

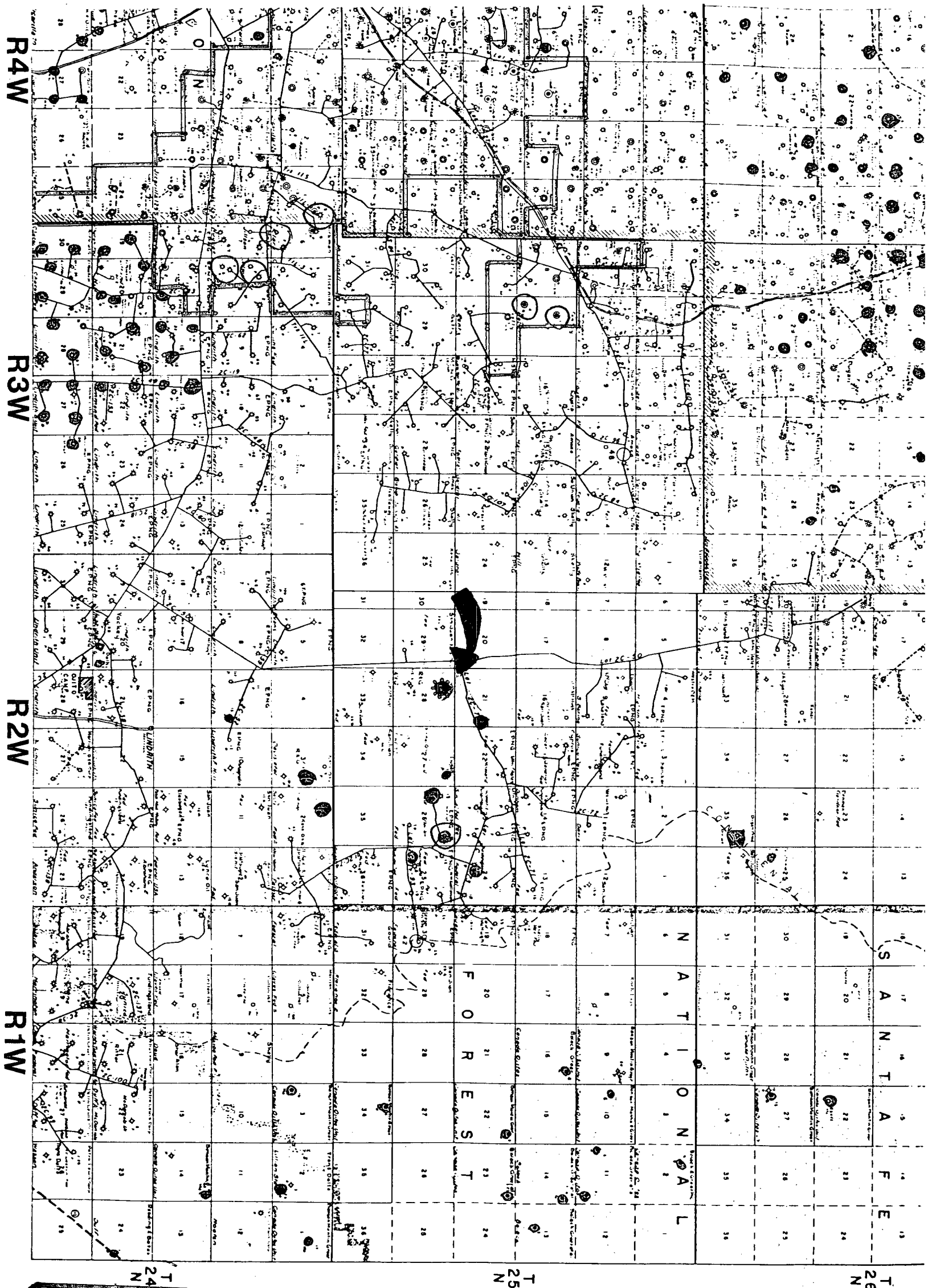
Application for Downhole Commingling
 Jerome P. McHugh
 E.T. #1 WELL
 T-25-N, R-2-W, NMPM
 Sec. 28: Unit Letter C
 1100' FNL & 1600' FWL
 Rio Arriba Co., New Mexico
 Case No. 7967, Exhibit No. B1

OFFSET OPERATORS

- Unleased Fee Acreage (UNL)
- Northwest Exploration Company (NWx)
 P.O. Box 5800, Terminal Annex
 Denver, CO 80217
- Jerome P. McHugh (McHugh)
 650 S. Cherry St., #1225
 Denver, CO 80222
- Kenai Oil and Gas Inc. (Kenai)
 One Barclay Plaza
 1675 Larimer Str., Suite 500
 Denver, CO 80202
- Gulf Oil Exploration & Production Co. (Gulf)
 P.O. Box 2100
 Houston, TX 77252

20	FEE	NWX	21	MCH.	NWX	22
	UNL.	NM 43755		NM 43755	MCHUGH	
	MCHUGH 1/2					
	KENAI 1/2					
29	FEE		28	FEE		27
	MCHUGH					
	MCHUGH 1/2					
	KENAI 1/2					
32	NM23039		33	SF079332	NM23039	34

T-25-N, R-2-W, NMPM
 Rio Arriba County, New Mexico



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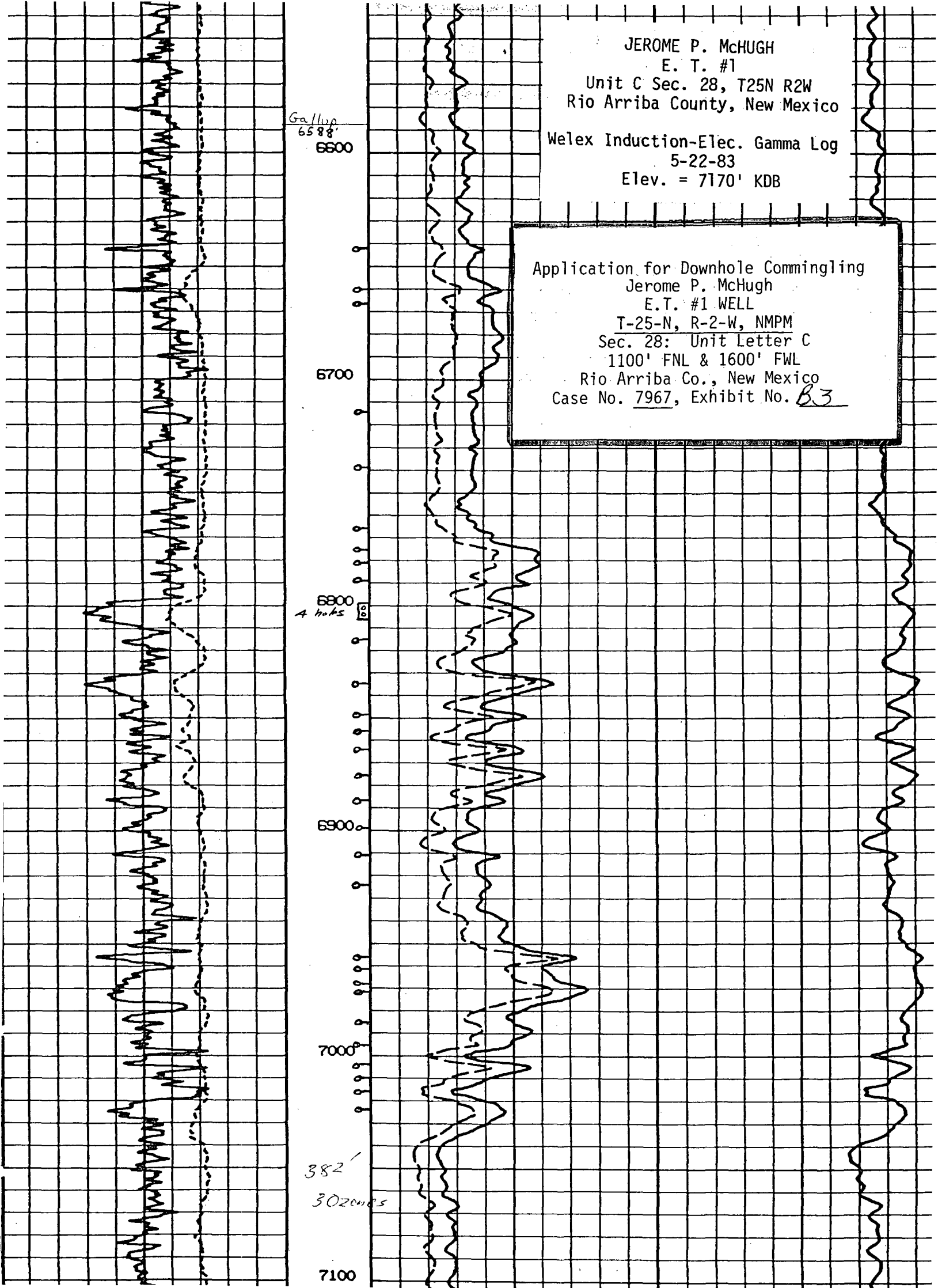
KEY

