Feb. 1, 1980

GRUY FEDERAL, INC.

OPERATIONAL SUMMARY OF DEVONIAN SHALE CORING PROGRAM AT EGSP TENNESSEE NO. 9 JANUARY, 1980

UGR FILE # 449

LAVERNE B. COBB

SUBMITTED TO
U.S. DEPARTMENT OF ENERGY
MORGANTOWN ENERGY TECHNOLOGY CENTER
UNDER CONTRACT NO. DE-RP05-79MC0838

GRUY FEDERAL, INC.
2500 TANGLEWILDE, SUITE 150
HOUSTON, TEXAS 77063

FEBRUARY 1, 1980

The Gruy Companies
. . . Since 1950

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WELL LOCATION

EGSP Tennessee No. 9 well in Grainger County, permitted as Gruy Federal-Grainger County No. 1, was spudded on January 3, 1980, and completed on January 21, 1980. The well is located on Lot A-8 of Grainger County Industrial Park; geographic coordinates are 30°18'56"N latitude, 83°24'33"W longitude (Tennessee coordinates 710,300N and 2,762,000E). Ground elevation at the spud point is 1140 feet above mean sea level; the KB elevation was 1150 feet above mean sea level.

STRATIGRAPHY

The exploration rational for Tennessee 9 was based primarily on interpretation of seismic line TC-1 (along US 25E approximately six miles north and along strike with the well) and a previous shallow NX coring and logging program. The interpreted seismic line shows the Chattanooga Shale carring back under the Saltville Thrust Fault some distance before being truncated. This structural setting, with the Chattanooga truncated by a major thrust fault, would be ideal for the development of a high degree of fracturing in the Chattanooga.

The previous NX coring program in the outcrop belt of the Chattanooga demonstrated that the shale is reasonably thick (662 feet in Tennessee 7 and 760 feet in Tennessee 8) and has distinct "black" shale in the Cleveland, Lower Huron and Rhinestreet intervals. Gamma ray logs of Tennessee 7 and 8 show these zones to be radioactive.

In planning Tennessee 9, seismic line TC-1, logs for Tennessee 7 and 8, the Geologic Map of Tennessee (1966), and measured section of the Grainger Formation (Kenneth Hasson, Ph.D. dissertation, University of

Tennessee, 1967), and information contained in several masters theses and doctoral dissertations at the University of Tennessee on the area were used to make preliminary formations picks (Cobb & Langston, 1979). The stratigraphic section expected in the well was the Cambrian age Conasuga Formation - Pumpkin Valley Shale and Rome Formation in the thrust block and the Mississippian age Grainger Formation and Chattanooga Shale beneath the fault. The possibility that the Mississippian age Newman limestone might be present was considered.

Since neither driller's logs nor electric logs of the section above the Chattanooga Shale exist for the immediate area it was necessary to identify potential "markers" on the basis of outcrop lithology. Two markers which can be used to predict the top of the Chattanooga are

(1) the Saltville Fault "zone" and
(2) a glauconite zone in the Middle Member of the Grainger Formation.

In outcrop, the basal sandstones of the Rome formation appear similar to the massive sandstones (siltstones) of the Upper Member of the Grainger and the fault "zone" varies in outcrop from less than a foot to a few feet across. In cuttings one would expect to see the change from Rome micaceous sandstone to Grainger non micaceous sandstone, But not that the mylonite in the fault zone would be recovered. However, in Sample 660'-670', slickensided surfaces on shale and siltstone fragments were present. Sample 650'-660' contained micaceous sandstone and Sample 670'-680' contained a medium to dark gray siltstone. Sample 670'-680' also contained a brachiopod fragment. This fortunate sequence of events enabled an accurate determination of the fault contact in the subsurface.

Once the fault zone had been recognized it was possible to use measured sections of the Grainger Formation (Hasson, 1967) at outcrops a few miles from Tennessee No. 9 (which show a glauconite zone in the "Middle Shale Member" of the Grainger) to predict that the top of the Chattanooga

would be approximately 400 feet below this zone. The glauconite was clearly evident in Samples 710'-720' and 720'-730'. The presence of the glauconite zone made possible an accurate prediction of the top of the Chattanooga Shale at 1137 feet.

Stratigraphic interpretation, based upon examination of well cuttings, and generalized lighologic descriptions for Tennessee 9 are given in Table 1. Sample intervals having similar lithologies have been grouped together in Table 1. Figures 1 and 2 are gamma ray curves for the intervals 200 feet to 1130 feet and 1100 feet to 1880 feet, respectively.

SAMPLE COLLECTION PREPARATION AND DESCRIPTION

Througnout drilling operations, samples were collected at 10-foot intervals except for intervals 1137 feet to 1167 feet, before the first core point; 1590 feet to 1610 feet, before the second core point; and 1802 feet to 1820, before the third core point. For these intervals samples were collected at 5-foot intervals.

Samples were collected in a bucket at the end of the blooie line by a drilling crew member and transferred to heavy plastic ziplock sample bags. Samples were turned over to the geologists for preparation and examination. A portion of each sample was examined wet and then transferred to a paper towel for drying. The dry sample was examined under a binocular microscope (10-X to 40-X power), described, and divided to give two dry sample sets, which were rebagged. Ten percent hydrochloric acid was used to test for carbonate minerals. A flouroscope was used to check for fluorescence in the Chattanooga Shale. A strip chart was prepared showing lithology of cuttings and cores, drilling rates, and for cores, scintillometer readings. The strip log was retained by Dr. Dean. When examination and description were completed, one set of dry samples was boxed and left with Dr. Claude Dean to be delivered to Dr. Robert Millici; the other was delivered to Gruy in Houston by LeRoy Radford. Wet samples were boxed and turned over to Cliff Minerals'

TABLE 1

GENERALIZED LITHOLOGIC DESCRIPTION
FOR EGSP TENNESSEE NO. 9 WELL

DEPTH	DESCRIPTION	INTERPRETATION
0-35'	Yellow-to-brown shale at surface; cuttings from 0 to 35 feet consist of greenish-gray shale, minor gray limestone	Cambrian age-Conasauga Group-Rogersville Shale Grg 0 to 35'
35'-120'	Gray to brownish-gray, silty, micritic limestone.	Conasauga Group-Rutledge Limestone Grt 35'-180'
120'-170'	Gray dolomite; minor dark gray shale and fine quartz sand; "vein" white crystalline dolomite chips (1 mm to 5mm) with pyrite inclusions	Grt
170'-180'	Transition Zone-"mixed" sample containing medium gray dolomite; gray-to-green shale; red-to-brown fine-grained sandstone.	Grt
180'-210'	Variable lithology; minor gray dolomite; micaceous greenish-gray shale; red-to-brown fine-grained sandstone.	Conasauga Group-Pumpkin Valley Shale, Gpv 180'-210'
210'-300'	Brown fine-grained sandstone, some greenish-gray micaceous shales	Rome Formation Gr 210'-670'
300'-360'	Light-to-medium gray (calcareous) fine-grained sandstone/siltstone, minor limestone	Gr
360'-530'	Brown, red, yellow fine-to-medium-grained sandstone; minor medium gray-to-brownish gray siltstone	Gr
530'-590'	Medium gray "dolomitic" siltstone, some dolomite	Gr
590'-660'	Medium gray, milaceous very fine-grained sandstone (siltstone).	Gr
660'-670'	Micaceous "shale" some fragments with slickensides on surface	Saltville Fault Mylonite zone

Table 1 continued

DEPTH	DESCRIPTION	INTERPRETATION
670'-680'	Medium gray siltstone, brachiopod fragment	Mississippi age-Grainger Formation Mg 760'-1137'
680'-710'	Medium-to-dark gray very fine-grained sandstone/siltstone	Mg
710'-730'	Medium-to-dark gray-to-greenish gray siltstone, glauconite	Mg
730'-1040'	Medium-to-dark gray siltstones and shales, minor "vein" white crystalline dolomite with pyrite inclusions	Mg
1040'-1137'	Medium-to-dark gray fine-grained sandstone/siltstone	Mg
1137'-1142'	Dark gray shale-minor siltstone, pyrite inclusions	Mississippian-Devonian age-Chattanooga Shale MDc 1137' to 1357'
1142'-1147'	Medium gray siltstone	MDc
1147'-1152'	Dark brownish-gray powder; fluorescences white/yellow	MDc
1152'-1157'	Dark brownish-gray powder with black shale chips	MDc
1162'-1167'	Dark Brownish-gray powder with black shale chips	MDc
1167'-1221' Core #1 1167'-1196' Core #2 1196'-1221'	Black shale, minor Gray-to-greenish gray siltstone siltstone layers (few inches)	Cleveland Member at Chattanooga Shale MDc 1167'-1221'
1221'-1590'	Medium gray, some dark gray siltstone	MDc
1590'-1610' (5' intervals)	Dark gray shale	MDc

Table 1 continued

DEPTH	DESCRIPTION	INTERPRETATION
1610'-1742' Core #3 1610-1612' Core #4 1612'-1670' Core #5 1670'-1700' Core #6 1700'-1712' Core #7 1712'-1742'	Black shale: minor medium-to-dark gray siltstone layers	Lower Huron Member of Chattanooga Shale MDc 1610'-1742'
1742'-1802'	Medium-to-dark (bentonite in samples 1760'-1770' and 1790'-1800')	MDc "Cedar Hill Bentonite" 1760'-1800'
1802'-1820' (5' intervals)	Gray siltstone; dark gray shale	MDc
1820'-1867' Core #8 1820'-1844' Core #9 1844'-1867'	Medium gray siltstone; black shale; light gray fine-to-medium sandstone	"Rhinestreet" member of Chattanooga Shale MDc 1830'-1857' (?? Devonian age-Wildcat Valley Sandstone??) Silurian Age-Clinch Sandstone Sc 1857'-1867'
1867'-1920'	Gray sandstone/siltstone	Clinch Sandstone Sc

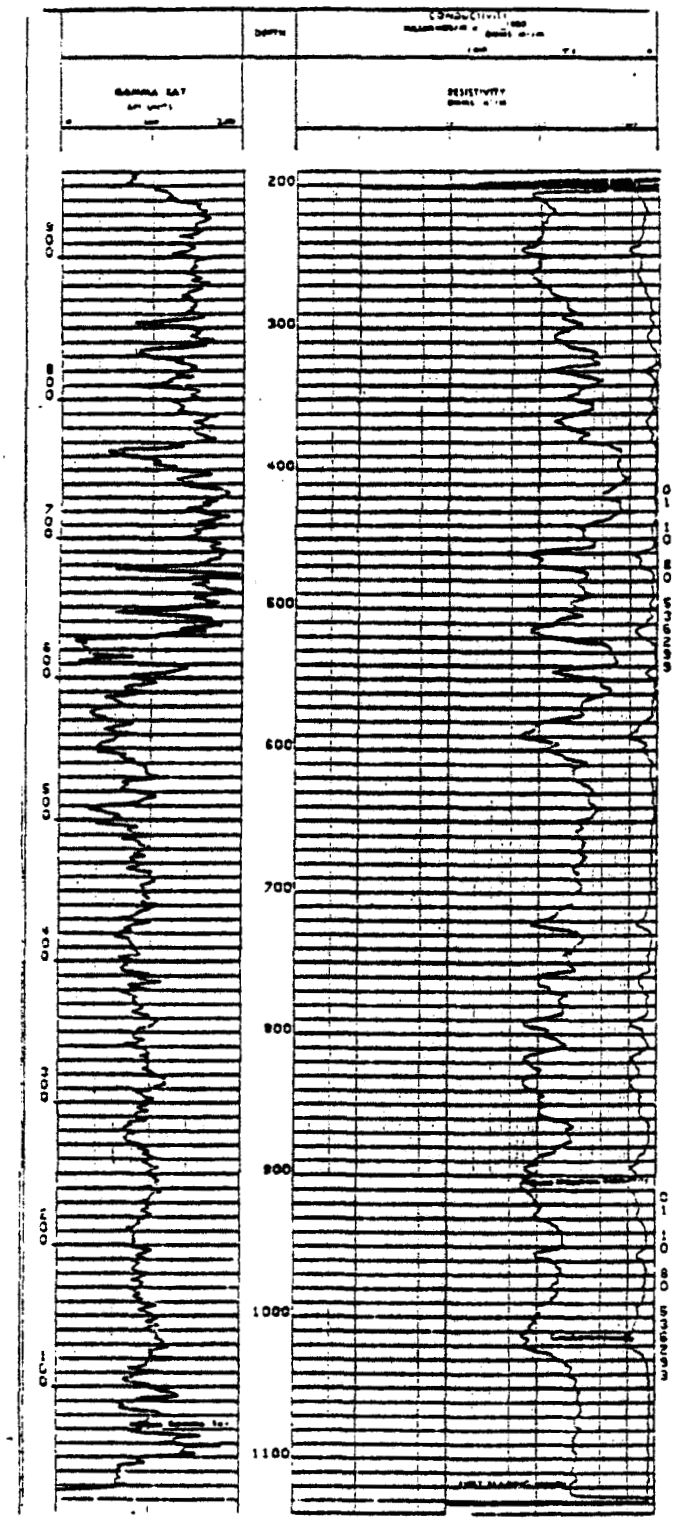


Figure 1. Birdwell Gamma Ray-Induction Log: Depth 200' - 1125'(logger), 1137'(driller).

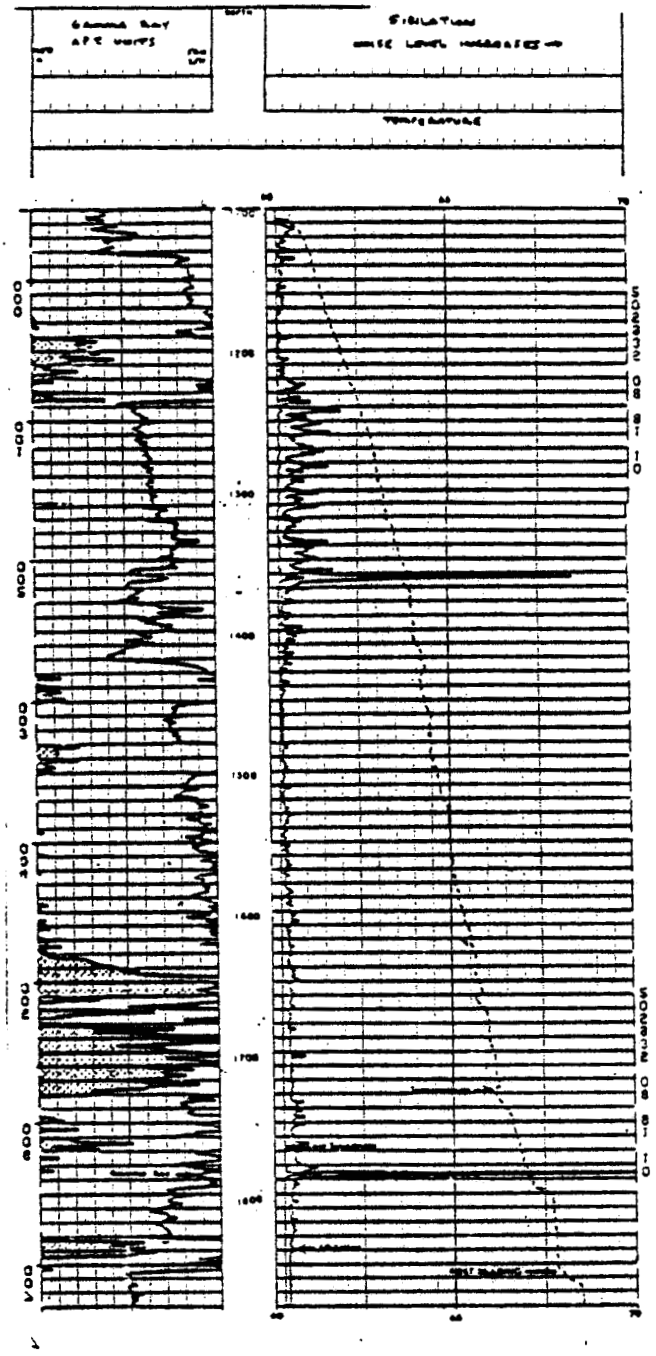


Figure 2. Birdwell Sibilation/Temperature/Gamma Ray Log: Depth 1100' - 1867(logger), 1867'(driller).

personnel during coring of Core 8. However, during cleanup of the geologist's trailer on January 19, several of the wet samples were discovered behind a file cabinet. These were left with Dr. Dean (at his request) to be turned over to Cliff Minerals.

DRILLING AND CORING OPERATIONS

Drilling and coring operations were completed in 17 days, as shown on the drilling time curve (Figure 3). Table 2 is a summary of drilling activities for EGSP Tennessee No. 9. The daily drilling reports are included in Appendix A and the Christensen coring logs are in Appendix B. Figure 4 is a schematic of the completed well.

Oriented core was taken for the following intervals of the Chattanooga Shale:

Cleveland

Core 1 - 1157' to 1196', cut 29', recovered 20', left 9' intervals.
Core 2 - 1196' to 1221', Cut 25', rec. 25' plus 5' of core #1.

Lower Huron

Core 3 - 1610' to 1612' recovered 2 feet.
Core 4 - 1612' to 1670', cut 58 feet, recovered 58 feet.
Core 5 - 1670' to 1700', cut 30 feet, recovered 30 feet.
Core 6 - 1700' to 1712', cut 12 feet, recovered 12 feet.
Core 7 - 1712' to 1742', cut 30 feet, recovered 30 feet.

Rhinestreet/Clinch

Core 8 - 1820' to 1844', cut 24 feet, recovered 25 feet.
Core 9 - 1844' to 1867', cut 23 feet, recovered 23 feet.

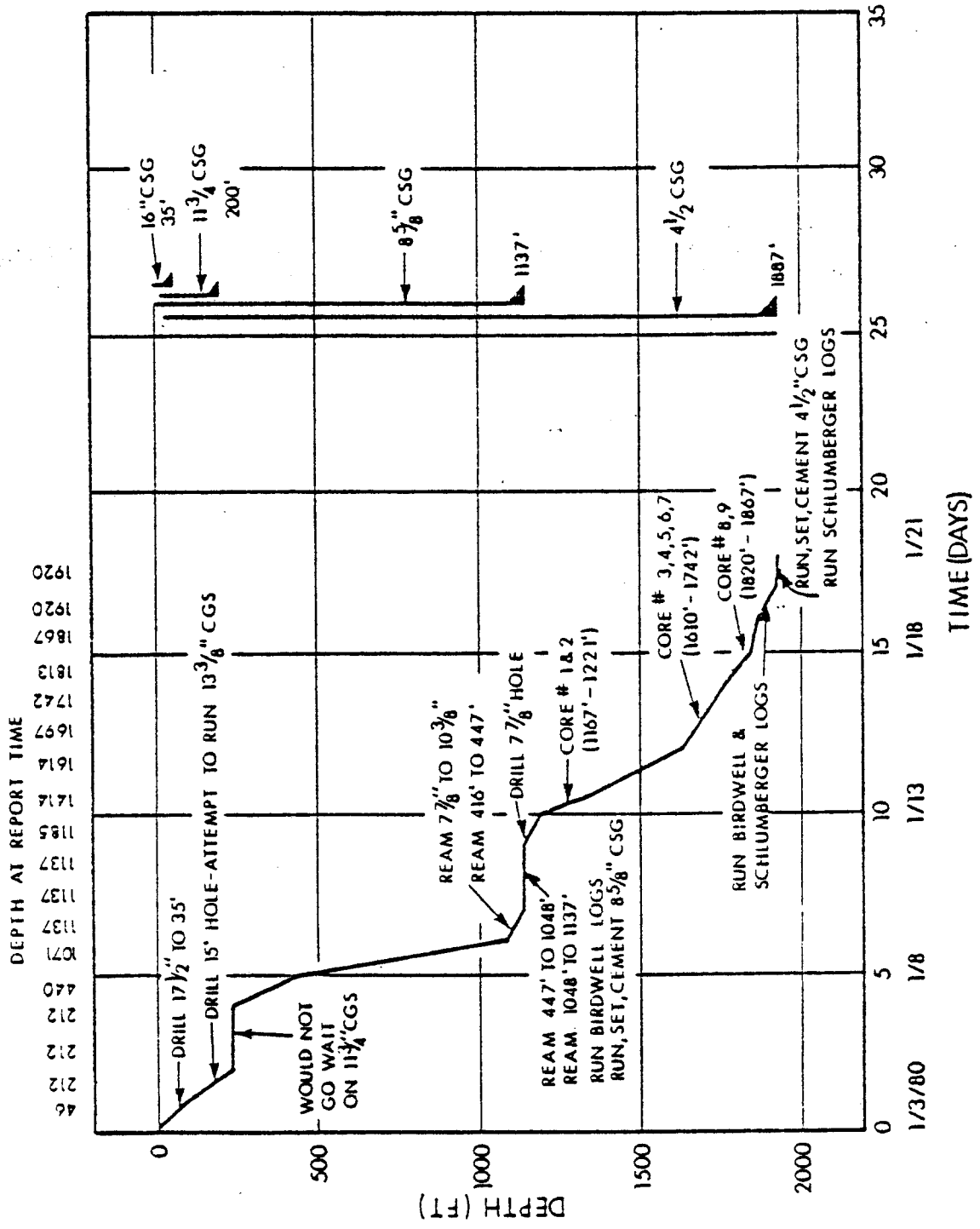


Figure 3
DRILLING/CORING TIME CURVE
EGSP TENNESSEE WELL NO. 9

TABLE 2

DRILLING ACTIVITY SUMMARY
FOR
EGSP TENNESSEE NO. 9

DATE	DEPTH	ACTIVITY
1/4/80	46'	Sup. @ 1,000 hrs. on 1/3/80, drill 17 1/2" to 35' KDP ran, set, cemented 16" csg.
1/5/80	212'	Drill 15' hole to 212', attempt to run 13 3/8" cgs. to 212'.
1/6/80	212'	Would not go below 57'. Wait on 11 3/4" csg.
1/7/80	212'	Run 11 3/4' csg set at 185'.
1/8/80	440'	Fishing piece of steel plate out of hole, drill 212' to 440' hole wet at approximately 400'.
1/9/80	1071'	Drill 440' to 1071'.
1/10/80	1137'	Drill 1071' to 1137'. Ream 7 7/8" to 10 5/8" from 200' to 447'.
1/11/80	1137'	Ream 7 7/8" to 10, 447' to 1048'.
1/12/80	1137'	Ream 1048' to 1137' circulate and clean hole to log, run Birdwell (Density bore hole compensated and Gamma Ray Induction). Run 36 jts. 8 5/8" and set 1137' cement.
1/13/80	1185'	Drill 7 7/8" hole 1137' to 1167'. Drill 5' intervals for sample evaluation, coring #1 core.
1/14/80	1414'	Core #1 1167' to 1196', cut 29', rec. 20', left 9' in hole,ream to bottom. Core #2 1196'-1221' cut 25', rec. 25' plus 5' from core #1, drill 1221' to 1414' (water in hole).
1/15/80	1614'	Drill 1414' to 1590'. Drill 1590' to 1610' (5' intervals) run Birdwell logs (Density-Bore-Hole compensated and Gama Ray Induction) fluid level 1410'. Core #3 1610' to 1612' rec. 2'.
1/16/80	1697'	Core #4 1612-1670 cut 58', rec. 58'. Coring @ #5 @ 1697'.
1/17/80	1742'	Core #5, 1670' to 1700', cut 30', rec. 30', core bbl jammed, RT with core bbl. Core #6, 1700' to 1712', cut 12', rec. 12', core bbl jammed. Coring #7, 1712' to 1742'.

