Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMLC0029435B

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.:

8. Lease Name and Well No.: RIKER FEDERAL 5H

2. Name of Operator: EOG RESOURCES INCORPORATED

9. API Well No.: 30 015 47359

3a. Address: 1111 Bagby Sky Lobby2 Houston TX 77002

3b. Phone No. *(include area code)*: (713)651-7000

10. Field and Pool, or Exploratory: CEDAR LAKE;GLORIETA-YESO / GLORI

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: SWSW / 911 FSL / 297 FWL / LAT 32.8587526 / LONG -103.9158193

At proposed prod. zone: SWSW / 1386 FSL / 100 FWL / LAT 32.8600099 / LONG -103.933649

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 6 / T17S / R31E / NMP

14. Distance in miles and direction from nearest town or post office*

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): 297 feet

16. No of acres in lease: 1885

17. Spacing Unit dedicated to this well: 320

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 400 feet

19. Proposed Depth: 5180 feet / 10434 feet

20. BLM/BIA Bond No. in file: FED: NM2308

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3724 feet

22. Approximate date work will start*: 07/01/2019

23. Estimated duration: 60 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature: (Electronic Submission)

Name *(Printed/Typed)*: Yolanda Maese / Ph: (575)748-4329

Date: 01/10/2019

Title: SR OPERATIONS ASSISTANT

Approved by *(Signature)*: (Electronic Submission)

Name *(Printed/Typed)*: Cody Layton / Ph: (575)234-5959

Date: 05/27/2020

Title: Assistant Field Manager Lands & Minerals

Office: CARLSBAD

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.

APPROVED WITH CONDITIONS

Approval Date: 05/27/2020

(Continued on page 2)

*(Instructions on page 2)

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources
Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

FORM C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ **AMENDED REPORT**

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1]API Number	[2]Pool Code	[3]Pool Name
30 015 47359	96831	Cedar Lake; Glorieta-Yeso

[4]Property Code	[5]Property Name	[6]Well Number
329306	RIKER FEDERAL	5H

[7]OGRID No.	[8]Operator Name	[9]Elevation
7377	EOG RESOURCES, INC.	3724'

[10]Surface Location

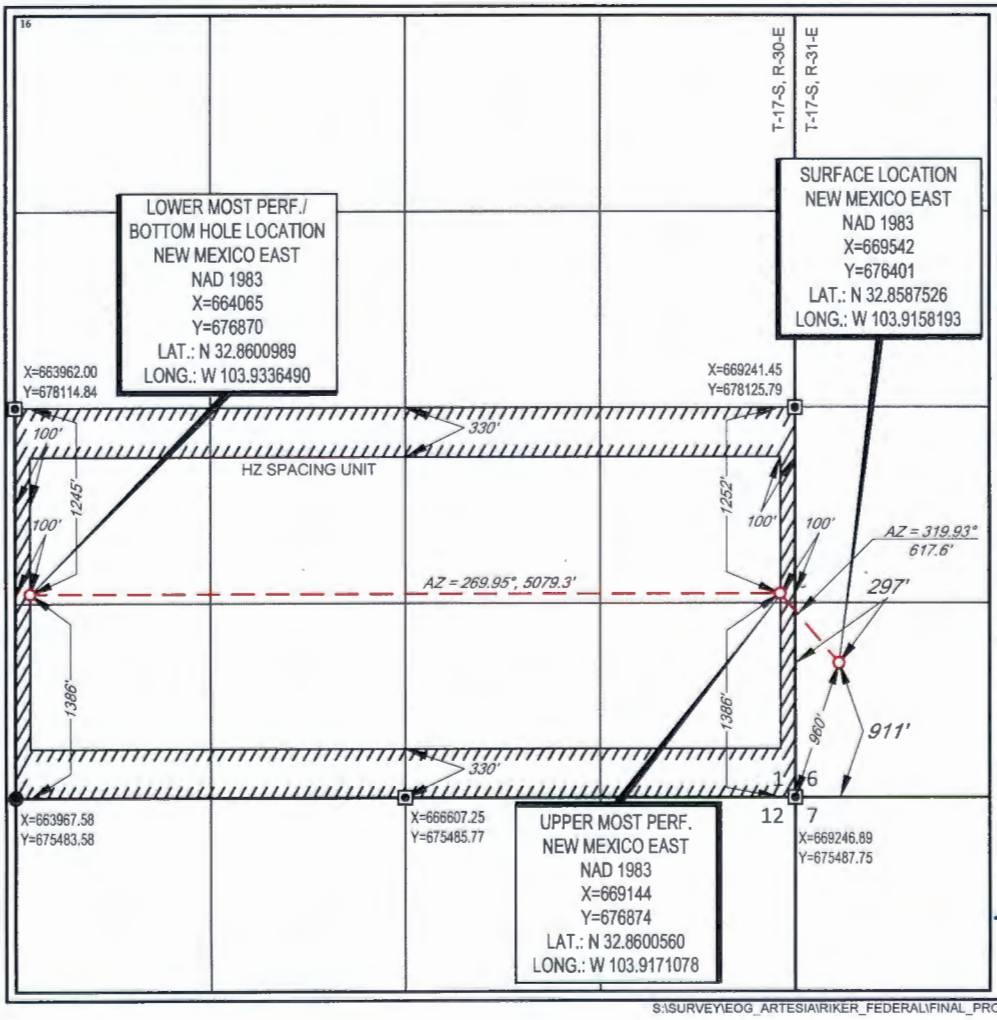
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	6	17-S	31-E	–	911	SOUTH	297	WEST	EDDY

[11]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
L	1	17-S	30-E	–	1386	SOUTH	100	WEST	EDDY

[12]Dedicated Acres	[13]Joint or Infill	[14]Consolidation Code	[15]Order No.
320.00			

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.



[17]OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 10/25/2018

Yolanda Maese
Printed Name

yolanda_maese@eogresources.com
E-mail Address

[18]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 to the best of my belief.

08/24/2018
Date of Survey
Signature and Seal of Professional Surveyor:

MICHAEL B. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Certificate Number

S:\SURVEY\EOG_ARTESIA\RIKER_FEDERAL\FINAL_PRODUCTS\LO_RIKER_FEDERAL_5H_1.DWG 10/25/2018 9:56:21 AM csmith5

District I
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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 10/25/2018

☒ Original
☐ Amended - Reason for Amendment:

Operator & OGRID No.: EOG Resources, Inc. 7377

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Riker Fed 4H		M-6-17S-31E	761' FSL 296' FWL	500	0	
Riker Fed 5H		M-6-17S-31E	911' FSL 297' FWL	500	0	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to no one and will be connected to DCP's **low**~~high~~ pressure gathering system located in Eddy County, New Mexico. It will require 1500 ' of pipeline to connect the facility to **low**~~high~~ pressure gathering system. EOG Resources, Inc. provides (periodically) to DCP a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, EOG Resources, Inc. and DCP have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at DCP Processing Plant located in Sec. 7, Twn. 18S, Rng. 28E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

Intent [X] As Drilled [ ]

API #

Operator Name:	Property Name:	Well Number
EOG Resources, Inc.	Riker Federal	5H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
M	6	17S	31E		911	South	297	West	Eddy

Latitude	Longitude	NAD
32.8587526	-103.9158193	83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
I	1	17S	30E		1386	South	100	East	Eddy

Latitude	Longitude	NAD
32.8600560	-103.9171078	83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
L	1	17S	30E		1386	South	100	West	Eddy

Latitude	Longitude	NAD
32.8600989	-103.9336490	83

Is this well the defining well for the Horizontal Spacing Unit? [X]

Is this well an infill well? [ ]

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**EOG RESOURCES INCORPORATED**
WELL NAME & NO.:	**Riker Federal 5H**
SURFACE HOLE FOOTAGE:	**911'/S & 297'/W**
BOTTOM HOLE FOOTAGE	**1386'/S & 100'/W**
LOCATION:	**Section 6, T.17 S., R.31 E., NMPM**
COUNTY:	**Eddt County, New Mexico**

COA

H2S	◉ Yes	○ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Cave/Karst Potential	○ Critical		
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☐ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Square Lake, Grayburg, and San Andres** formations. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

Primary Casing Design

1. The **13-3/8** inch surface casing shall be set at approximately **400** feet (a minimum of **70 feet (Eddy County)** into 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 will be a minimum of **8 hours** 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 cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **7 X 5 ½** inch intermediate casing is:

    - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Alternate Casing Design:

3. The **13-3/8** inch surface casing shall be set at approximately **400** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    e. 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.
    f. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    g. 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.
    h. If cement falls back, remedial cementing will be done prior to drilling out that string.

4. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

    Option 1 (Single Stage):

    - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

5. The minimum required fill of cement behind the **7 X 5 ½** inch production casing is:

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. 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.

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

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

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. 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.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. 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.

3. 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.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. 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.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. 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.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. 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. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. 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. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. 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 (8 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).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. 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.

g. 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. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. 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.

EOG RESOURCES, INC.
RIKER FEDERAL NO. 5H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	350’
Tansill	1,325’
Yates	1,465’
Seven Rivers	1,725’
Queen	2,330’
Grayburg	2,750’
San Andres	3,060’
Glorieta	4,565’
Yeso	4,580’
TD	10,434’

3. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Rustler	350’	Fresh Water, Oil
Grayburg	2,750’	Oil
San Andres	3,060’	Oil
Glorieta	4,565’	Oil
Yeso	4,580’	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 13.375” casing at 400’ and circulating cement back to surface.

4. CASING PROGRAM - NEW

EOG Resources requests approval of a contingency hole size and intermediate 9 5/8” casing string if water flow risk is deemed to be high. We request to have a contingency plan approved to drill out with either a 12 ¼” hole if water flow risk is high and the option to drill out with 8 ¾” if the water flow risk is determined to be low. Please see below for primary and contingency request.

Primary Hole & Casing String:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
17.5”	0’-400’	13.375”	48#	H-40/J-55	STC	1.125	1.25	1.60
8.75”	0’ –5,409’	7”	29#	L-80	BTC	1.125	1.25	1.60
8.75”	5,409’-10,434’	5 ½”	17#	L-80	BTC	1.125	1.25	1.60

EOG RESOURCES, INC.
RIKER FEDERAL NO. 5H

Contingency Hole & Casing String:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
17.5"	0'-400'	13.375"	48#	H-40/ J-55	STC	1.125	1.25	1.60
12.25"	0' –100'	9.625	40#	J-55	LTC	1.125	1.25	1.60
12.25"	100' – 3,300'	9.625	36#	J-55	LTC	1.125	1.25	1.60
12.25"	3,300' – 3,500'	9.625	40#	J-55	LTC	1.125	1.25	1.60
8.75"	0' – 5,409'	7"	29#	L-80	BTC	1.125	1.25	1.60
8.75"	5,409'-10,434'	5 ½"	17#	L-80	BTC	1.125	1.25	1.60

Cementing Program:

Note: Cement volumes based on bit size plus at least 100% excess on surface, 100% excess in Contingency Intermediate and 35% excess in production string.

Primary Cement Design:

Depth	No. Sacks	Wt. lb/gal	Yld Ft^3/ft	Volume Ft^3	Slurry Description
400'	415	14.8	1.34	95	Tail: Class 'C' + 2%PF1(Calcium Chloride) (100% excess)
10434'	445	11.9	2.47	196	Lead: Class 50/50 PozC + 5%PF44(BWOW)(Salt) + 10% PF20(Bentonite Gel) +.2%PF153(Anti Settling Agent(+ 3#/sk OF42(Kolseal) + 0.125#/sk PF29 (celloflake) + 0.4#/sk PF45 (Defoamer) (TOC @ Surface) 35% Excess
	1160	13	1.48	306	Tail: Class PVL + 1.3% PF44(BWOW)(Salt) + 5% PF174 (Expanding Cement) + 0.5% PF606 (Fluid Loss) + 0.1% PF153 (Anti Settling Agent) + 0.4#/sk PF45 (Defoamer) 35% Excess

Contingency Cement Design:

Depth	No. Sacks	Wt. lb/gal	Yld Ft^3/ft	Volume Ft^3	Slurry Description
400'	415	14.8	1.34	95	Tail: Class 'C' + 2%PF1(Calcium Chloride) (100% excess)
3500'*	1075	12.8	1.79	343	Lead: 35:65 Poz C + .02 gal/sk Anti Foam + 1% Extender + .13 lb/sk Lost Circulation (TOC @ Surface)
	200	14.8	1.33	47	Tail: Class C + 0.13% Anti Foam
10434'	200	11.9	2.47	88	Lead: Class 50/50 PozC + 5%PF44(BWOW)(Salt) + 10% PF20(Bentonite Gel) +.2%PF153(Anti Settling Agent(+ 3#/sk OF42(Kolseal) + 0.125#/sk PF29 (celloflake) + 0.4#/sk PF45 (Defoamer) (TOC @ 500' into previous casing string) 35% Excess
	1160	13	1.48	306	Tail: Class PVL + 1.3% PF44(BWOW)(Salt) + 5% PF174 (Expanding Cement) + 0.5% PF606 (Fluid Loss) + 0.1% PF153 (Anti Settling Agent) + 0.4#/sk PF45 (Defoamer) 35% Excess

*Cement will be done in 2 stages if water flow is encountered. DV Tool placement will be placed above water flow depth. Cement volumes will be adjusted accordingly.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

A variance is requested to use a co-flex line between the BOP and choke manifold, dependent on rig selection (instead of using a steel line). Certification and specs are attached.

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a double rams with blind rams & pipe rams preventer (3,000 psi WP) and an annular preventer (3,000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 3,000/ 250 psig and the annular preventer to 1,500/ 250 psig. The surface casing will be tested to 1200 psi for 30 minutes.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the surface casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 400’	Fresh Water	8.6-8.8	28-32	N/c
400’ – 3,500’* Vertical	Brine	9.2-10.2	32-34	N/c
3,500’ – 10,434’ Vertical/Curve/Lateral	Cut Brine	8.8-9.4	30-34	N/c
*Reflects the contingency mud system if contingency plan is followed if not the next line will be utilized out from under surface				

The highest mud weight needed to balance formation is expected to be 10.2 ppg. In order to maintain hole stability, mud weights up to 10.2 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are not planned for this well.

GR–Directional surveys will be run in open hole during drilling phase of operations.

9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:

The estimated bottom-hole temperature (BHT) at TD is 110 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 2747 psig (based on 10.2 ppg MW). Hydrogen sulfide has been encountered, reported or are known to exist at this depth in this area. Severe loss circulation is expected from spud to surface casing point.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

(A) EOG Resources requests the option to contract a Surface Rig to drill, set surface casing, and cement on the subject well. After WOC 8 hours or 500 psi compressive strength (whichever is greater), the Surface Rig will move off so the wellhead can be installed. A welder will cut the casing to the proper height and weld on the wellhead (both “A” and “B” sections). The weld will be tested to 1000 psi. All valves will be closed and a wellhead cap will be installed (diagram attached). If the timing between rigs is such that EOG Resources would not be able to preset the surface, the Primary Rig will MIRU and drill the well in its entirety per the APD.

11. WELLHEAD:

A multi-bowl wellhead system will be utilized.

After running the 9-5/8" surface casing, a 9 5/8" BOP/BOPE system with a minimum working pressure of 3,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 3,000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 3,000 psi.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Stream Flo HES Multi-Bowl WH system has been sent to the NM BLM office in Carlsbad, NM.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

EOG Resources - Artesia

Eddy County (NAD83)
Riker
Riker Federal #5H

Lateral
Plan #1

Anticollision Report

21 December, 2018

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Reference Site:	Riker	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.000 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lateral	**Database:**	EDM 5000.14
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.980 usft	**Error Surface:**	Combined Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 12/21/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.000	10,434.138	Plan #1 (Lateral)	MWD	OWSG MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Picard						
Picard Federal #2H - Lateral - Plan #1	3,700.000	3,699.000	50.000	31.544	2.709	CC, ES, SF

