

BENCH MARK GEOLOGICAL SERVICES

HYDROCARBON WELL LOG

RECEIVED

MAR 14 1991

OIL CON. DIV.
DIST. 3

OPERATOR BLACKWOOD AND NICHOLS

WELL NE Blanco Unit 504

FIELD Basin Fruitland Coal

LOCATION sec 16 T31N R7W

CO./STATE San Juan Co., New Mexico

ELEVATION KB 6529 ft. GL 6515' (ungrd)

SPUD DATE _____

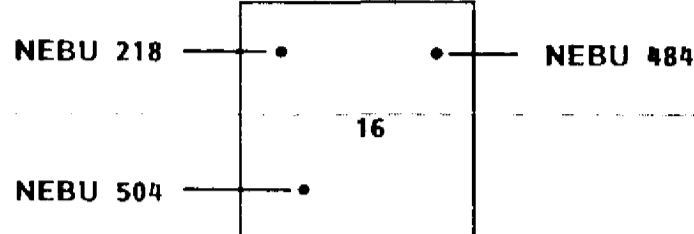
INTERVAL LOGGED 3083 - 3416 ft.

DATE LOGGED 11/30 thru 12/1/90

LOGGING GEOLOGISTS Randy Laney, Mike Mixter

INSTRUMENTATION FID Chromatograph and Total Gas Detector, Infrared CO₂ Detector

WELL LOCATION



LEGEND - GAS CURVES

TOTAL GAS	T
METHANE	1
ETHANE	2
PROPANE	3
ISO & N-BUTANE	4
OIL INDICATOR	$\frac{C_2 + C_3}{C_1}$ 0

HYDROCARBON ANALYSIS

TOTAL GAS	Reported in Units	
	10	100
GAS CHROMATOGRAPHY	Reported in PPM	
	100	1000
OIL INDICATOR	Dimension Less	
	0.01	0.1

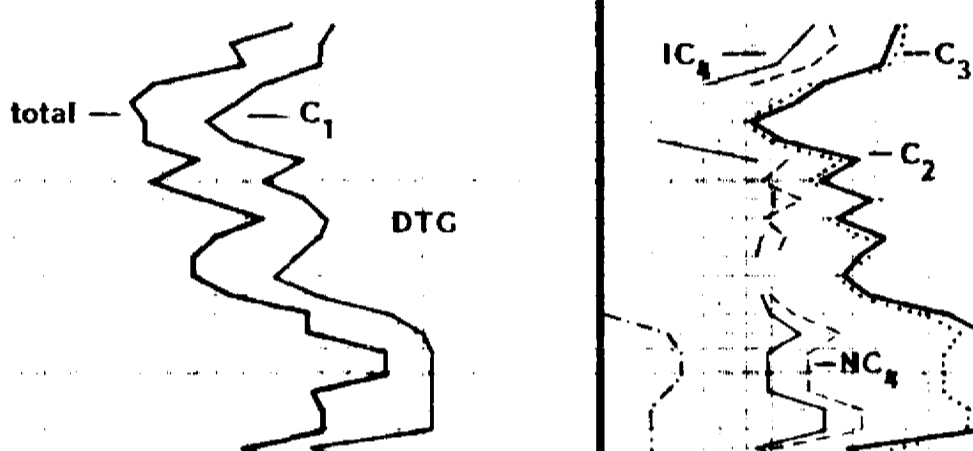
7" casing set at 3083 ft.

5 ft. sample interval
Drilling with water

Depth of Coal Intervals
(# of canistered samples)

