDTD                    DETECTOR CALIBRATION SUMMARY

        DRS SONDE NUMBER                          :    5786
        NUCLEAR SERVICE CARTRIDGE NUMBER          :    998
        POWERED DETECTOR HOUSING NUMBER           :    3955
        POWERED GAMMA-GAMMA DETECTOR NUMBER       :    3976
        LDT LOGGING SOURCE NUMBER                 :    7245
        LDT CALIBRATION MODE                      :    WATE
        MUD DENSITY                               :    1750.00    K/M3

           M E A S U R E D
         BKGD   AL+FE    AL    UNITS
   LL    19.1    89.8  102.0    CPS
   LU    73.2   139.1  157.5    CPS
   LS    55.8   159.5  180.6    CPS
 LITH     5.3    34.0   52.6    CPS
  SS1    16.5   171.0  195.0    CPS
  SS2    11.2   260.0  289.5    CPS

CNTH                    DETECTOR CALIBRATION SUMMARY

              TANK                              JIG
         INPUT  CALIBRATED              MEASURED    CALIBRATED
 NRAT    2.23980  2.158                   2.126       2.031

LDTD                    CALIPER CALIBRATION SUMMARY

           MEASURED                         CALIBRATED
         SMALL    LARGE                  SMALL      LARGE        UNITS
 CALI    169.4    281.3                  203.02     304.4        MM

  CP 28.15            FILE     0       16-OCT-85 17:51

                        SHOP SUMMARY

 PERFORMED:      85/10/10
 PROGRAM FILE: NGSHOP (VERSION     26.2     83/11/17)

NGTC                    DETECTOR CALIBRATION SUMMARY

           MEASURED
         BKGD     JIG          CALIBRATED              UNITS
  SGR      3      138             163                  GAPI
              SHOP       MEASURED
            BKG       JIG       UNITS
 W1NG      12.:      497.7       CPS
 W2NG       5.6      276.7       CPS
```

LS	55.8	159.9	180.6	CPS
LITH	5.3	34.0	52.6	CPS
SS1	16.5	171.0	195.0	CPS
SS2	11.2	260.0	289.5	CPS

CNTH DETECTOR CALIBRATION SUMMARY

	TANK		JIG	
	INPUT	CALIBRATED	MEASURED	CALIBRATED
NRAT	2.25980	2.158	2.126	2.031

LDTD CALIPER CALIBRATION SUMMARY

	MEASURED		CALIBRATED		
	SMALL	LARGE	SMALL	LARGE	UNITS
CALI	169.4	281.3	203.02	304.4	MM

CP 28.15 FILE 0 16-OCT-85 17:51

SHOP SUMMARY

PERFORMED: 85/10/10
PROGRAM FILE: NGSHOP (VERSION 26.2 83/11/17)

NGTC DETECTOR CALIBRATION SUMMARY

	MEASURED			
	BKGD	JIG	CALIBRATED	UNITS
SGR	3	138	163	GAPI

	SHOP	MEASURED	
	BKG	JIG	UNITS
W1NG	12.1	497.7	CPS
W2NG	5.6	276.7	CPS
W3NG	2.3	45.3	CPS
W4NG	.4	23.2	CPS
W5NG	.6	41.6	CPS

PCSL -73 KEV OFFSET

SHOP SUMMARY

PERFORMED: 85/10/10
PROGRAM FILE: CCSHOP (VERSION 26.2 83/11/17)

LDTD DETECTOR CALIBRATION SUMMARY

DRS SONDE NUMBER	:	5786
NUCLEAR SERVICE CARTRIDGE NUMBER	:	998
POWERED DETECTOR HOUSING NUMBER	:	3955
POWERED GAMMA-GAMMA DETECTOR NUMBER	:	3976
LDT LOGGING SOURCE NUMBER	:	7245
LDT CALIBRATION MODE	:	WATE
MUD DENSITY	:	8.00000

	MASTER	CALIBRATED		
	BKGD	AL+FE	AL	UNITS
LL	19.2	89.9	102.0	CPS
LU	73.2	139.2	157.6	CPS
LS	55.9	159.5	180.7	CPS
LITH	5.4	34.1	52.7	CPS
SS1	16.3	171.0	195.0	CPS
SS2	11.2	260.2	289.5	CPS

SHOP SUMMARY

PERFORMED: 85/10/11
PROGRAM FILE: CCSHOP (VERSION 26.2 83/11/17)

CNTH DETECTOR CALIBRATION SUMMARY

	TANK		JIG	
	MEASURED	CALIBRATED	MEASURED	CALIBRATED
NRAT	2.259	2.158	2.304	2.201

(CNC:386 , CNB:3144)

AFTER SURVEY TOOL CHECK SUMMARY

PERFORMED: 16-OCT-85 20:41
PROGRAM FILE: LEP (VERSION 28.15 85/01/03)

NGTC TOOL CHECK

NGT CARTRIDGE NUMBER	:	1915
NGT DETECTOR NUMBER	:	752
NGT JIG NUMBER	:	1735
NGT SONDE TYPE	:	NGDB
NGT CALIBRATOR TYPE	:	GSRU

	BEFORE	AFTER	UNITS
SGR	162	166	GAPI

	MEASURED AFTER SURVEY		
	BKG	JIG	UNITS
W1NG	12.4	504.0	CPS
W2NG	6.9	283.5	CPS
W3NG	3.3	47.3	CPS
W4NG	.6	23.9	CPS
W5NG	.6	41.9	CPS

LDTD TOOL CHECK

DRS SONDE NUMBER	:	5786	
NUCLEAR SERVICE CARTRIDGE NUMBER	:	998	
POWERED DETECTOR HOUSING NUMBER	:	3955	
POWERED GAMMA-GAMMA DETECTOR NUMBER	:	3976	
LDT LOGGING SOURCE NUMBER	:	7245	
LDT CALIBRATION MODE	:	WATE	
MUD DENSITY	:	1750.00	K/M3

	BACKGROUND MEASURED		
	BEFORE	AFTER	UNITS
LL	19.18	19.10	CPS
LU	73.25	73.25	CPS
LS	55.84	55.75	CPS
LITH	5.398	5.36	CPS
SS1	16.51	16.25	CPS
SS2	11.26	11.25	CPS

CNTH TOOL CHECK

	JIG	
	BEFORE	AFTER
NRAT	2.031	2.188

POROSITY CHANGE (LIME): .023

CP 28.15 FILE 6 16-OCT-85 20:41

COMPANY CANTERRA ENERGY LTD.

WELL ICG SOGEPET ET AL NETSIQ N-01

FIELD HUDSON BAY PROVINCE MANITOBA

Schlumberger

87/4-C55-1-2

Schlumberger

REPEAT FORMATION TESTER

SCHLUMBERGER OF CANADA

PROVINCE	MANITOBA
FIELD	HUDSON BAY
WELL	ICG SOGEPET ET AL NETSIQ N-01
COMPANY	CANTERRA ENERGY LTD.

COMPANY CANTERRA ENERGY LTD.

WELL ICG SOGEPET ET AL NETSIQ N-01

FIELD HUDSON BAY

PROVINCE MANITOBA

OTTAWA COPY

LOCATION: 59° 50' 48.06" NORTH LATITUDE, 87° 30' 59.92" WEST LONGITUDE

LSD ___ SEC. ___ TWP ___ RANGE ___

Other Services: RMKS

Permanent Datum: MSL ; Elev.: 0.0 m

Log Measured From KB 13.7 m Above Perm. Datum

Drilling Measured From KB

Elev.: K.B. 13.7 m; D.F. 13.3 m; G.L. -199.3 m

Date	17 OCT 85			
Run No.	One			
Depth—Driller	1040.0 m			
Depth—Logger (Schl.)	1038.0 m			
Btm. Log Interval	1020.5 m			
Top Log Interval	542.0 m			
Casing—Driller	244.5mm@533 m			
Casing—Logger	532.0 m			
Bit Size	216.0 mm			
Type Fluid in Hole	SEE BELOW			
Dens (kg/m3) | Visc.	1761 | 48.0			
pH | Fluid Loss (cm3)	10.5 | 11.1			
Source of Sample	CIRCULATION			
Rm @ Meas. Temp.	0.091 @ 18.0°C			
Rmf @ Meas. Temp.	0.058 @ 18.0°C			
Rmc @ Meas. Temp.	0.223 @ 14.0°C			
Source: Rmf / Rmc	PRESS | PRESS			
Rm @ BHT	0.099 @ 15.0°C			
Circulation Stopped	1020/16			
Tool Last on Bottom	0300/18			
Max. Rec. Temp. #1 #2	15.0 °C			
Unit | District	922 | ST.J			
Recorded By	BEBB			
Witnessed By	ZANUSSI			

CANADA OIL AND GAS LANDS ADMINISTRATION ... JAN 16 1986 ... ENGINEERING BRANCH

REMARKS:

OTHER SERVICES: DISFL, ...-LDT-GR, DLL-MSFL, DDBHC-GR, SHDT, WST, CST, CBL, NGT...

PROGRAM TAPE NO: 26.2

SERVICE ORDER NO: 129389

CASING WEIGHT: 70.10 kg/m

```
TYPE FLUID IN HOLE:    NACL SATURATED GEL POLYMER
DENSITY:               1761 K/M3
VISCOSITY:             48.0 S
PH:                    10.5
FLUID LOSS:            11.1 C3
SOURCE OF SAMPLE:      CIRC.
RM:                    .091 OHMM AT 18.0 DEGC
RMF:                   .058 OHMM AT 18.0 DEGC
RMC:                   .223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC:        PRESS /PRESS
RM AT BHT:             .099 OHMM AT 15.0 DEGC
RMF AT BHT:            .063 OHMM AT 15.0 DEGC
RMC AT BHT:            .216 OHMM AT 15.0 DEGC

