

BLACKWOOD & NICHOLS CO., LTD.

P.O. BOX 1237

DURANGO, COLORADO 81302-1237

(303) 247-0728

October 21, 1988

RECEIVED
OCT 24 1988
OIL CON. DIV
DIST. 3

Mr. William J. LeMay, Director
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87504

Re: Order SWD-339
Northeast Blanco Unit
Well No. 501

Dear Mr. LeMay:

To fulfill the stipulation of the referenced order, Blackwood & Nichols hereby submits the following:

Item 1 - Casing Annulus Pressure Test, conducted on August 22, 1988.
A copy of the strip chart and the Halliburton job log are provided.

In summary, the 10 3/4" intermediate casing and the 7 5/8" liner down to the packer at 7375' were tested to 500 psig for 15 minutes with no leak off.

Items 2A
& 2B - Entrada Water Samples
Perforations 8702' to 8770'

<u>Item</u>	<u>CDS Lab</u>	<u>Tech Lab</u>
Date Sampled	8-1-88	8-2-88
TDS (ppm)	19,000	15,500

Items 3A
& 3B - Morrison Water Samples
Perforations: 8180' to 8350'

<u>Item</u>	<u>CDS Lab</u>	<u>Tech Lab</u>
Date Sampled	8-5-88	8-5-88
TDS (ppm)	35,100	35,600

Item 4 - Casing annulus was loaded with water soluble chemicals to provide corrosion and scale resistance on 8-23-88.

Mr. William J. LeMay
October 21, 1988
Page 2

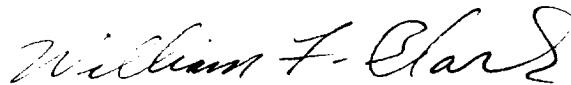
Blackwood & Nichols will contact the Aztec District Office of the Division to inspect the disposal facilities in the near future.

Also enclosed is a mud log from the No. 501 which is provided as evidence the Morrison and Entrada Formations do not contain commercial quantities of hydrocarbons.

If you have any questions about this material, please advise. We appreciate your cooperation in this matter.

Sincerely,

BLACKWOOD & NICHOLS CO., LTD.

A handwritten signature in cursive script, reading "William F. Clark".

