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OIL CON. DIV.
DIST. 3

BENCH MARK GEOLOGICAL SERVICES

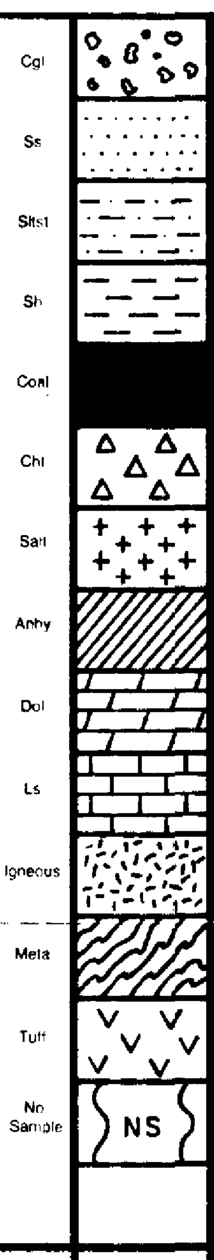
HYDROCARBON WELL LOG

ABBREVIATIONS

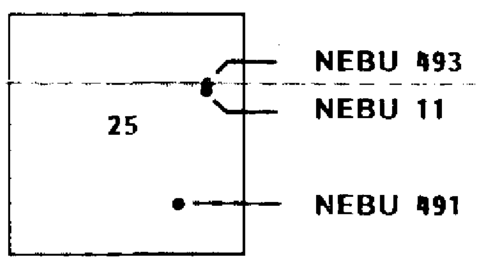
CO	Circulate Out
CG	Connection Gas
CB	Core Bit
DC	Depth Correction
DS	Directional Survey
DST	Drill Stem Test
DTG	Down Time Gas
FC	Filter Cake
LAT	Logged After Trip
NB	New Bit
NDR	No Data Recorded
NR	No Returns
PP	Pump Pressure
RPM	Rotary Speed
SPM	Pump Strokes
TG	Trip Gas
TGR	Trip Gas Recycle
Vis	Viscosity
Wl	Water Loss
WOB	Weight on Bit
Wt	Density Of Drill Fluid

LITHOLOGY MODIFIERS

//	Anhydritic
B	Bentonitic
⊥	Calcareous
▬	Carbonaceous, Coaly
⊥	Dolomitic
F	Fossiliferous
∿	Glauconitic
⌽	Oolitic
P	Pyritic
∧	Siliceous

