HALLIBURTON

TRIPLE COMBO
HRI/SDL/DSN

2"=100'

COMPANY NORTHWEST NATURAL GAS
WELL IW 23ADH-3-65
FIELD MIST (FLORA POOL STORAGE)
COUNTY COLUMBIA STATE OR

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WELL IW 23ADH-3-65
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API No. 36-009-00365
Location 1509.41' S 86 38' 36" &
1985.04' N 03 21' 24"
FROM THE SOUTHWEST 1/4
OF SECTION 3. WB&M
X: 1291029.6
Y: 874602.1
Sect 3 Twp 6N Rge 5W

Other Services
EMIT-B

Permanent Datum G.L. Elev 1075.5'
Log measured from K.B. , 14.0' above perm. datum
Drilling measured from K.B.

Elev.: K.B 1089.5'
D.F ------
G.L 1075.5'

Date	APR-23-2007			
Run No.	ONE			
Depth – Driller	3581'			
Depth – Logger	3484'			
Bottom – Logged Interval	3476'			
Top – Logged Interval	565'			
Casing – Driller	13.375" @ 565'	@	@	@
Casing – Logger	565'			
Bit Size	8.750"			
Type Fluid in Hole	GEL			
Dens. | Visc.	9.2 | 46.0	|	|	|
Ph | Fluid Loss	8.4 | 5.0	|	|	|
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	2.280 @ 55 F	@	@	@
Rmf @ Meas. Temp.	2.320 @ 48 F	@	@	@
Rmc @ Meas. Temp.	1.740 @ 50 F	@	@	@
Source Rmf | Rmc	MEAS | MEAS	|	|	|
Rm @ BHT	1.319 @ 100 F	@	@	@
Time Since Circ.	04-22 2000			
Time on Bottom	04-23 0250			
Max. Rec. Temp.	100 F @ 3476'	@	@	@
Equip. | Location	49599 | WDLD	|	|	|
Recorded By	G. ROUSSEAU			
Witnessed By	J. MEYER	J. THUM	E. VADER	

Service Ticket No 5048743 API Serial No 36-009-00365 PGM Version

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLES		
Date | Sample No.	|	|
Depth – Driller		
Type Fluid in Hole		
Dens. | Visc.	|	|
Ph | Fluid Loss	|	|
Source of Sample		
Rm @ Meas. Temp.	2.280 @ 55 F	@
Rmf @ Meas. Temp.	2.320 @ 48 F	@
Rmc @ Meas. Temp.	1.740 @ 50 F	@
Source Rmf | Rmc	MEAS | MEAS	|
Rm @ BHT	1.319 @ 100 F	@
Rmf @ BHT	1.190 @ 100 F	@
Rmc @ BHT	0.925 @ 100 F	@

RESISTIVITY SCALE CHANGES

Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
ONE	HRIT #211_132	NA	1.50" SO	NA

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	A-180	Serial No.		Serial No.	I714M74'	Serial No.	05
Model No.	NGRT	Model No.		Model No.	SDLT-DA	Model No.	DSNT-X
Diameter	3.635"	No. of Cent.		Diameter	5.500"	Diameter	3.625"
Detector Model No.	432	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT.			Source Type	CS-137	Source Type	AM241BE
Length	4.00"	LSA [Y / N]		Serial No.	2694GW	Serial No.	DSN-307
Distance to Source	11.0'	FWDA [Y / N]		Strength	1.5 CI	Strength	15.0 CI

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale			Scale			Scale		
No.	From	To	Ft / Min	L	R	L	R	Matrix	L	R	Matrix	L	R	Matrix
ONE	3476'	565'	25	0	150				1.65	2.65	2.65	60	0	SAND
				AP[I	API				GMCC	GMCC	GMCC	%	%	

DIRECTIONAL INFORMATION

Maximum Deviation	83.4	deg. @	3437	KOP	702

Remarks:

MAGNETIC DECLINATION 19.1 DEGREES.

