Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

Carlsbad Field Office
OCD Artesia

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No. NMNM 132
	6. If Indian, Allottee or Tribe Name
	7. If Unit or CA/Agreement, Name and/or No.
	8. Well Name and No. HARROUN RANCH FED COM 20702 2H
2. Name of Operator BTA OIL PRODUCERS Contact: KAYLA MCCONNELL E-Mail: kmcconnell@btaoil.com	9. API Well No. 30-015-43360-00-X1
3a. Address 104 SOUTH PECOS STREET MIDLAND, TX 79701 3b. Phone No. (include area code) Ph: 432.682.3753	10. Field and Pool or Exploratory Area WC-015 G-07 S232932A
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)* Sec 20 T23S R29E SWSW 680FSL 180FWL	11. County or Parish, State EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

BTA Oil Producers, LLC respectfully request the following changes to the original APD, as approved:

Current: 98113 WC-015 G-07 S232932A;Upper Wolfcamp
Change to: 98220 Purple Sage;Wolfcamp

Current: BHL Section 20, 330 FNL and 430 FWL
Change to: BHL Section 17, 50 FNL and 330 FWL

-See amended C-102

Current: 15,731' MD
Change to: 21,200' MD

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

RECEIVED
ARTESIA DISTRICT
FEB 06 2017

- See attached email for FTP & LTP

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #365095 verified by the BLM Well Information System
For BTA OIL PRODUCERS, sent to the Carlsbad
Committed to AFMSS for processing by MUSTAFA HAQUE on 01/27/2017 (17MH0028SE)

Name *(Printed/Typed)* KAYLA MCCONNELL	Title PRODUCTION ASSISTANT
Signature (Electronic Submission)	Date 01/26/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By MUSTAFA HAQUE	Title PETROLEUM ENGINEER	Date 01/30/2017
Conditions of approval, if any, are attached. Approval of this notice 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.	Office Carlsbad	

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #365095 that would not fit on the form

32. Additional remarks, continued

Current: Production Liner 500sx 50:50 Class H
Change to: Production Liner 900sx 50:50 Class H

-See the attached Drilling Plan and Directional Drilling Report

A variance is also requested for the following items below:

Coflex Choke Line
-See attached for test charts and specs

Multi Bowl Wellhead
-See attached running procedure and schematic

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**BTA Oil Producers, LLC**
LEASE NO.:	**NMNM-119271**
WELL NAME & NO.:	**Harroun Ranch Fed Com 20702 2H**
SURFACE HOLE FOOTAGE:	**0680' FSL & 0180' FWL**
BOTTOM HOLE FOOTAGE	**050' FNL & 0330' FWL**
LOCATION:	**Section 20, T. 23 S., R 29 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

All previous COAs still apply except the following:

A. PRESSURE CONTROL

1. 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).

2. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.**

    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

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, New Mexico 87505

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

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-43360	98220	PURPLE SAGE;WOLFCAMP

Property Code	Property Name	Well Number
37294	20702 HARROUN RANCH FEDERAL COM	2H

OGRID No.	Operator Name	Elevation
260297	BTA OIL PRODUCERS	2966'

Surface Location

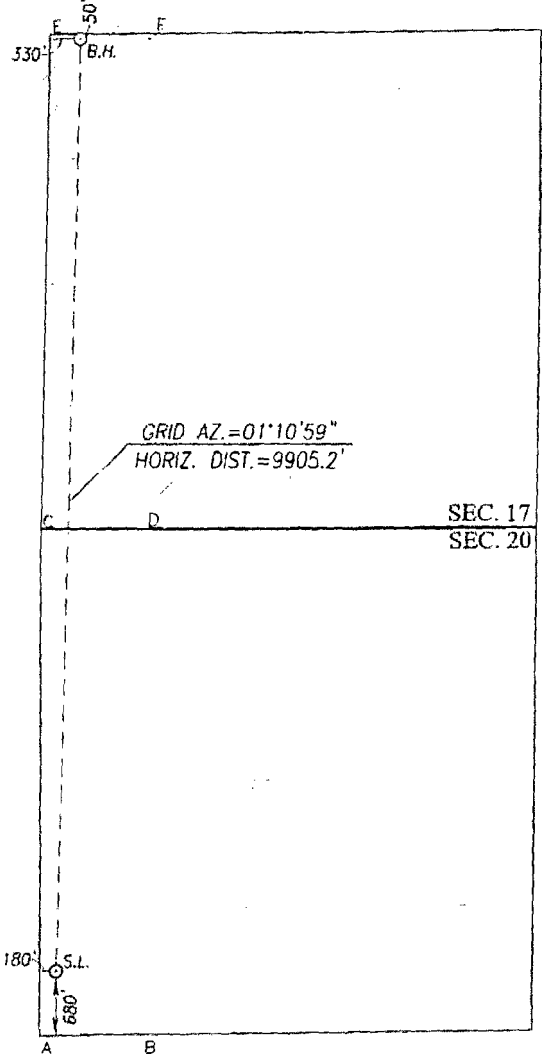
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	20	23-S	29-E		680	SOUTH	180	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	17	23-S	29-E		50	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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



SCALE: 1"=2000'

BOTTOM HOLE LOCATION
NAD 83 NME
Y= 477472.2 N
X= 639931.5 E
LAT.=32.312240° N
LONG.=104.014191° W

BOTTOM HOLE LOCATION
NAD 27 NME
Y= 477412.6 N
X= 598748.5 E
LAT.=32.312119° N
LONG.=104.013697° W

CORNER COORDINATES TABLE
NAD 27 NME
A - Y= 466830.5 N, X= 598366.4 E
B - Y= 466841.9 N, X= 599669.7 E
C - Y= 472171.8 N, X= 598349.1 E
D - Y= 472176.3 N, X= 599672.6 E
E - Y= 477459.5 N, X= 598419.2 E
F - Y= 477471.7 N, X= 599735.2 E

CORNER COORDINATES TABLE
NAD 83 NME
A - Y= 466889.9 N, X= 639549.6 E
B - Y= 466901.3 N, X= 640852.9 E
C - Y= 472231.2 N, X= 639532.2 E
D - Y= 472235.8 N, X= 640855.7 E
E - Y= 477519.1 N, X= 639602.1 E
F - Y= 477531.4 N, X= 640918.1 E

GEODETIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y= 467571.3 N
X= 639727.0 E
LAT.=32.285026° N
LONG.=104.014947° W

GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y= 467511.9 N
X= 598543.8 E
LAT.=32.284904° N
LONG.=104.014455° W

OPERATOR CERTIFICATION

I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date

KAYLA MCCONNELL
Printed Name

KMCCONNELL@BTAOIL.COM
E-mail Address

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.

