COMPANY: NORTHWEST NATURAL GAS **RUN1**

WELL: IW 14dH-23-65

FIELD: CALVIN CREEK-REICHHOLD POOL

COUNTY: COLUMBIA **STATE:** OREGON

COUNTY: COLUMBIA
Field: CALVIN CREEK-REICHHOLD P
Location: SHL: 976.5' NORTH & 1256.3' E
Well: IW 14dH-23-65
Company: NORTHWEST NATURAL GAS

Schlumberger

ULTRA SONIC IMAGING TOOL
COMPENSATED NEUTRON
GAMMA RAY / COLLAR LOG

LOCATION			
SHL: 976.5' NORTH & 1256.3' EAST FROM THE SW CORNER OF SEC 23 5 · 100'		Elev.:	K.B. 923 ft G.L. 905 ft D.F. 921.5 ft
Permanent Datum.	GROUND LEVEL	Elev.:	905 ft
Log Measured From:	KELLY BUSHING	18.0 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	SECTION	TOWNSHIP	RANGE
36-009-00353	23	6N	5W

Logging Date	26-Oct-2001		
Run Number	TWO		
Depth Driller	2144 ft		
Schlumberger Depth	1580 ft		
Bottom Log Interval	1580 ft		
Top Log Interval	100 ft		
Casing Fluid Type	WATER BASED		
Salinity			
Density	8.9 lbm/gal		
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size	12.250 in		
From	0 ft		
To	2144 ft		
Casing/Tubing Size	8.625 in		
Weight	32 lbm/ft		
Grade			
From	0 ft		
To	2144 ft		
Maximum Recorded Temperatures			
Logger On Bottom / Time	27-Oct-2001	0:30	
Unit Number / Location	3152	SACRAMENTO	
Recorded By	Z AHMED		
Witnessed By	ED VADER		

	Run 1	Run 2
PVT DATA		
Oil Density		
Water Salinity		
Gas Gravity		
Bo		
Bw		
1/Bg		
Bubble Point Pressure		
Bubble Point Temperature		
Solution GOR		
Maximum Deviation		
CEMENTING DATA		
Primary/Squeeze	Primary	
Casing String No		
Lead Cement Type		
Volume		
Density		
Water Loss		
Additives		
Tail Cement Type		
Volume		
Density		
Water Loss		
Additives		
Expected Cement Top		

Logging Date		
Run Number		
Depth Driller		
Schlumberger Depth		
Bottom Log Interval		
Top Log Interval		
Casing Fluid Type		
Salinity		
Density		
Fluid Level		
BIT/CASING/TUBING STRING		
Bit Size		
From		
To		
Casing/Tubing Size		
Weight		
Grade		
From		
To		
Maximum Recorded Temperatures		
Logger On Bottom / Time		
Unit Number / Location		
Recorded By		
Witnessed By		

Run 3

Run 4

DISCLAIMER

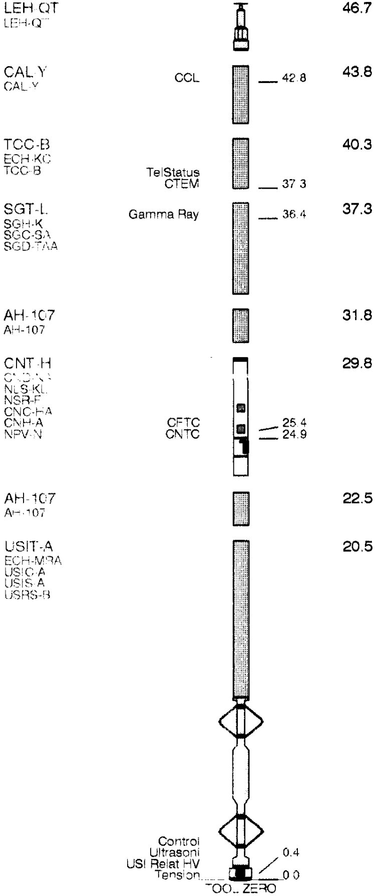
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1	OTHER SERVICES2
OS1: CBL/VDL	OS1:
OS2: OH SERVICES	OS2:
OS3: ON TLC	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
CORRELATED TO LOG RAN BY SCHLUMBERGER ON 21-OCT-2001	
DUE TO TOOL PROBLEM HAD TO POOH AND REMOVE CBT TOOL	
ANOTHER TOOL PLANNED TO RUN ON LATER OCCASION	
REPORTED MAX HOLE DEVIATION: 73.8DEG AT 1776FT	
TWO KNUCKLE JOINTS USED ON TOOL STRING	
LOST WEIGHT AT 1580FT, MULIPLE ATTEMPTS MADE TO PASS THIS DEPTH	
CREW: ROCKY BECK, BRAD TOMM	

RUN 1			RUN 2		
SERVICE ORDER #			SERVICE ORDER #		
PROGRAM VERSION	9C2-303		PROGRAM VERSION		
FLUID LEVEL			FLUID LEVEL		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2
SURFACE EQUIPMENT	
CNB-AB NCT B NCS-VB GSR-U/Y WITM (CTS)-A	
DOWNHOLE EQUIPMENT	



MAXIMUM STRING DIAMETER 4.65 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

IMAGES

MAXIS 500 Field Log

Input DLIS Files

DEFAULT	USI_CNL_010LUP	FN:9	PRODUCER	27-Oct-2001 03:50	1589.0 FT	71.0 FT

Output DLIS Files

DEFAULT	USI_CNL_014PUP	FN:13	PRODUCER	27-Oct-2001 04:43	1589.0 FT	72.5 FT

OP System Version: 9C2-303

MCM

USIT-A	9C2-303	CNT-H	9C2-303
SGT-L	9C2-303	TCC-B	9C2-303
CAL-Y	9C2-303		

Zoning of Mud Parameters

Depth	Fluid Velocity (DFVL)	Accoustic Impedance (ZMUD)
1600.00	189.48	2.02
1500.00	188.96	1.98
1400.00	189.12	2.01
1300.00	188.38	1.96
1100.00	190.33	1.98

900.00	190.31	1.97
700.00	189.80	1.91
500.00	190.48	1.90
400.00	190.52	1.96
300.00	190.50	1.91

Image rotation (UCAZ) (DEG)
0 360

Azimuth of eccent. (AZEC) (DEG)
0 360

Tool/Tot. Drag From D4T to STIA

Cable Drag From D4T to STIT

Stuck Stretch (STIT)
0 (F) 50

CCL (CCLU) (----)
-20 20

Cable Speed (CS) (F/HR)
0 2000

-500.0000
-6.0000
-5.6000
-5.2000
-4.8000
-4.4000
-4.0000
-3.6000
-3.2000
-2.8000
-2.4000
-2.0000
-1.6000
-1.2000
-0.8000
-0.4000
0.5000

