

DATE IN 11/2/98	SUSPENSE 11/23/98	ENGINEER DC	LOGGED BY W	TYPE DHC
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ABOVE THIS LINE FOR DIVISION USE ONLY

# NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

2040 South Pacheco, Santa Fe, NM 87505



2109

## ADMINISTRATIVE APPLICATION COVERSHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATION FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

### Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]
- [DD-Directional Drilling] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

### [1] TYPE OF APPLICATION - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Directional Drilling

☐ NSL ☐ NSP ☐ DD ☐ SD

NOV - 2 1998

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement

☒ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery

☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

### [2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO

U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

### [3] INFORMATION / DATA SUBMITTED IS COMPLETE - Certification

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I understand that any omission of data (including API numbers, pool codes, etc.), pertinent information and any required notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Mark Stodola  
Print or Type Name

Mark Stodola  
Signature

Reservoir Engr.  
Title

10/30/98  
Date

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88241-1980  
DISTRICT II  
811 South First St., Artesia, NM 88210-2835  
DISTRICT III  
1000 Rio Brazos Rd, Aztec, NM 87410-1693

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-107-A  
New 3-12-96

APPROVAL PROCESS:

☒ Administrative ☐ Hearing

EXISTING WELLBORE

☐ YES ☒ NO

APPLICATION FOR DOWNHOLE COMMINGLING

Operator Phillips Petroleum Company Address 5525 Hwy. 64 Farmington, N.M. 87401

Lease San Juan 29-5 Well No. 57-M Unit Ltr. - Sec - Twp - Rge P Sec. 20, T29N, R5W County Rio Arriba

GRID NO. 017654 Property Code 009256 API NO. 30-039-25833 Spacing Unit Lease Types: (check 1 or more)  
Federal ☒ State ☐ Land/for Fee ☐

The following facts are submitted in support of downhole commingling:	Upper Zone	Intermediate Zone	Lower Zone
1. Pool Name and Pool Code	Blanco Mesa Verde 72319		Basin Dakota 71599
2. Top and Bottom of Pay Section (Perforations)			
3. Type of production (Oil or Gas)	Gas		Gas
4. Method of Production (Flowing or Artificial Lift)	Flowing		Flowing
5. Bottomhole Pressure Oil Zones - Artificial Lift: Gas & Oil - Flowing: All Gas Zones: Estimated Current Measured Current Estimated Or Measured Original	a. (Current) 800 psia(est.) b. (Original) 1234 psia(est.)	a.  b.	a. 1050 psia(est.) b. 2981 psia(est.)
6. Oil Gravity (°API) or Gas BTU Content	1150 BTU/SCF		1020 BTU/SCF
7. Producing or Shut-In?			
Production Marginal? (yes or no)	Yes		Yes
* If Shut-In, give date and oil/gas/water rates of last production Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data * If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: Rates:	Date: Rates:	Date: Rates:
8. Fixed Percentage Allocation Formula - % for each zone	Oil: % Gas: %	Oil: % Gas: %	Oil: % Gas: %

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.

10. Are all working, overriding, and royalty interests identical in all commingled zones? ☐ Yes ☒ No  
If not, 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

11. Will cross-flow occur? ☒ 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. ☒ Yes ☐ No (If No, attach explanation)

12. Are all produced fluids from all commingled zones compatible with each other? ☒ Yes ☐ No (see attachment)

13. Will the value of production be decreased by commingling? ☐ Yes ☒ No (If Yes, attach explanation)

14. 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

15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S). R-10770

16. ATTACHMENTS:

- \* C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- \* Production curve for each zone for at least one year. (If not available, attach explanation.)
- \* For zones with no production history, estimated production rates and supporting data.
- \* Data to support allocation method or formula.
- \* Notification list of all offset operators.
- \* Notification list of working, overriding, and royalty interests for uncommon interest cases.
- \* Any additional statements, data, or documents required to support commingling.