Table 2 continued

DATE	DEPTH	ACTIVITY
1/18/80	1813'	POH Core #7, 1712' to 1742', cut 30', rec. 30', check for flow - no detectable flow (when air resumed had flash of gas). Drilled 1742' to 1802'. Drilled 1802' to 1820' (5 intervals). Core #8 1820' to 1843' coring.
1/19/80	1867'	Core #8, 1820' to 1844', cut 24', rec. 24'. Core #9, 1844' to 1867', cut 23', rec. 23'. POOH because of slow progress from Birdwell logs.
1/20/80	1920'	Run Birdwell Schlumberger dry hole logs. Drill 1867' to 1920', fill hole with 45 bbl mud. Run Schlumberger wet hole logs.
1/21/80	1920'	Run 43 jts., 4 1/2", set at 1895' cement, nipple down Halliburton and release rig at 1400 hours.

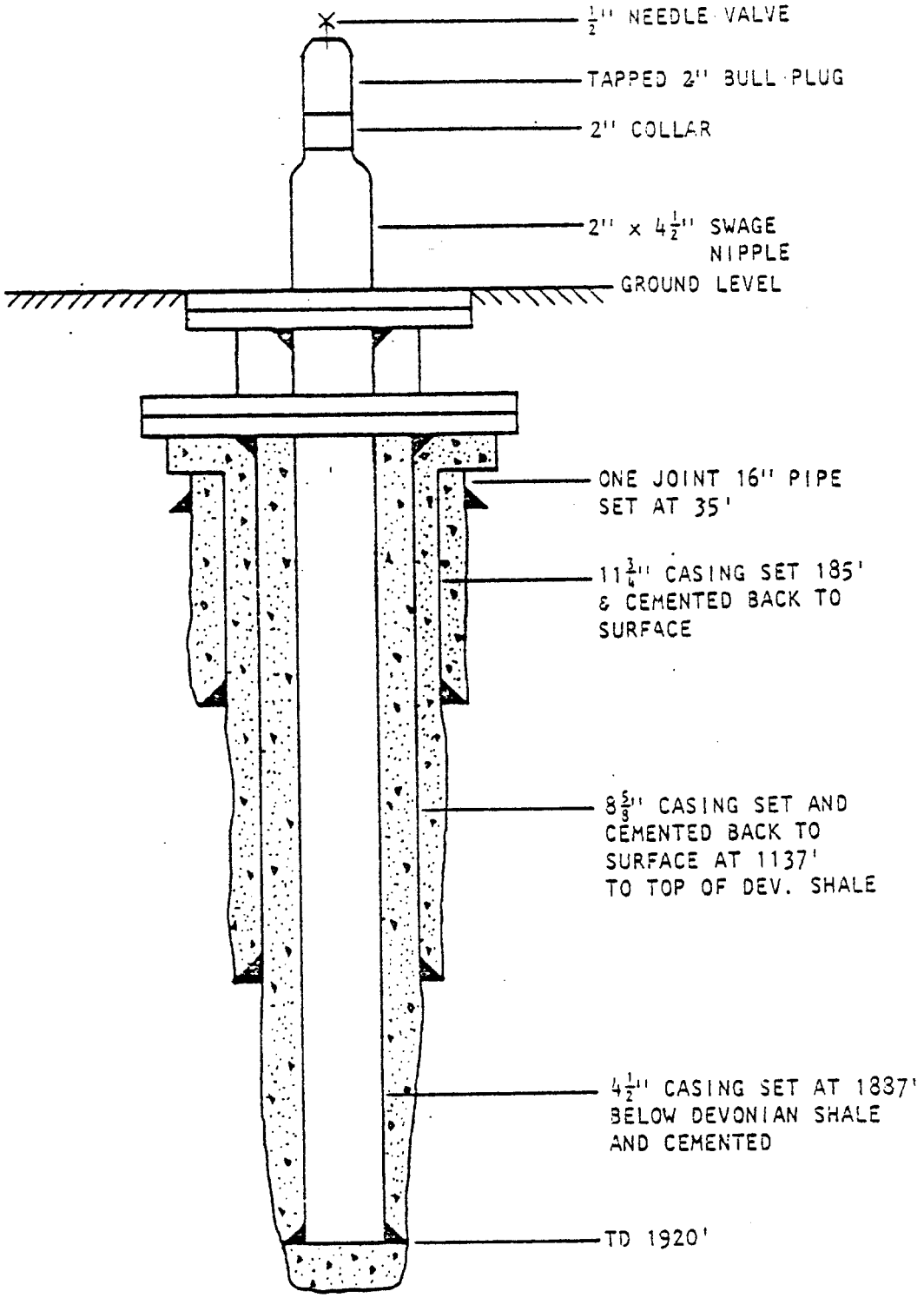


FIGURE 4

EGSP-TENNESSEE NO. 9 WELL SCHEMATIC

A few unexpected problems occured during coring. On Core 1 the core catcher did not engage and 9 feet of the 29-foot core remained in the hole. Five of the nine feet were recovered with Core 2 in which 30 feet was recovered for 25 feet cut.

During coring of the Lower Huron interval (originally 120 feet), several incidents occured. On Core 3, 1610'-1612', the pressure increased to 800 psi, making it necessary to pull out of the hole to check for core bit damage. Two feet of core was recovered in this interval. No problems were encountered in Core 4; 58 feet was recovered of 58 feet cut. On Core 5, 1670-1700', 30 feet was recovered; however, it was necessary to pull out of the hole early because of a jammed core barrel. Similarly on Core 6, 1700'-1712', it was necessary to pull out of the hole for the same reason with only 12 feet recovered, Core 7, 1712'-1742' recovered 30 feet of core. Cores 6 and 7 were fractured with Core 6 containing what appeared to be a bedding plane fault.

In the Rhinestreet/Clinch core interval, Core 8, 1820'-1844', was pulled after 24 feet when the barrel jammed and Core 9, 1844'-1867', was pulled after 23 feet because progress was very slow. The geolograph rates show approximately 10 minutes per foot for 1844'-1857'; 30 minutes per foot for 1857'-1867'; and 75 minutes per foot for 1866'-1867'. The extremely slow rate caused a decision to cease coring operations at 1867'. The core from 1857' to 1867' is a sandstone/quartzite.

FLUIDS IN THE HOLE

Surface casing was set at 185 feet and the hole was dry down to about 400 feet. At approximately 600 feet the volume of water increased and a strong odor of hydrogen sulfide was emitted from the hole. The hydrogen sulfide smell continued until casing was set at 1137 feet. After the 8-5/8 inch casing was set, the hole was dry down to 1420 feet.

No significant gas was detected while drilling through the Chattanooga.

Following coring of the Lower Huron interval (1610'-1742'), the hole was blown dry and the compressor then shut off to check for gas flow. No flow was detected by a lighted flare at the end of the blooie line; however, when air flow resumed, a small flash of gas was noted. A flow test after Core 8 (1820'-1844') slowed no detectable gas. Birdwells' sibilation log shows minor gas entries recorded at 1363 feet and 1486 feet.

APPENDIX I

DAILY DRILLING REPORTS

DAILY DRILLING REPORT

GRUY Federal, Inc.
Feb. 1, 1980

Operator: GRUY FEDERAL INC					
REPORT NO. 1	LEASE & WELL NO. EGSP Lb 9 WELL	COUNTY GRUNDY	STATE TENN	DATE 1/4/79	
REPORT BY RADFORD / PENCE	WEATHER	WIND ©	WAVE	SKY	
DEPTH 46'	PROGRESS 46'	PBTD	ACTIVITY AT REPORT TIME DRLG		

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0800	1000	2	RESUMED OPERATIONS 0800 HRS 1/3/79. START & WARM UP ENGINES. RECONNECT WATER LINES
1000	1400	4	DRILLED 17½" HOLE TO 35' KDB
1400	1600	2	RAN 25' 15 5/8" H 40 STEC CASING SET ON BOTTOM AT 35' KDB AND CEMENTED TO SURFACE WITH 22-50# SX 1/3 CONSTRUCTION CEMENT TO SAND MIXTURE
1600	2400	8	WOC
2400	0030	1/2	NIPPLE UP ON 16" CSG.
0030	0600	5½	DRILLING 25' TO 46'

REMARKS:

MUD RECORD		BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH		BIT NO.	1	2	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH FT
TIME		SIZE	17½	15	MAKE					
WEIGHT		MFG.	REED	HUGHES	MODEL					
VIS.		TYPE	RAPDSCIG		STROKE					
WL		JET		—	LINER SIZE					
PV/YP		SERIAL NO.	128153	LM193	SPM					
% OIL		DEPTH OUT	35		GPM					
Cl		DEPTH IN	10	35	SURFACE PRES					
Gels		TOTAL FT.	25		DEVIATION RECORD					
ALK		HRS	5	I	DEPTH	DEVIATION				
Ph		T/B/G Cond.	T1B1E2	N						
CL		WT. ON BIT		C						
DAILY COST		RPM	50							
		AN. VEL	—							
CUM COST		JET. VEL.	—							

DAILY DRILLING REPORT

Gruy Federal #449
GRUY Federal, Inc.
Feb. 1, 1980

Operator: Gruy Federal Inc.				
Report No. 2	Lease & Well No. ESDG - Tenn. No. 9	County: Grainger	State: Tenn.	Date: 1/5/80
Report By: Pickard / Peace / Cobb	Weather	Wind: @	Wave	Sky
Depth: 212	Progress: 164	PBTD	Activity at Report Time: Cond. hole to run 13 3/8" Csg.	

Time Log From	To	Elapsed Time	Details of Operations
0600	1600	13	Drld. 48 to 164'
1600	2000	1	Ran Dev. Survey 1/2° @ 160'
2000	0000	2	Drld. 164' to 212'
0000	0600	2	Cond. hole to run 13 3/8" Casing

Remarks:

Mud Record				Bit Record			Pump Data			Drilling Assembly / Casing or Tubin		
Depth				Bit No.	2		Pump No.	1	2	No.	Description	Length
Time				Size	15		Make					
Weight				Mfg.	HTC		Model					
Vis.				Type	OSC1GJ		Stroke					
WL				Jet			Liner Size					
PV/YP				Serial No.	JH103		SPM					
% Oil				Depth Out	212		GPM					
Cl.				Depth In	35		Surface Pres					
Gels				Total Ft	177		Deviation Record					
Alk				Hrs.	26 1/2		Depth	Deviation				
Pm				T/B/C Cond.	T2B2IC		100	1/2°				
Cl.				Wt. on Bit								
Daily Cost				RPM	50							
Cum Cost				An. Vel.								
				Jet. Vel.								

DAILY DRILLING REPORT

UCD File #440
Gray Federal, Inc.
Feb. 1, 1980

Operator: GRAY FEDERAL INC.

REPORT NO.	LEASE & WELL NO.	COUNTY	STATE	DATE
5	ESPG - TERR. No 9	GRAINGER	TENN.	1/6/80

REPORT BY	WEATHER	WIND	WAVE	SKY
RICHARD / PENCE / COBB		C		

DEPTH	PROGRESS	ETD	ACTIVITY AT REPORT TIME
212	0		WAIT ON 11 3/4" CSG.

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0800	1000	2	PU TO RUN 13 3/8" CSG. WE DID NOT HAVE 13 3/8" CASING TOOLS. (11 3/4" CASING TOOLS MISIDENTIFIED AS 13 3/8" TOOLS)
1000	1300	3	FABRICATE 11 3/4" x 13 3/8" LIFT NIPPLE
1300	1500	2	ATTEMPT TO RUN 13 3/8" CASING WOULD NOT GO BELOW 57'
1500	1600	1	RUN W/ 13 3/8" CSG.
1600	1700	1	REH W/ 15" BIT TO 66'. DID NOT TOUCH ANYTHING.
1700	0600	13	WAIT ON 11 3/4" CASING.

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBIN		
DEPTH				BIT NO.			PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH
TIME				SIZE			MAKE					
WEIGHT				MFG.			MODEL					
VIS.				TYPE			STROKE					
WL				JET			LINER SIZE					
PV/YP				SERIAL NO.			SPM					
% OIL				DEPTH OUT			GPM					
[illegible]				DEPTH IN			SURFACE PRES.					
Gell				TOTAL FT			DEVIATION RECORD					
ALK				HRS.			DEPTH	DEVIATION				
pH				T/B/C Core.								
CL			--	WT. ON BIT								
DAILY COST	-	-		RPM								
				AN VEL								
CUM COST				JET VEL								

DAILY DRILLING REPORT

UGR File #449
~~CRUY Federal, Inc.~~
Feb. 1, 1980

Operator CRUY FEDERAL, INC

REPORT NO	LEASE & WELL NO.	COUNTY	STATE	DATE
4	ESPG - TENN. No 9	GRAINGER	TENN.	1/7/80

REPORTED BY	WEATHER	WIND	WAVE	SKY
RADFORD / PERKE / KOER		@		

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
212'	0		WIRELINE UP

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	1630	10½	WAIT ON 11 3/4" CASING
1630	1900	2½	RAN 5 JOINTS 11 3/4" 47 #/FT, J-55, ST&C CASING AND SET AT 200'.
1900	2000	1	CMTD WITH 125 SX CLASS "A" CEMENT PLUS 4% CACL2. CIRC APPROX. 5 BBLS CEMENT. BUMP W/650 PSI. HELD PRESSURE 5 MIN & BLED OFF. FLOAT HELD OK.
2000	0600	10	DUG CELLAR CUT OFF 16" & 11 3/4" CSG. NOW NIPPLING UP WELL HEAD.

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBIN		
DEPTH				BIT NO			PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH F
TIME				SIZE			MAKE					
WEIGHT				MFG.			MODEL					
VIS.				TYPE			STROKE					
WL				JET			LINER SIZE					
PV/YP				SERIAL NO.			SPM					
% OIL				DEPTH OUT			GPM					
Cl				DEPTH IN			SURFACE PRES.					
Ca				TOTAL FT.			DEVIATION RECORD					
ALK.				HRS.			DEPTH	DEVIATION				
PH.				T/B/G Cond.								
CL				WT. ON BIT								
DAILY COST				RPM								
				SN. VEL.								
CUM COST				JET. VEL.								

DAILY DRILLING REPORT

UGR File #4[illegible]

GRUY Federal, Inc.

Feb. 1, 1980

Operator GRUY FEDERAL INC

REPORT NO.	LEASE & WELL NO.	COUNTY	DATE
5	FKPC-TEXAS No 9	GARFIELD TEXAS	1/8/80

REPORT BY	WEATHER	WIND	WAVE	SKY
PROFORD / CONTS		G		

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
440	226		DRILLING

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
1400	1400	2	MIDDLE OUT TO 11 3/4" CASING. NOTE: WHILE WELDING ON WELL HEAD WELDER DROPPED PIECE OF STEEL PLATE 6 1/2" x 2 1/2" x 1/2" IN HOLE.
1400	1630	2 1/2	WAIT ON FISHING TOOLS.
1630	1930	3	RIH W/ 9" MAGNET & RECOVERED FISH. POH.
1930	2030	1	RIH W/ 7 7/8" BIT
2030	0100	9 1/2	DRLD 212'-440', HOLE WET AT 400'

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBIN		
DEPTH				BIT NO.	3		PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH
TIME				SIZE	7 7/8		MAKE			1	7 7/8" BIT	
WEIGHT				MFG.	HTC		MODEL			13	5 1/2 DC'S	
VIS.				TYPE	T133		STROKE				TO KELLY	
WL				JET	3-20		LINER SIZE					
PV/YP				SERIAL NO.	XH510		SPM					
% OIL				DEPTH OUT			GPM					
SI				DEPTH IN	212		SURFACE PRES	160				
Cl				TOTAL FT.	4 HC.		DEVIATION RECORD					
ALK.				HRS.			DEPTH	DEVIATION				
PH.				T/B/G Cond.								
CL.				WT. ON BIT	30							
DAILY COST				RPM	50							
				AN. VEL								
CUM. COST				JET. VEL								

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

DAILY DRILLING REPORT

Operator: GRUY FEDERAL, INC.

REPORT NO	LEASE & WELL NO	COUNTY	STATE	DATE
6	ESPG TENN. No 9	GRAINGER	TENN	1/9/80

REPORTED BY	WEATHER	WIND	WAVE	SKY
RADFORD / CORB		@		

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
1071	631		DRLG

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	0600	24	DRLG 440 - 1071
			ESTIMATED CORE POINT 1140'

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBI		
DEPTH				BIT NO.	3		PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH
TIME	N			SIZE	7 7/8		MAKE			1	7 7/8 Bit	
WEIGHT				MFG.	HTC		MODEL			14	5½ DCs	
VIS.		/		TYPE	J33		STROKE				TO DP	
WL				JET	3-20		LINER SIZE					
PV/YP		R		SERIAL NO	XM928		SPM					
% OIL		R		DEPTH OUT			GPM					
Cl				DEPTH IN	212		SURFACE PRES	700				
Gels				TOTAL FT.	T		DEVIATION RECORD					
ALK.				HRS	11		DEPTH	DEVIATION				
PH.				T/B/G Cond.	G							
CL.				WT. ON BIT	30							
DAILY COST				RPM	50							
				AN VEL								
CUM COST				JET. VEL								

DAILY DRILLING REPORT

CONTRACTOR: GRUY FEDERAL INC				
REPORT NO. 7	LEASE & WELL NO. ESPY TENN No. 9	COUNTY GRAINGER	STATE TENN	DATE 1/10/20
REPORT BY RADFORD / COBB	WEATHER	WIND @	WAVE	SKY

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
1137'	66		REAMING 7 7/8" HOLE TO 10 5/8"

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	1130	5½	DRLD 1071-1137'
1130	1400	2½	POH. LD 1-6½" DC. PU 2-7½" DC.
1400	1700	3	ND BOPS TO REMOVE SPOOL NU.
1700	1800	1	RTH. FLOAT IN UPSIDE DOWN
1800	2100	3	ROUND TRIP TO CHANGE FLOAT
2100	0300	6	REAM 7 7/8" HOLE TO 10 5/8" 200' - 416
0300	0500	2	UNLOAD 8 5/8" CASING
0500	0600	1	REAM 416' TO 447'

REMARKS:

MUD RECORD			
DEPTH			
TIME			
WEIGHT			
VIS.			
WL			
PV/YP			
% OIL			
Cl			
Gell			
ALK			
pH			
CL			
DAILY COST			
CUM. COST			

BIT RECORD		
BIT NO.	13	4
SIZE	7 7/8	10 5/8
MFG.	HTC	REED
TYPE	J33	FP64
JET	3-20	3-24
SERIAL NO	XM868	544172
DEPTH OUT	1137	R
DEPTH IN	212	
TOTAL FT.	925	E
HRS	33½	
T/B/G Cone.	I-2-2	A
WT. ON BIT	5-35	M
RPM	50	
AN. VEL		
JET. VEL		

PUMP DATA		
PUMP NO.	1	2
MAKE		
MODEL		
STROKE		
LINER SIZE		
SPM		
GPM		
SURFACE PRES	200	

DEVIATION RECORD

DEPTH	DEVIATION

DRILLING ASSEMBLY / CASING OR TUBING		
NO.	DESCRIPTION	LENGTH-FT
1	10 5/8" Bit	
2	7½" DCs	
13	5½" DCs	
	TO DP	

713/785-9200
UGR File #449
GRUY Federal, Inc.
~~Feb. 1, 1980~~

DAILY DRILLING REPORT

Operator: GRUY FEDERAL INC.			
Report No.: 8	Lease & Well No.: ESPY TENN. No 9	County: GRAINGER TENN.	Date: 1/11/80
Report By: RADFORD / CORE	Weather:	Wind: @	Wave: / Sky:
Depth: 1137'	Progress: 0	PBTD: —	Activity at Report Time: REAMING 7 1/2" HOLE TO 10 5/8" @ 1048'

Time Log From	To	Elapsed Time	Details of Operations
0100	0200	24	REAMED 7 1/2" HOLE TO 10 5/8" FROM 447' TO 1048'

Remarks:

Mud Record				Bit Record			Pump Data			Drilling Assembly / Casing or Tubing		
Depth				Bit No.	4		Pump No.	1	2	No.	Description	Length, Ft.
Time				Size	10 5/8		Make			1	10 3/8" Bit	
Weight	N			Mfg.	REED		Model			2	7 1/2" DC's	
Vis.				Type	FP42		Stroke			13	5 1/2" DC's	
Wl				Jet	3-24		Liner Size					
Pv/Yp		/		Serial No.	SA177		SPM				TO DO	
Oil				Depth Out	R		GPM					
Sd				Depth In			Surface Pres.	700				
Gels				Total Ft.	E		Deviation Record					
Pk				Hrs.	A		Depth	Deviation				
Pm				T/B/G Cond.								
Cl				Wt. on Bit	M							
Daily Cost				RPM								
				Ann Vel								
Cum Cost				Jet Cl								

DAILY DRILLING REPORT

GRUY Federal, Inc.

Feb. 1, 1980

OPERATOR: GRUY FEDERAL INC.

REPORT NO. 9 | LEASE & WELL NO. ESGP TEXAS No 9 | COUNTY GRAINGER | STATE TEXAS | DATE 1/12/80

REPORT BY: RADFORD / GEE | WEATHER | WIND @ | WAVE | SWELL

DEPTH 1137 | PROGRESS 0 | PBTD — | ACTIVITY AT REPORT TIME: CEMENTING 8 5/8" CASING

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	1230	6½	REAM 7 7/8" HOLE TO 10 5/8" FROM 1042' TO 1137'
1230	1400	1½	CIRC & CLEAN HOLE TO LOG
1400	1600	2	POH. LD 2-7½" COLLARS
1600	2100	5	RUNNING LOGS. FIRSTWELL TD 1125' RAN DENSITY - GR - CALIPER AND GR - DUAL INDUCTION LOGS.
2100	2300	2	REPOSITION DRILL COLLARS NOTE: STRONG GUSTY WIND BLEW DC'S ACCROSS DERRICK AND TORE OFF GUARD RAIL.
2300	0430	5½	RAN 36 jts 8 5/8 24#/FT, J55 STEEL CASING (TALLEY 1138.95') WASHED 10' TO BOTTOM AND SET AT 1137'
0430	0600	1½	CEMENTED WITH 300 sx CLASS "A" CMT + 4% CaCl. PLUG DID NOT BUMP. OVERDISPLACED 6½ Bbls. (FOUND PLUG IN PLUG CONTAINER) CEMENT IN PLACE AT 0600 hrs. CIRC. APPROX 15 Bbls CMT

REMARKS:

MUD RECORD				BIT RECORD		PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH				BIT NO	4	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH FT
TIME				SIZE	10 5/8	MAKE			1	10 5/8" Bit	
WEIGHT				MFG.	REED	MODEL			7	7½" DC's	
VIS				TYPE	FP62	STROKE			13	5½" DC's	
WL				JET	3-24	LINER SIZE					
PV/YP				SERIAL NO.	546172	SPM					
SOIL				DEPTH OUT	1137	GPM					
Cl				DEPTH IN	212	SURFACE PRES	200				
Ca				TOTAL FT	925	DEVIATION RECORD					
LCM				HRS	37½	DEPTH	DEVIATION				
pH				T/B/G Cons.	7 1 B3 IG						
CL				WT. ON BIT	0-35						
DAILY COST				RPM	50						
CUM. COST				IN VEL.							
				JET VEL.							

DAILY DRILLING REPORT

File #449
CRUY Federal, Inc.
Feb. 1, 1980

OPERATOR GRUY FEDERAL INC.				
REPORT NO. 10	LEASE & WELL NO. ESGP TENN. No 9	COUNTY GRAINGER	STATE TENN	DATE 1/13/80
REPORTED BRADFORD / COBB	WEATHER	WIND @	WAVE	SKY
DEPTH 1185	PROGRESS 28	PBTD	ACTIVITY AT REPORT TIME CORING CORE No 1.	

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	1500	9	SET SLIPS. CUT OFF 2 3/8" CSG. NIPPLE UP BOP's. PU 1-5 1/2" DC
1500	1845	3 3/4	RIH w/ 7 7/8" bit. DRILL FC & FS. DRY UP HOLE.
1845	2045	2	DRILL 7 7/8" HOLE 1137'-1167'. DRILL 5' & CIRC. 15 min FOR SAMPLE EVALUATION.
2045	0315	6 1/2	POOH TRIP FOR CORE BARREL. CIRC. SPEE FOAM.
2315	0600	2 3/4	CORE No 1 1167-1185 CORING

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH				BIT NO.	5	6	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH FT
TYPE	F			SIZE	7 7/8	7 7/8	MAKE			1	30' CB	
WEIGHT				MFG.	HYCHEC	HYCHEC	MODEL			1	5 1/2" MONEL COLLAR	
	O			TYPE	J33	J33	STROKE			14	5 1/2" DCs	
				JET	—	—	LINER SIZE					
SURVEY		A		SERIAL NO.	XM5719	K2905	SPM				DP.	
FILL				DEPTH OUT			GPM					
			M	DEPTH IN	FC	I	SURFACE PRES	300				
GAIN				TOTAL FT.	8	N	DEVIATION RECORD					
				HRS.		C.	DEPTH	DEVIATION				
				T/B/G Cond.								
CL.				WT. ON BIT	FS	14						
DAILY COST				RPM		50						
				AN. VEL.								
CUM. COST				JET								

DAILY DRILLING REPORT

GRUY Federal, Inc.
Feb. 1, 1980

OPERATOR: GRUY FEDERAL INC.

REPORT NO.	LEASE & WELL NO.	COUNTY	STATE	DATE
11	ESGD TENN. No 9	GRAINGER	TENN.	1/14/80

REPORT BY	WEATHER	WIND	WAVE	SKY
RADFORD		@		

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
1414	229		ATTEMPTING TO DRY UP HOLE.

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	0800	2	CORE No1 1185-1196 CUT 20'
0800	1215	4½	ROUND TRIP WITH CORE BARREL. CUT 29' REC 20' HEAVY 30' TO BOTTOM.
1215	1515	3	CORE No 2 1196'-1221'
1515	2300	7½	POOH W/ CORE No 2 CUT 25' REC 30' (5' FROM CORE No1) PICK UP ADDITIONAL SECTION CORE BARREL AND STAND BACK IN DERRICK WITH DRY UP HOLE.
2300	0500	6	DRILL 1221' TO 1414' HOLE STARTED MAKING WATER
0500	0600	1	ATTEMPTING TO DRY UP HOLE

REMARKS:

MUD RECORD				BIT RECORD		PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH				BIT NO.	5R2	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH-FT
TYPE	A			SIZE	7⅞	MAKE			1	7⅞" Bit	
WEIGHT				MFG.	HUGHES	MODEL			14	5½" DCs.	
		1		TYPE	T33	STROKE				TE	
				JET	—	LINER SIZE				DP	
PV YP				SERIAL NO.	KM572	SPM					
		R		DEPTH OUT		GPM					
		R		DEPTH IN	1221	SURFACE PRES.	200				
Gels				TOTAL FT		DEVIATION RECORD					
				HRS		DEPTH	DEVIATION				
				T/B/G Cond.							
CL				WT. ON BIT	35						
DAILY COST				RPM	50						
				AN. VEL.							
CUM. COST				JET. VEL.							

DAILY DRILLING REPORT

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

Operator: GRUY FEDERAL, INC.				
REPORT NO. 12	LEASE & WELL NO. ESGP TENN. No 9	COUNTY GRAINGER	TENN.	DATE 1/15/80
REPORT BY BRADFORD / COBB	WEATHER	WIND @	WAVE	SKY
DEPTH 1612	PROGRESS 200	PBTD	ACTIVITY AT REPORT TIME POH w/ CB	

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	0900	3	CIRC. & NTRT. TO DRY UP HOLE. TRANSFER STEE FORM. MIX SOAP FORM TO DRILL.
0900	1230	3½	DRILL 1614 TO 1590'
1230	1400	1½	DRILL AND CIRC. 5' INTERVALS DRILL, 1590-1610 CIRC 15 MIN BETWEEN 5' DRILLED INTERVALS.
1400	1500	1	CIRC. POH TO RUN LOGS.
1500	1000	5	RAN INDUCTION - SP & LOGEHOLE COMPENSATED DENSITY LOGS. FL APPROX 1410'
1000	1200	2	RTH w/ CB.
1200	0330	3½	REAM 1430' TO 1490'. RTH TO BOTTOM AT 1610
0330	0400	½	CORED 1610' TO 1612'. PRESSURE INCREASED TO 500 psi. CORE No 3 REC. 2'
0400	0600	2	POH w/ CB.

REMARKS:

MUD RECORD				BIT RECORD		PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH				BIT NO	5RR	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH
TIME				SIZE	7 7/8	MAKE			1	CORE Tbl	
WEIGHT				MFG.	HTC	MODEL			1	5½" MONEL DC	
VIS.				TYPE	J33	STROKE			14	5½" DC's	
PV				JET	—	LINER SIZE					
YP				SERIAL NO.	XM5TN	SPM					
OIL				DEPTH OUT	1610	GPM					
%				DEPTH IN	1221	SURFACE PRES.	200				
GEL				TOTAL FT	389	DEVIATION RECORD					
PK.				HRS.	41	DEPTH	DEVIATION				
%				T/B/G Cond.	T131 IG						
CL.				WT. ON BIT	35						
DAILY COST				RPM	50						
				AN. VEL							
CUM COST				JET. VEL							

DAILY DRILLING REPORT

OPERATOR: GRUY FEDERAL, INC.				
REPORT NO: 13	LEASE & WELL NO: ESGP TENN. No 9	COUNTY: GRAINGER	STATE: TENN.	DATE: 1/16/80
CONTRACTOR: TRAFORD / CORB	WEATHER	WIND: @	WAVE	SKY
DEPTH: 1697	PROGRESS: 85'	PBTD	ACTIVITY AT REPORT TIME: CORING CORE No 4	

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	1000	4	RIH w/60' CORE BARREL FOR CORE No 4
1000	1900	9	CUT CORE 1612'-1670' CUT 58'
1900	2030	5½	RT w/ CB. LD CORE No 4 REC 58'
2030	0600	5½	CORING CORE No 5 AT 1697'

REMARKS:

MUD RECORD				BIT RECORD		PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH				BIT NO.	7	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH FT
MUD TYPE				SIZE	7 27/32	MAKE			1	60' CORE BBL	
WEIGHT				MFG.	CHRS	MODEL			1	6½" MODEL DC	
VIS.		0		TYPE	DIA	STROKE			14	6½ DC's	
				JET		LINER SIZE					
PV YP				SERIAL NO	9K296	SPM					
OIL		N		DEPTH OUT		GPM					
				DEPTH IN	1612	SURFACE PRES.	200				
			M	TOTAL FT	1	DEVIATION RECORD					
GEL				HRS	N.	DEPTH	DEVIATION				
FILTRATE				T/B/G CONG.	C.						
CL				WT. ON BIT	14						
DAILY COST				RPM	50						
				AN. VEL							
CUM. COST				JET. VEL							

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

DAILY DRILLING REPORT

Operator: GRUY FEDERAL INC.

REPORT NO	LEASE & WELL NO.	COUNTY	STATE	DATE
12	ESGD TENN. No 9	GRAINGER	TENN.	1/17/80

REPORT BY	WEATHER	WIND	WAVE	SKY
RADFORD/COOEE/McCOY		@		

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
1742	45		CORING

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	0830	2½	CORING CORE No 5 1670 TO 1700' REC 30' CB
0830	1300	4½	RT W/CB
1300	1600	3	CORED CORE No 6 1700' TO 1712' CB JAMMED REC 12'
1600	2200	6	RT W/CB
2200	0600	8	CORED CORE No 7 1712 TO 1742

REMARKS:

MUD RECORD				BIT RECORD		PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBIN		
DEPTH	—			BIT NO	7	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH
TIME	—			SIZE	7 27/32	MAKE			1	60' CB	
WEIGHT				MFG.	Chaic	MODEL			1	6½" Monel Collar	
VIS.	0			TYPE	DIA	STROKE			14	6½" DP's	
WL				JET	—	LINER SIZE					
PV/YP		M		SERIAL NO.	9K2986	SPM					
% OIL				DEPTH OUT		GPM					
Cl				DEPTH IN	1612	SURFACE PRES	200				
Gell		M		TOTAL FT.	—	DEVIATION RECORD					
ALK.				HRS	11	DEPTH	DEVIATION				
PR.				T/B/G CORR.	C						
CL.				WT. ON BIT	12						
DAILY COST				RPM	32						
				AN VEL							
CUM COST				JET VEL							

DAILY DRILLING REPORT

GRUY Federal, Inc.
Feb. 1, 1980

OPERATOR GRUY FEDERAL, INC					
REPORT NO 15	LEASE & WELL NO ESGP TENN. No 9		COUNTY GRAINGER	STATE TENN.	DATE 1/12/80
REPORT BY RADFORD / CORE / McCOY		WEATHER	WIND @	WAVE	SKY
DEPTH 1843	PROGRESS 101	PBTD	ACTIVITY AT REPORT TIME CORING CORE No 8 @ 1843'		

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	1045	4¾	POH w/ CORE No 7 1712 to 1742' CUT 30' REC 30' RIH w/ 7⅞" Bit
1045	1245	2	BLOW HOLE DRY SHUT OFF COMPRESSOR TO CHECK FOR FLOW. NO DETECTABLE FLOW. WHEN CIRCULATION RESUMED HAD FLASH OF GAS.
1245	1545	3	REPAIR SOAP PUMP.
1545	1745	2	DRILLED 1742' TO 1802'
1745	1845	1	DRILLED 5' & CIRC. 10 MIN FOR SAMPLE EVALUATION DRILLED 1802' TO 1820'
1845	2400	3¼	POH w/ Bit. RIH w/ CB.
2400	0600	6	CORE No 8 1820 to 1843. CORING.

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH				BIT NO	SPR	TRE	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH FT
TYPE	F			SIZE	7⅞	7 27/32	MAKE			1	60' C.B.	
WEIGHT				MFG.	HTC	CHRIS	MODEL			1	6½ MONEL COLLAR	
VIS.		O		TYPE	J33	DIA.	STROKE			14	6½ DC's	
				JET	—	—	LINER SIZE					
PV/YP				SERIAL NO.	X M57	19K2902	SPM					
GEL		K		DEPTH OUT	1820		GPM					
				DEPTH IN	1742	1820	SURFACE PRES.	700				
GEL				TOTAL FT	78	T	DEVIATION RECORD					
		M		HRS	3	U	DEPTH	DEVIATION				
				T/B/G Cond.		G						
CL				WT. ON BIT	35	14						
SOLIDS				RPM	50	14						
				AN. VEL.								
CUM. COST				JET. VEL.								

DAILY DRILLING REPORT

GRUY Federal, Inc.
Feb. 1, 1980

OPERATOR: GRUY FEDERAL, INC.

REPORT NO.	LEASE & WELL NO.	COUNTY	STATE	DATE
16	ESGP TENN No 9	GRAINGER	TENN.	1/19/80

REPORTER	WEATHER	WIND	WAVE	SKY
RINFORD / COERS / McCOY		@		

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
1867	2		POH w/ Core No 9

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	1030	4½	RT FOR CORE No 8. 1820-1844. CORED 24' REC. 24' BARREL DAMAGED.
1030	2200	11½	CORE No 9. 1844-1867'. CORED 23' REC. 23' SLIGHT PREFERENCE
2200	0130	3½	POH w/ CORE No 9.
0130	0600	4½	BIRDWELL RUNNING WLL.

REMARKS:

MUD RECORD				BIT RECORD		PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBING		
DEPTH				BIT NO.	7RP	PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH FT
TIME	F			SIZE	7 7/32	MAKE			1	60' CB	
WEIGHT				MFG.	CHRS	MODEL			1	6½" MODEL UK	
VIS.	O			TYPE	DIA.	STROKE			XL	6½" DCs	
WL				JET		LINER SIZE					
PV/YP				SERIAL NO.	9K2406	SPM					
OIL		A		DEPTH OUT	1867	GPM					
Cl				DEPTH IN	—	SURFACE PRES.					
Gels				TOTAL FT	—	DEVIATION RECORD					
ALK.			M	HRS.	—	DEPTH	DEVIATION				
Pm				T/B/G Cond.	—						
Cl				WT. ON BIT	14						
DAILY COST				RPM	35						
				AV. VEL							
CUM. COST				JET. VEL							

DAILY DRILLING REPORT

GROY Federal, Inc.
Feb. 1, 1980

Operator: GROY FEDERAL INC.					
REPORT NO. 17	LEASE & WELL NO. ESGP TENN. No. 9		COUNTY GRAINGER	STATE TENN.	DATE 1/20/80
REPORT BY RADFORD / McCOY		WEATHER	WIND @	WAVE	SKY
DEPTH 1920	PROGRESS 520	PBTD	ACTIVITY AT REPORT TIME WLL LOGGING		

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	0630	1/2	WLL w/BIRDWELL
0630	1300	6 1/2	WLL w/SCHLUMBERGER
1300	1500	2	RTH w/ 7 7/8" BIT. UNLOAD HOLE
1500	1630	1/2	CIRC.
1630	1900	2 1/2	DRILLED 1267' - 1920'
1900	2000	1	CIRC WALLIE. LOADED HOLE w/65 Bbl MUD
2000	2300	3	POH - LDDP
2300	0600	7	WLL w/SCHLUMBERGER

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBIN		
DEPTH				BIT NO.			PUMP NO.	1	2	NO.	DESCRIPTION	LENGTH
TIME				SIZE			MAKE					
WEIGHT				MFG.			MODEL					
VIS.				TYPE			STROKE					
WL				JET			LINER SIZE					
PV/YP				SERIAL NO.			SPM					
% OIL				DEPTH OUT			GPM					
Cl				DEPTH IN			SURFACE PRES					
Gels				TOTAL FT			DEVIATION RECORD					
ALK				HRS.			DEPTH	DEVIATION				
PH				T/B/G Cond.								
CL.				WT. ON BIT								
DAILY COST				RPM								
CUM. COST				AN. VEL.								
				JET VEL.								

DAILY DRILLING REPORT

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

Operator: GRUY FEDERAL, INC.

REPORT NO.	LEASE & WELL NO.	COUNTY	STATE	DATE
18	FSGP TENN. No 9	GRAINGER	TENN.	1/21/80

REPORTER	WEATHER	WIND	WAVE	SKY
RADFORD / McCOY		@		

DEPTH	PROGRESS	PBTD	ACTIVITY AT REPORT TIME
1920	0	1895	FINAL REPORT Rig Rel. 1400 hrs. 1/20/80

TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
0600	0900	3	WELL w/ SCHLUMBERGER
0900	1200	3	RAN 43 JTS 4½ 9.5#/FT J55 ST&C CSG. AND SET AT 1895' (JS AT 1895' (TALLY 1876.24')
1200	1330	1½	CMTD w/ 400 sx CLASS "A" + 2% CaCl. CIRC 25 sx CMT. BUMP w/ 1400 psi. SMIN OK. BLED OFF PRESSURE FLOAT OK.
1330	1400	½	NIPPLE DOWN HALLIBURTON

REMARKS:

MUD RECORD				BIT RECORD			PUMP DATA			DRILLING ASSEMBLY / CASING OR TUBI		
DEPTH				BIT NO.			PUMP NO	1	2	NO.	DESCRIPTION	LENGTH
TIME				SIZE			MAKE					
WEIGHT				MFG.			MODEL					
VIS.				TYPE			STROKE					
WL				JET			LINER SIZE					
PV/YP				SERIAL NO.			SPM					
% OIL				DEPTH OUT			GPM					
Cl				DEPTH IN			SURFACE PRES.					
Gels				TOTAL FT.			DEVIATION RECORD					
ALK				HRS			DEPTH	DEVIATION				
PH.				T/B/G Cond.								
CL.				WT. ON BIT								
DAILY COST				RPM								
				AN. VEL								
CUM. COST				JET. VEL								

APPENDIX II

CORING REPORTS

UGR File #449
GRUY Federal, Inc.
Feb 1, 1980

#1

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-7-79

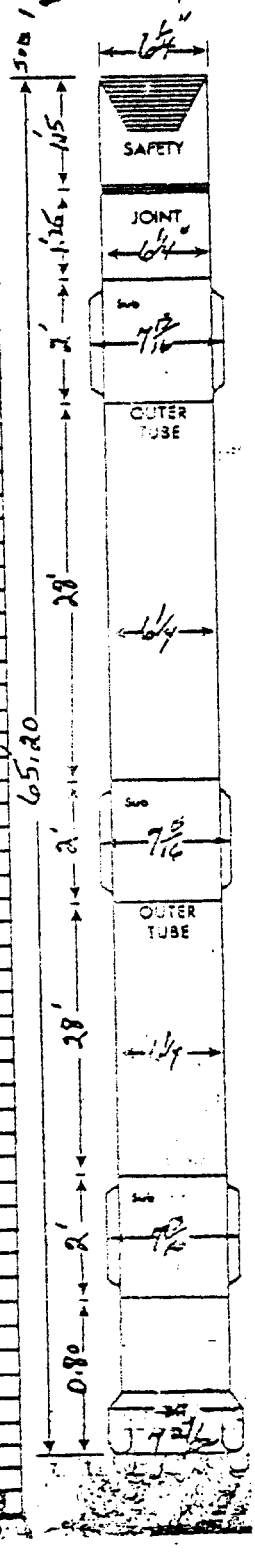
WELL INFORMATION
Company Gruy Federal
Contractor Fairman Bros. #11
Number McCall #5 - Angerman
County Indiana State Pa.
Hole Size 7 7/8"
Formation Name Devonian
Formation Disc. Shale
Mud - Wt. Vis.

EQUIPMENT
Core Barrel No. # 7635
Size 6 1/4" x 4" Length 60'
Bit No. 9-K-2779
Size 7 27/32" x 5 1/2" Type
Previous footage 0
This core Core No. #1
Total footage
Pump Pressure 2-900-Comp, 1-Booster

PERFORMANCE
Interval Cored – Finish 7156'
– Start 7108'
Footage Cored 58'
Core Recovery 58'
% Recover
Start = 11:19 AM.
Finish = 3:00 PM
2 hr 35 min - Time

No. Feet Cored	Interval	Penetration Rate Minutes per Foot	Weight	Rotating RPM	Fluid Conditions
0	7108		10,000	40	
1	09	5			
2	7108	4			P
3	08	7			P
4	7108	7			P
5	09	6			
6	7109	6			P
7	09	7			P
8	10	8			P
9	11	6			P
10	12	6			P
11	13	6			P
12	7110	6			P
13	11	5			P
14	12	5			P
15	13	5			P
16	14	6			P
17	7116	6			P
18	16	6			P
19	17	6	Core @ 7116	14,000	40
20	18	6	27 min.		P
21	19	7			P
22	7120	7			P
23	21	7			P
24	22	7			P
25	23	7			P
26	24	7			P
27	7125	7			P
28	26	8			P
29	27	7			P
30	28	7			P
31	29	7			P
32	7130	6			P
33	31	6			P
34	32	6			P
35	33	6			P
36	34	6			P
37	7135	7			P
38	36	6			P
39	37	6			P
40	38	5			P
41	39	6			P
42	7140	6			P
43	41	6			P
44	42	5			P
45	43	6			P
46	44	7			P
47	7145	6			P
48	46	6			P
49	47	7			P
50	48	7			P
51	49	6	Core @ 7148		P
52	7150	5	27 min.		P
53	51	5			P
54	52	5			P
55	53	3			P
56	54	7			P
57	55	3			P
58	56	3			P
59					
60					

Sample 41 mill. over pic
5 lbs 46 mid on Btm
5.9 min average



CHRISTENSEN DIAMOND PRODUCTS

CORE ORIENTING LOG

#1

Date 11-8-79

WELL INFORMATION

Company: Gruy Federal Inc.
Contractor: Fairman Drlg. Co. Rig #11
Well Name: McCall - Angerman #5
County: Indiana State: Penna.
Hole Size: 7 7/8"
Formation Name: Devonian
Formation Description: Shale

PERFORMANCE

Interval Cored: Finish 7156'
Start 7098'

Footage Cored 58'

Rec. 58'

CORRECTIONS

Declination 6 Degrees ☐ East ☒ West

Azimuth Correction for Declination
East Declination ☐ Add to Azimuth
West Declination ☒ Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees ☐ Right ☐ Left of Orientation Lug.
☐ Right Add to Lug Azimuth
☐ Left Subtract from Lug Azimuth

Randall Anselment - Reader

DRIFT			STATION				ORIENTATION						
Drift	Drift Direction Magnetic	Drift Direction True	Station No.	Time	Picture No.	Depth	Orienting Lug Direction, Magnetic	Orienting Lug Azimuth, Magnetic	Magnetic Declination Correction	Orienting Lug Azimuth, True	Reference Groove Correction	Azimuth of Reference Groove, True	Direction of Ref. Groove, True
7	N00E	N06W	1	8.18	125	7100	N15W	345	6° W	339	0	339	N21W
7	N00E	N06W	2	8.37	130	7102	N25W	335	6° W	329	0	329	N31W
7	N00E	N06W	3	8.54	134	7104	N30W	330	6° W	324	0	324	N36W
6 3/4	N00E	N06W	4	9.14	139	7106	N38W	322	6° W	316	0	316	N44W
6 3/4	N00E	N06W	5	9.31	143	7108	N50W	310	6° W	304	0	304	N56W
6 3/4	N00E	N06W	6	9.47	147	7110	N55W	305	6° W	299	0	299	N61W
6 3/4	N00E	N06W	7	10.00	151	7112	N70W	290	6° W	284	0	284	N76W
6 3/4	N00E	N06W	8	10.16	155	7114	N75W	285	6° W	279	0	279	N81W
6 3/4	N00E	N06W	9	10.32	159	7116	N82W	278	6° W	272	0	272	N88W
6 3/4	N00E	N06W	10	11.17	170	7118	N25E	025	6° W	019	0	019	N19E
6 3/4	N00E	N06W	11	11.36	175	7120	N16E	016	6° W	010	0	010	N10E
6 3/4	N00E	N06W	12	11.55	179	7122	N09E	009	6° W	003	0	003	N03E
6 3/4	N00E	N06W	13	12.11	183	7124	N02E	002	6° W	356	0	356	N04W
6 3/4	N00E	N06W	14	12.29	188	7126	N02W	358	6° W	352	0	352	N08W
6 3/4	N00E	N06W	15	12.47	192	7128	N12W	348	6° W	342	0	342	N18W
6 3/4	N00E	N06W	16	13.03	196	7130	N20W	340	6° W	334	0	334	N26W
6 3/4	N00E	N06W	17	13.17	200	7132	N23W	337	6° W	331	0	331	N29W
6 3/4	N00E	N06W	18	13.33	204	7134	N28W	331	6° W	325	0	325	N35W
6 3/4	N00E	N06W	19	13.50	208	7136	N32W	328	6° W	322	0	322	N38W
6 3/4	N00E	N06W	20	14.04	212	7138	N35W	325	6° W	319	0	319	N41W
6 3/4	N00E	N06W	21	14.21	216	7140	N39W	321	6° W	315	0	315	N45W
6 3/4	N00E	N06W	22	14.36	220	7142	N44W	316	6° W	310	0	310	N50W
6 3/4	N00E	N06W	23	14.54	224	7144	N44W	316	6° W	310	0	310	N50W
6 3/4	N00E	N06W	24	15.09	228	7146	N48W	312	6° W	312	0	312	N48W
6 3/4	N00E	N06W	25	15.28	233	7148	N45W	315	6° W	319	0	319	N41W
6 3/4	N00E	N06W	26	16.11	243	7150	S80W	260	6° W	254	0	254	S26W
7	N00E	N06W	27	16.23	246	7152	S82W	262	6° W	256	0	256	S76W
7	N00E	N06W	28	16.36	249	7154	S75W	255	6° W	249	0	249	S69W
7	N00E	N06W	29	16.51	255	7156	S73W	253	6° W	247	0	247	S67W
			30										

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UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

#2

Date 11/8/79

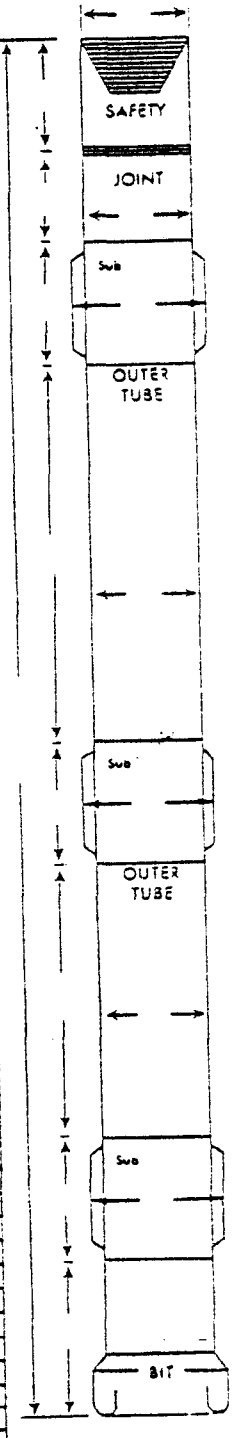
WELL INFORMATION
Company GRUY FEDERAL INC
Contractor FAIRMAN BROS. #11
Number McCALL #5 ANGERMAN
County INDIANA State PA.
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE
Mud - Wt. Vis.

EQUIPMENT
Core Barrel No. 7635
Size 6 1/4 x 4 Length 60'
Bit No. 9K - 2779
Size 7 27/32 x 3 1/2 Type
Previous footage #53
This core 52 Core No. #2
Total footage 110
Pump Pressure 345 Liner Size 2 500 Comp. Strokes

PERFORMANCE
Interval Cored — Finish 7208
— Start 7156
Footage Cored 52
Core Recovery 52
% Recover
START - 8:42 AM
STOP - 4:46 PM
1 BOOSTER P/TIME -

No. Feet Cored	Interval	Penetration Rate Minutes per Foot	Weight	Rotating RPM	Flow GPM
0	7156		17000	40	
1	57	5			
2	58	5			
3	59	5			
4	7160	4			
5	61	6			
6	62	6			
7	63	4			
8	64	4			
9	7165	5			
10	66	6			
11	67	4			
12	68	3			
13	69	4			
14	7170	4			
15	71	5			
16	72	5			
17	73	5			
18	74	5			
19	7175	5			
20	76	6			
21	77	5			
22	78	5			
23	79	5		Down @ 7178	
24	7180	4		21 Min.	
25	81	6			
26	82	6			
27	83	6			
28	84	5			
29	7185	5			
30	86	6			
31	87	6			
32	88	5			
33	89	5		Down 30 Min.	
34	7190	6			
35	91	6			
36	92	6			
37	93	5		Down 15 Min.	
38	94	5			
39	7295	4			
40	96	5			
41	97	6			
42	98	5			
43	99	6			
44	7200	6			
45	01	5			
46	02	5			
47	03	5			
48	04	5			
49	7205	5			
50	06	6			
51	07	7			
52	08	12			
53	09			Con. @ 7208	
54	7210			25 Min.	
55	11				
56	12				
57	13				
58	7214				
59					
60					

8 HRS. HAD SLIGHT BLOW
11 HRS. HAD FULL BLOW
4 HRS. NO BLOW



Form SD-222 Rev. 3 3M 2-70 C.D.S.

CHRISTENSEN DIAMOND PRODUCTS

CORE ORIENTING LOG #2

Core #2

Date 11-9-79

WELL INFORMATION

Company Gruy Federal Inc.
Contractor Fairman Drlg. Rig #11
Well Name McCall - Ryerson #
County Indiana State Penna.
Hole Size 7 7/8"
Formation Name Devonian
Formation Description Shale

PERFORMANCE

Interval Cored: Finish 7208'
Start 7156'

Footage Cored 52'

Rec. 52'

CORRECTIONS

Declination 6 Degrees [ ] East [X] West

Azimuth Correction for Declination
East Declination [ ] Add to Azimuth
West Declination [X] Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees [ ] Right [ ] Left
of Orientation Lug.
[ ] Right Add to Lug Azimuth
[ ] Left Subtract from Lug Azimuth

Randall Anselment - Reader

DRIFT			STATION				ORIENTATION						
Drift	Drift Direction Magnetic	Drift Direction True	Station No.	Time	Picture No	Depth	Orienting Lug Direction, Magnetic	Orienting Lug Azimuth, Magnetic	Magnetic Declination Correction	Orienting Lug Azimuth, True	Reference Groove Correction	Azimuth of Reference Groove, True	Direction of Ref. Groove, True
7	N 02 W	N 08 W	1	7.10	108	7158	S 22 W	202	6 W	196	0	196	S 16 W
7	N 02 W	N 08 W	2	7.49	118	7160	S 20 W	200	6 W	194	0	194	S 14 W
7	N 02 W	N 08 W	3	8.06	122	7162	S 18 W	198	6 W	188	0	188	S 08 W
7	N 02 W	N 08 W	4	8.19	125	7164	S 20 W	190	6 W	184	0	184	S 04 W
7	N 02 W	N 08 W	5	8.32	129	7166	S 08 W	188	6 W	182	0	182	S 02 W
7	N 02 W	N 08 W	6	8.44	132	7168	S 08 W	188	6 W	182	0	182	S 02 W
7	N 02 W	N 08 W	7	8.57	135	7170	S 05 W	185	6 W	179	0	179	S 01 E
7	N 02 W	N 08 W	8	9.11	138	7172	S 01 W	181	6 W	175	0	175	S 05 E
7	N 02 W	N 08 W	9	9.24	142	7174	S 01 E	179	6 W	173	0	173	S 07 E
7	N 02 W	N 08 W	10	9.40	146	7176	S 03 E	177	6 W	171	0	171	S 09 E
7	N 02 W	N 08 W	11	9.55	149	7178	S 08 E	172	6 W	166	0	166	S 14 E
7	N 02 W	N 08 W	12	10.29	158	7180	S 37 W	217	6 W	211	0	211	S 31 W
7	N 02 W	N 08 W	13	10.46	162	7182	S 37 W	217	6 W	211	0	211	S 31 W
7	N 02 W	N 08 W	14	11.01	166	7184	S 35 W	215	6 W	219	0	219	S 39 W
7	N 02 W	N 08 W	15	11.17	170	7186	S 32 W	215	6 W	219	0	219	S 39 W
7	N 02 W	N 08 W	16	11.33	174	7188	S 30 W	210	6 W	204	0	204	S 24 W
7	N 02 W	N 08 W	17	11.20	186	7190	S 25 W	206	6 W	200	0	200	S 20 W
7	N 02 W	N 08 W	18	12.41	191	7192	S 25 W	206	6 W	200	0	200	S 20 W
7	N 02 W	N 08 W	19	13.10	198	7194	N 70 W	290	6 W	284	0	284	N 76 W
7	N 02 W	N 08 W	20	13.24	202	7196	N 67 W	293	6 W	287	0	287	N 73 W
7	N 02 W	N 08 W	21	13.40	206	7198	N 72 W	288	6 W	282	0	282	N 78 W
7	N 02 W	N 08 W	22	13.58	210	7200	N 74 W	286	6 W	280	0	280	N 80 W
7	N 02 W	N 08 W	23	14.11	213	7202	N 70 W	290	6 W	284	0	284	N 76 W
7	N 02 W	N 08 W	24	14.26	217	7204	N 74 W	286	6 W	280	0	280	N 80 W
7	N 02 W	N 08 W	25	14.42	221	7206	N 75 W	285	6 W	279	0	279	N 81 W
7			26	15.06	227	7208	N 77 W	283	6 W	277	0	277	N 83 W
7			27			7210							
			28			7212							
			29			7214							
			30										

50235 11-64 OP

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GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

#7

Date 11/9/79

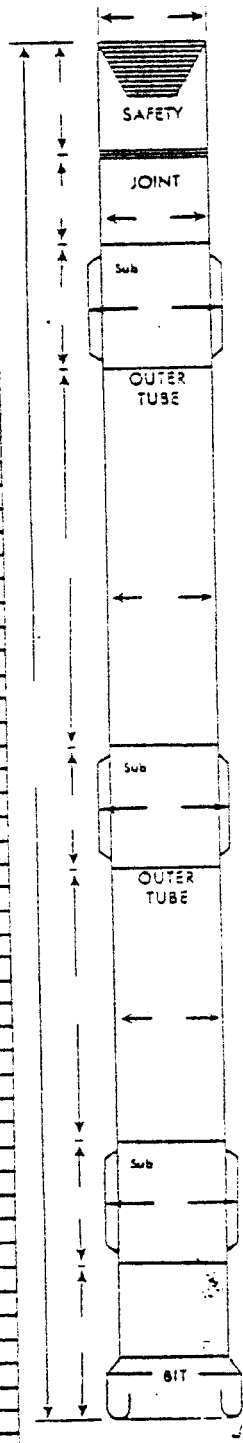
WELL INFORMATION
Company GRUY FEDERAL INC.
Contractor FAIRMAN DRLG #5
Number McCALL #5 ANGER
County INDIANA State PA.
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE
Mud - Wt. Vis. Pump Pressure Liner Size 2-900 Comp. Strokes P/Time.

EQUIPMENT
Core Barrel No. 7435
Size 6 1/4 X 3 1/2 Length 40'
Bit No. 9K-
Size 7 7/8 X 3 1/2 Type
Previous footage 110
This core 59 Core No. #3
Total footage 169

PERFORMANCE
Interval Cored — Finish 7271
— Start 7212
Footage Cored 59
Core Recovery 58
% Recover
START 4:59 AM
STOP 11:06 AM
3,000 30
12,000 36
15,000 39

No. Feet Cored	Interval	Penetration Rate Minutes per Foot
0	7212	
1	7213	3
2	7214	8
3	15	4
4	16	4
5	17	5
6	18	2
7	7219	3
8	20	2
9	21	2
10	22	2
11	23	3
12	7224	2
13	25	3
14	26	4
15	27	4
16	28	4
17	7229	3
18	30	3
19	31	4
20	32	2
21	33	2
22	7234	2
23	35	2
24	36	2
25	37	3
26	38	3
27	7239	3
28	40	3
29	41	3
30	42	2
31	43	3
32	7244	3
33	45	3
34	46	2
35	47	2
36	48	3
37	7249	3
38	50	2
39	51	2
40	52	3
41	53	3
42	7254	2
43	55	3
44	56	3
45	57	2
46	58	2
47	7259	3
48	60	4
49	61	3
50	62	3
51	63	3
52	7264	3
53	65	4
54	66	7
55	67	4
56	68	3
57	7269	3
58	70	3
59	71	3
60		

Conn @ 7245
39 Min.



Form SD-222 Rev. 3 SM 2-70 C.O.S.

CORE ORIENTING LOG

#7

Date 11-1-77

Page of

WELL INFORMATION

Company: GRUY FEDERAL
Contractor: FAIRBANK DRLG CO
Well Name: MS CREE ANDERMAN #5
County: INDIANA State: PA
Hole Size: 7 7/8 Core Barrel: 7635
Formation Name: DEVONIAN
Formation Description: SHALE

Core # 3

PERFORMANCE

Interval Cored: Finish 7271
Start 7212
Footage Cored: 59
Remarks: RECOVERED 59'

MULTISHOT INSTRUMENT

Make: SPERRY SUN
Serial No.
Clock Interval: 4 Min.
Station Record By: [illegible]
Film Read By: JOE BOWEN

CORRECTIONS

Declination 6 Degrees [ ] East [X] West

Azimuth Correction for Declination
East Declination [ ] Add to Azimuth
West Declination [X] Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees [ ] Right [ ] Left of Orientation Lug.
[ ] Right Add to Lug Azimuth
[ ] Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
No.	Time	Picture No.	Depth	Angle	Direction Magnetic	Direction True	Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Declin Corr.	Or. Lug Az. True	Reference Groove Corr.	Reference Groove Az. True	Reference Groove Direction True	Dip Dir.	Dip Angle	Strike	
1	6:35	99	7215	6 3/4	N 010	N 07 W	N 05 E	005	6 W	359	0	359	N 01 W				
2	6:49	103	17	6 3/4	N 02 W	N 08 W	N 01 E	001	"	359	"	359	N 02 W				
3	7:02	106	19	6 3/4	N 02 W	N 08 W	N 01 E	001	"	359	"	359	N 05 W				
4	7:12	109	7221	6 3/4	N 01 W	N 07 W	N 00 E	000	"	359	"	359	N 04 W				
5	7:23	111	23	6 3/4	N 01 W	N 07 W	N 02 E	002	"	356	"	356	N 04 W				
6	7:35	113	25	6 3/4	N 01 W	N 05 W	N 00 E	000	"	359	"	359	N 06 W				
7	7:48	118	27	6 3/4	N 02 W	N 06 W	N 00 E	000	"	359	"	359	N 06 W				
8	8:00	121	29	6 3/4	N 01 W	N 07 W	N 01 W	359	"	353	"	353	N 07 W				
9	8:14	124	7231	6 3/4	N 01 W	N 07 W	N 06 W	354	"	348	"	348	N 12 W				
10	8:22	127	33	6 3/4	N 02 W	N 08 W	N 05 W	355	"	349	"	349	N 11 W				
11	8:32	130	35	6 3/4	N 01 W	N 08 W	N 05 W	355	"	349	"	349	N 11 W				
12	8:40	132	37	6 3/4	N 01 W	N 07 W	N 04 W	356	"	350	"	350	N 10 W				
13	8:50	135	39	6 3/4	N 02 W	N 08 W	N 04 W	356	"	350	"	350	N 10 W				
14	9:00	138	7241	6 3/4	N 02 W	N 08 W	N 05 W	355	"	349	"	349	N 11 W				
15	9:17	140	43	6 3/4	N 01 W	N 06 W	N 05 W	355	"	349	"	349	N 11 W				
16	9:31	143	45	6 3/4	N 01 W	N 06 W	N 06 W	354	"	348	"	348	N 12 W				
17	10:22	146	47	6 3/4	N 02 W	N 08 W	N 04 E	004	"	358	"	358	N 02 W				Cond
18	10:30	158	49	6 3/4	N 02 W	N 08 W	N 03 E	003	"	359	"	359	N 03 W				
19	10:40	161	7251	6 3/4	N 02 W	N 08 W	N 02 E	002	"	356	"	356	N 04 W				
20	10:50	163	53	6 3/4	N 01 W	N 07 W	N 01 E	001	"	355	"	355	N 05 W				
21	11:05	166	55	6 3/4	N 01 W	N 07 W	N 04 E	004	"	358	"	358	N 02 W				
22	11:11	168	57	6 3/4	N 01 W	N 07 W	N 04 E	004	"	358	"	358	N 02 W				
23	11:20	171	59	6 3/4	N 02 W	N 08 W	N 10 E	010	"	004	"	004	N 04 E				
24	11:32	174	7261	6 3/4	N 02 W	N 08 W	N 04 E	004	"	003	"	003	N 03 E				
25	11:43	176	63	6 3/4	N 02 W	N 08 W	N 10 E	010	"	004	"	004	N 04 E				
26	11:52	179	65	6 3/4	N 02 W	N 07 W	N 10 E	010	"	004	"	004	N 04 E				
27	12:08	183	67	6 3/4	N 02 W	N 08 W	N 10 E	010	"	004	"	004	N 04 E				
28	12:20	185	69	6 3/4	N 02 W	N 08 W	N 11 E	011	"	005	"	005	N 05 E				
29	12:31	188	7271	6 3/4	N 02 W	N 08 W	N 13 E	013	"	007	"	007	N 07 E				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

UGR File #449
GRUY Federal
Feb. 1, 1980

UGR File #449
GRUY Federal Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-9-79

WELL INFORMATION
Company Gruy Federal Inc.
Contractor Fairman Drlg. #11
Number McCall #5
County Indiana State PA.
Hole Size 7 7/8
Formation Name Devonian
Formation Disc. Shale
Mud Wt. Air Vis. Foam

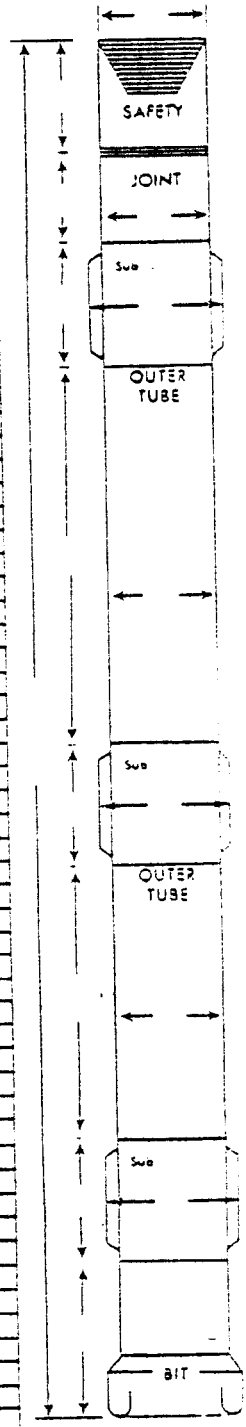
EQUIPMENT
Core Barrel No. 7635
Size 6 1/4 x 3 1/2 Length 60'
Bit No. 9K 2779
Size 7 7/8 x 3 1/2 Type
Previous footage 169
This core 59 Core No. 4
Total footage 228
Pump Pressure 2400 Comp. Booster Liner Size Strokes

PERFORMANCE
Interval Cored – Finish 7330
– Start 7271
Footage Cored 59
Core Recovery 54
% Recover
Start =
Finish =

No. Feet Cored	Interval	Penetration Rate Minutes per Foot	Operating Conditions
0	7271		
1	72 3		P
2	73 3		
3	74 5		P
4	72 75 6		
5	76 3		
6	77 3	CONN	P
7	78 5		P
8	79 2		
9	72 80 3		P
10	81 2		
11	82 2		P
12	83 2		
13	84 3		P
14	72 85 3		
15	86 2		P
16	87 2		
17	88 3		P
18	89 3		
19	72 90 2		P
20	91 2		
21	92 2		P
22	93 2		
23	94 2		P
24	725 3		
25	96 3		P
26	97 2		
27	98 2		P
28	99 2		
29	7300 2		P
30	1 2		
31	2 3		P
32	3 2		
33	4 2		P
34	705 2		
35	6 2		P
36	7 2	CONN.	
37	8 2		P
38	9 2		
39	7310 2		P
40	11 2		
41	12 2		P
42	13 2		
43	14 2		P
44	715 2		
45	16 3		P
46	17 2		
47	18 2		P
48	19 2		
49	7320 2		P
50	21 2		
51	22 3		P
52	23 2		
53	24 3		P
54	725 3		
55	26 4		P
56	27 3		
57	28 2		P
58	29 2		
59	7330 3	BIT DAMAGED	P
60	31		

Weight | Rotating RPM | Fluid GPM

TIMED 3 MIN PER FOOT
TIMED 3 MIN PER FOOT
TIMED 3 MIN PER FOOT



Form SD-222 Rev. 3 5M 2-70 C.O.S.

CORE ORIENTING LOG

#4

Date 11-10-79

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WELL INFORMATION

Company: GRUY FEDERAL
Contractor: FARMAN DRLG #11
Well Name: MCCALL-ANDERMAN 33
County: FULTON State: PA
Hole Size: 7 7/8 Core Barrel: 3035
Formation Name: DEVONIAN
Formation Description: SHALE

CORE #4 PERFORMANCE

Interval Cored: Finish 7330
Start 7271
Footage Cored: 59'
Remarks: RECOVERED 59'
BIT #6K 2724 HAS SOME DAMAGE. CHANGED OUT.

MULTISHOT INSTRUMENT

Make: SPERRY SUN
Serial No. 803
Clock Interval 4 Min
Station Record By SCHULTZ
Film Read By JOE BOWEN

CORRECTIONS

Declination 6 Degrees [ ] East [X] West

Azimuth Correction for Declination
East Declination [ ] Add to Azimuth
West Declination [X] Subtract from Azimuth

Reference Groove Correction
From Above, Groove is 0 Degrees [ ] Right [ ] Left of Orientation Lug.
[ ] Right Add to Lug Azimuth
[ ] Left Subtract from Lug Azimuth

STATION No.	Time	Picture No.	Depth	DRIFT Angle	Direction Magnetic	Direction True	ORIENTATION Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Decln. Corr.	Or. Lug At True	Reference Groove Corr.	Ref. Groove At True	Reference Groove Direction True	DIP, STRIKE Dip Dir.	Dip Angle	Strike	REMARKS
1	7:30	70	7273	6¼	N01W	N07W	N73E	078	6W	072	0	072	N72E				
2	7:32	74	75	6¼	N01W	N07W	N72E	078	"	072	"	072	N72E				
3	7:03	76	77	6¼	N02W	N08W	S74E	106	"	100	"	100	S80E				Cont
4	7:40	80	79	6¼	N02W	N08W	N83E	083	"	077	"	077	N77E				
5	7:50	83	7281	6¼	N02W	N08W	S82E	093	"	087	"	087	N87E				
6	8:00	85	83	6¼	N02W	N08W	S77E	103	"	097	"	097	S83E				
7	8:10	85	85	6¼	N02W	N08W	S72E	108	"	102	"	102	S78E				
8	8:20	85	87	6¼	N02W	N08W	S65E	115	"	109	"	109	S72E				
9	8:30	87	89	6¼	N02W	N08W	S59E	121	"	115	"	115	S65E				
10	8:40	88	7291	6¼	N01W	N07W	S58E	128	"	122	"	122	S58E				Blue Line
11	8:50	89	93	6¼	N01W	N07W	S54E	132	"	126	"	126	S54E				
12	9:00	90	95	6¼	N02W	N08W	S42E	138	"	132	"	132	S48E				
13	9:10	92	97	6¼	N02W	N08W	S34E	146	"	140	"	140	S40E				
14	8:00	93	99	6¼	N01W	N07W	S25E	155	"	149	"	149	S31E				
15	8:10	95	7301	6¼	N01W	N07W	S18E	162	"	156	"	156	S24E				
16	8:20	97	03	6¼	N01W	N07W	S10E	170	"	164	"	164	S16E				
17	8:30	99	05	6¼	N01W	N07W	S03E	177	"	171	"	171	S09E				
18	8:40	102	07	6¼	N02W	N08W	S01W	184	"	178	"	178	S02E				Cont
19	9:15	102	09	6¼	N02W	N08W	N59E	058	"	052	"	052	N52E				
20	9:00	104	7311	6¼	N02W	N08W	N62E	062	"	056	"	056	N56E				
21	10:05	151	13	6¼	N02W	N08W	N75E	075	"	069	"	069	N69E				
22	10:12	154	15	6¼	N01W	N07W	N79E	078	"	072	"	072	N72E				
23	10:21	157	17	6¼	N01W	N07W	N84E	083	"	077	"	077	N78E				
24	10:30	159	19	6¼	N01W	N07W	N00E	000	"	354	"	354	N04W				
25	10:40	162	7321	6¼	N02W	N08W	S84E	096	"	090	"	090	S90E				
26	10:51	164	23	6¼	N02W	N08W	S79E	101	"	095	"	095	S85E				
27	11:05	167	25	6¼	N02W	N08W	S49E	131	"	125	"	125	S55E				
28	11:17	170	27	6¼	N01W	N07W	S33E	147	"	141	"	141	S39E				
29	11:25	172	29	6¼	N01W	N07W	S22E	154	"	148	"	148	S32E				
30	11:35	174	7330	6¼	N01W	N07W	S02E	155	6W	152	0	152	S02E				

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

UGR File #
GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-16-79

WELL INFORMATION
Company Gruy Federal
Contractor Fa Sm Drlg Co
Number McCulloch #5
County Indian State Ut
Hole Size 7 7/8
Formation Name Deadwood
Formation Disc. Shale
Mud - Wt. Vis.

EQUIPMENT
Core Barrel No. 7635
Size 6 3/4 x 3 1/2 Length
Bit No. 7K2365
Size 7 7/8 x 3 1/2 Type
Previous footage 224
This core 52 Core No. 5
Total footage 286
Pump Pressure 2-400 comp Liner Size Strokes

PERFORMANCE
Interval Cored — Finish 7388
— Start 7336
Footage Cored 52
Core Recovery 58
% Recover
START — 3:02 PM
STOP — 9:26 PM
P/Time —

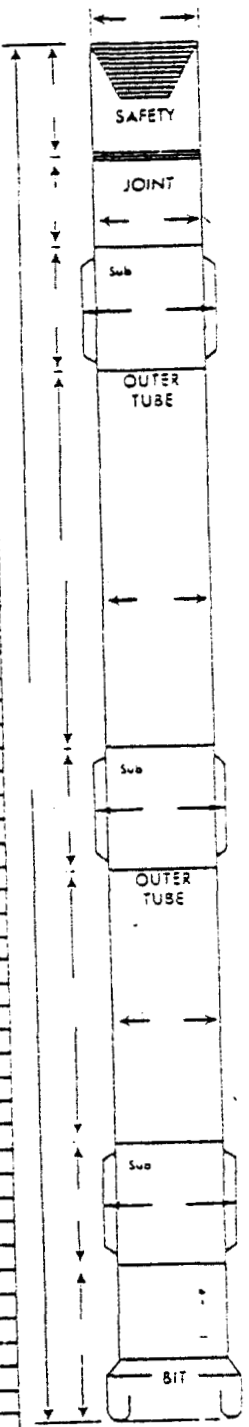
PENETRATION RATE MINUTES PER FOOT

No. Feet Cored	Interval	Penetration Rate Minutes per Foot
0	7336	3:62 pm
1	1	3
2	2	3
3	3	3
4	4	2
5	7335	2
6	6	3
7	7	2
8	8	2
9	9	3
10	7340	3
11	1	2
12	2	2
13	3	3
14	4	2
15	7345	2
16	6	3
17	7	3
18	8	2
19	9	2
20	7350	1
21	1	1
22	2	1
23	3	1
24	4	2
25	7355	2
26	6	2
27	7	2
28	8	2
29	9	2
30	7360	2
31	1	2
32	2	2
33	3	2
34	4	1
35	7365	3
36	6	3
37	7	2
38	8	2
39	9	2
40	7370	3
41	1	3
42	2	2
43	3	3
44	4	2
45	7375	2
46	6	2
47	7	2
48	8	2
49	9	2
50	7380	1
51	1	2
52	2	2
53	3	2
54	4	1
55	7385	2
56	6	2
57	7	3
58	8	3
59		
60		

Cored

Cored

OPERATING CONDITIONS: Weight | Rotating RPM | Flow GPM



Form SD-222 Rev. 3 5M 2-73 C.O.S.

CORE ORIENTING LOG #5

Date

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WELL INFORMATION

Company: Gruy Federal
Contractor: Fairman Drlg
Well Name: McCall-Angerman #1
County: Lawrence State: PA
Hole Size: 7 7/8 Core Barrel: 2635
Formation Name: Devonian
Formation Description: Shale

PERFORMANCE

Core #5

Interval Cored: Finish 7388
Start 7330

Footage Cored: 58

Remarks: 58'

MULTISHOT INSTRUMENT

Make: Sperry Sun
Serial No. 716
Clock Interval: 1 Min.
Station Record By: [illegible]
Film Read By: [illegible]

CORRECTIONS

Declination: 6 Degrees [ ] East [X] West

Azimuth Correction for Declination
East Declination [ ] Add to Azimuth
West Declination [X] Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees [ ] Right [ ] Left of Orientation Lug.
[ ] Right: Add to Lug Azimuth
[ ] Left: Subtract from Lug Azimuth

Station No	Time	Picture No	Depth	Drift Angle	Drift Direction Magnetic	Drift Direction True	Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Declin Corr	Or. Lug Az. True	Reference Groove Corr	Reference Groove Az. True	Reference Groove Direction True	Dip Dir.	Dip Angle	Strike	Remarks
1	6:19	94	7332	6 1/2	N00W	N06W	N51W	301	6W	295	4	291	N65W				
2	6:26	96	37	6 1/2	N00W	N06W	S70E	110	"	104	"	104	S76E				
3	6:32	99	42	6 1/4	N01W	N07W	S66E	114	"	108	"	108	S72E				
4	6:45	101	38	6 1/4	N02W	N08W	N42W	318	"	312	"	312	N48W				Core
5	6:53	103	7342	6 1/4	N01E	N05W	N36W	330	"	324	"	324	N36W				
6	8:08	113	46	6 1/4	N00W	N06W	S85W	265	"	259	"	259	S79W				
7	8:19	125	47	6 1/4	N00W	N06W	S07W	183	"	177	"	177	S03W				
8	8:28	128	48	6 1/4	N01E	N05W	S31W	211	"	205	"	205	S25W				
9	8:37	130	49	6 1/4	N01E	N05W	S38W	218	"	212	"	212	S32W				
10	8:45	132	7350	6 1/4	N00W	N06W	S33W	233	"	227	"	227	S27W				
11	8:52	134	52	6 1/4	N01E	N05W	S42W	242	"	236	"	236	S56W				
12	9:00	136	54	6 1/4	N01E	N05W	S26W	254	"	248	"	248	S64W				
13	9:10	138	56	6 1/4	N01E	N05W	S24W	256	"	250	"	250	S68W				
14	9:19	140	58	6 1/4	N01E	N05W	S83W	264	"	258	"	258	S76W				
15	9:27	143	7360	6 1/4	N01E	N06W	S21W	201	"	195	"	195	S15W				
16	9:30	145	62	6 1/4	N00W	N06W	S34W	214	"	208	"	208	S28W				
17	9:40	147	64	6 1/4	N02E	N07W	S63W	243	"	237	"	237	S62W				
18	9:50	150	66	6 1/4	N02E	N07W	S76W	256	"	250	"	250	S70W				
19	10:03	152	68	6 1/4	N02E	N07W	S72W	252	"	246	"	246	S72W				Core
20	10:15	154	7370	6 1/4	N02E	N07W	S72W	252	"	246	"	246	S72W				
21	10:25	156	72	6	N01E	N05W	N17W	346	"	340	"	340	N20W				
22	10:36	158	74	6	N02E	N07W	N15W	345	"	339	"	339	N21W				Bit - Hole
23	10:46	160	76	6	N01E	N05W	N17W	343	"	337	"	337	N23W				
24	10:56	162	78	6	N01E	N05W	N16W	344	"	338	"	338	N22W				
25	11:58	163	7380	6	N02E	N07W	N07W	354	"	348	"	348	N14W				
26	12:07	165	82		N01E	N05W	N00W	360	"	354	"	354	N06W				
27	12:15	167	84	6	N01E	N05W	N01E	004	"	358	"	358	N01W				
28	12:24	169	86	6	N02E	N07W	N02E	006	"	000	"	000	N02E				
29	12:35	171	7388	6	N01E	N05W	N03E	009	"	003	"	003	N03E				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

SD233 10-67 M

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UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal Inc
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11/11/79

WELL INFORMATION
Company GRUY FEDERAL INC
Contractor FAIRMAN RIG 11
Number MCCALL #5 AMERICAN
County INDIANA State PA
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE
Mud - Wt. Vis. STIFF FOAM

EQUIPMENT
Core Barrel No. 7635
Size 6 1/4 X 3 1/2 Length 40'
Bit No. 9K 2345
Size 7 7/32 X 3 1/2 Type
Previous footage 286
This core 59 Core No. #6
Total footage 345
Pump Pressure AIR Liner Size Strokes
0-900 COMP. / BOOSTER
2/TIME

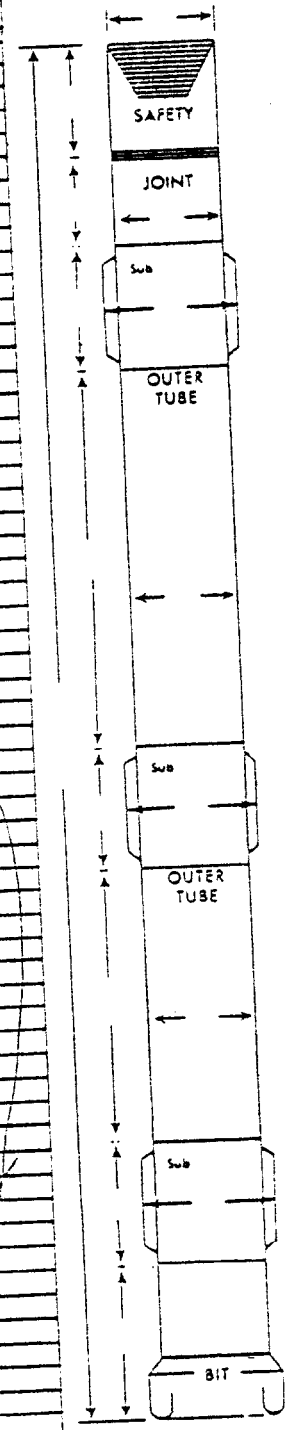
PERFORMANCE
Interval Cored — Finish 7447
— Start 7388
Footage Cored 59
Core Recovery 59
% Recover
START 8:08
STOP

OPERATING CONDITIONS

No. Fill Cores	Interval	Penetration Rate Minutes per Foot	Weight	Rotating RPM	Mud Cons
0	7368				
1	9	2			
2	7390	2			
3	1	2			
4	2	2			
5	3	4			
6	4	3			
7	7395	3			
8	6	2			
9	7	3			
10	8	3			
11	9	2			
12	7400	1			
13	1	2			
14	2	3			
15	3	3			
16	4	2			
17	7405	2			
18	6	1			
19	7	2			
20	8	2			
21	9	2			
22	7412	1			
23	1	2			
24	2	2			
25	3	1			
26	4	1			
27	7415				
28	6	2			
29	7	2			
30	8	2			
31	9	2			
32	7420	3			
33	1	2			
34	2	2			
35	3	1			
36	4	2			
37	7425	2			
38	6	2			
39	7	2			
40	8	1			
41	9	2			
42	7430	2			
43	1	1			
44	2	1			
45	3	4			
46	4	2			
47	7435	3			
48	6	2			
49	7	2			
50	8	3			
51	9	2			
52	7440	3			
53	1	2			
54	2	2			
55	3	3			
56	4	4			
57	7445	3			
58	6	2			
59	7	4			
60	8				

Core

Core



Form SD-222 Rev. 3 5M 2-70 C.C.S.

CORE ORIENTING LOG

#6

Date 11-11-

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Core #6

PERFORMANCE

Interval Cored: Finish 7449
Start 7388

Footage Cored: 59

Remarks: Rec 59

MULTISHOT INSTRUMENT

Make: Sperry-Sun

Serial No. 8608

Clock Interval: Min.

Station Record By: Sonny Sonnenwald

Film Read By: Joe Bowed

CORRECTIONS

Declination 6 Degrees [ ] East [X] West

Azimuth Correction for Declination
East Declination [ ] Add to Azimuth
West Declination [X] Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees [ ] Right [ ] Left of Orientation Lug.
[ ] Right Add to Lug Azimuth
[ ] Left Subtract from Lug Azimuth

WELL INFORMATION

Company: Gray Federal Inc
Contractor: Eikman Drlg. Rig #
Well Name: McCall - Angerman #5
County: Indiana State: PA
Hole Size: 7 7/8 Core Barrel: 2 3/4
Formation Name: Devonian
Formation Description: Shale

STATION No.	Time	Picture No.	Depth	DRIFT Angle	Direction Magnetic	Direction True	ORIENTATION Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Declin. Corr.	O. Lug Az. True	Reference Groove Corr.	Ref. Groove Az. True	Ref. Groove Direction True	DIP, STRIKE Dip Dir.	Dip Angle	Strike	REMARKS
1	5.13	79	7390	6	N0½E	N0½W	N44W	316	6W	310	0	310	N50W				
2	5.23	81	92	6	N0½W	N07W	S31E	149	"	143	"	143	S37E				
3	5.30	83	94	6	N0½W	N07W	S39E	141	"	135	"	135	S45E				
4	5.45	87	96	6	N0½W	N07W	S36E	144	"	138	"	138	S43E				
5	5.54	90	98	6	N0½W	N07W	S30E	150	"	144	"	144	S36E				
6	6.01	92	7400	6	N0½W	N07W	S16E	164	"	158	"	158	S22E				
7	6.15	97	02	6	N0½W	N07W	S11W	191	"	185	"	185	S05W				
8	7.20	111	04	6	N0½E	N04W	N01E	001	"	355	"	355	N05W				Cold
9	7.28	112	06	6	N0½E	N04W	N12E	012	"	006	"	006	N06E				
10	7.37	113	08	6	N0½E	N04W	N12E	012	"	006	"	006	N06E				
11	7.45	114	7410	6	N0½E	N04W	N25E	025	"	019	"	019	N19E				
12	7.51	117	12	5½	N0½E	N04W	N25E	025	"	019	"	019	N19E				
13	8.00	121	14	5½	N0½E	N02W	N34W	331	"	325	"	325	N35W				
14	8.10	123	16	5½	N0½E	N02W	N09W	351	"	345	"	345	N15W				
15	8.15	125	18	5½	N0½E	N01W	N10W	350	"	344	"	344	N16W				
16	8.24	128	7420	5½	N0½E	N02W	N02W	358	"	352	"	352	N08W				
17	8.33	130	22	5½	N0½E	N02W	N00W	360	"	354	"	354	N06W				
18	8.46	132	24	5½	N0½E	N03W	N05E	005	"	359	"	359	N01W				
19	8.55	134	26	5½	N0½W	N04W	S59E	121	"	115	"	115	S65E				
20	9.03	136	28	5½	N0½E	N05W	S59E	121	"	115	"	115	S65E				
21	9.12	137	7430	5½	N0½E	N05W	S38E	142	"	136	"	136	S44E				
22	9.20	141	32	5½	N0½E	N04W	S34E	146	"	140	"	140	S40E				
23	9.30	144	34	5½	N0½E	N04W	S35E	145	"	139	"	139	S41E				
24	10.37	160	36	6	N0½E	N04W	S11W	191	"	185	"	185	S05W				Cold
25	10.47	162	38	6	N0½E	N04W	S04W	189	"	183	"	183	S03W				
26	10.52	165	7440	6	N0½E	N04W	S04W	189	"	183	"	183	S03W				
27	11.07	167	42	6	N0½E	N04W	S02W	188	"	182	"	182	S02W				
28	11.15	170	44	6	N0½E	N04W	S05W	185	"	179	"	179	S01E				
29	11.24	173	46	6	N0½E	N04W	S03W	183	"	177	"	177	S03E				
30	11.38	175	7447	6	N0½E	N04W	S02W	182	10	172	12	172	S04E	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

#1

Date 11-11-79

WELL INFORMATION
Company GRUY FEDERAL
Contractor FEDERAL - RIG 11
Number W. CROSS HOLLOW #5
County JEFFERSON State PA
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE

EQUIPMENT
Core Barrel No. 7655
Size 6 1/4 x 3 1/2 Length 66
Bit No. 4K 2365
Size 7 7/8 x 3 1/2 Type
Previous footage 345
This core 59 Core No. 7
Total footage 404

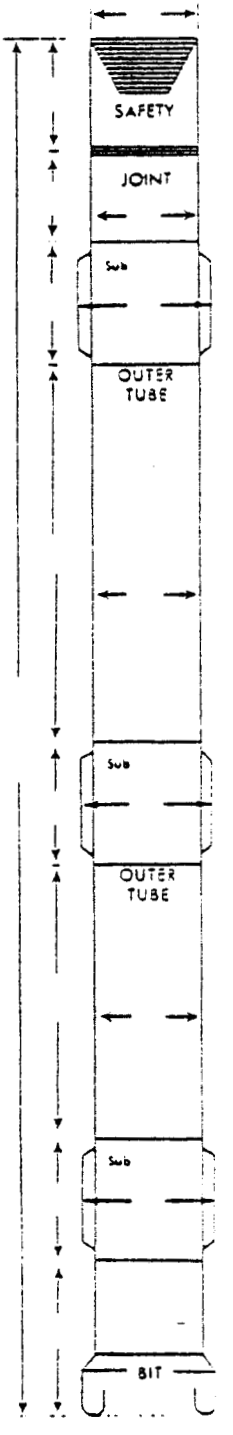
PERFORMANCE
Interval Cored — Finish 7506
— Start 7447
Footage Cored 59
Core Recovery 59
% Recover
START = 11:15 PM
Finish 5:47 AM

Mud - Wt Vis. Pump Pressure 390 Liner Size Strokes

No. Feet Cored	Interval	Penetration Rate Minutes per Foot	Operating Conditions: Weight	Rotating RPM	Pump SPM
0	7447		14,000	40	
1	48	4			
2	49	4			
3	7450	3			
4	51	3			
5	52	3			
6	53	3			
7	54	4			
8	7455	3			
9	56	4			
10	57	4			
11	58	3			
12	59	3			
13	7460	3			
14	61	4			
15	62	4			
16	63	3			
17	64	5			
18	7465	6			
19	66	3			
20	67	3			
21	68	3			
22	69	4			
23	7470	4			
24	71	3			
25	72	4			
26	73	5			
27	74	4			
28	7475	3			
29	76	4			
30	77	4			
31	78	3			
32	79	3			
33	7480	3			
34	81	4			
35	82	4			
36	83	3			
37	84	3			
38	7485	3			
39	86	3			
40	87	3			
41	88	3			
42	89	3			
43	7490	3			
44	91	3			
45	92	3			
46	93	3			
47	94	3			
48	7495	3			
49	96	4			
50	97	8			
51	98	5			
52	99	3			
53	7500	4			
54	01	3			
55	02	3			
56	03	3			
57	04	3			
58	05	2			
59	7506	3			
60					

Cann @ 7465
37 min.

Cann @ 7497
31 min.



Form SO-222 Rev. 3 5M 2-70 C.O.S.

CORE ORIENTING LOG

#1

Date

Page of

WELL INFORMATION

Company: GRUY Federal Inc
Contractor: Fairman Drlg #11
Well Name: W. Cale Peterman #3
County: Indiana State: PA
Hole Size: 7 7/8 Core Barrel: 7635
Formation Name: Devonian
Formation Description: Shale

PERFORMANCE

Core #7

Interval Cored: Finish 7500
Start 7449

Footage Cored: 59'

Remarks: Rec 59'

MULTISHOT INSTRUMENT

Make: Sperry Sun
Serial No. 462
Clock Interval 4 Min.
Station Record By: Smack Weed
Film Read By: Joe Bowen

CORRECTIONS

Declination 6 Degrees ☐ East ☒ West

Azimuth Correction for Declination
East Declination ☐ Add to Azimuth
West Declination ☒ Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 6 Degrees ☐ Right ☐ Left
of Orientation Lug.
☐ Right Add to Lug Azimuth
☐ Left Subtract from Lug Azimuth

STATION No.	Time	Picture No.	Depth	DRIFT Angle	Direction Magnetic	Direction True	ORIENTATION Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Declin Corr	Or Lug Az True	Reference Groove Corr	Reference Groove Az True	Reference Groove Direction True	DIP, STRIKE Dip Dir.	Dip Angle	Strike	REMARKS
1	4:24	67	7449	5¾	N02E	N04W	S71E	109	6W	103	6	103	S77E				
2	4:35	69	01	5¾	N01E	N05W	S70E	110	"	104	"	104	S76E				
3	4:43	71	03	5¾	N01E	N05W	S70E	110	"	104	"	104	S76E				
4	4:53	74	05	5¾	N02E	N04W	S64E	114	"	108	"	108	S72E				
5	5:05	77	07	5¾	N02E	N04W	S62E	113	"	107	"	107	S73E				
6	5:16	80	09	5¾	N02E	N04W	S65E	115	"	109	"	109	S71E				
7	5:28	83	7411	5¾	N02E	N04W	S65E	115	"	109	"	109	S71E				
8	5:40	86	13	5¾	N02E	N04W	S64E	116	"	110	"	110	S70E				
9	5:50	90	15	5¾	N02E	N04W	S61E	119	"	113	"	113	S67E				
10	6:44	102	17	5¾	N03E	N03W	S42E	138	"	132	"	132	S48E				Core
11	6:56	105	19	5¾	N03E	N03W	S41E	139	"	133	"	133	S47E				
12	7:03	108	7421	5¾	N03E	N03W	S39E	141	"	135	"	135	S45E				
13	7:13	111	23	5¾	N03E	N03W	S40E	140	"	134	"	134	S46E				
14	7:32	114	25	5¾	N03E	N03W	S43E	137	"	131	"	131	S49E				
15	7:45	117	27	5¾	N03E	N03W	S43E	137	"	131	"	131	S49E				
16	7:56	120	29	5¾	N03E	N03W	S38E	142	"	136	"	136	S44E				
17	8:03	123	7431	5¾	N03E	N03W	S36E	144	"	138	"	138	S42E				
18	8:20	126	33	5¾	N03E	N03W	S33E	147	"	141	"	141	S39E				
19	8:31	128	35	5¾	N03E	N03W	S32E	148	"	142	"	142	S38E				
20	8:34	130	37	5¾	N03E	N03W	S30E	150	"	144	"	144	S36E				
21	8:47	133	39	5¾	N04E	N02W	S28E	152	"	146	"	146	S34E				
22	8:55	134	7441	5¾	N04E	N02W	S26E	154	"	148	"	148	S32E				
23	9:03	136	43	5¾	N03E	N03W	S20E	160	"	154	"	154	S26E				
24	9:11	138	45	5¾	N05E	N01W	S19E	161	"	155	"	155	S25E				
25	9:28	143	47	5¾	N05E	N01W	S19E	161	"	155	"	155	S25E				
26	10:12	154	49	5½	N04E	N01E	S68W	248	"	242	"	242	S62W				Core
27	10:24	157	7451	5½	N07E	N01E	S70W	250	"	244	"	244	S64W				
28	10:34	159	53	5¾	N05E	N02E	S69W	249	"	243	"	243	S63W				
29	10:47	162	7454	5¾	N06E	N02E	S70W	250	"	244	"	244	S64W				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

JGR File #449
GRUY Federal Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-12-79

WELL INFORMATION
Company GRUY FEDERAL
Contractor FAIRMAN RIG 11
" Number McCALL ANDERMAN 5
County INDIANA State PA
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE
Mud - Wt. Vis. STIFF FOAM

EQUIPMENT
Core Barrel No. 7635
Size 6 3/4 x 3 1/2 Length 60
Bit No. 9K 2365
Size 7 27/32 x 3 1/2 Type
Previous footage 404
This core 59 Core No. 8
Total footage 463
Pump Pressure AIR Liner Size

PERFORMANCE
Interval Cored — Finish 7565
— Start 7506
Footage Cored 59
Core Recovery 59
% Recover
START 7:15 PM
STOP 7:38 AM
2-900 COMP. 1 BOOSTER
Strokes
+/Time

PENETRATION RATE MINUTES PER FOOT

OPERATING CONDITIONS

No.	Interval	Minutes
0	7506	
1	7	4
2	8	2
3	9	2
4	7510	2
5	1	2
6	2	3
7	3	3
8	4	2
9	7515	3
10	6	2
11	7	3
12	8	3
13	9	4
14	7520	3
15	1	3
16	2	3
17	3	3
18	4	2
19	7525	2
20	6	2
21	7	3
22	8	3
23	9	5
24	7530	4
25	1	3
26	2	3
27	3	6
28	4	5
29	7535	4
30	6	3
31	7	4
32	8	3
33	9	4
34	7540	4
35	1	8
36	2	4
37	3	4
38	4	3
39	7545	5
40	6	4
41	7	4
42	8	5
43	9	4
44	7550	4
45	1	6
46	2	6
47	3	8
48	4	6
49	7555	6
50	6	6
51	7	5
52	8	5
53	9	3
54	7560	3
55	1	4
56	2	4
57	3	5
58	4	4
59	7565	4
60		

Weight	Rotary RPM	Time Date
1400	40	

CORE ORIENTING LOG

#8

Date 11-13-

Page of

WELL INFORMATION

Company: Geo. Federal
Contractor: National Geo. Rep.
Well Name: Mc Cee Ackerman #3
County: Indiana State PA
Hole Size 7 7/8 Core Barrel: Hc 3
Formation Name Devonian
Formation Description: Shale

PERFORMANCE

Core #3

Interval Cored: Finish 7505
Start 7504

Footage Cored: 59'

Remarks: Rec 59'

MULTISHOT INSTRUMENT

Make: Sperry Sun
Serial No. 674
Clock Interval 4 Min.
Station Record By: Schulz Schulz
Film Read By Joe Bonn

CORRECTIONS

Declination 6 Degrees [ ] East [x] West

Azimuth Correction for Declination
East Declination [ ] Add to Azimuth
West Declination [x] Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees [ ] Right [ ] Left of Orientation Lug.
Right Add to Lug Azimuth
Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
					Direction		Orienting Lug, Magnetic		Declin Corr.	Or. Lug Az. True	Reference Groove						
No.	Time	Picture No	Depth	Angle	Magnetic	True	Direction	Azimuth			Corr.	Az. True	Direction True	Dip Dir.	Dip Angle	Strike	
1	8.03	121	7505		N02E	N02W	S50E	130	6W	124	6	124	S56E				
2	8.10	122	7510		N02E	N04W	S53E	127	"	121	"	121	S59E				
3	8.22	123	12		N04E	N06W	S40E	140	"	134	"	134	S34E				Bad Line
4	8.32	124	14		N03E	N05W	S22E	153	"	147	"	147	S34E				
5	8.51	125	16		N03E	N05W	S31E	144	"	138	"	138	S36E				
6	9.07	126	18		N03E	N05W	S34E	141	"	135	"	135	S30E				
7	9.16	127	7520		N05E	N07W	N38E	033	"	027	"	027	N34E				
8	9.27	128	22		N04E	N06W	N23E	022	"	016	"	016	N16E				No picture
9	9.34	129	24	—	—	—	—	—	"	—	"	—	—				
10	9.51	130	26		N04E	N06W	S24E	104	"	098	"	098	S80E				Cont
11	10.06	131	28		N04E	N06W	S24E	106	"	100	"	100	S80E				
12	10.16	132	7530		N05E	N07W	N43E	043	"	037	"	037	N87E				
13	10.35	133	32		N05E	N07W	N50E	050	"	044	"	044	N74E				
14	10.45	134	34		N05E	N07W	N58E	058	"	052	"	052	N52E				
15	10.53	135	36		N04E	N06W	N58E	058	"	052	"	052	N52E				
16	10.53	136	38		N05E	N07W	N63E	063	"	057	"	057	N57E				
17	11.45	137	7540		N04E	N06W	N64E	064	"	058	"	058	N58E				
18	12.04	138	42		N04E	N06W	N64E	064	"	058	"	058	N58E				
19	12.12	139	44		N04E	N06W	N62E	062	"	056	"	056	N56E				
20	12.20	140	46		N04E	N06W	N73E	073	"	067	"	067	N67E				
21	12.33	141	48		N04E	N06W	N72E	072	"	066	"	066	N66E				
22	12.49	142	7550		N05E	N07W	N76E	076	"	070	"	070	N70E				
23	13.06	143	52		N05E	N07W	N76E	076	"	070	"	070	N70E				
24	13.23	144	54		N05E	N07W	N75E	075	"	069	"	069	N69E				
25	13.42	145	56		N04E	N06W	N73E	073	"	067	"	067	N67E				Cont
26	13.57	146	58		N04E	N06W	N34W	334	"	328	"	328	N30W				
27	14.52	147	7560		N04E	N06W	N36W	334	"	328	"	328	N32W				
28	15.05	148	62		N04E	N06W	N36W	330	"	324	"	324	N36W				
29	15.23	149	7565		N04E	N06W											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

50255 10-67 M

GRUY Federal, Inc
Feb. 1, 1980

UGR File #449
GRUY Federal
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-13-79

WELL INFORMATION
Company GRUY FEDERAL
Contractor FAIRMAN Rig #11
Number McCALL ANDERMAN 5
County INDIANA State PA
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE

EQUIPMENT
Core Barrel No 7635
Size 6 1/4 x 3 1/2 Length
Bit No. 9K 2365
Size 7 7/8 x 3 1/2 Type
Previous footage 463
This core 59 Core No. 8
Total footage 522

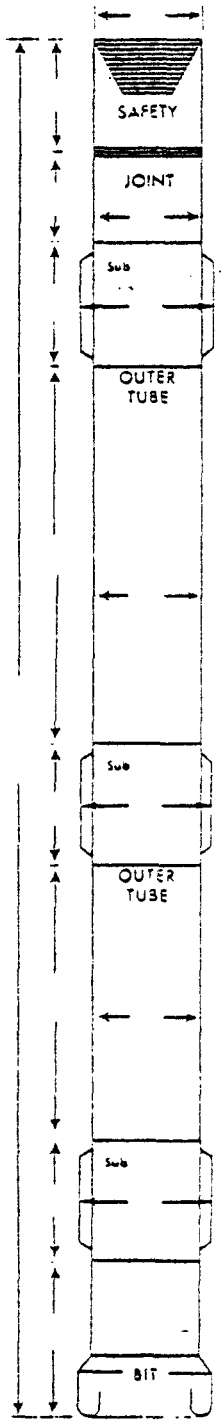
PERFORMANCE
Interval Cored – Finish 7620
– Start 7565
Footage Cored 59
Core Recovery 59
% Recover
START = 12:59 PM
finish = 9:18 PM

Mud - Wt. Vis. Pump Pressure Liner Size Strokes

PENETRATION RATE MINUTES PER FOOT

OPERATING CONDITIONS

No. Feet Cored	Minutes	Penetration Rate Minutes per Foot	Weight	Rotating Speed	Flow GPM
0	7560				
1	6	2			
2	7	2			
3	8	2			
4	9	2			
5	7570	2			
6	1	2			
7	2	2			
8	3	3			
9	4	5			
10	755	7			
11	6	3			
12	7	7			
13	8	3			
14	9	3			
15	7580	5			
16	1	11			
17	2	3			
18	3	4			
19	4	3			
20	7585	3			
21	6	4			
22	7	5			
23	8	5			
24	9	3			
25	7590	8			
26	1	6			
27	2	7			
28	3	4			
29	4	3			
30	7595	6			
31	6	7			
32	7	8			
33	8	6			
34	9	5			
35	7600	4			
36	1	6			
37	2	6			
38	3	6			
39	4	5			
40	7605	6			
41	6	6			
42	7	6			
43	8	7			
44	9	9			
45	7610	4			
46	1	6			
47	2	5			
48	3	6			
49	4	6			
50	7615	5			
51	6	3			
52	7	3			
53	8	3			
54	9	3			
55	7620	2			
56	1	2			
57	2	3			
58	3	3			
59	4	3			
60	~~7625~~	~~2~~			



Form SD-222 Rev. 3 5M 2-70 C.O.S.

CORE ORIENTING LOG

#9

Date

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WELL INFORMATION

Company
Contractor
Well Name
County
State
Hole Size
Core Barrel
Formation Name
Formation Description

PERFORMANCE

Interval Cored: Finish
Start
Footage Cored
Remarks

MULTISHOT INSTRUMENT

Make: Sperry-Sun
Serial No.
Clock Interval Min.
Station Record By
Film Read By

CORRECTIONS

Declination Degrees East / West

Azimuth Correction for Declination
East Declination Add to Azimuth
West Declination Subtract from Azimuth

Reference Groove Correction
From Above, Groove is Degrees Right / Left of Orientation Lug.
Right Add to Lug Azimuth
Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
				Direction			Orienting Lug	Magnetic	Decl.	Or. Lug	Reference Groove						
No.	Time	Picture No.	Depth	Angle	Magnetic	True	Direction	Azimuth	Corr.	Az. True	Corr.	Az. True	Direction True	Dip Dir.	Dip Angle	Strike	
1	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	N 1 1	0 1 1	2	[illegible]	0	[illegible]	N 0 5 E				
2	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	[illegible]	1 3 4	"	1 2 3	"	1 2 3	[illegible]				
3	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	N 0 5 E	0 0 3	"	[illegible]	"	[illegible]	N 0 5 W				
4	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	N 4 4 W	3 1 6	"	3 1 0	"	3 1 0	N 5 0 W				
5	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	N 4 4 W	3 1 3	"	3 0 7	"	3 0 7	N 5 3 W				
6	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	N 4 0 W	3 1 0	"	3 0 5	"	3 0 5	N 5 1 W				
7	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	N 4 0 W	3 1 1	"	3 0 8	"	3 0 8	N 5 2 W				
8	[illegible]	1 3	[illegible]	5	N 0 5 E	N 0 5 E	N 4 0 W	3 0 1	"	2 9 5	"	2 9 5	N 6 0 W				
9	[illegible]	1 0 6	[illegible]	5	N 0 5 E	N 0 5 E	N 5 0 W	3 0 2	"	2 9 5	"	2 9 8	N 6 2 W				
10	[illegible]	1 1 8	[illegible]	5	N 0 5 E	N 0 5 E	N 5 0 W	3 0 1	"	2 9 5	"	2 9 5	N 6 0 W				
11	[illegible]	1 1 2	[illegible]	5	N 0 5 E	N 0 5 E	N 4 0 W	3 0 0	"	2 9 4	"	2 9 4	N 6 6 W				Cont
12	[illegible]	1 1 5	[illegible]	5	N 0 5 E	N 0 5 E	N 4 0 W	3 1 1	"	3 0 5	"	3 0 5	N 5 5 W				
13	[illegible]	1 3 1	[illegible]	5	N 0 5 E	N 0 5 E	N 5 0 W	3 0 7	"	3 0 1	"	3 0 1	N 5 9 W				
14	[illegible]	1 3 2	[illegible]	5	N 0 5 E	N 0 5 E	N 5 0 W	3 0 7	"	3 0 1	"	3 0 1	N 5 9 W				
15	[illegible]	1 3 8	[illegible]	5	N 0 5 E	N 0 5 E	N 5 0 W	3 0 5	"	2 9 9	"	2 9 9	N 6 1 W				
16	[illegible]	1 4 2	[illegible]	5	N 0 5 E	N 0 5 E	N 6 0 W	3 0 0	"	2 9 4	"	2 9 4	N 6 6 W				
17	[illegible]	1 4 2	[illegible]	5	N 0 5 E	N 0 5 E	N 6 5 W	2 9 5	"	2 9 4	"	2 9 4	N 7 1 W				
18	[illegible]	1 5 1	[illegible]	5	N 0 5 E	N 0 5 E	N 7 0 W	2 9 0	"	2 8 4	"	2 8 4	N 7 6 W				
19	[illegible]	1 5 6	[illegible]	5	N 0 5 E	N 0 5 E	N 7 0 W	2 8 0	"	2 7 4	"	2 7 4	N 8 6 W				
20	[illegible]	1 6 0	[illegible]	5	N 0 5 E	N 0 5 E	N 7 0 W	2 8 1	"	2 7 5	"	2 7 5	N 8 5 W				
21	[illegible]	1 6 4	[illegible]	5	N 0 5 E	N 0 5 E	N 8 0 W	2 7 2	"	2 6 6	"	2 6 6	S 8 8 W				
22	[illegible]	1 6 9	[illegible]	5	N 0 5 E	N 0 5 E	N 8 3 W	2 7 3	"	2 6 6	"	2 6 6	S 8 6 W				
23	[illegible]	1 7 3	[illegible]	5	N 0 5 E	N 0 5 E	S 8 3 W	2 6 8	"	2 6 2	"	2 6 2	S 8 2 W				
24	[illegible]	1 7 7	[illegible]	5	N 0 5 E	N 0 5 E	N 9 0 W	3 1 7	"	3 1 1	"	3 1 1	N 7 9 W				
25	[illegible]	1 8 1	[illegible]	5	N 0 5 E	N 0 5 E	N 2 0 W	3 3 1	"	3 3 3	"	3 3 3	N 2 7 W				
26	[illegible]	1 8 3	[illegible]	5	N 0 5 E	N 0 5 E	N 1 0 W	3 4 3	"	3 4 4	"	3 4 4	N 1 6 W				
27	[illegible]	1 8 5	[illegible]	5	N 0 5 E	N 0 5 E	N 0 0	3 3 3	"	3 3 3	"	3 3 3	N 0 5 W				Cont
28	[illegible]	1 8 8	[illegible]	5	N 0 5 E	N 0 5 E	S 0 1	1 6 8	"	1 6 2	"	1 6 2	S 1 8 E				
29	[illegible]	[illegible]	[illegible]	5	N 0 5 E	N 0 5 E	S 0 0 W	1 7 7	10	1 8 1	12	1 8 1	S 0 1 E	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

GRUY Federal Inc
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-14-79

WELL INFORMATION
Company GRUY FEDERAL
Contractor FAIRMAN #11
Number McCALL #5
County Indiana State PA.
Hole Size 7 7/8
Formation Name Coudersport
Formation Disc. Shale
Mud - Wt Vis. STIFF FOAM Pump Pressure DIR Liner Size 2-900 COMP. Strokes 1300 STRK P/TIME

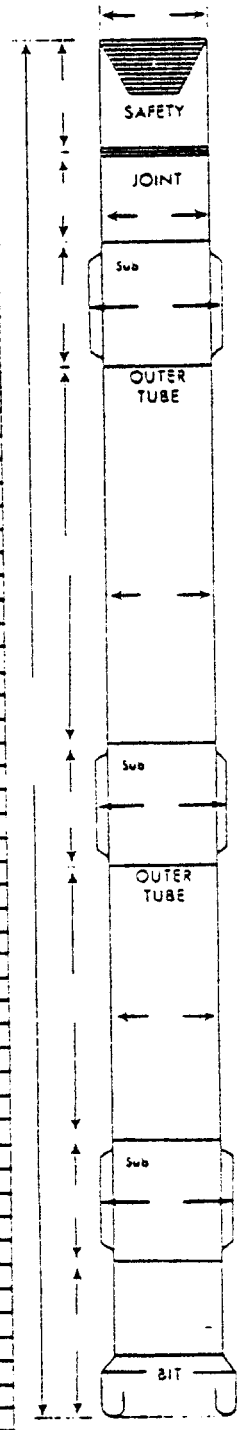
EQUIPMENT
Core Barrel No 7635
Size 6 1/4 x 3 1/2 Length
Bit No. 9K 2365
Size 7 3/8 x 3 1/2 Type
Previous footage 522
This core 59 Core No. 10
Total footage 581

PERFORMANCE
Interval Cored – Finish 7683
– Start 7624
Footage Cored 59
Core Recovery 57
% Recover
START = 9:47 AM
finish =

No. Feet Cored	Interval	Penetration Rate Minutes per Foot (1–60)	Weight	Rotating Rev.	Fluid Gal.
0	7624		14000	60	
1	25	4			
2	26	3			
3	27	2			
4	28	2			
5	29	2			
6	7630	3			
7	31	3			
8	32	2			
9	33	2			
10	34	1			
11	35	2			
12	36	2			
13	37	2			
14	38	2			
15	39	2			
16	7640	2			
17	41	2			
18	42	2			
19	43	3			
20	44	3			
21	45	3			
22	46	1			
23	47	3			
24	48	3			
25	49	2			
26	7650	2			
27	1	2			
28	2	2			
29	3	2			
30	4	2			
31	5	2			
32	6	1			
33	7	1			
34	8	1			
35	9	1			
36	7660	1			
37	1	2			
38	2	1			
39	3	2			
40	4	3			
41	5	3			
42	6	3			
43	7	2			
44	8	2			
45	9	2			
46	7670	2			
47	1	2			
48	2	2			
49	3	2			
50	4	3			
51	5	2			
52	6	3			
53	7	2			
54	8	2			
55	9	2			
56	7680	3			
57	1	2			
58	2	2			
59	3	3			
60	4				

CONT

1' LEFT ON BELL



Form SD-222 Rev. 3 5M 2-79 C.D.S.

CORE ORIENTING LOG

#10

Date [illegible]

Page [illegible] of [illegible]

WELL INFORMATION

Company GRUY FEDERAL
Contractor FARMAN DRLG - RIG #11
Well Name McCALL - AUGERMAN #5
County INDIANA State PA
Hole Size 7 7/8 Core Barrel 2 1/2
Formation Name DEVONIAN
Formation Description SHALE

Core #10 PERFORMANCE

Interval Cored: Finish 2683
Start 2624
Footage Cored: 59
Remarks: REC 53.33 - PENETRC WAS SLOWED AT THE TOP OF THE TOP SECTION

MULTISHOT INSTRUMENT

Make SPERRY-SUN
Serial No. 216
Clock Interval 4 Min.
Station Record By SCHULTZ
Film Read By JOE BOWEN

CORRECTIONS

Declination 0 Degrees ☐ East ☒ West

Azimuth Correction for Declination
East Declination ☐ Add to Azimuth
West Declination ☒ Subtract from Azimuth

Reference Groove Correction
From Above, Groove is 0 Degrees ☐ Right ☐ Left of Orientation Lug.
☐ Right Add to Lug Azimuth
☐ Left Subtract from Lug Azimuth

STATION No.	Time	Picture No.	Depth	DRIFT Angle	Direction Magnetic	Direction True	ORIENTATION Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Decln Corr	Or. Lug At True	Reference Groove Corr.	Reference Groove At True	Reference Groove Direction True	DIP, STRIKE Dip Dir.	Dip Angle	Strike	REMARKS
1	5:37	85	2624	0	N0°E	N0°E	S0°E	183	"	167	0	167	S13E				
2	5:46	87	28	0	N0°E	N0°E	S03W	183	"	177	"	177	S3E				
3	5:56	90	2630	5	N0°E	N0°E	S14W	194	"	188	"	188	S26W				
4	6:00	92	32	5	N0°E	N0°E	S30W	210	"	204	"	204	S42W				
5	6:14	94	34	5	N0°E	N0°E	S41W	224	"	218	"	218	S54W				
6	6:24	97	36	5	N0°E	N0°E	S50W	232	"	226	"	226	S62W				
7	6:34	99	38	4½	N0°E	N0°E	S62W	248	"	242	"	242	S76W				
8	6:44	102	2640	4	N0°E	N0°E	S82W	262	"	256	"	256	S96W				
9	6:54	104	42	3½	N0°E	N0°E	N85W	277	"	271	"	271	N85W				
10	7:05	107	44	4½	N0°E	N0°E	N60W	299	"	293	"	293	N67W				
11	7:14	109	46	4½	N0°E	N0°E	N44W	316	"	310	"	310	N50W				
12	7:25	112	48	4½	N0°E	N0°E	N27W	331	"	325	"	325	N35W				
13	7:34	114	2650	4½	N0°E	N0°E	N14W	341	"	335	"	335	N25W				Core
14	7:43	116	52	4½	N0°E	N0°E	N14W	346	"	340	"	340	N20W				
15	8:26	122	54	4½	N0°E	N0°E	N34E	034	"	028	"	028	N78W				
16	8:34	124	56	4½	N0°E	N0°E	S84E	096	"	090	"	090	N62W				
17	8:42	131	58	4½	N0°E	N0°E	S74E	106	"	100	"	100	S80E				
18	8:50	133	2660	4½	N0°E	N0°E	S66E	116	"	110	"	110	S70E				
19	8:54	135	62	4½	N0°E	N0°E	S53E	127	"	121	"	121	S59E				
20	9:08	138	64	4½	N0°E	N0°E	S53E	127	"	121	"	121	S59E				
21	9:20	141	66	4½	N0°E	N0°E	S51E	129	"	123	"	123	S57E				
22	9:29	143	68	4½	N0°E	N0°E	S51E	129	"	123	"	123	S57E				
23	9:40	146	70	4½	N0°E	N0°E	S51E	129	"	123	"	123	S57E				
24	9:49	148	72	4½	N0°E	N0°E	S51E	129	"	123	"	123	S57E				
25	10:00	151	74	4½	N0°E	N0°E	S50E	130	"	124	"	124	S56E				
26	10:11	153	76	4½	N0°E	N0°E	S46E	132	"	126	"	126	S52E				
27	10:20	156	78	4½	N0°E	N0°E	S50E	130	"	124	"	124	S56E				
28	10:31	158	2680	4½	N10E	N0°E	S51E	129	"	123	"	123	S57E				
29	10:40	161	82	4½	N10E	N0°E	S54E	126	"	120	"	120	S60E				
30	10:45	163	2684	4½	N10E	N0°E	S54E	126	10	110	12	110	S60E	15	16	17	18

90255 10-67 M

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

UGR File #449
GRUY Federal
Feb. 1, 1968

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from
CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-15-79

WELL INFORMATION
Company GRUY FEDERAL
Contractor FAIRMAN DRILLING
Number McCALL #2
County INDIANA State PA
Hole Size 7 7/8
Formation Name DEVONIAN SHALE
Formation Disc. BLACK
Mud - Wt. Vis. Pump Pressure Liner Size Strokes

EQUIPMENT
Core Barrel No. 7635
Size 6 1/4 Length
Bit No. 9K 2365
Size 7 27/32 Type
Previous footage 581
This core 59 Core No. 11
Total footage 640

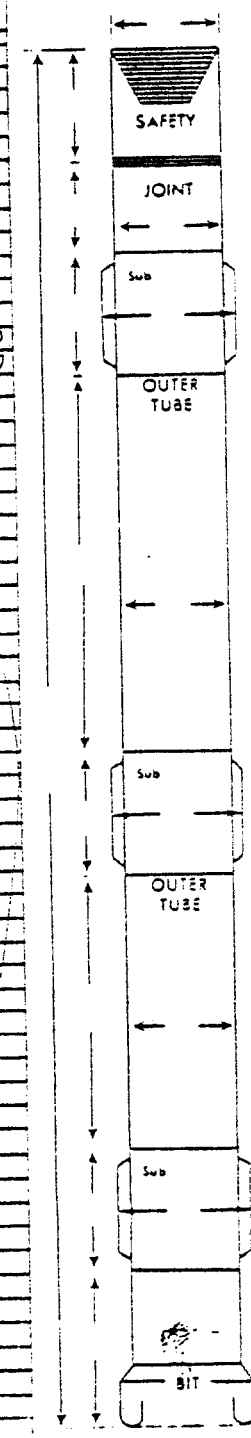
PERFORMANCE
Interval Cored – Finish 7743
– Start 7683
Footage Cored 59
Core Recovery 59
% Recover
Start 12:20 AM
Finish 6:11 AM

PENETRATION RATE MINUTES PER FOOT 10' FILL

No. Feet Cored	Interval	Penetration Rate Minutes per Foot	Operating Conditions: Weight	Rotating RPM	Pump Pressure
0	7683		4600	60	
1	84	2			
2	7685	2			
3	86	2			
4	87	3			
5	88	3			
6	89	2			
7	7690	2			
8	91	2			
9	92	3			
10	93	3			
11	94	3			
12	7695	2			430
13	96	2			390
14	97	2			
15	98	3			
16	99	2			
17	7700	2			
18	01	2			
19	02	3			
20	03	3			
21	04	2			
22	7705	2			
23	06	2			
24	07	3			
25	08	3			
26	09	2			
27	7710	3			
28	11	4			
29	12	3			
30	13	2			
31	14	2			
32	7715	3			
33	16	3			
34	17	3			
35	18	3			
36	19	3			
37	7720	3			
38	21	3			
39	22	3			
40	23	3			
41	24	3			
42	7725	4			
43	26	3			
44	27	3			
45	28	3			
46	29	2			
47	7730	2			
48	31	3			
49	32	2			
50	33	2			
51	34	2			
52	7735	3			
53	36	3			
54	37	4			
55	38	3			
56	39	3			
57	7740	3			
58	41	3			
59	42	3			
60					

Down Pressure 2 min.

Conn @ 7713 24 min.



Form SD-222 Rev. 3 5M 2-70 C.O.S.

CORE ORIENTING LOG

#11

Date [illegible]

Page of

WELL INFORMATION

Company GRUY FEDERAL
Contractor FARMAN DRLG. [illegible]
Well Name WECHEL HUGERMAN #5
County [illegible] State [illegible]
Hole Size [illegible] Core Barrel [illegible]
Formation Name [illegible]
Formation Description [illegible]

PERFORMANCE

Interval Cored: Finish [illegible]
Start [illegible]
Footage Cored: [illegible]
Remarks: [illegible]

MULTISHOT INSTRUMENT

Make [illegible]
Serial No. [illegible]
Clock Interval [illegible] Min.
Station Record By [illegible]
Film Read By [illegible]

CORRECTIONS

Declination [illegible] Degrees East / West

Azimuth Correction for Declination
East Declination | | Add to Azimuth
West Declination |X| Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is [illegible] Degrees Right / Left of Orientation Lug.
Right Add to Lug Azimuth
Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION								DIP, STRIKE			REMARKS
					Direction		Orienting Lug, Magnetic		Decl. Corr.	Or. Lug		Reference Groove						
No.	Time	Picture No.	Depth	Angle	Magnetic	True	Direction	Azimuth		Az. True	Corr.	Az. True	Direction True		Dip Dir.	Dip Angle	Strike	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N13E	N14E	N73[illegible]	252	[illegible]	[illegible]	[illegible]	[illegible]	N[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N62[illegible]	291	[illegible]	[illegible]	[illegible]	[illegible]	N[illegible]5W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N6[illegible]	291	[illegible]	[illegible]	[illegible]	[illegible]	N[illegible]5W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N68[illegible]	291	[illegible]	[illegible]	[illegible]	[illegible]	N[illegible]4W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N6[illegible]	292	[illegible]	[illegible]	[illegible]	[illegible]	N[illegible]1W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N69[illegible]	296	[illegible]	[illegible]	[illegible]	[illegible]	N[illegible]6W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N6[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N66W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N63W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N64W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N64W					Dead Freeze
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N64W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N63W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N65W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N64W					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N63W					Good
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N8[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N12E	N12E	N[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N75E					
1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

GRUY Federal, Inc
Feb. 1, 1980

UGR File #449
GRUY Federal
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-15-79

WELL INFORMATION
Company Gruy Fed
Contractor Fairman Drl
Number [illegible]
County Indiana State Pa
Hole Size 7 7/8
Formation Name Devonian
Formation Disc. Shale

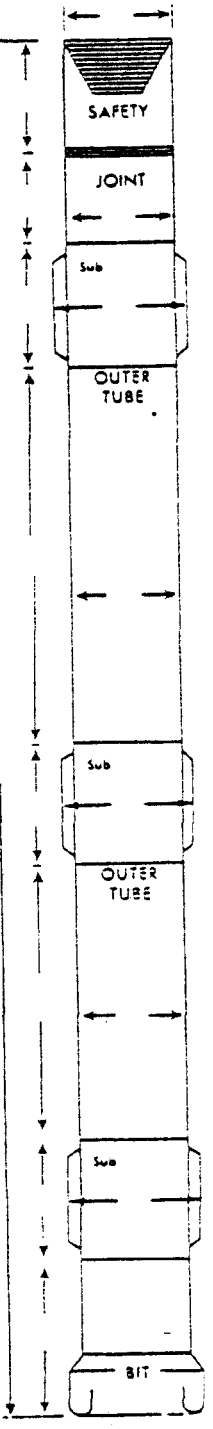
EQUIPMENT
Core Barrel No. 7635
Size 6 1/4, 3 1/2 Length
Bit No. 4K 2365
Size Type
Previous footage 646
This core 59 Core No. 12
Total footage 699

PERFORMANCE
Interval Cored – Finish 7801
– Start 7742
Footage Cored 59
Core Recovery 60'
% Recover
Start: 5:39 PM
Finish: 11:30 PM

Mud - Wt. Vis. Pump Pressure Liner Size Strokes

No. Feet Cored	Interval	Penetration Rate Minutes per Foot (1–10, 15, 20, 30, 40, 60)	Rotating Wt.	Light Off
0	7743			
1	3	3		
2	4	3		
3	7745	2		
4	6	2		
5	7	2		
6	8	3		
7	9	2		
8	7750	2		
9	1	2		
10	2	3		
11	3	3		
12	4	2		
13	7755	4		
14	6	3		
15	7	3		
16	8	3		
17	9	3		
18	7760	3		
19	1	3		
20	2	3		
21	3	3		
22	4	3		
23	7765	3		
24	6	2		
25	7	3		
26	8	4		
27	9	3		
28	7770	3		
29	1	2		
30	2	2		
31	3	2		
32	4	3		
33	7775	3		
34	6	2		
35	7	3		
36	8	4		
37	9	3		
38	7780	3		
39	1	2		
40	2	2		
41	3	5		
42	4	4		
43	7785	3		
44	6	3		
45	7	4		
46	8	5		
47	9	4		
48	7790	3		
49	1	4		
50	2	4		
51	3	4		
52	4	4		
53	7795	4		
54	6	3		
55	7	4		
56	8	5		
57	9	5		
58	7800	4		
59	1	4		
60				

Core @ 7776
41 Min.



Form SD-222 Rev. 3 5M 2-79 C.O.S.

CORE ORIENTING LOG

#12

Date

Page of

WELL INFORMATION

Company Gruy Federal Inc
Contractor
Well Name
County
State
Hole Size Core Barrel
Formation Name
Formation Description

PERFORMANCE

Interval Cored: Finish
Start
Footage Cored
Remarks

MULTISHOT INSTRUMENT

Make
Serial No.
Clock Interval Min.
Station Record By
Film Read By

CORRECTIONS

Declination Degrees ☐ East ☒ West

Azimuth Correction for Declination
East Declination ☐ Add to Azimuth
West Declination ☒ Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is Degrees ☐ Right ☐ Left
of Orientation Lug.
☐ Right Add to Lug Azimuth
☐ Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
					Direction		Orienting Lug, Magnetic		Declin.	Or. Lug	Reference Groove						
No.	Time	Picture No.	Depth	Angle	Magnetic	True	Direction	Azimuth	Corr.	Az. True	Corr.	Az. True	Direction True	Dip Dir.	Dip Angle	Strike	
																	Core
					N 19 E	N 13 E	S 63 E	117	60	111	0	111	S 69 E				
					N 22 E	N 16 E	N 53 E	053		047		047	N 47 E				
				3½	N 22 E	N 16 E	N 49 E	049		043		043	N 43 E				
				3½	N 23 E	N 17 E	N 43 E	043		037		037	N 43 E				
				3½	N 23 E	N 17 E	N 41 E	041		035		035	N 35 E				
				3½	N 24 E	N 18 E	N 38 E	035		032		032	N 32 E				
				3½	N 24 E	N 18 E	N 35 E	035		029		029	N 29 E				
				3½	N 23 E	N 16 E	N 43 E	043		037		037	N 37 E				
				3½	N 24 E	N 18 E	N 43 E	043		037		037	N 37 E				
				3½	N 24 E	N 18 E	N 42 E	042		036		036	N 36 E				
				3½	N 24 E	N 18 E	N 37 E	037		031		031	N 31 E				
				3½	N 24 E	N 18 E	N 33 E	033		027		027	N 27 E				
				3½	N 25 E	N 19 E	N 32 E	032		026		026	N 26 E				
				3½	N 25 E	N 19 E	N 28 E	028		022		022	N 22 E				
				3½	N 25 E	N 19 E	N 28 E	028		022		022	N 22 E				
				3½	N 25 E	N 19 E	N 28 E	028		022		022	N 22 E				Core
				3½	N 26 E	N 20 E	N 35 E	035		029		029	N 29 E				
				1	N 24 E	N 18 E	S 04 W	182		176		176	S 04 E				
				1	N 25 E	N 19 E	S 03 W	183		177		177	S 03 E				
				1	N 25 E	N 19 E	S 03 W	183		177		177	S 03 E				
				1	N 24 E	N 18 E	S 01 E	179		173		173	S 07 E				
				1	N 25 E	N 19 E	S 04 E	176		170		170	S 10 E				
				1	N 25 E	N 19 E	S 06 E	174		168		168	S 12 E				
				1	N 23 E	N 17 E	S 01 E	172		166		166	S 14 E				
				1	N 24 E	N 18 E	S 13 E	167		161		161	S 19 E				
				1	N 25 E	N 19 E	S 15 E	165		159		159	S 21 E				
				1	N 24 E	N 18 E	S 16 E	164		158		158	S 22 E				
				1	N 23 E	N 17 E	S 16 E	164		158		158	S 22 E				
				1	N 22 E	N 16 E	S 21 E	159		153		153	S 27 E				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

UGR File #429
GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P O Box 387 Salt Lake City, Utah

Date 11-16-79

WELL INFORMATION
Company Gury Federal
Contractor Fairman Rig #11
Number McCall #5
County Indiana State PA.
Hole Size 7 7/8
Formation Name Devonian
Formation Disc. Shale

EQUIPMENT
Core Barrel No.
Size 6 1/4 x 4 1/2 Length 60
Bit No. 9K 2779
Size 7 1/2 x 3 1/2 Type
Previous footage 699
This core 59 Core No. 13
Total footage 758

PERFORMANCE
Interval Cored — Finish 7860
— Start 7801
Footage Cored 59
Core Recovery 59
% Recover
Start = 9:51 AM
Finish = 4:30 PM

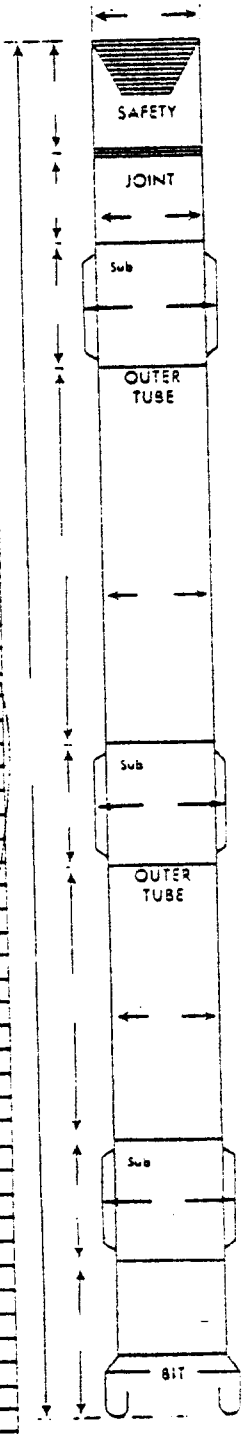
Mud Wt Vis. Pump Pressure Liner Size Strokes

No. Times Cored	Interval	Penetration Rate Minutes per Foot	Operating Conditions: Weight	Rotating RPM	Pump GPM
0	7801				
1	2	3			
2	3	2			
3	4	4			
4	7805	4			
5	6	4			
6	7	4			
7	8	3			
8	9	3			
9	7810	3			
10	1	3			
11	2	3			
12	3	3			
13	4	3			
14	7815	3			
15	6	2			
16	7	2			
17	8	2			
18	9	2			
19	7820	2			
20	1	2			
21	2	2			
22	3	2			
23	4	3			
24	7825	2			
25	6	3			
26	7	3			
27	8	3			
28	9	3			
29	7830	3			
30	1	4			
31	2	3			
32	3	5			
33	4	5			
34	7835	2			
35	6	2			
36	7	3			
37	8	3			
38	9	4			
39	7840	2			
40	1	3			
41	2	3			
42	3	4			
43	4	2			
44	7845	3			
45	6	3			
46	7	4			
47	8	4			
48	9	4			
49	7850	4			
50	1	4			
51	2	5			
52	3	5			
53	4	5			
54	7855	5			
55	6	6			
56	7	6			
57	8	7			
58	9	7			
59	7860	7			
60					

(CONT)

(CONT)

6 GALS 35 MIN. DRAG BIT
3 GALS 20 MIN. DRAG BIT
3 GALS 10 MIN. DRAG BIT



CORE ORIENTING LOG

Date

Page of

WELL INFORMATION

Company: GRUY - FEDERAL INC
Contractor: FAIRMAN DRLG RIG 11
Well Name: McCALL - AUCKERMAN #5
County: INDIANA State: PA
Hole Size: 7 7/8 Core Barrel: 7635
Formation Name: DEVONIAN
Formation Description: SHALE

PERFORMANCE

Core # 13

Interval Cored: Finish
Start 7850

Footage Cored: 5

Remarks: REC 5' FRACTURE BETWEEN

MULTISHOT INSTRUMENT

Make: SPERRY SUN
Serial No.
Clock Interval 4 Min.
Station Record By
Film Read By: JOE BOWEN

CORRECTIONS

Declination 0 Degrees East / West

Azimuth Correction for Declination
East Declination: Add to Azimuth
West Declination: Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees Right / Left of Orientation Lug.
Right Add to Lug Azimuth
Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
					Direction		Orienting Lug, Magnetic		Declin. Corr	Or. Lug Az. True	Reference Groove			Dip Dir.	Dip Angle	Strike	
No.	Time	Picture No	Depth	Angle	Magnetic	True	Direction	Azimuth			Corr.	Az. True	Direction True				
1	[illegible]	33	7863	4	N 23 E	N [illegible] E	S 13 W	193	0	193	0	193	[illegible]				
2	[illegible]	35	65	4	N 23 E	N [illegible] E	S 69 W	189	"	189	"	189	[illegible]				
3	[illegible]	37	67	4	N 23 E	N [illegible] E	S 0 E	177	"	177	"	177	[illegible]				Core
4	[illegible]	[illegible]	69	4	N 25 E	N [illegible] E	N 52 W	315	"	315	"	315	[illegible]				
5	6 45	[illegible]	7871	4	N 25 E	N [illegible] E	N 61 W	301	"	305	"	305	[illegible]				
6	6 56	105	73	4	N 25 E	N [illegible] E	N 49 W	311	"	305	"	305	N 55 W				
7	7 07	107	75	4	N 27 E	N 21 E	N 80 W	280	"	274	"	274	N 56 [illegible]				
8	7 16	109	77	4	N 20 E	N 14 E	S 66 E	114	"	108	"	108	[illegible]				
9	7 24	111	79	4	N 21 E	N 15 E	S 14 E	166	"	166	"	166	[illegible]				
10	7 34	113	7821	4	N 20 E	N 14 E	N 83 E	086	"	084	"	084	[illegible]				
11	7 44	117	83	3½	N 17 E	N [illegible] E	N 81 E	081	"	075	"	075	N 75 [illegible]				
12	[illegible]	119	85	3½	N 17 E	N 13 E	N 81 E	081	"	075	"	075	N 75 [illegible]				
13	[illegible]	121	87	3½	N 17 E	N 13 E	N 74 E	074	"	073	"	073	N 73 E				
14	8 16	123	89	3½	N 20 E	N 14 E	N 74 E	074	"	073	"	073	N 73 E				
15	8 27	125	7831	3½	N 17 E	N 13 E	N 82 E	080	"	074	"	074	N 74 [illegible]				
16	[illegible]	131	33	3½	N 17 E	N 13 E	N [illegible] E	074	"	073	"	073	N 73 [illegible]				
17	[illegible]	134	35	3½	N 17 E	N 13 E	N 74 E	074	"	073	"	073	N 73 [illegible]				
18	[illegible]	136	37	3½	N 17 E	N 13 E	N 81 E	081	"	075	"	075	N 75 [illegible]				
19	[illegible]	138	39	3½	N 17 E	N 13 E	N 85 E	083	"	[illegible]	"	075	N 75 [illegible]				Core
20	9 45	141	7841	4	N [illegible] E	[illegible] E	S 41 W	229	"	223	"	223	[illegible]				
21	[illegible]	143	43	4	N 20 E	N 15 E	S 41 W	229	"	223	"	223	[illegible]				
22	[illegible]	145	45	4	N 20 E	N 14 E	S 41 W	229	"	223	"	223	[illegible]				
23	[illegible]	147	47	4	N 20 E	N [illegible] E	S 45 [illegible]	228	"	222	"	222	[illegible]				
24	[illegible]	149	49	4	N 21 E	N [illegible] E	S 42 [illegible]	227	"	221	"	221	[illegible]				
25	10 47	[illegible]	7851	4	N 20 E	N [illegible] E	S 46 [illegible]	226	"	220	"	220	[illegible]				
26	10 [illegible]	[illegible]	53	4	N 21 E	N 12 E	S 45 [illegible]	225	"	219	"	219	[illegible]				
27	10 [illegible]	153	55	4	N 20 E	N [illegible] E	S 45 [illegible]	225	"	219	"	219	[illegible]				
28	10 34	155	57	4	N 20 E	N [illegible] E	S 41 [illegible]	221	"	215	"	215	[illegible]				
29	10 53	157	59	4	N [illegible] E	N [illegible] E	S 40 [illegible]	220	"	214	"	214	[illegible]				
30	11 05	162	7861	4	N 20 E	N [illegible] E	S 3[illegible]	219	10	213	12	213	[illegible]	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

GRUY Federal Inc
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-17-77

WELL INFORMATION
Company [illegible]
Contractor [illegible]
Number [illegible]
County [illegible] State PA.
Hole Size [illegible]
Formation Name [illegible]
Formation Disc. Shale
Mud - Wt. Vis.

EQUIPMENT
Core Barrel No.
Size 6¼ x 4 Length 60
Bit No. 7K2777
Size 7 7/8 x 3 1/2 Type
Previous footage 758
This core 54 Core No. 17
Total footage 812

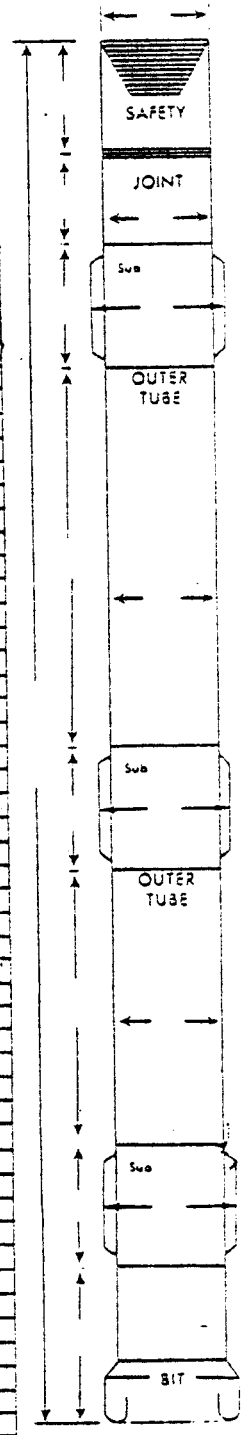
PERFORMANCE
Interval Cored – Finish 7919
– Start 7860
Footage Cored 59
Core Recovery 56
% Recover
Start = 9:19 AM
Finish = 10:30 AM

Pump Pressure Liner Size Strokes

PENETRATION RATE MINUTES PER FOOT 18 FEET

OPERATING CONDITIONS: WEIGHT | ROTATING RPM | FLUID GPM

No. Feet Cored	Interval	Penetration Rate Minutes Per Foot	Operating Conditions: Weight	Rotating RPM	Fluid GPM
0	7860				
1	61				
2	62	6			
3	63				
4	64	6			
5	7865	5			
6	66	5			
7	67	5			
8	68	6			
9	69	6			
10	7870	5			450
11	71	5			
12	72	4			
13	73	3			
14	74	3			360
15	7875	3			400
16	76	2			
17	77	3			
18	78	3			
19	79	2			
20	7880	2			
21	81	2			
22	82	2			
23	83	2			
24	84	2			
25	7885	2			
26	86	2			
27	87	2			
28	88	2			
29	89	2			
30	7890	2			
31	91	2			
32	92	1			
33	93	2			
34	94	2			
35	7895	2			
36	96	2			
37	97	2			
38	98	3			
39	99	2			
40	7900	1			
41	01	2			
42	02	2			
43	03	3			
44	04	2			
45	7905	2			
46	06	2			
47	07	3			
48	08	3			
49	09	2			
50	7910	1			
51	11	1			
52	12	2			
53	13	2			
54	14	3			
55	7915	2			
56	16	1			
57	17	1			
58	18	2			
59	7919	3			
60					



Form SD-222 Rev. 3 5M 2-70 C.O.S.