HRID-EMIT-SDLT-DSNT-NGRT-DTD RUN IN COMBINATION.

DIGITAL SPICE AT 2910'

CREW: D. ROSENSTEEL, G. AGUILARA. RIG: TD DRILLING NO. 101.

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

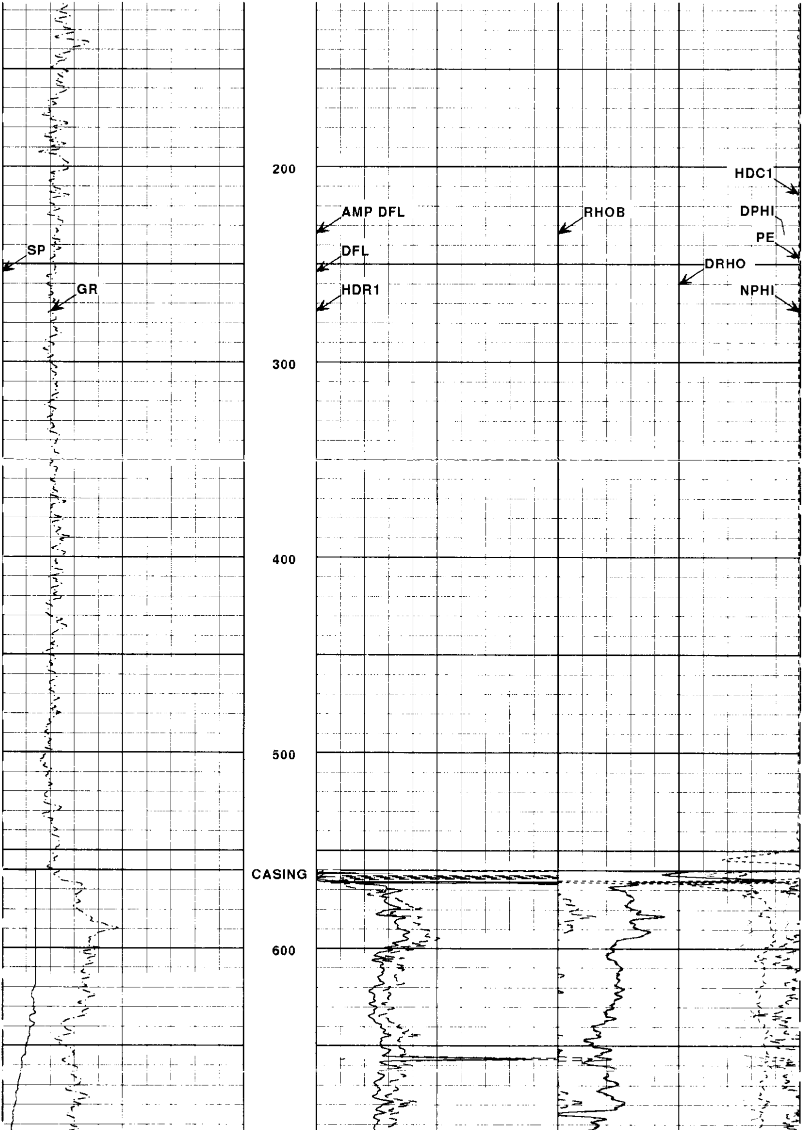
