

Form 3160-5
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.5. Lease Serial No.
NMNM119271

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 27. If Unit or CA/Agreement, Name and/or No.
NMNM138686

1. Type of Well

☐ Oil Well ☐ Gas Well ☒ Other: UNKNOWN OTH8. Well Name and No.
HARROUN RANCH FED COM 5H2. Name of Operator
BTA OIL PRODUCERSContact: KATY REDDELL
E-Mail: kreddell@btaoil.com9. API Well No.
30-015-46976-00-X13a. Address
104 SOUTH PECOS STREET
MIDLAND, TX 797013b. Phone No. (include area code)
Ph: 432-682-375310. Field and Pool or Exploratory Area
WILDCAT

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 20 T23S R29E SESE 310FSL 765FEL
32.284073 N Lat, 104.000954 W Lon11. County or Parish, State
EDDY COUNTY, NM

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

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

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

11/3/2020: SPUD WELL

11/5/2020: DRILLED 14 3/4" HOLE AND SET 10 3/4" 40.5# J-55 STC CASING AT 460' WITH 600 SACKS OF CEMENT. CEMENT CIRCULATED TO SURFACE. RELEASE FOR BATCH DRILLING.

11/19/2020: RESUME DRILLING AND TEST 10 3/4" CASING TO 1500 PSI. GOOD TEST.

11/25/2020: DRILLED 9 7/8" HOLE AND SET 7 5/8" 29.7# P-110 BTC CASING AT 10,368' IN TWO STAGES WITH 930 SACKS OF CEMENT. OPEN DV TOOL AT 2,877' CEMENT CIRCULATED TO SURFACE OFF DV TOOL. PUMP SECOND STAGE WITH 740 SACKS CEMENT. CEMENT CIRCULATED TO SURFACE.

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

**Electronic Submission #540443 verified by the BLM Well Information System
For BTA OIL PRODUCERS, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 12/11/2020 (21PP0904SE)**

Name (Printed/Typed) KATY REDDELL

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 12/10/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USEApproved By **ACCEPTED**JONATHON SHEPARD
Title PETROLEUM ENGINEER

Date 12/15/2020

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

Office Carlsbad

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

(Instructions on page 2)

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

Additional data for EC transaction #540443 that would not fit on the form

32. Additional remarks, continued

11/28/2020: DRILLING 6 3/4" HOLE

12/7/2020: TD REACHED.

12/9/2020: DRILED 6 3/4" HOLE. 5-1/2" x 5" tapered string C @ 21,280' [(5" 18# TXP-BTC P110 21,280' - 10,201') (5-1/2" 20# P-110 ICY TXP-BTC to surface)] with 1810 Sx. Cmt circ to surface.

12/10/2020: RIG RELEASED.

Revisions to Operator-Submitted EC Data for Sundry Notice #540443

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	DRG NOI	DRG SR
Lease:	NMNM119271	NMNM119271
Agreement:	NMNM138686	NMNM138686 (NMNM138686)
Operator:	BTA OIL PRODUCERS, LLC 104 S. PECOS MIDLAND, TX 79701 Ph: 432-682-3753	BTA OIL PRODUCERS 104 SOUTH PECOS STREET MIDLAND, TX 79701 Ph: 432.682.3753 Fx: 432.683.0325
Admin Contact:	KATY REDDELL REGULATORY ANALYST E-Mail: kreddell@btaoil.com Ph: 432-682-3753	KATY REDDELL REGULATORY ANALYST E-Mail: kreddell@btaoil.com Ph: 432-682-3753
Tech Contact:	KATY REDDELL REGULATORY ANALYST E-Mail: kreddell@btaoil.com Ph: 432-682-3753	KATY REDDELL REGULATORY ANALYST E-Mail: kreddell@btaoil.com Ph: 432-682-3753
Location: State: County:	NM EDDY	NM EDDY
Field/Pool:	BOBCAT DRAW; UPPER WOLF	WILDCAT
Well/Facility:	HARROUN RANCH FED COM 5H Sec 20 T23S R29E SESE 310FSL 765FEL 32.284072 N Lat, 104.000954 W Lon	HARROUN RANCH FED COM 5H Sec 20 T23S R29E SESE 310FSL 765FEL 32.284073 N Lat, 104.000954 W Lon



BTA Oil Producers, LLC

Eddy County, New Mexico (NAD 83)

Sec 20, T23-S, R29-E

Harroun Ranch 20702 20-17 Fed Com #5H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

06 December, 2020





QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Harroun Ranch 20702 20-17 Fed Com #5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3044.0usft (Patterson #288)
Site:	Sec 20, T23-S, R29-E	MD Reference:	WELL @ 3044.0usft (Patterson #288)
Well:	Harroun Ranch 20702 20-17 Fed Com #5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 20, T23-S, R29-E		
Site Position:		Northing:	467,071.70 usft
From:	Map	Easting:	642,041.70 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 17' 1.081 N
		Longitude:	104° 0' 26.864 W
		Grid Convergence:	0.17 °

Well	Harroun Ranch 20702 20-17 Fed Com #5H		
Well Position	+N/-S	0.0 usft	Northing: 467,237.20 usft
	+E/-W	0.0 usft	Easting: 644,052.30 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 17' 2.658 N
		Longitude:	104° 0' 3.436 W
		Ground Level:	3,019.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2020	10/27/2020	6.88	60.00	47,771.60000000

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	2.70	

Survey Program	Date	12/6/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
138.0	21,288.0	QES MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard	

