Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

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: _____ **OGRID Number:** _____
Well Name: _____ **API:** _____
Pool: _____ **Pool Code:** _____

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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
   A. ☐ Offset operators or lease holders
   B. ☐ Royalty, overriding royalty owners, revenue owners
   C. ☐ Application requires published notice
   D. ☐ Notification and/or concurrent approval by SLO
   E. ☐ Notification and/or concurrent approval by BLM
   F. ☐ Surface owner
   G. ☐ For all of the above, proof of notification or publication is attached, and/or,
   H. ☐ No notice required

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.

_____ Date

_____ Print or Type Name

_____ Phone Number

_____ Signature

_____ 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
_X_ Yes ____No

APPLICATION FOR DOWNHOLE COMMINGLING

Hilcorp Energy Company — Operator
382 Road 3100, Aztec, NM 87410 — Address

Murphy C — Lease
2 — Well No.
A-27-30N-11W — Unit Letter-Section-Township-Range
San Juan — County

OGRID No. 372171 Property Code 318634 API No. 30-045-26831 Lease Type: _X_ Federal ____State ____Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name	Basin Fruitland Coal		Blanco Mesaverde
Pool Code	71629		72319
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	1981' – 2308'		4205' – 4882'
Method of Production (Flowing or 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)	105 psi		189 psi
Oil Gravity or Gas BTU (Degree API or Gas BTU)	1034 BTU		1241 BTU
Producing, Shut-In or New Zone	New Zone		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:	Date: Rates:	Date:3/1/2023 Rates: Oil: 0 bbls Gas: 1216 mcf Water: 0 bbls
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 %

ADDITIONAL DATA

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

Are all produced fluids from all commingled zones compatible with each other? Yes_____ No_____

Will commingling decrease the value of production? Yes_____ No_____

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_____

NMOCD Reference Case No. applicable to this well: _____

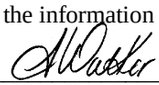
Attachments:
C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
Production curve for each zone for at least one year. (If not available, attach explanation.)
For zones with no production history, estimated production rates and supporting data.
Data to support allocation method or formula.
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  TITLE Operations/Regulatory Technician DATE 7/14/2023

TYPE OR PRINT NAME Amanda Walker TELEPHONE NO. (346) 237-2177

E-MAIL ADDRESS mwalker@hilcorp.com

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
MERIDIAN OIL INC.	MURPHY C (NM-02491)	2

Unit Letter	Section	Township	Range	County
A	27	30-N	11-W	SAN JUAN

Actual Footage Location of Well:
1190 feet from the NORTH line and 790 feet from the EAST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
5904	Mesa Verde	Blanco EXT	~~320~~ 317.66 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

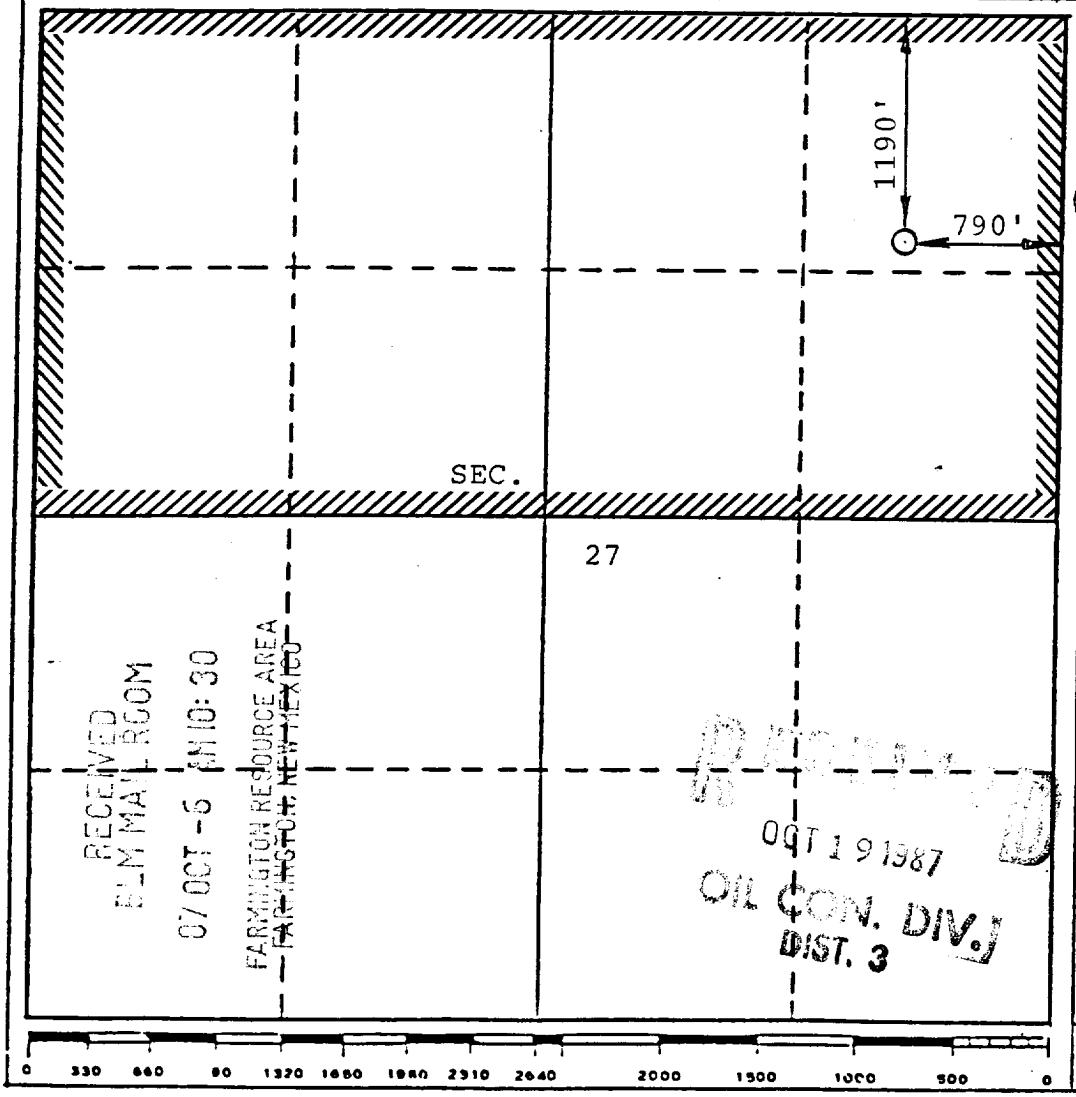
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Name: Drilling Clerk

Position: Meridian Oil Inc.

Company: 10-5-87

Date:

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 knowledge and belief.

SEPTEMBER 25, 1987

Date Surveyed

DAVID M. KELSEY

Registered Professional Engineer and/or Land Surveyor

Certificate No. 5855

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

Form C-102
August 1, 2011

Permit 338836

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. API Number	2. Pool Code	3. Pool Name
30-045-26831	71629	BASIN FRUITLAND COAL (GAS)
4. Property Code	**5. Property Name**	**6. Well No.**
318634	MURPHY C	002
7. OGRID No.	**8. Operator Name**	**9. Elevation**
372171	HILCORP ENERGY COMPANY	5904

10. Surface Location

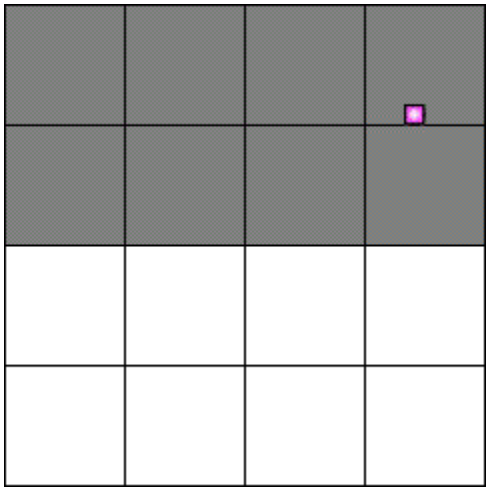
UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
A	27	30N	11W	1	1190	N	790	E	SAN JUAN

11. Bottom Hole Location If Different From Surface

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County

12. Dedicated Acres	13. Joint or Infill	14. Consolidation Code	15. Order No.
317.66			

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



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location(s) or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

E-Signed By:
Title: Operations Regulatory Tech Sr.
Date: 4/20/2023

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.