HALLIBURTON

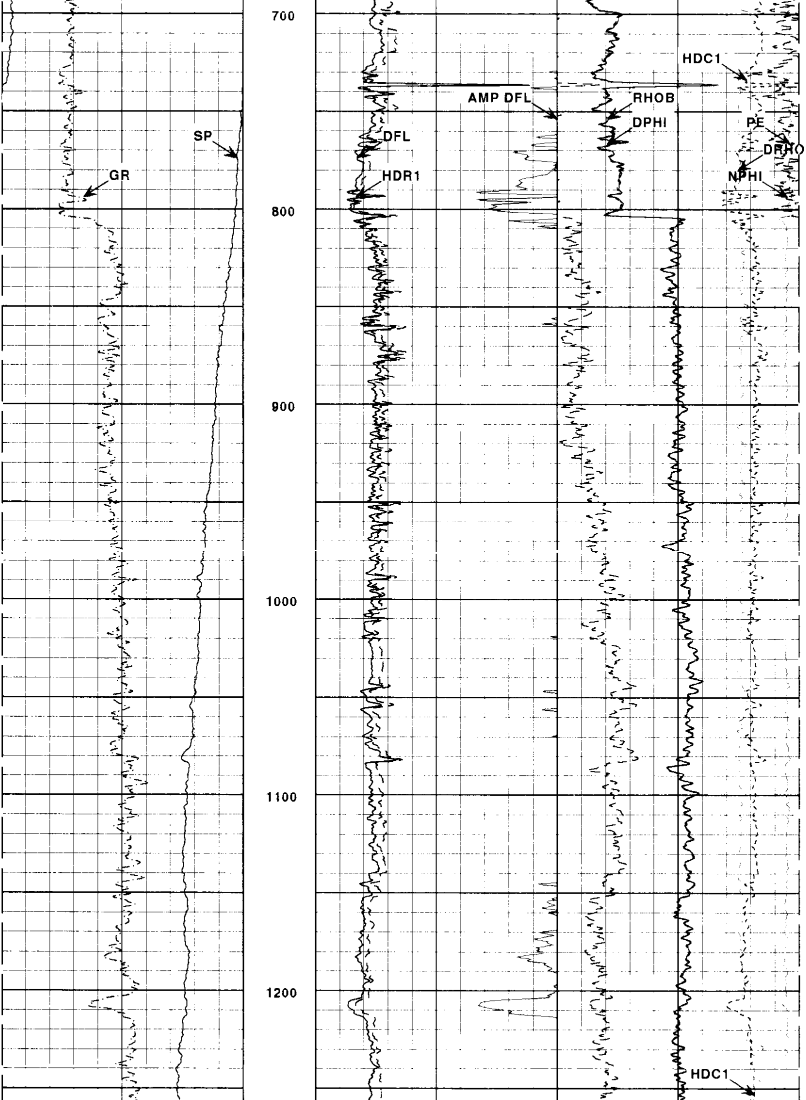
HALLIBURTON

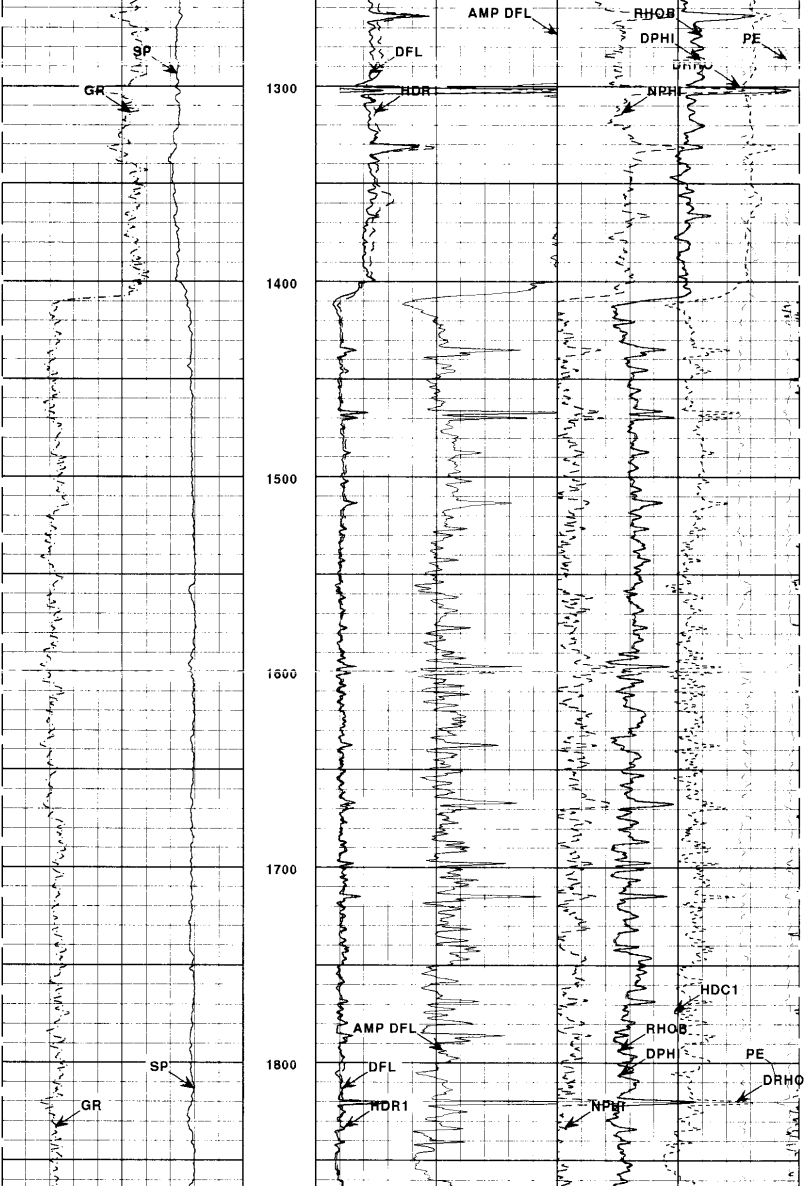
Version No: | hc:3.0
Data File: RUN1.RUN2.MER1.cls
Format File: .spc
Plot Time: 2007-04-23 18:22:13
Database Time: 17:54:04

