HALLIBURTON
EXCELL 2000

SPECTRAL DENSITY
DUAL SPACED NEUTRON
GAMMA
2" = 100'

COMPANY	NORTHWEST NATURAL GAS
WELL	IW 13B-23-65
FIELD	MIST (SCHLICKER POOL STORAGE)
COUNTY	COLUMBIA
STATE	OR

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API No.	36-009-00357
Location	438.73' WEST AND 2424.34' SOUTH FROM THE NORTHEAST CORNER OF SECTION 22, WB&M X: 1293755.179 Y: 859503.800
Other Services	HRI/BCS/FIAC EMI
Sect	22
Twp	6N
Rge	5W

Permanent Datum	G.L.	Elev	759.4'
Log measured from	K.B. , 19.0 ft. above perm. datum	Elev.: K.B.	778.4'
Drilling measured from	K.B.	D.F.	
		G.L.	759.4'

Date	09-29-2004		
Run No.	ONE		
Depth – Driller	2234'		
Depth – Logger	2234'		
Bottom – Logged Interval	2231'		
Top – Logged Interval	441'		
Casing – Driller	13.4" @ 442'	@	@
Casing – Logger	441'		
Bit Size	8.750"		
Type Fluid in Hole	GEL		
Dens. | Visc.	9.3 | 42	—	—
Ph | Fluid Loss	9.5 | 6.8	—	—
Source of Sample	FLOWLINE		
Rm @ Meas. Temp.	1.170 @ 66 F	@	@
Rmf @ Meas. Temp.	1.460 @ 61 F	@	@
Rmc @ Meas. Temp.	.820 @ 64 F	@	@
Source Rmf | Rmc	MEAS | MEAS	—	—
Rm @ BHT	0.748 @ 107 F	@	@
Time Since Circ.	2000 09-28		
Time on Bottom	0600 09-29		
Max. Rec. Temp.	107 F @ TD	@	@
Equip. | Location	49599 | WDLD	—	—
Recorded By	G. ROUSSEAU		
Witnessed By	J. MEYERS	E. VADER	

Fold Here

Service Ticket No	3310704	API Serial No	36-009-00357	PGM Version	XL v5.0

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.	1.170 @ 66 F	@
Rmf @ Meas. Temp.	1.460 @ 61 F	@
Rmc @ Meas. Temp.	.820 @ 64 F	@
Source Rmf | Rmc	MEAS | MEAS	|
Rm @ BHT	0.748 @ 107 F	@
Rmf @ BHT	0.870 @ 107 F	@
Rmc @ BHT	0.510 @ 107 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

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	A180	Serial No.		Serial No.	1741M741	Serial No.	005
Model No.	NGRT	Model No.		Model No.	SDLT-DA	Model No.	DSNT-X
Diameter	3.625"	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	CS137	Source Type	AM241BE
Length	4.00"	LSA [Y / N]	NO	Serial No.	2694 GW	Serial No.	DSN-16
Distance to Source	8.0'	FWDA [Y / N]	NO	Strength	1.5 CI	Strength	18.5 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	2234'	411'	40	0	150				1.65	2.65	2.65	.60	0	SAND
				API	API		C		GMCC	GMCC	GMCC	%	%	

DIRECTIONAL INFORMATION

Maximum Deviation	54.32	deg. @	1755'	KOP	192'

Remarks:
SDLT-DSNT-NGRT RUN IN COMBINATION.

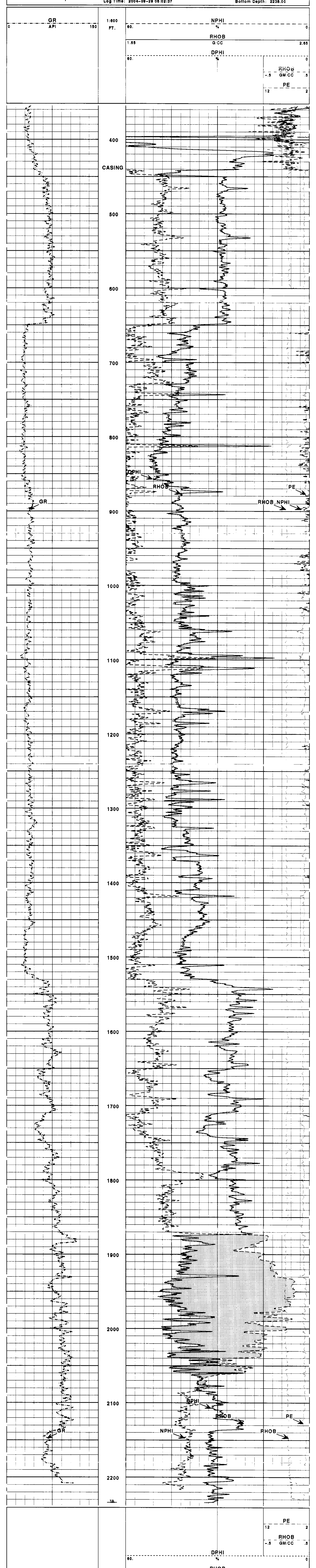
CREW: D. ROSENSTEEL, D. BRIGHT, K. CHAN. RIG: TAYLOR DRILLING NO. 9.

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 EXCELL 2000

Version No: 5.0 | hc:3.0
Data File: 0929_0429_s2241.2.cls
Format File: plot_01_2.spc
Plot Time: 2004-09-29 07:28:50
Log Time: 2004-09-29 06:02:37
Top Depth: 353.83
Bottom Depth: 2238.00



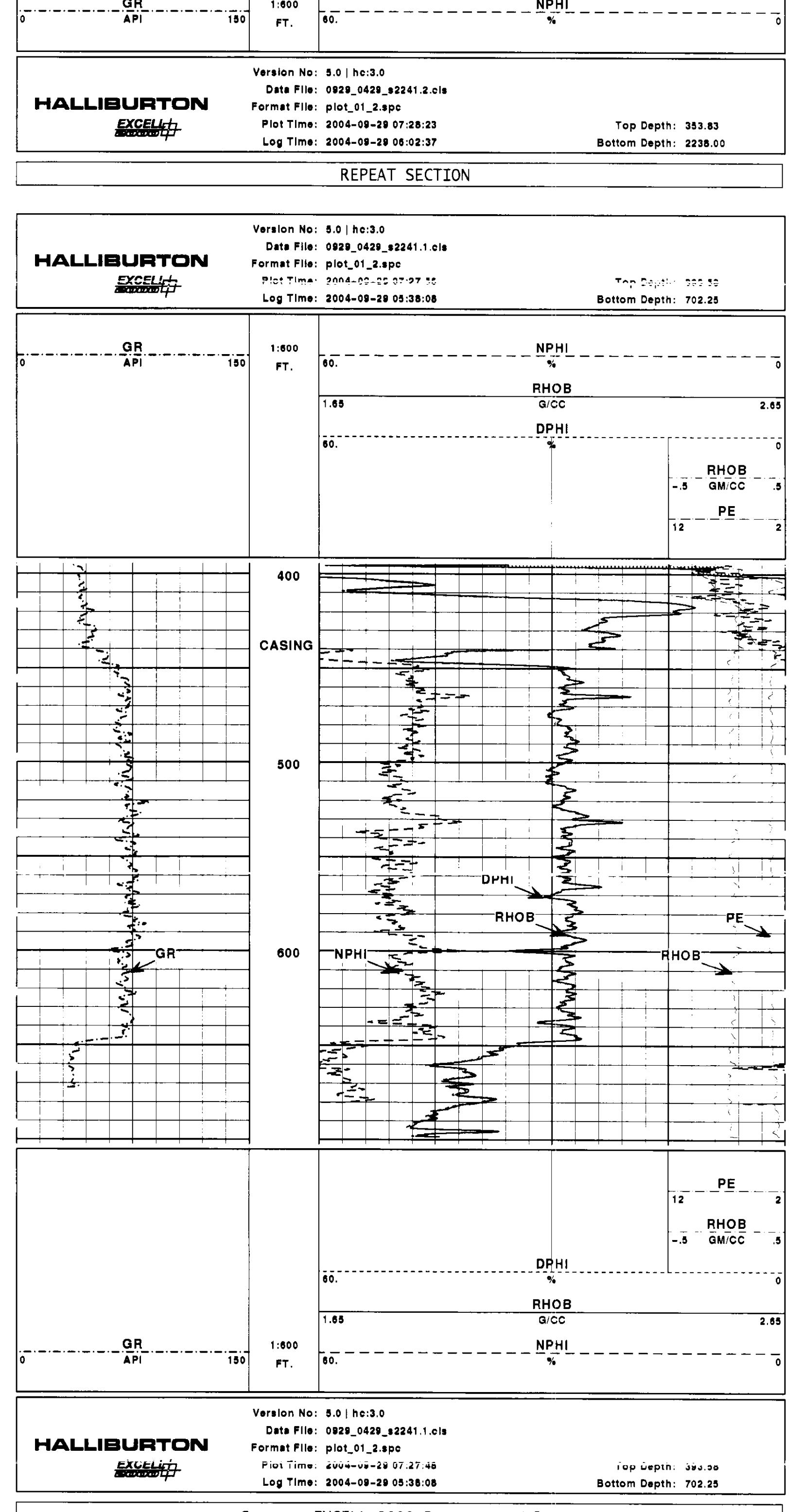
HALLIBURTON EXCELL 2000

Version No: 5.0 | hc:3.0
Data File: 0929_0429_s2241.2.cls
Format File: plot_01_2.spc
Plot Time: 2004-09-29 07:28:23
Log Time: 2004-09-29 06:02:37
Top Depth: 353.83
Bottom Depth: 2238.00

REPEAT SECTION

HALLIBURTON EXCELL 2000

Version No: 5.0 | hc:3.0
Data File: 0929_0429_s2241.1.cls
Format File: plot_01_2.spc
Plot Time: 2004-09-29 07:27:58
Log Time: 2004-09-29 05:38:08
Top Depth: 393.58
Bottom Depth: 702.25



HALLIBURTON EXCELL 2000

Version No: 5.0 | hc:3.0
Data File: 0929_0429_s2241.1.cls
Format File: plot_01_2.spc
Plot Time: 2004-09-29 07:27:48
Log Time: 2004-09-29 05:38:08
Top Depth: 393.58
Bottom Depth: 702.25

Current EXCELL-2000 Parameter Values
Depth: 94.000
Date: 29-Sep-2004 05:30
Service Number: 2241
Software Version: 5.0

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
GR_OK	GAMMA	DO GAMMA CALCULATIONS?	YES	
CASED	SHARED	CASED HOLE?	NO	
CASEOD	SHARED	CASING DIAMETER (OD)	9.625	Inches
MUDWT	SHARED	BOREHOLE FLUID WEIGHT	9.3	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	

COMPANY	NORTHWEST NATURAL GAS		
WELL	IW 13B-23-65		
FIELD	MIST (SCHLICKER POOL STORAGE)		
COUNTY	COLUMBIA	STATE	OR

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SPECTRAL DENSITY
DUAL SPACED NEUTRON
GAMMA
2"=100'