

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

**APPLICATION FOR DOWNHOLE COMMINGLING  
SUBMITTED BY HILCORP ENERGY COMPANY**

**ORDER NO. DHC-5499**

**ORDER**

The Director of the New Mexico Oil Conservation Division (“OCD”), having considered the application and the recommendation of the Engineering Bureau, issues the following Order.

**FINDINGS OF FACT**

1. Hilcorp Energy Company submitted a complete application (“Application”) to downhole commingle the pools described in Exhibit A (“the Pools”) within the well bore of the well identified in Exhibit A (“the Well”).
2. Applicant proposed a method to allocate the oil and gas production from the Well to each of the Pools that is satisfactory to the OCD and protective of correlative rights.
3. Applicant has certified that all produced fluids from all the Pools are compatible with each other.
4. Applicant has certified that downhole commingling the Pools will not decrease the value of the oil and gas production.
5. An exception to the notification requirements within 19.15.12.11(C)(1)(b) NMAC was granted by the Division within Order R-13681.
6. Applicant provided notice of the Application to the Bureau of Land Management (“BLM”) or New Mexico State Land Office (“NMSLO”), as applicable.

**CONCLUSIONS OF LAW**

7. OCD has jurisdiction to issue this Order pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-6, 70-2-11, 70-2-12, 70-2-16, 70-2-17, and 19.15.12 NMAC.
8. The downhole commingling of the Pools is common, or Applicant has provided evidence that the fluids are compatible and will not damage the Pools in accordance with 19.15.12.11(A)(1) NMAC.
9. The bottom perforation of the lower zone is within one hundred fifty percent (150%) of the depth of the top perforation in the upper zone or Applicant has provided evidence that the proposed commingling of the Pools shall not result in shut-in or flowing well bore pressure in excess of the commingled pool’s fracture parting pressure in accordance with 19.15.12.11(A)(3) NMAC.

10. Applicant's proposed method of allocation, as modified herein, complies with 19.15.12.11(A)(8) NMAC.
11. By granting the Application with the conditions specified below, this Order prevents waste and protects correlative rights, public health, and the environment.

### **ORDER**

1. Applicant is authorized to downhole commingle the Pools described in Exhibit A within the well bore of the well identified in Exhibit A.
2. This Order supersedes Order DHC-1334.
3. Applicant shall allocate a fixed percentage of the oil production from the Well to each of the Pools until a different plan to allocate oil production is approved by OCD. Of the oil production from the Well:
  - a. zero percent (0%) shall be allocated to the Basin Fruitland Coal pool (pool ID: 71629);
  - b. seven percent (7%) shall be allocated to the Blanco Pictured Cliffs pool (pool ID: 72359); and
  - c. eighty-six percent (86%) shall be allocated to the Blanco Mesaverde pool (pool ID: 72319)
  - d. seven percent (7%) shall be allocated to the Basin Dakota pool (pool ID: 71599).

Applicant shall allocate gas production to the new pool(s) equal to the total gas production from the Well minus the projected gas production from the current pool(s) until a different plan to allocate gas production is approved by OCD. The new pool(s) are:

- a. the Basin Fruitland Coal pool (pool ID: 71629); and
- b. the Blanco Pictured Cliffs pool (pool ID: 72359).

The current pool(s) are:

- a. the Blanco Mesaverde pool (pool ID: 72319); and
- b. the Basin Dakota pool (pool ID: 71599).

Until a different plan to allocate gas production is approved by OCD, of the gas production allocated to the new pools:

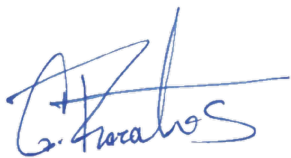
- a. fifty-seven percent (57%) shall be allocated to the Basin Fruitland Coal pool (pool ID: 71629); and
- b. forty-three percent (43%) shall be allocated to the Blanco Pictured Cliffs pool (pool ID: 72359).

Applicant shall calculate the oil and gas production average during the fourth year after the commencement of commingling, which shall be used to establish a fixed percentage of the total oil and gas production that shall be allocated to each of the Pools ("fixed percentage allocation plan"). No later than ninety (90) days after the fourth year, Applicant shall submit a Form C-103 to the OCD Engineering Bureau that includes the fixed percentage allocation plan and all data used to determine it. If Applicant fails to do so, this Order shall terminate

on the following day. If OCD denies the fixed percentage allocation plan, this Order shall terminate on the date of such action. If OCD approves the percentage allocation plan with or without modifications, then the approved percentage allocation plan shall be used to determine oil and gas allocation starting on the date of such action until the Well is plugged and abandoned.

4. If an alteration is made to the Well or a condition within the Well changes which may cause the allocation of production to the Pools as approved within this Order to become inaccurate, then no later than sixty (60) days after that event, Applicant shall submit Form C-103 to the OCD Engineering Bureau describing the event and include a revised allocation plan. If OCD denies the revised allocation plan, this Order shall terminate on the date of such action.
5. If any of the pools being commingled is prorated, or the Well's production has been restricted by an OCD order in any manner, the allocated production from each producing pool in the commingled well bore shall not exceed the top oil or gas allowable rate for a well in that pool or rate restriction applicable to the well.
6. If the Well is deepened, then no later than forty-five (45) days after the Well is deepened, Applicant shall conduct and provide logs to OCD that are sufficient for OCD to determine which pool(s) each new completed interval of the Well will produce from.
7. If the downhole commingling of the Pools reduces the value of the oil and gas production to less than if it had remained segregated, no later than sixty (60) days after the decrease in value has occurred Applicant shall submit a new downhole commingling application to OCD to amend this Order to remove the pool that caused the decrease in value. If Applicant fails to submit a new application, this Order shall terminate on the following day, and if OCD denies the application, this Order shall terminate on the date of such action.
8. If a completed interval of the Well is altered from what is submitted within the Application as identified in Exhibit A, then no later than sixty (60) days after the alteration, Applicant shall submit Form C-103 to the OCD Engineering Bureau detailing the alteration and completed interval.
9. If OCD determines that Applicant has failed to comply with any provision of this Order, OCD may take any action authorized by the Oil and Gas Act or the New Mexico Administrative Code (NMAC).
10. OCD retains jurisdiction of this matter and reserves the right to modify or revoke this Order as it deems necessary.

**STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION**



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**GERASIMOS RAZATOS  
DIRECTOR (ACTING)**

**DATE:** 6-12-2025

State of New Mexico  
Energy, Minerals and Natural Resources Department

## Exhibit A

Order: **DHC-5499**

Operator: **Hilcorp Energy Corporation**

Well Name: **San Juan 29 7 Unit Well No. 81M**

Well API: **30-039-27458**

**Upper Zone**

Pool Name: **Basin Frutiland Coal**

Pool ID: **71629**

Allocation:

Current:

Oil: **0.0%**

Top: **3,146**

New: **X**

Gas: **57.0%**

Bottom: **3,493**

**Intermediate Zone**

Pool Name: **Blanco Pictured Cliffs**

Pool ID: **72359**

Allocation:

Current:

Oil: **7.0%**

Top: **3,493**

New: **X**

Gas: **43.0%**

Bottom: **3,643**

Bottom of Interval within 150% of Upper Zone's Top of Interval: **YES**

**Intermediate Zone 2**

Pool Name: **Blanco Mesaverde**

Pool ID: **72319**

Allocation: **Subtraction**

Current: **X**

Oil: **86.0%**

Top: **5,007**

New:

Gas: **SUBT**

Bottom: **5,812**

Bottom of Interval within 150% of Upper Zone's Top of Interval: **NO**

**Lower Zone**

Pool Name: **Basin Dakota**

Pool ID: **71599**

Allocation: **Subtraction**

Current: **X**

Oil: **7.0%**

Top: **7,750**

New:

Gas: **SUBT**

Bottom: **7,922**

Bottom of Interval within 150% of Upper Zone's Top of Interval: **NO**

Top of Queen Formation:

ID NO. 440798

DHC - 5499

Revised March 23, 2017

RECEIVED: <b>03/10/25</b>	REVIEWER:	TYPE:	APP NO:
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

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

**ADMINISTRATIVE APPLICATION CHECKLIST**

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

**Applicant:** Hilcorp Energy Company **OGRID Number:** 372171  
**Well Name:** SAN JUAN 29-7 UNIT 81M **API:** 3003927458  
**Pool:** BASIN FRUITLAND COAL (GAS POOL), BLANCO PICTURED CLIFFS (GAS POOL) **Pool Code:** 71629, 72359

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION  
 INDICATED BELOW**

**1) TYPE OF APPLICATION:** Check those which apply for [A]

A. Location – Spacing Unit – Simultaneous Dedication

☐ NSL☐ NSP (PROJECT AREA)☐ NSP (PRORATION UNIT)☐ SD

B. Check one only for [ I ] or [ II ]

[ I ] Commingling – Storage – Measurement

☒ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[ II ] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery

☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR**2) NOTIFICATION REQUIRED TO:** Check those which apply.A. ☐ Offset operators or lease holdersB. ☐ Royalty, overriding royalty owners, revenue ownersC. ☐ Application requires published noticeD. ☐ Notification and/or concurrent approval by SLOE. ☒ Notification and/or concurrent approval by BLMF. ☐ Surface ownerG. ☐ For all of the above, proof of notification or publication is attached, and/or,H. ☒ No notice required**FOR OCD ONLY**☐ Notice Complete☐ Application  
Content  
Complete

**3) 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.

03/10/2025

Date

DAWN NASH-DEAL

Print or Type Name

505-324-5132

Phone Number

Dawn Nash Deal

Signature

DNASH@HILCORP.COM

e-mail Address

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

District II  
811 S. First St., Artesia, NM 88210

District III  
1000 Rio Brazos Road, Aztec, NM 87410

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

State of New Mexico  
Energy, Minerals and Natural Resources Department

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

Form C-107A  
Revised August 1, 2011

APPLICATION TYPE  

Single Well

Establish Pre-Approved Pools

EXISTING WELLBORE  

Yes

No

APPLICATION FOR DOWNHOLE COMMINGLING

Hilcorp Energy Company  
Operator

382 Road 3100, Aztec, NM 87410  
Address

SAN JUAN 29-7 UNIT

81M

A.18,29N,07W

RIO ARRIBA

Lease

Well No.

Unit Letter-Section-Township-Range

County

OGRID No. 372171

Property Code 318713

API No. 3003927458

Lease Type: X

Federal

State

Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name	BASIN FRUITLAND COAL (GAS POOL)	BLANCO PICTURED CLIFFS (GAS POOL)	BLANCO-MESAVERDE (PRORATED GAS)	BASIN DAKOTA (PRORATED GAS)
Pool Code	71629	72359	72319	71599
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	~3146'-3493'	~3493'-3643'	5007'-5812'	7750'-7922'
Method of Production (Flowing or Artificial Lift)	ARTIFICIAL LIFT	ARTIFICIAL LIFT	ARTIFICIAL LIFT	ARTIFICIAL LIFT
Bottomhole Pressure (Note: Pressure data will not be required if the bottom perforation in the lower zone is within 150% of the depth of the top perforation in the upper zone)	261 BHP	230 BHP	417 BHP	1179 BHP
Oil Gravity or Gas BTU (Degree API or Gas BTU)	1159 BTU	1174 BTU	1275 BTU	1140 BTU
Producing, Shut-In or New Zone	NEW ZONE	NEW ZONE	PRODUCING	PRODUCING
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.)	Date: Rates: Oil: Gas: Water:	Date: Rates: Oil: Gas: Water:	Date: 1/1/2025 Rates: Oil: 18 BBL Gas: 3718 MCF Water: 0 BBL	Date: 1/1/2025 Rates: Oil: 2 BBL Gas: 323 MCF Water:0 BBL
Fixed Allocation Percentage (Note: If allocation is based upon something other than current or past production, supporting data or explanation will be required.)	Oil Gas  %	Oil Gas  %	Oil Gas  %	Oil Gas  %

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones?  
If not, have all working, royalty and overriding royalty interest owners been notified by certified mail?

Yes  
Yes

No  
No

N/A

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

No

X

NMOCD Reference Case No. applicable to this well: R-13681

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 working, royalty and overriding royalty interests for uncommon interest cases.

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

DAWN NASH-DEAL

TITLE

Operations/Regulatory Technician

DATE

03/10/2025

TYPE OR PRINT NAME

DAWN NASH-DEAL

TELEPHONE NO. ( 505 )

324-5132

E-MAIL ADDRESS

DNASH@HILCORP.COM

Released to Imaging: 6/16/2025 9:21:59 AM

1625 N. French Dr., Hobbs, N.M. 88240

Energy, Minerals &amp; Natural Resources Department

Revised August 15, 2000

DISTRICT II  
811 South First, Artesia, N.M. 88210DISTRICT III  
1000 Rio Brazos Rd., Aztec, N.M. 87410DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 87505

## OIL CONSERVATION DIVISION

2040 South Pacheco  
Santa Fe, NM 87505Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-039- <b>27458</b>	<sup>2</sup> Pool Code 72319/71599	<sup>3</sup> Pool Name Blanco Mesaverde/Basin Dakota
<sup>4</sup> Property Code 7465	<sup>5</sup> Property Name SAN JUAN 29-7 UNIT	<sup>6</sup> Well Number 81M
<sup>7</sup> OGRID No. 14538	<sup>8</sup> Operator Name BURLINGTON RESOURCES OIL & GAS INC.	<sup>9</sup> Elevation 6729'

<sup>10</sup> Surface Location


UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	29-N	7-W		720	NORTH	720	EAST	RIO ARRIBA

<sup>11</sup> 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

<sup>12</sup> Dedicated Acres MV - E/320 DK - E/320	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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

LOT 5	CALC'D CORNER	DUE WEST 2640'(R)	CALC'D CORNER	720'	800'	720'	S 00°01'16" W 2618.28'(M)	LAT: 36°43.8709' N. (NAD 27) LONG: 107°36.3100' W. (NAD 27)	NMSF-078945	FD 2 1/2" G.L.O. 1913 BRASS CAP	USA SF-079514	18	<b>17 OPERATOR CERTIFICATION</b> I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.  Signature Peggy Cole Printed Name Regulatory Supervisor Title 5-5-03 Date



Water Compatibility in the San Juan Basin  
 - The San Juan basin has productive siliciclastic reservoirs (Blanco South Blanco South Pictured Cliffs, Blanco Mesaverde, Basin Dakota, etc.) and a productive coalbed methane reservoir ( Basin Fruitland Coal).  
 - These siliciclastic and coalbed methane reservoirs are commingled extensively throughout the basin in many different combinations with no observed damage from clay swelling due to differing formation waters.  
 - The samples below all show fresh water with low TDS.  
 - Data taken from standalone completions in the zone of interest within a 2 mile radius of the well. A farther radius is used if there is not enough data for a proper statistical analysis.

