

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
 L — Laminar
 C — Carbonaceous, Coaly
 D — Dolomitic
 F — Fossiliferous
 G — Glaucinitic
 O — Oolitic
 P — Pyritic
 S — Siliceous

BENCH MARK

GEOLOGICAL SERVICES

HYDROCARBON

WELL LOG

MAY 4 1991

OIL CON. DIV.,
DIST. 3OPERATOR BLACKWOOD AND NICHOLSWELL NE Blanco Unit 441RFIELD Basin Fruitland CoalLOCATION sec 24 T30N R8WCO./STATE San Juan Co., New MexicoELEVATION KB 6372 ft. GL 6358' (ungrd)

SPUD DATE _____

INTERVAL LOGGED 2979 - 3257 ft.DATE LOGGED 11/5 thru 11/6/90LOGGING GEOLOGISTS Randy Laney, Mike MixterINSTRUMENTATION FID Chromatograph and Total Gas detector, Infrared CO₂ Detector

WELL LOCATION

NEBU 103A

NEBU 103

NEBU 443

NEBU 441R

NEBU 441

NEBU 105

NEBU 105A

LEGEND — GAS CURVES

TOTAL GAS	T
METHANE	1
ETHANE	2
PROPANE	3
ISO & N-BUTANE	4
OIL INDICATOR	C ₃ + C ₄ C ₁
	0

HYDROCARBON ANALYSIS

TOTAL GAS			Reported In Units	
10	100	1000	10	100
GAS CHROMATOGRAPHY			Reported In PPM	
100	1000	10000	100	1000
OIL INDICATOR			Dimension Less	
0.01	0.1	1.0	0.01	0.1

RATE OF PENETRATION

Min./Ft.

STC FDTL 6 1/4"
3+20's

2.5 5 7.5 10

DEPTH

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

LITHOLOGY

OBSERVED

%

CORE

DS

DST

%

7" casing set at 2979 ft.

5 ft. sample interval

Drilling with water

Depth of Coal Intervals

(ft. of canistered samples)

100 units Total Gas = 18 methane

10 100 1000 units

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 units Total Gas = 18 methane

10 100 1000 units

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1000 10,000 ppm

100 1