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

SIGNATURE Mark Stodola TITLE Reservoir Engr. DATE 10/29/98

TYPE OR PRINT NAME Mark Stodola TELEPHONE NO. ( 505 ) 599-3455

Box 1980, Hobbs, NM 88241-1980  
District II  
811 South First, Artesia, NM 88210  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
2040 South Pacheco, Santa Fe, NM 87505

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION  
2040 South Pacheco  
Santa Fe, NM 87505

Revised October 18, 1994

Instructions on back

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

APL Number	Pool Code 72319	Pool Name Blanco Mesavero
Property Code 009256	Property Name SAN JUAN 29-5 UNIT	Well Number 57M
OGRIID No. 017654	Operator Name PHILLIPS PETROLEUM CO.	Elevation 6702

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	20	29N	5W		800	SOUTH	920	EAST	RIO ARriba

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P									
Dedicated Acres 320 E/2		Joint or Infill I.		Consolidation Code		Order No.			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16	5282.64'	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief  <i>Richard Allred</i> Signature Richard Allred Printed Name Drilling Superintendent Title 9-30-98 Date
	Sec 20	
	NM-03188	
5280'	5280'	18 SURVEYOR CERTIFICATION 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 belief.  11-10-97 Date of Survey Signature and Seal of Professional Surveyor:  920' 800'
5287.92'		

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OIL CONSERVATION DIVISION  
2040 South Pacheco  
Santa Fe, NM 87505

Revised October 10, 1974  
Instructions on back  
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State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. API Number	2. Pool Code 11599	3. Pool Name Basin Dakota
4. Property Code 009256	5. Property Name SAN JUAN 29-5 UNIT	6. Well Number 57M
7. OGRID No. 017654	8. Operator Name PHILLIPS PETROLEUM CO.	9. Elevation 6702

