PRECISION
Wireline Technologies

SPECTRAL Pe DENSITY
COMPENSATED NEUTRON
GAMMA RAY LOG

N.E.B. COPY

PROVINCE	NORTHWEST TERRITORIES
FIELD	ARROWHEAD RIVER
WELL	ANADARKO ARROWHEAD RIVER K-35
COMPANY	ANADARKO CANADA ENERGY

COMPANY ANADARKO CANADA ENERGY

WELL ANADARKO ARROWHEAD RIVER K-35

FIELD ARROWHEAD RIVER

PROVINCE NORTHWEST TERRITORIES

LSD _____ Sec._____ Twp._____ Rge._____
Perm. Datum GROUND LEVEL Elev. 541.17 m
Log measured from KB , 6.33 m above Permanent Datum.

Other Services:
STI HBC

UWI 300K356040122450
Licence 9211-A069

ELEV.K.B. 547.50 m
G.L. 541.17 m
CBF =======-

Date	17-FEB-2004					
Run No.	ONE					
Bot. Driller	2442.7 m					
Bot. Logger	2443.0 m					
First Reading	2427.3 m					
Last Reading	652.0 m					
Meters Meas.	1775.3 m					
Csg. Driller	653.0 m		244.5mm @ 59.5kg/m			
Csg. Logger	652.0 m					
Bit Size	215.9 mm					
Fluid Type	INVERT					
Dens. | Visc.	955	85				
pH | Fluid Loss	N/A	N/A				
Sample Source	FLOWLINE					
Rm	N/A	@ N/A °C	@	°C	@	°C
Rmf	N/A	@ N/A °C	@	°C	@	°C
Rmc	N/A	@ N/A °C	@	°C	@	°C
Rm @ BHT	N/A	@ N/A °C	@	°C	@	°C
Max Rec.Temp	92 °C					
Spacing	N/A					
Operating Time	6.0 HRS					
Unit #	379					
Location	GRANDE PRAIRIE OH					
Recorded By	M. KOSCIUCZYK					
Witnessed By	H. COWAN					

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretation or recommendation and we shall not be liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from any interpretation or recommendation made by any of our employees or agents.

REMARKS Rig: AKITA 37 Service Order # 30015974

Drilling Stopped 05:45/17 Circulation Stopped 11:30/17 Tool on Bottom 22:35/17 BHT 92 °C
- STI-HBC-SPED-CNT-UGR-DAC LOGGED IN COMBINATION
- PRESENTATIONS AND INTERVALS AS PER CUSTOMERS REQUEST.

Prints: 2

CHANGES IN MUD TYPE OR NEW SAMPLE			
Date | Sample No.			
Depth - Driller			
Type Fluid in Hole			
Dens. | Visc.			
pH | Water Loss			
Source of Sample			
Rm @ Meas. Temp.	@	°C	
Rmf @ Meas. Temp.	@	°C	
Rmc @ Meas. Temp.	@	°C	
Source Rmf | Rmc			
Rm @ BHT	@	°C	
Rmf @ BHT	@	°C	
Rmc @ BHT	@	°C	

SCALE CHANGES		
Type Log	Interval	Scale

EQUIPMENT DATA			
Run No.	Tool Type	Tool No.	Other
ONE	SPD-BA	190190	2812-GW
	CNT-SB	144	6110-NE
	UGR-JB	187	RA-20S-734
	CAL-FA	123	

REMARKS

MAIN PASS
1:600 SCALE
BULK DENSITY PRESENTATION
OPEN HOLE VOLUME ON THE LEFT SIDE OF THE DEPTH TRACK (M^3)
ANNULAR VOLUME ON THE RIGHT FOR 177.8mm CASING (M^3)

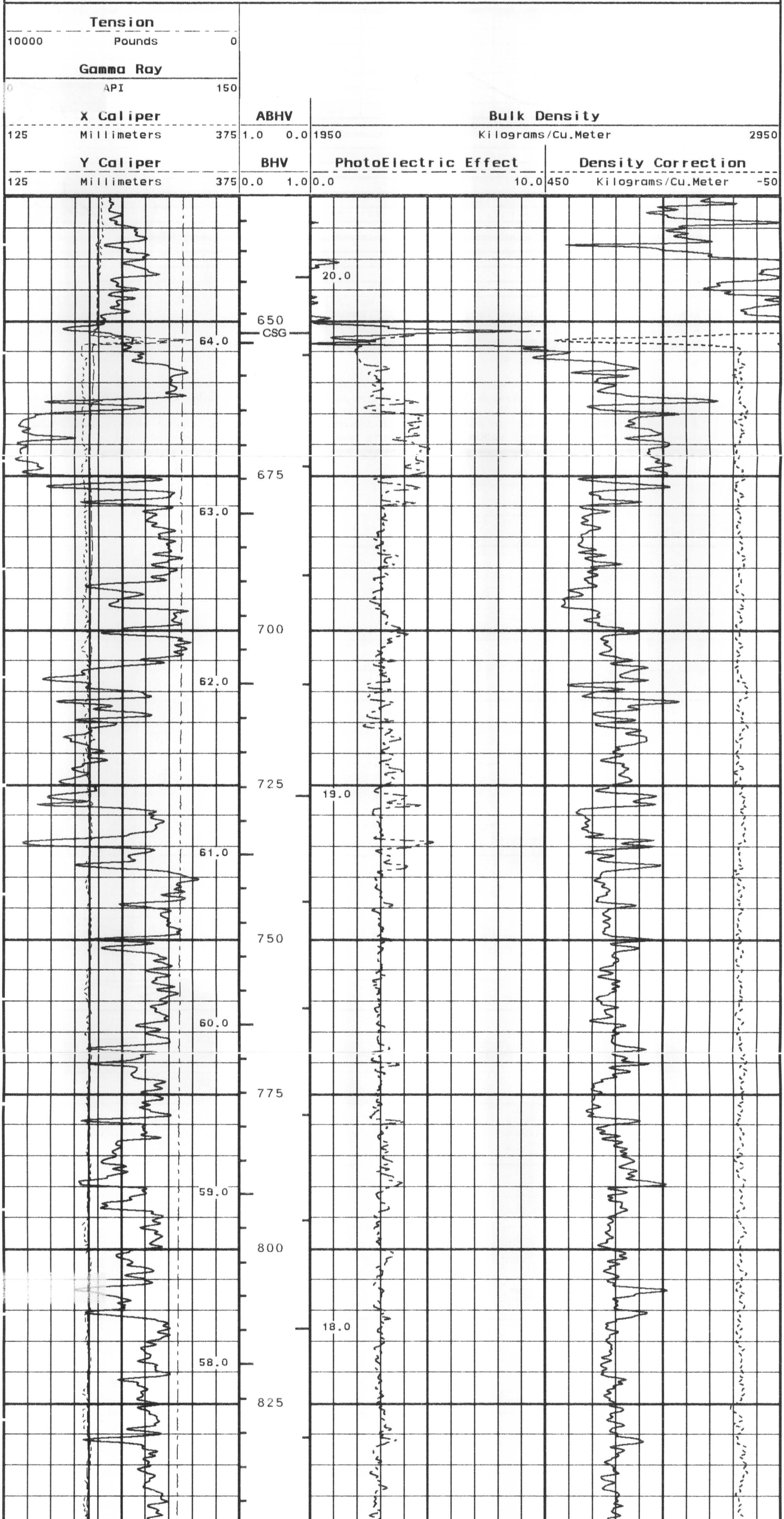
DEPTH SCALE: **1:600** VERSION: **2004.02.11.263**

