



FILE NO: OH136033	COMPANY <b>LARAMIE ENERGY LLC</b>
API NO: 05077103940000	WELL FIELD <b>NICHOLS FEDERAL 0994-24-17E</b>
	COUNTY <b>VEGA</b>
	STATE <b>MESA COLORADO</b>

Ver. 4.10	LOCATION: SHL: 2302' FNL & 2792' FWL BHL: 1176' FSL & 1733' FEL SEC <u>24</u> TWP <u>9S</u> RGE <u>94W</u>	OTHER SERVICES NONE
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PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM	GL ELEVATION 7212 FT 24 FT ABOVE P.D. KB 7212 FT	ELEVATIONS: KB 7236 FT DF GL 7212 FT
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DATE	27-Apr-2018
RUN	1
TRIP	1
SERVICE ORDER	US136033
DEPTH DRILLER	7898 FT
DEPTH LOGGER	2205 FT
BOTTOM LOGGED INTERVAL	2205 FT
TOP LOGGED INTERVAL	24 FT
CASING DRILLER	8.625 IN @ 1554 FT
CASING LOGGER	1541 FT
BIT SIZE	7.875 IN
TYPE OF FLUID IN HOLE	LSND
DENSITY	10.2 LB/G
VISCOSITY	65 CP
PH	8.7
FLUID LOSS	5.6 C3
SOURCE OF SAMPLE	WELL FLUID
RM AT MEAS. TEMP.	1.494 OHMM @ 78 DEGF
RMF AT MEAS. TEMP.	1.301 OHMM @ 78 DEGF
RMC AT MEAS. TEMP.	1.915 OHMM @ 78 DEGF
SOURCE OF RMF	RMC
CALCULATED	1.29 OHMM @ 113 DEGF
RM AT BHT	9.5 HOURS
TIME SINCE CIRCULATION	114 DEGF
MAX. RECORDED TEMP.	ML-4291
EQUIP. NO.	LOCATION
RECORDED BY	MANUEL BAUKA
WITNESSED BY	ROGER FOSTER

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

### REMARKS

RUN 1 TRIP 1: CVOL AND BVOL CALCULATED USING PROPOSED 4.5" 11.6# CASING

CVOL AND BVOL PRESENTED IN CUBIC FEET

RIG: H&P 290

CREW: B. SMITH, J. TOOKER, A. SHAHNOOSHI AND B. BRANSON

### EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	TTRM	3981XA	10241179	FREE
1	1	COMM REMOTE	3514XB	Z153369	FREE
1	1	DGR	1329XB	10171235	FREE
1	1	WGI	4253XA	10435549	CENTRALIZED
1	1	ORIT	4401XB	10170546	CENTRALIZED
1	1	CENT	4341XA	Z121518	CENTRALIZED

# WGI 6-CAL MAIN PASS

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

Patches: 2

Plotted: Sun Apr 29 18:17:06 2018

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-18W/p820aR03.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 38.675 ft BOTTOM DEPTH: 2215.267 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TENSION	FILTER ( )	medium (1)		TOP	BOTTOM
GR	FILTER ( )	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
CALIPER	FILTER	medium (1)		"	"

### BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	4.500	in	TOP	BOTTOM
BIT SIZE	BIT SIZE	7.875	in	"	"

## CURVE DESCRIPTION REPORT

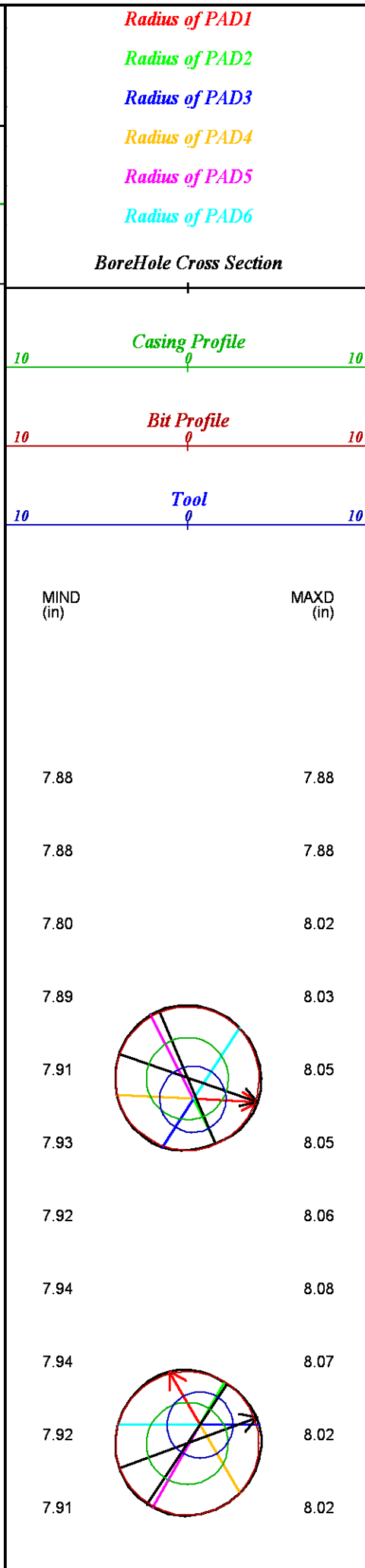
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BCVO	N/A	BOREHOLE CUMULATIVE VOLUME
F1:BRADW	N/A	BIT RADIUS
F1:CCVO	N/A	CEMENT CUMULATIVE VOLUME
F1:CRADW	N/A	CASING RADIUS
F1:DEVWQI	N/A	DEVIATION AT WGI POSITION
F1:DFLGW	N/A	DEAD CROSS-SECTIONAL AREA FLAG
F1:GR	N/A	GAMMA RAY
F1:MAXD	N/A	MAXIMUM CALIPER DIAMETER
F1:MIND	N/A	MINIMUM CALIPER DIAMETER
F1:MNR1W	N/A	MINIMUM RADIUS 1
F1:MNR2W	N/A	MINIMUM RADIUS 2
F1:MXR1W	N/A	MAXIMUM RADIUS 1
F1:MXR2W	N/A	MAXIMUM RADIUS 2
F1:OFFSW	N/A	TOOL-TO-CENTROID RADIUS
F1:RBWQI	N/A	RELATIVE BEARING (RELATIVE TO BOREHOLE HIGH SIDE) FOR WGI
F1:TEN	N/A	DIFFERENTIAL TENSION

