HALLIBURTON
EXCELL 2000

COMPANY ENERFIN RESOURCES NORTHWEST
WELL HOBBES #22-26-65
FIELD MIST
COUNTY COLUMBIA STATE OR

DUAL INDUCTION BOREHOLE COMPENSATED SONIC

5"=100'

COMPANY ENERFIN RESOURCES NORTHWEST
WELL HOBBES #22-26-65
FIELD MIST
COUNTY COLUMBIA STATE OR

API No. 36-009-00330
Location 1744.22 FT SOUTH AND 2512.13 FT EAST FROM THE NORTHWEST CORNER OF:

Other Services
NONE

Sect 26 Twp 6N Rge 5W

Permanent Datum G.L. Elev 621.0'
Log measured from K.B. , 10.0 ft. above perm. datum
Drilling measured from K.B.

Elev.: K.B. 631.0'
D.F. ——
G.L. 621.0'

Date	06-03-98			
Run No.	ONE			
Depth – Driller	1743 FT			
Depth – Logger	1732 FT			
Bottom – Logged Interval	1730 FT			
Top – Logged Interval	486 FT			
Casing – Driller	7.00" @ 487'	@	@	@
Casing – Logger	486 FT			
Bit Size	6.25"			
Type Fluid in Hole	CYPAN			
Dens. | Visc.	9.6 | 39	|	|	|
Ph | Fluid Loss	5.8 | 7.0	|	|	|
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	3.86 @ 70F	@	@	@
Rmf @ Meas. Temp.	4.01 @ 70F	@	@	@
Rmc @ Meas. Temp.	3.35 @ 70F	@	@	@
Source Rmf | Rmc	MEAS | MEAS	|	|	|
Rm @ BHT	2.70 @ 101F	@	@	@
Time Since Circ.	1000 06-03			
Time on Bottom	1500 06-03			
Max. Rec. Temp.	101F @ 1732	@	@	@
Equip. | Location	7626 | WDLD	|	|	|
Recorded By	G. ROUSSEAU			
Witnessed By	D. HUGGINS	R. LUCAS		

Service Ticket No.: #345671 API Serial No.: 36-009-00330 PGM Version: XL v3.45

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLES		
Date | Sample No.	06-03-98 | ONE	|
Depth – Driller	1743 FT	
Type Fluid In Hole	CYPAN	
Dens. | Visc.	9.6 | 39	|
Ph | Fluid Loss	5.8 | 7.0	|
Source of Sample	FLOWLINE	
Rm @ Meas. Temp.	3.86 @ 70F	@
Rmf @ Meas. Temp.	4.01 @ 70F	@
Rmc @ Meas. Temp.	3.35 @ 70F	@
Source Rmf | Rmc	MEAS | MEAS	|
Rm @ BHT	2.70 @ 101F	@
Rmf @ BHT	2.81 @ 101F	@
Rmc @ BHT	2.35 @ 101F	@

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	DILT #109440	NA	FREE	NA
ONE	SGRD #108940	NA	FREE	NA

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.		Run No.	
Serial No.	108581	Serial No.	A013 262	Serial No.		Serial No.	
Model No.	NGRT	Model No.	305B BCS	Model No.		Model No.	
Diameter	3.625"	No. of Cent.	THREE	Diameter		Diameter	
Detector Model No.	432	Spacing	2 FEET	Log Type		Log Type	
Type	SCINT.			Source Type		Source Type	
Length	4.00"	LSA [Y / N]	NO	Serial No.		Serial No.	
Distance to Source	NA	FWDA [Y / N]	NO	Strength		Strength	

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	1732'	486'	25	0	150	175	75	57						
				API	API	USEC	USEC	USEC						

Remarks:

NO CALIPER RUN DUE TO SLIM HOLE.

NO STANDOFFS RUN DUE TO SLIM HOLE.

CREW: K. CLARK, D. ROSENSTEEL. RIG: TAYLOR NO.7.

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.

