UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

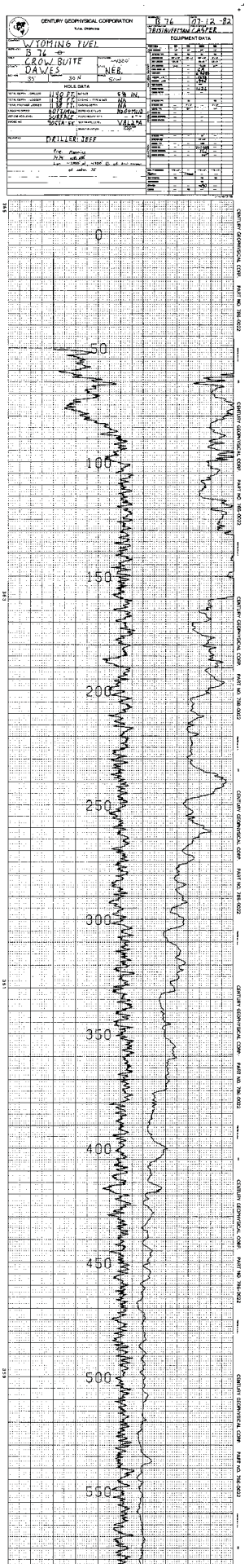
ATOMIC SAFETY AND LICENSING BOARD

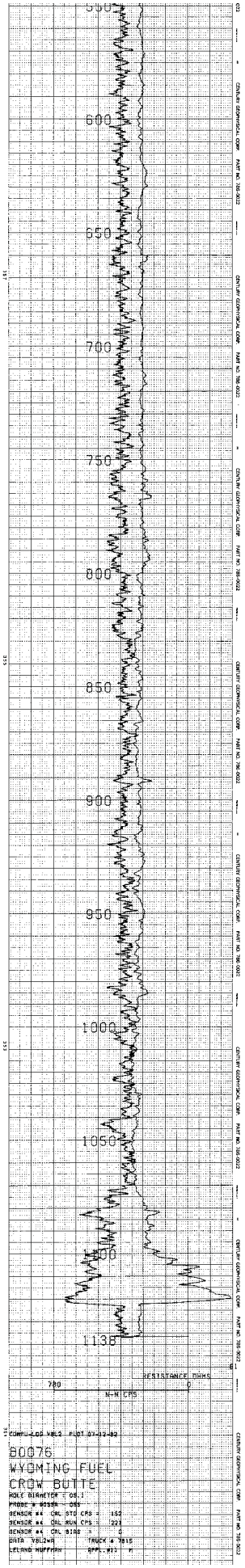
In the Matter of CROW BUTTE RESOURCES, INC. (Marsland Expansion Area)	Docket No. 40-8943-MLA-2 ASLBP No. 13-926-01-MLA-BD01

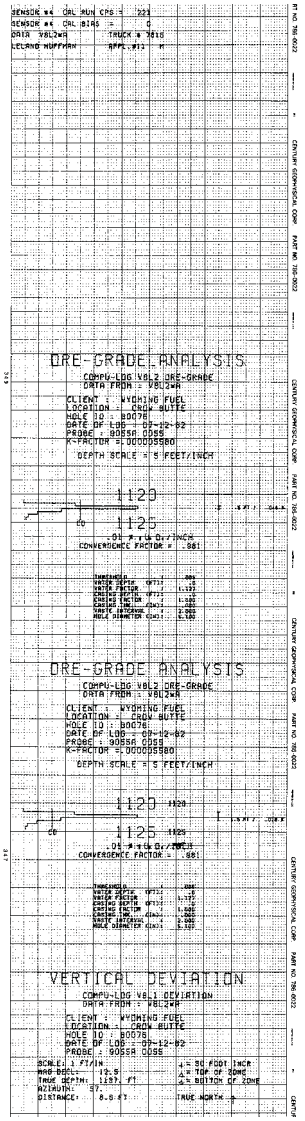
Hearing Exhibit

Exhibit Number: CBR013

Exhibit Title: Appendix C - Geophysical Logs







CROW BUTTE RESOURCES, INC.

LOG B-76

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

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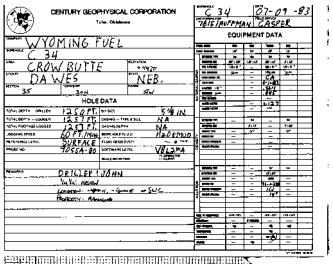
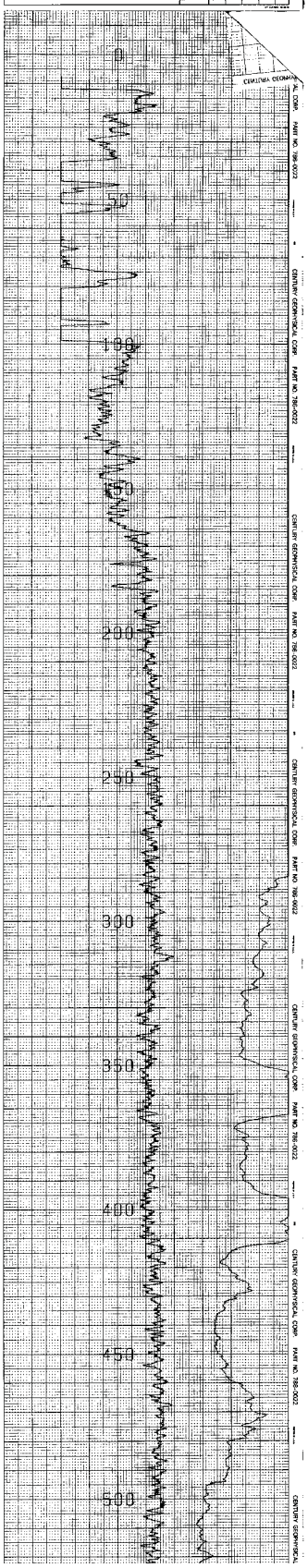
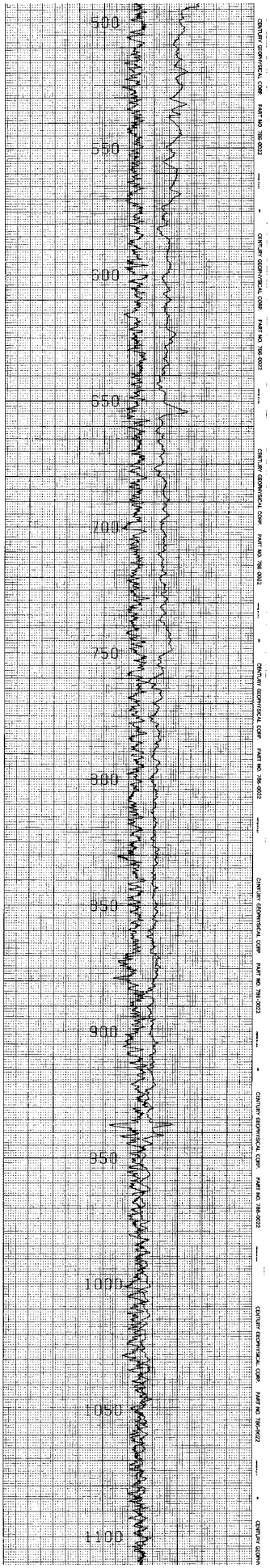
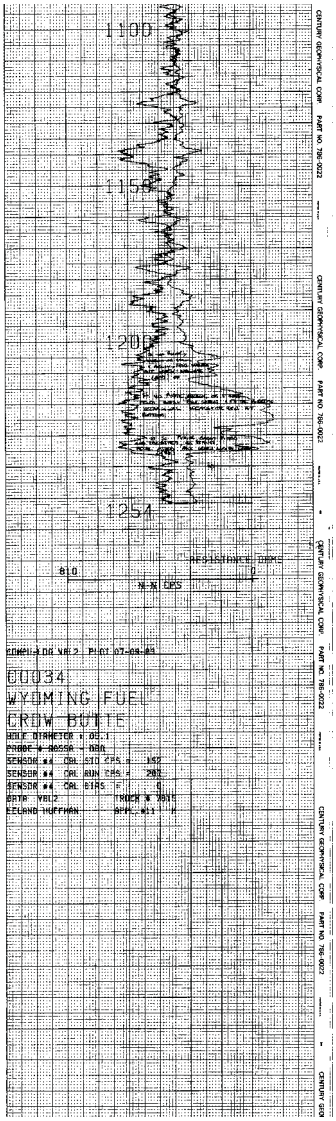

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
WYOMING FUEL
C-34
CROW BUTTE
DAWES
NEBR.
HOLE DATA
EQUIPMENT DATA
C-34 87-09-03
RITE/HUFFMAN CASPER







CROW BUTTE RESOURCES, INC.

LOG C-34

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
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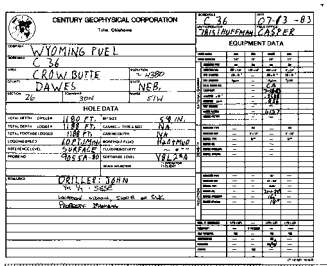

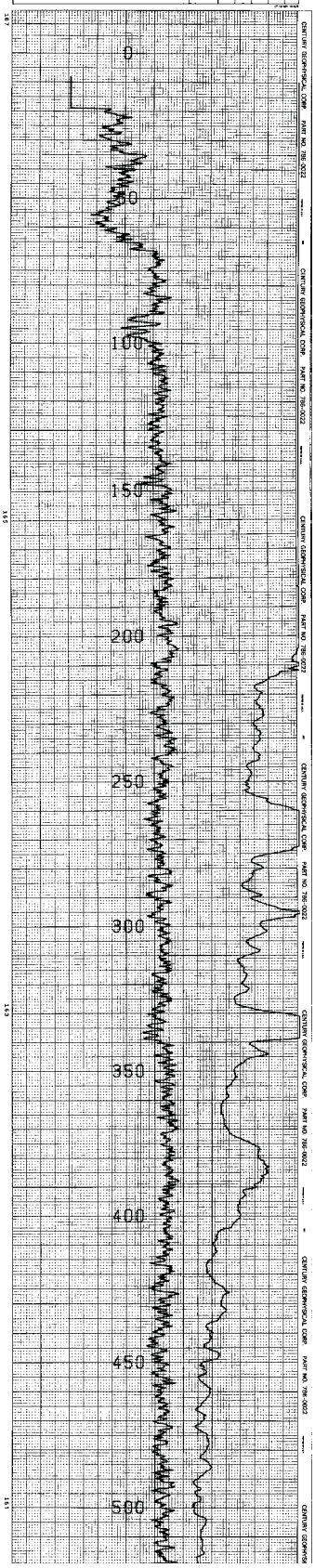

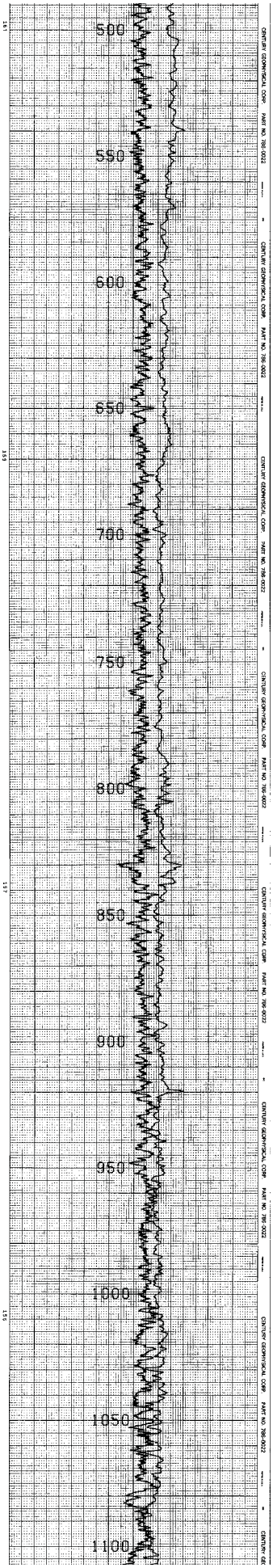

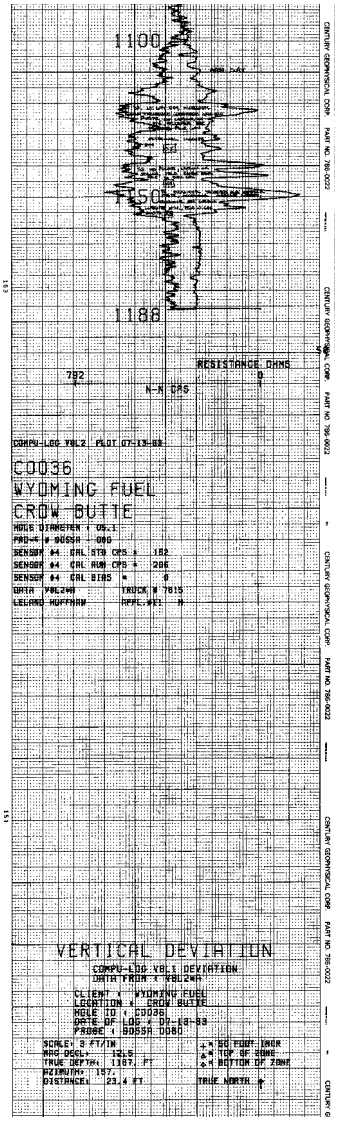

CROW BUTTE RESOURCES, INC.

LOG C-36

ARCADIS
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Highlands Ranch, CO 80129
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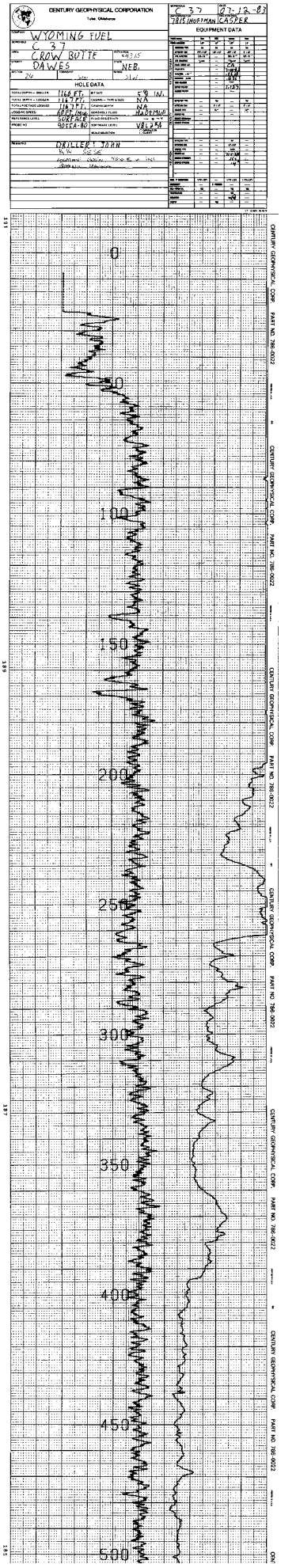

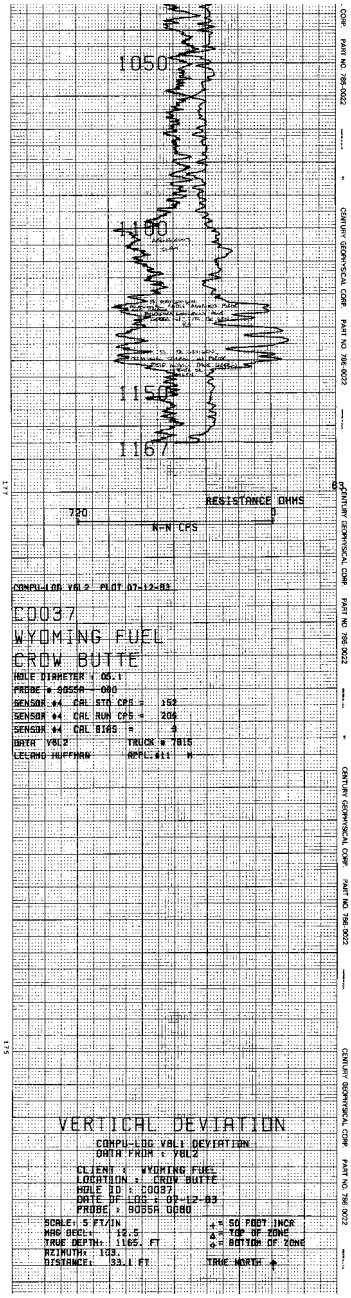

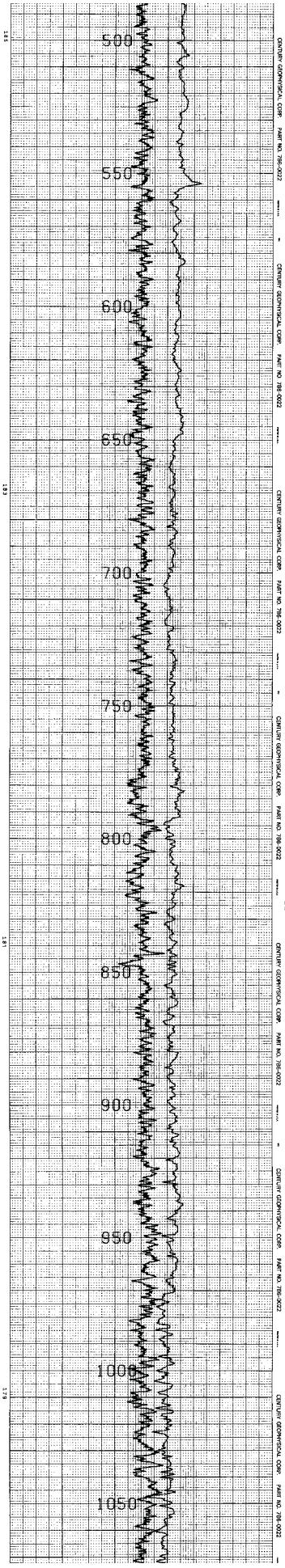

CROW BUTTE RESOURCES, INC.

LOG C-37

ARCADIS
630 Plaza Drive, Ste. 100
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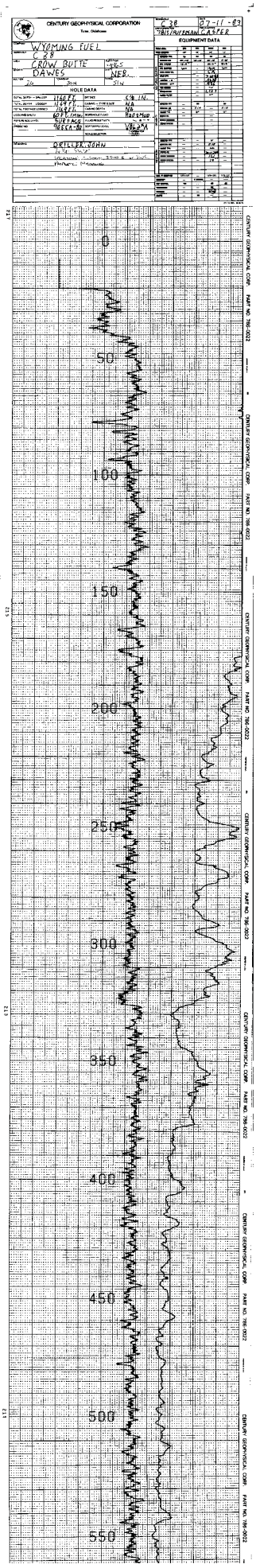

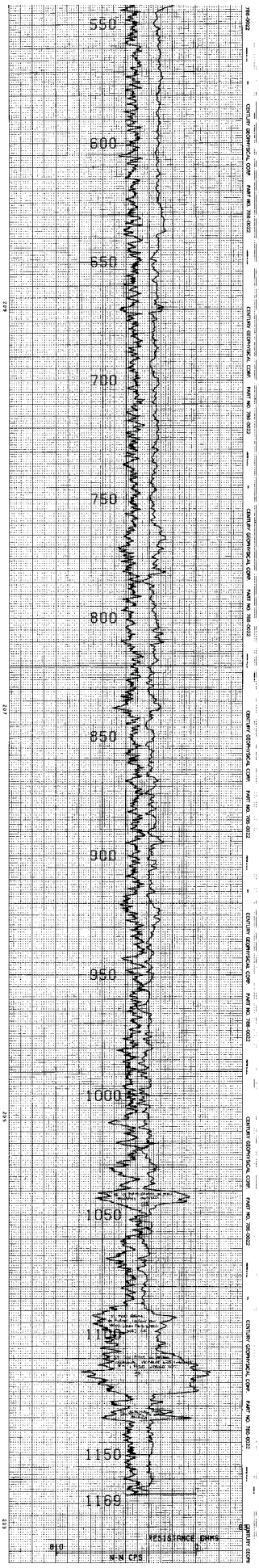

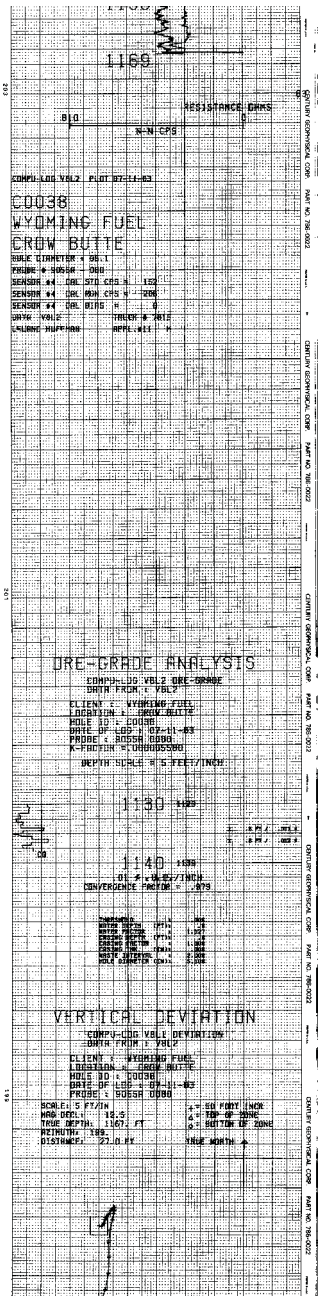

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CROW BUTTE RESOURCES, INC.

LOG C-38

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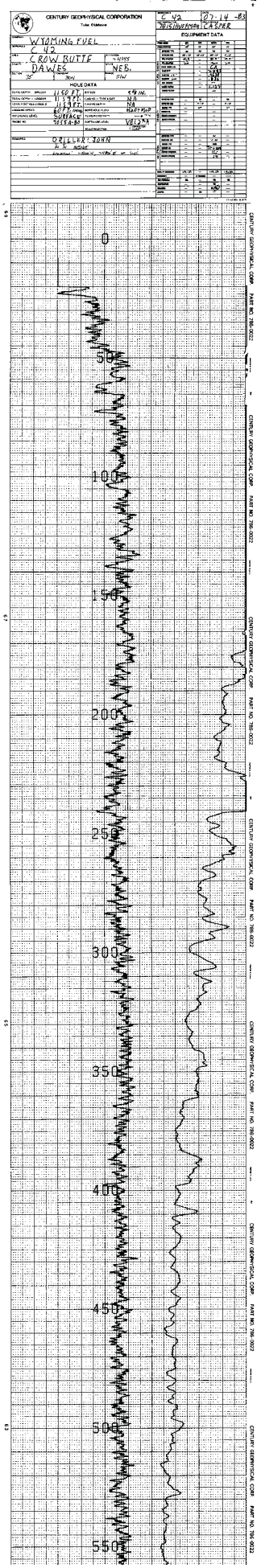

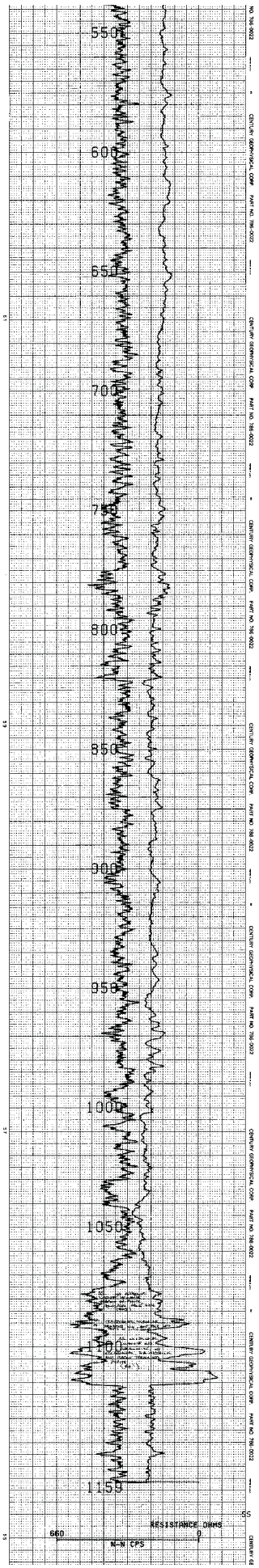

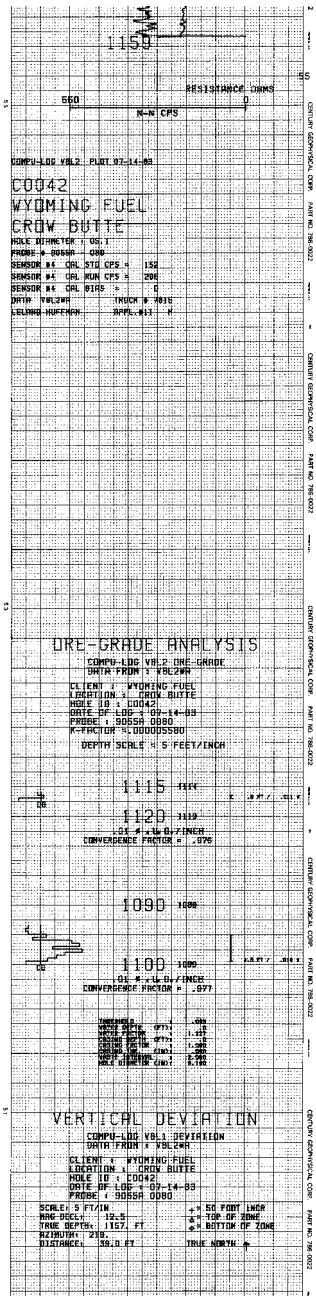

CROW BUTTE RESOURCES, INC.

LOG C-42

ARCADIS
630 Plaza Drive, Ste. 100
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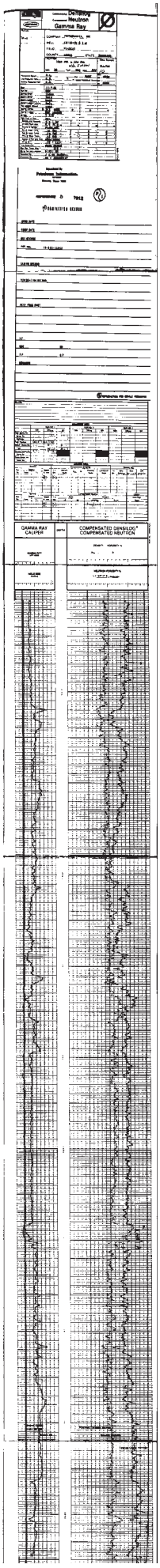

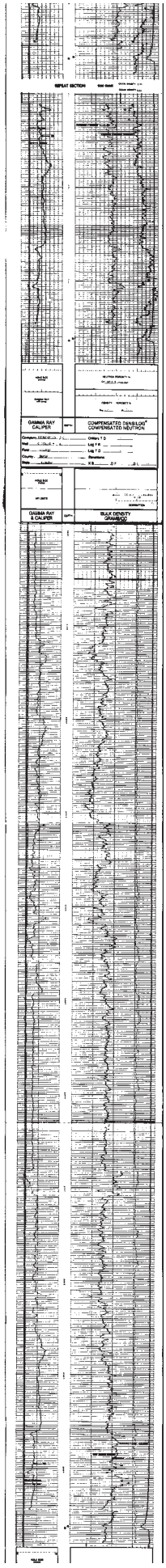

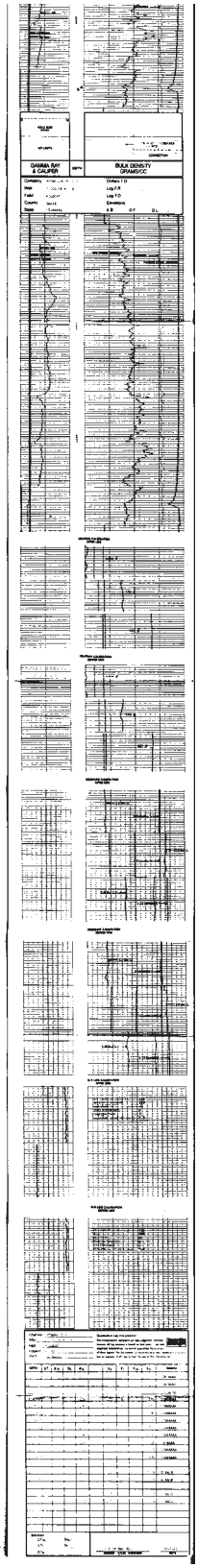

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CROW BUTTE RESOURCES, INC.

CHICOINE 1A LOG

ARCADIS
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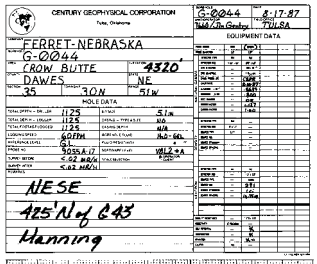
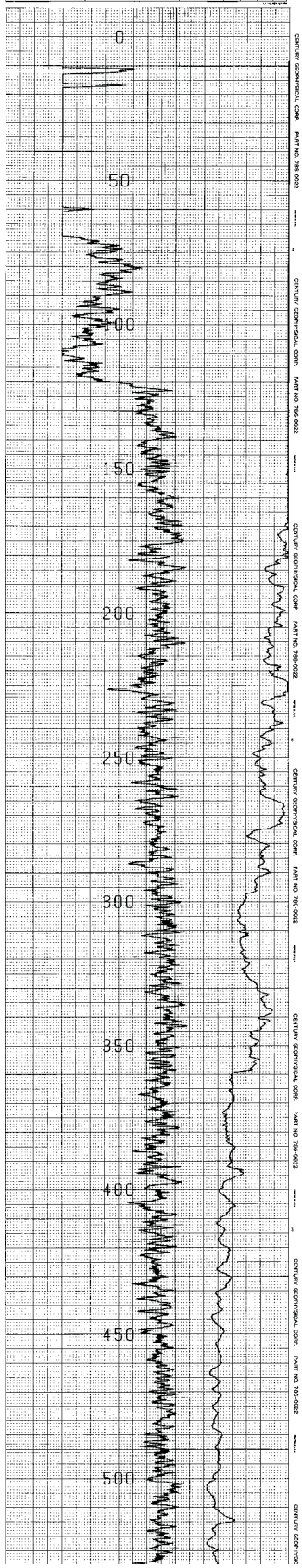
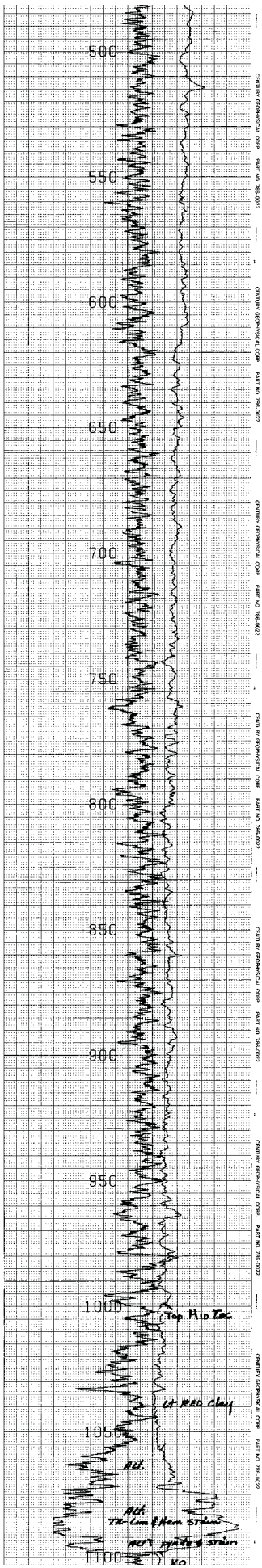
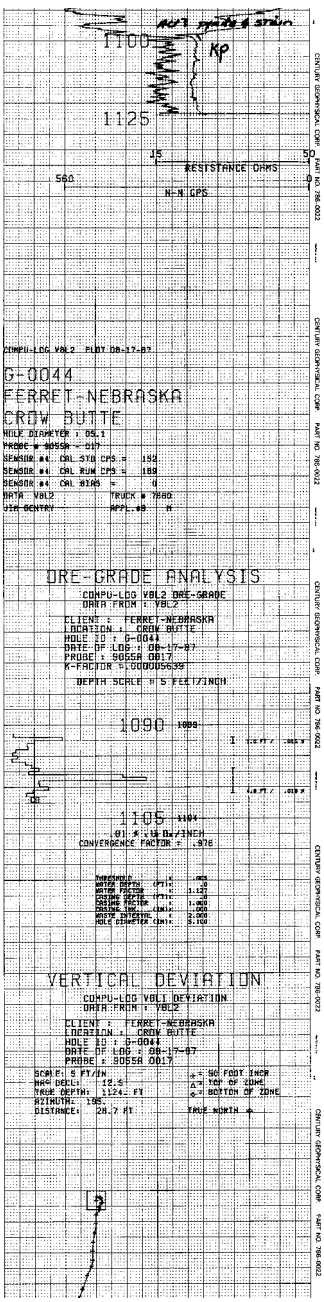
www.arcadis-us.com


CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
G-0044 8-17-87
Well/Dia Geology TULSA
EQUIPMENT DATA
FERRET-NEBRASKA
G-0044
CROW BUTTE 4320'
DAWES NE
35 30N 51W
HOLE DATA
1125 5in
1125 N/A
125 N/A
60PPM 140-60
9055A/17 VBL2+A
<.62 mR/hr
<.62 mR/H
NESE
425'N of C43
Hanning







CROW BUTTE RESOURCES, INC.

LOG G-44

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
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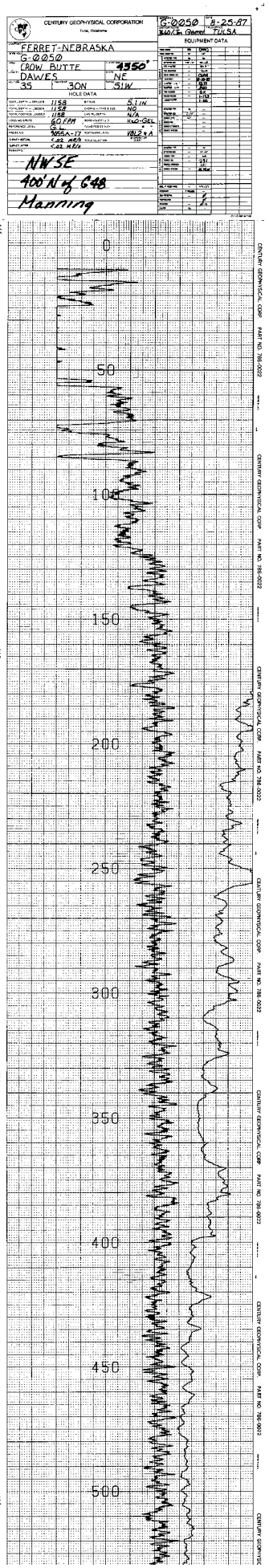

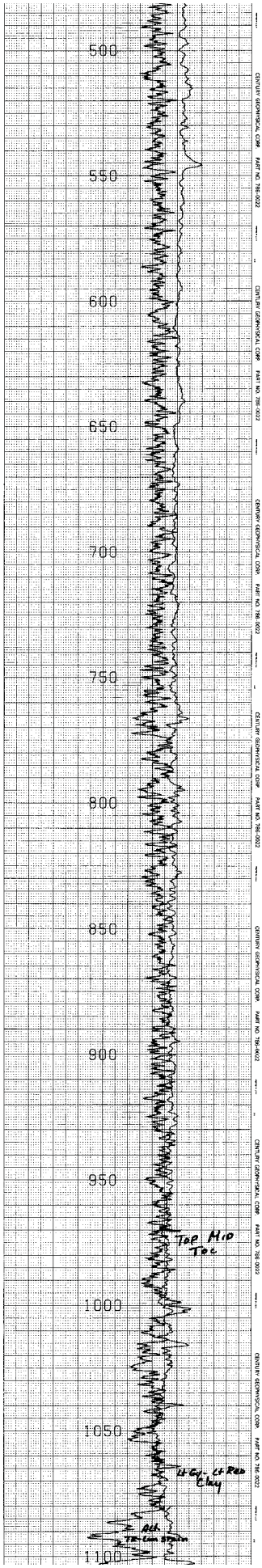

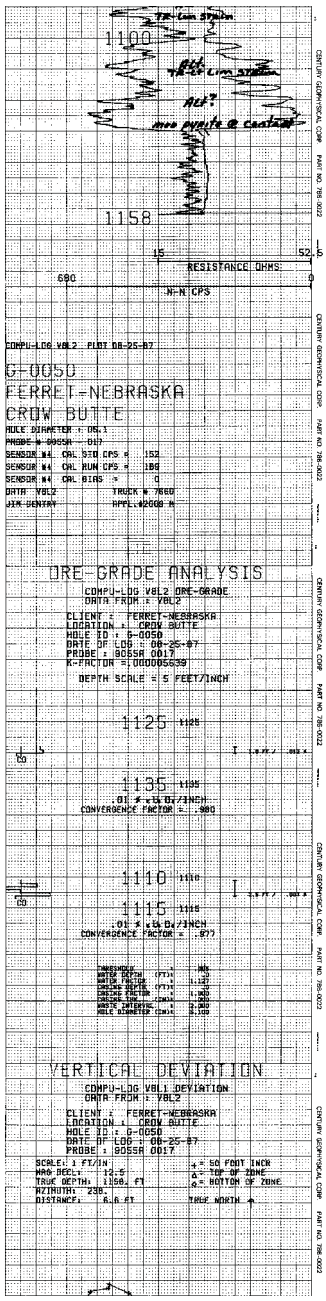

CROW BUTTE RESOURCES, INC.

