

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**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.*5. Lease Serial No.
NMLC065710A

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on reverse side.7. If Unit or CA/Agreement, Name and/or No.
NMNM94514X8. Well Name and No.
LUSK WEST DELAWARE UNIT 69. API Well No.
30-025-34032-00-S110. Field and Pool, or Exploratory
W LUSK11. County or Parish, and State
LEA COUNTY, NM

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
SHACKELFORD OIL COMPANYContact: CLAY HOUSTON
E-Mail: CHOUSTON92083@YAHOO.COM3a. Address
203 WEST WALL SUITE 200
MIDLAND, TX 797013b. Phone No. (include area code)
Ph: 432-682-9784
Fx: 432-684-5026

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

Sec 20 T19S R32E SENW 1650FNL 1800FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Subsurface Commingling
	☐ Convert to Injection	☐ Plug Back	☐ 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 recompleat 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 shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

ATTACHMENTS FORWARDED TO ED FERNANDEZ OF THE CARLSBAD OFFICE VIA FEDEX ON JUNE 30, 2016

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #343699 verified by the BLM Well Information System
For SHACKELFORD OIL COMPANY, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 07/07/2016 (16PP0871SE)**

Name (Printed/Typed) DON SHACKELFORD

Title PRESIDENT

Signature (Electronic Submission)

Date 07/01/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By EDWARD FERNANDEZ

Title PETROLEUM ENGINEER

Date 08/01/2016

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 Hobbs

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Shackelford Oil Company

203 W Wall Street, Suite 200
Midland, Texas 79701

Phone (432) 682-9784
Fax (432) 684-5026

June 30, 2016

Bureau of Land Management
Attn: Ed Fernandez
620 E Greene St
Carlsbad, NM 88220

Re: Downhole Commingling

Attached is the a copy of the Sundry Notice on the Lusk West Delaware Unit #6 that was submitted through the BLM's Well Information System on June 30, 2016 and corresponding attachments. The attachments were not submitted electronically.

If you have any questions please let us know.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brady Shackelford', with a stylized flourish at the end.

Brady Shackelford
President

Schedule of Exhibits

1. Downhole Commingling Worksheet
2. Memo Related to Commingling of Lower Brushy Canyon and Upper Cherry Canyon in the Lusk West Delaware Unit #6
3. Calculation of Weighted Average of Oil and Gas
4. Plat of Lusk West Delaware Unit
5. Lease Map of Lusk West Delaware Unit
6. Case Recordation of Lease NMLC-0065710A Section 20 T19SR32E Lea County, New Mexico
7. Well Location and Acreage Dedication Plat for Lusk West Delaware Unit #6 (Originally Lusk Unit A-22)
8. Crude Oil Analysis by Caprock Laboratories, Inc. October 15, 2015 Lusk Federal A-12 (east offset to Lusk West Delaware Unit #6 well producing in Upper Cherry Canyon)
9. Crude Oil Analysis by Caprock Laboratories, Inc. October 15, 2015 Lusk West Delaware Unit #6
10. Water Analysis of Lusk Federal A-12 (east offset to Lusk West Delaware Unit #6 well producing in Upper Cherry Canyon)
11. Water Analysis of Lusk West Delaware Unit #6
12. Gas Analysis of Lusk Federal A-12 (offset to #6 producing in Upper Cherry Canyon Formation)
13. Current Division of Interest for Lusk West Delaware Unit #6 as of May 1, 2016
14. Proposed Division of Interest for commingled Upper Cherry Canyon
15. Economic Report and Decline Curve for Lusk West Delaware Unit #6
16. Current schematic for Lusk West Delaware Unit #6
17. Proposed schematic for commingled well

DOWNHOLE COMMINGLING WORKSHEET

Shackelford Oil Co.

Lusk West Delaware Unit #6

Date	Formation One	Formation Two	Estimated Combine Production
Pool name	Lusk Delaware west	Lusk Delaware West	
Pool code	41540	41540	
State Form C-102 with dedicated Acres Provided			
Formation Name	Delaware Mountain Group	Delaware Mountain Group	
Top and Bottom of Pay Section (Perforated or open-Hole Interval)	Existing 6424-6432	New Perfs 4702-5130	
Method of production	artificial lift	artificial lift	
Bottom Hole Pressure	3328 psi	2589 psi	
Reservoir Drive mechanism	Waterflood	Gas & Water Drive	
Oil gravity and/or BTU	42 degrees	37.6 degrees	37.95 degrees
Average Sulfur Content (Wt%)			
Oil sample Analysis provided	attached	attached	
Gas Analysis provided	Well not producing gas	Offset Lusk fed 12-A 1489 btu	1489 btu
Produce Water Analysis provided	attached	attached Lusk Fed 12-A	
H2S present	yes	yes	
Producing, Shut-In or New Zone	Producing	New Zone	
Date and Oil/Gas/Water rates of Last Production (new zones or no production estimated and supporting data)	1/16 13 BOPD 0 MCFPD 378 BWPD		Estimated 150 BOPD 35 MCFPD 0 BWPD
Average decline % (provide backup data)	0.45%	Projected from LWDU#105 27.19%	
Fixed Allocation Percentage	Production allocation will be determined by subtracting the total well production from the projected existing production and the remainder will be allocated to the recompleted interval		

Remarks:

Operator Signature:

Date:

Attached Supporting documents

Memo Related to Commingling of Lower Brushy Canyon and Upper Cherry Canyon in the Lusk West Delaware Unit #6

Shackelford Oil Co. as operator and sole working interest owner of the Lusk West Delaware Unit and the Lusk West Delaware Unit Well #6, proposes to downhole commingle the existing Waterflood interval at 6424-6432 in the Lower Brushy Canyon with new perforations in the Upper Cherry Canyon as follows:

4702'-4710', 4717'-4725', 4748'-4756',
4802'-4812', 4828'-4836', 4864'-4880',
4910'-4920', 5120'-5130'

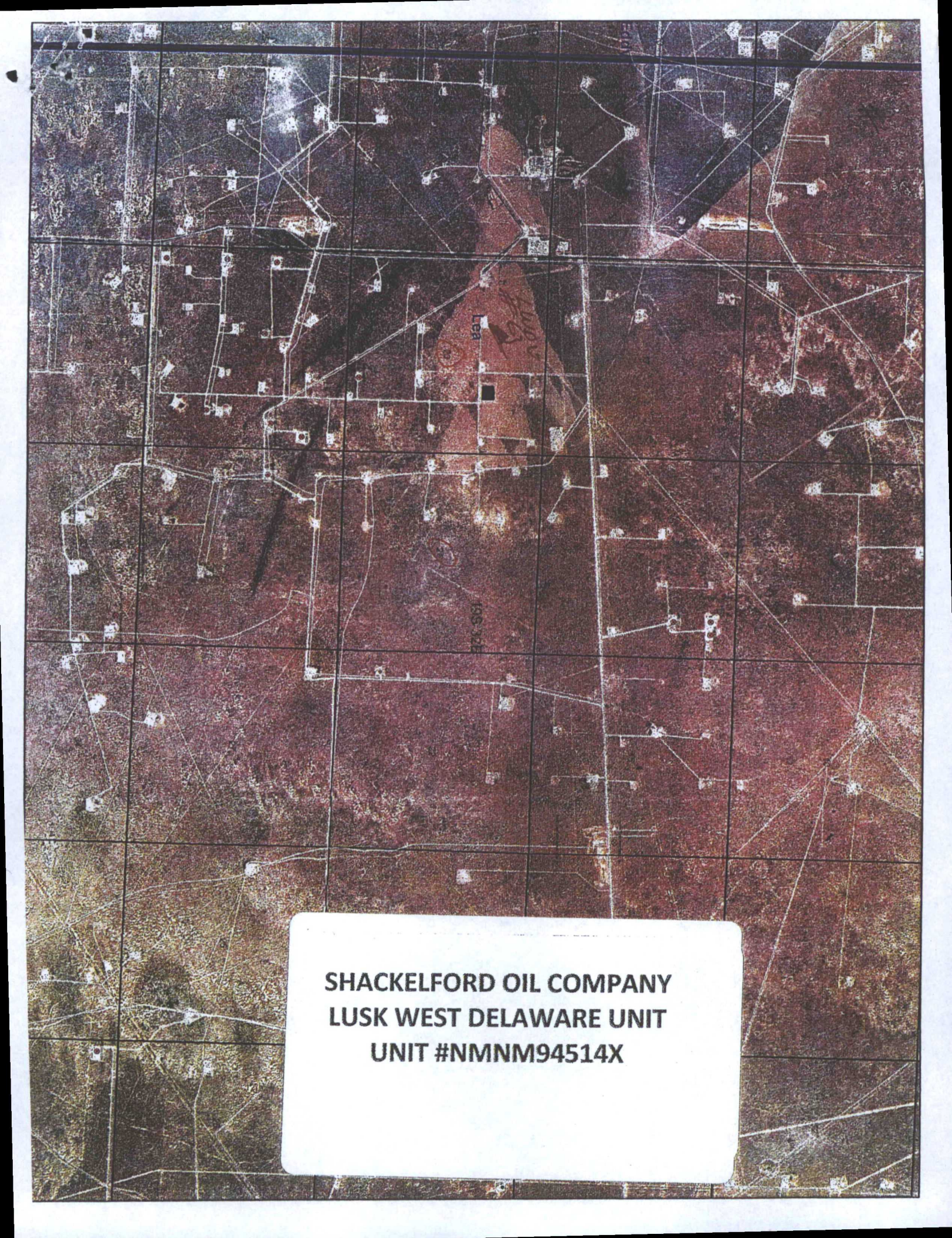
All of the leases within this unit are federal leases and, therefore, the only royalty owner will be the federal government.

