

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

OCD Hobbs

FEB 29 2016

RECEIVED

AT-15-325

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

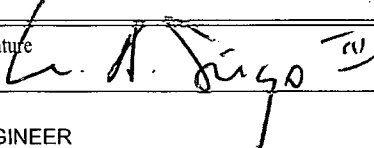
1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM-045706 NMNM132953	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator ENDURANCE RESOURCES, LLC (270329)		7. If Unit or CA Agreement, Name and No.	
3a. Address 203 WEST WALL STREET SUITE 1000 MIDLAND, TX 79701		8. Lease Name and Well No. DUO SONIC 29 FEDERAL 4H (318013)	
3b. Phone No. (include area code) 432-242-4680		9. API Well No. 30-025-43090	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 150' FSL & 660' FEL At proposed prod. zone 330' FNL & 660' FEL		10. Field and Pool, or Exploratory WC-025 G-08 52535340: R001 (97088)	
14. Distance in miles and direction from nearest town or post office* 7 MILES JAL POST OFFICE		11. Sec. R. M. or Blk. and Survey or Area SEC. 29-T25S-R35E SPRING	
15. Distance from proposed* 330' location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		12. County or Parish LEA	
16. No. of acres in lease 1,400		13. State NM	
17. Spacing Unit dedicated to this well 160 AC			
18. Distance from proposed location* 660' to nearest well, drilling, completed, applied for, on this lease, ft.		20. BLM/BIA Bond No. on file NM00640 NMB001220	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3219.3'		22. Approximate date work will start* 03/01/2015	
		23. Estimated duration 45 DAYS	

UNORTHODOX
LOCATION

24. Attachments

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

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

25. Signature 	Name (Printed/Typed) M.A. SIRGO III	Date 2-29-14
Title ENGINEER		
Approved by (Signature) James A. Amos	Name (Printed/Typed)	Date FEB 23 2016
Title FIELD MANAGER		
Office CARLSBAD FIELD OFFICE		

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

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

K2
03/01/16

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached



HOBBS OCD

FEB 29 2016

RECEIVED

Endurance Resources LLC

DRILLING & OPERATIONS PROGRAM

Duo Sonic Federal #4

SHL: 150' FSL & 660' FEL (P)

BHL: 330' FNL & 660' FEL (A)

Sec 29-25S-35E

Lea Co, NM

1. Geological Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geological Markers

Rustler	920'	
Top of Salt	1,258'	
Castile	3,760'	
Lamar	5,225'	
Bell Canyon	5,254'	Oil
Cherry Canyon	6,270'	Oil
Brushy Canyon	7,726'	Oil
Bone Spring	9,280'	Oil
1 st Bone Spring	10,330'	Oil
2 nd Bone Spring	10,600'	Oil
3 rd Bone Spring	11,950'	Oil
TVD: 12,320'; MD: 16,873'		

3. Estimated Depths of Anticipated Fresh Water, Oil or Gas

The estimated depths at which water, oil and gas will be encountered are as follows:

Water: Average depth to water: 300'. Minimum depth: 0'. Max: 600'. As reported from the New Mexico Office of the State Engineer website.

Oil & Gas: 5,254' – 12,320' (Bell Canyon to 3rd Bone Spring)

No other formations are expected to give up oil, gas, or fresh water in measurable quantities.



5. Proposed Casing Program:

Casing	Hole Size	Interval	Casing OD	Casing Interval	Weight	Collar	Grade
Surface	17.5"	0'-970'	13.375"	0'-970'	54.5#	STC	J-55
Intermediate I	12.25"	970'-5275'	9.625"	970'-4350'	40#	STC	J-55
Intermediate II	12.25"	970'-5275'	9.625"	4350'-5275'	40#	LTC	HCL-80
Production	8.75"	5275'-TD	5.5"	5257'-16873'	20#	BTC	HCP-110

Casing	Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
Surface	13.375"	2.49	6.02	9.72
Intermediate	9.625" (J-55)	1.14	1.75	2.60
Intermediate	9.625" (HCL-80)	1.54	2.10	3.97
Production	5.5" (HCP-110)	1.92	2.15	1.98

NOTE: ALL CASING IS NEW & API APPROVED. WHILE RUNNING CASING, PIPE WILL BE KEPT A MINIMUM OF 1/3 FULL AT ALL TIMES TO AVOID APPROACHING COLLAPSE PRESSURE OF THE CASING. SURFACE CASING WILL BE WATCHED & NECESSARY ADJUSTMENTS MADE TO ENSURE PIPE IF FULL DUE TO LOST CIRCULATION ZONES THAT MAY OCCUR. CENTRALIZERS WILL BE USED ON SURFACE CASING

4. Proposed Cement Program:

Casing / Wellbore Description: Surface - 13 3/8" x 17 1/2" (54# / J-55 / BTC)					
Stage	Slurry Description	Weight (ppg)	Yield (ft. ³ /sk)	Sacks	% Excess
Lead	Class C, 4% Bentonite, 2% Calcium Chloride	13.7	1.68	395	100
Tail	Class C	14.8	1.33	555	100
Casing / Wellbore Description: Intermediate 9 5/8" x 12 1/4" (40# / J-55, L-80 / STC, LTC)					
Stage	Slurry Description	Weight	Yield	Sacks	% Excess
Lead	65% Class C, 35% Poz, 6% Bentonite, .125 lb/sk Poly-E-Flake, .4% HR-800	12.9	1.79	1175	50
Tail	Class C Cement	14.8	1.33	230	50
Casing / Wellbore Description: Production 5 1/2" x 8 3/4" (20# / HCP-110 / BTC)					
Stage	Slurry Description	Weight	Yield	Sacks	% Excess
Lead	50% Class H, 50% Poz, 10% Bentonite, .1% Fe-2, 5% Cal-Seal 60, .25 lb D-Air 5000	11.5	2.67	1225	15 (OH)
Tail	50% Class H, 50% Poz, 2% Bentonite .5% Halad-9, .2% Econolite, 3% KCL, .2% HR-601	13.2	1.61	935	15

NOTE: THE ABOVE CEMENT VOLUMES COULD BE REVISED PENDING FLUID CALIPER & CALIPER LOG DATA. ALL VOLUMES ARE DESIGNED TO CIRCULATE TO SURFACE. PRODUCTION CEMENT WILL BE CIRCULATED TO AT LEAST 200' ABOVE INTERMEDIATE CASING SHOE.

Duo Sonic 29 Fed 4H BOP & BOPE Amendment

Minimum Specifications for Pressure Control:

13-5/8 (10M) working pressure BOP system consisting of one set of blind rams and one set of pipe rams and a 5000# annular type preventer (please see BOP schematic). A 5M choke manifold & 120 gallon accumulator with floor and remote operating stations & auxiliary power system. Rotating head as needed. A KC will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

BOP unit will be hydraulically operated. BOP will be NU and operated at least once a day while drilling and the blind rams will be operated when out of the hole during trips. From the base of the 13-3/8" csg through running of production casing, the well will be equipped with a 10M BOP system. Below the 9-5/8 csg shoe, this 10M system will be equipped with a HCR valve, remote kill line, & annular to match. The remote kill line will be installed prior to testing the system & tested to stack pressure.

Before drilling out of the 13-3/8 surface casing, BOP will be tested by an independent surface company to 250 psi low & 5000 psi high. Hydril will be tested to 250 psi low and 1500 psi high. Before drilling out the 9-5/8 intermediate shoe BOP will be tested by an independent service company to 250psi low and 5000 psi high. Hydril will be tested to 250 psi low and 2500 psi high. These low pressure tests from 250 to 300 psi will be held a minimum of 10 minutes if test is done with a test plug & 30 minutes without a test plug.



7. Mud Program: The applicable depths & properties of this system are as follows:

Depth	Type of System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0 – 970'	Fresh	8.4 – 9.4	32-34	NC
970' – 5275'	Brine	10.0 – 10.2	28-39	NC
5275' - TD	Cut Brine	8.3 – 9.3	28-32	NC-12

NOTE: NECESSARY MUD PRODUCTS FOR WEIGHT ADDITION & FLUID LOSS WILL BE ON LOCATION AT ALL TIMES. VISUAL MUD MONITORING EQUIPMENT (I.E. TRIP TANK) WILL BE IN PLACE TO DETECT VOLUME CHANGES INDICATING LOSS OR GAIN OF CIRCULATION VOLUME WITH ALARMS.

8. Auxiliary Well Control & Monitoring Equipment:

- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times
- H₂S detection equipment will be in operation & breathing apparatuses will be on location after the drill out of the 13-3/8" casing shoe until the 5-1/2" casing is cemented.

See
COA

9. Testing, Logging & Coring Program:

- No drill stem tests are planned.
- GR/N well log ran from KOP to surface.
- Open hole logs will be run 400' into the curve.

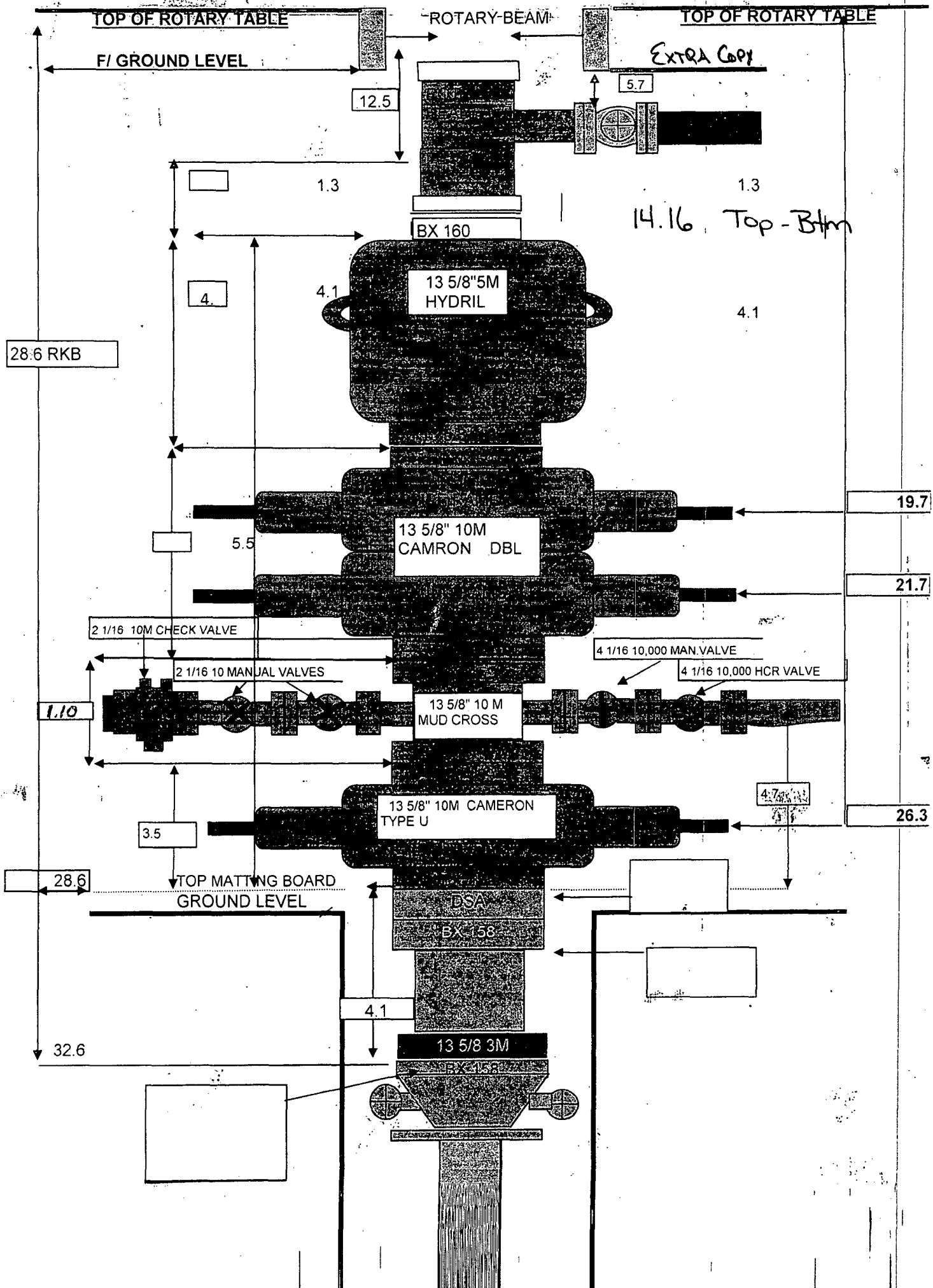
See
COA

10. Potential Hazards:

No abnormal pressures or temperatures are expected. If H₂S is encountered, Endurance Resources LLC will comply with Onshore Order #6. Regardless, all personnel will be trained & qualified with H₂S safety. Rig safety equipment will all also be checked daily once drill out of the 13-3/8" casing shoe to TD. It has been noted that H₂S has been encountered in the salt section. If H₂S is encountered, measurements & formations will be reported to the BLM.

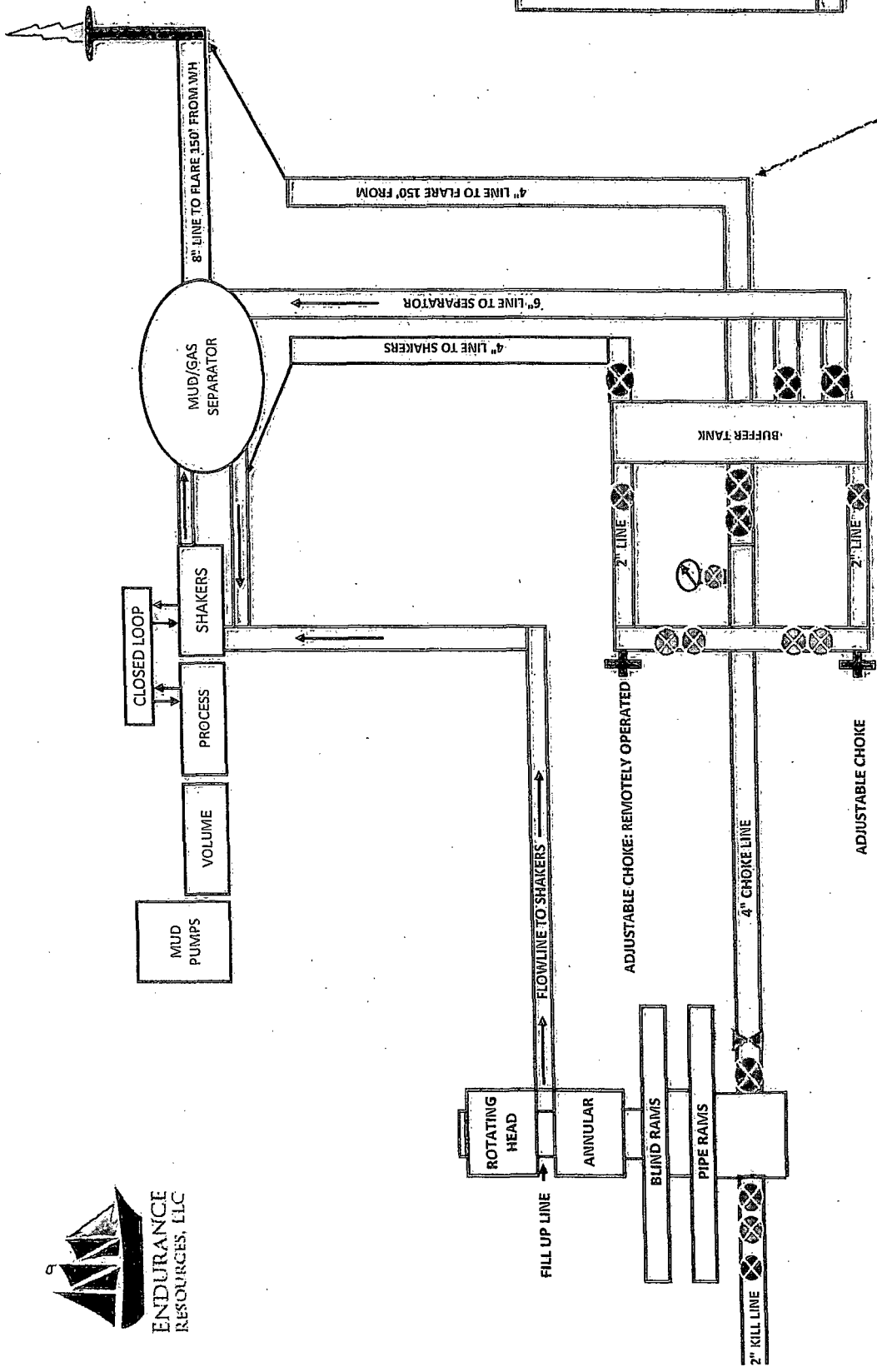
11. Anticipated starting date & Duration of Operations:

Road & location construction will begin after the BLM has approved the APD. Anticipated spud date will begin after BLM approval & after a drilling rig is secured. Move in operations & drilling is expected to take no more than 45 days. An additional 30-50 days will be needed to complete this well & construct surface facilities and/or lay flow lines in order to place well on production.



5M BOP, 5M CHOKE MANIFOLD, AND CLOSED LOOP EQUIPMENT SCHEMATIC FOR 13-5/8 BOP SYSTEM TESTED TO 3M PER ONSHORE ORDER #2

SM is required, See 007



TARGETED T'S. ALL TURNS WILL BE TARGETED.
 OPTION TO USE FLEX HOUSE. TBD ONCE DRILLING RIG IS SECURED. WILL SUNDRY.
 ALL CHOKE LINES WILL BE STRAIGHT LINES UNLESS TURNS THAT USE TEE BLOCKS OR ARE
 TARGETED WITH RUNNING TEES, AND WILL BE ANCHORED TO PREVENT WHIP & REDUCE VIBRATION

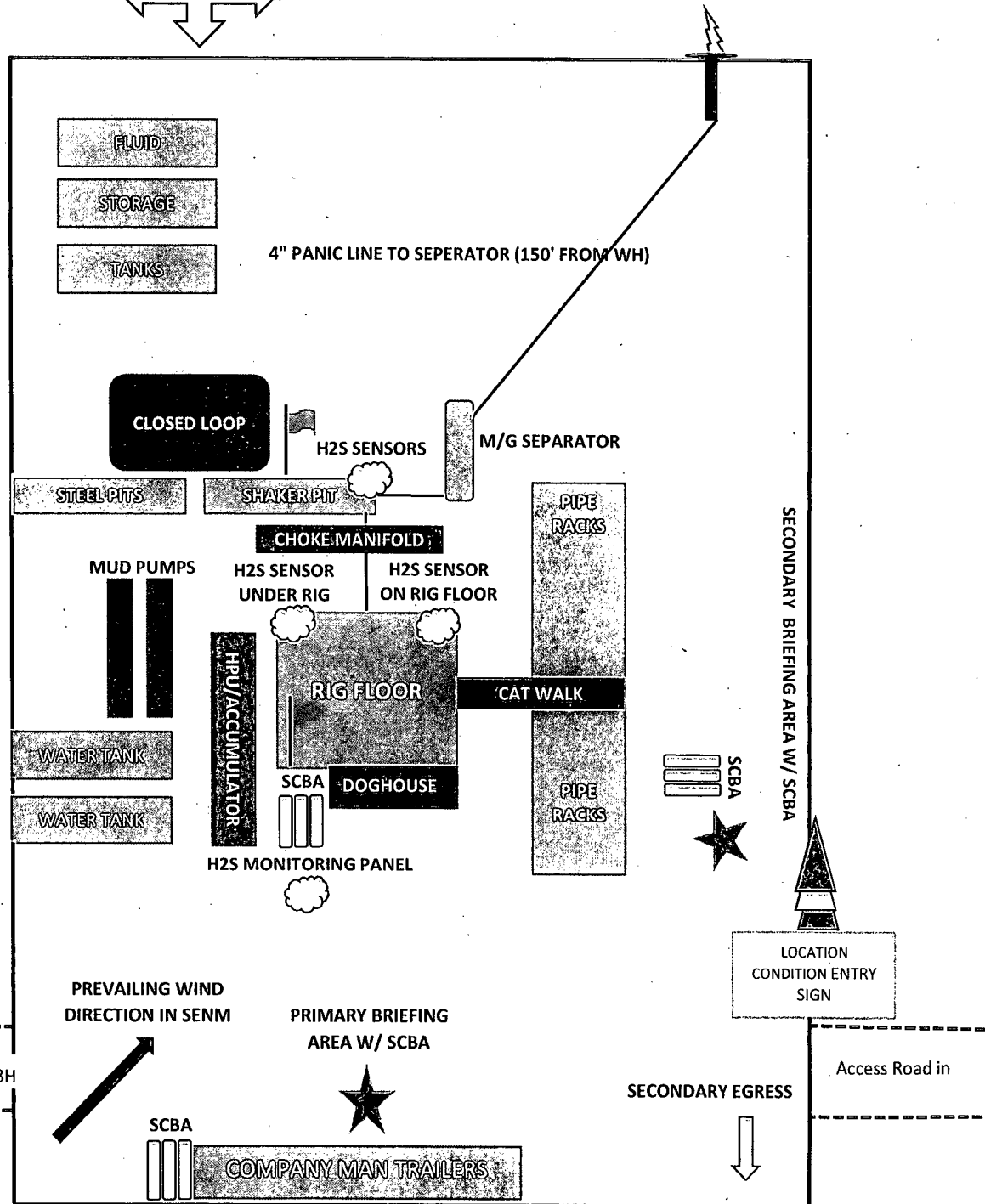
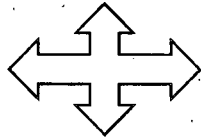
ENDURANCE RESOURCES LLC

RIG LOCATION LAYOUT & H2S SAFETY EQUIPMENT LOCATION

WELL PADS 350 X 475'

NOTE: DRAWING NOT TO SCALE

N



Endurance Resources LLC

HALLIBURTON
Sperry Drilling Services

Project: Lea County, NM (NAD 83)
Site: Duo Sonic 29 Fed
Well: Duo Sonic 29 Fed 4H
Wellbore: Wellbore #1
Plan: Plan #1
Rig: Patriot 4

Surface Location:

US State Plane 1983
New Mexico Eastern Zone
Elevation: GL 3219.3' + KB 21' @ 3240.30usft (Patriot 4)
Northing 399416.48 Easting 835591.37
Latitude 32° 5' 40.241 N Longitude 103° 22' 59.282 W



To convert a Magnetic Direction to a Grid Direction, Add 6.72°

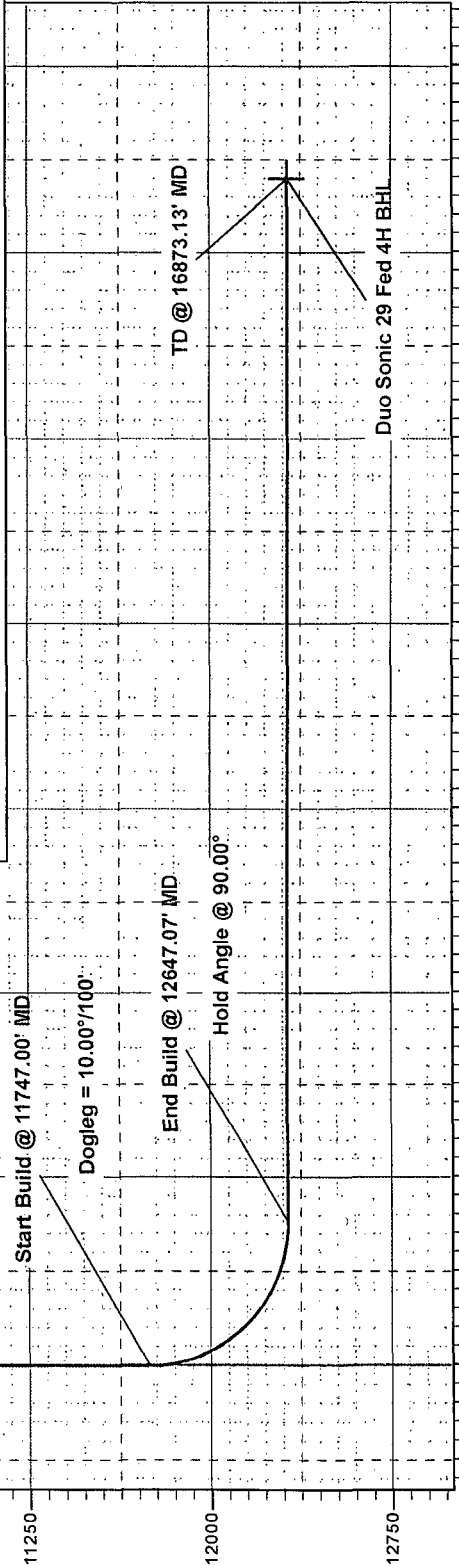
Magnetic Model: BGGM2014 Date: 15-Dec-14
Azimuths to Grid North

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Duo Sonic 29 Fed 4H BHL	12320.00	4798.84	-45.82	404215.32	835545.54	32° 6' 27.729 N	103° 22' 59.323 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11747.00	0.00	0.00	11747.00	0.00	0.00	0.00	0.00	0.00	Start Build
12647.07	90.00	359.45	12320.00	572.97	-5.50	10.00	359.45	573.00	End Build
16873.13	90.00	359.45	12320.00	4798.84	-46.07	0.00	0.00	4799.06	TD



Vertical Section at 359.45° (750 usft/in)

5250

4500

3750

3000

2250

1500

750

0

12750

12000

11250

10500

9750

9000

True Vertical Depth (750 usft/in)

Created By: Scott Sinclair

Endurance Resources LLC

HALLIBURTON

Sperry Drilling Services

Project: Lea County, NM (NAD 83)
Site: Duo Sonic 29 Fed
Well: Duo Sonic 29 Fed 4H
Wellbore: Wellbore #1
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WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

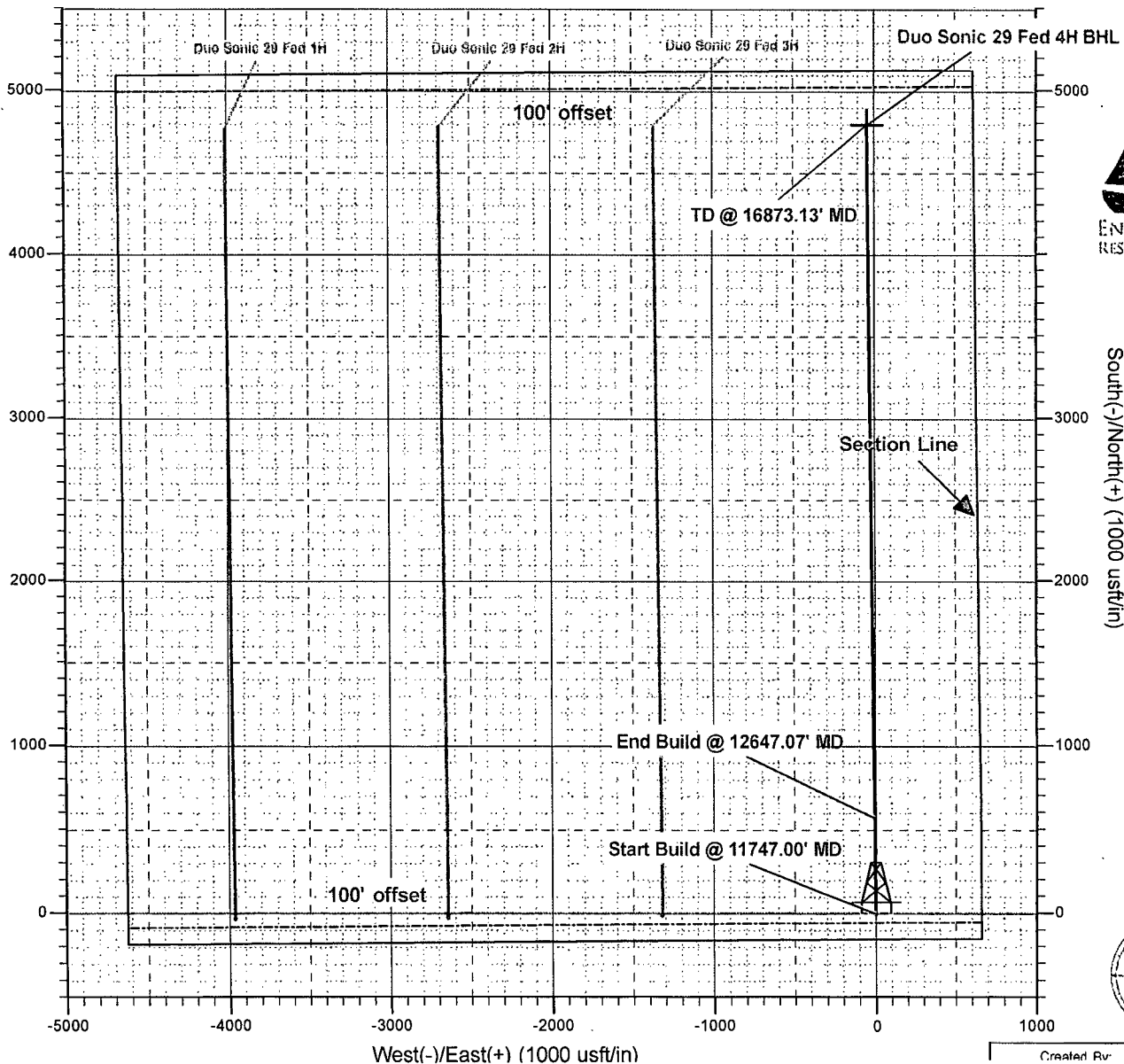
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Duo Sonic 29 Fed 4H BHL	12320.00	4798.84	-45.82	404215.32	835545.54	32° 6' 27.729 N	103° 22' 59.323 W

Surface Location:

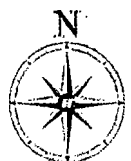
US State Plane 1983
New Mexico Eastern Zone
Elevation: GL 3219.3' + KB 21' @ 3240.30usft (Patriot 4)
Northing Easting Latitude Longitude
399416.48 835591.37 32° 5' 40.241 N 103° 22' 59.282 W

To convert a Magnetic Direction to a Grid Direction, Add 6.72°

Magnetic Model: BGGM2014 Date: 15-Dec-14
Azimuths to Grid North



South(-)/North(+) (1000 usft/in)



Endurance Resources LLC

Lea County, NM (NAD 83)

Duo Sonic 29 Fed

Duo Sonic 29 Fed 4H

Wellbore #1

Plan: Plan #1

Sperry Drilling Services Proposal Report

16 December, 2014

Well Coordinates: 399,416.48 N, 835,591.37 E (32° 05' 40.24" N, 103° 22' 59.28" W)
Ground Level: 3,219.30 usft

Local Coordinate Origin:	Centered on Well Duo Sonic 29 Fed 4H
Viewing Datum:	GL 3219.3' + KB 21' @ 3240.30usft (Patriot 4)
TVDs to System:	N
North Reference:	Grid
Unit System:	API - US Survey Feet

Version: 5000.1 Build: 72

HALLIBURTON

HALLIBURTON**Plan Report for Duo Sonic 29 Fed 4H - Plan #1**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HALLIBURTON**Plan Report for Duo Sonic 29 Fed 4H - Plan #1**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	10,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,100.00	0.00	0.00	10,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,200.00	0.00	0.00	10,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,300.00	0.00	0.00	10,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,400.00	0.00	0.00	10,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,500.00	0.00	0.00	10,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,600.00	0.00	0.00	10,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,700.00	0.00	0.00	10,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,800.00	0.00	0.00	10,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10,900.00	0.00	0.00	10,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,000.00	0.00	0.00	11,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,100.00	0.00	0.00	11,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,200.00	0.00	0.00	11,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,300.00	0.00	0.00	11,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,400.00	0.00	0.00	11,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,500.00	0.00	0.00	11,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,600.00	0.00	0.00	11,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,700.00	0.00	0.00	11,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,747.00	0.00	0.00	11,747.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HALLIBURTON**Plan Report for Duo Sonic 29 Fed 4H - Plan #1**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
Start Build @ 11747.00' MD - Dogleg = 10.00°/100'										
11,800.00	5.30	359.45	11,799.92	2.45	-0.02	2.45	10.00	10.00	0.00	359.45
11,900.00	15.30	359.45	11,898.19	20.30	-0.19	20.31	10.00	10.00	0.00	0.00
12,000.00	25.30	359.45	11,991.86	54.95	-0.53	54.95	10.00	10.00	0.00	0.00
12,100.00	35.30	359.45	12,078.09	105.33	-1.01	105.34	10.00	10.00	0.00	0.00
12,200.00	45.30	359.45	12,154.26	169.92	-1.63	169.93	10.00	10.00	0.00	0.00
12,300.00	55.30	359.45	12,218.07	246.76	-2.37	246.77	10.00	10.00	0.00	0.00
12,400.00	65.30	359.45	12,267.56	333.50	-3.20	333.52	10.00	10.00	0.00	0.00
12,500.00	75.29	359.45	12,301.23	427.52	-4.10	427.54	10.00	10.00	0.00	0.00
12,600.00	85.29	359.45	12,318.07	525.96	-5.05	525.99	10.00	10.00	0.00	0.00
12,647.07	90.00	359.45	12,320.00	572.98	-5.50	573.00	10.00	10.00	0.00	0.00
End Build @ 12647.07' MD - Hold Angle @ 90.00°										
12,700.00	90.00	359.45	12,320.00	625.90	-6.01	625.93	0.00	0.00	0.00	0.00
12,800.00	90.00	359.45	12,320.00	725.90	-6.97	725.93	0.00	0.00	0.00	0.00
12,900.00	90.00	359.45	12,320.00	825.90	-7.93	825.93	0.00	0.00	0.00	0.00
13,000.00	90.00	359.45	12,320.00	925.89	-8.89	925.93	0.00	0.00	0.00	0.00
13,100.00	90.00	359.45	12,320.00	1,025.89	-9.85	1,025.93	0.00	0.00	0.00	0.00
13,200.00	90.00	359.45	12,320.00	1,125.88	-10.81	1,125.93	0.00	0.00	0.00	0.00
13,300.00	90.00	359.45	12,320.00	1,225.88	-11.77	1,225.93	0.00	0.00	0.00	0.00
13,400.00	90.00	359.45	12,320.00	1,325.87	-12.73	1,325.93	0.00	0.00	0.00	0.00
13,500.00	90.00	359.45	12,320.00	1,425.87	-13.69	1,425.93	0.00	0.00	0.00	0.00
13,600.00	90.00	359.45	12,320.00	1,525.86	-14.65	1,525.93	0.00	0.00	0.00	0.00
13,700.00	90.00	359.45	12,320.00	1,625.86	-15.61	1,625.93	0.00	0.00	0.00	0.00
13,800.00	90.00	359.45	12,320.00	1,725.85	-16.57	1,725.93	0.00	0.00	0.00	0.00
13,900.00	90.00	359.45	12,320.00	1,825.85	-17.53	1,825.93	0.00	0.00	0.00	0.00
14,000.00	90.00	359.45	12,320.00	1,925.84	-18.49	1,925.93	0.00	0.00	0.00	0.00
14,100.00	90.00	359.45	12,320.00	2,025.84	-19.45	2,025.93	0.00	0.00	0.00	0.00
14,200.00	90.00	359.45	12,320.00	2,125.84	-20.41	2,125.93	0.00	0.00	0.00	0.00
14,300.00	90.00	359.45	12,320.00	2,225.83	-21.37	2,225.93	0.00	0.00	0.00	0.00
14,400.00	90.00	359.45	12,320.00	2,325.83	-22.33	2,325.93	0.00	0.00	0.00	0.00
14,500.00	90.00	359.45	12,320.00	2,425.82	-23.29	2,425.93	0.00	0.00	0.00	0.00
14,600.00	90.00	359.45	12,320.00	2,525.82	-24.25	2,525.93	0.00	0.00	0.00	0.00
14,700.00	90.00	359.45	12,320.00	2,625.81	-25.21	2,625.93	0.00	0.00	0.00	0.00
14,800.00	90.00	359.45	12,320.00	2,725.81	-26.17	2,725.93	0.00	0.00	0.00	0.00
14,900.00	90.00	359.45	12,320.00	2,825.80	-27.13	2,825.93	0.00	0.00	0.00	0.00
15,000.00	90.00	359.45	12,320.00	2,925.80	-28.09	2,925.93	0.00	0.00	0.00	0.00
15,100.00	90.00	359.45	12,320.00	3,025.79	-29.05	3,025.93	0.00	0.00	0.00	0.00
15,200.00	90.00	359.45	12,320.00	3,125.79	-30.01	3,125.93	0.00	0.00	0.00	0.00
15,300.00	90.00	359.45	12,320.00	3,225.79	-30.97	3,225.93	0.00	0.00	0.00	0.00
15,400.00	90.00	359.45	12,320.00	3,325.78	-31.93	3,325.93	0.00	0.00	0.00	0.00
15,500.00	90.00	359.45	12,320.00	3,425.78	-32.89	3,425.93	0.00	0.00	0.00	0.00
15,600.00	90.00	359.45	12,320.00	3,525.77	-33.85	3,525.93	0.00	0.00	0.00	0.00
15,700.00	90.00	359.45	12,320.00	3,625.77	-34.81	3,625.93	0.00	0.00	0.00	0.00
15,800.00	90.00	359.45	12,320.00	3,725.76	-35.77	3,725.93	0.00	0.00	0.00	0.00
15,900.00	90.00	359.45	12,320.00	3,825.76	-36.73	3,825.93	0.00	0.00	0.00	0.00
16,000.00	90.00	359.45	12,320.00	3,925.75	-37.69	3,925.93	0.00	0.00	0.00	0.00
16,100.00	90.00	359.45	12,320.00	4,025.75	-38.65	4,025.93	0.00	0.00	0.00	0.00
16,200.00	90.00	359.45	12,320.00	4,125.74	-39.61	4,125.93	0.00	0.00	0.00	0.00
16,300.00	90.00	359.45	12,320.00	4,225.74	-40.57	4,225.93	0.00	0.00	0.00	0.00
16,400.00	90.00	359.45	12,320.00	4,325.73	-41.53	4,325.93	0.00	0.00	0.00	0.00
16,500.00	90.00	359.45	12,320.00	4,425.73	-42.49	4,425.93	0.00	0.00	0.00	0.00
16,600.00	90.00	359.45	12,320.00	4,525.73	-43.45	4,525.93	0.00	0.00	0.00	0.00
16,700.00	90.00	359.45	12,320.00	4,625.72	-44.41	4,625.93	0.00	0.00	0.00	0.00
16,800.00	90.00	359.45	12,320.00	4,725.72	-45.37	4,725.93	0.00	0.00	0.00	0.00
16,873.13	90.00	359.45	12,320.00	4,798.84	-46.07	4,799.06	0.00	0.00	0.00	0.00
TD @ 16873.13' MD - Duo Sonic 29 Fed 4H BHL										

HALLIBURTON**Plan Report for Duo Sonic 29 Fed 4H - Plan #1****Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,747.00	11,747.00	0.00	0.00	Start Build @ 11747.00' MD
11,747.00	11,747.00	0.00	0.00	Dogleg = 10.00°/100'
12,647.07	12,320.00	572.98	-5.50	End Build @ 12647.07' MD
12,647.07	12,320.00	572.98	-5.50	Hold Angle @ 90.00°
16,873.13	12,320.00	4,798.84	-46.07	TD @ 16873.13' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
TD	No Target (Freehand)	359.45	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	16,873.13	Plan #1	MWD+SC

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Duo Sonic 29 Fed 4H BHL	12,320.00	4,798.84	-45.82	Point

HALLIBURTON**North Reference Sheet for Duo Sonic 29 Fed - Duo Sonic 29 Fed 4H - Wellbore #1**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to GL 3219.3' + KB 21' @ 3240.30usft (Patriot 4). Northing and Easting are relative to Duo Sonic 29 Fed 4H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -104.33°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:0° 0' 0.000 N°

False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 1.00000826

Grid Coordinates of Well: 399,416.48 usft N, 835,591.37 usft E

Geographical Coordinates of Well: 32° 05' 40.24" N, 103° 22' 59.28" W

Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,873.13usft
the Bottom Hole Displacement is 4,799.06usft in the Direction of 359.45° (Grid).

Magnetic Convergence at surface is: -6.72° (15 December 2014, , BGGM2014)