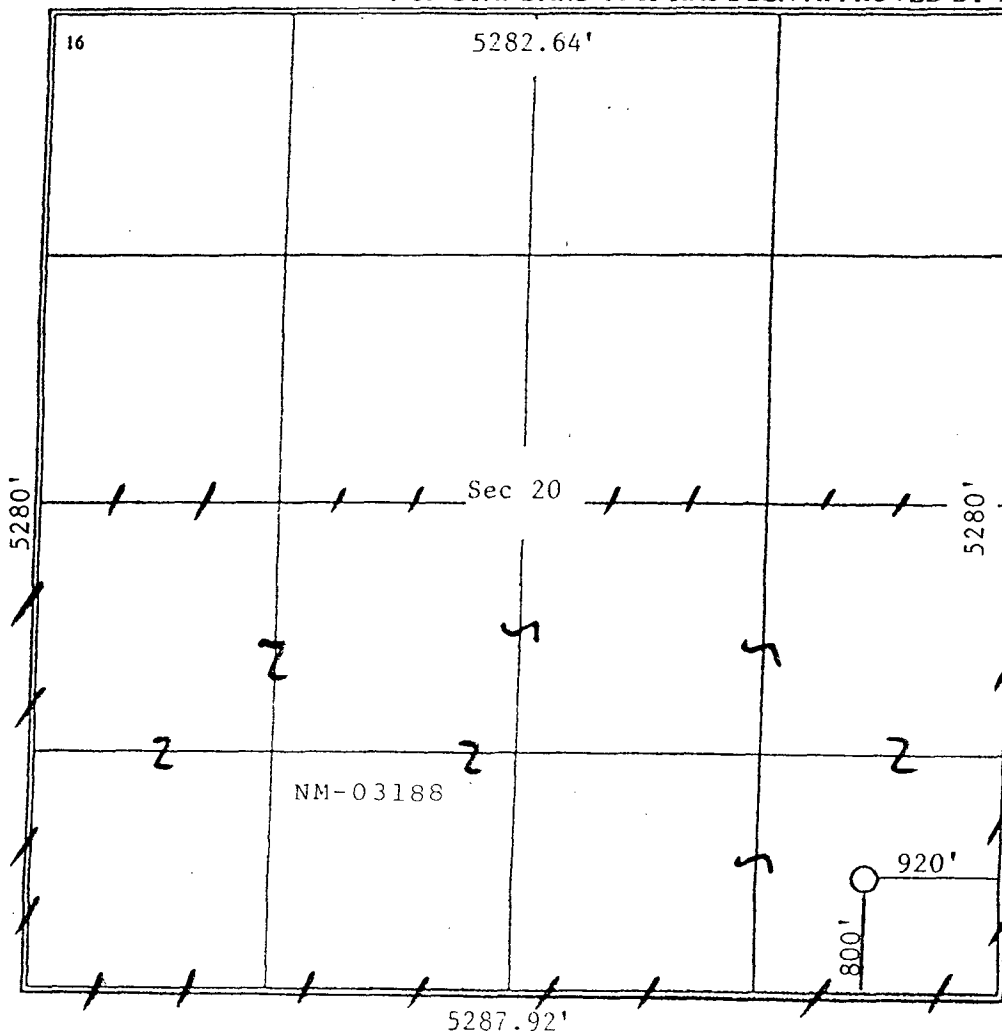
10. Surface Location

UL or lot no.	Section	Township	Range	Lot 1dn	Feet from the	North/South line	Feet from the	East/West line	County
P	20	29N	5W		800	SOUTH	920	EAST	RIO ARriba

11. Bottom Hole Location If Different From Surface

UL or lot no. P	Section	Township	Range	Lot 1dn	Feet from the	North/South line	Feet from the	East/West line	County
12. Dedicated Acres 320 S/2	13. Joint or Infill I	14. Consolidation Code		15. Order No.					

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16	5282.64'		17. OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief  Signature Richard Allred Printed Name Superintendent Drilling Title 9-30-98 Date
			18. SURVEYOR CERTIFICATION 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 belief.  11-10-97 Date of Survey Signature and Seal of Professional Surveyer:  CHERRY P. BROADHURST NEW MEXICO 11323 Certificate Number PROFESSIONAL SURVEYOR



**PHILLIPS PETROLEUM COMPANY**

FARMINGTON, NEW MEXICO 87401  
5525 HWY. 64 NBU 3004

October 30, 1998

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

Downhole Commingling Allocation Method  
for the San Juan 29-5 Unit # 57M

Dear Sirs:

Phillips is proposing to utilize the ratio method on the subject well. In accordance with the Commingling Order #R-10770, the Dakota will be tested by itself until a stabilized rate is obtained. The Mesaverde will then be completed. Both zones will be tested together, at which time a suitable allocation will be determined.

Attached are the Dakota and Mesaverde Decline Curve Forecast and Normalized History with Type Curve for the San Juan 29-5 Unit.

Sincerely,

PHILLIPS PETROLEUM COMPANY

Mark W. Stodola  
Reservoir Engineer

MS/pc

cc:     OCD – Aztec  
       BLM – Farmington  
       NM Commissioner of Public Lands – Santa Fe

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.

- b) the average current shut-in bottomhole pressure within the Mesaverde and Dakota formations are approximately 843 psi and 1,224 psi, respectively.

(10) There is sufficient pressure data available within the San Juan 29-5 Unit so as to except pressure criteria as proposed by the applicant.

(11) The applicant testified that various allocation methods will be utilized for downhole commingled wells within the San Juan 29-5 Unit depending on the circumstances. Some of the methods and circumstances are described as follows:

- a) in those instances where a newly completed zone is commingled with an existing producing interval with an established decline, the subtraction method will be utilized for a period of +/- 12 months. Subsequent to this time, and assuming that the production rate has stabilized, a fixed allocation will be determined and utilized; and,

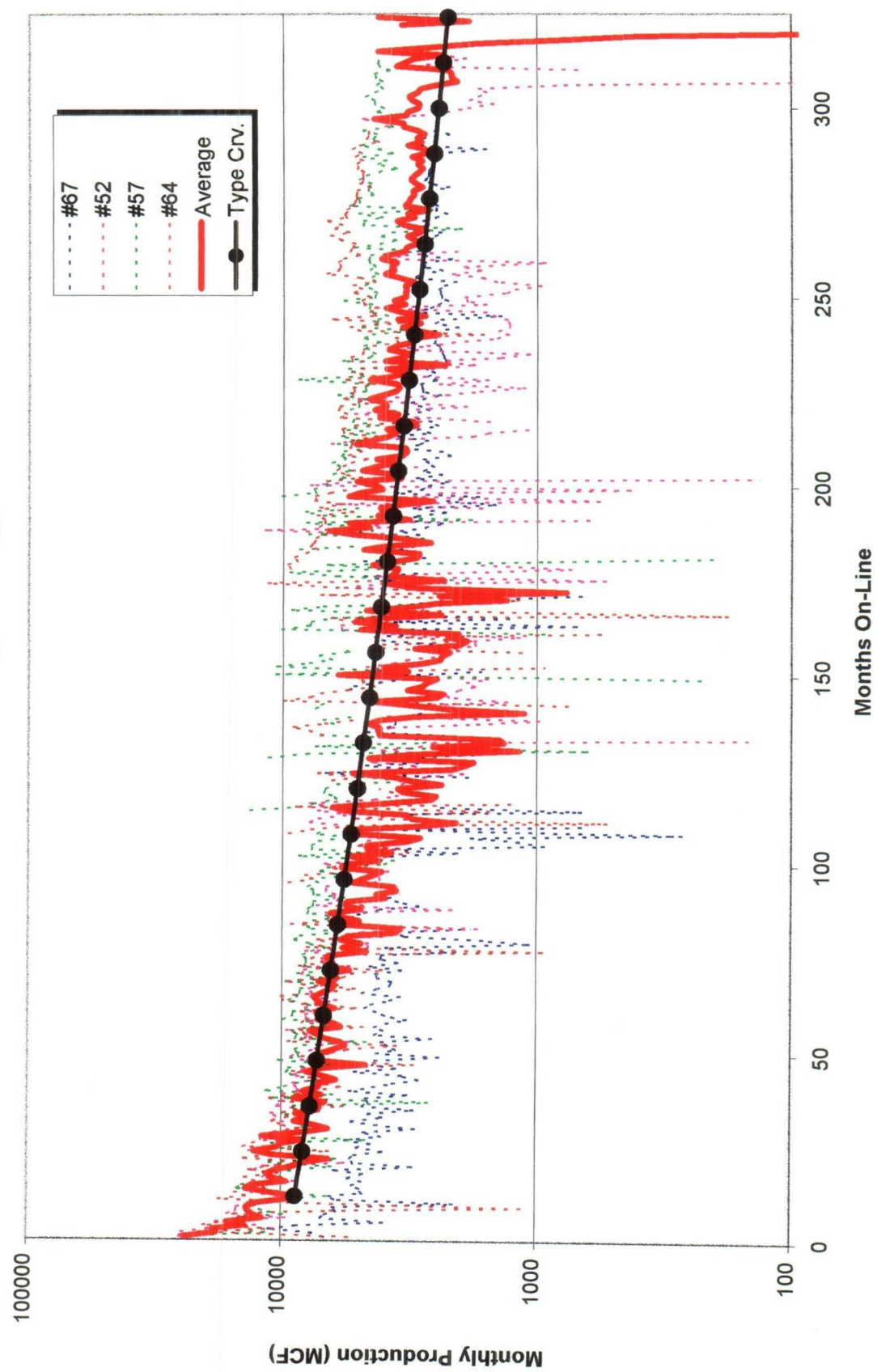
- (b) in those instances where a well is newly drilled, the lower zone will be production tested for a period of two to four weeks or until a stabilized rate is obtained. Subsequent to that time, a stabilized rate from both commingled zones within the well will be obtained. A fixed allocation of production will then be determined utilizing the data obtained from the flow tests.

(12) The allocation methods proposed by the applicant are routinely utilized by industry and approved by the Division and therefore, the proposal to except allocation formulas should be approved.

(13) In support of its request to establish a "reference case" or administrative procedure for providing notice within the San Juan 29-5 Unit the applicant presented evidence and testimony which indicates that:

- a) the interest ownership between two zones within a given wellbore in the San Juan 29-5 Unit is generally not common;
- b) pursuant to Division Rule No. 303.D., applicant is currently required to notify all interest owners within the San Juan 29-5 Unit every time a Form C-107-A is submitted to the Division. There are a considerable number of such interest owners within the unit;
- c) providing notice to each interest owner within the San Juan 29-5 Unit of subsequent downhole comminglings is unnecessary and is an excessive burden on the applicant;