TIME CIRC. STOPPED:    10:20 / 16
TIME LOGGER ON BTM.:   03:00 / 18

MAX. REC. TEMP:        15.0 DEGC

LOGGING UNIT NO:       922
LOGGING UNIT LOC:      ST. JOHN'S
RECORDED BY:           BEBB
WITNESSED BY:          L ZANUSSI
```

REMARKS:

STANDARD AREA PACKER RUN
STANDARD AREA PROBE RUN

CORRECTED kPa ABSOLUTE PRESSURES

EQUIPMENT NUMBERS-

PIM-BA 465	RFP-AD 30	RPP-AB 183	RVP-AA 181
RFM-AB 547	RFC-AD 458	RFS-A 42	RFS-B 42
SGC-JC 1695	SGSN 83760		

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

X4220

REMARKS:

PACKER TYPE ☒ STANDARD ☐ LARGE AREA
PROBE TYPE ☒ STANDARD ☐ LARGE DIAMETER ☐ LONG
90° OFFSET USED ☐ YES ☒ NO

TESTING DATA

TEST NO.	FILE NO.	DEPTH	GOOD SEAT (√) YES	GOOD SEAT (√) NO	PERMEABLE (√) YES	PERMEABLE (√) NO	HYDRO-STATIC PRESSURE	INITIAL SHUT-IN PRESSURE	SAMPLE TAKEN (√) YES	SAMPLE TAKEN (√) NO	FINAL SHUT-IN PRESSURE	FORMATION
1	5	542.0	x			x	9574	-		x		
2	6	545.5	x			x	9636	-		x		
3	7	565.0	x			x	9974	-		x		
4	8	561.0	x		x		9905	9795		x		
5	9	569.0		x			10036	-		x		
6	10	568.9	x			x	10036	-		x		
7	11	575.0	x		x		10146	9933		x		
8	12	579.0	x		x		10181	10002	x		9884	
9	13	582.0	x		x		10215	9995		x		
10	14	590.0	x		x		10360	10050		x		
11	15	601.5	x		x		10560	10498		x		
12	16	607.5	x			x	10664	-		x		
13	17	611.5	x		x		10753	10650		x		
14	18	622.0	x		x		10939	10657		x		
15	19	625.0		x			10995	-		x		
16	20	627.0	x		x		11022	10705		x		
17	21	631.0	x		x		11091	10739		x		
18	22	625.2	x		x		10995	10677		x		
19	25	664.0	x		x		11732	11222		x		
20	26	665.5	x		x		11732	11236		x		
21	27	696.5	x			x	12270	-		x		
22	28	697.0	x			x	12284	-		x		
23	29	707.5	x			x	12470	-		x		
24	30	713.0	x		x		12546	12105		x		
25	31	713.0	x		x		12511	12105		x		
26	32	723.5	x			x	12704	-		x		
27	33	728.5	x		x		12822	12215		x		
28	34	730.5	x		x		12835	12229		x		
29	35	735.5	x		x		12918	12284	x		12167	
30	36	743.0	x		x		13042	12408		x		
31	37	751.0	x		x		13180	12711		x		
32	38	753.5	x		x		13235	12677		x		
33	39	767.0	x			x	13463	-		x		
34	40	793.0	x			x	13932	-		x		
35	41	786.5	x			x	13801	-		x		
36	44	834.5	x			x	14656	-		x		
37	45	854.5		x			15021	-		x		
38	46	854.2	x		x		15014	14111		x		
39	47	861.0		x			15125	-		x		
40	48	861.[illegible]	x			x	15138	-		x		

REMARKS:

PACKER TYPE ☒ STANDARD ☐ LARGE AREA
PROBE TYPE ☒ STANDARD ☐ LARGE DIAMETER ☐ LONG
90° OFFSET USED ☐ YES ☒ NO

TESTING DATA

TEST NO.	FILE NO.	DEPTH	GOOD SEAT (√) YES	GOOD SEAT (√) NO	PERMEABLE (√) YES	PERMEABLE (√) NO	HYDRO-STATIC PRESSURE	INITIAL SHUT-IN PRESSURE	SAMPLE TAKEN (√) YES	SAMPLE TAKEN (√) NO	FINAL SHUT-IN PRESSURE	FORMATION
41	49	887.5	x			x	15580	-		x		
42	50	893.7		x			15683	-		x		
43	51	893.6	x			x	15690	-		x		
44	52	907.5	x			x	15759	-		x		
45	53	970.5	x		x		17041	15559		x		
46	54	973.5	x			x	17096	-		x		
47	55	1007.0		x			17710	-		x		
48	56	1007.1	x			x	17731	-		x		
49	57	1013.5	x			x	17827	-		x		
50	58	1020.5	x			x	17972	-		x		
51	59	854.2	x		x		15021	14090	x		13084	

REMARKS:

PACKER TYPE ☒ STANDARD ☐ LARGE AREA

PROBE TYPE ☒ STANDARD ☐ LARGE DIAMETER ☐ LONG

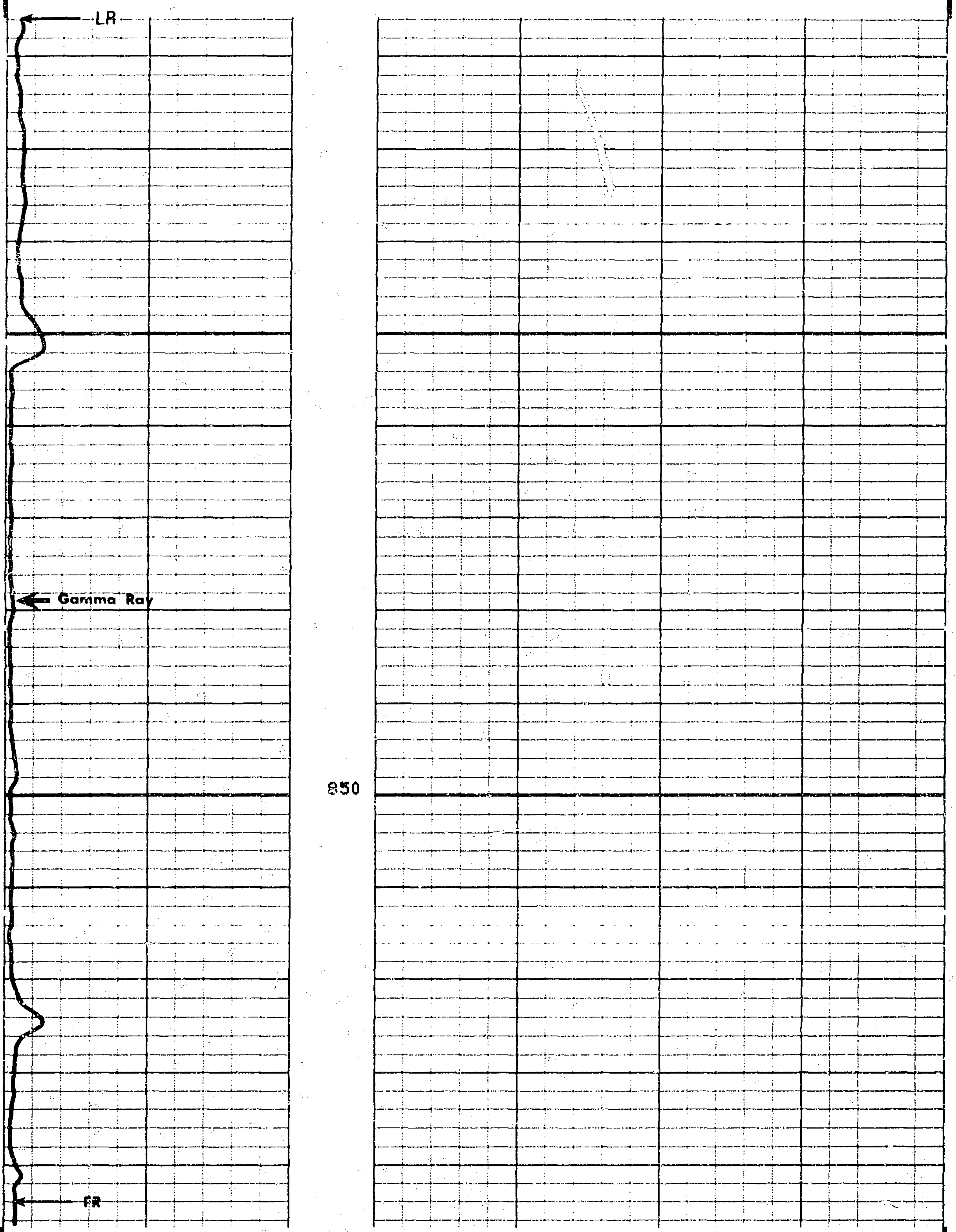
90° OFFSET USED ☐ YES ☒ NO

TESTING DATA

TEST NO.	FILE NO.	DEPTH	GOOD SEAT (√) YES	GOOD SEAT (√) NO	PERMEABLE (√) YES	PERMEABLE (√) NO	HYDRO-STATIC PRESSURE	INITIAL SHUT-IN PRESSURE	SAMPLE TAKEN (√) YES	SAMPLE TAKEN (√) NO	FINAL SHUT-IN PRESSURE	FORMATION
41	49	887.5	x			x	15580	-		x		
42	50	893.7		x			15683	-		x		
43	51	893.6	x			x	15690	-		x		
44	52	937.5	x			x	15759	-		x		
45	53	970.5	x		x		17041	15559		x		
46	54	973.5	x			x	17096	-		x		
47	55	1007.0		x			17710	-		x		
48	56	1007.1	x			x	17731	-		x		
49	57	1013.5	x			x	17827	-		x		
50	58	1020.5	x			x	17972	-		x		
51	59	854.2	x		x		15021	14090	x		13084	

GR (GAPI)
0.0 150.00

FILE 43 17-OCT-85 23:06



FILE 43 17-OCT-85 23:01

GR (GAPI)
0.0 150.00

SENSOR MEASURE POINT TO TOOL ZERO

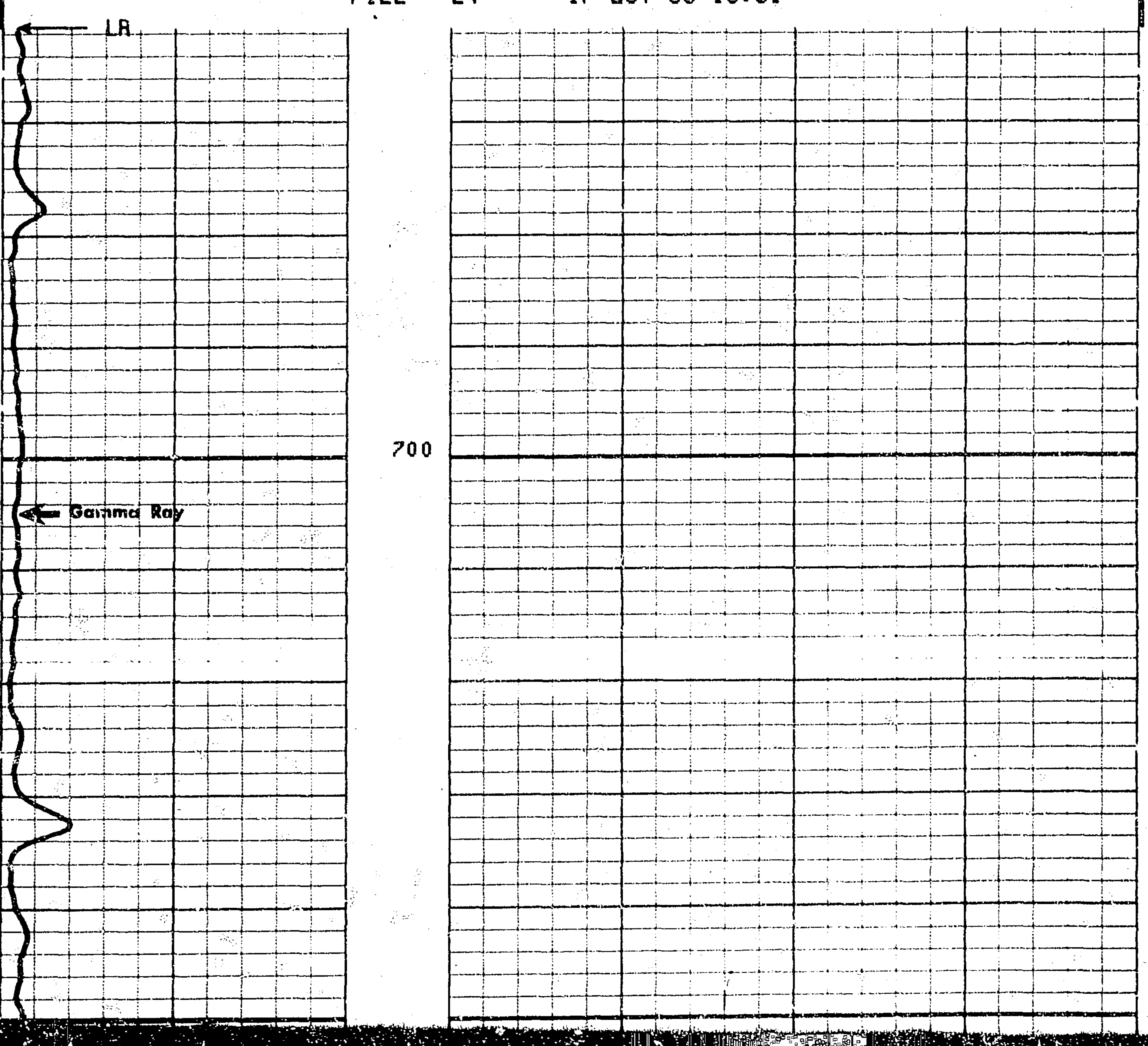
TENS 4.8 METER GR 6.3 METER

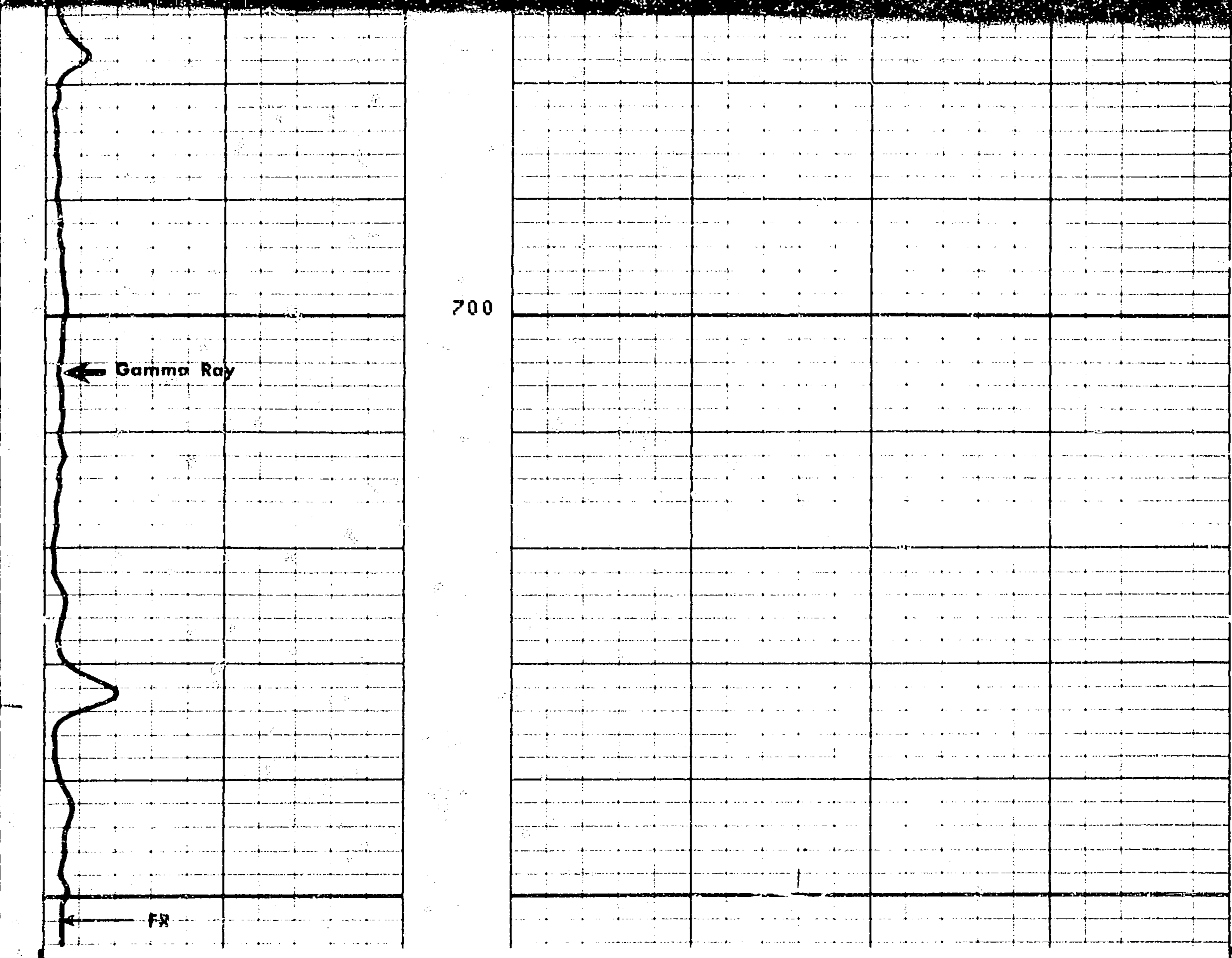
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
FDEP	786.552	M	SGSN	83760	
RPU	PSIG		RFTT	25.0000	DEGC
TCRV	761.450	OHMS	HPSN	0000A-00	
HPT	8.86151	DEGC	TZRV	453.000	OHMS
BHS	OPEN		FLD	1.00000	G/C3
BS	216.000	MM			

GR (GAPI)
0.0 150.00

FILE 24 17-OCT-85 18:31





FILE 24 17-OCT-85 18:27

GR (GAPI)	
0.0	150.00

SENSOR MEASURE POINT TO TOOL ZERO

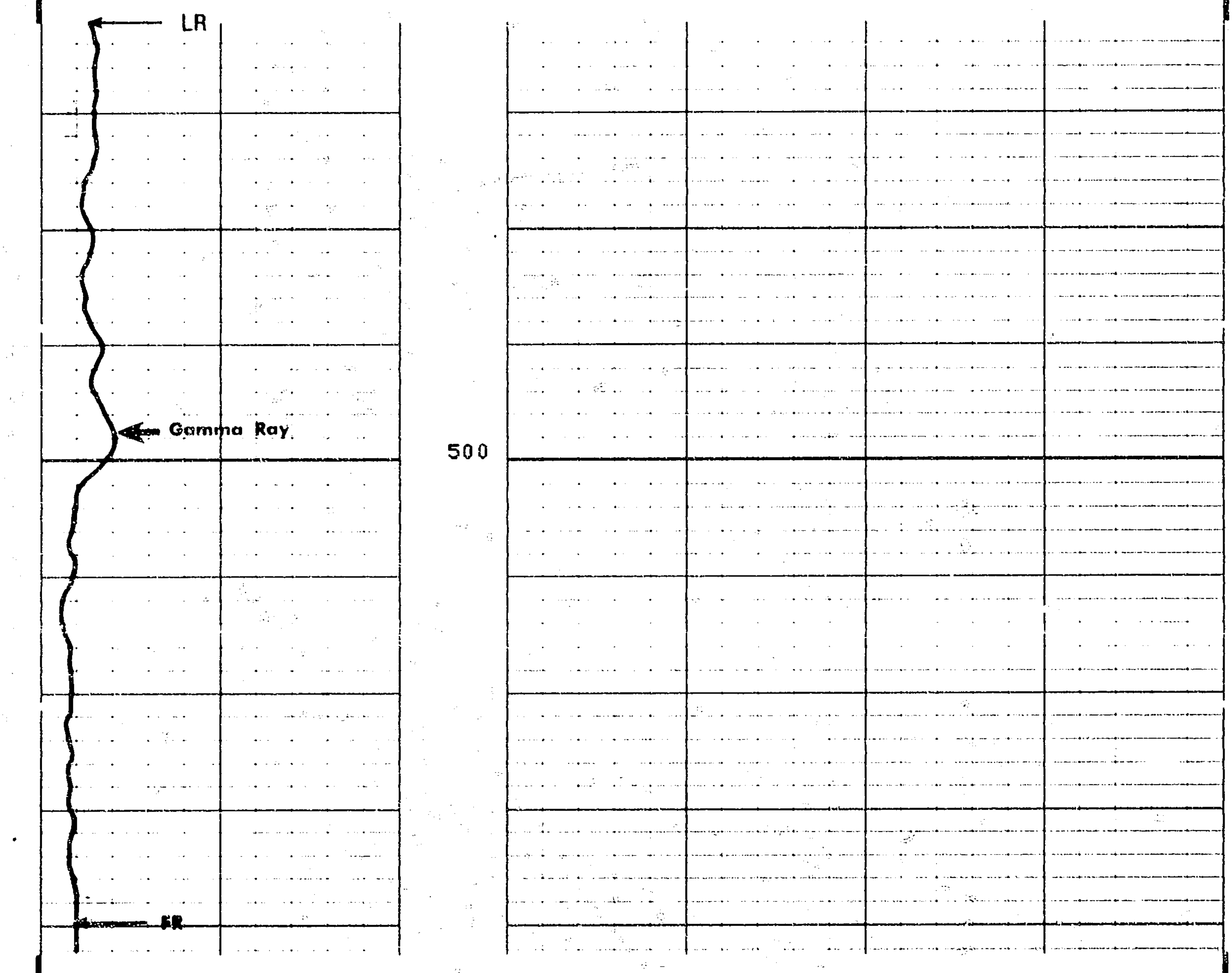
TENS 4.8 METER GR 6.3 METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
FDEP	625.252	M	SGSN	83760	
RPU	PSIG		RFTT	25.0000	DEGC
TCRV	761.450	OHMS	HPSN	0000A-00	
HPT	8.86151	DEGC	TZRV	453.000	OHMS
BHS	OPEN		FLD	1.00000	G/C3
BS	216.000	MM			

GR (GAPI)	
0.0	150.00

FILE 2 17-OCT-85 12:49



FILE 2 17-OCT-85 12:46

GR (GAPI)	
0.0	150.00

SENSOR MEASURE POINT TO TOOL ZERO

TENS 4.8 METER GR 6.3 METER

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
FDEP	680.451	M	SGSN	83760	
RPU	PSIG		RFTT	25.0000	DEGC
TCRV	761.450	OHMS	HPSN	0000A-00	
HPT	4.49072	DEGC	TZRV	453.000	OHMS
BHS	OPEN		FLD	1.00000	G/C3
BS	216.000	MM			

PARAMETERS

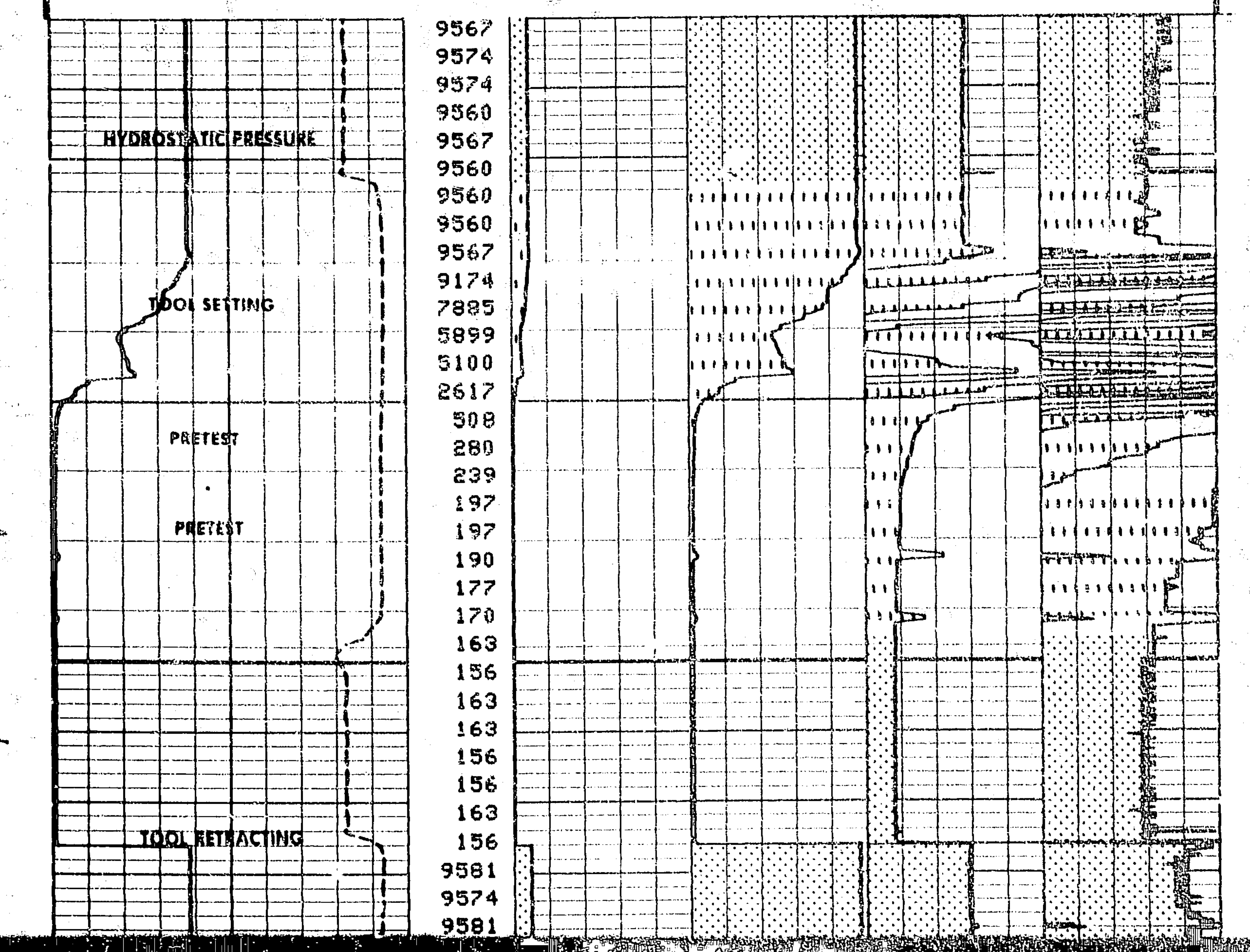
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	541.996	M
SGSN	83760				

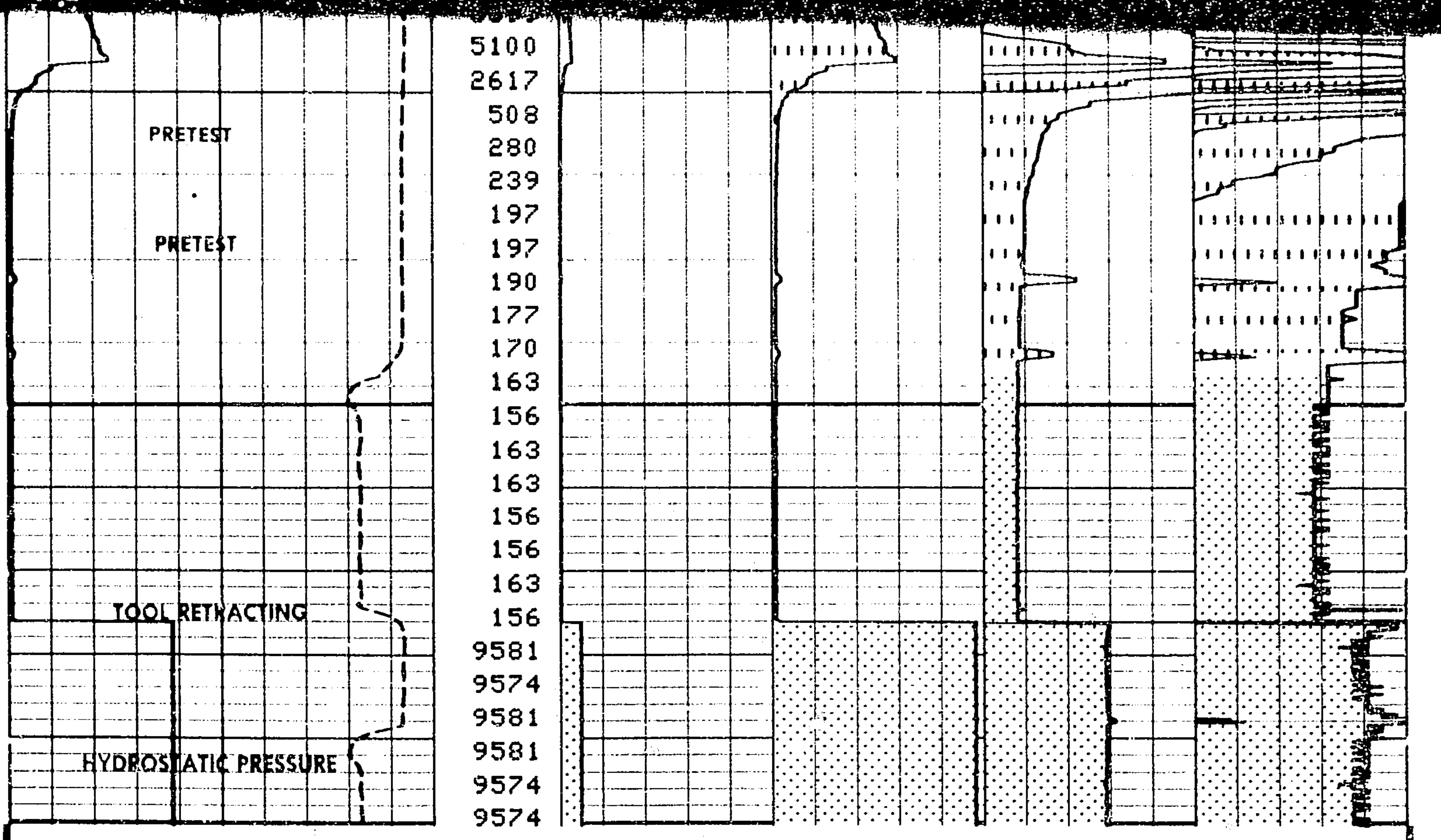
SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

SGP (KPA)		SGP (KPA)		SGP (KPA)	
0.0	25000.	-10000	10000.	-100.0	100.00
		0.0 SGP (KPA)	199999	0.0 SGP (KPA)	2000.0

FILE 5 17-OCT-85 13:09





FILE 5 17-OCT-85 13:14

0.0 25000. SGP (KPA)	-10000 10000. SGP (KPA)	-100.0 100.00 SGP (KPA)
-320.0 80.000 MSPE(RPS)	0.0 199999 SGP (KPA)	0.0 2000.0 SGP (KPA)

PARAMETERS

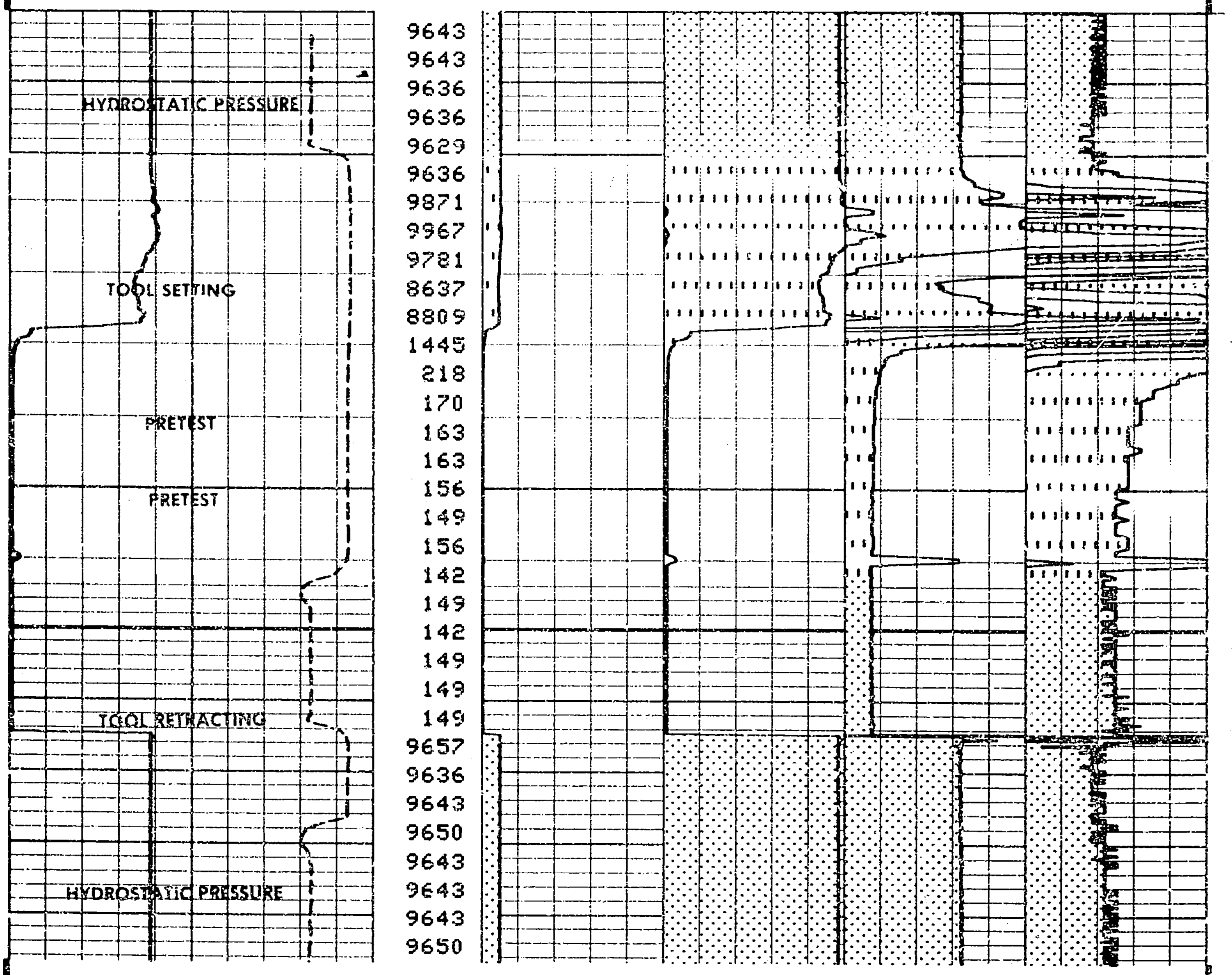
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	545.501	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 25000. SGP (KPA)	-10000 10000. SGP (KPA)	-100.0 100.00 SGP (KPA)
	0.0 199999 SGP (KPA)	0.0 2000.0 SGP (KPA)

FILE 6 17-OCT-85 13:16



FILE 6 17-OCT-85 13:21

0.0 25000. SGP (KPA)	-10000 10000. SGP (KPA)	-100.0 100.00 SGP (KPA)
-320.0 80.000 MSPE(RPS)	0.0 199999 SGP (KPA)	0.0 2000.0 SGP (KPA)

PARAMETERS

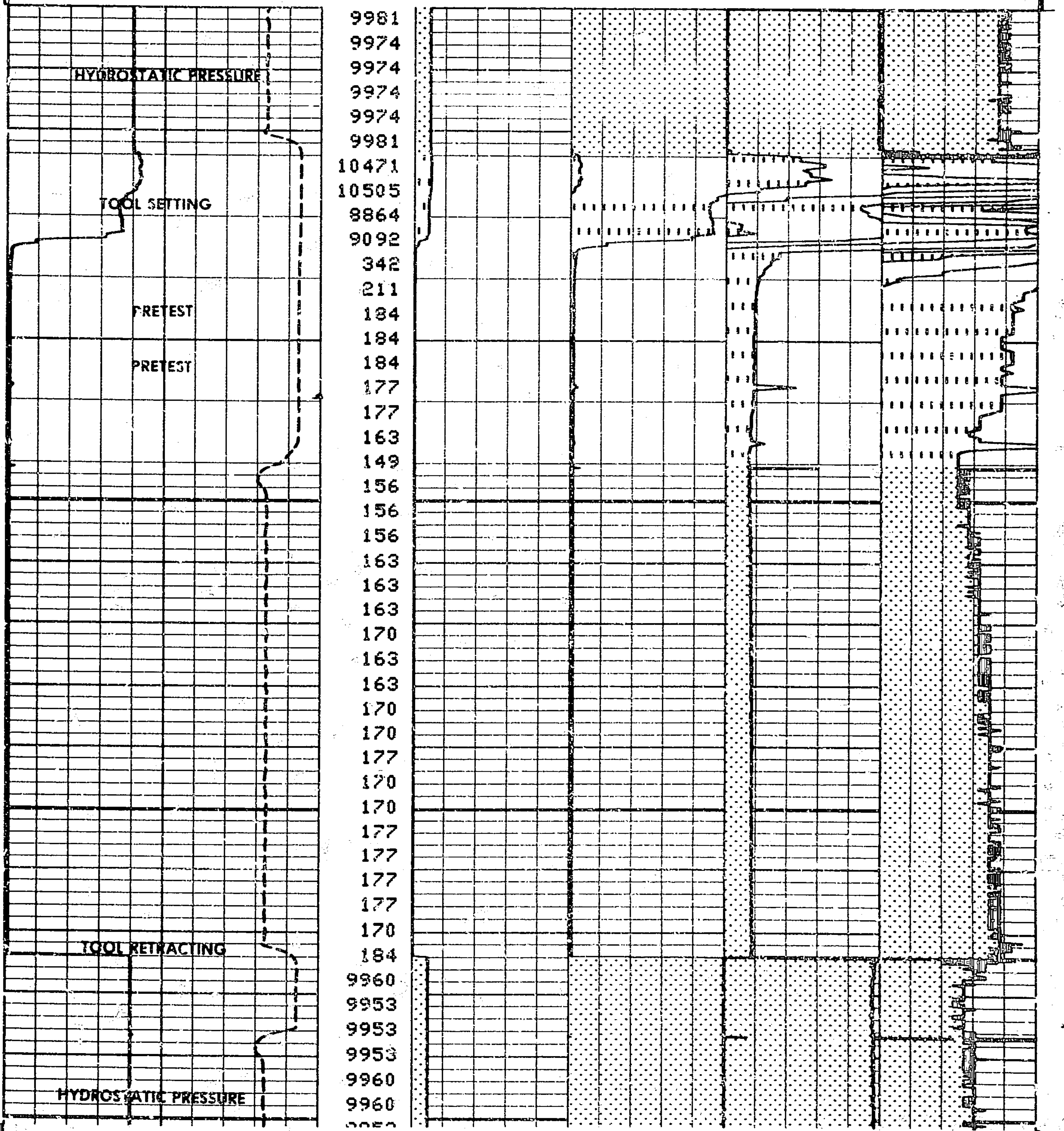
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	565.054	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

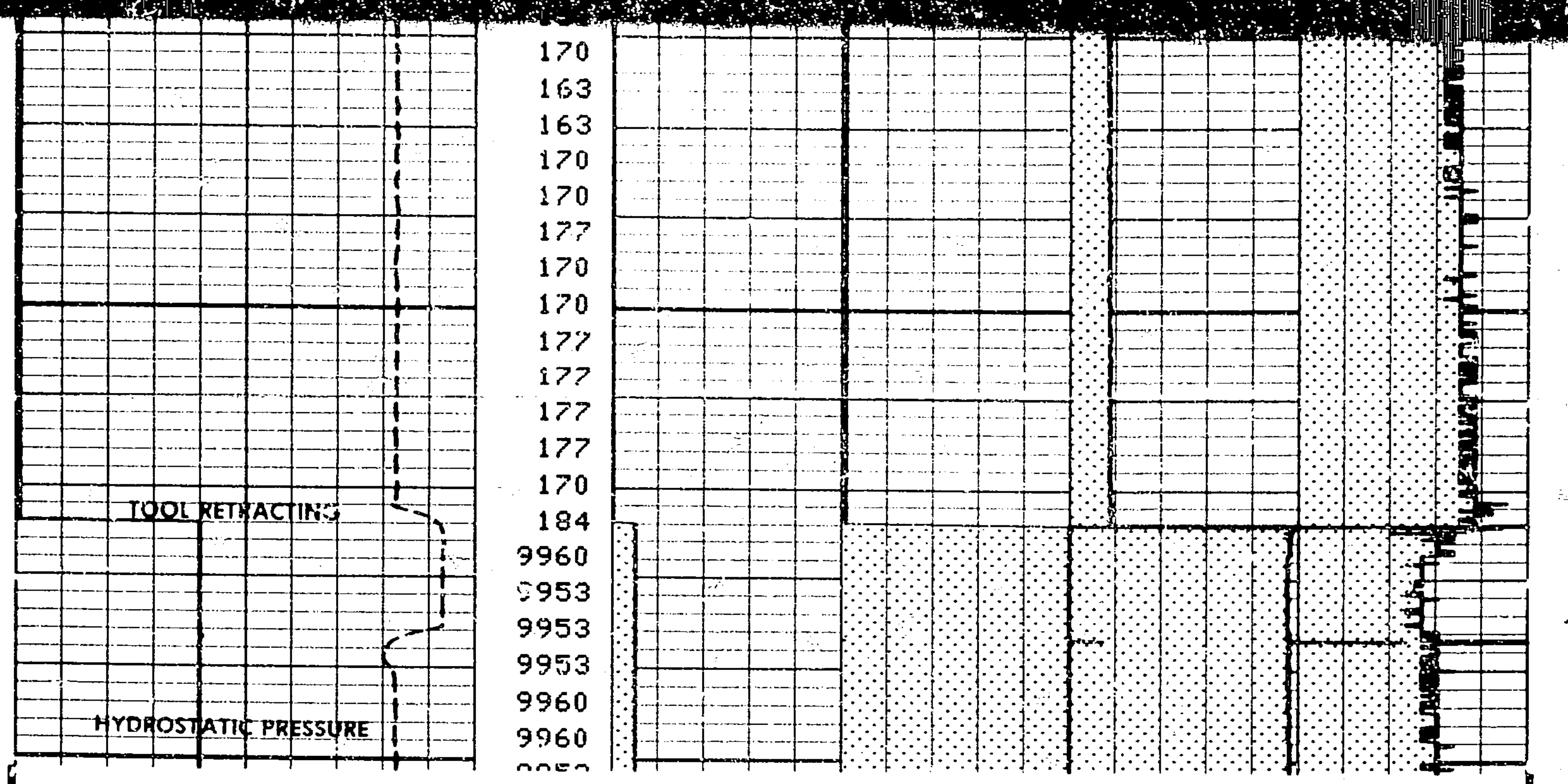
TENS 7.8 METER GR 6.3 METER

0.0 25000. SGP (KPA)	-10000 10000. SGP (KPA)	-100.0 100.00 SGP (KPA)
	0.0 199999 SGP (KPA)	0.0 2000.0 SGP (KPA)

FILE 7 17-OCT-85 13:24



FILE 7 17-OCT-85 13:32



FILE 7 17-OCT-85 13:32

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

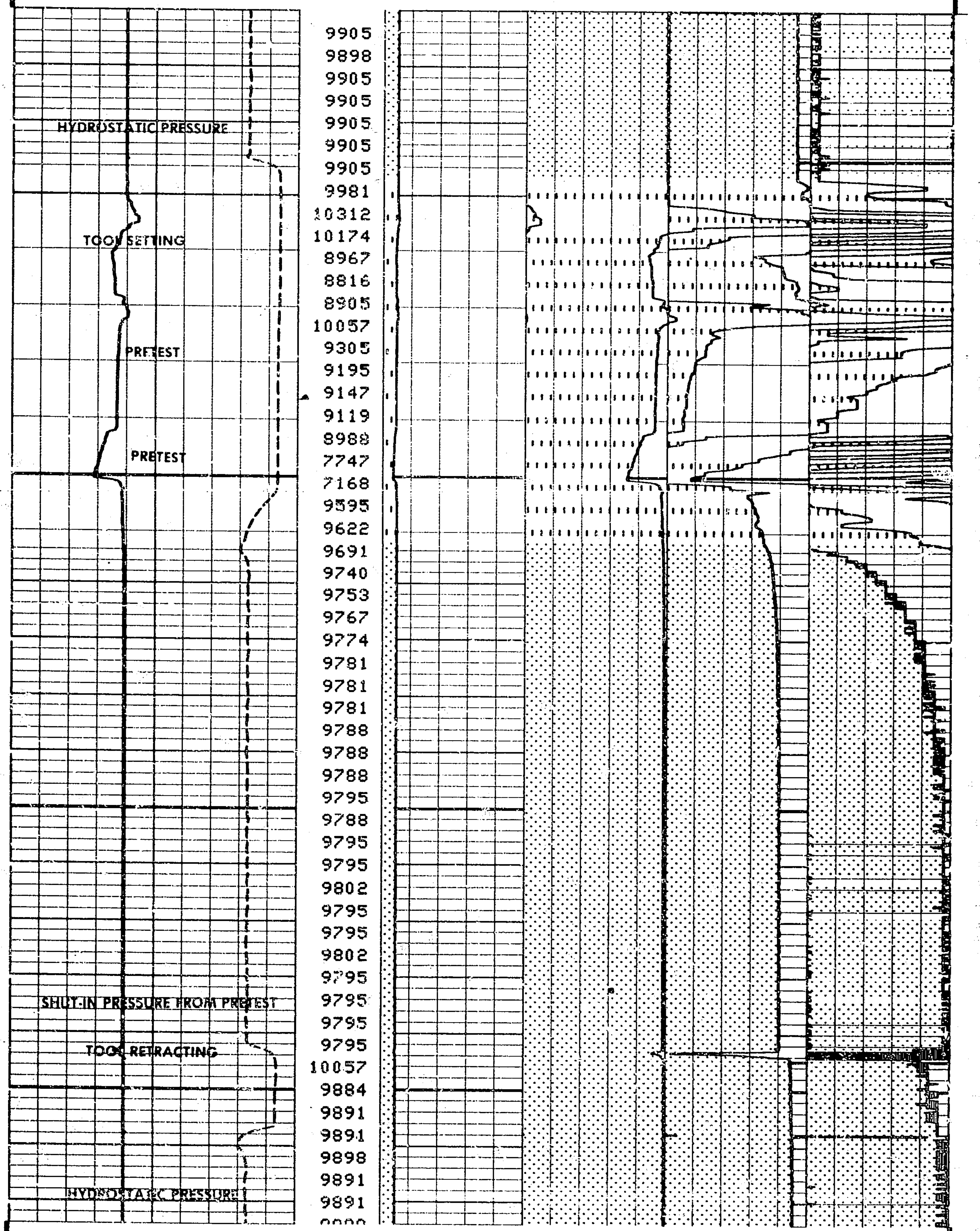
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	561.015	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 8 17-OCT-85 13:33



FILE 8 17-OCT-85 13:42

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

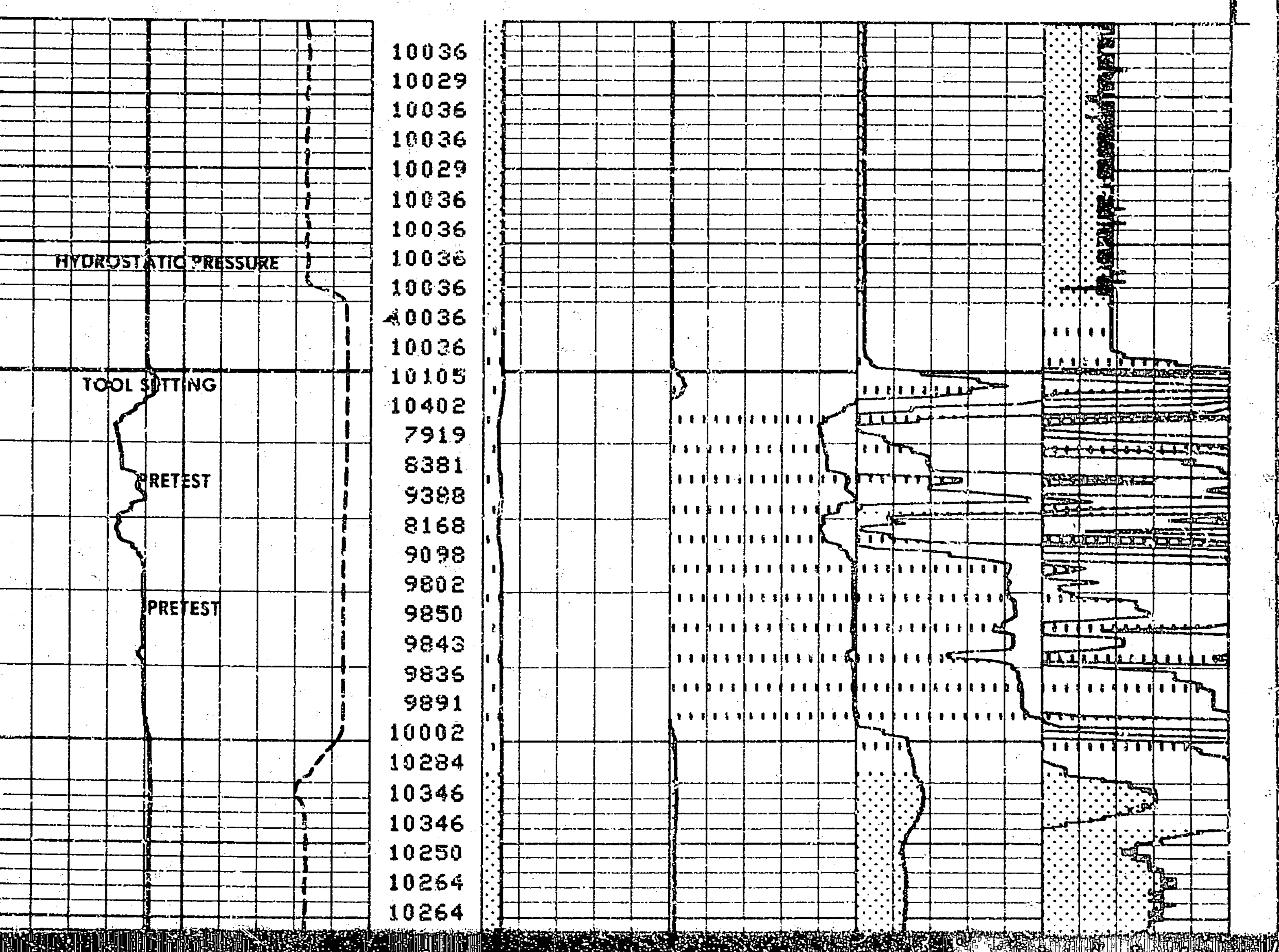
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	569.001	M
SGSN	83760				

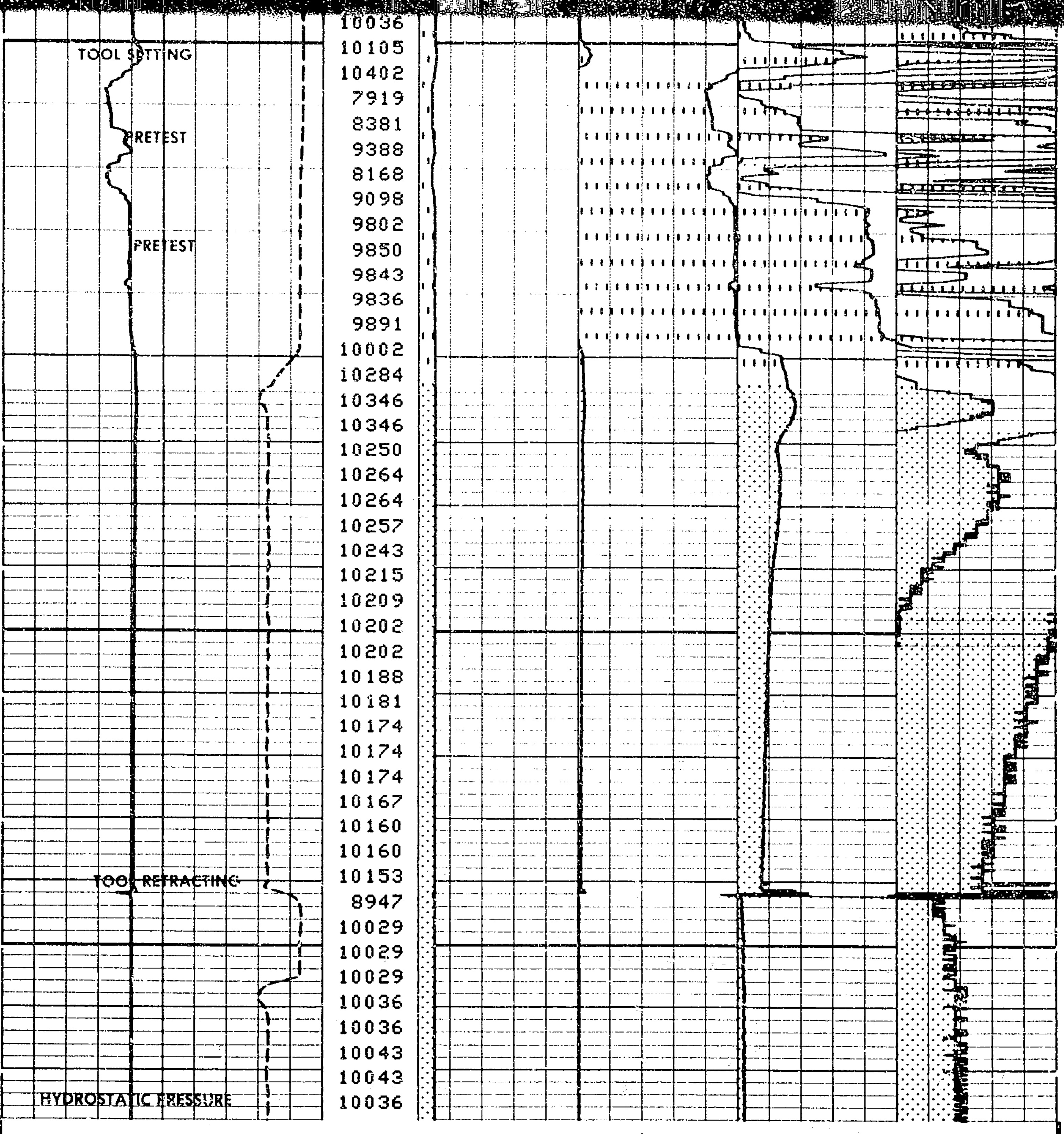
SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 9 17-OCT-85 13:43





FILE 9 17-OCT-85 13:52

0.0 SGP (KPA) 25000.
-320.0 MSPE(RPS) 80.000
-10000 SGP (KPA) 10000.
0.0 SGP (KPA) 199999
-100.0 SGP (KPA) 100.00
0.0 SGP (KPA) 2000.0

PARAMETERS

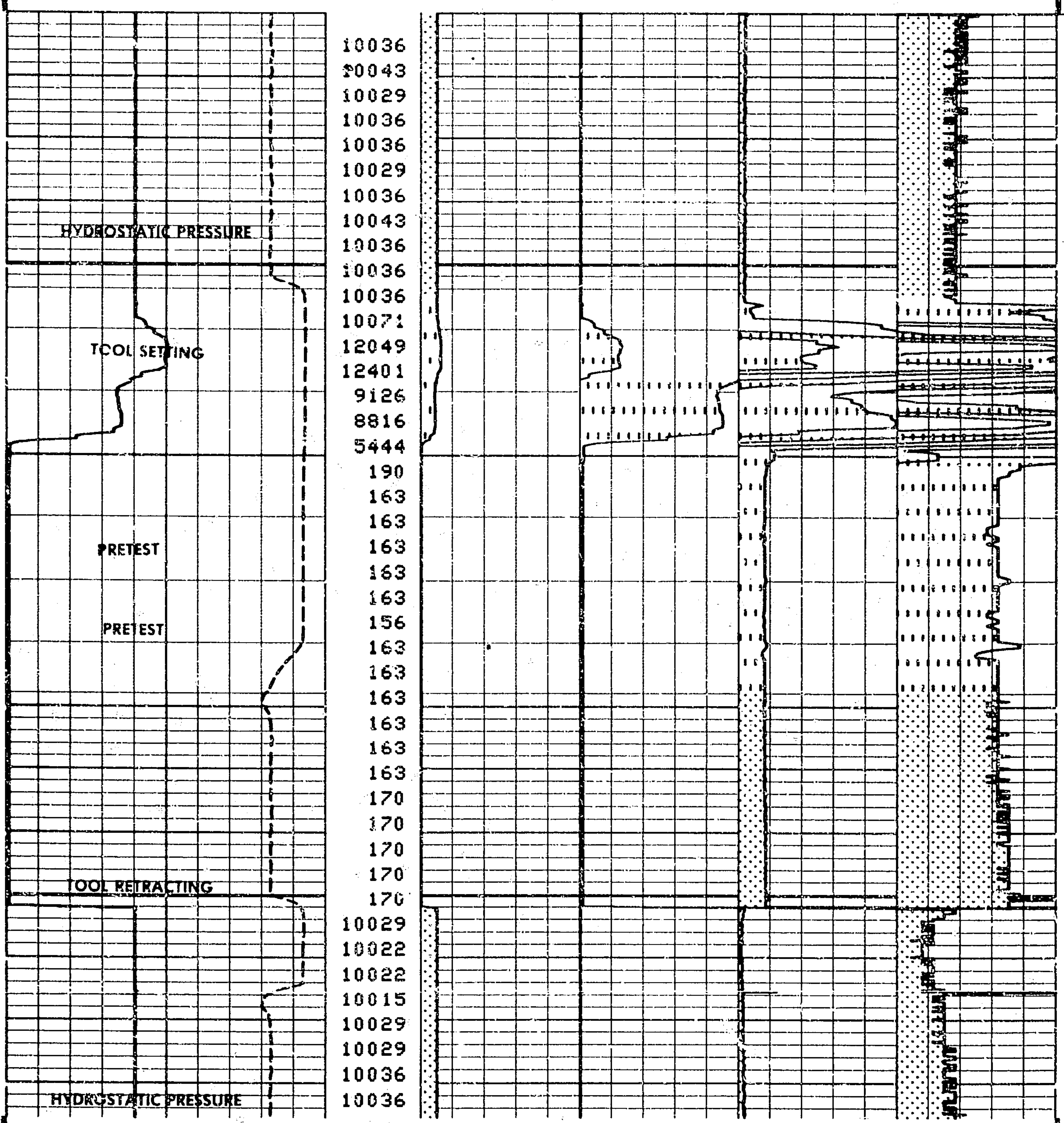
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	568.909	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.
-10000 SGP (KPA) 10000.
0.0 SGP (KPA) 199999
-100.0 SGP (KPA) 100.00
0.0 SGP (KPA) 2000.0

FILE 10 17-OCT-85 13:55



FILE 10 17-OCT-85 14:02

0.0 SGP (KPA) 25000.
-320.0 MSPE(RPS) 80.000
-10000 SGP (KPA) 10000.
0.0 SGP (KPA) 199999
-100.0 SGP (KPA) 100.00
0.0 SGP (KPA) 2000.0

PARAMETERS

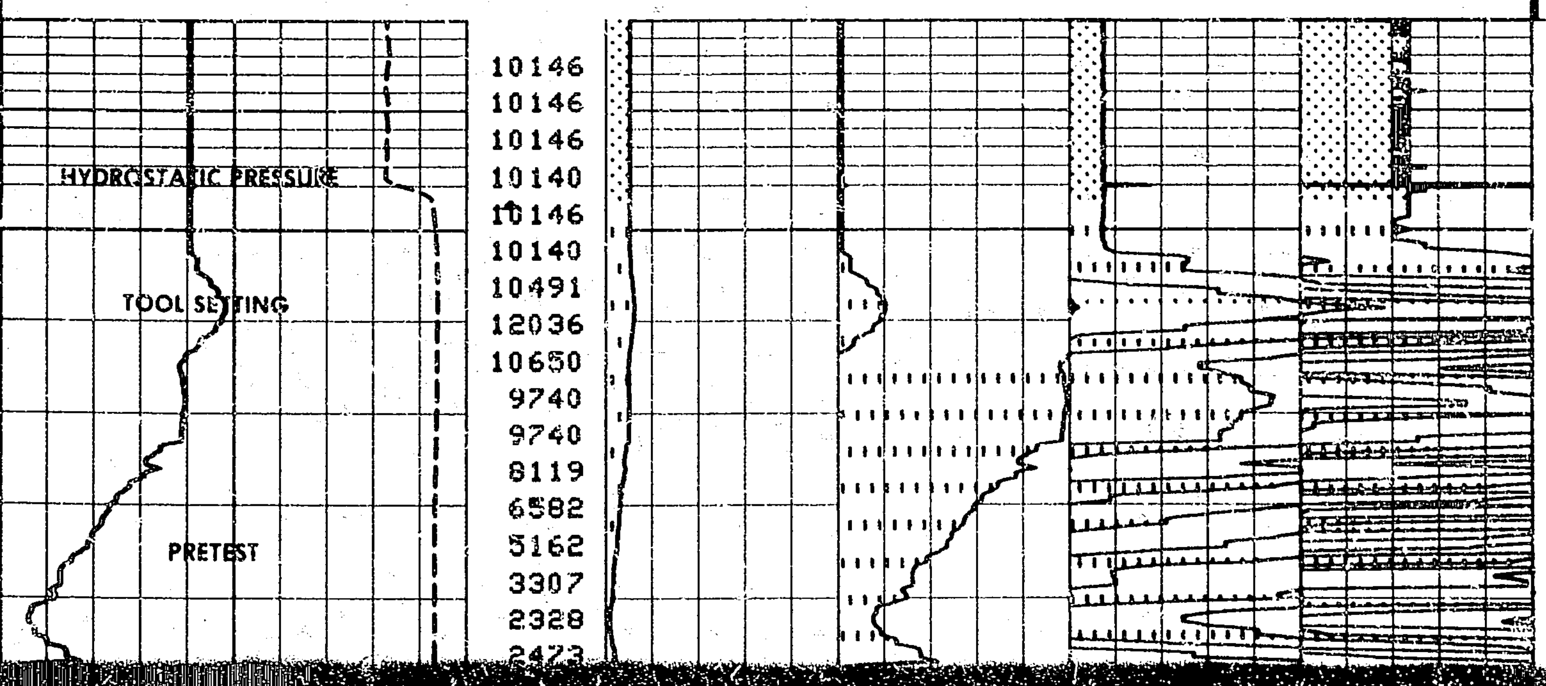
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	575.051	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

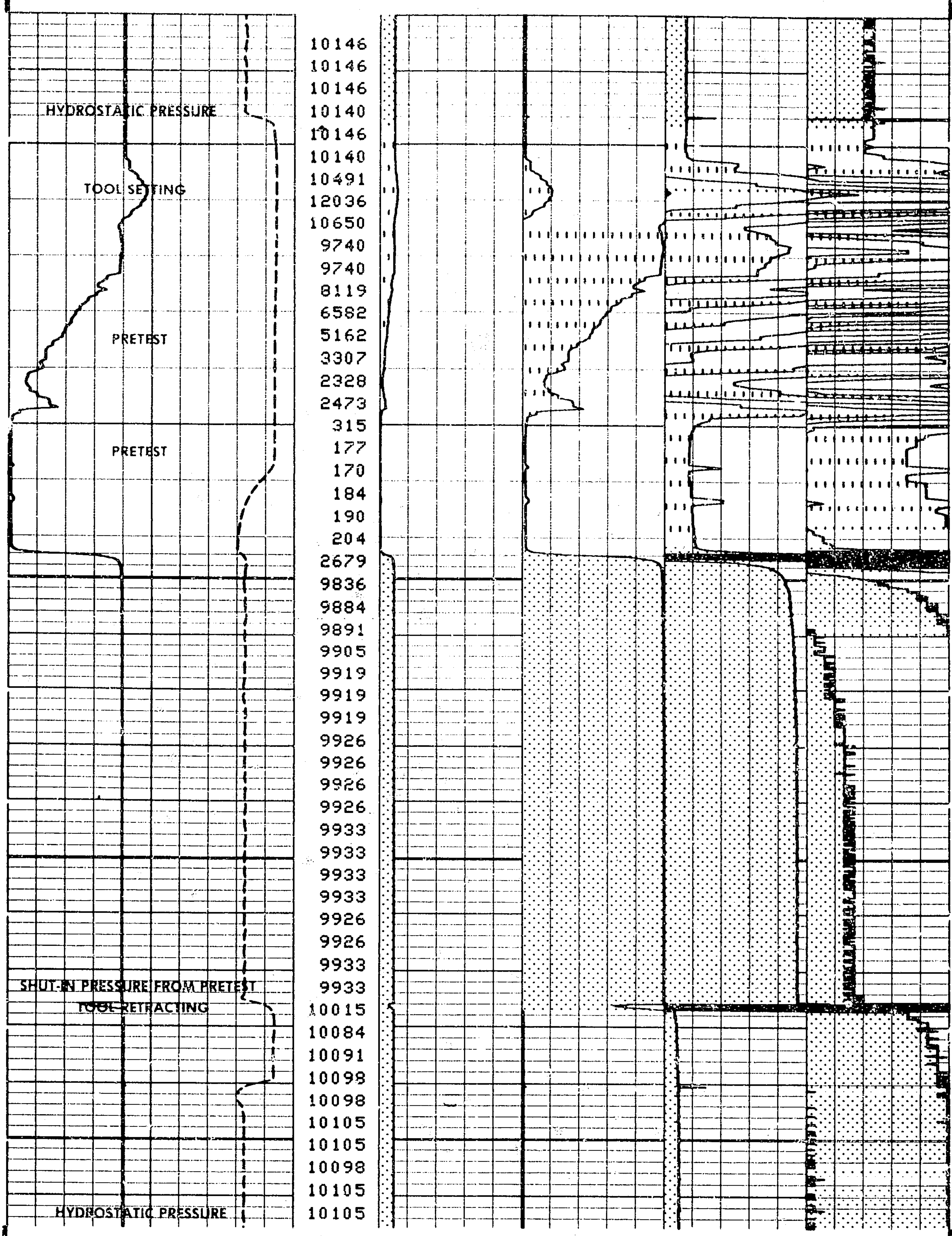
0.0 SGP (KPA) 25000.
-10000 SGP (KPA) 10000.
0.0 SGP (KPA) 199999
-100.0 SGP (KPA) 100.00
0.0 SGP (KPA) 2000.0

FILE 11 17-OCT-85 14:03



SGP (KPA) SGP (KPA)

FILE 11 17-OCT-85 14:03



FILE 11 17-OCT-85 14:11

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE (RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

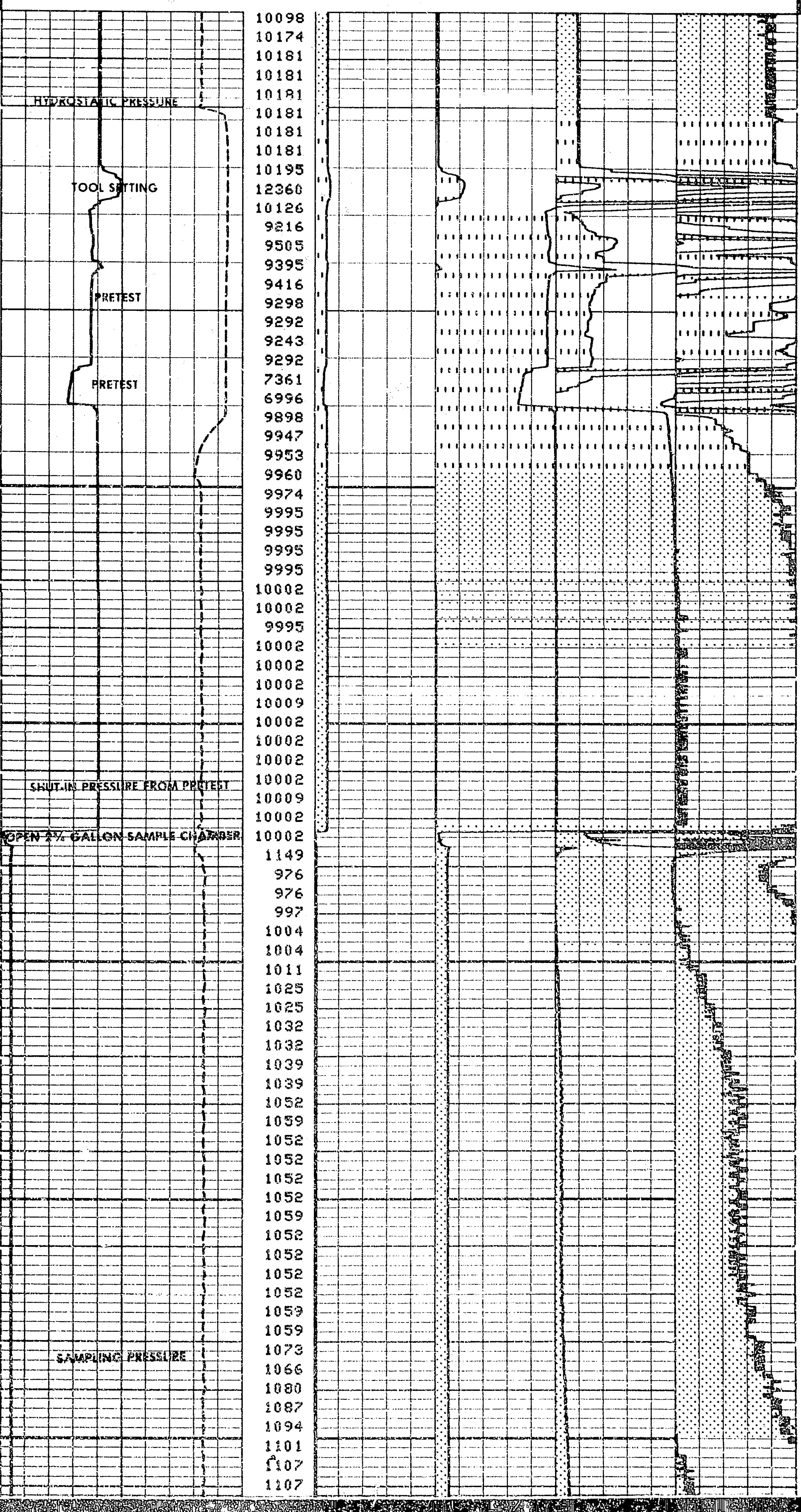
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	579.044	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

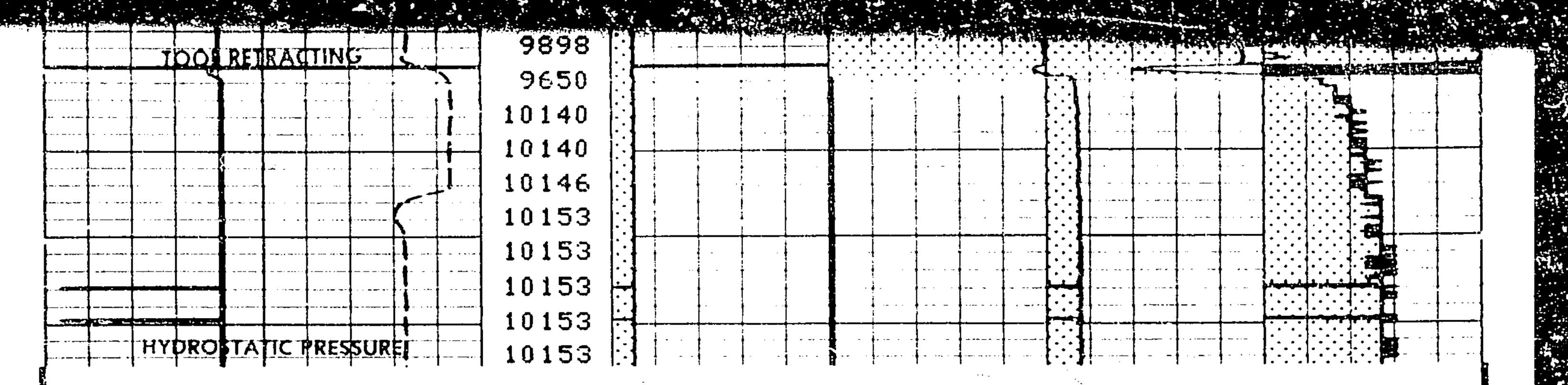
FILE 12 17-OCT-85 14:15




SAMPLING PRESSURE
SAMPLING PRESSURE

SAMPLE TEST DATA

TEST NO. 8
DEPTH 579 m



FILE 12 17-OCT-85 15:24

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

SAMPLE TEST DATA

TEST NO. 8
DEPTH 579 m

PRESSURE DATA

Initial Shut-in Pressure 10002 kPa Shut-in time ______ min

Sampling Pressure ☒ Air Cushion Pressure ☐ Water Cushion ______ kPa

Final Shut-in Pressure 5860 kPa AT SURFACE Shut-in time ______ min

Hydrostatic Pressure 10153 kPa

RECOVERY DATA

Gas ______ litres
Oil ______ litres
WATER 10.0 litres
Resistivity 0.058 Ω·m @ 17 °C
Segregated Sample ☐ Yes ☒ No

MUD FILTRATE DATA

Resistivity 0.058 Ω·m @ 18 °C

TOOL DATA

Sample Unit Size 10.41 litres
Type Cushion ☒ Air Initial pressure if air 825 kPa
☐ Water Choke size if water ______ mm
Probe Filter Size ______ mm
Flow Restrictor ☐ Yes ☒ No

SUMMARY

Result indicate that WATER may be expected at this depth.

Remarks ______

SAMPLE TEST DATA

TEST NO. 8
DEPTH 579 m

PRESSURE DATA

Initial Shut-in Pressure 10002 kPa Shut-in time ______ min

Sampling Pressure ☒ Air Cushion Pressure ☐ Water Cushion ______ kPa

Final Shut-in Pressure 5860 kPa AT SURFACE Shut-in time ______ min

Hydrostatic Pressure 10153 kPa

RECOVERY DATA

Gas ______ litres
Oil ______ litres
WATER 3.0 litres
Resistivity 0.056 Ω·m @ 19 °C
Segregated Sample ☒ Yes ☐ No

MUD FILTRATE DATA

Resistivity 0.058 Ω·m @ 18 °C

TOOL DATA

Sample Unit Size 3.79 litres
Type Cushion ☒ Air Initial pressure if air 825 kPa
☐ Water Choke size if water ______ mm
Probe Filter Size ______ mm
Flow Restrictor ☐ Yes ☒ No

SUMMARY

Result indicate that WATER may be expected at this depth.

Remarks ______

PARAMETERS

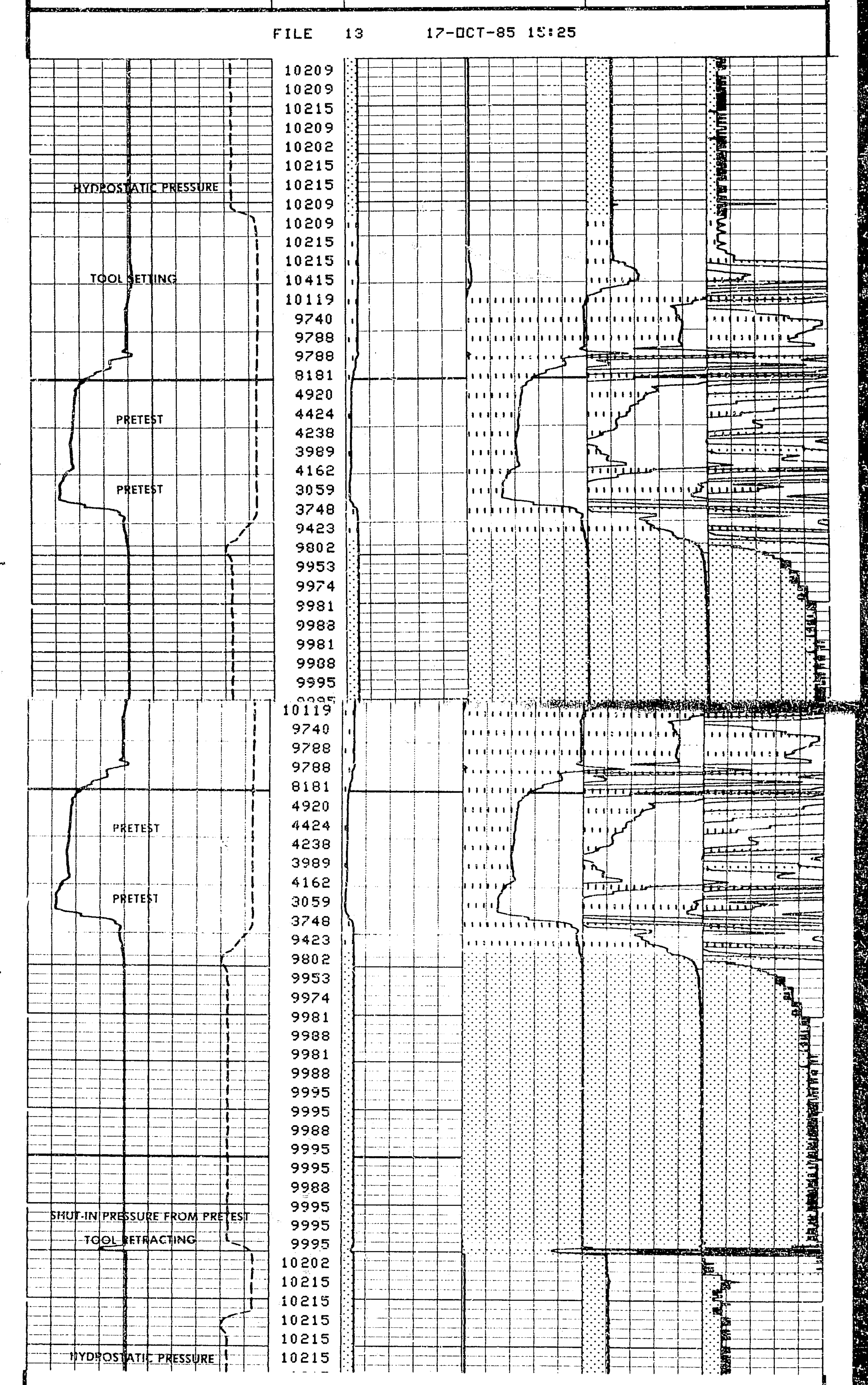
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	582.046	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 13 17-OCT-85 15:25



FILE 13 17-OCT-85 15:33

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

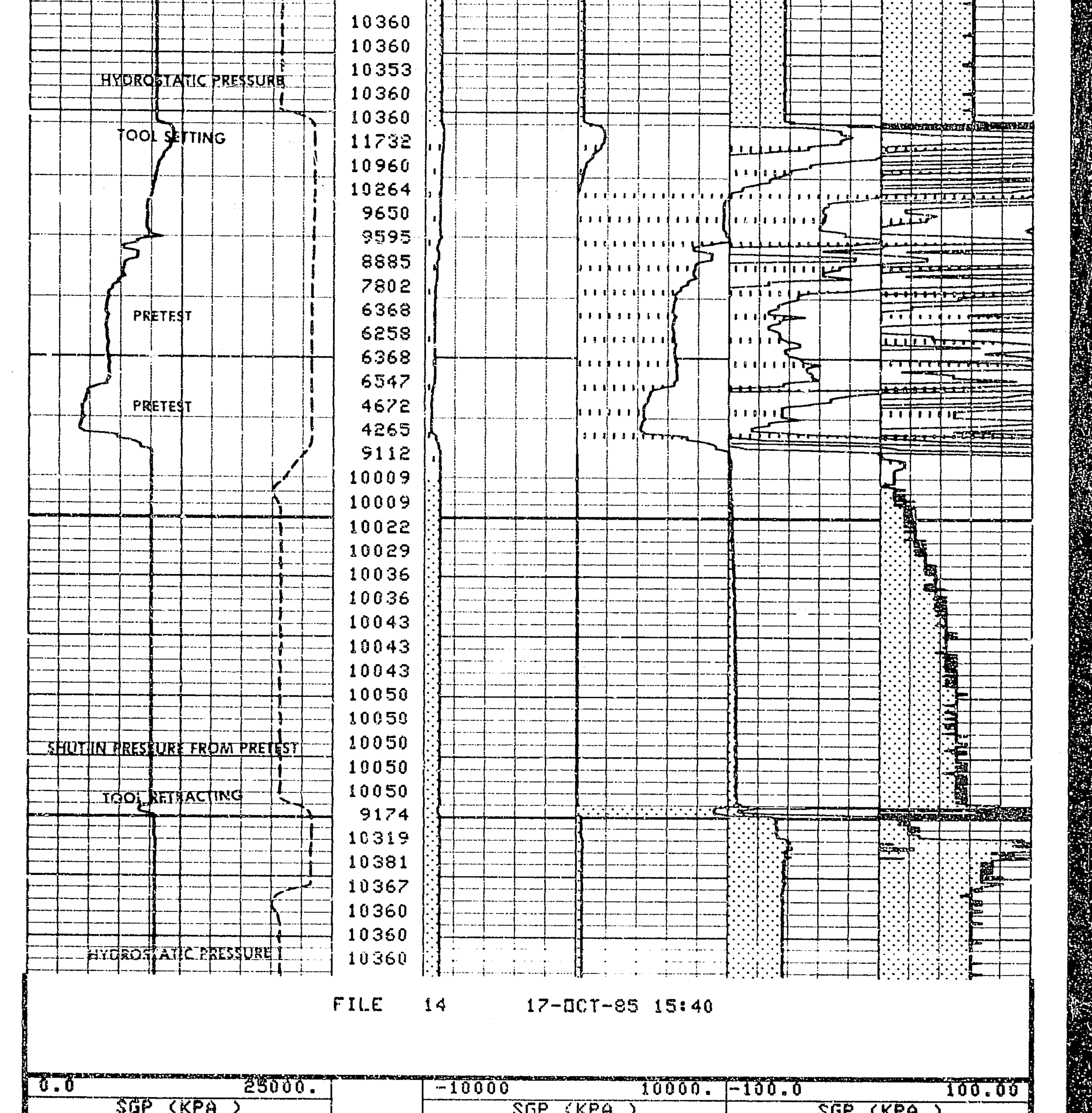
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	590.002	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 14 17-OCT-85 15:34



FILE 14 17-OCT-85 15:40

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

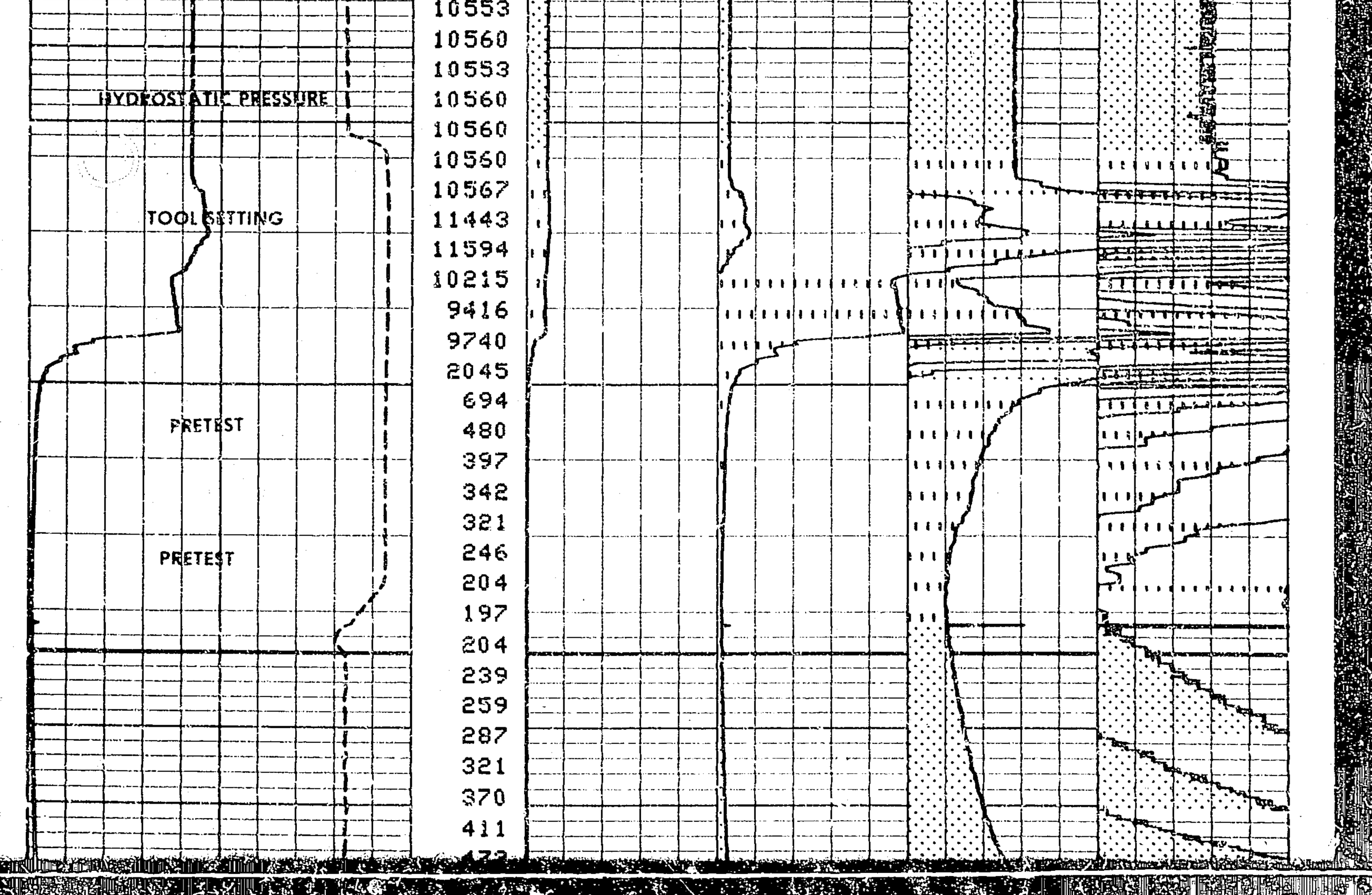
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZR/	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	601.493	M
SGSN	83760				

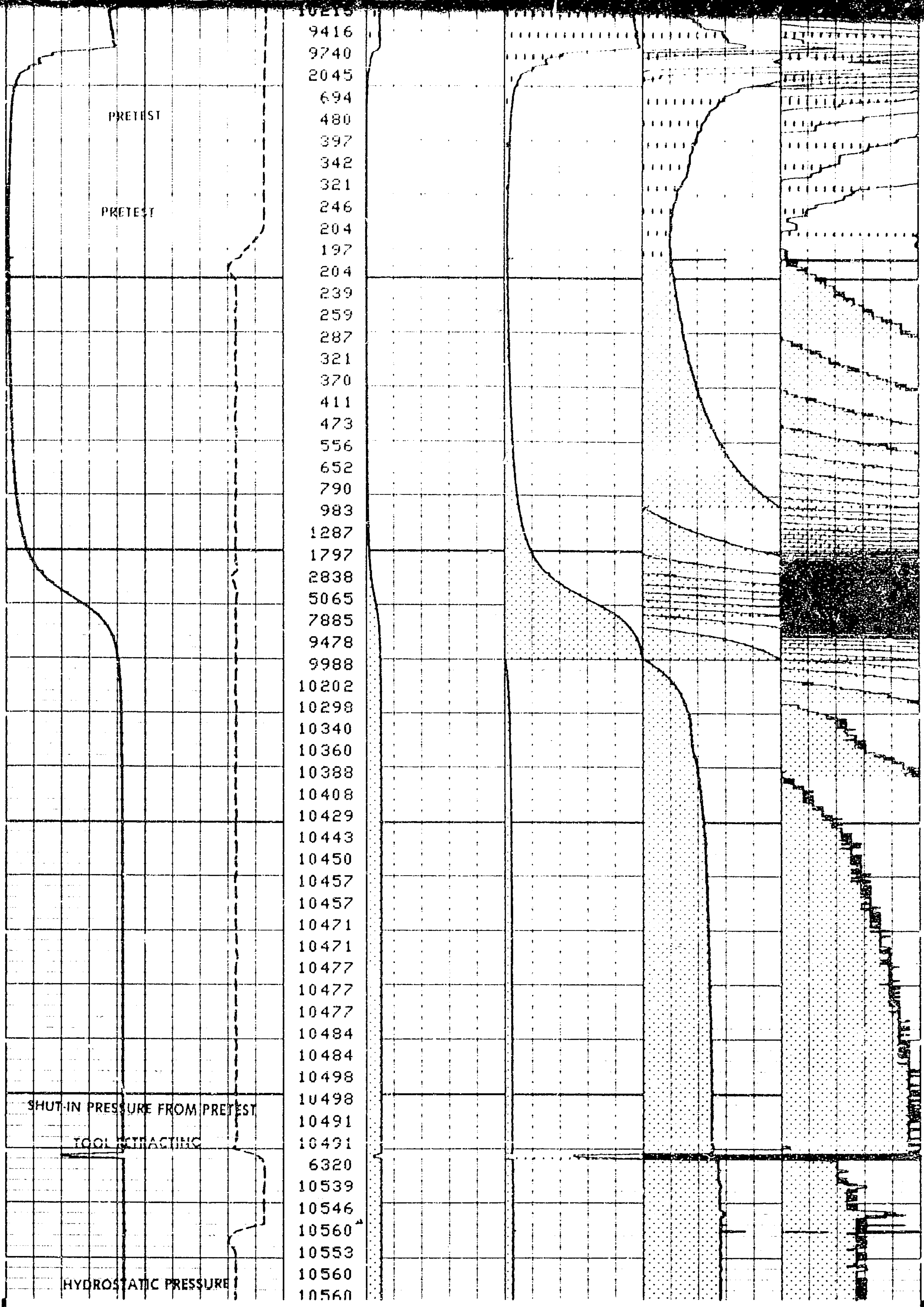
SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 15 17-OCT-85 15:42





FILE 15 17-OCT-85 15:53

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | -100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000 | 0.0 SGP (KPA) 199999 | 0.0 SGP (KPA) 2000.0

PARAMETERS

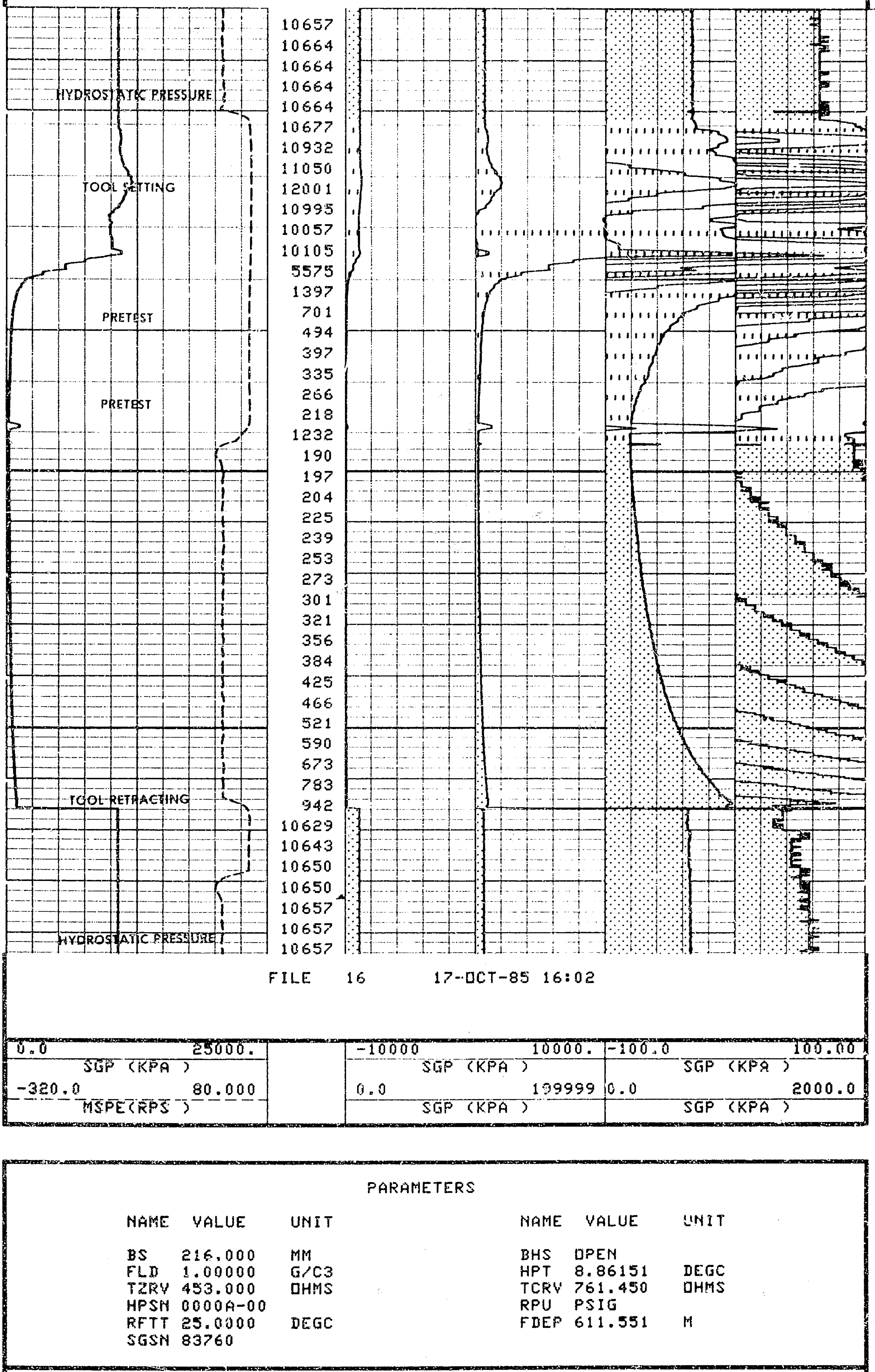
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	607.451	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | -100.0 SGP (KPA) 100.00
0.0 SGP (KPA) 199999 | 0.0 SGP (KPA) 2000.0

FILE 16 17-OCT-85 15:54



FILE 16 17-OCT-85 16:02

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | -100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000 | 0.0 SGP (KPA) 199999 | 0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	611.551	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | -100.0 SGP (KPA) 100.00
0.0 SGP (KPA) 199999 | 0.0 SGP (KPA) 2000.0

FILE 17 17-OCT-85 16:03

-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

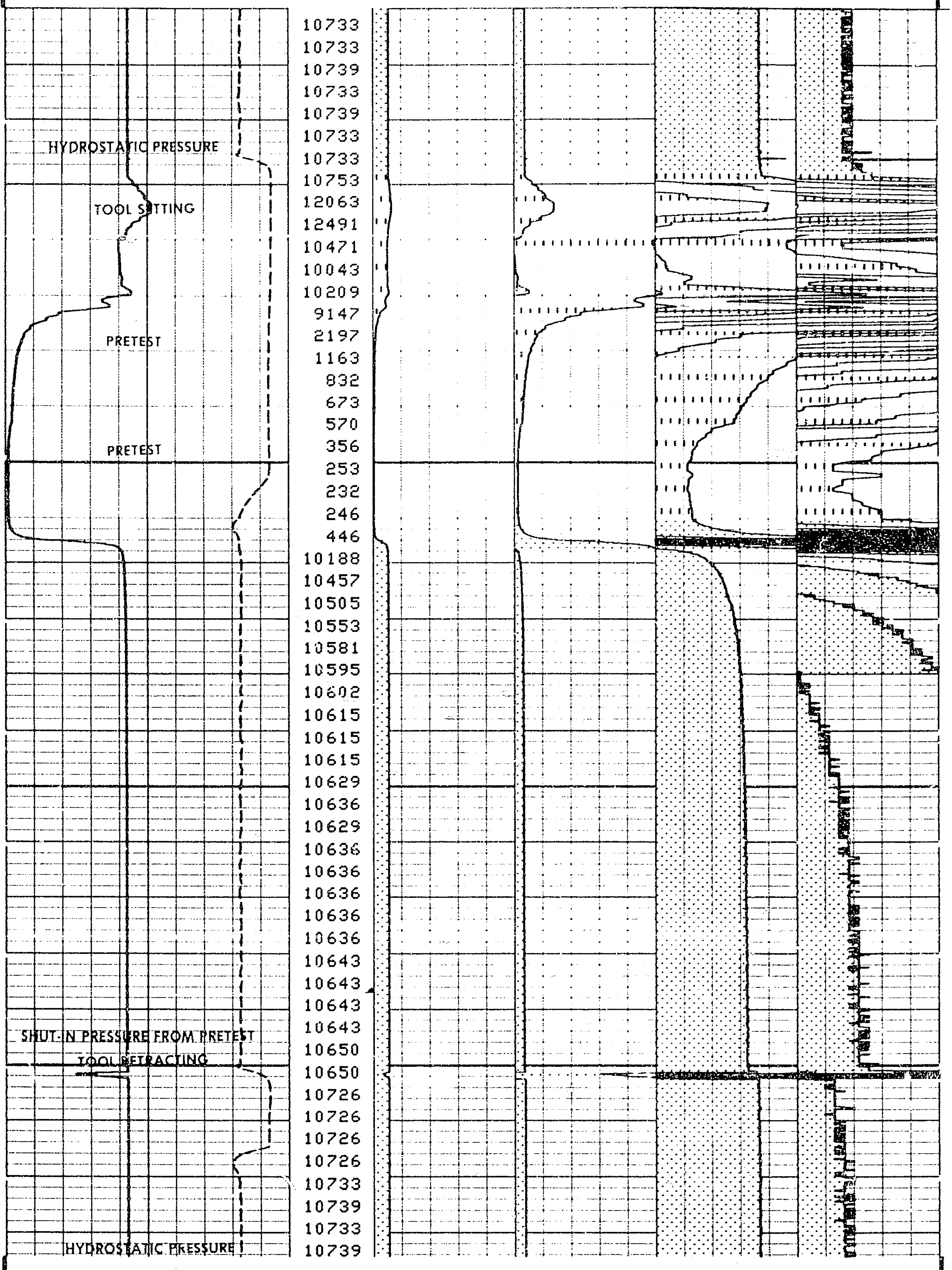
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	611.551	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 17 17-OCT-85 16:03



FILE 17 17-OCT-85 16:12

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

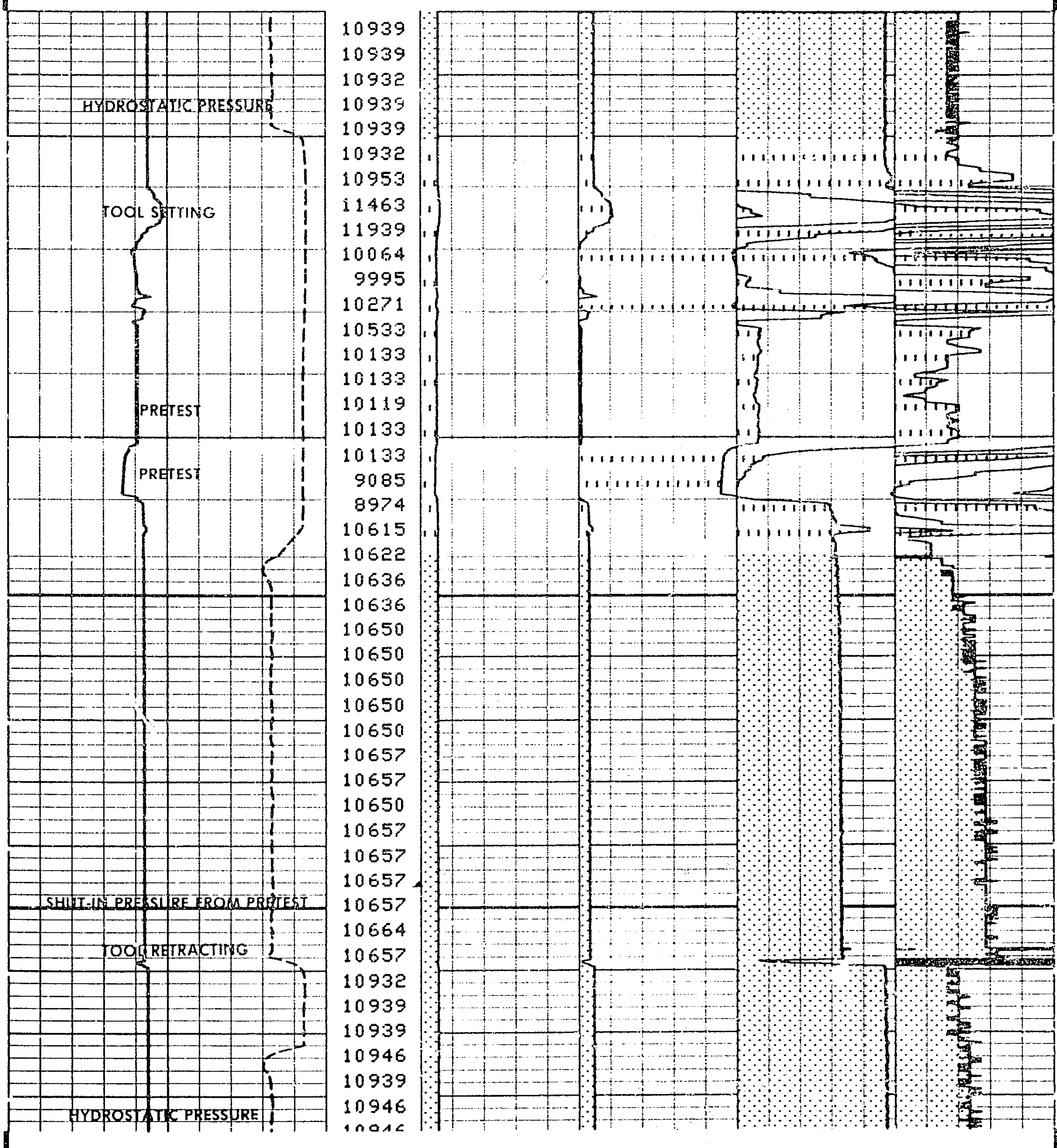
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	622.051	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

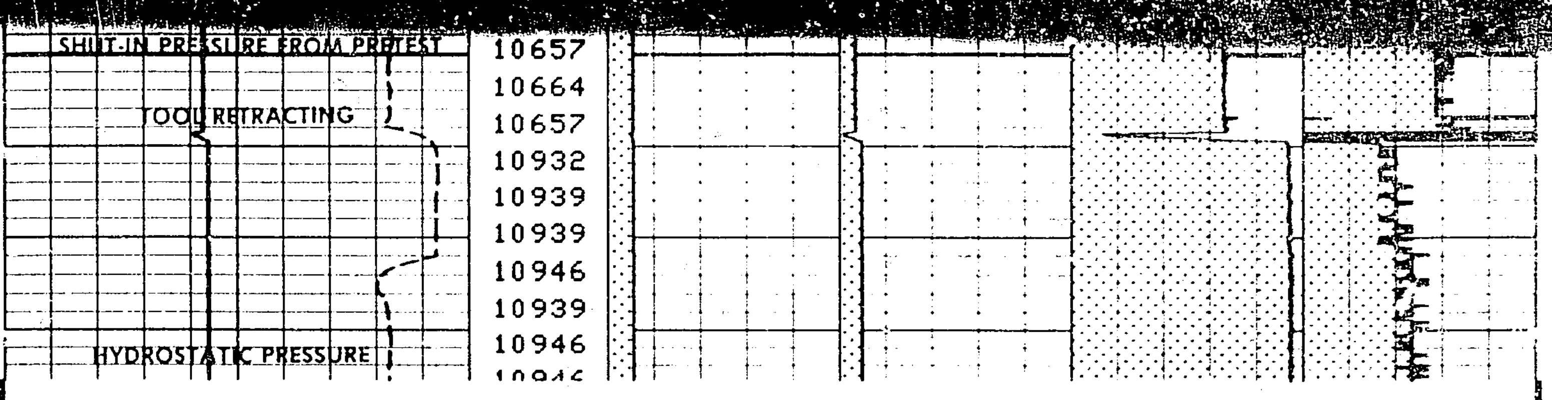
0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 18 17-OCT-85 16:14



FILE 18 17-OCT-85 16:21

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0



FILE 18 17-OCT-85 16:21

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

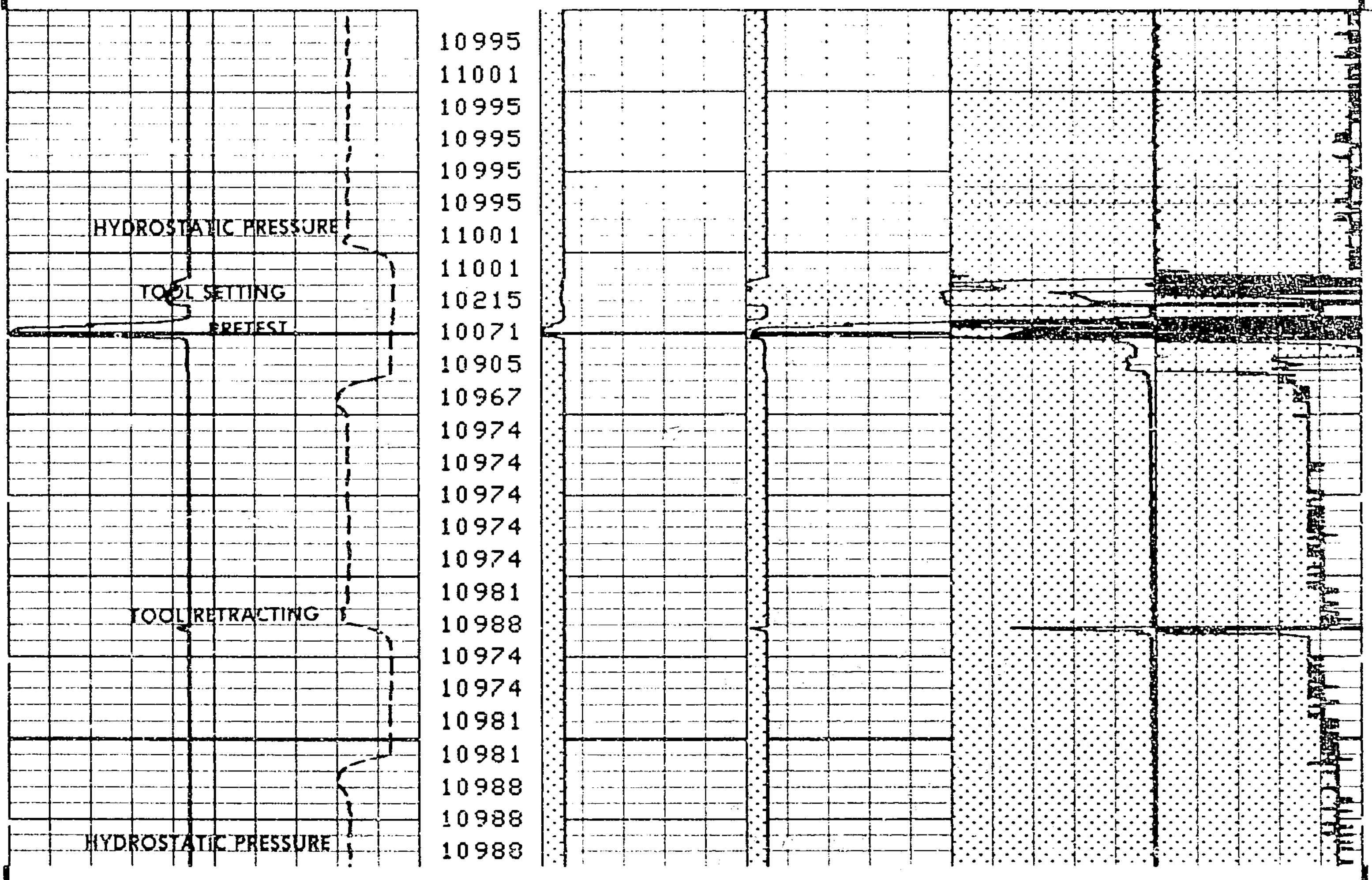
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	625.038	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 19 17-OCT-85 16:22



FILE 19 17-OCT-85 16:27

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

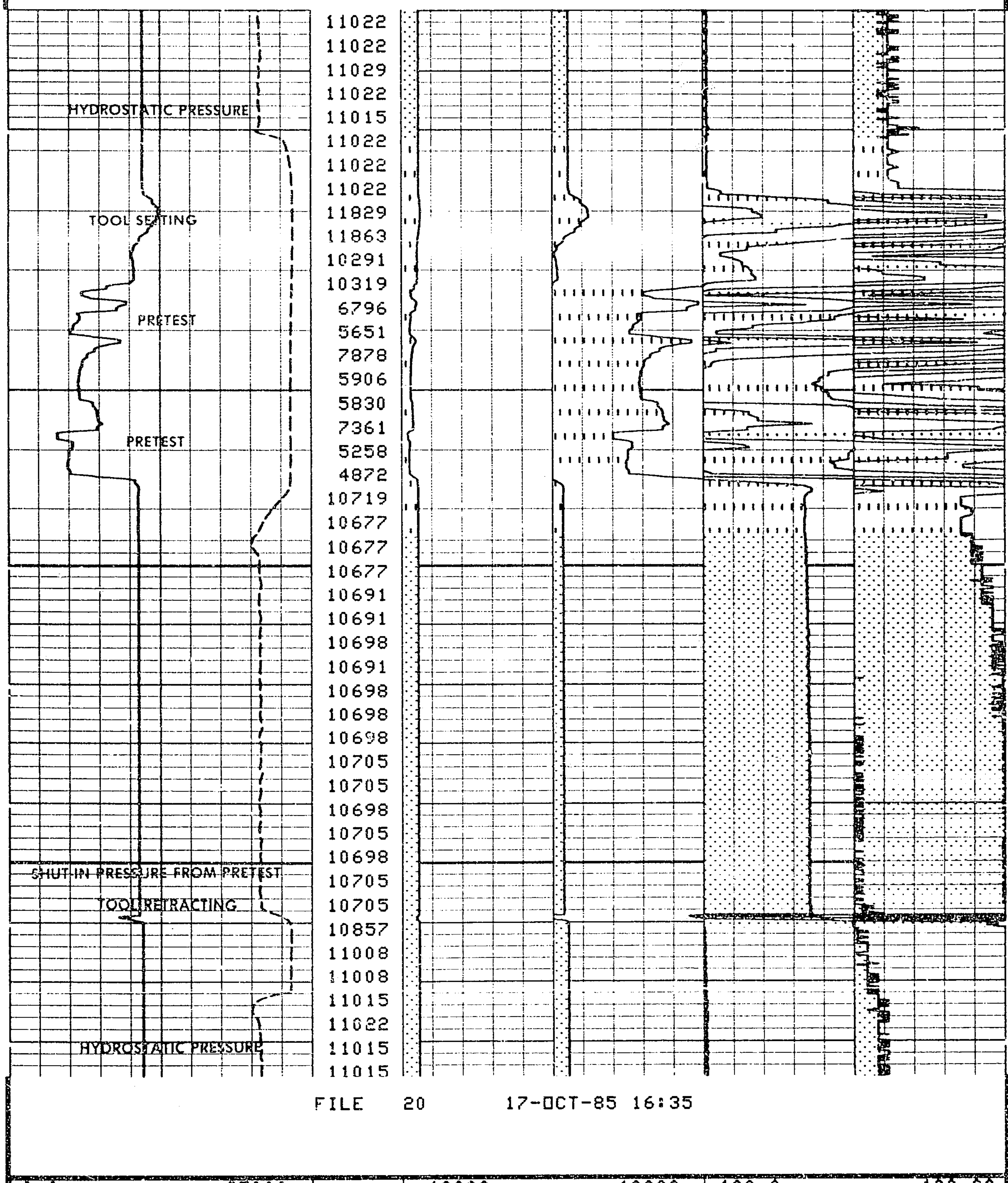
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	627.004	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 20 17-OCT-85 16:28



FILE 20 17-OCT-85 16:35

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	631.043	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

11015

FILE 20 17-OCT-85 16:35

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

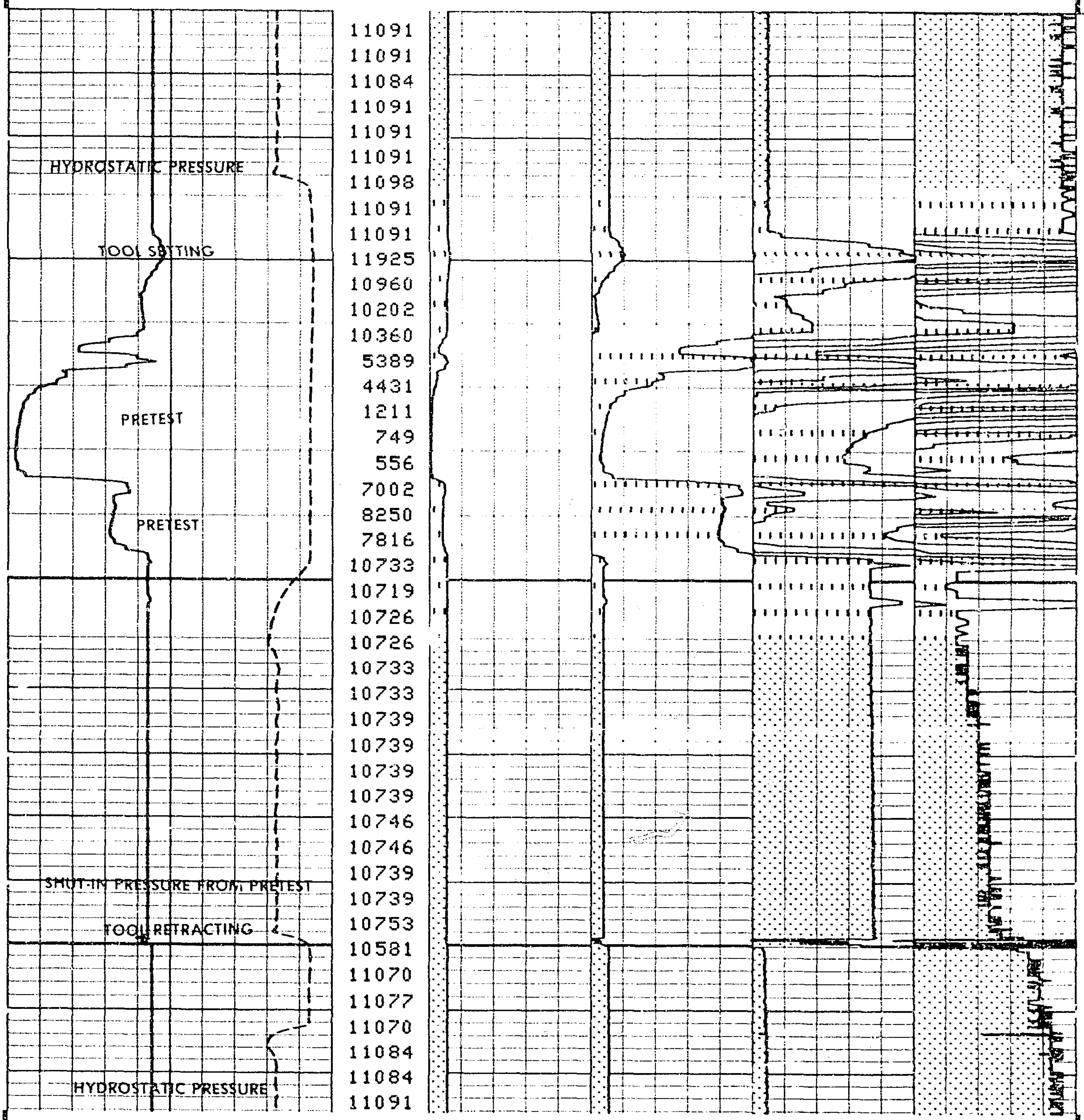
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	631.043	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 21 17-OCT-85 16:37



FILE 21 17-OCT-85 16:43

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

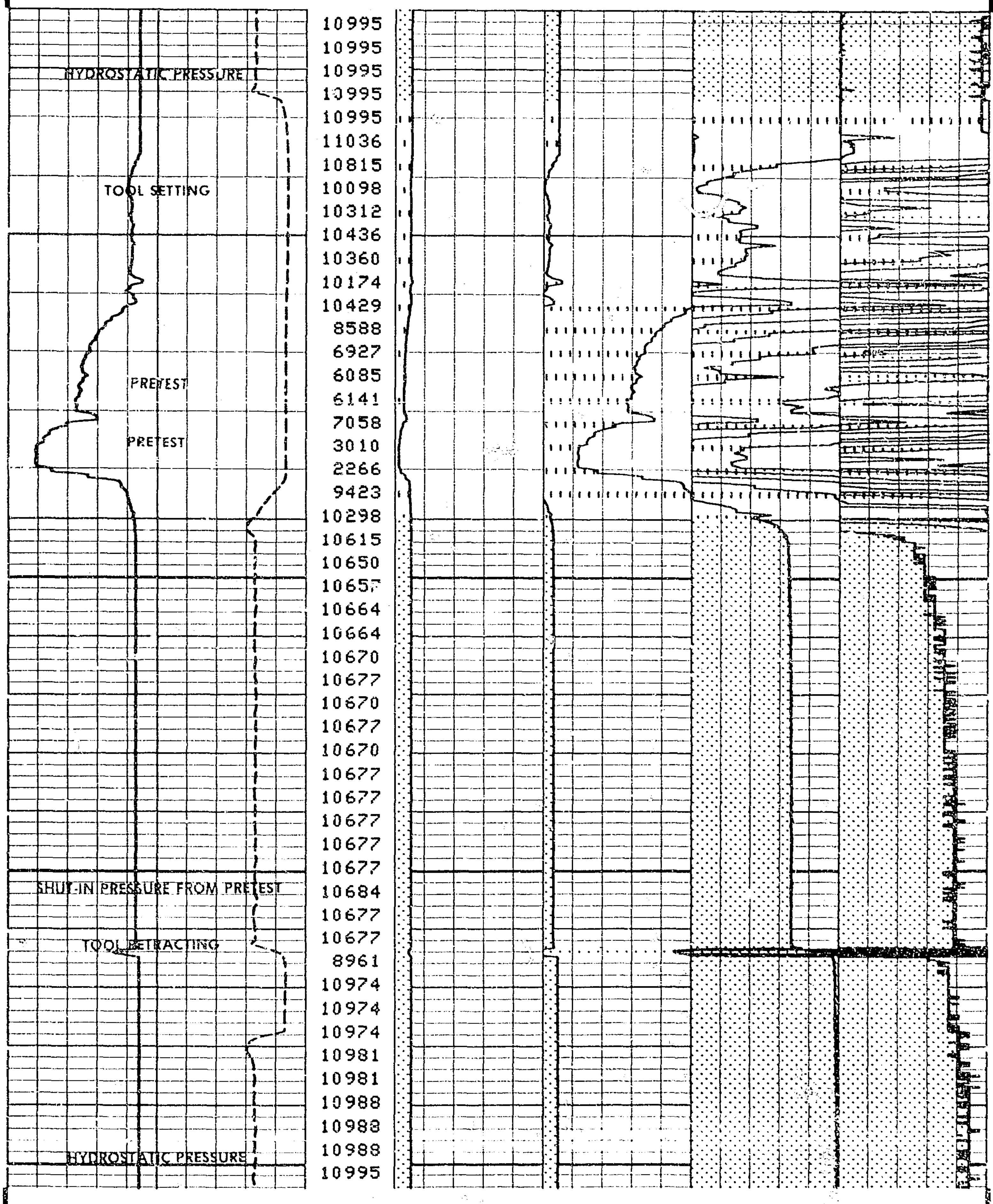
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	625.252	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 22 17-OCT-85 16:46



FILE 22 17-OCT-85 16:53

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

FILE 22 17-OCT-85 16:53

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

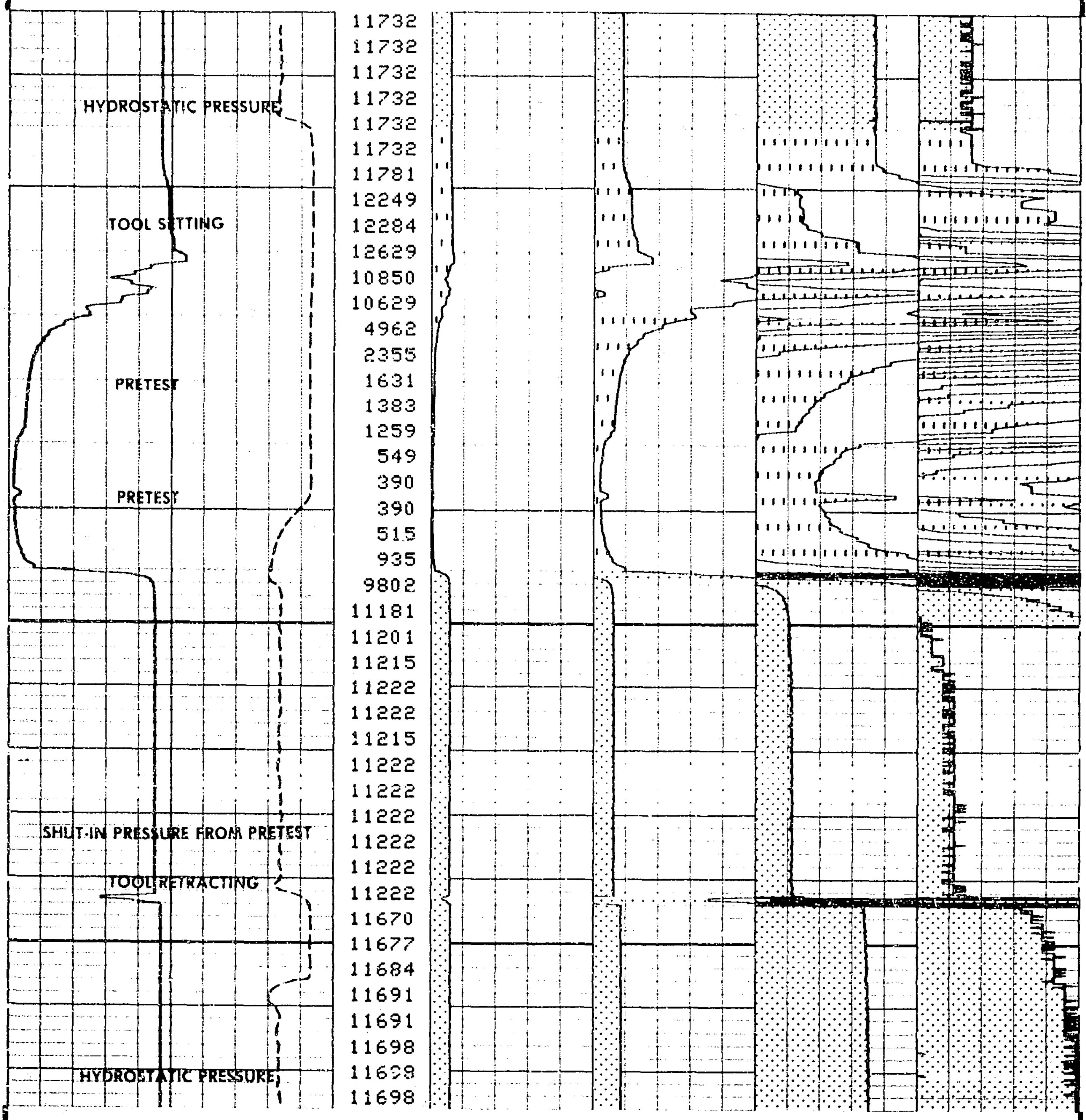
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	664.007	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 25 17-OCT-85 18:45



FILE 25 17-OCT-85 18:51

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

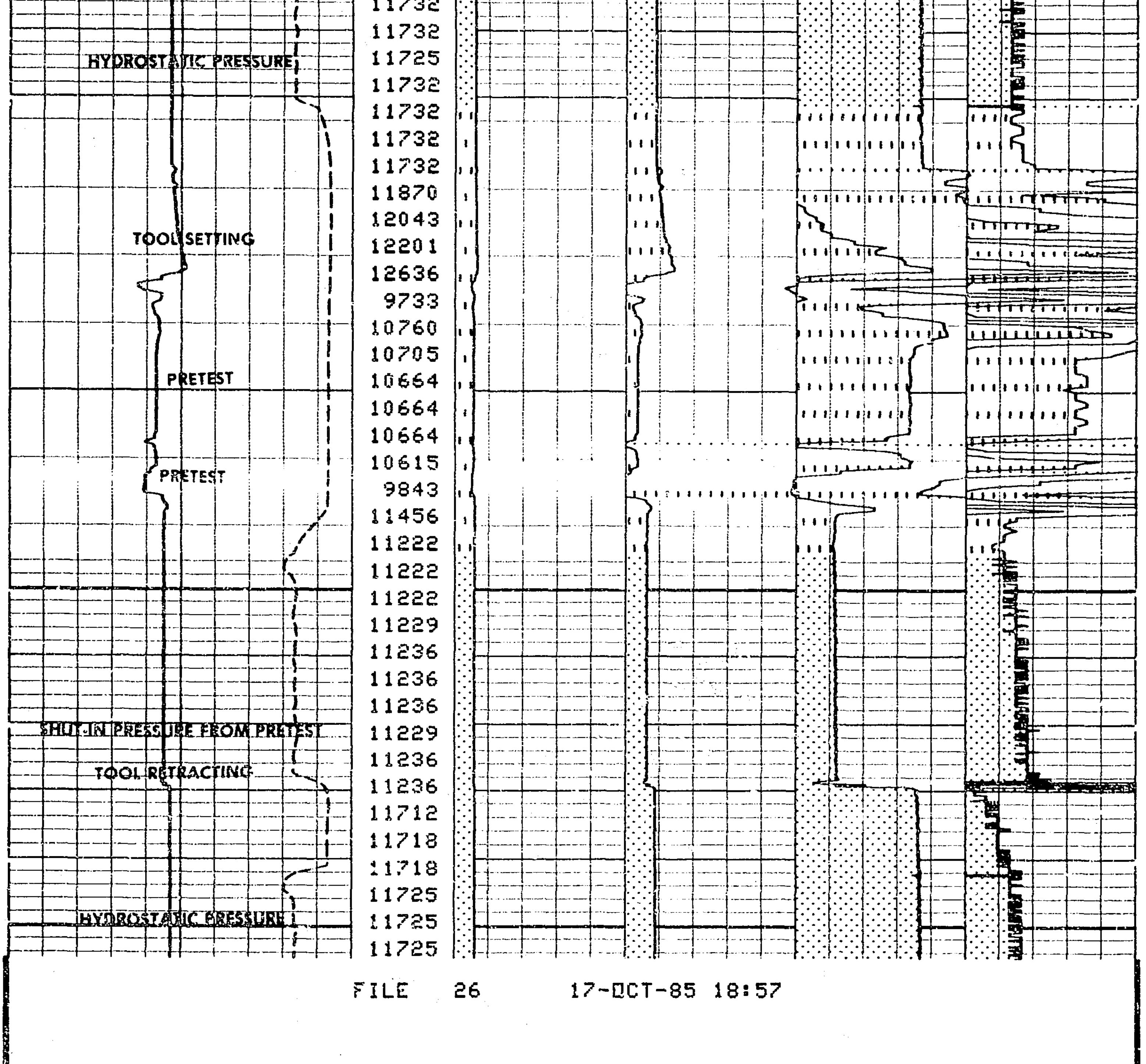
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	665.501	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 26 17-OCT-85 18:52

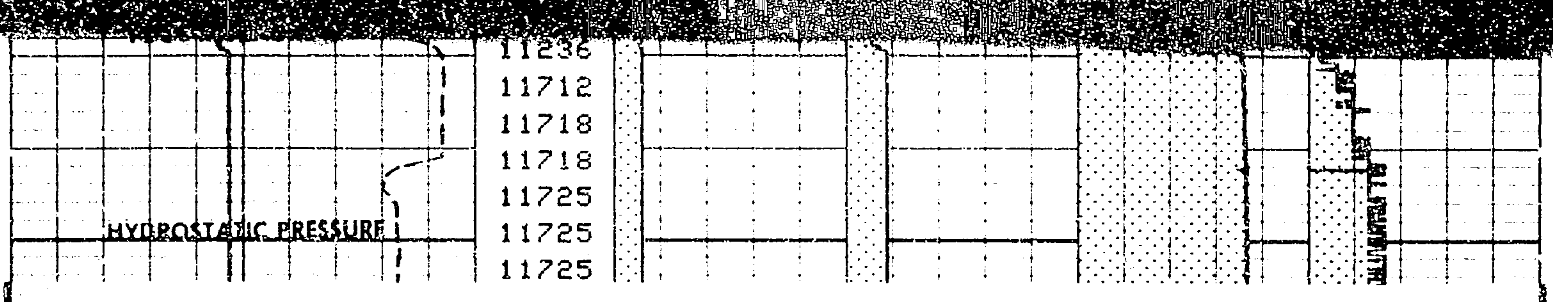


FILE 26 17-OCT-85 18:57

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	



FILE 26 17-OCT-85 18:57

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

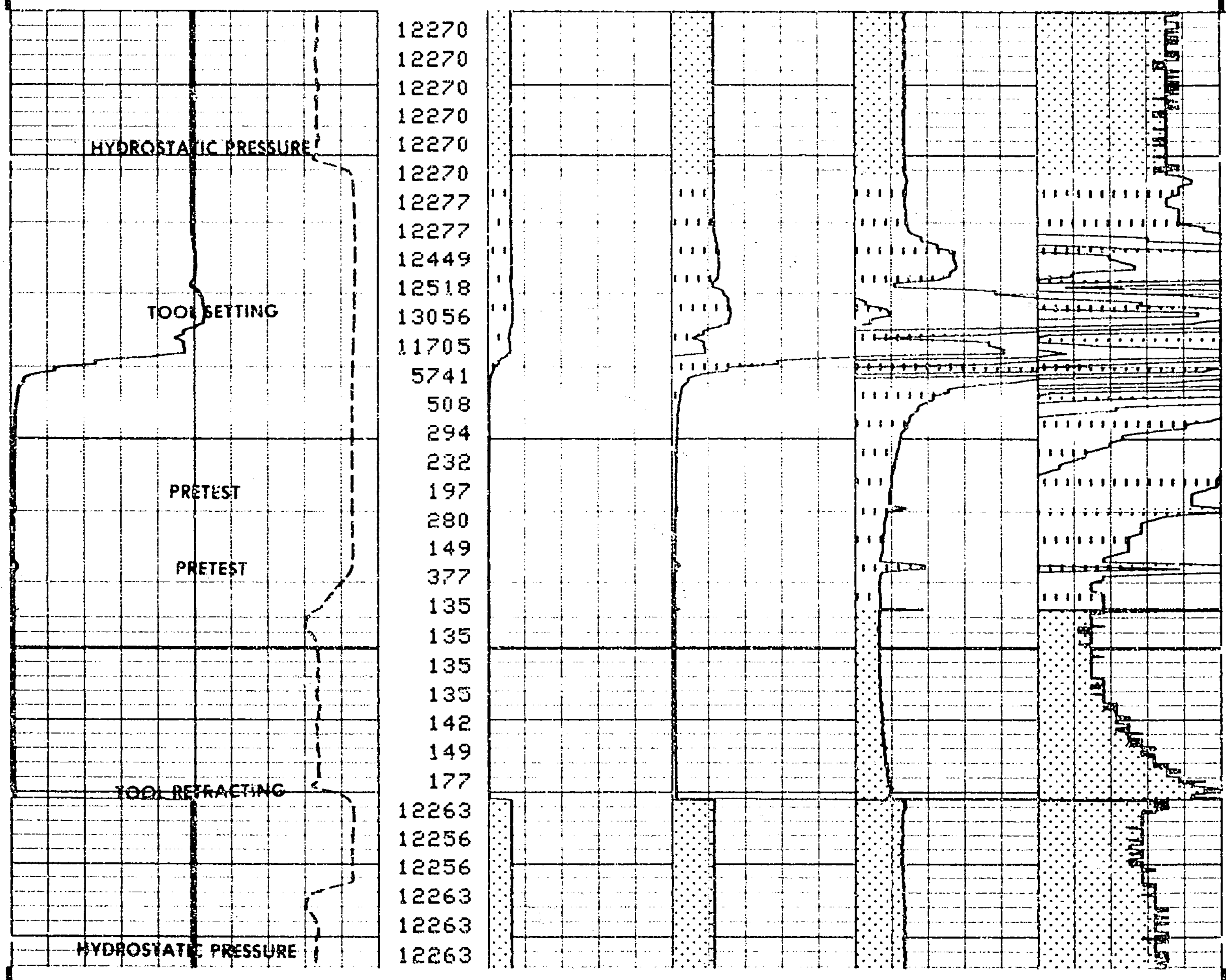
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	696.499	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 27 17-OCT-85 19:00



FILE 27 17-OCT-85 19:04

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

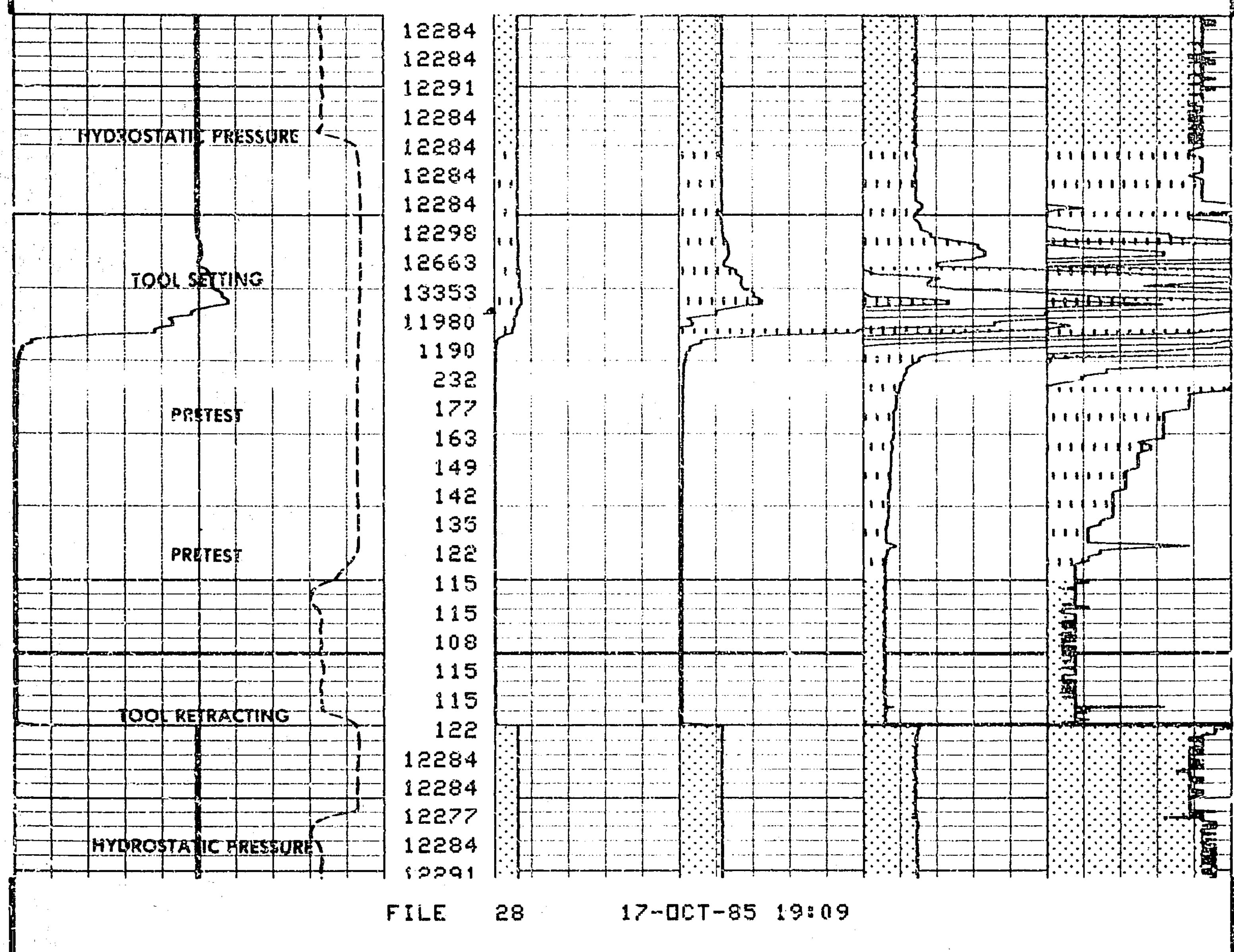
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	696.987	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 28 17-OCT-85 19:05



FILE 28 17-OCT-85 19:09

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

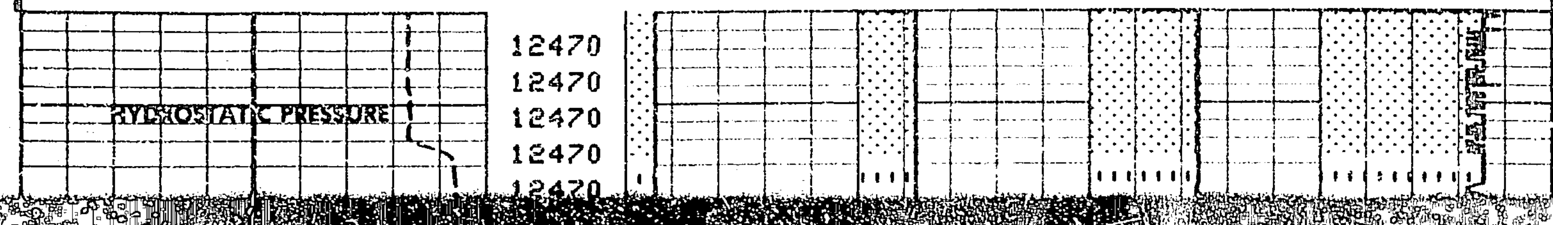
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	707.502	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 29 17-OCT-85 19:10



PARAMETERS

NAME	VALUE	UNIT
BS	216.000	MM
FLD	1.00000	G/C3
TZRV	453.000	OHMS
HPSN	0000A-00	
RFTT	25.0000	DEGC
SGSN	83760	

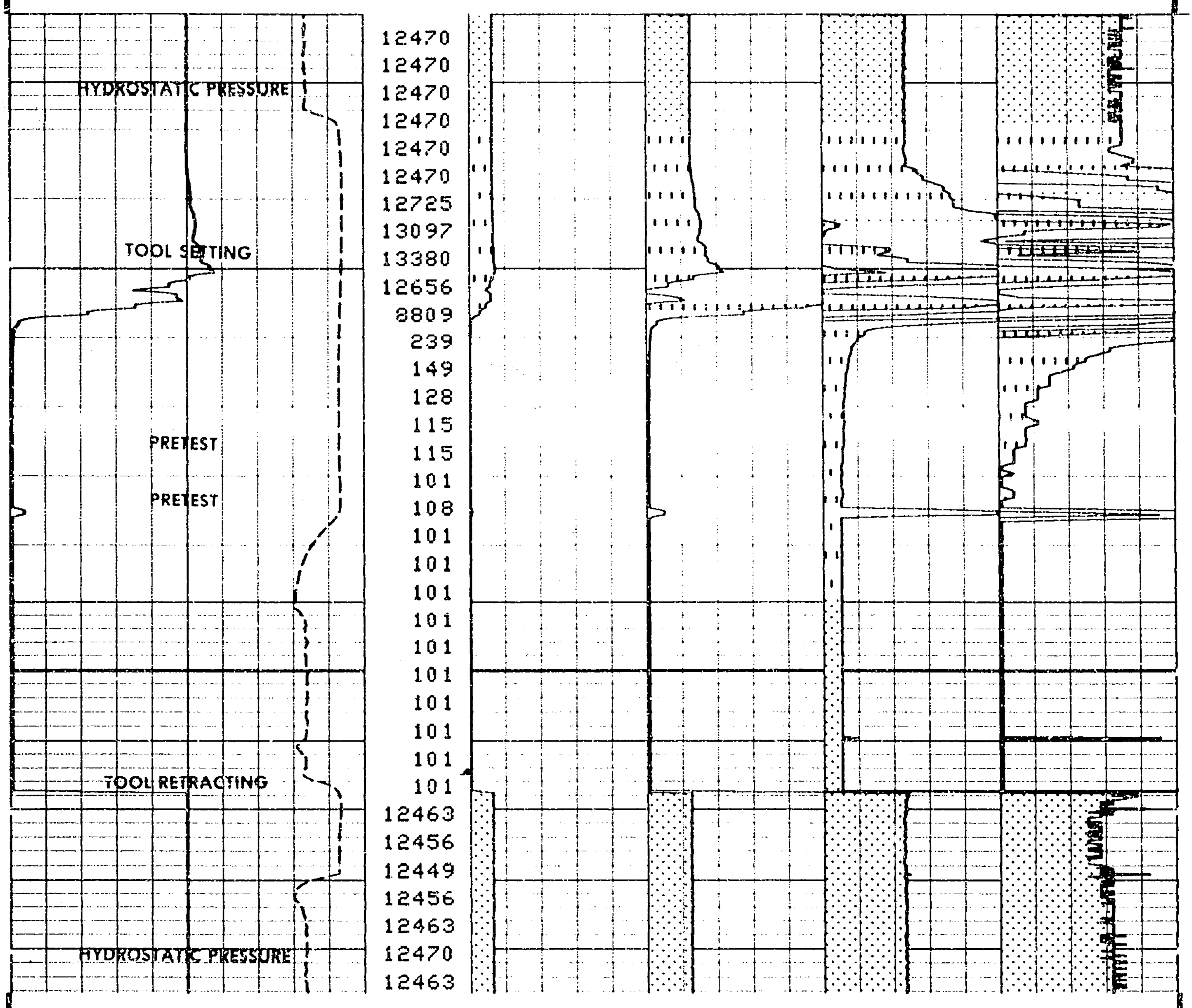
NAME	VALUE	UNIT
BHS	OPEN	
HPT	8.86151	DEGC
TCRV	761.450	OHMS
RPU	PSIG	
FDEP	707.502	M

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

FILE 29 17-OCT-85 19:10



FILE 29 17-OCT-85 19:15

0.0 SGP (KPA) 5000. / -320.0 MSPE(RPS) 80.000	-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT
BS	216.000	MM
FLD	1.00000	G/C3
TZRV	453.000	OHMS
HPSN	0000A-00	
RFTT	25.0000	DEGC
SGSN	83760	

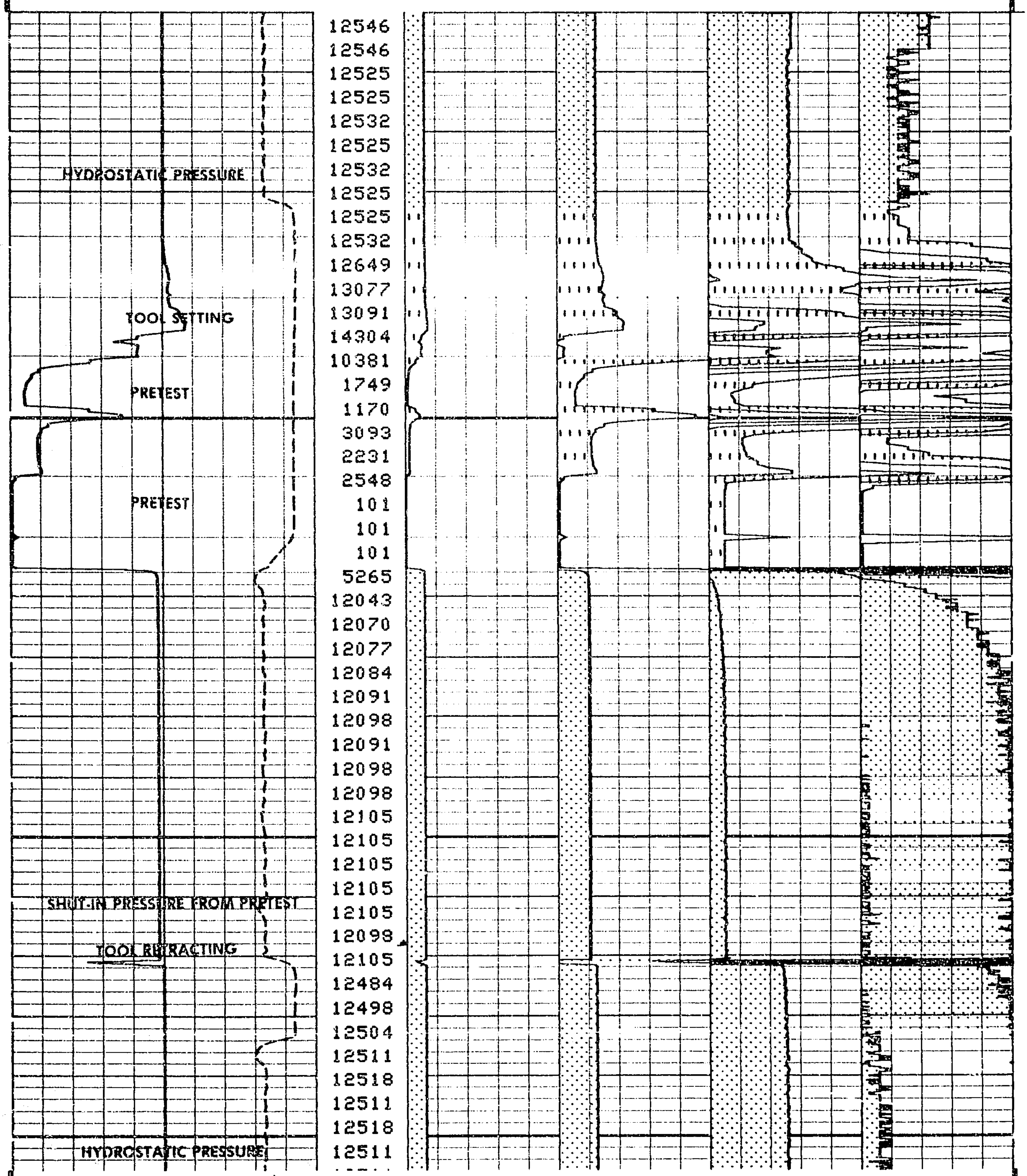
NAME	VALUE	UNIT
BHS	OPEN	
HPT	8.86151	DEGC
TCRV	761.450	OHMS
RPU	PSIG	
FDEP	712.989	M

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

FILE 30 17-OCT-85 19:21



FILE 30 17-OCT-85 19:30

0.0 SGP (KPA) 25000. / -320.0 MSPE(RPS) 80.000	-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT
BS	216.000	MM
FLD	1.00000	G/C3
TZRV	453.000	OHMS
HPSN	0000A-00	
RFTT	25.0000	DEGC
SGSN	83760	

NAME	VALUE	UNIT
BHS	OPEN	
HPT	8.86151	DEGC
TCRV	761.450	OHMS
RPU	PSIG	
FDEP	712.989	M

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

FILE 31 17-OCT-85 19:31

MSPE(RPS) SGP (KPA) SGP (KPA)

PARAMETERS

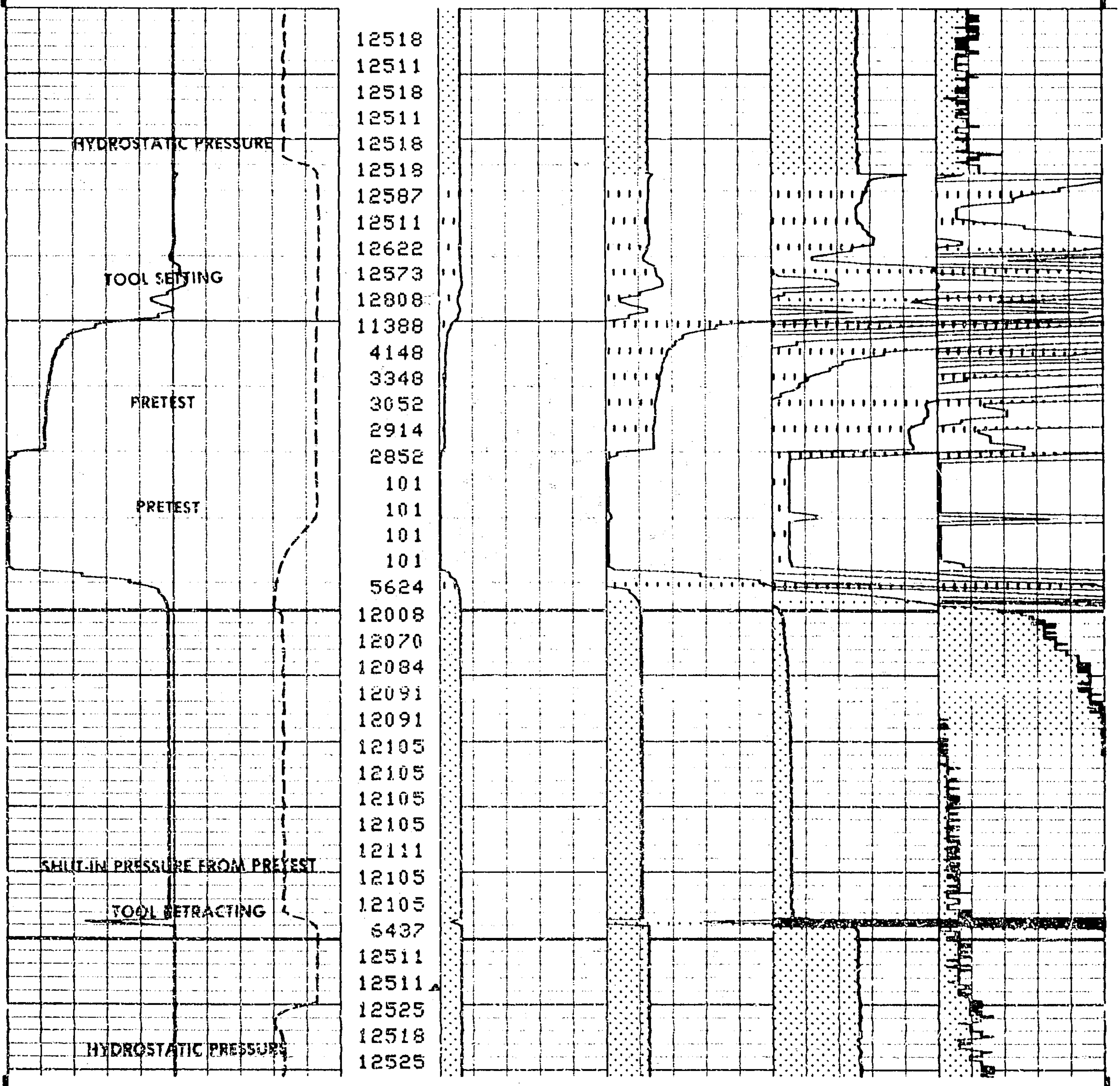
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	712.989	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 — SGP (KPA) — 25000.		-10000 — SGP (KPA) — 10000. / 0.0 — SGP (KPA) — 199999	-100.0 — SGP (KPA) — 100.00 / 0.0 — SGP (KPA) — 2000.0

FILE 31 17-OCT-85 19:31



FILE 31 17-OCT-85 19:37

0.0 — SGP (KPA) — 25000. / -320.0 — MSPE(RPS) — 80.000		-10000 — SGP (KPA) — 10000. / 0.0 — SGP (KPA) — 199999	-100.0 — SGP (KPA) — 100.00 / 0.0 — SGP (KPA) — 2000.0

PARAMETERS

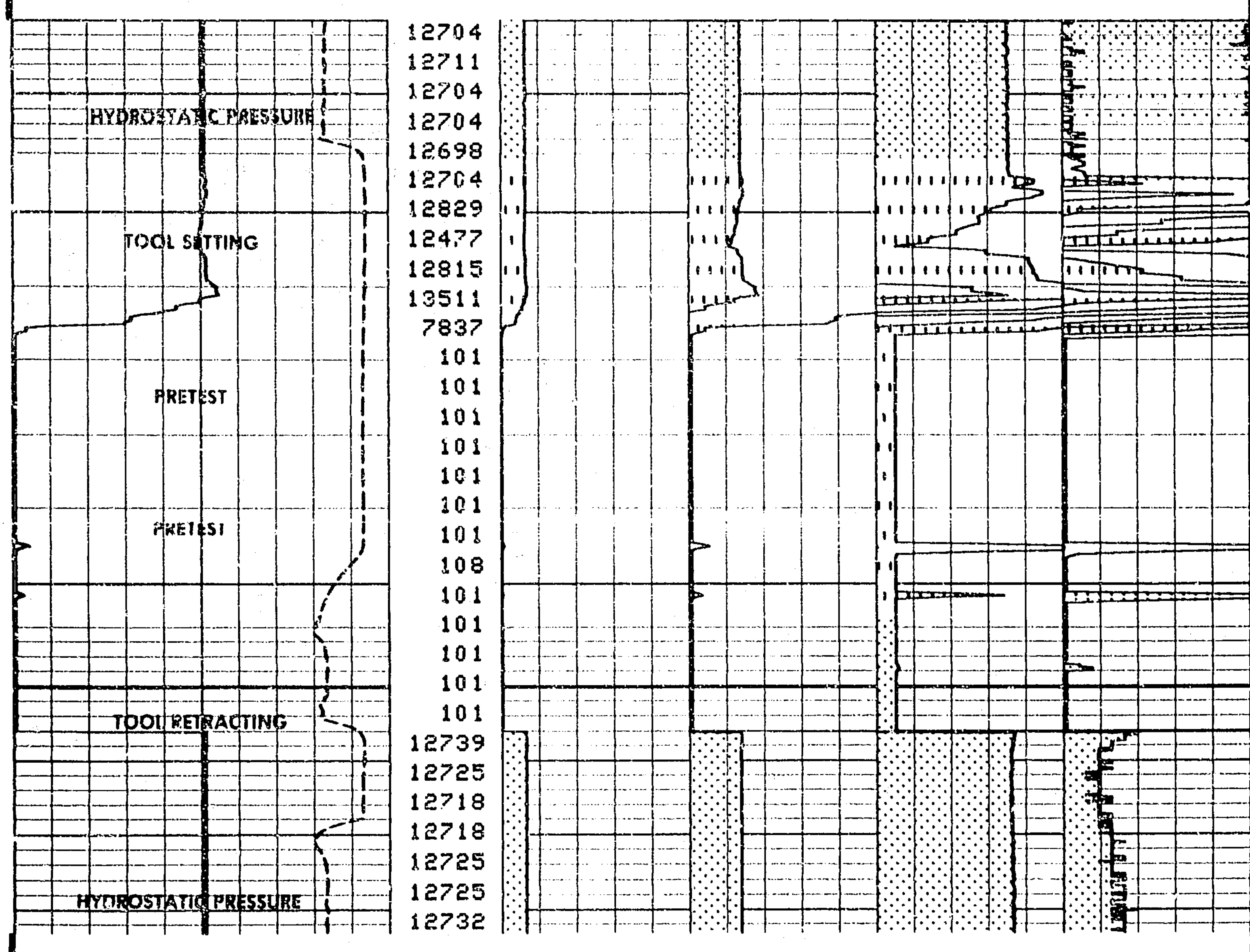
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	723.504	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 — SGP (KPA) — 25000.		-10000 — SGP (KPA) — 10000. / 0.0 — SGP (KPA) — 199999	-100.0 — SGP (KPA) — 100.00 / 0.0 — SGP (KPA) — 2000.0

FILE 32 17-OCT-85 19:39



FILE 32 17-OCT-85 19:43

0.0 — SGP (KPA) — 25000. / -320.0 — MSPE(RPS) — 80.000		-10000 — SGP (KPA) — 10000. / 0.0 — SGP (KPA) — 199999	-100.0 — SGP (KPA) — 100.00 / 0.0 — SGP (KPA) — 2000.0

PARAMETERS

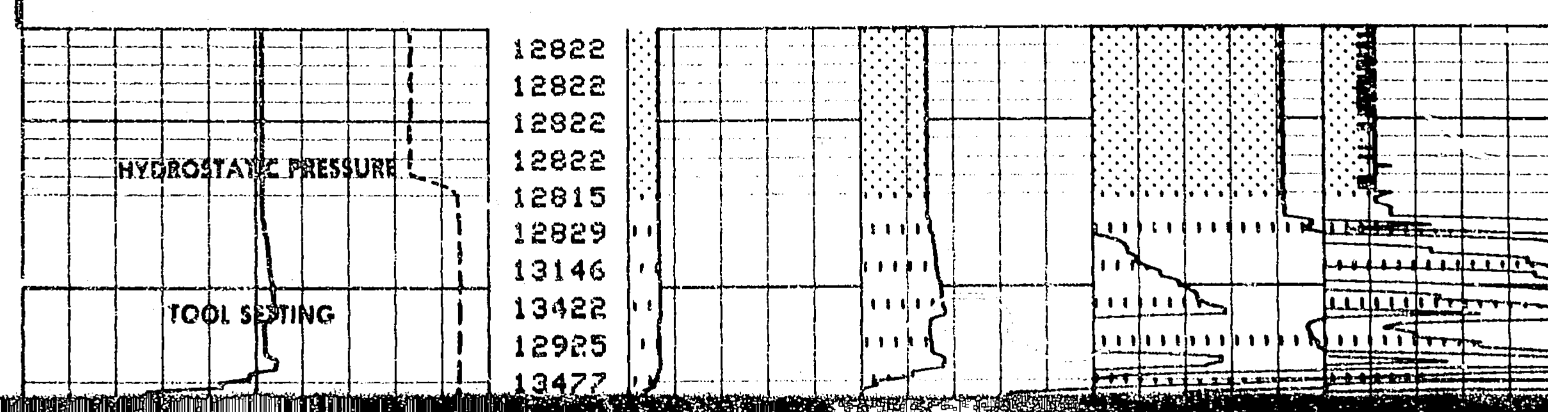
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	728.503	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 — SGP (KPA) — 25000.		-10000 — SGP (KPA) — 10000. / 0.0 — SGP (KPA) — 199999	-100.0 — SGP (KPA) — 100.00 / 0.0 — SGP (KPA) — 2000.0

FILE 33 17-OCT-85 19:46



BS 216.000 MM
FLD 1.00000 G/C3
TZRV 453.000 OHMS
HPSN 0000A-00
RFTT 25.0000 DEGC
SGSN 03760

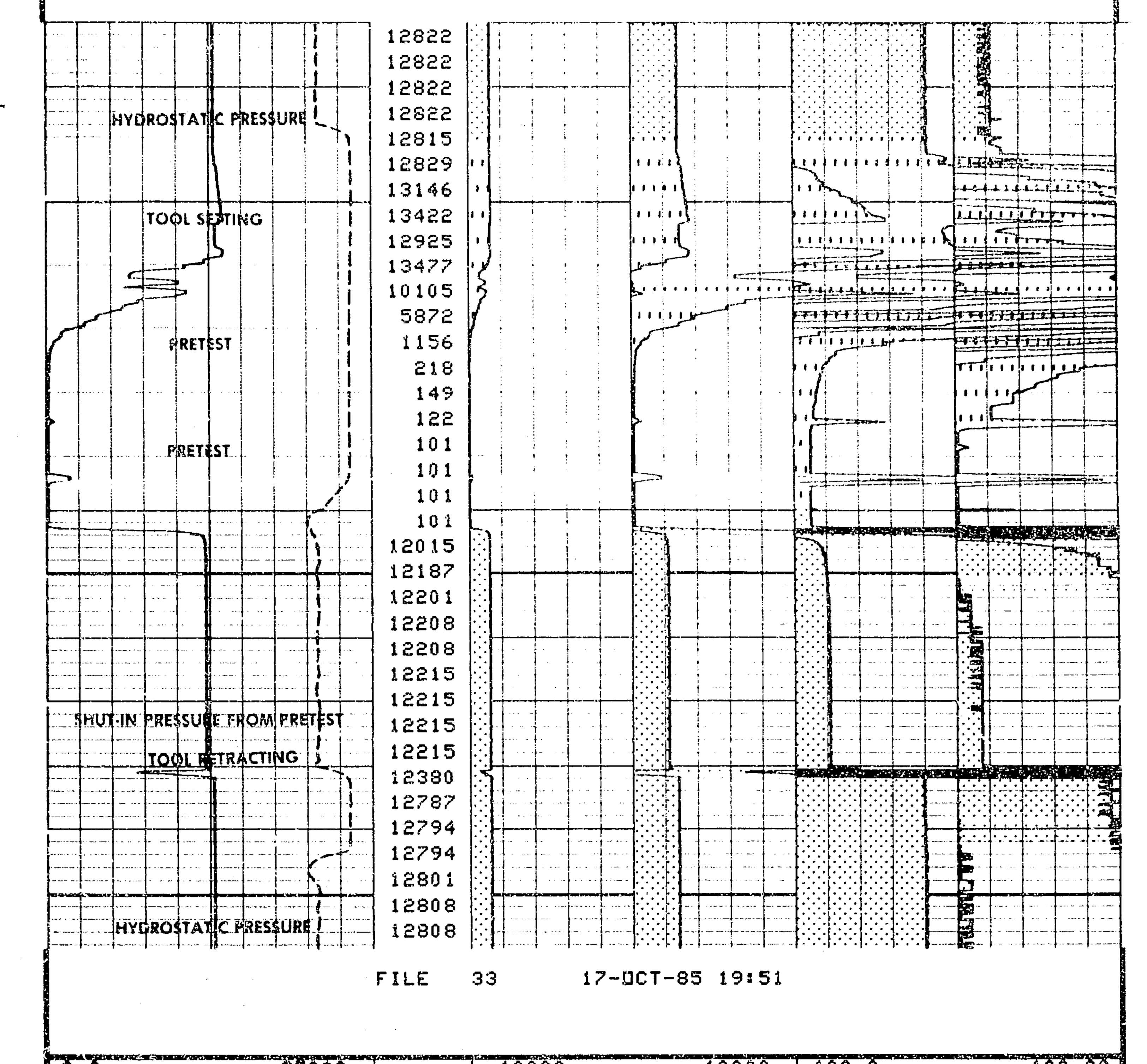
BHS OPEN
HPT 8.06151 DEGC
TCRV 761.450 OHMS
RPU PSIG
FDEP 730.503 M

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | 0.0 SGP (KPA) 199999 | -100.0 SGP (KPA) 100.00 | 0.0 SGP (KPA) 2000.0

FILE 33 17-OCT-85 19:46



FILE 33 17-OCT-85 19:51

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | 0.0 SGP (KPA) 199999 | -100.0 SGP (KPA) 100.00 | 0.0 SGP (KPA) 2000.0
-320.0 MSPE(RPS) 80.000

PARAMETERS

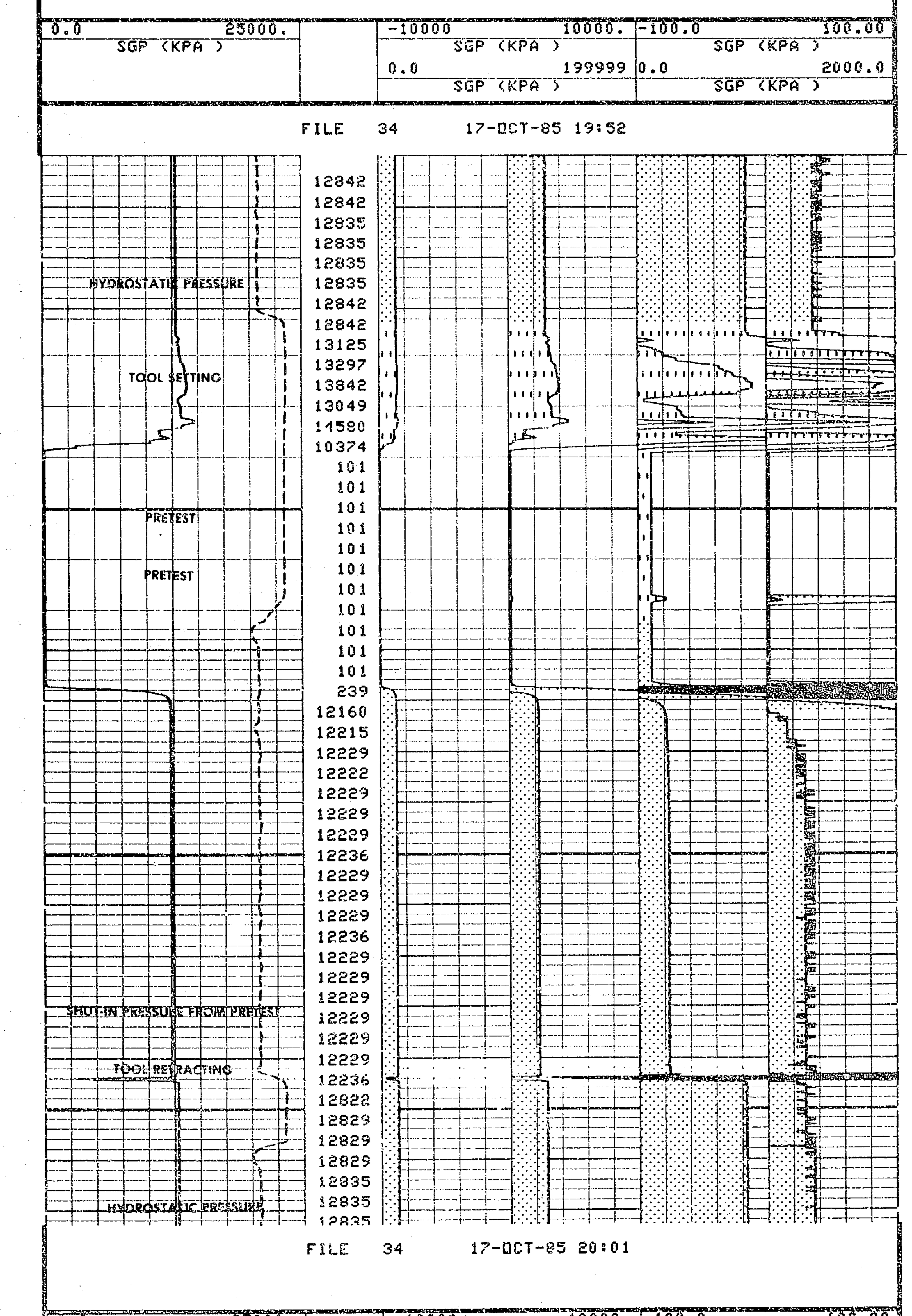
NAME VALUE UNIT | NAME VALUE UNIT
BS 216.000 MM | BHS OPEN
FLD 1.00000 G/C3 | HPT 8.06151 DEGC
TZRV 453.000 OHMS | TCRV 761.450 OHMS
HPSN 0000A-00 | RPU PSIG
RFTT 25.0000 DEGC | FDEP 730.515 M
SGSN 03760

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | 0.0 SGP (KPA) 199999 | -100.0 SGP (KPA) 100.00 | 0.0 SGP (KPA) 2000.0

FILE 34 17-OCT-85 19:52



FILE 34 17-OCT-85 20:01

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | 0.0 SGP (KPA) 199999 | -100.0 SGP (KPA) 100.00 | 0.0 SGP (KPA) 2000.0
-320.0 MSPE(RPS) 80.000

PARAMETERS

NAME VALUE UNIT | NAME VALUE UNIT
BS 216.000 MM | BHS OPEN
FLD 1.00000 G/C3 | HPT 8.06151 DEGC
TZRV 453.000 OHMS | TCRV 761.450 OHMS
HPSN 0000A-00 | RPU PSIG
RFTT 25.0000 DEGC | FDEP 735.513 M
SGSN 03760

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | 0.0 SGP (KPA) 199999 | -100.0 SGP (KPA) 100.00 | 0.0 SGP (KPA) 2000.0

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | 0.0 SGP (KPA) 199999 | -100.0 SGP (KPA) 100.00 | 0.0 SGP (KPA) 2000.0
-320.0 MSPE(RPS) 80.000

PARAMETERS

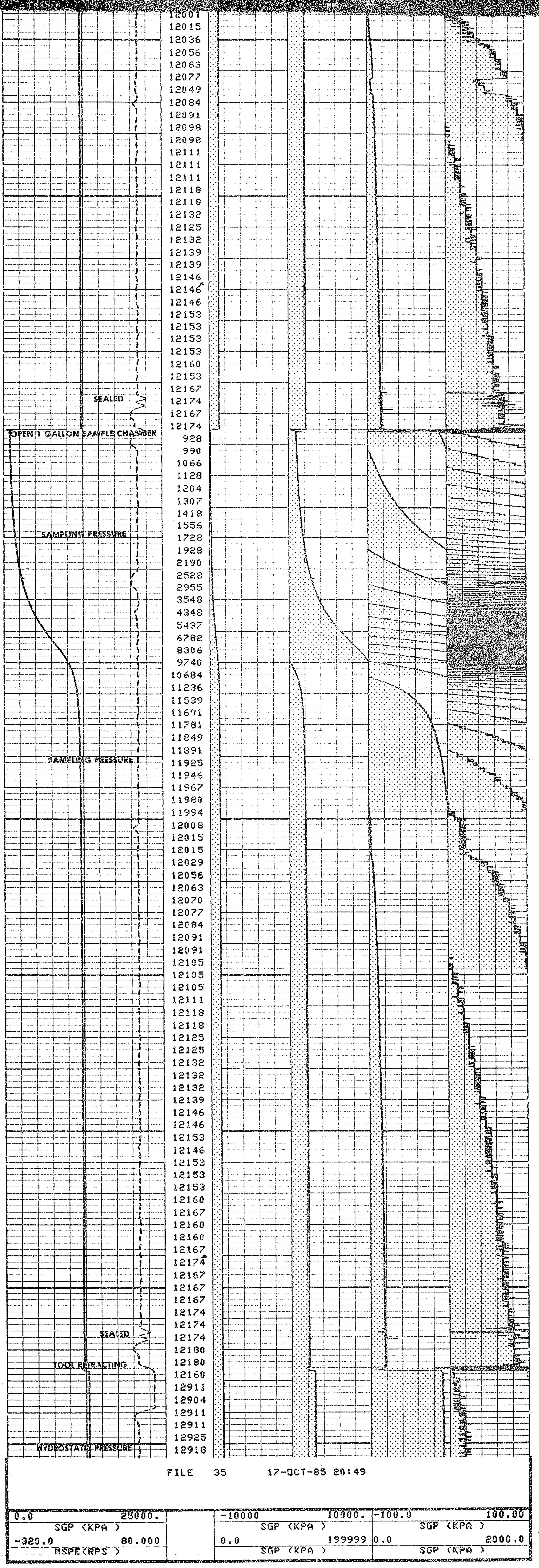
NAME VALUE UNIT | NAME VALUE UNIT
BS 216.000 MM | BHS OPEN
FLD 1.00000 G/C3 | HPT 8.06151 DEGC
TZRV 453.000 OHMS | TCRV 761.450 OHMS
HPSN 0000A-00 | RPU PSIG
RFTT 25.0000 DEGC | FDEP 735.513 M
SGSN 03760

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000. | -10000 SGP (KPA) 10000. | 0.0 SGP (KPA) 199999 | -100.0 SGP (KPA) 100.00 | 0.0 SGP (KPA) 2000.0

FILE 35 17-OCT-85 20:04



SAMPLE TEST DATA

TEST NO. 29
DEPTH 735.5 m

PRESSURE DATA

Initial Shut-in Pressure 12284 kPa — Shut-in time ______ min

Sampling Pressure ☑ Air Cushion Pressure ☐ Water Cushion ______ kPa

Final Shut-in Pressure 0 kPa AT SURFACE — Shut-in time ______ min

Hydrostatic Pressure 12918 kPa

RECOVERY DATA

Gas ______ litres
Oil ______ litres
WATER 10.25 litres
Segregated Sample ☐ Yes ☒ No

Resistivity 0.055 Ω·m @ 18 °C

MUD FILTRATE DATA

Resistivity 0.058 Ω·m @ 18 °C

TOOL DATA

Sample Unit Size 10.41 litres
Type Cushion ☒ Air ☐ Water
Initial pressure if air 825 kPa
Choke size if water ______ mm
Probe Filter Size ______ mm
Flow Restrictor ☐ Yes ☒ No

SUMMARY

Result indicate that WATER may be expected at this depth.

RECOVERY DATA

Gas ______ litres
Oil ______ litres
WATER 10.25 litres
Segregated Sample ☐ Yes ☒ No

Resistivity 0.055 Ω·m @ 18 °C

MUD FILTRATE DATA

Resistivity 0.058 Ω·m @ 18 °C

TOOL DATA

Sample Unit Size 10.41 litres
Type Cushion ☒ Air ☐ Water
Initial pressure if air 825 kPa
Choke size if water ______ mm
Probe Filter Size ______ mm
Flow Restrictor ☐ Yes ☒ No

SUMMARY

Result indicate that WATER may be expected at this depth.

Remarks ______

SAMPLE TEST DATA

TEST NO. 29
DEPTH 735.5 m

PRESSURE DATA

Initial Shut-in Pressure 12284 kPa — Shut-in time ______ min
Sampling Pressure ☒ Air Cushion Pressure ☐ Water Cushion ______ kPa
Final Shut-in Pressure 0 kPa AT SURFACE — Shut-in time ______ min
Hydrostatic Pressure 12918 kPa

RECOVERY DATA

Gas ______ litres
Oil ______ litres
WATER 2.5 litres
Segregated Sample ☒ Yes ☐ No

Resistivity 0.059 Ω·m @ 13 °C

MUD FILTRATE DATA

Resistivity 0.058 Ω·m @ 18 °C

TOOL DATA

Sample Unit Size 3.79 litres
Type Cushion ☒ Air ☐ Water
Initial pressure if air 825 kPa
Choke size if water ______ mm
Probe Filter Size ______ mm
Flow Restrictor ☐ Yes ☒ No

SUMMARY

Result indicate that WATER may be expected at this depth.

Remarks ______

PARAMETERS

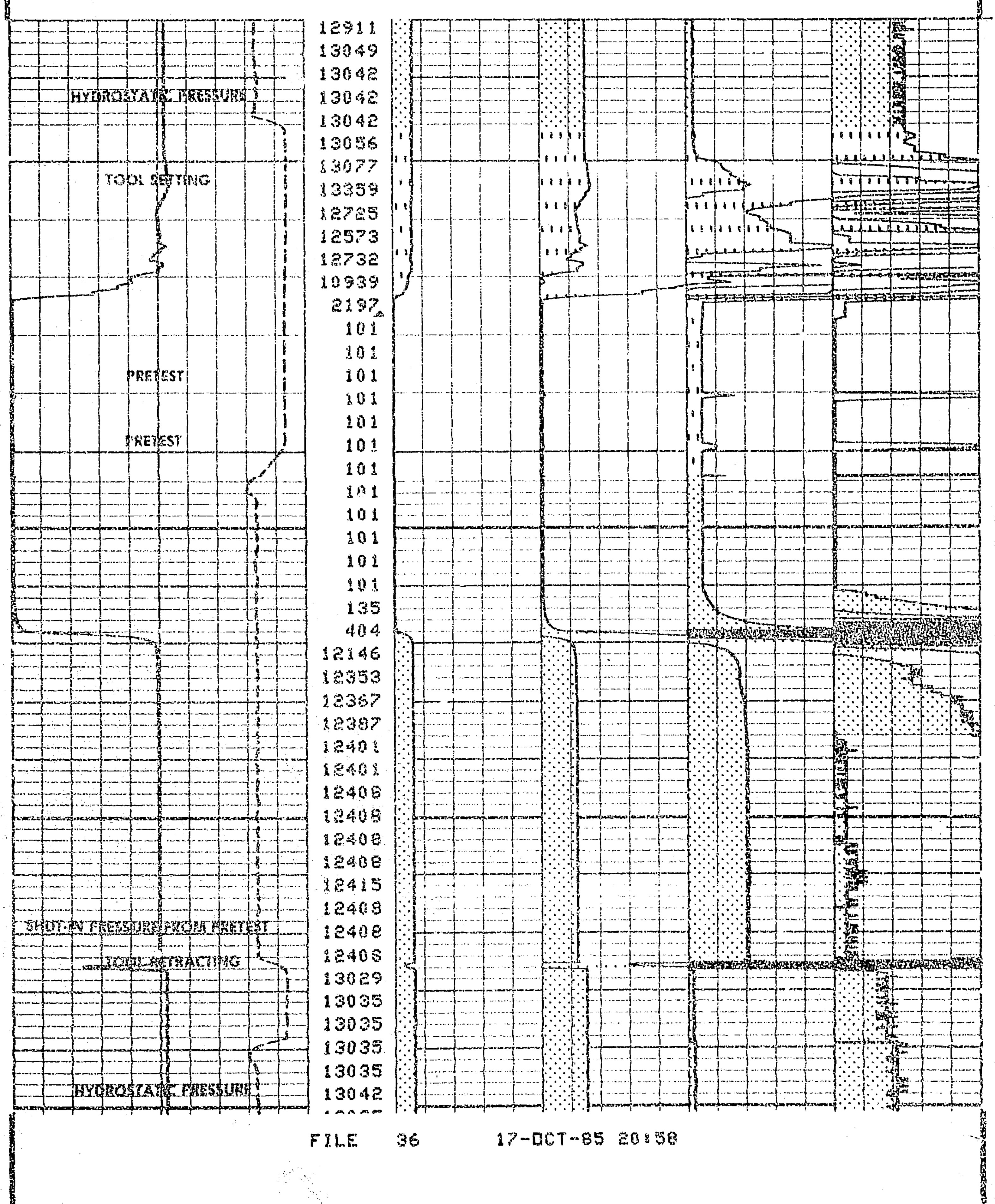
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	743.011	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER — GR 6.3 METER

0.0 — SGP (KPA) — 25000.	-10000 — SGP (KPA) — 10000.	-100.0 — SGP (KPA) — 100.00
	0.0 — SGP (KPA) — 199999	0.0 — SGP (KPA) — 2000.0

FILE 36 17-OCT-85 20:50

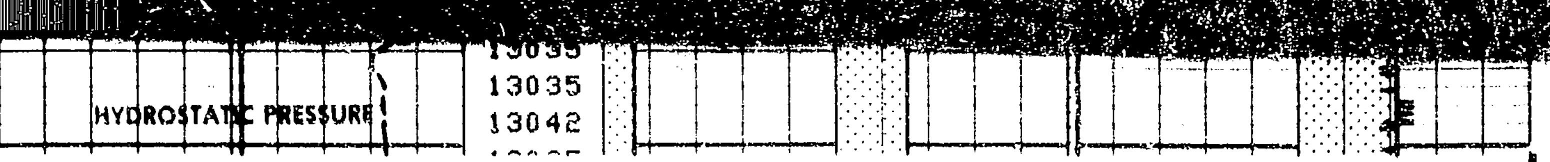


FILE 36 17-OCT-85 20:58

0.0 — SGP (KPA) — 25000.	-10000 — SGP (KPA) — 10000.	-100.0 — SGP (KPA) — 100.00
-320.0 — MSPE(RPS) — 80.000	0.0 — SGP (KPA) — 199999	0.0 — SGP (KPA) — 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	750.510	M
SGSN	83760				



FILE 36 17-OCT-85 20:58

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

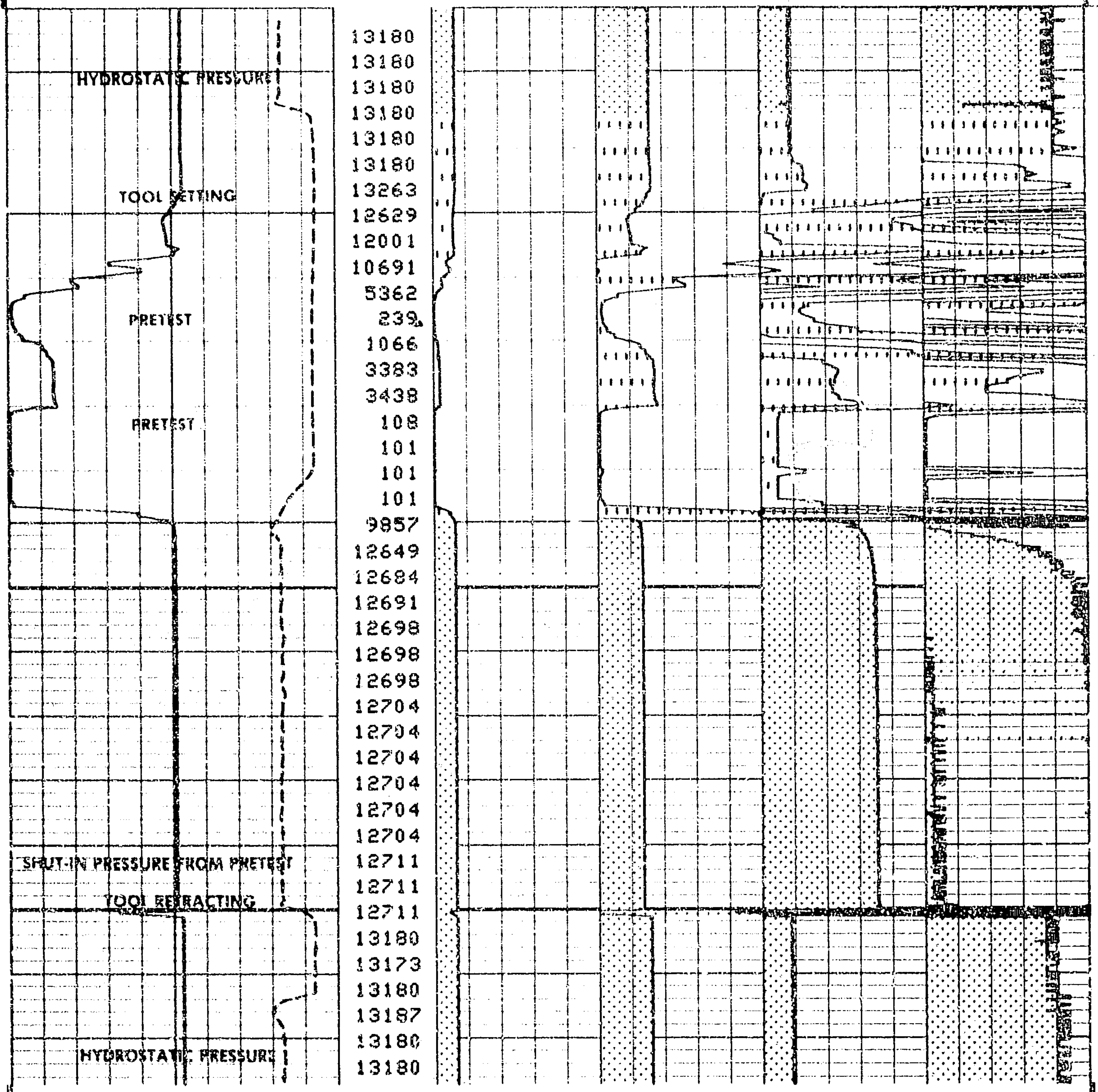
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	750.510	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 37 17-OCT-85 21:00



FILE 37 17-OCT-85 21:07

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

CHANGED PARAMETERS

NAME	VALUE	UNIT	DEPTH (M)	NAME	VALUE	UNIT	DEPTH (M)

PARAMETERS

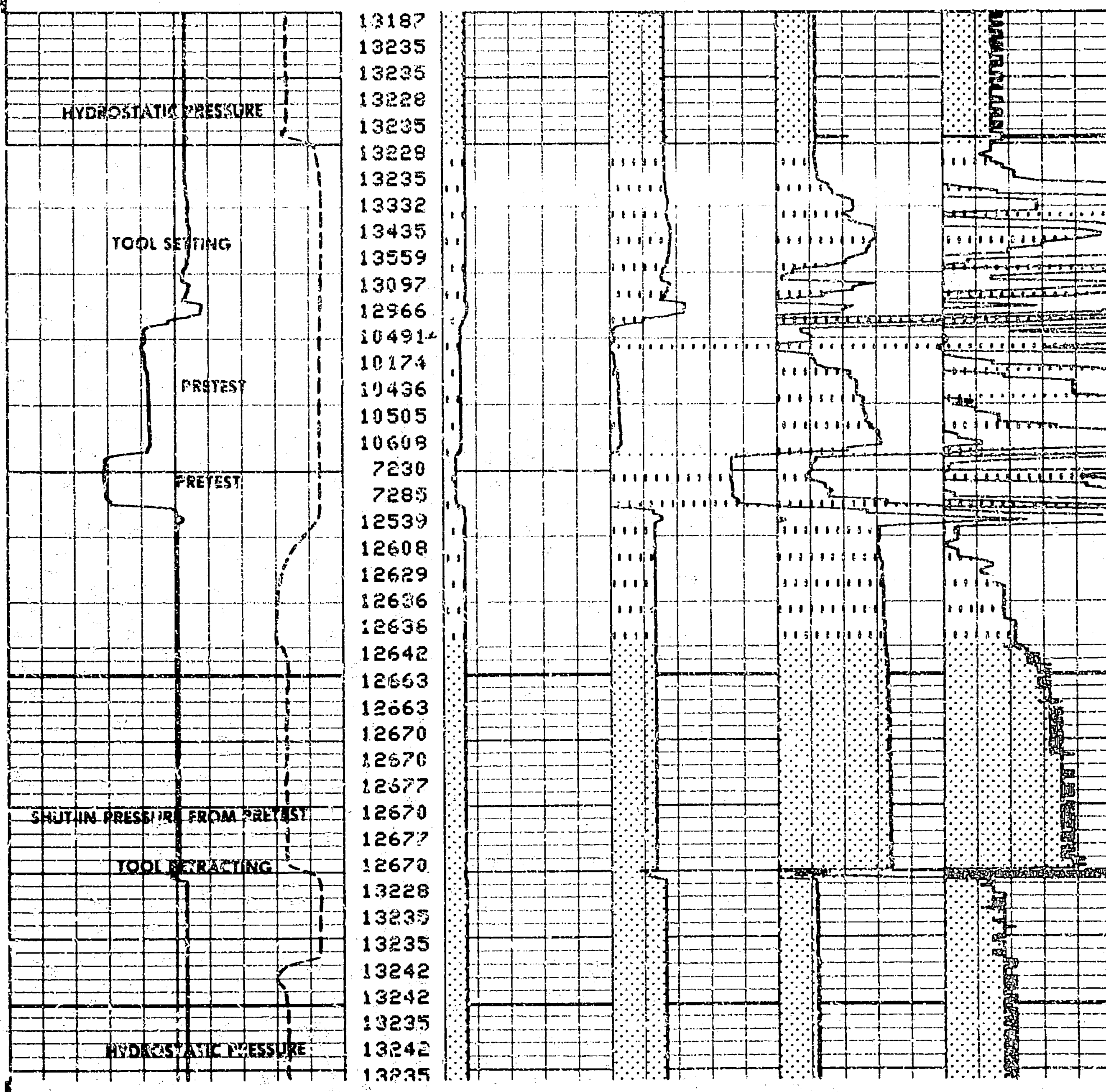
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.456	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	753.497	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 38 17-OCT-85 21:08

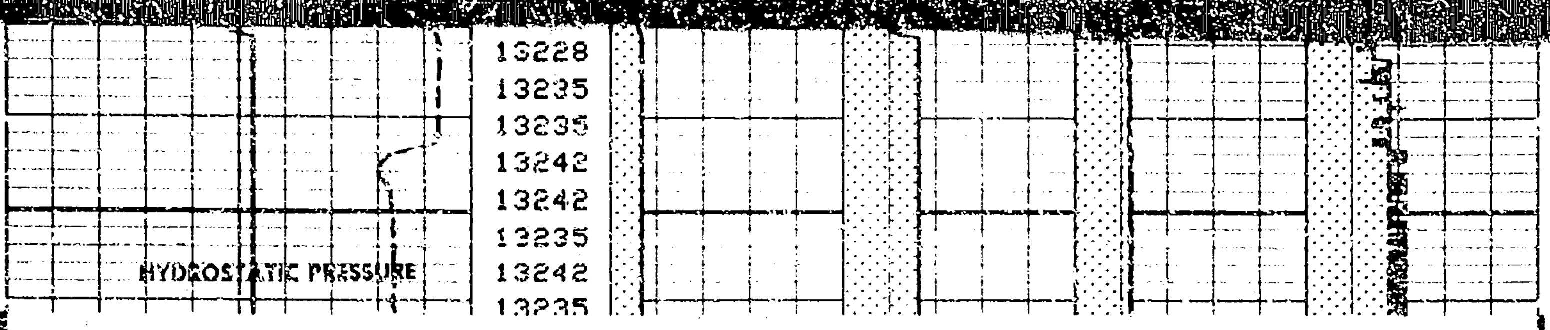


FILE 38 17-OCT-85 21:14

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	



13228
13235
13235
13242
13242
13235
13242
13235

FILE 38 17-OCT-85 21:14

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

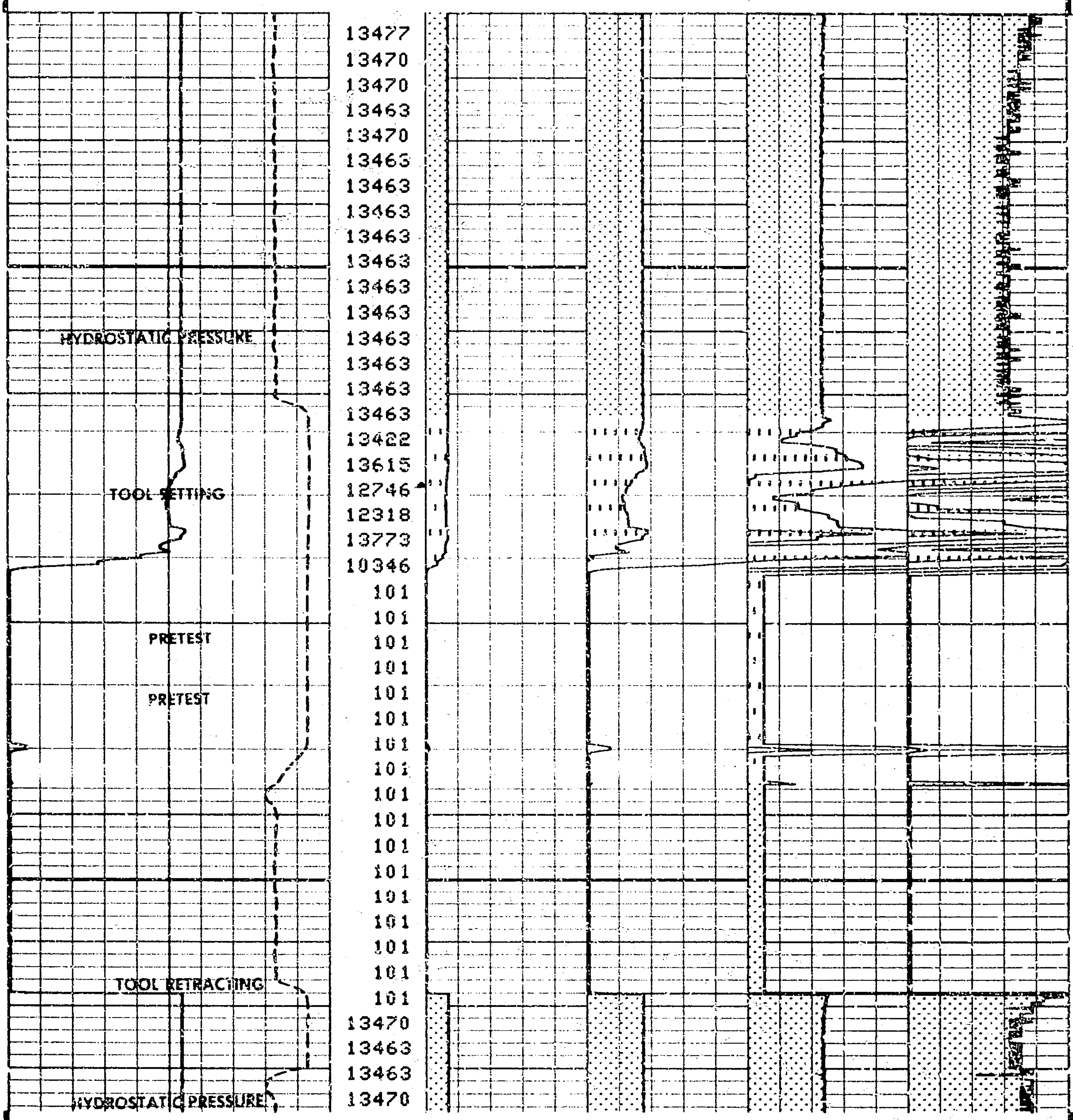
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	767.045	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 39 17-OCT-85 21:15



13477
13470
13470
13463
13470
13463
13463
13463
13463
13463
13463
13463
13463
13463
13463
13422
13615
12746
12318
13773
10346
101
101
101
101
101
101
101
101
101
101
101
101
101
101
101
101
13470
13463
13463
13470

FILE 39 17-OCT-85 21:22

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

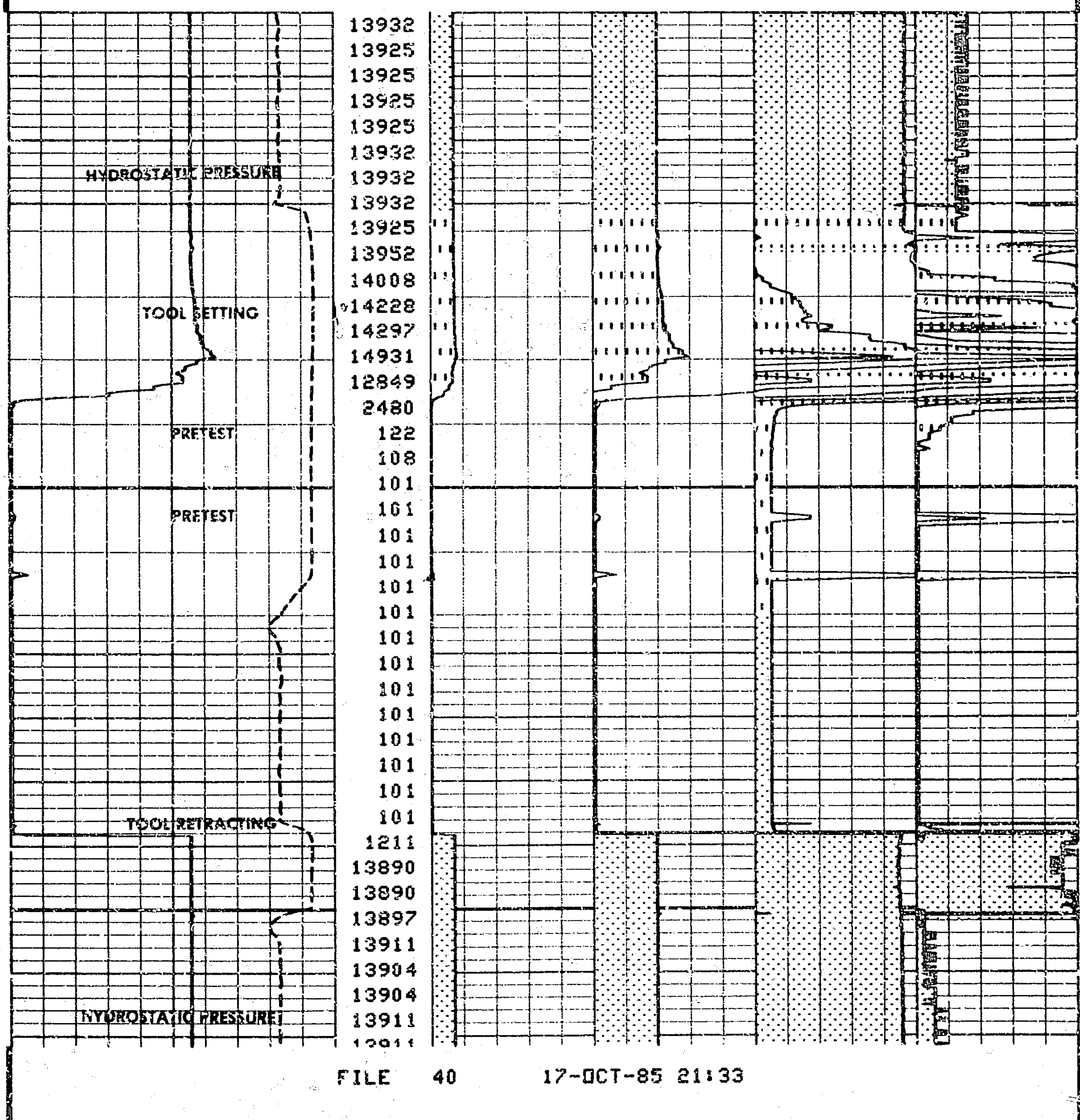
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	792.999	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 40 17-OCT-85 21:27



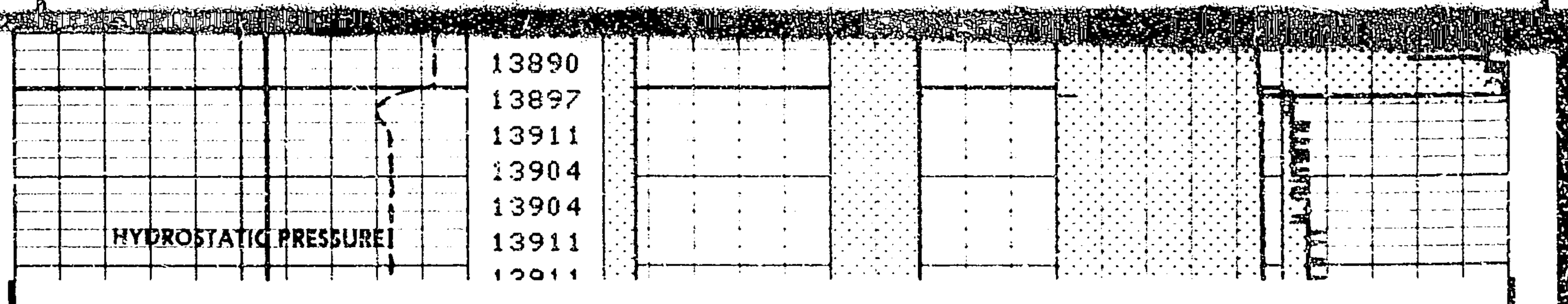
13932
13925
13925
13925
13925
13932
13932
13932
13925
13952
14008
14228
14297
14931
12849
2480
122
108
101
101
101
101
101
101
101
101
101
101
101
101
101
1211
13890
13890
13897
13911
13904
13904
13911

FILE 40 17-OCT-85 21:33

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT



FILE 40 17-OCT-85 21:33

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

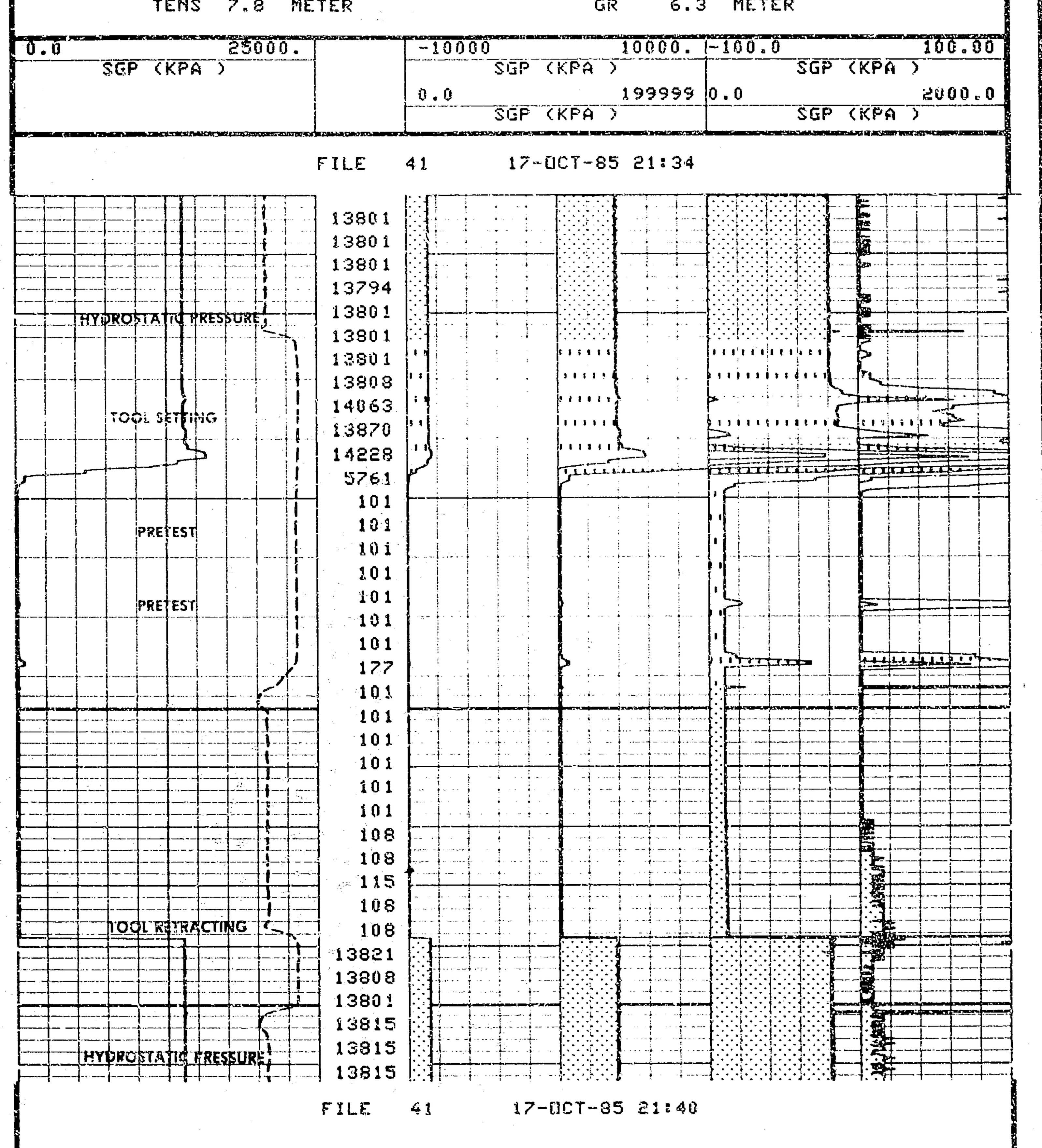
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	786.552	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 41 17-OCT-85 21:34



FILE 41 17-OCT-85 21:40

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

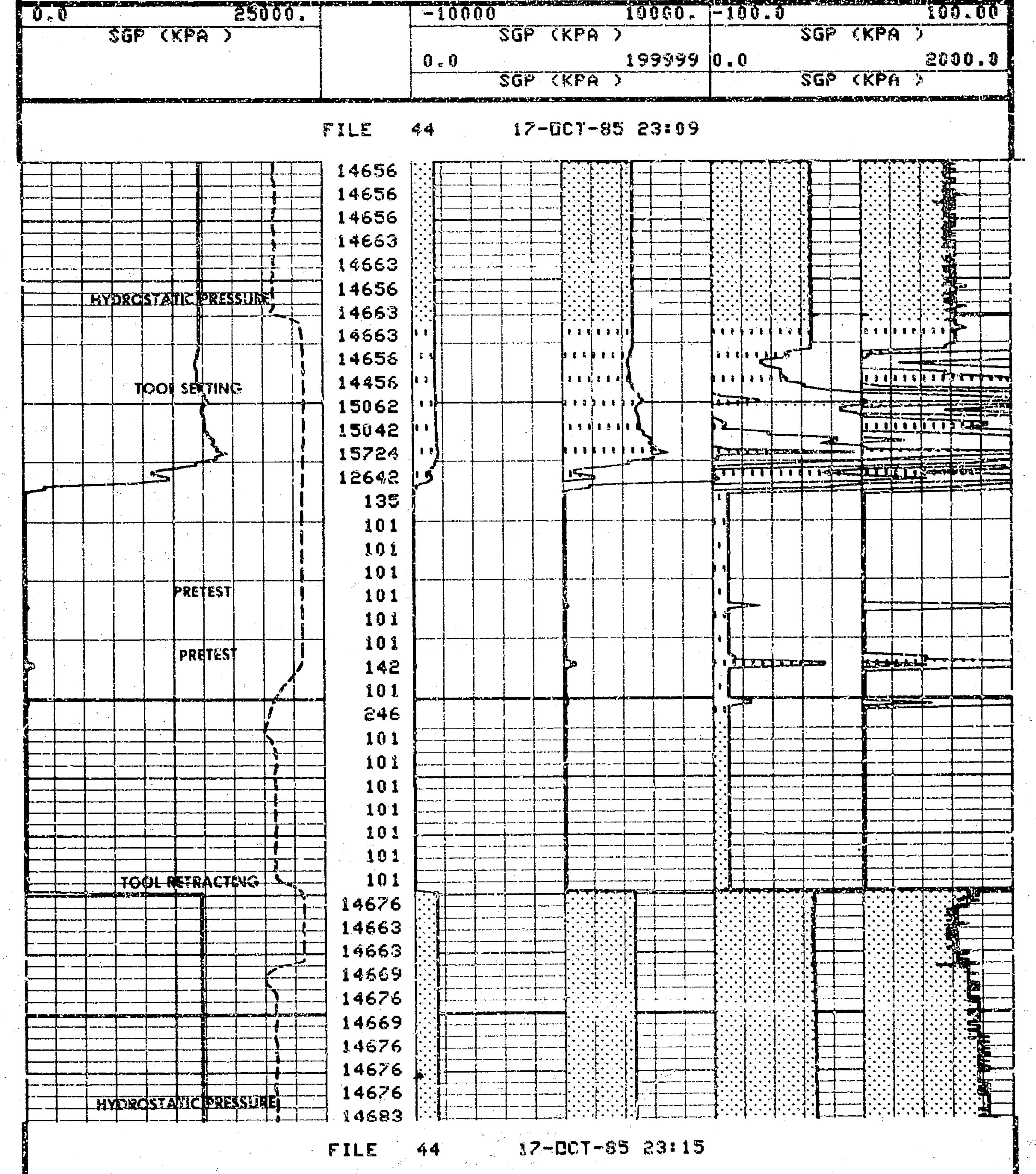
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	834.512	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 44 17-OCT-85 23:09

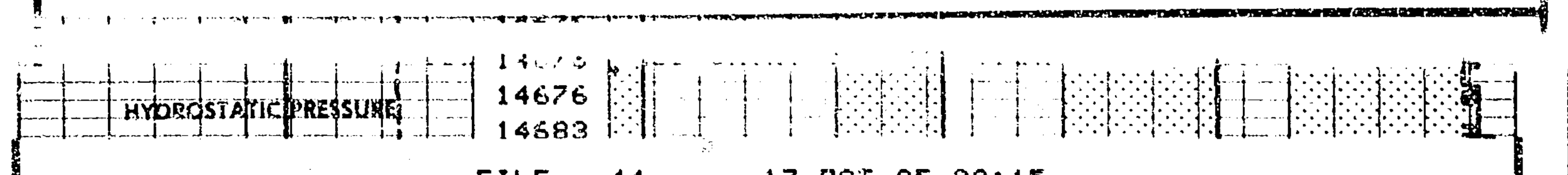


FILE 44 17-OCT-85 23:15

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	854.508	M
SGSN	83760				



FILE 44 17-OCT-85 23:15

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

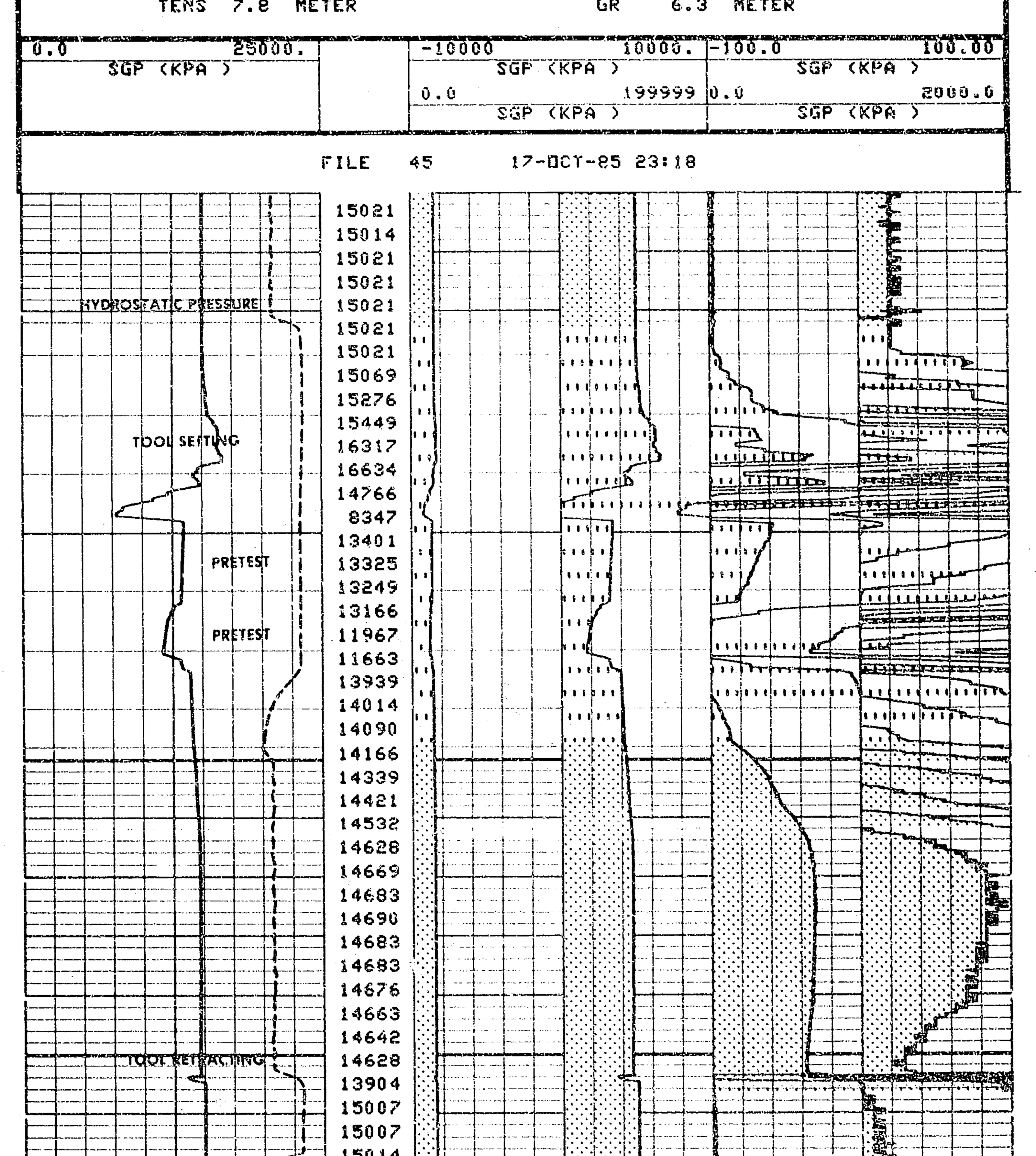
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	854.508	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 45 17-OCT-85 23:18



FILE 45 17-OCT-85 23:25

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

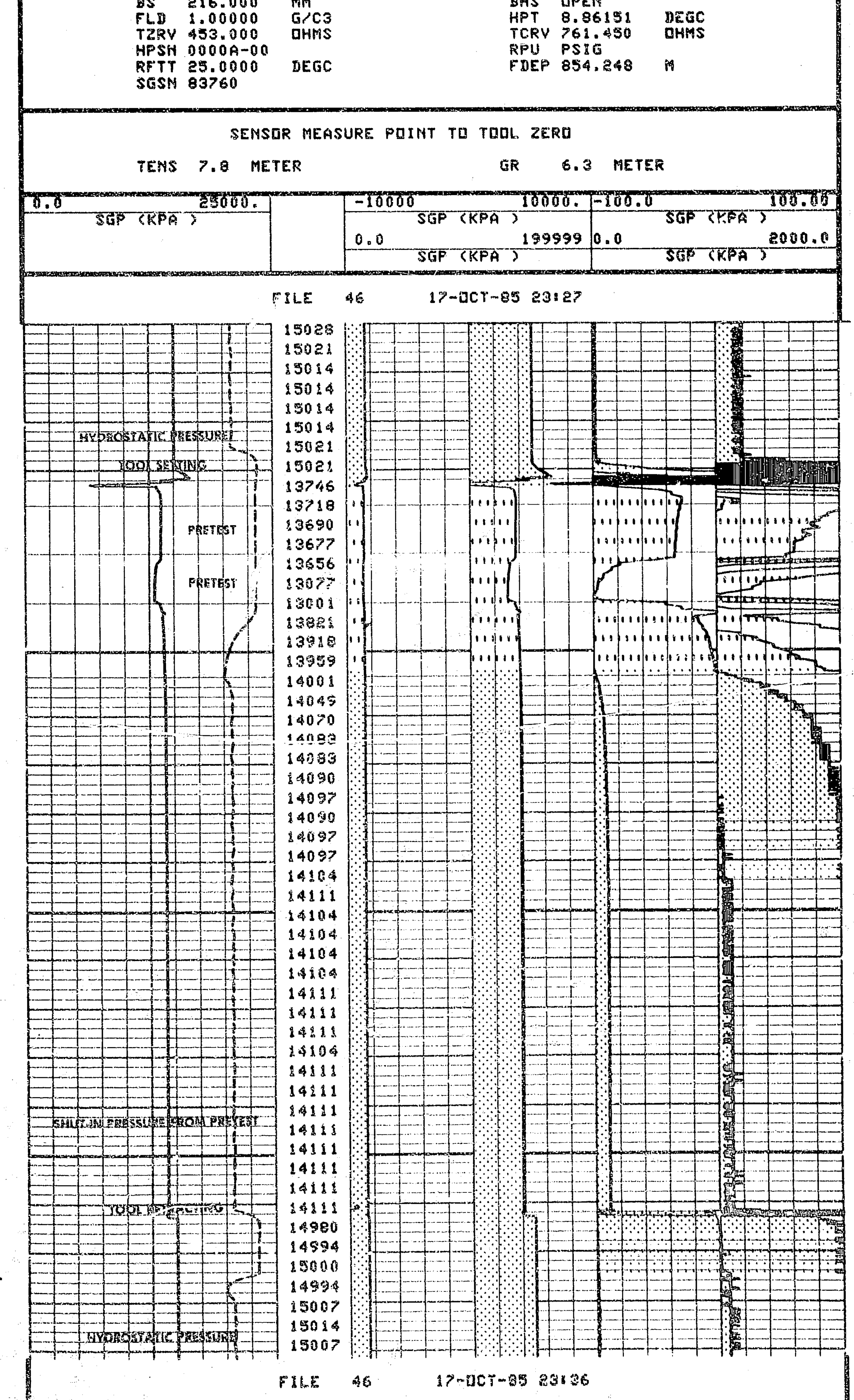
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	854.248	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

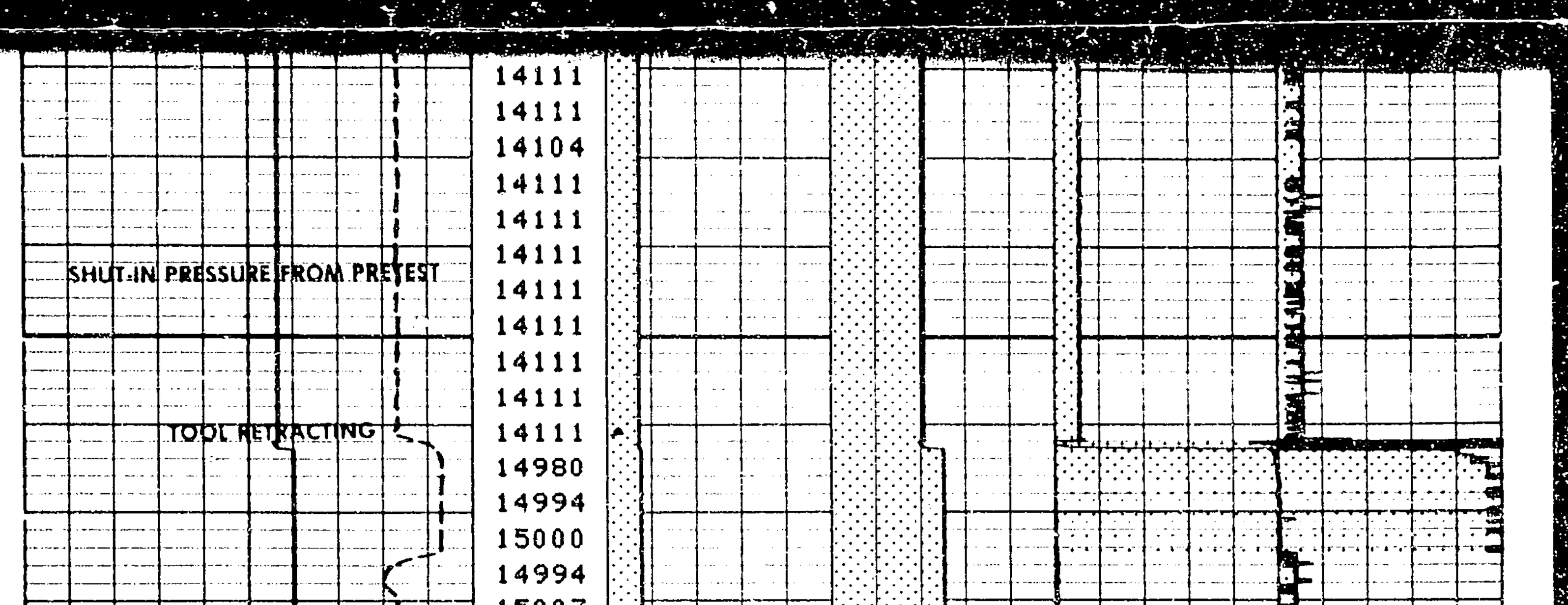
TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
		0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 46 17-OCT-85 23:27



FILE 46 17-OCT-85 23:36



FILE 46 17-OCT-85 23:36

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

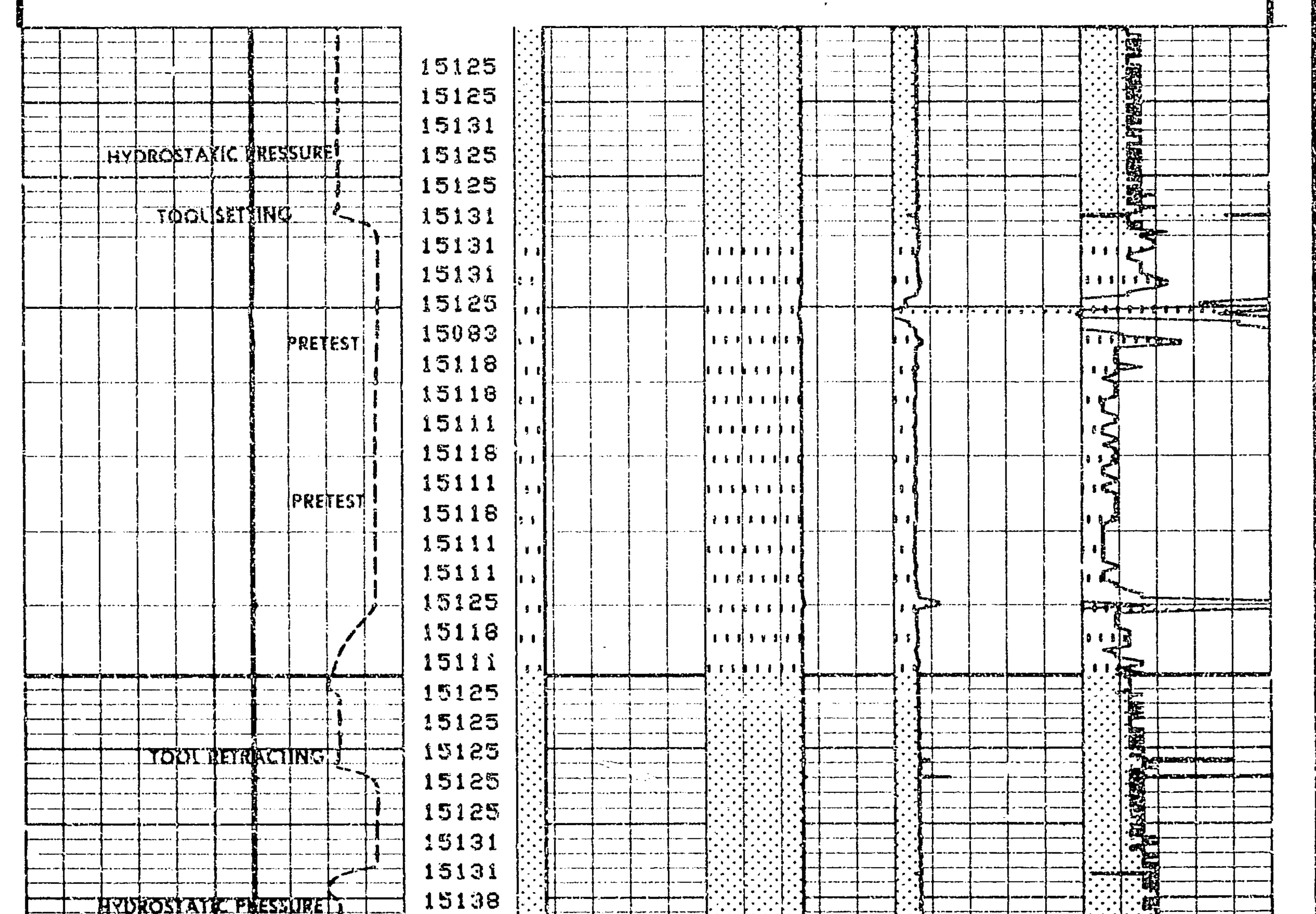
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	861.045	M
SGSN	03760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.0 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 47 17-OCT-85 23:38



FILE 47 17-OCT-85 23:42

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

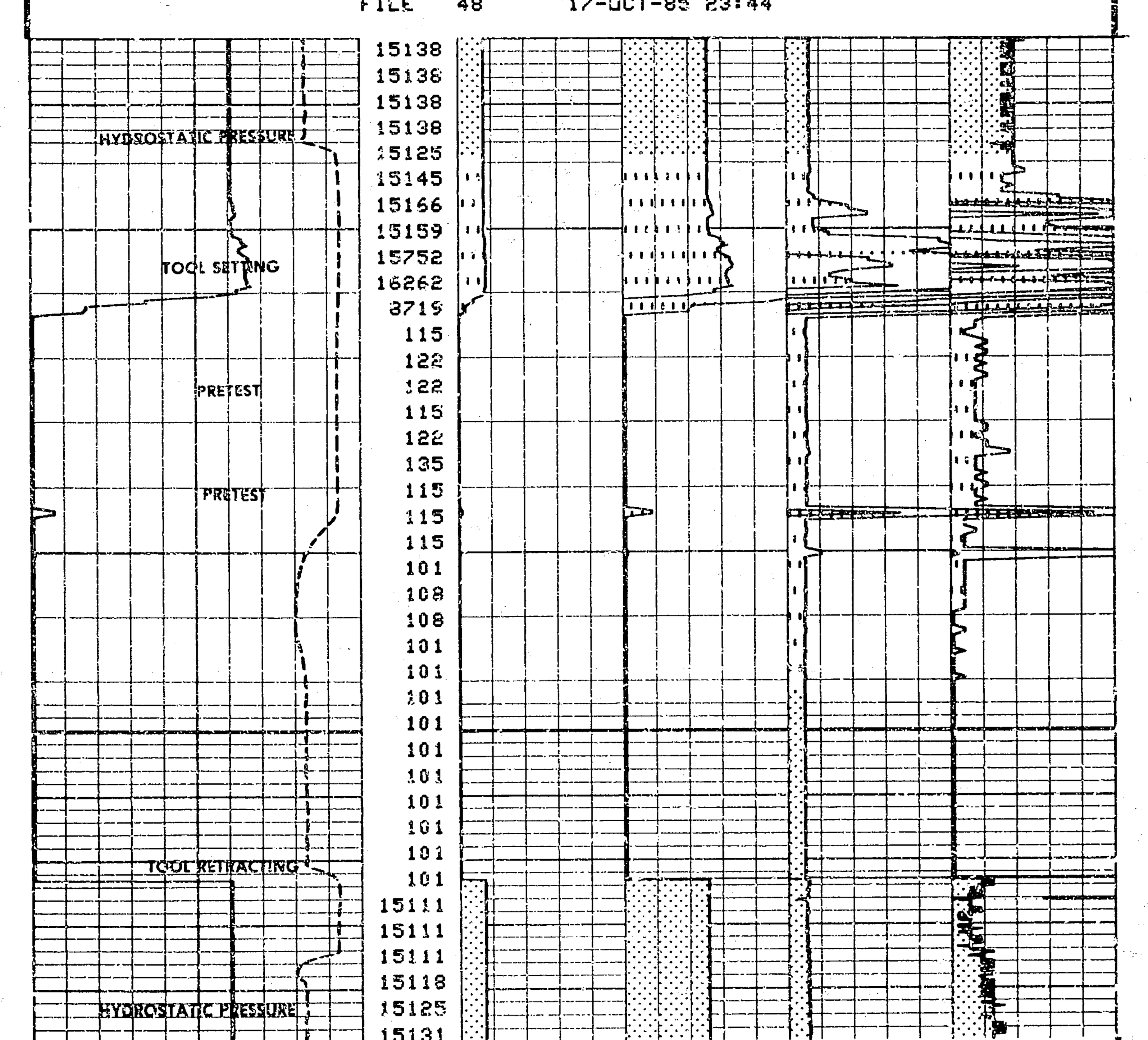
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	861.091	M
SGSN	03760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.0 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 48 17-OCT-85 23:44

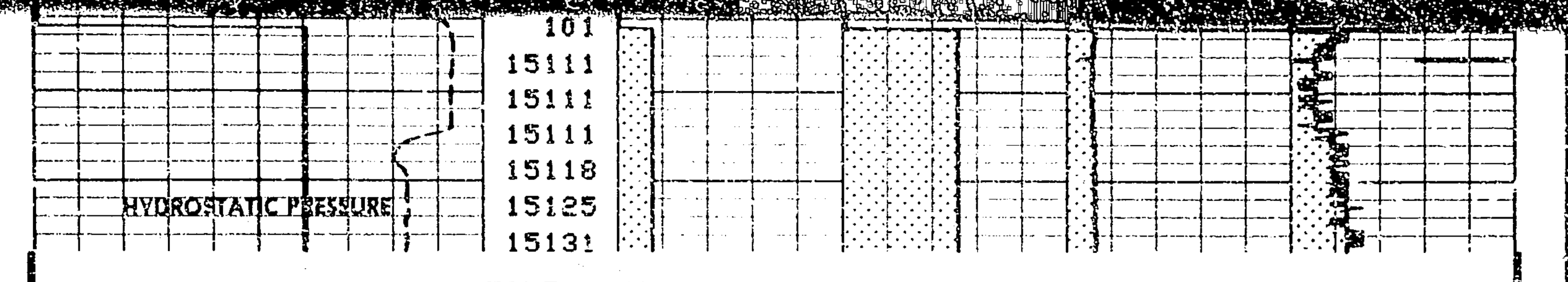


FILE 48 17-OCT-85 23:49

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	887.548	M



FILE 48 17-OCT-85 23:49

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

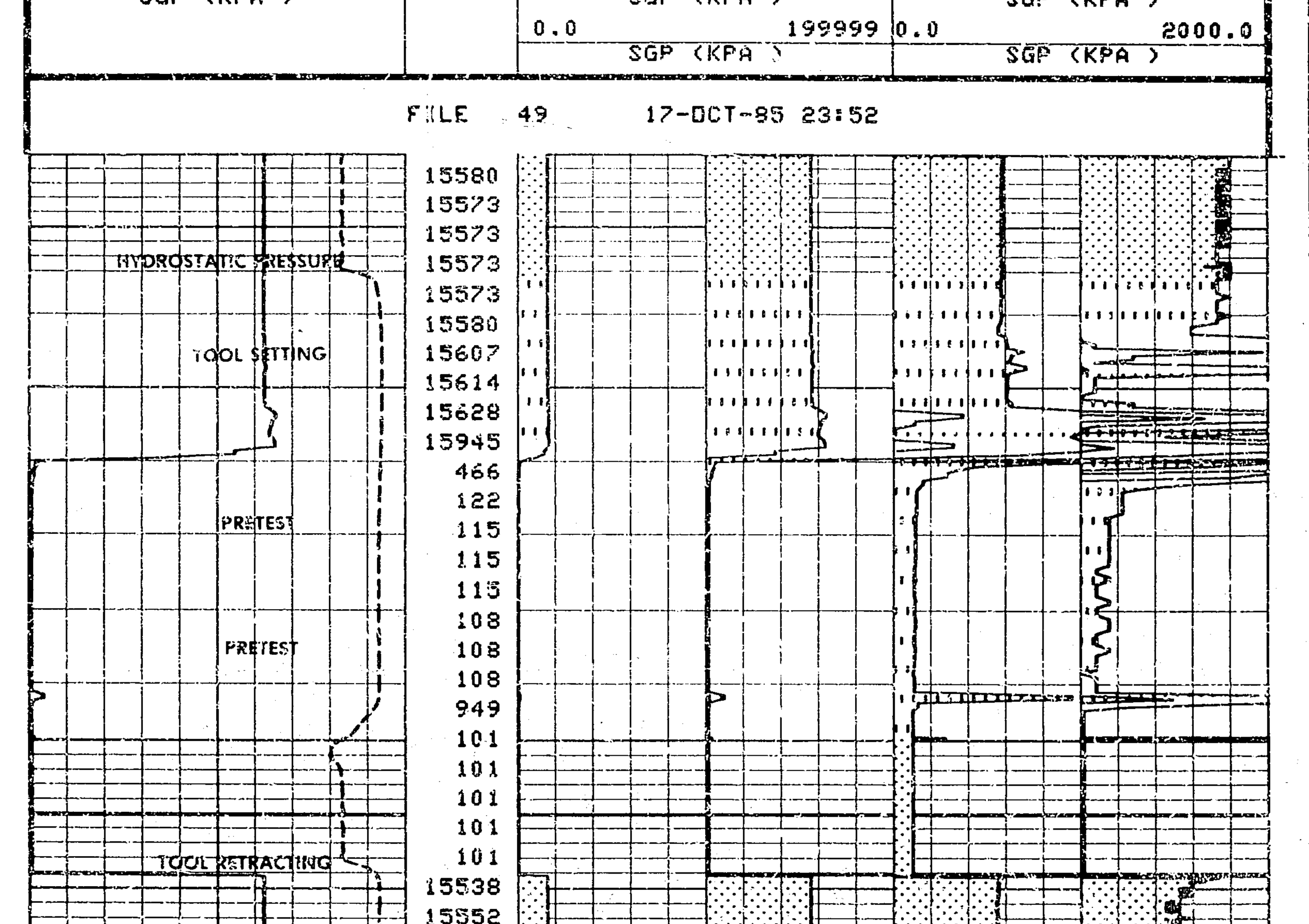
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	887.548	M
SGSN	03760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.0 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 49 17-OCT-85 23:52



FILE 49 17-OCT-85 23:56

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

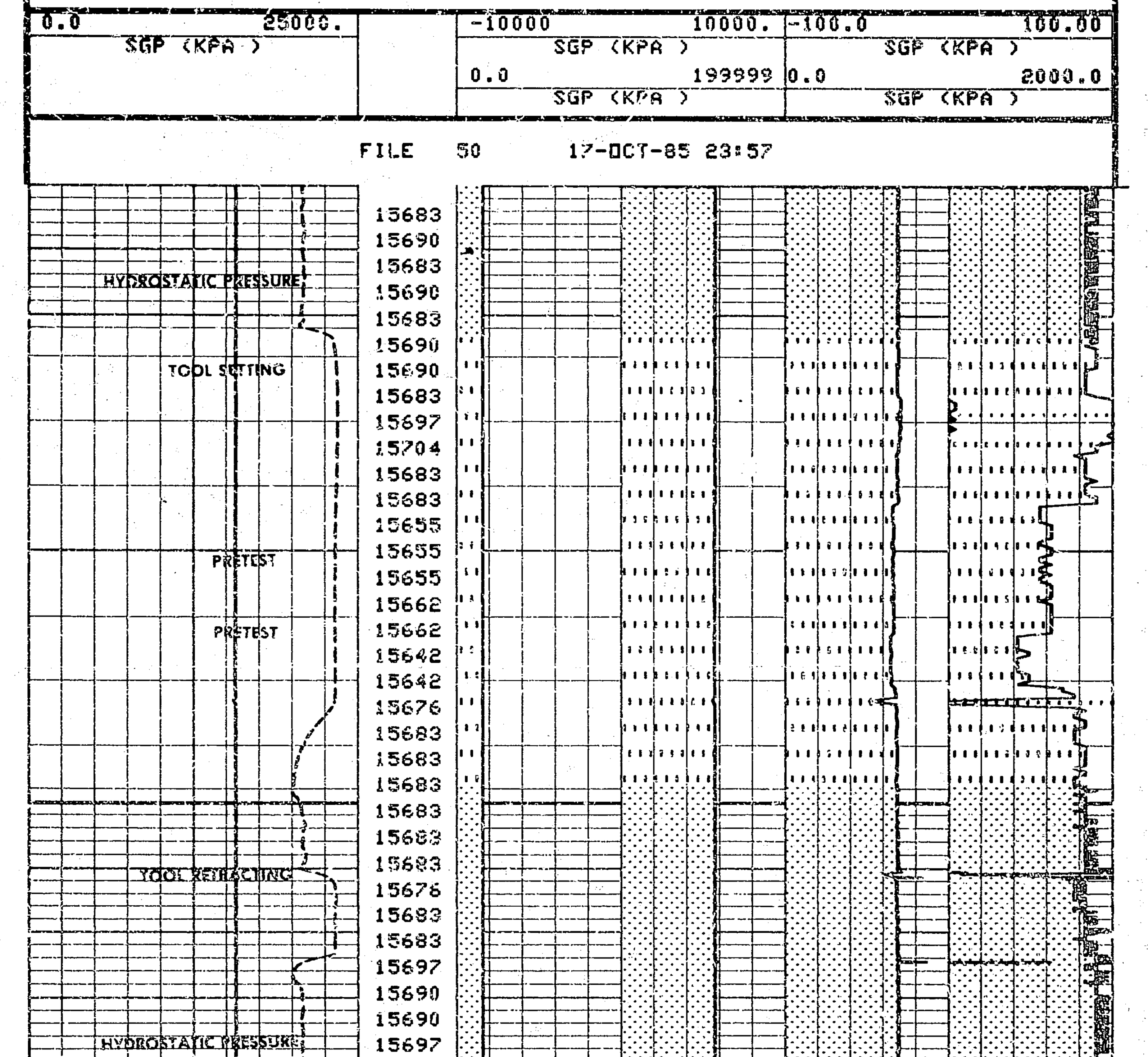
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	893.751	M
SGSN	03760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.0 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 50 17-OCT-85 23:57



FILE 50 18-OCT-85 00:01

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	893.613	M
SGSN	03760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.0 METER GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

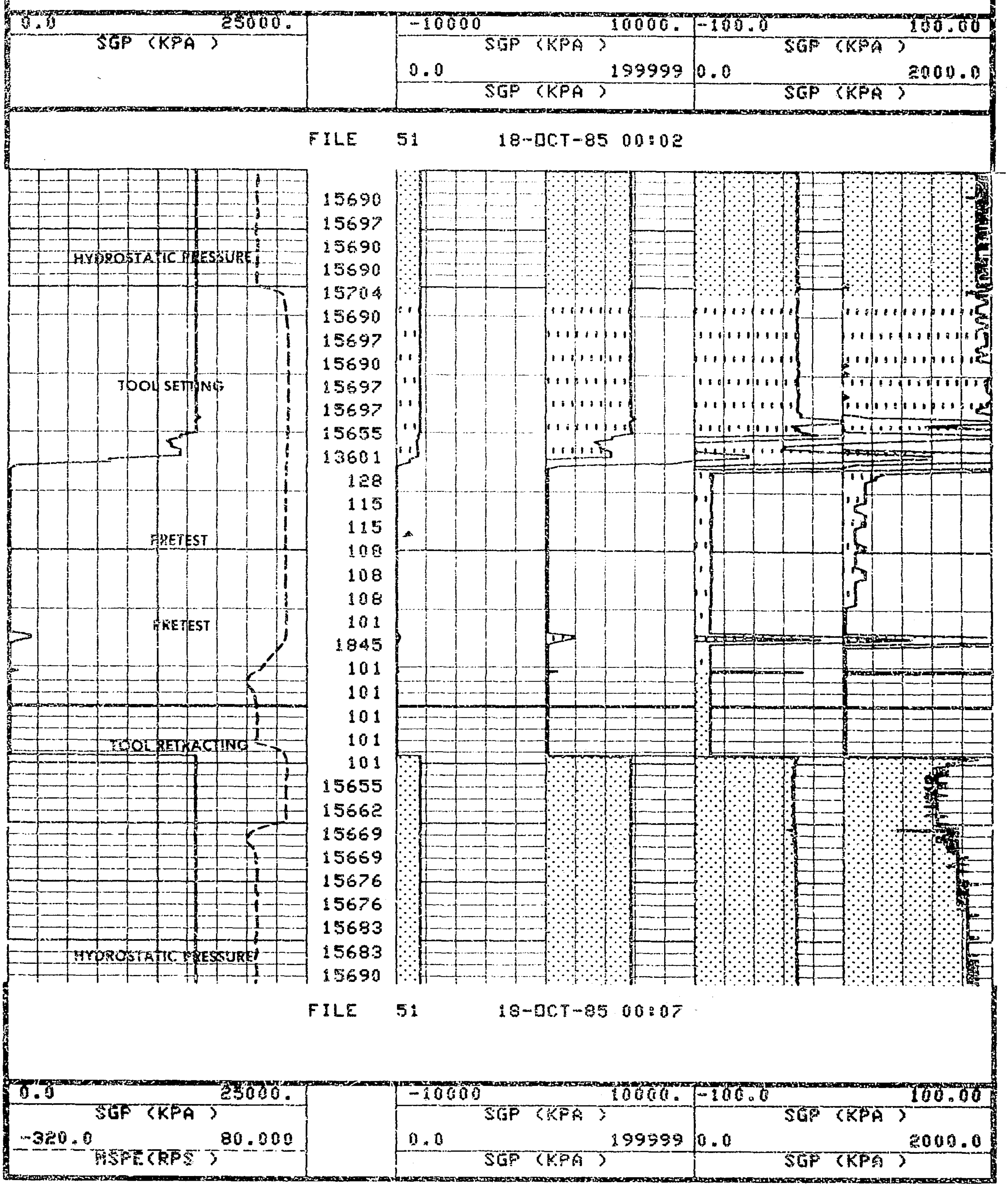
FILE 51 18-OCT-85 00:02

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	893.613	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

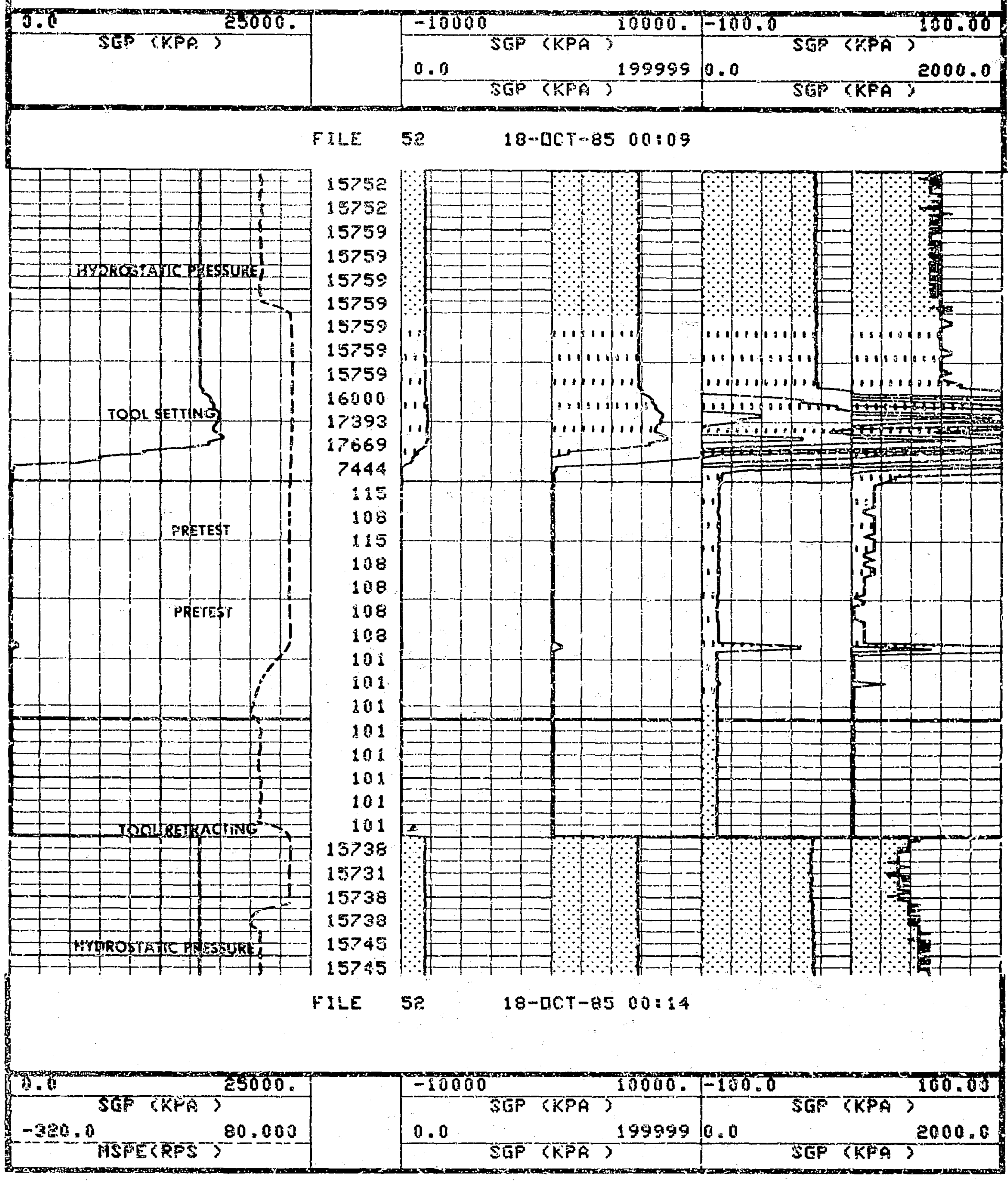


PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	897.484	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

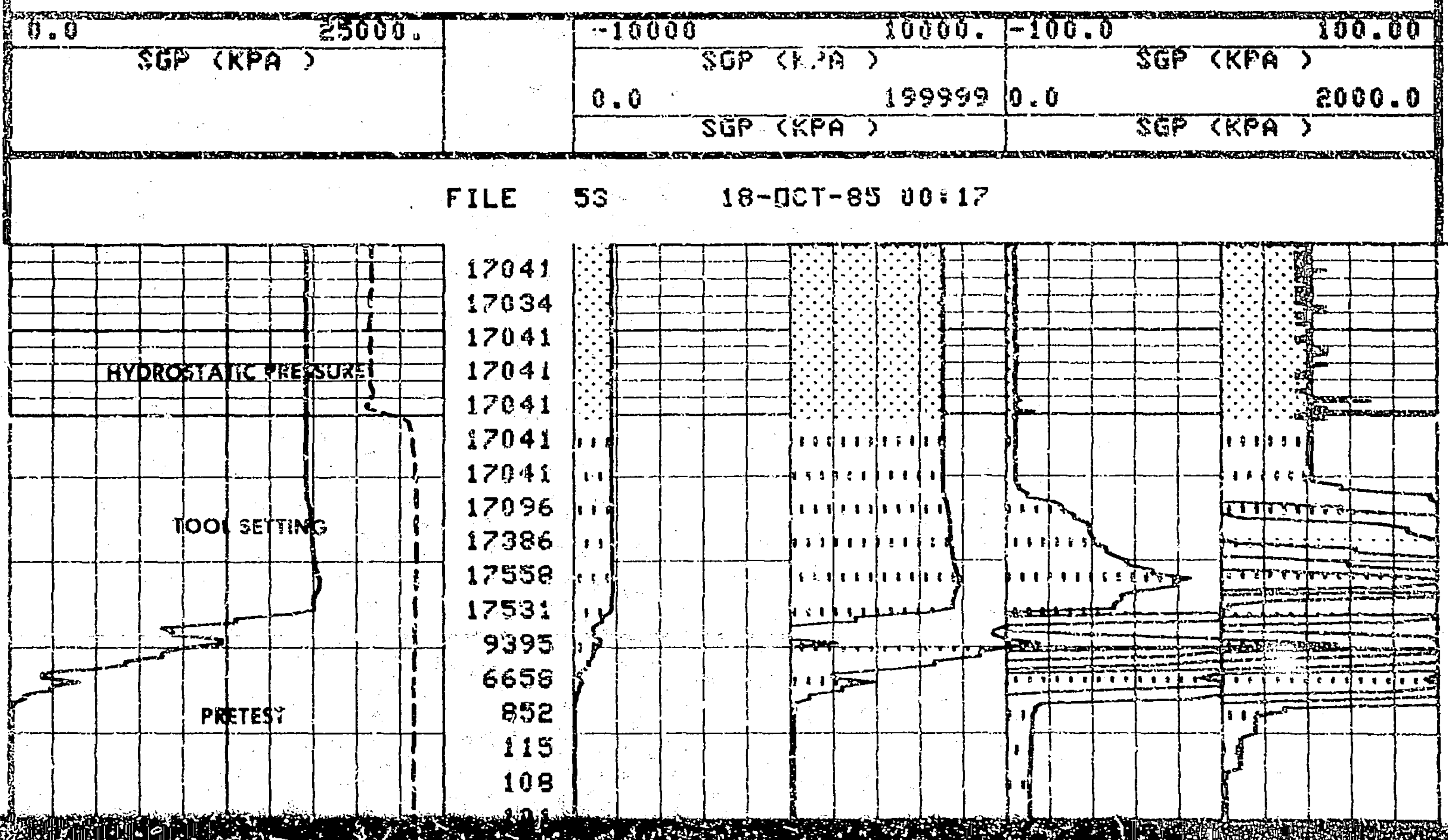


PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	970.560	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

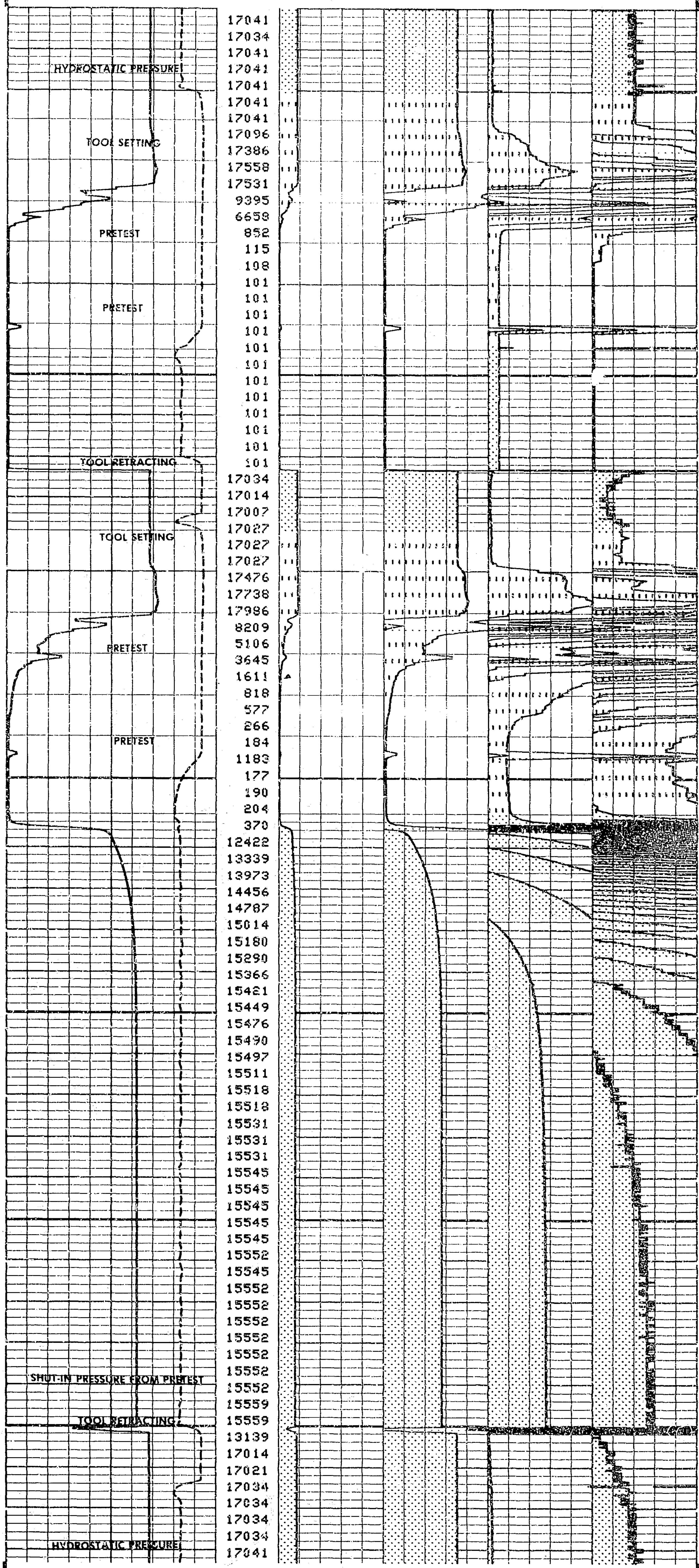
TENS 7.8 METER GR 6.3 METER



TENS 7.8 METER   GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 53   18-OCT-85 00:17



FILE 53   18-OCT-85 00:31

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 MSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

PARAMETERS

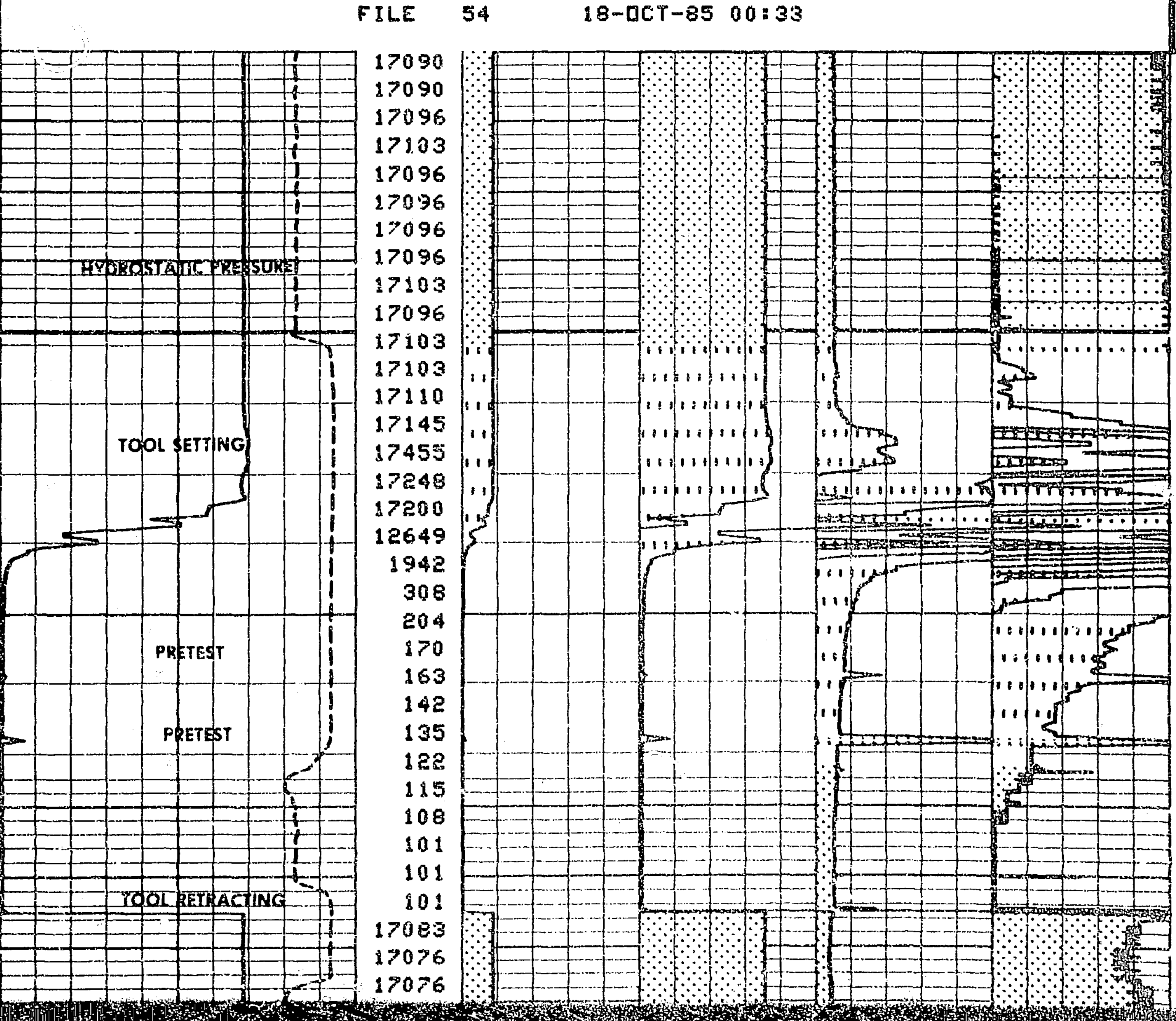
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	973.547	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER   GR 6.3 METER

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

FILE 54   18-OCT-85 00:33




TOOL SETTING
PRETEST
TOOL RETRACTING
HYDROSTATIC PRESSURE
FILE 54 18-OCT-85 00:42
0.0 SGP (KPA) 25000.
-320.0 MSPE(RPS) 80.000
-10000 SGP (KPA) 10000.
0.0 SGP (KPA) 199999
-100.0 SGP (KPA) 100.00
0.0 SGP (KPA) 2000.0
PARAMETERS
NAME VALUE UNIT
BS 216.000 MM
FLD 1.00000 G/C3
TZRV 453.000 OHMS
HPSN 0000A-00
RFTT 25.0000 DEGC
SGSN 03760
BHS OPEN
HPT 8.86151 DEGC
TCRV 761.450 OHMS
RPU PSIG
FDEP 1007.10 M
SENSOR MEASURE POINT TO TOOL ZERO
TENS 7.8 METER
GR 6.3 METER
FILE 55 18-OCT-85 00:44
FILE 55 18-OCT-85 00:52
FDEP 1007.19 M
FILE 56 18-OCT-85 00:53
FILE 56 18-OCT-85 01:00
FDEP 1013.59 M
FILE 57 18-OCT-85 01:02
FILE 57 18-OCT-85 01:08
FDEP 1020.59 M
FILE 58 18-OCT-85 01:09

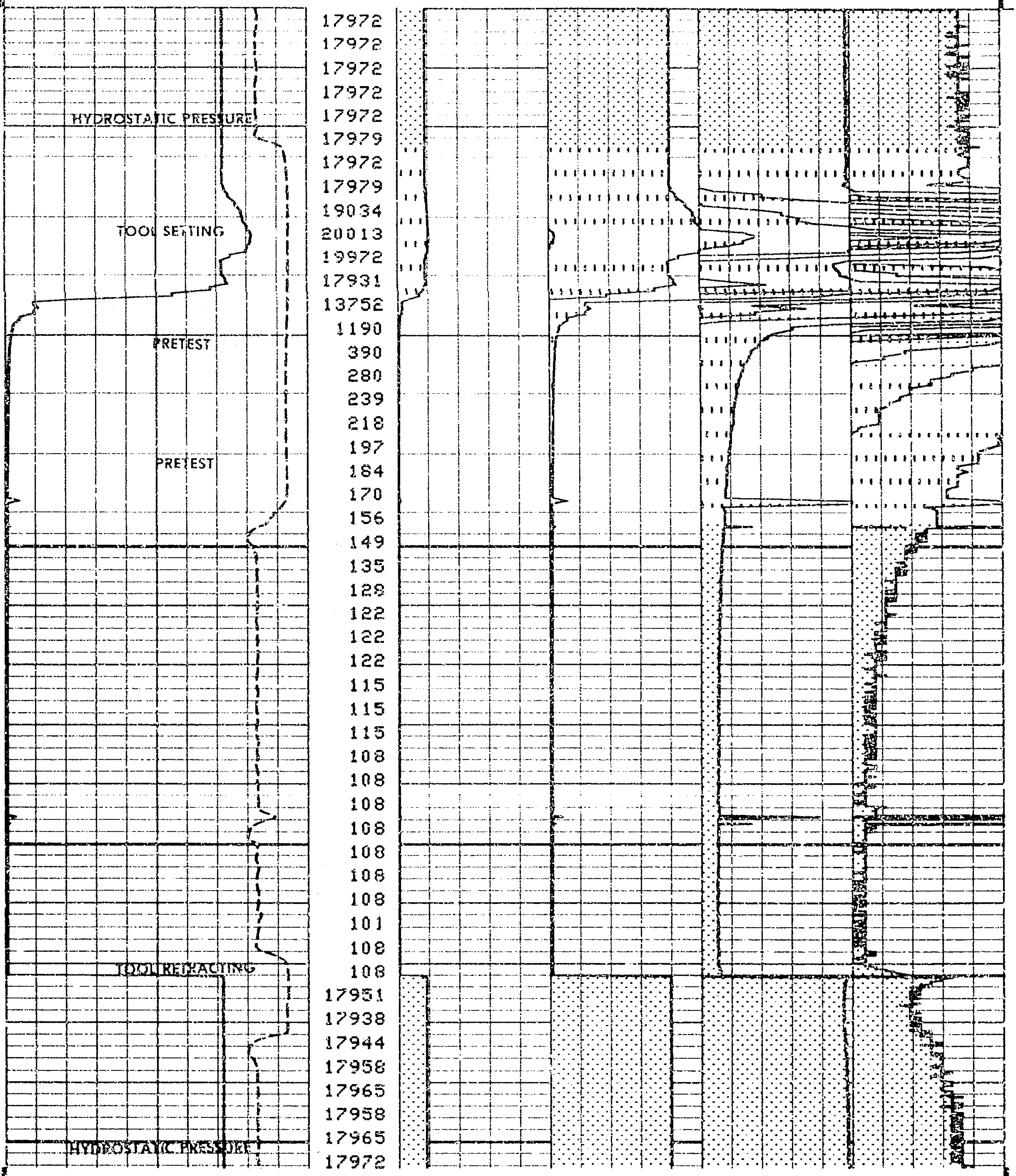
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	1020.59	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

FILE 58 18-OCT-85 01:09



FILE 58 18-OCT-85 01:17

0.0 SGP (KPA) 25000. / -320.0 MSPE(RPS) 80.000		-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

PARAMETERS

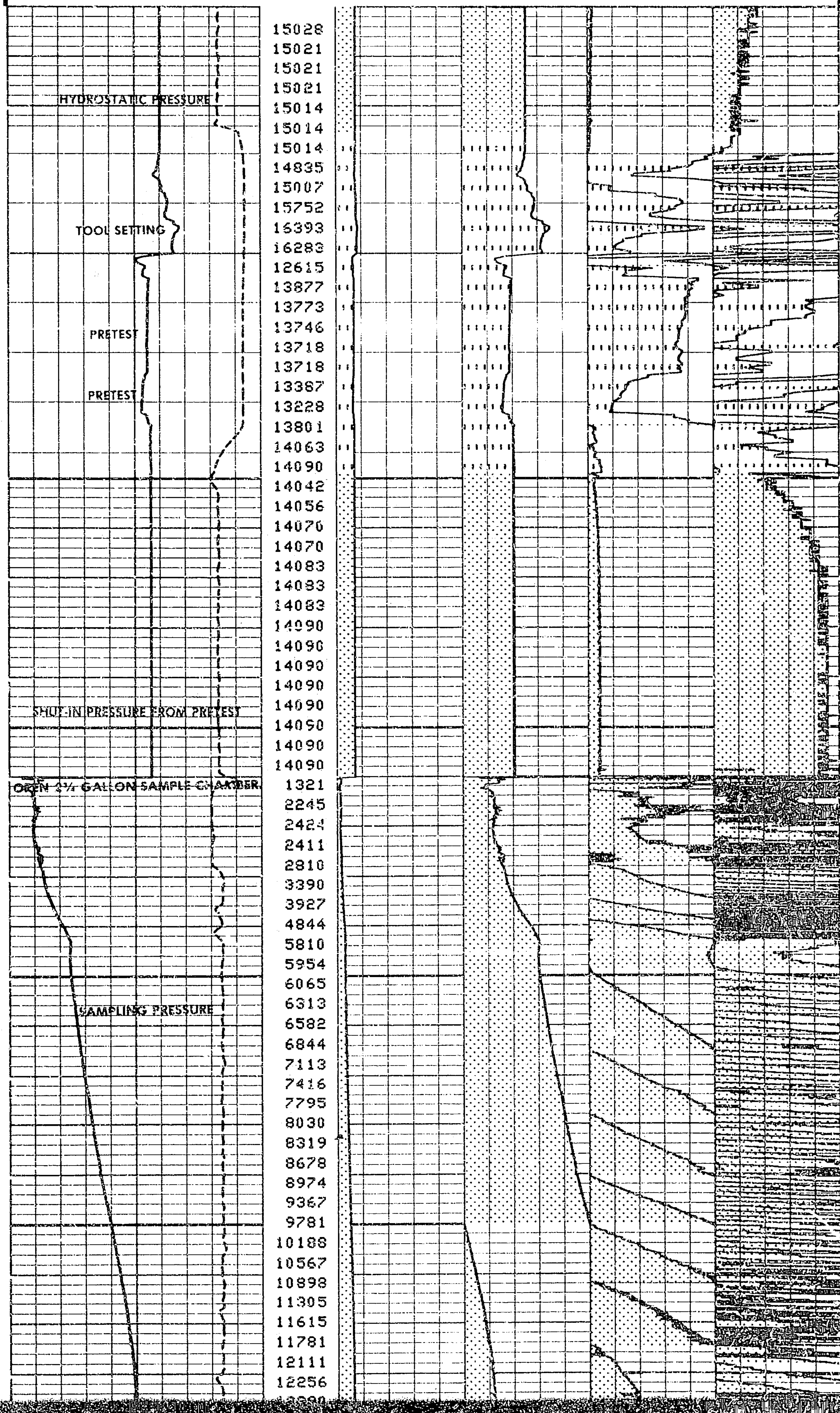
NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	216.000	MM	BHS	OPEN	
FLD	1.00000	G/C3	HPT	8.86151	DEGC
TZRV	453.000	OHMS	TCRV	761.450	OHMS
HPSN	0000A-00		RPU	PSIG	
RFTT	25.0000	DEGC	FDEP	854.248	M
SGSN	83760				

SENSOR MEASURE POINT TO TOOL ZERO

TENS 7.8 METER GR 6.3 METER

0.0 SGP (KPA) 25000.		-10000 SGP (KPA) 10000. / 0.0 SGP (KPA) 199999	-100.0 SGP (KPA) 100.00 / 0.0 SGP (KPA) 2000.0

FILE 59 18-OCT-85 01:25



FILE 59 18-OCT-85 01:59

0.0 SGP (KPA) 25000.	-10000 SGP (KPA) 10000.	-100.0 SGP (KPA) 100.00
-320.0 HSPE(RPS) 80.000	0.0 SGP (KPA) 199999	0.0 SGP (KPA) 2000.0

SAMPLE TEST DATA

TEST NO. 51
DEPTH 854.7 m

PRESSURE DATA

Initial Shut-in Pressure 14090 kPa Shut-in time ______ min

Sampling Pressure ☐ Air Cushion Pressure ☐ Water Cushion ______ kPa

Final Shut-in Pressure 9650 kPa AT SURFACE Shut-in time ______ min

Hydrostatic Pressure 14945 kPa

RECOVERY DATA

Gas ______ litres
Oil ______ litres
WATER 10.25 litres
Resistivity 0.080 Ω·m @ 20 °C
Segregated Sample ☐ Yes ☒ No

SAMPLE TEST DATA

TEST NO. 51
DEPTH 854.2 m

PRESSURE DATA

Initial Shut-in Pressure 14090 kPa — Shut-in time ______ min

Sampling Pressure ☒ Air Cushion Pressure
☐ Water Cushion ______ kPa

Final Shut-in Pressure 9650 kPa AT SURFACE — Shut-in time ______ min

Hydrostatic Pressure 14945 kPa

RECOVERY DATA

Gas ______ litres
Oil ______ litres — Resistivity 0.080 Ω·m @ 20 °C
WATER 10.25 litres
Segregated Sample ☐ Yes ☒ No

MUD FILTRATE DATA

Resistivity 0.058 Ω·m @ 18 °C

TOOL DATA

Sample Unit Size 10.41 litres
Type Cushion ☒ Air — Initial pressure if air 825 kPa
☐ Water — Choke size if water ______ mm
Probe Filter Size ______ mm
Flow Restrictor ☐ Yes ☒ No

SUMMARY

Result indicate that WATER may be expected at this depth.

Remarks SAMPLE CHAMBER CONTAMINATED WITH MUD

SAMPLE TEST DATA

TEST NO. 51
DEPTH 854.2 m

PRESSURE DATA

Initial Shut-in Pressure 14090 kPa — Shut-in time ______ min

Sampling Pressure ☒ Air Cushion Pressure
☐ Water Cushion ______ kPa

Final Shut-in Pressure 9650 kPa AT SURFACE — Shut-in time ______ min

Hydrostatic Pressure 14945 kPa

RECOVERY DATA

Gas ______ litres
Oil ______ litres — Resistivity 0.056 Ω·m @ 16 °C
WATER 3.5 litres
Segregated Sample ☒ Yes ☐ No

MUD FILTRATE DATA

Resistivity 0.058 Ω·m @ 18 °C

TOOL DATA

Sample Unit Size 3.79 litres
Type Cushion ☒ Air — Initial pressure if air 825 kPa
☐ Water — Choke size if water ______ mm
Probe Filter Size ______ mm
Flow Restrictor ☐ Yes ☒ No

SUMMARY

Result indicate that WATER may be expected at this depth.

Remarks ______

FILE 0

TOOL SUMM :

TOOL	STAT	LENG	WEIG
DTT	ALLO	0	0
CSUD	ALLO	0	0
RFT	ALLO	214	708
HPAA	ALLO	0	116
SGTE	ALLO	60	87

FILE 0

INPU SUMM :

INPU	STAT	PUNI	TUNI	MPOI	CNUM	ZREF	PREF	GAIN	OFFS	DCON
TENS	ALLO	LB	LB	0	20					
HPF	ALLO	HZ	HZ	0	0					
HPT	ALLO	DEGC	DEGC	0	3	-.00872	176.5			
PTHO	ALLO			0	10			1.00906	-.09065	
PHUN	ALLO			0	8			1.00643	-.08796	
PTEN	ALLO			0	6			1.01165	-.10077	
PONE	ALLO			0	3			1.00122	-.70056	
SEAL	ALLO			0	12					
LSAM	ALLO			0	5					
USAM	ALLO			0	4					
PD20	ALLO			0	14					
PD10	ALLO			0	13					
PRES	ALLO	PSIG	PSIG	0	2					
MSPE	ALLO	RPS	RPS	0	0					
GR	ALLO	GAPI	GAPI	37	0					

FILE 0

OUTP SUMM :

OUTP	STAT	PUNI	TUNI
TDEP		M	M
DIFF	ALLO	M	M
TOD	ALLO	S	S
TIME	ALLO	MS	MS
ETIM	ALLO	S	S
TENS	ALLO	LB	LB
CS	ALLO	F/HR	F/HR
ZERO			
DUMM			
DUM2			
MARK	ALLO	M	M
DMAR	DISA	M	M
HPF	ALLO	HZ	HZ
HPGD	ALLO	PSIA	PSIA
HPGP	DISA	PSIA	PSIA
RHPT	ALLO	DEGC	DEGC
HPT	ALLO	DEGC	DEGC
MSPE	ALLO	RPS	RPS
SGP	ALLO	KPA	KPA
USAM	DISA		
LSAM	DISA		
SEAL	DISA		
PRES	ALLO	KPA	KPA
RPRE	ALLO	KPA	KPA
PD10	ALLO		
PD20	ALLO		
RPON	DISA		
RPTE	DISA		
RPHU	DISA		
RPTH	DISA		
PONE	ALLO		
PTEN	ALLO		
PHUN	ALLO		
PTHO	ALLO		
GR	ALLO	GAPI	GAPI
LC01	DISA		
LC02	DISA		
LC03	DISA		
LC04	DISA		
LC05	DISA		
LC06	DISA		
LC07	DISA		
LC08	DISA		
LC09	DISA		
LC10	DISA		
LC11	DISA		

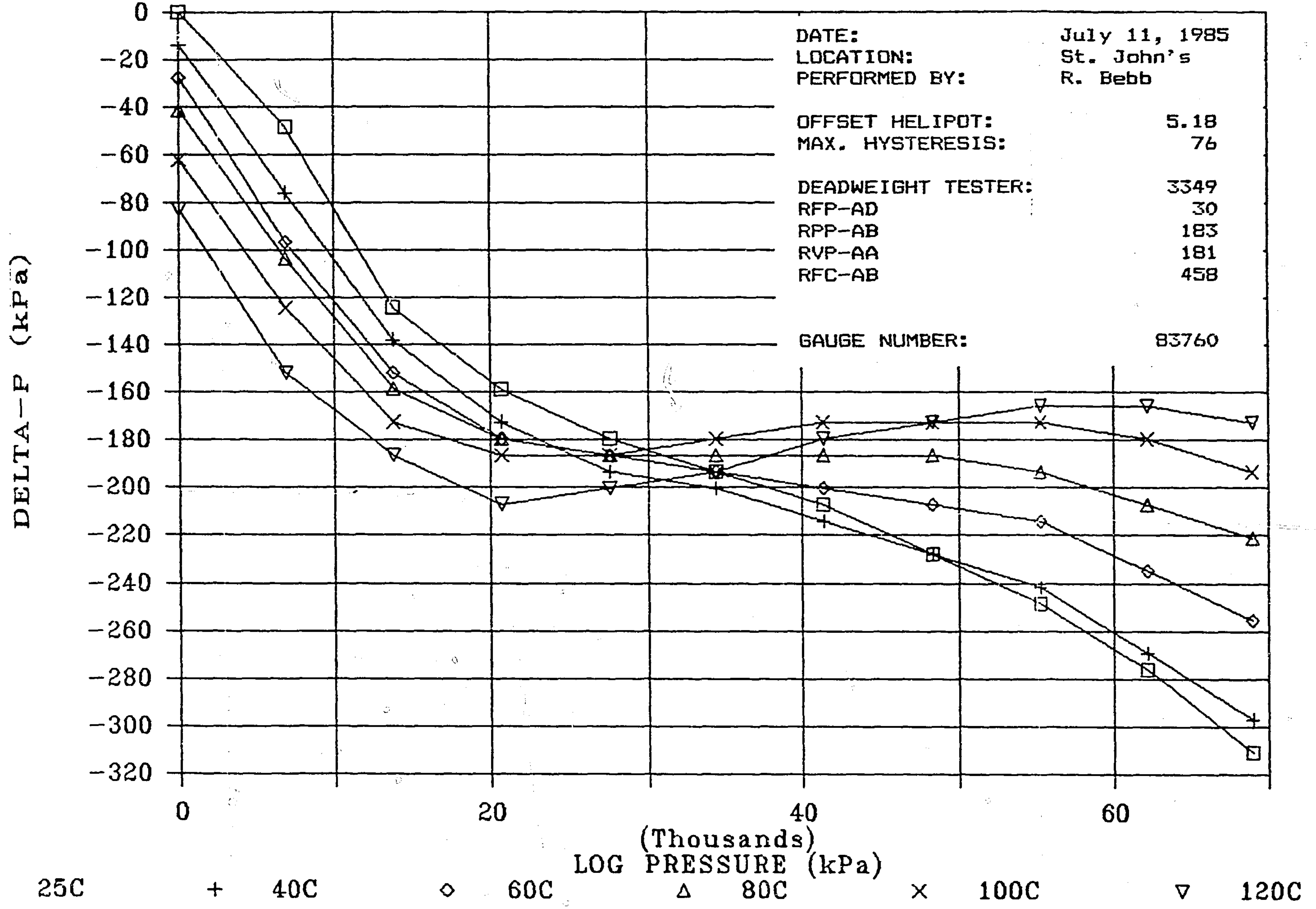
```
PD10  ALLO
PD20  ALLO
RPON  DISA
RPTE  DISA
RPHU  DISA
RPTH  DISA
PONE  ALLO
PTEN  ALLO
PHUN  ALLO
PTHO  ALLO
GR    ALLO GAPI GAPI
LC01  DISA
LC02  DISA
LC03  DISA
LC04  DISA
LC05  DISA
LC06  DISA
LC07  DISA
LC08  DISA
LC09  DISA
LC10  DISA
LC11  DISA
LC12  DISA
LC13  DISA
LC14  DISA
LC15  DISA
LC16  DISA
LC17  DISA
LC18  DISA
LC19  DISA
LC20  DISA
LC21  DISA
LC22  DISA
LC23  DISA
LC24  DISA

