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Application for Amendment to
Division Order R-7365
JEROME P. MCHUGH - Mother Lode #1
Unit H, Sec. 3, T24N, R2W, NMPM
Rio Arriba County, New Mexico
Case No. 8310, Exhibit CI

6

7

18

Mesa Grande
 #1 WOCT
 BROWN TO 8317

A hand-drawn map showing the boundary of Gavilan Manco's Pool. The boundary is an irregular shape outlined in orange. Inside the shape, the text "GAVILAN MANCO'S Pool" is written in black, and "BOUNDARY" is written in orange at the bottom. A small black line extends from the bottom left of the boundary.

19

7905922  #2
Commingle
J.P. McHugh
TANET

#1580 e420
← commingled
J.P. McHUGH
ET

81 e 1442 → J.P. M. H. g. #1

Location → #2
8230' Dakota JP & Hugh
Full Seal

LOCATION → 
8190' DATA J.P. McHugh
High Adventure

1402573-2  #1
Commoning d
J. P. McHugh

5
5
K₂
2
T.P. HUGH

312 C/603  #1
J.F. McKing
Nov 15 8

10906634 MANNUS
 E3 @ 14,458 GH-DAK
 #1  #1 LOCATION
 7800' MAM
 MESA
 GRANDE
 GAVILAN-
 NWPL
 RUCKER
 LAKE
 NWPLD  #2

1960 2816
 #2
 Southland
 Royalty
 HAWK FED.
 #3 LOCATION
 7950' DAKOTA
 HAWK FED.
 Southland Royalty

- 9402430 - MAR. 93
DAKOTA SI

11201245
25

#3
NWPL
RUCKER
LAKE

#4
NWPL
TUCKER
LAKE

36
Location
7600' MIN
Dugan Pond.
→  Lindroth

294 e 591-2 II,
commingled
J. P. McHugh
Mother Lode

#1 127 e 752
Commingle
J.P. McHugh
Weightway

LOCATION
8100' DAKOTA
AMOCO
OSO CANYON FERT B

5 Locs from
#1 8100' Dakota
⊙ Amoco
OSO CANYON K.D.A.

MAP LEGEND

- - MANCUS completion
- - Greenhorn completion
- - Dakota completion

well STATUS AS of 9/1/84
- PRODUCTION - BOPD @ GOR
during T/84 if AVAILABLE -
if Not, then most current.

GRAVILAN MANCOS +
BASIN DAKOTA POOLS

Rio Arriba County
New Mexico.



dugan production corp.



July 12, 1984

Frank Chavez
New Mexico Oil Conservation Division
1000 Rio Brazos Rd.
Aztec, NM 87410

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RE: Proposed Revision of Allocation Factors
Jerome P. McHugh's Mother Lode #1
Gavilan Mancos-Dakota Fields
Unit H, Sec. 3, T-24N, R-2W, NMPM
Rio Arriba County, New Mexico

Dear Mr. Chavez:

We are writing to request your approval of revised allocation factors to be utilized in splitting production between the Mancos and Dakota formations in the captioned well.

Currently, as provided by Order R-7365, dated October 4, 1983, the Mancos formation receives 79% of the oil and 91% of the gas, while the Dakota formation is allocated 21% of the oil and 9% of the gas. It is proposed that the oil allocation factor be revised to reflect 97% of the commingled stream being allocated to the Mancos and 3% of the commingled oil stream allocated to the Dakota. The gas allocation factors should not be changed.

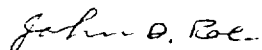
The proposed revised allocation factors are necessitated by the fact that production has improved since the initial testing, at which time a combined potential of 78 BOPD with an average GOR of 4615 was indicated (63 BOPD with a GOR of 5190 from the Mancos perforations 6765-7070' and 15 BOPD with a GOR of 2200 from Dakota perforations 7861-8108'). The early testing indicated that the well would flow intermittently and appeared to be a mediocre well. Upon installing artificial lift equipment in November of 1983, the commingled production averaged 317 BOPD during December 1983 and has consistently produced at rates exceeding that indicated by the initial potential, which was utilized in determining our original allocation factors. It is our belief that the increase in productivity actually exhibited by the well is the result of natural fractures in the Mancos cleaning up with production. During the drilling of the Mancos, we did encounter lost circulation and it was necessary to include lost circulation material in our mud system in order to maintain circulation. It is believed that this is indicative of natural fracturing within the Mancos. The Dakota interval was drilled with no lost circulation and it is believed that the initial potential is indicative of the productive capacity of the Dakota formation.