MAIN PASS

30015974 STIMP

BHV CASING SIZE: **177.80** Millimeters CALIPERS: CALI,CAL2,None

FINISH DEPTH: **0.0** Meters DIRECTION: **UP** DATE: TIME: MODE: **TRACE PLAYBACK**




57.0
850
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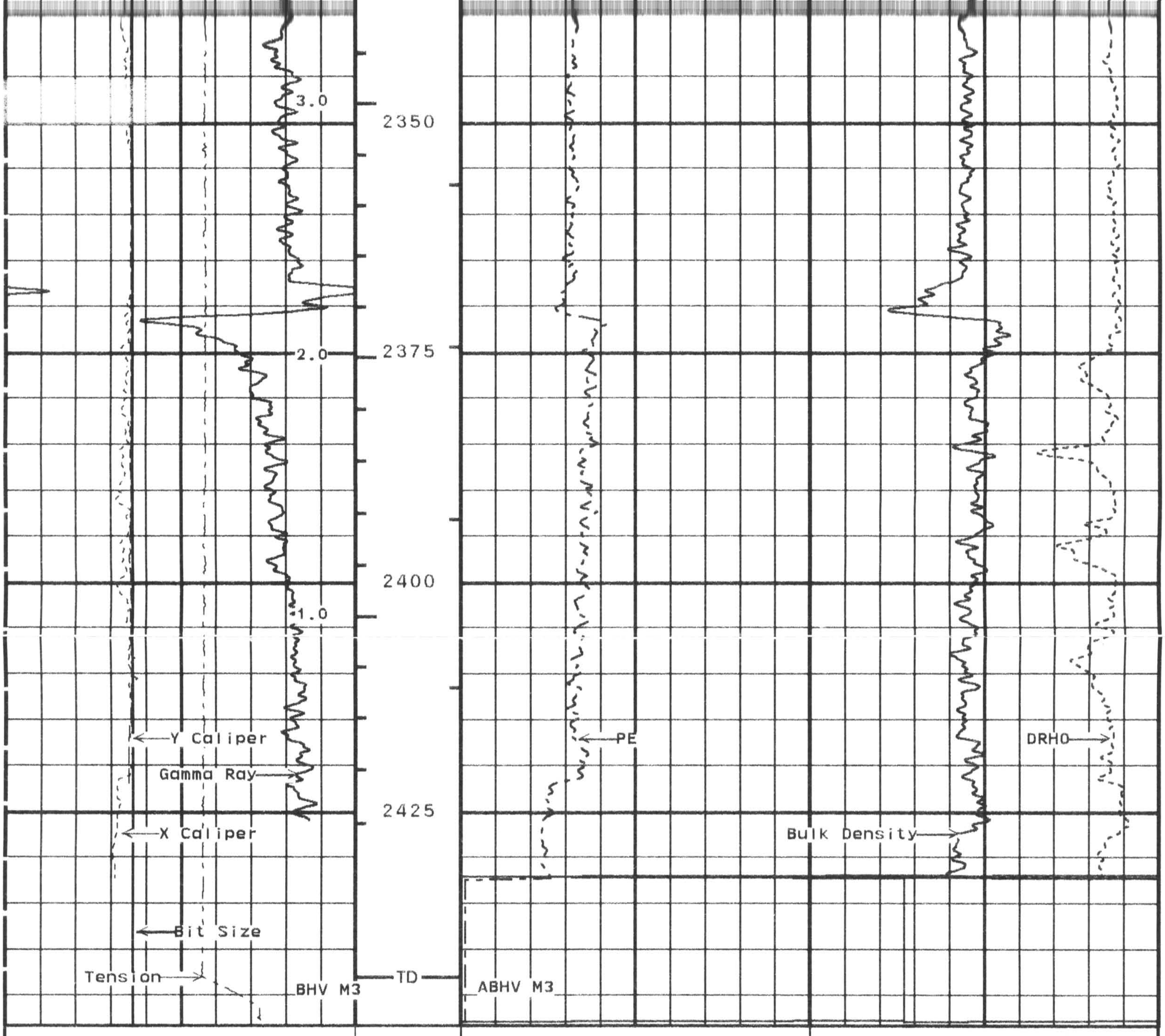


Y Caliper
125 Millimeters 375

BHV
0.0 1.0

PhotoElectric Effect
0.0 10.0

Density Correction
450 Kilograms/Cu.Meter -50

X Caliper
125 Millimeters 375

ABHV
1.0 0.0

Bulk Density
1950 Kilograms/Cu.Meter 2950

Gamma Ray
0 API 150

Tension
10000 Pounds 0

START DEPTH: **2448.2** DIRECTION: **UP** DATE: **02/18/2004** TIME: **01:24** MODE: **TRACE PLAYBACK**

BHV CASING SIZE: **177.80** Millimeters CALIPERS: CALI,CAL2,None

30015974 STIMP

MAIN PASS

DEPTH SCALE: **1:600** VERSION: **2004.02.11.263**

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	2443.00	Meters
BS	Bit Size	215.9	Millimeters
BHT	Bottom Hole Temp	92.0	DegreesCentigrade
BARI	Barite Correction	OFF	
MW	Mud Weight	955.0	Kilograms/Cu.Meter
SCAL	Density BH Diam Source	X Caliper	
BHC4	BHV Casing Size	177.80	Millimeters
BHC6	BHV Method	Standard BHV	
BHC5	BHV Calipers	CALI,CAL2,None	

REMARKS

MAIN PASS
1:240 SCALE
SANDSTONE MATRIX (2650 kg/m3)

