DISTRICT I

P.O. Box 1980, Hobbs, NM 88241-1980 <u>DISTRICT II</u>

State of New Mexico Energy, Minerals and Natural Resources Department

Form C-107-A

OIL CONSERVATION DIVISION

2040 S. Pacheco Santa Fe, New Mexico 87505-6429 APPROVAL PROCESS:

X Administrative Hearing

811 South First St., Artesia, NM 88210-2835 DISTRICT III

1000 Rio Brazos Rd. Aztec, NM 87410-1693

APPLICATION FOR DOWNHOLE COMMINGLING

EXISTING WELLBORE
___YES _X NO

San Juan 30-5 Unit #52M San Juan 30-5 Unit #52M In Sec. 15, T30N, R5W, Rio Arriba, North Company San Juan 30-5 Unit #52M The forevery death are submitted in Line Land Company The forevery foreign are submitted in Line Land Company 1 Production Medical Management of Pattern Company 1 Production Medical Management of Pattern Company San Juan 30-5 Unit #52M The forevery foreign are submitted in Line Land Company 1 Production Medical Management of Land Company San Juan 30-8 Unit #52M Tage of reaction Medical Line Company San Juan 30-8 Unit #52M San Juan 30-8 Unit #52M Tage of reaction Medical Line Company San Juan 30-8 Unit #52M San Juan 30-8 Unit #5	Phillips Petroleum	Company 55	25 Hury 64 Days	YES <u>X</u> N
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CORRIGO D. 0.17534 Property Crede 0.09258 API NO. 30-039-25677 Finders X. Shift I worked Federal	Lease		, Sec. 15, T30N, R5W	
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S. Present production Gas Gas FEB 13 1988 Gas FEB 13 1988 Gas A. Method of Preduction Flowing	Top and Bottom of Pay Section (Perforations)			Basin Dakota
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5. Bottomole Pressure 5. Bottomole Pressure 6. Coll Creatly (*API) or Cases A Coll - Flowing Statistical Current 6. Coll Gravity (*API) or Cases A Coll - Flowing Statistical Current 7. Producing as Shut-in? Producing as Shut	4. Method of Braduceia	Gas		Gas
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8. Fine Percentage Allocation Formula Serior scent test 9. If allocation formula is based upon something other than current or past production, or is based upon some other method and providing rate projections are distanced and investigation overriding, and royalty interests identical in all commingled of the production be decreased by commingling? 1. Will cross-flow occur? Y Yes No If yes, are fluids compatible, will the formations not be damaged, will any cross flowed production be decreased by commingling? 2. Are all produced fluids from all commingled zones compatible with each other? 3. Will the value of production be decreased by commingling? 3. Will the value of production be decreased by commingling? 4. If this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. 5. Find No. 1. Community is the state of the proposed downhole commingling? 5. Find No. 1. Will cross-flow occur? 6. Find No. 1. Will cross-flow occur? 7. Yes No. If yes, are fluids compatible, will the formations not be damaged, will any cross flowed production be recovered, and will the allocation formula be reliable. 7. Yes No. (If No. attach explanation) 8. Will the value of production be decreased by commingling? 9. Wes No. (If No. attach explanation) 9. Will the value of production be decreased by commingling? 9. Yes No. (If No. attach explanation) 1. If It his well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the Production curve for each zone for at least one year. (If not available, attach explanation) 1. Froduction curve for each zone to be commingled showing its spacing unit and acreage dedication. 1. Froduction curve for each zone to be commingled showing its spacing unit and acreage dedication. 2. Production curve for each zone to be commingled showing its spacing unit and acreage dedication. 3. Available M. W. W. A. W. A.	Oil Zones - Artificial Lift: Estimated Current Gas & Oil - Flowing:			a.(24 hr. SI) 988 psi
6. Oil Grevity (*API) or Gas BTU Content 10 30 btu/ft ³ 7. Producing or Shut-in? Production Marginal? (yes or no) Production Marginal? (yes or no) Production Marginal? (yes or no) Wes If Shut-in, give date and oilloss/ water rates of last production Note: For ever west who production Passe: If Producing, give date and oilloss/ (within 80 days) If If allocation formula is based upon something other than current or past production, or is based upon some other method Rese: 400 mc fd Rese: 400	All Gas Zones: Measured Current Estimated Or Measured Original	1	b.	b
Production Marginal? Iyas or no) Production Marginal? Production Marginal Marg		1294 psi (est.)		3412 psi (est.)
Production Marginal? Iyes or nol yes		1030 btu/ft ³		990 btu/ft ³
## Shut-in, give date and oil/gas/ water rates of last production **Note: For new years with no production history, water production production history, water rates of last production **Note: For new years with no production history, water production history, water production history, water production production history, water production, give date andoil/gas/ water production production for production be decreased by commingling? ### Wes	7. Producing or Shut-In?			D
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If producing, give date andoil/gas/ water rates of frecent test Author	Note: For new zones with no production history,	Rates:	Retes:	
