Rec'd 08/18/2020 - NMOCD

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.
NMNM002748

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.
BONES FEDERAL
6H

2. Name of Operator
EOG RESOURCES INCORPORATED

9. API Well No.
30 015 47357

3a. Address
1111 BAGBY ST., SKY LOBBY 2 Houston TX 77002

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

10. Field and Pool, or Exploratory
WILDCAT / PERMO PENN

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

At surface NENE / 1204 FNL / 504 FEL / LAT 32.8529758 / LONG -103.9356276

At proposed prod. zone NWNW / 525 FNL / 100 FWL / LAT 32.8548217 / LONG -103.9508463

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 11 / T17S / R30E / 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)
504 feet

16. No of acres in lease
1240

17. Spacing Unit dedicated to this well
240

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

19. Proposed Depth
5195 feet / 9605 feet

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3749 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)*
Tina Huerta / Ph: (575)748-4168

Date
01/11/2019

Title
Regulatory Specialist

Approved by *(Signature)*
(Electronic Submission)

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

Date
06/23/2020

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

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 06/23/2020

Entered - KMS NMOCD

Confidential

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 47357	96718	Loco Hills; Glorieta-Yeso

[4]Property Code	[5]Property Name	[6]Well Number
328974	BONES FEDERAL	6H

[7]OGRID No.	[8]Operator Name	[9]Elevation
7377	EOG RESOURCES, INC.	3749'

[10]Surface Location

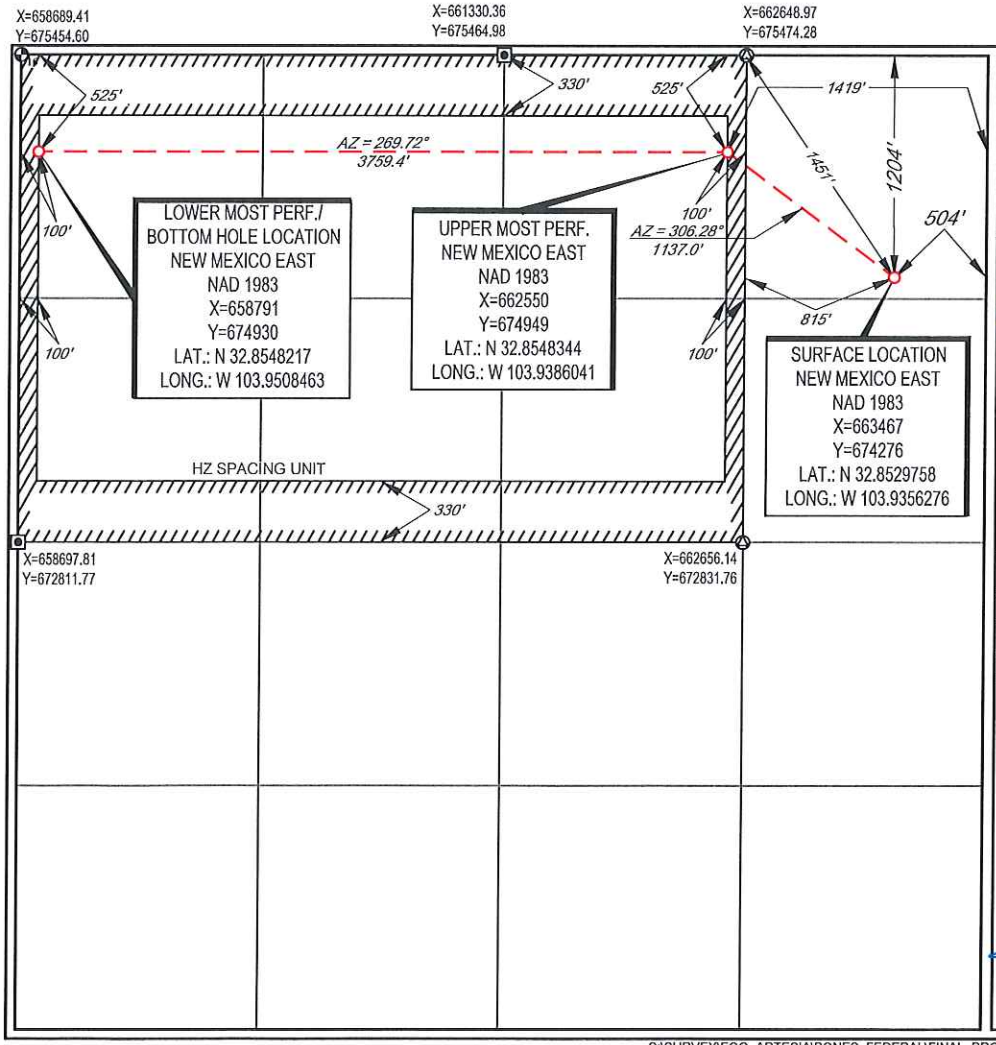
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	11	17-S	30-E	–	1204	NORTH	504	EAST	EDDY

[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
D	11	17-S	30-E	–	525	NORTH	100	WEST	EDDY

[12]Dedicated Acres	[13]Joint or Infill	[14]Consolidation Code	[15]Order No.
240.00			

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.

Tina Huerta 11/6/2018
Signature Date

Tina Huerta
Printed Name

tina_huerta@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.

08/16/2018
Date of Survey
Signature and Seal of Professional Surveyor

MICHAEL A. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Certificate Number

S:\SURVEY\EOG_ARTESIA\BONES_FEDERAL\FINAL_PRODUCTS\LO_BONES_FEDERAL_6H.DWG 10/31/2018 2:06:48 PM csmith5

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: December 5, 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
Data Federal 1H		11–17S-30E	1289' FNL 651' FEL	500	0	
Data Federal 2H		11–17S-30E	1249' FNL 653' FEL	500	0	
Data Federal 3H		11–17S-30E	1209' FNL 654' FEL	500	0	
Bones Federal 4H		11–17S-30E	1284' FNL 501' FEL	500	0	
Bones Federal 5H		11–17S-30E	1244' FNL 503' FEL	500	0	
Bones Federal 6H		11–17S-30E	1204' FNL 504' FEL	500	0	
Mr. Scott Federal Com 1H		12–17S-30E	1567'FSL 2401' FEL	500	0	
La Forge Federal Com 2H		12–17S-30E	1591'FSL 2832' FEL	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 DCP Midstream and will be connected to DCP Midstream low pressure gathering system located in Eddy County, New Mexico. It will require 27' of pipeline to connect the facility to low/high pressure gathering system. EOG provides (periodically) to DCP Midstream a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, EOG and DCP Midstream have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at DCP Midstream Processing Plant located in 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 DCP Midstream system at that time. Based on current information, it is EOG'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.	Bones Federal	6H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	11	17S	30E		1204	North	504	East	Eddy

Latitude	Longitude	NAD
32.8529758	-103.9356276	83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	11	17S	30E		525	North	1419	East	Eddy

Latitude	Longitude	NAD
32.8548344	-103.9386041	83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
D	11	17S	30E		525	North	100	West	Eddy

Latitude	Longitude	NAD
32.8548217	-103.9508463	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 INC**
WELL NAME & NO.:	**BONES FEDERAL 6H**
SURFACE HOLE FOOTAGE:	**1204'/N & 504'/E**
BOTTOM HOLE FOOTAGE	**525'/N & 100'/W**
LOCATION:	**Section 11, T.17 S., R.30 E., NMPM**
COUNTY:	**EDDY 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 **Grayburg** formation. 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

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 **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.

