COMPANY: NORTHWEST NATURAL GAS

WELL: OM-32-22-65

FIELD: CALVIN CREEK GAS STORAGE

COUNTY: COLUMBIA STATE: OREGON

COUNTY: COLUMBIA
Field: CALVIN CREEK GAS STORAGE
Location: 1884.04' S & 1261.26' E FROM T
Well: OM-32-22-65
Company: NORTHWEST NATURAL GAS

Schlumberger

PLATFORM EXPRESS
ARRAY INDUCTION/SP
5" = 100'

LOCATION

1884.04' S & 1261.26' E FROM THE
NE CORNER OF SECTION 22

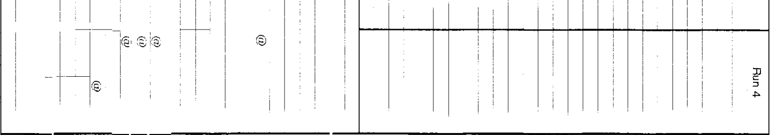
Elev.: K.B. 762 F
G.L. 753 F
D.F.

Permanent Datum:	GROUND LEVEL	Elev.:	753 F
Log Measured From:	KELLY BUSHING	9.0 F	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

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

Logging Date		22-JUL-1998			
Run Number		ONE			
Depth Driller		2365 F			
Schlumberger Depth		2365 F			
Bottom Log Interval		2357 F			
Top Log Interval		425 F			
Casing Driller Size @ Depth		8.625 IN	@ 425 F	@	
Casing Schlumberger		425 F			
Bit Size		7.875 IN			
Type Fluid In Hole		CYPAN			
MUD Density	Viscosity	9.5 LB/G	45 S		
Fluid Loss	PH	7.8 C3	8		
Source Of Sample		FLOWLINE			
RM @ Measured Temperature		1.870 OHMM	@ 80 DEGF	@	
RMF @ Measured Temperature		1.910 OHMM	@ 70 DEGF	@	
RMC @ Measured Temperature		1.650 OHMM	@ 70 DEGF	@	
Source RMF	RMC	PRESS	PRESS		
RM @ MRT	RMF @ MRT	1.579 @ 96	1.427 @ 96	@	@
Maximum Recorded Temperatures		96 DEGF			
Circulation Stopped	Time	22-JUL-1998	2:30		
Logger On Bottom	Time	22-JUL-1998	5:30		
Unit Number	Location	3152	SACRAMENTO		
Recorded By		JASON GENDUR			
Witnessed By		JACK MEYER			

		Run 1	Run 2	Run 3
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				



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OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Thank you for choosing Schlumbeger!	
AIT run with 1" standoffs.	
CNL run with bowspring for eccentralization.	
Log run on sandstone matrix = 2.65 g/c3.	
Your crew today is Forehand & Tye.	

RUN 1			RUN 2		
SERVICE ORDER #		1222172	SERVICE ORDER #		
PROGRAM VERSION		8C1-205	PROGRAM VERSION		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2

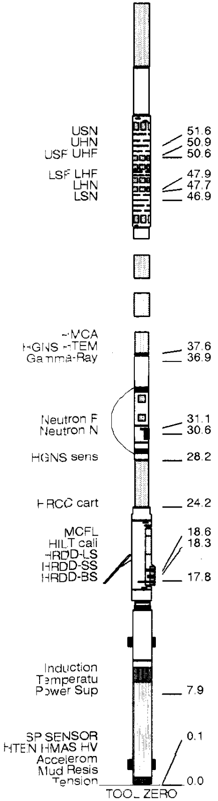
SURFACE EQUIPMENT

GSR-U/Y	WITM (CTS)-A
NCT-B	
CNB-AB	
NCS-VB	

DOWNHOLE EQUIPMENT

LEH-Q LEH-Q 3052			69.3
TCC-B ECH-KC 2891 TCC-B	TelStatus CTEM	64.1	67.1

DSLT-TCC	DSLC-BA 8235 ECH-KH SLS-WA 1556	64.1
AH-FLX	AH-FLX 82	43.5
AH-FLX	AH-FLX 77	41.5
HILTB-DTB	HTBCC HMCA HGNS-CAN-B HGNS-H NLS-KL 2284 NSR-F HACCZ HCNT HGR HRCC-B 723 HRMS-B 723 HRGD 723 GLS-VJ 1924 MCFL Device HILT Nucl. LS HILT Nucl. SS HILT Nucl. BS AIT-H AHIS-BA 112 BOW-SPR NPV-N	39.5



MAXIMUM STRING DIAMETER 5.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Input DLIS Files

DEFAULT	HILTB .037	FN:1	FIELD	22-Jul-1998 12:54	2370.0 FT	249.7 FT

Output DLIS Files

DEFAULT	HILTB .038	FN:31	FIELD	22-Jul-1998 13:19	2370.0 FT	250.0 FT

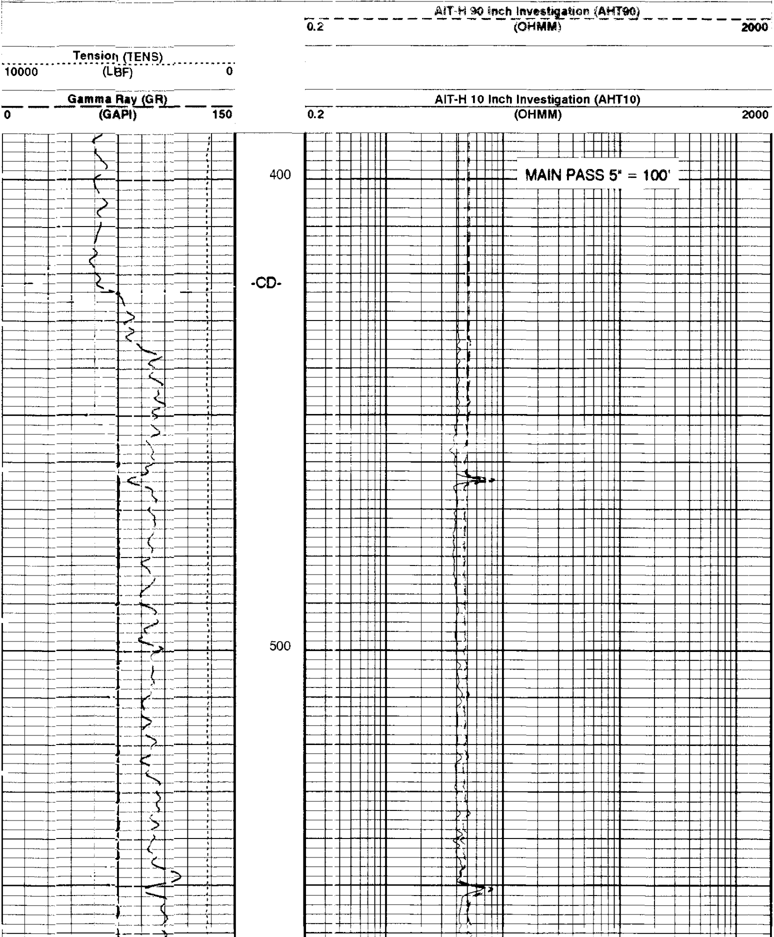
OP System Version: 8C1-205

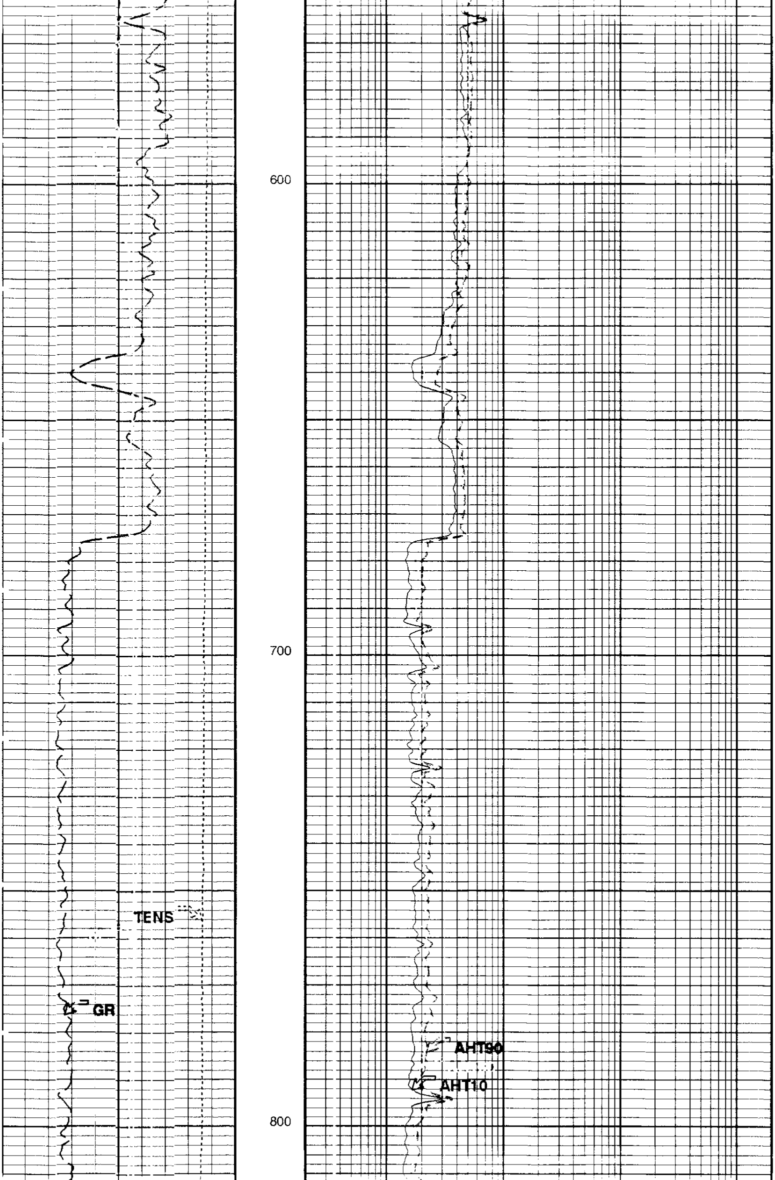
MCM

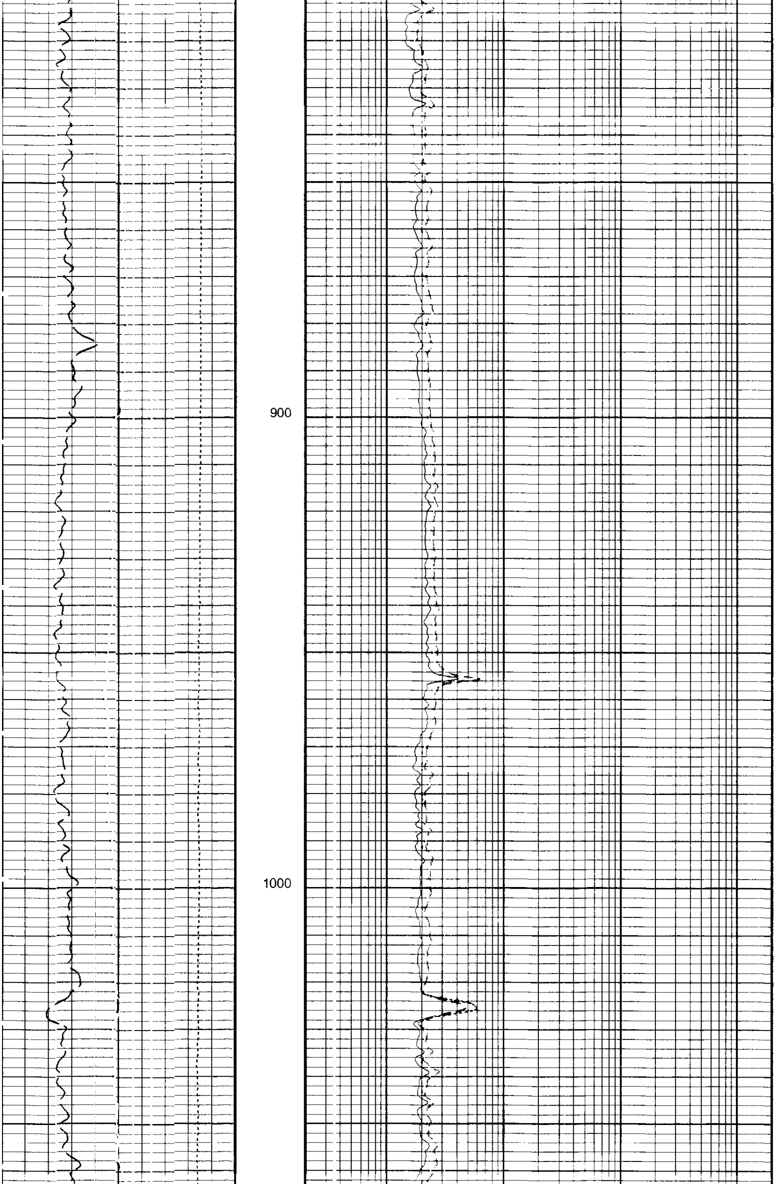
HILTB-DTB	APCW-98Q1	DSLT-TCC	8C1-205
TCC-B	APCW-98Q1		

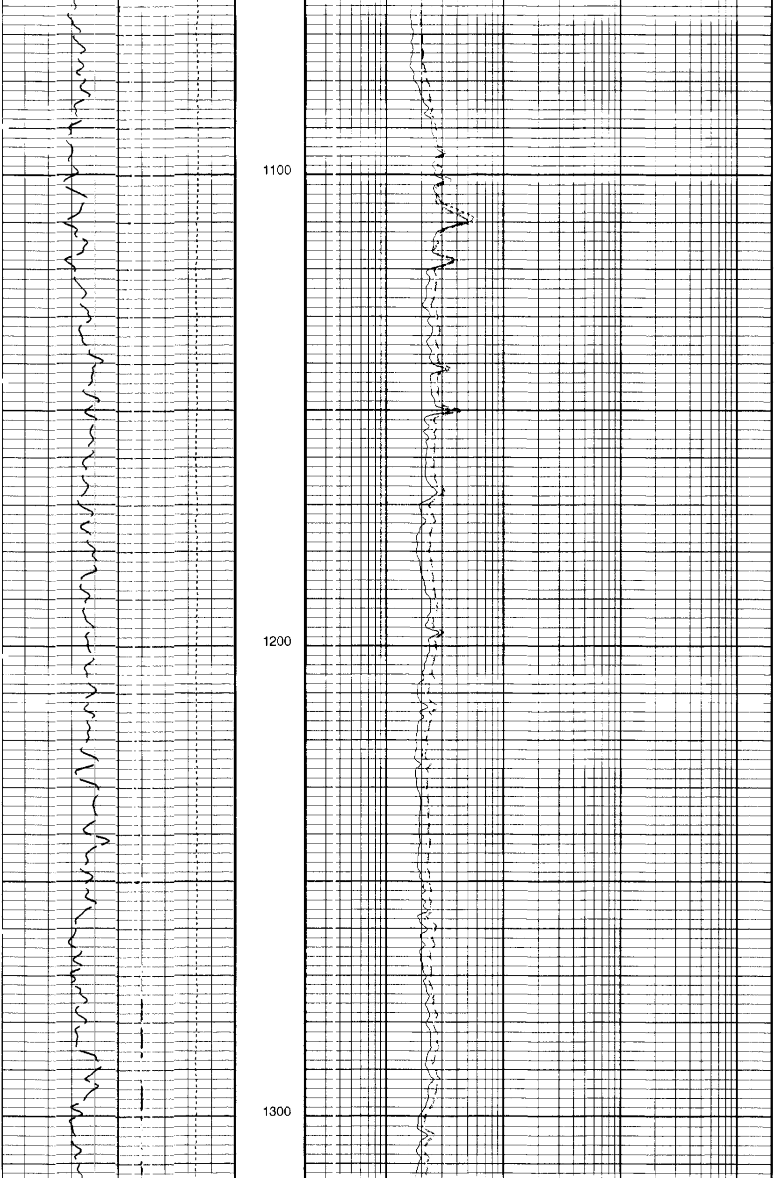
PIP SUMMARY

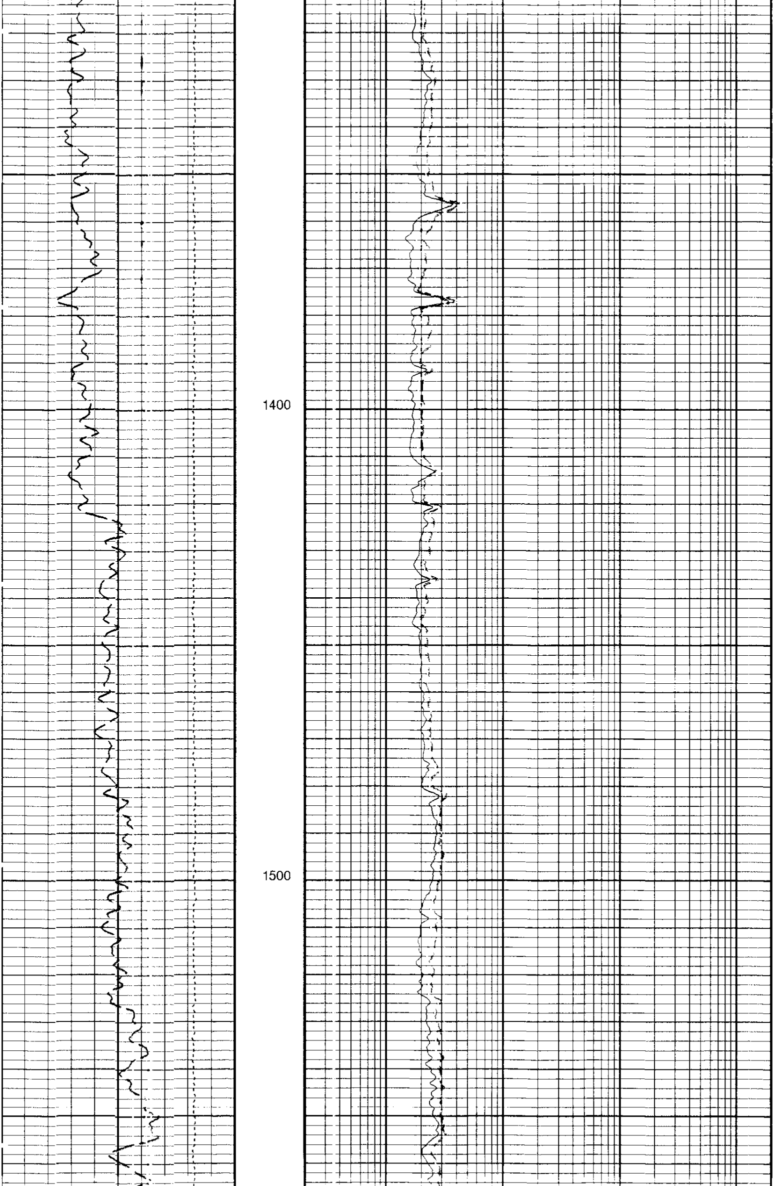
■ Time Mark Every 60 S

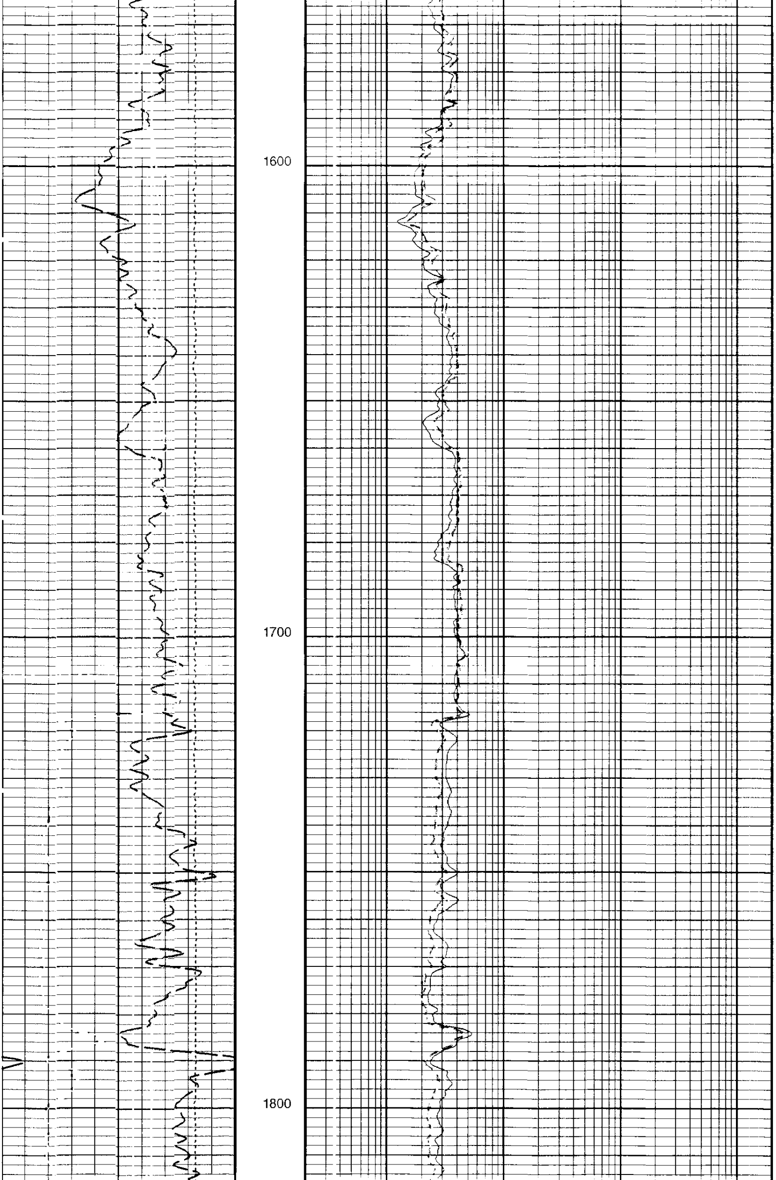


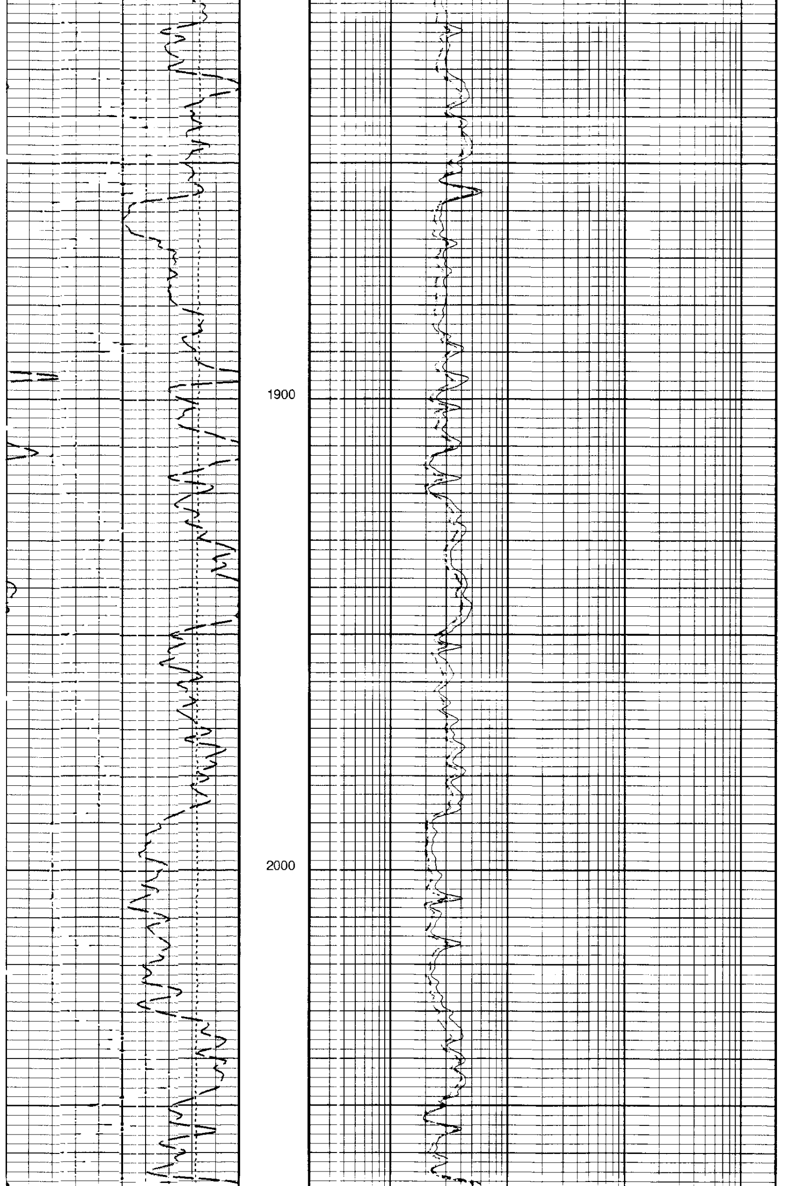


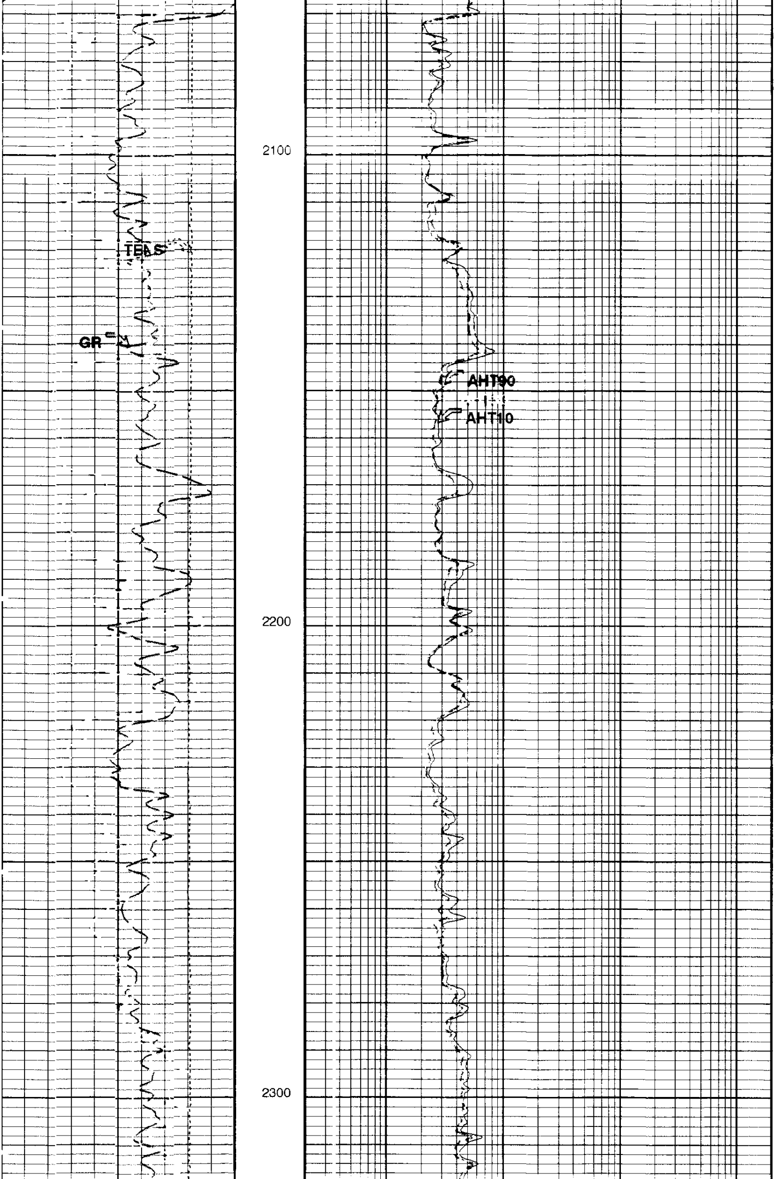


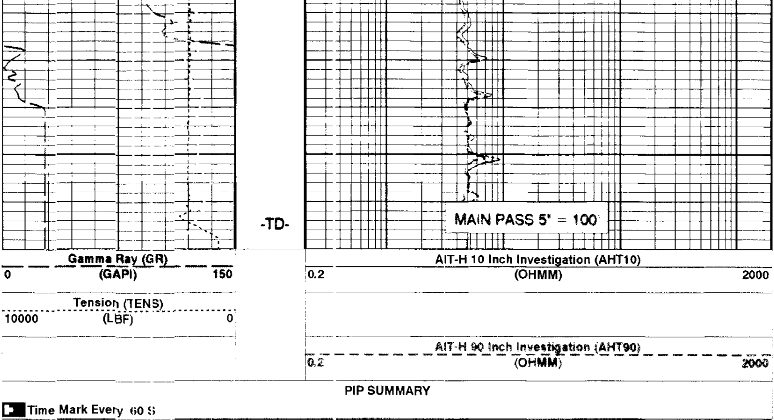












Parameters

DLIS Name	Description	Value	
AHBHM	AIT-H Bhole Correction Mode	2_ComputeStandoff	
AHBLM	AIT-H Basic Logs Mode	6_One_Two_and_Four	
AHCDE	AIT-H Casing Detection Enable	Yes	
AHCEN	AIT-H Tool Centering Flag (in Borehole)	Eccentered	
AHCSED	AIT-H Casing Shoe Estimated Depth	-50000	FT
AHMRF	AIT-H Mud Resistivity Factor	1	
AHSTA	AIT-H Tool Standoff	1	IN
BHT	Bottom Hole Temperature (used in calculations)	96	DEGF
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	9.50	LB/G
DO	Depth Offset	0.0	FT
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSTI	STI Uses HILT Acceleration	YES	
MST	Mud Sample Temperature	80.00	DEGF
PP	Playback Processing	NORMAL	
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	-15	MV
TD	Total Depth	2365	FT

Format: AIT Vertical Scale: 5" per 100' Graphics File Created: 22-Jul-1998 13:19

OP System Version: 8C1-205

MCM

HILTB-DTB	APCW-98Q1	DSLT-TCC	8C1-205
TCC-B	APCW-98Q1		

Input DLIS Files

DEFAULT	HILTB .037	FN:1	FIELD	22-Jul-1998 12:54	2370.0 FT	249.7 FT

Output DLIS Files

DEFAULT	HILTB .038	FN:31	FIELD	22-Jul-1998 13:19

Input DLIS Files

DEFAULT	HILTB .003	FN:2	FIELD	22-Jul-1998 05:33	2376.0 FT	1939.2 FT

Output DLIS Files

DEFAULT	HILTB .004	FN:3	FIELD	22-Jul-1998 05:52

OP System Version: 8C1-205

MCM

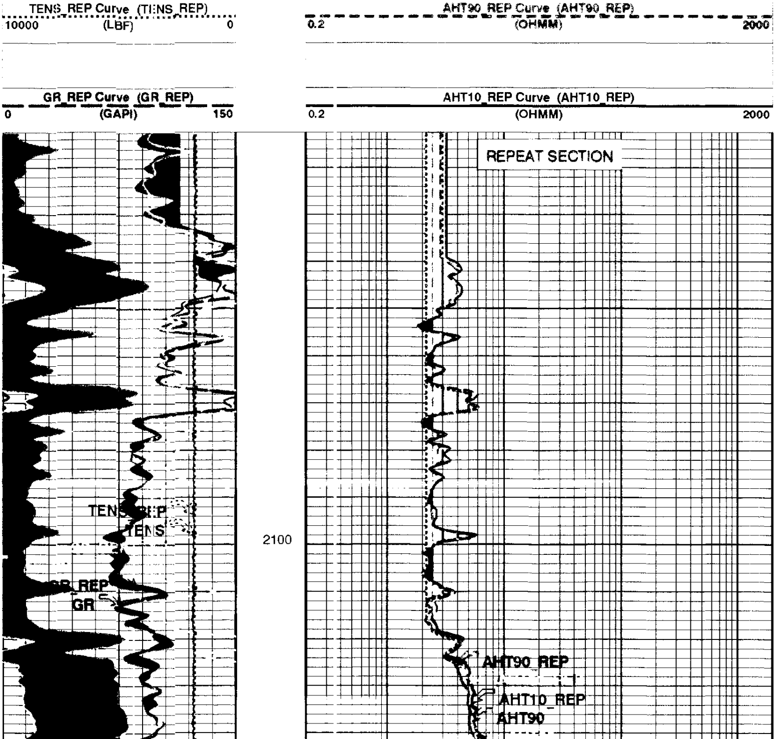
HILTB-DTB	APCW-98Q1	DSLT-TCC	8C1-205
TCC-B	APCW-98Q1		

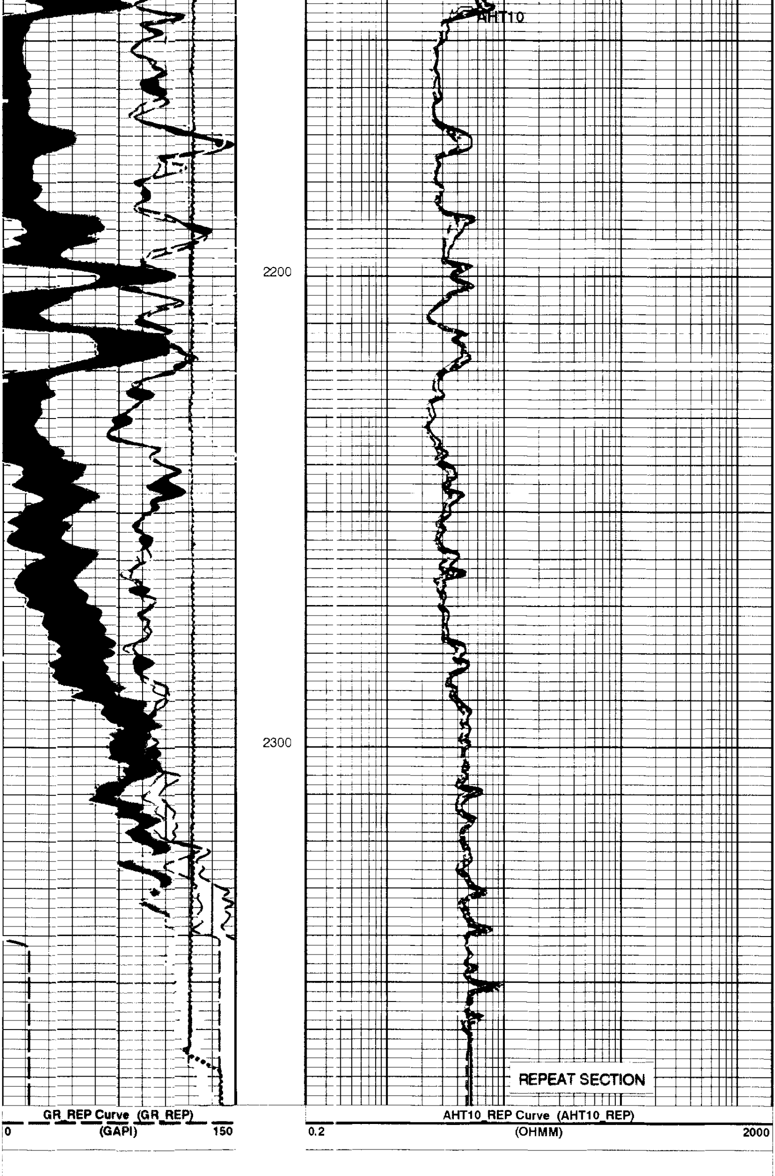
Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
BHT	90 DEGF	123 DEGF	2365.6 05:56:21

PIP SUMMARY

▭ Time Mark Every 60 S





TENS_REP Curve (TENS_REP)			AHT90_REP Curve (AHT90_REP)		
10000	(LBF)	0	0.2	(OHMM)	2000

PIP SUMMARY

■ Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AHBHM	AIT-H Bhole Correction Mode	2_ComputeStandoff	
AHBLM	AIT-H Basic Logs Mode	6_One_Two_and_Four	
AHCDE	AIT-H Casing Detection Enable	Yes	
AHCEN	AIT-H Tool Centering Flag (in Borehole)	Eccentered	
AHCSED	AIT-H Casing Shoe Estimated Depth	-50000	FT
AHMRF	AIT-H Mud Resistivity Factor	1	
AHSTA	AIT-H Tool Standoff	1	IN
BHT	Bottom Hole Temperature (used in calculations)	123	DEGF
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	9.50	LB/G
DORL	Depth Offset Repeat Analysis	0.0	FT
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSTI	STI Uses HILT Acceleration	YES	
MST	Mud Sample Temperature	80.00	DEGF
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	-15	MV
TD	Total Depth	2365	FT

Format: AIT_REP Vertical Scale: 5" per 100' Graphics File Created: 22-Jul-1998 05:52

OP System Version: 8C1-205

MCM

HILTB-DTB	APCIV-98Q1	DSLT-TCC	8C1-205
TCC-B	APCIV-98Q1		

Input DLIS Files

DEFAULT	HILTB .003	FN:2	FIELD	22-Jul-1998 05:33	2376.0 FT	1939.2 FT

Output DLIS Files

DEFAULT	HILTB .004	FN:3	FIELD	22-Jul-1998 05:52

COMPANY:	**NORTHWEST NATURAL GAS**
WELL:	**OM-32-22-65**
FIELD:	**CALVIN CREEK GAS STORAGE**
COUNTY:	**COLUMBIA**
STATE:	**OREGON**

BOTTOM LOG INTERVAL	2357 F
SCHLUMBERGER DEPTH	2365 F
DEPTH DRILLER	2365 F
KELLY BUSHING	762 F
DRILL FLOOR	
GROUND LEVEL	753 F

Schlumberger

PLATFORM EXPRESS
ARRAY INDUCTION/SP
5" = 100'