

DHC-1185

DATE 5/15/03	SUSPENSE NA	ENGINEER DRC	LOGGED IN MN	TYPE DHC	PRV0313634274
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION  
 - Engineering Bureau -  
 1220 South St. Francis Drive, Santa Fe, NM 87505



RECEIVED  
 MAY 15 2003

**ADMINISTRATIVE APPLICATION CHECKLIST** OIL CONSERVATION DIVISION

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

**Application Acronyms:**

- [NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [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 - Simultaneous Dedication  
 NSL  NSP  SD
- 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
- [D] Other: Specify \_\_\_\_\_
- [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] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is accurate and complete to the best of my knowledge. I also understand that no action will be taken on this application until the required information and notifications are submitted to the Division.

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

PEGGY COLE \_\_\_\_\_ REGULATORY Supr. \_\_\_\_\_ 5-13-03  
 Print or Type Name Signature Title Date  
 \_\_\_\_\_  
 e-mail Address *pcole@br-inc.com*

District I  
1625 N. French Drive, Hobbs, NM 88240

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-107A  
Revised May 15, 2000

District II  
1301 W. Grand Avenue, Artesia, NM 88210

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

APPLICATION TYPE  
Single Well  
Establish Pre-Approved Pools  
EXISTING WELLBORE  
Y Yes No

District III  
1000 Rio Brazos Road, Aztec, NM 87410

District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

APPLICATION FOR DOWNHOLE COMMINGLING

BURLINGTON RESOURCES OIL & GAS COMPANY PO BOX 4289, FARMINGTON, NM 87499

Operator Navajo Indian B #5 Address L-30-27N-8W San Juan  
Lease Well No. Unit Letter-Section-Township-Range County  
OGRID No. 14538 Property Code 7350 API No. 30-045-06223 Lease Type: X Federal State Fee

Table with 4 columns: DATA ELEMENT, UPPER ZONE, INTERMEDIATE ZONE, LOWER ZONE. Rows include Pool Name, Pool Code, Top and Bottom of Pay Section, Method of Production, Bottomhole Pressure, Oil Gravity or Gas BTU, Producing, Shut-In or New Zone, Date and Oil/Gas/Water Rates of Last Production, and Fixed Allocation Percentage.

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones? Yes X No
Are all produced fluids from all commingled zones compatible with each other? Yes X No
Will commingling decrease the value of production? Yes No X
If this well is on, or communitized with, state or federal lands, has either the Commissioner of Public Lands or the United States Bureau of Land Management been notified in writing of this application? Yes X No

NMOCD Reference Case No. applicable to this well:

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.
Any additional statements, data or documents required to support commingling.

PRE-APPROVED POOLS

If application is to establish Pre-Approved Pools, the following additional information will be required:

- List of other orders approving downhole commingling within the proposed Pre-Approved Pools
List of all operators within the proposed Pre-Approved Pools
Proof that all operators within the proposed Pre-Approved Pools were provided notice of this application.
Bottomhole pressure data.

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

SIGNATURE L. Tom Loveland TITLE Reservoir Engineering DATE 5/7/03
TYPE OR PRINT NAME L. Tom Loveland TELEPHONE NO. ( 505 ) 326-9700

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Ave., Artesia, NM 88210  
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1220 S. St Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

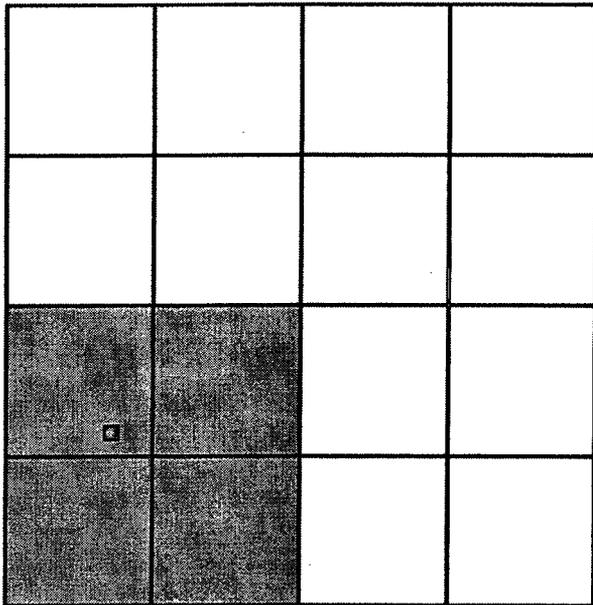
Form C-102

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number 30-045-06223	Pool Name OTERO CHACRA (GAS)	Pool Code 82329
Property Code 7350	Property Name NAVAJO INDIAN B	Well No. 005
OGRID No. 14538	Operator Name Burlington Resources Oil and Gas Company	Elevation 6080

**Surface And Bottom Hole Location**

UL or Lot L	Section 30	Township 27N	Range 08W	Lot Idn	Feet From 1520	N/S Line S	Feet From 960	E/W Line W	County San Juan
Dedicated Acres 160.2	Joint or Infill	Consolidation Code	Order No.						