As the Lower Brushy Canyon and Upper Cherry Canyon are both in the Delaware formation the intervals will be in the same pool. In our most recent annual plan of development we provided for this being our first project for this fiscal year.

The Lusk West Delaware Unit is in the latter stages of its production life and this commingling will allow us to extend the productive life as long as possible. In addition, the commingling will eliminate redundant wellbores and surface equipment and will thus allow us to continue to have our smallest footprint in the producing area.

Calculation of Weighted Average

	#6	#12-A	Total
Oil			
Production Estimate -BOPD	13	150	163
Percentage	0.079755	0.920245	1
Oil Gravity-degrees	42	37.6	
Weighted Average	3.349693	34.60123	37.95092
Gas			
Production Estimate-MCF	0	35	35
Percentage	0	1	1
Gas-Btu	1525	1489	
Weighted Average	0	1489	1489

An aerial photograph of a land survey grid. The grid is composed of thin white lines forming rectangular blocks. The background is a dark, textured aerial view of the land. In the upper-middle section, there is a handwritten 'Lea' in black ink. Below it, in the lower-middle section, is a handwritten '198-328'.

**SHACKELFORD OIL COMPANY
LUSK WEST DELAWARE UNIT
UNIT #NMNM94514X**

Unit Boundary &
Delaware PA

19 32

EAST LUSK

28

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

U.S.

Lusk West Delaware Unit

20-19S-32E: All
21-19S-32E: NW
29-19S-32E: All
Lea County, NM

Tr #1A NM-063586

Tr #1B LC-063586

Tr #2 LC-065710-A

Tr #3 LC-065710

Tr #4A NM-0175774

Tr #4B NM-0175774

Federal 1520 acres 100%

**DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CASE RECORDATION
(MASS) Serial Register Page**

Run Time: 01:29 PM

Page 1 of 3

Run Date: 12/16/2015

01 02-25-1920;041STAT0437;30USC226

Total Acres

Serial Number

Case Type 311111: O&G LSE NONCOMP PUB LAND

640.000

NMLC-- 0 065710A

Commodity 459: OIL & GAS

Case Disposition: AUTHORIZED

Serial Number: NMLC-- 0 065710A

Name & Address			Int Rel	% Interest
COG OPERATING LLC	600 W ILLINOIS AVE	MIDLAND TX 797014882	OPERATING RIGHTS	0.000000000
COG OPERATING LLC	600 W ILLINOIS AVE	MIDLAND TX 797014882	LESSEE	47.500000000
CONCHO OIL & GAS LLC	600 W ILLINOIS AVE, ONE CONCHO CEI	MIDLAND TX 797014882	OPERATING RIGHTS	0.000000000
CONCHO OIL & GAS LLC	600 W ILLINOIS AVE, ONE CONCHO CEI	MIDLAND TX 797014882	LESSEE	2.500000000
DORCHESTER MASTER	PO BOX 3178	MIDLAND TX 797023178	OPERATING RIGHTS	0.000000000
PIONEER NATURAL RES USA INC	1401 17TH ST #1200	DENVER CO 80202	OPERATING RIGHTS	0.000000000
PRIZE ENERGY RESOURCES	20 E 5TH ST #1400	TULSA OK 74103	LESSEE	50.000000000
SHACKELFORD OIL CO	203 W WALL ST STE 200	MIDLAND TX 797014510	OPERATING RIGHTS	0.000000000

Serial Number: NMLC-- 0 065710A

Mer Twp	Rng	Sec	STyp	SNr Suff	Subdivision	District/Field Office	County	Mgmt Agency
23	01905	0320E	020	ALL	ENTIRE SECTION	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT

Serial Number: NMLC-- 0 065710A

Act Date	Code	Action	Action Remark	Pending Office
09/30/1951	387	CASE ESTABLISHED		
10/01/1951	496	FUND CODE	05;145003	
10/01/1951	530	RLTY RATE - 12 1/2%		
10/01/1951	868	EFFECTIVE DATE		
06/01/1952	553	CASE CREATED BY ASGN	OUT OF NMLC065710;	
05/17/1960	232	LEASE COMMITTED TO UNIT	NMNM70982X;LUSK DEEP	
01/25/1961	102	NOTICE SENT-PROD STATUS		
10/31/1961	500	GEOGRAPHIC NAME	LUSK FIELD;	
10/31/1961	510	KMA CLASSIFIED		
10/31/1961	650	HELD BY PROD - ACTUAL		
10/31/1961	658	MEMO OF 1ST PROD-ACTUAL		
06/17/1981	932	TRF OPER RGTS FILED	(1)	
06/17/1981	932	TRF OPER RGTS FILED	(2)	
09/16/1981	932	TRF OPER RGTS FILED		
10/24/1986	933	TRF OPER RGTS APPROVED	(1)EFF 07/01/81;	
10/24/1986	933	TRF OPER RGTS APPROVED	(2)EFF 07/01/81;	
10/24/1986	933	TRF OPER RGTS APPROVED	(3)EFF 07/01/81;	
05/11/1987	963	CASE MICROFILMED/SCANNED	CNUM 100,658	RW
05/16/1988	817	MERGER RECOGNIZED	KANEB ETAL/KANEB ENE	
11/04/1988	575	APD FILED	1 PHILLIPS PETRO	CJ
11/04/1988	575	APD FILED	2 PHILLIPS PETRO	CJ
11/04/1988	575	APD FILED	PHILLIPS PETRO	CJ
11/08/1988	575	APD FILED	PHILLIPS PETRO	CJ
11/14/1988	575	APD FILED	PHILLIPS PETROLEUM	CJ
11/15/1988	575	APD FILED	PHILLIPS PETROLEUM	CJ
12/06/1988	576	APD APPROVED	LUSK DEEP UT NO. 16	
12/06/1988	576	APD APPROVED	LUSK DEEP UT NO. 17	
12/08/1988	576	APD APPROVED	LUSK DEEP UT NO 18	
12/08/1988	576	APD APPROVED	LUSK DEEP UT NO 19	
12/08/1988	576	APD APPROVED	LUSK DEEP UT NO 20	

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BUREAU OF LAND MANAGEMENT
CASE RECORDATION
(MASS) Serial Register Page**