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

MAIN PASS

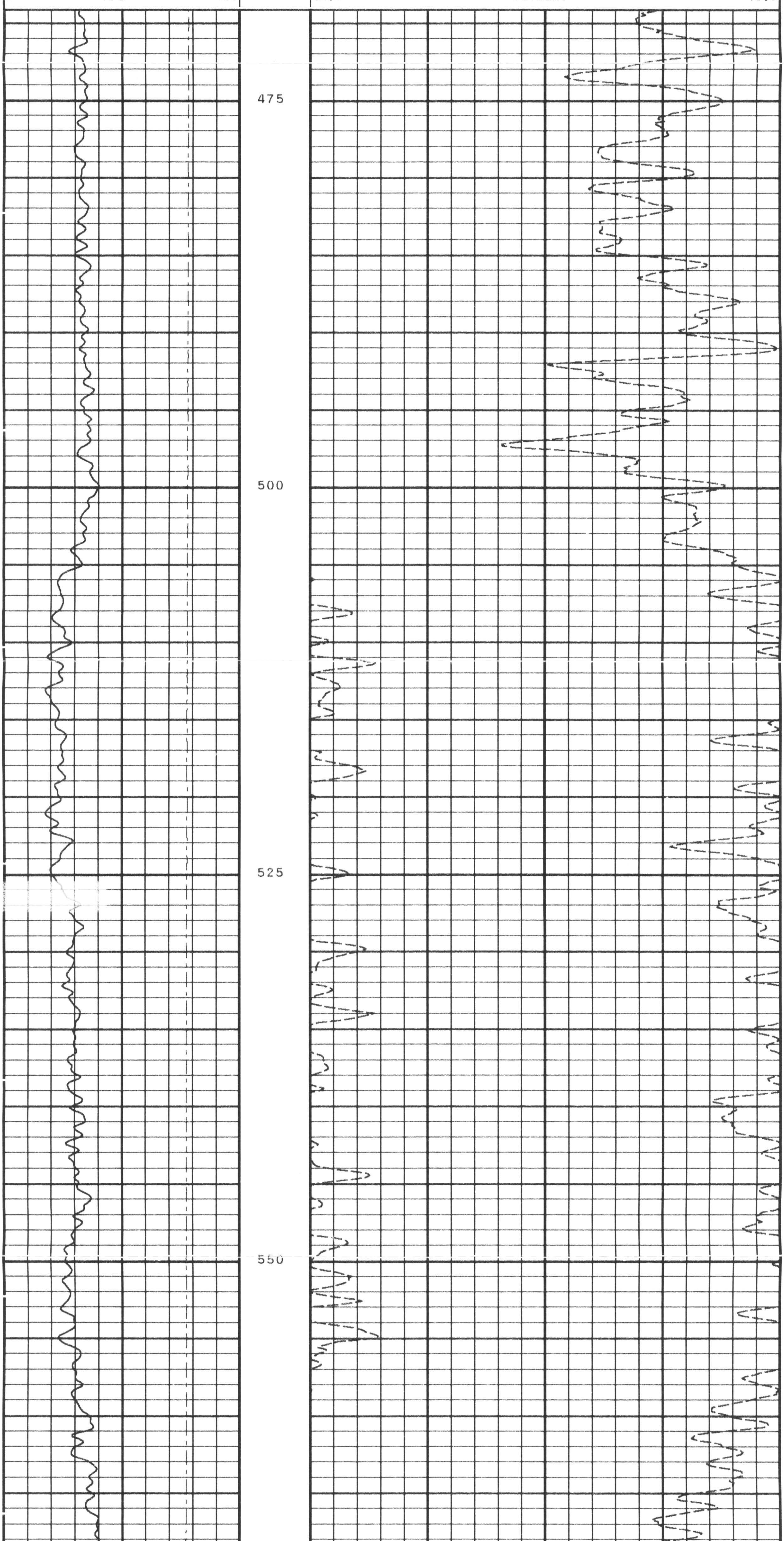
30015974 STIMP

FINISH DEPTH: **0.0** Meters DIRECTION: **UP** DATE: TIME: MODE: **TRACE PLAYBACK**

Tension (TENS)
10000 Pounds 0

Gamma Ray (GR)
0 API 150

Neut. Por. (NPSS)
45.0 Percent -15.0

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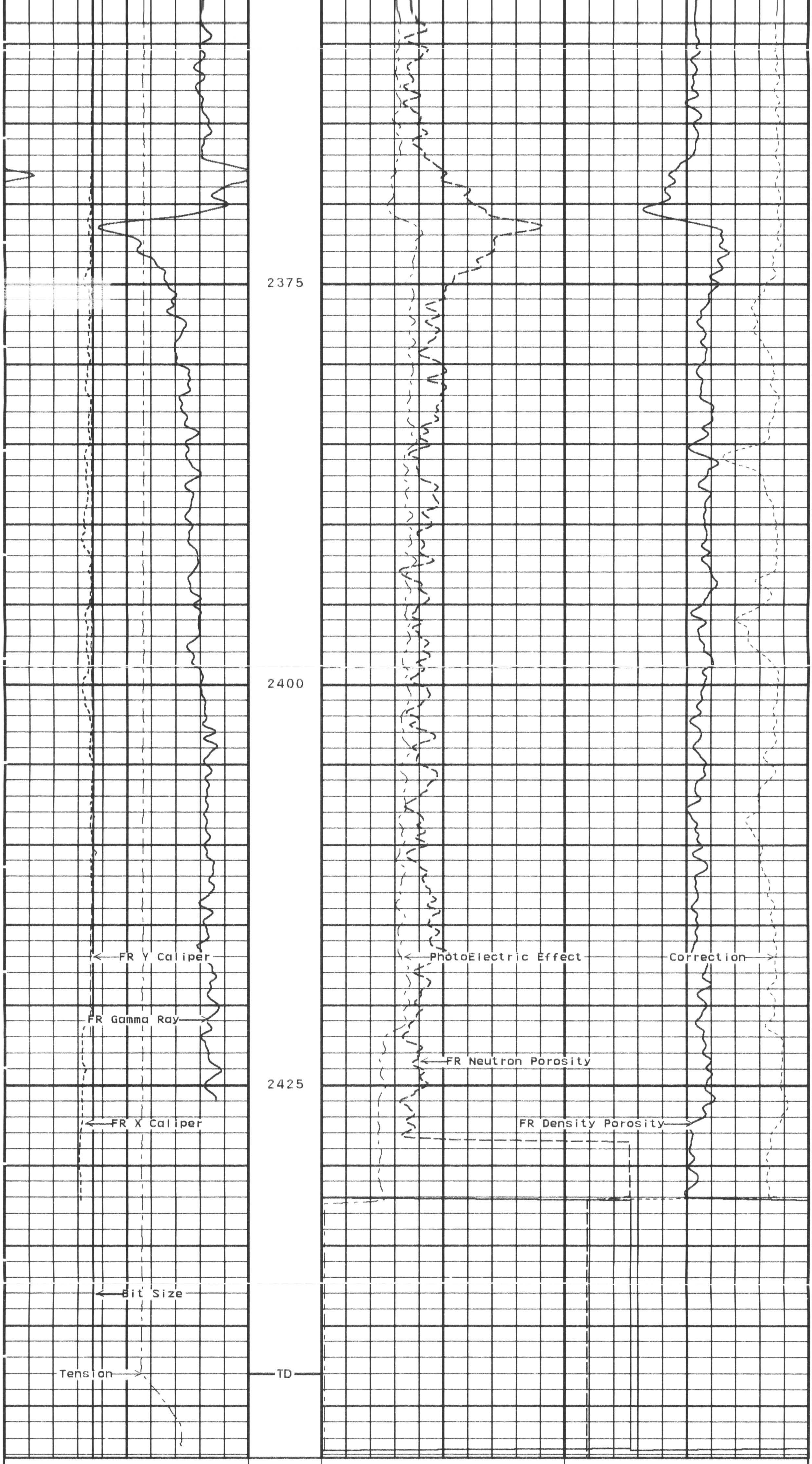


X Caliper (CALI)
125 Millimeters 375

PE (PEF)
0 10

Den. Corr. (DRHO)
450 Kilograms/Cu.Meter -50

Gamma Ray (GR)
0 API 150

Den. Por. (DPSS)
45.0 Percent -15.0

Y Caliper (CAL2)
125 Millimeters 375

Neut. Por. (NPSS)
45.0 Percent -15.0

Tension (TENS)
10000 Pounds 0

START DEPTH: **2448.2** DIRECTION: **UP** DATE: **02/17/2004** TIME:**23:25** MODE: **TRACE PLAYBACK**

30015974 STIMP

MAIN PASS

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	2443.00	Meters
CSIZ	Casing Size	244.5	Millimeters
CWEI	Casing Weight	59.52	Kilograms/Meter
BS	Bit Size	215.9	Millimeters
BHT	Bottom Hole Temp	92.0	DegreesCentigrade
SFT	Mean Annual Surf Temp	5.0	DegreesCentigrade
SPDD	SP Drift Corr. mV	0	Millivolts
SPBR	SP Bridle Depth Offset	0.00	Meters
SPTL	Log With SP From	STI	
STIB	STI SFL Chassis Return	ON	
STI4	STI 4 Level Average	OFF	
STIS	STI SFL Log Mode On	ON	
SACC	Accumulation Time	100	Seconds
BARI	Barite Correction	OFF	
MW	Mud Weight	955.0	Kilograms/Cu.Meter
MDEN	Matrix Density	2710	Kilograms/Cu.Meter
FD	Fluid Density	1000	Kilograms/Cu.Meter
SPVS	SPeD Valve Status	IN	
NGAI	K Factor-NEU	1.003	
BHS	Open/Cased Hole	Open	
BSAL	Borehole Salinity	0	Parts/Million
FSAL	Formation Salinity	0	Parts/Million
NBCS	Bitsize/Calp Sel-CNT	Caliper	
NTLS	Tool Type-CNT	CNT-S	
TGRD	Temperature Gradient	0.555	DegC/100Meters
NTMS	Temp Source-CNT	Gradient	
NCOT	Constant Temp-CNT	21.0	DegreesCentigrade
NCOR	Cnt Ch Corr Offset	OFF	
OCOR	Cnt Environ.correction	OFF	
SWAN	Sheave Wheel Angle	0.00	Degrees
NCAL	LIS Caliper Name-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	