William F. Clark
Operations Manager

WFC:ew

cc: Aztec District Office

Blackwood Kipules

env. Test Results DATE 8-22-

JOB LOG

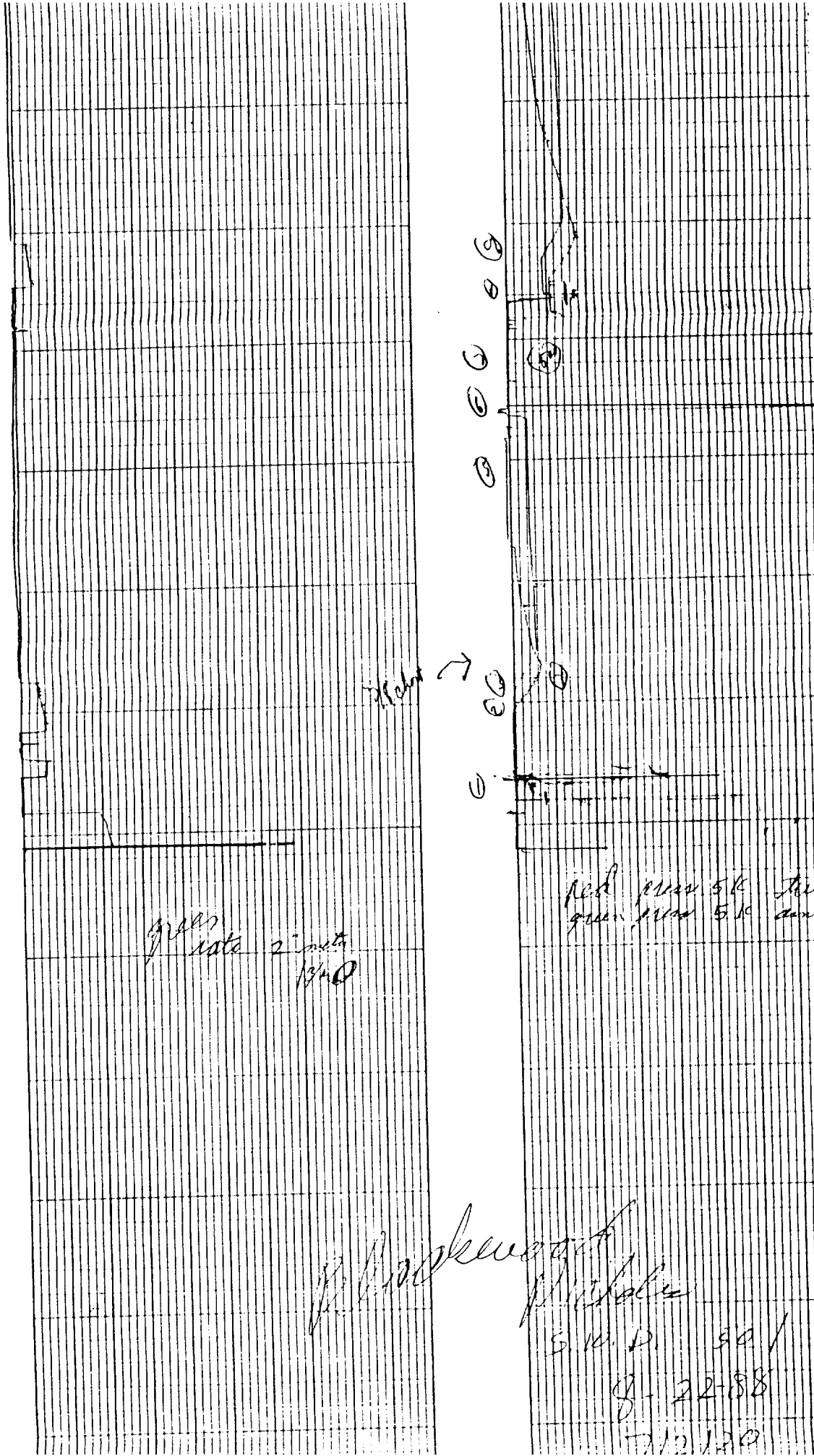
CUSTOMER

JON TYPER

1-22-47

FEBRU 2013 8-1

CHART NO.		TIME	RATE (BPM)	VOLUME (GAL)	PUMPS	PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
					T	C	TUBING	CASING
1	0645							on loc. Safety meeting
2	0650							rig up
3	0745							Howco R.T.P.
4	0830							press test annul
5	0840							SD Seal Howco rim
6	0842							press test ann
7	0845			100			750	600
8	0852							SD. Hold press.
9	0857							Leak off at Howco 1" valve.
10	0901							Change scale on press
11	0928							Press up on valve open annul
12	0959							press up
13	1051			20			750	850
14	1053							SD Hold rig to Tub
15	1113							press up tub
16	1119			10			1500	750
17	1121						1200	350
18	1122							Hold press
19	1139							Blood off Tub Rig off
20	1228							Tub Stand By
21	1229							press up tub & seal
22	1232							SD. Close in
23	1307			50			1450	
24	1317			40				
25	1344			0				
26	1348							
27	1349						1350	0
28	1418						1350	500
29	1418						1300	500
30	1426							
31	1429							



green note 2' meters
1940

red over 5k thick
green over 5k diam

P. Baskin
Michael

S.M.D. 301
Q-22-88
7/2/20

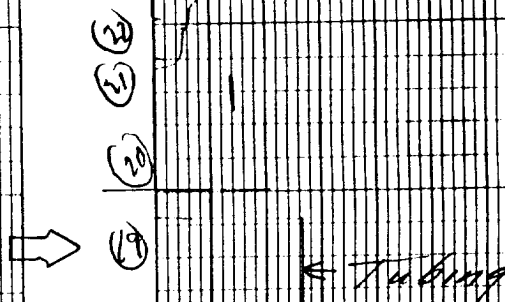
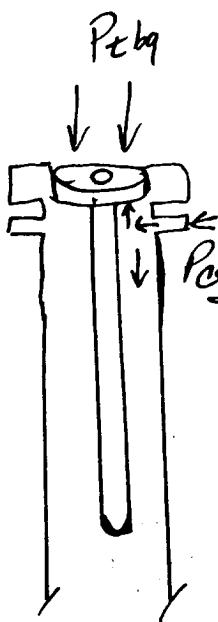
Note:

In Prior Attempts
the Casing slowly
bleed down.

Here the tubing
is locked with
the donut in place.

Tubing plugged and
pressured up
to 1300 psi to

hold in place
because the
well head does
not have lock
down pins



Csg →



16

16

13

12

13

12

don't 7/16

73 SUTTLE STREET
PO BOX 2605
DURANGO, CO 81302
(303) 247-4220

ATTEN: BILL CLARK
PO BOX 1237
DURANGO, CO 81302
(303) 247-0728

DATE SAMPLED: 8/1/88
WELL NAME: NEBU UNIT 501
LOCATION:
FORMATION: ENTRADA WATER
SAMPLED FROM:
WELL ON/OFF:

CDS ID #: 1119

CONSTITUENT		ppm	epm
Sodium	Na +	4760	207.1
Potassium	K +	169	4.3
Calcium	Ca ++	1310	65.4
Magnesium	Mg ++	29.4	2.4
Iron Total	Fe++ & Fe+++	164	8.8

Item 2A
SWD-339

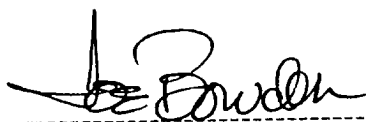
POSITIVE SUB-TOTAL 6432.4 287.9799

Chloride	Cl -	8280	233.5
Carbonate	CO3 =	0	0.0
Bicarbonate	HCO3-	152	2.5
Hydroxide	OH -	0	0.0
Sulfate	SO4 =	2100	43.7

NEGATIVE SUB-TOTAL 10532 279.70928

Total Dissolved Solids 19000 ppm
pH 5.07 units
Specific Gravity 1.01 @ 73 F.
Resistivity 45 ohm-m

APPROVED BY:



DR. JOE BOWDEN, DIRECTOR

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Results are based on analysis made at the time samples are received at the laboratory.