CORE ORIENTING LOG

Date [illegible]

Page [illegible] of [illegible]

WELL INFORMATION

Company [illegible] Federal
Contractor FAIRMAN DRLG #11
Well Name McCALL AUGERMAN #5
County [illegible] State PA
Hole Size 7 7/8 Core Barrel 7635
Formation Name DEVONIAN
Formation Description SHALE

PERFORMANCE

Core #14

Interval Cored: Finish 7914
Start 7860

Footage Cored: 54

Remarks: RECOVERED 56½

MULTISHOT INSTRUMENT

Make SPERRY-SUN
Serial No. 462
Clock Interval 4 Min.
Station Record By [illegible]
Film Read By [illegible]

CORRECTIONS

Declination 0 Degrees East / West

Azimuth Correction for Declination
East Declination Add to Azimuth
West Declination Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 0 Degrees Right / Left of Orientation Lug.
Right Add to Lug Azimuth
Left Subtract from Lug Azimuth

Station No.	Time	Picture No.	Depth	Drift Angle	Drift Direction Magnetic	Drift Direction True	Orientation Orienting Lug Magnetic Direction	Orientation Orienting Lug Magnetic Azimuth	Decln. Corr.	Or. Lug Az. True	Reference Groove Corr.	Reference Groove Az. True	Reference Groove Direction True	Dip Dir.	Dip Angle	Strike	Remarks
1	[illegible]	35	7862	4	N 21 E	N 15 E	S 18 W	192	0	192	0	192	S 12 W				
[illegible]	[illegible]	36	64	4	N 20 E	N 14 E	S 11 W	191	"	185	"	185	S 5 W				
[illegible]	[illegible]	37	66	4	N 20 E	N 14 E	S 06 W	186	"	181	"	181	S 0 E				
[illegible]	[illegible]	37	68	4	N 20 E	N 14 E	S 01 W	181	"	172	"	172	S 0 E				Core
[illegible]	12	101	70	4	N 20 E	N 14 E	S 03 E	177	"	171	"	171	S 6 E				
[illegible]	[illegible]	123	72	4	N 20 E	N 14 E	S 08 E	122	"	116	"	116	S 6 E				
[illegible]	[illegible]	126	74	3¾	N 21 E	N 15 E	S 50 E	130	"	124	"	124	S 56 E				
[illegible]	[illegible]	128	76	3¾	N 20 E	N 14 E	S 35 E	142	"	136	"	136	S 41 E				
[illegible]	[illegible]	131	78	3¾	N 21 E	N 15 E	S 08 E	172	"	166	"	166	S 14 E				
[illegible]	[illegible]	133	78.50	3¾	N 20 E	N 14 E	S 03 E	177	"	171	"	171	S 0 E				
[illegible]	[illegible]	135	82	4	N 23 E	N 17 E	S 23 W	203	"	197	"	197	S 17 W				
[illegible]	[illegible]	138	84	4	N 22 E	N 16 E	S 50 W	122	"	116	"	116	S 46 W				
[illegible]	[illegible]	140	86	4	N 23 E	N 17 E	S 87 W	63	"	057	"	057	S 61 W				
[illegible]	[illegible]	142	88	4	N 23 E	N 17 E	N 34 W	326	"	318	"	318	N 42 W				
[illegible]	[illegible]	144	78.50	4	N 23 E	N 17 E	N 12 W	348	"	340	"	340	N 18 W				
[illegible]	[illegible]	146	92	4	N 23 E	N 17 E	N 18 E	015	"	010	"	012	N 12 E				
[illegible]	[illegible]	148	94	4	N 22 E	N 16 E	N 22 E	022	"	021	"	021	N 21 E				
[illegible]	[illegible]	151	96	4	N 21 E	N 15 E	N 45 E	045	"	039	"	039	N 39 E				
[illegible]	[illegible]	153	98	4	N 21 E	N 15 E	S 24 W	234	"	228	"	228	S 48 W				
[illegible]	[illegible]	155	79.50	4	N 21 E	N 15 E	S 30 E	150	"	144	"	144	S 36 E				
[illegible]	[illegible]	157	[illegible]	4	N 21 E	N 15 E	222	232	"	226	"	226	S 46 W				Core
11:26	172	04	4	N 23 E	N 17 E	S 44 E	136	"	130	"	130	S 50 E					
11:34	174	06	4	N 21 E	N 15 E	S 43 E	157	"	151	"	151	S 29 E					
11:42	176	08	4	N 21 E	N 15 E	S 02 E	172	"	172	"	172	S 08 E					
11:51	178	79.10	4	N 21 E	N 15 E	S 15 W	195	"	192	"	192	S 12 W					
12:01	181	12	4	N 21 E	N 15 E	S 30 W	210	"	204	"	204	S 24 W					
12:07	183	14	4	N 23 E	N 17 E	S 43 W	223	"	217	"	217	S 37 W					
[illegible]	185	16	4	N 23 E	N 17 E	S 50 W	230	"	224	"	224	S 44 W					
[illegible]	188	79.19	4	N 23 E	N 22 E	N 87 W	273	"	267	"	267	S 87 W					
2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

47

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-17-79

WELL INFORMATION
Company GRUY-FEDERAL
Contractor FAIRMAN #11
Number McCALL #5
County INDIANA State PA
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE

EQUIPMENT
Core Barrel No. 7635
Size 6 1/4, 3 1/2 Length
Bit No. 9K 2119
Size Type
Previous footage 817
This core 31 Core No. 15
Total footage 848

PERFORMANCE
Interval Cored – Finish 7950
– Start 7919
Footage Cored 31
Core Recovery 31
% Recover
START = 8:14 PM
FINISH = 11:56 PM

Mud - Wt. Vis. Pump Pressure Liner Size Strokes

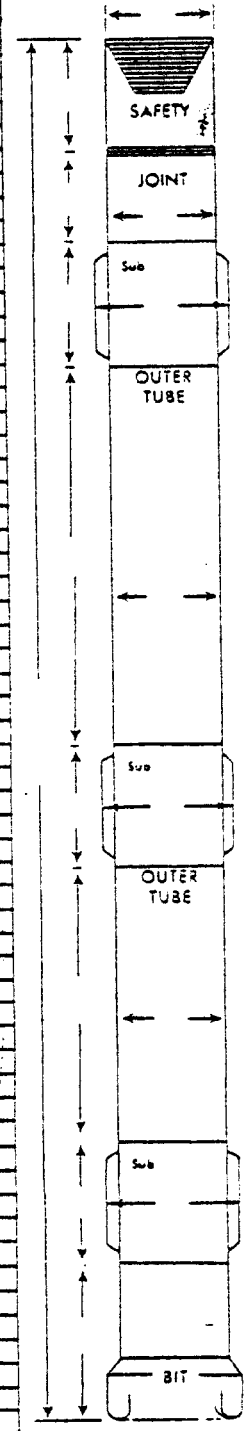
No. Feet Cored	Interval	Penetration Rate Minutes per Foot (2 3 4 5 6 7 8 9 10 15 20 30 40 50 60 70 80 90)	Weight	Rotating RPM	Flow GPM
0	7919				
1	7920	4			
2	21	3			
3	22	2			
4	23	2			
5	24	2			
6	7925	2			
7	26	3			
8	27	2			
9	28	2			
10	29	3			
11	7930	2			
12	31	2			
13	32	2			
14	33	2			
15	34	3			
16	7935	4			
17	36	5			
18	37	4			
19	38	2			
20	39	2			
21	7940	2			
22	41	2			
23	42	4			
24	43	4			
25	44	4			
26	7945	4			
27	46	4			
28	47	4			
29	48	4			
30	49	4			
31	7950				
32	51				
33	52				
34	53				
35	54				
36	7955				
37	56				
38	57				
39	58				
40	59				
41	7960				
42	61				
43	62				
44	63				
45	64				
46	7965				
47	66				
48	67				
49	68				
50	69				
51	7970				
52	71				
53	72				
54	73				
55	74				
56	7975				
57	76				
58	77				
59	7978				
60					

Operating Conditions

2.5 MIN TO BOTTOM
40 MIN. TO GRAB CORING
TRIPPED

CAVE @ 7933
42 MIN.

DAMPED



Form SD-222 Rev. 3 5M 2-70 C.O.S. STRAP OUT OF HOLE

CORE ORIENTING LOG

Date [illegible]

Page [illegible] of [illegible]

WELL INFORMATION

Company: Gray Federal Inc.
Contractor: Fairway Drilling
Well Name: [illegible]
County: [illegible] State: [illegible]
Hole Size: [illegible] Core Barrel: [illegible]
Formation Name: [illegible]
Formation Description: [illegible]

PERFORMANCE

Interval Cored: Finish [illegible] Start [illegible]
Footage Cored: 31
Remarks: Recovered 31'
Top section of plastic collapsed the full length

MULTISHOT INSTRUMENT

Make: Sperry Sun
Serial No. [illegible]
Clock Interval: 1 Min.
Station Record By: [illegible]
Film Read By: Joe Bauer

CORRECTIONS

Declination: [illegible] Degrees ☐ East ☑ West

Azimuth Correction for Declination
East Declination ☐ Add to Azimuth
West Declination ☑ Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is [illegible] Degrees ☐ Right ☐ Left of Orientation Lug.
☐ Right Add to Lug Azimuth
☐ Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
No.	Time	Picture No.	Depth	Angle	Direction Magnetic	Direction True	Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Declin. Corr.	Or. Lug Az. True	Reference Groove Corr.	Reference Groove Az. True	Reference Groove Direction True	Dip Dir.	Dip Angle	Strike	
1	[illegible]	76	[illegible]	4	N 24 E	N 18 E	S 82 E	97	[illegible]	91	0	91	S 89 E				
2	[illegible]	78	23	4	N 23 E	N 17 E	S 72 E	103	"	102	"	102	S 78 E				
3	[illegible]	80	25	4	N 23 E	N 17 E	S 61 E	121	"	115	"	115	S 65 E				
4	[illegible]	81	27	4	N 24 E	N 18 E	S 48 E	132	"	126	"	126	S 54 E				
5	[illegible]	82	29	4	N 24 E	N 18 E	S 45 E	135	"	129	"	129	S 51 E				
6	[illegible]	86	29.31	4	N 24 E	N 18 E	S 34 E	146	"	140	"	140	S 40 E				
7	[illegible]	88	33	4	N 24 E	N 20 E	S 30 E	150	"	144	"	144	S 36 E				Core 1
8	[illegible]	102	35	3¾	N 22 E	N 21 E	N 10 E	010	"	004	"	004	N 04 E				
9	[illegible]	105	37	3¾	N 22 E	N 21 E	N 03 E	003	"	354	"	354	N 06 E				
10	[illegible]	107	39	3¾	N 30 E	N 24 E	N 08 E	008	"	008	"	008	N 02 E				
11	[illegible]	109	29.41	3¾	N 2[illegible] E	N 23 E	N 12 E	012	"	006	"	006	N 06 E				
12	[illegible]	113	43	3¾	N 24 E	N 23 E	N 10 E	010	"	004	"	004	N 04 E				
13	[illegible]	116	45	3¾	N 24 E	N 23 E	N 08 E	008	"	002	"	002	N 02 E				
14	[illegible]	119	47	3¾	N 24 E	N 23 E	N 08 E	008	"	002	"	002	N 02 E				
15	[illegible]	122	49	3¾	N 24 E	N 23 E	N 01 E	001	"	355	"	355	N 05 W				
16	[illegible]	132	29.50	4	N 25 E	N 19 E	S 85 E	95	"	089	"	089	N 81 E				Below [illegible]
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

50255 10-67 [illegible]

WHITE—CUSTOMER COPY PINK—DISTRICT COPY CANARY—SALT LAKE CITY COPY

GRUY Federal, Inc.
Feb. 1, 1980

UGR File #449
GRUY Federal, Inc.
Feb. 1, 1980

CORING LOG from

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11/18/79

WELL INFORMATION
Company GRUY FEDERAL INC
Contractor FAIRMAN #11
Number McCALL #5
County INDIANA State PA
Hole Size 7 7/8
Formation Name DEVONIAN
Formation Disc. SHALE
Mud - Wt. Vis STIFF FOAM.

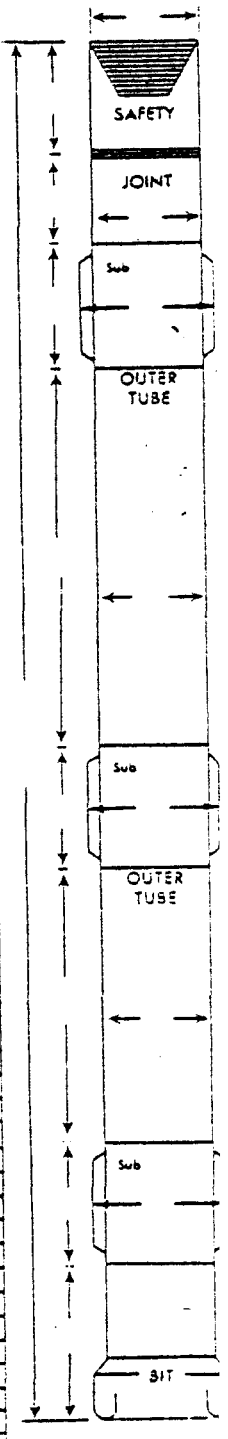
EQUIPMENT
Core Barrel No. 7635
Size 6-1/4 x 3 1/2 Length 66
Bit No. 9A 2779
Size 7 7/50 x 3 1/2 Type AIR
Previous footage 848
This core 30 Core No. #16
Total footage 878
Pump Pressure AIR Liner Size 2 3/8 LOMP 1 BOOSTER Strokes

PERFORMANCE
Interval Cored — Finish 7986
— Start 7956
Footage Cored 30'
Core Recovery 24'
% Recover
Start
Finish 4:58 PM

Core on pipe tally from 7950 to 7956

No. Min. Cores	Table Core Depth	Penetration Rate Minutes per Foot	Operating Conditions: Weight	Rotating RPM	Mud Psi
0	7956				
1	7	3			
2	8	4			
3	9	2			
4	7960	2			
5	1	1			
6	2				
7	3	2			
8	4	1			
9	7965	2			
10	6	2			
11	7	2			
12	8	2			
13	9	2			
14	7970	2			
15	1	3			
16	2	4			420#
17	3	2			
18	4	2			400#
19	7975	1			
20	6	2			390#
21	7	2			
22	8	3			
23	9	3			
24	7980	3			
25	1	3			
26	2	2			
27	3	4			
28	4	4			
29	7985	14			
30	6	6			
31	7				
32	8				
33	9				
34	7990				
35	1				
36	2				
37	3				
38	4				
39	7995				
40	6				
41	7				
42	8				
43	9				
44	8000				
45	1				
46	2				
47	3				
48	4				
49	8005				
50	6				
51	7				
52	8				
53	9				
54	8010				
55	1				
56	2				
57	3				
58	4				
59	8015				
60	6				

Core 7990 - 05
Sand Pump - 64 mil



Form SD-222 Rev. 3 5M 2-70 C.O.S.

CORE ORIENTING LOG

Date [illegible]
Page of

WELL INFORMATION

Company: Gruy Federal Inc
Contractor: Fairman Drlg Rig #[illegible]
Well Name: [illegible]
County: [illegible] State: Va
Hole Size: 7 7/8 Core Barrel: 7635
Formation Name: Devonian
Formation Description: Shale

PERFORMANCE

Interval Cored: Finish 2980
Start 2950
Footage Cored: 30'
Remarks: Fb. Hab Been Core. From 2950 to 2980.
Recov' - Badly Broken - Plastic Encased by Sponge

MULTISHOT INSTRUMENT

Make: Sperry Sun
Serial No. 68H
Clock Interval: 1 Min.
Station Record By: Sedwick
Film Read By: Joe Bonnell

CORRECTIONS

Declination 6 Degrees East / West
Azimuth Correction for Declination
East Declination: Add to Azimuth
West Declination: Subtract from Azimuth
Reference Groove Correction:
From Above, Groove is 0 Degrees Right / Left of Orientation Lug.
Right Add to Lug Azimuth
Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
No.	Time	Picture No.	Depth	Angle	Direction Magnetic	Direction True	Orienting Lug Magnetic Direction	Orienting Lug Magnetic Azimuth	Declin Corr	Or. Lug Az. True	Reference Groove Corr.	Reference Groove Az. True	Reference Groove Direction True	Dip Dir.	Dip Angle	Strike	
1	5:55	83	2953	3 3/4	N 31 E	N 25 E	N 22 E	022	6 w	016	0	016	N16E				
2	6:00	91	2960	3 3/4	N 32 E	N 26 E	N 24 E	024	"	018	"	018	N18E				
3	6:10	93	62	3 3/4	N 33 E	N 27 E	N 63 W	292	"	286	"	286	N 74 W				Bad Hole
4	6:20	97	64	4	N 30 E	N 24 E	S 40 W	220	"	214	"	214	S 34 W				
5	6:35	99	66	3 3/4	N 30 E	N 24 E	S 26 E	104	"	98	"	98	S 82 E				
6	[illegible]	[illegible]	68	4	N 30 E	N 24 E	N 55 W	302	"	296	"	296	N 64 W				
7	[illegible]	[illegible]	2970	3 3/4	N 33 E	N 27 E	N 18 E	018	"	012	"	012	N 12 E				Core Broke
8	9:15	139	72	4	N 33 E	N 27 E	N 84 W	271	"	265	"	265	S 85 W				Swip Pump Bad Hole
9	9:20	141	74	4	N 33 E	N 27 E	S 88 W	268	"	262	"	262	S 82 W				
10	9:34	143	76	4	N 34 E	N 28 E	S 83 W	263	"	257	"	257	S 87 W				
11	9:40	146	78	4	N 33 E	N 27 E	S 84 W	264	"	258	"	258	S 88 W				
12	9:56	149	2980	4	N 33 E	N 27 E	S 82 W	262	"	256	"	256	S 86 W				
13	10:00	151	82	4	N 32 E	N 26 E	S 81 W	261	"	255	"	255	S 75 W				
14	10:15	155	84	4	N 34 E	N 28 E	S 87 W	267	"	261	"	261	S 81 W				
15	10:40	161	2980	4	N 35 E	N 29 E	N 80 W	280	"	274	"		N 86 W				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

SD259 10-67 M1

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UGR File #449
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GRUY Federal, Inc.
Feb. 1, 1980

CHRISTENSEN DIAMOND PRODUCTS CO.

Home Office: 1937 South 2nd West Mail P.O. Box 387 Salt Lake City, Utah

Date 11-19-79

WELL INFORMATION
Company Gury Federal
Contractor Fairman Rig 11
Number 1313 Call #5
County Indiana State PA.
Hole Size 7 7/8
Formation Name Devonian
Formation Disc. Shale

EQUIPMENT
Core Barrel No.
Size 6 1/4 x 4 Length 60
Bit No. 9K2257
Size 7 3/32 x 3 1/2 Type
Previous footage 878
This core 26 Core No. 17
Total footage 904

PERFORMANCE
Interval Cored – Finish 8012
– Start 7986
Footage Cored 24
Core Recovery 24
% Recover
Start = 4:34 AM
Finish = 8:59 AM

Mud - Wt. Vis. Pump Pressure Liner Size Strokes

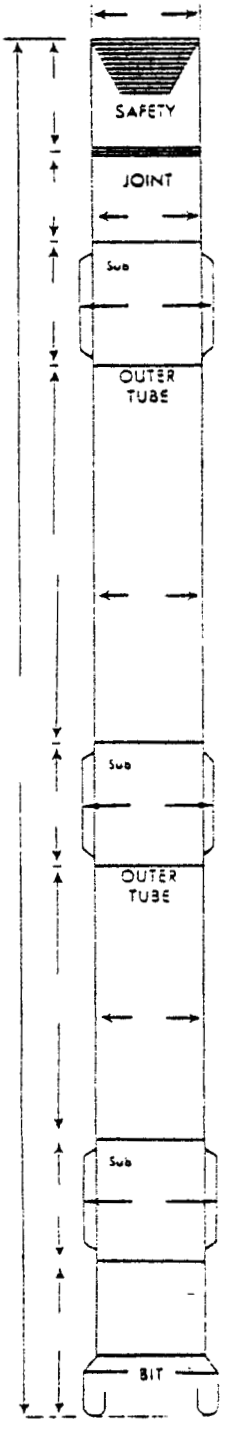
No. Test Core	Interval	Penetration Rate Minutes per Foot (30 Fill)	Operating Conditions: Weight	Rotating RPM	Flow GPM
0	7986				
1	87	3	2000	40	
2	88	3			
3	89	4			
4	7990	5			
5	91	6			
6	92	6	10000	40	
7	93	9			
8	94	10			
9	95	7			
10	96	7			
11	97	3			
12	98	7			
13	99	3			
14	8000	2			
15	01	7			
16	02	11			
17	03	5			
18	04	4			
19	8005	5			
20	06	4			
21	07	6			
22	08	5			
23	09	4			
24	8010	14			
25	11	4			
26	12	5			
27	13				
28	14				
29	8015				
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					

Cannot 8000 38 min.

Pressure 50 – Blow

Pressure 50#

22 min 0 ½ ft



Form SD-222 Rev. 3 5M 2-70 C.O.S.

CORE ORIENTING LOG

Core #17

Date 11-18-77

Page of

WELL INFORMATION

Company: Gray Exploration Co.
Contractor: Fairman Drlg #11
Well Name: Mc Gale Buckman #5
County: Indiana State: Pa
Hole Size: 7 7/8 Core Barrel: 7635
Formation Name: Devonian
Formation Description: Shale

PERFORMANCE

Interval Cored: Finish 8012
Start 7986
Footage Cored: 26
Remarks: BBC Jammed Recovery

MULTISHOT INSTRUMENT

Make: Sperry Sun
Serial No. 6771
Clock Interval 1 Min.
Station Record By [illegible]
Film Read By [illegible]

CORRECTIONS

Declination 6 Degrees | East / West
Azimuth Correction for Declination
East Declination | Add to Azimuth
West Declination Subtract from Azimuth
Reference Groove Correction:
From Above, Groove is 6 Degrees | Right / | Left
of Orientation Lug.
| Right Add to Lug Azimuth
| Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP, STRIKE			REMARKS
					Direction		Orienting Lug, Magnetic		Decln.	Or. Lug	Reference Groove			Dip	Dip		
No.	Time	Picture No.	Depth	Angle	Magnetic	True	Direction	Azimuth	Corr	Az. True	Corr	Az. True	Direction True	Dir.	Angle	Strike	
1	6:10	92	7982	4	N 34 E	N 28 E	N 59 W	301	6 W	295	0	295	N 65 [illegible]				
2	6:24	96	7990	3 1/4	N 40 E	N 34 E	N 57 W	303	"	297	"	297	N 63 [illegible]				
3	6:41	101	92	3 1/4	N 36 E	N 30 E	N 62 W	295	"	289	"	289	N 65 W				
4	7:05	106	94	3 1/4	N 38 E	N 32 E	N 64 W	296	"	290	"	290	N 70 [illegible]				
5	7:24	111	96	3 1/4	N 36 E	N 30 E	N 68 W	292	"	286	"	286	N 74 W				
6	7:44	116	98	3 1/4	N 32 E	N 26 E	N 72 E	072	"	066	"	066	N 66 E				
7	7:54	119	8000	3 1/4	N 30 E	N 24 E	N 65 E	065	"	059	"	059	N 59 E				Core
8	8:55	133	02	3 1/4	N 34 E	N 28 E	N 60 W	290	"	284	"	284	N 80 W				
9	9:09	137	04	3 1/4	N 38 E	N 32 E	N 32 E	032	"	026	"	026	N 26 E				Barrel
10	9:31	143	06	3 1/4	N 40 E	N 34 E	N 63 W	297	"	291	"	291	N 69 W				
11	9:46	147	08	3 1/4	N 44 E	N 36 E	N 69 W	291	"	285	"	285	N 75 W				
12	10:09	152	8010	3 1/4	N 38 E	N 31 E	S 78 W	258	"	252	"	252	S 72 W				
13	10:28	157	8012	3 1/4	N 35 E	N 29 E	S 81 W	261	"	255	"	255	S 65 W				Barrel
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

SD255 10-67 R1

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Feb. 1, 1980