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	467,237.20	644,052.30	32° 17' 2.658 N	104° 0' 3.436 W
138.0	0.10	40.30	138.0	0.1	0.1	467,237.29	644,052.38	32° 17' 2.659 N	104° 0' 3.435 W
First MWD Survey @ 138.0' MD / 138.0' TVD									
229.0	1.40	46.90	229.0	0.9	0.9	467,238.11	644,053.25	32° 17' 2.667 N	104° 0' 3.425 W
409.0	1.60	58.80	408.9	3.7	4.7	467,240.92	644,057.00	32° 17' 2.695 N	104° 0' 3.381 W
492.0	1.70	75.40	491.9	4.6	6.9	467,241.83	644,059.18	32° 17' 2.704 N	104° 0' 3.356 W
580.0	3.90	125.90	579.8	3.2	10.6	467,240.40	644,062.87	32° 17' 2.690 N	104° 0' 3.313 W
675.0	6.30	130.30	674.4	-2.1	17.2	467,235.13	644,069.46	32° 17' 2.637 N	104° 0' 3.236 W
771.0	7.30	134.00	769.7	-9.7	25.6	467,227.49	644,077.87	32° 17' 2.561 N	104° 0' 3.139 W
866.0	7.50	139.00	863.9	-18.6	34.0	467,218.62	644,086.28	32° 17' 2.473 N	104° 0' 3.041 W
961.0	7.50	146.50	958.1	-28.4	41.5	467,208.77	644,093.77	32° 17' 2.376 N	104° 0' 2.954 W
1,056.0	8.10	139.30	1,052.3	-38.7	49.3	467,198.52	644,101.55	32° 17' 2.274 N	104° 0' 2.864 W