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EXCELL

Version No. 3.45 | hc.3.0

Data File: ene_hob_22_26_65.3.cls

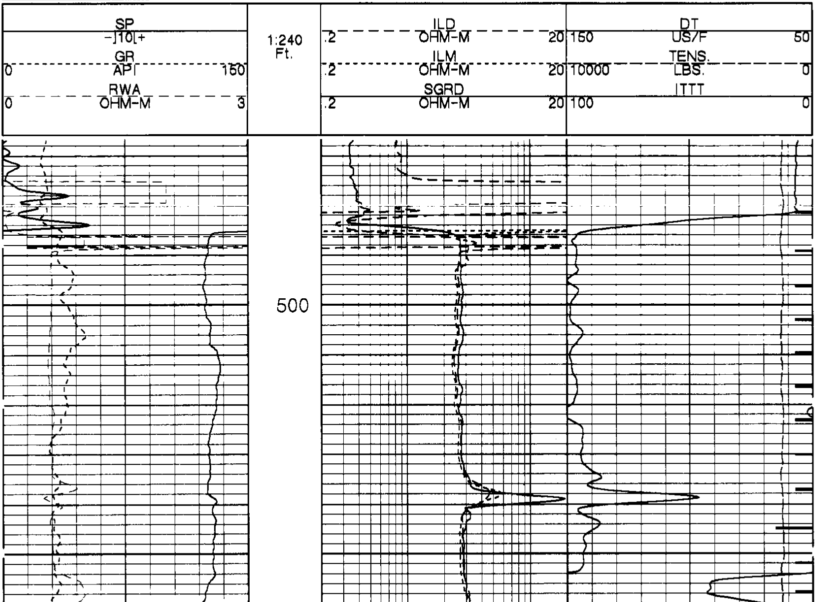
Format File: plot_02_1.spc

