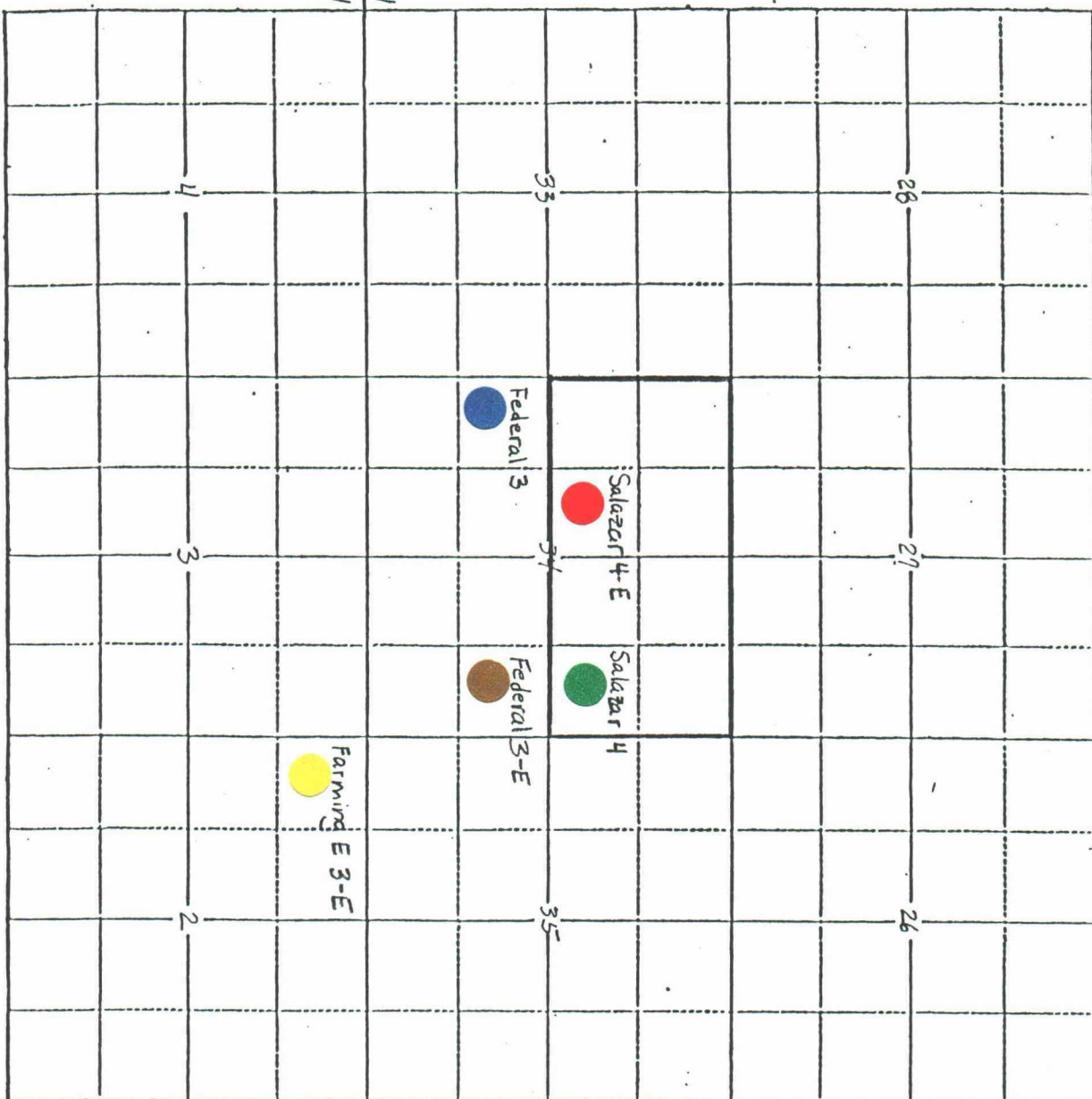


PLAT II WELLS ANALYZED

Salazar Well 4-E
1630N 1460W section 34
Township 25N, Range 6W, N.M.P. Meridian, Rio Arriba Co.



Basin Dakota Pool

Notes

BEFORE EXAMINER **C. J. ALLEN**

Oil Conservation Division

Exhibit No. 4

Case No. 8712

SALAZAR WELL NO. 4-E

The Salazar Well No. 4-E was completed on 2-21-84 with an initial potential of 4984 MCF/day. It began producing on May 12, 1984 and was shut-in in June 1985 being over-produced by more than six times (317,158 MCF). Pressure tests in 1984 and 1985 (SICP = 1337 and 1332, respectively) indicate that this well had not experienced irreversible formation damage as of June of this year. The cumulative production has been 586,993 MCF with an average production rate of 1947 MCF/day and 4.5 BBLS/day (GWR = 2.17 BBLS/¹⁰⁰⁰MCF). The complete production table and plot are part of the application. Using a BHP/z vs. Cumulative Production Plot and a Volumetric Analysis of the existing data results in estimated Original Gas-In-Place of 3.95 to 4.45 BCF. Assuming 85% recovery, estimated Recoverable Reserves are 3.35 to 3.78 BCF.

If this well remains shut-in until the over-production is reduced to 0 (estimated to be 12 additional months) damage could occur and reserves would be lost. This well has already been shut-in for the longest time period of the offset wells we examined. Considering that damage has apparently occurred with lost reserves in 3 of these offsets, our conclusion is that the Salazar Well No. 4-E will experience irreversible damage (if it has not already done so) if this total shut-in condition continues for 12 additional months. Based upon our analysis, we feel that this well (and the other wells in this area) should not have even a single month of total shut-in.

SALAZAR WELL NO. 4

This well was completed on 10-23-58 with an initial potential of 2878 MCF/day and was abandoned in 1983 with cumulative production of 1.32 BCF. This well is particularly interesting because it is the first well in the spacing unit to which the 4-E is dedicated as an infill well. One would expect a strong correlation between the production characteristics of the 4 and 4-E. The records available in its early life indicate that this well was allowed to produce a minimum of 1 to 2 days during prolonged shut-in periods with only 2 months of total shut-in prior to 1965. From 1965 to 1982 it had no month with total shut-in. The production decline was sharp, but not irregular. In late 1981 the well began to log off repeatedly and a swabbing unit was moved in. A swab test indicated that excessive water was coming into the well-bore--probably from a casing leak. The well was open but continually logged off during 1982 and 1983. Production dropped dramatically from an average in 1981 of 40.6 MCF/day to 7.00 MCF/day in 1982 and 1.14 MCF/day in 1983, until the zone was abandoned in March 1983.

This well was probably lost because the water could not be effectively removed from the well-bore. A BHP/z vs. Cumulative plot analysis indicates that Gas-In-Place was 1.75 BCF, which results in recoverable reserves of 1.4875 BCF (assuming 85% recovery). The well actually produced 1.3176 BCF. This means that approximately .1699 BCF were lost, or 11.4% of the potentially producible reserves.

PRODUCTION TABLE

WELL NAME Salazar Well No. 4

Operator Records Completion Date 10-23-58

WELL LOCATION H-34-25N-06W

Initial Potential 2878 MCF/day

Perfs 6706-22, 6554-6580

Initial Pressure SICP=1860 psia

Initial GOR/Gravity _____

SICP psia	DATE	PRODUCTION DAYS / SHUT-IN	OIL/H ₂ O PRODUCTION BBLs	RATE /Day WATER	CUMULATIVE WATER BBLs	GAS PRODUCTION MCF	RATE /Day	CUMULATIVE MCF
1952	1959	*	*	*	*	166,076	*	166,076
1423	1960	*	*	*	*	146,657	*	312,733
1342	1961	*	*	*	*	72,930	*	385,663
1212	1962	154 211	119	0.77	est. 119	96,632	627.48	482,295
1224	1963	*	*	*	*	59,242	*	541,537
1224	1964	286 79	434	1.52	est. 553	108,607	379.74	650,144
1065	1965	343 22	611 388	1.13	941	94,245	274.78	744,389
	1966	333 32	333	1.00	1274	78,868	236.84	823,257
	1967	342 23	342	1.00	1616	75,618	221.10	898,875
	1968	351 14	351	1.00	1967	61,102	174.08	959,977
	1969	359 6	359	1.00	2326	47,275	131.68	1,007,252
	1970	356 9	270 356	1.00	2682	42,348	118.96	1,049,600
	1971	368 0	368	1.00	3050	39,342	106.91	1,088 942
	1972	367 0	367	1.00	3417	33,540	91.39	1,122,482
1-15-74 827	1973	359 6	146 359	1.00	3776	28,568	79.58	1,151,050
	1974	351 14	114 351	1.00	4127	18,662	53.17	1,169,712
	1975	361 4	33 358	0.99	4485	24,036	66.58	1,193,748
	1976	367 0	105 359	0.98	4844	27,918	76.07	1,221,666
580	1977	344 21	63 343	1.00	5187	21,953	63.82	1,243,619
	1978	365 0	76 348	0.95	5535	25,159	68.93	1,268,778
5-29-79 612	1979	335 30	50 346	1.03	5881	15,083	45.02	1,283,861
	1980	364 1	81 369	1.01	6250	17,114	47.02	1,300,975
	1981	348 17	105 250	0.72	6500	14,134	40.61	1,315,109
	1982	345 20	48 164	0.48	6664	2,415	7.00	1,317,524
thru 3-	1983	70 20	183 17	0.24	6681	80	1.14	1,317,604
		*= records missing						