QES

Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Harroun Ranch 20702 20-17 Fed Com #5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3044.0usft (Patterson #288)
Site:	Sec 20, T23-S, R29-E	MD Reference:	WELL @ 3044.0usft (Patterson #288)
Well:	Harroun Ranch 20702 20-17 Fed Com #5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,151.0	8.30	126.30	1,146.3	-47.8	59.1	467,189.39	644,111.45	32° 17' 2.183 N	104° 0' 2.749 W
1,246.0	7.90	115.90	1,240.4	-54.7	70.5	467,182.48	644,122.85	32° 17' 2.114 N	104° 0' 2.616 W
1,341.0	7.80	115.60	1,334.5	-60.4	82.2	467,176.84	644,134.53	32° 17' 2.058 N	104° 0' 2.480 W
1,436.0	7.30	119.80	1,428.6	-66.1	93.3	467,171.06	644,145.58	32° 17' 2.001 N	104° 0' 2.352 W
1,531.0	7.10	127.30	1,522.9	-72.7	103.2	467,164.50	644,155.49	32° 17' 1.936 N	104° 0' 2.237 W
1,626.0	7.20	113.90	1,617.2	-78.7	113.3	467,158.53	644,165.61	32° 17' 1.876 N	104° 0' 2.119 W
1,721.0	7.40	112.20	1,711.4	-83.4	124.4	467,153.81	644,176.71	32° 17' 1.829 N	104° 0' 1.990 W
1,816.0	6.80	111.20	1,805.7	-87.7	135.3	467,149.46	644,187.62	32° 17' 1.786 N	104° 0' 1.863 W
1,911.0	6.00	107.50	1,900.1	-91.3	145.3	467,145.93	644,197.60	32° 17' 1.751 N	104° 0' 1.747 W
2,006.0	5.20	102.30	1,994.6	-93.7	154.2	467,143.52	644,206.54	32° 17' 1.726 N	104° 0' 1.643 W
2,101.0	6.30	119.60	2,089.1	-97.2	163.0	467,140.03	644,215.28	32° 17' 1.692 N	104° 0' 1.541 W
2,196.0	8.20	125.90	2,183.4	-103.7	173.0	467,133.48	644,225.30	32° 17' 1.626 N	104° 0' 1.425 W
2,291.0	8.40	129.60	2,277.4	-112.1	183.8	467,125.09	644,236.14	32° 17' 1.543 N	104° 0' 1.299 W
2,386.0	7.30	130.90	2,371.5	-120.5	193.7	467,116.71	644,246.05	32° 17' 1.460 N	104° 0' 1.183 W
2,481.0	9.00	119.80	2,465.5	-128.1	204.8	467,109.07	644,257.06	32° 17' 1.384 N	104° 0' 1.055 W
2,577.0	10.00	120.70	2,560.2	-136.1	218.4	467,101.08	644,270.74	32° 17' 1.304 N	104° 0' 0.896 W
2,672.0	8.80	116.00	2,653.9	-143.5	232.1	467,093.68	644,284.36	32° 17' 1.231 N	104° 0' 0.738 W
2,767.0	7.70	120.40	2,748.0	-149.9	244.1	467,087.28	644,296.39	32° 17' 1.167 N	104° 0' 0.598 W
2,862.0	6.00	123.00	2,842.3	-155.8	253.7	467,081.35	644,306.04	32° 17' 1.108 N	104° 0' 0.486 W
2,956.0	5.50	125.10	2,935.8	-161.1	261.5	467,076.08	644,313.85	32° 17' 1.056 N	104° 0' 0.395 W
3,051.0	5.00	123.40	3,030.4	-166.0	268.7	467,071.19	644,321.03	32° 17' 1.007 N	104° 0' 0.312 W
3,147.0	5.10	122.00	3,126.0	-170.6	275.8	467,066.62	644,328.14	32° 17' 0.962 N	104° 0' 0.229 W
3,241.0	5.30	121.30	3,219.6	-175.0	283.1	467,062.15	644,335.39	32° 17' 0.917 N	104° 0' 0.145 W
3,336.0	5.10	121.70	3,314.3	-179.5	290.4	467,057.66	644,342.73	32° 17' 0.873 N	104° 0' 0.059 W
3,431.0	5.00	121.40	3,408.9	-183.9	297.6	467,053.28	644,349.86	32° 17' 0.829 N	103° 59' 59.976 W
3,526.0	4.70	121.50	3,503.5	-188.1	304.4	467,049.09	644,356.71	32° 17' 0.787 N	103° 59' 59.897 W
3,621.0	5.70	123.90	3,598.2	-192.8	311.6	467,044.43	644,363.95	32° 17' 0.741 N	103° 59' 59.813 W
3,716.0	6.30	124.50	3,692.6	-198.4	319.9	467,038.84	644,372.16	32° 17' 0.685 N	103° 59' 59.717 W
3,811.0	5.60	122.70	3,787.1	-203.8	328.0	467,033.38	644,380.35	32° 17' 0.631 N	103° 59' 59.622 W
3,906.0	5.30	120.50	3,881.7	-208.5	335.7	467,028.65	644,388.03	32° 17' 0.584 N	103° 59' 59.533 W
4,001.0	5.10	119.20	3,976.3	-212.8	343.2	467,024.37	644,395.50	32° 17' 0.541 N	103° 59' 59.446 W
4,096.0	5.00	118.10	4,070.9	-216.8	350.5	467,020.36	644,402.84	32° 17' 0.502 N	103° 59' 59.360 W
4,190.0	6.20	127.20	4,164.5	-221.8	358.2	467,015.36	644,410.50	32° 17' 0.452 N	103° 59' 59.271 W
4,285.0	6.60	130.50	4,258.9	-228.5	366.4	467,008.71	644,418.73	32° 17' 0.386 N	103° 59' 59.176 W
4,381.0	6.20	128.80	4,354.3	-235.3	374.7	467,001.88	644,426.97	32° 17' 0.318 N	103° 59' 59.080 W
4,475.0	5.80	131.00	4,447.8	-241.6	382.2	466,995.58	644,434.51	32° 17' 0.255 N	103° 59' 58.992 W
4,570.0	5.30	131.00	4,542.3	-247.6	389.1	466,989.56	644,441.44	32° 17' 0.196 N	103° 59' 58.912 W
4,665.0	5.50	131.10	4,636.9	-253.5	395.9	466,983.68	644,448.19	32° 17' 0.137 N	103° 59' 58.834 W
4,760.0	5.50	129.70	4,731.5	-259.4	402.8	466,977.78	644,455.12	32° 17' 0.079 N	103° 59' 58.753 W
4,855.0	5.70	128.10	4,826.0	-265.2	410.0	466,971.96	644,462.33	32° 17' 0.021 N	103° 59' 58.669 W
4,950.0	5.70	128.70	4,920.6	-271.1	417.4	466,966.10	644,469.73	32° 16' 59.963 N	103° 59' 58.583 W
5,045.0	4.70	125.00	5,015.2	-276.3	424.3	466,960.92	644,476.60	32° 16' 59.911 N	103° 59' 58.503 W
5,140.0	2.90	122.10	5,109.9	-279.8	429.5	466,957.41	644,481.82	32° 16' 59.876 N	103° 59' 58.443 W
5,235.0	1.30	92.90	5,204.9	-281.1	432.6	466,956.08	644,484.94	32° 16' 59.863 N	103° 59' 58.406 W
5,330.0	0.90	81.30	5,299.9	-281.1	434.4	466,956.14	644,486.75	32° 16' 59.863 N	103° 59' 58.385 W
5,425.0	0.60	80.70	5,394.9	-280.9	435.7	466,956.33	644,487.98	32° 16' 59.865 N	103° 59' 58.371 W
5,520.0	0.20	91.40	5,489.9	-280.8	436.3	466,956.41	644,488.63	32° 16' 59.866 N	103° 59' 58.363 W
5,615.0	0.10	89.60	5,584.9	-280.8	436.6	466,956.40	644,488.88	32° 16' 59.866 N	103° 59' 58.360 W
5,710.0	0.10	101.30	5,679.9	-280.8	436.7	466,956.39	644,489.05	32° 16' 59.866 N	103° 59' 58.359 W
5,805.0	0.20	154.10	5,774.9	-281.0	436.9	466,956.22	644,489.20	32° 16' 59.864 N	103° 59' 58.357 W
5,900.0	0.40	154.70	5,869.9	-281.4	437.1	466,955.77	644,489.41	32° 16' 59.860 N	103° 59' 58.354 W
5,995.0	0.50	166.50	5,964.8	-282.1	437.3	466,955.07	644,489.65	32° 16' 59.853 N	103° 59' 58.352 W
6,090.0	0.60	160.80	6,059.8	-283.0	437.6	466,954.20	644,489.91	32° 16' 59.844 N	103° 59' 58.349 W
6,184.0	0.80	159.30	6,153.8	-284.1	438.0	466,953.12	644,490.31	32° 16' 59.833 N	103° 59' 58.344 W
6,280.0	0.80	167.80	6,249.8	-285.4	438.4	466,951.84	644,490.69	32° 16' 59.821 N	103° 59' 58.340 W



QES

Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Harroun Ranch 20702 20-17 Fed Com #5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3044.0usft (Patterson #288)
Site:	Sec 20, T23-S, R29-E	MD Reference:	WELL @ 3044.0usft (Patterson #288)
Well:	Harroun Ranch 20702 20-17 Fed Com #5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,375.0	0.90	166.50	6,344.8	-286.7	438.7	466,950.46	644,491.00	32° 16' 59.807 N	103° 59' 58.336 W
6,469.0	0.90	163.70	6,438.8	-288.2	439.1	466,949.04	644,491.38	32° 16' 59.793 N	103° 59' 58.332 W
6,564.0	0.20	169.00	6,533.8	-289.0	439.3	466,948.16	644,491.62	32° 16' 59.784 N	103° 59' 58.329 W
6,660.0	0.20	156.70	6,629.8	-289.4	439.4	466,947.84	644,491.72	32° 16' 59.781 N	103° 59' 58.328 W
6,754.0	0.20	202.10	6,723.8	-289.7	439.4	466,947.54	644,491.72	32° 16' 59.778 N	103° 59' 58.328 W
6,849.0	0.60	230.00	6,818.8	-290.1	439.0	466,947.06	644,491.28	32° 16' 59.774 N	103° 59' 58.333 W
6,944.0	0.50	249.50	6,913.8	-290.6	438.2	466,946.60	644,490.51	32° 16' 59.769 N	103° 59' 58.342 W
7,039.0	1.20	289.90	7,008.8	-290.4	436.9	466,946.79	644,489.19	32° 16' 59.771 N	103° 59' 58.357 W
7,134.0	1.80	310.50	7,103.8	-289.1	434.8	466,948.10	644,487.12	32° 16' 59.784 N	103° 59' 58.381 W
7,229.0	0.70	269.20	7,198.7	-288.1	433.1	466,949.06	644,485.40	32° 16' 59.793 N	103° 59' 58.401 W
7,324.0	0.90	247.10	7,293.7	-288.4	431.8	466,948.76	644,484.13	32° 16' 59.791 N	103° 59' 58.416 W
7,419.0	0.40	251.50	7,388.7	-288.8	430.8	466,948.37	644,483.13	32° 16' 59.787 N	103° 59' 58.428 W
7,514.0	0.50	253.20	7,483.7	-289.1	430.1	466,948.14	644,482.42	32° 16' 59.784 N	103° 59' 58.436 W
7,609.0	0.90	117.50	7,578.7	-289.5	430.4	466,947.68	644,482.69	32° 16' 59.780 N	103° 59' 58.433 W
7,704.0	1.50	119.90	7,673.7	-290.5	432.1	466,946.71	644,484.43	32° 16' 59.770 N	103° 59' 58.413 W
7,799.0	1.30	131.00	7,768.7	-291.8	434.0	466,945.39	644,486.32	32° 16' 59.757 N	103° 59' 58.391 W
7,894.0	1.00	145.30	7,863.6	-293.2	435.3	466,944.00	644,487.60	32° 16' 59.743 N	103° 59' 58.376 W
7,989.0	0.20	94.10	7,958.6	-293.9	435.9	466,943.30	644,488.24	32° 16' 59.736 N	103° 59' 58.368 W
8,084.0	0.30	330.50	8,053.6	-293.7	436.0	466,943.51	644,488.28	32° 16' 59.738 N	103° 59' 58.368 W
8,179.0	0.70	311.30	8,148.6	-293.1	435.4	466,944.11	644,487.72	32° 16' 59.744 N	103° 59' 58.374 W
8,274.0	1.10	300.10	8,243.6	-292.3	434.2	466,944.95	644,486.50	32° 16' 59.753 N	103° 59' 58.389 W
8,370.0	1.50	277.60	8,339.6	-291.6	432.2	466,945.58	644,484.46	32° 16' 59.759 N	103° 59' 58.412 W
8,465.0	0.70	254.60	8,434.6	-291.6	430.4	466,945.59	644,482.66	32° 16' 59.759 N	103° 59' 58.433 W
8,560.0	0.70	254.40	8,529.6	-291.9	429.2	466,945.28	644,481.55	32° 16' 59.756 N	103° 59' 58.446 W
8,655.0	0.80	33.50	8,624.6	-291.5	429.0	466,945.67	644,481.35	32° 16' 59.760 N	103° 59' 58.449 W
8,750.0	1.20	51.40	8,719.5	-290.4	430.2	466,946.85	644,482.50	32° 16' 59.772 N	103° 59' 58.435 W
8,845.0	0.80	58.00	8,814.5	-289.4	431.5	466,947.82	644,483.84	32° 16' 59.781 N	103° 59' 58.420 W
8,940.0	0.50	156.50	8,909.5	-289.4	432.3	466,947.79	644,484.56	32° 16' 59.781 N	103° 59' 58.411 W
9,035.0	0.30	50.30	9,004.5	-289.6	432.6	466,947.57	644,484.92	32° 16' 59.779 N	103° 59' 58.407 W
9,130.0	0.40	99.00	9,099.5	-289.5	433.1	466,947.68	644,485.44	32° 16' 59.780 N	103° 59' 58.401 W
9,225.0	1.00	140.20	9,194.5	-290.2	434.0	466,946.99	644,486.30	32° 16' 59.773 N	103° 59' 58.391 W
9,320.0	1.00	146.40	9,289.5	-291.5	435.0	466,945.66	644,487.29	32° 16' 59.760 N	103° 59' 58.379 W
9,414.0	0.30	252.50	9,383.5	-292.3	435.2	466,944.90	644,487.51	32° 16' 59.752 N	103° 59' 58.377 W
9,509.0	1.10	322.80	9,478.5	-291.6	434.4	466,945.56	644,486.72	32° 16' 59.759 N	103° 59' 58.386 W
9,604.0	1.10	352.00	9,573.5	-290.0	433.7	466,947.19	644,486.04	32° 16' 59.775 N	103° 59' 58.394 W
9,699.0	1.10	352.20	9,668.5	-288.2	433.5	466,948.99	644,485.79	32° 16' 59.793 N	103° 59' 58.397 W
9,795.0	1.00	353.30	9,764.4	-286.5	433.3	466,950.74	644,485.57	32° 16' 59.810 N	103° 59' 58.399 W
9,891.0	0.80	340.30	9,860.4	-285.0	432.9	466,952.20	644,485.24	32° 16' 59.825 N	103° 59' 58.403 W
9,985.0	0.70	343.50	9,954.4	-283.8	432.6	466,953.37	644,484.86	32° 16' 59.836 N	103° 59' 58.407 W
10,080.0	0.60	346.70	10,049.4	-282.8	432.3	466,954.41	644,484.58	32° 16' 59.846 N	103° 59' 58.411 W
10,174.0	0.60	338.90	10,143.4	-281.9	432.0	466,955.35	644,484.29	32° 16' 59.856 N	103° 59' 58.414 W
10,272.0	0.80	3.40	10,241.4	-280.7	431.8	466,956.51	644,484.14	32° 16' 59.867 N	103° 59' 58.416 W
10,321.0	0.90	344.20	10,290.4	-280.0	431.8	466,957.22	644,484.06	32° 16' 59.874 N	103° 59' 58.417 W
10,462.0	1.50	307.60	10,431.4	-277.8	430.0	466,959.41	644,482.30	32° 16' 59.896 N	103° 59' 58.437 W
10,557.0	9.10	343.80	10,525.9	-269.8	426.9	466,967.40	644,479.21	32° 16' 59.975 N	103° 59' 58.473 W
10,651.0	18.90	356.30	10,617.0	-247.4	423.8	466,989.79	644,476.15	32° 17' 0.197 N	103° 59' 58.508 W
10,746.0	26.90	359.70	10,704.5	-210.5	422.7	467,026.69	644,475.04	32° 17' 0.562 N	103° 59' 58.519 W
10,841.0	37.10	355.70	10,784.9	-160.3	420.5	467,076.89	644,472.77	32° 17' 1.059 N	103° 59' 58.544 W
10,935.0	48.00	357.50	10,854.1	-96.9	416.8	467,140.25	644,469.11	32° 17' 1.686 N	103° 59' 58.584 W
11,029.0	64.50	358.20	10,906.1	-19.1	413.9	467,218.09	644,466.23	32° 17' 2.456 N	103° 59' 58.615 W
11,074.0	74.10	0.57	10,922.0	22.9	413.5	467,260.13	644,465.81	32° 17' 2.872 N	103° 59' 58.618 W
330' PA Crossed @ 11074.0' MD / 10922.0' TVD									
11,089.0	77.30	1.30	10,925.7	37.5	413.7	467,274.66	644,466.05	32° 17' 3.016 N	103° 59' 58.615 W
11,147.0	85.90	0.40	10,934.2	94.8	414.6	467,331.97	644,466.89	32° 17' 3.583 N	103° 59' 58.603 W
11,241.0	90.80	0.20	10,936.9	188.7	415.1	467,425.91	644,467.38	32° 17' 4.513 N	103° 59' 58.594 W



QES

Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Harroun Ranch 20702 20-17 Fed Com #5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3044.0usft (Patterson #288)
Site:	Sec 20, T23-S, R29-E	MD Reference:	WELL @ 3044.0usft (Patterson #288)
Well:	Harroun Ranch 20702 20-17 Fed Com #5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,336.0	91.70	358.90	10,934.8	283.7	414.3	467,520.88	644,466.64	32° 17' 5.453 N	103° 59' 58.599 W
11,430.0	87.60	0.10	10,935.4	377.6	413.5	467,614.85	644,465.82	32° 17' 6.383 N	103° 59' 58.605 W
11,524.0	89.10	1.90	10,938.1	471.6	415.2	467,708.79	644,467.46	32° 17' 7.312 N	103° 59' 58.583 W
11,618.0	87.30	1.60	10,941.1	565.5	418.0	467,802.70	644,470.33	32° 17' 8.241 N	103° 59' 58.546 W
11,713.0	88.10	1.90	10,944.9	660.4	420.9	467,897.57	644,473.23	32° 17' 9.180 N	103° 59' 58.509 W
11,807.0	91.40	0.20	10,945.3	754.3	422.6	467,991.54	644,474.95	32° 17' 10.110 N	103° 59' 58.485 W
11,902.0	90.50	353.60	10,943.7	849.1	417.5	468,086.34	644,469.81	32° 17' 11.048 N	103° 59' 58.542 W
11,997.0	91.30	353.10	10,942.2	943.5	406.5	468,180.68	644,458.81	32° 17' 11.982 N	103° 59' 58.666 W
12,091.0	92.30	355.10	10,939.3	1,036.9	396.9	468,274.13	644,449.16	32° 17' 12.907 N	103° 59' 58.775 W
12,186.0	89.20	359.70	10,938.0	1,131.8	392.5	468,368.99	644,444.85	32° 17' 13.846 N	103° 59' 58.822 W
12,281.0	89.30	2.50	10,939.3	1,226.8	394.4	468,463.96	644,446.67	32° 17' 14.786 N	103° 59' 58.798 W
12,375.0	89.90	4.70	10,939.9	1,320.6	400.3	468,557.76	644,452.58	32° 17' 15.714 N	103° 59' 58.725 W
12,470.0	90.30	5.20	10,939.7	1,415.2	408.5	468,652.41	644,460.77	32° 17' 16.650 N	103° 59' 58.626 W
12,565.0	87.90	4.20	10,941.2	1,509.9	416.3	468,747.07	644,468.56	32° 17' 17.587 N	103° 59' 58.532 W
12,660.0	90.30	3.50	10,942.7	1,604.6	422.6	468,841.83	644,474.93	32° 17' 18.524 N	103° 59' 58.455 W
12,754.0	89.40	7.10	10,943.0	1,698.2	431.3	468,935.42	644,483.61	32° 17' 19.450 N	103° 59' 58.350 W
12,848.0	89.10	5.70	10,944.2	1,791.6	441.8	469,028.82	644,494.09	32° 17' 20.374 N	103° 59' 58.225 W
12,943.0	93.20	5.20	10,942.3	1,886.1	450.8	469,123.35	644,503.11	32° 17' 21.309 N	103° 59' 58.116 W
13,037.0	86.90	357.70	10,942.2	1,980.0	453.2	469,217.21	644,505.49	32° 17' 22.238 N	103° 59' 58.085 W
13,132.0	90.50	352.60	10,944.4	2,074.6	445.2	469,311.79	644,497.46	32° 17' 23.174 N	103° 59' 58.175 W
13,227.0	91.30	357.30	10,942.9	2,169.2	436.8	469,406.39	644,489.10	32° 17' 24.111 N	103° 59' 58.269 W
13,322.0	93.60	359.90	10,938.8	2,264.1	434.5	469,501.26	644,486.78	32° 17' 25.049 N	103° 59' 58.293 W
13,417.0	92.30	0.30	10,933.9	2,358.9	434.6	469,596.13	644,486.94	32° 17' 25.988 N	103° 59' 58.287 W
13,512.0	91.30	359.20	10,930.9	2,453.9	434.2	469,691.08	644,486.53	32° 17' 26.928 N	103° 59' 58.289 W
13,606.0	88.80	3.00	10,930.9	2,547.8	436.0	469,785.04	644,488.33	32° 17' 27.858 N	103° 59' 58.264 W
13,701.0	91.70	1.70	10,930.4	2,642.7	439.9	469,879.94	644,492.23	32° 17' 28.797 N	103° 59' 58.215 W
13,795.0	87.30	358.20	10,931.3	2,736.7	439.8	469,973.90	644,492.15	32° 17' 29.726 N	103° 59' 58.213 W
13,891.0	86.50	358.80	10,936.5	2,832.5	437.3	470,069.73	644,489.64	32° 17' 30.675 N	103° 59' 58.239 W
13,985.0	88.20	358.20	10,940.8	2,926.4	434.9	470,163.59	644,487.18	32° 17' 31.604 N	103° 59' 58.264 W
14,080.0	91.10	359.20	10,941.4	3,021.4	432.7	470,258.55	644,485.02	32° 17' 32.544 N	103° 59' 58.286 W
14,175.0	89.30	356.40	10,941.1	3,116.3	429.1	470,353.47	644,481.38	32° 17' 33.483 N	103° 59' 58.325 W
14,269.0	89.80	0.80	10,941.8	3,210.2	426.8	470,447.41	644,479.08	32° 17' 34.413 N	103° 59' 58.348 W
14,363.0	90.30	4.50	10,941.7	3,304.1	431.1	470,541.30	644,483.43	32° 17' 35.342 N	103° 59' 58.294 W
14,458.0	90.80	1.00	10,940.8	3,399.0	435.7	470,636.17	644,487.98	32° 17' 36.280 N	103° 59' 58.237 W
14,552.0	89.70	0.30	10,940.4	3,493.0	436.7	470,730.16	644,489.05	32° 17' 37.210 N	103° 59' 58.222 W
14,647.0	91.70	0.50	10,939.2	3,587.9	437.4	470,825.15	644,489.71	32° 17' 38.150 N	103° 59' 58.210 W
14,741.0	88.20	359.00	10,939.3	3,681.9	437.0	470,919.13	644,489.30	32° 17' 39.080 N	103° 59' 58.212 W
14,836.0	91.80	359.30	10,939.3	3,776.9	435.6	471,014.10	644,487.89	32° 17' 40.020 N	103° 59' 58.225 W
14,930.0	90.30	357.80	10,937.6	3,870.8	433.2	471,108.05	644,485.52	32° 17' 40.950 N	103° 59' 58.249 W
15,025.0	90.00	356.50	10,937.3	3,965.7	428.5	471,202.93	644,480.79	32° 17' 41.889 N	103° 59' 58.301 W
15,119.0	89.50	355.70	10,937.8	4,059.5	422.1	471,296.71	644,474.40	32° 17' 42.817 N	103° 59' 58.372 W
15,213.0	88.70	356.00	10,939.2	4,153.3	415.3	471,390.45	644,467.60	32° 17' 43.745 N	103° 59' 58.448 W
15,308.0	90.20	357.50	10,940.1	4,248.1	409.9	471,485.29	644,462.21	32° 17' 44.684 N	103° 59' 58.507 W
15,402.0	89.20	357.50	10,940.6	4,342.0	405.8	471,579.20	644,458.11	32° 17' 45.613 N	103° 59' 58.551 W
15,498.0	91.10	358.30	10,940.4	4,437.9	402.3	471,675.13	644,454.59	32° 17' 46.563 N	103° 59' 58.589 W
15,592.0	89.80	359.90	10,939.6	4,531.9	400.8	471,769.11	644,453.12	32° 17' 47.493 N	103° 59' 58.603 W
15,687.0	91.20	3.90	10,938.8	4,626.8	404.0	471,864.03	644,456.27	32° 17' 48.432 N	103° 59' 58.562 W
15,782.0	92.60	1.50	10,935.7	4,721.7	408.4	471,958.86	644,460.74	32° 17' 49.370 N	103° 59' 58.507 W
15,876.0	91.40	6.00	10,932.4	4,815.4	414.6	472,052.58	644,466.88	32° 17' 50.297 N	103° 59' 58.432 W
15,971.0	91.20	5.90	10,930.2	4,909.8	424.4	472,147.04	644,476.73	32° 17' 51.232 N	103° 59' 58.314 W
16,065.0	89.80	5.40	10,929.4	5,003.4	433.7	472,240.58	644,485.98	32° 17' 52.157 N	103° 59' 58.203 W
16,160.0	92.70	9.30	10,927.3	5,097.5	445.8	472,334.75	644,498.13	32° 17' 53.089 N	103° 59' 58.058 W
16,255.0	89.20	3.60	10,925.8	5,191.9	456.5	472,429.08	644,508.79	32° 17' 54.022 N	103° 59' 57.930 W
16,350.0	90.10	1.40	10,926.3	5,286.8	460.6	472,523.98	644,512.93	32° 17' 54.961 N	103° 59' 57.878 W
16,444.0	90.20	1.20	10,926.1	5,380.8	462.8	472,617.96	644,515.07	32° 17' 55.891 N	103° 59' 57.850 W



QES

Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Harroun Ranch 20702 20-17 Fed Com #5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3044.0usft (Patterson #288)
Site:	Sec 20, T23-S, R29-E	MD Reference:	WELL @ 3044.0usft (Patterson #288)
Well:	Harroun Ranch 20702 20-17 Fed Com #5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
16,539.0	88.50	358.30	10,927.2	5,475.7	462.3	472,712.94	644,514.65	32° 17' 56.831 N	103° 59' 57.851 W
16,634.0	88.80	358.00	10,929.4	5,570.7	459.3	472,807.86	644,511.59	32° 17' 57.770 N	103° 59' 57.884 W
16,729.0	88.90	357.00	10,931.3	5,665.5	455.1	472,902.75	644,507.44	32° 17' 58.709 N	103° 59' 57.929 W
16,823.0	91.90	0.60	10,930.7	5,759.5	453.2	472,996.70	644,505.47	32° 17' 59.639 N	103° 59' 57.948 W
16,918.0	87.20	1.00	10,931.4	5,854.5	454.5	473,091.66	644,506.80	32° 18' 0.579 N	103° 59' 57.929 W
17,013.0	91.40	1.80	10,932.6	5,949.4	456.8	473,186.60	644,509.12	32° 18' 1.518 N	103° 59' 57.899 W
17,108.0	90.20	357.60	10,931.2	6,044.4	456.3	473,281.57	644,508.62	32° 18' 2.458 N	103° 59' 57.901 W
17,203.0	92.50	355.50	10,929.0	6,139.2	450.6	473,376.36	644,502.91	32° 18' 3.396 N	103° 59' 57.964 W
17,297.0	93.00	356.90	10,924.5	6,232.8	444.4	473,470.04	644,496.69	32° 18' 4.323 N	103° 59' 58.033 W
17,392.0	90.30	358.80	10,921.8	6,327.7	440.8	473,564.92	644,493.13	32° 18' 5.262 N	103° 59' 58.071 W
17,487.0	90.50	357.30	10,921.1	6,422.7	437.6	473,659.86	644,489.89	32° 18' 6.202 N	103° 59' 58.106 W
17,582.0	90.90	357.10	10,919.9	6,517.5	432.9	473,754.74	644,485.25	32° 18' 7.141 N	103° 59' 58.156 W
17,676.0	92.20	357.70	10,917.4	6,611.4	428.7	473,848.61	644,480.99	32° 18' 8.070 N	103° 59' 58.202 W
17,770.0	89.80	359.70	10,915.7	6,705.4	426.6	473,942.56	644,478.86	32° 18' 9.000 N	103° 59' 58.224 W
17,865.0	90.20	359.50	10,915.7	6,800.4	425.9	474,037.56	644,478.20	32° 18' 9.940 N	103° 59' 58.228 W
17,960.0	89.00	2.10	10,916.4	6,895.3	427.2	474,132.53	644,479.52	32° 18' 10.880 N	103° 59' 58.209 W
18,054.0	87.90	2.00	10,919.0	6,989.2	430.6	474,226.44	644,482.88	32° 18' 11.809 N	103° 59' 58.167 W
18,149.0	91.30	3.20	10,919.6	7,084.1	434.9	474,321.32	644,487.19	32° 18' 12.748 N	103° 59' 58.113 W
18,244.0	89.20	1.30	10,919.2	7,179.0	438.6	474,416.24	644,490.92	32° 18' 13.687 N	103° 59' 58.066 W
18,338.0	88.30	0.50	10,921.2	7,273.0	440.1	474,510.20	644,492.40	32° 18' 14.617 N	103° 59' 58.046 W
18,433.0	88.50	359.90	10,923.9	7,368.0	440.4	474,605.17	644,492.73	32° 18' 15.556 N	103° 59' 58.038 W
18,529.0	90.90	1.40	10,924.4	7,463.9	441.5	474,701.15	644,493.82	32° 18' 16.506 N	103° 59' 58.022 W
18,623.0	89.80	0.70	10,923.8	7,557.9	443.2	474,795.13	644,495.54	32° 18' 17.436 N	103° 59' 57.999 W
18,717.0	90.20	1.90	10,923.8	7,651.9	445.4	474,889.10	644,497.67	32° 18' 18.366 N	103° 59' 57.970 W
18,812.0	87.80	0.60	10,925.5	7,746.9	447.4	474,984.06	644,499.75	32° 18' 19.306 N	103° 59' 57.943 W
18,906.0	88.40	0.60	10,928.6	7,840.8	448.4	475,078.00	644,500.73	32° 18' 20.235 N	103° 59' 57.928 W
19,001.0	90.10	1.00	10,929.8	7,935.8	449.8	475,172.98	644,502.06	32° 18' 21.175 N	103° 59' 57.909 W
19,095.0	90.90	0.40	10,929.0	8,029.8	450.9	475,266.97	644,503.20	32° 18' 22.105 N	103° 59' 57.892 W
19,190.0	91.30	1.30	10,927.2	8,124.7	452.3	475,361.94	644,504.61	32° 18' 23.045 N	103° 59' 57.872 W
19,285.0	89.40	0.30	10,926.6	8,219.7	453.6	475,456.92	644,505.94	32° 18' 23.985 N	103° 59' 57.853 W