100 units Total Gas = 1% methane
10 100 1000 units
100 1000 10,000 ppm

heavies 100 1000 ppm
CO₂ 1000 10,000 ppm



ONSET OF FLARED GAS -
total 1,141 units
C₁ 78,530 ppm
C₂ 750 ppm

total 1,156 units
C₁ 74,000 ppm

total 1,266 units
C₁ 85,140 ppm
C₂ 800 ppm

total 1,453 units
C₁ 80,000 ppm

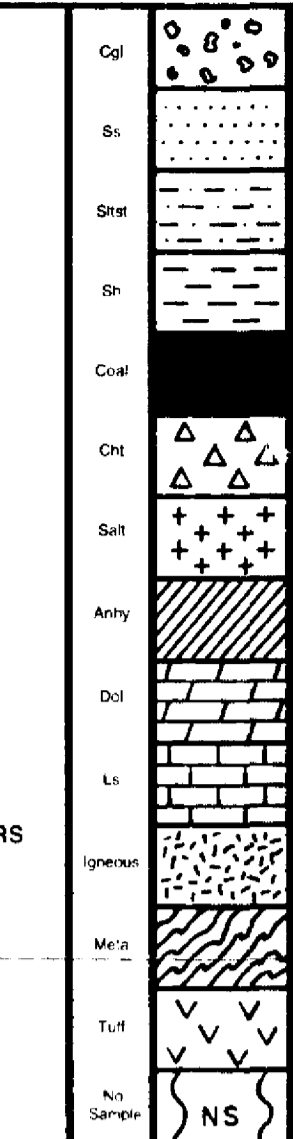
carbon dioxide

carbon dioxide

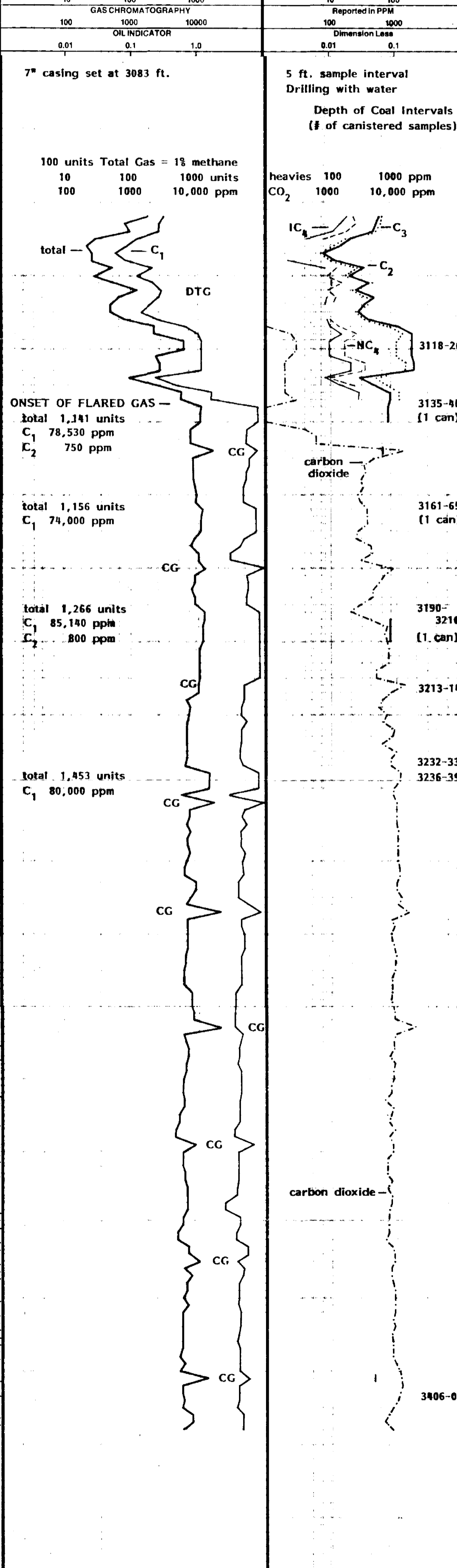
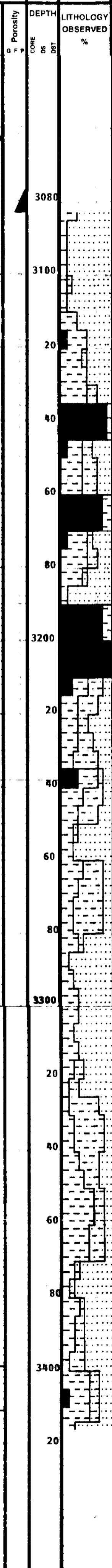
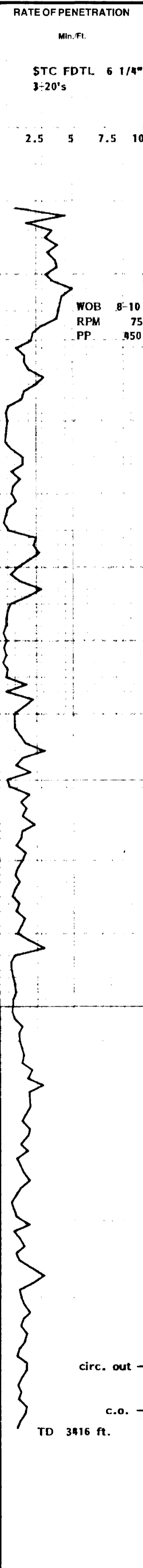
Visual Show
G F P T

