

W. B. MARTIN & ASSOCIATES, INC.

709 North Butler, Farmington, New Mexcio 87401 Phone: (505) 326-4507

UIL CONSERVATION DIVISION
SANTA FE

Oil Conservation Commission State Petroleum Engineer Director Oil Conservation Division P. O. Box 2088 Santa Fe, N.M. 87501

ATTN: Richard Staments

Accompanying this note is the required State Oil and Gas Conservation information for Letter of Intent to Comingle Gallup and Dakota formations for Well #57 Martin-Whittaker and #58 Martin-Whittaker. The following information is in compliance with Rule 303 Section C-2 page E-3 in Oil and Gas Conservation Division for State of New Mexico.

- a.) W.B. Martin & Associates, Inc. 709 N. Butler Farmington, N.M. 87401
- b.) #57 Martin-Whittaker 970' FNL and 1850' FWL NW½ Sec 5 T23N R5W Rio Arriba County, N.M.

Gallup-Semilla-Greenhorn-Dakota

- c.) See attached Lease-Ownership Plat
- d & e.) See attached Completion Report. Reference P. 3 & 4

Dakota C & D 6482-87 6505-10 BHP=2000 psi IPS=12 BOPD and 10-30 MCFD Oil gravity=40° API @ 60° F

Dakota "A" 6371-78 BHP=2000 psi IPS=3 BOPD, 9 BWPD, 10 MCFD Oil gravity=40° API @ 60° F RW=.184-M

Greenhorn-Semilla 5992-98 6001-02 6057-74 6288-6302 BHP =1105 psi + slow build up but still increasing pressure. IPS=7 BOPD: 10 MCFD Oil gravity=42 $^{\circ}$ API @ 60 $^{\circ}$ F

Gallup 5376-5586 BHP=1175 psi IPS=8 BOPD and 30-50 MCFD Oil gravity=42.5 @ 60° F

Upper Gallup 5023-5171 BHP =1250 psi IPS=2 BOPD and 30 MCFD Oil gravity=42.5 @ 60° F

Total production from swabbing after acid breakdown approximately 32 BOPD and 120 MCFD.

IP from C-104 30 BOPD, 250 MCFD and 40 bbl load water/day. See attached C-104

f.) See above section (d & e)

g.) See above section (d & e) These wells lie within two other known Gallup-Dakota comingled pools South Lindrith Gallup-Dakota to the east and Counselors Gallup-Dakota to the west. All formation fluids are compatabile from after swab pre-frac emulsion tests.

h.) Usually initial potential swabbing is 20% greater with fluids than pumping. See section (d & e)

- i.) Due to the tortuosity (Interconnected permeability) of the Semilla, Greenhorn, and Dakota "A" and its lower porosity the productive life of these two intervals is long term but low volume, volume contribution factor of 10% 3 BOPD and 25 MCFD Total for all three intervals. Gallup interval will contribute 50% of the oil and 40% gas for total 15 BOPD and 100 MCFD gas, Dakota C & D factor of 10-12 BOPD 40% oil and 50% of gas of 125 MCFD.
- J.) Adjacent operators have been notified in writing of the proposed comingling. See attached.

#57 Martin-Whittaker Completion Report

Dakota C & D

- 1.) Spot 250 gallons of 10% Acetic w/10% Methanol and Surfactant and Ihibitor.
- 2.) Perforate Dakota C & D zone @ 6482-87 & 6505-10 total 48 .375 Dia Holes.
- 3.) Pakr @ 6207 breakdown zones w/850 gal 10% Acetic Acid w/10% Methanol Surfactant and Inhibitor. ISIP-1400 psi Frac Gredient = .65 psi/ft.

4.) After recovering Acid Water SIW for 2 hours 200 psi.

