

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special				Test Date 11/29/83	
Company Northwest Pipeline Corporation				Connection New Completion	
Pool Wildcat				Formation Gallup	
Completion Date 10/1/83		Total Depth 8033'		Plug Back TD 8000'	
				Elevation 6659' GR	
Form or Lease Name San Juan 30-5 Unit				Well No. #91 (G1)	
Csg. Size 4.500	Wt. 11.6	d 4.052	Set At 8033'	Perforations: From 7030' To 7360'	
Tub. Size 2.375	Wt. 4.7	d 1.995	Set At 7084'	Perforations: From To	
Type Well - Single - Blindhead - G.G. or G.O. Multiple Gas - Dual				Packer Set At Bridge Plug 7713'	
Producing Thru Tubing		Reservoir Temp. °F a		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
				Notes Positive Choke	
METER RUN				Taps	

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
1.	SIP						2775		2775		
2.	2"	X	.750"			66°	246	66°	755	66°	3 Hrs
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		258	.994	1.302	1.019	3268
2.							
3.							
4.							
5.							

NO.	P _i	Temp. °R	T _i	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1										
2.										
3.										
4.										
5										

P _c 2787	P _c ² 7767369	(1) $\frac{P_c^2}{P_i^2 - P_w^2} = 1.0819$	(2) $\left[\frac{P_c^2}{P_i^2 - P_w^2} \right]^n = 1.0608$
NO. 1	P _i ² 767	P _w ² 588289	P _i ² - P _w ² 7179080
2			
3			
4			
5			

Absolute Open Flow 3467		Mcf @ 15.025	Angle of Slope	Slope, n .75
Remarks: Produced light mist throughout test. Vented 520 MCF.				
Approved By Commission:		Conducted By: Gip Aulbert	Calculated By: M.J. Turnbaugh	Checked By:



LTR



Job separation sheet



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 12-19-83

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

Gentlemen:

I have examined the application dated Dec. 15, 1983
for the Northwest Pipeline Corp. San Juan 30-5-Unit #91 ²⁵ K-9-30N-5W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Will does not meet requirements for administrative
approval. Docket for hearing.

Yours truly,

Frank T. Cherry

NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
P.O. BOX 90
FARMINGTON, NEW MEXICO 87409
5112-112-83

December 2, 1983

Joe Ramey
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

RE: Downhole Commingling Application
San Juan 30-5 Unit #91
SW/4 Sec 25, T30N, R5W
Rio Arriba Co. NM

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 owners of the offset leases. These offset owners 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 #91 is located in the same section as the San Juan 30-5 Unit #82 which was determined to be incapable of producing unitized substances in paying quantities from the Dakota formation. 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.

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. The SICP of the Dakota and Gallup zones were measured at 2660 psig and 2775 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. During both tests the zones produced only a light 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.

NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
P O BOX 90
FARMINGTON NEW MEXICO 87499

The San Juan 30-5 Unit #91 is located approximately 6.5 miles to the southeast of the Rosa Unit #77. The Rosa Unit #77 was approved for downhole commingling in the Gallup and Dakota formations by order R-6756 and was first delivered on April 3, 1982. Analysis of the logs indicate that the Dakota and Gallup zones in both wells are very similar. The Rosa Unit #77 has not experienced any production problems which would indicate that the fluids produced are incompatible.

