

DATE IN 10-7-09	SUSPENSE 10/22/09	ENGINEER Jones	LOGGED IN 10-7-09	TYPE DHC	APP NO. 0928053717
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RECEIVED

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

2009 OCT 7 AM 11:04

Engineering Bureau -  
1220 South St. Francis Drive, Santa Fe, NM 87505



Fasken O & R  
(151416)

Ling Fed. Well #4

## ADMINISTRATIVE APPLICATION CHECKLIST

30-025-38748

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

lea

### Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]  
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]  
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]  
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]  
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]  
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
- [A] Location - Spacing Unit - Simultaneous Dedication  
☐ NSL ☐ NSP ☐ SD
- Check One Only for [B] or [C]
- [B] Commingling - Storage - Measurement  
☒ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR
- [D] Other: Specify \_\_\_\_\_
- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply
- [A] ☐ Working, Royalty or Overriding Royalty Interest Owners
- [B] ☐ Offset Operators, Leaseholders or Surface Owner
- [C] ☐ Application is One Which Requires Published Legal Notice
- [D] ☒ Notification and/or Concurrent Approval by BLM or SLO  
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] ☐ Waivers are Attached

- [3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

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

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

Kim Tyson	<i>Kim Tyson</i>	Regulatory Analyst	10-5-09
Print or Type Name	Signature	Title	Date
		kimt@forl.com	
		e-mail Address	

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

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

District III  
1000 Rio Hrazos 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

Form C-107A  
Revised June 10, 2003

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

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

APPLICATION FOR DOWNHOLE COMMINGLING

Fasken Oil and Ranch, Ltd. 303 W. Wall St., Ste. 1800, Midland, TX 79701

Operator Address  
Ling Federal 4 J, Sec. 31, T19S, R34E Lea  
Lease Well No. Unit Letter-Section-Township-Range County  
OGRID No. 151416 Property Code API No. 30-025-38748 Lease Type: ☒ Federal ☐ State ☐ Fee

DATA ELEMENT	UPPER ZONE <u>UNDES</u>	INTERMEDIATE ZONE	LOWER ZONE <u>WILDCAT</u>
Pool Name	Apache Ridge; <del>Bone Springs</del>		<del>Bone</del> Wolfcamp oil
Pool Code	2260		59500
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	Perforated 9380' - 10,112'		Perforated 11,022' - 12,162'
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)	Data not required - see note		Data not required - see note
Oil Gravity or Gas BTU (Degree API or Gas BTU)	39.2° API		46° API
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: N/A Rates:	Date: Rates:	Date: 9-28-09 16 BO + 178W Rates: + 37 MCF
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 80 % 69 %	Oil Gas % %	Oil Gas 20 % 31 %

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 Kim Tyson TITLE Regulatory Analyst DATE 10-5-09  
TYPE OR PRINT NAME Kim Tyson TELEPHONE NO. (432) 687-1777  
E-MAIL ADDRESS kimt@for1.com

District I  
1625 N. French Dr., Hobbs, NM 88240  
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1301 W. Grand Avenue, Artesia, NM 88210  
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District IV  
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State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised October 12, 2005  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number 30-025-38748	<sup>2</sup> Pool Code 2260	<sup>3</sup> Pool Name Apache Ridge; Bone Springs
<sup>4</sup> Property Code	<sup>5</sup> Property Name Ling Federal	<sup>6</sup> Well Number 4
<sup>7</sup> OGRID No. 151416	<sup>8</sup> Operator Name Fasken Oil and Ranch, Ltd.	<sup>9</sup> Elevation 3623' GL

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	19S	34E		1660'	South	2310'	East	Lēa

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

<sup>12</sup> Dedicated Acres 40	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> 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.

<sup>16</sup>	<sup>17</sup> <b>OPERATOR CERTIFICATION</b> 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 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. Signature: <u>Kim Tyson</u> Date: <u>10-5-09</u> Printed Name: <u>Kim Tyson</u>	
	<sup>18</sup> <b>SURVEYOR CERTIFICATION</b> 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 of Survey: _____ Signature and Seal of Professional Surveyor: _____ Certificate Number: _____	

District I  
1625 N. French Dr., Hobbs, NM 88240  
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Form C-102  
Revised October 12, 2005  
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☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number 30-025-38748	<sup>2</sup> Pool Code 59500	<sup>3</sup> Pool Name W C Tonto Wolfcamp
<sup>4</sup> Property Code	<sup>5</sup> Property Name Ling Federal	<sup>6</sup> Well Number 4
<sup>7</sup> OGRID No. 151416	<sup>8</sup> Operator Name Fasken Oil and Ranch, Ltd.	<sup>9</sup> Elevation 3623' GL

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	19S	34E		1660'	South	2310'	East	Lea

<sup>11</sup> Bottom Hole Location If Different From Surface

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<sup>16</sup> 	<sup>17</sup> <b>OPERATOR CERTIFICATION</b> 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 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. Signature: <u>Kim Tyson</u> Date: <u>10-5-09</u> Printed Name: <u>Kim Tyson</u>	
	<sup>18</sup> <b>SURVEYOR CERTIFICATION</b> 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 of Survey: _____ Signature and Seal of Professional Surveyor: _____ Certificate Number: _____	

## **Fasken Oil and Ranch, Ltd.**

### **Ling Federal No. 4**

#### **Application for Downhole Commingling**

##### Additional Data

A production plot for the Wolfcamp is attached and is currently averaging 16 bopd and 24 mcfpd with an estimated ultimate recovery of 9,600 bo & 28,000 mcf. Production for the Bone Spring zone in this well is not available since it has yet to be opened. However, a production projection curve was created based upon offset well's production histories, hydrocarbon pore volume mapping, and volumetrics derived from electric log properties. Based on this data, the projected Bone Springs curves begin at 36 bopd and 45 mcfpd, ultimately recovering 39,000 mbo and 63,600 mcf.

Using the projected production curves and ultimate recoveries of both oil and gas for each zone, a production allocation for the Wolfcamp and Bone Springs was created:

	<u><b>EUR OIL</b></u>		<u><b>EUR GAS</b></u>	
Wolfcamp	9.6 mbo	20%	28,000 mcf	31%
Bone Springs	39 mbo	80%	63,600 mcf	69%

Once the Bone Springs has been completed, the production allocation will be fine-tuned using actual production volumes from the Bone Springs.

### Ling Federal No. 4 Petrophysical Properties

Zone	Depth	Depth to	X-plot	$\phi$	Sw	Pay, h	BVW	$\phi h$	hcf $\phi^2 h^2 (1-s_w)$	Temp	$\phi^2 F B_o$ (rb/stb)	Recovery Factor	Acres	EUR MBO
<b>LING FEDERAL NO. 4</b>														
RW	<b>1ST BONE SPRING</b>													
0.034	"A" SAND	9360.00	9420.00	10.83%	47.95%	4	0.0519	0.4331	0.2254	142	1.50	0.15	40	6.99
0.034	"B" SAND	9420.00	9474.00	13.70%	47.05%	21	0.0645	2.8776	1.5238	143	1.50	0.15	40	47.29
0.034	"C" SAND	9474.00	9500.00	0.00%	0.00%	0	0.0000	0.0000	0.0000	144	1.50	0.15	40	0.00
0.034	ORANGE SAND	9570.00	9600.00	14.89%	49.28%	1	0.0734	0.1489	0.0755	145	1.50	0.15	40	2.34
	Total 1st BS:			10.96%	32.74%	77.5	0.0359	8.4944	5.7130					<b>56.62</b>

### Ling Federal No. 4 Volumetrics from HCPV Mapping

	"A" Sand	"B" Sand	"C" Sand	"Orange" Sand	Total OOIP	Total EUR
Ling 3	296,270	124,010	23,970	90,670	534,920	80,238
Ling 4	44,490	192,570	0	13,740	250,800	37,620
Ling 5	9,200	63,870	59,500	31,690	164,260	24,639
Ling 6	29,410	52,700	11,870	29,790	123,770	18,566

Recovery Factor = 15%  
Each Well is Assumed to Drain 40 Acres

# Rate/Time Graph

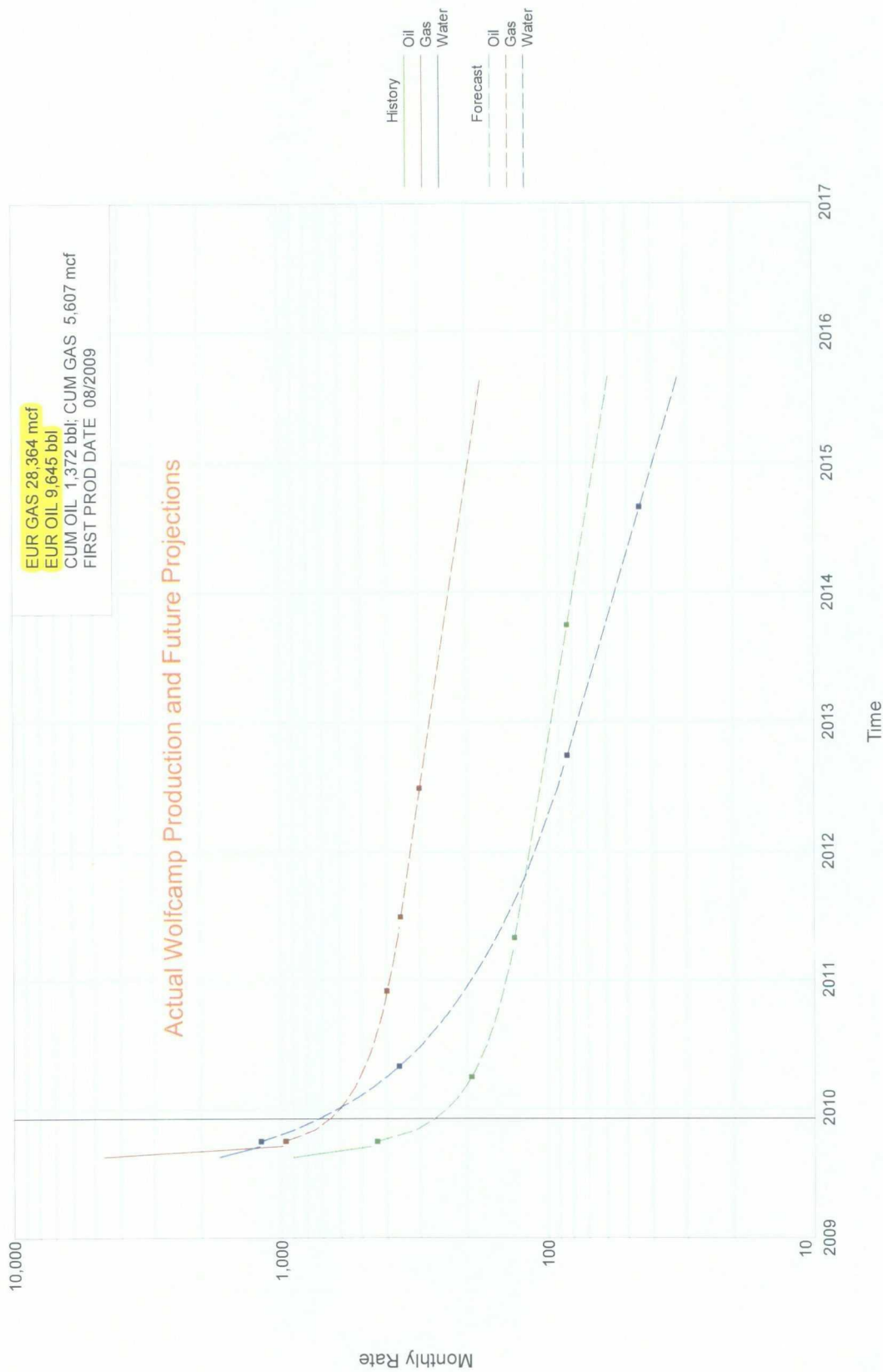
Date: 9/30/2009  
Time: 9:55 AM

Project: J:\PIAPPS\DWIGHTS\I\tools90\Projects\CSL\LEA\_NM.mdb

Lease Name: LING FEDERAL WOLFCAMP UPDATED (4)  
County, ST: LEA, NM  
Location: 16G 20S 34E SW NE

Operator: FASKEN OIL AND RANCH LTD  
Field Name: QUAIL RIDGE

## LING FEDERAL WOLFCAMP UPDATED - QUAIL RIDGE



# Rate/Time Graph

Project: J:\PIAPPS\DWIGHTS\Tools90\Projects\CSL\ApacheRidge2.mdb

Date: 9/28/2009  
Time: 10:45 AM

Lease Name: LING FEDERAL - BONE SPRINGS\_RECOMPLETE (4)

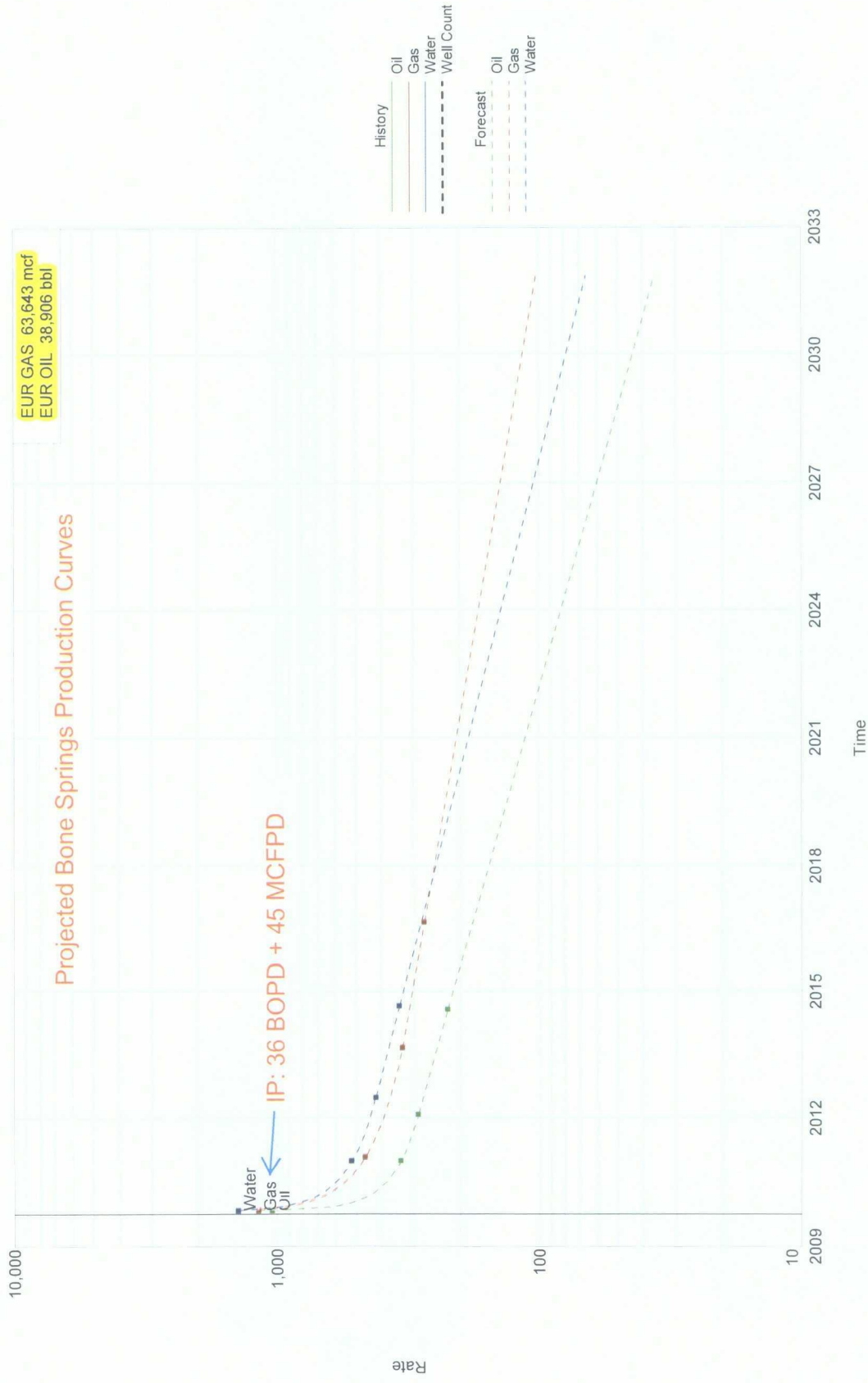
Operator: FASKEN OIL AND RANCH LTD

County, ST: LEA, NM

Field Name: APACHE RIDGE

Location: 3 21S 26E

LING FEDERAL - BONE SPRINGS\_RECOMPLETE - APACHE RIDGE





UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0137  
Expires: March 31, 2007

**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.  
NM-14496

6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE – Other instructions on page 2.**

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

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.  
Ling Federal No. 4

2. Name of Operator  
Fasken Oil and Ranch, Ltd.

9. API Well No.  
30-025-38748

3a. Address  
303 West Wall St., Suite 1800, Midland, TX 79701

3b. Phone No. (include area code)  
432-687-1777

10. Field and Pool or Exploratory Area  
Apache Ridge; Bone Springs

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
1660' FSL & 2310' FEL, Sec. 31, T-19-S, R-34-E

11. Country or Parish, State  
Lea, 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 type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <u>Downhole</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	<u>Commingle</u>
	<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 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 must 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 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.)

Fasken Oil and Ranch, Ltd. proposes to down-hole commingle the Tonto Wolfcamp with the Apache Ridge; Bone Springs pool.

The percentages of Oil and Gas from each zone are listed below as requested in the Conditions of Approval.

	Oil		Gas	
Wolfcamp	9.6 mbo	20%	28,000 mcf	31%
Bone Springs	39 mbo	80%	63,600 mcf	69%

Please see attached procedure as requested in the Conditions of Approval.

This for you information only.

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

Name (Printed/Typed)  
Kim Tyson

Title Regulatory Analyst

Signature

*Kim Tyson*

Date 10/01/2009

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Title

Date

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

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.

(Instructions on page 2)

Fasken Oil and Ranch, Ltd.  
 Ling Federal No. 4  
 1660' FSL & 2310' FEL  
 Sec 31, T19S R34E  
 AFE 1715

<b>OBJECTIVE:</b>	Recomplete to Bone Springs
<b>WELL DATA:</b>	
13-3/8" 54.5#K55&48# H40 casing:	Set at 1586.5' KB. Cmt w/600 sx "C" w/ 2% CaCl <sub>2</sub> (13.5 ppg, 1.74 cuft/sx) + 400 sx "C" w/ 2% CaCl <sub>2</sub> (14.8 ppg, 1/32 ft <sup>3</sup> /sx).
9-5/8" 40# HCK55&36#J55 csg:	Set at 5172.2' KB, DV @ 3480.66' KB, Cmt 1 <sup>st</sup> stage 400sx HLC (12.6ppg, 2.013ft <sup>3</sup> /sx)+300sx "C" (14.8ppg, 1.32 cuft/sk). Circ 61 sx thru DV. 2 <sup>nd</sup> stage 1200sx HLC (12.6ppg, 2.01ft <sup>3</sup> /sx) +300sx "C" (14.8ppg, 1.32 cuft/sk). 9-5/8" TOC surf, circ154sx.
5-1/2" 17#&20# N-80:	Set at 13,569.67' KB, DV @ 10,662' KB, Cmt 1 <sup>st</sup> stage 270sx Econocem "H" Modified (11.9ppg, 2.45cuft/sk) + 375 sx Super "H" Mod (13.2 ppg, 1.63 ft <sup>3</sup> /sx), Circ mudflush thru DV. Cmt 2 <sup>nd</sup> stage 860sx Halliburton Lite "H" (12.4 ppg, 2.03 ft <sup>3</sup> /sx) + 380sx Super "H" Modified (13.2 ppg, 1.63 ft <sup>3</sup> /sx). 5-1/2" TOC 3463' by Temp Marker jts (drilg tally): 11.87' @13,097.55', 11.50' @ 9208.42'
Tubing:	2-3/8" EUE 8rd N-80.
Perfs:	Morrow 13,190'-13,398'. Atoka - 12,516'-12,524'. Wolfcamp 11,022'-12,160'
TD:	13,577'
PBTD:	12,480' CIBP w/ 35' class "H" cmt on top.

1. Check with Jimmy Carlile or Kim Tyson beforehand to make sure we have pit permit and approval to recomplete.
2. Set and receive half-frac flowback tank and one set of pipe racks on location. Build flowline from wellhead to workover tank.
3. RUPU. Unseat pump and POW with rods and pump. Send pump into shop for inspection. LD X amount of rods and send to Fasken yard.
4. NDWH and NU 7-1/16" 5k manual BOP equipped with 2-3/8" pipe rams and blind rams.
5. Unseat TAC, POW and LD all but 10,150' of 2-3/8" N-80 EUE 8rd tubing.
6. RIW with 5-1/2" RBP, setting tool, and 2-3/8" tubing and set RBP @ +/- 10,500'. Displace well with 2% KCl water and test RBP to 2,000 psi for 10". PU 5' off of RBP and pump 5 sx of sand and leave on top of RBP. POW with tubing.
7. POW and spot 250 gallons of 15% NEFE HCl acid containing clay stabilizer @ 10,115'. POW with tubing.

8. RUWL w/ packoff and RIW and perforate 2<sup>nd</sup> Bone Springs Stray Dolomite as follows w/ 3-1/8" casing gun:

**10,107'-12' w/ 2 JSPF, 60 degree phased, 0.42" EH, 10h**

Correlate to EnerTech Wireline Services Perforating Depth Control Log w/Gamma Ray/CCL dated 12-2-2008. POW and RDWL.

9. RIW 5-1/2" HD-type treating packer, sn, and 2-3/8" tubing to 10,080' and reverse acid into tubing.
10. ND BOP and NUWH, setting packer @ 10,080' in 14 pts compression. RU pump truck and displace spot acid into perforations using 6 bbls of 2% KCl water.
11. Swab back spot acid to workover tank. Evaluate fluid entry rates and fluid cuts.
12. If further stimulation is warranted, RU Team CO<sub>2</sub>. Pressure tubing/casing annulus to 500 psi and monitor throughout job. Acidize 2<sup>nd</sup> Bone Springs Stray Dolomite with 1,000 gals of 75Q 15% NEFE HCl. Drop 20 7/8" RCN ball sealers evenly spaced for diversion. Record instantaneous, 5", 10", and 15" shut-in pressures.
13. Flow and swab well back to tank until all of acid load is recovered. Evaluate fluid entry rates and oil out and report results to Midland office.
14. Kill well if necessary using 2% KCl water. Release packer and POW to put packer @ 9615'. Displace well with 2% KCl water, spotting 500 gallons of 15% NEFE double-inhibited HCl @ 9615'. POW with tubing.
15. RUWL and packoff and perforate 1<sup>st</sup> Bone Springs Orange Dolomite w/ 3-1/8" slick casing gun as follows:

**9604'-13' w/ 1 JSPF, 60 degree phased, 0.40" EH, 10h**

Total - 10 holes. Make note of any changes in fluid level after perforating. POW w/ WL, make sure all shots fired and RDWL.

16. RIW with 5-1/2" 10k RBP, setting tool, 10' tubing sub, 5-1/2" treating packer w/ mechanical collar locator, sn, and 2-3/8" tubing and set RBP @ +/- 9650'. PU 10' on tubing, set packer, and test RBP to 2,000 psi for 10". Release packer and POW to put EOT @ +/- 9575'. Reverse acid into tubing, and set packer @ +/- 9565' in 14 pts compression.
17. Displace spot acid into perforations using 12 bbls of 2% KCl water containing clay stabilizer. Max pressure = 3,000 psi. Record instantaneous, 5", 10", and 15" shut-in pressures. Report results to Midland Office.
18. Swab back spent acid and load water and evaluate hourly fluid entry rates. If possible, shut well in over weekend for pressure readings. (If a consistent fluid level is observed, pressure readings may be unnecessary). RU slickline

lubricator and obtain pressure readings every 1000' and at the seating nipple for the Orange Dolomite. Report results to Midland Office.

19. RU Team CO2. Pressure tubing/casing annulus to 500 psi and monitor throughout job. Acidize 1<sup>st</sup> Bone Springs Orange Dolomite with 2,000 gallons of 75Q 15% NEFE HCl acid containing clay stabilizer. Drop 20 7/8" RCN ball sealers evenly spaced for diversion. Record instantaneous, 5", 10", and 15" shut-in pressures. Report results to Midland Office.
20. Release packer and RIW and retrieve RBP @ 9650'. POW and reset RBP @ 9595' (correlated to log used for perforating above).
21. POW w/ EOT @ 9584'. Spot 500 gallons of 7-1/2% double-inhibited NEFE HCl containing clay stabilizer @ 9593'. Displace acid with 2% KCl water. POW with tubing and packer.
22. NO BOP and NU Downing isolation frac sleeve, adaptor flange, and 10K frac valve with 4 outlet goat head.
23. RU pump truck and pressure test 10k RBP, 5-1/2" casing, wellhead isolation sleeve, and 10k frac valve to 6,200 psi for 20". Notify Midland Office of the results.
24. RUWL and packoff. Perforate 1<sup>st</sup> Bone Springs Orange Sand with 3-1/8" slick casing gun as follows:

**9575'-84' w/ 2 JSPF, 60 degree phased, 0.40" EH, 20h**

Make note of any changes in fluid level after perforating. POW, make sure all shots fired, and RDWL.

**FRAC 1<sup>ST</sup> BONE SPRINGS SANDS**

25. Set 10 - 500 bbl clean frac tanks. Fill each to maximum capacity with 2% powdered KCl water. Have service company test water for fluid compatibility and add recommended amount of biocide to tanks the day before the frac.
26. RU Service Company. RU backside pump truck and pressure 5-1/2" x 9-5/8" annulus to 1,000 psi and monitor throughout job. Frac 1<sup>st</sup> Bone Springs in three stages via 5-1/2" casing according to frac proposal to follow. **Max allowable surface treating pressure = 6,200 psi (80% of 17#/ft N-80 IYP of 7,740 psi):**

**Stage 1:**

- a. Frac "Orange" Sand perms 9575'-84' according to frac design to follow. On flush spot 1,000 gallons 15% HCL acid (blend as above) at 8471'-9471'.
- b. RUWL. RIW w/ 5-1/2" composite plug and 3-1/8" slick casing gun and set 6k composite plug at +/- 9520'. Perforate 1<sup>st</sup> Bone Springs "B" Sand as follows:

**9442'-71' w/ 1 JSPF, 60 degree phased, 0.40" EH, 30h.**

Correlate perms to GR/CCL strip log obtained from above. POW w/ WL and make sure all shots fired.

