

5150  
Rig Copy

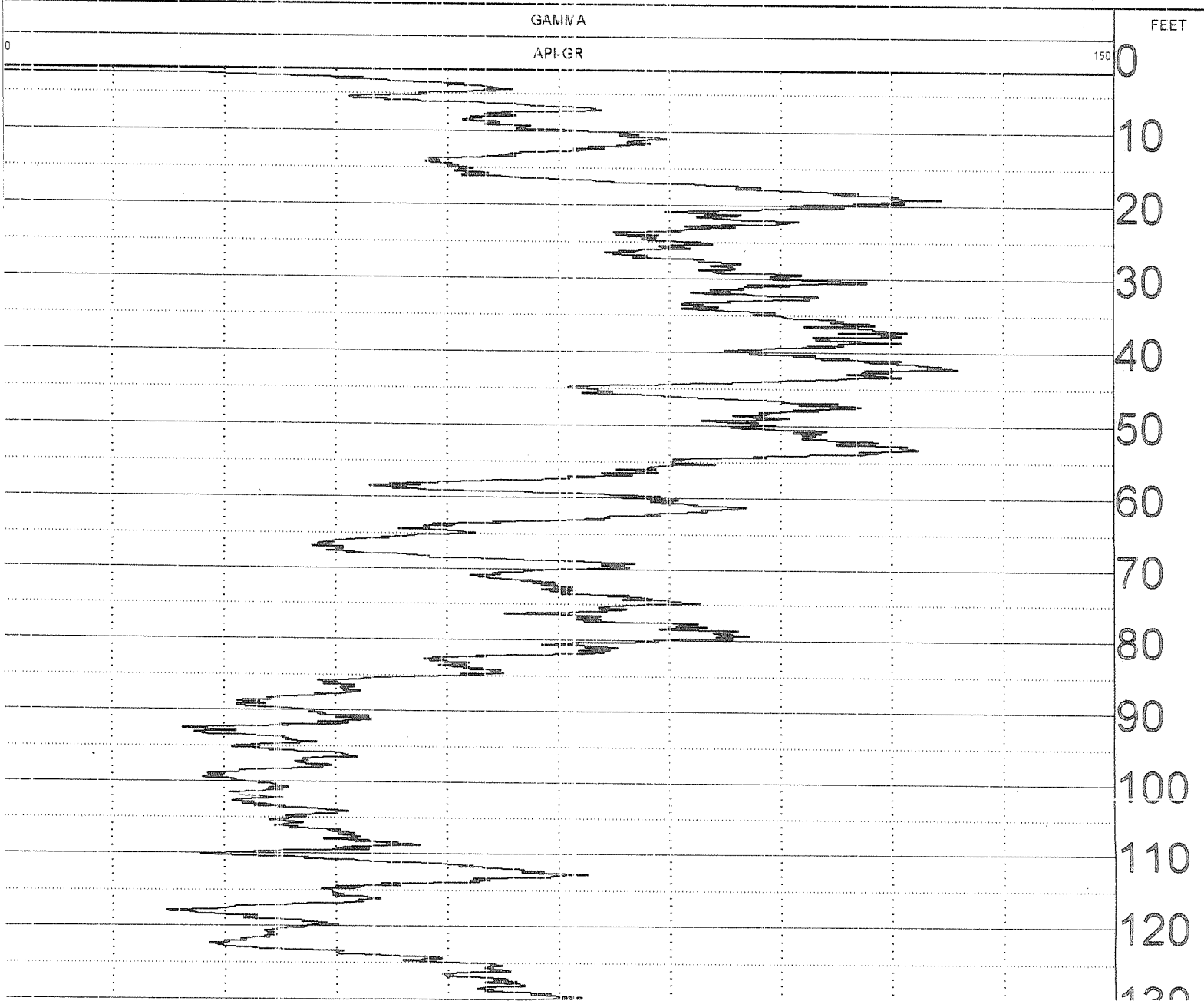
COMPANY : WACO OIL & GAS, INC  
 WELL : 5150  
 FIELD : LOVERIDGE MINE  
 COUNTY : MARION  
 STATE : WV  
 OTHER SERVICES:  
 DIRECT :  
 BOND :  
 N/A