- 5.) Build then after 24 hours SITP-500 psi. Initial fluid level 800' Swabbed 16 gas cut bbls oil 40° API from Dakota with 500 psi on TBG and 100% oil in TBG gave a BHP approx. 2000 psi. After initial swab test fluid entry was 2 bbl/4 hour=12 BOPD and 10-30 MCFD
- 6.) Frac'd Dakota C & D with 63,000 gal of 25#/1000 Gel 2% KCL water with Surfactant and corrosion and Scale Inhibitor with 66,000# 20/40 sand. Avg injection rate 26 BPM and 2900 psi Avg ISIP-2750 psi 15 min-2360 psi

Dakota "A"

- 1.) Set R.B.P. above Dakota C & D P.T. to 3000 psi. Held.
- 2.) Perforated Dakota A from 6371-78 total 24 .375 Dia Holes.
- 3.) Pakr @ 6304' KB breakdown Dakota A with 500 gallons 10% Acetic Acid with 10% Methanol. ISIP-2400 psi 15 min-2400 psi Very tight zone.
- 4.) After recovering Acetic Water load SIW for 2 hours 70 psi SIW for 12 hours 575 psi SIW for 24 hours 700 psi. Blew down TBG in 2 min initial fluid level 3000' KB Pulled 12 bbls w/25% oil cut. Total oil swabbed 3 BOPD and 9 bbls formation water RW= 18 JM. BHP=2000 psi
- 5.) SIW for 4 hour 1 bbl fluid entry and 80 psi on TBG 25% oil cut. Gas would burn not ecomomic to frac would maintain a hydro-static head on zone.

Semilla-Greenhorn

- 1.) Set R.B.P above Dakota A.P.T to 3000 psi. Held
- 2.) Perforate Semilla-Greenhorn interval from 5992-98, 6001-6002, 6057-74, 6288-6302 total 87 .41 Hole.
- 3.) Pakr @ 5950' KB breakdown interval with 1550 gallon 10% Acetic Acid w/10% Methanol and Surfactant and Inhibitor dropping 74 ball sealer for diversion. Rate during job 2 BPM at 3600 psi Very tight. ISIP-2650 psi 15 min-2375 psi
- 4.) After recovering Acid Water SIW for 1 hour SITP-50 psi and fluid level @ 5600' KB. ½ bbl w/15% oil cut. SIW for 2 hours SITP-80 psi and ½ bbl w/15% oil cut. SIW for 24 hours SITP= 475 psi Fluid level @ 4100' KB 100% oil. Bled down TBG gas would flare oil gravity 42° API BHP-1105 psi SIW for 12 hours SITP-150 psi and fluid level @ 4500'KB zone not economic to frac too low porosity and permeability zone will sustain a column of 2% KCL with no fluid entry.

#57 Martin-Whittaker Completion Report (continued)

Gallup-Was to be treated due to Semilla-Dakota zones uneconomic together.

1.) Set R.B.P. above Semilla-Greenhor P.T. to 3000 psi. Held.

2.) Perforate Gallup 5376-5586 total 40 .375 Dia Holes.

- 3.) Pakr @ 5267' KB breakdown Gallup with 1500 gallons 10% Acetic Acid with 10% Methanol and Surfactant and Inhibitor.
- 4.) After recovery of Acid Water SIW for 1 hour SITP-100 psi. Bled down Natural Gas and pull 1 bbl 15% oil. SIW 1 hour SITP-150 psi and pulled 1½ bbls. 40% oil and Acid Water. SIW for 3 hours SITP-250 psi and 2 bbls 90% oil and Acid Water. SIW for 24 hrs SITP-450 psi and IFL @ 3000'. Bled down gas in 1 hour through ¼" choke still casing/10 psi flowing pressure approximately 30-50 MCFD and pulled 7 bbls oil. BHP=1175 psi API-42.5°
- 5.) Frac Gallup due to experience with Gallup.
 Pump 80,000 gallons of 2% slickwater with Surfactant and Scale
 and Corrosion Inhibitor and 100,000# 20/40 sand. Avg injection
 pressure 1500 psi @ 60 BPM