With respect to gas production, gas sales were commenced 3-22-84 and since that time the commingled stream GOR has averaged 469 SCF/STB, much less than anticipated from our initial testing. With the revised oil allocations and the reported gas production, the GOR during the past 2 months has averaged 437 SCF/STB from the Mancos and 1872 SCF/STB from the Dakota. These GOR's are in line with the GOR's indicated from testing and/or production in other wells in the field.

I have summarized the production submitted to date for the Mother Lode #1 on the attached tabulation and have also indicated the numbers as revised, utilizing the proposed revised allocation factors. It is my belief that it is necessary to make these revisions in order to avoid misrepresenting the true productive capacity of the Dakota in this general area. As can be seen from the tabulation, based upon our current allocations, the Dakota is indicated to have averaged up to 82 BOPD and actually averaged 39 BOPD per producing day during the last 7 months of production on rod pump. These high rates of production from the Dakota are unrealistic, considering the initial testing and the reservoir parameters that are indicated from the open hole logs and sample analysis. As can be seen from the revised production schedule, the actual Dakota production during the last 7 months averaged 5.8 BOPD with the increase in productivity being from the Mancos interval. It has been our contention ever since the date of first production that the Dakota reservoir in this general area is of secondary interest and that the primary zone of interest is the Mancos and we believe that the revised allocation factors proposed herein more properly reflect this fact than do our original factors based upon an initial potential totaling 78 BOPD.

Should you have questions regarding this matter or need additional information, please feel free to contact me.

Sincerely,



John D. Roe
Petroleum Engineer

fp
cc: Jerome P. McHugh

Attachment

$N_C = N_D - \text{change}$

[illegible]

Jerome P. M. Hugh
Mother Confident

MAN = 63 BOPD 26.5
DAR = 15 - 63
78 32.8

NC = No Change

7/2/84

C-115 H.S. Submitted					
month	oil production - bbl			MCF-GAS production	
	Dakota	MANCOS	TOTAL	Dakota	MANCOS
1/83	1138	4284	5422		
2/83	2064	7721	9785		
3/83	577	2151	2728		
4/83	512	1928	2440		
5/83	573	2154	2727		
6/83	514	1933	2447		
7/83	2553	9606	12159		
8 mo total	7926	29817	37743		
9 mo total	2170	7970			
10/83	2094	7873	9967		
11/83	1020	3839	4859		
12 mo total	11040	41529	52569		
2 mo total	2170	7970			

Notes: (A) - incorrect allocation factor utilized on C-115
(B) well was placed on pump 11-83 & as of that date only a minor amount of oil subbed during completion had been produced. - gas was 15 delivered to Nupre on 3/22/84

Revised, C-115 (As Proposed)

days on	bbl-oil production			MCF-GAS production		
	Dakota	MANCOS	TOTAL	Dakota	MANCOS	TOTAL
21	132	5290	NC			
31	184	9636	"			
31	183	2540	"			
29	165	2275	"			
31-011	177	2550	"			
30	165	2282	"			
8-045	164	11995	"			
31-011	1175	36548	11			
204	370	9770				
30	180	9817	NC			
31	149	4710	"			
265	1474	51095	NC 52569			
	370	9770				

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(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14)

Top of
Niobrara
@ 6446'

6600

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Welex Induction-Electric Log
6-30-83
Elev. = 7333' KDB

~~6700
Gallop
6704~~

Top of
'A' Zone

6800

6900

7000

7100

Base
of
Niobrara
@ 7514'

2" = 100'

← Lost 300 bbl mud @ 6916'

← Lost 200 bbl mud @ 6974'

← Lost 300 BM @ 7324'