Run Time: 01:29 PM

Page 2 of 3

Run Date: 12/16/2015

03/02/1989	575	APD FILED	PHILLIPS PETROLEUM CJ
04/03/1989	576	APD APPROVED	LUSK DEEP UT NO 12
06/01/1989	932	TRF OPER RGTS FILED	KANEB ENE/AMAX O&G
07/06/1989	933	TRF OPER RGTS APPROVED	EFF 07/01/89;
09/19/1991	932	TRF OPER RGTS FILED	DORCHESTER/DORCHESTER
09/19/1991	932	TRF OPER RGTS FILED	DORCHESTER/P & P ETAL
12/26/1991	933	TRF OPER RGTS APPROVED	(1)EFF 10/01/91;
12/26/1991	933	TRF OPER RGTS APPROVED	(2)EFF 10/01/91;
04/09/1992	932	TRF OPER RGTS FILED	DAMSON OIL/P&P DEV CO
06/18/1992	933	TRF OPER RGTS APPROVED	EFF 05/01/92;
10/27/1995	140	ASGN FILED	PHILLIPS/MARBOB ENE
10/27/1995	932	TRF OPER RGTS FILED	PHILLIPS/MARBOB ENE
12/14/1995	139	ASGN APPROVED	EFF 11/01/95;
12/14/1995	933	TRF OPER RGTS APPROVED	EFF 11/01/95;
01/25/1996	932	TRF OPER RGTS FILED	MARBOB/PARKER&PARSLEY
04/18/1996	933	TRF OPER RGTS APPROVED	EFF 02/01/96;
07/16/1996	576	APD APPROVED	7-LUSK DEEP UNIT
10/29/1996	140	ASGN FILED	KERR-MCGEE/P&P DEV LP
10/29/1996	899	TRF OF ORR FILED	(1)
10/29/1996	899	TRF OF ORR FILED	(2)
10/29/1996	932	TRF OPER RGTS FILED	(1)KERR-MCGEE/P&P DEV
10/29/1996	932	TRF OPER RGTS FILED	(2)KERR-MCGEE/P&P DEV
12/10/1996	139	ASGN APPROVED	EFF 11/01/96;
12/10/1996	933	TRF OPER RGTS APPROVED	(1)EFF 11/01/96;
12/10/1996	933	TRF OPER RGTS APPROVED	(2)EFF 11/01/96;
12/10/1996	974	AUTOMATED RECORD VERIF	MV/MV
05/16/1997	575	APD FILED	
06/16/1997	576	APD APPROVED	#21 LUSK DEEP UNIT A
06/16/1997	576	APD APPROVED	#22 LUSK DEEP UNIT A
09/01/1997	232	LEASE COMMITTED TO UNIT	NMNM94514X;LUSK WEST
09/08/1997	575	APD FILED	
10/03/1997	817	MERGER RECOGNIZED	PARKR&PARSLEY/PIONEER
10/22/1997	576	APD APPROVED	#23 LUSK DEEP UNIT
11/07/1997	899	TRF OF ORR FILED	
11/07/1997	932	TRF OPER RGTS FILED	(1)PARKER ETAL/MARBOB
11/07/1997	932	TRF OPER RGTS FILED	(2)PARKER ETAL/MARBOB
12/16/1997	933	TRF OPER RGTS APPROVED	(1)EFF 12/01/97;
12/16/1997	933	TRF OPER RGTS APPROVED	(2)EFF 12/01/97;
12/16/1997	974	AUTOMATED RECORD VERIF	ANN
01/07/1998	575	APD FILED	
02/10/1998	576	APD APPROVED	#3 LUSK DEEP UNIT "A"
08/24/1999	140	ASGN FILED	PIONEER/PRIZE ENE
08/24/1999	140	ASGN FILED	PIONEER/PRIZE ENERGY
08/24/1999	932	TRF OPER RGTS FILED	(1)PIONEER/PRIZE ENE
08/24/1999	932	TRF OPER RGTS FILED	(2)PIONEER/PRIZE ENE
08/24/1999	932	TRF OPER RGTS FILED	(3)PIONEER/PRIZE ENE
08/24/1999	932	TRF OPER RGTS FILED	(4)PIONEER/PRIZE ENE
08/24/1999	932	TRF OPER RGTS FILED	(5)PIONEER/PRIZE ENE
08/24/1999	932	TRF OPER RGTS FILED	(6)PIONEER/PRIZE ENE
08/24/1999	932	TRF OPER RGTS FILED	(7)PIONEER/PRIZE ENE
11/10/1999	932	TRF OPER RGTS FILED	HALLIBURTON/MARBOB
12/13/1999	139	ASGN APPROVED	EFF 09/01/99;
12/13/1999	566	ASGN WITHDRAWN	
12/13/1999	933	TRF OPER RGTS APPROVED	01EFF 09/01/99;
12/13/1999	933	TRF OPER RGTS APPROVED	02EFF 09/01/99;

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BUREAU OF LAND MANAGEMENT
CASE RECORDATION
(MASS) Serial Register Page**

Run Time: 01:29 PM

Page 3 of 3

Run Date: 12/16/2015

12/13/1999	933	TRF OPER RGTS APPROVED	03EFF 09/01/99;
12/13/1999	933	TRF OPER RGTS APPROVED	04EFF 09/01/99;
12/13/1999	933	TRF OPER RGTS APPROVED	05EFF 09/01/99;
12/13/1999	933	TRF OPER RGTS APPROVED	06EFF 09/01/99;
12/13/1999	933	TRF OPER RGTS APPROVED	07EFF 09/01/99;
12/13/1999	974	AUTOMATED RECORD VERIF	ANN
12/20/1999	932	TRF OPER RGTS FILED	AMITY/MARBOB
01/11/2000	933	TRF OPER RGTS APPROVED	EFF 12/01/99;
01/11/2000	974	AUTOMATED RECORD VERIF	JLV
02/09/2000	932	TRF OPER RGTS FILED	UNION PACIFIC/MARBOB
03/31/2000	933	TRF OPER RGTS APPROVED	EFF 01/01/00;
03/31/2000	974	AUTOMATED RECORD VERIF	LR
05/01/2000	933	TRF OPER RGTS APPROVED	EFF 03/01/2000
05/01/2000	974	AUTOMATED RECORD VERIF	ANN
02/08/2011	899	TRF OF ORR FILED	1
02/08/2011	899	TRF OF ORR FILED	2
04/18/2011	140	ASGN FILED	MARBOB EN/COG OPERA;1
04/19/2011	932	TRF OPER RGTS FILED	MARBOB EN/COG OPERA;1
04/19/2011	932	TRF OPER RGTS FILED	MARBOB EN/COG OPERA;2
06/20/2011	933	TRF OPER RGTS APPROVED	1 EFF 05/01/11;
06/20/2011	933	TRF OPER RGTS APPROVED	2 EFF 05/01/11;
06/20/2011	974	AUTOMATED RECORD VERIF	RAYO/RAYO
07/12/2011	139	ASGN APPROVED	EFF 05/01/11;
07/12/2011	974	AUTOMATED RECORD VERIF	MV
09/18/2013	932	TRF OPER RGTS FILED	PRIZE ENE/SHACKELFO;1
12/31/2013	933	TRF OPER RGTS APPROVED	EFF 10/01/13;
12/31/2013	974	AUTOMATED RECORD VERIF	EMR

Serial Number: NMLC-- 0 065710A

Line Nr	Remarks
0002	-
0003	06/20/2011 - INDIVIDUAL BOND COVERAGE PROVIDED BY
0004	COG OPERATING LLC NMB000740 \$225,000.
0005	12/31/2013 - BONDED TRANSFEREE - PER ABSS
0006	SHACKELFORD OIL CO - NM2156 - SW/NM;

DISTRICT I
P.O. Box 1900, Hobbs, NM 88241-1900

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

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

DISTRICT IV
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-34032	Pool Code 41540	Pool Name Lusk Delaware, West
Property Code 018278	Property Name LUSK DEEP UNIT "A"	Well Number 22
OGRID No. 036324	Operator Name PARKER & PARSLEY DEVELOPMENT L.P.	Elevation 3578

