Rec'd
11.10.07
MLRR

HALLIBURTON

SHIVA PROCESSED ELECTRO MICRO IMAGER LOG
5"=100'

COMPANY	**ENERFIN RESOURCES**
WELL	**MCCOON CC 24-29-75**
FIELD	**MIST**
COUNTY	**COLUMBIA**
STATE	**OR**

Location: X=1280130
Y=883827

Elevations: K.B.: 965' R.T.: -------- G.L.: 951'

Date Processed	NOV-11-2007	Logs Processed	EMI
Job Number	5487488	Date Logged	NOV-11-2007
Interval Processed	3020'-560'	Type Fluid In Hole	CYPAN
Processed By	J.OBIKOYA	Location	WDLD
Processed At	WELLSITE		

— COMPUTER PROCESSED PRODUCT —

Service Ticket No.:	**5487488**	**API Serial No.:**	**36-009-00356**	**PGM Version:**	**XL v5.8**

DIRECTIONAL INFORMATION

Maximum Deviation		**deg. @**		**KOP**	

Remarks:

MAGNETIC DECLINATION 17DEG
LOG CORRELATED WITH HALLIBURTON HRID-BCSD-SDLT-ML-DSNT-NGRT DATED NOV-11-2007
EMI-GR RUN IN COMBINATION

CREW:ROSENSTEEL,PYLES RIG: TD 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

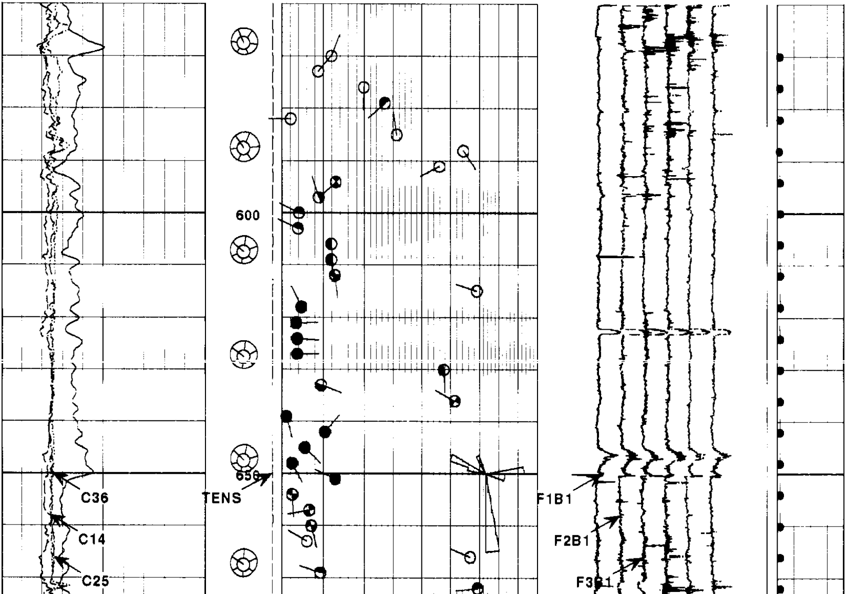
HALLIBURTON

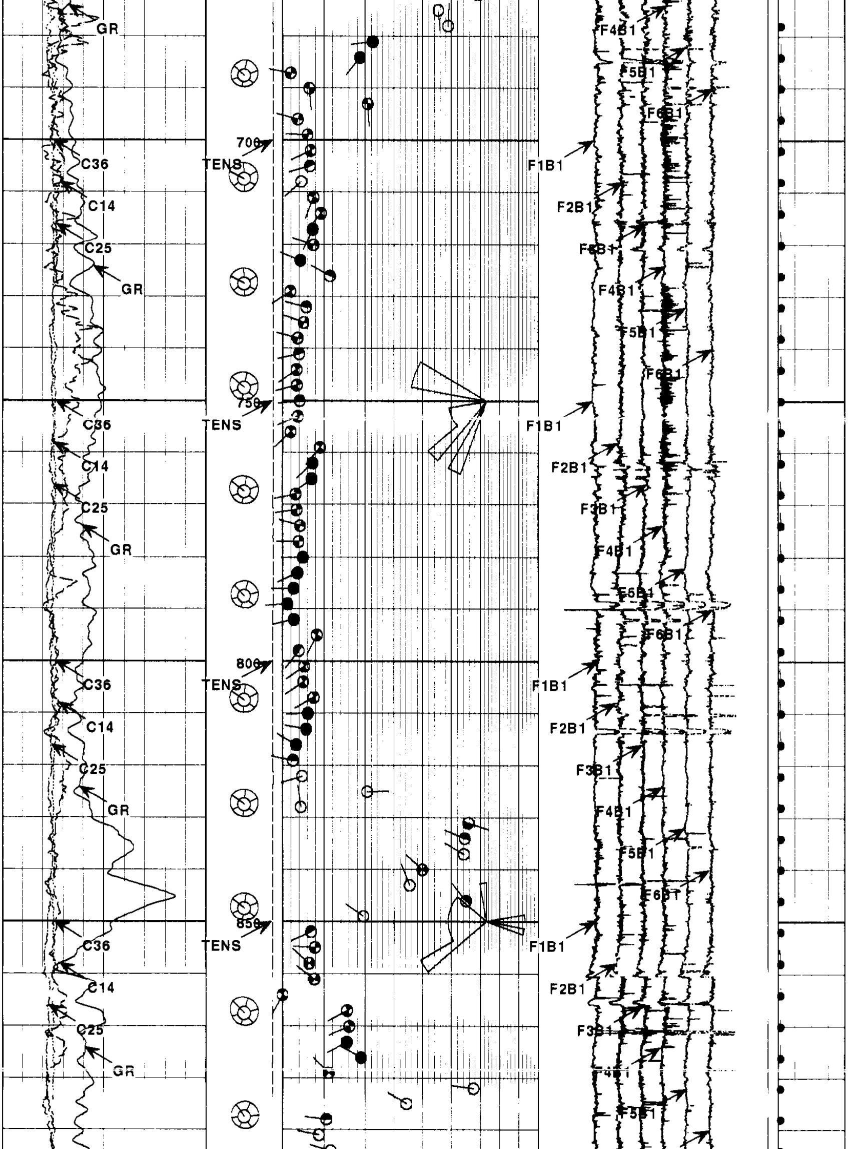
Version No: | hc:3.0
Data File: main.cls
Format File: shiva6.spc
Plot Time: 2007-11-11 20:51:39

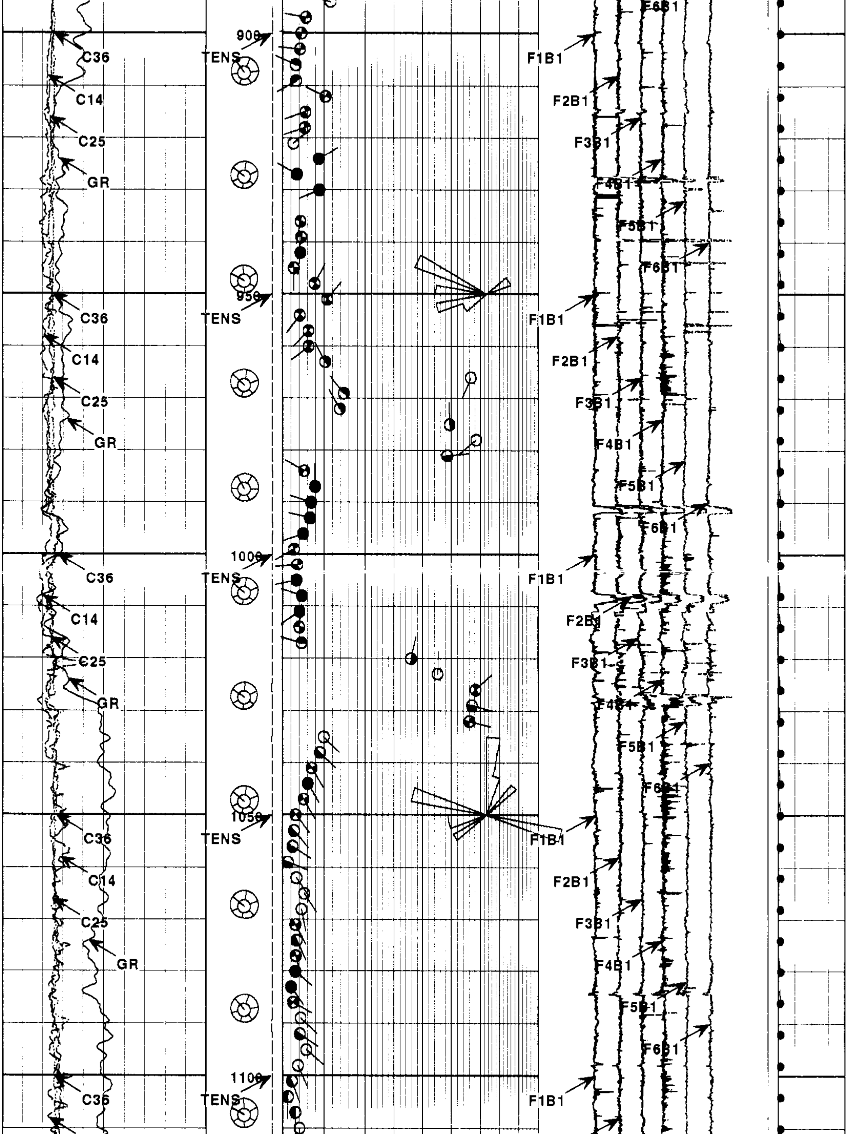
Top Depth: 560.00

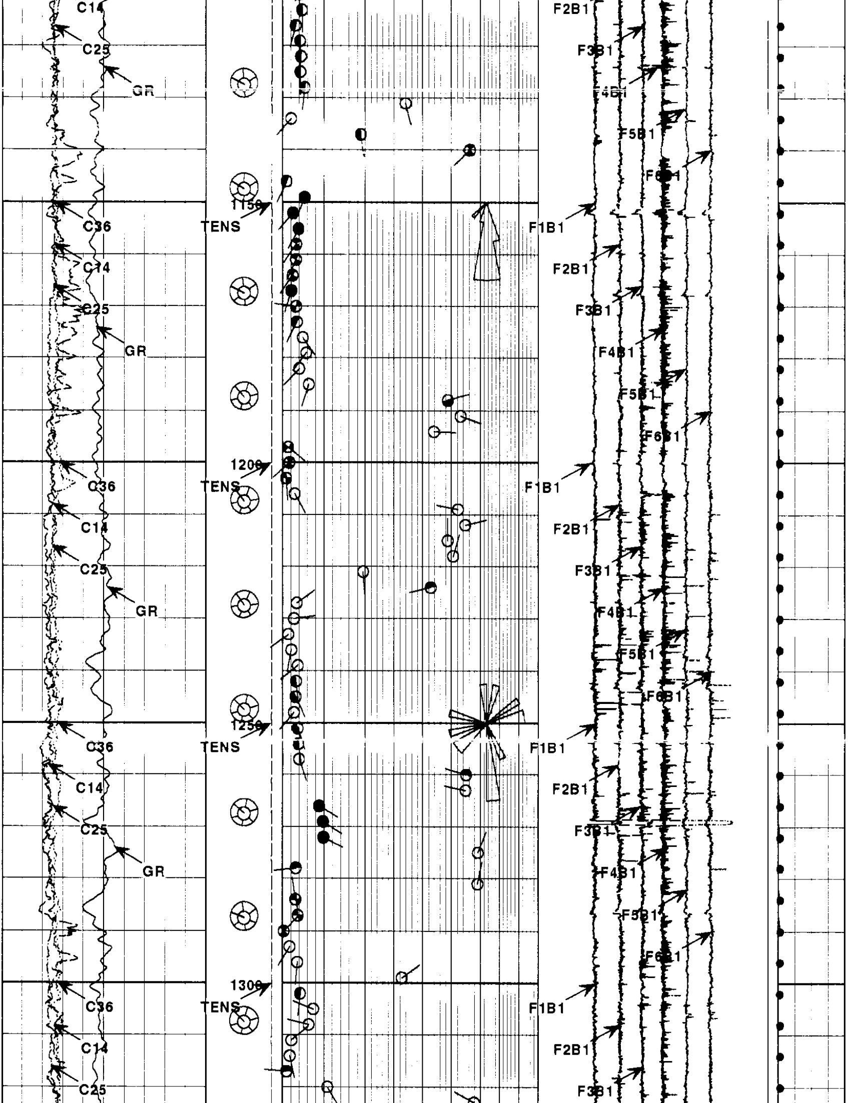
Database Time: 19:11:26 Bottom Depth: 3021.50

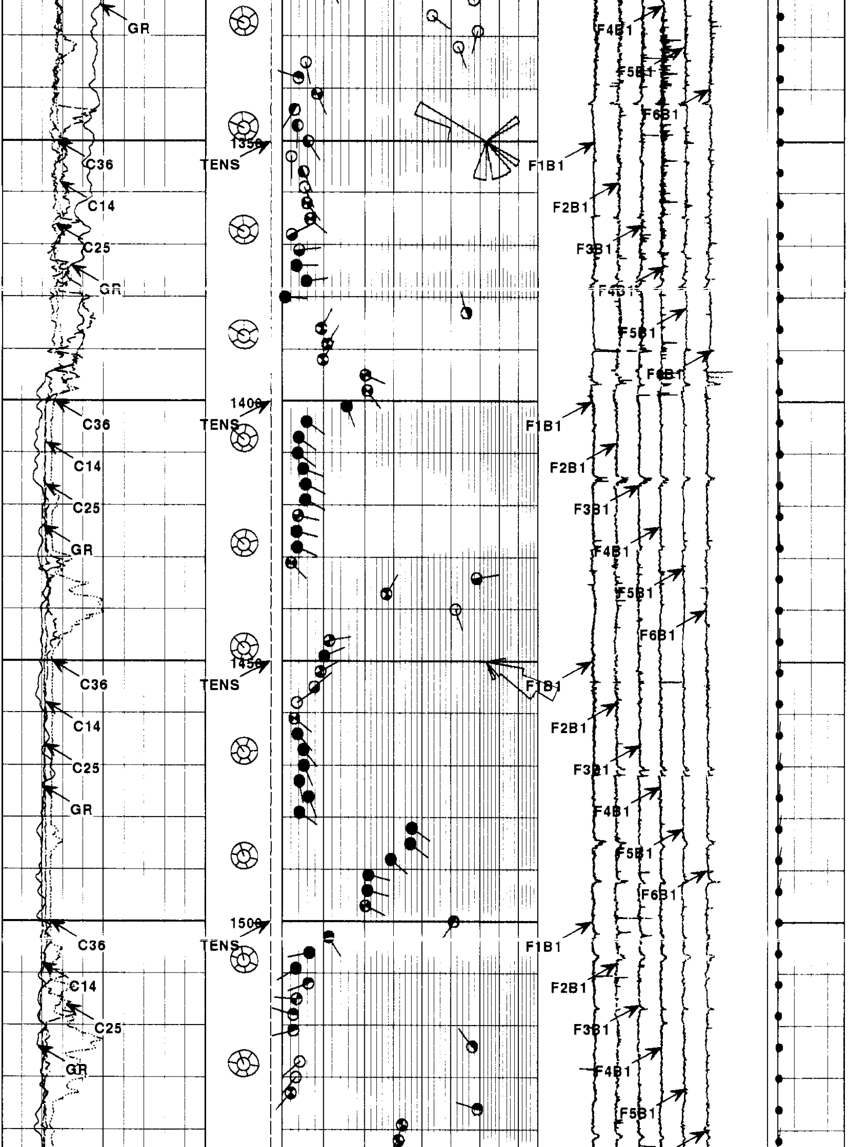
GAMMA RAY CALIPERS	BH X-SECTION	SHIVA DIPS	RAW SP-CORR RES. CURVES	DEVIATIO
C36 6 INCH 16	AZI1 0 360	DIP 0 DEG 90	F1B1 1000 -1000	DRIFT 0 DEG 50
C14 6 INCH 16	TENS 10000 0		F2B1 1200 -800	
C25 6 INCH 16	1:240 FT.		F3B1 1400 -600	
GR 0 GAPI 150			F4B1 1600 -400	
			F5B1 1800 -200	
			F6B1 2000 0	

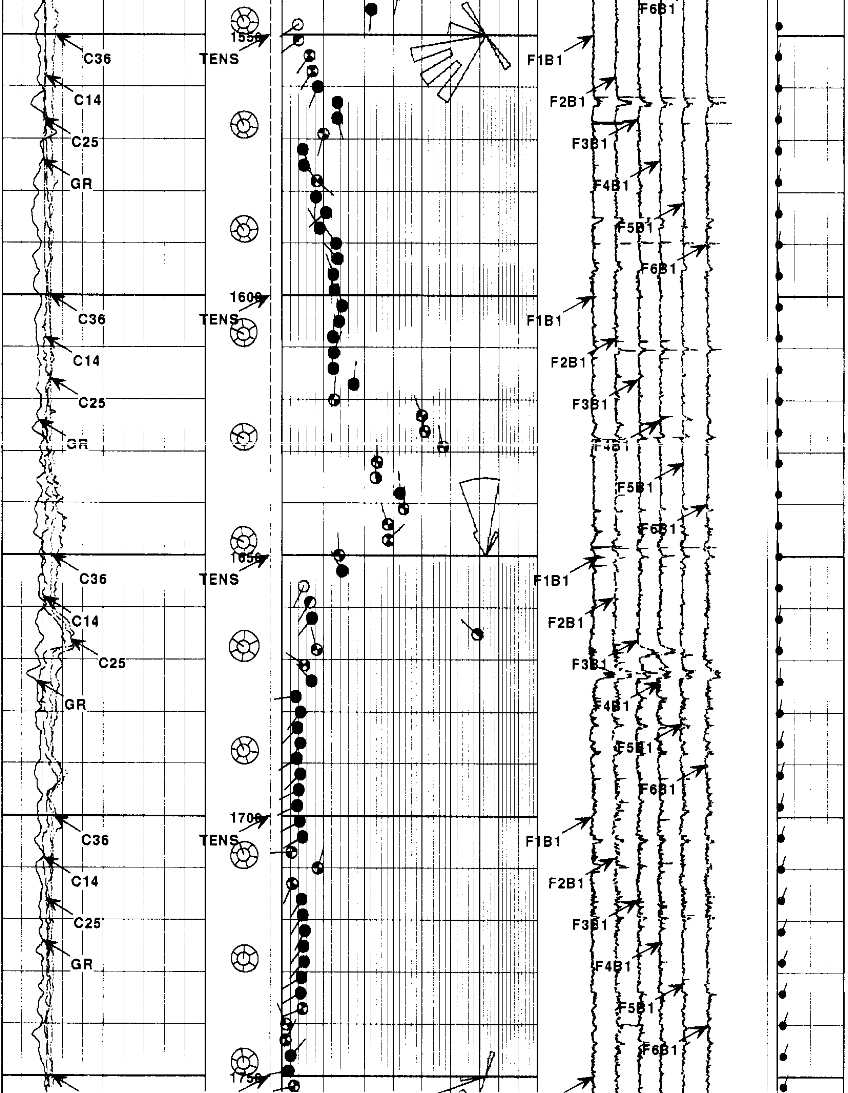


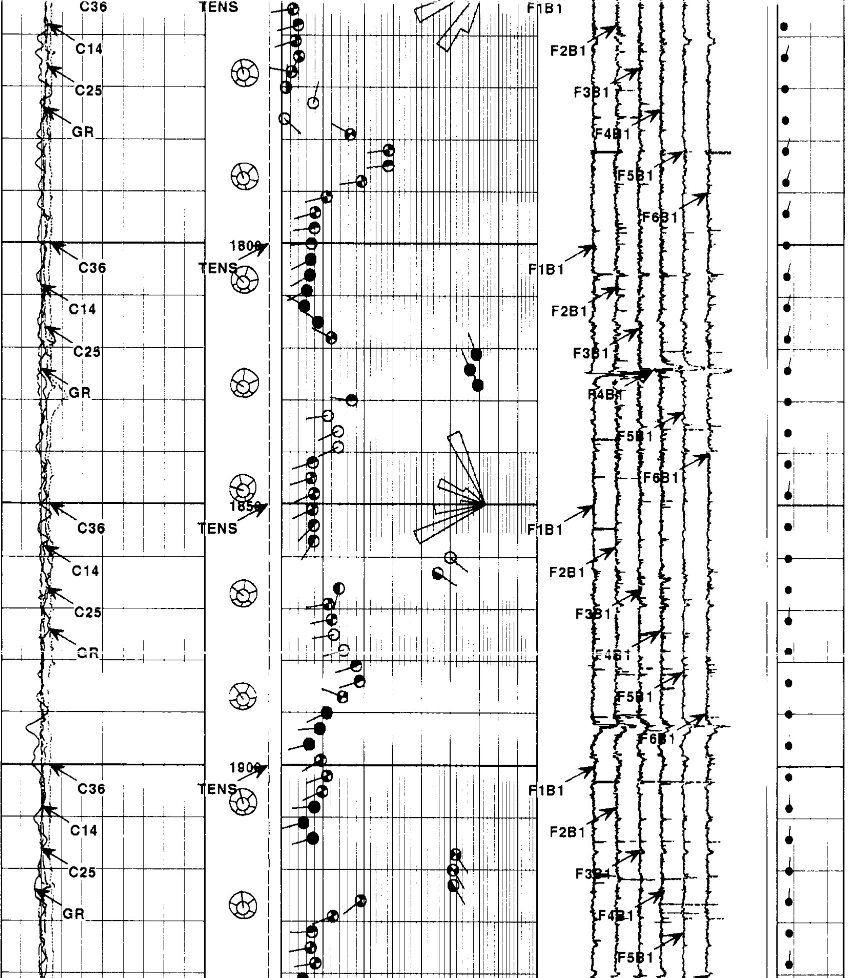


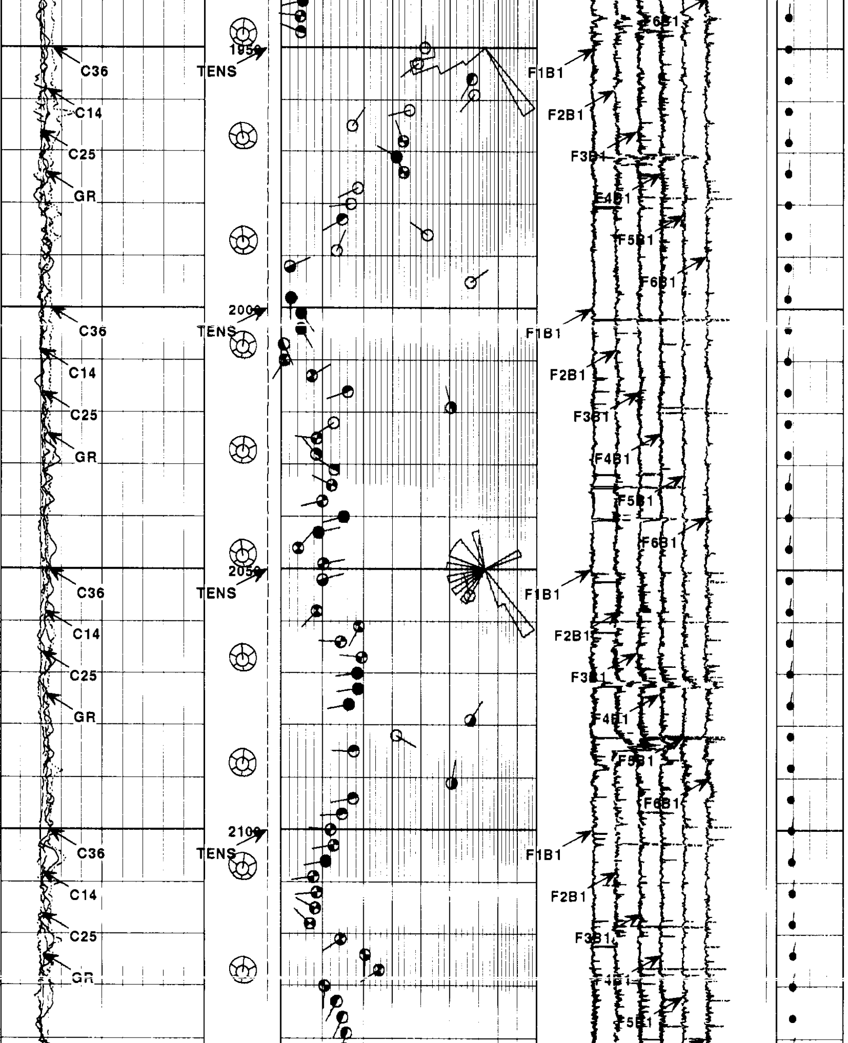


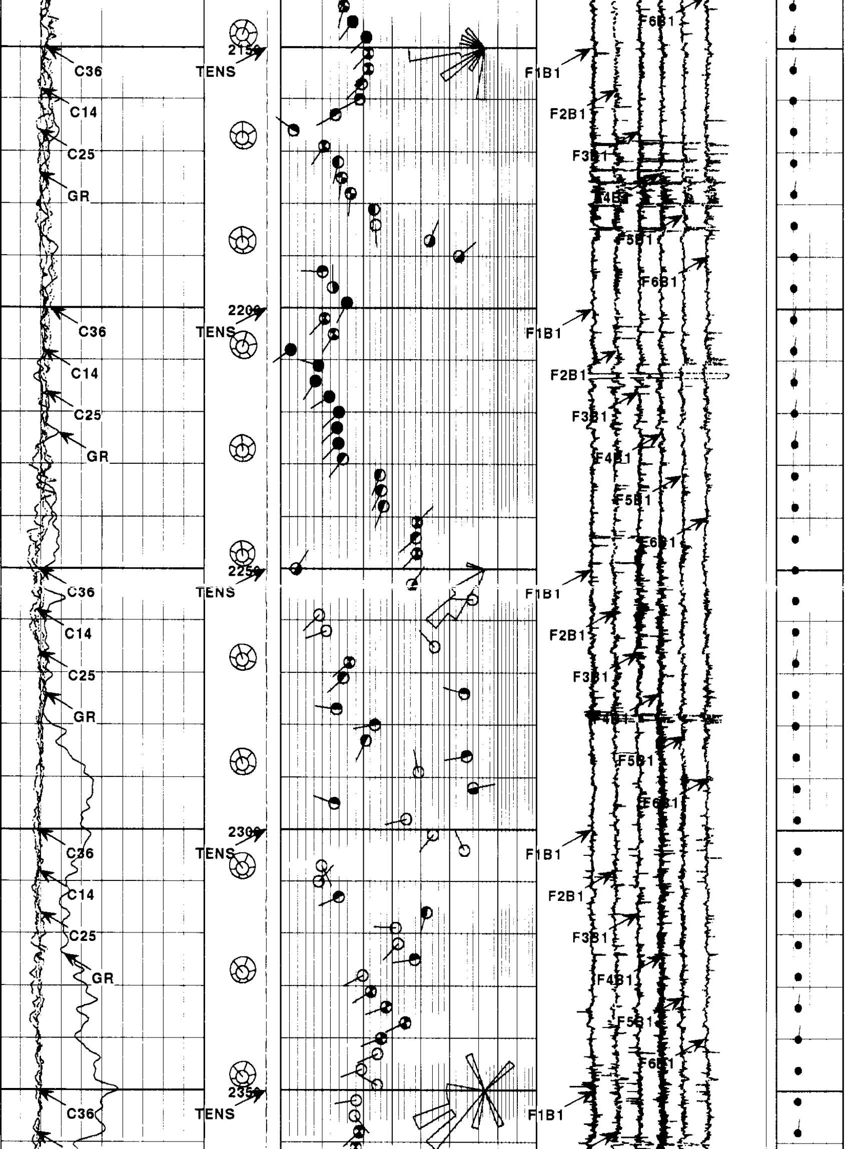


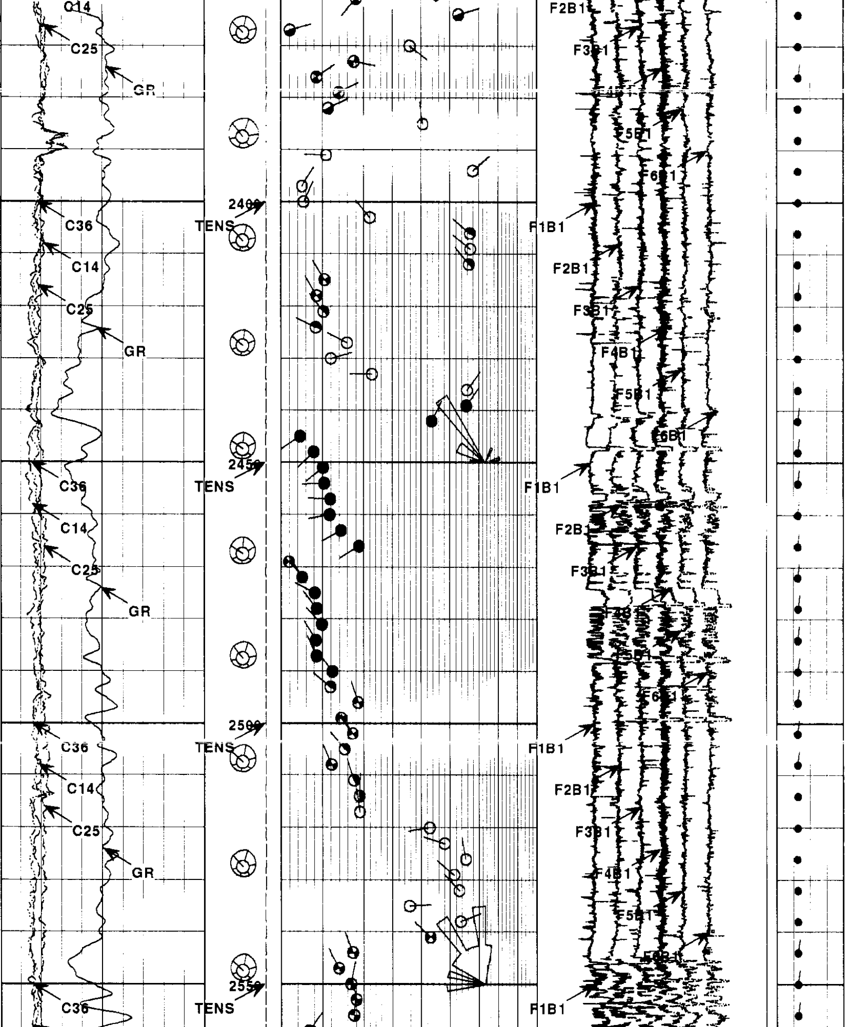


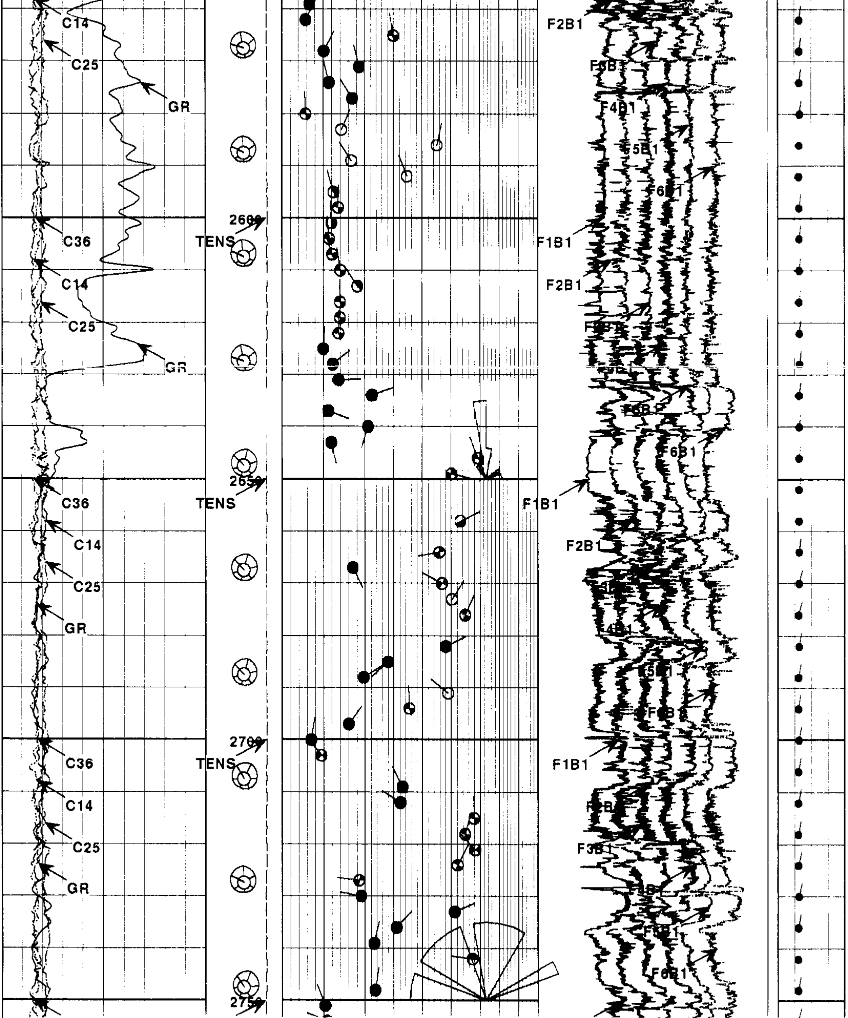


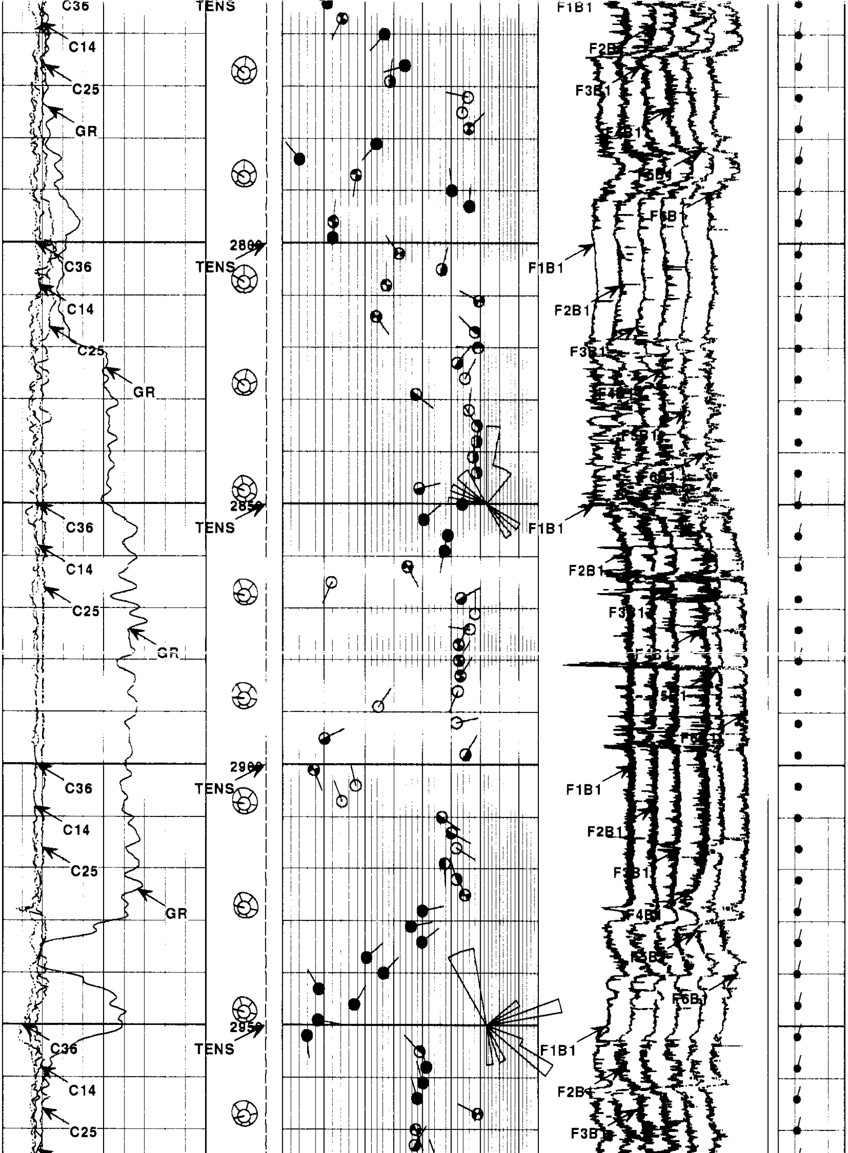


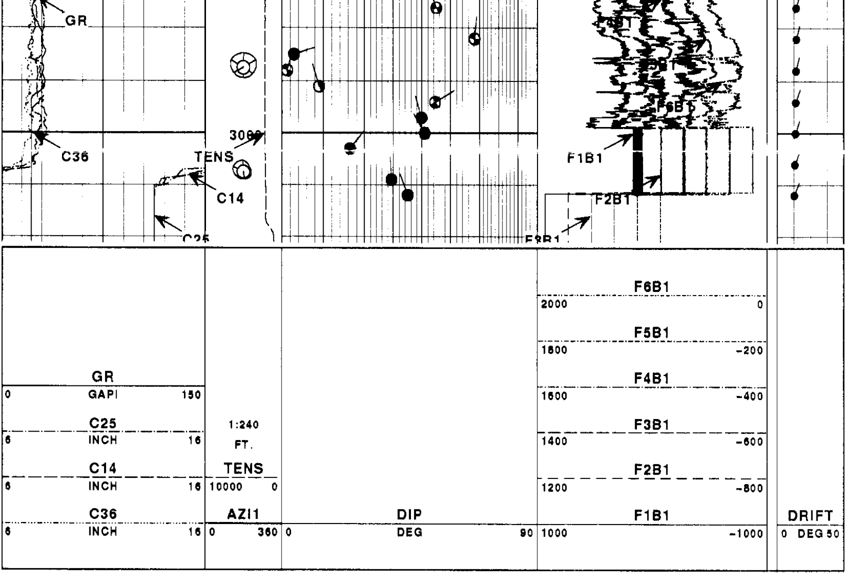












GAMMA RAY CALIPERS	BH X-SECTION	SHIVA DIPS	RAW SP-CORR RES. CURVES	DEVIATIC

HALLIBURTON

Version No: | hc:3.0
Data File: main.cls
Format File: shiva6.spc
Plot Time: 2007-11-11 20:53:52
Database Time: 19:11:26

Top Depth: 560.00
Bottom Depth: 3021.50

SHIVA COMPUTATION PARAMETERS

COMPANY NAME : ENERFIN RESOURCES
WELL NAME : MCCOON CC 24-29-75
FIELD NAME : MIST
COUNTRY : COLUMBIA

Horizontal Reference Plane		Tool type	WBM
Shift Search Angle	45.0	Output selected by N Lines then Quality	
Correlation Interval	9.000 f	Number of Maxima	3
Correlation Step	3.000 f	Peak Fraction	0.90
Dip Cutoff Angle	60.0	Number of Triangles Searched	20
Closure Cutoff Angle	1.0	Plotted dip quality range	A-E
Planarity Cutoff Angle	3.0	Depth of Investigation	0.90
Declination	17.0	Mirror Dip Rejection	No

EXCELL-2000 Calibration Report
Date: 11-Nov-2007 18:54:

GAMMA RAY TOOL SHOP CALIBRATION SUMMARY

PERFORMED: 24-Oct-2007 17:46　LAST SHOP CALIBRATION: 19-Sep-2007 09:49
SERIAL NUMBER: 180　MODEL: NGRT-A
BLANKET #: 67
TRUCK UNIT NUMBER: 10549599　PROGRAM VERSION: 5.8
PERFORMED BY: G. ROUSSEAU

	MEASURED	CALIBRATED	UNITS
BACKGROUND	18	18	GAPI
BACKGROUND+CALIBRATOR	225	223	GAPI
CALIBRATOR	207	205	GAPI
GAPI CONVERSION FACTOR	0.484		GAPI/CPS

GAMMA RAY TOOL BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 08-Nov-2007 04:16　LAST SHOP CALIBRATION: 24-Oct-2007 17:46

	SHOP	FIELD	UNITS
BACKGROUND	18	29	GAPI
BACKGROUND+CALIBRATOR	223	241	GAPI
CALIBRATOR	205	213	GAPI

GAMMA RAY TOOL AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 11-Nov-2007 15:54　LAST SHOP CALIBRATION: 24-Oct-2007 17:46

	BEFORE	AFTER	UNITS
BACKGROUND	29	30	GAPI
BACKGROUND+CALIBRATOR	241	245	GAPI
CALIBRATOR	213	215	GAPI

EMI NAVIGATION ACCELEROMETER SHOP CALIBRATION SUMMARY

PERFORMED: 30-Aug-2006 08:48　LAST SHOP CALIBRATION: 30-Aug-2006 08:30
SERIAL NUMBER: PK009　MODEL: EMI-A
TRUCK UNIT NUMBER:　PROGRAM VERSION: 5.8
PERFORMED BY: T

THIS IS THE SHOP STEP TO ESTABLISH ACCELEROMETER ZERO

	ACCELEROMETER-X		ACCELEROMETER-Y		ACCELEROMETER-Z		
	MEASURED	CALIBRATED	MEASURED	CALIBRATED	MEASURED	CALIBRATED	UNITS
VERTICAL:	-0.0011	0.0000	-0.0016	0.0000	1.0011	1.0000	G

	ACCELEROMETER		
	MEASURED	CALIBRATED	UNITS
TOTAL:	1.0011	1.0000	G
TEMP:	83.8		DEG F

EMI NAVIGATION MAGNETOMETER SHOP CALIBRATION SUMMARY

PERFORMED: 30-Aug-2006 08:57 LAST SHOP CALIBRATION: 30-Aug-2006 08:45
SERIAL NUMBER: PK009 MODEL: EMI-A
NAV STAND SN: 11751
TRUCK UNIT NUMBER: PROGRAM VERSION: 5.8
PERFORMED BY: T

	MAGNETOMETER-X		MAGNETOMETER-Y		MAGNETOMETER-Z		
	MEASURED	CALIBRATED	MEASURED	CALIBRATED	MEASURED	CALIBRATED	UNITS
MINIMUM:	-0.9997	-1.0000	-0.9984	-1.0000	-0.9990	-1.0000	H
MAXIMUM:	0.9985	1.0000	0.9982	1.0000	1.0004	1.0000	H
TOTAL H:	→		1.0041	1.0044	←		H
TEMP:	84.3						DEG F

EMI CALIPER PACKAGE SHOP CALIBRATION SUMMARY

PERFORMED: 11-Sep-2007 01:07 LAST SHOP CALIBRATION:
SERIAL NUMBER: PK_009_2 MODEL: EMI-A
LARGE JIG SN:
TRUCK UNIT NUMBER: 10549599 PROGRAM VERSION: 5.7
PERFORMED BY: G. ROUSSEAU

	CALIPER 1-4		CALIPER 2-5		CALIPER 3-6		
	MEASURED	CALIBRATED	MEASURED	CALIBRATED	MEASURED	CALIBRATED	UNITS
LARGE 15":	14.830	14.830	14.830	14.830	14.830	14.830	INCH
SMALL 7":	6.923	6.923	6.923	6.923	6.923	6.923	INCH

	PRESSURE PAD	
	MEASURED	CALIBRATED
CLOSED:	0.000	0.000
OPENED:	0.000	1.000

EMI CALIPER PACKAGE BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 11-NOV-2007 16:25 LAST SHOP CALIBRATION: 11-Sep-2007 01:07

	CALIPER 1-4		CALIPER 2-5		CALIPER 3-6		
	SHOP	FIELD	SHOP	FIELD	SHOP	FIELD	UNITS
FIELD RING:	6.923	6.717	6.923	6.827	6.923	6.411	INCH

EMI CALIPER PACKAGE AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 11-NOV-2007 19:10 LAST SHOP CALIBRATION: 11-Sep-2007 01:07

	CALIPER 1-4		CALIPER 2-5		CALIPER 3-6		
	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	UNITS
FIELD RING:	6.717	6.702	6.827	6.817	6.411	6.411	INCH

EMI-A DIPMETER PROCESSING SHOP CALIBRATION SUMMARY

PERFORMED: 08-Jun-2007 18:27
LAST SHOP CALIBRATION: 08-Jun-2007 18:18
SERIAL NUMBER: PK009
MODEL: EMI-A
TRUCK UNIT NUMBER: 10549599
PROGRAM VERSION: 5.7
PERFORMED BY: G. ROUSSEAU

************** PAD RESISTIVITIES ********************

	MEASURED	CALIBRATED	MEASURED	CALIBRATED	MEASURED	CALIBRATED	UNITS
PADS #1-3:	0.448	0.450	0.448	0.450	0.508	0.450	OHM-M
PADS #4-6:	0.641	0.450	0.447	0.450	0.447	0.450	OHM-M
CAL0 #1-3:	0.429		0.421		2.207		OHM-M
CAL0 #4-6:	2.162		0.425		0.427		OHM-M
TEMP:	109.4						DEG F

	RELATIVE PAD VOLTS MEASURED	CALIBRATED
AIR:	1.022	1.000
ZERO:	-0.024	0.000
CALIBRATE:	0.803	0.811

EMI-A DIPMETER PROCESSING BEFORE SURVEY FIELD CHECK SUMMARY

PERFORMED: 11-NOV-2007 16:25 LAST SHOP CALIBRATION: 08-Jun-2007 18:27

	SHOP	BEFORE	UNITS
REFLVL PAD 1:	0.433	0.433	OHM-M
REFLVL PAD 2:	0.423	0.423	OHM-M
REFLVL PAD 3:	1.904	1.904	OHM-M
REFLVL PAD 4:	1.491	1.489	OHM-M
REFLVL PAD 5:	0.429	0.429	OHM-M
REFLVL PAD 6:	0.431	0.430	OHM-M

EMI-A DIPMETER PROCESSING AFTER SURVEY FIELD CHECK SUMMARY

PERFORMED: 11-NOV-2007 19:09 LAST SHOP CALIBRATION: 08-Jun-2007 18:27

	SHOP	BEFORE	AFTER	UNITS
REFLVL PAD 1:	0.433	0.433	0.452	OHM-M
REFLVL PAD 2:	0.423	0.423	0.436	OHM-M
REFLVL PAD 3:	1.904	1.904	1.947	OHM-M
REFLVL PAD 4:	1.491	1.488	1.524	OHM-M
REFLVL PAD 5:	0.429	0.429	0.426	OHM-M
REFLVL PAD 6:	0.431	0.430	0.443	OHM-M

EXCELL-2000 Calibration Summary Table

Date: 11-Nov-2007 18:54:

Service or Signal	Shop	Before	After	Change	Tolerance
GAMMA	205	213	215	-2	+/- 9.0

Current EXCELL-2000 Parameter Values

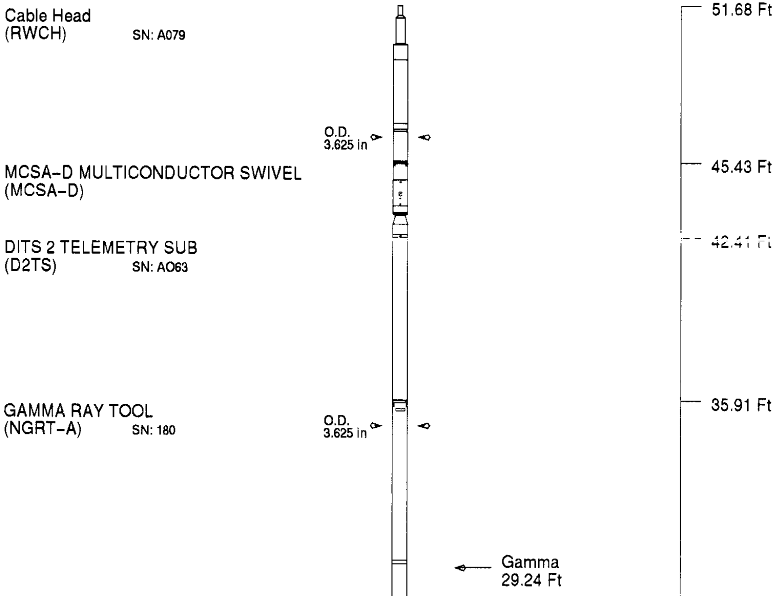
Depth: 479.167
Date: 11-Nov-2007 18:48:
Service Number: 3373
Software Version: 5.8

Mnemonic	Tool	Parameter Description	Value	Units

PERF	DITSHD	PERFORATED INTERVAL	NO	
TD	DITSHD	TOTAL DEPTH	3020.	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)	4.5	Inches
MUDWT	GAMMA	BOREHOLE FLUID WEIGHT	9.5	Pounds/Gal.
GRSO	GAMMA	GAMMA RAY STANDOFF	0.	Inches
BS	SHARED	BIT SIZE	7.875	Inches
DIP_OK	SHARED	DO DIPMETER CALCULATIONS?	YES	
EMI_OK	EMID2A	DO EMI IMAGE CALCULATIONS?	YES	
ROTIMG	EMID2A	ROTATE EMI IMAGE (N-E-S-W-N)	YES	
COMPAS	EMID2A	WHICH COMPAS FOR ROTATION	EMI	
AUTOGN	EMID2A	EMI BUTTON AUTO GAIN	YES	
BCOLOR	EMID2A	EMI BUTTON AUTOGAIN COLOR	127.	
BFILT	EMID2A	BUTTON AUTO GAIN FILTER	0.02	
NAVOK	EMIMAG	DO NAVIGATION CALCULATIONS?	YES	
CAL_OK	EMICAL	DO CALIPER CALCULATIONS?	YES	

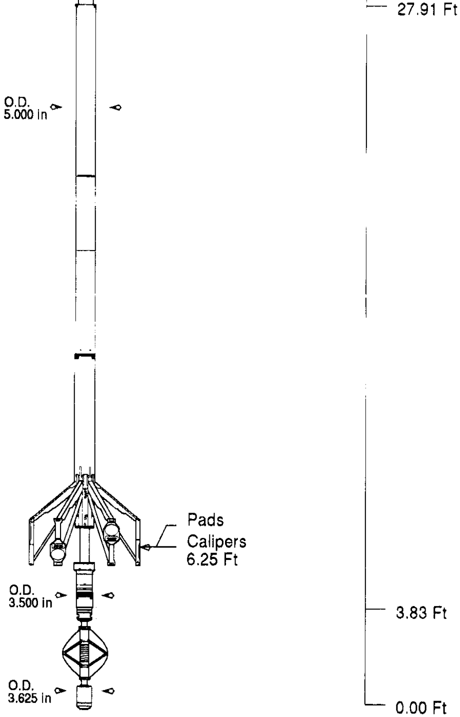
ELECTRIC MICRO IMAGER MONITOR LOG

Excell 2000 Tool String Diagram



ELECTRIC MICRO IMAGER EMI-A D2
(EMI-A)

BOTTOM CENTRALIZER IN FWST
(CENT)



Tool Mnemonic	Length (Ft)	Weight In Air (lbs)	Logging Speed (Ft/min)
RWCH	6.25	135.00	N/A
MCSA-D	3.02	70.00	N/A
D2TS	6.50	100.00	N/A
NGRT-A	8.00	151.80	60.00
EMI-A	24.08	496.00	30.00
CENT	3.83	35.00	N/A
Tool String	51.68	987.80	30.00

COMPANY	ENERFIN RESOURCES
WELL	MCCOON CC 24-29-75
FIELD	MIST
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STATE	OR

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5"=100'