15-421

Carlsbad Field Office
OCD Artesia

RECEIVED

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. BHL Fee SHL- LC059365

6. If Indian, Allotee or Tribe Name

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.
Bond 20 Fee #1H 317460

2. Name of Operator BC Operating, Inc.

9. API Well No.
30-015-44072

3a. Address P.O. Box 50820
Midland, Texas 79710

3b. Phone No. *(include area code)*
432-684-9696

10. Field and Pool, or Exploratory
Fenton; Bone Spring

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 330' FNL & 240' FEL of Unit Letter 'A', Section 19, T-21S, R-28E
At proposed prod. zone 330' FNL & 240' FEL of Unit Letter 'A', Section 20, T-21S, R-28E

11. Sec., T. R. M. or Blk. and Survey or Area
Section 19, T-21S, R-28E
Section 20, T-21S, R-28E

14. Distance in miles and direction from nearest town or post office*
1 miles West of Carlsbad NE

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) 240'

16. No. of acres in lease
320 Fee

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1921'

19. Proposed Depth
14,567'MD / 9,500' TVD

20. BLM/BIA Bond No. on file
NM2572

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3192' GL

22. Approximate date work will start*
07/01/2015

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.
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 Pam Stevens — Name *(Printed/Typed)* Pam Stevens — Date 02/24/2015

Title
Regulatory Analyst

Approved by *(Signature)* /s/Cody Layton — Name *(Printed/Typed)* — Date FEB 16 2017

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 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)

Capitan Controlled Water Basin

Accepted for record - NMOCD
RP 2-27-2017

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

BC Operating, Inc.

Statement of Certification

Bond 20 Fee #1H

SHL: 330' FNL & 240' FEL of Unit Letter 'A', Section 19, T-21S, R-28E

BHL: 330' FNL & 240' FEL of Unit Letter 'A', Section 20, T-21S, R-28E

Eddy County, New Mexico

This Statement of Certification is submitted with Form 3160-3, Application for Permit to Drill in accordance with BLM Onshore Oil and Gas Order Number 1 Section III.D.6., covering the above described well.

Certification:

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

Executed this 31th day of January, 2015.

Pam Stevens

Pam Stevens

Name: Pam Stevens
Position Title: Regulatory Analyst, BC Operating, Inc.
Address: P.O. Box 50820 – Midland, Texas 79710
Telephone: 432-684-9696

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 24 2017
RECEIVED

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
30-015-44072	24300	FENTON; BONE SPRING

[4] Property Code	[5] Property Name	[6] Well Number
317460	BOND 20 FEE	1H

[7] OGRID No.	[8] Operator Name	[9] Elevation
160825	B.C. OPERATING, INC.	3192'

[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	19	T21S	R28E		330'	NORTH	240'	EAST	EDDY

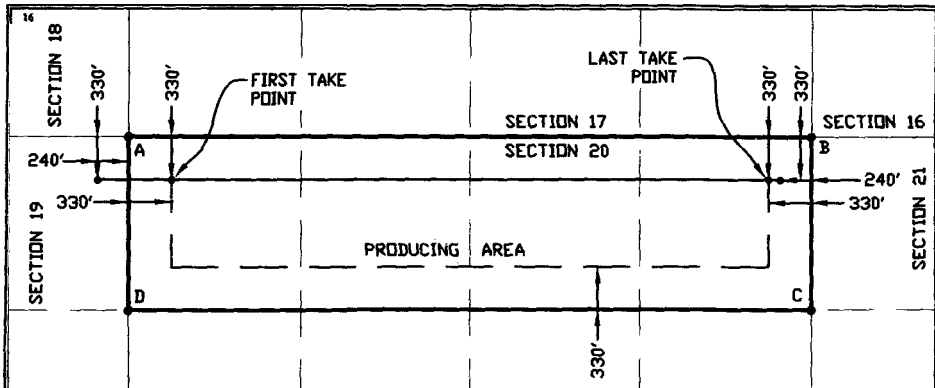
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	20	T21S	R28E		330'	NORTH	240'	EAST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160.00			

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.

[16]



SURFACE HOLE LOCATION
330' FNL 240' FEL, SECTION 19
NAD 83, SPCS NM EAST
X:607686.53' / Y:535583.16'
LAT:32.47219738N / LON:104.11818626W
NAD 27, SPCS NM EAST
X:566505.46' / Y:535522.50'
LAT:32.47207836N / LON:104.11768397W

LAST TAKE POINT
330' FNL 330' FEL, SECTION 20
NAD 83, SPCS NM EAST
X:612909.46' / Y:535559.90'
LAT:32.47210338N / LON:104.10125038W
NAD 27, SPCS NM EAST
X:571728.35' / Y:535499.19'
LAT:32.47198415N / LON:104.10074861W

FIRST TAKE POINT
330' FNL 330' FWL, SECTION 20
NAD 83, SPCS NM EAST
X:608256.63' / Y:535580.90'
LAT:32.47218801N / LON:104.11633765W
NAD 27, SPCS NM EAST
X:567075.55' / Y:535520.23'
LAT:32.47206897N / LON:104.11583542W

BOTTOM HOLE LOCATION
330' FNL 240' FEL, SECTION 20
NAD 83, SPCS NM EAST
X:612999.46' / Y:535559.50'
LAT:32.47210172N / LON:104.10095854W
NAD 27, SPCS NM EAST
X:571818.34' / Y:535498.79'
LAT:32.47198249N / LON:104.10045678W

SECTION 19 | SECTION 20 | SECTION 21

SECTION 30 | SECTION 29 | SECTION 28

CORNER COORDINATES
NAD 83, SPCS NM EAST
A - Y: 535912.38' / X: 607929.98'
B - Y: 535888.40' / X: 613243.25'
C - Y: 534568.49' / X: 613228.09'
D - Y: 534592.45' / X: 607916.56'

CORNER COORDINATES
NAD 27, SPCS NM EAST
A - Y: 535851.71 / X: 566748.91'
B - Y: 535827.68' / X: 572062.14'
C - Y: 534507.80' / X: 572046.95'
D - Y: 534531.81' / X: 566735.46'

[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.

Pam Stevens 1/26/15
Signature Date

Pam Stevens
Printed Name

pstevens@bcoperating.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 and correct to the best of my belief.

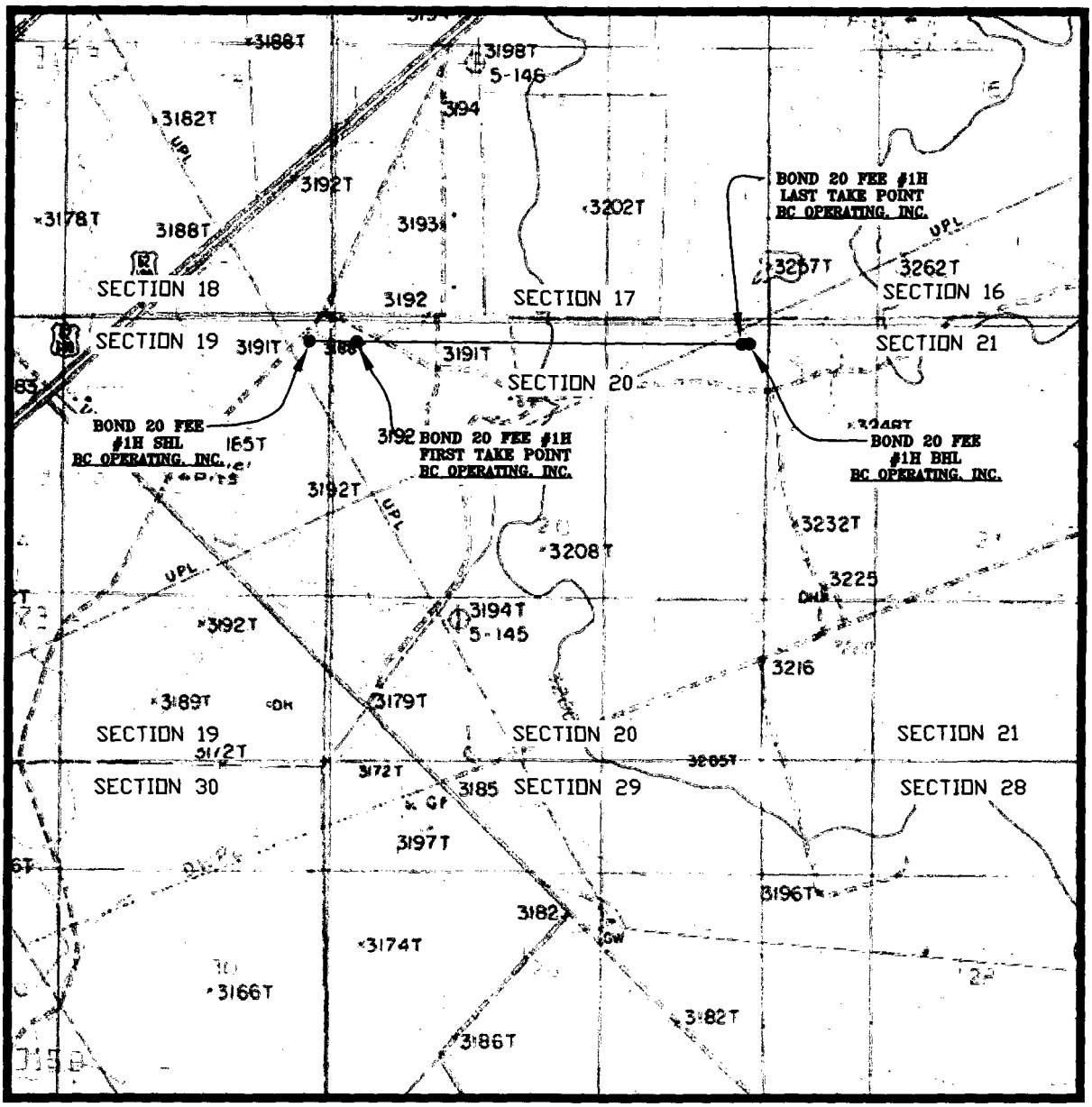
DECEMBER 31, 2014
Date of Survey

Signature and Seal of Professional Surveyor:

LLOYD P. SHORT NEW MEXICO 21653 PROFESSIONAL SURVEYOR

Certificate Number LLOYD P. SHORT 21653

LOCATION VERIFICATION MAP

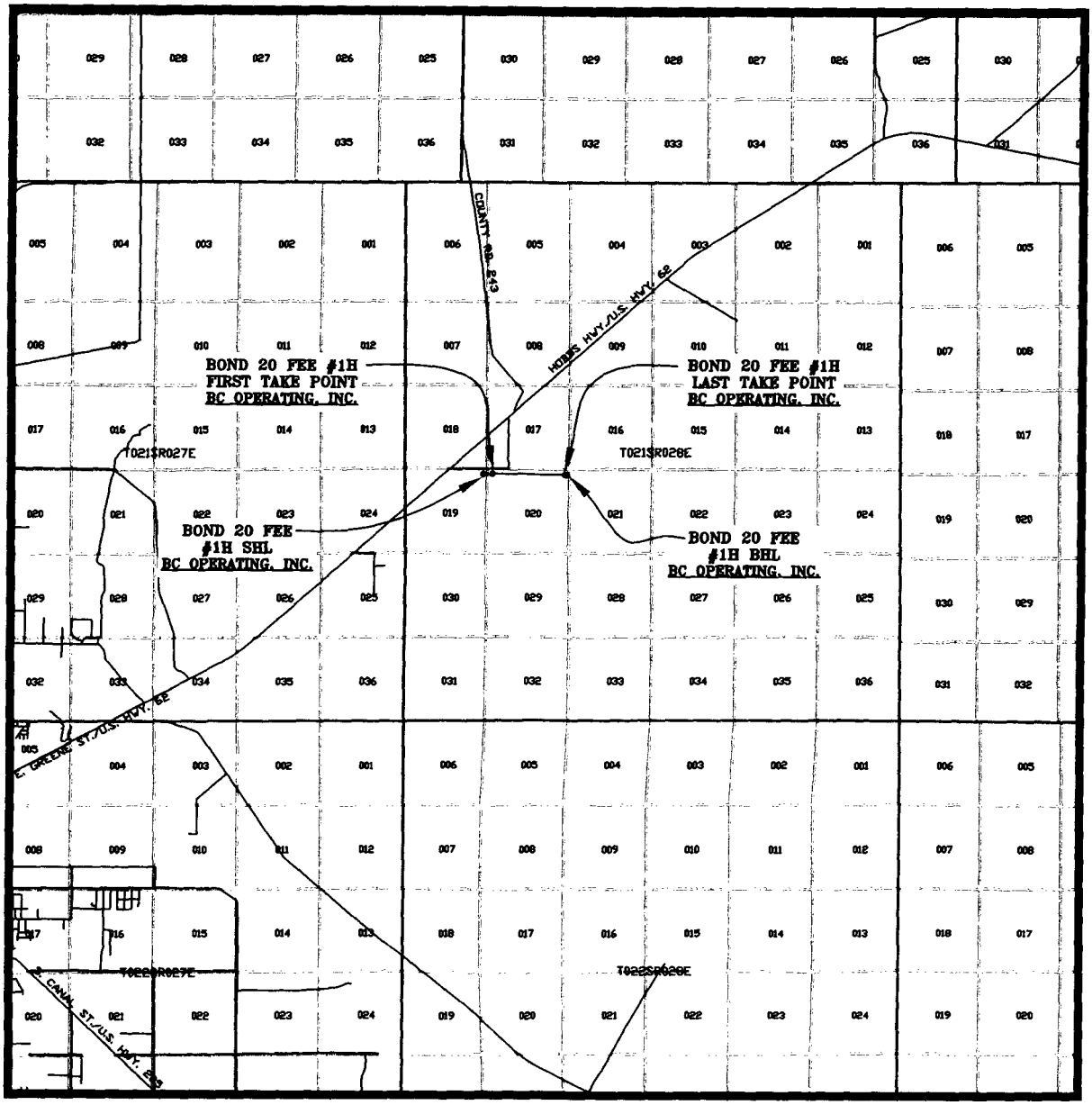


SEC. 19 TWP. 21-S RGE. 28-E
SURVEY: N.M.P.M.
COUNTY: EDDY
DESCRIPTION: 330' FNL & 240' FEL
ELEVATION: 3192'
OPERATOR: B.C. OPERATING, INC.
LEASE: BOND 20 FEE
U.S.G.S. TOPOGRAPHIC MAP: INDIAN FLATS, N.M.