Offset Design Picard - Picard Federal #2H - Lateral - Plan #1

Survey Program: 0-MWD

Offset Site Error: 0.000 usft

Offset Well Error: 0.000 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.000	0.000	1.000	-1.000	0.000	0.001	0.00	50.000	0.000	50.000				
100.000	100.000	101.000	99.000	0.147	0.151	0.00	50.000	0.000	50.000	49.790	0.21	237.640	
200.000	200.000	201.000	199.000	0.505	0.509	0.00	50.000	0.000	50.000	49.283	0.72	69.701	
300.000	300.000	301.000	299.000	0.864	0.868	0.00	50.000	0.000	50.000	48.776	1.22	40.840	
400.000	400.000	401.000	399.000	1.222	1.226	0.00	50.000	0.000	50.000	48.269	1.73	28.881	
500.000	500.000	501.000	499.000	1.581	1.584	0.00	50.000	0.000	50.000	47.762	2.24	22.339	
600.000	600.000	601.000	599.000	1.939	1.943	0.00	50.000	0.000	50.000	47.255	2.75	18.214	
700.000	700.000	701.000	699.000	2.298	2.301	0.00	50.000	0.000	50.000	46.748	3.25	15.375	
800.000	800.000	801.000	799.000	2.656	2.660	0.00	50.000	0.000	50.000	46.241	3.76	13.301	
900.000	900.000	901.000	899.000	3.015	3.018	0.00	50.000	0.000	50.000	45.734	4.27	11.720	
1,000.000	1,000.000	1,001.000	999.000	3.373	3.377	0.00	50.000	0.000	50.000	45.227	4.77	10.476	
1,100.000	1,100.000	1,101.000	1,099.000	3.732	3.735	0.00	50.000	0.000	50.000	44.720	5.28	9.470	
1,200.000	1,200.000	1,201.000	1,199.000	4.090	4.094	0.00	50.000	0.000	50.000	44.213	5.79	8.640	
1,300.000	1,300.000	1,301.000	1,299.000	4.449	4.452	0.00	50.000	0.000	50.000	43.706	6.29	7.944	
1,400.000	1,400.000	1,401.000	1,399.000	4.807	4.811	0.00	50.000	0.000	50.000	43.199	6.80	7.352	
1,500.000	1,500.000	1,501.000	1,499.000	5.166	5.169	0.00	50.000	0.000	50.000	42.692	7.31	6.842	
1,600.000	1,600.000	1,601.000	1,599.000	5.524	5.528	0.00	50.000	0.000	50.000	42.185	7.81	6.398	
1,700.000	1,700.000	1,701.000	1,699.000	5.883	5.886	0.00	50.000	0.000	50.000	41.678	8.32	6.008	
1,800.000	1,800.000	1,801.000	1,799.000	6.241	6.245	0.00	50.000	0.000	50.000	41.171	8.83	5.663	
1,900.000	1,900.000	1,901.000	1,899.000	6.599	6.603	0.00	50.000	0.000	50.000	40.664	9.34	5.356	
2,000.000	2,000.000	2,001.000	1,999.000	6.958	6.962	0.00	50.000	0.000	50.000	40.157	9.84	5.080	
2,100.000	2,100.000	2,101.000	2,099.000	7.316	7.320	0.00	50.000	0.000	50.000	39.651	10.35	4.831	
2,200.000	2,200.000	2,201.000	2,199.000	7.675	7.678	0.00	50.000	0.000	50.000	39.144	10.86	4.606	
2,300.000	2,300.000	2,301.000	2,299.000	8.033	8.037	0.00	50.000	0.000	50.000	38.637	11.36	4.400	
2,400.000	2,400.000	2,401.000	2,399.000	8.392	8.395	0.00	50.000	0.000	50.000	38.130	11.87	4.212	
2,500.000	2,500.000	2,501.000	2,499.000	8.750	8.754	0.00	50.000	0.000	50.000	37.623	12.38	4.040	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Riker Federal #5H
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Well Error:	0.000 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lateral	**Database:**	EDM 5000.14
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Picard - Picard Federal #2H - Lateral - Plan #1

Offset Site Error: 0.000 usft

Survey Program: 0-MWD

Offset Well Error: 0.000 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,600.000	2,600.000	2,601.000	2,599.000	9.109	9.112	0.00	50.000	0.000	50.000	37.116	12.88	3.881	
2,700.000	2,700.000	2,701.000	2,699.000	9.467	9.471	0.00	50.000	0.000	50.000	36.609	13.39	3.734	
2,800.000	2,800.000	2,801.000	2,799.000	9.826	9.829	0.00	50.000	0.000	50.000	36.102	13.90	3.598	
2,900.000	2,900.000	2,901.000	2,899.000	10.184	10.188	0.00	50.000	0.000	50.000	35.595	14.41	3.471	
3,000.000	3,000.000	3,001.000	2,999.000	10.543	10.546	0.00	50.000	0.000	50.000	35.088	14.91	3.353	
3,100.000	3,100.000	3,101.000	3,099.000	10.901	10.905	0.00	50.000	0.000	50.000	34.581	15.42	3.243	
3,200.000	3,200.000	3,201.000	3,199.000	11.260	11.263	0.00	50.000	0.000	50.000	34.074	15.93	3.140	
3,300.000	3,300.000	3,301.000	3,299.000	11.618	11.622	0.00	50.000	0.000	50.000	33.567	16.43	3.043	
3,400.000	3,400.000	3,401.000	3,399.000	11.977	11.980	0.00	50.000	0.000	50.000	33.060	16.94	2.952	
3,500.000	3,500.000	3,501.000	3,499.000	12.335	12.339	0.00	50.000	0.000	50.000	32.553	17.45	2.866	
3,600.000	3,600.000	3,601.000	3,599.000	12.693	12.697	0.00	50.000	0.000	50.000	32.046	17.95	2.785	
3,700.000	3,700.000	3,699.000	3,699.000	13.052	13.048	0.00	50.000	0.000	50.000	31.544	18.46	2.709	CC, ES, SF
3,800.000	3,800.000	3,792.450	3,792.219	13.410	13.384	-0.89	55.590	-0.862	56.008	37.181	18.83	2.975	
3,900.000	3,900.000	3,883.091	3,881.300	13.769	13.707	-2.68	71.844	-3.367	74.069	55.116	18.95	3.908	
4,000.000	4,000.000	3,968.666	3,963.027	14.127	14.004	-4.26	96.769	-7.210	103.491	84.636	18.85	5.489	
4,050.000	4,049.972	4,009.506	4,000.901	14.307	14.149	1.67	111.854	-9.535	120.797	102.063	18.73	6.448	
4,100.000	4,099.779	4,049.605	4,037.233	14.486	14.296	1.17	128.614	-12.119	137.922	119.354	18.57	7.428	
4,150.000	4,149.254	4,089.015	4,072.014	14.665	14.445	0.76	146.921	-14.941	154.821	136.460	18.36	8.432	
4,200.000	4,198.234	4,127.783	4,105.238	14.842	14.598	0.42	166.657	-17.983	171.450	153.332	18.12	9.463	
4,250.000	4,246.556	4,165.953	4,136.906	15.016	14.755	0.12	187.711	-21.229	187.769	169.928	17.84	10.525	
4,300.000	4,294.059	4,203.568	4,167.020	15.190	14.916	-0.15	209.980	-24.661	203.742	186.208	17.53	11.620	
4,350.000	4,340.586	4,244.584	4,198.629	15.369	15.103	-0.45	235.787	-28.772	219.227	201.824	17.40	12.597	
4,400.000	4,385.983	4,297.821	4,239.654	15.553	15.366	-1.56	268.655	-37.090	231.862	213.999	17.86	12.980	
4,450.000	4,430.099	4,351.198	4,281.161	15.744	15.650	-3.59	299.810	-49.502	240.800	222.530	18.27	13.180	
4,500.000	4,472.787	4,403.570	4,321.967	15.943	15.949	-6.45	328.417	-65.558	246.386	227.793	18.59	13.252	
4,550.000	4,513.905	4,453.905	4,361.003	16.154	16.252	-10.06	353.898	-84.509	249.193	230.382	18.81	13.247	
4,600.000	4,553.318	4,501.382	4,397.437	16.377	16.554	-14.31	375.980	-105.438	249.998	231.085	18.91	13.219	
4,624.236	4,571.769	4,523.187	4,413.987	16.491	16.697	-16.55	385.451	-116.011	249.944	231.023	18.92	13.210	
4,630.814	4,576.724	4,528.980	4,418.361	16.523	16.736	-16.52	387.894	-118.920	249.925	231.006	18.92	13.210	
4,650.000	4,591.241	4,545.738	4,430.954	16.616	16.849	-16.39	394.785	-127.565	250.085	231.177	18.91	13.227	
4,700.000	4,629.470	4,588.528	4,462.654	16.873	17.148	-15.80	411.169	-151.164	251.952	233.108	18.84	13.371	
4,750.000	4,668.078	4,630.157	4,492.760	17.146	17.454	-14.87	425.381	-176.146	255.759	237.027	18.73	13.654	
4,800.000	4,706.830	4,670.764	4,521.304	17.434	17.767	-13.67	437.542	-202.331	261.258	242.683	18.58	14.065	
4,850.000	4,745.486	4,710.465	4,548.313	17.734	18.090	-12.29	447.761	-229.565	268.168	249.791	18.38	14.592	
4,900.000	4,783.807	4,749.364	4,573.815	18.048	18.424	-10.82	456.132	-257.713	276.195	258.055	18.14	15.225	
4,950.000	4,821.558	4,787.553	4,597.831	18.375	18.770	-9.35	462.739	-286.653	285.054	267.186	17.87	15.953	
5,000.000	4,858.507	4,825.111	4,620.381	18.716	19.130	-7.94	467.656	-316.277	294.478	276.916	17.56	16.768	
5,050.000	4,894.424	4,862.111	4,641.481	19.074	19.504	-6.64	470.951	-346.484	304.225	286.997	17.23	17.659	
5,100.000	4,929.090	4,900.000	4,661.868	19.451	19.909	-5.55	472.721	-378.365	314.085	297.146	16.94	18.543	
5,150.000	4,962.290	4,938.572	4,681.397	19.851	20.351	-4.61	472.988	-411.624	323.763	307.078	16.69	19.404	
5,200.000	4,993.820	4,987.013	4,705.617	20.276	20.937	-3.82	472.951	-453.575	331.790	314.861	16.93	19.599	
5,250.000	5,023.485	5,020.341	4,721.818	20.731	21.373	-2.42	472.926	-482.696	338.378	321.962	16.42	20.614	
5,300.000	5,051.104	5,050.000	4,734.594	21.219	21.794	-0.97	472.903	-509.457	345.346	329.615	15.73	21.953	
5,333.811	5,068.533	5,068.473	4,741.702	21.570	22.075	0.00	472.889	-526.507	350.256	335.043	15.21	23.024	
5,408.811	5,106.033	5,110.591	4,755.408	22.417	22.757	0.00	472.855	-566.317	364.584	350.318	14.27	25.555	
5,425.000	5,113.888	5,119.512	4,757.857	22.617	22.908	0.00	472.848	-574.896	368.252	354.166	14.09	26.143	
5,450.000	5,125.064	5,133.275	4,761.321	22.945	23.147	0.00	472.837	-588.216	373.443	359.620	13.82	27.018	
5,475.000	5,135.055	5,150.000	4,765.010	23.295	23.444	0.00	472.824	-604.527	378.077	364.391	13.69	27.625	
5,500.000	5,143.832	5,160.761	4,767.081	23.666	23.642	0.00	472.815	-615.087	382.089	368.727	13.36	28.595	
5,525.000	5,151.373	5,175.000	4,769.454	24.058	23.904	0.00	472.804	-629.126	385.539	372.352	13.19	29.236	
5,550.000	5,157.656	5,188.203	4,771.280	24.469	24.155	0.00	472.793	-642.202	388.402	375.392	13.01	29.855	
5,575.000	5,162.664	5,200.000	4,772.605	24.899	24.380	0.00	472.784	-653.924	390.686	377.856	12.83	30.449	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Reference Site:	Riker	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.000 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lateral	**Database:**	EDM 5000.14
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Picard - Picard Federal #2H - Lateral - Plan #1

