

UNITED STATES **OCD-ARTESIA**  
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.  
NMNM 017222

6. If Indian, Allottee or Tribe Name

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

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator  
CHESAPEAKE OPERATING, INC.

ATTN: LINDA GOOD

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

8. Well Name and No.  
MOSAIC 34 FEDERAL 2H

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

3b. Phone No. (include area code)  
405-767-4275

9. API Well No.  
30-015- **35831**

10. Field and Pool or Exploratory Area  
UNDES. WILLOW LAKE

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

SHL 371' FSL 365' FEL, (SESE), BHL 330 FSL 2310 FWL (SESW) SECTION 34, T24S, R28E

11. Country or Parish, State  
EDDY COUNTY, NEW MEXICO

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input 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 checked="" 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 type="checkbox"/> Other _____
	<input checked="" 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 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.)

ATTACHED ARE NEW BOP SCHEMATICS AS REQUESTED.

ATTENTION WESLEY INGRAM

BLM NATIONWIDE BOND NM 2634

(CHK PN 615928)

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

Name (Printed/Typed)  
SHARON E. DRIES (405-879-7985)

Title SENIOR REGULATORY COMPLIANCE SPECIALIST

Signature

*Sharon E. Dries*

Date 08/07/2007

**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)

# BLOWOUT PREVENTOR SCHEMATIC

## CHESAPEAKE OPERATING INC

**WELL** : Mosaic 34 Federal 2H

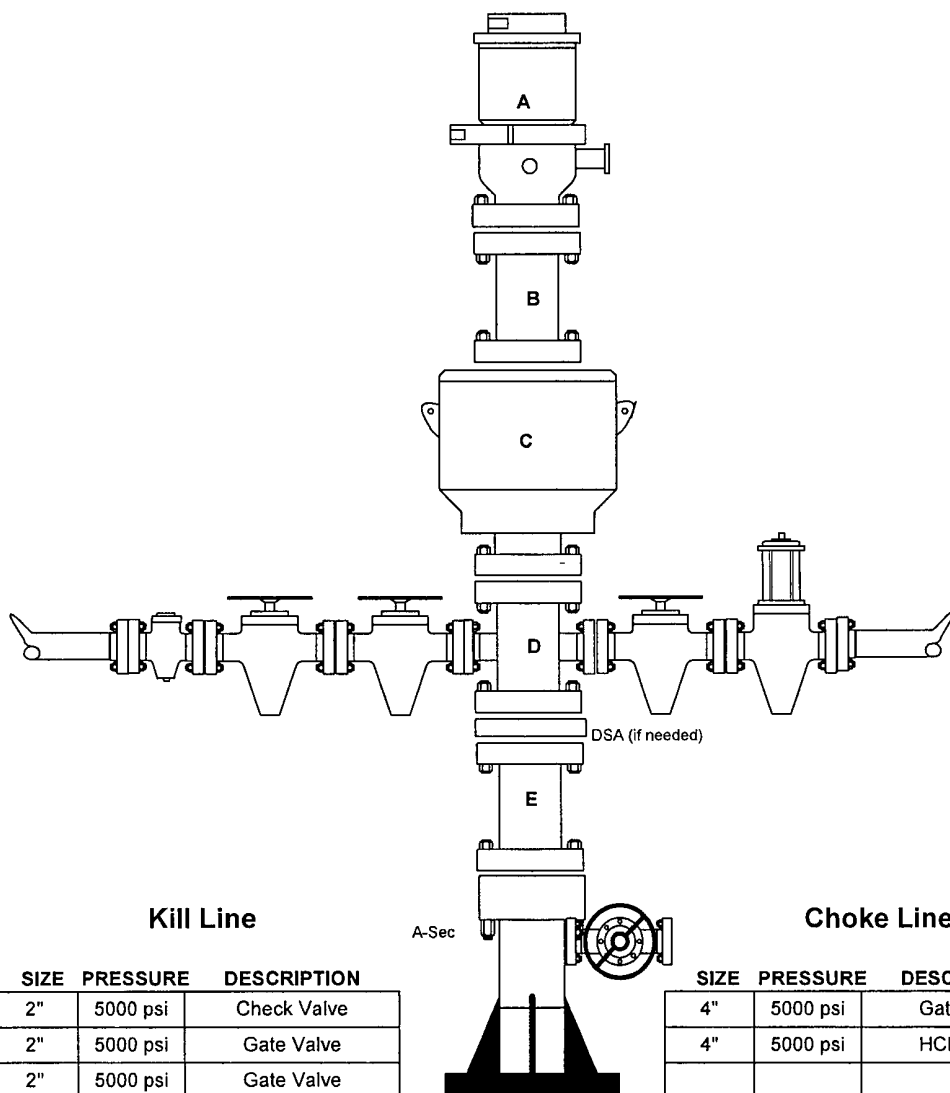
**RIG** : Forster 15

**COUNTY** : Eddy

**STATE:** New Mexico

**OPERATION:** Drill out below 13-3/8" Casing (11" hole size)

	SIZE	PRESSURE	DESCRIPTION
<b>A</b>	13-5/8"	500 psi	Rot Head
<b>B</b>	13-5/8"	2000 psi	Spacer Spool
<b>C</b>	13-5/8"	2000 psi	Annular
<b>D</b>	13-5/8"	2000 psi	Mud Cross
<b>E</b>	13-5/8"	2000 psi	Spacer Spool
DSA	13-5/8" 3M x 13-5/8" 2M (if needed)		
A-Sec	13-3/8" SOW x 13-5/8" 3M		



SIZE	PRESSURE	DESCRIPTION
2"	5000 psi	Check Valve
2"	5000 psi	Gate Valve
2"	5000 psi	Gate Valve

SIZE	PRESSURE	DESCRIPTION
4"	5000 psi	Gate Valve
4"	5000 psi	HCR Valve

# BLOWOUT PREVENTOR SCHEMATIC

## CHESAPEAKE OPERATING INC

WELL : Mosaic 34 Federal 2H

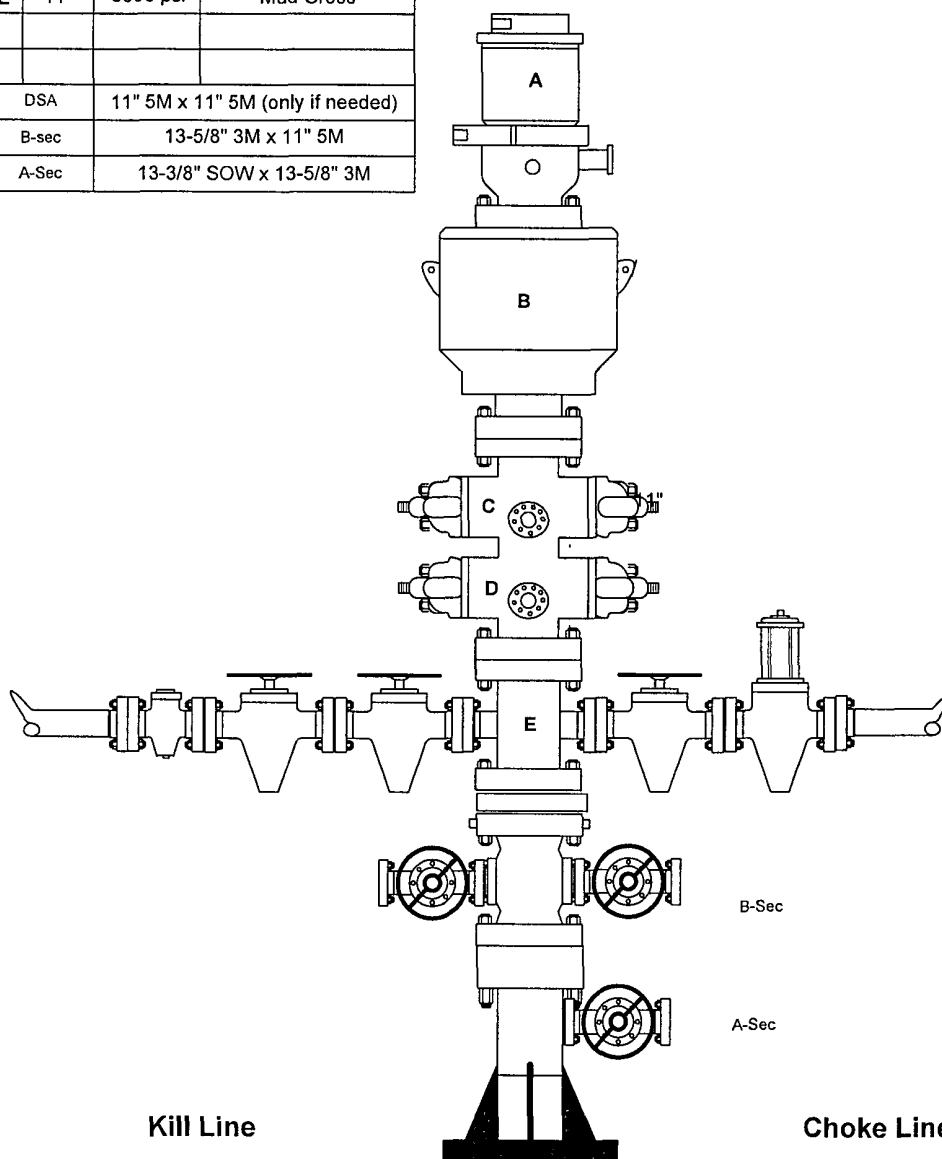
RIG : Forster 15

COUNTY : Eddy

STATE: New Mexico

OPERATION: Drill out below 8-5/8" Casing (7-7/8" hole size)

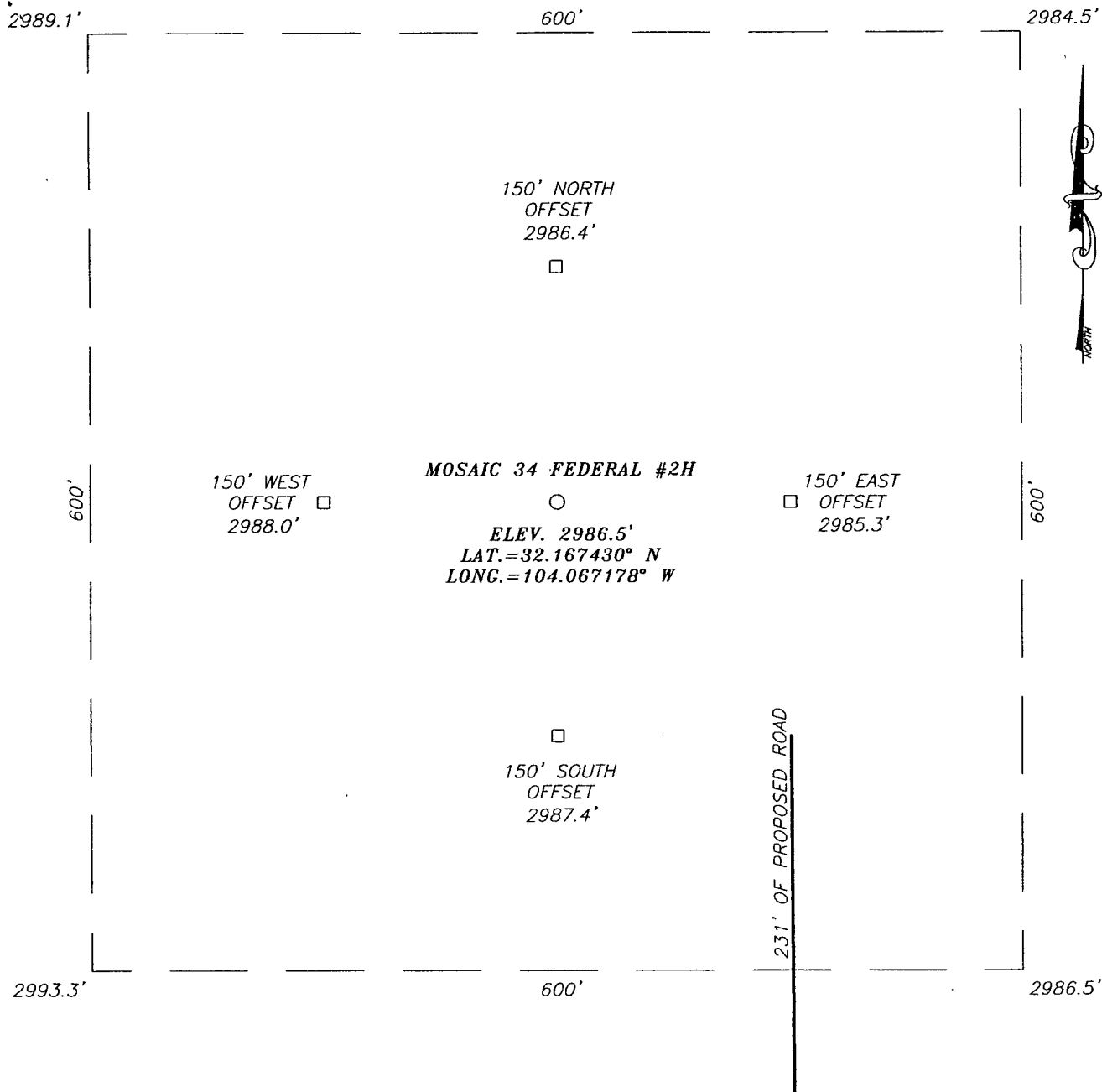
SIZE	PRESSURE	DESCRIPTION
A	11"	500 psi
B	11"	5000 psi
C	11"	5000 psi
D	11"	5000 psi
E	11"	5000 psi
DSA	11" 5M x 11" 5M (only if needed)	
B-sec	13-5/8" 3M x 11" 5M	
A-Sec	13-3/8" SOW x 13-5/8" 3M	



SIZE	PRESSURE	DESCRIPTION
2"	5000 psi	Check Valve
2"	5000 psi	Gate Valve
2"	5000 psi	Gate Valve

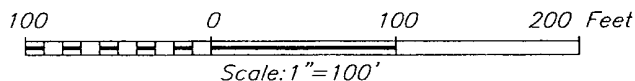
SIZE	PRESSURE	DESCRIPTION
4"	5000 psi	Gate Valve
4"	5000 psi	HCR Valve

SECTION 34, TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM MALAGA NEW MEXICO, GO SOUTH ON U.S. HWY. #285 FOR APPROX. 4.0 MILES. TURN LEFT AND GO EAST APPROX. 1200 FEET TO A PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY 231 FEET TO THIS LOCATION.



CHESAPEAKE OPERATING, INC.

MOASAIC 34 FEDERAL #2H  
LOCATED 371 FEET FROM THE SOUTH LINE  
AND 365 FEET FROM THE EAST LINE OF SECTION 34,  
TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.

Survey Date: 6/13/07	Sheet 1 of 1 Sheets
W.O. Number: 07.11.0735	Dr By. LA
Date: 6/18/07	Scale: 1"=100'

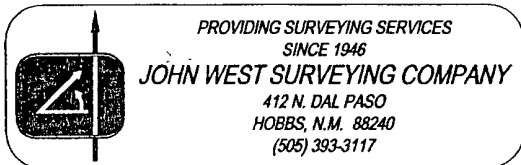
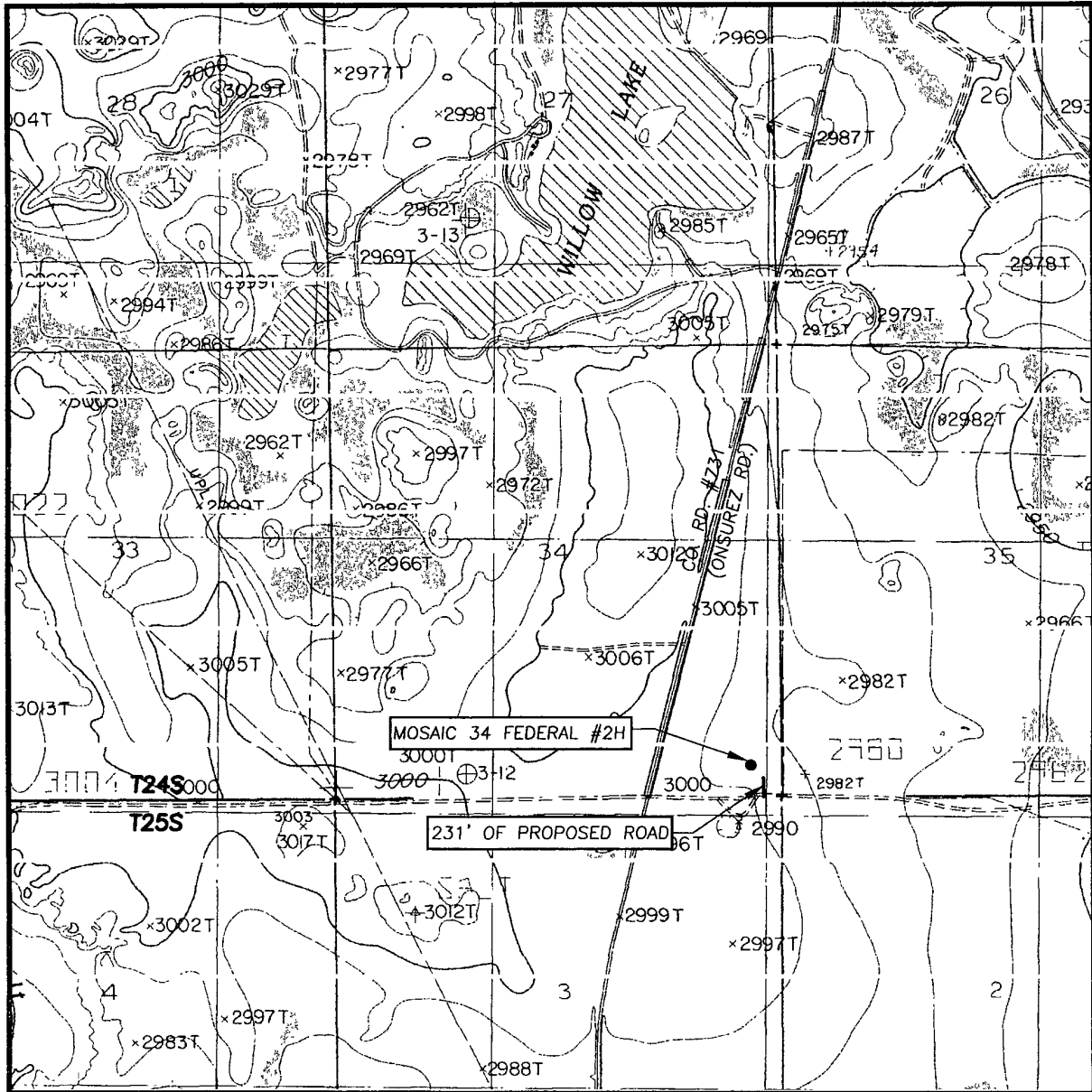


EXHIBIT A-2

# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:  
MALAGA, N.M. - 10'

SEC. 34 TWP. 24-S RGE. 28-E

SURVEY \_\_\_\_\_ N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 371' FSL & 365' FEL

ELEVATION 2987'

OPERATOR CHESAPEAKE  
OPERATING, INC.

LEASE MOSAIC 34 FEDERAL

U.S.G.S. TOPOGRAPHIC MAP  
MALAGA, N.M.

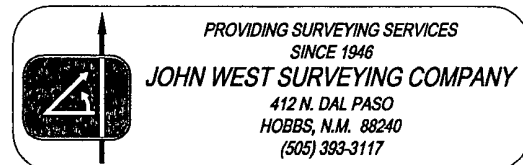


EXHIBIT A-4

Well Name **Mosaic 34 Fed 2H (34-24S-28E)**  
County **Eddy Co., NM**

Rig **Forster 15**  
Survey Co.

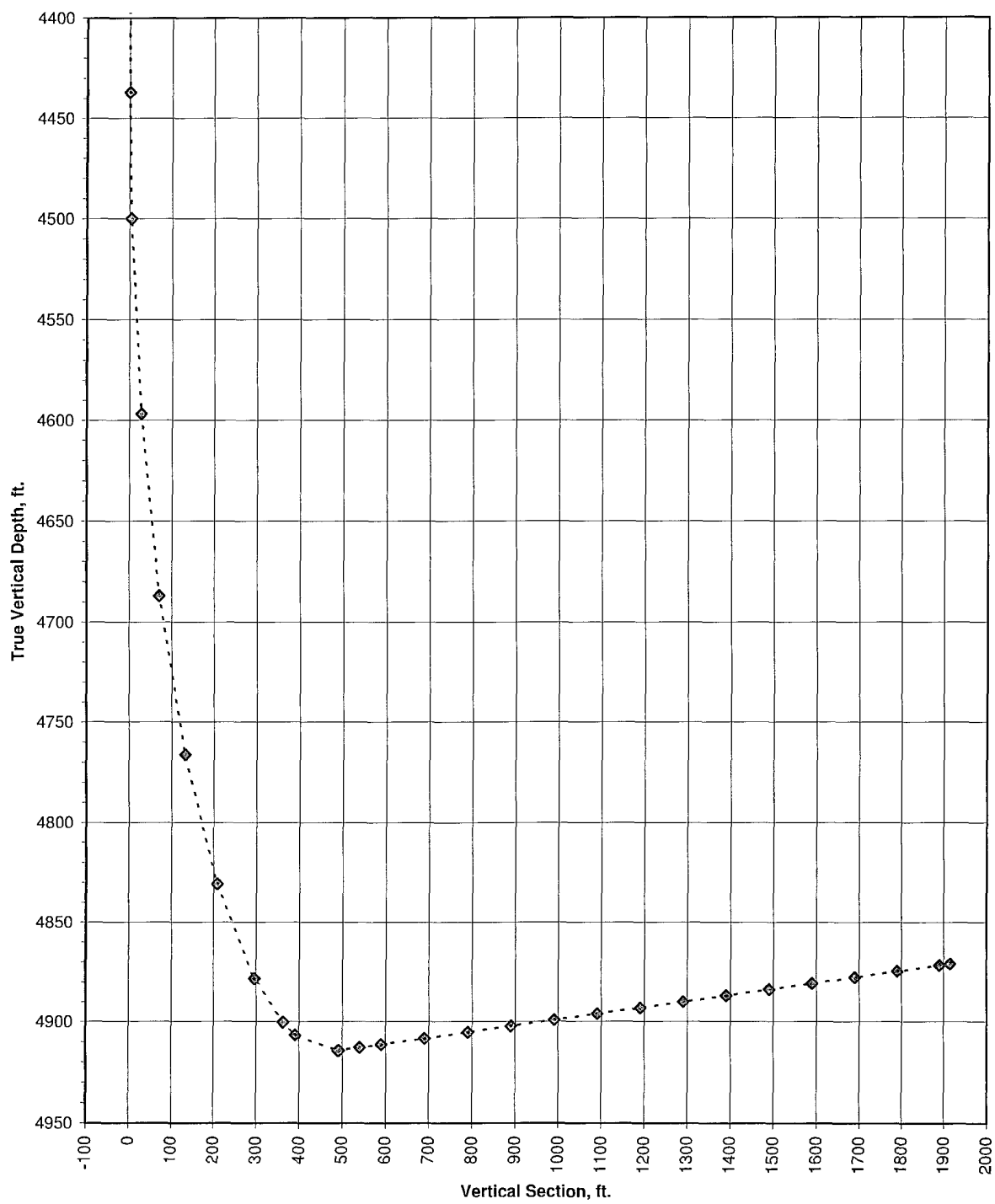
Target #1 0.00 KBTVD -1.75 Dip(- Up) 270 Section Plane  
Target #2 0.00 KBTVD 0.00 Dip(- Up) Section Plane  
Target #3 0.00 KBTVD 0.00 Dip(- Up) Section Plane

Surface Location:  
371' FSL & 365' FEL  
Target Lines are:  
371' FSL & 2280' FEL (stopping points)  
Hard Lines:  
330' FSL & 2310' FEL  
20' Window up/down & 50' north

Comments	Measured Depth	Inclination	Azimuth	Course Length	TVD	North (+) South (-)	East (+) West (-)	VS	BUR	DLS	FSL	FEL
Staked Surface Location	0	0.00	0.00	0	0	0	0.0	0.0			371.0	365.0
Est. Surface Casing Point	650	0.00	0.00	650	650	0.0	0.0	0.0	0.00	0.00	371.0	365.0
	1,000	0.00	0.00	350	1000	0.0	0.0	0.0	0.00	0.00	371.0	365.0
	2,000	0.00	0.00	1000	2000	0.0	0.0	0.0	0.00	0.00	371.0	365.0
Base of salt (2590' tvd)	2,590	0.00	0.00	590	2590	0.0	0.0	0.0	0.00	0.00	371.0	365.0
Est. Intermediate Casing Point	2,590	0.00	0.00	0	2590	0.0	0.0	0.0	0.00	0.00	371.0	365.0
Bell Canyon est. top (2639' tvd)	2,639	0.00	0.00	49	2639	0.0	0.0	0.0	0.00	0.00	371.0	365.0
	3,000	0.00	0.00	361	3000	0.0	0.0	0.0	0.00	0.00	371.0	365.0
	3,500	0.00	0.00	500	3500	0.0	0.0	0.0	0.00	0.00	371.0	365.0
Manzanita marker (3593' tvd)	3,593	0.00	0.00	93	3593	0.0	0.0	0.0	0.00	0.00	371.0	365.0
	4,000	0.00	0.00	407	4000	0.0	0.0	0.0	0.00	0.00	371.0	365.0
Est. max. KOP (12.0 deg /100' build rate)	4,437	0.00	0.00	437	4437	0.0	0.0	0.0	0.00	0.00	371.0	365.0
	4,500	7.56	270.00	63	4500	0.0	-4.2	4.2	12.00	12.00	371.0	369.2
	4,600	19.56	270.00	100	4597	0.0	-27.6	27.6	12.00	12.00	371.0	392.6
	4,700	31.56	270.00	100	4687	0.0	-70.6	70.6	12.00	12.00	371.0	435.6
	4,800	43.56	270.00	100	4766	0.0	-131.5	131.5	12.00	12.00	371.0	496.5
	4,900	55.56	270.00	100	4831	0.0	-207.4	207.4	12.00	12.00	371.0	572.4
	5,000	67.56	270.00	100	4878	0.0	-295.2	295.2	12.00	12.00	371.0	660.2
Willow Lake Horiz. est. top (4929' tvd @0' VS)	5,070	75.96	270.00	70	4900	0.0	-361.6	361.6	12.00	12.00	371.0	726.6
	5,100	79.56	270.00	30	4907	0.0	-390.9	390.9	12.00	12.00	371.0	755.9
	5,200	91.56	270.00	100	4914	0.0	-490.5	490.5	12.00	12.00	371.0	855.5
Willow Lake Horiz. target line (4929' tvd @0' VS)	5,201	91.68	270.00	1	4914	0.0	-491.5	491.5	12.00	12.00	371.0	856.5
End of Build (1.75 degrees updip)	5,202	91.75	270.00	1	4914	0.0	-492.0	492.0	12.00	12.00	371.0	857.0
Hold inclination until TD (stay legal)	5,202	91.75	270.00	0	4914	0.0	-492.5	492.5	0.00	0.00	371.0	857.5
	5,250	91.75	270.00	48	4913	0.0	-540.4	540.4	0.00	0.00	371.0	905.4
	5,300	91.75	270.00	50	4911	0.0	-590.4	590.4	0.00	0.00	371.0	955.4
	5,400	91.75	270.00	100	4908	0.0	-690.4	690.4	0.00	0.00	371.0	1055.4
	5,500	91.75	270.00	100	4905	0.0	-790.3	790.3	0.00	0.00	371.0	1155.3
	5,600	91.75	270.00	100	4902	0.0	-890.3	890.3	0.00	0.00	371.0	1255.3
	5,700	91.75	270.00	100	4899	0.0	-990.2	990.2	0.00	0.00	371.0	1355.2
	5,800	91.75	270.00	100	4896	0.0	-1090.2	1090.2	0.00	0.00	371.0	1455.2
	5,900	91.75	270.00	100	4893	0.0	-1190.1	1190.1	0.00	0.00	371.0	1555.1
	6,000	91.75	270.00	100	4890	0.0	-1290.1	1290.1	0.00	0.00	371.0	1655.1
	6,100	91.75	270.00	100	4887	0.0	-1390.0	1390.0	0.00	0.00	371.0	1755.0
	6,200	91.75	270.00	100	4884	0.0	-1490.0	1490.0	0.00	0.00	371.0	1855.0
	6,300	91.75	270.00	100	4881	0.0	-1590.0	1590.0	0.00	0.00	371.0	1955.0
	6,400	91.75	270.00	100	4878	0.0	-1690.0	1690.0	0.00	0.00	371.0	2055.0
	6,500	91.75	270.00	100	4875	0.0	-1790.0	1790.0	0.00	0.00	371.0	2155.0
	6,600	91.75	270.00	100	4872	0.0	-1890.0	1890.0	0.00	0.00	371.0	2255.0
Estimated TD (with EOW coordinates)	6,625	91.75	270.00	25	4871	0.0	-1915.0	1915.0	0.00	0.00	371.0	2280.0

EXHIBIT 6

Mosaic 34 Fed 2H  
(34-24S-28E)



**CHESAPEAKE OPERATING INC**  
**DIRECTIONAL PLANNING WORKSHEET**  
 CALCULATED USING MINIMUM CURVATURE METHOD

Well Name: Mosaic 34 Fed 2H (34-24S-28E, Eddy Co., NM)

Prepared By: RLP

	MD	Inc	AZ	TVD	N/S	E/W	VS
KOP:	4,437	0.00	0.00	4,437	0.00	0.00	0.00
Target:	4,929 @ 0' VS						
Dip:	-1.75 (- Updip / + Downdip)						
Azimuth:	270.00						Section Plane: 270.00
Proposed VS:	1,915						

Feather:                      %100'                      TVD                      (Vertical Feather Only)

	MD	Course Length	Inc	AZ	TVD	North(+) South(-)	East(+) West(-)	VS	BUR	DLS	Target Depth	Dist To Target
EOB	5,201	764	91.75	270.00	4,914	0.00	-491.97	491.97	12.00	12.00	4,914	0
EOF	5,201	0	91.75	270.00	4,914	0.00	-491.97	491.97	0.00	0.00	4,914	0
EOH	6,625	1,424	91.75	270.00	4,870	0.00	-1915.00	1915.00	0.00	0.00	4,870	0

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

ONSHORE OIL & GAS ORDER NO. 1  
Approval of Operations on Onshore  
Federal and Indian Oil and Gas Leases

1. EXISTING ROADS

- a. Existing county and lease roads will be used to enter proposed access road.
- b. Location, access, and vicinity plats attached hereto. See Exhibits A-1 to A-4.

2. PLANNED ACCESS ROADS

- a. A proposed access road 231' in length and 14' in travel way width with a maximum disturbance area of 30' will be used, and in accordance with guidelines set forth in the BLM Onshore Orders. No turnouts are expected.
- b. In order to level the location, cut and fill will be required. Please see attached Well Location and Acreage Dedication Plat – Exhibits A-1 to A-4.
- c. A locking gate will be installed at the site entrance.
- d. Any fences cut will be repaired. Cattle guards will be installed, if needed.
- e. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance.
- f. Driving directions are from Malaga New Mexico, go South on US Hwy #285 for approx. 4.0 miles. Turn left and go East approx. 1200' to a proposed road survey. Follow road survey 231' to this location.

3. LOCATION OF EXISTING WELLS WITHIN A 1-MILE RADIUS OF THE PROPOSED LOCATION – see Exhibit B.

4. LOCATION OF PRODUCTION FACILITIES

All gas measurement will be on the well pad of the Mosaic 34 Federal 2H. The production facility will be shared with the Mosaic 34 Federal 4H and all gas measurement for the 2H & 4H will be at this central battery. DCP meter will be the Mosaic 34 Fed 2H & 4H CDP. There will be a Primary overhead power line from Excel and a Secondary underground power line. – See Exhibit C-1 to C-2.

5. LOCATION AND TYPE OF WATER SUPPLY

Water will be obtained from a private water source. Chesapeake Operating, Inc. will ensure all proper notifications and filings are made with the state.

6. CONSTRUCTION MATERIALS

No construction materials will be used from Section 34-24S-28E. All material (i.e. shale) will be acquired from private or commercial sources.

7. METHODS FOR HANDLING WASTE DISPOSAL

A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill.

8. ANCILLARY FACILITIES

None

9. WELLSITE LAYOUT

The proposed site layout plat is attached showing Forster Drilling Rig #15 orientation and equipment location. See Exhibit D. Also see Exhibit A for the size of the pad.

10. PLANS FOR RECLAMATION OF THE SURFACE

The location will be restored to as near as original condition as possible. Reclamation of the surface shall be done in strict compliance with the existing New Mexico Oil Conservation Division regulations.

Backfilling leveling, and contouring are planned as soon as the drilling rig and steel tanks are removed. Wastes and spoils materials will be buried immediately after drilling is completed. If production is obtained, the unused area will be restored as soon as possible. The rehabilitation will begin after the drilling rig is removed.

11. MINERAL OWNERSHIP

United States of America  
Department of Interior  
Bureau of Land Management

SURFACE OWNERSHIP

I.M.C. Kalium  
P.O. Box 71  
Carlsbad, NM

(Chesapeake Operating, Inc. has an agreement with the surface owner.)

ONSHORE ORDER NO. 1  
Chesapeake Operating, Inc.  
Mosaic 34 Federal 2H  
SL: 371' FSL & 365' FEL  
BL: 330' FSL & 2310' FWL  
of Section 34-24S-28E  
Eddy County, NM

CONFIDENTIAL – TIGHT HOLE

Lease No. NMNM 17222

**SURFACE USE PLAN**

Page 3

12. ADDITIONAL INFORMATION

A Class III cultural resource inventory report was prepared by Boone Archaeological Services, Carlsbad, New Mexico for the proposed location. A copy of the report has been sent to the BLM office under separate cover and is also attached for reference. See Exhibit E.