Upper Gallup

- 1.) Set R.B.P. above Gallup P.T. to 2000 psi. Held.
- 2.) Perforate Upper Gallup @ 5023-5171 with 40 .375 Dia Holes.
- 3.) Pakr @ 4908' KB acidize Upper Gallup with 850 gallon 10% Acetic Acid with 10% Methanol and Surfactant and Inhibitor. ISIP-1400 psi 15 min-1400 psi Low permeability and low porosity due to no decline in pressures.
- 4.) Slow Acid Water recovery SIW for 1 hour 250 psi and ½ bbl w/trace oil and Acid Water. SIW for 1 hour SITP-100 psi gas and ½ bbl w/trace oil. SIW for 24 hour SITP -800 psi IFL @ 3800'KB Pulled 4 bbls 20%-40% oil and Acid Water. BHP 1250 psi. Zone not economic to frac low permeability and porosity.

TAIGUTION . s.o.s. AND OFFICE MANSPONTER GAS

10/23/84

(Date)

OIL CONSERVATION DIVISION

SANTA FE, NEW MEXICO 8750

REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Operator (Title	1	If this is a request for allowell, this form must be accompanted taken on the well in acc	sust be filled out completely for allow		
m have been complied with a	rulations of the Oil Conservation				
	Tubing Pressure (Shust-is)	Cooling Pressure (Shub-12)	Choice Size		
	Length of Test	Bbis. Condensato/Ne/CF	Gravity of Condensate		
70	30	40	250		
i Prod. During Teet	Oil - Bbla.	Wester - Bblo.	Gas-MCF		
in of Teet 24 hrs	Tubing Processes 30#	Cooping Processes	Chaine Size		
First New Oil Run To Tanks 10/18/84	Date of Tees 10/19/84	Producing Method (Flow, pump, gme Flowing	lift, esc.,		
I DATA AND REQUEST FO	able for this de	psh or be for full 24 hours)	oil and must be equal to ar exceed top all		
	2 3/8" 4.7#/ft	5300'			
$\frac{8 \ 3/4}{6\frac{1}{4}}$	$7''$ 32#/ft $4\frac{1}{2}''$ 11.6#/ft	4419 6570'	529.5 ft ³ 283 ft ³		
121/4	9 5/8" 32#/ft	285	206.50 ft ³		
HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT		
5023-6510	T118 M. C. C. L. L.	CENEUTING DECOM	6570		
6587 '	Gallup-Dakota	5023 Gallup	5300' K.B. Depth Coming Show		
OTIONS (DF, RKB, RT, GR, etc.)	Name of Producing Formation	Top CL/Gas Pay	Tubing Depth		
• Spudded 9/3/84	Date Compl. Reedy to Prod. 10/18/84	Total Depth 6573	P.B.T.D. 6570		
Designate Type of Completion	x = (X) X Gas Well X	New Well Workover Deepen	Plug Back Same Resty. Diff. Ret		
18 production is commingled with MPLETION DATA	h that from any other lease or pool,				
· location of tanks.	C 5 23N 4W	no			
El Paso Natura	Unit Sec. Twp. Ros.	P. O. Box 1492, El Pa	when		
me of Authorized Transporter of Cas			proved copy of this form is to be sent)		
Giant Refining Co		P. O. Box 256, Farmington, NM 87499			
SIGNATION OF TRANSPORT	TER OF OIL AND NATURAL G	Andreas (Give address to which an	proved copy of this form is to be sent)		
Line of Section 5 Tow	metup 23N Range	R4W . NMPM. Rio A	Arriba Coun		
Unit Letter C : 9	70 Feet From The North	ne and 1850 Feet Fi	The West		
cotion					
SCRIPTION OF WELL AND Martin-Whitta	Well No. Pool Name, including	Formation Kind of L lup-Dakota Exten State, Fee			
hange of ownership give name beddress of previous owner	I FACE				
range in Ownership	Casinghead Gas Cond	one ate			
prompletion	OII X Dry C	icas			
reson(s) for filing /Check proper box) Change in Transporter of:	Other (Please explain)			
709 N. Butler	, Farmington, NM 87401				
W. B. Martin	& Associates				
PORATION OFFICE					

Fill out only Sections I. II. III, and VI for changes of owner well name or number, or transporten or other such change of condition

Separate Forms C-104 must be filled for each pool in multiple completed wells.