                           FILE     0


   CONS SUMM :
CONS  STAT PUNI TUNI VALU

DIFF       F    F    1.00000 F
EDS                  PROP
CDS                  ALL
UCON  ALLO           *
OMD                  UP
LSN                  0
CSD                  FILM
LD                   FILM
PANN                 ALL
SPEE       F/HR F/HR 6000 F/HR
PP                   NORM
CGM                  NORM
POS        F    F    0.0 F
E          LB-1 LB-1 7.43000E-7  LB-1
TREF       LB   LB   1000.00 LB
MARK  DISA           *
CMDT                 IDW
DIRE                 AUTO
EPAS
PASS
PM                   SING
SPLI  DISA           *
DD         F    F    0.0 F
DD2        F    F    0.0 F
BS         MM   MM   216.000 MM
RW         OHMM OHMM 1.00000 OHMM
BHS                  OPEN
CSIZ       MM   MM   0.0 MM
IHVD                 1
SD         M    M    2496.92 M
FNUM                 1.00000
FEXP                 2.00000
FPHI                 PHIX
HPSN                 0000A-00011
G0HP                 -5440.38
G1HP                 .282165
G2HP                 -.454667E-03
G3HP                 -.260034E-05
H0HP                 .931999E-02
H1HP                 -.525821E-06
H2HP                 .170933E-08
H3HP                 .336883E-11
I0HP                 .169320E-09
I1HP                 .298415E-12
I2HP                 -.204989E-14
I3HP                 .335907E-17
J0HP                 .441555E-17
J1HP                 .101440E-19
J2HP                 -.353323E-23
J3HP                 0.
CCTU                 DEGF
FLD        G/C3 G/C3 1.00000 G/C3
HPT   ALLO DEGC DEGC 4.49072 DEGC
TZRV       OHMS OHMS 453.000 OHMS
TCRV       OHMS OHMS 761.450 OHMS
RPU                  PSIG
SGSD                 10K
RLM                  LOG
AOFF                 BOTH
RFTT  ALLO DEGC DEGC 25.0000 DEGC
FDEP       M    M    680.451 M
APRE       PSIA PSIA 14.7000 PSIA
ATEM       DEGC DEGC 25.0000 DEGC
TPRE       KPA  KPA  101.324 KPA
SGSN                 83760
PMOD                 SING
TOFT       S    S    62.7019 S
TPT        S    S    20.0000 S
CVOL                 PRET
PLOT                 HORN
LC01
LC02
LC03
LC04
LC05
LC06
LC07
LC08
LC09
LC10
LC11
LC12
LC13
LC14
LC15
LC16
LC17
LC18
LC19
LC20
LC21
LC22
LC23
LC24
WTSM  ALLO           .TOOL.STICKING.
ALAR  ALLO           .ALARM.
AOM   ALLO           .ALARM.OFF.
XM00  DISA
XM01  DISA
XM02  DISA
LQC   DISA           *
KPDU                 METE
ORDU                 METE
MMDU                 METE
PF                   SHOR
YEAR                 85
MONT                 10
DAY                  17

                     FILE     0


   PRES SUMM :
PRES  OUTP STAT CHAN  TRAC CODI DEST MODE FILT LEDG     REDG

GR    GR   ALLO 0     T1   LLIN BOTH SHIF .500 0.0      150.000
SGP   SGP  DISA 1     T1   LLIN BOTH SHIF 0.0  0.0      25000.0
DSGP  SGP  DISA 2     RHT3 LLIN BOTH WRAP 0.0  -.00005  100.000
TSGP  SGP  DISA 3     LHT3 LLIN BOTH WRAP 0.0  0.0      1000.00
HSGP  SGP  DISA 4     RHT2 LLIN BOTH WRAP 0.0  -.00015  10000.0
MSGP  SGP  DISA 5     LHT2 LLIN BOTH WRAP 0.0  0.0      100000.
50T2  ZERO ALLO 6     T2   LLIN NEIT NB   .500 10.0000  -10.000
50T3  ZERO ALLO 7     T3   LLIN NEIT NB   .500 10.0000  -10.000
MSPE  MSPE DISA 8     T1   LDAS BOTH NB   0.0  -320.00  80.0000
9     DUMM DISA 9     T1   LLIN NEIT NB   .500 0.0      1.00000
10    DUMM DISA 10    T1   LLIN NEIT NB   .500 0.0      1.00000
11    DUMM DISA 11    T1   LLIN NEIT NB   .500 0.0      1.00000
12    DUMM DISA 12    T1   LLIN NEIT NB   .500 0.0      1.00000
13    DUMM DISA 13    T1   LLIN NEIT NB   .500 0.0      1.00000
14    DUMM DISA 14    T1   LLIN NEIT NB   .500 0.0      1.00000
15    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
16    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
17    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
18    DUMM DISA 15    T1   LLIN NEIT NB   .500 0.0      1.00000
19    DUMM DISA 15    T1   LLIN NEIT ND   .500 0.0      1.00000

PRESSURE UNITS:       PSIG
TEMPERATURE UNITS:    DEGC

STRAIN GAUGE SERIAL NUMBER: 83760
ATMOSPHERIC PRESSURE: 14.7 PSIA
AMBIENT TEMPERATURE:  25.00 DEGC


PRESS TABLE #:          1                      2
PRESSURES:          1000.0                 2000.0

  TMP/CORR #   TEMP      CORR          TEMP     CORR
       1 :    120.00    -22.00        120.00   -27.00
       2 :    100.00    -18.00        100.00   -25.00
       3 :     80.00    -15.00         80.00   -23.00
       4 :     60.00    -14.00         60.00   -22.00
       5 :     40.00    -11.00         40.00   -20.00
       6 :     25.00     -7.00         25.00   -18.00