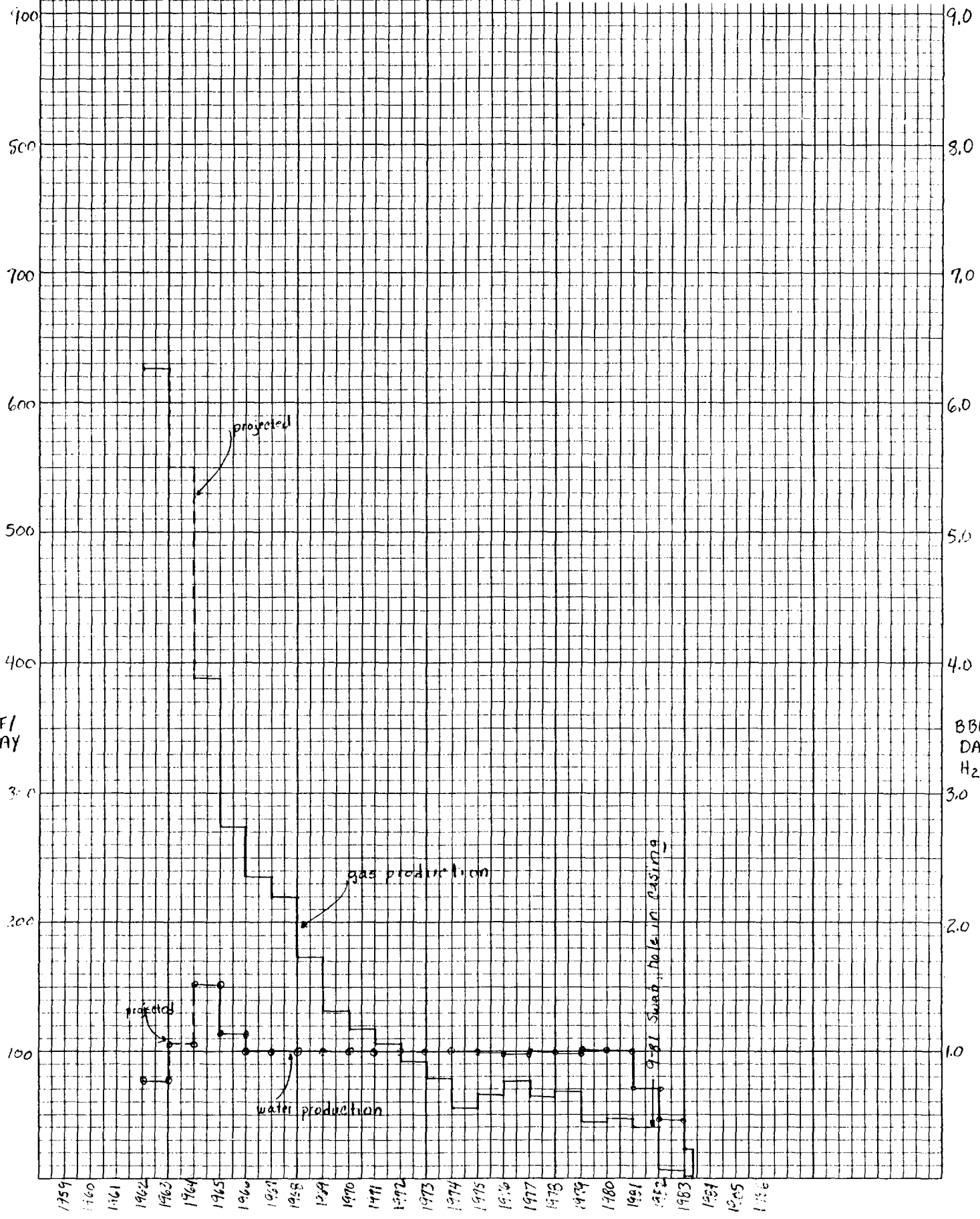
DIETZGEN CORPORATION
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NO. 340-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

MCF/
DAY

BBLS/
DAY
H₂O

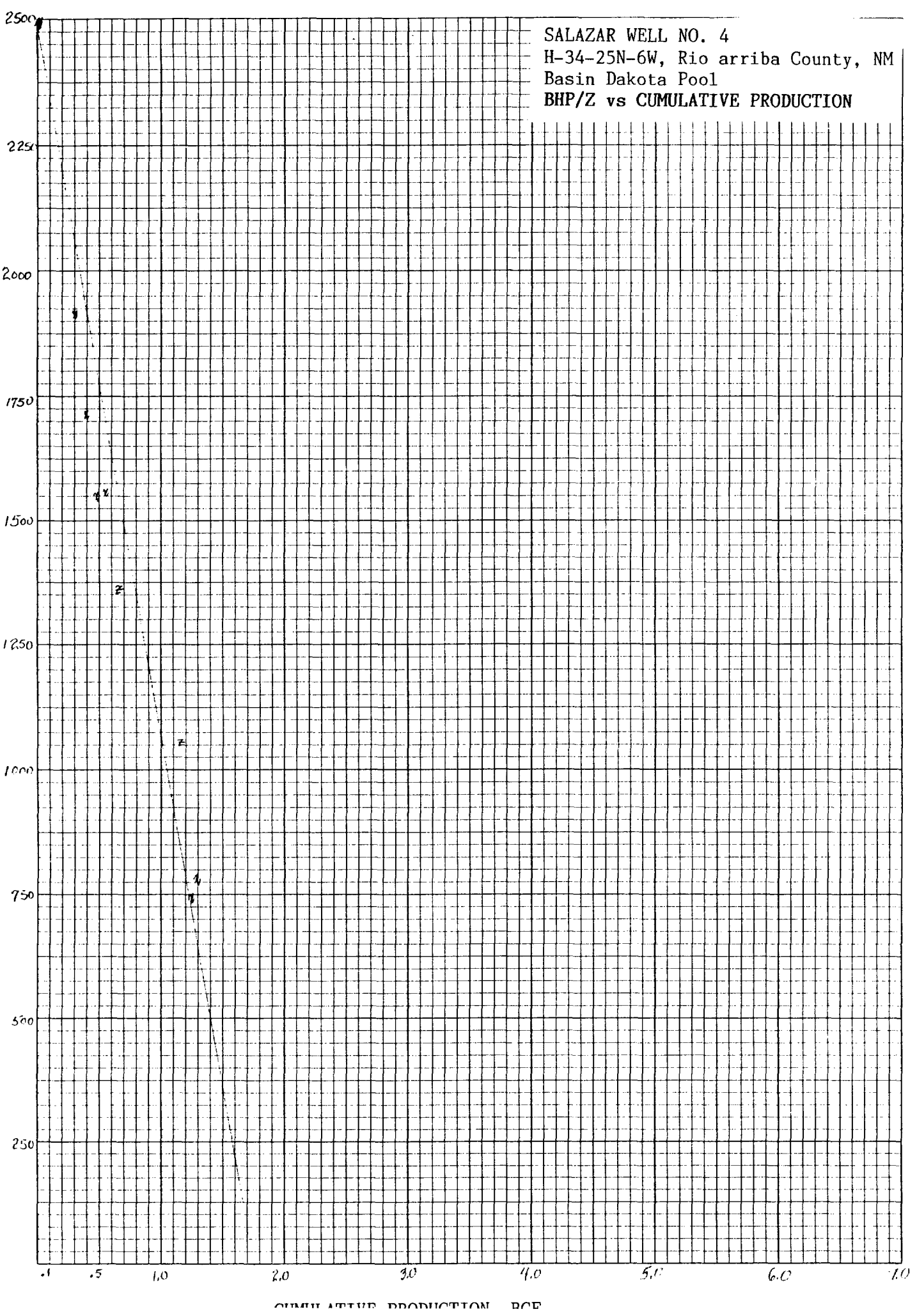
SALAZAR WELL NO. 4
H-34-25N-6W, Rio Arriba County, NM
Basin Dakota Pool
First Production = 1959
PRODUCTION PLOT



DIETZEN CORPORATION
MADE IN U.S.A.
NO. 340-10 DIETZEN GRAPH PAPER
10 X 10 PER INCH

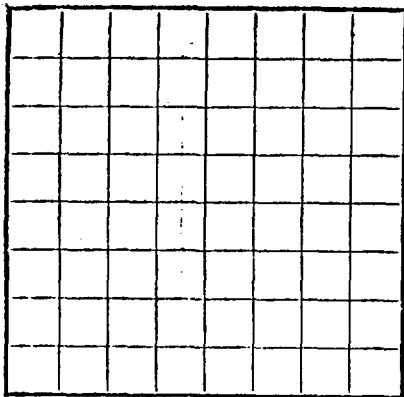
BHP/z
psia

SALAZAR WELL NO. 4
H-34-25N-6W, Rio arriba County, NM
Basin Dakota Pool
BHP/Z vs CUMULATIVE PRODUCTION



U. S. LAND OFFICE Santa FeSERIAL NUMBER 079139-A

LEASE OR PERMIT TO PROSPECT



LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Kay Kimbell Address 623 Lubbock Nat'l Bank Bldg.
 Lessor or Tract Salazar Federal Field Wildcat State New Mexico
 Well No. 1-34 Sec. 34 T. 25N R. 6E Meridian 10PM County Rio Arriba
 Location 1650 ft. N. of N. Line and 1090 ft. E. of E. Line of Section 34 Elevation 6365 ft.
(Derrick floor relating to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon
 so far as can be determined from all available records.

