

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MAY 16 2016

RECEIVED

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMLC063798
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Devon Energy Production Company, L.P. <i>6137</i>		7. If Unit or CA Agreement, Name and No.
3a. Address 333 W. Sheridan Ave. Oklahoma City, OK 73102		8. Lease Name and Well No. <i>315754</i> BLUE KRAIT 23 FED 3H
3b. Phone No. (include area code) 405-228-3023		9. API Well No. <i>30-025-43237</i>
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 200 FSL & 710 FEL Unit P PP: 200 FSL & 1980 FEL At proposed prod. zone 330 FNL & 1284 FEL Unit A		10. Field and Pool, or Exploratory Red Hills Bone Spring, North (96434) <input checked="" type="checkbox"/>
11. Sec., T. R. M. or Blk. and Survey or Area 23-24S-33E		12. County or Parish LEA
14. Distance in miles and direction from nearest town or post office* Approximately 21 miles NW of Jal, NM		13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) See attached map	16. No. of acres in lease NMLC063798; 2480 ac	17. Spacing Unit dedicated to this well 160 ac
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. See attached map	19. Proposed Depth TVD: 11,174' MD: 15,694'	20. BLM/BIA Bond No. on file CO-1104 & NMB-000801
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3,562.2' GL	22. Approximate date work will start* 11/07/2016	23. Estimated duration 45 days

**UNORTHODOX LOCATION**

24. Attachments To Be Pad Drilled With: Blue Krait 23 Fed 4H & 6H

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

- 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 required by the BLM.

25. Signature <i>Brooke Milford</i>	Name (Printed Typed) Brooke Milford	Date 11/02/2015
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Title  
Regulatory Specialist

Approved by (Signature) <i>Cody Layton</i>	Name (Printed Typed)	Date <b>MAY 10 2016</b>
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Title  
FIELD MANAGER Office  
CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. Conditions of approval, if any, are attached.

**APPROVAL FOR TWO YEARS**

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly to make any false, fictitious or fraudulent statements or representations as to any matter within the jurisdiction of the Department or agency of the United States.

(Continued on page 2)

See attached NMOCD  
Conditions of Approval

\*(Instructions on page 2)

**Carlsbad Controlled Water Basin**

*Keogh/16*

**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

Approval Subject to General Requirements  
& Special Stipulations Attached

**Devon Energy, Blue Krait 23 Fed 3H**

**1. Geologic Formations**

TVD of target	11,174'	Pilot hole depth	N/A
MD at TD:	15,694'	Deepest expected fresh water:	

**Basin**

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	1,290	Barren	
Top of Salt	1,770	Barren	
Base of Salt	5,090	Barren	
Delaware	5,190	Oil	
Cherry Canyon	6,060	Oil	
Brushy Canyon	7,640	Oil	
Bone Spring Lime	9,070	Oil	
1 <sup>st</sup> Bone Spring Sand	10,065	Oil	
2 <sup>nd</sup> Bone Spring Sand	11,180	Oil	

\*H2S, water flows, loss of circulation, abnormal pressures, etc.

**Devon Energy, Blue Krait 23 Fed 3H**

**2. Casing Program**

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	1,350'	13.375"	54.5	J-55	BTC	1.81	1.92	5.53
12.25"	0	4,000'	9.625"	40	J-55	LTC	1.38	1.24	1.88
12.25"	4,000'	5,190'	9.625"	40	HCK-55	BTC	2.02	1.24	7.46
8.75"	0	15,694'	5.5"	17	P-110RY	DWC/C	1.16	1.06	2.07
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy, Blue Krait 23 Fed 3H