## **Stage 2:**

- a. Frac "B" Sand perms 9442' - 71' according to frac design to follow. Flush to top perf + 2 bbls and spot 1,000 gallons of 15% HCl acid @ 9404'-8404'.
- b. RIWL. RIW with 5-1/2" composite plug and 3-/18" slick casing gun and set 6k composite plug @ 9415'. Perforate 1<sup>st</sup> Bone Springs "A" Sand as follows:

**9380'-9404' & 9406'-12' w/1 JSPF, 60 degree phased, 0.40" EH, Total - 32 holes**

Correlate perms to GR/CCL strip log obtained from above. POW w/ WL and make sure all shots fired. RDWL.

## **Stage 3:**

- a. Frac "A" Sand perms 9380'-9404' according to frac design to follow. Flush to top perf.
27. RD frac company. Leave well shut-in 4 hours for resin-coated sand to set. NU 10k flowback manifold and flow back "A" sand to workover pit until well dies.
  28. ND Frac Valve, wellhead isolation sleeve and adaptor flange and NU BOP. Set reverse tank and fill with 2% KCl water.
  29. RIW with 4-3/4" mill, sn, and tubing to top of composite plug @ 9415'. NU BIW stripper rubber and power swivel. RU XH flowback manifold, chokes, and flowback iron with plug catcher on inlet side of manifold, and lay line to reverse pit, and test tank.
  30. Drill out composite bridge plugs at 9415' & 9520'. Circulate well clean after each plug and check for sand entry while circulating. Continue RIW and clean out to 9590' and circulate well clean. Note flow rate and pressure after drilling each plug and report on daily drilling reports.
  31. POW with tubing and LD BHA.
  32. RIW with retrieving tool, sn, and 2-3/8" tubing to RBP @ 9595' and gently tag. RU pump truck and circulate out sand on top of RBP and latch on. Release RBP and POW with tubing and RBP.

33. RIW with production tubing and rods according to recommendation to follow. Hang well on bridle and put well back on production.
34. Clean location and wellhead. RDPU.
35. Report daily well test to Midland office on drilling reports.

**RESTORE WOLFCAMP AND ADD 1<sup>ST</sup> BONE SPRINGS DOLOMITE**

36. After well has pumped down and downhole commingle permit has been received, RUPU. Receive additional 2-3/8" tubing if needed. Check with Kim Tyson to make sure we have pit permit.
37. Unseat pump, and NU 5k manual BOP. Unseat TA and POW with tubing.
38. RIW with retrieving tool, sn, and 2-3/8" tubing to 10,500' and gently tag. RU pump truck and circulate out sand with 2% KCl water. Latch onto RBP and POW with tubing and RBP.
39. RUWL and packoff. RIW and perforate 1<sup>st</sup> Bone Springs Dolomite with 3-1/8 slick casing gun as follows:

9544'-9554' - 11 holes  
9534'-9540' - 7 holes  
9508'-9511' - 4 holes

All shots should be 1JSPF, 0.42" EH, 60° phased, 22 total holes. Make note of any changes in fluid level after perforating. POW, make sure all shots fired, and RDWL.

40. RIW with 5-1/2" RBP with ball catcher, 10' tubing sub, 5-1/2" HD type treating packer with bypass and MCCL, sn, and 2-3/8" tubing and set RBP @ 9565'. LD 1 jt, set packer and test RBP to 2000 psi. Release packer and POW and set packer @ 9490' in 14 pts compression.
41. RU Team CO2. Open packer bypass and spot acid to EOT. Close bypass and acidize 1<sup>st</sup> Bone Springs Dolomite with 1,000 gallons of 75Q 15% NEFE HCl. Drop 44 7/8" RCN ball sealers evenly spaced for diversion. Record instantaneous, 5", 10", and 15" shut-in pressures and report results to Midland Office.
42. Flow and swab well back to workover tank. Evaluate fluid entry and oil cut.
43. Kill well if necessary with 2% KCl water containing clay stabilizers.
44. RIW and retrieve RBP @ 9565' and POW with tubing, packer, and RBP.
45. RIW with production tubing and rods according to recommendation to follow. Hang well on bridle and put well back on production.
46. Clean location and wellhead. RDPU.

See  
COA

47. Report daily well test to Midland office on drilling reports  
(CSL)