GAMMA RAY

200

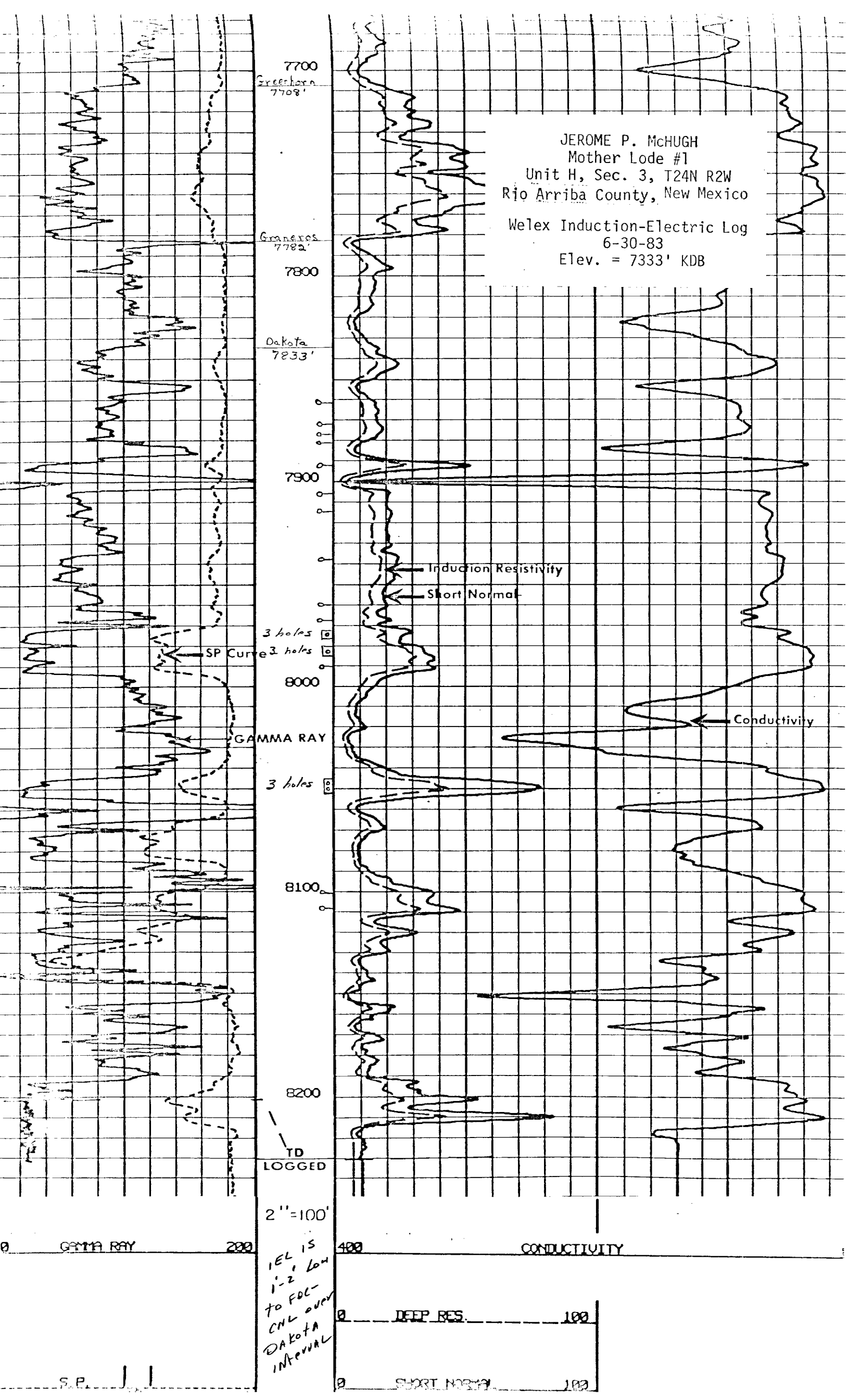
400

CONDUCTIVITY

IEL
depths
Ave 2-3
Low to
FDC-CNE
Gallop

DEEP RES.

100



MANCOS DAKOTA WELL DATA - Gavilan Area - Rio Arriba County, New Mexico

Well Name	Location U-S-T-R	Order Drld.	KB Elev.	Completion Date	Mancos Zone ^(A)		Dakota Zone		Cumm. to 8-1-84		Current Prod.	
					Perfs	BOPD @ GOR	Perfs	BOPD @ GOR	BO	MCF	BOPD @	GOR
Jerome P. McHugh												
Janet #1	A-27-25N-2W	2	7253	2-17-83	6689-7000	73 @ 2753	7740-7869	43 @ 1047	44,265	35,616	140 @	573
Janet #2	I 21-25N-2W	3	7197	9-1-83	6657-7055	60 @ 3000	7841-7994	36 @ 1111	20,328	12,244	79 @	592
E.T. #1	C 28-25N-2W	4	7170	9-19-83	6643-7025	96 @ 5219	7747-8033	18 @ 1833	19,864	8,052	80 @	420
Wright Way #1	C 2-24N-2W	6	7329	9-29-83	6760-7072	51 @ 6000	7865-8141	27 @ 2000	33,891	21,227	127 @	752
Mother Lode #1	H 3-24N-2W	7	7333	9-2-83	6765-7070	63 @ 5190	7861-8108	15 @ 2200	52,569	28,185	294 @	591
Native Son #2	N 27-25N-2W	10	7329	11-18-83	6802-7485	233 @ 1882	7886-7977	58 @ 3824 ^(E)	30,540	19,587	535 @	816
Full Sail #1	O 29-25N-2W	13	7119	6-15-84	6745-7409	216 @ 1444	^(E)		-0-	-0-	81 @	1442
Native Son #1	A 34-25N-2W	14	7320	6-7-84	6765-7443	198 @ 1636	^(E)		5,927	4,830	312 @	1603
High Adventure #1	A 33-25N-2W	--	7214	Location								
Full Sail #2	I 28-25N-2W	--	7263	Location								
Northwest Exploration												
Gavilan #1	A 26-25N-2W	1	7467	3-21-82	6821-7562	62 @ 8790 ^(B)	7879-8026	^(B)	41,084 ⁽¹⁾	234,498 ⁽¹⁾	94 @	2430
Gavilan #1 ^(C)	E 26-25N-2W	5	7319	7-23-83	6804-7366	32 @ 11700	7822-7918	10.2@3400	11,811 ⁽¹⁾	47,656 ⁽¹⁾	29 @	8519
Northwest Pipeline												
Rucker Lake #1	G 23-25N-2W	--	7309	Location								
Rucker Lake #2	K 24-25N-2W	9	7396	8-26-83	6825-7484	193 @ 1200	--	--	37,051 ⁽¹⁾	23,386	148 @	605
Rucker Lake #3	L 25-25N-2W	8	7408	8-10-83	6808-7538	145 @ 2089	--	--	30,171 ⁽¹⁾	34,899	112 @	1245
Rucker Lake #4	J 25-25N-2W	--	7448	Location								
Mesa Grande Resources												
Gavilan-Howard #1 ^(G)	F 23-25N-2W	11	7294	4-23-84	6659-7370	75 @ 36160	7665-7849	83 @ 29699 ^(C)	2,308	16,190 ^(K)	192 @	10,016 ^(K)
Brown #1	N 17-25N-2W	17	7196	Waiting on Completion - 7" casing @ 8300'								
Mallon Oil												
Ribeyowids Fed #1	P 2-25N-2W	--		Location								
Southland Royalty												
Hawk Federal #2	C 35-25N-2W	12	7331	3-25-84	6766-7448	215 @ 2447	7832-7914	Tst water	1,806	1,472	196 @	2816 ^(J)
Hawk Federal #3	K 35-25N-2W	--		Location								
E. Alex Phillips (also known as Mesa Grande)												
Gavilan #2	J 26-25N-2W	15	7416	Completing	6872-7127	Testing	7902-7998	Testing ^(H)				
Dugan Production Corp.												
Lindrieth #1	O 36-25N-2W	--	7432	Location								
Tapacitos #3	D 36-26N-2W	--	7818	Location								
Amoco Production Co.												
AmocoFed-Oso Cny#1	E 24-24N-2W	16	7457	Completing								
Oso Canyon Fed.B-1	F 11-24N-2W	--		Location								
Oso Canyon Fed.A-1	F 14-24N-2W	--		Location								