## 29-5 Dakota

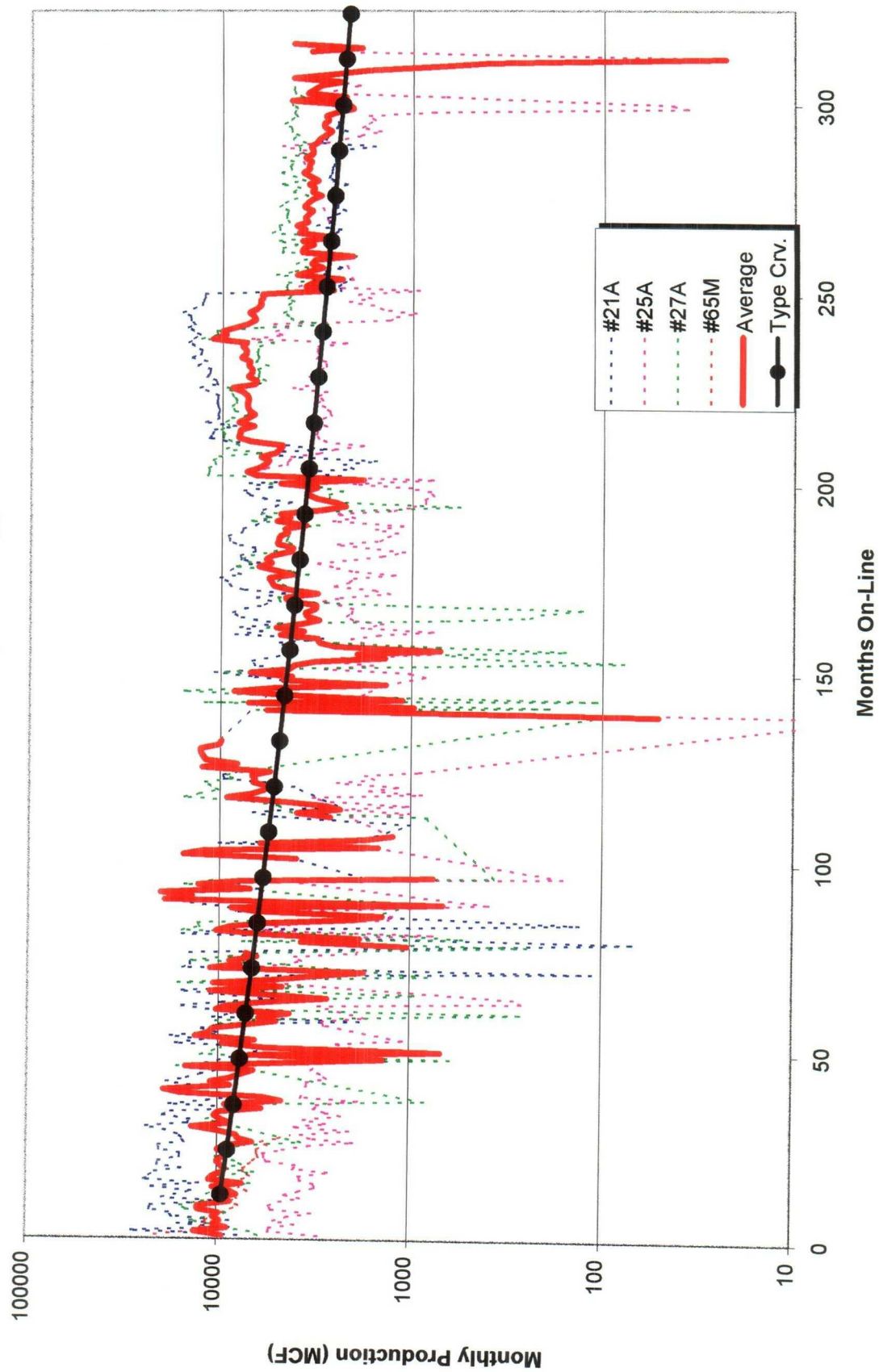


### Decline Curve Forecast

Initial Production Rate	=	300	MCFD
Hyperbolic Exponent	=	0.33	
Decline Rate	=	6.75	%

