

RECEIVED: 05/31/2019	REVIEWER: M Am	TYPE: DHC	APP NO: DMAM/9151 48948
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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 29-5 Unit 57F **API:** 30-039-29723
Pool: Gobernador Pictured Cliffs **Pool Code:** 77440

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

DHC-4998

- 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

FOR OCD ONLY	
<input type="checkbox"/>	Notice Complete
<input type="checkbox"/>	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.

Nick Kunze
Print or Type Name

5/30/2019
Date

[Signature]
Signature

713-209-2400
Phone Number

nkunze@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
1600 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 382 Road 3100, Aztec, NM 87410
Operator Address
San Juan 29-5 Unit 57F UL J - Sec. 20, T29N, R05W Rio Arriba
Lease Well No. Unit Letter-Section-Township-Range County
OGRID No. 37217 Property Code 318837 API No. 30-039-29723 Lease Type: Federal State Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name	Gobernador Pictured Cliffs	Blanco Mesaverde	Basin Dakota
Pool Code	77440	72319	71599
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	3656' - 3731'	5248' - 5992'	7939' - 8030'
Method of Production (Flowing or Artificial Lift)	New Zone	Plunger	Plunger
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)	1033 psi	625 psi	2390 psi
Oil Gravity or Gas BTU (Degree API or Gas BTU)	1190 BTU	1150 BTU	1020 BTU
Producing, Shut-In or 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: n/a Rates: n/a	Date: 02/2019 Rates: 3 BO, 1830 MCF, 9 BW	Date: 02/2019 Rates: 1122 MCF, 9 BW
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 <i>Will be supplied upon completion</i>	Oil Gas <i>Will be supplied upon completion</i>	Oil Gas <i>Will be supplied upon completion</i>

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
NMOC Reference Case No. applicable to this well: R-10770

Attachments:

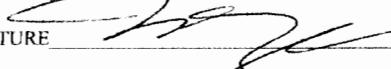
- C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- Production curve for each zone for at least one year. (If not available, attach explanation.)
- For zones with no production history, estimated production rates and supporting data.
- Data to support allocation 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 Manager DATE 5/30/2019

TYPE OR PRINT NAME Nick Kunze TELEPHONE NO. (713) 209-2400

E-MAIL ADDRESS nkunze@hilcorp.com

Discussion of Pressures

Well Name	API	Existing Completion	Measurement		Casing Fluid Level (ft)
		Zones (Perfs)	Date	SITP/SICP (psia)	
San Juan 29-5 Unit 57F	300392972300	Mesaverde (5248-5992') Dakota (7939-8030')	5/29/2019	112/115	8030'

Prior to obtaining fluid levels and pressures, the well was shut-in for 24 hours and monitored to ensure it was relatively stable. The length of time was chosen to minimize the shut-in period and provide a representation the shut-in bottomhole pressure from the existing Mesaverde and Dakota zones. This measurement demonstrates a much lower wellbore pressure compared to our calculated static reservoir pressures. Based on pressure transient analysis work from other Dakota wells in the basin, direct measurement of static reservoir pressures from producing wells in these tight gas sandstones requires shut-in periods on the order of years, primarily due to low permeability, relatively high total compressibility, and lack of structural or stratigraphic boundaries. Back of the envelope radius of investigation calculations assuming radial flow indicate required shut in periods of 5 to 7 years given the low density of producing wells. As well, we have some multi-week build-ups in the Dakota in other parts of the basin that indicate even longer shut-in times, up to 25 years, to reach boundary-dominated flow. The shut-in wellbore pressure thus is expected to be lower than the far-field, stabilized reservoir pressure, direct measurement of which is practically infeasible. Our observation is that even for areas of high static reservoir pressure, the low permeability of the reservoir rock results in rapid depletion of the near-fracture region, quickly enough that the wells are unable produce without the aid of a plunger. Given low permeabilities and low wellbore flowing pressures in the Dakota, Mesaverde, and Pictured Cliffs, loss of reserves due to cross-flow is not an issue during producing or shut-in periods. Given low shut-in bottomhole pressures, commingling the Pictured Cliffs, Mesaverde, and Dakota in this well will not result in shut-in or flowing wellbore pressures in excess of any commingled pool's fracture parting pressure.