3. 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.

JJP06232020

EOG RESOURCES, INC.
BONES FEDERAL NO. 6H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	436’
Tansill	1,292’
Yates	1,465’
Seven Rivers	1,720’
Queen	2,329’
Grayburg	2,737’
San Andres	3,052’
Glorieta	4,492’
Yeso	4,599’
TD	9,605’

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

Rustler	436’	Fresh Water, Oil
Grayburg	2,737’	Oil
San Andres	3,052’	Oil
Glorieta	4,492’	Oil
Yeso	4,599’	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

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’ – 5,512’	7”	29#	L-80	BTC	1.125	1.25	1.60
8.75”	5,512’-9,605’	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.

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
9605’	210	11.9	2.47	92	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
	945	13	1.48	249	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' – 9,605' Vertical/Curve/Lateral	Cut Brine	8.8-9.4	30-34	N/c

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 2766 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 13-3/8" surface casing, a 13 3/8" 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, INC.
Bones Federal 6H

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.

EOG RESOURCES, INC.
Bones Federal 6H

- 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.
Bones Federal 6H

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

EOG Resources - Artesia

Eddy County (NAD83)
Bones
Bones Federal #6H

Lateral
Plan #1

Anticollision Report

04 January, 2019

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Reference Site:	Bones	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Bones Federal #6H	**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** 1/4/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.000	9,604.757	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
Data						
Data Federal #3H - Lateral - Plan #1	2,900.000	2,894.000	150.120	135.733	10.434	CC, ES
Data Federal #3H - Lateral - Plan #1	9,604.762	9,049.504	373.997	321.755	7.159	SF

Offset Design Data - Data Federal #3H - 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	6.000	-6.000	0.000	0.009	-92.29	-6.000	-150.000	150.120				
100.000	100.000	106.000	94.000	0.147	0.168	-92.29	-6.000	-150.000	150.120	149.896	0.22	671.442	
200.000	200.000	206.000	194.000	0.505	0.527	-92.29	-6.000	-150.000	150.120	149.390	0.73	205.595	
300.000	300.000	306.000	294.000	0.864	0.885	-92.29	-6.000	-150.000	150.120	148.883	1.24	121.352	
400.000	400.000	406.000	394.000	1.222	1.244	-92.29	-6.000	-150.000	150.120	148.376	1.74	86.078	
500.000	500.000	506.000	494.000	1.581	1.602	-92.29	-6.000	-150.000	150.120	147.869	2.25	66.692	
600.000	600.000	606.000	594.000	1.939	1.961	-92.29	-6.000	-150.000	150.120	147.362	2.76	54.433	
700.000	700.000	706.000	694.000	2.298	2.319	-92.29	-6.000	-150.000	150.120	146.855	3.26	45.981	
800.000	800.000	806.000	794.000	2.656	2.678	-92.29	-6.000	-150.000	150.120	146.348	3.77	39.801	
900.000	900.000	906.000	894.000	3.015	3.036	-92.29	-6.000	-150.000	150.120	145.841	4.28	35.085	
1,000.000	1,000.000	1,006.000	994.000	3.373	3.395	-92.29	-6.000	-150.000	150.120	145.334	4.79	31.369	
1,100.000	1,100.000	1,106.000	1,094.000	3.732	3.753	-92.29	-6.000	-150.000	150.120	144.827	5.29	28.364	
1,200.000	1,200.000	1,206.000	1,194.000	4.090	4.112	-92.29	-6.000	-150.000	150.120	144.320	5.80	25.885	
1,300.000	1,300.000	1,306.000	1,294.000	4.449	4.470	-92.29	-6.000	-150.000	150.120	143.813	6.31	23.804	
1,400.000	1,400.000	1,406.000	1,394.000	4.807	4.829	-92.29	-6.000	-150.000	150.120	143.306	6.81	22.033	
1,500.000	1,500.000	1,506.000	1,494.000	5.166	5.187	-92.29	-6.000	-150.000	150.120	142.799	7.32	20.507	
1,600.000	1,600.000	1,606.000	1,594.000	5.524	5.546	-92.29	-6.000	-150.000	150.120	142.293	7.83	19.179	
1,700.000	1,700.000	1,706.000	1,694.000	5.883	5.904	-92.29	-6.000	-150.000	150.120	141.786	8.33	18.012	
1,800.000	1,800.000	1,806.000	1,794.000	6.241	6.262	-92.29	-6.000	-150.000	150.120	141.279	8.84	16.979	
1,900.000	1,900.000	1,906.000	1,894.000	6.599	6.621	-92.29	-6.000	-150.000	150.120	140.772	9.35	16.059	
2,000.000	2,000.000	2,006.000	1,994.000	6.958	6.979	-92.29	-6.000	-150.000	150.120	140.265	9.86	15.233	
2,100.000	2,100.000	2,106.000	2,094.000	7.316	7.338	-92.29	-6.000	-150.000	150.120	139.758	10.36	14.487	
2,200.000	2,200.000	2,206.000	2,194.000	7.675	7.696	-92.29	-6.000	-150.000	150.120	139.251	10.87	13.812	
2,300.000	2,300.000	2,306.000	2,294.000	8.033	8.055	-92.29	-6.000	-150.000	150.120	138.744	11.38	13.196	
2,400.000	2,400.000	2,406.000	2,394.000	8.392	8.413	-92.29	-6.000	-150.000	150.120	138.237	11.88	12.633	