Signed

Jack B. BallackDate 11-17-58Title Engineering Agent

The summary on this page is for the condition of the well at above date.

Commenced drilling September 29, 1958 Finished drilling October 23, 1958

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from 2168 to 2200 No. 4, from to
 No. 2, from 6320 to 6422 No. 5, from to
 No. 3, from 6520 to 6620 No. 6, from to

IMPORTANT WATER SANDS

No. 1, from to No. 3, from to
 No. 2, from to No. 4, from to

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From—	To—	
8 5/8	32		J-55	360	none				surface
5 1/2	17		J-55	372	Halliburton Float		6680	6706	
5 1/2	15 1/2		J-55	6353					

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
8 5/8	350	400	pump & plug		
5 1/2	6726	569	plug & plug		

Leaving plug—Material Length Depth set
Adapters—Material Size

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from ... surface ... feet to 6726TD ... feet, and from ... feet to ... feet
Cable tools were used from ... feet to ... feet, and from ... feet to ... feet

DATES

Ran tubing October 23 ..., 1958...

Shut-in for pipeline construction

Put to producing November 3 ..., 1958.

The production for the first 24 hours was ... barrels of fluid of which ... % was oil; ... %
emulsion; ... % water; and ... % sediment.

Gravity, °Bé.

If gas well, cu. ft. per 24 hours Gallons gasoline per 1,000 cu. ft. of gas X22

Rock pressure, lbs. per sq. in. 2368, 192,300---

EMPLOYEES

Foree Drilling Company Driller
Farmington, New Mexico

..... Driller

..... Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
Surface	2168	2168	Surface tertiary, Kirtland & Fruitland sandstones, shales & coals
2168	2280	112	Pictured cliffs, sandstones & shales
2280	3010	730	Lewis shale
3010	3150	140	Chacra sandstones & shales
3150	3720	570	Lewis shale
3720	4618	898	Mesaverde sandstones, shales & coals
4618	5530	912	Mancos shale
5530	6320	790	Mancos shale & sandstone (including Gallup)
6320	6520	200	Greenhorn limestone, graneros, sandstone & shale
6520	6726		Dakota sandstone & shale

(OVER)

10-48004-4

FORMATION RECORD—Continued

FEDERAL WELL NO. 3

The Federal Well No. 3 was completed on 10-26-63 in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ section 34, T.25N., R.6W., BLUE dot on Plat II, with an initial potential of 6152 MCF/day. This well has shown erratic production since 1981 because of the irregular shut-in periods, but overall has experienced a normal decline. The longest total shut-in period was 4 months in 1983, but in its early life it was never shut-in for more than 1 month. In 1968 this well developed casing leaks and was repaired by squeeze cementing in July. A production packer was installed at 6403 feet to keep the water separated from the Dakota formation if other leaks developed. A decline curve analysis indicates that recovery has not yet been impaired and that the preventative measure of 1968 and the regular production to date have been effective at preventing irreversible water damage to the producing zones. Estimated Gas-In-Place, by BHP/z vs. Cumulative Production analysis, is 8.5 BCF with recoverable reserves of 7.225 BCF (assuming 85% recovery). The decline analysis implies that recoverable production will be about 7.78 BCF. The well has a cumulative production of 4.122 BCF with an average production rate of 533 MCF/day through August 1985.

These analyzes indicate that this well has not lost productive potential despite erratic production since 1981. The regularity of production during prolonged shut-in periods, which has occurred throughout the life of the well and the production packer has prevented permanent formation damage by effective water removal and separation from the formation face. This well demonstrates that regular production, dictated by individual well characteristics, during low-demand periods and water removal from the well-bore prevent irreversible damage and protect the full productive potential, thereby preventing underground waste of reserves, in this portion of the Basin Dakota Pool.

PRODUCTION TABLE

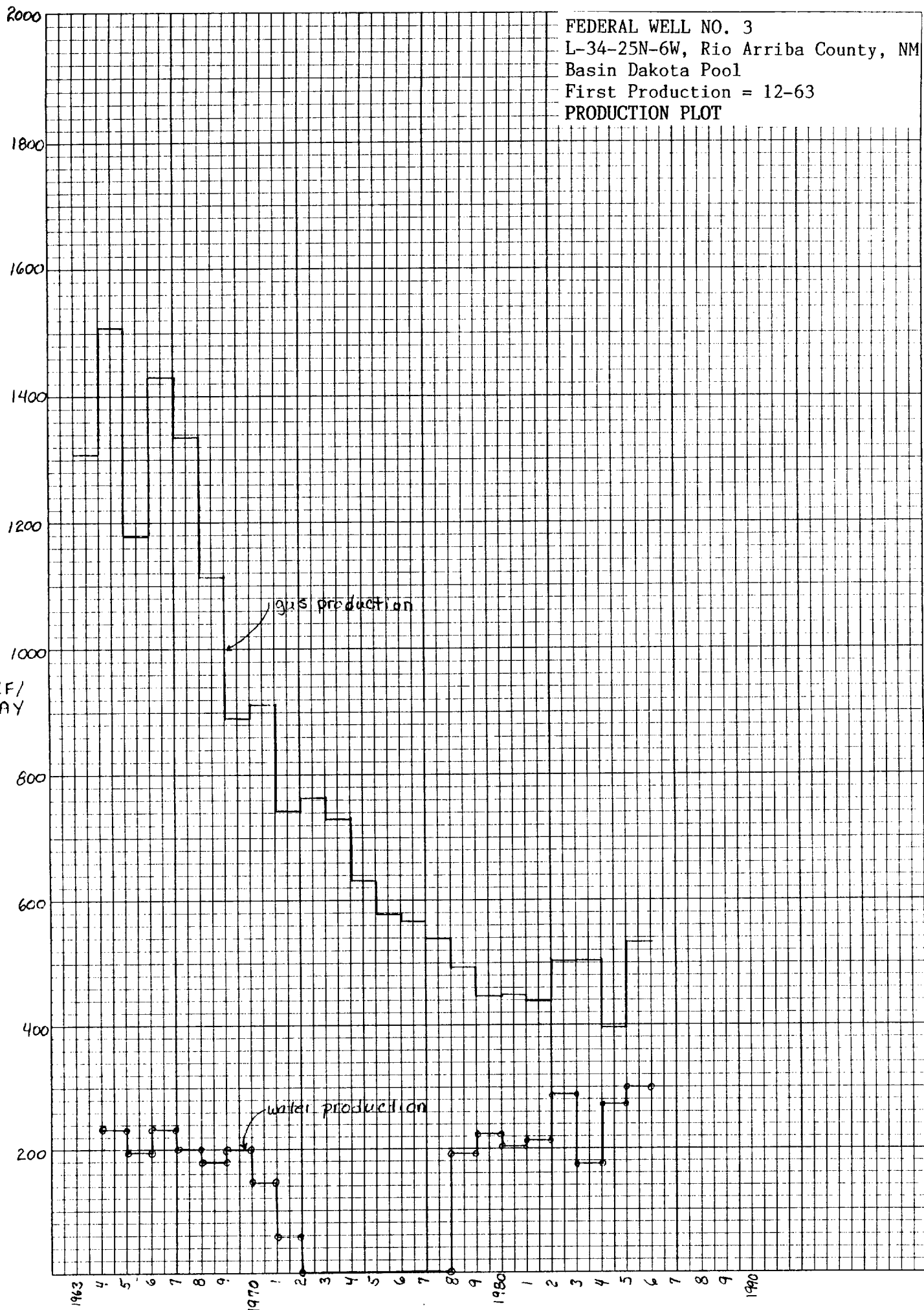
WELL NAME Federal Well No. 3 Operator Records Completion Date 10-26-63

