

R-III Potash

OCD Hobbs

HOBBS OCD

Form 3160-3
(March 2012)FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

14-1052

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUN 10 2015

APPLICATION FOR PERMIT TO DRILL OR REENTER RECEIVED

1a. Type of work: ☒ DRILL ☐ REENTER		7. If Unit or CA Agreement, Name and No.	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		8. Lease Name and Well No. 313044 Topaz 30 Federal Com #3H	
2. Name of Operator BC Operating, Inc. 160825		9. API Well No. 30-025-42626	
3a. Address P.O. Box 50820 Midland, Texas 79710	3b. Phone No. (include area code) 432-684-9696	10. Field and Pool, or Exploratory 97895 WC-025 G-08 S213304D; Bone Spring	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 240' FNL & 2180' FEL of Unit Letter 'B', Section 31, T-20S, R-34E At proposed prod. zone 240' FNL & 1980' FEL of Unit Letter 'B', Section 30, T-20S, R-34E		11. Sec., T. R. M. or Blk. and Survey or Area Section 31, T-20S, R34E Section 30, T-20S, R-34E	
14. Distance in miles and direction from nearest town or post office* 28 miles Southwest of Hobbs		12. County or Parish Lea	13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 240'	16. No. of acres in lease 640	17. Spacing Unit dedicated to this well 160	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1120'	19. Proposed Depth 16,189' MD/11,150' TVD	20. BLM/BIA Bond No. on file NM2572	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3702' GL	22. Approximate date work will start* 03/01/2015	23. Estimated duration 45 days	

24. Attachments

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

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

25. Signature Pam Stevens	Name (Printed/Typed) Pam Stevens	Date 12/05/2015
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Title

Regulatory Analyst

Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date JUN 2 2015
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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.

APPROVAL FOR TWO YEARS

Conditions of approval, if any, are attached.

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

(Continued on page 2)

*(Instructions on page 2)

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

Capitan Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

JUN 11 2015

JUN 10 2015

1. Geologic Formations

TVD of target	11150	Pilot hole depth	None	RECEIVED
MD at TD:	16189	Deepest expected fresh water:	485	

Reef

Formation	Depth (TVD) from KB)	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Alluvium	Surface	Water	
Rustler	1500	Water	
Top of Salt	1800	Salt	
Tansill	3200		
Capitan	3575	Water	
Delaware Sands	5700	Oil/Gas	
Bone Spring Lime	8600	Oil/Gas	
First BS Sand	9700	Oil/Gas	
Second Carbonate	10000	Oil/Gas	
Second BS Sand	10250	Oil/Gas	
Third Carbonate	10650	Oil/Gas	
Third BS Sand	11000	Target Zone	
Wolfcamp	11350		
TD Pilot Hole	12000	No Pilot Hole Planned	

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

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
16"	0	1500	13.375"	54.5	J55	STC	1.58	1.01	6.29
12.25"	0	5200	9.625"	40	N80	LTC	1.14	1.12	3.54
8.75"	0	16189	5.5"	17	P110 HC	SEMI BUTT	1.53	2.06	3.00
						BLM Minimum Safety Factor	1.125	1	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

BC Operating, Inc., Topaz 30 Federal Com #3H

	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.	Y
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?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2 nd string set 100' to 600' below the base of salt?	Y
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?	

BC Operating, Inc., Topaz 30 Federal Com #3H

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	640	13.5	1.73	9.1	10	Lead: Class C + 4.0% Bentonite + 1% CaCl ₂ + 0.25 lb/sk Cello-Flake
	260	14.8	1.35	6.3	8	Tail: Class C + 2% CaCl ₂ + 0.25 lb/sk Cello-Flake
Inter.	1530	12.6	2.01	11	15	Lead: Class C 35/65 + 0.25 lb/sk Cello-Flake + 6% Bentonite + 6% salt (BWOW)
	280	14.8	1.33	6.3	11	Tail: Class C + 0.15% R-20
Prod.	1820	11.8	2.39	14	22	Lead: 50/50 Class H + 10% Bentonite + 0.4% R-20 + 0.25 lb/sk Cello-Flake + 3% salt (BWOW)
	720	14.2	2.57	11	25	Tail: 50/50 Class H + 100% CaCO ₃ + 0.5% FL-16 + 0.1% CD-37 + 0.3% R-20 + 4% Bentonite + 0.5% TSM-1 + 0.2% AS-3 + 5% salt (BWOW)
						Prod. CMT Acid Soluble Blend

DV tool depth(s), if used, 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
Surface	0'	100%
Intermediate	0'	100%
Production	0'	50%

Include Pilot Hole Cementing specs:

Pilot hole depth None planned. Contingency below
KOP 10577

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft ³ /sack	Water gal/sk	Slurry Description and Cement Type
10500	11050	18	230	15.6	1.18	5	Class H + 0.3% R-20
11300	11400	40	50	15.6	1.18	5	Class H + 0.3% R-20
11780	12000	15	90	15.6	1.18	5	Class H + 0.3% R-20

Not approved for pilot hole - 5M BOPE will be required

BC Operating, Inc., Topaz 30 Federal Com #3H

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:
16"	20"	2M	Annular	x	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
12-1/4"	13-5/8"	2M	Annular	x	50% testing pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other *		
8-3/4"	11"	3M	Annular	X	50% testing pressure
			Blind Ram	X	3M
			Pipe Ram	X	
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

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.

X	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.
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BC Operating, Inc., Topaz 30 Federal Com #3H

X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	N	Are anchors required by manufacturer?
N	A multibowl wellhead is being used. 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. • Provide description here See attached schematic.	

5. Mud Program

see
COA -

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.5-9.2	28-34	N/C
Surf csg	Int shoe	Brine	9.6-10	28-34	N/C
Int shoe	TD	Cut Brine/EVO	8.4-8.9	28-34	<15

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

Logging, Coring and Testing.	
N	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

Additional logs planned	Interval
Resistivity	Int. shoe to KOP
Density	Int. shoe to KOP
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	3900 psi
Abnormal Temperature	Yes/No

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

Hydrogen Sulfide (H₂S) monitors will be installed prior to drilling out the surface shoe. If H₂S 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.

	H ₂ S is present
X	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? N If yes, describe.

Will be pre-setting casing? N If yes, describe.

Attachments

☒ Directional Plan

☒ Other, describe

- Improved 5.5" casing thread design example
- 20" annular
- 13-5/8" annular
- 11" BOPE
- Flexible hose specs and test chart