Offset Site Error: 0.000 usft

Survey Program: 0-MWD

Offset Well Error: 0.000 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,600.000	5,166.384	5,215.617	4,773.913	25.346	24.685	0.00	472.772	-669.485	392.364	379.583	12.78	30.700	
5,625.000	5,168.804	5,229.317	4,774.641	25.806	24.956	0.00	472.761	-683.165	393.460	380.743	12.72	30.940	
5,650.000	5,169.920	5,243.015	4,774.976	26.279	25.229	0.00	472.750	-696.859	393.964	381.276	12.69	31.049	
5,657.811	5,170.000	5,250.261	4,775.002	26.429	25.375	0.00	472.747	-700.272	393.998	381.311	12.69	31.056	
5,700.000	5,170.088	5,288.617	4,774.958	27.259	26.167	0.00	472.714	-742.461	394.131	381.155	12.98	30.374	
5,800.000	5,170.298	5,388.616	4,774.853	29.351	28.343	0.00	472.636	-842.460	394.445	380.715	13.73	28.730	
5,900.000	5,170.507	5,488.616	4,774.748	31.593	30.658	0.00	472.557	-942.459	394.759	380.231	14.53	27.172	
6,000.000	5,170.716	5,588.615	4,774.643	33.953	33.083	0.00	472.479	-1,042.459	395.073	379.708	15.37	25.712	
6,100.000	5,170.926	5,688.615	4,774.539	36.408	35.597	0.00	472.400	-1,142.458	395.387	379.152	16.24	24.354	
6,200.000	5,171.135	5,788.614	4,774.434	38.940	38.181	0.00	472.322	-1,242.458	395.701	378.568	17.13	23.096	
6,300.000	5,171.344	5,888.614	4,774.329	41.534	40.821	0.00	472.244	-1,342.457	396.015	377.961	18.05	21.935	
6,400.000	5,171.554	5,988.613	4,774.225	44.180	43.509	0.00	472.165	-1,442.456	396.329	377.333	19.00	20.864	
6,500.000	5,171.763	6,088.613	4,774.120	46.868	46.234	0.00	472.087	-1,542.456	396.643	376.689	19.95	19.877	
6,600.000	5,171.972	6,188.612	4,774.015	49.591	48.991	0.00	472.008	-1,642.455	396.958	376.029	20.93	18.967	
6,700.000	5,172.182	6,288.612	4,773.910	52.345	51.775	0.00	471.930	-1,742.455	397.272	375.356	21.92	18.128	
6,800.000	5,172.391	6,388.611	4,773.806	55.124	54.582	0.00	471.851	-1,842.454	397.586	374.672	22.91	17.352	
6,900.000	5,172.601	6,488.611	4,773.701	57.924	57.407	0.00	471.773	-1,942.454	397.900	373.979	23.92	16.634	
7,000.000	5,172.810	6,588.610	4,773.596	60.744	60.249	0.00	471.694	-2,042.453	398.214	373.276	24.94	15.968	
7,100.000	5,173.019	6,688.610	4,773.492	63.579	63.105	0.00	471.616	-2,142.452	398.528	372.566	25.96	15.350	
7,200.000	5,173.229	6,788.609	4,773.387	66.428	65.974	0.00	471.537	-2,242.452	398.842	371.849	26.99	14.776	
7,300.000	5,173.438	6,888.609	4,773.282	69.290	68.853	0.00	471.459	-2,342.451	399.156	371.126	28.03	14.240	
7,400.000	5,173.647	6,988.608	4,773.177	72.163	71.742	0.00	471.381	-2,442.451	399.470	370.398	29.07	13.741	
7,500.000	5,173.857	7,088.608	4,773.073	75.045	74.639	0.00	471.302	-2,542.450	399.784	369.665	30.12	13.273	
7,600.000	5,174.066	7,188.607	4,772.968	77.936	77.544	0.00	471.224	-2,642.449	400.098	368.927	31.17	12.836	
7,700.000	5,174.275	7,288.607	4,772.863	80.834	80.455	0.00	471.145	-2,742.449	400.412	368.186	32.23	12.425	
7,800.000	5,174.485	7,388.606	4,772.759	83.739	83.372	0.00	471.067	-2,842.448	400.726	367.441	33.29	12.039	
7,900.000	5,174.694	7,488.606	4,772.654	86.650	86.294	0.00	470.988	-2,942.448	401.041	366.693	34.35	11.676	
8,000.000	5,174.904	7,588.605	4,772.549	89.567	89.222	0.00	470.910	-3,042.447	401.355	365.942	35.41	11.334	
8,100.000	5,175.113	7,688.605	4,772.444	92.488	92.153	0.00	470.831	-3,142.447	401.669	365.188	36.48	11.011	
8,200.000	5,175.322	7,788.604	4,772.340	95.414	95.089	0.00	470.753	-3,242.446	401.983	364.432	37.55	10.705	
8,300.000	5,175.532	7,888.604	4,772.235	98.345	98.028	0.00	470.675	-3,342.445	402.297	363.674	38.62	10.416	
8,400.000	5,175.741	7,988.603	4,772.130	101.279	100.970	0.00	470.596	-3,442.445	402.611	362.913	39.70	10.142	
8,500.000	5,175.950	8,088.603	4,772.026	104.216	103.915	0.00	470.518	-3,542.444	402.925	362.151	40.77	9.882	
8,600.000	5,176.160	8,188.602	4,771.921	107.157	106.863	0.00	470.439	-3,642.444	403.239	361.387	41.85	9.635	
8,700.000	5,176.369	8,288.602	4,771.816	110.100	109.814	0.00	470.361	-3,742.443	403.553	360.621	42.93	9.400	
8,800.000	5,176.578	8,388.601	4,771.711	113.047	112.767	0.00	470.282	-3,842.442	403.867	359.854	44.01	9.176	
8,900.000	5,176.788	8,488.601	4,771.607	115.995	115.722	0.00	470.204	-3,942.442	404.181	359.086	45.10	8.963	
9,000.000	5,176.997	8,588.600	4,771.502	118.946	118.679	0.00	470.125	-4,042.441	404.495	358.316	46.18	8.759	
9,100.000	5,177.207	8,688.600	4,771.397	121.900	121.638	0.00	470.047	-4,142.441	404.810	357.545	47.26	8.565	
9,200.000	5,177.416	8,788.599	4,771.293	124.855	124.598	0.00	469.968	-4,242.440	405.124	356.772	48.35	8.379	
9,300.000	5,177.625	8,888.599	4,771.188	127.811	127.561	0.00	469.890	-4,342.440	405.438	355.999	49.44	8.201	
9,400.000	5,177.835	8,988.598	4,771.083	130.770	130.524	0.00	469.812	-4,442.439	405.752	355.225	50.53	8.030	
9,500.000	5,178.044	9,088.598	4,770.978	133.730	133.489	0.00	469.733	-4,542.438	406.066	354.450	51.62	7.867	
9,600.000	5,178.253	9,188.597	4,770.874	136.692	136.455	0.00	469.655	-4,642.438	406.380	353.674	52.71	7.710	
9,700.000	5,178.463	9,288.597	4,770.769	139.655	139.423	0.00	469.576	-4,742.437	406.694	352.897	53.80	7.560	
9,800.000	5,178.672	9,388.596	4,770.664	142.619	142.391	0.00	469.498	-4,842.437	407.008	352.119	54.89	7.415	
9,900.000	5,178.881	9,488.596	4,770.560	145.585	145.361	0.00	469.419	-4,942.436	407.322	351.341	55.98	7.276	
10,000.000	5,179.091	9,588.595	4,770.455	148.552	148.332	0.00	469.341	-5,042.435	407.636	350.562	57.07	7.142	
10,100.000	5,179.300	9,688.595	4,770.350	151.520	151.303	0.00	469.262	-5,142.435	407.950	349.783	58.17	7.013	
10,200.000	5,179.510	9,788.594	4,770.245	154.489	154.276	0.00	469.184	-5,242.434	408.264	349.002	59.26	6.889	
10,300.000	5,179.719	9,888.594	4,770.141	157.458	157.249	0.00	469.106	-5,342.434	408.578	348.222	60.36	6.769	
10,400.000	5,179.928	9,988.593	4,770.036	160.429	160.223	0.00	469.027	-5,442.433	408.893	347.440	61.45	6.654	

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Reference Site:	Riker	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.000 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lateral	**Database:**	EDM 5000.14
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Picard - Picard Federal #2H - Lateral - Plan #1

Offset Site Error: 0.000 usft

Survey Program: 0-MWD

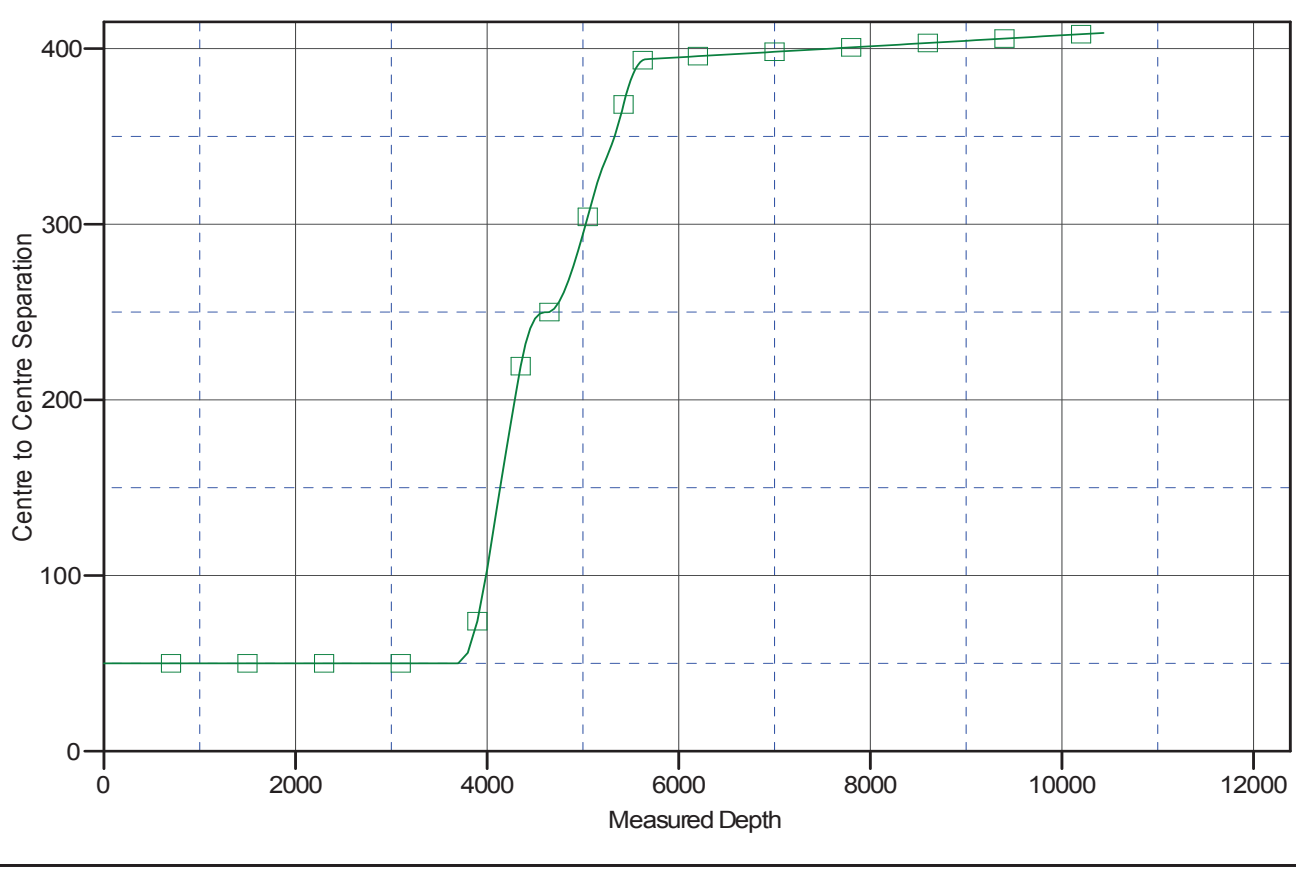
Offset Well Error: 0.000 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,434.138	5,180.000	10,022.732	4,770.000	161.444	161.239	0.00	469.000	-5,476.571	409.000	347.173	61.83	6.615	

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Reference Site:	Riker	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.000 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lateral	**Database:**	EDM 5000.14
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 3742.000usft (Planning Rig)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Riker Federal #5H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.23°



LEGEND

Picard Federal #2H, Lateral, Plan#1 V0

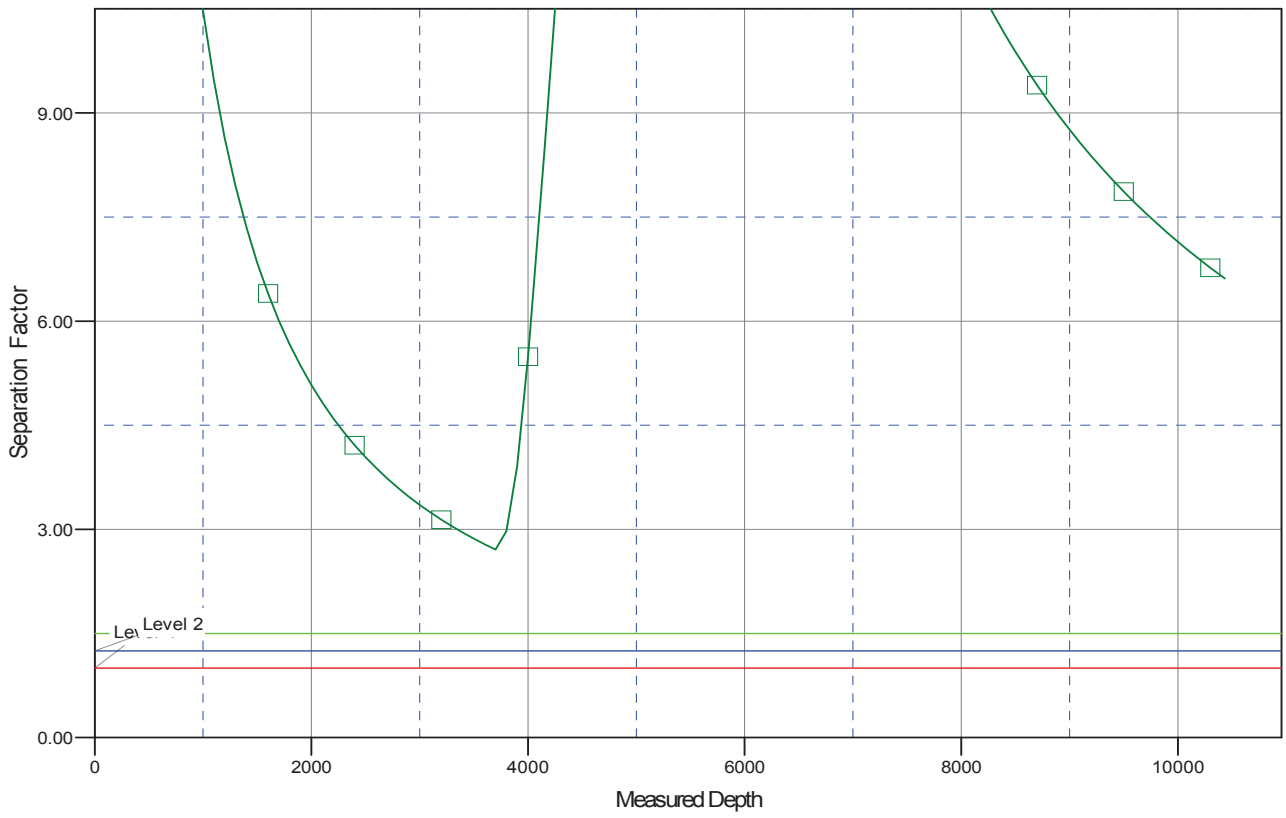
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Reference Site:	Riker	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.000 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Lateral	**Database:**	EDM 5000.14
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 3742.000usft (Planning Rig)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Riker Federal #5H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.23°