LOG G-50

ARCADIS
630 Plaza Drive, Ste. 100
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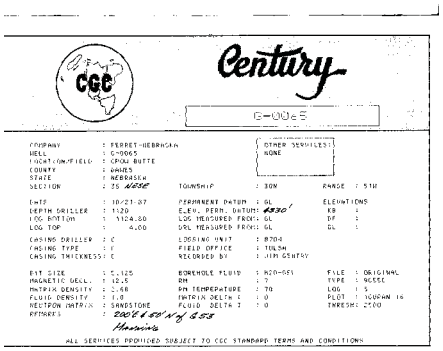

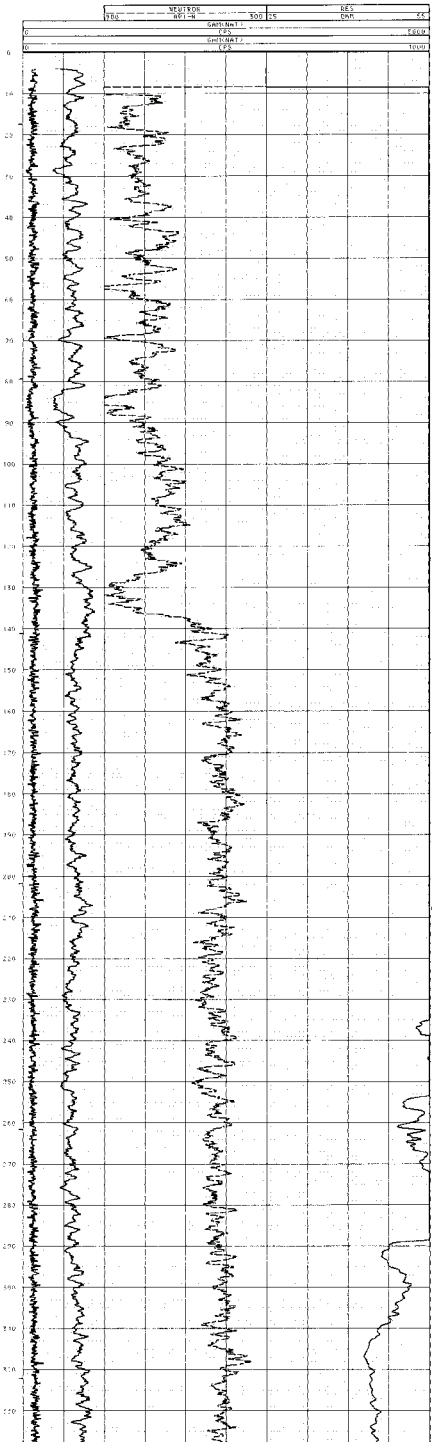

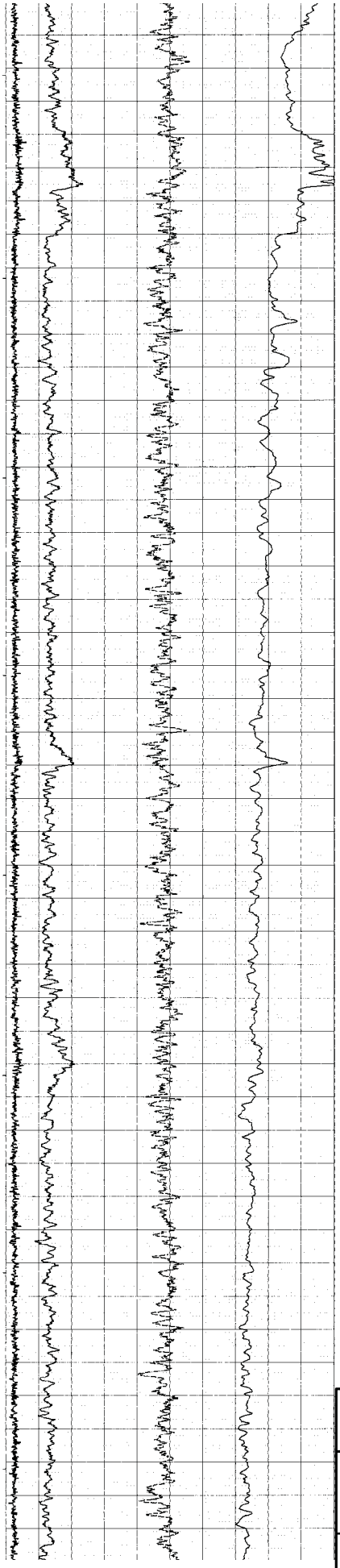

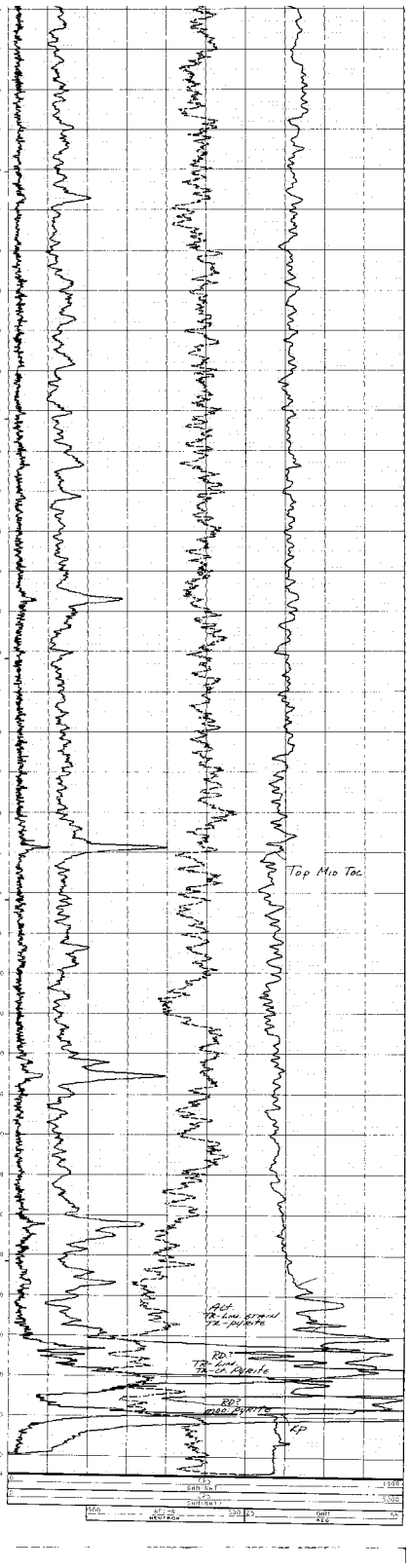

CROW BUTTE RESOURCES, INC.

LOG G-65

ARCADIS
630 Plaza Drive, Ste. 100
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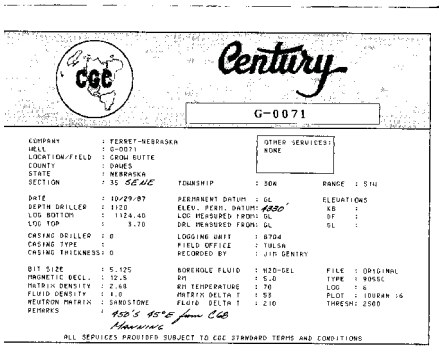

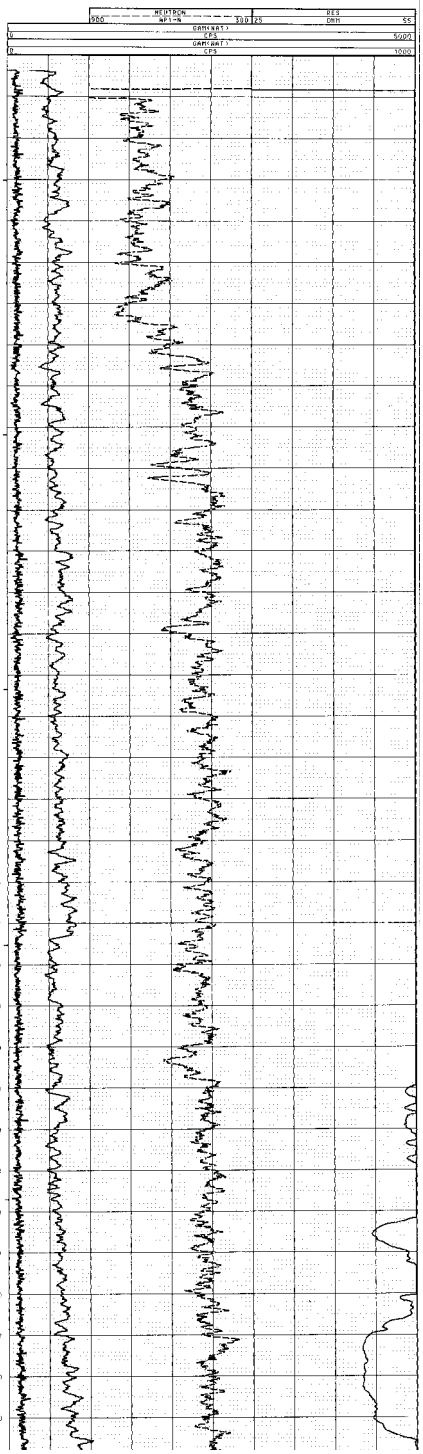

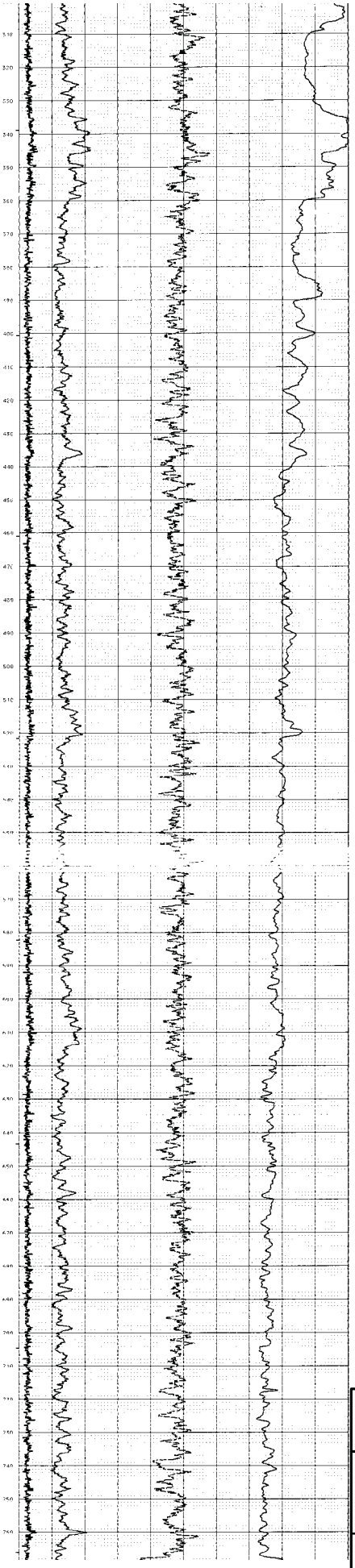

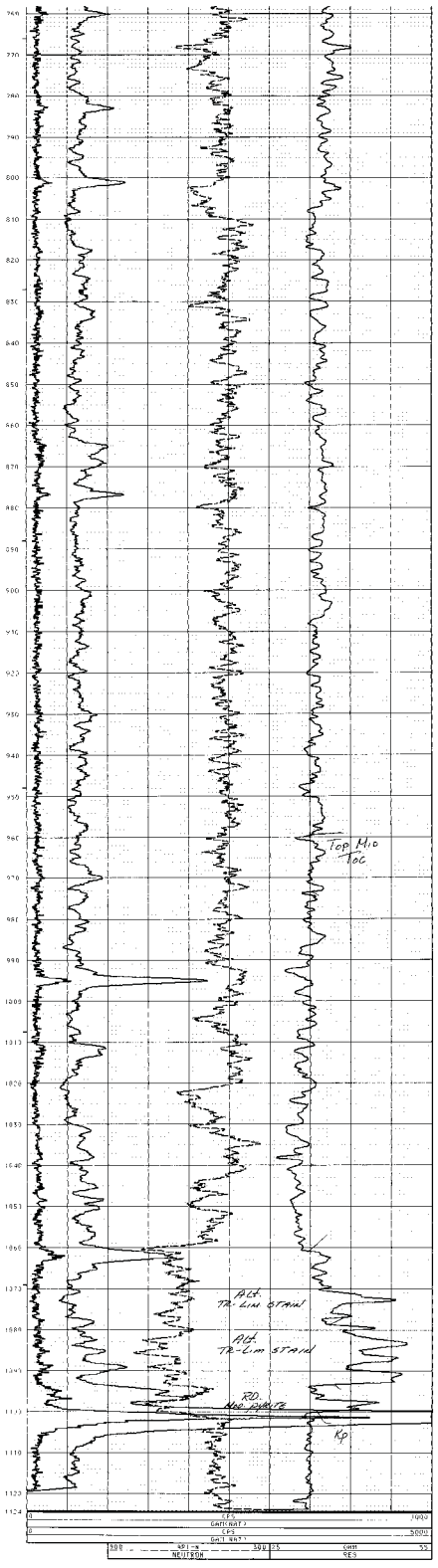

CROW BUTTE RESOURCES, INC.

LOG G-71

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
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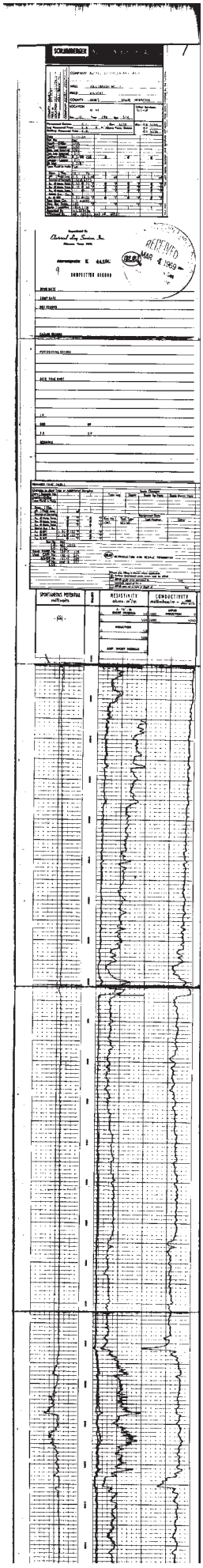

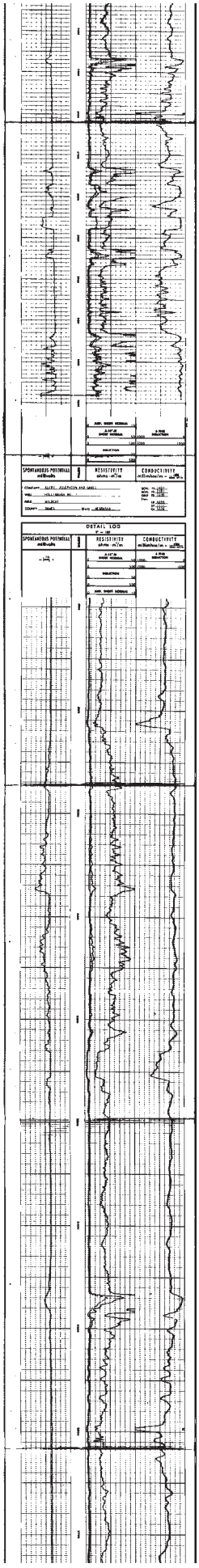

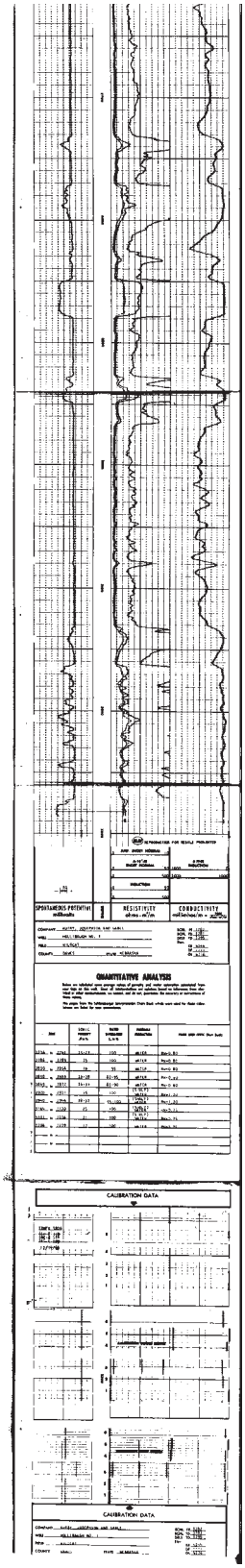

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CROW BUTTE RESOURCES, INC.

HOLIBAUGH 1 LOG

ARCADIS
630 Plaza Drive, Ste. 100
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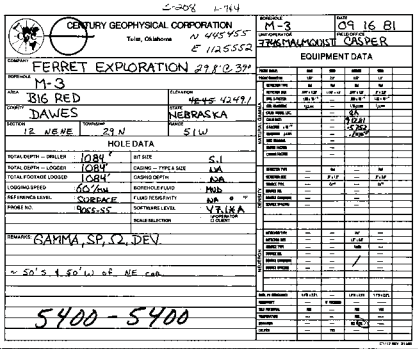
www.arcadis-us.com



CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
N 445455
E 1125552

COMPANY: FERRET EXPLORATION 29 18 12 39
REFERENCE: M-3
WELL: 816 RED
COUNTY: DAWES
STATE: NEBRASKA
SECTION: 12 NENE
TOWNSHIP: 29 N
RANGE: 51W

HOLE DATA
TOTAL DEPTH — DRILLER: 1081'
TOTAL DEPTH — LOGGED: 1084'
TOTAL FOOTAGE LOGGED: 1084'
LOGGING SPEED: 60/MIN
BIT SIZE: 5.1
CASING — TYPE & SIZE: LM
CASING DEPTH: NA
BOREHOLE FLUID: Mud
FLUID DENSITY: NA
SOURCE: SURFACE
PROBE NO.: 9065SS
SOFTWARE LEVEL: V7.1KA
SCALE SELECTION

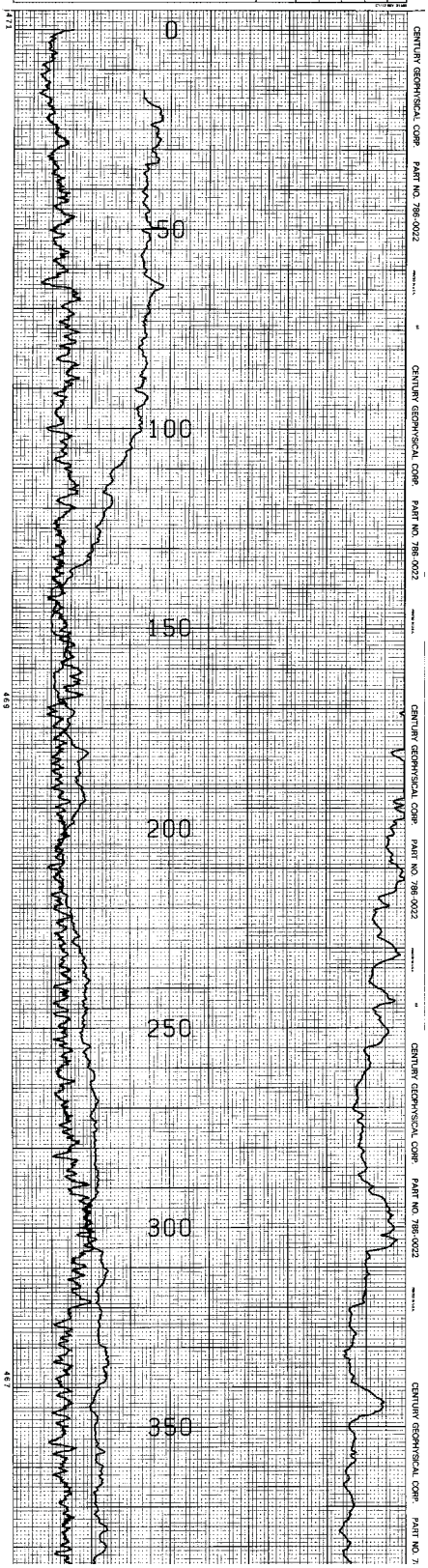
REMARKS: GAMMA, SP, Ω, DEV.

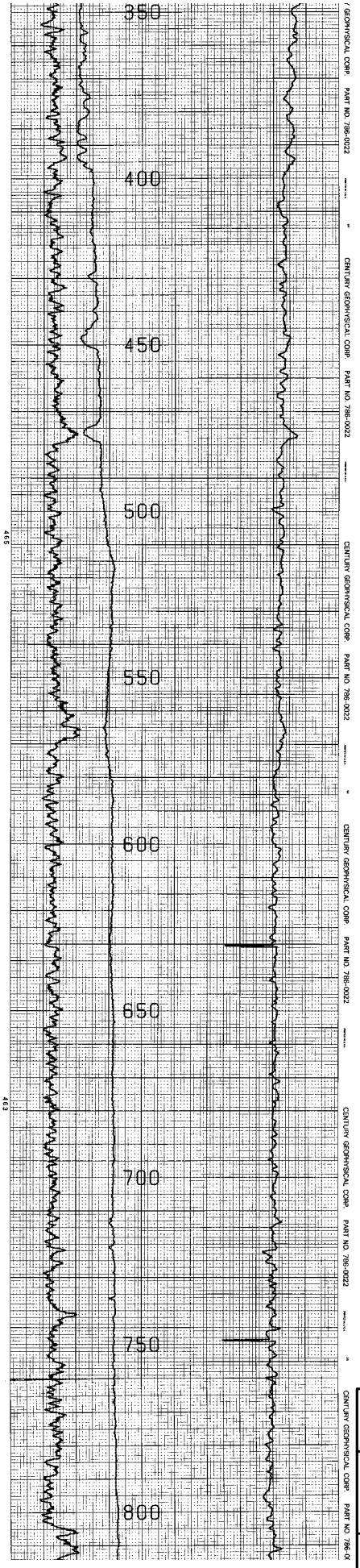
~ 50'S & 50'W OF NE cor.

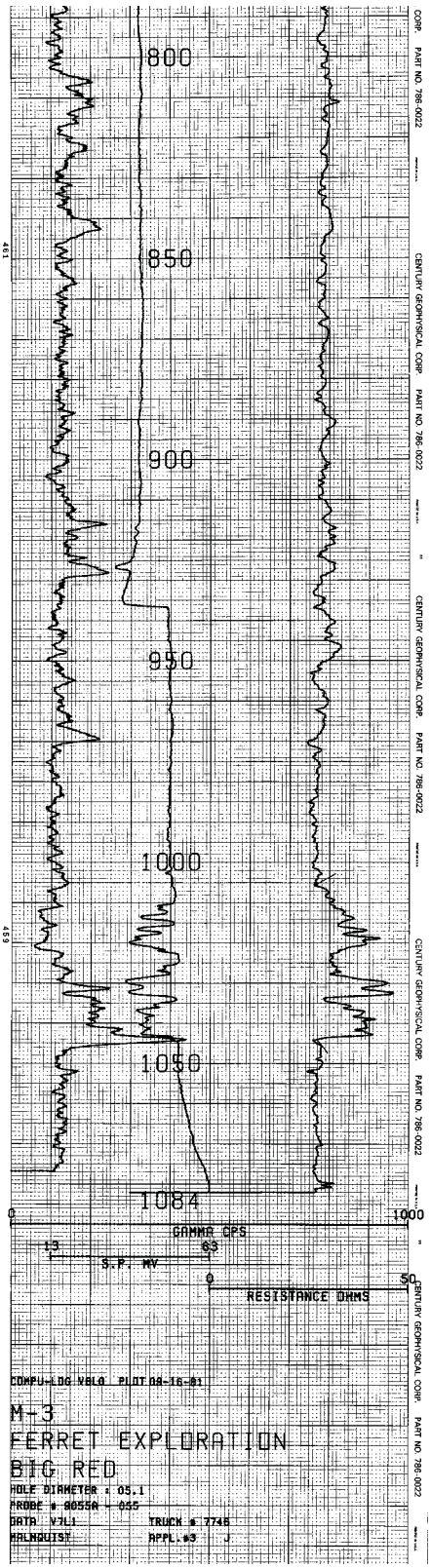
5400 - 5400

RECORDED BY: M-3
WITNESSED BY: JIM & MALMQUIST CASPER
DATE: 09 16 81

EQUIPMENT DATA







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LOG M-3

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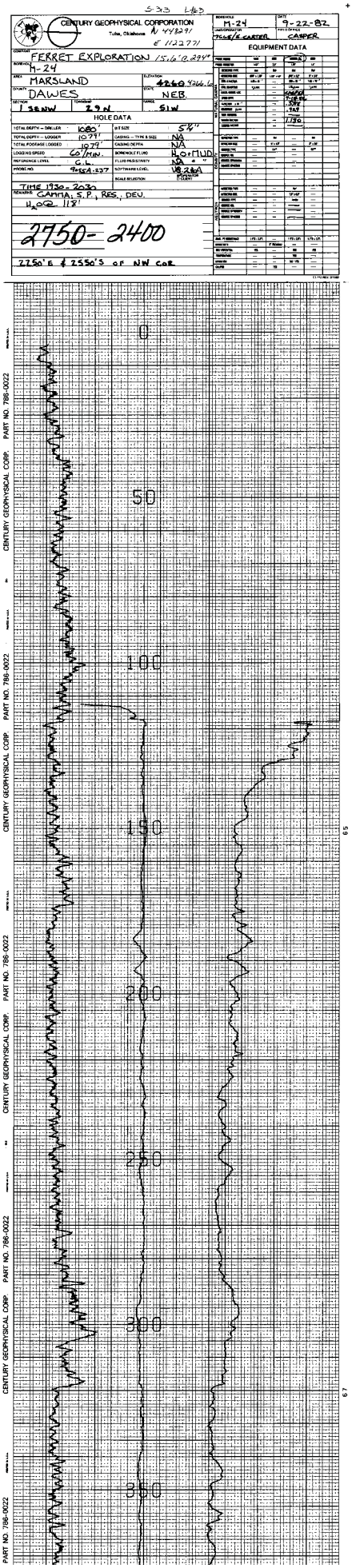

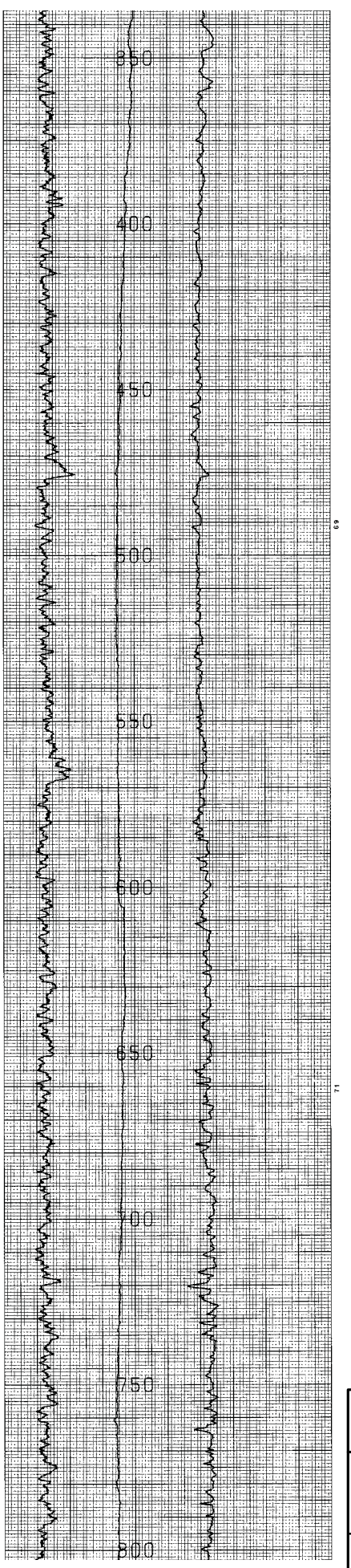

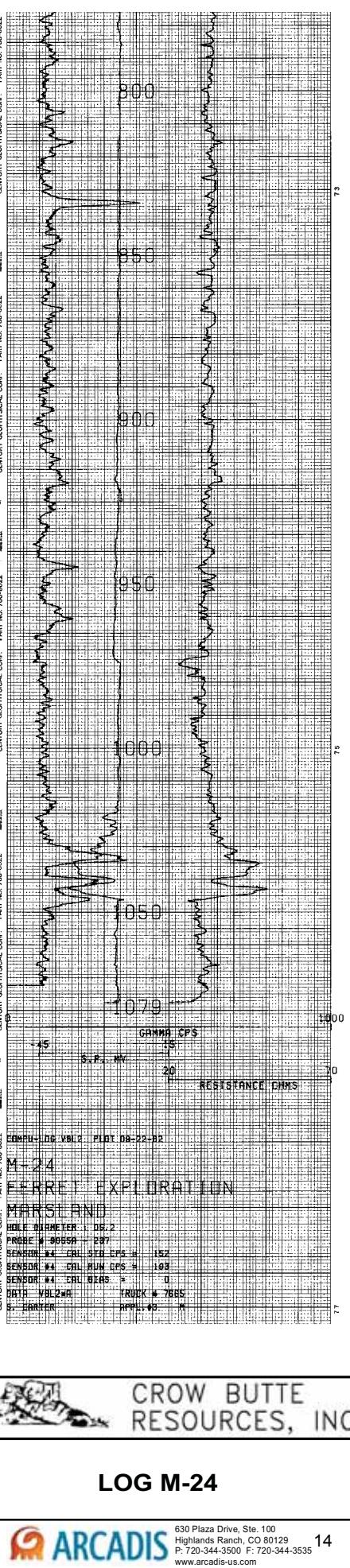

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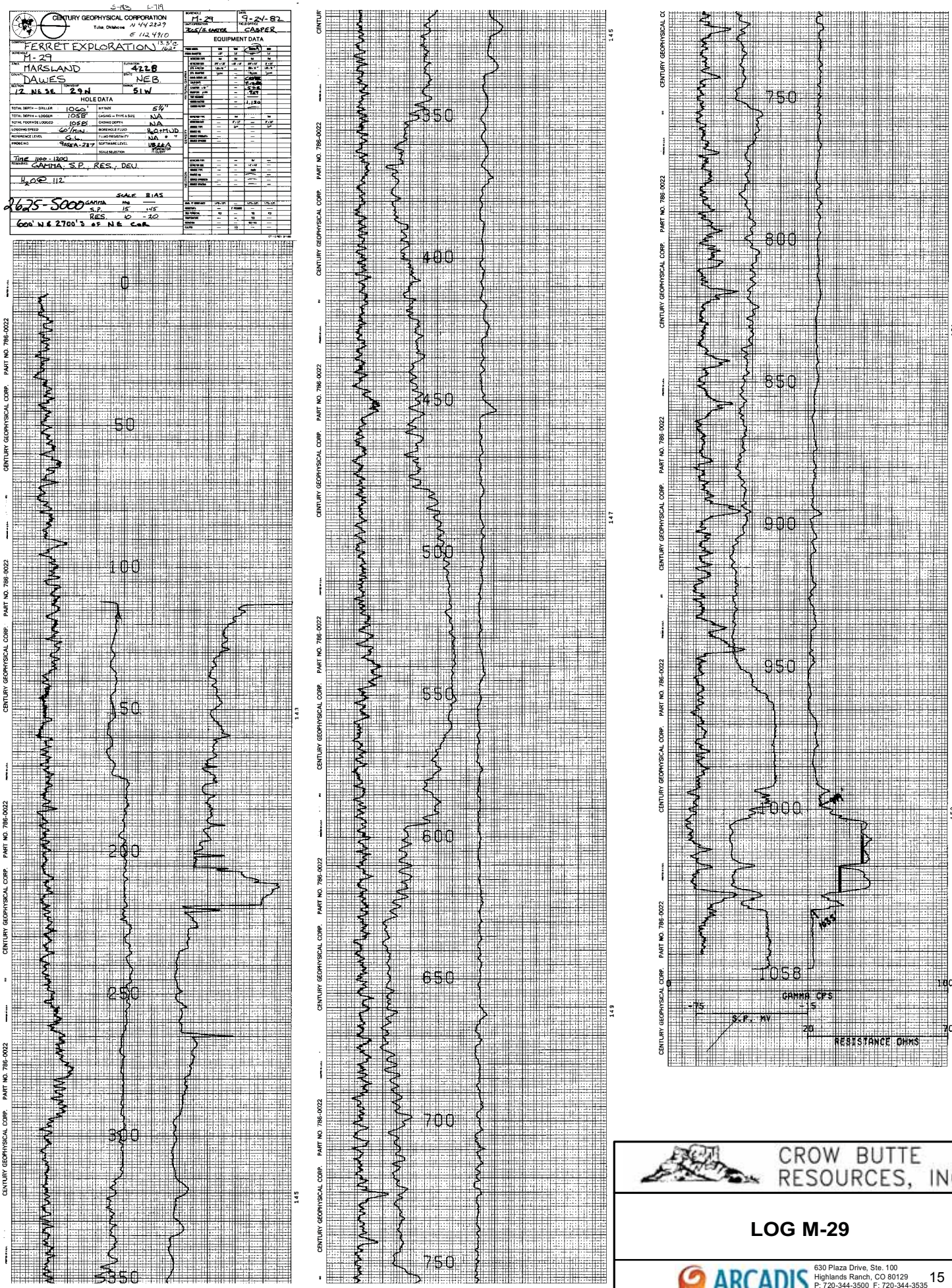

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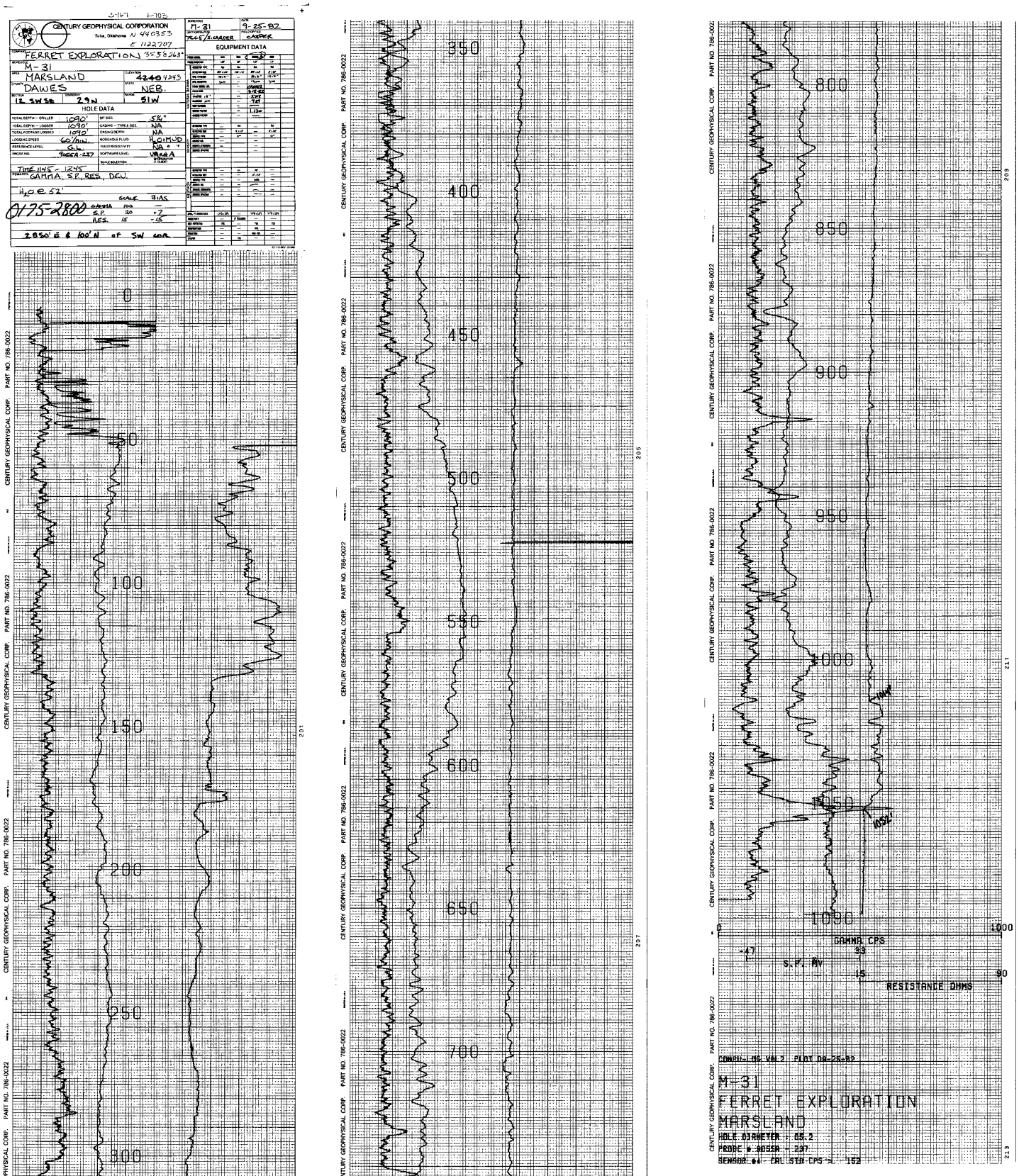

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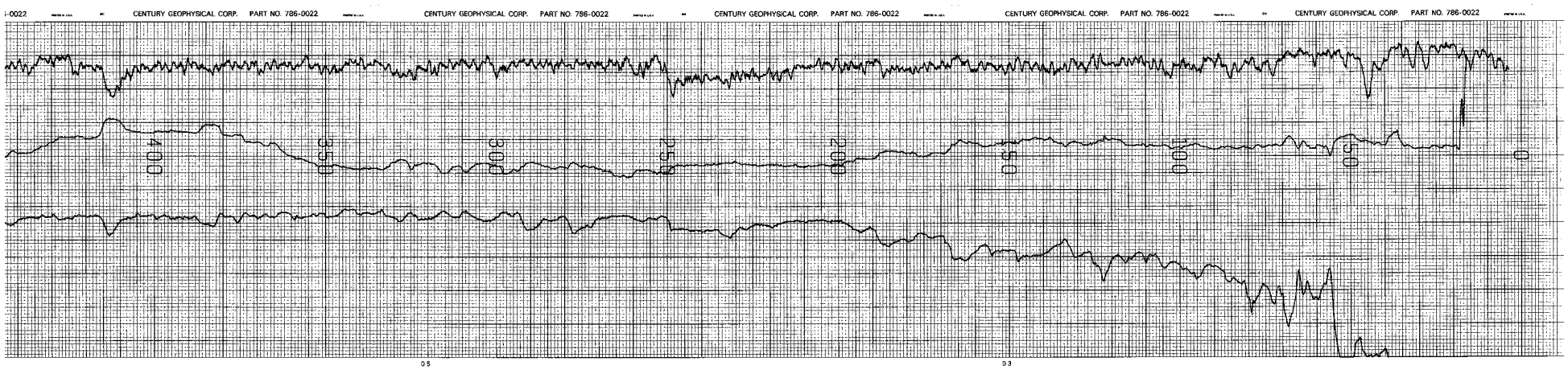

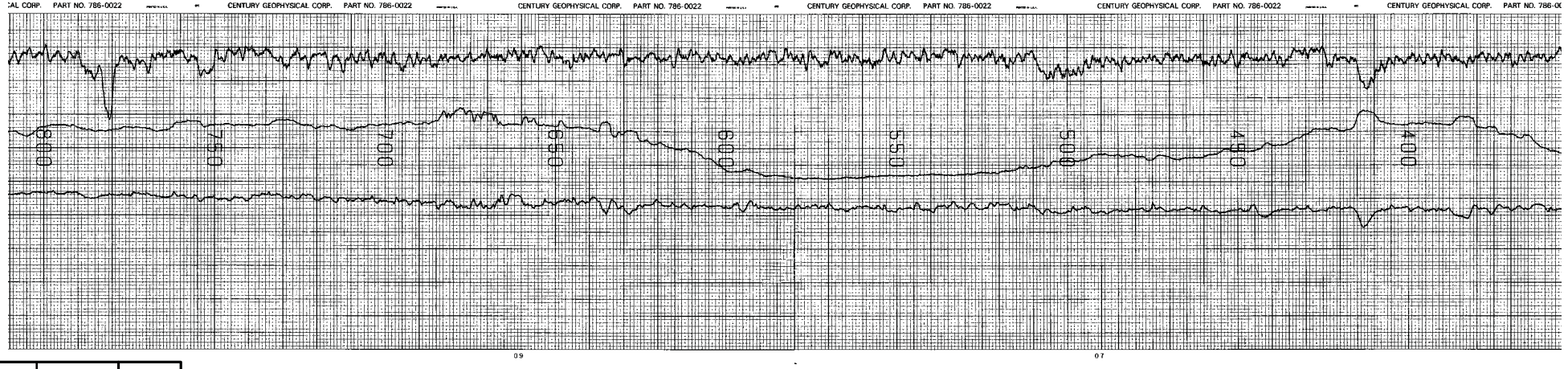

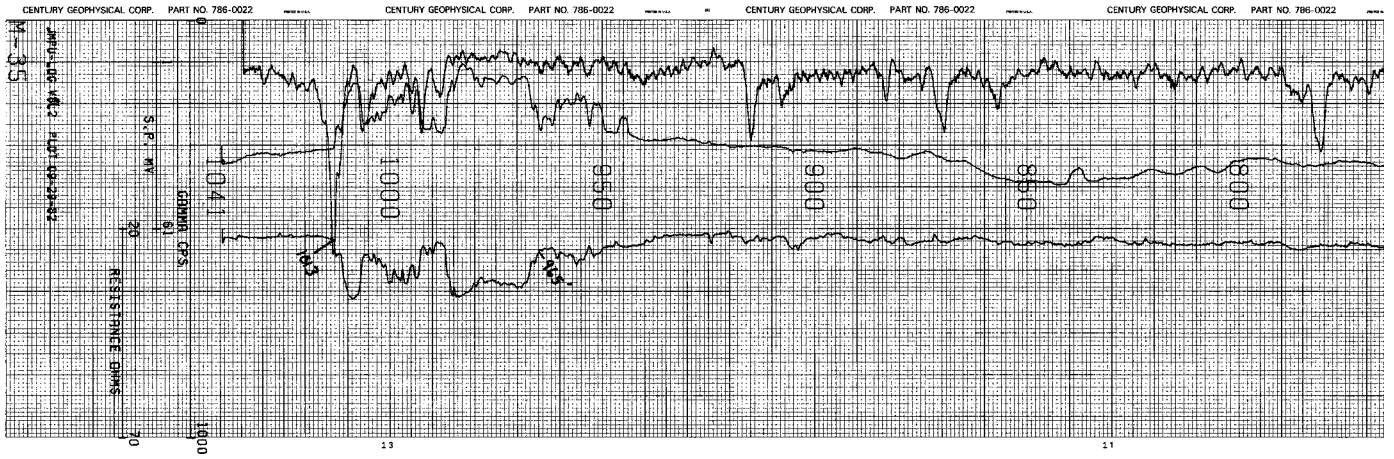

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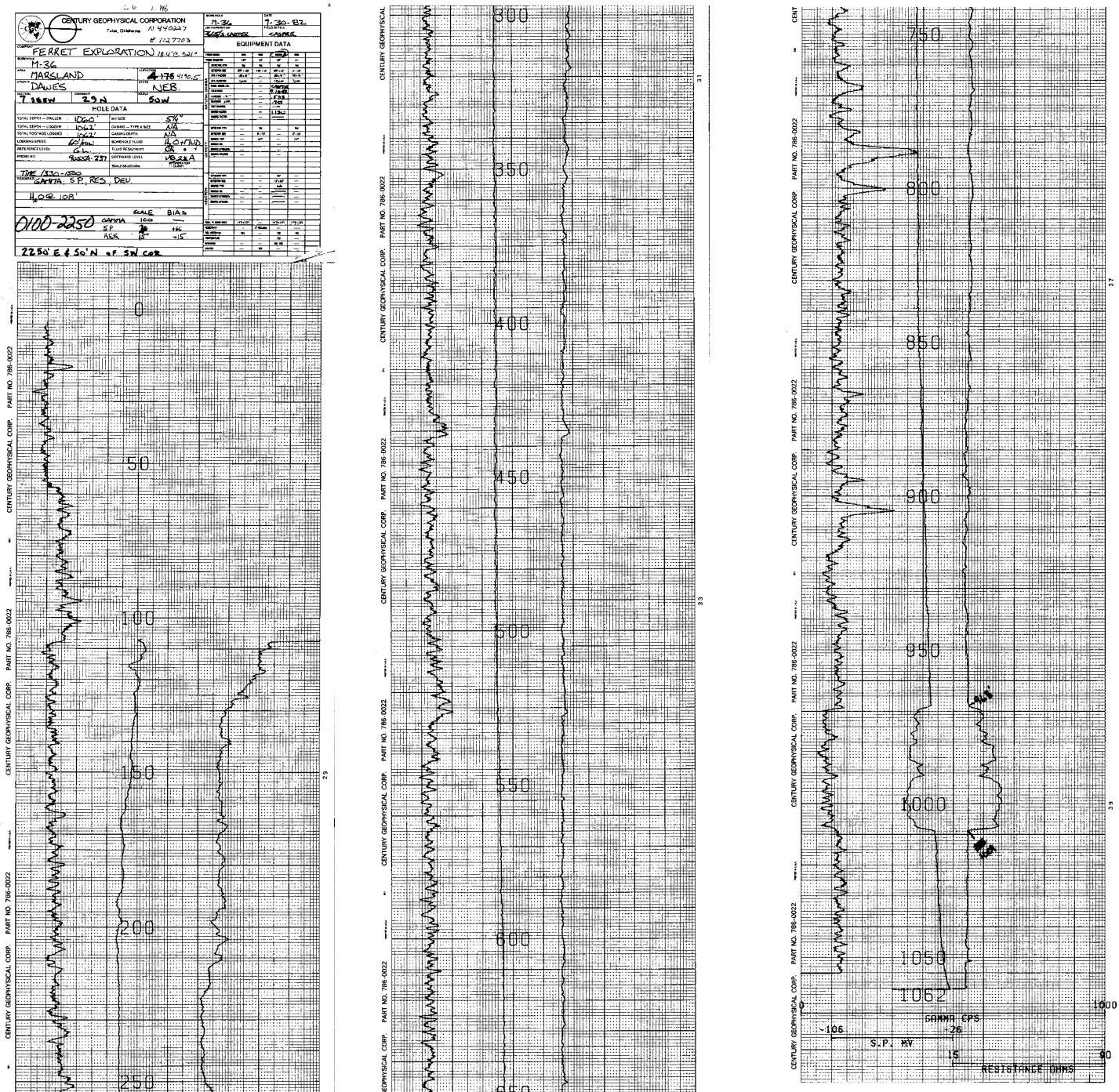

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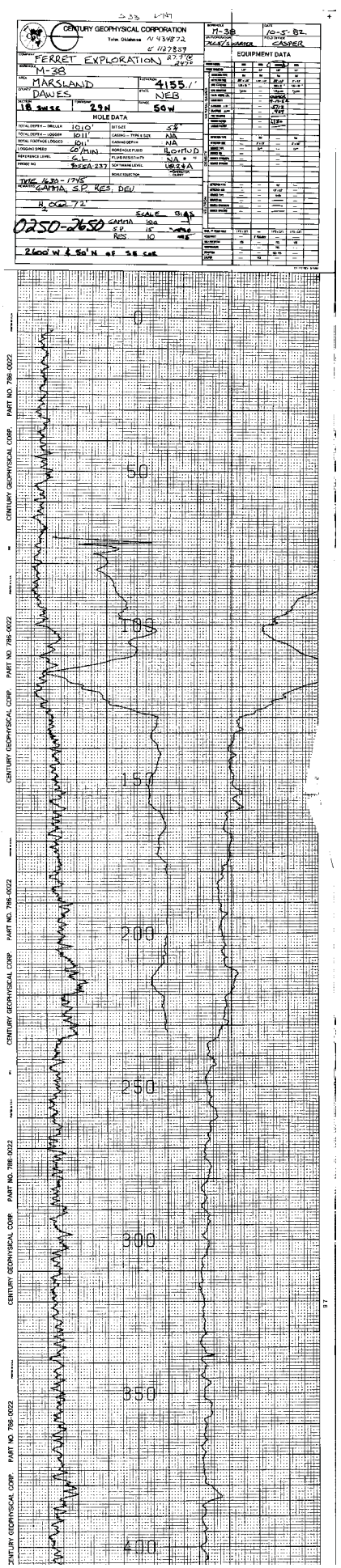

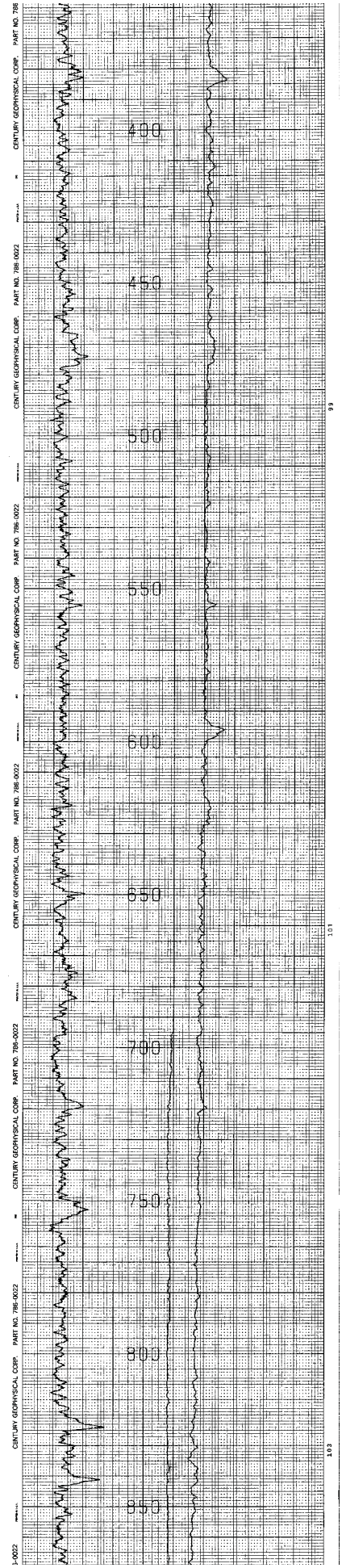

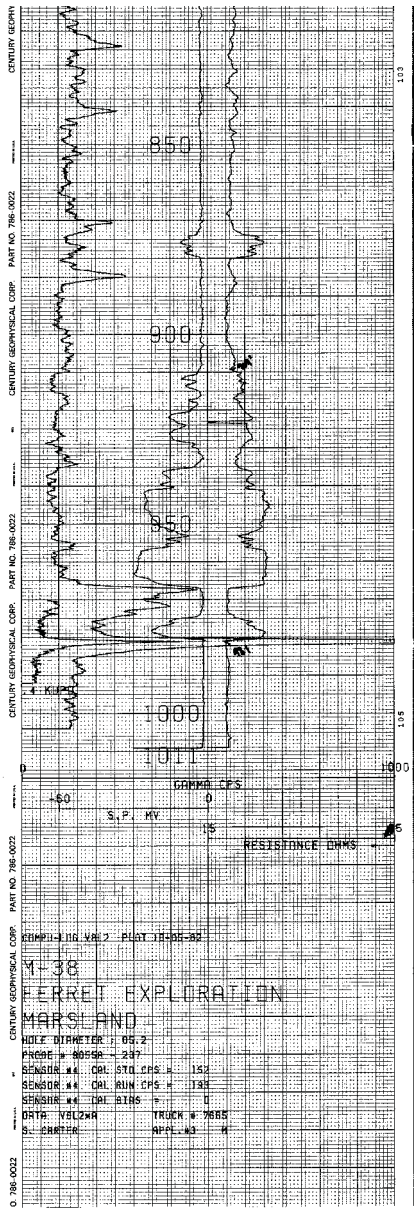

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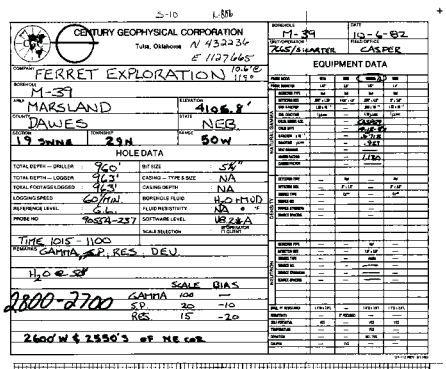

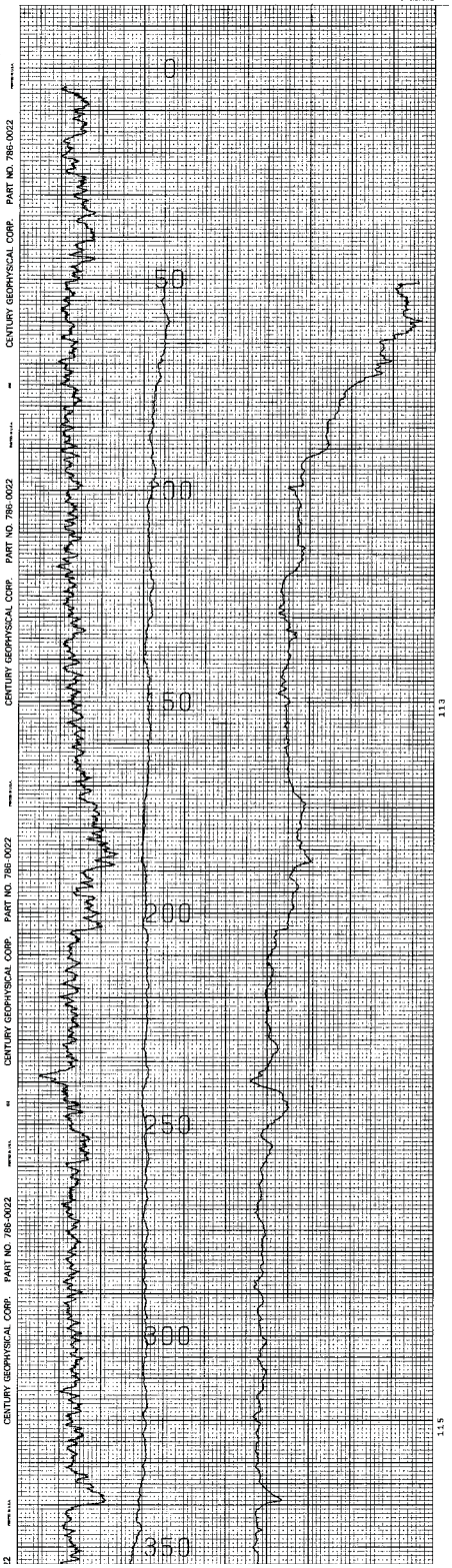

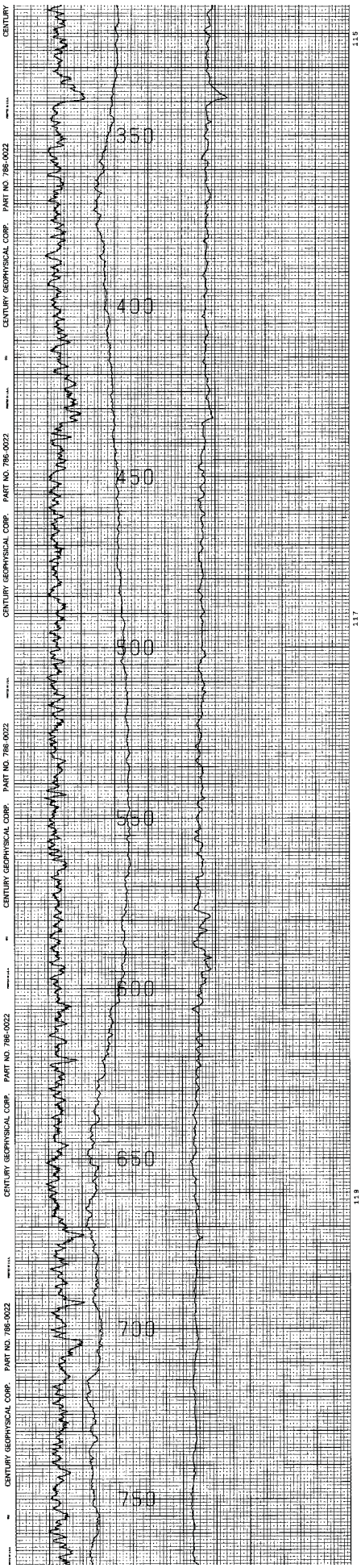

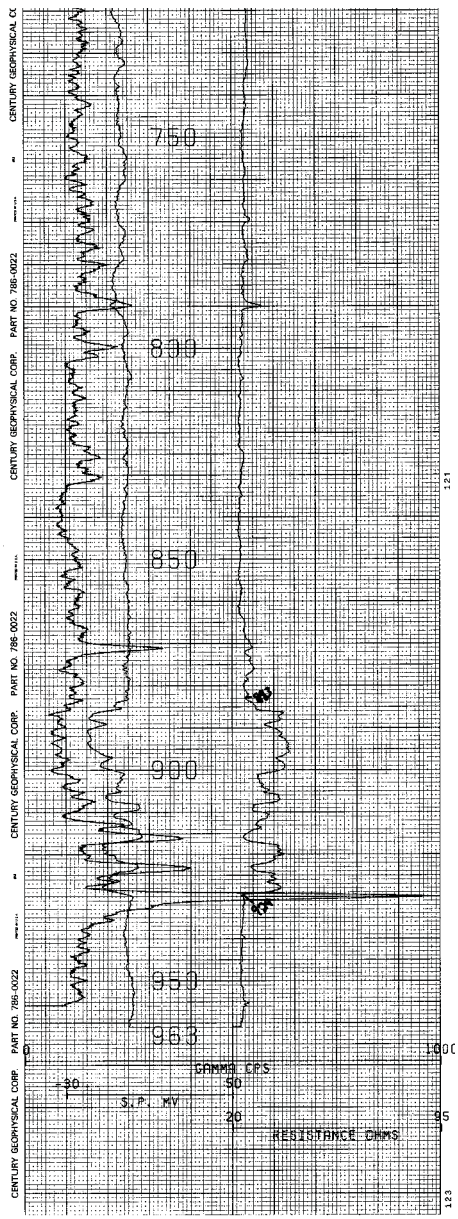

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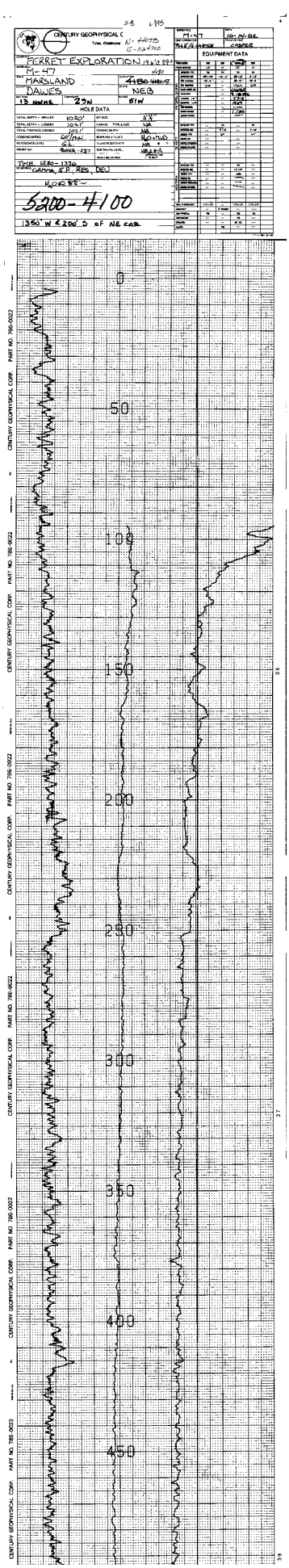

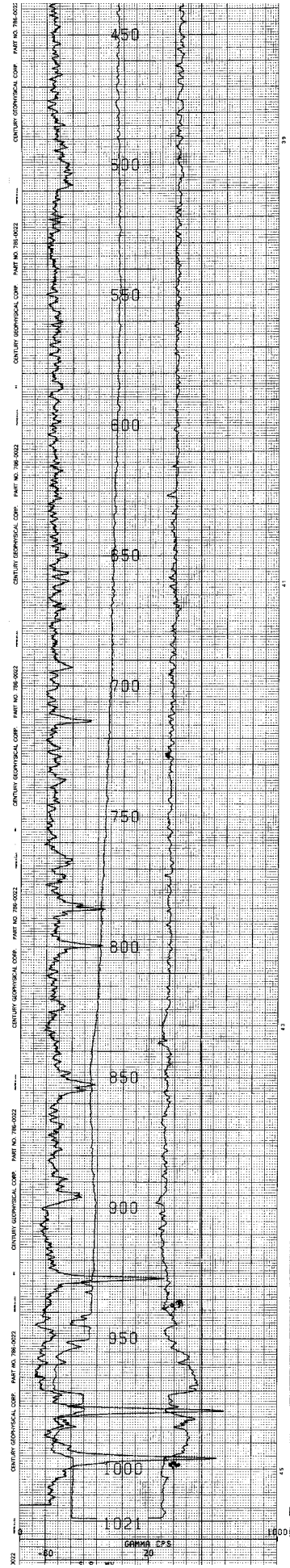

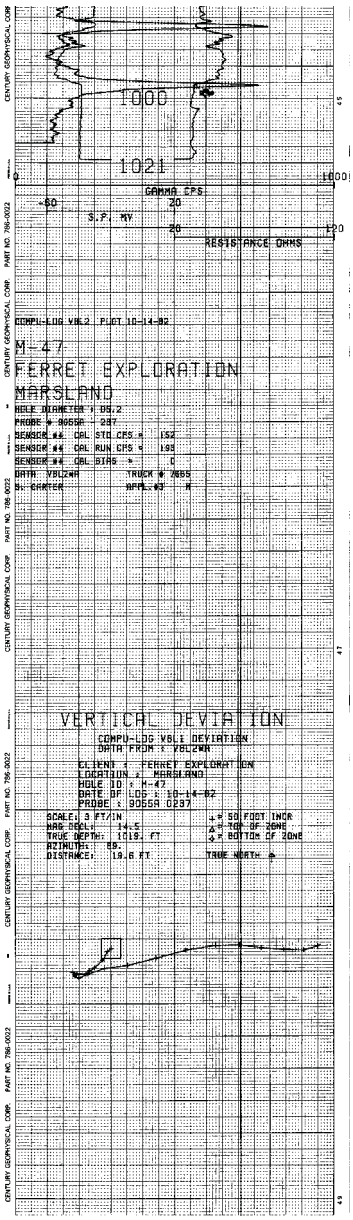

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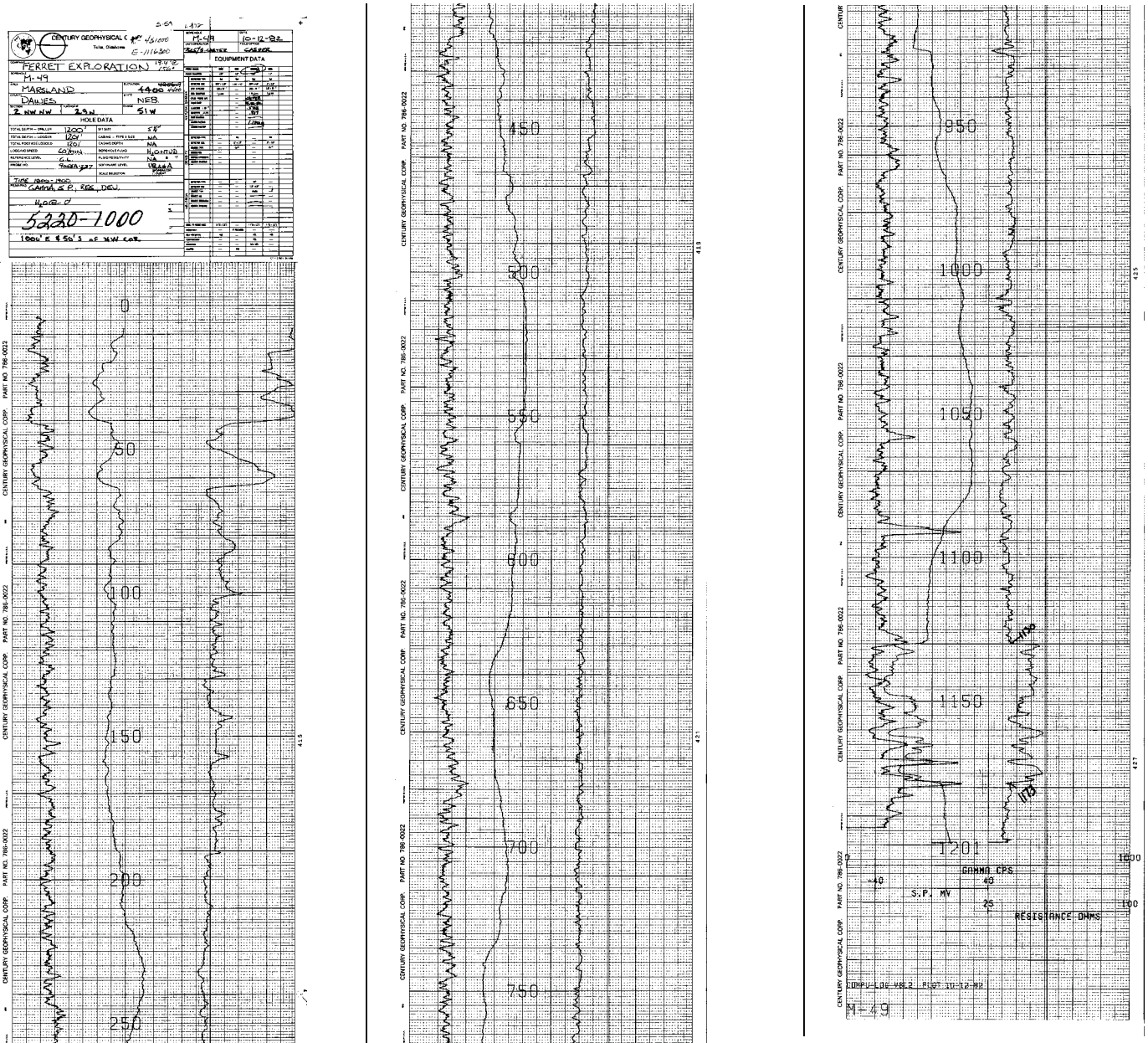

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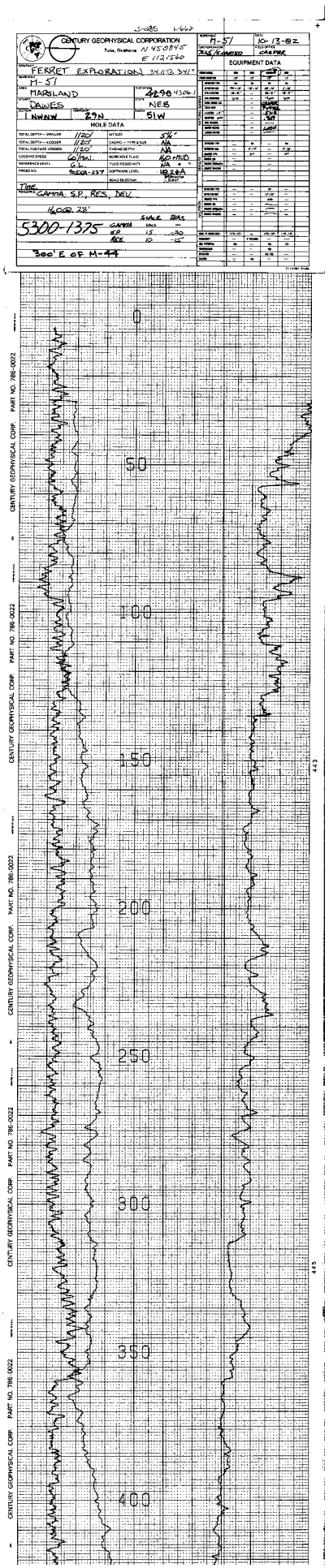

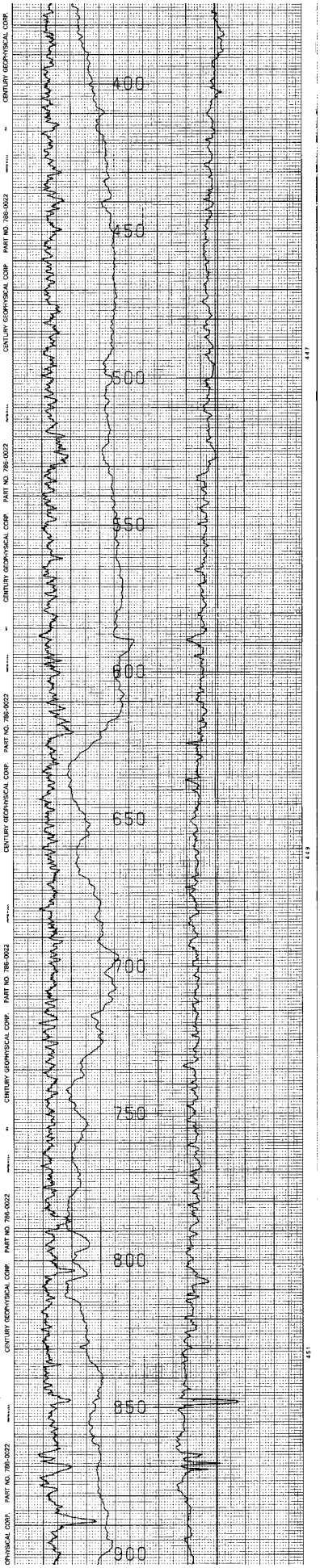

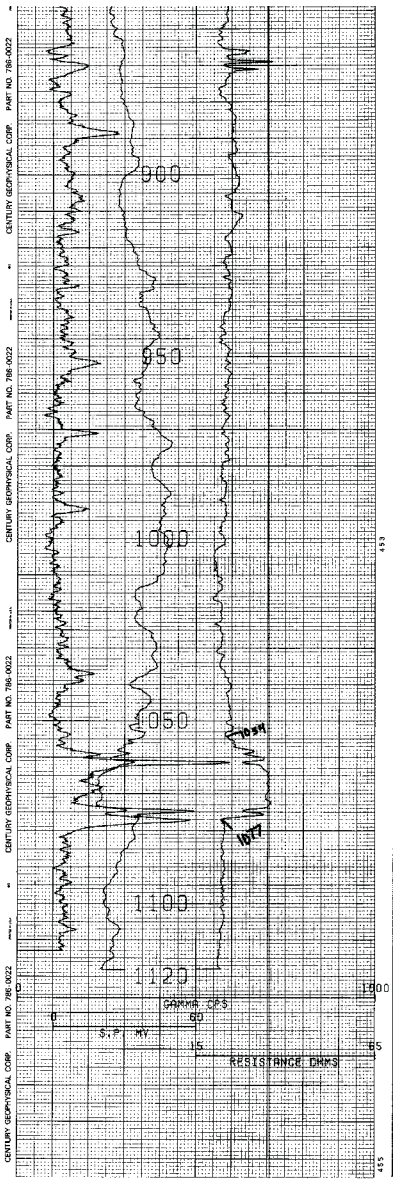

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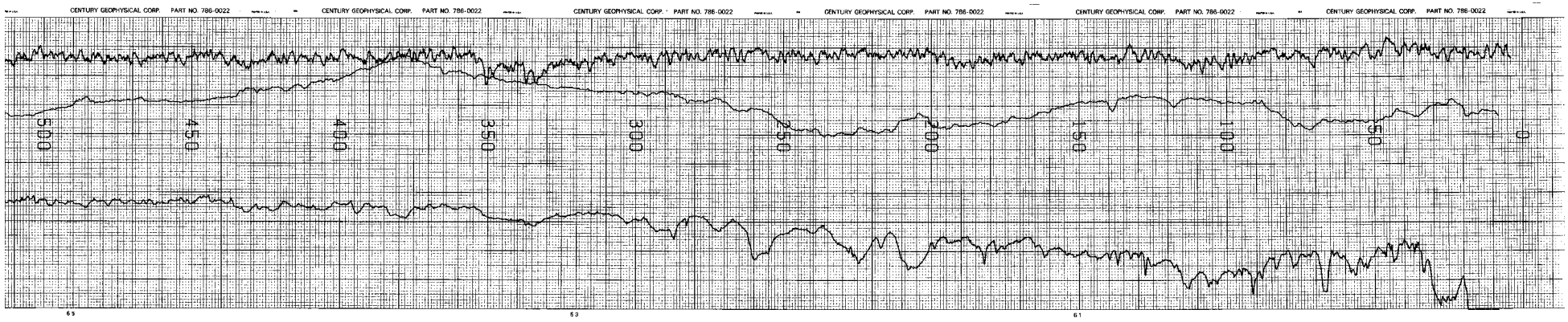

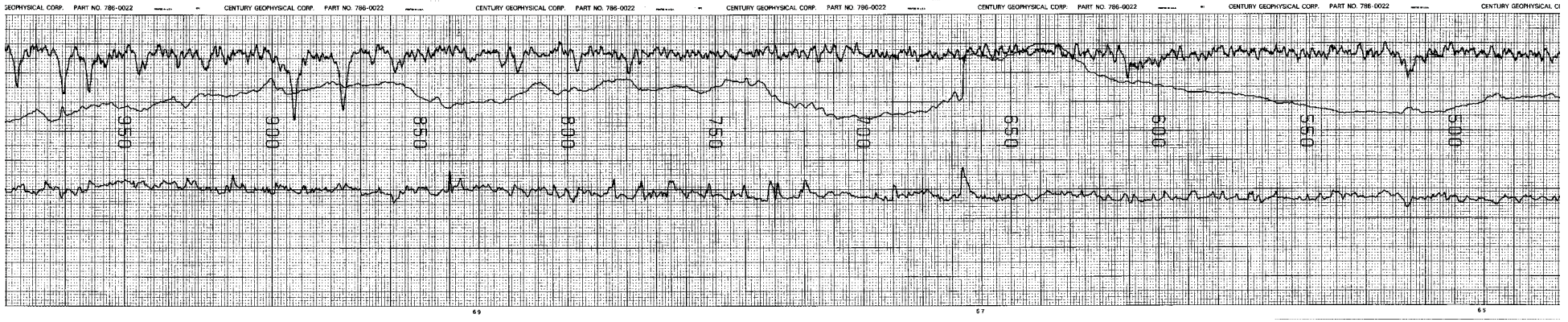

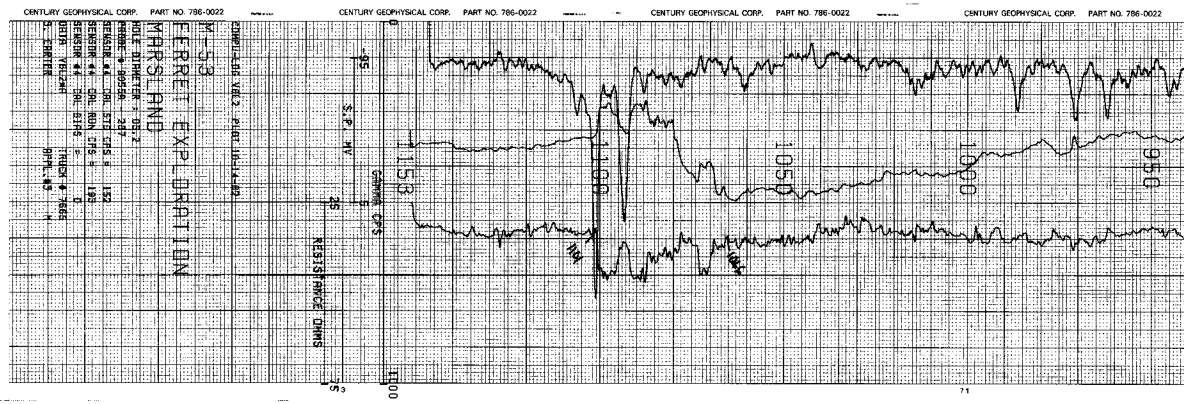

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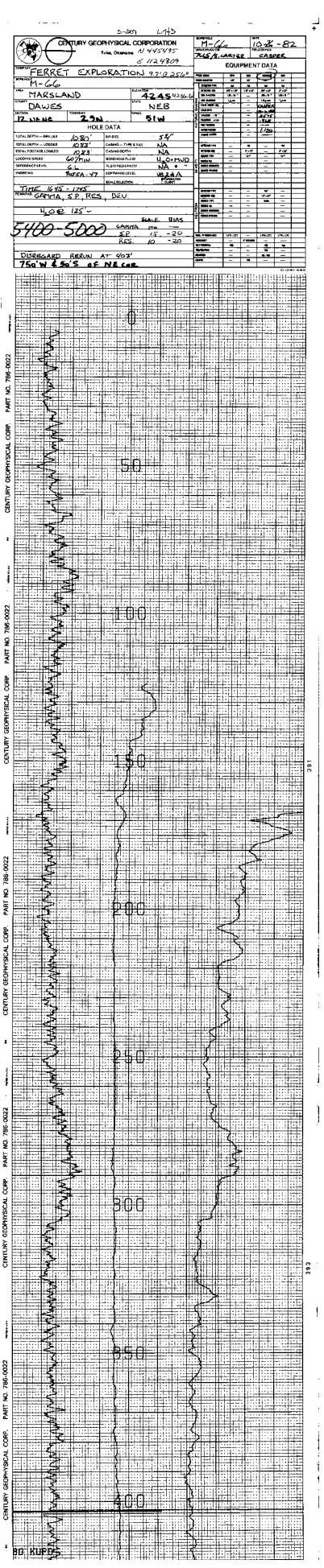

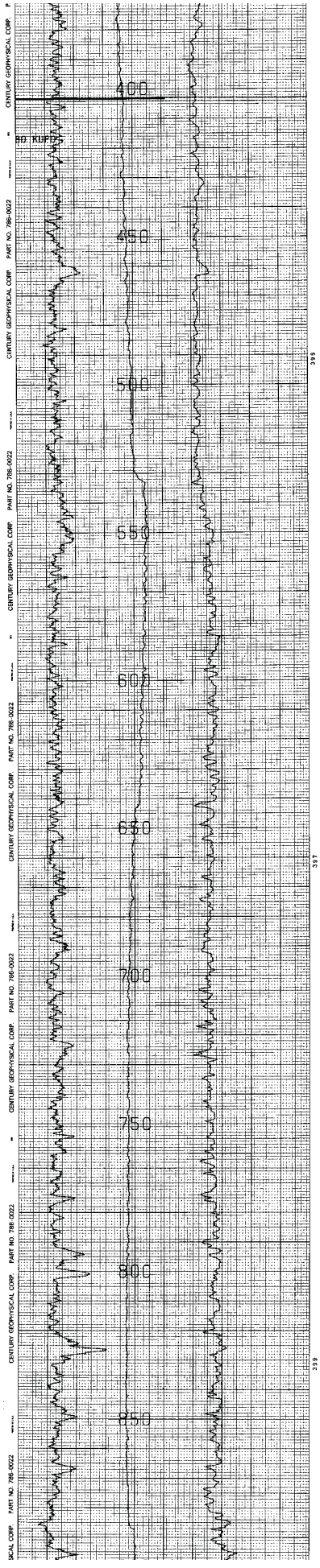

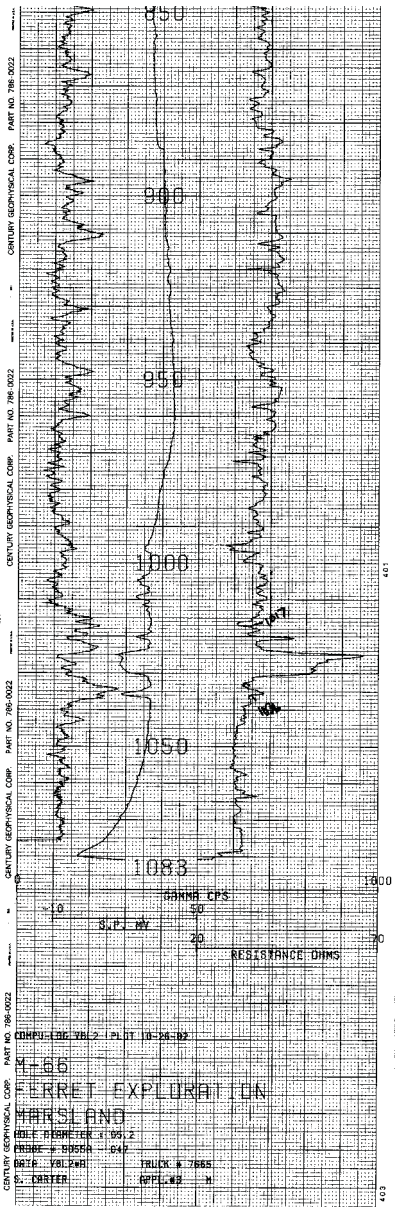

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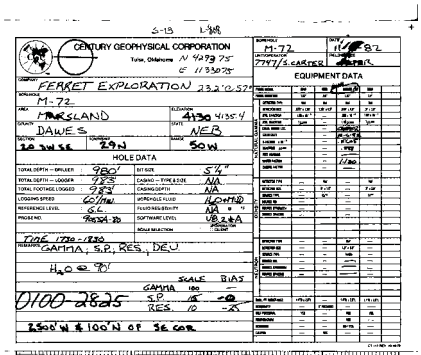

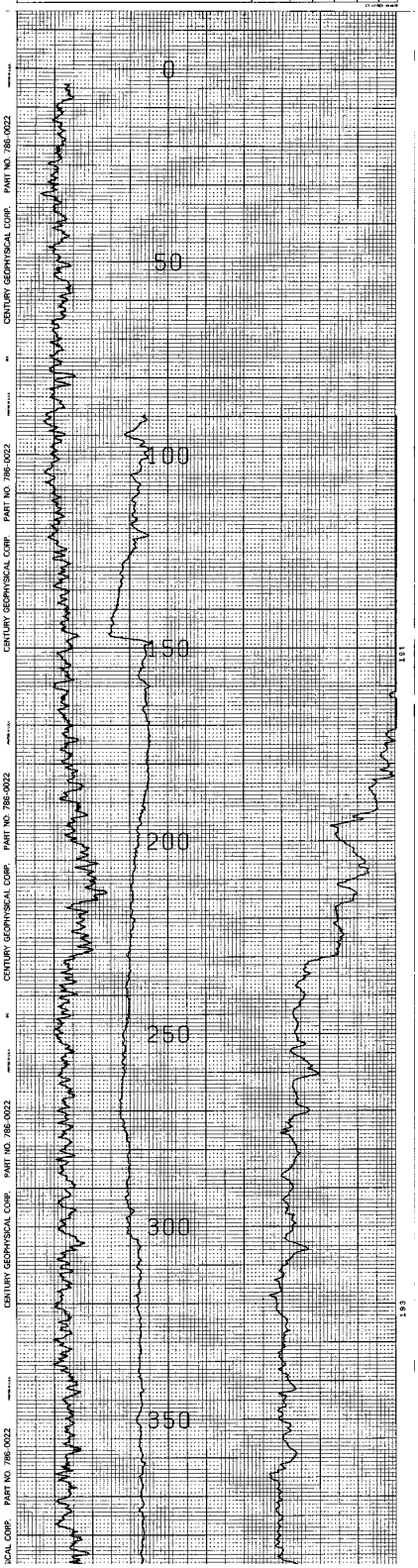

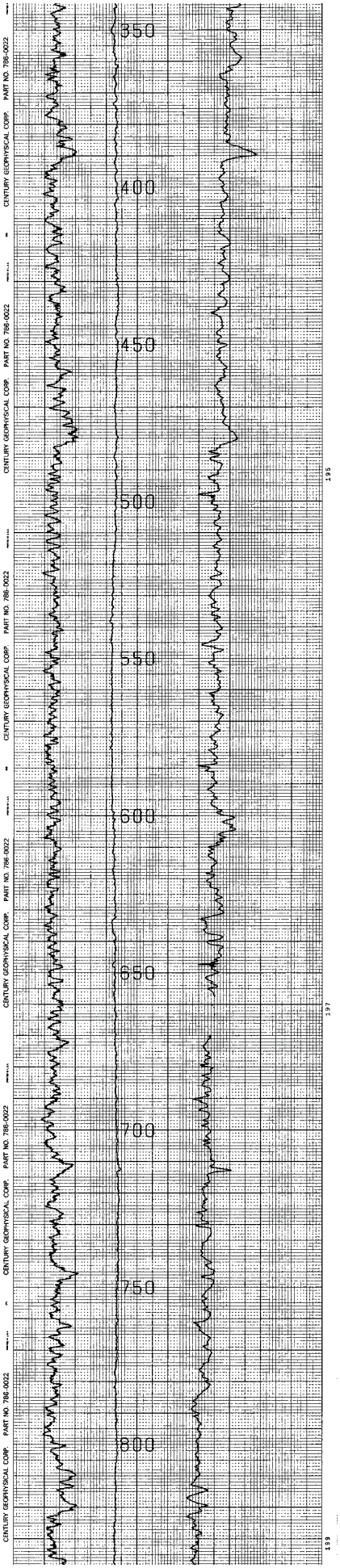

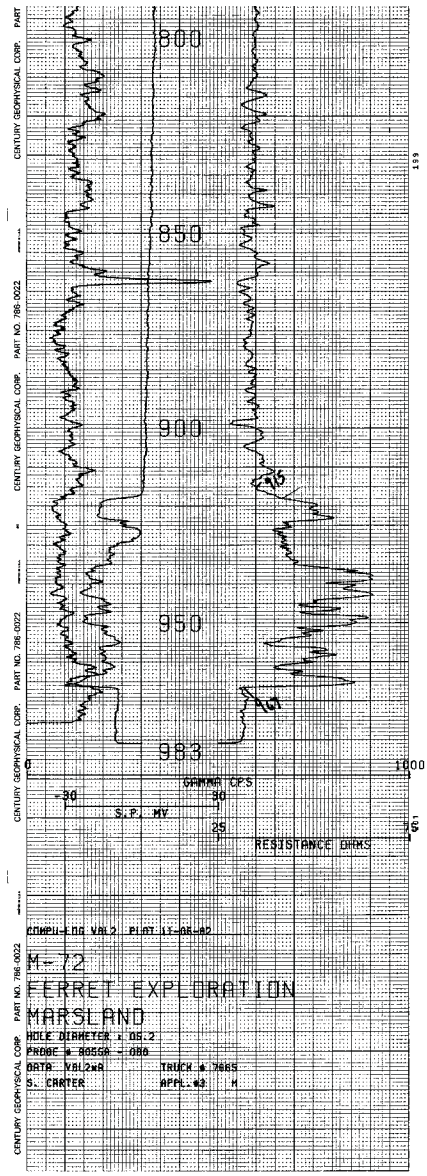

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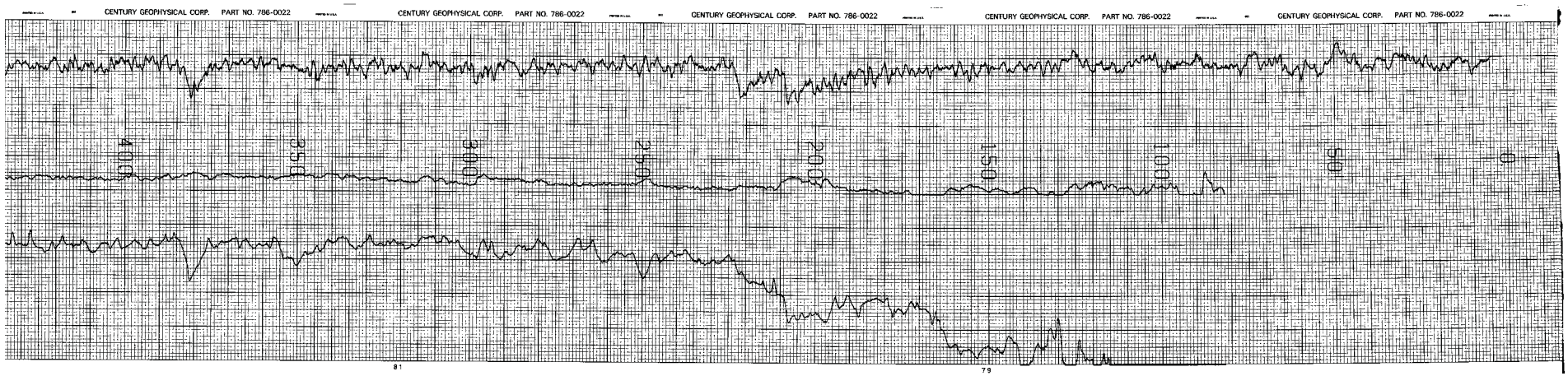

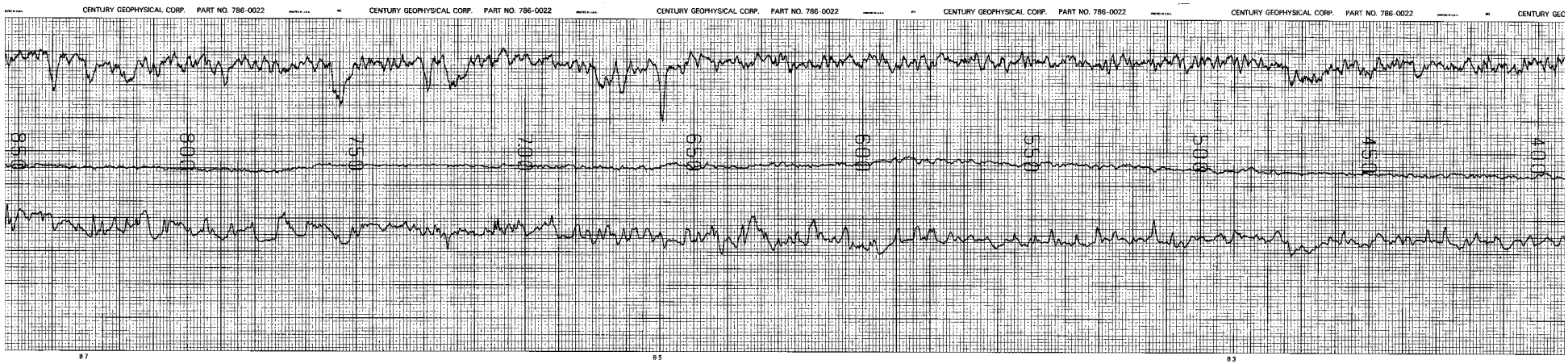

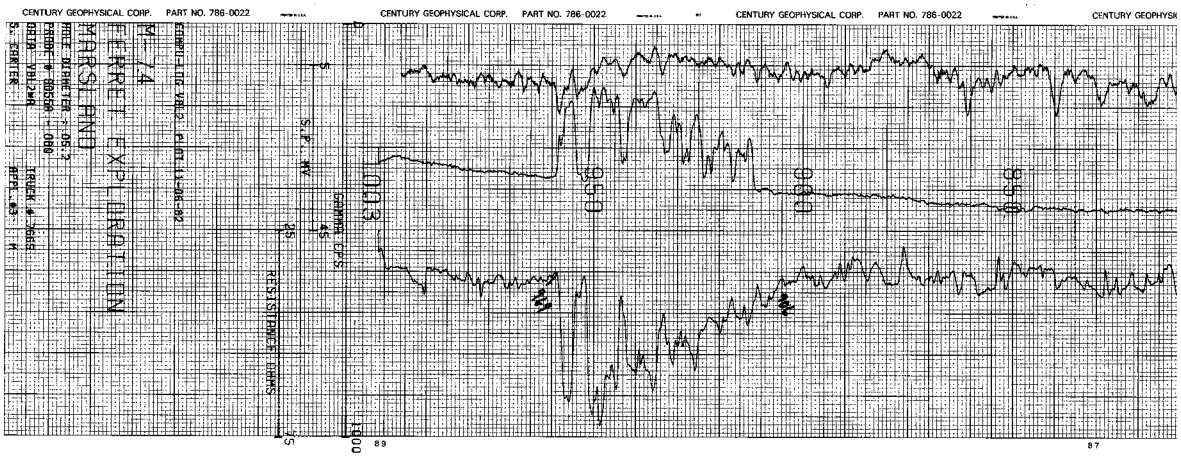

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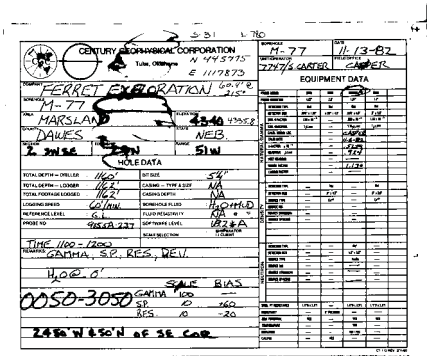

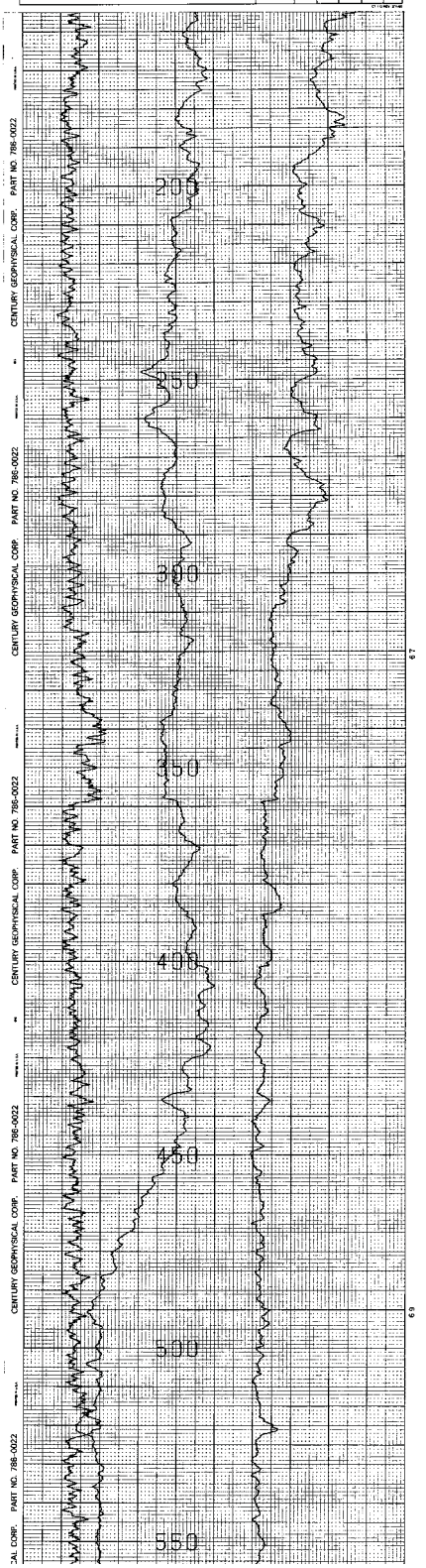

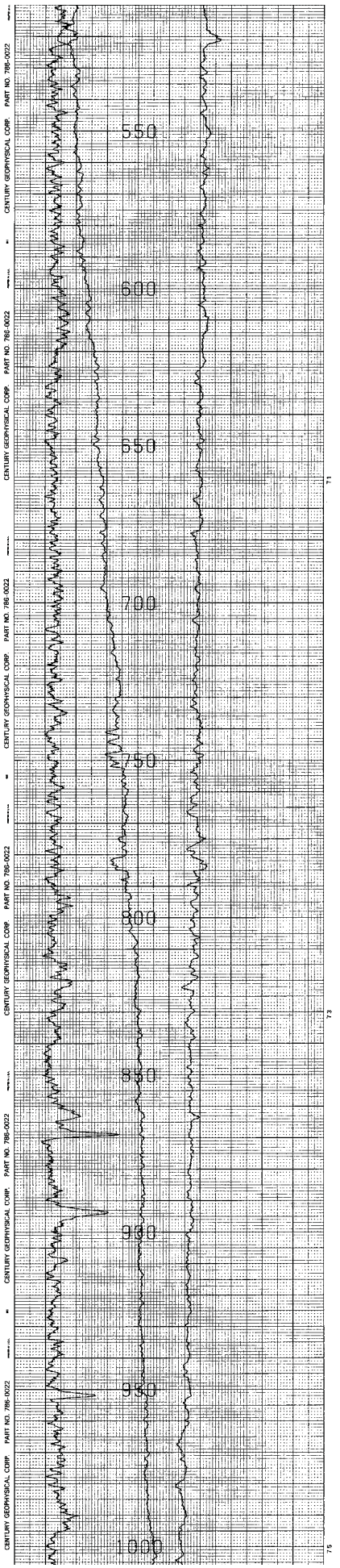

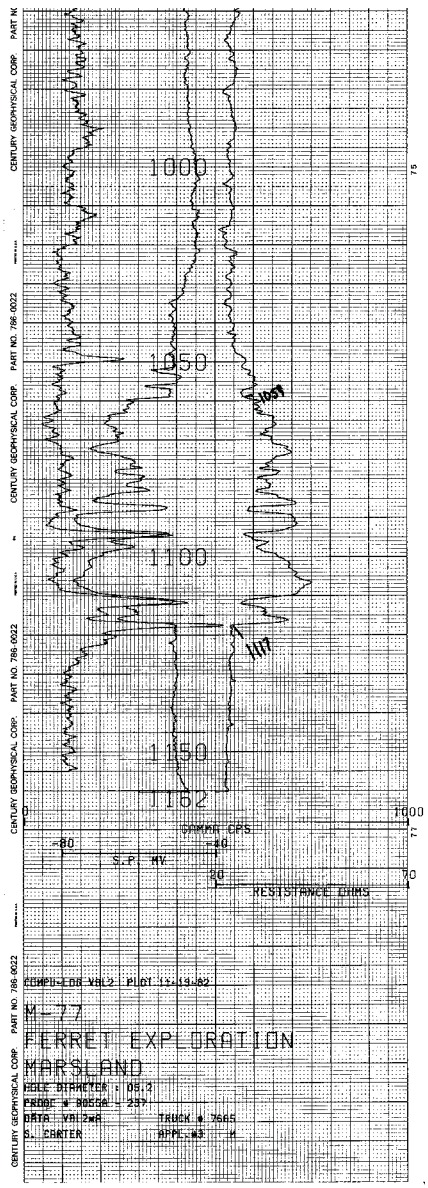

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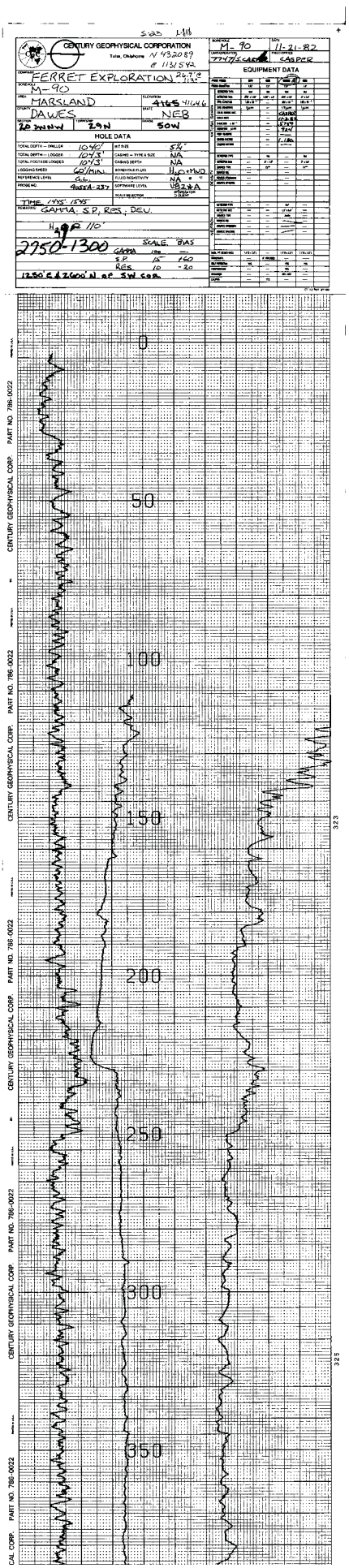

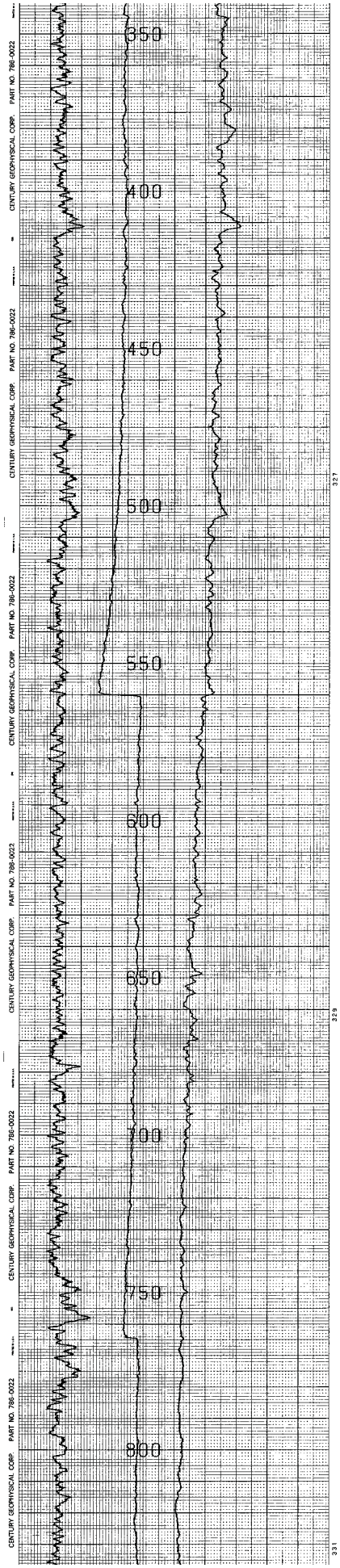

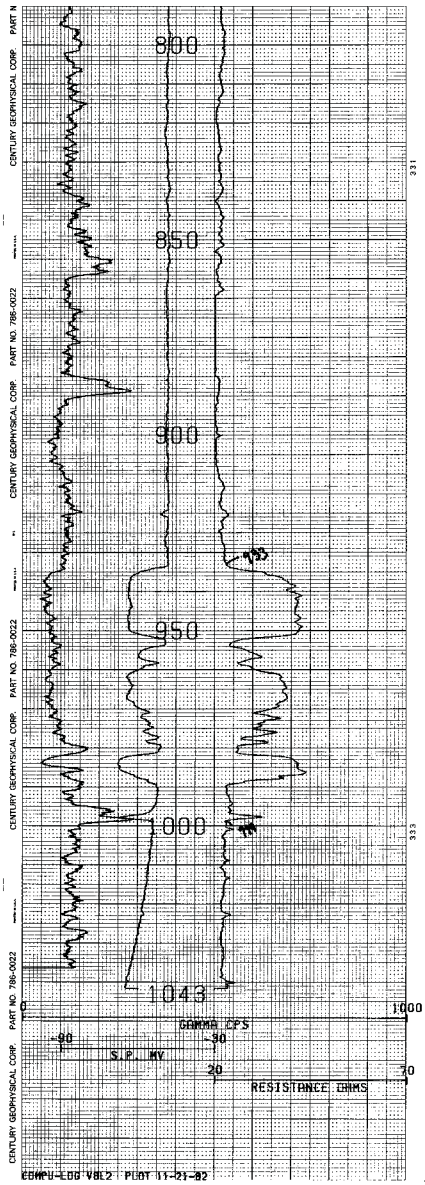

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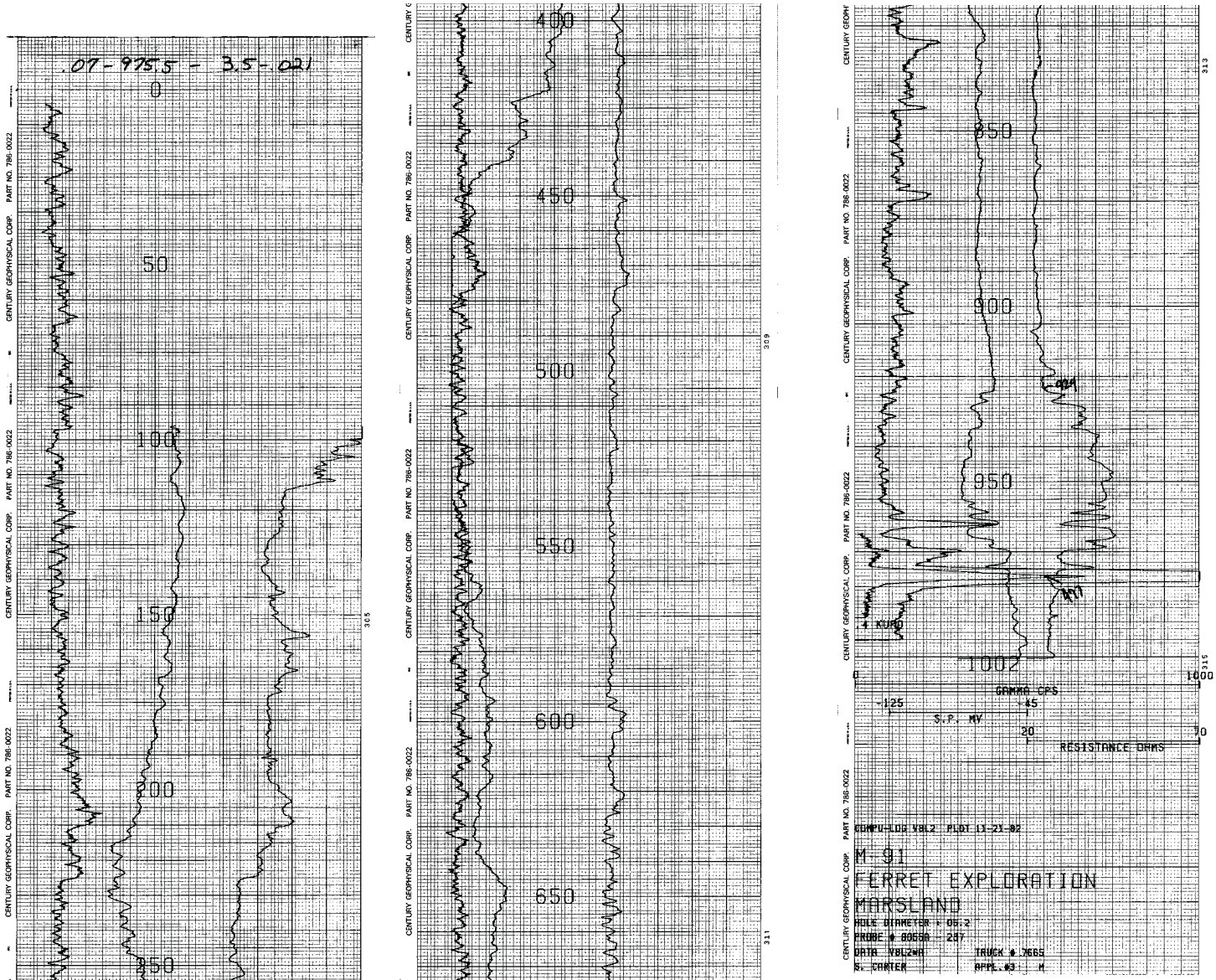
CROW BUTTE RESOURCES, INC.

LOG M-90

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com



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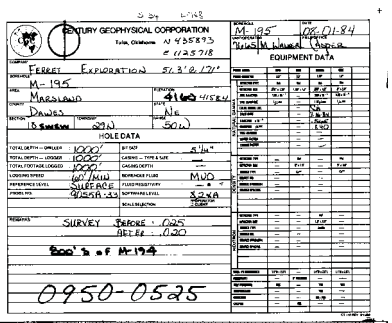
CROW BUTTE RESOURCES, INC.

LOG M-91

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

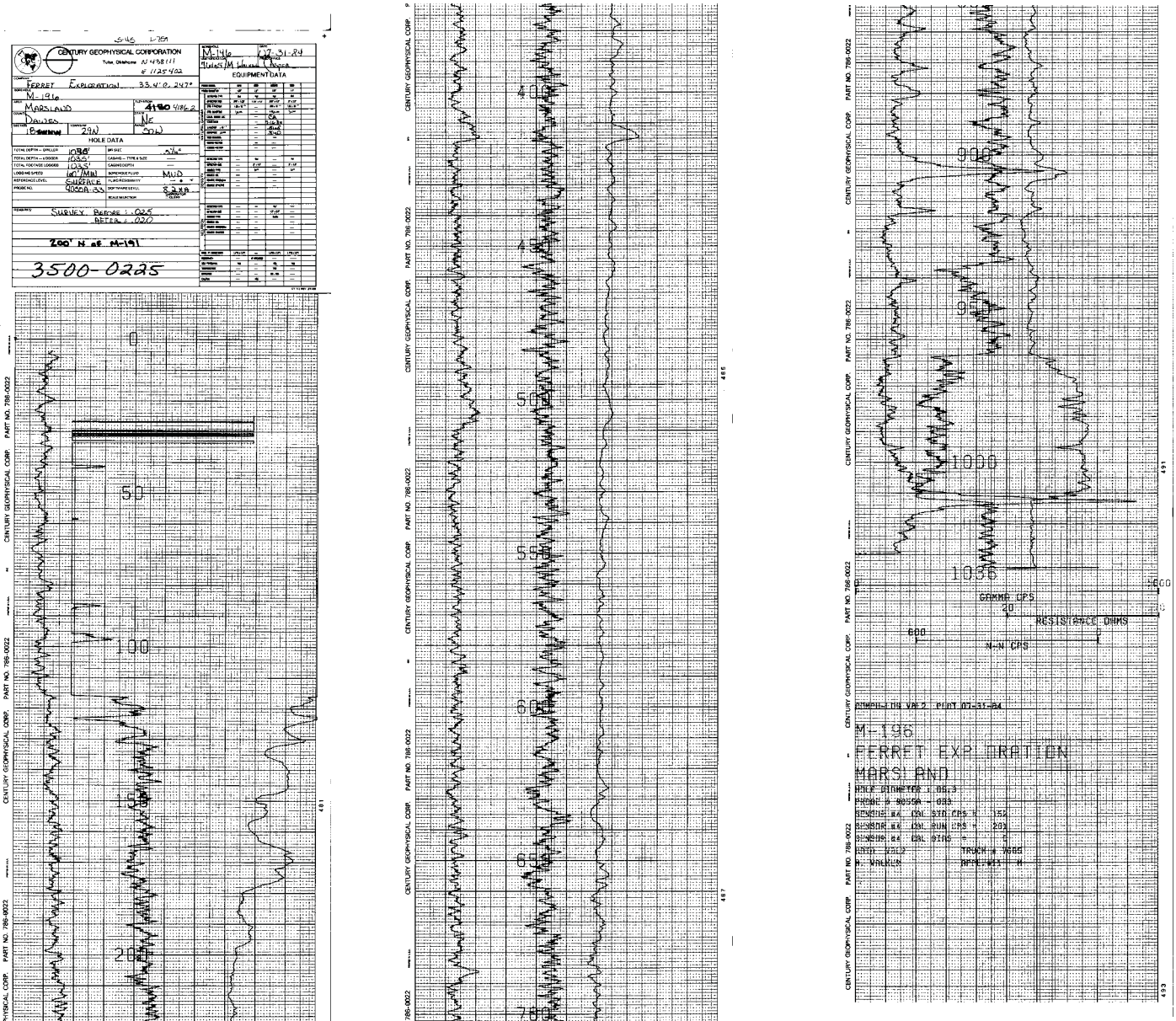

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
N 455893
E 1125718
COMPANY FERRET EXPLORATION 5.3 0.17
WELL M-195
FIELD MARSLAND
COUNTY DAWES
SECTION 18 TOWNSHIP 32N RANGE 50W
HOLE DATA
TOTAL DEPTH — DRILLER 1000'
TOTAL DEPTH — LOGGER 1002'
TOTAL DEPTH (LOGGED) 1000'
LOGGING SPEED 60'/MIN
REFERENCE LEVEL SURFACE
PERMANENT DATUM
ELEVATION 4160 4158 KB
DATE 08-01-84
RUN NO. ONE
TYPE LOG GAMMA-RAY NEUTRON
SCALE DESCRIPTION 1"=100'
EQUIPMENT DATA
RECORDED BY
WITNESSED BY
REMARKS SURVEY BEFORE - .025 AFTER - .020
800' S of M-194
0950-0525
12-14 - 977.0 - 5.5 - .021
06 - 980.6 - 3.0 - .020
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
475
473
471
469
467
465
463
TYPE 1 FIG VAL 2 PLOT 08-01-84
M-195
FERRET EXPLORATION
MARSLAND
HOLE DIAMETER = 6314
PROBE = 6855R - 035
SENSOR #4 CAL STD CPS = 152
SENSOR #4 CAL RUN CPS = 201
SENSOR #4 CAL BIAS = 0
DATA 79L2 TRUCK # 7885
M. WALKER OPR. #11 =
GAMMA CPS
20
RESISTANCE OHMS
0
600
N-N CPS
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0

CROW BUTTE RESOURCES, INC.

LOG M-195

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

Source File Location: K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\LogFigures\ Formatted By: J.Chen @ Boulder, CO on 05/09/2012



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CROW BUTTE RESOURCES, INC.

LOG M-196

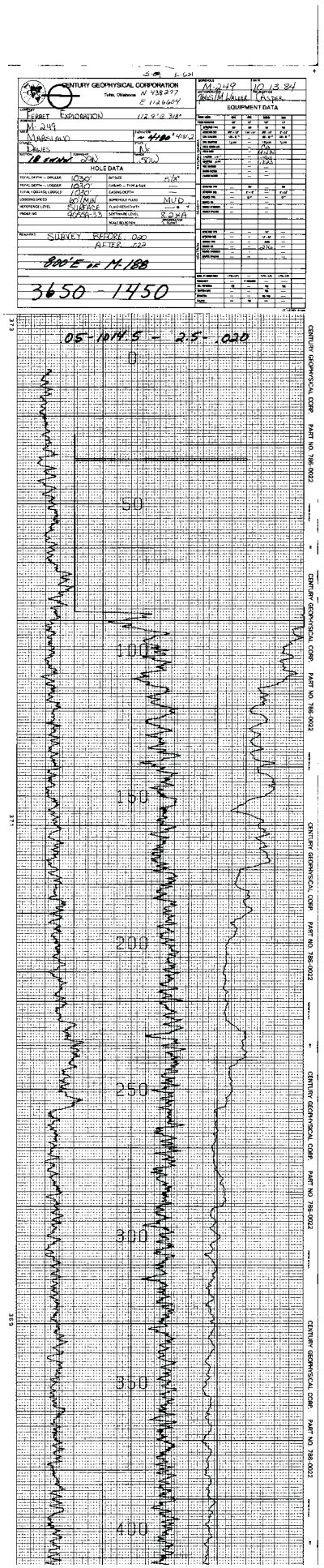
ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

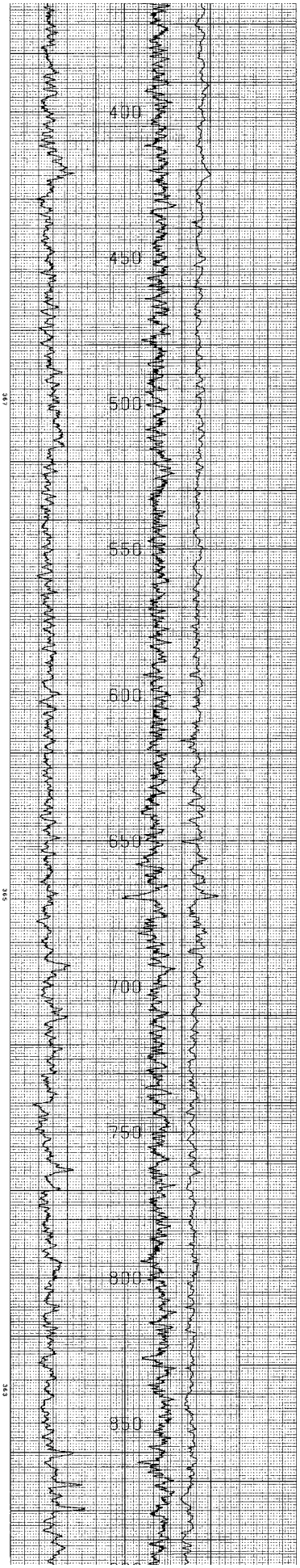
CROW BUTTE RESOURCES, INC.

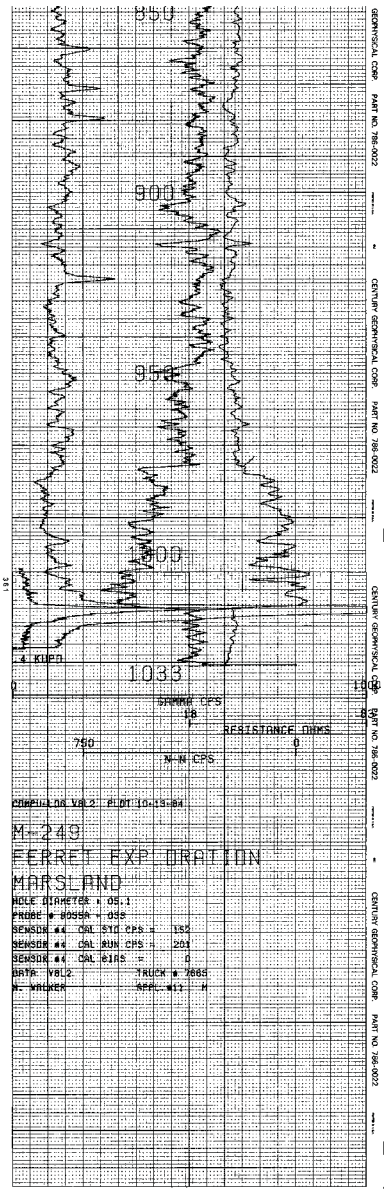
LOG M-200

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

Source File Location: K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\LogFigures\ Formatted By: J.Chen @ Boulder, CO on 05/09/2012





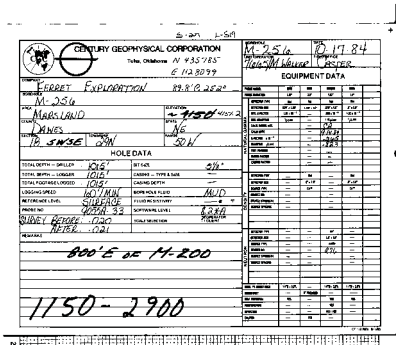


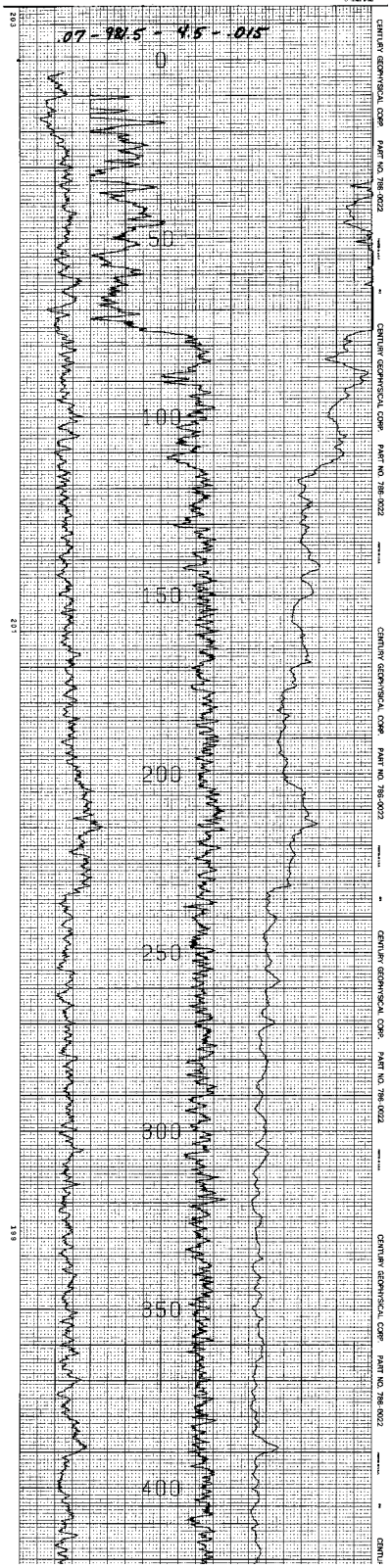
CROW BUTTE RESOURCES, INC.

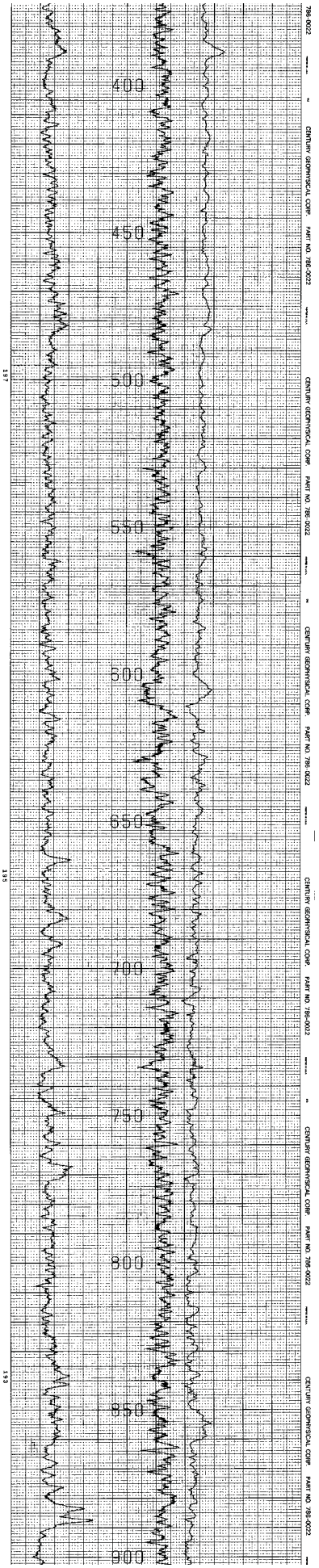
LOG M-249

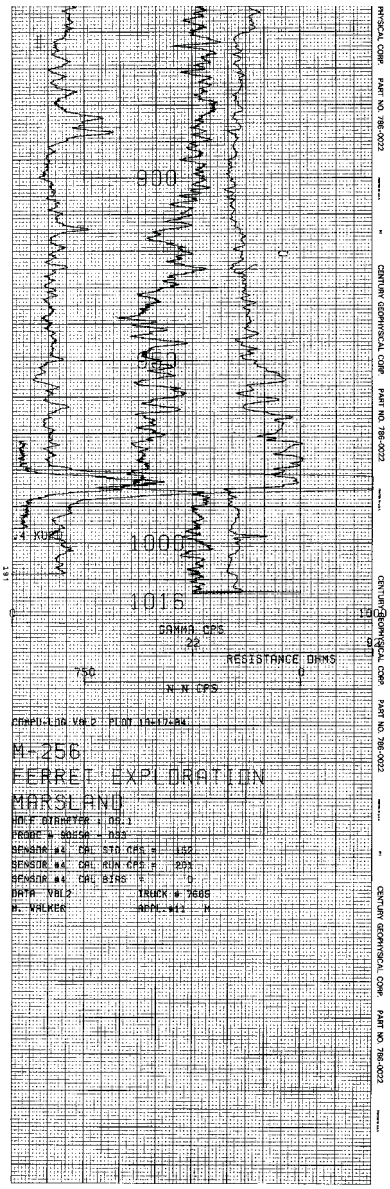
ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

Source File Location: K:\CBR_Projects\CO001636_Marsland\3_IMAGES\IllustratorLogFigures\ Formatted By: J.Chen @ Boulder, CO on 05/09/2012


CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma N 435785 E 1139099
FERRET EXPLORATION 33°8'0.228"
M-256
MARSLAND
DANE 16 SWSE SEC 36 T26N R34W
ELEVATION 4150 MSL
HOLE DATA
EQUIPMENT DATA
TOTAL DEPTH — DRILLER 1065'
TOTAL DEPTH — LOGGER 1061'
LOGGING SPEED 40 FT/MIN
REFERENCE LEVEL SURFACE
PERMIT NO. SIDWELL REPORT NO. 080
MEASURED FROM KB
800'E of M-200
1150 - 2900


.07 - 982.5 - 4.5 - 015
CENTURY GEOPHYSICAL CORP PART NO. 786-0022


CENTURY GEOPHYSICAL CORP PART NO. 786-0022


.4 KUNZ
SAMM3 CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG VAL 2 PLOT 11:17:04
M-256
FERRET EXPLORATION
MARSLAND
HOLE DIAMETER : 05.1
PROBE # 9059A - 033
SENSOR #1 CAL STD CPS = 152
SENSOR #2 CAL RUN CPS = 203
SENSOR #3 CAL OHMS = 0
DATA VAL2 TRUCK # 7605
R. WALKER PROG-Wil H
CENTURY GEOPHYSICAL CORP PART NO. 786-0022

CROW BUTTE RESOURCES, INC.

LOG M-256

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

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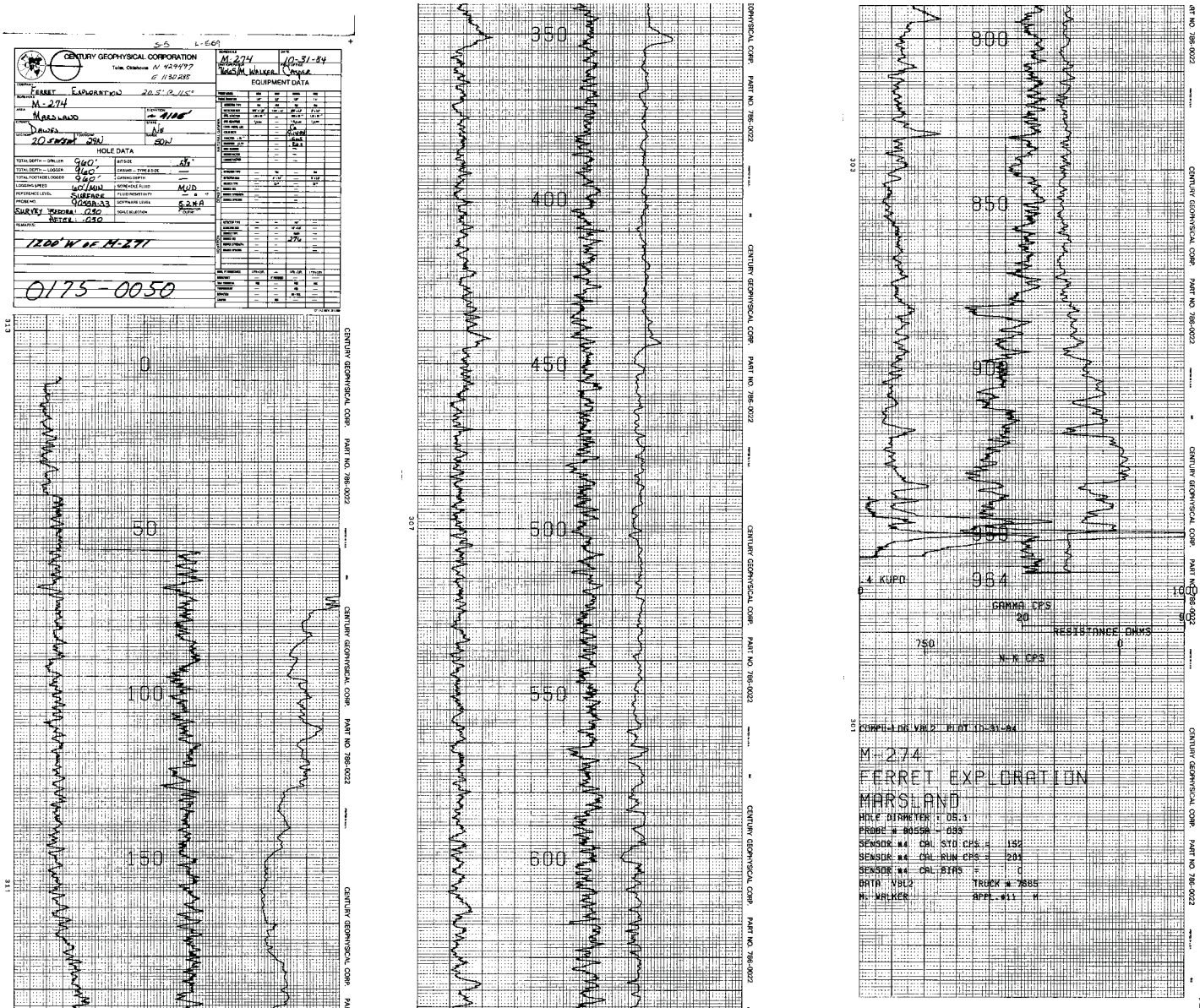
CROW BUTTE RESOURCES, INC.

LOG M-259

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

Source File Location: K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\LogFigures\ Formatted By: J.Chen @ Boulder, CO on 05/09/2012

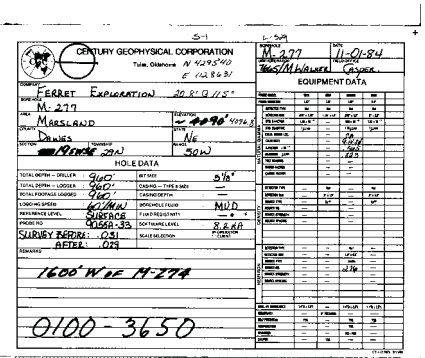


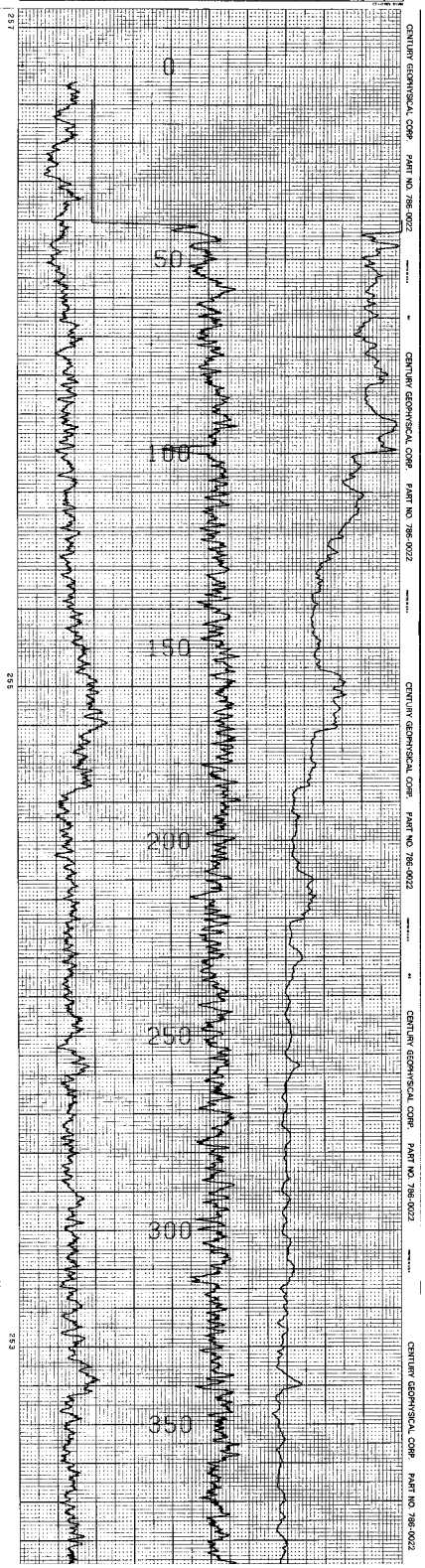
Source File Location: K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\LogFigures\ Formatted By: J.Chen @ Boulder, CO on 05/09/2012

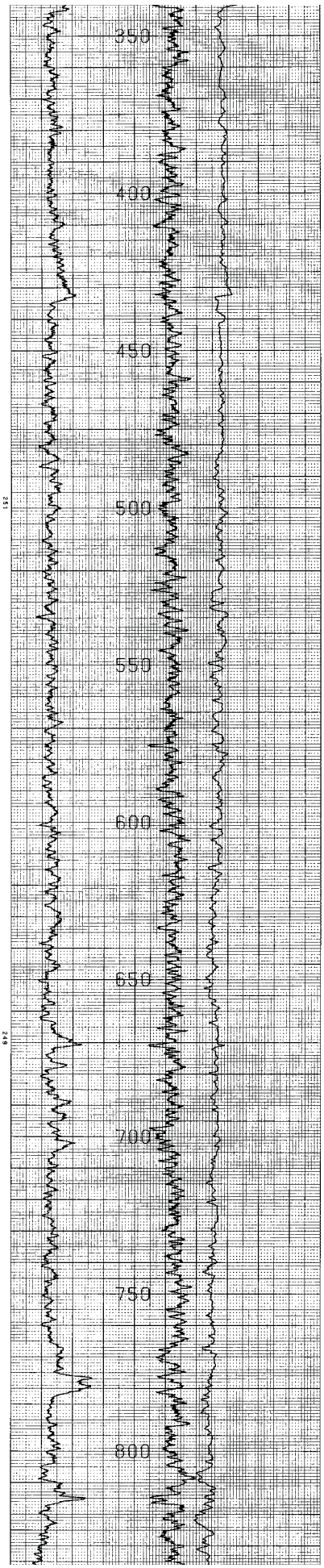
CROW BUTTE RESOURCES, INC.

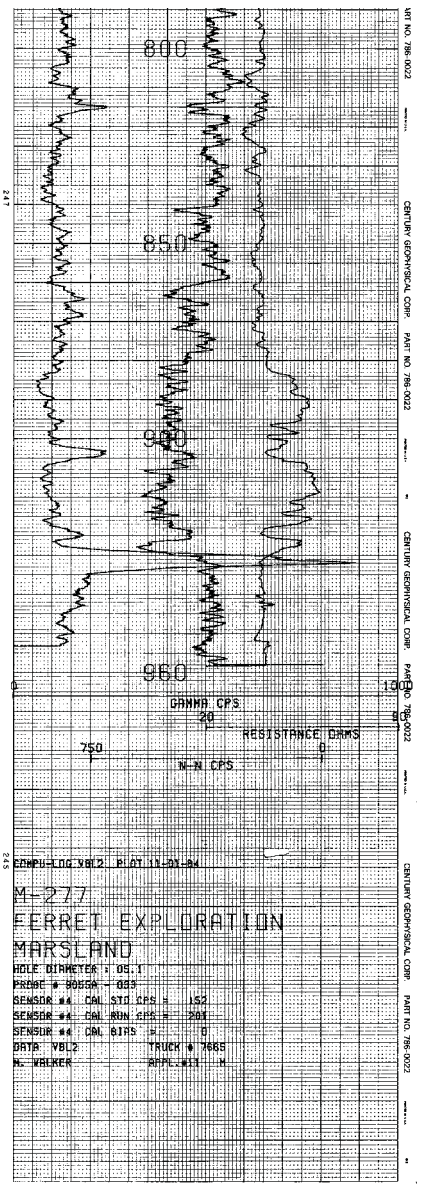
LOG M-274

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com









CROW BUTTE RESOURCES, INC.

LOG M-277

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

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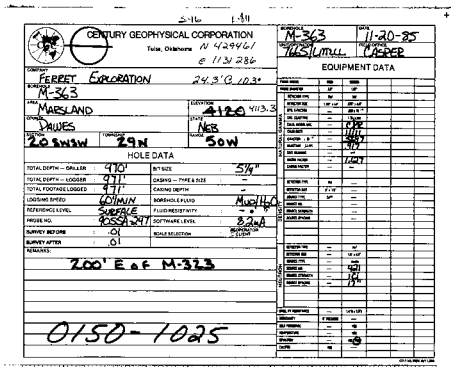
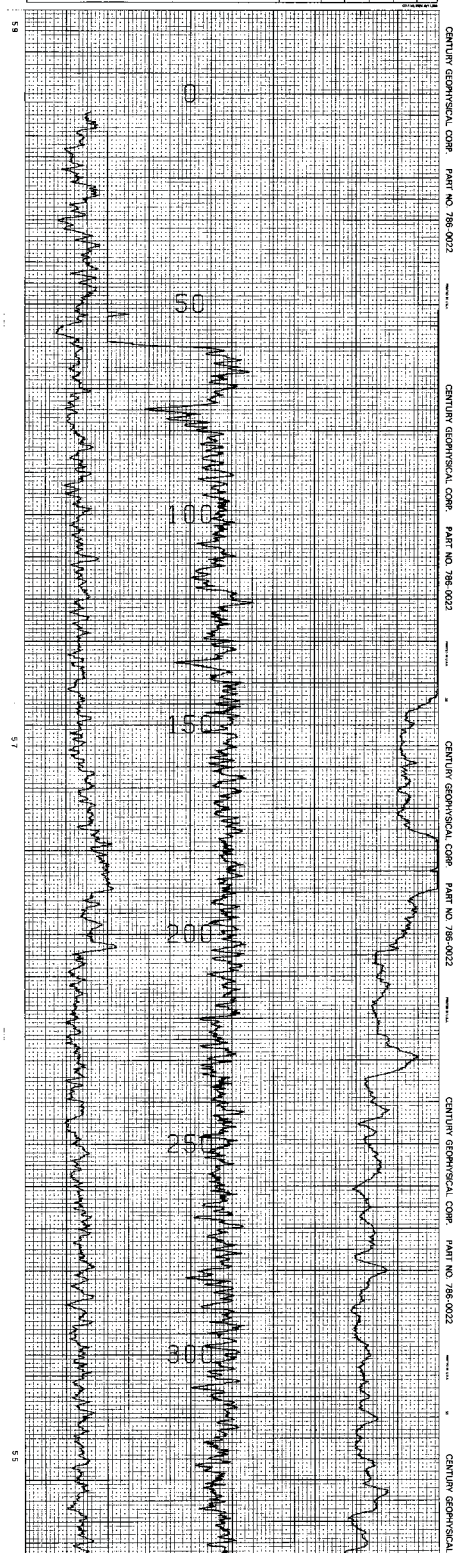
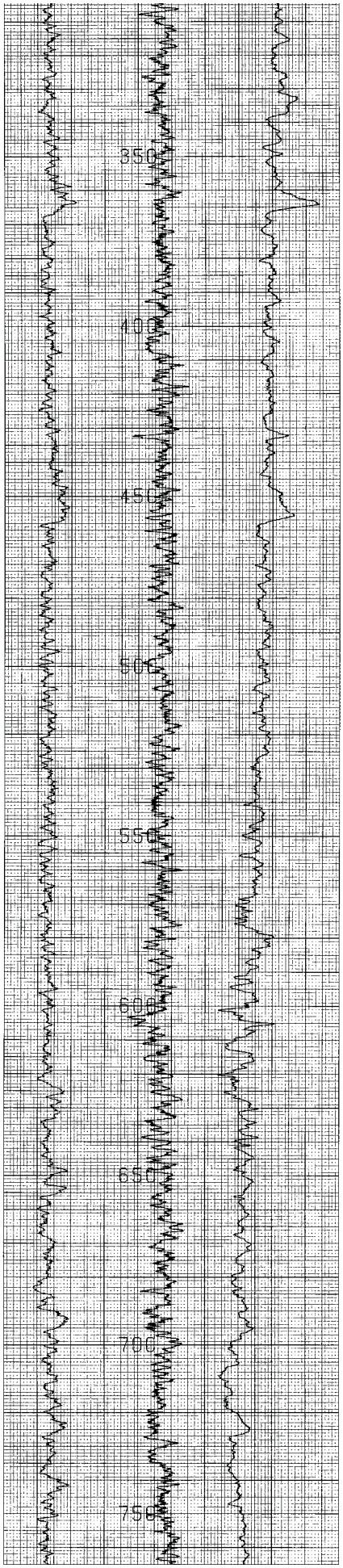
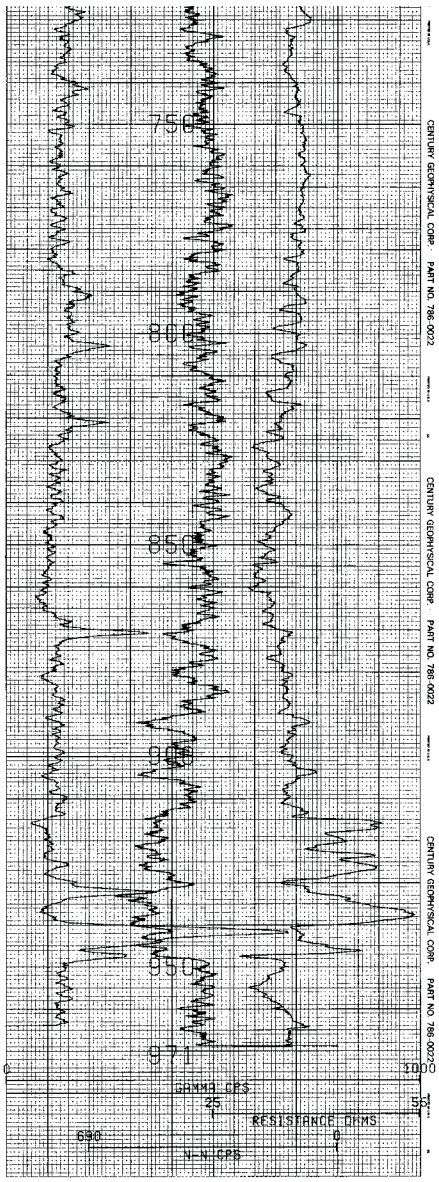

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
N 429461
E 1131286
COMPANY: FERRET EXPLORATION 24,3'6,103°
WELL: M-363
FIELD: MARSLAND
ELEVATION: 4120 4113.3
COUNTY: DAWES
STATE: NEB
SEC: 20 TWP: 29N RGE: 50W
HOLE DATA
TOTAL DEPTH — DRILLER: 970'
TOTAL DEPTH — LOGGER: 971'
TOTAL FOOTAGE LOGGED: 971'
LOGGING SPEED: 60/MIN
REFERENCE LEVEL: SURFACE
PROBE NO.: ROSSI 247
SURVEY BEFORE: 01
SURVEY AFTER: 01
BIT SIZE: 5 7/8"
CASING — TYPE & SIZE:
CASING DEPTH:
BOREHOLE FLUID: MUD/H2O
FLUID RESISTIVITY:
SOFTWARE LEVEL: 32.28A
REMARKS:
200' E of M-323
0150-1025
EQUIPMENT DATA
M-363
11-20-85
HALSMALL
TAPPER


CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
58
57
55
0
50
100
150
200
250
300


CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
53
51
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750


CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
49
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
1000
GAMMA CPS
25
0
RESISTANCE OHMS
50
0
690
N. N. CPS

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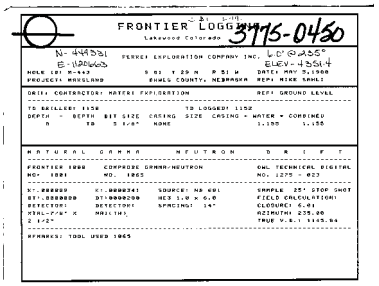
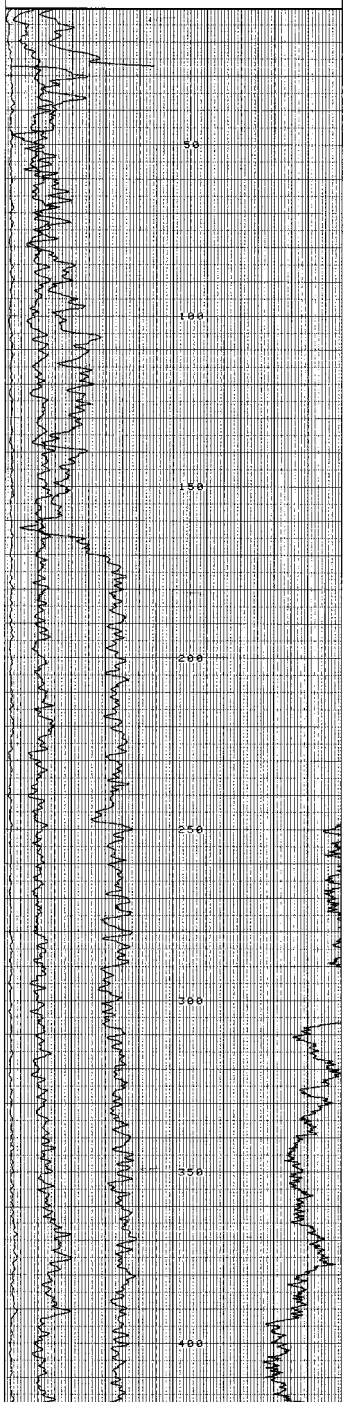
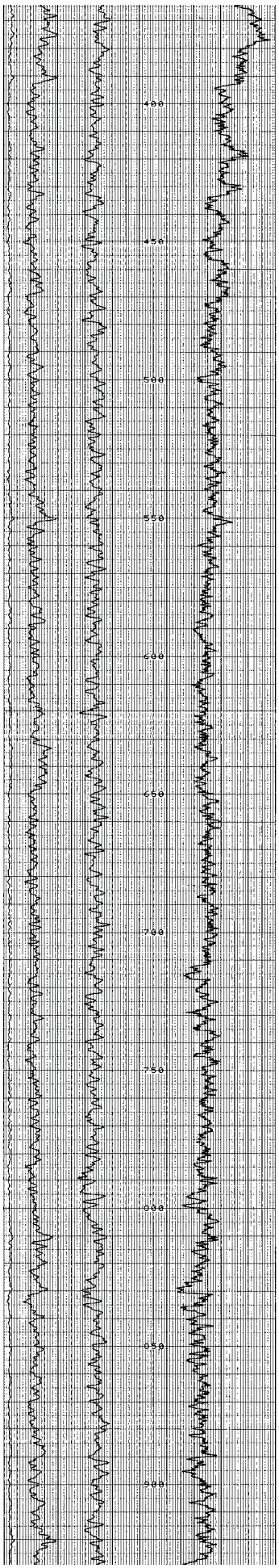
CROW BUTTE RESOURCES, INC.

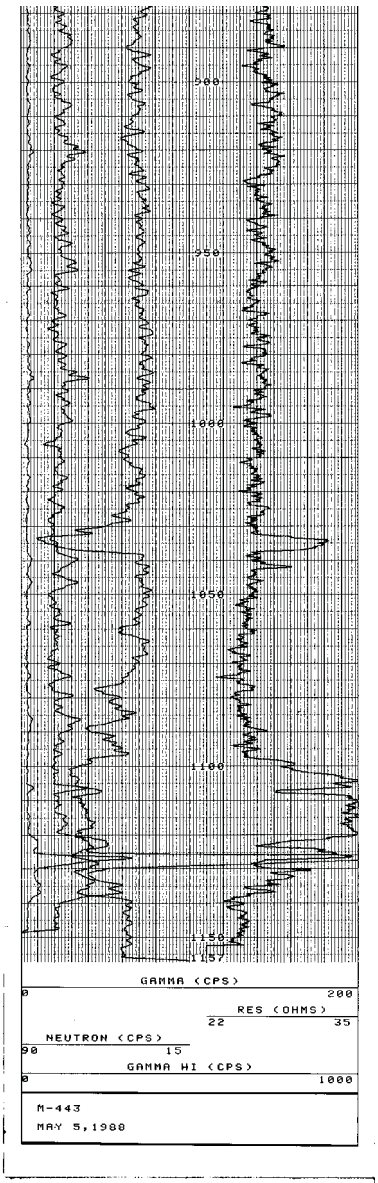
LOG M-363

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com









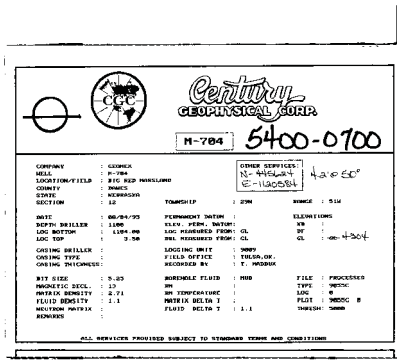
GAMMA (CPS)
0 200
RES (OHMS)
22 35
NEUTRON (CPS)
90 15
GAMMA HI (CPS)
0 1000
M-443
MAY 5,1988

CROW BUTTE RESOURCES, INC.

LOG M-443

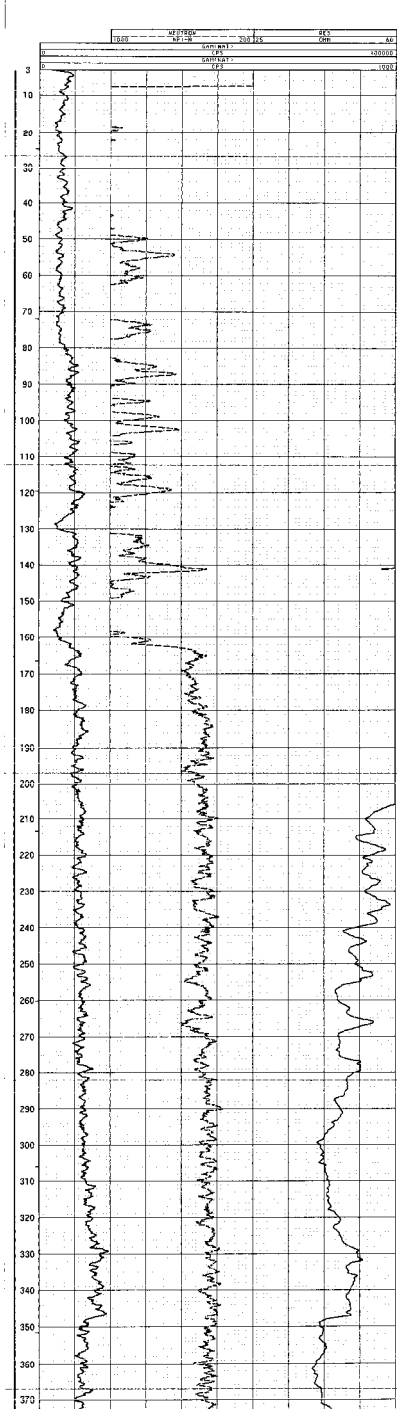
ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

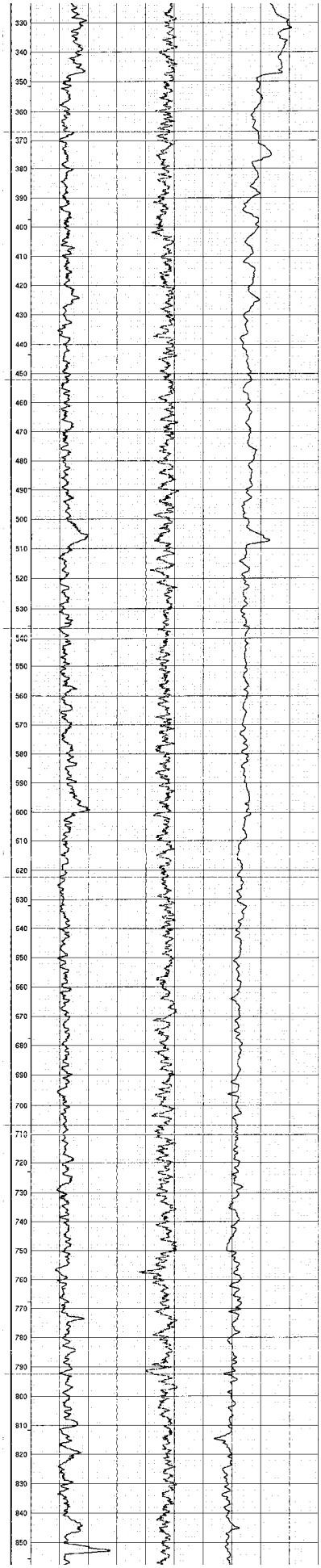
Source File Location: K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\LogFigures\ Formatted By: J.Chen @ Boulder, CO on 05/09/2012

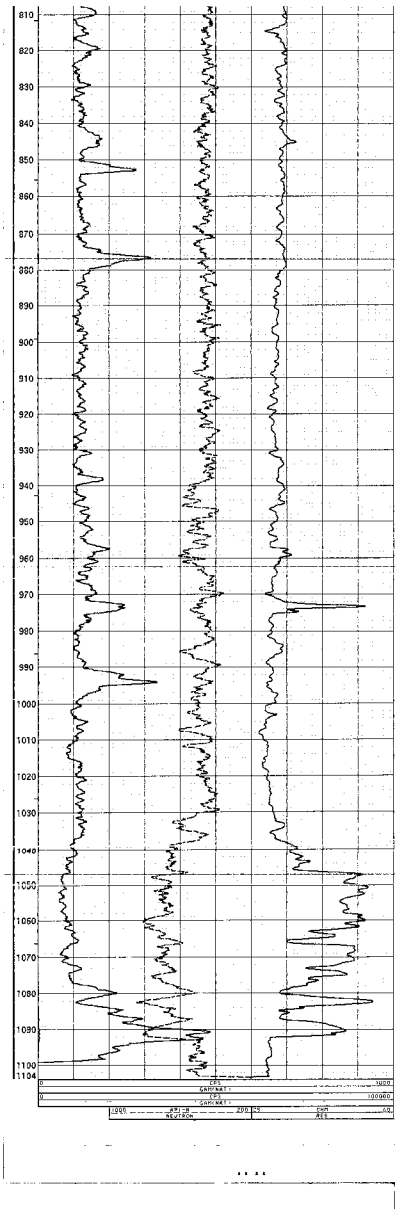

Century
GEOPHYSICAL CORP.
M-704 5400-0700

COMPANY	: CROMOX			OTHER SERVICES:	
WELL	: P-704			N-446584	
LOCATION/FIELD	: BIG RED MARSLAND			E-1420584	
COUNTY	: SHARP				
STATE	: NEBRASKA				
SECTION	: 18	TOWNSHIP	: 29N	RANGE	: 51W
DATE	: 08/24/93	PERMANENT DATUM	:	ELEVATIONS	
DEPTH DRILLER	: 1100	ELEV. PERM. DATUM:		KB	:
LOG BOTTOM	: 1104.00	LOG MEASURED FROM:	GL	DF	:
LOG TOP	: 3.50	DRL MEASURED FROM:	GL	GL	: 4304
CASING DRILLER	:	LOGGING UNIT	: 9009		
CASING TYPE	:	FIELD OFFICE	: TULSA,OK.		
CASING THICKNESS:		RECORDED BY	: T. MADDUX		
BIT SIZE	: 5.83	BOREHOLE FLUID	: MUD	FILE	: PROCESSED
MAGNETIC DECL.	: 13	RM	:	TYPE	: 9600C
MATRIX DENSITY	: 2.71	RM TEMPERATURE	:	LOG	: 6
FLUID DENSITY	: 1.1	MATRIX DELTA T	:	PLOT	: 9600C 8
NEUTRON MATRIX	:	FLUID DELTA T	: 1.1	THRESH:	5000
REMARKS	:				

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS







CROW BUTTE RESOURCES, INC.

LOG M-704

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

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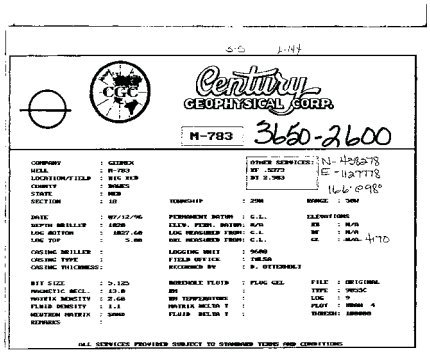

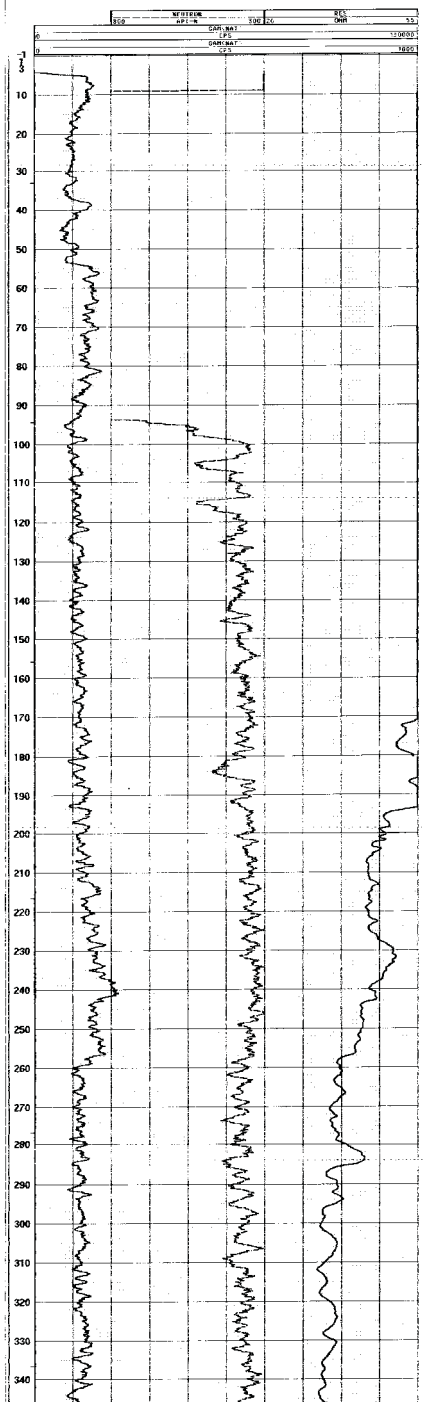

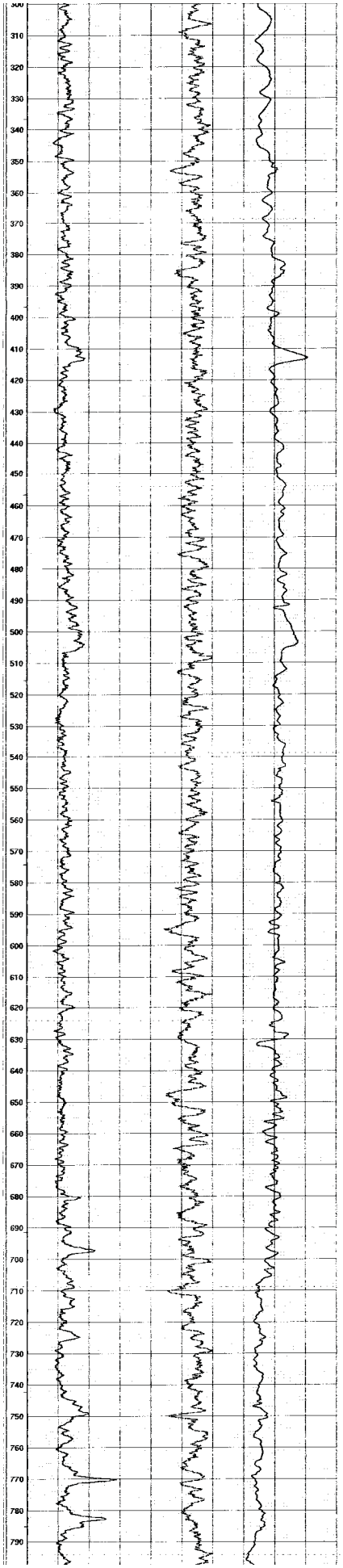

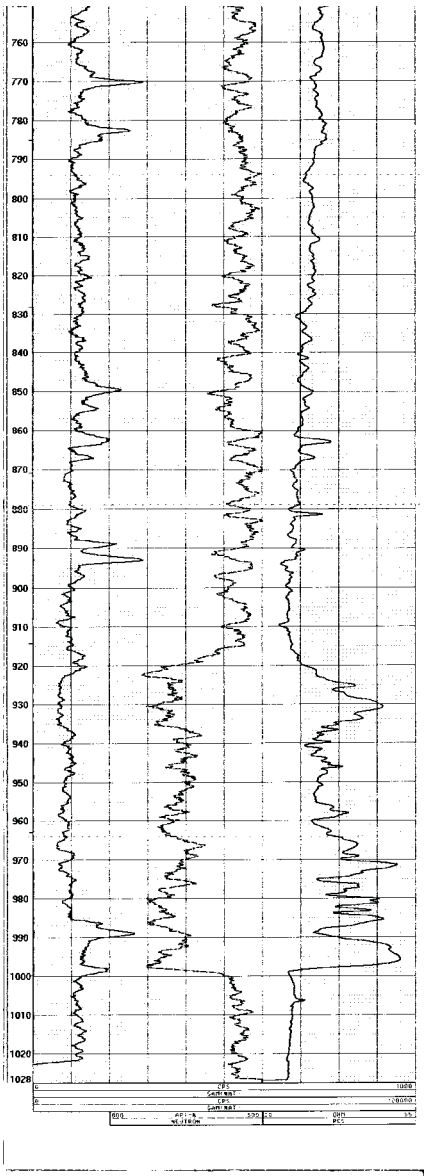

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CROW BUTTE RESOURCES, INC.

LOG M-783

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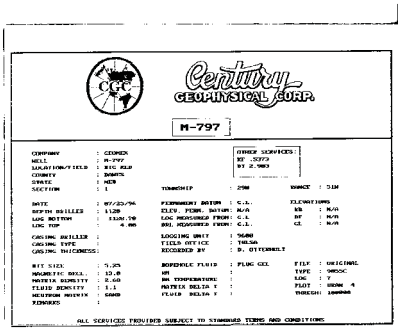

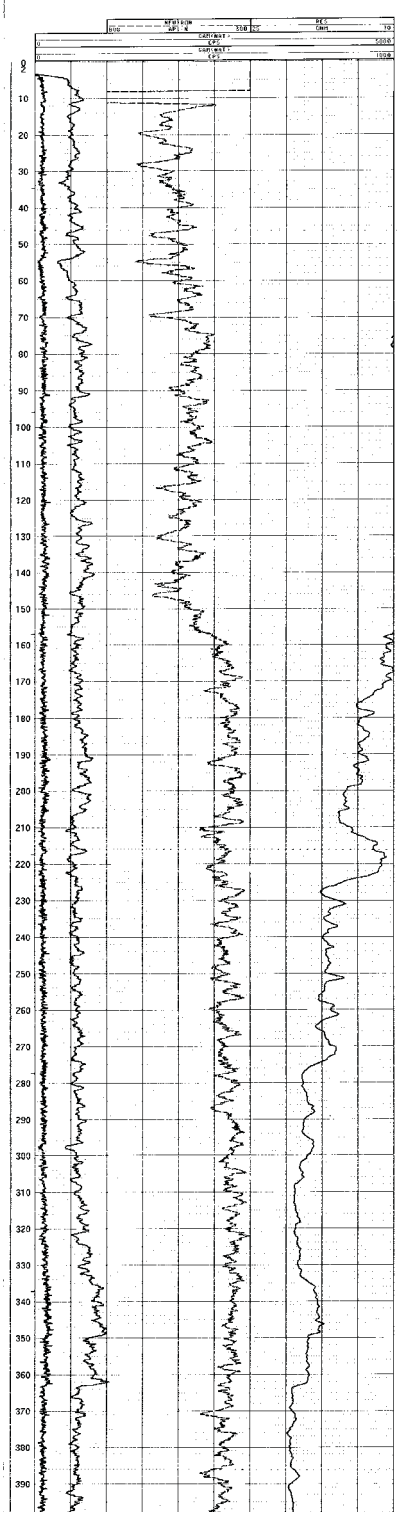

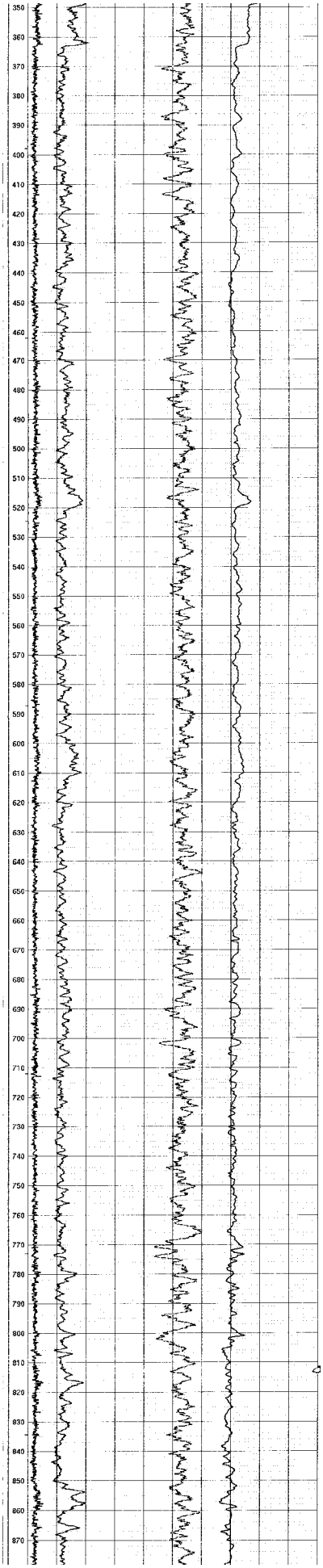

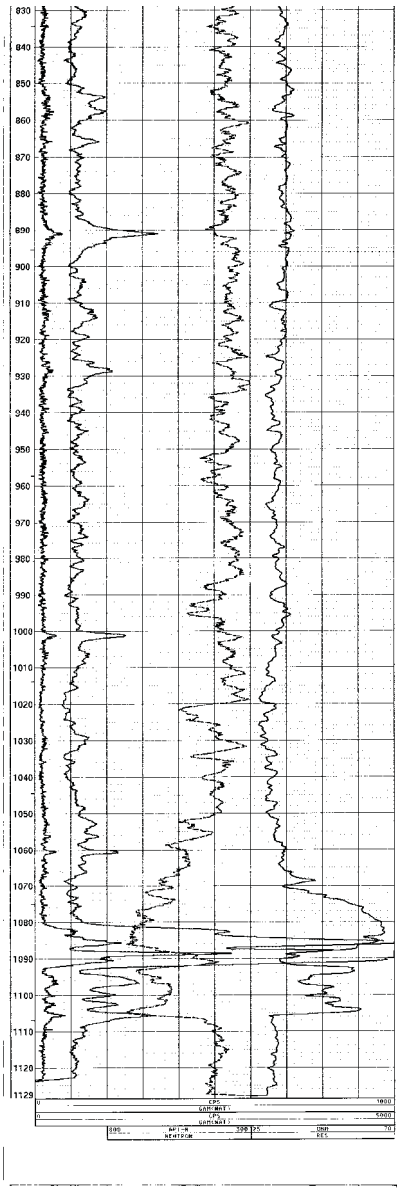

CROW BUTTE RESOURCES, INC.

LOG M-797

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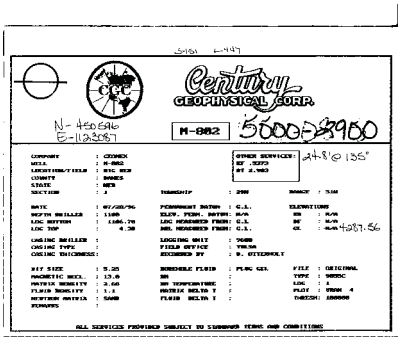

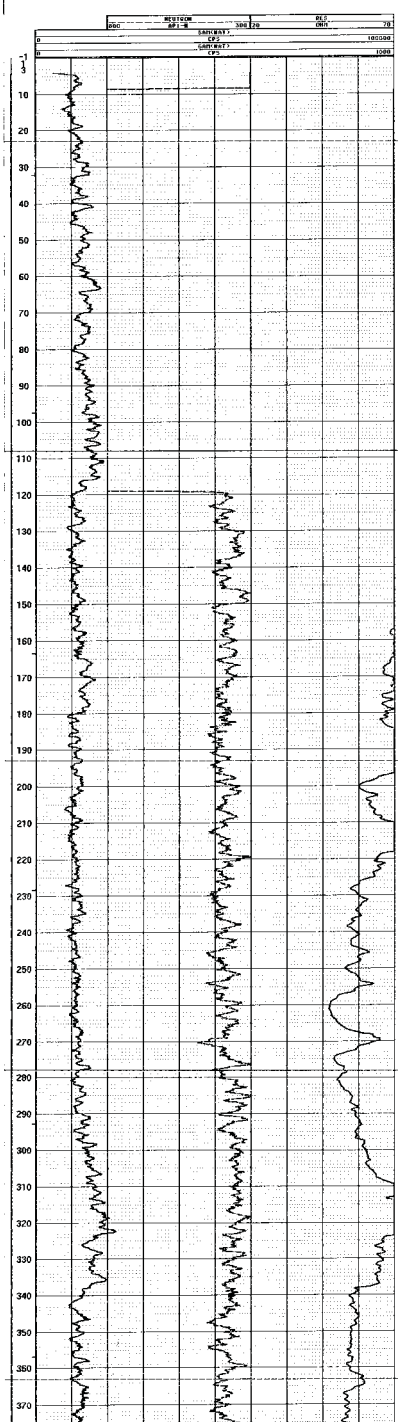

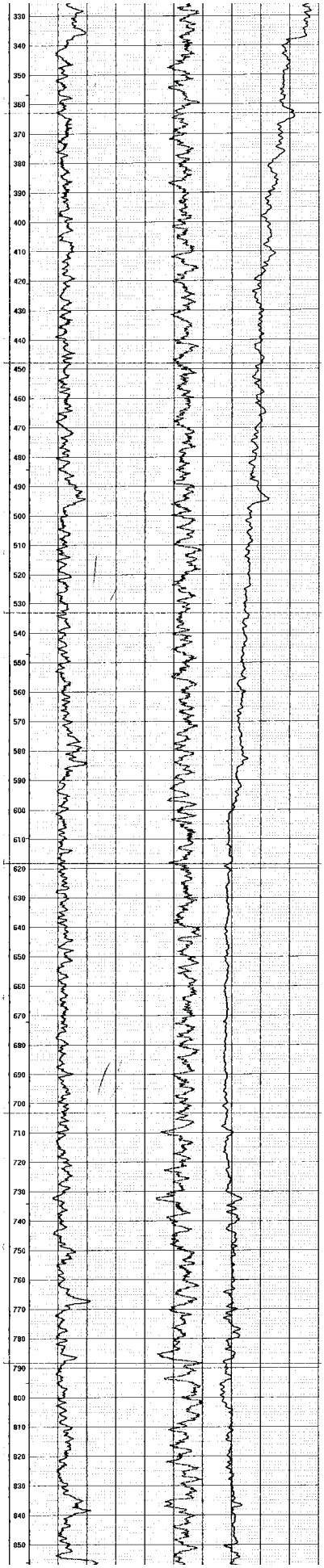

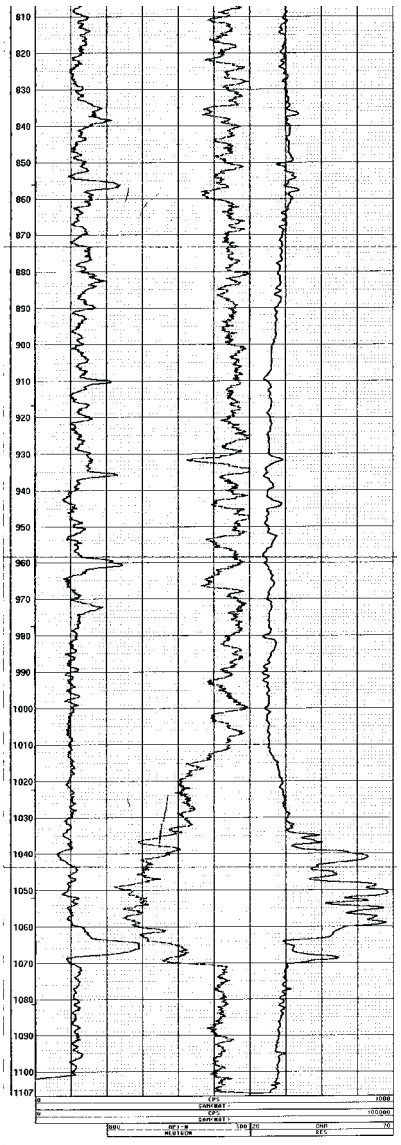

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LOG M-802

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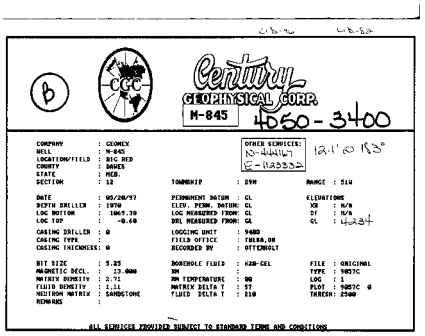

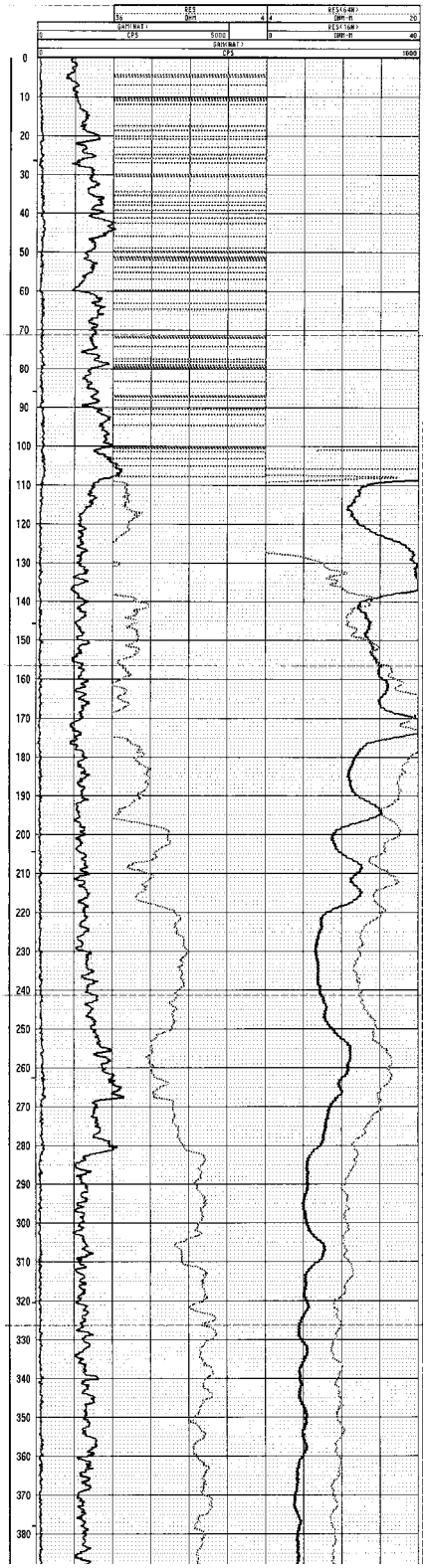

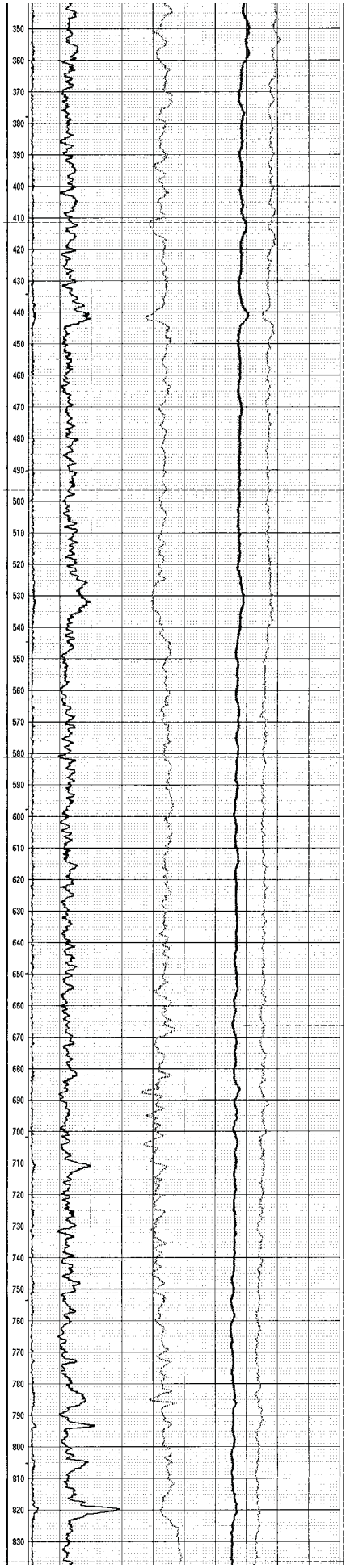

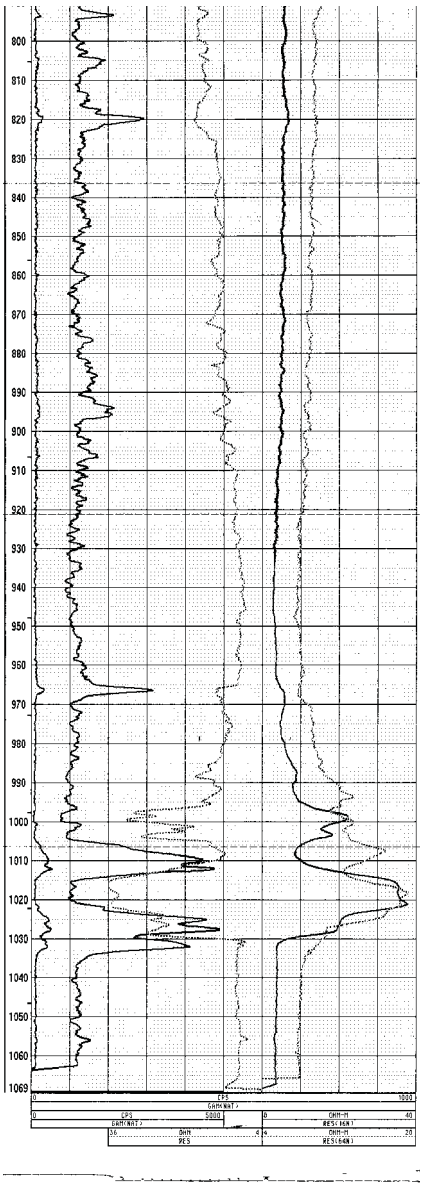

CROW BUTTE RESOURCES, INC.

LOG M-845

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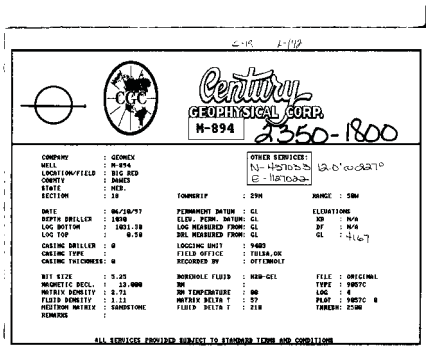

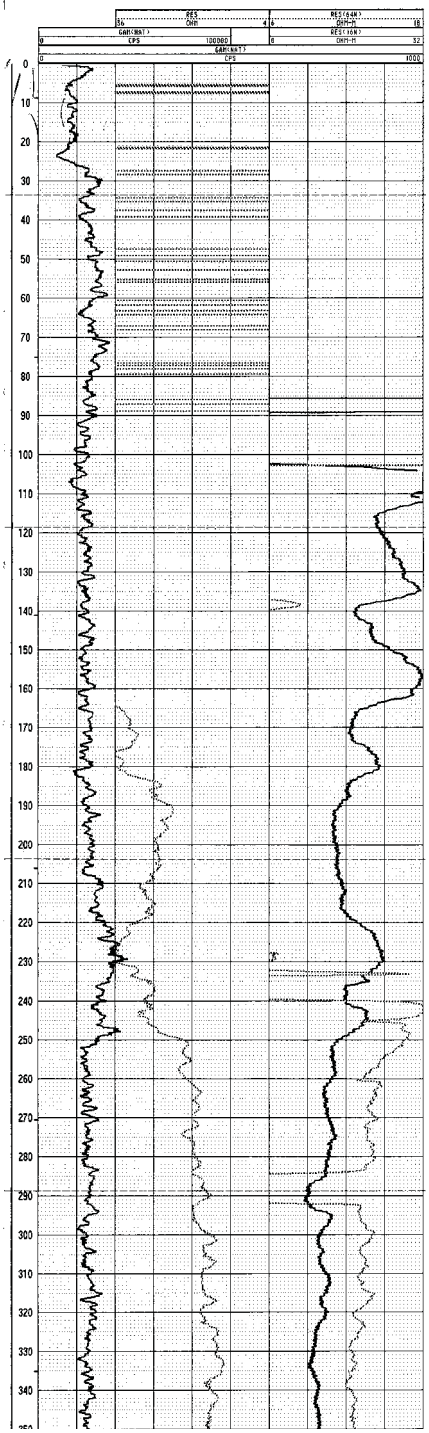

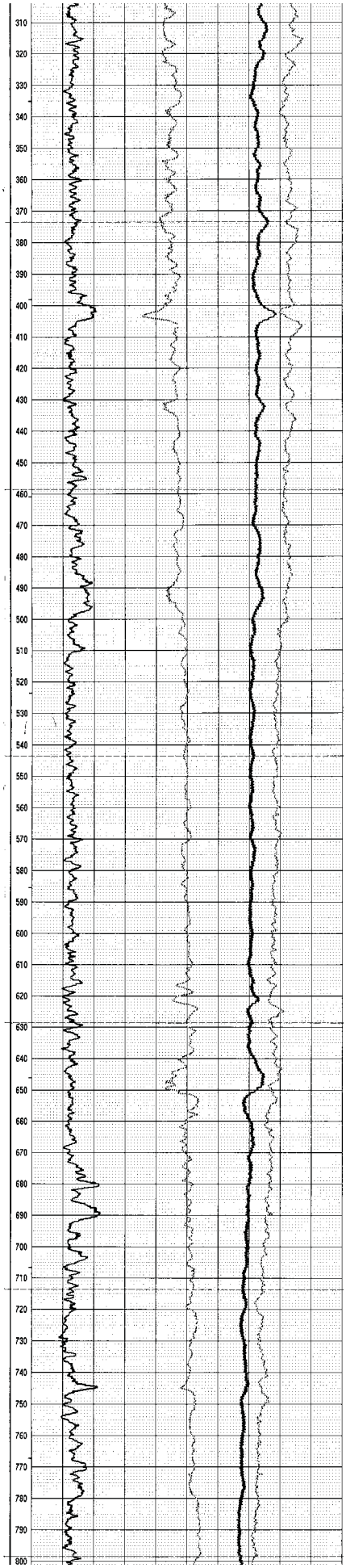

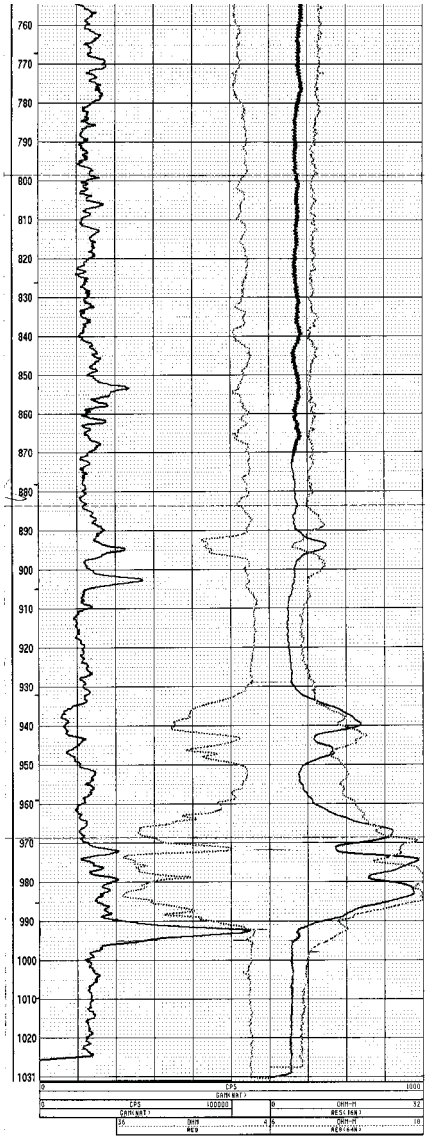

CROW BUTTE RESOURCES, INC.

LOG M-894

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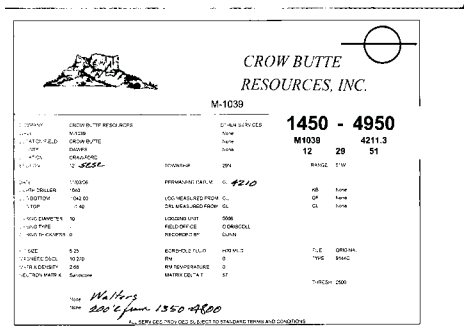

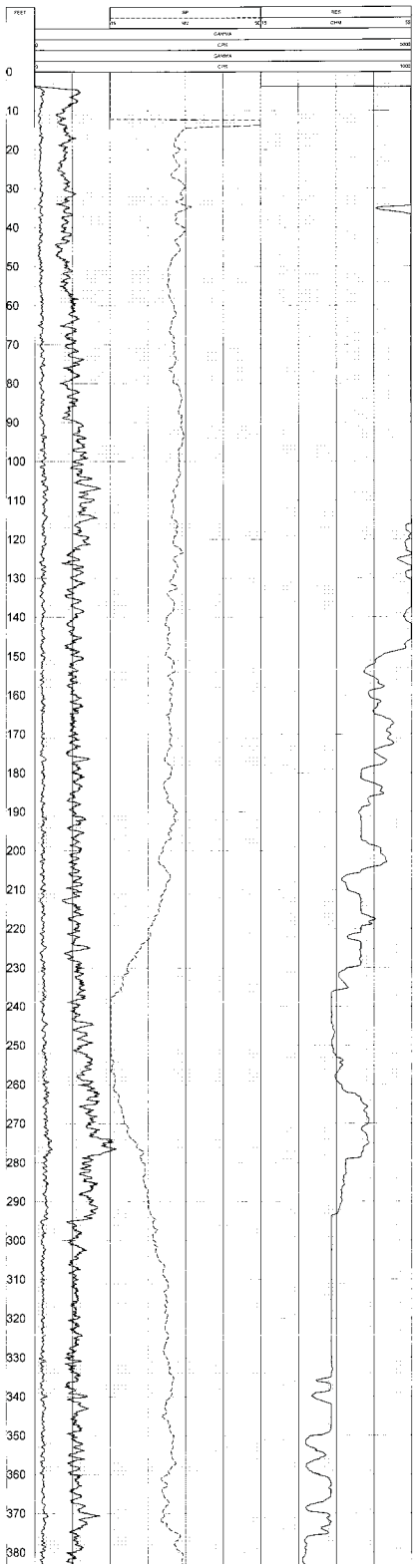

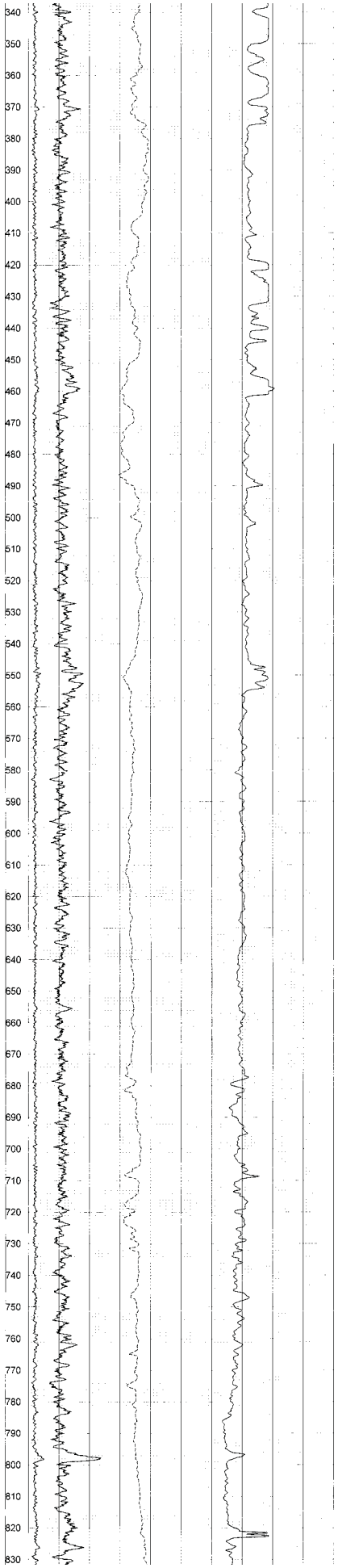

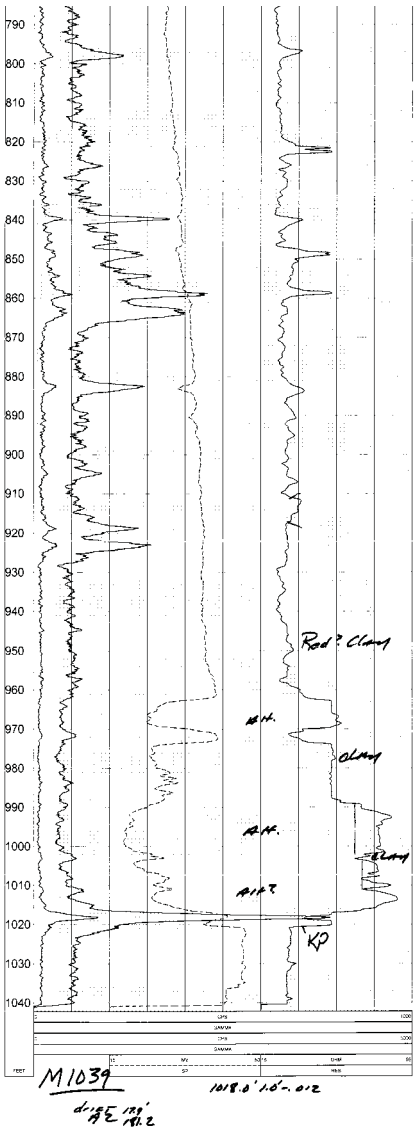

CROW BUTTE RESOURCES, INC.

LOG M-1039

ARCADIS
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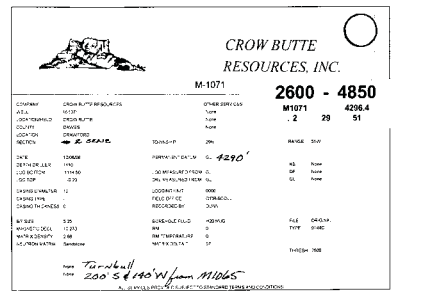

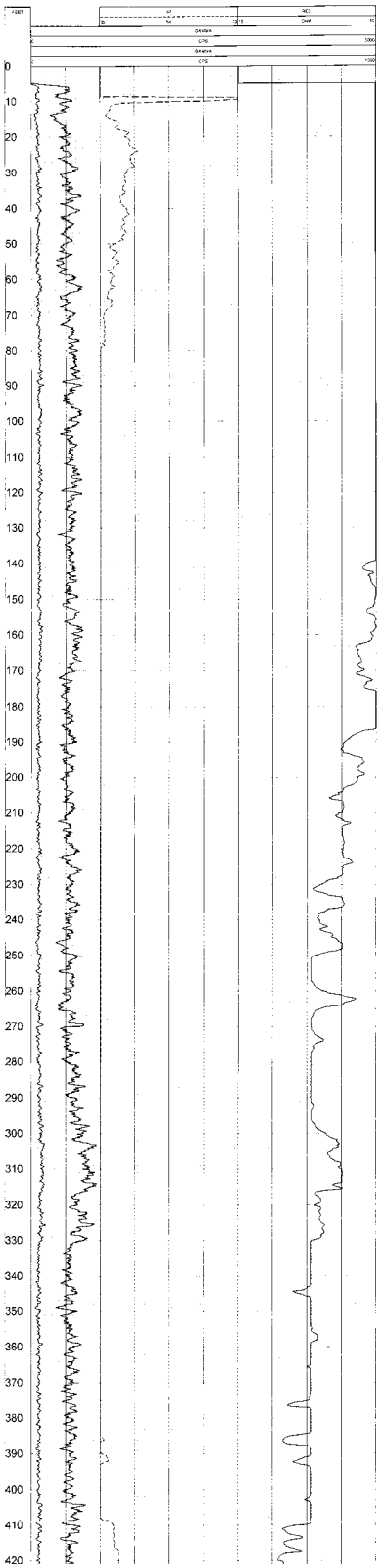

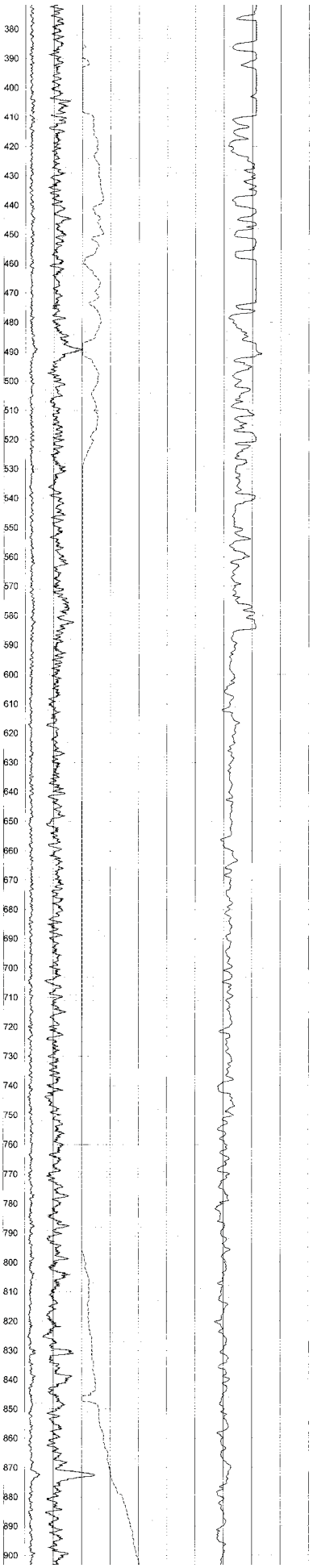

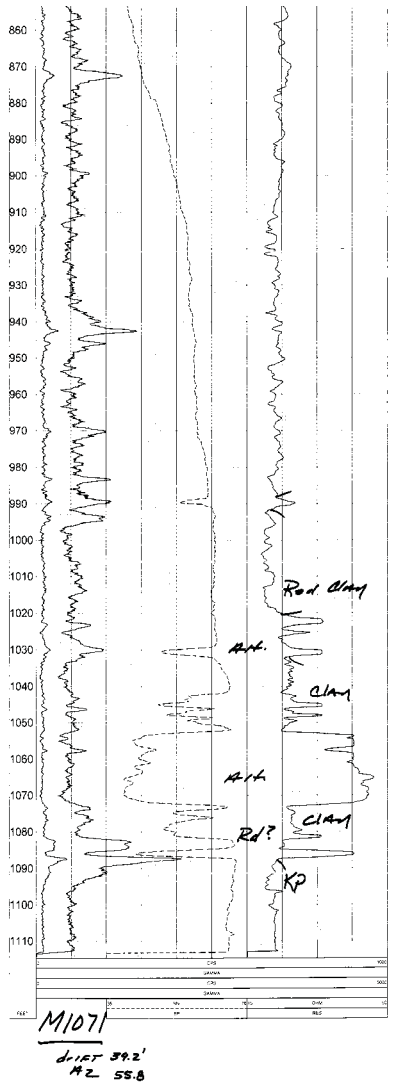

CROW BUTTE RESOURCES, INC.

LOG M-1071

ARCADIS
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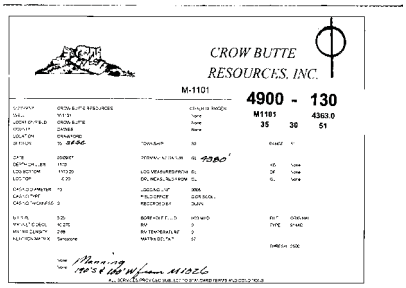

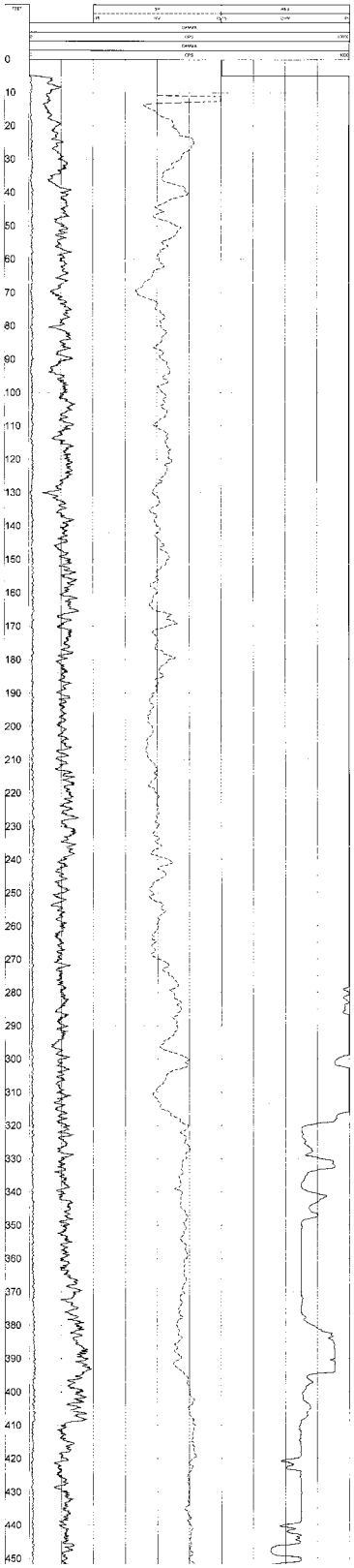

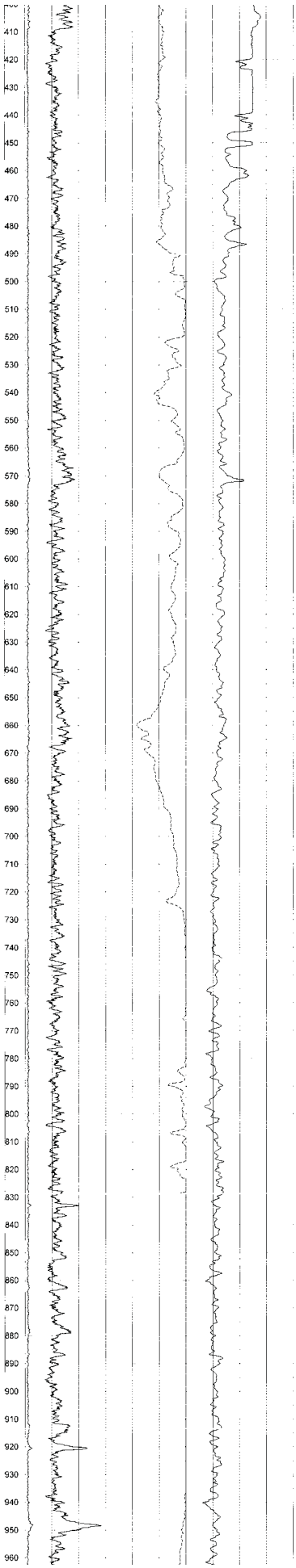

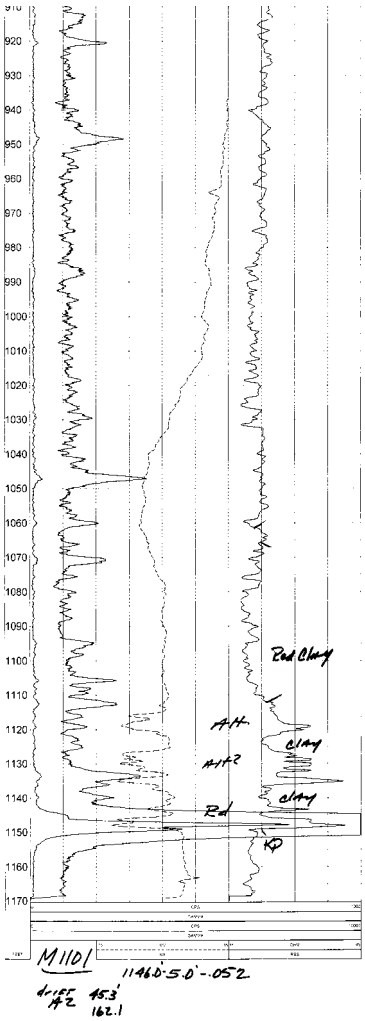

CROW BUTTE RESOURCES, INC.

LOG M-1101

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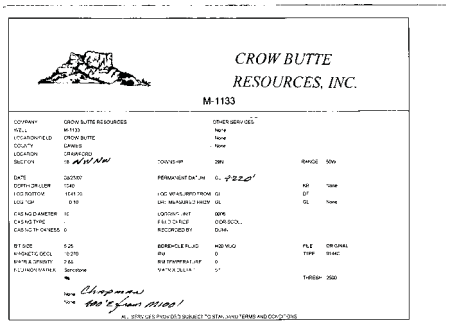

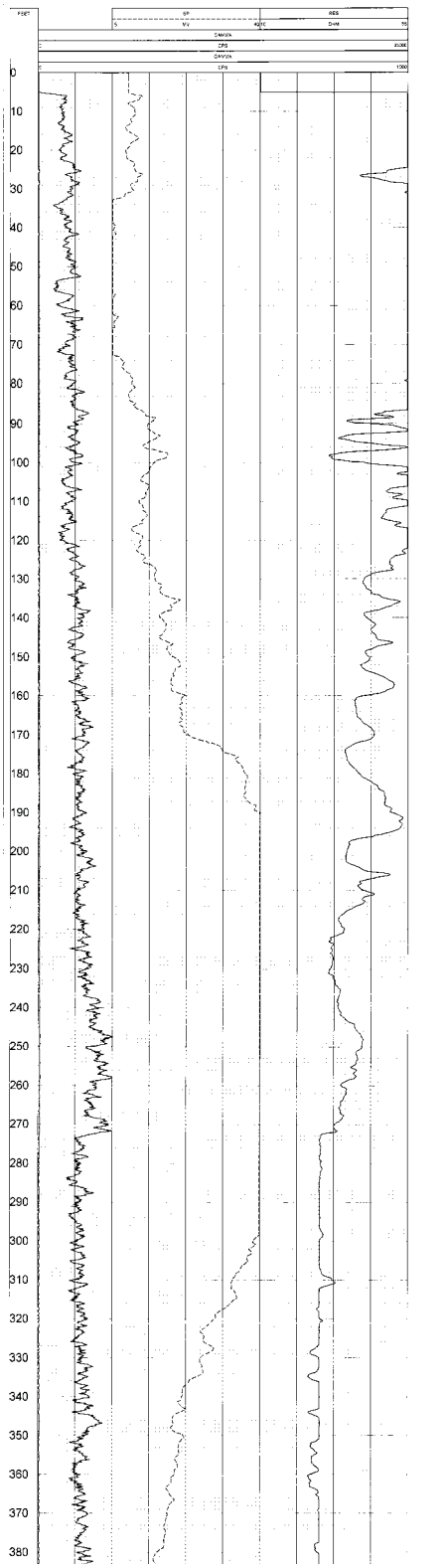

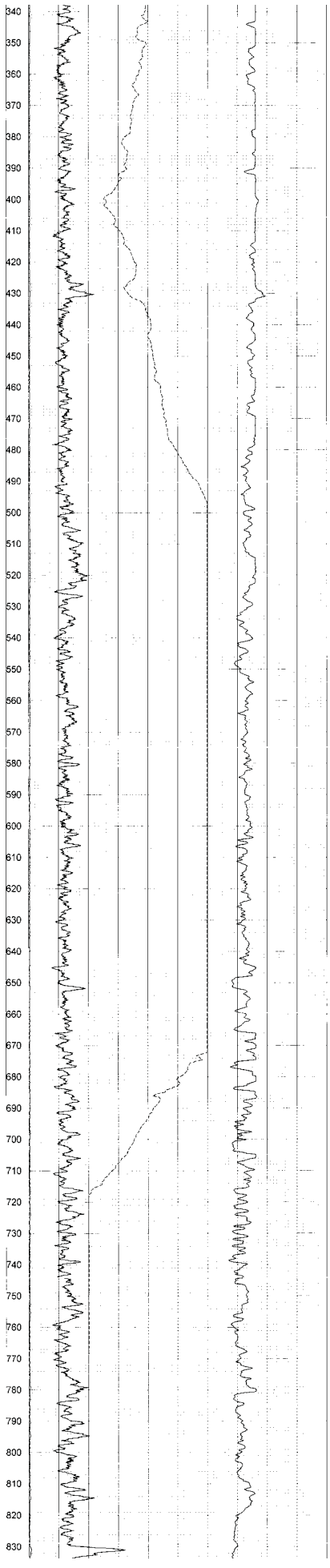

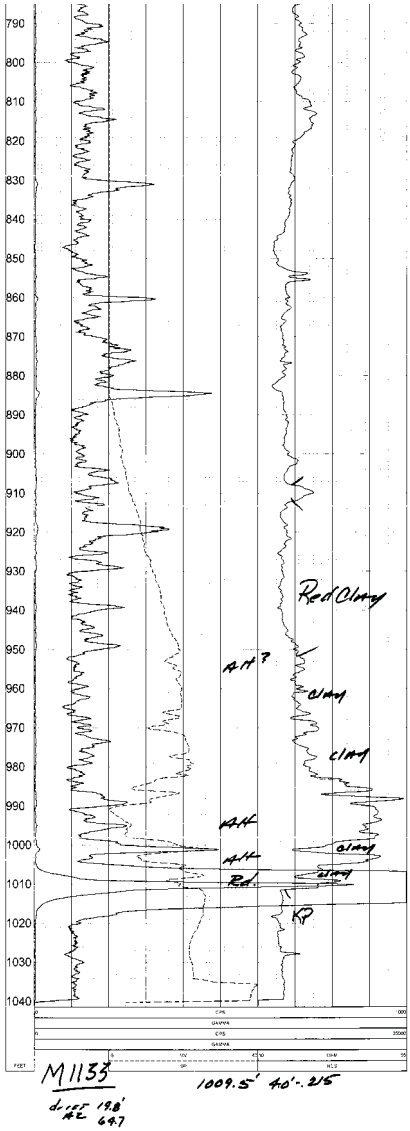

CROW BUTTE RESOURCES, INC.

LOG M-1133

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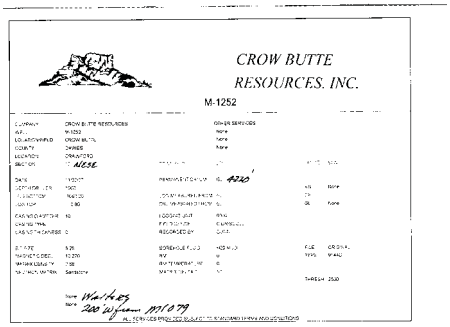

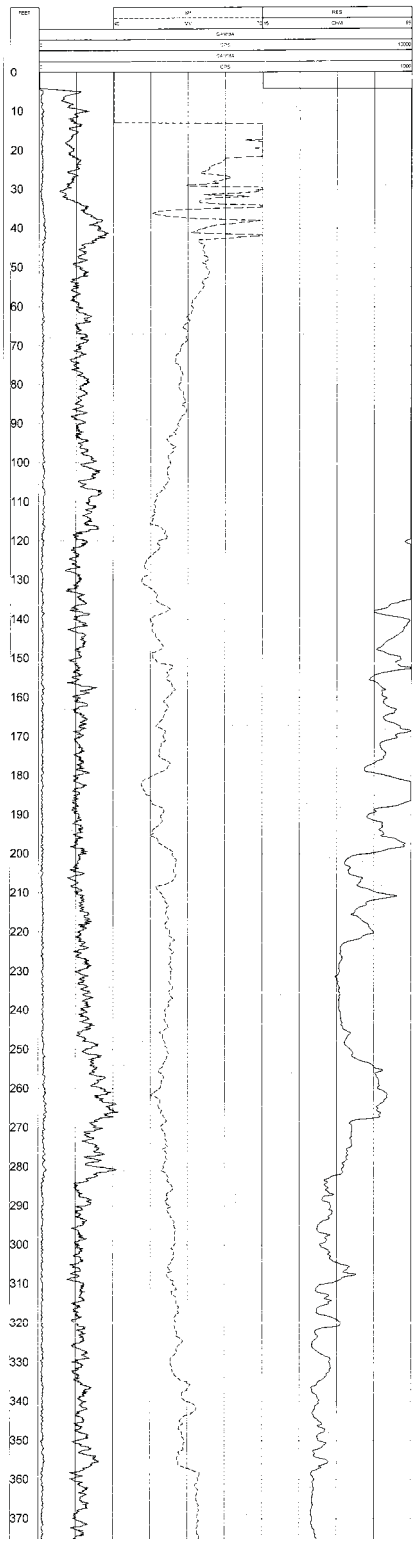

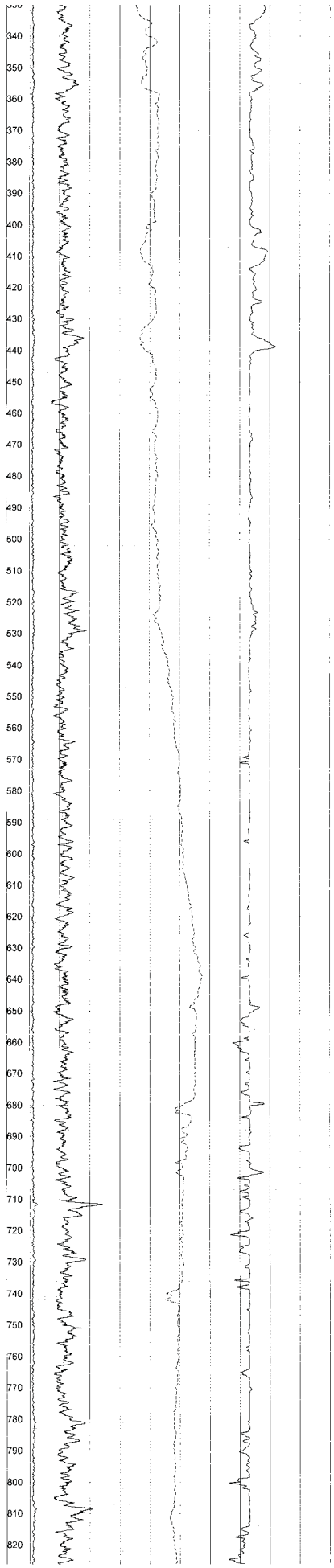

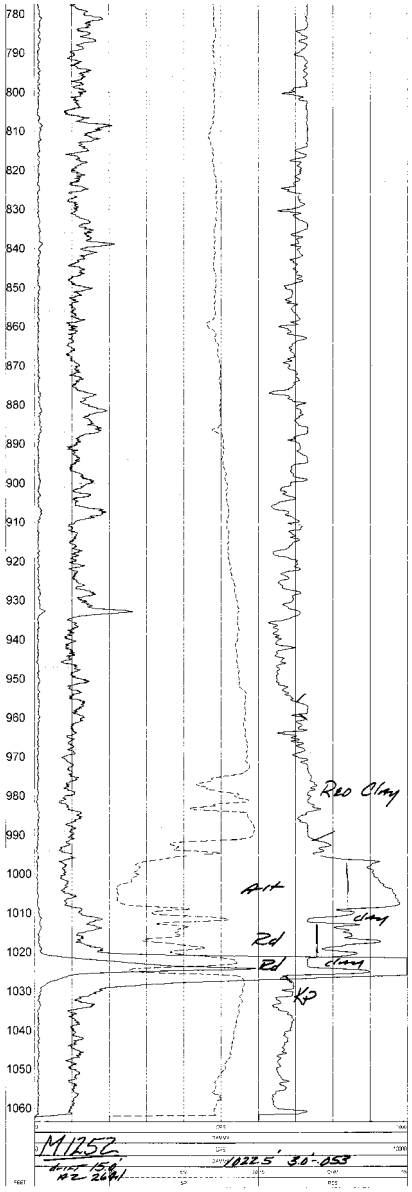

CROW BUTTE RESOURCES, INC.

LOG M-1252

ARCADIS
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Highlands Ranch, CO 80129
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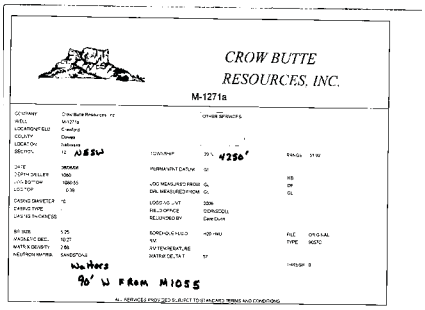
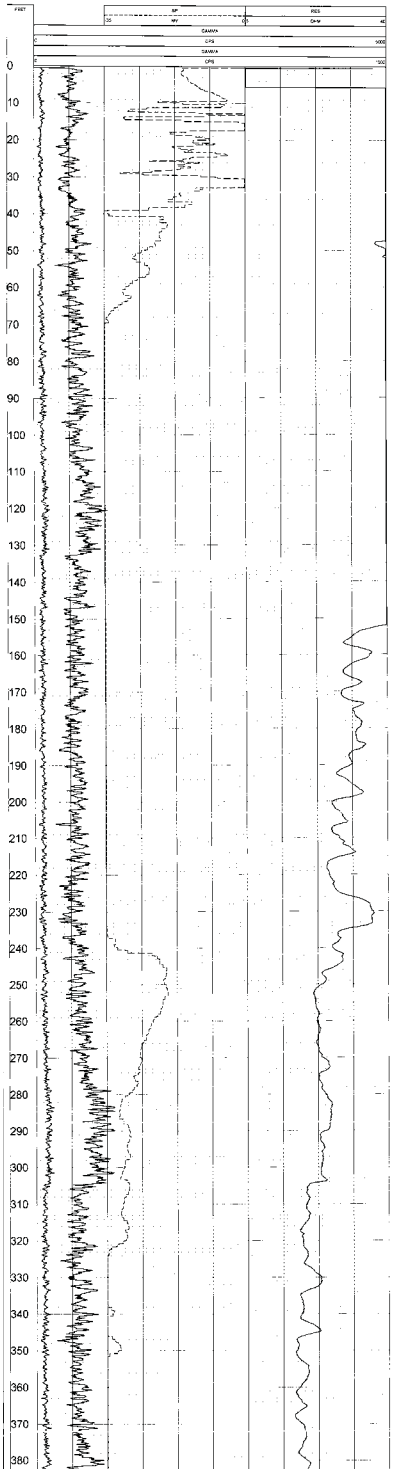
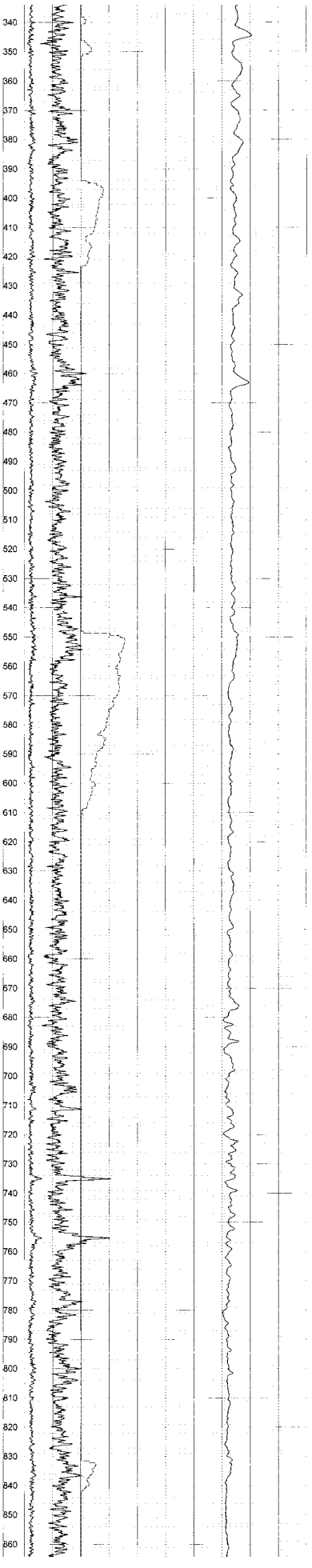
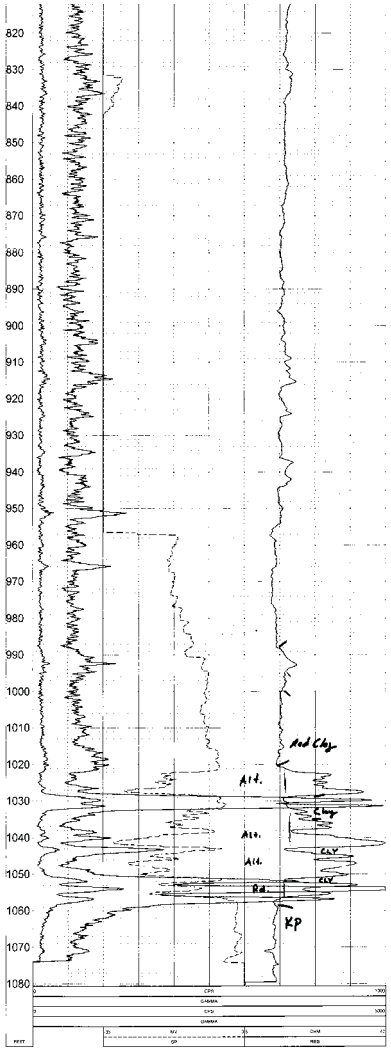

CROW BUTTE RESOURCES, INC.

M-1271a

Waters
90' W FROM M1055







M1271
Dist - 8.7'
A Bm - 100.6'

1030.6 - 1.6' - 0.01%
1032.0 - 1.0 - 0.013%
1034.0 - 1.5 - 0.01%

CROW BUTTE RESOURCES, INC.

LOG M-1271

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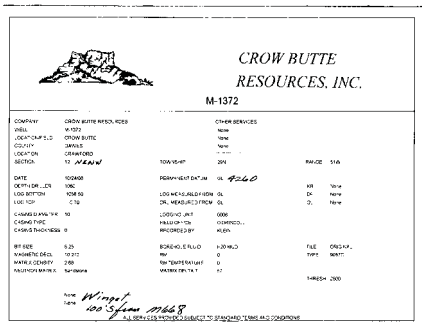

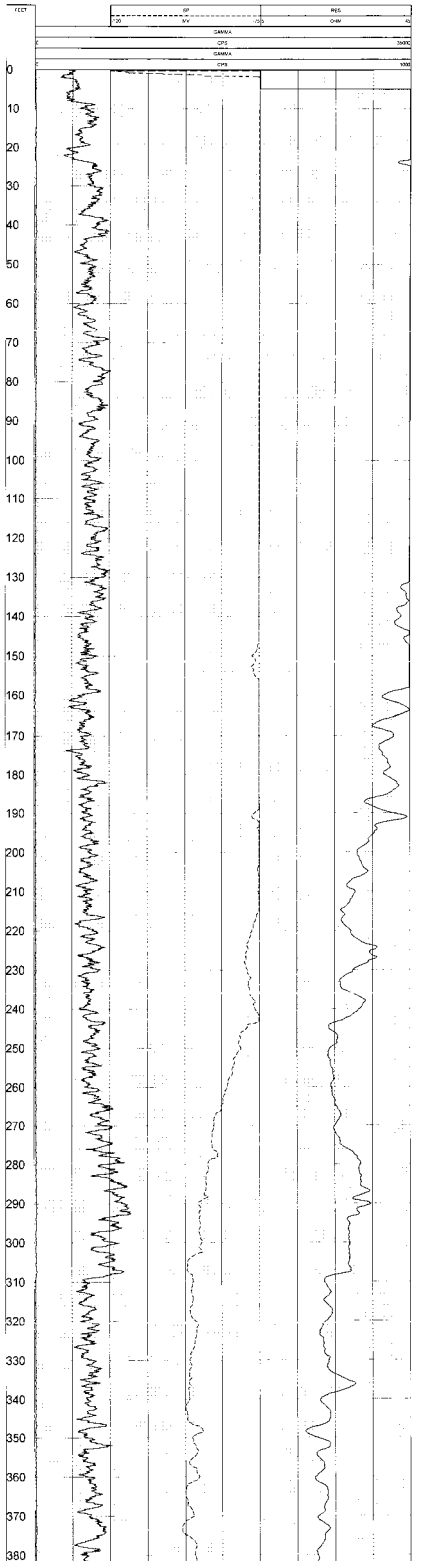

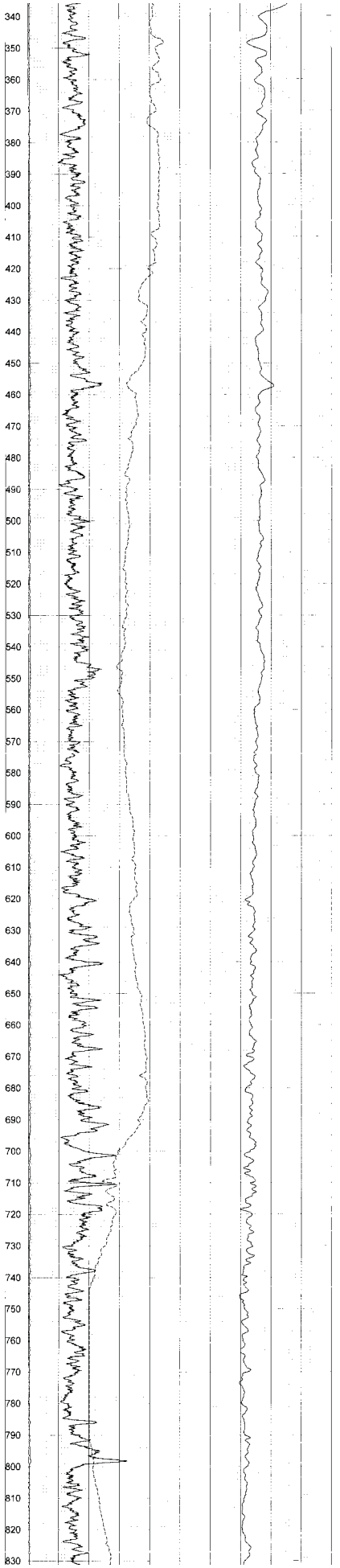

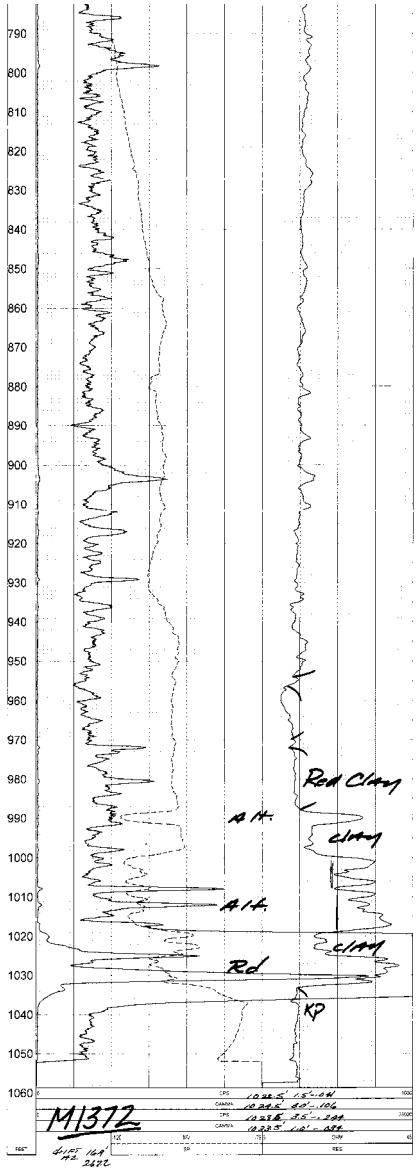

CROW BUTTE RESOURCES, INC.

LOG M-1372

ARCADIS
630 Plaza Drive, Ste. 100
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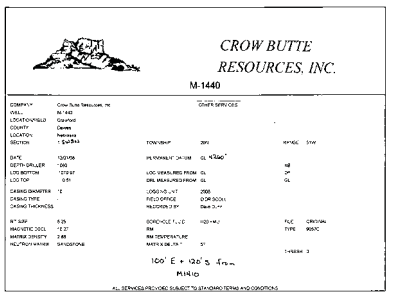

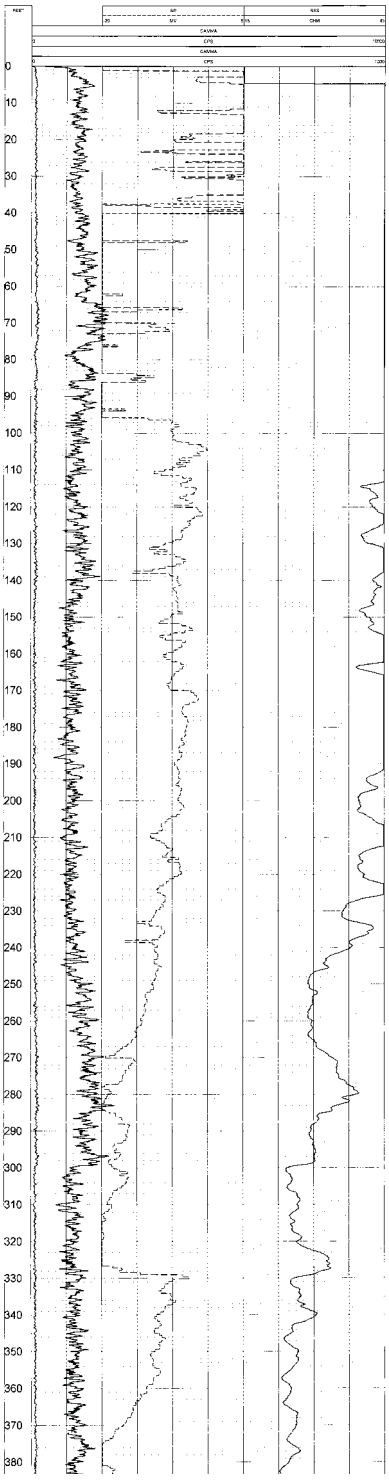

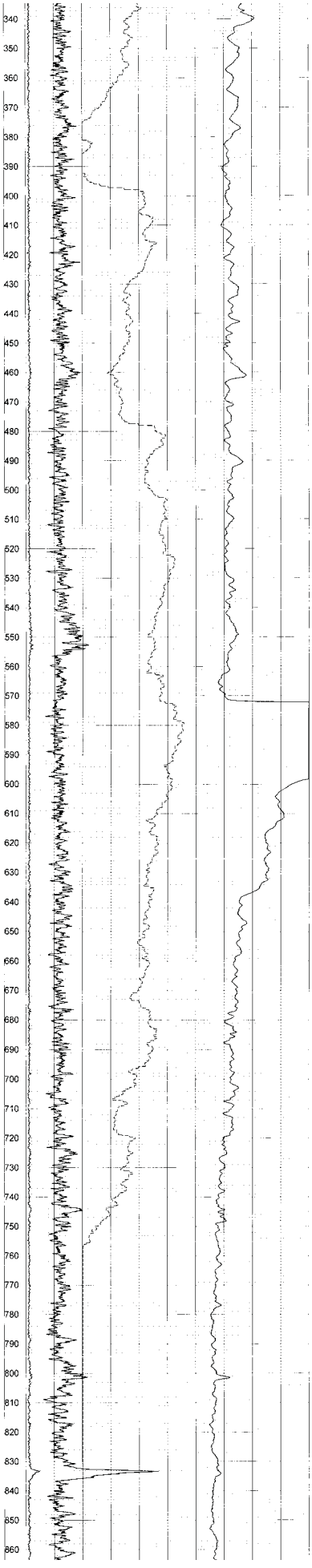

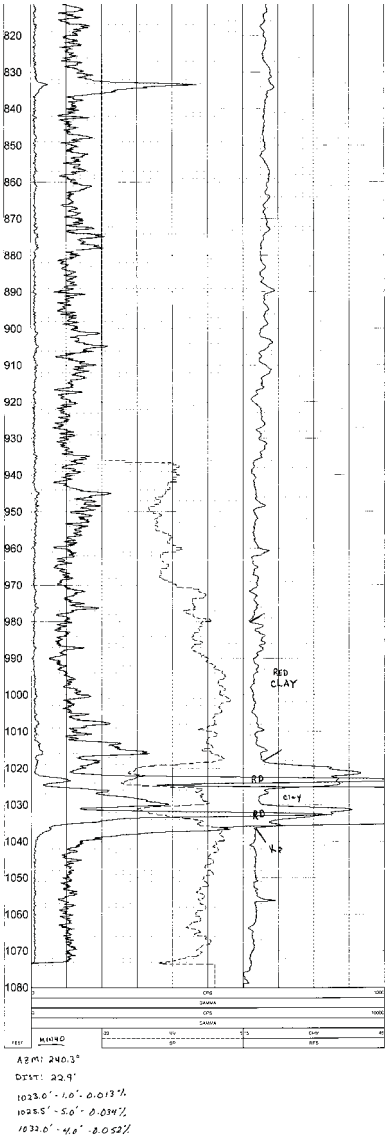

CROW BUTTE RESOURCES, INC.

LOG M-1440

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
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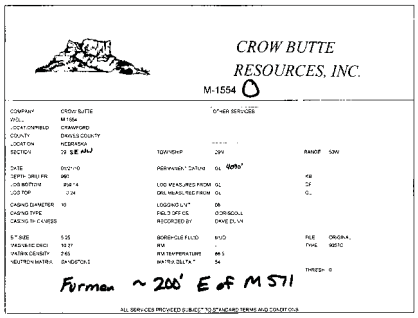

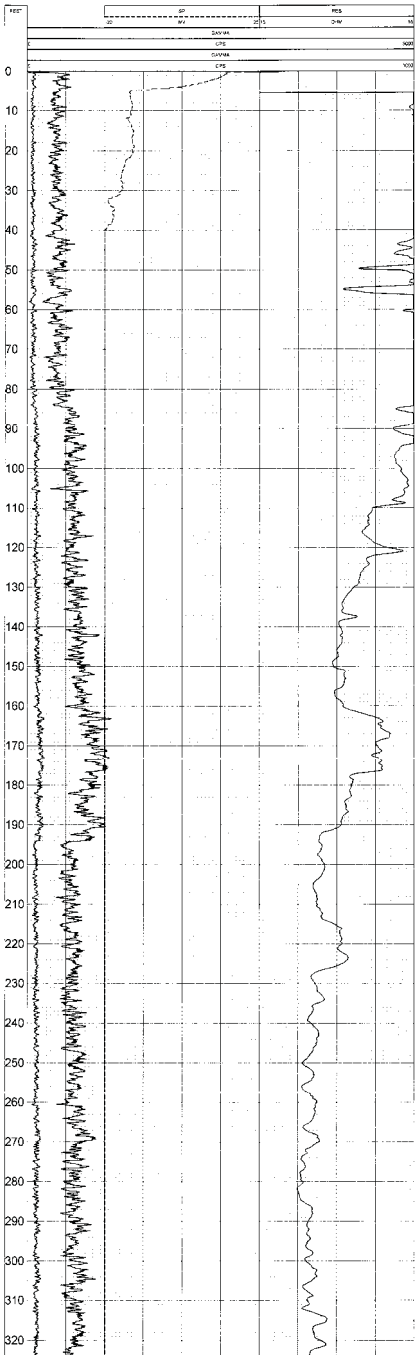

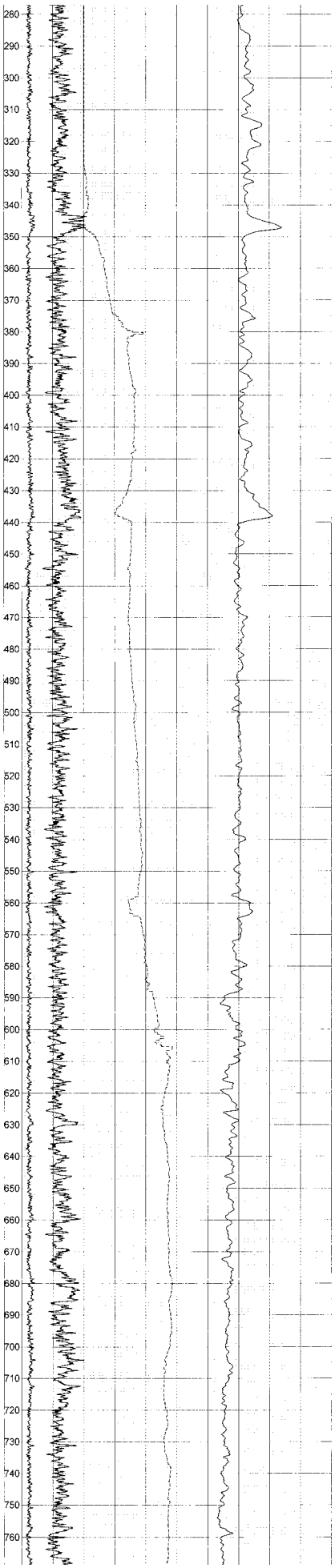

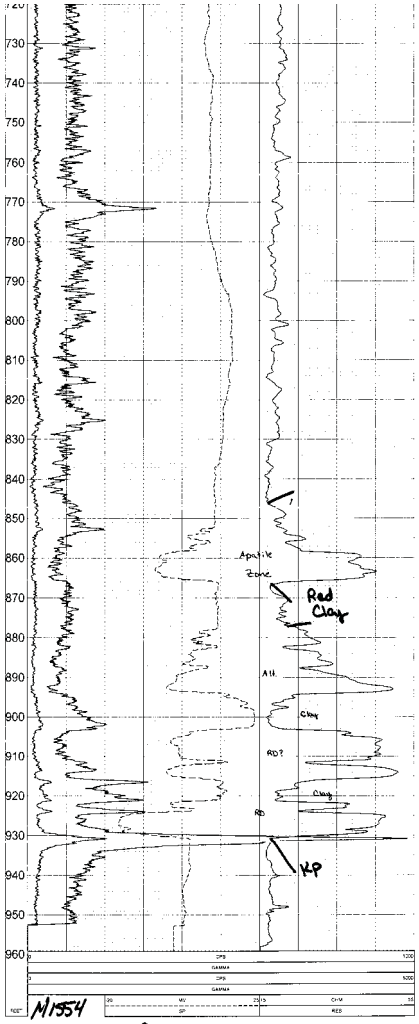

AZM: 149.5°
DIST: 30.6'

CROW BUTTE RESOURCES, INC.

LOG M-1554

ARCADIS
630 Plaza Drive, Ste. 100
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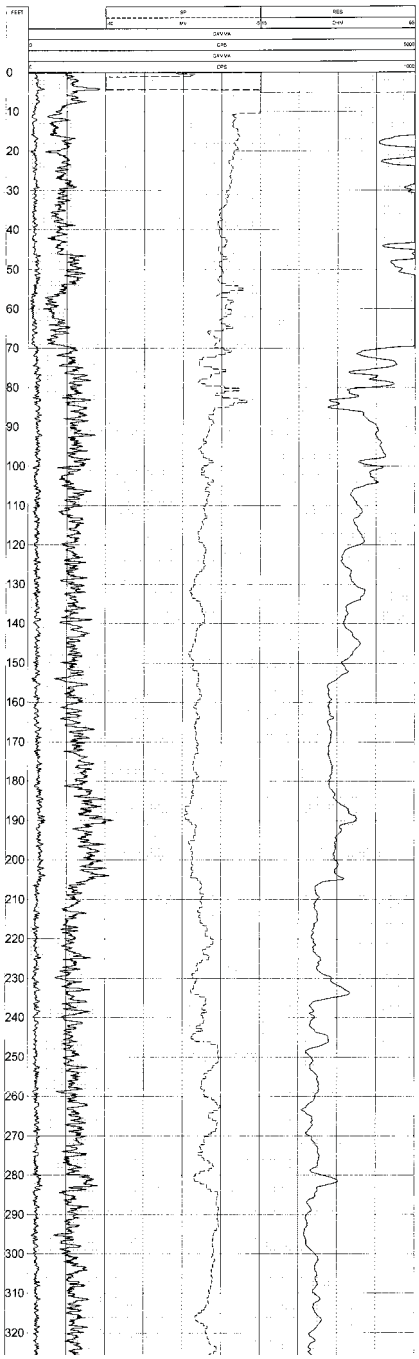
CROW BUTTE RESOURCES, INC.

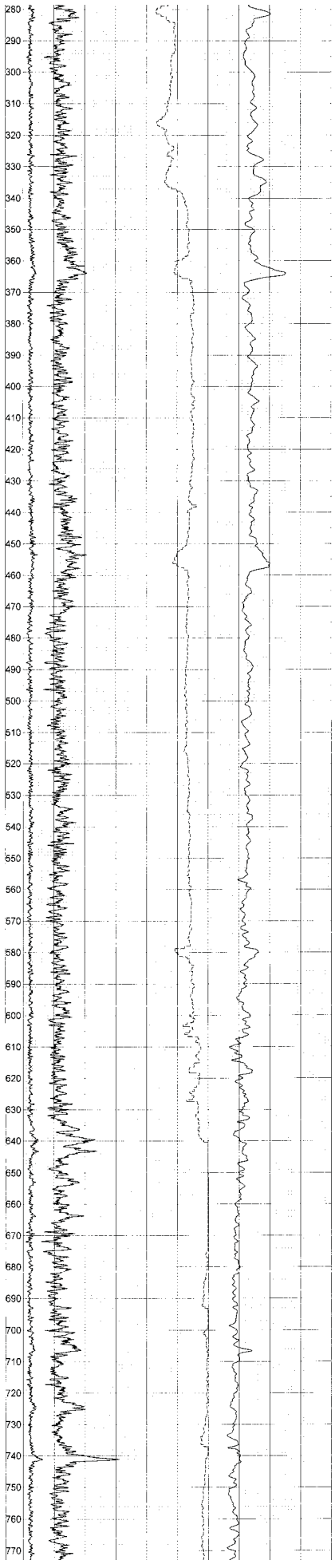
M-1563

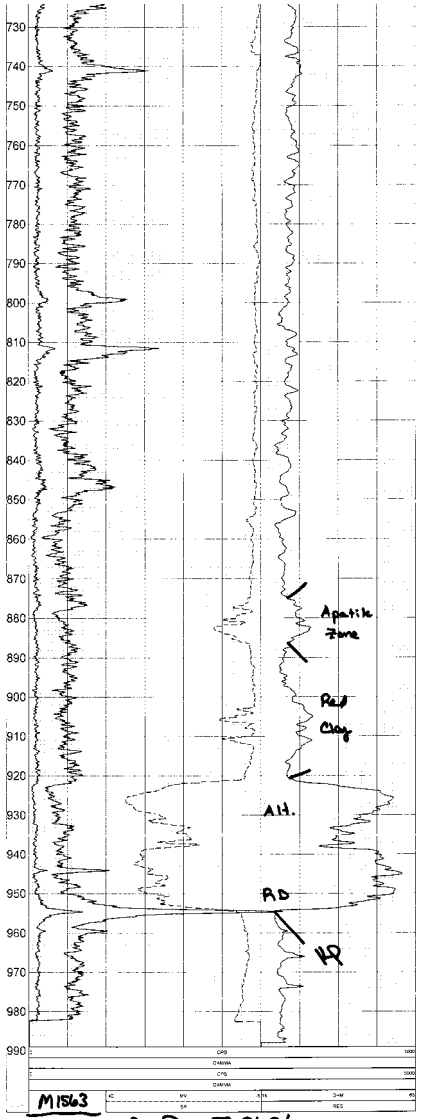
COMPANY	CROW BUTTE	OTHER SERVICES	
WELL	M-1563		
LOCATION/F.L.O.	CRAWFORD		
COUNTY	DAWES COUNTY		
LOCATION	NEBRASKA		
SECTION	30 NE¼	TOWNSHIP 29N	RANGE 50W
DATE	01/25/12	PERMANENT DATUM GL 4140'	
DEPTH DRILLER	990		KB
LOG BOTTOM	988.89	LOG MEASURED FROM GL	DF
LOG TOP	0.13	DRL. MEASURED FROM GL	GL
CASING DIAMETER	10	LOGG NO.# 7	06
CASING TYPE		FIELD OFFICE	CHADRON
CASING THICKNESS		RECORDED BY	DAVE ELVIN
BIT SIZE	9.25	BOREHOLE FLUID	WBM
MAGNETIC DECL	10.31	BM	CPS
MATR & DENSITY	2.65	BM TEMPERATURE	66.5
NEUTRON MATRIX	SANDSTONE	MATR & DEL. R.*	54
			FILE ORIGINAL
			TYPE BOTH
			THRESH 0

Formon ~ 400' N from 1650 - 5175

ALL SERVICES ARE PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS







CROW BUTTE RESOURCES, INC.

LOG M-1563

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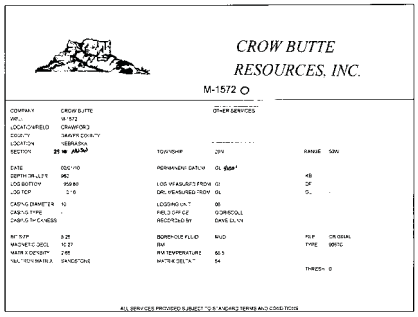
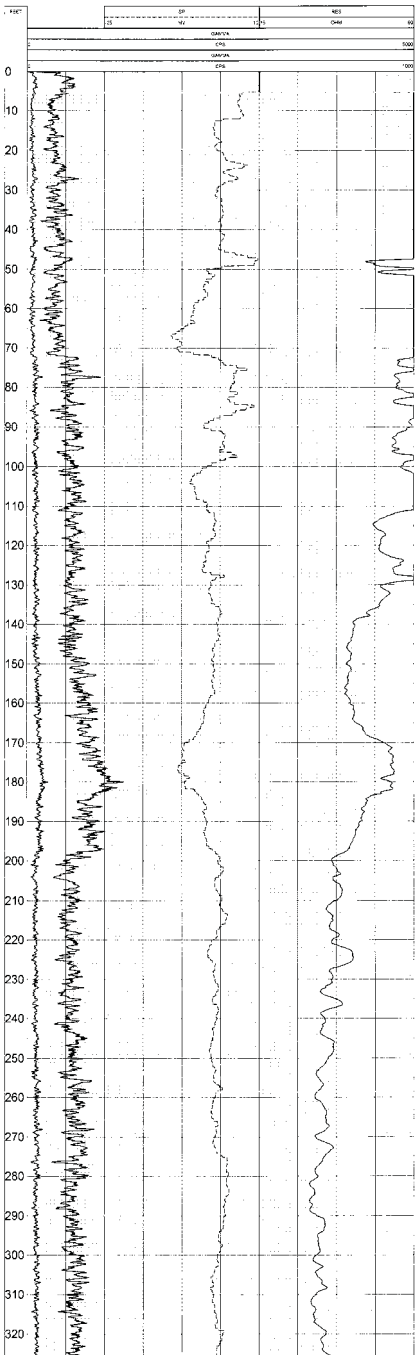
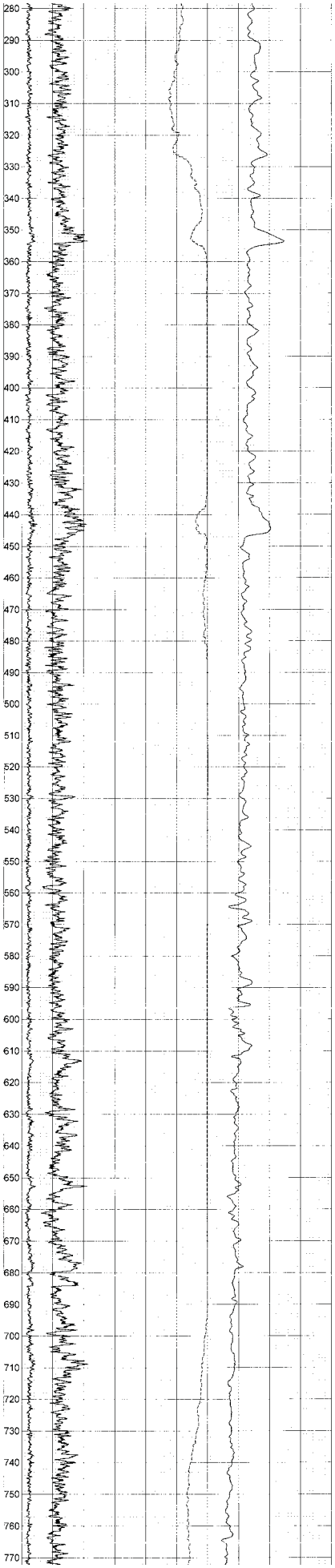

CROW BUTTE
RESOURCES, INC.

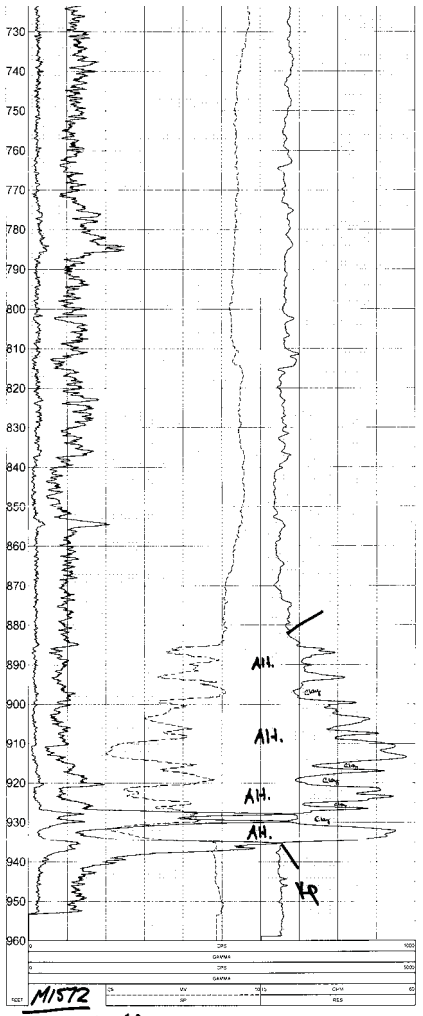
M-1572 O

COMPANY	CROW BUTTE	OTHER SERVICES	
WELL	M-1572		
LOCATION/FIELD	CRAWFORD		
COUNTY	SIOUX COUNTY		
LOCATION	NEBRASKA		
SECTION	25	TOWNSHIP	29N
			RANGE 53W
DATE	05/01/10	PERMANENT DATUM	GL
DEPTH DRILLER	960		KB
LOG BOTTOM	958.80	LOG MEASURED FROM	GL
LOG TOP	5.16	DRL MEASURED FROM	GL
CASING DIAMETER	10	LOGGING UNIT	06
CASING TYPE		RIG NUMBER	GORECOLL
CASING THICKNESS		RECORDED BY	DAVE OLIVA
BIT SIZE	9.25	BOREHOLE FLUID	MUD
MAGNETIC DECL	12.27	RM	
MATRIX DENSITY	2.65	RM TEMPERATURE	64.5
NEUTRON MATRIX	SANDSTONE	MATRIX DELTA T	54
			FILE ORIGINAL
			TYPE WRITE
			THRES= 0

ALL SERVICES PROVIDED SUBJECT TO CBR STANDARD TERMS AND CONDITIONS







AZM: 45.6°
DIST.: 7.2'

CROW BUTTE
RESOURCES, INC.

LOG M-1572

ARCADIS
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
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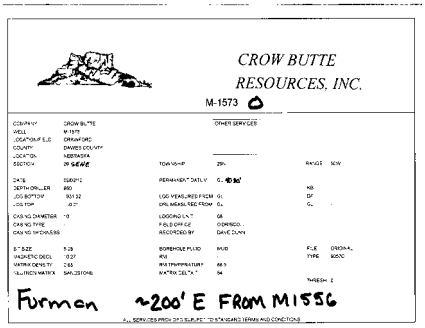

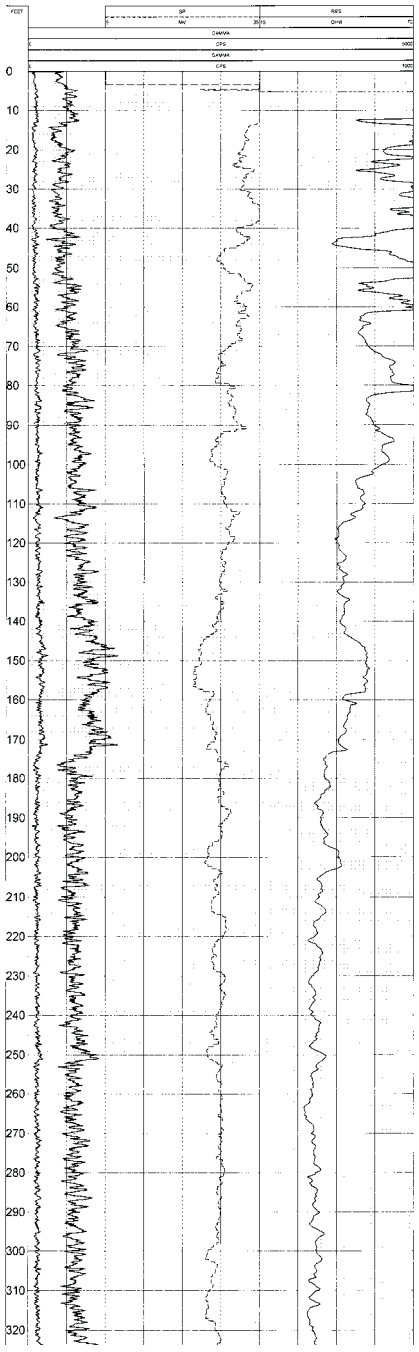

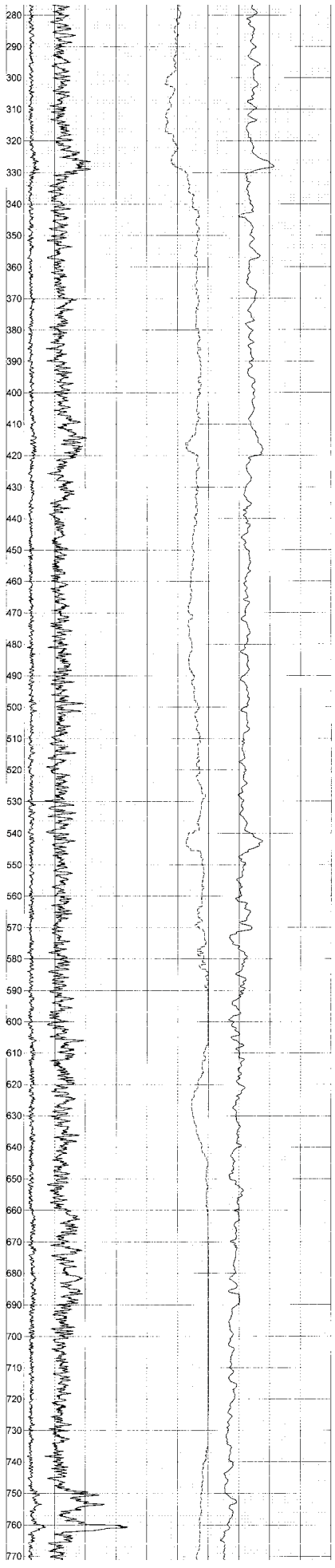

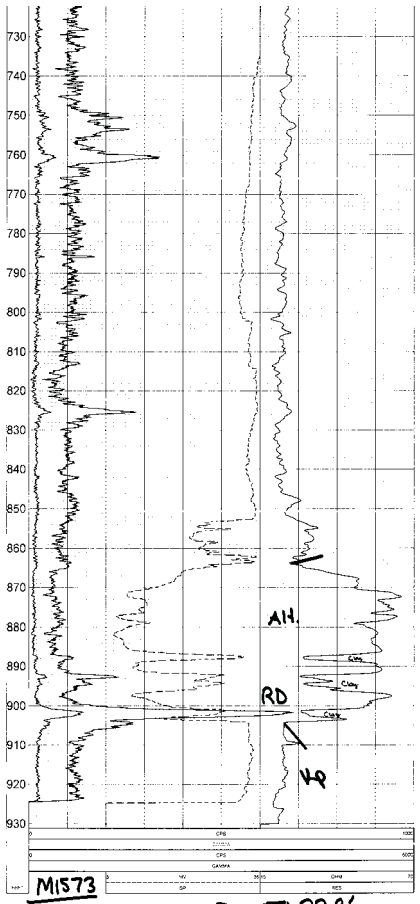

CROW BUTTE RESOURCES, INC.

LOG M-1573

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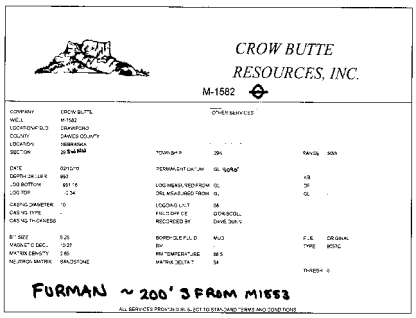

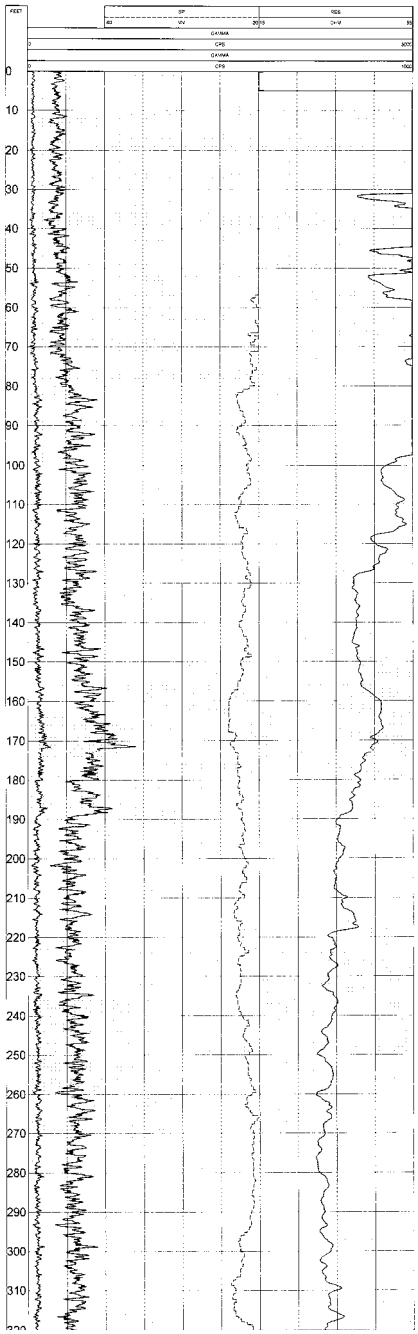

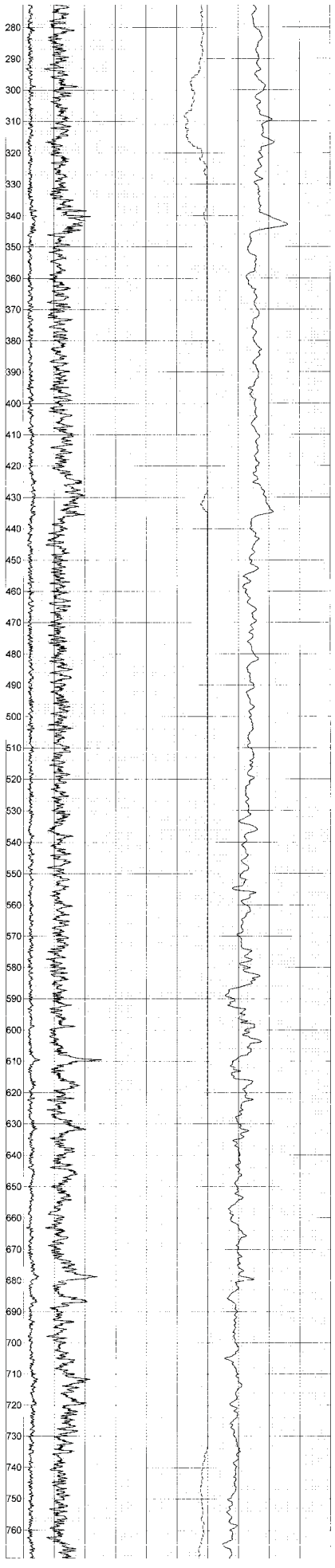

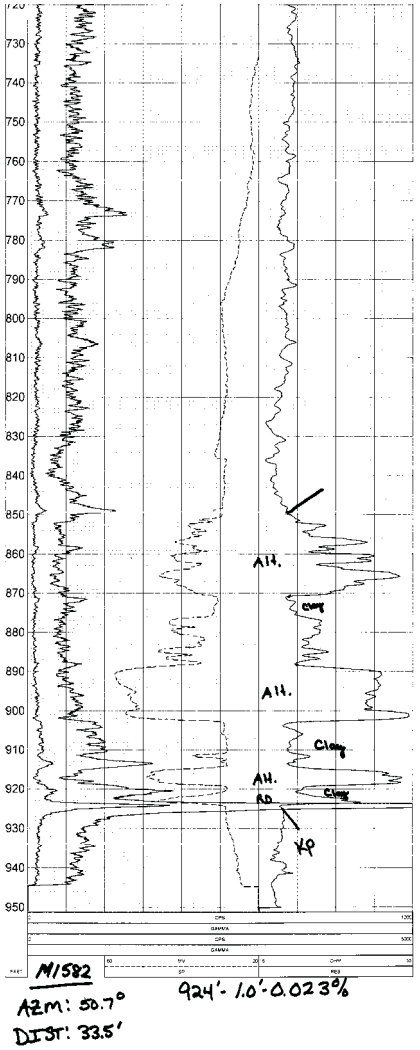

CROW BUTTE RESOURCES, INC.

LOG M-1582

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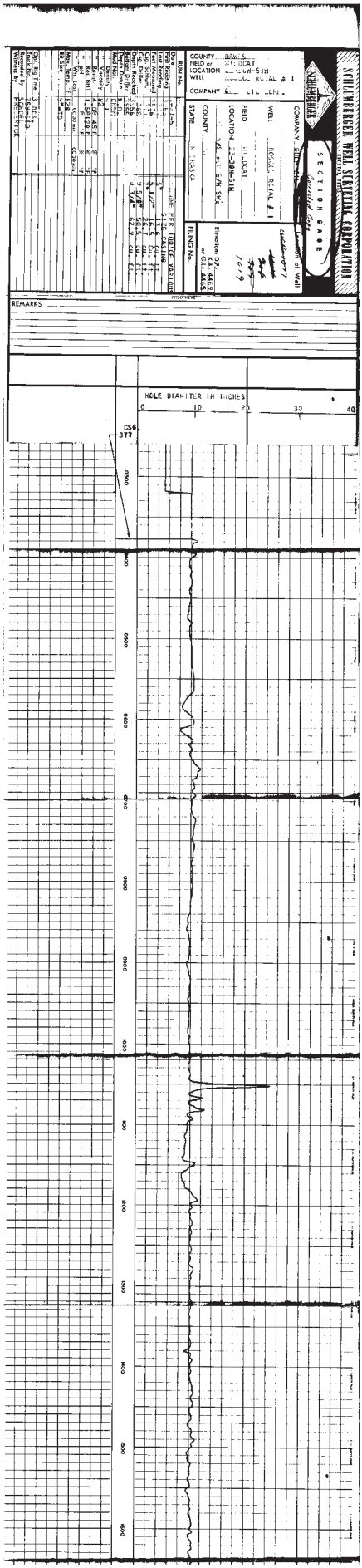

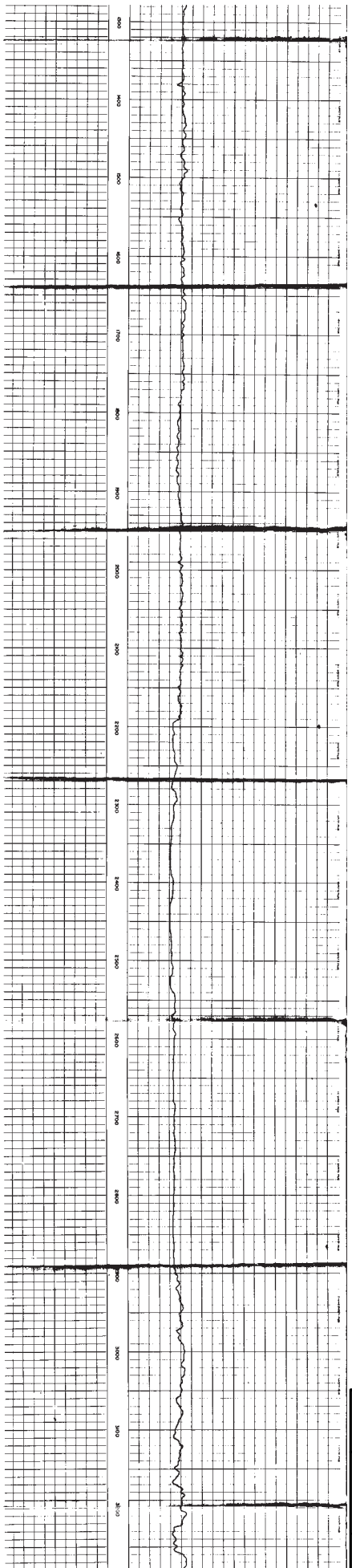

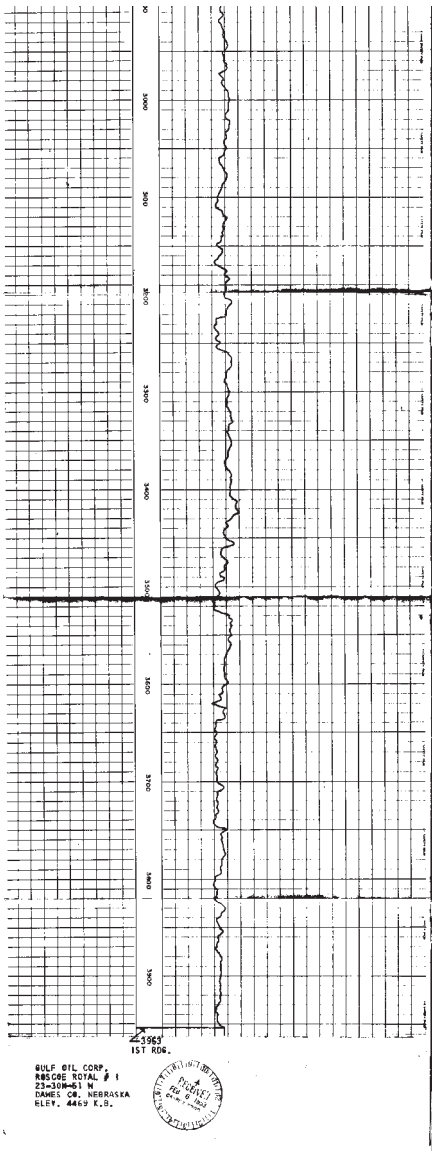

CROW BUTTE RESOURCES, INC.

ROYAL LOG

ARCADIS
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Highlands Ranch, CO 80129
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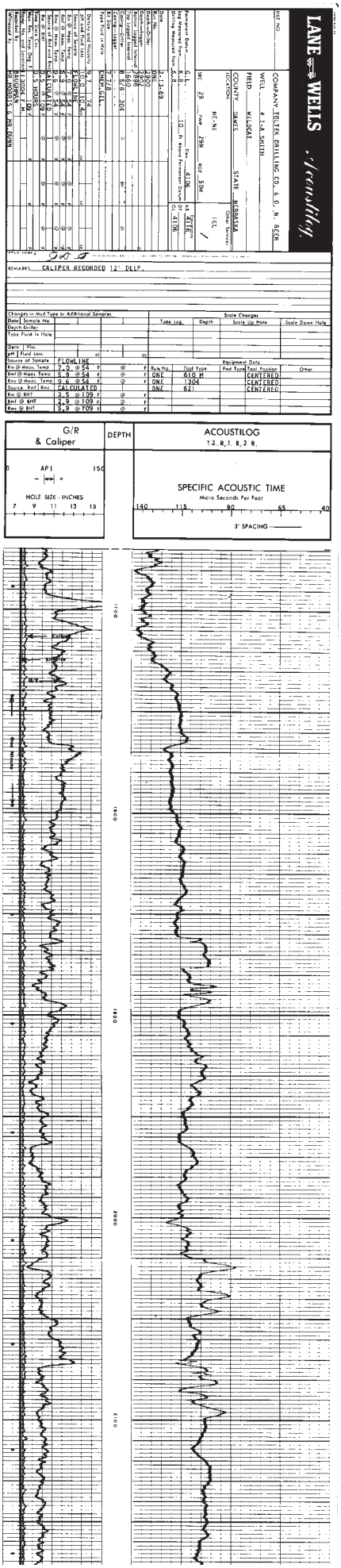

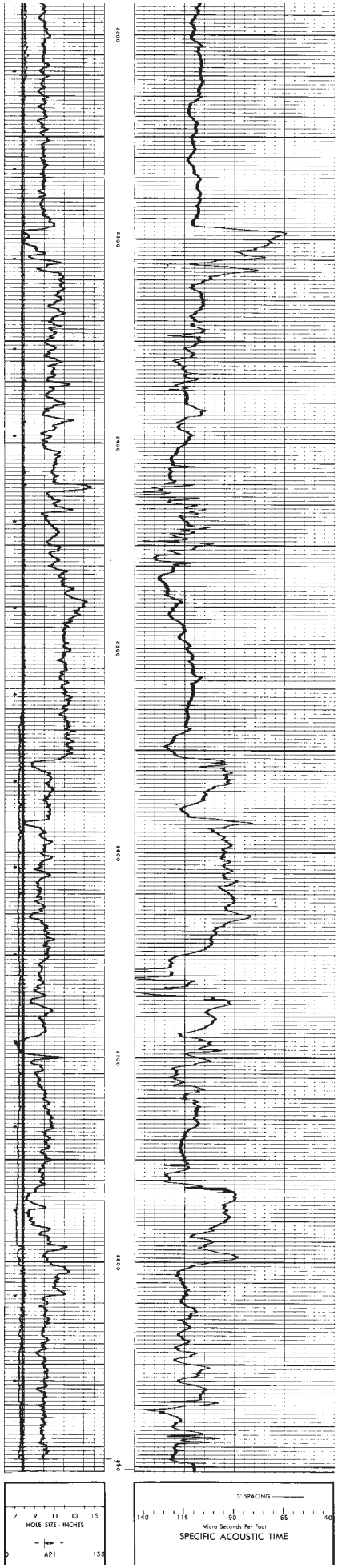

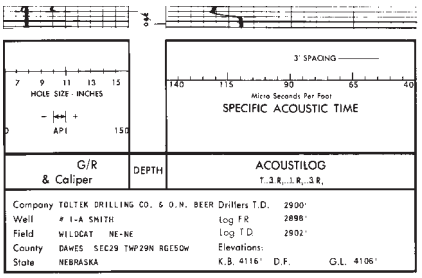

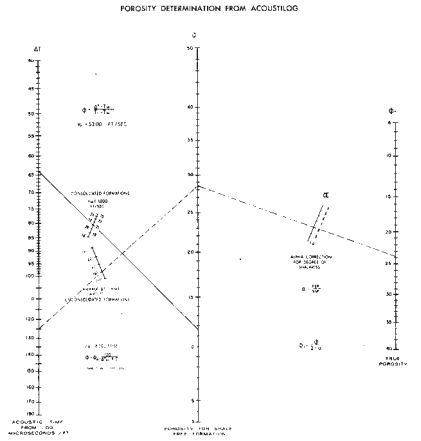

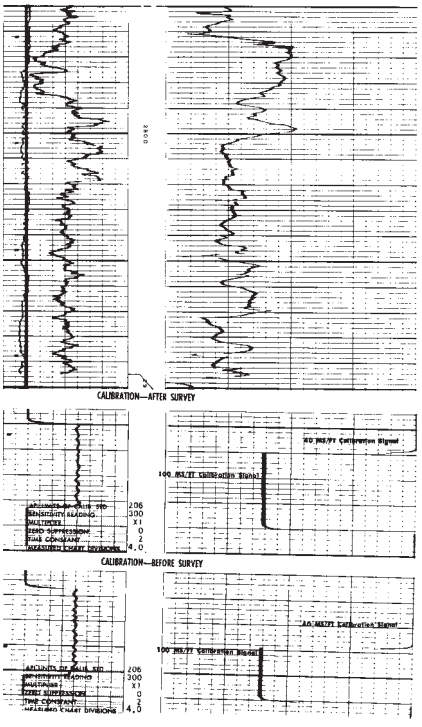

CROW BUTTE RESOURCES, INC.

SMITH 1A LOG

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Highlands Ranch, CO 80129
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