Surveyed By: David Kelsey
Date of Survey: 9/25/1987
Certificate Number: 5855

Murphy C2

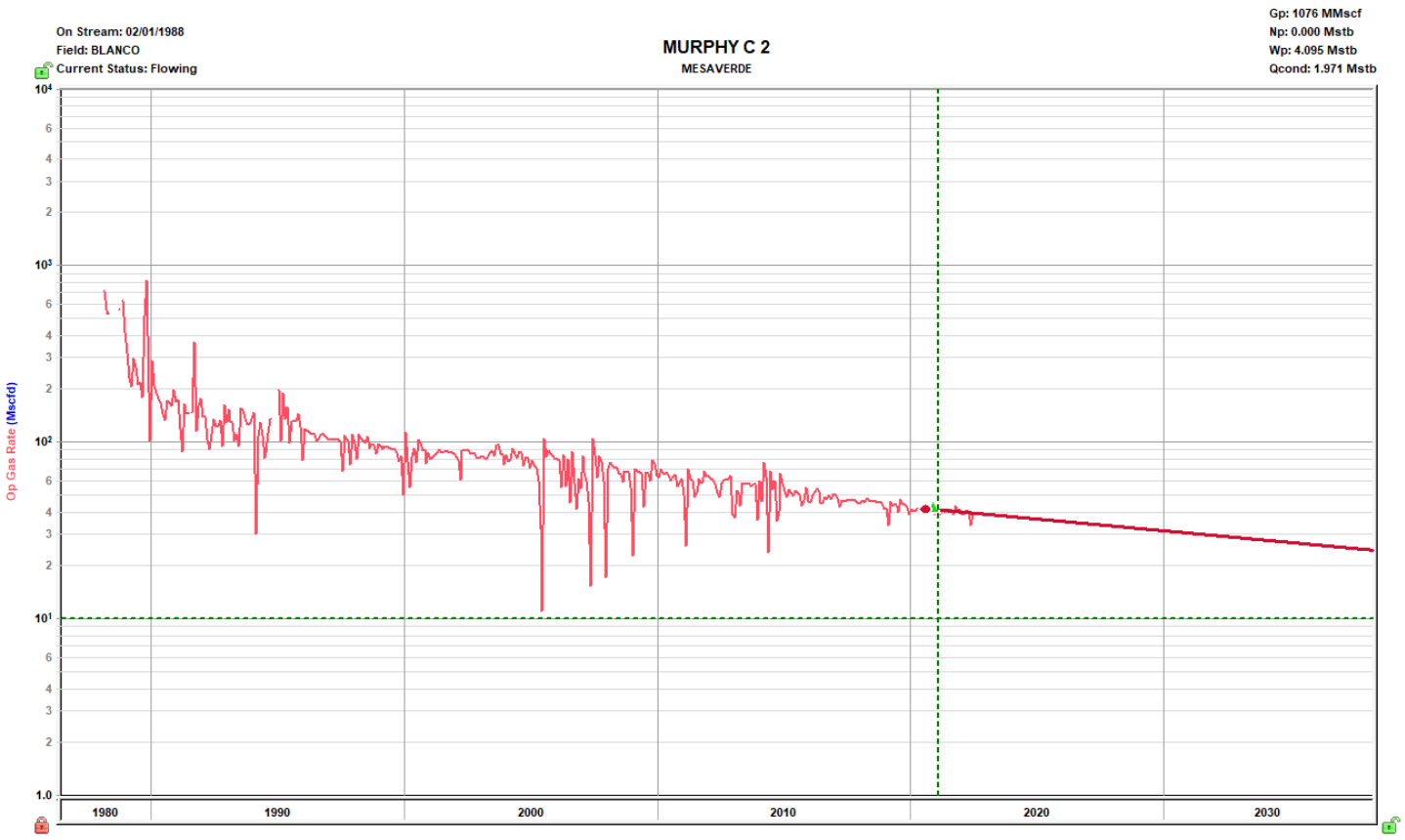
These zones are proposed to be commingled because the application of dual completions impedes the ability to produce the shallow zone without artificial lift and the deeper zones with reduced artificial lift efficiency. All horizons will require artificial lift due to low bottomhole pressure (BHP) and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

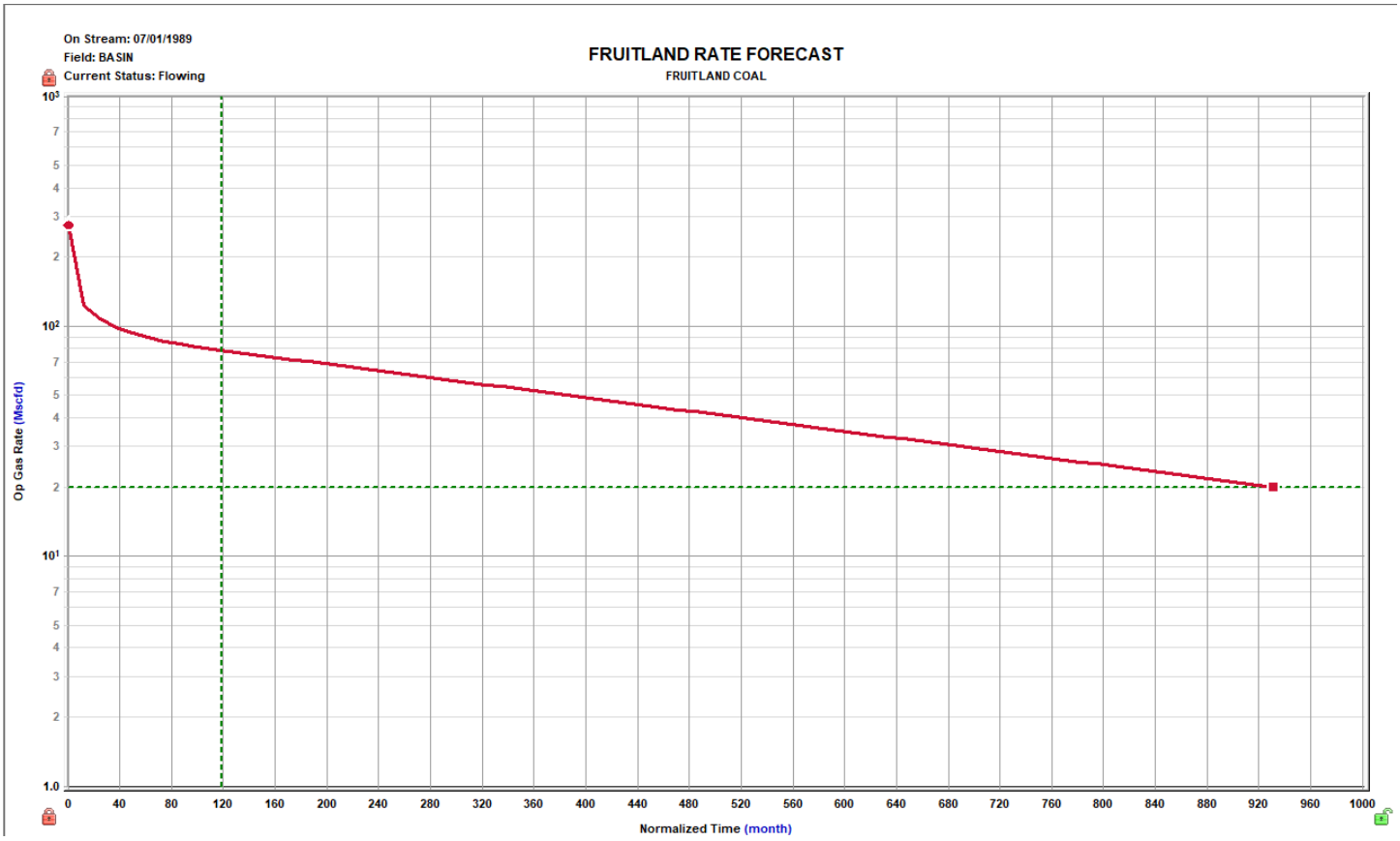
The BHPs of all zones, producing and non-producing, were estimated based upon basin wide Moving-Domain Material Balance models that have proven to approximate the pressure in the given reservoirs well in this portion of the basin, in conjunction with shut-in pressure build-ups. These models were constructed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

Production Allocation Method – Subtraction

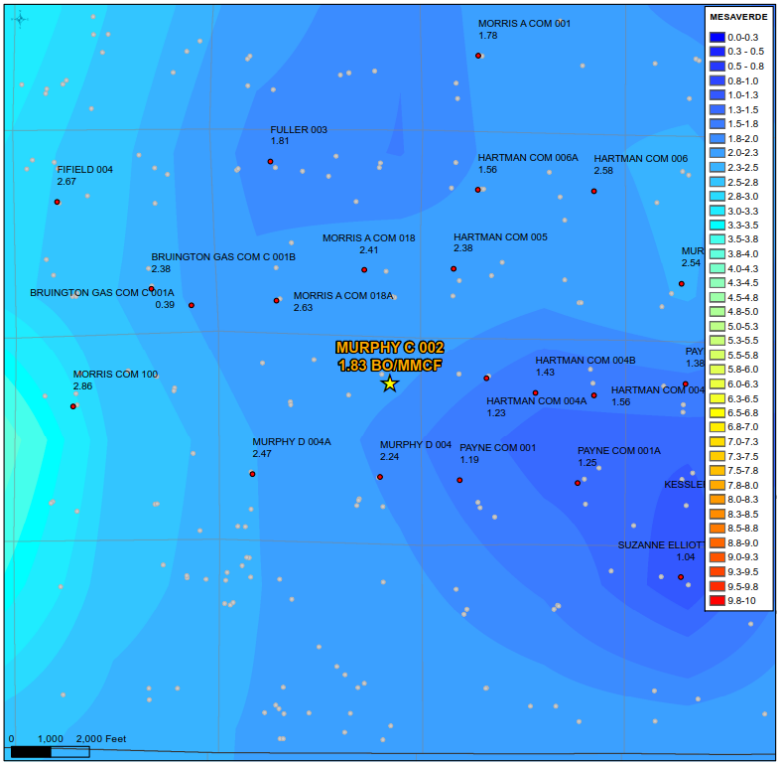
Gas Allocation:
Production for the downhole commingle will be allocated using the subtraction method in agreement with local agencies. The base formation is the Mesaverde and the added formation to be commingled is the Fruitland Coal. The subtraction method applies an average monthly production forecast to the base formation using historic production. All production from this well exceeding the base formation forecasts will be allocated to the new formation.