WELL LOCATION L-34-25N-06W Initial Potential 6152 MCF/day

Perfs 6518-6662 Initial Pressure SICP=2317 psia

Initial GOR/Gravity grav=.674

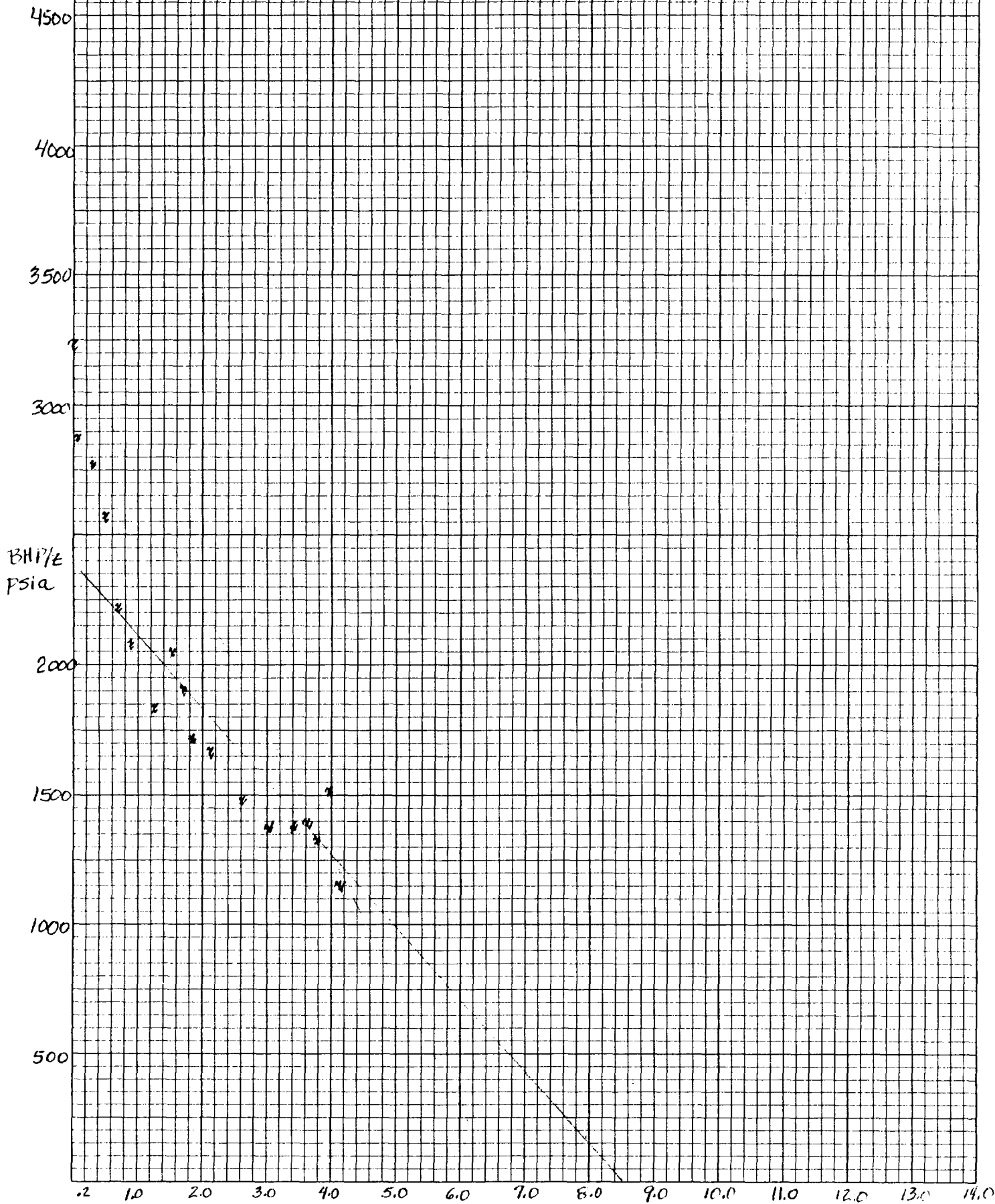
SICP psia	DATE	PRODUCTION DAYS / SHUT-IN	OIL/H ₂ O PRODUCTION BBLs	RATE /Day WATER	CUMULATIVE WATER BBLs	GAS PRODUCTION MCF	RATE /Day	CUMULATIVE MCF
2330	1963	22 0	550	25.00	550	28,798	1309.0	28,798
2132	1964	148 217	172	1.16	722	223,125	1507.6	251,923
2052	1965	155 210	152	0.98	874	182,813	1179.4	434,736
1912	1966	141 224	163	1.16	1037	201,857	1431.6	636,593
1652	1967	188 177	188	1.00	1225	251,331	1336.9	887,924
1552	1968	296 69	264	0.89	1489	329,869	1114.4	1,217,793
1367	1969	323 42	323	1.00	1812	287,092	888.8	1,504,885
1512	1970	152 213	109	0.72	1921	138,997	914.4	1,643,882
1407	1971	335 30	96	0.29	2017	248,843	742.8	1,892,725
1280	1972	313 52	0	0.00	2017	238,872	763.2	2,131,597
1262	1973	339 26	0	0.00	2017	246,621	727.5	2,378,218
	1974	366 0	0	0.00	2017	230,582	630.0	2,608,800
1092	1975	356 9	0	0.00	2017	206,278	579.4	2,815,078
	1976	340 25	0	0.00	2017	191,954	564.6	3,007,032
1012	1977	353 12	0	0.00	2017	190,858	540.7	3,197,890
	1978	368 0	356	0.97	2373	181,173	492.3	3,379,063
1020	1979	355 10	396	1.12	2769	157,768	444.4	3,536,831
2-5-81 1037	1980	360 5	368	1.02	3137	160,931	447.0	3,697,762
5-12-81 992	1981	295 70	315	1.07	3452	129,774	439.9	3,827,536
	1982	185 180	267	1.44	3719	96,413	521.2	3,923,949
7-12-83 1132	1983	145 220	127	0.88	3846	75,708	522.1	3,999,657
1526	1984	152 213	206	1.36	4052	60,147	395.7	4,059,804
852	1985	117 126	176	1.50	4228	62,361	533.0	4,122,165
	thru August							



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10 X 10 PER INCH

FEDERAL WELL NO. 3
L-34-25N-6W, Rio Arriba County, NM
Basin Dakota Pool
BHP/Z vs CUMULATIVE PRODUCTION



FEDERAL WELL NO. 3
 L-34-25N-6W, Rio Arriba County, NM
 Basin Dakota Pool
 First Production = 12-63
 DECLINE CURVE

DIETZGEN CORPORATION
 MADE IN U.S.A.

