COMPANY: **NORTHWEST NATURAL GAS**

WELL: **COLUMBIA COUNTY # 23-22**

FIELD: **MIST**

COUNTY: **COLUMBIA** STATE: **OREGON**

COUNTY: COLUMBIA
Field: MIST
Location: 303.79' South & 1768.59' East
Well: COLUMBIA COUNTY # 23-22
Company: NORTHWEST NATURAL GAS

Schlumberger

RST GR CCL
SIGMA MEASURMENT
SCALE : 5"=100 '

LOCATION

303.79' South & 1768.59' East
from the W est 1/4 cornor of section 22

Elev.: K.B. 577.2 ft
G.L. 565.8 ft
D.F.

Permanent Datum: GROUND LEVEL Elev.: 565.8 ft
Log Measured From: K.B 11.4 ft above Perm. Datum
Drilling Measured From: K.B

API Serial No.	SECTION	TOWNSHIP	RANGE
N/A	22	6N	5W

Logging Date	11-JUN-2000		
Run Number	1		
Depth Driller	1233 ft		
Schlumberger Depth	1233 ft		
Bottom Log Interval	1542 ft		
Top Log Interval	1000 ft		
Casing Fluid Type	Gas/ Water		
Salinity			
Density			
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size	7.875 in		
From	335 ft		
To	2028 ft		
Casing/Tubing Size	5.500 in		
Weight	17 lbm/ft		
Grade	J-55		
From	0 ft		
To	2028 ft		
Maximum Recorded Temperatures	72 degF 72		
Logger On Bottom / Time	11-JUN-2000 13:00		
Unit Number / Location	3152 Sacramento		
Recorded By	M.Khan		
Witnessed By	Clayton Roth		

	Run 1	Run 2	Run 3
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 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:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
MAXIMUM RECORDED TEMP.: 72 DEGF	

RUN 1

SERVICE ORDER #:
PROGRAM VERSION: 9C1-303
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1

RUN 2

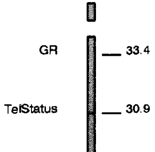
SURFACE EQUIPMENT

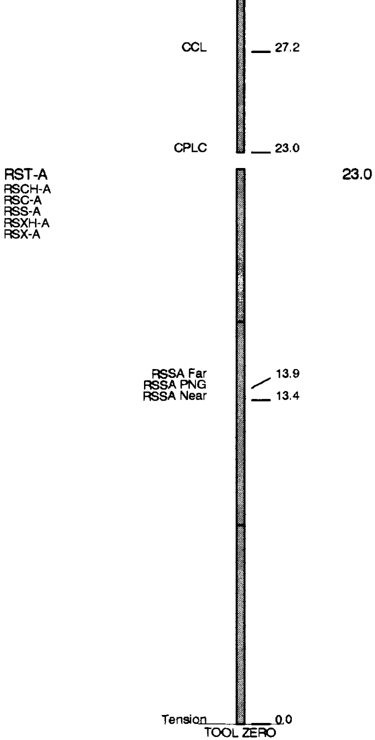
PUCK
WITM (CTS)-A

DOWNHOLE EQUIPMENT

AH-95 34.8
AH-95

CPLT-A 34.1
CGRS-A
CCL-Internal
CTCC
CPLH
CPLC-A
CPSC-A
CPLE-A





MAXIMUM STRING DIAMETER 1.72 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Input DLIS Files

DEFAULT	RSTA .007	FN:6 PRODUCER	11-Jun-2000 13:43	1507.5 FT	954.5 FT

Output DLIS Files

DEFAULT	RSTA .015	FN:14 PRODUCER	11-Jun-2000 15:24	1507.5 FT	934.5 FT

OP System Version: 9C1-303

MCM

RST-A	OP91-KP1a	CPLT-A	9C1-303

PIP SUMMARY

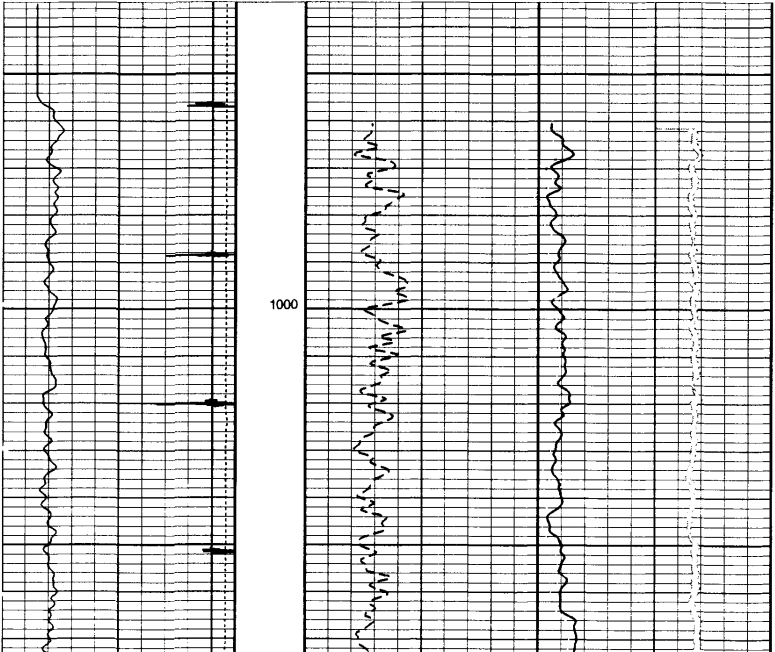
Time Mark Every 60 S

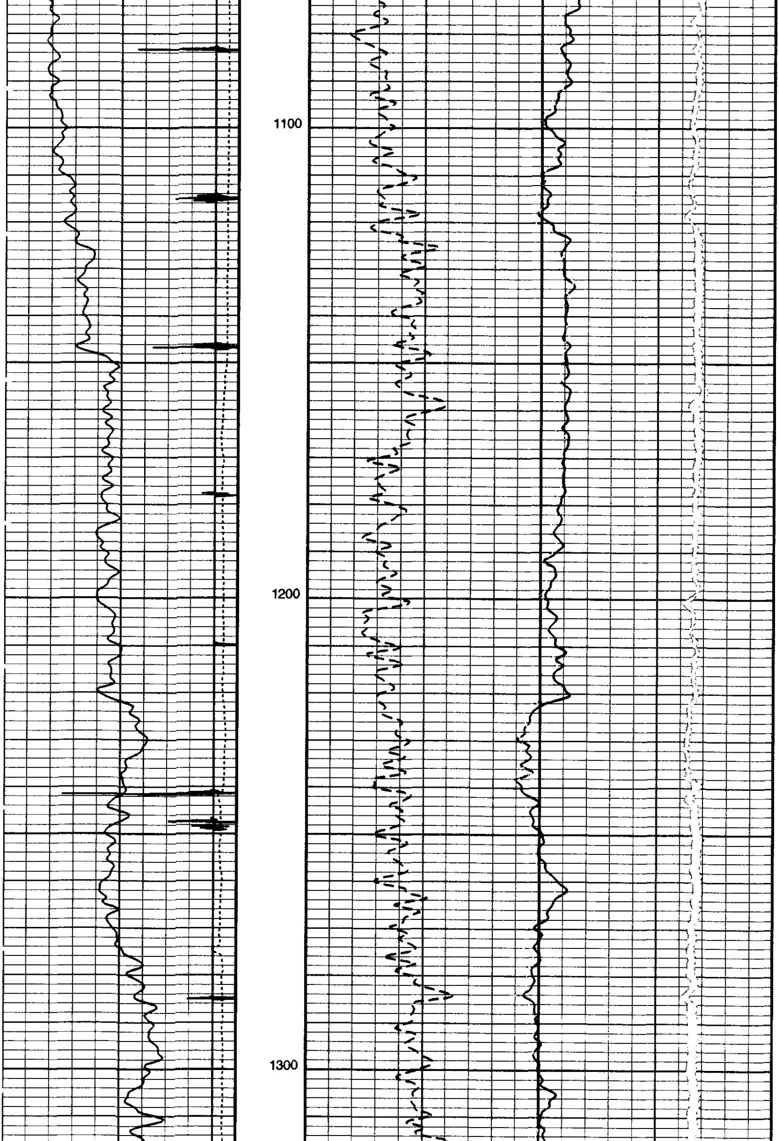
RST Far Effective Capture CR (RSCF_RST)		
0	(----)	50
RST Near Effective Capture CR (RSCN_RST)		
0	(----)	50

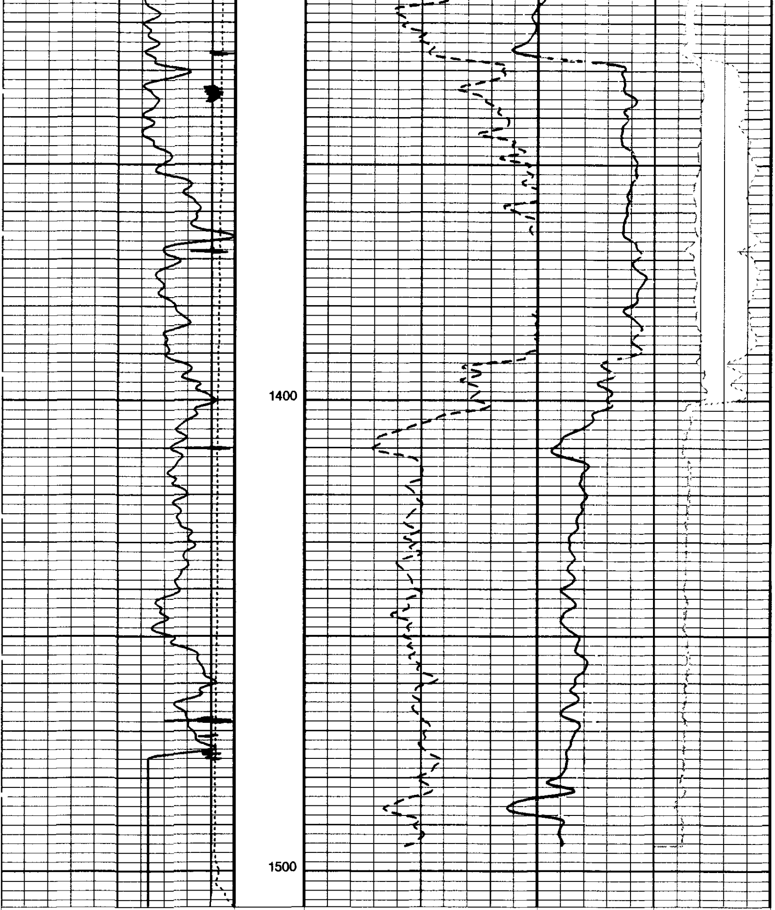
Tension (TENS)		
10000	**(LBF)**	**0**
Gamma Ray (GR)		
0	**(GAPI)**	**150**
Discriminated CCL (CCLD)		
9	**(V)**	**-1**

Sigma Formation Near Apparent (SFNA_FIL)		
60	**(CU)**	**0**
RST Porosity (TPHI)		
0.6	**(V/V)**	**0**

GAS
From RSCN to RSCF







Discriminated CCL (CCLD)
9 (V) -1

Gamma Ray (GR)
0 (GAPI) 150

Tension (TENS)
10000 (LBF) 0

RST Porosity (TPHI)
0.6 (V/V) 0

GAS
From RSCN to
RSCF

Sigma Formation Near Apparent (SFNA_FIL)
60 (CU) 0

RST Near Effective

Capture CR
(RSCN_RST)
0 (----) 50

RST Far Effective
Capture CR (RSCF_
RST)
0 (----) 50

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AIRB	RST Air Borehole	YES	
BHS	Borehole Status	CASED	
BS	Bit Size	7.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSID	Casing Size I.D.	4.89	IN
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	17.00	LB/F
DFPC	Depth Filter Processing Constant	ONE	
DO	Depth Offset for Logical Unit 1	0.0	FT
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48	
NORM_SIGM_RST	RST Normalized Sigma	30	CU
PP	Playback Processing	NORMAL	
RGAI	RST Detector Gain Ratio	1	

Format: RST Vertical Scale: 5" per 100' Graphics File Created: 11-Jun-2000 15:24

OP System Version: 9C1-303

MCM

RST-A OP91-KP1a CPLT-A 9C1-303

Input DLIS Files

DEFAULT RSTA .007 FN:6 PRODUCER 11-Jun-2000 13:43 1507.5 FT 954.5 FT

Output DLIS Files

DEFAULT RSTA .015 FN:14 PRODUCER 11-Jun-2000 15:24

Output DLIS Files

DEFAULT RSTA .007 FN:6 PRODUCER 11-Jun-2000 13:43 1507.5 FT 954.5 FT

OP System Version: 9C1-303

MCM

RST-A OP91-KP1a CPLT-A 9C1-303

PIP SUMMARY

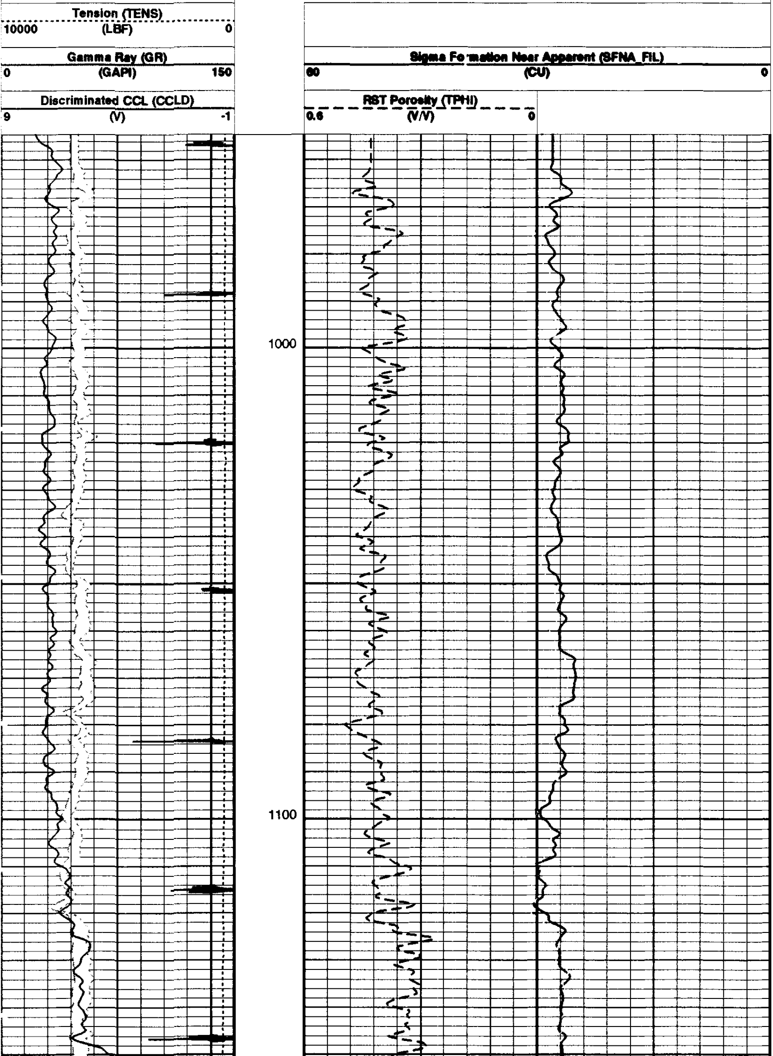
Time Mark Every 60 S

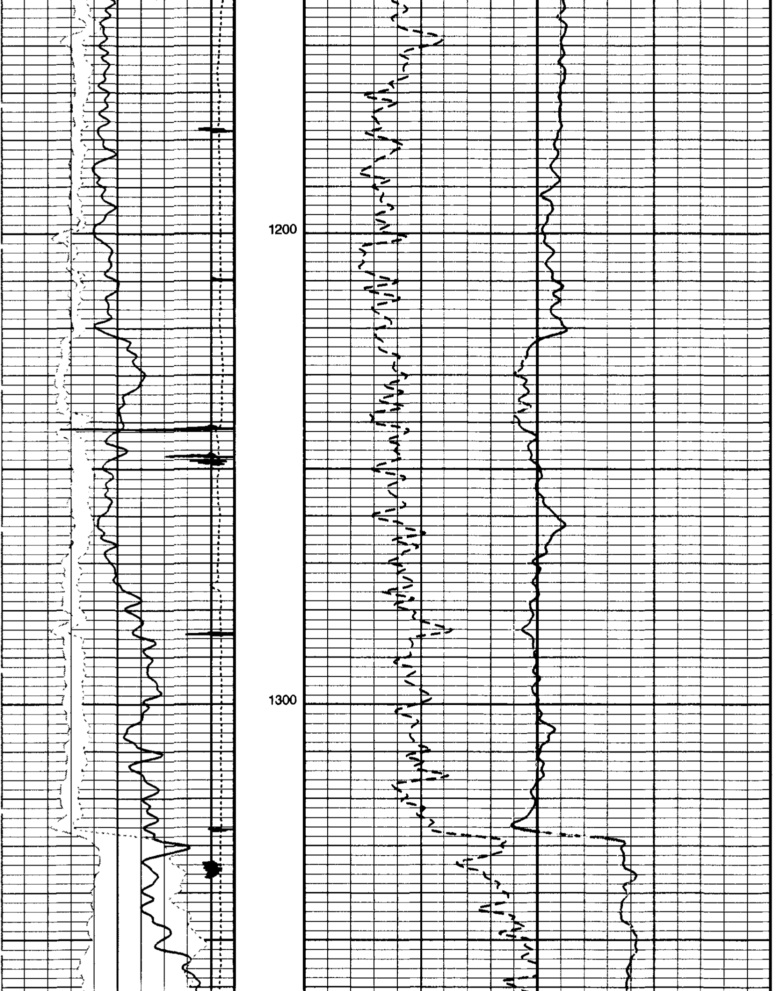
RST Far Effective Capture CR (RSCF_
RST)
0 (----) 50

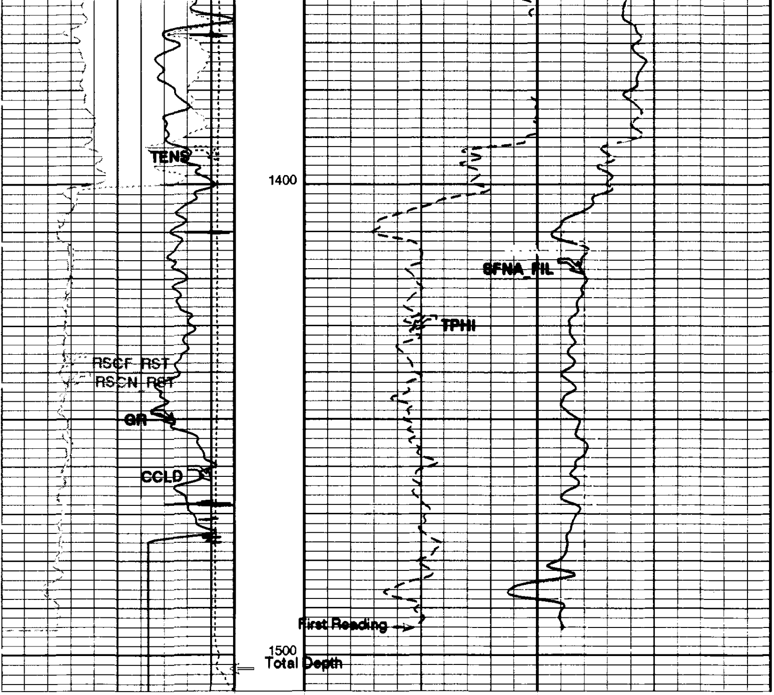
RST Near Effective Capture CR (RSCN_
RST)
0 (----) 50

GAS
From RSCN to RSCF

MAIN LOG







Discriminated CCL (CCLD)		
9	(V)	-1
Gamma Ray (GR)		
0	(GAPI)	150
Tension (TENS)		
10000	(LBF)	0

GAS
From RSCN to RSCF

RST Near Effective Capture CR (RSCN_RST)		
0	(----)	50
RST Far Effective Capture CR (RSCF_RST)		
0	(----)	50

RST Porosity (TPHI)		
0.6	(V/V)	0
Sigma Formation Near Apparent (SFNA_FIL)		
60	(CU)	0

MAIN LOG

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AIRB	RST Air Borehole	YES	
BHS	Borehole Status	CASED	
BS	Bit Size	7.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSID	Casing Size I.D.	4.89	IN
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	17.00	LB/F
DFPC	Depth Filter Processing Constant	ONE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48	
NORM_SIGM_RST	RST Normalized Sigma	30	CU
RGAI	RST Detector Gain Ratio	1	

Format: RST **Vertical Scale: 5" per 100'** **Graphics File Created: 11-Jun-2000 13:43**

OP System Version: 9C1-303

MCM

RST-A	OP91-KP1a	CPLT-A	9C1-303

Output DLIS Files

DEFAULT RSTA .007 FN:6 PRODUCER 11-Jun-2000 13:43

Schlumberger

REPEAT SECTION

MAXIS Field Log

Output DLIS Files

DEFAULT RSTA .006 FN:5 PRODUCER 11-Jun-2000 13:28 1506.0 FT 1144.0 FT

OP System Version: 9C1-303

MCM

RST-A	OP91-KP1a	CPLT-A	9C1-303

PIP SUMMARY

Time Mark Every 60 S

RST Far Effective Capture CR (RSCF_RST)

0 (----) 50

RST Near Effective Capture CR (RSCN_RST)