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Case No. 8310, Exhibit 5

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Rio Arriba County, New Mexico
Case No. 8310, Exhibit CS

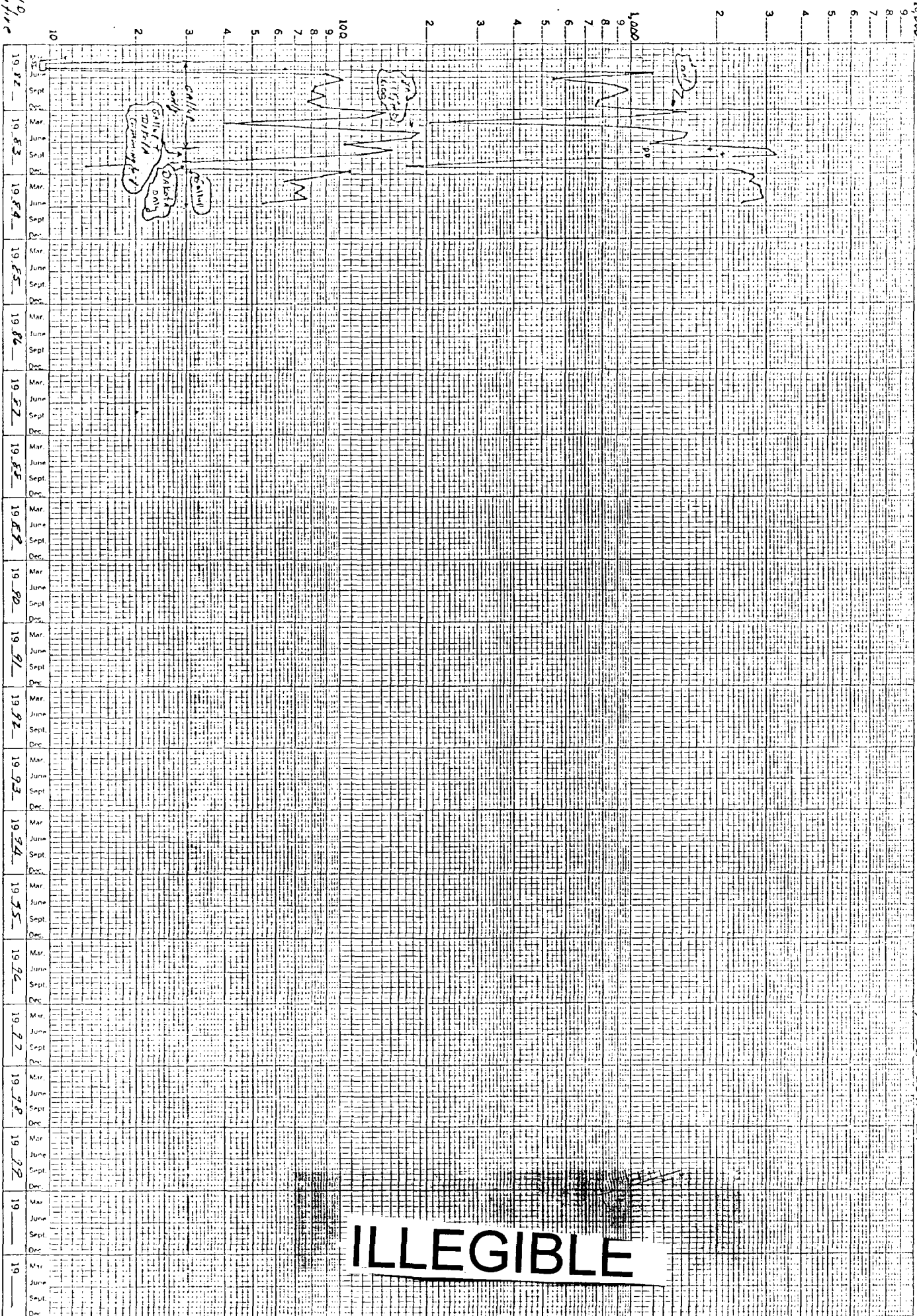
FOOTNOTES

- A Also referred to as "Gallup"
- B Commingled with Dakota
- C Cemented 7" casing @ 6070' & also completed Greenhorn 7653-7708' with IP of 9.8 BOPD with GOR = 2510
- D Surveyed Locations:
- | | | | |
|-------------------|-----------------------|----------------------|-----------------------|
| Janet #1 | 790' FNL - 790' FEL | Gavilan #1 | 930' FNL - 910' FEL |
| Janet #2 | 1850' FSL - 790' FEL | Gavilan #1E | 1850' FNL - 990' FWL |
| E.T. #1 | 1100' FNL - 1600' FWL | | |
| Wright Way #1 | 950' FNL - 1680' FWL | Rucker Lake #1 | 2270' FNL - 2275' FEL |
| Mother Lode #1 | 1730' FNL - 860' FEL | Rucker Lake #2 | 1420' FSL - 1520' FWL |
| Native Son #2 | 1020' FSL - 1670' FWL | Rucker Lake #3 | 1760' FSL - 940' FWL |
| Full Sail #1 | 980' FSL - 1730' FEL | Rucker Lake #4 | 2060' FSL - 1740' FEL |
| Native Son #1 | 790' FNL - 990' FEL | | |
| High Adventure #1 | 790' FNL - 790' FEL | Gavilan-Howard #1 | 1850' FNL - 1651' FWL |
| Full Sail #2 | 1650' FSL - 790' FEL | Brown #1 | 850' FSL - 1850' FWL |
| | | Ribeyowids Fed #1 | 860' FSL - 990' FEL |
| | | Hawk Federal #2 | 910' FNL - 1840' FWL |
| | | Hawk Federal #3 | 1835' FSL - 1690' FWL |
| | | Gavilan #2 | 1828' FSL - 1846' FEL |
| | | Lindrith #1 | 790' FSL - 1650' FEL |
| | | Tapacitos #3 | 990' FNL - 790' FWL |
| | | Amoco Fed-Oso Cny #1 | 990' FWL - 1650' FNL |
| | | Oso Canyon Fed B-1 | 1660' FNL - 1840' FWL |
| | | Oso Canyon Fed A-1 | 1660' FNL - 1790' FWL |
- E Completion postponed. Dakota penetrated and development similar to other completions.
- F Perfs temporarily abandoned with NMOCD not authorizing downhole commingling with Mancos.
- G Commingled Carlile/Greenhorn and Dakota. Greenhorn and Carlile completed 7531-7647 and tested 102.5 BOPD with GOR of 22,829 while Dakota tested 20-30 BOPD with GOR of Approx. 37,280 during completion.
- H Also completed Greenhorn 7740 - 7805' - no tests reported.
- I To 7-1-84 - 7/84 data not on file with NMOCD as of 9/1/84.
- J C-116 test
- K Total of Mancos, Greenhorn, Carlile & Dakota.

GAS PRODUCTION - 100 MCF/MONTH
OIL PRODUCTION - bbl/MONTH.

YEAR END
Cumulative
Oil, bbl

7/58 24,199 01084
1-4-53 17650



Total well stream platted

Northwest Exploration
Goulian Mines (Bain Dakota)
P-26-25N-2W

Northwest Exploration - GAVILAN No.1

A-26°25'N-2°W

(DATA 7/83 thru 11/83 from NMCD CASE #8042 File - Exhibit #6.)