SAN JUAN 29-5 UNIT 57F – PRODUCTION ALLOCATION METHOD

Production for the downhole commingle will be allocated using the subtraction method in agreement with the BLM. The base formations are the Dakota and Mesaverde, and the added formation to be commingled is the Pictured Cliffs. The subtraction method applies an average monthly production forecast to the base formations using historic production. All production from this well exceeding the forecast 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 production will be allocated based on average formation yields from offset wells. All documentation will be submitted to the Aztec NMOCD office.

RECEIVED

Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAY 22 2018

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

Farmington Field Office
Bureau of Land Management

Lease Serial No. NMNM - 03188

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other Instructions on page 2.

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator

Hilcorp Energy Company

3a. Address

382 Road 3100, Aztec, NM 87410

3b. Phone No. (include area code)

505-599-3400

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Surface Unit J (NWSE) 1935' FSL & 2100' FEL, Sec. 20, T29N, R05W

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No.

San Juan 29-5 Unit 57F

9. API Well No.

30-039-29723

10. Field and Pool or Exploratory Area

Gobenedor PC/Blanco MV/Basin DK

11. Country or Parish, State

Rio Arriba, New Mexico

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input checked="" type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once Testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Hilcorp Energy Company plans to recomplete the subject well in the Pictured Cliffs formation and downhole tri-mingle with the existing Mesaverde and Dakota formations. Attached is the PC C102, recomplete procedure & wellbore schematic. The DHC application will be submitted and approved before the work proceeds. A closed loop system will be utilized.

SEE ATTACHED
FOR CONDITIONS
OF APPROVAL

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Etta Trujillo

Title Operations/Regulatory Technician - Sr.

Signature

Date

5-22-18

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title Petroleum Engineer

Date 5/24/2018

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office FFD

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.

(Instruction on page 2)

OPERATOR

District I
 1625 N. Franch 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 252683

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. API Number 30-039-29723	2. Pool Code 77440	3. Pool Name GOBERNADOR PICTURED CLIFFS (GAS)
4. Property Code 318837	5. Property Name SAN JUAN 29 5 UNIT	6. Well No. 057F
7. OGRID No. 372171	8. Operator Name HILCORP ENERGY COMPANY	9. Elevation 6706

10. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
J	20	29N	05W		1935	S	2100	E	RIO ARRIBA

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 320.00 E/2			13. Joint or Infill		14. Consolidation Code			15. Order No.	

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

	<p>OPERATOR CERTIFICATION</p> <p><i>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.</i></p> <p>E-Signed By: <i>Etta Touffles</i> Title: Operations/Regulatory Tech Date: 05/21/2018</p>
	<p>SURVEYOR CERTIFICATION</p> <p><i>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.</i></p> <p>Surveyed By: Jason C. Edwards Date of Survey: 11/17/2005 Certificate Number: 15269</p>

District I
PO Box 1980, Hobbs, NM 88241-1980

District II
PO Drawer 00, Artesia, NM 88211-0719

District III
1000 Rio Brazos Rd., Aztec, NM 87410

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

2005 DEC 8 PM 1:02 AMENDED REPORT

RECEIVED
WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-29723		*Pool Code 72319 \ 71599	*Pool Name BLANCO MESAVERDE \ BASIN DAKOTA
*Property Code 31325	*Property Name SAN JUAN 29-5 UNIT		*Well Number 57F
*GRID No. 217817	*Operator Name CONOCOPHILLIPS COMPANY		*Elevation 6706'

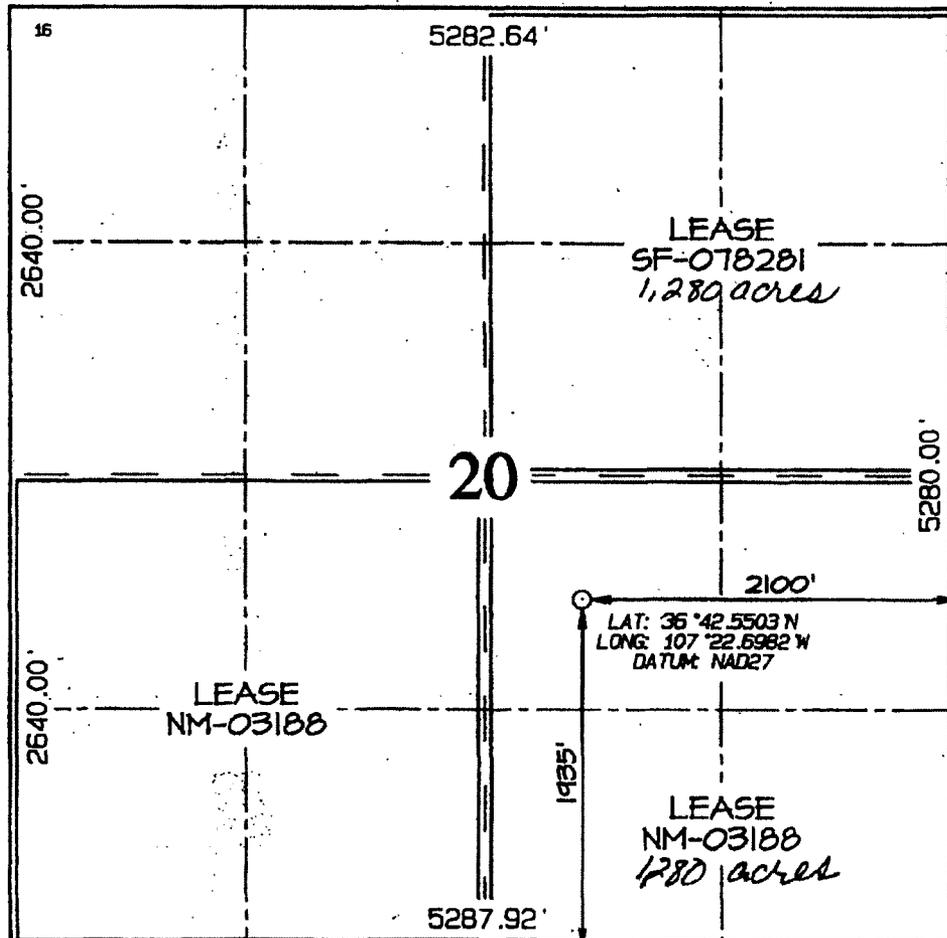
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Ecn	Feet from the	North/South line	Feet from the	East/West line	County
J	20	29N	5W		1935	SOUTH	2100	EAST	RIO ARriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ecn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres 320.0 Acres -- E/2 (MV) ¹³ Joint or Infill 320.0 Acres -- S/2 (DK)									
		¹⁴ Consolidation Code		¹⁵ Order No.					

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



¹⁷ OPERATOR CERTIFICATION

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

Virgil E. Chavez
Signature
Virgil E. Chavez
Printed Name

Projects & Operations Lead
Title

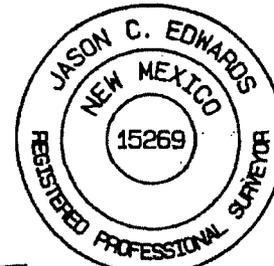
November 16, 2005
Date

¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

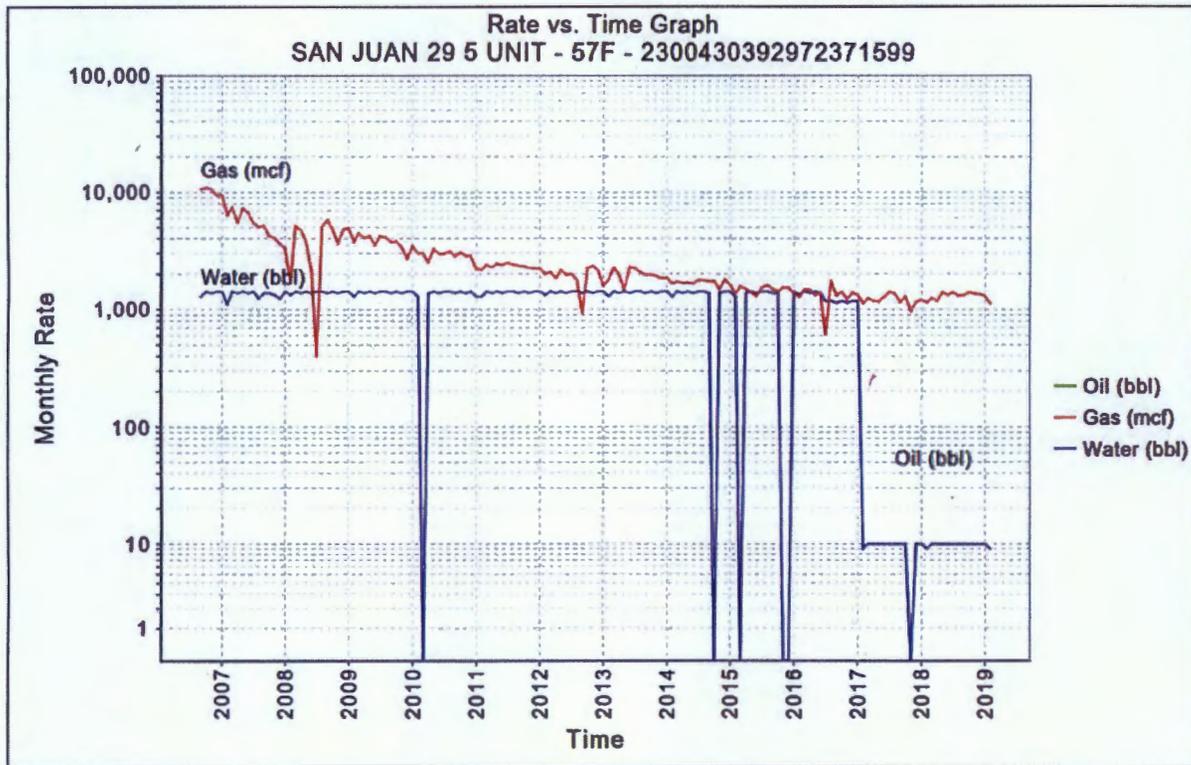
Date Revised: NOVEMBER 17, 2005
Survey Date: JANUARY 4, 2005