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.





Oil Allocation:
Fruitland Coal is not expected to produce condensate therefore it will be allocated 100% to MV



Gas Compatibility in the San Juan Basin

- The San Juan basin has productive siliciclastic reservoirs (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.

Well Name	API
MURPHY C 2	3004526831

FRC Offset		MV Current	
API	3004534174	API	3004526831
Property	MURPHY C 100	Property	MURPHY C 2
CO2	0.015252	CO2	0.006542
N2	0.002872	N2	0.001865
C1	0.950172	C1	0.818784
C2	0.022754	C2	0.097419
C3	0.004562	C3	0.042242
ISOC4	0.000991	ISOC4	0.008256
NC4	0.001117	NC4	0.010677
ISOC5	0.000515	ISOC5	0.004111
NC5	0.000386	NC5	0.002951
NEOC5		NEOC5	
C6		C6	
C6_PLUS	0.001379	C6_PLUS	0.007151
C7		C7	
C8		C8	
C9		C9	
C10		C10	
AR		AR	
CO		CO	
H2		H2	
O2		O2	
H20		H20	
H2S		H2S	0.000002
HE		HE	
C_O_S		C_O_S	
CH3SH		CH3SH	
C2H5SH		C2H5SH	
CH2S3_2CH3S		CH2S3_2CH3S	
CH2S		CH2S	
C6HV		C6HV	
CO2GPM	0	CO2GPM	0
N2GPM	0	N2GPM	0
C1GPM	0	C1GPM	0
C2GPM	0.6097	C2GPM	2.6137
C3GPM	0.1259	C3GPM	1.1675
ISOC4GPM	0.0325	ISOC4GPM	0.271
NC4GPM	0.0353	NC4GPM	0.3377
ISOC5GPM	0.0189	ISOC5GPM	0.1508
NC5GPM	0.014	NC5GPM	0.1073
C6_PLUSGPM	0.0617	C6_PLUSGPM	0.3202

Water Compatibility in the San Juan Basin

- The San Juan basin has productive siliciclastic reservoirs (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.

Well Name	API
MURPHY C 2	3004526831

FRC Offset		MV Current	
API	3004534174	API	3004526831
Property	MURPHY C 100	Property	MURPHY C 2
CationBarium	0.968	CationBarium	0.796
CationBoron		CationBoron	
CationCalcium	6.98	CationCalcium	6.91
CationIron	62.7	CationIron	21.6
CationMagnesium	<2.00	CationMagnesium	<2.00
CationManganese	1.2	CationManganese	0.324
CationPhosphorus		CationPhosphorus	
CationPotassium	<20.0	CationPotassium	<20.0
CationStrontium	<2.00	CationStrontium	<2.00
CationSodium	57.2	CationSodium	110
CationSilica	<3.26	CationSilica	<3.26
CationZinc	<2.00	CationZinc	<2.00
CationAluminum		CationAluminum	
CationCopper		CationCopper	
CationLead	<2.00	CationLead	<2.00
CationLithium		CationLithium	
CationNickel		CationNickel	
CationCobalt		CationCobalt	
CationChromium		CationChromium	
CationSilicon	<10.0	CationSilicon	<10.0
CationMolybdenum		CationMolybdenum	
AnionChloride	76.7	AnionChloride	192
AnionCarbonate	<10.0	AnionCarbonate	<10.0
AnionBicarbonate	30	AnionBicarbonate	30
AnionBromide		AnionBromide	
AnionFluoride		AnionFluoride	
AnionHydroxyl		AnionHydroxyl	
AnionNitrate		AnionNitrate	
AnionPhosphate		AnionPhosphate	
AnionSulfate	1.13	AnionSulfate	0.364
phField	6.26	phField	6.02
phCalculated		phCalculated	
TempField	22.3	TempField	22.2
TempLab		TempLab	
OtherFieldAlkalinity		OtherFieldAlkalinity	
OtherSpecificGravity	1	OtherSpecificGravity	1.001
OtherTDS	210	OtherTDS	425
OtherCaCO3	17.4	OtherCaCO3	17.3
OtherConductivity	322	OtherConductivity	707
DissolvedCO2		DissolvedCO2	
DissolvedO2		DissolvedO2	
DissolvedH2S		DissolvedH2S	
GasPressure		GasPressure	
GasCO2		GasCO2	
GasCO2PP		GasCO2PP	
GasH2S		GasH2S	
GasH2SPP		GasH2SPP	
PitzerCaCO3_70		PitzerCaCO3_70	
PitzerBaSO4_70		PitzerBaSO4_70	
PitzerCaSO4_70		PitzerCaSO4_70	
PitzerSrSO4_70		PitzerSrSO4_70	
PitzerFeCO3_70		PitzerFeCO3_70	
PitzerCaCO3_220		PitzerCaCO3_220	
PitzerBaSO4_220		PitzerBaSO4_220	
PitzerCaSO4_220		PitzerCaSO4_220	
PitzerSrSO4_220		PitzerSrSO4_220	
PitzerFeCO3_220		PitzerFeCO3_220	

Hilcorp

June 5, 2023

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505
Attn: Michael McMillan

Re: C-107-A (Downhole Commingle)
Murphy C #2
API No. 30-045-26831
A-27, T30N-R11W
San Juan County, NM

Mr. McMillan:

Concerning Hilcorp Energy Company's C-107-A application to downhole commingle production in the subject well, this letter serves to confirm the following:

All working, royalty and overriding royalty interests are identical between the Blanco Mesaverde (Pool Code: 72319) and Basin Fruitland Coal (Pool Code: 71629) in the spacing units dedicated to these formations; being the N/2 of Township 30 North, Range 11 West, Section No. 27. Therefore, no notice to interest owners is required.

The spacing unit is partially comprised of a federal lease. Therefore, pursuant to Subsection C.(1) of 19.15.12.11 NMAC, a copy of the C-107-A has been sent to the Bureau of Land Management as of the date of this letter.

If you have any questions or concerns, please contact the undersigned using the information provided below.

Sincerely,

HILCORP ENERGY I, LP
By: HILCORP ENERGY COMPANY,
Its General Partner

Carson Parker Rice
Landman – San Juan Basin
Hilcorp Energy Company
1111 Travis Street
Houston, Texas 77002
713-757-7108 Direct
Email: carice@hilcorp.com

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Sundry Print Report

04/28/2023

Well Name: MURPHY C

Well Location: T30N / R11W / SEC 27 / NENE / 36.78729 / -107.97153

County or Parish/State: SAN JUAN / NM

Well Number: 2

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMNM02491

Unit or CA Name:

Unit or CA Number:

US Well Number: 3004526831

Well Status: Producing Gas Well

Operator: HILCORP ENERGY COMPANY

Notice of Intent

Sundry ID: 2727770

Type of Submission: Notice of Intent

Type of Action: Recompletion

Date Sundry Submitted: 04/26/2023

Time Sundry Submitted: 11:08

Date proposed operation will begin: 06/01/2023

Procedure Description: Hilcorp Energy Company requests permission to recomplete the subject well in the Fruitland Coal and downhole commingle with the existing Mesaverde. Please see the attached procedure, current and proposed wellbore diagram, plat and natural gas management plan. A closed loop system will be used. A pre-reclamation site visit was held on 4/18/2023 with Roger Herrera/BLM. The reclamation plan is attached.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

Murphy_C_2_RC_NOI_20230426110842.pdf

Notify NMOCD 24 Hours Prior to beginning operations

DHC required

The CBL proposed in the procedures shall be submitted to the Division. If the cement sheath around the casing is not adequate to protect the casing and isolate strata from the top Fruitland Coal perforation to at least 150 feet above the top Fruitland Coal perforation, then Hilcorp shall conduct operations to remediate it prior to completing or producing from the formation.

Dean R McClure

05/23/2023

Well Name: MURPHY C

Well Location: T30N / R11W / SEC 27 / NENE / 36.78729 / -107.97153

County or Parish/State: SAN JUAN / NM

Well Number: 2

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMNM02491

Unit or CA Name:

Unit or CA Number:

US Well Number: 3004526831

Well Status: Producing Gas Well

Operator: HILCORP ENERGY COMPANY

Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: AMANDA WALKER

Signed on: APR 26, 2023 11:08 AM

Name: HILCORP ENERGY COMPANY

Title: Operations/Regulatory Technician

Street Address: 1111 TRAVIS ST.