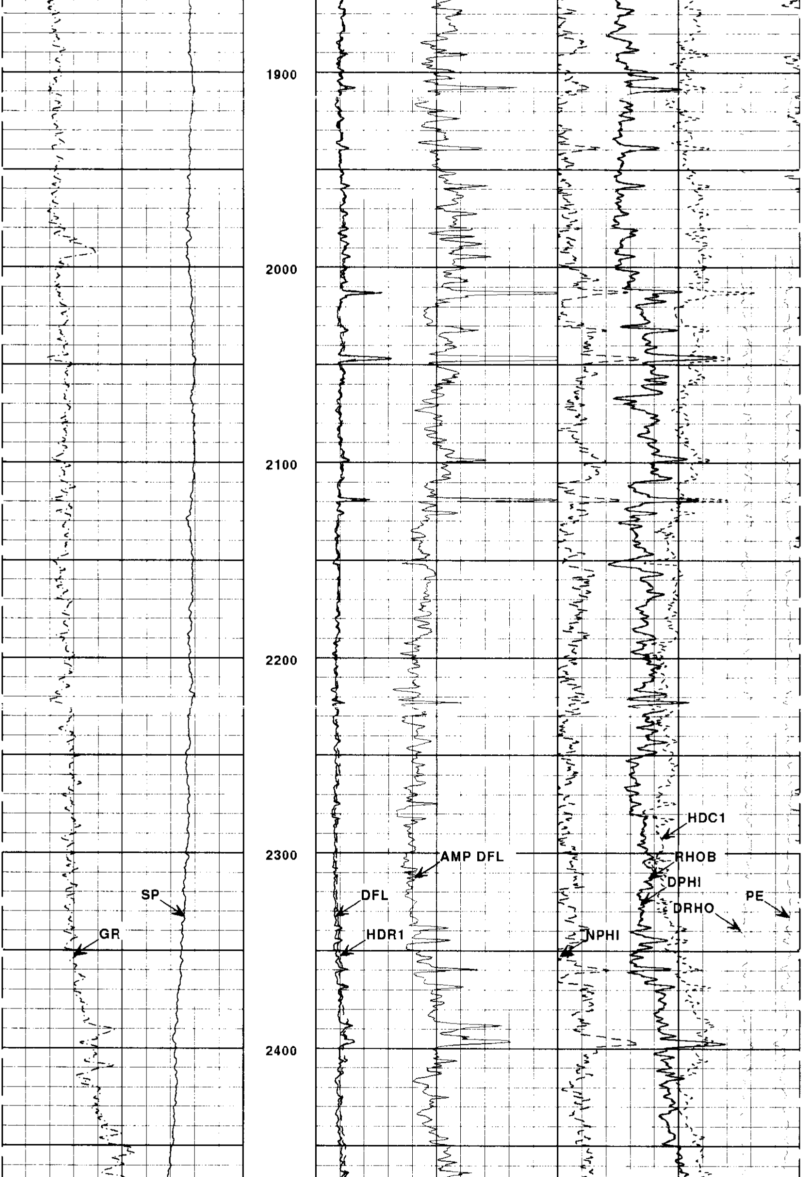
Top Depth: 115.01
Bottom Depth: 3484.00

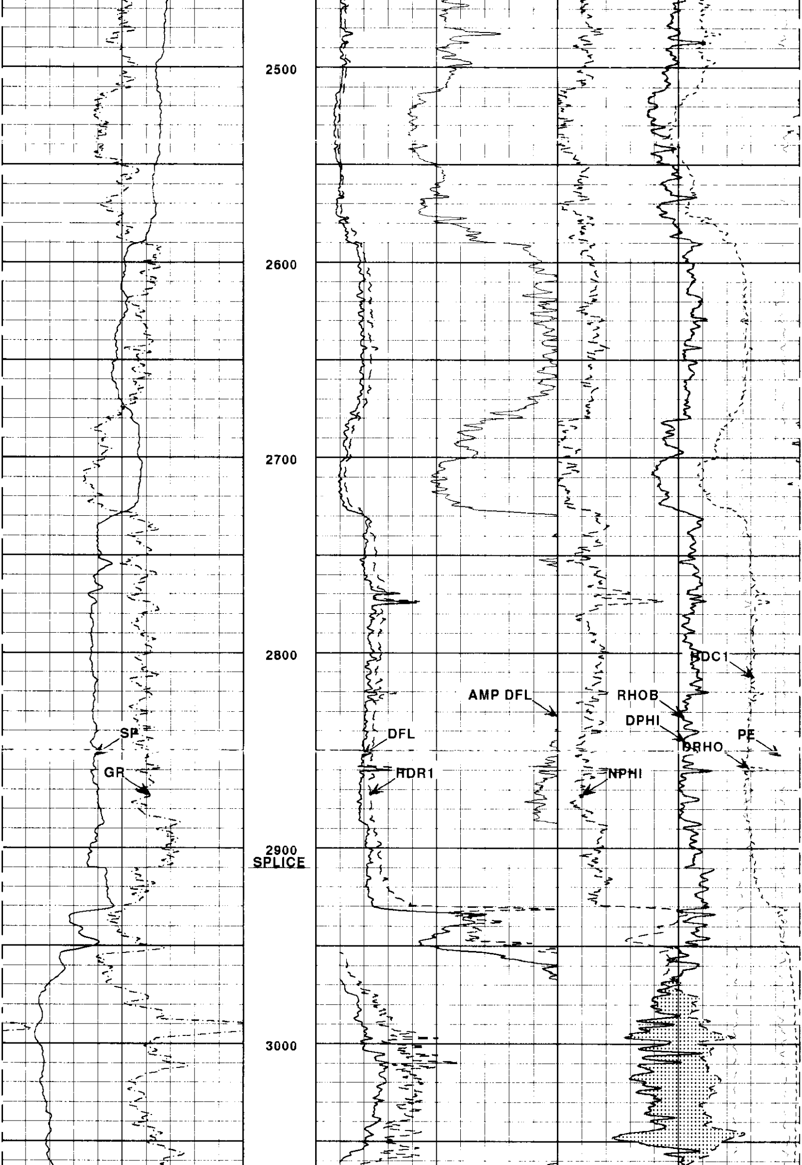
GR 0 **API** 150 **SP** -]10[+	1:600 FT.	**HDR1** 0 **OHMM** 20 **DFL** 0 **OHMM** 20 **AMP DFL** 0 **OHMM** 4	**NPHI** 60. **%** 0 **DPHI** 60. **%** 0 **RHOB** 1.65 **G/CC** 2.65 **HDC1** 1000 **MMHO** 0 **DRHO** -0.5 **G/CC** 0.5 **PE** 12 2