PRESS TABLE #:          3                      4
PRESSURES:          3000.0                 4000.0

  TMP/CORR #   TEMP      CORR          TEMP     CORR
       1 :    120.00    -30.00        120.00   -29.00
       2 :    100.00    -27.00        100.00   -27.00
[illegible]
ATMOSPHERIC PRESSURE: 14.7 PSIA
AMBIENT TEMPERATURE:  25.00 DEGC
```

ATMOSPHERIC PRESSURE: 14.7 PSIA
AMBIENT TEMPERATURE: 25.00 DEGC

PRESS TABLE #:	1		2		3		4		5		6		7		8		9		10	
PRESSURES:	1000.0		2000.0		3000.0		4000.0		5000.0		6000.0		7000.0		8000.0		9000.0		10000.0	
TMP/CORR #	TEMP	CORR	TEMP	CORR	TEMP	CORR	TEMP	CORR	TEMP	CORR	TEMP	CORR	TEMP	CORR	TEMP	CORR	TEMP	CORR	TEMP	CORR
1 :	120.00	-22.00	120.00	-27.00	120.00	-30.00	120.00	-29.00	120.00	-28.00	120.00	-26.00	120.00	-25.00	120.00	-24.00	120.00	-24.00	120.00	-25.00
2 :	100.00	-18.00	100.00	-25.00	100.00	-27.00	100.00	-27.00	100.00	-26.00	100.00	-25.00	100.00	-25.00	100.00	-25.00	100.00	-26.00	100.00	-28.00
3 :	80.00	-15.00	80.00	-23.00	80.00	-26.00	80.00	-27.00	80.00	-27.00	80.00	-27.00	80.00	-27.00	80.00	-28.00	80.00	-30.00	80.00	-32.00
4 :	60.00	-14.00	60.00	-22.00	60.00	-26.00	60.00	-27.00	60.00	-28.00	60.00	-29.00	60.00	-30.00	60.00	-31.00	60.00	-34.00	60.00	-37.00
5 :	40.00	-11.00	40.00	-20.00	40.00	-25.00	40.00	-28.00	40.00	-29.00	40.00	-31.00	40.00	-33.00	40.00	-35.00	40.00	-39.00	40.00	-43.00
6 :	25.00	-7.00	25.00	-18.00	25.00	-23.00	25.00	-26.00	25.00	-28.00	25.00	-30.00	25.00	-33.00	25.00	-36.00	25.00	-40.00	25.00	-45.00

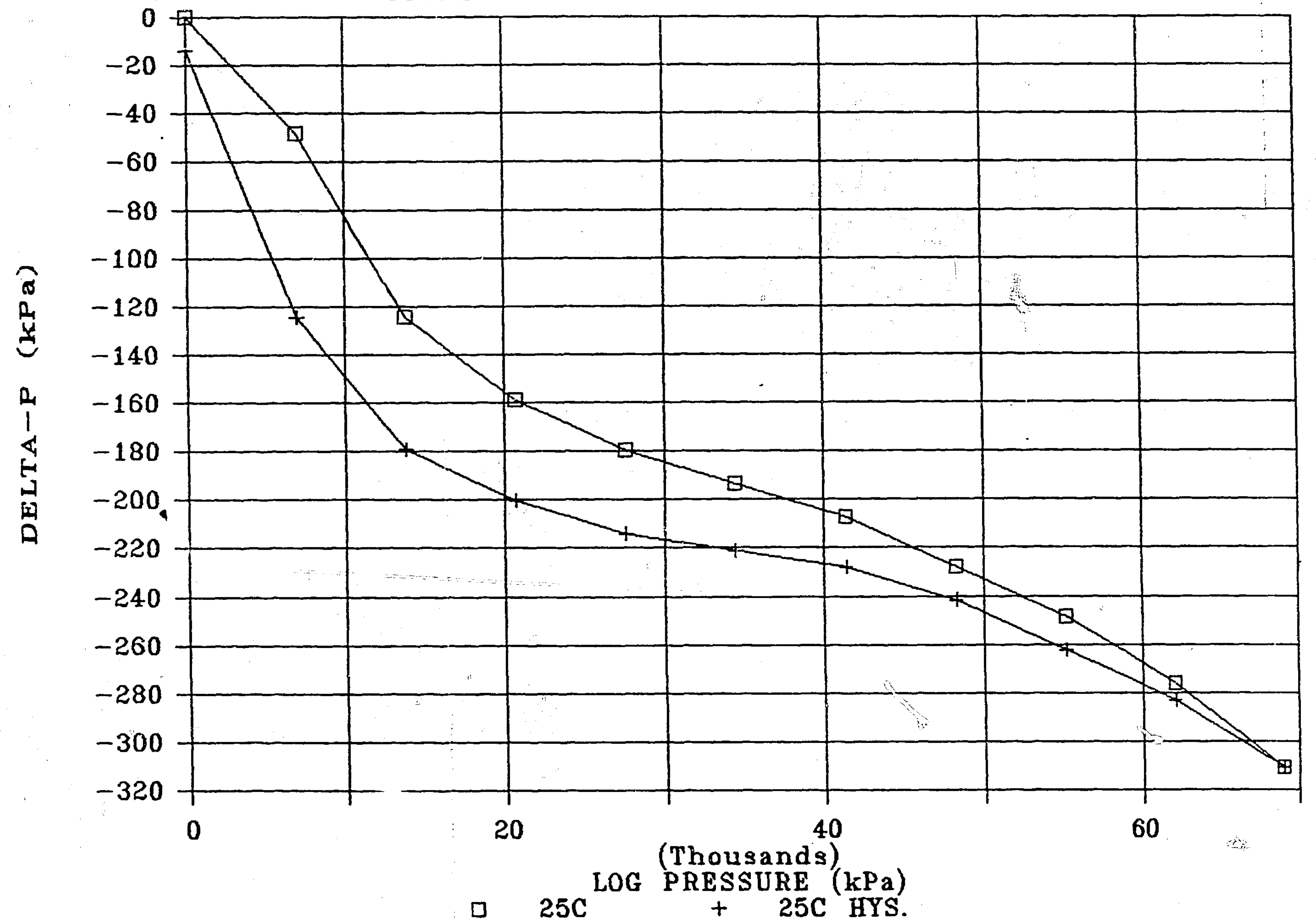
FIELD CALIBRATION GAUGE # 83760

CORRECTED PRESSURE = LOG PRESS.+DELTA-P



HYSTERESIS CURVE GAUGE # 83760

CORRECTED PRESSURE = LOG PRESS.+DELTA-P



8710-C55-1-2 0 [illegible]

RESERVOIR QUALITY STUDY

FOR

CANTERRA ENERGY LTD.

ICG SOGEPET ET AL NETSIQ N-01

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
JAN 29 1986
ENGINEERING BRANCH
GÉNIE

Our File: 70687-85-597

Date: 1985 12 18

Petrographic Services CORE LAB

TABLE OF CONTENTS

INTRODUCTION

INTRODUCTION

Forty-seven sidewall samples selected by Mr. John Thorpe of Canterra Energy Ltd. from ICG Sogepet et al Netsiq N-01 were submitted for analysis as listed below. This report contains X-ray diffraction analyses of 10 samples, scanning electron microscopy of ten samples and thin section petrography of 46 samples.

Sample Number	Depth (m)	Analysis	Rock Type
1	1040.00	TS	Schist
3	1034.00	TS	Gneiss
5	1026.00	TS	Gneiss
6	1020.50	TS	Schist
9	1013.50	TS	Schist
10	1010.00	TS	Gneiss
12	1007.00	TS	Quartzite
13	998.00	TS	Limestone
14	984.00	XRD, TS, SEM	Limestone
15	973.50	TS	Dolomite
16	970.50	TS	Dolomite
17	928.00	TS	Limestone
18	918.00	TS	Limestone/Dolomite
20	907.50	TS	Dolomite
21	893.50	TS	Dolomite
23	887.50	TS	Dolomite
24	872.50	TS	Dolomite
26	854.50	XRD, TS, SEM	Dolomite
28	820.00	TS	Limestone
29	815.00	TS	Limestone
30	793.00	TS	Dolomite
31	786.50	TS	Dolomite
33	766.50	TS	Dolomite
35	757.50	XRD, TS, SEM	Limestone
36	753.50	TS	Dolomite
37	750.00	TS	Dolomite
38	743.00	TS	Dolomite
39	735.50	XRD, TS, SEM	Dolomite
40	730.50	TS	Dolomite
41	728.50	TS	Dolomite
42	723.50	TS	Dolomite
44	713.00	XRD, TS, SEM	Dolomite
45	707.50	TS	Dolomite
46	696.50	TS	Dolomite
48	681.00	TS	Limestone
49	672.00	XRD, TS, SEM	Limestone
51	663.50	TS	Dolomite
52	631.00	TS	Dolomite
53	621.50	XRD, SEM	---------
54	611.50	XRD, TS, SEM	Dolomite
55	607.50	TS	Dolomite

INTRODUCTION (continued)

Sample Number	Depth (m)	Analysis	Rock Type
60	579.00	XRD, TS, SEM	Dolomite
61	574.50	TS	Dolomite
62	569.00	TS	Dolomite
63	565.00	XRD, TS, SEM	Dolomite
64	545.00	TS	Dolomite
66	542.00	TS	Dolomite

SUMMARY AND DISCUSSION

SUMMARY

Forty-seven sidewall samples were chosen for analysis. Seven of these were crystalline basement rocks and the remainder were limestones and dolomites. Porosity in these samples ranges from no visible porosity to moderate amounts of porosity which is generally very poorly interconnected.

Crystalline Basement Rocks

Crystalline Basement Rocks are made up of schists, gneisses and quartzite. Samples 1 and 9 are biotite graphite schists and contain significant amounts of graphite and biotite along with moderate amounts of chlorite, quartz and sericite. Sample 6 is a graphite schist with large amounts of quartz, kaolinite, sericite and minor amounts of muscovite. These samples have a highly preferred orientation of the graphite and biotite minerals with a stretched subparallel orientation to the megaquartz.

The gneisses examined include samples 3 (biotite gneiss), 5 (biotite graphite gneiss) and sample 10 (biotite graphite gneiss). All samples contain significant amounts of K-feldspar, biotite, chlorite, quartz and muscovite. Samples 5 and 10 contain 10% graphite. These samples have a highly preferred orientation to the graphite and micas with these minerals being concentrated in thin zones alternating with feldspar and quartz zones. Minor amounts of limonite can be found as an alteration product of biotite.

Sample 12 is a medium grained quartzite which is very poorly preserved due to the recovery method employed.

Dolomite

Dolomites range in size from very finely crystalline to medium crystalline with overall porosity ranging from none to moderate amounts that are very poorly to moderately interconnected. Dolomites make up 31 of the 46 samples chosen for thin section analysis. Monocrystalline quartz is present in samples 20, 24, 26 and sample 38. These quartz grains are medium to silt sized. Trace amounts of bitumen located in elongate seams and in intercrystalline and vuggy pores are present in samples 33, 40, 41, 44 and 61.

The majority of these dolomites contain no allochemical constituents. Samples 16 and 55 contain traces of fossil and intraclast allochems which are poorly preserved due to the recrystallization of the original fabric. Sample 45 is the only sample which contains significant amounts of peloids and fossil fragments which have been recrystallized yet moderately preserved. This sample is a medium pellet dolomite with 25% peloids and 10% fossil fragments. These fossils are generally

SUMMARY (continued)

poorly preserved and are perceived as ghost allochems within the dolomite matrix.

The predominant orthochemical constituent is dolomite with lesser amounts of calcite and rare amounts of anhydrite and pyrite. Dolomite is found as anhedrally formed, tightly interlocking mosaics of crystals with no visible porosity in thin section to more loosely packed euhedral crystals with very poor to moderate intercrystalline porosity that is generally poorly interconnected. Calcite ranges from traces to 2% of the rock volume ranging from aphanocrystalline micrite to sparry calcite. Anhydrite present in samples 55 and 61 is found in minor amounts as elongate laths to blocky shaped in localized patches. Pyrite is present in trace amounts in samples 20 and 61.

Porosity is present in all samples except samples 18, 21 and 42, as determined by the light microscope. Porosity is entirely intercrystalline in nature ranging from trace amounts to moderate amounts that are very poorly to moderately interconnected. Moldic porosity present in only sample 45 is present in very poor amounts and is very poorly interconnected. Some of this porosity is believed to be artificially created by the recovery method and subsequent preparation of the sample for thin section analysis.

Limestones

Eight of the 46 samples analyzed were limestones with sample 18 being equal amounts of limestone and dolomite fragments which are believed to be from mutually exclusive horizons. Seven samples of the nine were micrites which ranged from aphanocrystalline to very finely crystalline with trace amounts of porosity being present in samples 13 and 29. Two of the limestones analyzed were microsparites which range from very fine to finely crystalline. These sparites have no visible porosity, but do show minor amounts of intercrystalline porosity through the use of scanning electron microscopy.

Terrigenous contstituents occur in trace amounts within samples 13 and 28. The terrigenous constituents consist of monocrystalline quartz in fine silt sized particles. Thin sections commonly contain contaminant terrigenous particles which have been introduced through the circulation of drilling fluids and can be distinguished from the sample by its infilling of areas between larger fragments.

The predominant allochemical constituents are fossils ranging from 0 to 20% of the rock volume and peloids ranging from 0 to 2% of the rock volume. Samples 35 and 49 contain no visible allochemical constituents. Samples 13, 14, 18 and 28 are fossiliferous to biomicrites with greater than 8% fossil

SUMMARY (continued)

allochems. Peloids occur in minor amounts within samples 13, 14, 28 and 29 with trace amounts occurring in samples 17 and 48. Allochem recognition is difficult in some samples due to recrystallization and replacement of the fossil fabric. The predominant fossil types are brachiopods, crinoids, bryozoan and echinoderm fragments. No fossil fragments were discernable within the microsparites.

The predominant orthochemical constituent within these limestones is calcite with lesser amounts of dolomite, traces of apatite and pyrite. Sparry calcite occurs as a void filling, fossil replacing and neomorphic, matrix replacing constituent in all samples. Neomorphic replacement was determined by the crystal shape and the lack of allochems within the sparites. Dolomite is the second most wide spread orthochemical constituent within the limestones ranging from none in sample 14 and up to 45% of the rock volume in sample 17. Dolomite is generally subhedral to euhedrally formed and is often found well dispersed throughout the sample floating within a calcite matrix.

The predominant porosity type is intercrystalline and is present within samples 13 and 29 in trace amounts which are very poorly interconnected. Samples 14, 17, 18, 28, 35, 48 and 49 contain no visible porosity. Scanning electron microscopy indicates that all samples show minor amounts of intercrystalline porosity which is tortuously interconnected.

X-Ray Diffraction Mineralogy

X-ray diffraction analysis shows that calcite and dolomite are the most abundant components with quartz and clay minerals occurring in lesser amounts. Illite the most abundant clay mineral, is present in samples 14, 35, 39 and 60 in minor amounts with sample 26 having 23%. Kaolinite, chlorite, smectite and mixed layer clays exist in trace amounts in sample 14 and trace amounts of kaolinite and smectite are present within sample 35. It is probable that some of the clay minerals and barite, which is present in all samples, has been introduced through the invasion of drilling fluids into the reservoir.

Rock-Fluid Compatibility

Reservoir Problems include:

(1) Carbonate (calcite) sensitivity to acids.
(2) The migration of kaolinite and illitic clays (XRD).
(3) Pyrite, chlorite and siderite sensitivity to acids.
(4) Fresh water sensitivity of mixed layer and smectite clays (XRD).

SUMMARY (continued)

The dissolution of calcite in hydrofluoric acid (HF) can lead to the precipitation of insoluble calcium fluoride. Therefore, these carbonates should be first dissolved with hydrochloric acid (HCl) before treatment with hydrofluoric (HF) or fluoboric (HB) acid. X-ray diffraction analysis indicates the presence of illite and kaolinite. These minerals are prone to migrate and block pore throats if exposed to strong acids and flow rates. Iron-rich pyrite, chlorite and siderite are sensitive to acids and oxygenated waters, therefore an iron-chelating agent and oxygen scavenger should be introduced with any acid stimulations to inhibit precipitation of pore plugging ferric hydroxide. These minerals are indicated in X-ray diffraction analysis for sample 14. This appears to be a minor problem. Smectite and mixed layer clays, present in the X-ray diffraction analysis within samples 14 and 35, may if exposed to fresh waters result in the swelling of these clays. This in turn results in a reduction in porosity and permeability. Some of these clays may have been introduced artificially through the invasion of drilling fluids into the reservoir and may not constitute as a reservoir problem.

TABLE 1
XRD MINERALOGY, POROSITY AND PERMEABILITY

Sample Number	Depth (m)	Quartz	Feldspar	Calcite	Dolomite	Siderite	Pyrite	Kaolinite	Illite	Chlorite	Smectite	Mixed Layer Clays	Barite	% <5 µm
14	984.00	T	-	97	T	T	T	T	T	T	T	T	3	37.1
26	854.50	1	-	5	54	-	-	-	23	-	-	-	17	26.8
35	757.50	1	-	80	1	-	-	T	1	-	T	-	17	19.3
39	735.50	3	-	1	85	-	-	-	2	-	-	-	9	23.3
44	713.00	3	-	T	92	-	-	-	-	-	-	-	5	15.1
49	672.00	T	-	70	21	-	-	-	-	-	-	-	9	25.7
53	621.50	87	-	T	4	-	-	-	-	-	-	-	9	21.8
54	611.50	1	-	29	67	-	-	-	-	-	-	-	3	19.0
60	579.00	T	-	2	96	-	-	-	1	-	-	-	1	14.3
63	565.00	-	-	T	96	-	-	-	-	-	-	-	4	17.3

TABLE 2
LESS THAN 5 μm CLAY MINERALOGY AS DETERMINED BY X-RAY DIFFRACTION

Sample Number	Depth (m)	<5 μm	Kaolinite	Illite	Chlorite	Smectite	Mixed Layer Clays	Non-Clay Minerals
14	984.00	37.1	T	T	T	T	T	100
26	854.50	26.8	–	27	–	–	–	73
35	757.50	19.3	T	6	–	T	–	94
39	735.50	23.3	–	7	–	–	–	93
44	713.00	15.1	–	–	–	–	–	100
49	672.00	25.7	–	–	–	–	–	100
53	621.50	21.8	–	–	–	–	–	100
54	611.50	19.0	–	–	–	–	–	100
60	579.00	14.3	–	6	–	–	–	94
63	565.00	17.3	–	–	–	–	–	100

TABLE 3
PETROGRAPHIC DATA

		Allochemical			Terrigenous		Orthochemical					Clays
Sample Number	Depth (m)	Fossils	Peloids	Intraclasts	Quartz	Bitumen	Calcite	Dolomite	Anhydrite	Apatite	Pyrite	Detrital
13	998.00	16	1	-	T	-	83	T	-	T	-	T
14	984.00	20	2	-	-	-	78	-	-	-	T	T
15	973.50	-	-	-	-	-	1	99	-	-	-	-
16	970.50	T	-	-	-	-	1	98	-	-	-	1
17	928.00	T	T	-	-	-	54	45	-	-	-	1
*18	918.00	8/0	-	-	-	-	88/5	4/94	-	-	-	T/1
20	907.50	-	-	-	T	-	-	99	-	-	T	1
21	893.50	-	-	-	-	-	-	100	-	-	-	T
23	887.50	-	-	-	-	-	T	100	-	-	-	T
24	872.50	-	-	-	T	-	T	99	-	T	-	1
26	854.50	-	-	-	T	-	T	100	-	-	-	T
28	820.00	10	2	-	T	-	60	28	-	-	-	-
29	815.00	5	1	-	-	-	86	8	-	-	-	-
30	793.00	-	-	-	-	-	1	99	-	-	-	T
31	786.50	-	-	-	-	-	2	98	-	-	-	T
33	766.50	-	-	-	-	T	1	98	-	-	-	1
35	757.50	-	-	-	-	-	97	3	-	T	-	-
36	753.50	-	-	-	-	-	2	98	-	-	-	-
37	750.00	-	-	-	-	-	T	100	-	-	-	T
38	743.00	-	-	-	1	-	1	98	-	-	-	-

*Sample 18 has two distinct rock types.

TABLE 3 (continued)
PETROGRAPHIC DATA

		Allochemical			Terrigenous		Orthochemical					Clays
Sample Number	Depth (m)	Fossils	Peloids	Intraclasts	Quartz	Bitumen	Calcite	Dolomite	Anhydrite	Apatite	Pyrite	Detrital
39	735.00	–	–	–	T	–	–	100	–	–	–	–
40	730.50	–	–	–	–	T	2	97	–	–	–	1
41	728.50	–	–	–	–	T	1	99	–	–	–	–
42	723.50	–	–	–	–	–	–	100	–	–	–	–
44	713.00	–	–	–	–	T	T	100	–	–	–	–
45	707.50	10	25	–	–	–	–	65	–	–	–	–
46	696.50	–	–	–	–	–	T	100	–	–	–	–
48	681.00	T	T	–	–	–	99	1	–	–	–	–
49	672.00	–	–	–	–	–	90	10	–	–	–	–
51	663.50	–	–	–	–	–	–	100	–	–	–	–
52	631.00	–	–	–	–	–	–	100	–	–	–	–
54	611.50	–	–	–	–	–	20	80	–	–	–	–
55	607.50	–	–	T	–	–	–	99	1	–	–	–
60	579.00	–	–	–	–	–	–	100	–	–	–	–
61	574.50	–	–	–	–	–	–	98	1	–	T	1
62	569.00	–	–	–	–	–	T	100	–	–	–	–
63	565.00	–	–	–	–	–	–	100	–	–	–	–
64	545.00	–	–	–	–	–	T	100	–	–	–	T
66	542.00	–	–	–	–	–	T	98	–	–	–	2

PETROGRAPHIC ANALYSES

PETROGRAPHIC DATA SHEET
METAMORPHIC ROCKS

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	1
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	1040.00
Formation	Basement	Rock Name	Biotite Graphite Schist
Porosity	K Max (mD)	Original Rock	Sedimentary

Structure:

Massive		Mylonitic	
Slaty		Phyllonitic	
Phyllitic		Migmatitic	
Schistose	X		
Gneissose		Other:	
Granulitic			
Fluxion			
Cataclastic			

Texture:

Fine-Grained (1 mm)		Other:
Medium-Grained	X	
Coarse-Grained (5 mm)		
Crystalloblastic		
Granoblastic		
Porphyroblastic		
Lepidoblastic	X	
Nematoblastic		

Minerals

Name:	Percent:	Name:	Percent:	Name:	Percent:	Name:	Percent:
Actinolite		Glaucophane		Orthopyroxene		Talc	
Almandine		Graphite	10	Phlogopite		Tremolite	
Andalusite		Grossularite		Plagioclase		Wollastonite	
Anthophyllite		Heulandite		Prehnite			
Biotite	40	Hornblende		Quartz	30	Other:	
Calcite		K-Feldspar		Sanidine		Hematite	T
Chlorite	5	Kyanite		Scapolite		Smectite	T
Clinopyroxene		Magnesite		Sericite	15		
Corderite		Magnetite		Serpentine			
Dolomite		Muscovite		Sillimanite			
Epidote		Olivine		Staurolite			

Rock Type:

Amphibolite		Marble		Schist	X	Other:
Cataclasite		Microbreccia		Serpentinite		
Eclogite		Mylonite		Skarn		
Gneiss		Phyllite		Slate		
Granulite		Phyllonite		Meta-		
Hornfels		Quartzite				

NOTES:

All percentages are based on visual estimation.
Sample is well preserved.

SAMPLE NUMBER 1
DEPTH 1040.00 metres

Plate A

Thin section photomicrograph indicates that this sample is a medium grained biotite graphite schist. Principal minerals include biotite, quartz, sericite, graphite and chlorite. (25x, plane polarized light)

Plate B

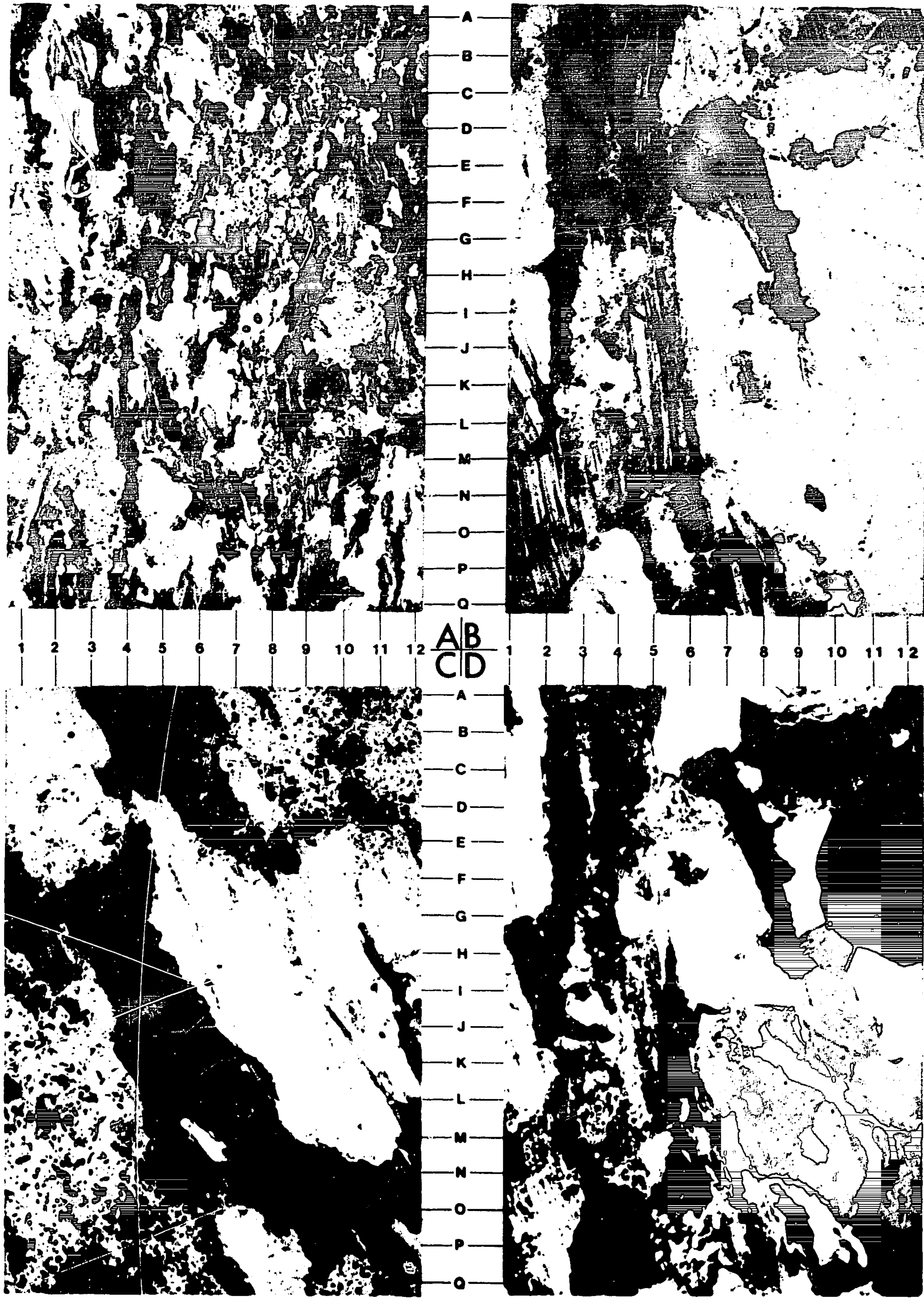
This higher magnification view shows a quartz crystal filling the field of view on the right side of the photomicrograph. Also included are well formed brown biotite crystals at N2, N4, J5 and D5. Tabular opaque graphite grains occur at S3 and G8. (100x, plane polarized light)

Plate C

This view highlights a brown biotite crystal at M6 and a graphite crystal (F4) coexisting with quartz grains at H9. (100x, plane polarized light)

Plate D

This higher magnification view shows the sericite ground mass at P6, D10 and I3. Same view as in Plate B. (100x, cross polarized light)



A B C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET
METAMORPHIC ROCKS

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	3
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	1034.00
Formation	Basement	Rock Name	Biotite Gneiss
Porosity	K Max (mD)	Original Rock	Sedimentary

Structure:

Massive		Mylonitic	
Slaty		Phyllonitic	
Phyllitic		Migmatitic	
Schistose			
Gneissose	X	Other:	
Granulitic			
Fluxion			
Cataclastic			

Texture:

Fine-Grained (1 mm)		Other:
Medium-Grained		
Coarse-Grained (5 mm)	X	
Crystalloblastic		
Granoblastic		
Porphyroblastic		
Lepidoblastic		
Nematoblastic		

Minerals

Name:	Percent:	Name:	Percent:	Name:	Percent:	Name:	Percent:
Actinolite		Glaucophane		Orthopyroxene		Talc	
Almandine		Graphite		Phlogopite		Tremolite	
Andalusite		Grossularite		Plagioclase		Wollastonite	
Anthophyllite		Heulandite		Prehnite			
Biotite	8	Hornblende		Quartz	15	Other:	
Calcite	1	K-Feldspar	55	Sanidine		Limonite	10
Chlorite	2	Kyanite		Scapolite			
Clinopyroxene		Magnesite		Sericite	5		
Corderite		Magnetite	1	Serpentine			
Dolomite		Muscovite	3	Sillimanite			
Epidote		Olivine		Staurolite			

Rock Type:

Amphibolite		Marble		Schist		Other:
Cataclasite		Microbreccia		Serpentinite		
Eclogite		Mylonite		Skarn		
Gneiss	X	Phyllite		Slate		
Granulite		Phyllonite		Meta-		
Hornfels		Quartzite				

NOTES:

All percentages are based on visual estimation.
Sample is highly fractured due to sampling technique.

SAMPLE NUMBER 3
DEPTH 1034.00 metres

Plate A

This low magnification overview shows a biotite bundle (G6) with kink banding at H6 and J7 enclosed in a highly fractured ground mass of potassium feldspar. (25x, plane polarized light)

Plate B

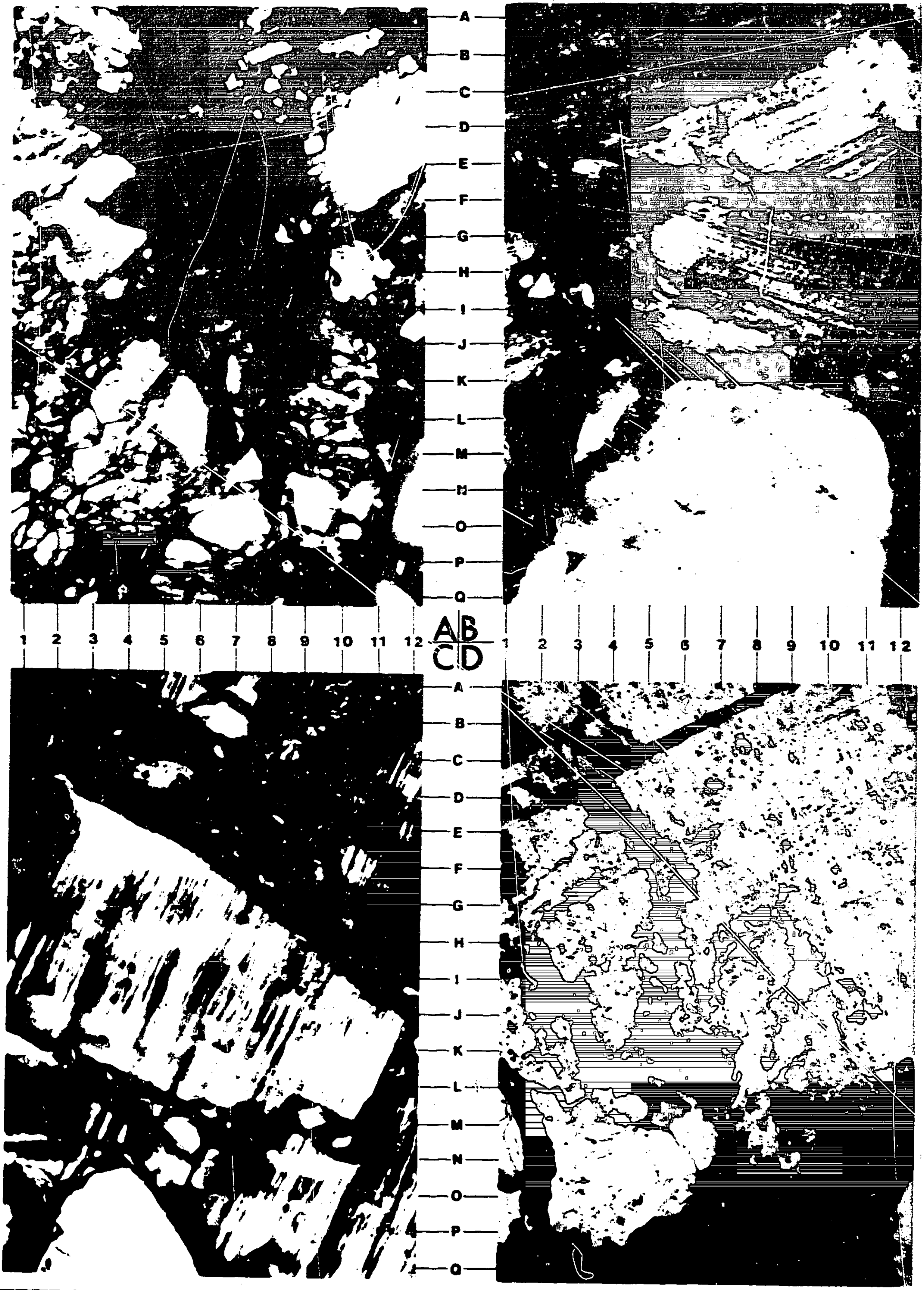
High magnification photomicrograph of biotite grains at G8, E8 and B5 and potassium feldspar crystal at O7. (100x, cross polarized light)

Plate C

High magnification view of a feldspar crystal (K6) showing microcline twinning highly fractured from sample recovery method. (100x, cross polarized light)

Plate D

Thin section photomicrograph of a potassium feldspar grain with limonite staining along fractures.


AB
CD

PETROGRAPHIC DATA SHEET
METAMORPHIC ROCKS

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	5
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	1026.00
Formation	Basement	Rock Name	Biotite Graphite Gneiss
Porosity	K Max (mD)	Original Rock	Sedimentary

Structure:

Massive		Mylonitic	
Slaty		Phyllonitic	
Phyllitic		Migmatitic	
Schistose			
Gneissose	X	Other:	
Granulitic			
Fluxion			
Cataclastic			

Texture:

Fine-Grained (1 mm)		Other:
Medium-Grained	X	Poikiloblastic
Coarse-Grained (5 mm)		
Crystalloblastic		
Granoblastic		
Porphyroblastic		
Lepidoblastic	X	
Nematoblastic		

Minerals

Name:	Percent:	Name:	Percent:	Name:	Percent:	Name:	Percent:
Actinolite		Glaucophane		Orthopyroxene		Talc	
Almandine		Graphite	10	Phlogopite		Tremolite	
Andalusite		Grossularite		Plagioclase		Wollastonite	
Anthophyllite		Heulandite		Prehnite			
Biotite	20	Hornblende		Quartz	30	Other:	
Calcite	5	K-Feldspar	25	Sanidine		Zircon	T
Chlorite	5	Kyanite		Scapolite		Limonite	3
Clinopyroxene		Magnesite		Sericite			
Corderite		Magnetite		Serpentine			
Dolomite		Muscovite	2	Sillimanite			
Epidote		Olivine		Staurolite			

Rock Type:

Amphibolite		Marble		Schist		Other:
Cataclasite		Microbreccia		Serpentinite		
Eclogite		Mylonite		Skarn		
Gneiss	X	Phyllite		Slate		
Granulite		Phyllonite		Meta-		
Hornfels		Quartzite				

NOTES:

All percentages are based on visual estimation.
Sample is well preserved.

SAMPLE NUMBER 5
DEPTH 1026.00 metres

Plate A

This low magnification overview of a crudely banded biotite graphite gneiss shows orange biotite at M5, O8, J11 and F2. Graphite appears at J6 as an opaque mineral and is well distributed throughout the sample (25x, plane polarized light)

Plate B

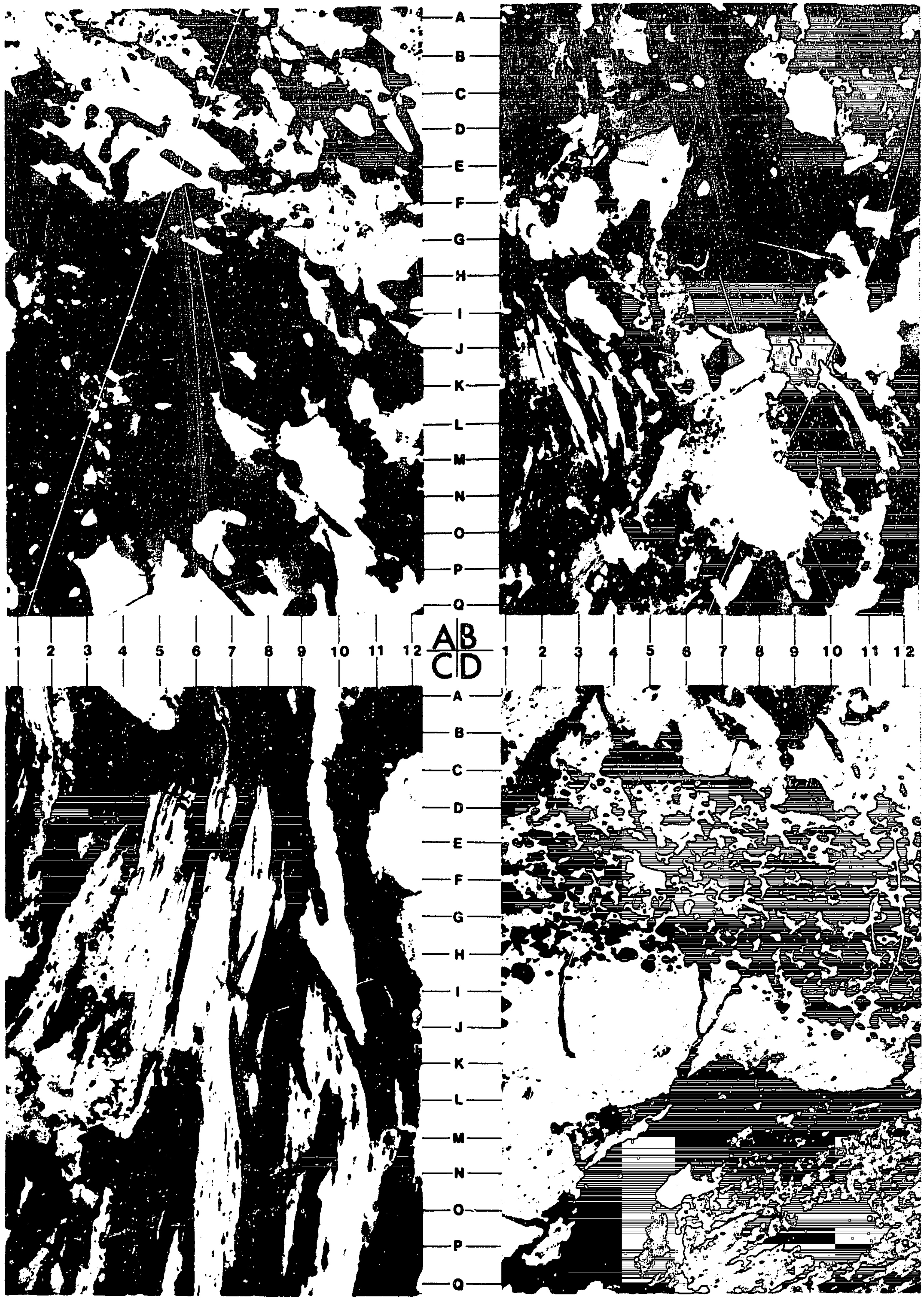
Low magnification photomicrograph of poikiloblastic quartz within potassium feldspar at E8. Foliated graphite occurs as an opaque throughout the photomicrograph with biotite grains generally following the foliation (K2, M1.5). (25x, cross polarized light)

Plate C

This high magnification view shows the foliated biotite and graphite within the gneiss and the limonite staining occurring around the biotite grains as a yellowish color. (100x, plane polarized light)

Plate D

This view highlights a potassium feldspar crystal partially coated with graphite appearing as a mottled band at F7. Tabular opaque graphite grains occur at N5 and a tabular biotite grain occurs at N8. A brown halo at P10 occurs from radioactive damage from impurities in a zircon crystal included within the biotite crystal. (100x, cross polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET
METAMORPHIC ROCKS

Well Name	ICG Sogepet et al Netsig N-01	Sample Number	6
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	1020.50
Formation	Basement	Rock Name	Graphite Schist
Porosity	K Max (mD)	Original Rock	Sedimentary

Structure:

Massive		Mylonitic	
Slaty		Phyllonitic	
Phyllitic		Migmatitic	
Schistose	X		
Gneissose		Other:	
Granulitic			
Fluxion			
Cataclastic			

Texture:

Fine-Grained (1 mm)	X	Other:
Medium-Grained		
Coarse-Grained (5 mm)		
Crystalloblastic		
Granoblastic		
Porphyroblastic		
Lepidoblastic	X	
Nematoblastic		

Minerals

Name:	Percent:	Name:	Percent:	Name:	Percent:	Name:	Percent:
Actinolite		Glaucophane		Orthopyroxene		Talc	
Almandine		Graphite	20	Phlogopite		Tremolite	
Andalusite		Grossularite		Plagioclase		Wollastonite	
Anthophyllite		Heulandite		Prehnite			
Biotite		Hornblende		Quartz	48	Other:	
Calcite	T	K-Feldspar		Sanidine		Kaolinite	20
Chlorite	T	Kyanite		Scapolite			
Clinopyroxene		Magnesite		Sericite	10		
Corderite		Magnetite		Serpentine			
Dolomite		Muscovite	2	Sillimanite			
Epidote		Olivine		Staurolite			

Rock Type:

Amphibolite		Marble		Schist	X	Other:
Cataclasite		Microbreccia		Serpentinite		
Eclogite		Mylonite		Skarn		
Gneiss		Phyllite		Slate		
Granulite		Phyllonite		Meta-		
Hornfels		Quartzite				

NOTES:

All p.rcentages are based on visual estimation.
Sample is well preserved.

SAMPLE NUMBER 6
DEPTH 1020.50 metres

Plate A

This low magnification overview shows the foliation of a graphite schist. Principal minerals are quartz, graphite, kaolinite and sericite. (25x, plane polarized light)

Plate B

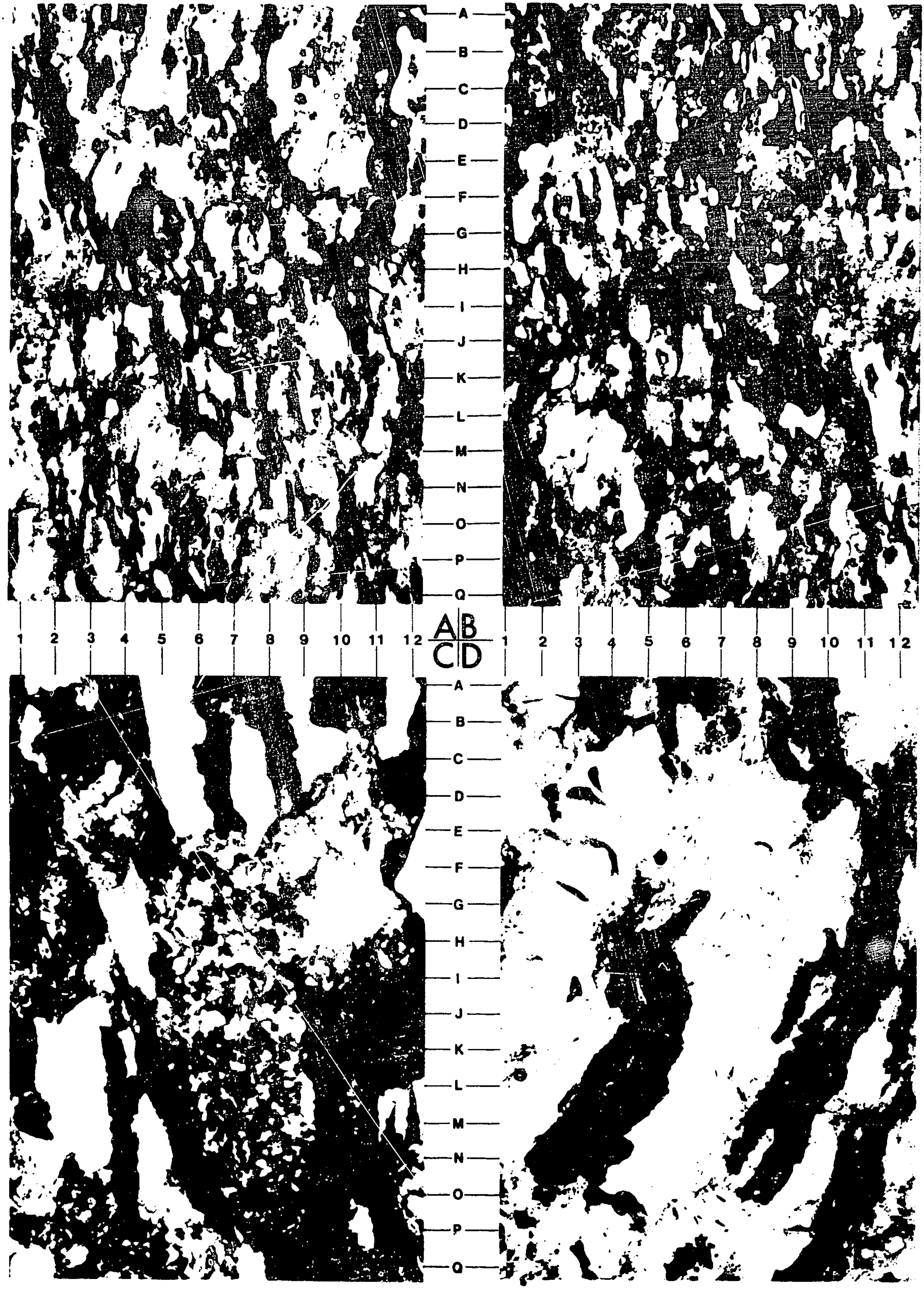
Same view as in Plate A. (cross polarized light)

Plate C

High magnification photomicrograph of kaolinite and sericite at K7, E3.5, H2 and P3. Graphite occurs as a tabular opaque at M9.5, M5 and N4. Quartz occurs at M2.5, C5.5, D7.5 and G10. (100x, cross polarized light)

Plate D

This view highlights the parallel nature of the tabular opaque graphite crystals at K5 and J11. Quartz fills in around the graphite crystals. (100x, plane polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET
METAMORPHIC ROCKS

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	9
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	1013.50
Formation	Basement	Rock Name	Biotite Graphite Schist
Porosity	K Max (mD)	Original Rock	Sedimentary

Structure:

Massive		Mylonitic	
Slaty		Phyllonitic	
Phyllitic		Migmatitic	
Schistose	X		
Gneissose		Other:	
Granulitic			
Fluxion			
Cataclastic			

Texture:

Fine-Grained (1 mm)	X	Other:
Medium-Grained		
Coarse-Grained (5 mm)		
Crystalloblastic	X	
Granoblastic		
Porphyroblastic		
Lepidoblastic	X	
Nematoblastic		

Minerals

Name:	Percent:	Name:	Percent:	Name:	Percent:	Name:	Percent:
Actinolite		Glaucophane		Orthopyroxene		Talc	
Almandine		Graphite	15	Phlogopite		Tremolite	
Andalusite		Grossularite		Plagioclase		Wollastonite	
Anthophyllite		Heulandite		Prehnite			
Biotite	37	Hornblende		Quartz	25	Other:	
Calcite	2	K-Feldspar		Sanidine			
Chlorite	10	Kyanite		Scapolite			
Clinopyroxene		Magnesite		Sericite	11		
Corderite		Magnetite		Serpentine			
Dolomite		Muscovite		Sillimanite			
Epidote		Olivine		Staurolite			

Rock Type:

Amphibolite		Marble		Schist	X	Other:
Cataclasite		Microbreccia		Serpentinite		
Eclogite		Mylonite		Skarn		
Gneiss		Phyllite		Slate		
Granulite		Phyllonite		Meta-		
Hornfels		Quartzite				

NOTES:

All percentages are based on visual estimation.
Sample is well preserved.

SAMPLE NUMBER 9
DEPTH 1013.50 metres

Plate A

This low magnification overview shows a well foliated biotite, graphite schist. Principal minerals also include quartz and minor amounts of calcite. (25x, plane polarized light)

Plate B

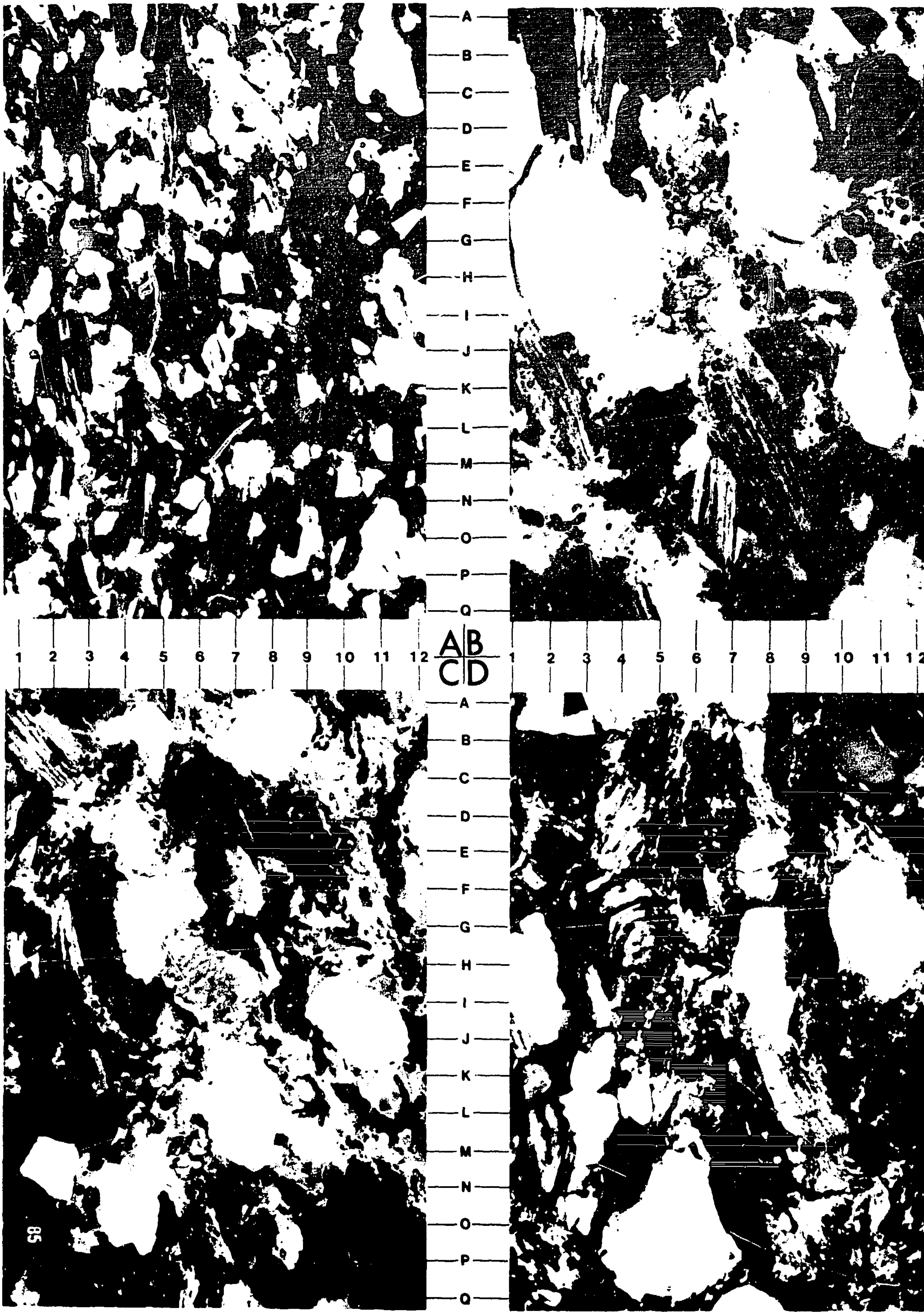
High magnification photomicrograph of biotite and graphite coexisting at C2.5 and tabular, brown biotite grains occurring at L2, P3 and M8. Quartz grains occur at G4 and D8. (100x, plane polarized light)

Plate C

This view highlights a calcite crystal stained by alizarin-red-S at I6 and N5.5. Graphite occurs at P11 and G3. Small radioactive halos occur within biotite at L5 and NO3. (100x, plane polarized light)

Plate D

This higher magnification view shows a kink banded biotite crystal at G5 and N9. Presence of graphite (J9 and C3) indicates that the original rock was of sedimentary origin. (100x, cross polarized light)


A B
C D

PETROGRAPHIC DATA SHEET
METAMORPHIC ROCKS

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	10
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	1010.00
Formation	Basement	Rock Name	Biotite Graphite Gneiss
Porosity	K Max (mD)	Original Rock	Sedimentary

Structure:

Massive		Mylonitic	
Slaty		Phyllonitic	
Phyllitic		Migmatitic	
Schistose			
Gneissose	X	Other:	
Granulitic			
Fluxion			
Cataclastic			

Texture:

Fine-Grained (1 mm)		Other:
Medium-Grained	X	
Coarse-Grained (5 mm)		
Crystalloblastic		
Granoblastic	X	
Porphyroblastic		
Lepidoblastic	X	
Nematoblastic		

Minerals

Name:	Percent:	Name:	Percent:	Name:	Percent:	Name:	Percent:
Actinolite		Glaucophane		Orthopyroxene		Talc	
Almandine		Graphite	10	Phlogopite		Tremolite	
Andalusite		Grossularite		Plagioclase		Wollastonite	
Anthophyllite		Heulandite		Prehnite			
Biotite	25	Hornblende		Quartz	45	Other:	
Calcite		K-Feldspar	15	Sanidine			
Chlorite	4	Kyanite		Scapolite			
Clinopyroxene		Magnesite		Sericite			
Corderite		Magnetite	1	Serpentine			
Dolomite		Muscovite		Sillimanite			
Epidote		Olivine		Staurolite			

Rock Type:

Amphibolite		Marble		Schist		Other:
Cataclasite		Microbreccia		Serpentinite		
Eclogite		Mylonite		Skarn		
Gneiss	X	Phyllite		Slate		
Granulite		Phyllonite		Meta-		
Hornfels		Quartzite				

NOTES:

All percentages are based on visual estimation.
Highly fractured and distorted from sample recovery.

SAMPLE NUMBER 10
DEPTH 1010.00 metres

Plate A

Thin section photomicrograph indicates that this sample is a medium grained biotite graphite gneiss that has been highly fractured from sample recovery. Biotite occurs as brown tabular grains and graphite appears as opaque tabular grains throughout the photomicrograph. (25x, plane polarized light)

Plate B

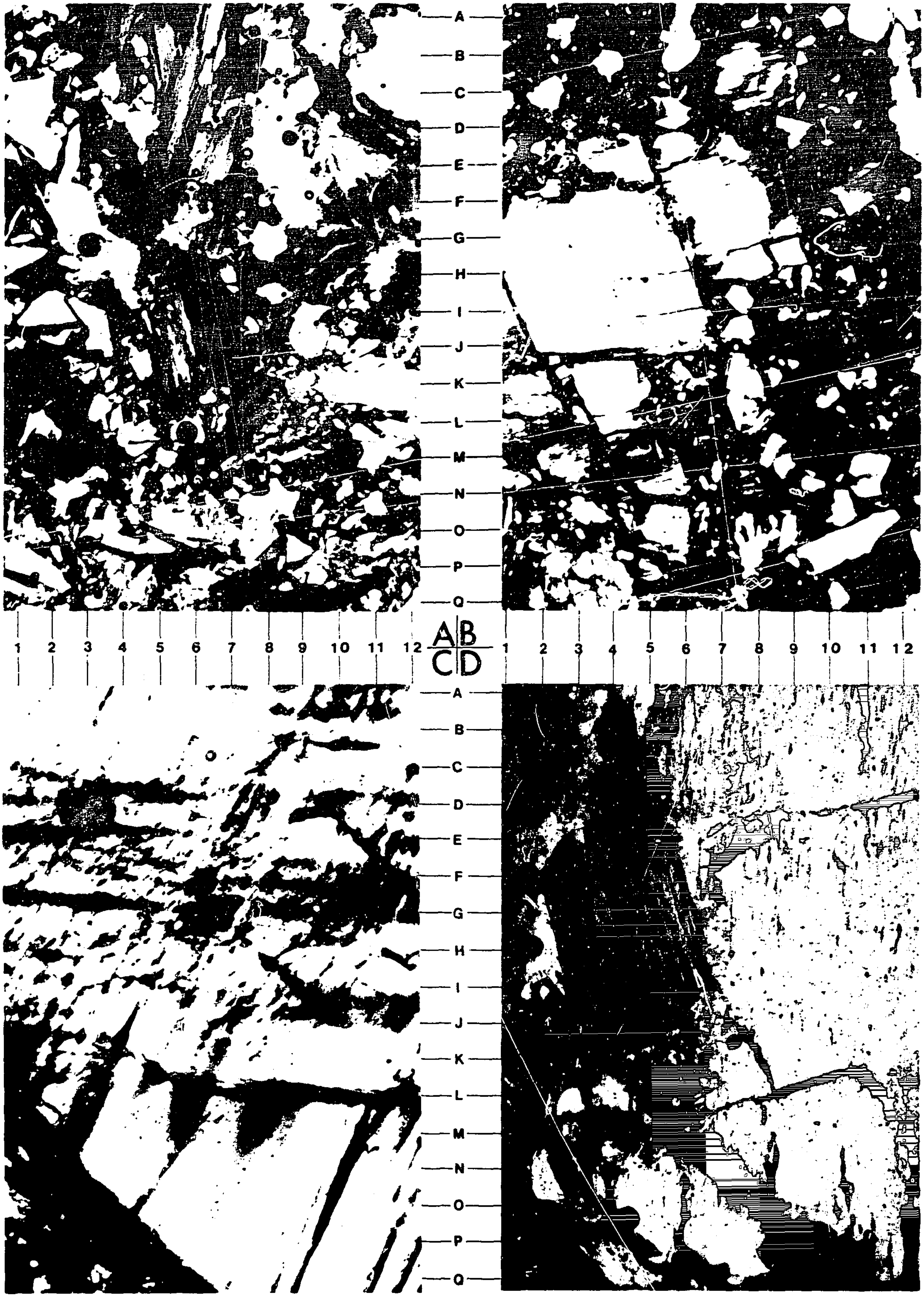
This higher magnification view shows a potassium feldspar crystal occurring at H4. (100x, cross polarized light)

Plate C

This view highlights a quartz inclusion at D3 in potassium feldspar with well developed microcline twinning. (250x, cross polarized light)

Plate D

This high magnification view shows a biotite grain at G4 coexisting with a potassium feldspar crystal and the subparallel alignment of biotite grains in this sample. (100x, plane polarized light)


A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET
METAMORPHIC ROCKS

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	12
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	1007.00
Formation	Basement	Rock Name	Quartzite
Porosity	K Max (mD)	Original Rock	Sedimentary

Structure:

Massive	X	Mylonitic	
Slaty		Phyllonitic	
Phyllitic		Migmatitic	
Schistose			
Gneissose		Other:	
Granulitic			
Fluxion			
Cataclastic			

Texture:

Fine-Grained (1 mm)		Other:
Medium-Grained	X	
Coarse-Grained (5 mm)		
Crystalloblastic		
Granoblastic		
Porphyroblastic		
Lepidoblastic		
Nematoblastic		

Minerals

Name:	Percent:	Name:	Percent:	Name:	Percent:	Name:	Percent:
Actinolite		Glaucophane		Orthopyroxene		Talc	
Almandine		Graphite		Phlogopite		Tremolite	
Andalusite		Grossularite		Plagioclase		Wollastonite	
Anthophyllite		Heulandite		Prehnite			
Biotite		Hornblende		Quartz	100	Other:	
Calcite		K-Feldspar		Sanidine			
Chlorite		Kyanite		Scapolite			
Clinopyroxene		Magnesite		Sericite			
Corderite		Magnetite		Serpentine			
Dolomite		Muscovite		Sillimanite			
Epidote		Olivine		Staurolite			

Rock Type:

Amphibolite		Marble		Schist		Other:
Cataclasite		Microbreccia		Serpentinite		
Eclogite		Mylonite		Skarn		
Gneiss		Phyllite		Slate		
Granulite		Phyllonite		Meta-		
Hornfels		Quartzite	X			

NOTES:

All percentages are based on visual estimation.
Sample is badly fractured due to sampling techniques.

SAMPLE NUMBER 12
DEPTH 1007.00 metres

Plate A

Thin section photomicrograph indicates that this sample is comprised of 100% quartz (H6). Because of the highly fractured nature of the sample, drilling mud has infiltrated and appears as the ground mass in the photomicrograph. (25x, plane polarized light)

Plate B

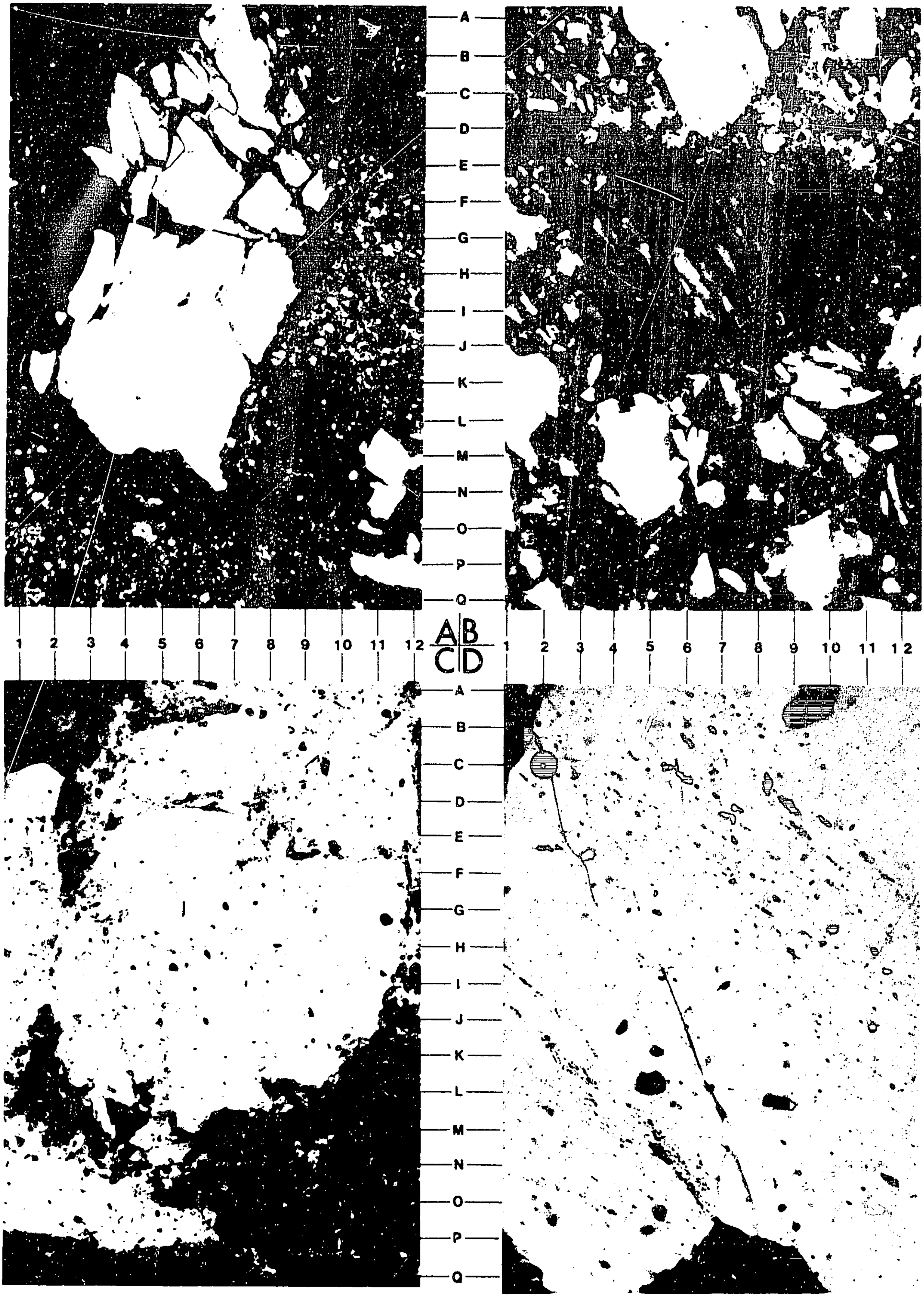
This higher magnification view shows the shattered quartz fragments. (100x, cross polarized light)

Plate C

This high magnification view shows the interlocking nature of the quartz crystals at H2 and N5. (100x, plane polarized light)

Plate D

This high magnification view shows abundant fluid inclusion trains within a quartz grain and the remnant interlocking nature of the quartzite at Q8 and P7. (250x, cross polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
AB
CD

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsig N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation:
Porosity: K Max (mD):
Sample Number: 13
Sample Depth (m): 998.00
Rock Name: Biomicrite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm): 0.16
Authigenic Constituents (mm): 0.1
Class -Transported Constituents: F Calcarenite
Authigenic Constituents: Med Crystalline
Depositional Texture - Wackestone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils: 16
Intraclasts:
Ooids:
Pisolites:
Peloids: 1

Terrigenous Constituents

Quartz: Mono T Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry 20 Micrite 63
Dolomite: T
Gypsum:
Anhydrite:
Halite:
Quartz:
Aragonite:
Fe Dolomite:
Apatite: T

Clays

Kaolinite:
Illite:
Chlorite:
Detrital: T

POROSITY

Porosity Types

Interparticle:
Intraparticle:
Growth Framework:
Vug:
Intercrystal: T
Moldic:
Fracture:
Fenestral:
Shelter:
Chemical:

Mean Pore Size (mm):
Mean Pore Size (mm):
Interconnectedness: VP

CLAY MINERAL LOCATION

Laminae:
Dispersed:
Rock Fragments:
Pore Lining:
Pore Bridging:
Pore Filling:
Grain Replacement:
Fracture Filling:

NOTES:

*All percentages based on visual estimation.

SAMPLE NUMBER 13
DEPTH 998.00 metres

Plate A

Plate A shows a low magnification overview of a biomicrite (wackestone), that has only traces of intercrystalline porosity within recrystallized zones. The predominant fossils within this sample are echinoderm fragments (J4), brachiopod, crinoid and bryozoan fragments. Often these fossil fragments are very finely abraded (L7). (25x, plane polarized light)

Plate B

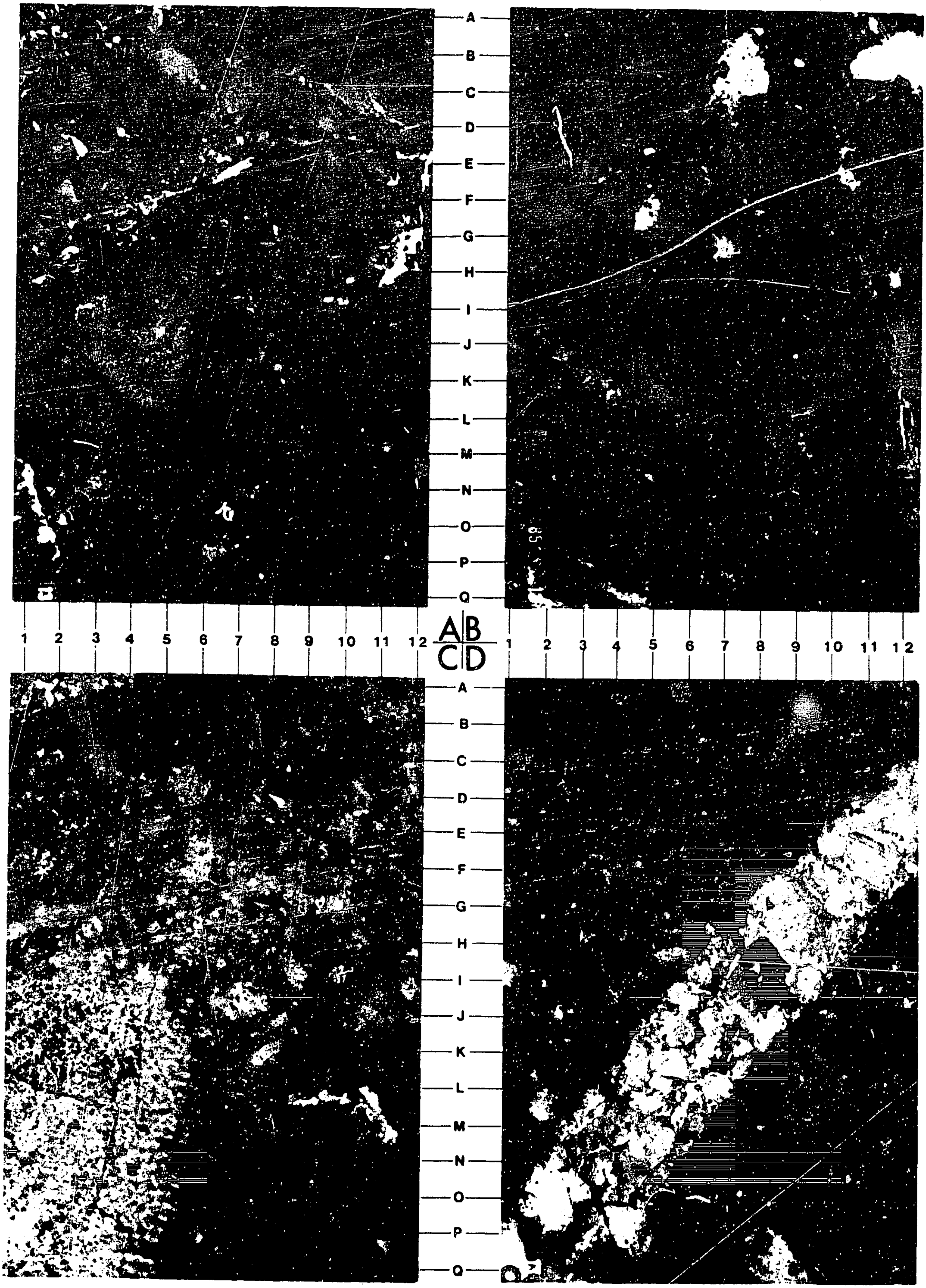
Sparry calcite makes up 20% of the sample and is present as a fossil replacment and large neomorphic matrix replacing crystals (I7). (100x, plane polarized light)

Plate C

This higher magnification view of the sample shows the floating nature of the fossil fragments (D10.5, JK8, M3), within a very finely crystalline micrite matrix. (100x, plane polarized light)

Plate D

Plate D shows a sparry replaced fossil fragment (K6) which shows some fine intercrystalline porosity defined by blue dyed epoxy that is very poorly interconnected (L6). (100x, cross polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D

X-RAY DIFFRACTION ANALYSIS

Sample Number: 14
Depth: 984.00 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	Trace	Trace	Trace
Feldspar	Nil	Nil	Nil
Calcite	96	98	97
Dolomite	Trace	Trace	Trace
Siderite	Trace	Trace	Trace
Pyrite	Trace	Trace	Trace
Kaolinite	Trace	Trace	Trace
Illite	Trace	Trace	Trace
Chlorite	Trace	Trace	Trace
Smectite	Trace	Trace	Trace
Mixed Layer Clays (Swelling)	Trace	Trace	Trace
Barite	4	2	3

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 37.1%

Material Greater Than 5 Microns: 62.9%

PETROGRAPHIC DATA SHEET

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	14
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	984.00
Formation		Rock Name	VF Biomicrite
Porosity	K Max (mD)	Classification	Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) 0.12 Authigenic Constituents (mm) 0.05

Class -Transported Constituents VF Calcarenite Authigenic Constituents F Crystalline

Depositional Texture - Wackestone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils	20
Intraclasts	
Ooids	
Pisolites	
Peloids	2

Terrigenous Constituents

Quartz: Mono ___ Poly ___

Feldspar: K-spar ___ Plag ___

Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___

Mica ___

Carbonaceous Material ___

Orthochemical Constituents

Calcite: Sparry 8 Micrite 70

Dolomite		Aragonite		Kaolinite	
Gypsum		Fe Dolomite		Illite	
Anhydrite		Pyrite	T	Chlorite	
Halite				Detrital	T
Quartz					

(Clays: Kaolinite, Illite, Chlorite, Detrital)

POROSITY

Porosity Types

Interparticle		Intercrystal		Fenestral	
Intraparticle		Moldic		Shelter	
Growth Framework		Fracture		Chemical	
Vug					

Mean ___ Pore Size (mm) ___ Mean ___ Pore Size (mm) ___ Interconnectedness ___

CLAY MINERAL LOCATION

Laminae ___ Dispersed Mainly Rock Fragments ___

Pore Lining ___ Pore Bridging ___ Pore Filling ___ Grain Replacement ___

Fracture Filling ___

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 14
DEPTH 984.00 metres

Plate A

Plate A shows an overview of a very finely crystalline biomicrite (wackestone) which has no visible porosity. Allochemical constituents are made up of 20% fossils and 2% peloids (D7, G3). Traces of pyrite and detrital clays are also present. (25x, plane polarized light)

Plate B

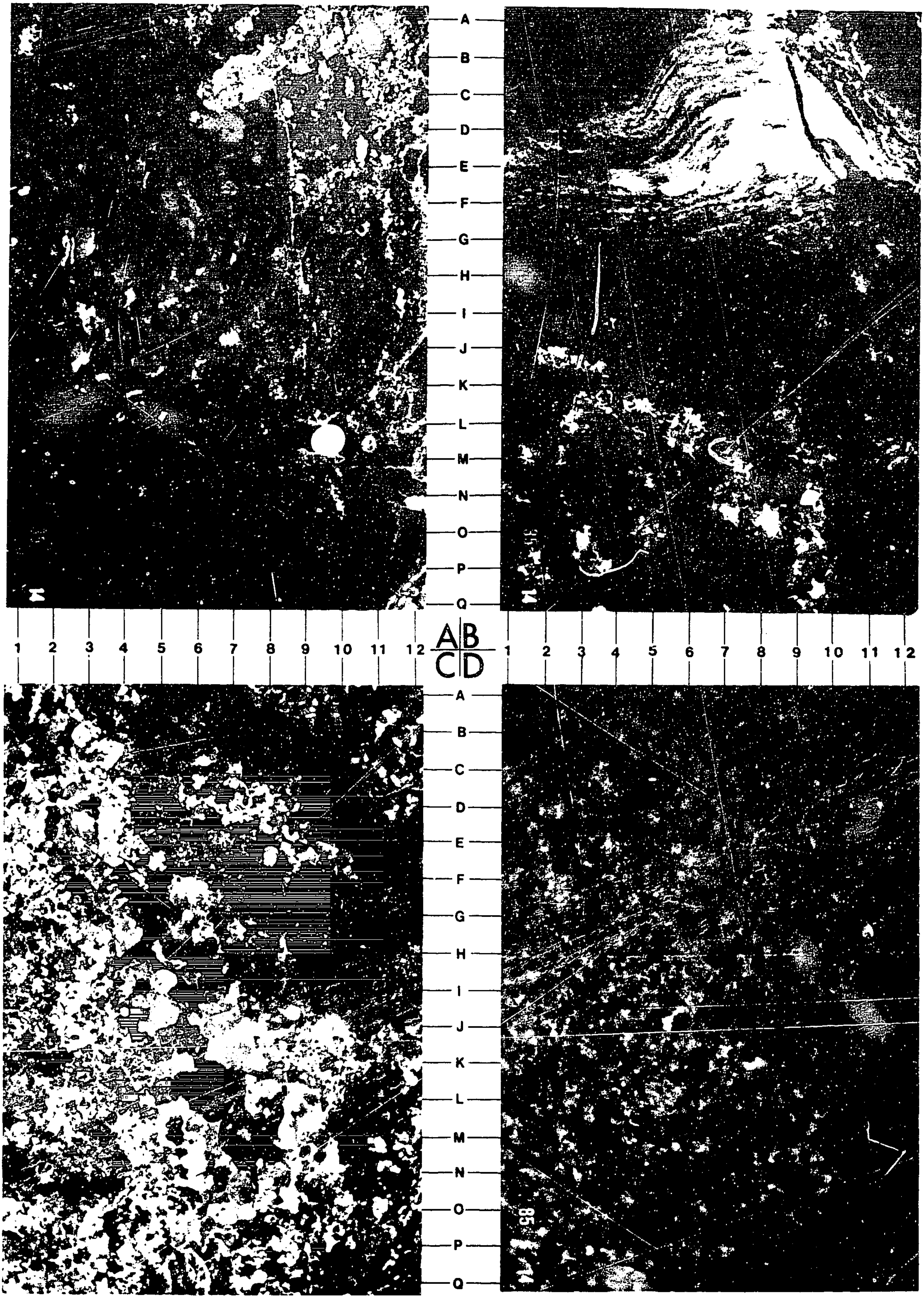
Plate B shows a large fossil fragment floating within a very finely crystalline micrite matrix (H7). Sparry calcite makes up 8% of the sample, generally occurring as a neomorphic fossil replacing constituent (N8). (100x, plane polarized light)

Plate C

This higher magnification view of the sample shows the fine micritic texture of the matrix (G9, J2) surrounding a sparry calcite replaced fossil fragment (G6, M7). (100x, cross polarized light)

Plate D

Plate D shows a high magnification view of a very densely cemented micrite. The red color is caused by staining of alizarin-red-S. No visible pores are present. (250x, plane polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
AB
CD
1 2 3 4 5 6 7 8 9 10 11 12

SAMPLE NUMBER 14 (SEM)
DEPTH 984.00 metres

Plate A

Plate A is of a low magnification overview of a very finely crystalline biomicrite which is relatively dense with no visible porosity underneath the light microscope.

Plate B

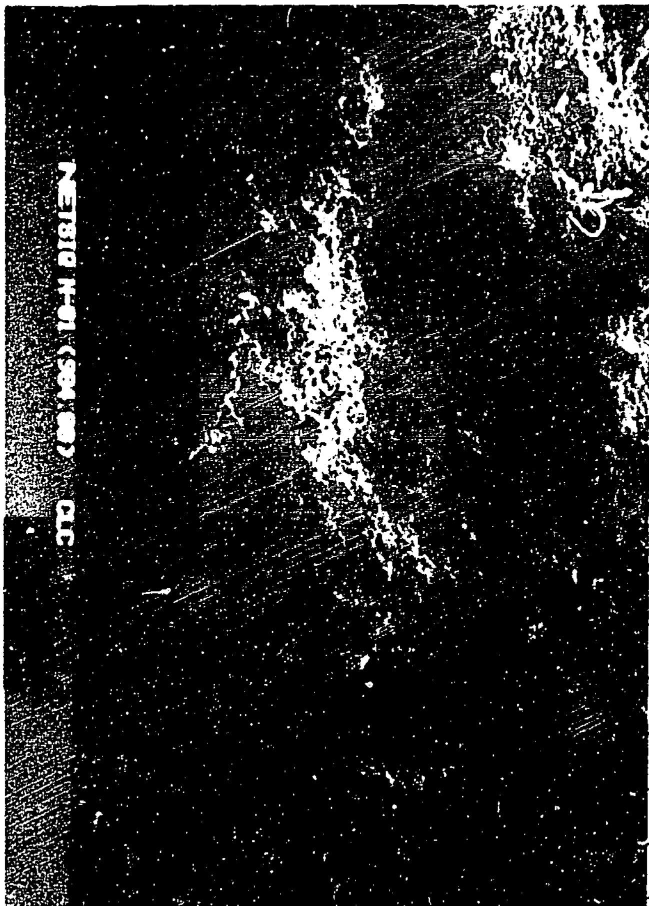
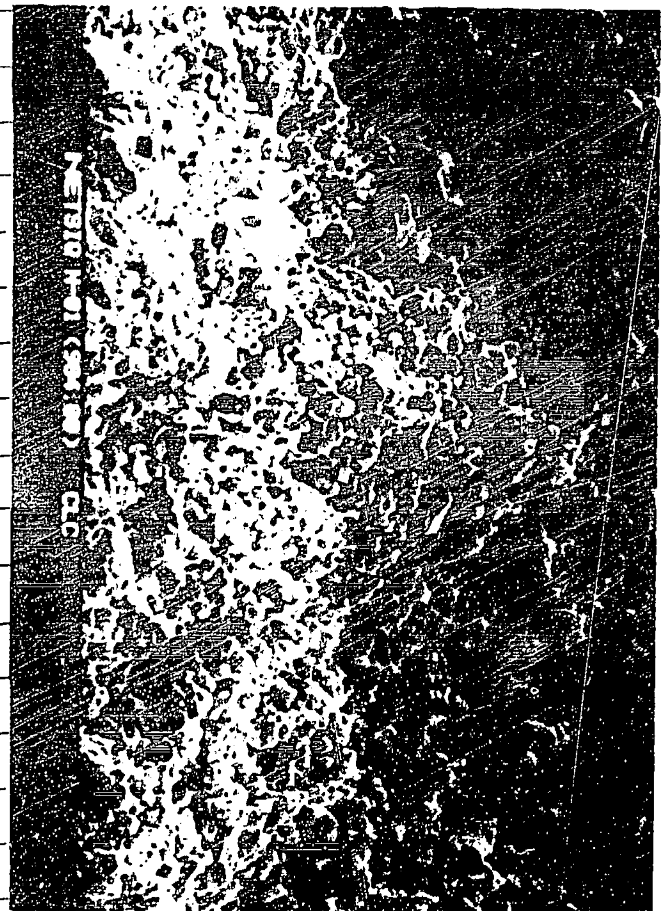
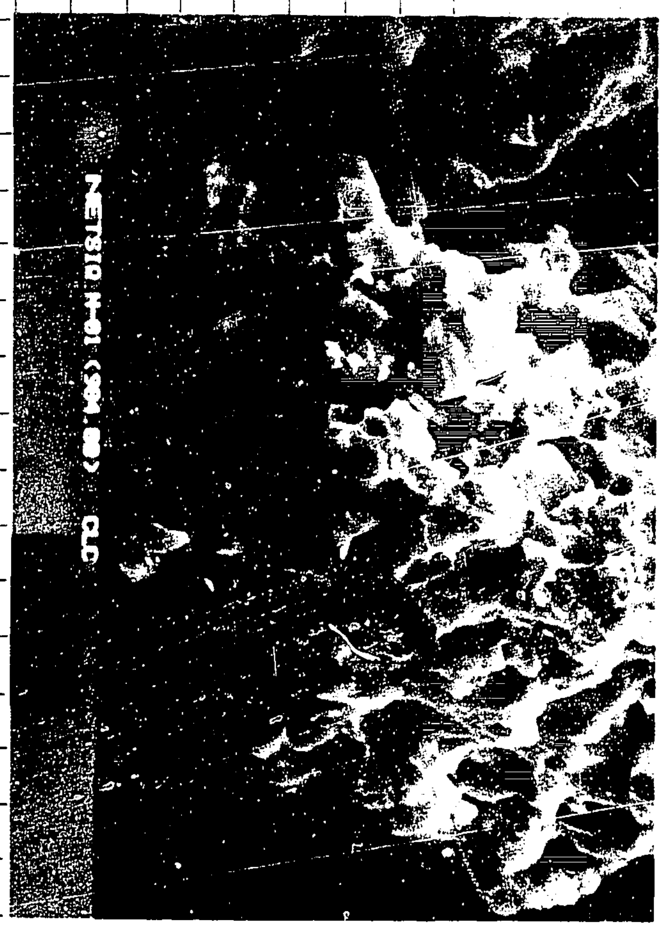
This high magnification view shows the presence of minor amounts of micro-intercrystalline porosity between the anhedrally formed calcite crystals.

Plate C

This view shows intercrystalline porosity between the anhedrally formed calcite crystals. This porosity may be artificially induced through the recovery method employed due to its localized nature.

Plate D

This high magnification photomicrograph shows the tightly interlocking anhedral crystals of calcite which leave little visible porosity. This photomicrograph is believed to show the more typical nature of the sample.

A	B
	
C	D
	

Grid rows: A B C D E F G H I J K L M N O P Q

Grid columns: 1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation ______
Porosity ______ K Max (mD) ______

Sample Number 15
Sample Depth (m) 973.50
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.03
Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite T
Dolomite 100
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital ____

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal T
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean iC Pore Size (mm) 0.01
Mean ____ Pore Size (mm) ____
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ______
Dispersed ______
Rock Fragments ______
Pore Lining ______
Pore Bridging ______
Pore Filling ______
Grain Replacement ______
Fracture Filling ______

NOTES:

*All percentages based on visual estimation.

SAMPLE NUMBER 15
DEPTH 973.50 metres

Plate A

This low magnification overview shows the presence of a finely crystalline, densely cemented dolomite (crystalline carbonate). The fragmented nature of the sample is due to the recovery method employed. (25x, cross polarized light)

Plate B

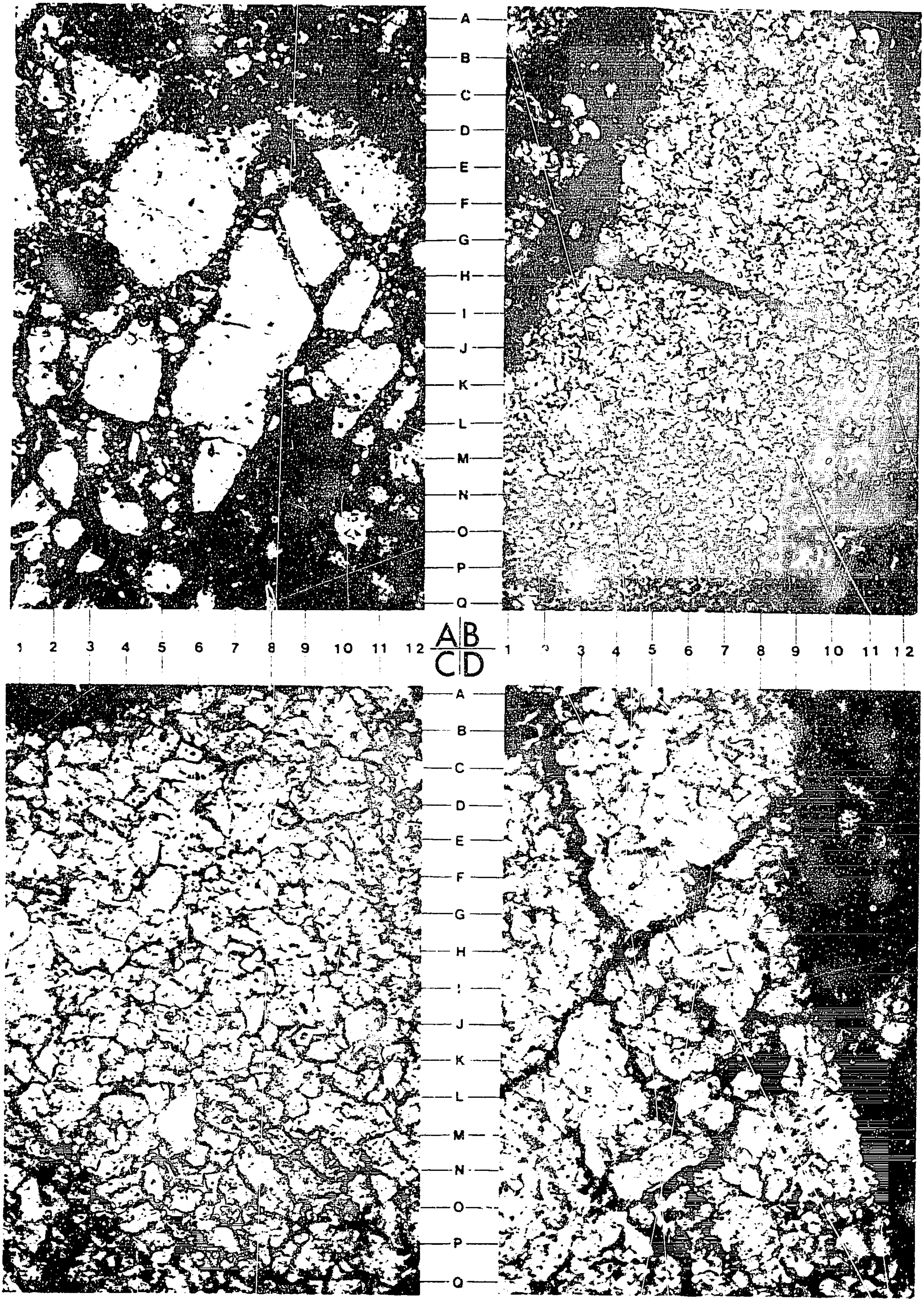
This higher magnification view of one of these dolomite fragments shows the densely interlocking anhedral crystals of dolomite (M5, C8). Intercrystalline porosity is present in trace amounts within this sample and is defined by blue dyed epoxy at F10. (100x, plane polarized light)

Plate C

This high magnification view of the sample shows the densely interlocking nature of the anhedral dolomite crystals and the micro-intercrystalline porosity defined by blue dyed epoxy at (G7.2, K9.5). (250x, plane polarized light)

Plate D

This higher magnification overview again shows the interlocking nature of the dolomite crystals along with minor intercrystalline porosity at K8. Fractures (red stained) are created by the recovery and preparation methods employed. Calcite is present in trace amounts within the sample (IJ6.5). (250x, cross polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
AB
CD

PETROGRAPHIC DATA SHEET

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	16
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	970.50
Formation		Rock Name	F Dolomite
Porosity	K Max (mD)	Classification	Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______ Authigenic Constituents (mm) 0.05
Class -Transported Constituents ______ Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils T
Intraclasts ___
Ooids ___
Pisolites ___
Peloids ___

Terrigenous Constituents

Quartz: Mono ___ Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___
Mica ___
Carbonaceous Material ___

Orthochemical Constituents

Calcite: Sparry ___ Micrite T
Dolomite 99
Gypsum ___
Anhydrite ___
Halite ___
Quartz ___

Aragonite ___
Fe Dolomite ___

Clays

Kaolinite ___
Illite ___
Chlorite ___
Detrital 1

POROSITY

Porosity Types

Interparticle ___
Intraparticle ___
Growth Framework ___
Vug ___

Intercrystal VP-P
Moldic ___
Fracture ___

Fenestral ___
Shelter ___
Chemical ___

Mean IC Pore Size (mm) 0.03 Mean ___ Pore Size (mm) ___ Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae ___ Dispersed Mainly Rock Fragments ___
Pore Lining ___ Pore Bridging ___ Pore Filling Present Grain Replacement ___
Fracture Filling ___

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 16
DEPTH 970.50 metres

Plate A

Plate A shows a low magnification overview of a finely crystalline dolomite (crystalline carbonate), which has very poor to poor amounts of intercrystalline porosity that is very poorly to poorly interconnected. Porosity is defined by blue dyed epoxy within fragments (E8, G6). (25x, plane polarized light)

Plate B

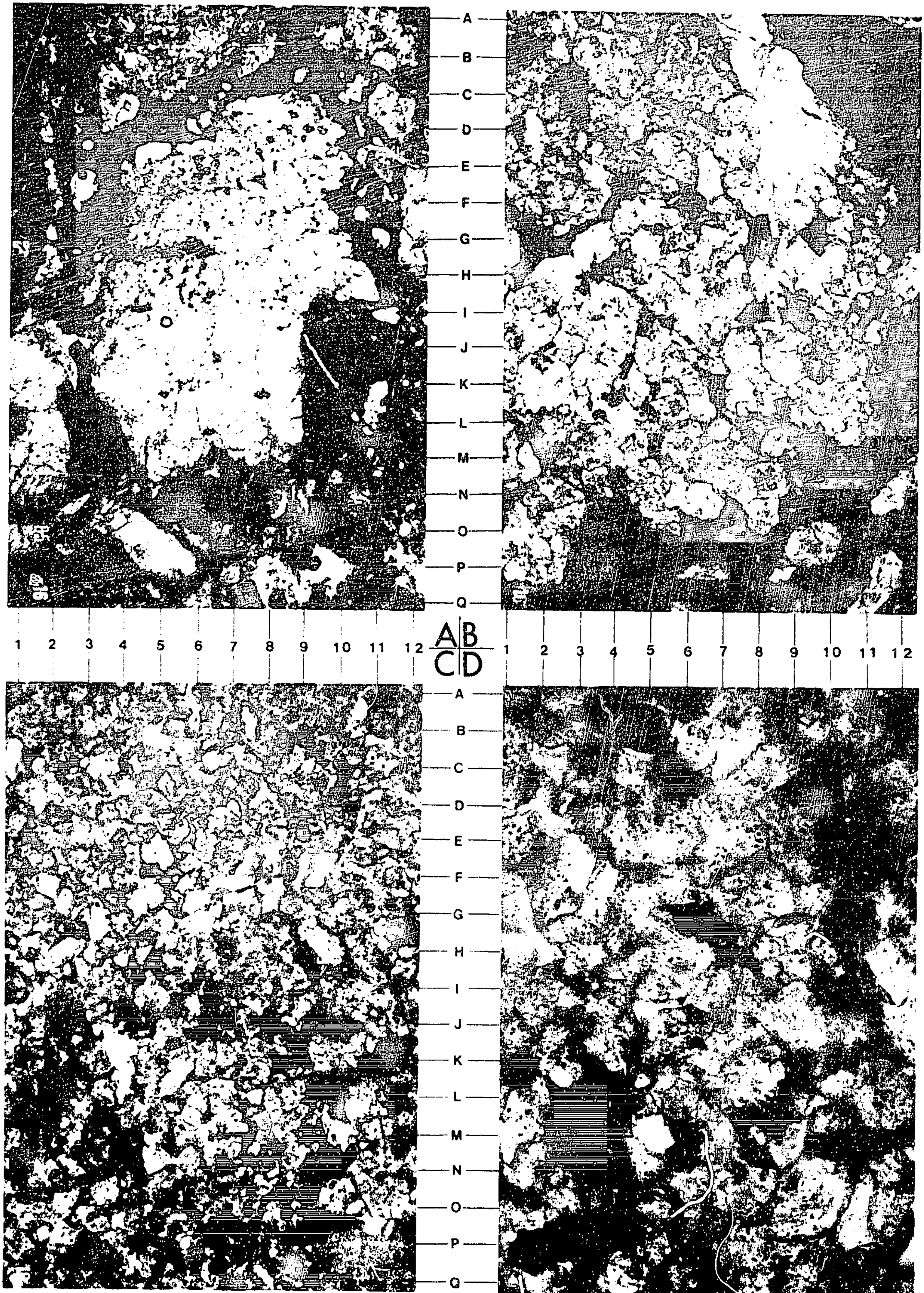
Plate B shows a higher magnification view of a dolomite fragment with a greater amount of intercrystalline porosity (G2, G8, I8, I9). Intercrystalline porosity is generally poorly interconnected. Dolomite crystals are anhedral to euhedrally formed throughout the sample. (100x, plane polarized light)

Plate C

Plate C shows the difference between the more densely cemented anhedrally formed dolomite crystals (D6) versus the more porous areas which have euhedrally formed dolomite crystals (M5). (100x, plane polarized light)

Plate D

Plate D shows a high magnification view of the interlocking nature of the dolomite crystals (E4, G4) and the intercrystalline porosity which is poorly interconnected (A5, L4, P4). (250x, plane polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A|B
C|D
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

PETROGRAPHIC DATA SHEET

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	17
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	928.00
Formation		Rock Name	Dolomitic Micrite
Porosity	K Max (mD)	Classification	Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______ Authigenic Constituents (mm) 0.04

Class -Transported Constituents ______ Authigenic Constituents F Crystalline

Depositional Texture - Dolomitic Mudstone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils	T
Intraclasts	
Ooids	
Pisolites	
Peloids	T

Terrigenous Constituents

Quartz: Mono ____ Poly ____

Feldspar: K-spar ____ Plag ____

Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____

Mica ____

Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry	2
Micrite	52
Dolomite	45
Gypsum	
Anhydrite	
Halite	
Quartz	
Aragonite	
Fe Dolomite	

Clays

Kaolinite	
Illite	
Chlorite	
Detrital	1

POROSITY

Porosity Types

Interparticle ____ Intercrystal ____ Fenestral ____

Intraparticle ____ Moldic ____ Shelter ____

Growth Framework ____ Fracture ____ Chemical ____

Vug ____

Mean ____ Pore Size (mm) ____ Mean ____ Pore Size (mm) ____ Interconnectedness ____

CLAY MINERAL LOCATION

Laminae ____ Dispersed Mainly Rock Fragments ____

Pore Lining ____ Pore Bridging ____ Pore Filling ____ Grain Replacement ____

Fracture Filling ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 17
DEPTH 928.00 metres

Plate A

This low magnification overview shows the presence of a dolomitic micrite (mudstone) which has well dispersed dolomite rhombs that are defined as white flecks within the red stained matrix (G6). There is no visible porosity within this sample. (25x, cross polarized light)

Plate B

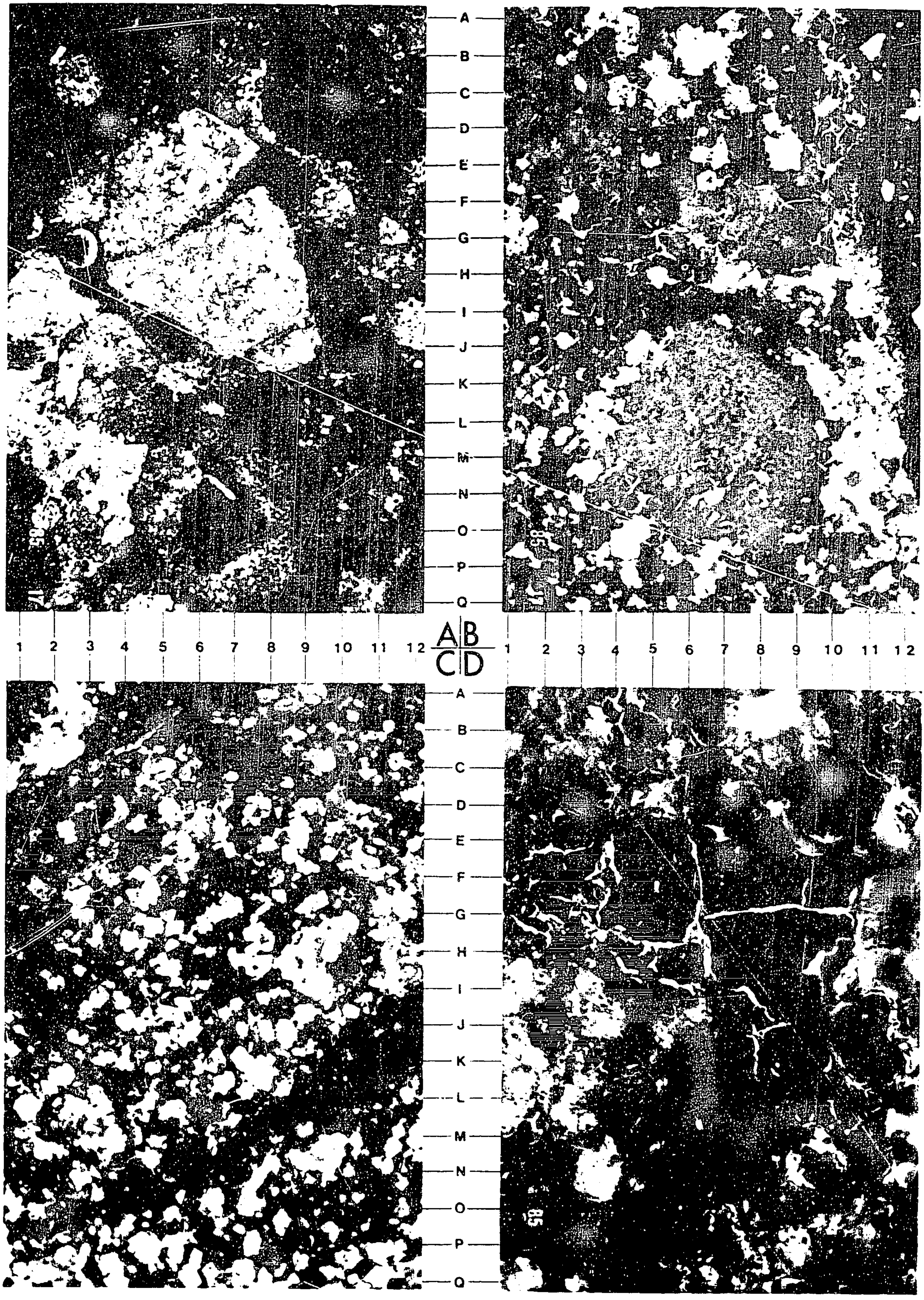
Plate B shows a higher magnification view of the sample with dolomite rhombs defined as euhedral crystals (C4, C5, E9) within a fine micritic matrix stained red by alizarin-red-S. (100x, cross polarized light)

Plate C

This high magnification view shows the well dispersed nature of these subhedral to euhedrally formed dolomite crystals (F4.5, O8.5) within the aphanocrystalline to finely crystalline micrite matrix. (100x, plane polarized light)

Plate D

This high magnification overview shows the neomorphically formed sparry calcite (G6, H9) which forms in minor amounts within this sample and is identified as large clear crystals of calcite. (250x, cross polarized light)


A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

This sample contains two distinctly different rock types.
There is a data sheet for each.

PETROGRAPHIC DATA SHEET

Well Name	ICG Soqepet et al Netsiq N-01	Sample Number	18
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	918.00
Formation		Rock Name	Fossiliferous Micrite
Porosity	K Max (mD)	Classification	Folk (1960)

TEXTURE

Mean Size-Transported Constituents (mm) 0.08 Authigenic Constituents (mm) 0.03
Class -Transported Constituents VF Calcarenite Authigenic Constituents F Crystalline
Depositional Texture - Dolomitic Mudstone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils 8
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono ___ Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry 4 Micrite 84
Dolomite 4
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital T

POROSITY

Porosity Types

Interparticle ___ Intercrystal ___ Fenestral ___
Intraparticle ___ Moldic ___ Shelter ___
Growth Framework ___ Fracture ___ Chemical ___
Vug ___

Mean ___ Pore Size (mm) ___ Mean ___ Pore Size (mm) ___ Interconnectedness ___

CLAY MINERAL LOCATION

Laminae ___ Dispersed Mainly Rock Fragments ___
Pore Lining ___ Pore Bridging ___ Pore Filling ___ Grain Replacement ___
Fracture Filling ___

NOTES:

All percentages based upon visual estimation.

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation:
Porosity: K Max (mD):

Sample Number: 18
Sample Depth (m): 918.00
Rock Name: F Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm):
Class -Transported Constituents:
Authigenic Constituents (mm): 0.045
Authigenic Constituents: F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry 5 Micrite
Dolomite 94
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital 1

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean Pore Size (mm)   Mean Pore Size (mm)   Interconnectedness

CLAY MINERAL LOCATION

Laminae
Dispersed Mainly
Rock Fragments
Pore Lining
Pore Bridging
Pore Filling
Grain Replacement
Fracture Filling

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 18
DEPTH 918.00 metres

Plate A

This sample is made up of two distinctly different rock types. The first at C10 is a finely crystalline dolomite (crystalline carbonate) which has minor amounts of sparry calcite inclusions and no visible porosity. The other rock type is a dolomitic, fossiliferous micrite (mudstone) which has no visible porosity. (25x, cross polarized light)

Plate B

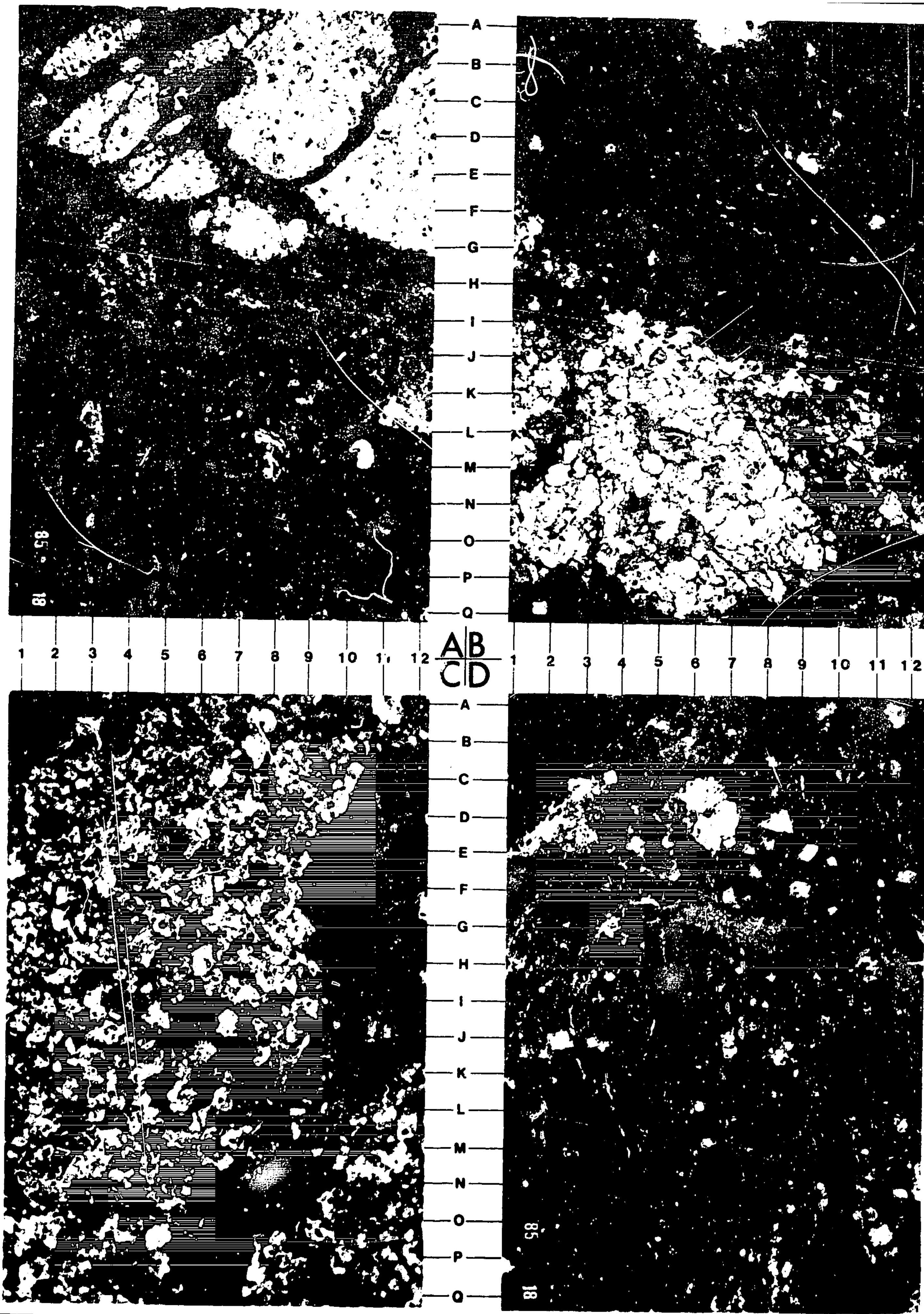
This higher magnification view shows the juxtaposed fragments of micrite (C5) with dolomite (M6). These are two mutually exclusive fragments found in close proximity with one another. Note the presence of neomorphic sparry calcite at D8 which is found in minor amounts. (100x, cross polarized light)

Plate C

Plate C shows a dolomitic fragment with minor amounts of sparry calcite well dispersed throughout the sample as defined by red dyed calcite (D11, KL5). The tightly interlocking nature of the dolomite crytals and sparry filled pores leaves no visible porosity evident. (100x, plane polarized light)

Plate D

Plate D shows a typical micrite fragment with well dispersed euhedral dolomite rhombs (D6.5, J2.5). Note the elongate fossil fragment which runs from F2 through G10. No porosity is visible within this fragment. (100x, cross polarized light)


A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
85
18

PETROGRAPHIC DATA SHEET

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	20
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	903.50
Formation		Rock Name	F Dolomite
Porosity	K Max (mD)	Classification	Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______ Authigenic Constituents (mm) 0.03

Class -Transported Constituents ______ Authigenic Constituents F Crystalline

Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ___
Intraclasts ___
Ooids ___
Pisolites ___
Peloids ___

Terrigenous Constituents

Quartz: Mono 1 Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___
Mica ___
Carbonaceous Material ___

Orthochemical Constituents

Calcite: Sparry ___ Micrite T
Dolomite 99
Gypsum ___
Anhydrite ___
Halite ___
Quartz ___

Aragonite ___
Fe Dolomite ___
Pyrite T

Clays

Kaolinite ___
Illite ___
Chlorite ___
Detrital 1

POROSITY

Porosity Types

Interparticle ___
Intraparticle ___
Growth Framework ___
Vug ___

Intercrystal VP
Moldic ___
Fracture ___

Fenestral ___
Shelter ___
Chemical ___

Mean IC Pore Size (mm) 0.008 Mean ___ Pore Size (mm) ___ Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae Present Dispersed Mainly Rock Fragments ___
Pore Lining ___ Pore Bridging ___ Pore Filling ___ Grain Replacement ___
Fracture Filling ___

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 20
DEPTH 907.50 metres

Plate A

This low magnification overview of the sample shows a finely crystalline dolomite (crystalline carbonate) which has poorly defined bedding planes which have an increasing concentration of detrital clays. (25x, cross polarized light)

Plate B

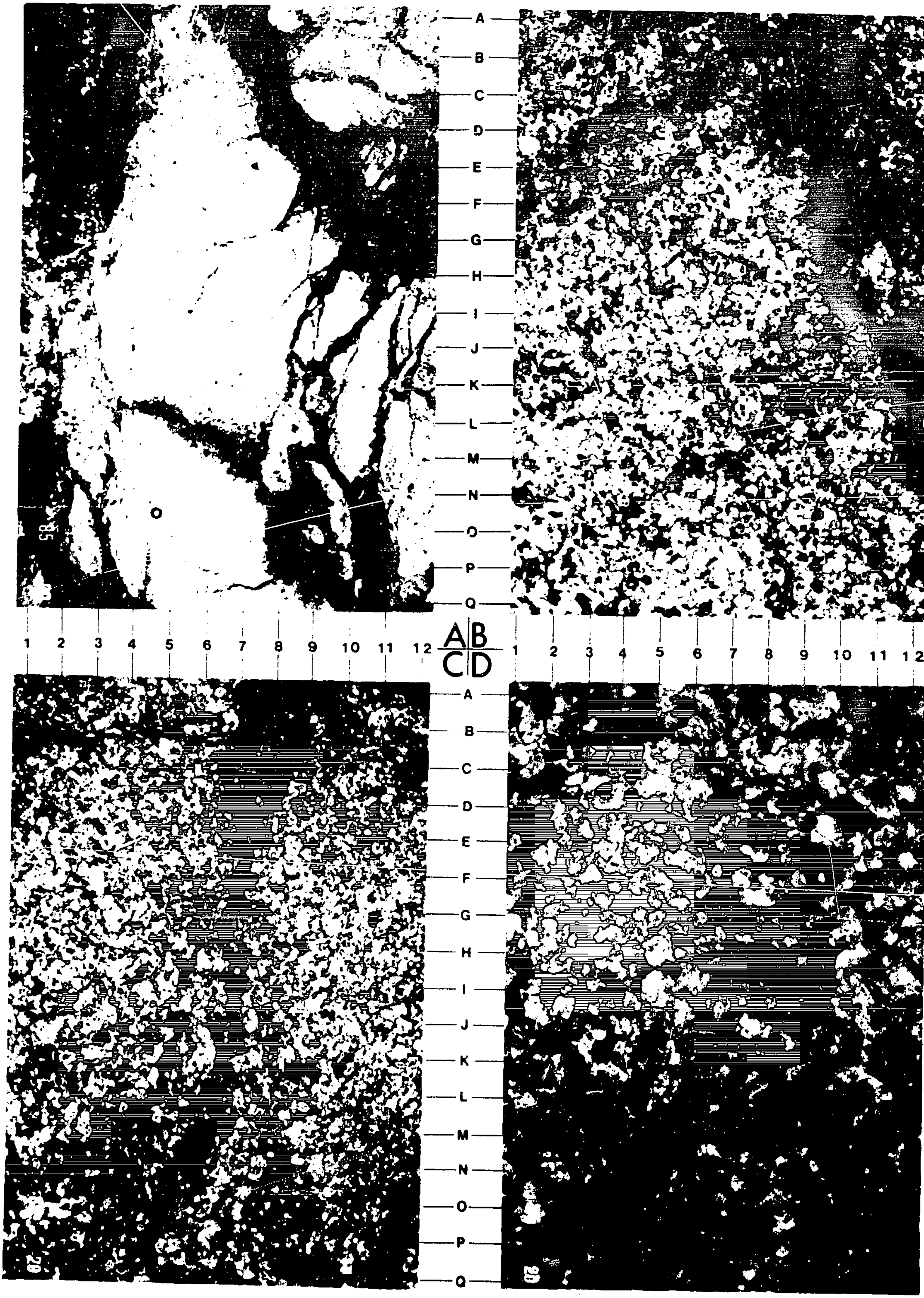
This higher magnification view shows the presence of intercrystalline porosity found in very poor amounts throughout the sample and is generally very poorly to poorly interconnected. Intercrystalline porosity is defined by blue dyed epoxy within the fragment (G7.5, M4). (100x, plane polarized light)

Plate C

This view shows the more commonly, densely interlocking anhedral crystals of dolomite with little intercrystalline porosity. Note the poorly defined laminae of clay (G7). (100x, cross polarized light)

Plate D

This high magnification view shows the presence of poorly interconnected intercrystalline porosity at L6 and O3. (250x, cross polarized light)



A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation: ______
Porosity: ______ K Max (mD) ______

Sample Number: 21
Sample Depth (m): 893.50
Rock Name: VF Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Depositional Texture - Crystalline Carbonate, Dunham (1962)

Authigenic Constituents (mm) 0.005
Authigenic Constituents VF Crystalline

COMPOSITION

Allochemical Constituents

Fossils ______
Intraclasts ______
Ooids ______
Pisolites ______
Peloids ______

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica ______
Carbonaceous Material ______

Orthochemical Constituents

Calcite: Sparry ______ Micrite ______
Dolomite 100
Gypsum ______
Anhydrite ______
Halite ______
Quartz ______

Aragonite ______
Fe Dolomite ______

Clays

Kaolinite ______
Illite ______
Chlorite ______
Detrital T

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal ______
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean ______ Pore Size (mm) ______

Mean ______ Pore Size (mm) ______

Interconnectedness ______

CLAY MINERAL LOCATION

Laminae ______
Pore Lining ______
Fracture Filling ______
Dispersed ______
Pore Bridging ______
Pore Filling ______
Rock Fragments ______
Grain Replacement ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 21
DEPTH 893.50 metres

Plate A

This low magnification overview is of a very finely crystalline dolomite (crystalline carbonate) which is very clean with only traces of detrital clay that may have been introduced artificially. Porosity is not visible in thin section. (25x, cross polarized light)

Plate B

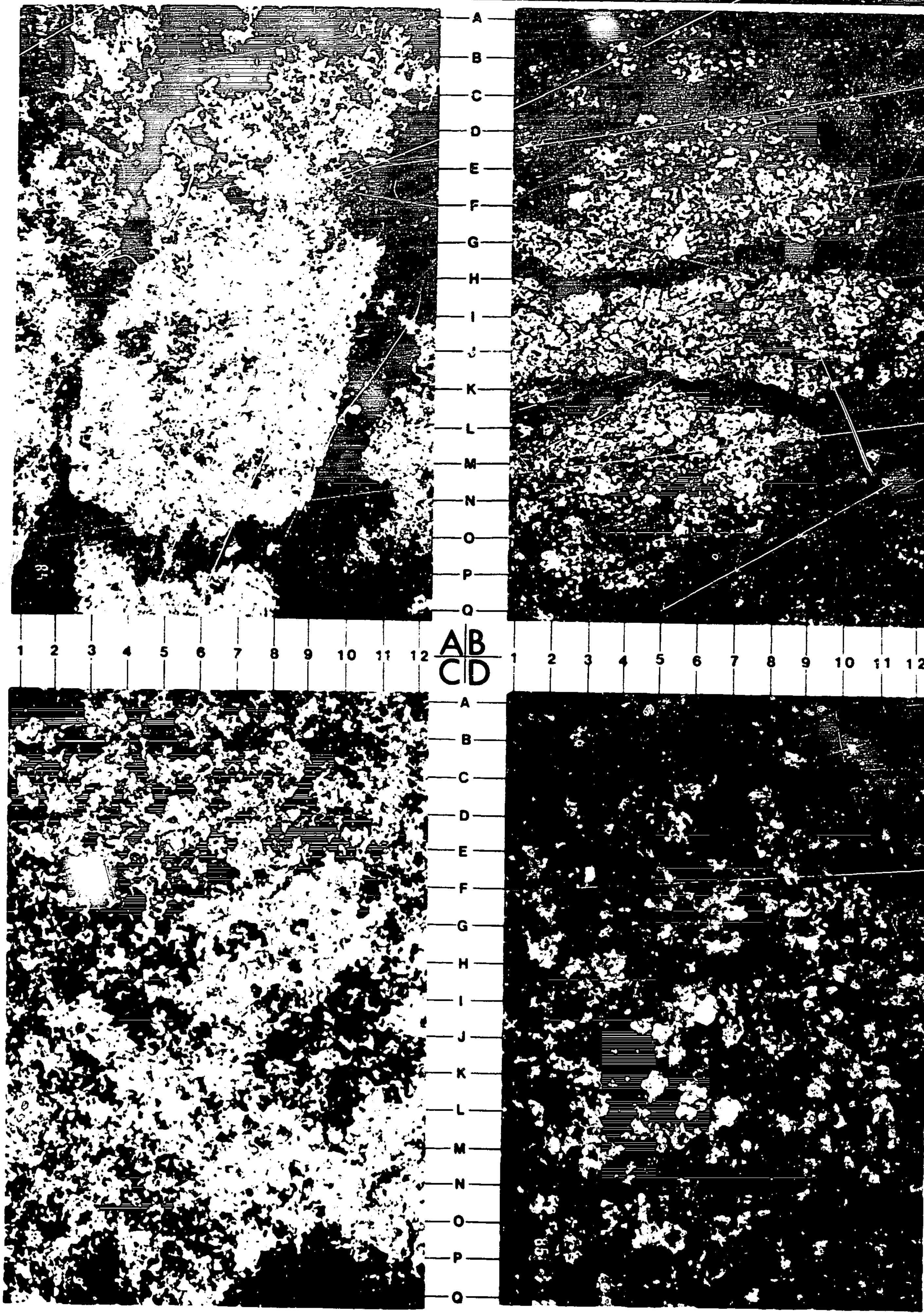
This low magnification view of the sample shows the fragmented nature of the sample along with the detrital clays or bitumen (N5) which is thought to be introduced artificially through the circulation of drilling fluids. (25x, plane polarized light)

Plate C

This higher magnification view shows the densely interlocking nature of these anhedral dolomite crystals leaving no visible porosity. (100x, cross polarized light)

Plate D

This high magnification view of the sample shows the densely interlocking anhedral nature of the dolomite crystals. This densely interlocking nature of the sample leaves no visible porosity. (250x, plane polarized light)


A B C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation ____
Porosity ____ K Max (mD) ____

Sample Number 23
Sample Depth (m) 887.50
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ____
Class -Transported Constituents ____
Authigenic Constituents (mm) 0.04
Authigenic Constituents F Crystalline
Depositional Texture - ____

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite T
Dolomite 100
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital T

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____

Intercrystal VP
Moldic ____
Fracture ____

Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.01
Mean ____ Pore Size (mm) ____
Interconnectedness P

CLAY MINERAL LOCATION

Laminae ____
Dispersed ____
Rock Fragments ____
Pore Lining ____
Pore Bridging ____
Pore Filling ____
Grain Replacement ____
Fracture Filling ____

NOTES:

All percentages based upon visual estimation.

SAMPLE NUMBER 23
DEPTH 887.50 metres

Plate A

This low magnification overview is of a finely crystalline dolomite (crystalline carbonate) which is relatively clean except for traces of detrital clays and micrite. This sample contains very poor amounts of intercrystalline porosity that is locally well developed and poorly interconnected. (25x, cross polarized light)

Plate B

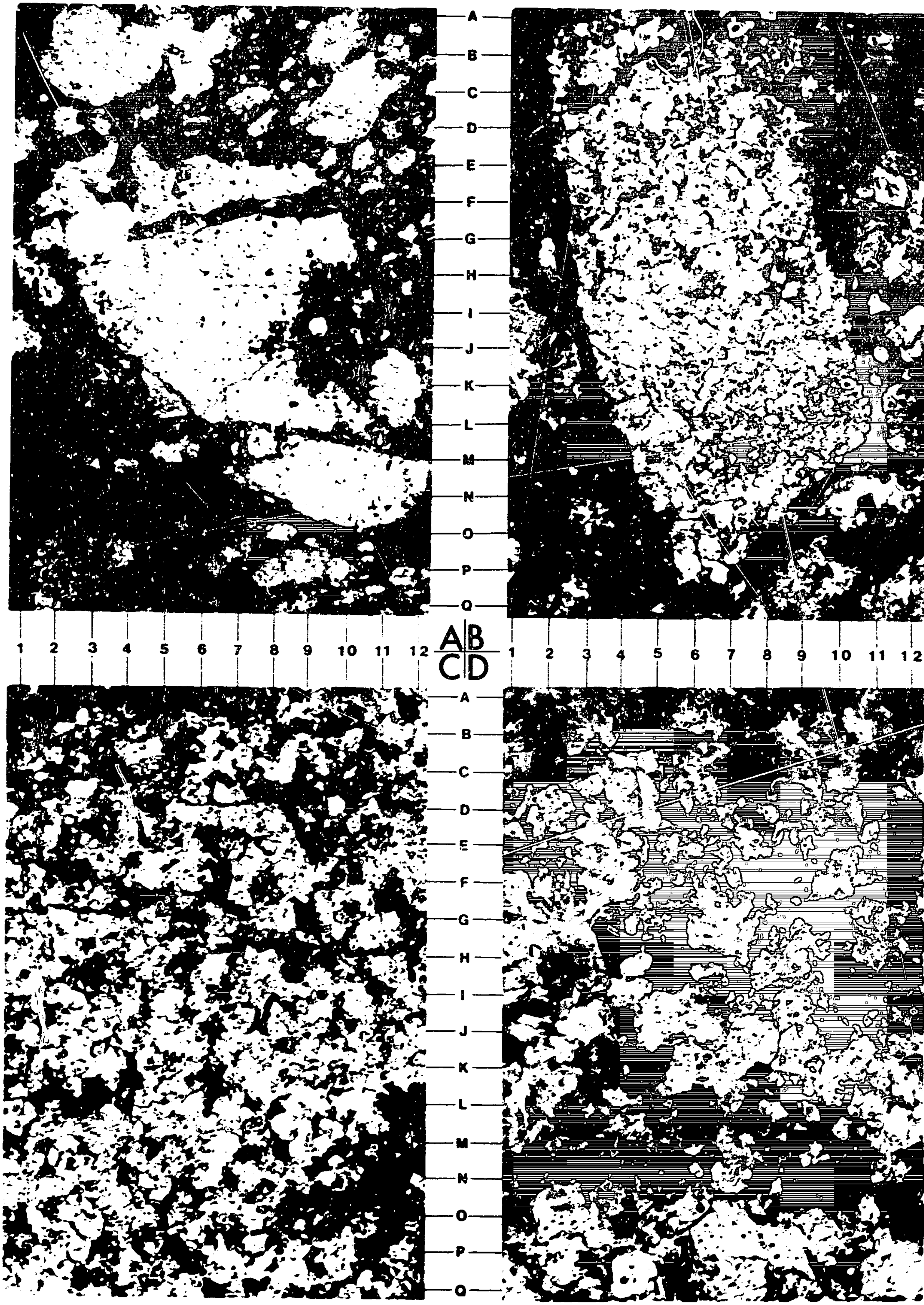
This higher magnification view shows the typically tightly cemented interlocking nature of the dolomite crystals with minor amounts of intercrystalline porosity defined by blue dyed epoxy at F4. (100x, cross polarized light)

Plate C

This higher magnification view is of a more porous zone within these dolomite fragments as indicated by the blue dyed epoxy at E10.5, FG4, NO10. This intercrystalline porosity is generally present within the euhedrally formed, more poorly interlocking zones of the dolomite. Porosity is generally poorly interconnected to isolated throughout. (100x, cross polarized light)

Plate D

This high magnification photomicrograph shows the tightly interlocking anhedral nature of dolomite crystals (E4, P7) and minor amounts of poorly interconnected intercrystalline porosity (H6, K5). (250x, cross polarized light)



A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity ______ K Max (mD) ______

Sample Number 24
Sample Depth (m) 872.50
Rock Name VF Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) 0.03
Authigenic Constituents (mm) 0.006
Class -Transported Constituents Med Crystalline
Authigenic Constituents VF Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono T Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite T
Dolomite 99
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____
Apatite T

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital 1

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____

Intercrystal T-VP
Moldic ____
Fracture ____

Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.002
Mean ____ Pore Size (mm) ____
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae Percent
Dispersed ____
Rock Fragments ____
Pore Lining ____
Pore Bridging ____
Pore Filling ____
Grain Replacement ____
Fracture Filling ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 24
DEPTH 872.50 metres

Plate A

This low magnification overview of the sample shows a very finely crystalline dolomite (crystalline carbonate) which has ill defined laminae (M7, K8). Porosity within the sample is present in trace to very poor amounts and is very poorly interconnected. (25x, cross polarized light)

Plate B

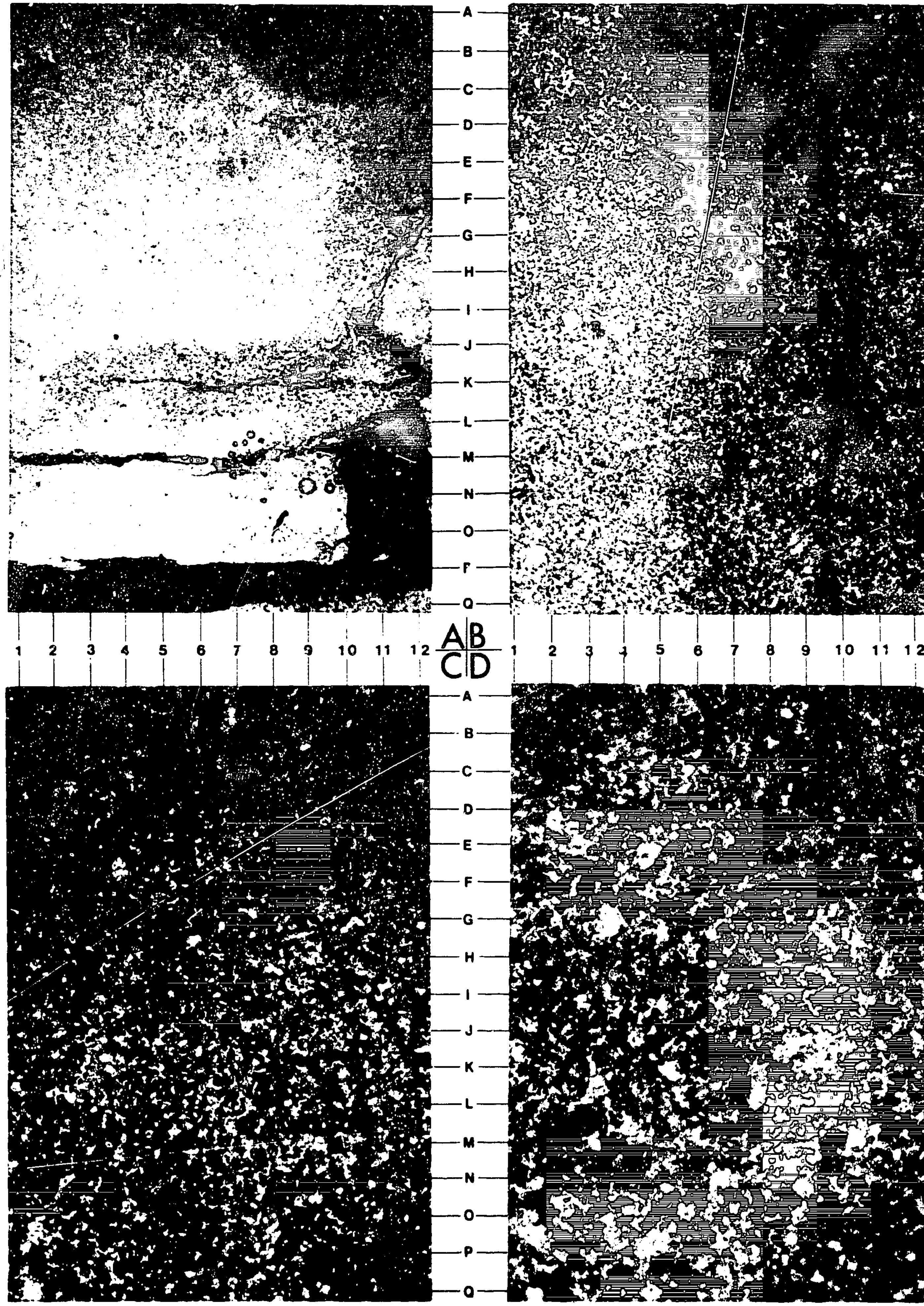
This higher magnification view of a fracture which has broken along a bedding plane, shows a higher concentration of detrital clays within this zone. This fracture is artificially induced by the recovery and preparation method of the sample. (100x, cross polarized light)

Plate C

Plate C shows the more representative portion of the sample. Note the tightly interlocking, very finely crystalline dolomite crystals which leave little intercrystalline porosity. (25x, cross polarized light)

Plate D

This high magnification view of the dolomite matrix shows the presence of intercrystalline porosity which is poorly interconnected (D8, HI6, K6). (250x, plane polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
F
Q
1 2 3 4 5 6 7 8 9 10 11 12
AB
CD
1 2 3 4 5 6 7 8 9 10 11 12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q

X-RAY DIFFRACTION ANALYSIS

Sample Number: 26
Depth: 854.50 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	4	Trace	1
Feldspar	Nil	Nil	Nil
Calcite	11	2	5
Dolomite	36	60	54
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	27	22	23
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	22	16	17

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 26.8%

Material Greater Than 5 Microns: 73.2%

PETROGRAPHIC DATA SHEET

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	26
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	854.50
Formation		Rock Name	VF Dolomite
Porosity	K Max (mD)	Classification	Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______ Authigenic Constituents (mm) 0.008

Class -Transported Constituents ______ Authigenic Constituents VF Crystalline

Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils	
Intraclasts	
Ooids	
Pisolites	
Peloids	

Terrigenous Constituents

Quartz: Mono T Poly ____

Feldspar: K-spar ____ Plag ____

Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____

Mica ____

Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry		Micrite	T	Aragonite	
Dolomite	100			Fe Dolomite	
Gypsum					
Anhydrite					
Halite					
Quartz					

Clays

Kaolinite	
Illite	
Chlorite	
Detrital	T

POROSITY

Porosity Types

Interparticle		Intercrystal	T	Fenestral	
Intraparticle		Moldic		Shelter	
Growth Framework		Fracture		Chemical	
Vug					

Mean IC Pore Size (mm) 0.0016 Mean ____ Pore Size (mm) ____ Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ____ Dispersed ____ Rock Fragments ____

Pore Lining ____ Pore Bridging ____ Pore Filling ____ Grain Replacement ____

Fracture Filling ____

NOTES:

All percentages based upon visual estimation.

SAMPLE NUMBER 26
DEPTH 854.50 metres

Plate A

This low magnification overview is of a very finely crystalline dolomite (crystalline carbonate). The sample has only traces of micro-intercrystalline porosity that is very poorly interconnected. Traces of micrite, monocrystalline quartz and detrital clays are also present. (25x, plane polarized light)

Plate B

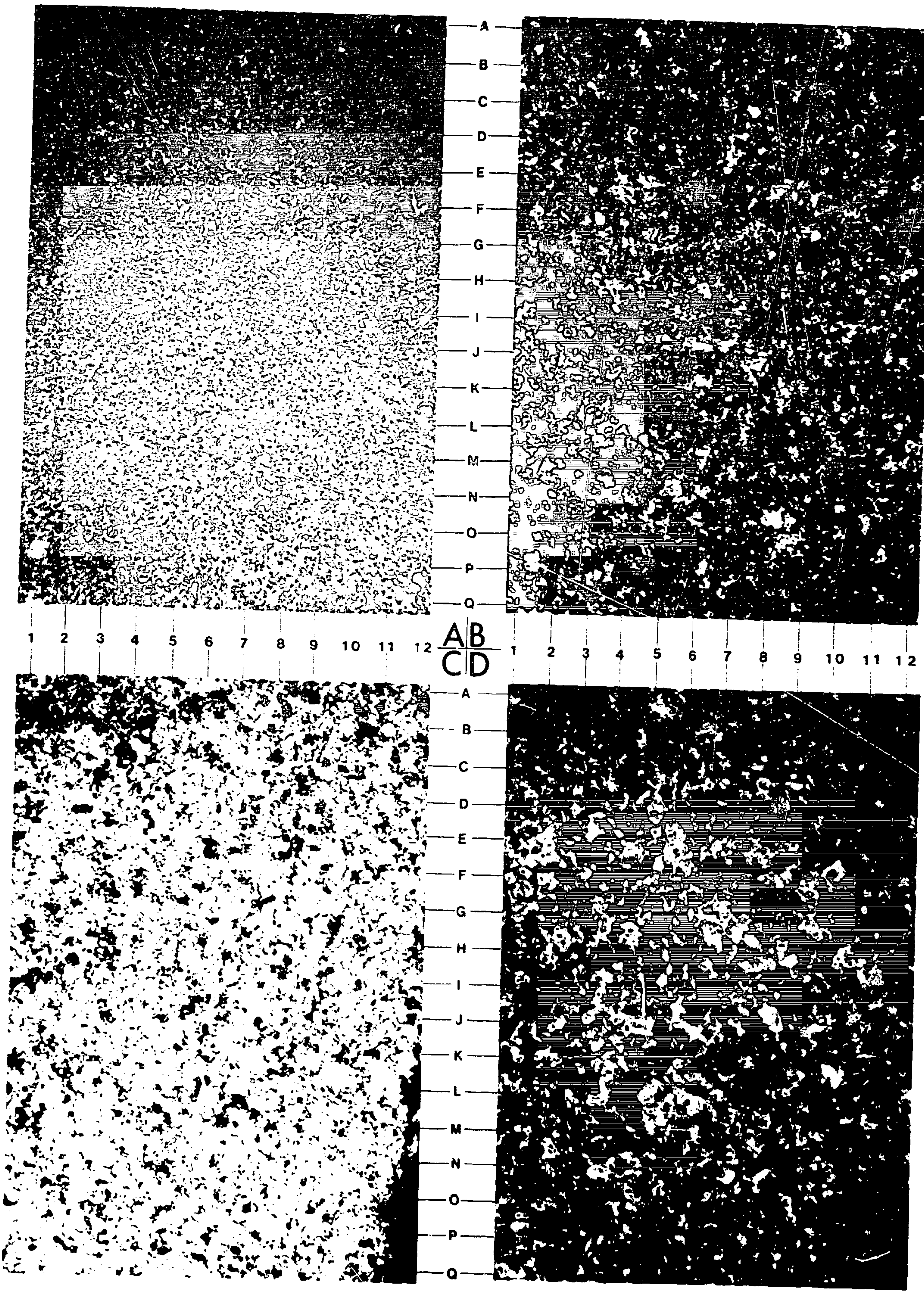
This high magnification view shows the anhedral to subhedral nature of the interlocking dolomite crystals which leave little intercrystalline porosity as seen with the polarizing light microscope. (100x, plane polarized light)

Plate C

Plate C again shows the tightly interlocking nature of these dolomite crystals and the presence of detrital clays (A2) which are generally located along ill-defined laminae. (100x, cross polarized light)

Plate D

This high magnification photomicrograph shows the tightly interlocking nature of the anhedral to subhedrally formed dolomite crystals which leave little intercrystalline porosity. (250x, plane polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D

SAMPLE NUMBER 26 (SEM)
DEPTH 854.50 metres

Plate A

This low magnification overview is of a very finely crystalline dolomite that has very poor amounts of intercrystalline porosity that is very poorly interconnected.

Plate B

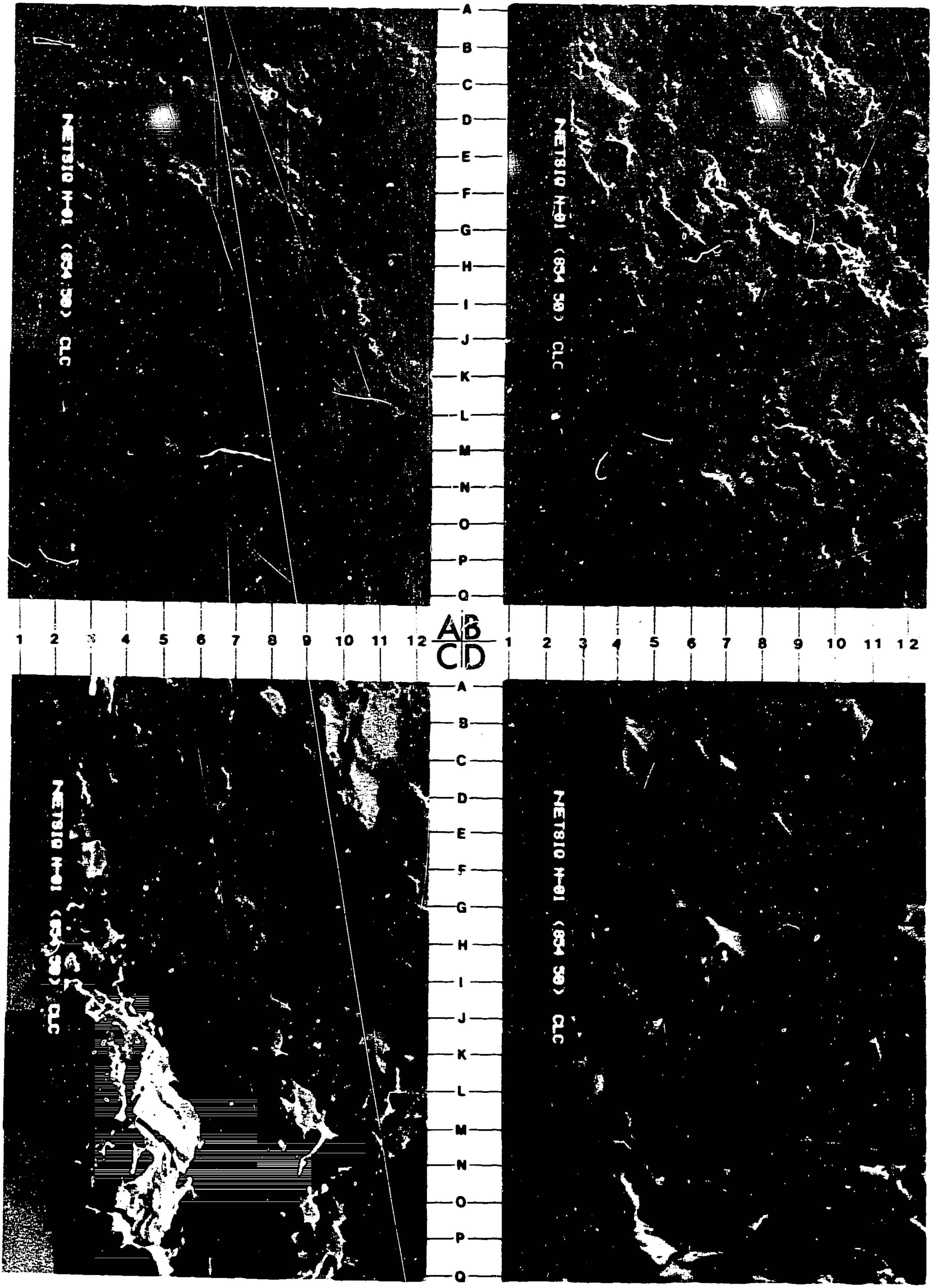
This higher magnification view of the sample shows a tightly interlocking. anhedrally formed mosaic of dolomite crystals (K7) with minor amounts of intercrystalline porosity as at H6.

Plate C

This higher magnification view shows the tightly interlocking, anhedral nature of the crystals (B10, N9). Fractures (O10.5) may have been created by the recovery method employed.

Plate D

Within the more porous areas of the sample. one can note subhedral to euhedrally formed dolomite crystals filling the pores as at L9 and OP7.



PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation: ______
Porosity: ______ K Max (mD): ______

Sample Number: 28
Sample Depth (m): 820.00
Rock Name: Dolomitic Bromicrite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm): 0.22
Authigenic Constituents (mm): 0.025
Class -Transported Constituents: F Calcarenite
Authigenic Constituents: F Crystalline
Depositional Texture - Wackestone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils: 10
Intraclasts: ______
Ooids: ______
Pisolites: ______
Peloids: 2

Terrigenous Constituents

Quartz: Mono T Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica: ______
Carbonaceous Material: ______

Orthochemical Constituents

Calcite: Sparry 5 Micrite 55
Dolomite: 28
Gypsum: ______
Anhydrite: ______
Halite: ______
Quartz: ______
Aragonite: ______
Fe Dolomite: ______

Clays

Kaolinite: ______
Illite: ______
Chlorite: ______
Detrital: ______

POROSITY

Porosity Types

Interparticle: ______
Intraparticle: ______
Growth Framework: ______
Vug: ______
Intercrystal: ______
Moldic: ______
Fracture: ______
Fenestral: ______
Shelter: ______
Chemical: ______

Mean ______ Pore Size (mm) ______
Mean ______ Pore Size (mm) ______
Interconnectedness ______

CLAY MINERAL LOCATION

Laminae: ______
Dispersed: ______
Rock Fragments: ______
Pore Lining: ______
Pore Bridging: ______
Pore Filling: ______
Grain Replacement: ______
Fracture Filling: ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 28
DEPTH 820.00 metres

Plate A

Plate A shows a very finely crystalline, fossiliferous dolomitic micrite (wackestone) which has no visible porosity. Dolomite makes up 28% of the sample and fossils 10%. (25x, plane polarized light)

Plate B

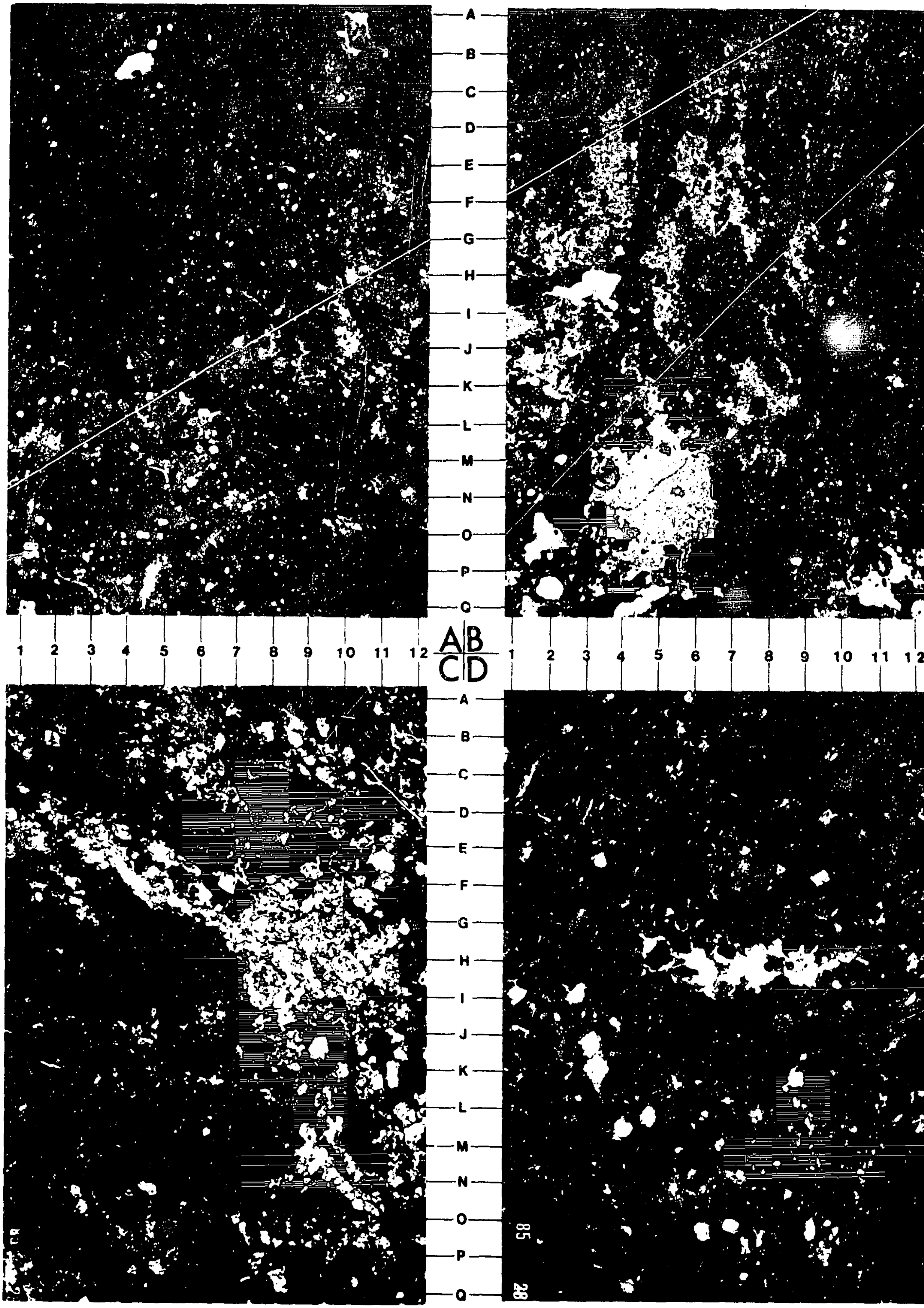
Plate B shows a fragment with a greater amount of dolomite crystals which are concentrated within zones (C6, N5). Note the alizarin-red-S stained calcite which is predominantly micrite but with minor amounts of sparry calcite and sparry replaced fossil fragments and peloids (I6). (25x, plane polarized light)

Plate C

This higher magnification view of the sample shows a fragment with a high concentration of dolomite which is present as an anhedrally formed, tightly interlocking matrix material (H9). Note a sparry replaced peloid at H5 and J2. (100x, plane polarized light)

Plate D

This high magnification view of a more representative fragment shows the euhedrally formed dolomite crystals (JK3.5, H8). There is no visible porosity within this sample. (250x, plane polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
85
28

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity ______ K Max (mD) ______

Sample Number 29
Sample Depth (m) 815.00
Rock Name Dolomitic Micrite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) 0.15
Class -Transported Constituents F Calcilutite
Authigenic Constituents (mm) 0.02
Authigenic Constituents F Crystalline
Depositional Texture - Mudstone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils 5
Intraclasts
Ooids
Pisolites
Peloids 1

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry 20 Micrite 66
Dolomite 8
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal T
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.01

Mean ______ Pore Size (mm) ______

Interconnectedness VP

CLAY MINERAL LOCATION

Laminae
Pore Lining
Fracture Filling
Dispersed
Pore Bridging
Pore Filling
Rock Fragments
Grain Replacement

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 29
DEPTH 815.00 metres

Plate A

This low magnification overview is of a finely crystalline, fossiliferous, dolomitic micrite (mudstone) which has large amounts of sparry calcite and trace amounts of intercrystalline porosity that is very poorly interconnected. (25x, plane polarized light)

Plate B

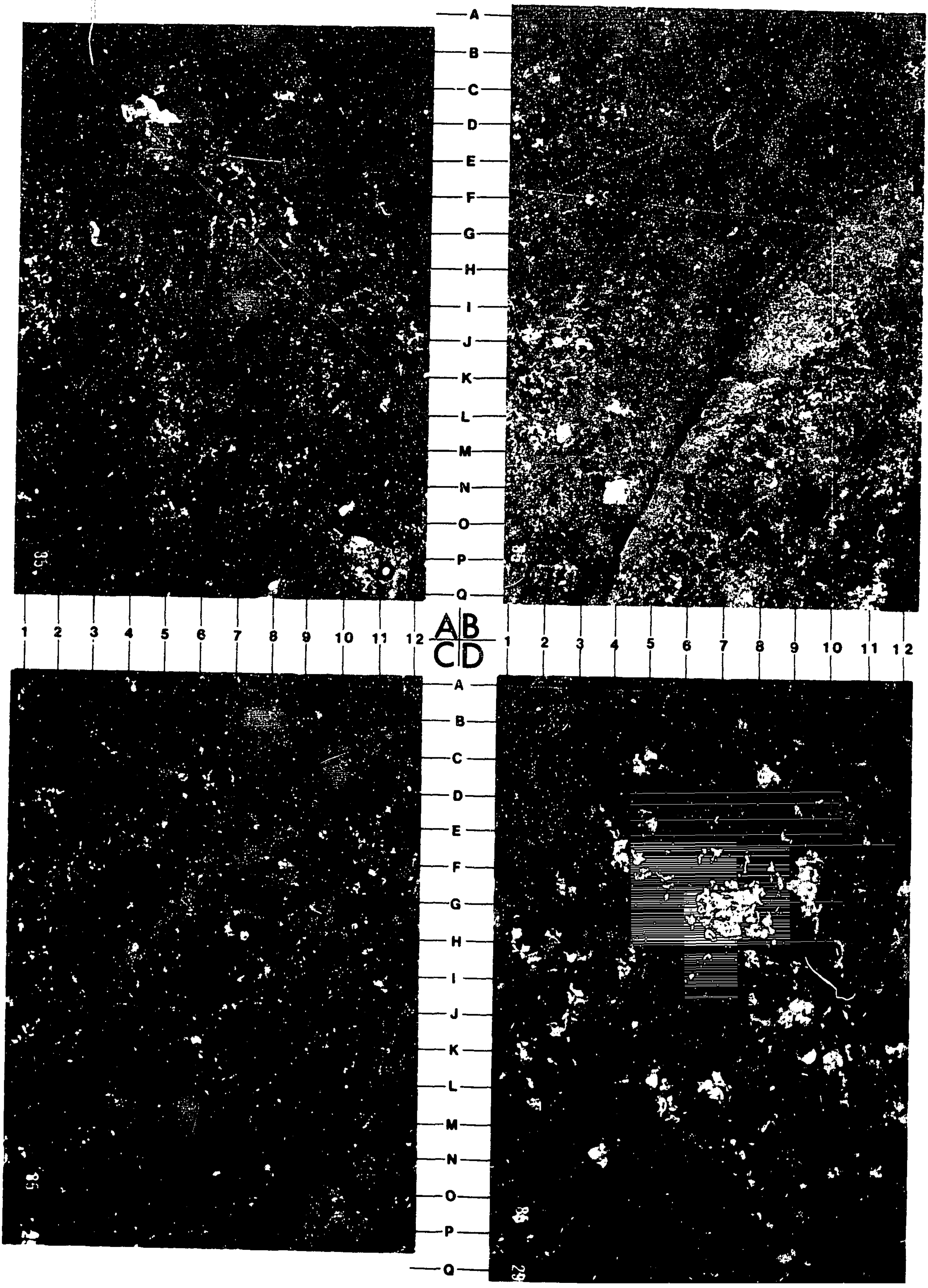
This higher magnification view shows the presence of fossil allochems at E4 and K7 which are floating within a fine micritic matrix. Note the presence of subhedrally to euhedrally formed dolomite rhombs which are moderately dispersed throughout the sample (LM2.5, N4). (100x, plane polarized light)

Plate C

This view shows the presence of microsparry to sparry calcite which forms a tightly interlocking mosaic leaving little intercrystalline porosity that is very poorly interconnected. Some of the sparry calcite is believed to form neomorphically replacing fossils and matrix material. (100x, cross polarized light)

Plate D

This high magnification photomicrograph shows a zone of microspar to sparry calcite with euhedrally formed dolomite crystals (G7). The tightly interlocking nature of the calcite mosaic leaves little intercrystalline porosity. (250x, cross polarized light)


A B
C D

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity K Max (mD)

Sample Number 30
Sample Depth (m) 793.00
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm)
Class -Transported Constituents
Depositional Texture - Crystalline Carbonate, Dunham (1962)

Authigenic Constituents (mm) 0.02
Authigenic Constituents F Crystalline

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry Micrite 1
Dolomite 99
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital T

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal P-M
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.013
Mean Pore Size (mm)
Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae Mainly
Dispersed
Rock Fragments
Pore Lining
Pore Bridging
Pore Filling
Grain Replacement
Fracture Filling

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 30
DEPTH 793.00 metres

Plate A

This low magnification photomicrograph shows an overview of a finely crystalline dolomite (crystalline carbonate) which has poor to moderate intercrystalline porosity that is very poorly to poorly interconnected. Minor amounts of calcite and trace amounts of detrital clays are also present. (25x, plane polarized light)

Plate B

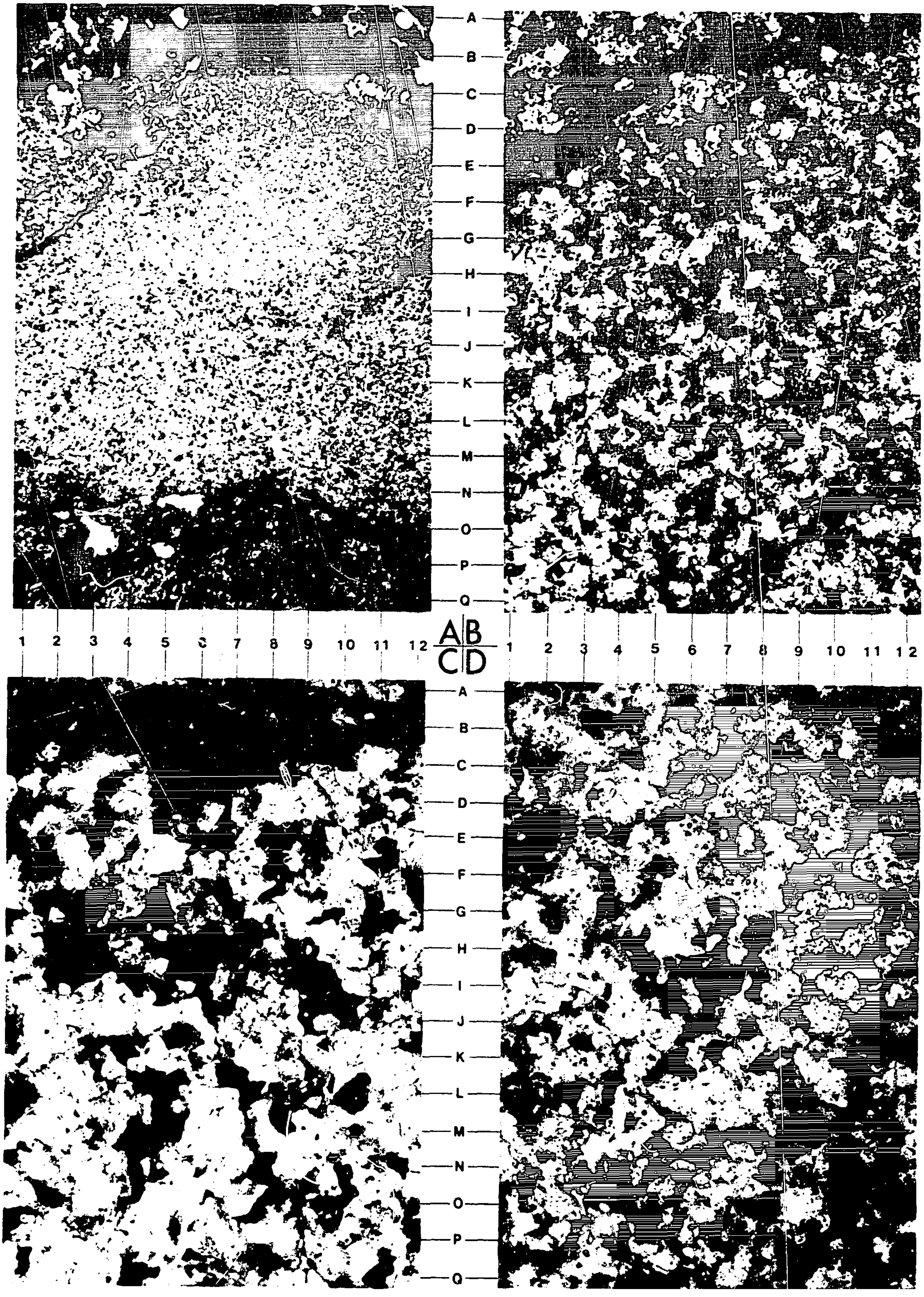
This higher magnification view shows the presence of moderate to good amounts of poorly interconnected intercrystalline porosity, defined by blue dyed epoxy. Red flecks, throughout, are due to minor calcite and the trapping of alizarin-red-S within pore space. (100x, cross polarized light)

Plate C

This high magnification view is of an area with particularly well developed intercrystalline porosity as defined by blue dyed epoxy (D9, G2). Darker areas stained red (H6, I9) are alizarin-red-S filled pores. The more dense areas of the dolomite fragment contain anhedrally interlocking dolomite crystals leaving little porosity. Porous zones contain subhedral to euhedrally formed dolomite crystals which are loosely interlocking. (250x, cross polarized light)

Plate D

This photomicrograph shows the presence of anhedrally interlocking crystals at M9, O6 and more euhedrally formed crystals within the more porous zones (D7, GH4.5). Intercrystalline porosity is normally isolated to very poorly interconnected. (250x, plane polarized light)



A B
C D
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation: ____
Porosity: ____ K Max (mD) ____

Sample Number: 31
Sample Depth (m): 786.50
Rock Name: F Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm): ____
Class -Transported Constituents: ____
Authigenic Constituents (mm): 0.004
Authigenic Constituents: VF Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry 1 Micrite 1
Dolomite 98
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital T

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____

Intercrystal VP
Moldic ____
Fracture ____

Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.002
Mean ____ Pore Size (mm) ____
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ____
Dispersed ____
Rock Fragments ____
Pore Lining ____
Pore Bridging ____
Pore Filling ____
Grain Replacement ____
Fracture Filling ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 31
DEPTH 786.50 metres

Plate A

This low magnification overview is of a very finely crystalline dolomite (crystalline carbonate) that has laminations of alternating coarser and finer dolomite crystals. The sample has very poor intercrystalline porosity which is very poorly interconnected. (25x, cross polarized light)

Plate B

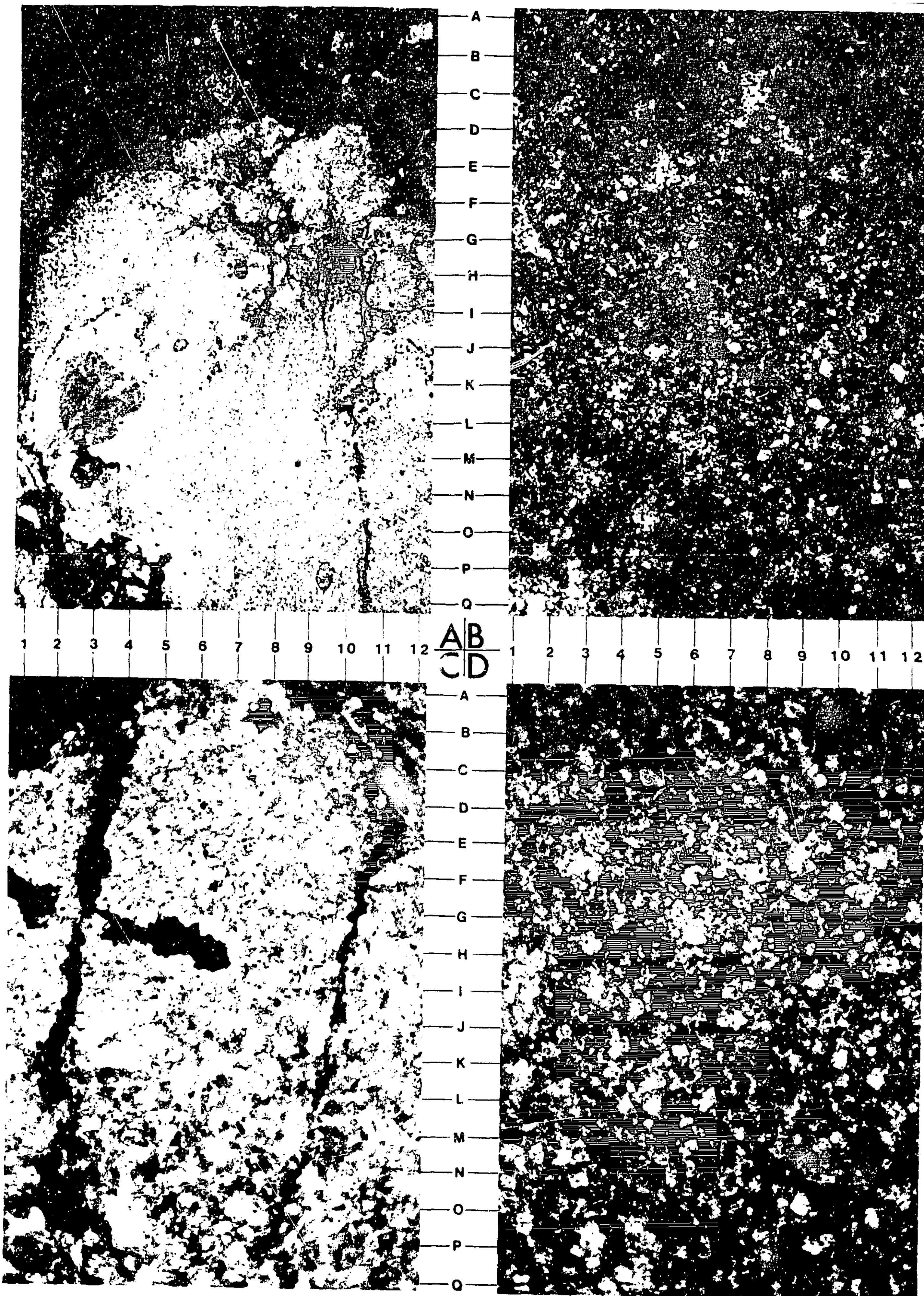
This higher magnification view shows the presence of a more coarsely crystalline laminae trending from B1 through QM. Finer aphanocrystalline dolomite makes up the laminae at A7 through D12. Finer laminae have higher concentrations of detrital clays which create zones of weakness along which the fragments may disaggregate. (100x, plane polarized light)

Plate C

This higher magnification view of the sample shows the presence of fractures induced along more detrital clay rich zones by the preparation and recovery methods. Also present in this sample is very fine intercrystalline pores at N11 defined by blue dyed epoxy. (250x, cross polarized light)

Plate D

Plate D shows the more typically, tightly interlocking nature of the dolomite crystals leaving little or no porosity to be seen visually. This high magnification view is of a coarse laminae within the dolomite matrix (H6). (250x, cross polarized light)


A B C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation: ____
Porosity: ____ K Max (mD) ____

Sample Number: 33
Sample Depth (m): 766.50
Rock Name: VF Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ____
Class -Transported Constituents ____
Authigenic Constituents (mm) 0.005
Authigenic Constituents VF Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____
Bitumen T

Orthochemical Constituents

Calcite: Sparry ____ Micrite 1
Dolomite 98
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____
Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital 1

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____
Intercrystal VP
Moldic ____
Fracture ____
Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.002
Mean ____ Pore Size (mm) ____
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae Mainly
Dispersed ____
Rock Fragments ____
Pore Lining ____
Pore Bridging ____
Pore Filling ____
Grain Replacement ____
Fracture Filling ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 33
DEPTH 766.50 metres

Plate A

This overview of the sample shows a highly fragmented, very finely crystalline dolomite (crystalline carbonate) which has ill-defined laminae with higher concentrations of detrital clay. Fractures in fragments are generally subparallel to these laminae (G7, KL7). (25x, cross polarized light)

Plate B

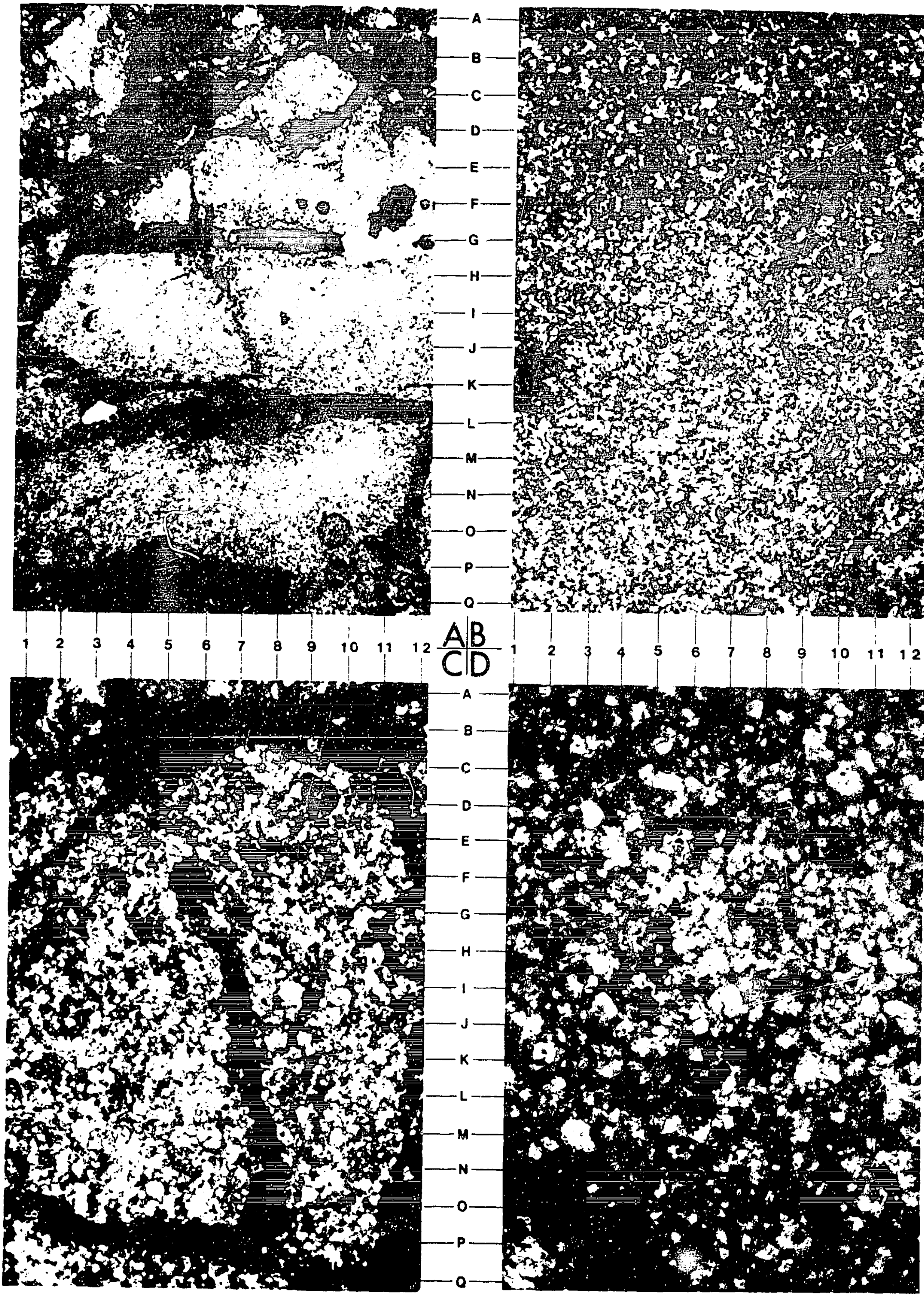
Porosity is solely intercrystalline, it is present in very poor amounts which are very poorly interconnected. This photomicrograph demonstrates the presence of this intercrystalline porosity at C4, F4, and G1 and is defined by blue dyed epoxy which penetrates interconnected pores. The dolomite at K6 is relatively densely cemented and leaves little intercrystalline porosity. (100x, cross polarized light)

Plate C

This higher magnification view shows the development of good intercrystalline porosity within some fragments (M5, K10) as indicated by the presence of blue dyed epoxy within the fragment. Note the red flecks of alizarin-red-S which has stained the minor amounts of calcite. (100x, cross polarized light)

Plate D

This high magnification view of a porous zone within the fragment indicates that this intercrystalline porosity (BC4.5, G3, K5) is generally, poorly interconnected and relatively ineffective. Note the dolomite within this zone is subhedrally to anhedrally formed. (250x, cross polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D

X-RAY DIFFRACTION ANALYSIS

Sample Number: 35
Depth: 757.50 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	4	Trace	1
Feldspar	Nil	Nil	Nil
Calcite	66	84	80
Dolomite	4	Nil	1
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Trace	Nil	Trace
Illite	6	Nil	1
Chlorite	Nil	Nil	Nil
Smectite	Trace	Nil	Trace
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	20	16	17

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 19.3%

Material Greater Than 5 Microns: 80.7%

PETROGRAPHIC DATA SHEET

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	35
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	757.50
Formation		Rock Name	Microsparite
Porosity	K Max (mD)	Classification	Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______ Authigenic Constituents (mm) 0.0064

Class -Transported Constituents ______ Authigenic Constituents VF Crystalline

Depositional Texture - Crystalline Carbonate Mudstone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry 40 Mic Spar 57
Dolomite 3
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____
Apatite T

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital ____

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____

Intercrystal ____
Moldic ____
Fracture ____

Fenestral ____
Shelter ____
Chemical ____

Mean ____ Pore Size (mm) ____

Mean ____ Pore Size (mm) ____

Interconnectedness ____

CLAY MINERAL LOCATION

Laminae ____ Dispersed ____ Rock Fragments ____
Pore Lining ____ Pore Bridging ____ Pore Filling ____ Grain Replacement ____
Fracture Filling ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 35
DEPTH 757.50 metres

Plate A

Plate A shows a low magnification overview of a microsparite (crystalline carbonate mudstone) with relatively large amounts of sparry calcite located throughout (J7). (25x, cross polarized light)

Plate B

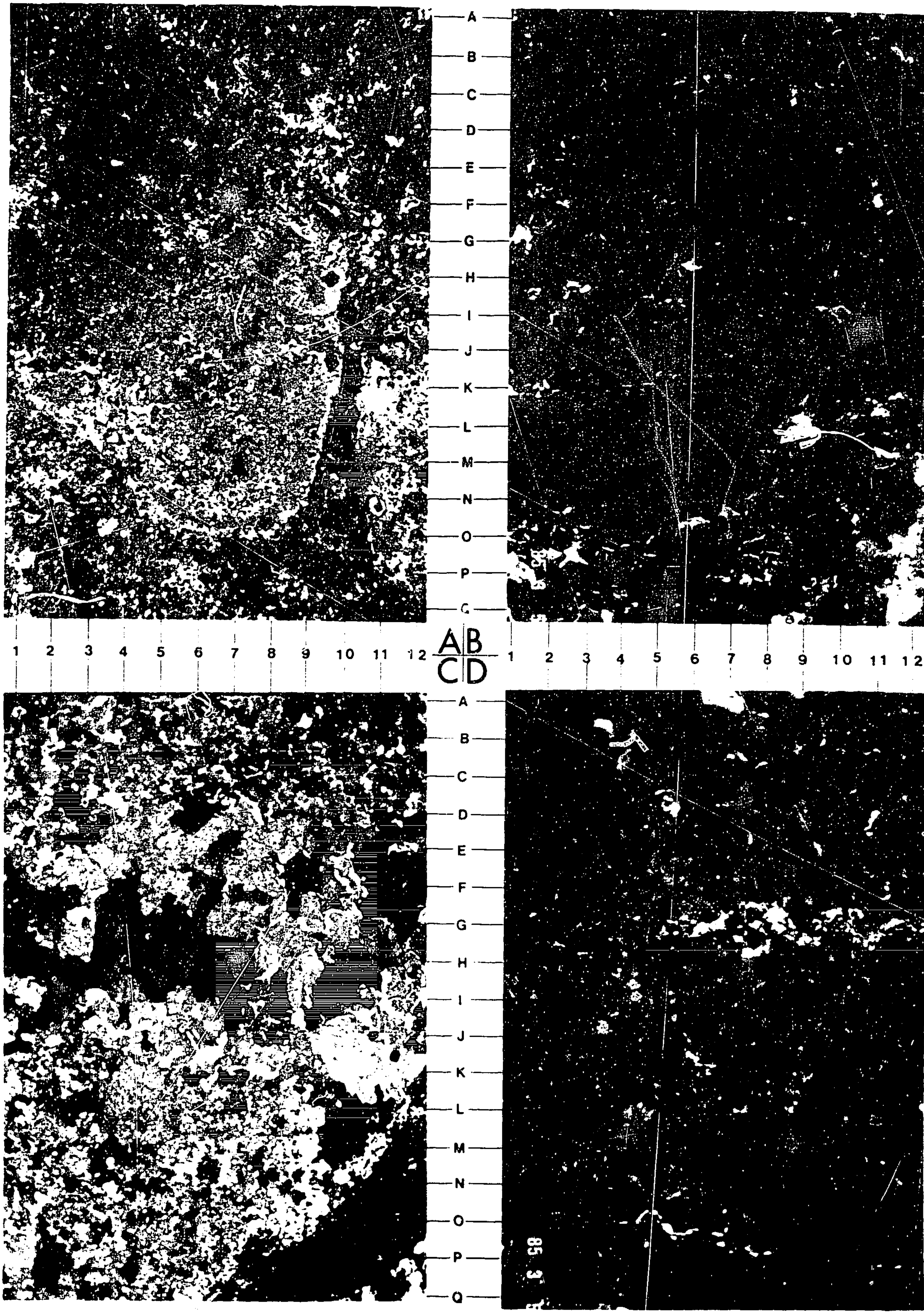
This higher magnification view shows the presence of microsparite at C3 and E7 along with sparry calcite (L4, I10). (100x, cross polarized light)

Plate C

This photomicrograph shows sparry calcite (H5) and microsparite (N7) which is believed to form neomorphically within a micritic matrix. Porosity is not visible within this tightly interlocking mosaic of calcite crystals. (100x, cross polarized light)

Plate D

This high magnification view of the sample shows a tightly interlocking mosaic of sparry calcite crystals (C10, N4). Minor amounts of dolomite are visible at G6, G8.5. (250x, plane polarized light)


A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

SAMPLE NUMBER 35 (SEM)
DEPTH 757.50 metres

Plate A

This low magnification photomicrograph is of a very finely crystalline microsparite which has large amounts of sparry calcite replacement.

Plate B

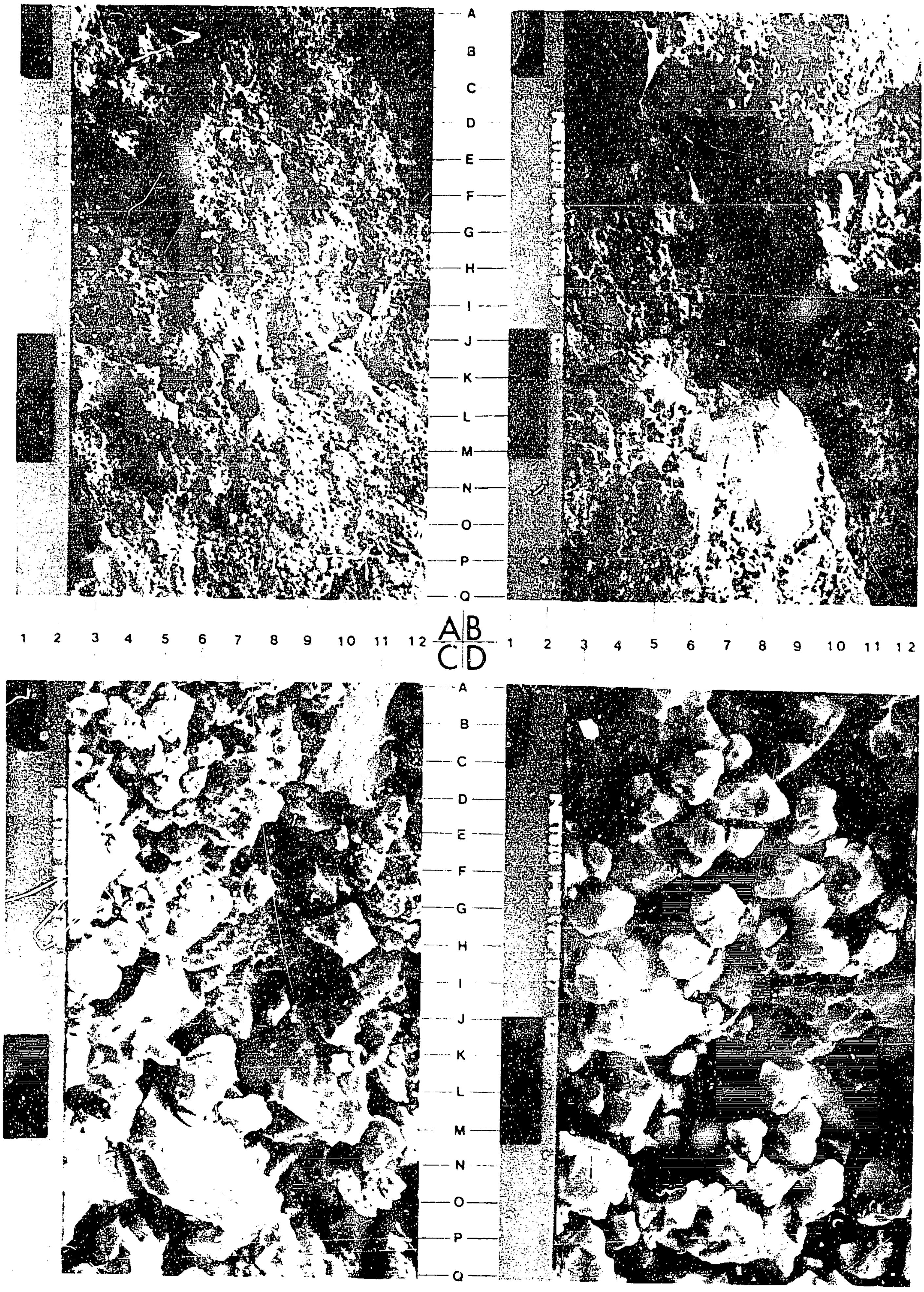
This higher magnification view shows the development of localized porosity within the sparry calcite (B3, N8).

Plate C

This view shows intercrystalline porosity within the anhedrally formed calcite crystals which appear to be loosely cemented within this photomicrograph. It is believed that some of this porosity may be created by the disaggregation of the sample through the recovery method employed.

Plate D

This high magnification view shows the anhedral to subhedral formation of calcite crystals, creating tortuously interconnected intercrystalline porosity and is relatively ineffectively interconnected.



A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity ______ K Max (mD) ______

Sample Number 36
Sample Depth (m) 753.50
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Depositional Texture - Crystalline Carbonate, Dunham (1962)

Authigenic Constituents (mm) 0.025
Authigenic Constituents F Crystalline

COMPOSITION

Allochemical Constituents

Fossils ______
Intraclasts ______
Ooids ______
Pisolites ______
Peloids ______

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica ______
Carbonaceous Material ______

Orthochemical Constituents

Calcite: Sparry ______ Micrite 2
Dolomite 98
Gypsum ______
Anhydrite ______
Halite ______
Quartz ______

Aragonite ______
Fe Dolomite ______

Clays

Kaolinite ______
Illite ______
Chlorite ______
Detrital ______

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal M
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean IC Pore Size (mm) 0.013
Mean ______ Pore Size (mm) ______
Interconnectedness P-M

CLAY MINERAL LOCATION

Laminae ______
Pore Lining ______
Fracture Filling ______
Dispersed ______
Pore Bridging ______
Pore Filling ______
Rock Fragments ______
Grain Replacement ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 36
DEPTH 753.50 metres

Plate A

Plate A shows an overview of a finely crystalline dolomite (crystalline carbonate) which has minor amounts of calcite and moderate amounts of intercrystalline porosity that is poor to moderately interconnected. Porosity is defined by blue dyed epoxy as at FG6. (25x, plane polarized light)

Plate B

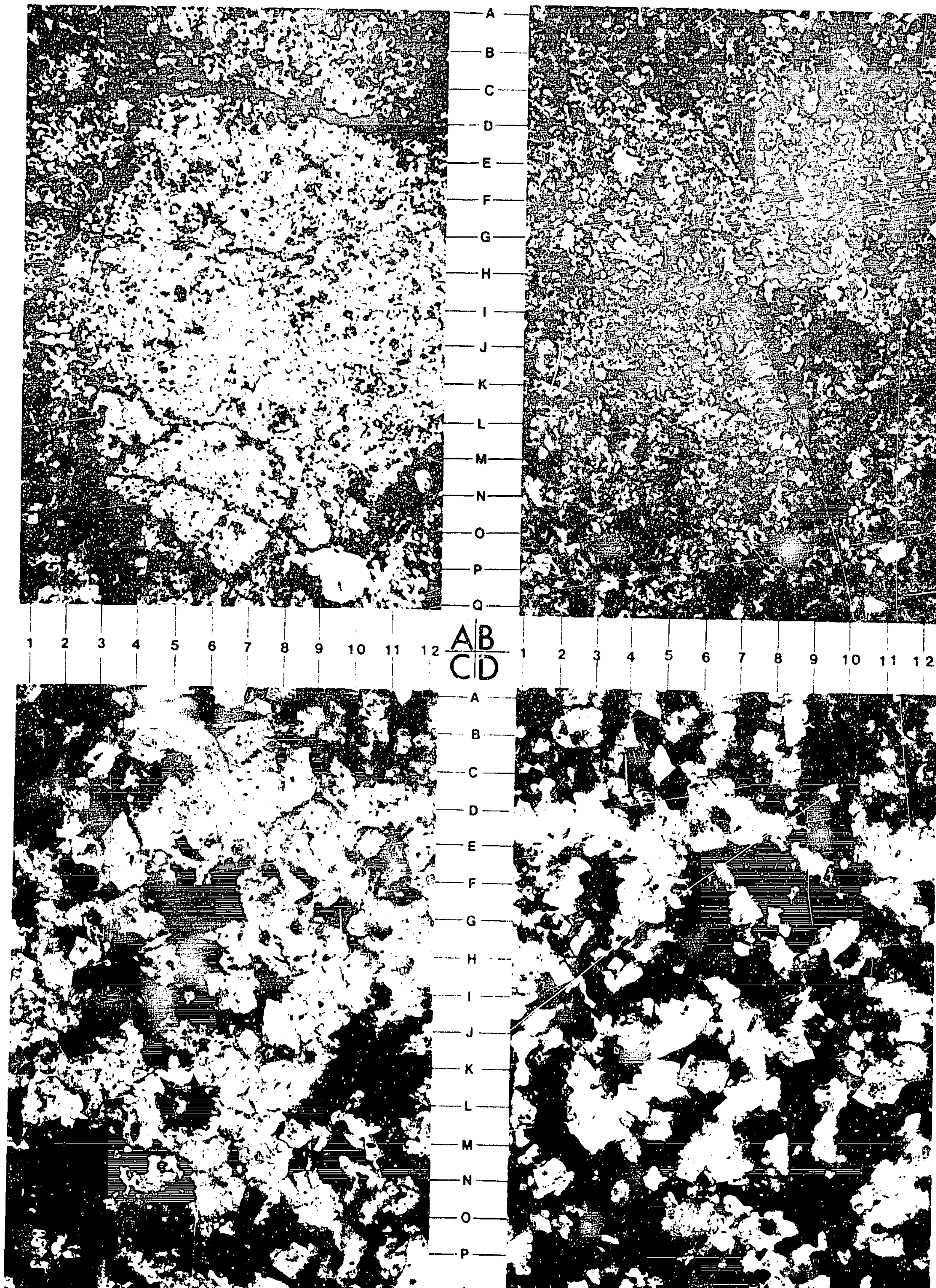
Plate B shows a higher magnification view of the sample demonstrating the moderate amounts of intercrystalline porosity (D7, HI6, IJ9). The majority of the dolomitic matrix is anhedrally formed creating a mosaic of tightly cemented crystals. (100x, plane polarized light)

Plate C

This high magnification photomicrograph shows the presence of anhedral to subhedrally formed dolomitic matrix (D7) compared to the euhedrally terminated crystals which form within intercrystalline pores (I6.5). (250x, plane polarized light)

Plate D

This high magnification view shows the presence of moderate to good intercrystalline porosity which can be found locally within the sample. Note the euhedrally formed dolomite which forms in these more porous zones (G7, J8.5). (250x, plane polarized light)



A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A|B
C|D

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity K Max (mD)

Sample Number 37
Sample Depth (m) 750.00
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______ Authigenic Constituents (mm) 0.025
Class -Transported Constituents ______ Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ___
Intraclasts ___
Ooids ___
Pisolites ___
Peloids ___

Terrigenous Constituents

Quartz: Mono ___ Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___
Mica ___
Carbonaceous Material ___

Orthochemical Constituents

Calcite: Sparry ___ Micrite T
Dolomite 100
Gypsum ___
Anhydrite ___
Halite ___
Quartz ___

Aragonite ___
Fe Dolomite ___

Clays

Kaolinite ___
Illite ___
Chlorite ___
Detrital T

POROSITY

Porosity Types

Interparticle ___
Intraparticle ___
Growth Framework ___
Vug ___

Intercrystal P
Moldic ___
Fracture ___

Fenestral ___
Shelter ___
Chemical ___

Mean IC Pore Size (mm) 0.02
Mean ___ Pore Size (mm) ___
Interconnectedness P

CLAY MINERAL LOCATION

Laminae Mainly
Dispersed ___
Rock Fragments ___
Pore Lining ___
Pore Bridging ___
Pore Filling ___
Grain Replacement ___
Fracture Filling ___

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 37
DEPTH 750.00 metres

Plate A

This overview shows a finely crystalline dolomite (crystalline carbonate) which has poorly defined laminae along which higher concentrations of detrital clays are present. Porosity is solely intercrystalline and is poorly interconnected. (25x, plane polarized light)

Plate B

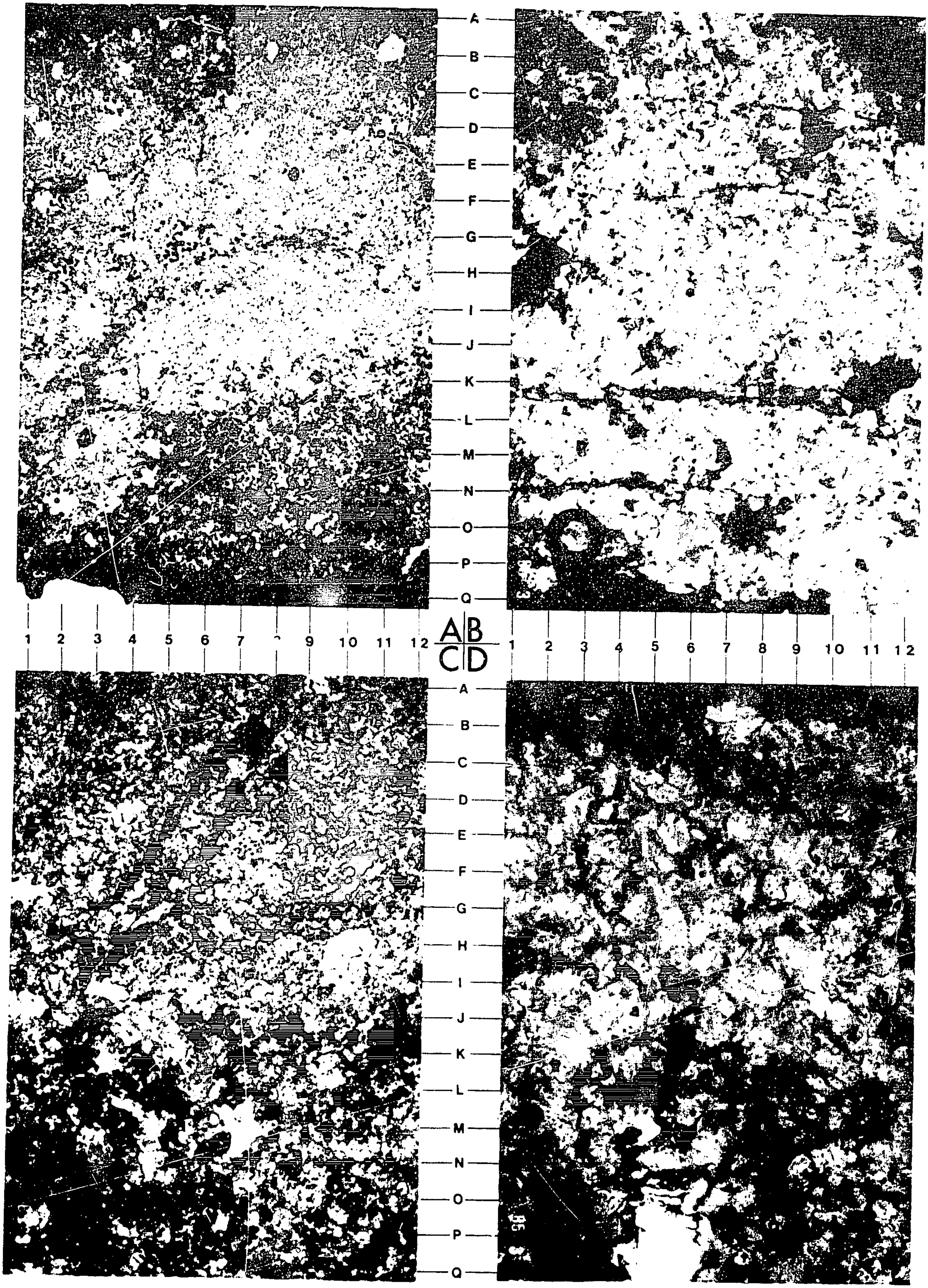
This high magnification photomicrograph shows the ill-defined laminae along which the rock breaks during recovery and preparation of the sample (KL1-KL9). (100x, cross polarized light)

Plate C

Plate C shows the difference between the more porous zones at N6 versus the anhedrally formed, tightly cemented areas such as E9 which have little intercrystalline porosity. Note ill-defined laminae at C7.5. (100x, plane polarized light)

Plate D

This higher magnification photomicrograph again shows the more densely cemented anhedrally formed dolomite crystals which form tightly interlocking mosaics such as at G5. Note the isolated nature of intercrystalline pores at M8 and K5.5. (250x; plane polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 9 10 11 12
AB
CD
1 2 3 4 5 6 7 8 9 10 11 12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation:
Porosity: ____ K Max (mD): ____

Sample Number: 38
Sample Depth (m): 743.00
Rock Name: F Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm): 0.035
Authigenic Constituents (mm): 0.025
Class -Transported Constituents: Cse Calcihatite
Authigenic Constituents: F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono 1 Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite 1
Dolomite 99
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital ____

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____

Intercrystal VP
Moldic ____
Fracture ____

Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.02
Mean ____ Pore Size (mm) ____
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ____
Dispersed ____
Rock Fragments ____
Pore Lining ____
Pore Bridging ____
Pore Filling ____
Grain Replacement ____
Fracture Filling ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 38
DEPTH 743.00 metres

Plate A

This photomicrograph shows the presence of a finely crystalline dolomite (crystalline carbonate) which has very poor amounts of intercrystalline porosity that is very poorly interconnected. Minor amounts of monocrystalline quartz and micrite are also present. (25x, plane polarized light)

Plate B

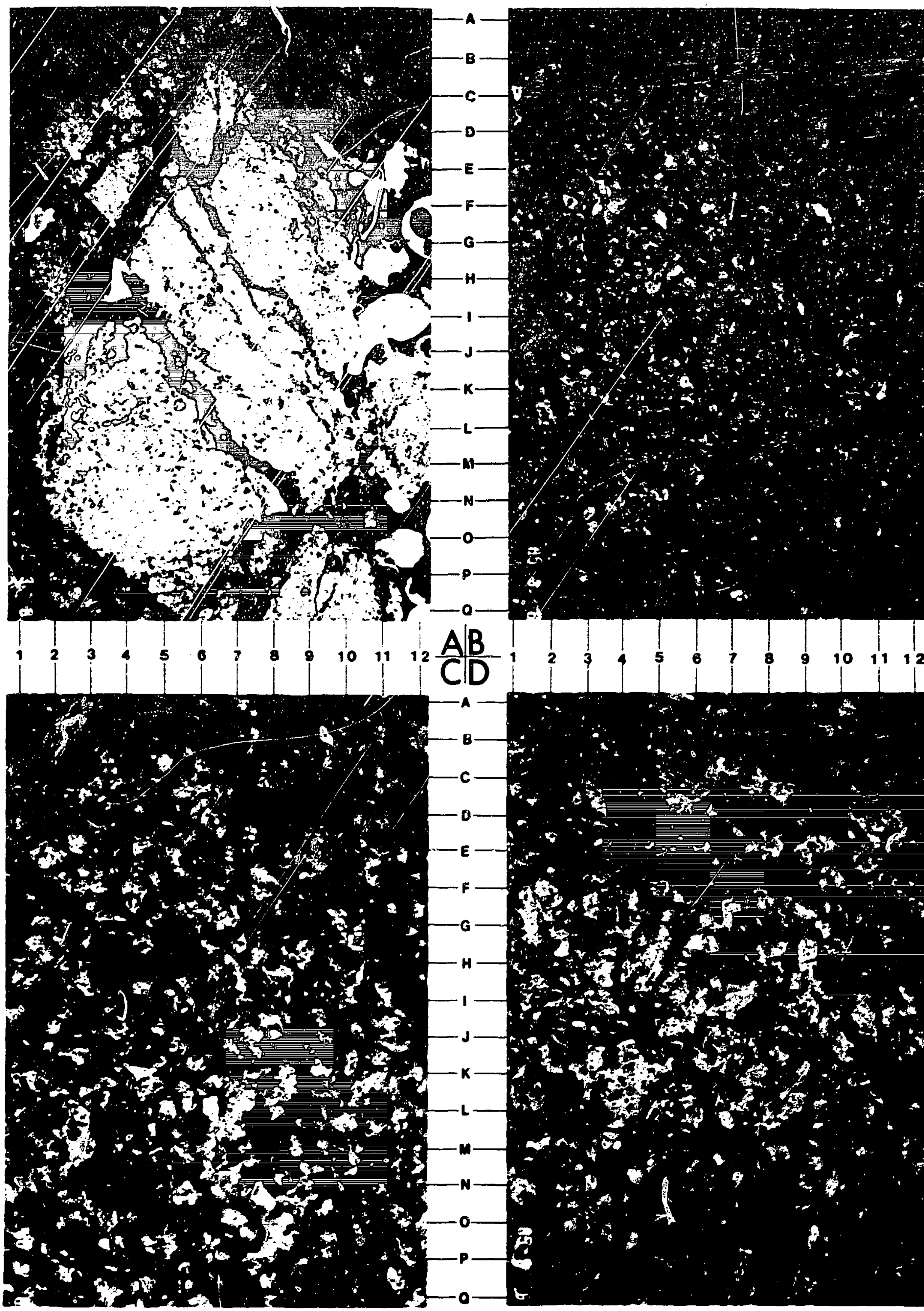
Plate B shows the tightly interlocking anhedral formed crystals of dolomite which make up the majority of the matrix. Note the lack of intercrystalline porosity within this zone. (100x, plane polarized light)

Plate C

This higher magnification view shows the densely cemented, euhedrally formed crystals which form a mosaic that leaves little room for intercrystalline porosity. Note the monocrystalline quartz grain at GH5. (250x, cross polarized light)

Plate D

Plate D shows a higher magnification view of the more porous areas of the sample. Note the euhedral formation of dolomite within these porous areas at O6, P9 and L6.5. (250x, plane polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

X-RAY DIFFRACTION ANALYSIS

Sample Number: 39
Depth: 735.50 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	4	3	3
Feldspar	Nil	Nil	Nil
Calcite	3	Nil	1
Dolomite	70	90	85
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	7	Nil	2
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	16	7	9

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 23.3%

Material Greater Than 5 Microns: 76.7%

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity ______ K Max (mD) ______

Sample Number 39
Sample Depth (m) 735.50
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.03
Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono T Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite ____
Dolomite 100
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____
Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital ____

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____
Intercrystal VP
Moldic ____
Fracture ____
Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.01
Mean ____ Pore Size (mm) ____
Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae ____
Pore Lining ____
Fracture Filling ____
Dispersed ____
Pore Bridging ____
Pore Filling ____
Rock Fragments ____
Grain Replacement ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 39
DEPTH 735.50 metres

Plate A

This low magnification overview shows the highly fragmented nature of this finely crystalline dolomite (crystalline carbonate). Porosity is solely intercrystalline in nature and is present in very poor amounts that are poorly interconnected. (25x, plane polarized light)

Plate B

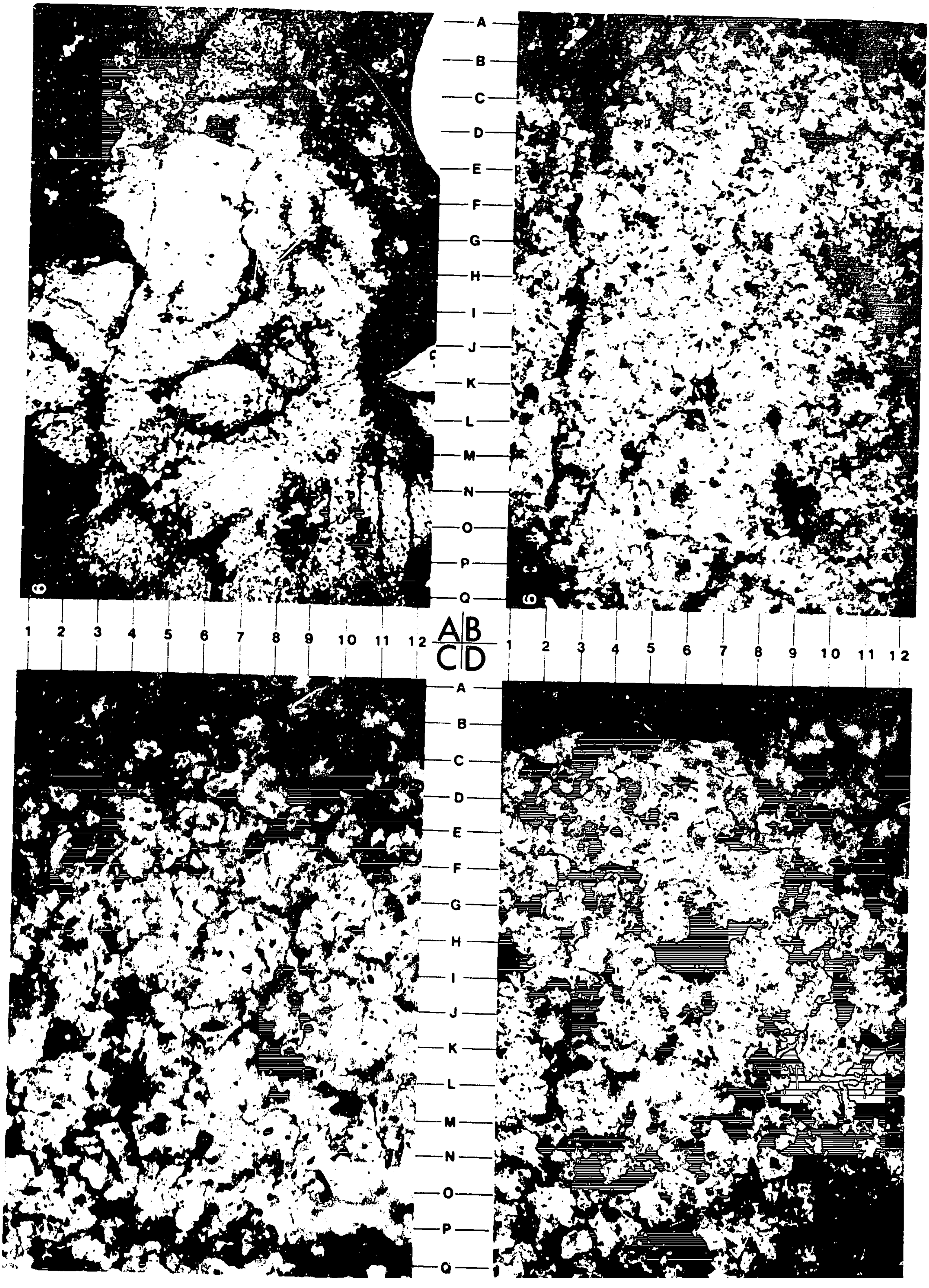
This higher magnification view shows a zone of anhedrally formed tightly cemented crystals which form a matrix that leaves little porosity (H5). Other areas such as at O9 have minor amounts of intercrystalline pores that are very poorly interconnected. (100x, cross polarized light)

Plate C

Plate C shows a high magnification view of densely interlocking, anhedrally formed crystals which have no visible porosity between them. (250x, cross polarized light)

Plate D

Plate D shows a densely cemented area which has minor amounts of isolated intercrystalline porosity at H6.5 and NO9.5. This porosity is obviously poorly interconnected but due to its impregnation by blue dyed epoxy must have some interconnectedness. (250x, plane polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D

SAMPLE NUMBER 39 (SEM)
DEPTH 735.50 metres

Plate A

This low magnification overview is of a finely crystalline dolomite which has very poor intercrystalline porosity that is poorly interconnected.

Plate B

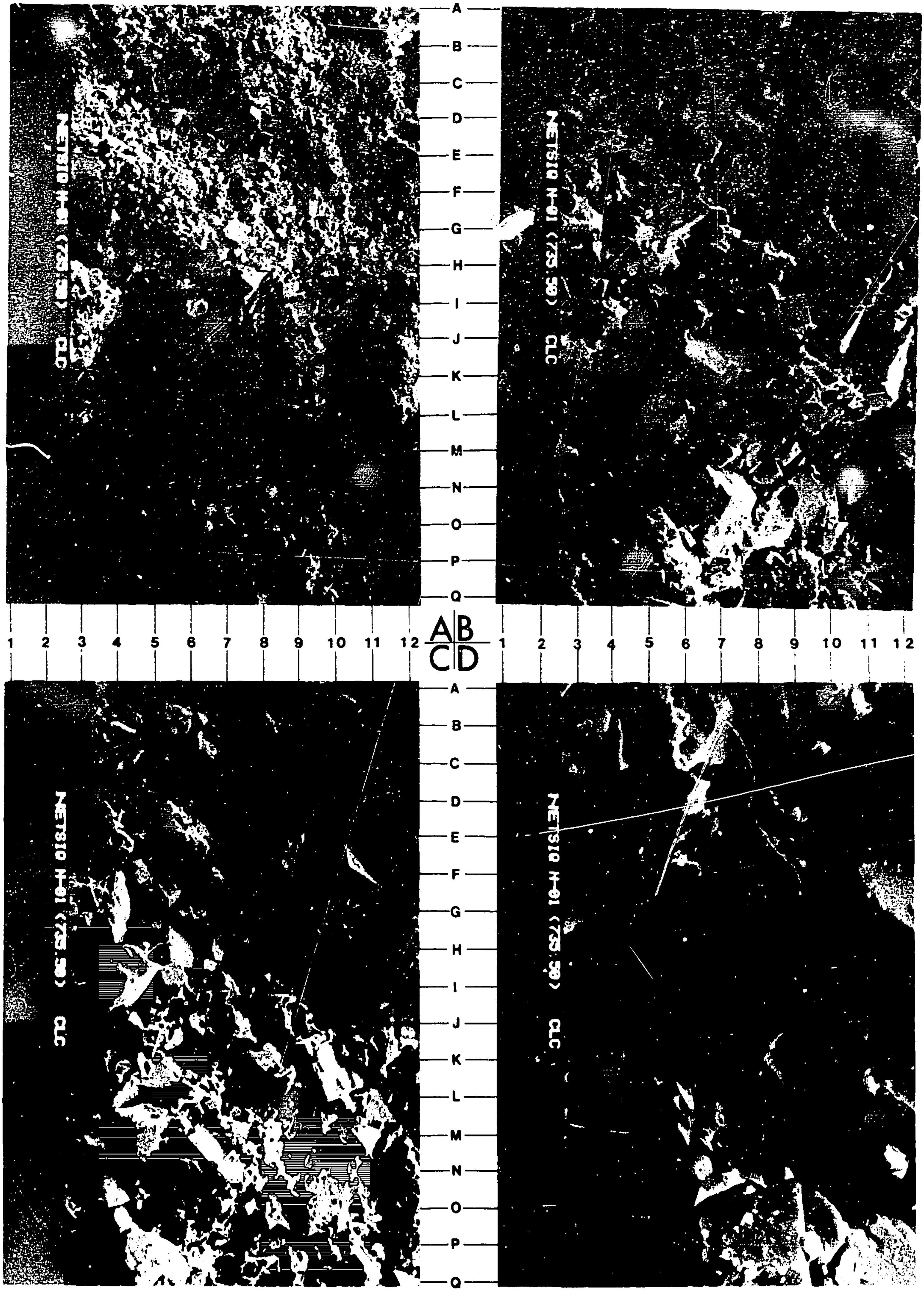
This higher magnification view shows the interlocking nature of these subhedral to euhedrally formed dolomite crystals (K6, KL9, M4). Note the moderate amounts of intercrystalline porosity that is very poorly interconnected.

Plate C

This view of the sample shows the bimodal distribution of dolomite crystals with larger crystals (G10) forming a framework which is filled by a finer crystalline matrix of dolomite, as at FG8, L8 and MN8. This finer pore filling matrix reduces interconnectedness of the intercrystalline pores.

Plate D

This high magnification photomicrograph shows the development of intercrystalline porosity within the euhedrally formed dolomite crystals (K8, M11) with a finer dolomite matrix (H8, O4) which reduces the intercrystalline porosity and the effectiveness of this porosity.


A
B
C
D
NETS10 H-01 (735.30) CLC
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity K Max (mD)

Sample Number 40
Sample Depth (m) 730.50
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm)
Class -Transported Constituents
Depositional Texture - Crystalline Carbonate, Dunham (1962)

Authigenic Constituents (mm) 0.030
Authigenic Constituents F Crystalline

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material
Bitumen T

Orthochemical Constituents

Calcite: Sparry Micrite 2
Dolomite 97
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital 1

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal P
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.017
Mean Pore Size (mm)
Interconnectedness P

CLAY MINERAL LOCATION

Laminae
Dispersed
Rock Fragments
Pore Lining
Pore Bridging
Pore Filling
Grain Replacement
Fracture Filling

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 40
DEPTH 730.50 metres

Plate A

This overview shows the highly fragmented and fractured nature of the sample created by the recovery method. The sample is a finely crystalline dolomite (crystalline carbonate) which has minor amounts of calcite and poor amounts of intercrystalline porosity that is poorly interconnected. (25x, plane polarized light)

Plate B

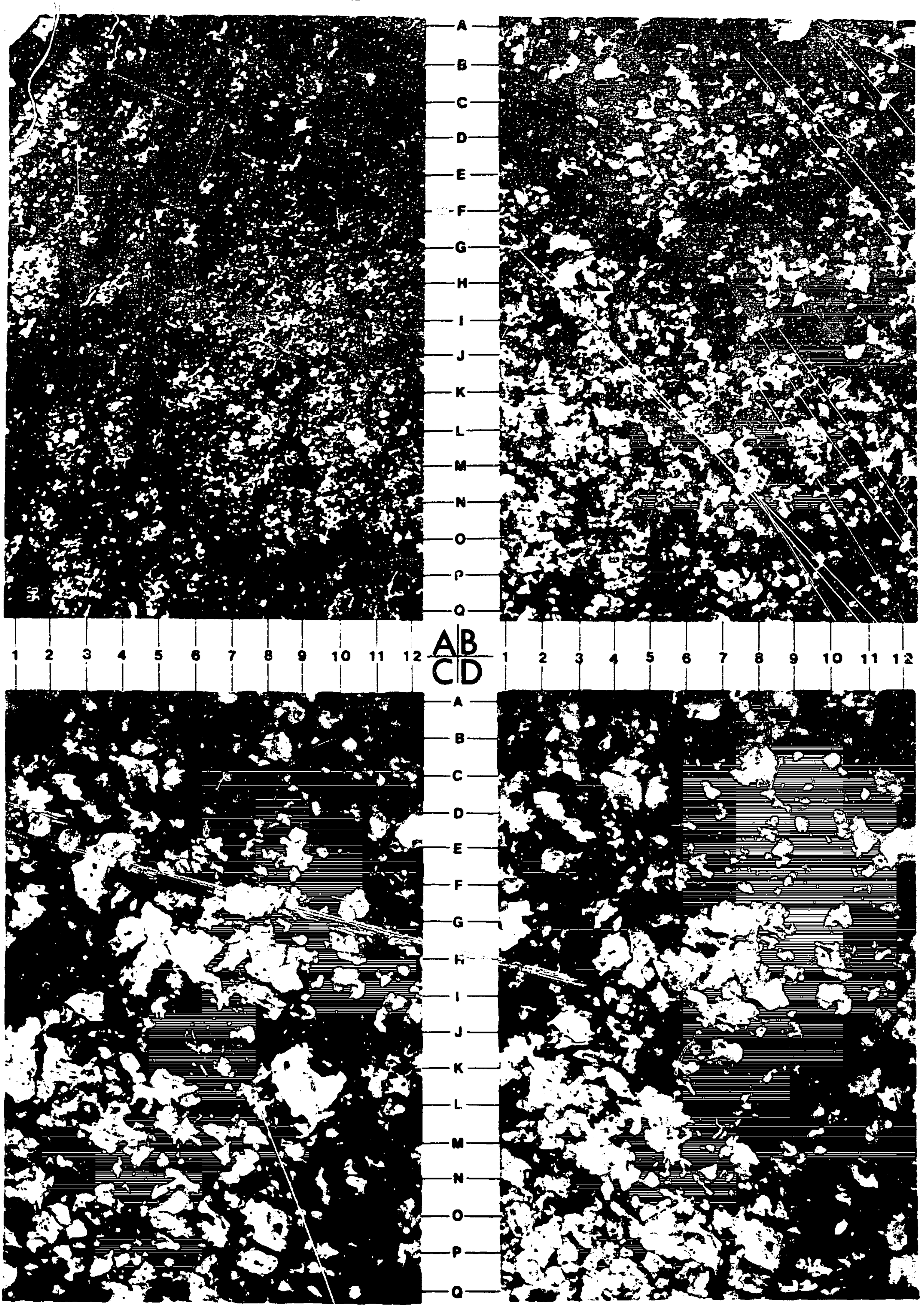
This higher magnification view shows the intercrystalline nature of the porosity as defined by blue dyed epoxy (G4.5, L4.5, M8.5). This porosity is generally poorly interconnected. Detrital clay present in minor amounts may have been introduced through the drilling fluids during the recovery of the sample. (100x, plane polarized light)

Plate C

This view shows the subhedral nature of the dolomite crystals which are loosely cemented creating intercrystalline porosity that is poorly interconnected (D6, CD11.5). (250x, cross polarized light)

Plate D

This high magnification photomicrograph demonstrates intercrystalline porosity present within the subhedral to euhedral shaped dolomite crystals (DE6.5). Also present is anhedrally formed dolomite crystals at P2 which are tightly cemented leaving little intercrystalline porosity. (250x, plane polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation:
Porosity: K Max (mD)
Sample Number: 41
Sample Depth (m): 728.50
Rock Name: F-Med Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm):
Class -Transported Constituents:
Authigenic Constituents (mm): 0.06
Authigenic Constituents: F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono ___ Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___
Mica
Carbonaceous Material
Bitumen: T

Orthochemical Constituents

Calcite: Sparry ___ Micrite 1
Dolomite 99
Gypsum
Anhydrite
Halite
Quartz
Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug
Intercrystal: VP
Moldic
Fracture
Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.04
Mean ___ Pore Size (mm) ___
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ___ Dispersed ___ Rock Fragments ___
Pore Lining ___ Pore Bridging ___ Pore Filling ___ Grain Replacement ___
Fracture Filling ___

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 41
DEPTH 728.50 metres

Plate A

Plate A shows a fine to medium crystalline dolomite (crystalline carbonate) which has minor amounts of calcite and traces of bitumen. Porosity is solely intercrystalline and is present in very poor amounts that is very poorly interconnected. (25x, plane polarized light)

Plate B

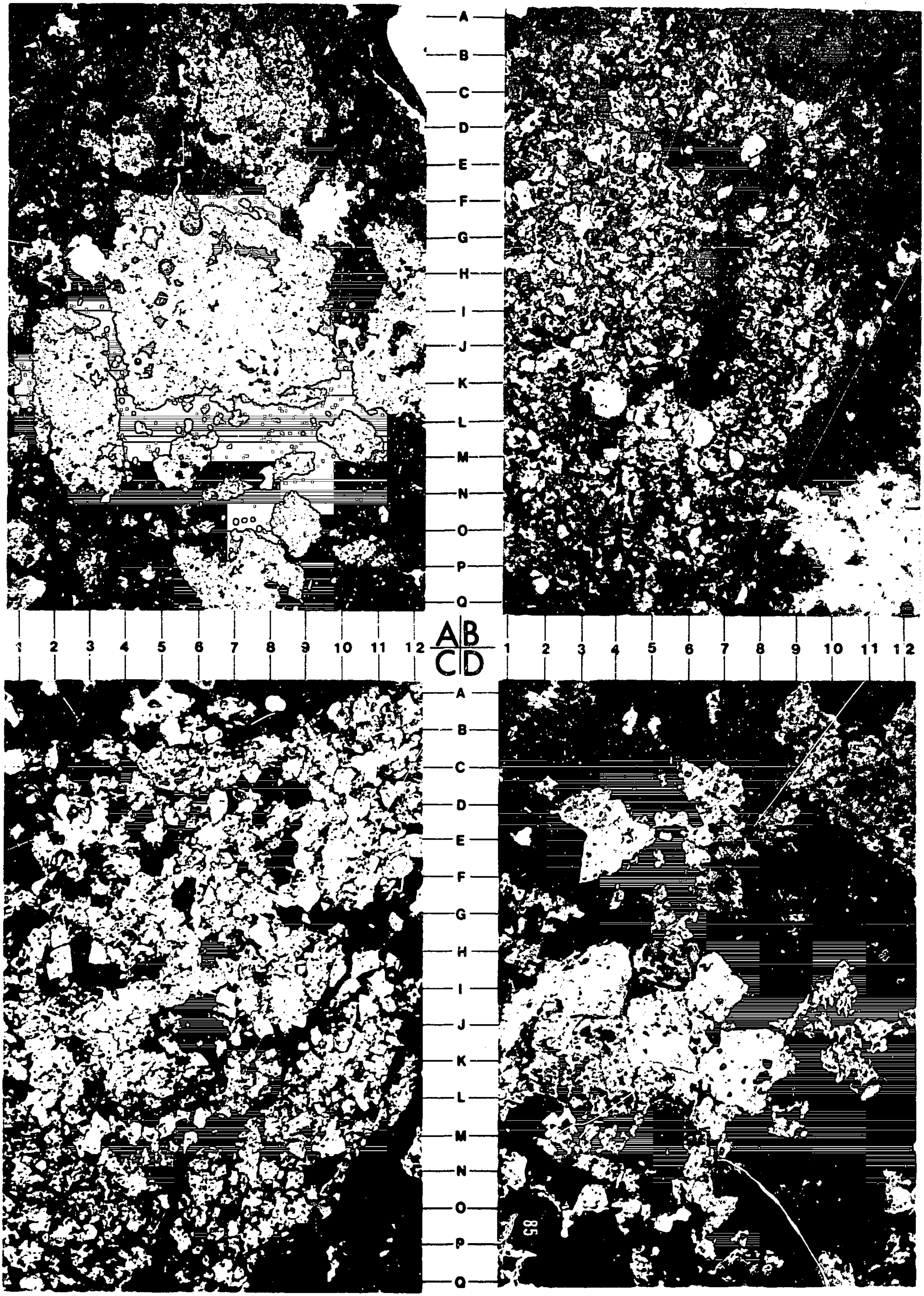
This higher magnification view of a fragment shows the presence of good intercrystalline porosity in some areas as at I7 and E7, but the majority is isolated to very poorly interconnected as at E3. (100x, plane polarized light)

Plate C

This higher magnification view shows the anhedral interlocking nature of the majority of the matrix (C11, O2) and the formation of euhedral dolomite within the more porous areas as at C8, H3 and J6. (100x, plane polarized light)

Plate D

This high magnification photomicrograph shows the tightly interlocking nature of the majority of the matrix (L4) This anhedral formation of dolomite forms a tightly interlocking matrix which leaves little intercrystalline porosity such as at FG3.5. (250x, cross polarized light)



A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
85

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation ____
Porosity ____ K Max (mD) ____

Sample Number 42
Sample Depth (m) 723.50
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ____
Class -Transported Constituents ____
Authigenic Constituents (mm) 0.02
Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite ____
Dolomite 100
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital ____

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____

Intercrystal ____
Moldic ____
Fracture ____

Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.02
Mean ____ Pore Size (mm) ____
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ____
Pore Lining ____
Fracture Filling ____
Dispersed ____
Pore Bridging ____
Pore Filling ____
Rock Fragments ____
Grain Replacement ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 42
DEPTH 723.50 metres

Plate A

This photomicrograph shows a finely crystalline dolomite (crystalline carbonate) which has minor amounts of calcite and trace amounts of detrital clays. Porosity is solely intercrystalline and is present in very poor to poor amounts that are very poor to poorly interconnected. (25x, plane polarized light)

Plate B

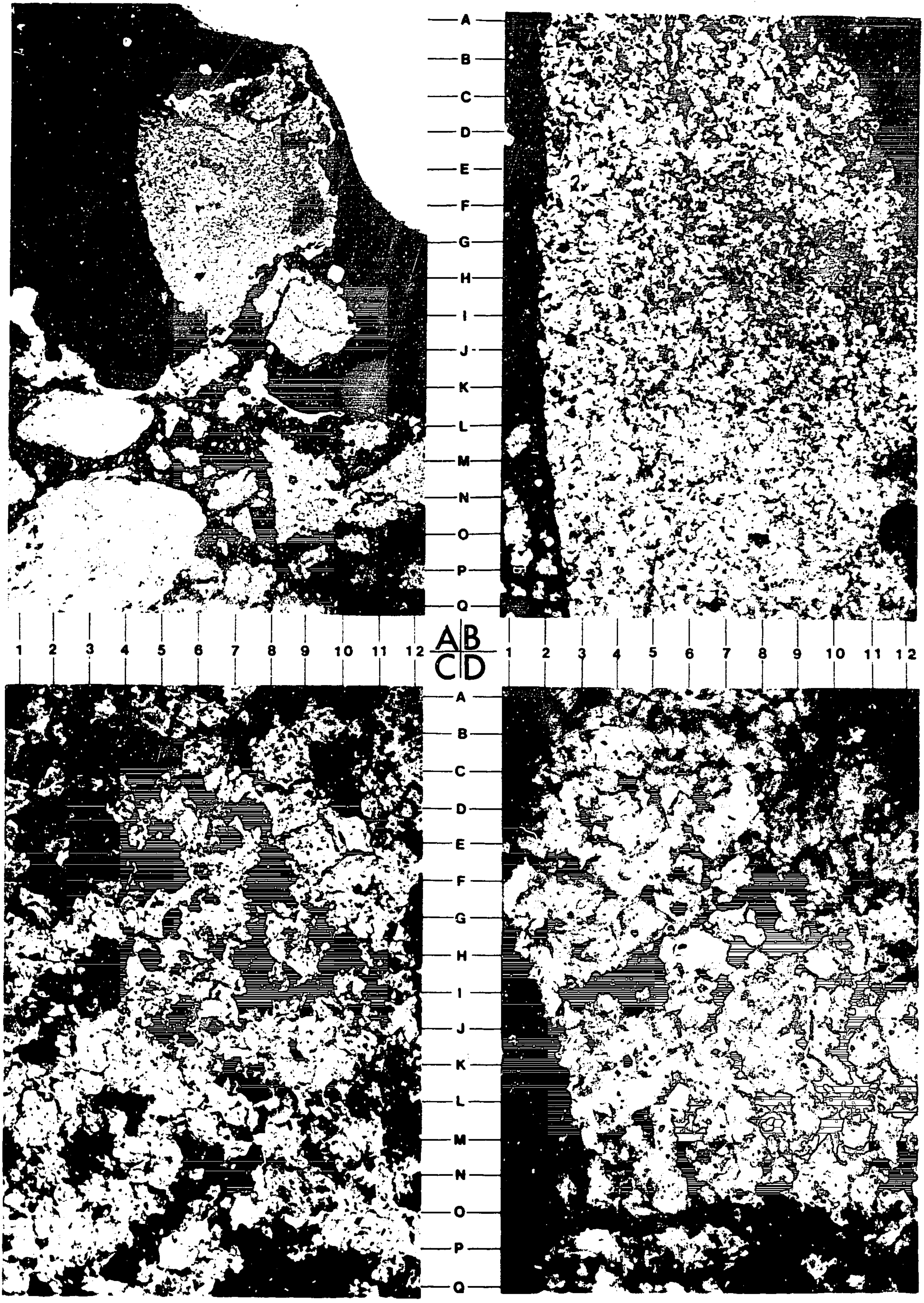
This higher magnification view shows the densely interlocking, finely crystalline, anhedrally formed dolomite crystals which leave little intercrystalline porosity (IJ2.5); pores defined by blue dyed epoxy. (100x, cross polarized light)

Plate C

This high magnification view demonstrates the anhedral form of the tightly interlocking dolomite crystals which form a mosaic that leaves no visible porosity. (250x, cross polarized light)

Plate D

Plate D shows the isolated nature of the intercrystalline porosity which is presumably interconnected in the third dimension due to the penetration of blue dyed epoxy. Note the tightly cemented nature of the dolomite crystals at L9. (250x, plane polarized light)



A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12

X-RAY DIFFRACTION ANALYSIS

Sample Number: 44
Depth: 713.00 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	5	2	3
Feldspar	Nil	Nil	Nil
Calcite	2	Nil	Trace
Dolomite	73	96	92
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	Nil	Nil	Nil
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	20	2	5

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 15.1%

Material Greater Than 5 Microns: 84.9%

PETRUGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity K Max (mD)

Sample Number 44
Sample Depth (m) 713.00
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm)
Class -Transported Constituents
Depositional Texture - Crystalline Carbonate, Dunham (1962)

Authigenic Constituents (mm) 0.04
Authigenic Constituents F Crystalline

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material
Bitumen T

Orthochemical Constituents

Calcite: Sparry Micrite T
Dolomite 100
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal VP-M
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.025
Mean Pore Size (mm)
Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae
Pore Lining
Fracture Filling
Dispersed
Pore Bridging
Pore Filling
Rock Fragments
Grain Replacement

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 44
DEPTH 713.00 metres

Plate A

This low magnification overview shows the highly fragmented nature of the sample which is a finely crystalline dolomite (crystalline carbonate) that has traces of calcite and bitumen. Porosity is solely intercrystalline present in very poor to moderate amounts which are very poorly to poorly interconnected. (25x, plane polarized light)

Plate B

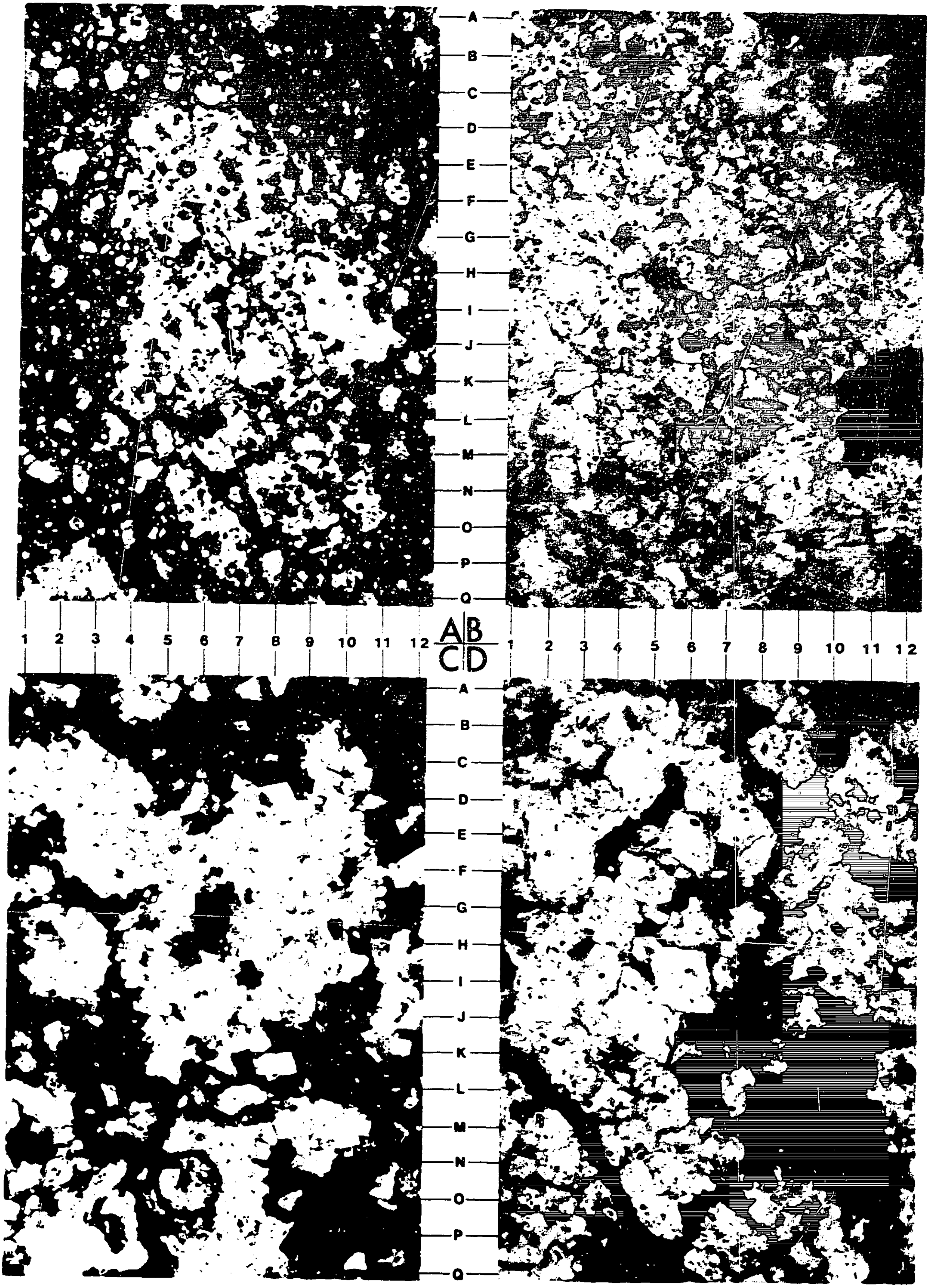
This higher magnification view shows a tightly cemented mosaic of anhedrally formed dolomite crystals leaving little intercrystalline porosity within the matrix material. Note bituman in pore space at KL10.2. (100x, plane polarized light)

Plate C

This view of the sample shows a moderately porous area which has moderate interconnectedness between pores. This porosity may have been created by artificial means through the recovery and preparation methods. (100x, cross polarized light)

Plate D

This high magnification view shows the presence of anhedral dolomite forming the dolomite matrix at F11 and euhedral dolomite rhombs forming within the intercrystalline pores at I6 and L11. Note the formation of poorly interconnected intercrystalline porosity at M10. (250x, plane polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D

SAMPLE NUMBER 44 (SEM)
DEPTH 713.00 metres

Plate A

This low magnification photomicrograph shows a finely crystalline dolomite which shows moderate amounts of intercrystalline and vuggy porosity (FG6, K11, P4).

Plate B

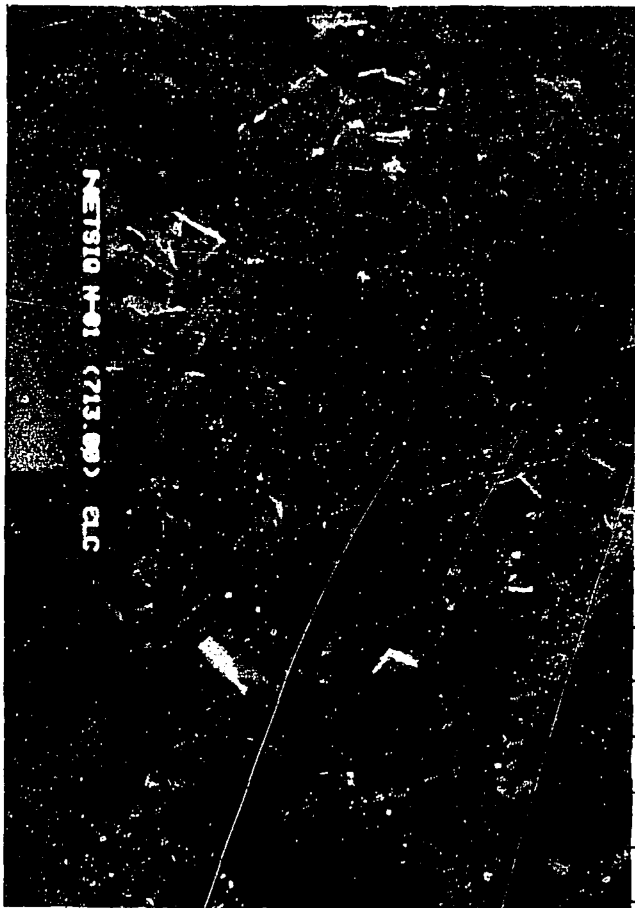
This higher magnification view shows the anhedrally formed, tightly interconnecting majority of the matrix (E8) versus the euhedrally formed pore filling dolomite crystals which reduce overall porosity and its interconnectedness (M8).

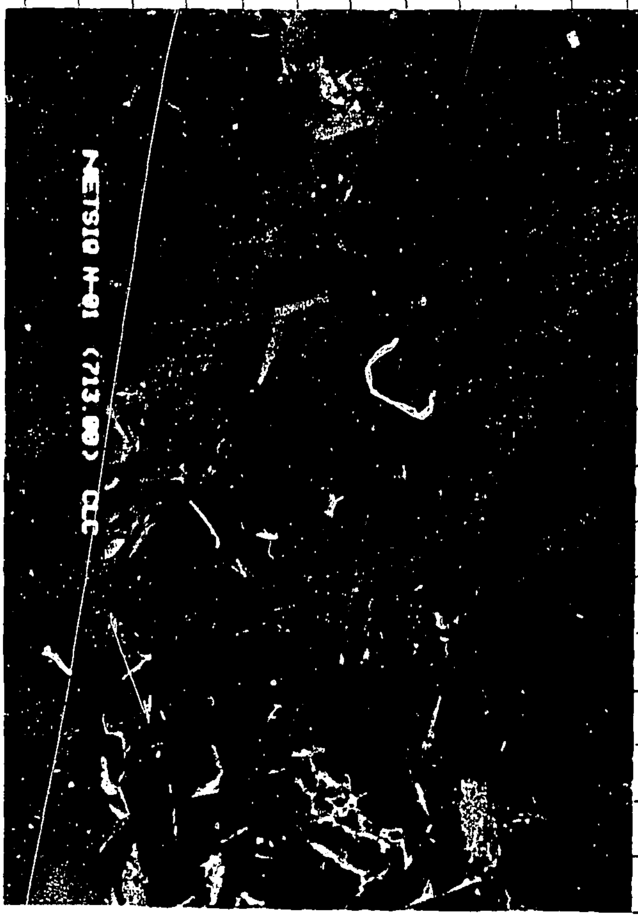
Plate C

This high magnification view shows the intercrystalline porosity development within euhedrally formed dolomite crytals (JK6, M7).

Plate D

This higher magnification view shows the euhedrally formed, vug lining dolomite crystals (B5, E10, H8, J7). These pore filling dolomite rhombs reduce pore space and its interconnectedness.





PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Neisiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation:
Porosity: K Max (mD)

Sample Number: 45
Sample Depth (m): 707.50
Rock Name: Med Pellet Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm):
Class -Transported Constituents:
Authigenic Constituents (mm): 0.15
Authigenic Constituents: Med Crystalline
Depositional Texture - Packstone, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils 10
Intraclasts
Ooids
Pisolites
Peloids 25

Terrigenous Constituents

Quartz: Mono ___ Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry ___ Micrite ___
Dolomite 65
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal P
Moldic VP
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.008
Mean ___ Pore Size (mm) ___
Interconnectedness P-M

CLAY MINERAL LOCATION

Laminae
Dispersed
Rock Fragments
Pore Lining
Pore Bridging
Pore Filling
Grain Replacement
Fracture Filling

NOTES:

All percentages based on visual estimations.

SAMPLE NUMBER 45
DEPTH 707.50 metres

Plate A

This low magnification overview shows the presence of a medium pellet dolomite (packstone) which has laminae of pellets and finer dolomite matrix. (25x, cross polarized light)

Plate B

This higher magnification view of the sample shows the laminated nature of the packstone with coarser areas with moldic porosity at A3 through P3 and finer material in lamination from A9 through P10. Overall porosity is poor with intercrystalline porosity present in poor amounts and moldic porosity created from the dissolution of peloids and fossil fragments present in very poor amounts (E4.5, O3.2, O2). (250x, cross polarized light)

Plate C

This higher magnification view shows the development of good intercrystalline porosity which is poor to moderately interconnected within this photomicrograph. Note peloid with bladed dolomite crystal rim at K5. (250x, cross polarized light)

Plate D

This higher magnification view shows good development of intercrystalline porosity which is moderately interconnected and is defined by blue dyed epoxy. Note moldic pore at E3 and L1. (250x, cross polarized light)

SAMPLE NUMBER 44
DEPTH 713.00 metres

Plate A

This low magnification overview shows the highly fragmented nature of the sample which is a finely crystalline dolomite (crystalline carbonate) that has traces of calcite and bitumen. Porosity is solely intercrystalline present in very poor to moderate amounts which are very poorly to poorly interconnected. (25x, plane polarized light)

Plate B

This higher magnification view shows a tightly cemented mosaic of anhedrally formed dolomite crystals leaving little intercrystalline porosity within the matrix material. Note bituman in pore space at KL10.2. (100x, plane polarized light)

Plate C

This view of the sample shows a moderately porous area which has moderate interconnectedness between pores. This porosity may have been created by artificial means through the recovery and preparation methods. (100x, cross polarized light)

Plate D

This high magnification view shows the presence of anhedral dolomite forming the dolomite matrix at F11 and euhedral dolomite rhombs forming within the intercrystalline pores at I6 and L11. Note the formation of poorly interconnected intercrystalline porosity at M10. (250x, plane polarized light)

PETROGRAPHIC DATA SHEET

Well Name	ICG Sogepet et al Netsiq N-01	Sample Number	46
Location	59° 50' 48.00" NL, 87° 30' 59.50" WL	Sample Depth (m)	696.50
Formation		Rock Name	VF Dolomite
Porosity	K Max (mD)	Classification	Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______ Authigenic Constituents (mm) 0.01

Class -Transported Constituents ______ Authigenic Constituents VF Crystalline

Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ______
Intraclasts ______
Ooids ______
Pisolites ______
Peloids ______

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica ______
Carbonaceous Material ______

Orthochemical Constituents

Calcite: Sparry ______ Micrite T
Dolomite 100
Gypsum ______
Anhydrite ______
Halite ______
Quartz ______

Aragonite ______
Fe Dolomite ______

Clays

Kaolinite ______
Illite ______
Chlorite ______
Detrital ______

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal T
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean IC Pore Size (mm) 0.006 Mean ______ Pore Size (mm) ______ Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ______
Pore Lining ______
Fracture Filling ______
Dispersed ______
Pore Bridging ______
Pore Filling ______
Rock Fragments ______
Grain Replacement ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 46
DEPTH 696.50 metres

Plate A

This low magnification overview shows the highly fragmented nature of the sample and artificially induced by the recovery of the sample. The sample is a very finely crystalline dolomite (crystalline carbonate) which is very clean with only traces of calcite present. Porosity is present in only trace amounts. (25x, plane polarized light)

Plate B

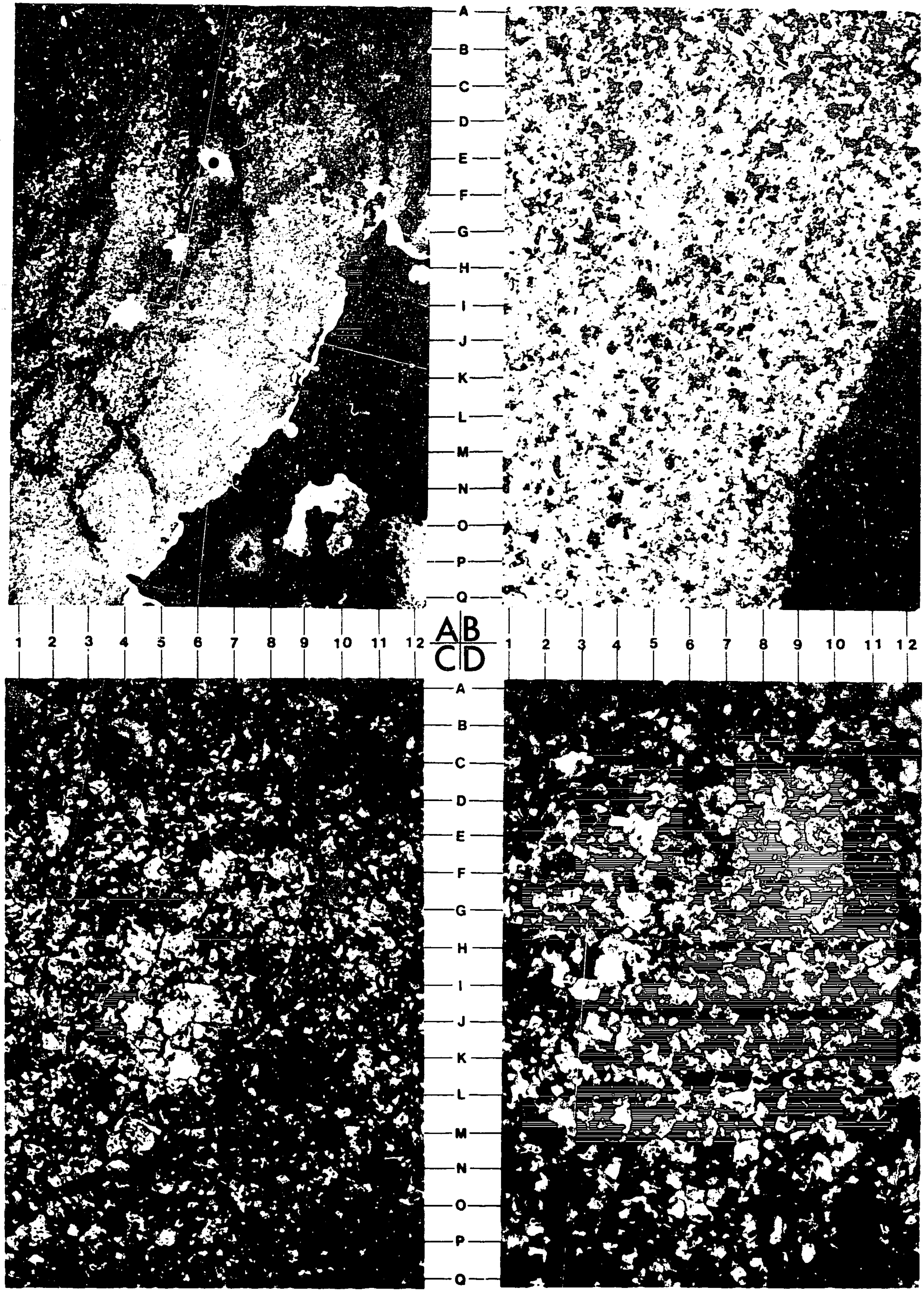
This higher magnification view shows the tightly interlocking, very finely crystalline nature of the sample with only trace amounts of intercrystalline porosity present at B11. Porosity is solely intercrystalline in nature and present in trace amounts which are very poorly interconnected. (100x, cross polarized light)

Plate C

This high magnification view shows the typical, anhedrally formed interlocking nature of the dolomite crystals which form tightly interlocking mosaics that leave little porosity. (250x, plane polarized light)

Plate D

This high magnification view shows a zone of good porosity but it is felt that it is partially induced by the recovery and preparation of the sample as it is only found around the edges of the fragments. (250x, plane polarized light)



A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity K Max (mD)

Sample Number 48
Sample Depth (m) 681.00
Rock Name VF Micrite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm)
Class -Transported Constituents
Depositional Texture - Mudstone, Dunham (1962)

Authigenic Constituents (mm) 0.035
Authigenic Constituents F Crystalline

COMPOSITION

Allochemical Constituents

Fossils T
Intraclasts
Ooids
Pisolites
Peloids T

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry 6 Micrite 93
Dolomite 1
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean Pore Size (mm)   Mean Pore Size (mm)   Interconnectedness

CLAY MINERAL LOCATION

Laminae
Pore Lining
Fracture Filling
Pore Bridging
Dispersed
Pore Filling
Rock Fragments
Grain Replacement

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 48
DEPTH 681.00 metres

Plate A

Plate A shows a low magnification overview of a very finely crystalline micrite (mudstone) which has minor amounts of euhedral dolomite crystals and traces of fossils and peloids. (25x, plane polarized light)

Plate B

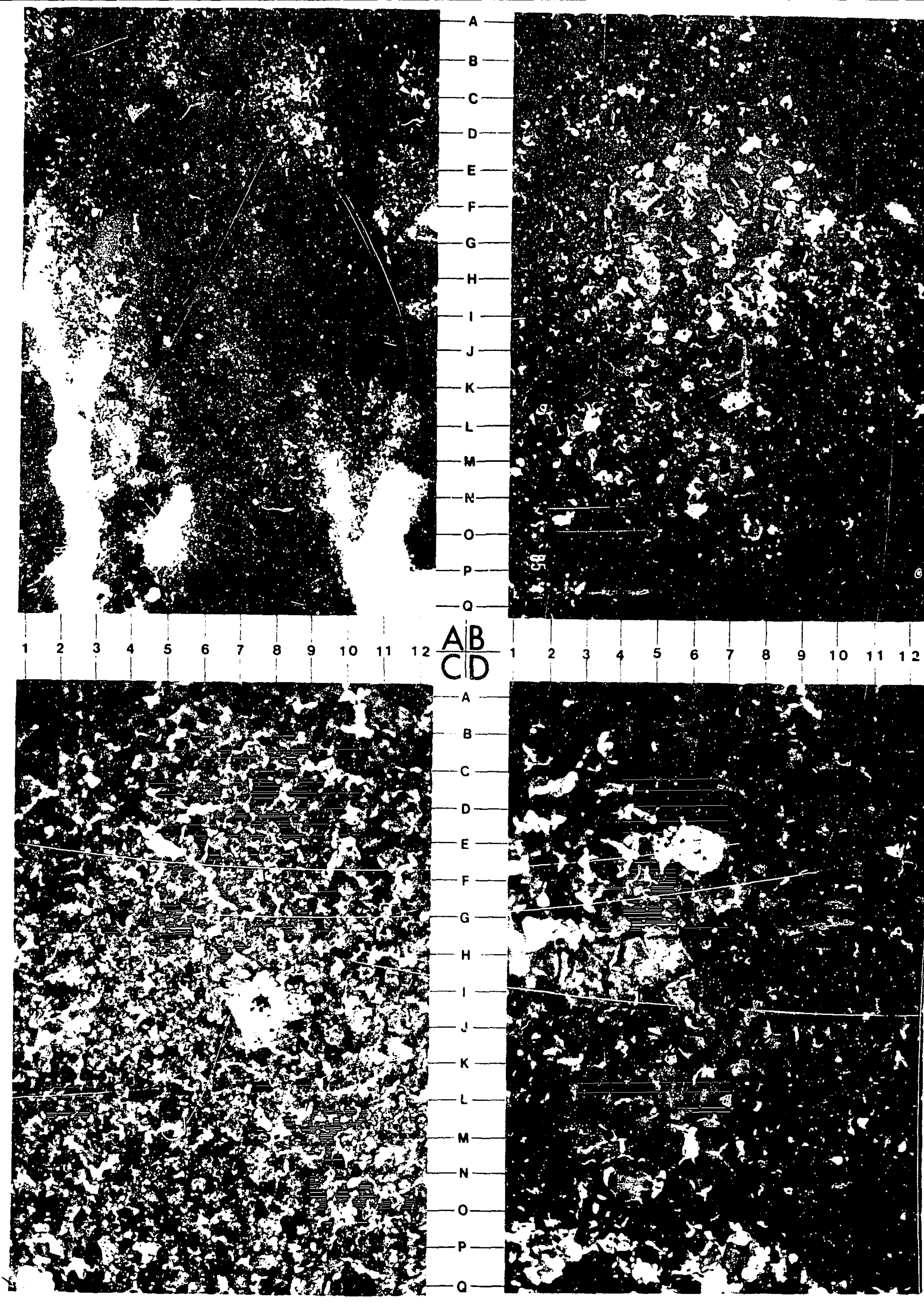
This higher magnification view shows the presence of sparry calcite (F7, M7) which is present in moderate amounts as a fossil replacing or neomorphically forming, matrix replacing constituent. Note the euhedrally formed dolomite crystals which are unevenly dispersed throughout (KL7, IJ5.5). (100x, plane polarized light)

Plate C

This higher magnification photomicrograph shows the presence of euhedrally formed dolomite within the fine microspar to micrite matrix (IJ7.5). This sample contains no visible porosity as the tightly interlocking matrix forms a mosaic excluding all pore space. (250x, cross polarized light)

Plate D

This high magnification view shows the neomorphically formed sparry calcite at H4 through M5. Note the tightly interlocking mosaic formed by this sparry calcite. Note euhedral dolomite rhomb at E6. (250x, cross polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
AB
CD
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

X-RAY DIFFRACTION ANALYSIS

Sample Number: 49
Depth: 672.00 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	Trace	Nil	Trace
Feldspar	Nil	Nil	Nil
Calcite	80	66	70
Dolomite	7	26	21
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	Nil	Nil	Nil
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	13	8	9

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 25.7%

Material Greater Than 5 Microns: 74.3%

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation ______
Porosity ______ K Max (mD) ______

Sample Number 49
Sample Depth (m) 672.00
Rock Name Dolomitized Microsparite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.04
Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ______
Intraclasts ______
Ooids ______
Pisolites ______
Peloids ______

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica ______
Carbonaceous Material ______

Orthochemical Constituents

Calcite: Sparry 90 Micrite ______
Dolomite 10
Gypsum ______
Anhydrite ______
Halite ______
Quartz ______

Aragonite ______
Fe Dolomite ______

Clays

Kaolinite ______
Illite ______
Chlorite ______
Detrital ______

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal ______
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean ______ Pore Size (mm) ______
Mean ______ Pore Size (mm) ______
Interconnectedness ______

CLAY MINERAL LOCATION

Laminae ______
Dispersed ______
Rock Fragments ______
Pore Lining ______
Pore Bridging ______
Pore Filling ______
Grain Replacement ______
Fracture Filling ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 49
DEPTH 672.00 metres

Plate A

This sample is highly fragmented as can be seen from this low magnification overview. This overview is of a dolomitized microsparite which has no visible allochems. Porosity is not visible underneath a light microscope. (25x, plane polarized light)

Plate B

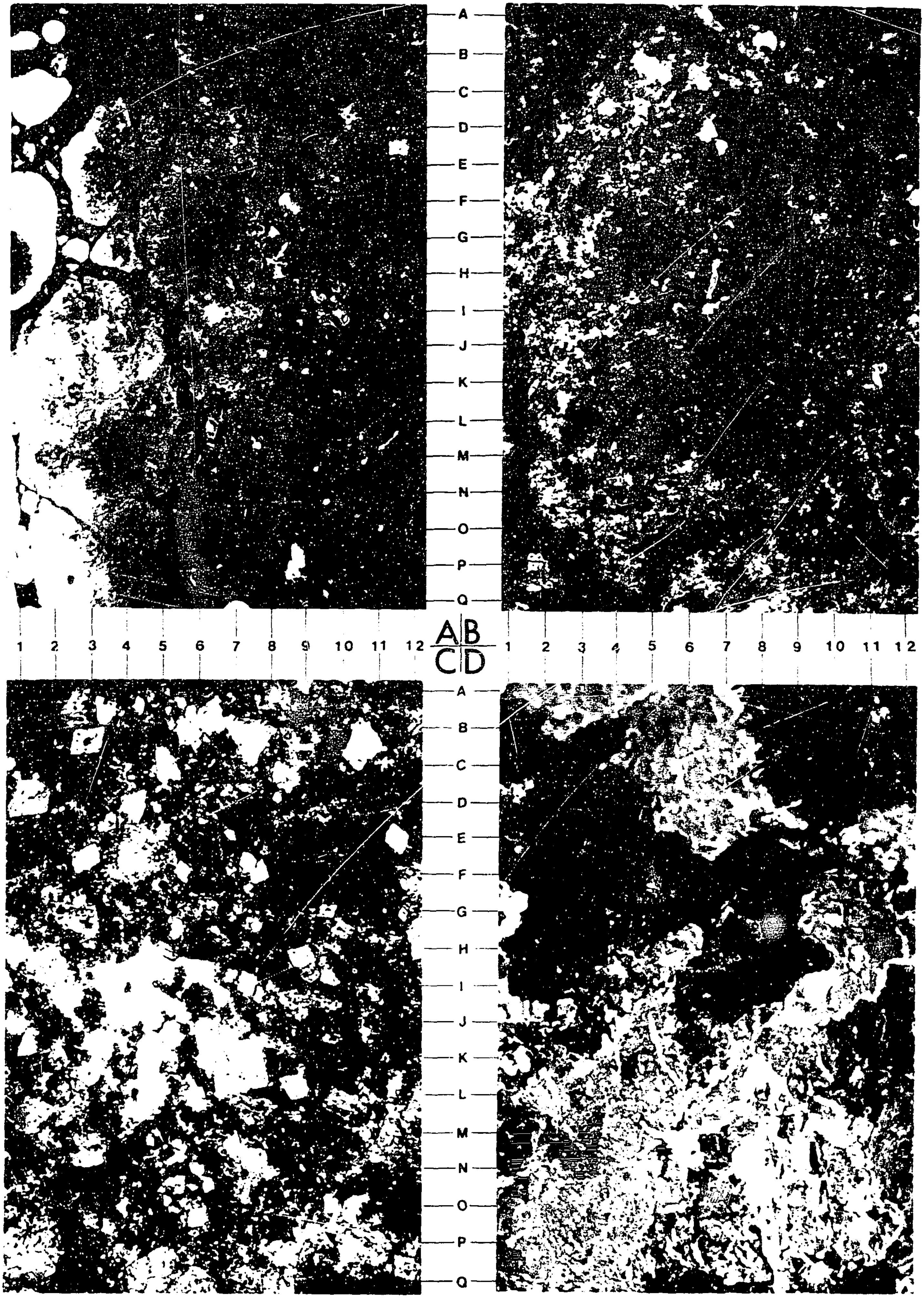
This high magnification view shows the microsparite matrix (K5, G9) with larger sparry calcite forming neomorphically at I7 and G4. (100x, plane polarized light)

Plate C

This photomicrograph shows the well developed euhedral dolomite crystals which are dispersed throughout the sample (B3, D1.5, H9, K7). (100x, plane polarized light)

Plate D

This high magnification photomicrograph of an area of sparry calcite shows the tightly interlocking mosaic formed by this neomorphically formed calcite. No visible intercrystalline porosity is present (250x, cross polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

SAMPLE NUMBER 49 (SEM)
DEPTH 672.00 metres

Plate A

This low magnification overview of the sample shows a very finely crystalline microsparite to micrite which contains minor amounts of neomorphic sparry replacement and moderately dispersed euhedrally formed dolomite crystals. No porosity was visible with the use of a light microscope.

Plate B

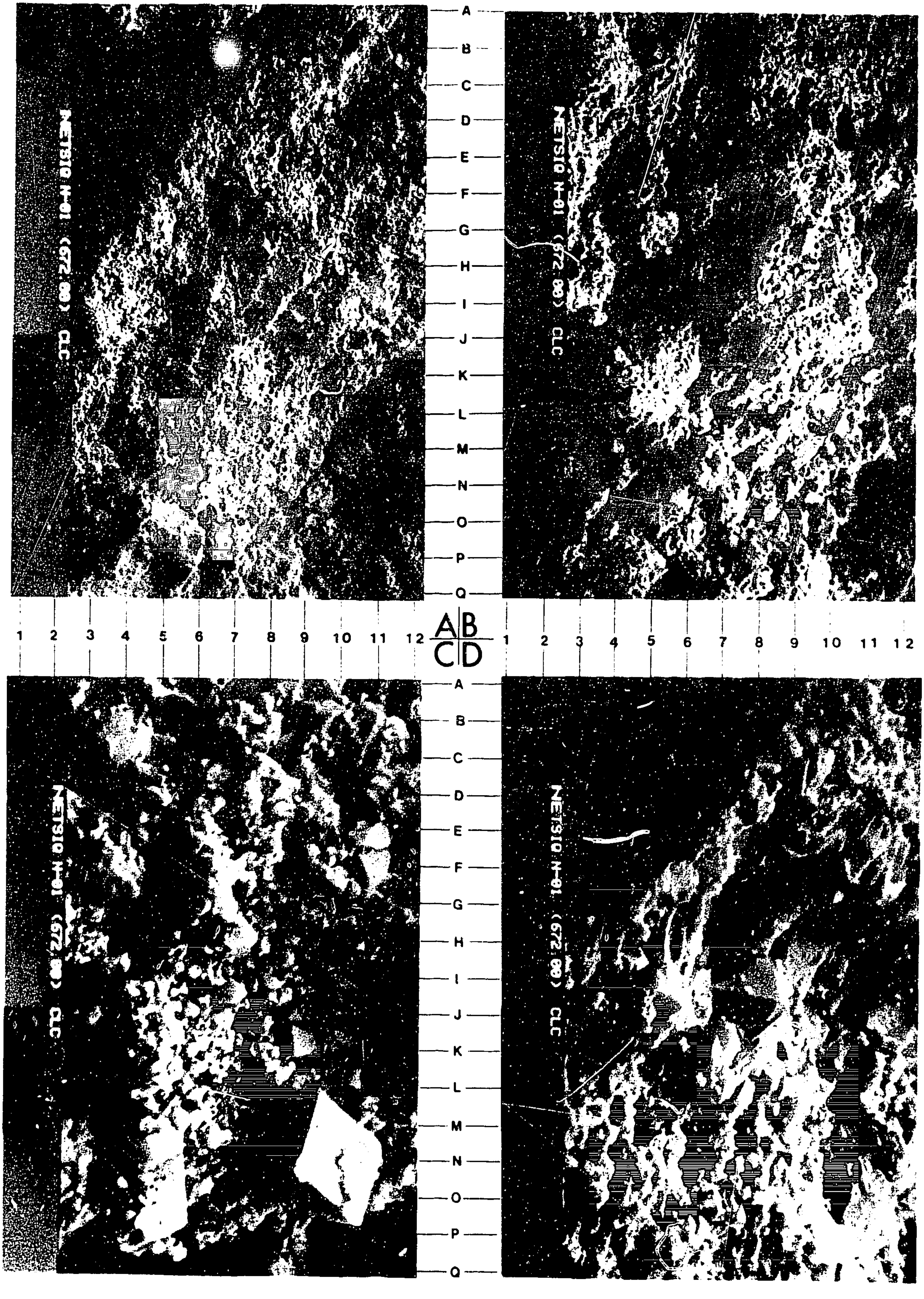
This higher magnification view shows the very finely crystalline nature of the sample (J9, K5). Minor amounts of porosity (J3.2) may have been created by the recovery method employed.

Plate C

This view of the sample shows the very finely crystalline nature of the matrix (K6) with the euhedrally formed dolomite crystals well dispersed throughout (N10). Minor amounts of sparry calcite tightly cemented are present at B7 and B18.

Plate D

This high magnification photomicrograph shows neomorphically formed sparry calcite which forms as a fossil replacement or micrite replacing cement (D5, I8).


NETSIO N-01 (672.80) CLC
NETSIO N-01 (672.80) CLC
NETSIO N-01 (672.80) CLC
NETSIO N-01 (672.80) CLC
A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation ____
Porosity ____ K Max (mD) ____

Sample Number 51
Sample Depth (m) 663.50
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ____
Class -Transported Constituents ____
Authigenic Constituents (mm) 0.04
Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite ____
Dolomite 100
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____
Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital ____

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____
Intercrystal P
Moldic ____
Fracture ____
Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.25
Mean ____ Pore Size (mm) ____
Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae ____
Dispersed ____
Rock Fragments ____
Pore Lining ____
Pore Bridging ____
Pore Filling ____
Grain Replacement ____
Fracture Filling ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 51
DEPTH 663.50 metres

Plate A

This low magnification photomicrograph is of a clean, finely crystalline dolomite (crystalline carbonate) which has poor amounts of intercrystalline porosity that is very poorly to poorly interconnected and located within localized zones. (25x, plane polarized light)

Plate B

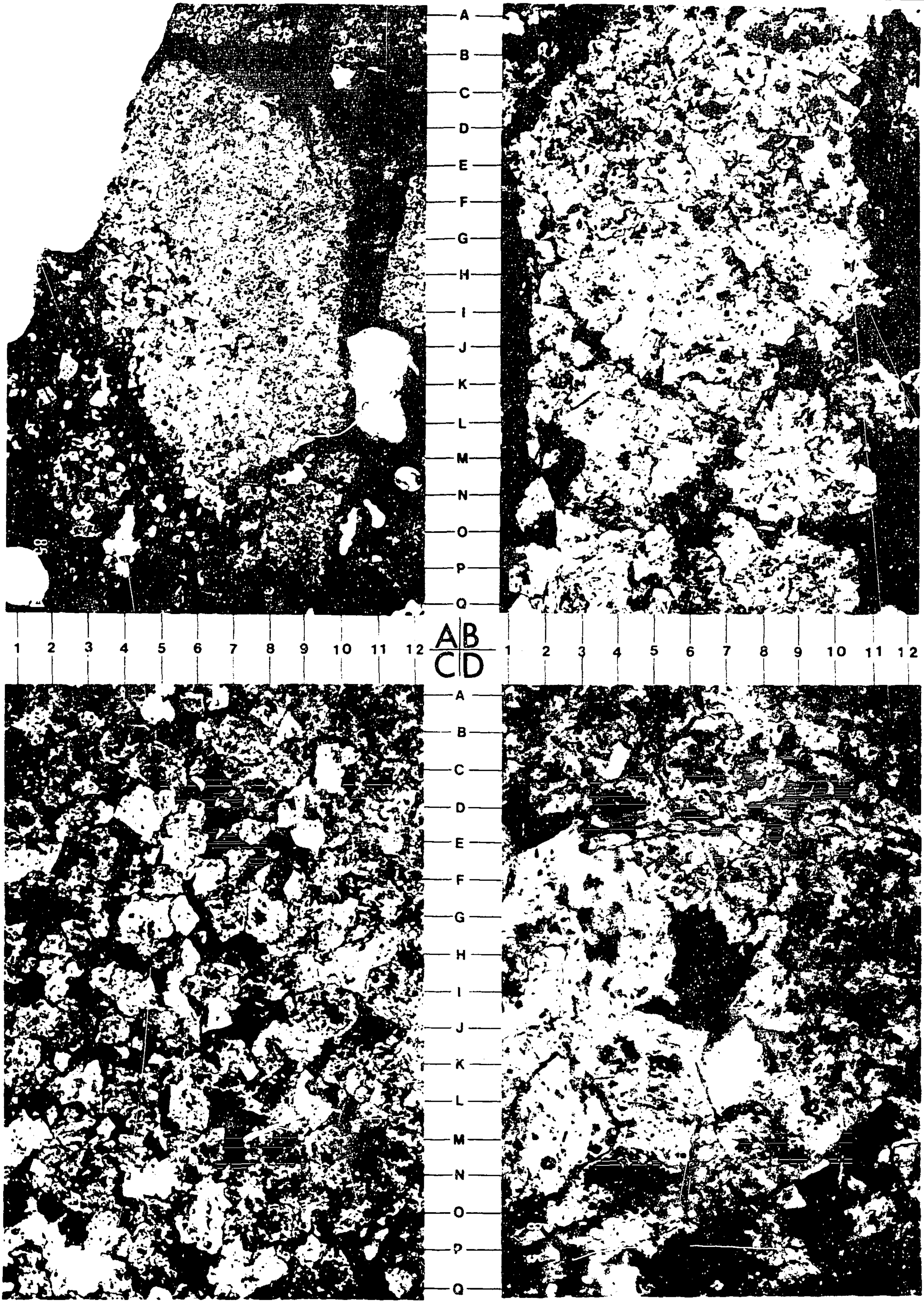
This higher magnification view shows the anhedrally formed, interlocking mosaic of dolomite crystals (G6) that are found within the majority of the matrix. Note the intercrystalline pores, defined by blue dyed epoxy (M2, IJ3), which are generally very poorly to poorly interconnected. (100x, cross polarized light)

Plate C

This view shows the difference between the tightly cemented, anhedrally formed dolomite crystals which makes up the majority of the matrix (E11), versus the loosely cemented, euhedrally formed dolomite rhombs within the more porous zones of the sample (H4, L7). (100x, plane polarized light)

Plate D

This higher magnification photomicrograph shows the interlocking nature of the dolomite mosaic (C10, M2) with minor amounts of isolated intercrystalline porosity which is assumed to be interconnected in the third dimension as indicated by the penetration of blue dyed epoxy into the pore space. (250x, plane polarized light)



A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
AB
CD
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

PETROGRAPHIC DATA SHEET

Well Name ICG Sogepet et al Nelsia N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity ______ K Max (mD) ______

Sample Number 52
Sample Depth (m) 631.00
Rock Name Med Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.07
Authigenic Constituents Med Crystalline
Depositional Texture - Crystalline carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ___
Intraclasts ___
Ooids ___
Pisolites ___
Peloids ___

Terrigenous Constituents

Quartz: Mono ___ Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF ___ MRF ___ VRF ___ PRF ___
Mica ___
Carbonaceous Material ___

Orthochemical Constituents

Calcite: Sparry ___ Micrite ___
Dolomite 100
Gypsum ___
Anhydrite ___
Halite ___
Quartz ___

Aragonite ___
Fe Dolomite ___

Clays

Kaolinite ___
Illite ___
Chlorite ___
Detrital ___

POROSITY

Porosity Types

Interparticle ___
Intraparticle ___
Growth Framework ___
Vug ___

Intercrystal I-VP
Moldic ___
Fracture ___

Fenestral ___
Shelter ___
Chemical ___

Mean IC Pore Size (mm) 0.01
Mean ___ Pore Size (mm) ___
Interconnectedness VP

CLAY MINERAL LOCATION

Laminae ___
Pore Lining ___
Fracture Filling ___
Dispersed ___
Pore Bridging ___
Pore Filling ___
Rock Fragments ___
Grain Replacement ___

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 52
DEPTH 631.00 metres

Plate A

Plate A is an overview of a clean, medium crystalline dolomite (crystalline carbonate) which has only traces to very poor amounts of intercrystalline porosity which is very poorly interconnected. (25x, plane polarized light)

Plate B

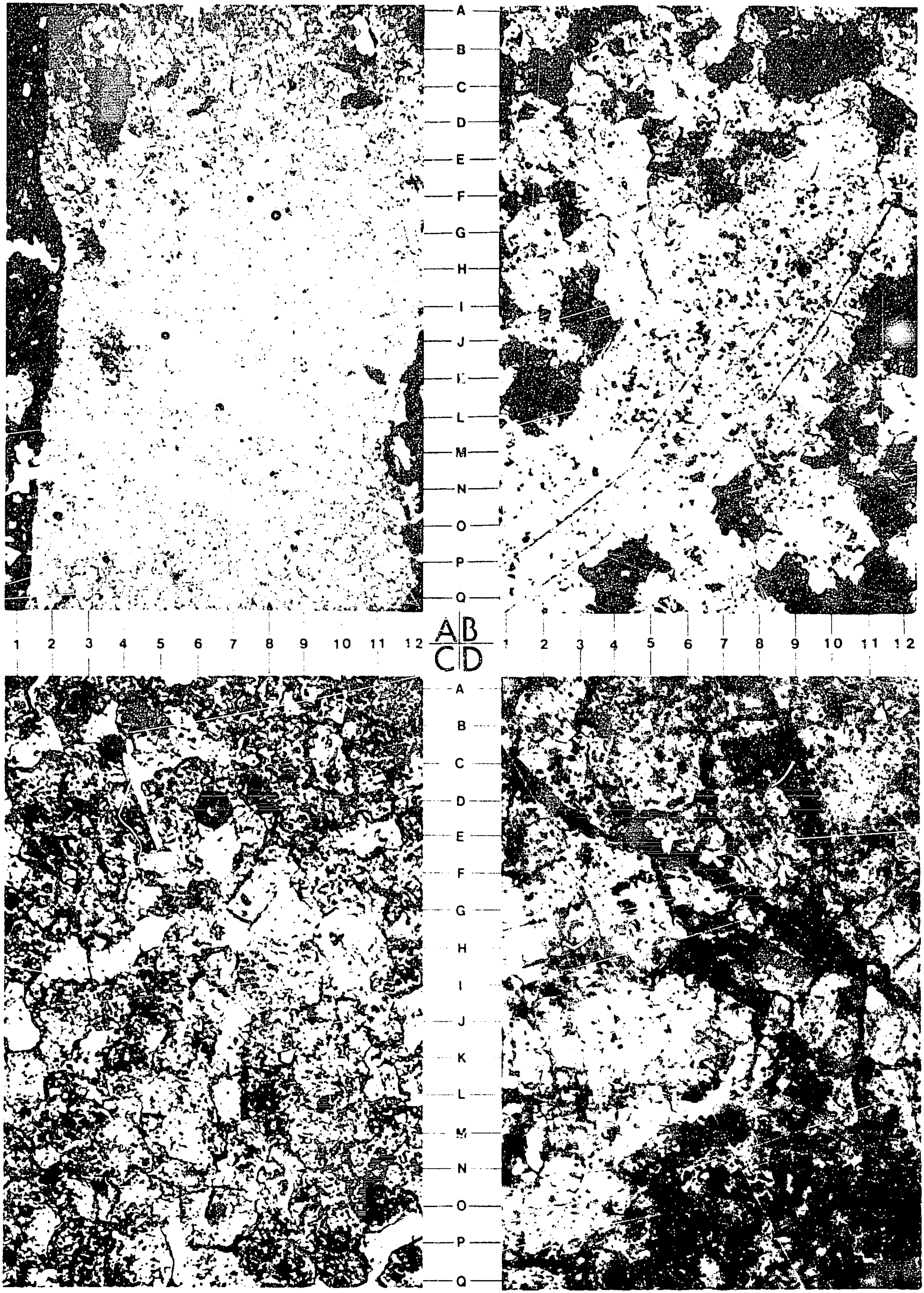
This higher magnification view shows the tightly interlocking, anhedral nature of the dolomite matrix (E2) with larger dolomite patches at K6. (100x, cross polarized light)

Plate C

This view shows the anhedrally formed, tightly interlocking mosaic which these dolomite crystals form. Note the complete lack of visible porosity as defined by blue dyed epoxy. (100x, plane polarized light)

Plate D

This higher magnification photomicrograph shows the very small intercrystalline pores which exist as isolated to very poorly interconnected pores in trace to very poor amounts (I6, M6). (250x, plane polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A|B
C|D

X-RAY DIFFRACTION ANALYSIS

Sample Number: 53
Depth: 621.50 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	77	89	87
Feldspar	Nil	Nil	Nil
Calcite	Trace	Trace	Trace
Dolomite	5	5	4
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	Nil	Nil	Nil
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	18	6	9

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 21.8%

Material Greater Than 5 Microns: 78.2%

SAMPLE NUMBER 53 (SEM)
DEPTH 621.50 metres

Plate A

This low magnification overview shows a relatively tightly cemented sample which has large amounts of silica and dolomite. The traces of visible porosity present, are very poorly interconnected.

Plate B

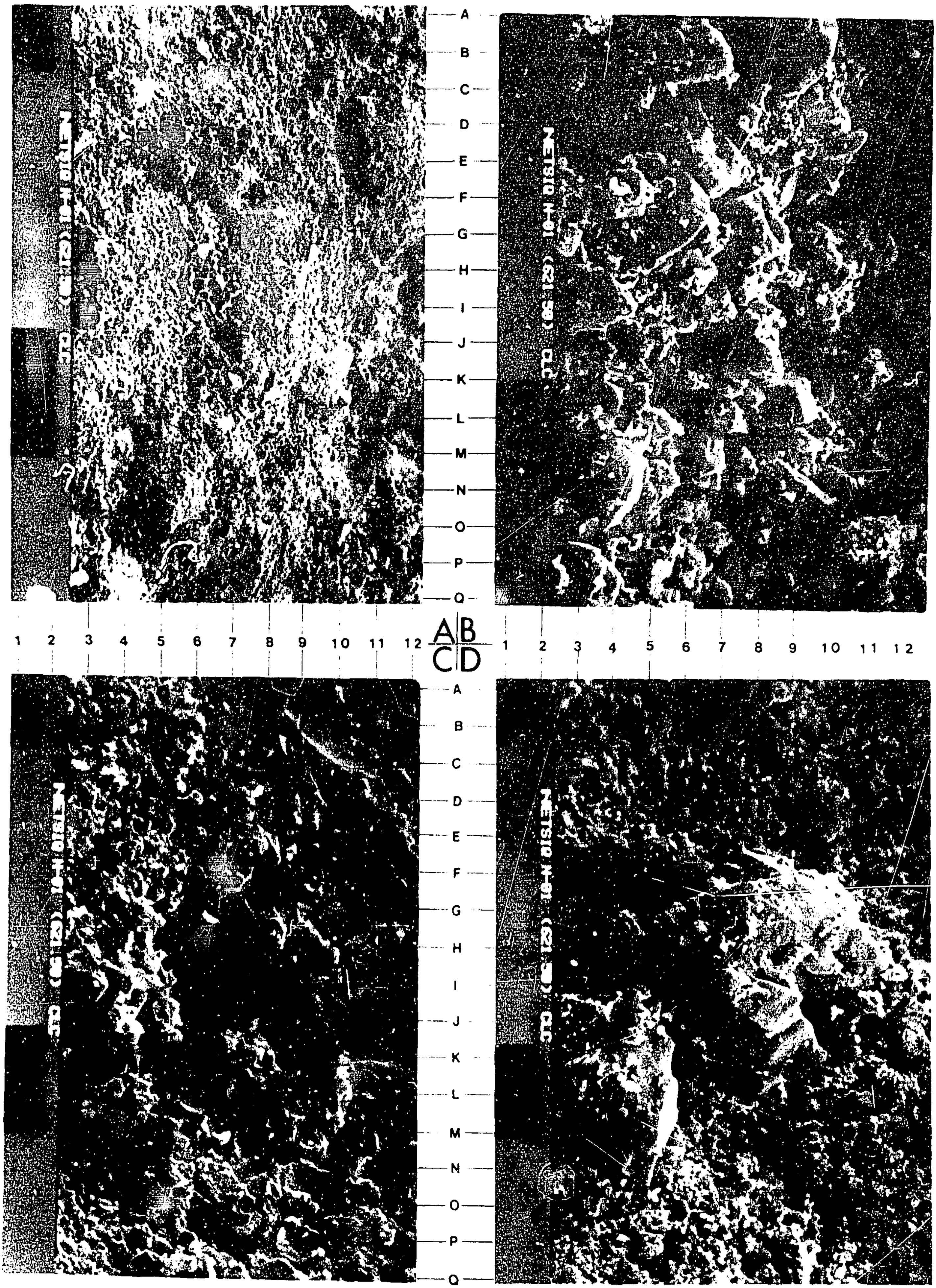
This higher magnification view shows the presence of dolomite (B9, L8.5) along with halite (D5, FG8). The porosity within the sample and the halite may have been artificially induced through the circulation of drilling fluids and the recovery method employed.

Plate C

This high magnification view shows the presence of tightly interlocking, finely crystalline calcite (M8) and aphanocrystalline chert at C11, D9. Note the minor amounts of intercrystalline porosity (HI9).

Plate D

This high magnification photomicrograph shows the presence of halite crystals (H8, L4) within a very finely crystalline matrix (P5) and may be attributable to the circulation of saline drilling fluids.


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12

X-RAY DIFFRACTION ANALYSIS

Sample Number: 54
Interval: 611.50 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	3	Trace	1
Feldspar	Nil	Nil	Nil
Calcite	54	24	29
Dolomite	36	74	67
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	Nil	Nil	Nil
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	7	2	3

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 19.0%

Material Greater Than 5 Microns: 81.0%

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation:
Porosity: K Max (mD):

Sample Number: 54
Sample Depth (m): 611.50
Rock Name: Med Calcareous Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm):
Class -Transported Constituents:
Depositional Texture -

Authigenic Constituents (mm): 0.1
Authigenic Constituents: Med Crystalline

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry 20 Micrite
Dolomite 80
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal T
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm)

Mean Pore Size (mm)

Interconnectedness VP

CLAY MINERAL LOCATION

Laminae
Pore Lining
Fracture Filling

Dispersed
[illegible]ing Pore Filling

Rock Fragments
Grain Replacement

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 54
DEPTH 611.50 metres

Plate A

This low magnification overview is of a medium crystalline, calcareous dolomite (crystalline carbonate) with traces of intercrystalline porosity that is very poorly interconnected. (25x, plane polarized light)

Plate B

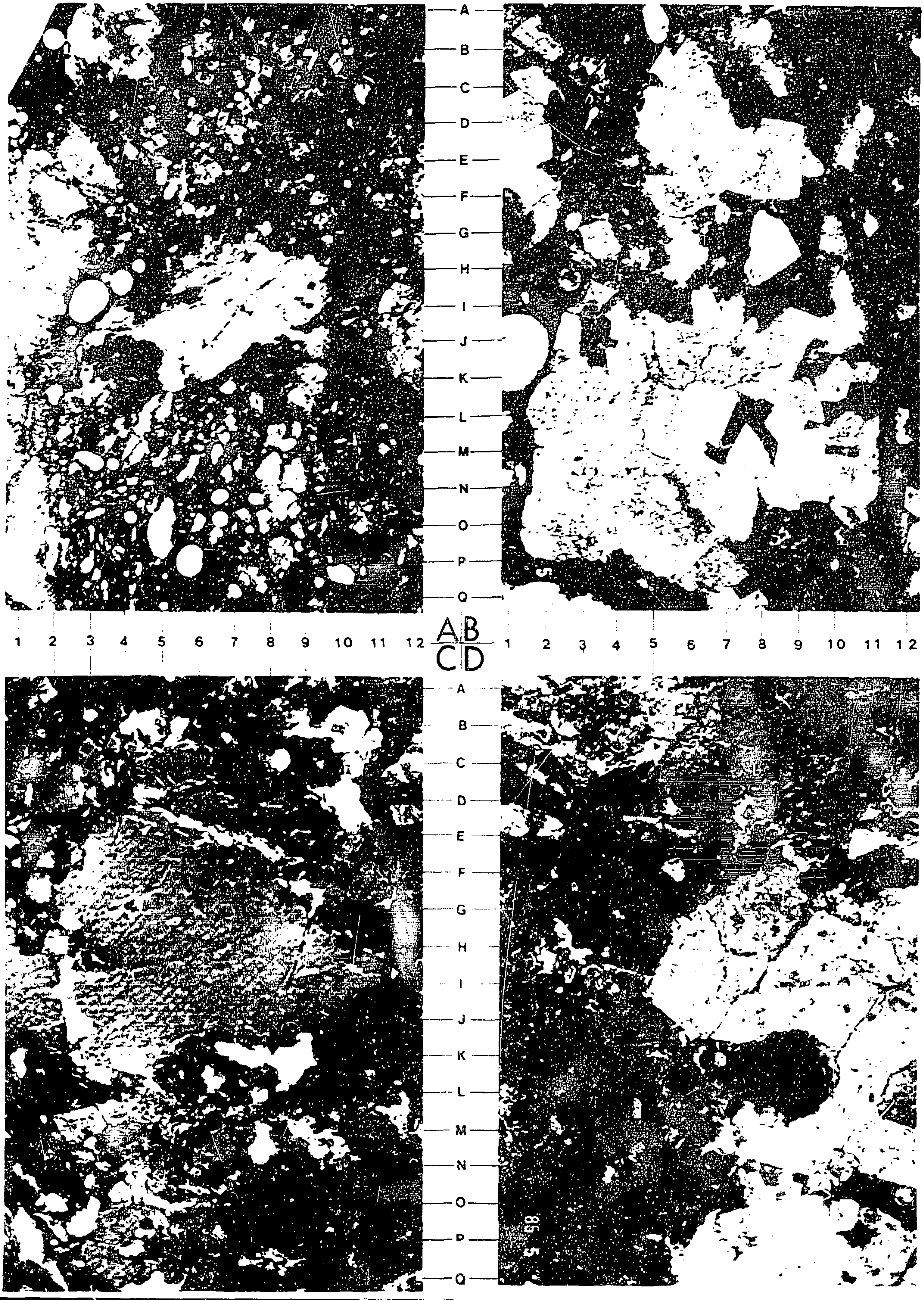
This higher magnification view of the sample shows the tightly interlocking nature of the dolomite crystals (N3, D7), with sparry calcite filling the remainder as defined by red stained color created by alizarin-red-S. (100x, plane polarized light)

Plate C

This higher magnification view shows a patch of sparry calcite that has become disaggregated from the sample due to the recovery method employed (G5). (100x, plane polarized light)

Plate D

This high magnification photomicrograph shows the anhedrally formed, tightly interlocking mosaic of dolomite crystals forming a matrix material which leaves little intercrystalline porosity (I8, M10). Note patches of sparry calcite (B10, M3) which are well dispersed makeing up 20% of the sample. (250x, cross polarized light)


A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
A B
C D
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O P Q

SAMPLE NUMBER 54 (SEM)
DEPTH 611.50 metres

Plate A

This low magnification overview is of a finely crystalline dolomite which has little visible porosity underneath a light microscope and minor amounts of sparry calcite.

Plate B

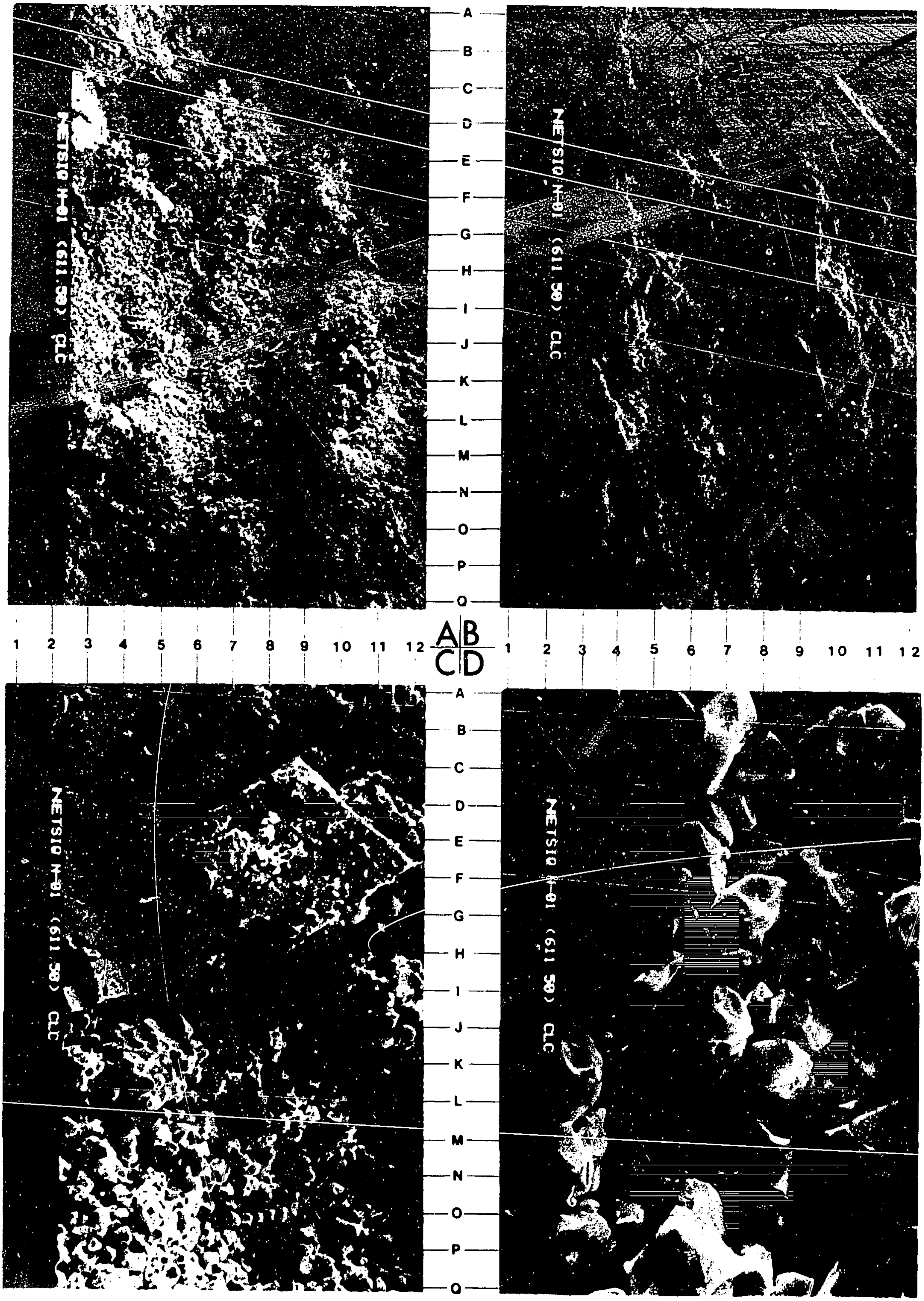
This higher magnification view shows sparry calcite, which makes up to 20% of the sample (I8), within a very finely crystalline dolomite matrix (J5, O9).

Plate C

Plate C shows a euhedrally formed dolomite rhomb (E9) within a very finely crystalline sucrose dolomite matrix (L9) which has minor amounts of intercrystalline porosity which is tortuously interconnected.

Plate D

This high magnification photomicrograph shows the intercrystalline porosity development within the very fine sucrose dolomite crystals. Due to the very fine nature of these crystals and pores, it is believed that much of the porosity is relatively ineffectual.



A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12
AB
CD
NETSIQ M-01 (611 58) CLC
NETSIQ M-01 (611 58) CLC
NETSIQ M-01 (611 58) CLC
NETSIQ M-01 (611 58) CLC

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsig N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity K Max (mD)

Sample Number 55
Sample Depth (m) 607.50
Rock Name Med Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm)
Class -Transported Constituents
Authigenic Constituents (mm) 0.1
Authigenic Constituents Med Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts T
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry Micrite
Dolomite 99
Gypsum
Anhydrite 1
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal P
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.04
Mean Pore Size (mm)
Interconnectedness M

CLAY MINERAL LOCATION

Laminae
Pore Lining
Fracture Filling
Dispersed
Pore Bridging
Pore Filling
Rock Fragments
Grain Replacement

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 55
DEPTH 607.50 metres

Plate A

This low magnification view is of a medium crystalline dolomite which has poor amounts of intercrystalline porosity that is moderately interconnected. This dolomite contains trace amounts of intraclasts and minor amounts of anhydrite as elongate blades. (25x, plane polarized light)

Plate B

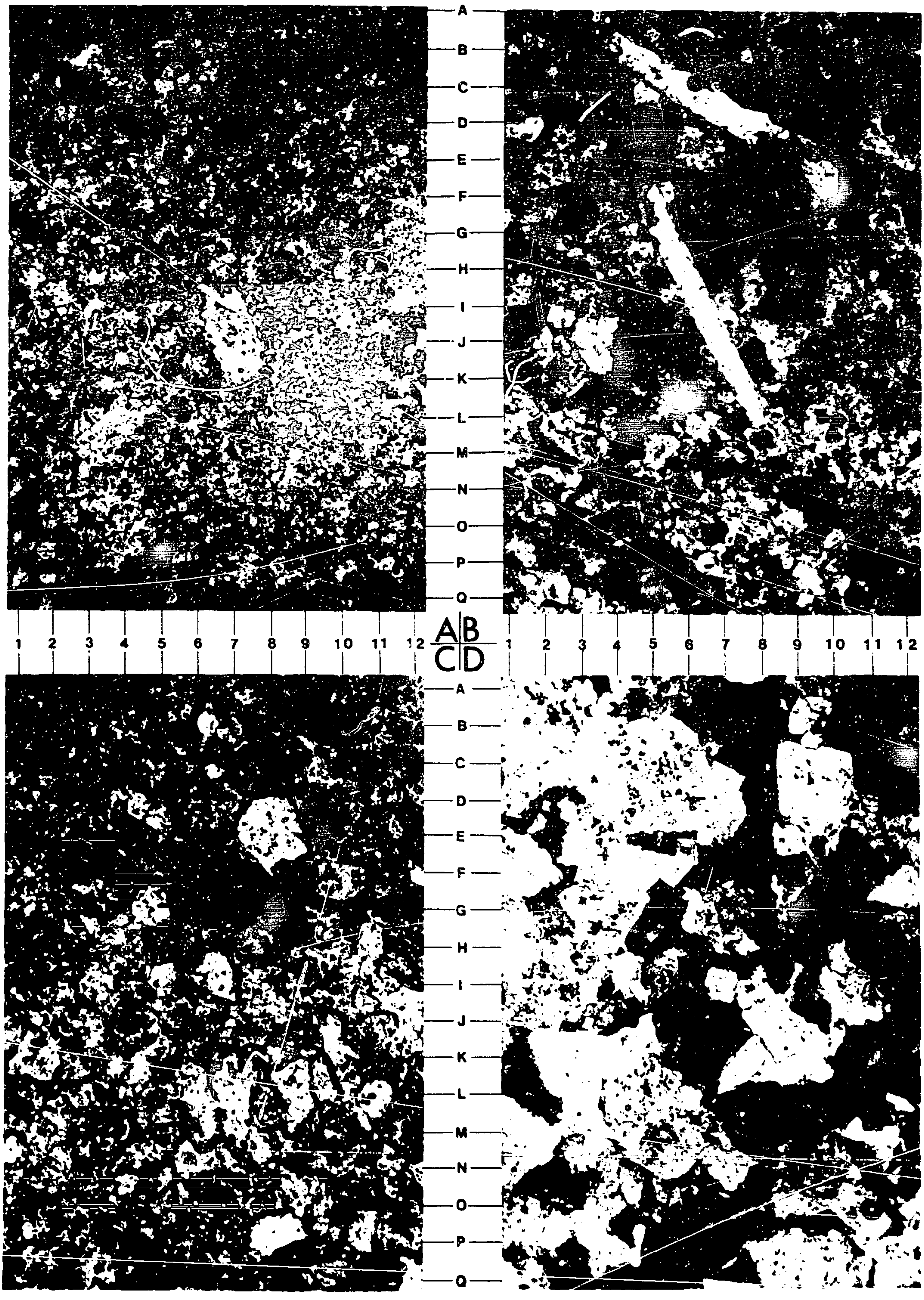
This higher magnification view shows the presence of elongate blades of anhydrite (C6, H7) which are poorly dispersed throughout the sample and may also be found in a patchy fibrous form also. (100x, cross polarized light)

Plate C

This high magnification view of the sample shows the minor amounts of intercrystalline porosity within the more densely cemented areas (RH6, EF10). Matrix is made up of medium crystalline, anhedrally formed dolomite which leave little porosity within the whole of the rock. (100x, plane polarized light)

Plate D

This high magnification photomicrograph shows good development of intercrystalline porosity which is moderately interconnected as defined by blue dyed epoxy at B10.5, D8, G5, and J6. Within these more porous zones, dolomite is generally euhedrally formed (D9, I5). (250x, cross polarized light)



A B
C D

X-RAY DIFFRACTION ANALYSIS

Sample Number: 60
Interval: 579.00 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	Trace	Nil	Trace
Feldspar	Nil	Nil	Nil
Calcite	2	2	2
Dolomite	86	98	96
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	6	Nil	1
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	6	Nil	1

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 14.3%

Material Greater Than 5 Microns: 85.7%

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity ______ K Max (mD) ______

Sample Number 60
Sample Depth (m) 579.00
Rock Name F Med Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.06
Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ______
Intraclasts ______
Ooids ______
Pisolites ______
Peloids ______

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica ______
Carbonaceous Material ______

Orthochemical Constituents

Calcite: Sparry ______ Micrite ______
Dolomite 100
Gypsum ______
Anhydrite ______
Halite ______
Quartz ______

Aragonite ______
Fe Dolomite ______

Clays

Kaolinite ______
Illite ______
Chlorite ______
Detrital ______

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal P-M
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean IC Pore Size (mm) 0.03 Mean ______ Pore Size (mm) ______ Interconnectedness P-M

CLAY MINERAL LOCATION

Laminae ______ Dispersed ______ Rock Fragments ______
Pore Lining ______ Pore Bridging ______ Pore Filling ______ Grain Replacement ______
Fracture Filling ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 60
DEPTH 579.00 metres

Plate A

This overview of the sample shows a fine to medium crystalline dolomite which has poor to moderate intercrystalline porosity that is poor to moderately interconnected. (25x, cross polarized light)

Plate B

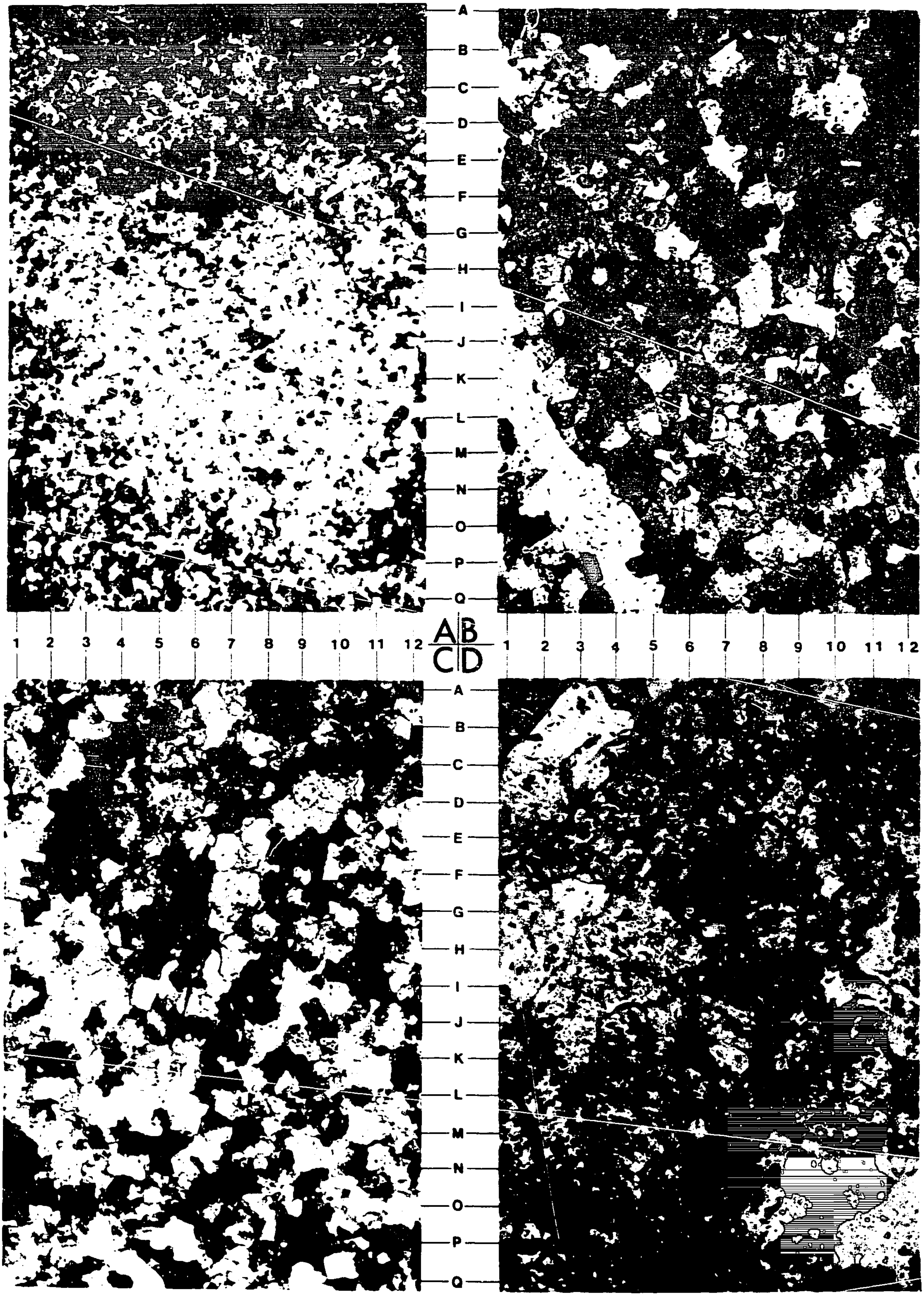
This higher magnification view shows the loosely interlocking, subhedral to euhedrally formed dolomite crystals which have poor to moderate intercrystalline development as defined by blue dyed epoxy at H3, I6 and O2. (100x, plane polarized light)

Plate C

This cross polarized view of the sample demonstrates the tightly interlocking mosaic formed by the dolomite crystals (K3, M11). (100x, cross polarized light)

Plate D

This high magnification photomicrograph shows good development of intercrystalline porosity which is moderately interconnected at I7, J8 and O2. The more densely cemented areas have anhedrally interlocking crystals (H4). (250x, plane polarized light)


A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

SAMPLE NUMBER 60 (SEM)
DEPTH 579.00 metres

Plate A

This low magnification overview is of a fine to medium crystalline dolomite which is made up of tightly interlocking anhedral to subhedrally formed dolomite crystals which have little intercrystalline porosity.

Plate B

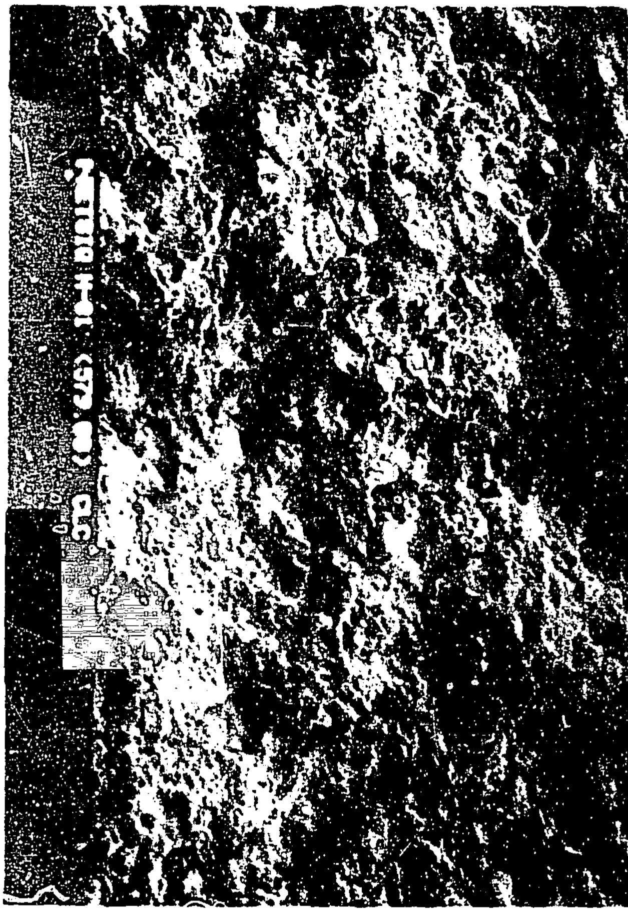
This high magnification view shows very poor amounts of intercrystalline porosity within the finely crystalline dolomite (I7).

Plate C

This higher magnification photomicrograph demonstrates the tightly interlocking anhedral nature of the dolomite crystals which leaves only traces of intercrystalline porosity (G9) within these tightly cemented areas.

Plate D

This high magnification view shows tightly interlocking anhedral dolomite crystals (M4) with minor amounts of intercrystalline porosity development at M8, HI4.8 and CD4.



A B C D

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H I J K L M N O P Q

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogepet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation: ______
Porosity: ______ K Max (mD) ______

Sample Number: 61
Sample Depth (m): 574.50
Rock Name: F Med Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm): 0.06
Authigenic Constituents: F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ______
Intraclasts ______
Ooids ______
Pisolites ______
Peloids ______

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica ______
Carbonaceous Material ______
Bitumen: T

Orthochemical Constituents

Calcite: Sparry ______ Micrite T
Dolomite 98
Gypsum ______
Anhydrite 1
Halite ______
Quartz ______

Aragonite ______
Fe Dolomite ______
Pyrite T

Clays

Kaolinite ______
Illite ______
Chlorite ______
Detrital 1

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal VP
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean I Pore Size (mm) 0.02
Mean ______ Pore Size (mm) ______
Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae ______
Dispersed ______
Rock Fragments ______
Pore Lining ______
Pore Bridging ______
Pore Filling ______
Grain Replacement ______
Fracture Filling ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 61
DEPTH 574.50 metres

Plate A

This view of the sample shows a fine to medium crystalline dolomite (crystalline carbonate) with minor amounts of anhydrite, detrital clays and trace amounts of pyrite, calcite and bitumen. (25x, plane polarized light)

Plate B

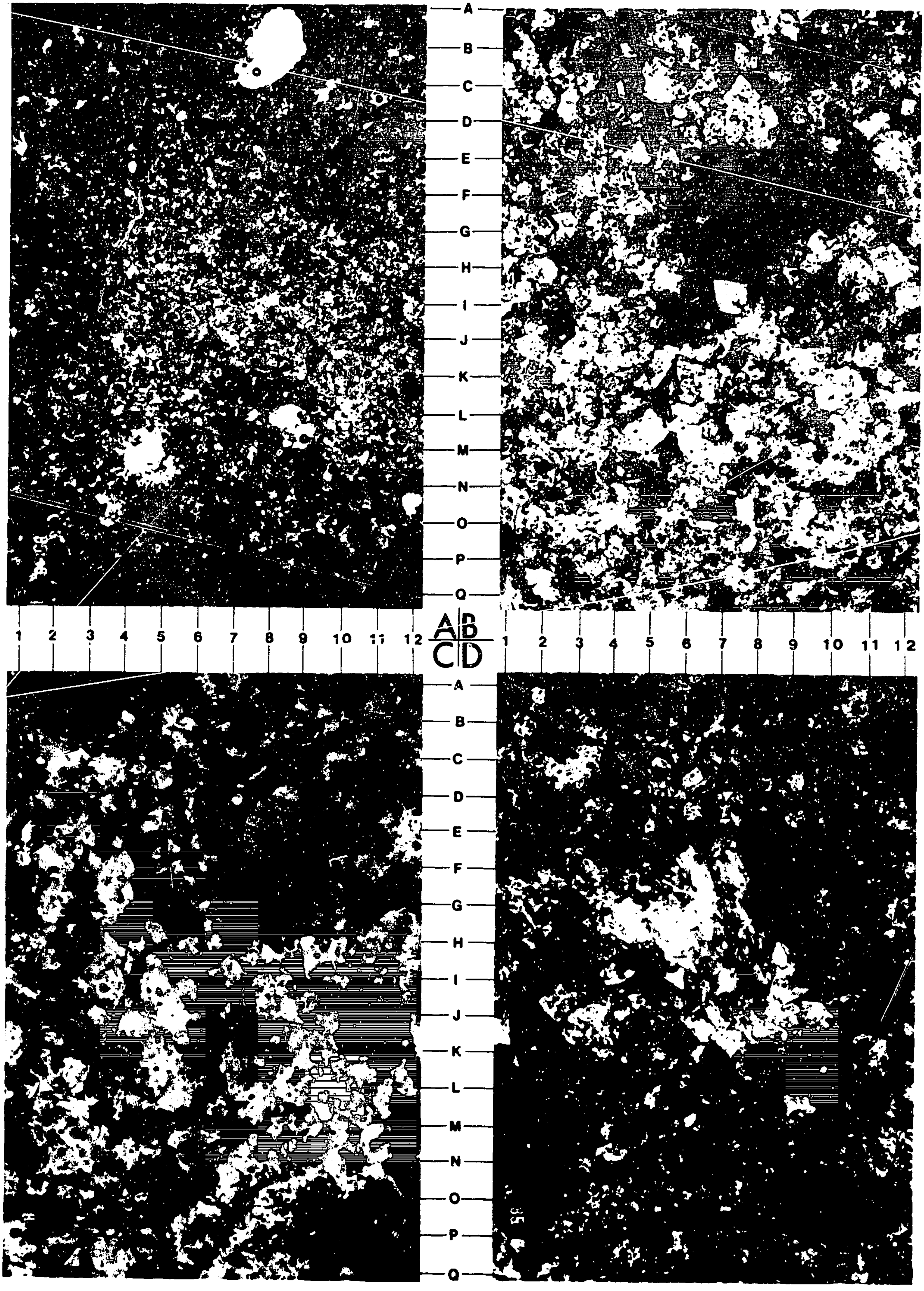
This higher magnification view shows the tightly interlocking nature of the subhedral to anhedrally formed dolomite crystals which form the majority of the matrix (N10, G3). Note bitumen filling pore at G7, denoted by black color. (100x, cross polarized light)

Plate C

This higher magnification view again demonstrates the anhedrally formed, tightly interlocking nature of the majority of the matrix. No visible porosity is present within this photomicrograph. (250x, plane polarized light)

Plate D

This view of the sample shows the presence of blocky anhydrite forming within the dolomite matrix present at H7. Anhydrite is present in minor amounts making up 1% of the samples volume. (100x, cross polarized light)


A B C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name ICG Sogepet et al Netsig N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation
Porosity K Max (mD)

Sample Number 62
Sample Depth (m) 569.00
Rock Name Med Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm)
Class -Transported Constituents
Depositional Texture - Crystalline Carbonate, Dunham (1962)

Authigenic Constituents (mm) 0.08
Authigenic Constituents Med Crystalline

COMPOSITION

Allochemical Constituents

Fossils
Intraclasts
Ooids
Pisolites
Peloids

Terrigenous Constituents

Quartz: Mono Poly
Feldspar: K-spar Plag
Rock Fragments: SRF MRF VRF PRF
Mica
Carbonaceous Material

Orthochemical Constituents

Calcite: Sparry Micrite T
Dolomite 100
Gypsum
Anhydrite
Halite
Quartz

Aragonite
Fe Dolomite

Clays

Kaolinite
Illite
Chlorite
Detrital

POROSITY

Porosity Types

Interparticle
Intraparticle
Growth Framework
Vug

Intercrystal VP-P
Moldic
Fracture

Fenestral
Shelter
Chemical

Mean IC Pore Size (mm) 0.025
Mean Pore Size (mm)
Interconnectedness P

CLAY MINERAL LOCATION

Laminae
Pore Lining
Fracture Filling
Dispersed
Pore Bridging
Pore Filling
Rock Fragments
Grain Replacement

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 62
DEPTH 569.00 metres

Plate A

This low magnification photomicrograph shows a clean, medium crystalline dolomite (crystalline carbonate) which has very poor to poor amounts of intercrystalline porosity that is poorly interconnected. Trace amounts of calcite can then be found in some pores. (25x, plane polarized light)

Plate B

This higher magnification view demonstrates the anhedrally formed, tightly interlocking mosaic formed by the dolomite crystals which leave little porosity within the majority of the matrix. (100x, plane polarized light)

Plate C

This view of the sample shows good development of intercrystalline porosity which is moderately connected in this photomicrograph (H6, M5). (100x, plane polarized light)

Plate D

This high magnification photomicrograph shows intercrystalline porosity present in minor amounts; this porosity is moderately interconnected. (250x, plane polarized light)

SAMPLE NUMBER 62
DEPTH 569.00 metres

Plate A

This low magnification photomicrograph shows a clean, medium crystalline dolomite (crystalline carbonate) which has very poor to poor amounts of intercrystalline porosity that is poorly interconnected. Trace amounts of calcite can then be found in some pores. (25x, plane polarized light)

Plate B

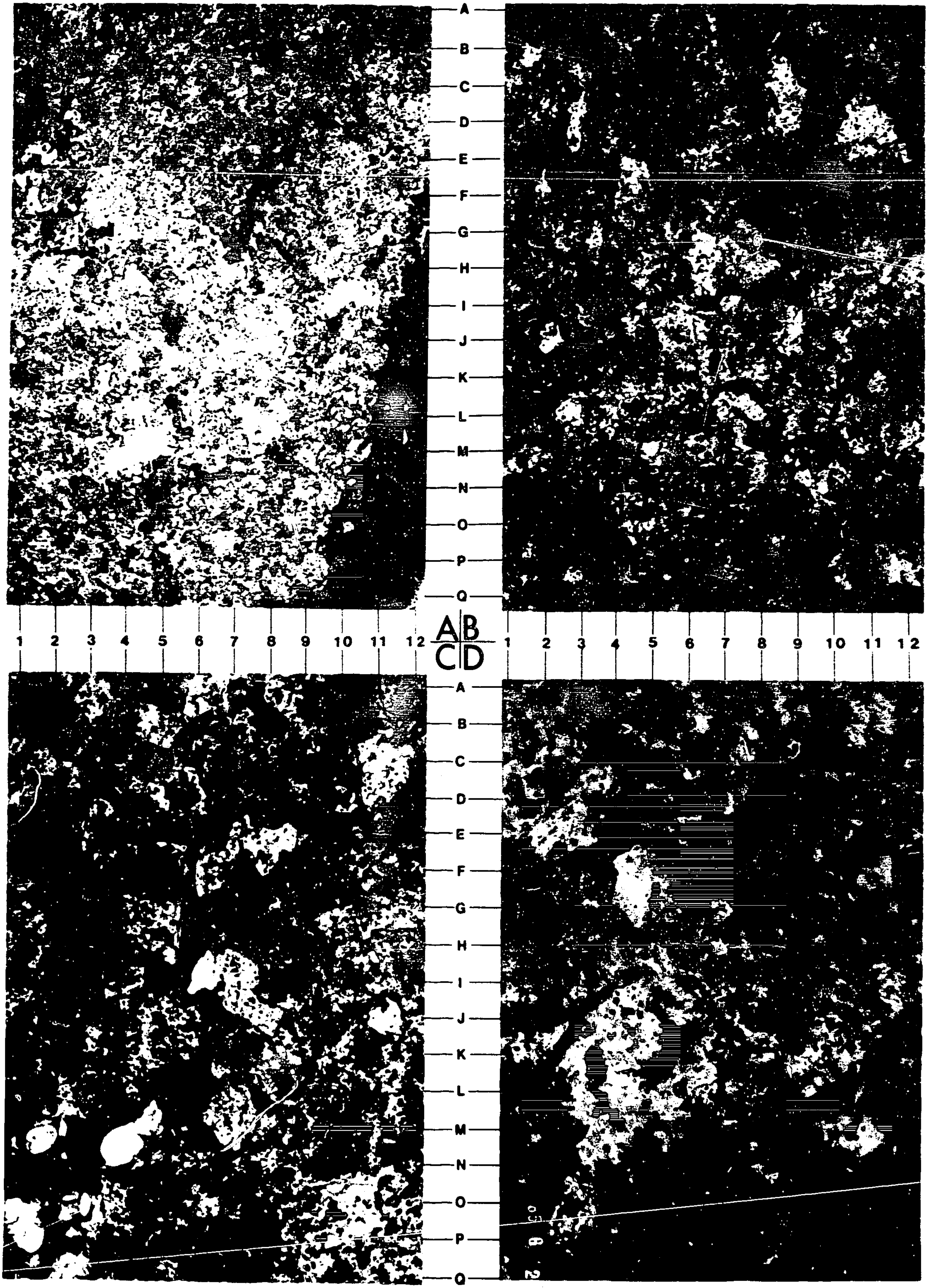
This higher magnification view demonstrates the anhedrally formed, tightly interlocking mosaic formed by the dolomite crystals which leave little porosity within the majority of the matrix. (100x, plane polarized light)

Plate C

This view of the sample shows good development of intercrystalline porosity which is moderately connected in this photomicrograph (H6, M5). (100x, plane polarized light)

Plate D

This high magnification photomicrograph shows intercrystalline porosity present in minor amounts; this porosity is moderatly interconnected. (250x, plane polarized light)


A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

X-RAY DIFFRACTION ANALYSIS

Sample Number: 63
Depth: 565.00 metres

	Material Less than 5 Microns	Material Greater than 5 Microns	Calculated Bulk Composition
Quartz	Nil	Nil	Nil
Feldspar	Nil	Nil	Nil
Calcite	2	Nil	Trace
Dolomite	86	98	96
Siderite	Nil	Nil	Nil
Pyrite	Nil	Nil	Nil
Kaolinite	Nil	Nil	Nil
Illite	Nil	Nil	Nil
Chlorite	Nil	Nil	Nil
Smectite	Nil	Nil	Nil
Mixed Layer Clays (Swelling)	Nil	Nil	Nil
Barite	12	2	4

CLAY SEPARATION BY FLOATATION

Material Less Than 5 Microns: 17.3%

Material Greater Than 5 Microns: 82.7%

PETROGRAPHIC DATA SHEET

Well Name: ICG Sogetet et al Netsiq N-01
Location: 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation:
Porosity: ______ K Max (mD) ______

Sample Number: 63
Sample Depth (m): 565.00
Rock Name: Med Dolomite
Classification: Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.010
Authigenic Constituents: Med Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ____
Intraclasts ____
Ooids ____
Pisolites ____
Peloids ____

Terrigenous Constituents

Quartz: Mono ____ Poly ____
Feldspar: K-spar ____ Plag ____
Rock Fragments: SRF ____ MRF ____ VRF ____ PRF ____
Mica ____
Carbonaceous Material ____

Orthochemical Constituents

Calcite: Sparry ____ Micrite ____
Dolomite 100
Gypsum ____
Anhydrite ____
Halite ____
Quartz ____

Aragonite ____
Fe Dolomite ____

Clays

Kaolinite ____
Illite ____
Chlorite ____
Detrital ____

POROSITY

Porosity Types

Interparticle ____
Intraparticle ____
Growth Framework ____
Vug ____

Intercrystal M
Moldic ____
Fracture ____

Fenestral ____
Shelter ____
Chemical ____

Mean IC Pore Size (mm) 0.02
Mean ____ Pore Size (mm) ____
Interconnectedness P-M

CLAY MINERAL LOCATION

Laminae ____
Pore Lining ____
Fracture Filling ____
Dispersed ____
Pore Bridging ____
Pore Filling ____
Rock Fragments ____
Grain Replacement ____

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 63
DEPTH 565.00 metres

Plate A

The highly fragmented nature of this sample was caused by the recovery method employed. This photomicrograph shows a clean, medium crystalline dolomite which has moderate amounts of intercrystalline porosity that are poor to moderately interconnected. This porosity may be partially due to the recovery method and preparation of the sample. (25x, plane polarized light)

Plate B

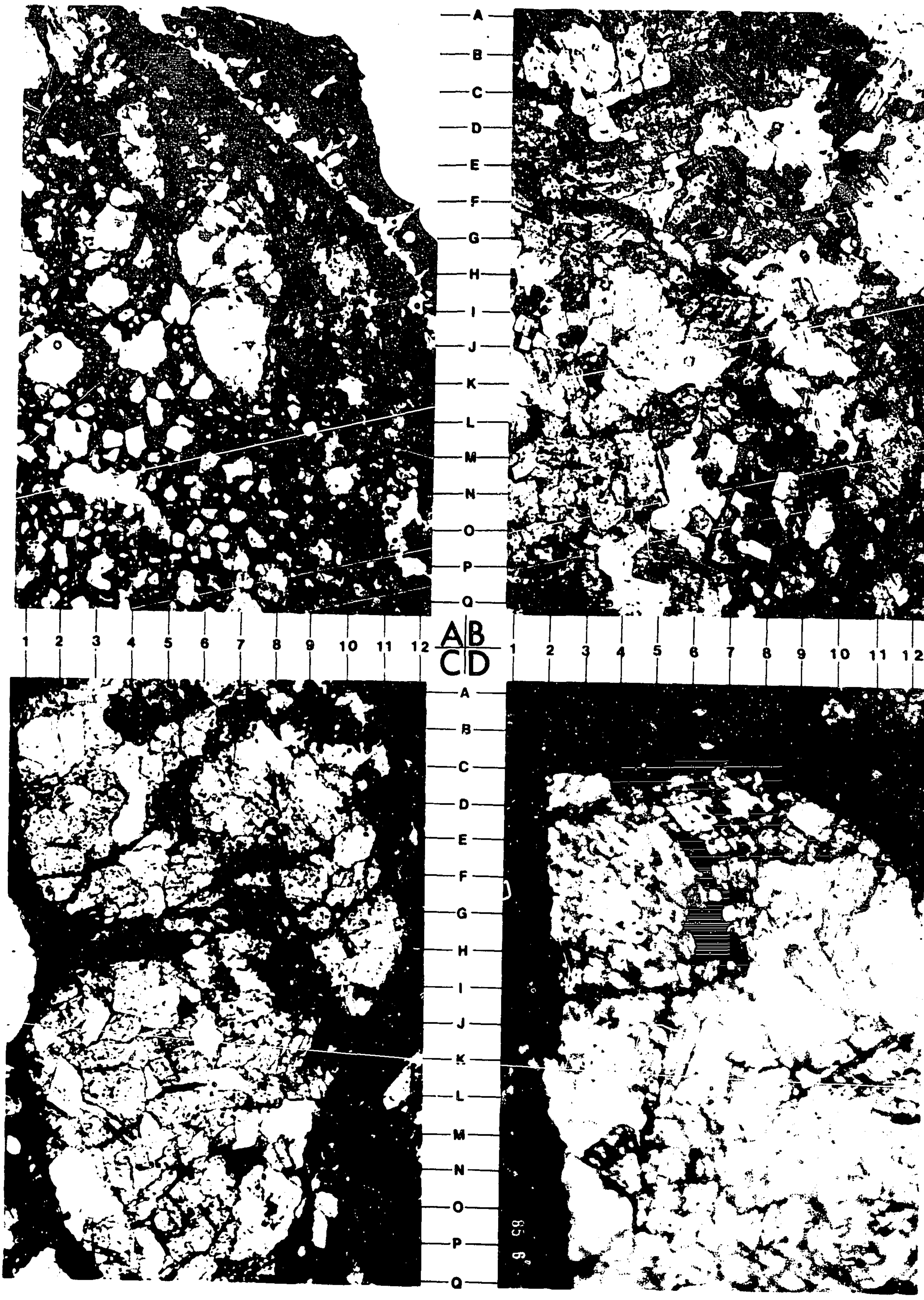
This higher magnification view shows the medium crystalline nature of the dolomite (I4, I7, N4). With minor intercrystalline porosity present at H6.5 and JK3. (100x, plane polarized light)

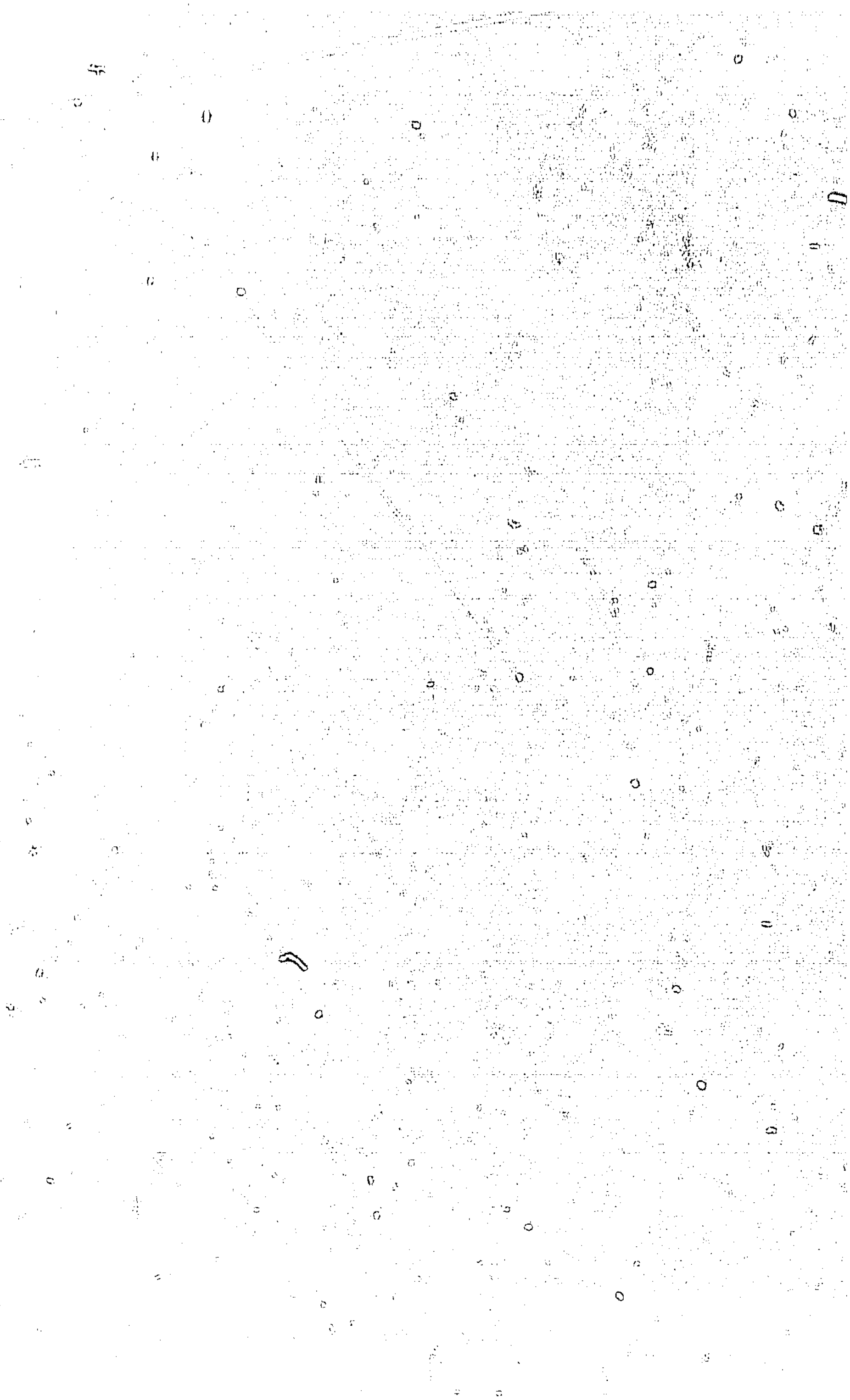
Plate C

This higher magnification view shows the minor intercrystalline porosity within the medium crystalline, anhedral to subhedrally formed dolomite matrix. Pores are defined by blue dyed epoxy are moderately interconnected (MN7.5, IJ6, B7). (100x, plane polarized light)

Plate D

This high magnification photomicrograph shows the anhedral to subhedrally formed dolomite matrix (F9, N8) which has minor intercrystalline porosity that is isolated within this photomicrograph (H6.5).


A B
C D



SAMPLE NUMBER 63 (SEM)
DEPTH 565.00 metres

Plate A

This low magnification overview is of a finely to medium crystalline dolomite which has poor amounts of intercrystalline porosity which is poorly interconnected.

Plate B

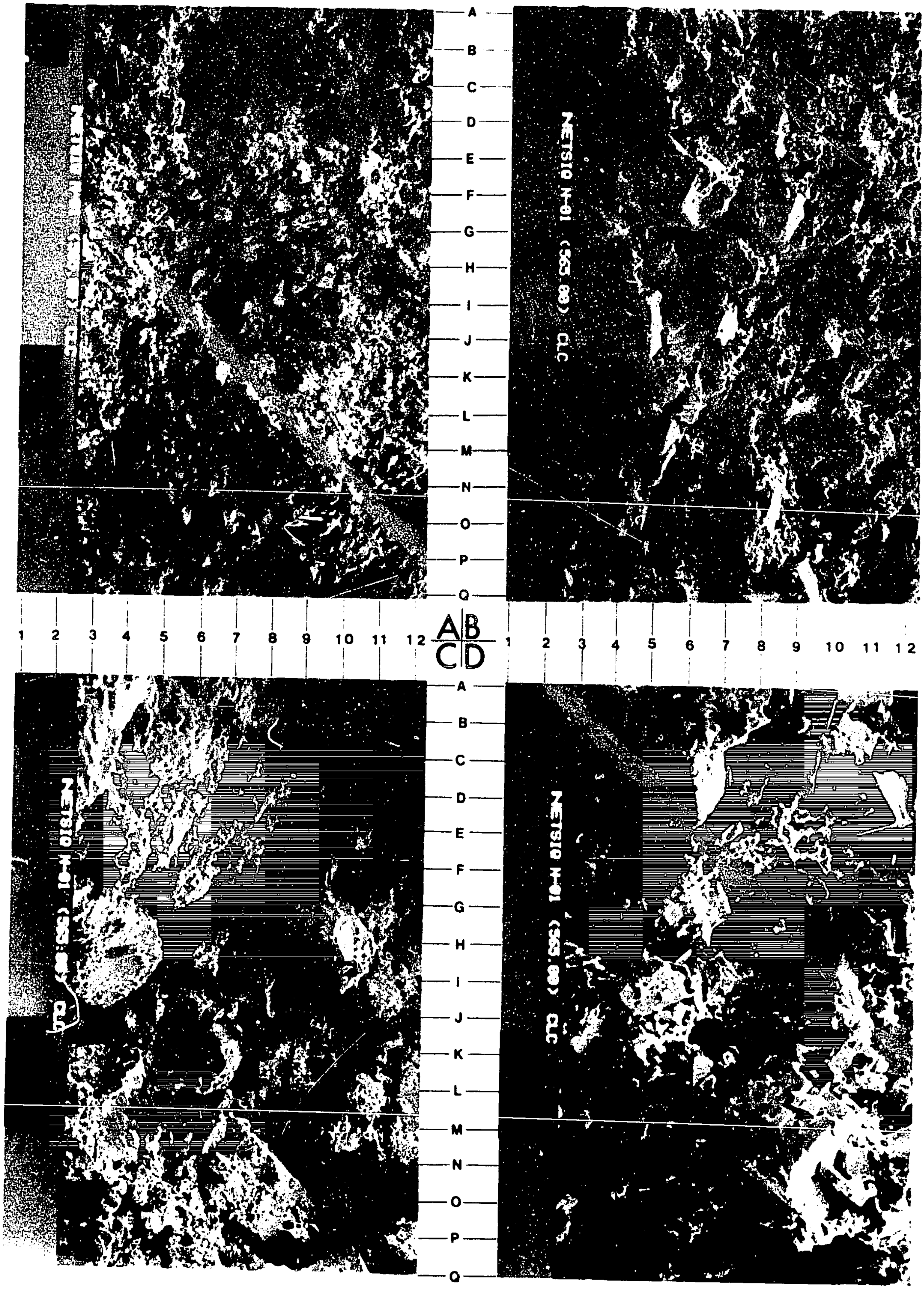
This higher magnification view shows intercrystalline porosity within the subhedral to euhedrally formed dolomite crystals (GH7, N11). Infilling some pores is a very finely crystalline dolomite which reduces porosity and its interconnectedness.

Plate C

This view of the sample again shows the subhedral to euhedrally formed dolomite crystals which are loosely intergrown forming a mosaic of dolomite crystals which leaves minor amounts of intercrystalline porosity which is poor to moderately interconnected (G6.5, JK6, L6.5, NO9).

Plate D

This high magnification photomicrograph shows the presence euhedrally formed dolomite crystals (D11, M8) and minor amounts of intercrystalline porosity which is poorly interconnected due to the formation of very finely crystalline matrix materials (E9, J5, N7).


A
B
C
D
NETSIO N-01 (565.80) CLC
NETSIO N-01 (565.80) CLC
NETSIO N-01 (565.80) CLC

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsig N-01
Location 59° 50' 48.00" NL, 87° 30' 59.50" WL
Formation ______
Porosity ______ K Max (mD) ______

Sample Number 64
Sample Depth (m) 545.00
Rock Name F Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.04
Authigenic Constituents F Crystalline
Depositional Texture - Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ______
Intraclasts ______
Ooids ______
Pisolites ______
Peloids ______

Terrigenous Constituents

Quartz: Mono ______ Poly ______
Feldspar: K-spar ______ Plag ______
Rock Fragments: SRF ______ MRF ______ VRF ______ PRF ______
Mica ______
Carbonaceous Material ______

Orthochemical Constituents

Calcite: Sparry ______ Micrite T
Dolomite 100
Gypsum ______
Anhydrite ______
Halite ______
Quartz ______

Aragonite ______
Fe Dolomite ______

Clays

Kaolinite ______
Illite ______
Chlorite ______
Detrital ______

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal P
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean IC Pore Size (mm) 0.015
Mean ______ Pore Size (mm) ______
Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae ______
Dispersed ______
Rock Fragments ______
Pore Lining ______
Pore Bridging ______
Pore Filling ______
Grain Replacement ______
Fracture Filling ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 64
DEPTH 545.00 metres

Plate A

This low magnification overview of the sample is of a finely crystalline dolomite (crystalline carbonate) which has traces of micrite and detrital clays. Overall porosity is made up of poor amounts of intercrystalline porosity that is very poorly to poorly interconnected. (25x, plane polarized light)

Plate B

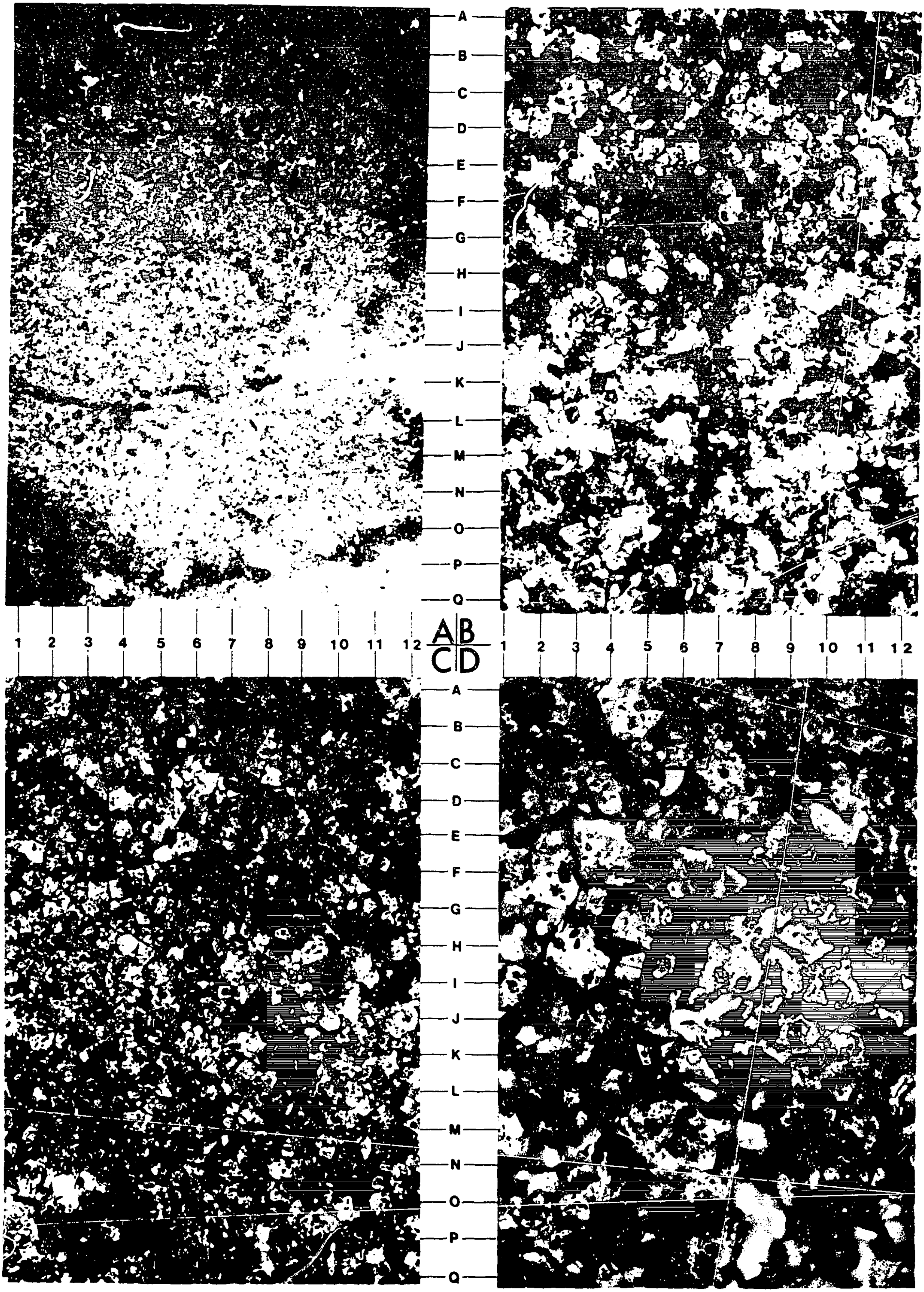
This high magnification view of the sample shows areas of anhedrally formed, tightly interlocking dolomite crystals (N10) and more loosely cemented areas such as at C3 which shows minor amounts of intercrystalline pores that are poorly interconnected. Note detrital clays at M6.5. (100x, cross polarized light)

Plate C

This view of the sample again shows the areas of intercrystalline porosity denoted by blued dyed epoxy at C1.5, CD11, H6. (100x, plane polarized light)

Plate D

This high magnification photomicrograph of the sample shows a more porous area which demonstrates the subhedral to euhedral shape of these loosely cemented dolomite crystals (E4, H6.5, NO9). Porosity defined by blue dyed epoxy shows very poor to poor interconnectedness. (250x, plane polarized light)


A B
C D
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12

PETROGRAPHIC DATA SHEET

Well Name · ICG Sogepet et al Netsiq N-01
Location 59° 50' 48.00" NL, 87° 30" 59.50" WL
Formation ______
Porosity ______ K Max (mD) ______

Sample Number 66
Sample Depth (m) 542.00
Rock Name VF Dolomite
Classification Folk (1980)

TEXTURE

Mean Size-Transported Constituents (mm) ______
Class -Transported Constituents ______
Authigenic Constituents (mm) 0.012
Authigenic Constituents VF Crystalline
Depositional Texture - Laminated Crystalline Carbonate, Dunham (1962)

COMPOSITION

Allochemical Constituents

Fossils ___
Intraclasts ___
Ooids ___
Pisolites ___
Peloids ___

Terrigenous Constituents

Quartz: Mono ___ Poly ___
Feldspar: K-spar ___ Plag ___
Rock Fragments: SRF___ MRF___ VRF___ PRF___
Mica ___
Carbonaceous Material ___

Orthochemical Constituents

Calcite: Sparry___ Micrite T
Dolomite 98
Gypsum ___
Anhydrite ___
Halite ___
Quartz ___

Aragonite ___
Fe Dolomite ___

Clays

Kaolinite ___
Illite ___
Chlorite ___
Detrital 2

POROSITY

Porosity Types

Interparticle ______
Intraparticle ______
Growth Framework ______
Vug ______

Intercrystal P
Moldic ______
Fracture ______

Fenestral ______
Shelter ______
Chemical ______

Mean IC Pore Size (mm) 0.008
Mean ___ Pore Size (mm) ___
Interconnectedness VP-P

CLAY MINERAL LOCATION

Laminae ______
Dispersed ______
Rock Fragments ______
Pore Lining ______
Pore Bridging ______
Pore Filling ______
Grain Replacement ______
Fracture Filling ______

NOTES:

All percentages based on visual estimation.

SAMPLE NUMBER 66
DEPTH 542.00 metres

Plate A

This low magnificatior overview is of a very finely laminated, very finely crystalline dolomite (crystalline carbonate) which has minor amounts of detrital clays and traces of calcite. Overall porosity is intercrystalline which is very poor to poorly interconnected. Note laminations, from N1 through O12, defined by greater concentrations of detrital clays. (25x, plane polarized light)

Plate B

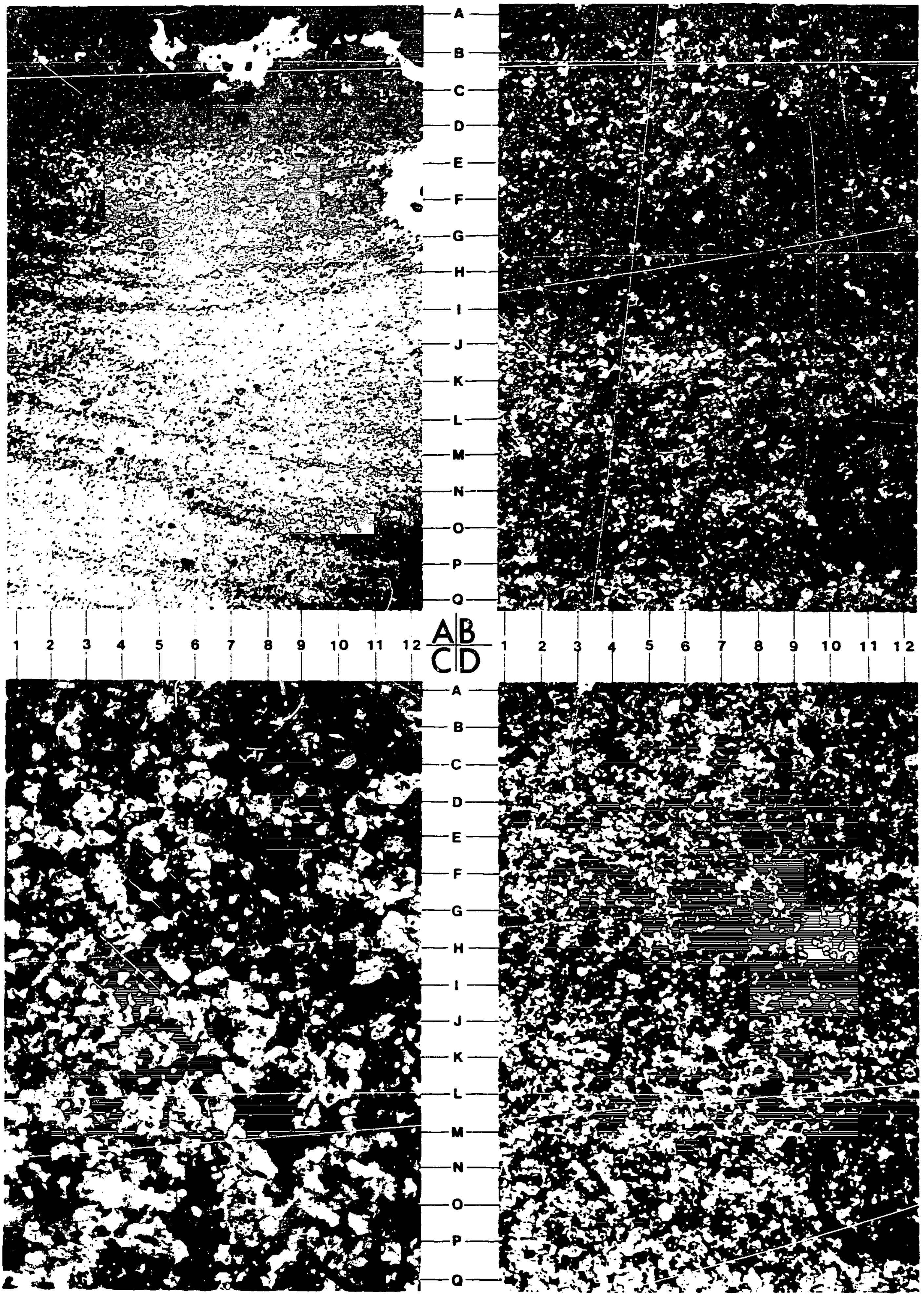
This high magnification view of the sample shows laminations running from HI1 through H12 and areas of increased intercrystalline porosity as defined by blue dyed epoxy at NO11, IJ11. (100x, plane polarized light)

Plate C

This higher magnification photomicrograph shows the very poor interconnectedness of the intercrystalline porosity as at HI8. The majority of the sample has tightly interlocking crystals which are anhedrally deformed leaving no porosity such as at D3. (250x, cross polarized light)

Plate D

This view again shows laminations defined by increased amounts of detrital clays running from HI1 through H12. Note the poor amounts of intercrystalline porosity as defined by blue dyed epoxy at I11, O11 and P11. (100x, cross polarized light)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1 2 3 4 5 6 7 8 9 10 11 12
A|B
C|D

APPENDIX

SAMPLE TREATMENT

X-Ray Diffraction Analysis: A sample representing the interval indicated is disaggregated and subjected to a five step analysis: bulk (greater than 5 microns), clay size fraction (less than 5 microns) at room humidity, clay size fraction glycolated, clay size fraction heat treated and, where necessary, clay size fraction acidized. The clay fraction is prepared by dispersion in sodium hexametaphosphate solution and flocculation in magnesium chloride solution. This also stabilizes the ionic state of some clays. The glycolation treatment is used to identify swelling clays such as smectites and vermiculites. These clays expand on glycolation to different degrees when the available cation sites are magnesium saturated. The heat treatment aids in identification of chlorite type and also differentiates between some chlorites and kaolinite. Where further identification of clay type in a chlorite-kaolinite mix is necessary, the sample is treated with warm dilute hydrochloric acid, which decomposes the chlorite.

Thin Section Analysis: A typical sample for the interval indicated is taken, and after cleaning is impregnated under vacuum and then pressure (1000 psi - nitrogen driven) with a low viscosity epoxy resin. This epoxy resin is typically mixed with a blue dye in order to discern porosity. The sample is then cut, mounted onto a glass slide, and ground to 30 micrometres. Carbonate mineral staining techniques where required are then applied before a cover glass is finally put on. The completed thin section is examined using a polarizing microscope, and photomicrographs of areas of interest are produced.

Scanning Electron Microscopy: A typical sample for the interval indicated is taken from the centre of the core, providing a clean freshly broken surface for viewing. The pieces, approximately one centimetre square, are mounted on aluminum stubs using colloidal silver as the adhesive and then coated under high vacuum with a fine coating of gold. A Cambridge Stereoscan 604 with a Kevex Energy Dispersive X-Ray Analyzer is used to examine the specimen and produce photographs beginning with low magnification overviews and progressing to high magnification representative views of areas of interest.

LIST OF ABBREVIATIONS

ROCK CONSTITUENTS

A	Apatite
AF	Authigenic Feldspar
AN	Anhydrite
AQ	Authigenic Quartz
B	Bitumen
C	Clay Minerals
CA	Calcite
CH	Chert
CL	Chlorite
CM	Carbonaceous Material
CO	Collophane
D	Dolomite
F	Feldspar
FO	Fossil
G	Glauconite
I	Illite
IN	Intraclast
K	Kaolinite
M	Mica
MD	Mud Damage
O	Opal
OO	Ooid
P	Pore Space
PE	Peloid
PI	Pyrite
Q	Quartz
RF	Rock Fragment
S	Siderite
SM	Smectite

POROSITY TYPE

MI	Microporosity
IG	Intergranular Porosity
S	Secondary Porosity
F	Fracture Porosity
V	Vugular Porosity
MO	Moldic Porosity
IA	Intragranular Porosity
IC	Intercrystalline Porosity

ROCK NAMES

QA	Quartzarenite
SA	Subarkose
SL	Sublitharenite
AR	Arkose
LA	Lithic Arkose
FL	Feldspathic Litharenite
LI	Litharenite
CO	Conglomerate
SI	Siltstone
SH	Shale
LS	Limestone
DO	Dolomite
AN	Anhydrite

OTHER

N	Nil
T	Trace
VP	Very Poor
P	Poor
M	Moderate
G	Good
VG	Very Good
W	Well
VW	Very Well
PPL	Plane Polarized Light
XPL	Crossed Polarized Light

DATA SHEET

F	Fine
VF	Very Fine
MED	Medium
CSE	Coarse

THIN SECTION PHOTOMICROGRAPH SCALE

The following bar lengths may be used to determine scale for ranges of magnifications.

Magnification		Bar Length	
x25	----------------------	2000µm	(2 mm)
x100	----------------------	500µm	(0.5 mm)
x250	---------------------	200µm	(0.2 mm)
x400	-----------------	100µm	(0.1 mm)
x630	-------------------------	100µm	(0.1 mm)

SCANNING ELECTRON MICROSCOPE PHOTOMICROGRAPH SCALE

Scale for each photomicrograph is indicated by the insert at the lower left corner of each print. This scale measurement corresponds with the width of the black bar at the base of the photomicrograph.

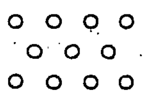
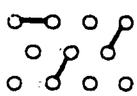
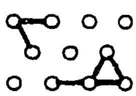
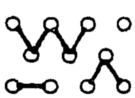
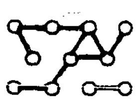
Scale Width	Approximate Magnification
1 mm	x20
400 µm	x50
200 µm	x100
100 µm	x200
40 µm	x500
20 µm	x1000
10 µm	x2000
4 µm	x5000
2 µm	x10000
1 µm	x20000
0.4 µm	x50000

DESCRIPTIVE TERMS OF POROSITY AND PORE "INTERCONNECTEDNESS"

Porosity

Term	Range Percent
Very Good	24
Good	12 - 24
Moderate	6 - 12
Poor	3 - 6
Very Poor	1 - 3
Tite	No Visible Porosity

Pore "Interconnectedness" (≃ Permeability)

Representation	Term	Description
	Very Poor	Pore spaces are isolated
	Poor	Pore spaces are locally interconnected in pairs.
	Moderate	Local pore groups are interconnected.
	Good	Most pore spaces are simply interconnected.
	Very Good	Most pores are interconnected with complex pore interconnections.

The measurement error for porosity determinations based on thin-sections increases with decreasing grain size and is especially serious when the grains are fine sand size or smaller (ibid. Harrel, J. 1981 JSP V51: Halley, R.B., 1978 JSP V48).

CANTERRA ENERGY LTD.

ICG SOGEPET ET AL NETSIG N-01

Report Prepared By:

Murray R. Nelson, M.Sc., Geol.
Petrologist
Petrographic Services

David K. Norman
Manager
Petrographic Services

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories - Canada Ltd. (all errors and omissions excepted); but Core Laboratories - Canada Ltd. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

ROBERTSON RESEARCH CANADA LIMITED

EXPLORATION REPORT 2305

CONFIDENTIAL FOR
EXAMIN LIMITE À:

Ottawa

THE MICROPALEONTOLOGY AND STRATIGRAPHY OF THE INTERVAL 500M - 1010M OF THE ICG ET. AL NETSIQ N-01 WELL, HUDSON BAY

8710-C55-1-2

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
APR 29 1986
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

Prepared for: CANTERRA ENERGY
605 - 5th Avenue S.W.
CALGARY, Alberta T2P 2K7

Prepared by: ROBERTSON RESEARCH CANADA LIMITED
300, 604 - 1st Street S.W.
CALGARY, Alberta T2P 1M7

RRC/86/2305

APRIL 1986

CONTENTS

PAGE NO.

S E C T I O N   I

INTRODUCTION

The ICG et. al Netsiq N-01 well was drilled in Hudson Bay at 59°50'48.06"N, 87°30'59.92"W in a water depth of 199.3m.

Ditch cutting samples were received for the interval 500m - 1010m. Seventeen samples at 30m intervals were prepared for conodonts. Two samples in the overlying shale from 450m - 505m, prepared for palynology, proved to be barren of palynomorphs.

The prepared samples on which this report is based are curated at Robertson Research Canada, Limited.

SECTION II

SUCCESSION

INTERVAL TOP	AGE
500m (top not seen)	Devonian
675m	?Silurian
710m - 1010m	Late Ordovician

SECTION III

STRATIGRAPHY

Interval 500m - 705m; Devonian - ?Silurian

The age of the interval is based on:

- the presence of dacryonarid tentaculites at 530m - 555m and 620m - 645m.
- the character of the crinoids and sponge remains at 650m - 675m.

Micropaleontology

The samples from this interval are exte[illegible]vely dolomitized and no conodonts were found after an exhaustive search. However, there are representatives of other groups which give a clue to the age of the interval.

Dacryonarid tentaculites, present at 530m - 555m and 620m - 645m, first appear in the Late Silurian but are most common in the Lower and Middle Devonian. Since dolomitization has badly affected their preservation it is not possible to identify to either generic or specific level but, in view of their presence in the Lower and Middle Devonian in the Beluga O-23 Well, it is most likely that they are of Devonian age.

The lowest sample at 650m - 675m does not contain pteropods, and the fossils present are too poorly preserved to indicate their age. However, the crinoids and sponge remains present are very different from the higher samples and may indicate a Silurian age.

Interval 710m - 1010m; Late Ordovician

The age of this interval is based on:

- the occurrences at 710m - 735m of Bryantodina abrupta, and at 770m - 795m of Icriodella suberba.
- the subsequent occurrences at 890m - 915m of Rhipidognathus discreta and at 950m - 975m of Belodina compressa.

Micropaleontology

The fauna includes Belodina compressa, Rhipidognathus discreta and Bryantodina abrupta which are widespread shallow water forms in Middle and Late Ordovician rocks in North America. Icriodella superba, a Late Ordovician European species occurs in North America in deeper water facies.

The age of this interval is therefore no younger than Late Ordovician and is comparable in age and faunal type to the 1905m - 2150m interval in the Beluga O-23 well.

Maturity of the Interval 710m - 1010m.

All the faunas are in the range CAI 1-1.5 which would place them in the lower end of the Oil Window. However, if the samples are extensively dolomitized the specimens may be darker than they would be in a less altered limestone, usually by about 0.5 of a grade. At the highest these samples are marginally mature.

SECTION IV

REFERENCES

LUDVIGSEN, R. 1972. Late Early Devonian Dacryoconarid Tentaculites, Northern Yukon Territory. Canadian Jour. Earth Sciences 9.

UYENO, T.T. 1974. Conodonts of the Hull Formation Ottawa Group (Middle Ordovician) of the Ottawa Area, Ontario and Quebec. G.S.C., Bull 248.

UYENO, T.T., TELFORD, P.G. and SANFORD, B.V. 1982. Devonian Conodonts and Stratigraphy of Southwestern Ontario. G.S.C., Bull. 332.

SECTION V

SPECIES LISTS

Sample 530m - 555m

Pteropods.

Dacryonarid tentaculites-unidentifiable.

Crinoids.

Crinoid ossicles.

Sponges.

Sponge spicules.

Sample 620m - 645m

Pteropods.

Dacryonarid tentaculites-unidentifiable.

Crinoids.

Crinoid ossicles.

Sample 650m - 675m

Crinoids.

Crinoid ossicles.

Sponges.

Sponge spicules.

Sample 710m - 725m

Conodonts:

Bryantodina abrupta

Sample 740m - 765m

Conodonts:

Phragmodus sp.

Sample 770m - 795m

Conodonts:

Panderodus gracilis

Icriodella superba

Sample 830m - 855m

Conodonts:

Plectodina sp.

Sample 890m - 915m

Conodonts:

Panderodus gracilis

Rhipidognathus discreta

Sample 920m - 945m

Conodonts:

Panderodus gracilis

Sample 950m - 975m

Condonts:

Belodina compressa

Panderodus gracilis

Sample 980m - 1010m

Conodonts:

Drepanoistodus suberectus

Panderodus gracilis

8710-L55-1-2

Schlumberger

CYBERLOOK

CSU Field Log

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

Canada Oil & Gas Lands Administration
NOV 4 1985
St. John's, Nfld.

DATE: 23 OCT 85
RUN NO: 2

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
NOV 5 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTRÔLE

DEPTH-DRILLER:	1040.0 M	
DEPTH-LOGGER:	1038.0 M	
BTM. LOG INTERVAL:	1025.0 M	
TOP LOG INTERVAL:	532.0 M	
CASING-DRILLER:	437 M	533 M
CASING-LOGGER:	436 M	532 M
CASING:	339.7 MM	244.5
WEIGHT:	107.1 KG/M	70.10 KG/M
BIT SIZE:	311.2 MM	216MM

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DISFL-DDBHC
SHDT
RFT
VSP / CST

PROGRAM TAPE NO: 26.2
SERVICE ORDER NO: 129389

TYPE FLUID IN HOLE:	NACL SATURATED GEL POLYMER
DENSITY:	1761 K/M3
VISCOSITY:	48.0 S
PH:	10.5
FLUID LOSS:	11.1 C3
SOURCE OF SAMPLE:	CIRC.
RM:	.091 OHMM AT 18.0 DEGC
RMF:	.058 OHMM AT 18.0 DEGC
RMC:	.223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC:	PRESS /PRESS
RM AT BHT:	.099 OHMM AT 15.0 DEGC
RMF AT BHT:	.063 OHMM AT 15.0 DEGC
RMC AT BHT:	.216 OHMM AT 15.0 DEGC
TIME CIRC. STOPPED:	10:20/16
TIME LOGGER ON BTM.:	18:45/16
MAX. REC. TEMP:	15.0 DEGC
LOGGING UNIT NO:	922
LOGGING UNIT LOC:	ST. JOHN'S
RECORDED BY:	BEBB
WITNESSED BY:	L. ZANUSSI

REMARKS:

EQUIPMENT NUMBERS-

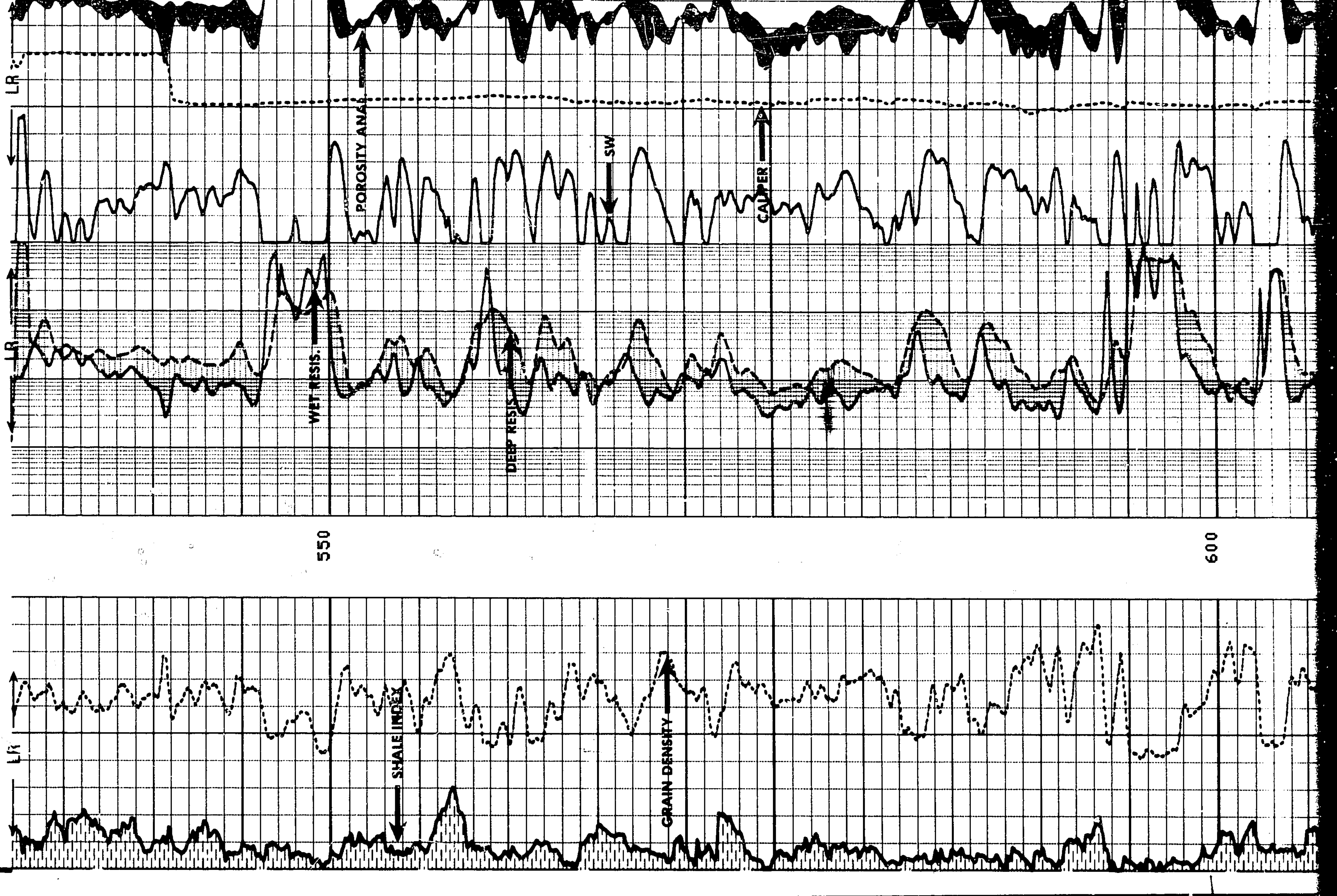
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

CHANGED PARAMETERS

NAME	VALUE	UNIT	DEPTH (M)	NAME	VALUE	UNIT	DEPTH (M)
RWB	.200000	OHMM	1024.9	RWF	.0900000	OHMM	1024.9
GRSH	70.0000	GAPI	1004.9	GRSH	150.000	GAPI	1024.9
GRCL	3.00000	GAPI	1024.9				

RHGF (K/M3) 2500.0 – 3000.0	RO (OHMM) .10000 – 1000.0	SW 1.0000 – -1.000
MSI 0.0 – 1.0000	RT (OHMM) .10000 – 1000.0	DCAL (MM) -250.0 – 250.00
		VWXO .50000 – 0.0
		BVW .50000 – 0.0
		PHIE .50000 – 0.0

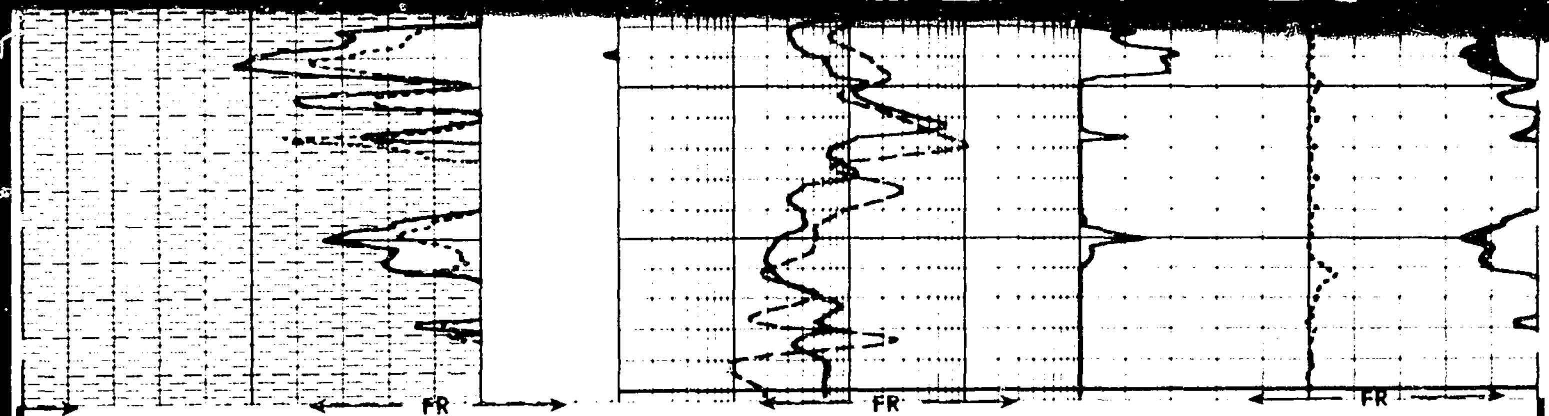
FILE 4 23-OCT-85 15:00
DATA ACQUIRED 16-OCT-85 19:46




POROSITY ANAL.
SW
CALIPER
WET RESIS.
DEEP RES
550
600
650
700
SHALE INDE
GRAIN DENSITY


700
750
800
850

850
900
950
1000
POROSITY ANAL.
SW
CAPIPER
DEEP RESIS.
WET RESIS.
GRAIN DENSITY
SHALE INDEX
FR
FILE 4 23-OCT-95 14:53
DATA ACQUIRED 16-OCT-85 18:48
SW 1.0000 -1.000
DCAL(MM) -250.0 250.00
VWXO .50000 0.0
BVW .50000 0.0
PHIE
RO (OHMM) .10000 1000.0
RHGF(K/M3) 2500.0 3000.0



FILE 4 23-OCT-85 14:53
DATA ACQUIRED 16-OCT-85 18:40

		SW
		1.0000 -1.000
		DCAL(MM)
		-250.0 250.00
		VWXO
		.50000 0.0
RHGF(K/M3)	RO (OHMM)	BVW
2500.0 3000.0	.10000 1000.0	.50000 0.0
MSI	RT (OHMM)	PHIE
0.0 1.0000	.10000 1000.0	.50000 0.0

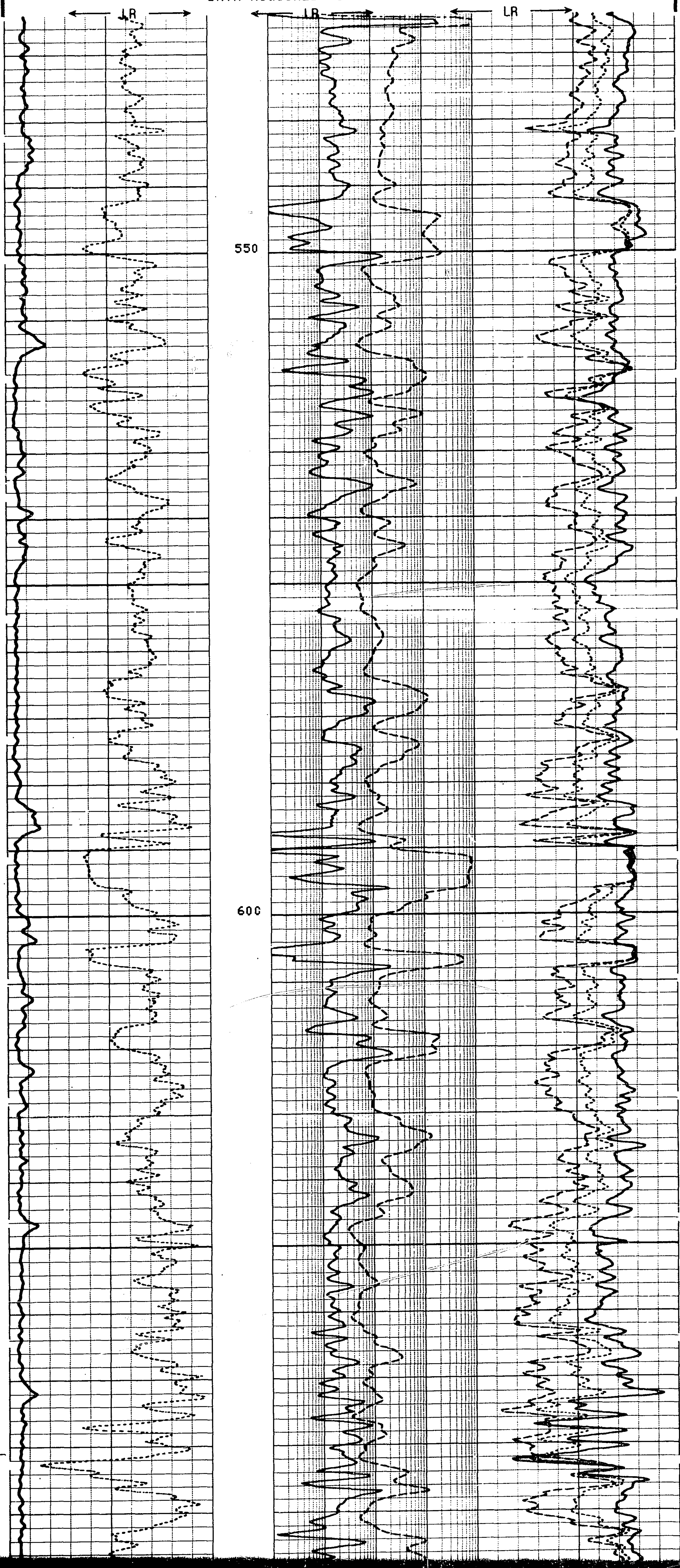
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
KCON	1.00000		KEXP	1.00000	
FRT	DISA		KES	E4	
UM33	8.99700		GRSS	CGR	
UM31	13.7700		UM32	4.77900	
UM22	4.77900		UM23	8.99700	
UF	.398000		UM21	13.7700	
RG32	2.64400		RG33	2.87700	
RG23	2.87700		RG31	2.71000	
RG21	2.71000		RG22	2.64400	
SIS	NONE		LDTA	ABSE	
NMLA	ABSE		SDGC	DGCN	
DLLM	.350000		GULM	999.001	GAPI
MDET	NEIT		NLIM	.0100000	
FRTC	MSFL		LSWB	DISA	
GDCL	0.0	K/M3	GDSH	2900.00	K/M3
TPFM	7.20000	NS/M	DRUL	998999.	K/M3
TPM2	7.20000	NS/M	TPM3	8.70000	NS/M
FESX	DISA		TPM1	9.80000	NS/M
POUT	LIME		FEPT	NONE	
RWB	.200000	OHMM	FCAL	PRES	
NPSH	.500000		RWF	.0900000	OHMM
SPSH	0.0	MV	NPCL	0.0	
GRSH	150.000	GAPI	SPCL	-200.000	MV
PMAX	.500000		GRCL	3.00000	GAPI
SINP	GR		NGSI	NEIT	
SONI	PRES		RXOF	PRES	
HC	CALI		RTLF	DISA	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1797.39	K/M3	MDEN	2710.00	K/M3
DHC	CALI		LPCS	TWIN	
BS	216.000	MM	BHS	OPEN	
DD	0.0	M	DD2	0.0	M
PP	NORM				

TAPE NOT MADE

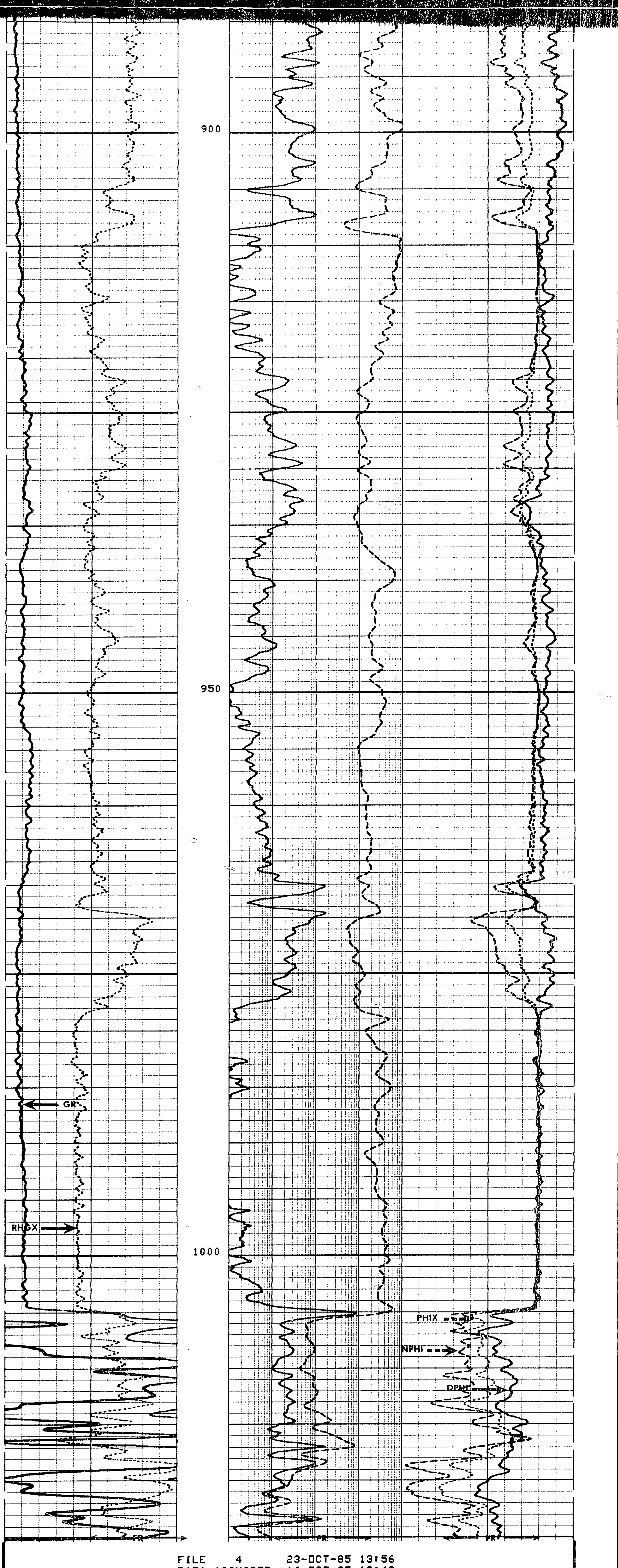
		PHIA
		.40000 -.1000
SGR (GAPI)	RFA (OHMM)	DPHI
0.0 100.00	.01000 100.00	.40000 -.1000
RHGA(K/M3)	RT (OHMM)	NPHI
2500.0 3000.0	.10000 1000.0	.40000 -.1000

FILE 4 23-OCT-85 14:03
DATA ACQUIRED 16-OCT-85 19:46




600
650
700
750


750
800
850
900



FILE 4 23-OCT-85 13:56
DATA ACQUIRED 16-OCT-85 18:48

SGR (GAPI) 0.0 – 100.00		RFA (OHMM) .01000 – 100.00	PHIA .40000 – -.1000
RHGA(K/M3) 2500.0 – 3000.0		RT (OHMM) .10000 – 1000.0	DPHI .40000 – -.1000
			NPHI .40000 – -.1000

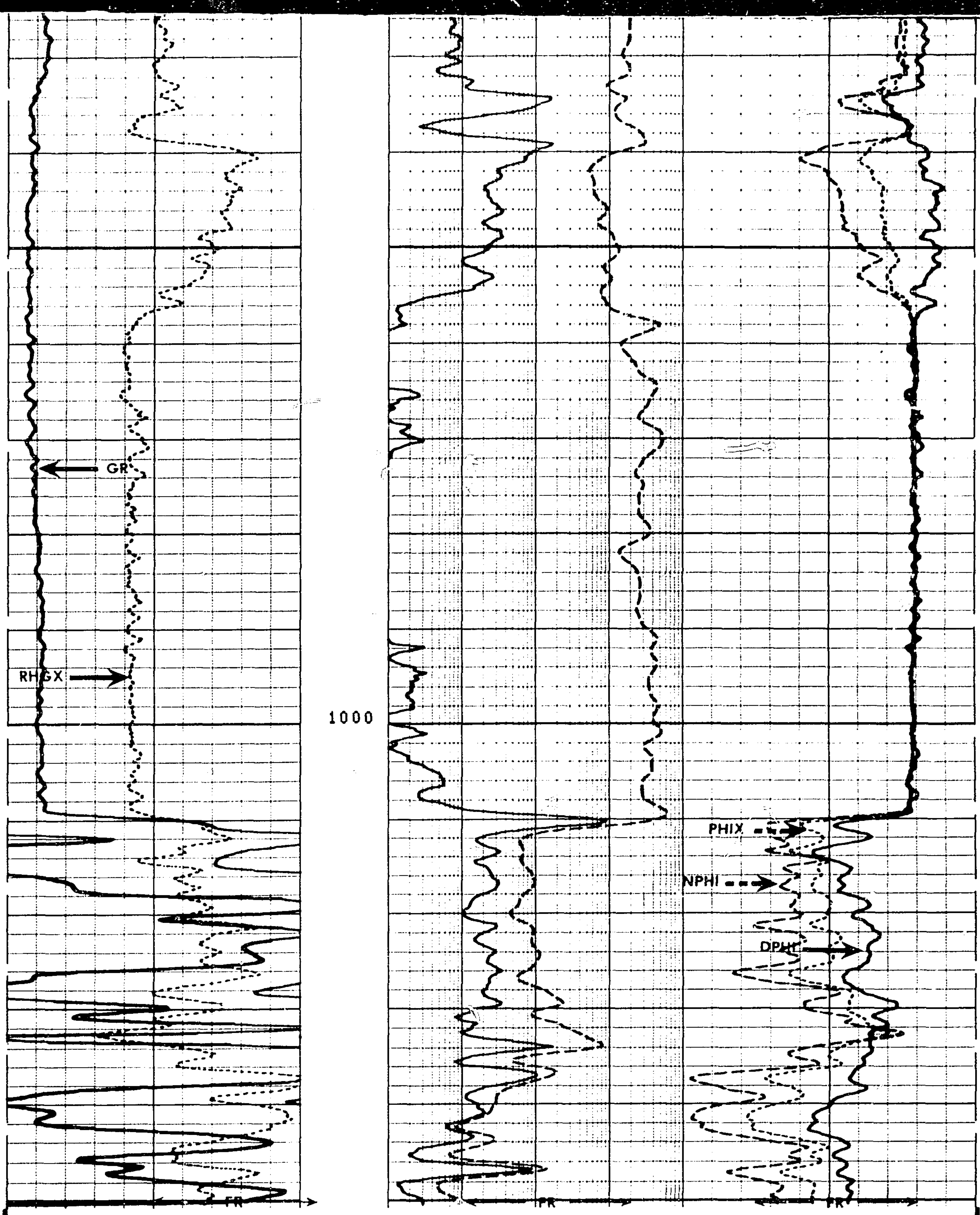
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
KCON	1.00000		KEXP	1.00000	
FRT	DISA		KES	E4	
UM33	8.99700		GRSS	GR	
UM31	13.7700		UM32	4.77900	
UM22	4.77900		UM23	8.99700	
UF	.398000		UM21	13.7700	
RG32	2.64400		RG33	2.87700	
RG23	2.87700		RG31	2.71000	
RG21	2.71000		RG22	2.64400	
SIS	NONE		LDTA	ABSE	
NMLA	ABSE		SDGC	DGCN	
DLLM	.350000		GULM	999.001	GAPI
MDET	NEIT		NLIM	.0100000	
FRTC	NONE		LSWB	ALLD	
GDCL	0.0	K/M3	GDSH	2900.00	K/M3
TPFM	7.20000	NS/M	DRUL	998999.	K/M3
TPM2	7.20000	NS/M	TPM3	8.70000	NS/M
FESX	DISA		TPM1	9.80000	NS/M
POUT	LIME		FEPT	NONE	
RWB	.100000	OHMM	FCAL	PRES	
NPSH	.500000		RWF	.0200000	OHMM
SPSH	0.0	MV	NPCL	0.0	
GRSH	200.000	GAPI	SPCL	-200.000	MV
PMAX	.500000		GRCL	0.0	GAPI
SINP	BOTH		NGSI	NEIT	
SONI	PRES		RXOF	PRES	
HC	CALI		RTLF	DISA	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1797.39	K/M3	MDEN	2710.00	K/M3
DHC	CALI		LPCS	TWIN	
BS	216.000	MM	BHS	OPEN	
DO	0.0	M	DO2	0.0	M
PP	NORM				

TAPE NOT MADE

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV. : MANITOBA
NATION: CANADA
LOCATION:
SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DISFL-DDBHC
SHDT
RFT
VSP / CST



FILE 4 23-OCT-85 13:56
DATA ACQUIRED 16-OCT-85 18:48

			PHIA .40000 -.1000
SGR (GAPI) 0.0 100.00		RFA (OHMM) .01000 100.00	DPHI .40000 -.1000
RHGA(K/M3) 2500.0 3000.0		RT (OHMM) .10000 1000.0	NPHI .40000 -.1000

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
KCON	1.00000		KEXP	1.00000	
FRT	DISA		KES	E4	
UM33	8.99700		GRSS	GR	
UM31	13.7700		UM32	4.77900	
UM22	4.77900		UM23	8.99700	
UF	.398000		UM21	13.7700	
RG32	2.64400		RG33	2.87700	
RG23	2.87700		RG31	2.71000	
RG21	2.71000		RG22	2.64400	
SIS	NONE		LDTA	ABSE	
NMLA	ABSE		SDGC	DGCN	
DLLM	.350000		GULM	999.001	GAPI
MDET	NEIT		NLIM	.0100000	
FRTC	NONE		LSWB	ALLO	
GDCL	0.0	K/M3	GDSH	2900.00	K/M3
TPFM	7.20000	NS/M	DRUL	998999.	K/M3
TPM2	7.20000	NS/M	TPM3	8.70000	NS/M
FESX	DISA		TPM1	9.80000	NS/M
POUT	LIME		FEPT	NONE	
RWB	.100000	OHMM	FCAL	PRES	
NPSH	.500000		RWF	.0200000	OHMM
SPSH	0.0	MV	NPCL	0.0	
GRSH	200.000	GAPI	SPCL	-200.000	MV
PMAX	.500000		GRCL	0.0	GAPI
SINP	BOTH		NGSI	NEIT	
SONI	PRES		RXOF	PRES	
HC	CALI		RTLF	DISA	
FD	1000.00	K/M3	MATR	LIME	
WMUD	1797.39	K/M3	MDEN	2710.00	K/M3
DHC	CALI		LPCS	TWIN	
BS	216.000	MM	BHS	OPEN	
DO	0.0	M	DO2	0.0	M
PP	NORM				

TAPE NOT MADE

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV. : MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

DATE: 23 OCT 85
RUN NO: 2

DEPTH-DRILLER: 1040.0 M
DEPTH-LOGGER: 1038.0 M
BTM. LOG INTERVAL: 1025.0 M
TOP LOG INTERVAL: 532.0 M

CASING-DRILLER: 437 M 533 M
CASING-LOGGER: 436 M 532 M
CASING: 339.7 MM 244.5
WEIGHT: 107.1 KG/M 70.10 KG/M
BIT SIZE: 311.2 MM 216MM

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DISFL-DDBHC
SHDT
RFT
VSP / CST

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:
129389

Schlumberger

CYBERLOOK

CSU Field Log

8710-C55-1-2

Schlumberger

CYBERLOOK

CSU Field Log

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV.: MANITOBA
NATION: CANADA
LOCATION:
SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

DATE: 3 OCT 1985
RUN NO: 1

DEPTH-DRILLER: 541.0 M
DEPTH-LOGGER: 541.0 M
BTM. LOG INTERVAL: 535.0 M
TOP LOG INTERVAL: 436.0 M

CASING-DRILLER: 437 M
CASING-LOGGER: 436 M
CASING: 339.7 MM
WEIGHT: 107.1 KG/M
BIT SIZE: 311.2 MM

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DDBHC

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:

TYPE FLUID IN HOLE: NACL SATURATED GEL POLYMER
DENSITY: 1749 K/M3
VISCOSITY: 46.0 S
PH: 10.0
FLUID LOSS: 37.0 C3
SOURCE OF SAMPLE: CIRC.
RM: .097 OHMM AT 11.0 DEGC
RMF: .059 OHMM AT 11.0 DEGC
RMC: .222 OHMM AT 11.0 DEGC
SOURCE RMF/RMC: PRESS /PRESS
RM AT BHT: .072 OHMM AT 22.0 DEGC
RMF AT BHT: .044 OHMM AT 22.0 DEGC
RMC AT BHT: .166 OHMM AT 22.0 DEGC

TIME CIRC. STOPPED: 08:30 / 29
TIME LOGGER ON BTM.: 15:00 / 29

MAX. REC. TEMP: 22.0 DEGC

LOGGING UNIT NO: 922
LOGGING UNIT LOC: ST. JOHN'S
RECORDED BY: MACNEILL
WITNESSED BY: L ZANUSSI

REMARKS:

ZONE FROM 460M TO 499 METER IS A SHALE SALT SEQUENCE THAT WOULD SHOW AS OIL IF LEFT ALONE. PMAX WAS SET TO 5% OVER THIS ZONE TO ELIMINATE THE FALSE OIL SHOWING. RWF WAS DETERMINED TO BE .2 OHM-M USING THE REVERSE SP DEFLECTION AND THE CHART BOOK.

EQUIPMENT NUMBERS-

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

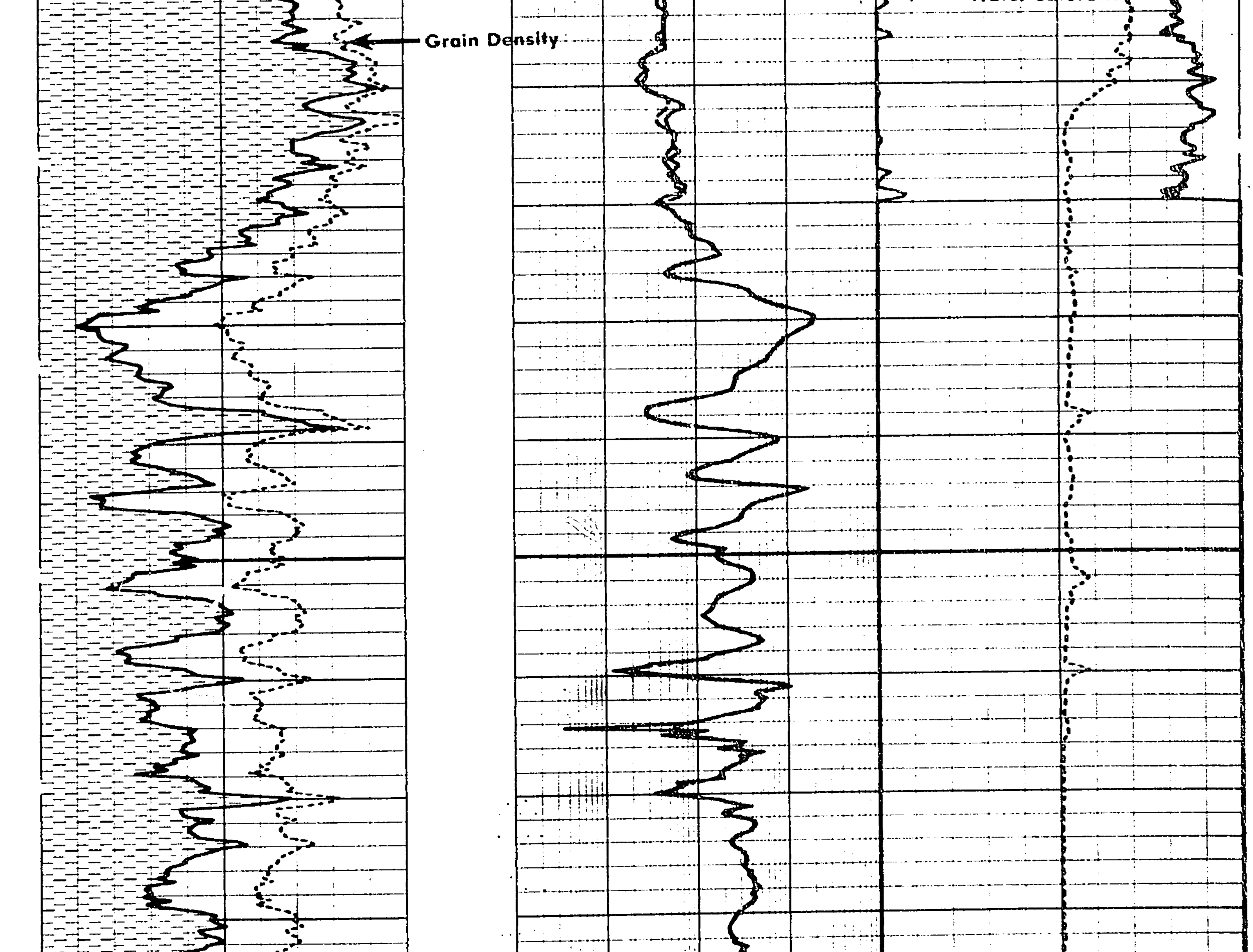
FILE 0 00- -00 01:22
DATA ACQUIRED 29-SEP-85 03:09

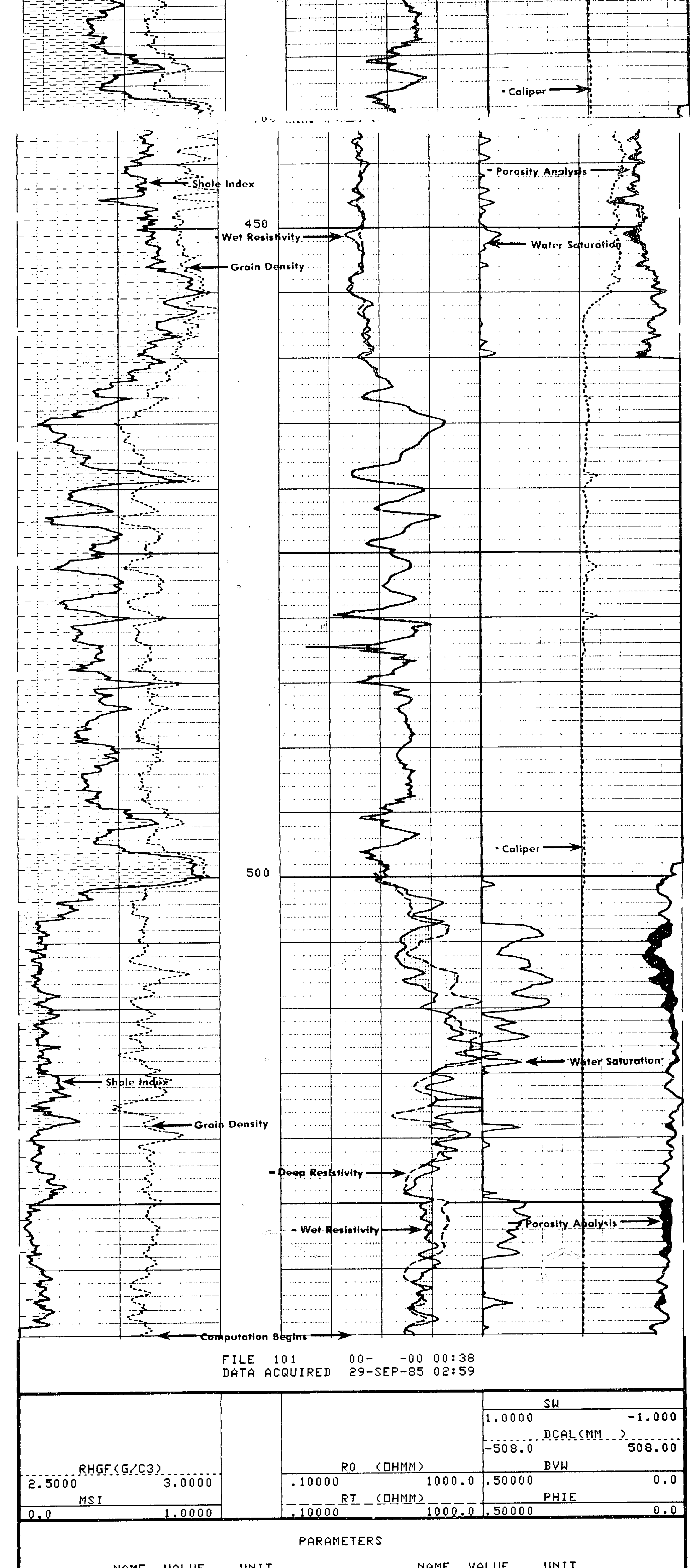
CHANGED PARAMETERS

NAME	VALUE	UNIT	DEPTH (M)	NAME	VALUE	UNIT	DEPTH (M)
PMAX	.0500000		498.9	PMAX	.500000		459.9

RHGF(G/C3) 2.5000 – 3.0000		RO (OHMM) .10000 – 1000.0	SW 1.0000 – -1.000
MSI 0.0 – 1.0000		RT (OHMM) .10000 – 1000.0	DCAL(MM) -508.0 – 508.00
			BVW .50000 – 0.0
			PHIE .50000 – 0.0

FILE 101 00- -00 00:39
DATA ACQUIRED 29-SEP-85 11:04





FILE 101 00- -00 00:38
DATA ACQUIRED 29-SEP-85 02:59

RHGF(G/C3) 2.5000 – 3.0000		RO (OHMM) .10000 – 1000.0	SW 1.0000 – -1.000
MSI 0.0 – 1.0000		RT (OHMM) .10000 – 1000.0	DCAL(MM) -508.0 – 508.00
			BVW .50000 – 0.0
			PHIE .50000 – 0.0

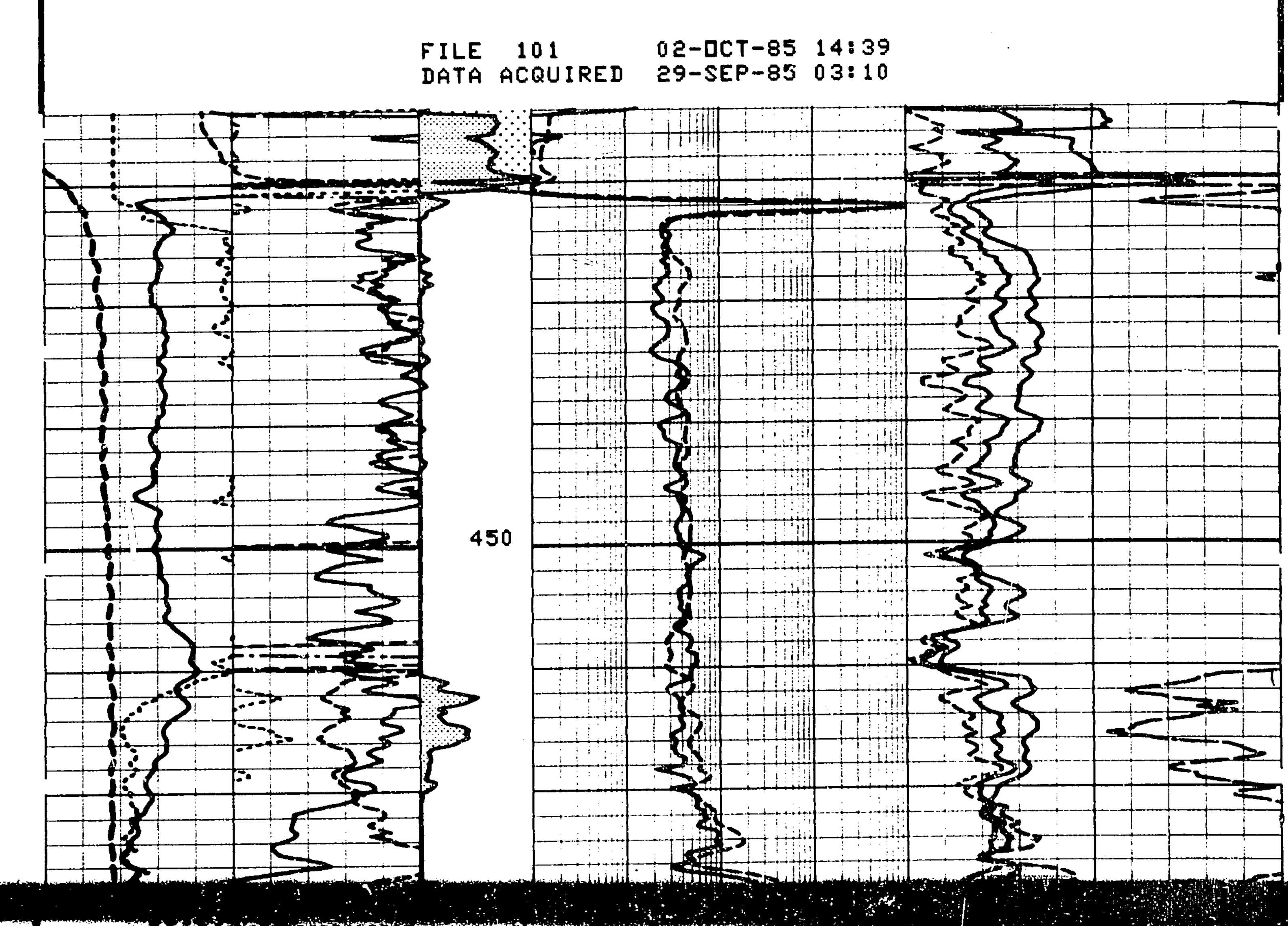
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
KCON	1.00000		KEXP	1.00000	
FRT	DISA		KES	E4	
UM33	8.99700		GRSS	SGR	
UM31	13.7700		UM32	4.77900	
UM22	4.77900		UM23	8.99700	
UF	1.36000		UM21	13.7700	
RG32	2.64400		RG33	2.87700	
RG23	2.87700		RG31	2.71000	
RG21	2.71000		RG22	2.64400	
SIS	NONE		LDTA	ABSE	
NMLA	ABSE		SDGC	DGCN	
DLLM	.350000		GULM	999.001	GAPI
MDET	NEIT		NLIM	.0100000	
FRTC	MSFL		LSWB	ALLO	
GDCL	0.0	G/C3	GDSH	2.90000	G/C3
TPFM	7.20000	NS/M	DRUL	999.001	G/C3
TPM2	7.20000	NS/M	TPM3	8.70000	NS/M
FESX	DISA		TPM1	9.80000	NS/M
POUT	LIME		FEPT	NONE	
RWB	.600000	OHMM	FCAL	PRES	
NPSH	.500000		RWF	.200000	OHMM
SPSH	0.0	MV	NPCL	0.0	
GRSH	90.0000	GAPI	SPCL	-200.000	MV
PMAX	.500000		GRCL	8.00000	GAPI
SINP	GR		NGSI	NEIT	
SONI	PRES		RXOF	PRES	
RTLF	DISA		BHT	22.0000	DEGC
MATR	LIME		HC	CALI	
MDEN	2.71000	G/C3	FD	1.00000	G/C3
LPCS	TWIN		WMUD	1750.00	K/M3
BHS	OPEN		DHC	BS	
DO2	0.0	M	BS	311.000	MM
PP	NORM		DO	0.0	M

TAPE NOT MADE

CGR (GAPI) 0.0 – 200.00		RT (OHMM) .10000 – 1000.0	PEF 0.0 – 10.000
CALI(MM) 225.00 – 725.00		RFA (OHMM) .01000 – 100.00	PHIA .50000 – -.5000
DG13(G/C3) 2.0000 – 3.0000			DPHI .50000 – -.5000
DG12(G/C3) 2.0000 – 3.0000			NPHI .50000 – -.5000
RHGA(G/C3) 2.0000 – 3.0000			
SP (MV) -160.0 – 240.00			

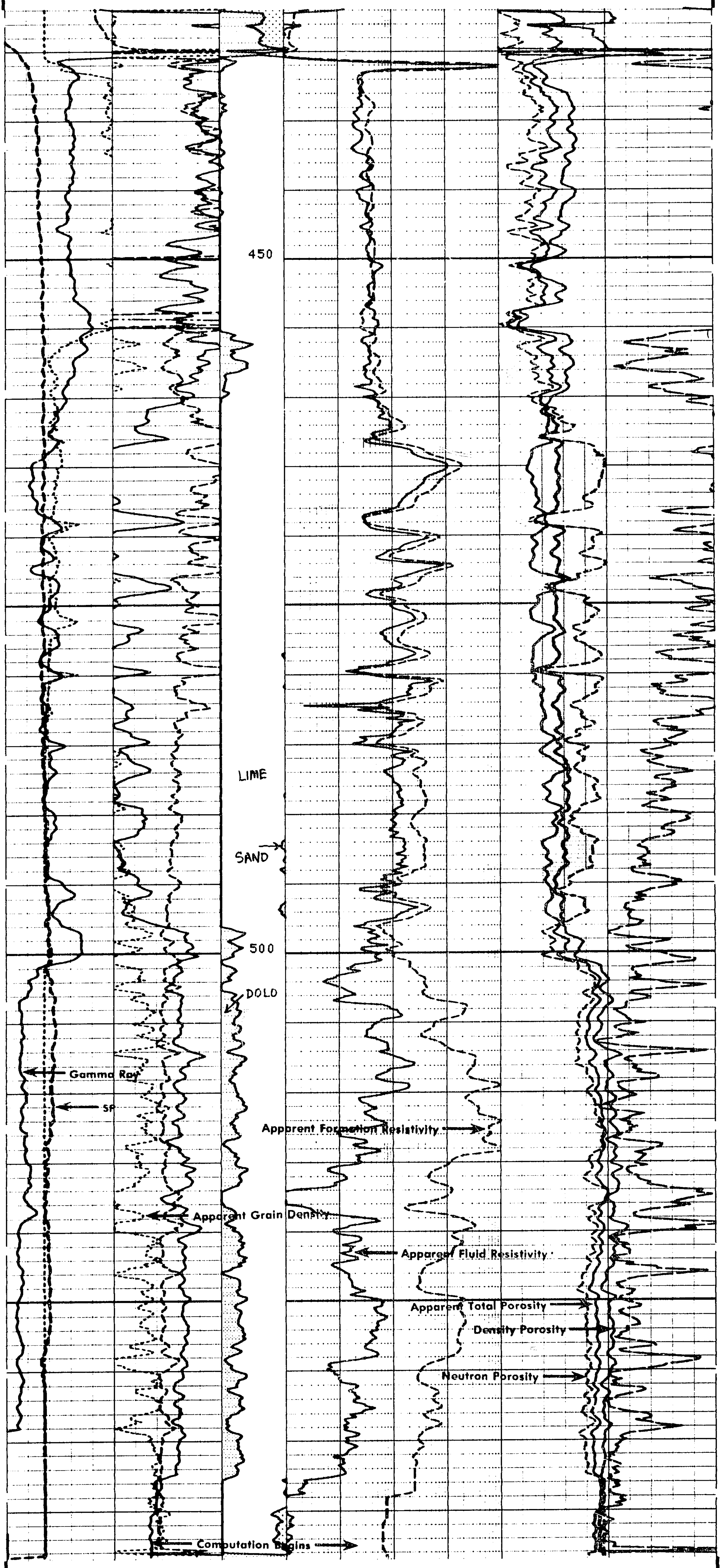
FILE 101 02-OCT-85 14:39
DATA ACQUIRED 29-SEP-85 03:10



2.0000 DG12(G/C3) 3.0000	
2.0000 RHGA(G/C3) 3.0000	RT (OHMM) .10000 1000.0
-160.0 SP (MV) 240.00	RFA (OHMM) .01000 100.00

0.0 10.000 — .50000 PHIA -.5000 — .50000 DPHI -.5000 — .50000 NPHI -.5000

FILE 101 02-OCT-85 14:39
DATA ACQUIRED 29-SEP-85 03:10



FILE 101 02-OCT-85 14:37
DATA ACQUIRED 29-SEP-85 02:58

0.0 CGR (GAPI) 200.00		
225.00 CALI(MM) 725.00		0.0 PEF 10.000
2.0000 DG13(G/C3) 3.0000		.50000 PHIA -.5000
2.0000 DG12(G/C3) 3.0000		
2.0000 RHGA(G/C3) 3.0000	.10000 RT (OHMM) 1000.0	.50000 DPHI -.5000
-160.0 SP (MV) 240.00	.01000 RFA (OHMM) 100.00	.50000 NPHI -.5000

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
KCON	1.00000		KEXP	1.00000	
FRT	DISA		KES	E4	
UM33	8.99700		GRSS	CGR	
UM31	13.7700		UM32	4.77900	
UM22	4.77900		UM23	8.99700	
UF	.398000		UM21	13.7700	
RG32	2.64400		RG33	2.87700	
RG23	2.87700		RG31	2.71000	
RG21	2.71000		RG22	2.64400	
SIS	NONE		LDTA	PRES	
NMLA	ABSE		SDGC	DGCN	
DLLM	.350000		GULM	999.001	GAPI
MDET	NEIT		NLIM	.0100000	
FRTC	MSFL		LSWB	ALLO	
GDCL	0.0	G/C3	GDSH	2.90000	G/C3
TPFM	7.20000	NS/M	DRUL	999.001	G/C3
TPM2	7.20000	NS/M	TPM3	8.70000	NS/M
FESX	DISA		TPM1	9.80000	NS/M
POUT	LIME		FEPT	NONE	
RWB	.100000	OHMM	FCAL	PRES	
NPSH	.500000		RWF	.0200000	OHMM
SPSH	0.0	MV	NPCL	0.0	
GRSH	200.000	GAPI	SPCL	-200.000	MV
PMAX	.500000		GRCL	0.0	GAPI
SINP	BOTH		NGSI	NEIT	
SONI	PRES		RXOF	PRES	
RTLF	DISA		BHT	22.0000	DEGC
MATR	LIME		HC	CALI	
MDEN	2.71000	G/C3	FD	1.00000	G/C3
LPCS	TWIN		WMUD	1750.00	K/M3
BHS	OPEN		DHC	CALI	
DO2	0.0	M	BS	311.150	MM
PP	NORM		DO	0.0	M

TAPE NOT MADE

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV.: MANITOBA
NATION: CANADA
LOCATION:
SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DDBHC

PROGRAM

CGR (GAPI) 0.0 — 200.00		
CALI(MM) 225.00 — 725.00		
DG13(G/C3) 2.0000 — 3.0000		PEF 0.0 — 10.000
DG12(G/C3) 2.0000 — 3.0000		PHIA .50000 — -.5000
RHGA(G/C3) 2.0000 — 3.0000	RT (OHMM) .10000 — 1000.0	DPHI .50000 — -.5000
SP (MV) -160.0 — 240.00	RFA (OHMM) .01000 — 100.00	NPHI .50000 — -.5000

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
KCON	1.00000		KEXP	1.00000	
FRT	DISA		KES	E4	
UM33	8.99700		GRSS	CGR	
UM31	13.7700		UM32	4.77900	
UM22	4.77900		UM23	8.99700	
UF	.398000		UM21	13.7700	
RG32	2.64400		RG33	2.87700	
RG23	2.87700		RG31	2.71000	
RG21	2.71000		RG22	2.64400	
SIS	NONE		LDTA	PRES	
NMLA	ABSE		SDGC	DGCN	
DLLM	.350000		GULM	999.001	GAPI
MDET	NEIT		NLIM	.0100000	
FRTC	MSFL		LSWB	ALLO	
GDCL	0.0	G/C3	GDSH	2.90000	G/C3
TPFM	7.20000	NS/M	DRUL	999.001	G/C3
TPM2	7.20000	NS/M	TPM3	8.70000	NS/M
FESX	DISA		TPM1	9.80000	NS/M
POUT	LIME		FEPT	NONE	
RWB	.100000	OHMM	FCAL	PRES	
NPSH	.500000		RWF	.0200000	OHMM
SPSH	0.0	MV	NPCL	0.0	
GRSH	200.000	GAPI	SPCL	-200.000	MV
PMAX	.500000		GRCL	0.0	GAPI
SINP	BOTH		NGSI	NEIT	
SONI	PRES		RXOF	PRES	
RTLF	DISA		BHT	22.0000	DEGC
MATR	LIME		HC	CALI	
MDEN	2.71000	G/C3	FD	1.00000	G/C3
LPCS	TWIN		WMUD	1750.00	K/M3
BHS	OPEN		DHC	CALI	
DO2	0.0	M	BS	311.150	MM
PP	NORM		DO	0.0	M

TAPE NOT MADE

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV.: MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP: RGE:
LATITUDE: 59 50' 48.06"N
LONGITUDE: 87 30' 59.92"W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.3 M
GL: -199.3 M

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DDBHC

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:

DATE: 0 0
RUN NO:

DEPTH-DRILLER: 541.0 M
DEPTH-LOGGER: 541.0 M
BTM. LOG INTERVAL: 535.0 M
TOP LOG INTERVAL: 436.0 M

CASING-DRILLER: 437 M
CASING-LOGGER: 436 M
CASING: 339.7 MM
WEIGHT: 107.1 KG/M
BIT SIZE: 311.2 MM

Schlumberger

CYBERLOOK

CSU Field Log

8710-C55-1-2

Schlumberger

WELL SEISMIC RESULTS

CSU Field Log

COMPANY: CANTERRA ENERGY LTD.
WELL: ICG SOGEPET ET AL NETSIQ N-01
FIELD: HUDSON BAY
PROV.: MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP: RGE:
LATITUDE: 59 50' 48.0" N
LONGITUDE: 87 30' 59.5" W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B. 13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.1 M
GL: -199.3 M

Canada Oil & Gas Lands Administration
NOV 4 1985
St. John's, Nfld.

DATE: 17 OCT 85
RUN NO: 1

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
NOV 5 1985
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

DEPTH-DRILLER: 1040.0 M
DEPTH-LOGGER: 1038.0 M
BTM. LOG INTERVAL: 1025.0 M
TOP LOG INTERVAL: 475.0 M

CASING-DRILLER:	437 M	533 M
CASING-LOGGER:	436 M	532 M
CASING:	339.7 MM	244.5
WEIGHT:	107.1 KG/M	70.10 KG/M
BIT SIZE:	311.2 MM	216 MM

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DDBHC-DIL
SHDT
RFT
CST

PROGRAM TAPE NO: 26.2
SERVICE ORDER NO: 129389

TYPE FLUID IN HOLE:	NACL SATURATED GEL POLYMER
DENSITY:	1761 K/M3
VISCOSITY:	48.0 S
PH:	10.5
FLUID LOSS:	11.1 C3
SOURCE OF SAMPLE:	CIRC.
RM:	.091 OHMM AT 18.0 DEGC
RMF:	.058 OHMM AT 18.0 DEGC
RMC:	.223 OHMM AT 14.0 DEGC
SOURCE RMF/RMC:	PRESS /PRESS
RM AT BHT:	.099 OHMM AT 15.0 DEGC
RMF AT BHT:	.063 OHMM AT 15.0 DEGC
RMC AT BHT:	.216 OHMM AT 15.0 DEGC
TIME CIRC. STOPPED:	10:20 / 16
TIME LOGGER ON BTM.:	10:00 / 18
MAX. REC. TEMP:	15.0 DEGC
LOGGING UNIT NO:	922
LOGGING UNIT LOC:	ST. JOHN'S
RECORDED BY:	BEBB
WITNESSED BY:	L ZANUSSI

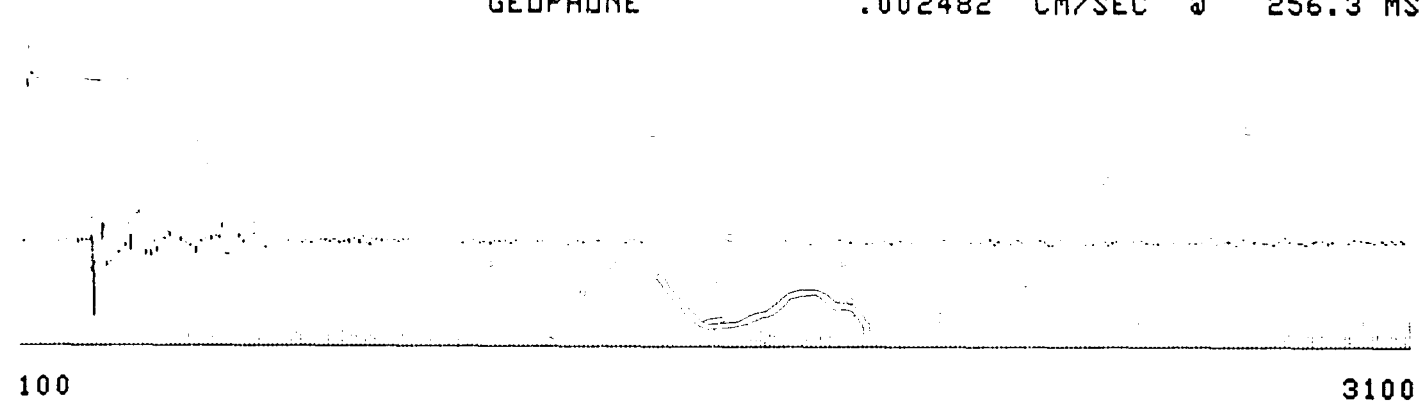
REMARKS:

EQUIPMENT NUMBERS-

WSM 1726	WDM-AA 76	WSC-A 957	WSA-AB 988
HPS-AB 1700	WSI 779		

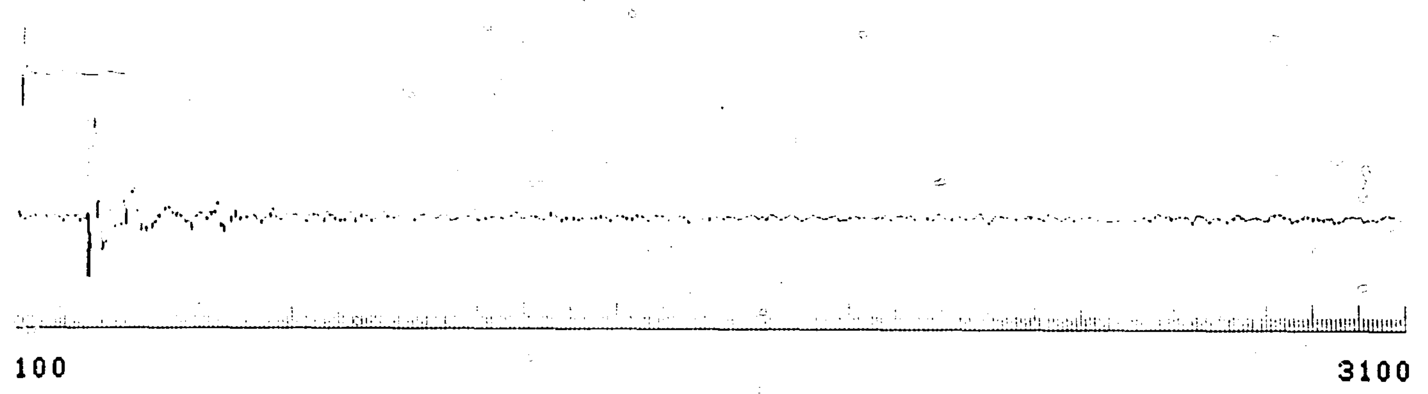
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

SHOT # 191 @ 475.0 M 10 /18 /85 18 :35 TT = 245.9 MS
REFERENCE SIGNAL .53 VOLTS @ 10.3 MSEC
GEOPHONE .002482 CM/SEC @ 256.3 MS



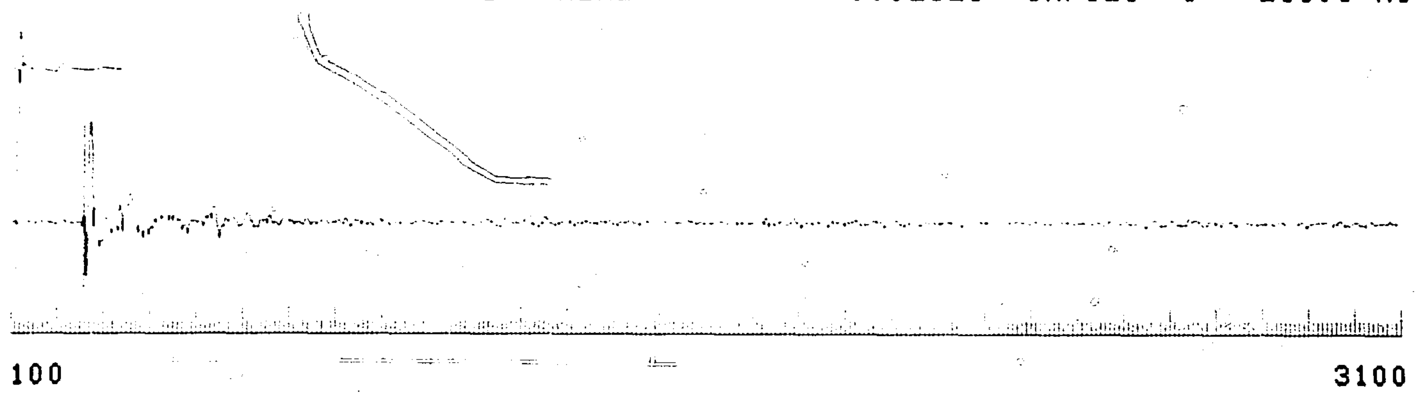
100 3100

SHOT # 190 @ 475.0 M 10 /18 /85 18 :34 TT = 245.8 MS
REFERENCE SIGNAL .52 VOLTS @ 9.3 MSEC
GEOPHONE .002414 CM/SEC @ 255.2 MS



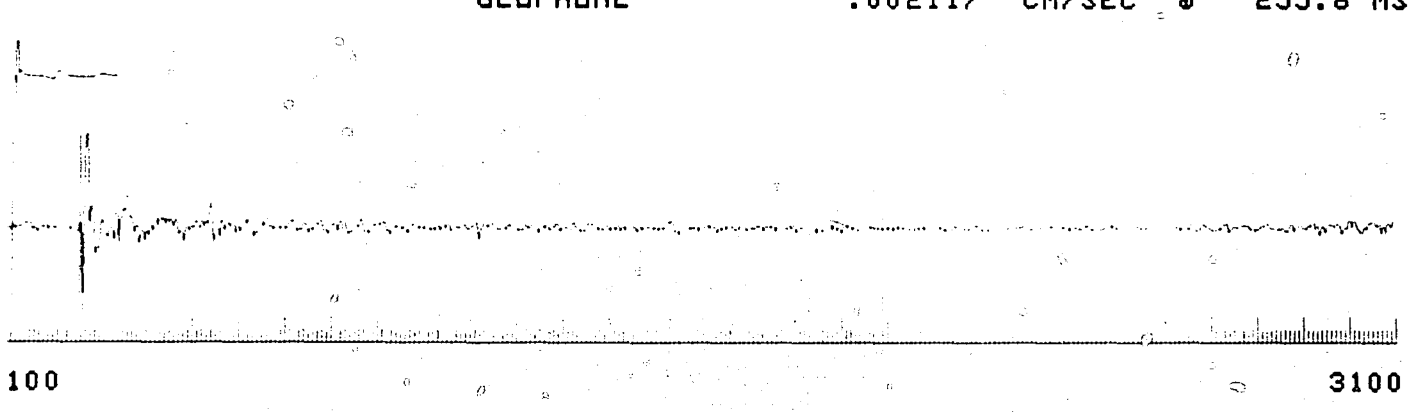
100

SHOT # 189 @ 475.0 M 10 /18 /85 18 :34 TT = 246.1 MS
REFERENCE SIGNAL .43 VOLTS @ 9.3 MSEC
GEOPHONE .002326 CM/SEC @ 255.5 MS



100 3100

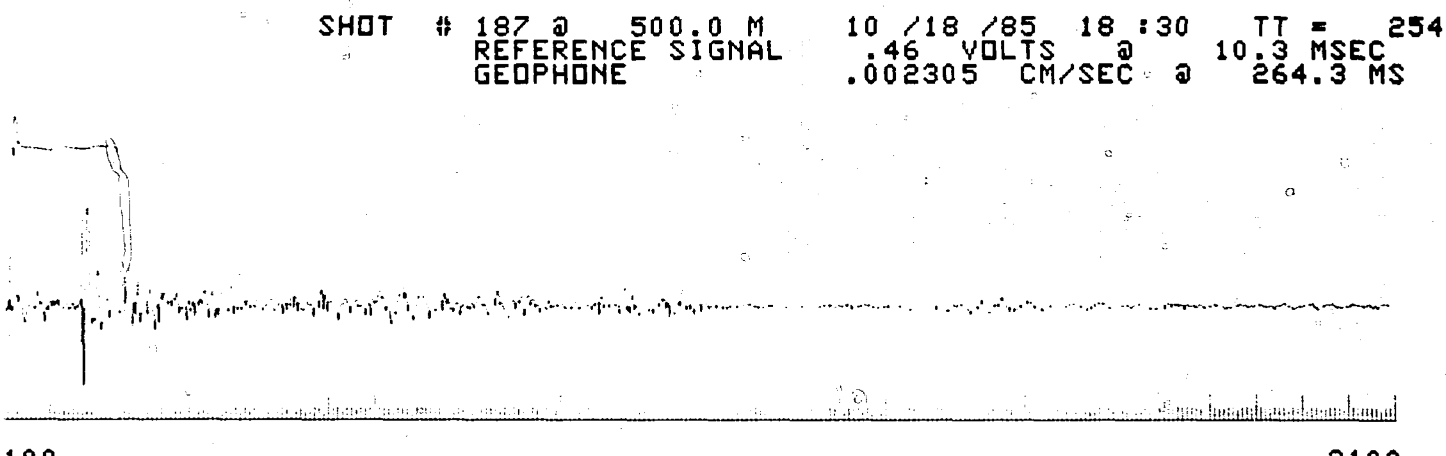
SHOT # 188 @ 475.0 M 10 /18 /85 18 :33 TT = 245.4 MS
REFERENCE SIGNAL .50 VOLTS @ 10.4 MSEC
GEOPHONE .002117 CM/SEC @ 255.8 MS



100 3100

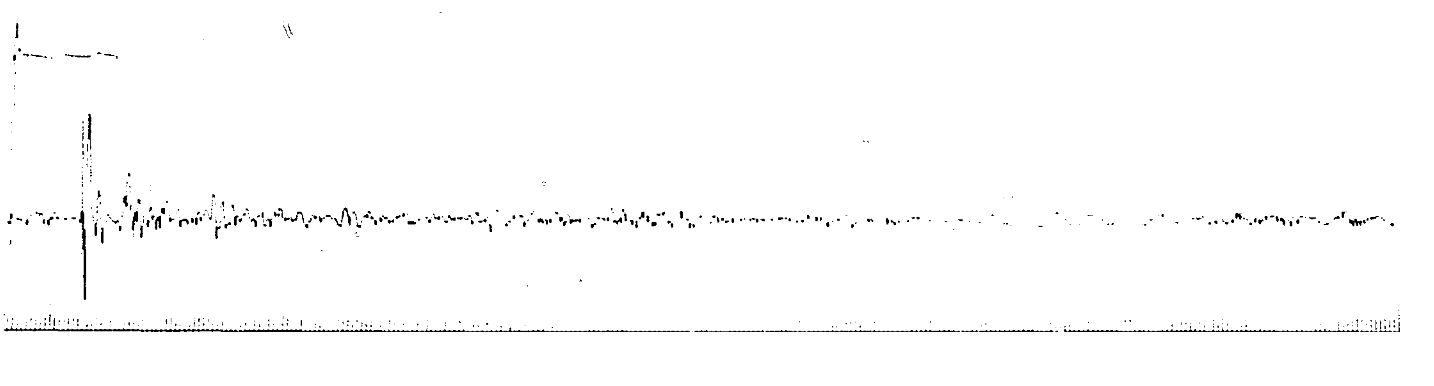
FILE # 1

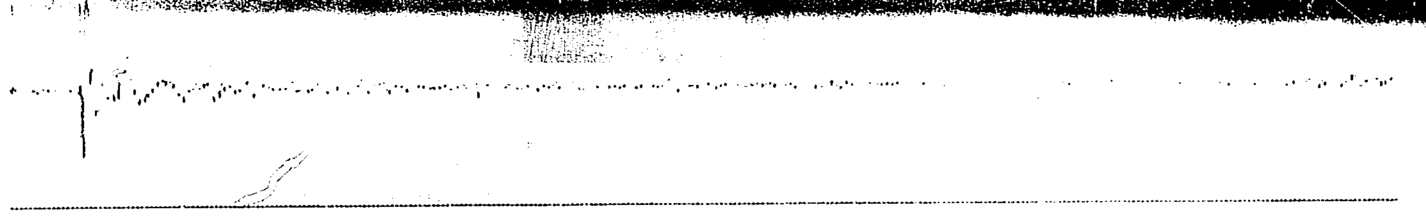
SHOT # 187 @ 500.0 M 10 /18 /85 18 :30 TT = 254.0 MS
REFERENCE SIGNAL .46 VOLTS @ 10.3 MSEC
GEOPHONE .002305 CM/SEC @ 264.3 MS



100 3100

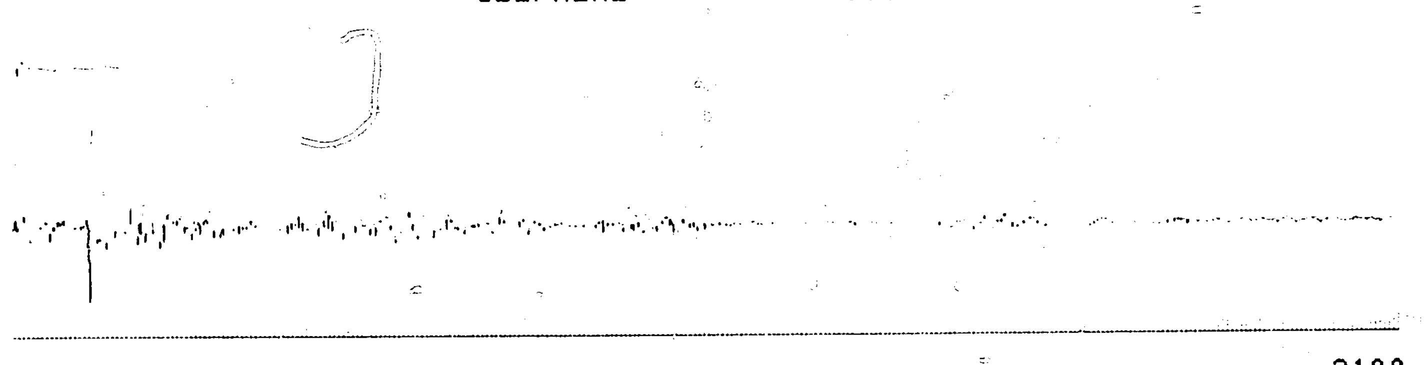
SHOT # 186 @ 500.0 M 10 /18 /85 18 :29 TT = 254.2 MS
REFERENCE SIGNAL .48 VOLTS @ 12.2 MSEC
GEOPHONE .002364 CM/SEC @ 266.5 MS



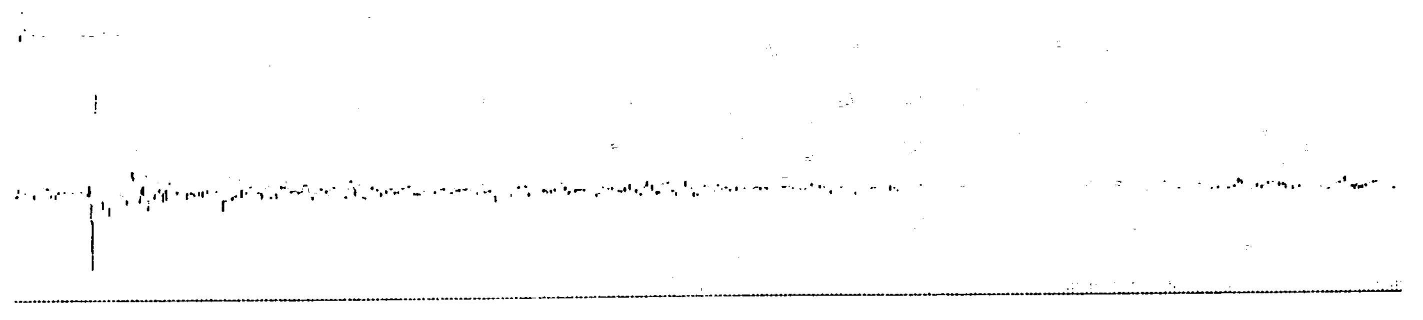


FILE # 1

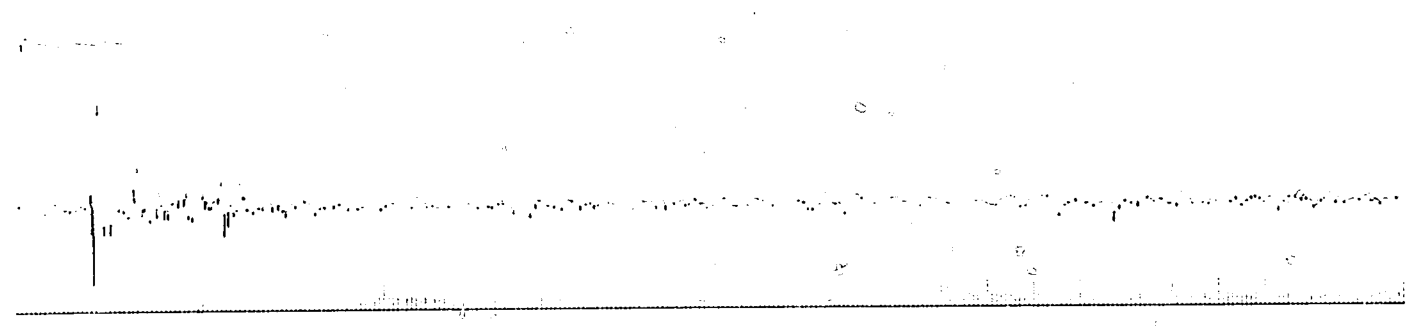
SHOT # 187 @ 500.0 M 10 /18 /85 18 :30 TT = 254.0 MS
REFERENCE SIGNAL .46 VOLTS @ 10.3 MSEC
GEOPHONE .002305 CM/SEC @ 264.3 MS



SHOT # 186 @ 500.0 M 10 /18 /85 18 :29 TT = 254.2 MS
REFERENCE SIGNAL .48 VOLTS @ 12.2 MSEC
GEOPHONE .002364 CM/SEC @ 266.5 MS

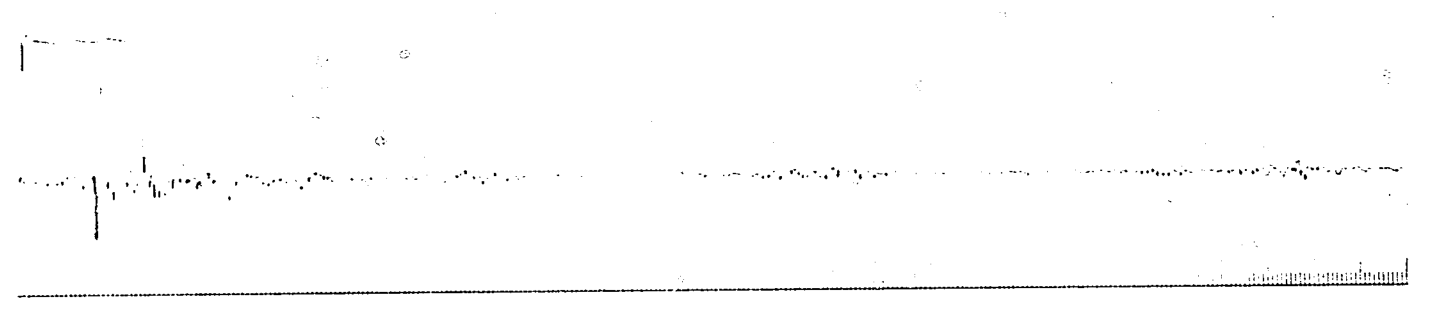


SHOT # 184 @ 500.0 M 10 /18 /85 18 :28 TT = 254.4 MS
REFERENCE SIGNAL .53 VOLTS @ 12.3 MSEC
GEOPHONE .002174 CM/SEC @ 266.7 MS

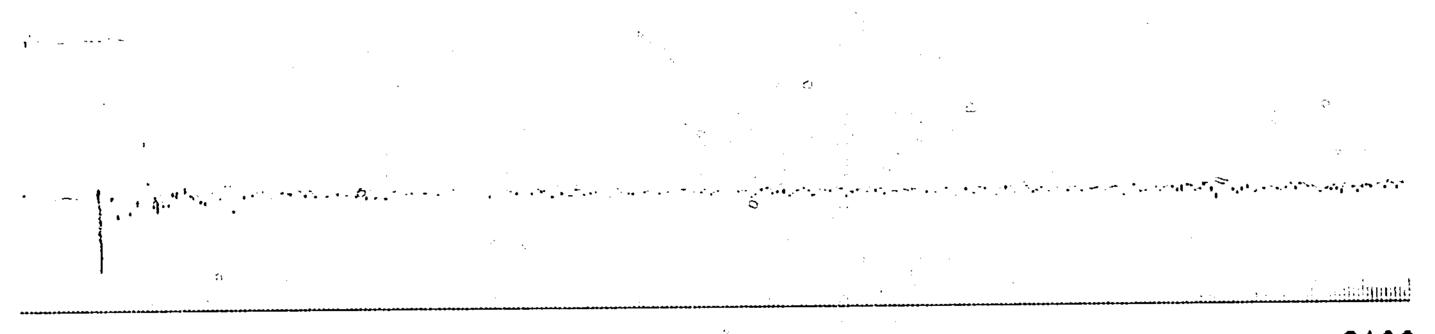


FILE # 1

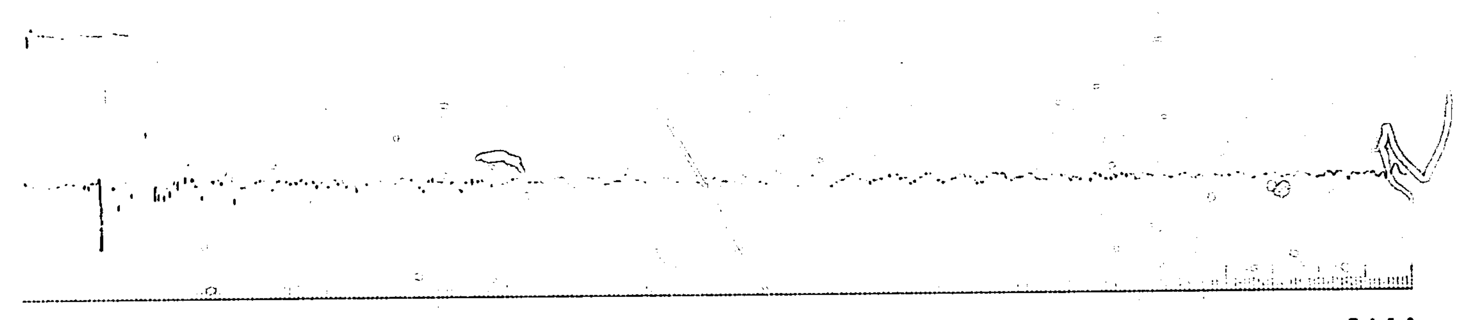
SHOT # 182 @ 525.0 M 10 /18 /85 18 :23 TT = 260.1 MS
REFERENCE SIGNAL .50 VOLTS @ 9.3 MSEC
GEOPHONE .001133 CM/SEC @ 269.4 MS



SHOT # 178 @ 525.0 M 10 /18 /85 18 :22 TT = 259.5 MS
REFERENCE SIGNAL .53 VOLTS @ 12.2 MSEC
GEOPHONE .001120 CM/SEC @ 271.8 MS

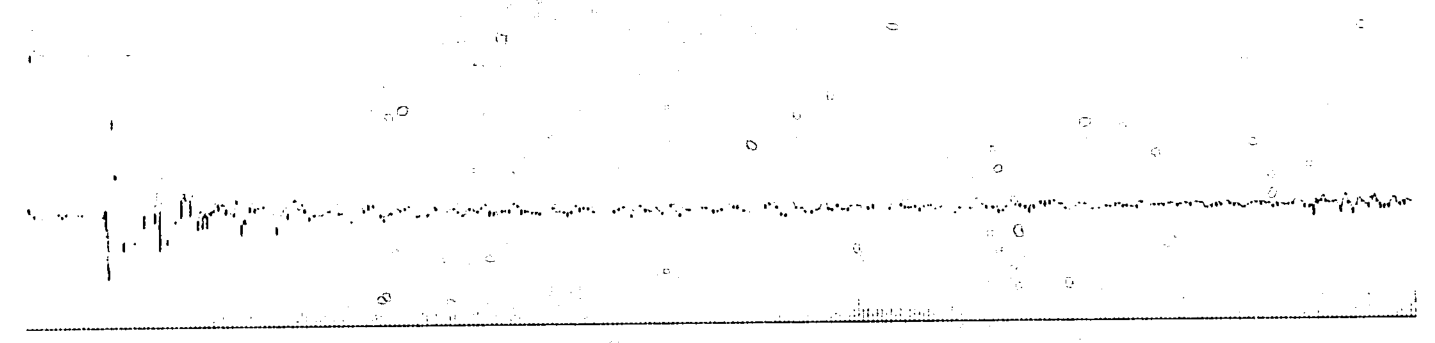


SHOT # 175 @ 525.0 M 10 /18 /85 18 :20 TT = 258.7 MS
REFERENCE SIGNAL .49 VOLTS @ 10.3 MSEC
GEOPHONE .001168 CM/SEC @ 269.0 MS

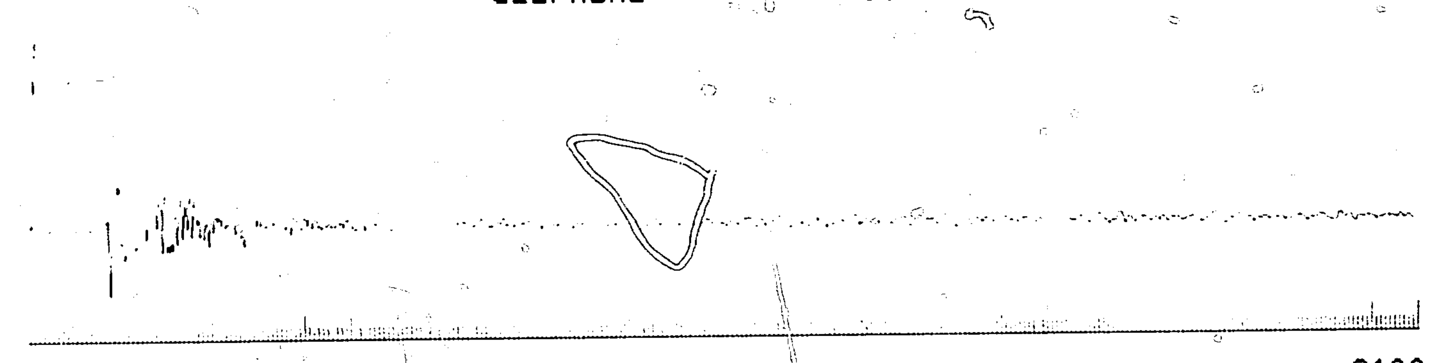


FILE # 1

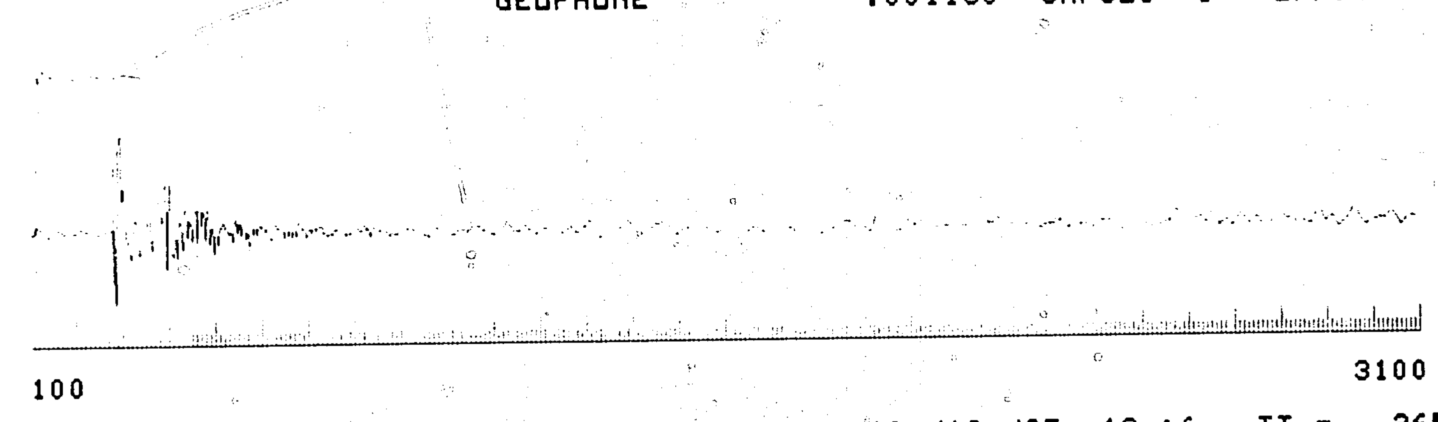
SHOT # 170 @ 550.0 M 10 /18 /85 18 :9 TT = 265.0 MS
REFERENCE SIGNAL .47 VOLTS @ 10.2 MSEC
GEOPHONE .001110 CM/SEC @ 275.3 MS



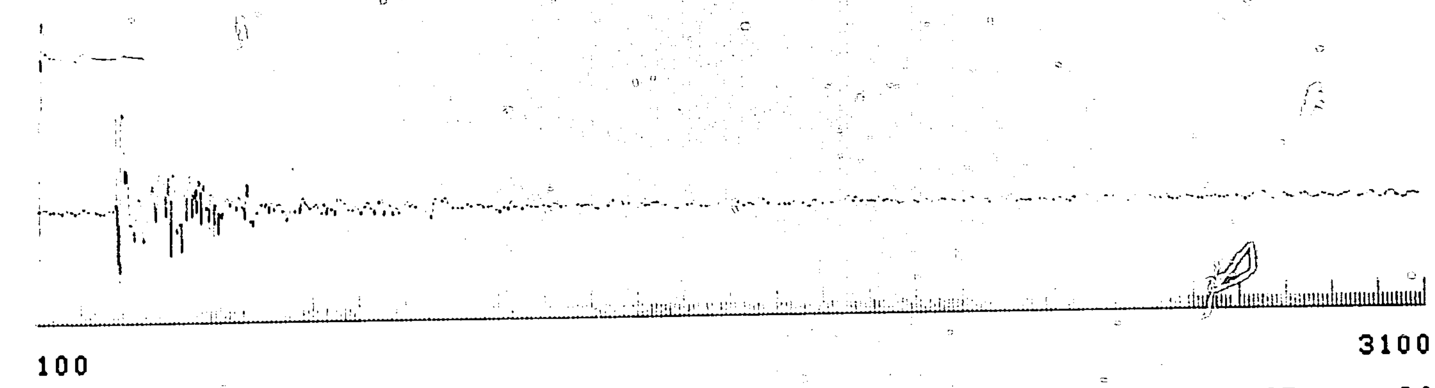
SHOT # 168 @ 550.0 M 10 /18 /85 18 :7 TT = 265.1 MS
REFERENCE SIGNAL .55 VOLTS @ 9.3 MSEC
GEOPHONE .001232 CM/SEC @ 274.4 MS



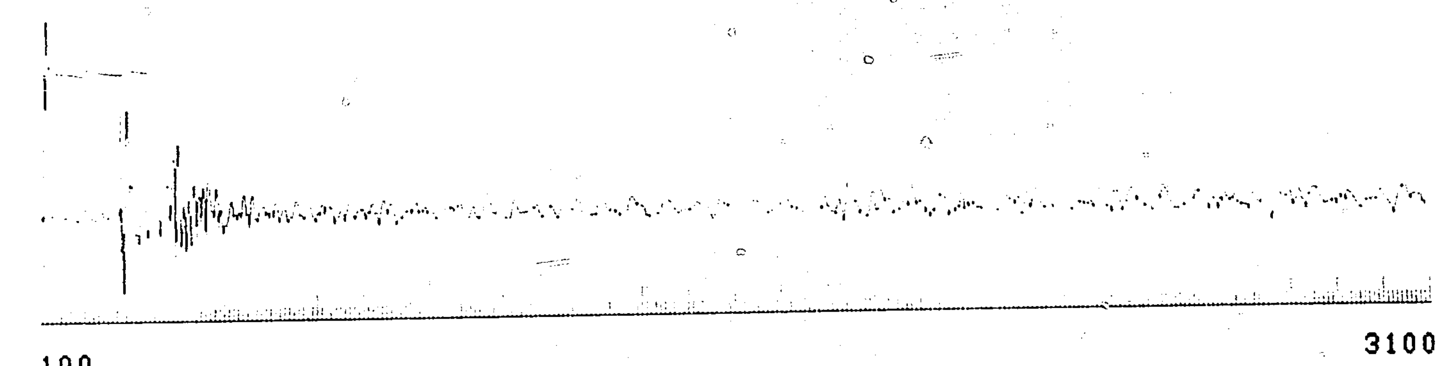
SHOT # 167 @ 550.0 M 10 /18 /85 18 :6 TT = 265.1 MS
REFERENCE SIGNAL .50 VOLTS @ 12.3 MSEC
GEOPHONE .001150 CM/SEC @ 277.4 MS



SHOT # 166 @ 550.0 M 10 /18 /85 18 :6 TT = 265.0 MS
REFERENCE SIGNAL .44 VOLTS @ 10.3 MSEC
GEOPHONE .001185 CM/SEC @ 275.3 MS



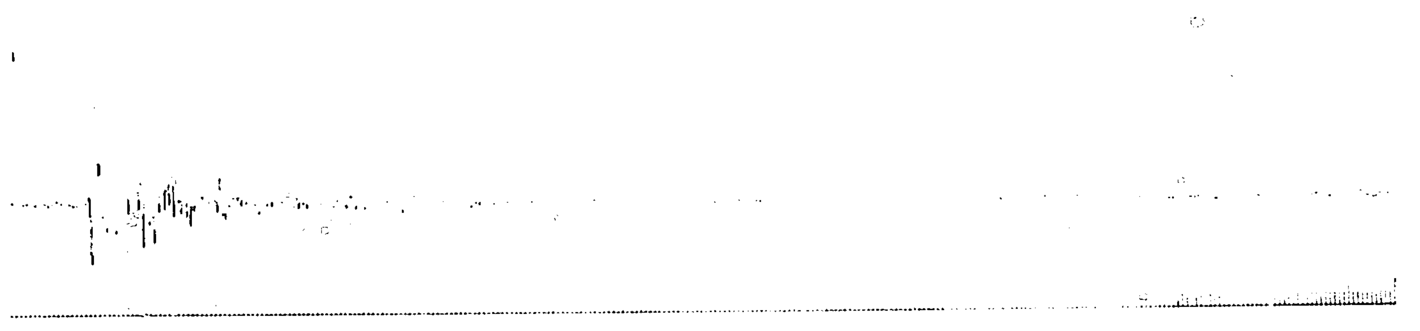
SHOT # 165 @ 550.0 M 10 /18 /85 18 :4 TT = 266.8 MS
REFERENCE SIGNAL .67 VOLTS @ 9.3 MSEC
GEOPHONE .001068 CM/SEC @ 276.1 MS



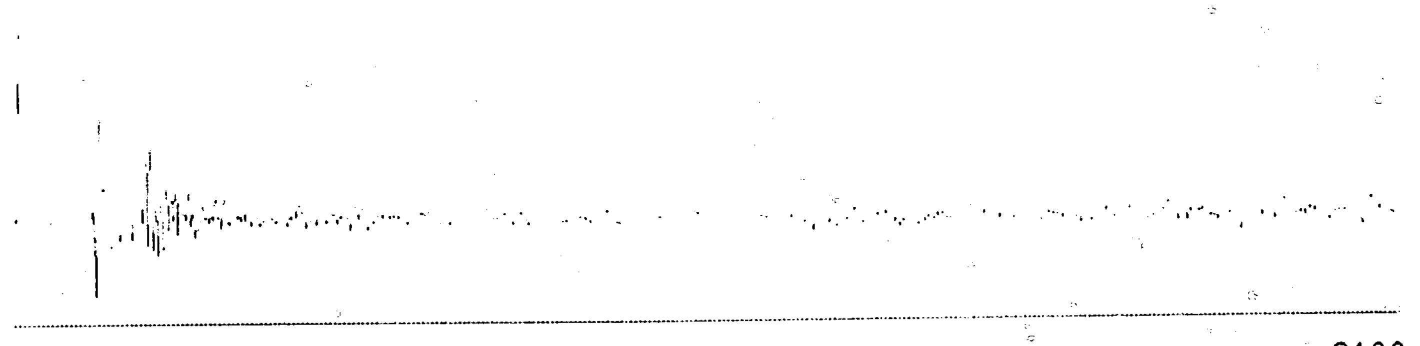
FILE # 1

SHOT # 164 @ 575.0 M 10 /18 /85 17 :59 TT = 271.1 MS
REFERENCE SIGNAL .46 VOLTS @ 10.3 MSEC
GEOPHONE .001173 CM/SEC @ 281.4 MS

SHOT # 166 @ 550.0 M 10 /18 /85 18 :6 TT = 265.0 MS
REFERENCE SIGNAL .44 VOLTS @ 10.3 MSEC
GEOPHONE .001185 CM/SEC @ 275.3 MS

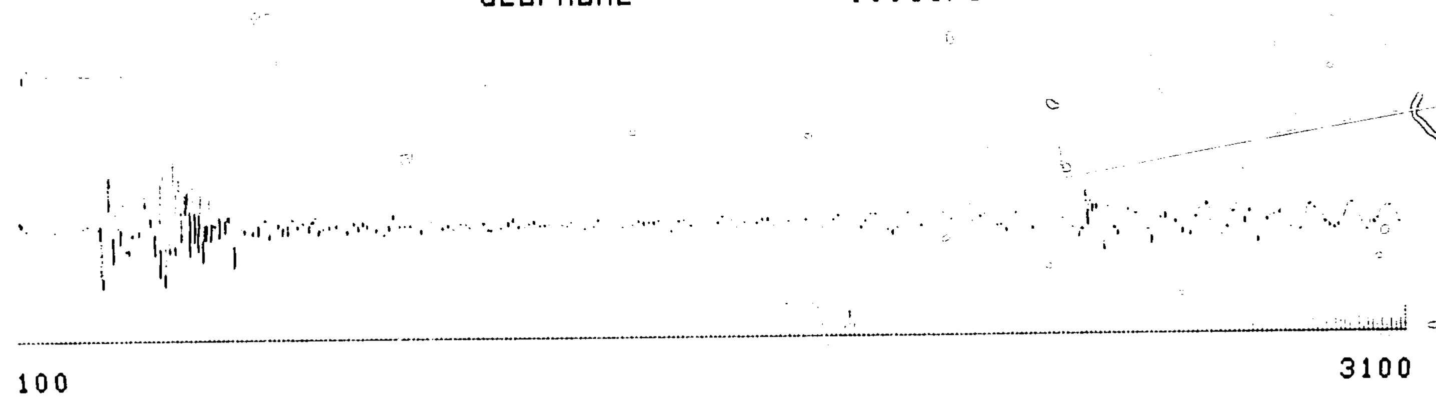


SHOT # 165 @ 550.0 M 10 /18 /85 18 :4 TT = 266.8 MS
REFERENCE SIGNAL .67 VOLTS @ 9.3 MSEC
GEOPHONE .001068 CM/SEC @ 276.1 MS

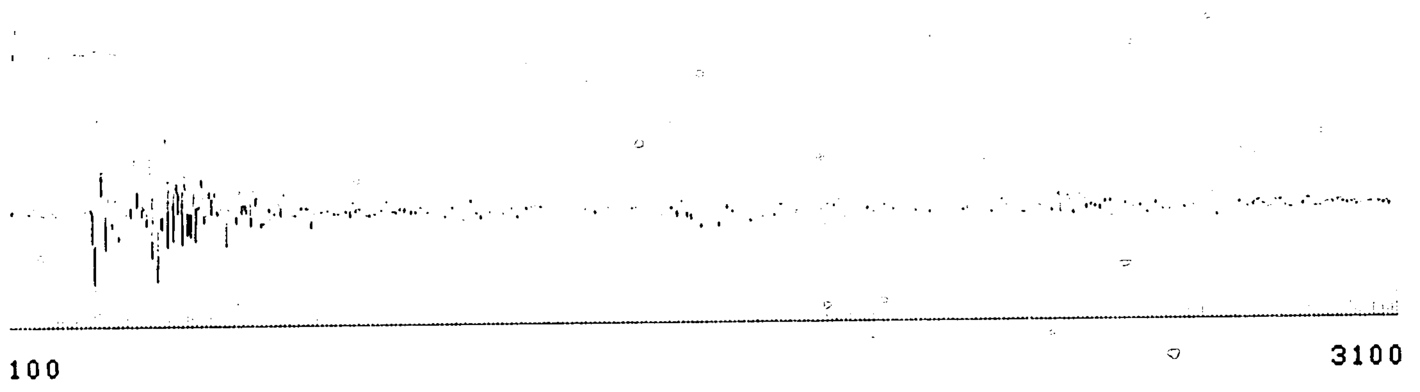


FILE # 1

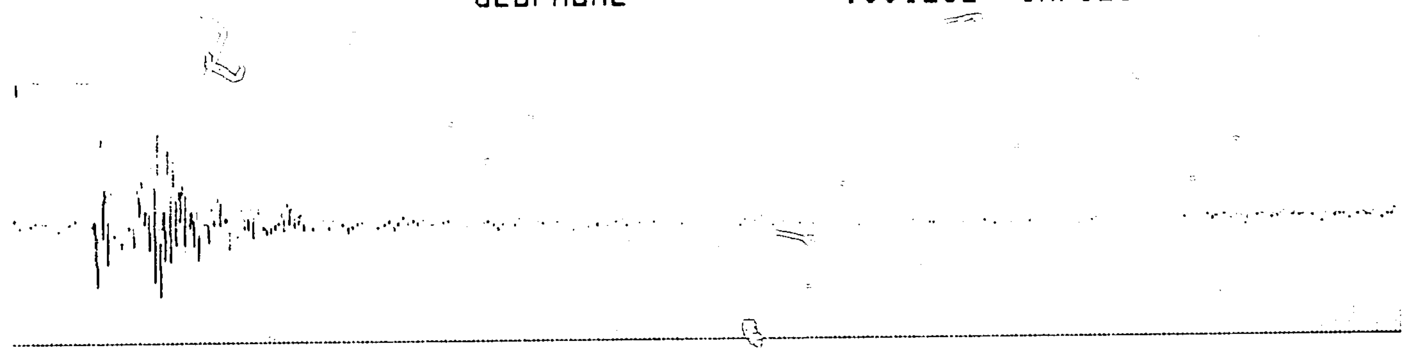
SHOT # 164 @ 575.0 M 10 /18 /85 17 :59 TT = 271.[illegible] MS
REFERENCE SIGNAL .46 VOLTS @ 10.3 MSEC
GEOPHONE .001173 CM/SEC @ 281.4 MS



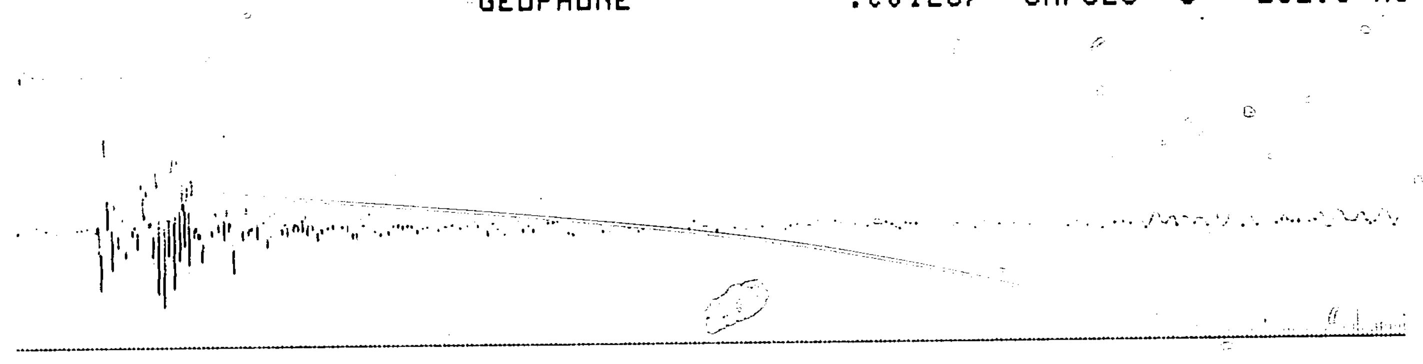
SHOT # 163 @ 575.0 M 10 /18 /85 17 :58 TT = 271.7 MS
REFERENCE SIGNAL .53 VOLTS @ 10.3 MSEC
GEOPHONE .001314 CM/SEC @ 282.1 MS



SHOT # 162 @ 575.0 M 10 /18 /85 17 :57 TT = 272.3 MS
REFERENCE SIGNAL .47 VOLTS @ 9.2 MSEC
GEOPHONE .001252 CM/SEC @ 281.5 MS

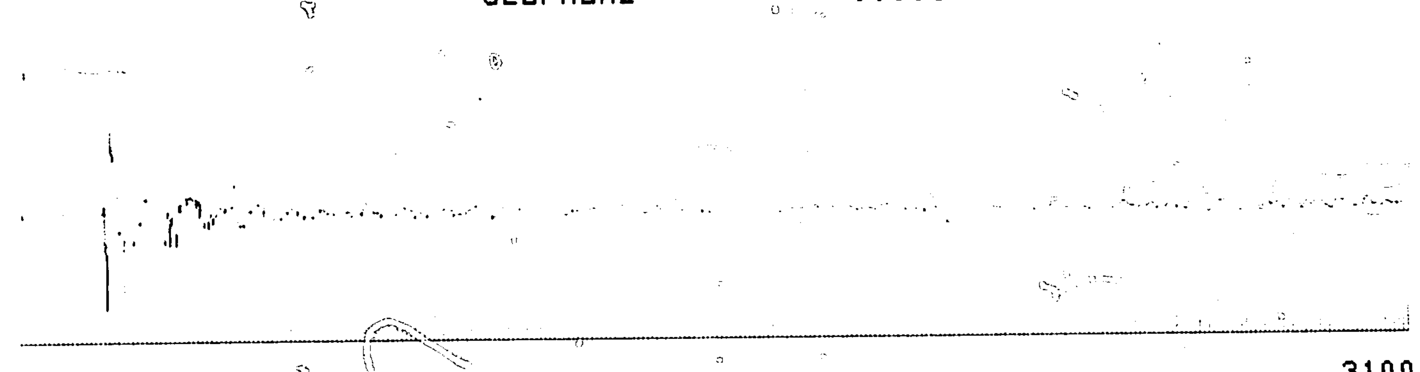


SHOT # 161 @ 575.0 M 10 /18 /85 17 :57 TT = 272.0 MS
REFERENCE SIGNAL .59 VOLTS @ 10.3 MSEC
GEOPHONE .001267 CM/SEC @ 282.3 MS

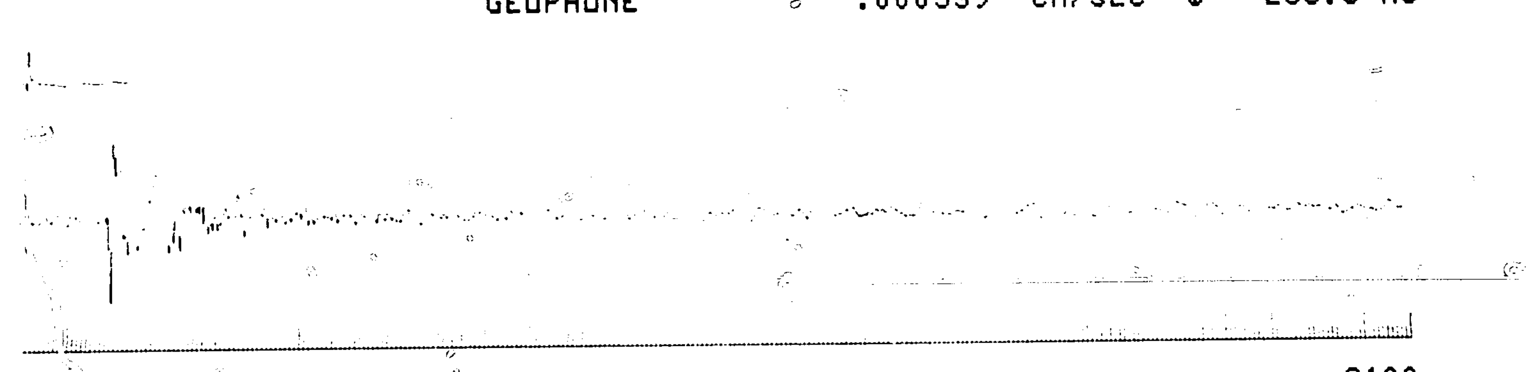


FILE # 1

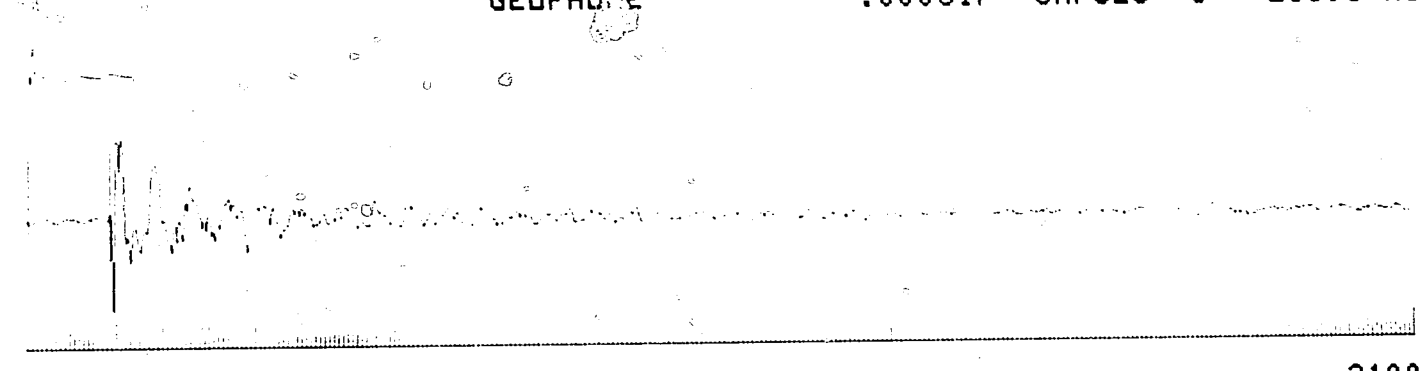
SHOT # 160 @ 600.0 M 10 /18 /85 17 :52 TT = 275.9 MS
REFERENCE SIGNAL .50 VOLTS @ 10.3 MSEC
GEOPHONE .000549 CM/SEC @ 286.3 MS



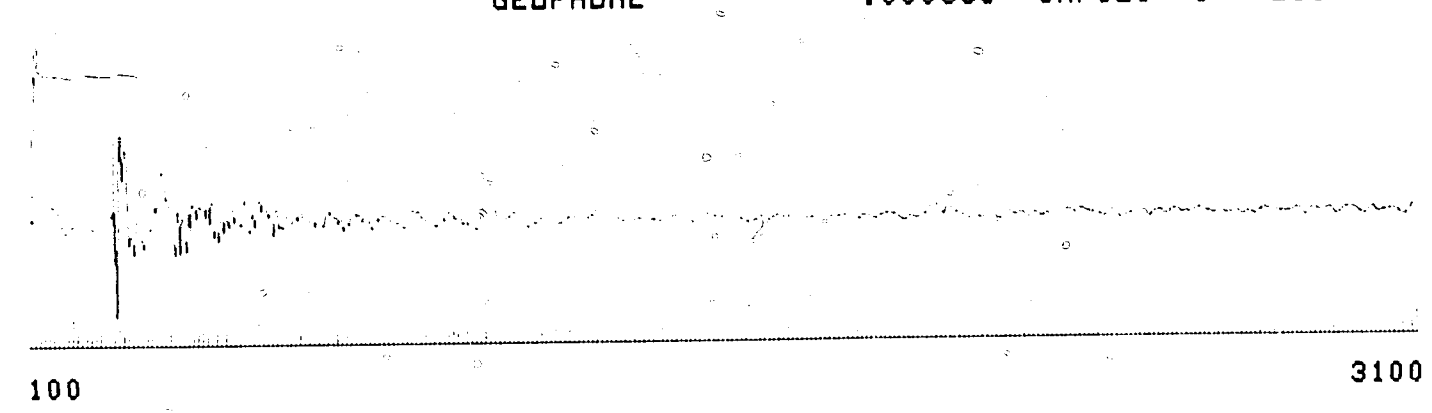
SHOT # 159 @ 600.0 M 10 /18 /85 17 :52 TT = 276.2 MS
REFERENCE SIGNAL .53 VOLTS @ 10.3 MSEC
GEOPHONE .000539 CM/SEC @ 286.5 MS



SHOT # 158 @ 600.0 M 10 /18 /85 17 :51 TT = 275.8 MS
REFERENCE SIGNAL .50 VOLTS @ 10.3 MSEC
GEOPHONE .000617 CM/SEC @ 286.1 MS

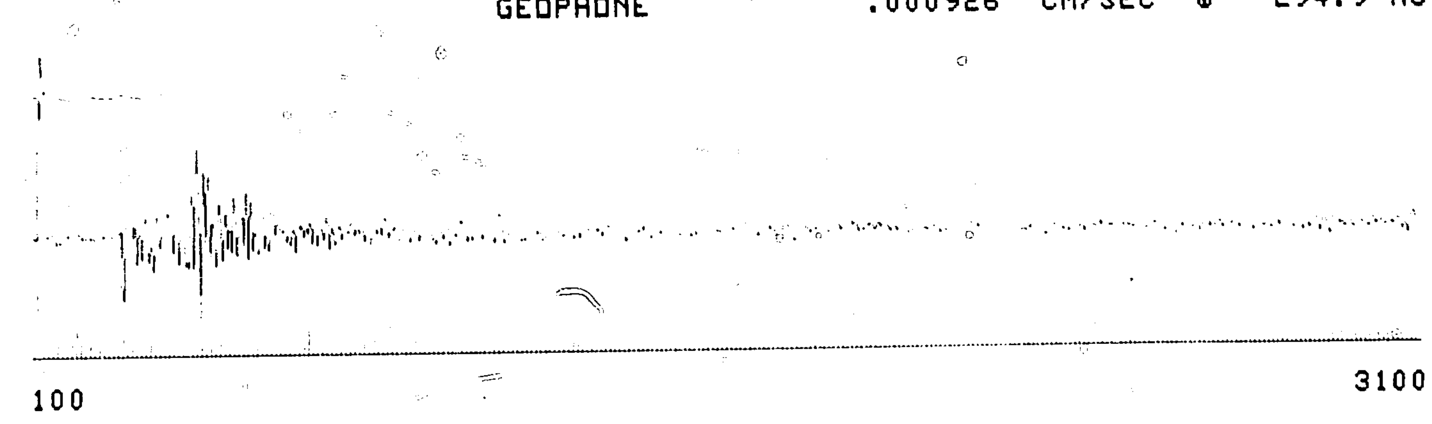


SHOT # 157 @ 600.0 M 10 /18 /85 17 :50 TT = 275.8 MS
REFERENCE SIGNAL .54 VOLTS @ 10.3 MSEC
GEOPHONE .000558 CM/SEC @ 286.2 MS

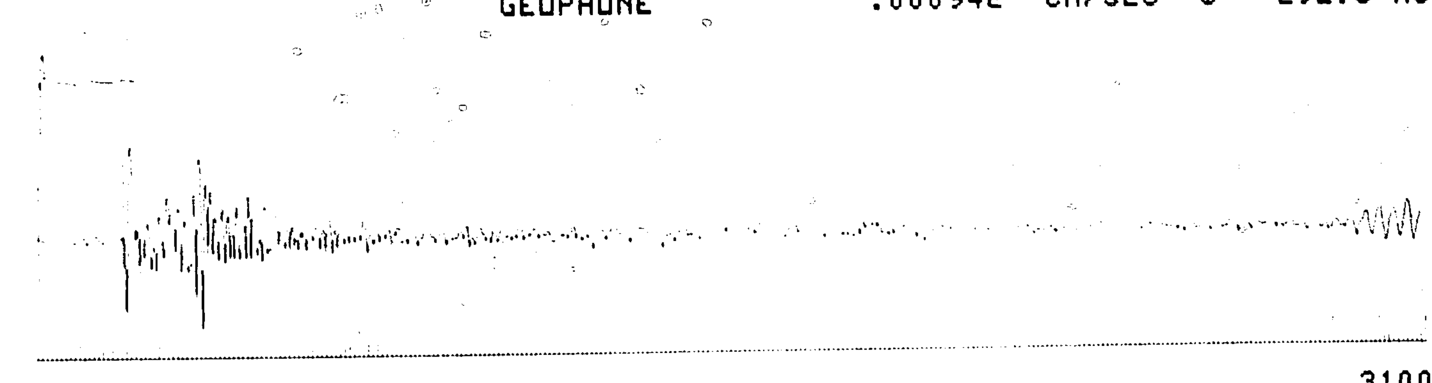


FILE # 1

SHOT # 156 @ 625.0 M 10 /18 /85 17 :47 TT = 281.5 MS
REFERENCE SIGNAL .44 VOLTS @ 13.3 MSEC
GEOPHONE .000926 CM/SEC @ 294.9 MS

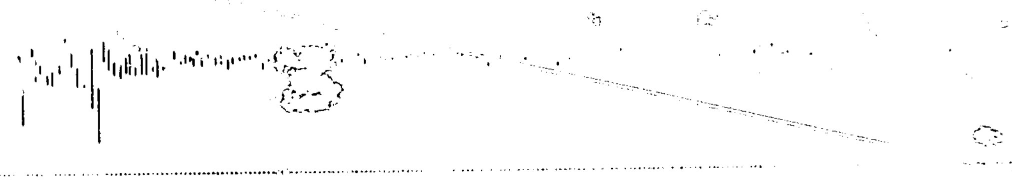


SHOT # 154 @ 625.0 M 10 /18 /85 17 :46 TT = 282.0 MS
REFERENCE SIGNAL .52 VOLTS @ 10.3 MSEC
GEOPHONE .000942 CM/SEC @ 292.3 MS



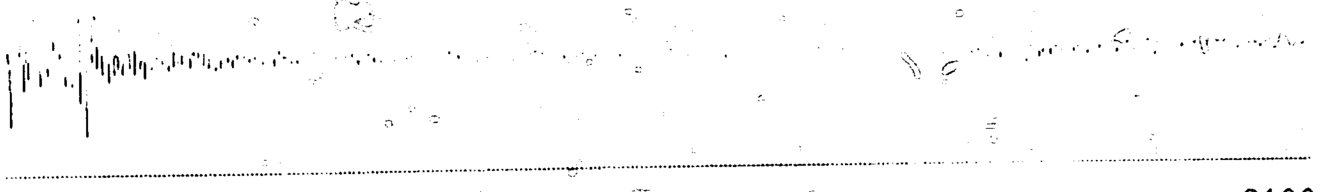
100 3100

SHOT # 154 @ 625.0 M 10 /18 /85 17 :46 TT = 282.0 MS
REFERENCE SIGNAL .52 VOLTS @ 10.3 MSEC
GEOPHONE .000942 CM/SEC @ 292.3 MS



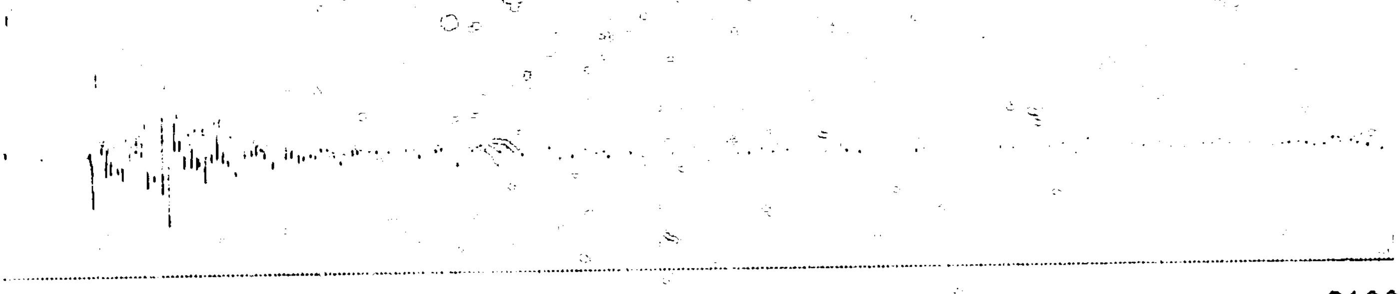
100 3100

SHOT # 153 @ 625.0 M 10 /18 /85 17 :45 TT = 281.7 MS
REFERENCE SIGNAL .46 VOLTS @ 10.3 MSEC
GEOPHONE .000857 CM/SEC @ 292.1 MS



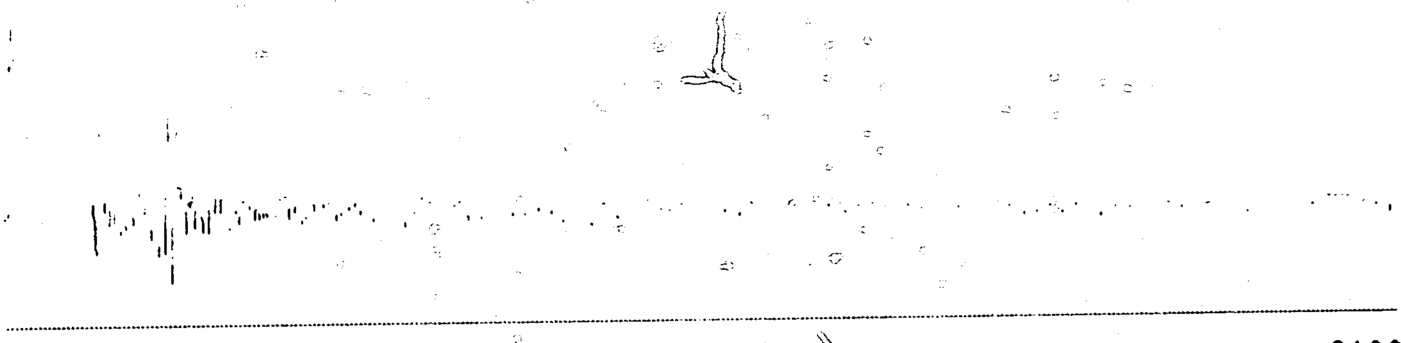
100 3100

SHOT # 152 @ 625.0 M 10 /18 /85 17 :44 TT = 281.1 MS
REFERENCE SIGNAL .48 VOLTS @ 10.3 MSEC
GEOPHONE .000940 CM/SEC @ 291.4 MS



100 3100

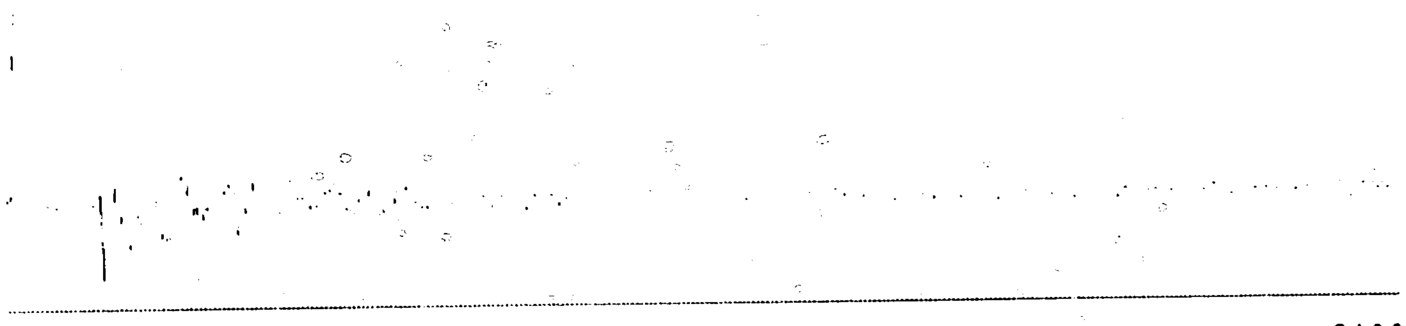
SHOT # 151 @ 625.0 M 10 /18 /85 17 :44 TT = 282.1 MS
REFERENCE SIGNAL .50 VOLTS @ 11.3 MSEC
GEOPHONE .000936 CM/SEC @ 293.4 MS



100 3100

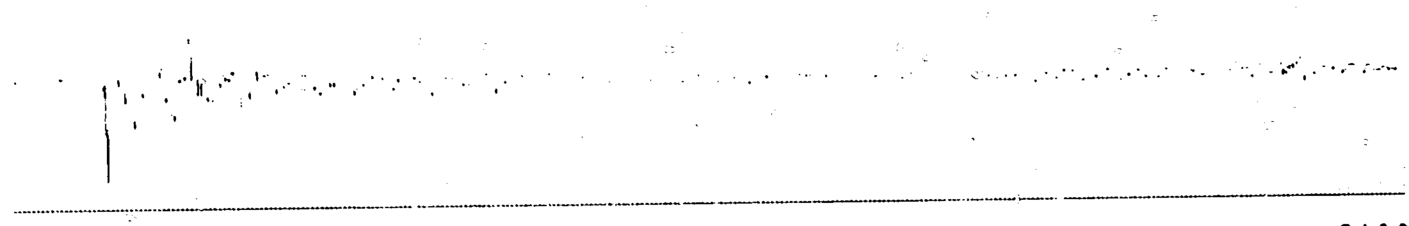
FILE # 1

SHOT # 150 @ 675.0 M 10 /18 /85 17 :38 TT = 292.2 MS
REFERENCE SIGNAL .55 VOLTS @ 11.1 MSEC
GEOPHONE .000384 CM/SEC @ 303.4 MS



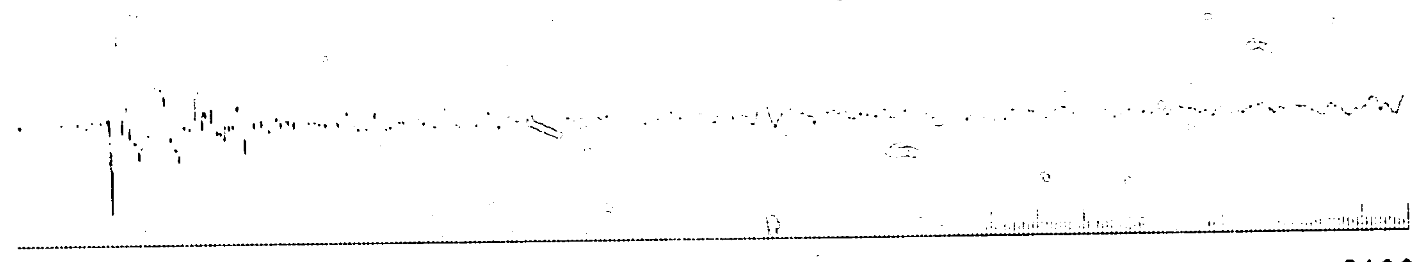
100 3100

SHOT # 149 @ 675.0 M 10 /18 /85 17 :37 TT = 291.3 MS
REFERENCE SIGNAL .50 VOLTS @ 10.3 MSEC
GEOPHONE .000356 CM/SEC @ 301.6 MS



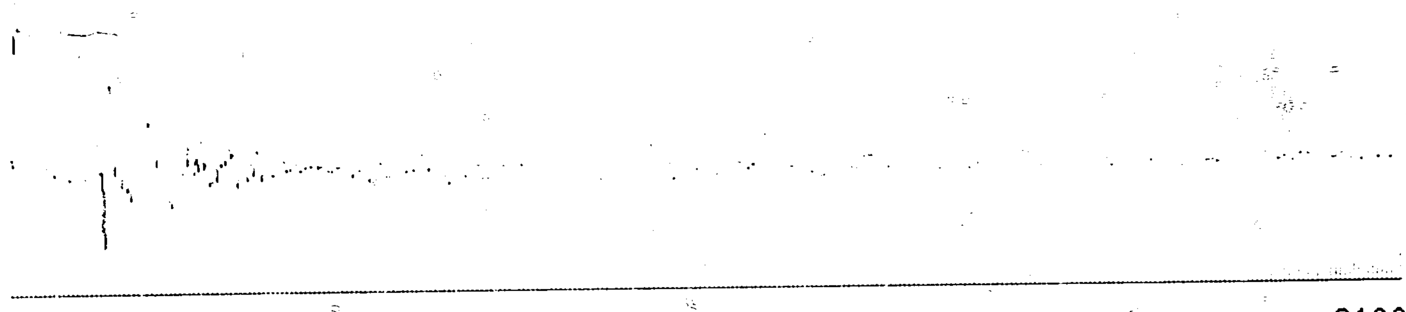
100 3100

SHOT # 148 @ 675.0 M 10 /18 /85 17 :37 TT = 291.5 MS
REFERENCE SIGNAL .52 VOLTS @ 10.3 MSEC
GEOPHONE .000316 CM/SEC @ 301.9 MS



100 3100

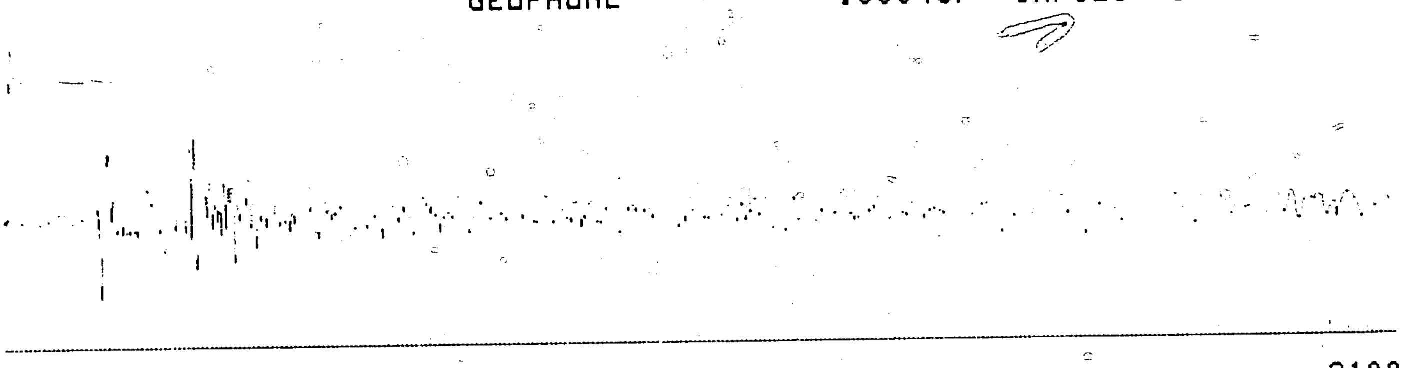
SHOT # 147 @ 675.0 M 10 /18 /85 17 :35 TT = 291.7 MS
REFERENCE SIGNAL .48 VOLTS @ 9.3 MSEC
GEOPHONE .000358 CM/SEC @ 301.1 MS



100 3100

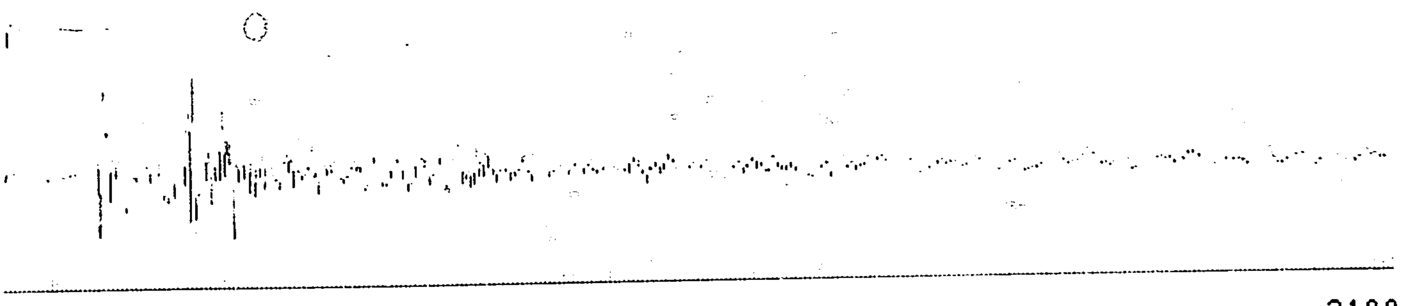
FILE # 1

SHOT # 145 @ 700.0 M 10 /18 /85 17 :32 TT = 295.6 MS
REFERENCE SIGNAL .43 VOLTS @ 10.3 MSEC
GEOPHONE .000487 CM/SEC @ 305.9 MS



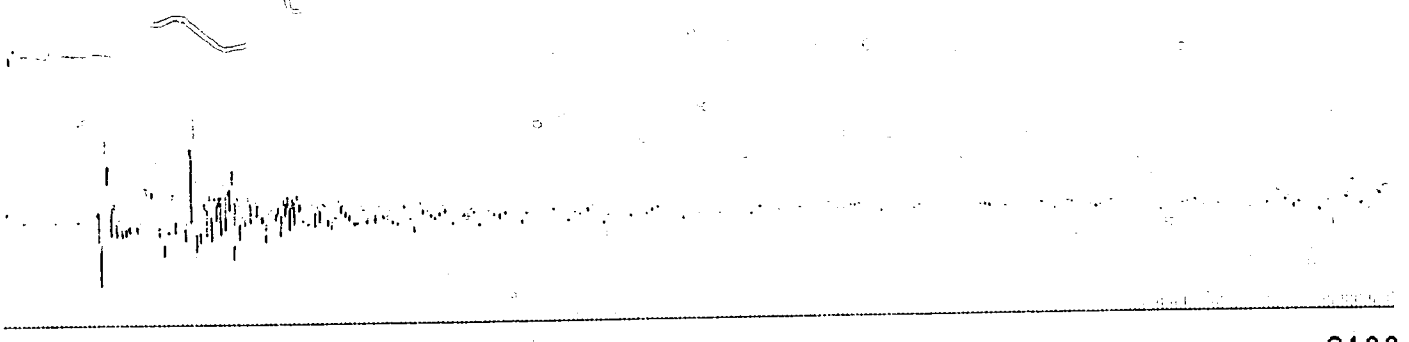
100 3100

SHOT # 142 @ 700.0 M 10 /18 /85 17 :30 TT = 297.7 MS
REFERENCE SIGNAL .55 VOLTS @ 9.2 MSEC
GEOPHONE .000427 CM/SEC @ 307.0 MS



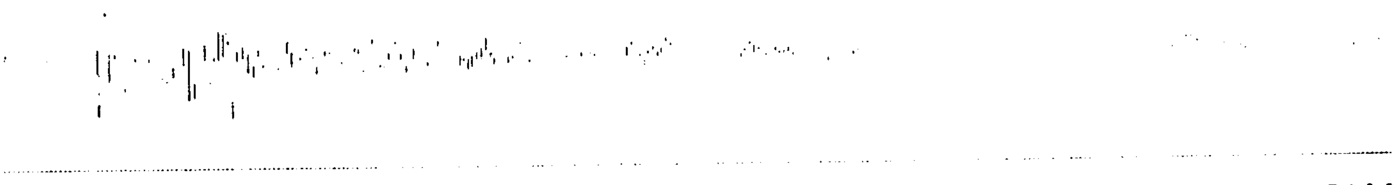
100 3100

SHOT # 141 @ 700.0 M 10 /18 /85 17 :29 TT = 296.2 MS
REFERENCE SIGNAL .42 VOLTS @ 12.3 MSEC
GEOPHONE .000411 CM/SEC @ 308.5 MS



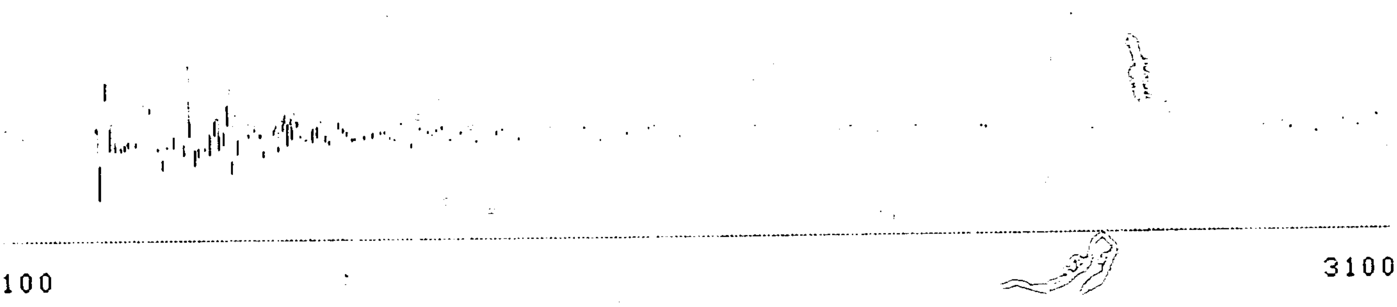
100 3100

SHOT # 140 @ 700.0 M 10 /18 /85 17 :27 TT = 297.8 MS
REFERENCE SIGNAL .45 VOLTS @ 10.2 MSEC
GEOPHONE .000503 CM/SEC @ 308.1 MS



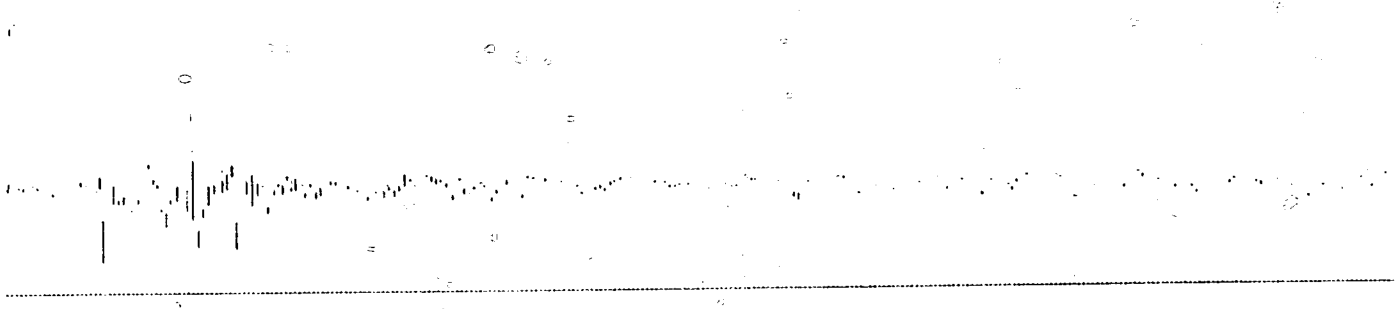
100 3100