8. Fixed Percentage Allocation Formula: % for each zone 9. If allocation formula is based upon something other than current or past production, or is based upon some other method submit attachments with supporting data and/or explaining method and providing rate projections or other required data. If not, have all working, overriding, and royalty interests identical in all commingled zones? 1. If not, have all working, overriding, and royalty interests been notified by certified mail? 1. Will cross-flow occur? X yes No If yes, are fluids compatible, will the formations not be damaged, will any cross flowed production be recovered, and will the allocation formula be reliable. X yes No (If No, attach explanation) flowed production be decreased by commingling? 2. Are all produced fluids from all commingled zones compatible with each other? X yes No (If No, attach explanation) formula be reliable. Y yes No (If Yes, attach explanation) formula be reliable. Y yes No (If Yes, attach explanation) for this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. Yes No (If Yes and No) is Called the Allocation formula be reliable. Yes No (If Yes and No) is Called the Allocation formula be reliable. Yes No (If Yes and No) is Called the Allocation formula or the United States Bureau of Land Management has been notified in writing of this application. Yes No (If Yes and No) is Called the Allocation formula or the Allocation formula or the Allocation formula or the Allocation formula or the Version of the Allocation formula or the Version of the Version of the Allocation formula or the Version of the Versi	If Producing, give date andoil/gas/ water rates of recent test		· ·	Date: 2/4/98 Rates: 222
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2. If allocation formula is based upon something other than current or past production, or is based upon some other method submit attachments with supporting data and/or explaining method and providing rate projections or other required data if not, have all working, overriding, and royalty interests identical in all commingled zones? Are all working, overriding, and royalty interests been notified by certified mail? Yes X No Have all working, overriding, and royalty interests been notified by certified mail? Yes No Have all offset operators been given written notice of the proposed downhole commingling? Yes No Have all offset operators been given written notice of the proposed downhole commingling? Will cross-flow occur? X Yes No If yes, are fluids compatible, will the formations not be damaged, will any cross flowed production be recovered, and will the allocation formula be reliable. X Yes No (If No, attach explanation flowed production be recovered, and will the allocation formula be reliable. X Yes No (If No, attach explanation). Are all produced fluids from all commingled zones compatible with each other? X Yes No (If No, attach explanation). Will the value of production be decreased by commingling? Yes X No (If Yes, attach explanation). If this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. Yes No (If No, attach explanation). Are No (If Yes, attach explanation). Are No (If Yes, attach explanation). Cannot Production Cannot No (If Yes, attach explanation). Production Cannot No (If Yes, attach explanation). Are No (If Yes, attach explanation). Production Cannot No (If Yes, attach explanation). Are Notification list of all offset operators. Notification list of all offset operators. Any additional statements, data, or documents required to support commingling. Are Production Cannot No (If Yes, No. (If Yes, No. (If Yes, No. (If Yes, No. (If Y	Formula -% for each zone	% % %	% Gas: %	a, das:
• Any additional statements, data, or documents required to support commingling. sereby certify that the information above is true and complete to the best of my knowledge and belief. GNATURE Mash W. States TITLE Reservoir Engr. DATE 2/10/98	If not, have all working, overriding, an If not, have all working, overriding, and If not, have all offset operators been all offset operators been all offset operators. 1. Will cross-flow occur? X ye flowed production be recovered. 2. Are all produced fluids from all of the value of production be all of the value of value	d royalty interests identical inding, and royalty interests be given written notice of the proses. No If yes, are fluids d, and will the allocation form commingled zones compatible decreased by commingling? Zed with, state or federal land Management has been notified to be commingled showing each zone for at least one yroduction history, estimated particles.	an all commingled zones? Seen notified by certified mail? Soposed downhole commingling? compatible, will the formations in nula be reliable. X Yes No Note with each other? X Yes X No (If Not available, attach experioduction rates and supporting	Yes X No Yes No Yes No Yes No Ot be damaged, will any cross- (If No, attach explanation) S, attach explanation) Public Lands or the Yes No ication. Idanation.) data.
THE Reservoir Engr. DATE 2/10/98	* Any additional states	orking, overriding, and royalt ments, data, or documents remains above is true and complete	to the best of my knowledge an	d belief.
PE OR PRINT NAME Mark W. Stodola TELEPHONE NO 1505 , 599-3455			TITLE Reservoir Engr	• DATE 2/10/98
	PE OR PRINT NAME Mark W.	Stodola	TELEPHONE NO 15	05 , 599-3455