SCALE: 1" = 2000'
CONTOUR INTERVAL = 10'

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. R3451_001

VICINITY MAP



SEC. 19 TWP. 21-S RGE. 28-E
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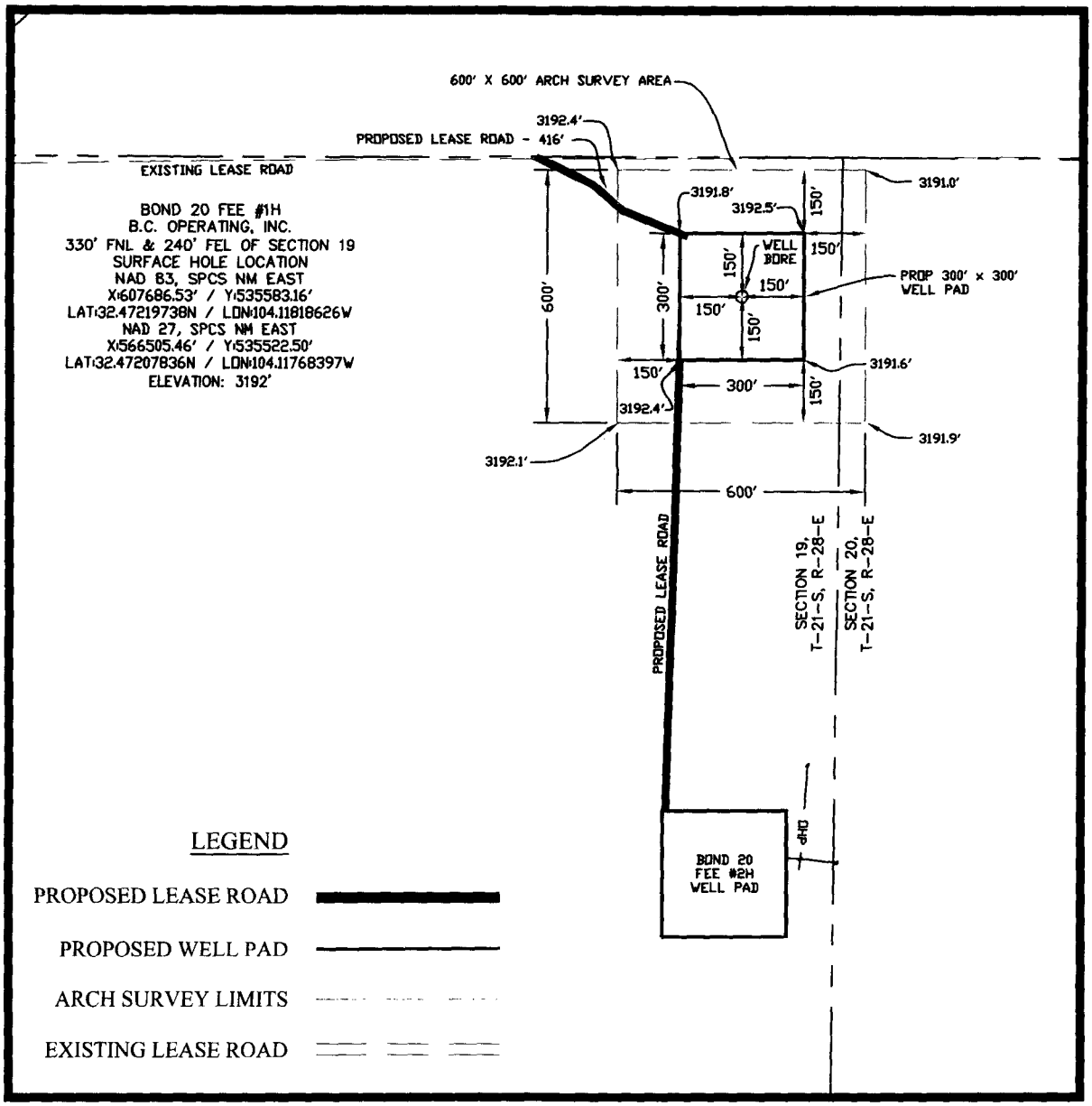
ELEVATION: 3192'
OPERATOR: B.C. OPERATING, INC.
LEASE: BOND 20 FEE
U.S.G.S. TOPOGRAPHIC MAP: INDIAN FLATS, N.M.

SCALE: 1" = 2 MILES

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. R3451_001

WELL PAD TOPO

SEC. 19 TWP. 21-S RGE. 28-E
SURVEY: N.M.P.M.
COUNTY: EDDY
U.S.G.S. TOPOGRAPHIC MAP: INDIAN FLATS, N.M.



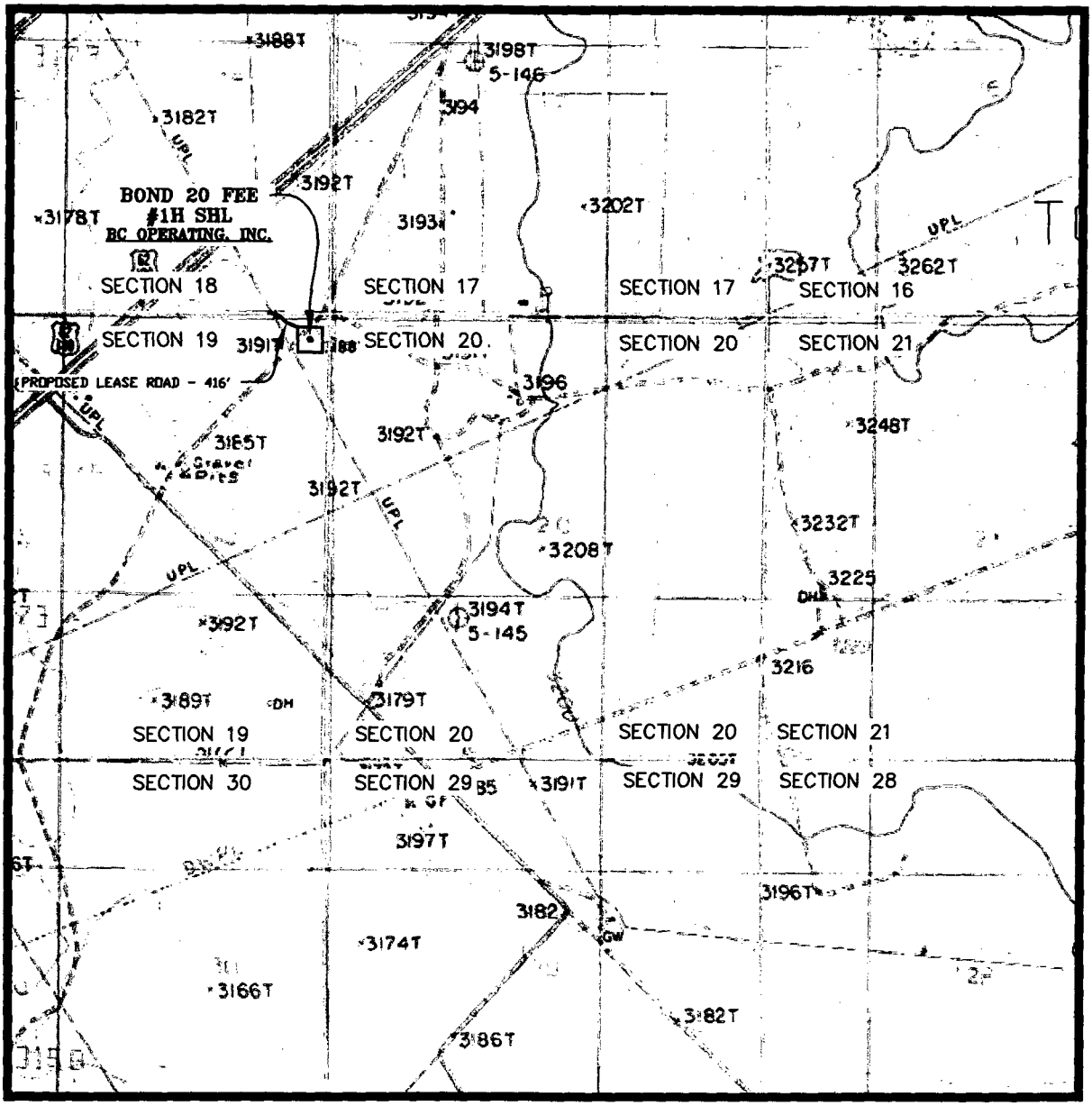
DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF SOUTH CANAL STREET (U.S. HWY. 285) AND EAST GREENE STREET (U.S. HWY. 62) TRAVEL NORTHEAST ON EAST GREENE STREET (U.S. HWY. 62) FOR 7.3 MILES TO A COUNTY ROAD 603 ON THE RIGHT. TRAVEL EAST ON COUNTY ROAD 603 FOR 0.4 MILES TO LEASE ROAD ON THE RIGHT. TRAVEL SOUTHWEST ON LEASE ROAD FOR 0.1 MILES TO PROPOSED WELL PAD 125.00 FEET SOUTHEAST.

200' 0' 200' 400'
SCALE: 1" = 400'

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. RS451_001

WELL PAD LOCATION VERIFICATION MAP



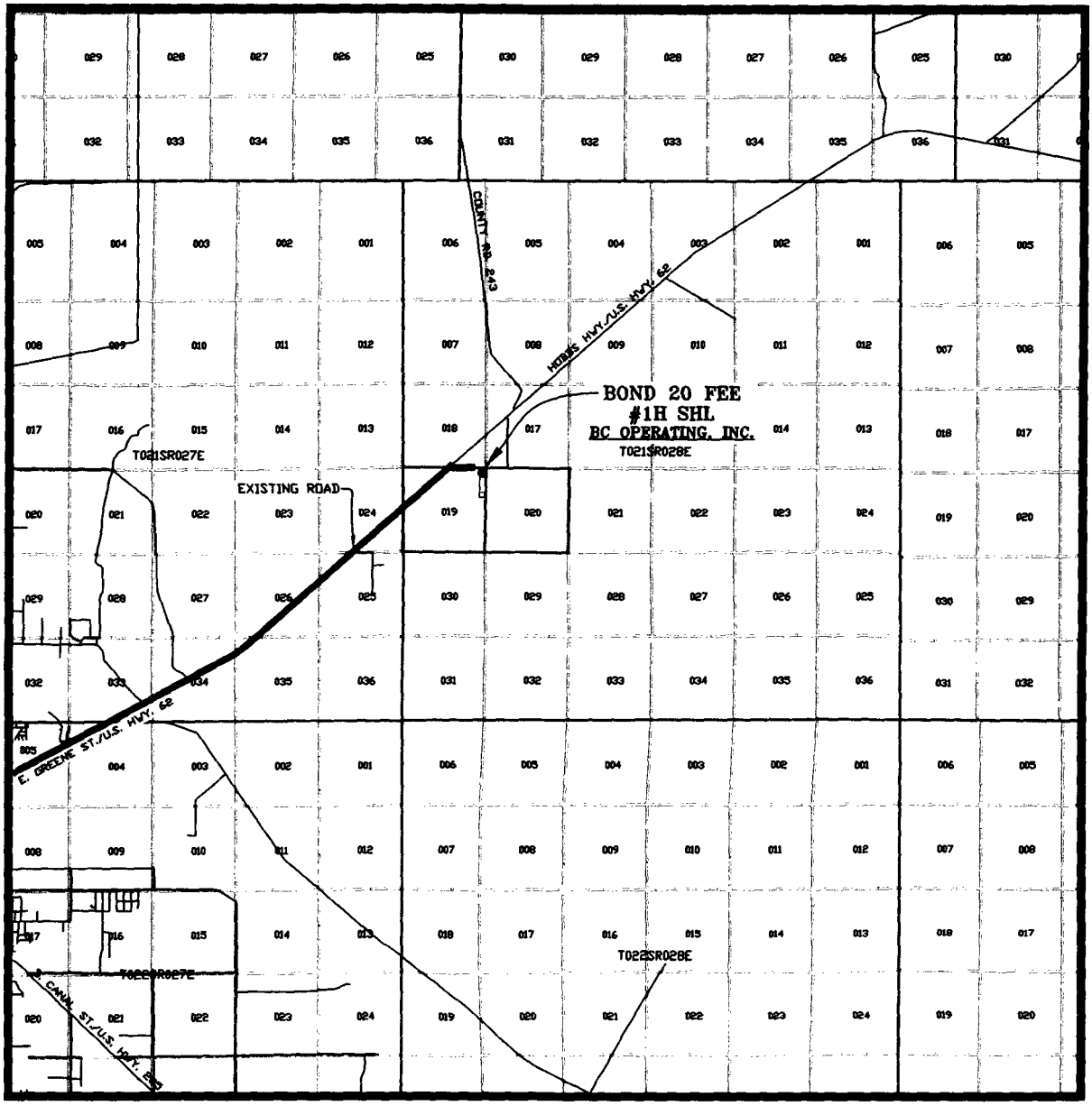
SEC. 19 TWP. 21-S RGE. 28-E
SURVEY: N.M.P.M.
COUNTY: EDDY
DESCRIPTION: 330' FNL & 240' FEL
ELEVATION: 3192'
OPERATOR: B.C. OPERATING, INC.
LEASE: BOND 20 FEE
U.S.G.S. TOPOGRAPHIC MAP: INDIAN FLATS, N.M.

SCALE: 1" = 2000'
CONTOUR INTERVAL = 10'

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. R3451_001

EXISTING ACCESS ROAD VICINITY MAP

BOND 20 FEE #1H
330' FNL & 240' FEL
SEC. 19 TWP. 21-S RGE. 28-E
SURVEY: N.M.P.M.
COUNTY: EDDY
U.S.G.S. TOPOGRAPHIC MAP: INDIAN FLATS, N.M.



SCALE: 1" = 2 MILES

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. RS451_001

MINERAL MAP

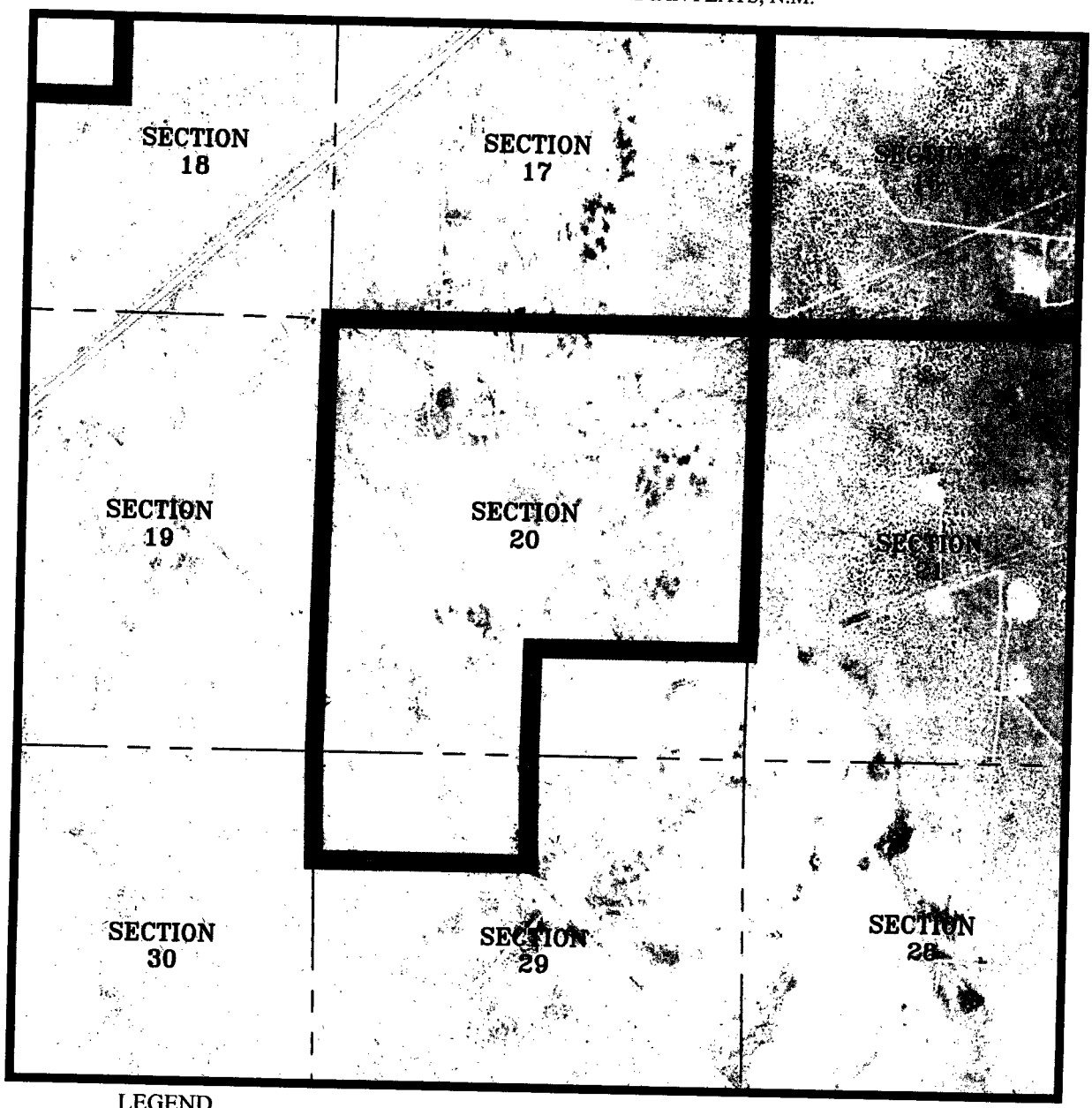
BOND 20 FEE

SEC. 19 TWP. 21-S RGE. 28-E

SURVEY: N.M.P.M.

COUNTY: EDDY

U.S.G.S. TOPOGRAPHIC MAP: INDIAN FLATS, N.M.



LEGEND

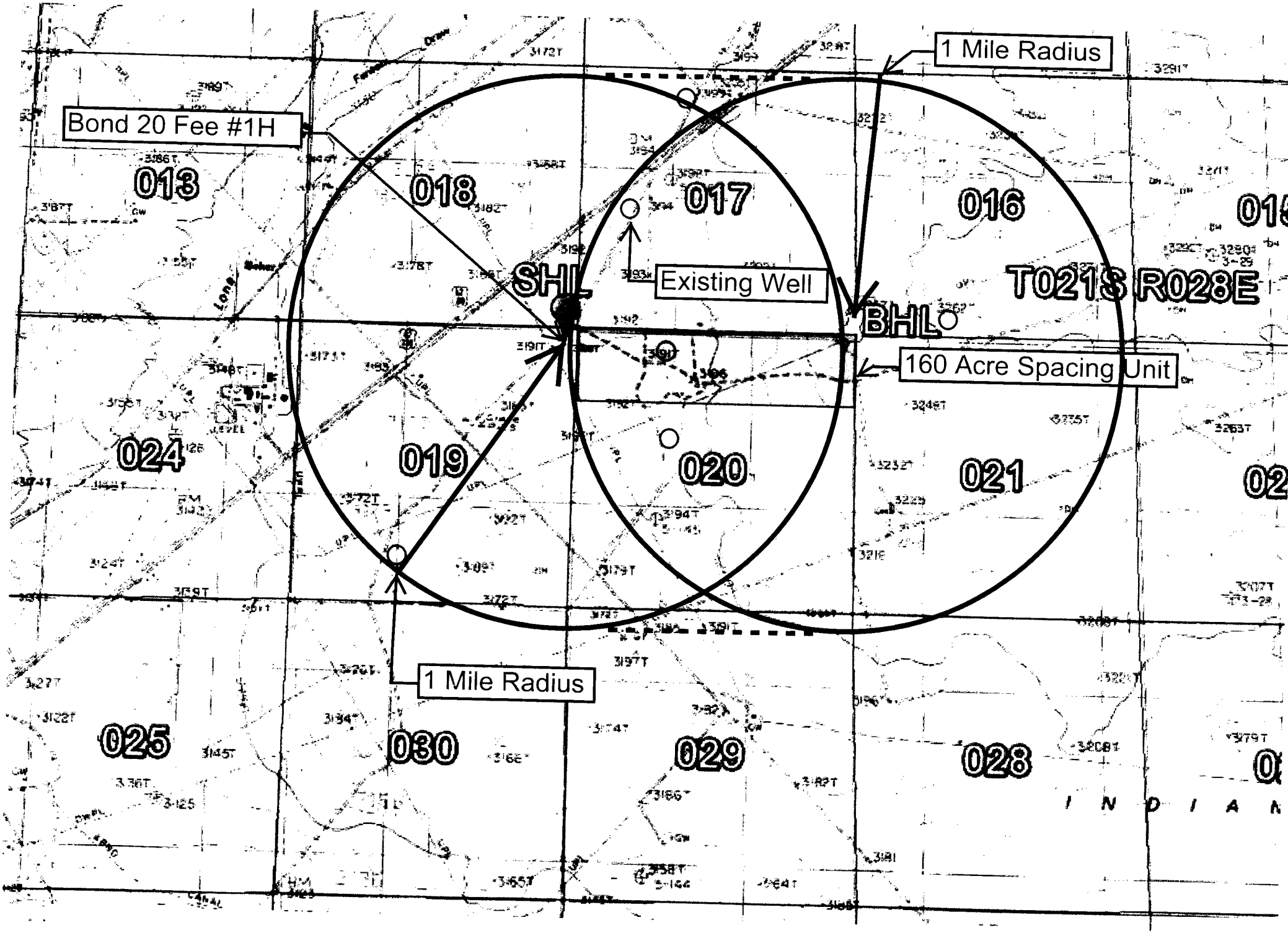
STATE MINERALS

FEDERAL COM MINERAL

FEE MINERALS

SCALE: 1" = 2000'

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. R3451_001


Bond 20 Fee #1H
1 Mile Radius
013
018
017
016
SHL
Existing Well
BHL
T021S R028E
160 Acre Spacing Unit
024
019
020
021
1 Mile Radius
025
030
029
028
INDIAN

BC Operating, Inc., Bond 20 Fee #1H

1. Geologic Formations

TVD of target	9500	Pilot hole depth	10600
MD at TD:	14567	Deepest expected fresh water:	487

Formation	Depth (TVD) from KB)	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Alluvium	Surface	Water	
Capitan	1180		
Cherry Canyon	2990		
Brushy Canyon	4375		
Bone Spring Lime	5675		
1st BS Sand	6875		
2nd Carbonate	7090		
2nd BS Sand	7600		
3rd Carbonate	8075		
3rd BS Sand	8850		
Wolfcamp	9280	Target ~9500'	
Strawn Lime	10540		
TD Pilot	10600		

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

* See COA

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
22'	0	~~530~~ 400	18.625"	87.5	J55	STC	2.72	1.55	16.26
16"	0	~~2790~~ 2650	13.375"	68.0	J55	STC	1.35	1.27	3.56
12.25"	0	5725	9.625"	40	J55	LTC	1.14	1.19	3.22
8.75"	0	14567	5.5"	17	P110HC	Semi-BUTT	1.54	2.19	7.98
				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., Bond 20 Fee #1H

	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.	Y
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd 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 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(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?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	620	13.5	1.76	9.1	10	Lead: Class C Extendacem + 2 lbm Kol-Seal + 0.125lbm Poly-E-Flake
	230	14.8	1.34	6.3	8	Tail: Class C Halcem + 1% CaCl2 + 0.125lbm Poly-E-Flake + 2 lbm Kol-Seal
Inter.	1250	12.6	1.93	10.36	10	Lead: Class C Econocem + 0.60% Halad(R)-9 + 0.25lbm Poly-E-Flake + 3 lbm Kol-Seal
	260	14.8	1.339	6.13	8	Tail: Class C Halcem + 3 lbm Kol-Seal + 0.25lbm Poly-E-Flake
Inter.2	1060	12.6	1.93	10.36	10	Lead: Class C Econocem + 0.60% Halad(R)-9 + 0.25lbm Poly-E-Flake + 3 lbm Kol-Seal
	570	14.8	1.339	6.13	8	Tail: Class C Halcem + 3 lbm Kol-Seal + 0.25lbm Poly-E-Flake
Prod.	1680	11.9	2.303	13.19	22	Lead: Versacem H + 10% Bentonite + 0.50% HR-601 + 0.25lbm D-Air 5000 + 2 lbm Kol-Seal
	830	15	2.625	11.4	12	**Tail: Solucem + 100% CACO3 + 0.25lbm D-Air 5000 + 0.80% HR-601
						**Tail cement on production string is Acid Soluble blend that has a yield of 2.625 CF/SK

(Optional) 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
Surface	0'	100%
Intermediate	0'	100%
Intermediate 2	0'	50%
Production	0'	30%

Include Pilot Hole Cementing specs:
Pilot hole depth 10600
KOP 8927

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft3/sack	Water gal/sk	Slurry Description and Cement Type
8830	9330	10	225	15.6	1.204	5.36	Plugcem H 3% KCl
10600	10390	10	82	15.6	1.192	5.39	Plugcem H .2%HR-800

4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

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% of working 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.

Y	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.

Y	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?
	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

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.33-8.4	28-34	N/C
Surf csg	Int shoe	Saturated Brine	9.8-10.0	28-34	N/C
Int shoe	Int 2 shoe	Cut Brine	8.4-9.1	28-34	N/C
Int 2 shoe	TD	Cut Brine	9.0-9.5	28-34	<12

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

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL fromTD 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
X	Resistivity	Int. shoe to KOP
X	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	3400 psi
Abnormal Temperature	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.	
	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? No. If yes, describe.
Will be pre-setting casing? No. If yes, describe.

Attachments
_X_ Directional Plan
_X_ Other, describe

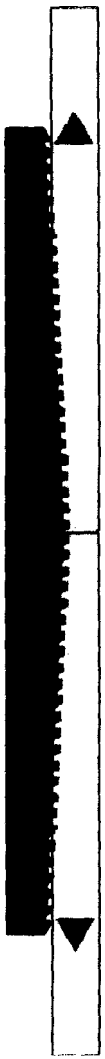
- Improved 5.5" casing thread design example
- Surface casing diverter schematic
- 20" annular
- 13-5/8" annular
- 11" BOPE
- Flexible hose specs and test chart

GB tubulars
Casings & Connections

GB Connection Performance Properties Sheet

Rev. 1 (02/05/2014)

ENGINEERING THE RIGHT CONNECTIONS™



Casing:	**5.5 OD, 17 ppf**	Connection:	**GB CD Butt 6.050**
Grade:	**P-110**	Grade:	**API P-110**

PIPE BODY GEOMETRY

Nominal OD (in.)	5 1/2	Wall Thickness (in.)	0.304	Drift Diameter (in.)	4.767
Nominal Weight (ppf)	17.00	Nominal ID (in.)	4.892	API Alternate Drift Dia. (in.)	N/A
Plain End Weight (ppf)	16.89	Plain End Area (in.^{2})	4.962		

PIPE BODY PERFORMANCE

Material Specification	P-110	Min. Yield Str. (psi)	110,000	Min. Ultimate Str. (psi)	125,000
Collapse		**Tension**		**Pressure**	
API (psi)	7,480	Pl. End Yield Str. (kips)	546	Min. Int. Yield Press. (psi)	10,640
High Collapse (psi)	8,580	**Torque**		**Bending**	
		Yield Torque (ft-lbs)	64,680	Build Rate to Yield (°/100 ft)	91.7

GB CD Butt 6.050 COUPLING GEOMETRY

Coupling OD (in.)	6.050	Makeup Loss (in.)	4.2500
Coupling Length (in.)	8.500	Critical Cross-Sect. (in.^{2})	6.102

GB CD Butt 6.050 CONNECTION PERFORMANCE RATINGS/EFFICIENCIES

Material Specification	API P-110	Min. Yield Str. (psi)	110,000	Min. Ultimate Str. (psi)	125,000
Tension		**Efficiency**		**Bending**	
Thread Str. (kips)	568	Internal Pressure (%)	100%	Build Rate to Yield (°/100 ft)	83.3
Min. Tension Yield (kips)	638	External Pressure (%)	100%	**Yield Torque**	
Min. Tension Ult. (kips)	725	Tension (%)	100%	Yield Torque (ft-lbs)	17,030
Joint Str. (kips)	568	Compression (%)	100%		
		Ratio of Areas (Cplg/Pipe)	1.23		

MAKEUP TORQUE

Min. MU Tq. (ft-lbs)	6,470	Max. MU Tq. (ft-lbs)	12,940	Running Tq. (ft-lbs)	See GBT RP
				Max. Operating Tq. (ft-lbs)*	16,180

Units: US Customary (lbm, in., °F, lbf)

1 kip = 1,000 lbs

* See Running Procedure for description and limitations.

See attached: Notes for GB Connection Performance Properties.

GBT Running Procedure (GBT RP): www.gbtubulars.com/pdf/RP_GB_DWC_Connections.pdf

Blanking Dimensions: www.gbtubulars.com/pdf/GB_DWC_Blanking_Dimensions.pdf

B.C. Operating, Inc.

Lea County, NM
Bond 20 Fee
Bond 20 Fee 1H

Wellbore #1

Plan: Plan #1

Sperry Drilling Services
Proposal Report

16 February, 2015

Well Coordinates: 535,522.50 N, 566,505.46 E (32° 28' 19.48" N, 104° 07' 03.66" W)
Ground Level: 3,192.00 usft

Local Coordinate Origin:	Centered on Well Bond 20 Fee 1H
Viewing Datum:	GL 3192' + KBE 20' @ 3212.00usft
TVDs to System:	N
North Reference:	Grid
Unit System:	API - US Survey Feet

Version: 5000.1 Build: 72

HALLIBURTON

Plan Report for Bond 20 Fee 1H - Plan #1

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)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Plan Report for Bond 20 Fee 1H - Plan #1

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)	Toolface Azimuth (°)
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,927.04	0.00	0.00	8,927.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build @ 8927.04' MD - Dogleg = 10.00°/100'										
8,950.00	2.30	90.26	8,949.99	0.00	0.46	0.46	10.00	10.00	0.00	90.26
9,000.00	7.30	90.26	8,999.80	-0.02	4.64	4.64	10.00	10.00	0.00	0.00
9,050.00	12.30	90.26	9,049.06	-0.06	13.14	13.14	10.00	10.00	0.00	0.00
9,100.00	17.30	90.26	9,097.39	-0.12	25.91	25.91	10.00	10.00	0.00	0.00
9,150.00	22.30	90.26	9,144.42	-0.19	42.84	42.84	10.00	10.00	0.00	0.00
9,200.00	27.30	90.26	9,189.79	-0.28	63.80	63.80	10.00	10.00	0.00	0.00
9,250.00	32.30	90.26	9,233.17	-0.40	88.64	88.64	10.00	10.00	0.00	0.00
9,300.00	37.30	90.26	9,274.21	-0.52	117.16	117.16	10.00	10.00	0.00	0.00
9,350.00	42.30	90.26	9,312.62	-0.67	149.15	149.15	10.00	10.00	0.00	0.00
9,400.00	47.30	90.26	9,348.09	-0.82	184.37	184.37	10.00	10.00	0.00	0.00
9,450.00	52.30	90.26	9,380.35	-0.99	222.54	222.55	10.00	10.00	0.00	0.00
9,500.00	57.30	90.26	9,409.17	-1.18	263.38	263.39	10.00	10.00	0.00	0.00
9,550.00	62.30	90.26	9,434.32	-1.37	306.58	306.59	10.00	10.00	0.00	0.00
9,600.00	67.30	90.26	9,455.60	-1.57	351.81	351.81	10.00	10.00	0.00	0.00
9,650.00	72.30	90.26	9,472.86	-1.78	398.72	398.72	10.00	10.00	0.00	0.00
9,700.00	77.30	90.26	9,485.97	-1.99	446.95	446.95	10.00	10.00	0.00	0.00
9,750.00	82.30	90.26	9,494.83	-2.21	496.14	496.15	10.00	10.00	0.00	0.00
9,800.00	87.30	90.26	9,499.36	-2.44	545.92	545.93	10.00	10.00	0.00	0.00
9,824.18	89.71	90.26	9,499.99	-2.54	570.09	570.09	10.00	10.00	0.00	0.00
Bond 20 Fee 1H FTP										
9,827.04	90.00	90.26	9,500.00	-2.56	572.95	572.96	10.00	10.00	0.00	0.00
End Build @ 9827.04' MD - Hold Angle @ 90.00°										
9,900.00	90.00	90.26	9,500.00	-2.88	645.91	645.92	0.00	0.00	0.00	0.00
10,000.00	90.00	90.26	9,500.00	-3.33	745.91	745.92	0.00	0.00	0.00	0.00
10,100.00	90.00	90.26	9,500.00	-3.78	845.91	845.92	0.00	0.00	0.00	0.00
10,200.00	90.00	90.26	9,500.00	-4.22	945.91	945.92	0.00	0.00	0.00	0.00

Plan Report for Bond 20 Fee 1H - Plan #1

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)	Toolface Azimuth (°)
10,300.00	90.00	90.26	9,500.00	-4.67	1,045.91	1,045.92	0.00	0.00	0.00	0.00
10,400.00	90.00	90.26	9,500.00	-5.11	1,145.90	1,145.92	0.00	0.00	0.00	0.00
10,500.00	90.00	90.26	9,500.00	-5.56	1,245.90	1,245.92	0.00	0.00	0.00	0.00
10,600.00	90.00	90.26	9,500.00	-6.01	1,345.90	1,345.92	0.00	0.00	0.00	0.00
10,700.00	90.00	90.26	9,500.00	-6.45	1,445.90	1,445.92	0.00	0.00	0.00	0.00
10,800.00	90.00	90.26	9,500.00	-6.90	1,545.90	1,545.92	0.00	0.00	0.00	0.00
10,900.00	90.00	90.26	9,500.00	-7.35	1,645.90	1,645.92	0.00	0.00	0.00	0.00
11,000.00	90.00	90.26	9,500.00	-7.79	1,745.90	1,745.92	0.00	0.00	0.00	0.00
11,100.00	90.00	90.26	9,500.00	-8.24	1,845.90	1,845.92	0.00	0.00	0.00	0.00
11,200.00	90.00	90.26	9,500.00	-8.68	1,945.90	1,945.92	0.00	0.00	0.00	0.00
11,300.00	90.00	90.26	9,500.00	-9.13	2,045.90	2,045.92	0.00	0.00	0.00	0.00
11,400.00	90.00	90.26	9,500.00	-9.58	2,145.89	2,145.92	0.00	0.00	0.00	0.00
11,500.00	90.00	90.26	9,500.00	-10.02	2,245.89	2,245.92	0.00	0.00	0.00	0.00
11,600.00	90.00	90.26	9,500.00	-10.47	2,345.89	2,345.92	0.00	0.00	0.00	0.00
11,700.00	90.00	90.26	9,500.00	-10.92	2,445.89	2,445.92	0.00	0.00	0.00	0.00
11,800.00	90.00	90.26	9,500.00	-11.36	2,545.89	2,545.92	0.00	0.00	0.00	0.00
11,900.00	90.00	90.26	9,500.00	-11.81	2,645.89	2,645.92	0.00	0.00	0.00	0.00
12,000.00	90.00	90.26	9,500.00	-12.25	2,745.89	2,745.92	0.00	0.00	0.00	0.00
12,100.00	90.00	90.26	9,500.00	-12.70	2,845.89	2,845.92	0.00	0.00	0.00	0.00
12,200.00	90.00	90.26	9,500.00	-13.15	2,945.89	2,945.92	0.00	0.00	0.00	0.00
12,300.00	90.00	90.26	9,500.00	-13.59	3,045.89	3,045.92	0.00	0.00	0.00	0.00
12,400.00	90.00	90.26	9,500.00	-14.04	3,145.88	3,145.92	0.00	0.00	0.00	0.00
12,500.00	90.00	90.26	9,500.00	-14.49	3,245.88	3,245.92	0.00	0.00	0.00	0.00
12,600.00	90.00	90.26	9,500.00	-14.93	3,345.88	3,345.92	0.00	0.00	0.00	0.00
12,700.00	90.00	90.26	9,500.00	-15.38	3,445.88	3,445.92	0.00	0.00	0.00	0.00
12,800.00	90.00	90.26	9,500.00	-15.82	3,545.88	3,545.92	0.00	0.00	0.00	0.00
12,900.00	90.00	90.26	9,500.00	-16.27	3,645.88	3,645.92	0.00	0.00	0.00	0.00
13,000.00	90.00	90.26	9,500.00	-16.72	3,745.88	3,745.92	0.00	0.00	0.00	0.00
13,100.00	90.00	90.26	9,500.00	-17.16	3,845.88	3,845.92	0.00	0.00	0.00	0.00
13,200.00	90.00	90.26	9,500.00	-17.61	3,945.88	3,945.92	0.00	0.00	0.00	0.00
13,300.00	90.00	90.26	9,500.00	-18.06	4,045.88	4,045.92	0.00	0.00	0.00	0.00
13,400.00	90.00	90.26	9,500.00	-18.50	4,145.87	4,145.92	0.00	0.00	0.00	0.00
13,500.00	90.00	90.26	9,500.00	-18.95	4,245.87	4,245.92	0.00	0.00	0.00	0.00
13,600.00	90.00	90.26	9,500.00	-19.39	4,345.87	4,345.92	0.00	0.00	0.00	0.00
13,700.00	90.00	90.26	9,500.00	-19.84	4,445.87	4,445.92	0.00	0.00	0.00	0.00
13,800.00	90.00	90.26	9,500.00	-20.29	4,545.87	4,545.92	0.00	0.00	0.00	0.00
13,900.00	90.00	90.26	9,500.00	-20.73	4,645.87	4,645.92	0.00	0.00	0.00	0.00
14,000.00	90.00	90.26	9,500.00	-21.18	4,745.87	4,745.92	0.00	0.00	0.00	0.00
14,100.00	90.00	90.26	9,500.00	-21.63	4,845.87	4,845.92	0.00	0.00	0.00	0.00
14,200.00	90.00	90.26	9,500.00	-22.07	4,945.87	4,945.92	0.00	0.00	0.00	0.00
14,300.00	90.00	90.26	9,500.00	-22.52	5,045.87	5,045.92	0.00	0.00	0.00	0.00
14,400.00	90.00	90.26	9,500.00	-22.96	5,145.86	5,145.92	0.00	0.00	0.00	0.00
14,477.03	90.00	90.26	9,500.00	-23.31	5,222.89	5,222.94	0.00	0.00	0.00	0.00
Bond 20 Fee 1H LTP										
14,500.00	90.00	90.26	9,500.00	-23.41	5,245.86	5,245.92	0.00	0.00	0.00	0.00
14,567.02	90.00	90.26	9,500.00	-23.71	5,312.88	5,312.93	0.00	0.00	0.00	0.00
TD @ 14567.02' MD - Bond 20 Fee 1H BHL										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
8,927.04	8,927.04	0.00	0.00	Start Build @ 8927.04' MD
8,927.04	8,927.04	0.00	0.00	Dogleg = 10.00°/100'
9,827.04	9,500.00	-2.56	572.95	End Build @ 9827.04' MD
9,827.04	9,500.00	-2.56	572.95	Hold Angle @ 90.00°
14,567.02	9,500.00	-23.71	5,312.88	TD @ 14567.02' MD

Plan Report for Bond 20 Fee 1H - Plan #1

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
TD	No Target (Freehand)	90.26	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	14,567.02	Plan #1	MWD+SC

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Bond 20 Fee 1H FTP	9,500.00	-2.27	570.09	Point
Bond 20 Fee 1H LTP	9,500.00	-23.31	5,222.89	Point
Bond 20 Fee 1H BHL	9,500.00	-23.71	5,312.88	Point

North Reference Sheet for Bond 20 Fee - Bond 20 Fee 1H - Wellbore #1

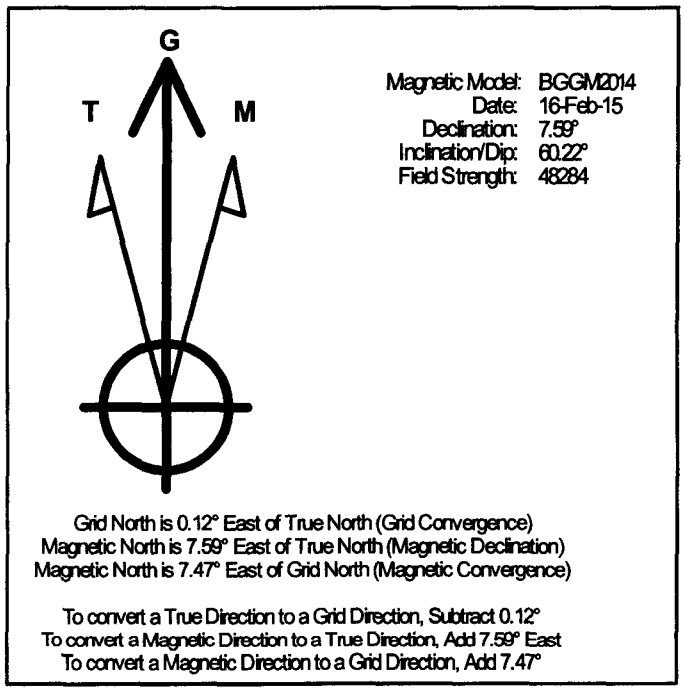
All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to GL 3192' + KBE 20' @ 3212.00usft. Northing and Easting are relative to Bond 20 Fee 1H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 3001 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Transverse Mercator (Gauss-Kruger)
Central Meridian is -104.33°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:0° 0' 0.000 N°
False Easting: 500,000.00usft, False Northing: 0.00usft, Scale Reduction: 0.99991416

Grid Coordinates of Well: 535,522.50 usft N, 566,505.46 usft E
Geographical Coordinates of Well: 32° 28' 19.48" N, 104° 07' 03.66" W
Grid Convergence at Surface is: 0.12°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,567.02usft
the Bottom Hole Displacement is 5,312.93usft in the Direction of 90.26° (Grid).

Magnetic Convergence at surface is: -7.47° (16 February 2015, , BGGM2014)



B.C. Operating, Inc.

HALLIBURTON
Sperry Drilling Services

Project: Lea County, NM
Site: Bond 20 Fee
Well: Bond 20 Fee 1H
Wellbore: Wellbore #1
Design: Plan #1
Rig:

Surface Location:

US State Plane 1927 (Exact solution)
New Mexico East 3001
Elevation: GL 3192' + KBE 20' @ 3212.00usft

Northing	Easting	Latitude	Longitude
535522.50	566505.46	32° 28' 19.482 N	104° 7' 3.662 W

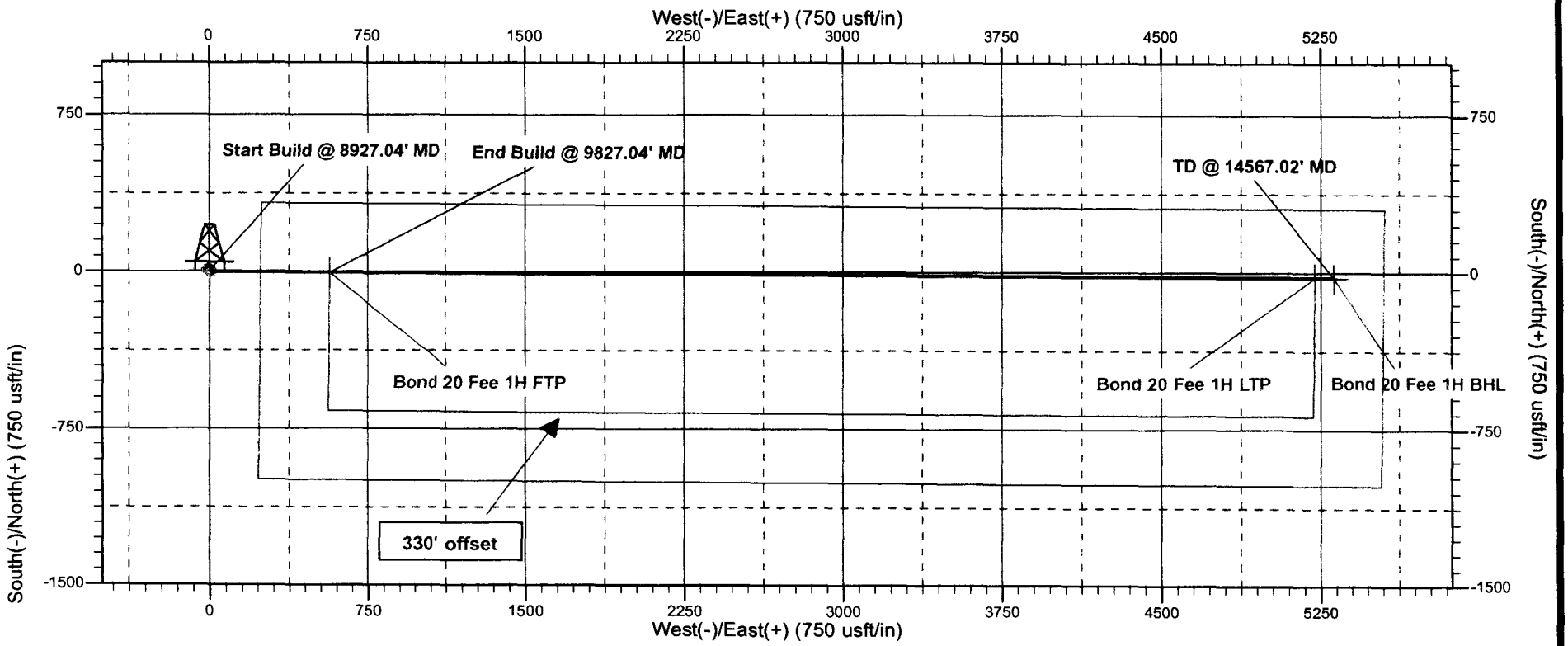
To convert a Magnetic Direction to a Grid Direction, Add 7.47°

Magnetic Model: BGGM2014 Date: 16-Feb-15
Azimuths to Grid North

N

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Bond 20 Fee 1H BHL	9500.00	-23.71	5312.88	535498.79	571818.34	32° 28' 19.137 N	104° 6' 1.644 W
Bond 20 Fee 1H FTP	9500.00	-2.27	570.09	535520.23	567075.55	32° 28' 19.448 N	104° 6' 57.008 W
Bond 20 Fee 1H LTP	9500.00	-23.31	5222.89	535499.19	571728.35	32° 28' 19.143 N	104° 6' 2.695 W



Created By: Scott Sinclair

B.C. Operating, Inc.

HALLIBURTON
Sperry Drilling Services

Project: Lea County, NM
Site: Bond 20 Fee
Well: Bond 20 Fee 1H
Wellbore: Wellbore #1
Plan: Plan #1
Rig:

Surface Location:

US State Plane 1927 (Exact solution)
New Mexico East 3001
Elevation: GL 3192' + KBE 20' @ 3212.00usft

Northing	Easting	Latitude	Longitude
535522.50	566505.46	32° 28' 19.482 N	104° 7' 3.662 W

To convert a Magnetic Direction to a Grid Direction, Add 7.47°

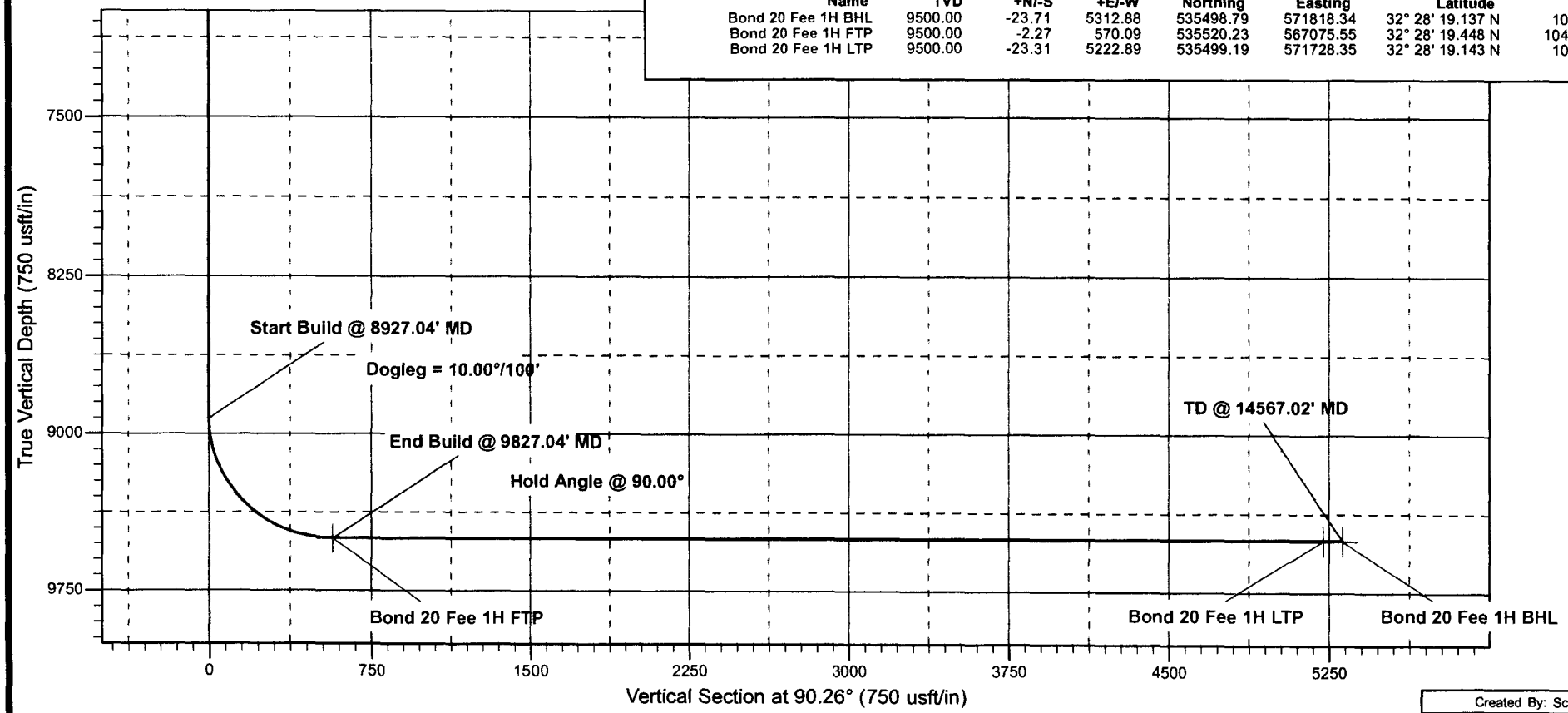
Magnetic Model: BGGM2014 Date: 16-Feb-15
Azimuths to Grid North

SECTION DETAILS

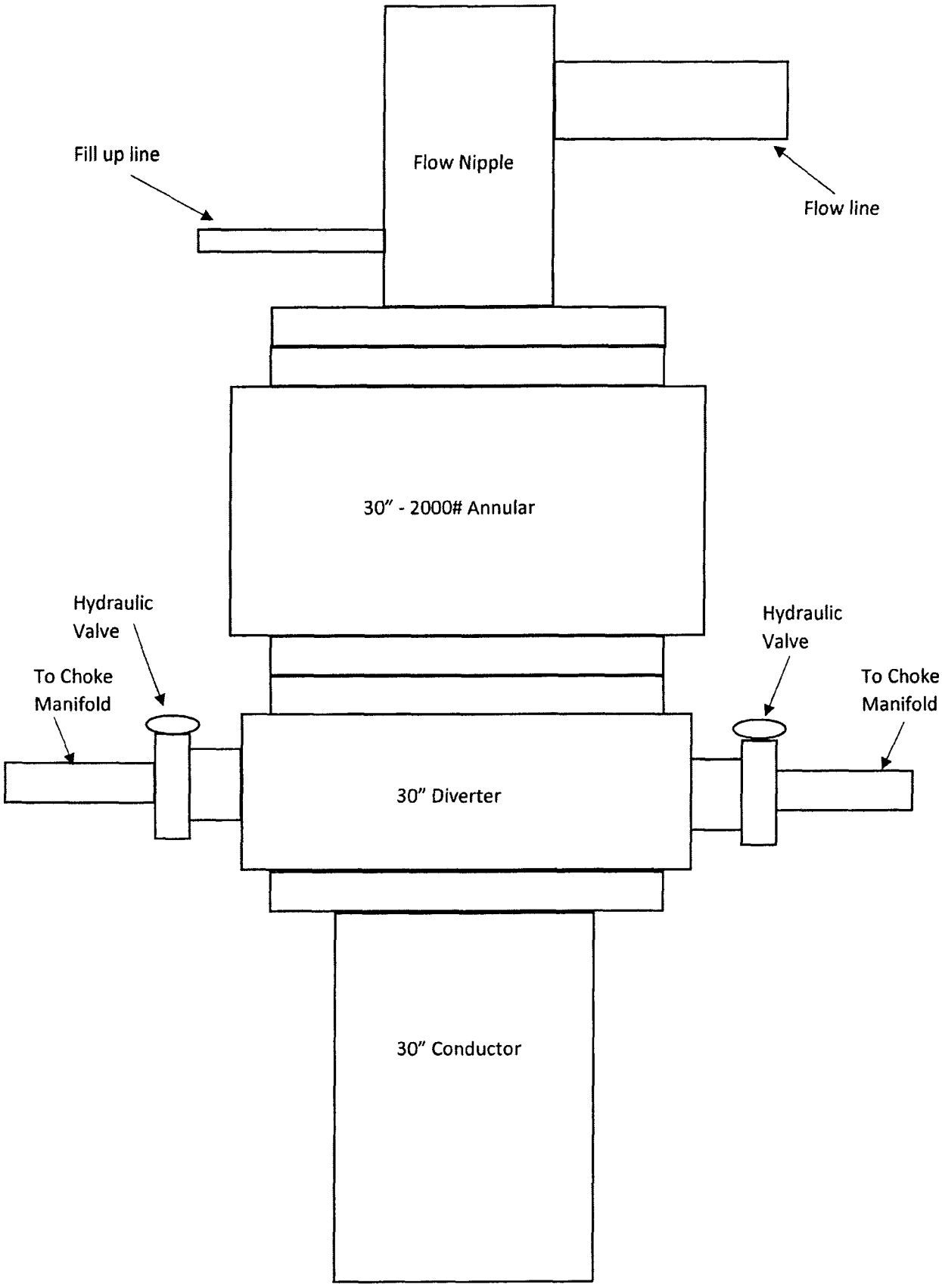
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8927.04	0.00	0.00	8927.04	0.00	0.00	0.00	0.00	0.00	Start Build
9827.04	90.00	90.26	9500.00	-2.56	572.95	10.00	90.26	572.96	End Build
14567.02	90.00	90.26	9500.00	-23.71	5312.88	0.00	0.00	5312.93	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

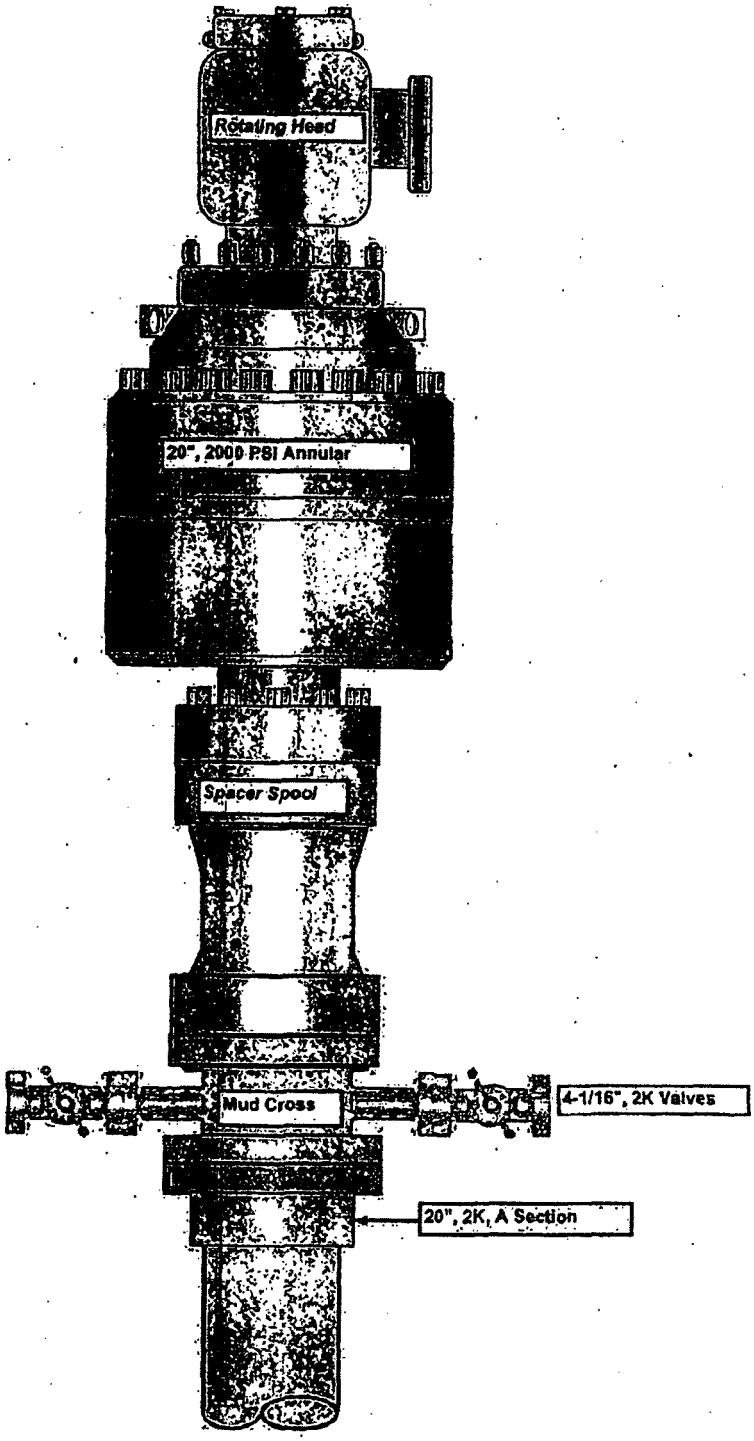
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Bond 20 Fee 1H BHL	9500.00	-23.71	5312.88	535498.79	571818.34	32° 28' 19.137 N	104° 6' 1.644 W
Bond 20 Fee 1H FTP	9500.00	-2.27	570.09	535520.23	567075.55	32° 28' 19.448 N	104° 6' 57.008 W
Bond 20 Fee 1H LTP	9500.00	-23.31	5222.89	535499.19	571728.35	32° 28' 19.143 N	104° 6' 2.695 W



