



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

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
PHONE 334-6178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE 3-29-89

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

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

Approved 1-6-86
DHC-724

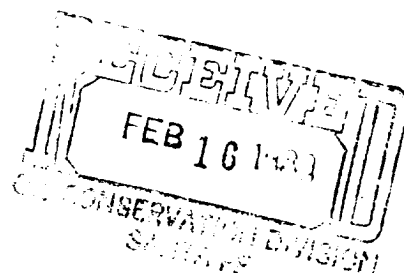
NORTHWEST PIPELINE CORPORATION

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.

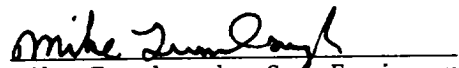
The San Juan 30-5 Unit #102 was determined to be incapable of producing unitized substances in paying quantities from the Dakota formation (see Attachment 2 & 2A). Commingling the low marginal production from the Dakota with the Gallup will result in the recovery of additional hydrocarbons and will not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

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OIL CON. DIV
DIST 2


Mike Turnbaugh, Sr. Engineer

Attachment #1

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTVATION DIVISION
P. O. BOX 2048
SANTA FE, NEW MEXICO 87501

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

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OIL CON. DIV.
DIST. 3
Form C-107
Revised 10-1-

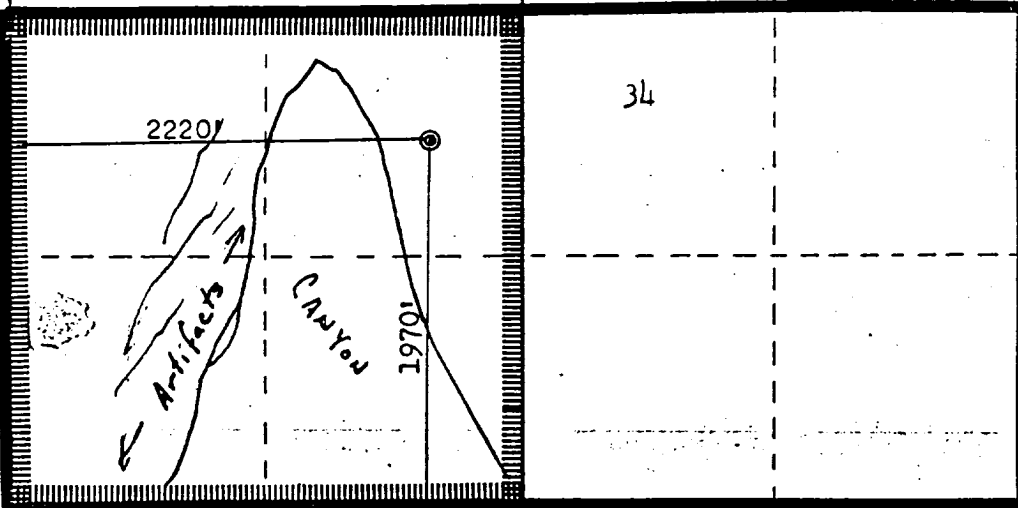
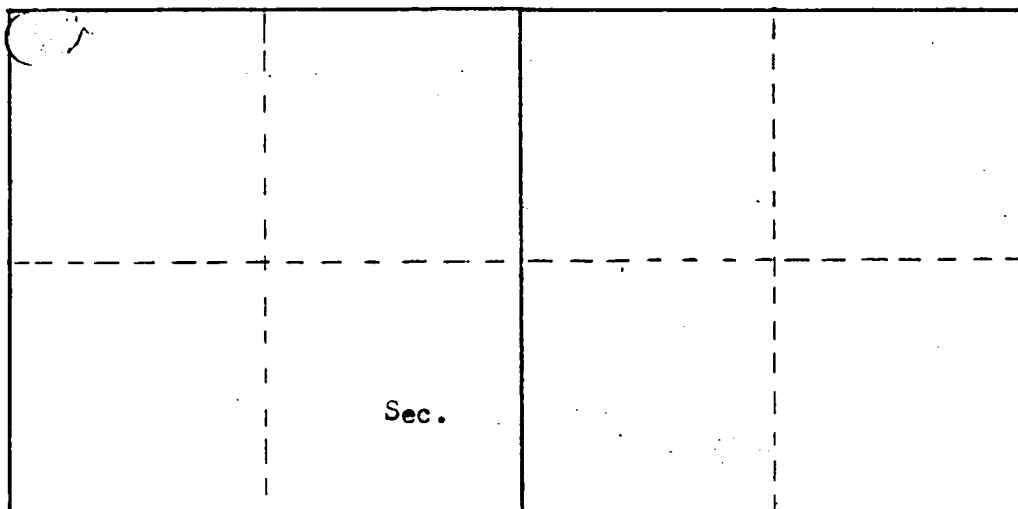
Operator NORTHWEST PIPELINE CORPORATION			Lease SAN JUAN 30-5 UNIT			Well No. 102		
Unit Letter K	Section 34	Township 30N	Range 5W	County Rio Arriba				
Actual Footage Location of Well: 1970 feet from the South line and 2220 feet from the West line								
Ground Level Elev. 6858	Producing Formation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