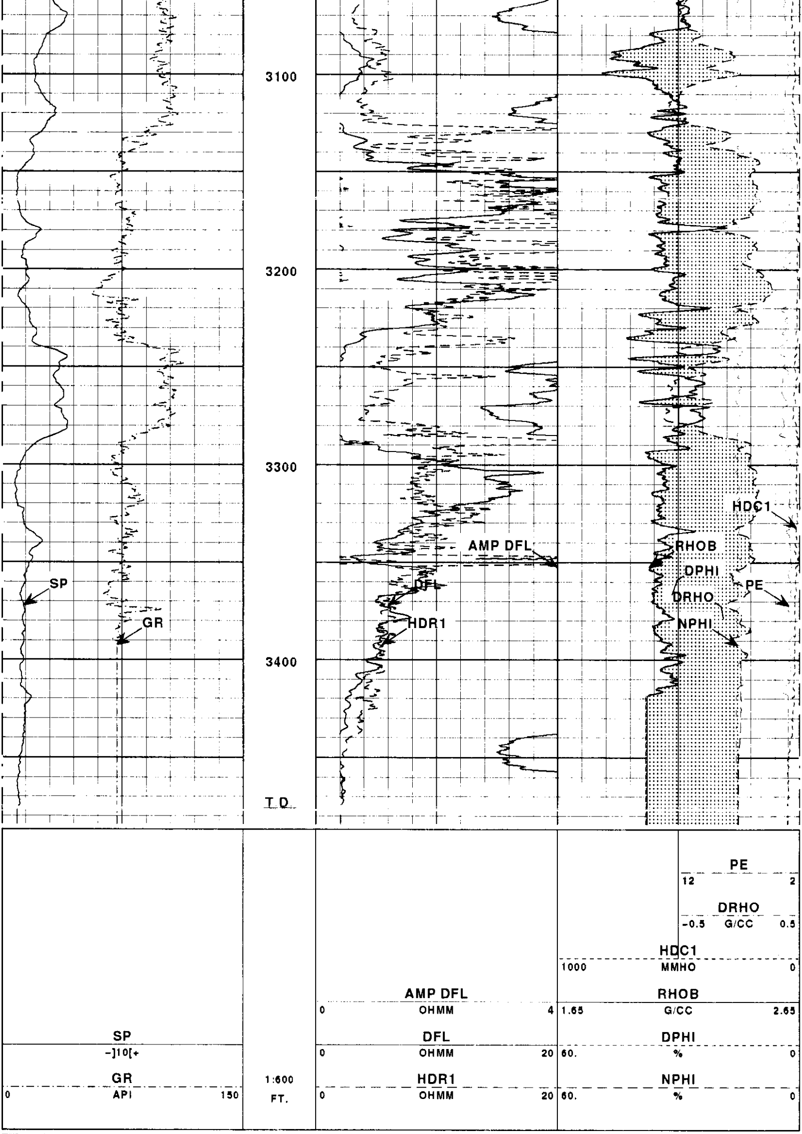












Version No: | hc:3.0

Data File: RUN1.RUN2.MER1.cls

HALLIBURTON

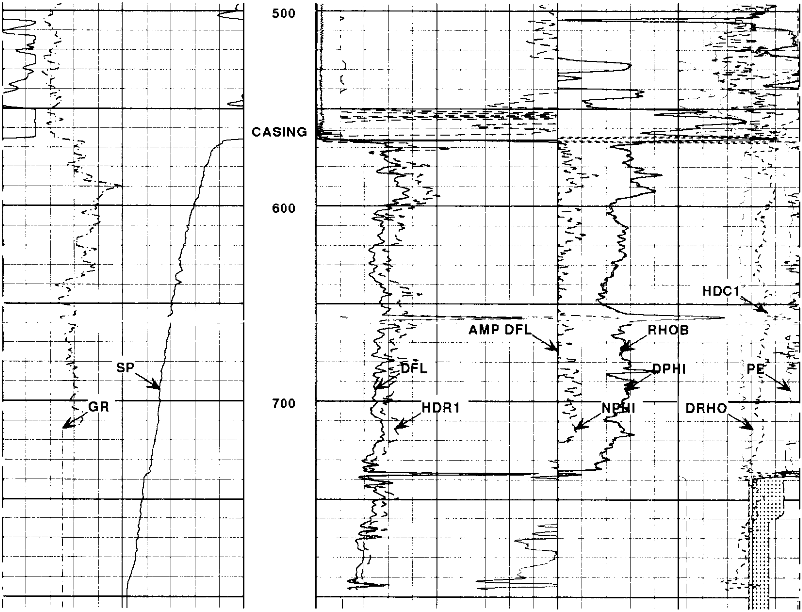
Format File: .spc
Plot Time: 2007-04-23 18:22:03
Database Time: 17:54:04
Top Depth: 115.01
Bottom Depth: 3484.00

REPEAT SECTION

HALLIBURTON

Version No: | hc:3.0
Data File: RUN1.REPEAT.cls
Format File: .spc
Plot Time: 2007-04-23 18:21:42
Database Time: 05:13:19
Top Depth: 495.01
Bottom Depth: 805.76

GR 0 API 150 SP -]10[+	1:600 FT.	HDR1 0 OHMM 20 DFL 0 OHMM 20 AMP DFL 0 OHMM 4	NPHI 60. % 0 DPHI 60. % 0 RHOB 1.65 G/CC 2.65 HDC1 1000 MMHO 0 DRHO -0.5 G/CC 0.5 PE 12 2



			PE 12 — 2 DRHO -0.5 G/CC 0.5
			HDC1 1000 MMHO 0
		AMP DFL 0 OHMM 4	RHOB 1.65 G/CC 2.65
SP -]10[+		DFL 0 OHMM 20	DPHI 60. % 0
GR 0 API 150	1:600 FT.	HDR1 0 OHMM 20	NPHI 60. % 0

HALLIBURTON

Version No: | nc:3.0
Data File: RUN1.REPEAT.cls
Format File: .spc
Plot Time: 2007-04-23 18:21:40
Database Time: 05:13:19

Top Depth: 495.01
Bottom Depth: 805.76

Current EXCELL-2000 Parameter Values
Depth: 75.333
Date: 23-Apr-2007 05:50:
Service Number: 3362
Software Version: 5.7