REMARKS

MAIN PASS
1:240 SCALE

LIMESTONE MATRIX (2710 kg/m3)

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

MAIN PASS

30015974 STIMP

FINISH DEPTH: **0.0** Meters DIRECTION: **UP** DATE: TIME: MODE: **TRACE PLAYBACK**

Tension (TENS)
10000 Pounds 0

Y Caliper (CAL2)
125 Millimeters 375

Neut. Por. (NPHI)
45.0 Percent -15.0

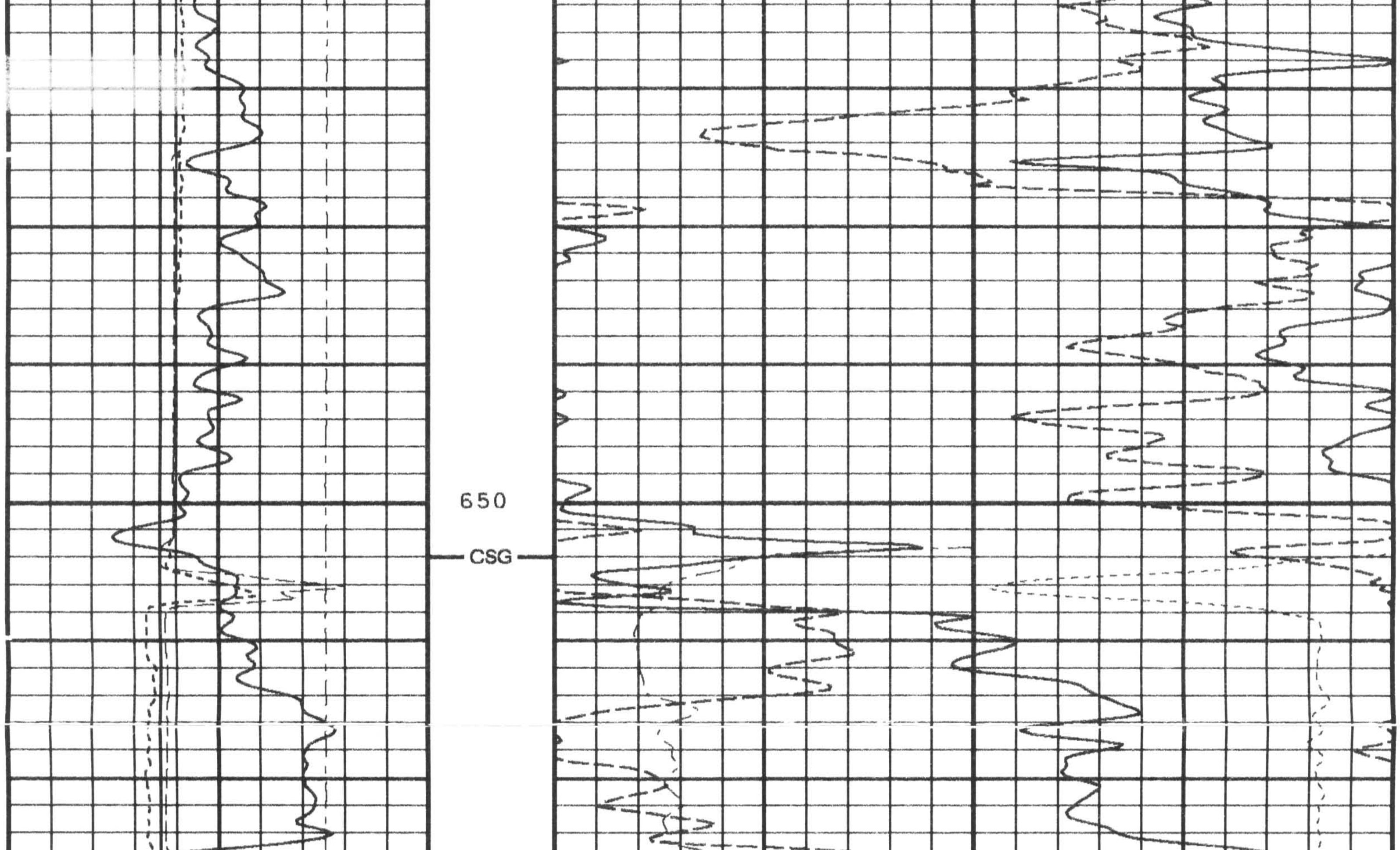
Gamma Ray (GR)
0 API 150

Bulk Density (RHOB)
1950 Kilograms/Cu.Meter 2950

X Caliper (CALI)
125 Millimeters 375

PE (PEF)
0 10

Den. Corr. (DRHO)
450 Kilograms/Cu.Meter -50

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FR Y Caliper
PhotoElectric Effect
Correction
FR Gamma Ray
FR Neutron Porosity
FR X Caliper
Bulk Density
Bit Size
Tension
TD
X Caliper (CALI)
125
Millimeters
375
Gamma Ray (GR)
PE (PEF)
0
10
Den. Corr. (DRHO)
450
Kilograms/Cu.Meter
-50
Bulk Density (RHOB)

0 API 150 | 1950 Kilograms/Cu.Meter 2950

Y Caliper (CAL2) | **Neut. Por. (NPHI)**

125 Millimeters 375 | 45.0 Percent -15.0

Tension (TENS)

10000 Pounds 0

START DEPTH: **2448.2** DIRECTION: **UP** DATE: **02/17/2004** TIME: **23:46** MODE: **TRACE PLAYBACK**

30015974 STIMP

MAIN PASS

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	2443.00	Meters
CSIZ	Casing Size	244.5	Millimeters
CWEI	Casing Weight	59.52	Kilograms/Meter
BS	Bit Size	215.9	Millimeters
BHT	Bottom Hole Temp	92.0	DegreesCentigrade
SFT	Mean Annual Surf Temp	5.0	DegreesCentigrade
SPDD	SP Drift Corr. mV	0	Millivolts
SPBR	SP Bridle Depth Offset	0.00	Meters
SPTL	Log With SP From	STI	
STIB	STI SFL Chassis Return	ON	
STI4	STI 4 Level Average	OFF	
STIS	STI SFL Log Mode On	ON	
SACC	Accumulation Time	100	Seconds
BARI	Barite Correction	OFF	
MW	Mud Weight	955.0	Kilograms/Cu.Meter
MDEN	Matrix Density	2710	Kilograms/Cu.Meter
FD	Fluid Density	1000	Kilograms/Cu.Meter
SPVS	SPeD Valve Status	IN	
NGAI	K Factor-NEU	1.003	
BHS	Open/Cased Hole	Open	
BSAL	Borehole Salinity	0	Parts/Million
FSAL	Formation Salinity	0	Parts/Million
NBCS	Bitsize/Calp Sel-CNT	Caliper	
NTLS	Tool Type-CNT	CNT-S	
TGRD	Temperature Gradient	0.555	DegC/100Meters
NTMS	Temp Source-CNT	Gradient	
NCOT	Constant Temp-CNT	21.0	DegreesCentigrade
NCOR	Cnt Ch Corr Offset	OFF	
OCOR	Cnt Environ.correction	OFF	
SWAN	Sheave Wheel Angle	0.00	Degrees
NCAL	LIS Caliper Name-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	