NO. 340-L310 DIETZGEN GRAPH PAPER
 SEMI-LOGARITHMIC
 3 CYCLES X 10 DIVISIONS PER INCH

MCF/
 DAY

$$q_o = 1700 \text{ Mcf/d}$$

$$q_{abd} = 15 \text{ Mcf/d (assumed)}$$

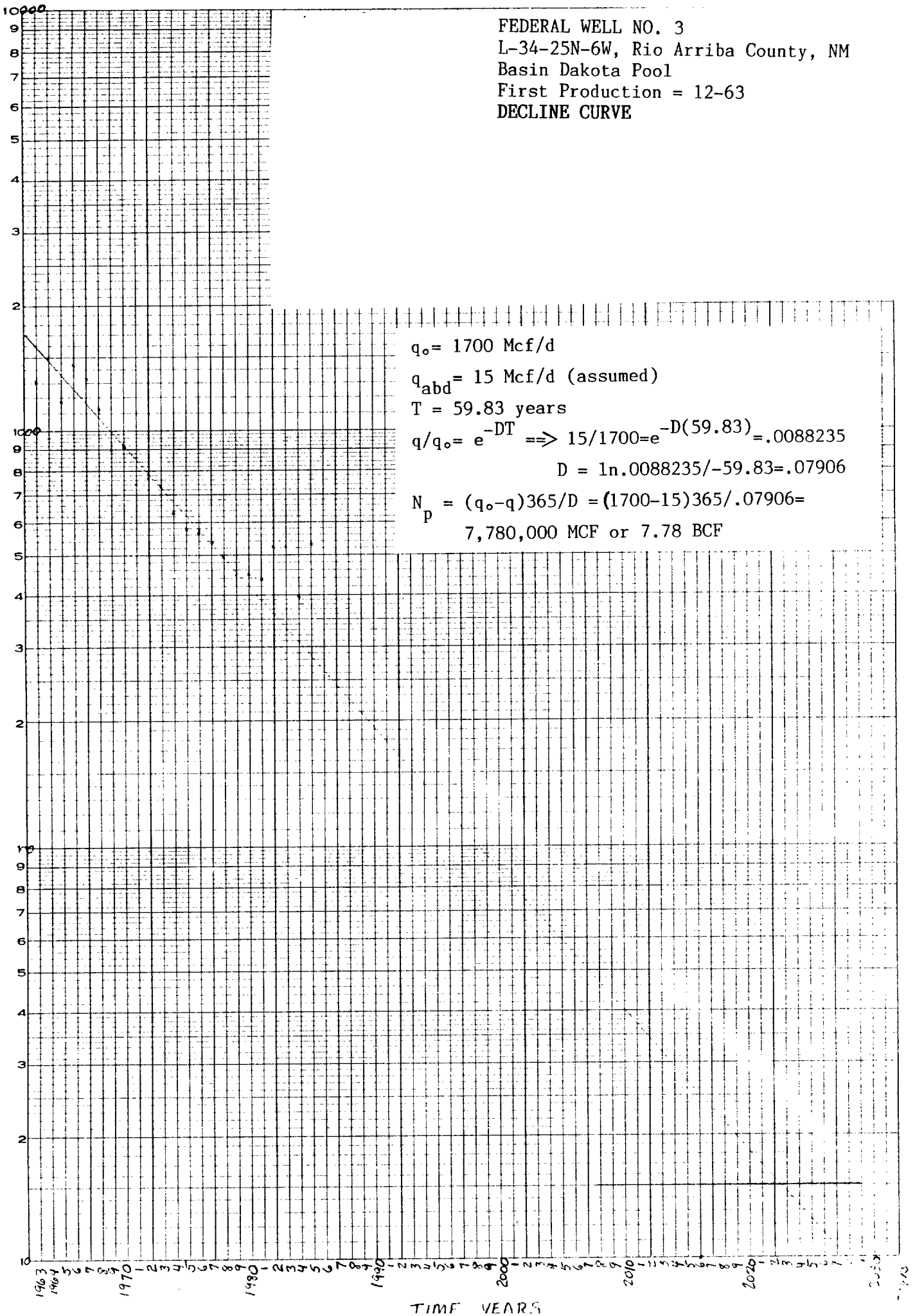
$$T = 59.83 \text{ years}$$

$$q/q_o = e^{-DT} \Rightarrow 15/1700 = e^{-D(59.83)} = .0088235$$

$$D = \ln .0088235 / -59.83 = .07906$$

$$N_p = (q_o - q)365/D = (1700 - 15)365 / .07906 =$$

$$7,780,000 \text{ MCF or } 7.78 \text{ BCF}$$



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*

(See other In-
structions on
reverse side)Form approved,
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL:		OIL WELL ☐	GAS WELL ☒	DRY ☐	Other _____		
b. TYPE OF COMPLETION:		NEW WELL ☐	WORK OVER ☐	DEEP-EN ☐	PLUG BACK ☐	DIFF. RESVR. ☐	Other _____
2. NAME OF OPERATOR J. Gregory Merrion & Associates						5. LEASE DESIGNATION AND SERIAL NO. SF 080136	
3. ADDRESS OF OPERATOR P. O. Box 507, Farrington, N. H.						6. IF INDIAN, ALLOTTEE OR TRIBE NAME	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)* At surface 1850' FFL & 1190' FFL At top prod. interval reported below Same At total depth Same						7. UNIT AGREEMENT NAME	
14. PERMIT NO.						12. COUNTY OR PARISH Rio Arriba	
DATE ISSUED 10-2-63						13. STATE N. Mex.	
15. DATE SPUDDED 10-8-63		16. DATE I.D. REACHED		17. DATE COMPL. (Ready to prod.) 10-26-63		18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* 6383 OL 6397 KPM	
19. ELEV. CASINGHEAD 6383		20. TOTAL DEPTH, MD & TVD 6715 KB		21. PLUG, BACK I.D., MD & TVD 6685 KB		22. IF MULTIPLE COMPL., HOW MANY*	
23. INTERVALS DRILLED BY →		24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 6518 - 6662 Dakota		25. WAS DIRECTIONAL SURVEY MADE No		26. TYPE ELECTRIC AND OTHER LOGS RUN US-Induction and Gamma Ray Acoustic	
27. WAS WELL CORED No		28. CASING RECORD (Report all strings set in well)					
CASING SIZE		WEIGHT, LB./FT.		DEPTH SET (MD)		HOLE SIZE	
3-5/8		24		232		12-1/4	
4-1/2		9.5, 10.5 & 11.6		6712		7-7/8	
				Stage Collar at 2283			
CEMENTING RECORD		AMOUNT PULLED					
160 sack							
250 sack							
50 sack							
29. LINER RECORD				30. TUBING RECORD			
SIZE		TOP (MD)		BOTTOM (MD)		SACKS CEMENT*	
						SCREEN (MD)	
SIZE		DEPTH SET (MD)		PACKER SET (MD)			
2" FINE		6594		--			
31. PERFORATION RECORD (Interval, size and number)				32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.			
6518-23		14 holes		DEPTH INTERVAL (MD)		AMOUNT AND KIND OF MATERIAL USED	
6557-80		23 holes		6518-6662		40,000 gal water, 1% Ca Cl ₂	
6634-62		26 holes				5# Dowell J-111 per 1000 gal	
						60,000# 20-40 mesh sand	
						40 rubber ball sealers	
33.* PRODUCTION							
DATE FIRST PRODUCTION 10-25-63		PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) Flowing				WELL STATUS (Producing or shut-in) Shut-in	
DATE OF TEST 11-6-63		HOURS TESTED 3		CHOKE SIZE 3/4"		PROD'N. FOR TEST PERIOD →	
OIL—BBL.		GAS—MCF.		WATER—BBL.		GAS-OIL RATIO	
-		4765		-		-	
FLOW. TUBING PRESS. 383 psig		CASING PRESSURE 1242 psig		CALCULATED 24-HOUR RATE →		OIL GRAVITY-API (CORR.)	
-		-		6152		-	
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) Awaiting EPNG gas connection						TEST WITNESSED BY J. Gregory Merrion	
35. LIST OF ATTACHMENTS							
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records							
Original Signed		SIGNED		J. Gregory Merrion		TITLE	
Operator		DATE		11-14-63			

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments. **Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple-completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool. **Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:

SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF: CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	38. GEOLOGIC MARKERS		
				NAME	MEAS. DEPTH	TRUE VERT. DEPTH
Pictured Cliffs	2141	2255	Gas	Pictured Cliffs	2141	2141
Gallup	5458	5600	Gas BSP #1 5412-5564. Tool open 2 hours. Gas to surface in 4 minutes at 107 MCF/da, decreased to 102 MCF/da for rest of test. Recovered 225' SOCM. IFP 88, IFP 88, ISIP 1911, PSIP 1810	Chacra Cliffhouse Mancoos	2050 3693 4523	2950 3693 4583
Dakota	6512	6715	Gas BSP #2 6630-6715. Tool open 1 hour. Gas to surface in 2-1/2 minutes. 800 MCF/da, decreased to 620 MCF/da. Rec. 50' drilling mud. IFP 190, IFP 150, ISIP 2915, PSIP 2698	Gallup Greenhorn Graneros Dakota	5458 6309 6402 6512	5458 6309 6408 6512

FEDERAL WELL NO. 3-E

The Federal Well No. 3-E was completed on 6-9-80 in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ section 34,T25N,R.6W., BROWN dot on Plat II, with an initial potential of 2227 MCF/day. This well has experienced very erratic production with several 4 month total shut-in time periods. This appears to have affected this well adversely as compared to the Federal Well No. 3, possibly because this is a new well and more sensitive to extended shut-ins. Comparing this well to the Salazar well No. 4-E, which is also a new in-fill well, a 4-month or greater total shut-in period would be damaging, so the Salazar No. 4-E is on the verge of experiencing irreversible damage this month. A BHP/z vs. Cumulative Production analysis indicates that Gas-In-Place for this well is about 1.1 BCF (this may be low due to limited pressure information), with assumed 85% recovery yielding Recoverable Reserves of .935 BCF. To date the well has recovered .407 BCF. A decline plot (hampered by the erratic production) indicates that recovery will only be about .677 BCF. This means a loss of predicted recovery of .258 BCF or 27.6% of producible reserves. This would indicate that the well is not being produced for long enough periods, at sufficient volume, on a regular basis to remove the water adequately. Damage appears to be occurring and may prove to be irreversible.

PRODUCTION TABLE

WELL NAME Federal Well No. 3-E

Completion Date 6-9-80

WELL LOCATION I-34-25N-6W

Initial Potential 2227 MCF/day

Perfs 6509-6720

Initial Pressure SICP = 1600 psia

Initial GOR/Gravity .696

SICP psia	DATE	PRODUCTION DAYS / SHUT-IN		OIL/H ₂ O PRODUCTION BBLS		RATE /Day WATER	CUMULATIVE WATER BBLS	GAS PRODUCTION MCF	RATE /Day	CUMULATIVE MCF
1600	1980 8	15	16	50		3.33	50	8496	566.4	8496
	9	30	0	45		1.50	95	14012	467.1	22508
	10	31	0	47		1.52	142	13669	440.9	36177
12-5-80	11	30	0	49		1.63	191	13082	436.1	49259
1312	12	26	5	25		.96	216	10241	393.9	59500
	YTotal	132	31	473	216	1.64	216	59500	450.8	59500
	1981									
	1	29	2	15		.52	231	12300	424.1	71800
	2	28	0	12		.43	243	10870	388.2	82670
	3	31	0	10		.32	253	12048	388.6	94718
	4	30	0	11		.37	264	11148	371.6	105866
	5	6	25	0		0.00	264	2255	375.8	108121
	6	0	30	0		0.00	264	0	0.0	108121
	7	31	0	12		.39	276	13741	443.3	121862
	8	31	0	10		.32	286	11596	374.1	133458
	9	30	0	8		.27	294	10713	357.1	144171
	10	31	0	10		.32	304	10661	343.9	154832
	11	30	0	10		.33	314	10249	341.6	165081
	12	31	0	12		.39	326	10312	332.6	175393
	YTotal	308	57	568	110	.36	326	115893	376.3	175393
	1982									
	1	31	0	14		.45	340	10300	332.3	185693
	2	28	0	12		.43	352	9201	328.6	194894
	3	26	5	15		.58	367	9140	351.5	204034
	4	28	2	14		.50	381	8507	303.8	212541
5-13-82 812	5	21	10	16		.76	397	7125	339.3	219666