- Subject Well
- West Lindrith Gallup-Dakota Pool
- Ojito (Gallup)-Dakota Pool
- Commingled Gallup-Dakota Well
- Dakota Well
- Gallup Well
- Well completed in Gallup & Dakota
- Uncompleted Gallup Well
- Plugged & Abandoned Gallup or Dakota
- Wells used for production data

JEROME P. McHUGH
E. T. #1
Unit C Sec. 28, T25N R2W
Rio Arriba County, New Mexico

Welex Induction-Elec. Gamma Log
5-22-83
Elev. = 7170' KDB

Application for Downhole Commingling
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1100' FNL & 1600' FWL
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Case No. 7967, Exhibit No. B3



0 GAMMA RAY 200

400

CONDUCTIVITY

2"=100'

IEL is
1'-2' high
to FOL-
CNE over
GALLUP
interval

0

DEEP RES.

100

0

SHORT NORMAL

100

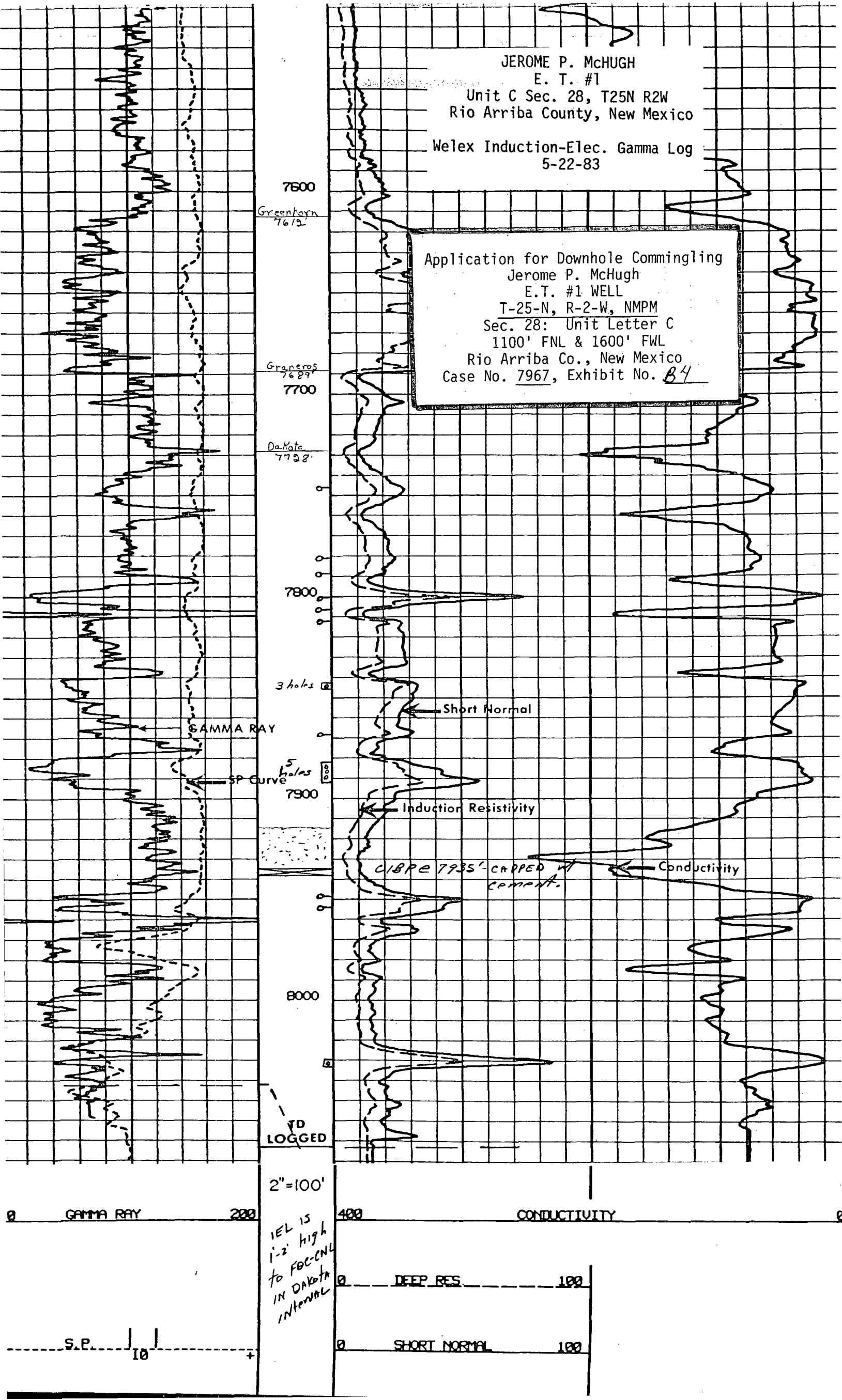
S.P.

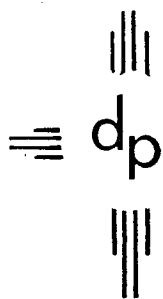
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JEROME P. McHUGH
E. T. #1
Unit C Sec. 28, T25N R2W
Rio Arriba County, New Mexico

Welex Induction-Elec. Gamma Log
5-22-83

Application for Downhole Commingling
Jerome P. McHugh
E.T. #1 WELL
T-25-N, R-2-W, NMPM
Sec. 28: Unit Letter C
1100' FNL & 1600' FWL
Rio Arriba Co., New Mexico
Case No. 7967, Exhibit No. B⁴





dugan production

Application for Downhole Commingling
Jerome P. McHugh
E.T. #1 WELL
T-25-N, R-2-W, NMPM
Sec. 28: Unit Letter C
1100' FNL & 1600' FWL
Rio Arriba Co., New Mexico
Case No. 7967, Exhibit No. B5

JEROME P. McHUGH
E.T. #1
1100' FNL - 1600' FWL
Sec. 28 T25N R2W
Rio Arriba County, NM

MORNING REPORT

- 4-26-83 Drilling at 289' with water 3/4" at 185'
Moved in and rigged up Four Corners Drilling Co. Rig #10.
Spudded 12 1/4" hole at 12:45 p.m. 4-25-83. Drilled to 225'.
Ran 5 jts. 9-5/8" O.D., 47#, 8 rd, LT&C casing. T.E. 208'
set at 220' RKB. Cemented with 115 sx class "B" plus 2% CaCl
(total slurry 136 cu.ft.) Circulated approx 3 bbls. good cement.
W.O.C. 12 hrs. Pressure tested B.O.P. and surface casing 1000 psi
for 30 minutes. Held OK.
- 5-1/2 hrs - MI & RU
1-1/2 hrs - drilling rat and mouse holes
1/4 hr - circulate
1/4 hr - trip
3 hrs - drill 12 1/4" hole
1 hr - run and cement casing
12 hrs - W.O.C.
1/2 hr - drilling 7-7/8" hole
- 4-27-83 1304' - lost returns at 1211'. Mixed three pits mud and LCM.
Got returns once; lost again. Unable to establish circulation.
Drilled 93' without returns. Spotted 125 sx class "B" cement
with 1/4# cello flake per sk and 2% CaCl at 1244'. Waited on
cement 2 hrs. Cement surface samples set up good. Tagged
hard cement at 1211'. Attempted to fill hole - unsuccessful.
Pulled drill pipe to 1151'. Pumped 125 sx class "B" with 1/4#
cello flake per sk and 2% CaCl. Went in on vacuum. Now W.O.C. - 1 hr.
- 4-28-83 1308' - Waiting on cement.
Spent last 24 hrs. pumping cement plugs and waiting on cement,
drilling out cement and attempting to regain circulation. (Details
on page 2a).
11-1/4 hrs - waiting on cement
3 hrs - drilling cement
2-1/4 hrs - wait on cementers
1-1/4 hrs - cementing
6-1/4 hrs - trips

Pumped last 50 sk cement plug at 4:30 a.m. 4-28-83.