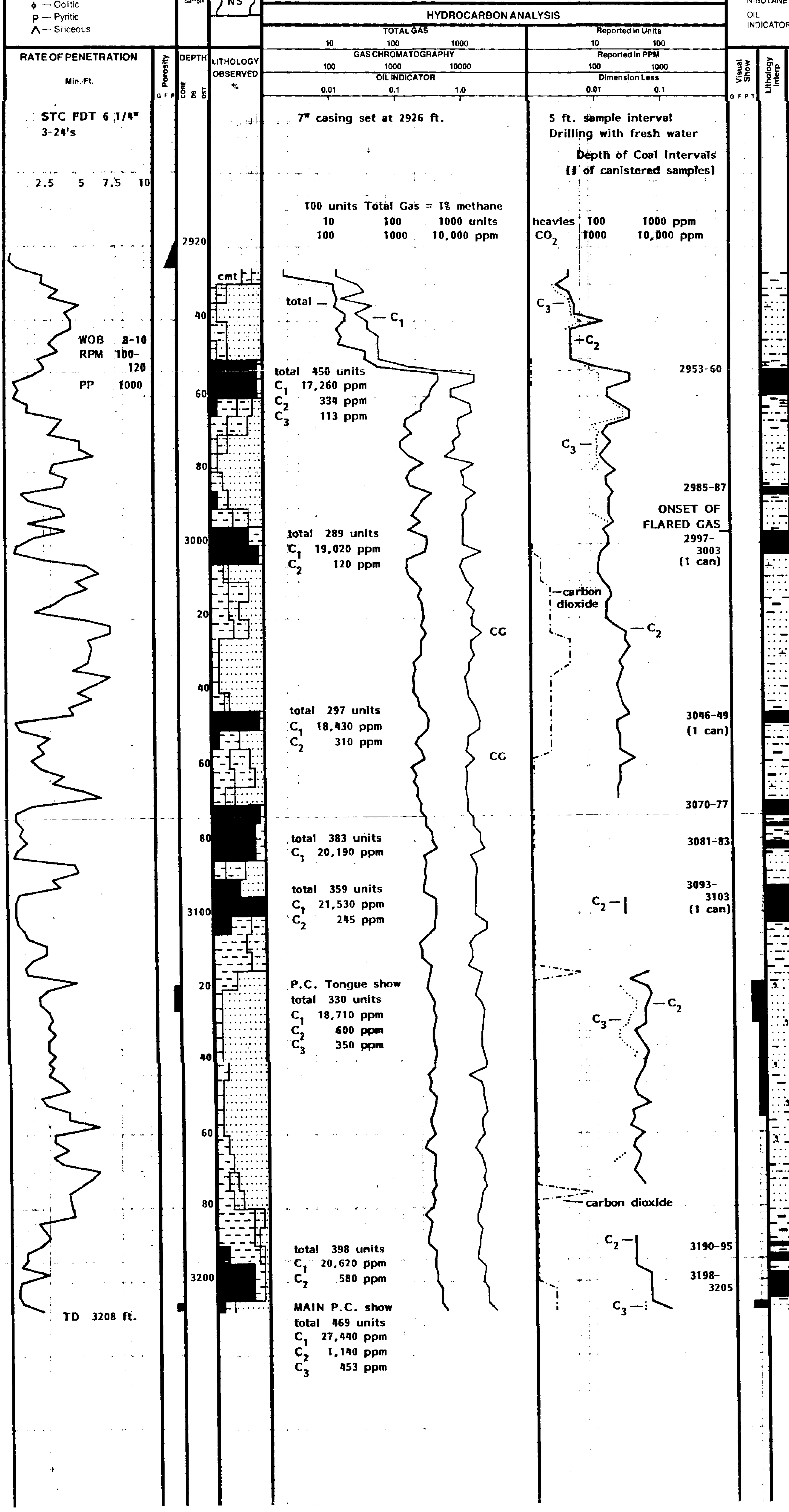


OPERATOR BLACKWOOD AND NICHOLS
WELL NE Blanco Unit 493
FIELD Basin Fruitland Coal
LOCATION sec 25 [redacted]
CO./STATE Rio Arriba Co., New Mexico
ELEVATION KB 6297 ft. GL 6283 ft.
SPUD DATE
INTERVAL LOGGED 2926 - 3208 ft.
DATE LOGGED 5/13 thru 5/14/90
LOGGING GEOLOGISTS Randy Laney, Mike Mixter
INSTRUMENTATION FID Chromatograph and Total Gas Detector, Infrared CO_2 Detector
WELL LOCATION



LEGEND—GAS CURVES

TOTAL GAS	T
METHANE	1
ETHANE	2
PROPANE	3
ISO & N-BUTANE	4
OIL INDICATOR $\frac{C_3 + C_4}{C_1}$	0



Lithology Descriptions and Remarks

Ss lt gy,pred vf gr, sub ang-sub rd,mod w srt,fros qtz,v calc cmt w/ wh calc clyst, occ carb grs,NS

Coal blk,sub platy-platy,pred all sub vit v little vit material, some carb,abnt lt brn argill freshwater Ls, some lt gy sec calc in cleats,fair qual. coal

Ss lt gy wh-brn gy, as above,v calc cmt,NS

Coal pred brn blk,gen all plty-sub plty,10-20% vit-rest sub vit to res,mod-extremely carb,drilled up very fine grained,tr amber resin,poor-fair qual.

Sltst med gy brn,med brn,sub plty-sub blky, earthy,sli calc,sli carb

Ss very lt gy wh,vf-f gr,sub ang-sub rd, very well srt,smpl disagg,fros qtz grs, occ lt gn chlorite grs v calc cement,NS

Coal brn blk-blk,very similar to above,platy 10% vit material,very carb,extremely fine, tr amber resin

Sh dk gy brn,platy, res luster,sli-v carb

Coal blk & brn blk, platy-sub blky,20-25% vit,mod carb,coarser than above,abnt lt brn argill Ls,some resin, no sec calc,fair coal-best of well

Coal blk & brn blk, platy-rare sub blky, 10-20% vit,mod -v carb drilled up extremely fine grained,some amber resin,fair quality coal

T/ P.C. Tongue 3119'

Ss lt gy wh S&P,f gr, sub rd-sub ang,w srt, sli calc,glauc & carb-coaly grs,clear qtz, no stn,mod bri gn-yel flor,v slo med-pale yel streaming cut,condensate odor

Ss lt gy wh S&P,vf-f gr,sub ang-sub rd,w srt,disagg,sli more calc than above,glauc & carb grs,mod gn-yel flor,milky yel soak cut

Sh dk gy brn-med brn, sub platy,earthy-sub res,silty,mod carb w/ occ coaly lam

Coal brn blk & blk, sub plty-sub blky,very little vit (10%)-pred sub vit-res,very carb, some amber resin,tr LCM-cedar fiber-source possibly adjacent well (NEBU 11 -50 ft away)

T/ Main P.C. 3206'

TD sample- Ss gy wh S&P,f gr,sub ang,mod srt,disagg,sli calc, glauc & carb grs,mod bri gn-yel flor,very slo pale yel streaming cut,condensate odor