Sincerely,

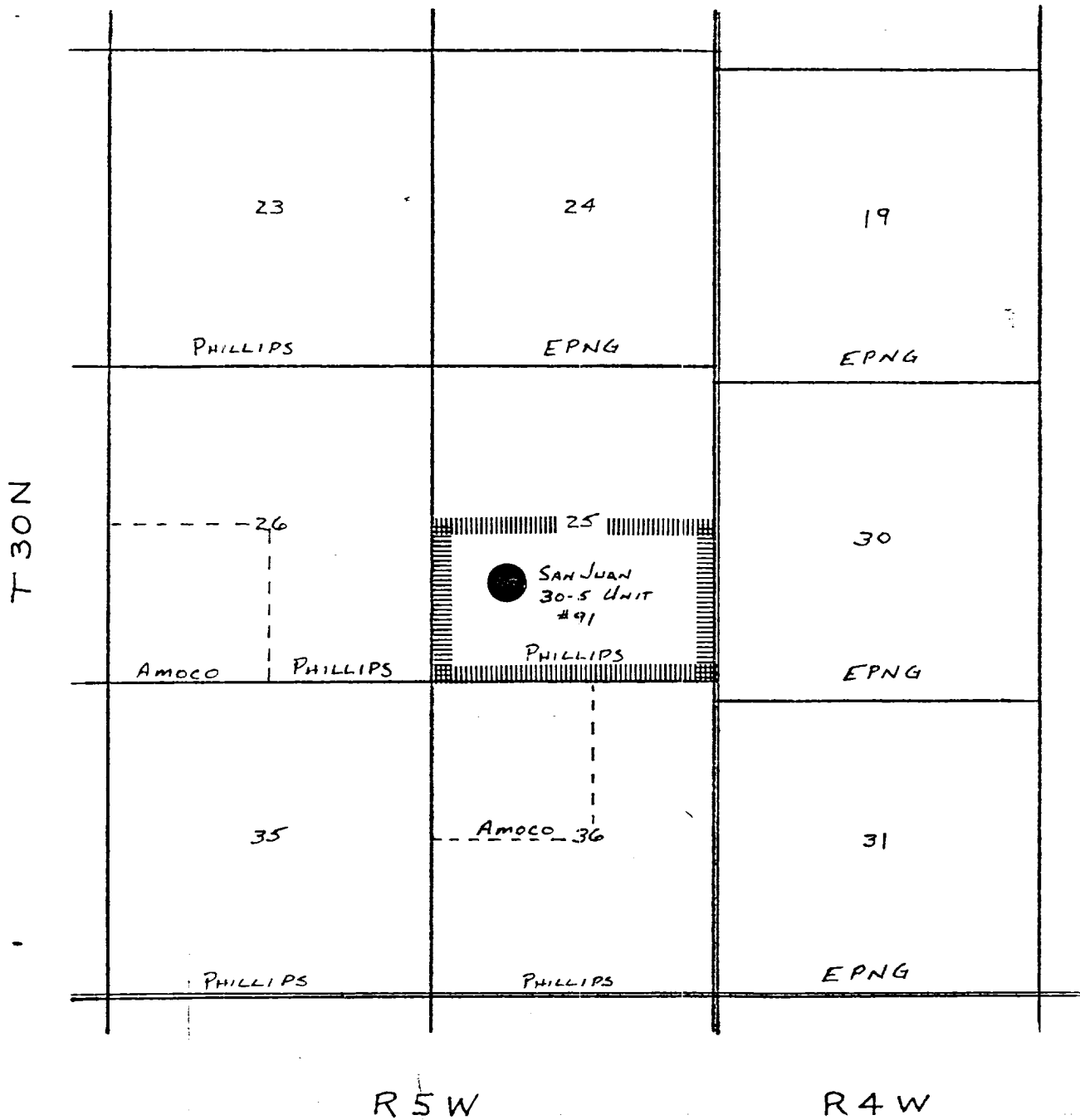
Paul C. Thompson

Paul C. Thompson
Sr. Drilling Engineer

PCT/dlw

Enclosure

NORTHWEST PIPELINE CORP.
SAN JUAN 30-5 UNIT #91



Downhole Commingling Application

Operator: Northwest Pipeline Corporation
P.O. Box 90
Farmington, NM 87499

Well Description: San Juan 30-5 Unit #91
1950 FSL and 835 FWL
Section 25, T30N, R5W
Rio Arriba Co., NM

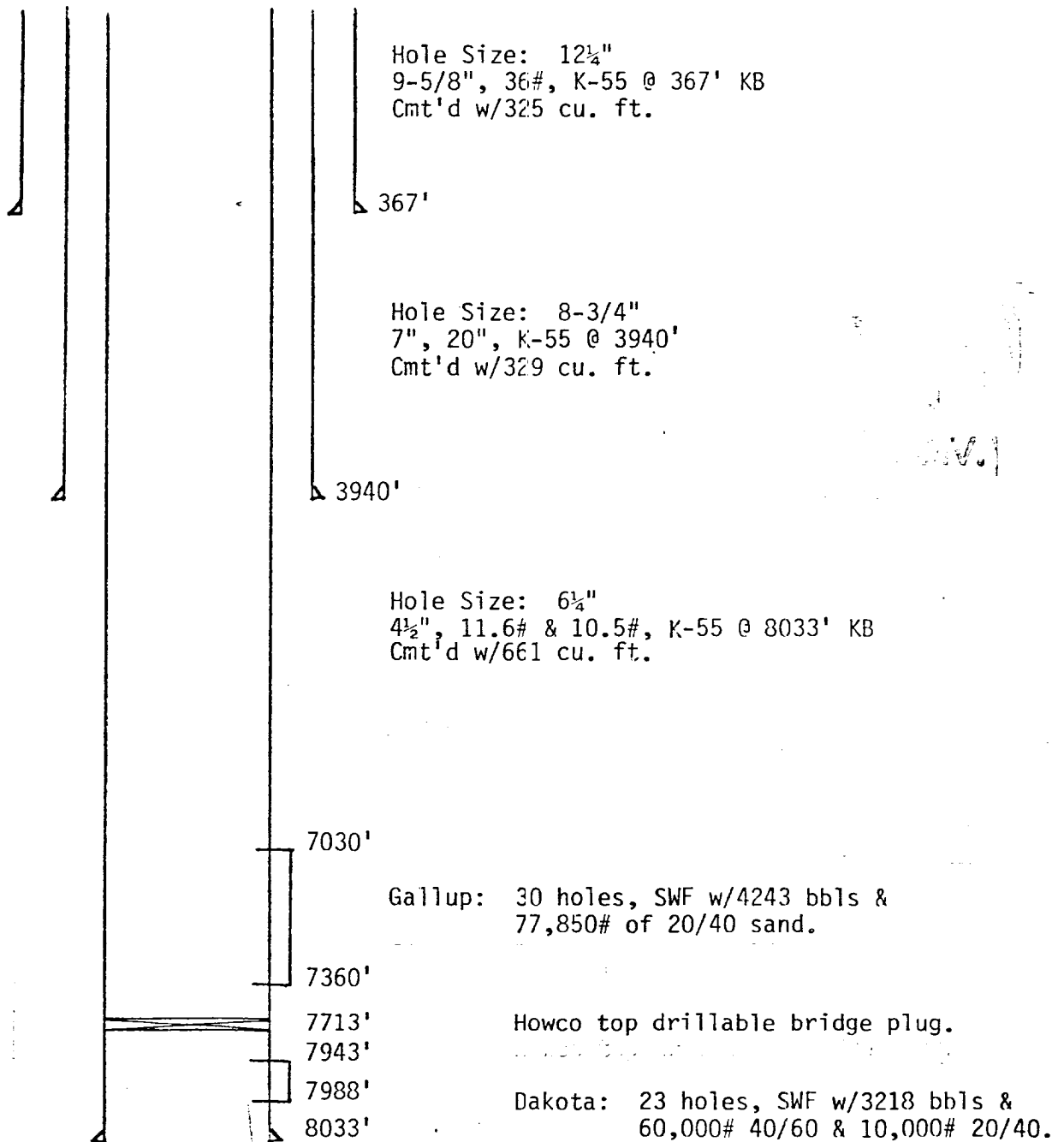
Pools to be Commingled: Undesignated Gallup
Basin Dakota

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	2660	1136	26
Gallup	2775	3268	74
Total		<u>4404</u>	<u>100</u>

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DIV. 1
1951.3

San Juan 30-5 Unit #91



NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOOL AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-12
Revised 9-

Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special						Test Date 10/27/83	
Company Northwest Pipeline Corporation						Connection New Completion	
Pool Basin				Formation Dakota		Unit San Juan 30-5	
Completion Date 9/30/83		Total Depth 8033'		Plug Back TD 8000'		Elevation 6671' KB	
Casing Size 4.500		ID 11.6		Set At 4.052		Well No. #91	
Perforations: From 7943'		To 7988'					
Tubing Size 2.375		ID 4.7		Set At 1.995		Well No. #91	
Perforations: From		To					
Type well - Single - Blindhead - G.G. or G.O. Multiple Gas - Single						Facker Set At None	
Producing Thru Tubing						County Rio Arriba	
Reservoir Temp. °F A		Mean Annual Temp. °F		Sard. Press. - P _g 12.0		State New Mexico	
L		H		Gg Est. .590		% CO ₂	
				% N ₂		% H ₂ S	
Positive Choke						Meter Run	
Taps							

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.	Temp. °F	Press. p.s.i.g.	Temp. °F	
1.	SIP						2660		2660		
2.	2"	X	.750"			69°	79	69°	385	69°	3 Hrs
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		91	.992	1.302	1.006	1135
2.							
3.							
4.							
5.							

NO.	P _i	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/b
1.					A.P.I. Gravity of Liquid Hydrocarbons _____ D _{15.6}
2.					Specific Gravity Separator Gas _____ 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.
5.					Critical Temperature _____ R

P _c 2672	P _c ² 7139584
NO. 1	P _i ² 397
2	P _w ² 157609
3	P _c ² - P _w ² 6981975
4	
5	

$$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 1.0226$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1155$$

$$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.0169$$

Absolute Open Flow	1155	Mcfd @ 15.025	Angle of Slope @	15.025	Slope, n	.75
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Remarks: Produced light mist throughout test. Vented 192 MCF.

Approved By Commission:	Conducted By: Gip Aulbert	Calculated By: M.J. Turnbaugh	Checked By: DIST 3
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NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
P.O. BOX 90
FARMINGTON NEW MEXICO 87499
5112-113-83

December 2, 1983

Mr. A.M. Roney
Amoco Production Company
1670 Broadway, Suite 750
Amoco Building
Denver, Colorado 80202

Re: Downhole Commingling
San Juan 30-5 Unit #91
SW/4 Sec 25, T30N, R5W
Rio Arriba Co. 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 Joe Ramey, with the NMOCD in Santa Fe, within 20 days. This letter is being sent by certified mail in accordance with NMOCD Regulations

Sincerely,

Paul C. Thompson
Paul C. Thompson
Sr. Drilling Engineer

PCT/dlw

Enclosures: Data Sheet
Plat

NOV. 1
NOV. 3

NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
P.O. BOX 90
FARMINGTON, NEW MEXICO 87499
5112-114-83

December 2, 1983

James R. Permenter
El Paso Natural Gas Company
P.O. Box 1492
El Paso, Texas 79978

Re: Downhole Commingling
San Juan 30-5 Unit #91
SW/4 Sec 25, T30N, R5W
Rio Arriba Co. 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 Joe Ramey, with the NMOCD in Santa Fe, within 20 days. This letter is being sent by certified mail in accordance with NMOCD Regulations

Sincerely,

Paul C. Thompson

Paul C. Thompson
Sr. Drilling Engineer

PCT/dlw

Enclosures: Data Sheet
Plat

NORTHWEST PIPELINE CORPORATION

PRODUCTION & DRILLING
P.O. BOX 90
FARMINGTON, NEW MEXICO 87499
5112-115-83

December 2, 1983

Robert Kent
Bureau of Land Management
505 Marquette NW
815 Western National Bank Building
Albuquerque, N.M. 87102

Re: Downhole Commingling
San Juan 30-5 Unit #91
SW/4 Sec 25, T30N, R5W
Rio Arriba Co. 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 Joe Ramey, with the NMOCD in Santa Fe, within 20 days. This letter is being sent by certified mail in accordance with NMOCD Regulations.

Sincerely,

Paul C. Thompson

Paul C. Thompson
Sr. Drilling Engineer

PCT/dlw

Enclosures: Data Sheet
Plat

P22 0273473

RECEIPT FOR CERTIFIED MAIL

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

SENT TO		Bureau of Land Manag-	
STREET AND NO.		Robert Kent	
P.O. STATE AND ZIP CODE		505 Marquette N.W. Albuquerque, N.M. 87102	
POSTAGE		\$.20	
CERTIFIED FEE		.75	
SPECIAL DELIVERY		c	
RESTRICTED DELIVERY		c	
SHOW TO WHOM AND DATE DELIVERED		c	
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY		c	
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY		c	
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY		c	
TOTAL POSTAGE AND FEES		\$.95	
POSTMARK OR DATE			

PS Form 3800, Apr. 1976 S.J. 30-5 Unit #91 (G1)

P22 0273474

RECEIPT FOR CERTIFIED MAIL

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

SENT TO		El Paso Natural Gas	
STREET AND NO.		James R. Permenter	
P.O. STATE AND ZIP CODE		P.O. Box 1492 El Paso, Texas 79978	
POSTAGE		\$.20	
CERTIFIED FEE		.75	
SPECIAL DELIVERY		c	
RESTRICTED DELIVERY		c	
SHOW TO WHOM AND DATE DELIVERED		c	
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY		c	
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY		c	
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY		c	
TOTAL POSTAGE AND FEES		\$.95	
POSTMARK OR DATE			

PS Form 3800, Apr. 1976 S.J. 30-5 Unit #91 (G1)

P22 0273475

RECEIPT FOR CERTIFIED MAIL

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

SENT TO		Amoco Production	
STREET AND NO.		Mr. A.M. Roney	
P.O. STATE AND ZIP CODE		1670 Broadway Suite 750 Denver, Colo-80202	
POSTAGE		\$.20	
CERTIFIED FEE		.75	
SPECIAL DELIVERY		c	
RESTRICTED DELIVERY		c	
SHOW TO WHOM AND DATE DELIVERED		c	
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY		c	
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY		c	
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY		c	
TOTAL POSTAGE AND FEES		\$.95	
POSTMARK OR DATE			

PS Form 3800, Apr. 1976 S.J. 30-5 Unit #91 (G1)

1983

DIV. 9