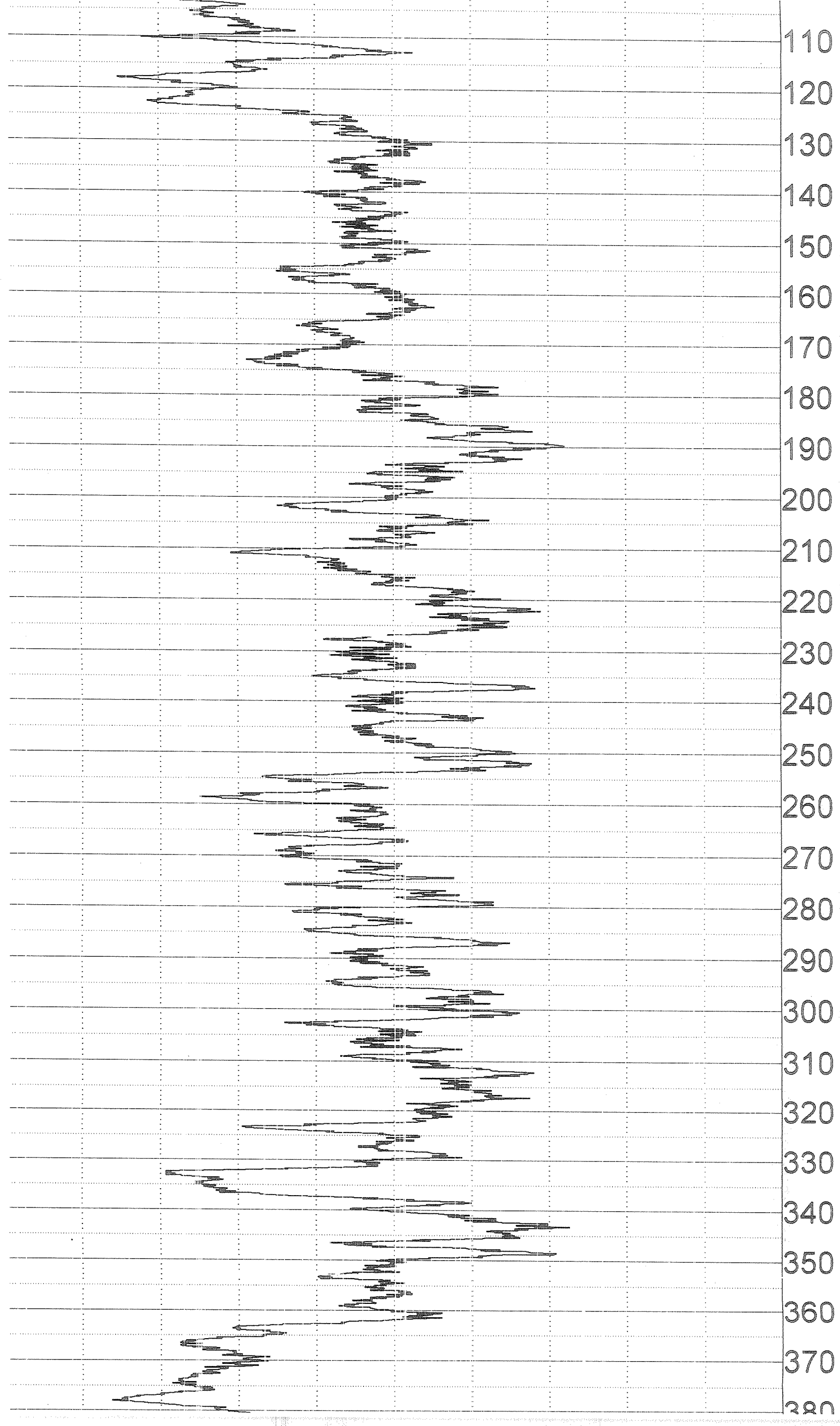
LOCATION : DENTS RUN  
 SECTION : N/A  
 TOWNSHIP : N/A  
 RANGE : N/A  
 API NO. : N/A  
 UNIQUE WELL ID : N/A