**OPERATOR CERTIFICATION**  
*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.*  
 Signed By: *[Signature]*  
 Title: Regulatory Supervisor  
 Date: *12-11-02*

**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.*  
 Signed By: James P Leese  
 Date of Survey: 5/20/1964  
 Certificate Number: 1463

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Ave., Artesia, NM 88210  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
1220 S. St Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources

Form C-102

Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number 30-045-06223	Pool Name BLANCO-MESAVERDE (PRORATED GAS)	Pool Code 72319
Property Code 7350	Property Name NAVAJO INDIAN B	Well No. 005
OGRID No. 14538	Operator Name Burlington Resources Oil and Gas Company	Elevation 6080

**Surface And Bottom Hole Location**

UL or Lot L	Section 30	Township 27N	Range 08W	Lot Idn	Feet From 1520	N/S Line S	Feet From 960	E/W Line W	County San Juan
Dedicated Acres 320.8	Joint or Infill	Consolidation Code	Order No.						



**OPERATOR CERTIFICATION**  
*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.*  
 Signed By: *Debbie Case*  
 Title: Regulatory Supervisor  
 Date: 12-11-02

**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.*  
 Signed By: James P Leese  
 Date of Survey: 5/20/1964  
 Certificate Number: 1463

District I  
 1625 N. French Dr., Hobbs, NM 88240  
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 1301 W. Grand Ave., Artesia, NM 88210  
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 District IV  
 1220 S. St Francis Dr., Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-102

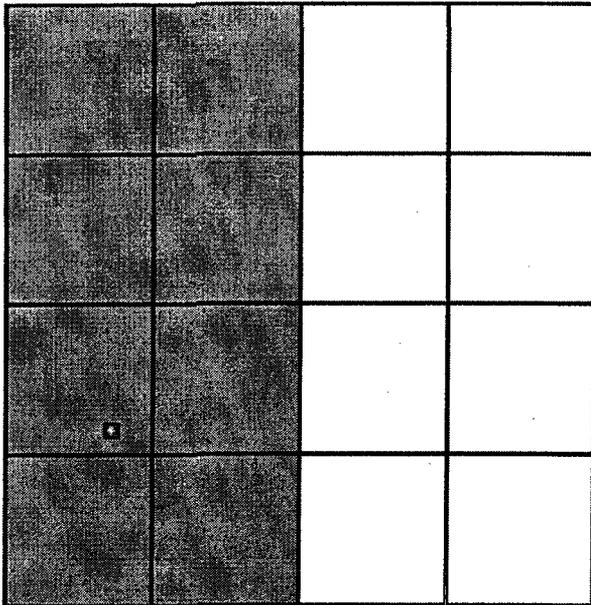
Oil Conservation Division  
 1220 S. St Francis Dr.  
 Santa Fe, NM 87505

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number 30-045-06223	Pool Name BASIN DAKOTA (PRORATED GAS)	Pool Code 71599
Property Code 7350	Property Name NAVAJO INDIAN B	Well No. 005
OGRID No. 14538	Operator Name Burlington Resources Oil and Gas Company	Elevation 6080

**Surface And Bottom Hole Location**

UL or Lot L	Section 30	Township 27N	Range 08W	Lot Idn	Feet From 1520	N/S Line S	Feet From 960	E/W Line W	County San Juan
Dedicated Acres 320.8		Joint or Infill		Consolidation Code		Order No.			



**OPERATOR CERTIFICATION**  
 I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.  
 Signed By: *Regan Cole*  
 Title: Regulatory Supervisor  
 Date: 12-11-02

**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.  
 Signed By: James P Leese  
 Date of Survey: 5/20/1964  
 Certificate Number: 1463

**Navajo Indian B #5**  
**Bottom Hole Pressures**  
**Flowing and Static BHP**  
**Cullender and Smith Method**  
Version 1.0 1/14/98