REMARKS

REPEAT PASS
1:240 SCALE
SANDSTONE MATRIX (2650 kg/m3)
REPEAT PASS = HEAVY CURVES
MAIN PASS = LIGHT CURVES

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

30015974

FINISH DEPTH: **2362.8** Meters DIRECTION: **UP** DATE: **02/17/2004** TIME: **23:18** MODE: **TRACE PLAYBACK**

Tension

10000 Pounds 0

Y Caliper | **Neut. Porosity (SS)**

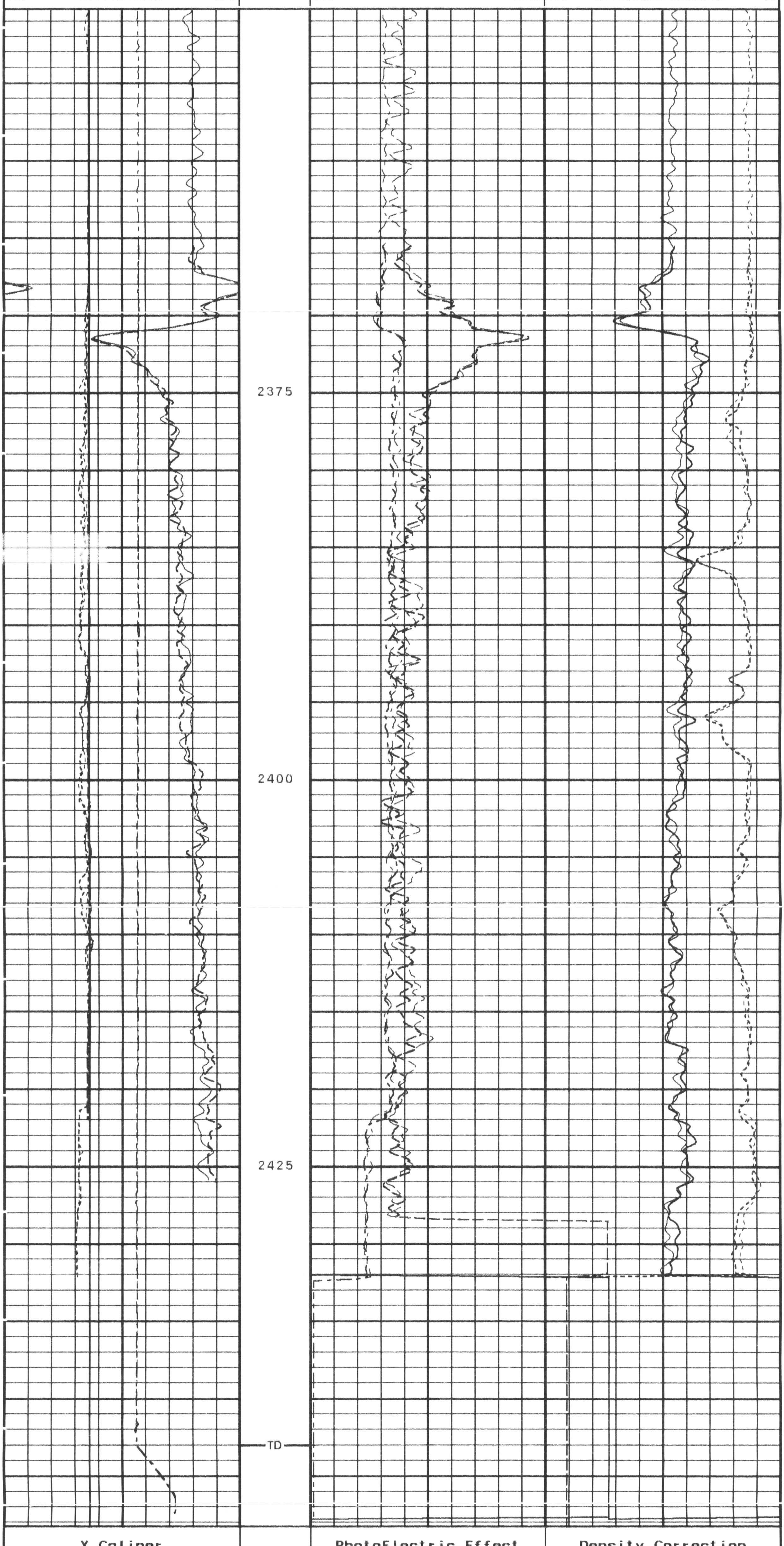
125 Millimeters 375 | 45.0 Percent -15.0

Gamma Ray | **Den. Porosity (SS)**

0 API 150 | 45.0 Percent -15.0

X Caliper | **PhotoElectric Effect** | **Density Correction**

125 Millimeters 375 | 0.0 10.0 | 450 Kilograms/Cu.Meter -50



X Caliper | **PhotoElectric Effect** | **Density Correction**

125 Millimeters 375 | 0.0 10.0 | 450 Kilograms/Cu.Meter -50

Gamma Ray | **Den. Porosity (SS)**

0 API 150 | 45.0 Percent -15.0

Y Caliper | **Neut. Porosity (SS)**

125 Millimeters 375 | 45.0 Percent -15.0

Tension

10000 Pounds 0

START DEPTH: **2448.2** DIRECTION: **UP** DATE: **02/17/2004** TIME: **23:18** MODE: **TRACE PLAYBACK**

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	2443.00	Meters
CSIZ	Casing Size	244.5	Millimeters
CWEI	Casing Weight	59.52	Kilograms/Meter
BS	Bit Size	215.9	Millimeters
BHT	Bottom Hole Temp	92.0	DegreesCentigrade
SFT	Mean Annual Surf Temp	5.0	DegreesCentigrade
SPDD	SP Drift Corr. mV	0	Millivolts

SPBR	SP Bridle Depth Offset	0.00	Meters
SPTL	Log With SP From	STI	
STIB	STI SFL Chassis Return	ON	
STI4	STI 4 Level Average	OFF	
STIS	STI SFL Log Mode On	ON	
SACC	Accumulation Time	100	Seconds
BARI	Barite Correction	OFF	
MW	Mud Weight	955.0	Kilograms/Cu.Meter
MDEN	Matrix Density	2710	Kilograms/Cu.Meter
FD	Fluid Density	1000	Kilograms/Cu.Meter
SPVS	SPeD Valve Status	OUT	
NGAI	K Factor-NEU	1.003	
BHS	Open/Cased Hole	Open	
BSAL	Borehole Salinity	0	Parts/Million
FSAL	Formation Salinity	0	Parts/Million
NBCS	Bitsize/Calp Sel-CNT	Caliper	
NTLS	Tool Type-CNT	CNT-S	
TGRD	Temperature Gradient	0.555	DegC/100Meters
NTMS	Temp Source-CNT	Gradient	
NCOT	Constant Temp-CNT	21.0	DegreesCentigrade
NCOR	Cnt Ch Corr Offset	OFF	
OCOR	Cnt Environ.correction	OFF	
SWAN	Sheave Wheel Angle	0.00	Degrees
NCAL	LIS Caliper Name-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	