Item 2B
SWD-339

API WATER ANALYSIS REPORT FORM

Company <i>Blackwood Dickler</i>	Sample No.	Date Sampled <i>8/2/88</i>
Field	County or Parish	State
Lease or Unit	Depth	Formation
Type of Water (Produced, Supply, etc.)	Well # <i>501</i>	Water, B/D
<i>Enfrada</i>	Sampling Point	Sampled By

OTHER PROPERTIES

pH *5.33*

Specific Gravity, 60/60 F. *73° F.*

Resistivity (ohm-meters) *1.007*

5.0

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)	<i>4237</i>	<i>135.0</i>
Calcium, Ca	<i>1162</i>	<i>58.0</i>
Magnesium, Mg	<i>247</i>	<i>22.0</i>
Barium, Ba		

WATER PATTERNS — me/l

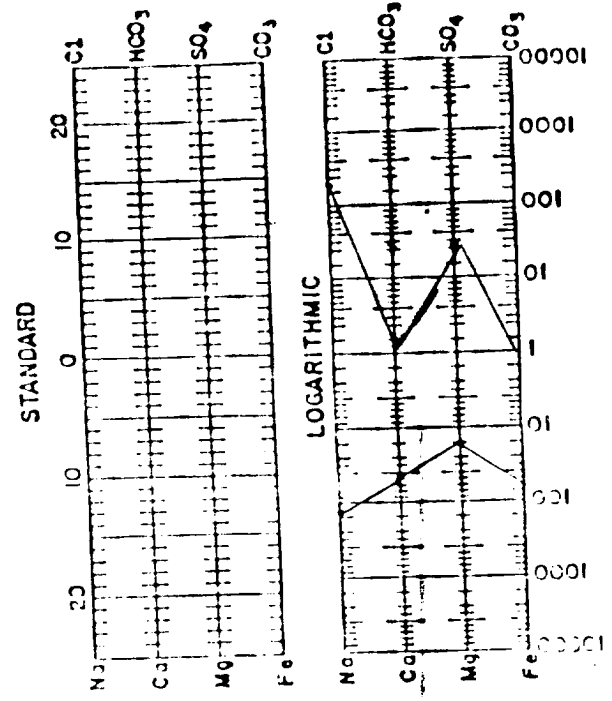
ANIONS

Chloride, Cl	<i>8165</i>	<i>231.0</i>
Sulfate, SO ₄	<i>1600</i>	<i>33.3</i>
Carbonate, CO ₃	<i>0</i>	<i>0</i>
Bicarbonate, HCO ₃	<i>102</i>	<i>17</i>

Total Dissolved Solids (calc.) *13,500*

Iron, Fe (total) *0.0005*

Sulfide, as H₂S *neg*



REMARKS & RECOMMENDATIONS:

Contact Bill Clark.

303-247-0728

75 SUTTLE STREET

PO BOX 2605

DURANGO, CO 81302

(303) 247-4220

ATTN: BILL CLARK

PO BOX 1237

DURANGO, CO 81302

(303) 247-0728

DATE SAMPLED: 8/1/88

WELL NAME: NEBU UNIT 501

LOCATION:

FORMATION: MORRISON PERFS.

SAMPLED FROM:

WELL ON/OFF:

CDS ID #: 1120

CONSTITUENT		ppm	epm
Sodium	Na +	10600	461.1
Potassium	K +	1810	46.3
Calcium	Ca ++	685	34.2
Magnesium	Mg ++	65.9	5.4
Iron Total	Fe++ & Fe+++	230	12.4

Item 3A
SWD-339

POSITIVE SUB-TOTAL	13390.9	559.3565
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Chloride	Cl -	18200	513.2
Carbonate	CO3 =	0	0.0
Bicarbonate	HCO3-	537	8.8
Hydroxide	OH -	0	0.0
Sulfate	SO4 =	1750	36.4

NEGATIVE SUB-TOTAL	20487	558.47643
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Total Dissolved Solids	35100 ppm
pH	6.71 units
Specific Gravity	1.023 @ 73 F.
Resistivity	24 ohm-cm

APPROVED BY:


DR. JOE BOWDEN, DIRECTOR

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Results are based on analysis made at the time samples are received at the laboratory.



