

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -
1220 South St. Francis Drive, Santa Fe, NM 87505



*Chesapeake
PLU Big Sinks 19 24 31
USA # 1H*

ADMINISTRATIVE APPLICATION CHECKLIST

30-015-40261

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

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]

*amend
NSL-6578*

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
 [A] Location - Spacing Unit - Simultaneous Dedication
 NSL NSP SD

*Chesapeake operating, INC.
OGRID: 147179
Name: PLU Big Sinks 1924-31 1Y
located 19 24 31 140'FWL 1980'FWL*

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.

_____ Print or Type Name	_____ Signature	_____ Title	_____ Date
_____ e-mail Address			



July 6, 2012

VIA HAND DELIVERY

Jami Bailey
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

2012 JUL -6 P 2:51
RECEIVED OOD

Re: Application of Chesapeake Operating, Inc. to Amend NSL-6578 to reflect name change and change of surface location for its PLU Big Sinks 19 24 31 USA 1H well in the Bone Spring Pool Section 19, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico.

Dear Ms. Bailey:

Chesapeake Operating, Inc. (OGRID No. 147179) hereby seeks administrative approval to amend NSL-6578, attached hereto. The NSL approved a surface location for the PLU Big Sinks 19 24 31 USA No. 1H well 150 FNL and 1980 FWL of Section 19. While drilling the bit became stuck at 118 feet. As a consequence, the rig was skidded 10 feet to the north and renamed PLU Big Sinks 19 24 31 USA 1Y. Also attached to this letter for your reference is sundry notice filed with the BLM, reflecting the rig skid and the BLM's approval. The change in surface location will not alter the location of the first perforations. Thus, the new surface location will not further encroach upon any operator or lease to the North. Accordingly, no additional notice is necessary.

To ensure that the records accurately reflect these changes, Chesapeake requests that the Division amend NSL-6578 to reflect the new name and the new surface location. The new surface location should be 140 FNL and 1980 FWL of Section 19.

Your attention to this application is appreciated.

Sincerely,

Adam G. Rankin
ATTORNEY FOR CHESAPEAKE OPERATING, INC.

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez,
Governor

John H. Bemis
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division



March 30, 2012

Chesapeake Operating, Inc.
c/o Holland & Hart LLP
Attn: Mr. Adam G. Rankin

ADMINISTRATIVE NON-STANDARD LOCATION ORDER

Administrative Order NSL-6578
Administrative Application Reference No. pTWG12-06030077

Chesapeake Operating, Inc.
OGRID 147179
PLU Big Sinks 19-24 31 USA Well No. 1H
API No. 30-015

Proposed Location:

	<u>Footages</u>	<u>Unit</u>	<u>Sec.</u>	<u>Township</u>	<u>Range</u>	<u>County</u>
Surface	150 FNL & 1980 FWL	C	19	24S	31E	Eddy
Penetration Point	330 FNL & 1980 FWL	C	19	24S	31E	Eddy
Terminus	100 FSL & 1980 FWL	N	19	24S	31E	Eddy

Proposed Project Area:

<u>Description</u>	<u>Acres</u>	<u>Pool</u>	<u>Pool Code</u>
E/2 W/2 of Section 19	162.38	Wildcat Bone Spring	

Reference is made to your application received on February 28, 2012.

You have requested to drill this horizontal well at an unorthodox oil well location described above in the referenced pool or formation. This location is governed by statewide Rule 15.9.A [19.15.15.9.A NMAC], which provides for 40-acre units, with wells located at least 330 feet from a unit outer boundary, and Rule 15.16.14.B(2) [19.15.16.14.B(2) NMAC] concerning directional wells in designated project areas. This location is unorthodox because portions of the proposed-completed interval are less than 330 feet from an outer boundary of the project area.

Your application has been duly filed under the provisions of Division Rules 15.13 [19.15.15.13 NMAC] and 4.12.A(2) [19.15.4.12.A(2) NMAC].

March 30, 2012

Page 2

It is our understanding that you are seeking this location for engineering reasons, in order to maximize the productive length of the wellbore lateral within the producing area.

It is also understood that you have given due notice of this application to all operators or owners who are "affected persons," as defined in Rule 4.12.A(2), in all adjoining units towards which the proposed location encroaches.

Pursuant to the authority conferred by Division Rule 15.13.B, the above-described unorthodox location is hereby approved.

This approval is subject to your being in compliance with all other applicable Division rules, including, but not limited to Division Rule 5:9 [19.15.15.9 NMAC].

Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

Sincerely,



Jami Bailey
Director

JB/db

cc: New Mexico Oil Conservation Division -- Artesia
United States Bureau of Land Management

DATE: 7.29.12	SUSPENSE	ENGINEER: DB	LOGGED IN: 2.29.12	TYPE: NSL	APP NO.: 1206030077
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505



Chesapeake 147174

PLU Big Smiles 192431 USA 114

ADMINISTRATIVE APPLICATION CHECKLIST

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6578

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- [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 _____

C-199845-315
 RECEIVED OOD
 2012 FEB 28 P 3:43
eddy

- [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.

Adam G. Rankin
 Print or Type Name

AG Rankin
 Signature

Attorney
 Title

2/28/12
 Date

agrankin@hollandhart.com
 e-mail Address

HOLLAND & HART



Adam G. Rankin
Associate
Phone 505-954-7294
Fax 505-983-6043
agrarkin@hollandhart.com

February 28, 2012

VIA HAND DELIVERY

Jami Bailey
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

RECEIVED OGD
2012 FEB 28 P 3:44

Re: Application of Chesapeake Operating, Inc. for administrative approval of an unorthodox well location for its PLU Big Sinks 19 24 31 USA 1H well in the Bone Spring Pool Section 19, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico.

Dear Ms. Bailey:

Chesapeake Operating, Inc. (OGRID No. 147179) hereby seeks administrative approval pursuant to the provisions of Division Rule 19.15.15.13 NMAC for an unorthodox well location for its PLU Big Sinks 19 24 31 USA No. 1H to be located in Section 19, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico. The proposed wildcat well is to be drilled at a surface location 150 feet from the North line with a penetration point 330 feet from the North line and approximately 1980 feet from the West line of Section 19. The bottom-hole location will be 100 feet from the South line and 1980 feet from the West line of Section 19. A 162.38-acre project area has been dedicated to this horizontal well comprised of the E/2 W/2 of Section 19.

Exhibit A is a land plat for Section 19 and surrounding sections that shows the proposed non-standard location of the PLU Big Sinks 19 24 31 USA No. 1H in relation to adjoining units and existing wells. This location is unorthodox because the Bone Spring formation under this acreage is governed by the Division's statewide rules which provide for wells on 40-acre spacing units to be located no closer than 330 feet to the outer boundary of the spacing unit. The bottom-hole location of this well will be located 100 feet from the South line of Section 19 for engineering reasons, and is, therefore, closer to the section line than allowed by Division rules.

Exhibit B is the Well Location and Acreage Dedication Plat (Form C-102), which shows that the proposed PLU Big Sinks 19 24 31 USA No. 1H well encroaches on the spacing and proration unit to the South.

Holland & Hart

Phone [505] 988-4421 Fax [505] 983-6043 www.hollandhart.com

110 North Guadalupe Suite 1 Santa Fe, NM 87501 Mailing Address P.O. Box 2208 Santa Fe, NM 87504-2208

Denver Aspen Boulder Colorado Springs Denver Tech Center Billings Boise Cheyenne Jackson Hole Las Vegas Salt Lake City Santa Fe Washington, D.C. O

HOLLAND & HART 

Chesapeake - USA 1H
February 28, 2012
Page 2

Exhibit C is a list of the affected parties. Pursuant to 19.15.4.12(A)(2)(c) NMAC, affected parties are those toward whom the non-standard location encroaches. Here, the proposed bottom-hole location encroaches on to the South. The affected lessee is BEPCO. A copy of this application with all attachments was mailed to the notice recipient.

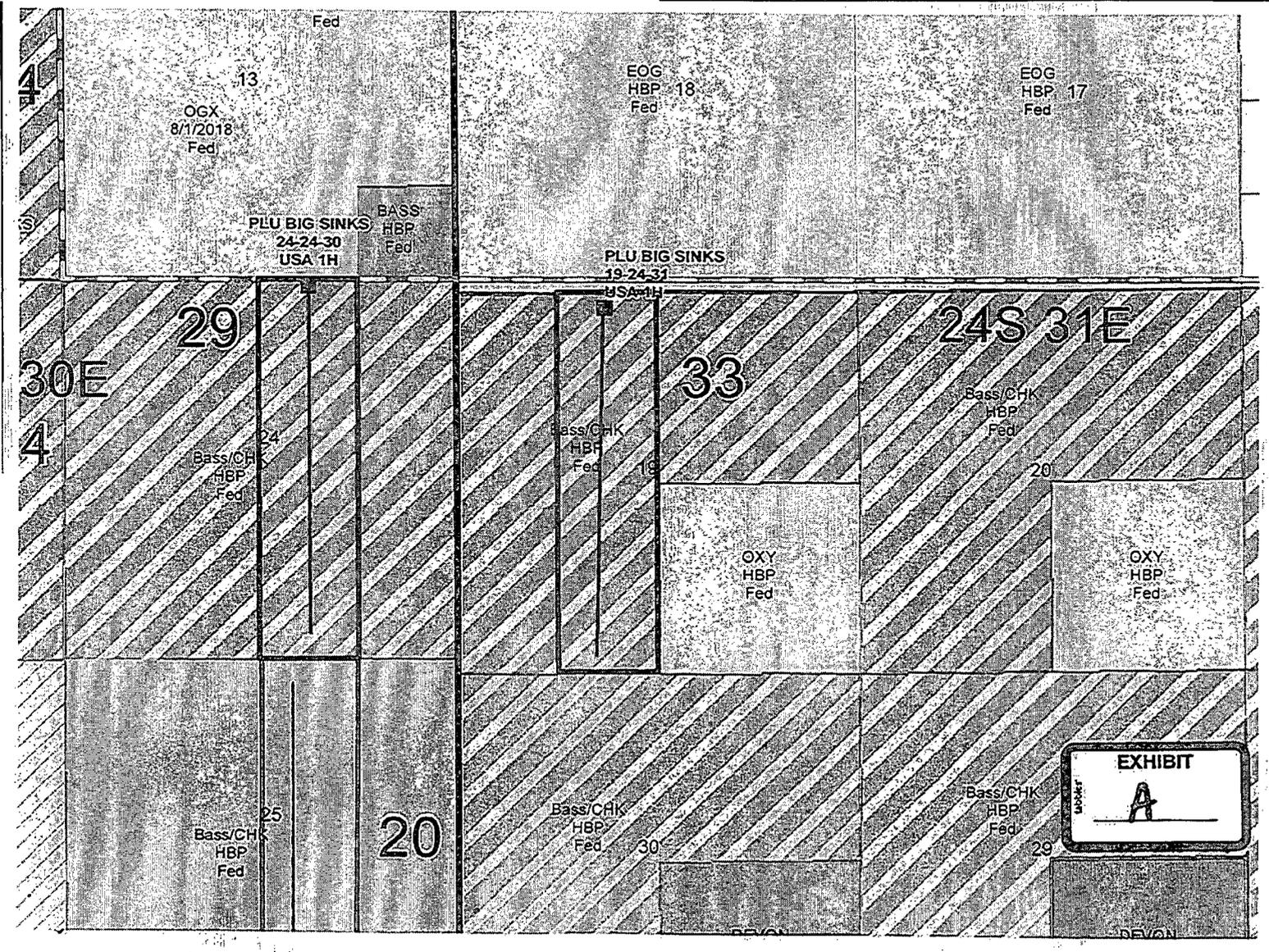
Your attention to this application is appreciated.

Sincerely,



Adam G. Rankin
ATTORNEY FOR CHESAPEAKE OPERATING, INC.

cc: Jerris Johnson



DISTRICT I
1010 W. French Dr., Austin, TX 78713
DISTRICT II
1011 W. French Dr., Austin, TX 78713
DISTRICT III
1000 E. Travis Rd., Austin, TX 78712
DISTRICT IV
1010 W. French Dr., Austin, TX 78713

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-100
Revised July 18, 2010

OIL CONSERVATION DIVISION
1880 South St. Francis Dr.
Santa Fe, New Mexico 87508

Submit one copy to appropriate District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number	Well Code	Well Name							
	98403	WILDCAT; RONE SPRING							
Property Code	Property Name	Well Number							
	PLU BIG SINKS 10 24 31 USA	1H							
OOPIID No.	Operator Name	Well Depth							
147170	CHESAPEAKE OPERATING CO.	3400'							
Surface Location									
UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	19	24 S	31 E		160	NORTH	1900	WEST	EDDY
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
N	19	24 S	31 E		100	SOUTH	1900	WEST	EDDY
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						
162.30									

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

1080' PENETRATION POINT 330' FNL & 1080' FVL Project Area Producing Area 3405.1' 3408.0' 1980'	SURFACE LOCATION Lot = 11 22 20111891' Long = 11 07 01093104' NISPC = E 700324.093 (UAD-85) Lot = 11 22 20111860' Long = 11 07 01093104' NISPC = E 700324.093 (UAD-27)	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and correct to the best of my knowledge and belief, and that this organization, either as a trustee, agent or authorized representative of the well owner, has caused a reliable and complete survey to be made of the well location and including the proposed system well location as shown on this plat and that all necessary permits and approvals required by the Division have been obtained. Signature: <i>Bryan Arant</i> Date: 02/03/2012 Printed Name: Bryan Arant Email Address: bryan.arant@chk.com
	EXPOSURE NO. 101 SURFACE LOCATION Lot = 11 22 20111810' Long = 11 07 01093104' NISPC = E 700324.093 (UAD-85) Lot = 11 22 20111860' Long = 11 07 01093104' NISPC = E 700324.093 (UAD-27)	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: 02/03/2012 Signature: <i>Jerry L. Jones</i> Printed Name: Jerry L. Jones Certificate No.: 7077 State of New Mexico Surveyor DASHI ANAYAYE 28034

Terminus



EXHIBIT C

**Chesapeake's NSL Application
PLU Big Sinks 19 24 31 USA No. 1H**

**BEPCO
201 Main Street, Suite 3100
Ft. Worth, Texas 76102**



Teresa Long
Assistant Landman - Permian District

February 14, 2012

Mr. Monty Montgomery
BEPCO
201 Main Street, Suite 3100
Ft. Worth, TX 76102

Re: Application of Chesapeake Operating, Inc. for administrative approval of an unorthodox well location for its PLU Big Sinks 19-24-31 USA 1H well in the Bone Spring Pool Section 19, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico.

Dear Mr. Montgomery:

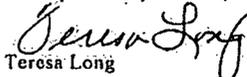
Chesapeake Operating, Inc. has submitted the above-referenced application to the New Mexico Oil Conservation Division for an unorthodox well location for its PLU Big Sinks 19-24-31 USA 1H well. This well is located in Section 19, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and is to be drilled horizontally in the Bone Spring pool at a surface location 150 feet from the North line and a penetration point 330 feet from the North line, and approximately 1980 feet from the West line of Section 19. The bottom-hole location will be 100 feet from the South line and 1980 feet from the West line of Section 19.

Division Rules provide that an application may be approved sooner if the applicant obtains waivers from affected parties. We therefore request your waiver of objection to this administrative application. We respectfully request you that you sign this letter and return it by e-mail or overnight delivery as soon as possible.

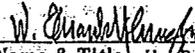
Thank you for your consideration of this matter. Should you wish to discuss, please feel free to call me at 405-935-9175.

Sincerely,

Chesapeake Exploration, L.L.C.


Teresa Long

BEPCO agrees to waive objection to Chesapeake Operating, Inc.'s application for an unorthodox well location for its PLU Big Sinks 19-24-31 USA 1H well.

By: 
Name & Title: W. Frank McCreight, Sr. Vice President

Date: 2-27-12

Chesapeake Energy Corporation
P.O. Box 18496 • Oklahoma City, OK 73154-0496 • 6100 N. Western Avenue • Oklahoma City, OK 73118
405-935-9175 • fax 405-935-4251 • teresa.long@chk.com



Adam G. Rankin
Phone 505-988-4421
Fax 505-983-6043
agrarkin@hollandhart.com

February 28, 2012

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

TO AFFECTED PARTIES

Re: Application of Chesapeake Operating, Inc. for administrative approval of an unorthodox well location for its PLU Big Sinks 19 24 31 USA 1H well in the Bone Spring Pool Section 19, Township 24 South, Range 31 East, N.M.P.M., Eddy County, New Mexico.

Ladies and Gentlemen:

Enclosed is a copy of the above-referenced application which was filed with the New Mexico Oil Conservation Division on this date by Chesapeake Operating Co. for administrative approval of an unorthodox well location for its PLU Big Sinks 19 24 31 USA Well No. 1H. The proposed wildcat well is to be drilled at a surface location 150 feet from the North line and a penetration point 330 feet from the North line, and approximately 1980 feet from the West line of Section 19. The bottom-hole location will be 100 feet from the South line and 1980 feet from the West line of Section 19.

As an owner of an interest that may be affected by the proposed well, you may object to this application. Objections must be filed in writing within twenty days from this date at the Division's Santa Fe office that is located at 1220 South Saint Francis Drive, Santa Fe, New Mexico, 87505. If no objection is received within this twenty-day period, this application for an unorthodox well location may be approved.

Sincerely,

Adam G. Rankin
ATTORNEY FOR CHESAPEAKE OPERATING, INC.

Enclosures

Holland & Hart
Phone (505) 988-4421 Fax (505) 983-6043 www.hollandhart.com
110 North Guadalupe Suite 1 Santa Fe, NM 87501 Mailing Address P.O. Box 2208 Santa Fe, NM 87504-2208
Denver Aspen Boulder Colorado Springs Denver Tech Center Billings Boise Cheyenne Jackson Hole Las Vegas Salt Lake City Santa Fe Washington, D.C. O

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No: 1004-0137
Expires: October 31, 2014

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.
NMNM25533 (SH) NMLC0617513 (BH)
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.
NMNM071016X

1. Type of Well
 Oil Well Gas Well Other

8. Well Name and No.
PLU BIG SINKS 19 24 31 USA 1H *1H*

2. Name of Operator
CHESAPEAKE AGENT FOR BOPCO

9. API Well No.

3a. Address
PO BOX 18496
OKLAHOMA CITY, OK 73154-0496

3b. Phone No. (include area code)
405-935-2896

10. Field and Pool or Exploratory Area
WILDCAT; BONE SPRING

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
(SH) 140' FNL & 1980 FWL NENW 19-24S-31E

11. County or Parish, State
EDDY, NM

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>Rig Skid</u>	
	<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.)

Confidential

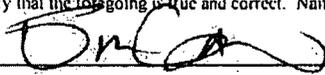
Chesapeake is requesting permissions to skid the rig 10' to the north for the PLU Big Sinks 19-24-31 USA 1H. Bit became stuck while drilling 30" hole at 118' in preparation for setting 20" conductor pipe at 120'. Hole was drilled without contacting ground water. Hole was filled with 30 cubic yards (810 cu ft) of ready mix cement. Cellar was then filled with dirt. Note to Wesley Ingram: Chris Gray was misinformed when he stated that we contacted ground water. The cellar was filled with water after plugging the hole, hence the confusion.

Attached you will find the Surface Use Plan and Drilling Plan as required by Onshore Order No.1, Exhibit A-1 to A-4 Survey plats, Exhibit B 1 mile radius plat, Exhibit C Production facility, Exhibit D Patterson Rig #62 layout, Exhibit E- Fresh Water Line, Exhibit F-1 to F-2 BOP & Choke Manifold and Exhibit G Directional Drill Plan.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

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

Erin Carson



Title Regulatory Compliance Technician III

Signature

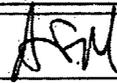
Date 05/10/2012

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by



Title



Date

5/10/12

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)

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

FORM APPROVED
O&G No. 1004-0137
Expires October 31, 2014

5. Lease Serial No. (SH) NMNM25533 (BH) LC061705B	
6. If Indian, Allottee or Tribe Name	
7. If Unit or CA Agreement, Name and No. NMNM071016X	
8. Lease Name and Well No. PLU BIG SINKS 19 24 31 USA <i>11/1</i>	
9. API Well No.	
1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER	10. Field and Pool, or Exploratory WILDCAT; BONE SPRING
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <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 19-24S-31E
2. Name of Operator CHESAPEAKE AGENT FOR BOPCO	
3a. Address PO BOX 18496 OKLAHOMA CITY, OK 73154-0496	3b. Phone No. (include area code) 405-935-2896
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 140' FNL & 1980' FWL NENW At proposed prod. zone 100' FSL & 1980' FWL SESW	
14. Distance in miles and direction from nearest town or post office* 30 MILES SE OF LOVING, NM	12. County or Parish EDDY
	13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 150' FNL	16. No. of acres in lease 2054.68
	17. Spacing Unit dedicated to this well 160.00
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 582 NE OF POGO PATTON 18 FEDERAL 6	19. Proposed Depth 14017 MD 9403 TVD
	20. BLM/BIA Bond No. on file ESB000159
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3495 GL	22. Approximate date work will start* 05/10/2012
	23. Estimated duration 30 DAYS

24. Attachments

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

- | | |
|--|---|
| 1. Well plan certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed Typed) Erin Carson	Date 05/10/2012
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Title
Regulatory Compliance Technician III

Approved by (Signature) 	Name (Printed Typed)	Date 5/10/12
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Title
Office **BLM Carlsbad Field Office**

Application approval 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.
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 to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

CARLSBAD CONTROLLED WATER BASIN

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

**APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED**

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chesapeake Operating Inc.
LEASE NO.:	NMLC061705B
WELL NAME & NO.:	PLU Big Sinks 19 24 31 USA 1Y
SURFACE HOLE FOOTAGE:	140' FNL & 1980' FWL
BOTTOM HOLE FOOTAGE:	100' FSL & 1980' FWL
LOCATION:	Section 19, T. 24 S., R. 31 E., NMPM
COUNTY:	Eddy County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
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- Construction**
 - Notification
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- Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- Interim Reclamation**
- Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:
Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 4 inches in depth. The topsoil will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty (20) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

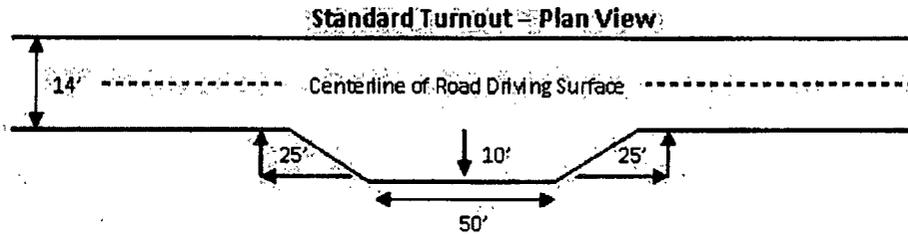
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

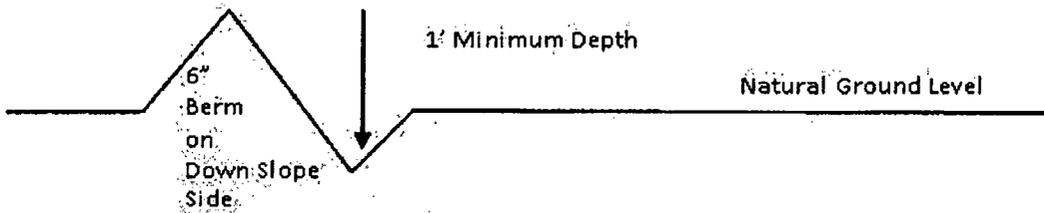


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

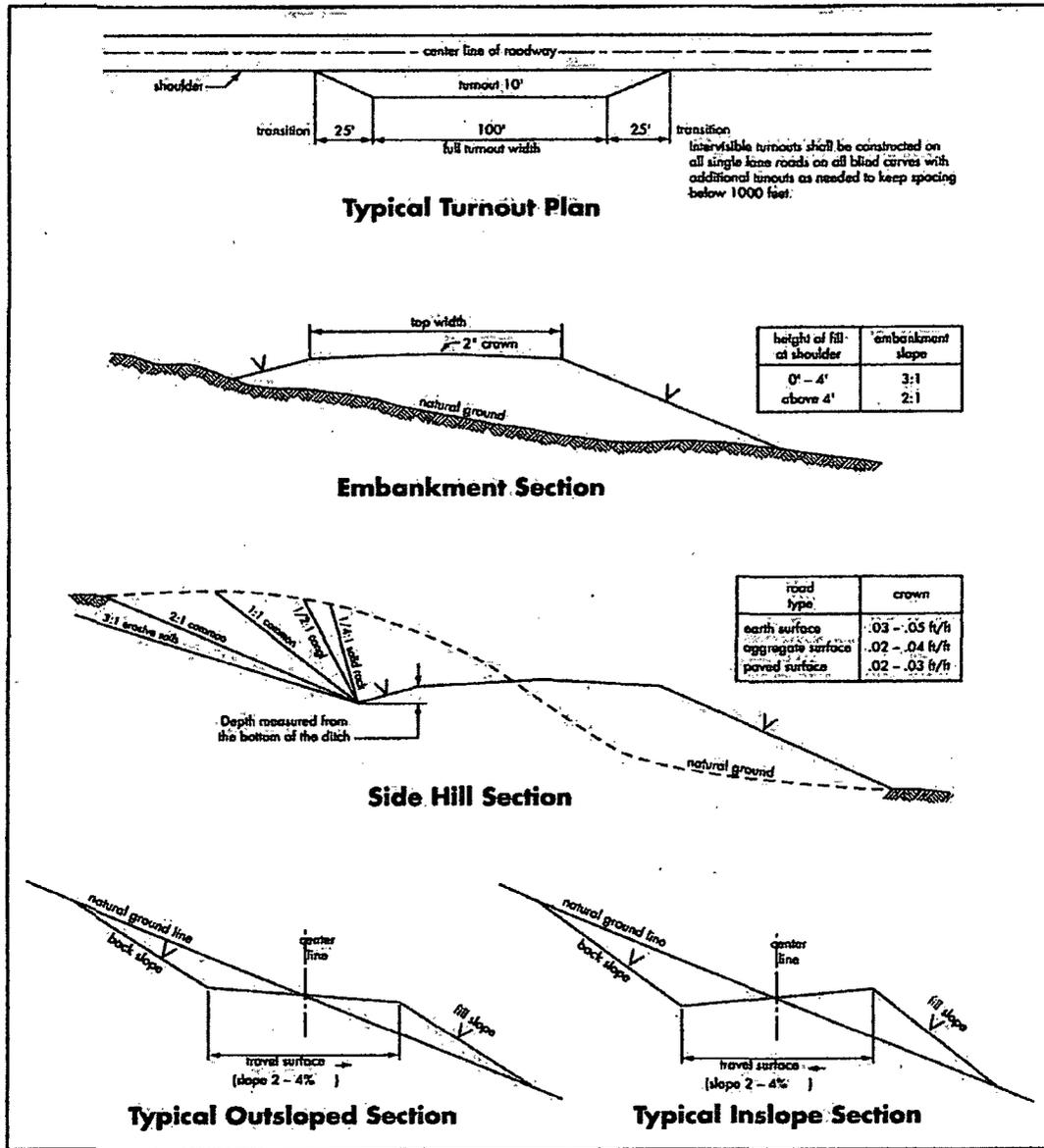
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#).

Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

**Possible water flows in the Castile, Salado, Delaware and Bone Springs Groups
Possible lost circulation in the Delaware and Bone Spring formations**

1. The 13-3/8 inch surface casing shall be set at **approximately 650 feet (below the Magenta Dolomite member of the Rustler Anhydrite and above the salt) and cemented to the surface.**
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is: **(Ensure casing is set in the base of the Castile or the Lamar at approximately 4200')**
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

The pilot hole plugging is approved as written.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - a. First stage to DV tool, cement shall:
 - Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.
 - b. Second stage above DV tool, cement shall:
 - Cement should tie-back at least **500** feet into previous casing string. Operator shall provide method of verification.
4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi. Operator installing a 5M and testing as a 3M.**
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
- b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- c. The results of the test shall be reported to the appropriate BLM office.
- d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion 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.

CRW 040412

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

Temporary Freshwater Pipelines (Fracturing Operations) CONDITIONS OF APPROVAL

Maintain a copy of your temporary permit and your approved route diagram on location. BLM personnel may request to see a copy of your permit during construction to ensure compliance with all conditions of approval.

Holder agrees to comply with the following conditions of approval to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this permit.

2. Standard Conditions of Approval:

- Temporary pipelines must be removed within 30-45 days from this route unless granted in writing by the authorized officer.
- Temporary pipelines flowing from the frac pond to the target well(s) will be laid along existing roadways unless an exception has been granted by the authorized officer.
- Pipe will be hand-carried and hand-laid along any cross country portion of the approved route.
- Areas impacted (disturbed greater than vegetation compaction) by your project may require full reclamation.

- Pipelines will be empty before disassembly. Flow water back to the pond whenever possible.
- Do not restrict traffic on existing roads. Place ramps where needed.
- Pipe will be placed not more than 2 feet off the edge of existing lease roads, 2-track roads, or buried pipeline corridors.
- All pumps will be placed on existing disturbance (pads, roads, etc.).

3. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer.

C. ELECTRIC LINES (not applied for in APD)

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed