COMPANY: NORTHWEST NATURAL GAS

WELL: IW-24BH-23-65

FIELD: MIST

COUNTY: COLUMBIA STATE: OREGON

COUNTY: COLUMBIA
Field: MIST
Location: 976.5' NORTH, 1256.3' EAST
Well: IW-24BH-23-65
Company: NORTHWEST NATURAL GAS

Schlumberger

Formation Micro Scanner Images/MSDip
SCALE: 5" = 100'

LOCATION			
976.5' NORTH, 1256.3' EAST FROM THE SW SECTION CORNOR		Elev.:	K.B. 923 ft G.L. 905 ft D.F. 923 ft
Permanent Datum:	GROUND LEVEL	Elev.:	905 ft
Log Measured From:	KB	18.0 ft	above Perm. Datum
Drilling Measured From:	KB		

API Serial No.	SECTION	TOWNSHIP	RANGE
36-009-00351	23	6N	5W

Logging Date	15-JUN-2000			
Run Number	1			
Depth Driller	1890 ft			
Schlumberger Depth	1885 ft			
Bottom Log Interval	1882 ft			
Top Log Interval	429 ft			
Casing Driller Size @ Depth	13.375 in	@ 429 ft		@
Casing Schlumberger	429 ft			
Bit Size	9.875 in			
Type Fluid In Hole	DMA			
MUD Density / Viscosity	8.8 lbm/gal	42 s		
MUD Fluid Loss / PH	6.4 cm3	8.5		
MUD Source Of Sample	FLOWLINE			
RM @ Measured Temperature	1.193 ohm.m	@ 57 degF		@
RMF @ Measured Temperature	1.492 ohm.m	@ 62 degF		@
RMC @ Measured Temperature	1.402 ohm.m	@ 60 degF		@
Source RMF / RMC	PRESS	PRESS		
RM @ MRT / RMF @ MRT	1.017 @ 68	1.380 @ 68	@	@
Maximum Recorded Temperatures	68 degF	68 / 68		
Circulation Stopped / Time	14-JUN-2000	3:00		
Logger On Bottom / Time	14-JUN-2000	18:30		
Unit Number / Location	3152	SACRAMENTO		
Recorded By	M.KHAN			
Witnessed By	JACK MEYER			

	Run 1	Run 2

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		
MUD Fluid Loss / PH		
MUD 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		

@

@ @ @ @

@

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.

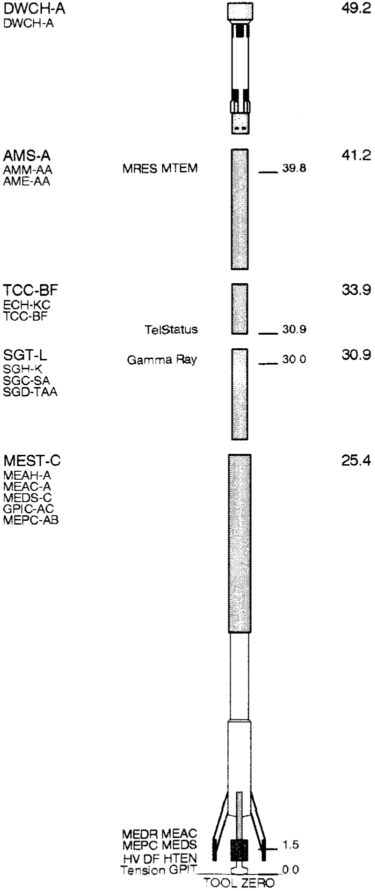
OTHER SERVICES1	OTHER SERVICES2
OS1: PEX	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Run # 1 : From 1450' to 429' Logged with wireline	
Run # 2 : from 1882' to 1450' logged with TLC.	

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 (CTS)-A	
DOWNHOLE EQUIPMENT	



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

Input DLIS Files

DEFAULT	MEST .019	FN:18	PRODUCER	14-Jun-2000 13:32	1492.0 FT	401.5 FT

Output DLIS Files

DEFAULT	MEST .028	FN:26	PRODUCER	14-Jun-2000 22:31	1494.0 FT	403.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 906.68 F3

Cement Volume = 906.68 F3 (assuming 0.00 IN casing O.D.)