Well Name	API
SAN JUAN 29-7 UN 081M	3003927458

FRC Offset (6.02 Miles)		PC Offset (3.56 Miles)		DK Offset (4.67 Miles)		MV Offset (2.56 Miles)	
API	3003925112	API	3003925897	API	3003921327	API	3003926806
Property	SAN JUAN 28-7 UNIT 403	Property	SAN JUAN 29-7 UNIT 166	Property	SAN JUAN 28-7 UNIT 235	Property	SAN JUAN 29-7 UNIT 66B
CationBarium	0.00	CationBarium	0.00	CationBarium	0.00	CationBarium	0.10
CationBoron		CationBoron	0	CationBoron	0	CationBoron	0
CationCalcium	2.20	CationCalcium	80.00	CationCalcium	5.60	CationCalcium	3.40
CationIron	5.20	CationIron	62.10	CationIron	8.00	CationIron	31.40
CationMagnesium	0.32	CationMagnesium	19.50	CationMagnesium	8.10	CationMagnesium	0.43
CationManganese	0.10	CationManganese	1.98	CationManganese	0.28	CationManganese	0.75
CationPhosphorus		CationPhosphorus	0	CationPhosphorus	0	CationPhosphorus	0
CationPotassium		CationPotassium	0	CationPotassium	0	CationPotassium	10.00
CationStrontium	0.00	CationStrontium	0.00	CationStrontium	0.00	CationStrontium	1.00
CationSodium	1164.20	CationSodium	762.80	CationSodium	352.70	CationSodium	10.00
CationSilica		CationSilica	0	CationSilica	0	CationSilica	7.38
CationZinc		CationZinc	0	CationZinc	0	CationZinc	0.50
CationAluminum		CationAluminum	0	CationAluminum	0	CationAluminum	0
CationCopper		CationCopper	0	CationCopper	0	CationCopper	0
CationLead		CationLead	0	CationLead	0	CationLead	1.00
CationLithium		CationLithium	0	CationLithium	0	CationLithium	0
CationNickel		CationNickel	0	CationNickel	0	CationNickel	0
CationCobalt		CationCobalt	0	CationCobalt	0	CationCobalt	0
CationChromium		CationChromium	0	CationChromium	0	CationChromium	0
CationSilicon		CationSilicon	0	CationSilicon	0	CationSilicon	5.00
CationMolybdenum		CationMolybdenum	0	CationMolybdenum	0	CationMolybdenum	0
AnionChloride	1700.00	AnionChloride	1200.00	AnionChloride	500.00	AnionChloride	10.00
AnionCarbonate	0.00	AnionCarbonate	0.00	AnionCarbonate	0.00	AnionCarbonate	10.00
AnionBicarbonate	183.00	AnionBicarbonate	427.00	AnionBicarbonate	158.60	AnionBicarbonate	72.00
AnionBromide		AnionBromide	0	AnionBromide	0	AnionBromide	0
AnionFluoride		AnionFluoride	0	AnionFluoride	0	AnionFluoride	0
AnionHydroxyl		AnionHydroxyl	0	AnionHydroxyl	0	AnionHydroxyl	10.00
AnionNitrate		AnionNitrate	0	AnionNitrate	0	AnionNitrate	0
AnionPhosphate	925.60	AnionPhosphate	0	AnionPhosphate	88.20	AnionPhosphate	0
AnionSulfate	10.00	AnionSulfate	80.00	AnionSulfate	10.00	AnionSulfate	8.00
phField	6.73	phField	0	phField	0	phField	6.26
phCalculated	7.01	phCalculated	6.83	phCalculated	7.08	phCalculated	6.70
TempField		TempField	0	TempField	0	TempField	72.00
TempLab		TempLab	0	TempLab	0	TempLab	0
OtherFieldAlkalinity	7991.88	OtherFieldAlkalinity	342.16	OtherFieldAlkalinity	2108.46	OtherFieldAlkalinity	171.00
OtherSpecificGravity	1.00	OtherSpecificGravity	0	OtherSpecificGravity	1.00	OtherSpecificGravity	1.00
OtherTDS	2962.00	OtherTDS	2435.00	OtherTDS	961.00	OtherTDS	370.00
OtherCaCO3	12113.31	OtherCaCO3	0	OtherCaCO3	3603.96	OtherCaCO3	10.30
OtherConductivity		OtherConductivity	0	OtherConductivity	0	OtherConductivity	202.00
DissolvedCO2	360.00	DissolvedCO2	0	DissolvedCO2	170.00	DissolvedCO2	110.00
DissolvedO2		DissolvedO2	0	DissolvedO2	0	DissolvedO2	0
DissolvedH2S	40.00	DissolvedH2S	13.00	DissolvedH2S	3.00	DissolvedH2S	0.00
GasPressure		GasPressure	0	GasPressure	0	GasPressure	0
GasCO2	8.00	GasCO2	4.00	GasCO2	6.00	GasCO2	0
GasCO2PP		GasCO2PP	0	GasCO2PP	0	GasCO2PP	0
GasH2S	0.00	GasH2S	0.00	GasH2S	0.00	GasH2S	0
GasH2SPP		GasH2SPP	0	GasH2SPP	0	GasH2SPP	0
PitzerCaCO3_70		PitzerCaCO3_70	0	PitzerCaCO3_70	0	PitzerCaCO3_70	0
PitzerBaSO4_70		PitzerBaSO4_70	0	PitzerBaSO4_70	0	PitzerBaSO4_70	0
PitzerCaSO4_70		PitzerCaSO4_70	0	PitzerCaSO4_70	0	PitzerCaSO4_70	0
PitzerSrSO4_70		PitzerSrSO4_70	0	PitzerSrSO4_70	0	PitzerSrSO4_70	0
PitzerFeCO3_70		PitzerFeCO3_70	0	PitzerFeCO3_70	0	PitzerFeCO3_70	0
PitzerCaCO3_220		PitzerCaCO3_220	0	PitzerCaCO3_220	0	PitzerCaCO3_220	0
PitzerBaSO4_220		PitzerBaSO4_220	0	PitzerBaSO4_220	0	PitzerBaSO4_220	0
PitzerCaSO4_220		PitzerCaSO4_220	0	PitzerCaSO4_220	0	PitzerCaSO4_220	0
PitzerSrSO4_220		PitzerSrSO4_220	0	PitzerSrSO4_220	0	PitzerSrSO4_220	0
PitzerFeCO3_220		PitzerFeCO3_220	0	PitzerFeCO3_220	0	PitzerFeCO3_220	0

## Gas Compatibility in the San Juan Basin

- The San Juan basin has productive siliciclastic reservoirs (Blanco South Blanco South Pictured Cliffs, Blanco Mesaverde, Basin Dakota, etc.) and a productive coalbed methane reservoir (Basin Fruitland Coal).
- These siliciclastic and coalbed methane reservoirs are commingled extensively throughout the basin in many different combinations with no observed damage from clay swelling due to differing formation waters or gas composition.
- The samples below all show offset gas analysis variability by formation is low.
- Data taken from standalone completions in the zone of interest within a 2 mile radius of the well. A farther radius is used if there is not enough data for a proper statistical analysis.