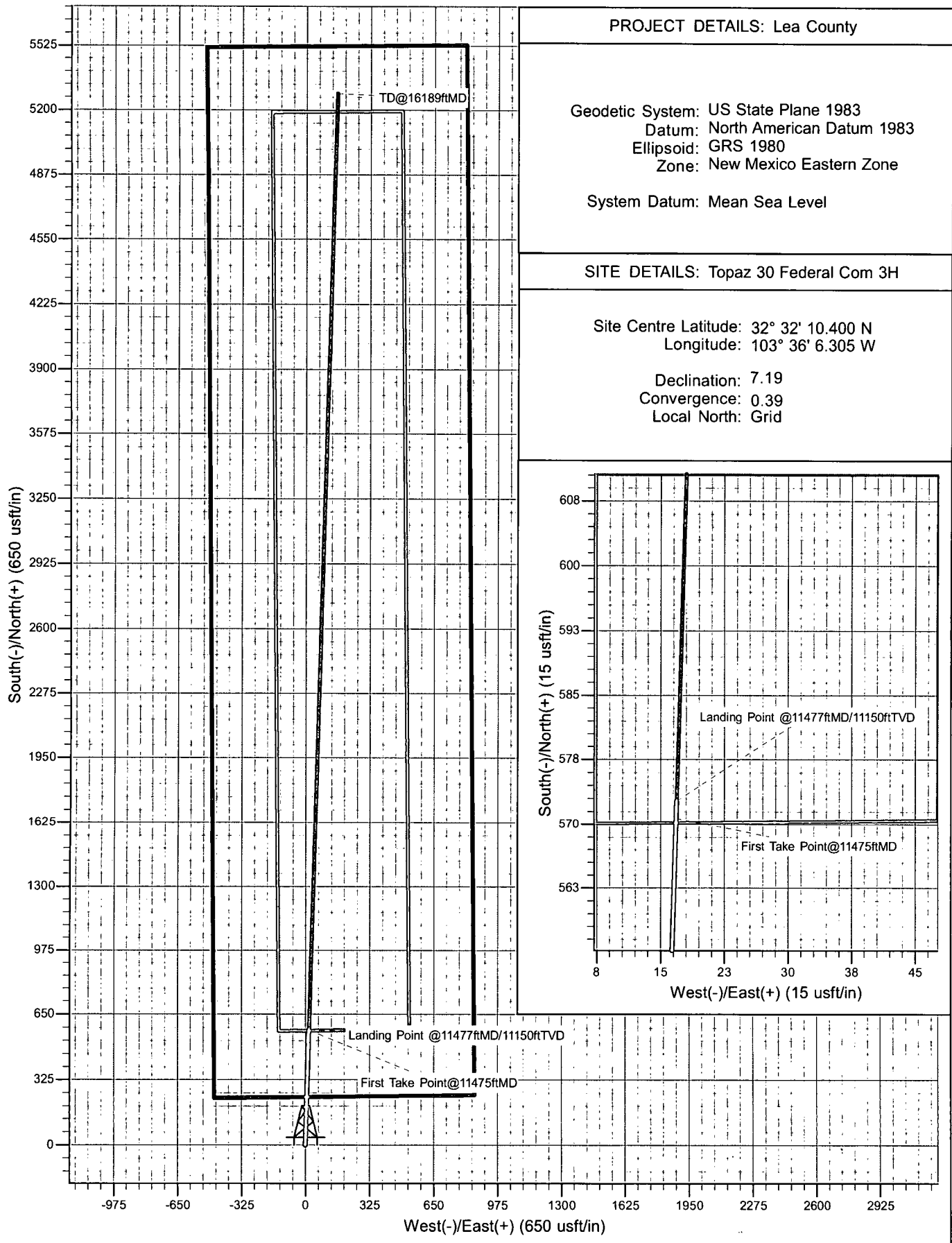
Environ Monit Assess (2008) 142:139–150

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Project: Lea County
Site: Topaz 30 Federal Com 3H
Well: Topaz 30 Federal Com 3H
Wellbore: Topaz 30 Federal Com 3H
Design: Topaz 30 Federal Com 3H



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.80°
Magnetic Field
Strength: 48451.5nT
Dip Angle: 60.38°
Date: 04/12/2014
Model: IGRF2010



Project: Lea County
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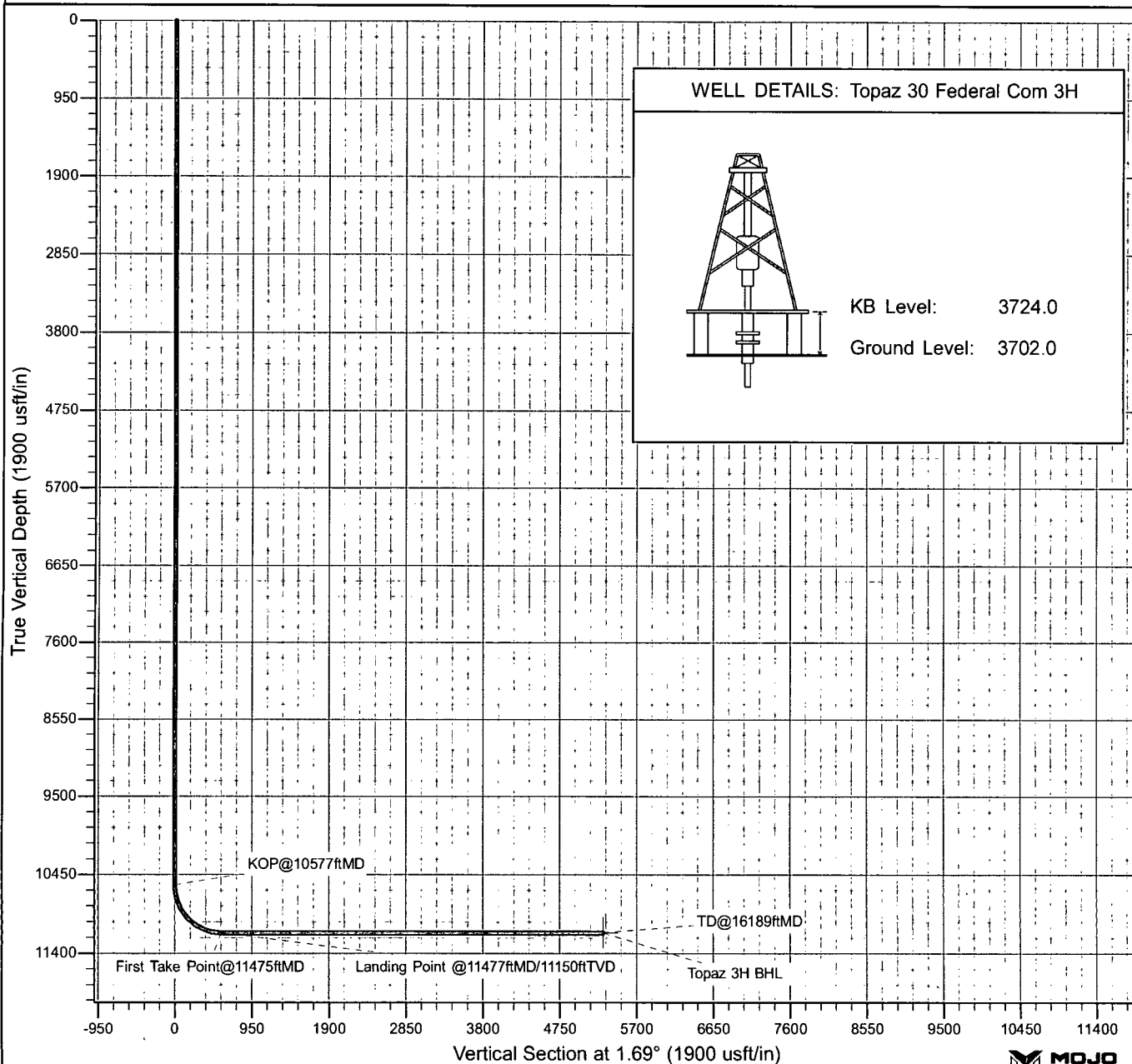
Azimuths to Grid North
 True North: -0.40°
 Magnetic North: 6.80°
 Magnetic Field
 Strength: 48451.5nT
 Dip Angle: 60.38°
 Date: 04/12/2014
 Model: IGRF2010

WELL DETAILS: Topaz 30 Federal Com 3H

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	559582.51	767922.00	32° 32' 10.323 N	103° 35' 53.106 W

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
10577.0	10577.0	0.00	0.00	0.0	0.0	0.0	0.0	KOP@10577ftMD
11150.0	11475.0	89.80	1.69	570.7	16.8	571.0	571.0	First Take Point@11475ftMD
11150.0	11477.0	90.00	1.69	572.7	16.9	573.0	573.0	LP @11477ftMD/11150ftTVD
11150.0	16189.0	90.00	1.69	5282.7	155.5	5285.0	5285.0	TD@16189ftMD





B.C Operating, Inc.

Lea County

Topaz 30 Federal Com 3H

Plan: 141210 Topaz 30 Federal Com 3H

MOJO Standard Plan

10 December, 2014



MOJO
DIRECTIONAL CORPORATION

Company:	B.C Operating, Inc.	Local Co-ordinate Reference:	Well Topaz 30 Federal Com 3H
Project:	Lea County	TVD Reference:	WELL @ 3724.0usft (Original Well Elev)
Site:	Topaz 30 Federal Com 3H	MD Reference:	WELL @ 3724.0usft (Original Well Elev)
Well:	Topaz 30 Federal Com 3H	North Reference:	Grid
Wellbore:	Topaz 30 Federal Com 3H	Survey Calculation Method:	Minimum Curvature
Design:	141204 Topaz 30 Federal Com 3H	Database:	EDM 5000.1 Single User Db

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

Site Topaz 30 Federal Com 3H			
Site Position:		Northing:	559,582.51 usft
From:	Map	Easting:	766,792.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 32' 10.400 N
		Longitude:	103° 36' 6.305 W
		Grid Convergence:	0.39 °

Well Topaz 30 Federal Com 3H						
Well Position	+N/-S	0.0 usft	Northing:	559,582.51 usft	Latitude:	32° 32' 10.323 N
	+E/-W	0.0 usft	Easting:	767,922.00 usft	Longitude:	103° 35' 53.106 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,702.0 usft

Wellbore Topaz 30 Federal Com 3H						
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	IGRF2010	04/12/2014	7.19	60.38	48,451	

Design 141204 Topaz 30 Federal Com 3H				
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	1.69

Survey Tool Program Date 10/12/2014				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	16,189.7	141204 Topaz 30 Federal Com 3H (Topaz		

Company: B.C Operating, Inc.
Project: Lea County
Site: Topaz 30 Federal Com 3H
Well: Topaz 30 Federal Com 3H
Wellbore: Topaz 30 Federal Com 3H
Design: 141204 Topaz 30 Federal Com 3H

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Topaz 30 Federal Com 3H
 WELL @ 3724.0usft (Original Well Elev)
 WELL @ 3724.0usft (Original Well Elev)
 Grid
 Minimum Curvature
 EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,724.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
100.0	0.00	0.00	100.0	-3,624.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
200.0	0.00	0.00	200.0	-3,524.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
300.0	0.00	0.00	300.0	-3,424.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
400.0	0.00	0.00	400.0	-3,324.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
500.0	0.00	0.00	500.0	-3,224.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
600.0	0.00	0.00	600.0	-3,124.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
700.0	0.00	0.00	700.0	-3,024.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
800.0	0.00	0.00	800.0	-2,924.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
900.0	0.00	0.00	900.0	-2,824.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,000.0	0.00	0.00	1,000.0	-2,724.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,100.0	0.00	0.00	1,100.0	-2,624.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,200.0	0.00	0.00	1,200.0	-2,524.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,300.0	0.00	0.00	1,300.0	-2,424.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,400.0	0.00	0.00	1,400.0	-2,324.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,500.0	0.00	0.00	1,500.0	-2,224.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,600.0	0.00	0.00	1,600.0	-2,124.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,700.0	0.00	0.00	1,700.0	-2,024.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,800.0	0.00	0.00	1,800.0	-1,924.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
1,900.0	0.00	0.00	1,900.0	-1,824.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,000.0	0.00	0.00	2,000.0	-1,724.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,100.0	0.00	0.00	2,100.0	-1,624.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,200.0	0.00	0.00	2,200.0	-1,524.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,300.0	0.00	0.00	2,300.0	-1,424.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,400.0	0.00	0.00	2,400.0	-1,324.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,500.0	0.00	0.00	2,500.0	-1,224.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,600.0	0.00	0.00	2,600.0	-1,124.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00

Company: B.C Operating, Inc.
Project: Lea County
Site: Topaz 30 Federal Com 3H
Well: Topaz 30 Federal Com 3H
Wellbore: Topaz 30 Federal Com 3H
Design: 141204 Topaz 30 Federal Com 3H

Local Co-ordinate Reference:**TVD Reference:****MD Reference:****North Reference:****Survey Calculation Method:****Database:**

Well Topaz 30 Federal Com 3H

WELL @ 3724.0usft (Original Well Elev)

WELL @ 3724.0usft (Original Well Elev)

Grid

Minimum Curvature

EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,700.0	0.00	0.00	2,700.0	-1,024.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,800.0	0.00	0.00	2,800.0	-924.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
2,900.0	0.00	0.00	2,900.0	-824.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,000.0	0.00	0.00	3,000.0	-724.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,100.0	0.00	0.00	3,100.0	-624.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,200.0	0.00	0.00	3,200.0	-524.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,300.0	0.00	0.00	3,300.0	-424.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,400.0	0.00	0.00	3,400.0	-324.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,500.0	0.00	0.00	3,500.0	-224.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,600.0	0.00	0.00	3,600.0	-124.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,700.0	0.00	0.00	3,700.0	-24.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,800.0	0.00	0.00	3,800.0	76.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
3,900.0	0.00	0.00	3,900.0	176.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,000.0	0.00	0.00	4,000.0	276.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,100.0	0.00	0.00	4,100.0	376.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,200.0	0.00	0.00	4,200.0	476.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,300.0	0.00	0.00	4,300.0	576.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,400.0	0.00	0.00	4,400.0	676.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,500.0	0.00	0.00	4,500.0	776.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,600.0	0.00	0.00	4,600.0	876.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,700.0	0.00	0.00	4,700.0	976.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,800.0	0.00	0.00	4,800.0	1,076.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
4,900.0	0.00	0.00	4,900.0	1,176.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,000.0	0.00	0.00	5,000.0	1,276.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,100.0	0.00	0.00	5,100.0	1,376.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,200.0	0.00	0.00	5,200.0	1,476.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,300.0	0.00	0.00	5,300.0	1,576.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00

Company: B.C Operating, Inc.
Project: Lea County
Site: Topaz 30 Federal Com 3H
Well: Topaz 30 Federal Com 3H
Wellbore: Topaz 30 Federal Com 3H
Design: 141204 Topaz 30 Federal Com 3H

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Topaz 30 Federal Com 3H
 WELL @ 3724.0usft (Original Well Elev)
 WELL @ 3724.0usft (Original Well Elev)
 Grid
 Minimum Curvature
 EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
5,400.0	0.00	0.00	5,400.0	1,676.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,500.0	0.00	0.00	5,500.0	1,776.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,600.0	0.00	0.00	5,600.0	1,876.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,700.0	0.00	0.00	5,700.0	1,976.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,800.0	0.00	0.00	5,800.0	2,076.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
5,900.0	0.00	0.00	5,900.0	2,176.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,000.0	0.00	0.00	6,000.0	2,276.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,100.0	0.00	0.00	6,100.0	2,376.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,200.0	0.00	0.00	6,200.0	2,476.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,300.0	0.00	0.00	6,300.0	2,576.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,400.0	0.00	0.00	6,400.0	2,676.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,500.0	0.00	0.00	6,500.0	2,776.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,600.0	0.00	0.00	6,600.0	2,876.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,700.0	0.00	0.00	6,700.0	2,976.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,800.0	0.00	0.00	6,800.0	3,076.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
6,900.0	0.00	0.00	6,900.0	3,176.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,000.0	0.00	0.00	7,000.0	3,276.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,100.0	0.00	0.00	7,100.0	3,376.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,200.0	0.00	0.00	7,200.0	3,476.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,300.0	0.00	0.00	7,300.0	3,576.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,400.0	0.00	0.00	7,400.0	3,676.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,500.0	0.00	0.00	7,500.0	3,776.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,600.0	0.00	0.00	7,600.0	3,876.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,700.0	0.00	0.00	7,700.0	3,976.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,800.0	0.00	0.00	7,800.0	4,076.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
7,900.0	0.00	0.00	7,900.0	4,176.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,000.0	0.00	0.00	8,000.0	4,276.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00

Company: B.C Operating, Inc.		Local Co-ordinate Reference: Well Topaz 30 Federal Com 3H	
Project: Lea County		TVD Reference: WELL @ 3724.0usft (Original Well Elev)	
Site: Topaz 30 Federal Com 3H		MD Reference: WELL @ 3724.0usft (Original Well Elev)	
Well: Topaz 30 Federal Com 3H		North Reference: Grid	
Wellbore: Topaz 30 Federal Com 3H		Survey Calculation Method: Minimum Curvature	
Design: 141204 Topaz 30 Federal Com 3H		Database: EDM 5000.1 Single User Db	

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,100.0	0.00	0.00	0.00	8,100.0	4,376.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,200.0	0.00	0.00	0.00	8,200.0	4,476.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,300.0	0.00	0.00	0.00	8,300.0	4,576.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,400.0	0.00	0.00	0.00	8,400.0	4,676.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,500.0	0.00	0.00	0.00	8,500.0	4,776.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,600.0	0.00	0.00	0.00	8,600.0	4,876.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,700.0	0.00	0.00	0.00	8,700.0	4,976.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,800.0	0.00	0.00	0.00	8,800.0	5,076.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
8,900.0	0.00	0.00	0.00	8,900.0	5,176.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,000.0	0.00	0.00	0.00	9,000.0	5,276.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,100.0	0.00	0.00	0.00	9,100.0	5,376.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,200.0	0.00	0.00	0.00	9,200.0	5,476.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,300.0	0.00	0.00	0.00	9,300.0	5,576.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,400.0	0.00	0.00	0.00	9,400.0	5,676.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,500.0	0.00	0.00	0.00	9,500.0	5,776.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,600.0	0.00	0.00	0.00	9,600.0	5,876.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,700.0	0.00	0.00	0.00	9,700.0	5,976.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,800.0	0.00	0.00	0.00	9,800.0	6,076.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
9,900.0	0.00	0.00	0.00	9,900.0	6,176.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
10,000.0	0.00	0.00	0.00	10,000.0	6,276.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
10,100.0	0.00	0.00	0.00	10,100.0	6,376.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
10,200.0	0.00	0.00	0.00	10,200.0	6,476.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
10,300.0	0.00	0.00	0.00	10,300.0	6,576.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
10,400.0	0.00	0.00	0.00	10,400.0	6,676.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
10,500.0	0.00	0.00	0.00	10,500.0	6,776.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00
10,577.0	0.00	0.00	0.00	10,577.0	6,853.0	0.0	0.0	0.0	0.00	559,582.51	767,922.00

KOP@10577RMD

Company:	B.C. Operating, Inc.	Local Co-ordinate Reference:	Well Topaz 30 Federal Com 3H
Project:	Lea County	TVD Reference:	WELL @ 3724.0usft (Original Well Elev)
Site:	Topaz 30 Federal Com 3H	MD Reference:	WELL @ 3724.0usft (Original Well Elev)
Well:	Topaz 30 Federal Com 3H	North Reference:	Grid
Wellbore:	Topaz 30 Federal Com 3H	Survey Calculation Method:	Minimum Curvature
Design:	141204 Topaz 30 Federal Com 3H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
10,600.0	2.30	1.69	10,600.0	6,876.0	0.5	0.0	0.5	10.00	559,582.97	767,922.01	
10,650.0	7.30	1.69	10,649.8	6,925.8	4.6	0.1	4.6	10.00	559,587.15	767,922.14	
10,700.0	12.30	1.69	10,699.1	6,975.1	13.1	0.4	13.2	10.00	559,595.66	767,922.39	
10,750.0	17.30	1.69	10,747.4	7,023.4	25.9	0.8	25.9	10.00	559,608.42	767,922.76	
10,800.0	22.30	1.69	10,794.4	7,070.4	42.8	1.3	42.9	10.00	559,625.34	767,923.26	
10,850.0	27.30	1.69	10,839.8	7,115.8	63.8	1.9	63.8	10.00	559,646.30	767,923.88	
10,900.0	32.30	1.69	10,883.2	7,159.2	88.6	2.6	88.7	10.00	559,671.13	767,924.61	
10,950.0	37.30	1.69	10,924.2	7,200.2	117.1	3.5	117.2	10.00	559,699.64	767,925.46	
11,000.0	42.30	1.69	10,962.6	7,238.6	149.1	4.4	149.2	10.00	559,731.63	767,926.40	
11,050.0	47.30	1.69	10,998.1	7,274.1	184.3	5.4	184.4	10.00	559,766.83	767,927.44	
11,100.0	52.30	1.69	11,030.3	7,306.3	222.5	6.6	222.6	10.00	559,804.99	767,928.56	
11,150.0	57.30	1.69	11,059.2	7,335.2	263.3	7.8	263.4	10.00	559,845.82	767,929.77	
11,200.0	62.30	1.69	11,084.3	7,360.3	306.5	9.0	306.6	10.00	559,889.00	767,931.04	
11,250.0	67.30	1.69	11,105.6	7,381.6	351.7	10.4	351.8	10.00	559,934.21	767,932.38	
11,300.0	72.30	1.69	11,122.8	7,398.8	398.6	11.8	398.8	10.00	559,981.10	767,933.76	
11,350.0	77.30	1.69	11,135.9	7,411.9	446.8	13.2	447.0	10.00	560,029.31	767,935.18	
11,400.0	82.30	1.69	11,144.8	7,420.8	496.0	14.6	496.2	10.00	560,078.48	767,936.63	
11,450.0	87.30	1.69	11,149.3	7,425.3	545.7	16.1	546.0	10.00	560,128.24	767,938.10	
11,475.0	89.80	1.69	11,150.0	7,426.0	570.7	16.8	571.0	10.00	560,153.22	767,938.84	
First Take Point@11475ftMD											
11,477.0	90.00	1.69	11,150.0	7,426.0	572.7	16.9	573.0	10.00	560,155.22	767,938.90	
Landing Point @11477ftMD/11150ftTVD											
11,479.9	90.00	1.69	11,150.0	7,426.0	575.6	17.0	575.8	0.16	560,158.08	767,938.98	
11,500.0	90.00	1.69	11,150.0	7,426.0	595.7	17.6	596.0	0.00	560,178.21	767,939.57	
11,600.0	90.00	1.69	11,150.0	7,426.0	695.7	20.5	696.0	0.00	560,278.17	767,942.52	
11,700.0	90.00	1.69	11,150.0	7,426.0	795.6	23.5	796.0	0.00	560,378.12	767,945.46	
11,800.0	90.00	1.69	11,150.0	7,426.0	895.6	26.4	896.0	0.00	560,478.08	767,948.40	

Company: B.C. Operating, Inc.		Local Co-ordinate Reference: Well Topaz 30 Federal Com 3H			
Project: Lea County		TVD Reference: WELL @ 3724.0usft (Original Well Elev)			
Site: Topaz 30 Federal Com 3H		MD Reference: WELL @ 3724.0usft (Original Well Elev)			
Well: Topaz 30 Federal Com 3H		North Reference: Grid			
Wellbore: Topaz 30 Federal Com 3H		Survey Calculation Method: Minimum Curvature			
Design: 141204 Topaz 30 Federal Com 3H		Database: EDM 5000.1 Single User Db			

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
11,900.0	90.00	1.69	11,150.0	7,426.0	995.5	29.3	996.0	0.00	560,578.04	767,951.34	
12,000.0	90.00	1.69	11,150.0	7,426.0	1,095.5	32.3	1,096.0	0.00	560,677.99	767,954.28	
12,100.0	90.00	1.69	11,150.0	7,426.0	1,195.4	35.2	1,196.0	0.00	560,777.95	767,957.22	
12,200.0	90.00	1.69	11,150.0	7,426.0	1,295.4	38.2	1,296.0	0.00	560,877.91	767,960.16	
12,300.0	90.00	1.69	11,150.0	7,426.0	1,395.4	41.1	1,396.0	0.00	560,977.86	767,963.10	
12,400.0	90.00	1.69	11,150.0	7,426.0	1,495.3	44.0	1,496.0	0.00	561,077.82	767,966.04	
12,500.0	90.00	1.69	11,150.0	7,426.0	1,595.3	47.0	1,596.0	0.00	561,177.78	767,968.98	
12,600.0	90.00	1.69	11,150.0	7,426.0	1,695.2	49.9	1,696.0	0.00	561,277.73	767,971.93	
12,700.0	90.00	1.69	11,150.0	7,426.0	1,795.2	52.9	1,796.0	0.00	561,377.69	767,974.87	
12,800.0	90.00	1.69	11,150.0	7,426.0	1,895.1	55.8	1,896.0	0.00	561,477.65	767,977.81	
12,900.0	90.00	1.69	11,150.0	7,426.0	1,995.1	58.7	1,996.0	0.00	561,577.60	767,980.75	
13,000.0	90.00	1.69	11,150.0	7,426.0	2,095.0	61.7	2,096.0	0.00	561,677.56	767,983.69	
13,100.0	90.00	1.69	11,150.0	7,426.0	2,195.0	64.6	2,196.0	0.00	561,777.52	767,986.63	
13,200.0	90.00	1.69	11,150.0	7,426.0	2,295.0	67.6	2,296.0	0.00	561,877.47	767,989.57	
13,300.0	90.00	1.69	11,150.0	7,426.0	2,394.9	70.5	2,396.0	0.00	561,977.43	767,992.51	
13,400.0	90.00	1.69	11,150.0	7,426.0	2,494.9	73.5	2,496.0	0.00	562,077.39	767,995.45	
13,500.0	90.00	1.69	11,150.0	7,426.0	2,594.8	76.4	2,596.0	0.00	562,177.34	767,998.40	
13,600.0	90.00	1.69	11,150.0	7,426.0	2,694.8	79.3	2,696.0	0.00	562,277.30	768,001.34	
13,700.0	90.00	1.69	11,150.0	7,426.0	2,794.7	82.3	2,796.0	0.00	562,377.26	768,004.28	
13,800.0	90.00	1.69	11,150.0	7,426.0	2,894.7	85.2	2,896.0	0.00	562,477.21	768,007.22	
13,900.0	90.00	1.69	11,150.0	7,426.0	2,994.7	88.2	2,996.0	0.00	562,577.17	768,010.16	
14,000.0	90.00	1.69	11,150.0	7,426.0	3,094.6	91.1	3,096.0	0.00	562,677.13	768,013.10	
14,100.0	90.00	1.69	11,150.0	7,426.0	3,194.6	94.0	3,196.0	0.00	562,777.08	768,016.04	
14,200.0	90.00	1.69	11,150.0	7,426.0	3,294.5	97.0	3,296.0	0.00	562,877.04	768,018.98	
14,300.0	90.00	1.69	11,150.0	7,426.0	3,394.5	99.9	3,396.0	0.00	562,977.00	768,021.92	
14,400.0	90.00	1.69	11,150.0	7,426.0	3,494.4	102.9	3,496.0	0.00	563,076.95	768,024.86	
14,500.0	90.00	1.69	11,150.0	7,426.0	3,594.4	105.8	3,596.0	0.00	563,176.91	768,027.81	

Company: B.C. Operating, Inc.
Project: Lea County
Site: Topaz 30 Federal Com 3H
Well: Topaz 30 Federal Com 3H
Wellbore: Topaz 30 Federal Com 3H
Design: 141204 Topaz 30 Federal Com 3H

Local Co-ordinate Reference:**TVD Reference:****MD Reference:****North Reference:****Survey Calculation Method:****Database:**

Well Topaz 30 Federal Com 3H

WELL @ 3724.0usft (Original Well Elev)

WELL @ 3724.0usft (Original Well Elev)

Grid

Minimum Curvature

EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
14,600.0	90.00	1.69	11,150.0	7,426.0	3,694.4	108.7	3,696.0	0.00	563,276.87	768,030.75
14,700.0	90.00	1.69	11,150.0	7,426.0	3,794.3	111.7	3,796.0	0.00	563,376.82	768,033.69
14,800.0	90.00	1.69	11,150.0	7,426.0	3,894.3	114.6	3,896.0	0.00	563,476.78	768,036.63
14,900.0	90.00	1.69	11,150.0	7,426.0	3,994.2	117.6	3,996.0	0.00	563,576.74	768,039.57
15,000.0	90.00	1.69	11,150.0	7,426.0	4,094.2	120.5	4,096.0	0.00	563,676.69	768,042.51
15,100.0	90.00	1.69	11,150.0	7,426.0	4,194.1	123.5	4,196.0	0.00	563,776.65	768,045.45
15,200.0	90.00	1.69	11,150.0	7,426.0	4,294.1	126.4	4,296.0	0.00	563,876.61	768,048.39
15,300.0	90.00	1.69	11,150.0	7,426.0	4,394.1	129.3	4,396.0	0.00	563,976.56	768,051.33
15,400.0	90.00	1.69	11,150.0	7,426.0	4,494.0	132.3	4,496.0	0.00	564,076.52	768,054.28
15,500.0	90.00	1.69	11,150.0	7,426.0	4,594.0	135.2	4,596.0	0.00	564,176.48	768,057.22
15,600.0	90.00	1.69	11,150.0	7,426.0	4,693.9	138.2	4,696.0	0.00	564,276.44	768,060.16
15,700.0	90.00	1.69	11,150.0	7,426.0	4,793.9	141.1	4,796.0	0.00	564,376.39	768,063.10
15,800.0	90.00	1.69	11,150.0	7,426.0	4,893.8	144.0	4,896.0	0.00	564,476.35	768,066.04
15,900.0	90.00	1.69	11,150.0	7,426.0	4,993.8	147.0	4,996.0	0.00	564,576.31	768,068.98
16,000.0	90.00	1.69	11,150.0	7,426.0	5,093.8	149.9	5,096.0	0.00	564,676.26	768,071.92
16,100.0	90.00	1.69	11,150.0	7,426.0	5,193.7	152.9	5,196.0	0.00	564,776.22	768,074.86
16,186.7	90.00	1.69	11,150.0	7,426.0	5,280.4	155.4	5,282.7	0.00	564,862.88	768,077.41
16,189.0	90.00	1.69	11,150.0	7,426.0	5,282.7	155.5	5,285.0	0.16	564,865.18	768,077.48
TD@16189HMD										
16,189.7	90.00	1.69	11,150.0	7,426.0	5,283.3	155.5	5,285.6	0.16	564,865.85	768,077.50

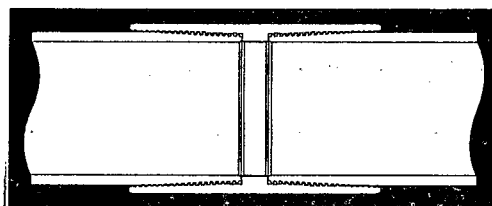
Company:	B.C Operating, Inc.	Local Co-ordinate Reference:	Well Topaz 30 Federal Com 3H
Project:	Lea County	TVD Reference:	WELL @ 3724.0usft (Original Well Elev)
Site:	Topaz 30 Federal Com 3H	MD Reference:	WELL @ 3724.0usft (Original Well Elev)
Well:	Topaz 30 Federal Com 3H	North Reference:	Grid
Wellbore:	Topaz 30 Federal Com 3H	Survey Calculation Method:	Minimum Curvature
Design:	141204 Topaz 30 Federal Com 3H	Database:	EDM 5000.1 Single User Db

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,577.0	10,577.0	0.0	0.0	KOP@10577ftMD
11,475.0	11,150.0	570.7	16.8	First Take Point@11475ftMD
11,477.0	11,150.0	572.7	16.9	Landing Point @11477ftMD/11150ftTVD
16,189.0	11,150.0	5,282.7	155.5	TD@16189ftMD

Checked By: _____	Approved By: _____	Date: _____
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TTTS Connections



5 1/2-in 17.0 ppf P-110 Tejas Tubular Reduced Stress

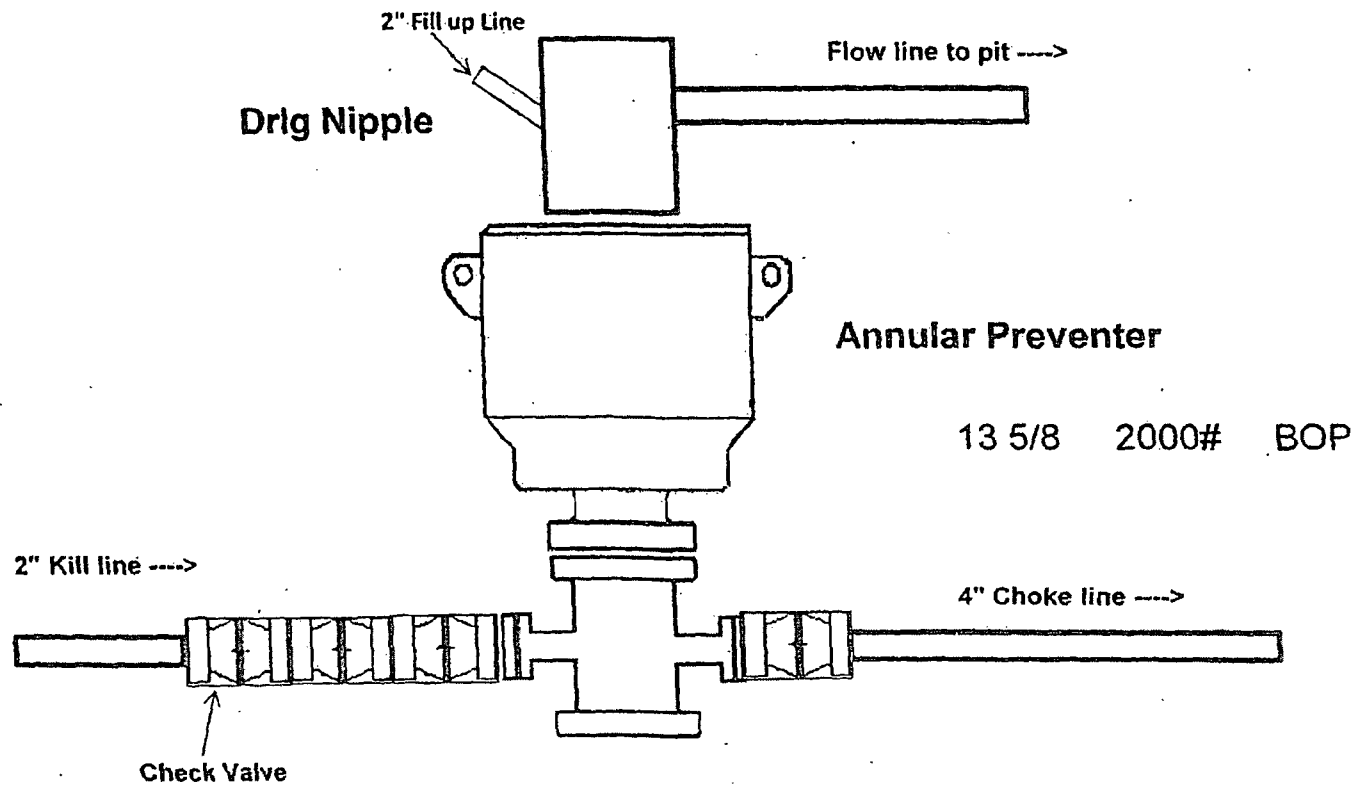
Pipe Body	Data
	<i>Imperial [Metric]</i>
Nominal OD (in [mm])	5.500 [139.7]
Nominal weight (lbm/ft)	17.0
Minimum yield of material (psi [kPa])	110,000 [758,423]
Minimum ID (in [mm])	4.892 [124.3]
Drift (in [mm])	4.767 [121.1]
Wall thickness (in [mm])	0.304 [7.72]
Plain end weight (lbm/ft)	16.89
Cross sectional area (in ² [mm ²])	4.962 [3,201]
Performance	
API tensile yield (lbf [N])	546,000 [2,428,729]
API internal yield pressure (psi [kPa])	10,640 [73,360]
API external yield pressure (psi [kPa])	7,480 [51,573]
Connection Dimensions	
Coupling OD (in [mm])	6.050 [153.7]
Coupling ID (in [mm])	4.892 [124.3]
Coupling length (in [mm])	9.375 [238.1]
Make-up loss (in [mm])	4.125 [104.8]
Threads per inch	5
Connection Performance	
Tensile yield strength** (lbf [N])	546,000 [2,428,729]
Internal yield pressure** (psi [kPa])	10,640 [73,360]
External yield pressure** (psi [kPa])	7,480 [51,573]
Compression strength** (lbf [N])	546,000 [2,428,729]
Working bending rate, tested (°/100 ft)	20
Bending rate, calculated (°/100 ft)	92
<i>**Values based on 100% efficiency</i>	
Torque Values	
Minimum (lbf.ft [N.m])	6,800 [9,219]
Optimum, recommended make-up (lbf.ft [N.m])	7,200 [9,762]
Maximum (lbf.ft [N.m])	8,600 [11,660]
Yield (lbf.ft [N.m])	17,000 [23,049]
Max. operational torque (lbf.ft [N.m])	15,500 [21,015]

Inspection Criteria

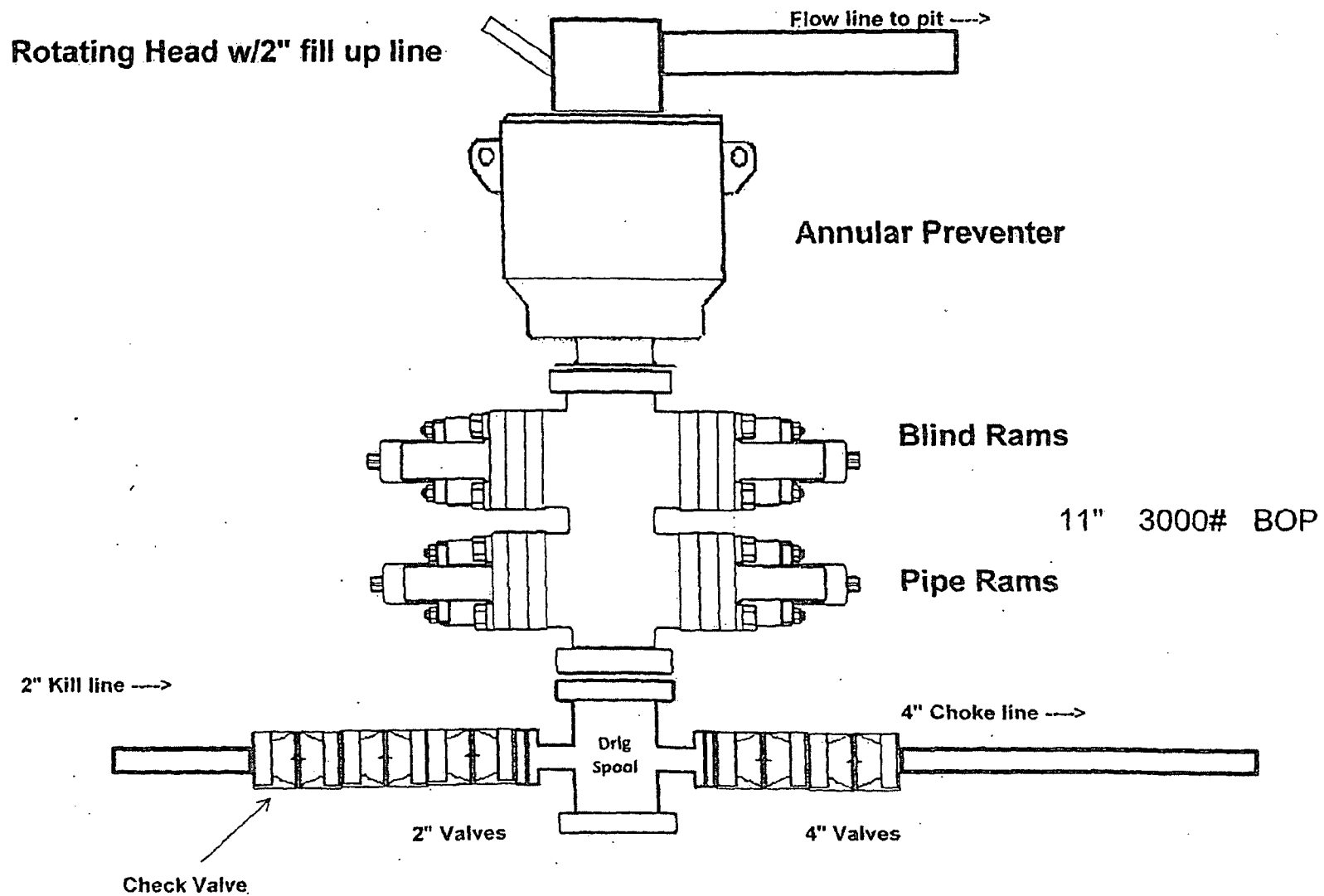
All the material is inspected to 5% Test notch inspection for OD/ID, Long/Trans and wall check as per API/ASTM requirements through EMI/SEA.

Note: All the information provided is general data. This document is not a warranty/quality certificate. Tejas Tubular reserves the right to change any and all of this data at any time for corrections and product improvement. This is an uncontrolled document.

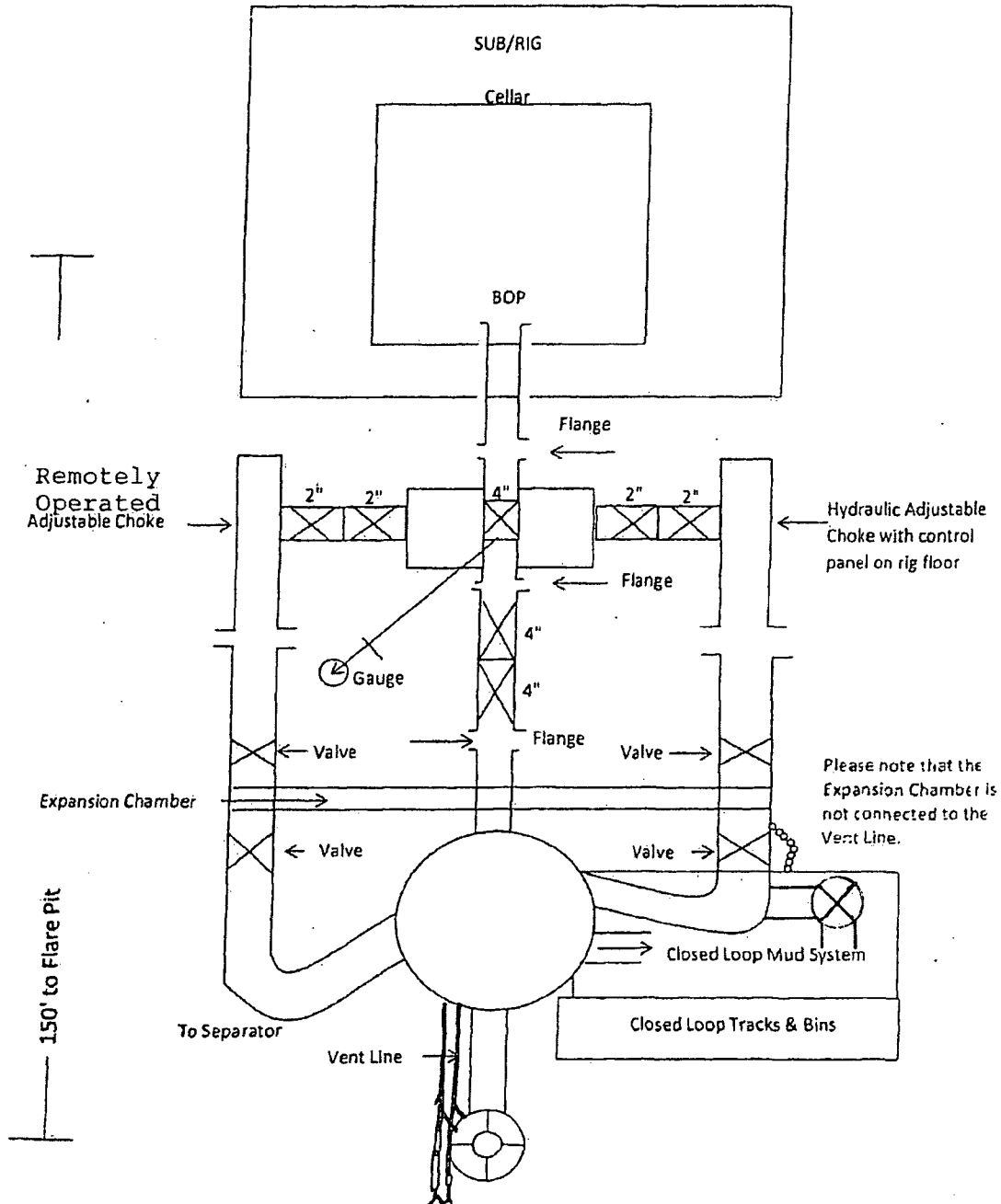
2,000 psi BOP Schematic



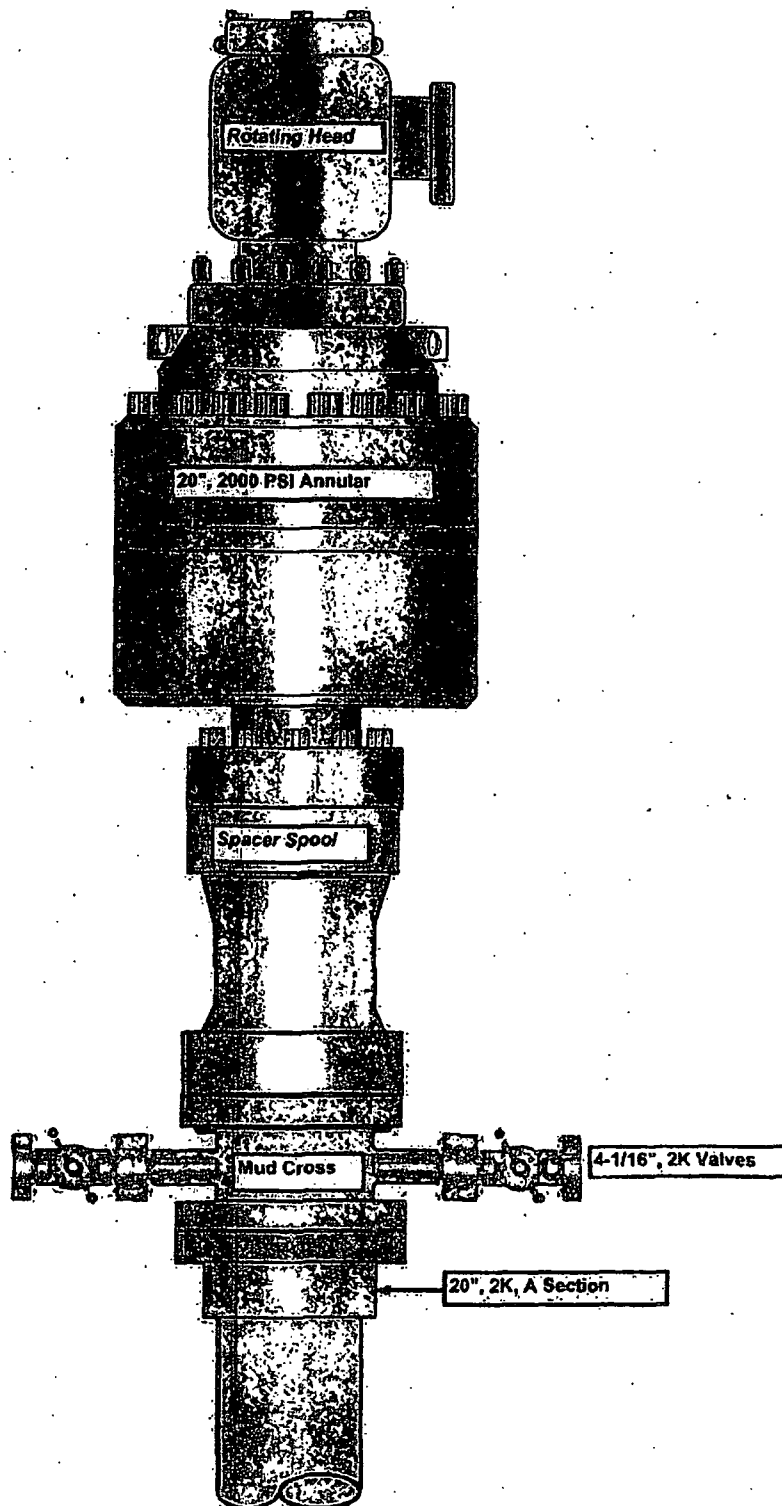
3,000 psi BOP Schematic



3M Choke Manifold Equipment



20" 2K Annular



BC Operating, Inc. Closed Loop System

Design Plan

Equipment List

- 2 – 414 MI Swaco *Centrifuges*
- 2 – MI Swaco 4 screen *Moongoose Shale Shakers*
- 2 – double screen *Shakers* with rig inventory
- 2 – CRI *Haul off bins* with track system
- 2 – additional 500bbl *Frac tanks* for fresh and brine water
- 2 – 500bbl *water tanks* with rig inventory

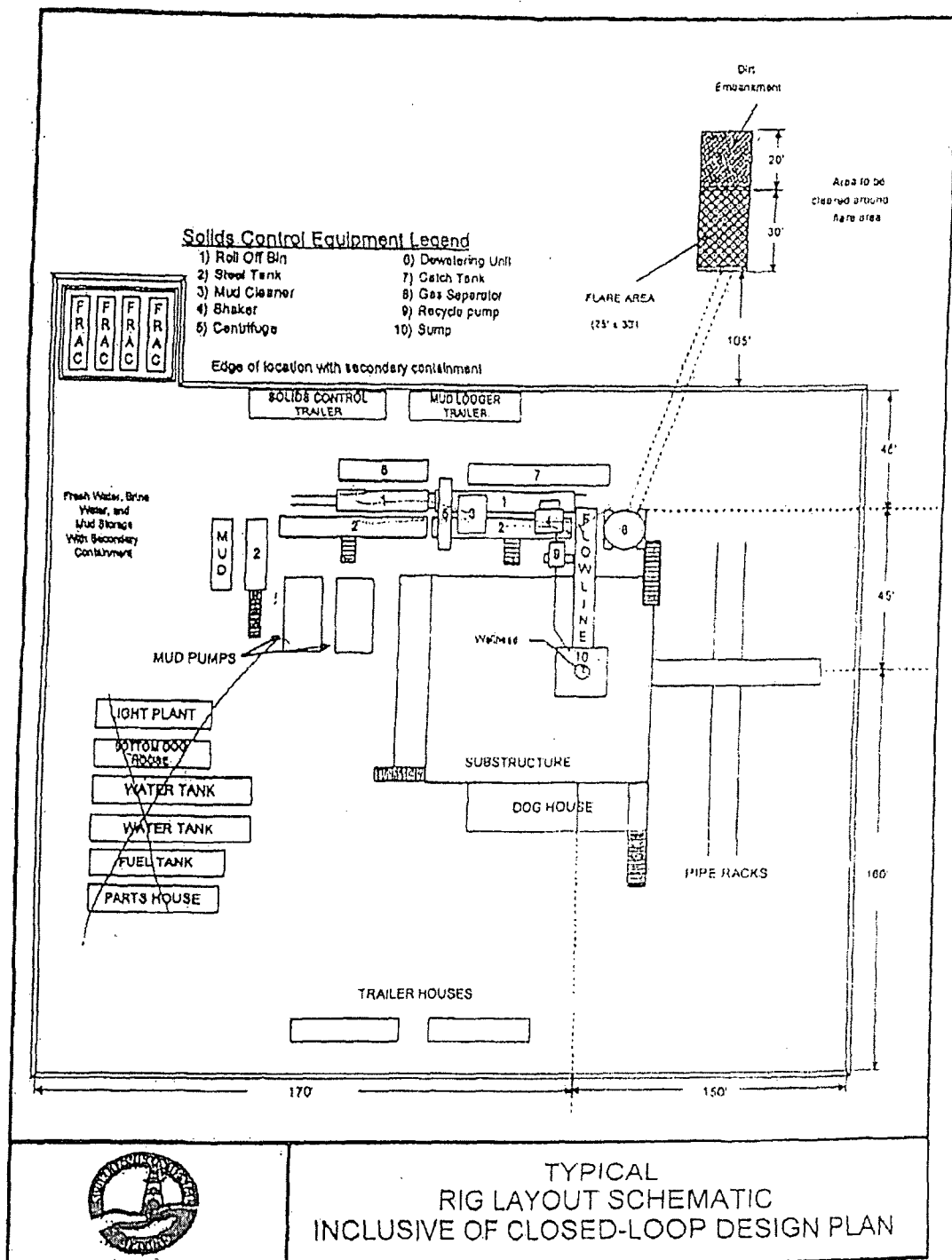
**Equipment manufactures may vary due to availability but components will not.*

Operation and Maintenance

The system along with equipment will be inspected numerous times a day by each tour to make sure all equipment is operating correctly. Routine maintenance will be done to keep system running properly. Any leak in system will be repaired and/or contained immediately and the OCD notified within 48 hours of the remediation process start.

Closure Plan

While drilling, all cuttings and fluids associated with drilling will be hauled off and disposed of via Controlled Recovery Incorporated Facilities Permit NM01-0006.



TYPICAL
RIG LAYOUT SCHEMATIC
INCLUSIVE OF CLOSED-LOOP DESIGN PLAN

BC Operating, Inc.
H2S Well Site Orientation – Drill Rig Orientation
Topaz 30 Fed Com #3H
SHL: 240' FNL & 2180' FEL, B-31-T20S-R34E

Flare



★ Secondary Briefing Area

Secondary Egress

Access Road

TOP SOIL

TANK

TANK

TANK

TANK

Pump 1

Pump 2

Close Loop System

Mud Pit System

Sub Structure

Primary Briefing Area ★

Housing

Housing

Housing

Prevailing Winds

-  Wind Sock
-  Flare
-  Briefing Area