Item 3B
SWD-339

API WATER ANALYSIS REPORT FORM

Company	Sample No.		Date Sampled
D. L. Wood	1111		11/11/11
Field	Legal Description	County or Parish	State
Lease or Unit	Well	Depth	Formation
1111	1111	1111	1111
Type of Water (Produced, Supply, etc.)	Sampling Point		Sampled By

DISSOLVED SOLIDS

CATIONS

mc/l
me/l

Socium, Na (calc.)

Calcium, Ca

Diagnosium, 189

Washburn, Esq.

ACTIONS

Chloride, Cl

Suisse, S.O.

Carbonate, CO_3

Bicarbonate, HCO_3^-

Total Dissolved Solids (calc.) 35.600

Iron. Fe (total)

Sulfide, as H₂S

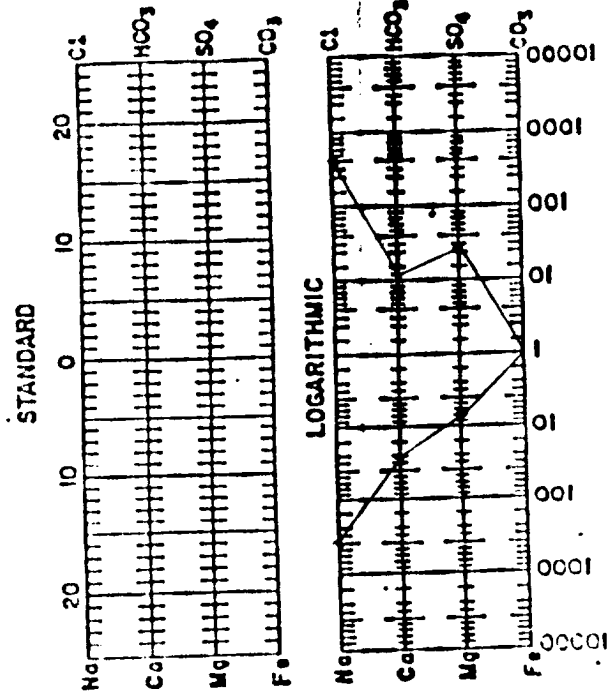
REMARKS & RECOMMENDATIONS:

OTHER PROPERTIES

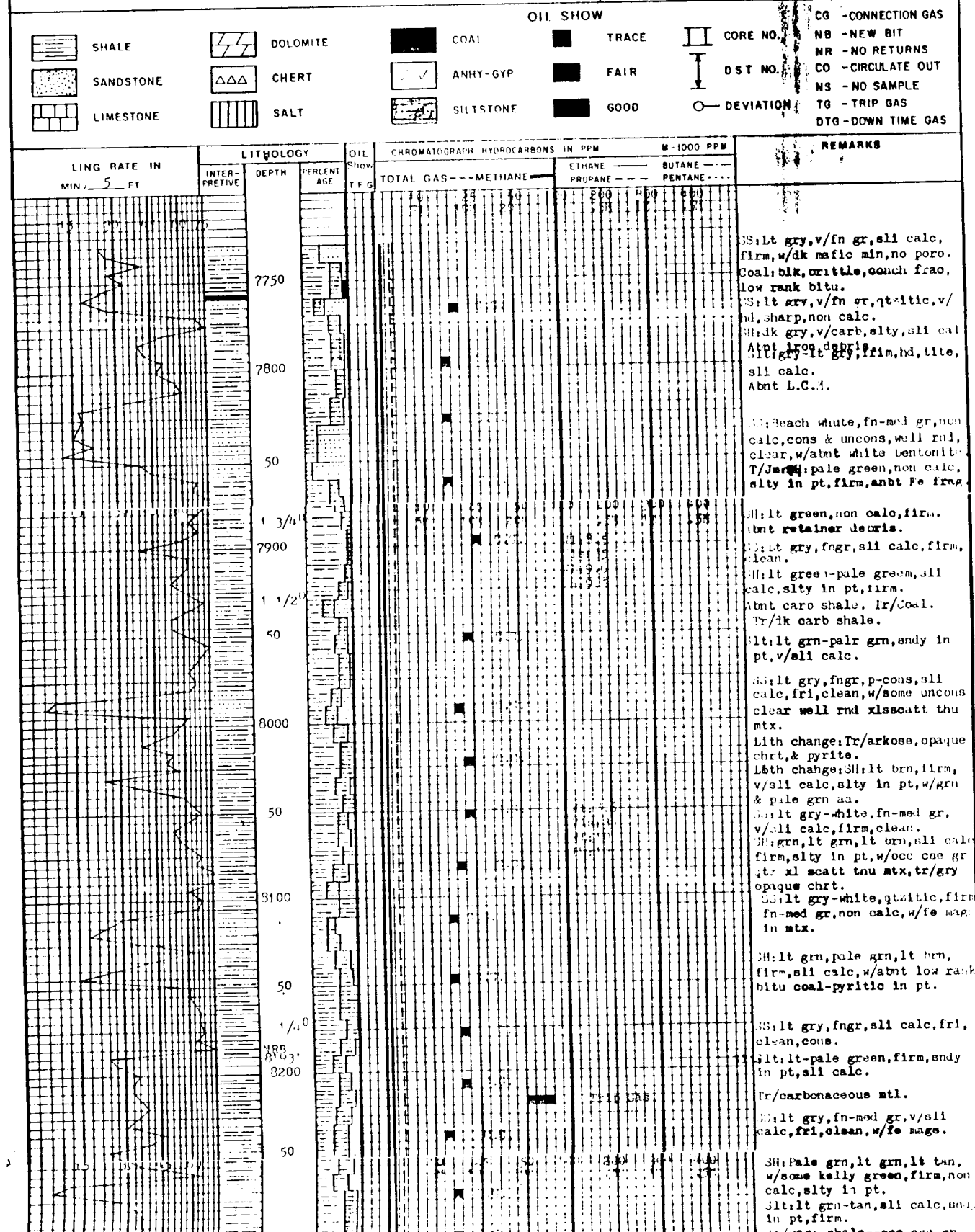
iii

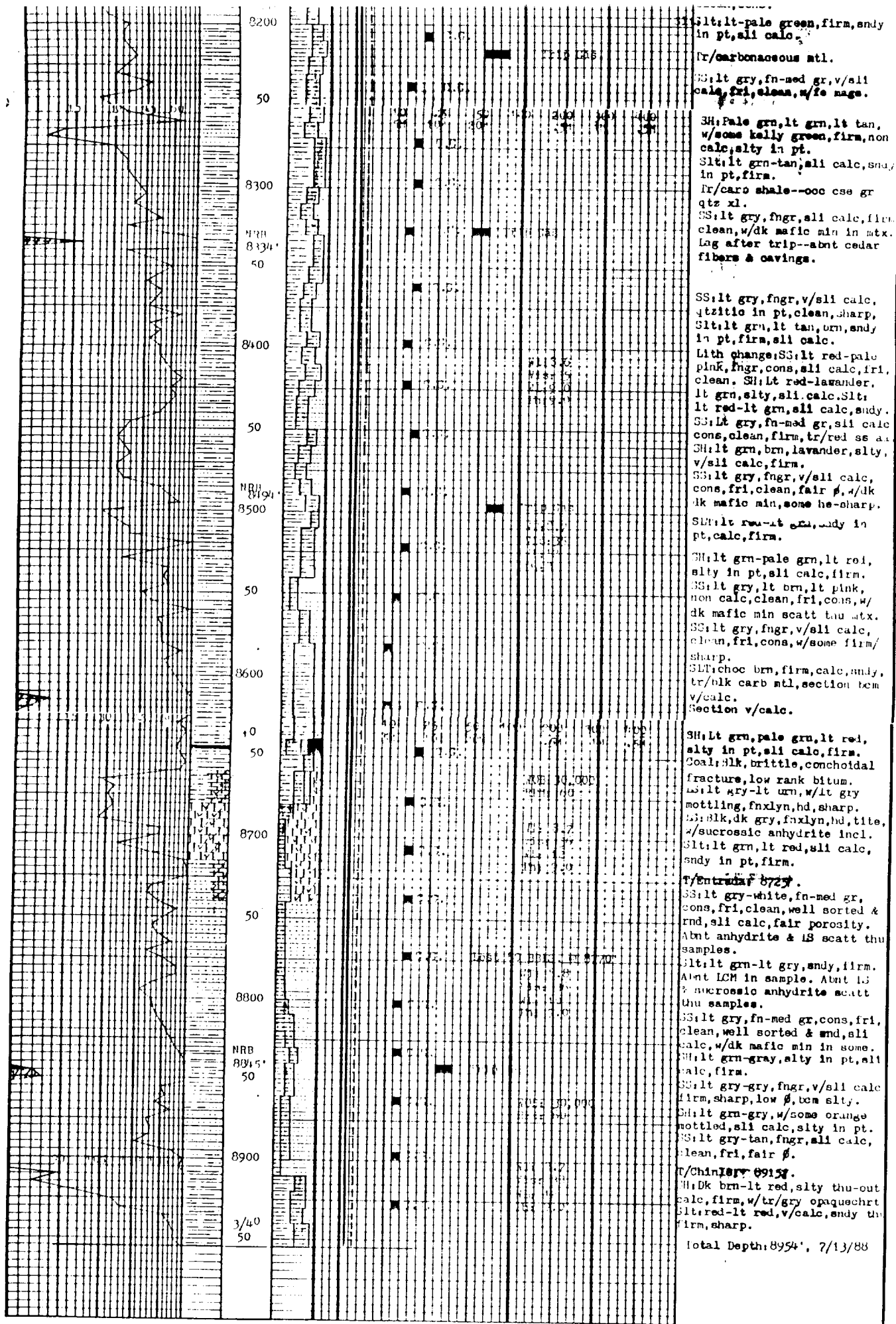
Specific Gravity, 60/60 F. 59.2
Resistivity (ohm-meters) 59.2