Well Name	API
SAN JUAN 29-7 UN 081M	3003927458

FRC Offset (2.05 Miles)		PC Offset (3.70 Miles)		DK Offset (7.14 Miles)		MV Offset (4.62 Miles)	
AssetCode	3003924298	AssetCode	3003920509	AssetCode	3003926938	AssetCode	3003927250
AssetName	SAN JUAN 29-7 UNIT NP 513	AssetName	SAN JUAN 29-7 UNIT 103	AssetName	SAN JUAN 28-7 UNIT 230F	AssetName	SAN JUAN 28-7 UNIT 61B
CO2	0.00	CO2	0.00	CO2	0.01	CO2	0.01
N2	0.00	N2	0.01	N2	0.00	N2	0.00
C1	0.87	C1	0.83	C1	0.82	C1	0.78
C2	0.06	C2	0.07	C2	0.09	C2	0.11
C3	0.04	C3	0.05	C3	0.05	C3	0.06
ISOC4	0.01	ISOC4	0.01	ISOC4	0.01	ISOC4	0.01
NC4	0.01	NC4	0.01	NC4	0.01	NC4	0.02
ISOC5	0.00	ISOC5	0.00	ISOC5	0.00	ISOC5	0.00
NC5	0.00	NC5	0.00	NC5	0.00	NC5	0.00
NEOC5	0	NEOC5	0	NEOC5	0	NEOC5	0
C6	0	C6	0	C6	0	C6	0
C6 PLUS	0.00	C6 PLUS	0.01	C6 PLUS	0.01	C6 PLUS	0.01
C7	0	C7	0	C7	0	C7	0
C8	0	C8	0	C8	0	C8	0
C9	0	C9	0	C9	0	C9	0
C10	0	C10	0	C10	0	C10	0
AR	0	AR	0	AR	0	AR	0
CO	0	CO	0	CO	0	CO	0
H2	0	H2	0	H2	0	H2	0
O2	0	O2	0	O2	0	O2	0
H2O	0	H2O	0	H2O	0	H2O	0
H2S	0	H2S	0	H2S	0	H2S	0
HE	0	HE	0	HE	0	HE	0
C_O_S	0	C_O_S	0	C_O_S	0	C_O_S	0
CH3SH	0	CH3SH	0	CH3SH	0	CH3SH	0
C2H5SH	0	C2H5SH	0	C2H5SH	0	C2H5SH	0
CH2S3_2CH3S	0	CH2S3_2CH3S	0	CH2S3_2CH3S	0	CH2S3_2CH3S	0
CH2S	0	CH2S	0	CH2S	0	CH2S	0
C6HV	0	C6HV	0	C6HV	0	C6HV	0
CO2GPM	0.00	CO2GPM	0.00	CO2GPM	0.00	CO2GPM	0.00
N2GPM	0.00	N2GPM	0.00	N2GPM	0.00	N2GPM	0.00
C1GPM	0.00	C1GPM	0.00	C1GPM	0.00	C1GPM	0.00
C2GPM	1.61	C2GPM	1.89	C2GPM	2.34	C2GPM	2.95
C3GPM	1.11	C3GPM	1.51	C3GPM	1.26	C3GPM	1.52
ISOC4GPM	0.27	ISOC4GPM	0.39	ISOC4GPM	0.30	ISOC4GPM	0.30
NC4GPM	0.28	NC4GPM	0.45	NC4GPM	0.38	NC4GPM	0.50
ISOC5GPM	0.11	ISOC5GPM	0.18	ISOC5GPM	0.17	ISOC5GPM	0.17
NC5GPM	0.07	NC5GPM	0.12	NC5GPM	0.11	NC5GPM	0.13
C6_PLUSGPM	0.16	C6_PLUSGPM	0.24	C6_PLUSGPM	0.32	C6_PLUSGPM	0.39

The near wellbore shut-in bottom hole pressures of the above reservoirs are much lower than the calculated far-field stabilized reservoir pressured due to the low permeability of the reservoirs. Based on pressure transient analysis performed in the San Juan Basin, it would take 7-25 years for shut-in bottom hole pressures to build up to the calculated far-field reservoir pressure. Our observation is that even for areas of high static reservoir pressures, the low permeability of the reservoir rock results in rapid depletion of the near-fracture region, quickly enough that the wells are unable to produce without the aid of a plunger. Given low permeabilities and low wellbore flowing pressures in the above reservoirs, loss of reserves due to cross-flow is not an issue during producing or shut-in periods. Given low shut-in bottom hole pressures, commingling the above reservoirs in this well will not result in shut-in or flowing wellbore pressures in excess of any commingled pool's fracture parting pressure. The pressures provided in the C-107A are based on shut-in bottom hole pressures of offset standalone wells which match expected near-wellbore shut-in bottom hole pressures of this proposed commingled completion.

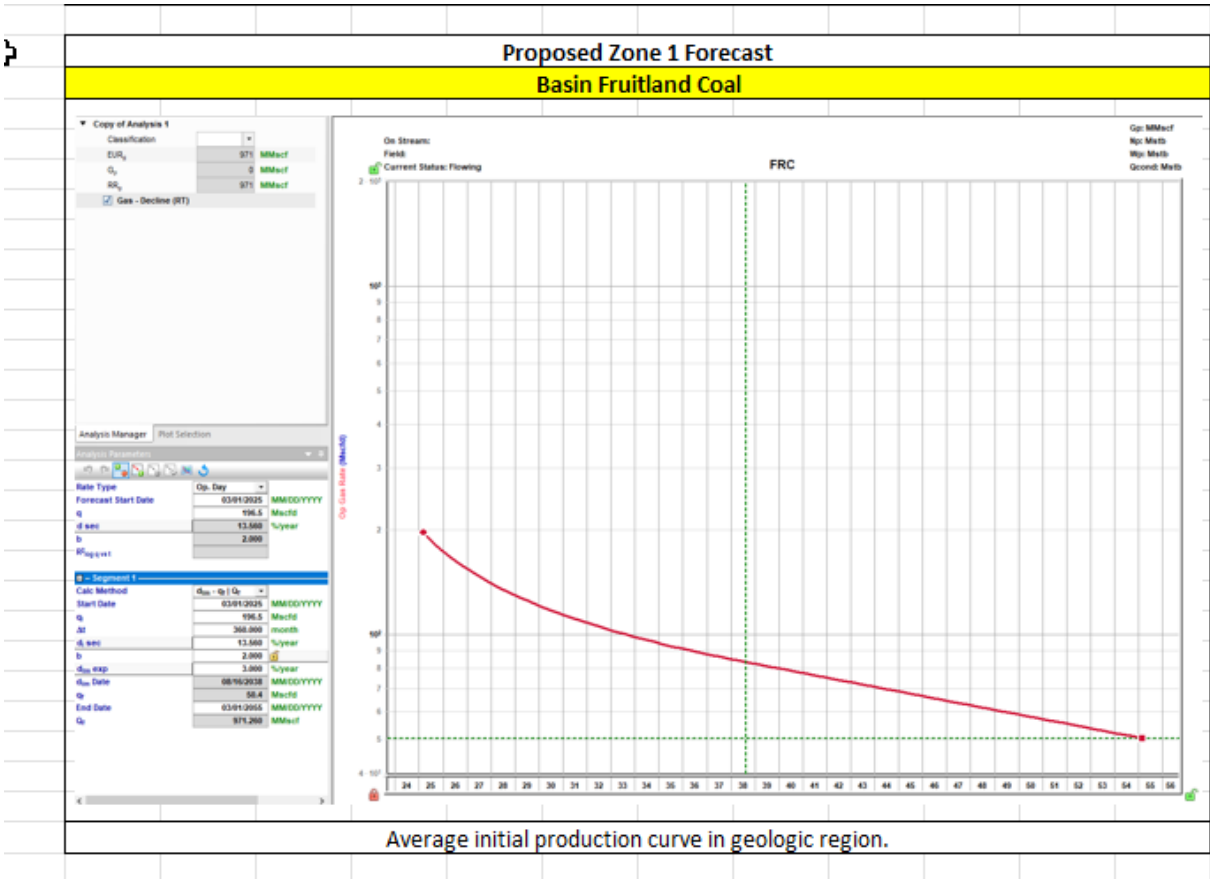
Shut in pressures were calculated for operated offset standalone wells in each of the zones being commingled in the well in question via the following process:

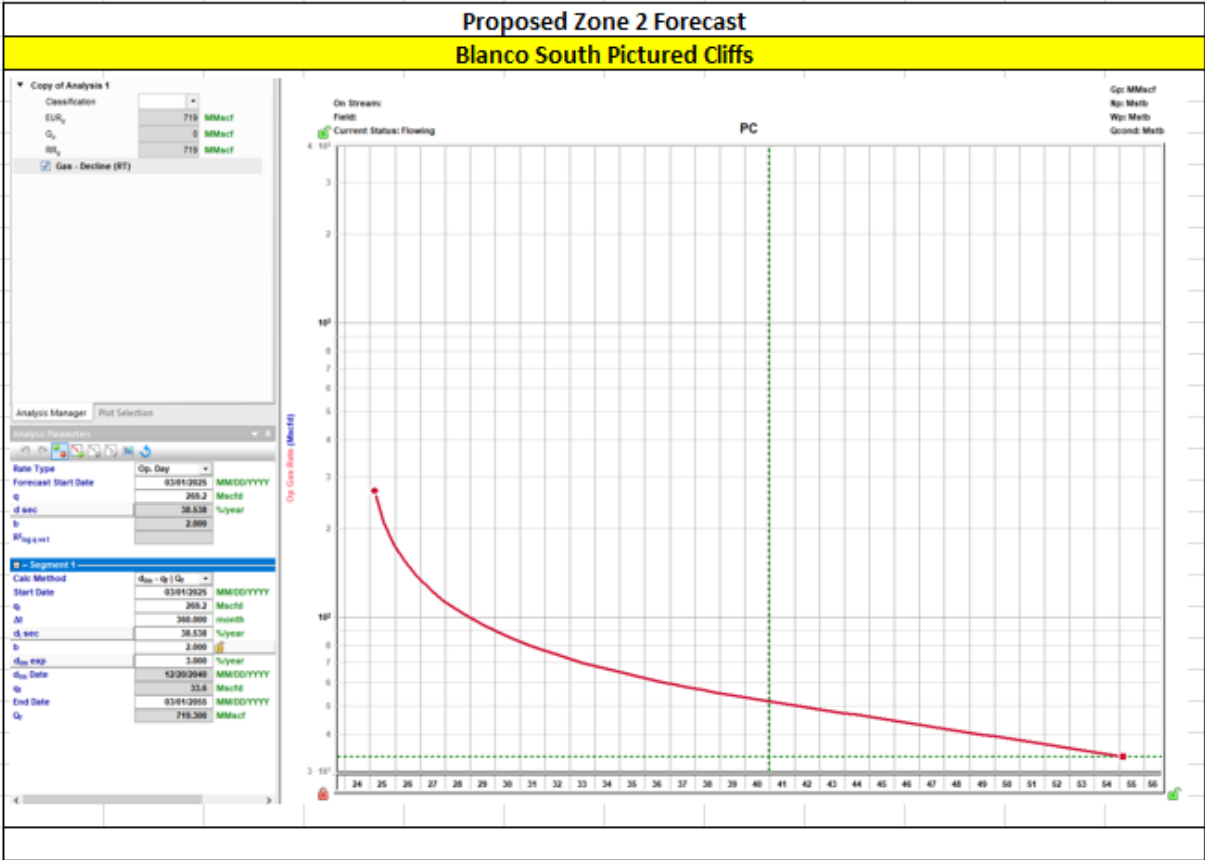
- 1) Wells were shut in for 24 hours
- 2) Echometer was used to obtain a fluid level
- 3) Shut in BHP was calculated for the proposed commingled completion

API	Well Name	Formation
List of wells used to calculate BHPs for the Project:		
3003925240	San Juan 29-7 Unit 534	FRC
3003926995	San Juan 29-7 Unit 181	PC
3003921330	San Juan 29-7 Unit 109	DK
3003925859	San Juan 29-7 Unit 40B	MV
3003921021	San Juan 28-7 Unit 208	CH
I believe each of the reservoirs to be continuous and in a similar state of depletion at this well and at each of the wells from which the pressures are being derived.		

**Note:** BTU Data taken from standalone completions in the zone of interest within a 2 mile radius of the well.

A farther radius is used if there is not enough data for a proper statistical analysis.





**HEC Comments**

The production forecasts have been generated using type curves of production in the surrounding trend.

These zones are proposed to be commingled because the application of dual completions impedes the ability to produce the shallow zone without artificial lift and the deeper zones with reduced artificial lift efficiency. All horizons will require artificial lift due to low bottomhole pressure (BHP) and permeability.

The BHPs of all zones, producing and non-producing, were estimated based upon basinwide Moving-Domain Material Balance models that have proven to approximate the pressure in the given reservoirs well in this portion of the basin. These models were constructed incorporating reservoir dynamics and physics, historic production, and observed pressure data. Historic commingling operations have proven reservoir fluids are compatible.

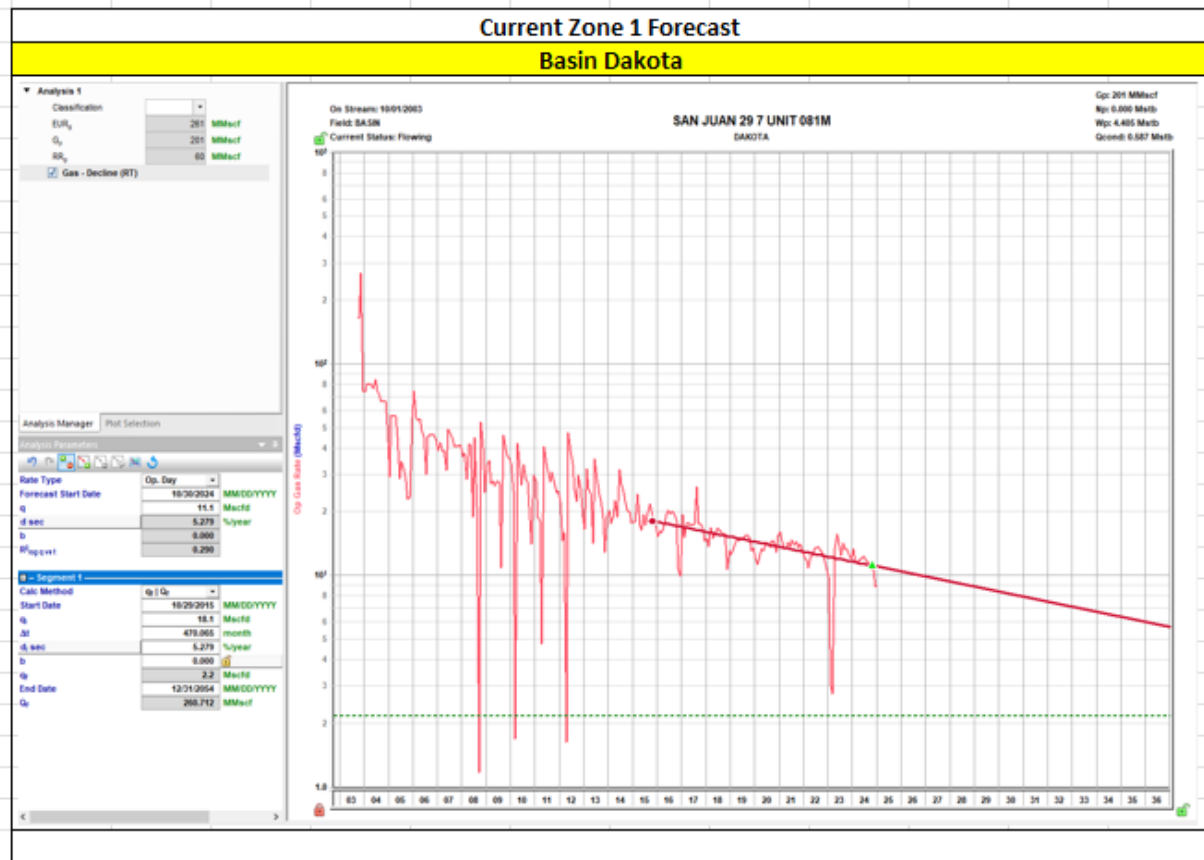
**Gas Allocation:**

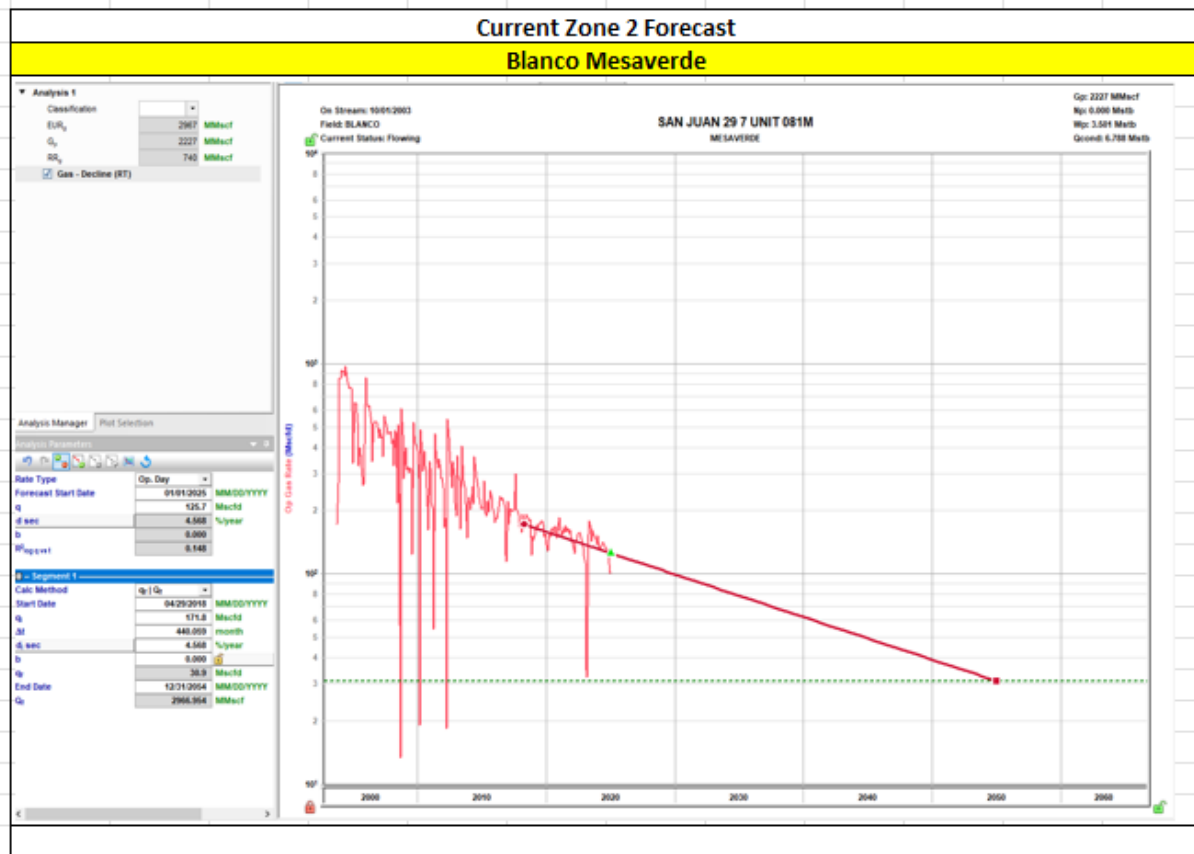
Production for the downhole commingle will be allocated using the subtraction method in agreement with local agencies. The base formations are the Basin Dakota and Blanco Mesaverde. The added formations to be commingled are the Basin Fruitland Coal and Blanco South Pictured Cliffs. The subtraction method applies an average monthly production forecast to the base formation using historic production. All production from this well exceeding the base formation forecast will be allocated to the new formation.

New zones (FRC/PC) will be allocated using a fixed allocation. Forecasted rates for FRC and PC are based on offset type curves. The maps show the standalone offsets that were used for type-curves. The split between FRC and PC is based on the ratio of forecasted reserves as shown in the table below.

<b>Formation</b>	<b>Remaining Reserves (MMcf)</b>	<b>% Gas Allocation</b>
<b>FRC</b>	<b>971</b>	<b>57%</b>
<b>PC</b>	<b>719</b>	<b>43%</b>

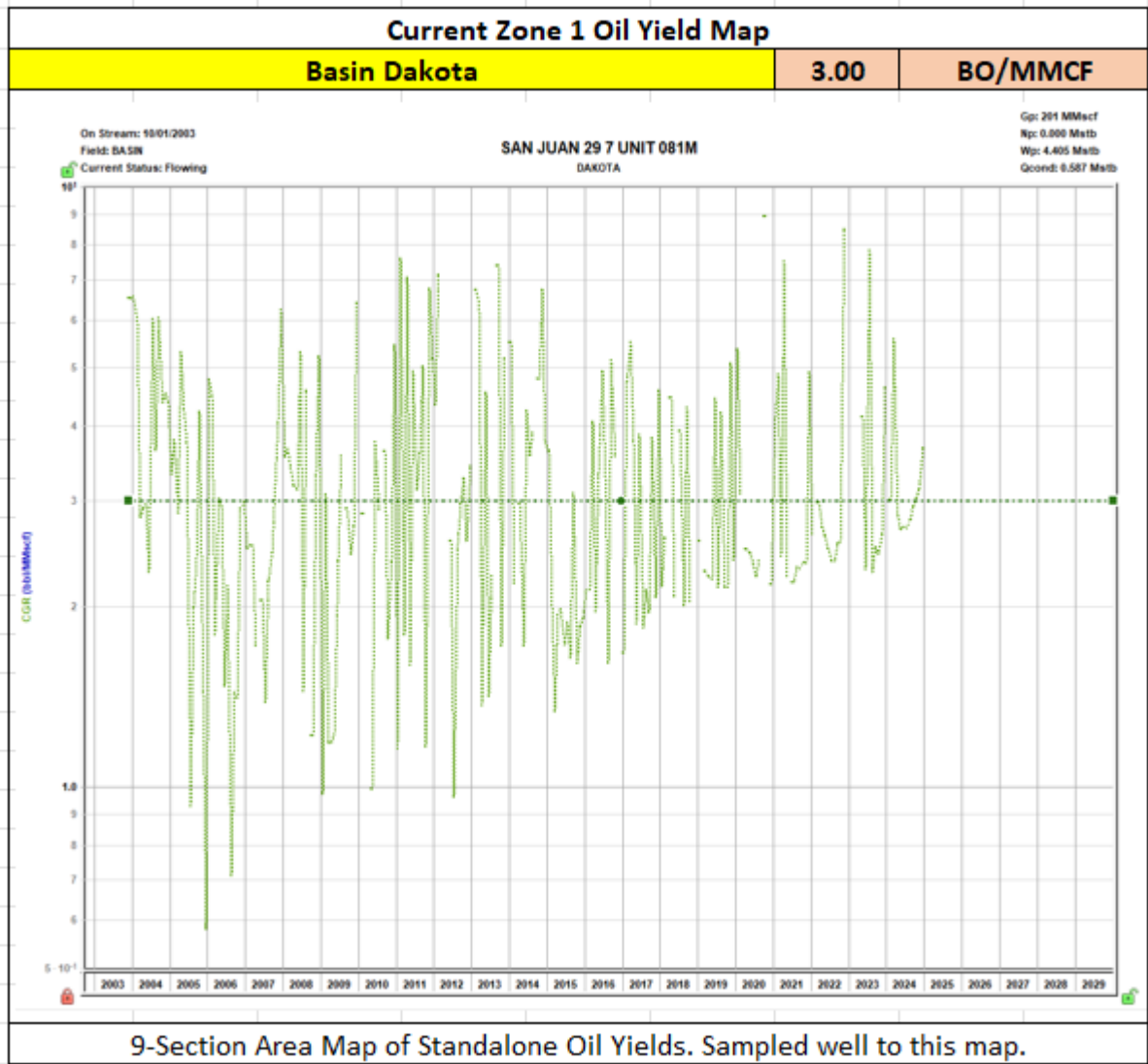
After 3 years production will stabilize. A production average will be gathered during the 4th year and will be utilized to create a fixed percentage based allocation.

