

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. 9. API Well No.
2. Name of Operator		10. Field and Pool, or Exploratory <div style="text-align: right; color: red;">Purple Sage Wolfcamp</div>
3a. Address	3b. Phone No. (include area code)	11. Sec., T. R. M. or Blk. and Survey or Area
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		12. County or Parish
14. Distance in miles and direction from nearest town or post office*		13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
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.

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

APPROVED WITH CONDITIONS

Approval Date: 11/13/2020

(Continued on page 2)

*(Instructions on page 2)

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

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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
	98220	Purple Sage WC-015 ; Wolfcamp Sand
Property Code	Property Name	Well Number
	HARROUN RANCH 20702 20-17 FEDERAL COM	9H
OGRID No.	Operator Name	Elevation
260297	BTA OIL PRODUCERS, LLC	2971'

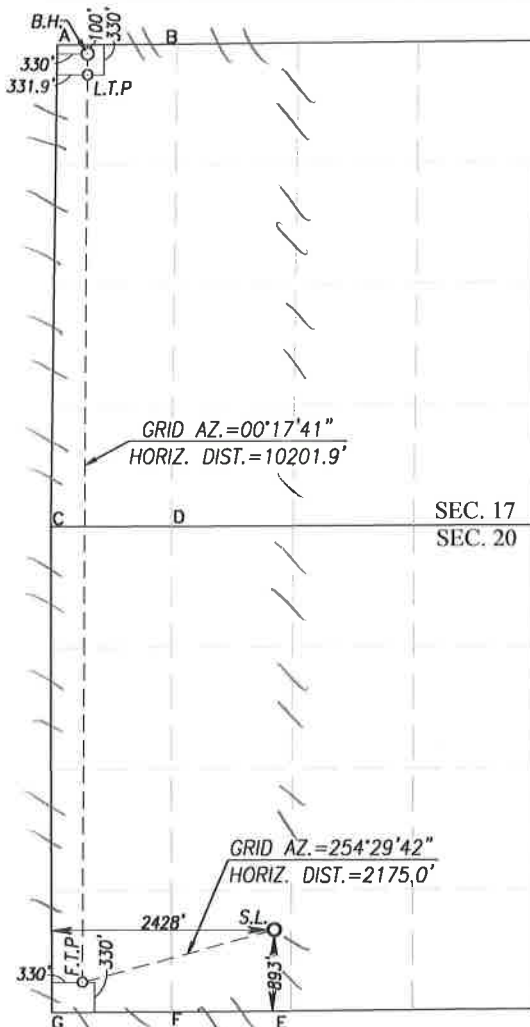
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	20	23-S	29-E		893	SOUTH	2428	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		100	NORTH	330	WEST	EDDY
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						
640									

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
GEODETIC COORDINATES

NAD 83 NME
Y=477422.2 N
X=639930.8 E
LAT.=32.312103° N
LONG.=104.014193° W

BOTTOM HOLE LOCATION
GEODETIC COORDINATES

NAD 27 NME
Y=477362.6 N
X=598747.9 E
LAT.=32.311981° N
LONG.=104.013700° W

LAST TAKE POINT
GEODETIC COORDINATES

NAD 83 NME
Y=477192.2 N
X=639929.6 E
LAT.=32.311471° N
LONG.=104.014199° W

LAST TAKE POINT
GEODETIC COORDINATES

NAD 27 NME
Y=477132.6 N
X=598746.7 E
LAT.=32.311349° N
LONG.=104.013706° W

CORNER COORDINATES TABLE

NAD 27 NME

A - Y= 477459.5 N, X= 598419.2 E
B - Y= 477471.7 N, X= 599735.2 E
C - Y= 472171.8 N, X= 598349.1 E
D - Y= 472176.3 N, X= 599672.6 E
E - Y= 466853.3 N, X= 600973.0 E
F - Y= 466841.9 N, X= 599669.7 E
G - Y= 466830.5 N, X= 598366.4 E

CORNER COORDINATES TABLE

NAD 83 NME

A - Y= 477519.1 N, X= 639602.1 E
B - Y= 477531.4 N, X= 640918.1 E
C - Y= 472231.3 N, X= 639532.2 E
D - Y= 472235.8 N, X= 640855.7 E
E - Y= 466912.7 N, X= 642156.3 E
F - Y= 466901.3 N, X= 640852.9 E
G - Y= 466889.9 N, X= 639549.6 E

FIRST TAKE POINT
GEODETIC COORDINATES

NAD 83 NME
Y=467222.7 N
X=639878.3 E
LAT.=32.284067° N
LONG.=104.014461° W

FIRST TAKE POINT
GEODETIC COORDINATES

NAD 27 NME
Y=467163.3 N
X=598695.1 E
LAT.=32.283945° N
LONG.=104.013969° W

SURFACE LOCATION
GEODETIC COORDINATES

NAD 83 NME
Y=467804.0 N
X=641973.7 E
LAT.=32.285647° N
LONG.=104.007675° W

SURFACE LOCATION
GEODETIC COORDINATES

NAD 27 NME
Y=467744.6 N
X=600790.5 E
LAT.=32.285525° N
LONG.=104.007183° 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.

Sammy Hajar 3/17/2020
Signature Date

Printed Name

shajar@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.

Date of Survey

Signature & Seal of Professional Surveyor

Ronald J. Eidson 01/02/2020
Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

ACK REL W.O.:19111175

JWSC W.O.: 19.11.1294

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Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 3/17/2020

☒ Original Operator & OGRID No.: 260297
☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
HARROUN RANCH 20702		SEC 20 ; 23S ; 29E	893 FSL 2428 FWL	2000	Flared	Battery Connected
20-17 FEDERAL COM 9H						To ETP System

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Gas Transporter and will be connected to Gas Transporter low/high pressure gathering system located in EDDY County, New Mexico. It will require 0 ' of pipeline to (ETP) connect the facility to low/high pressure gathering system. Operator provides (periodically) to Gas Transporter a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Operator and Gas Transporter have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Gas Transporter Processing Plant located in Sec.____, Twn.____, Rng.____, _____ County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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API Number	Pool Code 98220	Pool Name Purple Sage WC-015, Wolfcamp Sand
Property Code	Property Name HARROUN RANCH 20702 20-17 FEDERAL COM	Well Number 9H
OGRID No. 260297	Operator Name BTA OIL PRODUCERS, LLC	Elevation 2971'

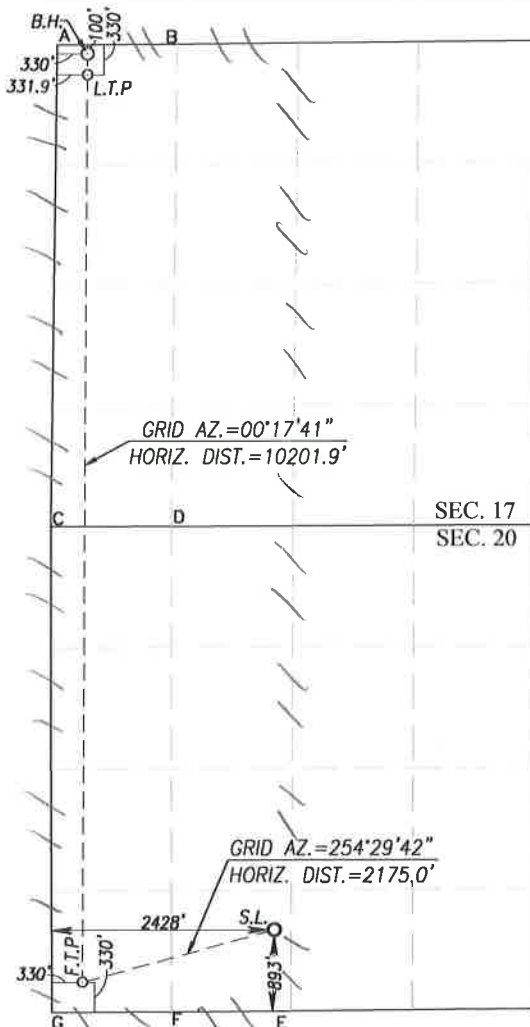
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Sammy Hajar
Signature
Sammy Hajar

3/17/2020

Date

Printed Name

shajar@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.

DATE OF SURVEY
3239
REGISTERED PROFESSIONAL SURVEYOR

Signature & Seal of Professional Surveyor

Ronald J. Eidson
Certificate Number
Gary G. Eidson 12641
Ronald J. Eidson 3239

ACK REL W.O.:19111175

JWSC W.O.: 19.11.1294



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

11/17/2020

APD ID: 10400055416

Submission Date: 03/24/2020

Highlighted data
reflects the most
recent changes

Operator Name: BTA OIL PRODUCERS LLC

Well Name: HARROUN RANCH 20702 20-17 FEDERAL
COM

Well Number: 9H

[Show Final Text](#)

Well Type: OTHER

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
695840	QUATERNARY	2971	0	0	ALLUVIUM	NONE	N
695841	RUSTLER	2790	181	181	ANHYDRITE	NONE	N
695842	TOP SALT	2445	526	526	SALT	NONE	N
695843	BASE OF SALT	385	2586	2586	SALT	NONE	N
695844	DELAWARE	124	2847	2847	LIMESTONE	NATURAL GAS, OIL	N
695853	BELL CANYON	91	2880	2880	SANDSTONE	NATURAL GAS, OIL	N
695846	CHERRY CANYON	-713	3684	3684	SANDSTONE	NATURAL GAS, OIL	N
695847	BRUSHY CANYON	-1921	4892	4892	SANDSTONE	NATURAL GAS, OIL	N
695848	BONE SPRING LIME	-3581	6552	6552	LIMESTONE	NATURAL GAS, OIL	N
695849	FIRST BONE SPRING SAND	-4584	7555	7555	SANDSTONE	NATURAL GAS, OIL	N
695850	BONE SPRING 2ND	-5370	8341	8341	SANDSTONE	NATURAL GAS, OIL	N
695851	BONE SPRING 3RD	-6511	9482	9482	SANDSTONE	NATURAL GAS, OIL	N
695852	WOLFCAMP	-6860	9831	9831	SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Operator Name: BTA OIL PRODUCERS LLC**Well Name:** HARROUN RANCH 20702 20-17 FEDERAL COM**Well Number:** 9H**Pressure Rating (PSI):** 5M**Rating Depth:** 11000

Equipment: The blowout preventer equipment (BOP) shown in Exhibit A will consist of a (5M system) double ram type (5,000 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" drill pipe rams on bottom. The BOPs will be installed on the 10-3/4" surface casing and utilized continuously until total depth is reached. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. A remote kill line will be used for the 5M system as per onshore order #2. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines, and choke manifold having a 5,000 psi WP rating. The 5M annular will be tested as per BLM drilling Operations Order No. 2.

Requesting Variance? NO**Variance request:**

Testing Procedure: 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 drillers log. All BOPs and associated equipment will be tested as per BLM drilling Operations Order No. 2.

Choke Diagram Attachment:

Choke_Hose___Test_Chart_and_Specs_20190723082742.pdf

5M_choke_mannifold_20190723082749.pdf

BOP Diagram Attachment:

5M_BOP_diagram_20190723082754.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	10.75	NEW	API	N	0	500	0	500	2971	2471	500	J-55	40.5	ST&C	7.3	14.5	DRY	20.7	DRY	31.1
2	PRODUCTION	6.75	5.5	NEW	API	Y	0	9514	0	9208	3018	-6237	9514	P-110	20	BUTT	1.7	1.8	DRY	3.5	DRY	3.4
3	INTERMEDIATE	9.875	7.625	NEW	API	N	0	9714	0	9409	3018	-6438	9714	P-110	29.7	BUTT	2.1	2.1	DRY	3.3	DRY	3.3
4	PRODUCTION	6.75	5.0	NEW	API	Y	9514	20529	9208	9936	-6237	-6965	11015	P-110	18	BUTT	1.9	1.9	DRY	1.6	DRY	1.6

Casing Attachments

Operator Name: BTA OIL PRODUCERS LLC**Well Name:** HARROUN RANCH 20702 20-17 FEDERAL
COM**Well Number:** 9H**Casing Attachments**

Casing ID: 1 **String Type:** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**Harroun_Ranch_Fed_Com_9H_Casing_Assumption_20200324105800.JPG

Casing ID: 2 **String Type:** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:**

5.5_tapered_string_spec_20190930151650.jpg

Casing Design Assumptions and Worksheet(s):Harroun_Ranch_Fed_Com_9H_Casing_Assumption_20200324105906.JPG

Casing ID: 3 **String Type:** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**Harroun_Ranch_Fed_Com_9H_Casing_Assumption_20200324105851.JPG

Operator Name: BTA OIL PRODUCERS LLC**Well Name:** HARROUN RANCH 20702 20-17 FEDERAL
COM**Well Number:** 9H**Casing Attachments****Casing ID:** 4 **String Type:** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:**

5_tapered_string_spec_20190930151627.jpg

Casing Design Assumptions and Worksheet(s):

Harroun_Ranch_Fed_Com_9H_Casing_Assumption_20200324105817.JPG

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	255	160	1.8	13.5	288	100	Class C	2% CaCl2
SURFACE	Tail		255	500	200	1.34	14.8	268	100	Class C	2% CaCl2
INTERMEDIATE	Lead	2792	0	2365	380	2.19	12.7	832.2	50	Class C	0.5% CaCl2
INTERMEDIATE	Tail		2365	2792	150	1.33	14.8	199.5	50	Class C	1% CaCl2
INTERMEDIATE	Lead		2792	7825	475	2.64	10.5	1254	15	Class H	0.5% CaCl2
INTERMEDIATE	Tail		7825	9714	400	1.19	15.6	476	15	Class H	1% CaCl2
PRODUCTION	Lead		8510	9514	0	0	0	0		n/a	n/a

PRODUCTION	Lead		9514	20529	1145	1.27	14.8	1454.15	10	Class H	0.1% Fluid Loss
------------	------	--	------	-------	------	------	------	---------	----	---------	-----------------

Operator Name: BTA OIL PRODUCERS LLC**Well Name:** HARROUN RANCH 20702 20-17 FEDERAL
COM**Well Number:** 9H**Section 5 - Circulating Medium****Mud System Type:** Closed**Will an air or gas system be Used?** NO**Description of the equipment for the circulating system in accordance with Onshore Order #2:****Diagram of the equipment for the circulating system in accordance with Onshore Order #2:****Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring**Circulating Medium Table**

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	500	OTHER : FW SPUD	8.3	8.4							
500	9409	OTHER : DBE	9	9.4							
9409	9936	OIL-BASED MUD	11	12.5							

Section 6 - Test, Logging, Coring**List of production tests including testing procedures, equipment and safety measures:**

Drill Stem Tests will be based on geological sample shows.

List of open and cased hole logs run in the well:

MUD LOG/GEOLOGICAL LITHOLOGY LOG,GAMMA RAY LOG,CEMENT BOND LOG,

Coring operation description for the well:

None planned

Operator Name: BTA OIL PRODUCERS LLC

Well Name: HARROUN RANCH 20702 20-17 FEDERAL COM **Well Number:** 9H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6458

Anticipated Surface Pressure: 4272

Anticipated Bottom Hole Temperature(F): 159

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

BTA_Oil_Producers_LLC___EMERGENCY_CALL_LIST_20190723161502.pdf

H2S_Equipment_Schematic_20190723161502.pdf

H2S_Plan_20190723161502.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Harroun_Ranch_09H_Wall_plot_20200324110737.pdf

Harroun_Ranch_09H_directional_plan_20200324110737.pdf

Harroun_Ranch_Fed_Com_9H_Gas_Capture_Plan_20200324110754.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:

Casing_Head_Running_Procedure_20190723163249.pdf

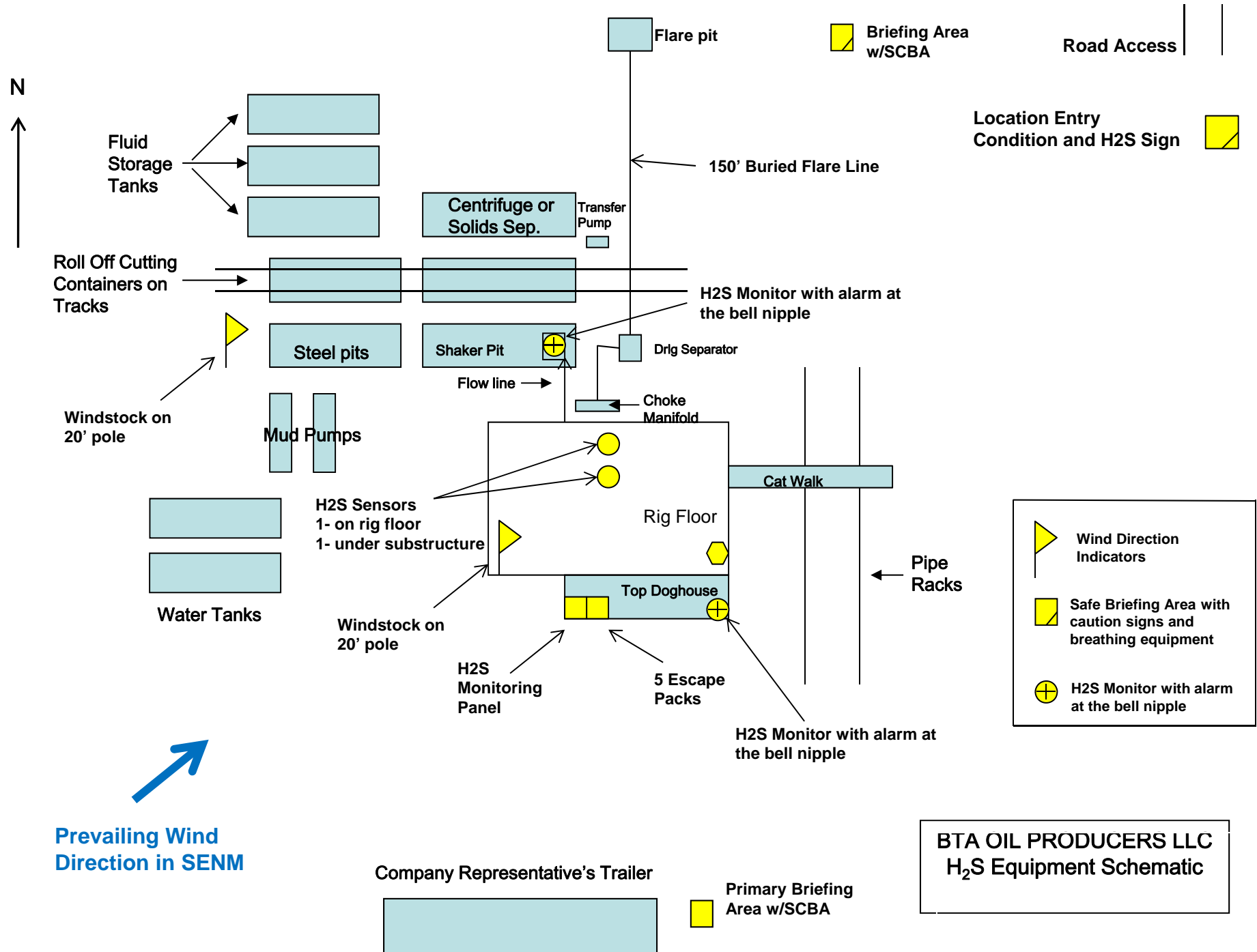
Multi_Bowl_Diagram__3_STRING_10_34_SOW_20190723163249.pdf

EMERGENCY CALL LIST

	<u>OFFICE</u>	<u>MOBILE</u>
BTA Oil Producers LLC OFFICE	432-682-3753	
BEN GRIMES, Operations	432-682-3753	432-559-4309
NICK EATON, Drilling	432-682-3753	432-260-7841
TRACE WOHLFAHRT, Completions	432-682-3753	

EMERGENCY RESPONSE NUMBERS

	<u>OFFICE</u>
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451



BTA OIL PRODUCERS LLC**HYDROGEN SULFIDE DRILLING OPERATIONS PLAN****1. 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 (H₂S).
- b. The proper use and maintenance of personal protective equipment and life support systems.
- c. The proper use of H₂S 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 H₂S 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 H₂S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S 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.

2. H₂S SAFETY EQUIPMENT AND SYSTEMS

Note: All H₂S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H₂S. If H₂S greater than 100 ppm is encountered in the gas stream we will shut in and install H₂S equipment.

- a. Well Control Equipment:
 - Flare line.
 - Choke manifold with remotely operated choke.
 - Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
 - Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.
- b. Protective equipment for essential personnel:
 - Mark II Surviveair 30-minute units located in the dog house and at briefing areas.
- c. H₂S detection and monitoring equipment:

- 2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S 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. See example attached.
 - e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.
 - f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
 - g. Communication:
Company vehicles equipped with cellular telephone.

W A R N I N G

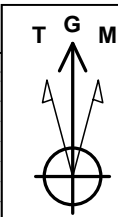
**YOU ARE ENTERING AN H₂S AREA
AUTHORIZED PERSONNEL ONLY**

- 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. CK WITH BTA OIL PRODUCERS LLC FOREMAN AT MAIN OFFICE***

BTA OIL PRODUCERS LLC

1-432-682-3753

BTA Oil Producers, LLC



Azimuths to Grid North
True North: -0.17°
Magnetic North: 7.78°

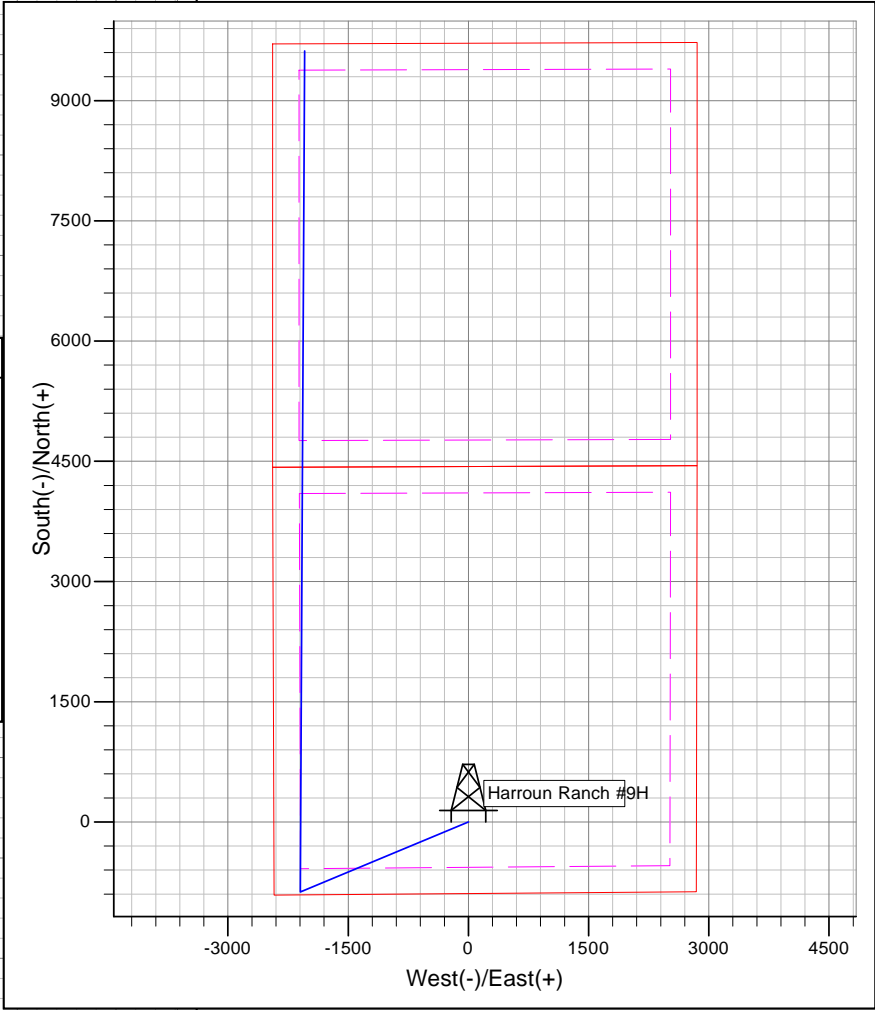
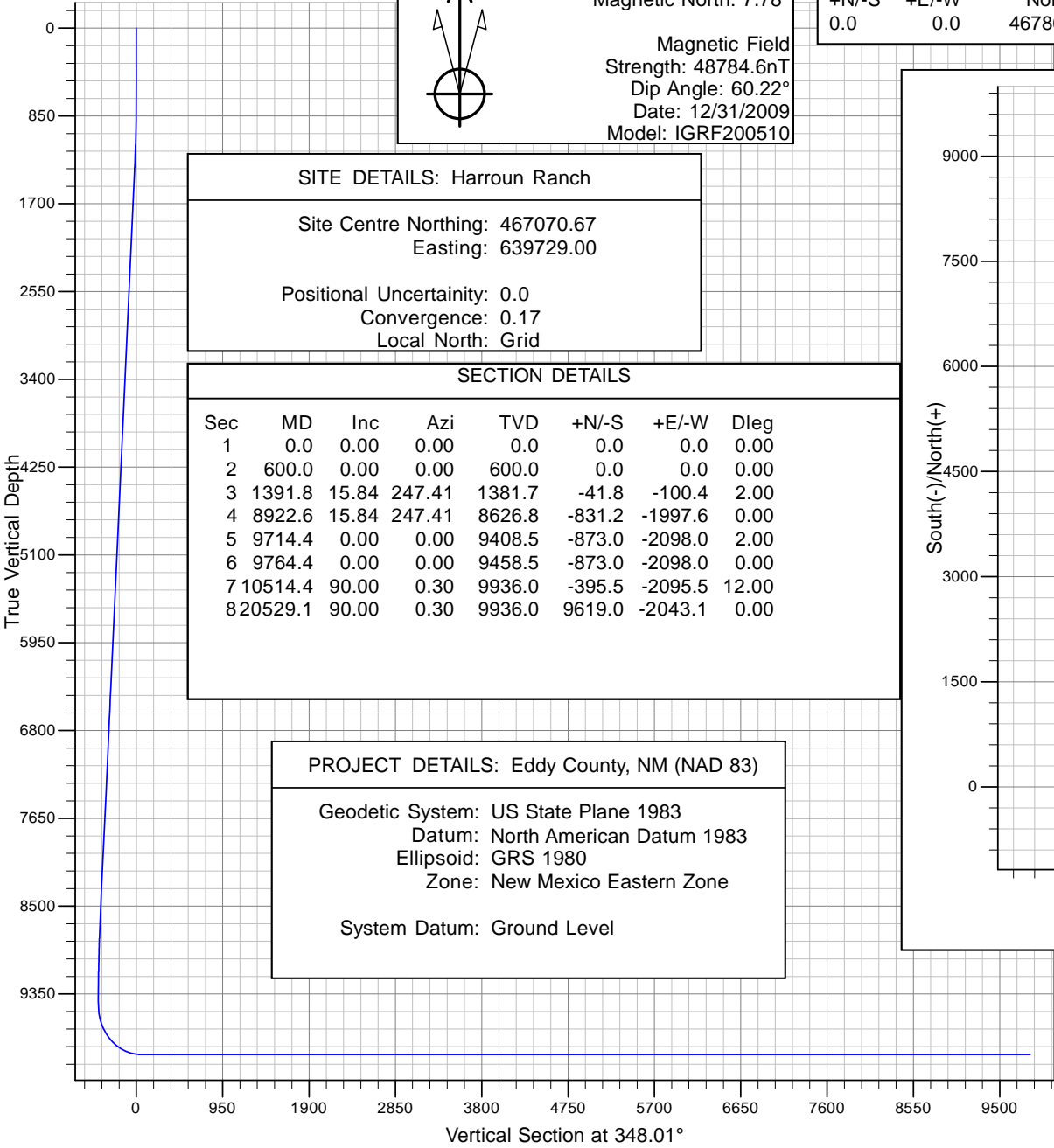
Magnetic Field
Strength: 48784.6nT
Dip Angle: 60.22°
Date: 12/31/2009
Model: IGRF200510

WELL DETAILS: Harroun Ranch #9H					
	2971.0				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	467804.00	641973.70	32° 17' 8.330 N	104° 0' 27.630 W

SITE DETAILS: Harroun Ranch	
Site Centre Northing:	467070.67
Easting:	639729.00
Positional Uncertainty:	0.0
Convergence:	0.17
Local North:	Grid

SECTION DETAILS							
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00
3	1391.8	15.84	247.41	1381.7	-41.8	-100.4	2.00
4	8922.6	15.84	247.41	8626.8	-831.2	-1997.6	0.00
5	9714.4	0.00	0.00	9408.5	-873.0	-2098.0	2.00
6	9764.4	0.00	0.00	9458.5	-873.0	-2098.0	0.00
7	10514.4	90.00	0.30	9936.0	-395.5	-2095.5	12.00
8	20529.1	90.00	0.30	9936.0	9619.0	-2043.1	0.00

PROJECT DETAILS: Eddy County, NM (NAD 83)	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Ground Level



BTA Oil Producers, LLC

Eddy County, NM (NAD 83)

Harroun Ranch

Harroun Ranch #9H

Wellbore #1

Plan: Design #1

Standard Planning Report - Geographic

23 March, 2020

Microsoft
Planning Report - Geographic

Database:	Old	Local Co-ordinate Reference:	Well Harroun Ranch #9H
Company:	BTA Oil Producers, LLC	TVD Reference:	WELL @ 2971.0usft (Original Well Elev)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 2971.0usft (Original Well Elev)
Site:	Harroun Ranch	North Reference:	Grid
Well:	Harroun Ranch #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Eddy County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	Harroun Ranch					
Site Position:		Northing:	467,070.67 usft	Latitude:	32° 17' 1.140 N	
From:	Map	Easting:	639,729.01 usft	Longitude:	104° 0' 53.805 W	
Position Uncertainty:		0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.17 °

Well	Harroun Ranch #9H					
Well Position	+N/-S	0.0 usft	Northing:	467,804.00 usft	Latitude:	32° 17' 8.330 N
	+E/-W	0.0 usft	Easting:	641,973.70 usft	Longitude:	104° 0' 27.630 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	2,971.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	7.95	60.22	48,784.56124683

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	348.01

Plan Survey Tool Program	Date	3/19/2020			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	20,529.0 Design #1 (Wellbore #1)			

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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,391.8	15.84	247.41	1,381.7	-41.8	-100.4	2.00	2.00	0.00	247.41	
8,922.6	15.84	247.41	8,626.8	-831.2	-1,997.6	0.00	0.00	0.00	0.00	
9,714.4	0.00	0.00	9,408.5	-873.0	-2,098.0	2.00	-2.00	0.00	180.00	
9,764.4	0.00	0.00	9,458.5	-873.0	-2,098.0	0.00	0.00	0.00	0.00	
10,514.4	90.00	0.30	9,936.0	-395.5	-2,095.5	12.00	12.00	0.00	0.30	
20,529.0	90.00	0.30	9,936.0	9,619.0	-2,043.1	0.00	0.00	0.00	0.00	Harroun Ranch #9H

Microsoft
Planning Report - Geographic

Database:	Old	Local Co-ordinate Reference:	Well Harroun Ranch #9H
Company:	BTA Oil Producers, LLC	TVD Reference:	WELL @ 2971.0usft (Original Well Elev)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 2971.0usft (Original Well Elev)
Site:	Harroun Ranch	North Reference:	Grid
Well:	Harroun Ranch #9H	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	467,804.00	641,973.70	32° 17' 8.330 N	104° 0' 27.630 W
100.0	0.00	0.00	100.0	0.0	0.0	467,804.00	641,973.70	32° 17' 8.330 N	104° 0' 27.630 W
200.0	0.00	0.00	200.0	0.0	0.0	467,804.00	641,973.70	32° 17' 8.330 N	104° 0' 27.630 W
300.0	0.00	0.00	300.0	0.0	0.0	467,804.00	641,973.70	32° 17' 8.330 N	104° 0' 27.630 W
400.0	0.00	0.00	400.0	0.0	0.0	467,804.00	641,973.70	32° 17' 8.330 N	104° 0' 27.630 W
500.0	0.00	0.00	500.0	0.0	0.0	467,804.00	641,973.70	32° 17' 8.330 N	104° 0' 27.630 W
600.0	0.00	0.00	600.0	0.0	0.0	467,804.00	641,973.70	32° 17' 8.330 N	104° 0' 27.630 W
700.0	2.00	247.41	700.0	-0.7	-1.6	467,803.33	641,972.09	32° 17' 8.324 N	104° 0' 27.649 W
800.0	4.00	247.41	799.8	-2.7	-6.4	467,801.32	641,967.26	32° 17' 8.304 N	104° 0' 27.705 W
900.0	6.00	247.41	899.5	-6.0	-14.5	467,797.97	641,959.22	32° 17' 8.271 N	104° 0' 27.799 W
1,000.0	8.00	247.41	998.7	-10.7	-25.7	467,793.29	641,947.97	32° 17' 8.225 N	104° 0' 27.930 W
1,100.0	10.00	247.41	1,097.5	-16.7	-40.2	467,787.28	641,933.52	32° 17' 8.166 N	104° 0' 28.099 W
1,200.0	12.00	247.41	1,195.6	-24.1	-57.8	467,779.95	641,915.91	32° 17' 8.094 N	104° 0' 28.304 W
1,300.0	14.00	247.41	1,293.1	-32.7	-78.6	467,771.31	641,895.14	32° 17' 8.009 N	104° 0' 28.546 W
1,391.8	15.84	247.41	1,381.7	-41.8	-100.4	467,762.24	641,873.34	32° 17' 7.920 N	104° 0' 28.801 W
1,400.0	15.84	247.41	1,389.6	-42.6	-102.5	467,761.37	641,871.26	32° 17' 7.911 N	104° 0' 28.825 W
1,500.0	15.84	247.41	1,485.9	-53.1	-127.6	467,750.89	641,846.07	32° 17' 7.808 N	104° 0' 29.119 W
1,600.0	15.84	247.41	1,582.1	-63.6	-152.8	467,740.41	641,820.88	32° 17' 7.705 N	104° 0' 29.413 W
1,700.0	15.84	247.41	1,678.3	-74.1	-178.0	467,729.93	641,795.69	32° 17' 7.603 N	104° 0' 29.706 W
1,800.0	15.84	247.41	1,774.5	-84.6	-203.2	467,719.44	641,770.50	32° 17' 7.500 N	104° 0' 30.000 W
1,900.0	15.84	247.41	1,870.7	-95.0	-228.4	467,708.96	641,745.31	32° 17' 7.397 N	104° 0' 30.294 W
2,000.0	15.84	247.41	1,966.9	-105.5	-253.6	467,698.48	641,720.12	32° 17' 7.294 N	104° 0' 30.588 W
2,100.0	15.84	247.41	2,063.1	-116.0	-278.8	467,688.00	641,694.93	32° 17' 7.191 N	104° 0' 30.882 W
2,200.0	15.84	247.41	2,159.3	-126.5	-304.0	467,677.52	641,669.73	32° 17' 7.088 N	104° 0' 31.176 W
2,300.0	15.84	247.41	2,255.5	-137.0	-329.2	467,667.03	641,644.54	32° 17' 6.985 N	104° 0' 31.469 W
2,400.0	15.84	247.41	2,351.7	-147.5	-354.4	467,656.55	641,619.35	32° 17' 6.882 N	104° 0' 31.763 W
2,500.0	15.84	247.41	2,447.9	-157.9	-379.6	467,646.07	641,594.16	32° 17' 6.779 N	104° 0' 32.057 W
2,600.0	15.84	247.41	2,544.1	-168.4	-404.8	467,635.59	641,568.97	32° 17' 6.676 N	104° 0' 32.351 W
2,700.0	15.84	247.41	2,640.3	-178.9	-430.0	467,625.10	641,543.78	32° 17' 6.573 N	104° 0' 32.645 W
2,800.0	15.84	247.41	2,736.5	-189.4	-455.2	467,614.62	641,518.59	32° 17' 6.470 N	104° 0' 32.939 W
2,900.0	15.84	247.41	2,832.7	-199.9	-480.3	467,604.14	641,493.40	32° 17' 6.367 N	104° 0' 33.232 W
3,000.0	15.84	247.41	2,928.9	-210.4	-505.5	467,593.66	641,468.21	32° 17' 6.264 N	104° 0' 33.526 W
3,100.0	15.84	247.41	3,025.1	-220.8	-530.7	467,583.17	641,443.01	32° 17' 6.161 N	104° 0' 33.820 W
3,200.0	15.84	247.41	3,121.3	-231.3	-555.9	467,572.69	641,417.82	32° 17' 6.058 N	104° 0' 34.114 W
3,300.0	15.84	247.41	3,217.5	-241.8	-581.1	467,562.21	641,392.63	32° 17' 5.955 N	104° 0' 34.408 W
3,400.0	15.84	247.41	3,313.7	-252.3	-606.3	467,551.73	641,367.44	32° 17' 5.852 N	104° 0' 34.702 W
3,500.0	15.84	247.41	3,410.0	-262.8	-631.5	467,541.25	641,342.25	32° 17' 5.749 N	104° 0' 34.995 W
3,600.0	15.84	247.41	3,506.2	-273.3	-656.7	467,530.76	641,317.06	32° 17' 5.646 N	104° 0' 35.289 W
3,700.0	15.84	247.41	3,602.4	-283.7	-681.9	467,520.28	641,291.87	32° 17' 5.543 N	104° 0' 35.583 W
3,800.0	15.84	247.41	3,698.6	-294.2	-707.1	467,509.80	641,266.68	32° 17' 5.440 N	104° 0' 35.877 W
3,900.0	15.84	247.41	3,794.8	-304.7	-732.3	467,499.32	641,241.49	32° 17' 5.337 N	104° 0' 36.171 W
4,000.0	15.84	247.41	3,891.0	-315.2	-757.5	467,488.83	641,216.30	32° 17' 5.234 N	104° 0' 36.465 W
4,100.0	15.84	247.41	3,987.2	-325.7	-782.7	467,478.35	641,191.10	32° 17' 5.131 N	104° 0' 36.758 W
4,200.0	15.84	247.41	4,083.4	-336.2	-807.9	467,467.87	641,165.91	32° 17' 5.028 N	104° 0' 37.052 W
4,300.0	15.84	247.41	4,179.6	-346.6	-833.0	467,457.39	641,140.72	32° 17' 4.925 N	104° 0' 37.346 W
4,400.0	15.84	247.41	4,275.8	-357.1	-858.2	467,446.91	641,115.53	32° 17' 4.822 N	104° 0' 37.640 W
4,500.0	15.84	247.41	4,372.0	-367.6	-883.4	467,436.42	641,090.34	32° 17' 4.719 N	104° 0' 37.934 W
4,600.0	15.84	247.41	4,468.2	-378.1	-908.6	467,425.94	641,065.15	32° 17' 4.616 N	104° 0' 38.227 W
4,700.0	15.84	247.41	4,564.4	-388.6	-933.8	467,415.46	641,039.96	32° 17' 4.513 N	104° 0' 38.521 W
4,800.0	15.84	247.41	4,660.6	-399.1	-959.0	467,404.98	641,014.77	32° 17' 4.410 N	104° 0' 38.815 W
4,900.0	15.84	247.41	4,756.8	-409.5	-984.2	467,394.49	640,989.58	32° 17' 4.307 N	104° 0' 39.109 W
5,000.0	15.84	247.41	4,853.0	-420.0	-1,009.4	467,384.01	640,964.38	32° 17' 4.204 N	104° 0' 39.403 W
5,100.0	15.84	247.41	4,949.2	-430.5	-1,034.6	467,373.53	640,939.19	32° 17' 4.101 N	104° 0' 39.697 W
5,200.0	15.84	247.41	5,045.4	-441.0	-1,059.8	467,363.05	640,914.00	32° 17' 3.998 N	104° 0' 39.990 W
5,300.0	15.84	247.41	5,141.6	-451.5	-1,085.0	467,352.56	640,888.81	32° 17' 3.895 N	104° 0' 40.284 W

Microsoft
Planning Report - Geographic

Database:	Old	Local Co-ordinate Reference:	Well Harroun Ranch #9H
Company:	BTA Oil Producers, LLC	TVD Reference:	WELL @ 2971.0usft (Original Well Elev)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 2971.0usft (Original Well Elev)
Site:	Harroun Ranch	North Reference:	Grid
Well:	Harroun Ranch #9H	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	
5,400.0	15.84	247.41	5,237.8	-462.0	-1,110.2	467,342.08	640,863.62	32° 17' 3.792 N	104° 0' 40.578 W	
5,500.0	15.84	247.41	5,334.1	-472.4	-1,135.4	467,331.60	640,838.43	32° 17' 3.689 N	104° 0' 40.872 W	
5,600.0	15.84	247.41	5,430.3	-482.9	-1,160.6	467,321.12	640,813.24	32° 17' 3.586 N	104° 0' 41.166 W	
5,700.0	15.84	247.41	5,526.5	-493.4	-1,185.8	467,310.64	640,788.05	32° 17' 3.483 N	104° 0' 41.460 W	
5,800.0	15.84	247.41	5,622.7	-503.9	-1,210.9	467,300.15	640,762.86	32° 17' 3.380 N	104° 0' 41.753 W	
5,900.0	15.84	247.41	5,718.9	-514.4	-1,236.1	467,289.67	640,737.67	32° 17' 3.277 N	104° 0' 42.047 W	
6,000.0	15.84	247.41	5,815.1	-524.9	-1,261.3	467,279.19	640,712.47	32° 17' 3.174 N	104° 0' 42.341 W	
6,100.0	15.84	247.41	5,911.3	-535.3	-1,286.5	467,268.71	640,687.28	32° 17' 3.071 N	104° 0' 42.635 W	
6,200.0	15.84	247.41	6,007.5	-545.8	-1,311.7	467,258.22	640,662.09	32° 17' 2.968 N	104° 0' 42.929 W	
6,300.0	15.84	247.41	6,103.7	-556.3	-1,336.9	467,247.74	640,636.90	32° 17' 2.865 N	104° 0' 43.222 W	
6,400.0	15.84	247.41	6,199.9	-566.8	-1,362.1	467,237.26	640,611.71	32° 17' 2.762 N	104° 0' 43.516 W	
6,500.0	15.84	247.41	6,296.1	-577.3	-1,387.3	467,226.78	640,586.52	32° 17' 2.659 N	104° 0' 43.810 W	
6,600.0	15.84	247.41	6,392.3	-587.8	-1,412.5	467,216.30	640,561.33	32° 17' 2.557 N	104° 0' 44.104 W	
6,700.0	15.84	247.41	6,488.5	-598.2	-1,437.7	467,205.81	640,536.14	32° 17' 2.454 N	104° 0' 44.398 W	
6,800.0	15.84	247.41	6,584.7	-608.7	-1,462.9	467,195.33	640,510.95	32° 17' 2.351 N	104° 0' 44.692 W	
6,900.0	15.84	247.41	6,680.9	-619.2	-1,488.1	467,184.85	640,485.75	32° 17' 2.248 N	104° 0' 44.985 W	
7,000.0	15.84	247.41	6,777.1	-629.7	-1,513.3	467,174.37	640,460.56	32° 17' 2.145 N	104° 0' 45.279 W	
7,100.0	15.84	247.41	6,873.3	-640.2	-1,538.5	467,163.88	640,435.37	32° 17' 2.042 N	104° 0' 45.573 W	
7,200.0	15.84	247.41	6,969.5	-650.7	-1,563.6	467,153.40	640,410.18	32° 17' 1.939 N	104° 0' 45.867 W	
7,300.0	15.84	247.41	7,065.7	-661.1	-1,588.8	467,142.92	640,384.99	32° 17' 1.836 N	104° 0' 46.161 W	
7,400.0	15.84	247.41	7,162.0	-671.6	-1,614.0	467,132.44	640,359.80	32° 17' 1.733 N	104° 0' 46.455 W	
7,500.0	15.84	247.41	7,258.2	-682.1	-1,639.2	467,121.96	640,334.61	32° 17' 1.630 N	104° 0' 46.748 W	
7,600.0	15.84	247.41	7,354.4	-692.6	-1,664.4	467,111.47	640,309.42	32° 17' 1.527 N	104° 0' 47.042 W	
7,700.0	15.84	247.41	7,450.6	-703.1	-1,689.6	467,100.99	640,284.23	32° 17' 1.424 N	104° 0' 47.336 W	
7,800.0	15.84	247.41	7,546.8	-713.5	-1,714.8	467,090.51	640,259.03	32° 17' 1.321 N	104° 0' 47.630 W	
7,900.0	15.84	247.41	7,643.0	-724.0	-1,740.0	467,080.03	640,233.84	32° 17' 1.218 N	104° 0' 47.924 W	
8,000.0	15.84	247.41	7,739.2	-734.5	-1,765.2	467,069.54	640,208.65	32° 17' 1.115 N	104° 0' 48.217 W	
8,100.0	15.84	247.41	7,835.4	-745.0	-1,790.4	467,059.06	640,183.46	32° 17' 1.012 N	104° 0' 48.511 W	
8,200.0	15.84	247.41	7,931.6	-755.5	-1,815.6	467,048.58	640,158.27	32° 17' 0.909 N	104° 0' 48.805 W	
8,300.0	15.84	247.41	8,027.8	-766.0	-1,840.8	467,038.10	640,133.08	32° 17' 0.806 N	104° 0' 49.099 W	
8,400.0	15.84	247.41	8,124.0	-776.4	-1,866.0	467,027.61	640,107.89	32° 17' 0.703 N	104° 0' 49.393 W	
8,500.0	15.84	247.41	8,220.2	-786.9	-1,891.2	467,017.13	640,082.70	32° 17' 0.600 N	104° 0' 49.687 W	
8,600.0	15.84	247.41	8,316.4	-797.4	-1,916.3	467,006.65	640,057.51	32° 17' 0.497 N	104° 0' 49.980 W	
8,700.0	15.84	247.41	8,412.6	-807.9	-1,941.5	466,996.17	640,032.32	32° 17' 0.394 N	104° 0' 50.274 W	
8,800.0	15.84	247.41	8,508.8	-818.4	-1,966.7	466,985.69	640,007.12	32° 17' 0.291 N	104° 0' 50.568 W	
8,900.0	15.84	247.41	8,605.0	-828.9	-1,991.9	466,975.20	639,981.93	32° 17' 0.188 N	104° 0' 50.862 W	
8,922.6	15.84	247.41	8,626.8	-831.2	-1,997.6	466,972.83	639,976.24	32° 17' 0.165 N	104° 0' 50.928 W	
9,000.0	14.29	247.41	8,701.5	-839.0	-2,016.2	466,965.11	639,957.67	32° 17' 0.089 N	104° 0' 51.145 W	
9,100.0	12.29	247.41	8,798.8	-847.8	-2,037.4	466,956.28	639,936.46	32° 17' 0.002 N	104° 0' 51.392 W	
9,200.0	10.29	247.41	8,896.9	-855.3	-2,055.5	466,948.76	639,918.39	32° 16' 59.928 N	104° 0' 51.603 W	
9,300.0	8.29	247.41	8,995.6	-861.5	-2,070.4	466,942.56	639,903.49	32° 16' 59.867 N	104° 0' 51.777 W	
9,400.0	6.29	247.41	9,094.8	-866.4	-2,082.1	466,937.69	639,891.78	32° 16' 59.819 N	104° 0' 51.913 W	
9,500.0	4.29	247.41	9,194.3	-869.9	-2,090.6	466,934.15	639,883.27	32° 16' 59.784 N	104° 0' 52.013 W	
9,600.0	2.29	247.41	9,294.2	-872.1	-2,095.9	466,931.95	639,877.98	32° 16' 59.763 N	104° 0' 52.074 W	
9,700.0	0.29	247.41	9,394.1	-873.0	-2,098.0	466,931.08	639,875.90	32° 16' 59.754 N	104° 0' 52.098 W	
9,714.4	0.00	0.00	9,408.5	-873.0	-2,098.0	466,931.07	639,875.87	32° 16' 59.754 N	104° 0' 52.099 W	
9,764.4	0.00	0.00	9,458.5	-873.0	-2,098.0	466,931.07	639,875.87	32° 16' 59.754 N	104° 0' 52.099 W	
9,800.0	4.27	0.30	9,494.1	-871.7	-2,098.0	466,932.40	639,875.88	32° 16' 59.767 N	104° 0' 52.099 W	
9,900.0	16.27	0.30	9,592.3	-853.9	-2,097.9	466,950.19	639,875.97	32° 16' 59.943 N	104° 0' 52.097 W	
10,000.0	28.27	0.30	9,684.7	-816.0	-2,097.7	466,988.02	639,876.17	32° 17' 0.318 N	104° 0' 52.093 W	
10,100.0	40.27	0.30	9,767.2	-759.8	-2,097.4	467,044.22	639,876.46	32° 17' 0.874 N	104° 0' 52.088 W	
10,200.0	52.27	0.30	9,836.2	-687.7	-2,097.0	467,116.34	639,876.84	32° 17' 1.588 N	104° 0' 52.081 W	
10,300.0	64.27	0.30	9,888.7	-602.8	-2,096.6	467,201.23	639,877.29	32° 17' 2.428 N	104° 0' 52.073 W	
10,400.0	76.27	0.30	9,922.4	-508.9	-2,096.1	467,295.18	639,877.78	32° 17' 3.357 N	104° 0' 52.064 W	
10,500.0	88.27	0.30	9,935.8	-409.9	-2,095.6	467,394.09	639,878.30	32° 17' 4.336 N	104° 0' 52.055 W	

Microsoft
Planning Report - Geographic

Database:	Old	Local Co-ordinate Reference:	Well Harroun Ranch #9H
Company:	BTA Oil Producers, LLC	TVD Reference:	WELL @ 2971.0usft (Original Well Elev)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 2971.0usft (Original Well Elev)
Site:	Harroun Ranch	North Reference:	Grid
Well:	Harroun Ranch #9H	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	
10,514.4	90.00	0.30	9,936.0	-395.5	-2,095.5	467,408.49	639,878.37	32° 17' 4.479 N	104° 0' 52.053 W	
10,600.0	90.00	0.30	9,936.0	-310.0	-2,095.1	467,494.07	639,878.82	32° 17' 5.326 N	104° 0' 52.045 W	
10,700.0	90.00	0.30	9,936.0	-210.0	-2,094.5	467,594.06	639,879.34	32° 17' 6.315 N	104° 0' 52.035 W	
10,800.0	90.00	0.30	9,936.0	-110.0	-2,094.0	467,694.06	639,879.87	32° 17' 7.304 N	104° 0' 52.026 W	
10,900.0	90.00	0.30	9,936.0	-10.0	-2,093.5	467,794.05	639,880.39	32° 17' 8.294 N	104° 0' 52.016 W	
11,000.0	90.00	0.30	9,936.0	90.0	-2,093.0	467,894.04	639,880.91	32° 17' 9.283 N	104° 0' 52.007 W	
11,100.0	90.00	0.30	9,936.0	190.0	-2,092.4	467,994.03	639,881.44	32° 17' 10.273 N	104° 0' 51.997 W	
11,200.0	90.00	0.30	9,936.0	290.0	-2,091.9	468,094.02	639,881.96	32° 17' 11.262 N	104° 0' 51.988 W	
11,300.0	90.00	0.30	9,936.0	390.0	-2,091.4	468,194.01	639,882.48	32° 17' 12.252 N	104° 0' 51.978 W	
11,400.0	90.00	0.30	9,936.0	490.0	-2,090.9	468,294.00	639,883.01	32° 17' 13.241 N	104° 0' 51.969 W	
11,500.0	90.00	0.30	9,936.0	590.0	-2,090.3	468,393.99	639,883.53	32° 17' 14.231 N	104° 0' 51.959 W	
11,600.0	90.00	0.30	9,936.0	690.0	-2,089.8	468,493.98	639,884.05	32° 17' 15.220 N	104° 0' 51.949 W	
11,700.0	90.00	0.30	9,936.0	790.0	-2,089.3	468,593.97	639,884.58	32° 17' 16.210 N	104° 0' 51.940 W	
11,800.0	90.00	0.30	9,936.0	890.0	-2,088.8	468,693.96	639,885.10	32° 17' 17.199 N	104° 0' 51.930 W	
11,900.0	90.00	0.30	9,936.0	990.0	-2,088.2	468,793.95	639,885.63	32° 17' 18.189 N	104° 0' 51.921 W	
12,000.0	90.00	0.30	9,936.0	1,090.0	-2,087.7	468,893.94	639,886.15	32° 17' 19.178 N	104° 0' 51.911 W	
12,100.0	90.00	0.30	9,936.0	1,190.0	-2,087.2	468,993.93	639,886.67	32° 17' 20.168 N	104° 0' 51.902 W	
12,200.0	90.00	0.30	9,936.0	1,290.0	-2,086.7	469,093.92	639,887.20	32° 17' 21.157 N	104° 0' 51.892 W	
12,300.0	90.00	0.30	9,936.0	1,390.0	-2,086.2	469,193.92	639,887.72	32° 17' 22.147 N	104° 0' 51.882 W	
12,400.0	90.00	0.30	9,936.0	1,490.0	-2,085.6	469,293.91	639,888.24	32° 17' 23.136 N	104° 0' 51.873 W	
12,500.0	90.00	0.30	9,936.0	1,590.0	-2,085.1	469,393.90	639,888.77	32° 17' 24.126 N	104° 0' 51.863 W	
12,600.0	90.00	0.30	9,936.0	1,690.0	-2,084.6	469,493.89	639,889.29	32° 17' 25.115 N	104° 0' 51.854 W	
12,700.0	90.00	0.30	9,936.0	1,790.0	-2,084.1	469,593.88	639,889.81	32° 17' 26.104 N	104° 0' 51.844 W	
12,800.0	90.00	0.30	9,936.0	1,890.0	-2,083.5	469,693.87	639,890.34	32° 17' 27.094 N	104° 0' 51.835 W	
12,900.0	90.00	0.30	9,936.0	1,990.0	-2,083.0	469,793.86	639,890.86	32° 17' 28.083 N	104° 0' 51.825 W	
13,000.0	90.00	0.30	9,936.0	2,090.0	-2,082.5	469,893.85	639,891.38	32° 17' 29.073 N	104° 0' 51.816 W	
13,100.0	90.00	0.30	9,936.0	2,190.0	-2,082.0	469,993.84	639,891.91	32° 17' 30.062 N	104° 0' 51.806 W	
13,200.0	90.00	0.30	9,936.0	2,290.0	-2,081.4	470,093.83	639,892.43	32° 17' 31.052 N	104° 0' 51.796 W	
13,300.0	90.00	0.30	9,936.0	2,390.0	-2,080.9	470,193.82	639,892.96	32° 17' 32.041 N	104° 0' 51.787 W	
13,400.0	90.00	0.30	9,936.0	2,490.0	-2,080.4	470,293.81	639,893.48	32° 17' 33.031 N	104° 0' 51.777 W	
13,500.0	90.00	0.30	9,936.0	2,590.0	-2,079.9	470,393.80	639,894.00	32° 17' 34.020 N	104° 0' 51.768 W	
13,600.0	90.00	0.30	9,936.0	2,690.0	-2,079.3	470,493.79	639,894.53	32° 17' 35.010 N	104° 0' 51.758 W	
13,700.0	90.00	0.30	9,936.0	2,790.0	-2,078.8	470,593.79	639,895.05	32° 17' 35.999 N	104° 0' 51.749 W	
13,800.0	90.00	0.30	9,936.0	2,890.0	-2,078.3	470,693.78	639,895.57	32° 17' 36.989 N	104° 0' 51.739 W	
13,900.0	90.00	0.30	9,936.0	2,990.0	-2,077.8	470,793.77	639,896.10	32° 17' 37.978 N	104° 0' 51.729 W	
14,000.0	90.00	0.30	9,936.0	3,090.0	-2,077.2	470,893.76	639,896.62	32° 17' 38.968 N	104° 0' 51.720 W	
14,100.0	90.00	0.30	9,936.0	3,190.0	-2,076.7	470,993.75	639,897.14	32° 17' 39.957 N	104° 0' 51.710 W	
14,200.0	90.00	0.30	9,936.0	3,290.0	-2,076.2	471,093.74	639,897.67	32° 17' 40.947 N	104° 0' 51.701 W	
14,300.0	90.00	0.30	9,936.0	3,390.0	-2,075.7	471,193.73	639,898.19	32° 17' 41.936 N	104° 0' 51.691 W	
14,400.0	90.00	0.30	9,936.0	3,490.0	-2,075.2	471,293.72	639,898.71	32° 17' 42.925 N	104° 0' 51.682 W	
14,500.0	90.00	0.30	9,936.0	3,590.0	-2,074.6	471,393.71	639,899.24	32° 17' 43.915 N	104° 0' 51.672 W	
14,600.0	90.00	0.30	9,936.0	3,690.0	-2,074.1	471,493.70	639,899.76	32° 17' 44.904 N	104° 0' 51.662 W	
14,700.0	90.00	0.30	9,936.0	3,790.0	-2,073.6	471,593.69	639,900.29	32° 17' 45.894 N	104° 0' 51.653 W	
14,800.0	90.00	0.30	9,936.0	3,890.0	-2,073.1	471,693.68	639,900.81	32° 17' 46.883 N	104° 0' 51.643 W	
14,900.0	90.00	0.30	9,936.0	3,990.0	-2,072.5	471,793.67	639,901.33	32° 17' 47.873 N	104° 0' 51.634 W	
15,000.0	90.00	0.30	9,936.0	4,090.0	-2,072.0	471,893.66	639,901.86	32° 17' 48.862 N	104° 0' 51.624 W	
15,100.0	90.00	0.30	9,936.0	4,190.0	-2,071.5	471,993.66	639,902.38	32° 17' 49.852 N	104° 0' 51.615 W	
15,200.0	90.00	0.30	9,936.0	4,290.0	-2,071.0	472,093.65	639,902.90	32° 17' 50.841 N	104° 0' 51.605 W	
15,300.0	90.00	0.30	9,936.0	4,390.0	-2,070.4	472,193.64	639,903.43	32° 17' 51.831 N	104° 0' 51.596 W	
15,400.0	90.00	0.30	9,936.0	4,490.0	-2,069.9	472,293.63	639,903.95	32° 17' 52.820 N	104° 0' 51.586 W	
15,500.0	90.00	0.30	9,936.0	4,590.0	-2,069.4	472,393.62	639,904.47	32° 17' 53.810 N	104° 0' 51.576 W	
15,600.0	90.00	0.30	9,936.0	4,690.0	-2,068.9	472,493.61	639,905.00	32° 17' 54.799 N	104° 0' 51.567 W	
15,700.0	90.00	0.30	9,936.0	4,790.0	-2,068.3	472,593.60	639,905.52	32° 17' 55.789 N	104° 0' 51.557 W	
15,800.0	90.00	0.30	9,936.0	4,890.0	-2,067.8	472,693.59	639,906.04	32° 17' 56.778 N	104° 0' 51.548 W	
15,900.0	90.00	0.30	9,936.0	4,990.0	-2,067.3	472,793.58	639,906.57	32° 17' 57.768 N	104° 0' 51.538 W	

Microsoft
Planning Report - Geographic

Database:	Old	Local Co-ordinate Reference:	Well Harroun Ranch #9H
Company:	BTA Oil Producers, LLC	TVD Reference:	WELL @ 2971.0usft (Original Well Elev)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 2971.0usft (Original Well Elev)
Site:	Harroun Ranch	North Reference:	Grid
Well:	Harroun Ranch #9H	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	
16,000.0	90.00	0.30	9,936.0	5,090.0	-2,066.8	472,893.57	639,907.09	32° 17' 58.757 N	104° 0' 51.529 W	
16,100.0	90.00	0.30	9,936.0	5,190.0	-2,066.3	472,993.56	639,907.62	32° 17' 59.747 N	104° 0' 51.519 W	
16,200.0	90.00	0.30	9,936.0	5,290.0	-2,065.7	473,093.55	639,908.14	32° 18' 0.736 N	104° 0' 51.509 W	
16,300.0	90.00	0.30	9,936.0	5,390.0	-2,065.2	473,193.54	639,908.66	32° 18' 1.725 N	104° 0' 51.500 W	
16,400.0	90.00	0.30	9,936.0	5,490.0	-2,064.7	473,293.53	639,909.19	32° 18' 2.715 N	104° 0' 51.490 W	
16,500.0	90.00	0.30	9,936.0	5,590.0	-2,064.2	473,393.53	639,909.71	32° 18' 3.704 N	104° 0' 51.481 W	
16,600.0	90.00	0.30	9,936.0	5,690.0	-2,063.6	473,493.52	639,910.23	32° 18' 4.694 N	104° 0' 51.471 W	
16,700.0	90.00	0.30	9,936.0	5,790.0	-2,063.1	473,593.51	639,910.76	32° 18' 5.683 N	104° 0' 51.462 W	
16,800.0	90.00	0.30	9,936.0	5,890.0	-2,062.6	473,693.50	639,911.28	32° 18' 6.673 N	104° 0' 51.452 W	
16,900.0	90.00	0.30	9,936.0	5,990.0	-2,062.1	473,793.49	639,911.80	32° 18' 7.662 N	104° 0' 51.442 W	
17,000.0	90.00	0.30	9,936.0	6,090.0	-2,061.5	473,893.48	639,912.33	32° 18' 8.652 N	104° 0' 51.433 W	
17,100.0	90.00	0.30	9,936.0	6,190.0	-2,061.0	473,993.47	639,912.85	32° 18' 9.641 N	104° 0' 51.423 W	
17,200.0	90.00	0.30	9,936.0	6,290.0	-2,060.5	474,093.46	639,913.37	32° 18' 10.631 N	104° 0' 51.414 W	
17,300.0	90.00	0.30	9,936.0	6,390.0	-2,060.0	474,193.45	639,913.90	32° 18' 11.620 N	104° 0' 51.404 W	
17,400.0	90.00	0.30	9,936.0	6,490.0	-2,059.4	474,293.44	639,914.42	32° 18' 12.610 N	104° 0' 51.395 W	
17,500.0	90.00	0.30	9,936.0	6,590.0	-2,058.9	474,393.43	639,914.95	32° 18' 13.599 N	104° 0' 51.385 W	
17,600.0	90.00	0.30	9,936.0	6,690.0	-2,058.4	474,493.42	639,915.47	32° 18' 14.589 N	104° 0' 51.375 W	
17,700.0	90.00	0.30	9,936.0	6,790.0	-2,057.9	474,593.41	639,915.99	32° 18' 15.578 N	104° 0' 51.366 W	
17,800.0	90.00	0.30	9,936.0	6,889.9	-2,057.4	474,693.40	639,916.52	32° 18' 16.568 N	104° 0' 51.356 W	
17,900.0	90.00	0.30	9,936.0	6,989.9	-2,056.8	474,793.39	639,917.04	32° 18' 17.557 N	104° 0' 51.347 W	
18,000.0	90.00	0.30	9,936.0	7,089.9	-2,056.3	474,893.39	639,917.56	32° 18' 18.546 N	104° 0' 51.337 W	
18,100.0	90.00	0.30	9,936.0	7,189.9	-2,055.8	474,993.38	639,918.09	32° 18' 19.536 N	104° 0' 51.328 W	
18,200.0	90.00	0.30	9,936.0	7,289.9	-2,055.3	475,093.37	639,918.61	32° 18' 20.525 N	104° 0' 51.318 W	
18,300.0	90.00	0.30	9,936.0	7,389.9	-2,054.7	475,193.36	639,919.13	32° 18' 21.515 N	104° 0' 51.309 W	
18,400.0	90.00	0.30	9,936.0	7,489.9	-2,054.2	475,293.35	639,919.66	32° 18' 22.504 N	104° 0' 51.299 W	
18,500.0	90.00	0.30	9,936.0	7,589.9	-2,053.7	475,393.34	639,920.18	32° 18' 23.494 N	104° 0' 51.289 W	
18,600.0	90.00	0.30	9,936.0	7,689.9	-2,053.2	475,493.33	639,920.70	32° 18' 24.483 N	104° 0' 51.280 W	
18,700.0	90.00	0.30	9,936.0	7,789.9	-2,052.6	475,593.32	639,921.23	32° 18' 25.473 N	104° 0' 51.270 W	
18,800.0	90.00	0.30	9,936.0	7,889.9	-2,052.1	475,693.31	639,921.75	32° 18' 26.462 N	104° 0' 51.261 W	
18,900.0	90.00	0.30	9,936.0	7,989.9	-2,051.6	475,793.30	639,922.28	32° 18' 27.452 N	104° 0' 51.251 W	
19,000.0	90.00	0.30	9,936.0	8,089.9	-2,051.1	475,893.29	639,922.80	32° 18' 28.441 N	104° 0' 51.242 W	
19,100.0	90.00	0.30	9,936.0	8,189.9	-2,050.5	475,993.28	639,923.32	32° 18' 29.431 N	104° 0' 51.232 W	
19,200.0	90.00	0.30	9,936.0	8,289.9	-2,050.0	476,093.27	639,923.85	32° 18' 30.420 N	104° 0' 51.222 W	
19,300.0	90.00	0.30	9,936.0	8,389.9	-2,049.5	476,193.26	639,924.37	32° 18' 31.410 N	104° 0' 51.213 W	
19,400.0	90.00	0.30	9,936.0	8,489.9	-2,049.0	476,293.26	639,924.89	32° 18' 32.399 N	104° 0' 51.203 W	
19,500.0	90.00	0.30	9,936.0	8,589.9	-2,048.5	476,393.25	639,925.42	32° 18' 33.389 N	104° 0' 51.194 W	
19,600.0	90.00	0.30	9,936.0	8,689.9	-2,047.9	476,493.24	639,925.94	32° 18' 34.378 N	104° 0' 51.184 W	
19,700.0	90.00	0.30	9,936.0	8,789.9	-2,047.4	476,593.23	639,926.46	32° 18' 35.367 N	104° 0' 51.175 W	
19,800.0	90.00	0.30	9,936.0	8,889.9	-2,046.9	476,693.22	639,926.99	32° 18' 36.357 N	104° 0' 51.165 W	
19,900.0	90.00	0.30	9,936.0	8,989.9	-2,046.4	476,793.21	639,927.51	32° 18' 37.346 N	104° 0' 51.155 W	
20,000.0	90.00	0.30	9,936.0	9,089.9	-2,045.8	476,893.20	639,928.03	32° 18' 38.336 N	104° 0' 51.146 W	
20,100.0	90.00	0.30	9,936.0	9,189.9	-2,045.3	476,993.19	639,928.56	32° 18' 39.325 N	104° 0' 51.136 W	
20,200.0	90.00	0.30	9,936.0	9,289.9	-2,044.8	477,093.18	639,929.08	32° 18' 40.315 N	104° 0' 51.127 W	
20,300.0	90.00	0.30	9,936.0	9,389.9	-2,044.3	477,193.17	639,929.61	32° 18' 41.304 N	104° 0' 51.117 W	
20,400.0	90.00	0.30	9,936.0	9,489.9	-2,043.7	477,293.16	639,930.13	32° 18' 42.294 N	104° 0' 51.108 W	
20,500.0	90.00	0.30	9,936.0	9,589.9	-2,043.2	477,393.15	639,930.65	32° 18' 43.283 N	104° 0' 51.098 W	
20,529.0	90.00	0.30	9,936.0	9,619.0	-2,043.1	477,422.20	639,930.80	32° 18' 43.571 N	104° 0' 51.095 W	

Microsoft
Planning Report - Geographic

Database:	Old	Local Co-ordinate Reference:	Well Harroun Ranch #9H
Company:	BTA Oil Producers, LLC	TVD Reference:	WELL @ 2971.0usft (Original Well Elev)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 2971.0usft (Original Well Elev)
Site:	Harroun Ranch	North Reference:	Grid
Well:	Harroun Ranch #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude	Longitude
Harroun Ranch #9H	0.00	0.00	9,936.0	9,619.0	-2,043.1	477,422.20	639,930.80	32° 18' 43.571 N	104° 0' 51.095 W
- plan hits target center									
- Point									

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

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 3/17/2020

☒ Original Operator & OGRID No.: 260297
☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
HARROUN RANCH 20702		SEC 20 ; 23S ; 29E	893 FSL 2428 FWL	2000	Flared	Battery Connected
20-17 FEDERAL COM 9H						To ETP System

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Gas Transporter and will be connected to Gas Transporter low/high pressure gathering system located in EDDY County, New Mexico. It will require 0 ' of pipeline to (ETP) connect the facility to low/high pressure gathering system. Operator provides (periodically) to Gas Transporter a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Operator and Gas Transporter have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Gas Transporter Processing Plant located in Sec.____, Twn.____, Rng.____, _____ County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines






Weatherford®

**WFT Casing Head (Slip on Weld
with O-Ring) Running Procedure**

Publication RP-001

October 21, 2010

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 Weatherford 5-2-GL-GL-WES-00052	WFT Casing Head (Slip on Weld with O-Ring) Running Procedure	Approved By:	Reviewed By:	RP-001
				Rev 0
		Date: Oct 21, 2010	Date: Oct 21, 2010	

Install the Casing Head

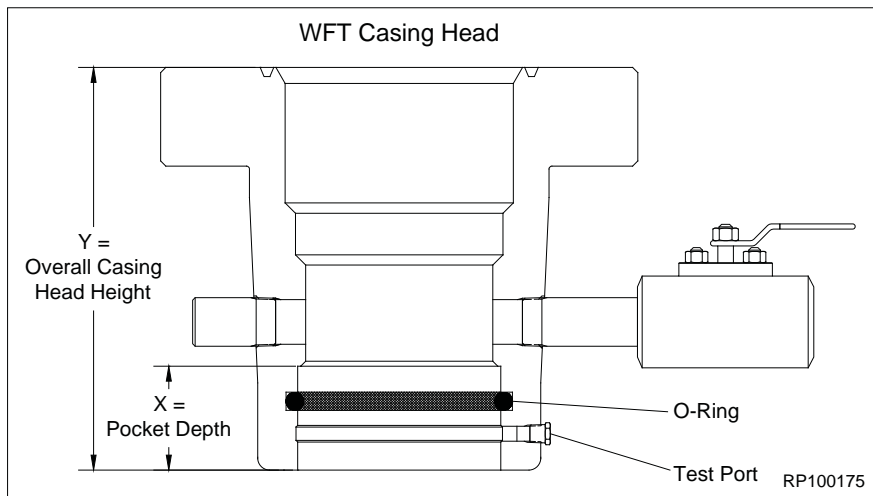
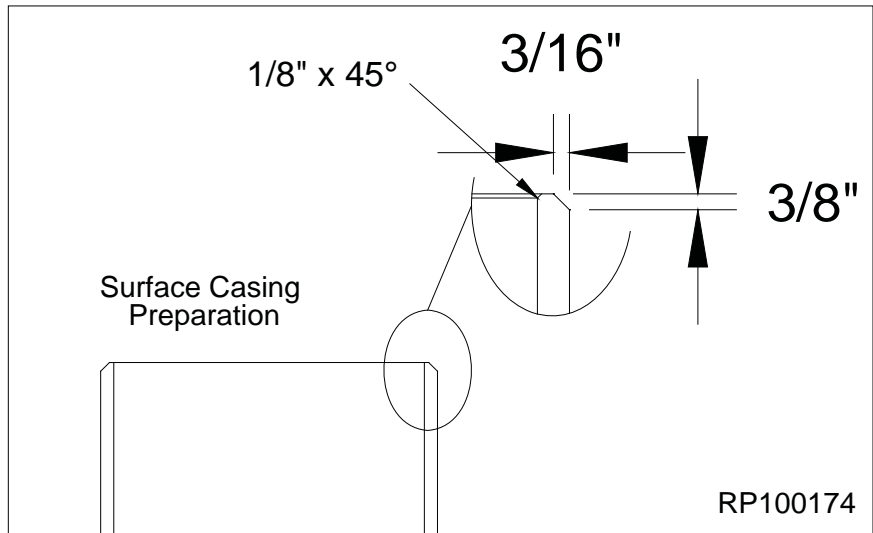
1. Examine the **WFT Casing Head**. Verify the following:
 - bore is clean and free of debris
 - seal areas, threads and ring grooves are clean and undamaged
 - o-ring is properly installed, clean and undamaged
 - all peripheral equipment is intact and undamaged
2. Measure the pocket depth of the Casing Head and record this dimension.
3. Run the surface casing and cement as required.
4. Determine the required elevation of the Casing Head as required by the Drilling Supervisor.
5. Use the following calculation to determine the correct final cut location of the surface casing.

X = Pocket Depth

Y = Overall Casing Head Height

Y - X = Distance from correct elevation point to surface casing cutoff height.




6. Lift the riser assembly high enough to rough cut the surface casing a minimum of 12" above the anticipated final cut location, if applicable.
7. Remove the spent portion of surface casing and the riser assembly and set aside.
8. Determine the correct elevation for the wellhead assembly.
9. Rough cut the surface casing a minimum of 12" above the final cut location.
10. Cut the conductor pipe a comfortable level below the final cut location of the surface casing.



11. Final cut the surface casing at the correct elevation.

NOTE: Ensure the cut on the surface casing is level as this will determine the orientation of the remainder of the wellhead equipment.

12. Bevel the surface casing with a 3/16" x 3/8" bevel and remove any sharp edges from the OD of the casing.
13. Break a 1/8" x 45° bevel on the ID of the surface casing.

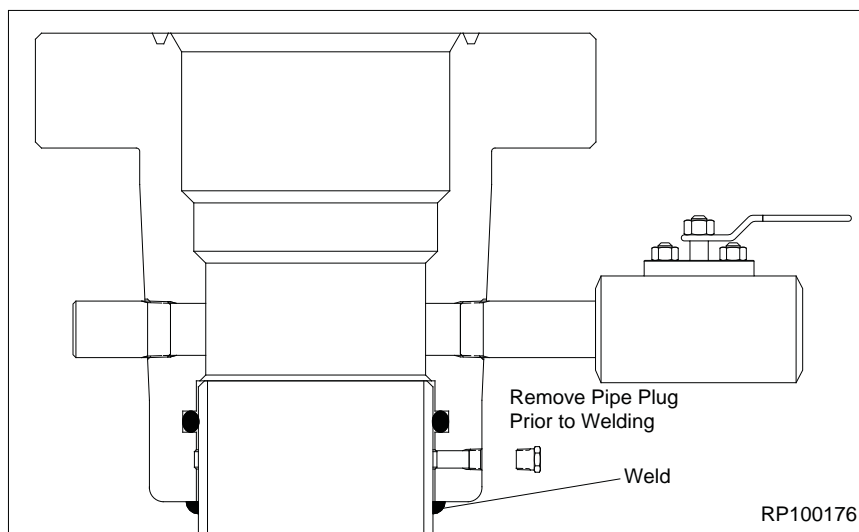
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Install the Casing Head

14. Wipe the ID of the o-ring of the Casing Head with a light coat of oil or grease.

NOTE: Excessive oil or grease will prevent a positive seal from forming.

15. Lower the Casing Head over the surface casing stub to a positive stop.
16. Remove the fitting from the test port and set aside.
17. Orient the Casing Head as per the Drilling Superintendents instructions ensuring the face of the Casing Head is level and two holed to the drilling rig substructure.
18. Weld and test the surface casing to the Casing Head as per the **RECOMMENDED FIELD WELDING PROCEDURE** located in the back of this manual.
19. Once all welding and testing is completed, replace the fitting into the open port and close the valve on the Casing Head.





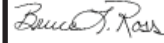
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Recommended Procedure for Field Welding Pipe to Well-head Parts for Pressure Seal

1. **Introduction and Scope.** The following recommended procedure has been prepared with particular regard to attaining pressure-tight weld when attaching casing heads, flanges, etc., to casing. Although most of the high strength casing used (such as N-80) is not normally considered field weldable, some success may be obtained by using the following or similar procedures.

Caution: In some wellheads, the seal weld is also a structural weld and can be subjected to high tensile stresses. Consideration must therefore be given by competent authority to the mechanical properties of the weld and its heat affected zone.


 - a. The steels used in wellhead parts and in casing are high strength steels that are susceptible to cracking when welded. It is imperative that the finished weld and adjacent metal be free from cracks. The heat from welding also affects the mechanical properties. This is especially serious if the weld is subjected to service tension stresses.
 - b. This procedure is offered only as a recommendation. The responsibility for welding lies with the user and results are largely governed by the welder's skill. Weldability of the several makes and grades of casing varies widely, thus placing added responsibility on the welder. Transporting a qualified welder to the job, rather than using a less-skilled man who may be at hand, will, in most cases, prove economical. The responsible operating representative should ascertain the welder's qualifications and, if necessary, assure himself by instruction or demonstration, that the welder is able to perform the work satisfactorily.
2. **Welding Conditions.** Unfavorable welding conditions must be avoided or minimized in every way possible, as even the most skilled welder cannot successfully weld steels that are susceptible to cracking under adverse working conditions, or when the work is rushed. Work above the welder on the drilling floor should be avoided. The weld should be protected from dripping mud, water, and oil and from wind, rain, or other adverse weather conditions. The drilling mud, water, or other fluids must be lowered in the casing and kept at a low level until the weld has properly cooled. It is the responsibility of the user to provide supervision that will assure favorable working conditions, adequate time, and the necessary cooperation of the rig personnel.
3. **Welding.** The welding should be done by the shielded metal-arc or other approved process.
4. **Filler Metal.** Filler Metals. For root pass, it's recommended to use E6010, E6011 (AC), E6019 or equivalent electrodes. The E7018 or E7018-A1 electrodes may also be used for root pass operations but has the tendency to trap slag in tight grooves. The E6010, E6011 and E6019 offer good penetration and weld deposit ductility with relatively high intrinsic hydrogen content. Since the E7018 and E7018-A1 are less susceptible to hydrogen induced cracking, it is recommended for use as the filler metal for completion of the weld groove after the root pass is completed. The E6010, E6011 (AC), E6019, E7018 and E7018-A1 are classified under one of the following codes AWS A5.1 (latest edition): Mild Steel covered electrodes or the AWS A5.5 (latest edition): Low Alloy Steel Covered Arc-Welding Electrodes. The low hydrogen electrodes, E7018 and E7018-A1, should not be exposed to the atmosphere until ready for use. It's recommended that hydrogen electrodes remain in their sealed containers. When a job arises, the container shall be opened and all unused remaining electrodes to be stored in heat electrode storage ovens. Low hydrogen electrodes exposed to the atmosphere, except water, for more than two hours should be dried 1 to 2 hours at 600°F to 700 °F (316°C to 371 °C) just before use. It's recommended for any low hydrogen electrode containing water on the surface should be scrapped.
5. **Preparation of Base Metal.** The area to be welded should be dry and free of any paint, grease/oil and dirt. All rust and heat-treat surface scale shall be ground to bright metal before welding.
6. **Preheating.** Prior to any heating, the wellhead member shall be inspected for the presence of any o-rings or other polymeric seals. If any o-rings or seals are identified then preheating requires close monitoring as noted in paragraph 6a. Before applying preheat, the fluid should be bailed out of the casing to a point several inches (>6" or 150 mm) below the weld joint/location. Preheat both the casing and wellhead member for a minimum distance of three (3) inches on each side of the weld joint using a suitable preheating torch in accordance with the temperatures shown below in a and b. The preheat temperature should be checked by the use of heat sensitive crayons. Special attention must be given to preheating the thick sections of wellhead parts to be welded, to insure uniform heating and expansion with respect to the relatively thin casing.
 - a. Wellhead members containing o-rings and other polymeric seals have tight limits on the preheat and interpass temperatures. Those temperatures must be controlled at 200°F to 325°F or 93 °C to 160°C and closely monitored to prevent damage to the o-ring or seals.
 - b. Wellhead members not containing o-rings and other polymeric seals should be maintained at a preheat and interpass temperature of 400°F to 600°F or 200°C to 300°C.

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Recommended Procedure for Field Welding Pipe to Well-head Parts for Pressure Seal (continued)

- 7. Welding Technique.** Use a 1/8 or 5/32-inch (3.2 or 4.0 mm) E6010 or E7018 electrode and step weld the first bead (root pass); that, weld approximately 2 to 4 inches (50 to 100 mm) and then move diametrically opposite this point and weld 2 to 4 inches (50 to 100 mm) halfway between the first two welds, move diametrically opposite this weld, and so on until the first pass is completed. This second pass should be made with a 5/32-inch (4.0 mm) low hydrogen electrode of the proper strength and may be continuous. The balance of the welding groove may then be filled with continuous passes without back stepping or lacing, using a 3/16-inch (4.8 mm) low hydrogen electrode. All beads should be stringer beads with good penetration. There should be no undercutting and weld shall be workmanlike in appearance.
- a.** Test ports should be open when welding is performed to prevent pressure buildup within the test cavity.
- b.** During welding the temperature of the base metal on either side of the weld should be maintained at 200 to 300°F (93 to 149°C).
- c.** Care should be taken to insure that the welding cable is properly grounded to the casing, but ground wire should not be welded to the casing or the wellhead. Ground wire should be firmly clamped to the casing, the wellhead, or fixed in position between pipe slips. Bad contact may cause sparking, with resultant hard spots beneath which incipient cracks may develop. The welding cable should not be grounded to the steel derrick, nor to the rotary-table base.
- 8. Cleaning.** All slag or flux remaining on any welding bead should be removed before laying the next bead. This also applies to the completed weld.
- 9. Defects.** Any cracks or blow holes that appear on any bead should be removed to sound metal by chipping or grinding before depositing the next bead.
- 10. Postheating.** Post-heating should be performed at the temperatures shown below and held at that temperature for no less than one hour followed by a slow cooling. The post-heating temperature should be in accordance with the following paragraphs.
- a.** Wellhead members containing o-rings and other polymeric seals have tight limits on the post-heating temperatures. Those temperatures must be controlled at 250°F to 300°F or 120 °C to 150°C and closely monitored to prevent damage to the o-ring or seals.
- b.** Wellhead members not containing o-rings and other polymeric seals should be post-heated at a temperature of 400°F to 600°F or 200°C to 300°C.
- 11. Cooling.** **Rapid cooling must be avoided.** To assure slow cooling, welds should be protected from extreme weather conditions (cold, rain, high winds, etc.) by the use of suitable insulating material. (Specially designed insulating blankets are available at many welding supply stores.) Particular attention should be given to maintaining uniform cooling of the thick sections of the wellhead parts and the relatively thin casing, as the relatively thin casing will pull away from the head or hanger if allowed to cool more rapidly. The welds should cool in air to less than 200°F (93°C) (measured with a heat sensitive crayon) prior to permitting the mud to rise in the casing.
- 12. Test the Weld.** After cooling, test the weld. The weld must be cool otherwise the test media will crack the weld. The test pressure should be no more than 80% of the casing collapse pressure.

Test Media	
Acceptable Medias	Unacceptable Medias
Water Water Soluable Oil Inert Gas <ul style="list-style-type: none"> •Nitrogen •Argon Gas 	Oxygen Acetylene Hydraulic Oil Motor Oil Brake Fluid

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Rev 0	<i>Bruce J. Ross</i>	<i>BO</i>		
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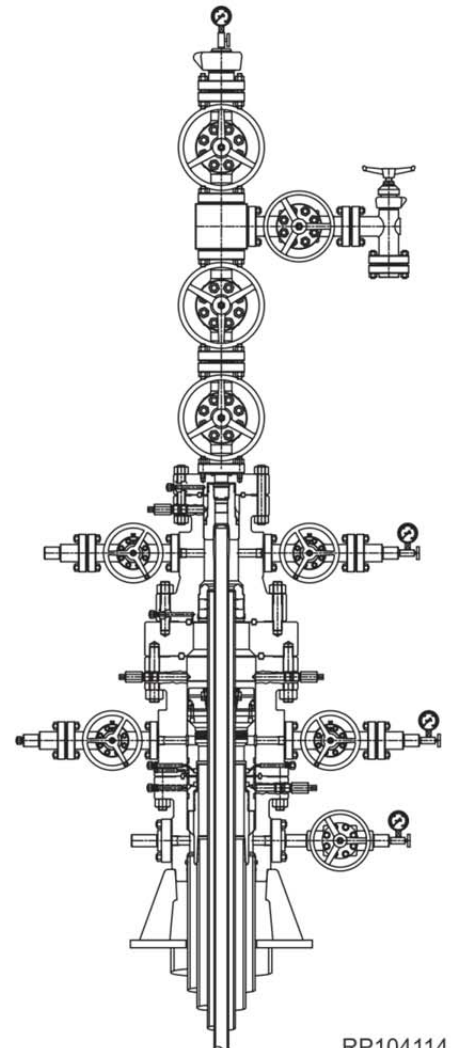


Wellhead Field Service Manual

WFT-SB Wellhead System Running Procedure

Publication: SM-11-1

Release Date: December 2014



RP104114

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		<i>Marion Robertson</i>	<i>Bruce Ross</i>	<i>Manuel Zaragoza</i>	Rev WIP
		Marion Robertson Dec 2014	Bruce Ross Dec 2014	Manuel Zaragoza Dec 2014	Page 1 of 24


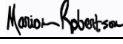
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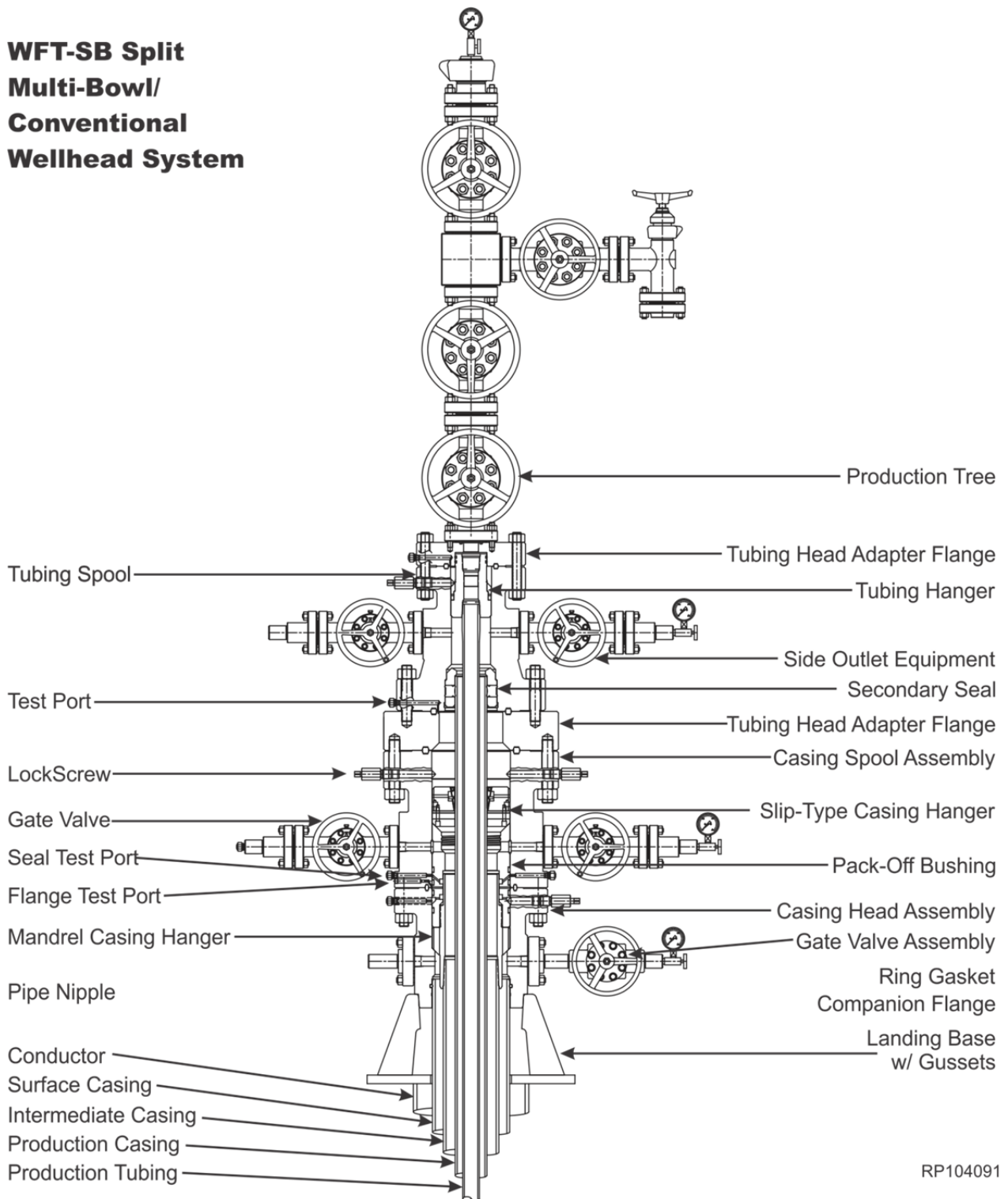
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		Marion Robertson	Brad Franks	Manual Zaragoza	Page 2 of 24
		Dec 2014	Dec 2014	Dec 2014	

WFT Split Bowl (SB) Wellhead System

**WFT-SB Split
Multi-Bowl/
Conventional
Wellhead System**


RP104091


Weatherford

5-3-GL-GL-WES-00XXX

**Field Service
Manual**

Prepared By:

Marion Robertson
Marion Robertson
December 2014

Reviewed By:

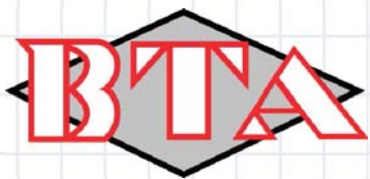
Brad Franks
Brad Franks
December 2014

Approved By:

Manual Zaragoza
Manual Zaragoza
December 2014

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10-3/4" x 7-5/8" x 5-1/2" WH

TubingHead

SW-TCM

13-5/8"10M x 7-1/16"15M w/
5-1/2" PP Seal
w/ (2) 1-13/16"15M SSO

SW-MB Spool Assembly Upper
MBH

13-5/8"10Mx 13-5/8"5M w/(2)
1-13/16" 10MSSO

CasingHead Assembly Lower
MBH

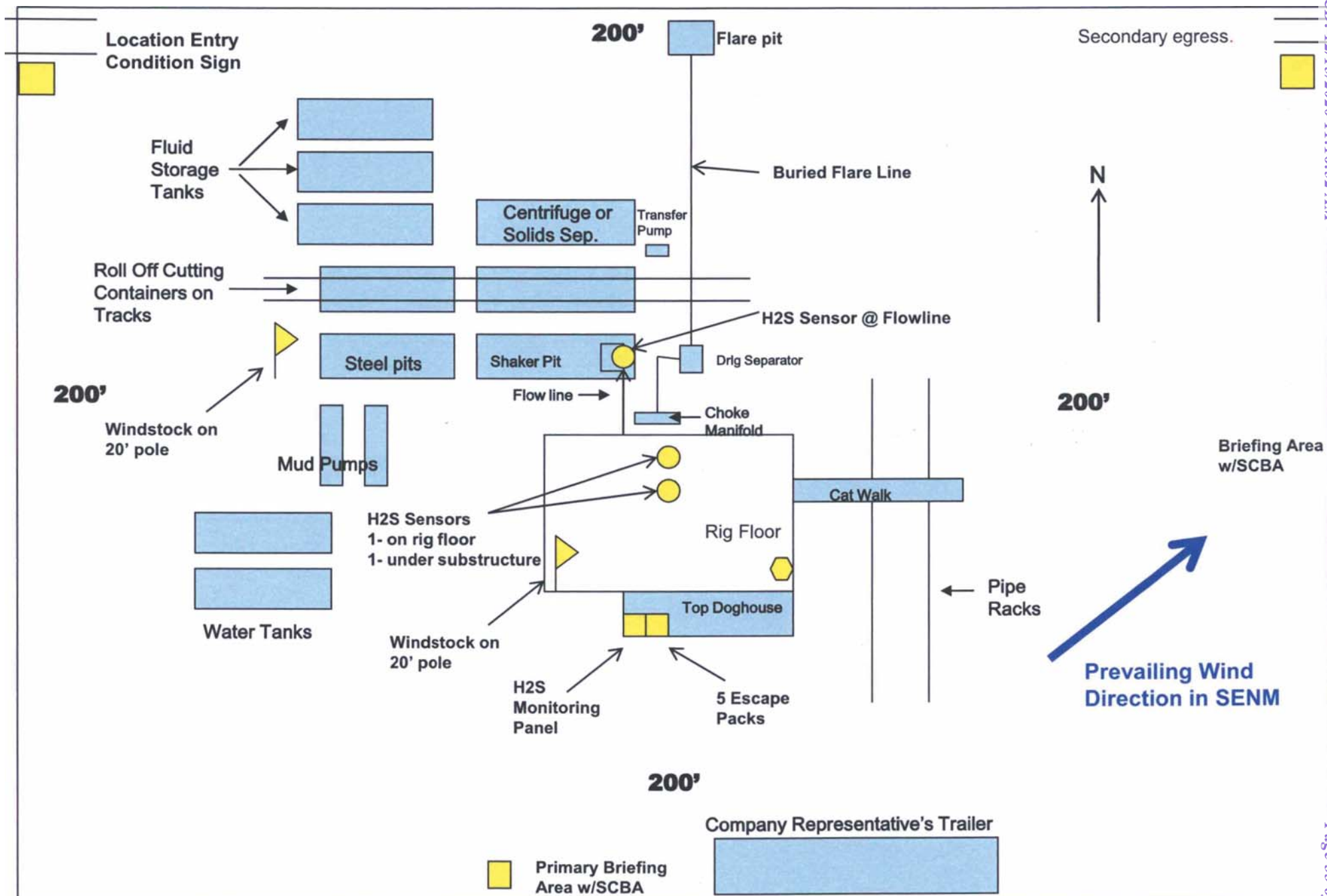
13-5/8"5Mx 10-3/4"SOW w/(2)
2-1/16"5MSSO

Casing Hanger C-22,
13-5/8"x 5-1/2"

Packoff Assembly SW
MB, 13-5/8" x 7-5/8"

Casing Hanger
SW MDRL, 13-5/8" x 7-5/8"





Operator Name: BTA OIL PRODUCERS LLC**Well Name:** HARROUN RANCH 20702 20-17 FEDERAL
COM**Well Number:** 9H**Section 5 - Circulating Medium****Mud System Type:** Closed**Will an air or gas system be Used?** NO**Description of the equipment for the circulating system in accordance with Onshore Order #2:****Diagram of the equipment for the circulating system in accordance with Onshore Order #2:****Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring**Circulating Medium Table**

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	500	OTHER : FW SPUD	8.3	8.4							
500	9409	OTHER : DBE	9	9.4							
9409	9936	OIL-BASED MUD	11	12.5							

Section 6 - Test, Logging, Coring**List of production tests including testing procedures, equipment and safety measures:**

Drill Stem Tests will be based on geological sample shows.

List of open and cased hole logs run in the well:

MUD LOG/GEOLOGICAL LITHOLOGY LOG,GAMMA RAY LOG,CEMENT BOND LOG,

Coring operation description for the well:

None planned

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 11826

CONDITIONS OF APPROVAL

Operator:				OGRID:	Action Number:	Action Type:
BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX79701				260297	11826	FORM 3160-3
OCD Reviewer	Condition					
kpickford	Will require a directional survey with the C-104					
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string					
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system					