Separation Factor Plot



LEGEND

Picard Federal #2H, Lateral, Plan#1 V0

EOG Resources - Artesia

Eddy County (NAD83)
Riker
Riker Federal #5H

Lateral

Plan: Plan #1

Standard Planning Report

21 December, 2018

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site:	Riker	**North Reference:**	Grid
Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Project Eddy County (NAD83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Riker

Site Position:		**Northing:**	677,473.00 usft	**Latitude:**	32° 51' 42.101 N
From:	Map	**Easting:**	669,943.00 usft	**Longitude:**	103° 54' 52.193 W
Position Uncertainty:	0.000 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.23 °

Well Riker Federal #5H

Well Position	**+N/-S**	-1,072.000 usft	**Northing:**	676,401.00 usft	**Latitude:**	32° 51' 31.509 N
	+E/-W	-401.000 usft	**Easting:**	669,542.00 usft	**Longitude:**	103° 54' 56.944 W
Position Uncertainty		0.000 usft	**Wellhead Elevation:**	3,742.000 usft	**Ground Level:**	3,724.000 usft

Wellbore Lateral

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/8/2018	7.01	60.57	48,130.89756014

Design Plan #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.000

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.000	0.000	0.000	274.894

Plan Survey Tool Program **Date** 12/21/2018

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.000	10,434.138	Plan #1 (Lateral)	MWD	
				OWSG MWD - Standard	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	
400.000	0.00	0.000	400.000	0.000	0.000	0.00	0.00	0.00	0.00	
3,300.000	0.00	0.000	3,300.000	0.000	0.000	0.00	0.00	0.00	0.00	
4,000.000	0.00	0.000	4,000.000	0.000	0.000	0.00	0.00	0.00	0.00	
4,624.236	41.22	353.439	4,571.769	213.609	-24.569	6.60	6.60	0.00	353.44	
5,333.811	60.00	269.950	5,068.533	473.000	-398.000	9.00	2.65	-11.77	-106.54	
5,408.811	60.00	269.950	5,106.033	472.943	-462.952	0.00	0.00	0.00	0.00	
5,657.811	89.88	269.955	5,170.000	472.747	-700.685	12.00	12.00	0.00	0.01	
10,434.138	89.88	269.955	5,180.000	469.000	-5,477.000	0.00	0.00	0.00	0.00	[RF#5H]BHL1

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site:	Riker	**North Reference:**	Grid
Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.00
100.000	0.00	0.000	100.000	0.000	0.000	0.000	0.00	0.00	0.00
200.000	0.00	0.000	200.000	0.000	0.000	0.000	0.00	0.00	0.00
300.000	0.00	0.000	300.000	0.000	0.000	0.000	0.00	0.00	0.00
400.000	0.00	0.000	400.000	0.000	0.000	0.000	0.00	0.00	0.00
500.000	0.00	0.000	500.000	0.000	0.000	0.000	0.00	0.00	0.00
600.000	0.00	0.000	600.000	0.000	0.000	0.000	0.00	0.00	0.00
700.000	0.00	0.000	700.000	0.000	0.000	0.000	0.00	0.00	0.00
800.000	0.00	0.000	800.000	0.000	0.000	0.000	0.00	0.00	0.00
900.000	0.00	0.000	900.000	0.000	0.000	0.000	0.00	0.00	0.00
1,000.000	0.00	0.000	1,000.000	0.000	0.000	0.000	0.00	0.00	0.00
1,100.000	0.00	0.000	1,100.000	0.000	0.000	0.000	0.00	0.00	0.00
1,200.000	0.00	0.000	1,200.000	0.000	0.000	0.000	0.00	0.00	0.00
1,300.000	0.00	0.000	1,300.000	0.000	0.000	0.000	0.00	0.00	0.00
1,400.000	0.00	0.000	1,400.000	0.000	0.000	0.000	0.00	0.00	0.00
1,500.000	0.00	0.000	1,500.000	0.000	0.000	0.000	0.00	0.00	0.00
1,600.000	0.00	0.000	1,600.000	0.000	0.000	0.000	0.00	0.00	0.00
1,700.000	0.00	0.000	1,700.000	0.000	0.000	0.000	0.00	0.00	0.00
1,800.000	0.00	0.000	1,800.000	0.000	0.000	0.000	0.00	0.00	0.00
1,900.000	0.00	0.000	1,900.000	0.000	0.000	0.000	0.00	0.00	0.00
2,000.000	0.00	0.000	2,000.000	0.000	0.000	0.000	0.00	0.00	0.00
2,100.000	0.00	0.000	2,100.000	0.000	0.000	0.000	0.00	0.00	0.00
2,200.000	0.00	0.000	2,200.000	0.000	0.000	0.000	0.00	0.00	0.00
2,300.000	0.00	0.000	2,300.000	0.000	0.000	0.000	0.00	0.00	0.00
2,400.000	0.00	0.000	2,400.000	0.000	0.000	0.000	0.00	0.00	0.00
2,500.000	0.00	0.000	2,500.000	0.000	0.000	0.000	0.00	0.00	0.00
2,600.000	0.00	0.000	2,600.000	0.000	0.000	0.000	0.00	0.00	0.00
2,700.000	0.00	0.000	2,700.000	0.000	0.000	0.000	0.00	0.00	0.00
2,800.000	0.00	0.000	2,800.000	0.000	0.000	0.000	0.00	0.00	0.00
2,900.000	0.00	0.000	2,900.000	0.000	0.000	0.000	0.00	0.00	0.00
3,000.000	0.00	0.000	3,000.000	0.000	0.000	0.000	0.00	0.00	0.00
3,100.000	0.00	0.000	3,100.000	0.000	0.000	0.000	0.00	0.00	0.00
3,200.000	0.00	0.000	3,200.000	0.000	0.000	0.000	0.00	0.00	0.00
3,300.000	0.00	0.000	3,300.000	0.000	0.000	0.000	0.00	0.00	0.00
3,400.000	0.00	0.000	3,400.000	0.000	0.000	0.000	0.00	0.00	0.00
3,500.000	0.00	0.000	3,500.000	0.000	0.000	0.000	0.00	0.00	0.00
3,600.000	0.00	0.000	3,600.000	0.000	0.000	0.000	0.00	0.00	0.00
3,700.000	0.00	0.000	3,700.000	0.000	0.000	0.000	0.00	0.00	0.00
3,800.000	0.00	0.000	3,800.000	0.000	0.000	0.000	0.00	0.00	0.00
3,900.000	0.00	0.000	3,900.000	0.000	0.000	0.000	0.00	0.00	0.00
4,000.000	0.00	0.000	4,000.000	0.000	0.000	0.000	0.00	0.00	0.00
KOP									
4,050.000	3.30	353.439	4,049.972	1.431	-0.165	0.286	6.60	6.60	0.00
4,100.000	6.60	353.439	4,099.779	5.718	-0.658	1.143	6.60	6.60	0.00
4,150.000	9.90	353.439	4,149.254	12.848	-1.478	2.569	6.60	6.60	0.00
4,200.000	13.21	353.439	4,198.234	22.797	-2.622	4.557	6.60	6.60	0.00
4,250.000	16.51	353.439	4,246.556	35.531	-4.087	7.103	6.60	6.60	0.00
4,300.000	19.81	353.439	4,294.059	51.009	-5.867	10.198	6.60	6.60	0.00
4,350.000	23.11	353.439	4,340.586	69.179	-7.957	13.830	6.60	6.60	0.00
4,400.000	26.41	353.439	4,385.983	89.981	-10.349	17.989	6.60	6.60	0.00
4,450.000	29.71	353.439	4,430.099	113.345	-13.037	22.660	6.60	6.60	0.00
4,500.000	33.01	353.439	4,472.787	139.195	-16.010	27.828	6.60	6.60	0.00
4,550.000	36.32	353.439	4,513.905	167.444	-19.259	33.475	6.60	6.60	0.00
4,600.000	39.62	353.439	4,553.318	197.999	-22.774	39.584	6.60	6.60	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site:	Riker	**North Reference:**	Grid
Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,624.236	41.22	353.439	4,571.769	213.609	-24.569	42.704	6.60	6.60	0.00
4,650.000	40.61	350.023	4,591.241	230.302	-26.992	46.543	9.00	-2.37	-13.26
4,700.000	39.72	343.183	4,629.470	261.637	-34.437	56.634	9.00	-1.77	-13.68
4,750.000	39.25	336.144	4,668.078	291.411	-45.462	70.159	9.00	-0.94	-14.08
4,800.000	39.21	329.028	4,706.830	319.441	-59.999	87.035	9.00	-0.08	-14.23
4,850.000	39.60	321.964	4,745.486	345.555	-77.959	107.157	9.00	0.78	-14.13
4,900.000	40.40	315.076	4,783.807	369.590	-99.231	130.402	9.00	1.61	-13.78
4,950.000	41.60	308.465	4,821.558	391.400	-123.683	156.625	9.00	2.40	-13.22
5,000.000	43.16	302.203	4,858.507	410.849	-151.165	185.667	9.00	3.12	-12.52
5,050.000	45.04	296.329	4,894.424	427.819	-181.508	217.347	9.00	3.76	-11.75
5,100.000	47.21	290.854	4,929.090	442.203	-214.524	251.470	9.00	4.32	-10.95
5,150.000	49.61	285.768	4,962.290	453.914	-250.011	287.827	9.00	4.81	-10.17
5,200.000	52.22	281.048	4,993.820	462.880	-287.750	326.193	9.00	5.22	-9.44
5,250.000	55.01	276.659	5,023.485	469.045	-327.507	366.331	9.00	5.57	-8.78
5,300.000	57.94	272.568	5,051.104	472.371	-369.039	407.995	9.00	5.87	-8.18
5,333.811	60.00	269.950	5,068.533	473.000	-398.000	436.905	9.00	6.08	-7.74
START 75' TANGENT									
5,384.544	60.00	269.950	5,093.899	472.962	-441.936	480.677	0.00	0.00	0.00
[RF#5H]UMP 5385' MD (5094' TVD)									
5,408.811	60.00	269.950	5,106.033	472.943	-462.952	501.615	0.00	0.00	0.00
END 60° TANGENT/BEGIN 12°/100' BR									
5,425.000	61.94	269.950	5,113.888	472.931	-477.107	515.717	12.00	12.00	0.00
5,450.000	64.94	269.951	5,125.064	472.912	-499.466	537.993	12.00	12.00	0.00
5,475.000	67.94	269.951	5,135.055	472.892	-522.380	560.822	12.00	12.00	0.00
5,500.000	70.94	269.952	5,143.832	472.873	-545.785	584.140	12.00	12.00	0.00
5,525.000	73.94	269.953	5,151.373	472.853	-569.618	607.884	12.00	12.00	0.00
5,550.000	76.94	269.953	5,157.656	472.833	-593.813	631.989	12.00	12.00	0.00
5,575.000	79.94	269.953	5,162.664	472.813	-618.303	656.388	12.00	12.00	0.00
5,600.000	82.94	269.954	5,166.384	472.793	-643.022	681.015	12.00	12.00	0.00
5,625.000	85.94	269.954	5,168.804	472.773	-667.902	705.803	12.00	12.00	0.00
5,650.000	88.94	269.955	5,169.920	472.753	-692.874	730.682	12.00	12.00	0.00
5,657.811	89.88	269.955	5,170.000	472.747	-700.684	738.464	12.00	12.00	0.00
[RF#5H]EOC 5658' MD (5170' TVD)									
5,700.000	89.88	269.955	5,170.088	472.714	-742.873	780.496	0.00	0.00	0.00
5,800.000	89.88	269.955	5,170.298	472.636	-842.873	880.124	0.00	0.00	0.00
5,900.000	89.88	269.955	5,170.507	472.557	-942.873	979.753	0.00	0.00	0.00
6,000.000	89.88	269.955	5,170.716	472.479	-1,042.872	1,079.381	0.00	0.00	0.00
6,100.000	89.88	269.955	5,170.926	472.400	-1,142.872	1,179.009	0.00	0.00	0.00
6,200.000	89.88	269.955	5,171.135	472.322	-1,242.872	1,278.638	0.00	0.00	0.00
6,300.000	89.88	269.955	5,171.344	472.243	-1,342.872	1,378.266	0.00	0.00	0.00
6,400.000	89.88	269.955	5,171.554	472.165	-1,442.871	1,477.895	0.00	0.00	0.00
6,500.000	89.88	269.955	5,171.763	472.086	-1,542.871	1,577.523	0.00	0.00	0.00
6,600.000	89.88	269.955	5,171.972	472.008	-1,642.871	1,677.152	0.00	0.00	0.00
6,700.000	89.88	269.955	5,172.182	471.929	-1,742.871	1,776.780	0.00	0.00	0.00
6,800.000	89.88	269.955	5,172.391	471.851	-1,842.870	1,876.408	0.00	0.00	0.00
6,900.000	89.88	269.955	5,172.601	471.773	-1,942.870	1,976.037	0.00	0.00	0.00
7,000.000	89.88	269.955	5,172.810	471.694	-2,042.870	2,075.665	0.00	0.00	0.00
7,100.000	89.88	269.955	5,173.019	471.616	-2,142.870	2,175.294	0.00	0.00	0.00
7,200.000	89.88	269.955	5,173.229	471.537	-2,242.869	2,274.922	0.00	0.00	0.00
7,300.000	89.88	269.955	5,173.438	471.459	-2,342.869	2,374.551	0.00	0.00	0.00
7,400.000	89.88	269.955	5,173.647	471.380	-2,442.869	2,474.179	0.00	0.00	0.00
7,500.000	89.88	269.955	5,173.857	471.302	-2,542.869	2,573.807	0.00	0.00	0.00
7,600.000	89.88	269.955	5,174.066	471.223	-2,642.868	2,673.436	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site:	Riker	**North Reference:**	Grid
Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,700.000	89.88	269.955	5,174.275	471.145	-2,742.868	2,773.064	0.00	0.00	0.00
7,800.000	89.88	269.955	5,174.485	471.066	-2,842.868	2,872.693	0.00	0.00	0.00
7,900.000	89.88	269.955	5,174.694	470.988	-2,942.868	2,972.321	0.00	0.00	0.00
8,000.000	89.88	269.955	5,174.904	470.910	-3,042.867	3,071.950	0.00	0.00	0.00
8,100.000	89.88	269.955	5,175.113	470.831	-3,142.867	3,171.578	0.00	0.00	0.00
8,200.000	89.88	269.955	5,175.322	470.753	-3,242.867	3,271.206	0.00	0.00	0.00
8,300.000	89.88	269.955	5,175.532	470.674	-3,342.867	3,370.835	0.00	0.00	0.00
8,400.000	89.88	269.955	5,175.741	470.596	-3,442.866	3,470.463	0.00	0.00	0.00
8,500.000	89.88	269.955	5,175.950	470.517	-3,542.866	3,570.092	0.00	0.00	0.00
8,600.000	89.88	269.955	5,176.160	470.439	-3,642.866	3,669.720	0.00	0.00	0.00
8,700.000	89.88	269.955	5,176.369	470.360	-3,742.866	3,769.349	0.00	0.00	0.00
8,800.000	89.88	269.955	5,176.578	470.282	-3,842.865	3,868.977	0.00	0.00	0.00
8,900.000	89.88	269.955	5,176.788	470.204	-3,942.865	3,968.605	0.00	0.00	0.00
9,000.000	89.88	269.955	5,176.997	470.125	-4,042.865	4,068.234	0.00	0.00	0.00
9,100.000	89.88	269.955	5,177.207	470.047	-4,142.865	4,167.862	0.00	0.00	0.00
9,200.000	89.88	269.955	5,177.416	469.968	-4,242.864	4,267.491	0.00	0.00	0.00
9,300.000	89.88	269.955	5,177.625	469.890	-4,342.864	4,367.119	0.00	0.00	0.00
9,400.000	89.88	269.955	5,177.835	469.811	-4,442.864	4,466.748	0.00	0.00	0.00
9,500.000	89.88	269.955	5,178.044	469.733	-4,542.864	4,566.376	0.00	0.00	0.00
9,600.000	89.88	269.955	5,178.253	469.654	-4,642.863	4,666.004	0.00	0.00	0.00
9,700.000	89.88	269.955	5,178.463	469.576	-4,742.863	4,765.633	0.00	0.00	0.00
9,800.000	89.88	269.955	5,178.672	469.497	-4,842.863	4,865.261	0.00	0.00	0.00
9,900.000	89.88	269.955	5,178.881	469.419	-4,942.863	4,964.890	0.00	0.00	0.00
10,000.000	89.88	269.955	5,179.091	469.341	-5,042.862	5,064.518	0.00	0.00	0.00
10,100.000	89.88	269.955	5,179.300	469.262	-5,142.862	5,164.146	0.00	0.00	0.00
10,200.000	89.88	269.955	5,179.510	469.184	-5,242.862	5,263.775	0.00	0.00	0.00
10,300.000	89.88	269.955	5,179.719	469.105	-5,342.862	5,363.403	0.00	0.00	0.00
10,400.000	89.88	269.955	5,179.928	469.027	-5,442.861	5,463.032	0.00	0.00	0.00
10,434.138	89.88	269.955	5,180.000	469.000	-5,477.000	5,497.043	0.00	0.00	0.00
[RF#5H]BHL 10434' MD (5180' TVD)									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
[RF#5H]UMP1	0.00	0.000	5,170.000	473.000	-398.000	676,874.00	669,144.00	32° 51' 36.205 N	103° 55' 1.588 W
- plan misses target center by 87.873usft at 5384.544usft MD (5093.900 TVD, 472.962 N, -441.936 E)									
- Point									
[RF#5H]BHL1	0.00	0.000	5,180.000	469.000	-5,477.000	676,870.00	664,065.00	32° 51' 36.360 N	103° 56' 1.134 W
- plan hits target center									
- Point									

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Riker Federal #5H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3742.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3742.000usft (Planning Rig)
Site:	Riker	**North Reference:**	Grid
Well:	Riker Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,000.000	4,000.000	0.000	0.000	KOP
5,333.811	5,068.533	473.000	-398.000	START 75' TANGENT
5,384.544	5,093.899	472.962	-441.936	[RF#5H]UMP 5385' MD (5094' TVD)
5,408.811	5,106.033	472.943	-462.952	END 60° TANGENT/BEGIN 12°/100' BR
5,657.811	5,170.000	472.747	-700.684	[RF#5H]EOC 5658' MD (5170' TVD)
10,434.138	5,180.000	469.000	-5,477.000	[RF#5H]BHL 10434' MD (5180' TVD)

Project:	Eddy County (NAD83)
Site:	Riker
Well:	Riker Federal #5H
Wellbore:	Lateral
Design:	Plan #1
Ground Elevation	3724.000
Northing	676401.00
Easting	669542.00
KB @ 3742.000usft (Planning Rig)	

PROJECT DETAILS: Eddy County (NAD83)

Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

eog resources

T G M

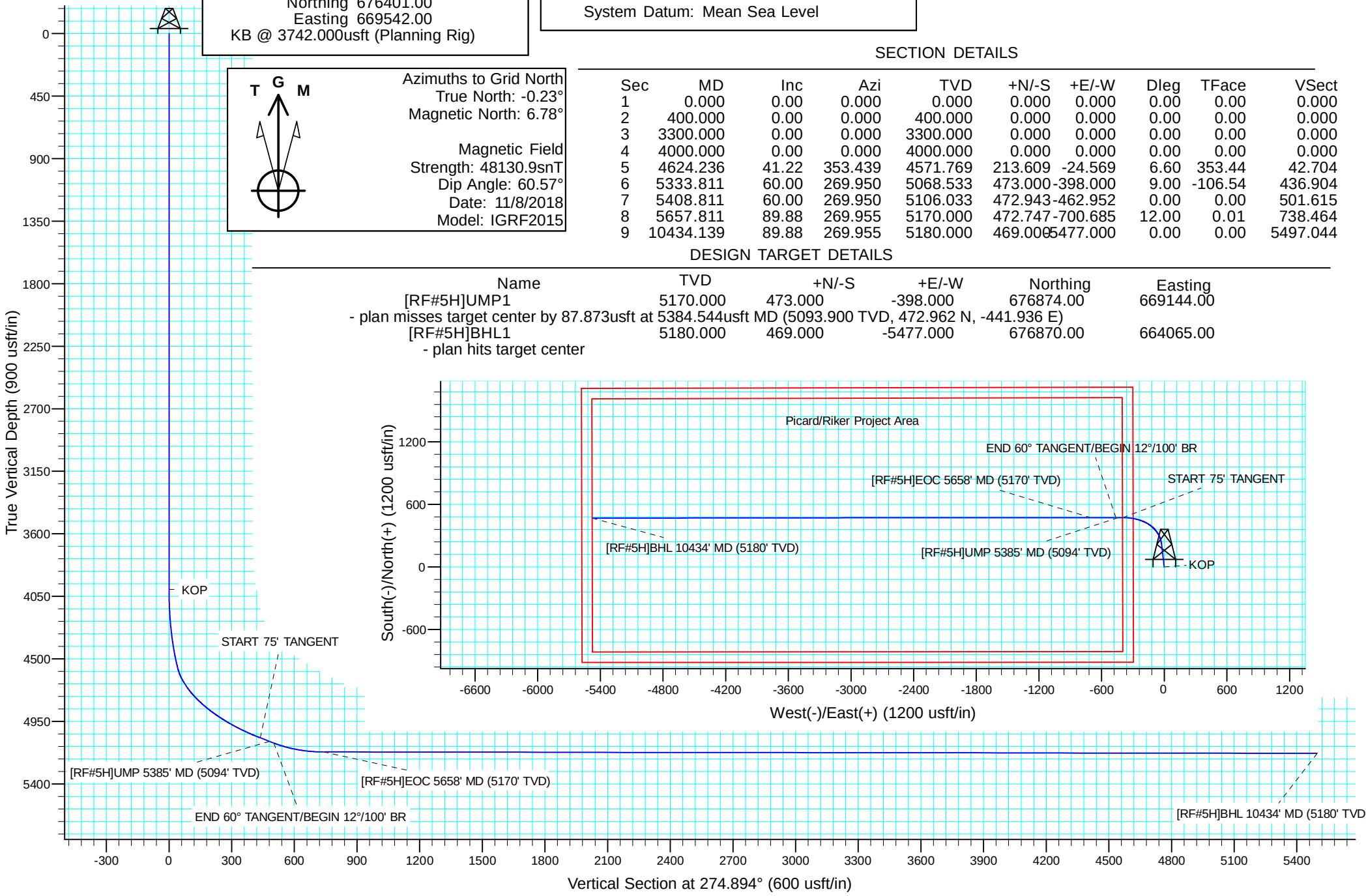
Azimuths to Grid North	
True North:	-0.23°
Magnetic North:	6.78°
Magnetic Field	
Strength:	48130.9snT
Dip Angle:	60.57°
Date:	11/8/2018
Model:	IGRF2015

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.000
2	400.000	0.00	0.000	400.000	0.000	0.000	0.00	0.00	0.000
3	3300.000	0.00	0.000	3300.000	0.000	0.000	0.00	0.00	0.000
4	4000.000	0.00	0.000	4000.000	0.000	0.000	0.00	0.00	0.000
5	4624.236	41.22	353.439	4571.769	213.609	-24.569	6.60	353.44	42.704
6	5333.811	60.00	269.950	5068.533	473.000	-398.000	9.00	-106.54	436.904
7	5408.811	60.00	269.950	5106.033	472.943	-462.952	0.00	0.00	501.615
8	5657.811	89.88	269.955	5170.000	472.747	-700.685	12.00	0.01	738.464
9	10434.139	89.88	269.955	5180.000	469.000	-5477.000	0.00	0.00	5497.044

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
[RF#5H]UMP1	5170.000	473.000	-398.000	676874.00	669144.00
- plan misses target center by 87.873usft at 5384.544usft MD (5093.900 TVD, 472.962 N, -441.936 E)					
[RF#5H]BHL1	5180.000	469.000	-5477.000	676870.00	664065.00
- plan hits target center					



EOG RESOURCES, INC.
Riker Federal 5H

Hydrogen Sulfide Plan Summary

A. All personnel shall receive proper H2S training in accordance with Onshore Order III.C.3.a.

B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment:

- Well control equipment
  a. Flare line 150' from wellhead to be ignited by flare gun.
  b. Choke manifold with a remotely operated choke.
  c. Mud/gas separator

- Protective equipment for essential personnel.

  Breathing apparatus:
  a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
  b. Work/Escape packs —4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
  c. Emergency Escape Packs —4 packs shall be stored in the doghouse for emergency evacuation.

  Auxiliary Rescue Equipment:
  a. Stretcher
  b. Two OSHA full body harness
  c. 100 ft 5/8 inch OSHA approved rope
  d. 1-20# class ABC fire extinguisher

- H2S detection and monitoring equipment:
  The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.
  (Gas sample tubes will be stored in the safety trailer)

- Visual warning systems.
  a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
  c. Two wind socks will be placed in strategic locations, visible from all angles.

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- Mud program:
  The mud program has been designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.

- Metallurgy:
  All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

- Communication:
  Communication will be via cell phones and land lines where available.

EOG RESOURCES, INC.
Riker Federal 5H

Emergency Assistance Telephone List

PUBLIC SAFETY:	**911 or**
Eddy County Sheriff's Department	(575) 887-7551
Fire Department:	
Carlsbad	(575) 885-3125
Artesia	(575) 746-5050
Hospitals:	
Carlsbad	(575) 887-4121
Artesia	(575) 748-3333
Hobbs	(575) 392-1979
Dept. of Public Safety/Carlsbad	(575) 748-9718
Highway Department	(575) 885-3281
New Mexico Oil Conservation	(575) 476-3440
U.S. Dept. of Labor	(575) 887-1174

EOG Resources, Inc.		
EOG / Artesia	Office	(575) 748-1471

Company Drilling Consultants:		
Brent Patterson	Cell	(575) 365-7032

Drilling Engineer		
Jeremiah Mullen	Office	(575) 748-4378
	Cell	(575) 703-5467

Drilling Manager		
Tim Bussell	Office	(575) 748-4221
	Cell	(575) 365-5695

Safety		
Brian Chandler (HSE Manager)	Office	(432) 686-3695
	Cell	(817) 239-0251