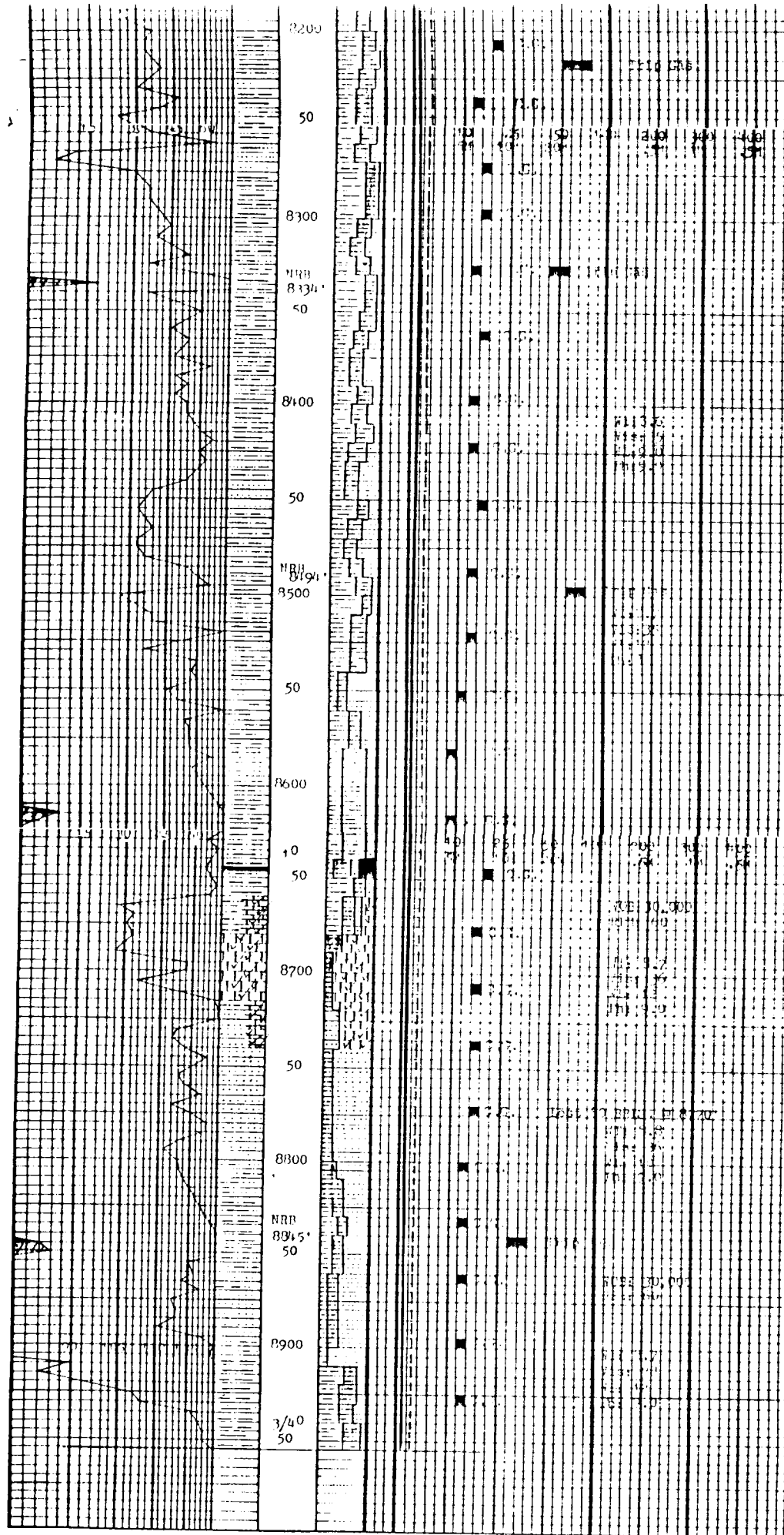
WATER PATTERNS — me/l



Company	BLACKWOOD & NICHOLS	Location	1450' 14790' 1, Sec. 10, T30N-37E.	DEPTH LOGGED	FROM 7725' TO 8965'
Well	#501	County	Rio Arriba	DATE LOGGED	7/1/88 thru 7/6/88
Field	North East Blanco Unit	State	New Mexico	ENGINEERS	A.D. STRICKLIN
Elevation	6325' DF	Drilling Fluid	Chem gel.		