- 4-29-83 1311' - drilling without returns. Spent last 24 hrs. pumping cement & drilling out, attempting to regain circulation. (Details on page #2a).
Wt. 8.8 Vis 45 15% L.C.M.
4 hrs. - trip
13 hrs. - W.O.C.
2 hrs. - cement
2-1/2 hrs. - W.O. Halliburton
1-1/2 hrs. - clean out to bottom
1 hr. - drill
- 4-30-83 W.O.O. Cleaned out to 1465'. Drilled from 1311-1435' with no returns. P.O.O.H. with drill pipe and ran in open-ended to 1274'. Rigged up Howco and pumped plug No. 7 as follows: 10 bbls. 2% CaCl_2 + 5 bbls. fresh water, 10 bbl. flo-check, & 5 bbl. fresh water spacer, and 100 sx class B thickset cement with 2% CaCl_2 and 10 bbl. fresh water flush at 2-2 1/2 BPM & 0-175 psi. Shut down & pulled drill pipe to 840'. Pumped 25 bbl. mud down annulus (fluid level falling), closed BOP rams & pumped 6 1/2 BW down drill pipe. (1st 4 bbl. pumped at 2 1/2 BPM & 0-125 psi, then slowed pump to 1/4 BPM, & after a total of 5 1/2 BW pumped, pressure started to build. At 6 1/2 BW pumped, pressure = 250 psi and broke back to zero. Shut down pump. Pressure = zero and steady. P.O.O.H. with drill pipe. Fluid standing in hole at approx. 25'. W.O.C. 12 hrs. Ran in with drill pipe and bit. Tagged cement at 1197'. Loaded hole with 10 bbl. mud. Drilled cement 1197' to 1223', washed 1223-1233', drilled cement 1233-1268'. Drilled out of cement at 1268' and started to lose partial returns. Washed 1268' to 1336' & had total loss of circulation at 1336'. Washed cement stringers 1336-1356 and nothing from 1356-1435'. Drilled new hole 1435-1465' with no returns. Prep. to run geo-gel squeeze.
- 5-1-83 1485' - Drilling. Wt. 8.7 Vis 80 25% L.C.M.
Pulled bit & ran in open-ended to 1277'. Mixed & pumped 110 bbl. of salt gel plug into formation. (Mixed 20 sx salt gel, 3 sx lime, 55 sx barite, 35 sx Diacele, 80 sx cedar fiber - 20%). Had no pressure and no returns. Pulled drill pipe and shut down 2 hrs. Ran in with bit. Hit bridge at 1274'. Ran in to 1465'. Attempted to circ. at T. D. No returns. Pulled bit & Ran in open ended to 1339'. Rigged up Howco & pumped 125 sx (plug #8) class "B" cement with 10# Cal-seal, 6 1/2# gilsonite, 1/4# flocele & 1% CaCl_2 as follows: Pumped 10 BW at 3 BPM & 0 psi, 31.9 bbl. cement at 2-6 BPM & 0 psi. Pulled drill pipe to 719' and pumped a total of 30 BW displacement as follows: Started flush at 2 BPM & 0 psi. With 11-3/4 bbl. pumped, had circulation. Closed BOP rams and slowed rate to 1/4 BPM at 0 psi. Pumped 1 1/2 bbl. with no pressure. Slowly increased rate to 1 BPM & pumped 16.75 BW at 1 BPM & 0-100 psi. Shut down with cement flushed to approx. 1150' @ 7:31 p.m. Had backflow - shut in 20 minutes. Still had backflow. Bled off 3 1/2 BW (u-tube around drill pipe). Pulled out with drill pipe and loaded hole with 6 bbl. (4 bbl. = pipe volume). Hole standing full. Shut in for cement to set. (Mixed cement at 15.2#/gal. & total slurry = 179 cf). Pumped on cement a total of 1 hr. & 10 min.

- 4-28-83 W.O.C. 4½ hrs. Loaded hole with 30 bbl. mud. RI with bit and tag cement @ 1121'. Had full returns. Drilled soft cement 1121-1190' and lost circulation @ 1190'. Ran in and returned @ 1233'. Pulled bit and ran in open ended. Spotted cement plug #3 (50 sx Class B with 2% CaCl₂ and ¼# celo flakes) @ 1213'. W.O.C. 5 hrs. Run in with bit and tag cement @ 1170'. Had full circulation. Took 15 bbl. to load hole. W.O.C. 2½ more hours. Drilled hard cement 1170-1244' and lost circulation @ 1244'. Void from 1244-1254'. Drilled hard cement from 1254-1272' with no returns. Pulled bit and RI open ended to 1272'. Spotted cement plug #4 (50 sacks class B with 2% CaCl₂ and ¼# celo flakes). W.O.C. 1½ hrs.
- 4-29-83 W.O.C. 4¼ hrs. Loaded hole with 15 bbl. mud. RI with bit and tag cement @ 1236'. Had full returns. Drilled cement 1236-1246 and lost circulation @ 1246'. Had 10' void 1246-1256', and drilled hard cement from 1256-1272' with no returns. Pulled bit and RI open ended to 1272'. Spotted cement plug No. 5 (50 sx class B with 2% CaCl₂ and ¼# celo flakes). W.O.C. 4½ hrs. Loaded hole with 20 BM. W.O.C. 1½ hrs. RI with bit and tag cement at 1215'. Had full circulation. Drilled soft cement 1215-1243' and lost circulation. Had soft, mushy cement from 1243-1254'. Drilled hard cement from 1254-1308' with no returns. Pulled bit and ran in open ended to 1210'. Rigged up Howco and pumped cement plug No. 6 as follows: pumped 10 bbl of water with 2% CaCl₂ + 5 bbl. fresh water spacer + 10 bbl. flo-check + 5 bbl. fresh water spacer + 100 sacks class B thick set cement. Displaced with 10 bbl. water. Pulled drill pipe and loaded hole with 20 bbl. mud. W.O.C. 6 hrs. RI with bit and tag cement @ 1021'. Drilled soft cement 1021-1311'. Lost circulation @ 1311'.

5-1-83 after mixing.
(cont.)

Ran in with bit and tagged cement at 1129' after W.O.C. 6 hrs. Cement soft. Waited 1 hr. and drilled firm cement 1129-1224'. Soft cement 1224-34 & firm cement 1234-1350'. Wash with full returns to 1465 & drilled new hole to 1485'. Had full returns.

2-3/4 hrs - trip
1/2 hr - drilling
7-1/2 hrs - W.O. & mix zeo gel squeeze
2-1/2 hrs - wait on squeeze
1-1/2 hrs - cement by Howco
7-1/4 hrs - W.O.C.
1-3/4 hrs - drill cement
1/4 hr - wash to bottom

5-2-83 2132' - lost circ. Wt. 8.8 Vis 45 W.L. 10.0 35%
L.C.M. 3° at 1486'; 2-3/4° at 1580'; 2-3/4° at 1644';
2-1/4° at 1736'; 2° at 1859'; 2° at 1979'

2-1/2 hrs - trip
12-1/2 hrs - drilling
1/2 hr - rig service
11-1/2 hrs - survey
7 hrs - lost circ. Lost 400 bbl. at 1860' & 800 bbls.
at 2132'.