Surface Location

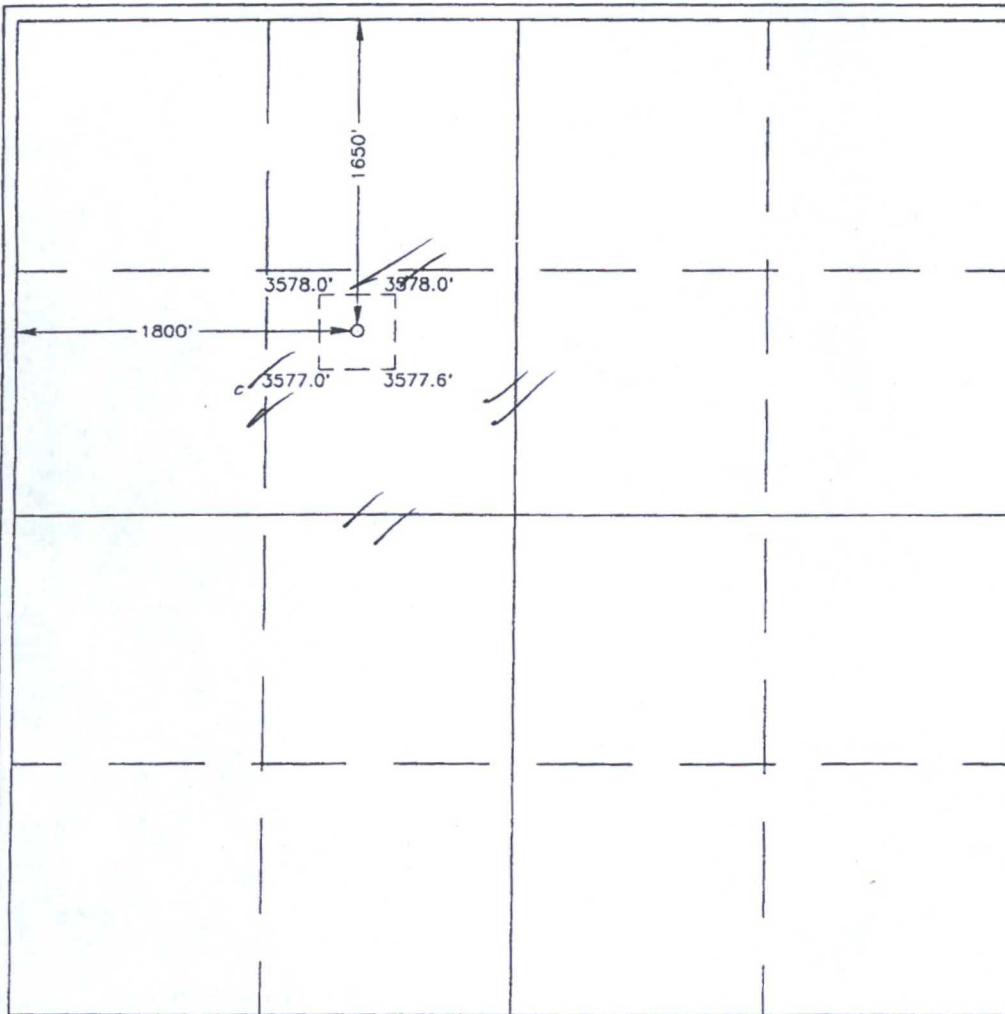
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	20	19 S	32 E		1650	NORTH	1800	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.
------------------------------	-----------------	--------------------	-----------

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



OPERATOR CERTIFICATION

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

J. Britt Hirth
Signature
J. Britt Hirth
Printed Name
Sr. Operations Engineer
Title
5/14/97
Date

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.

JAN 29, 1997

Date Surveyed DMCC

Ronald J. Eidson
Signature
Professional Surveyor
97-11-0180
Certificate No. 97-11-0180

JOHN W. WEST 676
RONALD J. EIDSON 3239
GARLAND EIDSON 12641

CAPROCK LABORATORIES, INC

3312 BANKHEAD HIGHWAY
MIDLAND, TEXAS 79701
(432)689-7252, CAPROCKLAB.COM

COMPANY: Mitchell Analytical Lab
SAMPLE ID: Shackleford Lusk W Delaware Unit #12
WC # 39303 *Lusk Federal A-12*

JOB NUMBER: 1510086-01
DATE SAMPLED: October 13, 2015
SAMPLED BY: Client
DATE RECEIVED: October 15, 2015
DATE REPORTED: October 23, 2015
REPORTED TO: George Roberts

CRUDE OIL ANALYSIS

GRAVITY, API @ 60 F

37.2 (ASTM D287)

OBSERVED TEMP. F	CORRECTED TEMP. F	VOLUME % RECOVERED
---------------------	----------------------	-----------------------

110	115	0
160	166	5
190	196	10
220	227	15
250	257	20
288	295	25
336	344	30
390	398	35
450	459	40
500	509	45
550	560	50
668	679	60
700	711	70

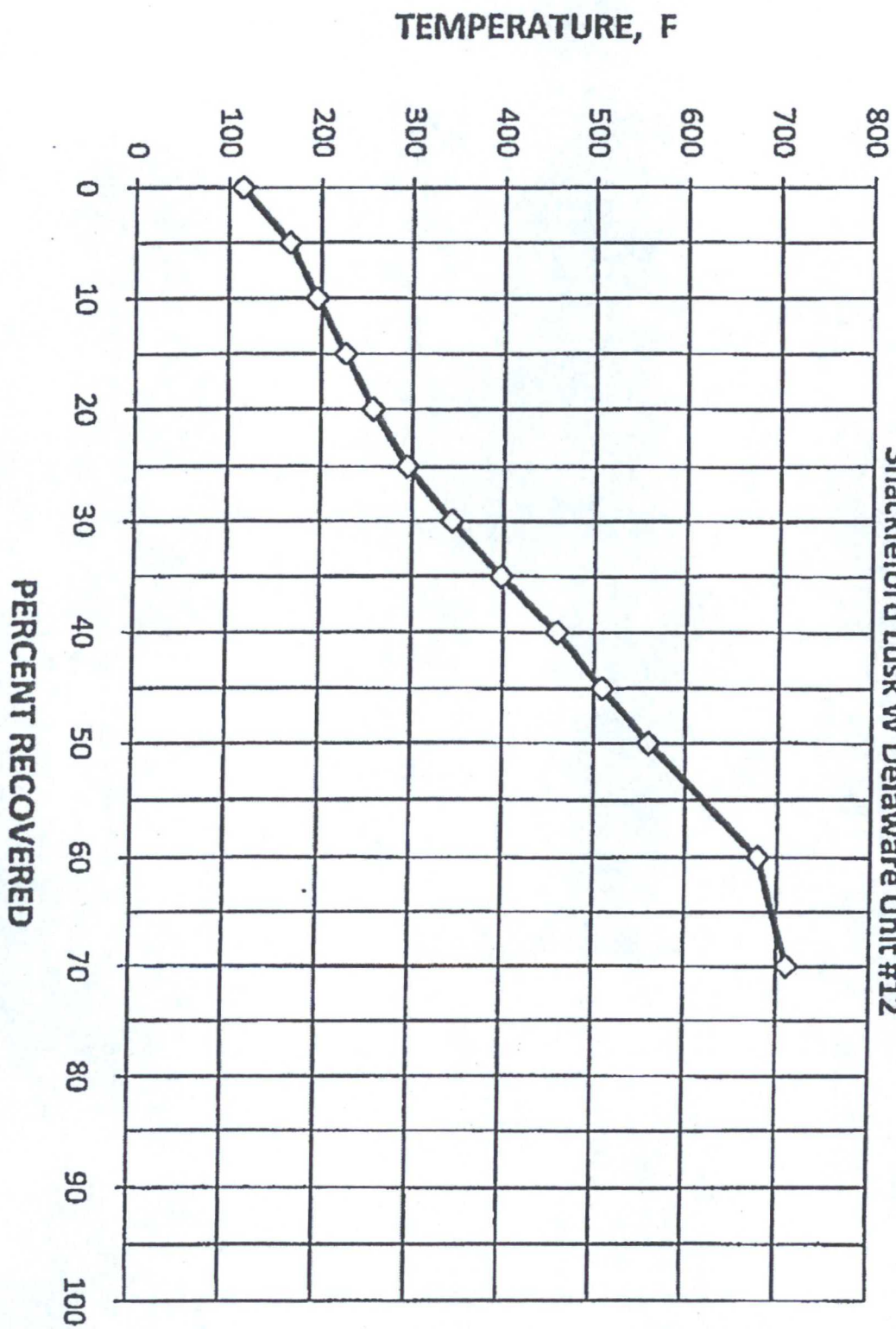
SUMMARY OF DISTILLATION ANALYSIS (ASTM D86)

BAROMETRIC PRESSURE, mm Hg	679
INITIAL BOILING POINT, F	115
END POINT, F	711
TOTAL RECOVERY, VOLUME %	70.0
NAPHTHA FRACTION	13.5
GASOLINE FRACTION	22.5
KEROSINE FRACTION	19.3
FUEL OIL FRACTION	14.7
RESIDUE, VOLUME %	30.0
LOSS, VOLUME %	0.0

ANALYST:


JAMES L. PRITCHARD, LAB MANAGER

CAPROCK LABORATORIES, INC.
CRUDE OIL DISTILLATION (ASTM D86)
Shackelford Lusk W Delaware Unit #12



CAPROCK LABORATORIES, INC

3312 BANKHEAD HIGHWAY
MIDLAND, TEXAS 79701
(432)689-7252, CAPROCKLAB.COM

COMPANY: Mitchell Analytical Lab
SAMPLE ID: Shackleford Lusk W Delaware Unit #6
WC # 39301