<b>Chacra</b>	<b>Mesaverde</b>																																																
<b><u>CH-Current</u></b>	<b><u>MV-Current</u></b>																																																
<table style="width: 100%; border-collapse: collapse;"> <tr><td>GAS GRAVITY</td><td style="text-align: right;">0</td></tr> <tr><td>COND. OR MISC. (C/M)</td><td style="text-align: right;">C</td></tr> <tr><td>%N2</td><td style="text-align: right;">0</td></tr> <tr><td>%CO2</td><td style="text-align: right;">0</td></tr> <tr><td>%H2S</td><td style="text-align: right;">0</td></tr> <tr><td>DIAMETER (IN)</td><td style="text-align: right;">0</td></tr> <tr><td>DEPTH (FT)</td><td style="text-align: right;">0</td></tr> <tr><td>SURFACE TEMPERATURE (DEG F)</td><td style="text-align: right;">60</td></tr> <tr><td>BOTTOMHOLE TEMPERATURE (DEG F)</td><td style="text-align: right;">0</td></tr> <tr><td>FLOWRATE (MCFPD)</td><td style="text-align: right;">0</td></tr> <tr><td>SURFACE PRESSURE (PSIA)</td><td style="text-align: right;">0</td></tr> <tr><td>BOTTOMHOLE PRESSURE (PSIA)</td><td style="text-align: right; border: 1px solid black;">#DIV/0!</td></tr> </table>	GAS GRAVITY	0	COND. OR MISC. (C/M)	C	%N2	0	%CO2	0	%H2S	0	DIAMETER (IN)	0	DEPTH (FT)	0	SURFACE TEMPERATURE (DEG F)	60	BOTTOMHOLE TEMPERATURE (DEG F)	0	FLOWRATE (MCFPD)	0	SURFACE PRESSURE (PSIA)	0	BOTTOMHOLE PRESSURE (PSIA)	#DIV/0!	<table style="width: 100%; border-collapse: collapse;"> <tr><td>GAS GRAVITY</td><td style="text-align: right;">0.76</td></tr> <tr><td>COND. OR MISC. (C/M)</td><td style="text-align: right;">C</td></tr> <tr><td>%N2</td><td style="text-align: right;">0.00</td></tr> <tr><td>%CO2</td><td style="text-align: right;">0.0123</td></tr> <tr><td>%H2S</td><td style="text-align: right;">0</td></tr> <tr><td>DIAMETER (IN)</td><td style="text-align: right;">5.5</td></tr> <tr><td>DEPTH (FT)</td><td style="text-align: right;">4358</td></tr> <tr><td>SURFACE TEMPERATURE (DEG F)</td><td style="text-align: right;">60</td></tr> <tr><td>BOTTOMHOLE TEMPERATURE (DEG F)</td><td style="text-align: right;">113.7</td></tr> <tr><td>FLOWRATE (MCFPD)</td><td style="text-align: right;">0</td></tr> <tr><td>SURFACE PRESSURE (PSIA)</td><td style="text-align: right;">234</td></tr> <tr><td>BOTTOMHOLE PRESSURE (PSIA)</td><td style="text-align: right; border: 1px solid black;">263.7</td></tr> </table>	GAS GRAVITY	0.76	COND. OR MISC. (C/M)	C	%N2	0.00	%CO2	0.0123	%H2S	0	DIAMETER (IN)	5.5	DEPTH (FT)	4358	SURFACE TEMPERATURE (DEG F)	60	BOTTOMHOLE TEMPERATURE (DEG F)	113.7	FLOWRATE (MCFPD)	0	SURFACE PRESSURE (PSIA)	234	BOTTOMHOLE PRESSURE (PSIA)	263.7
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**Navajo Indian B #5**  
**Bottom Hole Pressures**  
**Flowing and Static BHP**  
**Cullender and Smith Method**  
Version 1.0 1/14/98

<b>Dakota</b>			
<b><u>DK-Current</u></b>		<b><u>Current</u></b>	
GAS GRAVITY	<u>0.76</u>	GAS GRAVITY	<u>0</u>
COND. OR MISC. (C/M)	<u>C</u>	COND. OR MISC. (C/M)	<u>C</u>
%N2	<u>0.0042</u>	%N2	<u>0.00</u>
%CO2	<u>0.0123</u>	%CO2	<u>0</u>
%H2S	<u>0</u>	%H2S	<u>0</u>
DIAMETER (IN)	<u>1.5</u>	DIAMETER (IN)	<u>0</u>
DEPTH (FT)	<u>6509</u>	DEPTH (FT)	<u>0</u>
SURFACE TEMPERATURE (DEG F)	<u>60</u>	SURFACE TEMPERATURE (DEG F)	<u>60</u>
BOTTOMHOLE TEMPERATURE (DEG F)	<u>143.9</u>	BOTTOMHOLE TEMPERATURE (DEG F)	<u>0</u>
FLOWRATE (MCFPD)	<u>0</u>	FLOWRATE (MCFPD)	<u>0</u>
SURFACE PRESSURE (PSIA)	<u>433</u>	SURFACE PRESSURE (PSIA)	<u>0</u>
BOTTOMHOLE PRESSURE (PSIA)	<input type="text" value="519.0"/>	BOTTOMHOLE PRESSURE (PSIA)	<input type="text" value="#DIV/0!"/>
<b><u>DK-Original</u></b>		<b><u>Original</u></b>	
GAS GRAVITY	<u>0.721</u>	GAS GRAVITY	<u>0</u>
COND. OR MISC. (C/M)	<u>C</u>	COND. OR MISC. (C/M)	<u>C</u>
%N2	<u>0.67</u>	%N2	<u>0.00</u>
%CO2	<u>1.21</u>	%CO2	<u>0</u>
%H2S	<u>0</u>	%H2S	<u>0</u>
DIAMETER (IN)	<u>1.5</u>	DIAMETER (IN)	<u>0</u>
DEPTH (FT)	<u>6509</u>	DEPTH (FT)	<u>0</u>
SURFACE TEMPERATURE (DEG F)	<u>60</u>	SURFACE TEMPERATURE (DEG F)	<u>60</u>
BOTTOMHOLE TEMPERATURE (DEG F)	<u>143.9</u>	BOTTOMHOLE TEMPERATURE (DEG F)	<u>0</u>
FLOWRATE (MCFPD)	<u>0</u>	FLOWRATE (MCFPD)	<u>0</u>
SURFACE PRESSURE (PSIA)	<u>1070</u>	SURFACE PRESSURE (PSIA)	<u>0</u>
BOTTOMHOLE PRESSURE (PSIA)	<input type="text" value="1295.8"/>	BOTTOMHOLE PRESSURE (PSIA)	<input type="text" value="#DIV/0!"/>

## Navajo Indian B #5 - SICP/Z Data

**Zone: Dakota**

Date	SICP (psig)	Chromatograph Used	Z-Factor	SICP/Z (psig)	Cum Qg (MMCF)	Slope	Y Intercept
6/4/1964	1070	10/1/2002	0.7936	1348	0	N/A	1348
6/4/1970	851	10/1/2002	0.8855	961	36.719	-10.54624	1348
7/9/1971	822	10/1/2002	0.8891	925	111.558	-3.798525	1348
7/3/1972	754	10/1/2002	0.8976	840	177.141	-2.869288	1348
4/17/1973	663	10/1/2002	0.9092	729	225.203	-2.748959	1348
4/22/1975	558	10/1/2002	0.923	605	336.196	-2.212209	1348
6/12/1977	942	10/1/2002	0.8746	1077	395.452	-0.685854	1348
11/21/1983	470	10/1/2002	0.9347	503	535.722	-1.578153	1348
11/21/1985	412	10/2/2002	0.9426	437	572.912	-1.590467	1348
3/31/1988	572	10/2/2002	0.9211	621	599.303	-1.213559	1348
???	62	N/A	1	62	1266	-1.016024	1348
12/31/2002	???	10/1/2002	???	456	878.238	-1.016024	1348

**Z-Factor = 0.95**  
**SICP (psig) = 433**

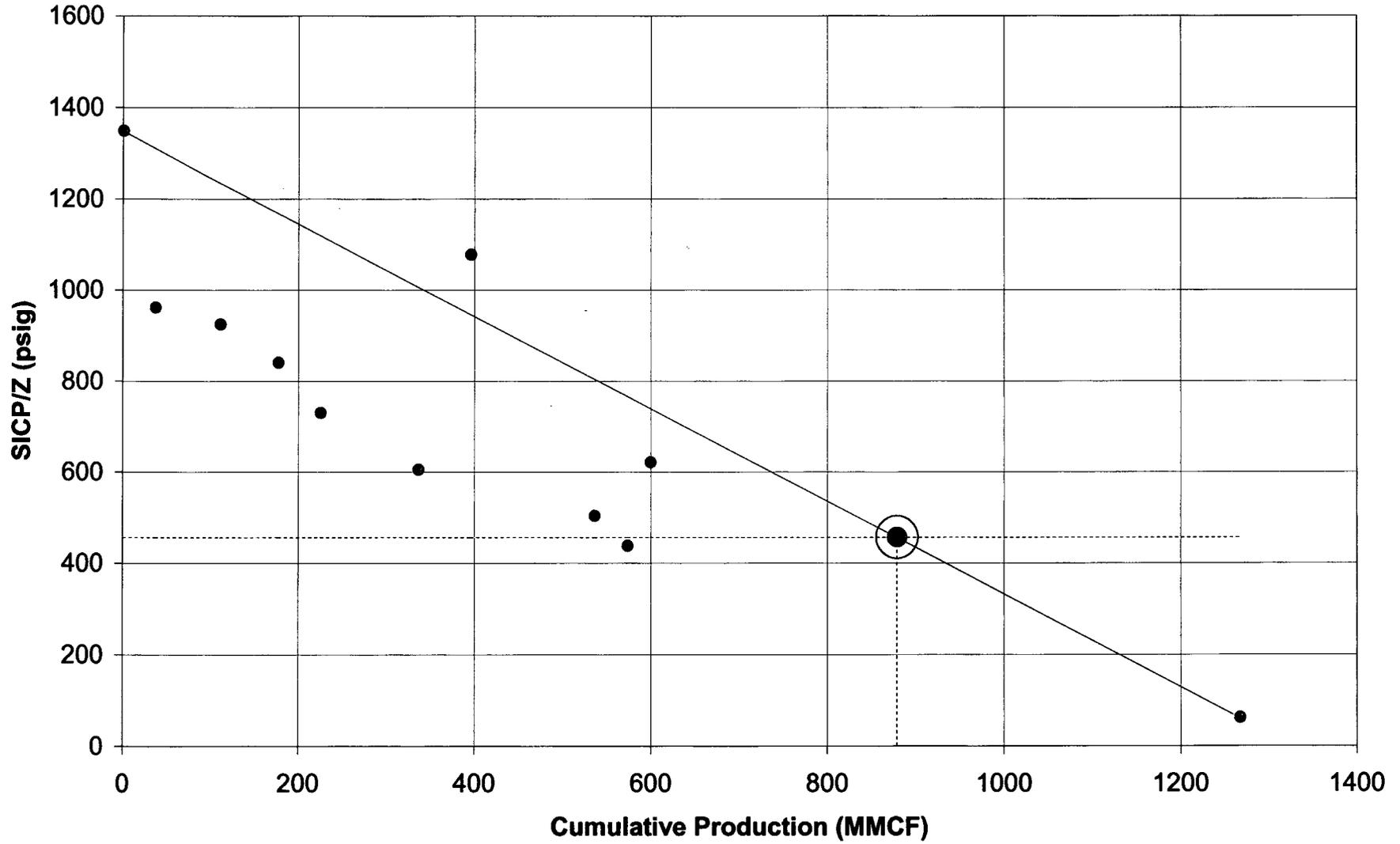
**Zone: Mesaverde**

Date	SICP (psig)	Chromatograph Used	Z-Factor	SICP/Z (psig)	Cum Qg (MMCF)	Slope	Y Intercept
6/4/1964	1064	10/1/2002	0.8593	1238	0	N/A	1238
6/4/1970	616	10/1/2002	0.9153	673	1216.56	-0.4646	1238
7/9/1971	572	10/1/2002	0.9211	621	1300.33	-0.474665	1238
7/3/1972	479	10/1/2002	0.9335	513	1381.46	-0.524875	1238
4/17/1973	431	10/2/2002	0.94	459	1441.33	-0.540963	1238
7/17/1974	417	10/3/2002	0.9419	443	1530.07	-0.519908	1238
5/18/1976	407	10/4/2002	0.9433	431	1633.9	-0.493759	1238
4/4/1978	375	10/4/2002	0.9477	396	1722.93	-0.489006	1238
7/18/1980	375	10/4/2002	0.9477	396	1794.7	-0.46945	1238
5/21/1982	407	10/4/2002	0.9433	431	1835.13	-0.439616	1238
11/5/1984	383	10/4/2002	0.9466	405	1878.28	-0.443816	1238
6/23/1989	452	10/4/2002	0.9372	482	1923.83	-0.392929	1238
7/30/1991	433	10/4/2002	0.9397	461	1933.84	-0.402015	1238
???	62	N/A	1	62	2530	-0.464908	1238
12/31/2002	???	10/1/2002	???	242	2142.37	-0.464908	1238