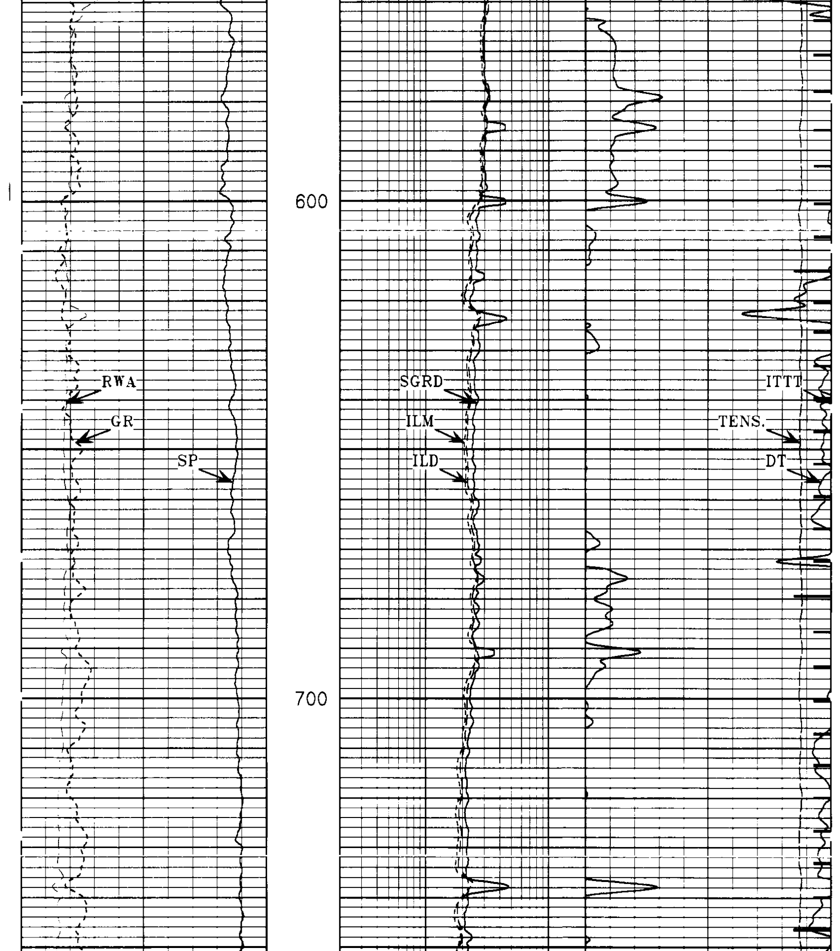
Top Depth: 466.33

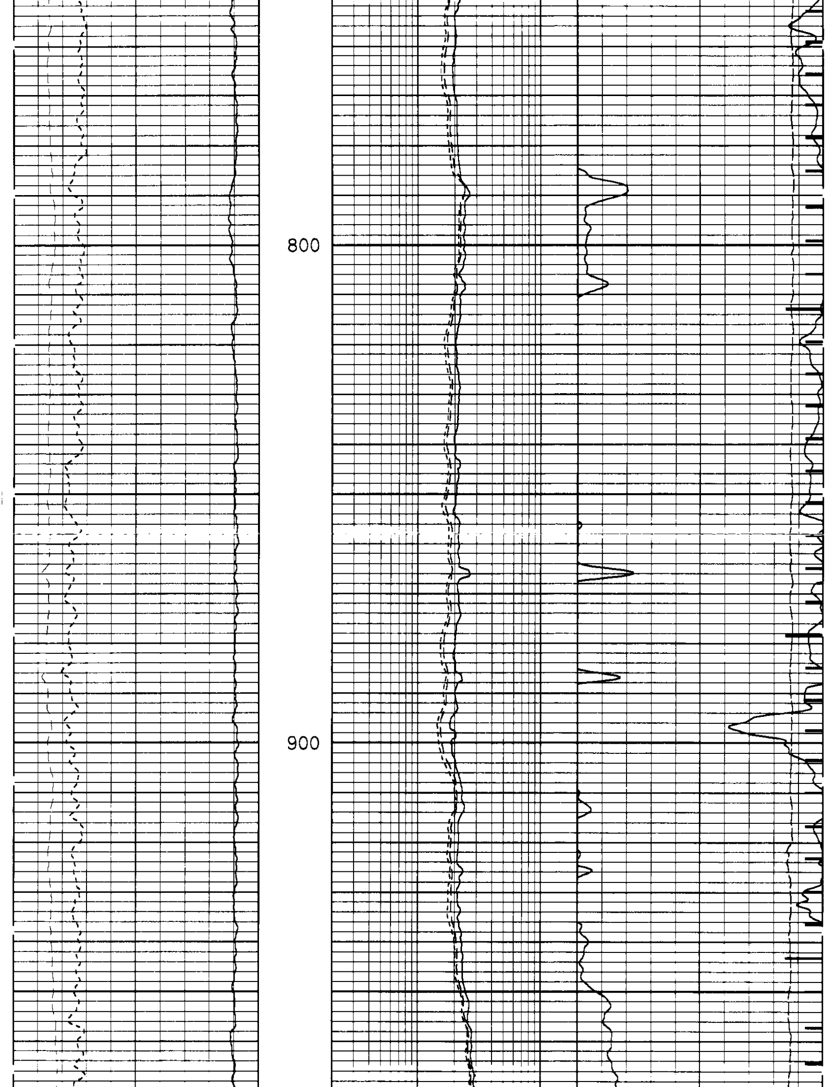
Bottom Depth: 1744.75

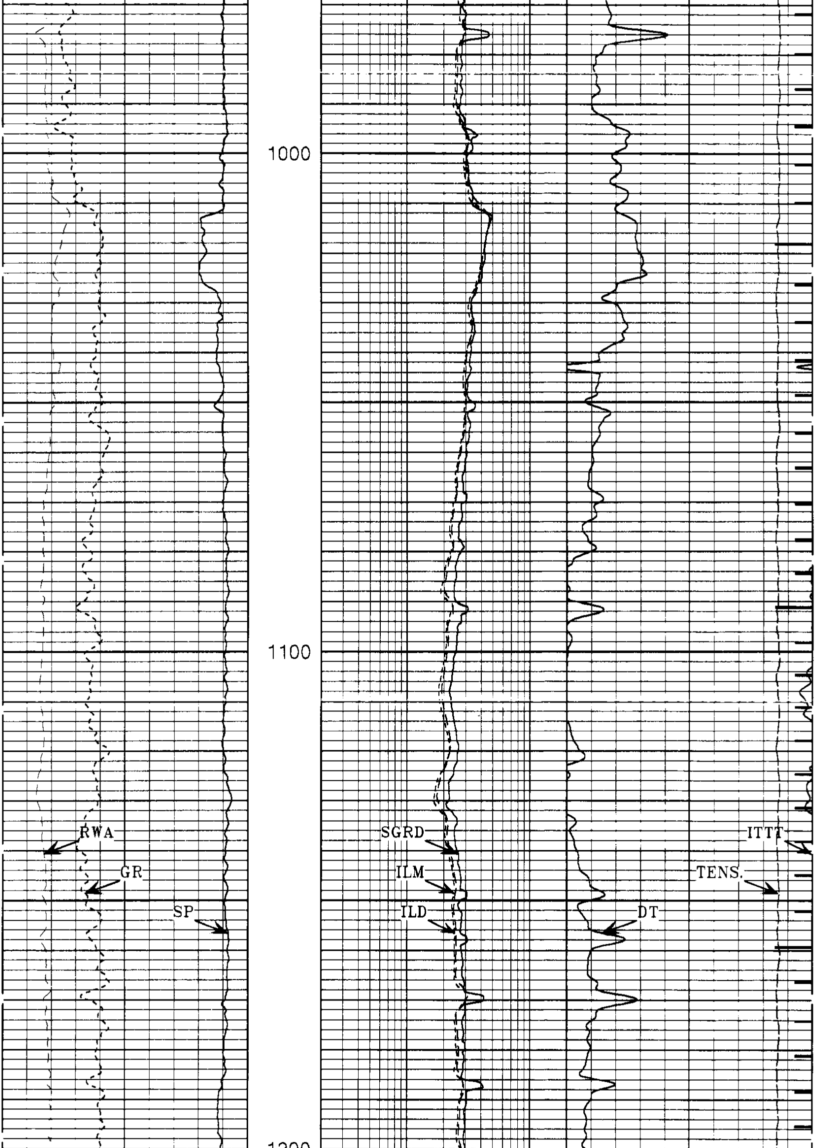
Plot Time: 06-12-98 16:10:24

