SM-TULAMEEN 77(3)A.

TULAMEEN COAL PROJECT

Report on 1977 Field Work

VOLUME II

Appendices 5, 6, 7, 8
Figures 6 through 19
Electrologs

OPEN FILE

00200 (7)

GENERAL SERVICE
SUITE 101
WEST 6 - 8TH AVE.
Fax

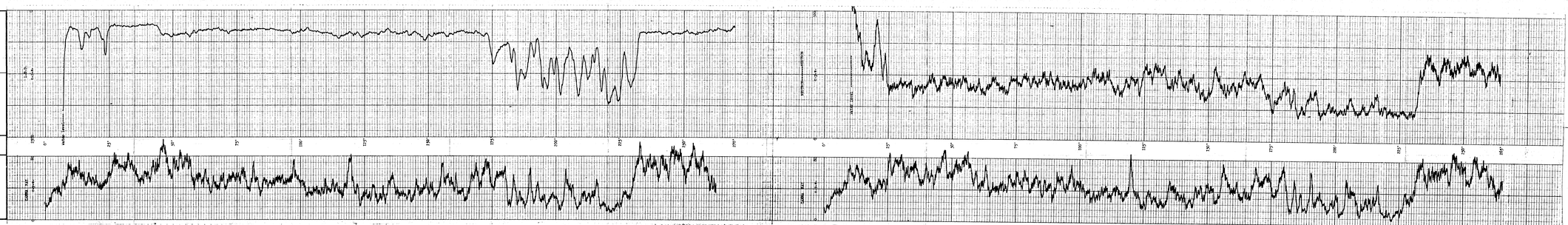
COMPANY: CENTRE WELL DRILLING & EXPLORATION LTD.
BOREHOLE: # 2 - 39 - 1. Tagged thru drill stem.
STATE: British Columbia. COUNTRY: Canada.

Permanent Datum	Ground level.	Elev. Asoc. Ft.	
Log measured from	Ground level.	zero	Ft. above P.D.
Drilling measured from	Ground level.	zero	Ft. above P.D.

Run No. [Depth Scale]	1	Log Log		
Date	27th July '77			
First Reading	20.0'			
Last Reading	0'			
Interval Measured	20.0'			
Casing Bottom				
Casing Shoe				
Depth Reached	20.0'			
Bottom Order	20.0'			
Mud Return	Natural			
S.G. Viscosity				
Bit Size 1	8 7/8" to 6.5'	No	No	
2	7 7/8" to 7.0'	No	No	
3	No	No	No	
Casing Size 1	No	No	No	
2	No	No	No	
Bhc @ Meas Temp	@	@	@	
Mel @ Meas Temp	@	@	@	
Rmc @ Meas Temp	@	@	@	
pH				
Operating Time	Hours			
Truck No.	27 / 5			
Recorded By	A. Gutowski			
Witness	Mr. Hudson			

Cased thru drill stem therefore no values.

DEPTHS



Schlumberger

Dresser Atlas

Well Name: Fee 1-2

Field: Wildcat

County: Sublette

State: Wyoming

Date: 10-1-80

Run No.: 1

Depth Driller: 8200

Depth Logger: 8200

Bottom Log Interval: 8200

Top Log Interval: 2500

Casing Driller: 8 5/8 @ 2500

Casing Logger: 2500

Bit Size: 7 7/8

Type Fluid in Hole: Gel Chem

Dens.: 9.2 lb/gal

Visc.: 40 sec

pH: 10.5

Fluid Loss: 6.0 cc

Source of Sample: Flowline

Rm @ Meas. Temp.: 1.00 @ 70 °F

Rmf @ Meas. Temp.: 1.00 @ 70 °F

Rmc @ Meas. Temp.: 1.00 @ 70 °F

Rm @ BHT: 0.60 @ 180 °F

Time Since Circ.: 12 hrs

Max. Rec. Temp.: 180 °F

Equip. Location: Rock Springs

Recorded By: Ron Ellis

Witnessed By: Mr. Bill Ellis

Run No.	Bit Size	Depth In	Depth Out	Footage	Hours
1	7 7/8	2500	8200	5700	72

Type	Size	Weight	Grade	Thread	Top	Bottom
Surface	8 5/8	24	J-55	ST&C	0	2500
Production	5 1/2	15.5	J-55	LT&C	0	8200

Type	Density	Viscosity	Water Loss	Mud Resistivity	Mud Cake Resistivity
Gel Chem	9.2	40	6.0	1.00 @ 70 °F	1.00 @ 70 °F

Time	Circulation Stopped	Logger On Bottom	Max. Recorded Temp.	Equipment Location	Recorded By	Witnessed By
1:00	0:00	2:00	180 °F	Rock Springs	Ron Ellis	Mr. Bill Ellis

GENERAL LOG
GAMMA RAY - 0-5-7-9
MULTI-CAL - 4-6-8-10-12 in.

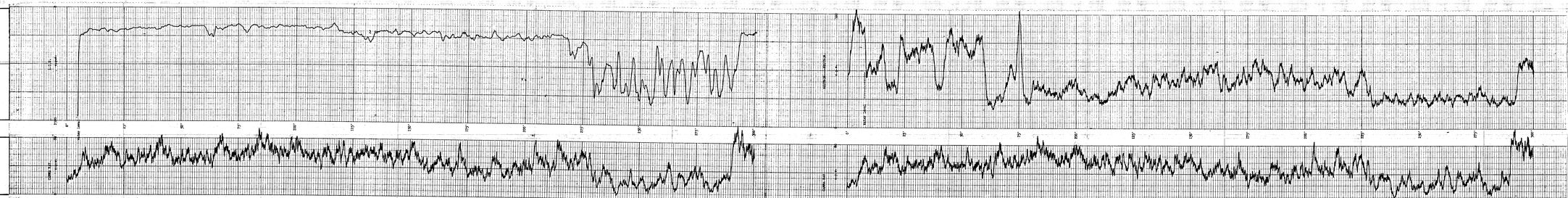
COMPANY STEVE GRILL (SEA-TEL-ARCTIC) 77CR-8.
BOREHOLE # 2 20 0 Inches DRG DRILL HOLE.
STATE British Columbia COUNTRY Canada.

Permanent Datum Ground Level. Elev. Ft.
Log measured from Ground Level abov. Ft. above P.D.
Drilling measured from Ground Level abov. Ft. above P.D.

Run No.	Descending			
Date	28th.-Sep.-1977			
First Reading	300'			
Last Reading	0'			
Casing Diameter	900'			
Casing Shoe				
Casing Order				
Depth Reached	300.0'			
Bottom Order	300'			
Mud Nature	Natural			
B.O. I. Warranty				
Bit Size 1	9 7/8" in 18" m.	in	in	in
2	9 7/8" in 18" m.	in	in	in
Casing Size 1	in	in	in	in
2	in	in	in	in
Air @Meas Temp	@	@	@	@
Mist @Meas Temp	@	@	@	@
Air @Meas Temp	@	@	@	@
Mist				
Operating Time	11 Hrs.			
Truck No	27, 26			
Recorded By	J. Anthony			
Witness	Ogilvie			

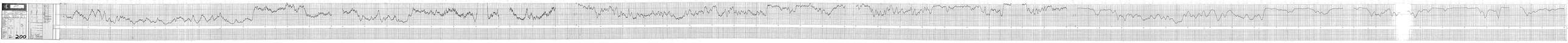
200

REMARKS: Gamma Ray Calibration Details
Gamma Ray 1 - 0 Counts
Gamma Ray 2 - 0 Counts
Gamma Ray 3 - 0 Counts
Gamma Ray 4 - 0 Counts
Gamma Ray 5 - 0 Counts
Gamma Ray 6 - 0 Counts
Gamma Ray 7 - 0 Counts
Gamma Ray 8 - 0 Counts
Gamma Ray 9 - 0 Counts
Gamma Ray 10 - 0 Counts
Gamma Ray 11 - 0 Counts
Gamma Ray 12 - 0 Counts
Gamma Ray 13 - 0 Counts
Gamma Ray 14 - 0 Counts
Gamma Ray 15 - 0 Counts
Gamma Ray 16 - 0 Counts
Gamma Ray 17 - 0 Counts
Gamma Ray 18 - 0 Counts
Gamma Ray 19 - 0 Counts
Gamma Ray 20 - 0 Counts



Patient Name: [illegible]
Date: [illegible]
Time: [illegible]
Physician: [illegible]
Technician: [illegible]
Medication: [illegible]
Diagnosis: [illegible]
Comments: [illegible]

Channel	Sensitivity	Filter
[illegible]	[illegible]	[illegible]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SCHLUMBERGER

COMPANY CONOCO INC.
WELL 200
FIELD WILDCAT
COUNTY LINCOLN
STATE NEW MEXICO

Other Services: DIPLOG, CNL-FDC, DLL-MSFL, BHC-GR, CBL-VDL

Permanent Datum: GROUND LEVEL
Log Measured From: KB 10 Ft. Above Perm. Datum
Drilling Measured From: KB

Elevation	6000 Ft.
Elevation	Ft.
Elevation	Ft.

Date: 12-7-87
Run No.: ONE
Depth-Driller: 6000
Depth-Logger: 6000
Bottom Log Interval: 5998
Top Log Interval: 2200
Casing-Driller: 8 5/8 @ 2200
Casing-Logger: 2200
Bit Size: 7 7/8
Type Fluid in Hole: GEL CHEM
Dens.: 9.2
Visc.: 45
pH: 10.5
Fluid Loss: 6.0
Source of Sample: FLOWLINE
Rm @ Meas. Temp.: .75 @ 70 °F
Rmf @ Meas. Temp.: .60 @ 70 °F
Rmc @ Meas. Temp.: .90 @ 70 °F
Source: Rmf / Rmc: MEASURED / CALCULATED
Rm @ BHT: .35 @ 140 °F
Time Since Circ.: 12 HRS
Time Logger on Bottom: 1200
Equipment: 5900 / 2200
Location: 660' FNL & 1980' FEL SEC. 27 T-9-S R-27-E

REMARKS

Changes in Mud Type or Additional Remarks
Logging Speed (Feet/Min.) 1
Max. Recorded Temp. 140 °F
Equipment Number 5900
Time Tool Closed

Max.			
Recorded Values			
Max. Working Pressure			
Max. Recorded Pressure			
Max. Working Temp.			
Max. Recorded Temp.			
Max. Working Time			
Max. Recorded Time			

RUN CONDITIONS

Run No.	Bit Size	Depth Drilled	Cumulative Hours
ONE	7 7/8	3800	12

Equipment Data

Tool Type	Serial Number
DIPLOG	

Recorders

Type	Serial No.

Calibrators

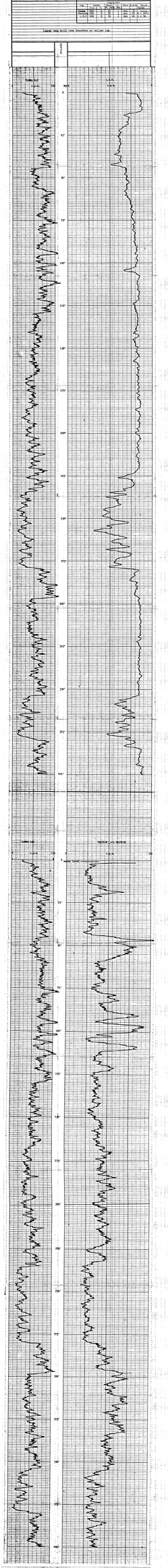
Type	Serial No.

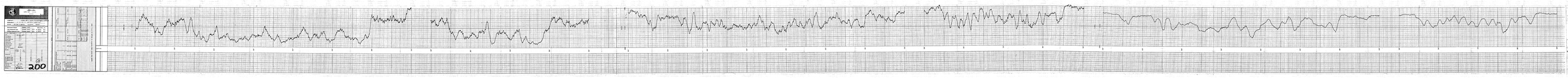
Calibration Data

Log	Scale	Deflection	Value	Source	Source	Source
Resistivity	1	10	.1	Rm	Rmf	Rmc
Resistivity	2	10	.1	.35	.35	.35
Resistivity	3	10	.1	.35	.35	.35

Logging Data Will Follow Immediately on Cartridge Tape

DIPLOG

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COMPANY: [illegible]

WELL: [illegible]

FIELD: [illegible]

COUNTY: [illegible]

STATE: [illegible]

OTHER SERVICES: [illegible]

Permanent Datum: [illegible] **Elevation:** [illegible]

Log Measured From: [illegible] **Drilling Measured From:** [illegible]

Date	[illegible]				
Run No.	[illegible]				
Depth-Driller	[illegible]				
Depth-Logger	[illegible]				
Bottom Log Interval	[illegible]				
Top Log Interval	[illegible]				
Casing-Driller	[illegible]				
Casing-Logger	[illegible]				
Bit Size	[illegible]				
Type Fluid in Hole	[illegible]				
Dens. / Visc.	[illegible]				
pH / Fluid Loss	[illegible]				
Source of Sample	[illegible]				
Rm @ Meas. Temp.	[illegible]				
Rmf @ Meas. Temp.	[illegible]				
Rmc @ Meas. Temp.	[illegible]				
Rm @ BHT	[illegible]				
Rmf @ BHT	[illegible]				
Rmc @ BHT	[illegible]				
Max. Rec. Temp.	[illegible]				
Equip. Location	[illegible]				
Recorded By	[illegible]				
Witnessed By	[illegible]				

REMARKS:

Changes in Mud Type or Additives Operations
Time Circ. Prior to Log
Max. Mud Weight
Type Fluid in Hole

Equipment Data

Run No.	Tool Type	Tool Position	Offset		
Rmf	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rmc	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rmf	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rmc	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Hole Changes

Date	Hole Size	Hole Depth
[illegible]	[illegible]	[illegible]

Casing Data

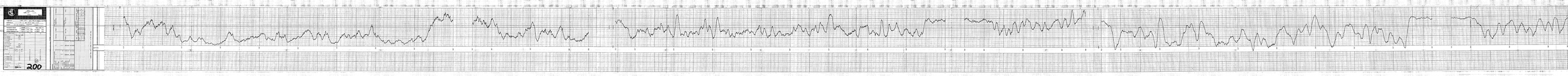
	Size	Weight	Grade	Depth	Size	Weight	Grade	Depth
Surface	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Intermediate	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Production	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Legend, tools above hanger on Deliver Log.

Gamma Ray

Gamma Ray

Gamma Ray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Company	Amoco Production Company
Well	Navajo Tribal 32-4
Field	Ute Dome
County	Rio Arriba
State	New Mexico
Other Services	Induction Electrical Survey, Compensated Neutron Formation Density, Dipmeter
Permanent Datum	Ground Level Elevation 6,800'
Log Measured From	Kelly Bushing 12' Above Perm. Datum
Drilling Measured From	Kelly Bushing
Elev.	K.B. 6,812' D.F. N/A G.L. 6,800'
Date	11-11-80
Run No.	ONE
Depth-Driller	7,800'
Depth-Logger	7,798'
Bottom Logged Interval	7,798'
Top Log Interval	2,000'
Casing-Driller	9 5/8" @ 2,000'
Casing-Logger	2,000'
Bit Size	8 3/4"
Type Fluid in Hole	Gel Chem
Dens.	9.1
Visc.	45
Ph	10.5
Fluid Loss	6.0
Source of Sample	Flowline
Rm @ Meas. Temp.	.58 @ 75°F
Rmf @ Meas. Temp.	.43 @ 75°F
Rmc @ Meas. Temp.	.71 @ 75°F
Source: Rmf / Rmc	M / M
Rm @ BHT	.35 @ 150°F
Time Since Circ.	8 hrs.
Max. Rec. Temp.	150°F
Equipment Location	Farmington
Recorded By	Jones / Lee
Witnessed By	Mr. Hoskins

COMPANY AMOCO PRODUCTION COMPANY
WELL NAVAJO TRIBAL 32-4
FIELD UTE DOME
COUNTY RIO ARRIBA STATE NEW MEXICO

OTHER SERVICES: DIPL-CDL-CNL-GR-BHC-CBL-VDL

Dual Induction Laboratory
Farmington, New Mexico

RESISTIVITY

Changes in that fluid or resistivity before:
Time 6 Hours Rm
Depth or Temp. Rmf
Type Fluid in Hole Rmc

Source: Rmf / Rmc
Rm @ Meas. Temp. .58 @ 75 °F
Rmf @ Meas. Temp. .43 @ 75 °F
Rmc @ Meas. Temp. .71 @ 75 °F
Rm @ BHT .35 @ 150 °F
Rmf @ BHT @ °F
Rmc @ BHT @ °F

Time Log	Depth	Scale Up Time	Scale Down

EQUIPMENT DATA

Run No.	Tool Type	Tool Position	Other

BOREHOLE RECORD

Bit No.	From	To	Size	Time	Depth
1	0'	7,800'	8 3/4"	6	7,800'

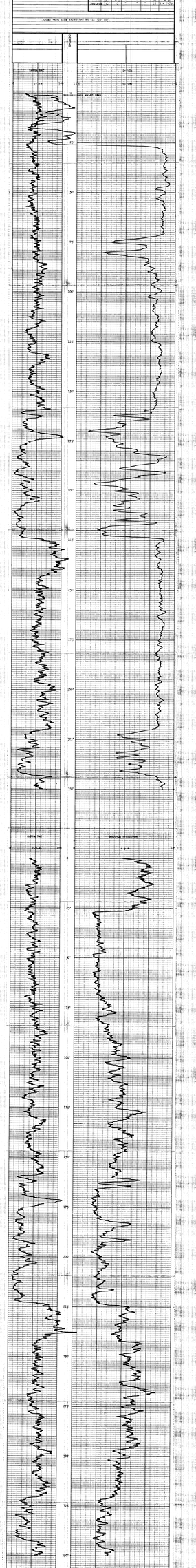
TUBULAR RECORD

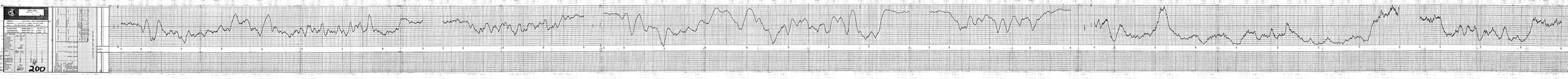
	Size	Weight	Grade	Top	Bottom
Casing	9 5/8"	36	K-55	0	2,000'
Casing	7"	23	K-55	0	7,800'

REMARKS: TRIPLE COMBO, DIPLOGRAM, CBL-VDL-GR-CCL LOG

Equipment Number

Witnessed By

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LOGGING SERVICES, INC.

Schlumberger

Company: Amoco Production Company
Well: Navajo Tribe 32-1
Field: Wildcat
County: San Juan
State: New Mexico

Other Services: Dual Induction Focused Log

Permanent Datum: Ground Level
Log Measured From: Kelly Bushing
Drilling Measured From: Kelly Bushing

Elevation: K.B. 5,000 ft
D.F. ft
G.L. ft

Date: 12-2-83
Run No. 1
Depth Driller: 5,100 ft
Depth Logger: 5,100 ft
Bottom Log Interval: 5,100 ft
Top Log Interval: 2,000 ft
Casing Driller: 9 5/8 @ 2,000 ft
Casing Logger: 2,000 ft
Bit Size: 8 3/4 in
Type Fluid in Hole: Gel Chem
Density: 9.1 lb/gal
Viscosity: 40 s
Fluid Loss: 8.0 ml
Source of Sample: Flowline
Rm @ Meas. Temp.: 1.50 @ 70 °F
Rmf @ Meas. Temp.: 1.20 @ 70 °F
Rmc @ Meas. Temp.: 1.00 @ 70 °F
Rm @ BHT: 0.90 @ 150 °F
Time Since Circ.: 8 hrs
Time Since Stopped: 1 hr
Max. Rec. Temp.: 150 °F
Equipment Location: 5009

Recorded By: Ron Lewis
Witnessed By: Mr. Bill Lewis

Run No.	Bit Size	Casing Size	Depth Drilled	Cumulative Footing	Hours Drilling	Hours Circulating
1	8 3/4	9 5/8 @ 2,000	3,100	3,100	24	8
2	8 3/4	9 5/8 @ 2,000	2,000	5,100	24	8

Longest Gamma Ray Reading Recorded: 150 API units

Comments: Gamma Ray Calibrated on Calibrator Log

Gamma Ray Scale: 0 - 150 API units

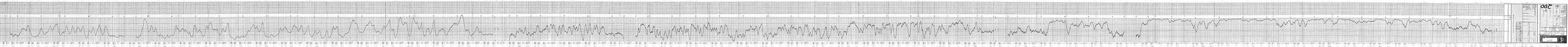
Gamma Ray Calibrator: 0 - 150 API units

Caliper Scale: 6 - 16 in

Bit Size: 8 3/4 in

Gamma Ray Scale: 0 - 150 API units

Resistivity Scale: 0.2 - 2000 ohm-m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5