Computed from 1494.0 FT to 429.0 FT using data channel(s) C1 C2

OP System Version: 9C1-303

MCM

MEST-C	9C1-303	SGT-L	OP91-KP1a
TCC-BF	OP91-KP1a	AMS-A	OP91-KP1a

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3

⊢ Integrated Hole Volume Major Pip Every 100 F3

⊣ Integrated Cement Volume Minor Pip Every 10 F3

⊣ Integrated Cement Volume Major Pip Every 100 F3

▶ Time Mark Every 60 S

Run # 1 Logged on Wireline

Data Button 8 - Varies with RBS (U-MEST_RB8)

-80 (----) 20

Relative Bearing (RB_MEST)

-40 (DEG) 360

Data Button 7 - Varies with RBS (U-MEST_RB7)

-70 (----) 30

Pad One Azimuth (P1AZ_MEST)
-40 (DEG) 360

Data Button 6 - Varies with RBS (U-MEST_RB6)
-60 (----) 40

Hole Azimuth (HAZIM)
-40 (DEG) 360

Data Button 5 - Varies with RBS (U-MEST_RB5)
-50 (----) 50

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086

MEST_PADD (U-MEST_RESISTIVITY_PADD_DS)
(----)

Deviation (DEVIM)
0 (DEG) 30

Data Button 4 - Varies with RBS (U-MEST_RB4)
-40 (----) 60

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086

MEST_PADC (U-MEST_RESISTIVITY_PADC_DS)
(----)

Caliper 2 (C2)
8 (IN) 18

Data Button 3 - Varies with RBS (U-MEST_RB3)
-30 (----) 70

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086

MEST_PADB (U-MEST_RESISTIVITY_PADB_DS)
(----)

EMEX Intensity (EI)
0 (AMPS) 10

Data Button 2 - Varies with RBS (U-MEST_RB2)
-20 (----) 80

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086

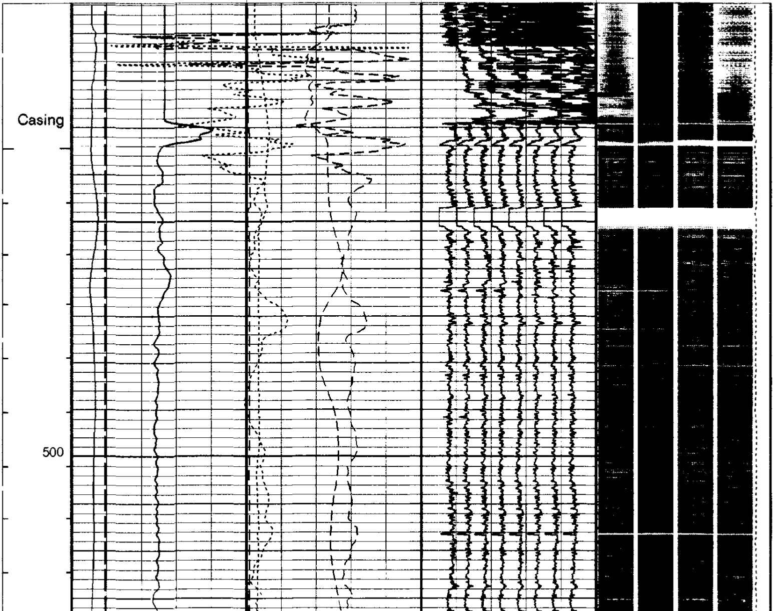
MEST_PADA (U-MEST_RESISTIVITY_PADA_DS)
(----)

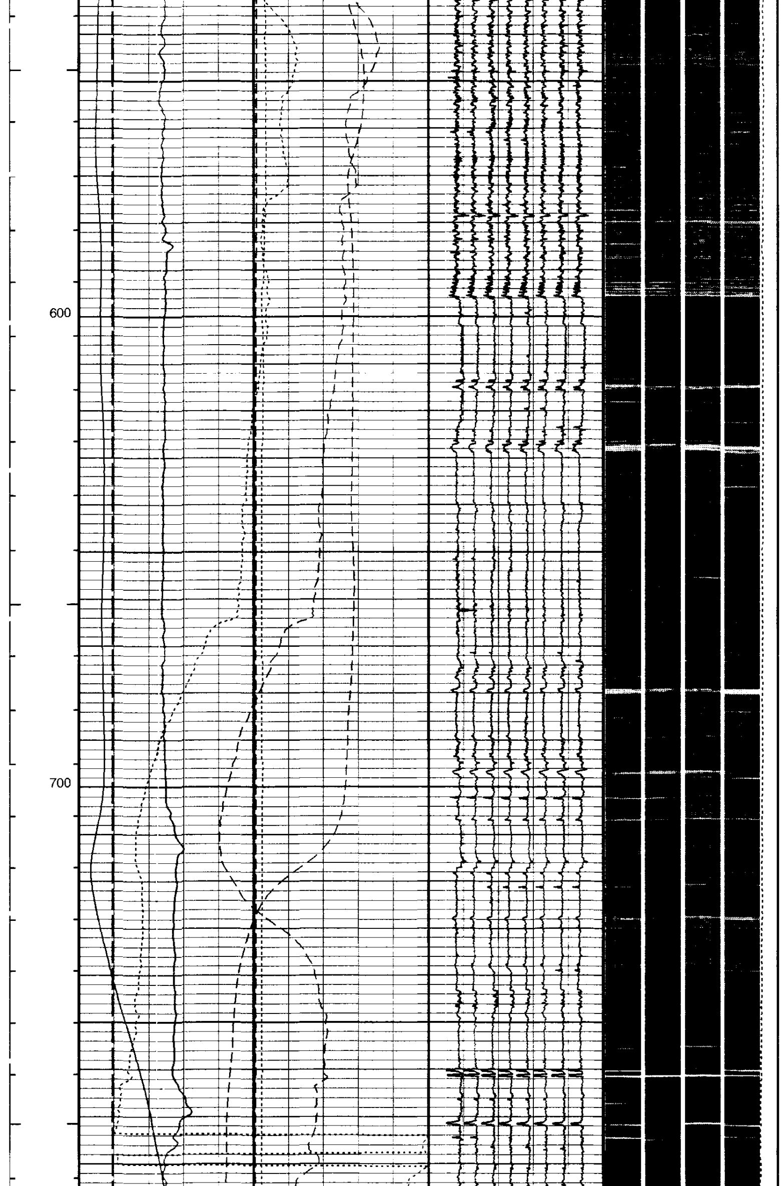
Bit Size (BS)
8 (IN) 18

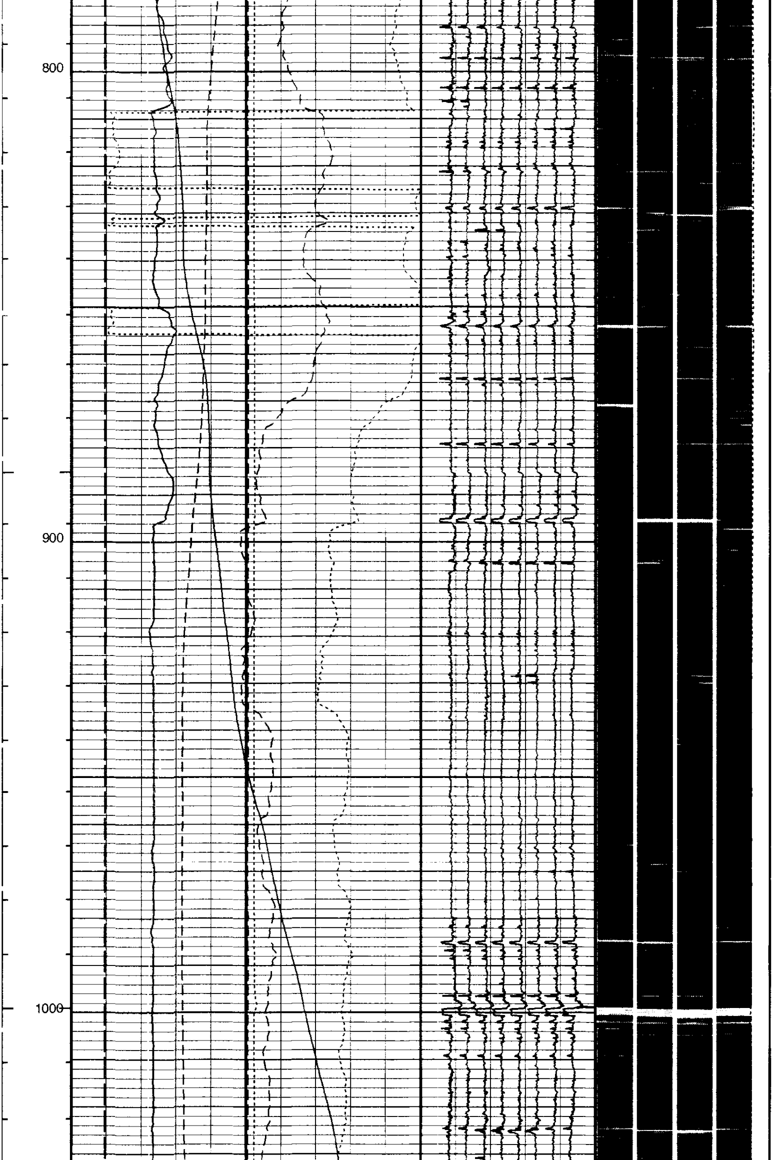
EMEX Voltage (EV)
0 (V) 50

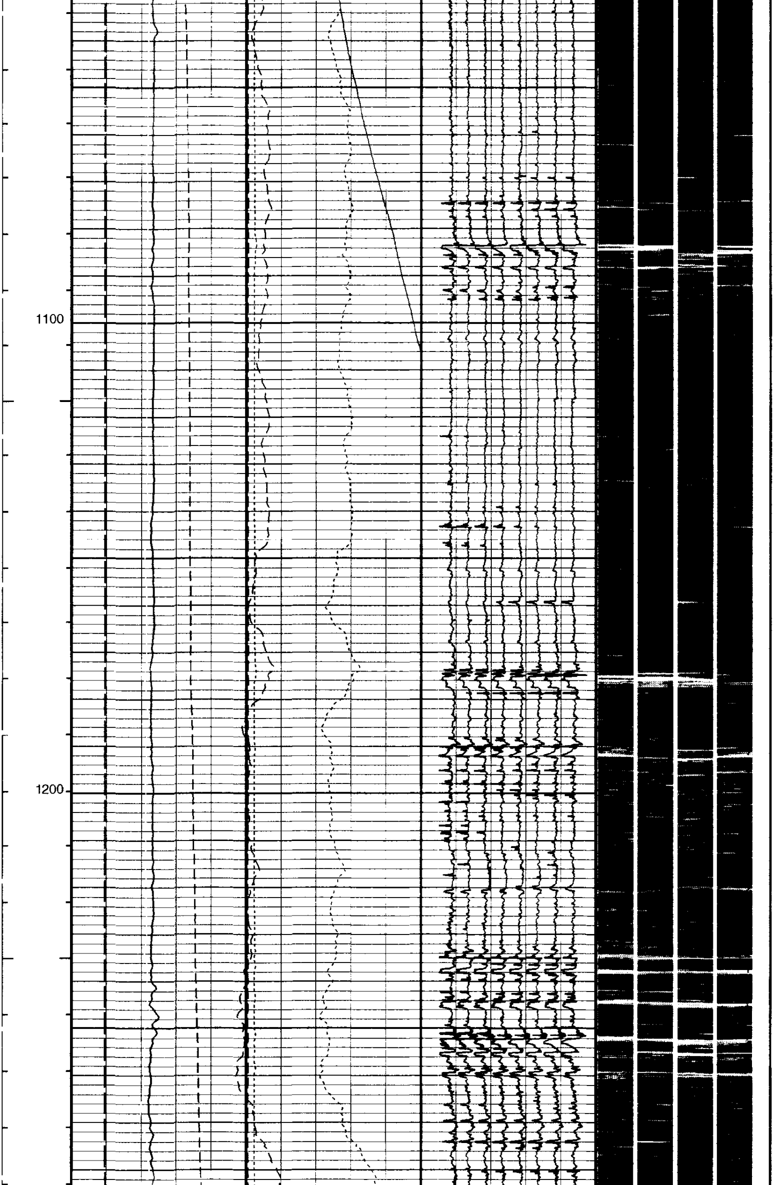
Data Button 1 - Varies with RBS (U-MEST_RB1)
-10 (----) 90

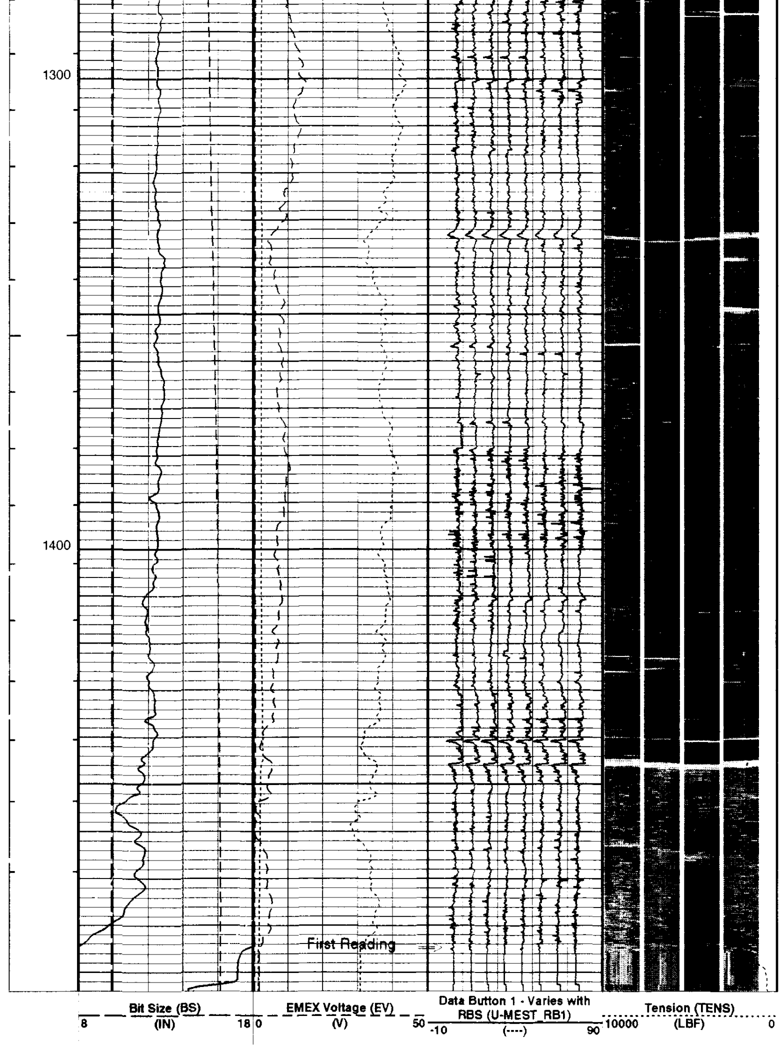
Tension (TENS)
10000 (LBF) 0











EMEX Intensity (EI)
0 (AMPS) 10

Data Button 2 - Varies with RBS (U-MEST_RB2)
-20 (----) 80

0.3776	1.8629	2.4571	2.9027	3.3483	3.6453	3.9424	4.2394	4.6850	5.1306	5.4277	6.0218	6.6159	7.6556	9.4517	12.4086

MEST_PADA (U-MEST_RESISTIVITY_PADA_DS)
(----)

Caliper 2 (C2)
8 (IN) 18

Data Button 3 - Varies with RBS (U-MEST_RB3)
-30 (----) 70

0.3776	1.8629	2.4571	2.9027	3.3483	3.6453	3.9424	4.2394	4.6850	5.1306	5.4277	6.0218	6.6159	7.6556	9.4517	12.4086

MEST_PADB (U-MEST_RESISTIVITY_PADB_DS)
(----)

Deviation (DEVIM)
0 (DEG) 30

Data Button 4 - Varies with RBS (U-MEST_RB4)
-40 (----) 60

0.3776	1.8629	2.4571	2.9027	3.3483	3.6453	3.9424	4.2394	4.6850	5.1306	5.4277	6.0218	6.6159	7.6556	9.4517	12.4086

MEST_PADC (U-MEST_RESISTIVITY_PADC_DS)
(----)

Hole Azimuth (HAZIM)
-40 (DEG) 360

Data Button 5 - Varies with RBS (U-MEST_RB5)
-50 (----) 50

0.3776	1.8629	2.4571	2.9027	3.3483	3.6453	3.9424	4.2394	4.6850	5.1306	5.4277	6.0218	6.6159	7.6556	9.4517	12.4086

MEST_PADD (U-MEST_RESISTIVITY_PADD_DS)
(----)

Pad One Azimuth (P1AZ_MEST)
-40 (DEG) 360

Data Button 6 - Varies with RBS (U-MEST_RB6)
-60 (----) 40

Relative Bearing (RB_MEST)
-40 (DEG) 360

Data Button 7 - Varies with RBS (U-MEST_RB7)
-70 (----) 30

Data Button 8 - Varies with RBS (U-MEST_RB8)
-80 (----) 20

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3
⊢ Integrated Hole Volume Major Pip Every 100 F3
⊣ Integrated Cement Volume Minor Pip Every 10 F3
⊣ Integrated Cement Volume Major Pip Every 100 F3
■ Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
BS	Bit Size	9.875	IN
DO	Depth Offset for Logical Unit 1	1.8	FT
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MDEC	Magnetic Field Declination	18.3064	DEG
MLM	MEST Logging Mode	SCAN1800	
PP	Playback Processing	NORMAL	
RBS	Resistivity Button Selection	AUTO	
XGAI	Gain	GAIN_2	
XOFF	Offset	OFFSET_0	

Format: MEST_C_IMAGE   Vertical Scale: 5" per 100'   Graphics File Created: 14-Jun-2000 22:31

OP System Version: 9C1-303

MCM

MEST-C	9C1-303	SGT-L	OP91-KP1a
TCC-BF	OP91-KP1a	AMS-A	OP91-KP1a

Input DLIS Files

DEFAULT	MEST .019	FN:18	PRODUCER	14-Jun-2000 13:32	1492.0 FT	401.5 FT

Output DLIS Files

DEFAULT	MEST .028	FN:26	PRODUCER	14-Jun-2000 22:31

Input DLIS Files

DEFAULT	MEST .025	FN:24	PRODUCER	14-Jun-2000 21:29	1882.0 FT	1444.5 FT

Output DLIS Files

DEFAULT	MEST .027	FN:25	PRODUCER	14-Jun-2000 22:27	1884.0 FT	1446.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 301.82 F3

Cement Volume = 301.82 F3 (assuming 0.00 IN casing O.D.)

Computed from 1884.0 FT to 1447.0 FT using data channel(s) C1 C2

OP System Version: 9C1-303

MCM

MEST-C	9C1-303	SGT-L	OP91-KP1a
TCC-BF	OP91-KP1a	AMS-A	OP91-KP1a

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3

⊢ Integrated Hole Volume Major Pip Every 100 F3

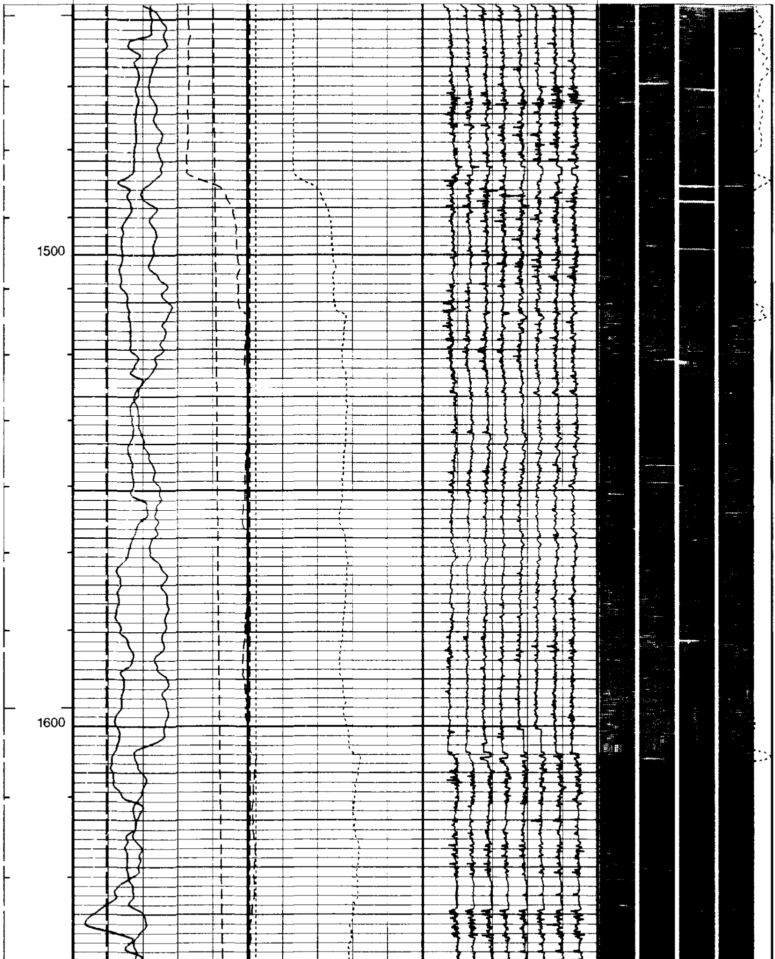
⊣ Integrated Cement Volume Minor Pip Every 10 F3

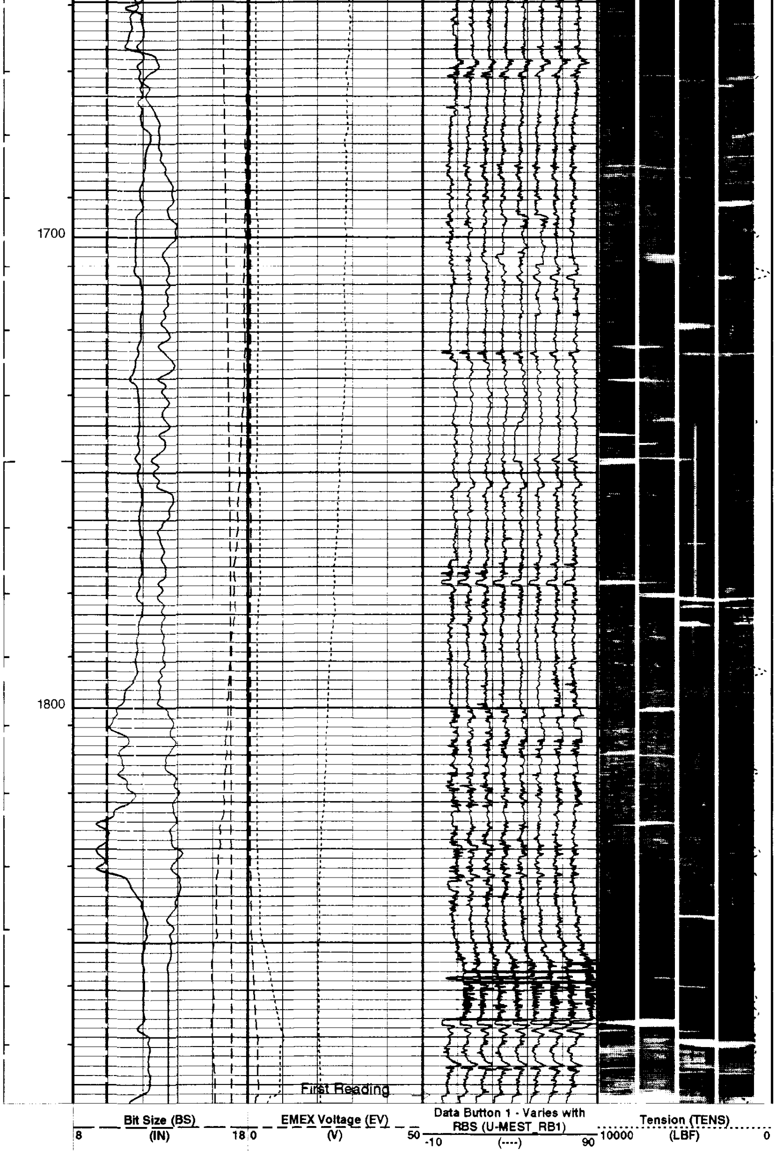
⊣ Integrated Cement Volume Major Pip Every 100 F3