Created By: Scott Sinclair

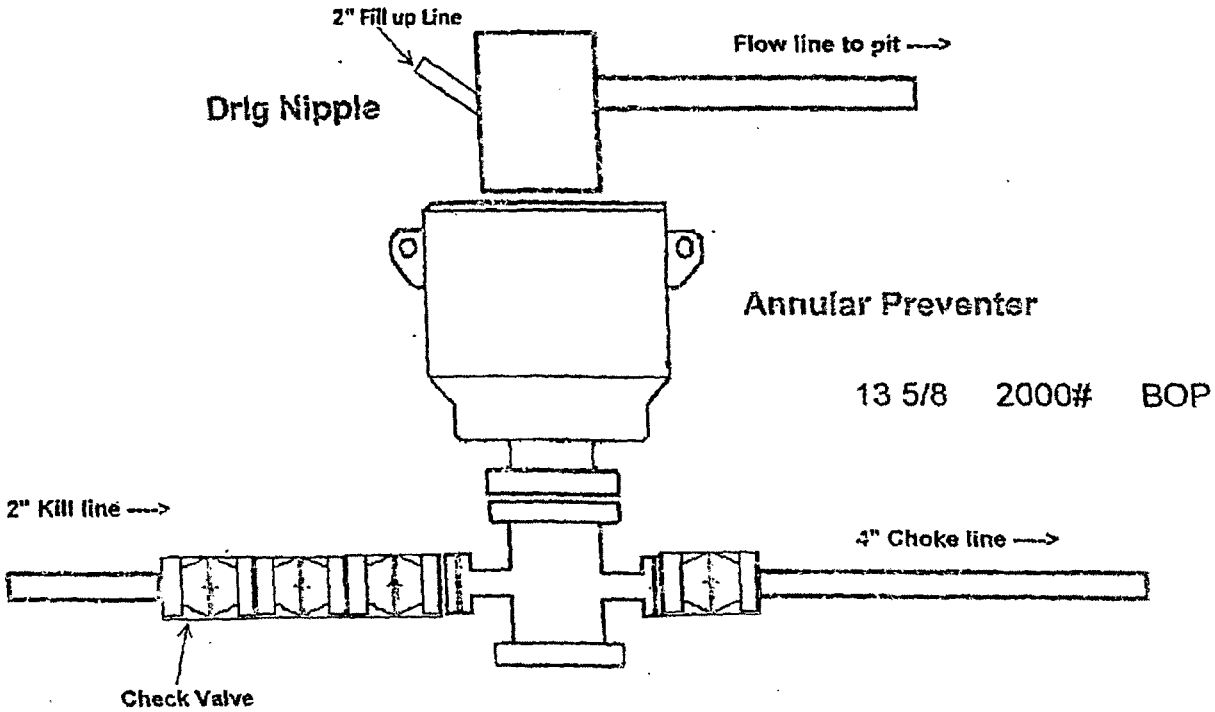

Fill up line
Flow Nipple
Flow line
30" - 2000# Annular
Hydraulic Valve
To Choke Manifold
Hydraulic Valve
To Choke Manifold
30" Diverter
30" Conductor

20" 2K Annular



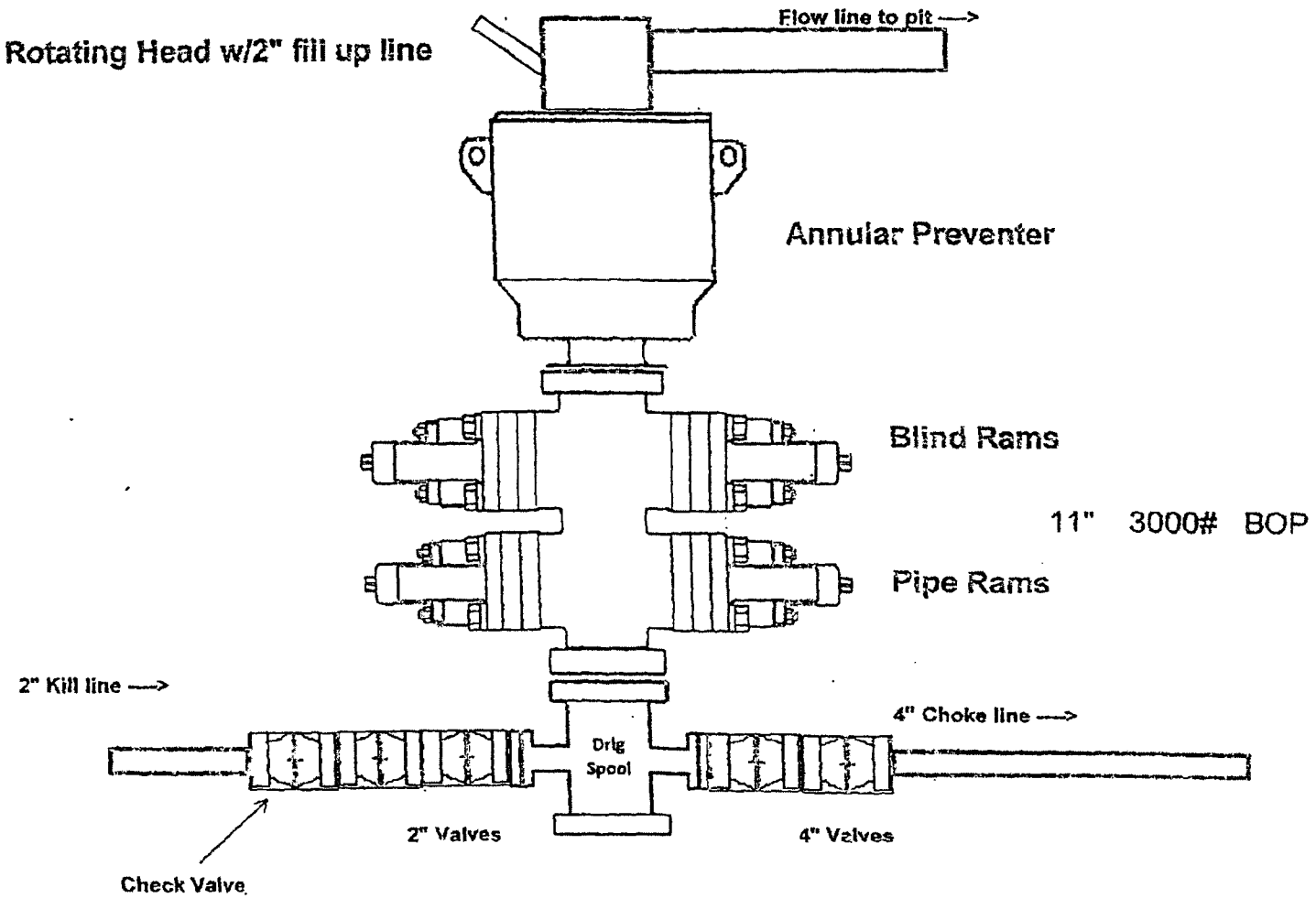
BC Operating, Inc.
Exhibit 1

2,000 psi BOP Schematic



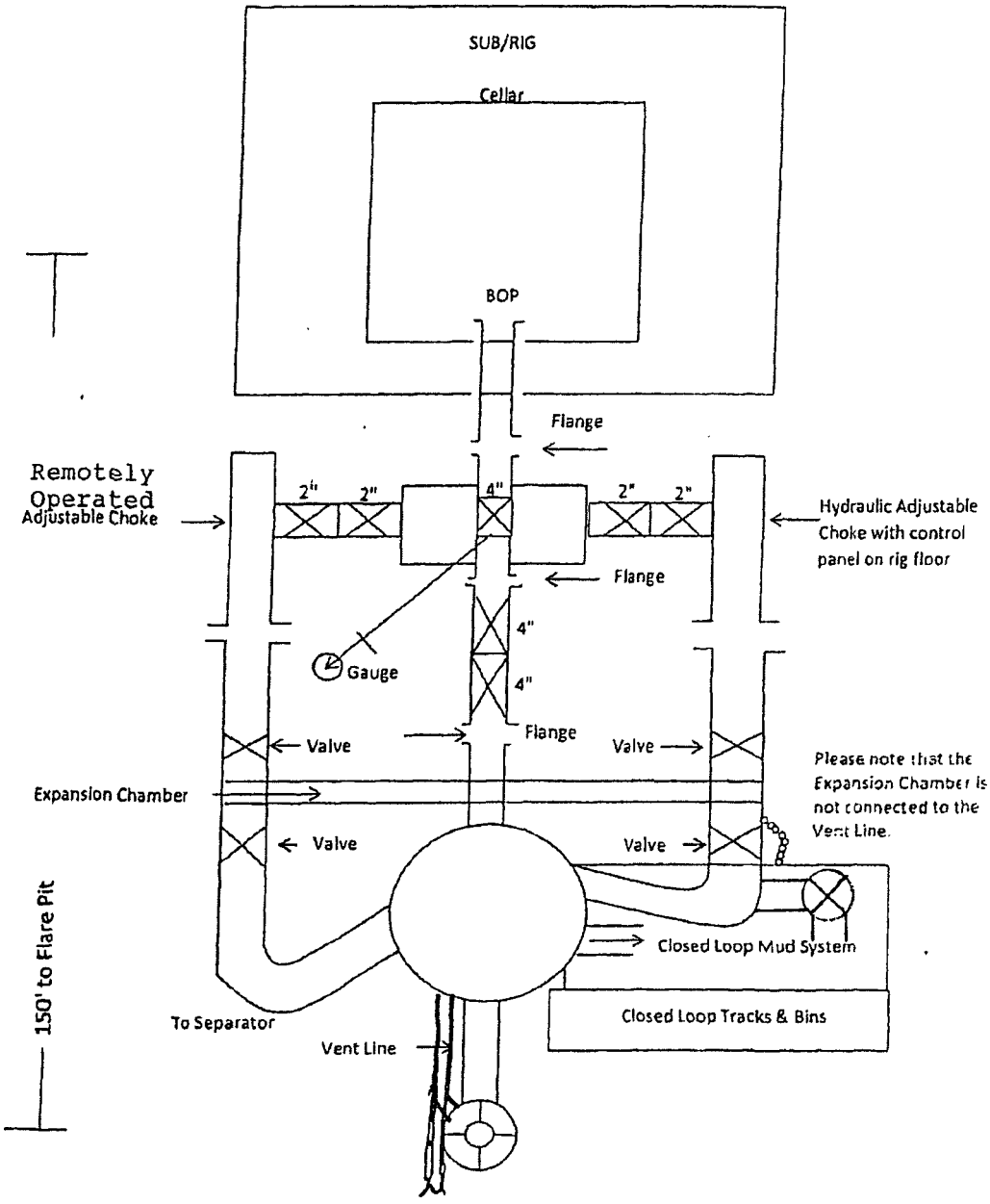
BC Operating, Inc.
Exhibit 3

3,000 psi BOP Schematic



BC Operating, Inc.
Exhibit 4

3M Choke Manifold Equipment



Continental CONTITECH

Fluid Technology

Quality Document

QUALITY CONTROL	No.: QC-DB- 89 / 2011
	Page : 1 / 54
Hose No.: 60313, 60314, 60315, 60316	Revision : 0
	Date: 07. March 2011.
	Prepared by :
	Appr. by:

CHOKE AND KILL HOSES

id.: 3" 68,9 MPa x (25 ft) 7,62 m 1 pc
x (45 ft) 13,72 m 3 pcs

DATA BOOK

Purchaser:

Purchaser Order No.:

ContiTech Rubber Order No.: 493934

ContiTech Beattie Co. Order No.: 004795

ASSET 66-0638, 66-0639, 66-0640, 66-0641

ContiTech Rubber Industrial Kft.
Budapesti út 10., Szeged H 6728
P.O.Box 152 Szeged H-6701
Hungary

Phone: +36 62 566 737
Fax: +36 62 566 738
e-mail: info@fluid.contitech.hu
Internet: www.contitech-rubber.hu

The Court of Csongrád County as Registry Court
Registry Court No: HU 06-09-002502
EU VAT No: HU11067209

Bank data
Commerzbank Zrt.
Budapest
14220108-26830003-00000000

Continental CONTITECH

Fluid Technology

Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

CERT. N°: 246

PURCHASER:	ContiTech Beattie Co.	P.O. N°:	004795
CONTITECH ORDER N°:	493934	HOSE TYPE: 3" ID	Choke and Kill Hose
HOSE SERIAL N°:	60313	NOMINAL / ACTUAL LENGTH:	7,62 m / 7,63 m

W.P.	68,9	MPa	10000	psi	T.P.	103,4	MPa	15000	psi

Duration: 60 min.