DISTRICT 1 P.O. Bax 1980, Hobbs, N.M. 88241-1980

State of New Mexico Energy, Minerals & Natural Resources Department

Form C-102 Revised Febuary 21, 1994 Instructions on back Appropriate District Office

DISTRICT II P.O. Drawer DD. Artesia, N.M. 68211-0719 Submit to Appropriate District Office
State Lease — 4 Copies
Fee Lease — 3 Copies

DISTRICT III 1000 Rio Brezos Rd., Axtec, N.M. 87410

OIL CONSERVATION DIVISION
F.O. Box 2088
Santa Fe, NM 87504-2088

☐ AMENDED REPORT

DISTRICT IV PO Box 2088, Santa Fe, NN 87504-2088

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017654					•				* Elevation
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DISTRICT I F.O. Bax 1980, Hobbs, N.M. 88241-1980

State of New Mexico Energy, Minerals & Natural Resources Department

Form C-102

DISTRICT II P.O. Drawer DD. Artesia, N.M. 66211-0719

Revised Febuary 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

DISTRICT III
1000 Rio Brazos Rd., Axtec, N.M. 67410

OIL CONSERVATION DIVISION P.O. Box 2086 Santa Fe, NM 87504-2088

☐ AMENDED REPORT

DISTRICT IV PO Box 2088, Santa Fe, NM 87504-2088

		TAI	ICATION P	EAGE DEL	N AND AC	LOCATI	WELL			
								l Number	*AF	
				n Dakota			/13	1		
Wall Number	•				Property	ž			Code	⁴ Property
52M					M JUAN 3					009258
Elevation				16	4 Operator				٥.	OGRID N
6479					HILLIPS PE	f		· · · · · · · · · · · · · · · · · · ·	1	017654
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Fd.Bc. G.L.O. 1916

Fd.Bc. G.L.O. 1916

PHILLIPS PETROLEUM COMPANY 5825 HWY 64 NBU 3004 FARMINGTON, NEW MEXICO 87401

DATE: FEBRUARY 6, 1998

WELL NAME: SAN JUAN 30-5 # 52/

FORMATION: DAKOTA

TYPE TEST: STATIC GRADIENT

COUNTY: RIO ARRIBA STATE: NEW MEXICO

ELEVATION:

GL.

CASING PRESSURE:

890

TOTAL DEPTH:

7999' 7960' TO 7972' TUBING PRESSURE: OIL LEVEL:

890

PERFORATIONS: TUBING SIZE:

2 3/8 TO 7907'

WATER LEVEL: TEMPERATURE:

CASING SIZE:

TO

AMERADA ELEMENT NUMBER: 87977

PACKER:

RANGE: 0-2500

OTHER: PRESSURE @ SHUT IN

WELL STATUS: SHUT IN 24 HES

CASING 800. TUBING 420

@ 12:00 2-5-98

INDIVIDUAL WELL DATA SHEET

FLOWING GRADIENT TRAVERSE

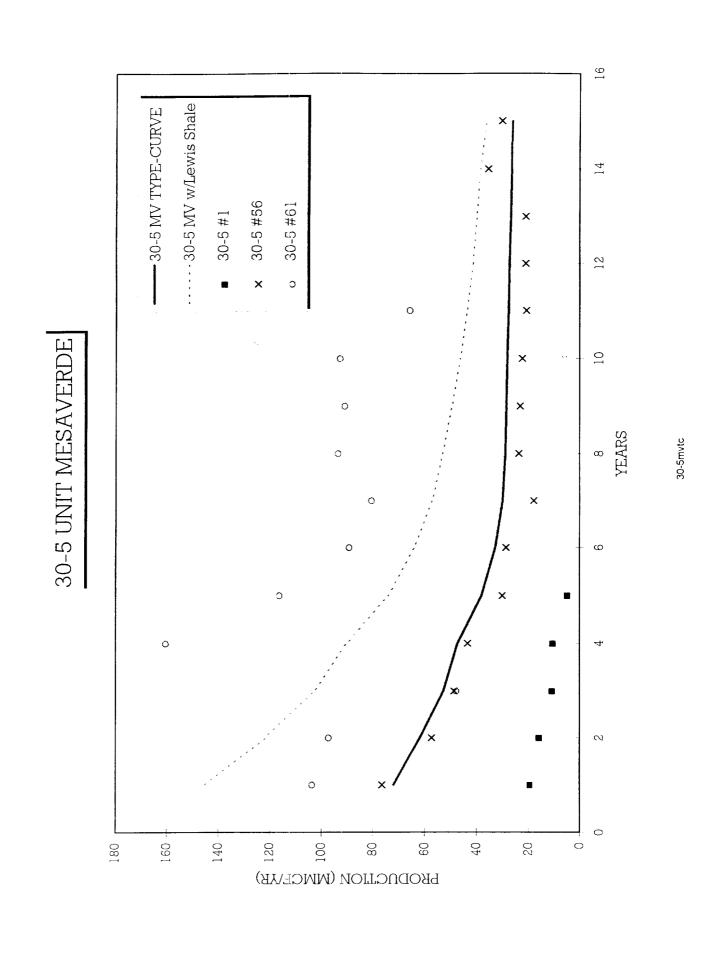
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H & H WIRELINE SERVICE INC. F. O. BOX 899 FLORA VISTA. N. MEX. 87415 OPERATOR: CHARLES HUGHES UNIT NO. T-10

Dakota Production Forecast for 30-5 Unit Well #52M

Year	Month	Gas (MCF)
Feb. 98	l	8,327
Mar	2	9,138
Apr	3	8,766
May	4	8,979
Jun	5	8,613
Jul	6	8,823
Aug	7	8,746
Sep	8	8,390
Oct	9	8,593
Nov	10	8,243
Dec	11	8,444
1999	12	8,370
Feb	13	7,494
Mar	14	8,224
Apr	15	7,889
May	16	8,081
Jun	17	7,752
Jul	18	7,940

Initial Rate = 300 MCF/D



February 10, 1998

New Mexico Oil & Gas Conservation Div. 2040 South Pacheco Santa Fe, NM 87505-6429

Downhole Commingling Allocation Method on the San Juan 30-5 Unit # 52M

Dear Sirs:

Phillips is proposing to utilize the subtraction method on the subject well for approximately six months after actual commingling occurs. After the six month period we will convert to the ratio method as indicated in our commingling application. We believe this will be a more accurate method of allocating production considering that the Dakota interval has been producing for several months and that the production will not be stabilized on the Mesaverde for several months.

Dakota Production Forecast

February 1998	8,327	March 1998	9,183
April 1998	8,766	May 1998	8,979
June 1998	8,613	July 1998	8,823
August 1998	8,746	September 1998	8, 390
October 1998	8, 593	November 1998	8,243

For example, if the total volume for September 1998 were 15,500 mcf, then the Dakota would be allocated 8,390 mcf and the Mesaverde 7,110 mcf. And subsequently, the Dakota would be allocated 8,390/15,500) or 54,13%, and Mesaverde would be allocated (7,110/15,500) or 45.87%.

Sincerely,

PHILLIPS PETROLEUM COMPANY

Mark W. Stodola

Mark W. Stodola Reservoir Engineer

MS/pc

cc: OCD - Aztec

BLM - Farmington

NM Commissioner of Public Lands - Santa Fe



NEW MEXICO ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE
AZTEC NM 87410
(505) 334-6176 FAX: (505) 334-6170
http://www.isiae.com/district.htm

GARY E. JOHNSON

Jennifer A. Salisbury

January 6, 1998

Mr Mark W Stodola Phillips Petroleum Co 5525 Hwy 64 NBU 3004 Farmington NM 87401

Re: San Juan 30-5 Unit #110M, API# 30-039-25658, E-16-30N-05W, DHC

Dear Mr. Stodola:

Your recommended allocation of commingled production using the subtraction method for the referenced well is hereby accepted through the month of June 1998. Beginning in July you will submit a recommended allocation formula based on historical production values.

If you have any questions, please contact me.