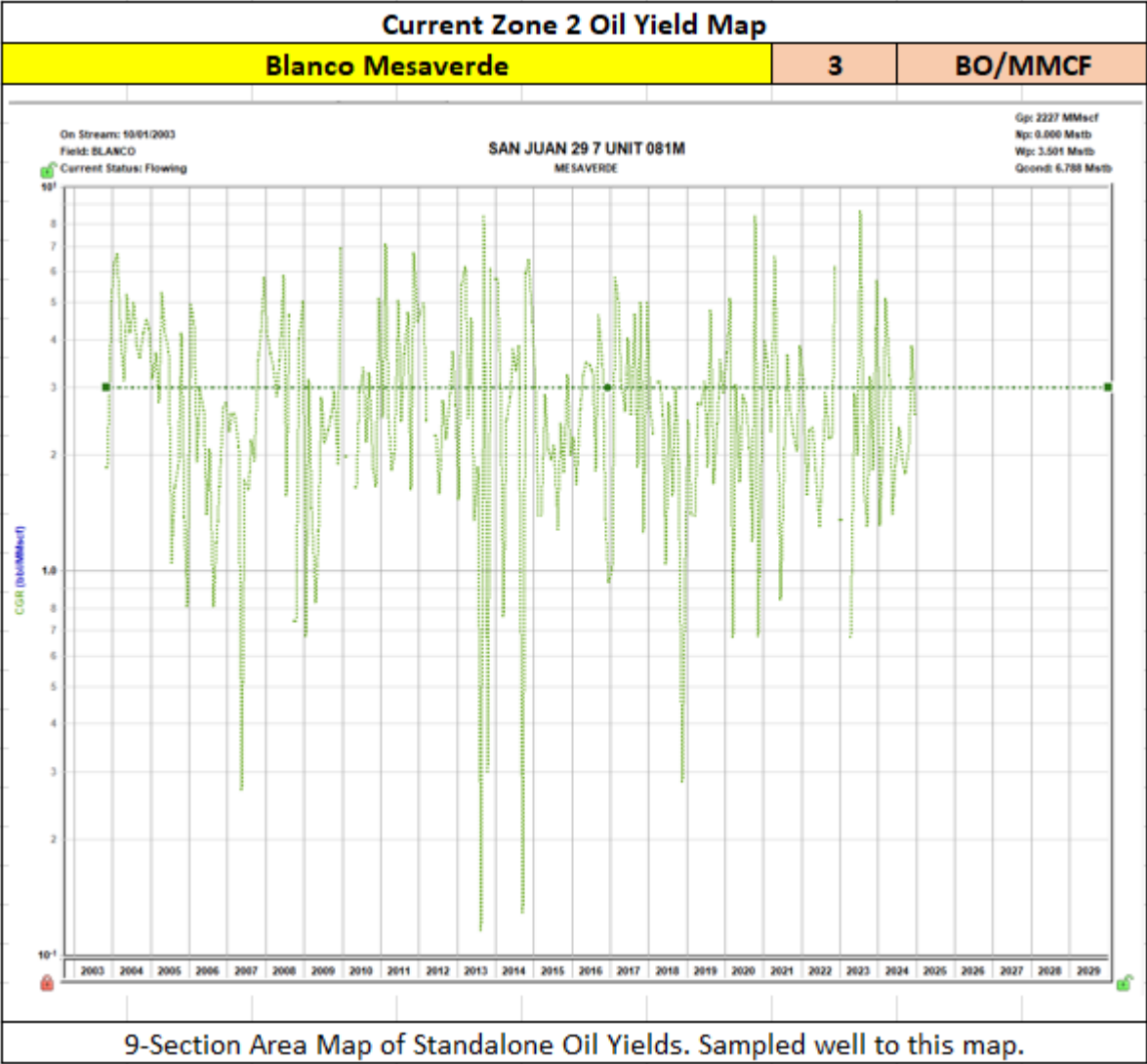


**ONLY USE THIS IF NEW ZONE CREATES TRI-MMINGLE**

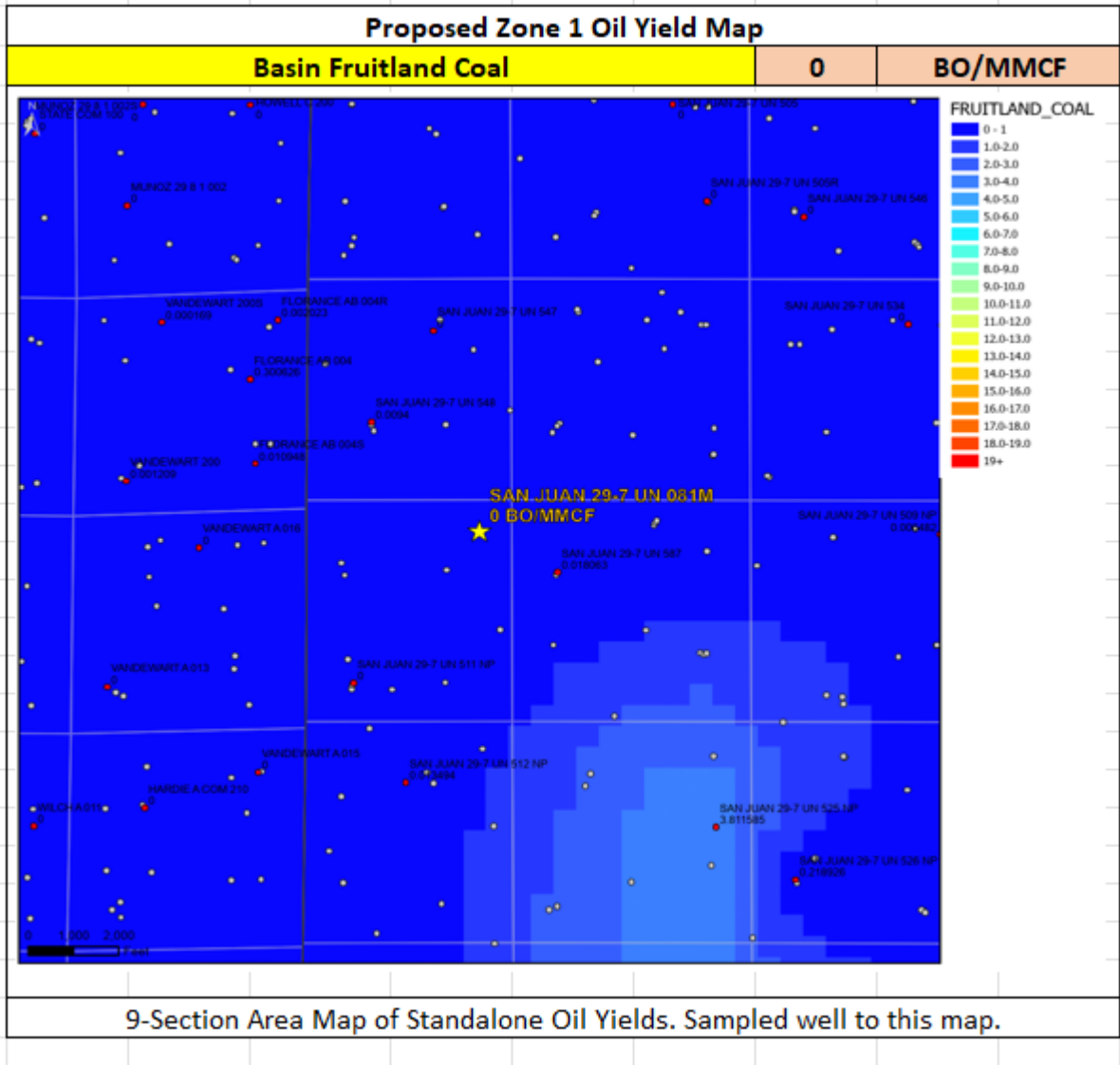
Hilcorp intends to continue to allocate the projected base production on the same fixed percentages to the following pools % (zone 1) % (zone 2) while the subtraction method is being used to determine the allocation to the new zone.

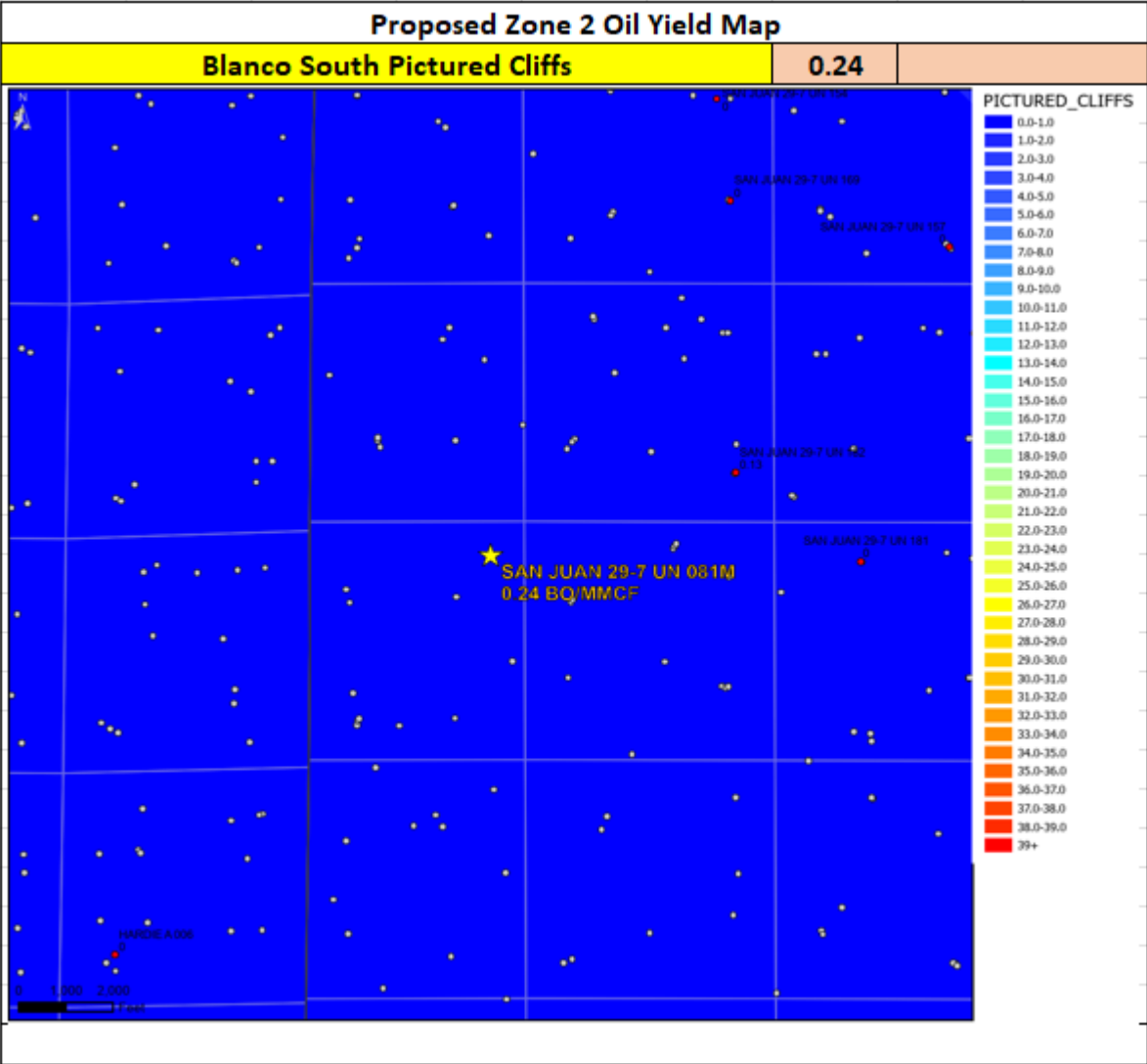






Formation	Remaining Reserves (mmcf)	Yield (bbl/MM)	% Oil Allocation
DK	60.00	3	7%
MV	740.00	3	86%
FRC	971.00	0	0%
PC	719.00	0.24	7%
			100%





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

CONDITIONS

Action 440798

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 440798
	Action Type: [C-107] Down Hole Commingle (C-107A)

CONDITIONS

Created By	Condition	Condition Date
llowe	None	6/10/2025