

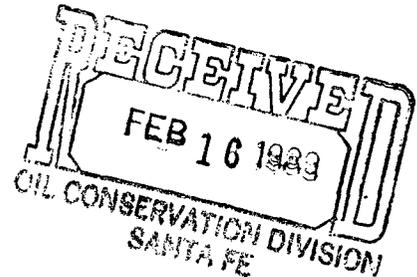
NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
3539 East 30th Street
Farmington, New Mexico 87401
4320-PD-027-89

February 8, 1989

New Mexico Oil Conservation Comm.
Attn: William LeMay
310 Old Santa Fe Trail
Santa Fe, New Mexico 87503

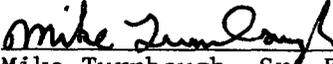
Re: Downhole Commingling Application
San Juan 30-5 Unit #102
SW/4 Sec. 4, T30N, R5W
Rio Arriba County, New Mexico



Northwest Pipeline Corporation, as Unit Operator of the San Juan 30-5 Unit, requests on behalf of Phillips Petroleum Co., that the Undesignated Gallup and Basin Dakota formation be downhole commingled in the above referenced well. Phillips Petroleum Co., is the sole owner of all the mineral rights deeper than the Mesa Verde formation in this well. A plat has been included with this application showing the operators of the offset (see Attachment 1 & 1A) leases. These offset operators along with the Bureau of Land Management have been notified by certified mail and copies of these letters are also included.

The San Juan 30-5 Unit #102 was determined to be incapable of producing unitized substances in paying quantities from the Dakota formation (see Attachment 2 & 2A). Commingling the low marginal production from the Dakota with the Gallup will result in the recovery of additional hydrocarbons and will not violate correlative rights (Wellbore Diagram - Attachment 6).

Both zones were individually Initial Potential tested and the results of these tests are reported on NMOCD Form C-122 and are included with this application (see Attachments 3 & 4). The SICP of the Dakota and Gallup zones were measured at 2063 psig and 1949 psig respectively. These pressures indicate that cross flow would not occur unless the well is shut in for an extended period. The production of the two zones could be allocated using the ratios of the rate of flow calculated during the I.P. test. Using this basis, 74% of the commingled gas production should be allocated to the Gallup formation and 26% of the gas should be allocated to the Dakota formation (see Attachment 5). During both tests the zones produced only a light to medium mist of water and no condensate. Since none of the Dakota wells in the area produce any oil, any liquid hydrocarbons that are produced should be allocated to the Gallup formation.


Mike Turnbaugh, Sr. Engineer

All distances must be from the outer boundaries of the Section.

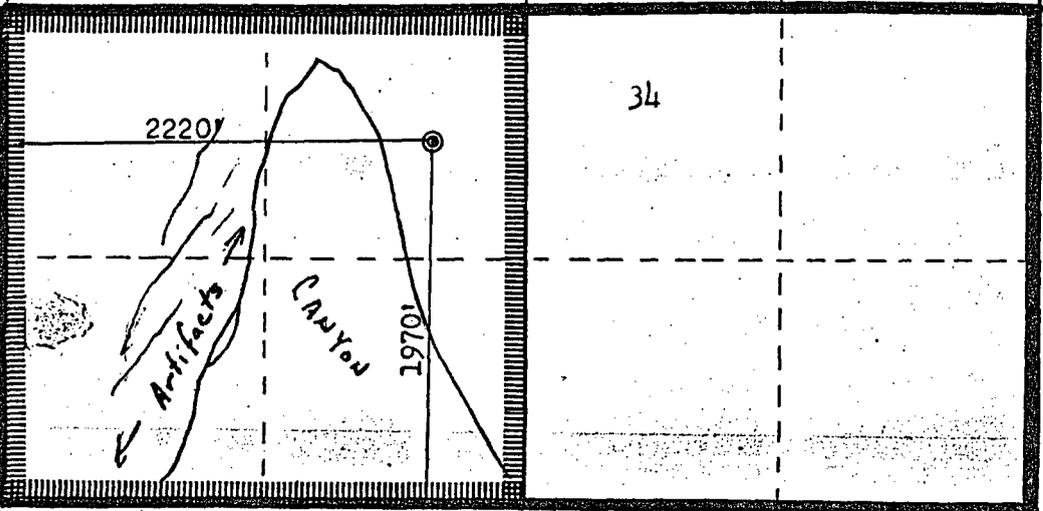
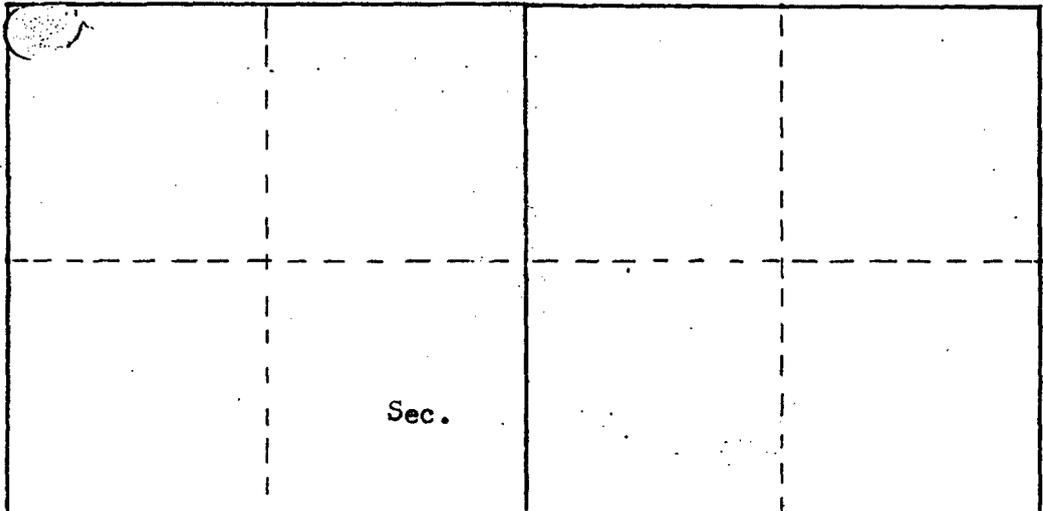
Operator: NORTHWEST PIPELINE CORPORATION			Lease: SAN JUAN 30-5 UNIT		Well No. 102
Unit Letter K	Section 34	Township 30N	Range 5W	County Rio Arriba	
Actual Footage Location of Well: 1970 feet from the South line and 2220 feet from the West line					
Ground Level Elev. 6858	Producing Formation DAKOTA/GALLUP	Pool BASIN DAKOTA/GALLUP	UNDESIGNATED		Dedicated Acreage 320 DK/160 GAL acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes No If answer is "yes," type of consolidation UNITIZATION

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



Scale: 1"=1000'

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Paul C. Thompson
Name
Paul Thompson

Position
Drilling Engineer

Company
Northwest Pipeline Corp.

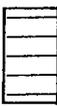
Date
10-22-82

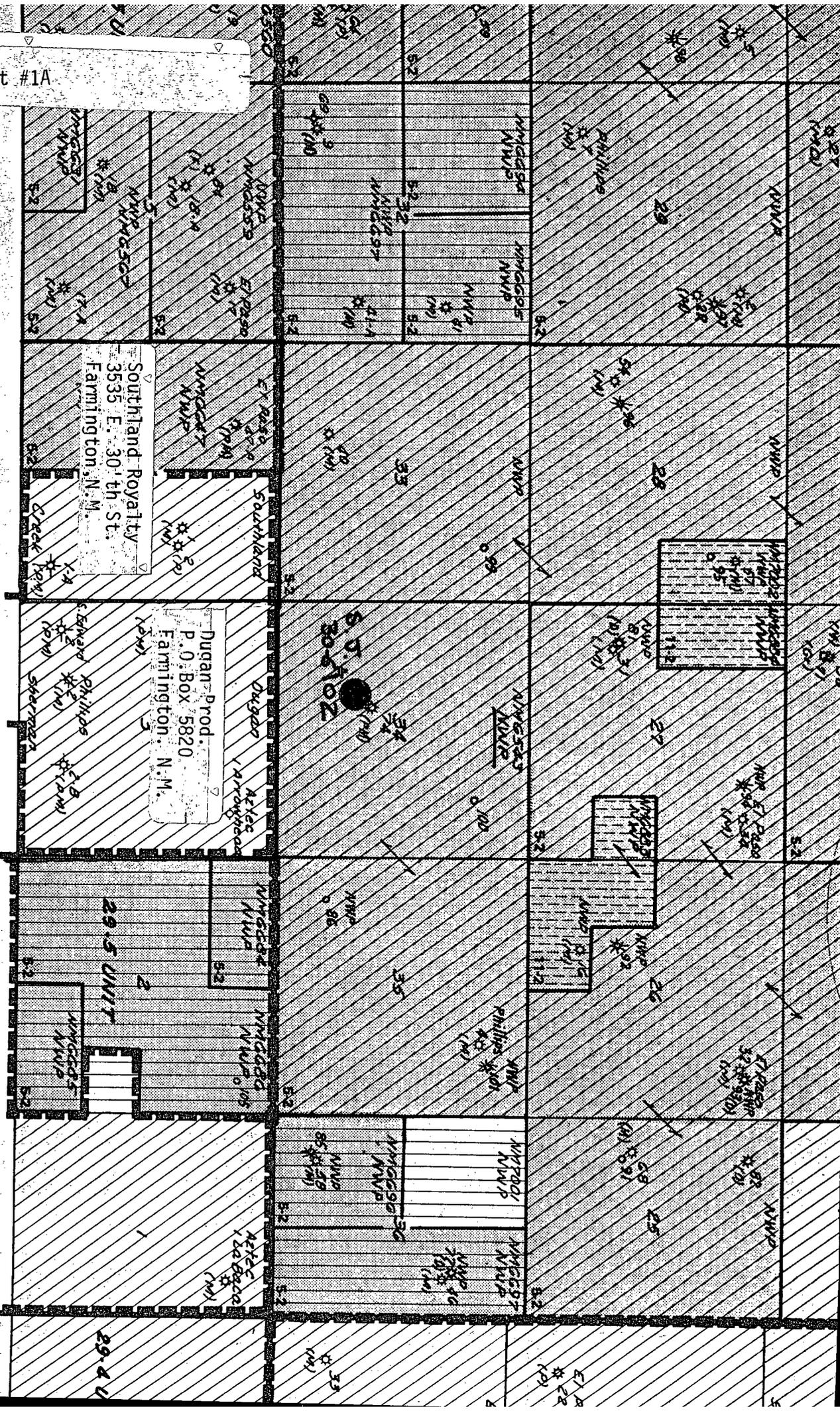
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
October 20, 1982

Registered Professional Engineer and Land Surveyor
Fred B. Kerry Jr.
Fred B. Kerry Jr.

Certificate No. 4, 22, 11, 11
3950

-  Federal Lands
-  State Lands
-  Indian Lands
-  Fee Lands
-  Northwest Pipeline Acreage



30 N - 5 W, NEW MEXICO

Pt

Attachment #2

MEMORANDUM

Date: July 8, 1987

NORTHWEST PIPELINE CORPORATION

No.: 171-87

File Ref. No.:

To: Well File

AUG 19 1987

From: Brent W. Hale *BWA*

Company:

Company: NWP

Dept.:

Dept.: Reservoir Engineering

Mail Stop:

PRODUCTION AND DRILLING

Mail Stop: 10329

Phone: 6670

Subject: San Juan 30-5 Unit #102 DK
30N 5W 3VK

I have reviewed the commerciality of the above well and find it to be noncommercial. The well is currently producing at a rate of 29 Mcf/d. The best day in the last 12 months was November 1986 when the well produced 181 Mcf following an 11 month shut-in period. Because of the poor performance of this well, I am reducing the DSPC to 47 Mcf/d effective January 1987 and to 29 Mcf/d effective May 1987. The reserves are being reduced to 155 MMcf based on a revised reservoir simulation study which matches existing production data fairly closely.

In reviewing the initial test on this well which shows the well producing at rates above 1,514 Mcf/d for 24 hours, it appears that the well should be much better than it is. However, because well has not performed, its reserves, capacity, and commercial status are being revised.

BWH:bh

attachments

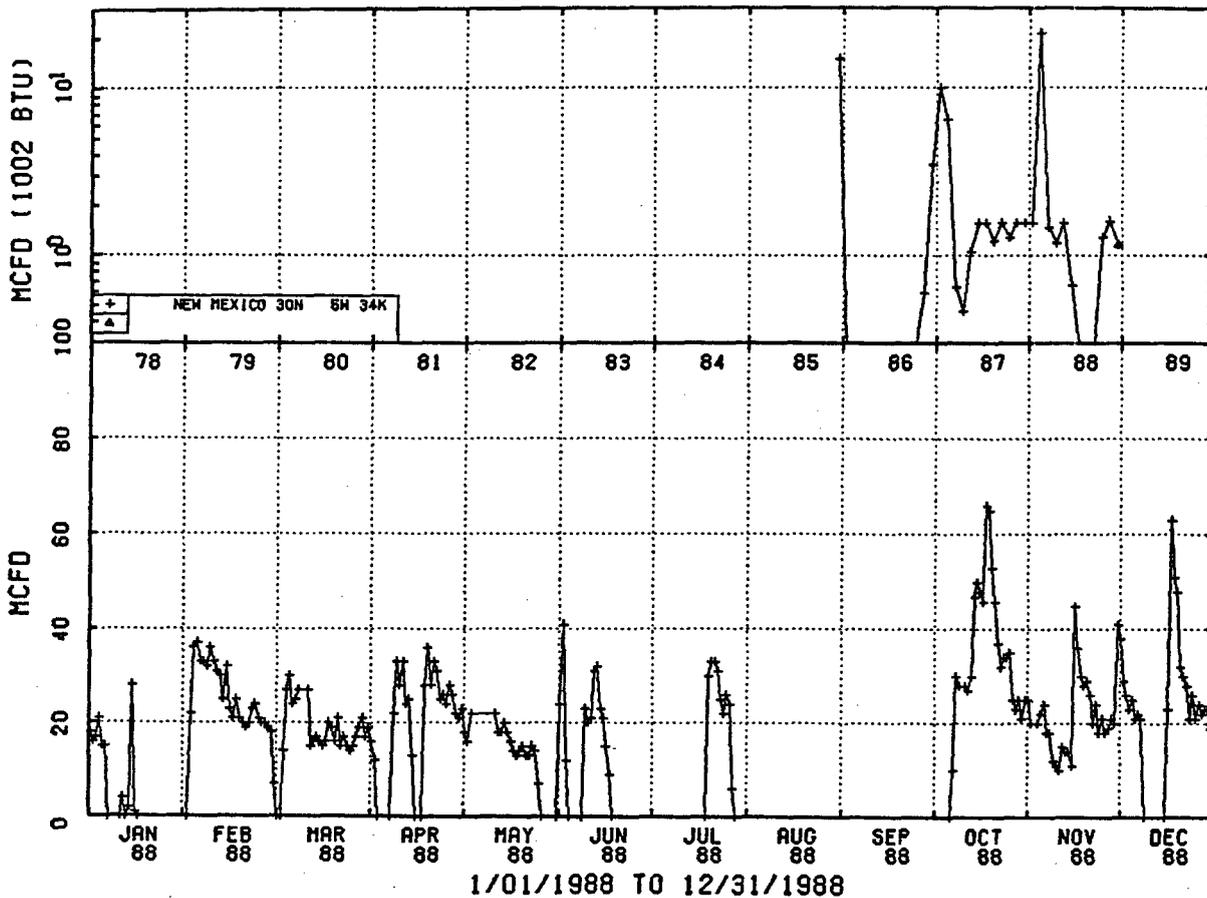
cc: C. H. Firth
D. L. Gillen
P. C. Thompson

API:30-039-23176-0000 SJ 30-5 UNIT #102 NP
NEW MEXICO BASIN DAKOTA
NORTHWEST PIPELINE CORPORATION OPERATOR
NWP SAN JUAN GATHERING SYSTEM

METER/UT:85843/00000 INITIAL MMCF: 200.000 BTU/GRAV: 1002/0.000
N.M.P.M.:T 30N R 5W 34K CUMULATIVE...: 2.405 XCD2/XN2: 1.97/ 0.96
FOOTAGE.: 1970FSL 2220FWL REMAINING...: 197.595 LSHD INTRST: 0.000000
S DATE-RL/WG: 2/04/88-1/4 R.L.RATIO...: 211.1 CNTR INTRST: 0.000000

YEAR	1984			1985			1986			1987			1988						
	MCF	PSIG	DAYS	MDNTH	MCF/FD	PSIG	DAYS												
1977	0	0	0	JAN	0	0	0.0	0	0	0.0	0	0	0.0	41	269	7.7	20	299	2.4
1978	0	0	0	FEB	0	0	0.0	0	0	0.0	0	0	0.0	55	301	3.3	176	305	3.4
1979	0	0	0	MAR	0	0	0.0	0	0	0.0	0	0	0.0	22	249	0.9	10	286	4.6
1980	0	0	0	APR	0	0	0.0	0	0	0.0	0	0	0.0	10	254	1.4	9	279	3.9
1981	0	0	0	MAY	0	0	0.0	0	0	0.0	0	0	0.0	12	314	2.8	7	284	7.3
1982	0	0	0	JUN	0	0	0.0	0	0	0.0	0	0	0.0	15	294	3.1	13	297	1.5
1983	0	0	0	JUL	0	0	0.0	0	0	0.0	0	0	0.0	16	315	3.1	10	341	0.9
1984	0	0	0	AUG	0	0	0.0	0	0	0.0	0	0	0.0	10	325	3.7	5	0	0.0
1985	462	250	2	SEP	0	0	0.0	0	0	0.0	0	0	0.0	7	338	6.8	0	0	0.0
1986	127	275	12	OCT	0	0	0.0	0	0	0.0	0	0	0.0	7	309	5.8	7	291	6.0
1987	880	300	49	NOV	0	0	0.0	0	0	0.0	4	254	4.5	9	319	5.4	5	288	8.9
1988	936	294	46	DEC	0	0	0.0	231	250	2.0	14	296	7.6	10	315	4.8	5	278	6.8

85843: SJ 30-5 UNIT #102 NP



Attachment #3

INFORMATION ONLY

Type Test <input type="checkbox"/> Initial <input type="checkbox"/> Annual <input checked="" type="checkbox"/> Special				Test Date 7/14/86							
Company Northwest Pipeline Corporation			Connection New Completion								
Pool Wildcat			Formation Gallup		Unit San Juan 30-5						
Completion Date 8/15/84		Total Depth 8293'	Plug Back TD 8275'	Elevation 6870' KB	Farm or Lease Name San Juan 30-5 Unit						
Csq. Size 4.500	Wt. 11.6	d 4.052	Set At 8293'	Perforations: From 6876' To 7838'	Well No. #102 (Gal)						
Thq. Size 2.375	Wt. 4.7	d 1.995	Set At 6995'	Perforations: From To	Unit Sec. Twp. Rge. K 34 30N 5W						
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Gas - Single				Packer Set At 8150'	County Rio Arriba						
Producing Thru Annulus		Reservoir Temp. °F #	Mean Annual Temp. °F	Baro. Press. - P _g 12.0	State New Mexico						
L	H	Gg Est. .590	% CO ₂	% N ₂	% H ₂ S						
				Positive Choke	Meter Run						
FLOW DATA			TUBING DATA		CASING DATA						
NO.	Flow Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI	SIP								1949		
1.	2" X		.750"					59 ⁰	* 121	59 ⁰	3 Hrs
2.											
3.									* Annular	Flow	
4.											
5.											
RATE OF FLOW CALCULATIONS											
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd				
1	9.604		133	1.001	1.302	1.010	1681				
2.											
3.											
4.											
5.											
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.						
1.					A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.						
2.					Specific Gravity Separator Gas _____ X X X X X X X X X						
3.					Specific Gravity Flowing Fluid _____ X X X X X						
4.					Critical Pressure _____ P.S.I.A. _____ P.S.I.A.						
5.					Critical Temperature _____ R _____ R						
P _c 1961		P _c ² 3845521									
NO.	P _r ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_r^2 - P_w^2} = 1.0078$ (2) $\left[\frac{P_c^2}{P_r^2 - P_w^2} \right]^n = 1.0059$						
1		173	29929	3815592	AOF = Q $\left[\frac{P_c^2}{P_r^2 - P_w^2} \right]^n = 1691$						
2		(Calc.)									
3											
4											
5											
Absolute Open Flow 1691				Mcf @ 15.025				Angle of Slope e _____		Slope, n .75	
Remarks: Produced heavy fog after 1 hr. 20 mins. & continued throughout test. Vented 210 MCF.											
G1	i-e-s	FcQ ²	R ²	Pt ²	R ² +Pt ²	Pw					
4057	.256	47385	12131	17689	29820	173 psia					
Approved By Commission:			Conducted By: John Wright			Calculated By: S.K. Liese			Checked By: M.J. Turnbaugh		

SKI

Attachment #4

NWP
 WELL FILE

Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special					Test Date 7/08/86	
Company Northwest Pipeline Corporation				Connection New Completion		
Pool Basin			Formation Dakota		Unit San Juan 30-5	
Completion Date 01/26/85		Total Depth 8293'		Plug Back TD 8275'	Elevation 6409' GR	Farm or Lease Name San Juan 30-5 Unit
Csq. Size 4.500	Wt. 11.6	d 4.052	Set At 8293'	Perforations: From 8193' To 8243'		Well No. #102 (DK)
Tbg. Size 2.375	Wt. 4.7	d 1.995	Set At 8145'	Perforations: From To		Unit Sec. Twp. R1/4 K 34 30N 5W
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Gas - Dual				Packer Set At 8145'		County Rio Arriba
Producing Thru Tubing		Reservoir Temp. °F #	Mean Annual Temp. °F	Baro. Press. - P _a 12.0		State New Mexico
L	H	G _g Est. .590	% CO ₂	% N ₂	% H ₂ S	Positive Choke
FLOW DATA			TUBING DATA		CASING DATA	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F
SI	SIP					
1.	2"	X	.750"			51°
2.						
3.						
4.						
5.						
RATE OF FLOW CALCULATIONS						
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Fl.	Gravity Factor F _g	Rate of Flow Q, Mcfd
1	9.604		43	1.009	1.302	544
2.						
3.						
4.						
5.						
PRODUCTION AND DRILLING						
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1.					A.P.I. Gravity of Liquid Hydrocarbons	Deq.
2.					Specific Gravity Separator Gas	X X X X X X X X X
3.					Specific Gravity Flowing Fluid	X X X X X X X X X
4.					Critical Pressure	P.S.I.A.
5.					Critical Temperature	R
P _c	2075	P _c ²	4305625			
NO.	P _i ²	P _w	R _w ²	P _c ² - R _w ²	(1) $\frac{P_c^2}{P_c^2 - R_w^2} = 1.0004$	(2) $\left[\frac{P_c^2}{P_c^2 - R_w^2} \right]^n = 1.0003$
1		44	1936	4303689		
2		(Calc.)				
3						
4						
5						
AOF = Q					$\left[\frac{P_c^2}{P_c^2 - R_w^2} \right]^n = 544$	
Absolute Open Flow			544		Mcid @ 15.025	Angle of Slope @
						Slope, n .75
Remarks: Blew light mist after 30 minutes through remainder of test. Vented 68 MCF.						
GI	i-e-s	FcQ ²	R ²	Pt ²	R ² + Pt ²	Pw
4806	.295	306	90	1849	1939	44 psia
Approved By Commission:		Conducted By: J. Wright		Calculated By: S.K. Liese		Checked By: M.J. Turnbaugh

skl

DOWNHOLE COMMINGLING APPLICATION

Operator: Northwest Pipeline Corporation
3539 East 30th Street
Farmington, New Mexico 87401
(505)327-5351

Well Description: San Juan 30-5 Unit #102
1970' FSL & 2220' FWL
Section 34, T30N, R5W
Rio Arriba County, NM

Pools to be Commingled: Undesignated Gallup
Basin Dakota

Allocation Formula: Rates calculated after 3 hour blow through a 0.75"
choke during one point back pressure test.

<u>Formation</u>	<u>SICP</u>	<u>Q(MCF/D)</u>	<u>% of Total Flow</u>
Dakota	2063	544	24%
Gallup	1949	<u>1691</u>	<u>76%</u>
Total		2235	100%

WELLBORE DIAGRAM

San Juan 30-5 Unit #102 comm. GL/DK

SW/4, Sec. 34, T30N, R5W

9 5/8" @ 366'

7" @ 4150'

Proposed 2 3/8" tubing @ approx. 8200'
(Well currently producing with pkr. @ 8153')

6876'

GALLUP PERFS.

7838'

8193'

DAKOTA PERFS.

8243'

PBTD @ 8275'

4 1/2" @ 8293'

NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
3539 East 30th Street
Farmington, New Mexico 87401
4320-PI-044-89

February 10, 1989

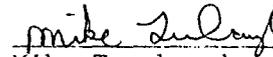
Southland Royalty Co.
3535 East 30th Street
Farmington, NM 87401

Re: Downhole Commingling
San Juan 30-5 Unit #102
SW/4 Sec. 34, T30N, R5W
Rio Arriba County, NM

Dear Sir:

Northwest Pipeline Corporation has requested the NMOCD to allow downhole commingling of the Undesignated Gallup and Basin Dakota in the above referenced well. Our records show that you are an offset operator to this well. If you should have any objections with this application, notify William LeMay, with the NMOCD in Santa Fe, within 20 days. This letter is being sent by certified mail in accordance with NMOCD Regulations.

Sincerely,



Mike Turnbaugh
Senior Engineer

MJT/ch
cc: NMOCD, Santa Fe

P22 0273542

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Southland Royalty
STREET AND NO.
3535 East 30th Street
P.O. STATE AND ZIP CODE
Farmington, NM 87401

POSTAGE	\$.25
CERTIFIED FEE	.85 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	.90 ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	\$ 2.00
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED MAIL
P22 0273542

NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
3539 East 30th Street
Farmington, New Mexico 87401
4320-PD-043-89

February 10, 1989

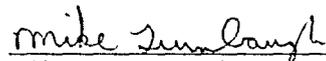
Dugan Production Corporation
P.O. Box 5820
Farmington, NM 87499

Re: Downhole Commingling
San Juan 30-5 Unit #102
SW/4 Sec. 34, T30N, R5W
Rio Arriba County, NM

Dear Sir:

Northwest Pipeline Corporation has requested the NMOCD to allow downhole commingling of the Undesignated Gallup and Basin Dakota in the above referenced well. Our records show that you are an offset operator to this well. If you should have any objections with this application, notify William LeMay, with the NMOCD in Santa Fe, within 20 days. This letter is being sent by certified mail in accordance with NMOCD Regulations.

Sincerely,



Mike Turnbaugh
Senior Engineer

MJT/ch
cc: NMOCD, Santa Fe

P22 0273543

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

PS Form 3800, Apr. 1976

SENT TO		Dugan Production
STREET AND NO.		P.O. Box 5820
P.O. STATE AND ZIP CODE		Farmington, NM 87499
POSTAGE		\$.25
CERTIFIED FEE		.85¢
SPECIAL DELIVERY		¢
RESTRICTED DELIVERY		¢
SHOW TO WHOM AND DATE DELIVERED		.90¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY		¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY		¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY		¢
TOTAL POSTAGE AND FEES		\$ 2.00
POSTMARK OR DATE		

CERTIFIED MAIL
P22 0273543

NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
3539 East 30th Street
Farmington, New Mexico 87401
4320-PD-045-89

February 10, 1989

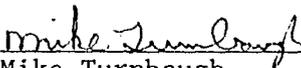
Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

Re: Downhole Commingling
San Juan 30-5 Unit #102
SW/4 Sec. 34, T30N, R5W
Rio Arriba County, NM

Dear Sir:

Northwest Pipeline Corporation has requested the NMOCD to allow downhole commingling of the Undesignated Gallup and Basin Dakota in the above referenced well. If you should have any objections with this application, notify William LeMay, with the NMOCD in Santa Fe, within 20 days. This letter is being sent by certified mail in accordance with NMOCD Regulations.

Sincerely,



Mike Turnbaugh
Senior Engineer

MJT/ch
cc: NMOCD, Santa Fe

P22 0273544

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Bureau of Land Management
STREET AND NO.
1235 La Plata Highway
P.O., STATE AND ZIP CODE
Farmington, NM 87401
POSTAGE

CERTIFIED FEE	\$.25
SPECIAL DELIVERY	
RESTRICTED DELIVERY	.85
SHOW TO WHOM AND DATE DELIVERED	
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY	.90
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES
RETURN RECEIPT SERVICE

TOTAL POSTAGE AND FEES \$ 2.00
POSTMARK OR DATE

CERTIFIED
P22 0273544
MAIL



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
 OIL CONSERVATION DIVISION
 AZTEC DISTRICT OFFICE

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

OIL CONSERVATION DIVISION
 BOX 2088
 SANTA FE, NEW MEXICO 87501

DATE 3-29-89

RE: Proposed MC _____
 Proposed DIIC X _____
 Proposed NSL _____
 Proposed SWD _____
 Proposed WFX _____
 Proposed PMX _____

MAR 31 1989
 OIL CONSERVATION DIVISION

Gentlemen:

I have examined the application dated 3-10-89

for the Northwest Pipeline Corp. S.J. 30-5 Unit #102 K-34-30N5W
 Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Ernie Busch