5-3-83 2449' - drilling Wt. 8.6 Vis 44 W.L. 12.0 20% L.C.M.
2-3/4° at 2201'; 2-1/2° at 2323'; 2-1/2° at 2449'

5 hrs - trip
4-1/2 hrs - drilling
1/2 hr - survey
1-3/4 hrs - spotting salt gel squeeze
3 hrs - wait on squeeze
8 hrs - mixing mud
1-1/4 hrs - fill hole (set two salt gel plugs)

5-4-83 2692' - W.O.C. Wt. 8.8 Vis 45 30% L.C.M. 2° at 2602'

3-1/4 hrs - trip
3-1/4 hrs - drilling
1/2 hr - survey
9-3/4 hrs - W.O.C.
4 hrs - Wait on cementers
1/2 hr - circ.
3/4 hr - cement
1-1/2 hrs - drill cement
1/2 hr - squeeze cement

continued

- 5-4-83 (cont.) Squeezed loss circulation zone in two stages. First stage 150 sx class "B" plus 3% CaCl with $\frac{1}{4}$ # cello flake per sk. Unable to get any squeeze pressure. Drilled out with full returns. Resqueezed with 100 sx class "B" with 3% CaCl & $\frac{1}{4}$ # cello flake per sk. Held 200 psi squeeze pressure.
- 5-5-83 Reaming hole to 8 $\frac{1}{2}$ " hole at 600'.
- 2-3/4 hrs - trip
 - 5 hrs - W.O.C.
 - 5-1/2 hrs - drill cement
 - 1 hr - wait on orders
 - 5-1/4 hrs - mix mud
 - 2 hrs - salt gel squeeze
 - 1-1/2 hrs - lay down drill pipe
 - 1 hr - reaming
- Prep to run 7" casing. (Did not run 7")
- 5-6-83 2585' - Drilling 8-3/4" hole. Wt. 9.0 Vis 44 30% L.C.M.
1° at 1711'; 1 $\frac{1}{4}$ ° at 1803'; 1° at 1959'; 1 $\frac{1}{4}$ ° at 2237'; 2° at 2457'
- 17-3/4 hrs - drilling
 - 1/4 hr - rig service
 - 1-1/2 hrs - surveys
 - 4-1/2 hrs - reaming
- 5-7-83 3270' - drilling Wt. 9.0 Vis 40 W.L. 9.8 5% L.C.M.
2° at 2457'; 1 $\frac{1}{2}$ ° at 2675'; 1 $\frac{1}{4}$ ° at 2802'; 1-3/4° at 2926'; 2 $\frac{1}{2}$ ° at 3050'; 2-3/4° at 3140'; 3° at 3230'
- 4-3/4 hrs - trip
 - 17 hrs - drilling
 - 1-3/4 hrs - surveys
 - 1/2 hr - wash to bottom
- 5-8-83 3835' - Drilling Wt. 9.0 W.L. 10 Vis 33 0 L.C.M.
2° at 3429'; 1-3/4° at 3522'; 1 $\frac{1}{4}$ ° at 3646'; 1° at 3767'
- 21-3/4 hrs - drilling
 - 1/2 hr - rig service
 - 1-3/4 hrs - survey
- 5-9-83 4210' - Lost Circulation Wt. 9.0 Vis 45 W.L. 5 20% L.C.M.
1° at 3980'. Lost 400 bbls. at 3945' & 600 bbls. at 4210'.
- 13-3/4 hrs - drilling
 - 1/4 hr - rig service
 - 1/4 hr - survey
 - 9-3/4 hrs - mix lost circulation material and lost circ.

JEROME P. McHUGH

E.T. #1

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5-10-83 4631' - drilling Wt. 9# Vis 47 W.L. 10 L.C.M. 20%
1½° at 4439'

4-1/4 hrs - trip
17-1/2 hrs - drilling
1/2 hr - rig service
3/4 hr - survey
1 hr - cut drilling line
1/4 hr - washing to bottom

5-11-83 5210' - Drilling Wt. 9.0 Vis 41 W.L. 10.8 14% L.C.M.
1° at 4917'

23-1/4 hrs - drilling
1/2 hr - rig service
1/4 hr - survey

5-12-83 5715' - drilling Wt. 9.1 Vis 45 W.L. 10.0 10% L.C.M.
3/4° at 5481'

23-1/4 hrs - drilling
1/4 hr - rig service
1/2 hr - survey

5-13-83 6050' - Trip Wt. 9.1 Vis 40 W.L. 11.0 10% LCM
½° at 5988'

3/4 hrs - trip
22-1/4 hrs - drilling
1/2 hr - rig service
1/2 hr - survey

5-14-83 6394' - Drilling Wt. 9.1 Vis 40 W.L. 10 10% L.C.M.

3-3/4 hrs - trip
18-1/2 hrs - drilling
1/4 hr - rig service
1-1/2 hrs - rig repair

5-15-83 6871' - Drilling Wt. 9.1 Vis 39 W.L. 10.5 5% L.C.M.
½° at 6479' -

23 hrs - drilling
1/2 hr - rig service
1/2 hr - survey

JEROME P. McHUGH
E.T. #1
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5-16-83 7186' - Drilling Wt. 9.1 Vis 38 W.L. 11.0 5% L.C.M.
1° at 6887'

4-1/2 hrs - trip
16-3/4 hrs - drilling
1/4 hr - rig service
1/4 hr - survey
1/4 hr - wash to bottom
2 hrs - rig repair

5-17-83 7633' - Drilling Wt. 9.1 Vis 42 W.L. 10.5 1° at
7387'

23 hrs - drilling
1/2 hr - rig service
1/2 hr - survey

5-18-83 7852' - Waiting on magnet Wt. 9.1 Vis 45 W.L. 10.0

3-1/4 hrs - trip
14-3/4 hrs - drilling
1/2 hr - rig service
4-1/2 hrs - rig repairs
1 hr - W.O. magnet

5-19-83 7852' - Fishing for cone Wt. 9.1 Vis 45 W.L. 10.0

24 hrs - fishing

5-20-83 8060' - T.O.H. for logging Wt. 9.1 Vis 57 W.L. 12.0

7 hrs - trip
12-1/4 hrs - drilling
1/4 hr - rig service
2 hrs - circ.
2-1/2 hrs - fishing

5-21-83 T.D. 8060' Wt. 9.1 Vis 60 W.L. 12

8-1/2 hrs - trip
9 hrs - wash bridge 7470-8060'
2-3/4 hrs - attempt to log
2-1/2 hrs - wait on loggers
1-1/4 hrs - circ.

Made two attempts to log. First attempt stopped at 7350';
second at 7675'.

5-22-83 T.D. 8060' - Rig repairs Wt. 9.1 Vis 75 W.L. 12.0

24 hrs - attempting to log & rig repairs.

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E.T. #1

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5-23-83 T.D. 8060' - laying down drill pipe.

6-1/2 hrs - trips
4 hrs - rig repair
8-3/4 hrs - logging
2 hrs - change drilling line
3/4 hr - wash to bottom
1-1/2 hrs - circ.
1/2 hr - lay down drill pipe

5-24-83 Finish laying down drill pipe and collars. Rig up Four States Casing Service.

Ran 205 jts. 4 1/2" O.D., 11.6#, K-55, LT&C casing. T.E. 8081.70' set at 8081' RKB. Had to wash 40' to bottom. Circulate with mud for 1 hr. Rig up Halliburton. Cement 1st stage as follows: 450 sx 50-50 poz with 2% gel & 6 1/4# gilsonite and 1/4# flocele per sx followed by 100 sx class "B" neat with 1/4# flocele per sk. Total slurry 1st stage 744 cf. Preflushed hole with 10 bbl. mud flush. Had good circulation during cementing operations. Maximum cementing pressure 800 psi. Bumped plug with 1400 psi. Float held OK. P.O.B. at 6:00 p.m. 5-23-83. Dropped opening plug. Opened D.V. tool at 5870' with 1300 psi. Circulated with mud pumps for 3 hrs. Cemented 2nd stage thru D.V. tool at 5870' with 215 sx 65-35 poz with 12% gel & 6 1/4# gilsonite & 1/4# flocele per sk followed by 325 sx 50-50 poz with 2% gel & 1/4# flocele per sk. Total slurry 2nd stage 973 cf. Preflushed with 10 bbl. mud flush. Had good circulation during cementing operations. Bumped plug with 2100 psi. Held OK. P.O.B. at 10:30 p.m. 5-23-83. Dropped opening plug. Opened D.V. tool at 3542' with 1300 psi. Circulated with mud pumps for 1 hr. Cemented 3rd stage with 10 bbl. mud flush, 500 sx 65-35 poz with 12% gel & 1/4# flocele per sk followed by 100 sx 50-50 pos w/ 2% gel and 1/4# flocele per sk. Total slurry 1436 cf. Had good circulation. Bumped plug with 2100 psi. Held OK. P.O.B. at 1:20 a.m. 5-24-83. Set slips. Cut off casing. Rig released at 3:00 a.m. 5-24-83.