Lithology
Interp

Lithology
Descriptions
and Remarks



- ABBREVIATIONS**
- CO - Circulate Out
 - CG - Connection Gas
 - CB - Core Bit
 - DC - Depth Correction
 - DS - Directional Survey
 - DST - Drill Stem Test
 - DTG - Down Time Gas
 - FC - Filter Cake
 - LAT - Logged After Trip
 - NB - New Bit
 - NDR - No Data Recorded
 - NR - No Returns
 - PP - Pump Pressure
 - RPM - Rotary Speed
 - SPM - Pump Strokes
 - TG - Trip Gas
 - TGR - Trip Gas Recycle
 - Vis - Viscosity
 - WL - Water Loss
 - WOB - Weight on Bit
 - WI - Density Of Drill Fluid
- LITHOLOGY MODIFIERS**
- // - Anhydritic
 - B - Bentonitic
 - ± - Calcareous
 - - Carbonaceous, Coaly
 - △ - Dolomitic
 - F - Fossiliferous
 - ∇ - Glauconitic
 - ◇ - Oolitic
 - p - Pyritic
 - Λ - Siliceous



Ss lt gy-cream, pred f gr, sub ang, mod well srt, all fros qtz, very calc cont w/ wh calc clyst, some blue-gn chlorite, NS

Sh chocolate brn, platy soft, silky-res luster, gen v carb, intbd w/ blk, v platy, sub vit-resinous, carb Coal

Coal blk, sub platy, almost all sub vit-res -gen no vit material, drilled up vf gr, mod-very carb, some amber resin, poor quality

Coal gen as above, blk platy-sli sub blocky, very little fine dissem vit (5-10%), very soft, vf gr, mod-very carb, more resin than above, poor qual. coal

Ss lt brn gy, f gr, sub ang, fr srt, fros, disagg, mod calc, NS

Coal blk, sub platy-sli sub blk, pred sub vit-res-very little f gr vit (10%), drilled up vf gr, mod-v carb, no calc, mod amount amber resin, overall poor quality coal

Sh blk brn-brn, platy, res-some sub vit, gen very carb, some calc veins, dissem coaly grs

Coal blk, sub blk, gen as above, v little vit, res-sub vit, mod carb, some resin, poor qual.

Ss lt gy, gy wh, vf gr, sub rd, mod w srt, fros, disagg, sli-mod calc, peppered w/ vf gr carb grs, NS

Sltst lt-med brn, sub blk-biky, mod hard, sli calc, gen non carb, mod sandy in part, intbd w/ Ss as above

T/ P.C. Tongue 3285' Ss very lt gy wh S&P, f gr, sub rd, pred clr qtz grs, some qtz overgrowths, disagg, very sli calc, glauc & carb grs, NF, NC

Ss lt-med gy wh S&P, becoming finer gr, sub rd-sub ang, fair srt, more fros than above, sli more calc, glauc & carb grs, NF, NC

Sltst med-dk brn, mottled brn, sub blk, mod firm, mod carb, sli calc, intbd w/ some Ss as above, grd to silty carb Sh

Sh v dk brn-blk brn, sub platy-sub blk, mod soft, res-sub vit, v carb w/ abnt dissem fine coaly material, grd to shaley coal

Ss lt-med brn, mottled gy brn, f-vf gr, poor srt, mod fri, mod carb, sli calc, w/ glauc grs grd to sandy Sltst

Sh very dk brn, blk brn, platy-sub blk, pred res, mod-very carb w/ blk, sub platy, sub vit Coal, poor qual.

T/ Main P.C. 3413' TD sample- Ss lt brn gy S&P, f gr, sub rd, disagg, clr qtz grs, glauc & carb grs, some org Cht, mod amount brn dd intgran residue, v sli yel flor NC