**Chesapeake Operating, Inc. agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the lease lands.**

13. OPERATOR'S REPRESENTATIVES

**Drilling and Completion Operations**

Jarvis Hensley  
District Manager – Northern Permian  
P.O. Box 18496  
Oklahoma City, OK 73154  
(405) 879-7863 (OFFICE)  
(405) 879-9529 (FAX)  
[jhensley@chkenergy.com](mailto:jhensley@chkenergy.com)

**Sr. Drilling Engineer**

Randy Patterson  
P.O. Box 14896  
Oklahoma City, OK 73154  
(405) 767-4056 (OFFICE)  
(405) 767-4225 (FAX)  
(405) 388-9002 (MOBILE)  
[rpatterson@chkenergy.com](mailto:rpatterson@chkenergy.com)

**Sr. Field Representative**

Greg Coker  
P.O. Box 11050  
Midland, TX 79705  
432-687-2992 (OFFICE)  
432-687-3675 (FAX)  
[gcoker@chkenergy.com](mailto:gcoker@chkenergy.com)

**Assett Manager**

Andrew McCalmont  
P.O. Box 18496  
Oklahoma City, OK 73154-0496  
405-879-7852 (OFFICE)  
405-879-7930 (FAX)  
[amccalmont@chkenergy.com](mailto:amccalmont@chkenergy.com)

**Regulatory Compliance**

Linda Good  
Regulatory Compliance Analyst  
P.O. Box 18496  
Oklahoma City, OK 73154  
(405) 767-4275 (OFFICE)  
(405) 879-9583 (FAX)  
[lgood@chkenergy.com](mailto:lgood@chkenergy.com)

ONSHORE ORDER NO. 1  
Chesapeake Operating, Inc.  
Mosaic 34 Federal 2H  
SL: 371' FSL & 365' FEL  
BL: 330' FSL & 2310' FWL  
Section 34-24S-28E  
Eddy County, NM

CONFIDENTIAL – TIGHT HOLE  
Lease No. 17222

OPERATOR CERTIFICATION

PAGE 1

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Executed this 24 day of July, 2007.

Name: Henry J. Hood, Senior Vice President –  
Land and Legal & General Counsel

Address: P.O. Box 18496, Oklahoma City, OK 73154-0496

Telephone: 405-848-8000

Field Representative: Curtis Griffin

Telephone: 505-391-1462 Ext 6238

E-mail: cgriffin@chkenergy.com

## **Conditions of Approval Cave and Karst**

EA#: NM-520-07-1140

Lease #: NM-17222, NM-13074, NM-25953

**Chesapeake Operating, Inc.**

**Mosaic 34 Fed. #2H, #3H, #4H**

### **Cave/Karst Surface Mitigation**

The following stipulations will be applied to minimize impacts during construction, drilling and production.

#### **Berming:**

Any tank batteries will be constructed and bermed large enough to contain any spills that may occur.

Bermed areas will be lined with rip-stop padding to prevent tears or punctures in liners and lined with a permanent 20 mil plastic liner.

### **Cave/Karst Subsurface Mitigation**

The following stipulations will be applied to protect cave/karst and ground water concerns:

#### **Rotary Drilling with Fresh Water:**

Rotary drilling techniques in cave or karst areas will include the use of fresh water as a circulating medium in zones where caves or karst features are expected. Use depth to the deepest expected fresh water as listed in the geologist report.

#### **Directional Drilling:**

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone as identified in the geologic report.

#### **Casing:**

All casing will meet or exceed National Association of Corrosion Engineers specifications pertaining to the geology of the location and be run to American Petroleum Institute and BLM standards.

#### **Lost Circulation:**

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported.

Regardless of the type of drilling machinery used, if a void (bit drops) of four feet or more and circulation losses greater than 75 percent occur simultaneously while drilling in

any cave-bearing zone, drilling operations will immediately stop and the BLM will be notified by the operator. The BLM will assess the consequences of the situation and work with operator on corrective actions to resolve the problem.

**Abandonment Cementing:**

Upon well abandonment the well bore will be cemented completely from 100 feet below the bottom of the cave bearing zone to the surface.

**Record Keeping:**

The Operator will track customary drilling activities, including the rate of penetration, pump pressure, weight on bit, bit drops, percent of mud returns, and presence or absence of cuttings returning to the surface. As part of customary record keeping, each detectable void or sudden increase in the rate of penetration not attributable to a change in the formation type should be documented and evaluated as it is encountered.

- b. Wait on cement (WOC) time 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. (This is to include the lead cement).
  - 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 action will be done prior to drilling out that string.
- 2. The minimum required fill of cement behind the 8.625 inch intermediate casing is:
  - ☒ Cement to surface. If cement does not circulate see B.1.a-d above.
- 3. The minimum required fill of cement behind the 5.5 inch production casing is:
  - ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.
- 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. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.

- c. 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.
- d. 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.

**F. HAZARDS**

- 1. Our geologist has indicated that there is potential for lost circulation in the Triassic Red Beds and the Castile group.

Engineering can be reached at 505-706-2779 for variances.

FWright: 8/28/07 (date)