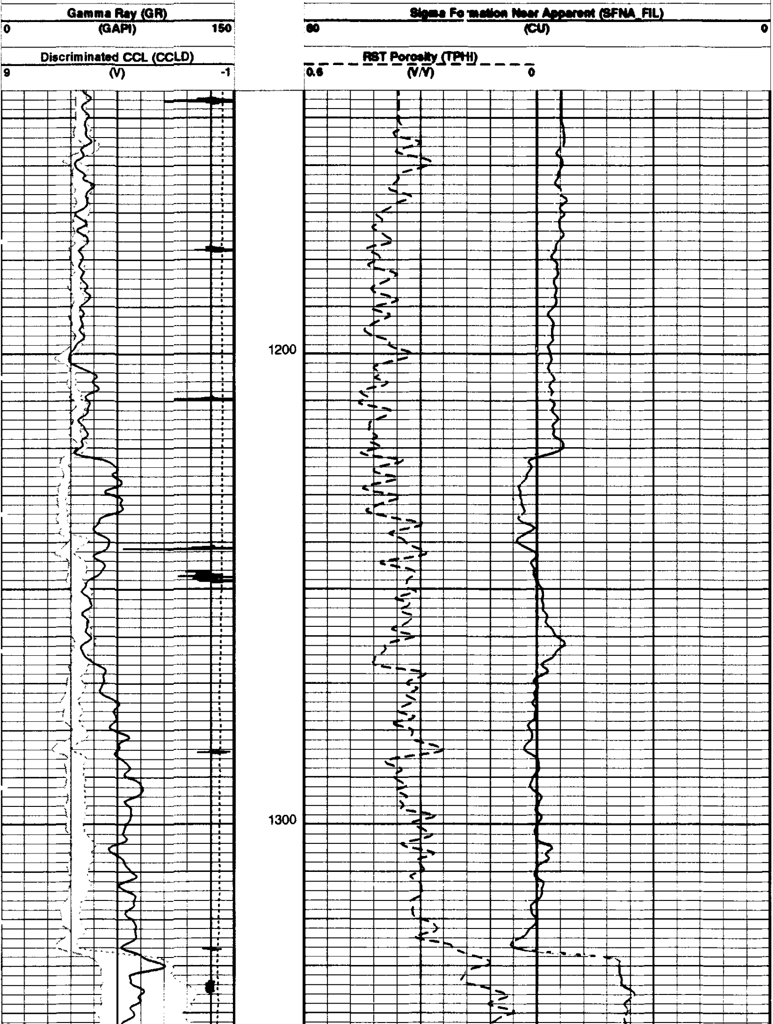
0 (----) 50

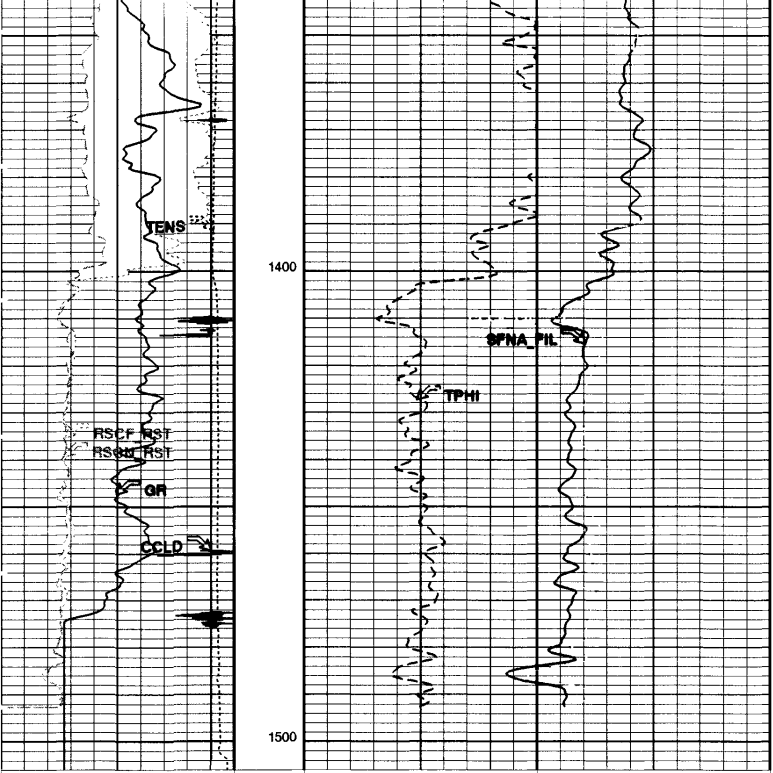
GAS
From RSCN to RSCF

Tension (TENS)

10000 (LBF) 0

REPEAT SECTION





Discriminated CCL (CCLD)
9 (V) -1

Gamma Ray (GR)
0 (GAPI) 150

Tension (TENS)
10000 (LBF) 0

GAS
From RSCN to RSCF

RST Near Effective Capture CR (RSCN_RST)
0 (----) 50

RST Far Effective Capture CR (RSCF_RST)
0 (----) 50

RST Porosity (TPHI)
0.6 (V/V) 0

Sigma Formation Near Apperent (SFNA_FIL)
60 (CU) 0

REPEAT SECTION

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AIRB	RST Air Borehole	YES	
BHS	Borehole Status	CASED	
BS	Bit Size	7.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSID	Casing Size I.D.	4.89	IN
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	17.00	LB/F
DFPC	Depth Filter Processing Constant	ONE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48	
NORM_SIGM_RST	RST Normalized Sigma	30	CU
RGAI	RST Detector Gain Ratio	1	

Format: RST **Vertical Scale: 5" per 100'** **Graphics File Created: 11-Jun-2000 13:28**

OP System Version: 9C1-303

MCM

RST-A	OP91-KP1a	CPLT-A	9C1-303

Output DLIS Files

DEFAULT RSTA .006 FN:5 PRODUCER 11-Jun-2000 13:28

COMPANY:	NORTHWEST NATURAL GAS	BOTTOM LOG INTERVAL	1542 ft
		SCHLUMBERGER DEPTH	1233 ft
WELL:	COLUMBIA COUNTY # 23-22	DEPTH DRILLER	1233 ft
FIELD:	MIST	KELLY BUSHING	577.2 ft
COUNTY:	COLUMBIA	DRILL FLOOR	
STATE:	OREGON	GROUND LEVEL	565.8 ft

Schlumberger

RST GR CCL
SIGMA MEASURMENT
SCALE : 5"=100 '