JOB NUMBER: 1510086-01
DATE SAMPLED: October 13, 2015
SAMPLED BY: Client
DATE RECEIVED: October 15, 2015
DATE REPORTED: October 23, 2015
REPORTED TO: George Roberts

CRUDE OIL ANALYSIS

GRAVITY, API @ 60 F

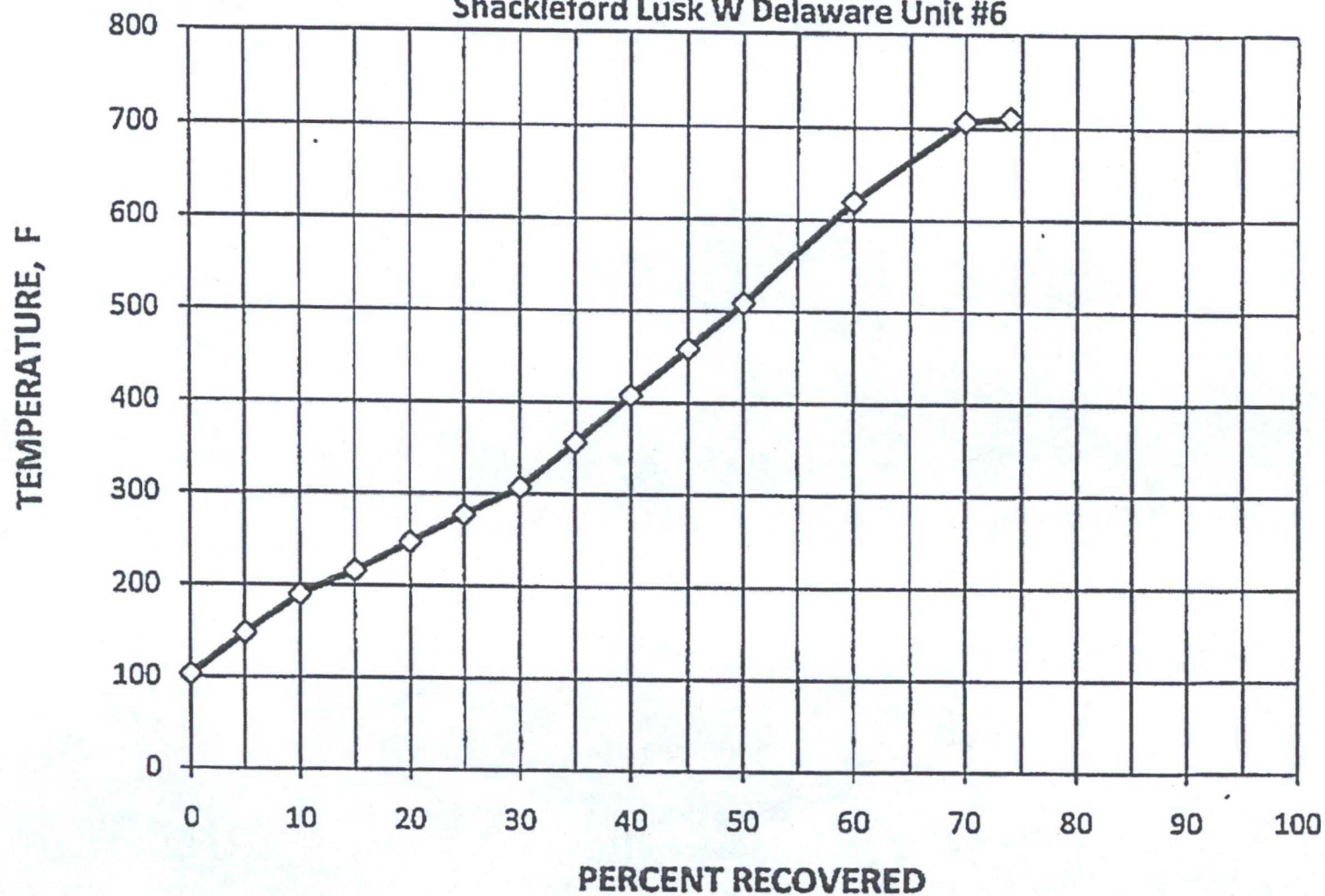
42.2 (ASTM D287)

OBSERVED TEMP. F	CORRECTED TEMP. F	VOLUME % RECOVERED	SUMMARY OF DISTILLATION ANALYSIS (ASTM D86)	
98	103	0	BAROMETRIC PRESSURE, mm Hg	679
142	148	5	INITIAL BOILING POINT, F	103
184	190	10	END POINT, F	711
210	216	15		
240	247	20	TOTAL RECOVERY, VOLUME %	74.0
270	277	25	NAPHTHA FRACTION	15.2
300	307	30	GASOLINE FRACTION	24.8
348	356	35	KEROSINE FRACTION	20.9
400	408	40	FUEL OIL FRACTION	13.1
450	459	45		
500	509	50	RESIDUE, VOLUME %	23.0
610	620	60		
696	707	70	LOSS, VOLUME %	3.0
700	711	74		

ANALYST:


JAMES L. PRITCHARD, LAB MANAGER

CAPROCK LABORATORIES, INC.
CRUDE OIL DISTILLATION (ASTM D86)
Shackleford Lusk W Delaware Unit #6



MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Company: **WadeCo Specialties, LLC**

Well Number: ~~Lusk Delaware Unit 12~~
Lease: **Shackelford**
Location: **WC39302**
Date Run: **10/19/2015**
Lab Ref #: **15-oct-h20658**

Sample Temp: **70**
Date Sampled: **10/13/2015**
Sampled by: **Wade Havens**
Employee #:
Analyzed by: **GR**

Dissolved Gases

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide (H2S)		.00	16.00	.00
Carbon Dioxide (CO2)	NOT ANALYZED			
Dissolved Oxygen (O2)	NOT ANALYZED			

Cations

Calcium (Ca++)	20,904.00	20.10	1,040.00
Magnesium (Mg++)	4,172.40	12.20	342.00
Sodium (Na+)	47,676.89	23.00	2,072.91
Barium (Ba++)	NOT ANALYZED		
Manganese (Mn+)	1.23	27.50	.04
Strontium (Sr++)	NOT ANALYZED		

Anions

Hydroxyl (OH-)	.00	17.00	.00
Carbonate (CO3=)	.00	30.00	.00
BiCarbonate (HCO3-)	73.32	61.10	1.20
Sulfate (SO4=)	400.00	48.80	8.20
Chloride (Cl-)	122,334.42	35.50	3,446.04

Total Iron (Fe)	9	18.60	.48
Total Dissolved Solids	195,571.26		
Total Hardness as CaCO3	69,366.84		
Conductivity MICROMHOS/CM	216,300		

pH	6.590	Specific Gravity 60/60 F.	1.136
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CaSO4 Solubility @ 80 F.	10.58MEq/L,	CaSO4 scale is unlikely
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CaCO3 Scale Index

70.0	1.108	100.0	1.668	130.0	3.028
80.0	1.248	110.0	2.068	140.0	3.028
90.0	1.668	120.0	2.068	150.0	3.388

WadeCo Specialties, LLC

MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Company: **WadeCo Specialties, LLC**

Well Number:	Lusk Delaware Unit 6	Sample Temp:	70
Lease:	Shackelford	Date Sampled:	10/13/2015
Location:	WC39300	Sampled by:	Wade Havens
Date Run:	10/19/2015	Employee #:	
Lab Ref #:	15-oct-h20657	Analyzed by:	GR

Dissolved Gases

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide	(H ₂ S)	.00	16.00	.00
Carbon Dioxide	(CO ₂)	NOT ANALYZED		
Dissolved Oxygen	(O ₂)	NOT ANALYZED		

Cations

Calcium	(Ca ⁺⁺)	17,824.68	20.10	886.80
Magnesium	(Mg ⁺⁺)	4,026.00	12.20	330.00
Sodium	(Na ⁺)	37,127.73	23.00	1,614.25
Barium	(Ba ⁺⁺)	NOT ANALYZED		
Manganese	(Mn ⁺)	2.10	27.50	.08
Strontium	(Sr ⁺⁺)	NOT ANALYZED		

Anions

Hydroxyl	(OH ⁻)	.00	17.00	.00
Carbonate	(CO ₃ ⁼)	.00	30.00	.00
BiCarbonate	(HCO ₃ ⁻)	73.32	61.10	1.20
Sulfate	(SO ₄ ⁼)	490.00	48.80	10.04
Chloride	(Cl ⁻)	100,110.00	35.50	2,820.00