REMARKS

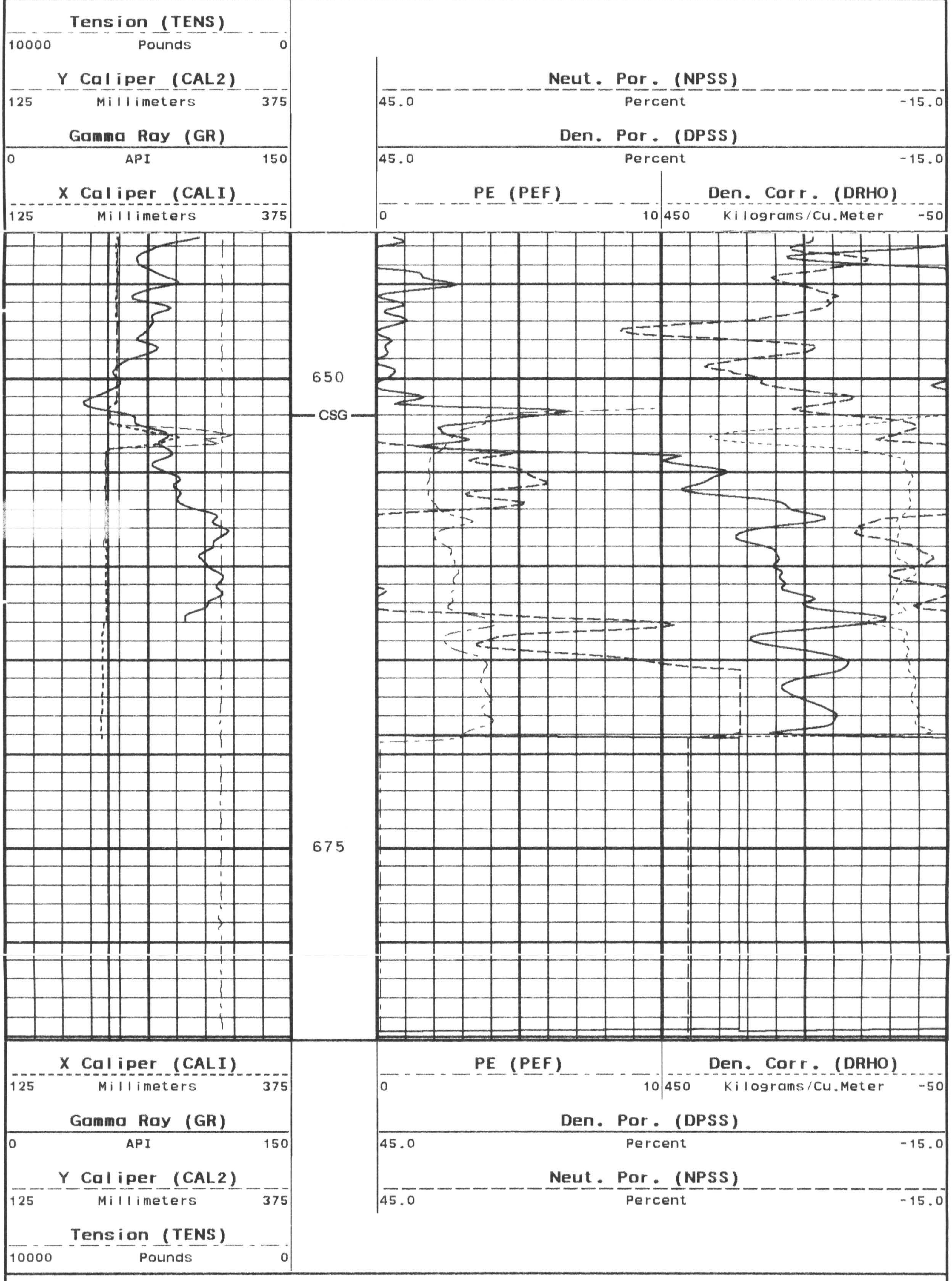
CASING CHECK
1:240 SCALE
SANDSTONE MATRIX (2650 kg/m3)

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

CASINGCHECK

30015974 CASINGCHECKB

FINISH DEPTH: **0.0** Meters DIRECTION: **UP** DATE: TIME: MODE: **TRACE PLAYBACK**



START DEPTH: **685.2** DIRECTION: **UP** DATE: **02/17/2004** TIME: **22:07** MODE: **TRACE PLAYBACK**

30015974 CASINGCHECKB

CASINGCHECK

DEPTH SCALE: **1:240** VERSION: **2004.02.11.263**

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	2443.00	Meters
CSIZ	Casing Size	244.5	Millimeters
CWEI	Casing Weight	59.52	Kilograms/Meter
BS	Bit Size	215.9	Millimeters
BHT	Bottom Hole Temp	92.0	DegreesCentigrade
SFT	Mean Annual Surf Temp	5.0	DegreesCentigrade
SPDD	SP Drift Corr. mV	0	Millivolts
SPBR	SP Bridle Depth Offset	0.00	Meters
SPTL	Log With SP From	STI	
STIB	STI SFL Chassis Return	ON	
STI4	STI 4 Level Average	OFF	
STIS	STI SFL Log Mode On	ON	
SACC	Accumulation Time	100	Seconds
BARI	Barite Correction	OFF	
MW	Mud Weight	955.0	Kilograms/Cu.Meter
MDEN	Matrix Density	2710	Kilograms/Cu.Meter
FD	Fluid Density	1000	Kilograms/Cu.Meter
SPVS	SPeD Valve Status	IN	
NGAI	K Factor-NEU	1.003	
BHS	Open/Cased Hole	Open	
BSAL	Borehole Salinity	0	Parts/Million
FSAL	Formation Salinity	0	Parts/Million
NBCS	Bitsize/Calp Sel-CNT	Caliper	
NTLS	Tool Type-CNT	CNT-S	
TGRD	Temperature Gradient	0.555	DegC/100Meters
NTMS	Temp Source-CNT	Gradient	
NCOT	Constant Temp-CNT	21.0	DegreesCentigrade
NCOR	Cnt Ch Corr Offset	OFF	
OCOR	Cnt Environ.correction	OFF	
SWAN	Sheave Wheel Angle	0.00	Degrees
NCAL	LIS Caliper Name-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature **VERSION** : 1.0
TVD DATA FILE : /u/os9-port/cs400/8000/30015974/SURVEY.tvdb

COMPANY : ANADARKO CANADA ENERGY
WELL : ANADARKO ARROWHEAD RIVER K-35
LOCATION : 300K356040122450
DATE : FEBRUARY 17, 2004