City: HOUSTON **State:** TX

Phone: (346) 237-2177

Email address: mwalker@hilcorp.com

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 04/26/2023

Signature: Kenneth Rennick

Murphy C 2

A-27-30N-11W Lot: 1 1190 FNL 790 FEL

API#: 3004526831

Fruitland Coal Recompletion Procedure

03/09/2023

Procedure:

1. MIRU PU and associated equipment. Kill well and NDWH.
2. NUBOP and unseat tubing, tag for fill and scan out with production tubing
3. Set 4.5” CIBP at 4000’ to isolate existing Mesaverde completion. Load and roll hole.
4. RU wellcheck and MIT wellbore to 500 PSI
5. Run CBL from CIBP to surface.
6. Set 7” CBP at 2310’
7. PU 7” frac packer and frac string, RIH and set packer at 1981’
8. Pressure test frac string to 5000 PSI
9. MIRU frac spread.
10. Perforate and frac the Fruitland Coal from 1981’ to 2308’.
11. MI flow back and flow well to relieve pressure if needed.
12. MIRU service rig.
13. Test BOP’s.
14. POOH with frac string and packer.
15. Make up 7” mill and clean out.
16. When water and sand rates are acceptable, flow test the intervals.
17. Make up 3-7/8” mill and clean out to CIBP, mill plug and commingle.
18. TIH and land production tubing.
19. ND BOP’s, NU production tree.
20. RDMO service rig & turn well over to production.

Hilcorp Energy Company

Schematic - Current

Well Name: MURPHY C #2

API / UWI	Surface Legal Location	Field Name	License No.	State/Province	Well Configuration Type
3004526831	027-030N-011W-A	BLANCO MESAVERDE (PRORATED GAS		NEW MEXICO	Vertical

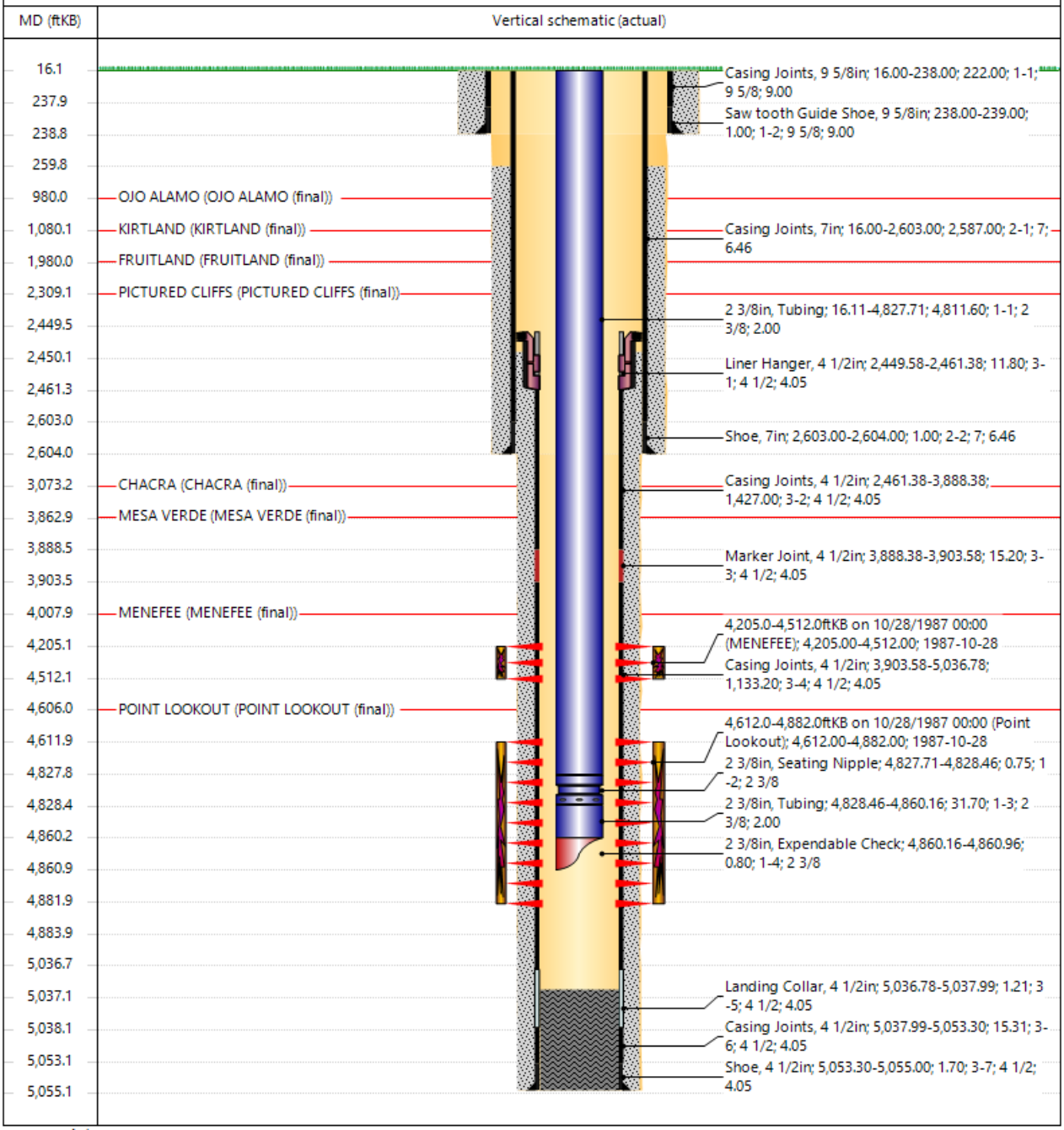
Original KB/RT Elevation (ft)	KB-Ground Distance (ft)	Original Spud Date	Rig Release Date	PBTD (All) (ftKB)	Total Depth All (TVD) (ftKB)
5,920.00	16.00	10/22/1987 00:00		Original Hole - 5,037.0	

Most Recent Job

Job Category	Primary Job Type	Secondary Job Type	Actual Start Date	End Date
COMPLETIONS	INITIAL COMPLETION		10/28/1987	11/27/1987

TD: 5,055.0

Original Hole [Vertical]



Hilcorp Energy Company

Schematic Proposed

Well Name: MURPHY C #2

API / UWI	Surface Legal Location	Field Name	License No.	State/Province	Well Configuration Type
3004526831	027-030N-011W-A	BLANCO MESAVERDE (PRORATED GAS		NEW MEXICO	Vertical

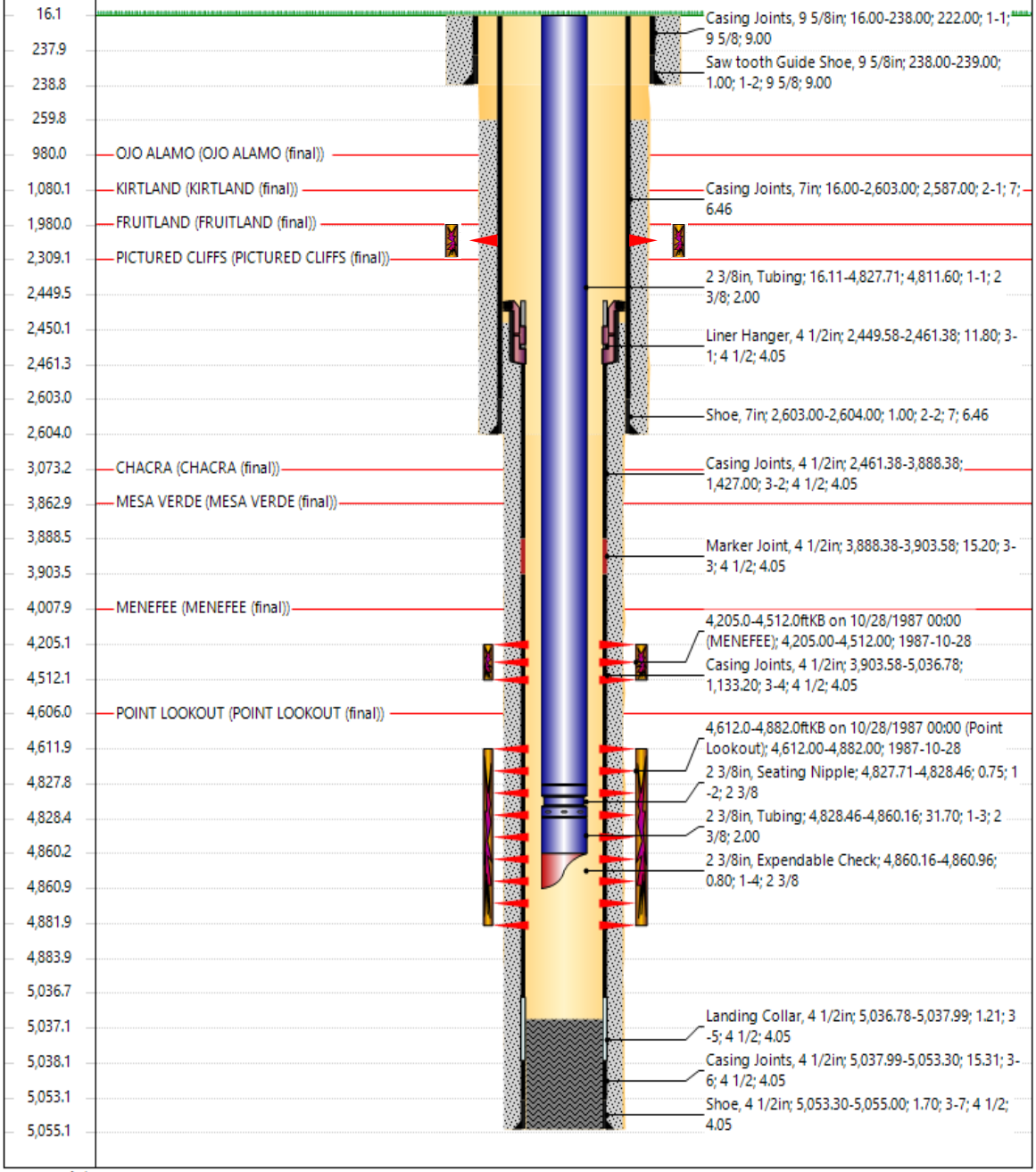
Original KB/RT Elevation (ft)	KB-Ground Distance (ft)	Original Spud Date	Rig Release Date	PBTD (All) (ftKB)	Total Depth All (TVD) (ftKB)
5,920.00	16.00	10/22/1987 00:00		Original Hole - 5,037.0	