```
SHOT  # 141 @   700.0 M      10 /18 /85  17 :29    TT =    296.2 MS
        REFERENCE SIGNAL      .42  VOLTS   @      12.3 MSEC
        GEOPHONE             .000411  CM/SEC  @    308.5 MS
```



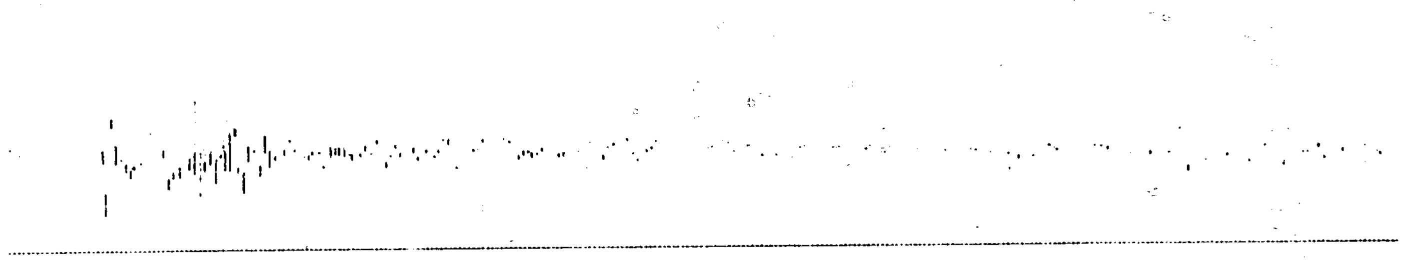
100 3100

```
SHOT  # 140 @   700.0 M      10 /18 /85  17 :27    TT =    297.8 MS
        REFERENCE SIGNAL      .46  VOLTS   @      10.2 MSEC
        GEOPHONE             .000503  CM/SEC  @    308.1 MS
```



100 3100

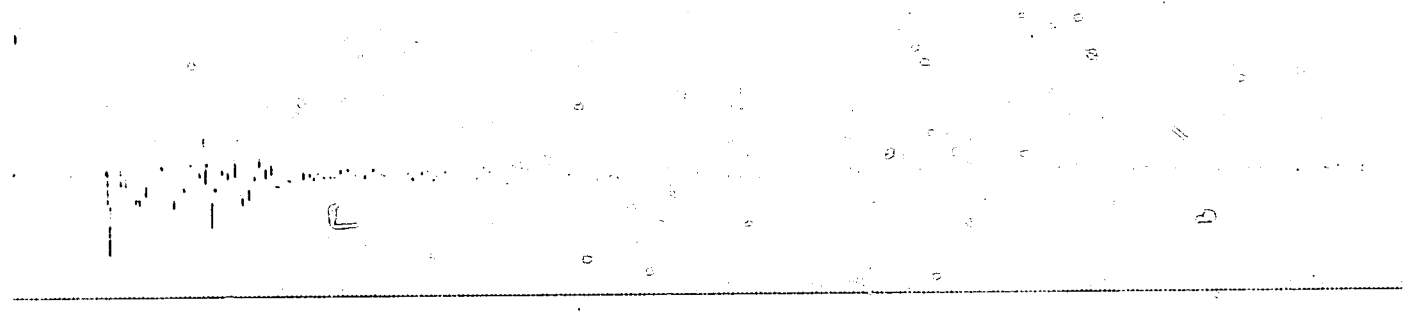
```
SHOT  # 139 @   700.0 M      10 /18 /85  17 :26    TT =    297.1 MS
        REFERENCE SIGNAL      .56  VOLTS   @      10.2 MSEC
        GEOPHONE             .000447  CM/SEC  @    307.3 MS
```



100 3100

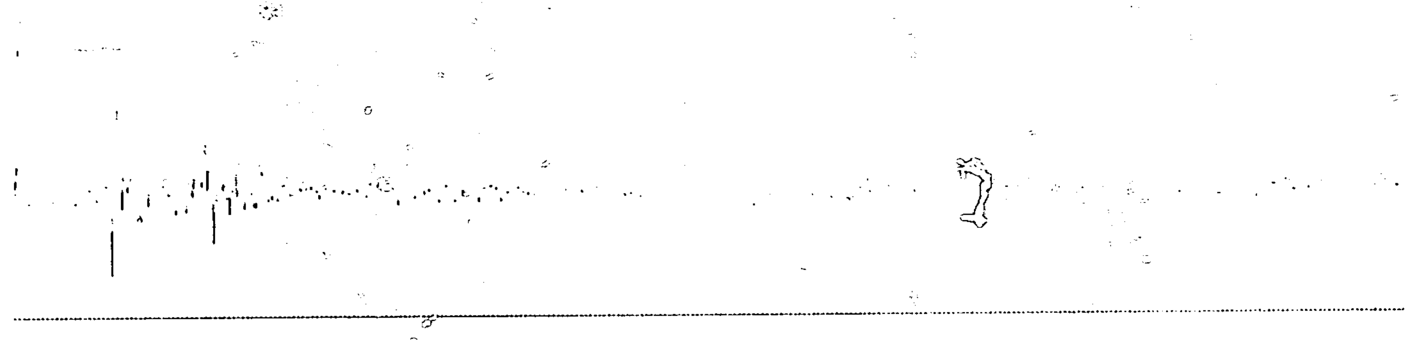
FILE # 1

```
SHOT  # 135 @   725.0 M      10 /18 /85  17 :20    TT =    300.2 MS
        REFERENCE SIGNAL      .50  VOLTS   @      10.3 MSEC
        GEOPHONE             .000381  CM/SEC  @    310.5 MS
```



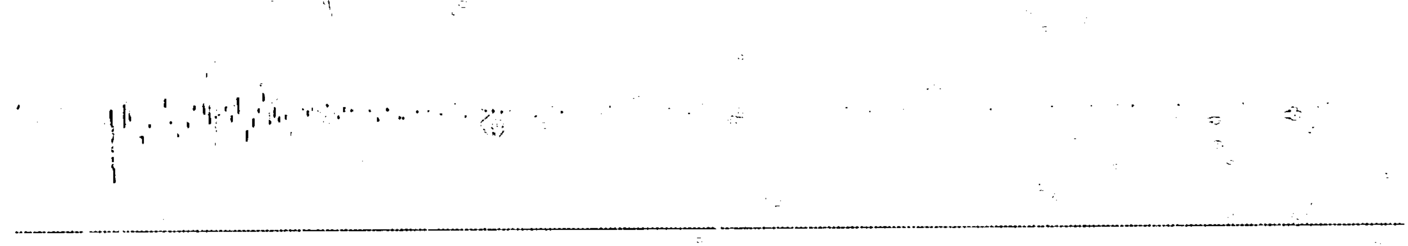
100 3100

```
SHOT  # 134 @   725.0 M      10 /18 /85  17 :19    TT =    481.2 MS
        REFERENCE SIGNAL      .48  VOLTS   @      10.3 MSEC
        GEOPHONE             .000099  CM/SEC  @    491.6 MS
```



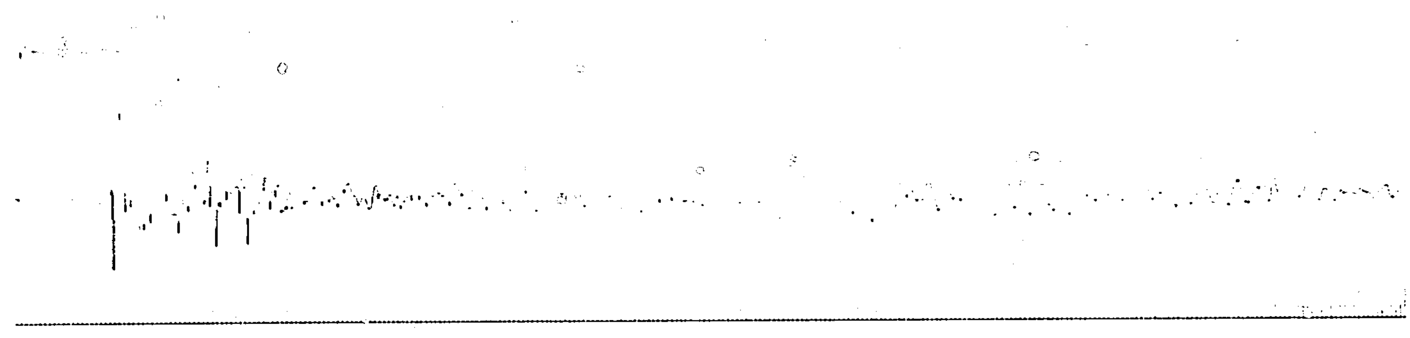
100 3100

```
SHOT  # 133 @   725.0 M      10 /18 /85  17 :18    TT =    300.0 MS
        REFERENCE SIGNAL      .41  VOLTS   @      11.3 MSEC
        GEOPHONE             .000366  CM/SEC  @    311.3 MS
```



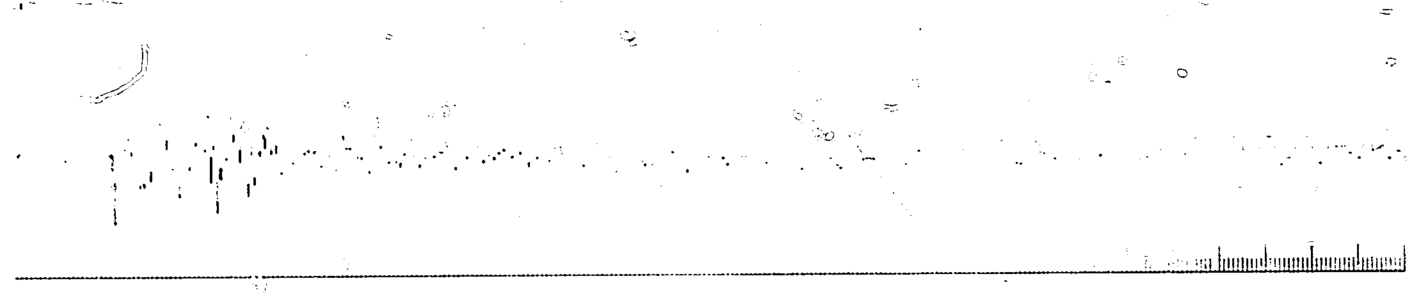
100 3100

```
SHOT  # 132 @   725.0 M      10 /18 /85  17 :17    TT =    300.7 MS
        REFERENCE SIGNAL      .50  VOLTS   @      10.3 MSEC
        GEOPHONE             .000373  CM/SEC  @    311.0 MS
```



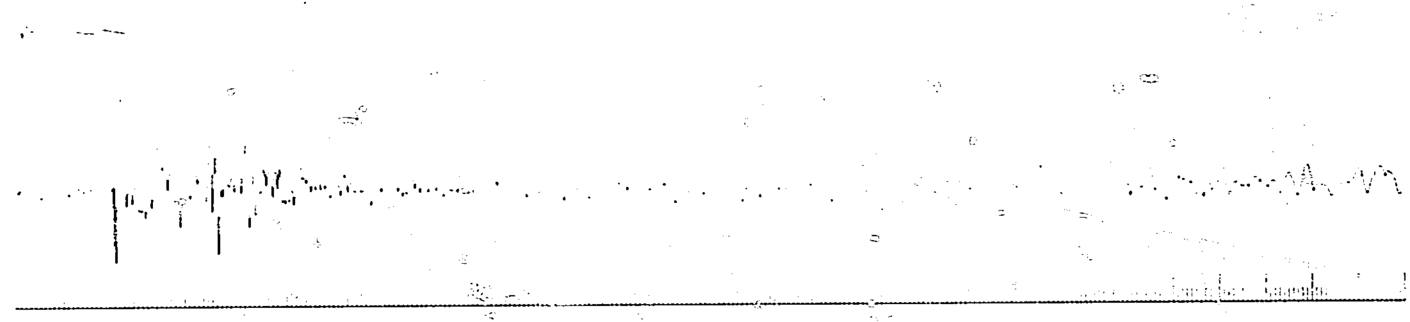
100 3100

```
SHOT  # 131 @   725.0 M      10 /18 /85  17 :16    TT =    300.5 MS
        REFERENCE SIGNAL      .47  VOLTS   @      10.3 MSEC
        GEOPHONE             .000423  CM/SEC  @    310.8 MS
```



100 3100

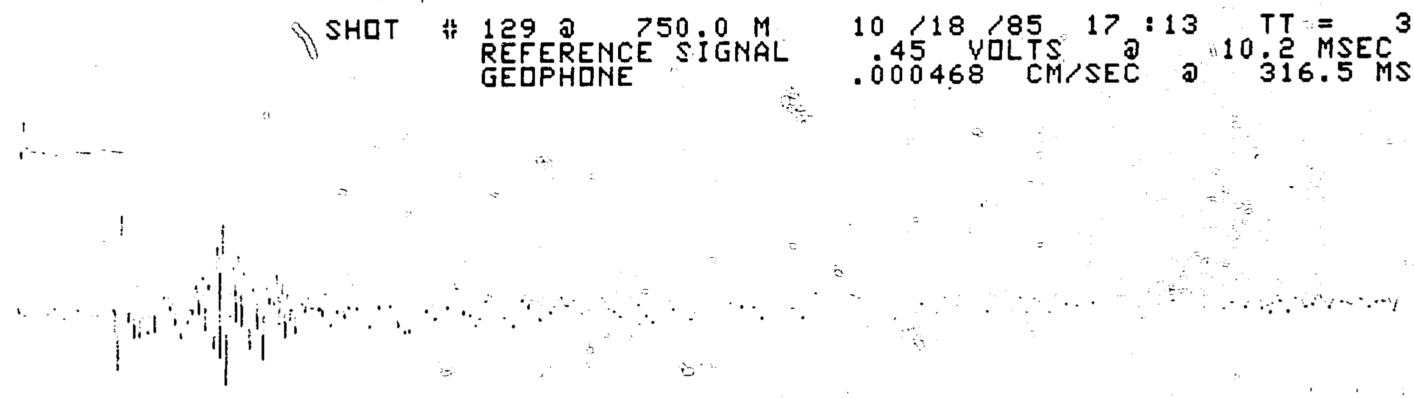
```
SHOT  # 130 @   725.0 M      10 /18 /85  17 :16    TT =    300.9 MS
        REFERENCE SIGNAL      .55  VOLTS   @      12.3 MSEC
        GEOPHONE             .000445  CM/SEC  @    313.2 MS
```



100 3100

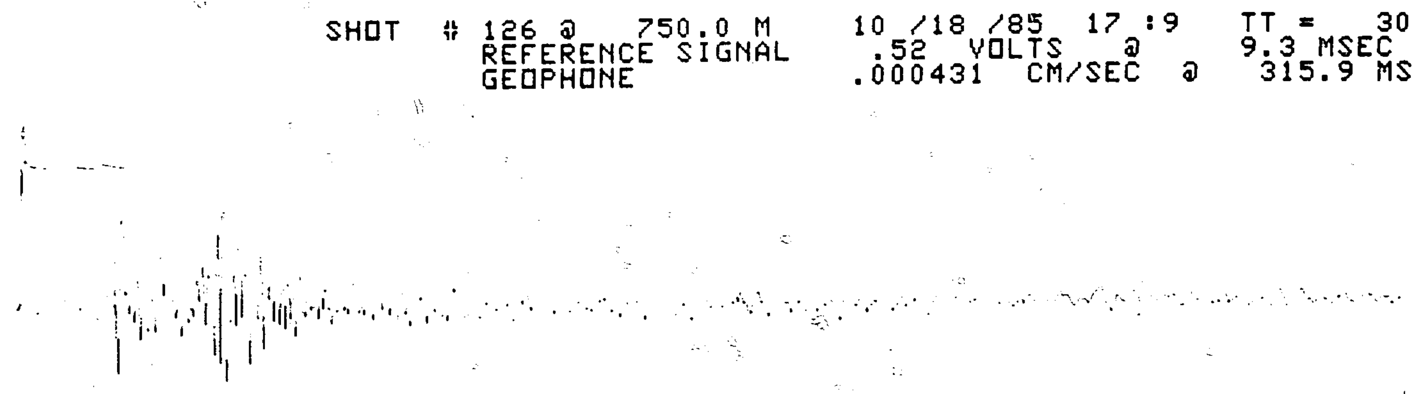
FILE # 1

```
SHOT  # 129 @   750.0 M      10 /18 /85  17 :13    TT =    306.3 MS
        REFERENCE SIGNAL      .45  VOLTS   @      10.2 MSEC
        GEOPHONE             .000468  CM/SEC  @    316.5 MS
```



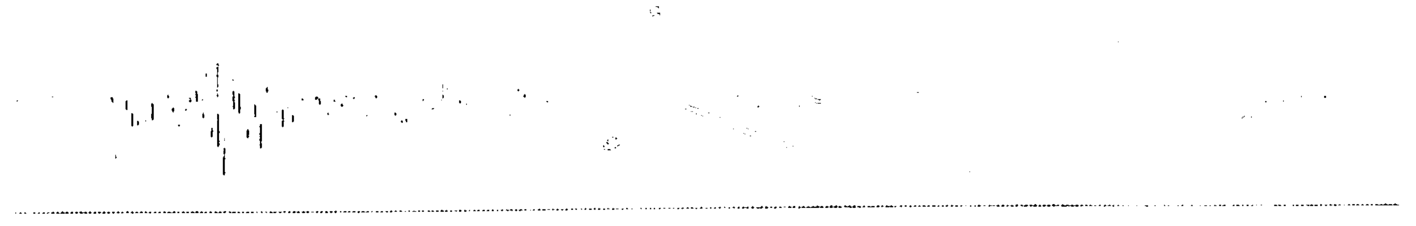
100 3100

```
SHOT  # 126 @   750.0 M      10 /18 /85  17 :9     TT =    306.6 MS
        REFERENCE SIGNAL      .52  VOLTS   @       9.3 MSEC
        GEOPHONE             .000431  CM/SEC  @    315.9 MS
```



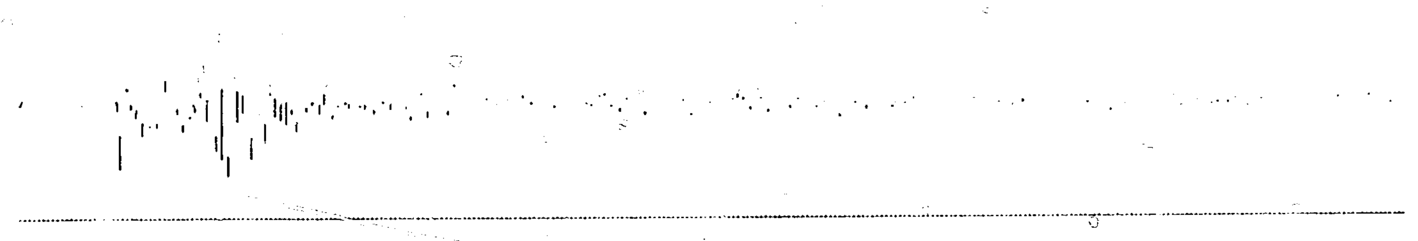
100 3100

```
SHOT  # 125 @   750.0 M      10 /18 /85  17 :9     TT =    306.7 MS
        REFERENCE SIGNAL      .48  VOLTS   @       9.2 MSEC
        GEOPHONE             .000453  CM/SEC  @    316.0 MS
```



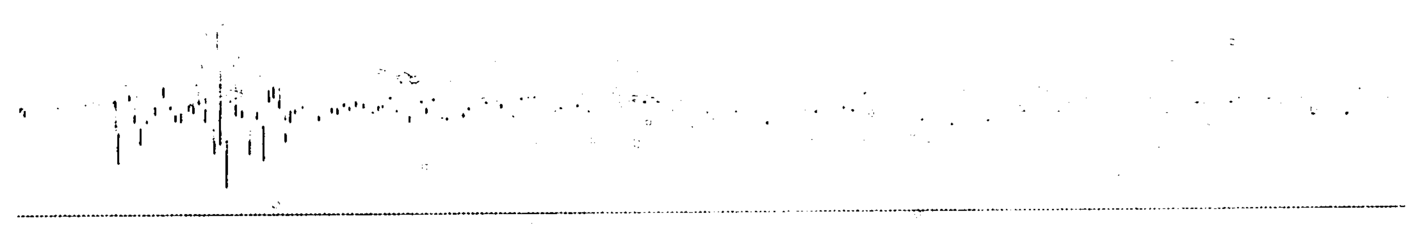
100 3100

SHOT # 126 @ 750.0 M 10 /18 /85 17 :9 TT = 306.6 MS
REFERENCE SIGNAL .52 VOLTS @ 9.3 MSEC
GEOPHONE .000431 CM/SEC @ 315.9 MS



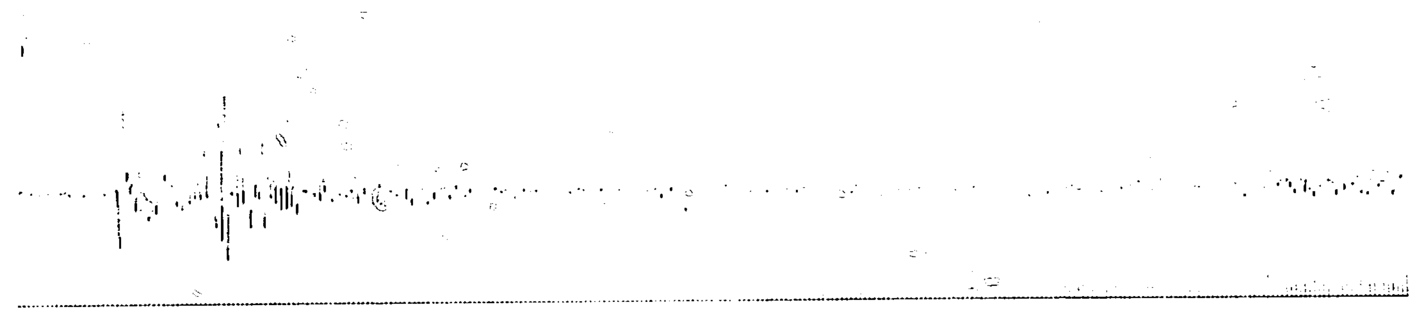
100 3100

SHOT # 125 @ 750.0 M 10 /18 /85 17 :9 TT = 306.7 MS
REFERENCE SIGNAL .48 VOLTS @ 9.2 MSEC
GEOPHONE .000453 CM/SEC @ 316.0 MS



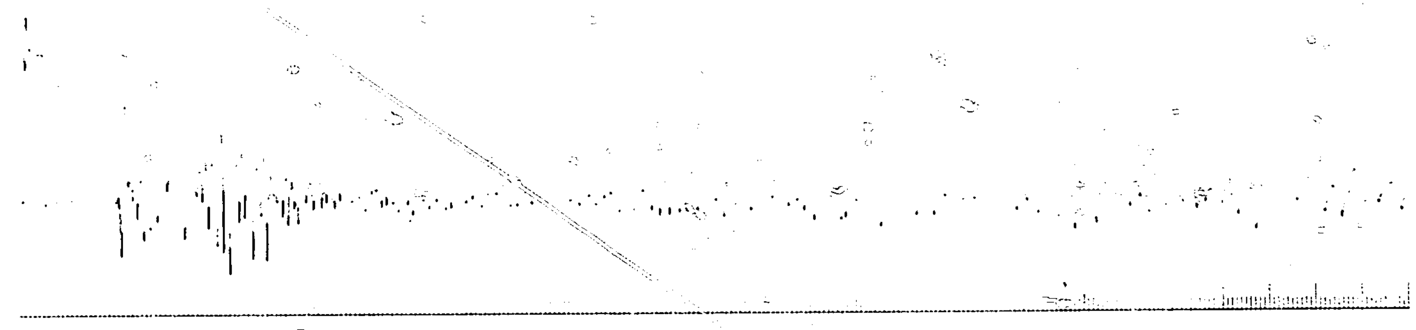
100 3100

SHOT # 124 @ 750.0 M 10 /18 /85 17 :8 TT = 307.9 MS
REFERENCE SIGNAL .66 VOLTS @ 9.1 MSEC
GEOPHONE .000431 CM/SEC @ 317.1 MS



100 3100

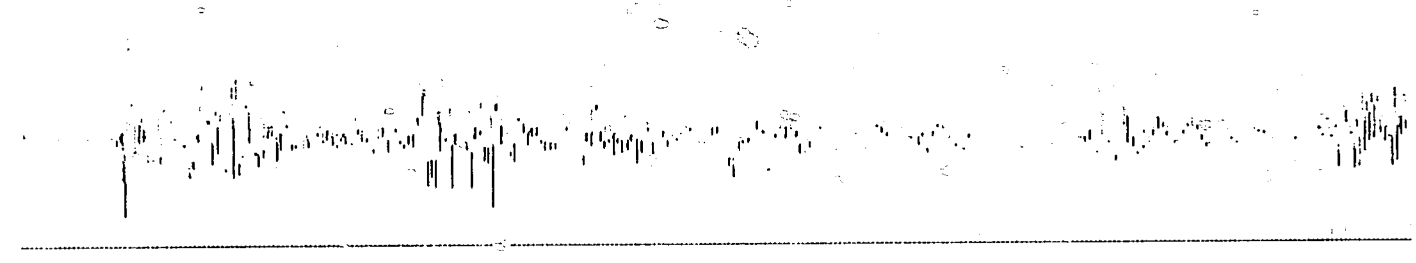
SHOT # 123 @ 750.0 M 10 /18 /85 17 :7 TT = 306.1 MS
REFERENCE SIGNAL .47 VOLTS @ 11.3 MSEC
GEOPHONE .000469 CM/SEC @ 317.4 MS



100 3100

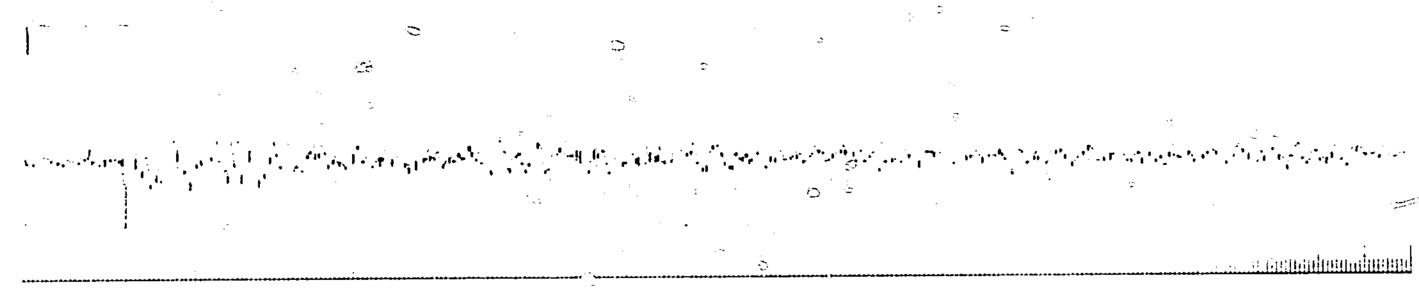
FILE # 1

SHOT # 122 @ 775.0 M 10 /18 /85 17 :2 TT = 311.4 MS
REFERENCE SIGNAL .49 VOLTS @ 10.2 MSEC
GEOPHONE .000398 CM/SEC @ 321.7 MS



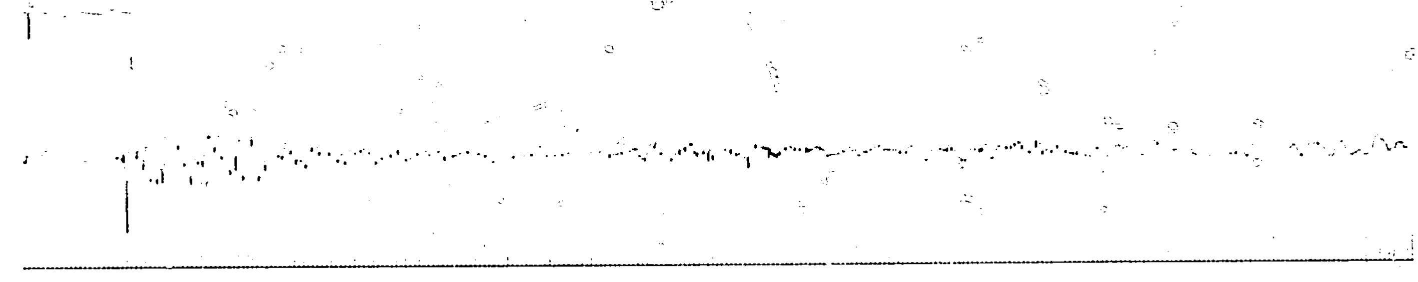
100 3100

SHOT # 119 @ 775.0 M 10 /18 /85 17 :1 TT = 309.3 MS
REFERENCE SIGNAL .44 VOLTS @ 11.3 MSEC
GEOPHONE .000323 CM/SEC @ 320.6 MS



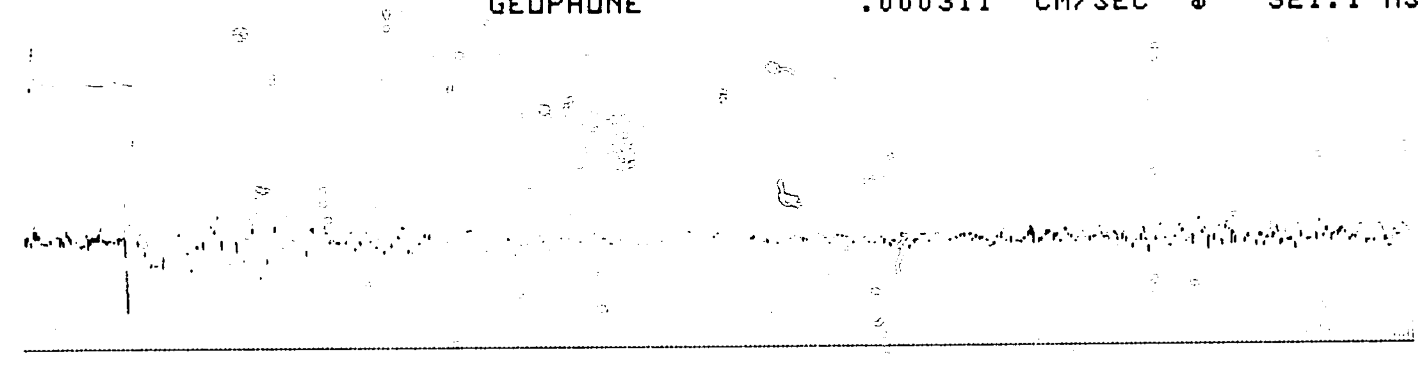
100 3100

SHOT # 118 @ 775.0 M 10 /18 /85 17 :0 TT = 309.6 MS
REFERENCE SIGNAL .55 VOLTS @ 11.3 MSEC
GEOPHONE .000321 CM/SEC @ 320.9 MS



100 3100

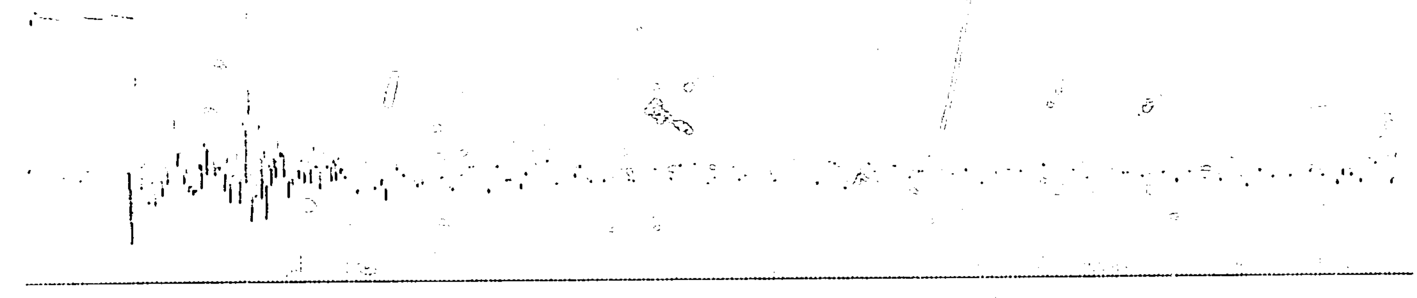
SHOT # 117 @ 775.0 M 10 /18 /85 16 :59 TT = 309.8 MS
REFERENCE SIGNAL .50 VOLTS @ 11.3 MSEC
GEOPHONE .000311 CM/SEC @ 321.1 MS



100 3100

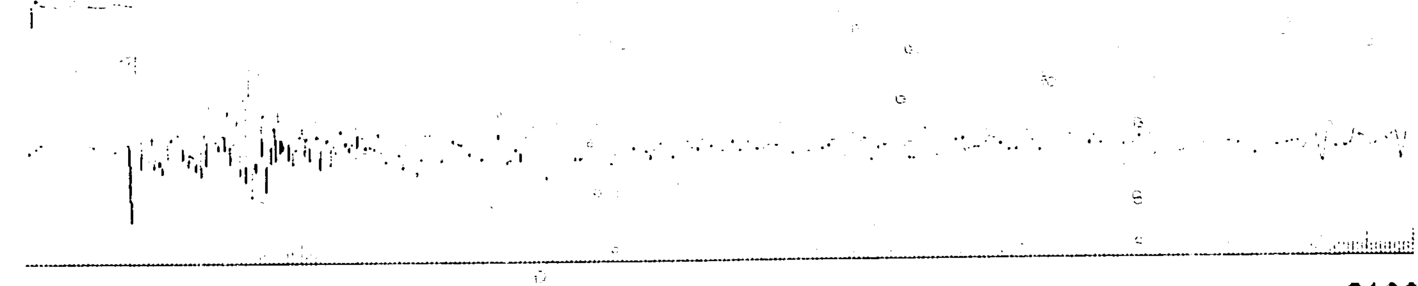
FILE # 1

SHOT # 116 @ 800.0 M 10 /18 /85 16 :50 TT = 313.9 MS
REFERENCE SIGNAL .51 VOLTS @ 13.3 MSEC
GEOPHONE .000359 CM/SEC @ 327.2 MS



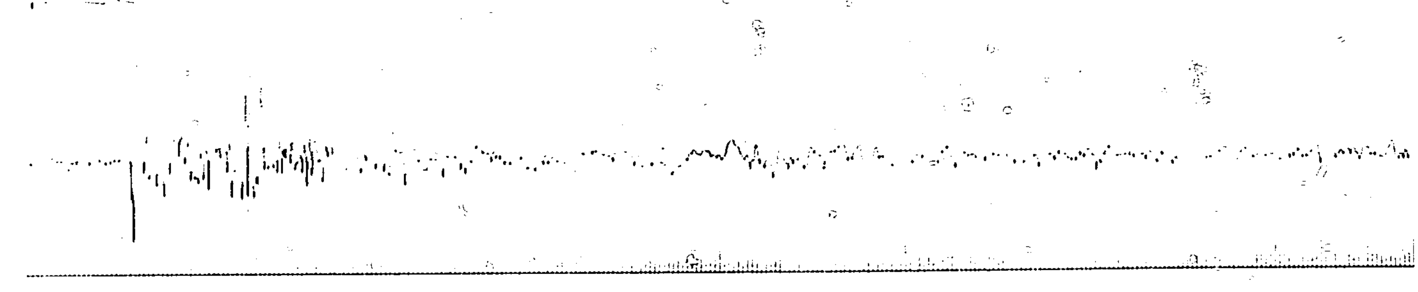
100 3100

SHOT # 115 @ 800.0 M 10 /18 /85 16 :49 TT = 313.8 MS
REFERENCE SIGNAL .45 VOLTS @ 11.3 MSEC
GEOPHONE .000335 CM/SEC @ 325.2 MS



100 3100

SHOT # 114 @ 800.0 M 10 /18 /85 16 :48 TT = 315.6 MS
REFERENCE SIGNAL .64 VOLTS @ 12.1 MSEC
GEOPHONE .000365 CM/SEC @ 327.7 MS

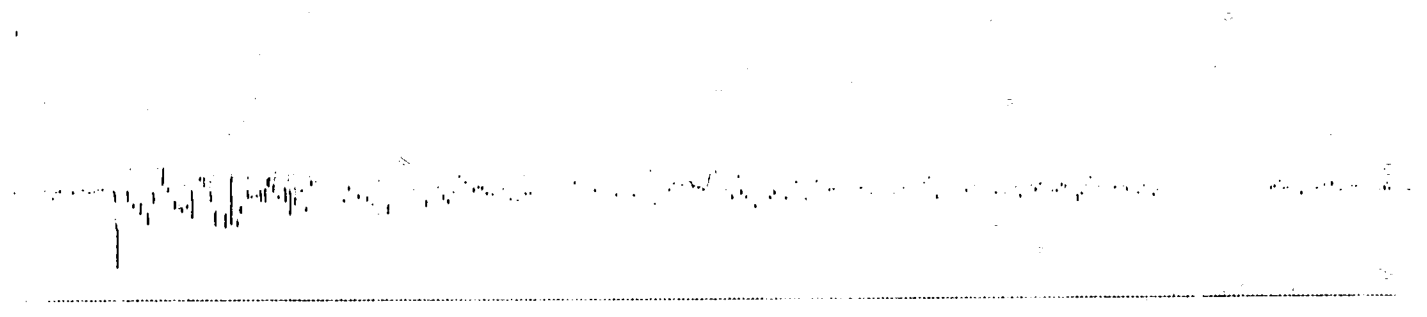


100 3100

SHOT # 112 @ 800.0 M 10 /18 /85 16 :47 TT = 314.4 MS
REFERENCE SIGNAL .48 VOLTS @ 11.3 MSEC
GEOPHONE .000367 CM/SEC @ 325.8 MS

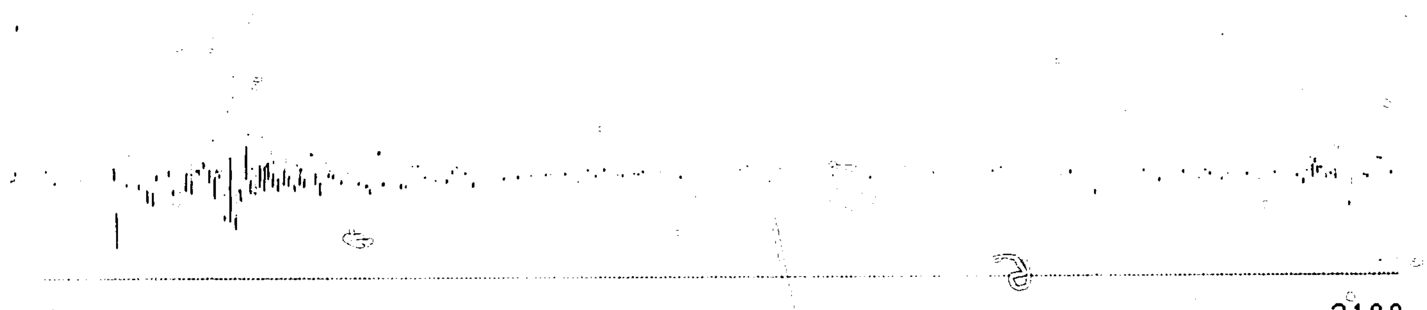
100 3100

SHOT # 114 @ 800.0 M 10 /18 /85 16 :48 TT = 315.6 MS
REFERENCE SIGNAL .64 VOLTS @ 12.1 MSEC
GEOPHONE .000365 CM/SEC @ 327.7 MS



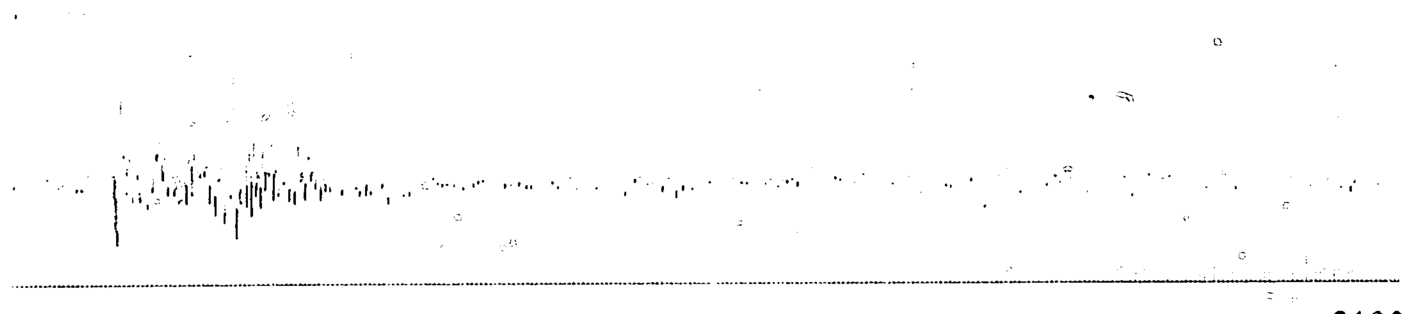
100 3100

SHOT # 112 @ 800.0 M 10 /18 /85 16 :47 TT = 314.4 MS
REFERENCE SIGNAL .48 VOLTS @ 11.3 MSEC
GEOPHONE .000367 CM/SEC @ 325.8 MS



100 3100

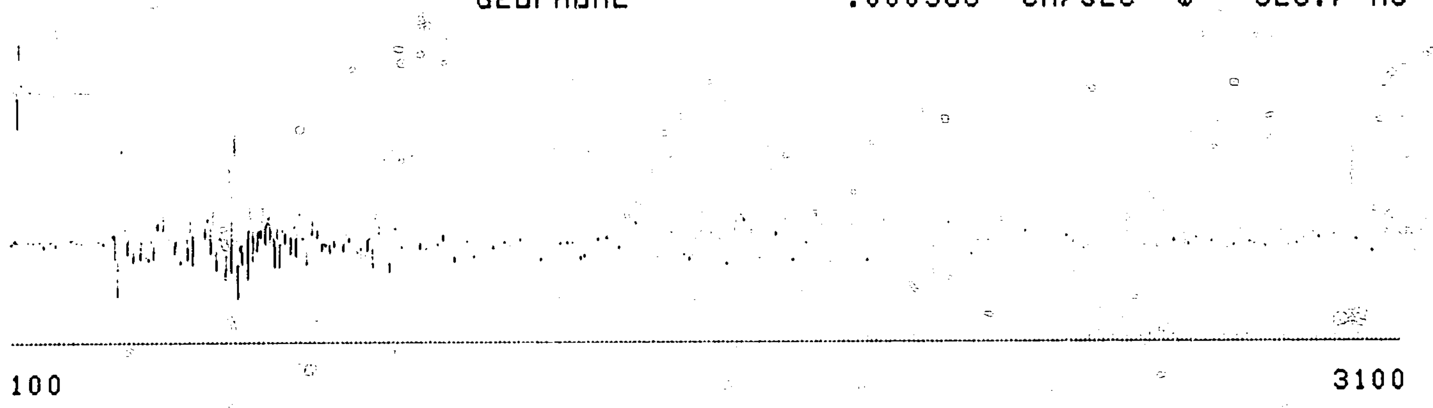
SHOT # 111 @ 800.0 M 10 /18 /85 16 :46 TT = 314.8 MS
REFERENCE SIGNAL .61 VOLTS @ 10.3 MSEC
GEOPHONE .000389 CM/SEC @ 325.1 MS



100 3100

FILE # 1

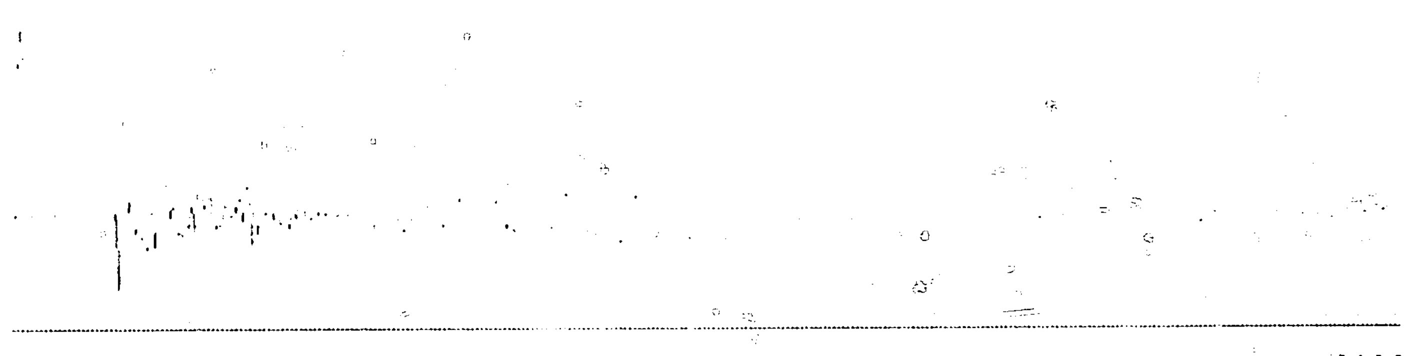
SHOT # 108 @ 800.0 M 10 /18 /85 15 :58 TT = 315.4 MS
REFERENCE SIGNAL .74 VOLTS @ 11.3 MSEC
GEOPHONE .000366 CM/SEC @ 326.7 MS



100 3100

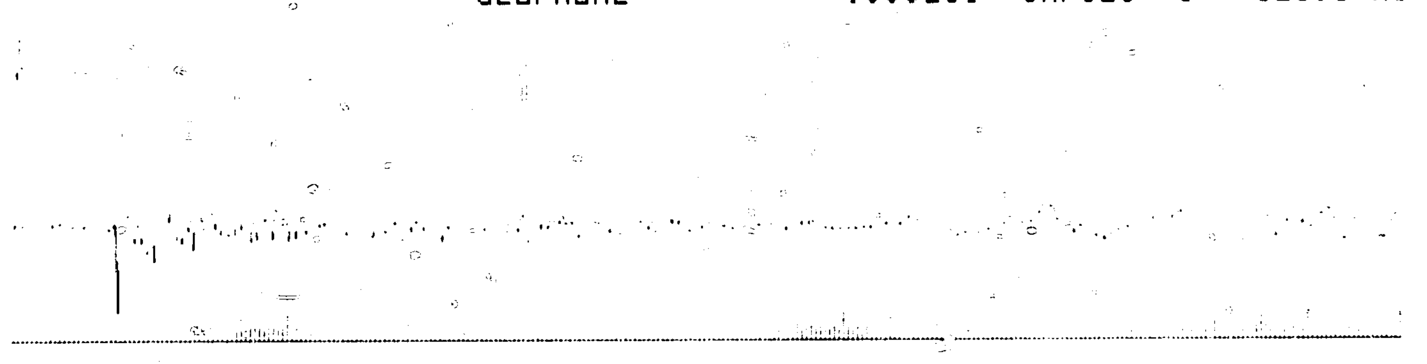
FILE # 1

SHOT # 107 @ 815.0 M 10 /18 /85 15 :54 TT = 315.8 MS
REFERENCE SIGNAL .53 VOLTS @ 12.2 MSEC
GEOPHONE .000249 CM/SEC @ 328.1 MS



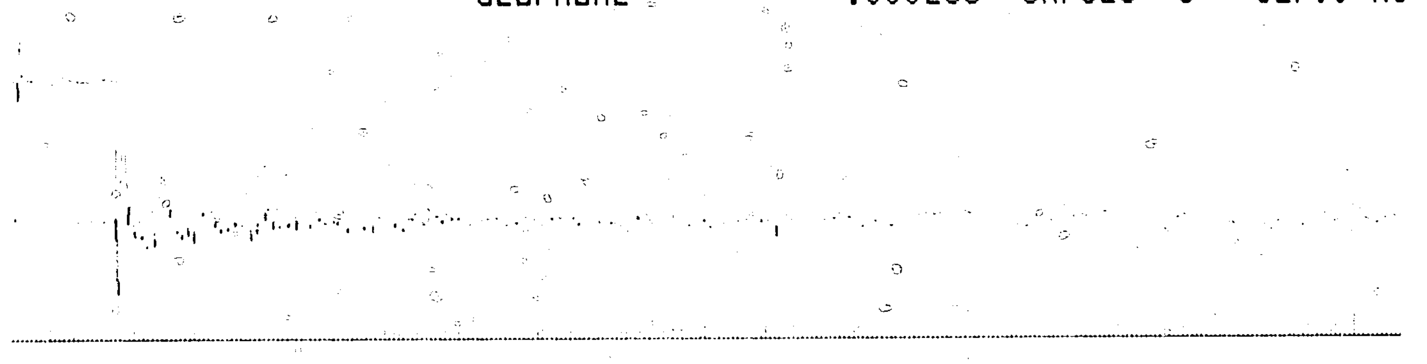
100 3100

SHOT # 106 @ 815.0 M 10 /18 /85 15 :53 TT = 315.4 MS
REFERENCE SIGNAL .46 VOLTS @ 10.3 MSEC
GEOPHONE .000231 CM/SEC @ 325.8 MS



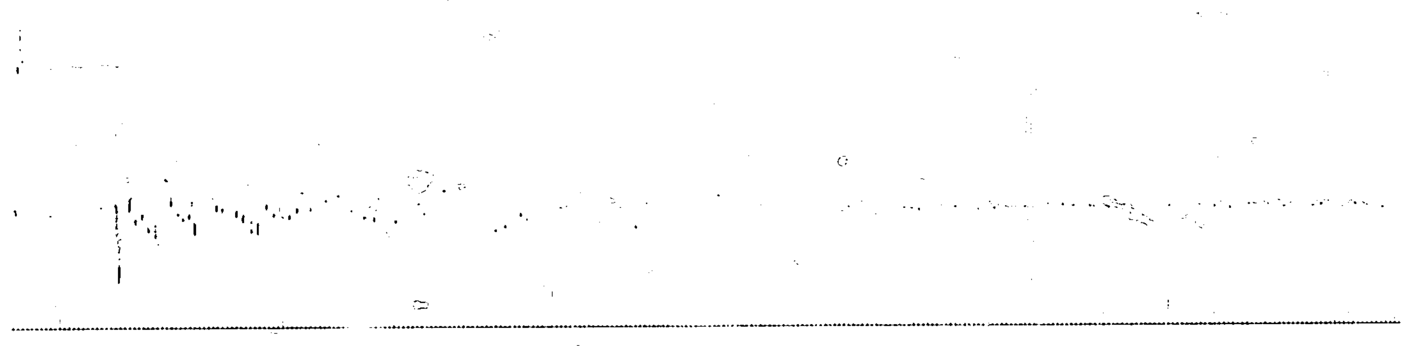
100 3100

SHOT # 105 @ 815.0 M 10 /18 /85 15 :52 TT = 315.7 MS
REFERENCE SIGNAL .49 VOLTS @ 11.3 MSEC
GEOPHONE .000235 CM/SEC @ 327.0 MS



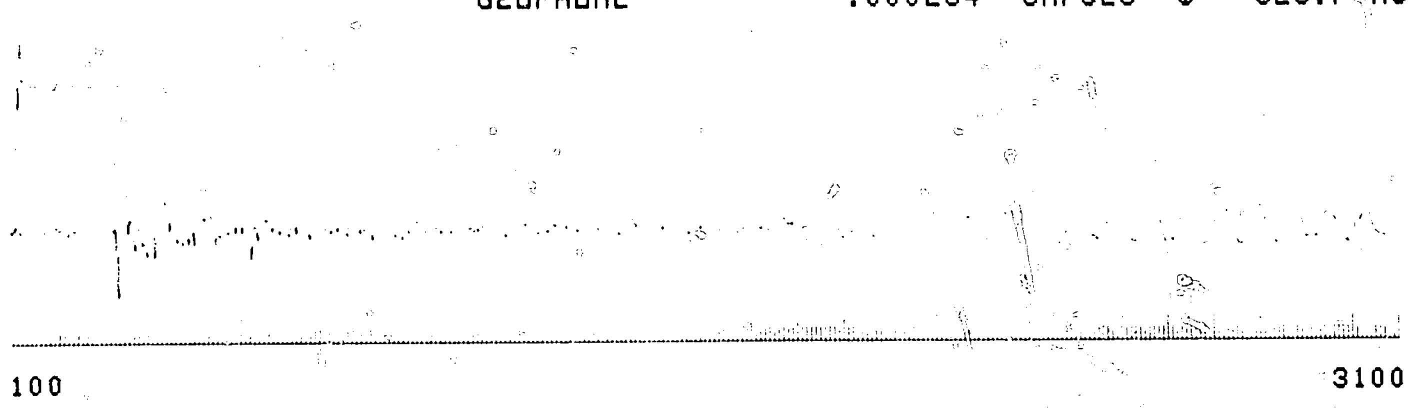
100 3100

SHOT # 104 @ 815.0 M 10 /18 /85 15 :52 TT = 316.4 MS
REFERENCE SIGNAL .50 VOLTS @ 11.9 MSEC
GEOPHONE .000228 CM/SEC @ 328.4 MS



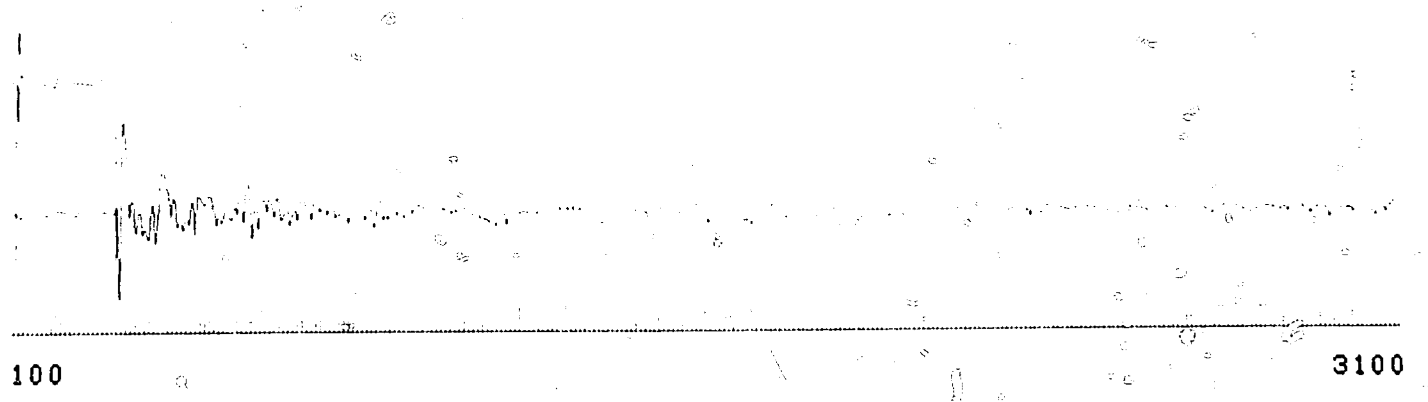
100 3100

SHOT # 103 @ 815.0 M 10 /18 /85 15 :51 TT = 315.3 MS
REFERENCE SIGNAL .46 VOLTS @ 11.3 MSEC
GEOPHONE .000264 CM/SEC @ 326.7 MS



100 3100

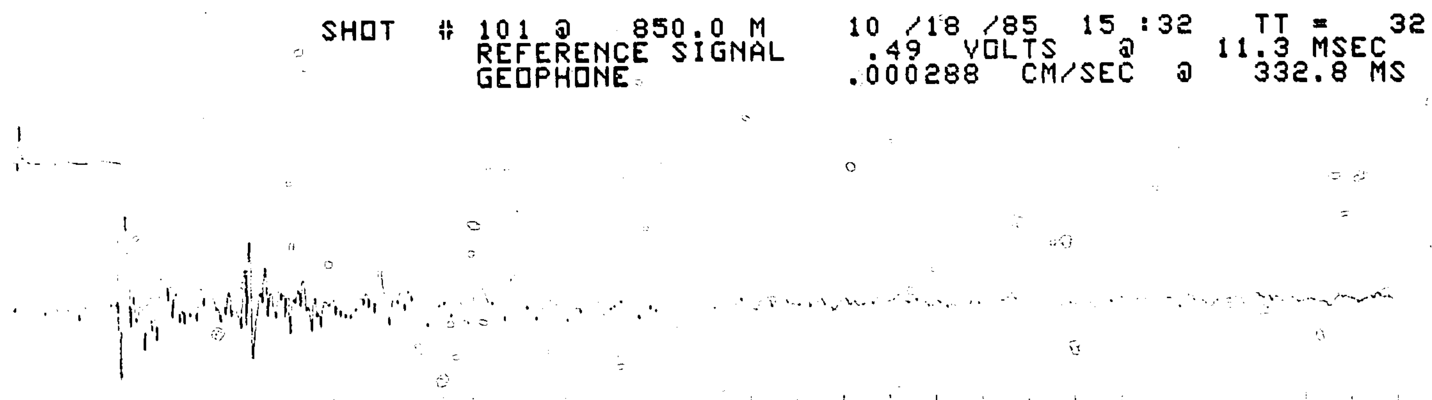
SHOT # 102 @ 815.0 M 10 /18 /85 15 :50 TT = 316.4 MS
REFERENCE SIGNAL .70 VOLTS @ 11.3 MSEC
GEOPHONE .000286 CM/SEC @ 327.7 MS



100 3100

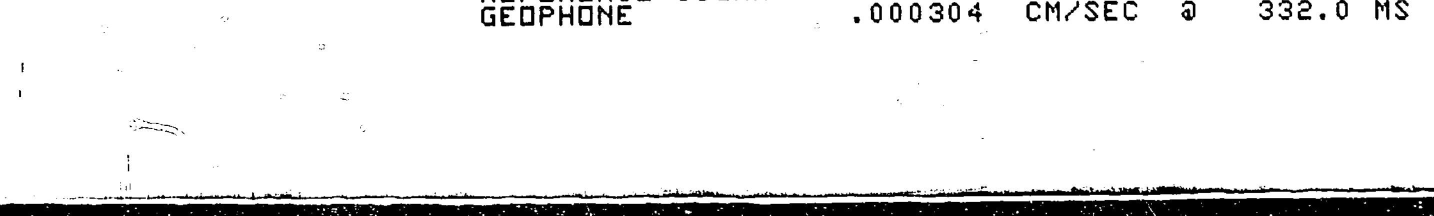
FILE # 1

SHOT # 101 @ 850.0 M 10 /18 /85 15 :32 TT = 321.4 MS
REFERENCE SIGNAL .49 VOLTS @ 11.3 MSEC
GEOPHONE .000288 CM/SEC @ 332.8 MS



100 3100

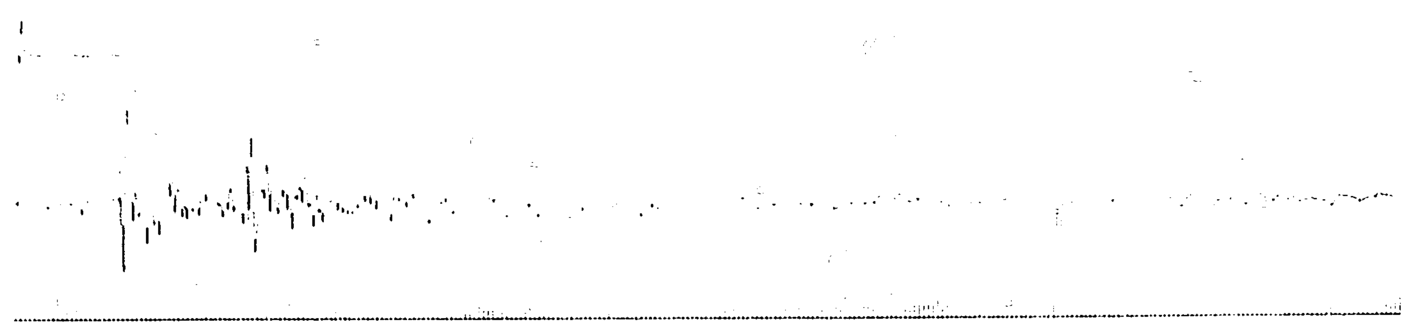
SHOT # 100 @ 850.0 M 10 /18 /85 15 :31 TT = 321.8 MS
REFERENCE SIGNAL .43 VOLTS @ 10.1 MSEC
GEOPHONE .000304 CM/SEC @ 332.0 MS



100 3100

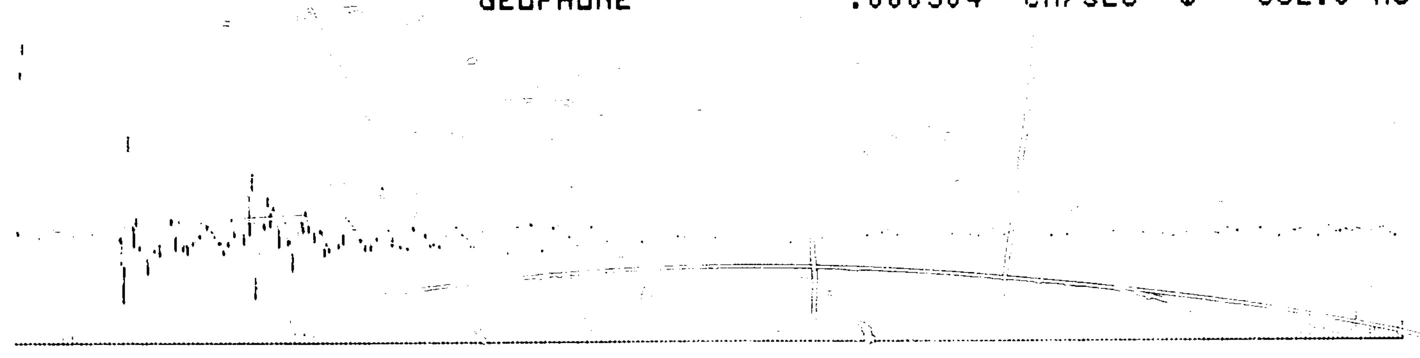
FILE # 1

SHOT # 101 @ 850.0 M 10 /18 /85 15 :32 TT = 321.4 MS
REFERENCE SIGNAL .49 VOLTS @ 11.3 MSEC
GEOPHONE .000288 CM/SEC @ 332.8 MS



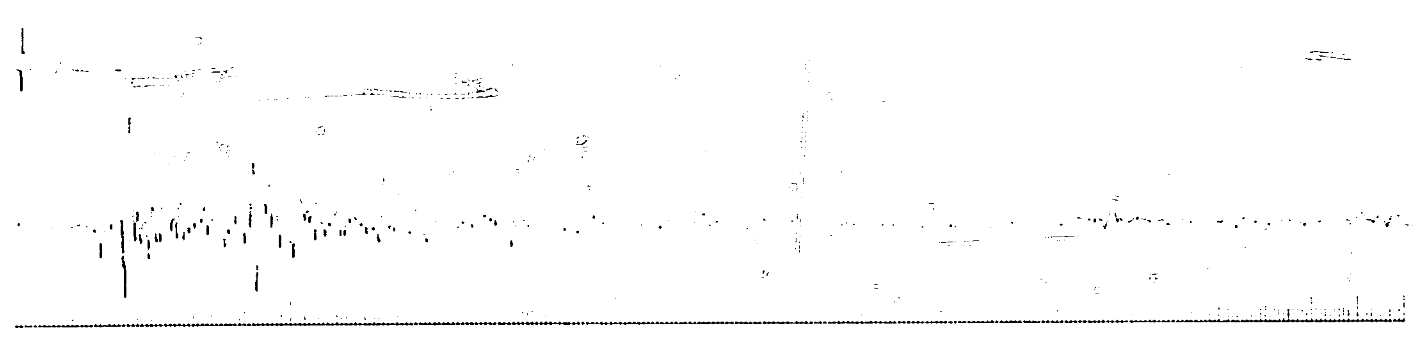
100 3100

SHOT # 100 @ 850.0 M 10 /18 /85 15 :31 TT = 321.8 MS
REFERENCE SIGNAL .43 VOLTS @ 10.1 MSEC
GEOPHONE .000304 CM/SEC @ 332.0 MS



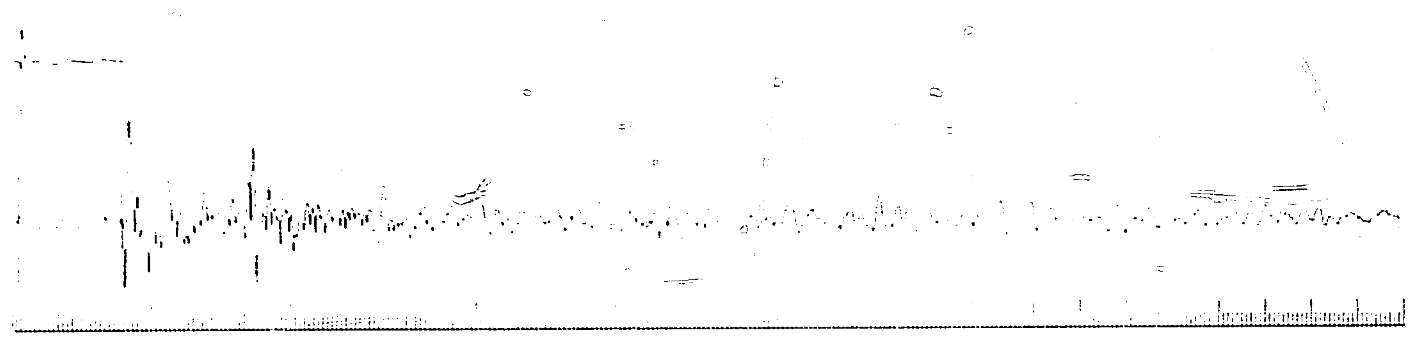
100 3100

SHOT # 98 @ 850.0 M 10 /18 /85 15 :30 TT = 321.9 MS
REFERENCE SIGNAL .59 VOLTS @ 11.3 MSEC
GEOPHONE .000325 CM/SEC @ 333.2 MS



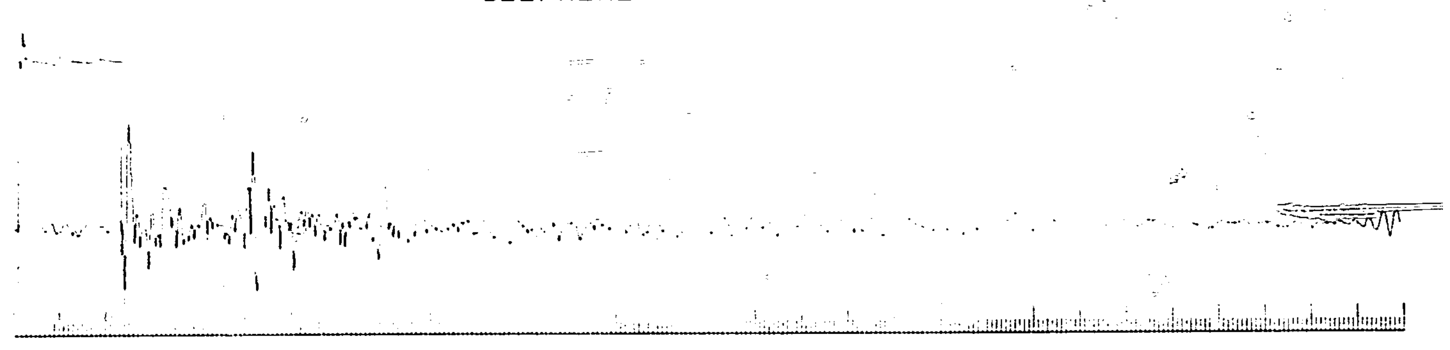
100 3100

SHOT # 97 @ 850.0 M 10 /18 /85 15 :28 TT = 322.0 MS
REFERENCE SIGNAL .58 VOLTS @ 12.3 MSEC
GEOPHONE .000309 CM/SEC @ 334.3 MS



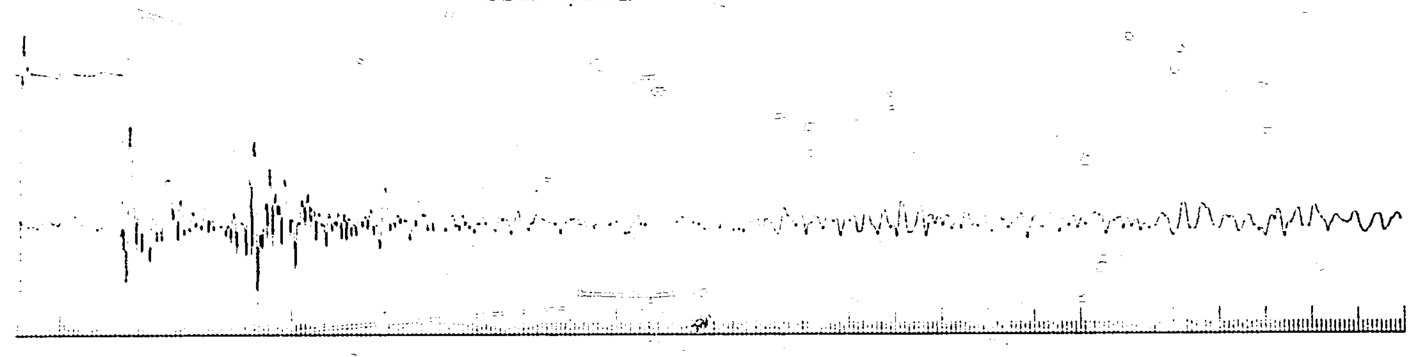
100 3100

SHOT # 96 @ 850.0 M 10 /18 /85 15 :27 TT = 321.9 MS
REFERENCE SIGNAL .46 VOLTS @ 10.2 MSEC
GEOPHONE .000346 CM/SEC @ 332.1 MS



100 3100

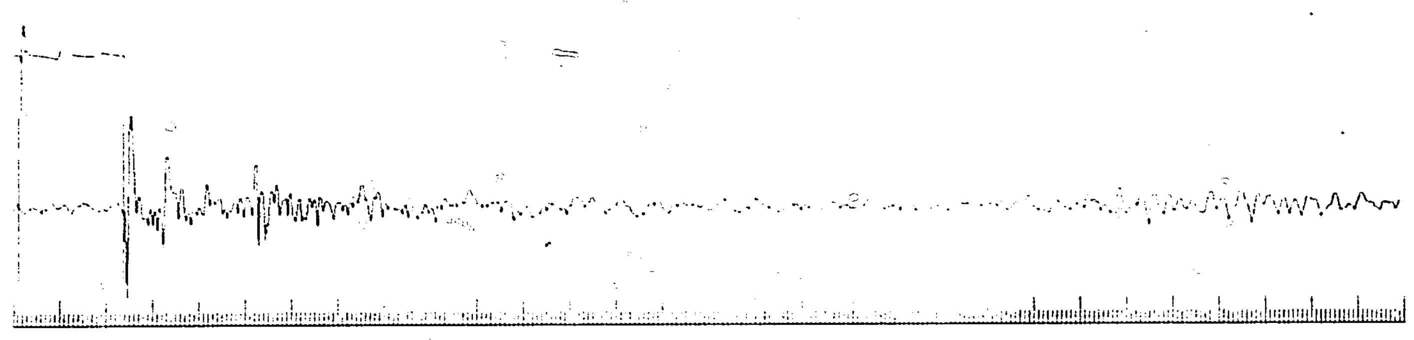
SHOT # 95 @ 850.0 M 10 /18 /85 15 :26 TT = 321.0 MS
REFERENCE SIGNAL .41 VOLTS @ 13.3 MSEC
GEOPHONE .000322 CM/SEC @ 334.3 MS



100 3100

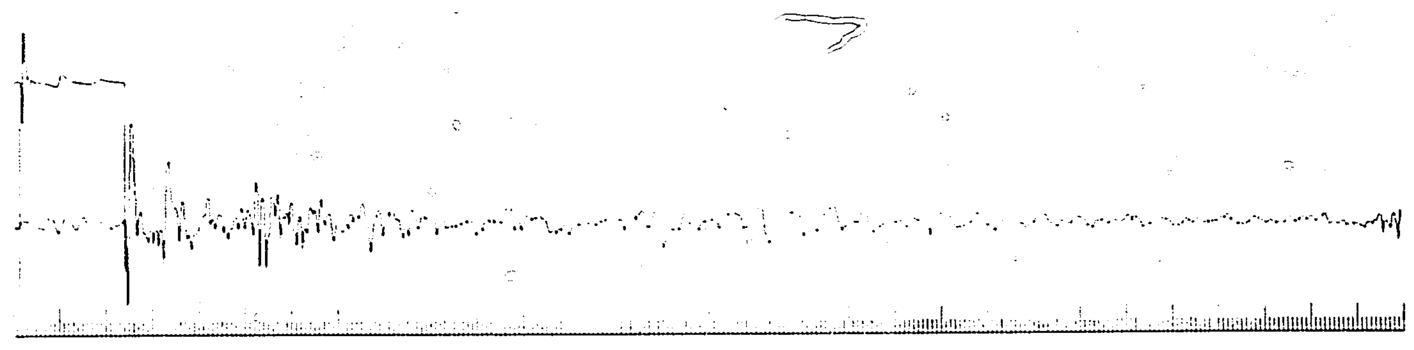
FILE # 1

SHOT # 93 @ 875.0 M 10 /18 /85 15 :21 TT = 325.9 MS
REFERENCE SIGNAL .55 VOLTS @ 10.2 MSEC
GEOPHONE .000285 CM/SEC @ 336.1 MS



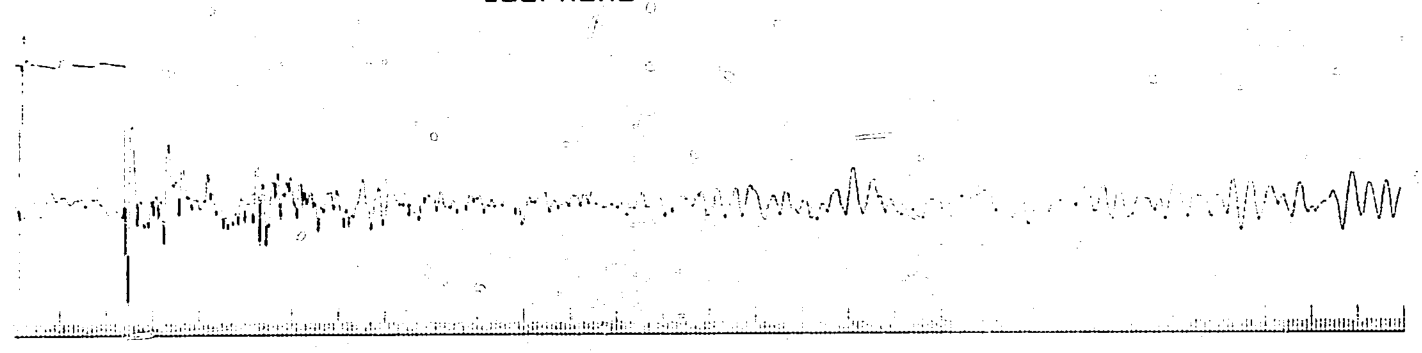
100 3100

SHOT # 92 @ 875.0 M 10 /18 /85 15 :20 TT = 326.2 MS
REFERENCE SIGNAL .51 VOLTS @ 11.2 MSEC
GEOPHONE .000287 CM/SEC @ 337.5 MS



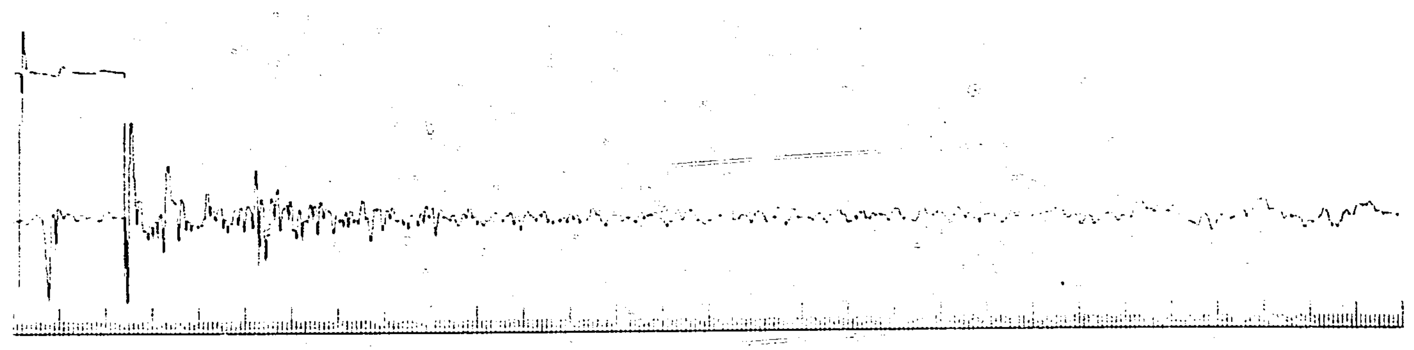
100 3100

SHOT # 91 @ 875.0 M 10 /18 /85 15 :19 TT = 325.6 MS
REFERENCE SIGNAL .50 VOLTS @ 12.2 MSEC
GEOPHONE .000246 CM/SEC @ 337.8 MS



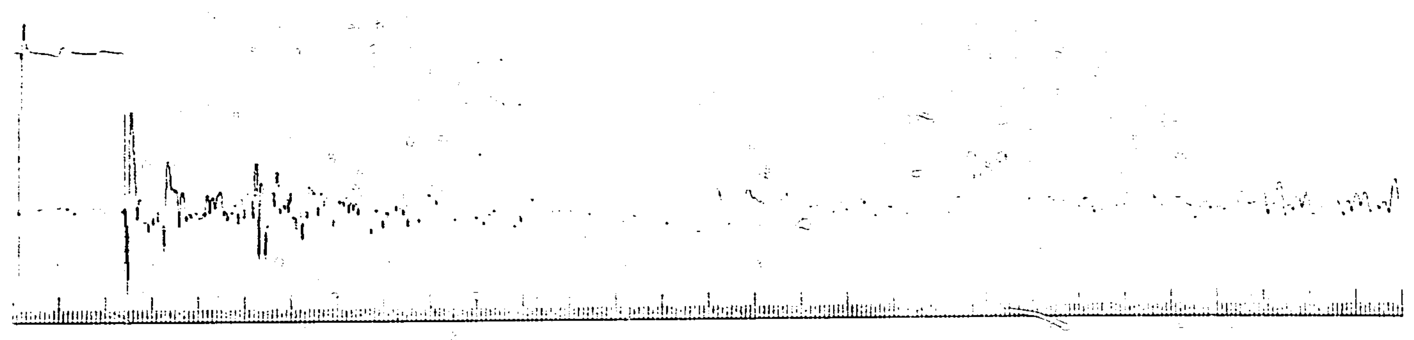
100 3100

SHOT # 90 @ 875.0 M 10 /18 /85 15 :18 TT = 326.3 MS
REFERENCE SIGNAL .50 VOLTS @ 11.1 MSEC
GEOPHONE .000286 CM/SEC @ 337.5 MS



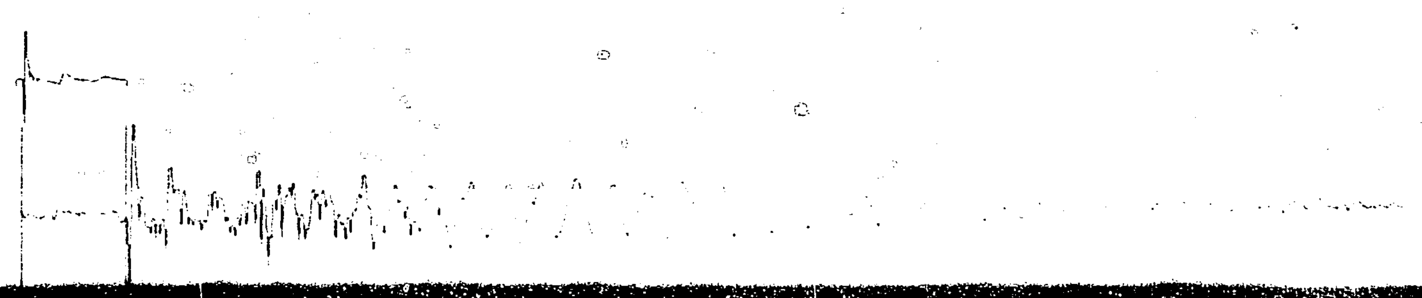
100 3100

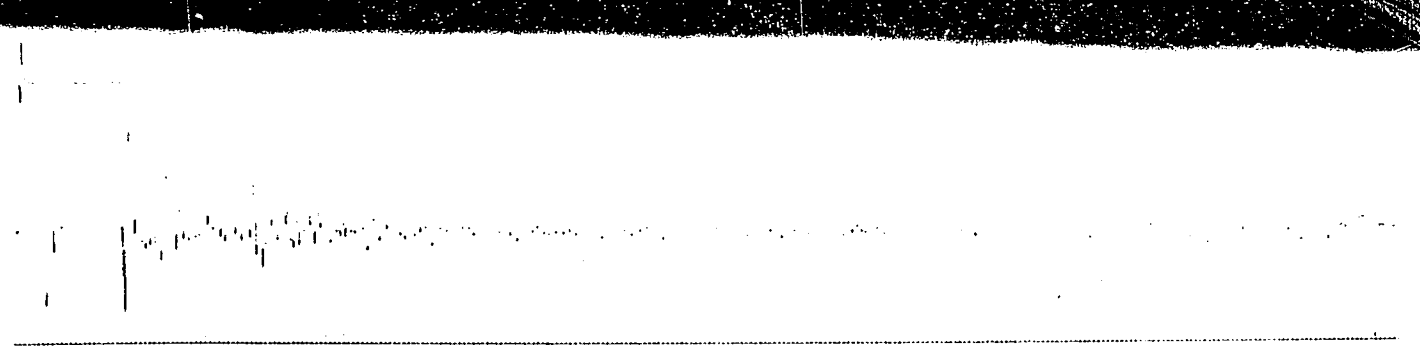
SHOT # 89 @ 875.0 M 10 /18 /85 15 :17 TT = 327.1 MS
REFERENCE SIGNAL 1.04 VOLTS @ 12.0 MSEC
GEOPHONE .000266 CM/SEC @ 339.2 MS



100 3100

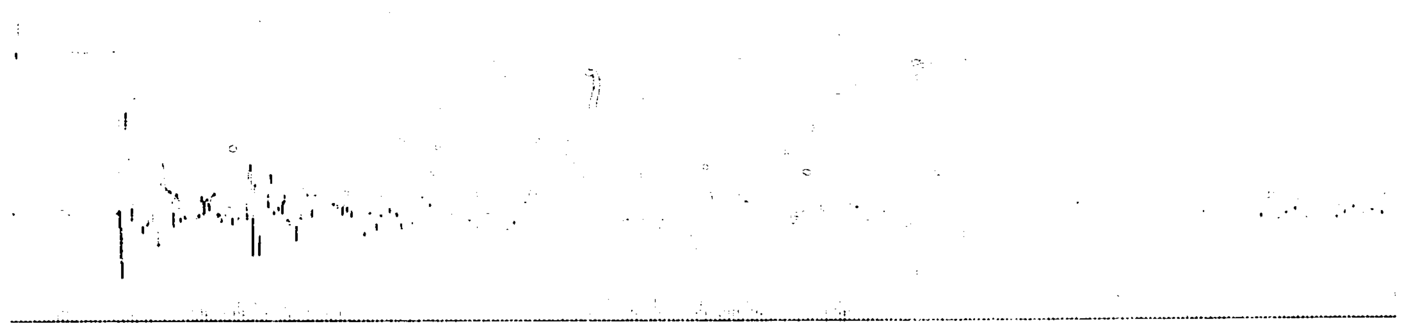
SHOT # 88 @ 875.0 M 10 /18 /85 15 :16 TT = 325.1 MS
REFERENCE SIGNAL .42 VOLTS @ 11.2 MSEC
GEOPHONE .000301 CM/SEC @ 336.3 MS





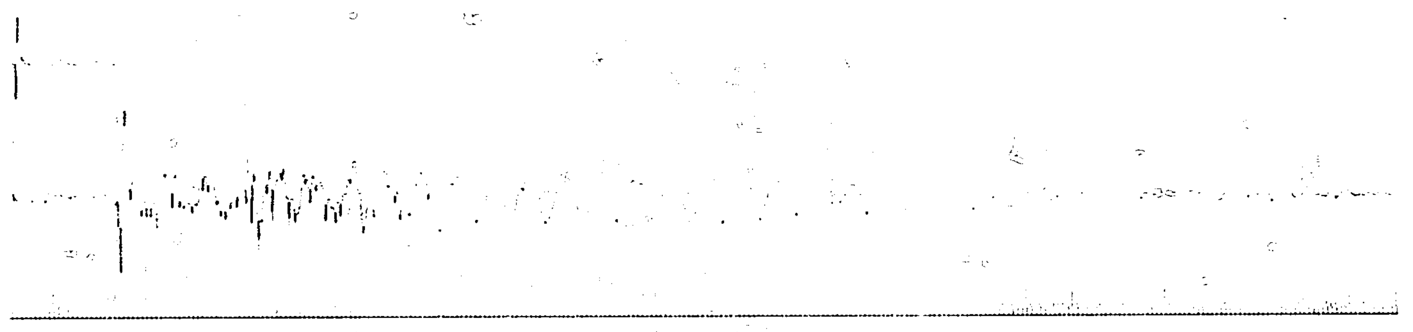
100 3100

SHOT # 89 @ 875.0 M 10 /18 /85 15 :17 TT = 327.1 MS
REFERENCE SIGNAL 1.04 VOLTS @ 12.0 MSEC
GEOPHONE .000266 CM/SEC @ 339.2 MS



100 3100

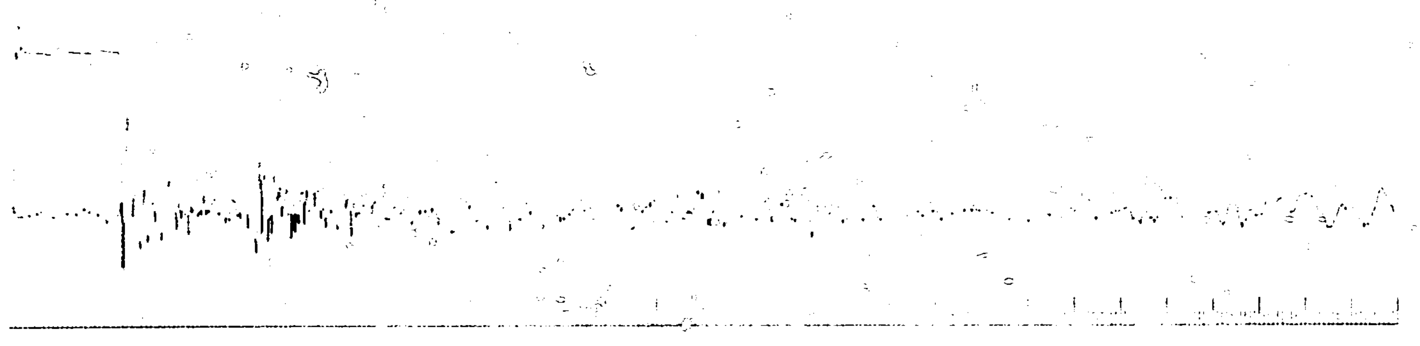
SHOT # 88 @ 875.0 M 10 /18 /85 15 :16 TT = 325.1 MS
REFERENCE SIGNAL .42 VOLTS @ 11.2 MSEC
GEOPHONE .000301 CM/SEC @ 336.3 MS



100 3100

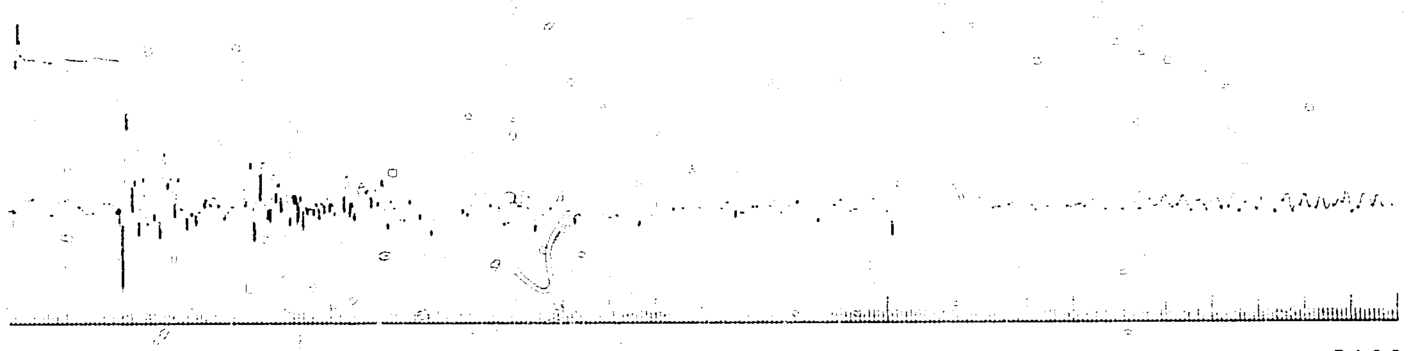
FILE # 1

SHOT # 87 @ 900.0 M 10 /18 /85 15 :8 TT = 331.3 MS
REFERENCE SIGNAL .47 VOLTS @ 12.1 MSEC
GEOPHONE .000251 CM/SEC @ 343.5 MS



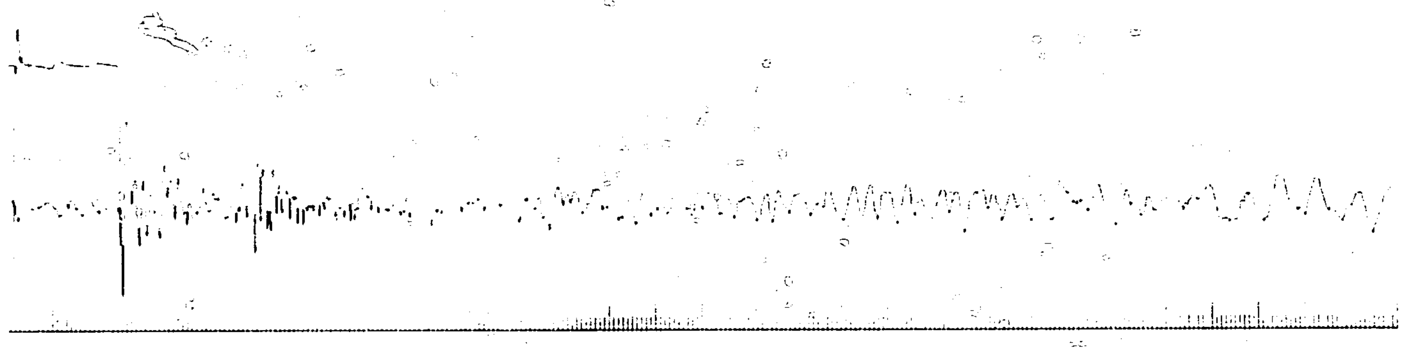
100 3100

SHOT # 86 @ 900.0 M 10 /18 /85 15 :7 TT = 329.6 MS
REFERENCE SIGNAL .42 VOLTS @ 11.3 MSEC
GEOPHONE .000293 CM/SEC @ 340.9 MS



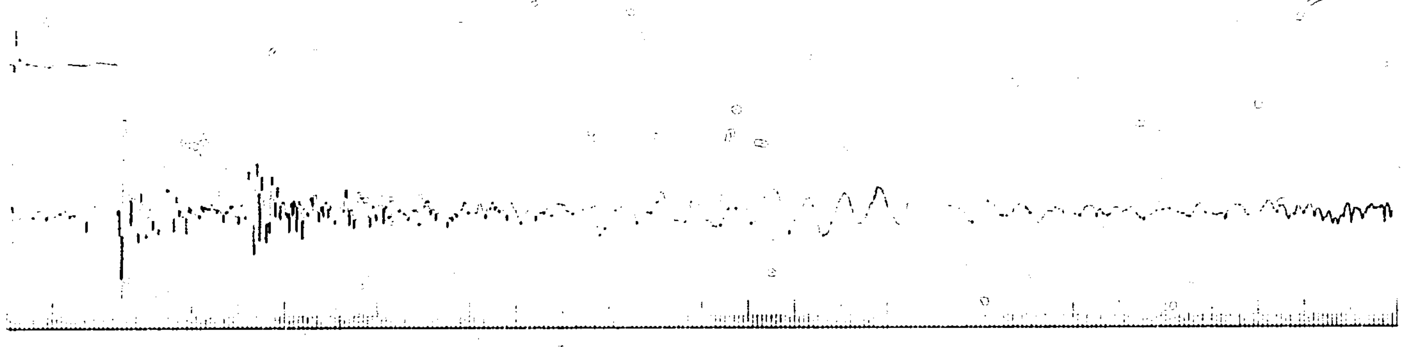
100 3100

SHOT # 85 @ 900.0 M 10 /18 /85 15 :6 TT = 328.8 MS
REFERENCE SIGNAL .41 VOLTS @ 13.2 MSEC
GEOPHONE .000268 CM/SEC @ 342.1 MS



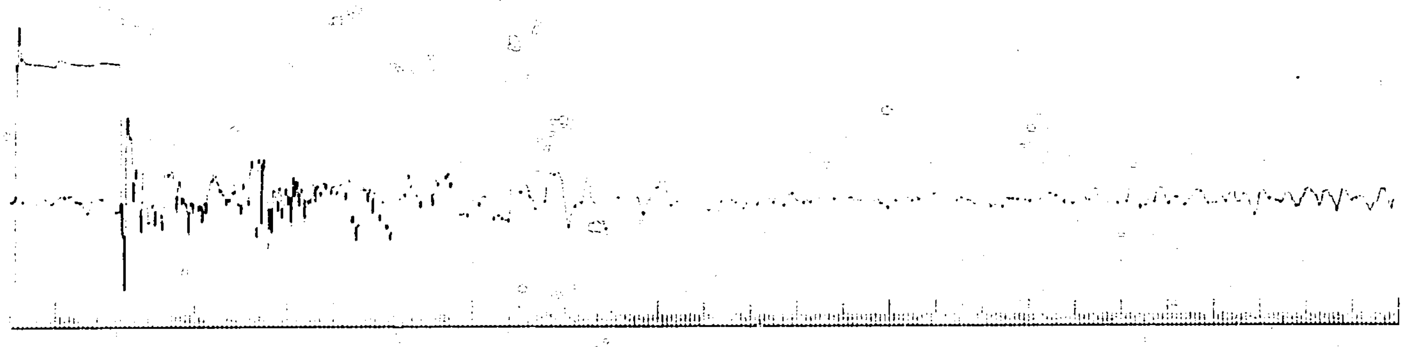
100 3100

SHOT # 84 @ 900.0 M 10 /18 /85 15 :4 TT = 329.4 MS
REFERENCE SIGNAL .41 VOLTS @ 11.3 MSEC
GEOPHONE .000277 CM/SEC @ 340.7 MS



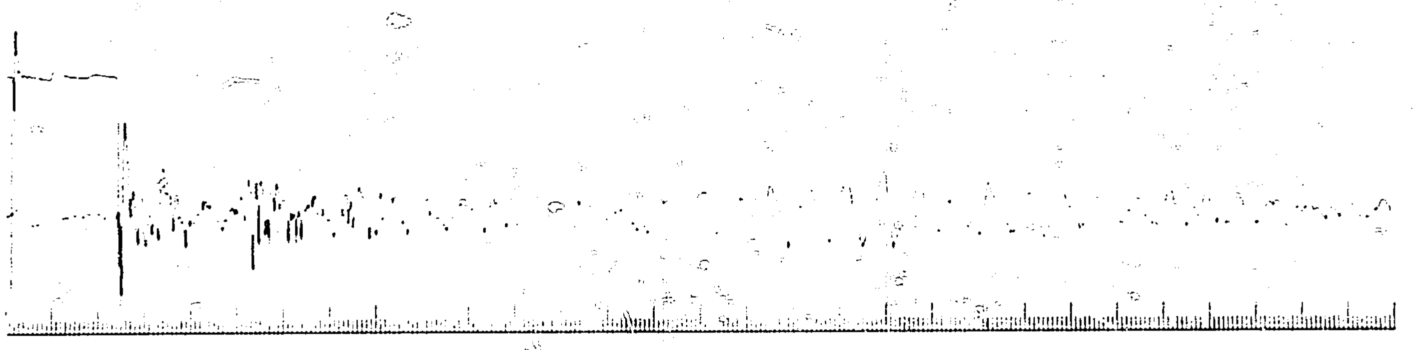
100 3100

SHOT # 83 @ 900.0 M 10 /18 /85 15 :3 TT = 329.0 MS
REFERENCE SIGNAL .41 VOLTS @ 11.3 MSEC
GEOPHONE .000222 CM/SEC @ 340.3 MS



100 3100

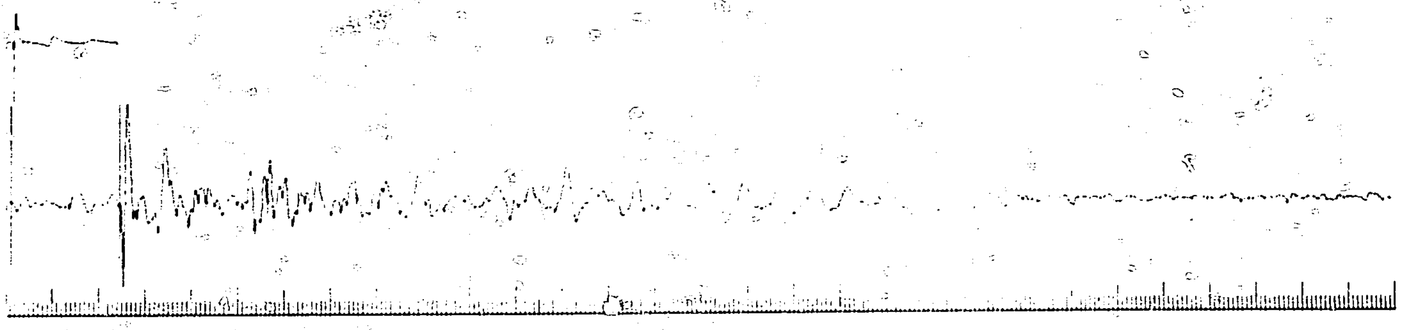
SHOT # 81 @ 900.0 M 10 /18 /85 15 :2 TT = 330.2 MS
REFERENCE SIGNAL .45 VOLTS @ 11.2 MSEC
GEOPHONE .000273 CM/SEC @ 341.5 MS



100 3100

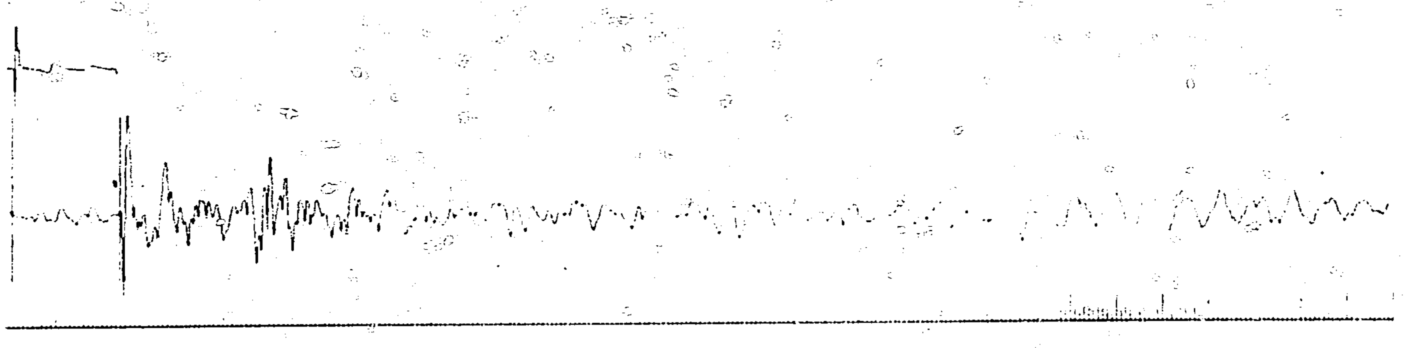
FILE # 1

SHOT # 80 @ 925.0 M 10 /18 /85 14 :57 TT = 333.7 MS
REFERENCE SIGNAL .55 VOLTS @ 10.2 MSEC
GEOPHONE .000265 CM/SEC @ 344.0 MS



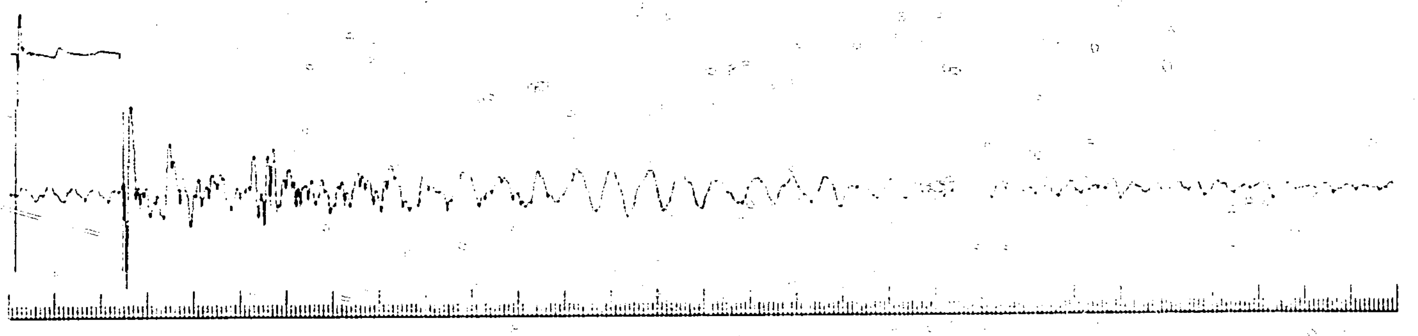
100 3100

SHOT # 79 @ 925.0 M 10 /18 /85 14 :56 TT = 333.6 MS
REFERENCE SIGNAL .46 VOLTS @ 13.1 MSEC
GEOPHONE .000242 CM/SEC @ 346.7 MS



100 3100

SHOT # 78 @ 925.0 M 10 /18 /85 14 :55 TT = 333.3 MS
REFERENCE SIGNAL .40 VOLTS @ 13.2 MSEC
GEOPHONE .000215 CM/SEC @ 346.6 MS

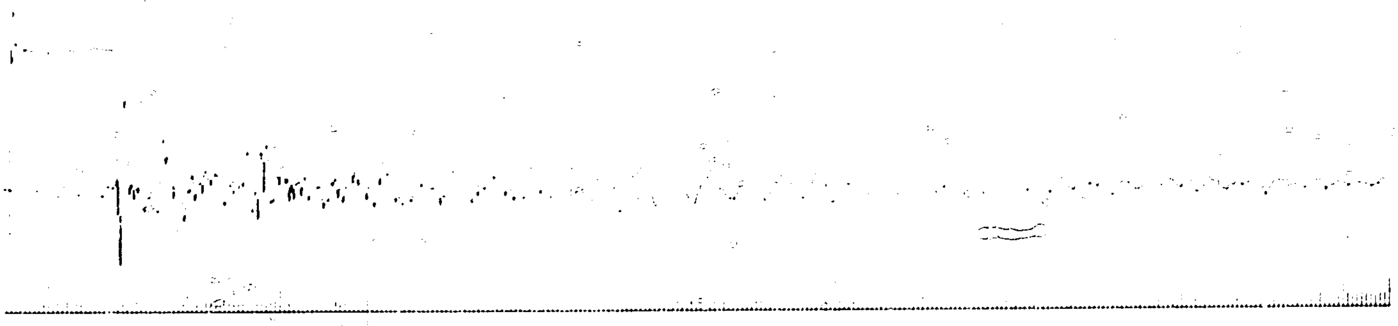


100 3100

SHOT # 77 @ 925.0 M 10 /18 /85 14 :54 TT = 333.4 MS
REFERENCE SIGNAL .41 VOLTS @ 10.1 MSEC
GEOPHONE .000277 CM/SEC @ 343.5 MS

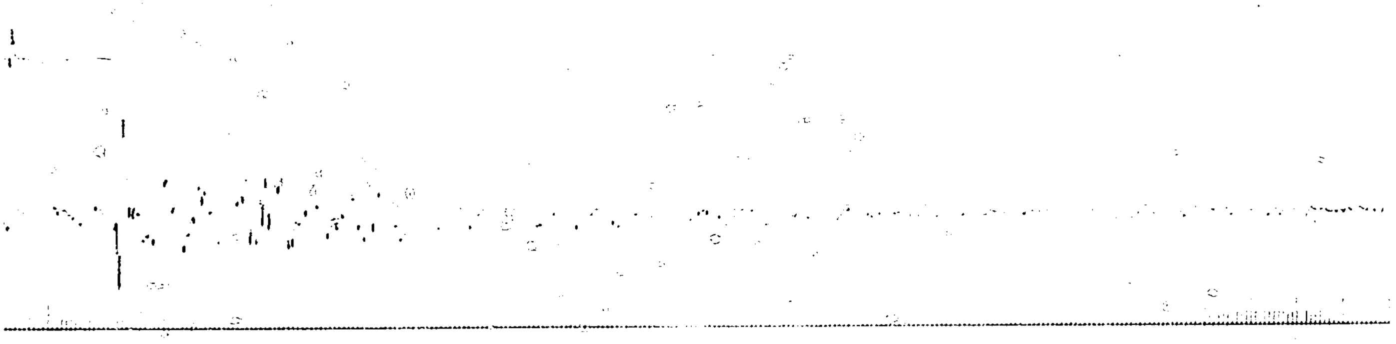
100 3100

SHOT # 78 @ 925.0 M 10 /18 /85 14 :55 TT = 333.3 MS
REFERENCE SIGNAL .40 VOLTS @ 13.2 MSEC
GEOPHONE .000215 CM/SEC @ 346.6 MS



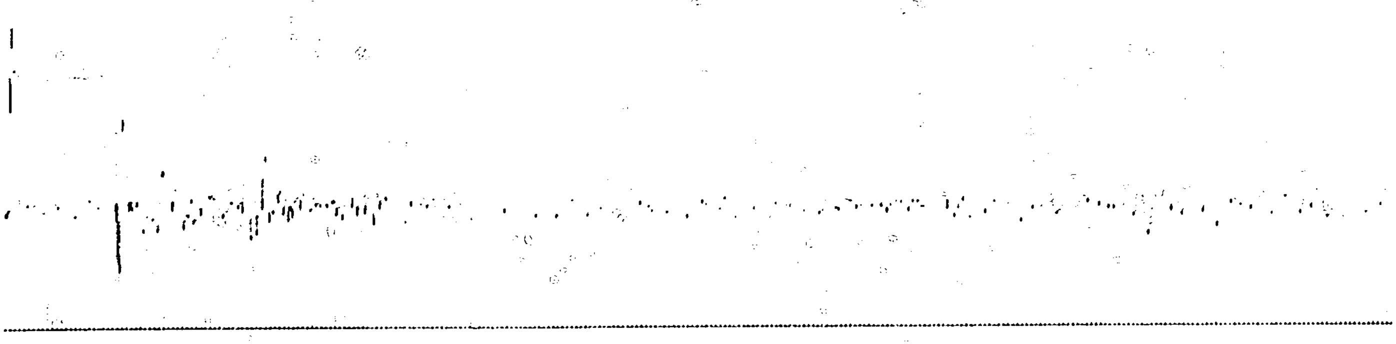
100 3100

SHOT # 77 @ 925.0 M 10 /18 /85 14 :54 TT = 333.4 MS
REFERENCE SIGNAL .41 VOLTS @ 10.1 MSEC
GEOPHONE .000277 CM/SEC @ 343.5 MS



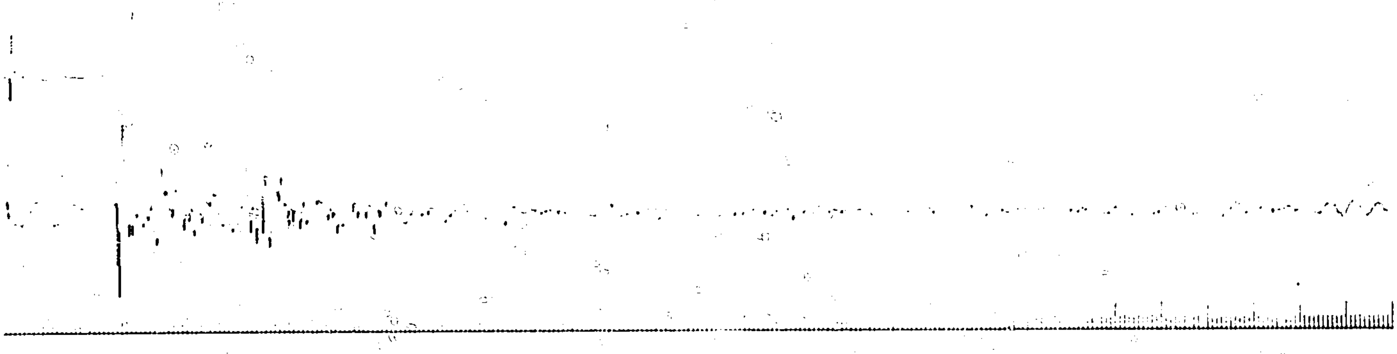
100 3100

SHOT # 76 @ 925.0 M 10 /18 /85 14 :53 TT = 334.1 MS
REFERENCE SIGNAL .47 VOLTS @ 11.2 MSEC
GEOPHONE .000178 CM/SEC @ 345.4 MS



100 3100

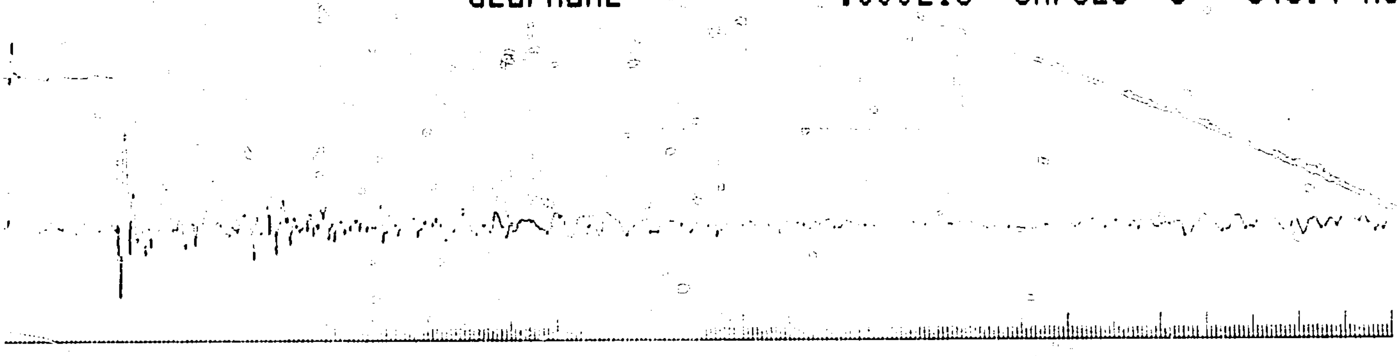
SHOT # 75 @ 925.0 M 10 /18 /85 14 :52 TT = 334.4 MS
REFERENCE SIGNAL .50 VOLTS @ 11.2 MSEC
GEOPHONE .000224 CM/SEC @ 345.6 MS



100 3100

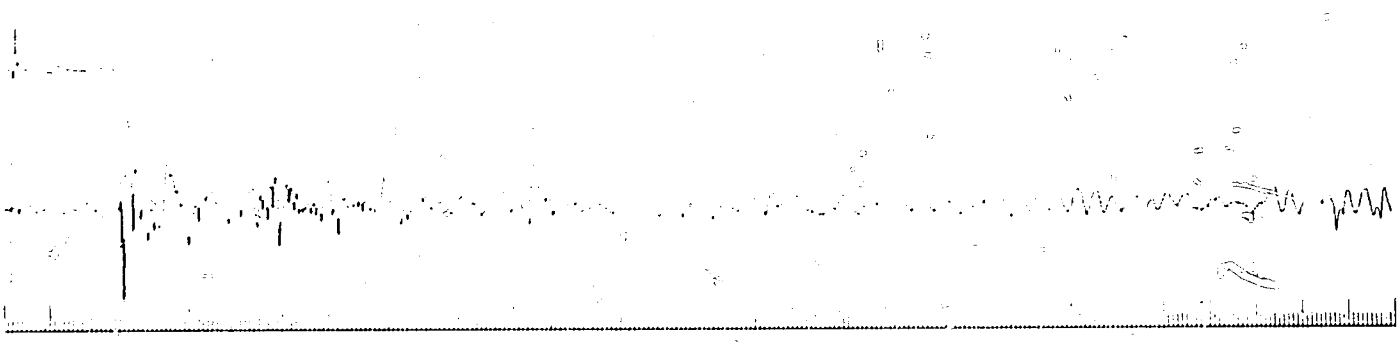
FILE # 1

SHOT # 74 @ 950.0 M 10 /18 /85 14 :41 TT = 337.0 MS
REFERENCE SIGNAL .46 VOLTS @ 11.3 MSEC
GEOPHONE .000215 CM/SEC @ 348.4 MS



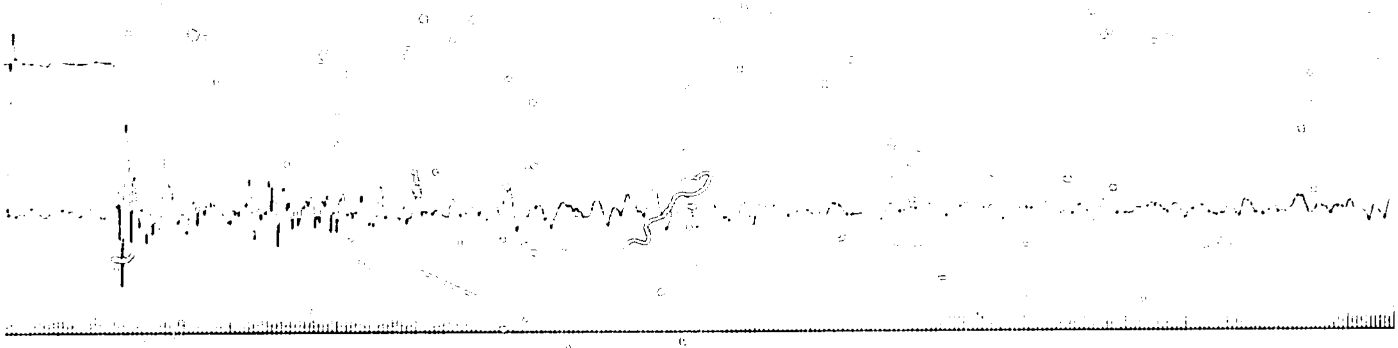
100 3100

SHOT # 73 @ 950.0 M 10 /18 /85 14 :40 TT = 336.9 MS
REFERENCE SIGNAL .45 VOLTS @ 13.2 MSEC
GEOPHONE .000170 CM/SEC @ 350.2 MS



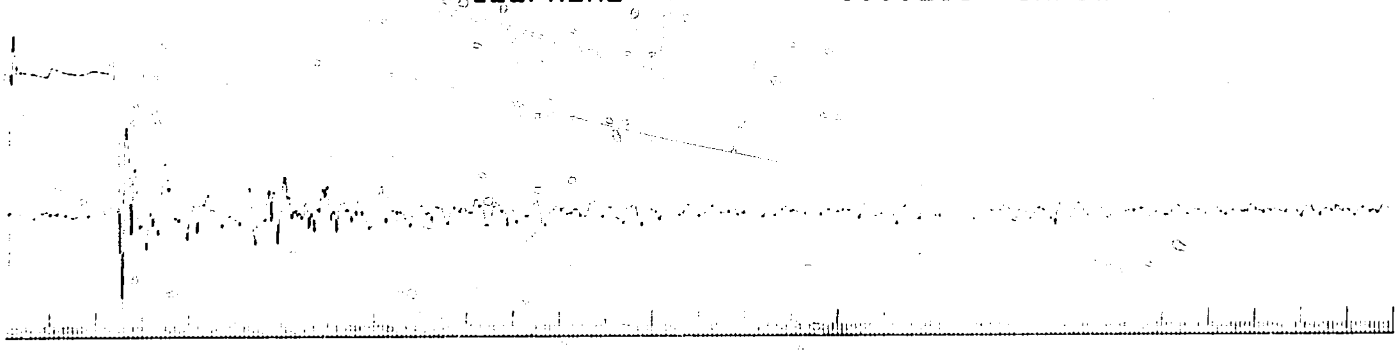
100 3100

SHOT # 72 @ 950.0 M 10 /18 /85 14 :39 TT = 338.3 MS
REFERENCE SIGNAL .59 VOLTS @ 10.2 MSEC
GEOPHONE .000206 CM/SEC @ 348.5 MS



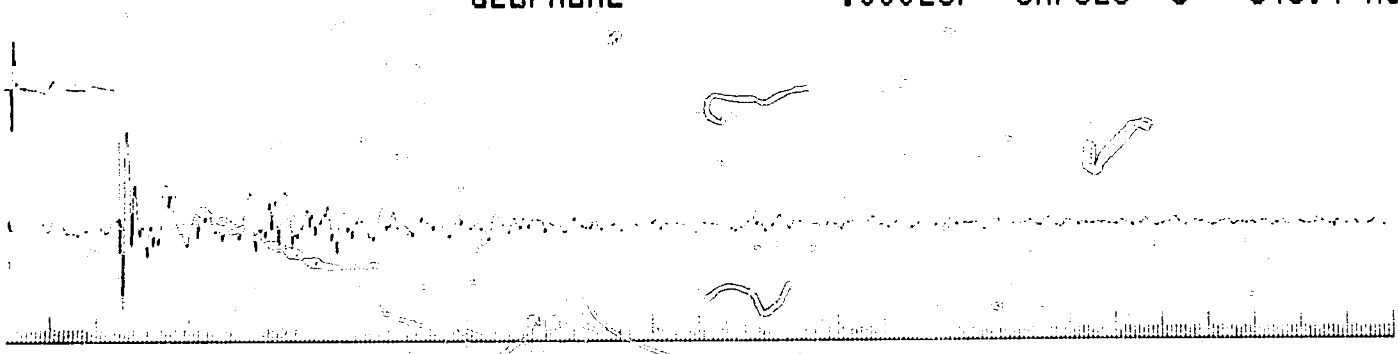
100 3100

SHOT # 71 @ 950.0 M 10 /18 /85 14 :39 TT = 336.8 MS
REFERENCE SIGNAL .39 VOLTS @ 11.2 MSEC
GEOPHONE .000216 CM/SEC @ 348.1 MS



100 3100

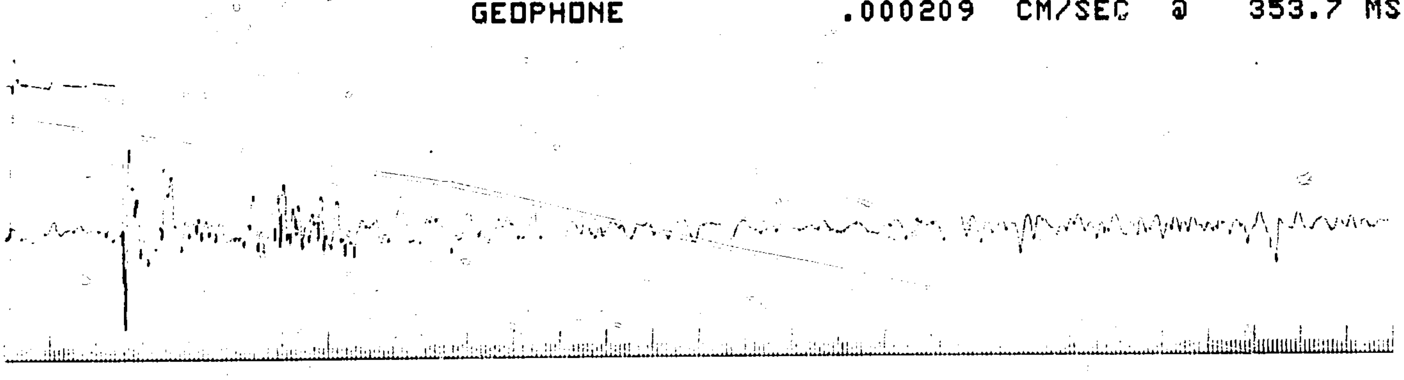
SHOT # 70 @ 950.0 M 10 /18 /85 14 :38 TT = 337.1 MS
REFERENCE SIGNAL .42 VOLTS @ 11.2 MSEC
GEOPHONE .000237 CM/SEC @ 348.4 MS



100 3100

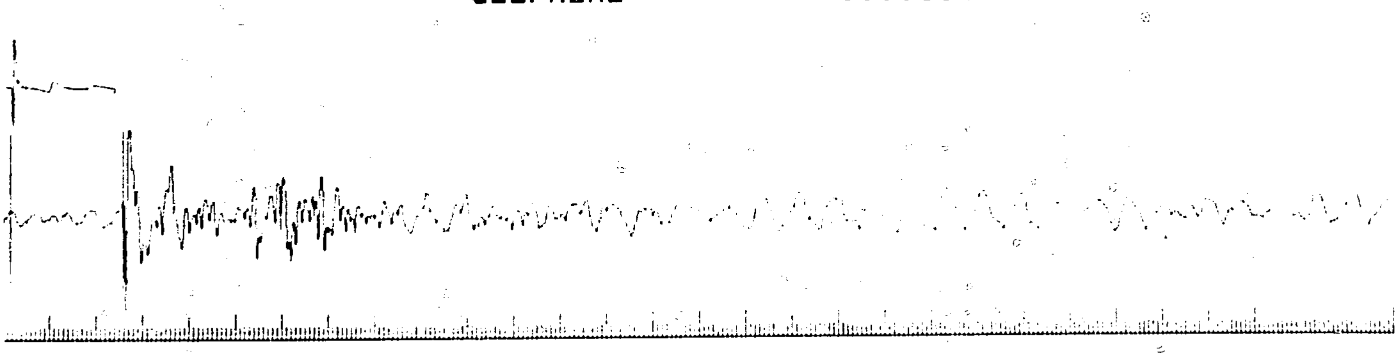
FILE # 1

SHOT # 69 @ 975.0 M 10 /18 /85 14 :33 TT = 341.4 MS
REFERENCE SIGNAL .45 VOLTS @ 12.2 MSEC
GEOPHONE .000209 CM/SEC @ 353.7 MS



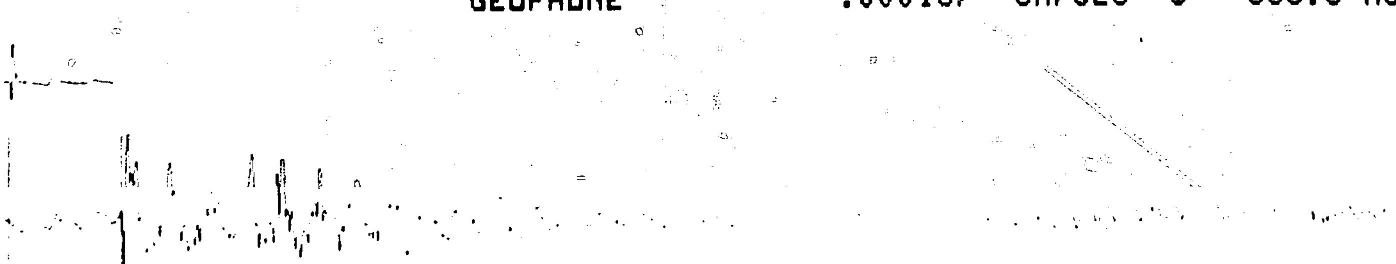
100 3100

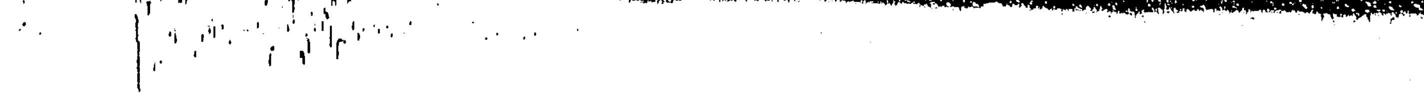
SHOT # 67 @ 975.0 M 10 /18 /85 14 :31 TT = 342.2 MS
REFERENCE SIGNAL .47 VOLTS @ 13.2 MSEC
GEOPHONE .000184 CM/SEC @ 355.4 MS



100 3100

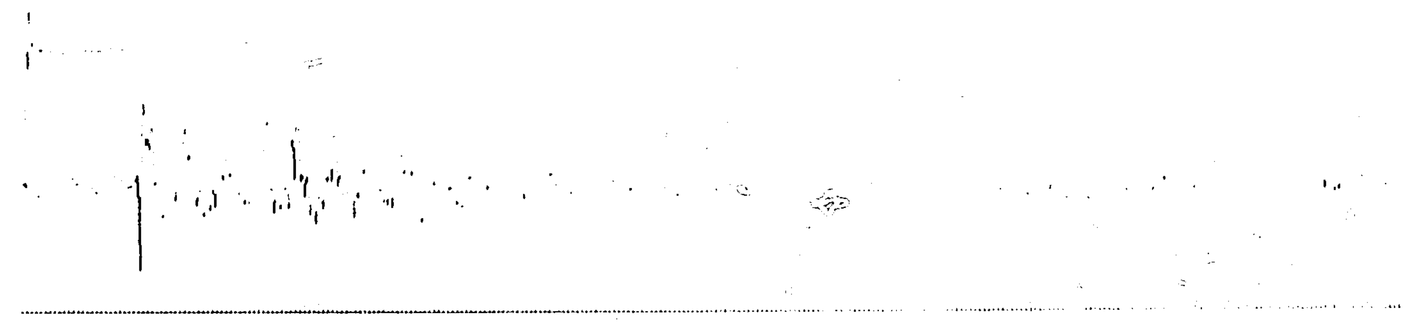
SHOT # 66 @ 975.0 M 10 /18 /85 14 :30 TT = 342.4 MS
REFERENCE SIGNAL .40 VOLTS @ 13.0 MSEC
GEOPHONE .000187 CM/SEC @ 355.5 MS





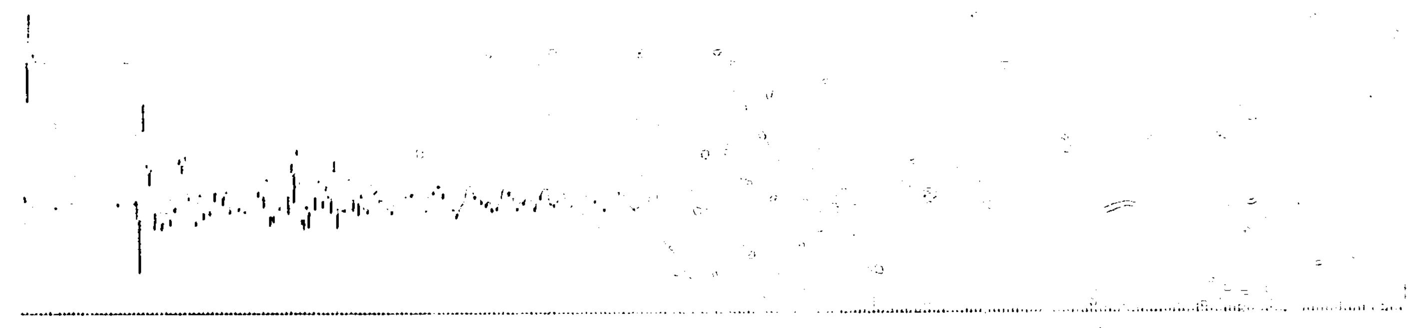
100 3100

SHOT # 66 @ 975.0 M 10 /18 /85 14 :30 TT = 342.4 M
REFERENCE SIGNAL .40 VOLTS @ 13.0 MSEC
GEOPHONE .000187 CM/SEC @ 355.5 MS



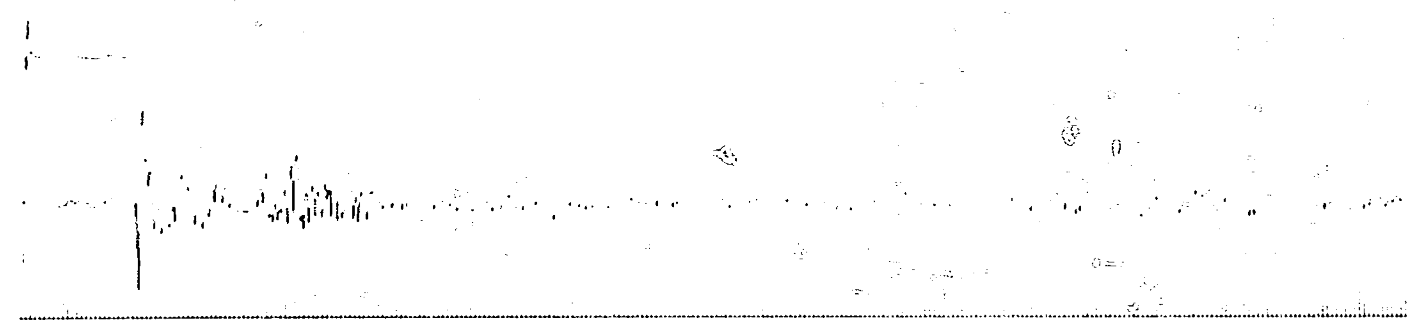
100 3100

SHOT # 64 @ 975.0 M 10 /18 /85 14 :25 TT = 341.6 M
REFERENCE SIGNAL .48 VOLTS @ 11.3 MSEC
GEOPHONE .000237 CM/SEC @ 352.9 MS



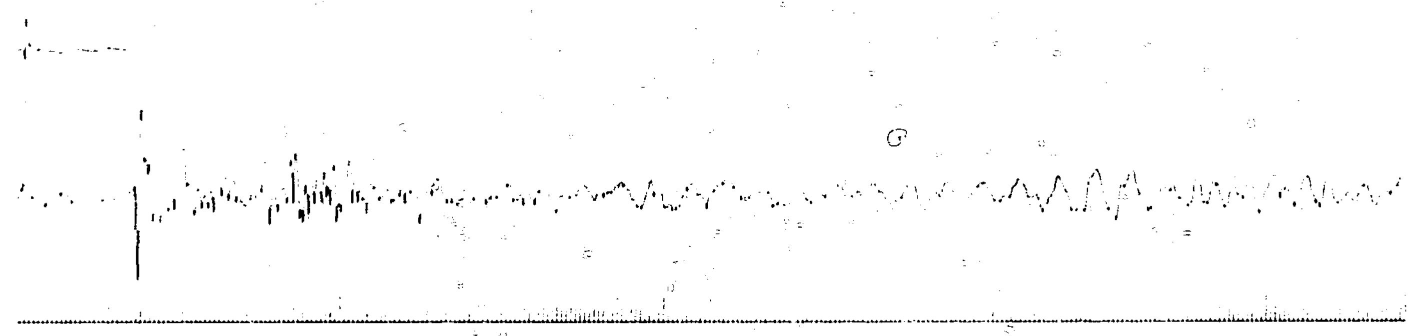
100 3100

SHOT # 61 @ 975.0 M 10 /18 /85 14 :23 TT = 341.3 MS
REFERENCE SIGNAL .51 VOLTS @ 12.3 MSEC
GEOPHONE .000214 CM/SEC @ 353.7 MS



100 3100

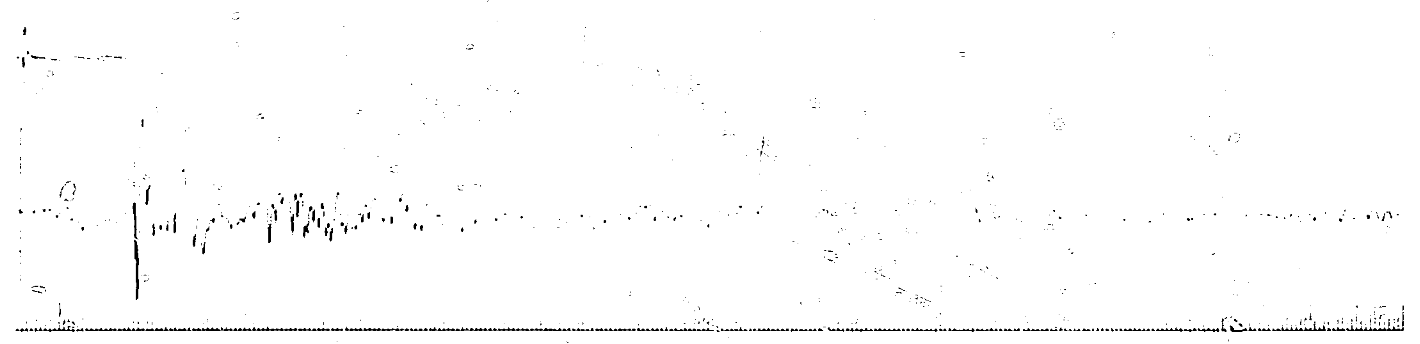
SHOT # 60 @ 975.0 M 10 /18 /85 14 :22 TT = 342.0 MS
REFERENCE SIGNAL .45 VOLTS @ 12.3 MSEC
GEOPHONE .000215 CM/SEC @ 354.3 MS



100 3100

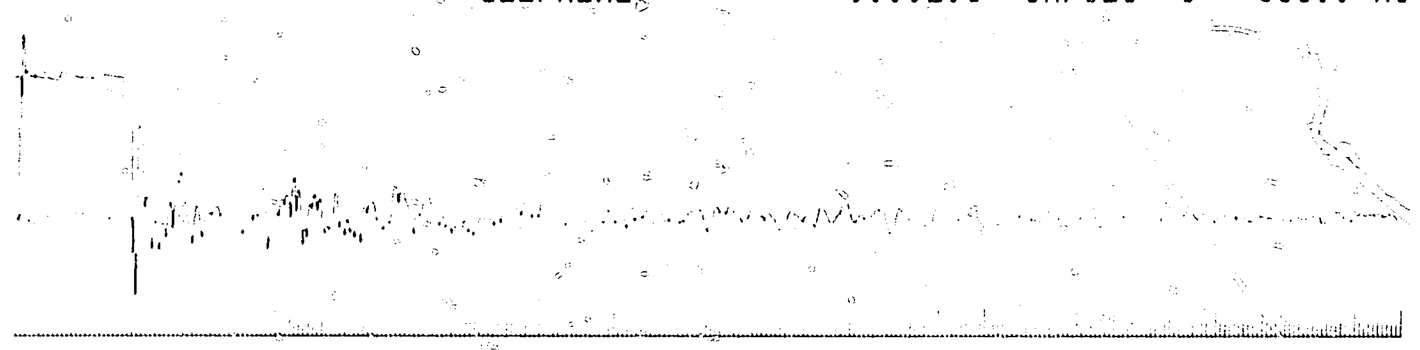
FILE # 1

SHOT # 59 @ 1000.0 M 10 /18 /85 14 :4 TT = 345.5 MS
REFERENCE SIGNAL .41 VOLTS @ 12.3 MSEC
GEOPHONE .000204 CM/SEC @ 357.8 MS



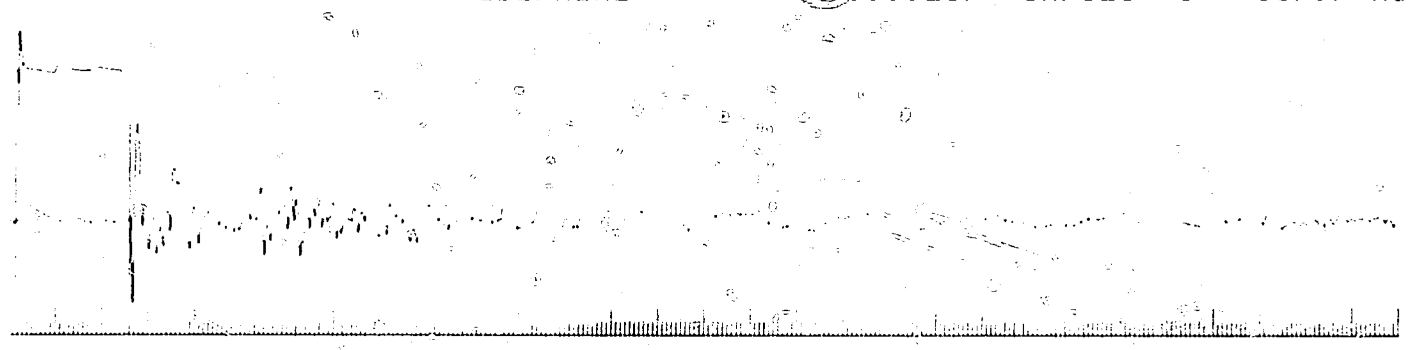
100 3100

SHOT # 58 @ 1000.0 M 10 /18 /85 13 :57 TT = 344.7 MS
REFERENCE SIGNAL .42 VOLTS @ 13.2 MSEC
GEOPHONE .000205 CM/SEC @ 358.0 MS



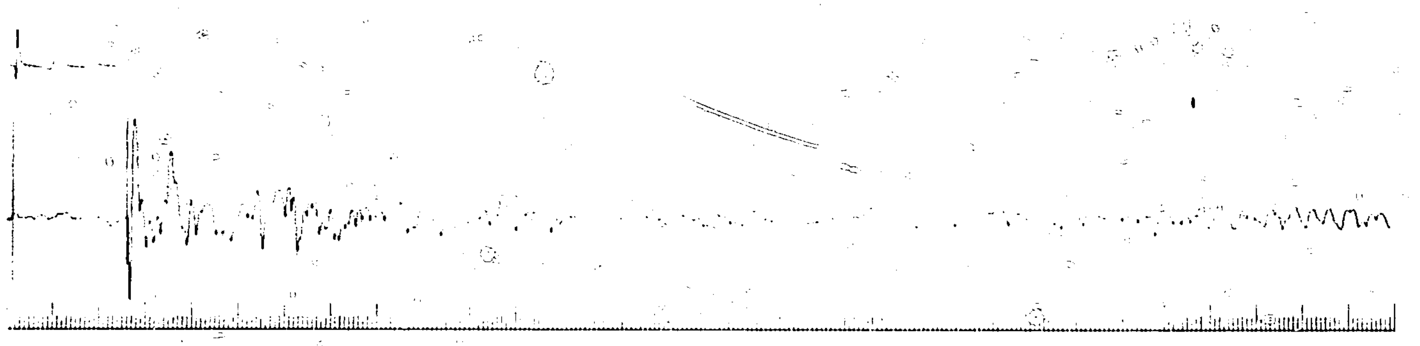
100 3100

SHOT # 57 @ 1000.0 M 10 /18 /85 13 :54 TT = 346.6 MS
REFERENCE SIGNAL .52 VOLTS @ 11.0 MSEC
GEOPHONE .000237 CM/SEC @ 357.7 MS



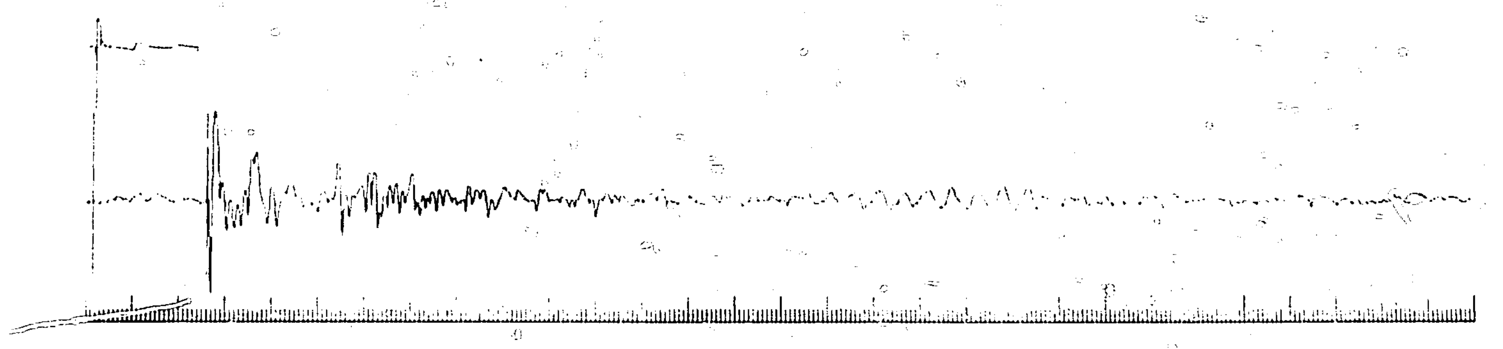
100 3100

SHOT # 56 @ 1000.0 M 10 /18 /85 13 :53 TT = 346.0 MS
REFERENCE SIGNAL .43 VOLTS @ 11.1 MSEC
GEOPHONE .000248 CM/SEC @ 357.2 MS



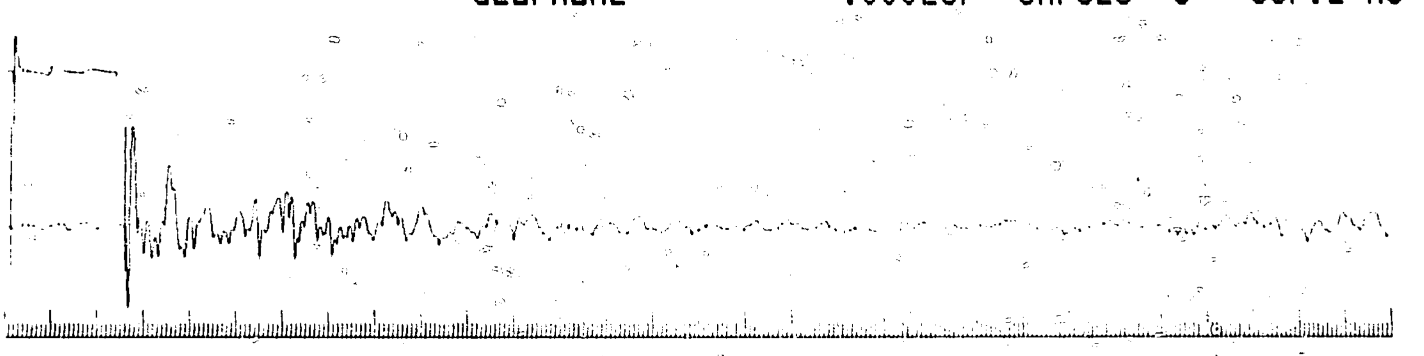
100 3100

SHOT # 55 @ 1000.0 M 10 /18 /85 13 :52 TT = 345.6 MS
REFERENCE SIGNAL .48 VOLTS @ 14.3 MSEC
GEOPHONE .000207 CM/SEC @ 360.0 MS



100 3100

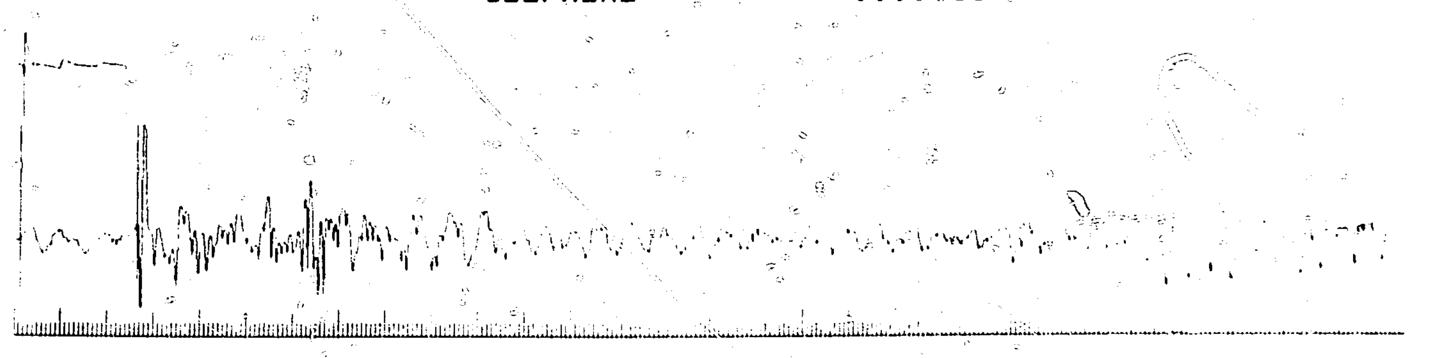
SHOT # 53 @ 1000.0 M 10 /18 /85 13 :51 TT = 344.9 MS
REFERENCE SIGNAL .48 VOLTS @ 12.3 MSEC
GEOPHONE .000257 CM/SEC @ 357.2 MS



100 3100

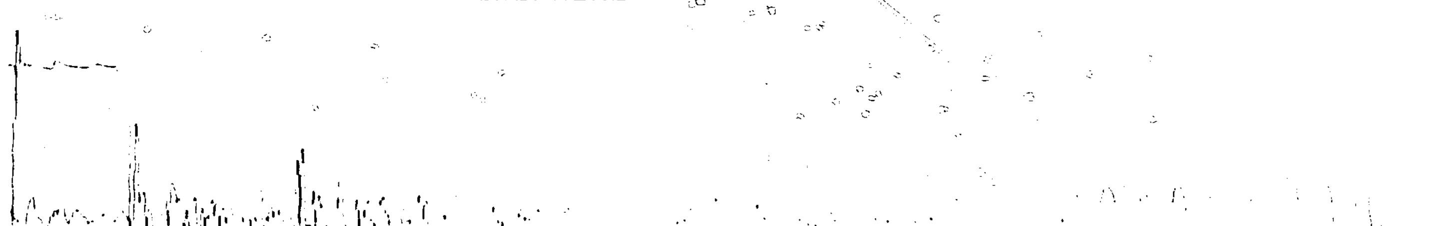
FILE # 1

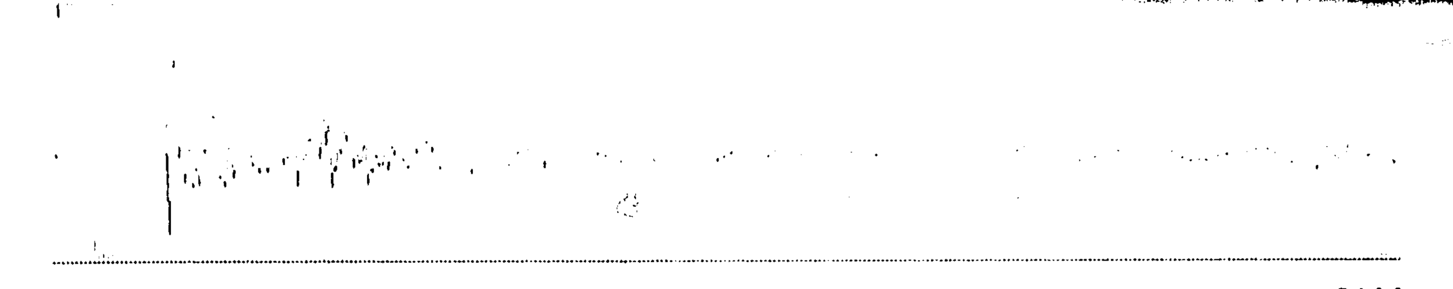
SHOT # 52 @ 1025.0 M 10 /18 /85 13 :46 TT = 352.0 MS
REFERENCE SIGNAL .41 VOLTS @ 12.3 MSEC
GEOPHONE .000311 CM/SEC @ 364.3 MS



100 3100

SHOT # 51 @ 1025.0 M 10 /18 /85 13 :46 TT = 351.1 MS
REFERENCE SIGNAL .44 VOLTS @ 14.3 MSEC
GEOPHONE .000296 CM/SEC @ 365.4 MS

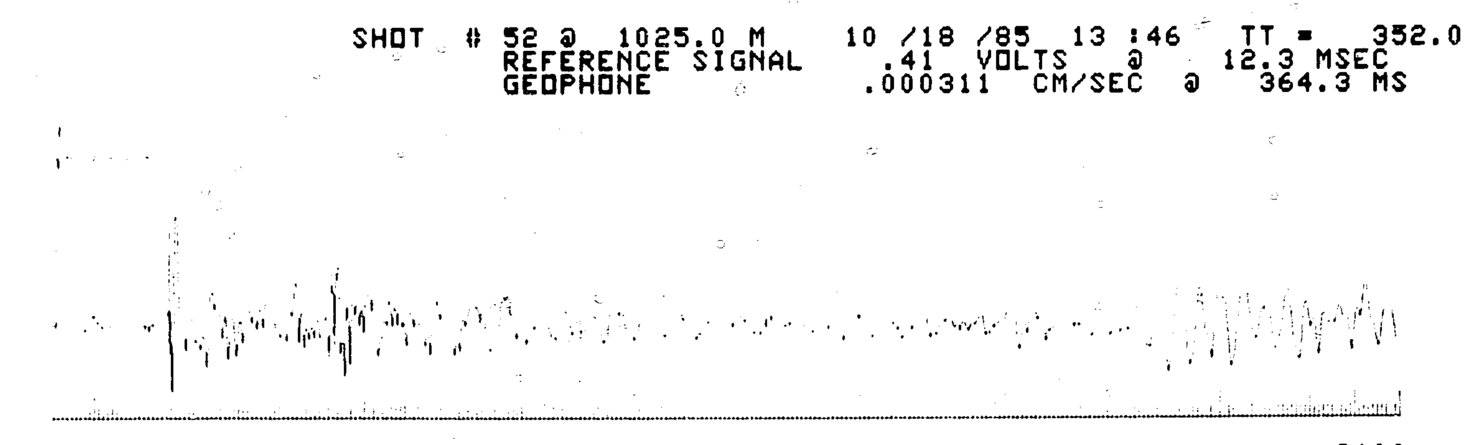




100 3100

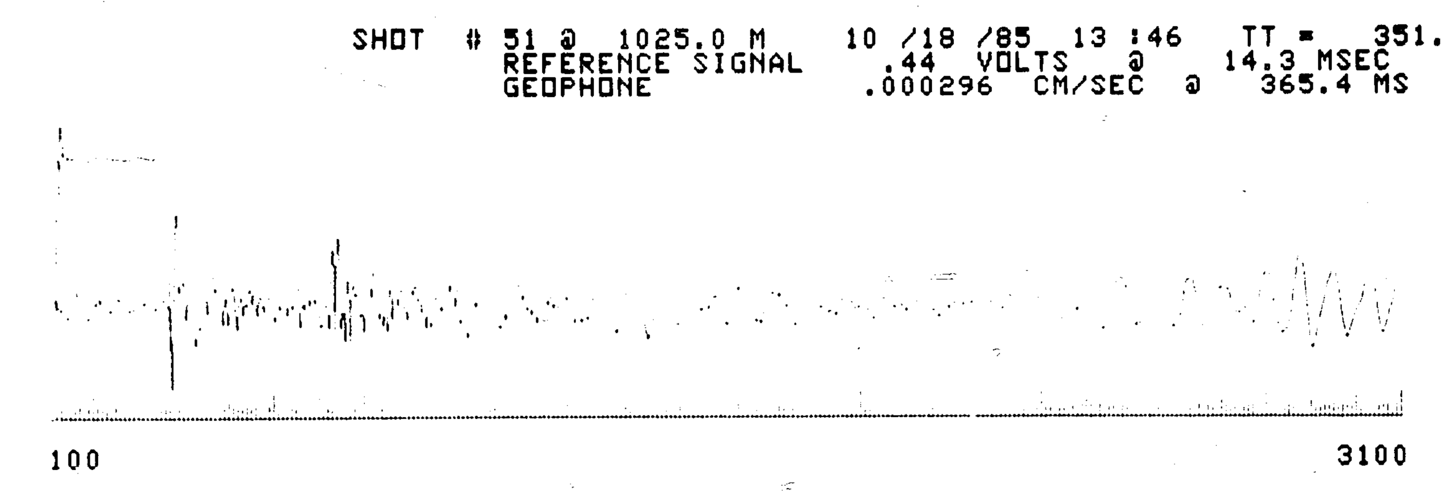
FILE # 1

SHOT # 52 @ 1025.0 M 10 /18 /85 13 :46 TT = 352.0 MS
REFERENCE SIGNAL .41 VOLTS @ 12.3 MSEC
GEOPHONE .000311 CM/SEC @ 364.3 MS



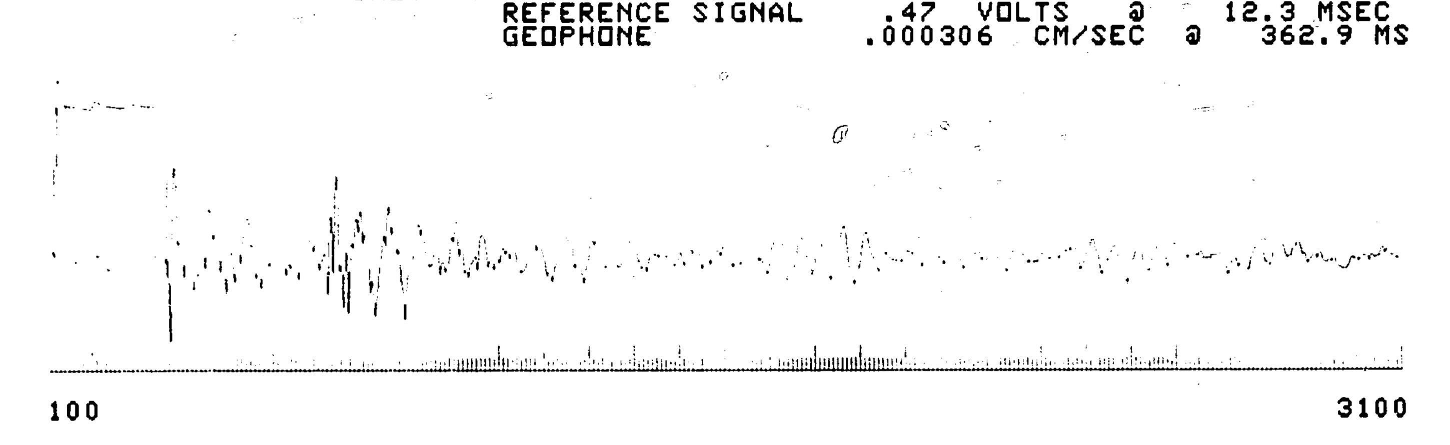
100 3100

SHOT # 51 @ 1025.0 M 10 /18 /85 13 :46 TT = 351.1 MS
REFERENCE SIGNAL .44 VOLTS @ 14.3 MSEC
GEOPHONE .000296 CM/SEC @ 365.4 MS



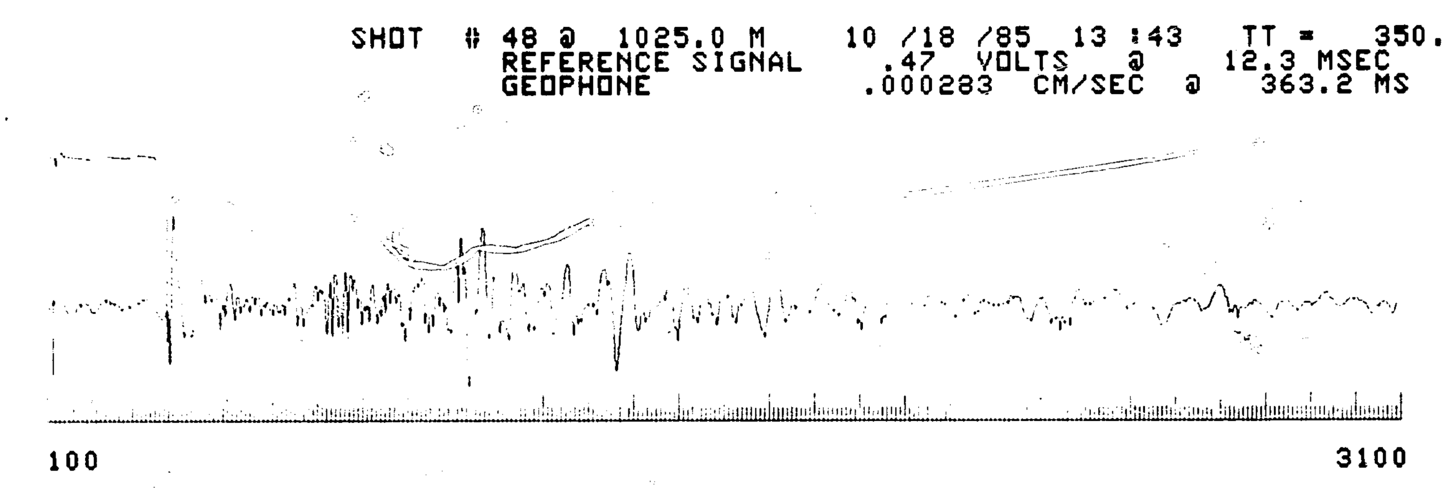
100 3100

SHOT # 50 @ 1025.0 M 10 /18 /85 13 :44 TT = 350.6 MS
REFERENCE SIGNAL .47 VOLTS @ 12.3 MSEC
GEOPHONE .000306 CM/SEC @ 362.9 MS



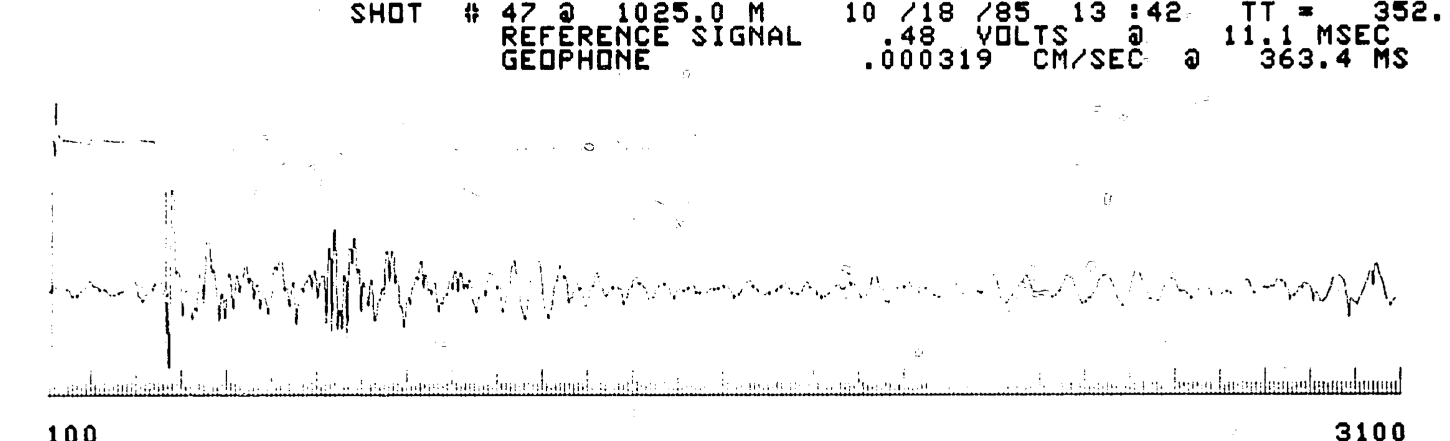
100 3100

SHOT # 48 @ 1025.0 M 10 /18 /85 13 :43 TT = 350.9 MS
REFERENCE SIGNAL .47 VOLTS @ 12.3 MSEC
GEOPHONE .000283 CM/SEC @ 363.2 MS



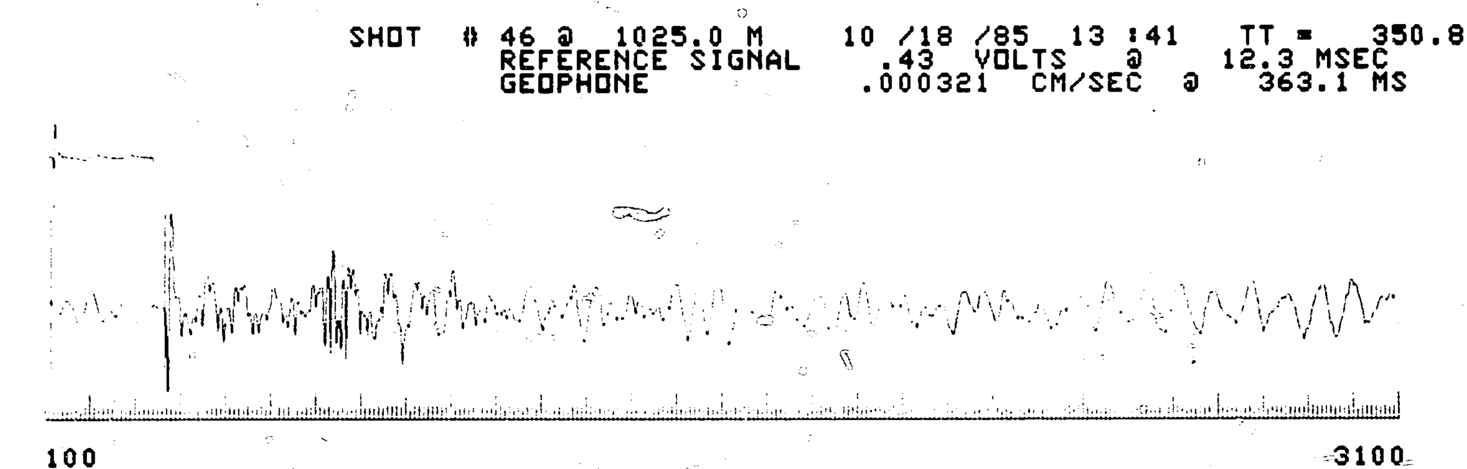
100 3100

SHOT # 47 @ 1025.0 M 10 /18 /85 13 :42 TT = 352.2 MS
REFERENCE SIGNAL .48 VOLTS @ 11.1 MSEC
GEOPHONE .000319 CM/SEC @ 363.4 MS



100 3100

SHOT # 46 @ 1025.0 M 10 /18 /85 13 :41 TT = 350.8 MS
REFERENCE SIGNAL .43 VOLTS @ 12.3 MSEC
GEOPHONE .000321 CM/SEC @ 363.1 MS



100 3100

FILE # 1

TOOL SUMM :

TOOL	STAT	LENG	WEIG
DTT	ALLO	0	0
CSUD	ALLO	0	0
WSTA	ALLO	196	274

FILE 0 18-OCT-85 15:21

INPU SUMM :

INPU	STAT	PUNI	TUNI	MPOI	CNUM	ZREF	PREF	GAIN	OFFS	DCON
TENS	ALLO	LB	LB	0	20					
CPRE	ALLO	BAR	BAR	0	3			1.00000		
CALI	ALLO	MM	MM	0	2	203.1	304.6	.547009	92.2650	
VDS	ALLO			0						

FILE 0 18-OCT-85 15:21

OUTP SUMM :

OUTP	STAT	PUNI	TUNI
TDEP		M	M
DIFF	ALLO	M	M
TOD	ALLO	S	S
TIME	ALLO	MS	MS
ETIM	ALLO	S	S
TENS	ALLO	LB	LB
CS	ALLO	F/HR	F/HR
ZERO			
DUMM			
DUM2			
MARK	ALLO	M	M
DMAR	DISA	M	M
D1	ALLO		
S2	DISA		
S1	ALLO		
SCAT	ALLO		
DEPT	ALLO	M	M
DFI	ALLO		
SNUM	ALLO		
CPRE	ALLO	BAR	BAR
SAFE	ALLO	BAR	BAR
CALI	ALLO	MM	MM
BTIM	ALLO	MS	MS
TTIM	ALLO	MS	MS
SRSS	ALLO	MS	MS
SRDS	ALLO	MS	MS
TOFS	ALLO	MS	MS
TOFD	ALLO	MS	MS
ODFW	ALLO	M	M
OAZI	ALLO	DEG	DEG
ELEV	ALLO	M	M
SDBS	ALLO	M	M
STD	ALLO	D	D
STH	ALLO	HR	HR
STM	ALLO	MN	MN
STS	ALLO	S	S
LC01	DISA		
LC02	DISA		
LC03	DISA		
LC04	DISA		
LC05	DISA		
LC06	DISA		
LC07	DISA		
LC08	DISA		
LC09	DISA		
LC10	DISA		
LC11	DISA		
LC12	DISA		
LC13	DISA		
LC14	DISA		
LC15	DISA		
LC16	DISA		
LC17	DISA		
LC18	DISA		
LC19	DISA		
LC20	DISA		
LC21	DISA		
LC22	DISA		
LC23	DISA		
LC24	DISA		
LC03	DISA		
LC04	DISA		
LC05	DISA		
LC06	DISA		
LC07	DISA		
LC08	DISA		
LC09	DISA		
LC10	DISA		
LC11	DISA		
LC12	DISA		
LC13	DISA		
LC14	DISA		
LC15	DISA		
LC16	DISA		
LC17	DISA		
LC18	DISA		
LC19	DISA		
LC20	DISA		
LC21	DISA		
LC22	DISA		
LC23	DISA		
LC24	DISA		

FILE 0 18-OCT-85 15:21

CONS SUMM :

CONS	STAT	PUNI	TUNI	VALU
DIFF		F	F	1.00000 F
EDS				PROP
CDS				ALL
UCON	ALLO			*
OMD				UP
LSN				0
CSD				FILM
LD				FILM
PANN				ALL
SPEE		F/HR	F/HR	6000 F/HR
PP				NORM
CGM				NORM
POS		F	F	0.0 F
E		LB-1	LB-1	7.43000E-7 LB-1
TREF		LB	LB	1000.00 LB
MARK	DISA			*
CMDT				IDW
DIRE				AUTO
HTS	ALLO	IN/S	IN/S	5.00000 IN/S
VAS	ALLO	IN	IN	1.00000 IN
MTTC	DISA			*
GTSP	ALLO			0
CSHO	ALLO			0
CSTA	ALLO			1
LCGF	ALLO			OFF
HCGF	ALLO			OFF
AFD		MS	MS	750 MS
TWDM	ALLO			WDMA
SNRA				1.00000
HDET	ALLO			SSS
SPS	ALLO			ALL
SES	ALLO			AGUN
TTL	ALLO			.300000
EPAS				
PASS				
PM				SING
SPLI	DISA			*
DO		F	F	0.0 F
DO2		F	F	0.0 F
BS		MM	MM	216.000 MM
RW		OHMM	OHMM	1.00000 OHMM
BHS				OPEN
CSIZ		MM	MM	0.0 MM
IHVD				1
SD		M	M	2496.92 M
FNUM				1.00000
FEXP				2.00000
FPHI				PHIX
JTYP	ALLO			DRILL SHIP
STWS	ALLO			AIR GUN
GVOL	ALLO			200
EW	ALLO			
DGT	ALLO			
SSTY	ALLO			HYDROPHONE
RTYP	ALLO			NEDDRILL 2
PTYP	ALLO			DRILL SHIP
SRDG	ALLO	M	M	-199.300 M
SRDR	ALLO	M	M	13.7000 M
WDMS	ALLO	M	M	-199.300 M
SZMS	ALLO	M	M	13.7000 M
GDTL	ALLO	M	M	4.50000 M
HDTL	ALLO	M	M	6.50000 M
TLMS	ALLO	M	M	0.0 M
RTMS	ALLO	M	M	13.3000 M
RTTL	ALLO	M	M	13.3000 M
MHD	ALLO	DEG	DEG	1.00000 DEG
AMD	ALLO	DEG	DEG	120.000 DEG
SPOD	ALLO	M	M	50.0000 M
SPOA	ALLO	DEG	DEG	316.000 DEG
HTL	ALLO	M	M	0.0 M
LTL	ALLO	M	M	0.0 M
HTLD	ALLO			0
HTLH	ALLO			0
HTLM	ALLO			0
LTLD	ALLO			0
LTLH	ALLO			0
LTLM	ALLO			0
DSG	ALLO			16
SSGA	ALLO			16
SSS	ALLO			SS2
ASSG	ALLO			16
ASSS	ALLO			SS3
DSSR	ALLO			1MS
DSS	ALLO			SS1
FPSS	ALLO			SS0
LC01				
LC02				
LC03				
LC04				
LC05				
LC06				
LC07				
LC08				
LC09				
LC10				
LC11				
LC12				
LC13				
LC14				
LC15				
LC16				
LC17				
LC18				
LC19				
LC20				
LC21				
LC22				
LC23				
LC24				
WTSM	ALLO			.TOOL.STICKING.
ALAR	ALLO			.ALARM.
AOM	ALLO			.ALARM.OFF.
XM00	DISA			
XM01	DISA			
XM02	DISA			
LQC	DISA			*
KPDU				METE
ORDU				METE
MMDU				METE
PF				SHOR
YEAR				85
MONT				10
DAY				18

FILE 0 18-OCT-85 15:23

COMPANY: CANTERRA ENERGY LTD.

WELL: ICG SOGEPET ET AL NETSIQ N-01

FIELD: HUDSON BAY

PROV. : MANITOBA
NATION: CANADA
LOCATION:

SEC: TWP: RGE:
LATITUDE: 59 50' 48.0" N
LONGITUDE: 87 30' 59.5" W

PERMANENT DATUM: M.S.L.
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: K.B.
13.7 M ABOVE PERM. DATUM
DRLG. MEASURED FROM: KELLY BUSHING

ELEVATIONS-
KB: 13.7 M
DF: 13.1 M
GL: -199.3 M

DATE: 17 OCT 85
RUN NO: 1

OTHER SERVICES-
DLL-MSFL
LDT-CNT-NGT
DDBHC-DIL
SHDT
RFT
CST

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:
129389

DEPTH-DRILLER: 1040.0 M
DEPTH-LOGGER: 1038.0 M
BTM. LOG INTERVAL: 1025.0 M
TOP LOG INTERVAL: 475.0 M

CASING-DRILLER:	437 M	533 M
CASING-LOGGER:	436 M	532 M
CASING:	339.7 MM	244.5
WEIGHT:	107.1 KG/M	70.10 KG/M
BIT SIZE:	311.2 MM	216 MM

Schlumberger

WELL SEISMIC RESULTS

CONS SUMM :

Schlumberger

WELL SEISMIC RESULTS