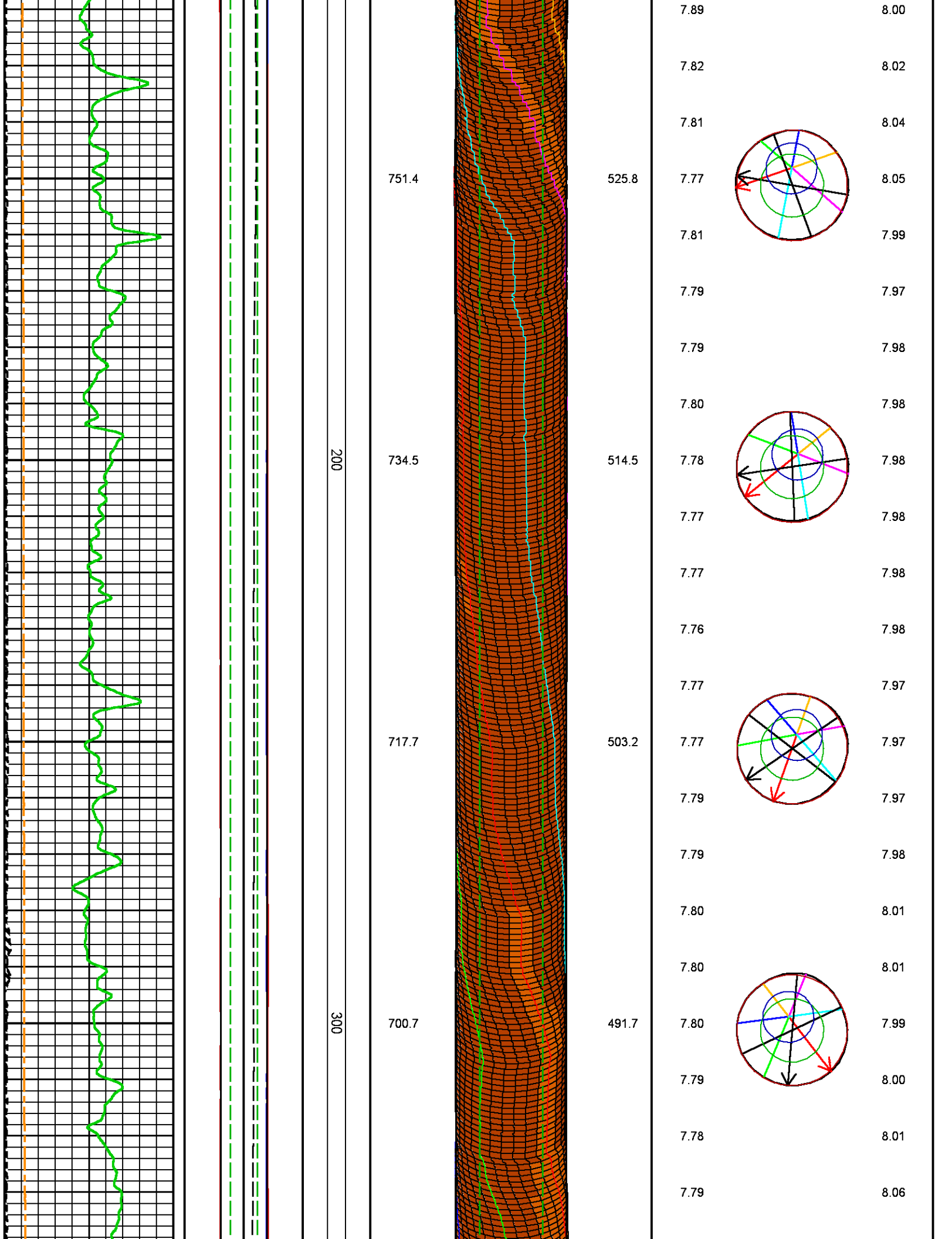
## CURVE MEASURE POINT OFFSET

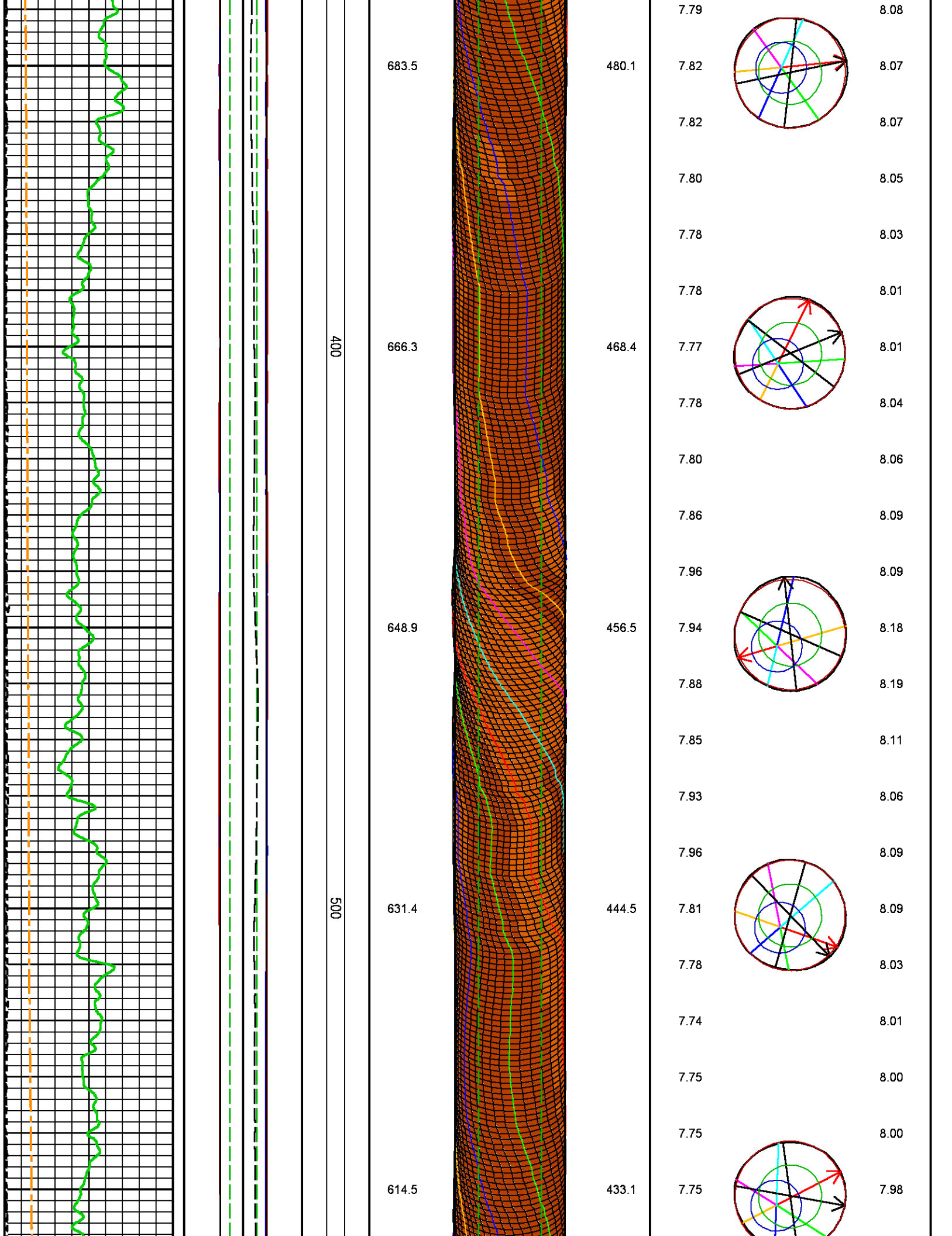
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BRADW	-17.75	DFLGW	-17.75	MNR2W	-17.75	OFFSW	-17.75
CRADW	-17.75	GR	-24.12	MXR1W	-17.75	RBWQI	-17.75
DEVWQI	-17.75	MNR1W	-17.75	MXR2W	-17.75	TEN	0.00

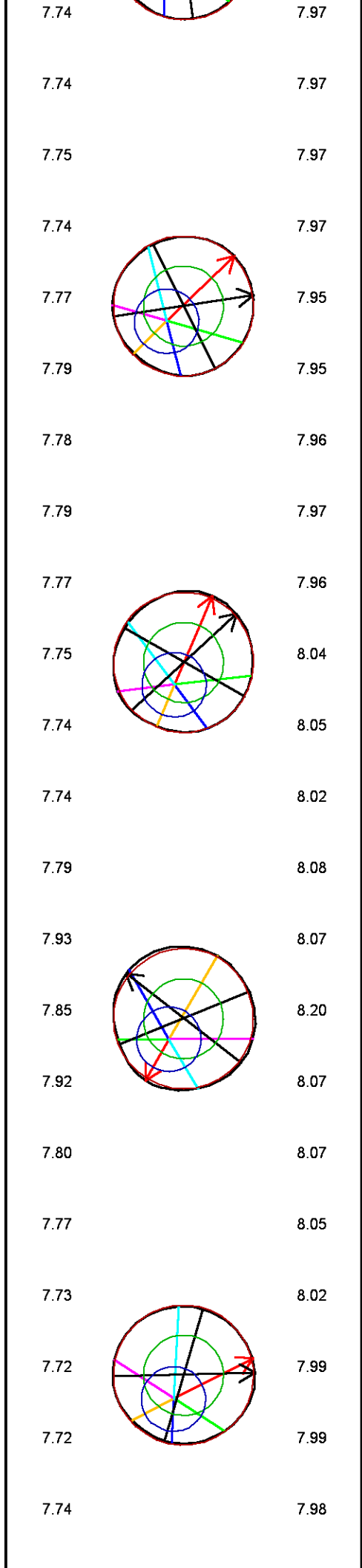
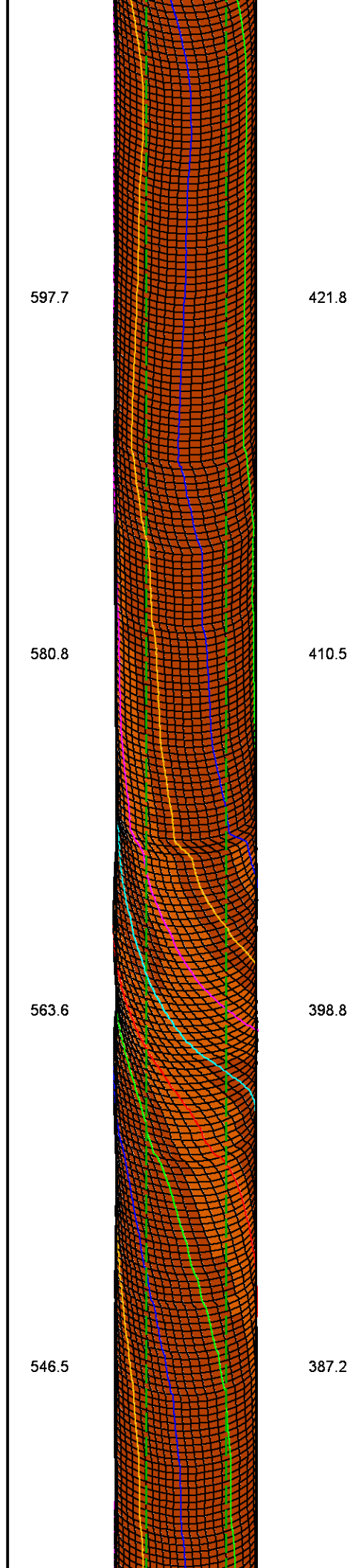
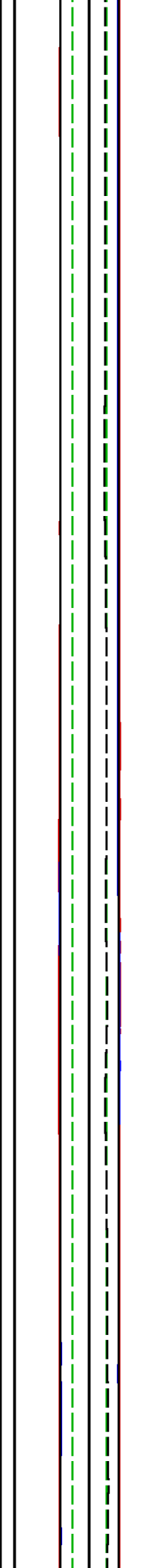
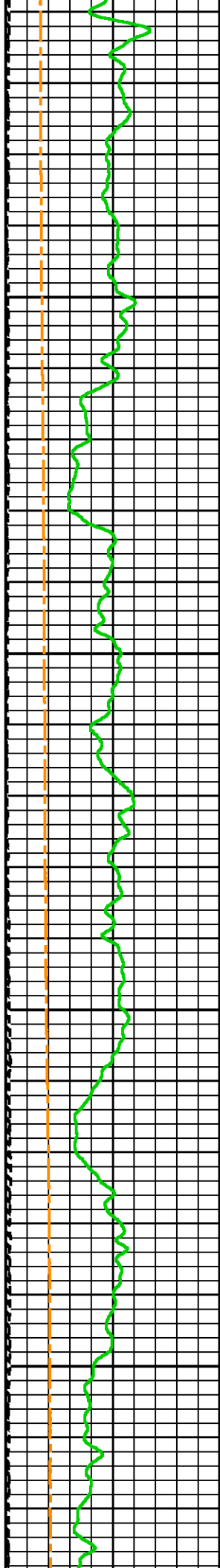
Presentation : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-18W/0994-24-18W\_WGI-6CAL\_MAIN.fvpdf [5"/100' Scale]  
Plot Interval : 1.25 - 2211.25 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-18W/0994-24-18W\_6CAL\_MAIN.xtf  
Created On : N/A  
Company : LARAMIE ENERGY LLC  
Well : NICHOLS 0994-24-18W  
Field : VEGA  
File Interval : 1.25 - 2211.25 Feet