Yours truly,

Ærnie Busch

District Geologist/Deputy O&G Inspector

EB/sh

cc: well file



December 17, 1997

NM Oil & Gas Conservation Division 1000 Rio Brazos Rd. Aztec, NM 87410

> Downhole Commingling Allocation Method on the 30-5 Unit #110M

Dear Sirs:

Phillips proposes to utilize the subtraction method through June 1998, and then convert to the ratio method after June 1998. We believe this will be a more accurate method of allocating production considering that the production will not be stabilized on the Mesaverde for several months.

Dakota Production Forecast

Dec. 1997	6879 mcf
Jan. 1998	6814 mcf
Feb. 1998	6097 mcf
March 1998	6687 mcf
April 1998	6410 mcf
May 1998	6561 mcf
June 1998	6290 mcf

For example, if the total June 1998 were to be 12,290 mcf, then the Dakota would be allocated 6290 mcf and the Mesaverde 6000 mcf. And subsequently, the Dakota would be allocated (6290/12,290) or 51.18%, and the Mesaverde would be allocated (6000/12,290) or 48.82%.

Sincerely,

PHILLIPS PETROLEUM COMPANY

Mark W. Stedela

Mark W. Stodola 14, 2 Reservoir Engineer 1, 2

PARPI - WELLZONE PRODUCTION BROWSE Date: 2/10/98 MEP81-01

DAILY AVERAGE BY MONTH User: MWSTODO

Wellzone F0624 02 Yr: 1997 Mth: 05 Property: 650402 SAN JUAN 30-5 DAKOTA UNIT-

Screen: 1 (1-Prod, 2-Inj, 3-Both) Well No: 000052M

Type: D (T-Total, D-Daily Avg) Field: 042233 BASIN

Period: M (M-Mnthly, Y-Yrly, C-Cum) Resvr: 20079 DAKOTA NQ

	. 				
ADJ		PRODUCED		DAYS	WELL -
FLG DATE	OIL (BBL)	GAS (MCF/D) WATER (E	BBL)	PROD	OP ST CL TY
* 1997-05	0.00	21	0	10.00	10 11 11 2
1997-06	0.00	344	0	30.00	30 11 11 2
1997-07	0.00	224	0	31.00	31 11 11 2
1997-08	0.00	139	0	31.00	31 11 11 2
1997-09	0.00	102	0	30.00	30 11 11 2
* 1997-10	0.00	169 Added Main	12	31.00	11 11 11 2
* 1997-11	0.00	169 < Added Main 511 Dakota Pay	0	30.00	30 11 11 2
1997-12	0.00	339	0	31.00	31 11 11 2

NO MORE DATA AVAILABLE

PA1=ICE PA2=Exit PF1=Help PF3=End PF11=GRAPH PF7=Backward PF8=Forward PF4=PREV SCREEN PF12=LOG GRAPH Transfer->

Date: 02/10/98 Time: 11:04:40 AM

Production Allocation Methodology

- ◆ Adding New Zone to Existing Zone Initially Subtraction Method followed by Fixed Allocation Method
 - Subtraction Method (+/- 1st 12 months)
 - Forecast production rate by month for existing zone utilizing established decline curve for zone
 - Subtract forecasted rate from commingled rate to define new zone rate
 - Utilize subtraction method for +/- 12 months until new zone rate stabilizes, then utilize fixed allocation method with current rates
 - Fixed Allocation Method (after Subtraction Method)
 - Utilize forecasted rate from established decline curve for lower zone
 - Calculate upper zone rate by subtracting lower zone rate from commingled rate
 - Lower zone allocation = <u>Lower zone rate</u>
 Commingled rate
 - Upper zone allocation = (Commingled rate - Lower zone rate) / Commingled rate

Attachment

OCD Form C-107A (3/12/96)

Item No. 12 - additional explanation:

Based on water analysis from the Mesaverde and Dakota zones and discussions with the chemical treating/analysis company the water from these two zones are compatible. Lab analysis of the individual waters from both the Mesaverde and Dakota formations resulted in positive scaling indices for barium sulfate. There was a slight increase in the barium sulfate scaling index of the combined waters relative to the scaling index of the individual waters.

None of the waters, combined or individual, had meaningful scaling "tendencies and combined with the fact that typical water production from either of these zones in San Juan 30-5 are 0-1 BWPD and no barium sulfate scale has been detected to date, no negative impacts to the formations are anticipated.