▶ Time Mark Every 60 S

RUN 2 LOGGED ON TLC

Relative Bearing (RB_MEST) -40 (DEG) 360		Data Button 8 - Varies with RBS (U-MEST_RB8) -80 (----) 20	
Pad One Azimuth (P1AZ_MEST) -40 (DEG) 360		Data Button 7 - Varies with RBS (U-MEST_RB7) -70 (----) 30	
Hole Azimuth (HAZIM) -40 (DEG) 360		Data Button 6 - Varies with RBS (U-MEST_RB6) -60 (----) 40	
Gamma Ray (GR) 0 (GAPI) 150		Data Button 5 - Varies with RBS (U-MEST_RB5) -50 (----) 50	0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086 MEST_PADD (U-MEST_RESISTIVITY_PADD_DS) (----)
Deviation (DEVIM) 0 (DEG) 30		Data Button 4 - Varies with RBS (U-MEST_RB4) -40 (----) 60	0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086 MEST_PADC (U-MEST_RESISTIVITY_PADC_DS) (----)
Caliper 2 (C2) 8 (IN) 18		Data Button 3 - Varies with RBS (U-MEST_RB3) -30 (----) 70	0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086 MEST_PADB (U-MEST_RESISTIVITY_PADB_DS) (----)
	EMEX Intensity (EI) 0 (AMPS) 10	Data Button 2 - Varies with RBS (U-MEST_RB2) -20 (----) 80	0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086 MEST_PADA (U-MEST_RESISTIVITY_PADA_DS) (----)
Bit Size (BS) 8 (IN) 18	EMEX Voltage (EV) 0 (V) 50	Data Button 1 - Varies with RBS (U-MEST_RB1) -10 (----) 90	Tension (TENS) 10000 (LBF) 0





EMEX Intensity (EI)
0 (AMPS) 10

Data Button 2 - Varies with RBS (U-MEST_RB2)
-20 (----) 80

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086
MEST_PADA (U-MEST_RESISTIVITY_PADA_DS)
(----)

Caliper 2 (C2)
8 (IN) 18

Data Button 3 - Varies with RBS (U-MEST_RB3)
-30 (----) 70

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086
MEST_PADB (U-MEST_RESISTIVITY_PADB_DS)
(----)

Deviation (DEVIM)
0 (DEG) 30

Data Button 4 - Varies with RBS (U-MEST_RB4)
-40 (----) 60

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086
MEST_PADC (U-MEST_RESISTIVITY_PADC_DS)
(----)

Gamma Ray (GR)
0 (GAPI) 150

Data Button 5 - Varies with RBS (U-MEST_RB5)
-50 (----) 50

0.3776 1.8629 2.4571 2.9027 3.3483 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6556 9.4517 12.4086
MEST_PADD (U-MEST_RESISTIVITY_PADD_DS)
(----)

Hole Azimuth (HAZIM)
-40 (DEG) 360

Data Button 6 - Varies with RBS (U-MEST_RB6)
-60 (----) 40

Pad One Azimuth (P1AZ_MEST)
-40 (DEG) 360

Data Button 7 - Varies with RBS (U-MEST_RB7)
-70 (----) 30

Relative Bearing (RB_MEST)
-40 (DEG) 360

Data Button 8 - Varies with RBS (U-MEST_RB8)
-80 (----) 20

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3
⊢ Integrated Hole Volume Major Pip Every 100 F3
⊣ Integrated Cement Volume Minor Pip Every 10 F3
⊣ Integrated Cement Volume Major Pip Every 100 F3
■ Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
BS	Bit Size	9.875	IN
DO	Depth Offset for Logical Unit 1	1.8	FT
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MDEC	Magnetic Field Declination	18.3064	DEG
MLM	MEST Logging Mode	SCAN1800	
PP	Playback Processing	NORMAL	
RBS	Resistivity Button Selection	AUTO	
XGAI	Gain	GAIN_2	
XOFF	Offset	OFFSET_0	

Format: MEST_C_IMAGE Vertical Scale: 5" per 100' Graphics File Created: 14-Jun-2000 22:27

OP System Version: 9C1-303

MCM

MEST-C	9C1-303	SGT-L	OP91-KP1a
TCC-BF	OP91-KP1a	AMS-A	OP91-KP1a

Input DLIS Files

DEFAULT MEST .025 FN:24 PRODUCER 14-Jun-2000 21:29 1882.0 FT 1444.5 FT

Output DLIS Files

DEFAULT MEST .027 FN:25 PRODUCER 14-Jun-2000 22:27

COMPANY:	NORTHWEST NATURAL GAS	BOTTOM LOG INTERVAL	1882 ft
		SCHLUMBERGER DEPTH	1885 ft
WELL:	IW-24BH-23-65	DEPTH DRILLER	1890 ft
FIELD:	MIST	KELLY BUSHING	923 ft
COUNTY:	COLUMBIA	DRILL FLOOR	923 ft
STATE:	OREGON	GROUND LEVEL	905 ft

Schlumberger

Formation Micro Scanner Images/MSDip
SCALE: 5" = 100'