

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

5. Lease Serial No. SF- 078194	
6. If Indian, Allottee or tribe Name	
7. If Unit or CA Agreement, Name and No	
8. Lease Name and Well No. Ludwick LS 17N	
9. API Well No. 30-045-34007	
1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER	10. Field and Pool, or Exploratory Basin Dakota & Blanco Mesaverde
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well Gas <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone	11. Sec., T., R., M., or Blk. and survey or Area SECTION 29 T30N & R10W
2. Name of Operator BP AMERICA PRODUCTION COMPANY	12. County or Parish SAN JUAN
3a. Address P.O. BOX 3092 HOUSTON, TX 77079-2064	13. State NEW MEXICO
3b. Phone No. (include area code) 281-366-3866	14. Distance in miles and direction from nearest town or post office* 6.8 MILES SOUTHEAST FROM AZTEC, NM
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 2300 2300 FSL & 4090 2155 EWL NWSE At proposed prod. Zone SAME	
15. Distance from proposed* Location to nearest Property or lease line, ft. (Also to nearest drig. Ujnit line, if any) 714'	16. No. of Acres in lease 320
17. Spacing Unit dedicated to this well 320 319.62 E/L	18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
19. Proposed Depth 7243' MD	20. BLM/BIA Bond No. on file WY2924
21. Elevations (show whether DF, KDB., RT, GL, etc.) 6140' GL	22. Approximate date work will start* 06/23/06
23. Estimated duration 7 DAYS	24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification.
- Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature *Kristina Hurts* Name (Printed/typed) **Kristina Hurts** Date **10/11/2006**

Title **Regulatory Analyst**

Approved by (Signature) *[Signature]* Name (Printed/Typed) **AFM** Date **4/11/07**

Title **AFM** Office **FFO**

Application approval does not warrant or certify the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct Operations thereon.

Conditions of approval, if any, are attached.

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 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 reverse)

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

submit new plat

4/16/07

NMOCD

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

Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-045-34007	Pool Code 71599; 72319	Pool Name Basin Dakota; Blanco Mesaverde
* Property Code 000 811	* Property Name Ludwick LS	* Well Number # 17N
* OGRID No. 778	* Operator Name BP AMERICA PRODUCTION COMPANY	* Elevation 6140

10 Surface Location

UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Lot 10 (J)	29	30 N	10 W		2300	SOUTH	2155	EAST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

7	UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
12	Dedicated Acres 319.62	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

16 Lot 4	5163(R) Lot 3	Lot 2	Lot 1
5217(R) Lot 5	Lot 6	Lot 7	Lot 8
<div style="font-size: 2em; font-weight: bold;">29</div>		<div style="display: flex; align-items: center;"> <div style="text-align: right; margin-right: 10px;">448'</div> </div>	2155'
<div style="display: flex; align-items: center;"> <div style="text-align: right; margin-right: 10px;">448'</div> </div>		Lot 9	
<div style="display: flex; align-items: center;"> <div style="text-align: right; margin-right: 10px;">2300'</div> </div>		Lot 15	Lot 16
<div style="display: flex; align-items: center;"> <div style="text-align: right; margin-right: 10px;">5207(R)</div> </div>			

RECEIVED

APR 2007

OIL CONS. DIV. DIST. 3

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
May 27, 2004

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

WELL API NO.
New Well
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Ludwick LS
8. Well Number 17 N
9. OGRID Number 000778
10. Pool name or Wildcat Basin Dakota & Blanco Mesaverde

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☐ Gas Well ☒ Other ☐

2. Name of Operator
BP AMERICA PRODUCTION COMPANY

3. Address of Operator
P.O. BOX 3092 HOUSTON, TX 77079-2064

4. Well Location
Unit Letter J : 2300 feet from the South line and 2155 feet from the East line
Section 29 Township 30N Range 10W NMPM SAN JUAN County

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
6140'

Pit or Below-grade Tank Application ☒ or Closure ☐

Pit type DRILLING Depth to Groundwater >100' Distance from nearest fresh water well >1000' Distance from nearest surface water <1000'

Pit Liner Thickness: 12 mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐

OTHER: LINED DRILLING PIT



OTHER:



13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Construct a lined drilling pit per BP America – San Juan Basin Drilling/ Workover Pit Construction Plan issued date of 11/17/2004. Pit will be closed according to closure plan on file.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOC guidelines ☒, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

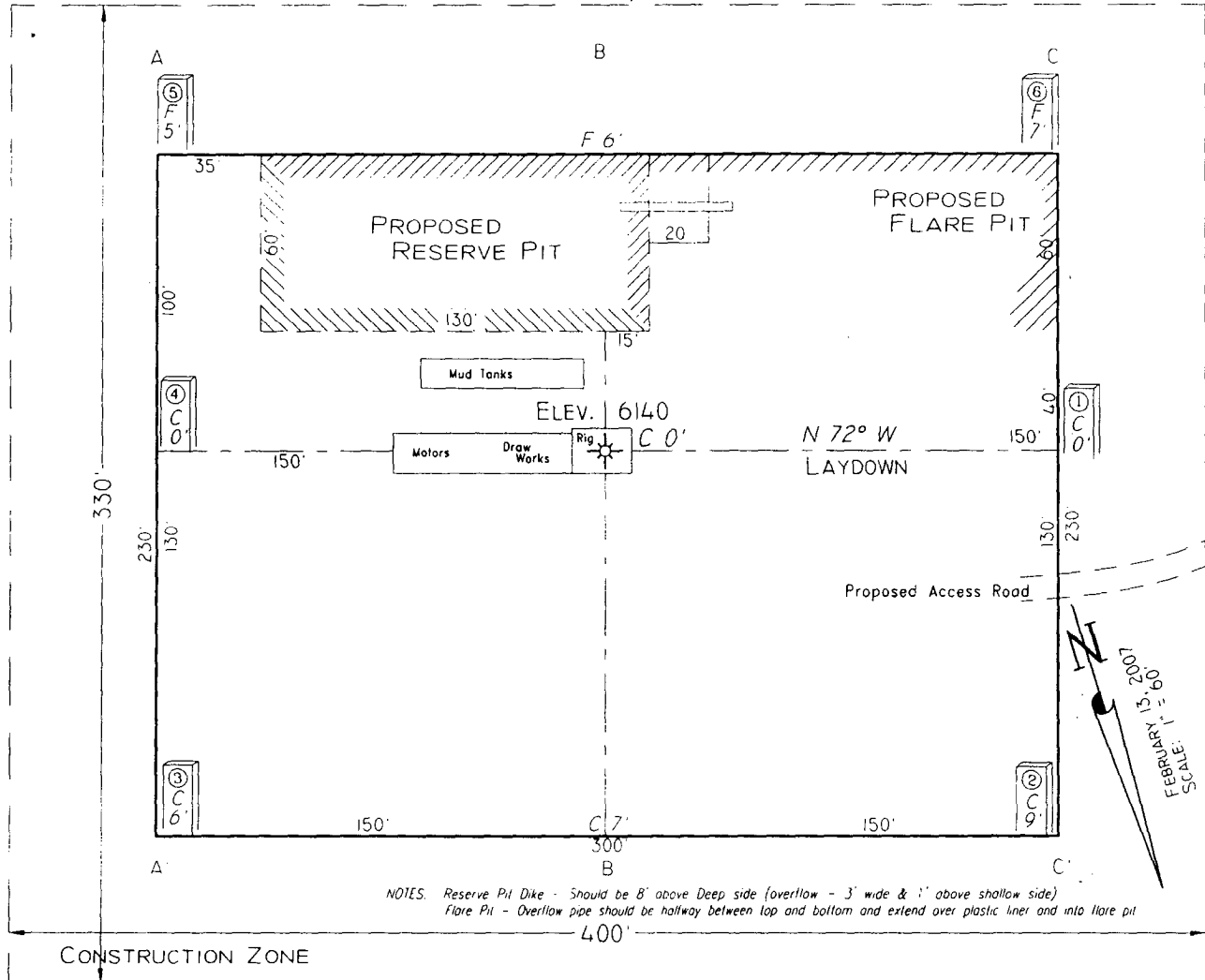
SIGNATURE Cherry Hlava TITLE Regulatory Analyst DATE 03/06/2007

Type or print name Cherry Hlava E-mail address: hlavacl@bp.com Telephone No. 281-366-4081
For State Use Only

APPROVED BY: [Signature] TITLE MINUTY OIL & GAS INSPECTOR, DIST. 4 DATE APR 16 2007
Conditions of Approval (if any):

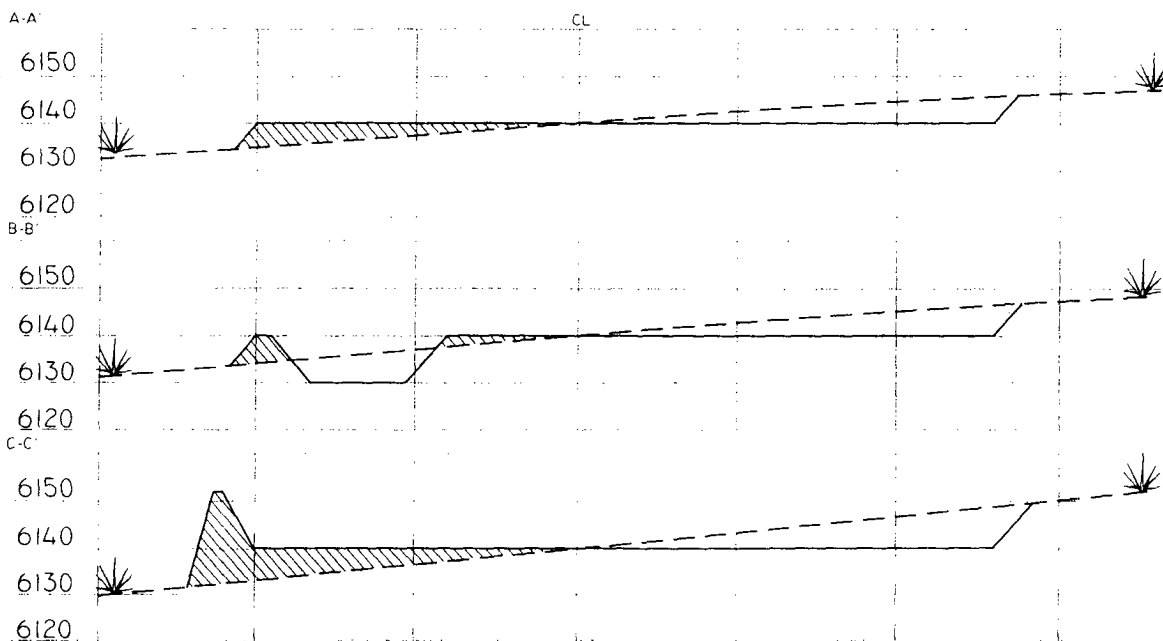
PAD LAYOUT PLAN & PROFILE
BP AMERICA PRODUCTION COMPANY
 Ludwick LS #17N
 2300' F/SL 2155' F/EL
 SEC. 29, T30N, R10W, N.M.P.M.
 SAN JUAN COUNTY, NEW MEXICO

Lat: 36.78232°
 Long: 107.90609° (83)



Area of Construction Zone - 330'x400' or 3.03 acres, more or less.

SCALE: 1"=60'-HORIZ.
 1"=40'-VERT.



NOTE: Lat & Long are for mapping purposes only and are not to be relied upon for re-establishment of well location.

NOTE: Contractor should call One-Call for location of any marked or unmarked buried pipelines or cables on well pad and/or access road at least two (2) working days prior to construction.

Cuts and fills shown are approximate - final finished elevation is to be adjusted so earthwork will balance. Corner stakes are approximate and do not include additional areas needed for sideslopes and drainages. Final Pad Dimensions are to be verified by Contractor.

VANN SURVEYS
 P. O. Box 1306
 Farmington, NM

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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.*

FORM APPROVED
OMB No. 1004-0135
Expires November 30, 2000

SUBMIT IN TRIPLICATE – Other instructions on reverse side

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. SF - 078194
2. Name of Operator BP AMERICA PRODUCTION COMPANY		6. If Indian, Allottee or tribe Name 2007 MAR 12 PM 2:18
3a. Address PO BOX 3092 HOUSTON, TX 77253	3b. Phone No. 281-366-4081	7. If Unit or CA/Agreement, Name and/or No. RECEIVED
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 2200' FSL & 1890' FWL; SEC 29 T30N R10W NWSE		8. Well Name and No. Ludwick LS 17N
		9. API Well No. New Well
		10. Field and Pool, or Exploratory Area BASIN DAKOTA & BLANCO MESAVERDE
		11. County or Parish, State SAN JUAN, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OR 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"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Water Disposal
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water shut-Off
			<input type="checkbox"/> Well Integrity
			<input checked="" type="checkbox"/> Other Change Surface Location

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.

The original APD was submitted on 10/11/2006. No approval was granted due to cactus at the original location. BP respectfully request permission to move the surface location from 2200' South & 1890' East to a new location suggested by the BLM.

New Location: ^{FSL} 2300' South & ^{FEL} 2155' East.

A Non-Standard application has been submitted to the NMOCD in Santa Fe. Please see supporting documents.

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

Cherry Hlava

Title Regulatory Analyst

Signature

Cherry Hlava

Date 03/06/2007

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by <i>[Signature]</i>	Title <i>AT-4</i>	Date <i>4/11/07</i>
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 <i>FFU</i>	

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.

NMOCD

BP AMERICA PRODUCTION COMPANY

DRILLING AND COMPLETION PROGRAM

7/17/2006 Revised 02/26/2007

Lease:	Ludwick LS	Well Name & No.	Ludwick LS #17N	Field:	Blanco Mesaverde/Basin Dakota
County:	San Juan, New Mexico	Surface Location:	29-30N-10W: 2300' FSL, 2155' FEL		
Minerals:	Federal	Surface:	Lat: 36.7822107 deg; Long: -107.9056420 deg		
Rig :	H&P 306	BH Location:	same		

OBJECTIVE: Drill 240' below the top of the Two Wells Mbr, set 4-1/2" production liner, Stimulate DK, MF, and PL intervals.

METHOD OF DRILLING		APPROXIMATE DEPTHS OF GEOLOGICAL MARKER			
TYPE OF TOOLS	DEPTH OF DRILLING	Actual GL: 6143	Estimated KB: 6,157.0'		
Rotary	0 - TD	Marker	SUBSEA	TVD	APPROX. MD
LOG PROGRAM		Ojo Alamo	4,878'	1,279'	1,279'
Type	Depth Interval	Kirtland	4,726'	1,431'	1,431'
Single Run		Fruitland	4,142'	2,015'	2,015'
		Fruitland Coal	3,807'	2,350'	2,350'
		Pictured Cliffs	3,552'	2,605'	2,605'
		Lewis	3,310'	2,847'	2,847'
		Cliff House	2,025'	4,132'	4,132'
Cased Hole	TD to 7" shoe	Menefee	1,734'	4,423'	4,423'
RST- CBL		Point Lookout	1,225'	4,932'	4,932'
	Identify 4 1/2" cement top				

REMARKS:		Mancos	839'	5,318'	5,318'
		Greenhorn	-738'	6,895'	6,895'
		Graneros (bent,mkr)	-787'	6,944'	6,944'
		Two Wells	# -846'	7,003'	7,003'
The recommended TD is intended to penetrate the ENCN (~30') in order to evaluate, and possibly produce it. Offsetting wells encountered no water flow at this depth. See attached cross-section.		Paguate	# -921'	7,078'	7,078'
		Cubero	# -980'	7,137'	7,137'
		L. Cubero	# -1,014'	7,171'	7,171'
		Encinal Cyn	# -1,053'	7,210'	7,210'
The intermediate casing should be set 100 ft. into the MENF to minimize the risks encountered drilling through the possibly water productive CLFH.		TOTAL DEPTH:	-1,086'	7,243'	7,243'
		# Probable completion interval		* Possible Pay	

SPECIAL TESTS		DRILL CUTTING SAMPLES		DRILLING TIME	
TYPE		FREQUENCY	DEPTH	FREQUENCY	DEPTH
None		30'/10' intervals	4,523' to TD	Geolograph	0 - TD

REMARKS:					
MUD PROGRAM:					
Interval	TypeMud	#/gal	Vis, sec/qt	/30 min	Other Specification
200'	Spud	8.8 - 9.0	Sufficient to clean hole.		
4,523'	Water/LSND	8.4 - 9.0		<9	Sweep hole while whilst water drilling, LCM onsite
7,243'	Air	1	1000 cfm for hammer		Volume sufficient to maintain a stable and clean wellbore

CASING PROGRAM:							
CasingString	Depth	Size	Casing Size	Grade, Thread	Weight	Landing Point	Cement
Surface/Conductor	200'	13 1/2"	9-5/8"	H-40 ST&C	32#		cmt to surface
Intermediate	0' - 4000'	8-3/4"	7"	J/K-55 ST&C	20#		
Intermediate	4000' - 4523'	8 3/4"	7"	N-80 ST&C	23#	100' below MENF	cmt to surface
Production	7,243'	6-1/4"	4-1/2"	J-55	11.6#	DKOT	150' inside Intermediate - TOC survey required

CORING PROGRAM:							
None							

COMPLETION PROGRAM:							
Rigless, 2-3 Stage Limited Entry Hydraulic Frac, FMC Unihead							

GENERAL REMARKS:							
Notify BLM/NMOCDD 24 hours prior to Spud, BOP testing, and Casing and Cementing.							

BOP Pressure Testing Requirements							
Formation	Depth	Anticipated bottom hole pressure			Max anticipated surface pressure**		
Cliffhouse	4,132'	500			0		
Point Lookout	4,932'	600			0		
Dakota	7,003'	2600			1059.34		

Requested BOP Pressure Test Exception = 1500 psi ** Note: Determined using the following formula: ABHP - (.22"TVDD) = ASP

Form 46 Reviewed by:		Logging program reviewed by:		DATE:		APPROVED:		DATE:	
PREPARED BY:		APPROVED:		DATE:		APPROVED:		DATE:	
HGJ	JMP			17/2006 Revised 02/26/20					
Form 46 7-84bw		For Drilling Dept.				For Production Dept.			

Cementing Program

Well Name: Ludwick LS #17N
 Location: 29-30N-10W: 2300' FSL, 2155' FEL
 County: San Juan
 State: New Mexico

Well Flac
 Formation: Blanco Mesaverde/Basin Dakota
 KB Elev (est) 6157
 GL Elev. (est) 6143

Casing Program:

Casing String	Est. Depth (ft.)	Hole Size (in.)	Casing Size (in.)	Thread	TOC (ft.)	Stage Tool Or TOL (ft.)	Cmt Cir. Out (bbl.)
Surface	200	13.5	9.625	ST&C	Surface	NA	
Intermediate	4523	8.75	7	LT&C	Surface	NA	
Production -	7243	6.25	4.5	ST&C	4423	NA	

Casing Properties:

(No Safety Factor Included)								
Casing String	Size (in.)	Weight (lb/ft)	Grade	Burst (psi.)	Collapse (psi.)	Joint St. (1000 lbs.)	Capacity (bbl/ft.)	Drift (in.)
Surface		9.625	32 H-40	2270		1400	254	0.0787
Intermediate		7	20 & 23 K-55 & N80	3740		2270	234	0.0405
Production -		4.5	11.6 P-110	10690		7560	279	0.0155

Mud Program

Apx. Interval (ft.)	Mud Type	Mud Weight	<u>Recommended Mud Properties Prio Cementing:</u>	
			PV	<20
			YP	<10
			Fluid Loss	<15
0 - SCP	Water/Spud	8.6-9.2		
SCP - ICP	Water/LSND	8.6-9.2		
ICP - ICP2	Gas/Air Mist	NA		
ICP2 - TD	LSND	8.6 - 9.2		

Cementing Program:

	Surface	Intermediate	Production
Excess %, Lead	100	75	40
Excess %, Tail	NA	0	40
BHST (est deg. F)	75	120	183
Special Instructions	1,6,7	1,6,8	2,4,6

1. Do not wash pumps and lines.
2. Wash pumps and lines.
3. Reverse out
4. Run Blend Test on Cement
5. Record Rate, Pressure, and Density on 3.5" disk
6. Confirm densitometer with pressurized mud scales
7. 1" cement to surface if cement is not circulated.
8. If cement is not circulated to surface, run temp. survey 10-12 hr. after landing plug.

Notes:

*Do not wash up on top of plug. Wash lines before displacing production cement job to minimize drillout.

Surface:

Preflush	20 bbl.	FreshWater	
Slurry 1	154 sx Class C Cement		195 cuft
TOC@Surface	+ 2% CaCl2 (accelerator)		
			0.4887 cuft/ft OH

Slurry Properties:	Density (lb/gal)	Yield (ft ³ /sk)	Water (gal/sk)
Slurry 1	15.2	1.27	5.8

Casing Equipment:	9-5/8", 8R, ST&C
	1 Guide Shoe
	1 Top Wooden Plug
	1 Autofill insert float valve
	Centralizers, 1 per joint except top joint
	1 Stop Ring
	1 Thread Lock Compound

Cementing Program

Intermediate:

Fresh Water	20 bbl	fresh water	
Lead		396 sx Class "G" Cement	1040 cuft
Slurry 1		+ 3% D79 extender	
TOC@Surface		+ 1/4 #/sk. Cellophane Flake	
		+ 5 lb/sk Gilsonite	
Tail		59 sx 50/50 Class "G"/Poz	75 cuft
Slurry 2		+ 2% gel (extender)	
500 ft fill		+ 1/4 #/sk. Cellophane Flake	0.1503 cuft/ft OH
		+ 2% CaCl2 (accelerator)	0.1746 cuft/ft csg ann
		+ 5 lb/sk Gilsonite	

Slurry Properties:	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)
Slurry 1	11.4	2.63	15.8
Slurry 2	13.5	1.27	5.72

Casing Equipment: 7", 8R, ST&C

1 Float Shoe (autofill with minimal LCM in mud)
 1 Float Collar (autofill with minimal LCM in mud)
 1 Stop Ring
 Centralizers one in middle of first joint, then every third collar
 1 Top Rubber Plug
 1 Thread Lock Compound

Production:

Fresh Water	10 bbl	CW100	
Lead		84 LiteCrete D961 / D124 / D154	211 cuft
Slurry 1		+ 0.03 gps D47 antifoam	
TOC, 150' above 7" shoe		+ 0.5% D112 fluid loss	
		+ 0.11% D65 TIC	
Tail		142 sx 50/50 Class "G"/Poz	205 cuft
Slurry 2		+ 5% D20 gel (extender)	
1425 ft fill		+ 0.1% D46 antifoam	
		+ 1/4 #/sk. Cellophane Flake	
		+ 0.25% D167 Fluid Loss	
		+ 5 lb/sk Gilsonite	
		+ 0.1% d800, retarder	
		+ 0.15% D65, dispersant	
			0.1026 cuft/ft OH
Slurry Properties:	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)
Slurry 1	9.5	2.52	6.38
Slurry 2	13	1.44	6.5
			Top of Mancos
			5318

Casing Equipment: 4-1/2", 8R, ST&C

1 Float Shoe (autofill with minimal LCM in mud)
 1 Float Collar (autofill with minimal LCM in mud)
 1 Stop Ring
 Centralizers, every 4th joint in mud drilled holes, none in air drilled holes.
 1 Top Rubber Plug
 1 Thread Lock Compound

BP American Production Company

Well Control Equipment Schematic