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	324 320	AISI 4130	H0434
4 1/16" Swivel Flange end		AISI 4130	31742
Hub		AISI 4130	B2297A

ASSET NO.: 66-0638

API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

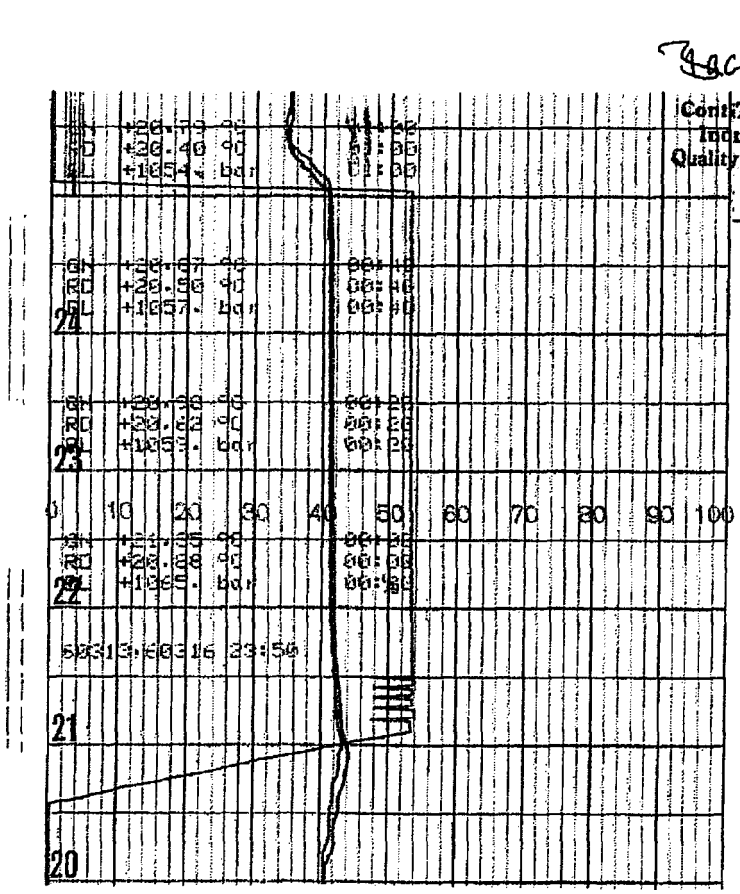
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
01. March 2011.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE *No: 246, 249*

Page: 1 / 1



Continental CONTITECH

Hose Data Sheet

CRI Order No.	493934
Customer	ContiTech Beattie Co.
Customer Order No	PO4795, PBC10685
Item No.	3
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	25 ft
Type of coupling one end	FLANGE 4.1/16" 10KPSI API SPEC 17D SV SWIVEL FLANGEC/W BX155 ST/ST INLAID RING GR
Type of coupling other end	FLANGE 4.1/16" 10KPSI API SPEC 17D SV SWIVEL FLANGE C/W BX155 ST/ST INLAID RING GR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL RESISTANT
Safety clamp	Yes
Lifting collar	Yes
Element C	Yes
Safety chain	No
Safety wire rope	Yes
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
MBR operating [m]	1,60
MBR storage [m]	1,40
Type of packing	WOODEN CRATE ISPM-15

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

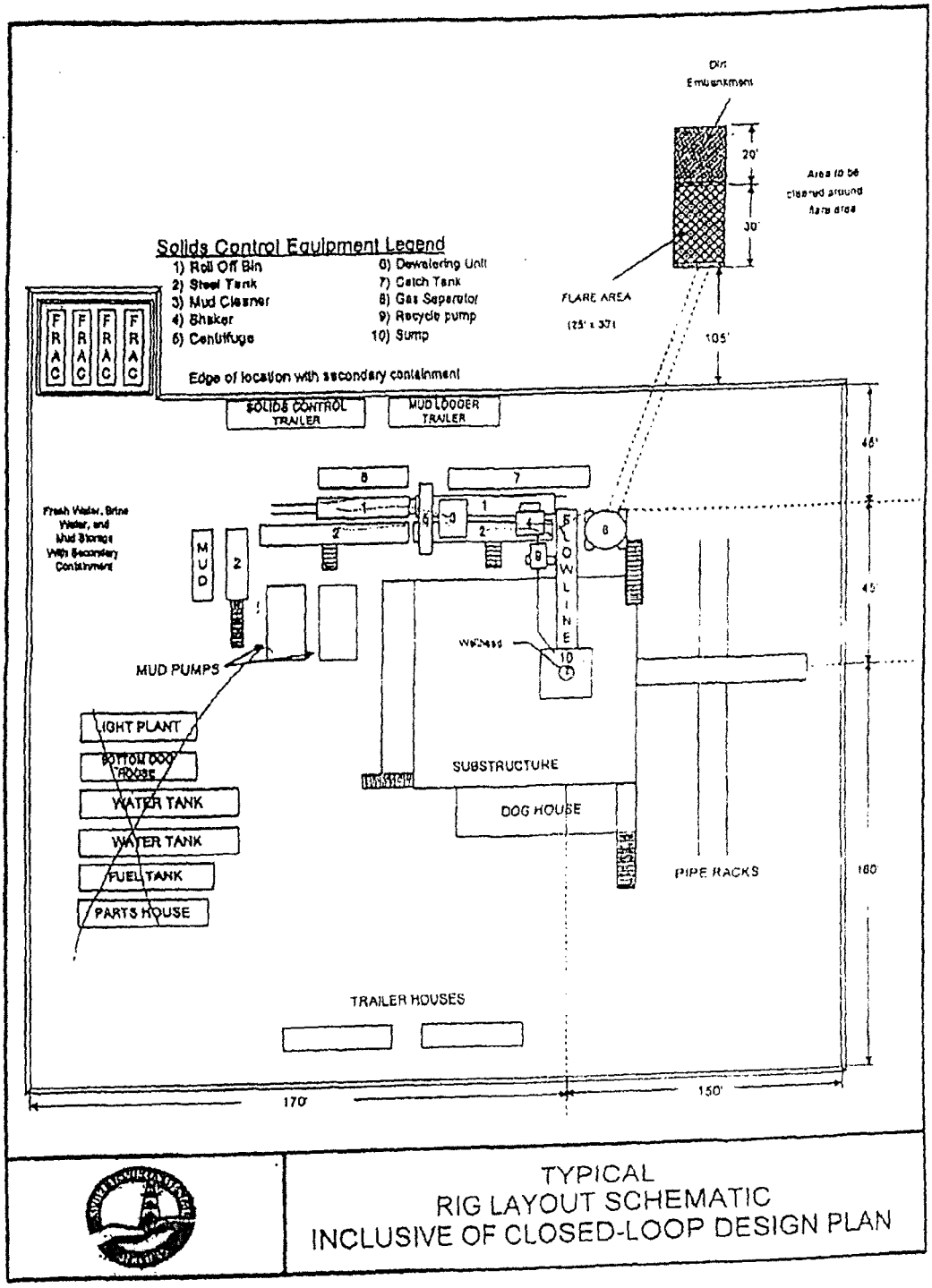
**Equipment manufactures may vary due to availability but components will not.*

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.

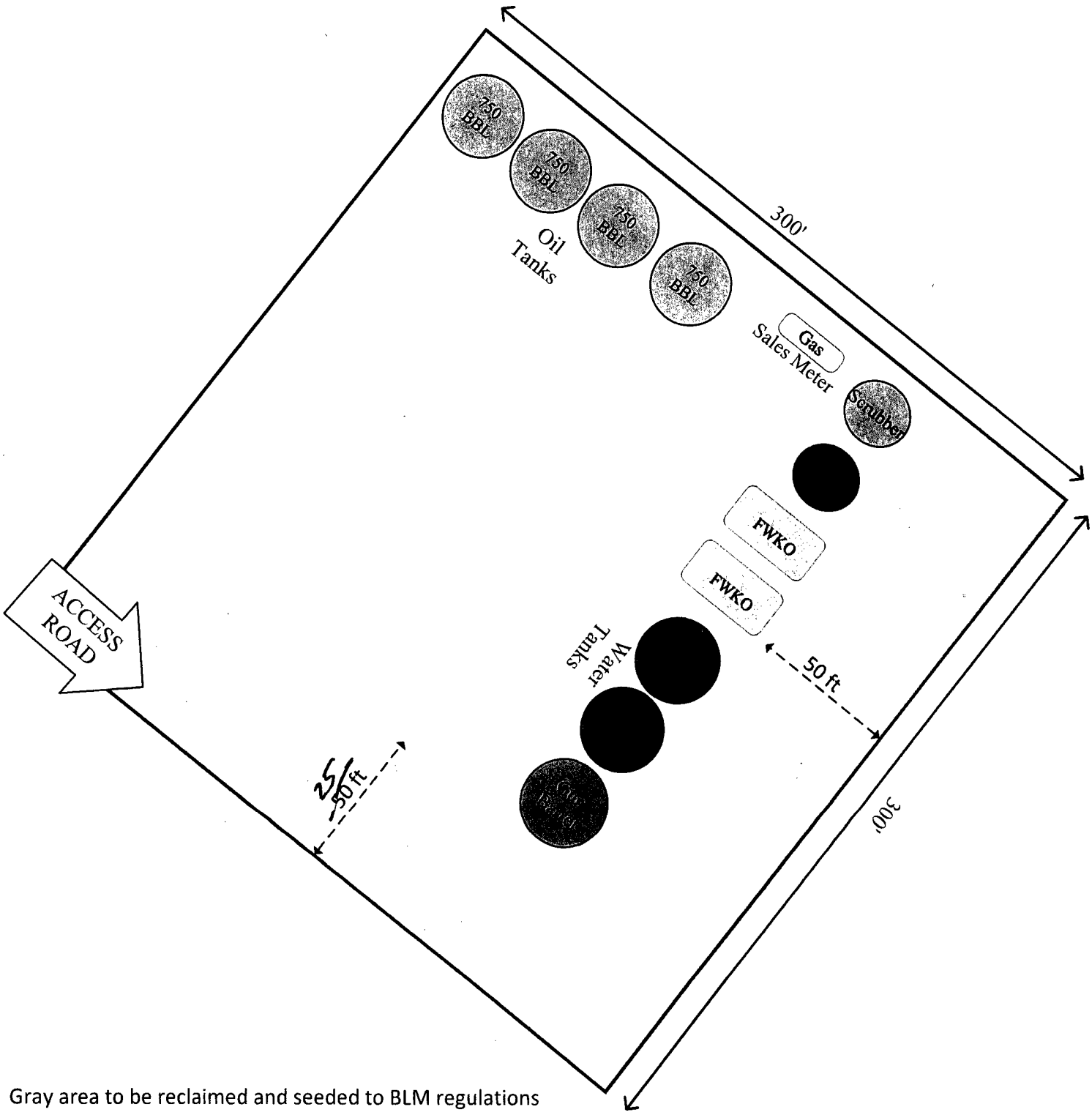
Closure Plan

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.
Bond 20 Fee #1H
SHL: 1935' FNL & 1000' FWL, A-21, T-19S, R-30E
Battery Diagram



Gray area to be reclaimed and seeded to BLM regulations

TOP SOIL

BC Operating, Inc.
Hydrogen Sulfide Drilling Operations Plan

Bond 20 Fee #1H

SHL: 330' FNL & 240' FEL of Unit Letter 'A', Section 19, T-21S, R-28E

BHL: 330' FNL & 240' FEL of Unit Letter 'A', Section 20, T-21S, R-28E

Eddy County, New Mexico

The H_2S Drilling Operations Plan is submitted with Form 3160-3, Application for Permit to Drill, in accordance with BLM Onshore Oil and Gas Order Number 6 Section III.A.1., covering the above described well.

I. Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

A. The hazards and characteristics of hydrogen sulfide (H_2S).
B. The prior use and maintenance of personal protective equipment and life support systems.
C. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures and prevailing winds.
D. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

A. The effects of H_2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
B. Corrective action and shut in procedures when drilling or reworking a well and blowout prevention and well control procedures.
C. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500') and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review or the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H_2S Safety Equipment and Systems

Note: All H_2S safety equipment and systems will be installed, tested and operational when drilling reaches a depth of 500' above or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S (prior to drilling out of the 13 3/8" surface casing shoe for this well).

A. Well Control Equipment (All BOP and BOP equipment is shown in Drilling Plan – Exhibits 1-4).
   Flare line
   Choke manifold and remotely operated chokes
   Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   Auxiliary equipment to include annular preventer, mud-gas separator and rotating head.

B. Protective equipment for essential personnel:
   Mark II Surviveair 30 minute units located in the dog house and at briefing areas

C. H_2S detection and monitoring equipment:
   2 portable H_2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H_2S levels of 20 ppm are reached.

D. Visual Warning Systems:
   Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate.

E. Mud Program: The mud program has been designed to minimize the volume of H_2S circulated to the surface.

F. Metallurgy:
   All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool kill lines, choke manifold lines and valves shall be suitable for H_2S services.

G. Communication:
   Company vehicles equipped with cellular telephone.

BC Operating, Inc. has conducted a review to determine if an H_2S Contingency Plan is needed for this well and has determined that there is minimal potential for the accumulation for any hazardous concentration of H_2S; therefore, no H_2S Contingency Plan has been submitted for this well.

WARNING

YOU ARE ENTERING AN H_2S AREA

AUTHORIZED PERSONNEL ONLY

1. BEARDS OR CONTACT LENSES NOT ALLOWED
2. HARD HATS REQUIRED
3. SMOKING IN DESIGNATED AREAS ONLY
4. BE WIND CONSCIOUS AT ALL TIMES
5. CHECK WITH BC OPERATING, INC. FORMAN AT MAIN OFFICE

BC OPERATING, INC.

432-684-9696

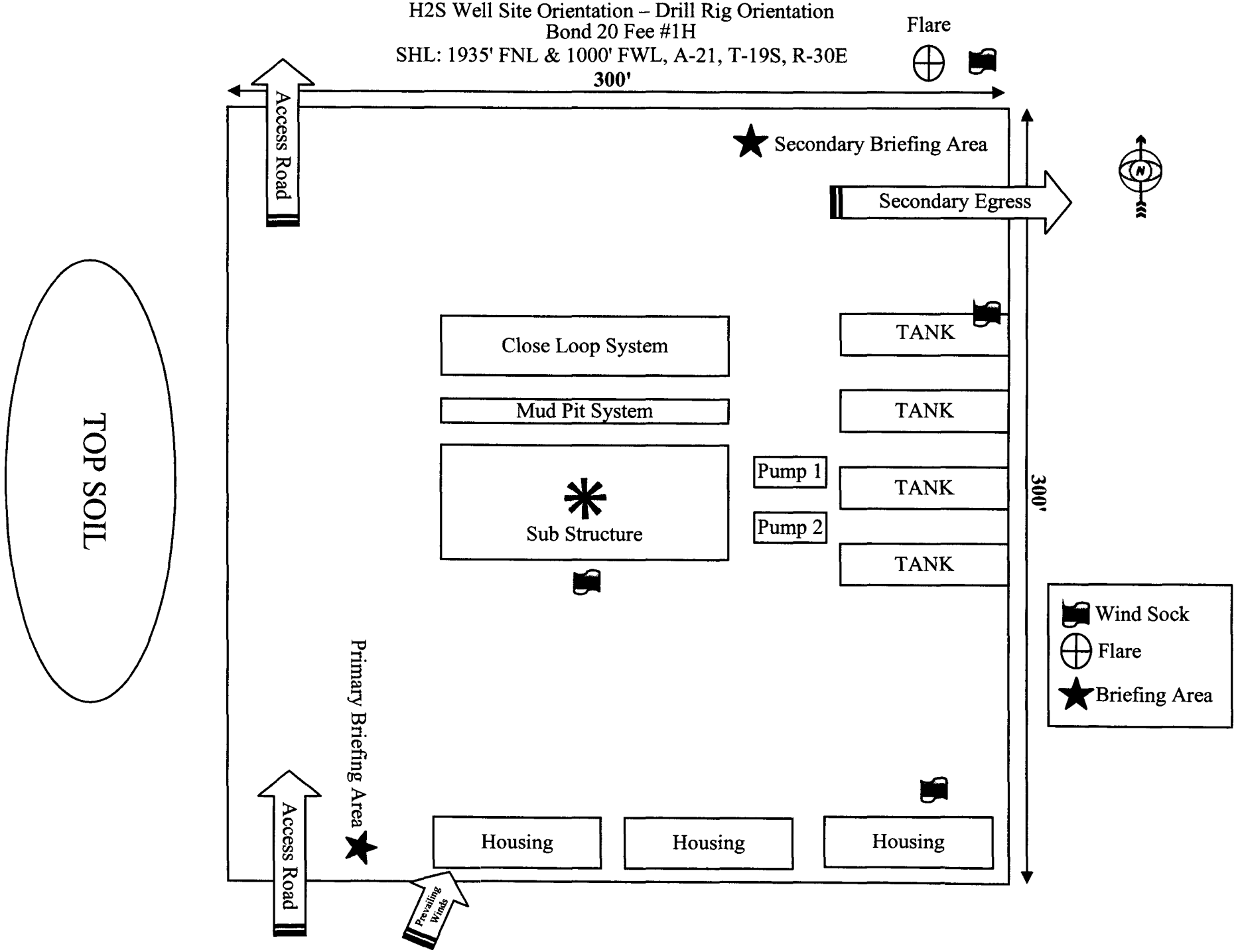
Emergency Call List

BC Operating, Inc. Office	432-684-9696
Deane Durham	432-684-9696 (Office) 432-431-9701 (Cell)
Nic Klopp	432-684-9696 (Office) 432-422-2510 (Cell)
Bruce Madden	432-684-9696 (Office) 432-894-0721 (Cell)

Emergency Response Numbers

New Mexico State Police	575-392-5580
Eddy County Sheriff Dept	575-887-7551
Carlsbad Medical Center	575-887-4100
Ambulance	911

BC Operating, Inc.
H2S Well Site Orientation – Drill Rig Orientation
Bond 20 Fee #1H
SHL: 1935' FNL & 1000' FWL, A-21, T-19S, R-30E



BC Operating, Inc.