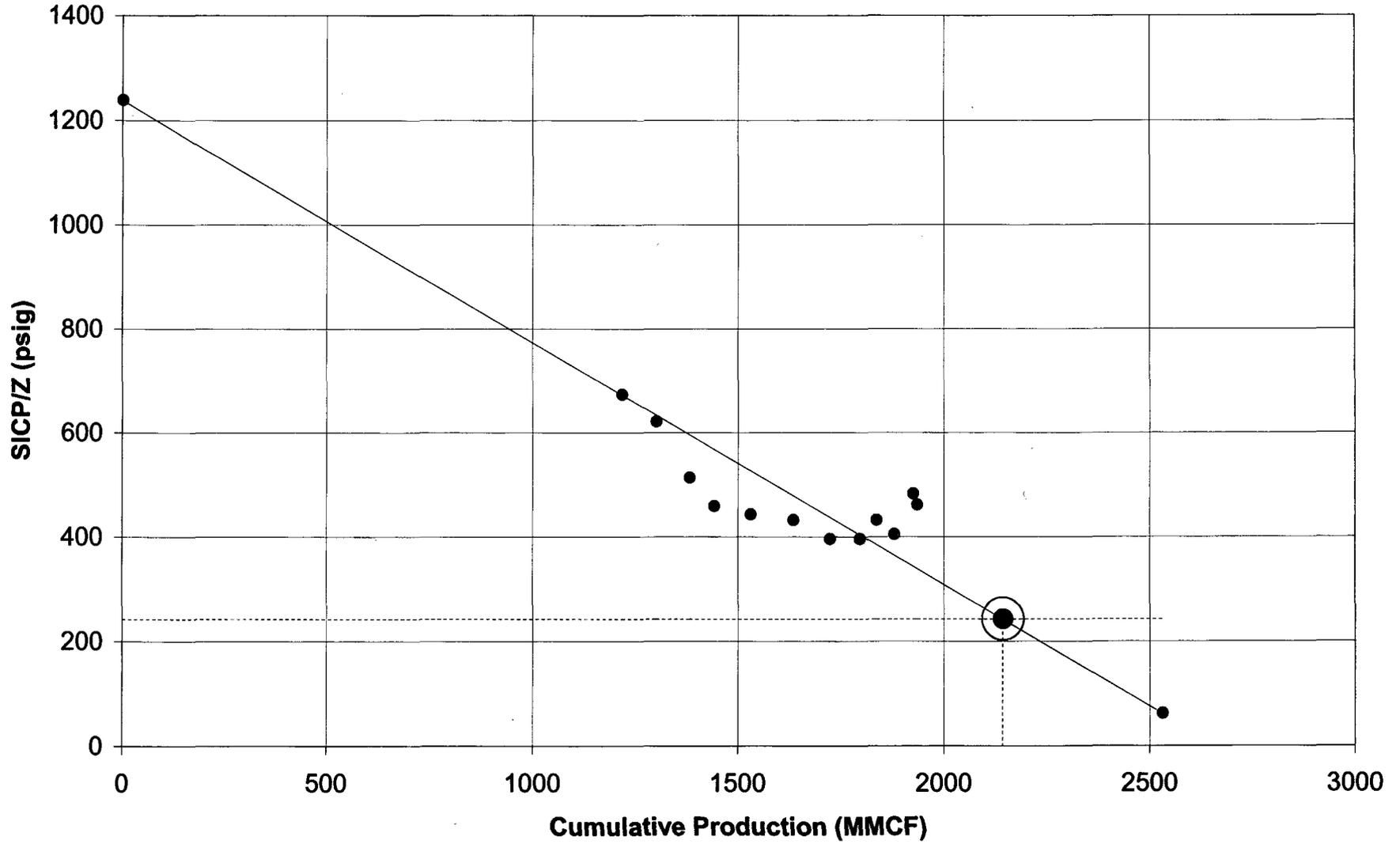
**Z-Factor = 0.967**  
**SICP (psig) = 234**

**NOTE: THESE ARE ESTIMATES OF THE CURRENT RESERVOIR PRESSURE IN EACH ZONE. IT IS REALIZED