PRODUCTION TABLE

WELL NAME Federal Well No. 3-E continued

Completion Date _____

WELL LOCATION _____

Initial Potential _____

Perfs _____

Initial Pressure _____

Initial GOR/Gravity _____

SICP psia	DATE	PRODUCTION DAYS / SHUT-IN	OIL/H ₂ O PRODUCTION BBLs	RATE /Day WATER	CUMULATIVE WATER BBLs	GAS PRODUCTION MCF	RATE /Day	CUMULATIVE MCF
	6	25 5	15	0.60	412	8995	359.8	228661
	7	17 14	20	1.18	432	7037	413.9	235698
	8	10 21	9	.90	441	5592	559.2	241290
	9	0 30	0	0.00	441	0	0.0	241290
	10	0 31	0	0.00	441	0	0.0	241290
	11	6 24	5	.83	446	3604	600.7	244894
	12	31 0	14	.45	460	10420	336.1	255314
	YTotal	223 142	576 134	.60	460	79921	358.4	255314
	1983							
	1	31 0	15	.48	475	9723	313.6	265037
	2	28 0	12	.43	487	7961	284.3	272998
	3	10 21	7	.70	494	3021	302.1	276019
	4	13 17	7	.54	501	5784	444.9	281803
	5	0 31	0	0.00	501	0	0.0	281803
	6	0 30	0	0.00	501	0	0.0	281803
	7	0 31	0	0.00	501	0	0.0	281803
	8	0 31	0	0.00	501	0	0.0	281803
	9	14 16	10	.71	511	7718	551.3	289521
	10	8 23	9	1.12	520	3133	391.6	292654
	11	4 26	8	2.00	528	1187	296.8	293841
	12	31 0	16	.52	544	12241	394.9	306082
	YTotal	139 226	374 84	.61	544	50768	365.2	306082
	1984							
	1	23 8	7	.30	551	5777	251.2	311859
	2	0 29	0	0.00	551	0	0.0	311859
	3	0 31	0	0.00	551	0	0.0	311859

0-13-83
1132

continued

continued

Initial Potential _____

Initial Pressure _____

Initial GOR/Gravity_____

[illegible]

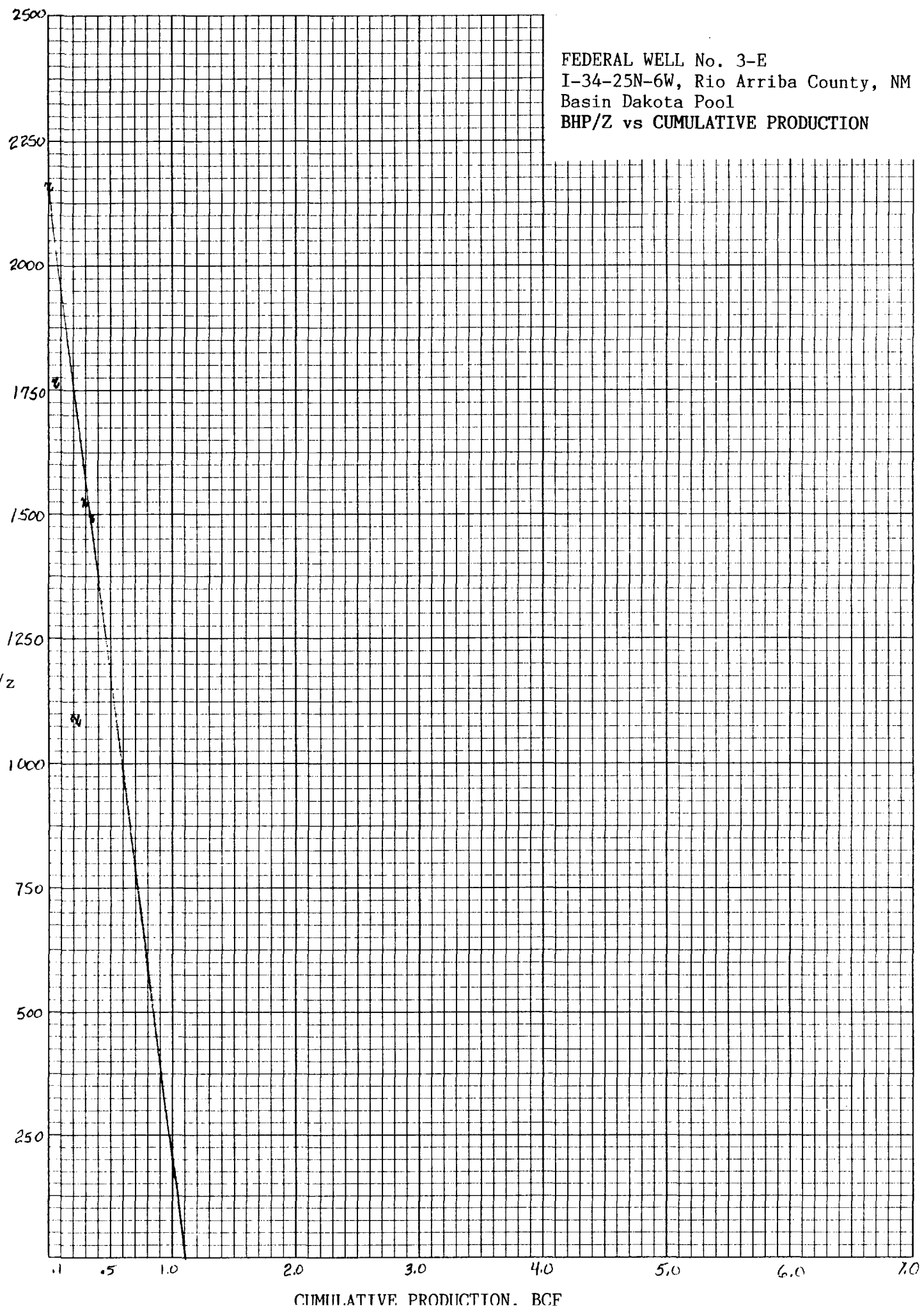
NO. 340-10 DIETZEN GRAPH PAPER
10 X 10 PER INCH
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MADE IN U.S.A.

FEDERAL WELL No. 3-E
I-34-25N-6W, Rio Arriba County, NM
Basin Dakota Pool
First Production = 8-80
PRODUCTION PLOT



DIETZGEN CORPORATION
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FEDERAL WELL No. 3-E
I-34-25N-6W, Rio Arriba County, NM
Basin Dakota Pool
BHP/Z vs CUMULATIVE PRODUCTION

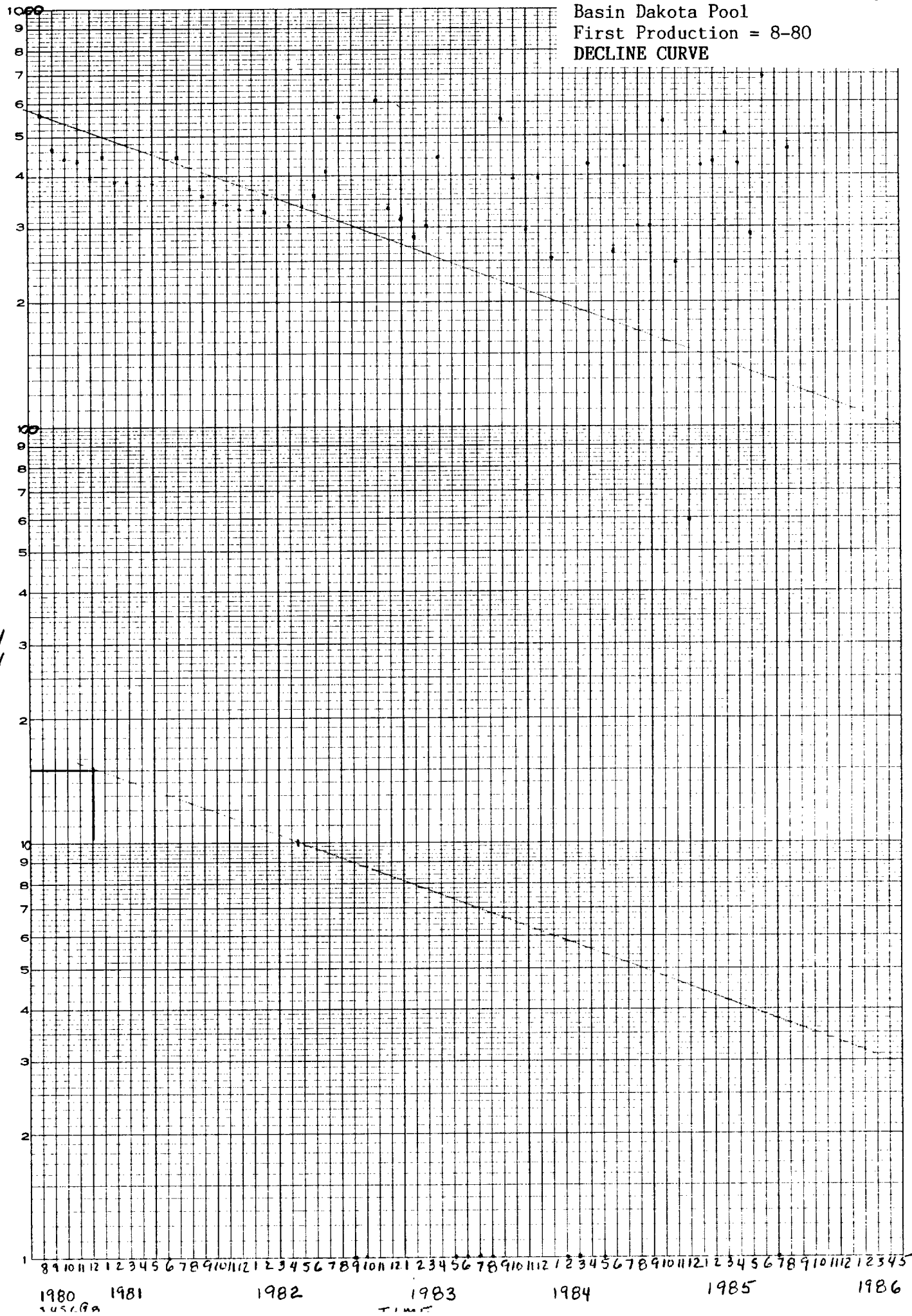


I-34-25N-6W, Rio Arriba County, NM
 Basin Dakota Pool
 First Production = 8-80
 DECLINE CURVE

DIETZGEN CORPORATION
 MADE IN U.S.A.