Total Iron	(Fe)	2.15	18.60	.12
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Total Dissolved Solids	159,655.98
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Total Hardness as CaCO ₃	61,068.30
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Conductivity MICROMHOS/CM	193,000
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pH	6.900	Specific Gravity 60/60 F.	1.111
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CaSO ₄ Solubility @ 80 F.	13.68MEq/L,	CaSO ₄ scale is unlikely
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CaCO₃ Scale Index

70.0	.909	100.0	1.309	130.0	2.059
80.0	1.009	110.0	1.629	140.0	2.059
90.0	1.309	120.0	1.629	150.0	2.489

WadeCo Specialties, LLC



LABORATORY SERVICES
Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

For:	Shackelford Oil	Sample:	Wellhead
	Attention: Bob Shackelford	Identification:	Lusk Federal A #12
	203 W. Wall, Suite 3200	Company:	Shackelford Oil
	Midland, Texas 79701	Lease:	
		Plant:	

Sample Data:	Date Sampled	2/24/2016	4:20 PM		
	Analysis Date	2/25/2016			
	Pressure-PSIA			Sampled by:	Rolando Hernandez
	Sample Temp F			Analysis by:	Vicki McDaniel
	Atmos Temp F	57			

H2S = 400 PPM

Component Analysis

		Mol Percent	GPM
Hydrogen Sulfide	H2S	0.040	
Nitrogen	N2	9.565	
Carbon Dioxide	CO2	0.157	
Methane	C1	51.095	
Ethane	C2	14.426	3.848
Propane	C3	14.527	3.992
I-Butane	IC4	2.165	0.707
N-Butane	NC4	4.494	1.413
I-Pentane	IC5	1.239	0.452
N-Pentane	NC5	0.953	0.344
Hexanes Plus	C6+	<u>1.339</u>	<u>0.580</u>
		100.000	11.336

REAL BTU/CU.FT.

At 14.65 DRY	1515.2
At 14.65 WET	1488.7
At 14.696 DRY	1519.9
At 14.696 WET	1494.1
At 14.73 DRY	1523.4
At 14.73 Wet	1497.1

Specific Gravity

Calculated 0.9807

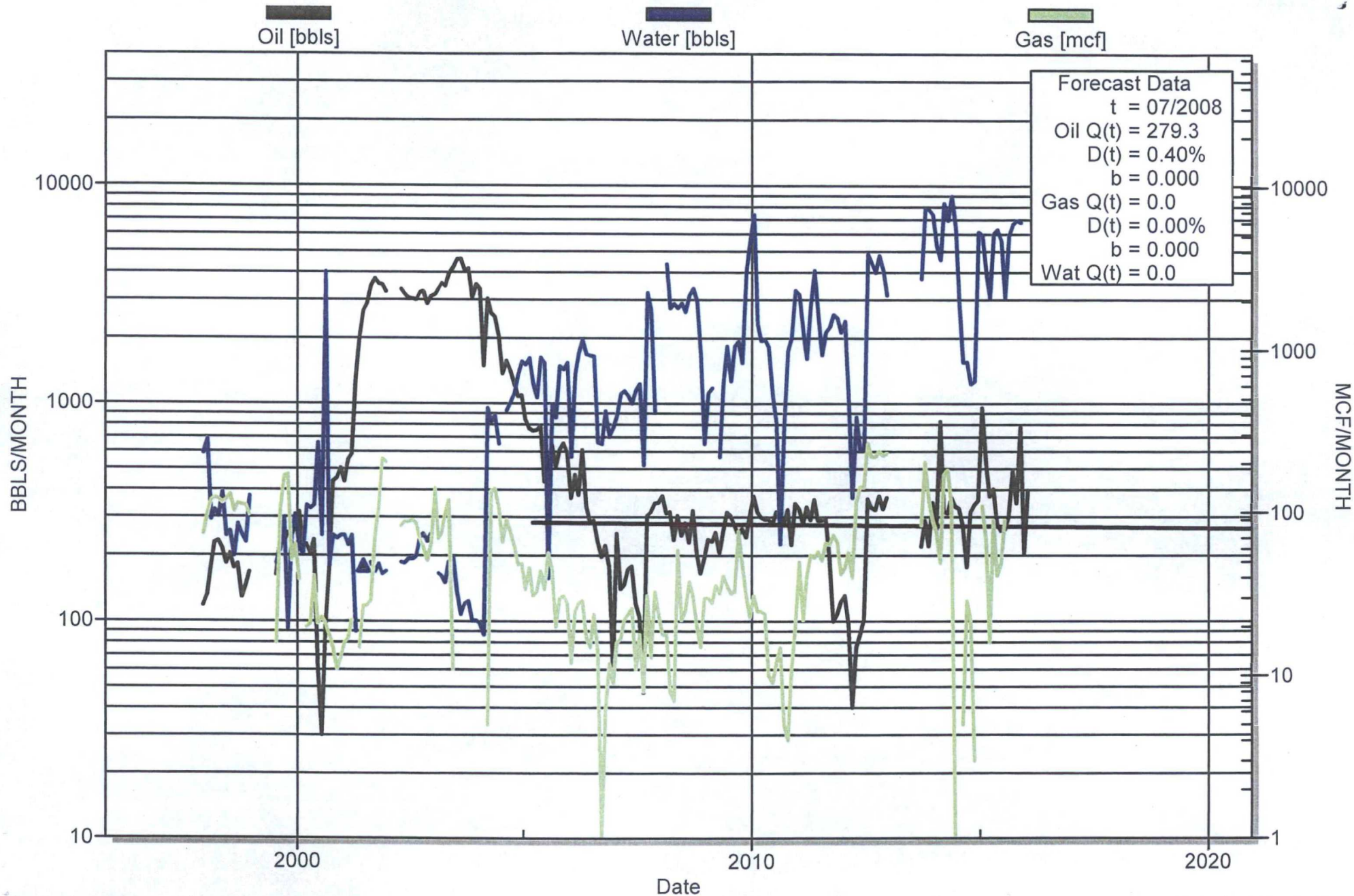
Molecular Weight 28.4024

Z Factor (DRY) 0.9939

Z Factor (WET) 0.9934

LUSK WEST DELAWARE UNIT # 006

Lea COUNTY, NM

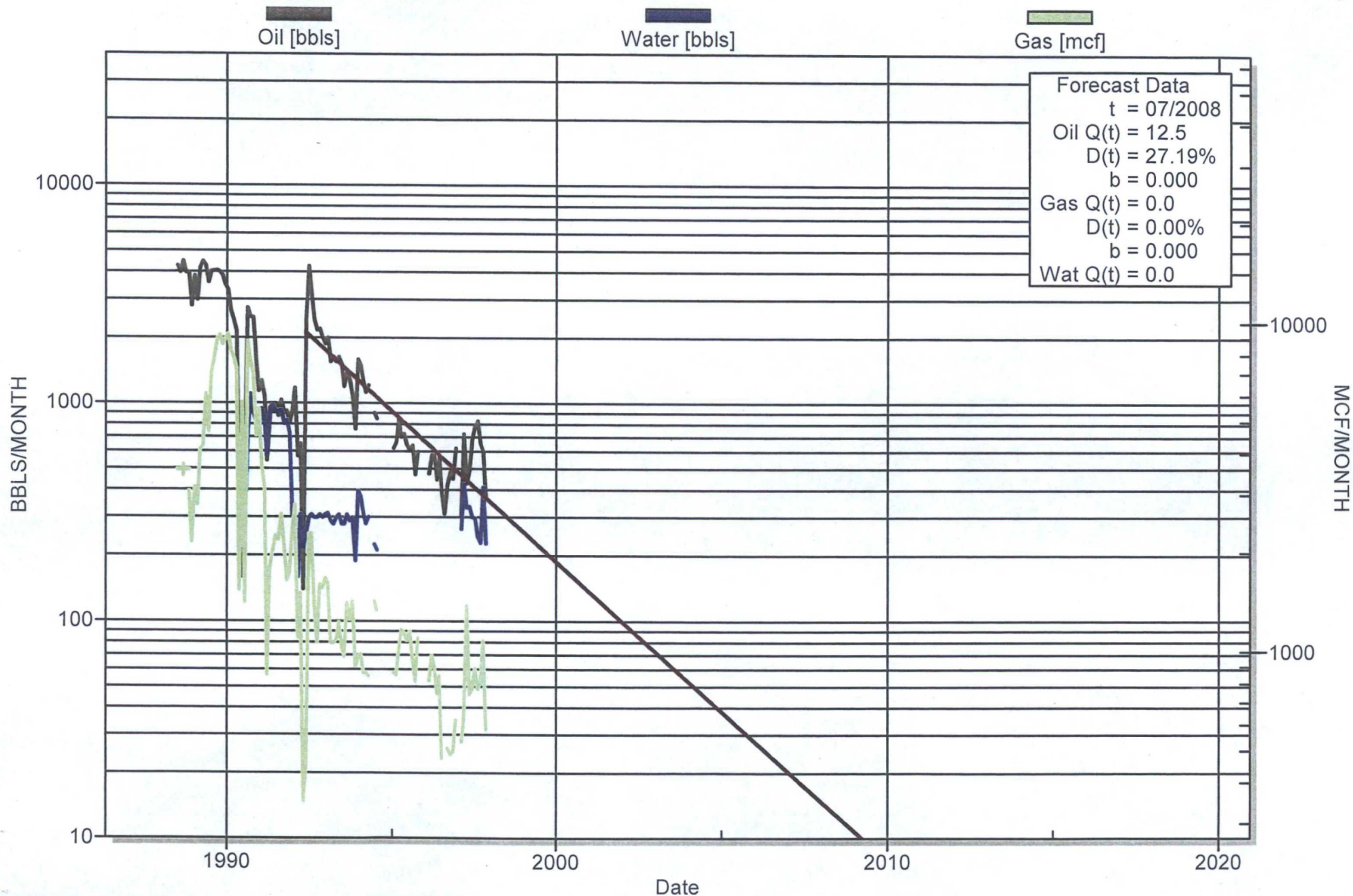


Operator: SHACKELFORD OIL CO
Field: LUSK
Reservoir: DELAWARE

Cum Oil [bbls]: 171836
Cum Gas [mcf]: 10996
Cum Water [bbls]: 353772

LUSK WEST DELAWARE UNIT# 105

Lea COUNTY, NM

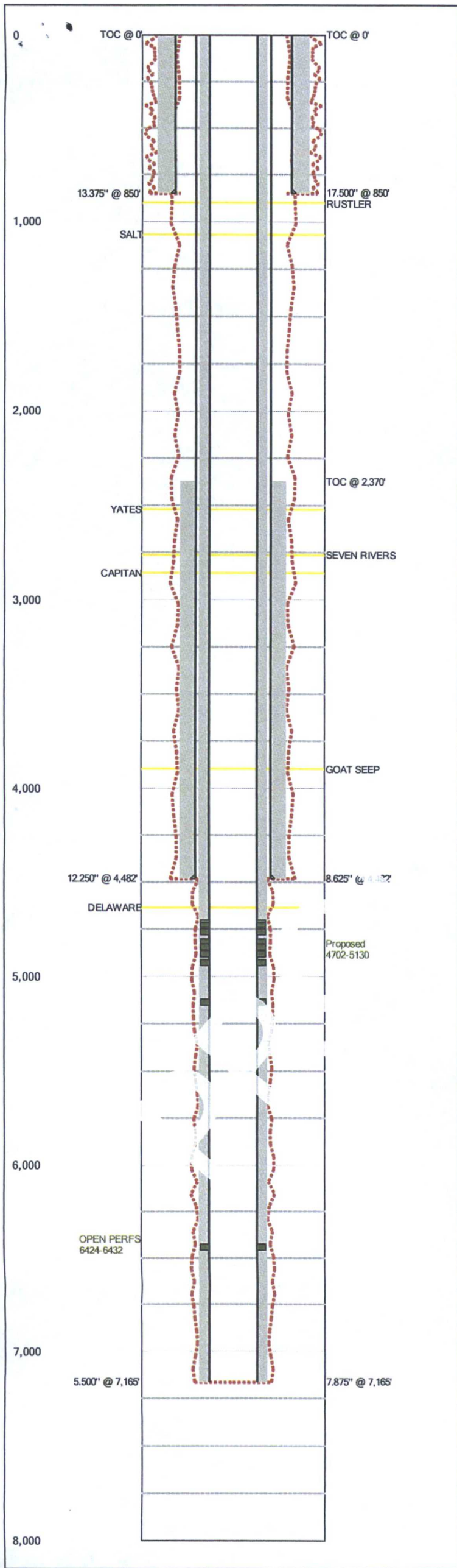


Operator: CIMAREX ENERGY CO. OF COLORADO
 Field: LUSK
 Reservoir: DELAWARE, WEST

Cum Oil [bbls]: 168226
 Cum Gas [mcf]: 248439
 Cum Water [bbls]: 26010

LWDU #6 Proposed Procedures

1. POOH w/rods and tubing
2. Rig up wireline go in hole and Set composite bridge plug at 5350'
3. GIH and perforate the following: 4702'-4710', 4717'-4725', 4748'-4756', 4802'-4812', 4828'-4836', 4864'-4880', 4910'-4920', 5120'-5130'
4. GIH w/packer and tubing acidize w/15,000 gallons of NEFE acid. Swab test. If well looks productive frac as follows
5. Frac with 150,000 lbs of 16/30 sand, 20,000 galsslickwater, and 500,000 scf nitrogen. Swab test.
6. Put well on production and test for three weeks
7. POOH w/tubing, rods, and pump
8. GIH w/bit and workstring and drill out composite plug
9. Put well back in production and allocate each month to existing interval and commingled interval.



Last Updated: 6/29/2016 04:09 PM

Field Name		Lease Name		Well No.	
Lusk West Delaware Unit		Lusk West Delaware Unit		6	
County		State		API No.	
Lea		New Mexico		30025340320000	
Version	Version Tag				
2	PROPOSED				
GL (ft)	KB (ft)	Section	Township/Block	Range/Survey	
		20	19S	32E	
Operator		Well Status	Latitude		Longitude
Shackelford Oil Company		Producer			
Dist. N/S (ft)	N/S Line	Dist. E/W (ft)	E/W Line	Footage From	
1650	FNL	1800	FWL		
Prop Num			Spud Date		Comp. Date
Additional Information					
LWDU unit producer					
Other 1		Other 2		Other 3	Other 4
Prepared By		Updated By		Last Updated	
Shackelford		Shackelford		6/29/2016 4:09 PM	

Hole Summary

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	17.500	0	850	
	12.250	0	4,482	
	7.875	4,482	7,165	

Tubular Summary

Date	Description	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)
	Surface Casing	13.375			0	850
	Intermediate Casing	8.625			0	4,482
	Production Casing	5.500			0	7,165

Casing Cement Summary

C	Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
		675	13.375	0	850	
		1,635	8.625	2,370	4,482	
		1,050	5.500	0	7,165	

Perforation Summary

C	Date	Perf. Status	Formation	OA Top (MD ft)	OA Bottom (MD ft)	Shots
			DELAWARE	4,702	5,130	
	2/5/2000	Open	DELAWARE	6,424	6,432	

Formation Tops Summary

Formation	Top (TVD ft)	Comments
RUSTLER	902	
SALT	1,070	
YATES	2,525	
SEVEN RIVERS	2,767	
CAPITAN	2,862	
GOAT SEEP	3,900	
DELAWARE	4,640	

Field Name		Lease Name		Well No.	County	State	API No.	
Lusk West Delaware Unit		Lusk West Delaware Unit		6	Lea	New Mexico	30025340320000	
Version	Version Tag				Spud Date	Comp. Date	GL (ft)	KB (ft)
2	PROPOSED							
Section	Township/Block	Range/Survey	Dist. N/S (ft)	N/S Line	Dist. E/W (ft)	E/W Line	Footage From	
20	19S	32E	1,650	FNL	1,800	FWL		
Operator			Well Status		Latitude		Longitude	Prop Num
Shackelford Oil Company			Producer					
Other 1		Other 2		Other 3		Other 4		
Last Updated		Prepared By			Updated By			
06/29/2016 4:09 PM		Shackelford			Shackelford			
Additional Information								
LWDU unit producer								

Hole Summary

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	17.500	0	850	
	12.250	0	4,482	
	7.875	4,482	7,165	

Tubular Summary

Date	Description	No. Jts	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)	Comments
	Surface Casing		13.375			0	850	
	Intermediate Casing		8.625			0	4,482	
	Production Casing		5.500			0	7,165	