#58 Martin-Whittaker Summary Report

- a.) W.B. Martin& Associates, Inc. 709 N. Butler Farmington, N.M. 87401
- b.) #58 Martin-Whittaker 1830' FNL and 840' FWL NW¹/₄ Sec 9 T23N R5W Rio Arriba County, N.M.

Gallup-Semilla-Greenhorn-Dakota

- c.) See attached Lease-Ownership Plat
- d & e) See attached Completion Report. Reference P. 7 & 8

Dakota C & D 6434-67' KB BHP=2000 psig IPS=6 BOPD and 130 MCFD Oil gravity=40° API

Dakota "A"
6231-36
BHP=1400 psig
IPS=1.5 BOPD and 10 MCFD
Oil gravity=42° field test

Semilla-Greenhorn 6008-6254 BHP=1100 psig + low permeability IPS=6 BOPD and 15 MCFD Oil gravity=44° API

Gallup 5345-5554 BHP=1200 psig IPS=2 BOPD+ and 50 MCFD Oil gravity=42.5° API

Upper Gallup 4936-4976 BHP=1060 psi IPS=2 BOPD and 30 MCFD

Total Daily production from swabbing after acid breakdown approximately 17.5 BOPD 230 MCFD

IP from C-104 20 BOPD AND 220 MCFD and 40 bbl load water per day.

#58 Martin-Whittaker Completion Report

Dakota C & D

- 1.) Spot 150 gallons of 10% Acetic Acid and w/10% Methanol and Surfactant and Inhibitor.
- 2.) Perforate Dakota C & D @ 6434-40 and from 6459-67' KB total 60 .375 Dia Holes.
- 3.) Set pakr @ 6209 breakdown Dakota C & D zone w/1000 gallon 10% Acetic Acid with 10% Methanol & Surfactant and Inhibitor ISIP=1700 psi F.G.=.68 psi/ft
- 4.) After recovering Acid Water SIW for 1 hour. Pressure build=up to 600 psi. SIW for 24 hours SITP 1800 psi Blew down in 1.5 hrs. w/½" choke. IFL @ 500' KB. Swabbed back 8 bbls 75% oil & 25%water. BHP=2000 psi Approx. 6 BO 130 MCFD Oil gravity 40°.
- 5.) Frac'd Dakota C & D with 78,000 gal 20# x-link and 103,000# 20/40 sand at Avg injection rate of 32.5 BPM @ 2800 psi. ISIP=2800 psi 15 min=2200 psi

Dakota "A"

- 1.) Set R.B.P. above Dakota C & D P.T. to 3000 psi. Held.
- 2.) Perforate Dakota "A" zone @ 6321-36 with 48 .375 Dia Holes.
- 3.) Set pakr @ 6272' KB breakdown Dakota "A" with 500 gallons 10% Acetic Acid w/10% Methanol Surfactant and Inhibitor ISIP=1850 psi
- 4.) SIW for 1 hour SITP-80 psi IFL @ 6100' KB SIW for 24 hours SITP 450 psi IFL @ 4100' KB Pulled 10 bbls w/20% oil and 8 bbls formation water BHP=1400 psi, very low porosity and permeability zone possible production 1.5 BOPD and 10 MCFD Not economic to frac. Oil gravity field test 42°.

Semilla-Greenhorn

- 1.) Set R.B.P. above Dakota A and P.T. to 3000 psi. Held.
- 2.) Perforate Semilla-Greenhorn interval from 6008-16, 6021-24, 6235-54 total 48 .375 Dia Holes.
- 3.) Set pakr @ 5982' KB Breakdown with 600 gal 10% Acetic Acid with 10% Methanol Surf, Inhibitor.
- 4.) After recovering Acid Water SIW for 12 hours 200 psi IFL-1600' KB Pulled 32 bbls fluid 10% oil approximately 3 BOPD.
- 5.) Re-acidize Semilla-Greenhorn with 5000 gal 10% Acetic Acid with above additives. ISIP-3400 psi.
- 6.) After recovering Acid Water SIW for 24 hours. SITP-475 psi IFL @ 4200' KB Swabbed 6 BOPD and 10-20 MCFD Oil gravity 44° API. Not economic to frac. BHP=1100 psi Slow build-up Well will sustain a column of water without any fluid loss.

#58 Martin-Whittaker Summary Report (continued)

f.) See above section (d & e)

See above section (d & e) These wells lie within two other known g.) Gallup-Dakota comingled pools South Lindrith Gallup-Dakota to the east and Counselors Gallup-Dakota to the west. All formation fluids are compatabile from after swab pre-frac emulsion tests.

Usually initial potential swabbing is 20% greater with fluids

than pumping. See section (d & e)

- Due to the tortuosity (Interconnected permeability) of the Semilla, Greenhorn and Dakota "A" and its lower porosity the productive life of thise two intervals is long term but low volume, volume contribution factor of 15% 4 BOPD and 25 MCFD Total of all three intervals. Gallup interval will contribute 40% of the oil and 40% gas for total 6-7 BOPD and 100 MCFD gas, Dakota C & D factor of 7 BOPD 45% oil and 55% gas of 150 MCFD.
- Adjacent operators have been notified in writing of the proposed comingling. See attached.

Gallup

- 1.) Set R.B.P. above Semilla-Greenhorn P.T. to 3000 psi.
- 2.) Perforate Gallup interval 5345-5554 total 100 .375 Dia Holes.
- 3.) Set pakr @ 5280'KB breakdown with 1500 gallons 10% Acetic Acid with above additives
- 4.) After recovering Acid Water.
- 5.) SIW for 24 hours SITP-1000 psi blew down in $1\frac{1}{2}$ hours IFL @ 4800' KB Pulled 2 bbls oil BHP=1200 psi Oil gravity 42.5° 50 MCFD
- 6.) Frac Gallup with 72,634 gal 2% slk water and 86,000# 20/40 sand. ISIP-975 15 min-780 psi

Upper Gallup

1.) Set R.B.P. above Gallup P.T. to 2500 psi. Held.

. 7. 5.

- 2.) Perforate Upper Gallup 4936-4976' KB total 48 .41 Dia Holes.
- 3.) Pakr set @ 4879' KB breakdown Gallup with 500 gallons 10% Acetic Acid with above additives.
- 4.) After recovering Acid Water SIW for 24 hours SITP-500 psi Bled down $\frac{1}{4}$ " choke in 1 hour and IFL @ 3500' KB. Pulled 6 bbls 40% oil. BHP Upper Gallup=1060 psi. Production 2 BOPD and 30 MCFD.

grand the same from

Sincerly,

Andrew A. Bates

cc File #57 & #58 W.B. Martin, Ir.

Frank Chavez

Aztec Oil & Gas Conservation

Amoco Production Company

OIL CONSERVATION DIVISION

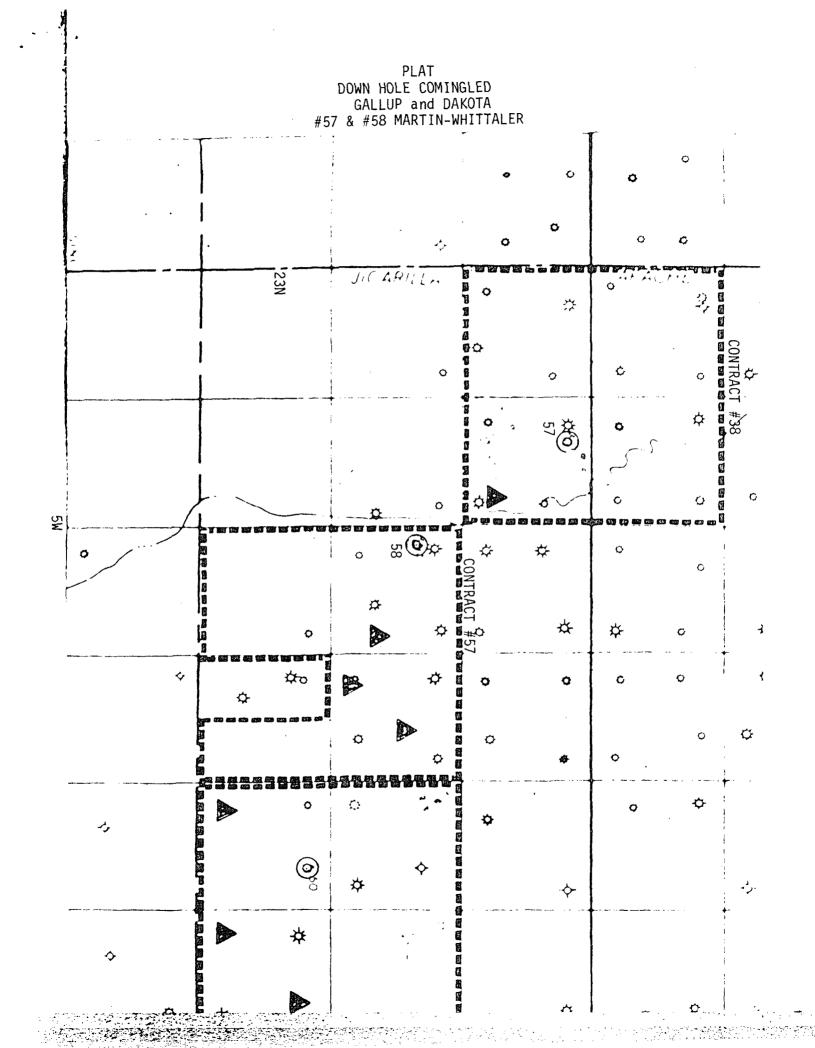
P. O. BOX 2088 SANTA FE, NEW MEXICO 875

REQUEST FOR ALLOWABLE AND

AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

peraior	Accoratos Inc				
W.B. Martin &	Associates, Inc		· · · · · · · · · · · · · · · · · · ·		
709 North But	tler, Farmington, NM 87401	Other (Pleas			
Well XX	Change in Transporter of:	Smay () in a	e erpidin,		
-completion	O11 X Dry	Gos S			
vmge in Ownership	Constingued Gas Cor	ndens ate			···
hange of ownership give need address of previous owner.					
SCRIPTION OF WELL A					~
Martin-Whittaker	58 S. Lindrith G	·	State, Federa	Endonal	77700 N
E	1830' Feet From The North	840'	Feet From	West	
Line of Section 9	Township 23N Range	5W . NMPN	Rio Ar	riba	Count
SIGNATION OF TRANSP	ORTER OF OIL AND NATURAL				
Giant Refinging Co	`	P.O. Box 256, Farmington, NM 87401			
El Paso Natural Gas		P.O. Box 1492,		ved copy of this form is to TX 79978	be sent)
ell produces oil or liquida,	Unit Soc. Twp. Ros. E 9 23N 5W	No-Waiting on		₹n	
18 production is commingled	with that from any other lease or poo	ol, give commingling orde	r number:		
esignate Type of Comple	etion - (X) Oll Well Gas Well	New Well Workover	Deepon	Plug Back Same Res	v. Dut. Ree
· Spudded	Date Compl. Ready to Prod.	Total Depth		P.B.T.D.	
8-22-84 Gricone (DF, RKB, RT, GR, etc.	10-18-84 Name of Producing Formation	6531'		6530'	
6614' GR	Gallup-Dakota	4936 Gallup		Tubing Depth 53201	
4936'-6467'				Depth Casing Shoo	
		ND CEMENTING RECOR	D	4	
HOLE SIZE	9 5/8" 32#/ft	251'	Z T	SACKS CEME	ENT
12½" 8 3/4"	7" 23#/ft	4431'		484ft3	
8 3/4" 6 ¹ 4"	4½" 11.60#/ft	6530'		304.5ft ³	
DATA AND REQUEST	FOR ALLOWARIE (Tour may be				
#ELL	able for this	after recovery of total value depth or be for full 24 hours)		eees top esto
First New Oil Run To Tonks	10/19/84	Flowing	, pump, god lif	i, esc.,	
10-18-84	Tubing Pressure	Cooing Processes		Chebo Sino	
Prod. During Tool	20 Ou-Bbia	800		2"	
60bbls	20	Wester - Bhis.		220	
FELL					
Prod. Test-MCF/D	Longth of Test	Bhis. Condensus / 104CF		Gravity of Condensatio	
g Mothed (puos, back pr.)	Tubing Procours (Shat-in)	Casing Pressure (Share-	is)	Choke Size	
FICATE OF COMPLIA	NCE	OIL CO	INSERVATI	ON DIVISION	
y certify that the culon an	d resolutions of the Oil Consession	APPROVED	_	, 1	9
y certify that the rules and regulations of the Oil Conservation a have been complied with and that the information given a true and complete to the best of my knowledge and belief.		ву			
		TITLE		· · · · · · · · · · · · · · · · · · ·	
	1	\ }		empliance with MULE	
N.B. Mant	/	If this is a request for allowable for a newly drilled or despendent well, this form must be accompanied by a tabulation of the deviation			
Operator	primed ∜ /	teets taken on the w	ell la accord	ence with QULE III.	
	Title)	All sections of table on new and rec		t be filled out comp lets ls.	ly for allow
	Date /			III, and VI for change nor other such change	

Separate Forms C-104 must be filed for each pool in multiply completed wells.





W. B. MARTIN & ASSOCIATES, INC.

709 North Butler, Farmington, New Mexcio 87401 Phone: (505) 326-4507

October 31, 1984

Amoco Production Co. Attention: Tim Clauson P. O. Box 800 Denver, Co. 80201

Re: #57 Martin-Whittaker

970' FNL & 1850' FNL $NW_{\frac{1}{4}}^{\frac{1}{4}}$ Sec 5 T23N R5W Rio Arriba County, N.M.

and

#58 Martin-Whittaker 1830' FNL & 840'FWL NW¹/₄ Sect 9 T23n R5W Rio Arriba Ccunty, NM

OIL CONSERVATION DIVISION

SANTA FE

Mr. Clauson,

The New Mexico Oil Commission has deemed the aforementioned wells to be Wildcat Gallup, Wildcat Dakota.

Under Rule 303 Section C-2 Page E-3 of the State Oil and Gas Conservation Commission Rules and Regulations, we are applying for down hole commingling of the Dakcta, Greenhorn and Gallup formations.

Pursuant to rule 303 we are informing adjacent operators of our application. If you have any questions or comments please feel free to contact me at any time.

Sincerely,

Enclosures-application



STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION AZTEC DISTRICT OFFICE

1000 RID BRAZOS ROAD AZTEC, NEW MEXICO 87410 (505) 334-6178

BOX 2088 SANTA FE, NEW MEXICO 87501	
DATE Thr. 19, 1984	PRODUCES NO.
RE: Proposed MC Proposed DHC Proposed NSL Proposed SWD Proposed WFX Proposed PMX	OIL CONSERVATION DIVISION SANTA FE
Gentlemen:	
I have examined the applicati	on dated W/5/84
for the N. B. Martin + Assoc Operator	
0perator	Lease and Well No. Unit, S-T-R
and my recommendations are as	follows:
	•
Note correct rool	names - W.C. Galley and W.C. Dahota
Note correct gool	names - W.C. Gally and W.C. Dalota
Note correct pool	names - W.C. Galley and W.C. Dalota
Note correct gool	names - W.C. Galley and W.C. Dalota
Note correct pool Yours truly,	names - W.C. Galley and W.C. Dalota