

BENCH MARK GEOLOGICAL SERVICES

HYDROCARBON WELL LOG

RECEIVED

MAR 14 1991

OIL CON. DIV./
DIST. 3

OPERATOR BLACKWOOD AND NICHOLS

WELL NE Blanco Unit 498

FIELD Basin Fruitland Coal

LOCATION sec 13 T31N R7W

CO./STATE San Juan Co., New Mexico

ELEVATION KB 6457 ft. GL 6443' (ungrd)

SPUD DATE

INTERVAL LOGGED 3076 - 3385 ft.

DATE LOGGED 10/25 thru 10/26/90

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 1000	10 100
GAS CHROMATOGRAPHY	Reported in PPM
100 1000 10000	100 1000
OIL INDICATOR	Dimensionless
0.01 0.1 1.0	0.01 0.1

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
WT - Density Of Drill Fluid

LITHOLOGY MODIFIERS

// - Anhydritic
B - Bentonitic
C - Carbonaceous
■ - Carbonaceous, Coaly
/ - Dolomitic
F - Fossiliferous
~ - Glauconitic
♦ - Oolitic
p - Pyritic
^ - Siliceous

RATE OF PENETRATION

Min. Ft.

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

2.5 5 7.5 10

WOB 8-10
RPM 90
PP 800

circ. out

TD 3385 ft.

DEPTH

ft

3080

3100

20

40

60

80

3200

20

40

60

80

3300

20

40

60

80

LITHOLOGY OBSERVED

%

7" casing set at 3076 ft.

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

total 78 units
C₁ 4,370 ppm

total 55 units
C₁ 5,215 ppm

total 63 units
C₁ 5,140 ppm

total 70 units
C₁ 4,370 ppm

CG

CG

CG

CG

5 ft. sample interval
Drilling with water

Depth of Coal Intervals
(# of canistered samples)

heavies 100 1000 ppm
CO₂ 1000 10,000 ppm

NC

C₂

C₃

ONSET OF FLARED GAS
3127-32
(1 can)

3164-65

3196-

3207

(1 can)

3209-21

(1 can)

carbon dioxide

3234-36

3247-51

(1 can)

3254-57

C₂

Note: Well producing CO₂
mainly on connections.

3375-76

Visual

Show

G F P T

Lithology

interp

Lithology

Descriptions

and Remarks

Sh lt-m gy gn, med brn
pred sub platy, gn part
sub waxy, brn part ear-
thy, firm, mod carb, non
calc

Sh gen med-dk brn,
platy-sub platy, firm,
earthy-occ sub res, mod
to very carb w/ paper
thin coaly laminae-
lenses, silty, some
platy gy sec calc

Coal blk, platy-sub
blkly-some blkly w/ fair
conch frac, 30-50% vit
as finely-coarse band-
ed, some gy sec calc,
some resin, good qual.

Ss lt-m gy, pred f gr,
sub rd, mod w srt, fros,
disagg, mod calc cmt,
some carb grs, tr gn
mica flakes, NS

Sh med-dk brn, sub
platy, firm, mod-v carb,
intbd w/ blk vit Coal

Ss gy wh-med brn gy,
vf-occ m gr, sub ang-
sub rd, less well srt
than above, fros, more
calc, intbd w/ some brn
sub blkly Sltst, NS

Coal blk, sub platy-
sub blkly becoming more
blkly at base w/ some
conch frac, sub vit at
top-25-30% vit at base
as finely-med banded,
mod carb at top w/ tan
clst intbds, some gy
sec calc, some resin,
overall mod good qual.

Sltst med-dk gy, sub
blkly, non carb w/ some
coaly lam, intbd w/ blk
sub vit coal as above

Coal blk, very good
blkly text w/ good con-
ch frac & cleat devel-
opment, 75-80% massive
vit, v little carb, mod
abnt resin clusters,
some calc, very good
quality-best of well

T/ P.C. Tongue 3267'
Ss v lt gy wh S&P, f
gr, sub ang, mod w srt,
pred fros-some clr, dis-
agg, sli calc, glauc &
carb grs, some org ch
pale gn yel flor, yel
residual ring cut

tr condensate odor
Ss gy wh S&P, f gr,
sub ang, fros, sli more
calc, glauc & carb grs
sli tr odor, yel flor,
faint ring cut

Sltst med-dk brn, mot-
tled brn, sub blkly,
firm, non calc, mod-v
carb w/ some coaly
grs, intbd w/ above Ss

Sh dk brn-blk, sub
blkly-sub platy, firm,
very carb & coaly,
grd to shaley Coal
in part

Sltst med-dk brn blk
sub blkly, firm, very
carb, intbd w/ blk, sub
vit, sub blkly Coal &
very carb-coaly Sh

T/ Main P.C. 3384'
TD sample- Ss gy wh
S&P, f gr, sub ang, mod
srt, glauc & carb-coaly
grs, sli calc, NF, NC