THAT THE NEAR-WELLBORE PRESSURES FOR EACH ZONE SHOULD BE SIMILAR, DUE TO THEIR COMMINGLED STATUS.**

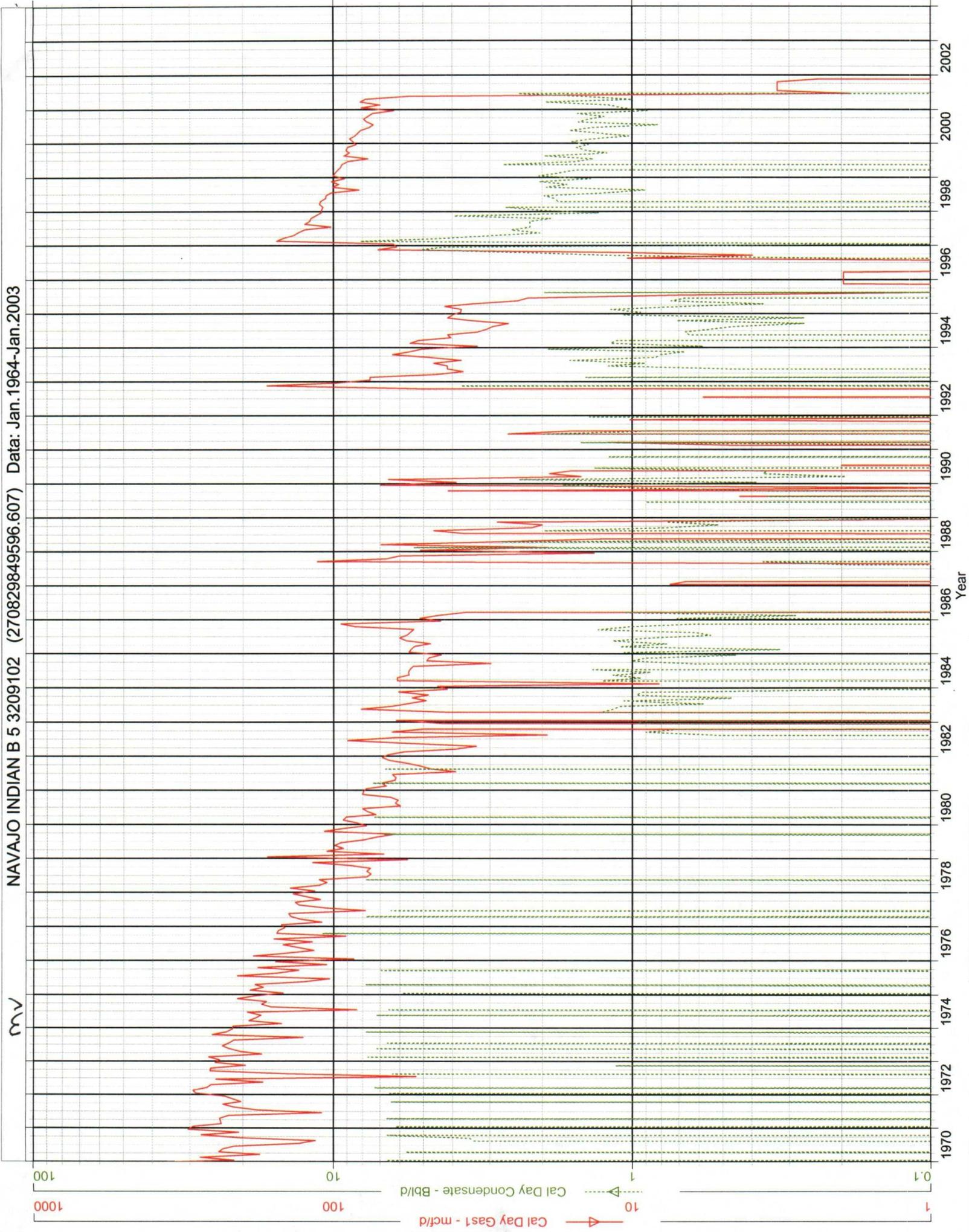
### Navajo Indian B #5 (DK)



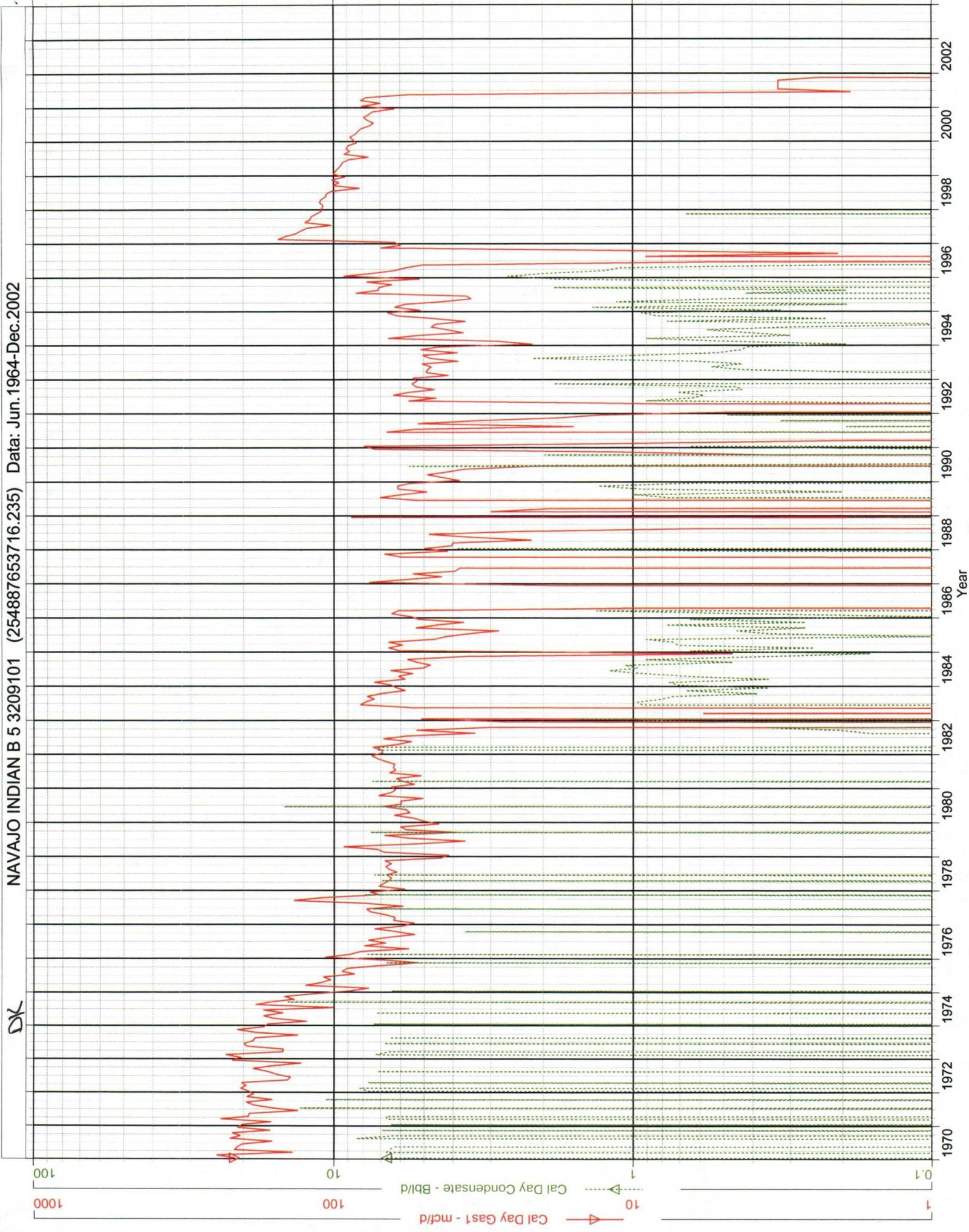
### Navajo Indian B #5 (MV)



NAVAJO INDIAN B 5 3209102 (270829849596.607) Data: Jan.1964-Jan.2003



NAVAJO INDIAN B 5 3209101 (254887653716.235) Data: Jun. 1964-Dec.2002



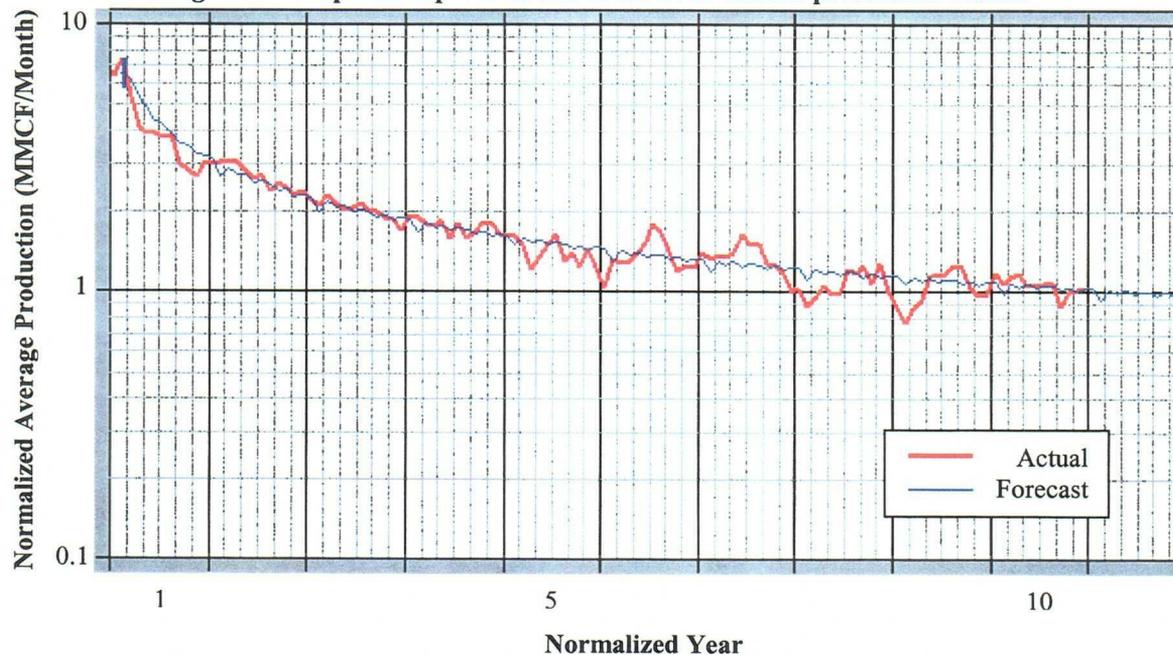
**TO:** New Mexico Oil Conservation Division  
**FROM:** Lewis Implementation Team, Burlington Resources  
**DATE:** December 2, 2002  
**RE:** 2003 Chacra Recompletion Program Expected Production

Chacra-only production from 73 wells completed after 1970 was normalized and forecasted to result in the production model presented in Table 1. A graphical representation of this normalized production forecast is shown in the attached Figure 1. These wells are located in or near the Chacra Fairway in T-27-N, R-08-W; T-27-N, R-09-W; T-28-N, R-08-W; T-28-N, R-09-W; T-28-N, R-10-W; T-28-N, R-11-W; T-29-N, R-09-W; T-29-N, R-10-W; and T-29-N, R-11-W. Actual results from the individual payadds will certainly vary, but this production model represents the average results that should be achieved. Further delineation in the area will be made in 2003.

**Table 1: 2003 Chacra production model.**

Decline Type	Hyp to Exp
Initial Incremental Rate (MCF/D)	260
Initial Decline (%/yr, effective)	62
Final Decline (%/yr, effective)	1.6
Final Incremental Rate (MCF/D)	15
Hyperbolic Exponent, n	2.0
EUR (MMCF)	496

**Figure 1. Graphical representation of the 2003 Chacra production model.**



## **Navajo Indian B 5 – 2003 Chacra Recompletion**

The Mesaverde and Dakota were mechanically commingled in 6/96. Menefee pay was added in 5-6/01, and the new water production overpowered the well. Prior to the Menefee being added, the well was producing approximately 70 MCFD from the Mesaverde and Dakota. Production ceased with the addition of the Menefee. It is proposed to plug the Menefee pay and add the Chacra formation, resulting in regaining Mesaverde and Dakota production.