Amplitude of echo minus Max (AWBK) (----)

Min of Internal radius (IRMN) (IN)
4.5 3.5

Min of Internal radius (IRMN) (IN)
3.5 4.5

Micro-debonding

Rev. speed (RSAV) (RPS)
-8 -6

Maximum of Amplitude (AWMX)
0 (DB) 75

Internal radius Maximum (IRMX) (IN)
3.7 2.7

Internal radius Maximum (IRMX) (IN)
3.5 4.5

Maximum of Thickness (THMX) (IN)
0.1 0.6

Liquid

Rev. speed (RSAV)
6 (RPS) 8

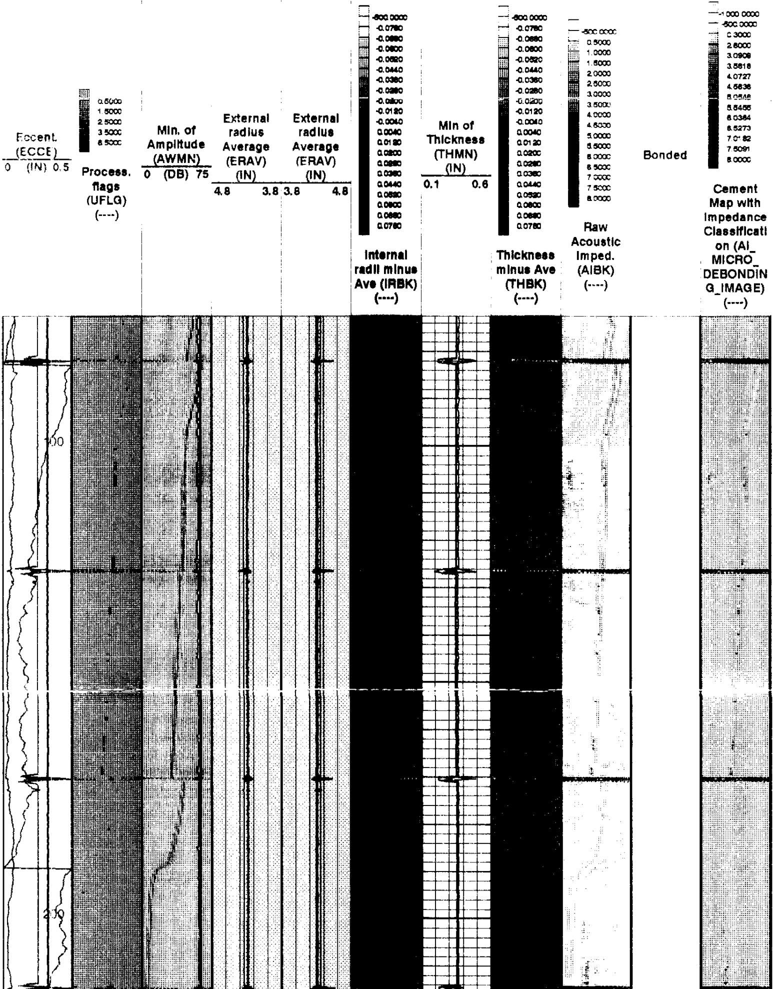
Average of Amplitude (AWAV)
0 (DB) 75

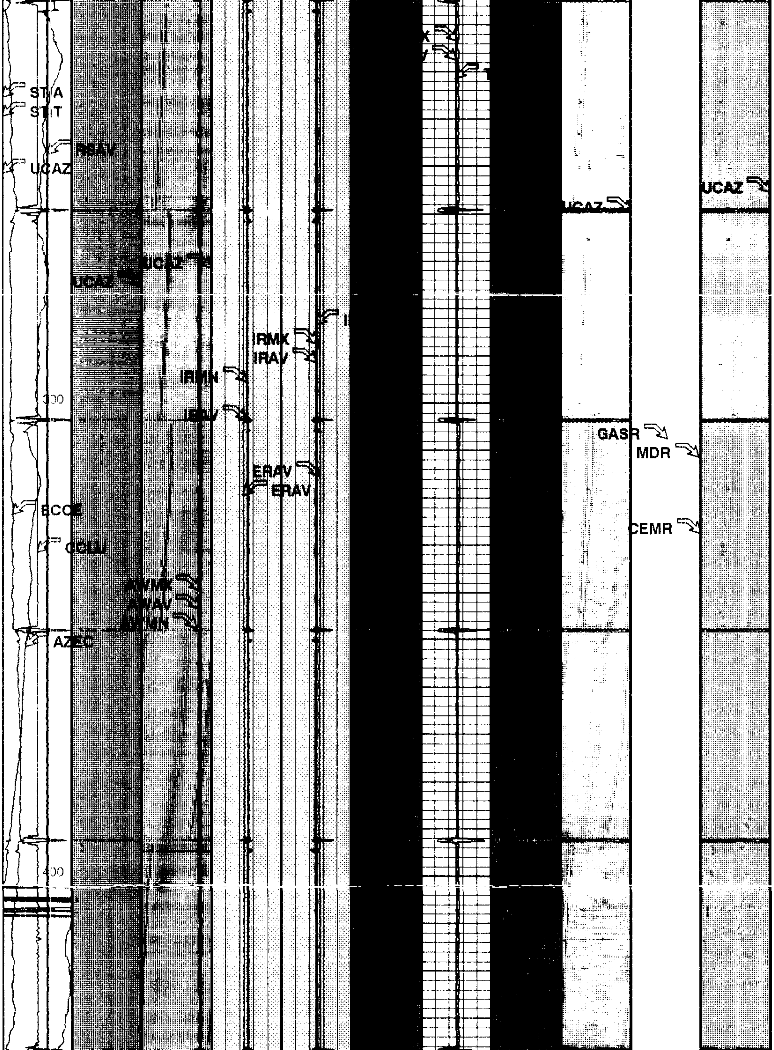
Internal radius Average (IRAV) (IN)
4.5 3.5

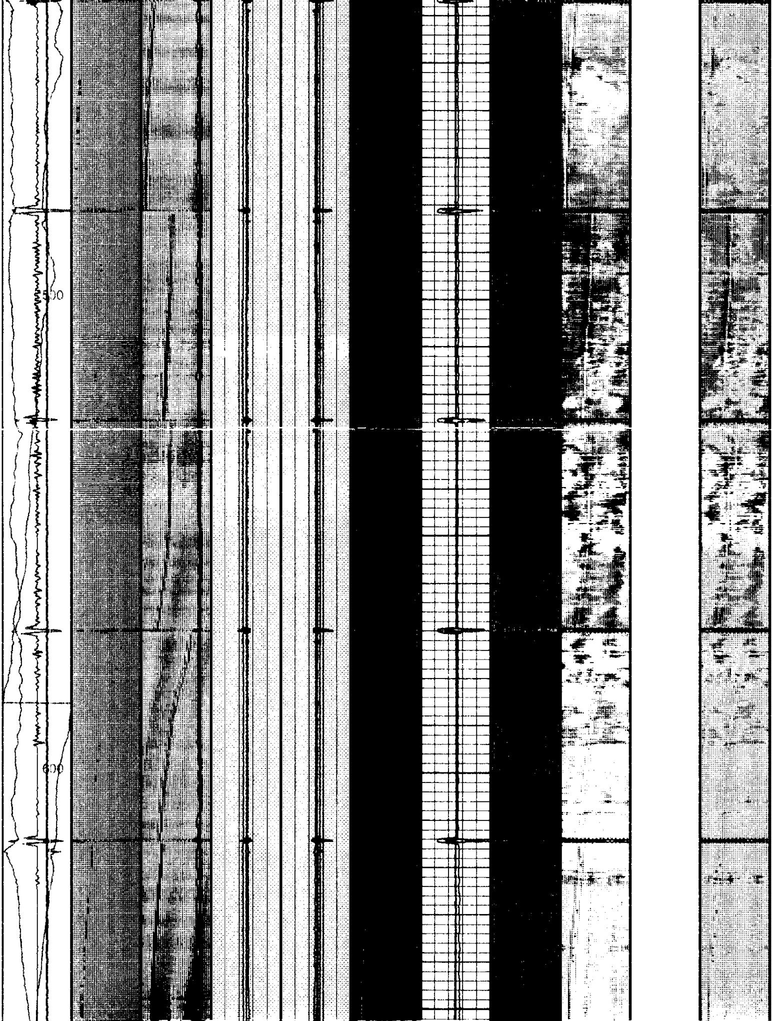
Internal radius Average (IRAV) (IN)
3.5 4.5

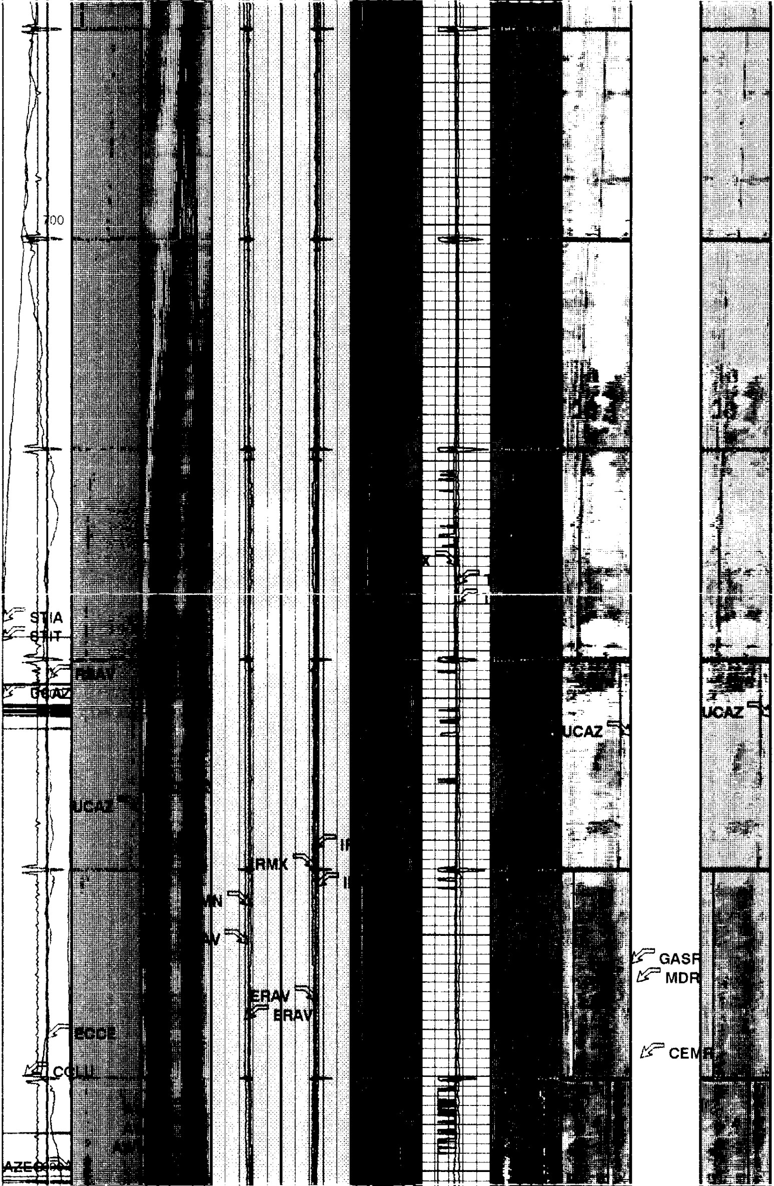
Average of Thickness (THAV) (IN)
0.1 0.6

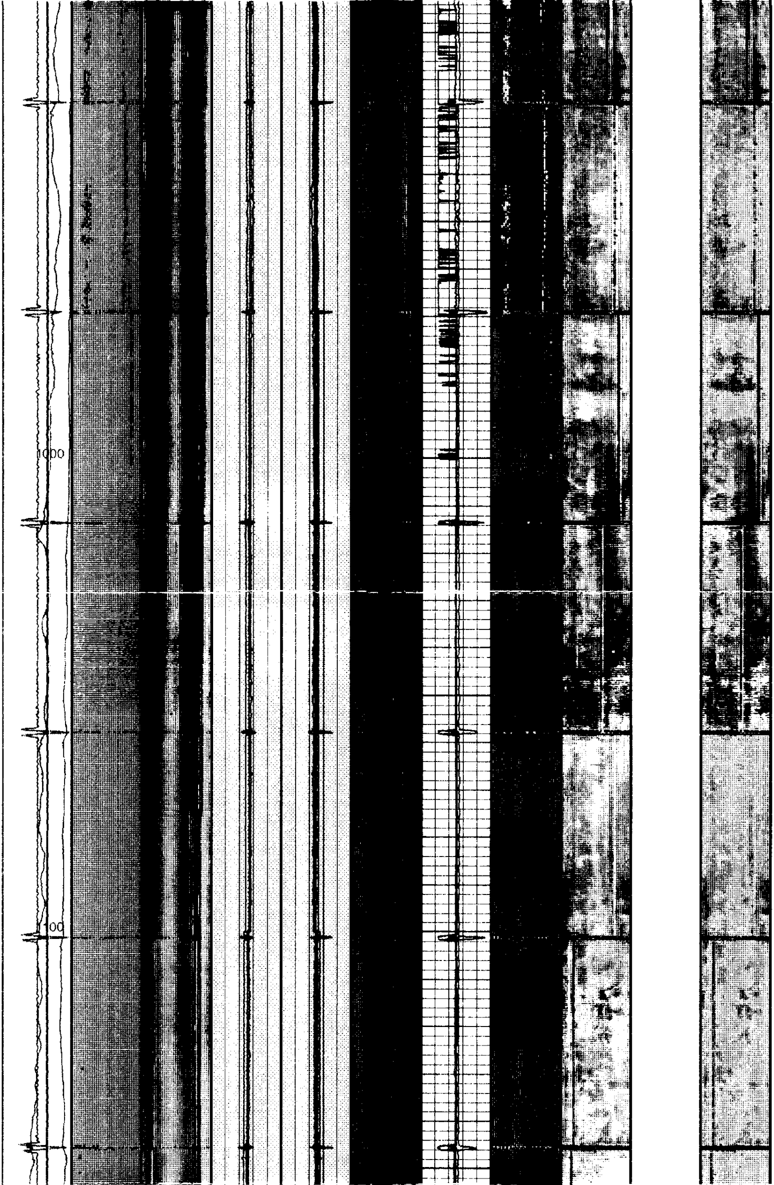
Gas or Dry MicroA

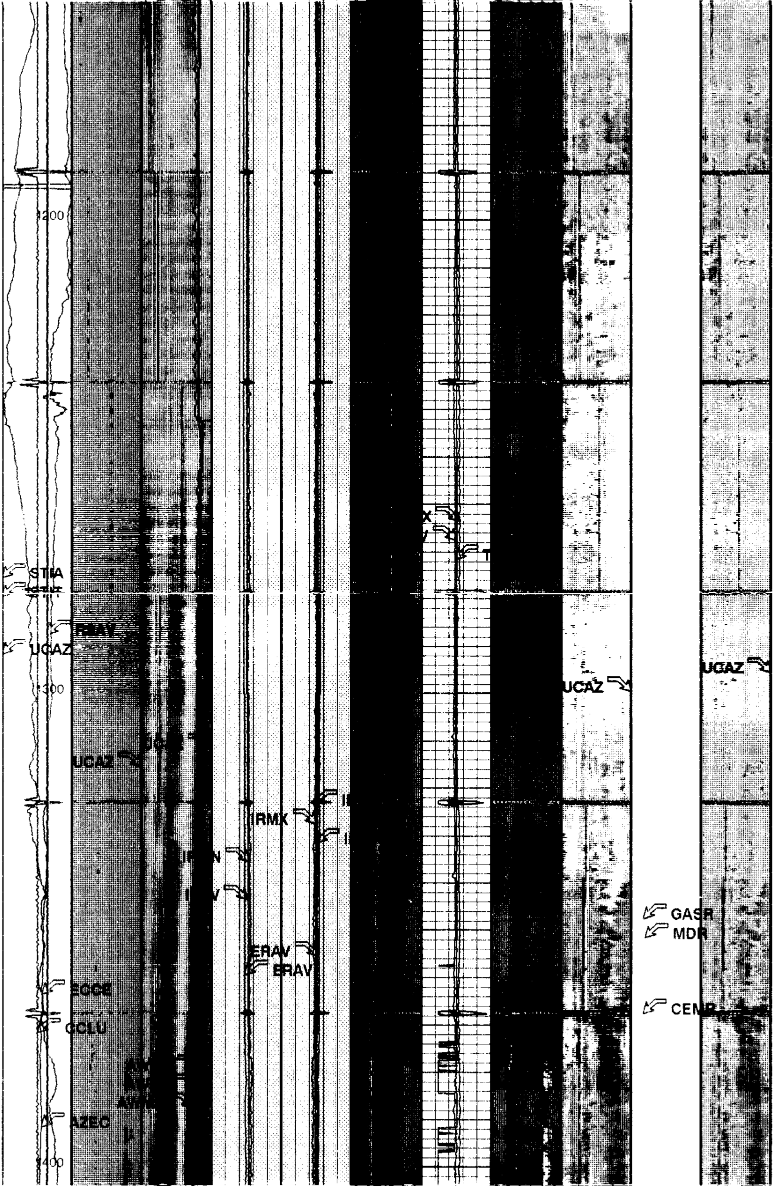


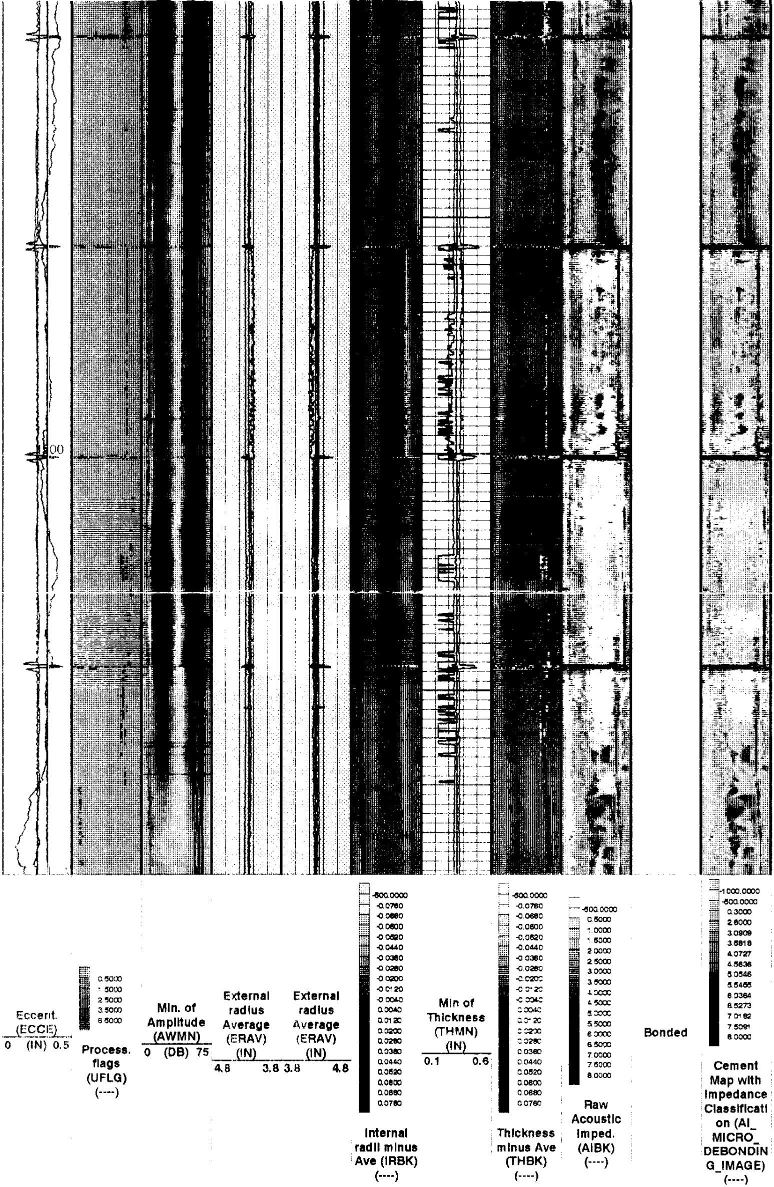












Rev. speed (RSAV)
6 (RPS) 8

Average of Amplitude (AWAV)
0 (DB) 75

Internal radius Average (IRAV) (IN)
4.5 3.5

Internal radius Average (IRAV) (IN)
3.5 4.5

Average of Thickness (THAV) (IN)
0.1 0.6

Gas or Dry MicroA

Rev. speed (RSAV) (RPS)
-8 -6

Maximum of Amplitude (AWMX)
0 (DB) 75

Internal radius Maximum (IRMX) (IN)
3.7 2.7

Internal radius Maximum (IRMX) (IN)
3.5 4.5

Maximum of Thickness (THMX) (IN)
0.1 0.6

Liquid

Cable Speed (CS) (F/HR)
0 2000

-500.0000
-6.0000
-5.6000
-5.2000
-4.8000
-4.4000
-4.0000
-3.6000
-3.2000
-2.8000
-2.4000
-2.0000
-1.6000
-1.2000
-0.8000
-0.4000
0.0000

Amplitude of echo minus Max (AWBK) (----)

Min of Internal radius (IRMN) (IN)
4.5 3.5

Min of Internal radius (IRMN) (IN)
3.5 4.5

Micro-debonding

CCL (CCLU) (----)
-20 20

Stuck Stretch (STIT)
0 (F) 50

Cable Drag From D4T to STIT

Tool/Tot. Drag From D4T to STIA

Azimuth of eccent. (AZEC) (DEG)
0 360

Image rotation (UCAZ) (DEG)
0 360

Format: USI_Composite Vertical Scale: 5" per 100' Graphics File Created: 27-Oct-2001 04:43

OP System Version: 9C2-303

MCM

USIT-A	9C2-303	CNT-H	9C2-303
SGT-L	9C2-303	TCC-B	9C2-303
CAL-Y	9C2-303		

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error

(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

DLIS Name	Description	Value	
AGMN	Minimum gain of cartridge	-4	DB
AGMX	Maximum gain of cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing outer diameter	8.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing internal diameter	7.921	IN
CWEI	Casing Weight	32.00	LB/F
DFVL	Default fluid velocity	190	US/F
DO	Depth Offset for Playback	0.0	FT
DOT	Diameter of Transducer sensor	2.874	IN
EMXV	Value for EMEX voltage	30	V
FDII	FPM Data interpolation interval	0	FT
IMAR	Image Rotation	OFF	
LBFR	Trigger for MAXIS First Reading Label	STI	
MW	Mud weight	8.9	LB/G
PP	Playback Processing	NORMAL	
RCOD	Reference calibrator Outer diameter	7	IN
RCSO	Reference calibrator standoff	1.1811	IN
RCTH	Reference calibrator thickness	0.2952	IN
SDNV	Acoustic Impedance Std Deviation Vertical Range	5	
SDTHOR	Acoustic Impedance Std Deviation Horizontal Threshold	0.5	
SDTVER	Acoustic Impedance Std Deviation Vertical Threshold	0.3	
STKT	STI Stuck Threshold	2.5	FT
TCUB	T^3 Processing level	Vax_Loop	
TDD	Total Depth - Driller	2144.00	FT
TDL	Total Depth - Logger	1580.00	FT
THDH	Maximum search thickness (percentage of nominal)	140	
THDL	Minimum search thickness (percentage of nominal)	60	
THNO	Nominal thickness of casing	0.352	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	USIT Sub Identifier	Sub_7_Inch	
UWKM	Current working mode	10DEG_1_5IN_LF	
VCAS	Velocity of sound in casing	51.4	US F
WLEN	T^3 processing length	21.1081	US
ZCAS	Acoustical impedance of casing	46.2537	MRAY
ZINI	Initial z value	-1	MRAY
ZMUD	Acoustical impedance of mud	1.9	MRAY
ZTCM	Acoustical impedance threshold for Cement	2.6	MRAY
ZTGS	Acoustical impedance threshold for Gas	0.3	MRAY

Input DLIS Files

DEFAULT	USI_CNL_010LUP	FN:9	PRODUCER	27-Oct-2001 03:50	1589.0 FT	71.0 FT

Output DLIS Files

DEFAULT	USI_CNL_014PUP	FN:13	PRODUCER	27-Oct-2001 04:43

Schlumberger

CORRELATION PASS

MAXIS 500 Field Log

Input DLIS Files

DEFAULT	USI_CNL_016PUP	FN:14	PRODUCER	27-Oct-2001 03:52	1587.0 FT	48.5 FT

Output DLIS Files

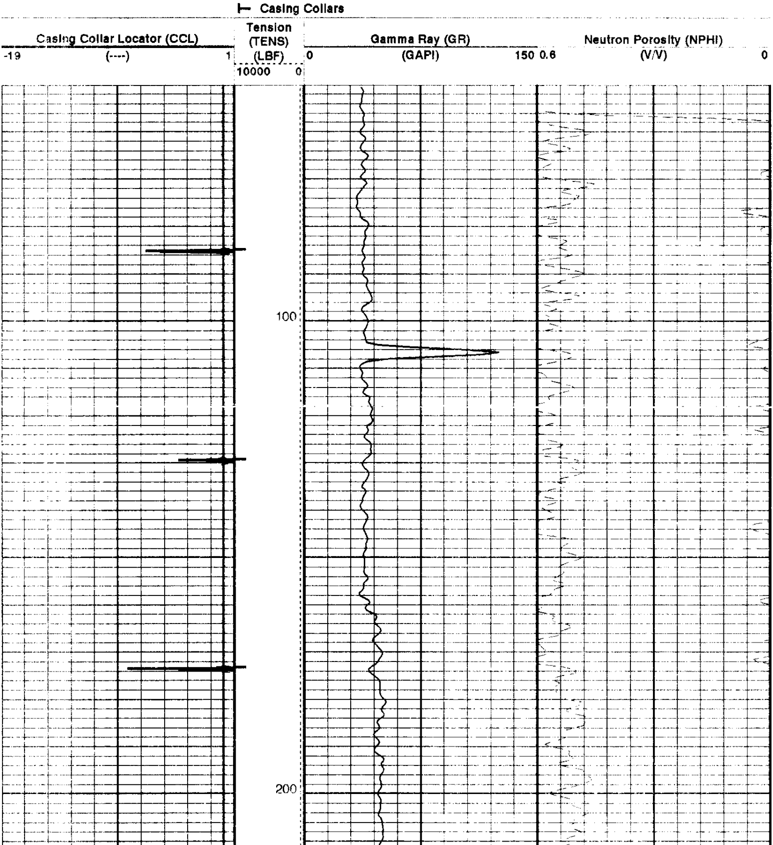
DEFAULT	USI_CNL_076PUP	FN:71	PRODUCER	28-Oct-2001 13:16	1587.0 FT	50.0 FT

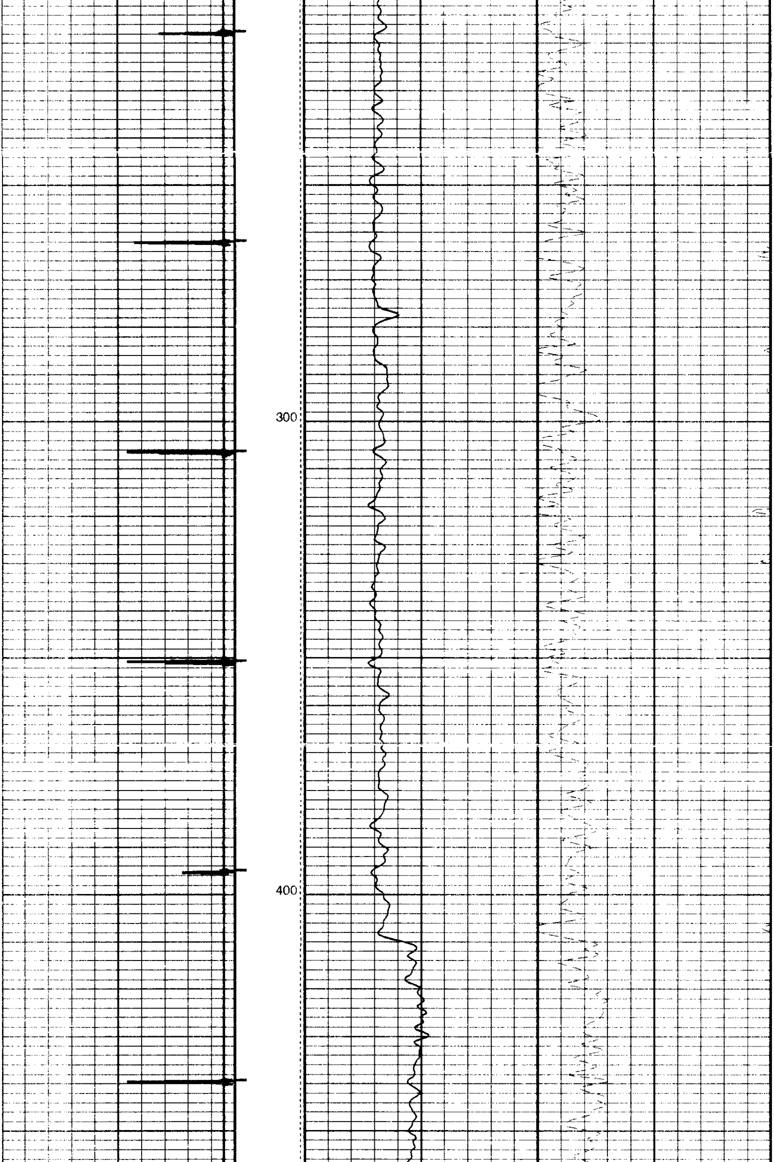
OP System Version: 9C2-303

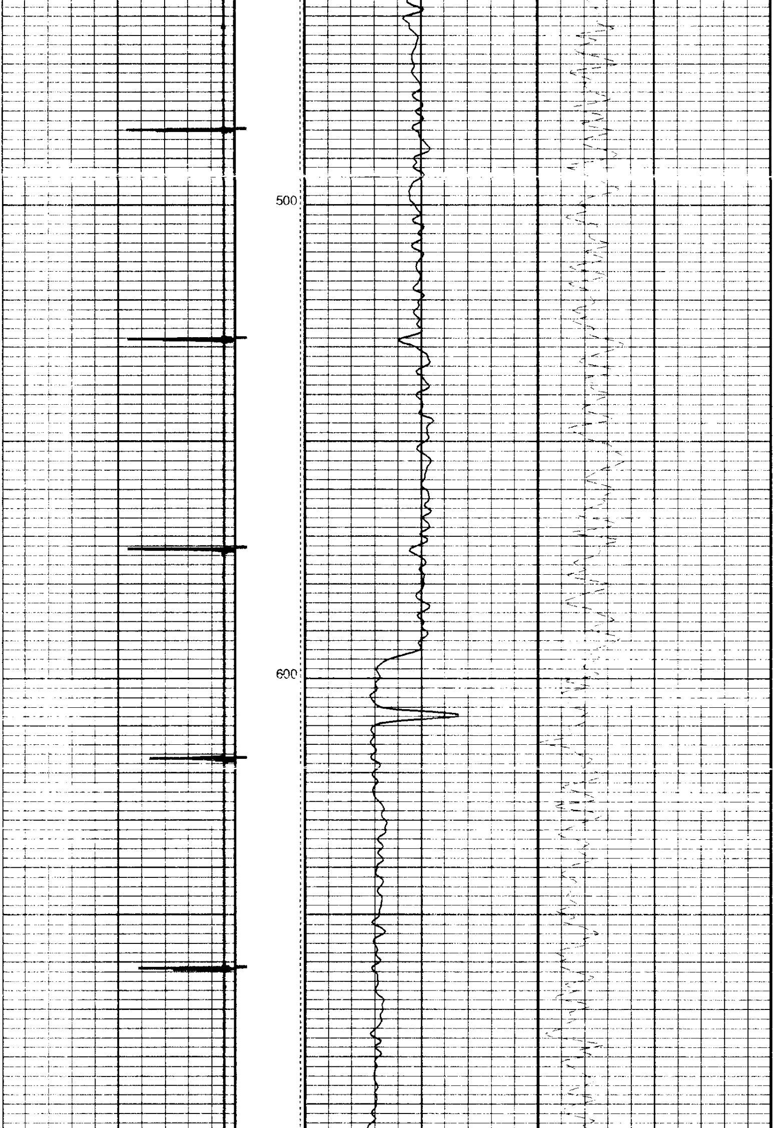
MCM

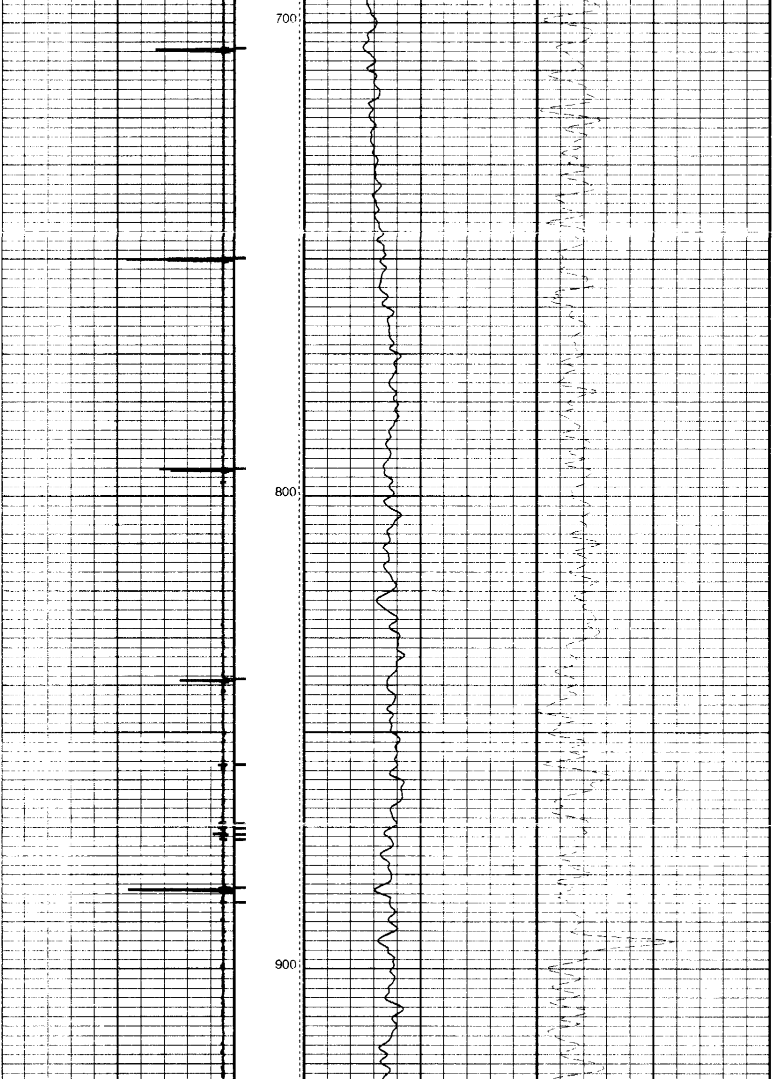
USIT-A	9C2-303	CNT-H	9C2-303
SGT-L	9C2-303	TCC-B	9C2-303
CAL-Y	9C2-303		

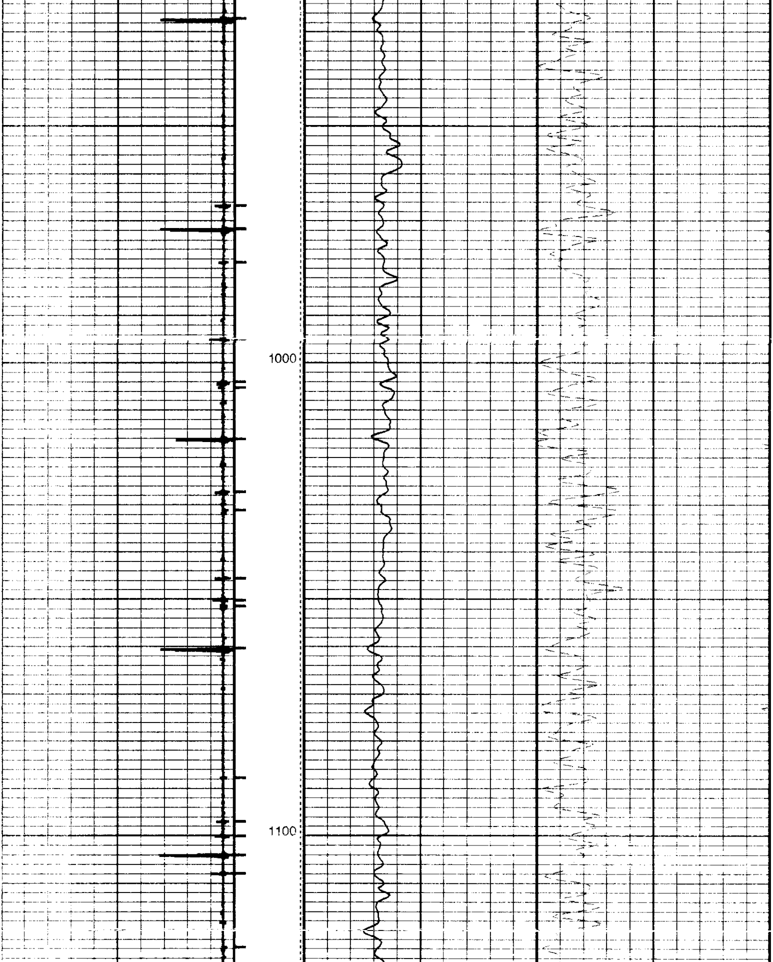
PIP SUMMARY

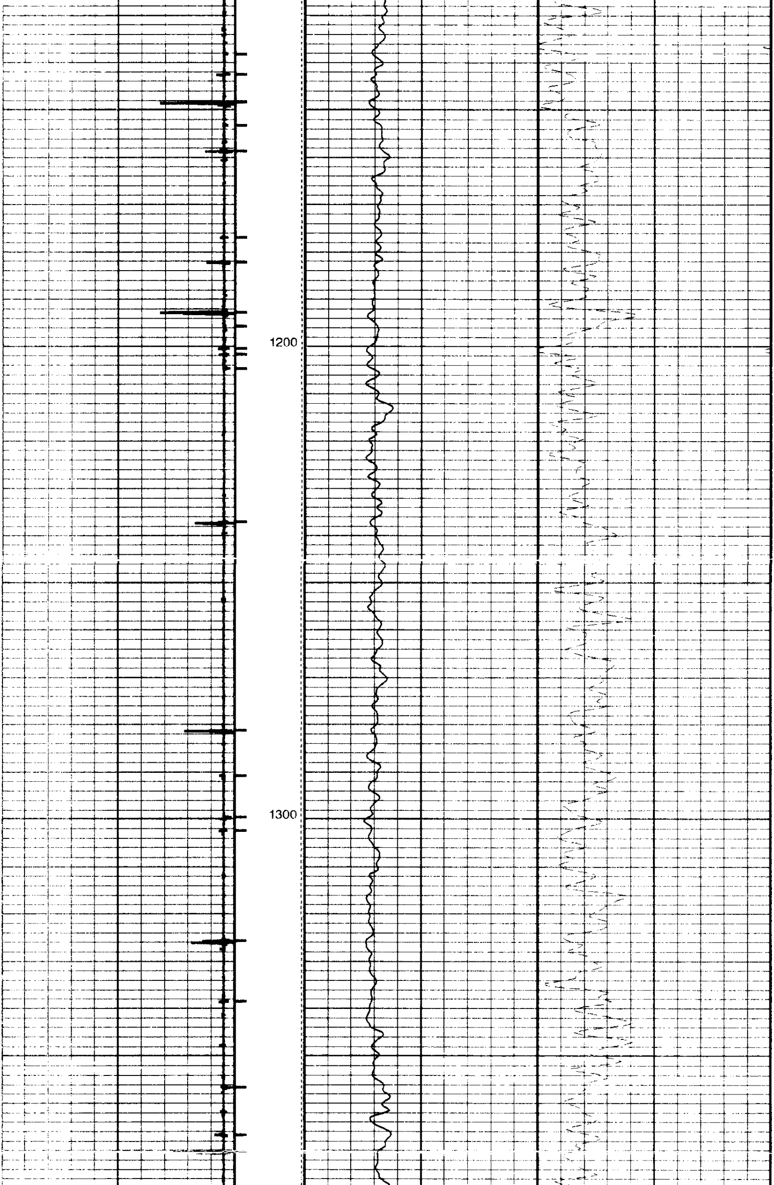


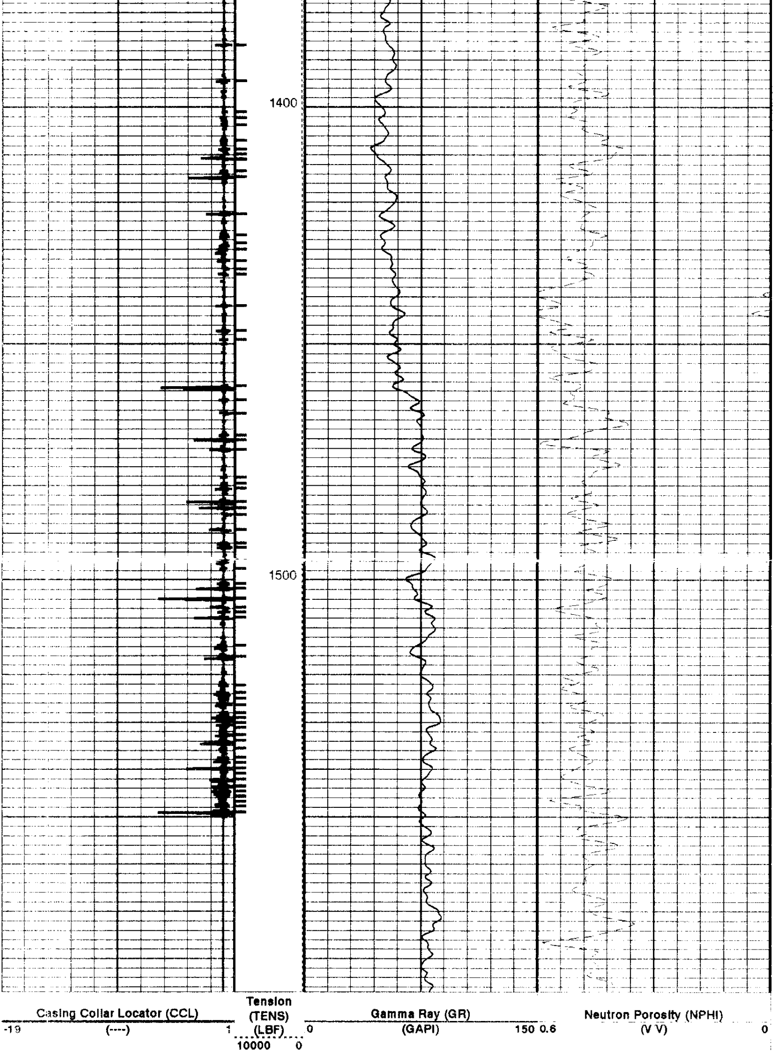












PIP SUMMARY

⊢ Casing Collars

Parameters

DLIS Name	Description	Value	
BHS	Borehole Status	CASED	
BS	Bit Size	12.250	IN
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
DO	Depth Offset for Playback	0.0	FT
GCSE	Generalized Caliper Selection	BS	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PP	Playback Processing	NORMAL	

Format: CORRELATION Vertical Scale: 5" per 100' Graphics File Created: 28-Oct-2001 13:16

OP System Version: 9C2-303

MCM

USIT-A	9C2-303	CNT-H	9C2-303
SGT-L	9C2-303	TCC-B	9C2-303
CAL-Y	9C2-303		

Input DLIS Files

DEFAULT	USI_CNL_016PUP	FN:14	PRODUCER	27-Oct-2001 03:52	1587.0 FT	48.5 FT

Output DLIS Files

DEFAULT	USI_CNL_076PUP	FN:71	PRODUCER	28-Oct-2001 13:16

COMPANY:	NORTHWEST NATURAL GAS
WELL:	IW 14dH-23-65
FIELD:	CALVIN CREEK-REICHHOLD POOL
COUNTY:	COLUMBIA
STATE:	OREGON

BOTTOM LOG INTERVAL	1580 ft
SCHLUMBERGER DEPTH	1580 ft
DEPTH DRILLER	2144 ft
KELLY BUSHING	923 ft
DRILL FLOOR	921.5 ft
GROUND LEVEL	905 ft

Schlumberger

ULTRA SONIC IMAGING TOOL
COMPENSATED NEUTRON
GAMMA RAY / COLLAR LOG