NO. 340-L310 DIETZGEN GRAPH PAPER
 SEMI-LOGARITHMIC
 3 CYCLES X 10 DIVISIONS PER INCH

mcf/
 DAY



$$q_o = 580 \text{ Mcf/d}$$

$$q_{abd} = 15 \text{ Mcf/d (assumed)}$$

$$T = 12 \text{ years}$$

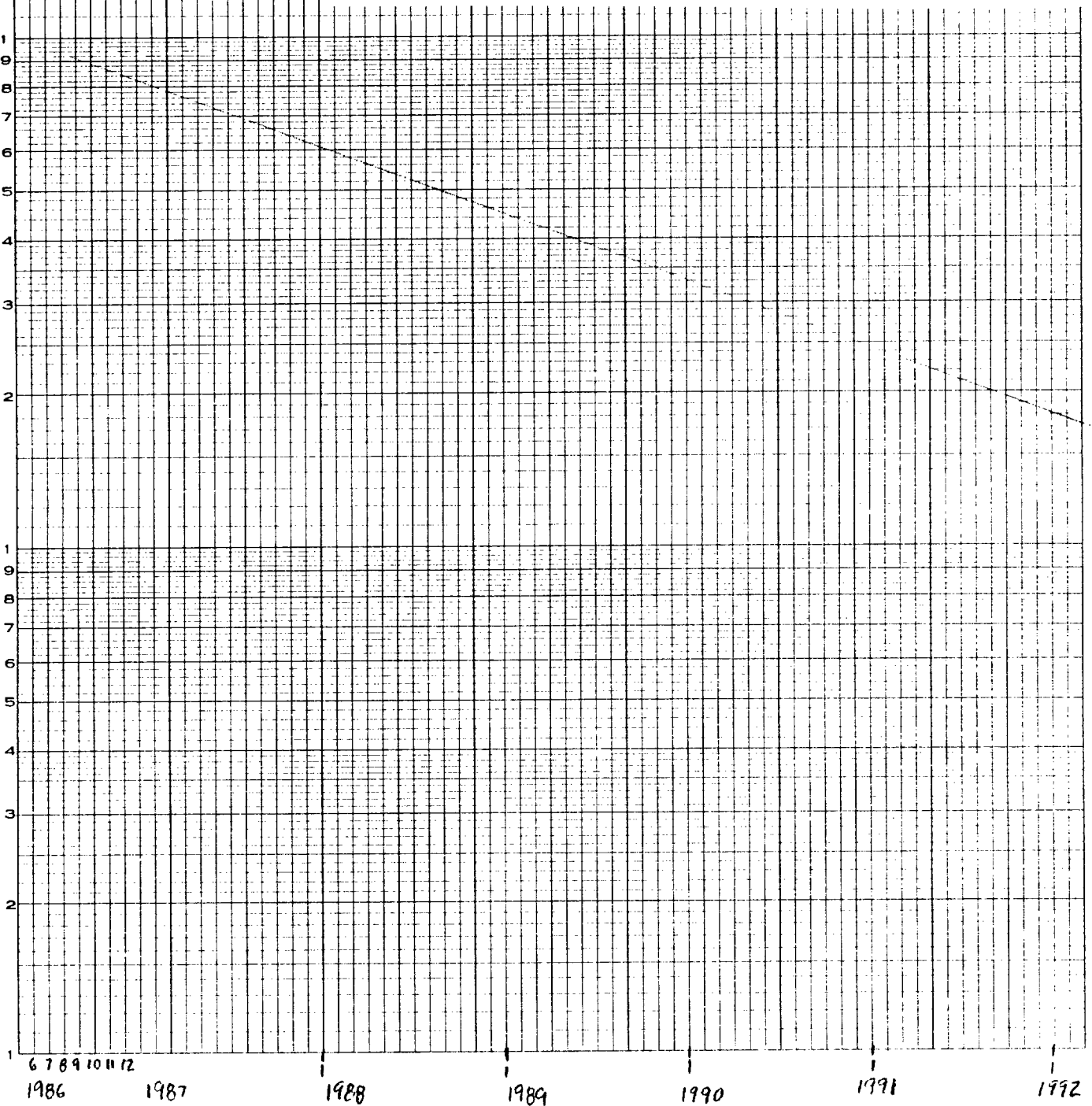
$$q/q_o = e^{-DT} \Rightarrow 15/580 = e^{-12D} = .02586$$

$$D = \ln .02586 / -12 = -3.6549 / -12 = .3046$$

$$N_p = (q_o - q)365/D = (580 - 15)365/.3046 = 677,076 \text{ MCF}$$

$$= .677 \text{ BCF}$$

MCF/
DAY



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OPERATOR	

Form C-105
Revised 11-1-88

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1st Deliv. Aug. 14, 1980

5a. Indicate Type of Lease	
State ☐	Fee ☒
5. State Oil & Gas Lease No.	

1a. TYPE OF WELL

OIL WELL ☐ GAS WELL ☒ DRY ☐ OTHER ☐

b. TYPE OF COMPLETION

NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER ☐

7. Unit Agreement Name
8. Farm or Lease Name
Federal
9. Well No.
3 E
10. Field and Pool, or Wildcat
Basin Dakota

2. Name of Operator

J. Gregory Merrion

3. Address of Operator

P. O. Box 507, Farmington, NM 87401

4. Location of Well

UNIT LETTER I LOCATED 1820 FEET FROM THE South LINE AND 1120 FEET FROM

THE East LINE OF SEC. 34 TWP. 25N RGE. 6W NMPM

12. County
Rio Arriba

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Casinghead
4-19-80	5-2-80	6-9-80	6373 GL, 6387 KB	6773
20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools
6750	6711	-	-	0.6750

24. Producing Interval(s), of this completion - Top, Bottom, Name	25. Was Directional Survey Made
6509-17, 6549-74, 6706-20, Dakota	No

26. Type Electric and Other Logs Run	27. Was Well Cored
Dual Induction SFL and Compensated Neutron Density	No

28. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8	23	266	12-1/4	225 sx "B" 2% CACL ₂	none
4-1/2	10.5	6750	7-7/8	1100 sx + additives	none

29. LINER RECORD				30. TUBING RECORD			
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2-3/8	6495	

31. Perforation Record (Interval, size and number)	32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
	DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
	6712-20, 16 holes, 0.43" squeezed	Squeeze w/ 35 sx class H 6% FLA
	6706-20, 28 holes, 0.43"	Frack 27600 gal + 74900# 20/40
	6509-17, 6549-74, 6706-20, 28 holes, 0.34"	Frack 45000 gal + 70000# 20/40 + 10000# 10/20

33. PRODUCTION							
Date First Production		Production Method (Flowing, gas lift, pumping - Size and type pump)				Well Status (Prod. or Shut-in)	
6-9-80		Flowing				Shut in	
Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
7-7-80	3	3/4		spray	2227	spray	
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API (Corr.)	
172	385			2227			

34. Disposition of Gas (Sold, used for fuel, vented, etc.)	Test Witnessed By
vented	J. Gregory Merrion

35. List of Attachments

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED J. Gregory Merrion TITLE Operator DATE 7-14-80

This form is to be filed with the appropriate District Office of the Commission not later than 30 days after the completion of any newly-drilled or deepened well. It shall be accompanied by a copy of all electrical and radio-activity logs run in the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico

Northwestern New Mexico

T. Anhy	T. Canyon	T. Ojo Alamo	1440	T. Penn. "B"
T. Salt	T. Strawn	T. Kin and Fruitland	1890	T. Penn. "C"
B. Salt	T. Atoka	T. Fieured Cliffs	2150	T. Penn. "D"
T. Yates	T. Miss	T. Ch House	3700	T. Leadville
T. 7 Rivers	T. Devonian	T. Mc Fee	3790	T. Madison
T. Queen	T. Silurian	T. Point Lookout	4370	T. Elbert
T. Grayburg	T. Montoya	T. Marcos	4594	T. McCracken
T. San Andrés	T. Simpson	T. Gallup	5478	T. Ignacio Qtzte
T. Glorieta	T. McKee	Base Greenhorn	6374	T. Granite
T. Paddock	T. Ellenburger	T. Dakota	6472	T.
T. Blinebry	T. Gr. Wash	T. Madison		T.
T. Tubb	T. Granite	T. To ilto		T.
T. Drinkard	T. Delaware Sand	T. Er ada		T.
T. Abo	T. Bone Springs	T. Wigate		T.
T. Wolfcamp	T.	T. Chale		T.
T. Penn.	T.	T. Pennian		T.
T. Cisco (Bough C)	T.	T. Penn. "A"		T.

OIL OR GAS SANDS OR ZONES

No. 1, from 2170 to 2285	No. 4, from 6514 to 6740
No. 2, from 4390 to 4480	No. 5, from to
No. 3, from 5495 to 5610	No. 6, from to

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole

No. 1, from to feet.	
No. 2, from to feet.	
No. 3, from to feet.	
No. 4, from to feet.	

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	6750	6750	Sand & shale				

FARMING E WELL NO. 3-E

This well is located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ section 2, T.24N., R.06W, YELLOW dot on Plat II. It was completed in 1981 and the completion data was unavailable. A flow test reported on 4-24-81 indicated a flowrate of 1720 MCF/day and SICP=1445 psia. This well produced 5 months in 1981 and 1 month in 1982 before the zone was abandoned, with Cumulative Production of 134,421 MCF; 1142 BO; and 20,000 BBLS of water. Obviously, this well was severely water damaged and had to be prematurely abandoned. Based on the single pressure test and the slope of the BHP/z plot of the Federal Well No. 3-E, the closest infill well drilled about the same time, one may conclude that the minimum Gas-in-Place for this well was hypothetically .95 BCF, with 85% recovery equal to .8075 BCF. This results in a loss of .673 BCF or 83.3% of its productive potential.

The attached plat and table of cumulative production for offset wells and wells on the same geologic trend show that it should have been a high potential well. The producing offsets had averaged recovery of 1.74 BCF at the close of 1983, with the lowest producer to the SE, the Farming E Well No. 1-E, which is located in a less favorable position of the pool. The two wells on trend to the NW producing at that time averaged 2.75 BCF and the Salazar Well No. 4-E drilled in 1984 as we have seen has a potential recovery of 4.0 BCF. All of these offset wells are still producing.

Therefore, this well certainly had an excellent potential for production. There is no other apparent reason for its poor performance except irreversible damage caused by water alteration of the reservoir face. This well also proves that water damage is possible and probable in this portion of the Basin Dakota pool if the water cannot be effectively removed from the well-bore, resulting in the premature abandonment of the damaged wells.

PRODUCTION TABLE

WELL NAME Farming E No. 3-E

Completion Date 1981

WELL LOCATION D-2-24N-6W

Initial Potential 4-24-81 q=1720 MCF/d

Perfs

Initial Pressure 4-24-81 SICP= 1445

Initial GOR/Gravity,

[illegible]

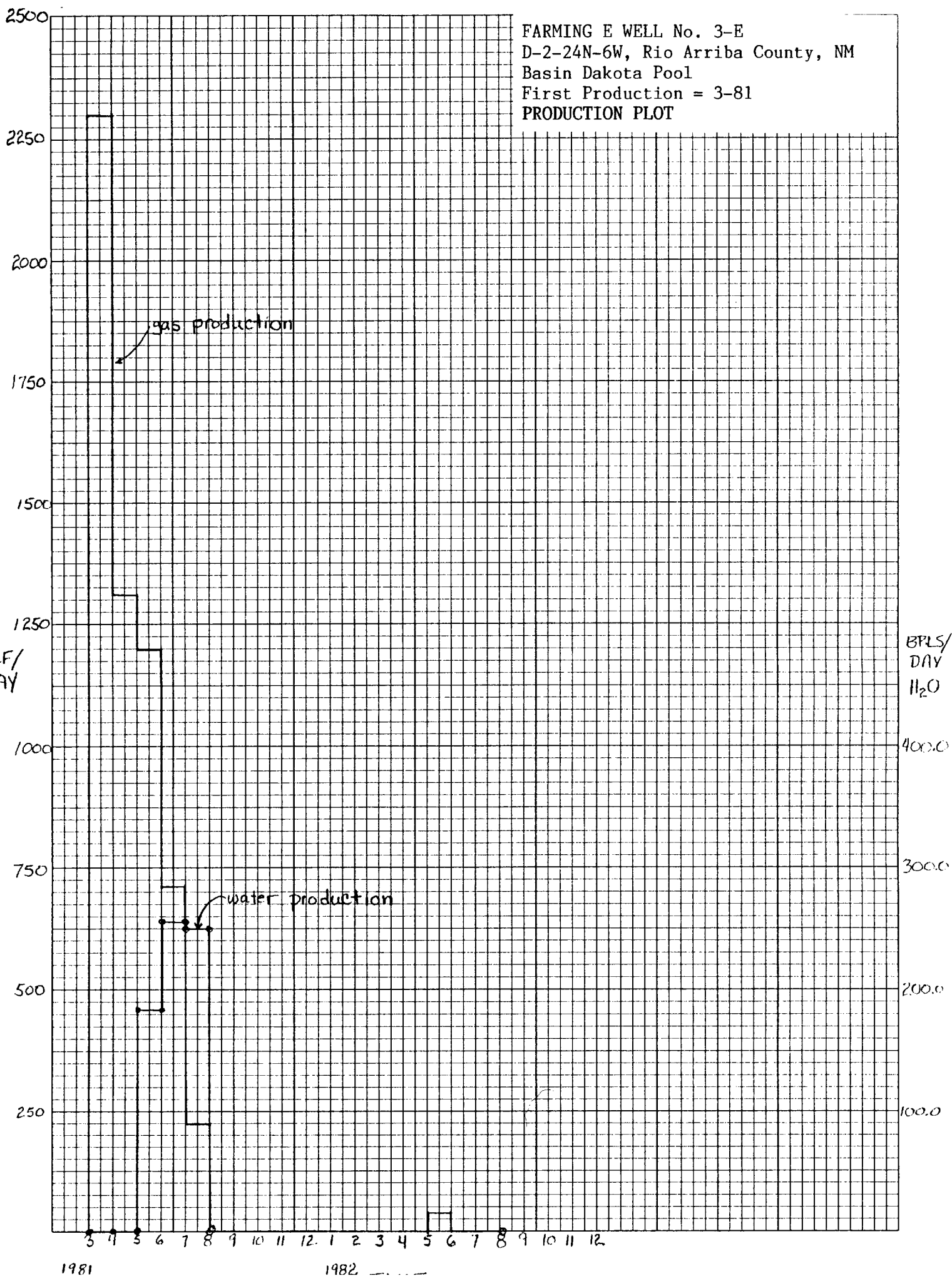
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10 X 10 PER INCH

MCF/
DAY

BPLS/
DAY
H₂O

FARMING E WELL No. 3-E
D-2-24N-6W, Rio Arriba County, NM
Basin Dakota Pool
First Production = 3-81
PRODUCTION PLOT



FARMING E WELL No. 3-E
D-2-24N-6W, Rio Arriba County, NM
Basin Dakota Pool
HYPOTHETICAL BHP/Z vs CUMULATIVE PRODUCTION

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10 X 10 PER INCH

2250
2000
1750
1500
1250
1000
750
500
250

Federal well No. 3-E

Single point
BHP/z Cumulative
1850 .032192 Bcf

.1 .5 1.0 2.0 3.0 4.0 5.0 6.0 7.0

CUMULATIVE PRODUCTION. BCF

DAKOTA. WELLS

Notes

Pool

1

TABLE 1
Cumulative 1983 Production
Direct Offset Wells to
Farming E Well No. 3-E

WELL NAME	LOCATION	CUMULATIVE MCF	CUMULATIVE BO	CUMULATIVE BBLS WATER	STATUS
Farming E 3-E	D-02-24N-6W	134,456	1,142	20,000	abd
Farming E 3	K-02-24N-6W	809,330	3,260	2,485	prod.
Farming E 1	A-02-24N-6W	2,990,222	54,218	14	prod.
Farming E 1-E	I-02-24N-6W	113,317	1,305	0	prod.
Canyon Largo 117	H-03-24N-6W	1,236,782	4,679	0	prod.
Federal 3-E	I-34-25N-6W	306,082	1,991	542	prod.
Federal A 3	M-35-25N-6W	4,366,938	43,402	1,688	prod.
Warren Federal 2	O-35-25N-6W	2,331,030	13,511	3,336	prod.

TABLE 2
Cumulative 1983 Production
Formation ON-TREND Wells SE to NW
Farming E Well No. 3-E

WELL NAME	LOCATION	CUMULATIVE MCF	CUMULATIVE BO	CUMULATIVE BBLS WATER	STATUS
Federal 3	L-34-25N-6W	4,000,516	54,894	1,818	prod.
Canyon Largo 135	H-33-25N-6W	1,506,589	27,095	0	prod.
Salazar 4-E	F-34-25N-6W	0	0	0	prod.
(1985 Cumulative 586,993)					