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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

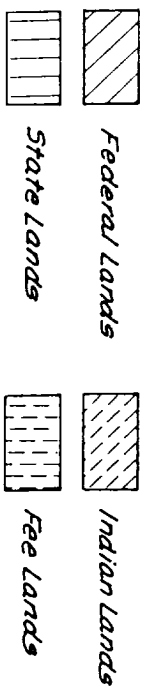
October 20, 1982

Registered Professional Engineer and Land Surveyor

Fred B. Kerr Jr.

Certificate No. 4, 1982

3950

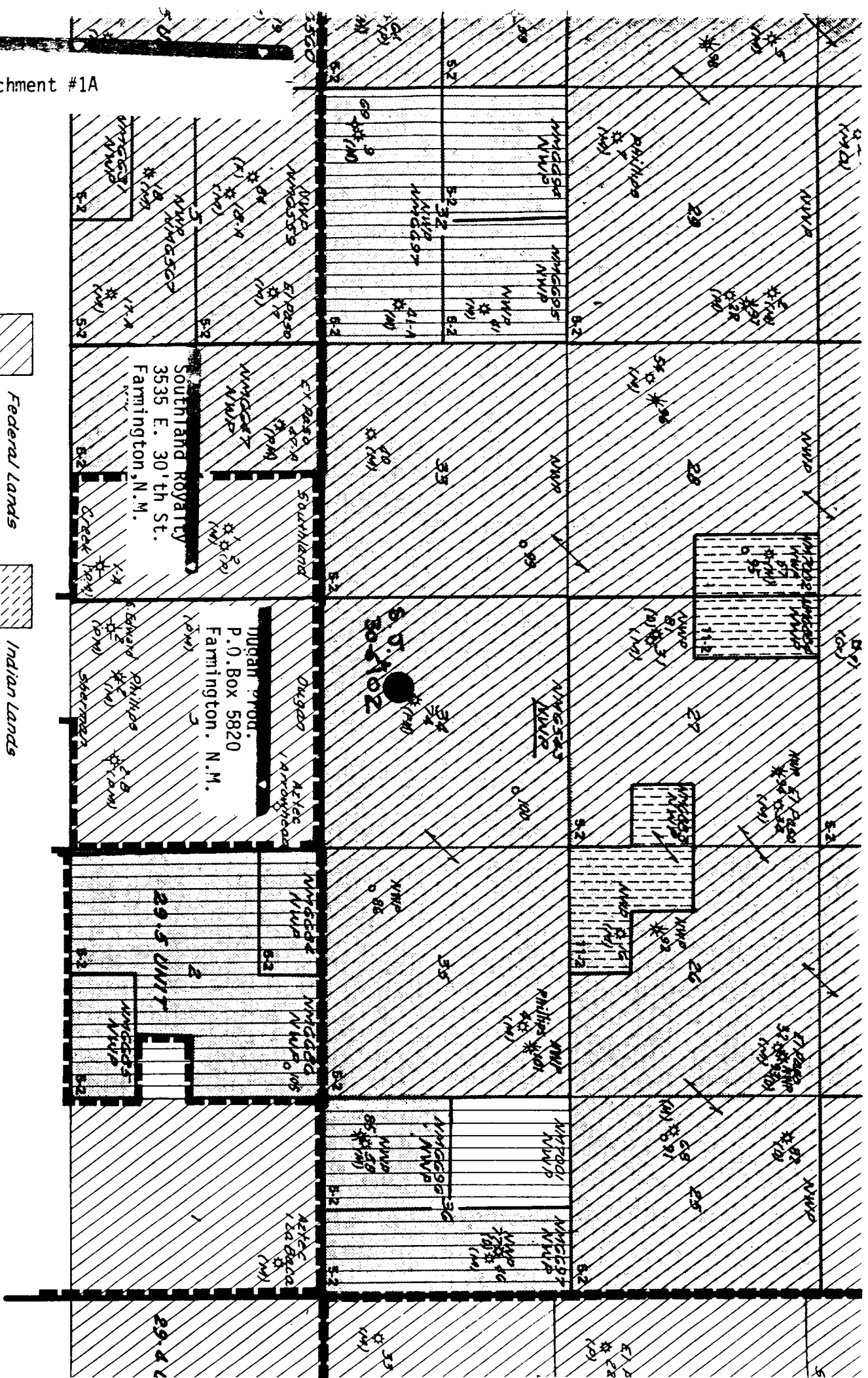


Northwest Pipeline Acreage

30 N-5 W, NEW MEXICO

UN
MAR 1 0 1988

CON DIV.



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

Mail Stop

10329

Phone

6670

PRODUCTION AND DRILLING