Signature and Seal of Professional Surveyor

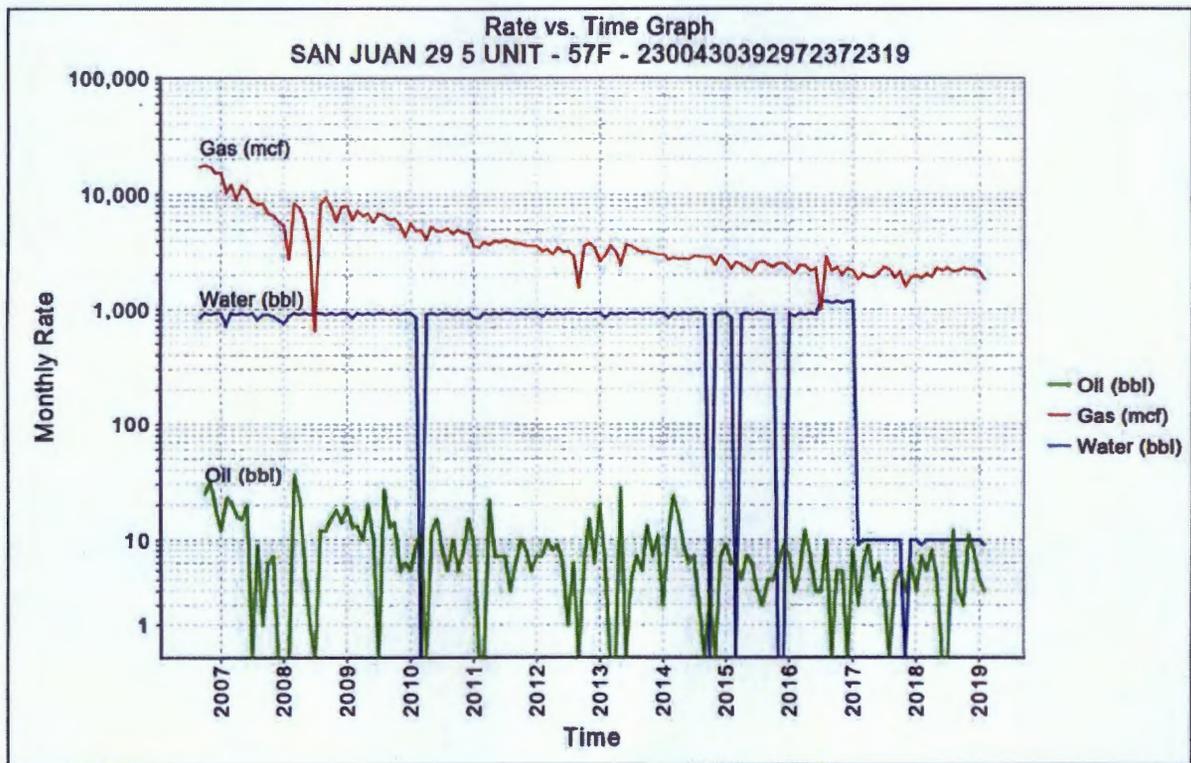


JASON C. EDWARDS
Certificate Number 15269

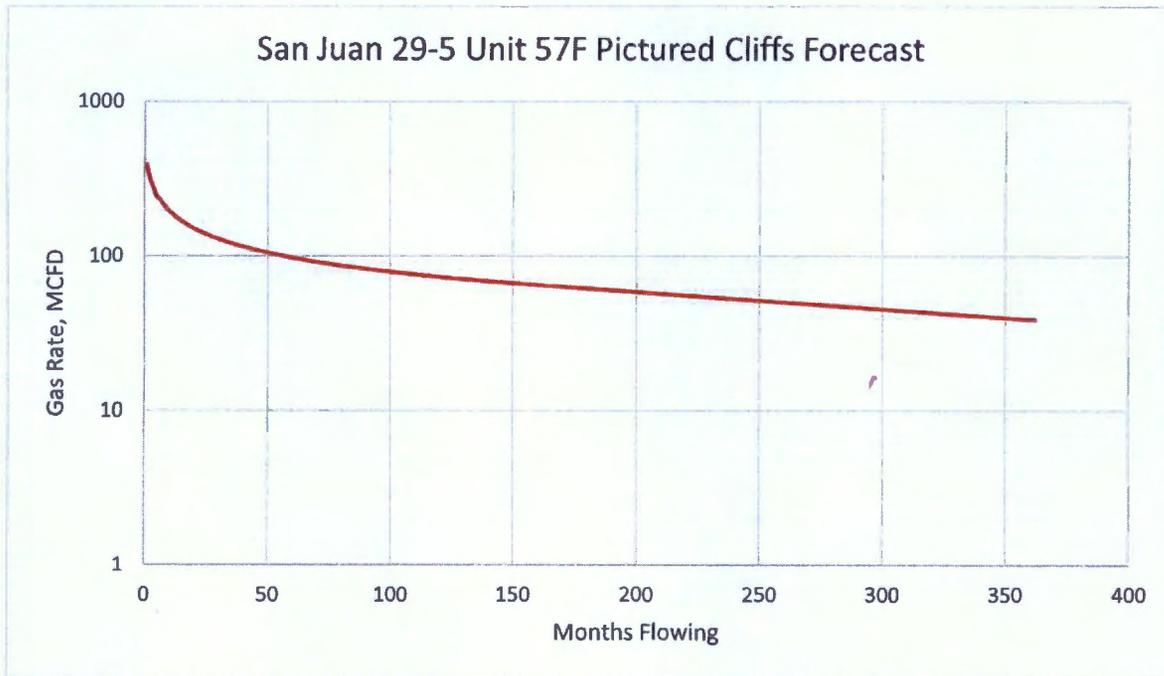
SAN JUAN 29-5 UNIT 57F – HISTORICAL DAKOTA PRODUCTION:



SAN JUAN 29-5 UNIT 57F – HISTORICAL MESAVERDE PRODUCTION:



SAN JUAN 29-5 UNIT 57F – PICTURED CLIFFS PRODUCTION FORECAST

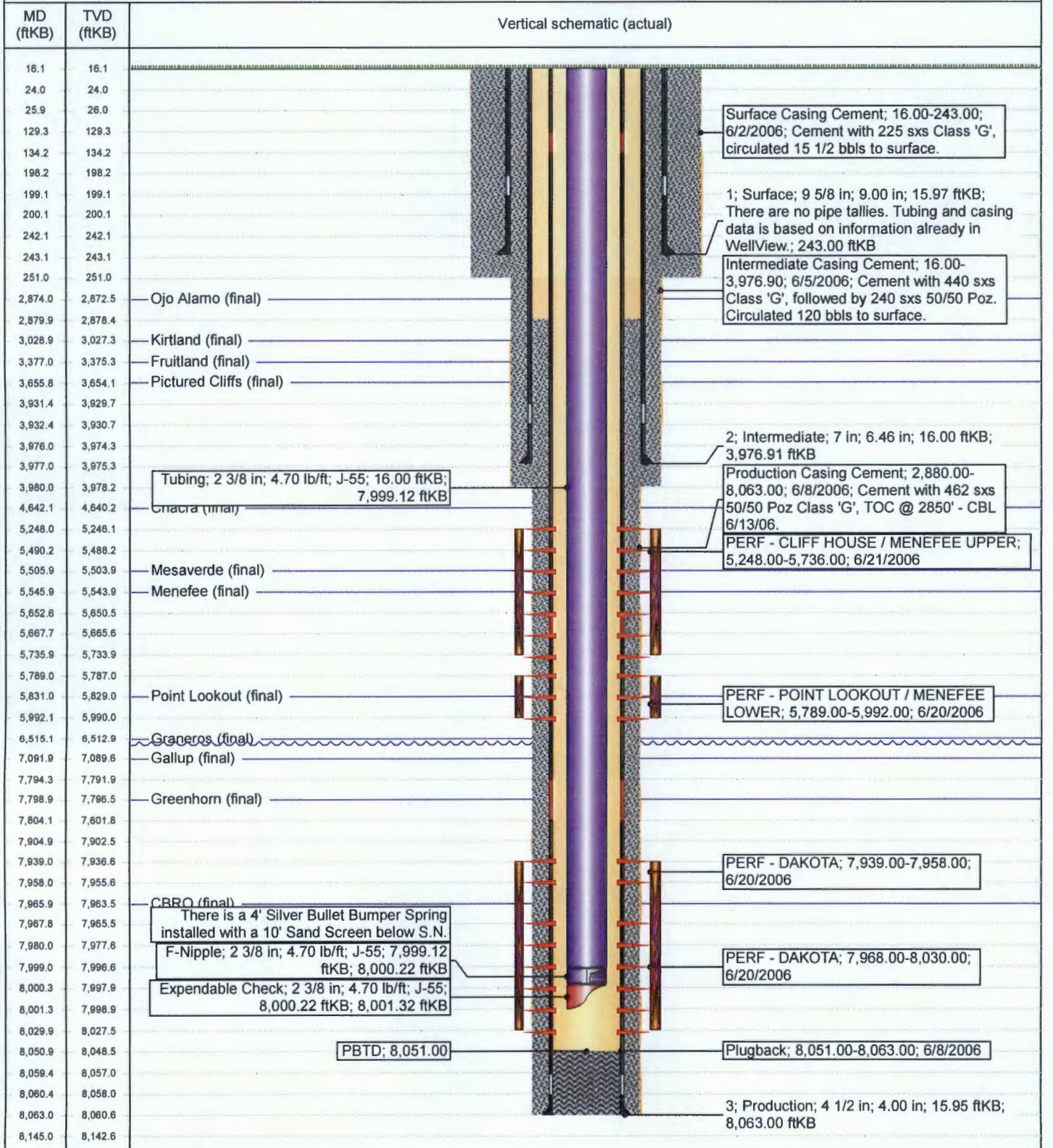


The forecast for Pictured Cliffs production has been generated using a typical well production profile of PC gas production in the surrounding production trend.

Well Name: SAN JUAN 29-5 UNIT #57F

API / UWI 3003929723	Surface Legal Location 020-029N-005W-J	Field Name MV/DK COM	Route 1208	State/Province NEW MEXICO	Well Configuration Type Vertical
Ground Elevation (ft) 6,707.00	Original KB/RT Elevation (ft) 6,720.00	KB-Ground Distance (ft) 13.00	KB-Casing Flange Distance (ft)	KB-Tubing Hanger Distance (ft)	

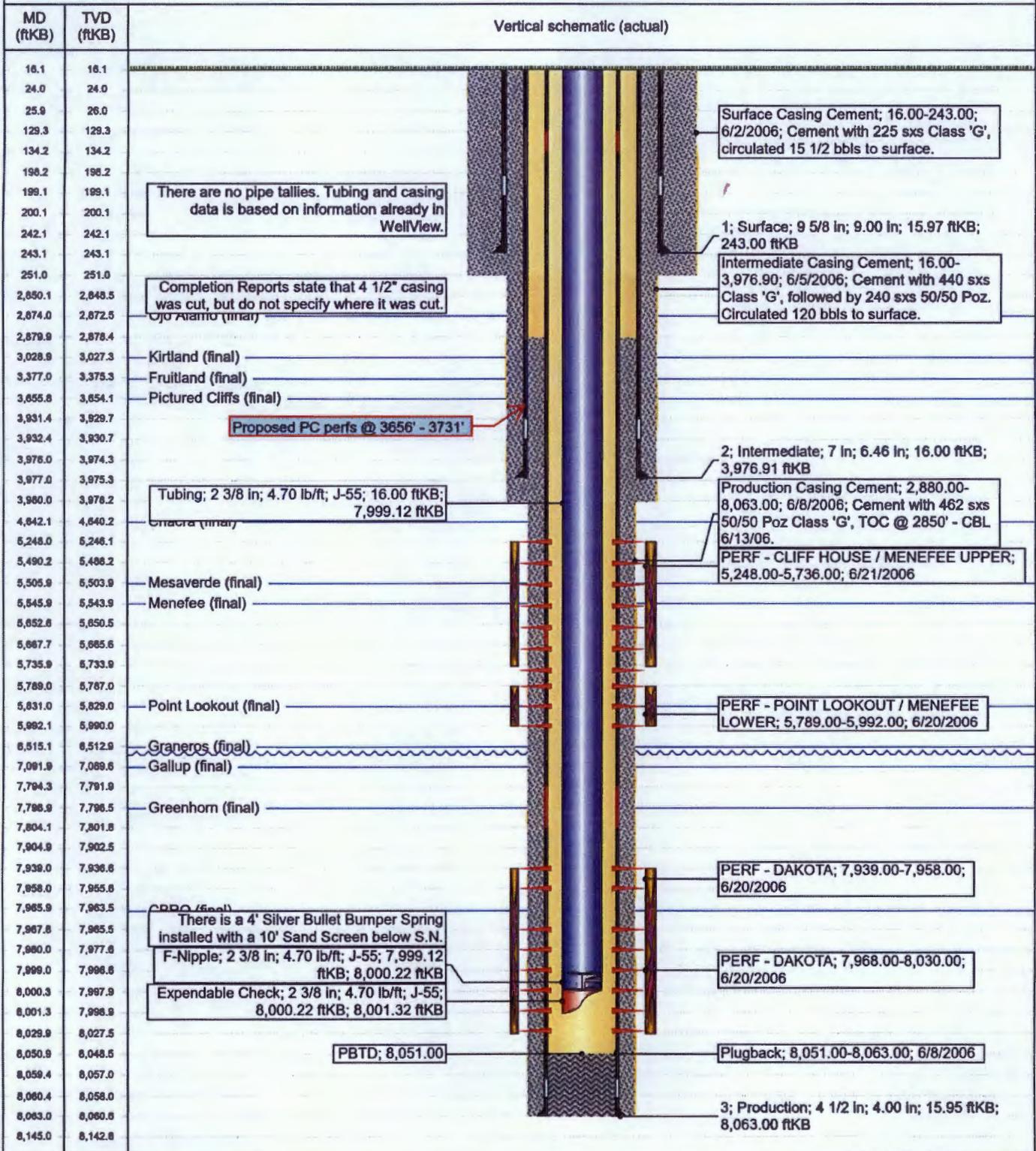
Vertical, Original Hole, 6/5/2019 2:00:26 PM



Well Name: SAN JUAN 29-5 UNIT #57F

API / UWI 3003929723	Surface Legal Location 020-029N-005W-J	Field Name MV/DK COM	Route 1208	State/Provincia NEW MEXICO	Well Configuration Type Vertical
Ground Elevation (ft) 6,707.00	Original KB/RT Elevation (ft) 6,720.00	KB-Ground Distance (ft) 13.00	KB-Casing Flange Distance (ft)	KB-Tubing Hanger Distance (ft)	

Vertical, Original Hole, 5/30/2019 6:46:31 AM



Discussion of Pressures

Well Name	API	Existing Completion	Measurement		Casing Fluid
		Zones (Perfs)	Date	SITP/SICP (psia)	Level (ft)
San Juan 29-5 Unit 55F	300392933500	Mesaverde (5335-5810') Dakota (7872-7888')	5/29/2019	124/122	7888'

Prior to obtaining fluid levels and pressures, the well was shut-in for 24 hours and monitored to ensure it was relatively stable. The length of time was chosen to minimize the shut-in period and provide a representation the shut-in bottomhole pressure from the existing Mesaverde and Dakota zones. This measurement demonstrates a much lower wellbore pressure compared to our calculated static reservoir pressures. Based on pressure transient analysis work from other Dakota wells in the basin, direct measurement of static reservoir pressures from producing wells in these tight gas sandstones requires shut-in periods on the order of years, primarily due to low permeability, relatively high total compressibility, and lack of structural or stratigraphic boundaries. Back of the envelope radius of investigation calculations assuming radial flow indicate required shut in periods of 5 to 7 years given the low density of producing wells. As well, we have some multi-week build-ups in the Dakota in other parts of the basin that indicate even longer shut-in times, up to 25 years, to reach boundary-dominated flow. The shut-in wellbore pressure thus is expected to be lower than the far-field, stabilized reservoir pressure, direct measurement of which is practically infeasible. Our observation is that even for areas of high static reservoir pressure, the low permeability of the reservoir rock results in rapid depletion of the near-fracture region, quickly enough that the wells are unable produce without the aid of a plunger. Given low permeabilities and low wellbore flowing pressures in the Dakota, Mesaverde, and Pictured Cliffs, loss of reserves due to cross-flow is not an issue during producing or shut-in periods. Given low shut-in bottomhole pressures, commingling the Pictured Cliffs, Mesaverde, and Dakota in this well will not result in shut-in or flowing wellbore pressures in excess of any commingled pool's fracture parting pressure.