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Reference Site:	Bones	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Bones Federal #6H	**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 Data - Data Federal #3H - 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
2,500.000	2,500.000	2,506.000	2,494.000	8.750	8.772	-92.29	-6.000	-150.000	150.120	137.730	12.39	12.116	
2,600.000	2,600.000	2,606.000	2,594.000	9.109	9.130	-92.29	-6.000	-150.000	150.120	137.223	12.90	11.640	
2,700.000	2,700.000	2,706.000	2,694.000	9.467	9.489	-92.29	-6.000	-150.000	150.120	136.716	13.40	11.200	
2,800.000	2,800.000	2,806.000	2,794.000	9.826	9.847	-92.29	-6.000	-150.000	150.120	136.209	13.91	10.792	
2,900.000	2,900.000	2,894.000	2,894.000	10.184	10.163	-92.29	-6.000	-150.000	150.120	135.733	14.39	10.434	CC, ES
3,000.000	3,000.000	2,992.250	2,992.223	10.543	10.514	-91.58	-4.143	-150.589	150.657	135.768	14.89	10.119	
3,100.000	3,100.000	3,089.990	3,089.743	10.901	10.864	-89.26	1.963	-152.526	152.598	137.214	15.38	9.920	
3,200.000	3,200.000	3,186.943	3,186.090	11.260	11.211	-85.52	12.213	-155.777	156.456	140.587	15.87	9.859	
3,300.000	3,300.000	3,282.726	3,280.699	11.618	11.554	-80.64	26.420	-160.284	162.991	146.655	16.34	9.978	
3,400.000	3,400.000	3,376.984	3,373.056	11.977	11.897	-75.04	44.333	-165.967	173.058	156.285	16.77	10.318	
3,415.547	3,415.547	3,391.481	3,387.183	12.032	11.950	-74.14	47.432	-166.950	174.992	158.155	16.84	10.394	
3,500.000	3,499.972	3,469.836	3,463.139	12.335	12.244	-50.01	65.759	-172.763	186.227	169.057	17.17	10.846	
3,600.000	3,599.713	3,561.959	3,551.465	12.692	12.602	-45.14	90.683	-180.670	200.356	182.824	17.53	11.428	
3,700.000	3,698.949	3,653.415	3,637.957	13.049	12.974	-41.06	118.994	-189.651	214.938	197.077	17.86	12.034	
3,800.000	3,797.409	3,744.251	3,722.526	13.406	13.365	-37.63	150.580	-199.670	229.615	211.456	18.16	12.644	
3,900.000	3,894.821	3,834.511	3,805.087	13.770	13.779	-34.72	185.331	-210.694	244.120	225.690	18.43	13.246	
4,000.000	3,990.920	3,924.237	3,885.562	14.145	14.221	-32.24	223.141	-222.688	258.248	239.572	18.68	13.828	
4,100.000	4,085.442	4,013.470	3,963.872	14.537	14.693	-30.11	263.904	-235.619	271.841	252.941	18.90	14.383	
4,200.000	4,178.128	4,102.250	4,039.946	14.953	15.202	-28.27	307.518	-249.454	284.778	265.672	19.11	14.905	
4,300.000	4,268.724	4,190.614	4,113.710	15.401	15.753	-26.67	353.882	-264.161	296.960	277.662	19.30	15.388	
4,400.000	4,356.981	4,278.600	4,185.098	15.886	16.349	-25.27	402.897	-279.710	308.310	288.832	19.48	15.829	
4,500.000	4,442.658	4,366.242	4,254.042	16.418	16.990	-24.04	454.464	-296.068	318.764	299.116	19.65	16.223	
4,600.000	4,525.519	4,453.247	4,321.003	17.003	17.670	-23.53	506.385	-315.621	328.301	308.463	19.84	16.549	
4,700.000	4,605.338	4,538.596	4,386.775	17.650	18.388	-25.19	552.154	-344.813	337.142	317.019	20.12	16.754	
4,800.000	4,681.896	4,619.158	4,447.955	18.364	19.093	-28.62	589.578	-381.385	346.604	326.173	20.43	16.965	
4,815.547	4,693.492	4,631.079	4,456.870	18.481	19.199	-29.26	594.598	-387.505	348.280	327.802	20.48	17.008	
4,850.000	4,719.177	4,657.149	4,476.200	18.748	19.434	-27.62	605.090	-401.497	352.221	331.650	20.57	17.122	
4,900.000	4,756.633	4,694.484	4,503.437	19.151	19.774	-25.00	618.922	-422.952	358.361	337.700	20.66	17.345	
4,950.000	4,794.096	4,731.288	4,529.685	19.570	20.113	-22.22	631.137	-445.667	364.855	344.162	20.69	17.631	
5,000.000	4,831.334	4,767.618	4,554.919	20.003	20.454	-19.36	641.771	-469.535	371.552	350.885	20.67	17.978	
5,050.000	4,868.118	4,803.529	4,579.117	20.448	20.797	-16.53	650.855	-494.458	378.312	357.732	20.58	18.382	
5,100.000	4,904.221	4,839.068	4,602.256	20.904	21.141	-13.80	658.418	-520.344	385.008	364.576	20.43	18.844	
5,150.000	4,939.421	4,874.279	4,624.312	21.371	21.489	-11.24	664.487	-547.105	391.525	371.302	20.22	19.360	
5,200.000	4,973.500	4,909.200	4,645.263	21.849	21.842	-8.87	669.087	-574.656	397.761	377.801	19.96	19.928	
5,250.000	5,006.249	4,943.869	4,665.088	22.338	22.200	-6.70	672.241	-602.917	403.627	383.983	19.64	20.547	
5,300.000	5,037.465	4,978.320	4,683.763	22.839	22.563	-4.74	673.971	-631.810	409.044	389.763	19.28	21.214	
5,350.000	5,066.957	5,015.042	4,702.511	23.355	22.968	-3.02	674.306	-663.378	413.923	394.926	19.00	21.789	
5,400.000	5,094.542	5,064.793	4,727.387	23.885	23.537	-1.38	674.096	-706.464	417.027	397.734	19.29	21.615	
5,436.822	5,113.538	5,092.492	4,741.138	24.288	23.873	0.00	673.978	-730.508	417.926	398.843	19.08	21.900	
5,500.000	5,145.127	5,125.000	4,755.793	25.013	24.300	0.00	673.836	-759.517	421.526	403.479	18.05	23.357	
5,511.822	5,151.038	5,132.311	4,758.814	25.156	24.402	0.00	673.803	-766.175	422.688	404.771	17.92	23.592	
5,525.000	5,157.468	5,139.262	4,761.592	25.321	24.500	0.00	673.771	-772.546	423.986	406.267	17.72	23.928	
5,550.000	5,168.785	5,150.000	4,765.700	25.648	24.653	0.00	673.722	-782.466	425.991	408.747	17.24	24.704	
5,575.000	5,178.920	5,165.627	4,771.278	25.996	24.886	0.00	673.650	-797.063	427.352	410.359	16.99	25.148	
5,600.000	5,187.845	5,175.000	4,774.394	26.364	25.027	0.00	673.606	-805.903	428.141	411.652	16.49	25.966	
5,625.000	5,195.536	5,191.985	4,779.595	26.751	25.294	0.00	673.526	-822.072	428.246	411.928	16.32	26.243	
5,650.000	5,201.971	5,205.165	4,783.232	27.156	25.506	0.00	673.463	-834.738	427.765	411.760	16.01	26.726	
5,675.000	5,207.134	5,218.345	4,786.519	27.579	25.723	0.00	673.399	-847.502	426.665	410.954	15.71	27.157	
5,700.000	5,211.009	5,231.528	4,789.453	28.017	25.946	0.00	673.335	-860.353	424.947	409.509	15.44	27.525	
5,725.000	5,213.587	5,244.713	4,792.031	28.470	26.173	0.00	673.270	-873.284	422.613	407.423	15.19	27.822	
5,750.000	5,214.860	5,257.903	4,794.252	28.934	26.406	0.00	673.205	-886.284	419.664	404.697	14.97	28.039	
5,764.309	5,215.000	5,265.454	4,795.361	29.204	26.541	0.00	673.168	-893.754	417.700	402.847	14.85	28.123	

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 Bones Federal #6H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Reference Site:	Bones	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Bones Federal #6H	**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 Data - Data Federal #3H - Lateral - Plan #1

Offset Site Error: 0.000 usft

Survey Program: 0-MWD

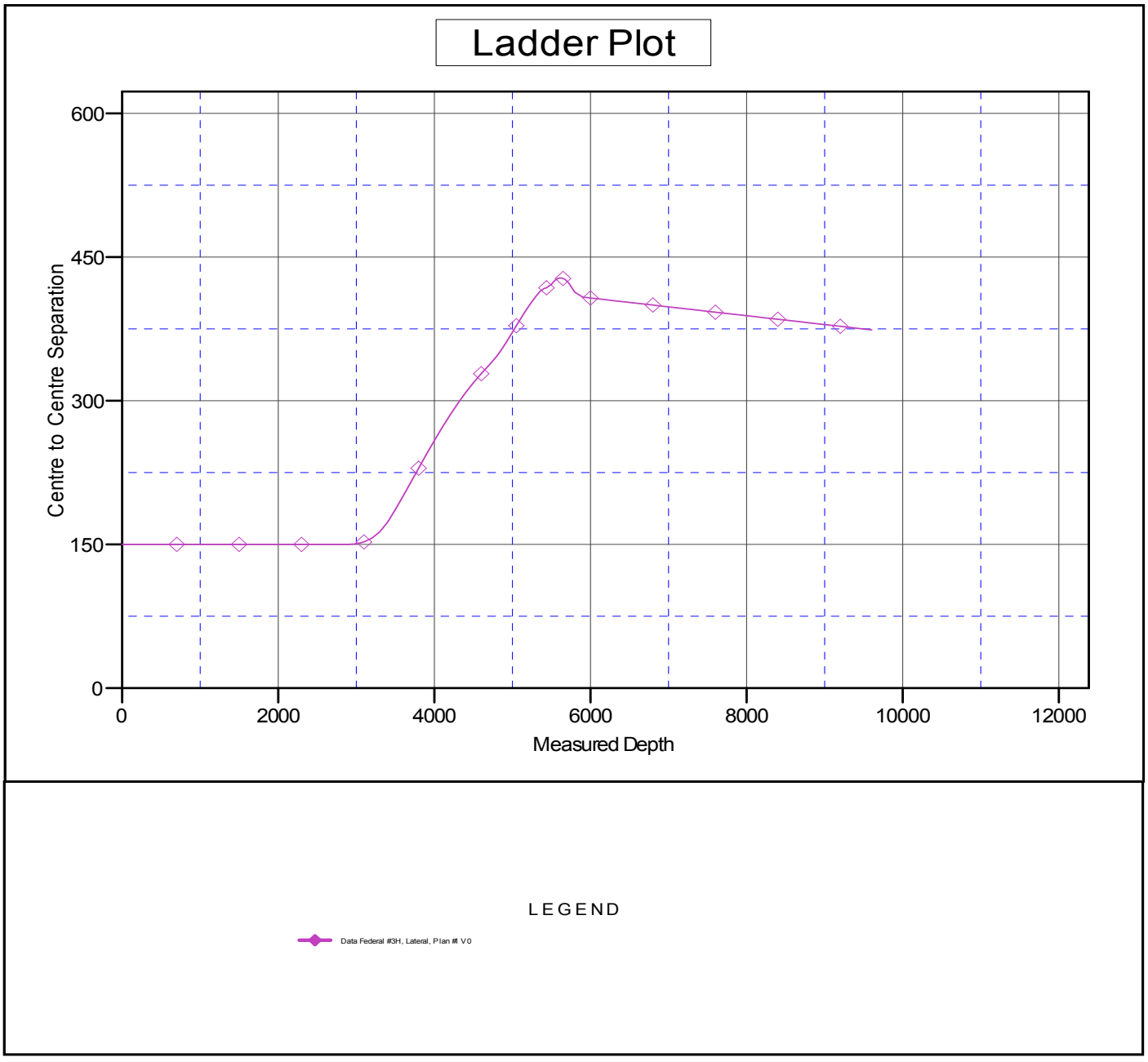
Offset Well Error: 0.000 usft

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
5,800.000	5,214.814	5,284.391	4,797.623	29.894	26.885	0.01	673.073	-912.554	413.251	398.645	14.61	28.292	
5,900.000	5,214.293	5,344.900	4,800.059	31.942	28.036	0.01	672.768	-972.982	408.237	393.816	14.42	28.308	
6,000.000	5,213.772	5,444.896	4,800.463	34.134	30.083	0.00	672.261	-1,072.976	407.313	392.092	15.22	26.760	
6,100.000	5,213.251	5,544.892	4,800.866	36.445	32.278	0.00	671.754	-1,172.970	406.388	390.333	16.06	25.311	
6,200.000	5,212.731	5,644.887	4,801.270	38.853	34.599	0.00	671.247	-1,272.963	405.464	388.542	16.92	23.961	
6,300.000	5,212.210	5,744.883	4,801.673	41.340	37.020	0.00	670.740	-1,372.957	404.540	386.724	17.82	22.707	
6,400.000	5,211.689	5,844.879	4,802.077	43.893	39.523	0.00	670.234	-1,472.950	403.616	384.883	18.73	21.546	
6,500.000	5,211.168	5,944.875	4,802.480	46.500	42.093	0.00	669.727	-1,572.944	402.692	383.022	19.67	20.473	
6,600.000	5,210.648	6,044.870	4,802.884	49.152	44.717	0.00	669.220	-1,672.938	401.767	381.144	20.62	19.482	
6,700.000	5,210.127	6,144.866	4,803.287	51.842	47.387	0.00	668.713	-1,772.931	400.843	379.251	21.59	18.565	
6,800.000	5,209.606	6,244.862	4,803.690	54.565	50.094	0.00	668.206	-1,872.925	399.919	377.345	22.57	17.716	
6,900.000	5,209.085	6,344.857	4,804.094	57.315	52.833	0.00	667.700	-1,972.919	398.995	375.428	23.57	16.930	
7,000.000	5,208.565	6,444.853	4,804.497	60.089	55.598	0.00	667.193	-2,072.912	398.071	373.501	24.57	16.202	
7,100.000	5,208.044	6,544.849	4,804.901	62.884	58.387	0.00	666.686	-2,172.906	397.146	371.565	25.58	15.525	
7,200.000	5,207.523	6,644.845	4,805.304	65.697	61.196	0.00	666.179	-2,272.899	396.222	369.621	26.60	14.895	
7,300.000	5,207.002	6,744.840	4,805.708	68.525	64.021	0.00	665.673	-2,372.893	395.298	367.670	27.63	14.308	
7,400.000	5,206.481	6,844.836	4,806.111	71.367	66.862	0.00	665.166	-2,472.887	394.374	365.713	28.66	13.760	
7,500.000	5,205.961	6,944.832	4,806.514	74.221	69.716	0.00	664.659	-2,572.880	393.449	363.750	29.70	13.248	
7,600.000	5,205.440	7,044.828	4,806.918	77.086	72.581	0.00	664.152	-2,672.874	392.525	361.782	30.74	12.768	
7,700.000	5,204.919	7,144.823	4,807.321	79.961	75.456	0.00	663.645	-2,772.868	391.601	359.810	31.79	12.318	
7,800.000	5,204.398	7,244.819	4,807.725	82.844	78.340	0.00	663.139	-2,872.861	390.677	357.834	32.84	11.895	
7,900.000	5,203.878	7,344.815	4,808.128	85.734	81.232	0.00	662.632	-2,972.855	389.753	355.854	33.90	11.498	
8,000.000	5,203.357	7,444.810	4,808.532	88.632	84.131	0.00	662.125	-3,072.848	388.828	353.871	34.96	11.123	
8,100.000	5,202.836	7,544.806	4,808.935	91.536	87.037	0.00	661.618	-3,172.842	387.904	351.884	36.02	10.769	
8,200.000	5,202.315	7,644.802	4,809.339	94.445	89.948	0.00	661.111	-3,272.836	386.980	349.895	37.08	10.435	
8,300.000	5,201.795	7,744.798	4,809.742	97.360	92.865	0.00	660.605	-3,372.829	386.056	347.904	38.15	10.119	
8,400.000	5,201.274	7,844.793	4,810.145	100.280	95.786	0.00	660.098	-3,472.823	385.132	345.910	39.22	9.819	
8,500.000	5,200.753	7,944.789	4,810.549	103.203	98.712	0.00	659.591	-3,572.817	384.207	343.913	40.29	9.535	
8,600.000	5,200.232	8,044.785	4,810.952	106.131	101.642	0.00	659.084	-3,672.810	383.283	341.915	41.37	9.265	
8,700.000	5,199.711	8,144.780	4,811.356	109.062	104.575	0.00	658.578	-3,772.804	382.359	339.915	42.44	9.009	
8,800.000	5,199.191	8,244.776	4,811.759	111.997	107.512	0.00	658.071	-3,872.797	381.435	337.914	43.52	8.764	
8,900.000	5,198.670	8,344.772	4,812.163	114.935	110.452	0.00	657.564	-3,972.791	380.510	335.910	44.60	8.532	
9,000.000	5,198.149	8,444.768	4,812.566	117.875	113.395	0.00	657.057	-4,072.785	379.586	333.905	45.68	8.310	
9,100.000	5,197.628	8,544.763	4,812.969	120.818	116.340	0.00	656.550	-4,172.778	378.662	331.899	46.76	8.098	
9,200.000	5,197.108	8,644.759	4,813.373	123.764	119.287	0.00	656.044	-4,272.772	377.738	329.892	47.85	7.895	
9,300.000	5,196.587	8,744.755	4,813.776	126.712	122.237	0.00	655.537	-4,372.766	376.814	327.883	48.93	7.701	
9,400.000	5,196.066	8,844.751	4,814.180	129.662	125.189	0.00	655.030	-4,472.759	375.889	325.874	50.02	7.515	
9,500.000	5,195.545	8,944.746	4,814.583	132.614	128.143	0.00	654.523	-4,572.753	374.965	323.863	51.10	7.338	
9,604.762	5,195.000	9,049.504	4,815.006	135.708	131.239	0.00	653.992	-4,677.509	373.997	321.755	52.24	7.159	SF

Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Reference Site:	Bones	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Bones Federal #6H	**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 @ 3767.000usft (Planning Rig)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Bones Federal #6H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.22°

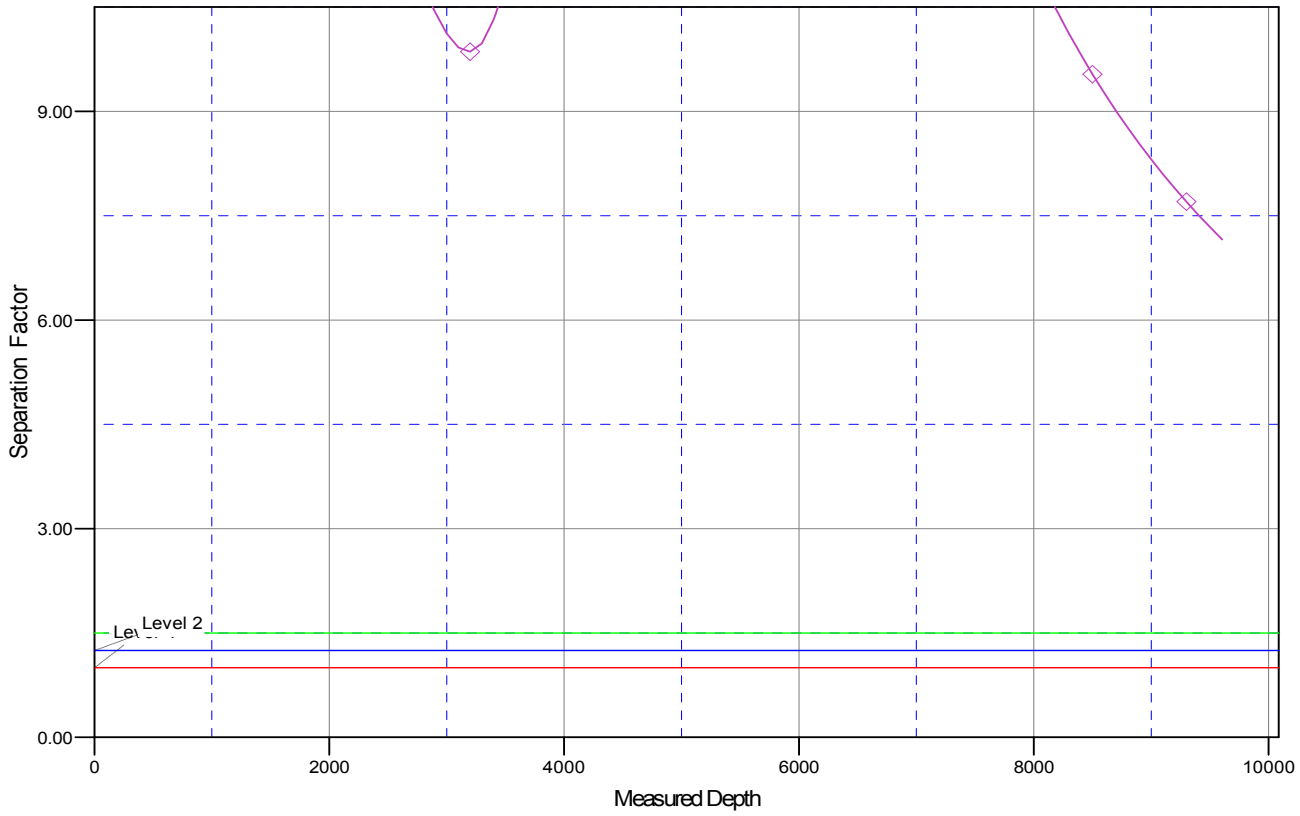


Company:	EOG Resources - Artesia	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Project:	Eddy County (NAD83)	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Reference Site:	Bones	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site Error:	0.000 usft	**North Reference:**	Grid
Reference Well:	Bones Federal #6H	**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 @ 3767.000usft (Planning Rig)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Bones Federal #6H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.22°

Separation Factor Plot



LEGEND

Data Federal #3H, Lateral, Plan #1 V0

EOG Resources - Artesia

Eddy County (NAD83)
Bones
Bones Federal #6H

Lateral

Plan: Plan #1

Standard Planning Report

04 January, 2019

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site:	Bones	**North Reference:**	Grid
Well:	Bones Federal #6H	**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 Bones

Site Position:		**Northing:**	674,196.00 usft	**Latitude:**	32° 51' 9.923 N
From:	Map	**Easting:**	663,470.00 usft	**Longitude:**	103° 56' 8.227 W
Position Uncertainty:	0.000 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.22 °

Well Bones Federal #6H

Well Position	**+N/-S**	80.000 usft	**Northing:**	674,276.00 usft	**Latitude:**	32° 51' 10.715 N
	+E/-W	-3.000 usft	**Easting:**	663,467.00 usft	**Longitude:**	103° 56' 8.259 W
Position Uncertainty		0.000 usft	**Wellhead Elevation:**	3,767.000 usft	**Ground Level:**	3,749.000 usft

Wellbore Lateral

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/4/2019	7.00	60.56	48,109.01522650

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	277.962

Plan Survey Tool Program **Date** 1/4/2019

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.000	9,604.757	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	
3,415.547	0.00	0.000	3,415.547	0.000	0.000	0.00	0.00	0.00	0.00	
4,815.547	42.00	340.700	4,693.492	462.988	-162.136	3.00	3.00	0.00	340.70	
5,436.822	60.00	269.720	5,113.538	674.945	-529.481	9.00	2.90	-11.42	-98.67	
5,511.822	60.00	269.720	5,151.038	674.627	-594.432	0.00	0.00	0.00	0.00	
5,764.309	90.30	269.710	5,215.000	673.426	-835.648	12.00	12.00	0.00	-0.02	
9,604.762	90.30	269.710	5,195.000	654.000	-4,676.000	0.00	0.00	0.00	0.00	[BF#6H]BHL

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site:	Bones	**North Reference:**	Grid
Well:	Bones Federal #6H	**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
3,415.547	0.00	0.000	3,415.547	0.000	0.000	0.000	0.00	0.00	0.00
KOP 3°/100' BR									
3,500.000	2.53	340.700	3,499.972	1.762	-0.617	0.855	3.00	3.00	0.00
3,600.000	5.53	340.700	3,599.713	8.400	-2.942	4.077	3.00	3.00	0.00
3,700.000	8.53	340.700	3,698.949	19.956	-6.988	9.685	3.00	3.00	0.00
3,800.000	11.53	340.700	3,797.409	36.397	-12.746	17.665	3.00	3.00	0.00
3,900.000	14.53	340.700	3,894.821	57.680	-20.199	27.994	3.00	3.00	0.00
4,000.000	17.53	340.700	3,990.920	83.745	-29.327	40.644	3.00	3.00	0.00
4,100.000	20.53	340.700	4,085.442	114.520	-40.104	55.581	3.00	3.00	0.00
4,200.000	23.53	340.700	4,178.128	149.923	-52.502	72.763	3.00	3.00	0.00
4,300.000	26.53	340.700	4,268.724	189.855	-66.486	92.143	3.00	3.00	0.00
4,400.000	29.53	340.700	4,356.981	234.208	-82.018	113.669	3.00	3.00	0.00
4,500.000	32.53	340.700	4,442.658	282.859	-99.056	137.281	3.00	3.00	0.00
4,600.000	35.53	340.700	4,525.519	335.676	-117.552	162.915	3.00	3.00	0.00
4,700.000	38.53	340.700	4,605.338	392.513	-137.456	190.500	3.00	3.00	0.00
4,800.000	41.53	340.700	4,681.896	453.215	-158.713	219.960	3.00	3.00	0.00
4,815.547	42.00	340.700	4,693.492	462.988	-162.136	224.704	3.00	3.00	0.00
START 9°/100' BR									

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site:	Bones	**North Reference:**	Grid
Well:	Bones Federal #6H	**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)
4,850.000	41.62	336.082	4,719.177	484.333	-170.587	236.030	9.00	-1.09	-13.40
4,900.000	41.41	329.299	4,756.633	513.747	-185.771	255.142	9.00	-0.42	-13.57
4,950.000	41.60	322.513	4,794.096	541.152	-204.325	277.313	9.00	0.38	-13.57
5,000.000	42.18	315.828	4,831.334	566.377	-226.136	302.408	9.00	1.17	-13.37
5,050.000	43.15	309.339	4,868.118	589.268	-251.070	330.272	9.00	1.92	-12.98
5,100.000	44.46	303.118	4,904.221	609.682	-278.972	360.733	9.00	2.63	-12.44
5,150.000	46.09	297.215	4,939.421	627.495	-309.670	393.603	9.00	3.27	-11.81
5,200.000	48.01	291.653	4,973.500	642.596	-342.976	428.679	9.00	3.84	-11.12
5,250.000	50.18	286.437	5,006.249	654.893	-378.683	465.745	9.00	4.35	-10.43
5,300.000	52.58	281.557	5,037.465	664.309	-416.572	504.573	9.00	4.78	-9.76
5,350.000	55.16	276.989	5,066.957	670.786	-456.409	544.924	9.00	5.16	-9.13
5,400.000	57.89	272.708	5,094.542	674.285	-497.949	586.548	9.00	5.48	-8.56
5,436.822	60.00	269.720	5,113.538	674.945	-529.480	617.866	9.00	5.72	-8.11
START 75' TANGENT									
5,500.000	60.00	269.720	5,145.127	674.677	-584.193	672.015	0.00	0.00	0.00
5,511.822	60.00	269.720	5,151.038	674.627	-594.431	682.147	0.00	0.00	0.00
END 60° TANGENT/BEGIN 12°/100' BR									
5,525.000	61.58	269.719	5,157.468	674.571	-605.933	693.530	12.00	12.00	0.00
5,550.000	64.58	269.718	5,168.785	674.461	-628.222	715.589	12.00	12.00	0.00
5,575.000	67.58	269.717	5,178.920	674.349	-651.072	738.203	12.00	12.00	0.00
5,600.000	70.58	269.716	5,187.845	674.233	-674.421	761.311	12.00	12.00	0.00
5,625.000	73.58	269.715	5,195.536	674.115	-698.205	784.850	12.00	12.00	0.00
5,650.000	76.58	269.714	5,201.971	673.995	-722.360	808.755	12.00	12.00	0.00
5,675.000	79.58	269.713	5,207.134	673.873	-746.818	832.960	12.00	12.00	0.00
5,700.000	82.58	269.712	5,211.009	673.749	-771.512	857.399	12.00	12.00	0.00
5,725.000	85.58	269.712	5,213.587	673.624	-796.376	882.006	12.00	12.00	0.00
5,750.000	88.58	269.711	5,214.860	673.498	-821.340	906.712	12.00	12.00	0.00
5,764.309	90.30	269.710	5,215.000	673.426	-835.648	920.872	12.00	12.00	0.00
[BF#6H]EOC 5764' MD (5215' TVD)									
5,800.000	90.30	269.710	5,214.814	673.246	-871.338	956.193	0.00	0.00	0.00
5,845.661	90.30	269.710	5,214.576	673.015	-916.998	1,001.381	0.00	0.00	0.00
[BF#6H]UMP 5846' MD (5215' TVD)									
5,900.000	90.30	269.710	5,214.293	672.740	-971.335	1,055.156	0.00	0.00	0.00
6,000.000	90.30	269.710	5,213.772	672.234	-1,071.332	1,154.120	0.00	0.00	0.00
6,100.000	90.30	269.710	5,213.251	671.728	-1,171.330	1,253.083	0.00	0.00	0.00
6,200.000	90.30	269.710	5,212.731	671.222	-1,271.327	1,352.046	0.00	0.00	0.00
6,300.000	90.30	269.710	5,212.210	670.716	-1,371.325	1,451.010	0.00	0.00	0.00
6,400.000	90.30	269.710	5,211.689	670.211	-1,471.322	1,549.973	0.00	0.00	0.00
6,500.000	90.30	269.710	5,211.168	669.705	-1,571.319	1,648.936	0.00	0.00	0.00
6,600.000	90.30	269.710	5,210.648	669.199	-1,671.317	1,747.900	0.00	0.00	0.00
6,700.000	90.30	269.710	5,210.127	668.693	-1,771.314	1,846.863	0.00	0.00	0.00
6,800.000	90.30	269.710	5,209.606	668.187	-1,871.311	1,945.826	0.00	0.00	0.00
6,900.000	90.30	269.710	5,209.085	667.681	-1,971.309	2,044.790	0.00	0.00	0.00
7,000.000	90.30	269.710	5,208.565	667.176	-2,071.306	2,143.753	0.00	0.00	0.00
7,100.000	90.30	269.710	5,208.044	666.670	-2,171.303	2,242.717	0.00	0.00	0.00
7,200.000	90.30	269.710	5,207.523	666.164	-2,271.301	2,341.680	0.00	0.00	0.00
7,300.000	90.30	269.710	5,207.002	665.658	-2,371.298	2,440.643	0.00	0.00	0.00
7,400.000	90.30	269.710	5,206.481	665.152	-2,471.296	2,539.607	0.00	0.00	0.00
7,500.000	90.30	269.710	5,205.961	664.647	-2,571.293	2,638.570	0.00	0.00	0.00
7,600.000	90.30	269.710	5,205.440	664.141	-2,671.290	2,737.533	0.00	0.00	0.00
7,700.000	90.30	269.710	5,204.919	663.635	-2,771.288	2,836.497	0.00	0.00	0.00
7,800.000	90.30	269.710	5,204.398	663.129	-2,871.285	2,935.460	0.00	0.00	0.00
7,900.000	90.30	269.710	5,203.878	662.623	-2,971.282	3,034.423	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well Bones Federal #6H
Company:	EOG Resources - Artesia	**TVD Reference:**	KB @ 3767.000usft (Planning Rig)
Project:	Eddy County (NAD83)	**MD Reference:**	KB @ 3767.000usft (Planning Rig)
Site:	Bones	**North Reference:**	Grid
Well:	Bones Federal #6H	**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)
8,000.000	90.30	269.710	5,203.357	662.117	-3,071.280	3,133.387	0.00	0.00	0.00
8,100.000	90.30	269.710	5,202.836	661.612	-3,171.277	3,232.350	0.00	0.00	0.00
8,200.000	90.30	269.710	5,202.315	661.106	-3,271.274	3,331.313	0.00	0.00	0.00
8,300.000	90.30	269.710	5,201.795	660.600	-3,371.272	3,430.277	0.00	0.00	0.00
8,400.000	90.30	269.710	5,201.274	660.094	-3,471.269	3,529.240	0.00	0.00	0.00
8,500.000	90.30	269.710	5,200.753	659.588	-3,571.266	3,628.203	0.00	0.00	0.00
8,600.000	90.30	269.710	5,200.232	659.082	-3,671.264	3,727.167	0.00	0.00	0.00
8,700.000	90.30	269.710	5,199.711	658.577	-3,771.261	3,826.130	0.00	0.00	0.00
8,800.000	90.30	269.710	5,199.191	658.071	-3,871.259	3,925.094	0.00	0.00	0.00
8,900.000	90.30	269.710	5,198.670	657.565	-3,971.256	4,024.057	0.00	0.00	0.00
9,000.000	90.30	269.710	5,198.149	657.059	-4,071.253	4,123.020	0.00	0.00	0.00
9,100.000	90.30	269.710	5,197.628	656.553	-4,171.251	4,221.984	0.00	0.00	0.00
9,200.000	90.30	269.710	5,197.108	656.047	-4,271.248	4,320.947	0.00	0.00	0.00
9,300.000	90.30	269.710	5,196.587	655.542	-4,371.245	4,419.910	0.00	0.00	0.00
9,400.000	90.30	269.710	5,196.066	655.036	-4,471.243	4,518.874	0.00	0.00	0.00
9,500.000	90.30	269.710	5,195.545	654.530	-4,571.240	4,617.837	0.00	0.00	0.00
9,604.762	90.30	269.710	5,195.000	654.000	-4,675.999	4,721.513	0.00	0.00	0.00
[BF#6H]BHL 9605' MD (5195' 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
[BF#6H]BHL - plan hits target center - Point	0.00	0.000	5,195.000	654.000	-4,676.000	674,930.00	658,791.00	32° 51' 17.357 N	103° 57' 3.048 W
[BF#6H]UMP - plan misses target center by 0.424usft at 5845.661usft MD (5214.576 TVD, 673.015 N, -916.998 E) - Point	0.00	0.000	5,215.000	673.000	-917.000	674,949.00	662,550.00	32° 51' 17.408 N	103° 56' 18.980 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
3,415.547	3,415.547	0.000	0.000	KOP 3°/100' BR
4,815.547	4,693.492	462.988	-162.136	START 9°/100' BR
5,436.822	5,113.538	674.945	-529.480	START 75' TANGENT
5,511.822	5,151.038	674.627	-594.431	END 60° TANGENT/BEGIN 12°/100' BR
5,764.309	5,215.000	673.426	-835.648	[BF#6H]EOC 5764' MD (5215' TVD)
5,845.661	5,214.576	673.015	-916.998	[BF#6H]UMP 5846' MD (5215' TVD)
9,604.762	5,195.000	654.000	-4,675.999	[BF#6H]BHL 9605' MD (5195' TVD)

Project:	Eddy County (NAD83)
Site:	Bones
Well:	Bones Federal #6H
Wellbore:	Lateral
Design:	Plan #1
Ground Elevation	3749.000
Northing	674276.00
Easting	663467.00
KB @ 3767.000usft (Planning Rig)	

PROJECT DETAILS: Eddy County (NAD83)

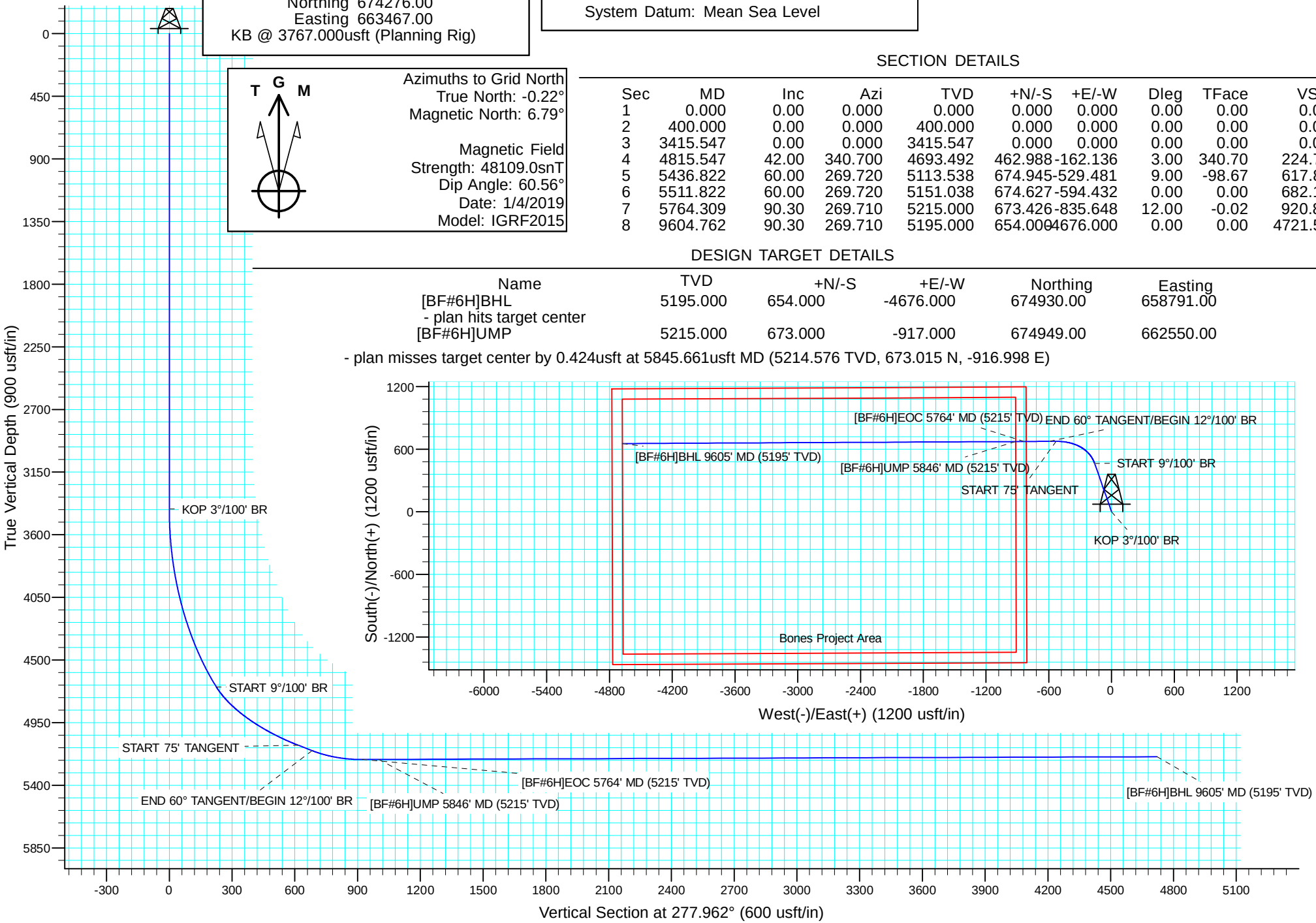
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

Azimuths to Grid North	
True North:	-0.22°
Magnetic North:	6.79°
Magnetic Field	
Strength:	48109.0snT
Dip Angle:	60.56°
Date:	1/4/2019
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	3415.547	0.00	0.000	3415.547	0.000	0.000	0.00	0.00	0.000
4	4815.547	42.00	340.700	4693.492	462.988	-162.136	3.00	340.70	224.704
5	5436.822	60.00	269.720	5113.538	674.945	-529.481	9.00	-98.67	617.867
6	5511.822	60.00	269.720	5151.038	674.627	-594.432	0.00	0.00	682.148
7	5764.309	90.30	269.710	5215.000	673.426	-835.648	12.00	-0.02	920.872
8	9604.762	90.30	269.710	5195.000	654.000	-4676.000	0.00	0.00	4721.514

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
[BF#6H]BHL - plan hits target center	5195.000	654.000	-4676.000	674930.00	658791.00
[BF#6H]UMP	5215.000	673.000	-917.000	674949.00	662550.00

- plan misses target center by 0.424usft at 5845.661usft MD (5214.576 TVD, 673.015 N, -916.998 E)