8200
50
8300
50
8400
50
8500
50
8600
10
50
8700
50
8800
50
8900
3/40
50

SH:lt,lt-pale green,firm,snly
in pt,slt calc.
Fr/carbonaceous mtl.
SS:lt gry,fn-med gr,v/slt
calc,fri,clea,w/fe mags.
SH:Pale grn,lt grn,lt tan,
w/some kelly green,firm,non
calc,slty in pt.
Slt:lt grn-tan,slt calc,snly
in pt,firm.
Fr/caro shale--occ cse gr
qtz xl.
SS:lt gry,fngr,slt calc,firm
clean,w/dk mafic min in mtx.
lag after trip--abnt cedar
fibers & cavings.
SS:lt gry,fngr,v/slt calc,
qtzitic in pt,clea,sharp.
Slt:lt grn,lt tan,brn,snly
in pt,firm,slt calc.
Lith change:SS:lt red-pale
pink,fngr,cons,slt calc,fri,
clea. SH:lt red-lavander,
lt grn,slty,slt calc.Slt:
lt red-lt grn,slt calc,snly.
SS:lt gry,fn-med gr,slt calc
cons,clea,firm,fr/red ss as
SH:lt grn,brn,lavander,slty,
v/slt calc,firm.
SS:lt gry,fngr,v/slt calc,
cons,fri,clea,fair ϕ ,w/dk
dk mafic min,some be-sharp.
SH:lt red-lt grn,snly in
pt,calc,firm.
SH:lt grn-pale grn,lt red,
slty in pt,slt calc,firm.
SS:lt gry,lt brn,lt pink,
non calc,clea,fri,cons,w/
dk mafic min scatt thru mtx.
SS:lt gry,fngr,v/slt calc,
clea,fri,cons,w/some firm/
sharp.
SH:choc brn,firm,calc,snly,
tr/bk carb mtl,section tem
v/calc.
Section v/calc.
SH:lt grn,pale grn,lt red,
slty in pt,slt calc,firm.
Coal:slk,brittle,conchoidal
fracture,low rank bitum.
Slt:lt gry-lt brn,w/lt gry
mottling,fnxlyn,hd,sharp.
SH:dk,dk gry,fnxlyn,hd,tite,
w/sucrosic anhydrite incl.
Slt:lt grn,lt red,slt calc,
snly in pt,firm.
T/Entrada 8725.
SS:lt gry-white,fn-med gr,
cons,fri,clea,well sorted &
rnd,slt calc,fair porosity.
Abnt anhydrite & IS scatt thru
samples.
Slt:lt grn-lt gry,snly,firm.
Abnt ICH in sample. Abnt IS
& sucrosic anhydrite scatt
thru samples.
SS:lt gry,fn-med gr,cons,fri,
clea,well sorted & rnd,slt
calc,w/dk mafic min in some.
SH:lt grn-gray,slty in pt,slt
calc,firm.
SS:lt gry-gry,fngr,v/slt calc
firm,sharp,low ϕ ,tem slty.
Slt:lt grn-gry,w/some orange
mottled,slt calc,slty in pt.
SS:lt gry-tan,fngr,slt calc,
clea,fri,fair ϕ .
T/Chinle 8915.
SH:dk brn-lt red,slty thru-out
calc,firm,w/tr/gry opaquechrt
Slt:red-lt red,v/calc,snly thru
firm,sharp.
Total Depth:8954', 7/13/88