	7/83	8/83	9/83	10/83	11/83	12/83	1/84	2/84
1	60-584	108-229	102-0	shut in	8-97	5-366	5Z	
2	63-586	98-0	?-?	shut in	5-97	87-244	5Z	
3	49-559	68-0	111-0	100-224	5-97	88-501	5Z	
4	50-533	83-226	95-0	125-0	7-92	78-501	5Z	
5	47-546	101-0	132-261	shut in	5-97	102-482	113-189	
6	47-520	107-226	118-231	108-225	9-85	68-366	118-204	
7	43-616	86-0	81-0	-shut in	4-88	82-472	103-385	
8	40-565	97-0	115-0	MANCOS + PROD	7-88	77-449	110-385	
9	25-0	48-0	109-229	DAKOTA	5-88	73-502	111-390	
10	.	107-227	118-241	③19-0	8-83	63-502	101-372	
11		92-0	105-217	③11-0	3-97	82-477	83-303	
12		95-227	110-0	③12-0	6-90	69-413	128-376	
13		99-227	102-0	③11-170	7-90	83-459	105-376	
14		77-0	82-0	③13-0	6-82	83-482	112-376	
15		83-0	98-0	③10-0	4-82	77-471	25-157	
16		13-226	126-229	5-0	4-88	83-475	120-363	
17	123-768	127-0	105-227	5-0	5-84	77-371	115-354	
18		108-228	110-0	5-0	8-85	68-439	107-354	
19		105-0	122-0	10-0	5-86	100-474	122-315	
20		98-0	96-230	8-0	8-88	84-424	82-514	
21		100-227	94-228	5-0	4-86	8Z-	139-295	
22	174-666	97-0	97-0	5-0	4-97	67-450	100-303	
23	104-690	113-0	122-0	8-0	7-87	68-502	103-303	
24	82-602	54-461	119-239	5-0	5-86	95-427	123-242	
25	83-602	105-0	105-0	12-0	7-90	113-394	118-260	
26	68-609	109-0	108-234	5-0	5-97	70-390		
27		100-0	103-0	NR	5-97	88-401		
28	89-703	100-230	126-228	5-0	7-94	120-572		
29	112-232	91-0	103-0	8-0	7-88	95-385		
30	95-0	107-0	128-0	7-0	9-81	98-370		
31	98-0	87-229		NR		98-332		
32								

MANCOS ONLY -(1st production in 3/82 thru 7/27/83)

1982- 161 day Avg=44 BOPD+ 382 MCFD (GOR=8677)	4/83- 28 day Avg=67 BOPD+534 MCFD (GOR=7970)
1/83- 27 day Avg=63 BOPD+ 576 MCFD (GOR=9143)	5/83- 31 day Avg=51 BOPD+605 MCFD (GOR=11863)
2/83- 22 day Avg=49 BOPD+ 630 MCFD (GOR=12857)	6/83- 30 day Avg=51 BOPD+597 MCFD (GOR=11706)
3/83- 31 day Avg=41 BOPD+ 812 MCFD (GOR=19805)	7/1-27/83 15day Avg=71BOPD+563MCFD(GOR=7930)

MANCOS & DAKOTA COMMINGLED (7/28 thru 10/9/83)

7/28 thru 8/31/83 - 35 day Avg= 98 BOPD + 488 MCFD (GOR=4980) (gas volumes from C-115)
9/83 - 29 day Avg= 108 BOPD + 385 MCFD (GOR=3565) (gas volumes from C-115)
10/1 thru 9/83 - 3 day Avg = 111 BOPD + 225 MCFD (GOR=2027)