Surface Use and Plan

Bond 20 Fee #1H

SHL: 330' FNL & 240' FEL of Unit Letter 'A', Section 19, T-21S, R-28E

BHL: 330' FNL & 240' FEL of Unit Letter 'A', Section 20, T-21S, R-28E

Eddy County, New Mexico

This Surface Use Plan is submitted with Form 3160-3, Application for Permit to Drill, in accordance with BLM Onshore Oil and Gas Order Number 1 Section III.D.4., covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

a. Existing Roads:
    1. The well site and elevation plat for the proposed well are attached to Form 3160-3 and reflect the proposed well site layout (NMOCD Form C-102). The well was staked by Lloyd P. Short.

    2. Surface Use Plan – Attached is a Vicinity map showing the well and roads in the vicinity of the proposed location. There are existing roads that provide access to other wells in the area that will be utilized for access to this new location. These roads are in good condition and will not require any improvements for this well.

Directions:
From the intersection of South Canal Street (US Hwy 285) and East Greene Street (Us Hwy 62) travel Northeast on East Greene Street (Us Hwy 62) for 7.3 miles to a county road 603 on the right. Travel East on County Road 603 for 0.4 miles to lease road on the right. Travel Southwest on lease road for 0.1 miles to proposed well pad 125' Southeast.

3. Right of Way using the proposed route is hereby being requested, if necessary.

4. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition in the same or better condition than before operations began for as long as any operations continue on this lease.

b. New Access Road and Drill Pad:

1. We will build a road approximately 416' in length coming off an existing lease road and will come into the Northwest side of the drill pad (approximately 300' x 300' location) will be constructed. We will have to apply for a BLM ROW since the SHL is on BLM surface. The maximum width of the driving surface will be 14 feet. The maximum width of surface disturbance needed to construct the road will be 25 feet. The road will be crowned and ditched with a 2 % slope from the tip of the crown to the edge of the driving surface. The ditches will be 3 feet wide with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche. The proposed well site and the access route to the well site are shown on Surface Use Plan attachments and maps.

   The drill pad will be no bigger than 300' x 300' location. We will do an archeological survey that will encompass the drill pad and be an area 600' x 600'. See attached well pad topo map for additional information.

2. Surface Use Plan attachment also is a plat showing the well site layout and drill pad dimensions for a rig utilizing a closed loop system. This well will be drilled with a closed loop system so no reserve pits will be constructed.

3. The drill pad will be irregular shaped (see Surface Use Plan attachments and maps) and will require less than 1' of cut and fill from the Southwest side of the pad to the Northeast side of the pad. The drill pad will be surfaced with 4-6 inches of compacted caliche. The average grade will be approximately 1%. Topsoil will be stockpiled on the East side of the location.

c. Location of Existing Wells:

Surface Use Plan one mile map shows all wells within a one mile radius of the proposed well.

d. Location of Existing and/or Proposed Production Facilities:

1. In the event the well is found productive, a tank battery will be constructed in the Northeast corner of the drill pad with four 750 bbl oil storage tanks, two 750 bbls fiberglass water tanks, a gas scrubber, a heater treater, two FWKO's/testers, a 1000 bbl gun barrel and a gas sales meter (see Surface Use Plan attachment).

2. The well should be a producing oil well and will be produced initially with a submersible pump and then with a conventional pumping unit.

3. All flowlines will adhere to API standards.

4. We will run electric lines alongside proposed new road. We will work with Xcel Energy to run power to the location along the proposed access road. Xcel will complete any necessary ROW information.

e. Location and Types of Water Supply:
This location will be drilled using a combination of water mud systems (outlined in the Section f of the Drilling Plan). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown. Temporary flowlines will be used for drilling and fracing activities.

f. Construction Materials:
Surface material will be native caliche. Construction materials will be obtained from the nearest approved BLM, Fee or State pit or from existing deposits found under the location.

g. Methods of Handling Waste:
1. All trash, junk and other waste material, including broken sacks and/or pallets, will be removed from the well site within 30 days after finishing drilling and/or completion operations. All waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.

2. All drilling fluids and cuttings will be trucked to an approved disposal facility.

3. A Porto-John will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete. Any trailer houses and/or temporary living quarters on the well site will be plumbed into a sanitary septic system.

4. Disposal of fluids to be transported by an approved disposal company.

h. Ancillary Facilities:
1. No campsite or other facilities will be constructed as a result of this well.

i. Well Site Layout:
1. Surface Use Plan attachment shows the proposed well site layout with dimensions of the pad layout.

2. Surface Use Plan attachment is a schematic showing the rig equipment on the well pad.

3. Surface Use Plan attachment shows the proposed location of the topsoil stockpile.

4. Mud pits in the active circulating system will be steel pits and a closed loop system will be utilized.

j. Plans for Surface Reclamation:
   1. If the well is productive, we plan on reclaiming 25' of the West side of the pad and 50' of the South side of the pad.

   2. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. Topsoil is respread over areas not needed for production operations and recontoured to the surrounding area and reseeded. All interim reclamation will be complete within 6 months of completion activities.

   3. Topsoil will be stockpiled on the South side of the location and 100% of this material will be used for the reclamation after the well is drilled and completed and production facilities are installed. When the well is P&A'd, we will restore the surface to its natural state. If well is to be plugged and abandoned the entire pad and road not needed will be reclaimed. Base material will be hauled and top soil will be re-contoured to natural state and seeded. Seed mixture will be to BLM specifications. All work will be complete within 6 months of final abandonment of the wellbore.

   4. If the well is not productive, a dry hole marker will be installed, all caliche will be removed from the location, the topsoil returned to the location and be re-contoured as close as is practical to the original contour. The location will then be ripped and seeded. The current access road to the Benson 21-16 Federal Com #1H reclaimed but we will be leave in place the remainder of the road to access other wells on this location.

k. The surface is owned by Bureau of Land Management and is administered by their office. The address is 620 E. Greene Street, Carlsbad, New Mexico 88220-6292. The phone number is 575-234-5972. Mark Bond is the grazing tenant and his address is 89 West Road, Carlsbad, New Mexico 88220.

l. Other Information:
   1. The area surrounding the well site is relatively flat. The vegetation is heavy mesquite bushes and small dirt mounds. No wildlife was observed but it is likely that deer, rabbits, coyotes and rodents traverse the area.

2. There is no permanent or live water in the general proximity of the location.

3. The nearest dwelling is 1806' Northeast of the proposed location.

4. Onsite inspection was conducted with John Bell on November 5, 2014.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BC Operating
LEASE NO.:	LC059365
WELL NAME & NO.:	1H-Bond 20 Fee
SURFACE HOLE FOOTAGE:	330'/N & 240'/E
BOTTOM HOLE FOOTAGE	330'/N & 240'/E, sec. 20
LOCATION:	Section 19, T. 21 S., R. 28 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Cave/Karst Surface Mitigation

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

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad.

Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
A closed mud system using steel tanks for all cuttings and fluids is required. All fluids and cuttings will be hauled off site for disposal. No pits are allowed.

Tank Battery Liners and Berms:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

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

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Drilling:

Commercial Well Determination
A commercial well determination shall be submitted after production has been established for at least six months.

Unit Wells
The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

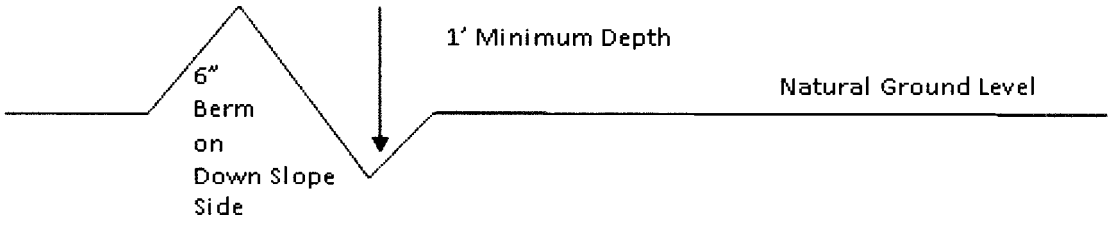
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

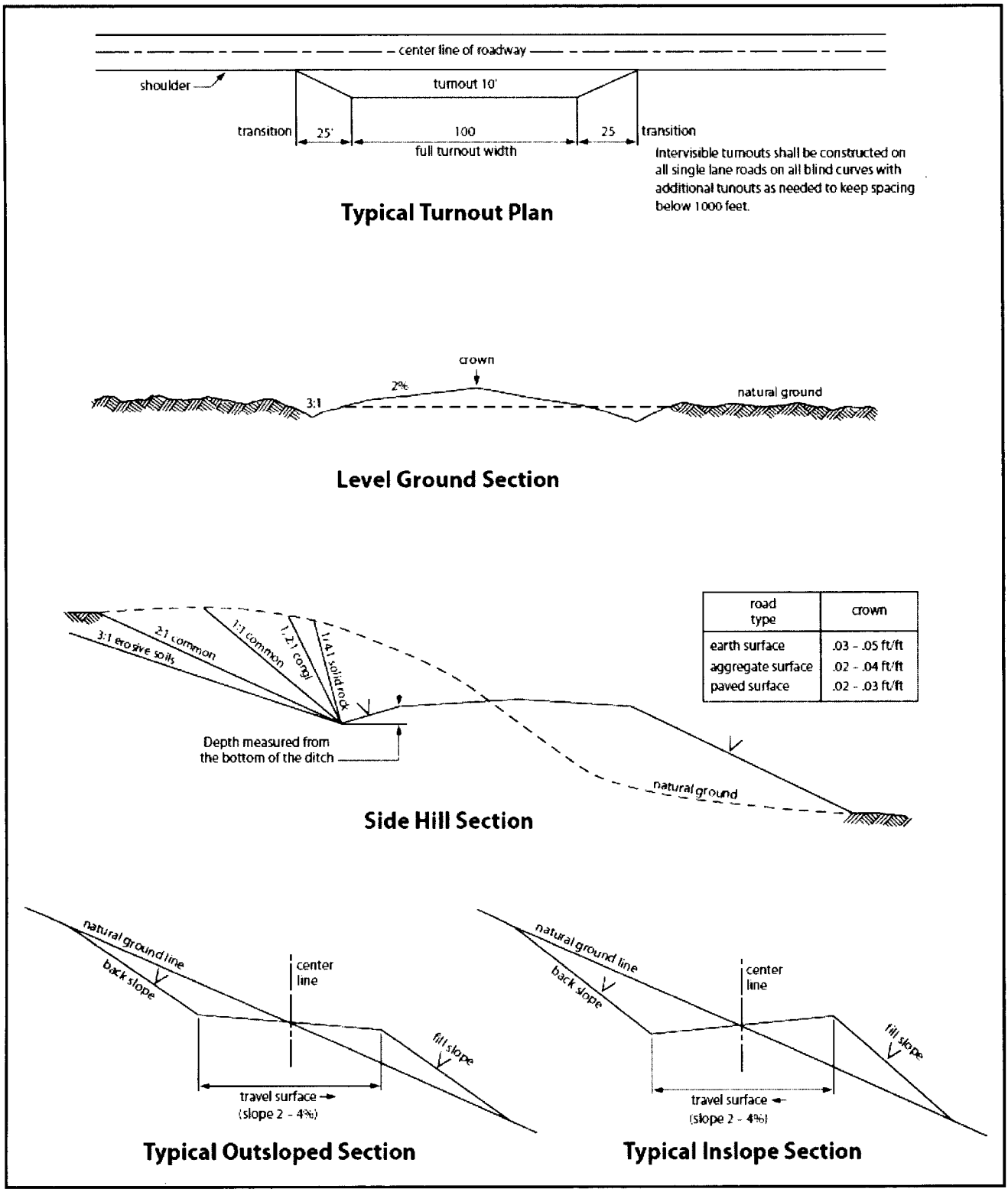


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. DRILLING

A. DRILLING OPERATIONS 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

1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. 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 is located, this does not include the dog house or stairway area.

4. **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.**

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

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

Capitan Reef
High Cave/Karst
Possibility of water flows in the Salado and Yates.
Possibility of lost circulation in the Rustler, Red Beds, Yates, Capitan Reef, and Delaware.

A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH.

1. The **18 5/8** inch surface casing shall be set at approximately **400** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
    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 is to include the lead cement slurry.
    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 **13-3/8** inch 1st intermediate casing, which shall be set at approximately **2650** feet (**base of the Yates formation**), is:

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

3. The minimum required fill of cement behind the **9-5/8** inch 2nd intermediate casing is:

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

Centralizers required through the curve and a minimum of one every other joint.

4. The minimum required fill of cement behind the **5 1/2** inch production casing is:
   ☒ Cement should tie-back at least **50 feet above the Capitan Reef**. Operator shall provide method of verification.

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **A variance is granted for the use of a diverter on the 30" surface casing.**

4. 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. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
c. 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.
d. The results of the test shall be reported to the appropriate BLM office.
e. 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.**
f. 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. 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.

CLN 02132017

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act

of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1 for Loamy Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed