HALLIBURTON
EXCELL 2000

DUAL INDUCTION
BOREHOLE COMPENSATED
SONIC

5"=100'

COMPANY ENERFIN RESOURCES NORTHWEST
WELL CC #32-27-65 RD1
FIELD MIST
COUNTY COLUMBIA STATE OR

COMPANY ENERFIN RESOURCES NORTHWEST
WELL CC #32-27-65 RD1
FIELD MIST
COUNTY COLUMBIA STATE OR

API No. 36-009-00322
Location 2309.89 FEET WEST AND 1881.70 FEET SOUTH FROM THE NORTHEAST CORNER OF:
Sect 27 Twp 6N Rge 5W

Other Services
NONE

Permanent Datum G.L. Elev 739.0'
Log measured from K.B. , 10.0 ft. above perm. datum
Drilling measured from K.B.

Elev.: K.B. 749 0'
D.F. ----
G.L. 739 0'

Date	05-26-98			
Run No.	ONE			
Depth – Driller	2093 FT			
Depth – Logger	2028 FT			
Bottom – Logged Interval	2026 FT			
Top – Logged Interval	495 FT			
Casing – Driller	7.00" @ 495'	@	@	@
Casing – Logger	495 FT			
Bit Size	6.25"			
Type Fluid in Hole	CYPAN			
Dens. | Visc.	9.2 | 39	|	|	|
Ph | Fluid Loss	7.0 | 6.0	|	|	|
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	3.43 @ 57F	@	@	@
Rmf @ Meas. Temp.	3.81 @ 61F	@	@	@
Rmc @ Meas. Temp.	2.99 @ 57F	@	@	@
Source Rmf | Rmc	MEAS | MEAS	|	|	|
Rm @ BHT	2.12 @ 94F	@	@	@
Time Since Circ.	2330 05-25			
Time on Bottom	0700 05-26			
Max. Rec. Temp.	94F @ 2028	@	@	@
Equip. | Location	7626 | WDLD	|	|	|
Recorded By	G. ROUSSEAU			
Witnessed By	D. HUGGINS	R. LUCAS		

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Service Ticket No 345664 API Serial No : 36-009-00322 PGM Version: XL v3.45

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLES		
Date | Sample No.	05-25-98 | ONE	|
Depth – Driller	2093 FT	
Type Fluid in Hole	CYPAN	
Dens. | Visc.	9.2 | 39	|
Ph | Fluid Loss	7.0 | 6.0	|
Source of Sample	FLOWLINE	
Rm @ Meas. Temp.	3.43 @ 57F	@
Rmf @ Meas. Temp.	3.81 @ 61F	@
Rmc @ Meas. Temp.	2.99 @ 57F	@
Source Rmf | Rmc	MEAS | MEAS	|
Rm @ BHT	2.12 @ 94F	@
Rmf @ BHT	2.51 @ 94F	@
Rmc @ BHT	1.85 @ 94F	@

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.	108625	Serial No.	1458 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	2028'	495'	15	0	150	150	50	57						
				API	API	USEC	USEC	USEC						

Remarks:

NO CALIPER RUN DUE TO HOLE CONDITIONS.

DILT-BCSD RUN IN COMBINATION.

TD NOT LOGGED DUE TO HOLE CONDITONS.

CREW: T. HOOVER, 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 - nc 3.0

Data File 0525_2226_s2240 3 v cls

Format File plot_01_1.spc

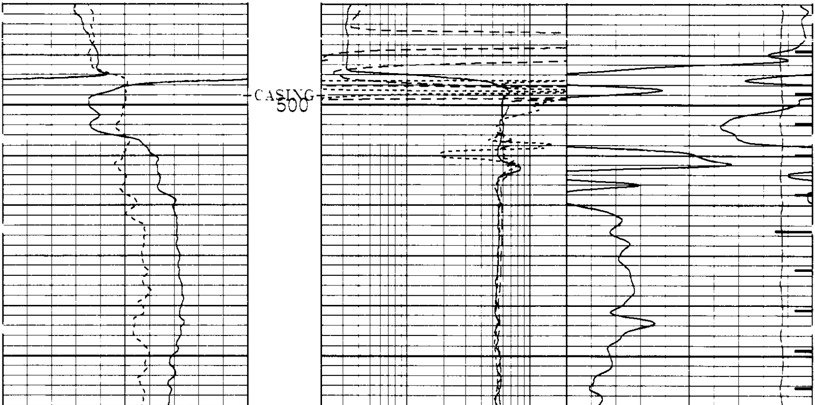
Top Depth 479.33

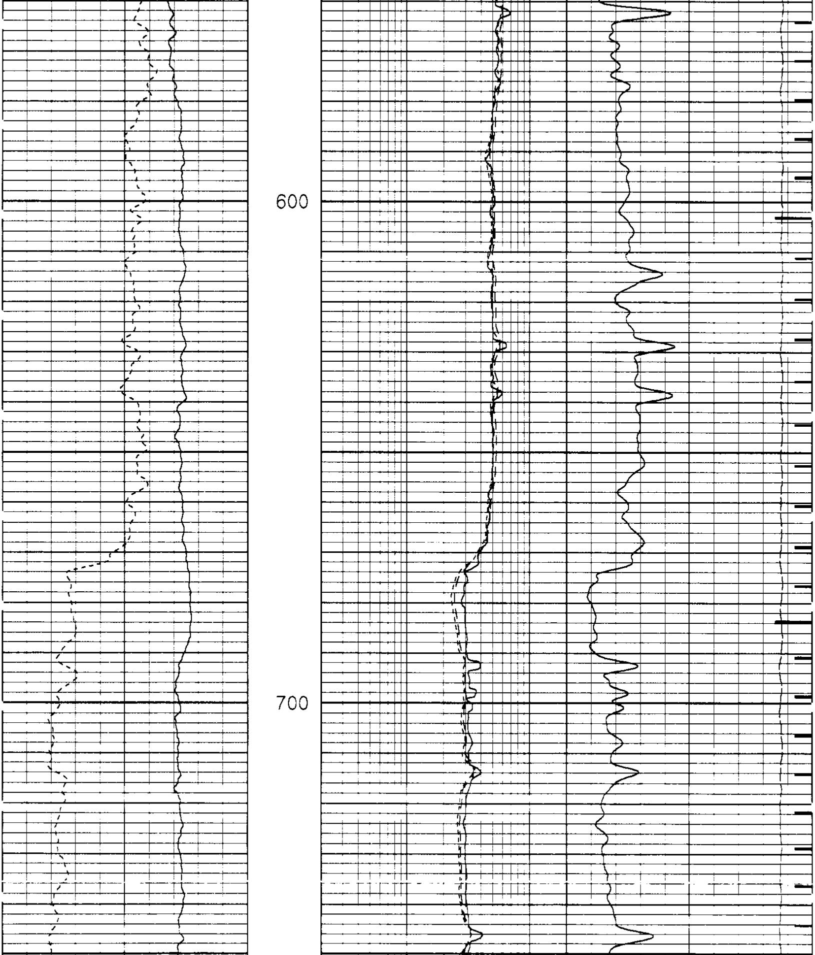
Bottom Depth 2035.75

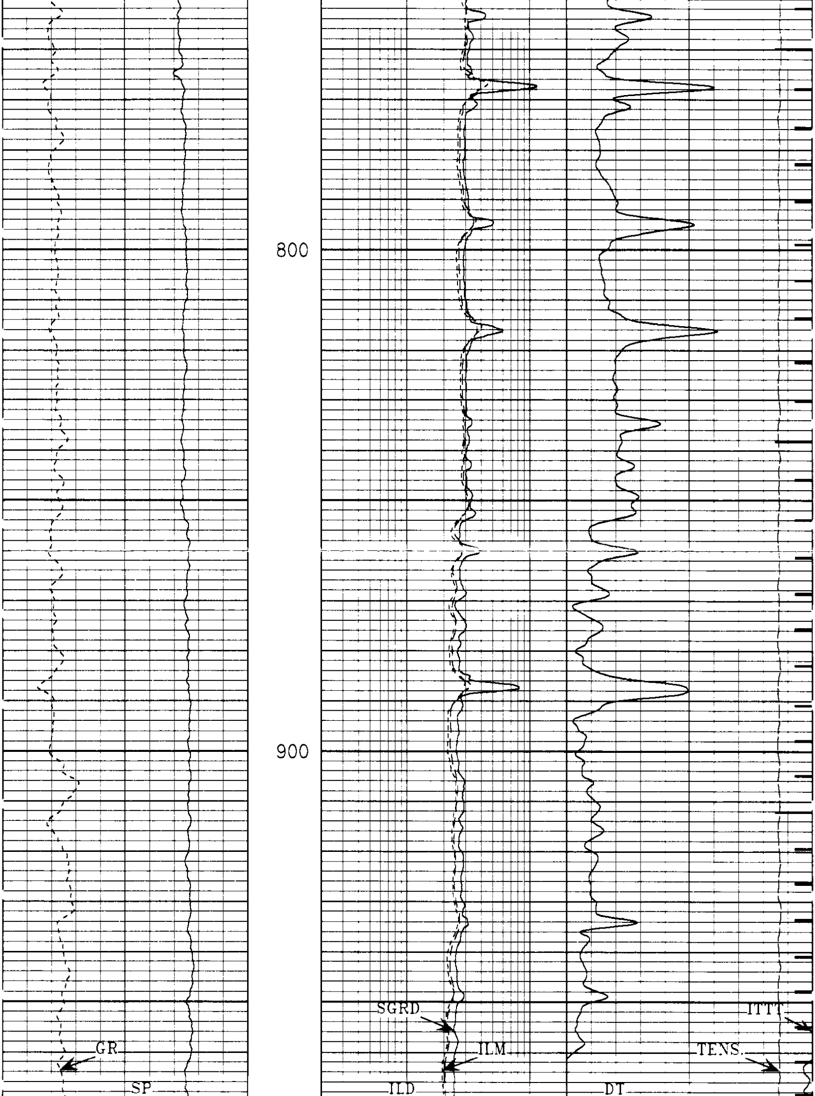