Casing Cement Summary

C	Date	No. Sx	Yield (ft3/sk)	Vol. (ft3)	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments
		675	1.00	675	13.375	0	850		
		1,635	1.00	1,635	8.625	2,370	4,482		
		1,050	1.00	1,050	5.500	0	7,165		

Tools/Problems Summary

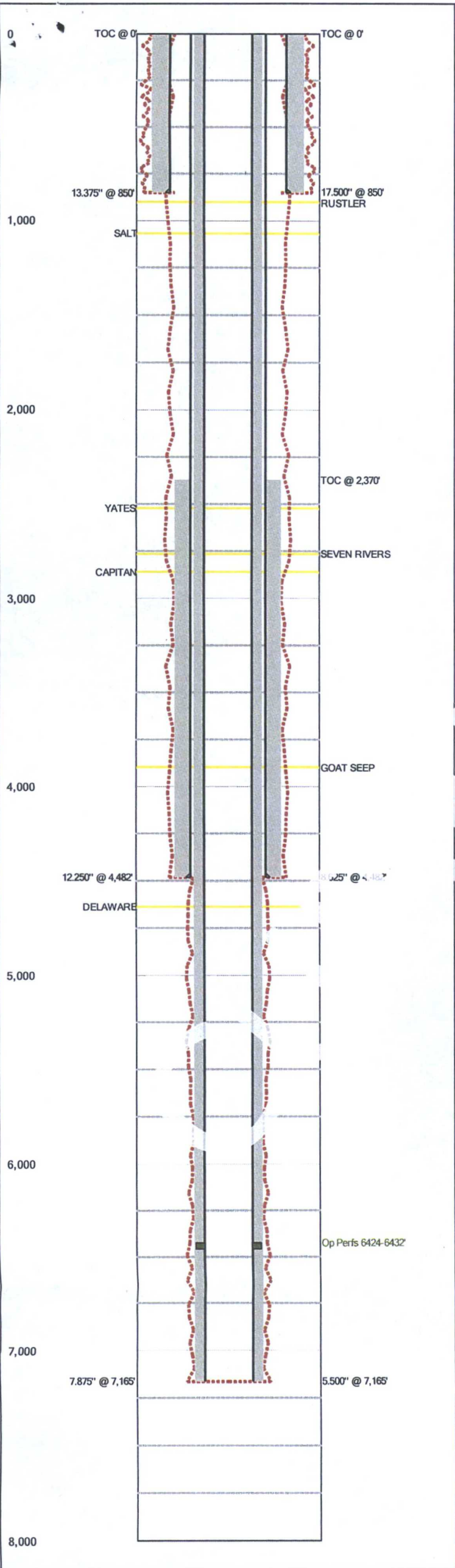
Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments

Perforation Summary

C	Date	Perf. Status	Formation		Comments				
	2/5/2000	Open	DELAWARE		OPEN PERFS 6,424-6,432				
	Top (MD ft)	Bottom (MD ft)	SPF	Shots	Phasing (deg)	Interval Comments			
	6,424	6,432							
C	Date	Perf. Status	Formation		Comments				
			DELAWARE		Proposed 4,702-5130				
	Top (MD ft)	Bottom (MD ft)	SPF	Shots	Phasing (deg)	Interval Comments			
	4,702	4,710	4						
	4,717	4,725	4						
	4,739	4,744	4						
	4,748	4,755	4						
	4,802	4,810	4						
	4,828	4,836	4						
	4,864	4,890	4						
	4,910	4,920	4						
	5,120	5,130	4						

Formation Top Summary

Formation Name	Top(TVD ft)	Comments
RUSTLER	902	
SALT	1,070	
YATES	2,525	
SEVEN RIVERS	2,767	
CAPITAN	2,862	
GOAT SEEP	3,900	
DELAWARE	4,640	



Field Name		Lease Name		Well No.	
Lusk West Delaware Unit		Lusk West Delaware Unit		6	
County		State		API No.	
Lea		New Mexico		30025340320000	
Version	Version Tag				
1	CURRENT				
GL (ft)	KB (ft)	Section	Township/Block	Range/Survey	
		20	19S	32E	
Operator		Well Status	Latitude	Longitude	
Shackelford Oil Company		Producer			
Dist. N/S (ft)	N/S Line	Dist. E/W (ft)	E/W Line	Footage From	
1650	FNL	1800	FWL		
Prop Num			Spud Date	Comp. Date	
Additional Information					
LWDU unit producer					
Other 1		Other 2		Other 3	Other 4
Prepared By		Updated By		Last Updated	
Shackelford		Shackelford		6/29/2016 4:07 PM	

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	17.500	0	850	
	12.250	0	4,482	
	7.875	4,482	7,165	

Date	Description	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)
	Surface Casing	13.375			0	850
	Intermediate Casing	8.625			0	4,482
	Production Casing	5.500			0	7,165

C	Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
		675	13.375	0	850	
		1,635	8.625	2,370	4,482	
		1,050	5.500	0	7,165	

C	Date	Perf. Status	Formation	OA Top (MD ft)	OA Bottom (MD ft)	Shots
	2/5/2000	Open		6,424	6,432	

Formation	Top (TVD ft)	Comments
RUSTLER	902	
SALT	1,070	
YATES	2,525	
SEVEN RIVERS	2,767	
CAPITAN	2,862	
GOAT SEEP	3,900	
DELAWARE	4,640	

Field Name		Lease Name		Well No.	County	State	API No.	
Lusk West Delaware Unit		Lusk West Delaware Unit		6	Lea	New Mexico	30025340320000	
Version	Version Tag				Spud Date	Comp. Date	GL (ft)	KB (ft)
	1 CURRENT							
Section	Township/Block	Range/Survey	Dist. N/S (ft)	N/S Line	Dist. E/W (ft)	E/W Line	Footage From	
20	19S	32E	1,650	FNL	1,800	FWL		
Operator			Well Status		Latitude		Longitude	Prop Num
Shackelford Oil Company			Producer					
Other 1		Other 2		Other 3		Other 4		
Last Updated		Prepared By			Updated By			
06/29/2016 4:07 PM		Shackelford			Shackelford			
Additional Information								
LWDU unit producer								

Hole Summary

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	17.500	0	850	
	12.250	0	4,482	
	7.875	4,482	7,165	

Tubular Summary

Date	Description	No. Jts	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)	Comments
	Surface Casing		13.375			0	850	
	Intermediate Casing		8.625			0	4,482	
	Production Casing		5.500			0	7,165	

Casing Cement Summary

C	Date	No. Sx	Yield (ft3/sk)	Vol. (ft3)	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments
		675	1.00	675	13.375	0	850		
		1,635	1.00	1,635	8.625	2,370	4,482		
		1,050	1.00	1,050	5.500	0	7,165		

Tools/Problems Summary

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments

Perforation Summary

C	Date	Perf. Status	Formation	Comments				
	2/5/2000	Open						
	Top (MD ft)	Bottom (MD ft)	SPF	Shots	Phasing (deg)	Interval Comments		
	6,424	6,432						
C	Date	Perf. Status	Formation	Comments				
	Top (MD ft)	Bottom (MD ft)	SPF	Shots	Phasing (deg)	Interval Comments		

Formation Top Summary

Formation Name	Top(TVD ft)	Comments
RUSTLER	902	
SALT	1,070	
YATES	2,525	
SEVEN RIVERS	2,767	
CAPITAN	2,862	
GOAT SEEP	3,000	
DELAWARE	4,640	

Conditions of Approval

Shackelford Oil Company
Lusk West Delaware Unit 6, API 3002534032
T19S-R32E, Sec 20,
August 1, 2016

1. Surface disturbance beyond the existing pad must have prior approval.
2. A closed loop system is required. The operator shall properly dispose of drilling/circulating contents at an authorized disposal site. Tanks are required for all operations, no excavated pits.
3. Functional H₂S monitoring equipment shall be on location.
4. All waste (i.e. trash, salts, chemicals, sewage, gray water, etc.) created as a result of work over operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.
5. **Down Hole Commingling** and completion procedure approved as written
6. Submit a subsequent sundry Form 3160-5 of all well work
7. Submit the BLM Form 3160-4 **Recompletion Report** within 30 days of the date all BLM approved procedures are complete. In this case after drilling out the composite plug (step 8 of proposed procedures)
8. Finally, Operator to submit subsequent sundry Form 3160-5 providing the results of the 3 weeks of testing the non-unitized formation and restate how production allocation will be determined.

EGF 080116