DRILLED DEPTH : 2395.57 m
TRUE VERTICAL DEPTH : 2393.71 m
BOTTOM HOLE DISPLACEMENT : N 3.22 m E 1.38 m
TARGET DISPLACEMENT : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH +ve (M)	EAST +ve (M)
TIE	0.00	0.00	0.00	0.00	0.00	0.00
1	661.33	0.90	150.00	661.30	-4.50	2.60
2	690.31	0.90	143.40	690.28	-4.88	2.85
3	719.26	0.50	89.20	719.23	-5.06	3.11
4	748.23	0.70	89.20	748.20	-5.05	3.41
5	777.15	0.80	60.00	777.11	-4.95	3.76
6	806.06	0.90	38.20	806.02	-4.67	4.08
7	834.97	1.20	42.00	834.93	-4.27	4.42
8	863.90	1.30	33.40	863.85	-3.77	4.80
9	892.83	1.30	33.20	892.77	-3.22	5.17
10	921.75	1.40	29.90	921.68	-2.64	5.52
11	950.68	1.80	26.20	950.60	-1.93	5.90
12	979.72	1.90	21.30	979.63	-1.07	6.27
13	1008.69	1.60	19.00	1008.58	-0.24	6.58
14	1037.63	2.00	17.90	1037.51	0.62	6.87
15	1066.57	2.00	31.10	1066.43	1.54	7.28
16	1095.48	2.10	19.90	1095.32	2.47	7.72
17	1124.43	2.00	27.60	1124.25	3.41	8.14
18	1153.33	2.10	17.20	1153.14	4.37	8.53
19	1182.23	1.70	18.30	1182.02	5.28	8.82
20	1211.19	1.70	14.80	1210.97	6.10	9.06
21	1240.09	1.90	19.40	1239.85	6.97	9.33
22	1269.00	2.00	14.00	1268.75	7.91	9.61
23	1297.94	2.20	5.30	1297.67	8.95	9.79
24	1326.91	1.90	358.60	1326.62	9.99	9.83
25	1355.82	1.90	3.40	1355.51	10.94	9.84
26	1384.75	1.90	2.10	1384.43	11.90	9.89
27	1413.94	2.00	3.50	1413.60	12.89	9.94
28	1443.16	1.80	353.00	1442.80	13.86	9.91
29	1472.23	1.70	359.10	1471.86	14.74	9.85
30	1501.50	1.60	358.50	1501.12	15.59	9.83
31	1530.61	2.20	4.00	1530.21	16.55	9.86
32	1559.71	2.20	2.20	1559.29	17.67	9.92
33	1588.84	2.00	1.10	1588.40	18.73	9.95
34	1618.05	2.20	8.20	1617.59	19.80	10.04
35	1647.20	2.10	1.60	1646.72	20.88	10.14
36	1676.32	2.10	358.60	1675.82	21.95	10.14
37	1705.50	2.10	359.90	1704.98	23.02	10.13

```
38   1734.56     2.00    356.20  1734.02    24.06    10.09
39   1763.59     2.00    357.10  1763.04    25.07    10.03
40   1792.73     1.90    352.90  1792.16    26.06     9.95

41   1821.88     1.80    348.90  1821.29    26.99     9.80
42   1850.91     1.80      0.20  1850.31    27.89     9.71
43   1879.86     1.90    354.70  1879.24    28.82     9.67
44   1909.00     1.70    350.40  1908.37    29.73     9.55
45   1938.96     1.40    359.40  1938.32    30.53     9.48

46   1968.05     0.70      5.90  1967.40    31.07     9.49
47   1997.22     0.50    329.10  1996.57    31.35     9.44
48   2026.32     2.00    187.80  2025.67    30.96     9.31
49   2055.40     3.10    191.80  2054.72    29.68     9.08
50   2084.47     5.40    195.20  2083.71    27.60     8.56

51   2113.55     4.50    194.60  2112.68    25.17     7.91
52   2142.65     5.50    190.10  2141.67    22.69     7.38
53   2171.85     5.70    198.60  2170.73    19.94     6.67
54   2200.96     5.40    200.70  2199.70    17.29     5.73
55   2230.08     4.90    201.40  2228.70    14.85     4.79

56   2259.33     5.00    197.70  2257.84    12.47     3.95
57   2288.59     5.30    200.80  2286.99     9.99     3.08
58   2317.87     4.60    205.30  2316.16     7.67     2.10
59   2347.04     4.10    183.30  2345.24     5.57     1.54
60   2376.23     2.70    180.60  2374.38     3.84     1.47

61   2395.57     1.10    206.20  2393.71     3.22     1.38
```

```
02/16/04        23:57           0.0 M       Ver 40211263        Job 30015974

                   Caliper Before Survey Calibration

                   Tool Type: CAL-FA            Serial No:calf123

                      Measured                     Calibrated
                  Small   Large   Units       Small   Large   Units

WCLO              822.3   1459.3   mv         177.8   355.6    mm
```

```
02/16/04        23:43           0.0 M       Ver 40211263        Job 30015974

                      Gamma Ray Before Survey Calibration

                        Tool Type: UGR-JA            Serial No: ugrj187
                   Calibrator No: RA-20S-734

                    Background     Calibrator   Standard    Units

                        109.4          612.7       140.0    API

      Delta Counts Per Sec:  503.3           CPS/API = 3.595
```

```
01/24/04        16:50           0.0 M       Ver 40109257S       Job SHOP

                     Compensated Neutron Shop Calibration

                       Tool Type: CNT-S          Serial No: cnts144
                    Verifier No: WSV-204         Source No: 6110-NE
                       Tank Type: NCT-AA

                      Low Porosity     Med Porosity    High Porosity  Units
     Tank Ratio:        0.713            1.457            2.294       SS/LS
     Tank Porosity:    -0.76            10.25            25.73        LM-PU

     LS Detector:     1432.1            336.2            141.2        CPS
     SS Detector:      986.8            488.6            325.6        CPS

     Tool Ratio:        0.689            1.453            2.306       SS/LS
     Tool Porosity:    -1.00            10.25            26.10        LM-PU

     Tool Constant:      1.003
     Surface Temperature:   21 DegC

                SS Detector    LS Detector    Ratio   Porosity

                  368.3 CPS     220.8 CPS     1.668     14.03
```

```
02/16/04        23:50           0.0 M       Ver 40211263        Job 30015974

                   Compensated Neutron Before Survey Calibration

                       Tool Type: CNT-S          Serial No: cnts144
                    Verifier No: WSV-204         Source No: 6110-NE

                             Verifier Check    Units
     LS Detector:                220.4          CPS

     SS Detector:                367.8          CPS

     Tool Ratio:                 1.669          SS/LS

     Tool Porosity:              14.04          LM-PU

     Tool Constant:      1.003
```

```
02/18/04        02:15           0.0 M       Ver 40211263        Job 30015974

                   Compensated Neutron After Survey Calibration

                       Tool Type: CNT-S          Serial No: cnts144
                    Verifier No: WSV-204         Source No: 6110-NE

                              Verifier Check
                             Before      After      Units

     LS Detector:             220.4      218.1      CPS

     SS Detector:             367.8      365.2      CPS

     Tool Ratio:              1.669      1.674      SS/LS

     Tool Porosity:           14.04      14.14      LM-PU

     Tool Constant:      1.003
```

```
01/24/04        16:07           0.0 M       Ver 40109257S       Job SHOP

                      Spectral Pe Density Shop Calibration

                     Tool Type:   SPS-AB                 Sonde No:   SPSB190
                                                   Electronics No:   SPCB190
                  Firmware Ver:     . 0                 Source No:   2812-GW
             Aluminum Blk No:   ALBA110      Magnesium Blk No:   MGBA110


                   Bkg            Al          Al+Fe            Mg       Units

    Cs Pk        110.52        110.19        109.76         110.14      Ch
    Gain          0.167         0.166         0.166          0.166      Ch/Kev
    Tng Pk        11.68
    Off           0.183
    Res            9.16          8.93          9.08           9.66      %
    LLPE            154          1563          1017          10289      cps
    LUPE             83          1143           882           6902      cps
    LSUC            490          1048           928           5970      cps
    LCMP            989          4128          3589          23901      cps

    Cs Pk        110.52        110.15        110.09         110.04      Ch
    Gain          0.167         0.167         0.167          0.166      Ch/Kev
    Tng Pk        11.37
    Off          -0.162
    Res           10.41         10.01          9.93          11.34      %
    SLPE            157          2628          1794           3912      cps
    SUPE             82          1961          1471           2828      cps
    SSUC            468          4984          4441           6979      cps
    SCMP            972         11691         10208          17130      cps

    Acc             250           250           250            250      Secs

                             Density Calibration


                                      Fresh    Barite
                      Spine Angle  =   77.73    79.05
                      Spine Length =  198.25   195.49


                               Pe Calibration

                                      Fresh      Barite
                     LS Slope     =   1.6213     0.3643
                     LS Intercept =  -0.2502    -0.1796
```

```
02/16/04        23:36           0.0 M       Ver 40211263        Job 30015974

                   Spectral Pe Density Before Survey Tool Check

                     Tool Type:   SPS-AB                 Sonde No:   SPSB190
                                                   Electronics No:   SPCB190
                  Firmware Ver:     . 0                 Source No:   2812-GW
             Aluminum Blk No:   ALBA110      Magnesium Blk No:   MGBA110


                   Shop                Before              Units

    Cs Pk        110.52                110.23               Ch
    Gain          0.167                 0.167               Ch/Kev
    Tng Pk        11.68                 11.59               Ch
    Off           0.183                 0.127               Ch
    Res            9.16                  9.42               %
    LLPE            154                   178
    LUPE             83                    90
    LSUC            490                   488
    LCMP            989                   985

    Cs Pk        110.52                110.43               Ch
    Gain          0.167                 0.166               Ch/Kev
    Tng Pk        11.37                 11.48               Ch
    Off          -0.162                -0.184               Ch
    Res           10.41                 10.40               %
    SLPE            157                   160
    SUPE             82                    84
    SSUC            468                   470
    SCMP            972                   975

    Acc             250                   100               Secs
```

02/18/04 02:10 0.0 M Ver 40211263 Job 30015974

Spectral Pe Density After Survey Tool Check

Tool Type: SPS-AB
Firmware Ver: . 0
Aluminum Blk No: ALBA110
Sonde No: SPSB190
Electronics No: SPCB190
Source No: 2812-GW
Magnesium Blk No: MGBA110

	Shop	Before	After	Units
Cs Pk	110.52	110.23	110.21	Ch
Gain	0.167	0.167	0.167	Ch/Kev
Tng Pk	11.68	11.59	11.60	Ch
Off	0.183	0.127	0.215	Ch
Res	9.16	9.42	9.35	%
LLPE	154	178	180	cps
LUPE	83	90	92	cps
LSUC	490	488	490	cps
LCMP	989	985	988	cps
Cs Pk	110.52	110.43	110.35	Ch
Gain	0.167	0.166	0.166	Ch/Kev
Tng Pk	11.37	11.48	11.50	Ch
Off	-0.162	-0.184	-0.125	Ch
Res	10.41	10.40	10.53	%
SLPE	157	160	167	cps
SUPE	82	84	87	cps
SSUC	468	470	480	cps
SCMP	972	975	976	cps
Acc	250	100	100	Secs

02/16/04 23:53 0.0 M Ver 40211263 Job 30015974

Caliper Before Survey Calibration

Tool Type: SPD-CL Serial No:SPSB190

	Measured			Calibrated		
	Small	Large	Units	Small	Large	Units
WCL2	1812.4	3154.1	mv	177.8	355.6	mm

O.H. Adaptor Head

Weight	18.0 kg
Length	0.74 m
Max. Diameter	8.9 cm

Total Stack Weight	759.0 kg	in air
Total Stack Length	30.87 m	

Crossover

Weight	6.8 kg
Length	0.27 m

Wireline Communications Cartridge

Weight	53.6 kg
Length	2.31 m
Max. Diameter	8.6 cm

2-Arm Caliper

Weight	79.4 kg
Length	2.40 m
Max. Diameter	10.2 cm

SPeD 400 Electronics

Weight	56.7 kg
Length	2.92 m
Max. Diameter	8.6 cm

Universal GR

Weight	37.3 kg
Length	1.40 m
Max. Diameter	8.6 cm

Mandrel Neutron

Weight	45.4 kg
Length	2.07 m
Max. Diameter	8.6 cm

Offset Joint

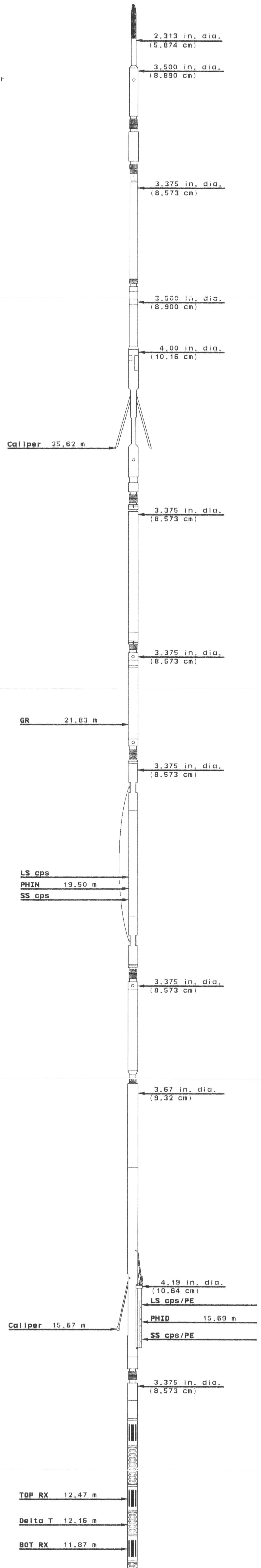
Weight	3.0 kg
Length	0.36 m
Max. Diameter	8.6 cm

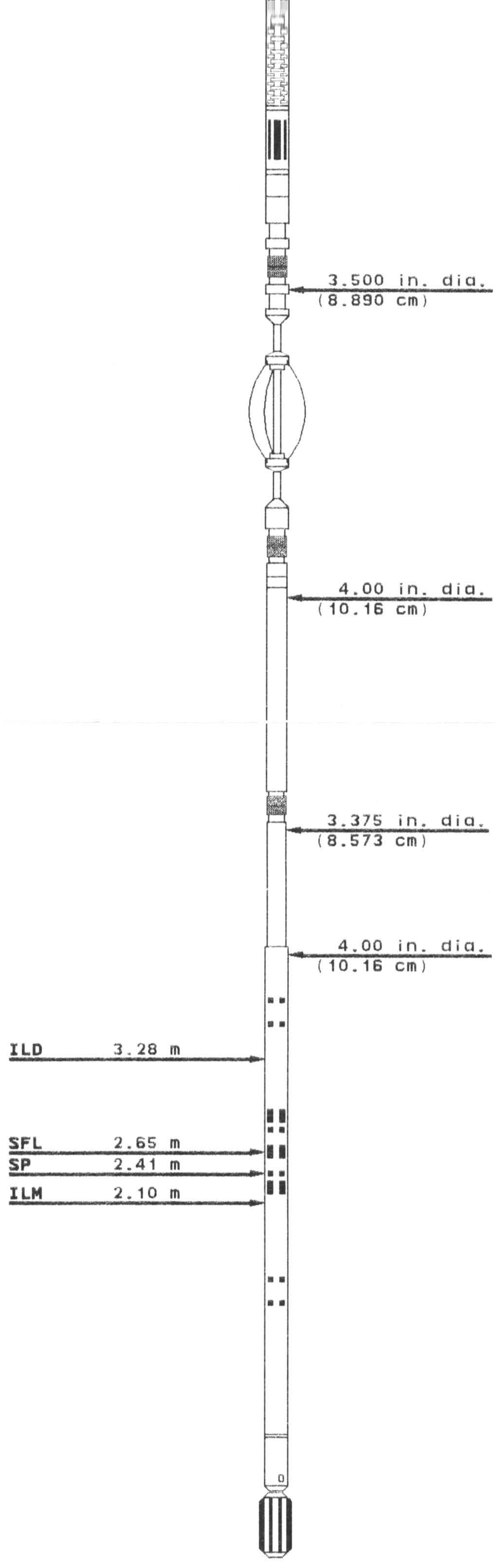
SPeD 400 Pad Section

Weight	141.5 kg
Length	3.38 m
Max. Diameter	11.4 cm

Borehole Compensated Sonic

Weight	104.0 kg
Length	4.67 m
Max. Diameter	8.6 cm





Centralizer

Weight	30.9 kg
Length	1.39 m
Max. Diameter	8.9 cm

Simultaneous Triple Induction

Weight	176.9 kg
Length	8.75 m
Max. Diameter	10.2 cm

Stand - Off

Weight	5.5 kg
Length	0.20 m

COMPANY ANADARKO CANADA ENERGY

WELL ANADARKO ARROWHEAD RIVER K-35

FIELD ARROWHEAD RIVER PROVINCE N.W.T.

PRECISION
Wireline Technologies