Most Recent Job

Job Category	Primary Job Type	Secondary Job Type	Actual Start Date	End Date
COMPLETIONS	INITIAL COMPLETION		10/28/1987	11/27/1987

TD: 5,055.0

Original Hole [Vertical]



District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

August 1, 2011

Permit 338836

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. API Number	2. Pool Code	3. Pool Name
30-045-26831	71629	BASIN FRUITLAND COAL (GAS)
4. Property Code	**5. Property Name**	**6. Well No.**
318634	MURPHY C	002
7. OGRID No.	**8. Operator Name**	**9. Elevation**
372171	HILCORP ENERGY COMPANY	5904

10. Surface Location

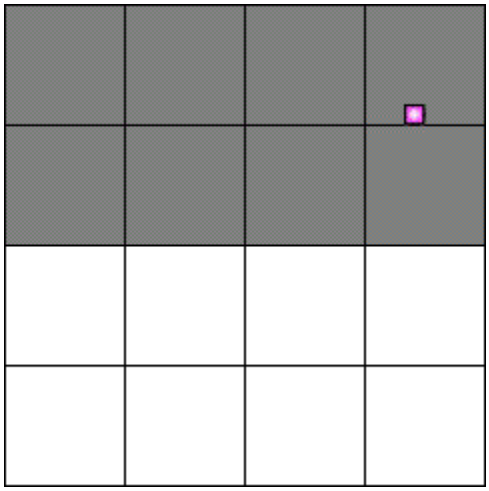
UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
A	27	30N	11W	1	1190	N	790	E	SAN JUAN

11. Bottom Hole Location If Different From Surface

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County

12. Dedicated Acres	13. Joint or Infill	14. Consolidation Code	15. Order No.
317.66			

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



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location(s) or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

E-Signed By: Title: Operations Regulatory Tech Sr.
Date: 4/20/2023

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.

Surveyed By: David Kelsey
Date of Survey: 9/25/1987
Certificate Number: 5855

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

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

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description
Effective May 25, 2021

I. Operator: Hilcorp Energy Company **OGRID:** 372171 **Date:** 4/26/2023

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Murphy C 2	30-045-26831	A-27-30N-11W	1190 FNL & 790 FEL	0	200	4

IV. Central Delivery Point Name: Chaco Processing Plant [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Murphy C 2	**30-045-26831**					

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: 
Printed Name: Amanda Walker
Title: Operations Regulatory Tech Sr.
E-mail Address: mwalker@hilcorp.com
Date: 4/26/2023
Phone: 346-237-2177

OIL CONSERVATION DIVISION **(Only applicable when submitted as a standalone form)**
Approved By:
Title:
Approval Date:
Conditions of Approval:

VI. Separation Equipment:

Hilcorp Energy Company (HEC or Operator) production facilities include separation equipment designed to efficiently separate gas from liquid phases to optimize gas capture based on projected and estimated volumes from the targeted pool of our recomplete project. HEC will utilize flowback separation equipment and production separation equipment designed and built to industry specifications after the recomplete to optimize gas capture and send gas to sales or flare based on analytical composition. HEC operates facilities that are typically one-well facilities. Production separation equipment is upgraded prior to well being completed, if determined to be undersized or inadequate. This equipment is already on-site and tied into our sales gas lines prior to the recomplete operations.

VII. Operational Practices:

1. Subsection (A) Venting and Flaring of Natural Gas
   - HEC understands the requirements of NMAC 19.15.27.8 which outlines that the venting and flaring of natural gas during drilling, completion or production operations that constitutes waste as defined in 19.15.2 are prohibited.
2. Subsection (B) Venting and Flaring during drilling operations
   - This gas capture plan isn't for a well being drilled.
3. Subsection (C) Venting and flaring during completion or recompletion
   - Flowlines will be routed for flowback fluids into a completion or storage tank and if feasible under well conditions, flare rather than vent and commence operation of a separator as soon as it is technically feasible for a separator to function.
   - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.
4. Subsection (D) Venting and flaring during production operations
   - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.
   - Monitor manual liquid unloading for wells on-site or in close proximity (<30 minutes' drive time), take reasonable actions to achieve a stabilized rate and pressure at the earliest practical time, and take reasonable actions to minimize venting to the maximum extent practicable.
   - HEC will not vent or flare except during the approved activities listed in NMAC 19.15.27.8 (D) 1-4.
5. Subsection (E) Performance standards
   - All tanks and separation equipment are designed for maximum throughput and pressure to minimize waste.
   - If a flare is utilized during production operations it will have a continuous pilot and is located more than 100 feet from any known well or storage tanks.
   - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.

6. Subsection (F) Measurement or estimation of vented and flared natural gas
   - Measurement equipment is installed to measure the volume of natural gas flared from process piping.
   - When measurement isn't practicable, estimation of vented and flared natural gas will be completed as noted in 19.15.27.8 (F) 5-6.

VIII. Best Management Practices:

1. Operator has adequate storage and takeaway capacity for wells it chooses to recomplete as the flowlines at the sites are already in place and tied into a gathering system.
2. Operator will flare rather than vent vessel blowdown gas when technically feasible during active and/or planned maintenance to equipment on-site.
3. Operator combusts natural gas that would otherwise be vented or flared, when technically feasible.
4. Operator will shut in wells in the event of a takeaway disruption, emergency situation, or other operations where venting or flaring may occur due to equipment failures.

Hilcorp Energy
Recomplete Reclamation Plan
MURPHY C 2
API: 30-045-26831
T30N-R11W-Sec.27-A
LAT: 36.78729 LONG: -107.97152 NAD 27
Footage: 1190' FNL & 790' FEL
San Juan County, NM

1. PRE- RECLAMATION SITE INSPECTION

   A pre-reclamation site inspection was completed with Roger Herrera from the BLM and Eufracio Trujillo, Hilcorp Energy SJ South Construction Foreman, on April 18, 2023.

2. LOCATION RECLAMATION PROCEDURE

   1. Reclamation work will begin in the summer.
   2. All trash and debris will be removed within a 25' buffer outside of the location disturbance during reclamation.
   3. Brush hog East side of location and fence off area for disturbance.
   4. Strip off equipment.
   5. Blade roads into location. Crown and ditch.
   6. Fix damage to roads, surfaces that are disturbed, and fix drainage issues.
   7. Reclaim all disturbed area being used for recompletion activities.
   8. Close off section by separator and reseed to reestablish teardrop.
   9. Reclaim areas damaged by moving crews in.

3. SEEDING PROCEDURE

   1. A Pinion/Juniper seed mix will be used for all reclaimed and disturbed areas of the well pad(s) and lease road.
   2. Drill seed will be done where applicable, and all other disturbed areas will be broadcast seeded and harrowed. Broadcast seeding will be applied at a double the rate of seed.
   3. Timing of the seeding will be when the ground is not frozen or saturated.

4. WEED MANAGEMENT

   1. No action is required at this time for weed management, no noxious weeds were identified during this onsite.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
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811 S. First St., Artesia, NM 88210
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Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 211815
	Action Type: [C-103] NOI Recompletion (C-103E)

CONDITIONS

Created By	Condition	Condition Date
dmcclure	Notify NMOCD 24 Hours Prior to beginning operations	5/23/2023
dmcclure	DHC required	5/23/2023
dmcclure	The CBL proposed in the procedures shall be submitted to the Division. If the cement sheath around the casing is not adequate to protect the casing and isolate strata from the top Fruitland Coal perforation to at least 150 feet above the top Fruitland Coal perforation, then Hilcorp shall conduct operations to remediate it prior to completing or producing from the formation.	5/23/2023

Hampton 5 – Standalone MV

1. 24 hour SI
2. BHP calculated based on SN depth and 24 hr SI casing pressure
3. Shut in BHP was calculated for the proposed commingled completions

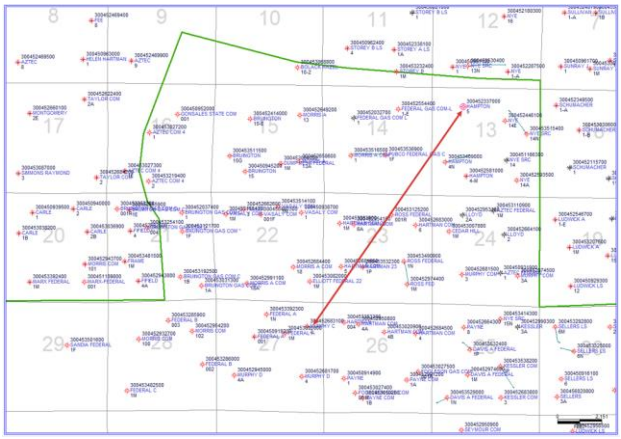
Morris 103 – Standalone FC

1. BH Pressure Memory Gauge ran to Bottom Perforation from 6/2023.

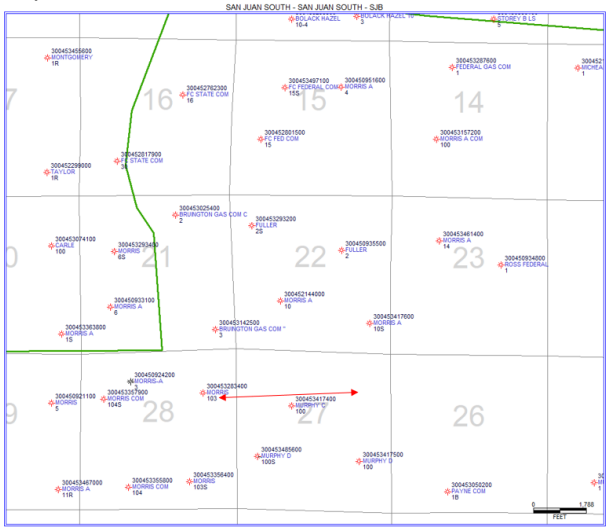
Well Name	API	Formation	BHP
Hampton 5	3004523370	MV	189 psi
Morris 103	3004532834	FC	105 psi

I believe each of the reservoirs to be continuous and in a similar state of depletion based on at the Murphy C 2 and each of the wells from which pressures are being derived. Red arrows below point to the nearby analog and the target well Murphy C 2.

MV Producers in the area:



FC producers in the area:



From: McClure, Dean, EMNRD on behalf of Engineer, OCD, EMNRD
To: Mandi Walker; Cheryl Weston; Laura Bohorquez
Cc: McClure, Dean, EMNRD; Rikala, Ward, EMNRD; Wrinkle, Justin, EMNRD; Powell, Brandon, EMNRD; Paradis, Kyle O
Subject: Approved Administrative Order DHC-5300
Date: Friday, July 14, 2023 10:38:09 AM
Attachments: DHC5300 Order.pdf

NMOCD has issued Administrative Order DHC-5300 which authorizes Hilcorp Energy Company (372171) to downhole commingle production within the following well:

Well Name: **Murphy C #2**
Well API: **30-045-26831**

The administrative order is attached to this email and can also be found online at OCD Imaging.

Please review the content of the order to ensure you are familiar with the authorities granted and any conditions of approval. If you have any questions regarding this matter, please contact me.

Dean McClure
Petroleum Engineer, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
(505) 469-8211

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1625 N. French Drive, Hobbs, NM 88240
District II
811 S. First St., 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 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
_X_ Yes ____No

APPLICATION FOR DOWNHOLE COMMINGLING

Hilcorp Energy Company — Operator
382 Road 3100, Aztec, NM 87410 — Address

Murphy C — Lease
2 — Well No.
A-27-30N-11W — Unit Letter-Section-Township-Range
San Juan — County

OGRID No. 372171 Property Code 318634 API No. 30-045-26831 Lease Type: _X_ Federal ____State ____Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name	Basin Fruitland Coal		Blanco Mesaverde
Pool Code	71629		72319
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	1981' – 2308'		4205' – 4882'
Method of Production (Flowing or 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)	275 psi		650 psi
Oil Gravity or Gas BTU (Degree API or Gas BTU)	1034 BTU		1241 BTU
Producing, Shut-In or New Zone	New Zone		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:	Date: Rates:	Date:3/1/2023 Rates: Oil: 0 bbls Gas: 1216 mcf Water: 0 bbls
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 %

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones? Yes X No
If not, have all working, royalty and overriding royalty interest owners been notified by certified mail? Yes ____ 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: _____

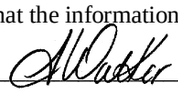
Attachments:
C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
Production curve for each zone for at least one year. (If not available, attach explanation.)
For zones with no production history, estimated production rates and supporting data.
Data to support allocation method or formula.
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  TITLE Operations/Regulatory Technician DATE 6/5/2023

TYPE OR PRINT NAME Amanda Walker TELEPHONE NO. (346) 237-2177

E-MAIL ADDRESS mwalker@hilcorp.com

From: Mandi Walker
To: McClure, Dean, EMNRD; Laura Bohorquez
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300
Date: Friday, July 14, 2023 5:58:01 AM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
Murphy C 1_DHC C-107A REVISED.pdf
Additional Backup.pdf

Good morning Dean,

I have updated the coversheet for the C-107A packet, as well as the information for the BHP. Let me know if you need anything.

Thank you!
Mandi

From: McClure, Dean, EMNRD <Dean.McClure@emnrd.nm.gov>
Sent: Thursday, July 13, 2023 3:17 PM
To: Laura Bohorquez <Laura.Bohorquez@hilcorp.com>; Mandi Walker <mwalker@hilcorp.com>
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300

CAUTION: External sender. DO NOT open links or attachments from UNKNOWN senders.

Laura,

Only the Director may approve downhole commingling of non-preapproved pools and I do not foresee such approval being granted until all the information for the review is submitted. Having said that, your information below will be sufficient to confirm for me the basis upon which your BHP was derived. Please provide an amended form C-107A with the BHP data updated.

My hope will be to provide my recommendation that a permit be issued to the Director by EOB, and while I can pass on Hilcorp's desire for quick approval, it may be the beginning of next week before approval is granted.

I was away from the office for a bit, but am back now and can give you a call if you wish.

Dean McClure
Petroleum Engineer, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
(505) 469-8211

From: Laura Bohorquez <Laura.Bohorquez@hilcorp.com>
Sent: Thursday, July 13, 2023 1:49 PM
To: McClure, Dean, EMNRD <Dean.McClure@emnrd.nm.gov>; Mandi Walker <mwalker@hilcorp.com>
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300

Dean,

We are working on getting you this information: Please see what we have so far and consider approval of C107A with COA to complete the following data gathering.

Shut in pressures were calculated for 2 operated offset standalone wells in each of the 2 zones being commingled in the Murphy C 2 via the following process:

Hartman Com 5 – Standalone MV

1. 24 hour SI

2. Echometer used to obtain a fluid level
3. Shut in BHP was calculated for the proposed commingled completions

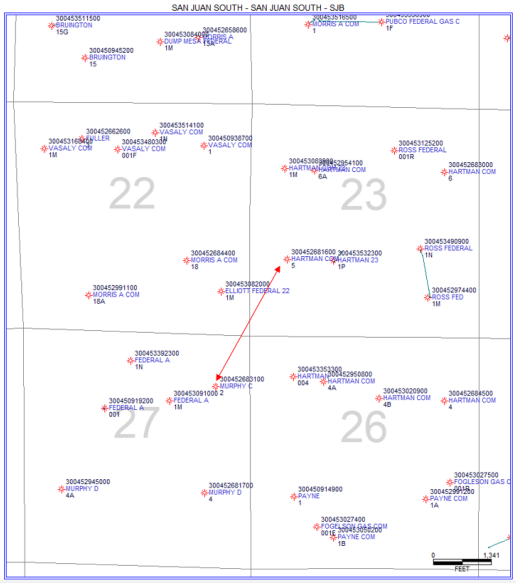
Morris 103 – Standalone FC

1. BH Pressure Memory Gauge ran to Bottom Perforation from 6/2023.

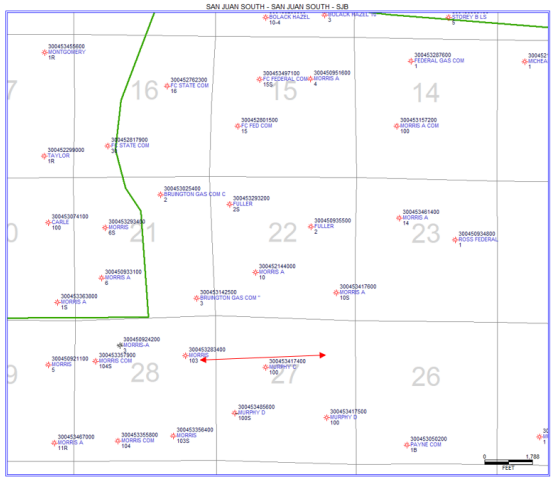
Well Name	API	Formation	BHP
Hartman Com 5	3004526816	MV	In 24 hour SI period as of 7/13/23 3 PM
Morris 103	3004532834	FC	105 psi

I believe each of the reservoirs to be continuous and in a similar state of depletion based on at the Murphy C 2 and each of the wells from which pressures are being derived. Red arrows below point to the nearby analog and the target well Murphy C 2.

MV Producers in the area:



FC producers in the area:



Thanks,
Laura Bohorquez
Operations Engineer | San Juan South

Hilcorp Energy Company | 1111 Travis Street | Houston, TX 77002
M: 832.512.3292
laura.bohorquez@hilcorp.com

From: Laura Bohorquez
Sent: Thursday, July 13, 2023 1:43 PM
To: McClure, Dean, EMNRD <Dean.McClure@emnrd.nm.gov>; Mandi Walker <mwalker@hilcorp.com>
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300

Hi Dean,

Thank you for your thorough explanation – completely agree with you that the example below would be a much more straightforward approach to getting you the information you need.

We would be happy to submit those tests and an amended COA like you requested.

I tried to give you a call to ask and your voice mailbox was full:
As we are frac'ing this well tomorrow and would like to complete the DHC in one rig up with the frac cleanout, would it be possible to get the DHC approval with a COA to submit the information you requested?
I am sorry for all the confusion and convolution – this is not my usual scope of work and I am trying to learn so I appreciate your help

Thanks,
Laura Bohorquez
Operations Engineer | San Juan South
Hilcorp Energy Company | 1111 Travis Street | Houston, TX 77002
M: 832.512.3292
laura.bohorquez@hilcorp.com

From: McClure, Dean, EMNRD <Dean.McClure@emnrd.nm.gov>
Sent: Thursday, July 13, 2023 11:39 AM
To: Laura Bohorquez <Laura.Bohorquez@hilcorp.com>; Mandi Walker <mwalker@hilcorp.com>
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300

Laura,

The main thing I am looking for regarding the BHP is if it was not a direct measurement, then how is this value being computed. Understanding that a model is deriving this for you, my question is regarding the parameters which were fed into the model. My presumption is that the reservoir properties such as porosity and permeability are being updated as needed based off all available data and further that logs and production history from every appropriate well is incorporated as needed. However, I assume that the most impactful data points for predicting reservoir pressure and confirming the validity of the model are the tests which are directly measuring that pressure. At this point and for the pressures we are talking about, then simple tests such as shutting in a well for a brief time and determining the fluid level and then measuring the surface pressure should be fine although it is possible that in some instances in the future I will want to see an actual build up test and calculation of reservoir pressure conducted dependent upon the circumstances although likely the magnitude of pressure will be the most considered parameter in that consideration to request such. I suppose in that instance, perhaps an argument could be made regarding using surface pressures vs downhole pressure bombs, although I would likely wish to have information about how the hydrostatic pressure is being determined beyond a simple fluid level determination.

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.

A pressure map as you have below is a perfectly fine way to provide this information for me, but please filter it to only include points at which a direct measurement of BHP was conducted and the well of interest. Diversly, it could be easier to provide me with a table that includes the closest wells to the well of interest on which these tests were conducted. Additionally, dependent upon how far those wells are from the well of interest, then I will need confirmation that the reservoir is continuous and that the reservoir is in a similar state of depletion at the well of interest as at the well(s) on which the pressure test was conducted. Please note that I have no preference in how Hilcorp wishes to provide this information beyond that it needs to be in a format which can be placed in the admin file and as such please use whatever format is most convenient for you. Having said that, a recent format used by Hilcorp which demonstrates the primary information I am looking for is as follows:

Dean,

Shut in pressures were calculated for 3 operated offset standalone wells in each of the 3 zones being commingled in the Grenier A 8M 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

List of wells used to calculate BHPs for the Grenier A 8M Project:

3004533808	Atlantic D Com E 6E	DK
3004533551	Quigley 100	FRC
3004521727	Pierce A 1A	MV

I believe each of the reservoirs to be continuous and in a similar state of depletion at the Grenier A 8M and at each of the wells from which the pressures are being derived.

Regarding whether to use a shut-in or flowing BHP, I can see an argument for why the flowing BHP would be useful especially with consideration for the different drive mechanics of a conventional reservoir compared to a coal bed methane reservoir. Having said that, the shut-in pressure is the most useful to include especially since flowing BHP would be somewhat variable upon operational conditions and further isn't an accurate representation of what the pressure within that formation is.

Considering the length of this email, a summary of what I am looking for at this point is below. However, please note this is not to dissuade further discussion if there is any disagreement with my discussion so far.

- **Amended or additional information from which I can determine where pressure tests were conducted and their distance from the well of interest.**
- **An amended C-107A with the BHP updated to reflect the shut in BHP for each zone.**

Dean McClure
Petroleum Engineer, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
(505) 469-8211

From: Laura Bohorquez <Laura.Bohorquez@hilcorp.com>
Sent: Thursday, July 13, 2023 5:47 AM
To: McClure, Dean, EMNRD <Dean.McClure@emnrd.nm.gov>; Mandi Walker <mwalker@hilcorp.com>
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300

Dean, answers below in Red

To confirm the pressure map labeled as UPE is for the fruitland coal formation?
Yes - UPE will be the underpressured envelope of the Fruitland Coal formation.

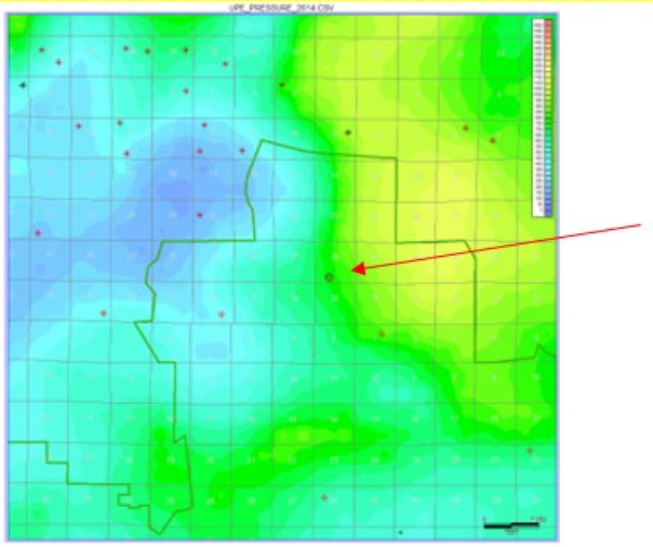
Are each of the red Xs wells from which an actual pressure test was conducted and then the green target is the well in question, the Murphy C #2?
Not necessarily – the maps are showing a gridded extrapolation of various pressure tests across the field. The red arrows below are pointing to the quarter section location of the target well Murphy C 2.

The C-107A has BHPs of 275 psi for the Fruitland coal and 650 psi for the Mesaverde. Should these numbers be 657 for the fruitland coal and 1135 for the Mesaverde? Presumably the BHP may have dropped since 2011 and 2014 which would explain the reported pressures on the C-107A although then I assume there is also an updated pressure map reflecting this?
To be fair, I wasn't certain if we were looking for flowing bottomhole pressures or static – I had submitted on the C107A I submitted 275 for the fruitland coal as a midpoint range of the near wellbore bottomhole pressure estimated between 150-400 psi, and 675 as a midpoint of the range 500-800 psi.
Based on 2011/2014 gridded data which shows far field stabilized bottomhole pressures in these reservoirs at these locations at 657 for FC and 1135 for MV respectively, we can assume that the pressures have not dropped significantly in the last ~10 or so years due to low production volumes and the reservoirs late life.

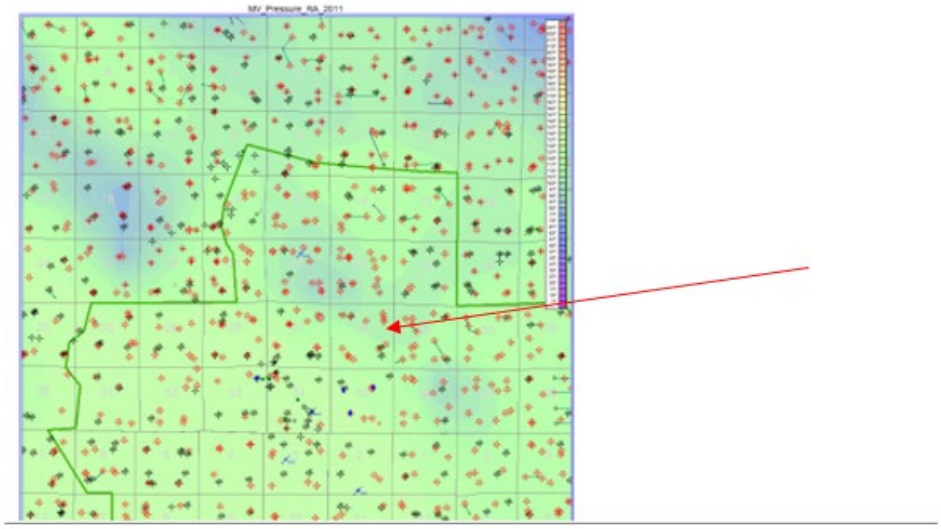
I do believe that the far field stabilized BHP's should be closer to 657 psi for the coal and 1135 psi for the MV based on the gridded data. Unfortunately we do not have this area mapped with more recent data points, but like I said I don't think there has been significant pressure depletion since these 2011/2014 previously conducted pressure tests. My understanding is that these BHP's are used to de-risk the chance of crossflow between commingled zones.

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 MV/PC 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.

UPE BHP: Based on the above explanation this well falls at 657 psi BHP based on the below 2014 grid.



MV BHP: Based on the above explanation this well falls at 1135 psi BHP based on the below 2011 grid.



Does this help clarify?

Laura Bohorquez
Operations Engineer | San Juan South
Hilcorp Energy Company | 1111 Travis Street | Houston, TX 77002
M: 832.512.3292
laura.bohorquez@hilcorp.com

From: McClure, Dean, EMNRD <Dean.McClure@emnrd.nm.gov>
Sent: Wednesday, July 12, 2023 4:17 PM
To: Laura Bohorquez <Laura.Bohorquez@hilcorp.com>; Mandi Walker <mwalker@hilcorp.com>
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300

Laura and Mandi,

To confirm the pressure map labeled as UPE is for the fruitland coal formation?

Are each of the red Xs wells from which an actual pressure test was conducted and then the green target is the well in question, the Murphy C #2?

The C-107A has BHPs of 275 psi for the fruitland coal and 650 psi for the Mesaverde. Should these numbers be 657 for the fruitland coal and 1135 for the Mesaverde? Presumably the BHP may have dropped since 2011 and 2014 which would explain the reported pressures on the C-107A although then I assume there is also an updated pressure map reflecting this?

Diversly, perhaps I am misunderstanding what you are depicting below.

Dean McClure
Petroleum Engineer, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
(505) 469-8211

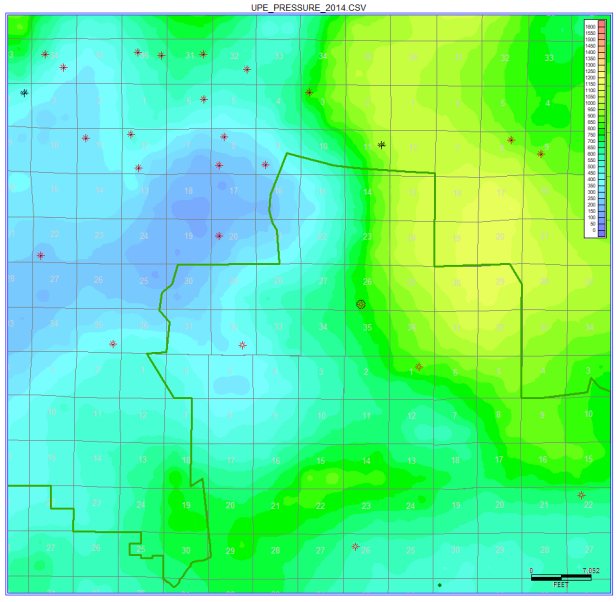
From: Laura Bohorquez <Laura.Bohorquez@hilcorp.com>
Sent: Wednesday, July 12, 2023 1:17 PM
To: Mandi Walker <mwalker@hilcorp.com>
Subject: RE: [EXTERNAL] Action ID: 223874; DHC-5300

Dean,

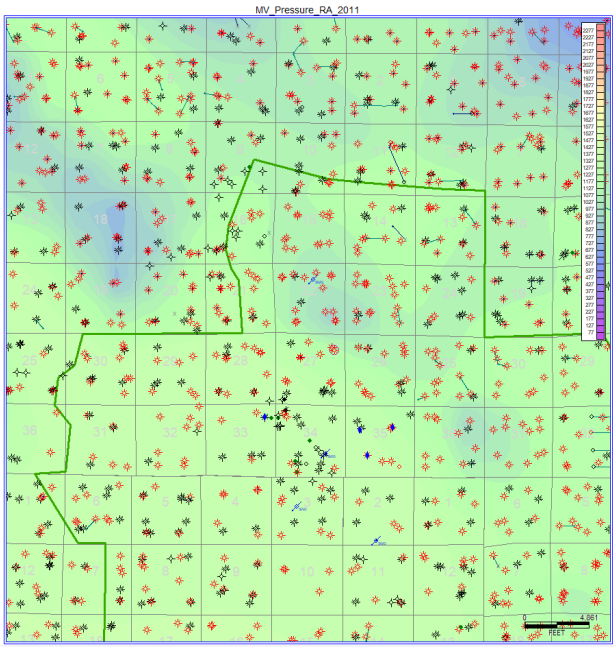
Please take the highlighted values below as our submission.

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.

UPE BHP: Based on the above explanation this well falls at 657 psi BHP based on the below 2014 grid.



MV BHP: Based on the above explanation this well falls at 1135 psi BHP based on the below 2011 grid.



Thanks,

Laura Bohorquez
Operations Engineer | San Juan South
Hilcorp Energy Company | 1111 Travis Street | Houston, TX 77002
M: 832.512.3292
laura.bohorquez@hilcorp.com

From: Mandi Walker <mwalker@hilcorp.com>
Sent: Wednesday, July 12, 2023 6:36 AM
To: Laura Bohorquez <Laura.Bohorquez@hilcorp.com>
Subject: FW: [EXTERNAL] Action ID: 223874; DHC-5300

Here is the complete packet we filed

From: McClure, Dean, EMNRD <Dean.McClure@emnrd.nm.gov>
Sent: Tuesday, July 11, 2023 4:55 PM
To: Mandi Walker <mwalker@hilcorp.com>
Cc: Cheryl Weston <cweston@hilcorp.com>
Subject: [EXTERNAL] Action ID: 223874; DHC-5300

CAUTION: External sender. DO NOT open links or attachments from UNKNOWN senders.

To whom it may concern (c/o Amanda Walker for Hilcorp Energy Company),

The Division is reviewing the following application:

Action ID	223874
Admin No.	DHC-5300
Applicant	Hilcorp Energy Company (372171)
Title	Murphy C #2
Sub. Date	06/05/2023

Please provide the following additional supplemental documents:

-

Please provide additional information regarding the following:

- how the BHP was derived including from which wells it was measured.

Additional notes:

-

All additional supplemental documents and information may be provided via email and should be done by replying to this email. The produced email chain will be uploaded to the file for this application.

Please note that failure to take steps to address each of the requests made in this email within 10 business days of receipt of this email may result in the Division rejecting the application requiring the submittal of a new application by the applicant once it is prepared to address each of the topics raised.

Dean McClure
Petroleum Engineer, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
(505) 469-8211

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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-5300**

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 ("Applicant") 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. To the extent that ownership is identical, Applicant submitted a certification by a licensed attorney or qualified petroleum landman that ownership in the Pools is identical as defined by 19.15.12.7(B) NMAC.
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. 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 (GAS) pool (pool ID: 71629); and
    b. one hundred percent (100%) shall be allocated to the BLANCO-MESAVERDE (PRORATED GAS) pool (pool ID: 72319).

    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 (GAS) pool (pool ID: 71629).

    The current pool(s) are:
    a. the BLANCO-MESAVERDE (PRORATED GAS) pool (pool ID: 72319).

    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.

3. 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.

4. 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.

5. 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.
6. 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.
7. 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.
8. 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).
9. 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

DATE: 7/14/2023

DYLAN M. FUGE
DIRECTOR

State of New Mexico
Energy, Minerals and Natural Resources Department

Exhibit A

	Order:	DHC-5300			
	Operator:	Hilcorp Energy Company (372171)			
	Well Name:	Murphy C #2			
	Well API:	30-045-26831			
Upper Zone	Pool Name:	BASIN FRUITLAND COAL (GAS)			
	Pool ID:	71629	Current:	New:	X
	Allocation:		Oil: 0%	Gas:	
	Interval:	Perforations	Top: 1,981	Bottom:	2,308
Intermediate Zone	Pool Name:				
	Pool ID:		Current:	New:	
	Allocation:		Oil:	Gas:	
	Interval:		Top:	Bottom:	
Bottom of Interval within 150% of Upper Zone's Top of Interval:					
Lower Zone	Pool Name:	BLANCO-MESAVERDE (PRORATED GAS)			
	Pool ID:	72319	Current: X	New:	
	Allocation:		Oil: 100%	Gas:	
	Interval:	Perforations	Top: 4,205	Bottom:	4,882
Bottom of Interval within 150% of Upper Zone's Top of Interval:		NO			

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 223874

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 223874
	Action Type: [C-107] Down Hole Commingle (C-107A)

CONDITIONS

Created By	Condition	Condition Date
dmcclure	Please review the content of the order to ensure you are familiar with the authorities granted and any conditions of approval. If you have any questions regarding this matter, please contact me.	7/14/2023