OCTOBER 20, 2016
Date of Survey
Signature & Seal of Professional Surveyor

Certificate Number Gary G Eidson 12641
Ronald J Eidson 3239

ACK REL W.O 15110181 JWSC W.O 16 13.0834

BTA Oil Producers, LLC

Eddy County
Harroun Ranch
Harroun Ranch #2H

Wellbore #1

Plan: Design #1

Standard Planning Report - Geographic

17 January, 2017

BTA

Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Harroun Ranch #2H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 2965.0usft (Original Well Elev)
Project:	Eddy County	**MD Reference:**	GL @ 2965.0usft (Original Well Elev)
Site:	Harroun Ranch	**North Reference:**	Grid
Well:	Harroun Ranch #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Eddy County		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		Using geodetic scale factor

Site	Harroun Ranch				
Site Position:		**Northing:**	467,011.30 usft	**Latitude:**	32° 17' 0.701 N
From:	Map	**Easting:**	598,545.80 usft	**Longitude:**	104° 0' 52.034 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.17 °

Well	Harroun Ranch #2H					
Well Position	**+N/-S**	0.0 usft	**Northing:**	467,511.90 usft	**Latitude:**	32° 17' 5.655 N
	+E/-W	0.0 usft	**Easting:**	598,543.80 usft	**Longitude:**	104° 0' 52.040 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	2,965.0 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	12/31/2009	7.96	60.22	48,783

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	1.18	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,598.5	0.00	0.00	3,598.5	0.0	0.0	0.00	0.00	0.00	0.00	
3,898.5	6.00	163.56	3,898.0	-15.1	4.4	2.00	2.00	0.00	163.56	
9,632.7	6.00	163.56	9,600.7	-589.9	174.1	0.00	0.00	0.00	0.00	
10,032.7	0.00	0.00	10,000.0	-610.0	180.0	1.50	-1.50	0.00	180.00	
10,307.7	0.00	0.00	10,275.0	-610.0	180.0	0.00	0.00	0.00	0.00	
11,207.7	90.00	0.13	10,848.0	-37.0	181.3	10.00	10.00	0.00	0.13	
21,146.3	90.00	0.13	10,848.0	9,901.5	204.7	0.00	0.00	0.00	0.00	Harroun Ranch #2H E

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Harroun Ranch #2H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 2965.0usft (Original Well Elev)
Project:	Eddy County	**MD Reference:**	GL @ 2965.0usft (Original Well Elev)
Site:	Harroun Ranch	**North Reference:**	Grid
Well:	Harroun Ranch #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
100.0	0.00	0.00	100.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
200.0	0.00	0.00	200.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
300.0	0.00	0.00	300.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
400.0	0.00	0.00	400.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
500.0	0.00	0.00	500.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
600.0	0.00	0.00	600.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
700.0	0.00	0.00	700.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
800.0	0.00	0.00	800.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
900.0	0.00	0.00	900.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,600.0	0.00	0.00	2,600.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,700.0	0.00	0.00	2,700.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,800.0	0.00	0.00	2,800.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
2,900.0	0.00	0.00	2,900.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,000.0	0.00	0.00	3,000.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,100.0	0.00	0.00	3,100.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,200.0	0.00	0.00	3,200.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,300.0	0.00	0.00	3,300.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,400.0	0.00	0.00	3,400.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,500.0	0.00	0.00	3,500.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,598.5	0.00	0.00	3,598.5	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,600.0	0.03	163.56	3,600.0	0.0	0.0	467,511.90	598,543.80	32° 17' 5.655 N	104° 0' 52.040 W
3,700.0	2.03	163.56	3,700.0	-1.7	0.5	467,510.18	598,544.31	32° 17' 5.638 N	104° 0' 52.034 W
3,800.0	4.03	163.56	3,799.8	-6.8	2.0	467,505.11	598,545.81	32° 17' 5.588 N	104° 0' 52.016 W
3,898.5	6.00	163.56	3,898.0	-15.1	4.4	467,496.85	598,548.24	32° 17' 5.506 N	104° 0' 51.988 W
3,900.0	6.00	163.56	3,899.4	-15.2	4.5	467,496.70	598,548.29	32° 17' 5.505 N	104° 0' 51.988 W
4,000.0	6.00	163.56	3,998.9	-25.2	7.4	467,486.68	598,551.25	32° 17' 5.405 N	104° 0' 51.954 W
4,100.0	6.00	163.56	4,098.3	-35.3	10.4	467,476.65	598,554.20	32° 17' 5.306 N	104° 0' 51.920 W
4,200.0	6.00	163.56	4,197.8	-45.3	13.4	467,466.63	598,557.16	32° 17' 5.207 N	104° 0' 51.886 W
4,300.0	6.00	163.56	4,297.3	-55.3	16.3	467,456.60	598,560.12	32° 17' 5.108 N	104° 0' 51.851 W
4,400.0	6.00	163.56	4,396.7	-65.3	19.3	467,446.58	598,563.08	32° 17' 5.008 N	104° 0' 51.817 W
4,500.0	6.00	163.56	4,496.2	-75.4	22.2	467,436.55	598,566.04	32° 17' 4.909 N	104° 0' 51.783 W
4,600.0	6.00	163.56	4,595.6	-85.4	25.2	467,426.53	598,569.00	32° 17' 4.810 N	104° 0' 51.749 W
4,700.0	6.00	163.56	4,695.1	-95.4	28.2	467,416.50	598,571.95	32° 17' 4.710 N	104° 0' 51.715 W
4,800.0	6.00	163.56	4,794.5	-105.4	31.1	467,406.48	598,574.91	32° 17' 4.611 N	104° 0' 51.681 W
4,900.0	6.00	163.56	4,894.0	-115.5	34.1	467,396.45	598,577.87	32° 17' 4.512 N	104° 0' 51.647 W
5,000.0	6.00	163.56	4,993.4	-125.5	37.0	467,386.43	598,580.83	32° 17' 4.413 N	104° 0' 51.613 W
5,100.0	6.00	163.56	5,092.9	-135.5	40.0	467,376.40	598,583.79	32° 17' 4.313 N	104° 0' 51.579 W
5,200.0	6.00	163.56	5,192.3	-145.5	42.9	467,366.38	598,586.74	32° 17' 4.214 N	104° 0' 51.544 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Harroun Ranch #2H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 2965.0usft (Original Well Elev)
Project:	Eddy County	**MD Reference:**	GL @ 2965.0usft (Original Well Elev)
Site:	Harroun Ranch	**North Reference:**	Grid
Well:	Harroun Ranch #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,300.0	6.00	163.56	5,291.8	-155.6	45.9	467,356.36	598,589.70	32° 17' 4.115 N	104° 0' 51.510 W
5,400.0	6.00	163.56	5,391.2	-165.6	48.9	467,346.33	598,592.66	32° 17' 4.015 N	104° 0' 51.476 W
5,500.0	6.00	163.56	5,490.7	-175.6	51.8	467,336.31	598,595.62	32° 17' 3.916 N	104° 0' 51.442 W
5,600.0	6.00	163.56	5,590.1	-185.6	54.8	467,326.28	598,598.58	32° 17' 3.817 N	104° 0' 51.408 W
5,700.0	6.00	163.56	5,689.6	-195.7	57.7	467,316.26	598,601.53	32° 17' 3.717 N	104° 0' 51.374 W
5,800.0	6.00	163.56	5,789.0	-205.7	60.7	467,306.23	598,604.49	32° 17' 3.618 N	104° 0' 51.340 W
5,900.0	6.00	163.56	5,888.5	-215.7	63.7	467,296.21	598,607.45	32° 17' 3.519 N	104° 0' 51.306 W
6,000.0	6.00	163.56	5,987.9	-225.7	66.6	467,286.18	598,610.41	32° 17' 3.420 N	104° 0' 51.272 W
6,100.0	6.00	163.56	6,087.4	-235.8	69.6	467,276.16	598,613.37	32° 17' 3.320 N	104° 0' 51.237 W
6,200.0	6.00	163.56	6,186.8	-245.8	72.5	467,266.13	598,616.32	32° 17' 3.221 N	104° 0' 51.203 W
6,300.0	6.00	163.56	6,286.3	-255.8	75.5	467,256.11	598,619.28	32° 17' 3.122 N	104° 0' 51.169 W
6,400.0	6.00	163.56	6,385.7	-265.8	78.4	467,246.08	598,622.24	32° 17' 3.022 N	104° 0' 51.135 W
6,500.0	6.00	163.56	6,485.2	-275.9	81.4	467,236.06	598,625.20	32° 17' 2.923 N	104° 0' 51.101 W
6,600.0	6.00	163.56	6,584.7	-285.9	84.4	467,226.03	598,628.16	32° 17' 2.824 N	104° 0' 51.067 W
6,700.0	6.00	163.56	6,684.1	-295.9	87.3	467,216.01	598,631.12	32° 17' 2.725 N	104° 0' 51.033 W
6,800.0	6.00	163.56	6,783.6	-305.9	90.3	467,205.99	598,634.07	32° 17' 2.625 N	104° 0' 50.999 W
6,900.0	6.00	163.56	6,883.0	-316.0	93.2	467,195.96	598,637.03	32° 17' 2.526 N	104° 0' 50.965 W
7,000.0	6.00	163.56	6,982.5	-326.0	96.2	467,185.94	598,639.99	32° 17' 2.427 N	104° 0' 50.930 W
7,100.0	6.00	163.56	7,081.9	-336.0	99.2	467,175.91	598,642.95	32° 17' 2.327 N	104° 0' 50.896 W
7,200.0	6.00	163.56	7,181.4	-346.0	102.1	467,165.89	598,645.91	32° 17' 2.228 N	104° 0' 50.862 W
7,300.0	6.00	163.56	7,280.8	-356.1	105.1	467,155.86	598,648.86	32° 17' 2.129 N	104° 0' 50.828 W
7,400.0	6.00	163.56	7,380.3	-366.1	108.0	467,145.84	598,651.82	32° 17' 2.030 N	104° 0' 50.794 W
7,500.0	6.00	163.56	7,479.7	-376.1	111.0	467,135.81	598,654.78	32° 17' 1.930 N	104° 0' 50.760 W
7,600.0	6.00	163.56	7,579.2	-386.1	113.9	467,125.79	598,657.74	32° 17' 1.831 N	104° 0' 50.726 W
7,700.0	6.00	163.56	7,678.6	-396.2	116.9	467,115.76	598,660.70	32° 17' 1.732 N	104° 0' 50.692 W
7,800.0	6.00	163.56	7,778.1	-406.2	119.9	467,105.74	598,663.65	32° 17' 1.632 N	104° 0' 50.658 W
7,900.0	6.00	163.56	7,877.5	-416.2	122.8	467,095.71	598,666.61	32° 17' 1.533 N	104° 0' 50.623 W
8,000.0	6.00	163.56	7,977.0	-426.2	125.8	467,085.69	598,669.57	32° 17' 1.434 N	104° 0' 50.589 W
8,100.0	6.00	163.56	8,076.4	-436.3	128.7	467,075.66	598,672.53	32° 17' 1.334 N	104° 0' 50.555 W
8,200.0	6.00	163.56	8,175.9	-446.3	131.7	467,065.64	598,675.49	32° 17' 1.235 N	104° 0' 50.521 W
8,300.0	6.00	163.56	8,275.3	-456.3	134.7	467,055.61	598,678.45	32° 17' 1.136 N	104° 0' 50.487 W
8,400.0	6.00	163.56	8,374.8	-466.3	137.6	467,045.59	598,681.40	32° 17' 1.037 N	104° 0' 50.453 W
8,500.0	6.00	163.56	8,474.2	-476.4	140.6	467,035.57	598,684.36	32° 17' 0.937 N	104° 0' 50.419 W
8,600.0	6.00	163.56	8,573.7	-486.4	143.5	467,025.54	598,687.32	32° 17' 0.838 N	104° 0' 50.385 W
8,700.0	6.00	163.56	8,673.1	-496.4	146.5	467,015.52	598,690.28	32° 17' 0.739 N	104° 0' 50.351 W
8,800.0	6.00	163.56	8,772.6	-506.4	149.4	467,005.49	598,693.24	32° 17' 0.639 N	104° 0' 50.316 W
8,900.0	6.00	163.56	8,872.1	-516.5	152.4	466,995.47	598,696.19	32° 17' 0.540 N	104° 0' 50.282 W
9,000.0	6.00	163.56	8,971.5	-526.5	155.4	466,985.44	598,699.15	32° 17' 0.441 N	104° 0' 50.248 W