Subject: San Juan 30-5 Unit #102 DK
30N 5W 34K

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

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OIL CON. DIV.

Attachment #2A

NORTHWEST PIPELINE RESERVOIR ENGINEERING SUMMARY @ 14.73 PSIA
TEST OF FILE

DECEMBER 1988 US3N0110 PAGE 001
WED FEBRUARY 8, 1989 10:45:13 AM

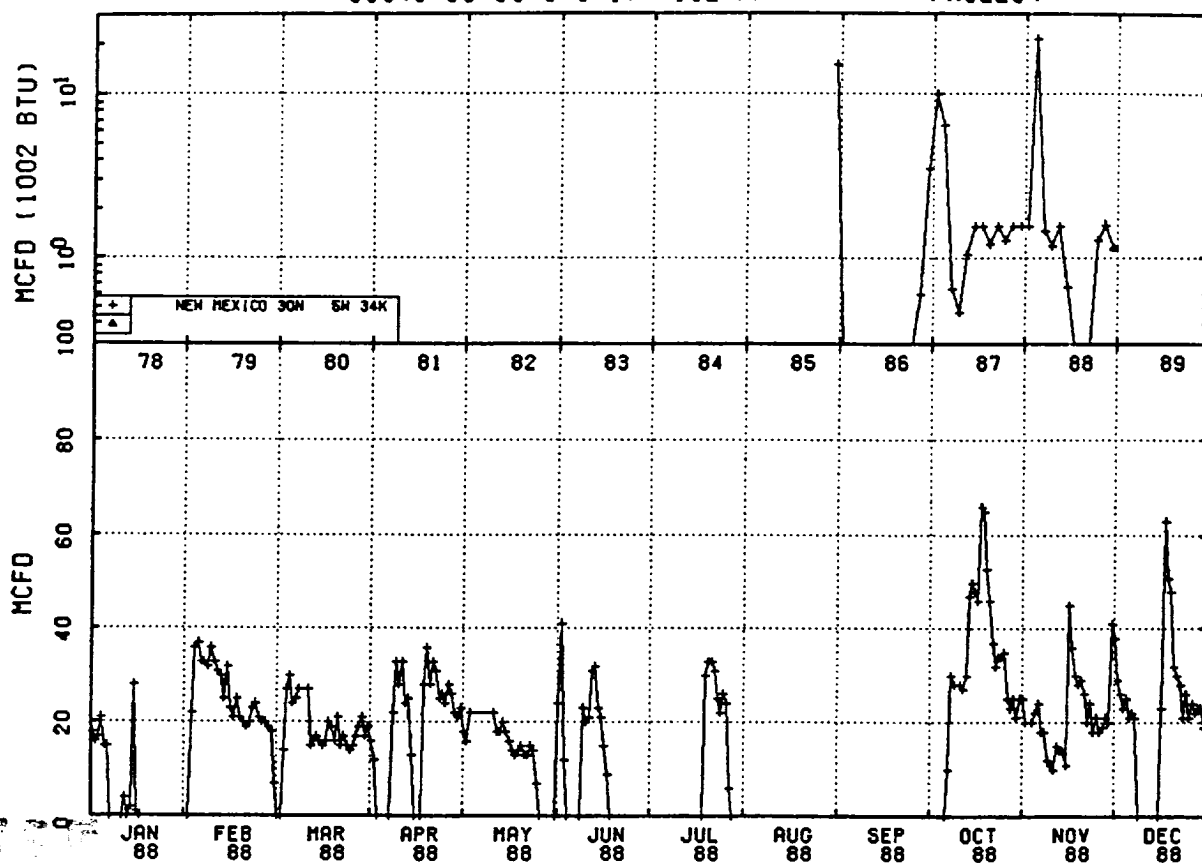
API:30-039-23176-0000 SJ 30-5 UNIT #102 NP
NEW MEXICO BASIN DAKOTA
NORTHWEST PIPELINE CORPORATION OPERATOR
NWP SAN JUAN GATHERING SYSTEM

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 XC82/3N2: 1.97/ 0.96
FOOTAGE.: 1970FSL 2220FWL REMAINING...: 197.595 LSHD INTRST: 0.000000
S DATE-RL/WS: 2/04/88-1/4 R.L.RATIO...: 211.1 CNTR INTRST: 0.000000

I.D. DATE(MMDDYY):12/17/85	1984	1985	1986	1987	1988
YEAR	MCF PSIG DAYS MONTH	MCF/ED PSIG DAYS	MCF/ED PSIG DAYS	MCF/ED PSIG DAYS	MCF/ED PSIG DAYS
1977	0 0 0 JAN	0 0 0.0	0 0 0.0	0 0 0.0	41 269 7.7
1978	0 0 0 FEB	0 0 0.0	0 0 0.0	0 0 0.0	55 301 3.3
1979	0 0 0 MAR	0 0 0.0	0 0 0.0	0 0 0.0	22 249 0.9
1980	0 0 0 APR	0 0 0.0	0 0 0.0	0 0 0.0	10 254 1.4
1981	0 0 0 MAY	0 0 0.0	0 0 0.0	0 0 0.0	12 314 2.8
1982	0 0 0 JUN	0 0 0.0	0 0 0.0	0 0 0.0	15 294 3.1
1983	0 0 0 JUL	0 0 0.0	0 0 0.0	0 0 0.0	16 315 3.1
1984	0 0 0 AUG	0 0 0.0	0 0 0.0	0 0 0.0	10 325 3.7
1985	462 250 2 SEP	0 0 0.0	0 0 0.0	0 0 0.0	7 338 6.8
1986	127 275 12 OCT	0 0 0.0	0 0 0.0	0 0 0.0	7 309 5.8
1987	880 300 49 NOV	0 0 0.0	0 0 0.0	4 254 4.5	9 319 5.4
1988	936 294 46 DEC	0 0 0.0	231 250 2.0	14 296 7.6	10 315 4.8

85843:SJ 30-5 UNIT #102 NP

PAGE294



1/01/1988 TO 12/31/1988

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MAY 1988

Attachment #3

INFORMATION ONLY

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MAR 10 1989

Type Test <input type="checkbox"/> Initial <input type="checkbox"/> Annual <input checked="" type="checkbox"/> Special		Test Date 7/14/86		OIL CON. DIV	
Company Northwest Pipeline Corporation		Connection New Completion		DIST ?	
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		Well No. #102 (Gal)	
Csq. Size 4.500	Wt. 11.6	d 4.052	Set At 8293'	Perforations: From 6876' To 7838'	
Tng. Size 2.375	Wt. 4.7	d 1.995	Set At 6995'	Perforations: From To	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Gas - Single				Packer Set At 8150'	
Producing Thru Annulus		Reservoir Temp. °F #		Mean Annual Temp. °F	
Baro. Press. - P _a 12.0		State New Mexico		County Rio Arriba	
L	H	G _g Est. .590	% CO ₂	% N ₂	% H ₂ S
Positive Choke				Meter Run Taps	
FLOW DATA					
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w
1.	2" X .750"				
2.					
3.					
4.					
5.					
TUBING DATA					
NO.	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
1.					3 Hrs
2.					
3.					
4.					
5.					
CASING DATA					
NO.	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
1.					
2.					
3.					
4.					
5.					
RATE OF FLOW CALCULATIONS					
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g
1.	9.604		133	1.001	1.302
2.					
3.					
4.					
5.					
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio
1.					Mcf/bbl.
2.					A.P.I. Gravity of Liquid Hydrocarbons
3.					Specific Gravity Separator Gas
4.					Specific Gravity Flowing Fluid
5.					Critical Pressure
					Critical Temperature
$P_c = 1961$ $P_c^2 = 3845521$					
NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.0078$
1.		173	29929	3815592	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.0059$
2.		(Calc.)			
3.					
4.					
5.					
$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1691$					
Absolute Open Flow 1691 Mcfd @ 15.025				Angle of Slope ϕ	
Slope, n .75					
Remarks: Produced heavy fog after 1 hr. 20 mins. & continued throughout test. Vented 210 MCF					
GI 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	
Csg. Size 4.500		Wt. 11.6		Set At 8293'		Perforations: From 8193' To 8243'	
Thq. Size 2.375		Wt. 4.7		Set At 8145'		Perforations: From To	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Gas - Dual						Packer Set At 8145'	
Producing Thru Tubing		Reservoir Temp. °F #		Mean Annual Temp. °F		Baro. Press. - P _a 12.0	
L		H		G _g Est. .590		% CO ₂ % N ₂ % H ₂ S	
						Positive Choke	
FLOW DATA						TUBING DATA	
Casing Data						Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.
SI	SIP						
1.	2"	X	.750"			51°	31
2.							
3.							
4.							
5.							
RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	9.604		43	1.009	1.302	1.002	544
2.							
3.							
4.							
5.							
NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio		
1.					A.P.I. Gravity of Liquid Hydrocarbons		
2.					Specific Gravity Separator Gas		
3.					Specific Gravity Flowing Fluid		
4.					Critical Pressure		
5.					Critical Temperature		
P _c 2075 P _c ² 4305625					Mcf/bbl.		
NO.	P _t ²	P _w	P _w ²	P _c ² - P _w ²	Deg.		
1		44	1936	4303689	XXXXXX		
2		(Calc.)			XXXXXX		
3					XXXXXX		
4					XXXXXX		
5					XXXXXX		
(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.0004$					(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.0003$		
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 544$							
Absolute Open Flow 544 Mcfd @ 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:		Calculated By:		Checked By:	
		J. Wright		S.K. Liese		M.J. Turnbaugh	

skl

Attachment #5

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.

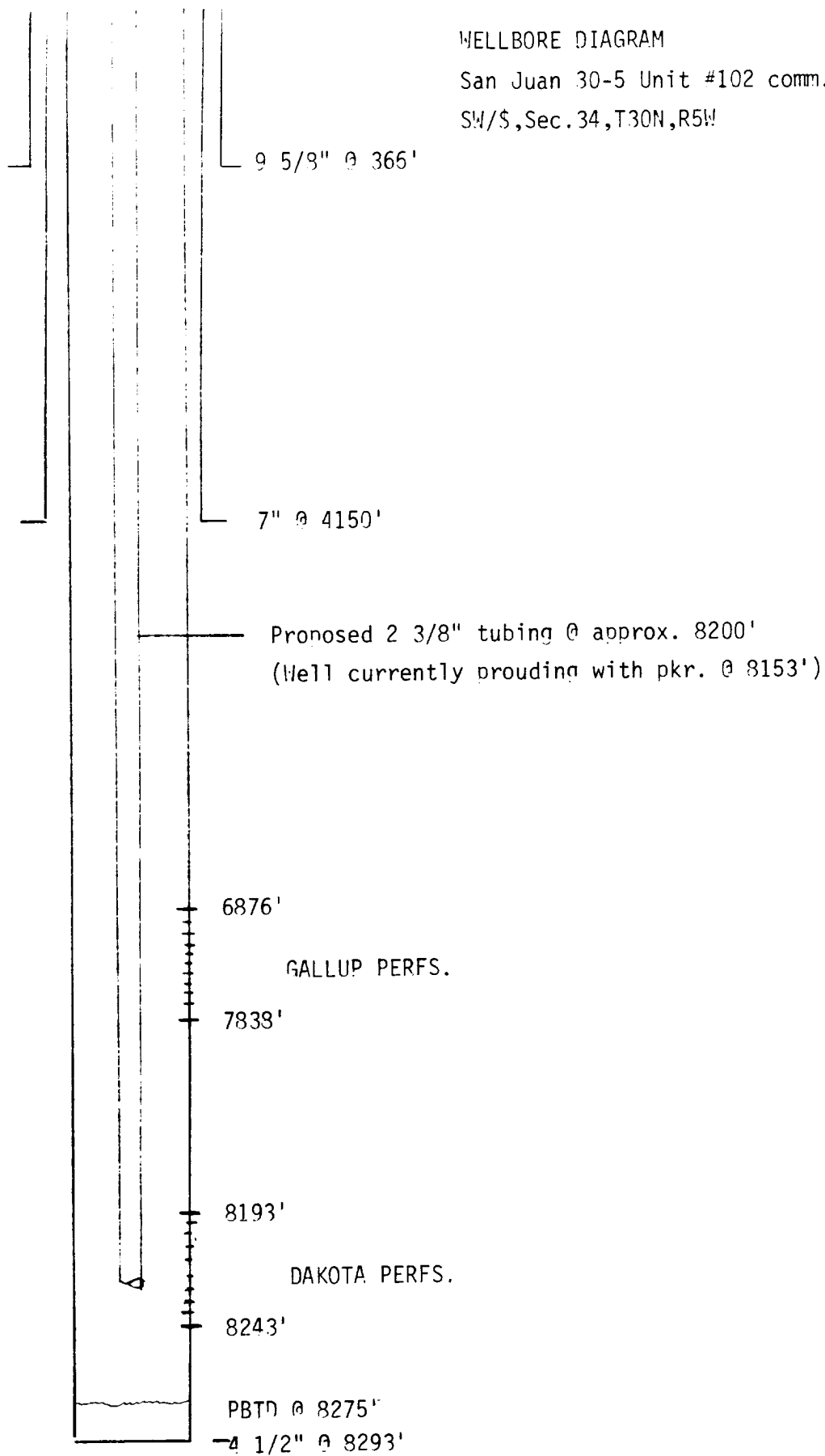
<u>Formation</u>	<u>SICP</u>	<u>Q(MCF/D)</u>	<u>% of Total Flow</u>
Dakota	2063	544	24%
Gallup	1949	<u>1691</u>	<u>76%</u>
Total		2235	100%

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DIST 2

WELLBORE DIAGRAM

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

SW/4, Sec. 34, T30N, R5W

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OIL CON. DIV.

NORTHWEST PIPELINE CORPORATION

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

February 10, 1989

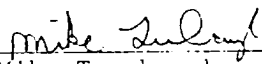
Southland Royalty Co.
3535 East 30th Street
Farmington, NM 87401

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

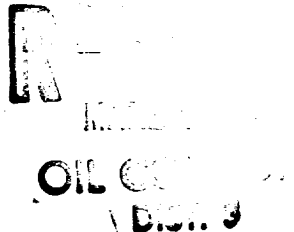
Dear Sir:

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


OIL & GAS
DIVISION

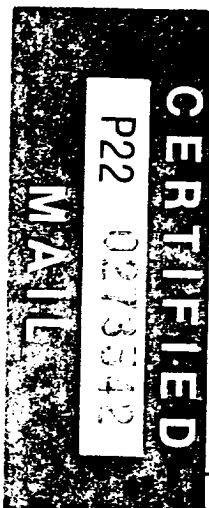
P22 0213542

RECEIPT FOR CERTIFIED MAIL

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

SENT TO	
STREET AND NO Southland Royalty	
3535 East 30th Street	
P.O. STATE AND ZIP CODE Farmington, NM 87401	
POSTAGE	
CERTIFIED FEE	\$.25
SPECIAL DELIVERY	.85 ¢
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	¢
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
TOTAL POSTAGE AND FEES	\$ 2.00
POSTMARK OR DATE	

PS Form 3800, Apr. 1976



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MAR 1 0 1989

OIL CON. DIV
DIST. 3

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
Mike Turnbaugh
Senior Engineer

MJT/ch
cc: NMOCD, Santa Fe

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FEB 11 1989

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
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
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
P22 0273543
MAIL

RECEIVED

MAR 1 0 1989

CON DIV

NORTHWEST PIPELINE CORPORATION

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

February 10, 1989

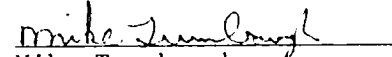
Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

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 Regulation.

Sincerely,


Mike Turnbaugh
Senior Engineer

MJT/ch
cc: NMOCD, Santa Fe

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MAR 10 1989
OIL CON
DIST

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	\$.25
CERTIFIED FEE	.85
SPECIAL DELIVERY	
RESTRICTED DELIVERY	
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	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
CONSULT POSTMASTER FOR FEES	
TOTAL POSTAGE AND FEES	\$ 2.00
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED

P22 0273544

MAIL