```
   CONS SUMM :
CONS  STAT PUNI TUNI VALU

DIFF        F    F    1.00000 F
EDS                   PROP
CDS                   ALL
UCON  ALLO            *
OMD                   UP
LSN                   0
CSD                   FILM
LD                    FILM
PANN                  ALL
SPEE        F/HR F/HR 6000 F/HR
PP                    NORM
CGM                   NORM
POS         F    F    0.0 F
E           LB-1 LB-1 7.43000E-7  LB-1
TREF        LB   LB   1000.00 LB
MARK  DISA            *
CMDT                  IDW
DIRE                  AUTO
HTS   ALLO IN/S IN/S  5.00000 IN/S
VAS   ALLO IN   IN    1.00000 IN
MTTC  DISA            *
GTSP  ALLO            0
CSHO  ALLO            0
CSTA  ALLO            1
LCGF  ALLO            OFF
KCGF  ALLO            OFF
AFD         MS   MS   750 MS
TWDM  ALLO            WDMA
SNRA                  1.00000
HDET  ALLO            SSS
SPS   ALLO            ALL
SES   ALLO            AGUN
TTL   ALLO            .300000
EPAS
PASS
PM                    SING
SPLI  DISA            *
DO          F    F    0.0 F
DO2         F    F    0.0 F
BS          MM   MM   216.000 MM
RW          OHMM OHMM 1.00000 OHMM
BHS                   OPEN
CSIZ        MM   MM   0.0 MM
IHVD                  1
SD          M    M    2496.92 M
FNUM                  1.00000
FEXP                  2.00000
FPHI                  PHIX
JTYP  ALLO            DRILL SHIP
STWS  ALLO            AIR GUN
GVOL  ALLO            200
EW    ALLO
DGT   ALLO
SSTY  ALLO            HYDROPHONE
RTYP  ALLO            NEDDRILL 2
PTYP  ALLO            DRILL SHIP
SRDG  ALLO M    M     -199.300 M
SRDR  ALLO M    M     13.7000 M
WDMS  ALLO M    M     -199.300 M
SZMS  ALLO M    M     13.7000 M
GDTL  ALLO M    M     4.50000 M
HDTL  ALLO M    M     6.50000 M
TLMS  ALLO M    M     0.0 M
RTMS  ALLO M    M     13.3000 M
RTTL  ALLO M    M     13.3000 M
MHD   ALLO DEG  DEG   1.00000 DEG
AMD   ALLO DEG  DEG   120.000 DEG
SPOD  ALLO M    M     50.0000 M
SPOA  ALLO DEG  DEG   316.000 DEG
HTL   ALLO M    M     0.0 M
LTL   ALLO M    M     0.0 M
HTLD  ALLO            0
HTLH  ALLO            0
HTLM  ALLO            0
LTLD  ALLO            0
LTLH  ALLO            0
LTLM  ALLO            0
DSG   ALLO            16
SSGA  ALLO            16
SSS   ALLO            SS2
ASSG  ALLO            16
ASSS  ALLO            SS3
DSSR  ALLO            1MS
DSS   ALLO            SS1
FPSS  ALLO            SS0
LC01
LC02
LC03
LC04
LC05
LC06
LC07
LC08
LC09
LC10
LC11
LC12
LC13
LC14
LC15
LC16
LC17
LC18
LC19
LC20
LC21
LC22
LC23
LC24
WTSM  ALLO            .TOOL.STICKING.
ALAR  ALLO            .ALARM.
AOM   ALLO            .ALARM.OFF.
XM00  DISA
XM01  DISA
XM02  DISA
LQC   DISA            *
KPDU                  METE
ORDU                  METE
MMDU                  METE
PF                    SHOR
YEAR                  85
MONT                  10
DAY                   18

                      FILE    0       18-OCT-85 15:23
```

```
COMPANY:     CANTERRA ENERGY LTD.

WELL:        ICG SOGEPET ET AL NETSIQ  N-01

FIELD:       HUDSON BAY

PROV. :       MANITOBA
NATION:      CANADA
LOCATION:

   SEC:                   TWP:                RGE:
LATITUDE:   59 50' 48.0" N
LONGITUDE:  87 30' 59.5" W

PERMANENT DATUM:         M.S.L.         ELEVATIONS-
ELEV. OF PERM. DATUM:                      KB:    13.7 M
LOG MEASURED FROM:       K.B.              DF:    13.1 M
      13.7 M     ABOVE PERM. DATUM         GL:  -199.3 M
DRLG. MEASURED FROM:    KELLY BUSHING

DATE:                 17 OCT 85
RUN NO:               1

DEPTH-DRILLER:        1040.0 M
DEPTH-LOGGER:         1038.0 M
BTM. LOG INTERVAL:    1025.0 M
TOP LOG INTERVAL:      475.0 M

CASING-DRILLER:        437 M        533 M
CASING-LOGGER:         436 M        532 M
CASING:              339.7 MM     244.5
   WEIGHT:           107.1 KG/M   70.10 KG/M
BIT SIZE:            311.2 MM     216 MM
```

```
OTHER SERVICES-
  DLL-MSFL
  LDT-CNT-NGT
  DDBHC-DIL
  SHDT
   RFT
  CST

PROGRAM
TAPE NO:
  26.2
SERVICE
ORDER NO:
  129389
```

Schlumberger

WELL SEISMIC RESULTS

CSU Field Log

OTTAWA COPY
8710 C55-1-2 #
Schlumberger

COMPUTER PROCESSED LOG

A SYNERGETIC* LOG SYSTEM

Program:

WELL SEISMIC REPORT

CONFIDENTIAL FOR
EXAMIN LIMITE À:

Using the following logs: WST, BHC-GR, DISFL

COMPANY CANTERRA ENERGY LIMITED

WELL ICG SOGEPET ET AL NETSIQ N-01

FIELD HUDSON'S BAY

PROVINCE MANITOBA

CANADA OIL AND G... ADMINISTRATION ... GAZ DES TERRES DU CANADA
MAY 6 1986
ENGINEERING BRANCH GÉNIE

DATE LOGGED 17 OCT 85 DATE COMPUTED APR 86

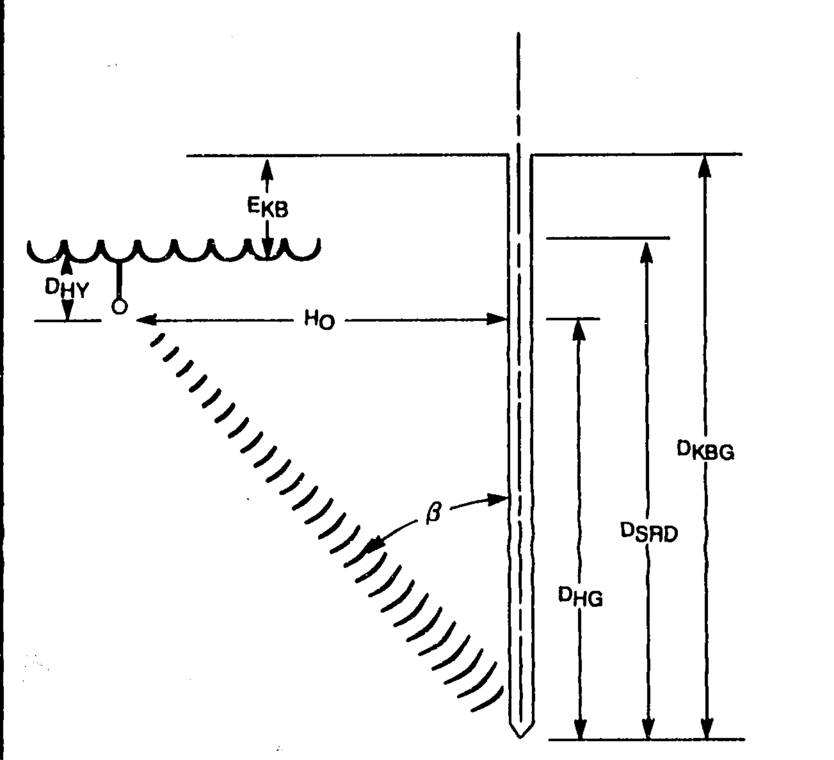
LOCATION 59° 50' 48" NORTH
87° 30' 59.5" WEST

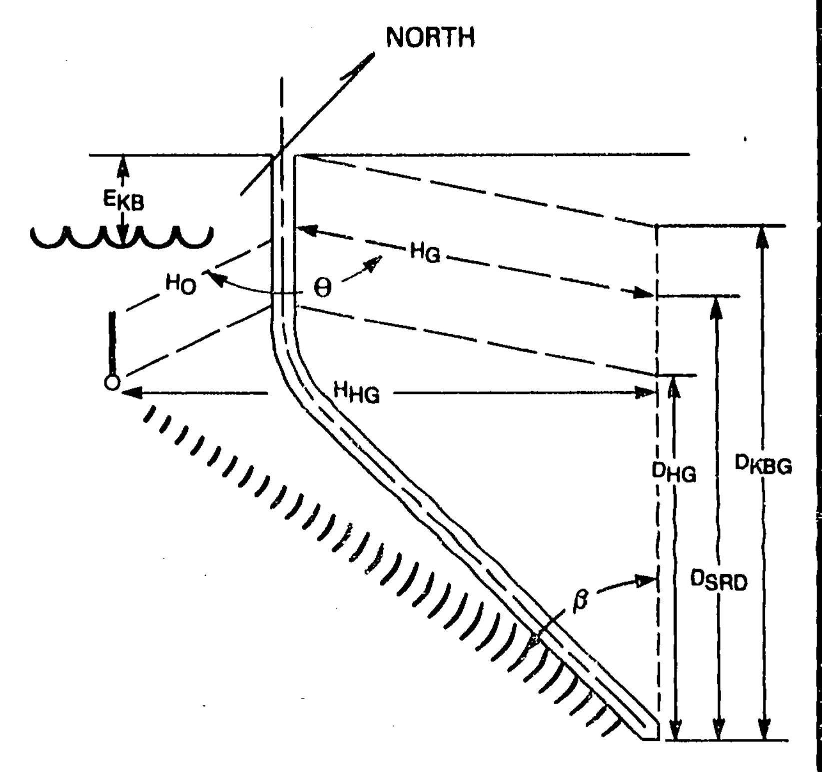
ELEVATION KB 13.7 m DF 13.1 m GL -179.8 m

FOLD HERE The well name, location and borehole reference data were furnished by the customer.

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to Clause 4 of our General Terms and Conditions as set out in our current Price Schedule.

DEFINITION OF TERMS





(XX) LESS THAN 5° DEVIATION

D_{KBG} = VERTICAL DEPTH BELOW KELLY BUSHING TO GEOPHONE
D_{SRD} = VERTICAL DEPTH BELOW SEISMIC REFERENCE TO GEOPHONE
D_{HG} = VERTICAL DEPTH BELOW HYDROPHONE TO GEOPHONE
H_O = HORIZONTAL OFFSET OF HYDROPHONE FROM SURFACE LOCATION
D_{HY} = DEPTH OF HYDROPHONE BELOW SEISMIC REFERENCE DATUM
E_{KB} = ELEVATION OF KELLY BUSHING
D_{KBG} = $E_{KB} + D_{HY} + D_{HG}$
β = ANGLE AT GEOPHONE BETWEEN VERTICAL AND HYDROPHONE

VERTICAL TIME = SLANT TIME × COS β

( ) GREATER THAN 5° DEVIATION

H_G = HORIZONTAL OFFSET OF GEOPHONE FROM SURFACE LOCATION
H_{HG} = HORIZONTAL DISTANCE FROM HYDROPHONE TO GEOPHONE
θ = ANGLE AT SURFACE LOCATION BETWEEN HYDROPHONE AND GEOPHONE
$H_{HG} = [H_G^2 + H_O^2 - 2H_G H_O \cos\theta]^{1/2}$
$\beta = \tan^{-1}\left[\frac{H_{HG}}{D_{HG}}\right]$

VERTICAL TIME = SLANT TIME × COS β

REMARKS JOB NO. 67116

COMPUTED BY DUPAL

COMPUTATION PARAMETERS

LONG DEFINITIONS

GLOBAL
KB - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EKB - ELEVATION OF KELLY BUSHING
GL - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
VELHYD - VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE HYDROPHONE
VELSUR - VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE SRD

MATRIX
GUNELZ - SOURCE ELEVATION ABOVE SRD (ONE FOR THE WHOLE JOB; OR ONE PER SHOT)
GUNEWZ - SOURCE DISTANCE FROM THE BOREHOLE AXIS IN EW DIRECTION (CF. GUNELZ)
GUNNSZ - SOURCE DISTANCE FROM THE BOREHOLE AXIS IN NS DIRECTION (CF. GUNELZ)
HYDELZ - HYDROPHONE ELEVATION ABOVE SRD (CF. GUNELZ)
HYDEWZ - HYDROPHONE DISTANCE FROM THE BOREH AXIS IN EW DIRECTION (CF GUNELZ)
HYDNSZ - HYDROPHONE DISTANCE FROM THE BOREH AXIS IN NS DIRECTION (CF GUNELZ)
TRTHYD - TRAVEL TIME FROM THE HYDROPHONE TO THE SOURCE
TRTSRD - TRAVEL TIME FROM THE SOURCE TO THE SRD
DEVWEL - DEVIATED WELL DATA PER SHOT : MEAS. DEPTH, VERT. DEPTH, EW, NS

SAMPLED
DKB.GSH - MEASURED DEPTH FROM KELLY-BUSHING
DSRD.GSH - DEPTH FROM SRD
TIMO.GSH - MEASURED TRAVEL TIME FROM HYDROPHONE TO GEOPHONE
SHTM.GSH - SHOT TIME (WST)
AVGU.GSH - AVERAGE SEISMIC VELOCITY
DELZ.GSH - DEPTH INTERVAL BETWEEN SUCCESSIVE SHOTS
DATA.GSH - NONE IDENTIFIED CHANNEL NAME TO ASSURE THE COMPATIBILITY WITH LOS
INTV.GSH - INTERNAL VELOCITY; AVERAGE

(GLOBAL PARAMETERS)

			(VALUE)	
ELEV OF KB AB. MSL (WST)	KB	:	13.7000	M
ELEV OF SRD AB. MSL(WST)	SRD	:	0	M
ELEVATION OF KELLY BUSHI	EKB	:	13.7000	M
ELEV OF GL AB. SRD(WST)	GL	:	-179.800	M
VEL SOURCE-HYDRO(WST)	VELHYD	:	1524.00	M/S
VEL SOURCE-SRD (WST)	VELSUR	:	1524.00	M/S

(MATRIX PARAMETERS)

	SOURCE ELV M	SOURCE EW M	SOURCE NS M
1	-7.30	12.50	-21.65

	HYDRO ELEV M	HYDRO EW M	HYDRO NS M
1	-7.30	12.50	-21.65

	TRT HYD-SC MS	TRT SC-SRD MS
1	0	4.79

	MD @ KB M	VD @ KB M	VD @ SRD M	E-W COORD M	N-S COORD M
1	475.00	475.00	461.30	0	0
2	500.00	500.00	486.30	0	0
3	525.00	525.00	511.30	0	0
4	550.10	550.10	536.40	0	0
5	575.10	575.10	561.40	0	0
6	600.10	600.10	586.40	0	0
7	625.10	625.10	611.40	0	0
8	675.10	675.10	661.40	0	0
9	700.10	700.10	686.40	0	0
10	725.00	725.00	711.30	0	0
11	750.00	750.00	736.30	0	0
12	775.00	775.00	761.30	0	0
13	800.00	800.00	786.30	0	0
14	815.00	815.00	801.30	0	0
15	850.00	850.00	836.30	0	0
16	875.00	875.00	861.30	0	0
17	900.00	900.00	886.30	0	0

	HYDRO ELEV M	HYDRO EW M	HYDRO NS M
1	-7.30	12.50	-21.65

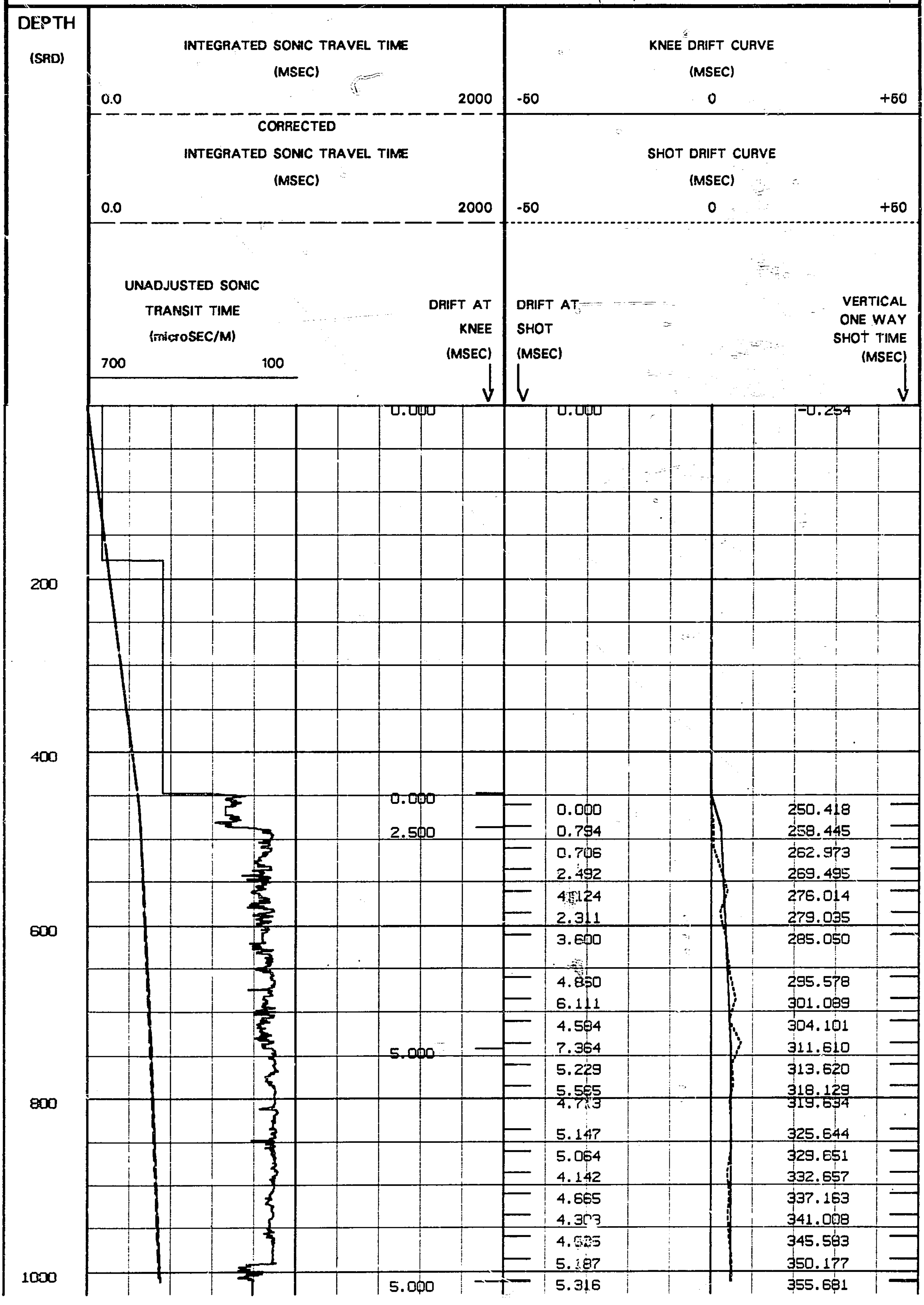
	TRT HYD-SC MS	TRT SC-SRD MS
1	0	4.79

	MD @ KB M	VD @ KB M	VD @ SRD M	E-W COORD M	N-S COORD M
1	475.00	475.00	461.30	0	0
2	500.00	500.00	486.30	0	0
3	525.00	525.00	511.30	0	0
4	550.10	550.10	536.40	0	0
5	575.10	575.10	561.40	0	0
6	600.10	600.10	586.40	0	0
7	625.10	625.10	611.40	0	0
8	675.10	675.10	661.40	0	0
9	700.10	700.10	686.40	0	0
10	725.00	725.00	711.30	0	0
11	750.00	750.00	736.30	0	0
12	775.00	775.00	761.30	0	0
13	800.00	800.00	786.30	0	0
14	815.00	815.00	801.30	0	0
15	850.00	850.00	836.30	0	0
16	875.00	875.00	861.30	0	0
17	900.00	900.00	886.30	0	0
18	925.00	925.00	911.30	0	0
19	950.00	950.00	936.30	0	0
20	975.00	975.00	961.30	0	0
21	1000.00	1000.00	986.30	0	0
22	1025.10	1025.10	1011.40	0	0

SHOT REPORT

MEASUR SHOT DEPTH KB M	VERTIC DEPTH FROM SRD M	OBSERV TRAVEL TIME HYD/GEO MS	VERTIC TRAVEL TIME SRD/GEO MS	AVERAGE VELOC SRD/GEO M/S	DEPTH HYD/GEO M	COS I	INTERV VELOC BETWEEN SHOTS M/S
475.00	461.30	246.00	250.42	1842	454.00	.99849	
500.00	486.30	254.00	258.44	1882	479.00	.99864	3115
525.00	511.30	258.50	262.97	1944	504.00	.99877	5521
550.10	536.40	265.00	269.49	1990	529.10	.99889	3848
575.10	561.40	271.50	276.01	2034	554.10	.99898	3835
600.10	586.40	274.50	279.03	2102	579.10	.99907	8277
625.10	611.40	280.50	285.05	2145	604.10	.99914	4156
675.10	661.40	291.00	295.58	2238	654.10	.99927	4749
700.10	686.40	296.50	301.09	2280	679.10	.99932	4536
725.00	711.30	299.50	304.10	2339	704.00	.99937	8267
750.00	736.30	307.00	311.61	2363	729.00	.99941	3330
775.00	761.30	309.00	313.62	2427	754.00	.99945	12434
800.00	786.30	313.50	318.13	2472	779.00	.99949	5545
815.00	801.30	315.00	319.63	2507	794.00	.99950	9965
850.00	836.30	321.00	325.64	2568	829.00	.99955	5823
875.00	861.30	325.00	329.65	2613	854.00	.99957	6240
900.00	886.30	328.00	332.66	2664	879.00	.99960	8315
925.00	911.30	332.50	337.16	2703	904.00	.99962	5549
950.00	936.30	336.34	341.01	2746	929.00	.99964	6501
975.00	961.30	340.91	345.58	2782	954.00	.99966	5465
1000.00	986.30	345.50	350.18	2817	979.00	.99967	5441
1025.10	1011.40	351.00	355.68	2844	1004.10	.99969	4560

DRIFT LOG



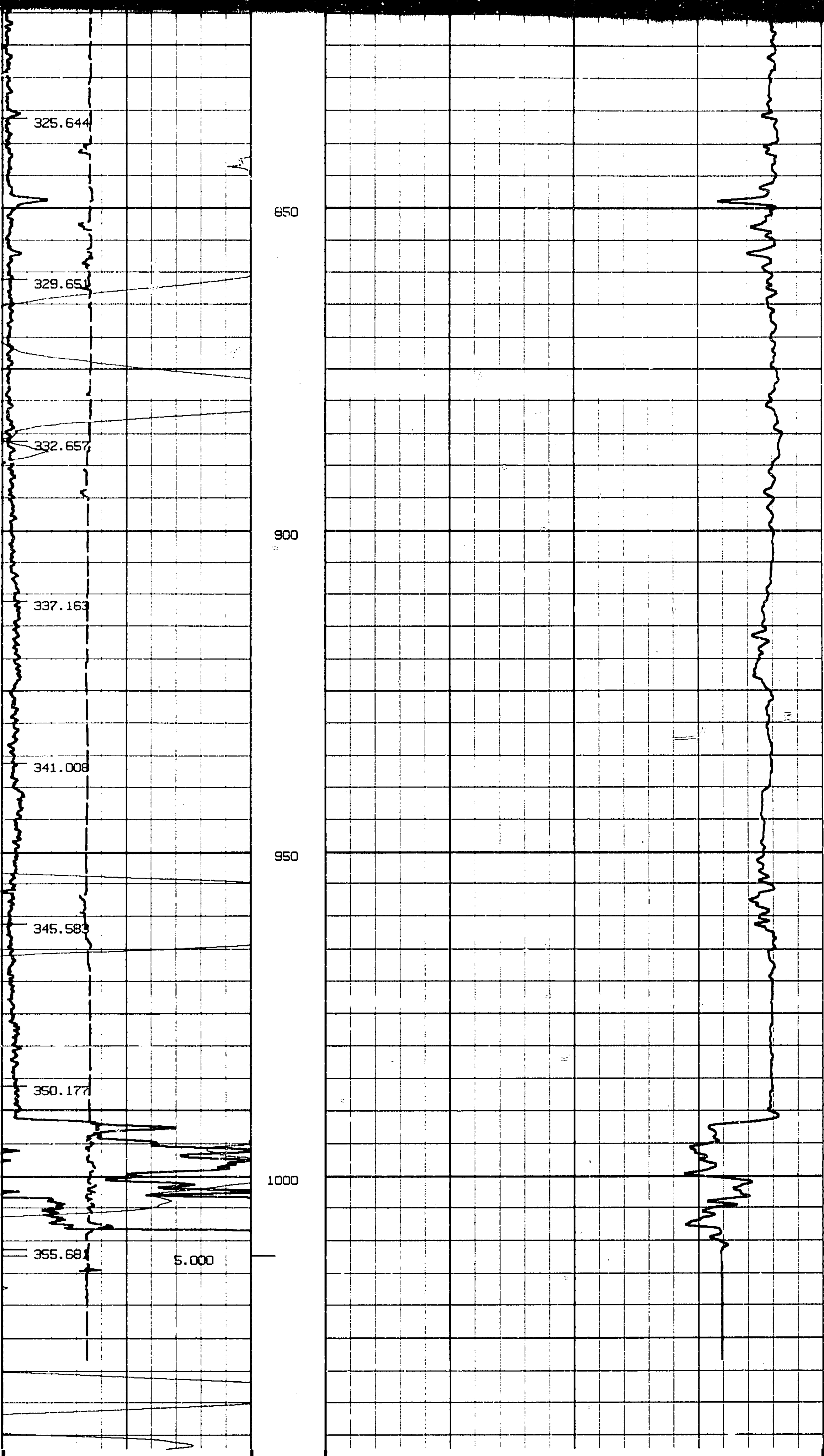
ADJUSTED SONIC LOG

SPONTANEOUS POTENTIAL (MV) -180 … 20	DEPTH (SRD)	700 … 400 … 100
GAMMA RAY (API) 0.0 … 150.0		CHECK-SHOT ADJUSTED INTERVAL TRANSIT TIME (microSEC/M)
CALIPER (mm) 125 … 375		

CORRECTION APPLIED

ADJUSTED SONIC LOG


400
450
500
550
600
650
700
750
800
850



VERTICAL ONE WAY SHOT TIME (MSEC)

DRIFT AT KNEE (MSEC)

+100 0 -100

CORRECTION APPLIED (microSEC/M)

CALIPER (mm) 125 375

700 400 100

GAMMA RAY (API) 0.0 150.0

CHECK-SHOT ADJUSTED INTERVAL TRANSIT TIME (microSEC/M)

SPONTANEOUS POTENTIAL (MV) -180 20

DEPTH (SRD)

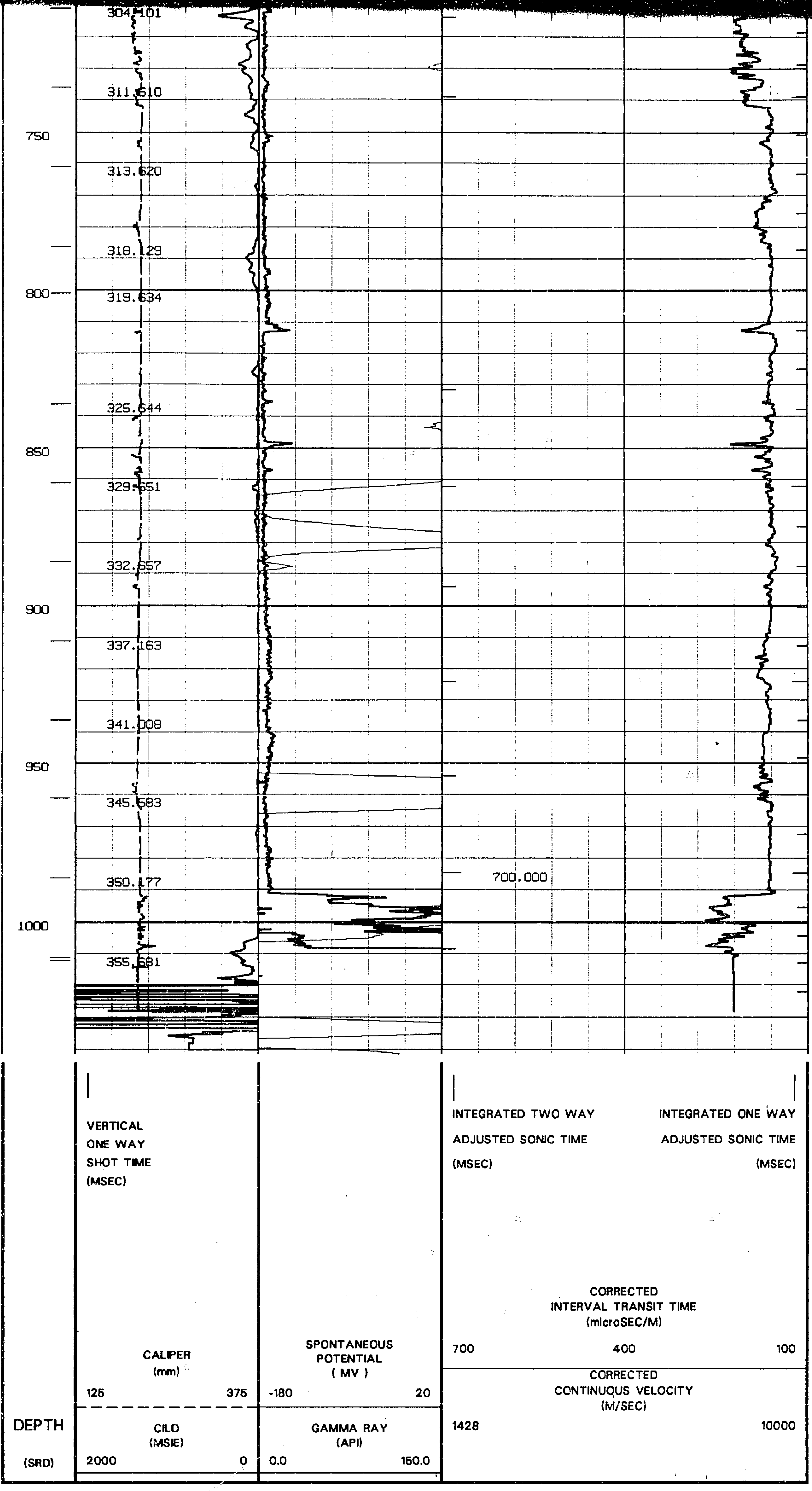
VELOCITY REPORT

MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	VERTICAL TRAVEL TIME SRD/GEOPH MS	INTEGRATED ADJUSTED SONIC TIME MS	DRIFT = SHOT TIME - RAW SON MS	RESIDUAL = SHOT TIME - ADJ SON MS	ADJUSTED INTERVAL VELOCITY M/S
13.70	0	-.25	-.25	0	0	0
475.00	461.30	250.42	251.24	0	-.82	1834
500.00	486.30	258.44	260.09	.79	-1.64	2827
525.00	511.30	262.97	265.00	.71	-2.03	5086
550.10	536.40	269.49	269.98	2.49	-.49	5038
575.10	561.40	276.01	275.12	4.12	.90	4871
600.10	586.40	279.03	280.19	2.31	-1.16	4923
625.10	611.40	285.05	285.17	3.60	-.12	5028
675.10	661.40	295.58	294.92	4.86	.65	5124
700.10	686.40	301.09	299.43	6.11	1.66	5548
725.00	711.30	304.10	304.21	4.58	-.11	5206
750.00	736.30	311.61	309.19	7.36	2.42	5027
775.00	761.30	313.62	313.39	5.23	.23	5945
800.00	786.30	318.13	317.56	5.56	.56	5992
815.00	801.30	319.63	319.92	4.71	-.29	6364
850.00	836.30	325.64	325.50	5.15	.15	6277
875.00	861.30	329.65	329.59	5.06	.06	6113
900.00	886.30	332.66	333.52	4.14	-.86	6364
925.00	911.30	337.16	337.50	4.66	-.34	6277
950.00	936.30	341.01	341.71	4.30	-.70	5942
975.00	961.30	345.58	345.96	4.63	-.37	5879
1000.00	986.30	350.18	349.99	5.19	.19	6200
1025.10	1011.40	355.68	355.37	5.32	.32	4669
1026.00	1012.30	355.88	355.56	5.32	.32	4514

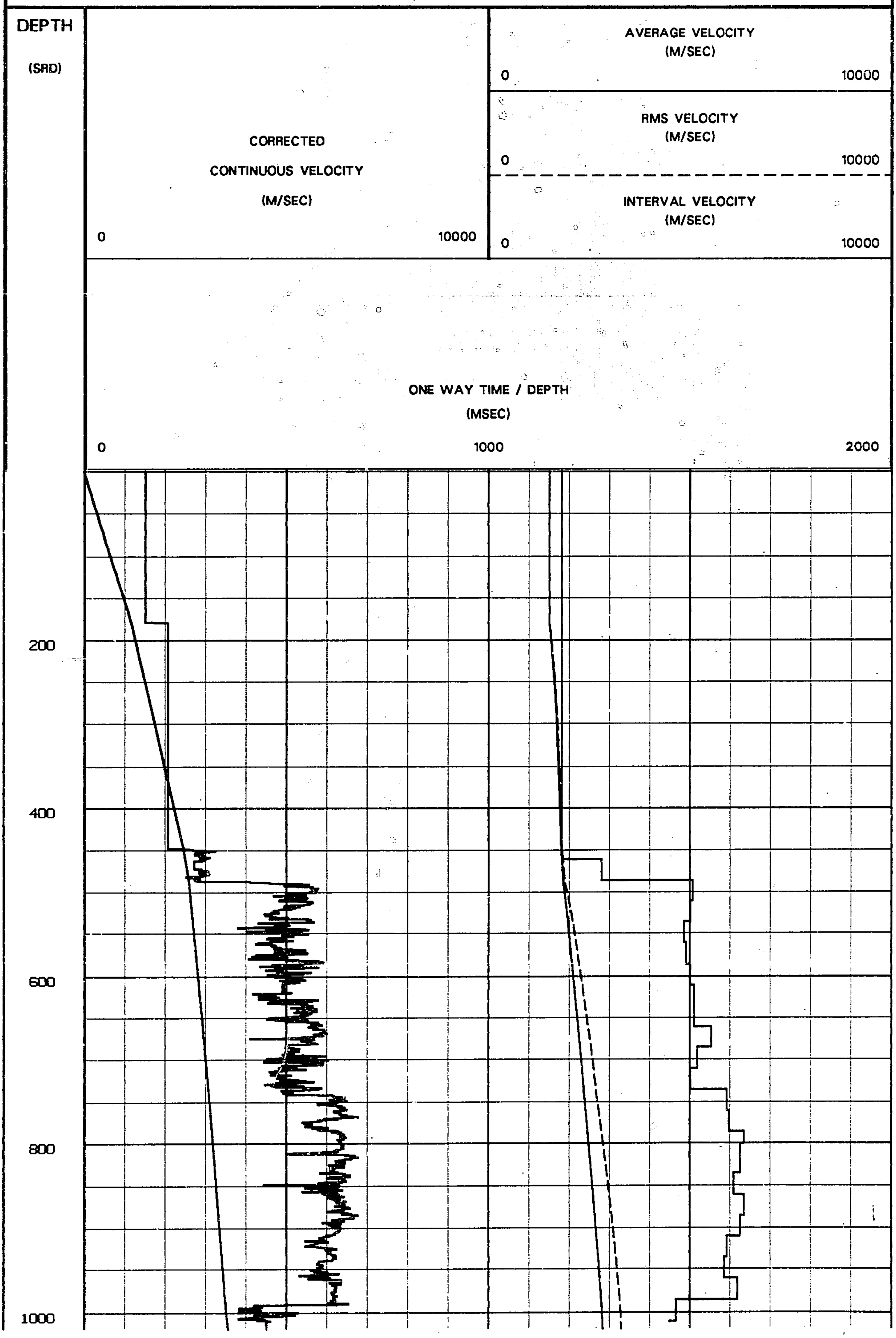
CORRECTED WST LOG

DEPTH (SRD)	CILD (MSIE) 2000 — 0 / CALIPER (mm) 125 — 375	GAMMA RAY (API) 0.0 — 150.0 / SPONTANEOUS POTENTIAL (MV) -180 — 20	CORRECTED INTERVAL TRANSIT TIME (microSEC/M) 700 — 400 — 100 / CORRECTED CONTINUOUS VELOCITY (M/SEC) 1428 — 10000

CORRECTED WST LOG

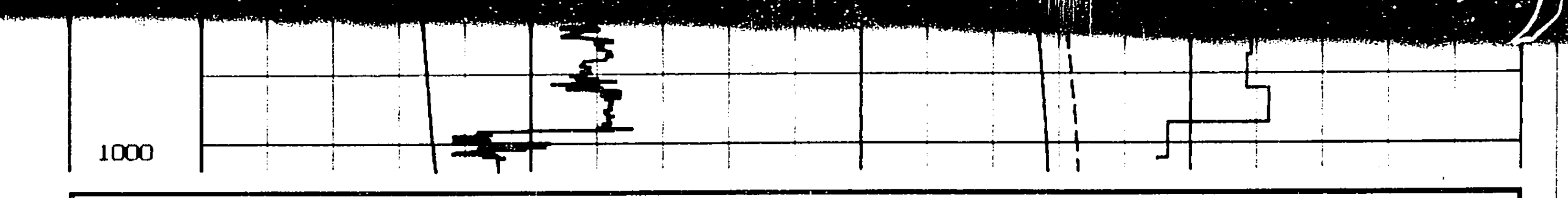


TIME/DEPTH LOG



TIME/DEPTH REPORT

ONE WAY SONIC TIME FROM SRD	DEPTH + 0 MS	DEPTH + 2 MS	DEPTH + 4 MS	DEPTH + 6 MS	DEPTH + 8 MS



TIME/DEPTH REPORT

ONE WAY SONIC TIME FROM SRD MS	DEPTH + 0 MS M	DEPTH + 2 MS M	DEPTH + 4 MS M	DEPTH + 6 MS M	DEPTH + 8 MS M
0	0	3.05	6.09	9.14	12.19
10.00	15.23	18.28	21.33	24.38	27.42
20.00	30.47	33.52	36.56	39.61	42.66
30.00	45.70	48.75	51.80	54.84	57.89
40.00	60.94	63.99	67.03	70.08	73.13
50.00	76.17	79.22	82.27	85.31	88.36
60.00	91.41	94.45	97.50	100.55	103.60
70.00	106.64	109.63	112.74	115.78	118.83
80.00	121.88	124.92	127.97	131.02	134.06
90.00	137.11	140.16	143.21	146.25	149.30
100.00	152.35	155.39	158.44	161.49	164.53
110.00	167.58	170.63	173.67	176.72	179.78
120.00	183.94	188.10	192.26	196.43	200.59
130.00	204.75	208.91	213.08	217.24	221.40
140.00	225.57	229.73	233.89	238.06	242.22
150.00	246.38	250.55	254.71	258.87	263.04
160.00	267.20	271.36	275.53	279.69	283.85
170.00	288.02	292.18	296.34	300.51	304.67
180.00	308.83	312.99	317.16	321.32	325.48
190.00	329.65	333.81	337.97	342.14	346.30
200.00	350.46	354.63	358.79	362.95	367.12
210.00	371.28	375.44	379.61	383.77	387.93
220.00	392.10	396.26	400.42	404.59	408.75
230.00	412.91	417.07	421.24	425.40	429.56
240.00	433.73	437.89	442.05	446.22	450.96
250.00	456.82	462.78	468.29	473.83	479.81
260.00	485.36	493.74	504.84	515.47	525.42
270.00	535.07	544.70	554.91	564.17	574.17
280.00	583.91	594.07	604.15	614.26	623.88
290.00	633.50	644.49	654.72	666.17	677.34
300.00	688.03	698.48	708.92	718.73	728.85
310.00	739.15	751.02	763.52	775.84	787.44
320.00	800.19	812.60	825.40	837.91	850.19
330.00	862.28	874.89	887.83	900.39	912.76
340.00	924.29	936.55	948.43	960.07	972.39
350.00	984.78	995.54	1004.42	1013.12	1022.18

87116

CLIENT : CANTERRA ENERGY LTD
FIELD : HUDSON BAY
WELL : NETSIQ N-01

SREF.001• SREF.003• SREF.004• SREF.009• SREF.001• SREF.003• SREF.004• SREF.009• REFL.GRF• DTTM.GRF• GR.GRF•

****
** SCHLUMBERGER **
****
** SYNTHETIC SEISMOGRAM **
****

COMPANY : CANTERRA ENERGY LTD.
WELL : ICG SOGEPET ETAL NETSIQ N-01
FIELD : HUDSON BAY
LOCATION : 59 59 48.00 N
87 30 59.50 W
PROVINCE : MANITOBA
COUNTRY : CANADA

DATE COMPUTED : 10-MAR-86
JOB NUMBER : 87116

ACOUSTIC IMPEDANCE : FROM SONIC ONLY

POLARITY
NORMAL POLARITY: AN INCREASE OF ACOUSTIC IMPEDANCE APPEARS AS A WHITE TROUGH. THIS IS SEG NORMAL POLARITY WHEN A COMPRESSIONAL SOURCE IS USED

SAMPLING RATE : 2MSEC

WAVELET:

RICKER ZERO PHASE 20,30 HERTZ
WAVESHAPED VSP DOWNGOING
PDN VSP DOWNGOING

GAMMA RAY
0 TO 150 API

SONIC TRANSIT TIMES
500 TO 100 MICRO-SEC/M.

PRESSURE REFLECTION COEFFICIENT
-0.2 TO 0.2

SYNTHETIC SEISMOGRAM
VSP PDN, NORMAL POLARITY

SYNTHETIC SEISMOGRAM
VSP WAVESHAPED DOWNGOING, NORMAL POLARITY

SYNTHETIC SEISMOGRAM
30 HERTZ, NORMAL POLARITY

SYNTHETIC SEISMOGRAM
20 HERTZ, NORMAL POLARITY

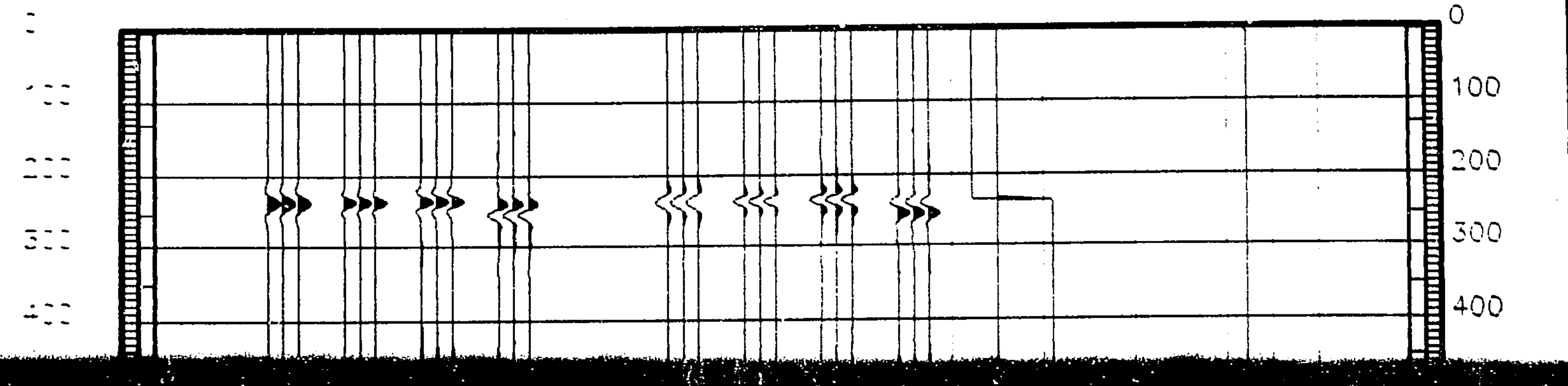
SYNTHETIC SEISMOGRAM
VSP PDN, REVERSE POLARITY

SYNTHETIC SEISMOGRAM
VSP WAVESHAPED DOWNGOING, REVERSE POLARITY

SYNTHETIC SEISMOGRAM
30 HERTZ, REVERSE POLARITY

SYNTHETIC SEISMOGRAM
20 HERTZ, REVERSE POLARITY

150.000 GAPI 0.0000
100.000 US/M
500.000 0.2000
-0.2000



COMPANY : CANTERRA ENERGY LTD.
WELL : CS SOGEPET ET AL NETSIO N-01
FIELD : HUDSON BAY
LOCATION : 59 59 48.00 N
87 30 59.80 W
PROVINCE : MANITOBA
COUNTRY : CANADA

DATE COMPUTED : 10-MAR-86
JOB NUMBER : 87116

ACOUSTIC IMPEDANCE : FROM SONIC ONLY

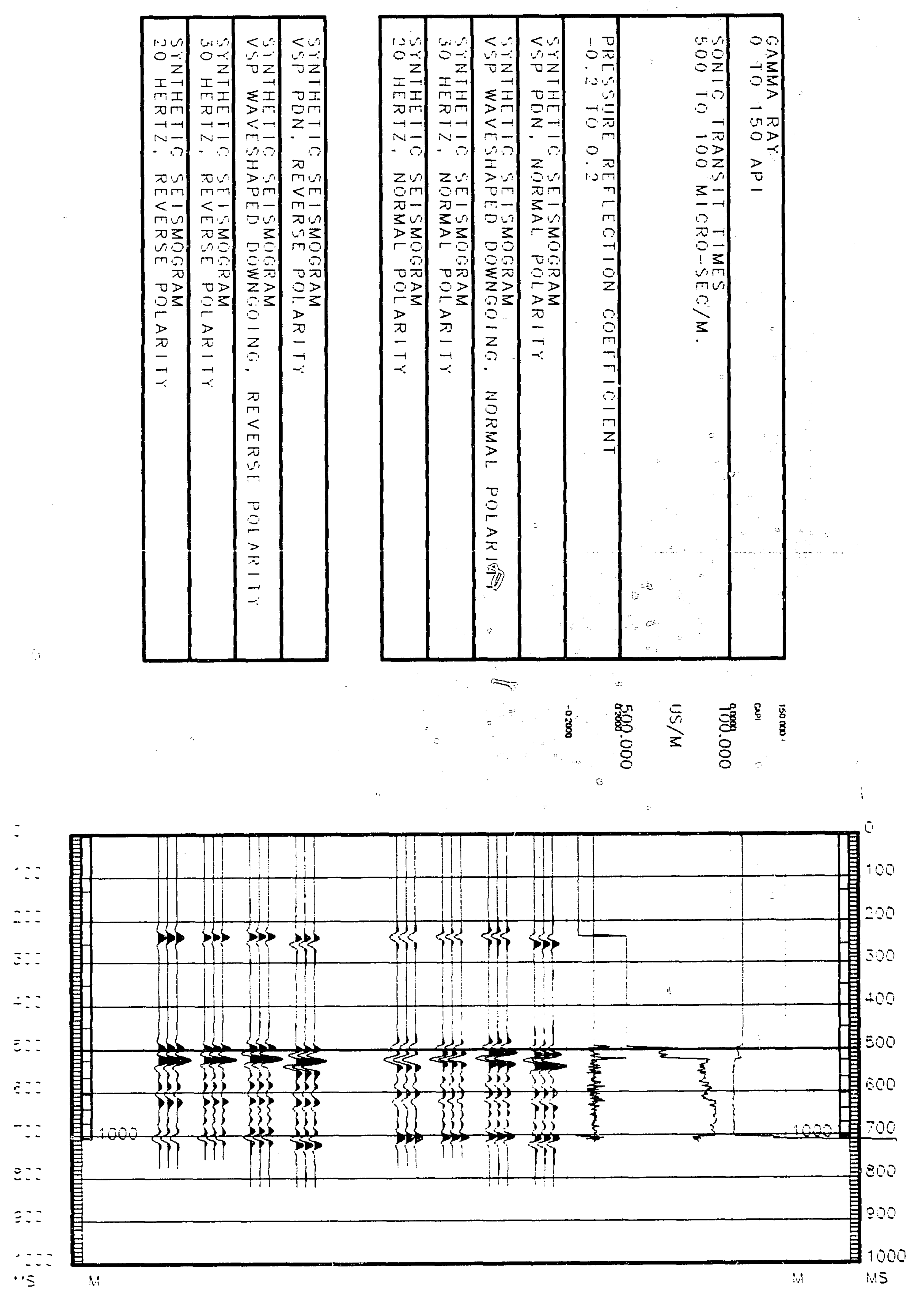
POLARITY

NORMAL POLARITY: AN INCREASE OF ACOUSTIC IMPEDANCE APPEARS AS A WHITE TROUGH. THIS IS SEG NORMAL POLARITY WHEN A COMPRESSIONAL SOURCE IS USED

SAMPLING RATE : 2MSEC

WAVELET:

RICKER ZERO PHASE 20,30 HERTZ
WAVESHAPED VSP DOWNGOING
PDN VSP DOWNGOING



OTTAWA COPY

B710-C55-1-2

Schlumberger

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA

MAY 6 1986

ENGINEERING BRANCH
GÉNIE

CANADA UNIT
COMPUTER
PROCESSED
SEISMIC
INTERPRETATION

SCHLUMBERGER OF CANADA
CALGARY LOG INTERPRETATION CENTER
24TH FLOOR, MONENCO PLACE
801 6th Avenue SW
Calgary, Alberta T2P 3W2
(403)231-9638

CONFIDENTIAL FOR
EXAMEN LIMITÉ À:

VERTICAL SEISMIC PROFILE

Company: CANTERRA ENERGY LTD.

Well Name: ICG SOGEPET ET AL NETSIQ N-01

Field: HUDSON'S BAY

Location: North: 59 50 48.0
West: 87 30 59.5
Sec: Twp: Rge:

Province: MANITOBA

ELEVATIONS DATA:

Permanent Datum: MEAN SEA LEVEL — Elevations Measured In: METERS
Seismic Reference Datum (SRD): MEAN SEA LEVEL — SRD Elevation: 0.00
Logs Measured From: KB — Drilling Measured From: KB — Water/Mud Line Depth:
Kelly Bushing (KB): 13.70 — Drill Floor (DF): — Ground Level (GL): -179.80

ACQUISITION DATA:

Run Number: 1 (TRIP #1) — Date: 17-OCT-1985 — Total Depth:
Bit Size:
Casing Data:
Downhole Tool Type: WST — Source Type: AIRGUN
Engineer: n/a — Logging Unit: — District: ST.JOHN'S
Witness: — Acquisition Software:

PROCESSING DATA:

Processing Job Reference: 87116 — Processing Date: 21-APR-86
Log Analyst: L.DUPAL — Processing Software Baseline: 14.2

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations made by any of our officers, agents or employees. These interpretations are also subject to Clause 4 of our General Terms and Conditions as set out in our current Price Schedule.

Fold Here

FIELD RECORDING

ENERGY SOURCE - AIR GUN

RECORDING SAMPLE RATE - 1 MSEC.

RECORDING TOOL - WELL SEISMIC TOOL
4 GEOPHONES IN SERIES
TYPE - GEOSPACE HS1 - 10 HZ VELOCITY GEOPHONES
GEOPHONE BANDWIDTH - 10 TO 200 HZ AT 3DB

SYSTEM FREQ. RESPONSE
(INCLUDING DOWNHOLE TOOL AND CABLE)
LOW CUT - 3DB AT 0.5 HZ. 12 DB/OCT
HIGH CUT - 3DB AT 250 HZ. 18DB/OCT (ANTI ALIAS

REMARKS

PROCESSING

STEPS ARE DETAILED ON EACH PLOT

POLARITY

THE POLARITY OF UPGOING IS DEFINED BY THE DOWN
A REFLECTION FROM AN INCREASE OF ACOUSTIC IMPE
APPEARS ON THE UPGOING TRACE AS THE REVERSE OF
DOWNGOING WAVELET, WHEN DOWNGOING AND UPGOING
PLOTTED IN THE SAME POLARITY.

UPGOING WAVES PLOTTED ABOVE THE DOWNGOING WA
ARE PLOTTED IN THE SAME POLARITY

COL
LOCITY GEOPHONES
0 HZ AT 3DB

CABLED)
/OCT
/OCT (ANTI ALIASING)

01

VED BY THE DOWNGOING.
OF ACOUSTIC IMPEDANCE
THE REVERSE OF THE
AND UPGOING ARE

THE DOWNGOING WAVES

CLIENT : CANTERRA ENERGY LTD
FIELD : HUDSON BAY
WELL : NETSIQ N-01

L1.N50.SPM* L1.NTU.WKM* L1.NAM.SPM*

MEDIAN STACKS

MEDIAN STACKS

MEDIAN STACKING #OF SHOTS

STATIC SHIFT OF 5 MSEC.

NORMALIZATION
AMPLITUDES AT EACH LEVEL ARE NORMALIZED TO THE SAME RMS VALUE IN A WINDOW OF 100 MSEC., STARTING 20 MSEC. BEFORE THE FIRST BREAK.

BAND PASS FILTER 7-80
6TH ORDER ZERO PHASE BUTTERWORTH FILTER
18 AND 36 DB/OCTAVE ROLL OFF

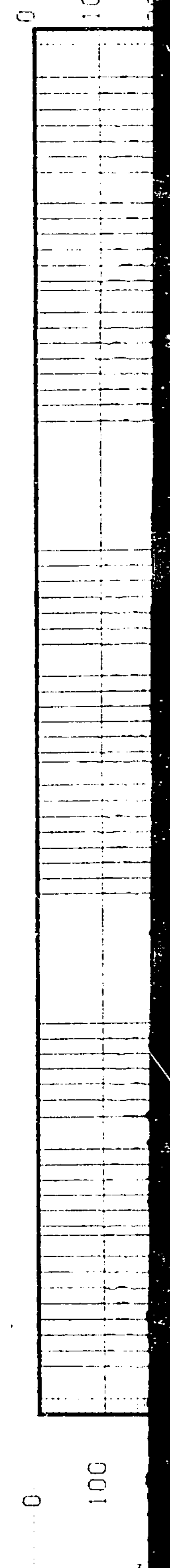
LEVEL	DEPTH M	TIME MS	PEAK/PEAK
22	475.0	251.000	471.47
21	500.0	259.000	433.77
20	525.0	263.500	496.95
19	550.1	270.000	441.96
18	575.1	276.500	429.64
17	600.1	279.500	382.98
16	625.1	285.500	489.34
15	675.1	296.000	460.10
14	700.1	301.500	446.71
13	725.0	304.500	469.11
12	750.0	312.000	509.06
11	775.0	314.000	472.40
9	815.0	320.000	498.04
8	850.0	326.000	484.88
7	875.0	330.000	509.16
6	900.0	333.000	466.38
5	925.0	337.500	501.49
4	950.0	341.340	485.16
3	975.0	345.910	451.25
2	1000.0	350.500	487.23
1	1025.1	356.000	488.83

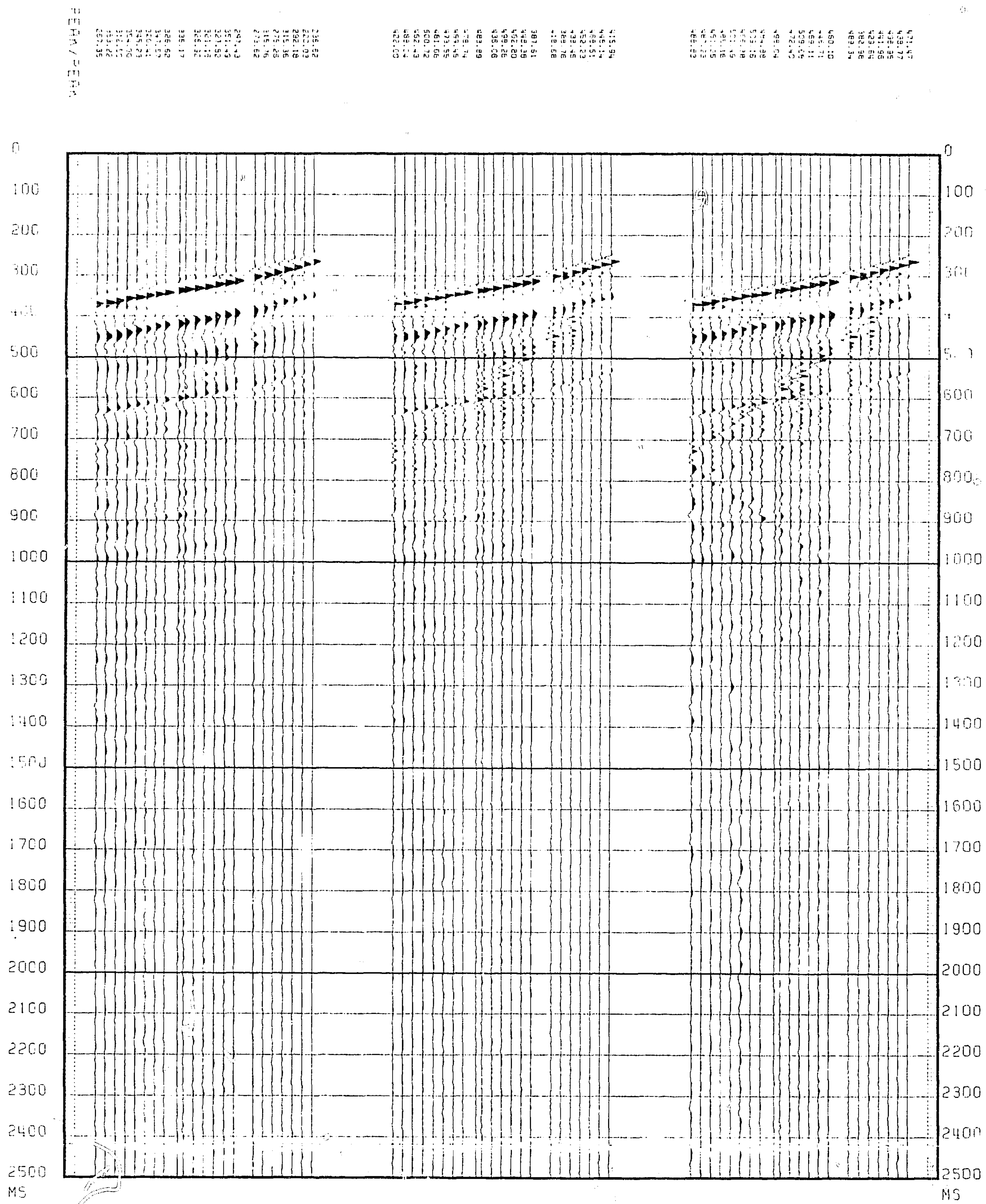
FK REDUCTION OF TUBE WAVES
REJECTION OF VELOCITIES BELOW 1500 M/SEC
AND CURSOR MASKING

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
22	475.0	251.000	415.94
21	500.0	259.000	446.14
20	525.0	263.500	466.51
19	550.1	270.000	452.23
18	575.1	276.500	438.45
17	600.1	279.500	388.76
16	625.1	285.500	416.68
15	675.1	296.000	387.51
14	700.1	301.500	448.30
13	725.0	304.500	462.80
12	750.0	312.000	498.26
11	775.0	314.000	436.06
9	815.0	320.000	483.89
8	850.0	326.000	479.74
7	875.0	330.000	499.45
6	900.0	333.000	473.55
5	925.0	337.500	481.06
4	950.0	341.340	500.72
3	975.0	345.910	462.43
2	1000.0	350.500	488.04
1	1025.1	356.000	422.00

BAND PASS FILTER 7-60
6TH ORDER ZERO PHASE BUTTERWORTH FILTER
18 AND 36 DB/OCTAVE ROLL OFF
7 TO 60 HERTZ.

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
22	475.0	251.000	236.62
21	500.0	259.000	220.03
20	525.0	263.500	292.18
19	550.1	270.000	315.36
18	575.1	276.500	275.26
17	600.1	279.500	315.76
16	625.1	285.500	273.62
15	675.1	296.000	297.43
14	700.1	[illegible]	351.49
13	725.0	[illegible]	327.82
12	750.0	312.000	321.16
11	775.0	314.000	326.92
9	815.0	320.000	336.17
8	850.0	326.000	326.62
7	875.0	330.000	347.57
6	900.0	333.000	320.41
5	925.0	337.500	345.23
4	950.0	341.340	354.00
3	975.0	345.910	312.50
2	1000.0	350.500	353.22
1	1025.1	356.000	267.35





0
100
200
300
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
MS

UPGOING AND DOWNGOING

L1.NGO.SPM*

MEDIAN STACKING OF SHOTS
STATIC SHIFT OF 5 MSEC.
NORMALIZATION
BAND PASS FILTER 7-80
FK REDUCTION OF TUBE WAVES
BAND PASS FILTER 7-60

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
22	475.0	251.000	238.62
21	500.0	258.000	220.03
20	525.0	263.500	292.18
19	550.1	270.000	315.36
18	575.1	276.500	275.26
17	600.1	279.500	315.76
16	625.1	285.500	273.82
15	675.1	298.000	287.43
14	700.1	301.500	351.49
13	725.0	304.500	327.82
12	750.0	312.000	321.16
11	775.0	314.000	326.92
9	815.0	320.000	336.17
8	850.0	326.000	326.62
7	875.0	330.000	347.57
6	900.0	333.000	320.41
5	925.0	337.500	345.23
4	950.0	341.340	354.00
3	975.0	345.910	312.50
2	1000.0	350.500	353.22
1	1025.1	356.000	267.35

L1.TWT.SPM*

SHIFT TO TWT
TO LOCATE TUBE WAVES AREAS
ON PROCESSED UPGOINGS

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	492.40
19	550.1	270.000	441.96
18	575.1	276.500	426.42
17	600.1	279.500	385.45
16	625.1	285.500	408.48
15	675.1	296.000	460.09
14	700.1	301.500	449.26
13	725.0	304.500	470.99
12	750.0	312.000	509.08
11	775.0	314.000	472.40
9	815.0	320.000	498.03
8	850.0	326.000	484.88
7	875.0	330.000	509.16
6	900.0	333.000	466.38
5	925.0	337.500	500.24
4	950.0	341.340	482.87
3	975.0	345.910	450.19

L1.NEW.UL1*

VELOCITY FILTER
11 LEVELS MEDIAN VELOCITY FILTER
9 LEVELS MEDIAN AVERAGING
OF UPGOING

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	28.23
19	550.1	270.000	20.73
18	575.1	276.500	15.94
17	600.1	279.500	14.06
16	625.1	285.500	15.33
15	675.1	296.000	15.64
14	700.1	301.500	16.26
13	725.0	304.500	18.85
12	750.0	312.000	24.54
11	775.0	314.000	28.18
9	815.0	320.000	34.43
8	850.0	326.000	40.96
7	875.0	330.000	42.41
6	900.0	333.000	45.61
5	925.0	337.500	50.35
4	950.0	341.340	55.44
3	975.0	345.910	58.03

L1.NEW.DL1*

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	258.79
19	550.1	270.000	249.14
18	575.1	276.500	259.35
17	600.1	279.500	267.70
16	625.1	285.500	275.76
15	675.1	296.000	285.46
14	700.1	301.500	284.44
13	725.0	304.500	287.55
12	750.0	312.000	293.03
11	775.0	314.000	300.29
9	815.0	320.000	306.06
8	850.0	326.000	302.94
7	875.0	330.000	299.93
6	900.0	333.000	302.83
5	925.0	337.500	305.34
4	950.0	341.340	310.69
3	975.0	345.910	294.98

L1.SHA.UWP*

WAVESHAPING
W=IENER FILTERS DESIGNED ON THE DOWNGOING
=AT EACH LEVEL, ARE APPLIED TO BOTH
=THE DOWNGOING AND UPGOING WAVES

INPUT = : 1000 MSEC OF DOWNGOING,
=STARTING 40 MSEC BEFORE FIRST BREAK

DESIRED OUPUT:
=IMPULSE RESPONSE OF A MOOK FILTER TAPERED
=BY A BLACKMAN-HARRIS WINDOW, CUTOFF AT 100 HERTZ

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	203.20
19	550.1	270.000	157.06
18	575.1	276.500	195.86
17	600.1	279.500	130.50
16	625.1	285.500	134.43
15	675.1	296.000	131.54
14	700.1	301.500	144.97
13	725.0	304.500	150.73
12	750.0	312.000	208.18
11	775.0	314.000	250.58
9	815.0	320.000	322.63
8	850.0	326.000	354.88
7	875.0	330.000	374.96
6	900.0	333.000	397.76
5	925.0	337.500	423.61
4	950.0	341.340	461.15
3	975.0	345.910	478.80

L1.SHA.DWP*

LAGS : 500
FILTER : 1000 MSEC
WHITE NOISE : 0.10

MUTE TO FIRST ARRIVAL

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	1707.12
19	550.1	270.000	1896.10
18	575.1	276.500	2187.23
17	600.1	279.500	2206.07
16	625.1	285.500	2315.01
15	675.1	296.000	2245.50
14	700.1	301.500	2365.94
13	725.0	304.500	2337.65
12	750.0	312.000	2340.13
11	775.0	314.000	2359.35
9	815.0	320.000	2322.74
8	850.0	326.000	2268.97
7	875.0	330.000	2222.81
6	900.0	333.000	2225.97
5	925.0	337.500	2197.41
4	950.0	341.340	2200.70
3	975.0	345.910	2084.71

L1.PDN.UWP*

PREDICTIVE DECONVOLUTION
W=IENER FILTERS DESIGNED ON THE DOWNGOING
=AT EACH LEVEL, ARE APPLIED TO BOTH
=THE DOWNGOING AND UPGOING WAVES

AUTOCORELATION WINDOW:= 1000 MSEC OF DOWNGOING,
=STARTING 40 MSEC BEFORE BREAK
AUTOCORRELATION LAGS := AS IN WINDOW
PREDICTION DISTANCE := 60 MSEC.
WHITE NOISE : 0.10

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	24.73
19	550.1	270.000	17.98
18	575.1	276.500	15.12
17	600.1	279.500	14.79
16	625.1	285.500	13.82
15	675.1	296.000	13.53
14	700.1	301.500	14.44
13	725.0	304.500	16.06
12	750.0	312.000	21.17
11	775.0	314.000	24.33
9	815.0	320.000	33.74
8	850.0	326.000	38.26
7	875.0	330.000	41.10
6	900.0	333.000	43.11
5	925.0	337.500	46.70
4	950.0	341.340	51.02
3	975.0	345.910	52.64

L1.PDN.DWP*

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	239.39
19	550.1	270.000	232.17
18	575.1	276.500	241.69
17	600.1	279.500	248.30
16	625.1	285.500	258.46
15	675.1	296.000	264.85
14	700.1	301.500	264.13
13	725.0	304.500	266.04
12	750.0	312.000	271.40
11	775.0	314.000	277.20
9	815.0	320.000	281.96
8	850.0	326.000	278.42
7	875.0	330.000	276.56
6	900.0	333.000	279.72
5	925.0	337.500	281.79
4	950.0	341.340	[illegible]
3	975.0	345.910	275.15

L1.P22.UWP*

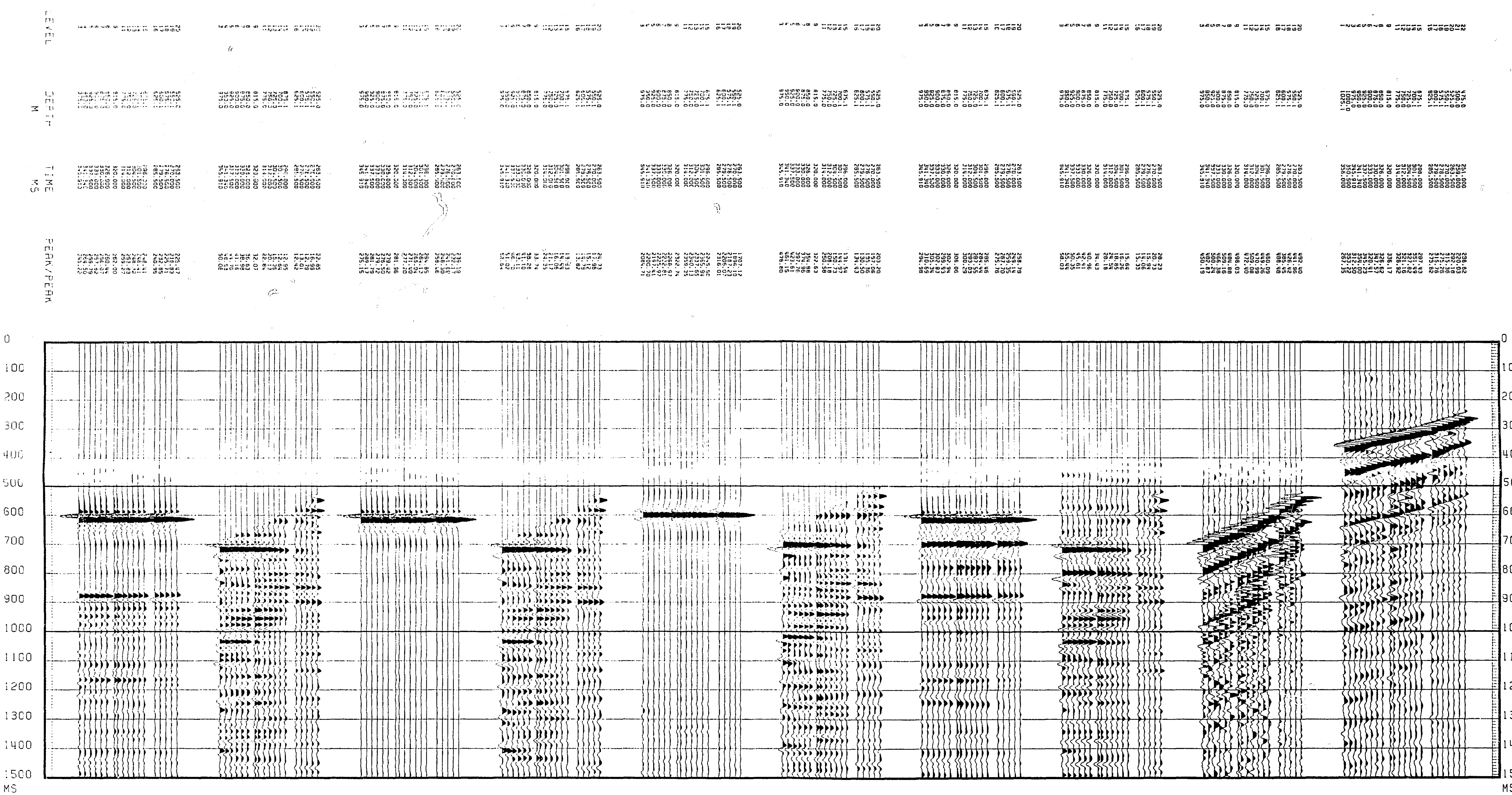
PREDICTIVE DECONVOLUTION
W=IENER FILTERS DESIGNED ON THE DOWNGOING
=AT EACH LEVEL, ARE APPLIED TO BOTH
=THE DOWNGOING AND UPGOING WAVES

AUTOCORELATION WINDOW:= 300 MSEC OF DOWNGOING,
=STARTING 40 MSEC BEFORE BREAK
AUTOCORRELATION LAGS := AS IN WINDOW
PREDICTION DISTANCE := 22 MSEC.
WHITE NOISE : 0.10

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	22.65
19	550.1	270.000	16.99
18	575.1	276.500	12.79
17	600.1	279.500	13.01
16	625.1	285.500	12.42
15	675.1	296.000	12.95
14	700.1	301.500	12.64
13	725.0	304.500	15.35
12	750.0	312.000	20.13
11	775.0	314.000	22.64
9	815.0	320.000	32.07
8	850.0	326.000	36.63
7	875.0	330.000	38.98
6	900.0	333.000	41.16
5	925.0	337.500	44.70
4	950.0	341.340	46.53
3	975.0	345.910	50.06

L1.P22.DWP*

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
20	525.0	263.500	225.47
19	550.1	270.000	215.83
18	575.1	276.500	225.71
17	600.1	279.500	232.85
16	625.1	285.500	240.35
15	675.1	296.000	242.41
14	700.1	301.500	246.41
13	725.0	304.500	248.32
12	750.0	312.000	253.83
11	775.0	314.000	259.27
9	815.0	320.000	262.00
8	850.0	326.000	260.44
7	875.0	330.000	[illegible]
6	900.0	333.000	257.82
5	925.0	337.500	259.79
4	950.0	341.340	264.50
3	975.0	345.910	[illegible]



LEVEL
DEPTH M
TIME MS
PEAK/PEAK
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
MS

CLIENT : CANTERRA ENERGY LTD
FIELD : HUDSON BAY
WELL : NETSIU N-01

L1.SHA.UWP* [illegible] [illegible] L1.PDN.UWP* [illegible] [illegible] [illegible] REFL.GRF* DTTM.GRF* GR.GRF*

VSP, SYNTHETICS AND LOGS

NORMAL POLARITY

*AN INCREASE OF ACOUSTIC IMPEDANCE
*APPEARS AS A WHITE TROUGH.
*THIS IS SEG NORMAL POLARITY
*FOR A COMPRESSIONAL SOURCE

SYNTHETIC SEISMOGRAMS

[illegible] : [illegible]
WAVELET : [illegible]WNGOING VSP

* AFTER PREDICTIVE DECONVOLUTION
* AFTER BAND PASS FILTER 20-70 HERTZ
* 36 72 DB/OCTAVE
* ZERO AND MINIMUM PHASE
* AFTER WAVESHAPING

REFLECTIONS FROM SONIC ONLY:
*WITH AND WITHOUT REFLECTION
*AT THE TOP OF THE SONIC LOG

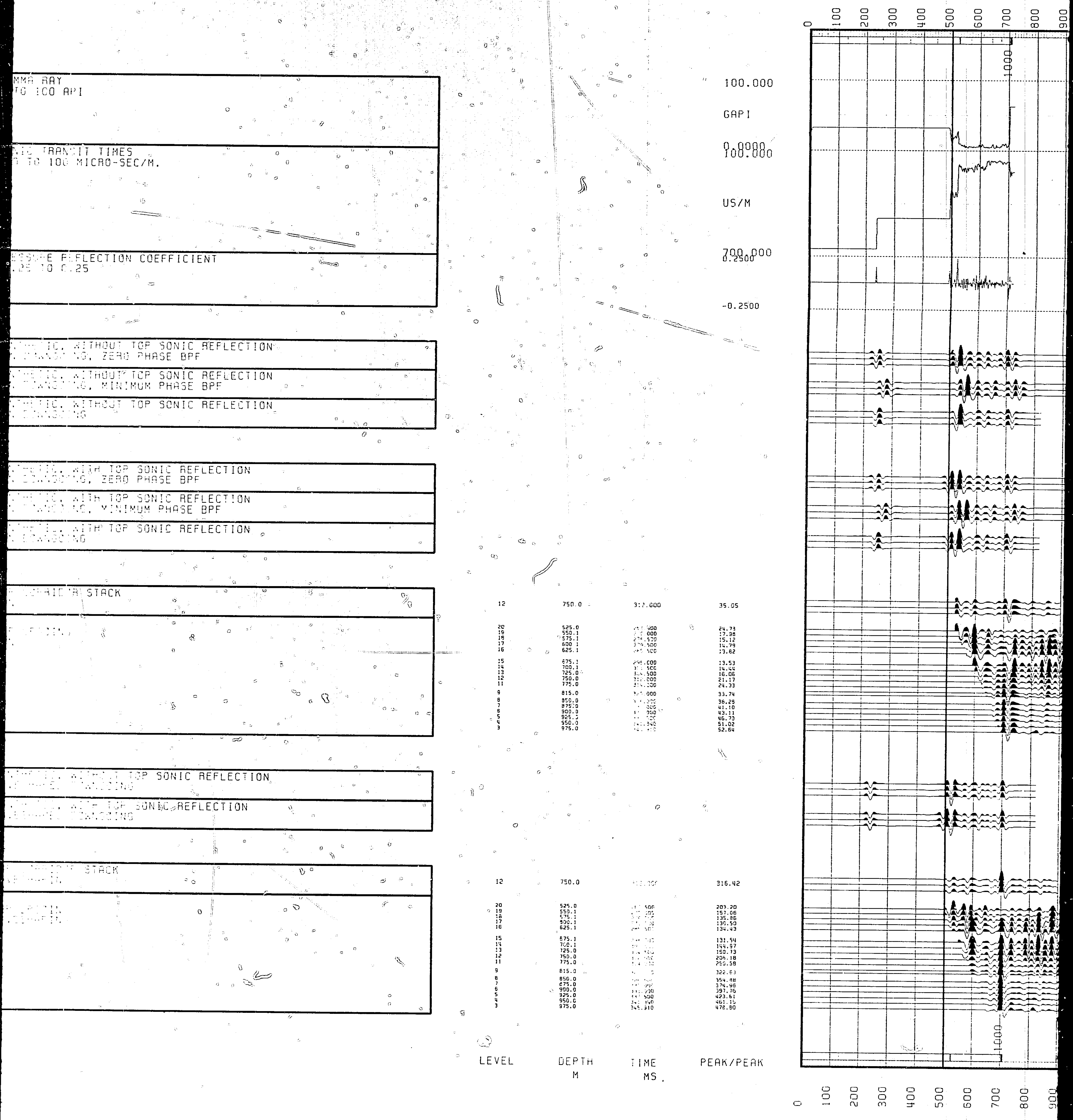
VSP PREDICTIVE DECONVOLUTION

AUTOCORELATION WINDOW:* 1000 MSEC OF DOWNGOING,
*STARTING 40 MSEC BEFORE BREAK
AUTOCORRELATION LAGS :* AS IN WINDOW
PREDICTION DISTANCE :* 60 MSEC.
WHITE NOISE : 0.10

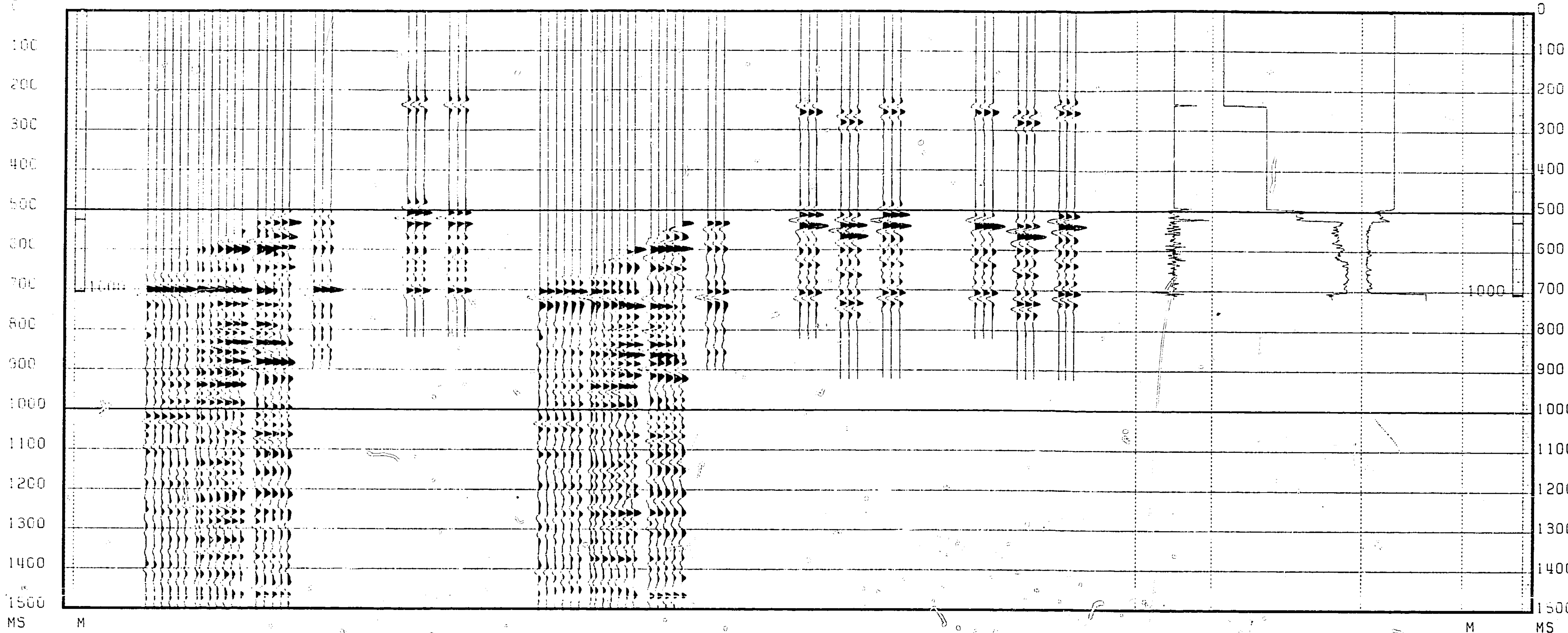
VSP WAVESHAPING

INPUT * : 1000 MSEC OF DOWNGOING,
*STARTING 40 MSEC BEFORE FIRST BREAK
DESIRED OUPUT:
*IMPULSE RESPONSE OF A MODK FILTER TAPERED
*BY A BLACKMAN-HARRIS WINDOW, CUTOFF AT 100 HERTZ
LAGS : 500
FILTER : 1000 MSEC
WHITE NOISE : 0.10
MUTE TO FIRST ARRIVAL

VSP UPGOING WAVESHAPING | VSP CORRIDOR STACK WAVESHAPING | SYNTHETIC, WITHOUT WAVESHAPED DOWNGOING | SYNTHETIC, WITH TOP WAVESHAPED DOWNGOING | VSP UPGOING PDN | VSP CORRIDOR STACK PDN | SYNTHETIC, WITH TOP PDN DOWNGOING, ZERO | SYNTHETIC, WITH TOP PDN DOWNGOING, MINIM | SYNTHETIC, WITH TOP PDN DOWNGOING | SYNTHETIC, WITHOUT T PDN DOWNGOING, ZERO | SYNTHETIC, WITHOUT T PDN DOWNGOING, MINIM | SYNTHETIC, WITHOUT T PDN DOWNGOING | PRESSURE REFLECTION -0.25 TO 0.25 | SONIC TRANSIT TIMES 700 TO 100 MICRO-SEC | GAMMA RAY 0 TO 100 API



MMA RAY
TO 100 API
TRANSIT TIMES
TO 100 MICRO-SEC/M.
E REFLECTION COEFFICIENT
TO 0.25
WITHOUT TOP SONIC REFLECTION
ZERO PHASE BPF
WITHOUT TOP SONIC REFLECTION
MINIMUM PHASE BPF
WITHOUT TOP SONIC REFLECTION
WITH TOP SONIC REFLECTION
ZERO PHASE BPF
WITH TOP SONIC REFLECTION
MINIMUM PHASE BPF
WITH TOP SONIC REFLECTION
STACK
TOP SONIC REFLECTION
SONIC REFLECTION
STACK
100.000
GAPI
0.0000
100.000
US/M
700.000
0.2500
-0.2500
LEVEL
DEPTH
M
TIME
MS.
PEAK/PEAK
0
100
200
300
400
500
600
700
800
900
1000



CLIENT : CANTERRA ENERGY LTD

FIELD : HUDSON BAY

WELL : [illegible]

CLIENT : [illegible]
FIELD : [illegible]
WELL : [illegible]

VSP, SYNTHETICS AND LOGS

REVERSE POLARITY

*AN INCREASE OF ACOUSTIC IMPEDANCE
*APPEARS AS A BLACK PEAK
*THIS IS SEG REVERSE POLARITY
*FOR A COMPRESSIONAL SOURCE

SYNTHETIC SEISMOGRAMS

SAMPLING RATE : 2 MSEC
WAVELETS : DOWNGOING VSP

* AFTER PREDICTIVE DECONVOLUTION
* AFTER BAND PASS FILTER 20-70 HERTZ
* 36 72 DB/OCTAVE
* ZERO AND MINIMUM PHASE
* AFTER WAVESHAPING

REFLECTIONS FROM SONIC ONLY:
*WITH AND WITHOUT REFLECTION
*AT THE TOP OF THE SONIC LOG

VSP PREDICTIVE DECONVOLUTION

AUTOCORELATION WINDOW:* 1000 MSEC OF DOWNGOING.
*STARTING 40 MSEC BEFORE BREAK
AUTOCORRELATION LAGS :* AS IN WINDOW
PREDICTION DISTANCE :* 60 MSEC.
WHITE NOISE : 0.10

VSP WAVESHAPING

INPUT * : 1000 MSEC OF DOWNGOING.
*STARTING 40 MSEC BEFORE FIRST BREAK
DESIRED OUPUT:
*IMPULSE RESPONSE OF A MOOK FILTER TAPERED
*BY A BLACKMAN-HARRIS WINDOW, CUTOFF AT 100 HERTZ
LAGS : 500
FILTER : 1000 MSEC
WHITE NOISE : 0.10
MUTE TO FIRST ARRIVAL

VSP UPGOING WAVESHAPING
VSP CORRIDOR STACK WAVESHAPING
SYNTHETIC, WITH TO WAVESHAPED DOWNGO
SYNTHETIC, WITHOU WAVESHAPED DOWNGO
VSP UPGOING PDN
VSP CORRIDOR STACK PDN
SYNTHETIC, WITH T PDN DOWNGOING
SYNTHETIC, WITH T PDN DOWNGOING, MI
SYNTHETIC, WITH T PDN DOWNGOING, ZE
SYNTHETIC, WITHOU PDN DOWNGOING
SYNTHETIC, WITHOU PDN DOWNGOING, MI
SYNTHETIC, WITHOU PDN DOWNGOING, ZE
PRESSURE REFLECTI -0.25 TO 0.25
SONIC TRANSIT TIM 700 TO 100 MICRO-
GAMMA RAY 0 TO 100 API

...MMA RAY
...TO 100 API

...NIC TRANSIT TIMES
...0 TO 100 MICRO-SEC/M.

...ESSURE REFLECTION COEFFICIENT
...25 TO 0.25

...NTHETIC, WITHOUT TOP SONIC REFLECTION
...N DOWNGOING, ZERO PHASE BPF

...NTHETIC, WITHOUT TOP SONIC REFLECTION
...N DOWNGOING, MINIMUM PHASE BPF

...NTHETIC, WITHOUT TOP SONIC REFLECTION
...N DOWNGOING

...NTHETIC, WITH TOP SONIC REFLECTION
...N DOWNGOING, ZERO PHASE BPF

...NTHETIC, WITH TOP SONIC REFLECTION
...N DOWNGOING, MINIMUM PHASE BPF

...NTHETIC, WITH TOP SONIC REFLECTION
...N DOWNGOING

...F CORRIDOR STACK

...F LOGGING

...NTHETIC, WITHOUT TOP SONIC REFLECTION
...LE SHAPED DOWNGOING

...NTHETIC, WITH TOP SONIC REFLECTION
...LE SHAPED DOWNGOING

... CORRIDOR STACK
...SHAPING

...LOGGING
...SHAPING

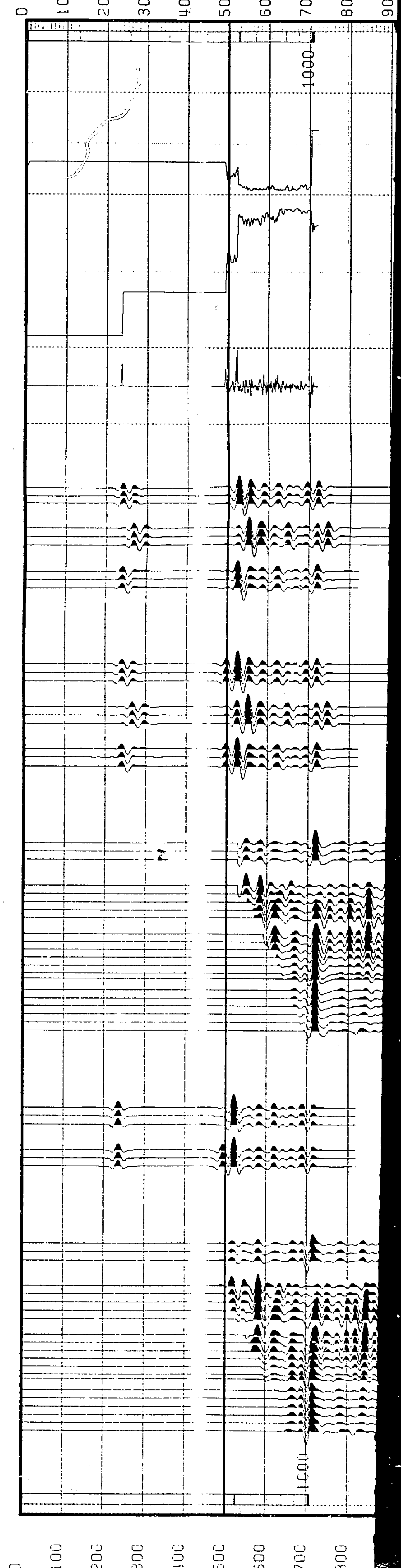
100.000
GAPI
0.0000
100.000

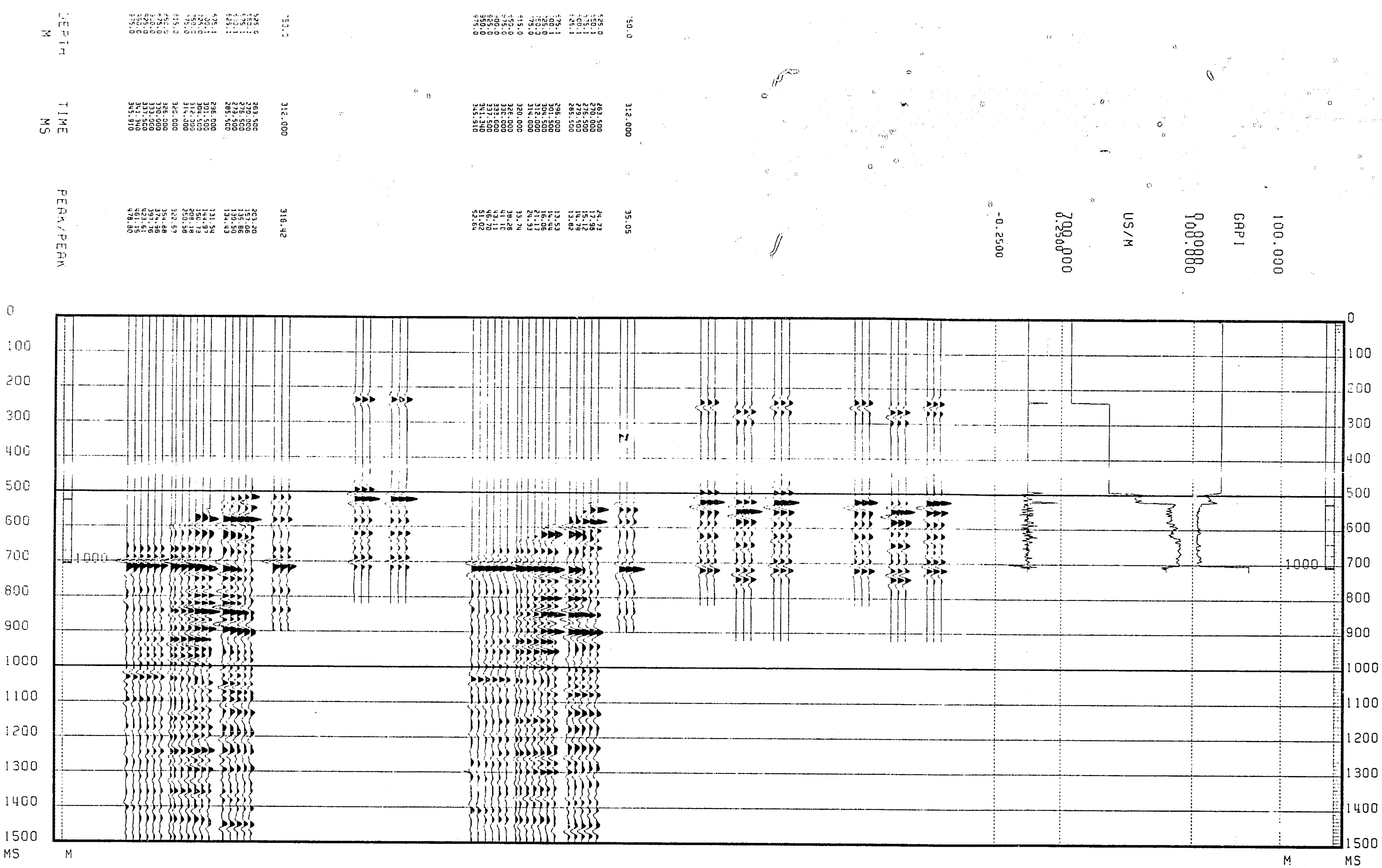
US/M
700.000
0.2500

-0.2500

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
12	750.0	312.000	35.05
20	525.0	263.500	24.73
19	550.1	270.000	17.98
18	575.1	276.500	15.12
17	600.1	279.500	14.78
16	625.1	285.500	13.82
15	675.1	296.000	13.53
14	700.1	301.500	14.44
13	725.0	304.500	16.06
12	750.0	312.000	21.17
11	775.0	314.000	24.93
9	815.0	320.000	33.74
8	850.0	326.000	38.26
7	875.0	330.000	41.10
6	900.0	333.000	43.11
5	925.0	337.500	46.70
4	950.0	341.340	51.02
3	975.0	345.910	52.64

LEVEL	DEPTH M	TIME MS	PEAK/PEAK
12	750.0	312.000	316.42
20	525.0	263.500	203.20
19	550.1	270.000	157.06
18	575.1	276.500	135.86
17	600.1	279.500	130.50
16	625.1	285.500	134.43
15	675.1	296.000	131.54
14	700.1	301.500	144.97
13	725.0	304.500	150.73
12	750.0	312.000	208.18
11	775.0	314.000	250.58
9	815.0	320.000	322.63
8	850.0	326.000	354.88
7	875.0	330.000	374.96
6	900.0	333.000	397.76
5	925.0	337.500	423.61
4	950.0	341.340	461.15
3	975.0	345.910	478.80





DEPTH M
TIME MS
PEAK/PEAK
-0.2500
US/M
GAPI
100.000
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
MS
M
1000

ROBERTSON RESEARCH CANADA LIMITED

EXPLORATION REPORT 2305

CONFIDENTIAL FOR
EXAMIN LIMITE À:

Ottawa

THE MICROPALEONTOLOGY AND STRATIGRAPHY OF THE INTERVAL 500M - 1010M OF THE ICG ET. AL NETSIQ N-01 WELL, HUDSON BAY

8710-C55-1-2

CANADA OIL AND GAS LANDS ADMINISTRATION
ADMINISTRATION DU PÉTROLE ET DU GAZ DES TERRES DU CANADA
APR 29 1986
ENGINEERING AND CONTROL BRANCH
TECHNIQUE ET DU CONTROLE

Prepared for: CANTERRA ENERGY
605 - 5th Avenue S.W.
CALGARY, Alberta T2P 2K7

Prepared by: ROBERTSON RESEARCH CANADA LIMITED
300, 604 - 1st Street S.W.
CALGARY, Alberta T2P 1M7

RRC/86/2305 APRIL 1986

C O N T E N T S

SECTION I

INTRODUCTION

The ICG et. al Netsiq N-01 well was drilled in Hudson Bay at 59°50'48.06"N, 87°30'59.92"W in a water depth of 199.3m.

Ditch cutting samples were received for the interval 500m - 1010m. Seventeen samples at 30m intervals were prepared for conodonts. Two samples in the overlying shale from 450m - 505m, prepared for palynology, proved to be barren of palynomorphs.

The prepared samples on which this report is based are curated at Robertson Research Canada, Limited.

SECTION II

SUCCESSION

INTERVAL TOP	AGE
500m (top not seen)	Devonian
675m	?Silurian
710m - 1010m	Late Ordovician

SECTION III

STRATIGRAPHY

Interval 500m - 705m; Devonian - ?Silurian

The age of the interval is based on:

- the presence of dacryonarid tentaculites at 530m - 555m and 620m - 645m.
- the character of the crinoids and sponge remains at 650m - 675m.

Micropaleontology

The samples from this interval are extensively dolomitized and no conodonts were found after an exhaustive search. However, there are representatives of other groups which give a clue to the age of the interval.

Dacryonarid tentaculites, present at 530m - 555m and 620m - 645m, first appear in the Late Silurian but are most common in the Lower and Middle Devonian. Since dolomitization has badly affected their preservation it is not possible to identify to either generic or specific level but, in view of their presence in the Lower and Middle Devonian in the Beluga O-23 Well, it is most likely that they are of Devonian age.

The lowest sample at 650m - 675m does not contain pteropods, and the fossils present are too poorly preserved to indicate their age. However, the crinoids and sponge remains present are very different from the higher samples and may indicate a Silurian age.

Interval 710m - 1010m; Late Ordovician

The age of this interval is based on:

- the occurrences at 710m - 735m of Bryantodina abrupta, and at 770m - 795m of Icriodella suberba.
- the subsequent occurrences at 890m - 915m of Rhipidognathus discreta and at 950m - 975m of Belodina compressa.

Micropaleontology

The fauna includes Belodina compressa, Rhipidognathus discreta and Bryantodina abrupta which are widespread shallow water forms in Middle and Late Ordovician rocks in North America. Icriodella superba, a Late Ordovician European species occurs in North America in deeper water facies.

The age of this interval is therefore no younger than Late Ordovician and is comparable in age and faunal type to the 1905m - 2150m interval in the Beluga O-23 well.

Maturity of the Interval 710m - 1010m.

All the faunas are in the range CAI 1-1.5 which would place them in the lower end of the Oil Window. However, if the samples are extensively dolomitized the specimens may be darker than they would be in a less altered limestone, usually by about 0.5 of a grade. At the highest these samples are marginally mature.

SECTION IV

REFERENCES

LUDVIGSEN, R. 1972. Late Early Devonian Dacryoconarid Tentaculites, Northern Yukon Territory. Canadian Jour. Earth Sciences 9.

UYENO, T.T. 1974. Conodonts of the Hull Formation Ottawa Group (Middle Ordovician) of the Ottawa Area, Ontario and Quebec. G.S.C., Bull 248.

UYENO, T.T., TELFORD, P.G. and SANFORD, B.V. 1982. Devonian Conodonts and Stratigraphy of Southwestern Ontario. G.S.C., Bull. 332.

SECTION V

SPECIES LISTS

Sample 530m - 555m

Pteropods.

Dacryonarid tentaculites-unidentifiable.

Crinoids.

Crinoid ossicles.

Sponges.

Sponge spicules.

Sample 620m - 645m

Pteropods.

Dacryonarid tentaculites-unidentifiable.

Crinoids.

Crinoid ossicles.

Sample 650m - 675m

Crinoids.

Crinoid ossicles.

Sponges.

Sponge spicules.

Sample 710m - 725m

Conodonts:

Bryantodina abrupta

Sample 740m - 765m

Conodonts:

Phragmodus sp.

Sample 770m - 795m

Conodonts:

Panderodus gracilis

Icriodella superba

Sample 830m - 855m

Conodonts:

Plectodina sp.

Sample 890m - 915m

Conodonts:

Panderodus gracilis

Rhipidognathus discreta

Sample 920m - 945m

Conodonts:

Panderodus gracilis

Sample 950m - 975m

Condonts:

Belodina compressa

Panderodus gracilis

Sample 980m - 1010m

Conodonts:

Drepanoistodus suberectus

Panderodus gracilis