DAILY REPORT

6-1-83 M. I. & R. U. Well Tech Rig #217. Set drilling equipment. Unload tubing, NU BOP. G.I.H. with 4-3/4" bit and 2-3/8" tubing. Tag up at ±3500'. Shut down.

6-2-83 Drilling cement and D. V. tool at ±3513'. G.I.H. with tubing. Tag up ± 5761'. Drilling cement 50' cement and D. V. tool at 5830'. Circulate 30 minutes. Shut down.

6-3-83 Finish drilling D. V. tool at 5830'. G.I.H. to 7980'. Drilling out cement and rubber wiper plug to float collar. Circulate clean. Rig up Western Co. Pressure test casing to 4000 psi - okay. Spot 250 gal. 7 1/2% HCL. P.O.H. Rig up Basin Perforators. Ran GR-CCL from PBD 8047' to 7600', 7100' to 6500', 5800' to 5050', 3500' to 3200'.

6-3-83 (Continued)
Perforate Dakota Formation as follows: 7747-81-89, 7801-06-13-43-44-45-69-83-85-87-90-93, 7949-55-, 8031-32-33. Total 20 holes (1 JS per setting). Rig up Western Co. Break down formation with water at 2200 psi. Dropped 30 ball sealers. Ball off with 4000 psi. Flow back. Ran 4½" junk basket. Recovered 30 balls (17 hits). Shut down 10:00 p.m.

6-4-83 Fraced Dakota Formation as follows:

10,000 gal. Mini-Max III-30 w/2% diesel - pad
10,000 gal. Mini-Max III-30 w/2% diesel + 1 ppg 20-40 sand
10,000 gal. Mini-Max III-30 w/2% diesel + 2 ppg 20-40 sand
10,000 gal. Mini-Max III-30 w/2% diesel + 3 ppg 20-40 sand
5043 gal. water flush
ISDP - 2000 psi
15 minutes - 1850 psi
Max. treating pressure - 3400 psi
Min. treating pressure - 3000 psi
Avg. treating pressure - 3200 psi @ 27 bbl/min.

Totals:

60,000# 20-40 sand
40,000 gal. Mini-Max III-30
800 gal. diesel
40 gal. Aqua flow

Lubricate 4½ Baker bridge plug in hole. Set at 7354'. Dump 1 sx. sand on top of bridge plug. Wait 45 minutes for sand to fall. Pressure test to 4000 psi - okay.

Perforate Gallup as follows: 6643-61-68, 6715-40-68-77-82-90, 6800-02-04-06-16-35-49-56-65-78-88, 6900-12-24-57-63-69-73-88-95, 7004-11-18-25. Total holes - 33 (all 1 JS each setting). Break down formation with water at 1800 psi. Dropped 50 ball sealers. Ball off with 4000 psi. Ran 4½ junk basket. Recovered 14 balls (11 hits).

Frac Gallup Formation as follows:

14,000 gal. slickwater with 25# Aqua Seal/1000 gal. - pad
11,000 gal. slickwater with 15# Aqua Seal/1000 gal. + 1 ppg 20-40 sand
11,000 gal. slickwater with 10# Aqua Seal/1000 gal. + 2 ppg 20-40 sand
11,000 gal. slickwater with 10# Aqua Seal/1000 gal. + 2½ ppg 20-40 sand
7,600 gal. slickwater with 10# Aqua Seal/1000 gal. + 3 ppg 20-40 sand
ISDP - 1000 psi
15 minutes - 700 psi
Max. treating pressure - 4000 psi
Min. treating pressure - 2500 psi
Avg. treating pressure - 3000 psi at 48 bbl./min.

6-4-83 (Continued)
Totals:

83,500 # 20-40 sand
54,600 gal. slickwater
58 gal. Aqua Flow
850 # Aqua Seal
150# FR-2

Attempting to screen out with 23,000 lbs. of sand in formation at 3#/gal. Cut 3# stage short by 10,000 lbs sand and flushed to top perf. with 4336 gal. water.

6-6-83 Open well up. Well dead. G.I.H. with retrieving head on tubing. Tag sand \pm 6690'. Clean out sand to \pm 6949'. Ran 3 jts. No sand. tag again. Clean out to \pm 7272'. Had good show of oil. P.O.H. with 15 stands.

6-7-83 G.I.H. No additional fill. Clean out to bridge plug. Unseat and P.O.H. with bridge plug. G.I.H. with tubing and seating nipple. Tag sand \pm 7700'. Clean out to PBTD. Land tubing as follows 246 jts., 2-3/8", 4.7#, J-55, 8Rd, EUE tubing, T. E. 7950.53 set at 7959' RKB with seating nipple @ 7926'. No BOP - NU Wellhead.

6-9-83 Moved in Ponderosa Oilfield Service swabbing unit. Casing pressure 20 psi. Tubing pressure zero. Fluid level at 300' from surface first run. Made 36 swab runs. Swabbed estimated 144 bbls. frac fluid with very slight trace of oil. Fluid level at end of day 1500'. Casing pressure 10 psi.

6-10-83 Casing pressure 125 psi. Tubing pressure 10 psi. Fluid level 1st run 500' from surface. Made two swab runs. Too much oil to swab to pit. Moved unit off to set tank.

6-15-83 MI & RU Ponderosa Oilfield Service swabbing unit. Casing pressure 375 psi. Tbg. pressure 50 psi. Fluid level first swab run 350' from surface. Casing pressure dropped to 275 psi. Swabbed to tank an unknown quantity of oil. Estimate 150 bbls. frac water.

6-16-83 Csg. pressure 475 psi. Tbg. pressure 50 psi. Swabbed estimated 200 bbls. frac fluid and 10 bbls. oil to tank. Fluid level at 700' at start of day. Swabbed down to 2500' and came back up to 2000' at end of day. Casing pressure down to 350 psi at end of day. Well gassing each swab run.

*1st run
oil*

- 6-17-83 Casing pressure 500 psi. Tubing pressure 50 psi. Fluid level 1800' on first swab run. Made 37 swab runs. Swabbed estimated 200 bbls. frac fluid and 5 bbls. oil. Fluid level down to 2700' at end of day. Casing pressure at end of day 550 psi. Good show of gas with each swab run.
- 6-18-83 Casing pressure 600 psi. Tubing pressure 70 psi. Fluid level 2600'. First swab run. Made 29 swab runs. Swabbed 156 bbls. total fluid - 150 bbls. frac fluid, 6 bbls. oil. Having problems getting swab down due to frac sand. Casing pressure at end of day 625 psi. Good show of gas with each swab run.
- 6-19-83 Shut down - Sunday
- 6-20-83 Casing pressure 700 psi. Tubing pressure zero. Fluid level first run 1000'. Made 34 swab runs. Swabbed estimated 190 bbls. frac fluid and 5 bbls. oil. Casing pressure at end of day 750 psi. Fluid level 2800'. Good show of gas.
- 6-21-83 Casing pressure 800 psi. Tubing pressure zero. Fluid level at 2200' first run. Made 28 swab runs. Casing pressure fell to 775 psi and went back up to 800 psi and well kicked off. Flowed 25 minutes and died. Made 9 more swab runs. Oil percentage increased to 10%. Casing pressure 800 psi at end of day and fluid level at 2000'.
- 6-22-83 Casing pressure 825 psi. Tubing pressure 175 psi. Well did not unload. First swab run, fluid level at 2400'. Made 38 swab runs. Swabbed total of 225 bbls. frac fluid and 25 bbls. oil. Casing pressure at end of day 850 psi. Fluid level at 2000'. Well gasses strongly after each swab run. 10 bbls.**
- 6-23-83 Casing pressure 900 psi. Tubing pressure 150 psi. Fluid level 2400' first swab run. Made 40 swab runs. Swabbed estimated 250 bbls. water and 8 bbls. oil. Casing pressure 925 psi at end of day and fluid level at 3000'. (Note: oil gauge was in error on 6-22-83 report. Should have been 10 bbls. oil.) **
- 6-24-83 Casing pressure 965 psi; tubing pressure 250 psi. Well would not unload. Fluid level 2000' on first swab run. Swabbed fluid level down to 3000' and came back up to 1800' last two hours of day. Made 30 swab runs. Total swabbed est. 175 bbls. water and 10 bbls. oil. Tubing gassing after each run on last 16 swab runs. Casing pressure at end of day 900 psi. (Total oil in tank 2'4" - 47 bbls.)
- 6-25-83 Shut down
- 6-26-83 Shut down