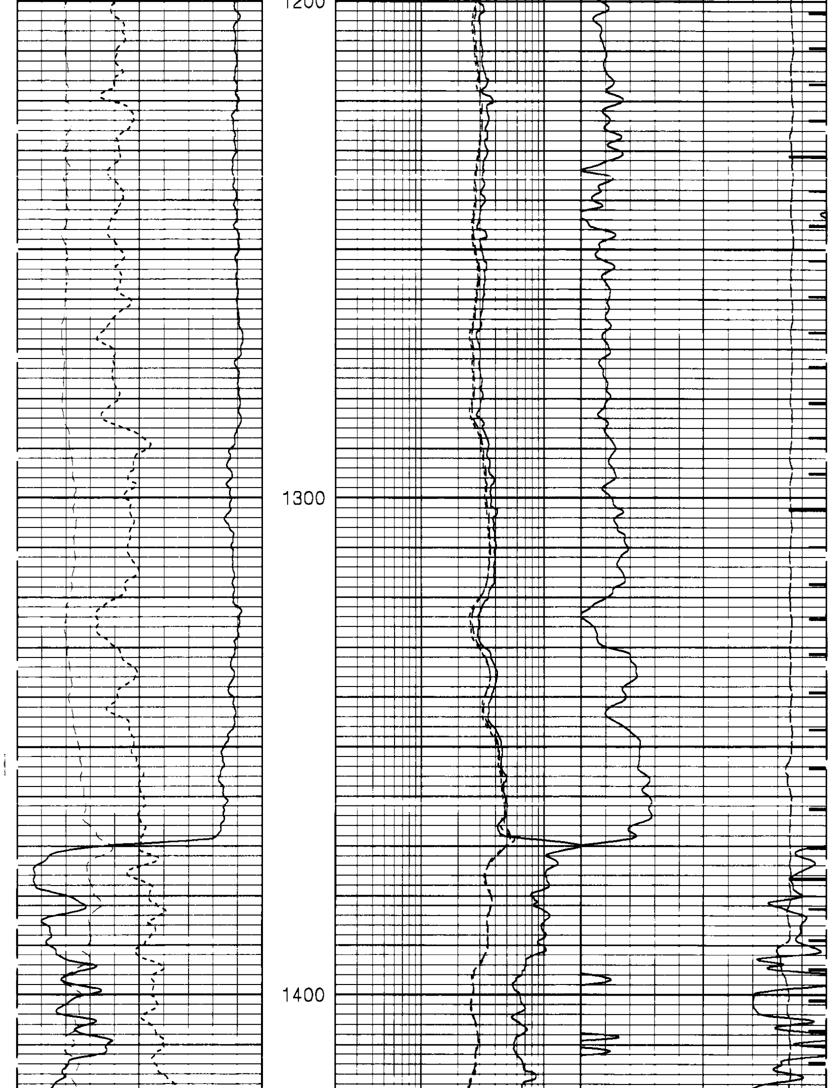
Log Time: 06-03-98 14:58:53

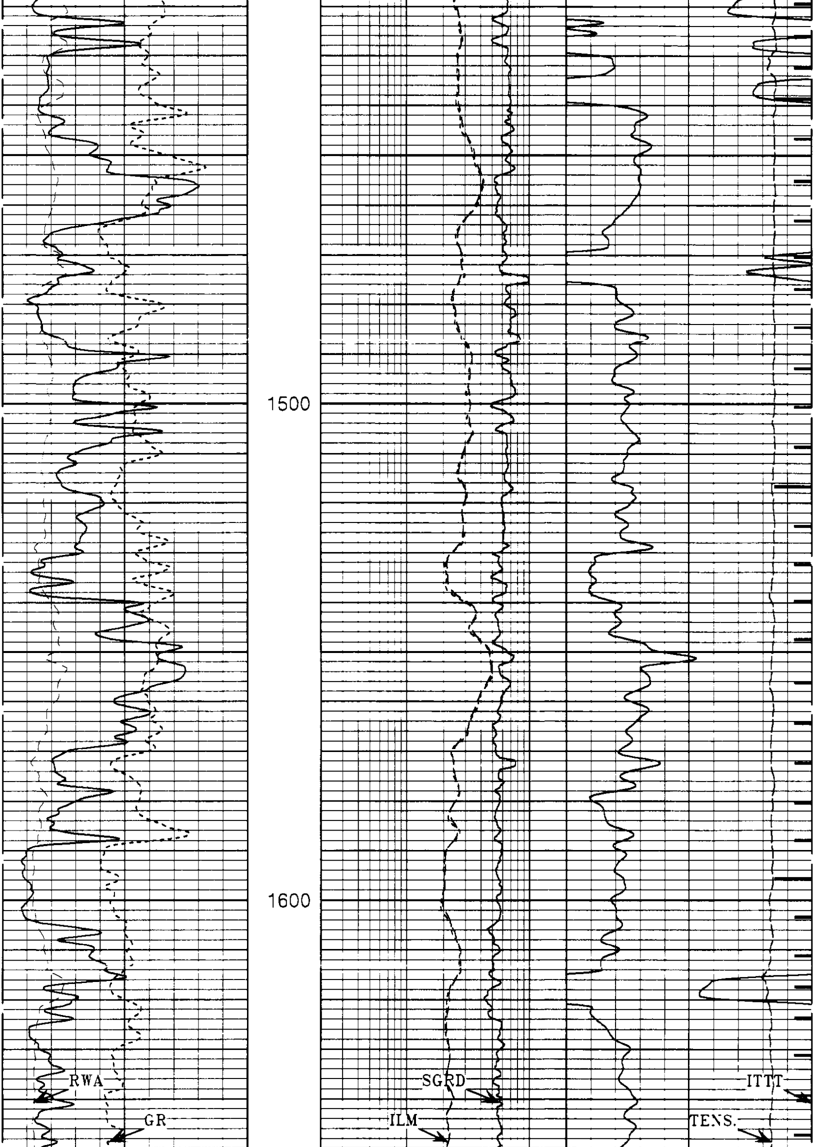


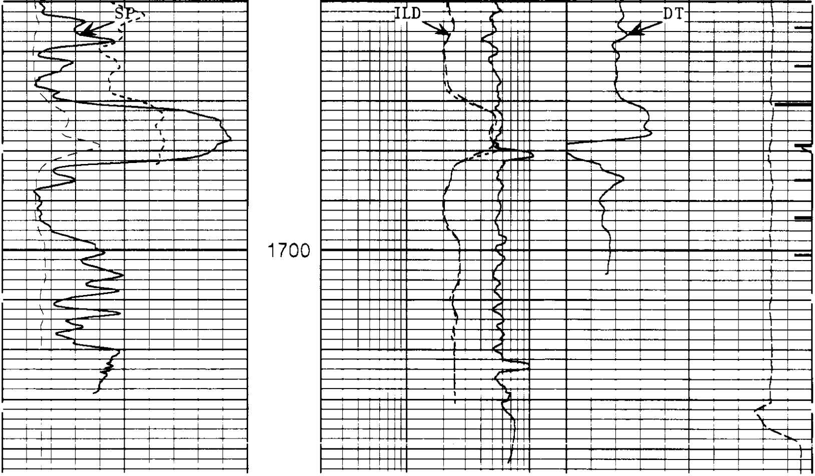












RWA 0 OHM-M 3		SGRD .2 OHM-M 20	ITTT 100 0
GR 0 API 150	1:240 Ft.	ILM .2 OHM-M 20	TENS. 10000 LBS. 0
SP -]10[+		ILD .2 OHM-M 20	DT 150 US/F 50

HALLIBURTON
EXCELL

Version No. 3.45 ; hc 3.0
Data File ene_hob_22_26_65.3.cls
Format File plot_02_1.spc