Mnemonic	Tool	Parameter Description	Value	Units
PERF	DITSHD	PERFORATED INTERVAL	NO	
TD	DITSHD	TOTAL DEPTH	0.	FT
CS_ANT	DITSHD	CASING DEPTH (FOR ANNOTATION)	0.	FT
ANTSPA	DITSHD	ANNOTATION LABEL SPACING	500.	Ft
GR_OK	GAMMA	DO GAMMA CALCULATIONS?	YES	
CASED	SHARED	CASED HOLE?	NO	
CASEOD	SHARED	CASING DIAMETER (OD)	7.	Inches
MUDWT	SHARED	BOREHOLE FLUID WEIGHT	9.1	Pounds/Gal.
GRSO	GAMMA	GAMMA RAY STANDOFF	0.	Inches
BS	SHARED	BIT SIZE	8.75	Inches
DSN_OK	DSNT_X	DO DSNT_X CALCULATIONS?	YES	
DRILL	DSNT_X	TPL - NEUTRON IN SLEEVE?	NO	
BADHOL	DSNT_X	DSNT_X BAD HOLE CORRECTION	NO	
NLITH	DSNT_X	NEUTRON LITHOLOGY	SAND	
DSNSO	DSNT_X	DSNT_X STANDOFF	0.	Inches
DSNTMP	DSNT_X	DSNT_X TEMPERATURE CORRECTION	NONE	
DSNPRS	DSNT_X	DSNTX PRESSURE CORRECTION	NONE	
VLDTMP	DSNT_X	IS DSNT_X TEMPERATURE VALID?	YES	
SDL_OK	SDL_DA	DO SDL CALCULATIONS?	YES	
EVR_OK	SDL_DA	DO SDL EVR CALCULATIONS?	YES	
AIR	SDL_DA	AIR FILLED BOREHOLE?	NO	
LOGB	SDL_DA	LOGGING CAL BLOCKS?	NO	
SDLTC	SDL_DA	SDL TEMPERATURE CORRECTION?	YES	
MUDT	SDL_DA	MUD CORRECTION TYPE?	NONE	
RHOMAT	SDL_DA	MATRIX DENSITY	2.65	Grams/CC
RHOFLU	SDL_DA	FLUID DENSITY	1.	Grams/CC
CAL_OK	CAL_DA	DO CALIPER CALCULATIONS?	YES	
AHVOK	CAL_DA	DO ANNULAR VOLUME CALCULATION?	YES	
MLOGOK	MIC_SD	DO MICRO-LOG CALCULATIONS?	YES	
DIP_OK	SHARED	DO DIPMETER CALCULATIONS?	YES	
EMI_OK	EMIT	DO EMI IMAGE CALCULATIONS?	YES	
ROTIMG	EMIT	ROTATE EMI IMAGE (N-E-S-W-N)	YES	
COMPAS	EMIT	WHICH COMPASS FOR ROTATION?	EMI	
AUTOGN	EMIT	EMI BUTTON AUTO GAIN	YES	
BCOLOR	EMIT	EMI BUTTON AUTOGAIN COLOR	127.	

BFILT	EMIT	BUTTON AUTO GAIN FILTER	0.02	
NAVOK	EMIMAG	DO NAVIGATION CALCULATIONS?	YES	
CAL_OK	EMICAL	DO CALIPER CALCULATIONS?	YES	
HRI_OK	HRIDE	DO HRI INDUCTION CALCULATION?	YES	
DFL_OK	HRIDE	DO DFL CALCULATIONS?	YES	
PYRITE	HRIDE	PYRITE SWITCH	NO	OHMM
CASING	HRIDE	CASING DEPTH	0.	Feet
HRIDSP	HRIDE	SPIKE REDUCTION FILTER TYPE?	DELT	
HRITC	HRIDE	HRI TEMPERATURE CORRECTION	NONE	
CTEM	HRIDE	CONST TEMPERATURE	75.	DegF
BHT	HRIDE	BOTTOM HOLE TEMPERATURE	100.	Degrees F.
TSURF	HRIDE	SURFACE TEMPERATURE	60.	Degrees F
BHD	HRIDE	BOTTOM HOLE DEPTH	3581.	Feet
SP	HRIDE	USE DIGITAL SP?	NO	
SP_OF	HRIDE	SPONTANEOUS POTENTIAL OFFSET	0.	
RMUD	HRIDE	MUD RESIST AT SURFACE (0=Air)	2.28	OHMM
TRM	HRIDE	TEMPERATURE OF MUD	55.	DEGF
RRMIN	HRIDE	MINIMUM RESISTIVITY FOR MAP?	0.2	OHMM
RRMAX	HRIDE	MAXIMUM RESISTIVITY FOR MAP?	200.	OHMM

COMPANY NORTHWEST NATURAL GAS

WELL IW 23ADH-3-65

FIELD MIST (FLORA POOL STORAGE)

COUNTY COLUMBIA **STATE** OR

HALLIBURTON

TRIPLE COMBO
HRI/SDL/DSN

2"=100'