

BENCH MARK GEOLOGICAL SERVICES

HYDROCARBON WELL LOG

- 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
 - Calcareous
 - Carbonaceous, Coaly
 - Dolomitic
 - F — Fossiliferous
 - N — Glauconitic
 - Oolitic
 - P — Pyritic
 - Siliceous

OPERATOR Blackwood and Nichols

WELL NE Blanco Unit 422

LOCATION N sec 20 T31N R7W

ELEVATION KB 6433' est. GL 6419' est.

INTERVAL LOGGED 2998 - 3298

LOGGING GEOLOGISTS Randy Laney, Dan Wyckoff

INSTRUMENTATION FID chromatograph and total gas detector, infrared CO₂ detector

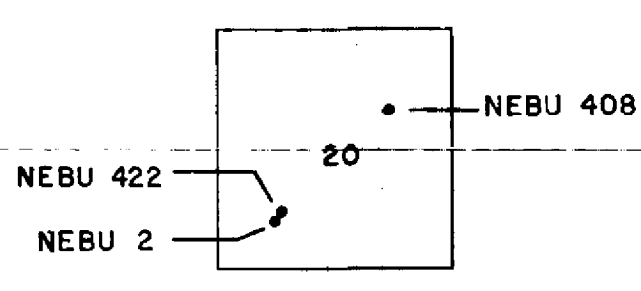
WELL LOCATION

FIELD _____

CO/STATE San Juan Co., New Mexico

SPUD DATE _____

DATE LOGGED 12/6 - 12/7/89



LEGEND—GAS CURVES

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

$C_2 + C_3$
 C_1

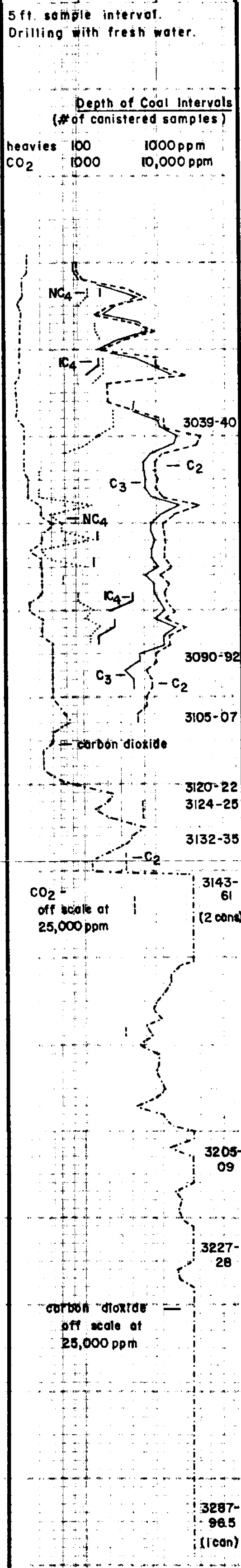
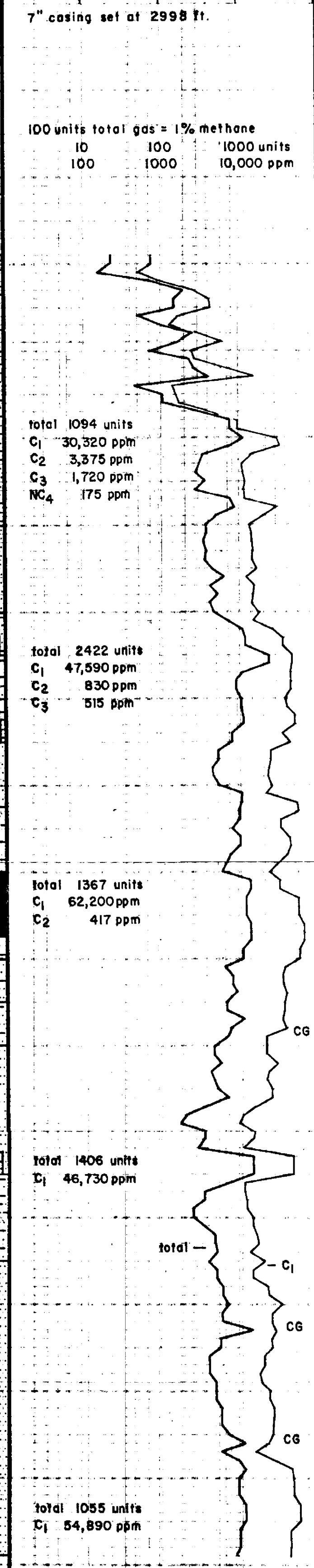
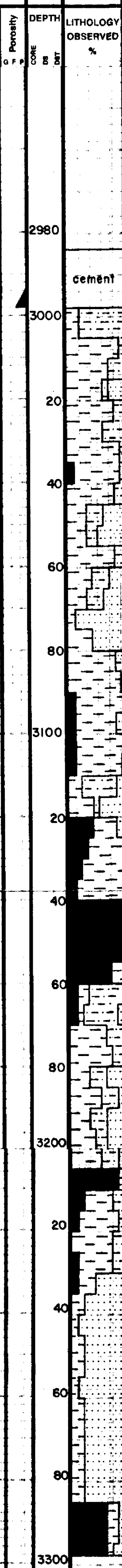
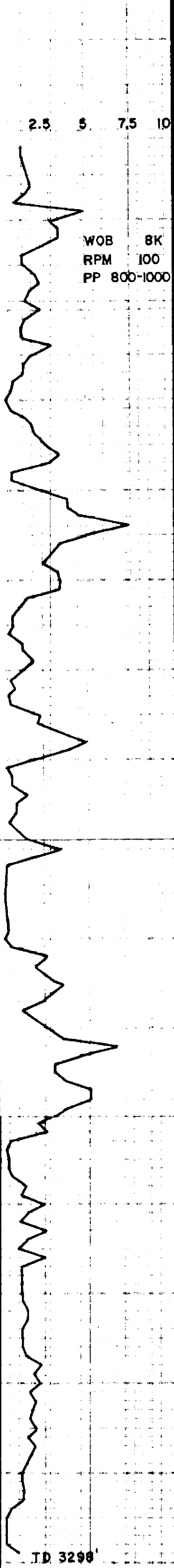
HYDROCARBON ANALYSIS

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.

6 1/4" STC FDT
2-20's 1-open



Lithology Descriptions and Remarks

Slstst m gy,brn,m gy, sb blkly-pty,frm,slimod carb,non calc, ooc coaly paper thin laminae

Sh m-dk brn,dk gy blk sb waxy-resinous luster,pty,frm,carb w/ abnt paper thin coaly lam,grading to coaly Sh in part

Coal brn blk,sb pty, res-ooc sb vit-rare vit,v carb & argillae, pyritic

Sh v dk brn, blk brn, pty,frm,res luster, v carb w/ coaly lam & lense

Ss frm,lt gy,pred f gr,sb ang,fr srt,disagg,v calc omt,NS

Sh v dk brn-brn blk, pty,res-silky luster v carb-grading to coaly Sh

Coal blk w/ some brn blk,sb pty,res-sb vit some vit,v carb

Coal gen as above,sl more vit,v carb

Slstst lt-m brn,sb blkly frm,gen non carb,sl calc,mod sandy in part

Coal blk & brn blk, pty-sb blkly,10% vit-remainder res-sb vit, carb,tr calc veins,sme amber resin,pyritic

Coal black,pred blkly texture w/ some conch fracture,40-50% vit luster,non lam,massive little carb material, no resin,v good quality coal

Slstst m brn,blkly-sb blkly,v frm-hard,non carb,gen non calcar., moderately sandy

Ss m brn,gy brn,vf-f gr,sb ang,p srt,smbl disagg,slimod calc, carb in part,NS

Coal black,good blkly texture w/ conch frac, 50-60% vit luster,microlam w/ sb vit,v little carb material, very good quality coal

T/P.C. Tongue 3233'

Ss m gy wh S&P,sb ang,gen f gr,poor-fr sorting,calcareous cement,green glauconite grs & carb-coaly grs,tight,no bit resd, NF,NC

Ss gy wh S&P,gen as above,f gr,sb ang,mod well srt,clea,calc omt,tight,some lt brn dead bit resd,NS

Coal blk,some brn blk sb blkly,res-sb vit luster,v little vit, mod carb,overall poor quality coal

TD sample-drilled up 1/4' transition into P.C. Ss-m gy,gy brn S&P,vf-f gr,poor srt, sb ang,mod argillae, glauc & dissem coaly material,abnt lt brn dead bit intergranular residue,v pale gold flur,NC