Top Depth: 466.33
Bottom Depth. 1744.75

Plot Time: 06-12-98 16:09:10
Log Time: 06-03-98 14:58:53

REPEAT SECTION

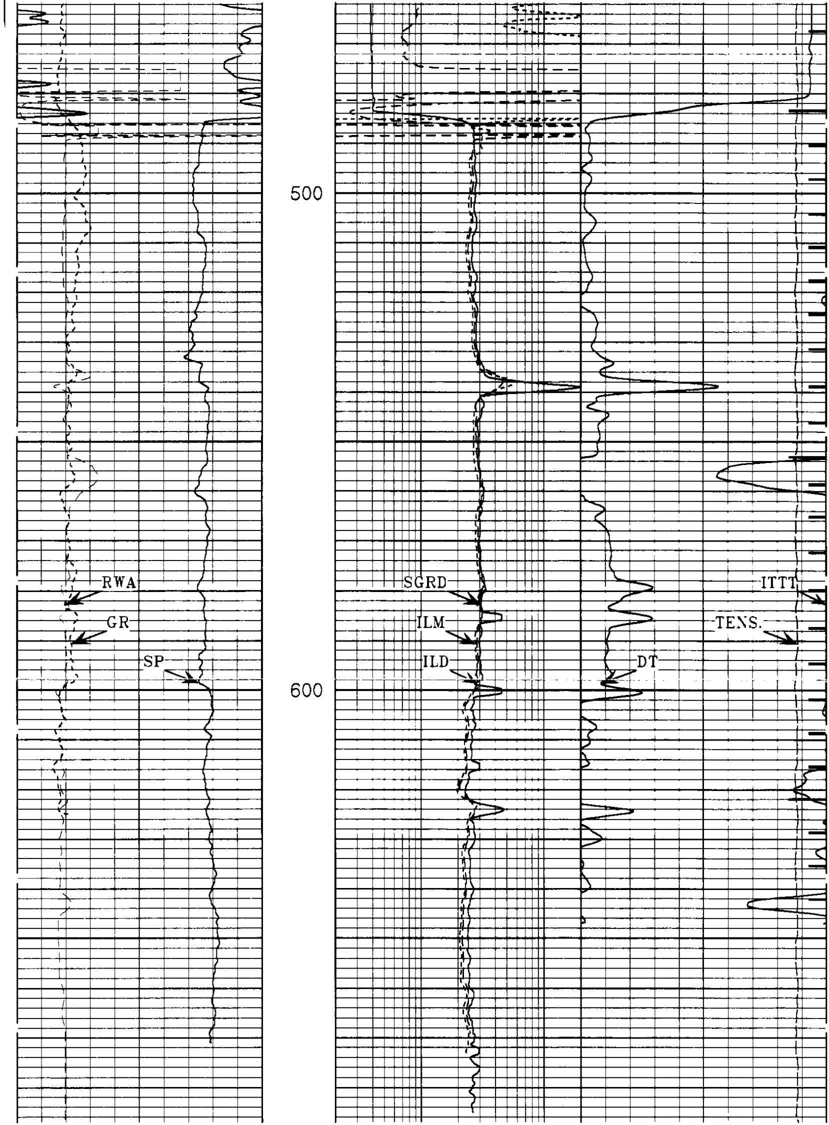
HALLIBURTON
EXCELL

Version No 3.45 hc 3.0
Data File ene_hob_22_26_65.1.cls
Format File: plot_02_1.spc

Top Depth 461.33
Bottom Depth 687.00

Plot Time: 06-12-98 16:15:54
Log Time: 06-03-98 14:43:05

SP -]10[+		ILD .2 OHM-M 20	DT 150 US/F 50
GR 0 API 150	1:240 Ft.	ILM .2 OHM-M 20	TENS. 10000 LBS. 0
RWA 0 OHM-M 3		SGRD .2 OHM-M 20	ITTT 100 0



	RWA		1:240 Ft.		SGRD			ITTT	
0	OHM-M	3		.2	OHM-M	20	100		0
	GR				ILM			TENS.	
0	API	150		.2	OHM-M	20	10000	LBS.	0
	SP				ILD			DT	
	-]10[+			.2	OHM-M	20	160	US/F	50

HALLIBURTON
EXCELL

Version No 3.45 ; hc:3.0
Data File ene_hob_22_26_65 1.cls
Format File plot_02_1.spc

Top Depth. 461.33
Bottom Depth 687.00

Plot Time: 06-12-98 16:15:34
Log Time: 06-03-98 14:43:05

Current EXCELL-2000 Parameter Values
Depth: 1744.750
Date: 12-Jun-1998 16:03

Mnemonic	Tool	Parameter Description	Value	Units
PERF	DITSHD	PERFORATED INTERVAL	NO	
TD	DITSHD	TOTAL DEPTH	0.	FT
GR_OK	GAMMA	DO GAMMA CALCULATIONS?	YES	
CASED	SHARED	CASED HOLE?	NO	
CASEOD	GAMMA	CASING DIAMETER (OD)	2.895	Inches
MUDWT	GAMMA	BOREHOLE FLUID WEIGHT	9.5	Pounds/Gal.
GRSO	GAMMA	GAMMA RAY STANDOFF	0.	Inches
BS	GAMMA	BIT SIZE	6.25	Inches
FWSTOK	BCS	DO FWST CALCULATIONS?	YES	
WYLIE	BCS	ACOUSTIC POROSITY EQUATION	HLSP	
DTSHA	BCS	DELTA T SHALE	100.	uSec/Ft.
DTMAT	BCS	DELTA T MATRIX	57.	uSec/Ft.
DTFLU	BCS	DELTA T FLUID?	189.	uSec/Ft.
RHOMAT	BCS	MATRIX DENSITY	2.65	Grams/CC
RHOFLU	SHARED	FLUID DENSITY	1.	Grams/CC
DTFT	BCS	USE 1 OR 2 FT DT FOR POROSITY	2	Feet
ARCHA	SHARED	ARCHIE A	0.81	
ARCHM	SHARED	ARCHIE M	2.	
FSEL	SHARED	POROSITY SELECTION FOR F	ACOU	
USEFIX	BCS	USE MINIMUM FIXED THRESHOLD.	NO	
USENOI	BCS	USE NOISE THRESHOLD FOR PICK.	NO	
TDU_OK	TDUF	USE TDU DISPLAY CONTROLS?	YES	
DI_OK	DIND	DO DUAL INDUCTION CALCULATION?	YES	
SG_OK	SGRD	DO SHORT GUARD CALCULATIONS?	YES	
XPHLOC	XP_RWA	CROSSPLOT SELECTION FOR XPHI	XPLT	

EXCELL-2000 Calibration Report
Date: 12-Jun-1998 16:04

GAMMA RAY TOOL SHOP CALIBRATION SUMMARY

PERFORMED: 01-Jun-1998 10:51 LAST SHOP CALIBRATION: 08-May-1998 13:32
SERIAL NUMBER: 108581 MODEL: NGRT-A
TRUCK UNIT NUMBER: 7626 PROGRAM VERSION: 3.44
PERFORMED BY: G. ROUSSEAU

	MEASURED	CALIBRATED	UNITS
BACKGROUND	17	16	GAPI
BACKGROUND+CALIBRATOR	244	221	GAPI
CALIBRATOR	227	205	GAPI
GAPI CONVERSION FACTOR	0.493		GAPI/CPS

GAMMA RAY TOOL BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 03-Jun-1998 14:11 LAST SHOP CALIBRATION: 01-Jun-1998 10:51

	SHOP	FIELD	UNITS
BACKGROUND	16	14	GAPI
BACKGROUND+CALIBRATOR	221	218	GAPI
CALIBRATOR	205	204	GAPI

GAMMA RAY TOOL AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 03-Jun-1998 16:39 LAST SHOP CALIBRATION: 01-Jun-1998 10:51

	BEFORE	AFTER	UNITS
BACKGROUND	14	9	GAPI
BACKGROUND+CALIBRATOR	218	217	GAPI
CALIBRATOR	204	207	GAPI

DITS DUAL INDUCTION SHOP CALIBRATION SUMMARY

PERFORMED: 29-May-1998 15:14 LAST SHOP CALIBRATION: 29-Apr-1998 09:55
SERIAL NUMBER: 109440 MODEL: DILT-A B
TRUCK UNIT NUMBER: 7626 PROGRAM VERSION: 3.45
PERFORMED BY: G. ROUSSEAU

	DEEP INDUCTION		MEDIUM INDUCTION		
	MEASURED	CALIBRATED	MEASURED	CALIBRATED	UNITS
TOOL ZERO	0.277	0.000	-0.476	0.000	MMHOS/M
INTERNAL REFERENCE	498.796	500.912	500.519	503.017	MMHOS/M
WHEEL	498.444	500.000	499.036	500.000	MMHOS/M
MANDREL BASE	1.121	1.897	4.128	4.844	MMHOS/M

DITS DUAL INDUCTION BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 03-Jun-1998 14:38 LAST SHOP CALIBRATION: 29-May-1998 15:14

	DEEP INDUCTION		MEDIUM INDUCTION		
	SHOP	FIELD	SHOP	FIELD	UNITS
TOOL ZERO	0.000	0.725	0.000	0.375	MMHOS/M
INTERNAL REFERENCE	500.912	496.035	503.017	508.521	MMHOS/M
MANDREL BASE	1.897	1.897	4.844	4.844	MMHOS/M

DITS DUAL INDUCTION AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 03-Jun-1998 15:51 LAST SHOP CALIBRATION: 29-May-1998 15:14

	DEEP INDUCTION		MEDIUM INDUCTION		
	BEFORE	AFTER	BEFORE	AFTER	UNITS
TOOL ZERO	0.725	0.924	0.375	0.448	MMHOS/M
INTERNAL REFERENCE	496.035	496.908	508.521	508.803	MMHOS/M
MANDREL BASE	1.897	1.897	4.844	4.844	MMHOS/M

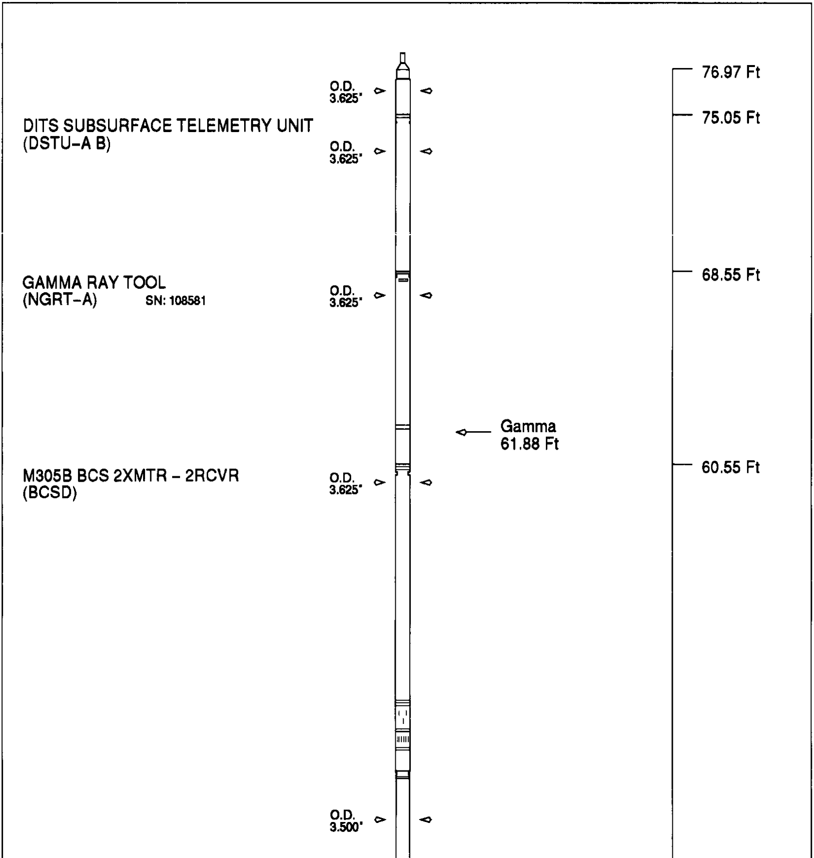
EXCELL-2000 Calibration Summary Table
Date: 12-Jun-1998 16:04

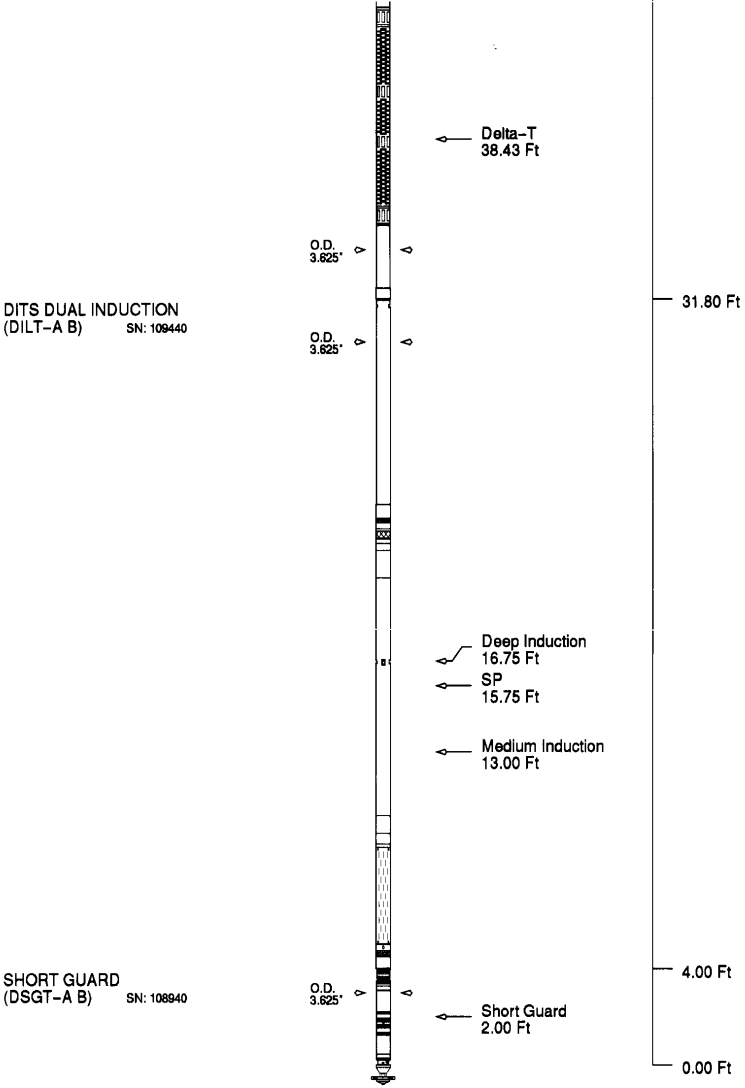
Service or Signal	Shop	Before	After	Change	Tolerance
GAMMA	205	204	207	-3	+/- 9.0
DEEP INTERNAL REFERENCE	500.912	496.035	496.908	-0.873	+/-20
MEDIUM INTERNAL REFERENCE	503.017	508.521	508.803	-0.282	+/-20
DEEP TOOL ZERO	0.000	0.725	0.924	-0.199	+/-2
MEDIUM TOOL ZERO	0.000	0.375	0.448	-0.073	+/-2

HALLIBURTON

Excell 2000 Tool String Diagram

DUAL INDUCTION
BOREHOLE COMPENSATED
SONIC





Tool Mnemonic	Length (Ft)	Weight In Air (lbs)	Logging Speed (Ft/min)
DSTU-A B	6.50	116.50	N/A
NGRT-A	8.00	151.80	120.00
BCSD	28.75	515.00	30.00
DILT-A B	27.80	359.50	120.00
DSGT-A B	4.00	89.80	120.00
Tool String	75.05	1232.60	30.00