W.D. STRICKLIN
PRESIDENT
CERTIFIED PROFESSIONAL GEOLOGIST
P.O. BOX 2499 Ph (505) 325-5496
FARMINGTON, N.M. 87499

Strick CO

GEOLOGIC CONSULTANTS

FROM 7725 TO 865

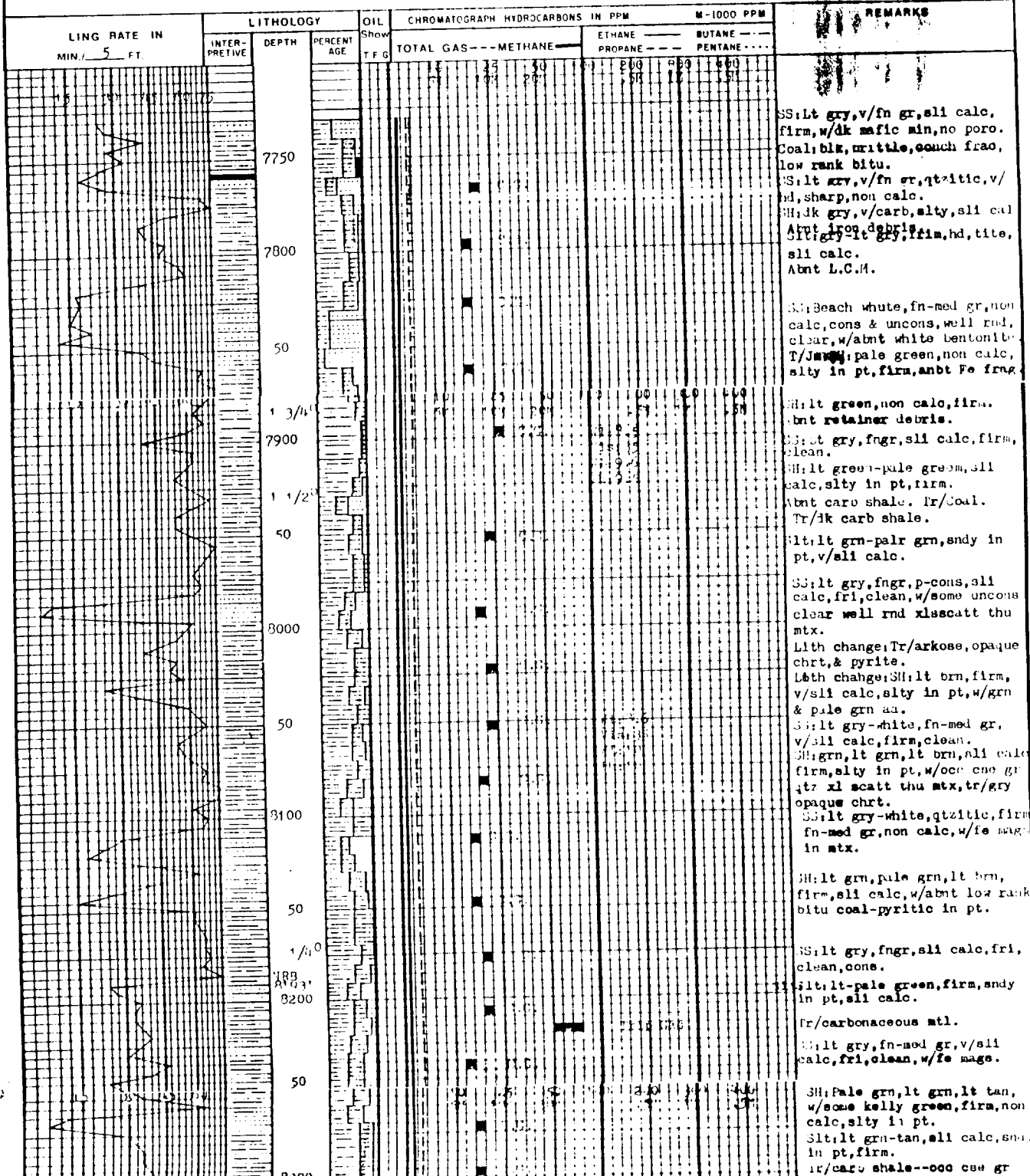
Company BLACKWOOD & NICHOLS **Location** 1450°/16790°/1, Sec. 10, T30N-R7E
Well #501 **County** Rio Arriba
Field North East Blanco Unit **State** New Mexico
Elevation 6325' DF **Drilling Fluid** Chem gel.

DEPTH LOGGED

DATE LOGGED 7/1/88 thru 7/6/88

ENGINEERS W.D. STRICKLIN

	SHALE		DOLOMITE		COAL		TRACE		CORE NO.
	SANDSTONE		CHERT		ANHY-GYP		FAIR		DST NO.
	LIMESTONE		SALT		SILTSTONE		GOOD		DEVIATION
									CG - CONNECTION GAS
									NB - NEW BIT
									NR - NO RETURNS
									CO - CIRCULATE OUT
									NS - NO SAMPLE
									TG - TRIP GAS
									DTG - DOWN TIME GAS



BLACKWOOD & NICHOLS CO., LTD.

P.O. BOX 1237
DURANGO, COLORADO 81302-1237

(303) 247-0728

Completion Report

Northeast Blanco Unit No. 501

LOCATION: 1450' F/NL, 790' E/WL
Sec. E-10-30N-7W
Rio Arriba County, New Mexico
Elevation: 6313' G.L.

8-23-88 SICP = 0, SITP = 0. Pressure bleed off on tubing due to leak on tubing valve. Baker 7 5/8" packer set at 7375'. Rig up Howco. Pressure up annulus to 880 PSIG. After 30 minutes pressure decreased to 500 PSI. Pressure up tubing to 1500 PSIG, held ok. Annulus continued to leak off pressure with 1500 PSIG on tubing. Bleed off tubing and casing pressure, land tubing donut in tubing spool, pressure up to 1500 PSI between BOP pipe rams above tubing donut; pressure up annulus to 500 PSIG, held ok for 15 minutes. This final pressure test confirmed casing-annulus integrity. Jay-off top of lock set packer, circulate 411 bbls. of water and 40 gals. of Chaco Chemical's WT-682 packer fluid. Jay-back into packer and landed tubing donut in casing head. Pressure up to 1500 PSIG between BOP pipe rams and tubing donut. Pressure up annulus to 800 PSIG. Held ok for 10 minutes. Rig down Howco pump. Nipple down BOP. Nipple up wellhead. Tubing summary: 153 jts. of 3 1/2" 9.3#/Ft., N-80 EUE, ID plastic coated tubing with a Baker A-L2 (I.D. 3.00") lockset Baker plastic lined (PA-400) packer (47D) and a 5 1/2" x 3 1/2" x 2.75 FR on-off tool with a 3 1/2" Type F stainless steel seating nipple (2.75" I.D.) holding a FWE Blanking plug. Packer set at 7375' with 32,000# compression. Rig down Drake #21. Will move to the NEBU #413. Rig released 8:00 a.m. 8-23-88.