19,380.0	92.40	4.20	10,925.1	8,314.6	457.4	475,551.81	644,509.67	32° 18' 24.924 N	103° 59' 57.807 W
19,475.0	89.90	2.90	10,923.2	8,409.4	463.2	475,646.60	644,515.55	32° 18' 25.861 N	103° 59' 57.735 W
19,570.0	89.80	4.50	10,923.5	8,504.2	469.4	475,741.39	644,521.68	32° 18' 26.799 N	103° 59' 57.660 W
19,664.0	88.20	3.30	10,925.1	8,598.0	475.8	475,835.16	644,528.07	32° 18' 27.727 N	103° 59' 57.582 W
19,759.0	86.20	0.40	10,929.8	8,692.8	478.8	475,929.98	644,531.13	32° 18' 28.665 N	103° 59' 57.543 W
19,853.0	91.30	1.60	10,931.8	8,786.7	480.5	476,023.91	644,532.77	32° 18' 29.595 N	103° 59' 57.520 W
19,948.0	91.60	359.70	10,929.4	8,881.7	481.5	476,118.87	644,533.85	32° 18' 30.534 N	103° 59' 57.504 W
20,044.0	91.00	358.10	10,927.2	8,977.6	479.7	476,214.82	644,532.01	32° 18' 31.484 N	103° 59' 57.522 W
20,138.0	91.30	357.70	10,925.3	9,071.5	476.3	476,308.74	644,528.56	32° 18' 32.414 N	103° 59' 57.559 W
20,233.0	89.80	355.80	10,924.4	9,166.4	470.9	476,403.58	644,523.18	32° 18' 33.352 N	103° 59' 57.618 W
20,327.0	88.60	353.70	10,925.7	9,260.0	462.3	476,497.17	644,514.58	32° 18' 34.279 N	103° 59' 57.715 W
20,422.0	90.30	356.00	10,926.6	9,354.6	453.7	476,591.77	644,506.05	32° 18' 35.215 N	103° 59' 57.811 W
20,516.0	88.50	356.70	10,927.6	9,448.4	447.8	476,685.57	644,500.07	32° 18' 36.143 N	103° 59' 57.877 W
20,610.0	90.50	0.20	10,928.5	9,542.3	445.2	476,779.51	644,497.53	32° 18' 37.073 N	103° 59' 57.903 W
20,705.0	90.60	359.70	10,927.5	9,637.3	445.1	476,874.51	644,497.45	32° 18' 38.013 N	103° 59' 57.901 W
20,800.0	93.70	0.70	10,924.0	9,732.2	445.5	476,969.43	644,497.78	32° 18' 38.952 N	103° 59' 57.894 W
20,894.0	88.50	0.40	10,922.2	9,826.2	446.4	477,063.37	644,498.68	32° 18' 39.882 N	103° 59' 57.880 W
20,989.0	88.30	1.60	10,924.8	9,921.1	448.0	477,158.32	644,500.34	32° 18' 40.822 N	103° 59' 57.857 W
21,065.3	88.78	2.00	10,926.8	9,997.4	450.4	477,234.56	644,502.73	32° 18' 41.576 N	103° 59' 57.826 W
330' PA Crossed @ 21065.3' MD / 10926.8' TVD									
21,084.0	88.90	2.10	10,927.1	10,016.0	451.1	477,253.24	644,503.40	32° 18' 41.761 N	103° 59' 57.818 W
21,179.0	89.30	3.00	10,928.6	10,110.9	455.3	477,348.13	644,507.63	32° 18' 42.700 N	103° 59' 57.765 W
21,226.0	89.70	2.50	10,929.1	10,157.9	457.6	477,395.08	644,509.88	32° 18' 43.164 N	103° 59' 57.737 W
21,288.0	89.70	2.50	10,929.4	10,219.8	460.3	477,457.02	644,512.59	32° 18' 43.777 N	103° 59' 57.703 W
TD @ 21288.0' MD / 10929.4' TVD									



QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Harroun Ranch 20702 20-17 Fed Com #5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3044.0usft (Patterson #288)
Site:	Sec 20, T23-S, R29-E	MD Reference:	WELL @ 3044.0usft (Patterson #288)
Well:	Harroun Ranch 20702 20-17 Fed Com #5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
138.0	138.0	0.1	0.1	First MWD Survey @ 138.0' MD / 138.0' TVD
11,074.0	10,922.0	22.9	413.5	330' PA Crossed @ 11074.0' MD / 10922.0' TVD
21,065.3	10,926.8	9,997.4	450.4	330' PA Crossed @ 21065.3' MD / 10926.8' TVD
21,288.0	10,929.4	10,219.8	460.3	TD @ 21288.0' MD / 10929.4' TVD

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

CONDITIONS

Action 27774

CONDITIONS OF APPROVAL

Operator:	OGRID:	Action Number:	Action Type:
BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX79701	260297	27774	C-103N

OCD Reviewer	Condition
ksimmons	None