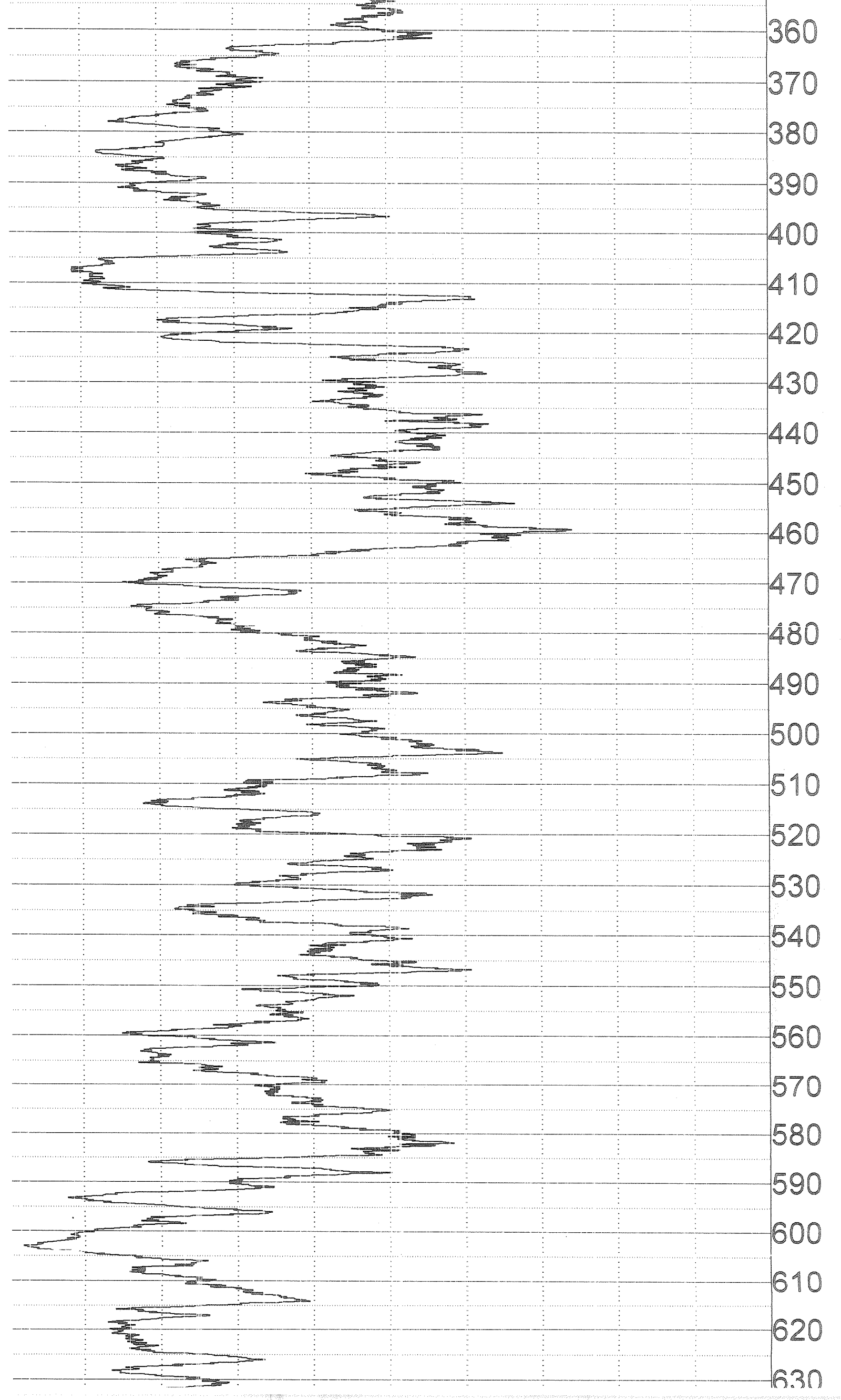
PERMANENT DATUM : GL  
 LOG MEASURED FROM: RF  
 DRL MEASURED FROM: RF  
 ELEVATION KB : N/A  
 ELEVATION DF : N/A  
 ELEVATION GL : N/A