Plot Time 05-26-98 10 28 55

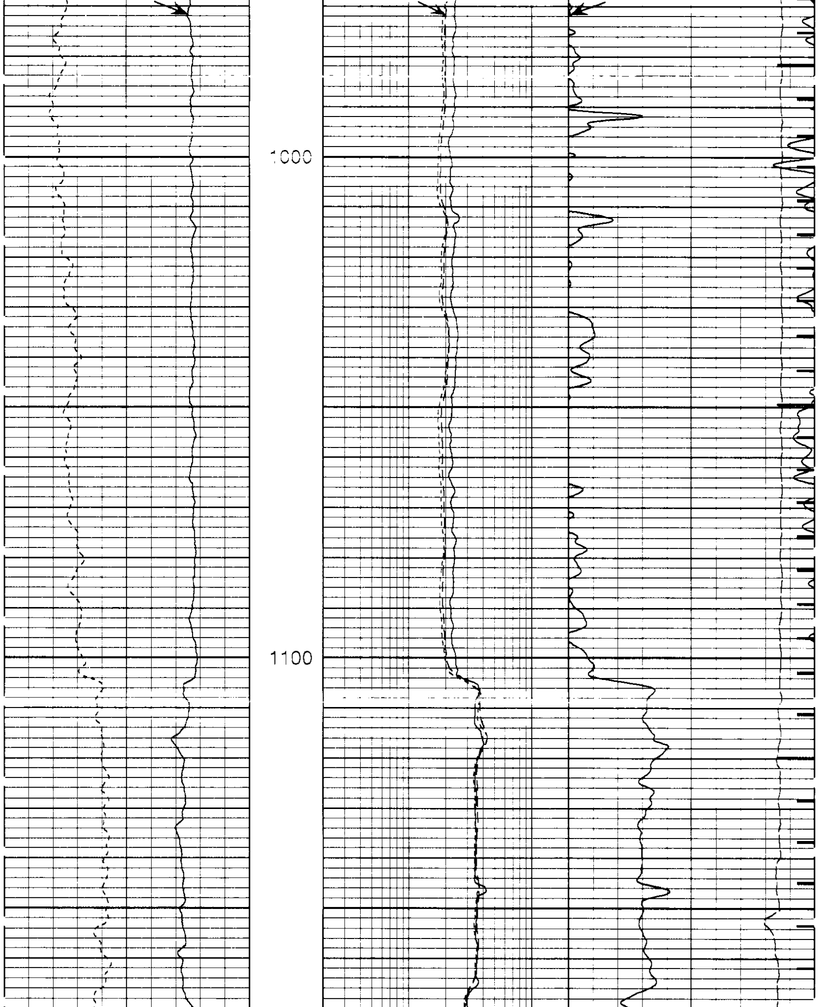
Log Time 05-26-98 07 01 58

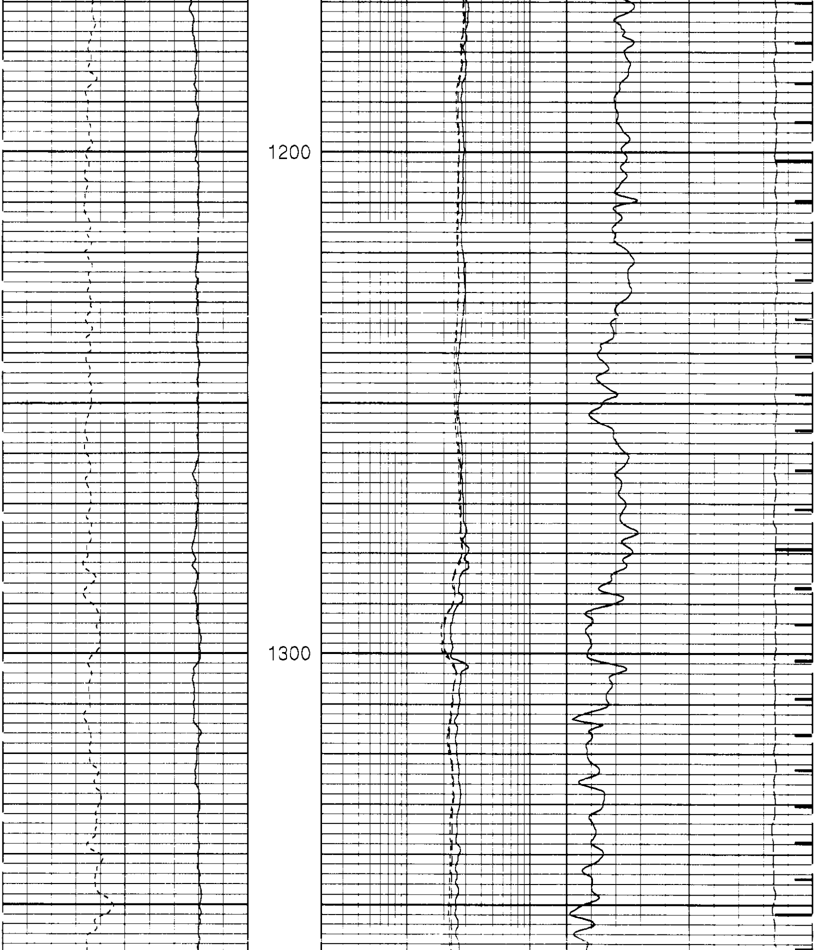
	SP		1:240 Ft.		ILD			DT	
	-]10[+			.2	OHM-M	20	150	US/F	50
	GR				ILM			TENS	
0	API	150		.2	OHM-M	20	10000	LBS	0
					SGRD			TTT	
				.2	OHM-M	20	100		0

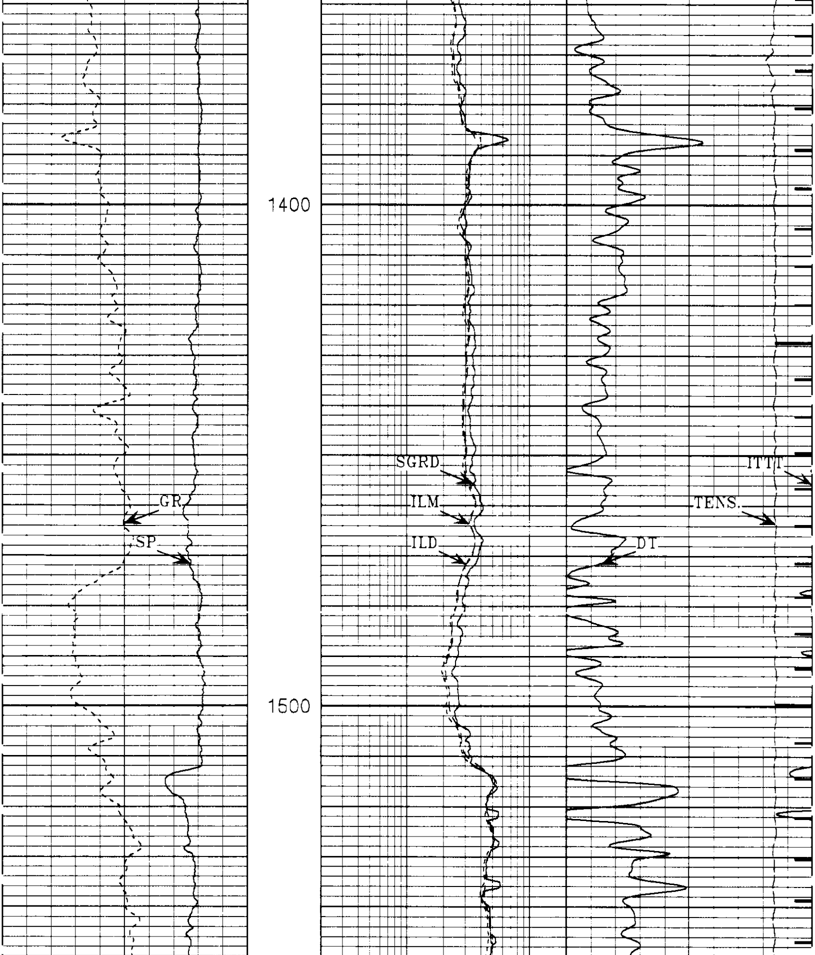


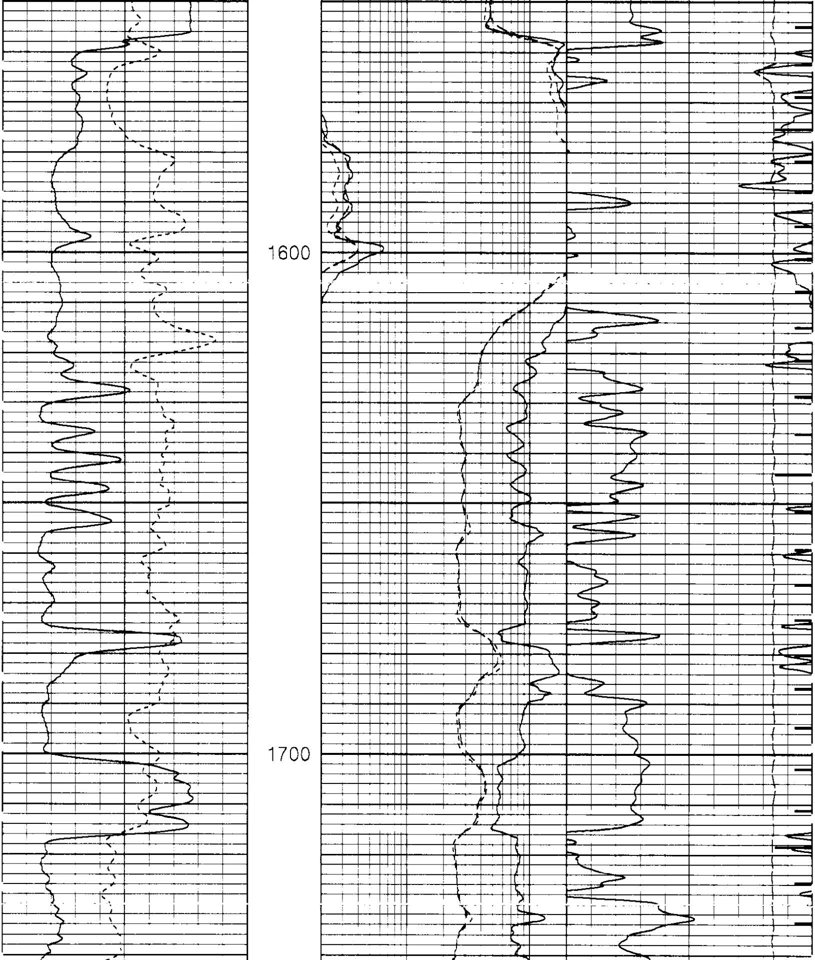


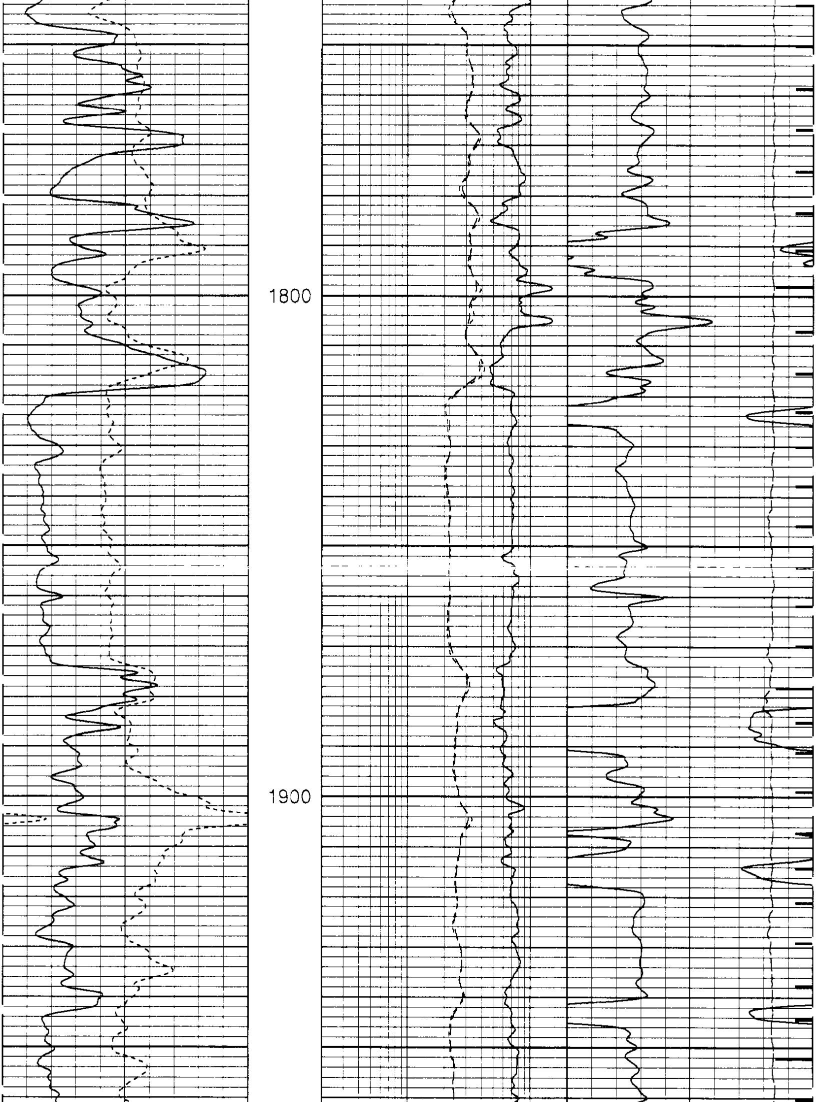


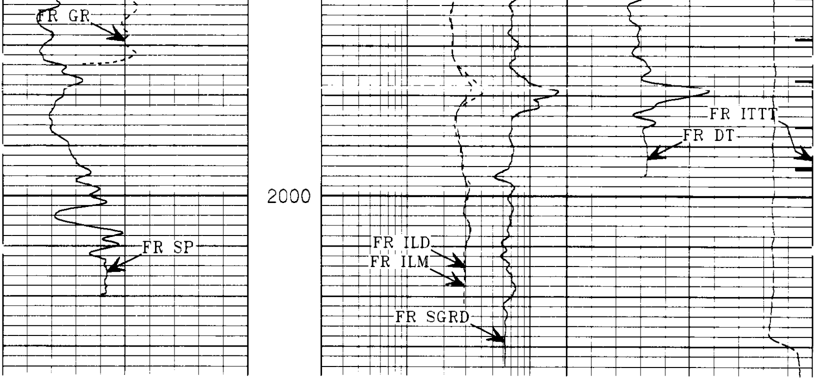












				.2	SGRD OHM-M	20	100	ITTT	0
0	GR API	150	1:240 Ft.	.2	ILM OHM-M	20	10000	TENS. LBS.	0
	SP -]10[+			.2	ILD OHM-M	20	150	DT US/F	50

HALLIBURTON
EXCELL 2000

Version No 3.45 : hc 3.0
Data File 0525_2226_s2240 3.v.cls
Format File pict_01_1.sbc

Top Depth 479.33
Bottom Depth 2035.75

Plot Time 05-26-98 10 27 24
Log Time 05-26-98 07 01 58

REPEAT SECTION

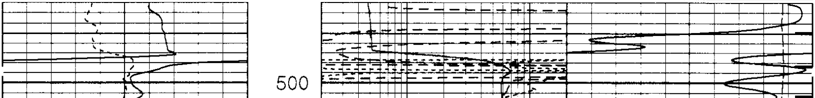
HALLIBURTON
EXCELL 2000

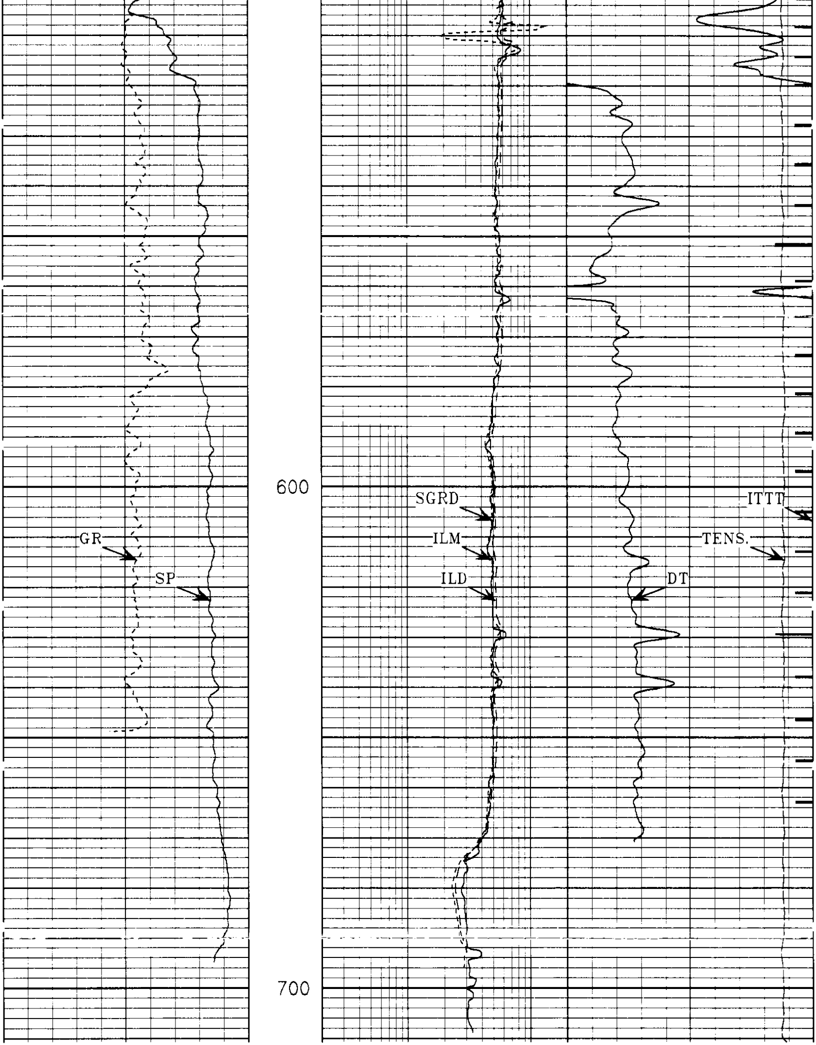
Version No 3.45 : hc 3.0
Data File 0526_2226_s22-0 [illegible] cls
Format File pict_01_1.sbc

Top Depth 483.58
Bottom Depth [illegible]

Plot Time 05-26-98 10 29 57
Log Time 05-26-98 06 41 49

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





		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 0525_2226_s2240 1 v.cis
Format File plot_01_1 spc

Top Depth 483 58
Bottom Depth 710 75

Plot Time 05-26-98 10 29 36
Log Time 05-26-98 06 41 49

Current EXCELL-2000 Parameter Values
Depth: 521.667
Date: 26-May-1998 06:49

Mnemonic	Tool	Parameter Description	Value	Units
PERF	DITSHD	PERFORATED INTERVAL	NO	
TD	DITSHD	TOTAL DEPTH	0.	FT
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	
CASED	SHARED	IS THE HOLE CASED?	NO	
GR_OK	GAMMA	DO GAMMA CALCULATIONS?	YES	
CASEOD	GAMMA	CASING DIAMETER (OD)	2.875	Inches
MUDWT	GAMMA	BOREHOLE FLUID WEIGHT	9.5	Pounds/Gal.
GRSO	GAMMA	GAMMA RAY STANDOFF	0.	Inches
BS	GAMMA	BIT SIZE	6.25	Inches

EXCELL-2000 Calibration Report
Date: 26-May-1998 08:52

GAMMA RAY TOOL SHOP CALIBRATION SUMMARY

PERFORMED: 23-Apr-1998 14:30 LAST SHOP CALIBRATION: 24-Mar-1998 14:00
SERIAL NUMBER: 108625 MODEL: NGRT-A
TRUCK UNIT NUMBER: 7626 PROGRAM VERSION: 3.45
PERFORMED BY: DFG

	MEASURED	CALIBRATED	UNITS
BACKGROUND	175	173	GAPI
BACKGROUND+CALIBRATOR	381	378	GAPI
CALIBRATOR	207	205	GAPI
GAPI CONVERSION FACTOR	0.513		GAPI/CPS

GAMMA RAY TOOL BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 25-May-1998 23:07 LAST SHOP CALIBRATION: 23-Apr-1998 14:30

SHOP	FIELD	UNITS

BACKGROUND	173	18	GAPI
BACKGROUND+CALIBRATOR	378	232	GAPI
CALIBRATOR	205	214	GAPI

GAMMA RAY TOOL AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 26-May-1998 08:51 LAST SHOP CALIBRATION: 23-Apr-1998 14:30

	BEFORE	AFTER	UNITS
BACKGROUND	18	12	GAPI
BACKGROUND+CALIBRATOR	232	222	GAPI
CALIBRATOR	214	210	GAPI

DITS DUAL INDUCTION SHOP CALIBRATION SUMMARY

PERFORMED: 29-Apr-1998 09:55 LAST SHOP CALIBRATION: 24-Mar-1998 10:39
SERIAL NUMBER: 109440 MODEL: DILT-A B
TRUCK UNIT NUMBER: 7626 PROGRAM VERSION: 3.45
PERFORMED BY: JOHN GUNBY

	DEEP INDUCTION		MEDIUM INDUCTION		
	MEASURED	CALIBRATED	MEASURED	CALIBRATED	UNITS
TOOL ZERO	-0.150	0.000	0.435	0.000	MMHOS/M
INTERNAL REFERENCE	500.453	499.083	503.946	501.975	MMHOS/M
WHEEL	500.826	500.000	500.619	500.000	MMHOS/M
MANDREL BASE	1.896	1.398	4.267	3.651	MMHOS/M

DITS DUAL INDUCTION BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 25-May-1998 22:56 LAST SHOP CALIBRATION: 29-Apr-1998 09:55

	DEEP INDUCTION		MEDIUM INDUCTION		
	SHOP	FIELD	SHOP	FIELD	UNITS
TOOL ZERO	0.000	0.139	0.000	-0.400	MMHOS/M
INTERNAL REFERENCE	499.083	499.146	501.975	500.891	MMHOS/M
MANDREL BASE	1.398	1.398	3.651	3.651	MMHOS/M

DITS DUAL INDUCTION AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 26-May-1998 08:42 LAST SHOP CALIBRATION: 29-Apr-1998 09:55

	DEEP INDUCTION		MEDIUM INDUCTION		
	BEFORE	AFTER	BEFORE	AFTER	UNITS
TOOL ZERO	0.139	1.044	-0.400	-0.099	MMHOS/M
INTERNAL REFERENCE	499.146	494.186	500.891	505.431	MMHOS/M
MANDREL BASE	1.398	1.398	3.651	3.651	MMHOS/M

SHORT GUARD SHOP CALIBRATION SUMMARY

PERFORMED: 29-Apr-1998 09:50 LAST SHOP CALIBRATION: 24-Mar-1998 10:33
SERIAL NUMBER: 108940 MODEL: DSGT-A B
TRUCK UNIT NUMBER: 7626 PROGRAM VERSION: 3.45
PERFORMED BY: JOHN GUNBY

	MEASURED	CALIBRATED	UNITS
EXT. CAL. POINT #1	1.994	2.000	OHM-M
EXT. CAL. POINT #2	19.862	20.000	OHM-M
EXT. CAL. POINT #3	195.317	200.000	OHM-M
INTERNAL REFERENCE	19.472	19.600	OHM-M

SHORT GUARD BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 25-May-1998 22:56 LAST SHOP CALIBRATION: 29-Apr-1998 09:50

	SHOP	FIELD	UNITS
INTERNAL REFERENCE	19.600	19.701	OHM-M

SHORT GUARD AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 26-May-1998 08:43 LAST SHOP CALIBRATION: 29-Apr-1998 09:50

	BEFORE	AFTER	UNITS
INTERNAL REFERENCE	19.701	19.594	OHM-M

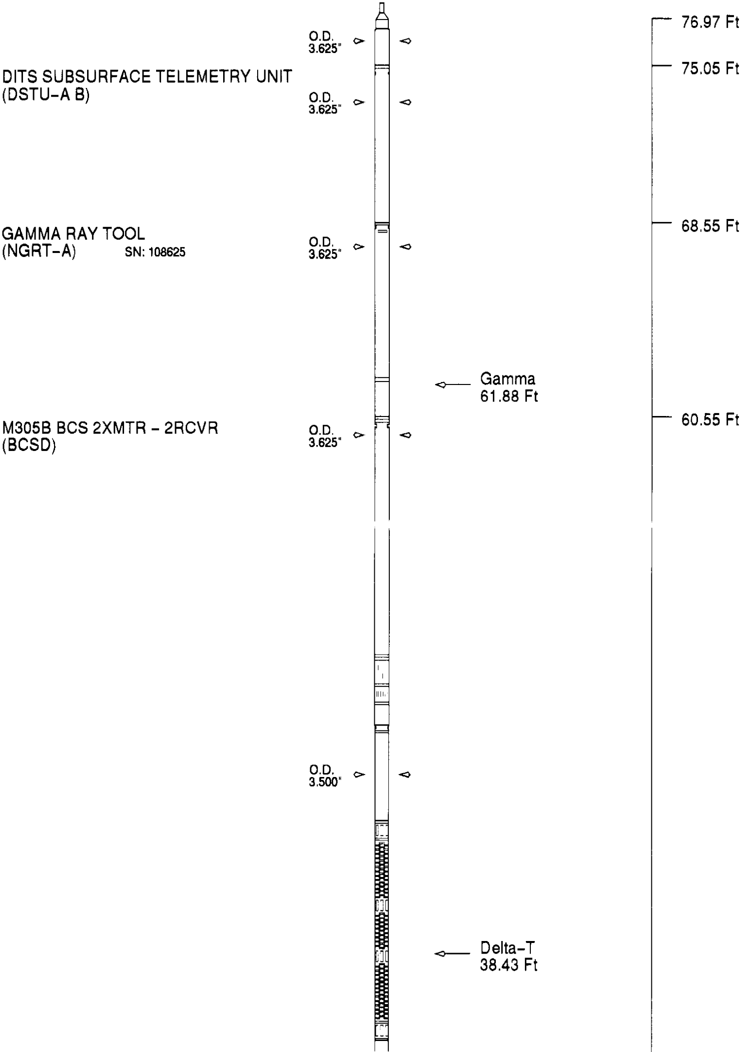
EXCELL-2000 Calibration Summary Table
Date: 26-May-1998 08:52

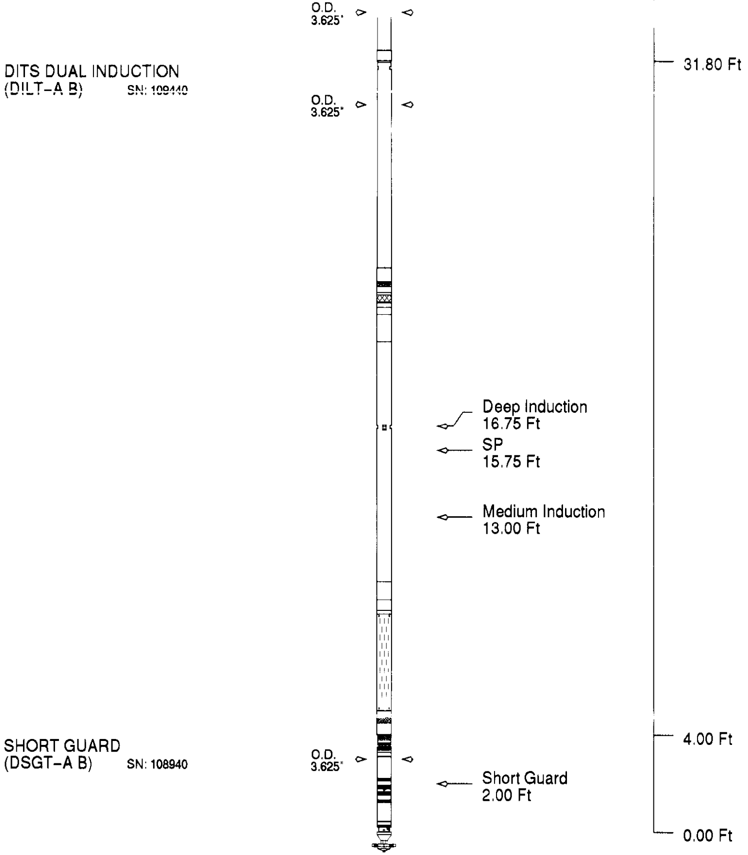
Service or Signal	Shop	Before	After	Change	Tolerance
GAMMA	205	214	210	4	+/- 9.0
DEEP INTERNAL REFERENCE	499.083	499.146	494.186	4.960	+/-20
MEDIUM INTERNAL REFERENCE	501.975	500.891	505.431	-4.540	+/-20
DEEP TOOL ZERO	0.000	0.139	1.044	-0.905	+/-2
MEDIUM TOOL ZERO	0.000	-0.400	-0.099	-0.301	+/-2
GUARD	19.600	19.701	19.594	0.107	+/-0.8

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