9,100.0	6.00	163.56	9,071.0	-536.5	158.3	466,975.42	598,702.11	32° 17' 0.342 N	104° 0' 50.214 W
9,200.0	6.00	163.56	9,170.4	-546.6	161.3	466,965.39	598,705.07	32° 17' 0.242 N	104° 0' 50.180 W
9,300.0	6.00	163.56	9,269.9	-556.6	164.2	466,955.37	598,708.03	32° 17' 0.143 N	104° 0' 50.146 W
9,400.0	6.00	163.56	9,369.3	-566.6	167.2	466,945.34	598,710.98	32° 17' 0.044 N	104° 0' 50.112 W
9,500.0	6.00	163.56	9,468.8	-576.6	170.2	466,935.32	598,713.94	32° 16' 59.944 N	104° 0' 50.078 W
9,600.0	6.00	163.56	9,568.2	-586.7	173.1	466,925.29	598,716.90	32° 16' 59.845 N	104° 0' 50.044 W
9,632.7	6.00	163.56	9,600.7	-589.9	174.1	466,922.02	598,717.87	32° 16' 59.813 N	104° 0' 50.032 W
9,700.0	4.99	163.56	9,667.7	-596.1	175.9	466,915.84	598,719.69	32° 16' 59.751 N	104° 0' 50.011 W
9,800.0	3.49	163.56	9,767.5	-603.2	178.0	466,908.74	598,721.78	32° 16' 59.681 N	104° 0' 49.987 W
9,900.0	1.99	163.56	9,867.3	-607.8	179.3	466,904.16	598,723.14	32° 16' 59.636 N	104° 0' 49.972 W
10,000.0	0.49	163.56	9,967.3	-609.9	180.0	466,902.08	598,723.75	32° 16' 59.615 N	104° 0' 49.965 W
10,032.7	0.00	0.00	10,000.0	-610.0	180.0	466,901.95	598,723.79	32° 16' 59.614 N	104° 0' 49.964 W
10,100.0	0.00	0.00	10,067.3	-610.0	180.0	466,901.95	598,723.79	32° 16' 59.614 N	104° 0' 49.964 W
10,200.0	0.00	0.00	10,167.3	-610.0	180.0	466,901.95	598,723.79	32° 16' 59.614 N	104° 0' 49.964 W
10,300.0	0.00	0.00	10,267.3	-610.0	180.0	466,901.95	598,723.79	32° 16' 59.614 N	104° 0' 49.964 W
10,307.7	0.00	0.00	10,275.0	-610.0	180.0	466,901.95	598,723.79	32° 16' 59.614 N	104° 0' 49.964 W
10,400.0	9.23	0.13	10,366.9	-602.6	180.0	466,909.36	598,723.81	32° 16' 59.687 N	104° 0' 49.964 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Harroun Ranch #2H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 2965.0usft (Original Well Elev)
Project:	Eddy County	**MD Reference:**	GL @ 2965.0usft (Original Well Elev)
Site:	Harroun Ranch	**North Reference:**	Grid
Well:	Harroun Ranch #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	*Design #1*		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,500.0	19.23	0.13	10,463.7	-578.0	180.1	466,933.90	598,723.86	32° 16' 59.930 N	104° 0' 49.962 W
10,600.0	29.23	0.13	10,554.8	-537.1	180.2	466,974.88	598,723.96	32° 17' 0.336 N	104° 0' 49.960 W
10,700.0	39.23	0.13	10,637.4	-480.9	180.3	467,031.05	598,724.09	32° 17' 0.891 N	104° 0' 49.956 W
10,800.0	49.23	0.13	10,708.9	-411.2	180.5	467,100.71	598,724.26	32° 17' 1.581 N	104° 0' 49.952 W
10,900.0	59.23	0.13	10,767.3	-330.2	180.7	467,181.73	598,724.45	32° 17' 2.383 N	104° 0' 49.947 W
11,000.0	69.23	0.13	10,810.8	-240.3	180.9	467,271.66	598,724.66	32° 17' 3.273 N	104° 0' 49.941 W
11,100.0	79.23	0.13	10,837.9	-144.1	181.1	467,367.77	598,724.88	32° 17' 4.224 N	104° 0' 49.935 W
11,200.0	89.23	0.13	10,847.9	-44.8	181.3	467,467.13	598,725.12	32° 17' 5.207 N	104° 0' 49.929 W
11,207.7	90.00	0.13	10,848.0	-37.0	181.3	467,474.86	598,725.14	32° 17' 5.283 N	104° 0' 49.929 W
11,300.0	90.00	0.13	10,848.0	55.2	181.6	467,567.12	598,725.35	32° 17' 6.196 N	104° 0' 49.923 W
11,400.0	90.00	0.13	10,848.0	155.2	181.8	467,667.11	598,725.59	32° 17' 7.186 N	104° 0' 49.917 W
11,500.0	90.00	0.13	10,848.0	255.2	182.0	467,767.10	598,725.82	32° 17' 8.175 N	104° 0' 49.910 W
11,600.0	90.00	0.13	10,848.0	355.2	182.3	467,867.09	598,726.06	32° 17' 9.165 N	104° 0' 49.904 W
11,700.0	90.00	0.13	10,848.0	455.2	182.5	467,967.09	598,726.29	32° 17' 10.155 N	104° 0' 49.898 W
11,800.0	90.00	0.13	10,848.0	555.2	182.7	468,067.08	598,726.53	32° 17' 11.144 N	104° 0' 49.892 W
11,900.0	90.00	0.13	10,848.0	655.2	183.0	468,167.07	598,726.76	32° 17' 12.134 N	104° 0' 49.886 W
12,000.0	90.00	0.13	10,848.0	755.2	183.2	468,267.06	598,727.00	32° 17' 13.123 N	104° 0' 49.879 W
12,100.0	90.00	0.13	10,848.0	855.2	183.4	468,367.05	598,727.23	32° 17' 14.113 N	104° 0' 49.873 W
12,200.0	90.00	0.13	10,848.0	955.2	183.7	468,467.04	598,727.47	32° 17' 15.102 N	104° 0' 49.867 W
12,300.0	90.00	0.13	10,848.0	1,055.2	183.9	468,567.04	598,727.70	32° 17' 16.092 N	104° 0' 49.861 W
12,400.0	90.00	0.13	10,848.0	1,155.2	184.2	468,667.03	598,727.94	32° 17' 17.081 N	104° 0' 49.854 W
12,500.0	90.00	0.13	10,848.0	1,255.2	184.4	468,767.02	598,728.17	32° 17' 18.071 N	104° 0' 49.848 W
12,600.0	90.00	0.13	10,848.0	1,355.2	184.6	468,867.01	598,728.41	32° 17' 19.060 N	104° 0' 49.842 W
12,700.0	90.00	0.13	10,848.0	1,455.2	184.9	468,967.00	598,728.64	32° 17' 20.050 N	104° 0' 49.836 W
12,800.0	90.00	0.13	10,848.0	1,555.2	185.1	469,066.99	598,728.88	32° 17' 21.039 N	104° 0' 49.830 W
12,900.0	90.00	0.13	10,848.0	1,655.2	185.3	469,166.99	598,729.11	32° 17' 22.029 N	104° 0' 49.823 W
13,000.0	90.00	0.13	10,848.0	1,755.2	185.6	469,266.98	598,729.35	32° 17' 23.018 N	104° 0' 49.817 W
13,100.0	90.00	0.13	10,848.0	1,855.2	185.8	469,366.97	598,729.59	32° 17' 24.008 N	104° 0' 49.811 W
13,200.0	90.00	0.13	10,848.0	1,955.2	186.0	469,466.96	598,729.82	32° 17' 24.997 N	104° 0' 49.805 W
13,300.0	90.00	0.13	10,848.0	2,055.2	186.3	469,566.95	598,730.06	32° 17' 25.987 N	104° 0' 49.799 W
13,400.0	90.00	0.13	10,848.0	2,155.2	186.5	469,666.95	598,730.29	32° 17' 26.976 N	104° 0' 49.792 W
13,500.0	90.00	0.13	10,848.0	2,255.2	186.7	469,766.94	598,730.53	32° 17' 27.966 N	104° 0' 49.786 W
13,600.0	90.00	0.13	10,848.0	2,355.2	187.0	469,866.93	598,730.76	32° 17' 28.955 N	104° 0' 49.780 W
13,700.0	90.00	0.13	10,848.0	2,455.2	187.2	469,966.92	598,731.00	32° 17' 29.945 N	104° 0' 49.774 W
13,800.0	90.00	0.13	10,848.0	2,555.2	187.4	470,066.91	598,731.23	32° 17' 30.935 N	104° 0' 49.768 W
13,900.0	90.00	0.13	10,848.0	2,655.2	187.7	470,166.90	598,731.47	32° 17' 31.924 N	104° 0' 49.761 W
14,000.0	90.00	0.13	10,848.0	2,755.2	187.9	470,266.90	598,731.70	32° 17' 32.914 N	104° 0' 49.755 W
14,100.0	90.00	0.13	10,848.0	2,855.2	188.1	470,366.89	598,731.94	32° 17' 33.903 N	104° 0' 49.749 W
14,200.0	90.00	0.13	10,848.0	2,955.2	188.4	470,466.88	598,732.17	32° 17' 34.893 N	104° 0' 49.743 W
14,300.0	90.00	0.13	10,848.0	3,055.2	188.6	470,566.87	598,732.41	32° 17' 35.882 N	104° 0' 49.737 W
14,400.0	90.00	0.13	10,848.0	3,155.2	188.9	470,666.86	598,732.64	32° 17' 36.872 N	104° 0' 49.730 W
14,500.0	90.00	0.13	10,848.0	3,255.2	189.1	470,766.85	598,732.88	32° 17' 37.861 N	104° 0' 49.724 W
14,600.0	90.00	0.13	10,848.0	3,355.2	189.3	470,866.85	598,733.11	32° 17' 38.851 N	104° 0' 49.718 W
14,700.0	90.00	0.13	10,848.0	3,455.2	189.6	470,966.84	598,733.35	32° 17' 39.840 N	104° 0' 49.712 W
14,800.0	90.00	0.13	10,848.0	3,555.2	189.8	471,066.83	598,733.58	32° 17' 40.830 N	104° 0' 49.705 W
14,900.0	90.00	0.13	10,848.0	3,655.2	190.0	471,166.82	598,733.82	32° 17' 41.819 N	104° 0' 49.699 W
15,000.0	90.00	0.13	10,848.0	3,755.2	190.3	471,266.81	598,734.05	32° 17' 42.809 N	104° 0' 49.693 W
15,100.0	90.00	0.13	10,848.0	3,855.2	190.5	471,366.81	598,734.29	32° 17' 43.798 N	104° 0' 49.687 W
15,200.0	90.00	0.13	10,848.0	3,955.2	190.7	471,466.80	598,734.52	32° 17' 44.788 N	104° 0' 49.681 W
15,300.0	90.00	0.13	10,848.0	4,055.2	191.0	471,566.79	598,734.76	32° 17' 45.777 N	104° 0' 49.674 W
15,400.0	90.00	0.13	10,848.0	4,155.2	191.2	471,666.78	598,734.99	32° 17' 46.767 N	104° 0' 49.668 W
15,500.0	90.00	0.13	10,848.0	4,255.2	191.4	471,766.77	598,735.23	32° 17' 47.756 N	104° 0' 49.662 W
15,600.0	90.00	0.13	10,848.0	4,355.2	191.7	471,866.76	598,735.46	32° 17' 48.746 N	104° 0' 49.656 W
15,700.0	90.00	0.13	10,848.0	4,455.2	191.9	471,966.76	598,735.70	32° 17' 49.735 N	104° 0' 49.650 W
15,800.0	90.00	0.13	10,848.0	4,555.2	192.1	472,066.75	598,735.93	32° 17' 50.725 N	104° 0' 49.643 W

BTA

Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Harroun Ranch #2H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 2965.0usft (Original Well Elev)
Project:	Eddy County	**MD Reference:**	GL @ 2965.0usft (Original Well Elev)
Site:	Harroun Ranch	**North Reference:**	Grid
Well:	Harroun Ranch #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,900.0	90.00	0.13	10,848.0	4,655.2	192.4	472,166.74	598,736.17	32° 17' 51.715 N	104° 0' 49.637 W
16,000.0	90.00	0.13	10,848.0	4,755.2	192.6	472,266.73	598,736.40	32° 17' 52.704 N	104° 0' 49.631 W
16,100.0	90.00	0.13	10,848.0	4,855.2	192.9	472,366.72	598,736.64	32° 17' 53.694 N	104° 0' 49.625 W
16,200.0	90.00	0.13	10,848.0	4,955.2	193.1	472,466.71	598,736.87	32° 17' 54.683 N	104° 0' 49.619 W
16,300.0	90.00	0.13	10,848.0	5,055.2	193.3	472,566.71	598,737.11	32° 17' 55.673 N	104° 0' 49.612 W
16,400.0	90.00	0.13	10,848.0	5,155.2	193.6	472,666.70	598,737.34	32° 17' 56.662 N	104° 0' 49.606 W
16,500.0	90.00	0.13	10,848.0	5,255.2	193.8	472,766.69	598,737.58	32° 17' 57.652 N	104° 0' 49.600 W
16,600.0	90.00	0.13	10,848.0	5,355.2	194.0	472,866.68	598,737.81	32° 17' 58.641 N	104° 0' 49.594 W
16,700.0	90.00	0.13	10,848.0	5,455.2	194.3	472,966.67	598,738.05	32° 17' 59.631 N	104° 0' 49.587 W
16,800.0	90.00	0.13	10,848.0	5,555.2	194.5	473,066.66	598,738.28	32° 18' 0.620 N	104° 0' 49.581 W
16,900.0	90.00	0.13	10,848.0	5,655.2	194.7	473,166.66	598,738.52	32° 18' 1.610 N	104° 0' 49.575 W
17,000.0	90.00	0.13	10,848.0	5,755.2	195.0	473,266.65	598,738.75	32° 18' 2.599 N	104° 0' 49.569 W
17,100.0	90.00	0.13	10,848.0	5,855.2	195.2	473,366.64	598,738.99	32° 18' 3.589 N	104° 0' 49.563 W
17,200.0	90.00	0.13	10,848.0	5,955.2	195.4	473,466.63	598,739.22	32° 18' 4.578 N	104° 0' 49.556 W
17,300.0	90.00	0.13	10,848.0	6,055.2	195.7	473,566.62	598,739.46	32° 18' 5.568 N	104° 0' 49.550 W
17,400.0	90.00	0.13	10,848.0	6,155.2	195.9	473,666.62	598,739.70	32° 18' 6.557 N	104° 0' 49.544 W
17,500.0	90.00	0.13	10,848.0	6,255.2	196.1	473,766.61	598,739.93	32° 18' 7.547 N	104° 0' 49.538 W
17,600.0	90.00	0.13	10,848.0	6,355.2	196.4	473,866.60	598,740.17	32° 18' 8.536 N	104° 0' 49.532 W
17,700.0	90.00	0.13	10,848.0	6,455.2	196.6	473,966.59	598,740.40	32° 18' 9.526 N	104° 0' 49.525 W
17,800.0	90.00	0.13	10,848.0	6,555.2	196.8	474,066.58	598,740.64	32° 18' 10.515 N	104° 0' 49.519 W
17,900.0	90.00	0.13	10,848.0	6,655.2	197.1	474,166.57	598,740.87	32° 18' 11.505 N	104° 0' 49.513 W
18,000.0	90.00	0.13	10,848.0	6,755.2	197.3	474,266.57	598,741.11	32° 18' 12.494 N	104° 0' 49.507 W
18,100.0	90.00	0.13	10,848.0	6,855.2	197.6	474,366.56	598,741.34	32° 18' 13.484 N	104° 0' 49.500 W
18,200.0	90.00	0.13	10,848.0	6,955.2	197.8	474,466.55	598,741.58	32° 18' 14.474 N	104° 0' 49.494 W
18,300.0	90.00	0.13	10,848.0	7,055.2	198.0	474,566.54	598,741.81	32° 18' 15.463 N	104° 0' 49.488 W
18,400.0	90.00	0.13	10,848.0	7,155.2	198.3	474,666.53	598,742.05	32° 18' 16.453 N	104° 0' 49.482 W
18,500.0	90.00	0.13	10,848.0	7,255.2	198.5	474,766.52	598,742.28	32° 18' 17.442 N	104° 0' 49.476 W
18,600.0	90.00	0.13	10,848.0	7,355.2	198.7	474,866.52	598,742.52	32° 18' 18.432 N	104° 0' 49.469 W
18,700.0	90.00	0.13	10,848.0	7,455.2	199.0	474,966.51	598,742.75	32° 18' 19.421 N	104° 0' 49.463 W
18,800.0	90.00	0.13	10,848.0	7,555.2	199.2	475,066.50	598,742.99	32° 18' 20.411 N	104° 0' 49.457 W
18,900.0	90.00	0.13	10,848.0	7,655.2	199.4	475,166.49	598,743.22	32° 18' 21.400 N	104° 0' 49.451 W
19,000.0	90.00	0.13	10,848.0	7,755.2	199.7	475,266.48	598,743.46	32° 18' 22.390 N	104° 0' 49.445 W
19,100.0	90.00	0.13	10,848.0	7,855.2	199.9	475,366.47	598,743.69	32° 18' 23.379 N	104° 0' 49.438 W
19,200.0	90.00	0.13	10,848.0	7,955.2	200.1	475,466.47	598,743.93	32° 18' 24.369 N	104° 0' 49.432 W
19,300.0	90.00	0.13	10,848.0	8,055.2	200.4	475,566.46	598,744.16	32° 18' 25.358 N	104° 0' 49.426 W
19,400.0	90.00	0.13	10,848.0	8,155.2	200.6	475,666.45	598,744.40	32° 18' 26.348 N	104° 0' 49.420 W
19,500.0	90.00	0.13	10,848.0	8,255.2	200.8	475,766.44	598,744.63	32° 18' 27.337 N	104° 0' 49.414 W
19,600.0	90.00	0.13	10,848.0	8,355.2	201.1	475,866.43	598,744.87	32° 18' 28.327 N	104° 0' 49.407 W
19,700.0	90.00	0.13	10,848.0	8,455.2	201.3	475,966.43	598,745.10	32° 18' 29.316 N	104° 0' 49.401 W
19,800.0	90.00	0.13	10,848.0	8,555.2	201.6	476,066.42	598,745.34	32° 18' 30.306 N	104° 0' 49.395 W
19,900.0	90.00	0.13	10,848.0	8,655.2	201.8	476,166.41	598,745.57	32° 18' 31.295 N	104° 0' 49.389 W
20,000.0	90.00	0.13	10,848.0	8,755.2	202.0	476,266.40	598,745.81	32° 18' 32.285 N	104° 0' 49.382 W
20,100.0	90.00	0.13	10,848.0	8,855.2	202.3	476,366.39	598,746.04	32° 18' 33.274 N	104° 0' 49.376 W
20,200.0	90.00	0.13	10,848.0	8,955.2	202.5	476,466.38	598,746.28	32° 18' 34.264 N	104° 0' 49.370 W
20,300.0	90.00	0.13	10,848.0	9,055.2	202.7	476,566.38	598,746.51	32° 18' 35.253 N	104° 0' 49.364 W
20,400.0	90.00	0.13	10,848.0	9,155.2	203.0	476,666.37	598,746.75	32° 18' 36.243 N	104° 0' 49.358 W
20,500.0	90.00	0.13	10,848.0	9,255.2	203.2	476,766.36	598,746.98	32° 18' 37.232 N	104° 0' 49.351 W
20,600.0	90.00	0.13	10,848.0	9,355.2	203.4	476,866.35	598,747.22	32° 18' 38.222 N	104° 0' 49.345 W
20,700.0	90.00	0.13	10,848.0	9,455.2	203.7	476,966.34	598,747.45	32° 18' 39.212 N	104° 0' 49.339 W
20,800.0	90.00	0.13	10,848.0	9,555.2	203.9	477,066.33	598,747.69	32° 18' 40.201 N	104° 0' 49.333 W
20,900.0	90.00	0.13	10,848.0	9,655.2	204.1	477,166.33	598,747.92	32° 18' 41.191 N	104° 0' 49.327 W
21,000.0	90.00	0.13	10,848.0	9,755.2	204.4	477,266.32	598,748.16	32° 18' 42.180 N	104° 0' 49.320 W
21,100.0	90.00	0.13	10,848.0	9,855.2	204.6	477,366.31	598,748.39	32° 18' 43.170 N	104° 0' 49.314 W
21,146.3	90.00	0.13	10,848.0	9,901.5	204.7	477,412.60	598,748.50	32° 18' 43.628 N	104° 0' 49.311 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Harroun Ranch #2H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 2965.0usft (Original Well Elev)
Project:	Eddy County	**MD Reference:**	GL @ 2965.0usft (Original Well Elev)
Site:	Harroun Ranch	**North Reference:**	Grid
Well:	Harroun Ranch #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Harroun Ranch #2H BHl - plan hits target center - Point	0.00	0.00	10,848.0	9,901.5	204.7	477,412.60	598,748.50	32° 18' 43.628 N	104° 0' 49.311 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
433.0	433.0	Anhydrite		0.00	
563.0	563.0	Top of salt		0.00	
2,568.0	2,568.0	Bottom of salt		0.00	
2,783.0	2,783.0	Delaware		0.00	
4,889.0	4,883.0	Brushy canyon		0.00	
6,497.8	6,483.0	Bonespring lime		0.00	
7,553.6	7,533.0	1st Bone spring sand		0.00	
8,317.8	8,293.0	2nd Bone spring sand		0.00	
9,509.3	9,478.0	3rd Bone Spring sand		0.00	
9,985.7	9,953.0	Wolfcamp		0.00	
11,207.7	10,848.0	Target TVD (WC)		0.00	

T G M

Azimuths to Grid North
True North: -0.17°
Magnetic North: 7.79°

Magnetic Field
Strength: 48783.4snT
Dip Angle: 60.22°
Date: 12/31/2009
Model: IGRF200510

WELL DETAILS: Harroun Ranch #2H

Ground Level: 2965.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.0	0.0	467511.90	598543.80	32° 17' 5.655 N	104° 0' 52.040 W

SITE DETAILS: Harroun Ranch

Site Centre Northing: 467011.30
Easting: 598545.80

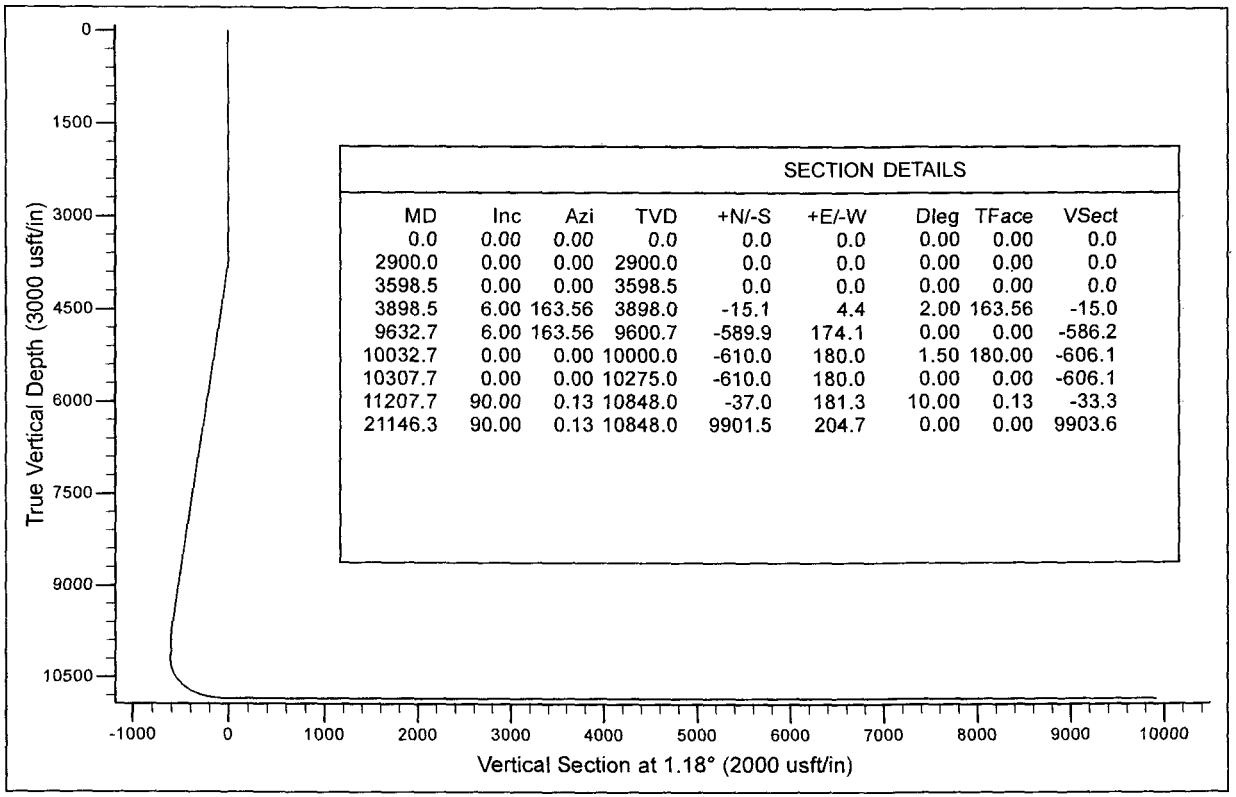
Positional Uncertainity: 0.0
Convergence: 0.17
Local North: Grid

BTA Oil Producers, LLC

PROJECT DETAILS: Eddy County

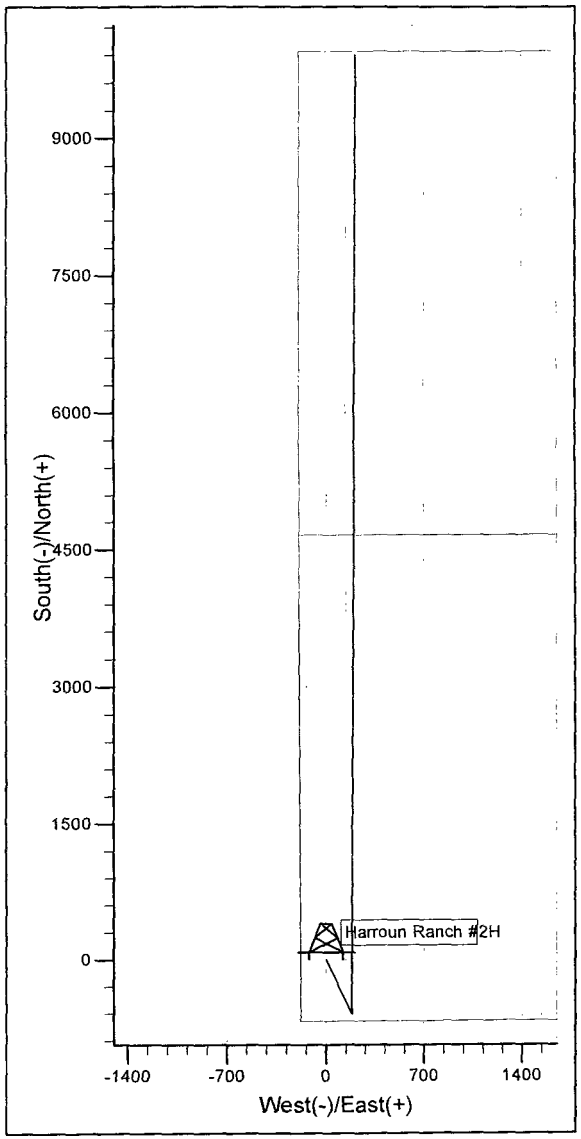
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Ground Level



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2900.0	0.00	0.00	2900.0	0.0	0.0	0.00	0.00	0.0
3598.5	0.00	0.00	3598.5	0.0	0.0	0.00	0.00	0.0
3898.5	6.00	163.56	3898.0	-15.1	4.4	2.00	163.56	-15.0
9632.7	6.00	163.56	9600.7	-589.9	174.1	0.00	0.00	-586.2
10032.7	0.00	0.00	10000.0	-610.0	180.0	1.50	180.00	-606.1
10307.7	0.00	0.00	10275.0	-610.0	180.0	0.00	0.00	-606.1
11207.7	90.00	0.13	10848.0	-37.0	181.3	10.00	0.13	-33.3
21146.3	90.00	0.13	10848.0	9901.5	204.7	0.00	0.00	9903.6



APPLICATION FOR DRILLING

BTA OIL PRODUCERS
#2H, Harroun Ranch Federal Com, 20702
SHL: 680' FSL & 180' FWL UL: M
Sec. 20, T23S, R29E
BHL: 50' FNL & 330' FWL UL: D
Sec. 17, T23S, R29E

Eddy County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill, BTA Oil Producers submits the following 10 items for pertinent information in accordance with BLM requirements:

1. Geologic surface formation is Quaternary.

2. Estimated top of geologic markers & depths of anticipated fresh water, oil or gas:

Anhydrite	433'	
Top of Salt	563'	
Base Salt	2,568'	
Delaware	2,783'	
Cherry Canyon	3,603'	
Brushy Canyon	4,883'	Oil
Bone Spring LM	6,483'	
1st Bone Spring Sand	7,533'	Oil/Gas
2nd Bone Spring Sand	8,293'	Oil/Gas
3rd Bone Spring Sand	9,478'	Oil/Gas
Wolfcamp	9,953'	Oil/Gas
Target TVD (Wolfcamp)	10,848'	Oil/Gas

No other formations are expected to yield oil, gas, or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13-3/8" csg at 360' and circulating cement back to surface. Potash/fresh water sands will be protected by setting 9-5/8" csg at 2750' and circulating cement back to surface. The Delaware and Bone Spring intervals will be isolated by setting 7" csg into the Wolfcamp and circulating cement 500' above the base of the 9-5/8" casing.

All shows of fresh water and minerals will be reported and protected. A sample will be taken of any water flows and furnished to the BLM, Division of Minerals. All oil and gas shows will be adequately tested for commercial possibilities, reported and protected.

3. Proposed Casing and Cementing Program:

Hole Size	OD Casing	Setting from	Depth to	Weight	Grade	Joint
17-1/2"	13-3/8"	0	360'	54.5#	J55	STC
12-1/4"	9-5/8"	0	2,750'	36#	J55	STC
8-3/4"	7"	0	10,700'	29#	P110	LTC
6-1/8"	4-1/2"	10,300'	21,200'	11.6#	P110	LTC

Minimum Casing Design Factors:

Collapse	1.125
Burst	1.0
Tensile	1.8

Depending upon availability at the time that the casing is run, equivalent weights and grades may be substituted.

All casing will be new.

4. Cement Program:

I. Surface Casing:
- Lead: 220 sx Class-C.
  - 1.75 ft^3/sk; 13.5 ppg
- Tail: 200 sx Class – C.
  - 1.34 ft^3/sk; 14.8 ppg
- Cement circulated to surface. 100% Excess.

II. Intermediate Casing:
- Lead: 510 sx 35:65 Poz-C
  - 1.94 ft^3/sk; 12.7 ppg
- Tail: 250 sx Class– C
  - 1.33 ft^3/sk; 14.8 ppg
- Cement circulated to surface. 60% excess of open hole (will run fluid caliper to determine lead volume).

III. Production Casing:
- Lead: 500 sx 50:50 Class H
  - 2.92 ft^3/sk; 11.3 ppg
- Tail: 200 sx 50:50 Class H
  - 1.22 ft^3/sk; 14.4 ppg
- Cement calculated to tie back 500 ft into intermediate casing. 30% open hole excess.

IV. Production Liner:
- Tail: 900 sx 50:50 Class H
  - 1.29 ft^3/sk; 14.2 ppg
- Cement calculated to circulate. 25% open hole excess.

Note: All casing strings will be pressure tested to 0.22 psi/ft. of setting depth or 1500 psi (whichever is greater) after cementing and prior to drill out.

5. Pressure Control Equipment:

   The blowout preventer equipment (BOP) shown in Exhibit A will consist of a (5M system) double ram type (5000 psi WP) preventer and a bag-type (Hydril) preventer (5000 psi WP). Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and 5" x 4" drill pipe rams on bottom. The BOP's will be installed on the 13-3/8" surface casing and utilized continuously until TD is reached. All BOP's and associated equipment will be tested as per BLM drilling Operations Order No. 2.

   Pipe rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily driller's log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines, and choke manifold having a 5000 psi WP rating.

6. Mud Program:

   Surface to 360': 8.5 to 8.8 ppg fresh water spud with 35 to 45 sec/1000 cc viscosity.

   360' to 2,750': Brine water. Will use lime for pH control in range 10 to 11. Will sweep hole with gel slugs as required for hole cleaning. Mud wt = 10 ppg.

   2,750' to 10,700': 8.6 to 9.2 ppg controlled brine water. Will use lime for pH control in range 10 to 11. Will sweep hole with salt gel slugs as required for hole cleaning. Will use paper for seepage losses. Will adjust fluid weight as required using brine water.

   10,700' to TD': 10.5 to 12.5 ppg OBM. Will adjust fluid weight as required using barite as wellbore conditions dictate.

7. Auxiliary Equipment:

   a) Upper Kelly cock valve with handle available.
   b) Lower Kelly cock valve with handle available.
   c) Safety valves and subs to fit all drill string connections in use.
   d) Monitoring of mud system will be mechanical.

8. Testing Logging and Coring Program:

   Drill Stem Tests will be based on geological sample shows.

   Open electrical logging program will be:

   i. TD to Surface: Gamma Ray
   ii. No coring program is planned.

9. Potential Hazards:

   No abnormal pressures or temperatures are anticipated. If H2S is encountered, the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 6600 psi. Estimated BHT: 170° F. No H_2S is anticipated to be encountered.

10. Anticipated Starting Date and Duration of Operations:

    Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig is available. Move in operations and drilling is expected to take 25 days. If production casing is run, an additional 30 days will be needed to complete the well and construct surface facilities and/or lay flow lines to place the well on production .

Note: BLM onsite has been conducted.

Rig 94 Asset 24495

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

CERT Nº: 1592

PURCHASER:	ContiTech Oil & Marine Corp.	P.O. Nº:	4500461753
CONTITECH ORDER Nº	539225	HOSE TYPE: 3" ID	Choke & Kill Hose
HOSE SERIAL Nº		NOMINAL / ACTUAL LENGTH:	7,62 m / 7,66 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 Min.
↑ 50 MPa

COUPLINGS Type	Serial Nº	Quality	Heat Nº
3" coupling with	2574 5533	AISI 4130	A1582N H8672
4 1/16" 10K API Swivel Flange end		AISI 4130	58855
Hub		AISI 4130	A1199N A1423N

Not Designed For Well Testing API Spec 16 C

Fire Rated 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.

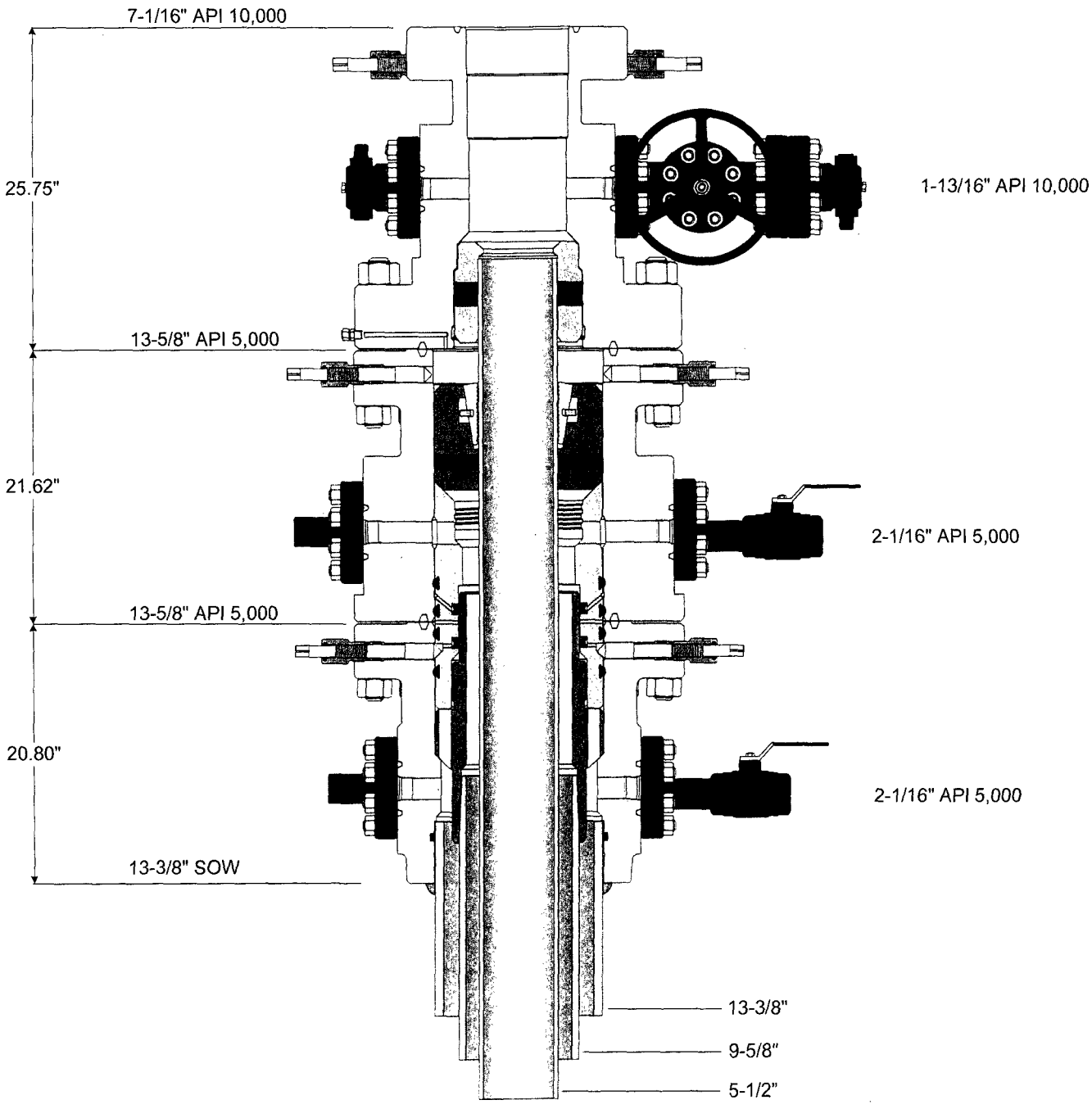
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes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

Date:	Inspector	Quality Control
04 September 2014.		

ContiTech Rubber Industrial Kft. | Budapesti út 10. H-6728 Szeged | H-6701 P.O.Box 152 Szeged, Hungary
Phone: +36 62 566 737 | Fax: +36 62 566 738 | e-mail: info@fluid.contitech.hu | Internet: www.contitech-rubber.hu www.contitech.hu
The Court of Csongrád County as Registry Court | Registry Court No: Cg.06-09-002502 | EU VAT No: HU11087209
Bank data Commerzbank Zrt., Budapest | 14220108-26830003

File Name
File Message
Device Type
Serial No.
Data Count
Print Group
Print Range
Comment
Sampling in
Start Time
Stop Time
Ambient Temperature(°C)
Pressure(bar)
Cursor A
Cursor B
Difference
Data No.
Absolute Time
Gas Pressure(bar)
Ambient Temperature(°C)
Cursor A
Cursor B

NOTE: THIS DRAWING IS NOT TO SCALE. THE DIMENSIONS REFLECTED ON
THIS DRAWING ARE ESTIMATED DIMENSIONS AND ARE FOR REFERENCE ONLY.



Weatherford®

Customer: BTA OIL PRODUCERS	Project No.: 146245	Quote No.: 291545 v2
Project Name: WEST TEXAS	Date: 07/06/16	Drawn By: JL

Haque, Mustafa <mhaque@blm.gov>

Harroun Ranch Federal Com 20702 #2H - Submitted Sundry - EC Transaction #365095

Kayla McConnell <KMcConnell@btaoil.com> Mon, Jan 30, 2017 at 2:18 PM
To: "Haque, Mustafa" <mhaque@blm.gov>

First Take 360 FWL & 330 FSL

Last Take 385 FWL & 330 FNL

Please let me know if you have any other questions.

~Kayla

From: Haque, Mustafa [mailto:mhaque@blm.gov]
Sent: Monday, January 30, 2017 1:56 PM

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