COMPANY: NORTHWEST NATURAL GAS

WELL: OM 22-26-65 RD

FIELD: MIST

COUNTY: COLUMBIA **STATE:** OREGON

COUNTY: COLUMBIA
Field: MIST
Location: 1744.22' SOUTH, 2512.13' EAS
Well: OM 22-26-65 RD
Company: NORTHWEST NATURAL GAS

Schlumberger

FORMATION MICRO IMAGER
GR
SCALE: 5" = 100'

LOCATION
1744.22' SOUTH, 2512.13' EAST
FROM THE NW CORNER OF 26

Elev.: K.B. 631 ft
G.L. 621 ft
D.F 629 ft

Permanent Datum: GROUND LEVEL Elev.: 621 ft
Log Measured From: K.B 10.0 ft above Perm. Datum
Drilling Measured From: K.B

API Serial No.	SECTION	TOWNSHIP	RANGE
36-009-00330	26	6N	5W

SCANNED

Logging Date	21-MAY-2000		
Run Number	1		
Depth Driller	2151 ft		
Schlumberger Depth	2144 ft		
Bottom Log Interval	2136 ft		
Top Log Interval	487 ft		
Casing Driller Size @ Depth	7.000 in	@ 487 ft	@
Casing Schlumberger	487 ft		
Bit Size	6.250 in		
Type Fluid In Hole	DMA		
MUD Density / Viscosity	8.9 lbm/gal	45 s	
Fluid Loss / PH	6.6 cm3	9	
Source Of Sample	FLOWLINE		
RM @ Measured Temperature	1.185 ohm.m	@ 76 degF	@
RMF @ Measured Temperature	1.050 ohm.m	@ 72 degF	@
RMC @ Measured Temperature	0.930 ohm.m	@ 76 degF	@
Source RMF / RMC	PRESS	PRESS	
RM @ MRT / RMF @ MRT	0.936 @ 98	0.789 @ 98	@ @
Maximum Recorded Temperatures	98 degF	98	98
Circulation Stopped / Time	21-MAY-2000	9:30	
Logger On Bottom / Time	21-MAY-2000	15:26	
Unit Number / Location	3152	SACRAMENTO	
Recorded By	M.KHAN		
Witnessed By	JACK MEYER		

	Run 1	Run 2	Run 3	Run 4

Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@		@	
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
MUD Density / Viscosity				
Fluid Loss / PH				
Source Of Sample				
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	@	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

DISCLAIMER
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OTHER SERVICES1	OTHER SERVICES2
OS1: PEX	OS1:
OS2: BHC	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2

RUN 1		RUN 2	
SERVICE ORDER #		SERVICE ORDER #:	
PROGRAM VERSION	9C1-303	PROGRAM VERSION:	
FLUID LEVEL	0 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

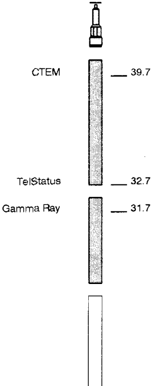
RUN 1

RUN 2

SURFACE EQUIPMENT

GSR-U/Y
WITM (DTS)-A

DOWNHOLE EQUIPMENT



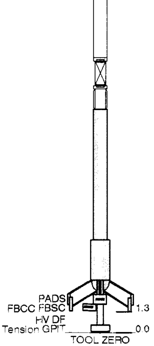
LEH-QT 43.6
LEH-QT

DTC-A 40.7
ECH-KN
DTC-A

SGT-N 32.7
SGH-K
SGC-SA
SGD-TAA

FBST-A 27.2
ECH-MRA
FBCC-A
AH-184
AH-185
FBSS-A
FBSC-A

GPIC-C



MAXIMUM STRING DIAMETER 5.00 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Output DLIS Files

DEFAULT	FBSTA .013	FN:12 PRODUCER	21-May-2000 15:42	2156.0 FT	466.0 FT

OP System Version: 9C1-303

MCM

FBST-A	9C1-303	SGT-N	OP91-KP1a
DTC-A	OP91-KP1a		

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
XVOL	100 V	0 V	2118.9 15:42:59

PIP SUMMARY

▶ Time Mark Every 60 S

FMI Correlation Resistance (LOG) (FBCR)
2 (KOHM) 2000

Relative Bearing (RB_FBST)
-40 (DEG) 360

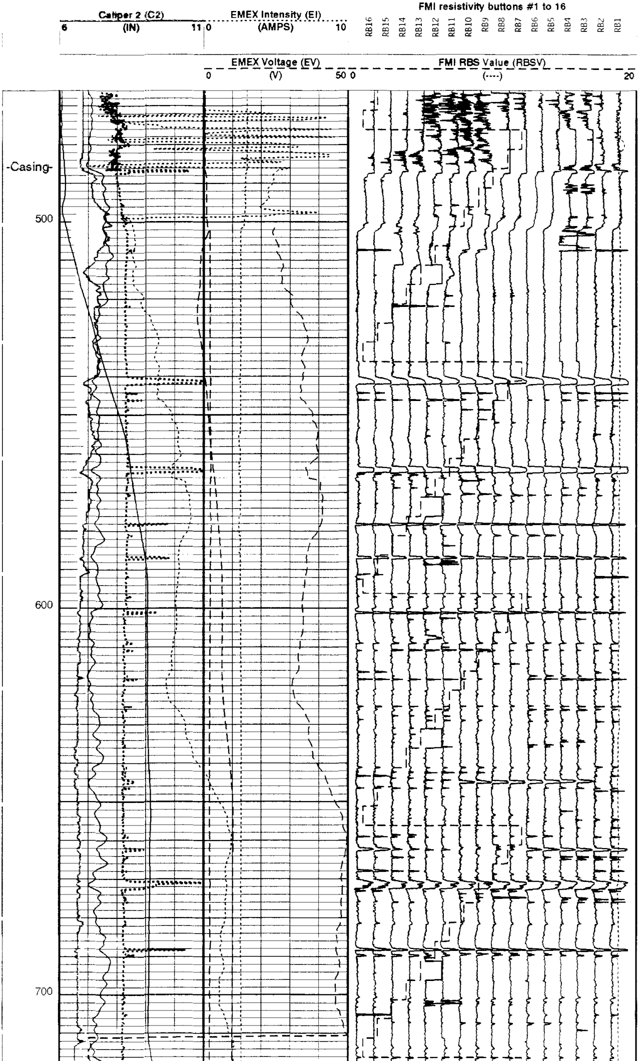
Pad One Azimuth (P1AZ_FBST)
-40 (DEG) 360

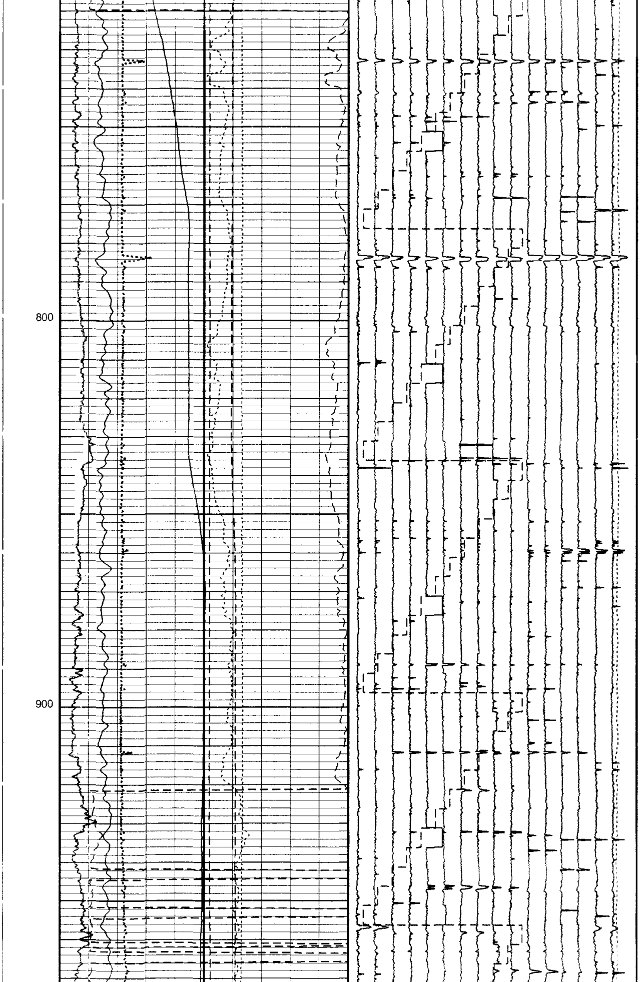
Hole Azimuth (HAZIM)
-40 (DEG) 360

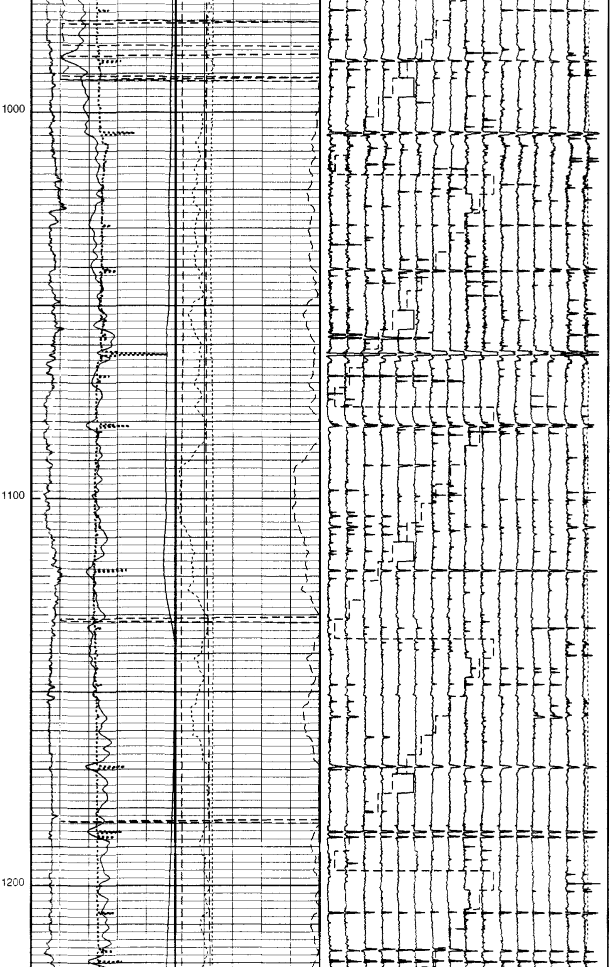
Gamma Ray (GR)
0 (GAPI) 150

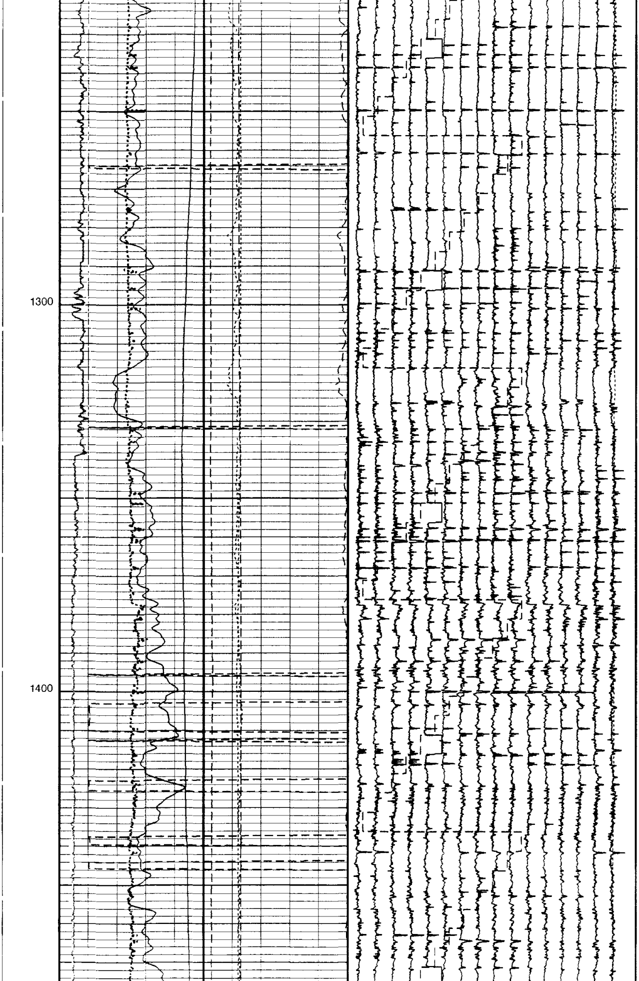
Deviation (DEVIM)
0 (DEG) 25

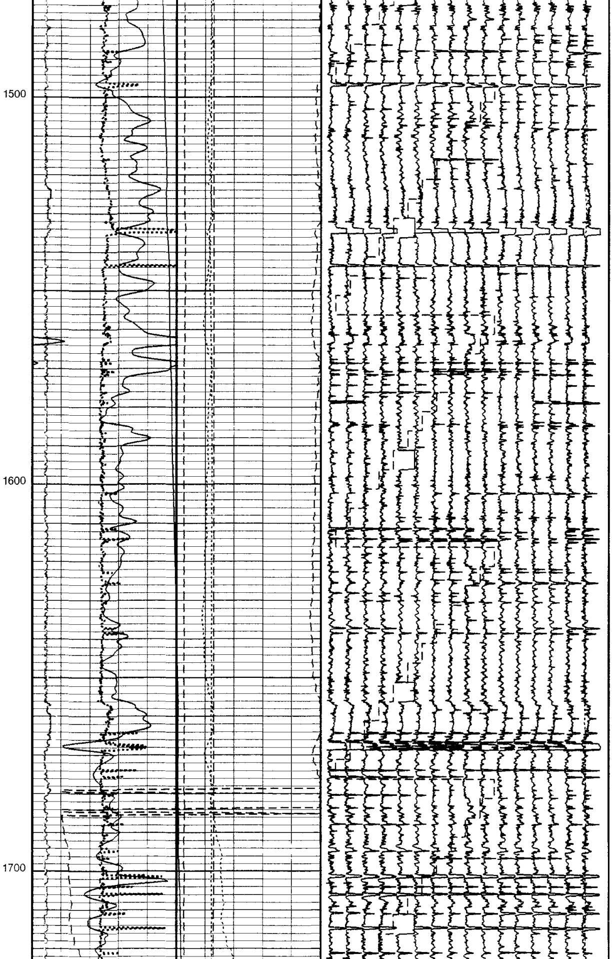
Tension (TENS)
10000 (LBF) 0

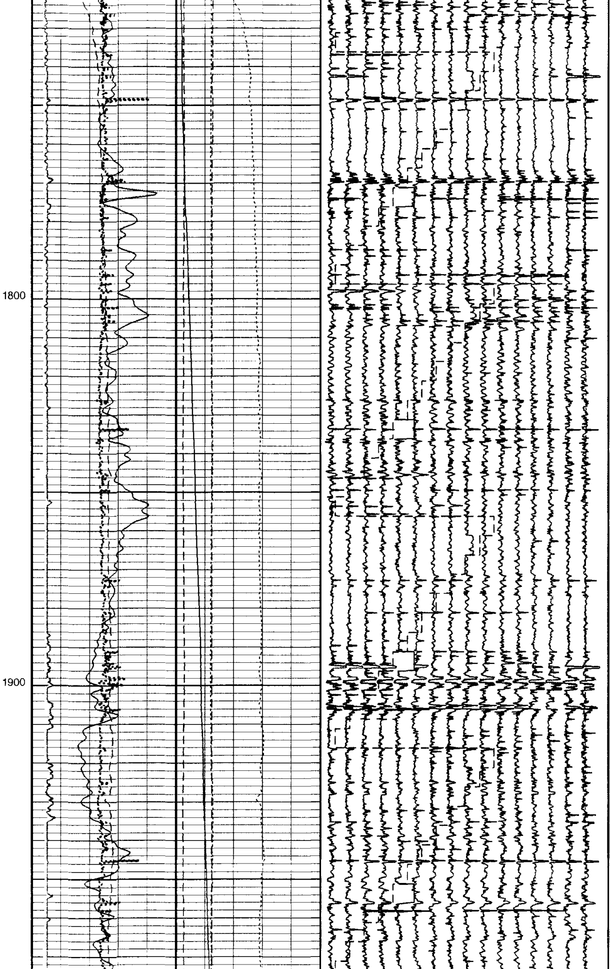


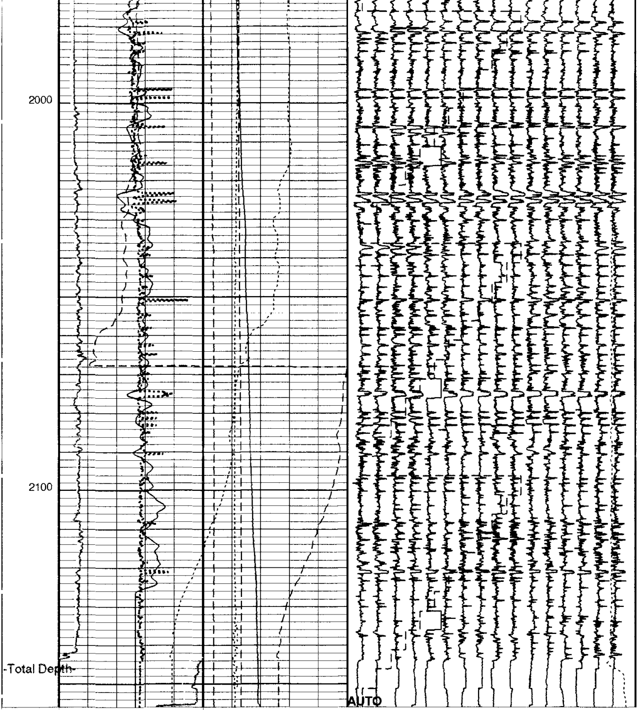












EMEX Voltage (EV)
0 (V) 50

FMI RBS Value (RBSV)
0 (----) 20

Caliper 2 (C2)
6 (IN) 11

EMEX Intensity (EI)
0 (AMPS) 10

FMI resistivity buttons #1 to 16
RB16 RB15 RB14 RB13 RB12 RB11 RB10 RB9 RB8 RB7 RB6 RB5 RB4 RB3 RB2 RB1

Deviation (DEVIM)
0 (DEG) 25

Tension (TENS)
10000 (LBF) 0

Gamma Ray (GR)
0 (GAPI) 150

Hole Azimuth (HAZIM)
-40 (DEG) 360

Pad One Azimuth (P1AZ_FBST)
-40 (DEG) 360

Relative Bearing (RB_FBST)
-40 (DEG) 360

FMI Correlation Resistance
(LOG) (FBCR)
2 (KOHM) 2000

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
FBEF	Emex filtering activation	OFF	
FLM	FMI Logging Mode	8PAD	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MDEC	Magnetic Field Declination	18.3206	DEG
RBS	Resistivity Button Selection	AUTO	
RBSI	Auto RBS change interval	10	
SOFF	Stand-Off	0	IN
XGMO	Emex & Gain Modes	EmexManu_GainManu	
XVOL	Emex Voltage	0	V

Format: FMI_LQC Vertical Scale: 5" per 100' Graphics File Created: 21-May-2000 15:42

OP System Version: 9C1-303

MCM

FBST-A	9C1-303	SGT-N	OP91-KP1a
DTC-A	OP91-KP1a		

Output DLIS Files

DEFAULT FBSTA .013 FN:12 PRODUCER 21-May-2000 15:42

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REPEAT SECTION

MAXIS 500 Field Log

Output DLIS Files

DEFAULT FBSTA .012 FN:11 PRODUCER 21-May-2000 15:26 2150.0 FT 1841.5 FT

OP System Version: 9C1-303

MCM

FBST-A	9C1-303	SGT-N	OP91-KP1a
DTC-A	OP91-KP1a		

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
XVOL	100 V	0 V	2142.0 15:26:51

PIP SUMMARY

Time Mark Every 60 S

FMI Correlation Resistance (LOG) (FBCR)
2 (KOHM) 2000

Relative Bearing (RB_FBST)
-40 (DEG) 360

Pad One Azimuth (P1AZ_FBST)
-40 (DEG) 360

Hole Azimuth (HAZIM)
-40 (DEG) 360

Gamma Ray (GR)
0 (GAPI) 150

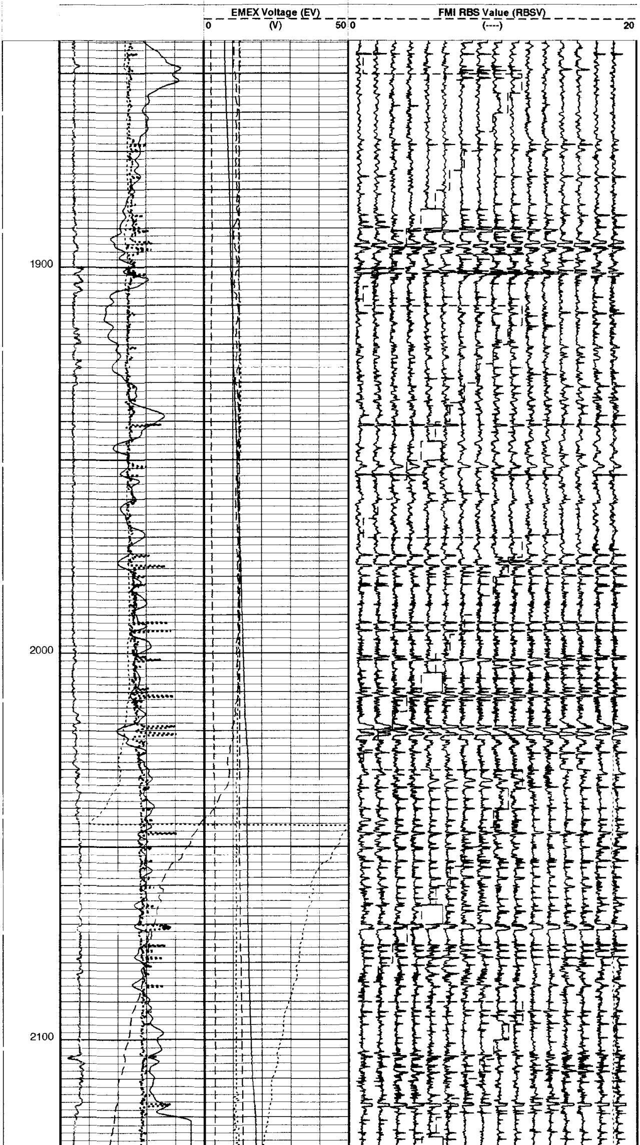
Deviation (DEVIM)
0 (DEG) 25

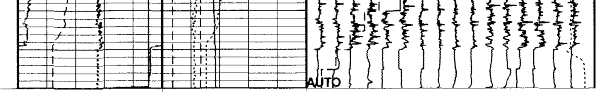
Tension (TENS)
10000 (LBF) 0

Caliper 2 (C2)
6 (IN) 11

EMEX Intensity (EI)
0 (AMPS) 10

FMI resistivity buttons #1 to 16
RB16 RB15 RB14 RB13 RB12 RB11 RB10 RB9 RB8 RB7 RB6 RB5 RB4 RB3 RB2 RB1





EMEX Voltage (EV)
0 (V) 50

FMI RBS Value (RBSV)
0 (----) 20

FMI resistivity buttons #1 to 16
RB16 RB15 RB14 RB13 RB12 RB11 RB10 RB9 RB8 RB7 RB6 RB5 RB4 RB3 RB2 RB1

Caliper 2 (C2)
6 (IN) 11

EMEX Intensity (EI)
0 (AMPS) 10

Deviation (DEVIM)
0 (DEG) 25

Tension (TENS)
10000 (LBF) 0

Gamma Ray (GR)
0 (GAPI) 150

Hole Azimuth (HAZIM)
-40 (DEG) 360

Pad One Azimuth (P1AZ_FBST)
-40 (DEG) 360

Relative Bearing (RB_FBST)
-40 (DEG) 360

FMI Correlation Resistance (LOG) (FBCR)
2 (KOHM) 2000

PIP SUMMARY

■ Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
FBEF	Emex filtering activation	OFF	
FLM	FMI Logging Mode	8PAD	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MDEC	Magnetic Field Declination	18.3206	DEG
RBS	Resistivity Button Selection	AUTO	
RBSI	Auto RBS change interval	10	
SOFF	Stand-Off	0	IN
XGMO	Emex & Gain Modes	EmexManu_GainManu	
XVOL	Emex Voltage	0	V

Format: FMI_LQC Vertical Scale: 5" per 100' Graphics File Created: 21-May-2000 15:26

OP System Version: 9C1-303

MCM

FBST-A	9C1-303	SGT-N	OP91-KP1a
DTC-A	OP91-KP1a		

Output DLIS Files

DEFAULT FBSTA .012 FN:11 PRODUCER 21-May-2000 15:26

Schlumberger

CALIBRATIONS

MAXIS 500 Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Full-Bore Scanner - A Wellsite Calibration - Caliper Calibration							
Before: 21-MAY-2000 15:01							
Caliper #1 Small Jig	8.000	N/A	8.053	N/A	N/A	N/A	IN
Caliper #2 Small Jig	8.000	N/A	7.834	N/A	N/A	N/A	IN
Caliper #1 Large Jig	12.00	N/A	11.84	N/A	N/A	N/A	IN
Caliper #2 Large Jig	12.00	N/A	11.65	N/A	N/A	N/A	IN
Full-Bore Scanner - A Wellsite Calibration - CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 21-MAY-2000 14:55							
TEMPERATURE REFERENCE :	N/A	N/A	68	N/A	N/A	N/A	DEGF
YEAR OF CALIBRATION :	N/A	N/A	93	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	470	N/A	N/A	N/A	
Full-Bore Scanner - A Wellsite Calibration - CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 21-MAY-2000 14:56							
TEMPERATURE REFERENCE :	N/A	N/A	75	N/A	N/A	N/A	DEGF
YEAR OF CALIBRATION :	N/A	N/A	93	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	12	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	186	N/A	N/A	N/A	
Scintillation Gamma-Ray - N Wellsite Calibration - Detector Calibration							
Before: Calibration not done							
Gamma Ray (Jig - Bkg)	N/A	N/A	N/A	N/A	N/A	N/A	GAPI
Gamma Ray (Calibrated)	165.0	N/A	N/A	N/A	N/A	15.00	GAPI

Full-Bore Scanner - A / Equipment Identification

Primary Equipment:	
FullBore Scanner Sonde	FBSS - A
GPIT Cartridge - C	GPIC - C
FullBore Scanner Sonde Cartridge	FBSC - A
Insulating Sub	AH - 185
Flex Joint	AH - 184
FullBore Scanner Control Cartridge	FBCC - A
Auxiliary Equipment:	
Electronics Cartridge Housing	ECH - MRA

Full-Bore Scanner - A Wellsite Calibration

Caliper Calibration

Phase	Caliper #1 Small Jig IN			Value	Phase	Caliper #2 Small Jig IN			Value
Before		▨		8.053	Before		▨		7.834
	6.800 (Minimum)	8.000 (Nominal)	9.200 (Maximum)			6.800 (Minimum)	8.000 (Nominal)	9.200 (Maximum)	
Phase	Caliper #1 Large Jig IN			Value	Phase	Caliper #2 Large Jig IN			Value
Before		▨		11.84	Before		▨		11.65
	10.20 (Minimum)	12.00 (Nominal)	13.80 (Maximum)			10.20 (Minimum)	12.00 (Nominal)	13.80 (Maximum)	

Before: 21-MAY-2000 15:01

Scintillation Gamma-Ray - N / Equipment Identification

Primary Equipment:	
Scintillation Gamma Cartridge	SGC - SA
Scintillation Gamma Detector	SGD - TAA
Auxiliary Equipment:	
Scintillation Gamma Housing	SGH - K
Gamma Source Radioactive	GSR - U/Y

Scintillation Gamma-Ray - N Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig - Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before		▨		43.84	Before		NOT DONE		N/A	Before		NOT DONE		N/A
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			N/A (Minimum)	N/A (Nominal)	N/A (Maximum)			150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)	

Before: Calibration not done

COMPANY:	**NORTHWEST NATURAL GAS**	BOTTOM LOG INTERVAL	2136 ft
		SCHLUMBERGER DEPTH	2144 ft
WELL:	**OM 22-26-65 RD**	DEPTH DRILLER	2151 ft
FIELD:	**MIST**	KELLY BUSHING	631 ft
COUNTY:	**COLUMBIA**	DRILL FLOOR	629 ft
STATE:	**OREGON**	GROUND LEVEL	621 ft

Schlumberger

FORMATION MICRO IMAGER
GR
SCALE: 5" = 100'