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- 7-25-83 MI & RU Ponderosa Oilfield Service swabbing unit. Casing pressure 1150 psi. Tubing pressure 250 psi. Fluid level at 2000' first swab run. Swabbed estimated 50 bbls. frac fluid and 2 bbls. oil. Casing pressure at end of day 1100 psi. Fluid level 2600'. Tank gauge 2'3".
- 7-26-83 Casing pressure 1100 psi. Tubing pressure 50 psi. Fluid level at start of day 2300'. Made 10 swab runs, recovering est. 184 bbls. fluid with 5-10% oil on 4th, 5th, 6th & 7th runs. Tubing on vacuum except for 7th swab run, when fluid was gas-cut. Tank gauge 2'7". Casing pressure 1200 psi; tubing on vacuum.
- 7-27-83 SICP = 1200 psi. CITP = 80 psi. Checked fluid level at 2600'. Swabbed well 3 hrs., making 10 runs with fluid level at 3100' on last run. Recovered approx. 50 BW with very little oil. Rigged down swab unit and shut in.
- 8-25-83 MI & RU unit. Installed BOP and pulled out of hole with tubing. (Unable to lower tbg. below ±8000'.) Shut down for night.
- 8-26-83 Casing pressure zero. Tubing pressure zero. Tank gauge 2'11". Ran in with 2-3/8" tubing and Baker model "R" packer. Left 4 stands out and set packer above all Dakota perfs. Rig up to swab Dakota perfs 7747-8033' thru tubing.

Swab Run	Fluid Level	Est. bbls. of Fluid	Remarks
1	1,900	5.4	To tank
2	2,400	5.7	To tank
3	2,900	9.5	To tank
4	3,100	10.5	To pit
5	2,900	11.6	To pit
6	3,200	11.2	To pit, flowed 1 min. after swab
7	3,200	10.1	To tank
8	3,200	9.3	To tank
9	3,300	9.7	To tank
Total		82.9 bbl. fluid	

Last swab run averaged approximately 10% oil with small amount of gas. Tank gauge at end of day = 4'8".

- 8-27-83 150 psi on tubing. Fluid level 2700'. Small show of oil on 1st swab run. Fluid level at 3500' after 4 swab runs - recovering water with a trace of oil and a small show of gas in front of fluid. Fluid level at 3700' after 8 swab runs. Started swabbing

(Continued)

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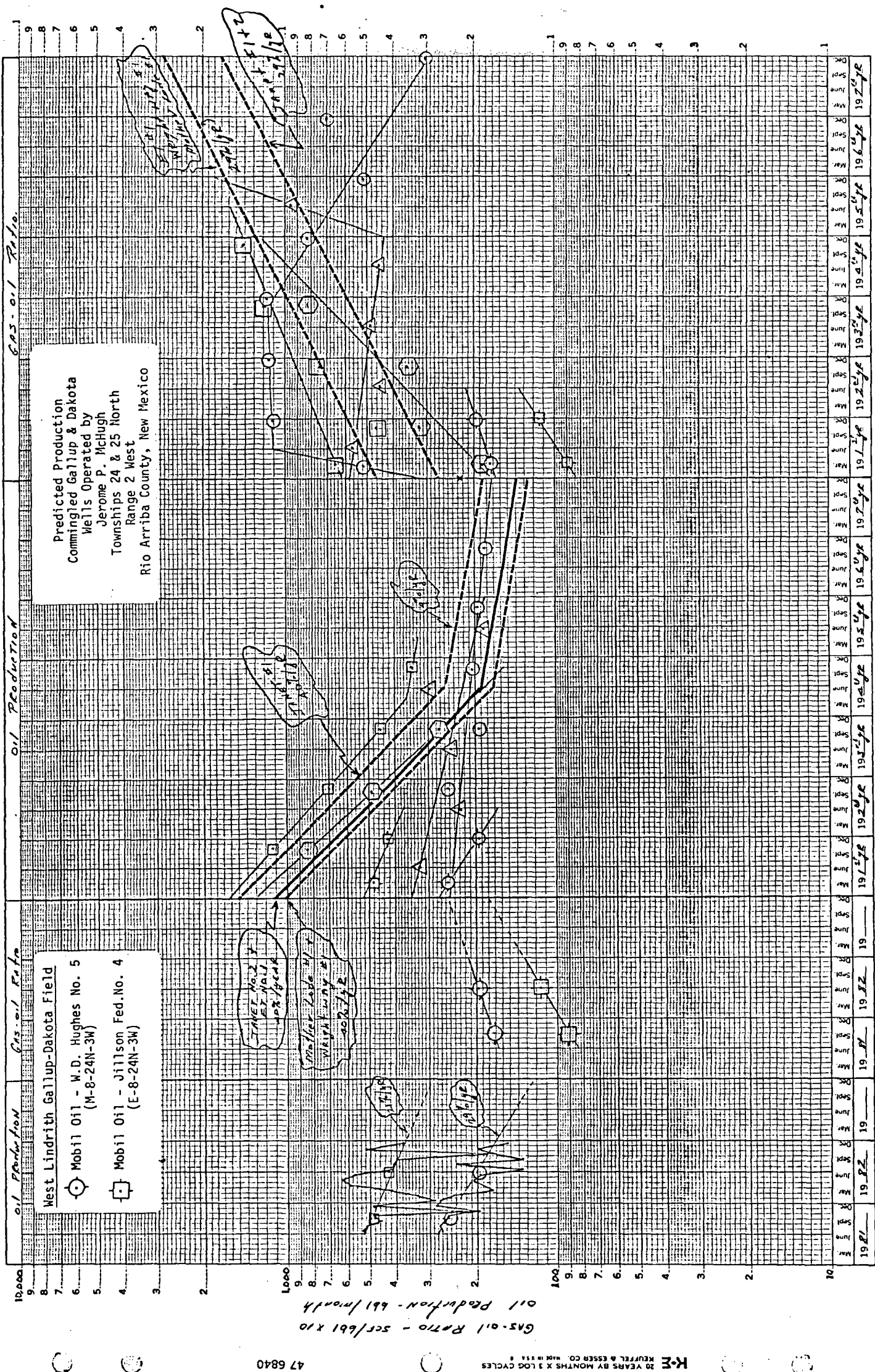
- 8-27-83 (Cont.) to tank. 1st hour made 2 swab runs and recovered 17 bbl. fluid. 2nd hour made 2 swab runs and recovered 13 bbl. fluid. - very gas cut and fluid level at 4500'. Shut down for night.
- 8-28-83 Shut down for Sunday.
- 8-29-83 Tubing pressure = 150 psi. Fluid level \pm 2500'. Swabbed 82 bbl. fluid in 6 hrs. Made 11 swab runs with fluid level 2500' to 4500'. Recovered mostly water with trace of oil and good show of gas. Laid down swab equipment and attempted to pull packer. Had to work tubing for 45 min. to pull free. P.O.H. and shut down for night.
- 8-30-83 Rigged up Basin Perforators. Set cast iron bridge plug at 7937' RKB. Made dump bailer run and dumped 20' cement on top of plug. PBD 7917' RKB. T.I.H. with Baker Model "R" packer set at 7707'. Made 6 swab runs. Well swabbed down. No fluid recovery last run. Show of oil and gas. Waited 30 minutes. Made swab run with no fluid recovery. S.D.O.N.
- 8-31-83 SITP = 380 psi. Fluid level at 5500'. Made 3 swab runs to tank and swabbed fluid level from 5500' to 7707', recovering 1 bbl. of oil and 8 bbl. of water. No fluid recovery on 3rd run. Well had fair blow of gas - estimated at 150 MCFD rate at 0 psi tubing pressure. P.O.H. with packer. T.I.H. with tubing as follows: 218 jts. of 2-3/8" O.D., 4.7#, J-55, 8 Rd, EUE tubing. T.E. 7055.64' set at 7064' RKB with seating nipple at 7027' RKB and anchor at 6501' RKB. Set anchor in tension. Land tubing. Nipple up well head. Rig down Well Tech Service unit. Shut well in.
- 9-1-83 Shut in
- 9-2-83 MI & RU swabbing unit. Made one run to tank. Recovered 6 bbls. oil and 15 bbls. water. Made 7 runs to pit - estimated 50 bbls. water; no oil. Casing pressure 25 psi.
- 9-3-83 Shut down-Labor Day Holiday
- 9-4-83 Shut down-Labor Day Holiday
- 9-5-83 Shut down-Labor Day Holiday
- 9-6-83 Casing pressure 190 psi. 1st run, fluid level at 1600'. Small show of oil - mostly water. After 6 runs, CP 200 psi; FL 2500'. After 9 runs, CP 225 psi; FL 2800'. After 13 runs, CP 225 psi; FL 3200'. After 15 runs, CP 225 psi; FL 3200'. After 19 runs, CP 290 psi; FL 2800'. Shut in. Rig down.

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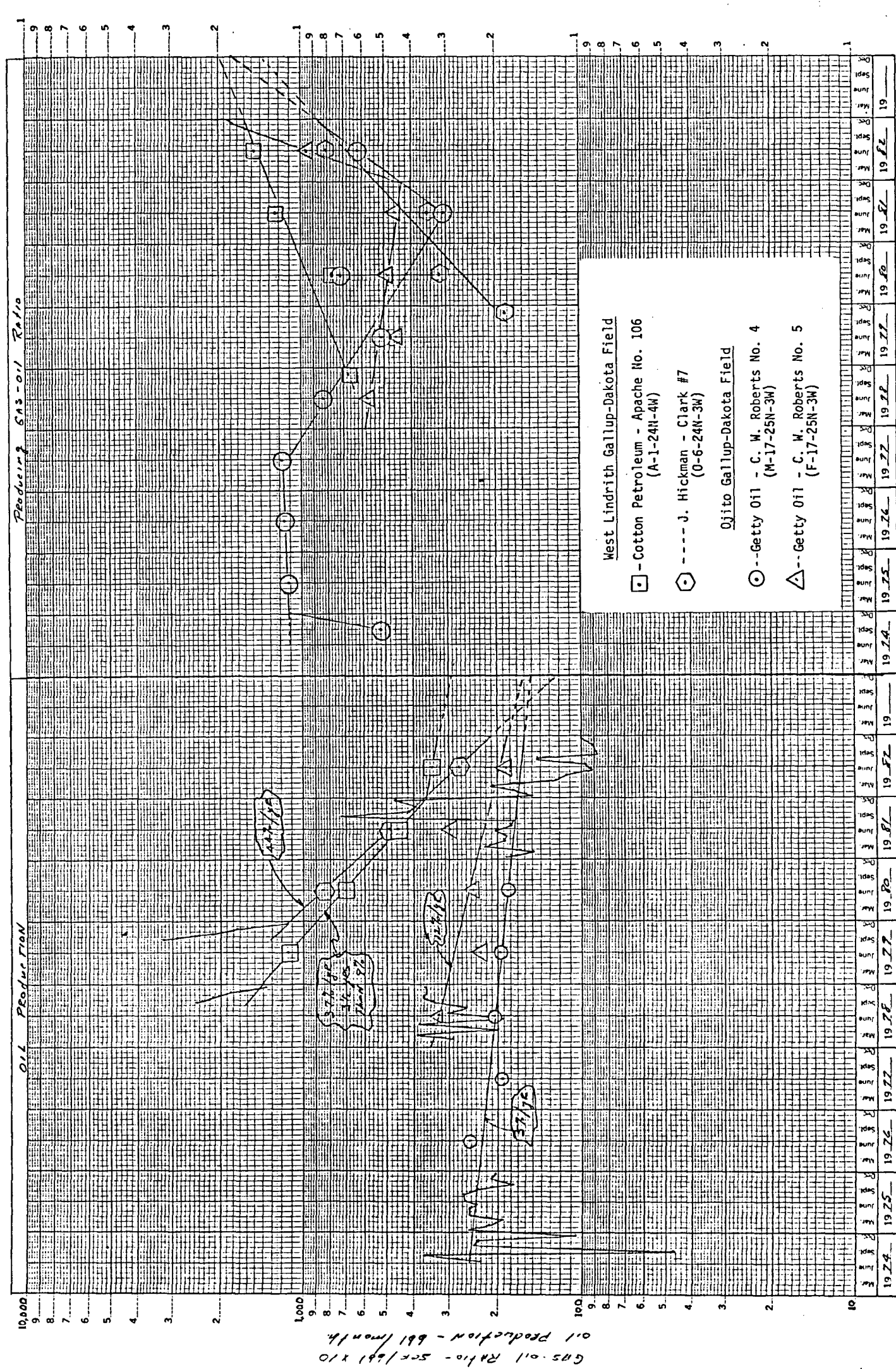
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- 9-15-83 Moved in Ponderosa Swabbing Unit - casing pressure 575, tubing pressure 530 psi. Blew well down. Would not unload. Swabbed well seven hours, made 27 swab runs. 15 swab runs to pit - all water last 12 runs to tank. Well kicked off @ 5:15 P.M. Flowed 35 minutes and died - recovered 33 bbls. oil & estimated 120 bbls. water. Shut well in overnight.
- 9-16-83 Casing pressure 675 psi. Tubing pressure 475 psi. Opened well to tank. Well kicked off and flowed 45 minutes. Tank gauge after flowing 45 minutes 5'1". Total fluid produced 5 bbls. Made one swab run. Well kicked off and flowed two hrs. Died at 12:30 p.m. Casing pressure dropped to 475 psi. Gauge after flowing 2 hrs. 8'5". Drained water from tank; gauge after draining water 7'7". Made 50 bbls. oil and 18 bbls. water. Made two swab runs; well kicked off. At 3:00 p.m. released swabbing unit. Casing pressure at 3:00 p.m. 575 psi. Checked well at 7:00 p.m. Tank gauge 11'0". Had made 68 bbls. since 3:00 p.m. Well died. Casing pressure 890 psi. Did not check tank for water.
- 9-17-83 Shut in.
- 9-18-83 Shut in.
- 9-19-83 12:30 p.m. SITP = 560 psi; SICP = 925 psi. Drained 28 bbl. water from tank (11' 0" to 9' 7"). Opened tubing to tank. Pressure bled to zero in 5 minutes. Left open 4 hrs. Unloaded 8 bbl. fluid (7 bbl. oil and 1 bbl. water). Shut in with TP = zero and casing pressure = 950 psi. Equalized casing and tubing - 820 psi. Left equalized and final tank gauge 9' 11½" with all water drained.



Application for Downhole Commingling
 Jerome P. McHugh
 E.T. #1 WELL
 T-25-N, R-2-W, NMPM
 Sec. 28: Unit Letter C
 1100' FNL & 1600' FWL
 Rio Arriba Co., New Mexico
 Case No. 7967, Exhibit No. B6

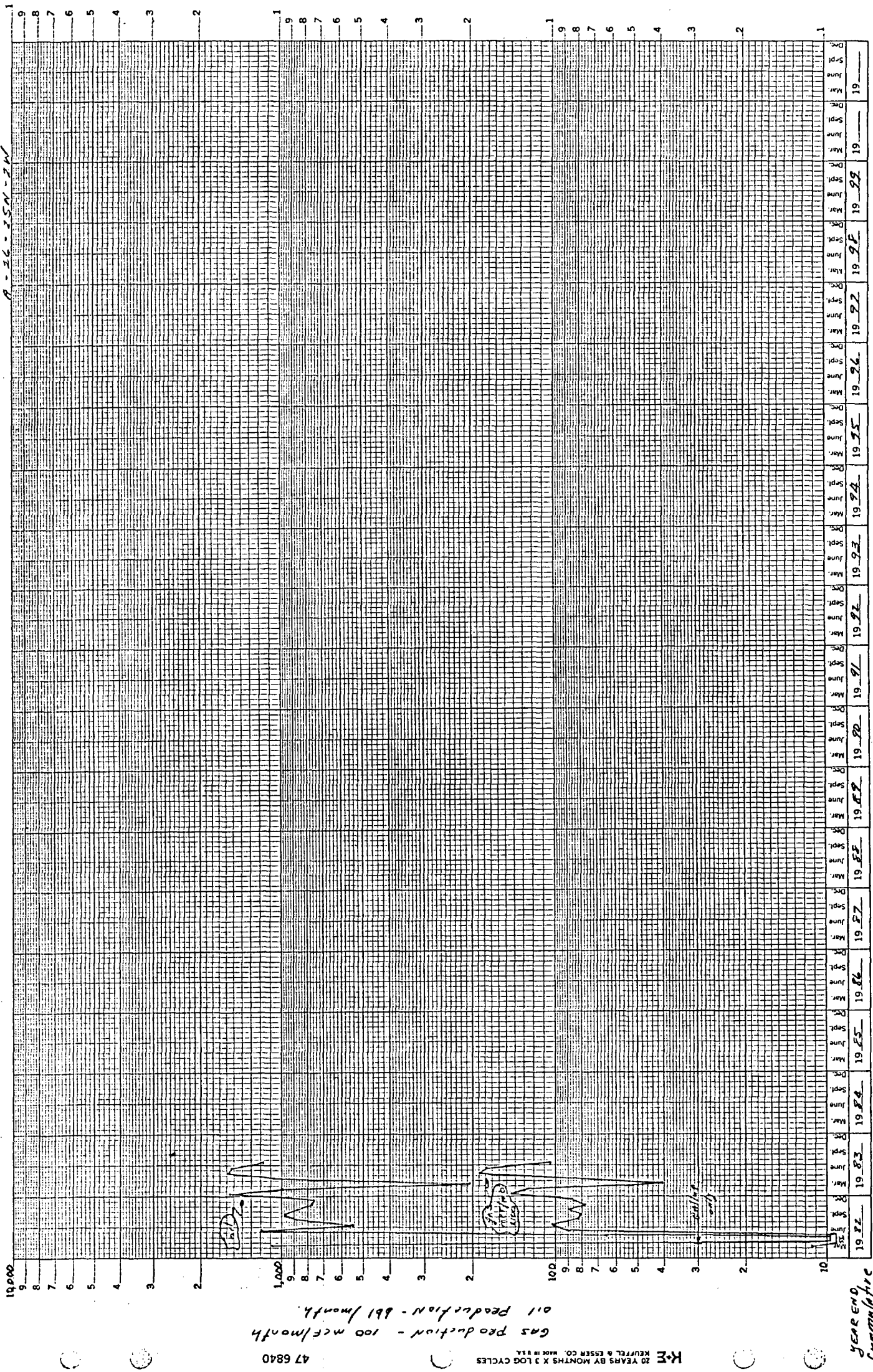


WELL DATA
 Commingled Gallup-Dakota Wells
 General Area of Jerome P. McHugh's Wells in
 Townships 24 and 25 North, Range 2 West
 Rio Arriba County, New Mexico

Operator	Well Name	Location U-S-T-R	Initial		Actual Init.Prod. BOPD-GOR	Oil Production		Stabilized Decline % / Yr	Gas Production		Cumulative Oil Prod. 1-1-83 - Bbl	Estimated Ultimate Recovery-Bbl
			Potential BOPD-GOR	Actual Prod.		Factor Actual/IP	Initial Decline %/Yr-Yrs		Gas Prod. Factor Actual/IP	Incline Rate %/Yr		
<u>West Lindrith Gallup-Dakota Field</u>												
Cotton Petroleum	- Apache No. 106	A-1-24N-4W	97 - 1526	53 - 6400	55%	37 - 3½	9	4.19	25	41,254	76,800	
J. Hickman	- Clark No. 7	O-6-24N-3W	150 - 2666	43 - 1800	29%	44 - --	-	0.68	57	30,597	51,600*	
Mobil Oil	- W.D. Hughes No.5	M-8-24N-3W	28 - 179	9 - 1670	32%	29 - --	-	9.33	19	3,896	12,200*	
Mobil Oil	- Jillson No. 4	E-8-24N-3W	35 - 857	18 - 840	51%	21 - --	-	0.98	39	7,822	38,500*	
<u>Ojito Gallup-Dakota Field</u>												
Getty Oil	- C.W. Roberts No. 4	M-17-25N-3W	9 - 12,220	8 - 11,000	-	5 - --	5	0.90	5	21,031	48,000	
Getty Oil	- C.W. Roberts No. 5	F-17-25N-3W	NR - 4,850	12 - 5,800	-	12 - --	12	1.20	-	14,894	28,000	
6 Well Average			64 - 3,716	24 - 4,585	42%	33 - --	9	1.23	29		42,500	

* Estimated assuming maintaining initial decline rate for a total of 3½ years from the date of first production and then stabilizing at an annual decline rate of 9%

Northwest Exploration
 Gravelin No. 1
 Gravelin Oilfield / Basin Data
 8-36-25N-3W



GAS PRODUCTION - 100 MCF/MONTH
 OIL PRODUCTION - 661/MONTH

YEAR END
 Cumulative
 0.1, 661
 825, MCF

1982 15260 AS of 8-1-83
 62,108 148,907 " " " "

RESERVES AND ALLOCATION FACTORS FOR
 COMMINGLED GALLUP-DAKOTA WELLS
 Townships 24 and 25 North, Range 2 West
 Rio Arriba County, New Mexico

Application for Downhole Commingling
 Jerome P. McHugh
 E.T. #1 WELL
 T-25-N, R-2-W, NMMP
 Sec. 28: Unit Letter C
 1100' FNL & 1600' FWL
 Rio Arriba Co., New Mexico
 Case No. 7967, Exhibit No. B7

	Janet No. 1 R-7258	Janet No. 2 R-7312	E. T. No. 1 Proposed	Mother Lode No. 1 Proposed	Wright Way No. 1 Proposed
<u>OIL</u> (Reserves in bbl.)					
Gallup	39,200 (63%)	35,600 (75%)	40,600 (84%)	43,900 (79%)	28,000 (67%)
Dakota	<u>22,600</u> (37%)	<u>12,000</u> (25%)	<u>7,800</u> (16%)	<u>11,900</u> (21%)	<u>14,100</u> (33%)
TOTAL	61,800	47,600	48,400	55,800	42,100
<u>GAS</u> (Reserves in MMCF)					
Gallup	372.4 (82%)	363.1 (90%)	414.1 (94%)	447.8 (91%)	285.6 (85%)
Dakota	<u>79.1</u> (18%)	<u>42.0</u> (10%)	<u>27.3</u> (6%)	<u>41.7</u> (9%)	<u>49.4</u> (15%)
TOTAL	451.5	405.1	441.4	489.5	335.0
Indicated Initial Potential Commingled Stream	116 BOPD	86 BOPD	86 BOPD	78 BOPD	78 BOPD
Predicted Initial Production	49 BOPD	36 BOPD	36 BOPD	33 BOPD	33 BOPD