See COA

3. Cementing Program

Casing	# Sk	Wt. lb/gal	H <sub>2</sub> O gal/sk	Yld ft <sup>3</sup> /sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	680	13.5	9.28	1.74	10	Lead: Class C Cement + 4% Gel + 1% Calcium Chloride + 0.125 lbs/sack Poly-E-Flake
	550	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
13-3/8" Surface Two Stage	200	13.5	9.28	1.74	10	1 <sup>st</sup> Stage Lead: Class C Cement + 4% Gel + 1% Calcium Chloride + 0.125 lbs/sack Poly-E-Flake
	550	14.8	6.32	1.33	6	1 <sup>st</sup> Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
	DV Tool = 600ft					
	630	14.8	6.32	1.33	6	2 <sup>nd</sup> Stage Primary: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	1090	12.9	9.81	1.85	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter. Two Stage	510	12.9	9.81	1.85	14	1 <sup>st</sup> Stage Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	220	14.8	6.32	1.33	6	1 <sup>st</sup> Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
	DV Tool = 3000ft					
	590	12.9	9.81	1.85	14	2 <sup>nd</sup> Stage Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	210	14.8	6.32	1.33	6	2 <sup>nd</sup> Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod Single Stage	770	11.9	12.89	2.31	n/a	Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1350	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod Two Stage	570	11.9	12.89	2.31	n/a	1 <sup>st</sup> Stage Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1350	14.5	5.31	1.2	25	1 <sup>st</sup> Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 6500ft					
	<u>160</u>	11	14.81	<u>2.55</u>	22	2 <sup>nd</sup> Stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	<u>50</u>	14.8	6.32	<u>1.33</u>	6	2 <sup>nd</sup> Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

See COA

## Devon Energy, Blue Krait 23 Fed 3H

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface Single Stage Option	0'	100%
13-3/8" Surface Two Stage Option	1 <sup>st</sup> Stage = 600' / 2 <sup>nd</sup> Stage = 0'	100%
9-5/8" Intermediate Single Stage Option	0'	75%
9-5/8" Intermediate Casing Two Stage Option	1 <sup>st</sup> Stage = 3000' / 2 <sup>nd</sup> Stage = 0'	75%
5-1/2" Production Casing Single Stage Option	5000'	25%
5-1/2" Production Casing Two Stage Option	1 <sup>st</sup> Stage = 6500' / 2 <sup>nd</sup> Stage = 5000'	25%

### 4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure  3M
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure  3M
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other*		
			Annular	x	
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other*		

\*Specify if additional ram is utilized.

**Devon Energy, Blue Krait 23 Fed 3H**

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

See  
COA  
  
See  
COA

Y	<p>Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.</p>
Y	<p><u>A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold.</u> See attached for specs and hydrostatic test chart.</p>
Y	<p>Are anchors required by manufacturer?</p>
Y	<p><u>A multibowl wellhead may be being used.</u> The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.</p> <p>Devon may use 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.</p> <ul style="list-style-type: none"> <li>• Wellhead will be installed by wellhead representatives.</li> <li>• If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.</li> <li>• Wellhead representative will install the test plug for the initial BOP test.</li> <li>• The wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.</li> <li>• If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.</li> <li>• Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.</li> <li>• Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.</li> </ul>

**Devon Energy, Blue Krait 23 Fed 3H**

	<p>After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.</p> <p>After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead</p> <p>The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.</p> <p>Devon requests a <u>variance</u> to use a <u>flexible line</u> with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns</p> <p>See attached schematic.</p>
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See  
COA

**5. Mud Program**

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,350'	FW Gel	8.6-8.8	28-34	N/C
1,350'	5,190'	Saturated Brine	10.0-10.2	28-34	N/C
5,190'	15,694'	Cut Brine	8.5-9.3	28-34	N/C

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

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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**6. Logging and Testing Procedures** See COA

Logging, Coring and Testing.	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

**Devon Energy, Blue Krait 23 Fed 3H**

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	5404 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H <sub>2</sub> S) monitors will be installed prior to drilling out the surface shoe. If H <sub>2</sub> S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H <sub>2</sub> S is present
Y	H <sub>2</sub> S Plan attached

**8. Other facets of operation**

Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

Directional Plan

Other, describe

### Technical Specifications

Connection Type:	Size(O.D.):	Weight (Wall):	Grade:
DWC/C Casing standard	5-1/2 in	17.00 lb/ft (0.304 in)	P-110RY

	Material
P-110RY	Grade
110,000	Minimum Yield Strength (psi)
125,000	Minimum Ultimate Strength (psi)



VAM-USA  
4424 W. Sam Houston Pkwy. Suite 150  
Houston, TX 77041  
Phone: 713-479-3200  
Fax: 713-479-3234  
E-mail: [VAMUSAsales@vam-usa.com](mailto:VAMUSAsales@vam-usa.com)

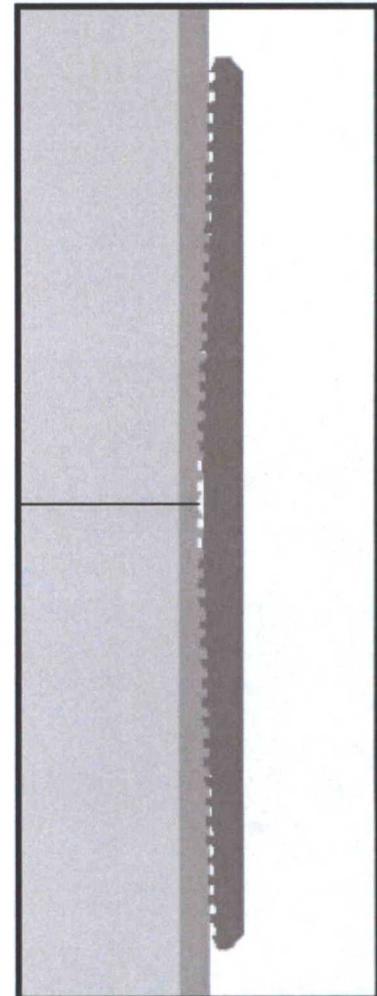
	Pipe Dimensions
5.500	Nominal Pipe Body O.D. (in)
4.892	Nominal Pipe Body I.D.(in)
0.304	Nominal Wall Thickness (in)
17.00	Nominal Weight (lbs/ft)
16.89	Plain End Weight (lbs/ft)
4.962	Nominal Pipe Body Area (sq in)

	Pipe Body Performance Properties
546,000	Minimum Pipe Body Yield Strength (lbs)
7,480	Minimum Collapse Pressure (psi)
10,640	Minimum Internal Yield Pressure (psi)
9,700	Hydrostatic Test Pressure (psi)

	Connection Dimensions
6.050	Connection O.D. (in)
4.892	Connection I.D. (in)
4.767	Connection Drift Diameter (in)
4.13	Make-up Loss (in)
4.962	Critical Area (sq in)
100.0	Joint Efficiency (%)

	Connection Performance Properties
546,000	Joint Strength (lbs)
22,940	Reference String Length (ft) 1.4 Design Factor
568,000	API Joint Strength (lbs)
546,000	Compression Rating (lbs)
7,480	API Collapse Pressure Rating (psi)
10,640	API Internal Pressure Resistance (psi)
91.7	Maximum Uniaxial Bend Rating [degrees/100 ft]

	Appoximated Field End Torque Values
12,000	Minimum Final Torque (ft-lbs)
13,800	Maximum Final Torque (ft-lbs)
15,500	Connection Yield Torque (ft-lbs)



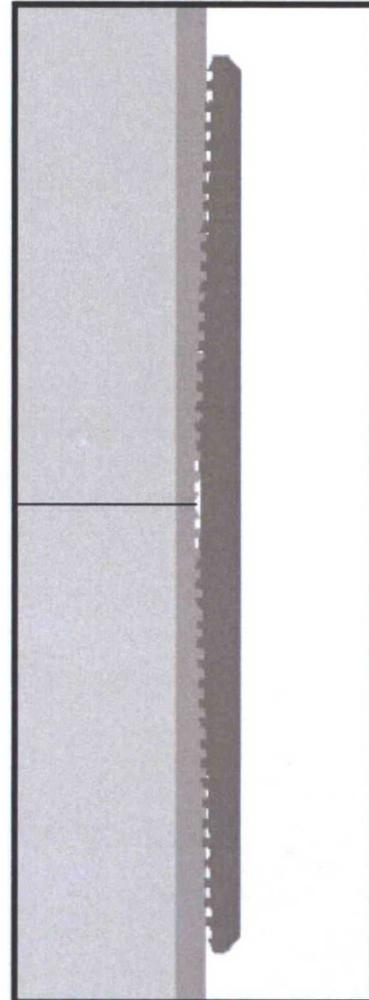
For detailed information on performance properties, refer to DWC Connection Data Notes on following page(s).

Connection specifications within the control of VAM-USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advised to obtain current connection specifications and verify pipe mechanical properties for each application.



#### DWC Connection Data Notes:

1. DWC connections are available with a seal ring (SR) option.
2. All standard DWC/C connections are interchangeable for a give pipe OD. DWC connections are interchangeable with DWC/C-SR connections of the same OD and wall.
3. Connection performance properties are based on nominal pipe body and connection dimensions.
4. DWC connection internal and external pressure resistance is calculated using the API rating for buttress connections. API Internal pressure resistance is calculated from formulas 31, 32, and 35 in the API Bulletin 5C3.
5. DWC joint strength is the minimum pipe body yield strength multiplied by the connection critical area.
6. API joint strength is for reference only. It is calculated from formulas 42 and 43 in the API Bulletin 5C3.
7. Bending efficiency is equal to the compression efficiency.
8. The torque values listed are recommended. The actual torque required may be affected by field conditions such as temperature, thread compound, speed of make-up, weather conditions, etc.
9. Connection yield torque is not to be exceeded.
10. Reference string length is calculated by dividing the joint strength by both the nominal weight in air and a design factor (DF) of 1.4. These values are offered for reference only and do not include load factors such as bending, buoyancy, temperature, load dynamics, etc.
11. DWC connections will accommodate API standard drift diameters.

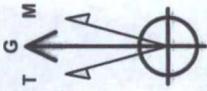


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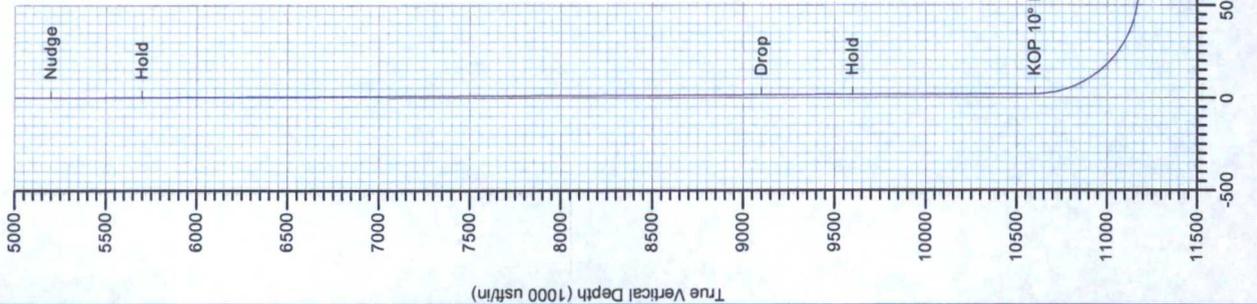
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Project: Lea County, NM (NAD-83)  
 Site: Blue Krait 23 Fed  
 Well: 3H  
 Wellbore: OH  
 Design: Plan #1



Azimuths to Grid North  
 True North: -0.42°  
 Magnetic North: 6.78°  
 Magnetic Field  
 Strength: 48172.9snT  
 Dip Angle: 60.12°  
 Date: 10/15/2015  
 Model: BGGM2015



DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
SHL (BK23F 3H)	0.00	0.00	0.00	436096.45	787703.88
PBHL (BK23F 3H)	11130.00	4744.84	-610.97	440841.29	787092.91

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5200.00	0.00	270.00	5200.00	0.00	0.00	0.00	0.00	0.00
5700.00	5.00	270.00	5699.37	0.00	-21.80	1.00	270.00	1.24
9115.00	5.00	270.00	9101.37	0.00	-319.44	0.00	0.00	18.11
9615.00	0.00	0.00	9600.74	0.00	-341.24	1.00	180.00	19.35
10615.00	0.00	0.00	10600.74	0.00	-341.24	0.00	0.00	19.35
11520.99	90.60	356.75	11173.66	578.02	-374.10	10.00	356.75	598.30
15684.77	90.60	356.75	11130.00	4744.84	-610.97	0.00	0.00	4771.85

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

**Target Line:**  
**TL#1: 90.6° INC, 11130' TVD @ TD**