Year	Year #	Initial q MCFD	Final q MCFD	Average q MCFD	Cum. MCF	Yearly MCF
1999	1	300	281	290	105,912	105,912
2000	2	281	263	272	205,055	99,143
2001	3	263	247	255	297,993	92,938
2002	4	247	232	239	385,232	87,239
2003	5	232	218	225	467,227	81,995
2004	6	218	205	211	544,390	77,163
2005	7	205	193	199	617,091	72,702
2006	8	193	183	188	685,668	68,577
2007	9	183	172	177	750,426	64,758
2008	10	172	163	168	811,643	61,217
2009	11	163	154	159	869,572	57,929
2010	12	154	146	150	924,443	54,871
2011	13	146	139	143	976,468	52,025
2012	14	139	132	135	1,025,839	49,371
2013	15	132	125	129	1,072,734	46,895
2014	16	125	119	122	1,117,315	44,581
2015	17	119	113	116	1,159,732	42,417
2016	18	113	108	111	1,200,122	40,390
2017	19	108	103	105	1,238,611	38,490
2018	20	103	98	101	1,275,318	36,707
2019	21	98	94	96	1,310,349	35,032
2020	22	94	90	92	1,343,806	33,457
2021	23	90	86	88	1,375,781	31,975
2022	24	86	82	84	1,406,361	30,579
2023	25	82	78	80	1,435,624	29,263
2024	26	78	75	77	1,463,645	28,021
2025	27	75	72	74	1,490,494	26,849
2026	28	72	69	71	1,516,235	25,741
2027	29	69	66	68	1,540,927	24,692
2028	30	66	64	65	1,564,627	23,700
2029	31	64	61	62	1,587,387	22,760
2030	32	61	59	60	1,609,257	21,869
2031	33	59	56	58	1,630,281	21,024
2032	34	56	54	55	1,650,503	20,222
2033	35	54	52	53	1,669,963	19,460
2034	36	52	50	51	1,688,698	18,736
2035	37	50	49	49	1,706,745	18,047
2036	38	49	47	48	1,724,136	17,391

29-5 Mesaverde  
Normalized History With Type Curve



### Decline Curve Forecasting

Initial Production Rate	=	325	MCFD
Hyperbolic Exponent	=	0.33	
Decline Rate	=	7.50	%

Year	Year #	Initial q MCFD	Final q MCFD	Average q MCFD	Cum. MCF	Yearly MCF
1999	1	325	302	313	114,320	114,320
2000	2	302	281	291	220,570	106,250
2001	3	281	262	271	319,490	98,920
2002	4	262	244	253	411,739	92,248
2003	5	244	228	236	497,900	86,162
2004	6	228	214	221	578,498	80,598
2005	7	214	200	207	654,000	75,502
2006	8	200	188	194	724,826	70,826
2007	9	188	177	182	791,352	66,527
2008	10	177	166	171	853,920	62,568
2009	11	166	157	161	912,837	58,917
2010	12	157	148	152	968,381	55,543
2011	13	148	140	144	1,020,803	52,422
2012	14	140	132	136	1,070,333	49,530
2013	15	132	125	128	1,117,179	46,846
2014	16	125	118	122	1,161,532	44,353
2015	17	118	112	115	1,203,564	42,032
2016	18	112	106	109	1,243,435	39,871
2017	19	106	101	104	1,281,289	37,855
2018	20	101	96	99	1,317,261	35,972
2019	21	96	91	94	1,351,472	34,211
2020	22	91	87	89	1,384,036	32,564
2021	23	87	83	85	1,415,057	31,020
2022	24	83	79	81	1,444,629	29,572
2023	25	79	76	77	1,472,842	28,213
2024	26	76	72	74	1,499,778	26,936
2025	27	72	69	71	1,525,511	25,734
2026	28	69	66	67	1,550,114	24,603
2027	29	66	63	64	1,573,650	23,536
2028	30	63	60	62	1,596,181	22,531
2029	31	60	58	59	1,617,762	21,581
2030	32	58	55	57	1,638,447	20,685
2031	33	55	53	54	1,658,284	19,837
2032	34	53	51	52	1,677,318	19,034
2033	35	51	49	50	1,695,593	18,275
2034	36	49	47	48	1,713,148	17,555
2035	37	47	45	46	1,730,020	16,872
2036	38	45	44	44	1,746,244	16,224

E.L.