DAKOTA ONLY 10/10 thru 11/30/83

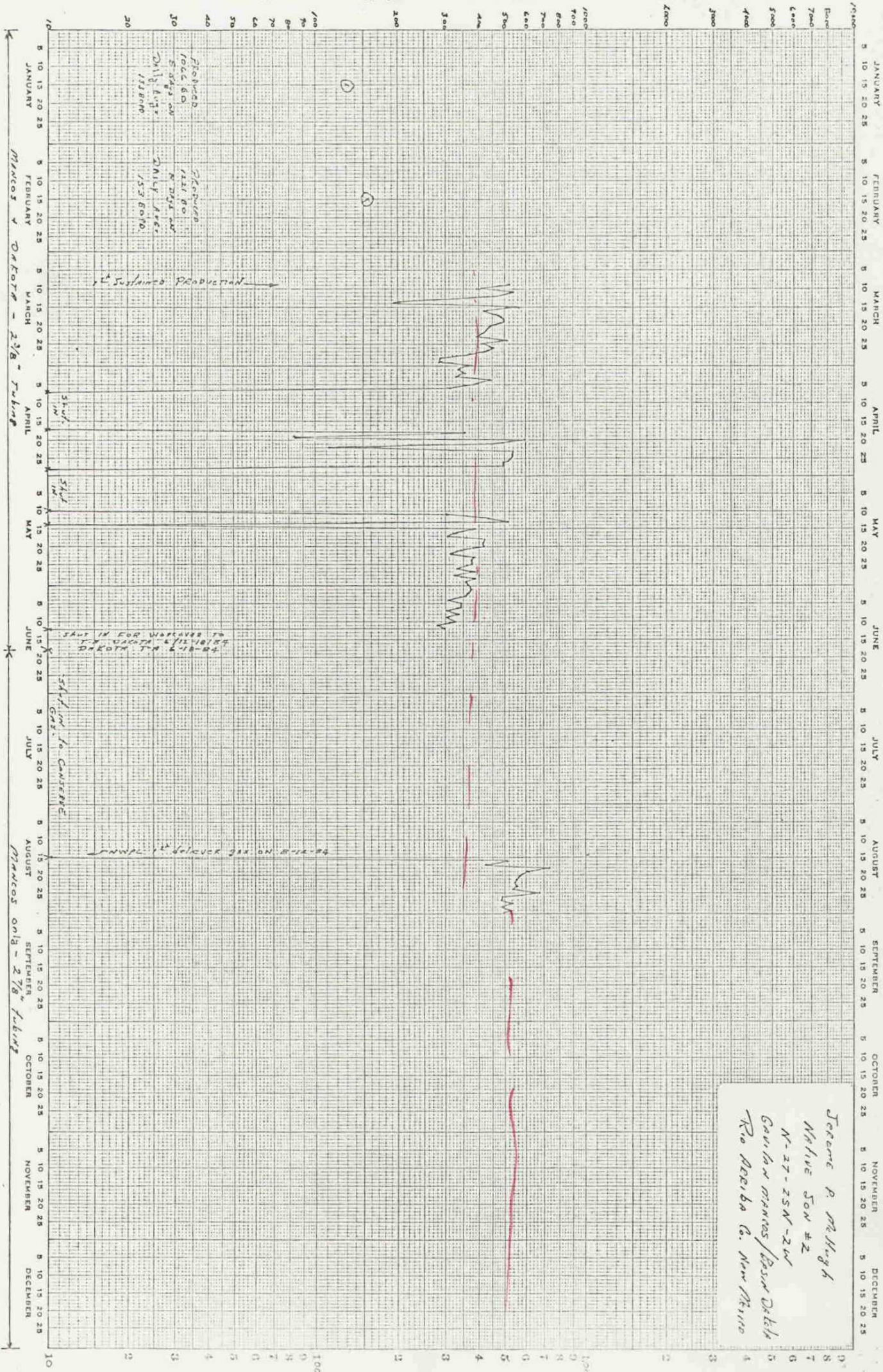
10/10 thru 31/83 - 20 day Avg = 13 BOPD + 131 MCFD (GOR=10,077) (gas volumes from C-115)
11/83 - 30 day Avg = 6 BOPD + 88 MCFD (GOR=14,728) (C-115 gas volumes=44 MCFD, GOR from C-115 = 7772)

MANCOS ONLY 12/1/83 thru current

12/83- 30 day Avg= 80 BOPD+366 MCFD (GOR=4429)	4/84- 28 day Avg=103 BOPD+250 MCFD (GOR=2428)
1/84- 27 day Avg=100 BOPD+320 MCFD (GOR=3192)	5/84- 31 day Avg= 97 BOPD+246 MCFD (GOR=2552)
2/84- 22 day Avg=119 BOPD+293 MCFD (GOR=2469)	6/84- 30 day Avg= 82 BOPD+182 MCFD (GOR=2223)
3/84- 31 day Avg= 92 BOPD+243 MCFD (GOR=2642)	



Jerome P. McHugh
Native Son #2
N-27-25N-2W
Gannon mines/Gannon District
Rio Arriba Co. New Mexico



47 6840

ILLEGIBLE

Traverse P. Milling
Native Son of the
Cavillon mountains / Basin of Kala
N-27-25N-24W