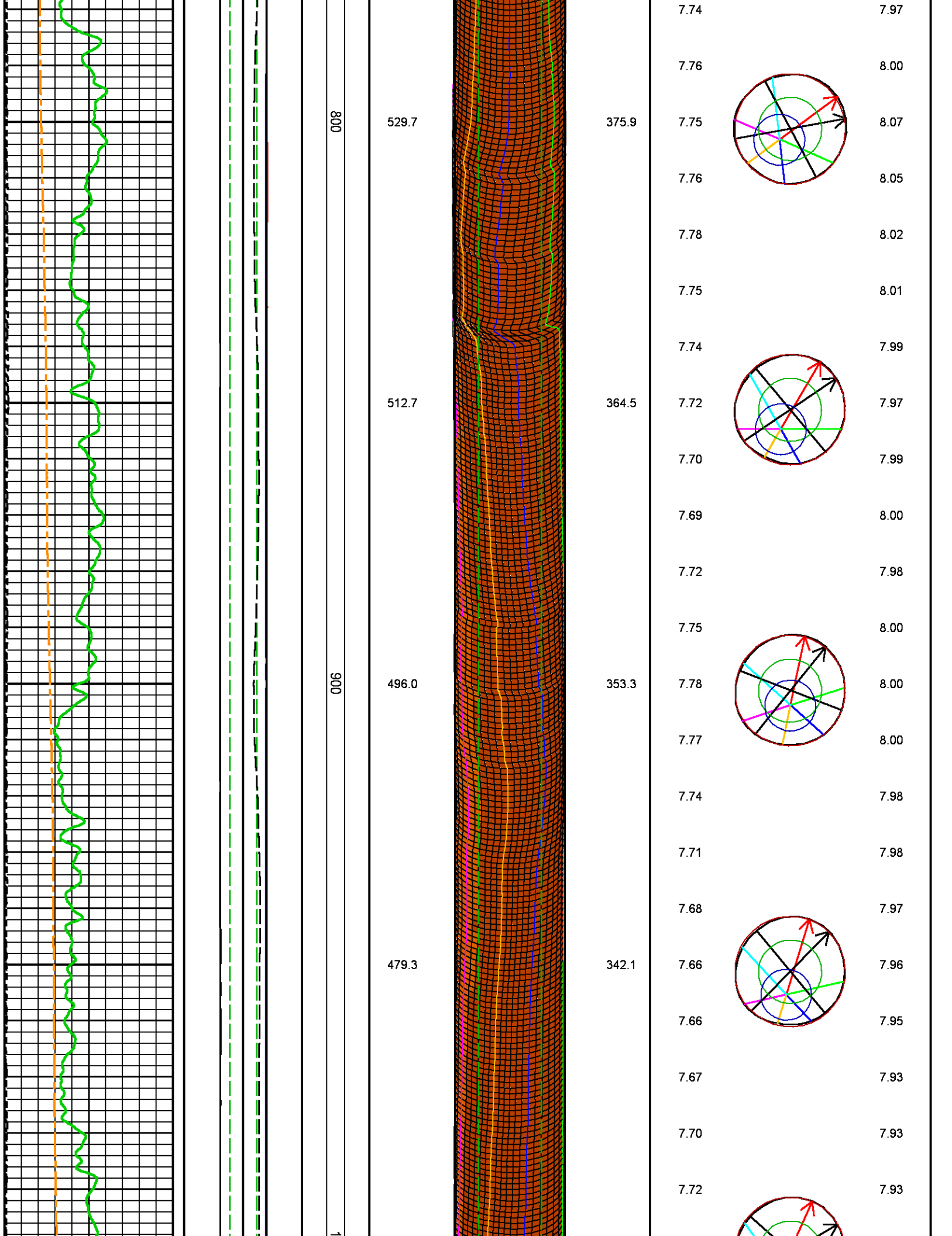


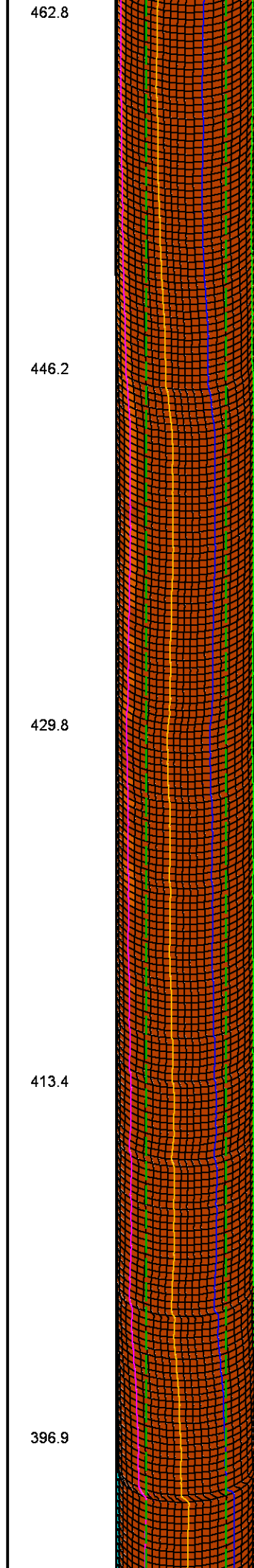
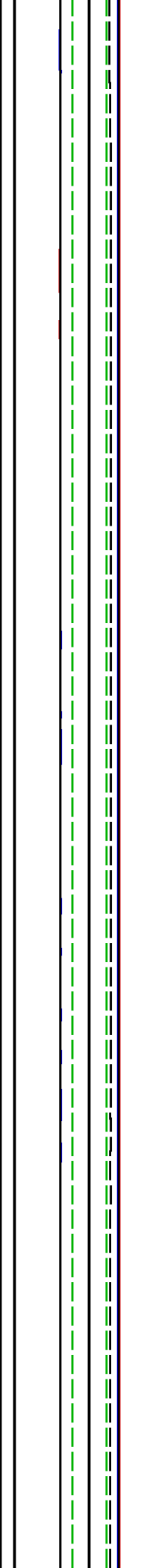
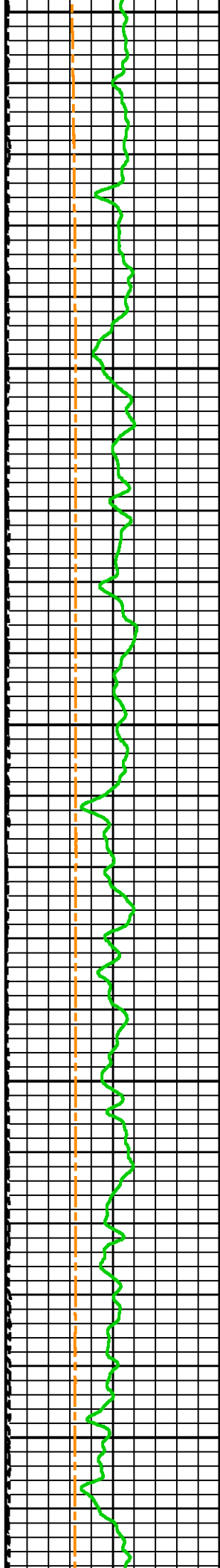




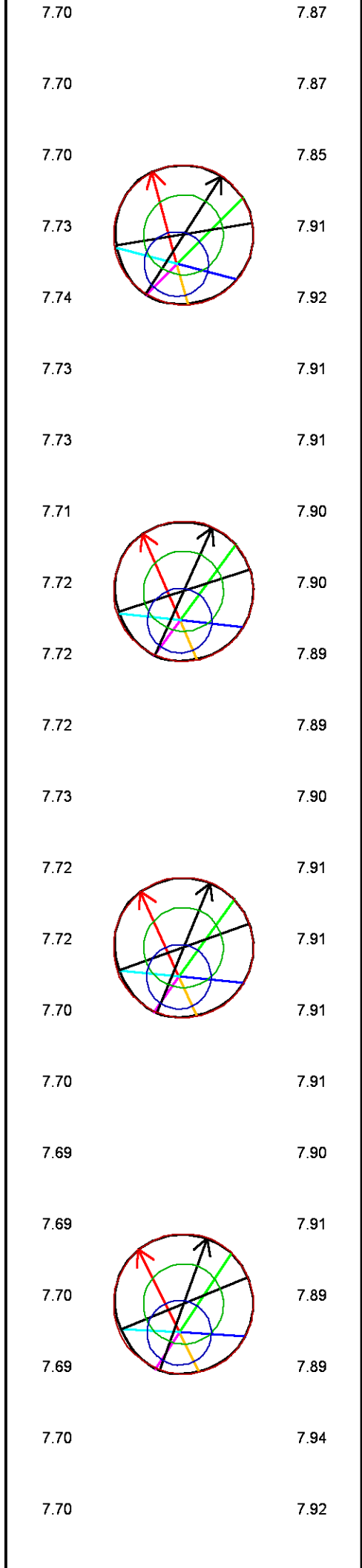
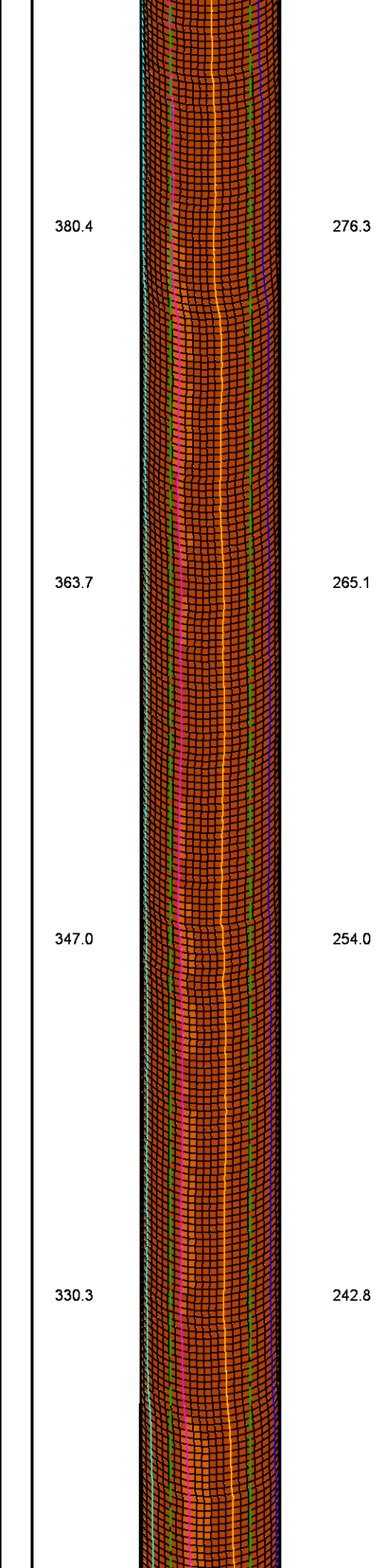
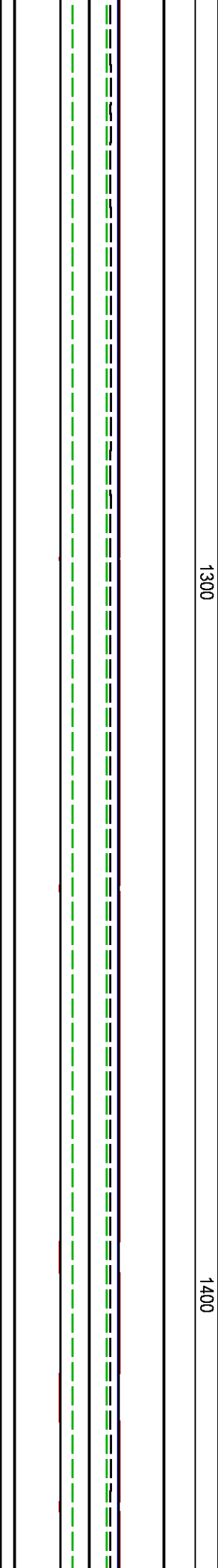
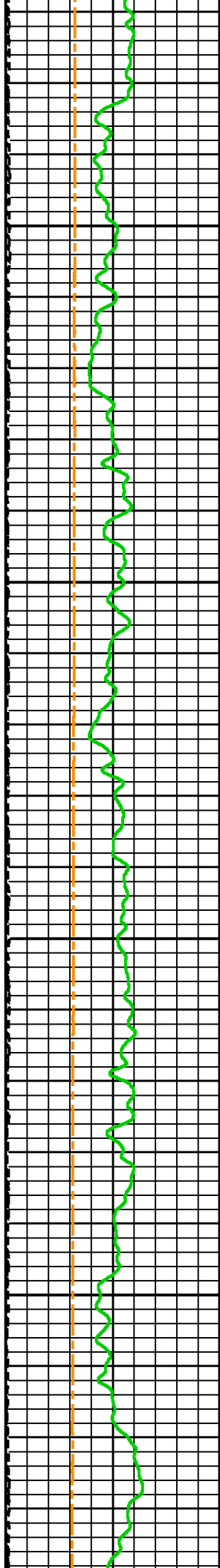


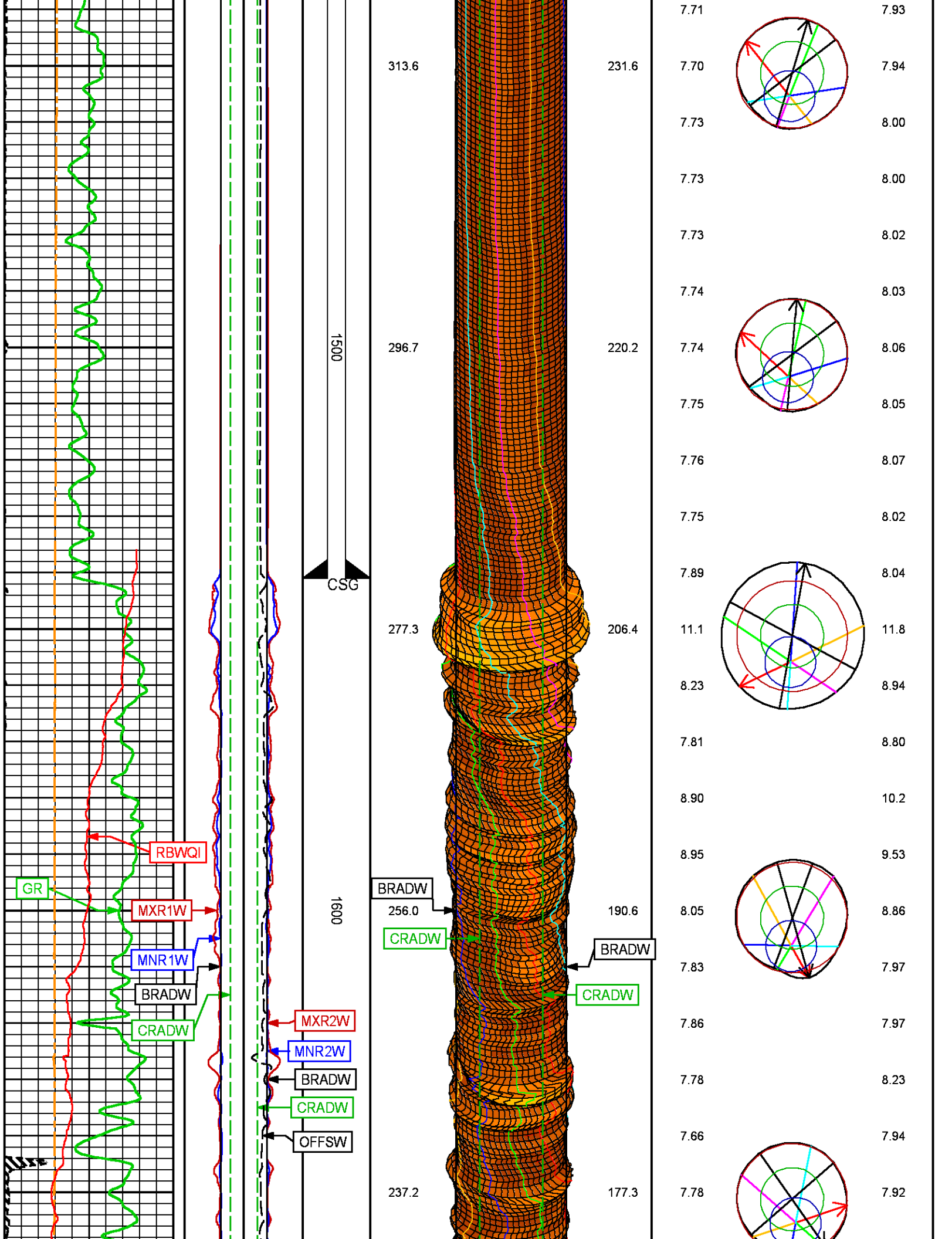


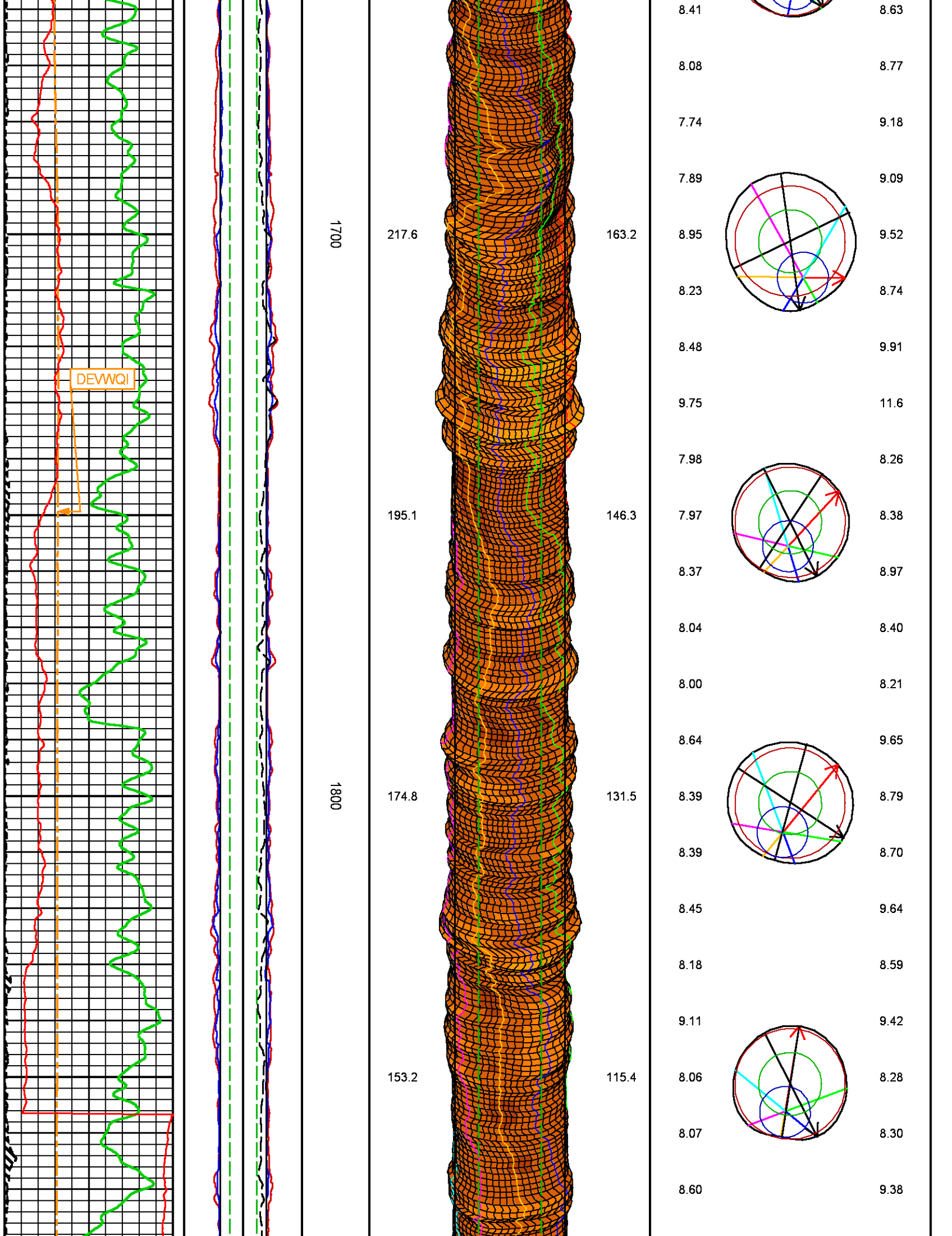


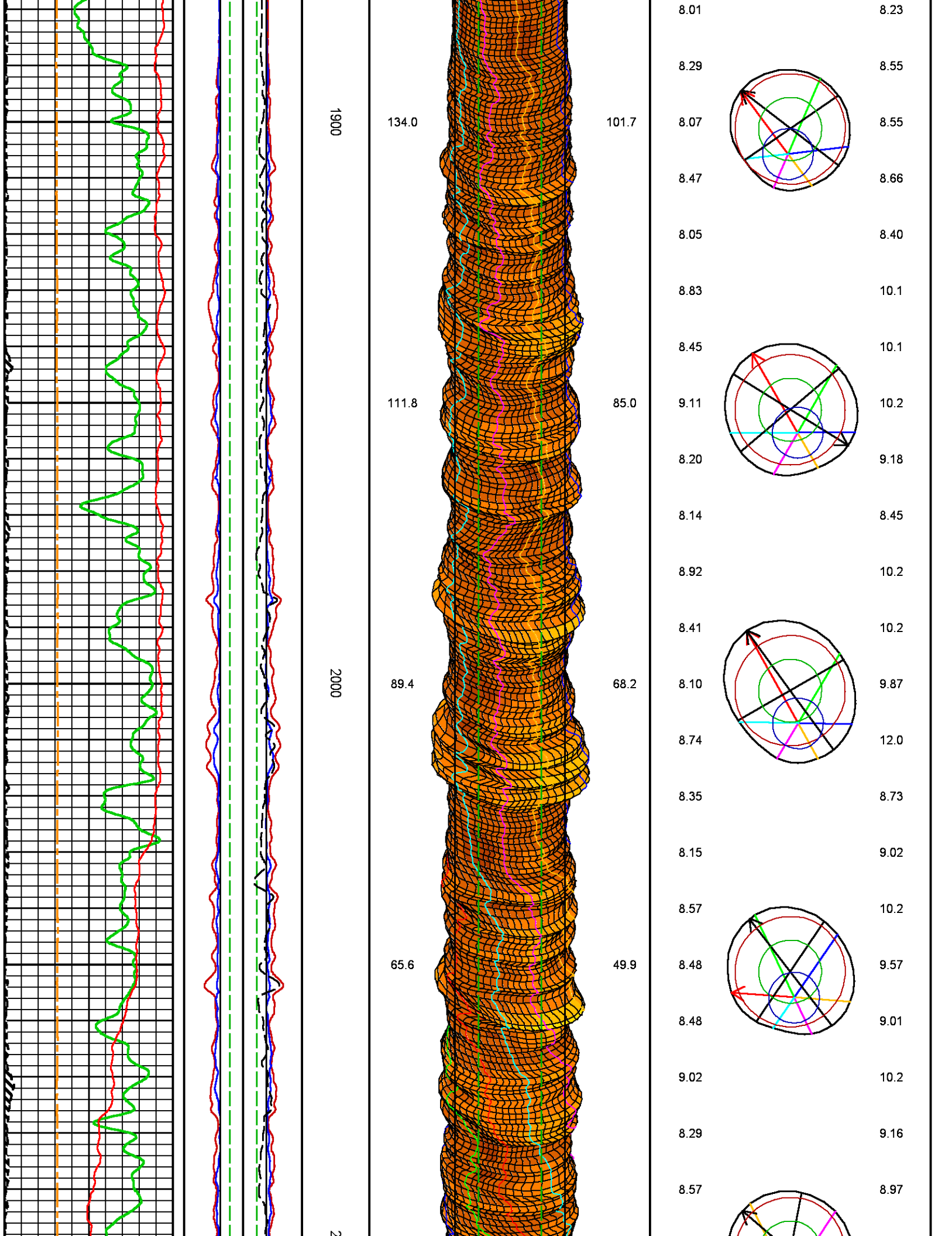




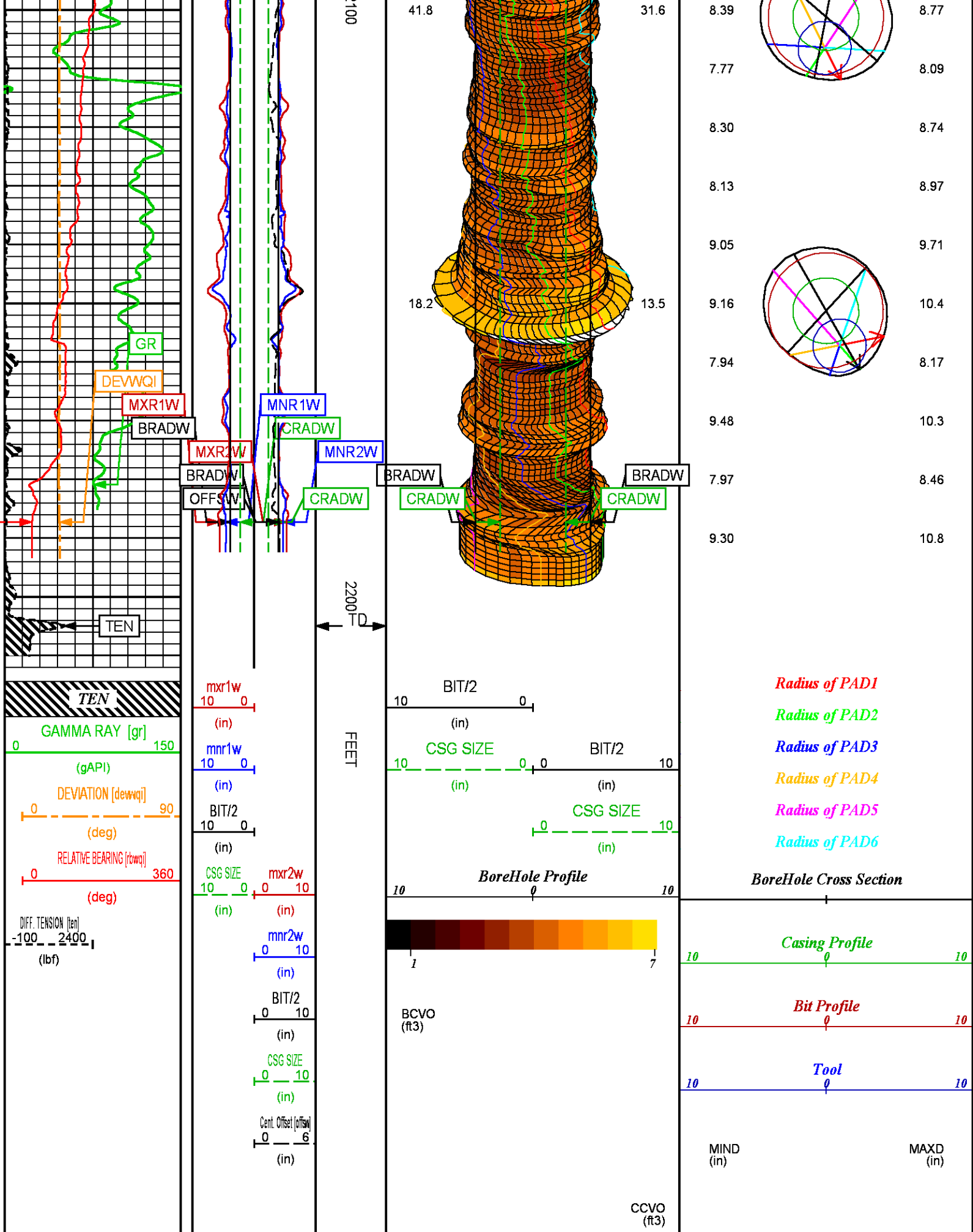












# WGI 6-CAL REPEAT PASS

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

Patches: 3

Plotted: Sun Apr 29 12:53:53 2018

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-18W/p820aR02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 1988.853 ft BOTTOM DEPTH: 2214.200 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TENSION	FILTER ( )	medium (1)		TOP	BOTTOM
GR	FILTER ( )	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
	FILTER	medium (1)		"	"
CALIPER	FILTER	medium (1)		"	"

### BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	4.500	in	TOP	BOTTOM
BIT SIZE	BIT SIZE	7.875	in	"	"

## CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BCVO	N/A	BOREHOLE CUMULATIVE VOLUME
F1:BRADW	N/A	BIT RADIUS
F1:CCVO	N/A	CEMENT CUMULATIVE VOLUME
F1:CRADW	N/A	CASING RADIUS
F1:DEVWQI	N/A	DEVIATION AT WGI POSITION
F1:DFLGW	N/A	DEAD CROSS-SECTIONAL AREA FLAG
F1:GR	N/A	GAMMA RAY
F1:MAXD	N/A	MAXIMUM CALIPER DIAMETER
F1:MIND	N/A	MINIMUM CALIPER DIAMETER
F1:MNR1W	N/A	MINIMUM RADIUS 1
F1:MNR2W	N/A	MINIMUM RADIUS 2
F1:MXR1W	N/A	MAXIMUM RADIUS 1
F1:MXR2W	N/A	MAXIMUM RADIUS 2
F1:OFFSW	N/A	TOOL-TO-CENTROID RADIUS
F1:RBWQI	N/A	RELATIVE BEARING (RELATIVE TO BOREHOLE HIGH SIDE) FOR WGI
F1:TEN	N/A	DIFFERENTIAL TENSION

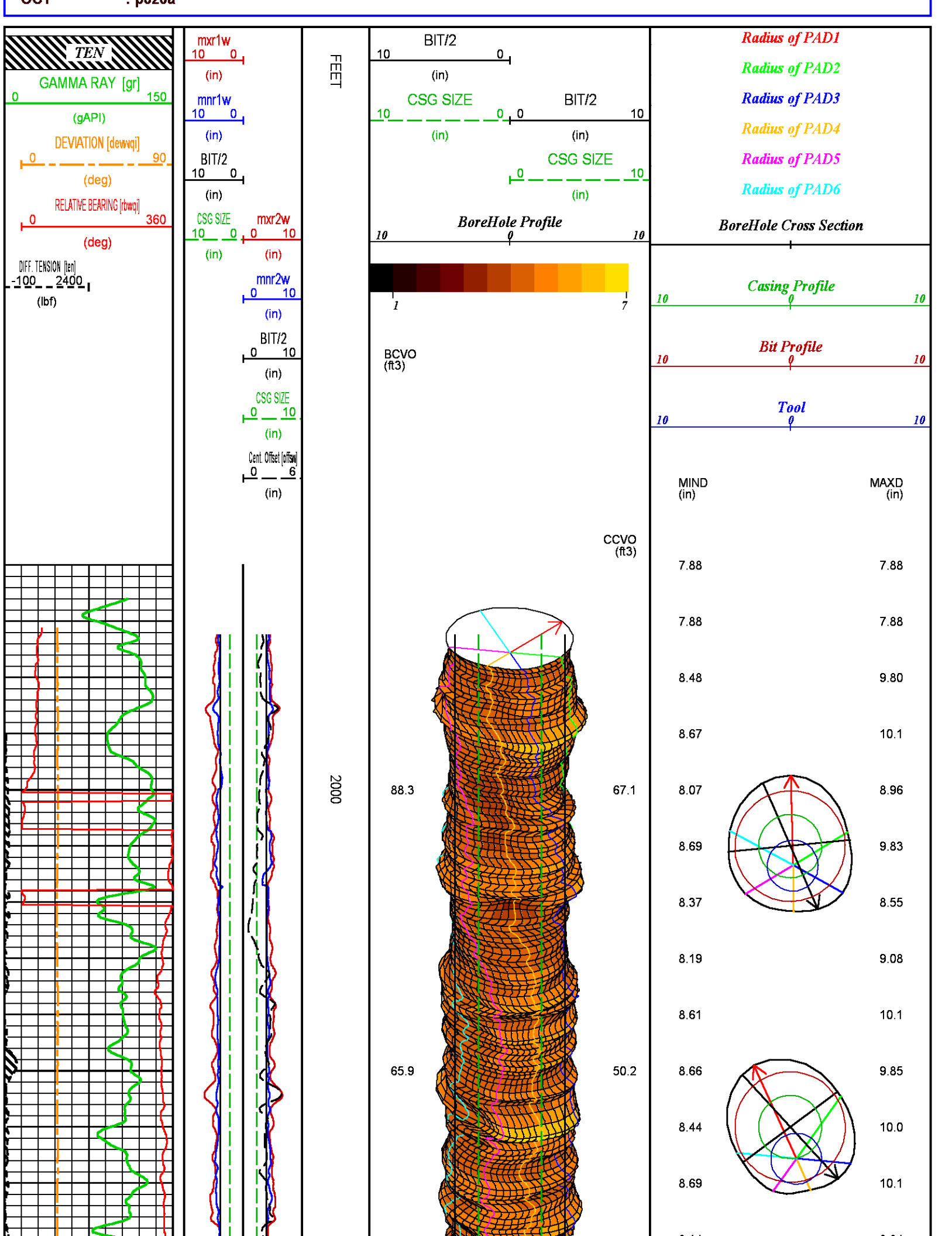
## CURVE MEASURE POINT OFFSET

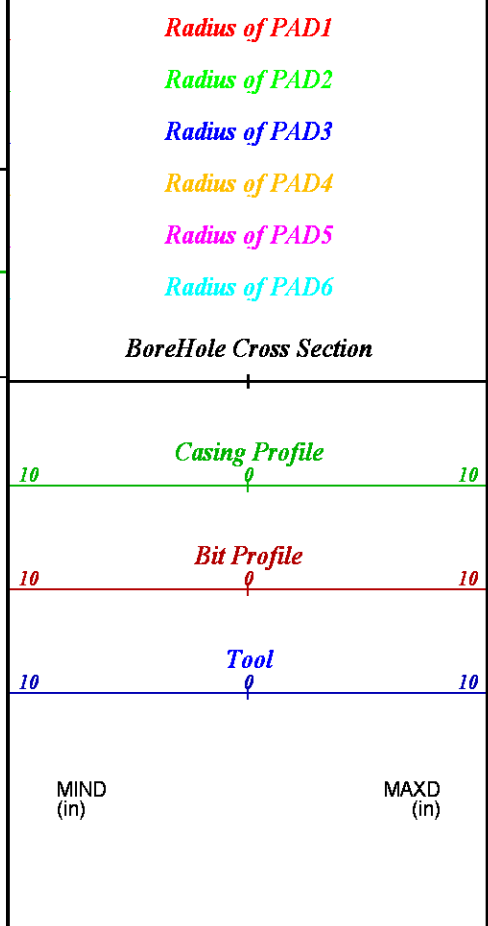
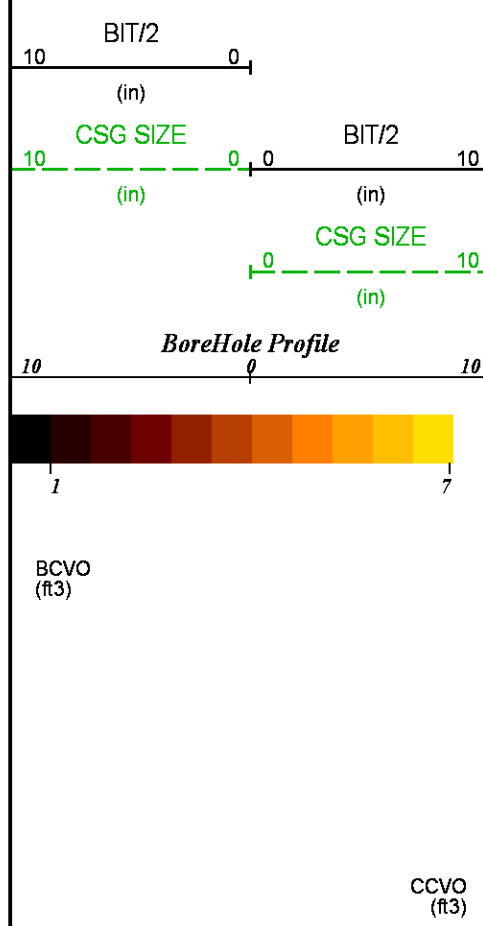
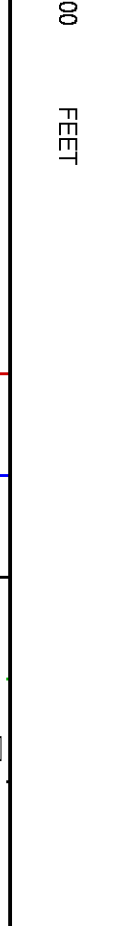
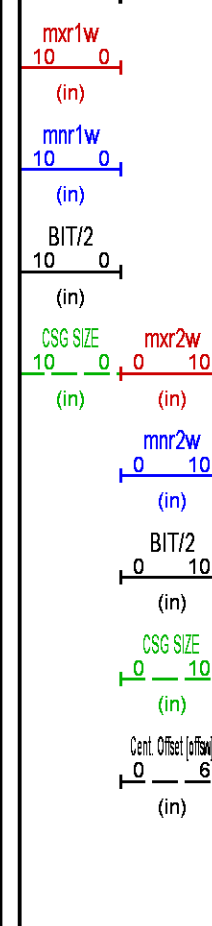
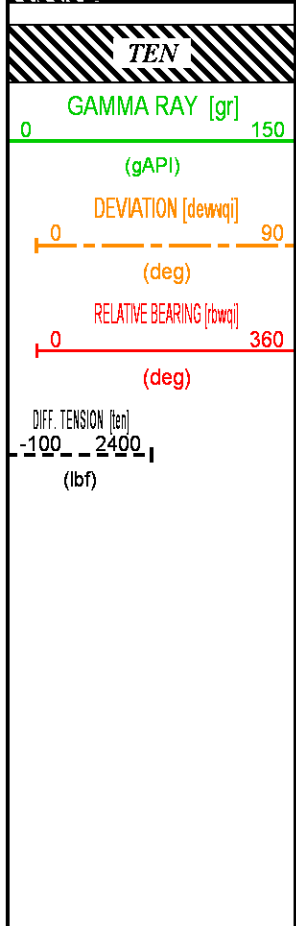
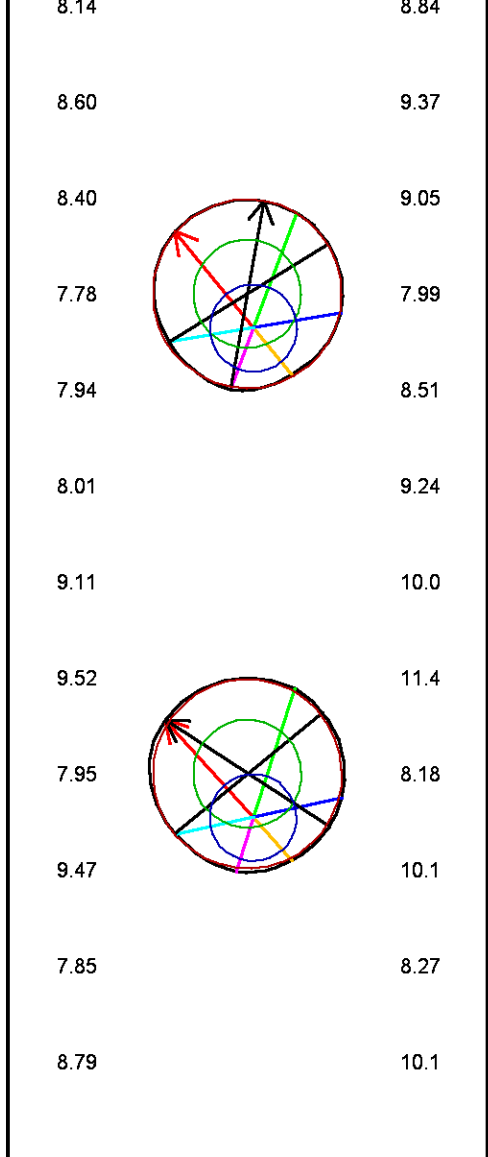
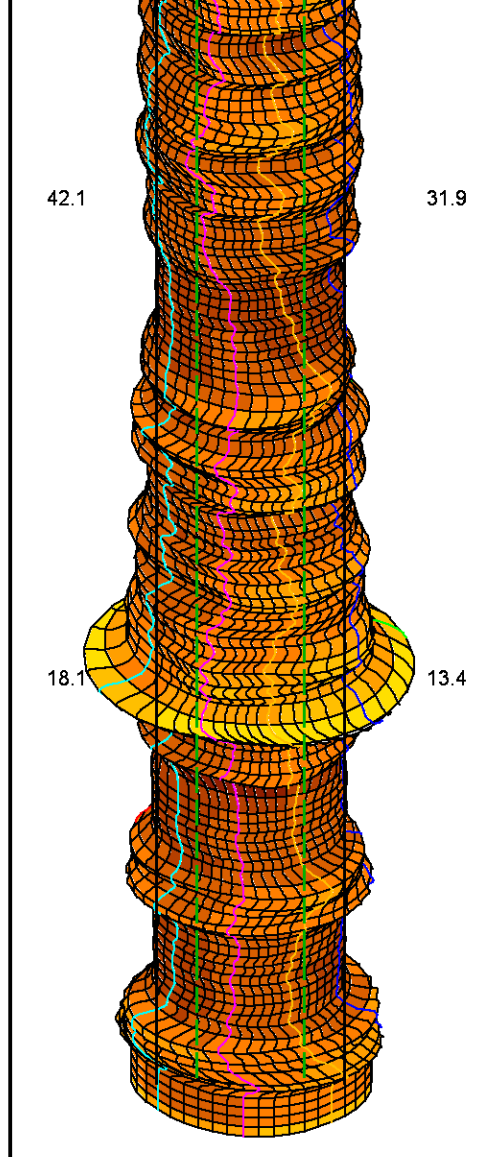
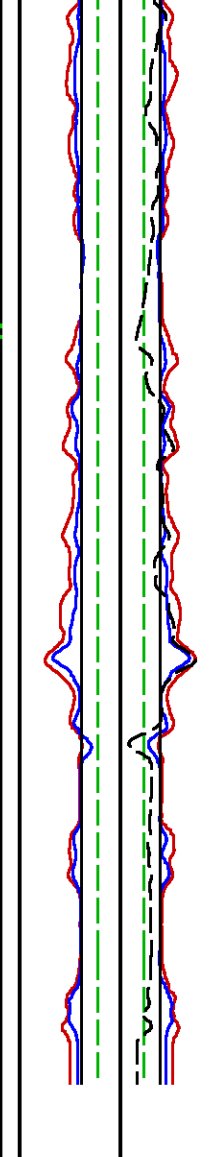
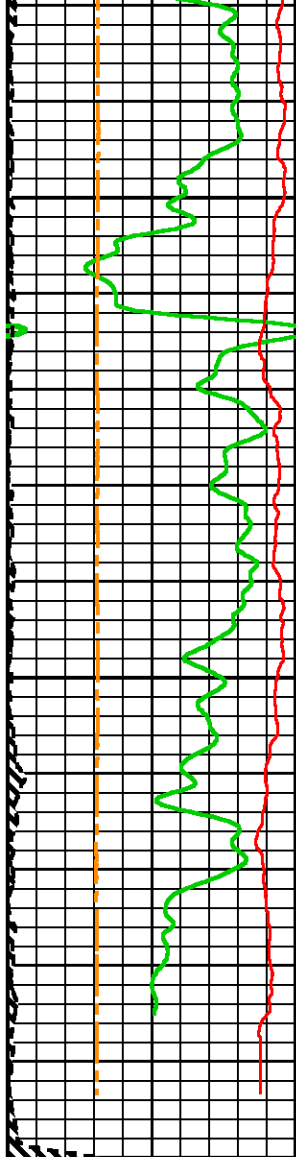
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BRADW	-17.75	DFLGW	-17.75	MNR2W	-17.75	OFFSW	-17.75
CRADW	-17.75	GR	-24.12	MXR1W	-17.75	RBWQI	-17.75
DEVWQI	-17.75	MNR1W	-17.75	MXR2W	-17.75	TEN	0.00

Presentation : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-18W/0994-24-18W\_WGI-6CAL\_REPEAT.fvpdf [5"/100' Scale]  
Plot Interval : 1960 - 2200 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-18W/0994-24-18W\_6CAL\_REPEAT.xtf  
Created On : N/A  
Company : LARAMIE ENERGY LLC  
Well : NICHOLS 0994-24-18W  
Field : VEGA  
File Interval : 1.25 - 2211.25 Feet  
OCT : p820a







# CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE\_NICHOLS\_0994-24-18W/p820a.tp1

## GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XB 10171235

DATE/TIME PERFORMED: Thu Apr 19 09:48:15 2018

UNIT #: 5753XD 111111

CALB JIG #: 4702NK DA-254

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	349.98	1253.00	903.0 830.0 960.0	0.166	58.13	208.13	150

## GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XB 10171235

DATE/TIME PERFORMED: Thu Apr 19 09:50:45 2018

UNIT #: 5753XD 111111

VERI JIG #: 4702NK DA-254

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	346.31	1237.67	0.166	57.53	205.59	148.06 140.00 160.00

## WGI PRIMARY CALIBRATION SUMMARY

TOOL #: 4253XA 10435549

DATE/TIME PERFORMED: Thu Mar 29 15:07:06 2018

UNIT #: 3882TD HL6728

	DIAMETER		SM RING	LG RING	TEMPERATURE		
			(in)	(in)	(degF)		
			7.000	21.800	61.080		

## WGI BEFORE LOG VERIFICATION SUMMARY

TOOL #: 4253XA 10435549 DATE/TIME PERFORMED: Sat Apr 28 03:16:26 2018 DAYS SINCE CAL: 29

UNIT #: 5753XD 111111

DIAMETER	TRUE ID (in)	CHAD (in)	MIND (in)	MAXD (in)	TEMPERATURE (degF)
	7.921	7.980 7.721 8.121	7.888	8.148	118.210
		RADIUS (in)	RADIUS (in)		DIAMETER (in)
ARM 1 & 4		2.835	4.219		7.053
ARM 2 & 5		1.941	5.933		7.875
ARM 3 & 6		2.699	4.854		7.553

## WGI AFTER LOG VERIFICATION SUMMARY

TOOL #: 4253XA 10435549 DATE/TIME PERFORMED: Sat Apr 28 05:00:08 2018 DAYS SINCE CAL: 29

UNIT #: 5753XD 111111

DIAMETER	TRUE ID (in)	CHAD (in)	MIND (in)	MAXD (in)	TEMPERATURE (degF)
	7.921	8.095 7.721 8.121	8.037	8.150	96.677
		RADIUS (in)	RADIUS (in)		DIAMETER (in)
ARM 1 & 4		3.892	4.181		8.072
ARM 2 & 5		3.870	4.186		8.056
ARM 3 & 6		4.286	3.850		8.135

## WGI\_OR PRIMARY CALIBRATION SUMMARY

TOOL #: 4253XA 10435549 DATE/TIME PERFORMED: Thu Apr 19 09:55:15 2018

UNIT #: 5753XD 111111 ORIENTATION #: 4401XB 10170546

	DEV (deg)	QA (mG)	MEAS RB (deg)	RB OFFSET (deg)	ROTATED RB (deg)
ORIT TBM CHECK	89.8	1000.2 990.0 1010.0	359.4 357.5 2.5		
WGI ORIENTATION			99.6	99.6	0.0

## INSTRUMENT CONFIGURATION

45.83'

CABLEHEAD

Diameter : 3.38"  
Length : 5.50'  
Weight : 24 lbs  
Series : CABL338  
Mnemonic : CBLH  
Measure Point: 2.75': CABLEHEAD TOP

CABLEHEAD TOP 43.08'

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TTRM SUB

Diameter : 3.63"  
Length : 3.83'  
Weight : 62 lbs  
Series : 3981XA  
Mnemonic : TTRM  
Measure Point: 1.38': TEMP MP  
Measure Point: 1.13': RM MP

TEMP MP 37.88'  
RM MP 37.63'

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WTS COMMON REMOTE

Diameter : 3.63"  
Length : 6.36'  
Weight : 126 lbs  
Series : 3514XB  
Mnemonic : WTS

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DIGITAL SPECTRALOG

Diameter : 3.63"  
Length : 7.31'  
Weight : 130 lbs  
Series : 1329XB  
Mnemonic : DSL  
Measure Point: 1.60': GR MP

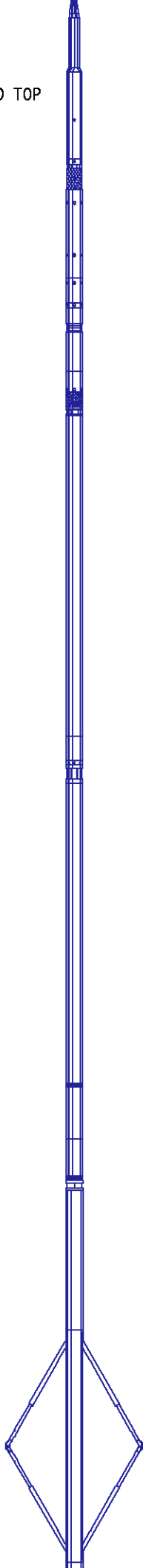
GR MP 24.42'

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WELL GEOMETRY INSTRUMENT

Diameter : 3.62"  
Length : 7.61'  
Weight : 100 lbs  
Series : 4253XA  
Mnemonic : WGI  
Measure Point: 2.85': RADII MP

RADII MP 18.05'



DIGITAL ORIENTATION

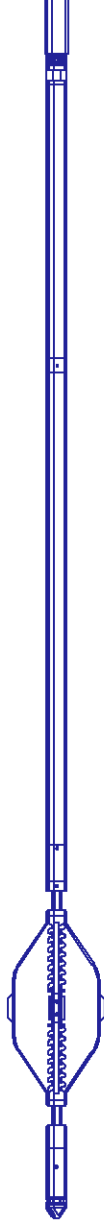
Diameter : 3.38"  
Length : 10.81'  
Weight : 110 lbs  
Series : 4401XB  
Mnemonic : ORIT  
Measure Point: 0.00': ORIENT MP

4 ARM BOW SPRING CENTRALIZER

Diameter : 3.38"  
Length : 4.12'  
Weight : 72 lbs  
Series : 4341XA  
Mnemonic : CENT

BULL PLUG 3 3/8

TOTAL LENGTH: 45.83'  
TOTAL WEIGHT: 626 lbs  
MAX DIAMETER: 0'3.63"



ORIENT MP 4.40'

0.00'



**BAKER  
HUGHES**  
a GE company



**ECLIPS**

**COMPANY** LARAMIE ENERGY LLC  
**WELL** NICHOLS FEDERAL 0994-24-17E  
**FIELD** VEGA  
**COUNTY** MESA **STATE** COLORADO

**FILE NO:**  
OH136033  
**API NO:**  
05077103940000

**LOCATION:**

SHL: 2302' FNL & 2792' FWL  
BHL: 1176' FSL & 1733' FEL

**ELEVATIONS:**

KB 7236 FT  
DF  
GL 7212 FT

**SEC** 24 **TWP** 9S **RGE** 94W

**DATE** 27-Apr-2018