DATE : 03/11/13  
 DEPTH DRILLER : N/A  
 BIT SIZE : 6.25  
 LOG TOP : 1.80  
 LOG BOTTOM : 2811.70  
 CASING OD : N/A  
 CASING BOTTOM : N/A  
 CASING TYPE : SURFACE  
 BOREHOLE FLUID : MUD  
 RM TEMPERATURE : N/A  
 MUD RES : N/A  
 MUD WEIGHT : N/A  
 WITNESSED BY : SW  
 RECORDED BY : KEVIN WEST

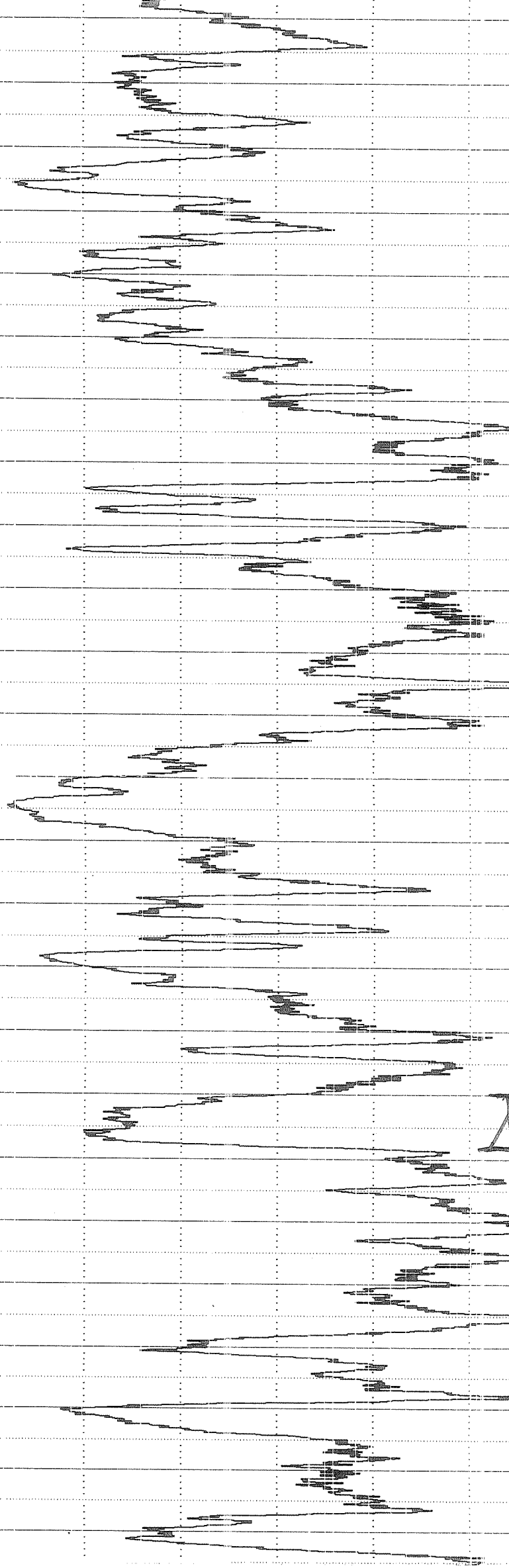
LOG CURVES RUN: CALIPER, CCL & NATURAL GAMMA.  
 LOG MEASURED FROM RIG FLOOR, APPROX. 4' FROM GROUND LEVEL.  
 ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS.







610  
620  
630  
640  
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660  
670  
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710  
720  
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740  
750  
760  
770  
780  
790  
800  
810  
820  
830  
840  
850



X Pittsburgh Coal  
Main Seam  
780 - 788



# Century

## WIRELINER SERVICES

5150

*Hole Direction*  
*RIG COPY*

COMPANY : WACO OIL & GAS, INC  
WELL : 5150  
LOCATION/FIELD : LOVERIDGE MINE  
COUNTY : MARION  
LOCATION : DENTS RUN  
SECTION : N/A

OTHER SERVICES:

BOND  
CALIPER  
CCL

DATE : 03/12/13  
DEPTH DRILLER : N/A  
LOG BOTTOM : 830.60  
LOG TOP : 0.00  
PERMANENT DATUM : GL  
LOG MEASURED FROM: RF  
DRL MEASURED FROM: RF  
TOWNSHIP : N/A  
RANGE : N/A  
KB : N/A  
DF : N/A  
GL : N/A

CASING DIAMETER : 10  
CASING TYPE : SURFACE  
CASING THICKNESS: N/A  
LOGGING UNIT : 1201  
FIELD OFFICE : SHINNSTON, W  
RECORDED BY : KEVIN WEST


BIT SIZE : 6.25  
MAGNETIC DECL. : -8.600  
MATRIX DENSITY : 2.65  
NEUTRON MATRIX : SANDSTONE  
BOREHOLE FLUID : MUD  
RM : N/A  
RM TEMPERATURE : N/A  
MATRIX DELTA T : 54  
FILE : PROCESSED  
TYPE : 9098  
LGDATE: 03/12/13  
LGTIME : 01:49:  
THRESH: 99999

LOG CURVES RUN; DIRECTIONAL  
LOG MEASURED FROM RIG FLOOR, APPROX. 4' FROM GROUND LEVEL

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

### PLAN VIEW COMPU-LOG DEVIATION

CLIENT: WACO OIL & GAS, INC  
LOCATION: LOVERIDGE MINE  
HOLE ID: 5150  
DATE OF LOG: 03/12/13  
PROBE: 9098 2803

  
MAG DECL: -8.6

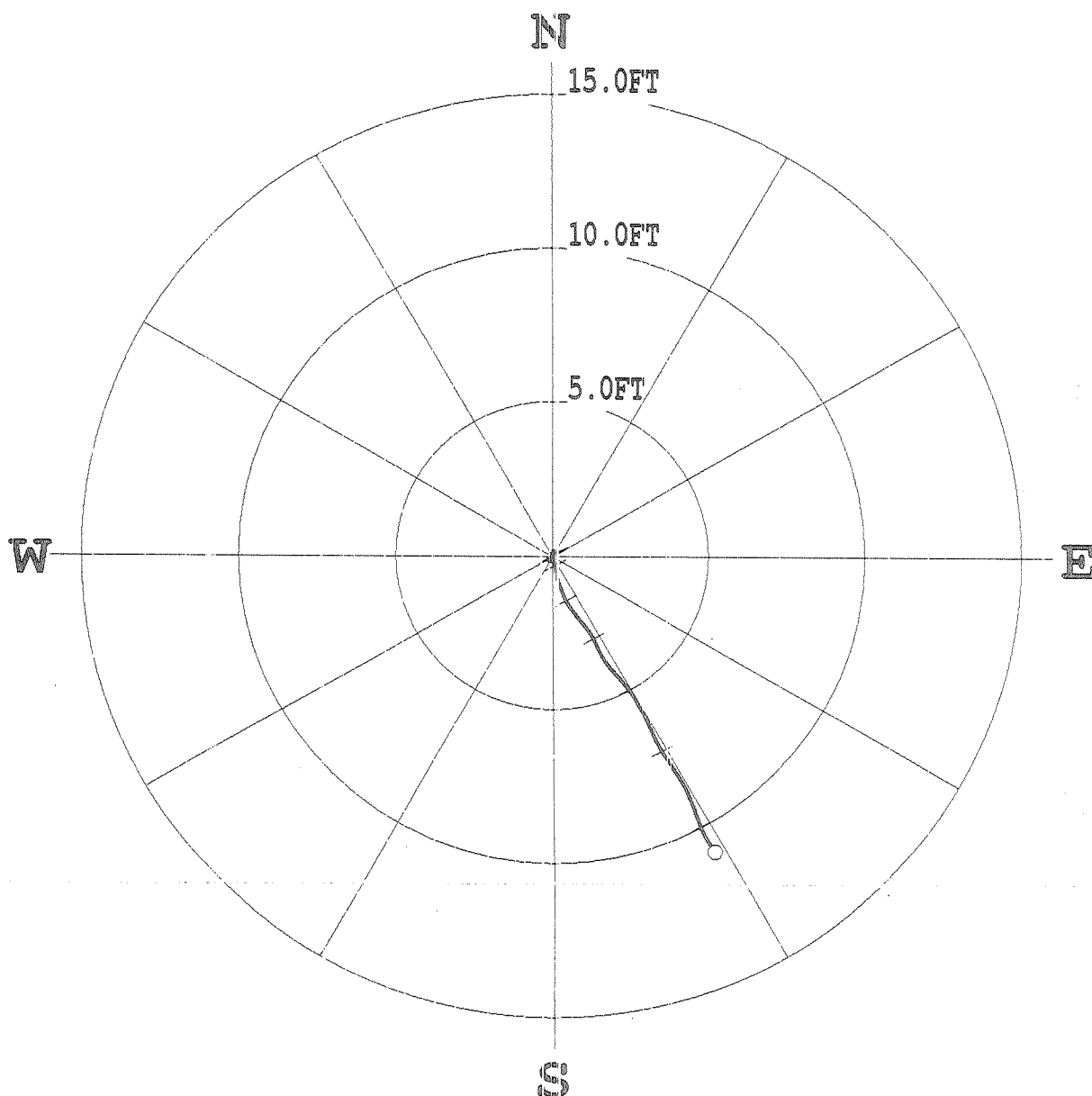
SCALE: 5 FT/IN  
TRUE DEPTH: 830.48 FT  
AZIMUTH: 151.7  
DISTANCE: 10.9 FT  
+ = 100 FT INCR  
○ = BOTTOM OF HOLE

N

DATE OF LOG: 03/12/13  
 PROBE: 9098 2803

MAG DECL: -8.6

DISTANCE: 10.9 FT  
 + = 100 FT INCR  
 ○ = BOTTOM OF HOLE



\*\*\*\*\* COMPU-LOG - VERTICAL DEVIATION \*\*\*\*\*

CLIENT : WACO OIL & GAS, INC HOLE ID. : 5150  
 FIELD OFFICE : SHINNSTON,W DATE OF LOG : 03/12/13  
 DATA FROM : N/A PROBE : 9098 , 2803  
 MAG. DECL. : -8.600 DEPTH UNITS : FEET  
 LOG: 5150\_03-12-13\_01-49\_9098\_.10\_0.00\_830.60\_GYRO.log

TABLE DEPTH	TRUE DEPTH	NORTH DEV.	EAST DEV.	DISTANCE	AZIMUTH	SANG	SANGB
0.00	0.20	0.00	0.00	0.0	0.0	0.0	136.6
20.00	20.00	0.07	0.03	0.1	24.4	0.2	308.1
40.00	40.00	0.13	0.02	0.1	9.2	0.1	325.7
60.00	60.00	0.19	0.02	0.2	6.4	0.1	113.4
80.00	80.00	0.17	0.10	0.2	30.4	0.2	63.3
100.00	100.00	0.13	0.14	0.2	46.5	0.2	128.9
120.00	120.00	0.17	0.19	0.3	47.4	0.2	321.1
140.00	140.00	0.15	0.13	0.2	40.4	0.3	230.4
160.00	160.00	0.08	0.04	0.1	25.9	0.4	228.6
180.00	180.00	0.00	-0.05	0.1	270.4	0.3	225.6
200.00	200.00	-0.06	-0.14	0.1	246.8	0.3	223.9
220.00	220.00	-0.14	-0.12	0.2	221.0	0.3	131.1
240.00	240.00	-0.14	-0.05	0.1	198.5	0.2	68.8
260.00	260.00	-0.14	0.02	0.1	171.6	0.2	103.5
280.00	280.00	-0.19	0.06	0.2	163.7	0.2	155.1
300.00	300.00	-0.29	0.09	0.3	163.5	0.4	174.7
320.00	320.00	-0.47	0.11	0.5	167.2	0.7	167.6
340.00	339.99	-0.69	0.15	0.7	167.6	0.7	165.7
360.00	359.99	-0.92	0.22	0.9	166.8	0.8	162.2
380.00	379.99	-1.18	0.31	1.2	165.3	0.8	158.6
400.00	399.99	-1.43	0.42	1.5	163.7	0.7	148.3
420.00	419.99	-1.66	0.56	1.7	161.3	0.8	147.8
440.00	439.99	-1.86	0.70	2.0	159.4	0.8	145.0
460.00	459.98	-2.07	0.87	2.2	157.1	0.8	138.1
480.00	479.98	-2.33	1.09	2.6	155.0	1.0	141.0
500.00	499.98	-2.65	1.29	2.9	154.1	1.2	157.2
520.00	519.97	-3.05	1.48	3.4	154.2	1.3	151.1
540.00	539.97	-3.42	1.68	3.8	153.8	1.1	145.0
560.00	559.96	-3.73	1.93	4.2	152.6	1.1	139.5
580.00	579.96	-4.01	2.18	4.6	151.4	1.1	142.0
600.00	599.96	-4.32	2.42	4.9	150.8	0.9	141.9
620.00	619.95	-4.64	2.63	5.3	150.4	1.2	149.8
640.00	639.95	-4.99	2.81	5.7	150.6	1.0	153.5
660.00	659.94	-5.39	3.02	6.2	150.8	1.4	158.5
680.00	679.94	-5.85	3.22	6.7	151.2	1.4	157.1
700.00	699.93	-6.33	3.47	7.2	151.2	1.4	151.7

540.00	539.97	-3.42	1.68	3.8	153.8	1.1	145.0
560.00	559.96	-3.73	1.93	4.2	152.6	1.1	139.5
580.00	579.96	-4.01	2.18	4.6	151.4	1.1	142.0
600.00	599.96	-4.32	2.42	4.9	150.8	0.9	141.9
620.00	619.95	-4.64	2.63	5.3	150.4	1.2	149.8
640.00	639.95	-4.99	2.81	5.7	150.6	1.0	153.5
660.00	659.94	-5.39	3.02	6.2	150.8	1.4	158.5
680.00	679.94	-5.85	3.22	6.7	151.2	1.4	157.1
700.00	699.93	-6.33	3.47	7.2	151.3	1.4	151.7
720.00	719.92	-6.77	3.75	7.7	151.0	1.6	145.9
740.00	739.92	-7.21	4.04	8.3	150.7	1.3	148.7
760.00	759.91	-7.67	4.29	8.8	150.8	1.6	157.1
780.00	779.90	-8.20	4.50	9.4 /	151.2	1.6	160.2
788.00	787.90	-8.41	4.57	9.6	151.5	1.6	160.4
800.00	799.89	-8.75	4.70	9.9	151.8	1.8	159.2
820.00	819.88	-9.32	4.99	10.6	151.9	1.9	147.8
830.60	830.48	-9.59	5.16	10.9	151.7	1.9	357.1

Pitts.  
Coal